Appendix A

Project Maps and Figures

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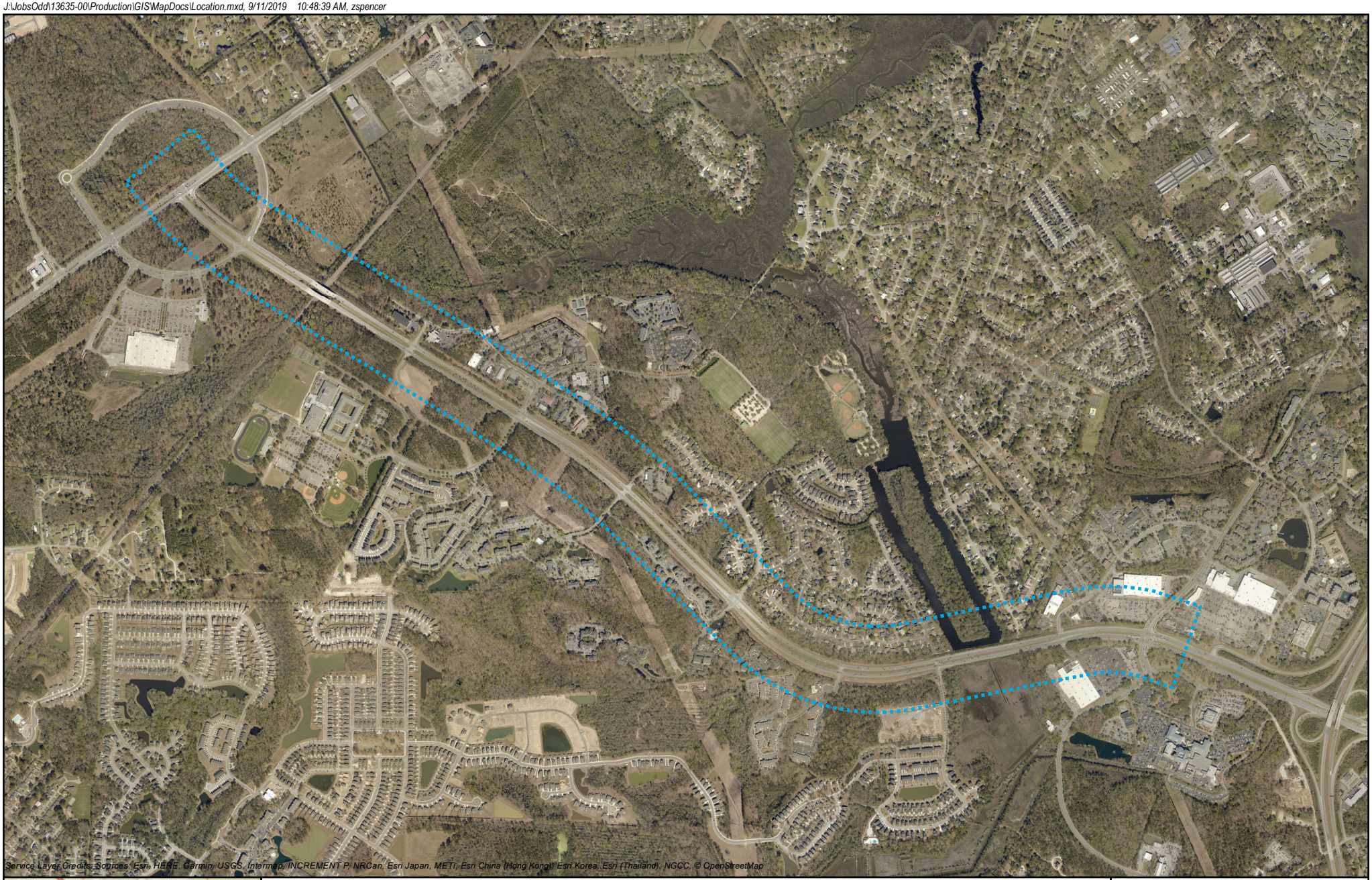
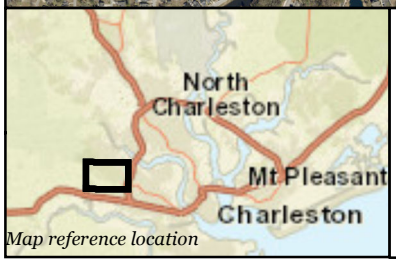




Map reference location

Legend

Project Study Area

DAVIS & FLOYD
SINCE 1954

GM Parkway Widening

Project Study Area

9/11/2019

0 500 1,000 2,000 Feet

D&F Proj. No. 013635.00

Appendix B

Project Design Plans

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	1	243

HYDRAULIC DESIGN REFERENCE FOR THESE PLANS IS THE:
2009
EDITION OF SCDOT'S "REQUIREMENTS FOR HYDRAULIC DESIGN STUDIES"

Design Reference for these plans is the:
2017
SCDOT Roadway Design Manual

NPDES PERMIT INFORMATION

Disturbed Area = 43.3 Acre(s)

Project Area = 46.3 Acre(s)

Approximate Location of Roadway is

Begin
Latitude 32° 49' 35" N
Longitude 80° 04' 48" W

End
Latitude 32° 48' 43" N
Longitude 80° 02' 38" W

Hydraulic and NPDES Design provided by:
DAVIS & FLOYD, INC.
Designs may be obtained from the SCDOT Regional Production Group

CHARLESTON COUNTY
SOUTH CAROLINA

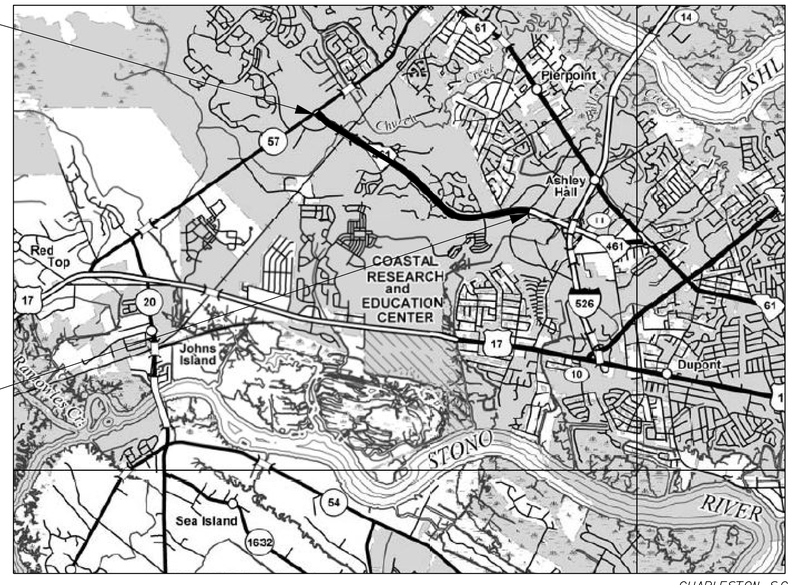
PROPOSED PLANS :

GLENN MCCONNELL PARKWAY (SC-461)

WIDENING & SHARED-USE PATH
PROJECT ID# P037878

BEGIN CONSTRUCTION
GMP WB - STA. 500+57.35
GMP EB - STA. 302+23.94

END CONSTRUCTION
GMP WB - STA. 612+00.00
GMP EB - STA. 411+92.70



CHARLESTON, S.C.

LAYOUT
SCALE = NTS

	SC461 WB	SC461 EB	SIDE ROADS	TOTAL MILES
NET LENGTH OF ROADWAY	2.058	2.025	0.145	4.228
NET LENGTH OF BRIDGES	0.052	0.052	0.000	0.104
NET LENGTH OF PROJECT	2.110	2.077	0.145	4.332
LENGTH OF EXCEPTIONS	0.000	0.000	0.000	0.000
GROSS LENGTH OF PROJECT	2.110	2.077	0.145	4.332

EQUALITIES IN STATIONING:
NONE

NOTE: EXCEPT AS MAY OTHERWISE BE SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIALS AND WORKMANSHIP ON THIS PROJECT SHALL CONFORM TO THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (2007 EDITION) AND THE STANDARD DRAWINGS FOR ROAD CONSTRUCTION IN EFFECT AT THE TIME OF THE LETTING.

SCDOT REVIEW	RIGHT-OF-WAY INITIAL	RIGHT-OF-WAY DATE	CONSTRUCTION INITIAL	CONSTRUCTION DATE
PRECONSTRUCTION SUPPORT - ROAD				
PRECONSTRUCTION SUPPORT - STRUCTURES				
RPG - DESIGN MANAGER				
RPG - PROGRAM MANAGER				

THE INITIALS ABOVE DO NOT RELIEVE THE ENGINEER OF RECORD OF THE RESPONSIBILITY TO DESIGN THIS PROJECT IN ACCORDANCE WITH ALL APPLICABLE CRITERIA.

For Right Of Way Acquisition:

_____ _____
Consultant Engineer of Record Date

_____ _____
Regional Production Engineer Date

3 DAYS BEFORE DIGGING IN SOUTH CAROLINA
CALL 811
SOUTH CAROLINA 811 (SC811)
WWW.SC811.COM
ALL UTILITIES MAY NOT BE A MEMBER OF SC811

RAILROAD INVOLVEMENT?
YES (NO)

TRAFFIC DATA

GLENN MCCONNELL PARKWAY
2017 ADT 34,900
2040 ADT 51,260
TRUCKS 5 %

ENVIRONMENTAL PERMIT INFORMATION

USACE PERMIT	X YES	NO
NEPA DOCUMENT	X YES	NO
401 CERTIFICATION	X YES	NO
OCRM CAP	YES	X NO
NAVIGABLE WATERS	SC USCG USACE	X N/A

3229 WEST MONTAGUE AVE.
NORTH CHARLESTON, SC 29418
(843) 554-8902
DAVIS & FLOYD
SINCE 1954

CONSULTING ENGINEERING FIRM
SOUTH CAROLINA
DAVIS & FLOYD INC. ENGINEERING NO. C00538
CERTIFICATE OF AUTHORIZATION

ENGINEER OF RECORD

FOR CONSTRUCTION : _____ _____
DATE

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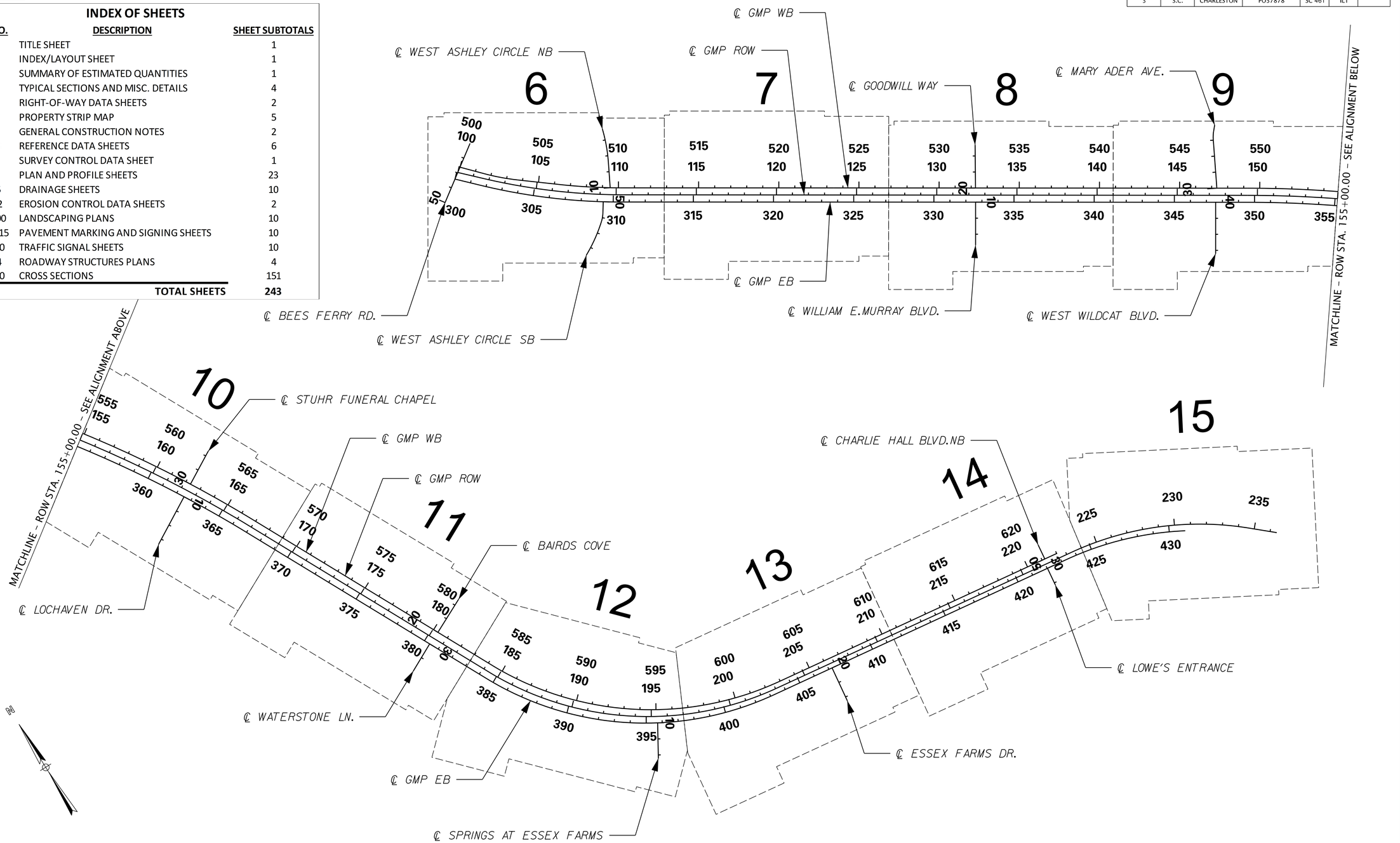
PLOT DRIVER: PDF.pltcfg
FILE: J:\Jobs0dd\13635-00\Production\Transportation\SHEETS\13635-00 GMP 01 TITLE.dgn
4/7/2020

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	IL1	

INDEX OF SHEETS



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4/7/2020

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

INDEX LAYOUT SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 300' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	PO37878	SC 461	2	

ITEM NO.	PAY ITEM	QUANTITY	PAY UNIT
1031000	MOBILIZATION	NEC	LS
1032010	BONDS AND INSURANCE	1.000	LS
1050800	CONSTRUCTION STAKES, LINES & GRADES	1.000	EA
1061100	QUALITY CONTROL FOR EARTHWORK	1.000	LS
1061200	QUALITY CONTROL FOR BASES AND SUBBASES	1.000	LS
1071000	TRAFFIC CONTROL	NEC	LS
1080300	CPM PROGRESS SCHEDULE	1.000	LS
2011000	CLEARING & GRUBBING WITHIN RIGHT OF WAY	NEC	LS
2023000	REMOVAL & DISPOSAL OF EXISTING PAVEMENT	2401.000	SY
2031000	UNCLASSIFIED EXCAVATION	16959.000	CY
2033000	BORROW EXCAVATION	71755.000	CY
2034000	MUCK EXCAVATION	2970.000	CY
2052000	NO. 57 STONE FOR BACKFILL	150.000	TON
2081001	FINE GRADING	52275.000	SY
3050106	GRADED AGGREGATE BASE COURSE (6" UNIFORM)	14821.000	SY
3100310	HOT MIX ASPHALT BASE COURSE - TYPE A	16028.000	TON
4010005	PRIME COAT	4001.670	GAL
4011004	LIQUID ASPHALT BINDER PG64-22	2241.000	TON
4012080	FULL DEP.ASPH.PAV.PATCH-8"UNIF	100.000	SY
4013150	MILLING EXISTING ASPHALT PAVEMENT 1.5"	114100.000	SY
4019000	MILLED-IN RUMBLE STRIP	6.590	MI
4020310	HOT MIX ASPHALT INTERMEDIATE COURSE TYPE A	5754.000	TON
4030310	HOT MIX ASPHALT SURFACE COURSE TYPE A	23519.000	TON
4030320	HOT MIX ASPHALT SURFACE COURSE TYPE B	1483.000	TON
6021120	PERMANENT CONSTRUCTION SIGNS (GROUND MOUNTED)	728.000	SF
6250005	4" WHITE BROKEN LINES -(GAPS EXCLUDED)-FAST DRY PAINT	12639.000	LF
6250010	4" WHITE SOLID LINES (PVT. EDGE LINES)-FAST DRY PAINT	30879.000	LF
6250015	8"WHITE SOLID LINES(CRCSSWALK&CHANNELIZATION)FAST DRY PAINT	2502.000	LF
6250020	12" WHITE SOLID LINES - FAST DRY PAINT	100.000	LF
6250025	24" WHITE SOLID LINES (STOP/DIAGONAL LINES)-FAST DRY PAINT	5212.000	LF
6250030	WHITE SINGLE ARROW (LEFT, STRAIGHT, RIGHT)-FAST DRY PAINT	58.000	EA
6250035	WHITE WORD MESSAGE "ONLY"-FAST DRY PAINT	50.000	EA
6250040	WHITE COMBINATION ARROW(STR.& RT.OR STR.& LT.)FAST DRY PAINT	5.000	EA
6250105	4" YELLOW BROKEN LINES(GAPS EXC) - FAST DRY PAINT	31.000	LF
6250110	4"YELLOW SOLID LINE(PVT.EDGE&NO PASSING ZONE)-FAST DRY PAINT	21400.000	LF
6271005	4" WHITE BROKEN LINES(GAPS EXCL.)THERMOPLASTIC- 90 MIL.	12639.000	LF
6271010	4" WHITE SOLID LINES (PVT. EDGE LINES) THERMO.- 90 MIL.	30879.000	LF
6271015	8" WHITE SOLID LINES THERMOPLASTIC - 125 MIL.	2502.000	LF
6271020	12" WHITE SOLID LINES - THERMO. - 125 MIL.	100.000	LF
6271025	24" WHITE SOLID LINES (STOP/DIAG LINES)-THERMO.-125 MIL	5212.000	LF
6271030	WHITE SINGLE ARROWS (LT, STRGHT, RT) THERMO.-125 MIL.	58.000	EA
6271035	WHITE WORD MESSAGE "ONLY" -THERMOPLASTIC - 125 MIL.	50.000	EA
6271040	WHITE COMBINATION ARROWS(STR&RT.OR STR&LT)THERMO-125MIL	5.000	EA
6271064	4" YELLOW BROKEN LINES(GAPS EXC)THERMOPLASTIC - 90 MIL.	31.000	LF
6271074	4" YELLOW SOLID LINES(PVT.EDGE LINES) THERMO-90 MIL.	21400.000	LF
6300005	PERMANENT CLEAR PAVEMENT MARKERS- MONO-DIR.- 4"X4"	700.000	EA
6301100	PERMANENT YELLOW PAVEMENT MARKERS BI-DIR.- 4"X4"	20.000	EA
6510105	FLAT SHEET, TYPE III, FIXED SZ. & MSG. SIGN	141.000	SF
6531210	U-SECTION POST FOR SIGN SUPPORTS - 3P	373.000	LF
7141142	19"X 30" HORIZONTAL ELLIPTICAL(HE) RC PIPE CUL.-CLASS HE-III	55.000	LF
7055020	ALUMINUM PIPE HANDRAILING	8493.000	LF
7055100	METAL BICYCLE HANDRAIL	2343.000	LF
7143618	18" SMOOTH WALL PIPE	529.000	LF
7143624	24" SMOOTH WALL PIPE	428.000	LF
7143630	30" SMOOTH WALL PIPE	811.000	LF
7143636	36" SMOOTH WALL PIPE	872.000	LF
7191005	CATCH BASIN -TYPE 1 CB - TYPE 1	1.000	EA
7191205	CATCH BASIN -TYPE 9	7.000	EA
7191605	CATCH BASIN -TYPE 16	1.000	EA
7191650	CATCH BASIN -TYPE 18	0.000	EA
7192020	DROP INLET (24" X 36")	5.000	EA
7192040	DROP INLET TYPE 112	7.000	EA
719228Z	JUNCTION BOX (SPECIAL) 36"X90"	2.000	EA
7195500	WATER QUALITY STRUCTURE	6.000	EA
7198420	MANHOLE-CONVERT D.I. 24"X 36"	1.000	EA
7199100	BEVELING OF PIPE END	38.000	EA
7199200	4' SLOPE FLUME (6" CURB STYLE WITH CUTOFFS)	14.000	LF
7203210	CONCRETE CURB AND GUTTER(2'-0") VERTICAL FACE	1121.000	LF
7204100	CONCRETE SIDEWALK(4" UNIFORM)	1428.000	SY
7204900	DETECTABLE WARNING MATERIAL	37.500	SF
7206000	CONCRETE MEDIAN	793.000	SY
7209000	PEDESTRIAN RAMP CONSTRUCTION	75.000	SY
7209100	SURFACE APPLIED DETECTABLE WARNING	350.000	SF
8041020	RIP-RAP (CLASS B)	2421.000	TON
8048210	GEOTEXTILE FOR EROSION CONTROL UNDER RIPRAP(CLASS 2)TYPE C	905.000	SY

ITEM NO.	PAY ITEM	QUANTITY	PAY UNIT
8051050	STEEL BEAM GUARDRAIL W-BEAM SYSTEM	50.000	LF
8051151	MT3 LEADING END TREATMENT TL3	4.000	EA
8051710	MB TRAILING END TREATMENT	1.000	EA
8052100	MGS3 GR STANDARD SHOULDER	3625.000	LF
8053253	MTBBC3 MASH THRIE-BEAM BARRIER CONNECTOR TL3	1.000	EA
8057100	GUARDRAIL LEADING TYPE T TL3 (50')	1.000	EA
8057350	2' CRASH CUSHION 3A	1.000	EA
8058053	36SS REINFORCED BARRIER WALL	2067.000	LF
8091010	RIGHT OF WAY MARKER(REBAR AND CAP)	4.000	EA
8091050	RIGHT OF WAY PLAT	1.000	LS
8100100	PERMANENT COVER	23.200	ACRE
8100200	TEMPORARY COVER	11.600	ACRE
8104005	FERTILIZER (NITROGEN)	2315.000	LB
8104010	FERTILIZER (PHOSPHORIC ACID)	2315.000	LB
8104015	FERTILIZER (POTASH)	2315.000	LB
8105005	AGRICULTURAL GRANULAR LIME	46295.000	LB
8109050	SELECTIVE WATERING	628444.000	GAL
8109901	MOWING	70.000	ACRE
8110000	LANDSCAPING ITEM NO.	1.000	LS
8151110	TEMPORARY EROSION CONTROL BLANKET (ECB)	19.181	MSY
8151203	HYDRAULIC EROSION CONTROL PRODUCT (HECP) - TYPE 3	46.294	ACRE
8152004	INLET STRUCTURE FILTER - TYPE F (WEIGHTED)	10.000	LF
8152006	INLET STRUCTURE FILTER- TYPE F (NON-WEIGHTED)	90.000	LF
8152007	SEDIMENT TUBES FOR DITCH CHECKS	2907.000	LF
8153000	SILT FENCE	33051.000	LF
8153090	REPLACE/REPAIR SILT FENCE	3306.000	LF
8154050	REMOVAL OF SILT RETAINED BY SILT FENCE	8263.000	LF
8156205	INLET STRUCTURE FILTER - TYPE D1	16.000	EA
8156210	INLET STRUCTURE FILTER - TYPE B	4.000	EA
8156490	STABILIZED CONSTRUCTION ENTRANCE	1650.000	SY
S0000001	SEE SHEET TS1 FOR TRAFFIC SIGNAL QUANTITIES	1.000	LS
S0000002	BRASCO SUNLINE SERIES BUS SHELTER- EQUIVALENT OR BETTER	7.000	EA
S0000003	APPROVED BIKE RACK	7.000	EA

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4/7/2020

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

SUMMARY OF ESTIMATED QUANTITIES
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= N.T.S. PLOT SIZE = 22" x 34"

TYPICAL SECTION OF IMPROVEMENT

SC 461 (GLENN MCCONNELL PARKWAY) - CHARLESTON COUNTY

CONSTRUCTION PLANS

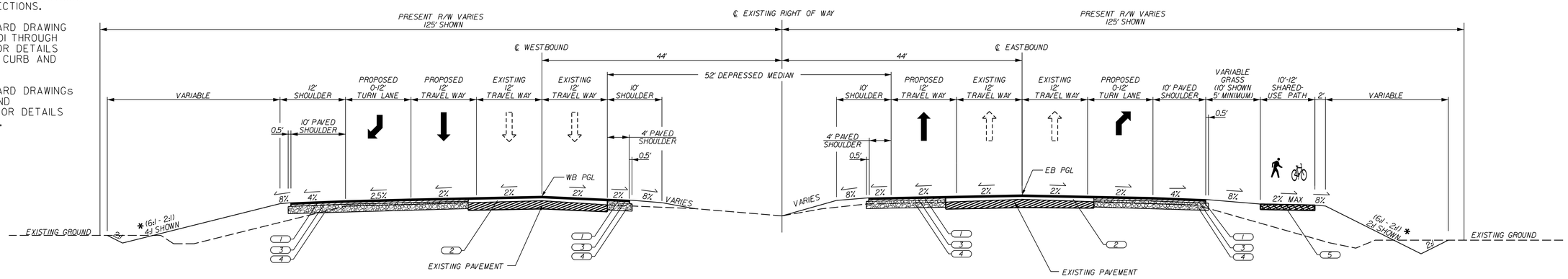
FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	PO37878	SC 461	3	

NOTES:
1. THIS EXISTING PAVEMENT AND OVERLAY IS TYPICAL. SEE CROSS SECTIONS FOR AREAS OF BUILDUP AND VARIATIONS IN EXISTING PAVEMENT WIDTHS.

2. PAVEMENT SLOPES MAY VARY FROM THOSE SHOWN ON TYPICAL SECTIONS. SEE CROSS SECTIONS.

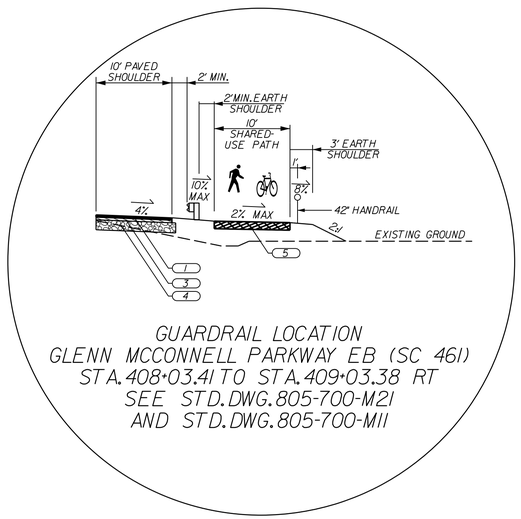
3. SEE STANDARD DRAWING NOS. 720-105-01 THROUGH 720-105-03 FOR DETAILS OF CONCRETE CURB AND GUTTER.

4. SEE STANDARD DRAWINGs 805-215-00 AND 805-220-00 FOR DETAILS OF GUARDRAIL.

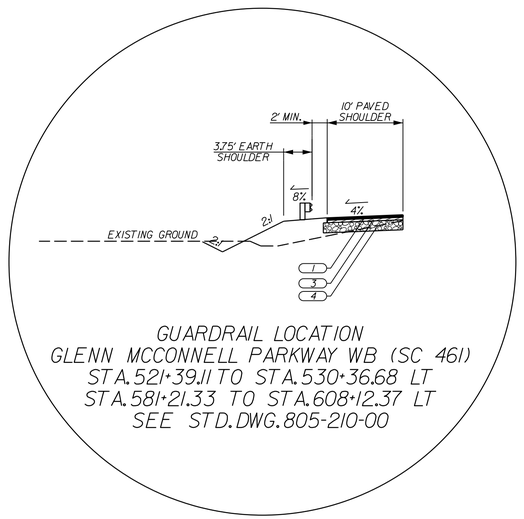


GLENN MCCONNELL PARKWAY WB (SC 461)
FROM STA. 500+57.35 TO STA. 612+00.00

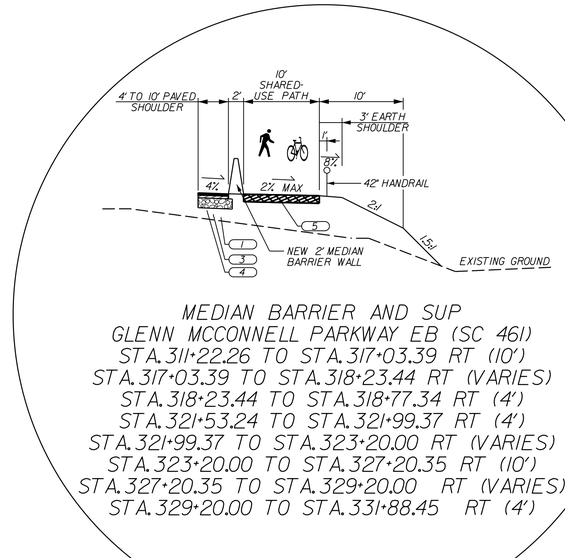
GLENN MCCONNELL PARKWAY EB (SC 461)
FROM STA. 302+23.94 TO STA. 411+92.70



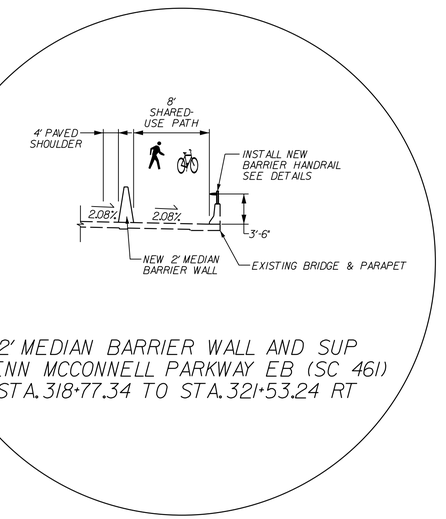
GUARDRAIL LOCATION
GLENN MCCONNELL PARKWAY EB (SC 461)
STA. 408+03.41 TO STA. 409+03.38 RT
SEE STD. DWG. 805-700-M21
AND STD. DWG. 805-700-M11



GUARDRAIL LOCATION
GLENN MCCONNELL PARKWAY WB (SC 461)
STA. 521+39.11 TO STA. 530+36.68 LT
STA. 581+21.33 TO STA. 608+12.37 LT
SEE STD. DWG. 805-210-00



MEDIAN BARRIER AND SUP
GLENN MCCONNELL PARKWAY EB (SC 461)
STA. 311+22.26 TO STA. 317+03.39 RT (10')
STA. 317+03.39 TO STA. 318+23.44 RT (VARIES)
STA. 318+23.44 TO STA. 318+77.34 RT (4')
STA. 321+53.24 TO STA. 321+99.37 RT (4')
STA. 321+99.37 TO STA. 323+20.00 RT (VARIES)
STA. 323+20.00 TO STA. 327+20.35 RT (10')
STA. 327+20.35 TO STA. 329+20.00 RT (VARIES)
STA. 329+20.00 TO STA. 331+88.45 RT (4')



2' MEDIAN BARRIER WALL AND SUP
GLENN MCCONNELL PARKWAY EB (SC 461)
STA. 318+77.34 TO STA. 321+53.24 RT

* WHERE A DEEPER DITCH THAN PROVIDED BY A 2H:1V SLOPE IS NECESSARY FOR DRAINAGE PURPOSES, CONTINUE THE 2H:1V SLOPE UNTIL THE NECESSARY DEPTH HAS BEEN OBTAINED. THIS WILL PLACE THE DITCH FURTHER AWAY FROM THE ROADWAY.

ROAD FUNCTIONAL CLASSIFICATION
GLENN MCCONNELL PARKWAY -
URBAN PRINCIPAL ARTERIAL (OTHER FREEWAYS)

1	ASPHALT SURFACE COURSE TYPE A (200 LB/SY)
2	ASPHALT SURFACE COURSE TYPE A (VARIABLE)
3	ASPHALT INTERMEDIATE COURSE TYPE A (300 LB/SY)
4	ASPHALT BASE COURSE TYPE A (800 LB/SY)
5	ASPHALT SURFACE COURSE TYPE B (200 LB/SY)

PAVEMENT DESIGN

APPROVED BY

DATE

RTE: SC 461 (GMP-WB) DESIGN SPEED		
MPH	FROM STA.	TO STA.
60	500+57.35	612+00.00
RTE: SC 461 (GMP-EB) DESIGN SPEED		
60	302+23.94	411+92.70
RTE: SUP DESIGN SPEED		
12	200+00.00	332+02.68

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

TYPICAL SECTION SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 10' PLOT SIZE = 22" x 34"

SCALE: 10.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\Jobs0dd\13635-00\Production\Transportation\SHEETS\13635-00 GMP Typical Sheets.dgn
4/7/2020

CONSTRUCTION PLANS

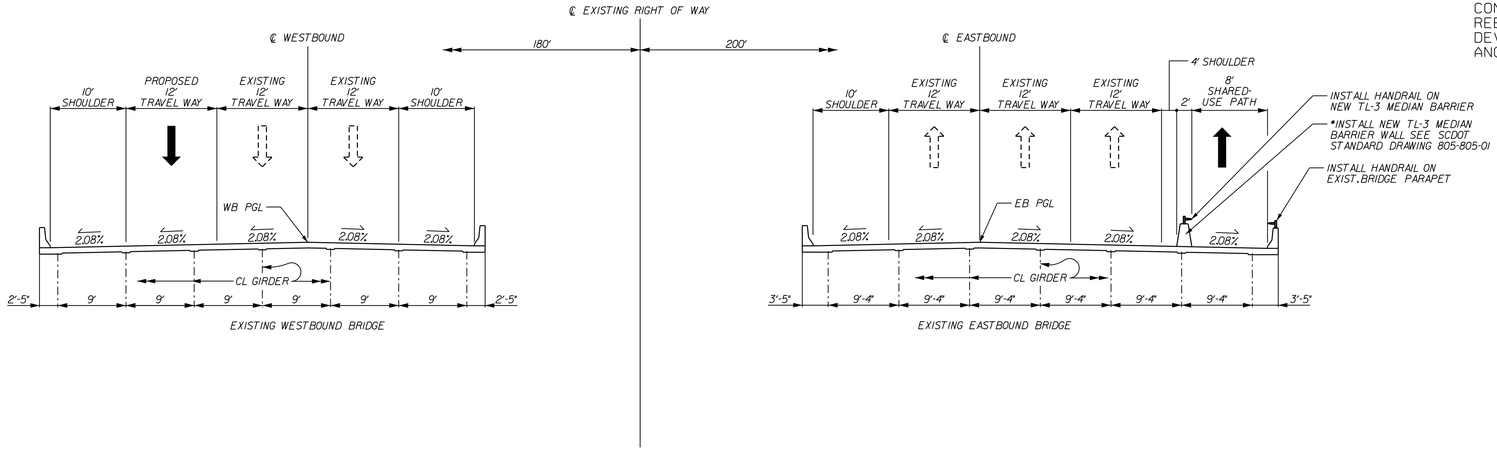
FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	3A	

TYPICAL SECTION OF IMPROVEMENT

SC 461 (GLENN MCCONNELL PARKWAY) - CHARLESTON COUNTY

*NOTE:

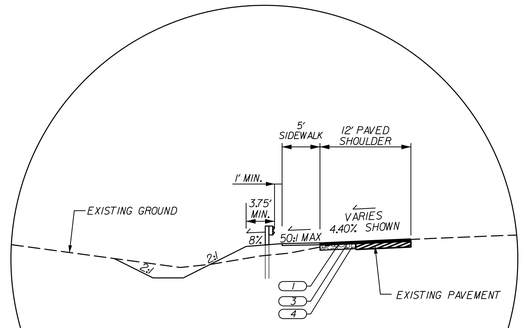
ANCHOR NEW WALL TO BRIDGE DECK PER SECTION 5 OF SCDOT STANDARD DRAWING 805-805-01.
WALL EXPANSION JOINTS SHALL LINE UP WITH EXISTING BRIDGE JOINTS.
CONTRACTOR TO LOCATE EXISTING REBAR WITH PROFOMETER OR SIMILAR DEVICE PRIOR TO ADHESIVE DOWEL ANCHORAGE INSTALLATION.



GLENN MCCONNELL PARKWAY WB (SC 461)
FROM STA. 518+57.89 TO STA. 521+33.97

GLENN MCCONNELL PARKWAY EB (SC 461)
FROM STA. 318+77.34 TO STA. 321+53.24

EXISTING BRIDGE SECTION WITH NEW SHARED USE PATH



GUARDRAIL BEHIND SIDEWALK
GLENN MCCONNELL PARKWAY WB (SC 461)
STA. 501+50J6 TO STA. 508+58.24 LT
SEE STD. DWG. 805-210-00

SCALE: 10.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\Jobs0dd\13635-00\Production\Transportation\SHEETS\13635-00 GMP Typical Sheets.dgn
4/7/2020

ROAD FUNCTIONAL CLASSIFICATION
GLENN MCCONNELL PARKWAY -
URBAN PRINCIPAL ARTERIAL (OTHER FREEWAYS)

1	ASPHALT SURFACE COURSE TYPE A (200 LB/SY)
2	ASPHALT SURFACE COURSE TYPE A (VARIABLE)
3	ASPHALT INTERMEDIATE COURSE TYPE A (300 LB/SY)
4	ASPHALT BASE COURSE TYPE A (800 LB/SY)
5	ASPHALT SURFACE COURSE TYPE B (200 LB/SY)

PAVEMENT DESIGN

APPROVED BY

DATE

RTE: SC 461 (GMP-WB) DESIGN SPEED		
MPH	FROM STA.	TO STA.
60	518+57.89	521+33.97
RTE: SC 461 (GMP-EB) DESIGN SPEED		
60	318+77.34	321+53.24
RTE: SUP DESIGN SPEED		
12	200+00.00	332+02.68

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

DAVIS & FLOYD
SINCE 1954
240 STONERIDGE DRIVE, SUITE 105
COLUMBIA, SC 29210
(803) 256-4121

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

TYPICAL SECTION SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 10' PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

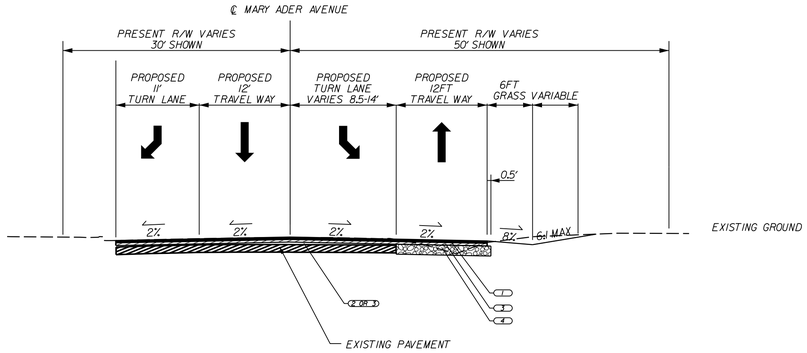
FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	PO37878	SC 461	3B	

NOTES:
1. THIS EXISTING PAVEMENT AND OVERLAY IS TYPICAL. SEE CROSS SECTIONS FOR AREAS OF BUILDUP AND VARIATIONS IN EXISTING PAVEMENT WIDTHS.

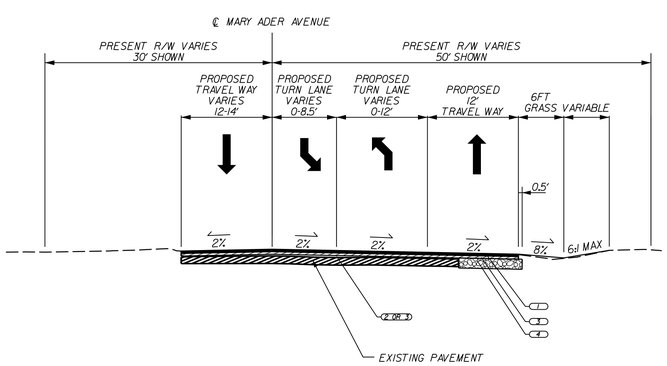
2. PAVEMENT SLOPES MAY VARY FROM THOSE SHOWN ON TYPICAL SECTIONS. SEE CROSS SECTIONS.

TYPICAL SECTION OF IMPROVEMENT

MARY ADER AVENUE - CHARLESTON COUNTY



MARY ADER AVENUE
FROM STA. 30+29.87 TO STA. 32+57.75



MARY ADER AVENUE
FROM STA. 32+57.75 TO STA. 33+94.95

ROAD FUNCTIONAL CLASSIFICATION
MARY ADER AVENUE-
URBAN LOCAL COLLECTOR

1	ASPHALT SURFACE COURSE TYPE A (200 LB/SY)
2	ASPHALT SURFACE COURSE TYPE A (VARIABLE)
3	ASPHALT INTERMEDIATE COURSE TYPE A (300 LB/SY)
4	ASPHALT BASE COURSE TYPE A (800 LB/SY)
5	ASPHALT SURFACE COURSE TYPE B (200 LB/SY)

PAVEMENT DESIGN

APPROVED BY

DATE

RTE: MARY ADER AVENUE DESIGN SPEED

MPH	FROM STA.	TO STA.
20	30+29.87	33+94.95

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

TYPICAL SECTION SHEET
MARY ADER AVENUE

SCALE 1"= 10' PLOT SIZE = 22" x 34"

SCALE: 10.000 ft / in.
PEN TABLE: 13635-00 CMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\Jobsodd\13635-00\Production\Transportation\SHEETS\13635-00 CMP Typical Sheets.dgn
4/7/2020

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	PO37878	SC 461	3C	

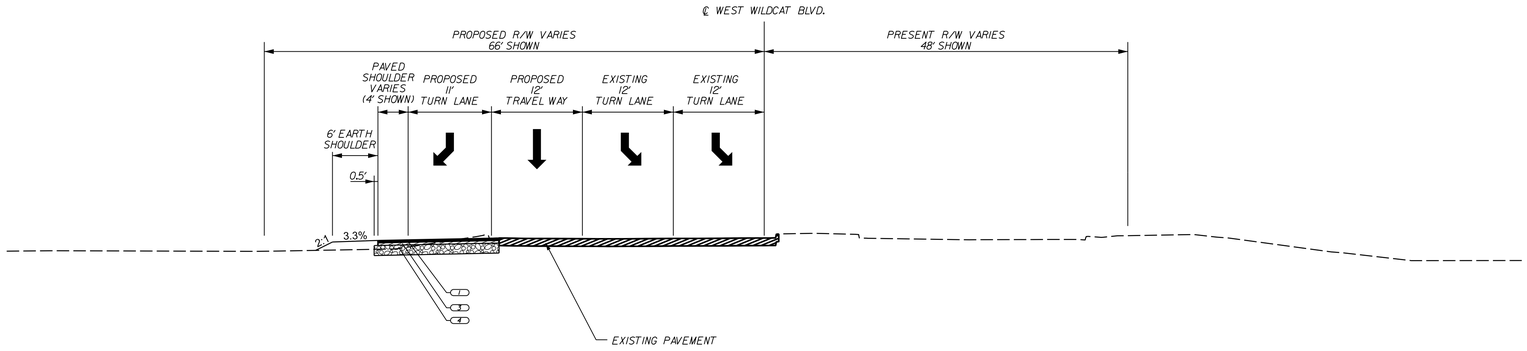
NOTES:
1. THIS EXISTING PAVEMENT AND OVERLAY IS TYPICAL. SEE CROSS SECTIONS FOR AREAS OF BUILDUP AND VARIATIONS IN EXISTING PAVEMENT WIDTHS.

2. PAVEMENT SLOPES MAY VARY FROM THOSE SHOWN ON TYPICAL SECTIONS. SEE CROSS SECTIONS.

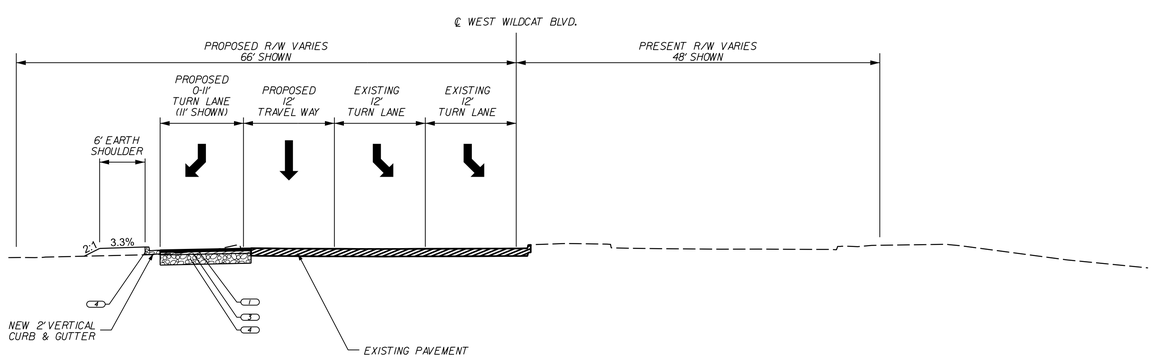
3. SEE STANDARD DRAWING NOS. 720-105-01 THROUGH 720-105-03 FOR DETAILS OF CONCRETE CURB AND GUTTER.

TYPICAL SECTION OF IMPROVEMENT

WEST WILDCAT BLVD.- CHARLESTON COUNTY



WEST WILDCAT BLVD.
FROM STA. 40+12.24 TO STA. 40+70.80



WEST WILDCAT BLVD.
FROM STA. 40+70.80 TO STA. 44+10.48

ROAD FUNCTIONAL CLASSIFICATION
WEST WILDCAT BLVD. -
URBAN LOCAL COLLECTOR

1		ASPHALT SURFACE COURSE TYPE A (200 LB/SY)
2		ASPHALT SURFACE COURSE TYPE A (VARIABLE)
3		ASPHALT INTERMEDIATE COURSE TYPE A (300 LB/SY)
4		ASPHALT BASE COURSE TYPE A (800 LB/SY)
5		ASPHALT SURFACE COURSE TYPE B (200 LB/SY)

PAVEMENT DESIGN

APPROVED BY

DATE

RTE: WEST WILDCAT BLVD. DESIGN SPEED

MPH	FROM STA.	TO STA.
20	40+12.24	44+10.48

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

TYPICAL SECTION SHEET
WEST WILDCAT BLVD.

SCALE 1"= 10' PLOT SIZE = 22" x 34"

SCALE: 10.000 ft / in.
PEN TABLE: 13635-00 CMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\Jobsodd\13635-00\Production\Transportation\SHEETS\13635-00 CMP Typical Sheets.dgn
4/7/2020

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	4	

TRACT NO.	PROPERTY OWNER	TAX MAP REFERENCE	TOTAL TRACT ACRES	OBTAIN				REMAINDER LEFT ACRES [A]	REMAINDER RIGHT ACRES [A]	DATE ACQUIRED	TYPE OF INSTRUMENT	PERMISSION (YES)					REMARKS
				OUTFALL DITCH	LEFT	RIGHT	TOTAL					OUTFALL DITCH	SLOPE	DRAINAGE STRUCTURE	EROSION CONTROL	ENTRANCE CONSTRUCTION	
1	MER LAND LCC	3010000040															
2	BEES RESOURCES L P	3010000678															
3	WHITFIELD CONSTRUCTION COMPANY	3050800058															
4	WHITFIELD CONSTRUCTION COMPANY	3050800060															
5	WHITFIELD CONSTRUCTION COMPANY	3010000027															
6	HARMONY WEST ASHLEY, LLC	3060000003															
7	WHITFIELD CONSTRUCTION COMPANY	3060000934															
8	EXTRA SPACE PROPERTIES SEVENTY ONE LLC	3060000017															
9	PALMETTO GOODWILL	3060000138															
10	UNIVERSITY MEDICAL ASSOCIATES OF MUSC	3060000933															
11	INFINITY REAL ESTATE HOLDINGS LLC	3060000136															
12	BASSETT DIRECT STORES LLC SHARON CARROW	3060000135															
13	UNIVERSITY MEDICAL ASSOCIATES OF THE MEDICAL UNIVERSITY OF SOUTH CAROLINA	3060000975															
14	CLINK LLC BRATT FOODS INC	3060000134															
15	A AND J LLC	3060000133															
16	S C FEDERAL CREDIT UNION	3060000025															
17	WHITFIELD CONSTRUCTION COMPANY	3060000012															
18	BAMOSAR PROPERTIES LLC	3060000026															
19	WHITFIELD CONSTRUCTION COMPANY	3060000002	22.35			5575 SF (0.128 AC)	5575 SF (0.128 AC)		22.222								
20	CHARLESTON MEDICAL INVESTMENTS LLC	3060000064															
21	LANFORD & SAENGER LLC	3060000065															
22	G M INVESTMENTS INC	3060000066															
23	CITY OF CHARLESTON	3060000018															
24	STUHR DEVELOPMENT COMPANY	3060000013															
25	STUHR DEVELOPMENT COMPANY	3060000224															
26	COLONY AT HERON RESERVE	3060000062															
27	CITY OF CHARLESTON	3060000015															
28	PROVIDENCE COMMON HOMEOWNERS ASSOC INC	3540100174															
29	PROVIDENCE COMMON HOMEOWNERS ASSOC INC	3540100143															
30	HERON RESERVE LIMITED PARTNERSHIP	3060000016															
31	CONTINENTAL 234 FUND LLC	3090000466															
32	COMMISSIONERS OF PUBLIC WORKS OF THE CITY OF CHARLESTON	3090000054															
33	ESSEX FARMS A PARTNERSHIP	3090000003															
34	BELLSOUTH TELECOMMUNICATION LLC	3060000005															
35	CENTEX HOMES	3090000472															
36	ESSEX FARMS A PARTNERSHIP	3090000473															
37	CAROLINA BAY PROPERTY OWNERS ASSOCIATION INC	3090000260															
38	CITY OF CHARLESTON	3060000007															
39	OBRIEN GERARD J CANDIDO DIANE F	3540200074															
40	WCSC-TV INC	3090000027															
41	LOWES HOME CENTER INC	3090000023															
42	MDA LLC	3090000032															
43	STERN MAGWOOD PROPERTIES LLC	3090000018															
44	STORE SPE OCHARLEYS LLC	3090000024															
45	FASION ESSEX FARMS LIMITED PARTNERSHIP	3090000026															

DATE	TRACT NO.	REMARKS

R/W NOTE:
THE DEPARTMENT WILL UTILIZE THE PRESENT RIGHT OF WAY AS SHOWN BELOW EXCEPT AS OTHERWISE SHOWN ON PLANS.

ROAD / ROUTE #	FILE #	R/W WIDTH	YEAR ACQ'D.

NOTES:
A. SHOW REMAINDER IN SQUARE FEET WHEN LESS THAN 0.25 ACRE.
B. SHOW OBTAIN SQUARE FOOTAGE AS ROUNDED UP TO THE NEAREST WHOLE NUMBER.

SCALE: 50.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\13635-00 GMP RWDS 04-04D.dgn
4/7/2020

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

RIGHT-OF-WAY DATA SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

N.T.S. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	4A	

TRACT NO.	PROPERTY OWNER	TAX MAP REFERENCE	TOTAL TRACT ACRES	OBTAIN				REMAINDER LEFT ACRES [A]	REMAINDER RIGHT ACRES [A]	DATE ACQUIRED	TYPE OF INSTRUMENT	PERMISSION (YES)					REMARKS
				OUTFALL DITCH	LEFT	RIGHT	TOTAL					OUTFALL DITCH	SLOPE	DRAINAGE STRUCTURE	EROSION CONTROL	ENTRANCE CONSTRUCTION	
46	JDN REALTY CORPORATION	3090000011															

DATE	TRACT NO.	REMARKS

R/W NOTE:
THE DEPARTMENT WILL UTILIZE THE PRESENT RIGHT OF WAY AS SHOWN BELOW EXCEPT AS OTHERWISE SHOWN ON PLANS.

ROAD / ROUTE #	FILE #	R/W WIDTH	YEAR ACQ'D.

NOTES:
A. SHOW REMAINDER IN SQUARE FEET WHEN LESS THAN 0.25 ACRE.
B. SHOW OBTAIN SQUARE FOOTAGE AS ROUNDED UP TO THE NEAREST WHOLE NUMBER.

SCALE: 49.412 ft / in.
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PLOT DRIVER: PDF.pltcfg
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4/7/2020

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

RIGHT-OF-WAY DATA SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

N.T.S. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	4B	

N

75' R/W (SCDOT 10.195A, MANH-NH-16(85) 1992)

75' R/W (SCDOT 10.195A, MANH-NH-16(85) 1992)

EXISTING CSX R/W

EXISTING CSX R/W

TIE EQUALITY
STA. 500+00.00 SC 461 (GLENN MCCONNELL PKWY. WESTBOUND)
STA. 52+39.14 S-57 (BEES FERRY RD. SOUTHBOUND)

BEGIN CONSTRUCTION GMP WB
STA. 500+57.35

℄ ASHLEY CIRCLE NB

EXIST. C/A

54.5' CITY R/W
PB L10 PAGE 0307

54.5' CITY R/W
PB L10 PAGE 0307

PT 13+69.20

TRANSITIONAL R/W (SCDOT 10.195A, MANH-NH-16(85) 1992)

TIE EQUALITY
STA. 509+48.41 SC 461 (GLENN MCCONNELL PKWY. WESTBOUND)
STA. 10+00.00 WEST ASHLEY CIRCLE NORTHBOUND

℄ GMP ROW

℄ GMP WB

TRANSITIONAL R/W (SCDOT 10.195A, MANH-NH-16(85) 1992)

POT 54+00.00

℄ BEES FERRY RD

POT 100+00.00

POT 50+00.00

POT 300+00.00

PC 501+54.92
PC 101+68.06

CURVE GMP WB1

PC 506+42.55

PC 11+58.40

PT 503+69.76

EXIST. C/A

CURVE GMP WB2

PT 510+09.78
PT 110+45.40

S 43° 07' 35" E
S 44° 55' 36" E
S 44° 32' 40" E
S 51° 55' 07" E
N 27° 47' 33" E
S 58° 06' 07" E
S 58° 05' 12" E
S 58° 06' 40" E

N 54° 44' 10" E

S 24° 43' 24" W

PC 200+03.85
PT 200+66.56

CURVE GMP EB1

CURVE GMP ROW1

S 14° 08' 19" E

S 33° 33' 08" W

PC 205+01.29

PC 50+70.54

PT 310+44.74

PCC 51+26.05

BEGIN CONSTRUCTION GMP EB
STA. 302+23.94

℄ SUP 1

PC 301+66.29

PT 208+80.94

CURVE GMP_SUP 1_6

CURVE GMP_SUP 1_3

118' R/W (SCDOT 10.195A, MANH-NH-16(85) 1992)

℄ GMP EB

200' R/W (SCDOT 10.195A, MANH-NH-16(85) 1992)

TIE EQUALITY
STA. 309+37.61 SC 461 (GLENN MCCONNELL PKWY. EASTBOUND)
STA. 50+00.00 WEST ASHLEY CIRCLE SOUTHBOUND

TRANSITIONAL R/W (SCDOT 10.195A, MANH-NH-16(85) 1992)

PT 53+54.31

TRANSITIONAL R/W (SCDOT 10.195A, MANH-NH-16(85) 1992)

525' CITY R/W
PB EJ PAGE 639

525' CITY R/W
PB EJ PAGE 639

℄ ASHLEY CIRCLE SB

75' R/W (SCDOT 10.195A, MANH-NH-16(85) 1992)

TIE EQUALITY
STA. 300+00.02 SC 461 (GLENN MCCONNELL PKWY. EASTBOUND)
STA. 51+58.63 S-57 (BEES FERRY RD. SOUTHBOUND)

EASEMENT

EXISTING CSX R/W

EXISTING CSX R/W

EASEMENT

TRANSITIONAL R/W (SCDOT 10.195A, MANH-NH-16(85) 1992)

MATCHLINE – ROW STA. 126+00.00 – SEE SHEET 4C

0 100 200 300 400

SCALE: 100.000 ft. / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\Jobs0dd\13635-00\Production\Transportation\SHEETS\13635-00 GMP Prop Strip Map Sheets.dgn
4/7/2020

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY ZAM DRAWN BY ZAM CHECKED BY BDW

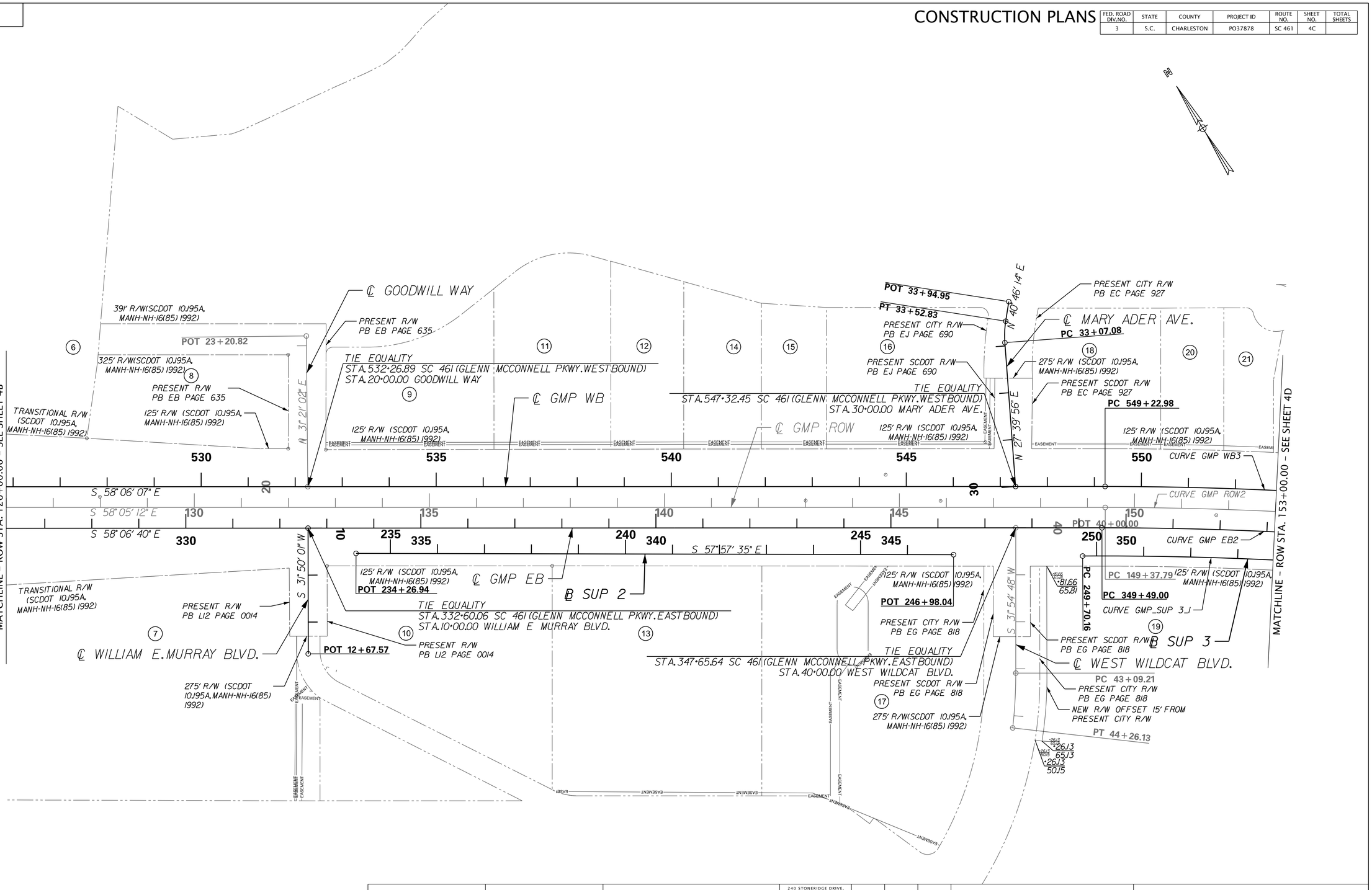
CHARLESTON COUNTY

PROPERTY STRIP MAP
SC 461 (GLENN MCCONNELL PARKWAY)
ROW STA. 100+00.00 – STA. 126+00.00

SCALE 1"= 100' PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	4C	



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4/7/2020

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY ZAM DRAWN BY ZAM CHECKED BY BDW

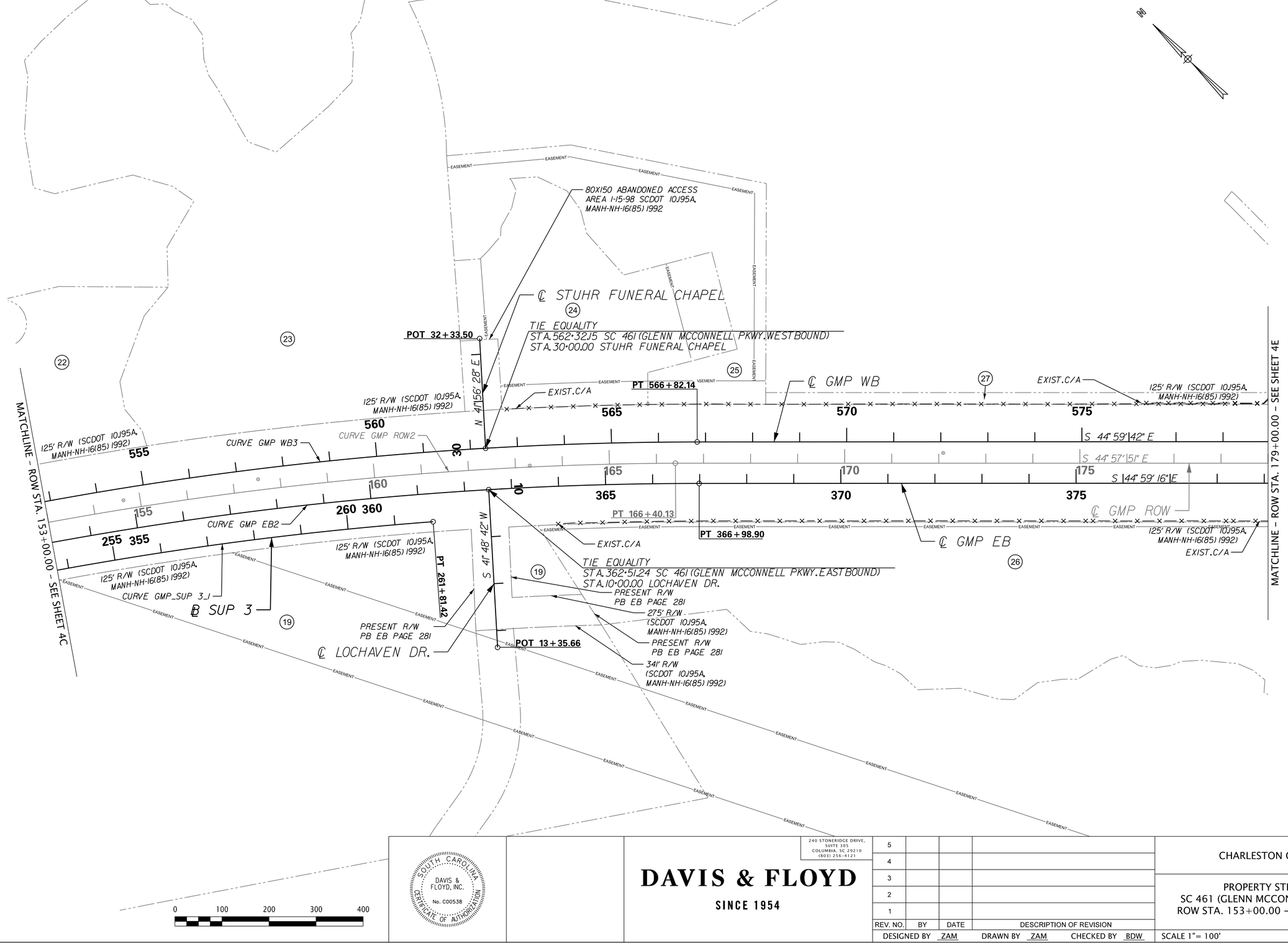
CHARLESTON COUNTY

PROPERTY STRIP MAP
SC 461 (GLENN MCCONNELL PARKWAY)
ROW STA. 126+00.00 – STA. 153+00.00

SCALE 1"= 100' PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	4D	



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4/7/2020

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY ZAM DRAWN BY ZAM CHECKED BY BDW

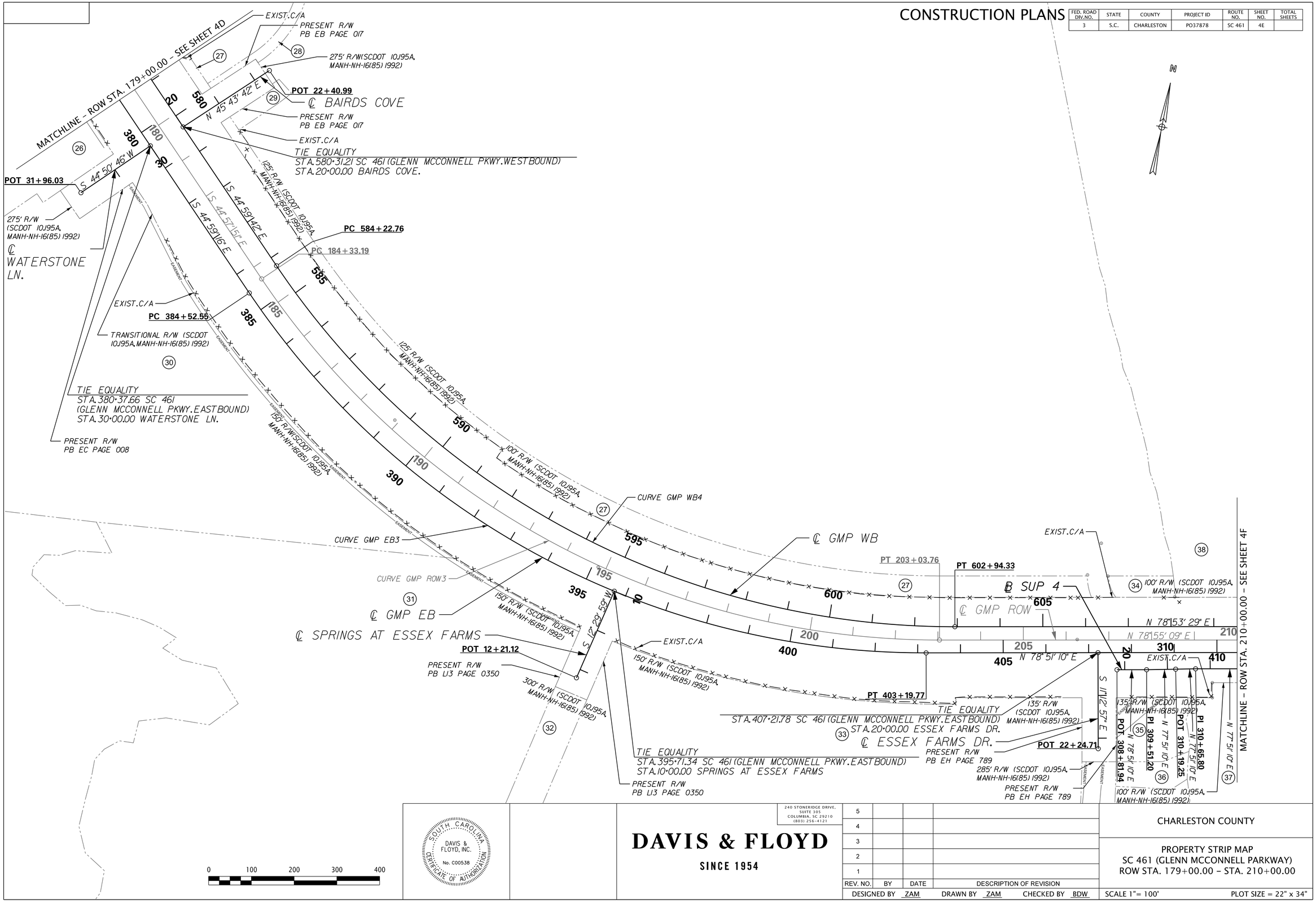
CHARLESTON COUNTY

PROPERTY STRIP MAP
SC 461 (GLENN MCCONNELL PARKWAY)
ROW STA. 153+00.00 - STA. 179+00.00

SCALE 1"= 100' PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	4E	



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PLOT DRIVER: PDF.pltcfg
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4/7/2020

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY ZAM DRAWN BY ZAM CHECKED BY BDW

CHARLESTON COUNTY

PROPERTY STRIP MAP
SC 461 (GLENN MCCONNELL PARKWAY)
ROW STA. 179+00.00 – STA. 210+00.00

SCALE 1"= 100' PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	4F	

MATCHLINE – ROW STA. 210+00.00 – SEE SHEET 4E

℄ CHARLIE HALL BLVD.NB

℄ GMP WB

℄ GMP ROW

℄ GMP EB

℄ B SUP 4

℄ LOWE'S ENTRANCE

TIE EQUALITY
STA.621+18.80 SC 461 (GLENN MCCONNELL PKWY.WESTBOUND)
STA.50+00.00 CHARLIE HALL BLVD.NORTHBOUND

TIE EQUALITY
STA.422+01.93 SC 461 (GLENN MCCONNELL PKWY.EASTBOUND)
STA.30+00.00 LOWE'S ENTRANCE

END OVERLAY TRANSITION
GMP WB STA.612+00.00

END OVERLAY TRANSITION
GMP EB STA.411+92.70

CURVE GMP_SUP 4_I4

CURVE GMP_SUP 4_II

CURVE GMP ROW4

CURVE GMP EB4

POT 50+96.33

POT 622+03.70

PC 423+33.34

PC 223+34.19

PC 324+80.59

POT 31+13.93

PI 318+69.17

PC 319+15.93

PT 319+90.16

PT 330+06.71

PT 432+30.25

PT 234+68.64

POT 236+42.05

POT 332+02.68

N 78°53'29" E

N 78°55'09" E

N 78°51'10" E

N 78°51'10" E

N 87°12'10" E

N 78°14'52" E

N 11°49'21" W

S 11°45'45" E

S 8°11'21" E

S 67°02'51" E

100' R/W (SCDOT 10J95A, MANH-NH-16(85) 1992)

EXIST.C/A

PRESENT R/W PB EA PAGE 864

PRESENT 60' R/W FILE #10.036999A 2009

PRES.TRANS.R/W

PRESENT 105' R/W FILE #10.036999A 2009

PRESENT 63' R/W FILE #10.036999A 2009

PRESENT 50' R/W FILE #10.036999A 2009

PRESENT 120' R/W FILE #10.036999A 2009

PRESENT 115' R/W FILE #10.036999A 2009

PRESENT 115' R/W FILE #10.036999A 2009

PRESENT 100' R/W FILE #10.036999A 2009

PRESENT 45' R/W FILE #10.036999A 2009

PRESENT 60' R/W FILE #10.036999A 2009

EASEMENT

0 100 200 300 400

SCALE: 100.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\Jobs0dd\13635-00\Production\Transportation\SHEETS\13635-00 GMP Prop Strip Map Sheets.dgn
4/7/2020

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY ZAM DRAWN BY ZAM CHECKED BY BDW

CHARLESTON COUNTY

PROPERTY STRIP MAP
SC 461 (GLENN MCCONNELL PARKWAY)
ROW STA. 210+00.00 – STA. 236+42.05

SCALE 1"= 100' PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	5	

GENERAL CONSTRUCTION NOTES:

THE CONTRACTOR MUST PERFORM ALL WORK IN ACCORDANCE WITH THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS FOR ROAD CONSTRUCTION (LATEST EDITION), SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (LATEST EDITION), SCDOT TRAFFIC SIGNAL SPECIFICATIONS, AND THE MUTCD, 2009 EDITION.

THE CONTRACTOR SHALL IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES TO PREVENT THE TRANSFER OF SUSPENDED SOLIDS AND/OR CHEMICAL SOLUTIONS OFF-SITE, AND TO PREVENT EXCESSIVE SILTATION OF EXISTING DRAINAGE PIPES, CULVERTS, AND DITCHES. THE CONTRACTOR SHALL ROUTINELY INSPECT AND MAINTAIN THESE DEVICES. ALL CHECK DAMS AND RIPRAP SHOWN ARE CLASS B UNLESS OTHERWISE STATED.

THE LOCATIONS OF EXISTING UTILITIES AND STORM DRAINAGE FACILITIES SHOWN ON THE PLANS ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE UTILITIES INFORMATION SHOWN ON THE DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXACT LOCATION OF ALL UTILITIES BEFORE CONSTRUCTION. PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THAT THE PROPER COORDINATION WITH THE VARIOUS UTILITY OWNERS HAS BEEN PERFORMED. THE CONTRACTOR SHALL COOPERATE WITH THE UTILITY DURING RELOCATION OPERATIONS.

THE LOCATION OF UTILITIES SHOWN IN THE PLANS SHOULD BE CONSIDERED APPROXIMATE ONLY. THE VERIFIED LOCATIONS/ELEVATIONS APPLY ONLY AT THE POINTS DESIGNATED BY A TEST HOLE. INTERPOLATIONS BETWEEN THESE POINTS HAVE NOT BEEN VERIFIED.

THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, STORM DRAINS, UTILITIES AND OTHER FACILITIES TO REMAIN AND SHALL REPAIR OR COORDINATE WITH UTILITY OWNERS TO REPAIR ANY DAMAGES DUE TO CONSTRUCTION ACTIVITIES AT NO ADDITIONAL COST TO THE OWNER.

THE CONTRACTOR SHALL NOT STORE ANY MATERIALS OR EQUIPMENT WITHIN 15 FT OF THE EDGE OF TRAVEL WAY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN PERMISSION TO STORE EQUIPMENT ON ADJACENT PROPERTIES.

PIPE LENGTHS THAT ARE SHOWN ON THE PLANS ARE ROUNDED TO THE NEAREST 4' INCREMENT AND CALCULATED ALONG THE PIPE SLOPE FROM CENTER OF BOX TO CENTER OF BOX. FIELD ADJUSTMENTS OF THE ACTUAL PIPE LENGTHS MAY BE NECESSARY.

ANY COSTS ASSOCIATED WITH REMOVING EXISTING PIPE SHALL BE INCLUDED IN THE COST OF PLACING NEW PIPE.

FINAL SURFACE COURSE ON ALL ROADWAYS SHALL NOT BE PLACED UNTIL ALL DRAINAGE AND CURB AND GUTTER INSTALLATIONS ARE COMPLETE.

THE CONTRACTOR SHALL PROVIDE AND MAINTAIN PROPER DEWATERING PROCEDURES TO PREVENT THE FLOW AND ACCUMULATION OF SURFACE AND GROUND WATER IN EXCAVATED AREAS. DEWATERTING BAGS ARE TO BE USED AS NEEDED, AND ARE TO BE DESIGNED ACCORDING TO SC-M-815-15. ALL OF THE WATER PUMPED OR DRAINED SHALL BE DISPOSED OF WITHOUT UNDUE INTERFERENCE WITH OTHER WORK OR DAMAGE TO PAVEMENTS AND OTHER SURFACES OR PROPERTY. DISCHARGED WATER FROM ALL DEWATERING OPERATIONS SHALL BE FILTERED IN ACCORDANCE WITH SCDHEC OR OCRM REGULATIONS OR AS APPROVED BY THE ENGINEER. A PLAN FOR DEWATERING SHALL BE SUBMITTED TO THE RESIDENT CONSTRUCTION ENGINEER AND OCRM FOR APPROVAL PRIOR TO ANY WORK BEING PERFORMED WHERE DEWATERING IS REQUIRED. ONCE APPROVED AN ADDITIONAL COPY OF THE PLAN SHOULD BE PROVIDED TO CHARLESTON COUNTY PUBLIC WORKS.

THE CONTRACTOR SHALL PROVIDE A DETAILED CONTRACTOR'S EROSION CONTROL PLAN TO THE RESIDENT CONSTRUCTION MANAGER FOR APPROVAL PRIOR TO COMMENCING ANY WORK ON THE PROJECT.

THE CONTRACTOR SHALL PROVIDE A DETAILED TRAFFIC CONTROL PLAN TO THE RESIDENT CONSTRUCTION MANAGER FOR APPROVAL BEFORE STARTING ANY WORK ON THE PROJECT. THIS PLAN SHALL INCLUDE DETAILS CONCERNING PLACEMENT OF REFLECTORIZED BARRELS, CONES, AND/OR TYPE 2 BARRICADES IN ACCORDANCE WITH THE 2009 MUTCD.

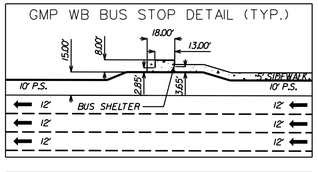
THE CONTRACTOR SHALL PROVIDE ALL SHEETING, SHORING, AND BRACING REQUIRED TO PROTECT ADJACENT STRUCTURES AND UTILITIES OR TO MINIMIZE TRENCH WIDTH AS REQUIRED. PAYMENT FOR SUCH MEASURES IS INCLUDED IN THE BID PRICE FOR THE ITEM BEING CONSTRUCTED.

WHERE STORM PIPES AND STRUCTURES ARE IDENTIFIED TO BE ABANDONED IN PLACE, THE FOLLOWING PROCEDURES SHALL BE UTILIZED:

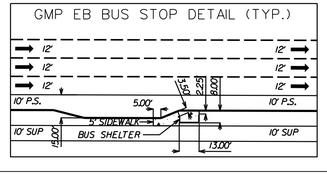
PIPES: PLUG END(S) WITH BRICK AND GROUT.
STRUCTURES: REMOVE RIM/COVER AND CONE OR TOP SLAB.
PLUG PIPE OPENINGS WITH BRICK AND GROUT.
FILL STRUCTURE WITH FLOWABLE FILL TO BOTTOM OF PAVEMENT SECTION.
TEMPORARY ASPHALT IF NEEDED.

ANY COSTS ASSOCIATED WITH ABANDONING PIPES OR STRUCTURES SHALL BE INCLUDED IN THE COST OF PLACING NEW PIPE OR STRUCTURES ACCORDINGLY.

GMP WB BUS STOP DETAIL (TYP.)



GMP EB BUS STOP DETAIL (TYP.)



THE CONTRACTOR SHALL NOTIFY PROPERTY OWNERS WITH SUFFICIENT ADVANCE OF THE ROAD CLOSURE TO INSTALL THE PIPE CROSSINGS. PROVIDE TEMPORARY ROAD CLOSURE SIGNAGE FOR PIPE CROSSING CONSTRUCTION

CONCRETE TRUCK WASHOUT:
DO NOT DISPOSE OF TRUCK WASHOUT WATER BY DUMPING INTO A SANITARY SEWER, STORM DRAIN, OR ONTO SOIL OR PAVEMENT THAT CARRIES STORM WATER RUNOFF. THE WASHOUT FROM A CONCRETE TRUCK SHALL BE DISPOSED OF INTO A DESIGNATED AREA THAT WILL LATER BE BACK FILLED, AN AREA WHERE THE CONCRETE WASH CAN HARDEN, BE BROKEN UP, AND THEN DISPOSED OF AS SOLID WASTE, OR A LOCATION WHICH IS NOT SUBJECT TO SURFACE WATER RUNOFF AND MORE THAN 50-FEET AWAY FROM A STORM DRAIN, OPEN DITCH, OR RECEIVING WATER. EXCESS CONCRETE IN CONCRETE PUMP BIN SHALL BE PUMPED BACK INTO CONCRETE MIXER TRUCK. CONCRETE WASHOUT FROM CONCRETE PUMPER BINS SHALL BE WASHED INTO CONCRETE PUMPER TRUCKS AND DISCHARGED INTO DESIGNATED WASHOUT AREA OR PROPERLY DISPOSED OFF SITE. MONITORING SHALL OCCUR THROUGHOUT THE DURATION TO THE CONSTRUCTION PROJECT TO ENSURE APPROPRIATE PRACTICES ARE BEING IMPLEMENTED. INSPECT WASHOUT SUMP REGULARLY AND REMOVE LIQUIDS AND SEDIMENT AS NEEDED.

THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS SHOWN ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. SHOULD DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN THE ENGINEER'S CLARIFICATION BEFORE COMMENCING CONSTRUCTION.

THE ENGINEER RESERVES THE RIGHT TO ADJUST THE LOCATION OF ALL PROPOSED IMPROVEMENTS TO MEET FIELD CONDITIONS IF NECESSARY.

STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.

ALL DISTURBED AREAS SHALL BE SEEDED AFTER GRADING IS COMPLETE OR WITHIN 7 DAYS AFTER WORK STOPS IN AN AREA UNLESS WORK IS TO RESUME IN THAT AREA IN LESS THAN 21 DAYS.

PERMANENT CONSTRUCTION SIGNS:
CONSTRUCTION SIGN SETS SHALL BE PLACED AT BEGINNING AND END OF CONSTRUCTION ON GLENN MCCONNELL EB AND WB, AND AT BEGINNING OF CONSTRUCTION ON WEST ASHLEY CIRCLE NB, WEST ASHLEY CIRCLE SB, GOODWILL WAY, WILLIAM E. MURRAY BLVD., WEST WILDCAT BLVD., MARY ADER AV., LOCHAVEN DR., STUHR FUNERAL, WATERSTONE LANE, BAIRDS COVE, SPRINGS AT ESSEX, ESSEX FARMS DR., CHARLIE HALL BLVD. SB, AND CHARLIE HALL BLVD. NB.
DISCRETION SHOULD BE USED IN PLACEMENT OF THE SIGNS, NO SIGHTLINES FROM ROADWAYS OR DRIVEWAYS SHOULD BE AFFECTED BY THE PLACEMENT OF THE SIGNS. FOR ADDITIONAL INFORMATION AND REQUIREMENTS FOR PERMANENT CONSTRUCTION SIGNS, SEE SCDOT STANDARD DRAWING 605-010-01.

NOTES:
1. IF A SIGN MARKED TO BE RELOCATED IS DAMAGED BY THE CONTRACTOR, THE CONTRACTOR IS RESPONSIBLE FOR REPLACING THE SIGN.
2. CONTRACTOR IS TO SAW-CUT CONNECTIONS TO EXISTING ROADWAYS AND/OR DRIVEWAYS WHERE APPLICABLE.
3. SEE THE FOLLOWING SCDOT STANDARD DRAWINGS FOR DETAILS:

815-205-00	SEDIMENT TUBE DITCH APPLICATION
815-406-00	SEDIMENT DAM FOR PIPE INLET
815-605-00	TEMPORARY SILT FENCE
602-005-00	CONSTRUCTION SIGNING-TEMPORARY PORTABLE SIGN SUPPORTS
605-010-01	CONSTRUCTION SIGNING PERMANENT WORK ZONE $5000 FINE PRIMARY ROUTES
610-005-XX	FLAGGING OPERATIONS TWO-LANE TWO-WAY PRIMARY & SECONDARY ROUTES
610-025-00	LANE CLOSURE DAYTIME MULTILANE PRIMARY ROUTES
610-030-00	LANE CLOSURE NIGHTTIME MULTILANE PRIMARY ROUTES
610-3XX-XX	SHOULDER CLOSURES INTERSTATE ROUTES
610-415-01&02	MOBILE OPERATIONS INTERSTATE ROUTES
719-001-03	CATCH BASIN TYPE 1 MEDIAN INSTALLATION
719-610-00	END TREATMENT (RCP BEVELED END)
720-971-24	PEDESTRIAN RAMP 3' TO 6' GRASS STRIP
720-951-11	PEDESTRIAN RAMP NO GRASS (PARALLEL RAMP)
805-210-00	MGS3 GUARDRAIL
805-115-11	TYPE MT3 LEADING END TREATMENT (TL3)
805-170-00	TYPE MB TRAILING END BLUNT TENSION ANCHOR
805-325-30	TYPE MTBBC3 APPROACH STIFFNESS TRANSITION (TL3)
805-700-M11	PREMASH TYPE T LEADING END TREATMENT TL-3
805-700-M21	PREMASH W-BEAM STRONG POST GUARDRAIL

SCALE: 0.988 ft. / in.
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PLOT DRIVER: PDF.pltcfg
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4/7/2020

DAVIS & FLOYD, INC. No. C00538 CERTIFICATE OF AUTHORIZATION

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DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

GENERAL CONSTRUCTION NOTES
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= N.T.S. PLOT SIZE = 22" x 34"

GENERAL CONSTRUCTION NOTES / INCLUSIONS

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	5A	

ITEM NO.	PAY ITEM	QUANTITY	PAY UNIT	USE DESCRIPTION
1031000	MOBILIZATION	NEC	LS	PER CONTRACT DOCUMENTS
1032010	BONDS AND INSURANCE	1.000	LS	PER CONTRACT DOCUMENTS
1050800	CONSTRUCTION STAKES, LINES & GRADES	1.000	EA	PER CONTRACT DOCUMENTS
1071000	TRAFFIC CONTROL	NEC	LS	PER CONTRACT DOCUMENTS
2011000	CLEARING & GRUBBING WITHIN RIGHT OF WAY	NEC	LS	FOR ALL AREAS WITHIN RIGHT OF WAY
2031000	UNCLASSIFIED EXCAVATION	4240.000	CY	FOR STRIPPING
2033000	BORROW EXCAVATION	9380.000	CY	FILL FOR STRIPPING & MUCK
2034000	MUCK EXCAVATION	2970.000	CY	WHERE DIRECTED BY THE ENGINEER
2052000	NO. 57 STONE FOR BACKFILL	150.000	TON	WHERE DIRECTED BY THE ENGINEER
2081001	FINE GRADING	NEC	LS	WHERE DIRECTED BY THE ENGINEER
4010005	PRIME COAT	4001.670	GAL	FOR GRADED AGGREGATE BASE COURSE
4012080	FULL DEPTH ASPH. PAV. PATCHING 8" UNIF	100.000	SY	WHERE DIRECTED BY THE ENGINEER
4013150	MILLING EXISTING ASPHALT PAVEMENT 1.5"	114100.000	SY	WHERE DIRECTED BY THE ENGINEER
4030310	HOT MIX ASPHALT SURFACE COURSE TYPE A	2764.000	TON	FOR BUILDUP OVER EXISTING PAVEMENT
6021120	PERMANENT CONSTRUCTION SIGNS (GROUND MOUNTED)	728.000	SF	WHERE DIRECTED BY THE ENGINEER
8091010	RIGHT OF WAY MARKER(REBAR AND CAP)	4.000	EA	SCDOT STD. DRAWING 809-105-01
8100100	PERMANENT COVER	23.200	ACRE	FOR ALL DISTURBED AREAS
8100200	TEMPORARY COVER	11.600	ACRE	FOR ALL DISTURBED AREAS
8104005	FERTILIZER (NITROGEN)	2315.000	LB	FOR ALL DISTURBED AREAS
8104010	FERTILIZER (PHOSPHORIC ACID)	2315.000	LB	FOR ALL DISTURBED AREAS
8104015	FERTILIZER (POTASH)	2315.000	LB	FOR ALL DISTURBED AREAS
8105005	AGRICULTURAL GRANULAR LIME	46295.000	LB	FOR ALL DISTURBED AREAS
8109050	SELECTIVE WATERING	628444.000	GAL	FOR ALL DISTURBED AREAS
8109901	MOWING	70.000	ACRE	FOR ALL DISTURBED AREAS
8151110	TEMPORARY EROSION CONTROL BLANKET (ECB)	3.836	MSY	WHERE DIRECTED BY THE ENGINEER
8152007	SEDIMENT TUBES FOR DITCH CHECKS	582.000	LF	WHERE DIRECTED BY THE ENGINEER
8153090	REPLACE/REPAIR SILT FENCE	3306.000	LF	FOR MAINTENANCE OF SILT FENCE
8154050	REMOVAL OF SILT RETAINED BY SILT FENCE	8263.000	LF	FOR MAINTENANCE OF SILT FENCE
8156490	STABILIZED CONSTRUCTION ENTRANCE	1650.000	SY	WHERE DIRECTED BY THE ENGINEER

PROJECT CONTACTS		
	NAME	TELEPHONE
Project Manager	Eric Dickey	803-227-9046

SCDOT GENERAL CONSTRUCTION NOTES:

THE DEPUTY SECRETARY FOR ENGINEERING MUST SPECIFICALLY AUTHORIZE CHANGES INVOLVING INCREASED COST OF THE PROJECT OR CHANGES IN ALIGNMENT. THE DISTRICT ENGINEERING ADMINISTRATOR IS PERMITTED UNDER THE DIRECTION OF THE DEPUTY SECRETARY FOR ENGINEERING TO AUTHORIZE MINOR ALTERATIONS NOT IN CONFLICT WITH THE STANDARD PRACTICES OF THE DEPARTMENT. FORWARD INFORMATION ON ANY PROPOSED CHANGES IN ALIGNMENT TO THE COLUMBIA OFFICE AS SOON AS POSSIBLE.

SEE INDIVIDUAL CURVES ON REFERENCE DATA SHEET FOR SUPERELEVATION RATE AND DESIGN SPEED, AS APPLICABLE.

THE FOLLOWING QUANTITIES ARE NOT SHOWN IN DETAIL ON THE PLANS BUT ARE INCLUDED IN THE SUMMARY OF ESTIMATED QUANTITIES AND MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER.

EARTHWORK SUMMARY

ALIGNMENT	STATION		EXCAVATION		EMBANKMENT			WASTE (CY)	BORROW (CY)
			VOLUME (CY)	TOTAL (CY)	VOLUME (CY)	40% (CY)	TOTAL (CY)		
GMP EB	302+50.00	BEGIN	5749.0	5749.0	31805.0	12722.0	44527.0	0.0	38778.0
GMP EB	411+92.70	END							
GMP WB	501+50.00	BEGIN	6633.0	6633.0	16175.0	6470.0	22645.0	0.0	16012.0
GMP WB	612+50.00	END							
SUP	200+00.00	BEGIN	114.0	114.0	5507.0	2202.8	7709.8	0.0	7595.8
SUP	332+02.68	END							
MARY ADER	31+00.00	BEGIN	89.0	89.0	55.0	22.0	77.0	12.0	0.0
MARY ADER	33+50.00	END							
WEST WILDCAT	40+50.00	BEGIN	128.0	128.0	83.0	33.2	116.2	11.8	0.0
WEST WILDCAT	43+50.00	END							
GOODWILL WAY	21+00.00	BEGIN	6.0	6.0	13.0	5.2	18.2	0.0	12.2
GOODWILL WAY	22+50.00	END							

4/6/2020
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

GENERAL CONSTRUCTION NOTES
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= N.T.S. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	PO37878	SC 461	5B	

BEGINNING CHAIN GMP_SUP_1 DESCRIPTION
FEATURE: BL50

POINT TURN231 N 362,583.6374 E 2,282,507.9940 STA 200+00.00

COURSE FROM TURN231 TO PC GMP_SUP_1_3 S 24° 43' 44.30" W DIST 3.8481

CURVE DATA

CURVE GMP_SUP_1_3

P.I. STATION	200+40.09 N	362,547.2264 E	2,282,491.2245
DELTA	71° 52' 03.54" (LT)		
DEGREE	114° 35' 29.61"		
TANGENT	36.2390		
LENGTH	62.7164		
RADIUS	50.0000		
EXTERNAL	11.7516		
DS	12 MPH		
E(MAX)	NA		
E	NA		
LG PC	NA		
LG PT	NA		
LONG CHORD	58.6850		
MID. ORD.	9.5152		
P.C. STATION	200+03.85 N	362,580.1422 E	2,282,506.3842
P.T. STATION	200+66.56 N	362,522.5757 E	2,282,517.7877
C.C.	N	362,559.2258 E	2,282,551.7991
BACK	S 24° 43' 44.31" W		
AHEAD	S 47° 08' 19.23" E		
CHORD BEAR	S 11° 12' 17.46" E		

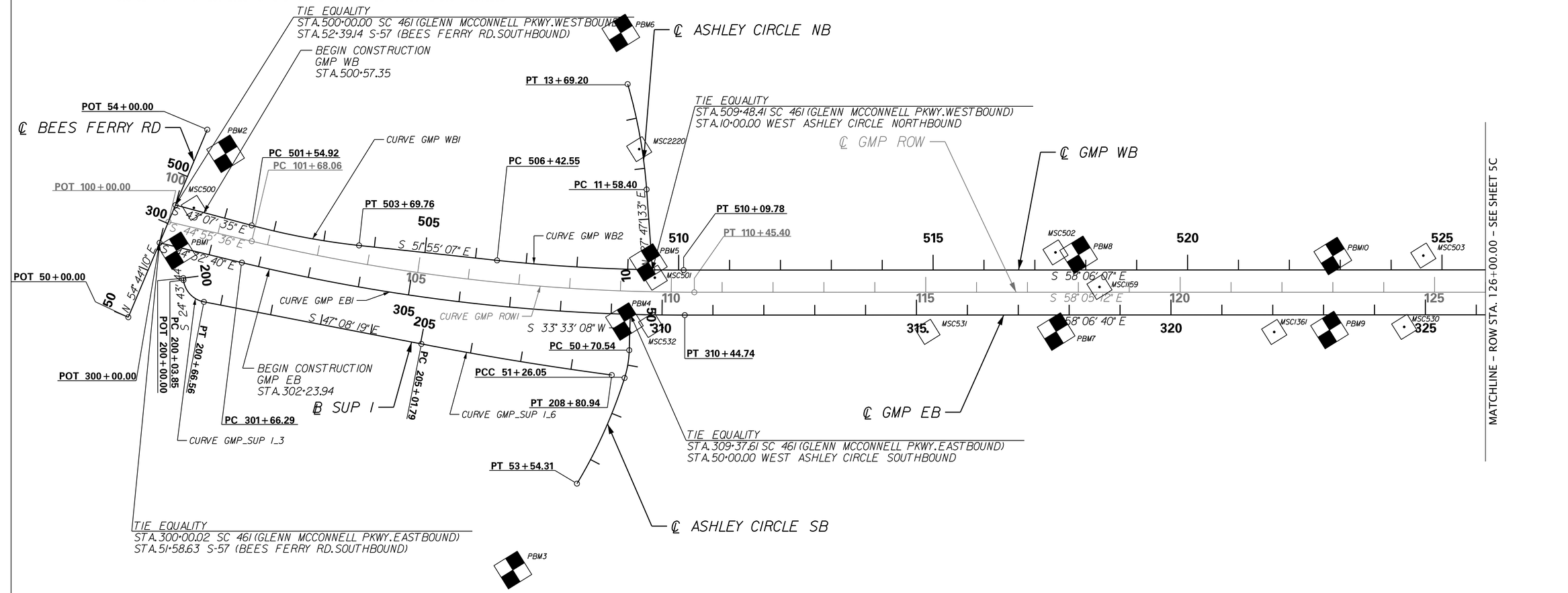
COURSE FROM PT GMP_SUP_1_3 TO PC GMP_SUP_1_6 S 47° 08' 19.23" E DIST 435.2223

CURVE DATA

CURVE GMP_SUP_1_6

P.I. STATION	206+91.42 N	362,097.5357 E	2,282,975.8048
DELTA	3° 19' 33.59" (LT)		
DEGREE	0° 52' 38.00"		
TANGENT	189.6286		
LENGTH	379.1507		
RADIUS	6,531.4972		
EXTERNAL	2.7522		
DS	12 MPH		
E(MAX)	NA		
E	NA		
LG PC	NA		
LG PT	NA		
LONG CHORD	379.0974		
MID. ORD.	2.7510		
P.C. STATION	205+01.79 N	362,226.5261 E	2,282,836.8067
P.T. STATION	208+80.94 N	361,976.8269 E	2,283,122.0525
C.C.	N	367,014.1282 E	2,287,279.7024
BACK	S 47° 08' 19.23" E		
AHEAD	S 50° 27' 52.82" E		
CHORD BEAR	S 48° 48' 06.03" E		

ENDING CHAIN GMP_SUP_1 DESCRIPTION



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DAVIS & FLOYD
SINCE 1954

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DESIGNED BY PLD DRAWN BY PLD CHECKED BY JKL

CHARLESTON COUNTY

REFERENCE DATA SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
ROW STA. 100+00.00 – STA. 126+00.00

SCALE 1"= 100' PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

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3	S.C.	CHARLESTON	P037878	SC 461	5C	

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CHAIN GMP_GOODWILL CONTAINS:
 TURN372 TURN373

BEGINNING CHAIN GMP_GOODWILL DESCRIPTION
.....................................................................

POINT TURN372          N      360,905.7412 E    2,285,233.2723 STA       20+00.00

COURSE FROM TURN372 TO TURN373 N 31° 21' 01.82" E DIST 320.8178

POINT TURN373          N      361,179.7197 E    2,285,400.1848 STA       23+20.82

.....................................................................
ENDING CHAIN GMP_GOODWILL DESCRIPTION



BEGINNING CHAIN GMP_SUP_2 DESCRIPTION
FEATURE: BL50
.....................................................................

POINT TURN222          N      360,731.0735 E    2,285,245.3378 STA      234+26.94

COURSE FROM TURN222 TO TURN223 S 57° 57' 35.21" E DIST 1,271.0988

POINT TURN223          N      360,056.7373 E    2,286,322.8176 STA      246+98.04

DS  =   12 MPH
.....................................................................
ENDING CHAIN GMP_SUP_2 DESCRIPTION
```

```
Beginning chain MARYADER description
=====================================================================================

Point 7002             N      360,110.1880 E    2,286,511.4796 Sta       30+00.00

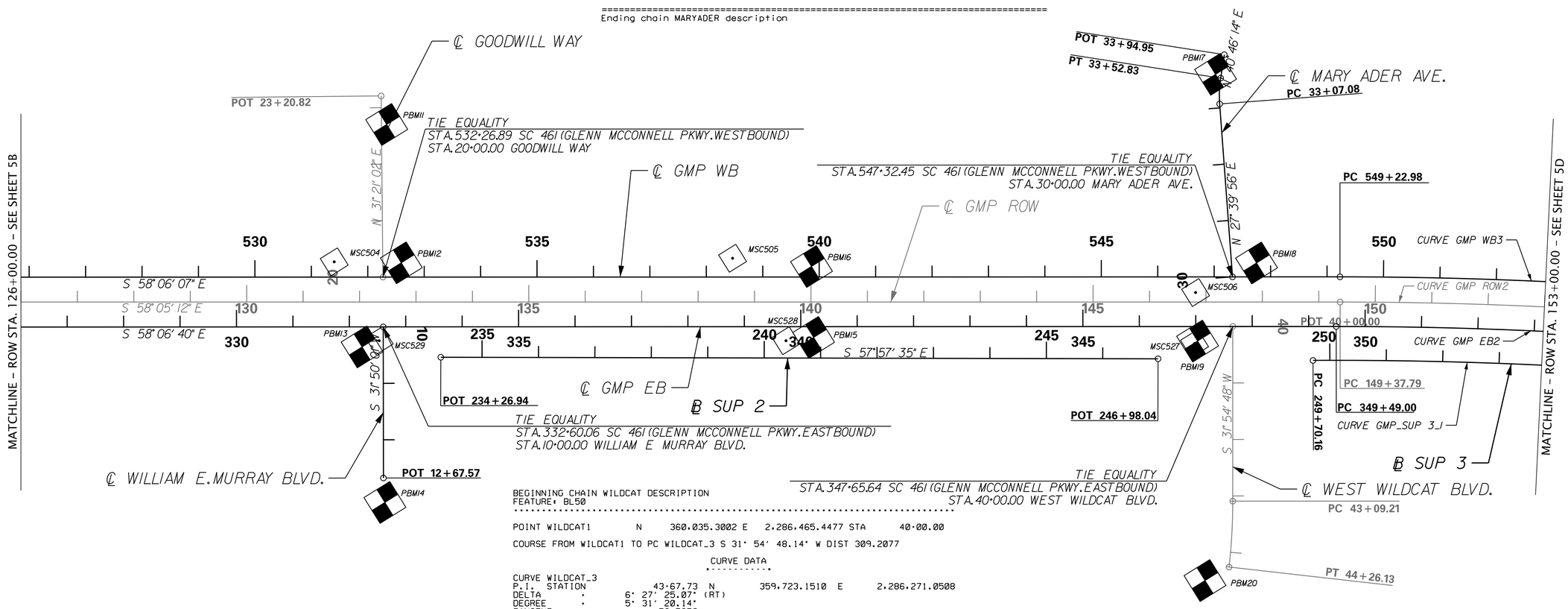
Course from 7002 to PC MARYADER1 N 27° 39' 55.76" E Dist 307.0822

                                  Curve Data
                                 *----------*
Curve MARYADER1
P.I.  Station                33+30.06  N        360,402.5090  E       2,286,664.7271
Delta        =       13° 06' 18.27" (RT)
Degree       =       28° 38' 52.40"
Tangent      =                22.9729
Length       =                45.7453
Radius       =               200.0000
External     =                 1.3151
DS           =·35 MPH
E(MAX)       =·MATCH EXISTING
E            =·MATCH EXISTING
LG PC        =·MATCH EXISTING
LG PT        =·MATCH EXISTING
LONG CHORD   =                45.6457
Mid. Ord.    =                 1.3065
P.C.  Station                33+07.08  N        360,382.1625  E       2,286,654.0605
P.T.  Station                33+52.83  N        360,419.9071  E       2,286,679.7291
C.C.                                   N        360,289.3008  E       2,286,831.1952
Back         = N  27° 39' 55.76" E
Ahead        = N  40° 46' 14.03" E
Chord Bear   = N  34° 13' 04.89" E

Course from PT MARYADER1 to 7003 N 40° 46' 14.03" E Dist 42.1222

Point 7003             N      360,451.8075 E    2,286,707.2362 Sta       33+94.95

=====================================================================================
Ending chain MARYADER description
```

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BEGINNING CHAIN WILDCAT DESCRIPTION
FEATURE: BL50
.....................................................................

POINT WILDCAT1         N      360,035.3002 E    2,286,465.4477 STA       40+00.00

COURSE FROM WILDCAT1 TO PC WILDCAT_3 S 31° 54' 48.14" W DIST 309.2077

                                  CURVE DATA
                                 *----------*
CURVE WILDCAT_3
P.I.  STATION                43+67.73  N        359,723.1510  E       2,286,271.0508
DELTA        ·       6° 27' 25.07" (RT)
DEGREE       ·       5° 31' 20.14"
TANGENT      ·                58.5250
LENGTH       ·               116.9261
RADIUS       ·             1,037.5422
EXTERNAL     ·                 1.6493
LONG CHORD   ·               116.8642
MID. ORD.    ·                 1.6467
P.C.  STATION                43+09.21  N        359,772.8298  E       2,286,301.9893
P.T.  STATION                44+26.13  N        359,677.2665  E       2,286,234.7219
C.C.                                   N        360,321.3125  E       2,285,421.2733
BACK         · S  31° 54' 48.14" W
AHEAD        · S  38° 22' 13.21" W
CHORD BEAR   · S  35° 08' 30.68" W

.....................................................................
ENDING CHAIN WILDCAT DESCRIPTION
```

SCALE: 100.000 ft / in.
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PLOT DRIVER: PDF.plt.cfg
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4/7/2020

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY JKL

CHARLESTON COUNTY

REFERENCE DATA SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
ROW STA. 126+00.00 - STA. 153+00.00

SCALE 1"= 100' PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

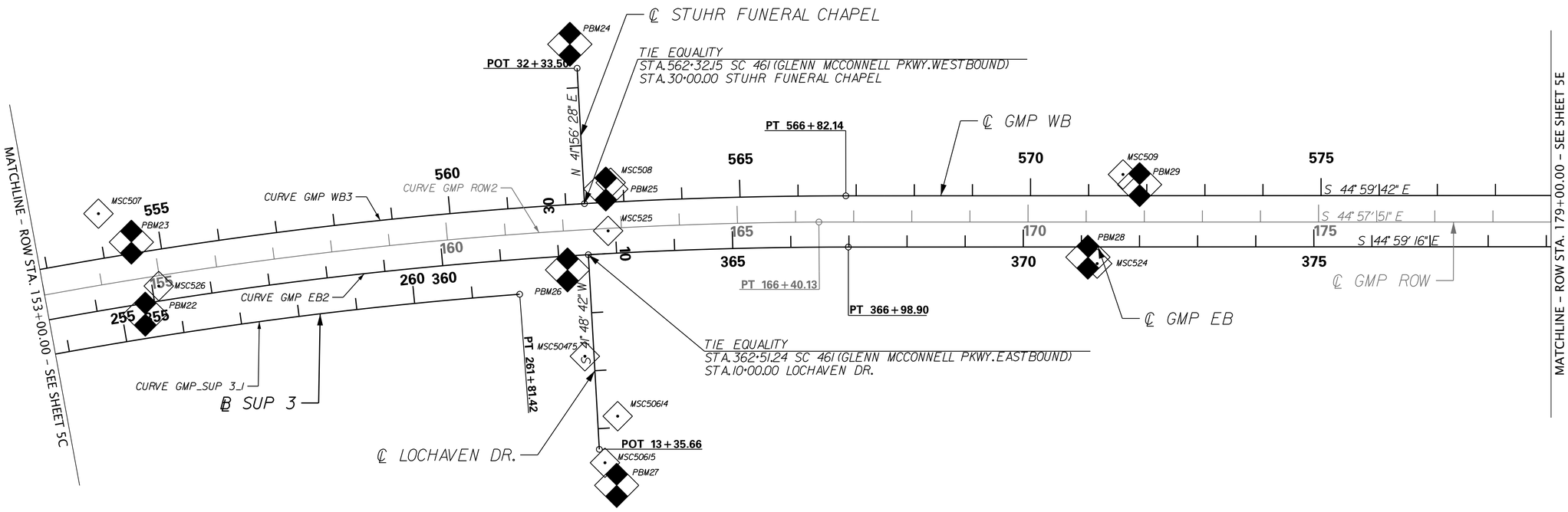
FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	5D	

BEGINNING CHAIN GMP_SUP_3 DESCRIPTION
FEATURE: BL50

CURVE DATA

CURVE GMP_SUP_3_1						
P.I. STATION		255+77.08	N	359,591.3658	E	2,287,071.4303
DELTA	9° 09' 20.41" (RT)					
DEGREE	0° 45' 21.17"					
TANGENT	606.9211					
LENGTH	1,211.2581					
RADIUS	7,580.0000					
EXTERNAL	24.2589					
DS	12 MPH					
E(MAX)	NA					
E	NA					
LG PC	NA					
LG PT	NA					
LONG CHORD	1,209.9698					
MID. ORD.	24.1815					
P.C. STATION		249+70.16	N	359,909.1792	E	2,286,554.3734
P.T. STATION		261+81.42	N	359,195.3288	E	2,287,531.3302
C.C.			N	353,451.5167	E	2,282,585.1171
BACK	S 58° 25' 21.68" E					
AHEAD	S 49° 16' 01.27" E					
CHORD BEAR	S 53° 50' 41.47" E					

ENDING CHAIN GMP_SUP_3 DESCRIPTION



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PLOT DRIVER: PDF.pltcfg
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4/7/2020

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY JKL

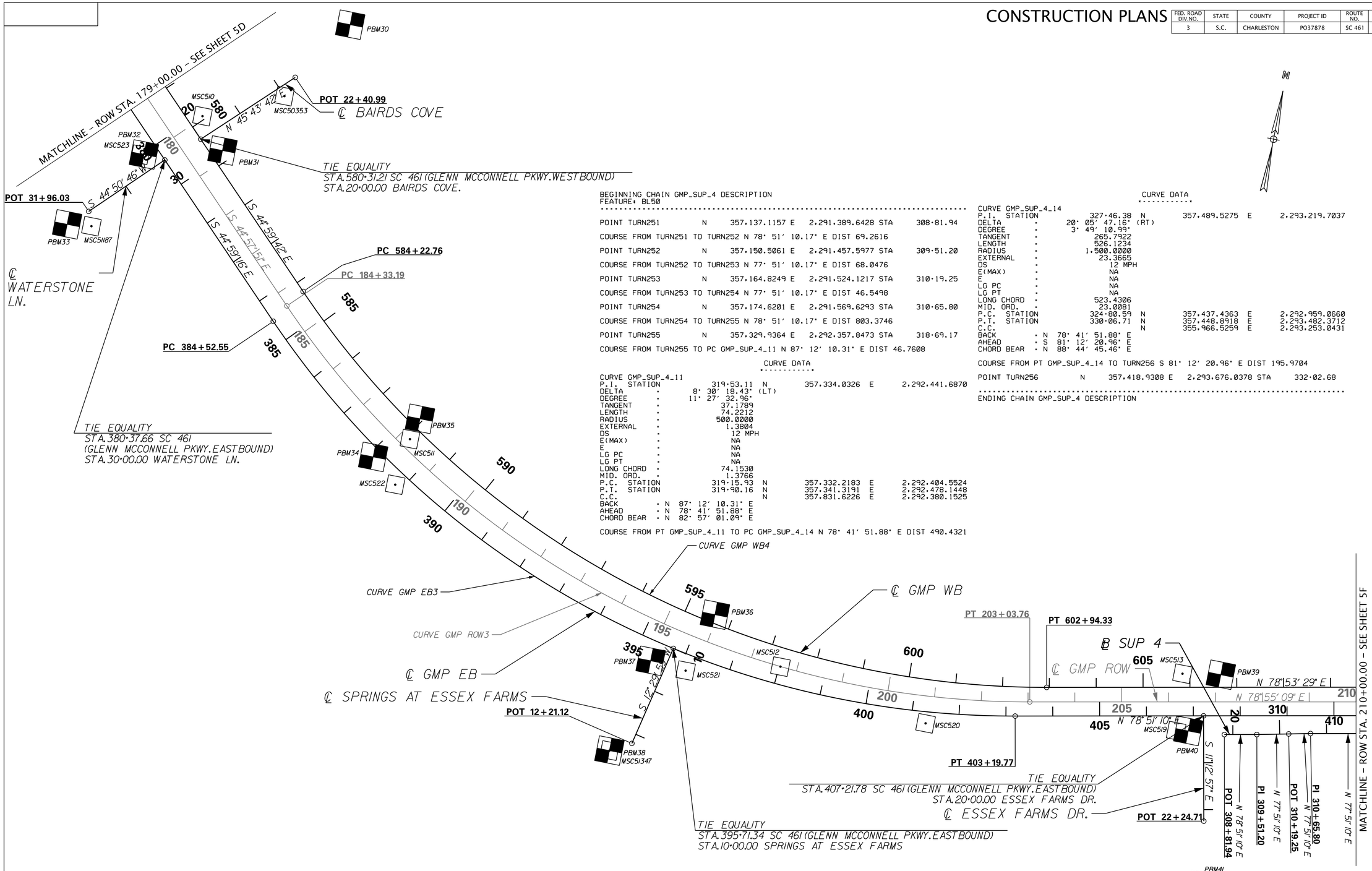
CHARLESTON COUNTY

REFERENCE DATA SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
ROW STA. 153+00.00 – STA. 179+00.00

SCALE 1"= 100' PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	PO37878	SC 461	5E	



BEGINNING CHAIN GMP_SUP_4 DESCRIPTION
FEATURE: BL50

POINT TURN251	N	357,137.1157	E	2,291,389.6428	STA 308+81.94
COURSE FROM TURN251 TO TURN252 N 78° 51' 10.17" E DIST 69.2616					
POINT TURN252	N	357,150.5061	E	2,291,457.5977	STA 309+51.20
COURSE FROM TURN252 TO TURN253 N 77° 51' 10.17" E DIST 68.0476					
POINT TURN253	N	357,164.8249	E	2,291,524.1217	STA 310+19.25
COURSE FROM TURN253 TO TURN254 N 77° 51' 10.17" E DIST 46.5498					
POINT TURN254	N	357,174.6201	E	2,291,569.6293	STA 310+65.80
COURSE FROM TURN254 TO TURN255 N 78° 51' 10.17" E DIST 803.3746					
POINT TURN255	N	357,329.9364	E	2,292,357.8473	STA 318+69.17

COURSE FROM TURN255 TO PC GMP_SUP_4_11 N 87° 12' 10.31" E DIST 46.7608

CURVE DATA

CURVE GMP_SUP_4_11				
P.I. STATION	319+53.11	N 357,334.0326	E	2,292,441.6870
DELTA	8° 30' 18.43" (LT)			
DEGREE	11° 27' 32.96"			
TANGENT	37.1789			
LENGTH	74.2212			
RADIUS	500.0000			
EXTERNAL	1.3804			
DS	12 MPH			
E(MAX)	NA			
E	NA			
LG PC	NA			
LG PT	NA			
LONG CHORD	74.1530			
MID. ORD.	1.3766			
P.C. STATION	319+15.93	N 357,332.2183	E	2,292,404.5524
P.T. STATION	319+90.16	N 357,341.3191	E	2,292,478.1448
C.C.		N 357,831.6226	E	2,292,380.1525
BACK	N 87° 12' 10.31" E			
AHEAD	N 78° 41' 51.88" E			
CHORD BEAR	N 82° 57' 01.09" E			

COURSE FROM PT GMP_SUP_4_11 TO PC GMP_SUP_4_14 N 78° 41' 51.88" E DIST 490.4321

CURVE DATA

CURVE GMP_SUP_4_14				
P.I. STATION	327+46.38	N 357,489.5275	E	2,293,219.7037
DELTA	20° 05' 47.16" (RT)			
DEGREE	3° 49' 10.99"			
TANGENT	265.7922			
LENGTH	526.1234			
RADIUS	1,500.0000			
EXTERNAL	23.3665			
DS	12 MPH			
E(MAX)	NA			
E	NA			
LG PC	NA			
LG PT	NA			
LONG CHORD	523.4306			
MID. ORD.	23.0081			
P.C. STATION	324+80.59	N 357,437.4363	E	2,292,959.0660
P.T. STATION	330+06.71	N 357,448.8918	E	2,293,482.3712
C.C.		N 355,966.5259	E	2,293,253.0431
BACK	N 78° 41' 51.88" E			
AHEAD	S 81° 12' 20.96" E			
CHORD BEAR	N 88° 44' 45.46" E			

COURSE FROM PT GMP_SUP_4_14 TO PT GMP_SUP_4_15 S 81° 12' 20.96" E DIST 195.9704

POINT TURN256 N 357,418.9308 E 2,293,676.0378 STA 332+02.68

ENDING CHAIN GMP_SUP_4 DESCRIPTION

SCALE: 100.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\Jobs0dd\13635-00\Production\Transportation\SHEETS\13635-00 GMP RefData_Sheets 100 SCALE.dgn
4/7/2020

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

DAVIS & FLOYD
SINCE 1954
240 STONERIDGE DRIVE, SUITE 105
COLUMBIA, SC 29210
(803) 256-4121

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY JKL

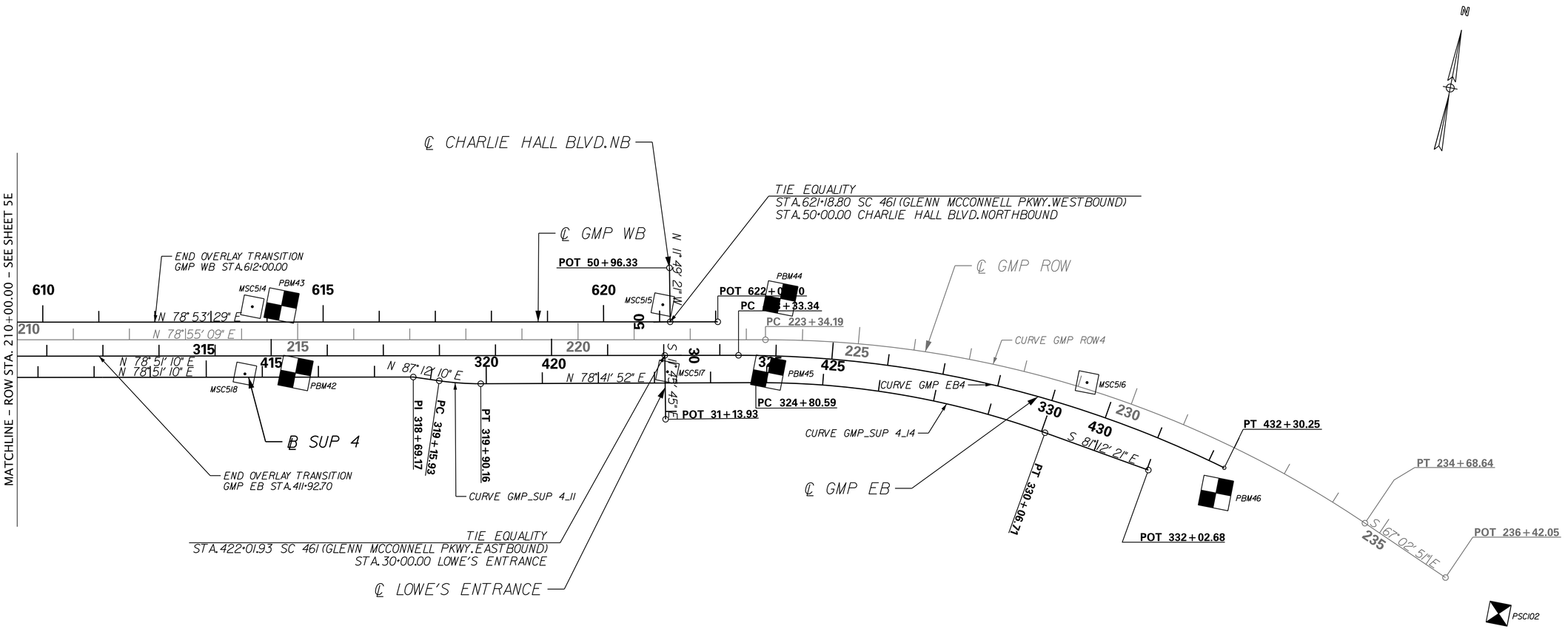
CHARLESTON COUNTY

REFERENCE DATA SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
ROW STA. 179+00.00 – STA. 210+00.00

SCALE 1"= 100' PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	5F	



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4/7/2020

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY JKL

CHARLESTON COUNTY

REFERENCE DATA SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
ROW STA. 210+00.00 - STA. 236+42.05

SCALE 1"= 100' PLOT SIZE = 22" x 34"

BEGINNING CHAIN GMP EB DESCRIPTION

POINT 7000 N 362,667.1070 E 2,282,505.2556 STA 300+00.00

COURSE FROM 7000 TO PC GMP EB1 S 44° 32' 40.26" E DIST 166.2871

CURVE DATA

CURVE GMP EB1						
P.I. STATION	306+07.58	N	362,234.0832	E	2,282,931.4489	
DELTA	13° 33' 59.36" (LT)					
DEGREE	1° 32' 39.70"					
TANGENT	441.2904					
LENGTH	878.4534					
RADIUS	3,710.0000					
EXTERNAL	26.1527					
DS	60					
E(MAX)	8%					
E	4.19%					
LG PC	0.5%					
LG PT	0.5%					
LONG CHORD	876.4028					
MID. ORD.	25.9697					
P.C. STATION	301+66.29	N	362,548.5933	E	2,282,621.8999	
P.T. STATION	310+44.74	N	362,000.9604	E	2,283,306.1367	
C.C.		N	365,151.0218	E	2,285,266.0379	
BACK	S 44° 32' 40.26" E					
AHEAD	S 58° 06' 39.62" E					
CHORD BEAR	S 51° 19' 39.94" E					

COURSE FROM PT GMP EB1 TO PC GMP EB2 S 58° 06' 39.62" E DIST 3,904.2612

CURVE DATA

CURVE GMP EB2						
P.I. STATION	358+27.80	N	359,474.1908	E	2,287,367.3002	
DELTA	13° 07' 23.73" (RT)					
DEGREE	0° 44' 59.80"					
TANGENT	878.7936					
LENGTH	1,749.8968					
RADIUS	7,640.0000					
EXTERNAL	50.3757					
DS	60					
E(MAX)	8%					
E	2.21%					
LG PC	0.5%					
LG PT	0.5%					
LONG CHORD	1,746.0742					
MID. ORD.	50.0457					
P.C. STATION	349+49.00	N	359,938.4358	E	2,286,621.1401	
P.T. STATION	366+98.90	N	358,852.6570	E	2,287,988.5682	
C.C.		N	353,451.5167	E	2,282,585.1171	
BACK	S 58° 06' 39.62" E					
AHEAD	S 44° 59' 15.88" E					
CHORD BEAR	S 51° 32' 57.75" E					

COURSE FROM PT GMP EB2 TO PC GMP EB3 S 44° 59' 15.88" E DIST 1,753.6546

CURVE DATA

CURVE GMP EB3						
P.I. STATION	394+68.86	N	356,893.5783	E	2,289,946.8091	
DELTA	56° 09' 33.95" (LT)					
DEGREE	3° 00' 27.55"					
TANGENT	1,016.3087					
LENGTH	1,867.2180					
RADIUS	1,905.0000					
EXTERNAL	254.1453					
DS	60					
E(MAX)	8%					
E	6.84%					
LG PC	0.5%					
LG PT	0.5%					
LONG CHORD	1,793.3652					
MID. ORD.	224.2307					
P.C. STATION	384+52.55	N	357,612.3707	E	2,289,228.3241	
P.T. STATION	403+19.77	N	357,090.0611	E	2,290,943.9440	
C.C.		N	358,959.1210	E	2,290,575.6506	
BACK	S 44° 59' 15.88" E					
AHEAD	N 78° 51' 10.17" E					
CHORD BEAR	S 73° 04' 02.86" E					

COURSE FROM PT GMP EB3 TO PC GMP EB4 N 78° 51' 10.17" E DIST 2,013.5674

CURVE DATA

CURVE GMP EB4						
P.I. STATION	427+89.79	N	357,567.5894	E	2,293,367.3627	
DELTA	26° 13' 08.85" (RT)					
DEGREE	2° 55' 23.71"					
TANGENT	456.4511					
LENGTH	896.9157					
RADIUS	1,960.0000					
EXTERNAL	52.4482					
DS	60					
E(MAX)	8%					
E	6.70%					
LG PC	0.5%					
LG PT	0.5%					
LONG CHORD	889.1103					
MID. ORD.	51.0813					
P.C. STATION	423+33.34	N	357,479.3438	E	2,292,919.5231	
P.T. STATION	432+30.25	N	357,448.8976	E	2,293,808.1119	
C.C.		N	355,556.3215	E	2,293,298.4496	
BACK	N 78° 51' 10.17" E					
AHEAD	S 74° 55' 40.98" E					
CHORD BEAR	S 88° 02' 15.41" E					

ENDING CHAIN GMP EB DESCRIPTION

BEGINNING CHAIN GMP ROW DESCRIPTION

POINT 7050 N 362,693.0056 E 2,282,541.9227 STA 100+00.00

COURSE FROM 7050 TO PC GMP ROW1 S 44° 55' 36.00" E DIST 168.0561

CURVE DATA

CURVE GMP ROW1						
P.I. STATION	106+08.67	N	362,262.0632	E	2,282,971.7634	
DELTA	13° 09' 36.00" (LT)					
DEGREE	1° 29' 59.94"					
TANGENT	440.6100					
LENGTH	877.3425					
RADIUS	3,819.7585					
EXTERNAL	25.3283					
DS	NA					
E(MAX)	NA					
E	NA					
LG PC	NA					
LG PT	NA					
LONG CHORD	875.4152					
MID. ORD.	25.1614					
P.C. STATION	101+68.06	N	362,574.0200	E	2,282,660.6041	
P.T. STATION	110+45.40	N	362,029.1409	E	2,283,345.7746	
C.C.		N	365,271.5379	E	2,285,365.0360	
BACK	S 44° 55' 36.00" E					
AHEAD	S 58° 05' 12.00" E					
CHORD BEAR	S 51° 30' 24.00" E					

COURSE FROM PT GMP ROW1 TO PC GMP ROW2 S 58° 05' 12.00" E DIST 3,892.3894

CURVE DATA

CURVE GMP ROW2						
P.I. STATION	157+92.48	N	359,519.6607	E	2,287,375.3327	
DELTA	12° 44' 47.47" (RT)					
DEGREE	0° 44' 55.56"					
TANGENT	854.6970					
LENGTH	1,702.3381					
RADIUS	7,652.0323					
EXTERNAL	47.5849					
DS	NA					
E(MAX)	NA					
E	NA					
LG PC	NA					
LG PT	NA					
LONG CHORD	1,698.8297					
MID. ORD.	47.2908					
P.C. STATION	149+37.79	N	359,971.4842	E	2,286,649.8242	
P.T. STATION	166+40.13	N	358,918.8971	E	2,287,983.2720	
C.C.		N	353,476.0666	E	2,282,604.6854	
BACK	S 58° 05' 12.00" E					
AHEAD	S 45° 20' 24.53" E					
CHORD BEAR	S 51° 42' 48.26" E					

COURSE FROM PT GMP ROW2 TO PC GMP ROW3 S 44° 57' 51.00" E DIST 1,793.0636

CURVE DATA

CURVE GMP ROW3						
P.I. STATION	194+51.18	N	356,929.9383	E	2,289,969.7445	
DELTA	56° 07' 00.00" (LT)					
DEGREE	2° 59' 59.94"					
TANGENT	1,017.9914					
LENGTH	1,870.5660					
RADIUS	1,909.8700					
EXTERNAL	254.3643					
DS	NA					
E(MAX)	NA					
E	NA					
LG PC	NA					
LG PT	NA					
LONG CHORD	1,796.6921					
MID. ORD.	224.4686					
P.C. STATION	184+33.19	N	357,650.2170	E	2,289,250.3662	
P.T. STATION	203+03.76	N	357,125.5898	E	2,290,968.7576	
C.C.		N	358,999.8541	E	2,290,601.6926	
BACK	S 44° 57' 51.00" E					
AHEAD	N 78° 55' 09.00" E					
CHORD BEAR	S 73° 01' 21.00" E					

COURSE FROM PT GMP ROW3 TO PC GMP ROW4 N 78° 55' 09.00" E DIST 2,030.4383

CURVE DATA

CURVE GMP ROW4						
P.I. STATION	229+18.70	N	357,628.1664	E	2,293,534.9555	
DELTA	34° 02' 00.00" (RT)					
DEGREE	3° 00' 00.00"					
TANGENT	584.5100					
LENGTH	1,134.4442					
RADIUS	1,909.8589					
EXTERNAL	87.4425					
DS	NA					
E(MAX)	NA					
E	NA					
LG PC	NA					
LG PT	NA					
LONG CHORD	1,117.8399					
MID. ORD.	83.6143					
P.C. STATION	223+34.19	N	357,515.8272	E	2,292,961.3425	
P.T. STATION	234+68.64	N	357,400.2263	E	2,294,073.1889	
C.C.		N	355,641.5738	E	2,293,328.4053	
BACK	N 78° 55' 09.00" E					
AHEAD	S 67° 02' 51.00" E					
CHORD BEAR	S 84° 03' 51.00" E					

COURSE FROM PT GMP ROW4 TO 7051 S 67° 02' 51.00" E DIST 173.4100

POINT 7051 N 357,332.6019 E 2,294,232.8698 STA 236+42.05

ENDING CHAIN GMP ROW DESCRIPTION

BEGINNING CHAIN GMP WB DESCRIPTION

POINT 6004 N 362,713.5737 E 2,282,571.0111 STA 500+00.00

COURSE FROM 6004 TO PC GMP WB1 S 43° 07' 34.54" E DIST 154.9176

CURVE DATA

CURVE GMP WB1						
P.I. STATION	502+62.55	N	362,521.9534	E	2,282,750.4910	
DELTA	8° 47' 32.48" (LT)					
DEGREE	4° 05' 33.20"					
TANGENT	107.6302					
LENGTH	214.8378					
RADIUS	1,400.0000					
EXTERNAL	4.1311					
DS	60					
E(MAX)	8%					
E	6.39%					
LG PC	0.5%					
LG PT	0.5%					
LONG CHORD	214.6271					
MID. ORD.	4.1190					
P.C. STATION	501+54.92	N	362,600.5072	E	2,282,676.9140	
P.T. STATION	503+69.76	N	362,455.5693	E	2,282,835.2105	
C.C.		N	363,557.5590	E	2,283,698.7027	
BACK	S 43° 07' 34.54" E					
AHEAD	S 51° 55' 07.03" E					
CHORD BEAR	S 47° 31' 20.79" E					

COURSE FROM PT GMP WB1 TO PC GMP WB2 S 51° 55' 07.03" E DIST 272.7897

CURVE DATA

CURVE GMP WB2						
P.I. STATION	508+26.33	N	362,174.3973	E	2,283,194.9353	
DELTA	6° 00' 42.01" (LT)					
DEGREE	1° 38' 13.28"					
TANGENT	183.7846					
LENGTH	367.2320					
RADIUS	3,500.0000					
EXTERNAL	4.8219					
DS	60					
E(MAX)	8%					
E	4.40%					
LG PC	0.5%					
LG PT	0.5%					
LONG CHORD	367.0636					
MID. ORD.	4.8153					
P.C. STATION	506+42.55	N	362,287.3180	E	2,283,049.9329	
P.T. STATION	510+09.78	N	362,077.2838	E	2,283,350.9666	
C.C.		N	365,048.7481	E	2,285,200.3990	
BACK	S 52° 05' 25.06" E					
AHEAD	S 58° 06' 07.07" E					
CHORD BEAR	S 55° 05' 46.06" E					

COURSE FROM PT GMP WB2 TO PC GMP WB3 S 58° 06' 07.07" E DIST 3,913.1980

CURVE DATA

CURVE GMP WB3						
P.I. STATION	558+06.42	N	359,542.6959	E	2,287,423.2634	
DELTA	13° 06' 25.24" (RT)					
DEGREE	0° 44' 42.25"					
TANGENT	883.4400					
LENGTH	1,759.1681					
RADIUS	7,690.0000					
EXTERNAL	50.5792					
DS	60					
E(MAX)	8%					
E	2.19%					
LG PC	0.5%					
LG PT	0.5%					
LONG CHORD	1,755.3348					
MID. ORD.	50.2487					
P.C. STATION	549+22.98	N	360,009.5138	E	2,286,673.2318	
P.T. STATION	566+82.14	N	358,917.9544	E	2,288,047.8948	
C.C.		N	353,480.7823	E	2,282,609.7647	
BACK	S 58° 06' 07.07" E					
AHEAD	S 44° 59' 41.83" E					
CHORD BEAR	S 51° 32' 54.45" E					

COURSE FROM PT GMP WB3 TO PC GMP WB4 S 44° 59' 41.83" E DIST 1,740.6144

CURVE DATA

CURVE GMP WB4						
P.I. STATION	594+41.29	N	356,966.7724	E	2,289,998.7331	
DELTA	56° 06' 49.40" (LT)					
DEGREE	2° 59' 53.55"					
TANGENT	1,018.5307					
LENGTH	1,871.5745					
RADIUS	1,911.0000					
EXTERNAL	254.4851					
DS	60					
E(MAX)	8%					
E	6.82%					
LG PC	0.5%					
LG PT	0.5%					
LONG CHORD	1,797.6684					
MID. ORD.	224.5783					
P.C. STATION	584+22.76	N	357,687.0458	E	2,289,278.5866	
P.T. STATION	602+94.33	N	357,163.0133	E	2,290,998.1801	
C.C.		N	359,038.2078	E	2,290,629.9867	
BACK	S 44° 59' 41.83" E					
AHEAD	N 78° 53' 28.77" E					
CHORD BEAR	S 73° 03' 06.53" E					

COURSE FROM PT GMP WB4 TO 6005 N 78° 53' 28.77" E DIST 1,909.3693

POINT 6005 N 357,530.8924 E 2,292,871.7745 STA 622+03.70

ENDING CHAIN GMP WB DESCRIPTION

SCALE: 100.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\Jobs0dd\13635-00\Production\Transportation\SHEETS\13635-00 GMP RefData_Sheets 100 SCALE.dgn
4/7/2020

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 105
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY JKL

CHARLESTON COUNTY

REFERENCE DATA SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

NOT TO SCALE PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	PO37878	SC 461	5H	

PROPERTY MONUMENTS FOUND

ALIGNMENT	STATION	OFFSET	NORTHING	EASTING	DESCRIPTION
GMP ROW	127+99.02	-22.7596	361121.43	2284846.37	RBF 5/8
GMP ROW	143+00.63	-14.5444	360320.66	2286116.66	RBF 5/8 W/CAP
GMP ROW	144+70.73	-69.6264	360277.49	2286290.17	RBF 5/8 DIST
GMP ROW	145+87.52	-14.0206	360168.55	2286359.91	RBF 5/8 W/CAP
GMP ROW	151+74.48	12.7252	359832.68	2286841.72	RBF 5/8 W/CAP
GMP ROW	154+64.85	-19.0584	359693.13	2287098.44	RBF 5/8 W/CAP
GMP ROW	157+53.61	-23.0473	359522.30	2287332.25	RBF 5/8 W/CAP
GMP ROW	163+30.70	-3.0449	359134.13	2287760.89	RBF 5/8 W/CAP
GMP ROW	172+09.52	-21.7146	358531.36	2288401.01	RBF 5/8 W/CAP
GMP ROW	188+90.44	-20.4662	357385.75	2289619.59	RBF 5/8 W/CAP
GMP ROW	194+81.76	3.8670	357139.61	2290152.38	RBF 5/8 W/CAP
GMP ROW	206+26.04	-1.2146	357188.72	2291284.80	RBF 5/8 W/CAP
GMP ROW	215+14.22	-6.4968	357364.61	2292155.41	RBF 5/8 W/CAP
GMP ROW	223+64.53	5.5948	357515.91	2292992.15	RBF 5/8
GMP ROW	229+46.07	-11.6799	357547.64	2293571.75	RBF 5/8
GMP ROW	146+82.82	-138.9005	360224.18	2286506.82	RBF 1/2"
GMP ROW	207+17.09	135.1087	357072.44	2291400.36	RBF 5/8"
GMP ROW	209+42.05	100.0000	357150.13	2291614.37	RBF 5/8"
GMP ROW	209+42.02	134.9202	357115.86	2291621.05	RBF 5/8"
GMP ROW	120+27.80	199.1436	361340.76	2284074.41	IPF 1/2
GMP ROW	118+42.96	-180.2096	361760.49	2284118.05	RBF 5/8
GMP ROW	131+99.61	-325.1350	361166.34	2285346.25	IPF 1/2"
GMP ROW	131+99.73	-125.1127	360996.49	2285240.61	IPF 1/2"
GMP ROW	132+79.78	-123.1608	360952.51	2285307.54	IPF 5/8"
GMP ROW	165+83.37	-126.1863	359049.05	2288030.78	IPF 5/8
GMP ROW	208+54.24	-100.7506	357330.26	2291489.61	IPF 5/8
GMP ROW	127+71.35	-147.3307	361241.80	2284888.73	IPF 5/8
GMP ROW	132+82.41	124.2250	360741.13	2285178.99	IPF 5/8 NE
GMP ROW	137+61.41	124.2427	360487.89	2285585.58	IPF 5/8 NE
GMP ROW	107+95.19	260.6566	361956.51	2282985.88	IPPF 1"
GMP ROW	100+32.14	464.7098	362342.07	2282235.60	IPF 5/8"
GMP ROW	140+41.04	-124.3202	360551.07	2285954.34	RBF 3/4"
GMP ROW	206+82.35	-226.4122	357420.54	2291296.78	RBF 1/2"
GMP ROW	206+98.02	-149.3564	357347.94	2291326.97	RBF 5/8"
GMP ROW	206+50.10	-152.2813	357341.60	2291279.38	RBF 5/8"

SURVEY CONTROL POINTS

POINT ID	ALIGNMENT	STATION	OFFSET	NORTHING	EASTING	ELEV.	DESCRIPTION
FSC 101	GMP ROW	NA	NA	356909.3570	2295253.7680	9.04	PRIMARY
FSC 102	GMP ROW	NA	NA	357287.6380	2294338.1200	14.25	PRIMARY
FSC 103	GMP ROW	101+01.16	-1020.37	363341.9685	2283335.7950	11.10	PRIMARY
FSC 104	GMP ROW	105+37.50	-1794.50	363709.5125	2284075.9450	9.80	PRIMARY
MSC 500	GMP ROW	100+42.53	-37.99	362689.7199	2282598.8590	13.27	TRAV 500 PKS
MSC 501	GMP ROW	109+67.23	-27.90	362094.5099	2283295.0790	22.22	TRAV 501 PKS
MSC 502	GMP ROW	117+54.64	-78.50	361720.8470	2283989.3160	38.38	TRAV 502 RBS
MSC 503	GMP ROW	124+77.81	-72.14	361333.1534	2284599.8100	35.55	TRAV 503 RBS
MSC 504	GMP ROW	131+55.14	-71.23	360974.3231	2285174.2830	18.87	TRAV 504 RBS
MSC 505	GMP ROW	138+61.08	-77.52	360606.4741	2285776.8480	12.79	TRAV 505 RBS
MSC 506	GMP ROW	146+81.66	-16.89	360121.2157	2286441.3370	13.45	TRAV 506 RBS
MSC 507	GMP ROW	154+14.65	-122.03	359806.3207	2287117.3280	12.44	TRAV 507 RBS
MSC 508	GMP ROW	162+85.70	-78.33	359220.2997	2287777.9120	12.08	TRAV 508 RBS
MSC 509	GMP ROW	171+63.29	-81.91	358606.6136	2288410.9260	11.34	TRAV 509 RBS
MSC 510	GMP ROW	179+96.68	-76.28	358012.9708	2288995.8740	14.54	TRAV 510 RBS
MSC 511	GMP ROW	188+22.55	-20.45	357421.6589	2289562.8410	14.21	TRAV 511 RBF
MSC 512	GMP ROW	197+64.57	0.24	357097.2899	2290432.0700	10.81	TRAV 512 RBF
MSC 513	GMP ROW	206+29.69	-60.27	357247.3767	2291277.0290	9.76	TRAV 513 RBF
MSC 514	GMP ROW	214+19.25	-58.99	357397.8717	2292052.1140	10.32	TRAV 514 PKS
MSC 515	GMP ROW	221+51.16	-62.54	357542.0195	2292769.7020	13.30	TRAV 515 RBS
MSC 516	GMP ROW	229+13.09	-11.25	357551.1352	2293538.7520	16.94	TRAV 516 RBS
MSC 517	GMP ROW	221+59.48	57.12	357426.1981	2292800.8650	12.04	TRAV 517 PKS
MSC 518	GMP ROW	214+06.02	60.90	357277.6711	2292062.1800	10.09	TRAV 518 PKS
MSC 519	GMP ROW	206+16.15	62.26	357124.5300	2291287.2890	9.79	TRAV 519 RBS
MSC 520	GMP ROW	200+87.53	58.23	357038.0762	2290759.3330	14.33	TRAV 520 RBS
MSC 521	GMP ROW	195+79.48	74.15	357049.9881	2290235.1210	15.12	TRAV 521 RBS
MSC 522	GMP ROW	188+66.51	71.35	357320.3531	2289550.7420	17.58	TRAV 522 RBS
MSC 523	GMP ROW	179+91.03	79.71	357906.7363	2288881.5050	14.69	TRAV 523 RBS
MSC 524	GMP ROW	171+18.86	71.65	358529.5366	2288270.8850	12.25	TRAV 524 RBS
MSC 525	GMP ROW	162+76.99	4.25	359164.7625	2287716.1760	11.19	TRAV 525 RBS
MSC 526	GMP ROW	154+96.52	17.70	359644.7753	2287102.4760	11.47	TRAV 526 RBS
MSC 527	GMP ROW	146+79.73	73.40	360045.5935	2286391.9690	13.39	TRAV 527 RBS
MSC 528	GMP ROW	139+55.69	68.45	360432.5499	2285779.9860	13.98	TRAV 528 RBS
MSC 529	GMP ROW	132+34.43	67.22	360814.8830	2285168.3940	17.71	TRAV 529 PKS
MSC 530	GMP ROW	124+40.65	68.23	361233.6400	2284494.0650	35.48	TRAV 530 PKS
MSC 531	GMP ROW	115+03.54	77.81	361720.9027	2283693.5330	34.64	TRAV 531 PKS
MSC 532	GMP ROW	109+61.84	65.09	362019.5968	2283239.7250	24.08	TRAV 532 PKS
MSC 1159	GMP ROW	118+41.51	-10.46	361617.1714	2284027.0820	38.36	TRAV 1159 NLS
MSC 1361	GMP ROW	121+84.83	78.05	361360.5463	2284271.7180	37.86	TRAV 1361 PKS
MSC 2220	GMP ROW	109+28.53	-279.72	362325.2353	2283402.5910	15.45	TRAV 2220 NLS
MSC 50353	GMP ROW	180+58.78	-245.24	358088.4367	2289159.3060	12.51	TRAV 50353 NLS
MSC 50475	GMP ROW	162+23.80	217.59	359040.4766	2287535.0350	10.33	TRAV 50475 NLS
MSC 50614	GMP ROW	162+76.10	323.88	358927.5788	2287501.9170	10.08	TRAV 50614 NLS
MSC 50615	GMP ROW	162+48.51	402.64	358886.4182	2287429.8000	11.36	TRAV 50615 PKS
MSC 51187	GMP ROW	180+59.57	251.36	357736.9456	2288808.4930	13.03	TRAV 51187 NLS
MSC 51347	GMP ROW	195+03.34	294.49	356851.4008	2290108.3930	10.91	TRAV 51347 PKF-

PROJECT BENCHMARKS

POINT ID	ALIGNMENT	STATION	OFFSET	NORTHING	EASTING	ELEV.	DESCRIPTION
PBM 1	GMP ROW	100+28.41	51.81	362636.2969	2282525.3050	13.75	PKS 1
PBM 2	GMP ROW	100+78.78	-155.78	362747.2424	2282707.8528	12.40	PKS 2
PBM 3	GMP ROW	107+34.05	560.48	361754.2527	2282754.4400	16.86	PKS 3
PBM 4	GMP ROW	109+10.07	59.87	362053.0355	2283198.7660	22.48	PKS 4
PBM 5	GMP ROW	109+53.64	-57.59	362126.7157	2283300.0808	20.76	PKS 5
PBM 6	GMP ROW	108+78.76	-506.61	362538.2324	2283492.5992	15.82	PKS 6
PBM 7	GMP ROW	117+56.36	77.23	361587.7444	2283908.4513	37.83	PKS 7
PBM 8	GMP ROW	118+00.49	-73.72	361692.5502	2284025.7075	38.08	PKS 8
PBM 9	GMP ROW	122+93.49	74.15	361306.4068	2284366.0190	37.12	PKS 9
PBM 10	GMP ROW	122+99.97	-71.36	361426.5031	2284448.4432	37.18	PKS 10
PBM 11	GMP ROW	132+48.15	-314.47	361131.6221	2285381.8131	12.24	PKS 11
PBM 12	GMP ROW	132+74.04	-69.51	360910.0109	2285274.2977	16.34	PKS 12
PBM 13	GMP ROW	132+04.56	79.44	360820.3012	2285136.5838	17.56	PKS 13
PBM 14	GMP ROW	132+44.98	354.85	360565.1472	2285025.2988	13.49	PKS 14
PBM 15	GMP ROW	140+04.77	62.60	360411.5707	2285824.7445	14.26	PKS 15
PBM 16	GMP ROW	140+00.95	-63.02	360520.2254	2285887.9037	14.31	PKS 16
PBM 17	GMP ROW	147+17.06	-403.28	360430.4892	2286675.6460	14.43	PKS 17
PBM 18	GMP ROW	147+89.67	-69.25	360108.5669	2286560.7036	13.37	PKS 18
PBM 19	GMP ROW	146+85.19	69.09	360046.3717	2286398.8893	13.25	PKS 19
PBM 20	GMP ROW	146+98.35	493.15	359679.4525	2286185.8858	14.04	PKS 20
PBM 22	GMP ROW	154+65.89	61.83	359626.9685	2287051.8913	11.68	PKS 22
PBM 23	GMP ROW	154+62.05	-64.38	359731.5139	2287122.6985	13.48	PKS 23
PBM 24	GMP ROW	162+30.49	-320.32	359438.4594	2287896.9763	11.98	PKS 24
PBM 25	GMP ROW	162+76.89	-67.97	359218.5486	2287764.3721	12.70	PKS 25
PBM 26	GMP ROW	162+02.90	67.20	359166.7506	2287619.2380	10.67	PKS 26
PBM 27	GMP ROW	162+67.49	442.66	358844.6330	2287416.5004	10.88	PKS 27
PBM 28	GMP ROW	171+02.99	60.47	358548.6677	2288267.5776	13.24	PKS 28
PBM 29	GMP ROW	171+92.01	-64.38	358573.9055	2288418.8252	13.45	PKS 29
PBM 30	GMP ROW	180+10.53	-446.75	358264.9725	2289267.7902	10.56	PKS 30
PBM 31	GMP ROW	180+81.39	-70.83	357949.1841	2289051.8767	14.93	PKS 31
PBM 32	GMP ROW	179+95.07	73.03	357908.6014	2288889.0964	14.81	PKS 32
PBM 33	GMP ROW	180+27.38	292.22	357730.8481	2288756.8359	12.61	PKS 33
PBM 34	GMP ROW	187+93.97	61.68	357369.4656	2289493.1567	18.02	PKS 34
PBM 35	GMP ROW	188+06.94	-66.43	357468.4034	2289575.5712	12.03	PKS 35
PBM 36	GMP ROW	195+93.88	-59.99	357179.2970	2290273.6227	9.83	PKS 36
PBM 37	GMP ROW	195+05.54	83.74	357056.2977	2290157.7857	15.74	PKS 37
PBM 38	GMP ROW	195+03.35	294.52	356851.3650	2290108.3887	10.88	PKS 38
PBM 39	GMP ROW	207+11.51	-58.07	357260.9483	2291357.7458	10.25	PKS 39
PBM 40	GMP ROW	206+41.97	61.91	357129.8387	2291312.5691	10.06	PKS 40
PBM 41	GMP ROW	206+70.84	393.02	356810.4452	2291404.5319	7.75	PKS 41
PBM 42	GMP ROW	214+96.29	59.27	357296.6180	2292150.4534	10.05	PKS 42
PBM 43	GMP ROW	214+71.32	-61.10	357409.9522	2292102.8112	10.20	PKS 43
PBM 44	GMP ROW	223+59.83	-73.86	357593.2549	2292973.3116	16.77	PKS 44
PBM 45	GMP ROW	223+39.34	58.52	357459.3544	2292977.4815	12.08	PKS 45
PBM 46	GMP ROW	232+05.67	86.82	357401.9728	2293802.1951	13.36	PKS 46

NOTES:

1. The alignment Station and Offset are referenced to the existing Survey Centerline.
2. Date of Survey:

The Property Monuments Found listed on this sheet are assumed to be property corner monuments, field located during the course of this survey. The Department makes no claim that these located monuments are the true position of any property and takes no responsibility for this information being used as such. These monuments are tied to the control of this project in an effort to document and preserve their location in the event they are disturbed or destroyed during the construction of the project.

SCDOT SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

SURVEY CONTROL DATA

PROJECT DESCRIPTION

DATUM DESCRIPTION

This GRID Coordinate System developed for this project is based on NAD83(2011) South Carolina State Plane Coordinate System. A Combined Scale Factor (CSF) for each Survey Control Point must be computed and applied to horizontal ground distances. Elevations for this project are based on NAVD88 for with an Elevation of 0.00

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY _____ DRAWN BY _____ CHECKED BY _____

CHARLESTON COUNTY

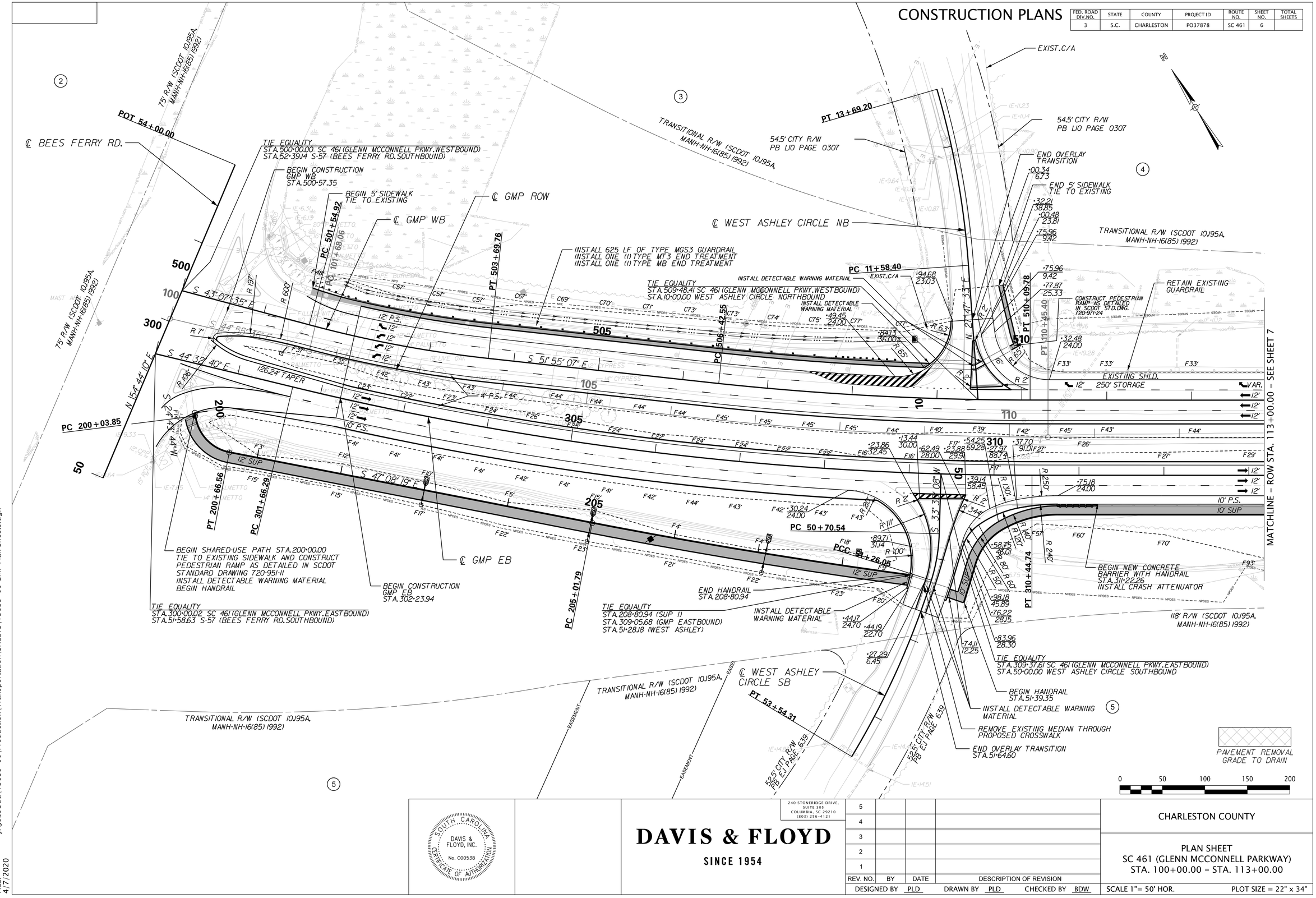
SURVEY CONTROL DATA SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 100' PLOT SIZE = 22" x 34"

SCALE: 100.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\Jobs00s\13635-00\Production\Transportation\SHEETS\13635-00 GMP Survey Control Data Sheets.dgn
4/7/2020

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	6	



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4/7/2020

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION DAVIS & FLOYD, INC. No. C00538

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

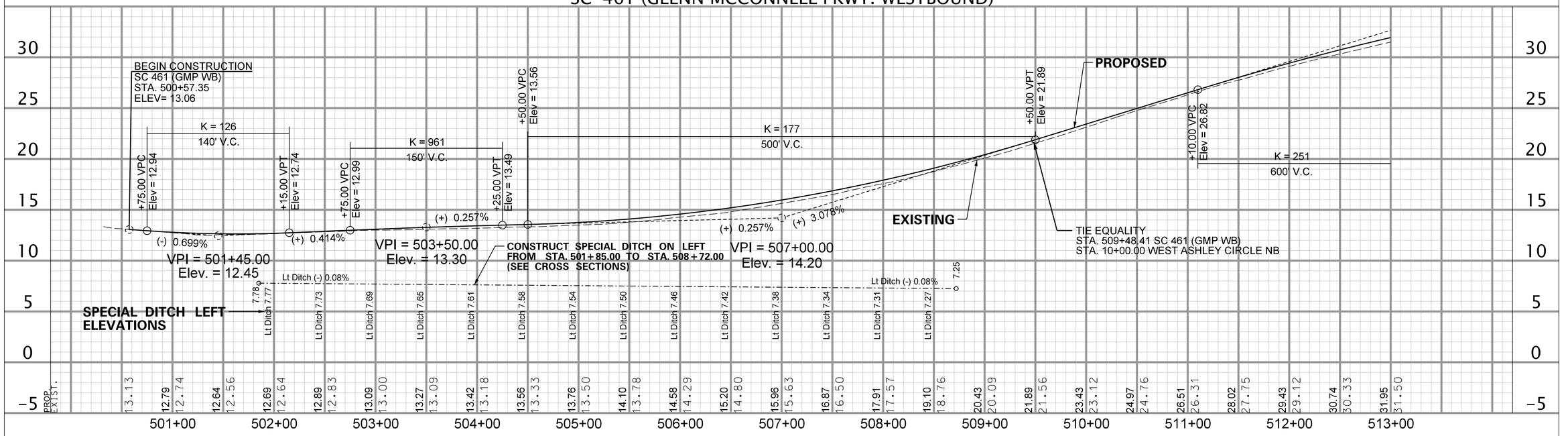
PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 100+00.00 – STA. 113+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

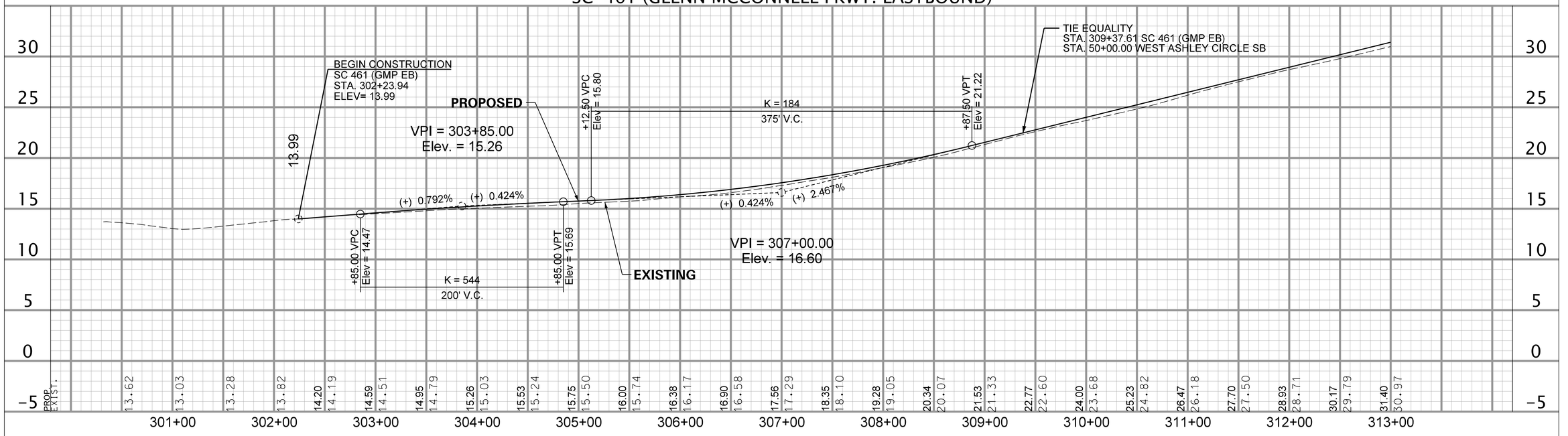
CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	6A	

SC-461 (GLENN MCCONNELL PKWY. WESTBOUND)



SC-461 (GLENN MCCONNELL PKWY. EASTBOUND)



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PLOT DRIVER: PDF.pltcfg
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4/7/2020

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION DAVIS & FLOYD, INC. No. C00538

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

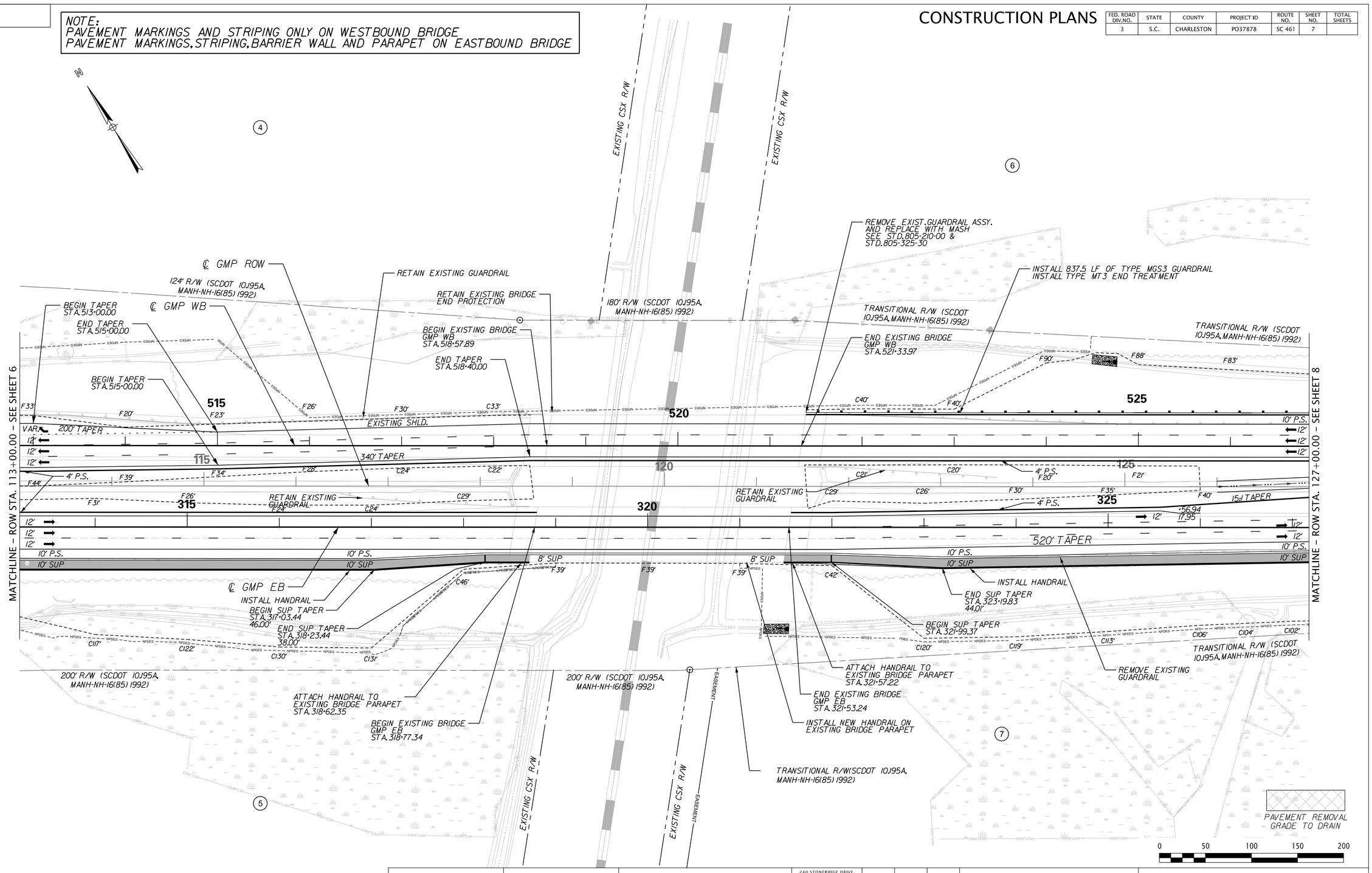
PROFILE SHEET
SC 461 (GLENN MCCONNELL PARKWAY WB)
STA 500+00.00 – STA. 513+00.00
SC 461 (GLENN MCCONNELL PARKWAY EB)
STA 300+00.00 – STA. 313+00.00

SCALE 1"= 50' HOR. 1" = 10' VER. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	PO37878	SC 461	7	

NOTE:
PAVEMENT MARKINGS AND STRIPING ONLY ON WESTBOUND BRIDGE
PAVEMENT MARKINGS, STRIPING, BARRIER WALL AND PARAPET ON EASTBOUND BRIDGE



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4/7/2020

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

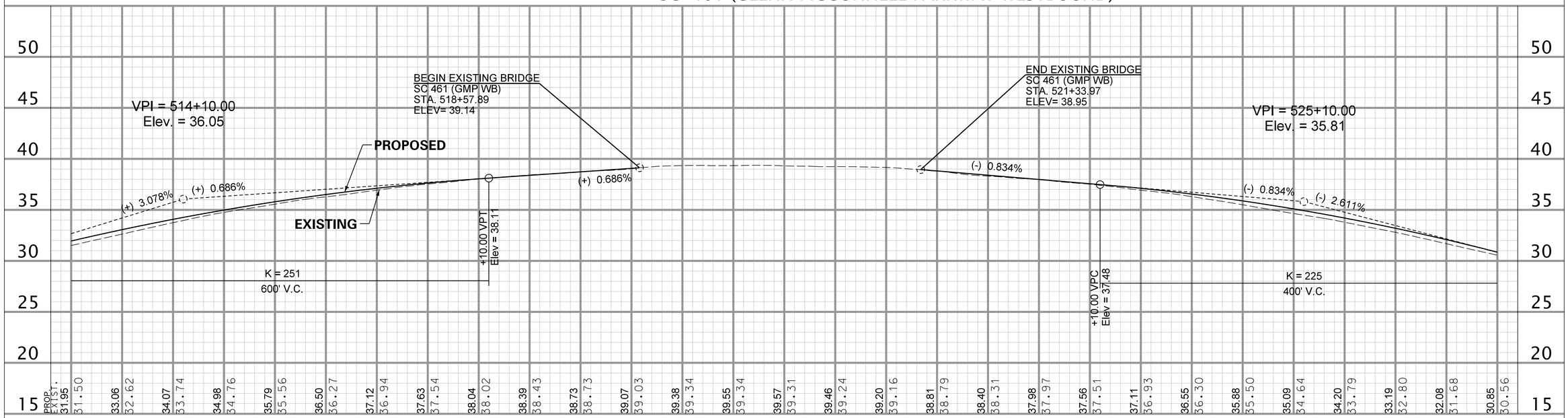
PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 113+00.00 – STA. 127+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

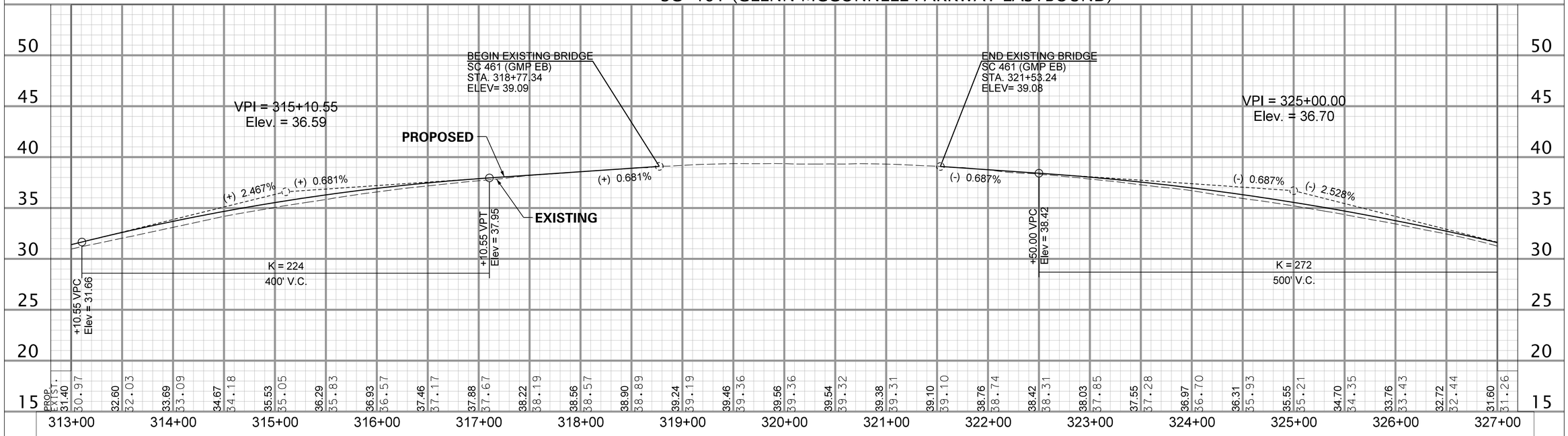
CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	7A	

SC-461 (GLENN MCCONNELL PARKWAY WESTBOUND)



SC-461 (GLENN MCCONNELL PARKWAY EASTBOUND)



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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

PROFILE SHEET
SC 461 (GLENN MCCONNELL PARKWAY WB)
STA 513+00.00 – STA. 527+00.00
SC 461 (GLENN MCCONNELL PARKWAY EB)
STA 313+00.00 – STA. 327+00.00

SCALE 1"= 50' HOR. 1" = 10' VER. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	8	

MATCHLINE – ROW STA. 127+00.00 – SEE SHEET 7

MATCHLINE – ROW STA. 141+00.00 – SEE SHEET 9

391' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

325' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

POT 23+20.82

END GOODWILL WAY SIDEWALK CONST. STA.23+03.17 TIE TO EXISTING SIDEWALK

PRESENT R/W PB EB PAGE 635

℄ GOODWILL WAY

PRESENT R/W PB EB PAGE 635

TIE EQUALITY
STA.532+26.89 SC 461(GLENN MCCONNELL PKWY.WEST BOUND)
STA.20+00.00 GOODWILL WAY

END 5' SIDEWALK

INSTALL DETECTABLE WARNING MATERIAL

INSTALL BUS TURN OUT LANE SEE DETAIL SHEET 5

TRANSITIONAL R/W (SCDOT 10J95A,MANH-NH-16(85) 1992)

INSTALL 4' RAISED CONCRETE MEDIAN

SEE SHEET 7 FOR GUARDRAIL

BUS STOP

END OVERLAY TRANSITION

BEGIN GOODWILL WAY SIDEWALK CONST. STA.20+87.35

125' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

INSTALL DETECTABLE WARNING MATERIAL

BEGIN TAPER STA.534+98.44

END TAPER STA.536+98.44

200' TAPER

200' STORAGE

℄ GMP ROW

℄ GMP WB

125' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

S 58° 06' 07" E

S 58° 05' 12" E

S 58° 06' 40" E

INSTALL 4' RAISED CONCRETE MEDIAN

370' STORAGE

15:1 TAPER

200' TAPER

250' STORAGE

4' P.S.

10' P.S.

12' SUP

REMOVE EXISTING GUARDRAIL

℄ GMP EB

END NEW CONCRETE BARRIER WITH HANDRAIL STA.331+88.45

INSTALL DETECTABLE WARNING MATERIAL

END HANDRAIL STA.331+95.45

TRANSITIONAL R/W (SCDOT 10J95A,MANH-NH-16(85) 1992)

TIE EQUALITY
STA.332+60.06 SC 461(GLENN MCCONNELL PKWY.EAST BOUND)
STA.10+00.00 WILLIAM E MURRAY BLVD.

END OVERLAY TRANSITION STA.10+76.25

TIE TO EXISTING SIDEWALK

PRESENT R/W PB LI2 PAGE 0014

℄ WILLIAM E.MURRAY BLVD.

275' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

S 31° 50' 01" W

POT 234+26.94

TIE EQUALITY
STA.234+26.94 (SUP 2)
STA.333+62.11 (GMP EASTBOUND)
STA.10+53.89 (WILLIAM E.MURRAY BLVD.)

TIE TO EXISTING SIDEWALK

PRESENT R/W PB LI2 PAGE 0014
POT 12+67.57

BEGIN TAPER STA.340+13.85

125' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

PAVEMENT REMOVAL GRADE TO DRAIN

0 50 100 150 200

SCALE: 50.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
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4/7/2020

SOUTH CAROLINA DAVIS & FLOYD, INC. No. C00538 CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD

SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

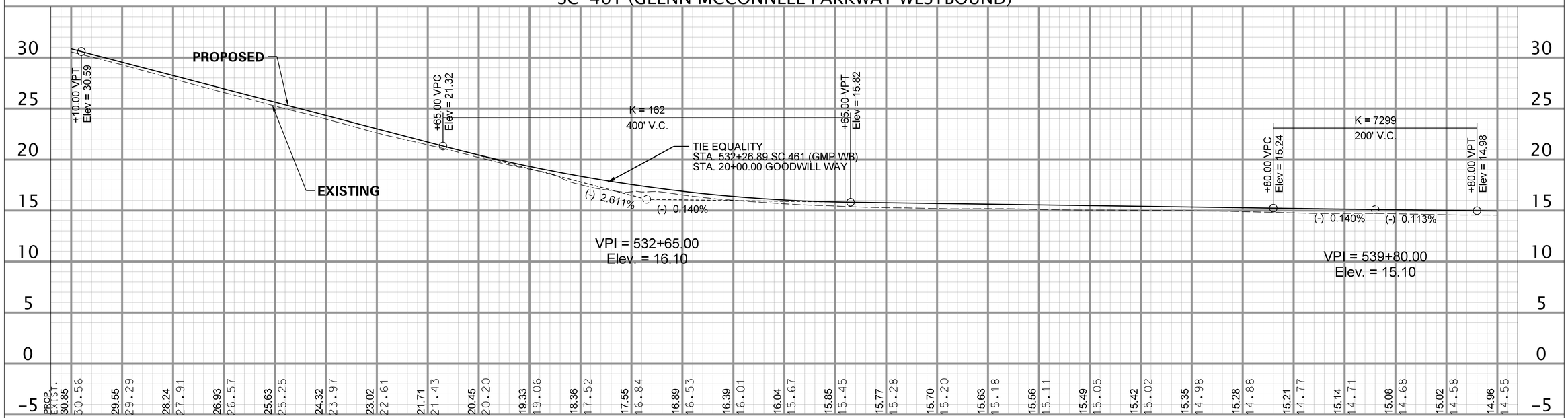
PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 127+00.00 – STA. 141+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

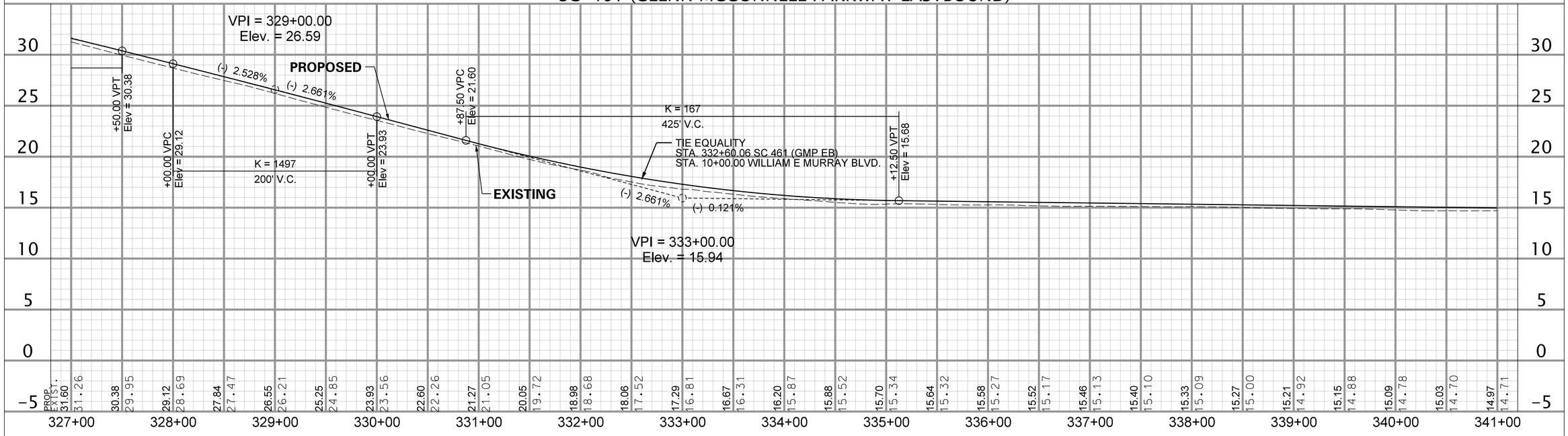
CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	8A	

SC-461 (GLENN MCCONNELL PARKWAY WESTBOUND)



SC-461 (GLENN MCCONNELL PARKWAY EASTBOUND)



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4/7/2020

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

PROFILE SHEET
SC 461 (GLENN MCCONNELL PARKWAY WB)
STA 527+00.00 – STA. 541+00.00
SC 461 (GLENN MCCONNELL PARKWAY EB)
STA 327+00.00 – STA. 341+00.00

SCALE 1"= 50' HOR. 1" = 10' VER. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	PO37878	SC 461	9	

MATCHLINE – ROW STA. 141+00.00 – SEE SHEET 8

MATCHLINE – ROW STA. 155+00.00 – SEE SHEET 10

℄ MARY ADER AVE.

℄ GMP WB

℄ GMP ROW

℄ GMP EB

℄ WEST WILDCAT BLVD.

POT 33+94.95

PT 33+52.83

PC 33+07.08

POT 40+00.00

BEGIN MARY ADER CONST. STA.30+29.87

PC 549+22.98

END MARY ADER CONST. STA.33+94.95

PRESENT CITY R/W PB EJ PAGE 690

PRESENT SCDOT R/W PB EJ PAGE 690

PRESENT CITY R/W PB EC PAGE 927

PRESENT SCDOT R/W PB EC PAGE 927

275' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

125' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

TIE EQUALITY
STA.547+32.45 SC 461(GLENN MCCONNELL PKWY.WESTBOUND)
STA.30+00.00 MARY ADER AVE.

INSTALL BUS TURN OUT LANE SEE DETAIL SHEET 5

INSTALL DETECTABLE WARNING MATERIAL

INSTALL 4" RAISED CONCRETE MEDIAN

BUS STOP

6' CROSSWALK

END 5' SIDEWALK TIE TO EXISTING

230' STORAGE

485' STORAGE 14'

150' STORAGE

250' STORAGE

388' STORAGE

562' STORAGE

275' STORAGE

200' TAPER

BEGIN TAPER STA.550+73.88

END TAPER STA.552+73.88

END TAPER STA.554+82.85

15:1 TAPER

27:1 TAPER

BEGIN TAPER STA.343+23.13

END TAPER STA.345+23.13

TIE EQUALITY
STA.246+98.04 (SUP 2)
STA.346+33.22 (GMP EASTBOUND)
STA.40+57.20 (WEST WILDCAT BLVD.)

TIE TO EXISTING SUP

REMOVE EXISTING MEDIAN BETWEEN GMP EB AND OUTER EDGE OF PROPOSED CROSSWALK

12' CROSSWALK

TIE EQUALITY
STA.347+65.64 SC 461
(GLENN MCCONNELL PKWY.EASTBOUND)
STA.40+00.00 WEST WILDCAT BLVD.

PRESENT CITY R/W PB EG PAGE 818

PRESENT SCDOT R/W PB EG PAGE 818

PC 43+09.21

PT 44+26.13

BEGIN CONSTRUCTION WEST WILDCAT BLVD. STA.40+12.24

INSTALL HANDRAIL STA.350+11.97 BOTH SIDES OF SIDEWALK

BEGIN HANDRAIL STA.249+70.16

TIE EQUALITY
STA.249+70.16 (SUP 3)
STA.349+07.77 (GMP EASTBOUND)
STA.40+60.05 (WEST WILDCAT BLVD)

INSTALL DETECTABLE WARNING MATERIAL

PRESENT CITY R/W PB EG PAGE 818

PRESENT SCDOT R/W PB EG PAGE 818

NEW R/W OFFSET 15' FROM PRESENT CITY R/W

END CONSTRUCTION WEST WILDCAT BLVD. STA.44+10.48

END HANDRAIL STA.254+00.00

PC 349+49.00

PC 349+37.79

PC 249+70.16

POT 246+98.04

PAVEMENT REMOVAL GRADE TO DRAIN

0 50 100 150 200

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4/7/2020

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD, INC. SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION No. C00538

DAVIS & FLOYD

SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

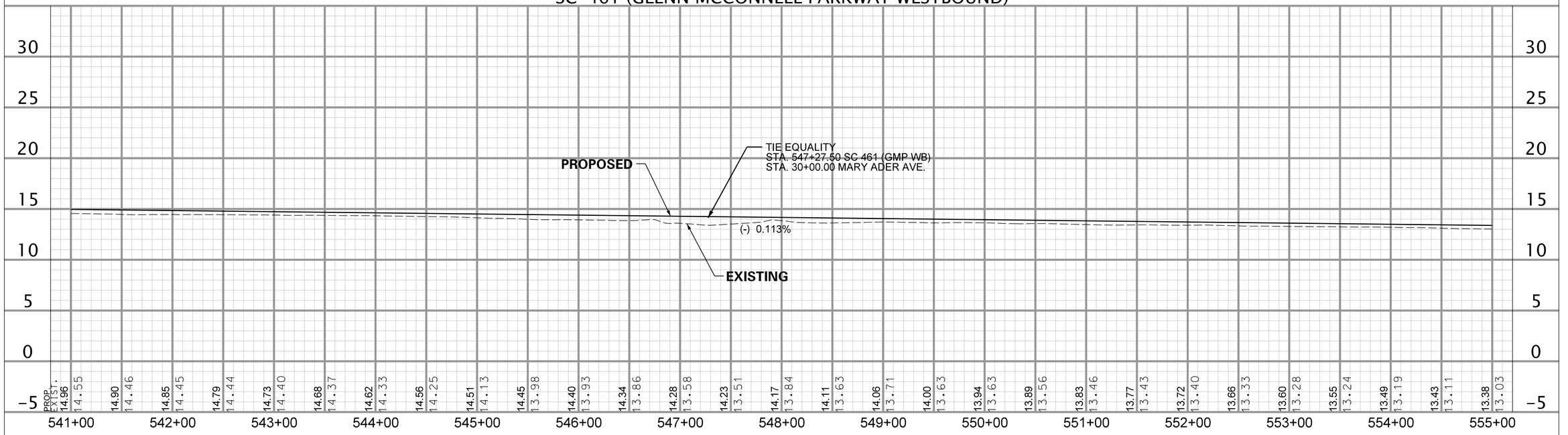
PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 141+00.00 – STA. 155+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

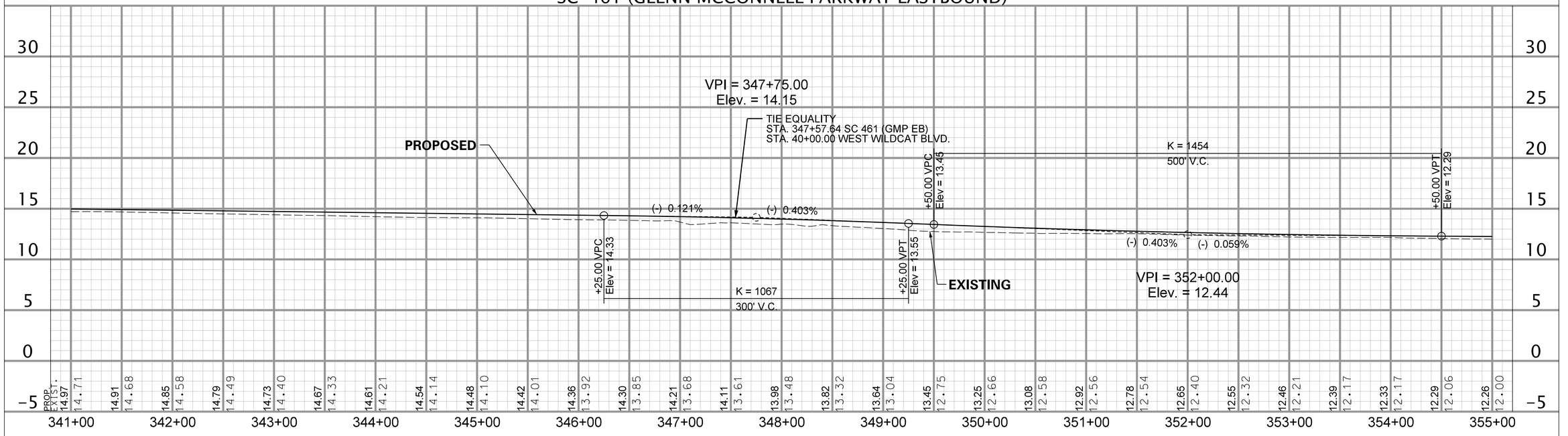
CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	9A	

SC-461 (GLENN MCCONNELL PARKWAY WESTBOUND)



SC-461 (GLENN MCCONNELL PARKWAY EASTBOUND)



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4/7/2020

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

PROFILE SHEET
SC 461 (GLENN MCCONNELL PARKWAY WB)
STA 541+00.00 – STA. 555+00.00
SC 461 (GLENN MCCONNELL PARKWAY EB)
STA 341+00.00 – STA. 355+00.00

SCALE 1"= 50' HOR. 1" = 10' VER. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	10	

N

POT 32+33.50

℄ STUHR FUNERAL CHAPEL

N 41° 56' 28" E

END OVERLAY TRANSITION STA. 30+82.44

END 5' SIDEWALK

TIE EQUALITY
STA. 562+32.15 SC 461 (GLENN MCCONNELL PKWY. WEST BOUND)
STA. 30+00.00 STUHR FUNERAL CHAPEL

℄ GMP WB

℄ GMP ROW

INSTALL 4" RAISED CONCRETE MEDIAN

125' R/W (SCDOT 10J95A, MANH-NH-16(85) 1992)

BUS STOP

372' STORAGE

15:1 TAPER

360' STORAGE

4' P.S.

10' P.S.

12' SUP

10' SUP

INSTALL DETECTABLE WARNING MATERIAL

PT 261+81.42

TIE EQUALITY
STA. 261+81.42 (SUP 3)
STA. 361+28.29 (GMP EASTBOUND)
STA. 10+61.31 (LOCHAVEN DR.)

TIE EQUALITY
STA. 362+51.24 SC 461 (GLENN MCCONNELL PKWY. EASTBOUND)
STA. 10+00.00 LOCHAVEN DR.

℄ GMP EB

PRESENT R/W PB EB PAGE 281

℄ LOCHAVEN DR.

275' R/W (SCDOT 10J95A, MANH-NH-16(85) 1992)

341' R/W (SCDOT 10J95A, MANH-NH-16(85) 1992)

POT 13+35.66

END OVERLAY TRANSITION

PRESENT R/W PB EB PAGE 281

EXIST. C/A

PT 566+82.14

END TAPER STA. 567+00.00

INSTALL DETECTABLE WARNING MATERIAL

BEGIN HANDRAIL STA. 367+50.00

PT 366+98.90

MATCHLINE – ROW STA. 155+00.00 – SEE SHEET 9

MATCHLINE – ROW STA. 169+00.00 – SEE SHEET 11

PAVEMENT REMOVAL GRADE TO DRAIN

0 50 100 150 200

SCALE: 50.000 ft / in.
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4/7/2020

DAVIS & FLOYD, INC. SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION No. C00538

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

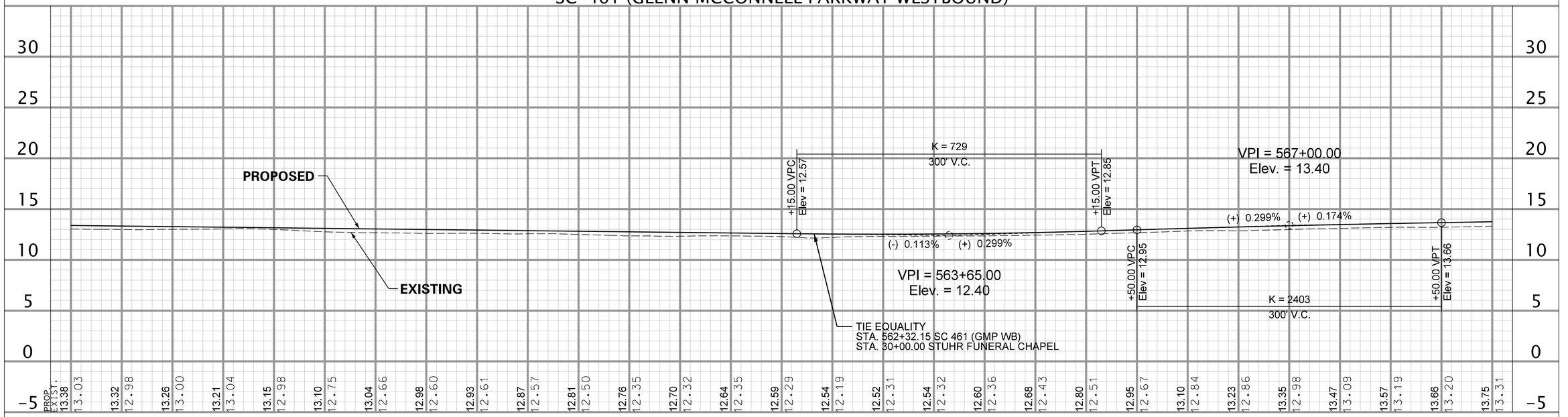
PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 155+00.00 – STA. 169+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

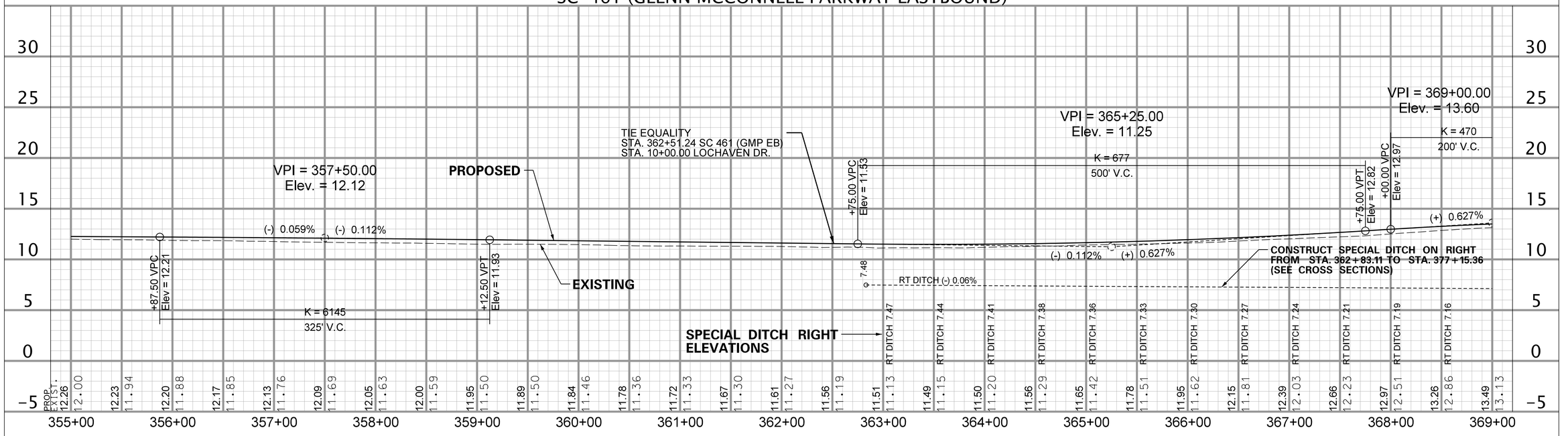
CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	10A	

SC-461 (GLENN MCCONNELL PARKWAY WESTBOUND)



SC-461 (GLENN MCCONNELL PARKWAY EASTBOUND)



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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

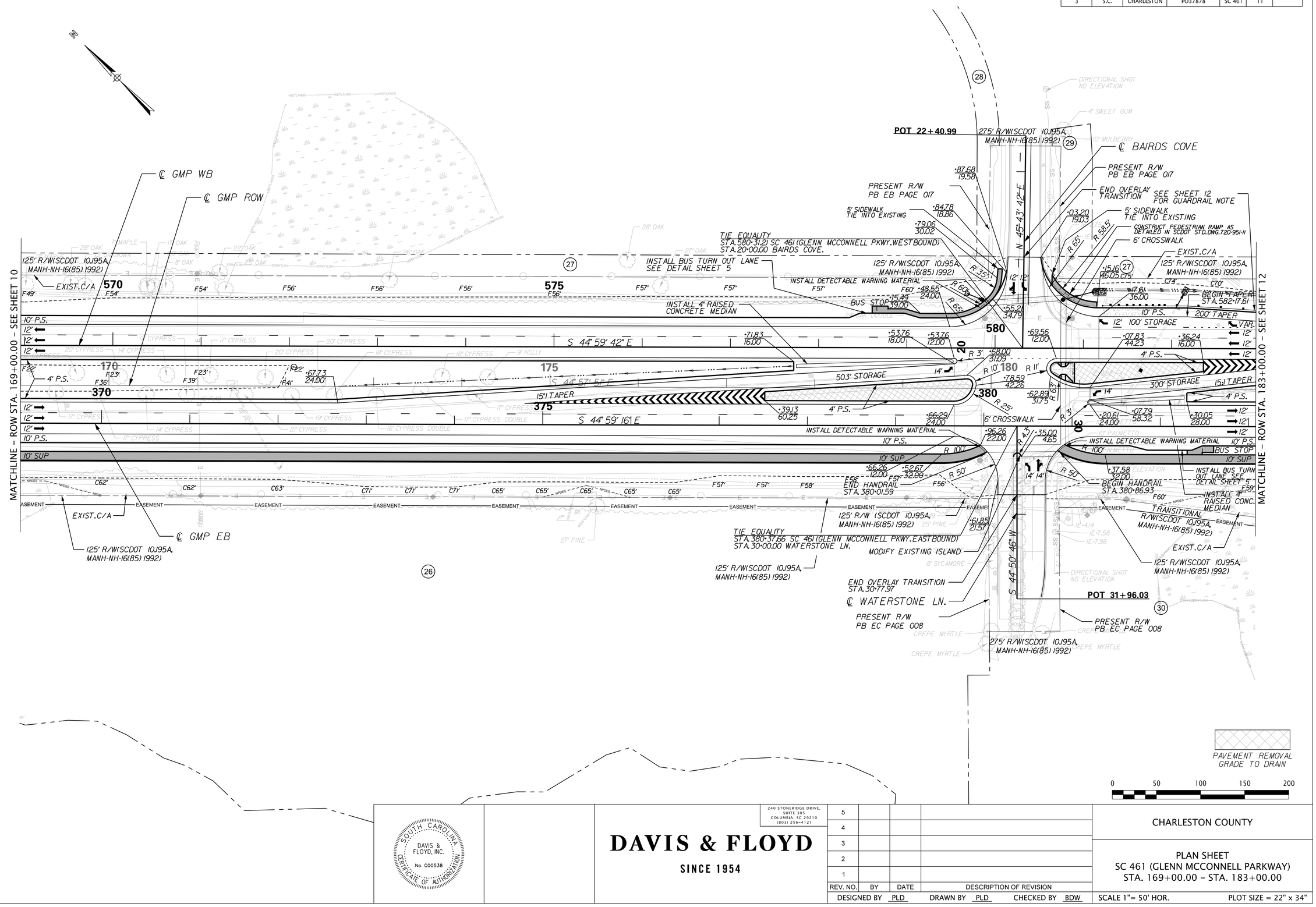
CHARLESTON COUNTY

PROFILE SHEET
SC 461 (GLENN MCCONNELL PARKWAY WB)
STA 555+00.00 – STA. 569+00.00
SC 461 (GLENN MCCONNELL PARKWAY EB)
STA 355+00.00 – STA. 369+00.00

SCALE 1"= 50' HOR. 1" = 10' VER. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	11	



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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION — DAVIS & FLOYD, INC. No. C00538

DAVIS & FLOYD
SINCE 1954
240 STONERIDGE DRIVE, SUITE 105
COLUMBIA, SC 29210
(803) 256-4121

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

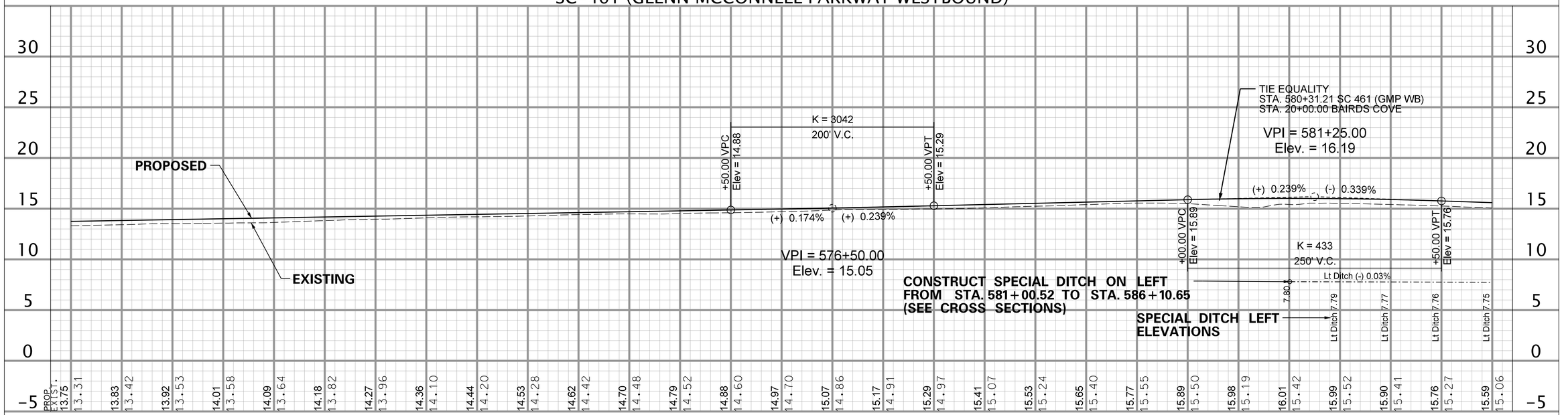
PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 169+00.00 - STA. 183+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

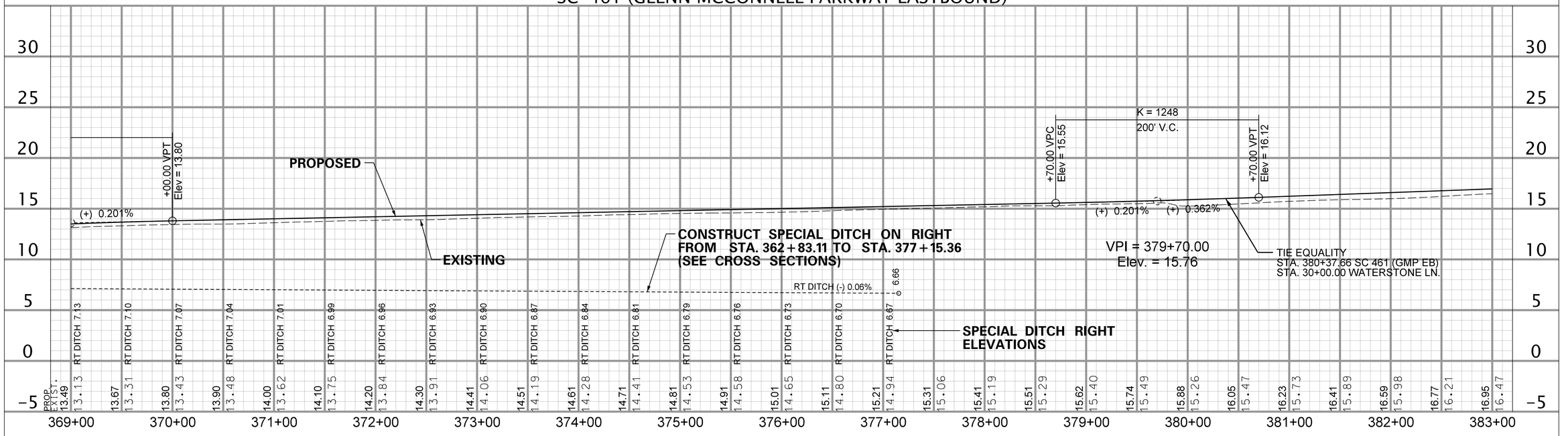
CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	11A	

SC-461 (GLENN MCCONNELL PARKWAY WESTBOUND)



SC-461 (GLENN MCCONNELL PARKWAY EASTBOUND)



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4/7/2020

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

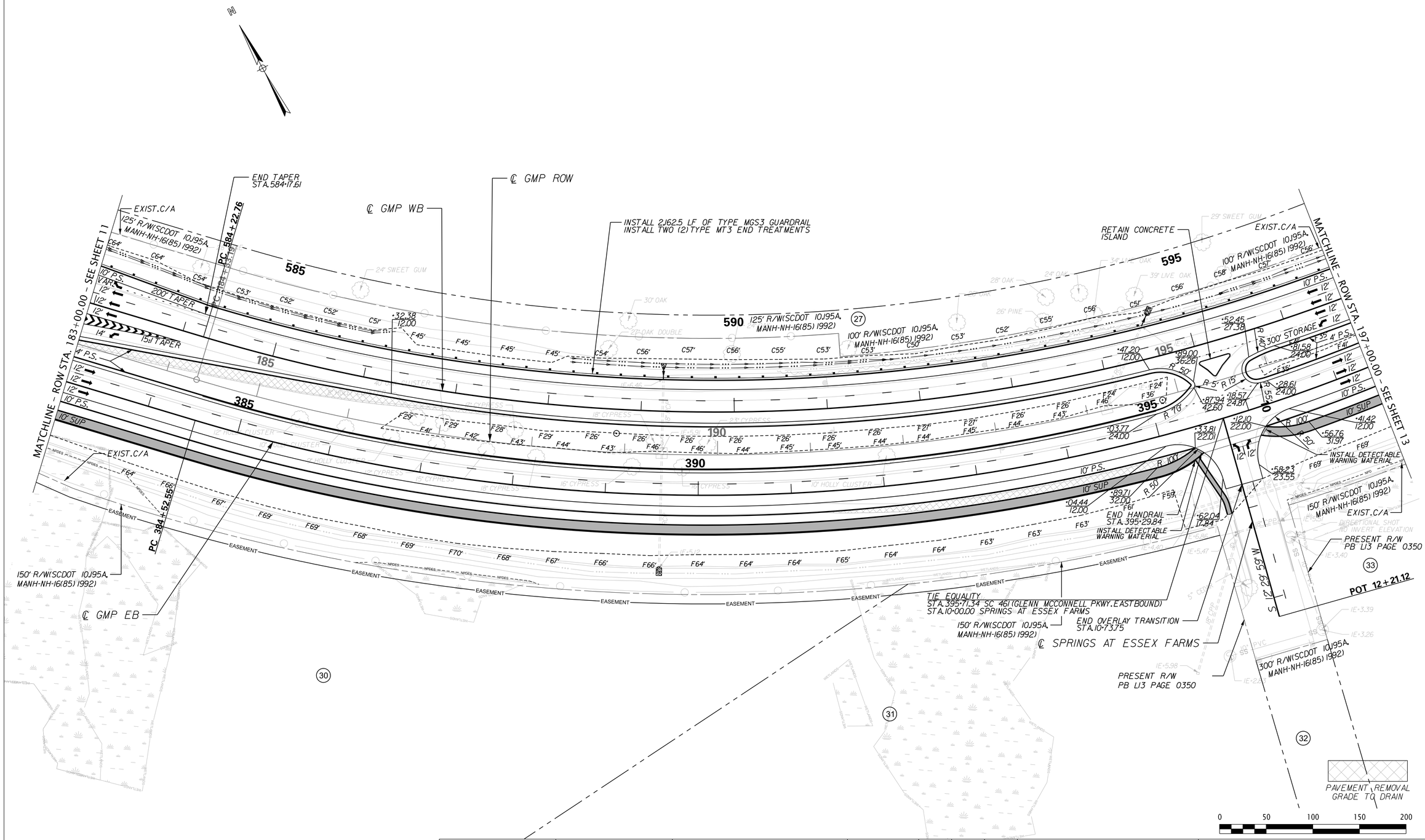
CHARLESTON COUNTY

PROFILE SHEET
SC 461 (GLENN MCCONNELL PARKWAY WB)
STA 569+00.00 – STA. 583+00.00
SC 461 (GLENN MCCONNELL PARKWAY EB)
STA 369+00.00 – STA. 383+00.00

SCALE 1"= 50' HOR. 1" = 10' VER. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	12	



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4/7/2020

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

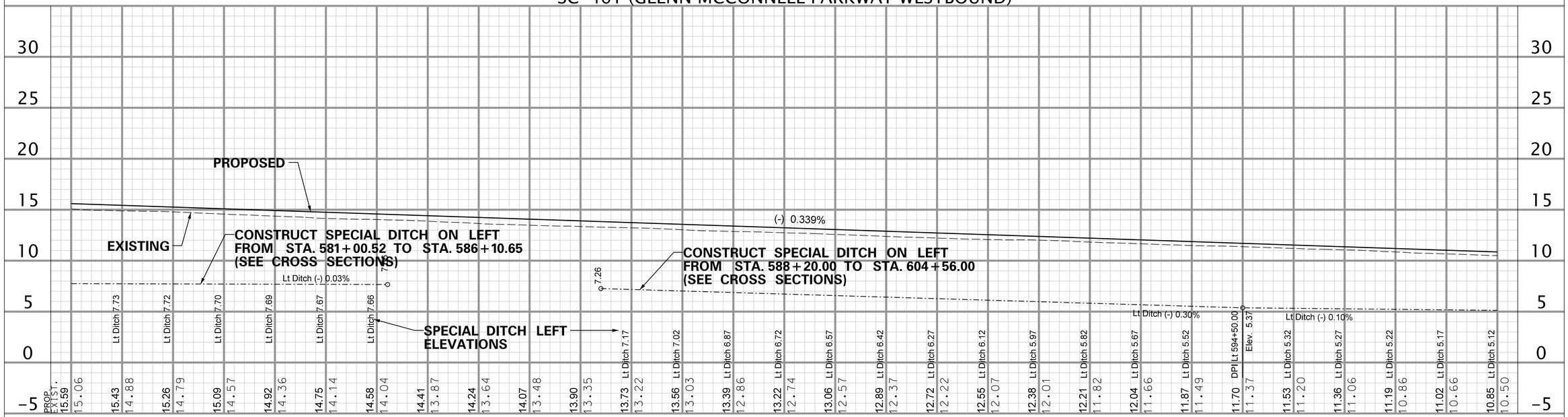
PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 183+00.00 – STA. 197+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	12A	

SC-461 (GLENN MCCONNELL PARKWAY WESTBOUND)



SC-461 (GLENN MCCONNELL PARKWAY EASTBOUND)

SCALE: 50.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\13635-00 GMP Profile Sheets.dgn
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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION DAVIS & FLOYD, INC. No. C00538

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

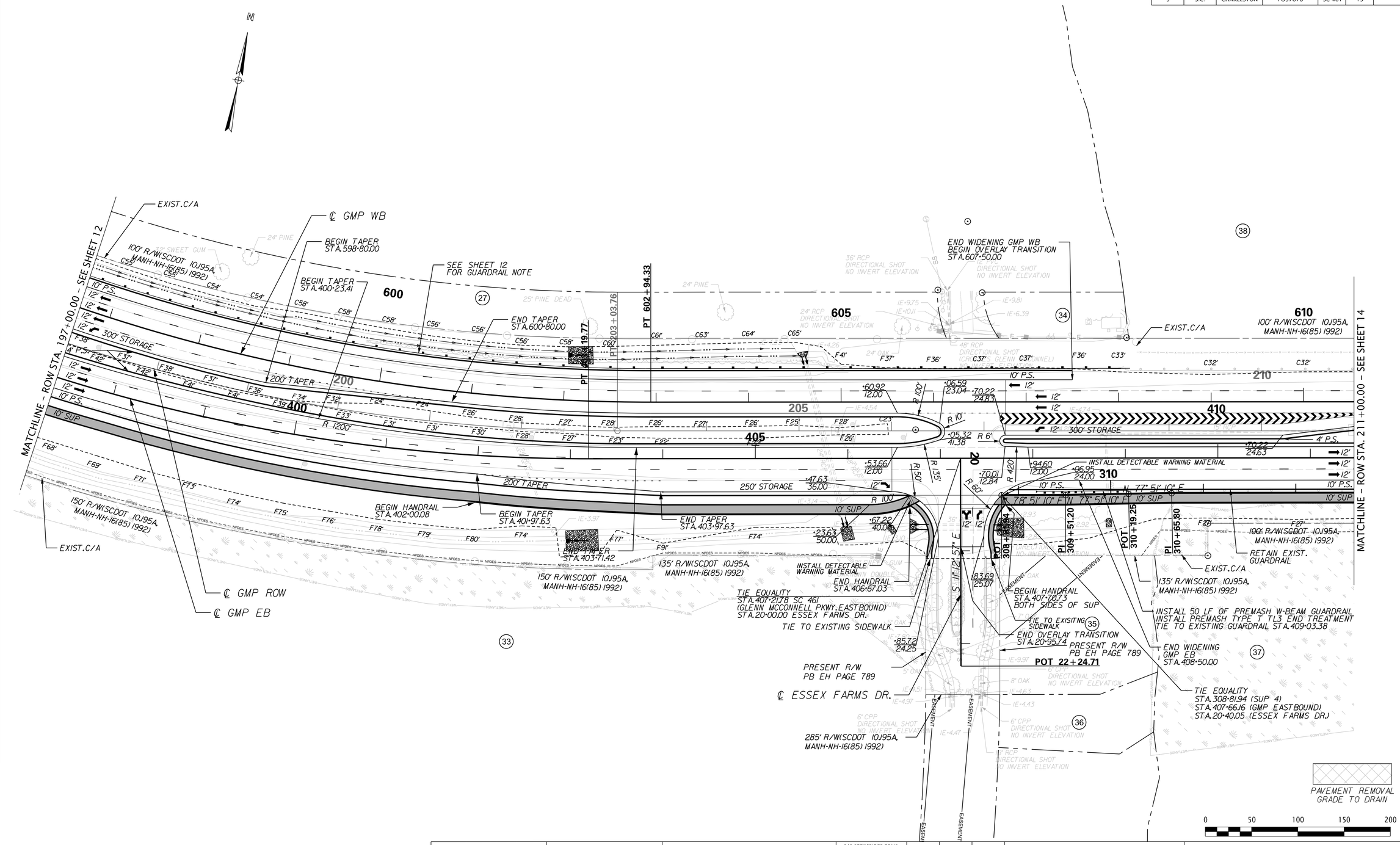
CHARLESTON COUNTY

PROFILE SHEET
SC 461 (GLENN MCCONNELL PARKWAY WB)
STA 583+00.00 – STA. 597+00.00
SC 461 (GLENN MCCONNELL PARKWAY EB)
STA 383+00.00 – STA. 397+00.00

SCALE 1"= 50' HOR. 1" = 10' VER. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	13	



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SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

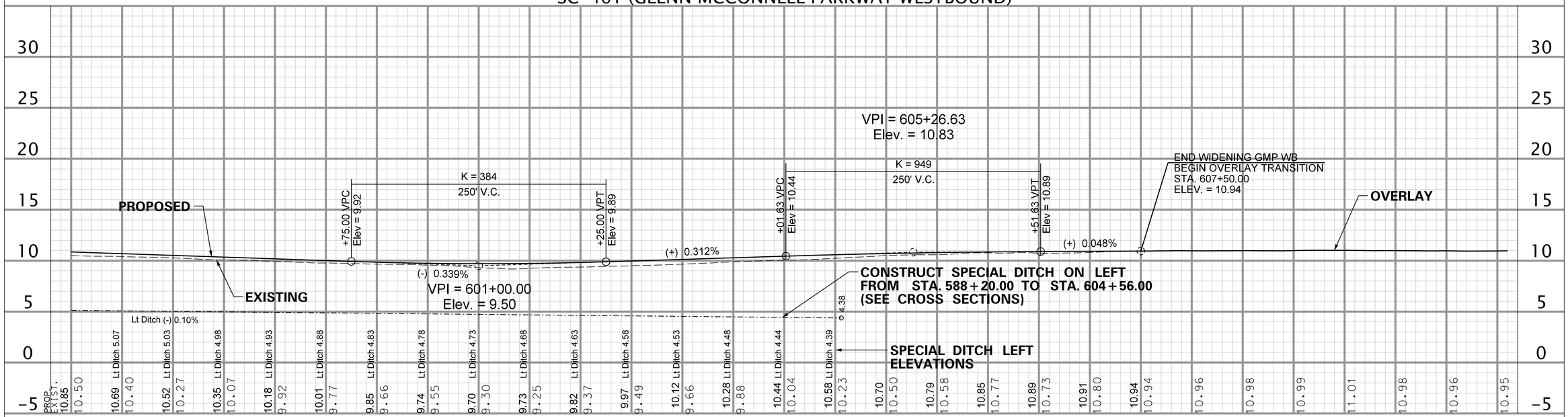
PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 197+00.00 - STA. 211+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

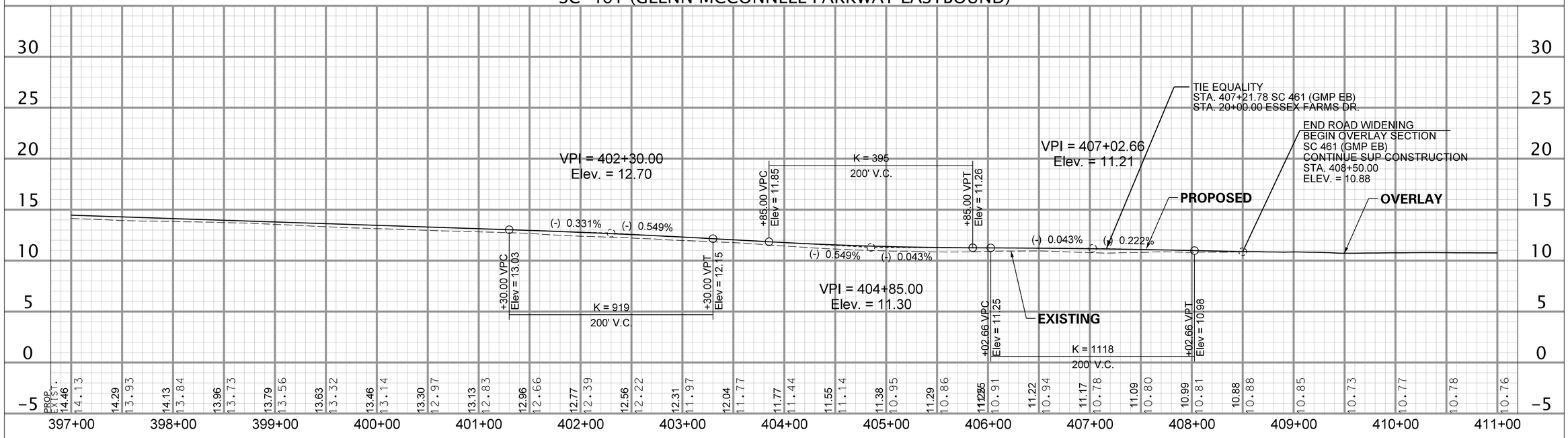
CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	13A	

SC-461 (GLENN MCCONNELL PARKWAY WESTBOUND)



SC-461 (GLENN MCCONNELL PARKWAY EASTBOUND)



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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
DAVIS & FLOYD, INC.
No. C00538

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

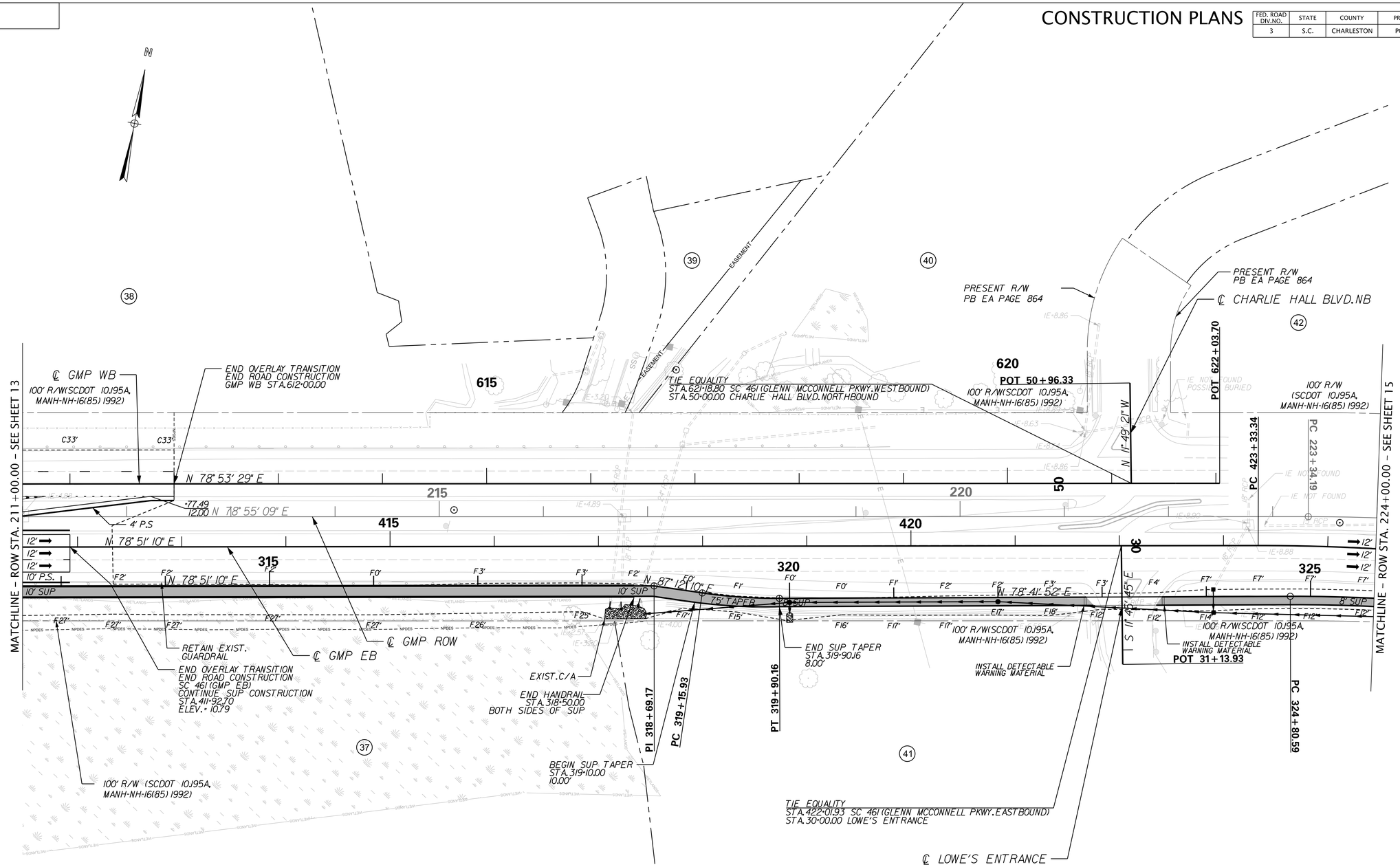
CHARLESTON COUNTY

PROFILE SHEET
SC 461 (GLENN MCCONNELL PARKWAY WB)
STA 597+00.00 – STA. 611+00.00
SC 461 (GLENN MCCONNELL PARKWAY EB)
STA 397+00.00 – STA. 411+00.00

SCALE 1"= 50' HOR. 1" = 10' VER. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	14	



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DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION
SOUTH CAROLINA

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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CHARLESTON COUNTY

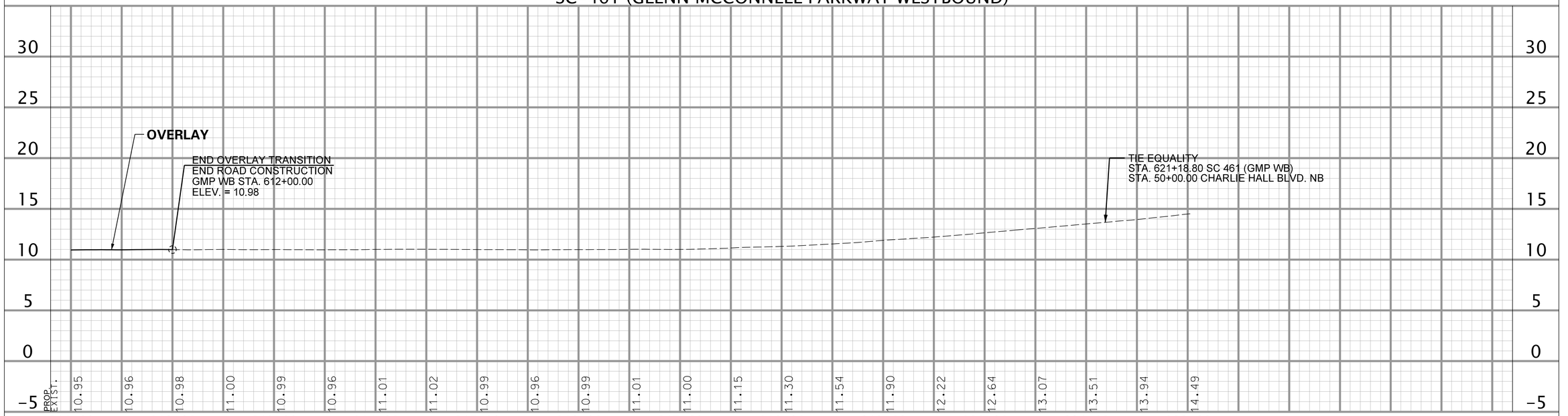
PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 211+00.00 - STA. 224+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

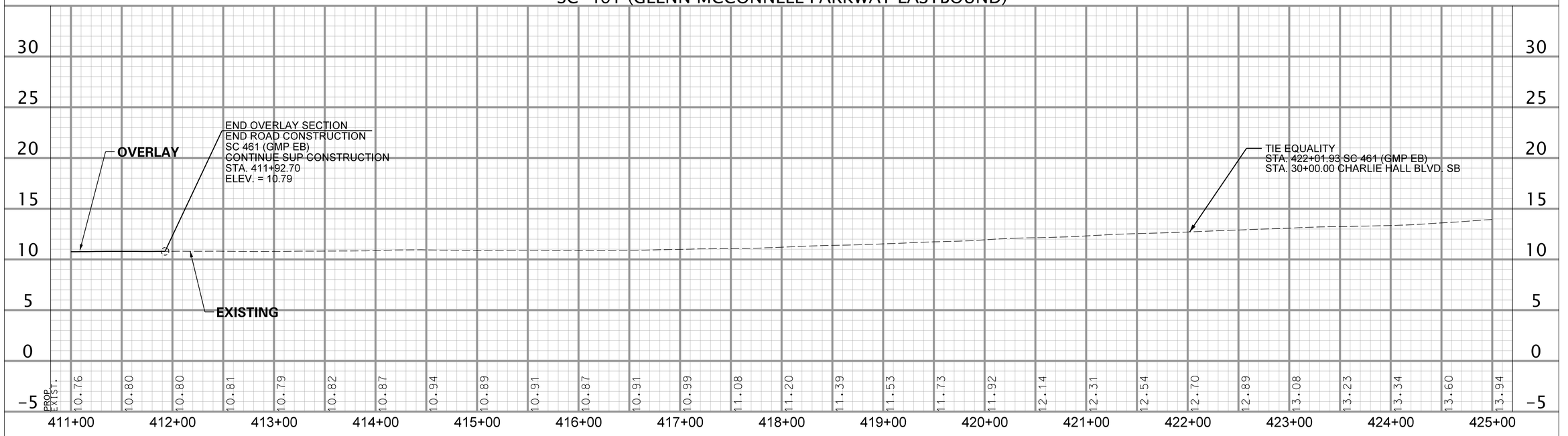
CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	14A	

SC-461 (GLENN MCCONNELL PARKWAY WESTBOUND)



SC-461 (GLENN MCCONNELL PARKWAY EASTBOUND)



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DAVIS & FLOYD, INC. No. C00538 SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

PROFILE SHEET
SC 461 (GLENN MCCONNELL PARKWAY WB)
STA 611+00.00 – STA. 622+03.70
SC 461 (GLENN MCCONNELL PARKWAY EB)
STA 411+00.00 – STA. 425+00.00

SCALE 1"= 50' HOR. 1" = 10' VER. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	15	

N

℄ GMP ROW

℄ GMP EB

MATCHLINE – ROW STA. 224+00.00 – SEE SHEET 14

100' R/W(SCDOT 10J95A. MANH-NH-16(85) 1992)

8' SUP

PRESENT 105' R/W FILE #10.036999A 2009

PRESENT 63' R/W FILE #10.036999A 2009

PRES. TRANS. R/W

PRESENT 60' R/W FILE #10.036999A 2009

PRES. TRANS. R/W EASEMENT

MAGWOOD DR.

PRESENT 50' R/W FILE #10.036999A 2009

PRES. TRANS. R/W

PRESENT 120' R/W FILE #10.036999A 2009

PRESENT 115' R/W FILE #10.036999A 2009

POT 236+42.05

S 67° 02' 51" E

235

PT 432+30.25

TIE TO EXISTING SIDEWALK STA.431+19.26 58.50'

S 81° 12' 21" E

TIE EQUALITY STA.332+02.68 (SUP 4) STA.431+06.69 (GMP EASTBOUND)

PRESENT 100' R/W FILE #10.036999A 2009

PT 234+68.64

PRESENT 45' R/W FILE #10.036999A 2009

PRESENT 115' R/W FILE #10.036999A 2009

PT 330+08.71

POT 332+02.68

PRESENT 60' R/W FILE #10.036999A 2009

MAGWOOD DR.

TRANSITION 8' SUP TO EXISTING SIDEWALK END SUP CONSTR. STA.332+02.68 (8' SUP 4)

NO ELEVATION DATA AVAILABLE

EASEMENT

PAVEMENT REMOVAL GRADE TO DRAIN

0 50 100 150 200

SCALE: 50.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
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4/7/2020

SOUTH CAROLINA DAVIS & FLOYD, INC. No. C00538 CERTIFICATE OF AUTHORIZATION

DAVIS & FLOYD
SINCE 1954
240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

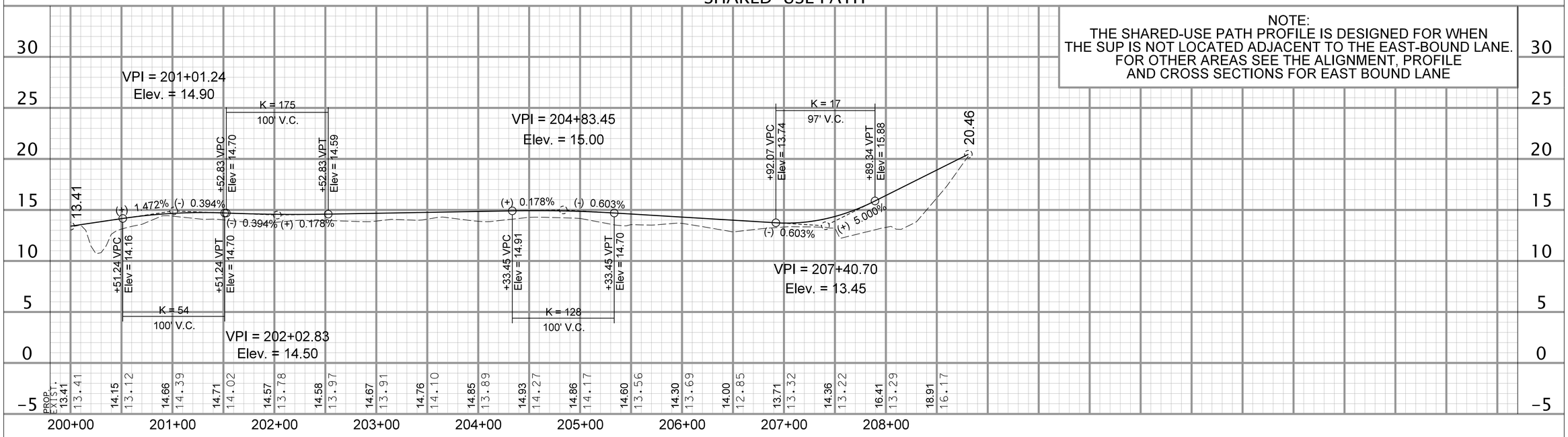
PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 224+00.00 – STA. 234+43.19

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

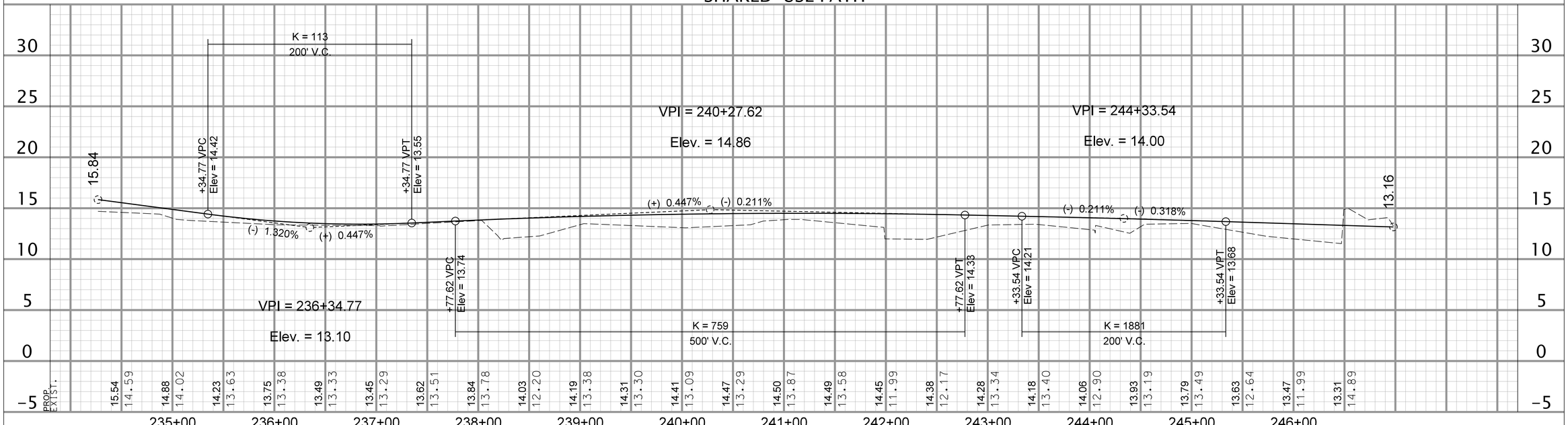
CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	15A	

SHARED-USE PATH



SHARED-USE PATH



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4/7/2020

DAVIS & FLOYD, INC. No. C00538 CERTIFICATE OF AUTHORIZATION SOUTH CAROLINA

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

PROFILE SHEET
SHARED-USE PATH
STA 200+00.00 – STA. 208+80.94

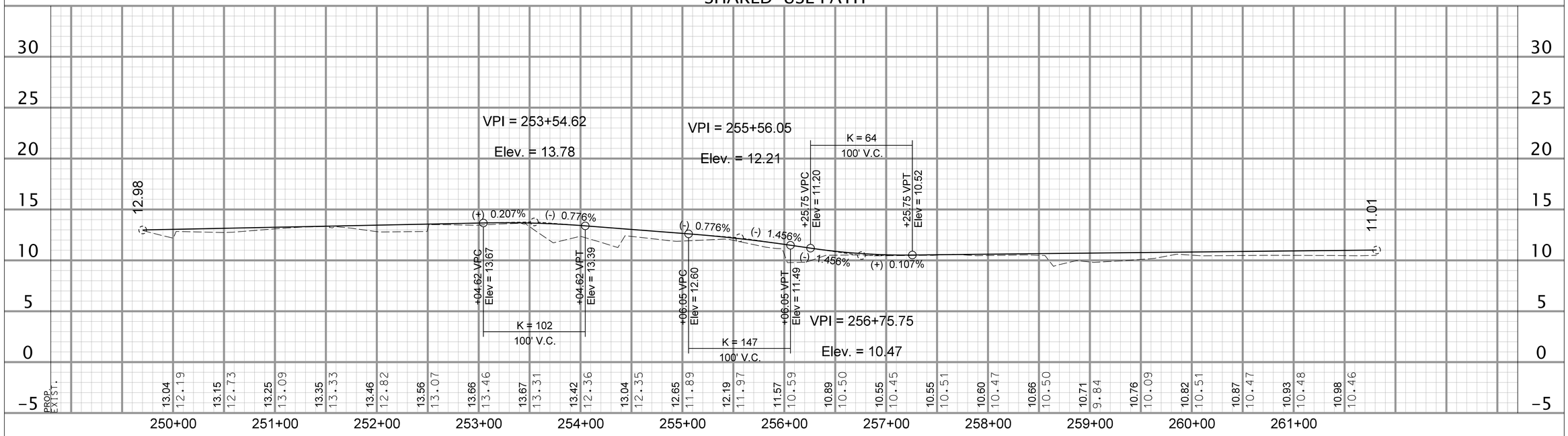
STA 234+26.94 – STA. 246+98.04

SCALE 1"= 50' HOR. 1" = 10' VER. PLOT SIZE = 22" x 34"

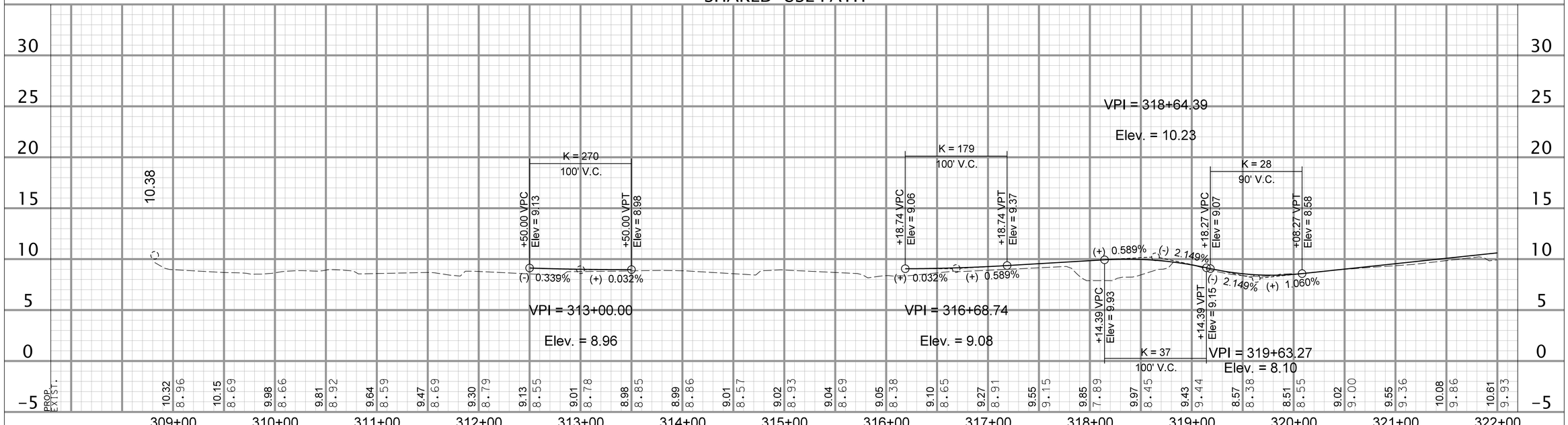
CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	16A	

SHARED-USE PATH



SHARED-USE PATH



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4/7/2020

DAVIS & FLOYD, INC. No. C00538 CERTIFICATE OF AUTHORIZATION SOUTH CAROLINA

DAVIS & FLOYD
SINCE 1954
240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

PROFILE SHEET
SHARED-USE PATH
STA 249+70.16 - STA. 261+81.42

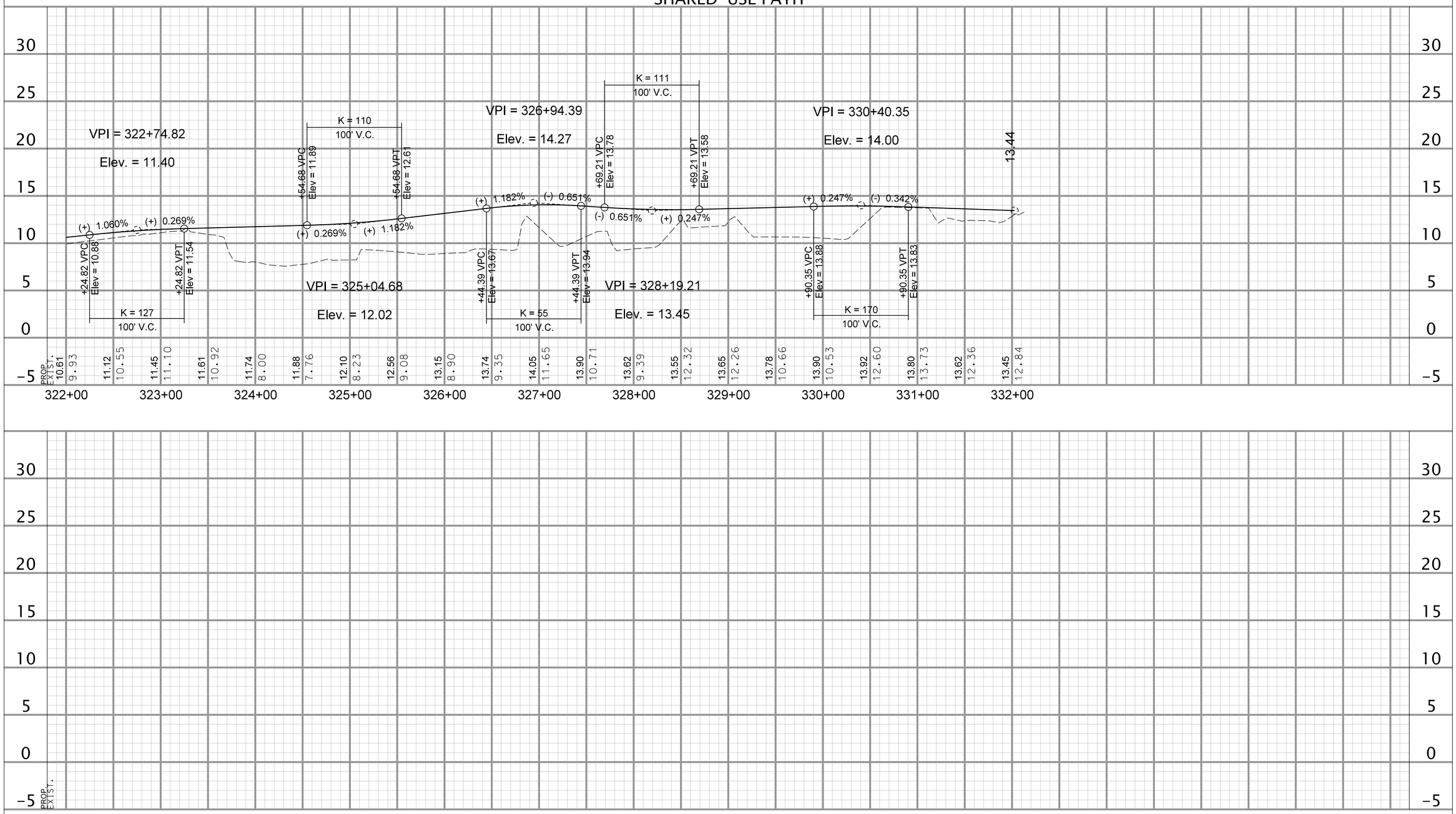
STA 308+81.94 - STA. 322+00.00

SCALE 1"= 50' HOR. 1" = 10' VER. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	17A	

SHARED-USE PATH



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DAVIS & FLOYD, INC. No. C00538 SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

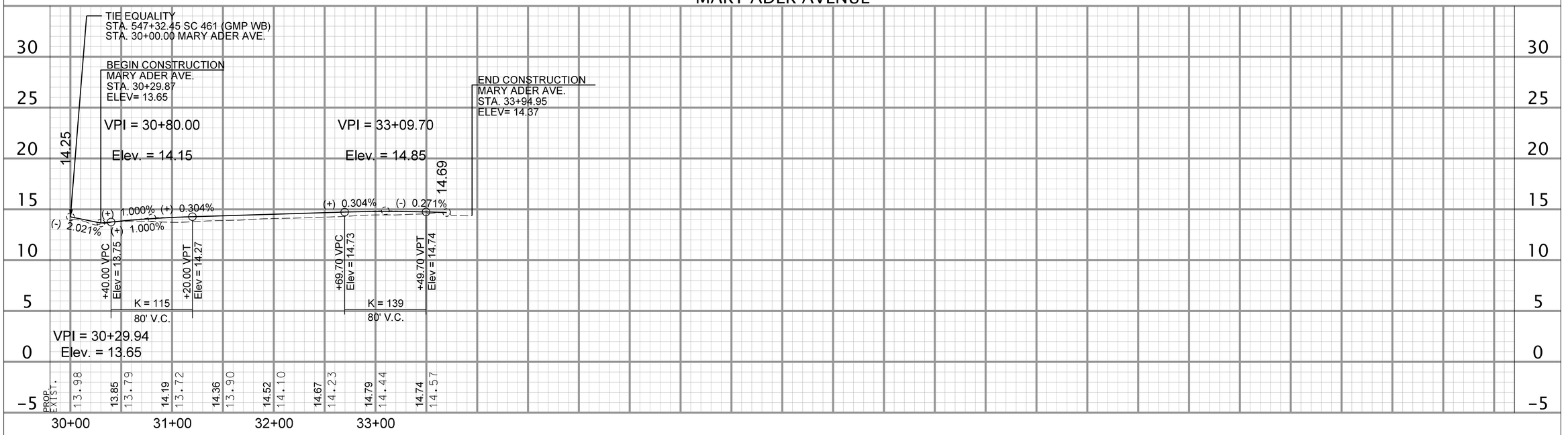
PROFILE SHEET
SHARED-USE PATH
STA 322+00.00 - STA. 332+02.68

SCALE 1"= 50' HOR. 1" = 10' VER. PLOT SIZE = 22" x 34"

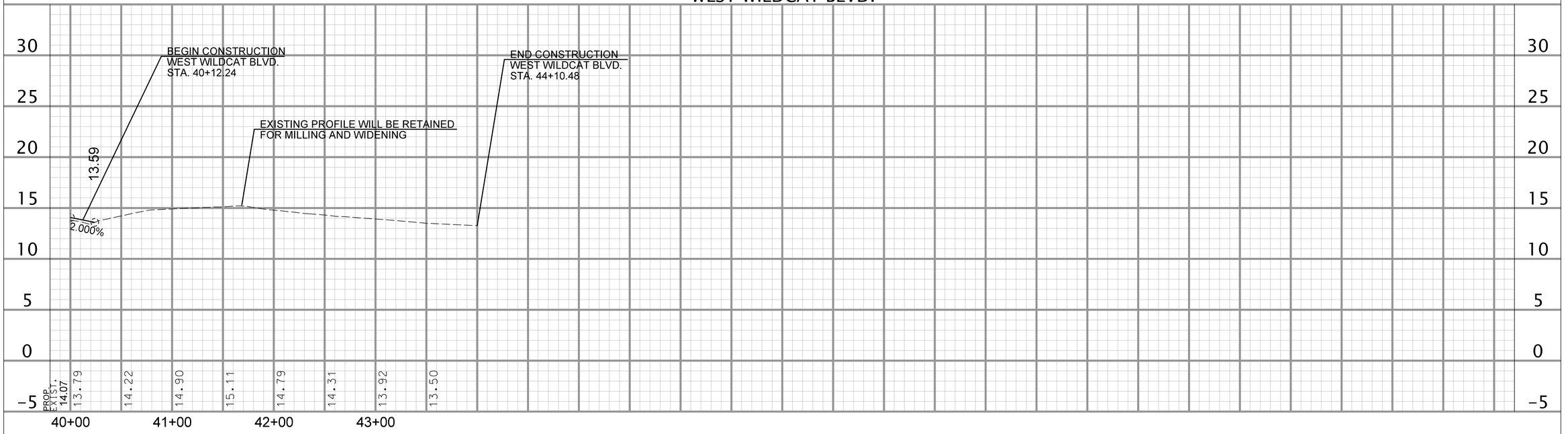
CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	18A	

MARY ADER AVENUE



WEST WILDCAT BLVD.



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240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

PROFILE SHEET
MARY ADER AVE.
STA 30+29.87 – STA. 33+94.95
WEST WILDCAT BLVD.
STA. 40+12.24 – STA. 44+10.48

SCALE 1"= 50' HOR. 1" = 10' VER. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	D6	

NOTES:
1. INSTALL INLET STRUCTURE FILTER TYPE DI (SEE SCDOT STD.DWG.815-002-00)
2. INSTALL WEIGHTED INLET STRUCTURE FILTER TYPE F (SEE SCDOT STD.DWG.815-006-00)
3. INSTALL NON-WEIGHTED INLET STRUCTURE FILTER TYPE F (SEE SCDOT STD.DWG.815-006-00)

℄ BEES FERRY RD.
POT 54+00.00
75' R/W (SCDOT 10J95A, MANH-NH-16(85) 1992)
℄ GMP WB
℄ GMP ROW
℄ GMP EB
PER FILE 10.036996A DATA
EXISTING 18" RCP
IE IN: 8.48
IE OUT: 7.78
INSTALL 246 LF DOUBLE ROW SILT FENCE
PC 101+68.06
PC 501+54.92
PT 503+69.76
INSTALL 397 LF SILT FENCE
INSTALL 216 LF DOUBLE ROW SILT FENCE
PC 506+42.55
PT 510+09.78
PT 510+25.40
PC 11+58.40
PT 13+69.20
TRANSITIONAL R/W (SCDOT 10J95A, MANH-NH-16(85) 1992)
54.5' CITY R/W PB L10 PAGE 0307
℄ WEST ASHLEY CIRCLE NB
PLACE 3 TONS RIPRAP CLASS B AND 4 SY GEOTEXTILE FILTER FABRIC TYPE D
CONST. CONTROL STRUCTURE (48"X48") CS-6-17 OPEN TOP EL.= 9.50 6" ORIFICE EL.= 7.25
INSTALL 393 LF DOUBLE ROW SILT FENCE
BEGIN CLEANING OF EXISTING DITCH MATCH EX.PIPE INVERT ASSUMED EL.= 6.82
CLEAN AND WIDEN DITCH 4' WIDE BOTTOM 2:1 SIDE SLOPES
PC 200+03.85
PT 200+66.56
PC 301+66.29
PC 205+01.79
PC 50+70.54
PCC 111+26.05
PT 310+44.74
INSTALL 887 LF SILT FENCE
CONST.DROP INLET (TYPE 112) DI-6-11 TOP EL.= 10.40 SEE NOTE 1
PLACE 10 LF 18" SWP NP-6-11 I.E.IN = 8.55 I.E.OUT = 8.48
PLACE 7 TONS RIPRAP CLASS B AND 9 SY GEOTEXTILE FILTER FABRIC TYPE D
CONST.CB TYPE 9 CB-6-24 THROAT EL.= 14.08 SEE NOTE 3
PLACE 26 LF 18" SWP NP-6-17 I.E.IN = 11.87 I.E.OUT = 11.70
PLACE 33 LF 18" SWP NP-6-18 I.E.IN = 11.41 I.E.OUT = 11.08
CONST.CB TYPE 9 CB-6-25 THROAT EL.= 14.04 SEE NOTE 3
PLACE 7 TONS RIPRAP CLASS B AND 9 SY GEOTEXTILE FILTER FABRIC TYPE D
PLACE 31 LF 18" SWP NP-6-19 I.E.IN = 10.35 I.E.OUT = 10.03
CONST.CB TYPE 9 CB-6-26 THROAT EL.= 12.96 SEE NOTE 3
PLACE 7 TONS RIPRAP CLASS B AND 9 SY GEOTEXTILE FILTER FABRIC TYPE D
CONST. CONTROL STRUCTURE (48"X48") CS-6-18 OPEN TOP EL.= 9.70 6" ORIFICE EL.= 7.70
PLACE 3 TONS RIPRAP CLASS B AND 4 SY GEOTEXTILE FILTER FABRIC TYPE D
END CLEANING OF EXISTING DITCH EL.= 6.75
INSTALL 73 LF DOUBLE ROW SILT FENCE
BEGIN CLEANING OF EXISTING DITCH MATCH EX.PIPE INVERT EL.= 6.75
INSTALL 359 LF SILT FENCE
118' R/W (SCDOT 10J95A, MANH-NH-16(85) 1992)
TRANSITIONAL R/W (SCDOT 10J95A, MANH-NH-16(85) 1992)
EASEMENT
℄ WEST ASHLEY CIRCLE SB
PT 53+54.31
525' CITY R/W PB E/I PAGE 6-39
SEE NOTE 1
MATCHLINE - ROW STA. 113+00.00 - SEE SHEET 7
N 15°44'10" E
S 43°07'35" E
S 44°55'36" E
S 44°32'40" E
S 51°55'07" E
S 2°43'44" W
S 47°08'19" E
S 33°33'08" W
N 27°47'33" E
0 50 100 150 200

NOTES:
- RETAIN ALL EXISTING DRAINAGE UNLESS OTHERWISE NOTED.
- ALL NEW OR MODIFIED DITCHES SHALL BE GRASSED LINED.
- WHERE NO NPDES LINES ARE SHOWN, LIMITS OF DISTURBANCE CONTINUE TO RIGHT-OF-WAY LINES.

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY MNK DRAWN BY MNK CHECKED BY JMW

CHARLESTON COUNTY

DRAINAGE SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 100+00.00 - STA. 113+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

SCALE: 50.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
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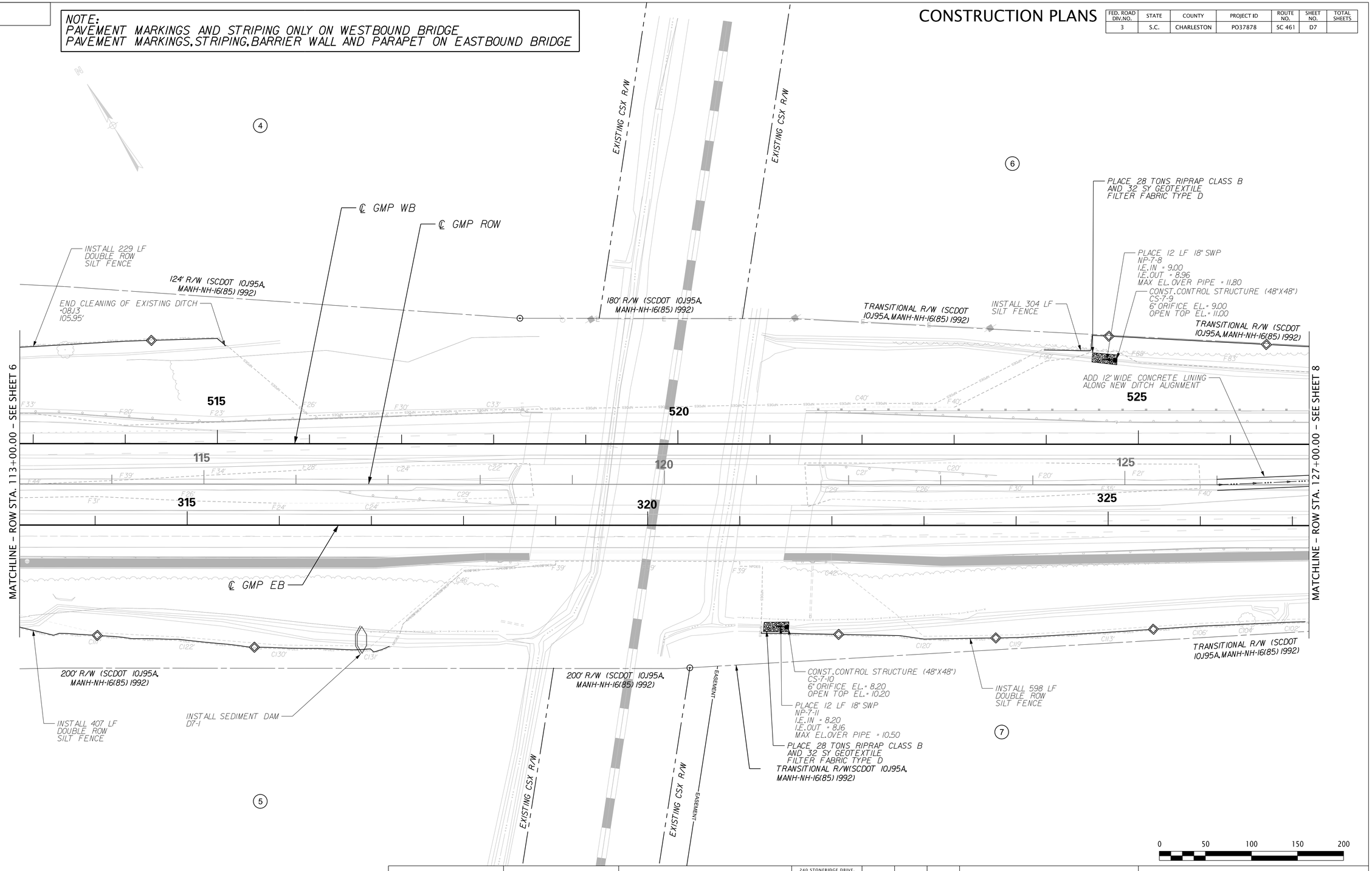
4/7/2020

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	D7	

NOTE:
PAVEMENT MARKINGS AND STRIPING ONLY ON WESTBOUND BRIDGE
PAVEMENT MARKINGS,STRIPING,BARRIER WALL AND PARAPET ON EASTBOUND BRIDGE



0 50 100 150 200

NOTES:
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- ALL NEW OR MODIFIED DITCHES SHALL BE GRASSED LINED.
- WHERE NO NPDES LINES ARE SHOWN, LIMITS OF DISTURBANCE CONTINUE TO RIGHT-OF-WAY LINES.

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY MNK DRAWN BY MNK CHECKED BY JMW

CHARLESTON COUNTY

DRAINAGE SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 113+00.00 – STA. 127+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

SCALE: 50.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\Jobs0dd\13635-00\Production\Transportation\SHEETS\13635-00 GMP DRN Sheets.dgn
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CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	D8	

NOTES:
1. INSTALL NON-WEIGHTED INLET STRUCTURE FILTER TYPE F (SEE SCDOT STD.DWG.815-006-00)
2. INSTALL INLET STRUCTURE FILTER TYPE DI (SEE SCDOT STD.DWG.815-002-00)

MATCHLINE – ROW STA. 127+00.00 – SEE SHEET 7

MATCHLINE – ROW STA. 141+00.00 – SEE SHEET 9

391' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

325' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

POT 23+20.82

INSTALL 65 LF SILT FENCE

CONST.CB TYPE 16 WITH FLUME CB-8-1 TOP EL.= 12.33 SEE NOTE 1

INSTALL SEDIMENT DAM D8-1

INSTALL SILT FENCE

PRESENT R/W PB EB PAGE 635

℄ GOODWILL WAY

INSTALL 514 LF SILT FENCE

ADD 12' WIDE CONCRETE LINING ALONG NEW DITCH ALIGNMENT

REMOVE INLET AND 25 LF RCP

CONST.DROP INLET (TYPE 112) DI-8-2 TOP EL.= 19.54 SEE NOTE 2

TRANSITIONAL R/W (SCDOT 10J95A,MANH-NH-16(85) 1992)

125' R/W (SCDOT 10J95A, MANH-NH-16(85) 1992)

N 31° 21' 02" E

INSTALL 602 LF SILT FENCE

INSTALL 271 LF DOUBLE ROW SILT FENCE

CONSTRUCT 1' OPENINGS IN RAISED MEDIAN SPACED AT 10'

INSTALL SEDIMENT DAM D8-2

GRADE SWALE FOR POSITIVE DRAINAGE

125' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

℄ GMP ROW

℄ GMP WB

125' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

530 535 540

S 58° 06' 07" E

S 58° 05' 12" E

S 58° 06' 40" E

S 57° 57' 35" E

130 135 140

330 335 340

230 235 240

20 10

TRANSITIONAL R/W (SCDOT 10J95A,MANH-NH-16(85) 1992)

℄ GMP EB

TRANSITIONAL R/W (SCDOT 10J95A,MANH-NH-16(85) 1992)

INSTALL 573 LF DOUBLE ROW SILT FENCE

125' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

125' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

POT 234+26.94

INSTALL 888 LF DOUBLE ROW SILT FENCE

℄ WILLIAM E.MURRAY BLVD.

S 31° 50' 01" W

PRESENT R/W PB LI2 PAGE 0014

PRESENT R/W PB LI2 PAGE 0014 POT 12+67.57

275' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

8" PVC

6 7 8 9 10 11 12 13 14

0 50 100 150 200

NOTES:
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- WHERE NO NPDES LINES ARE SHOWN, LIMITS OF DISTURBANCE CONTINUE TO RIGHT-OF-WAY LINES.

SCALE: 50.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
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SOUTH CAROLINA DAVIS & FLOYD, INC. No. C00538 CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305 COLUMBIA, SC 29210 (803) 256-4121

DAVIS & FLOYD

SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY MNK DRAWN BY MNK CHECKED BY JMW

CHARLESTON COUNTY

DRAINAGE SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 127+00.00 – STA. 141+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	PO37878	SC 461	D9	

POT 33+94.95
N 40° 46' 14" E
PT 33+52.83
PC 33+07.08
PRESENT CITY R/W
PB EJ PAGE 690
275' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)
℄ MARY ADER AVE.
PRESENT SCDOT R/W
PB EJ PAGE 690
N 27° 39' 56" E
CONST. MANHOLE MH-9-13 TOP EL.= 14.15 SEE NOTE 1
PLACE 56 LF 18" SWP NP-9-13 I.E.IN = 11.41 I.E.OUT = 11.01
CONST. CD TYPE 9 THROAT EL.= 13.48 SEE NOTE 1
PRESENT CITY R/W PB EC PAGE 927
PLACE 140 LF 18" SWP NP-9-14 I.E.IN = 11.01 I.E.OUT = 9.96
PRESENT SCDOT R/W PB EC PAGE 927
PLACE 68 LF 36" SWP NP-9-2.3 I.E.IN = 9.96 I.E.OUT = 9.62
PLACE 13 TONS RIPRAP CLASS B AND 15 SY GEOTEXTILE FILTER FABRIC TYPE D
REMOVE 3 LF 18" RCP
INSTALL SEDIMENT DAM D9-1
PLACE 10 LF 36" SWP NP-9-2.2 I.E.IN = 10.40 I.E.OUT = 10.35
CONST. MANHOLE MH-9-2 TOP EL.= 13.50 SEE NOTE 1
PLACE 32 LF 36" SWP NP-9-2.1 I.E.IN = 10.83 I.E.OUT = 10.40
GRADE STA. 141+15 FOR POSITIVE DRAINAGE
℄ GMP WB
℄ GMP ROW
PLACE 9 TONS RIPRAP CLASS B AND 10 SY GEOTEXTILE FILTER FABRIC TYPE D
CONST. MANHOLE MH-9-3 TOP EL.= 13.30 SEE NOTE 1
PLACE 35 TONS RIPRAP CLASS B AND 41 SY GEOTEXTILE FILTER FABRIC TYPE D
INSTALL 1045 LF SILT FENCE
125' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)
CONST. DROP INLET (TYPE 112) DI-9-8 TOP EL.= 12.58 SEE NOTE 3
PC 549+22.98
545
550
145
150
345
350
155
355
245
250
255
POT 40+00.00
MATCHLINE – ROW STA. 141+00.00 – SEE SHEET 8
MATCHLINE – ROW STA. 155+00.00 – SEE SHEET 10
℄ GMP EB
PLACE 35 TONS RIPRAP CLASS B AND 41 SY GEOTEXTILE FILTER FABRIC TYPE D
INSTALL 476 LF DOUBLE ROW SILT FENCE
PLACE 14 LF 36" SWP NP-9-12 I.E.IN = 10.15 I.E.OUT = 10.11
INSTALL SEDIMENT DAM D9-2
POT 246+98.04
PLACE 9 TONS RIPRAP CLASS B AND 10 SY GEOTEXTILE FILTER FABRIC TYPE D
PLACE 46 LF 36" SWP NP-9-10.1 I.E.IN = 10.32 I.E.OUT = 10.31
PRESENT CITY R/W PB EG PAGE 818
PRESENT SCDOT R/W PB EG PAGE 818
275' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)
℄ WEST WILDCAT BLVD.
PC 43+09.21
S 31° 54' 48" W
PT 44+26.13
PC 349+49.00
PC 249+70.16
PLACE 54 LF 36" SWP NP-9-10.2 I.E.IN = 9.94 I.E.OUT = 9.78
PLACE 28 LF 36" SWP NP-9-11.1 I.E.IN = 9.03 I.E.OUT = 8.97
PLACE 35 TONS RIPRAP CLASS B AND 41 SY GEOTEXTILE FILTER FABRIC TYPE D
INSTALL 223 LF SILT FENCE
PLACE 9 TONS RIPRAP CLASS B AND 10 SY GEOTEXTILE FILTER FABRIC TYPE D
INSTALL SEDIMENT DAM D9-3
INSTALL 763 LF SILT FENCE
INSTALL 101 LF DOUBLE ROW SILT FENCE
PRESENT CITY R/W PB EG PAGE 818
PRESENT SCDOT R/W PB EG PAGE 818
PLACE 35 TONS RIPRAP CLASS B AND 41 SY GEOTEXTILE FILTER FABRIC TYPE D
15'
NEW R/W OFFSET 15' FROM PRESENT CITY R/W

NOTES:
1. INSTALL NON-WEIGHTED INLET STRUCTURE FILTER TYPE F (SEE SCDOT STD.DWG.815-006-00)
2. INSTALL WEIGHTED INLET STRUCTURE FILTER TYPE F (SEE SCDOT STD.DWG.815-006-00)
3. INSTALL INLET STRUCTURE FILTER TYPE DI (SEE SCDOT STD.DWG.815-002-00)

0 50 100 150 200

NOTES:
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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
DAVIS & FLOYD, INC.
No. C00538

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY MNK DRAWN BY MNK CHECKED BY JMW

CHARLESTON COUNTY

DRAINAGE SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 141+00.00 – STA. 155+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

SCALE: 50.000 ft / in.
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PLOT DRIVER: PDF.pltcfg
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CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	D10	

NOTES:
1. INSTALL NON-WEIGHTED INLET STRUCTURE FILTER TYPE F (SEE SCDOT STD.DWG.815-006-00)
2. INSTALL WEIGHTED INLET STRUCTURE FILTER TYPE F (SEE SCDOT STD.DWG.815-006-00)
3. INSTALL INLET STRUCTURE FILTER TYPE DI (SEE SCDOT STD.DWG.815-002-00)

℄ STUHR FUNERAL CHAPEL

℄ GMP WB

℄ GMP ROW

℄ GMP EB

℄ LOCHAVEN DR.

POT 32+33.50

N 41° 56' 28" E

S 41° 48' 42" W

POT 13+35.66

PT 261+81.42

PT 366+98.90

PT 566+82.14

CONST.DROP INLET (TYPE 112) DI-10-8 TOP EL.= 12.58 SEE NOTE 3

PLACE 177 LF 24" SWP NP-10-8.2 I.E.IN = 8.77 I.E.OUT = 8.24

INSTALL SEDIMENT DAM DIO-2

PLACE 15 TONS RIPRAP CLASS B AND 19 SY GEOTEXTILE FILTER FABRIC TYPE D

INSTALL SEDIMENT DAM DIO-1

INSTALL 722 LF SILT FENCE

PLACE 33 LF 19"X30" HECP NP-10-8.3 I.E.IN = 9.10 I.E.OUT = 8.77

CONST.MANHOLE MH-10-8.2 TOP EL.= 12.51 SEE NOTE 1

GRADE SWALE FOR POSTIVE DRAINAGE

125' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

EXTEND EXISTING PIPE PLACE 9 LF 30" SWP NP-10-4.2 I.E.IN = 8.31 I.E.OUT = 7.93

PLACE 34 TONS RIPRAP CLASS B AND 40 SY GEOTEXTILE FILTER FABRIC TYPE D

PLACE 3 TONS RIPRAP CLASS B AND 4 SY GEOTEXTILE FILTER FABRIC TYPE D

INSTALL SEDIMENT DAM DIO-3

GRADE SWALE FOR POSITIVE DRAINAGE

CONST.DROP INLET (TYPE 112) DI-10-9.1 TOP EL.= 10.20 SEE NOTE 3

INSTALL 660 LF DOUBLE ROW SILT FENCE

CONVERT EX.DROP INLET TO MANHOLE MH-10-9 TOP EL.= 12.37 SEE NOTE 2

PLACE 88 LF 18" SWP NP-10-9.3 I.E.IN = 7.52 I.E.OUT = 7.26

CONST.DROP INLET (TYPE 112) DI-10-9.3 TOP EL.= 10.85 SEE NOTE 3

CONST.CB TYPE 1 DI-10-9.2 TOP EL.= 12.53 SEE NOTE 2

EXTEND EXISTING PIPE PLACE 8 LF 24" SWP NP-10-9 I.E.IN = 7.18 I.E.OUT = 7.18

PLACE 26 TONS RIPRAP CLASS B AND 31 SY GEOTEXTILE FILTER FABRIC TYPE D

EXTEND EXISTING PIPE PLACE 8 LF 24" SWP NP-9-6 I.E.IN = 7.15 I.E.OUT = 7.15

PLACE 44 LF TWO (2) BARREL 30" SWP NP-10-11 I.E.IN = 7.50 I.E.OUT = 7.37

CONST.JUNCTION BOX (36"X90") JB-10-11 TOP EL.= 10.83

INSTALL 708 LF DOUBLE ROW SILT FENCE

INSTALL 218 LF SILT FENCE

PLACE 20 TONS RIPRAP CLASS B AND 26 SY GEOTEXTILE FILTER FABRIC TYPE D

INSTALL SEDIMENT DAM DIO-4

INSTALL 137 LF DOUBLE ROW SILT FENCE

INSTALL 416 LF DOUBLE ROW

PLACE 60 LF TWO (2) BARREL 30" SWP NP-10-10.1 I.E.IN = 7.64 I.E.OUT = 7.57

CONST.JUNCTION BOX (36"X90") JB-10-10 TOP EL.= 10.83

PLACE 15 LF 18" SWP NP-10-14 I.E.IN = 7.39 I.E.OUT = 7.31

PRESENT R/W PB EB PAGE 281

CONST.CB TYPE 9 CB-10-14 THROAT EL.= 10.00 SEE NOTE 1

275' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

341' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

MATCHLINE - ROW STA. 155+00.00 - SEE SHEET 9

MATCHLINE - ROW STA. 169+00.00 - SEE SHEET 11

0 50 100 150 200

NOTES:
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SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY MNK DRAWN BY MNK CHECKED BY JMW

CHARLESTON COUNTY

DRAINAGE SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 155+00.00 - STA. 169+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

SCALE: 50.000 ft / in.
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PLOT DRIVER: PDF.pltcfg
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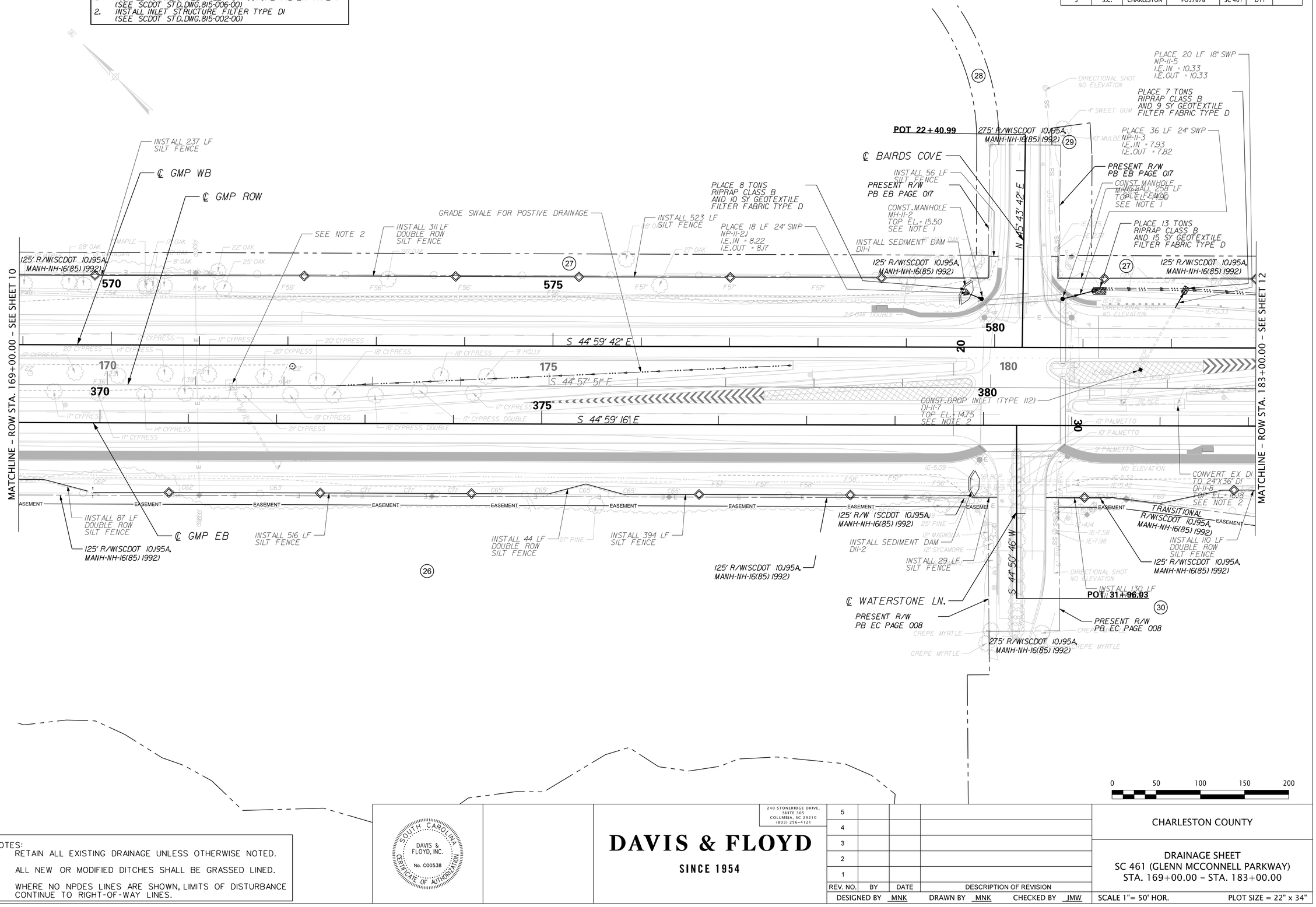
CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	D11	

NOTES:
1. INSTALL NON-WEIGHTED INLET STRUCTURE FILTER TYPE F (SEE SCDOT STD.DWG.815-006-00)
2. INSTALL INLET STRUCTURE FILTER TYPE DI (SEE SCDOT STD.DWG.815-002-00)



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DAVIS & FLOYD, INC.
No. C00538

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DESIGNED BY MNK DRAWN BY MNK CHECKED BY JMW

CHARLESTON COUNTY

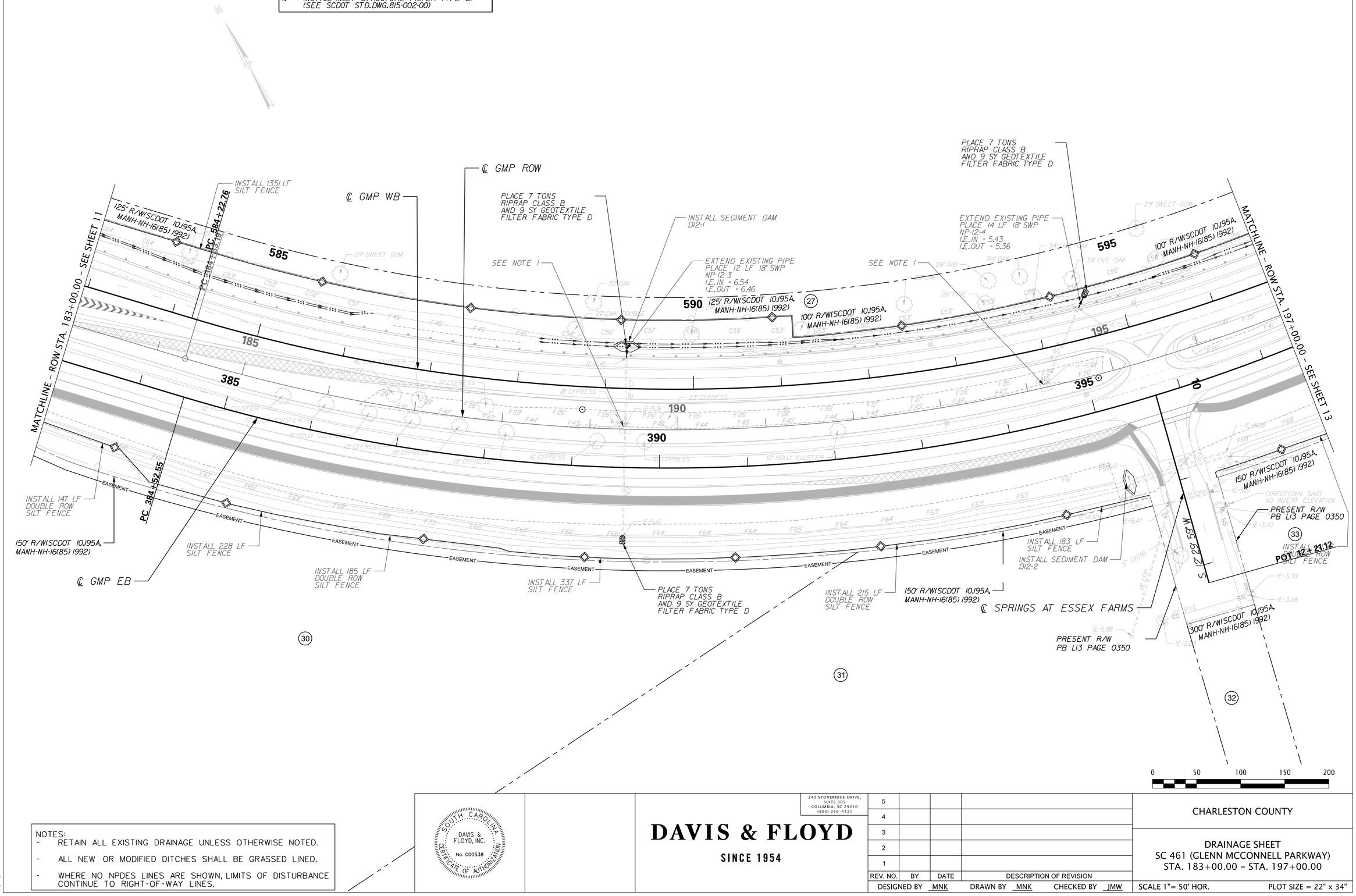
DRAINAGE SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 169+00.00 – STA. 183+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	D12	

NOTES:
1. INSTALL INLET STRUCTURE FILTER TYPE DI (SEE SCDOT STD.DWG.815-002-00)



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SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 105
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
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CHARLESTON COUNTY

DRAINAGE SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 183+00.00 - STA. 197+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

SCALE: 50.000 ft / in.
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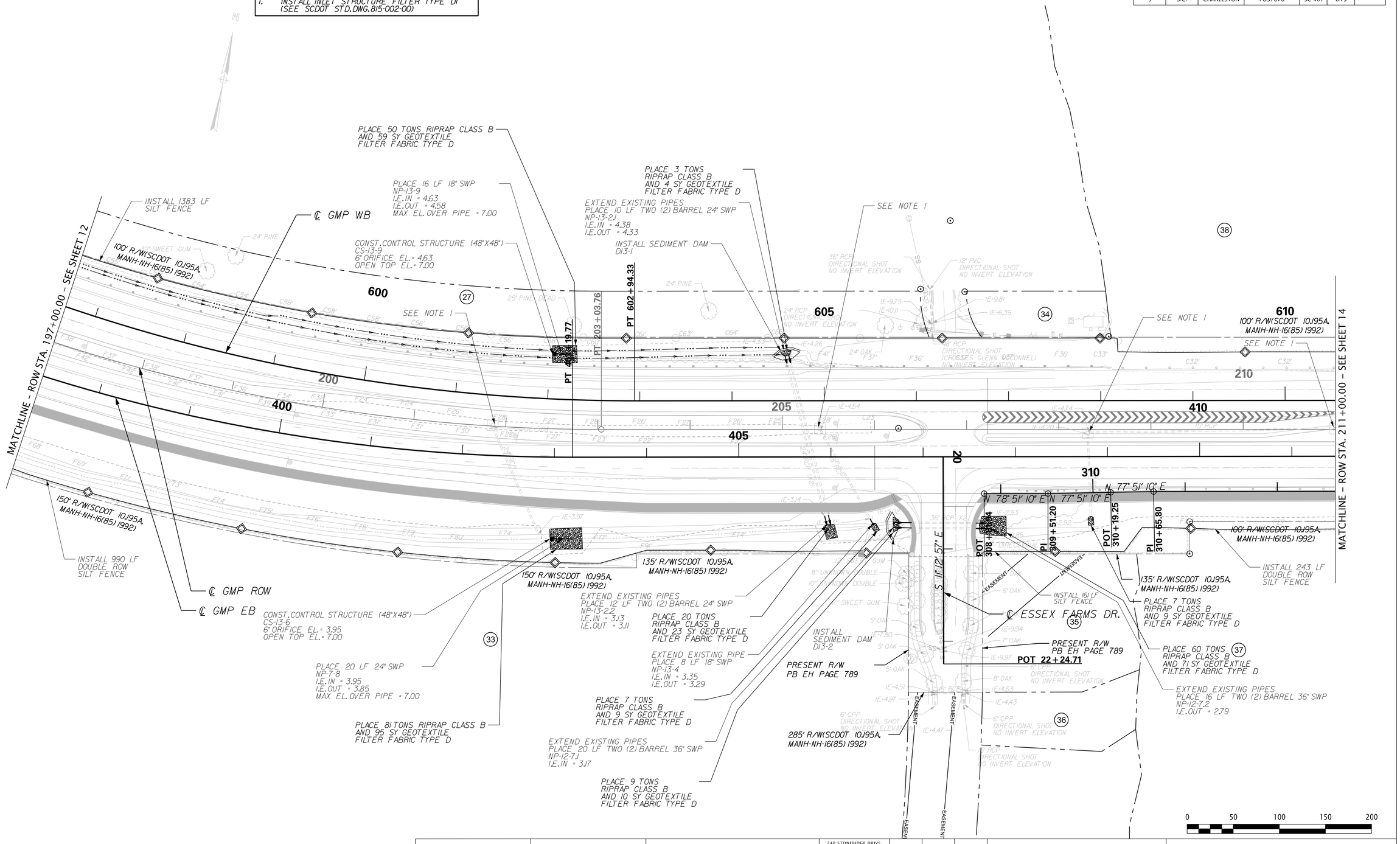
CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	D13	

NOTES:
1. INSTALL INLET STRUCTURE FILTER TYPE DI (SEE SCDOT STD.DWG.815-002-00)



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SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

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CHARLESTON COUNTY

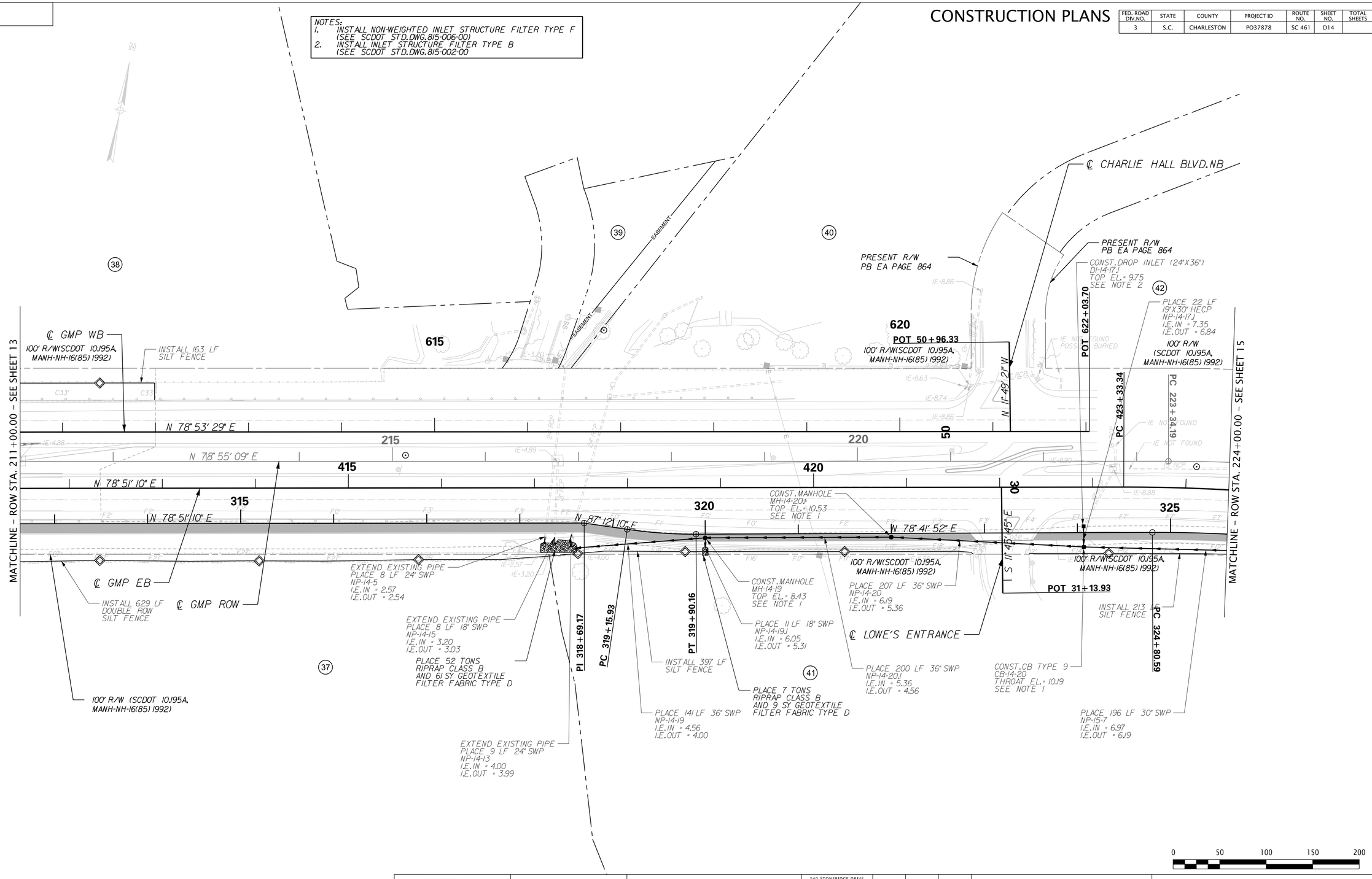
DRAINAGE SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 197+00.00 - STA. 211+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	D14	

NOTES:
1. INSTALL NON-WEIGHTED INLET STRUCTURE FILTER TYPE F (SEE SCDOT STD.DWG.815-006-00)
2. INSTALL INLET STRUCTURE FILTER TYPE B (SEE SCDOT STD.DWG.815-002-00



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NOTES:
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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION — DAVIS & FLOYD, INC. No. C00538

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
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DAVIS & FLOYD
SINCE 1954

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DESIGNED BY MNK DRAWN BY MNK CHECKED BY JMW

CHARLESTON COUNTY

DRAINAGE SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 211+00.00 - STA. 224+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

SCALE: 50.000 ft / in.
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PLOT DRIVER: PDF.pltcfg
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CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	D15	

NOTES:
1. INSTALL NON-WEIGHTED INLET STRUCTURE FILTER TYPE F (SEE SCDOT STD.DWG.815-006-00)
2. INSTALL INLET STRUCTURE FILTER TYPE B (SEE SCDOT STD.DWG.815-002-00

N

MATCHLINE - ROW STA. 224+00.00 - SEE SHEET 14

℄ GMP ROW

℄ GMP EB

100' R/W(SCDOT 10J95A, MANH-NH-16(85) 1992)

PRESENT 105' R/W FILE #10.036999A 2009

PRES. TRANS.R/W

PRESENT 63' R/W FILE #10.036999A 2009

PRESENT 60' R/W FILE #10.036999A 2009

PRES. TRANS.R/W EASEMENT

MAGWOOD DR.

PRESENT 50' R/W FILE #10.036999A 2009

PRES. TRANS.R/W

PRESENT 120' R/W FILE #10.036999A 2009

PRESENT 115' R/W FILE #10.036999A 2009

POT 236+42.05

S 67° 02' 51" E

235

EASEMENT

42

43

44

45

46

41

CONST.DROP INLET (24"X36")
DI-15-6
TOP EL.= 11.34
SEE NOTE 2

CONST.DROP INLET (24"X36")
DI-15-3
TOP EL.= 12.12
SEE NOTE 2

PLACE 52 LF 30" SWP
NP-15-4
I.E.IN = 7.96
I.E.OUT = 7.75

CONST.MANHOLE
MH-15-4
TOP EL.= 13.50
SEE NOTE 1

PLACE 100 LF 24" SWP
NP-15-2
I.E.IN = 8.96
I.E.OUT = 8.56

CONST.DROP INLET (24"X36")
DI-15-2
TOP EL.= 11.76
SEE NOTE 2

IE=5.10

CONST.MANHOLE
MH-15-7
TOP EL.= 12.86
SEE NOTE 1

225

425

230

430

330

S 81° 12' 21" E

PT 432+30.25

PT 330+09.71

PT 234+69.64

PRESENT 115' R/W FILE #10.036999A 2009

PRESENT 100' R/W FILE #10.036999A 2009

PRESENT 45' R/W FILE #10.036999A 2009

POT 332+02.68

PRESENT 60' R/W FILE #10.036999A 2009

FILLED WITH DIRT

NO ELEVATION OUT

PLACE 17 LF 18" SWP
NP-15-5
I.E.IN = 9.60
I.E.OUT = 7.96

INSTALL 640 LF SILT FENCE

CONST.CB TYPE 9
CB-15-5
THROAT EL.= 12.10
SEE NOTE 1

INSTALL 45 LF SILT FENCE

PLACE 150 LF 30" SWP
NP-15-3
I.E.IN = 8.56
I.E.OUT = 7.96

SEE PIPE NOTE SHEET D14

PLACE 196 LF 30" SWP
NP-15-6
I.E.IN = 7.75
I.E.OUT = 6.97

0 50 100 150 200

NOTES:
- RETAIN ALL EXISTING DRAINAGE UNLESS OTHERWISE NOTED.
- ALL NEW OR MODIFIED DITCHES SHALL BE GRASSED LINED.
- WHERE NO NPDES LINES ARE SHOWN, LIMITS OF DISTURBANCE CONTINUE TO RIGHT-OF-WAY LINES.

SCALE: 50.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\Jobs0dd\13635-00\Production\Transportation\SHEETS\13635-00 GMP DRN Sheets.dgn
4/7/2020

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

DAVIS & FLOYD
SINCE 1954
240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY MNK DRAWN BY MNK CHECKED BY JMW

CHARLESTON COUNTY

DRAINAGE SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 224+00.00 - STA. 234+43.19

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	EC1	

RECEIVING WATERS

ROAD / ROUTE	OUTFALL DITCH STATION	SIDE	NAME OF RECEIVING WATERS	NAME OF ULTIMATE RECEIVING WATERS
GMP WB	519+43	L	Unnamed Tributary	Church Crk/Ashley Rvr
GMP WB	520+84	L	Church Creek	Ashley River
GMP EB	413+19	R	Long Branch	Stono River

SOIL TYPES

ROAD / ROUTE	STATION TO STATION		SOIL PARTICLE SIZE (COARSE / FINE)	ZONE
GMP/SC 461	100+50	230+92	FINE	LOWER COASTAL PLN

TEMPORARY EROSION CONTROL BLANKET

ROAD / ROUTE	STATION TO STATION		SIDE	DEPTH OF BLANKET (FT)	DITCH BOTTOM WIDTH (FT)	SLOPES x : 1 FRONT	SLOPES x : 1 BACK	MSY
GMP WB	501+50	504+00	LT	4	4	2	0.0	0.360
GMP WB	504+00	508+50	LT	5	4	2	2.0	1.318
GMP WB	525+00	528+00	LT	2	0	2	0.0	0.149
GMP WB	533+00	546+80	LT	4	0	0	2.0	1.371
GMP WB	548+50	550+50	LT	4.5	0	0	2.0	0.224
GMP WB	581+00	592+00	LT	2.5	2	2	2.0	1.611
GMP WB	592+00	595+50	LT	4.5	0	2	2.0	0.783
GMP WB	595+50	596+50	LT	4.5	2	2	2.0	0.246
GMP WB	596+50	599+00	LT	3	4	2	2.0	0.484
GMP WB	599+00	605+00	LT	3	8	2	2.0	1.428
GMP EB	310+50	318+00	RT	2	4	2	2.0	1.079
GMP EB	322+50	331+50	RT	2	4	2	2.0	1.294
GMP EB	334+00	346+50	RT	2	0	2	0.0	0.621
GMP EB	363+50	377+00	RT	1	6	2	2.0	1.571
GMP EB	399+00	406+50	RT	3	0	2	0.0	0.559
							TOTAL	13.097

TURF REINFORCED MATTING (TRM)

ROAD / ROUTE	STATION TO STATION		SIDE	DEPTH OF MAT (FT)	SLOPES (x : 1) FRONT	SLOPES (x : 1) BACK	DITCH BOTTOM WIDTH (FT)	TYPE	TYPE 1 (MSY)	TYPE 2 (MSY)	TYPE 3 (MSY)
								TOTALS			

SEDIMENT TUBES IN DITCHES

ROAD / ROUTE	STATION TO STATION		SIDE	AVERAGE LENGTH	SPACING (FT)	TOTAL	COMMENTS
GMP WB	501+50	508+75	LT	22	150	132	
GMP WB	533+00	547+00	LT	20	150	220	
GMP WB	548+00	552+50	LT	22	150	88	
GMP WB	565+00	576+00	LT	10	150	90	
GMP WB	581+00	586+00	LT	18	150	90	
GMP WB	588+00	599+00	LT	15	150	135	
GMP WB	599+00	604+50	LT	22	150	110	
GMP EB	310+50	318+00	RT	14	100	126	
GMP EB	322+50	331+50	RT	16	100	160	
GMP EB	344+50	346+50	RT	10	150	30	
GMP EB	363+00	372+00	RT	10	150	70	
GMP EB	372+00	376+50	RT	24	150	96	
GMP EB	327+50	331+25	LT	10	100	50	
GMP EB	334+00	344+50	LT	10	150	80	
GMP EB	352+00	360+50	LT	10	150	70	
GMP EB	365+00	377+75	LT	10	150	100	
GMP EB	383+00	395+00	LT	10	150	90	
GMP EB	396+50	404+00	LT	10	150	60	
SUP 1	202+00	208+00	LT	20	150	100	
SUP 2	234+50	246+50	LT	20	150	180	
SUP 3	250+00	261+50	LT	18	150	162	
SUP 4	319+50	322+50	RT	10	150	30	
GOODWILL	21+50	22+50	RT	10	150	20	
MARY ADER	30+50	33+50	RT	12	150	36	
					TOTAL	2325	

SEDIMENT DAM

NO	ROAD / ROUTE	STATION	SIDE	DRAINED OR NOT DRAINED	LENGTH OF SILT BASIN	WIDTH OF SILT BASIN	DAM HEIGHT	SIDE SLOPE OF SILT BASIN	SPILLWAY BOTTOM WIDTH	DAM BOTTOM WIDTH	RIP RAP CLASS	TOTAL STORAGE VOLUME	SEDIMENT STORAGE HEIGHT	OUTFALL CHANNEL WIDTH	OUTFALL CHANNEL DEPTH	OUTFALL CHANNEL LENGTH
D7-1	GMP EB	317+00	RT	DRAINED	350	12	1	2	4	2	B	2100	0.5	4	2	10
D8-1	GOODWILL WY	22+67	RT	DRAINED	N/A	N/A	2	2	14	0	B	3191	0.75	N/A	N/A	N/A
D8-2	GMP WB	536+90	RT	DRAINED	750	N/A	2	6	24	0	B	6000	0.75	N/A	N/A	N/A
D9-1	GMP WB	546+43	LT	DRAINED	1600	0	3	2	12	0	B	29000	0.75	N/A	N/A	0
D9-2	GMP EB	346+70	RT	DRAINED	1300	8	3	2	2	8	B	15600	0.75	N/A	N/A	0
D9-3	GMP EB	349+84	RT	DRAINED	100	8	3	2	15	3	B	2700	0.75	N/A	N/A	0
D10-1	GMP WB	559+29	RT	DRAINED	425	0	2	6	15	0	B	10200	0.75	N/A	N/A	0
D10-2	STUHR	30+62	LT	DRAINED	1300	6	3	2	14	6	B	26000	0.75	N/A	N/A	0
D10-3	GMP WB	563+74	LT	DRAINED	225	2	2	2	16	0	B	4500	0.75	N/A	N/A	0
D10-4	GMP EB	361+55	RT	DRAINED	1070	18	3	2	18	6	B	38500	0.75	N/A	N/A	0
D11-1	BARIDS COVE	20+61	LT	DRAINED	500	0	2	2	19	0	B	4000	0.75	N/A	N/A	0
D11-2	WATERSTONE	30+66	RT	DRAINED	900	6	3	2	18	6	B	32400	0.75	N/A	N/A	0
D12-1	GMP WB	589+23	LT	DRAINED	675	4	2	2	12	4	B	10800	0.75	N/A	N/A	0
D12-2	SPRINGS	10+87	RT	DRAINED	1200	9	3	2	21	9	B	54000	0.75	N/A	N/A	0
D13-1	GMP WB	604+59	LT	DRAINED	220	8	2	2	16	8	B	5280	0.75	N/A	N/A	0
D13-2	ESSEX FARMS	20+75	RT	DRAINED	330	5	3	2	17	5	B	10890	0.75	N/A	N/A	0

DAVIS & FLOYD, INC. No. C00538 — SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY MNK DRAWN BY MNK CHECKED BY JMW

CHARLESTON COUNTY

EROSION CONTROL DATA SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= N.T.S. PLOT SIZE = 22" x 34"

SCALE: 1.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\13635-00 GMP ECDS Sheets.dgn
4/7/2020

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	EC2	

RECEIVING WATERS

ROAD / ROUTE	OUTFALL DITCH STATION	SIDE	NAME OF RECEIVING WATERS	NAME OF ULTIMATE RECEIVING WATERS

SOIL TYPES

ROAD / ROUTE	STATION TO STATION		SOIL PARTICLE SIZE (COARSE / FINE)	ZONE

TEMPORARY EROSION CONTROL BLANKET

ROAD / ROUTE	STATION TO STATION		SIDE	DEPTH OF BLANKET (FT)	DITCH BOTTOM WIDTH (FT)	SLOPES x : 1 FRONT	SLOPES x : 1 BACK	MSY
GMP SUP 1	202+00	208+50	LT	6	0	2	0.0	0.969
GMP SUP 2	234+50	236+00	LT	3	0	2	0.0	0.112
GMP SUP 2	239+00	244+00	LT	1	0	2	0.0	0.124
GMP SUP 3	250+00	255+00	LT	4	0	2	0.0	0.497
GMP SUP 4	319+00	322+50	RT	1	0	2	0.0	0.087
GMP SUP 4	324+00	331+50	LT	2	0	2	0.0	0.373
GMP SUP 4	327+50	331+00	RT	1	0	2	0.0	0.087
							TOTAL	2.248

TURF REINFORCED MATTING (TRM)

ROAD / ROUTE	STATION TO STATION		SIDE	DEPTH OF MAT (FT)	SLOPES (x : 1) FRONT	SLOPES (x : 1) BACK	DITCH BOTTOM WIDTH (FT)	TYPE	TYPE 1 (MSY)	TYPE 2 (MSY)	TYPE 3 (MSY)
								TOTALS			

SEDIMENT TUBES IN DITCHES

ROAD / ROUTE	STATION TO STATION		SIDE	AVERAGE LENGTH	SPACING (FT)	TOTAL	COMMENTS
						TOTAL	

SEDIMENT DAM

NO	ROAD / ROUTE	STATION	SIDE	DRAINED OR NOT DRAINED	LENGTH OF SILT BASIN	WIDTH OF SILT BASIN	DAM HEIGHT	SIDE SLOPE OF SILT BASIN	SPILLWAY BOTTOM WIDTH	DAM BOTTOM WIDTH	RIP RAP CLASS	TOTAL STORAGE VOLUME	SEDIMENT STORAGE HEIGHT	OUTFALL CHANNEL WIDTH	OUTFALL CHANNEL DEPTH	OUTFALL CHANNEL LENGTH

SCALE: 1.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\13635-00 GMP ECDS Sheets.dgn
4/7/2020

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY MNK DRAWN BY MNK CHECKED BY JMW

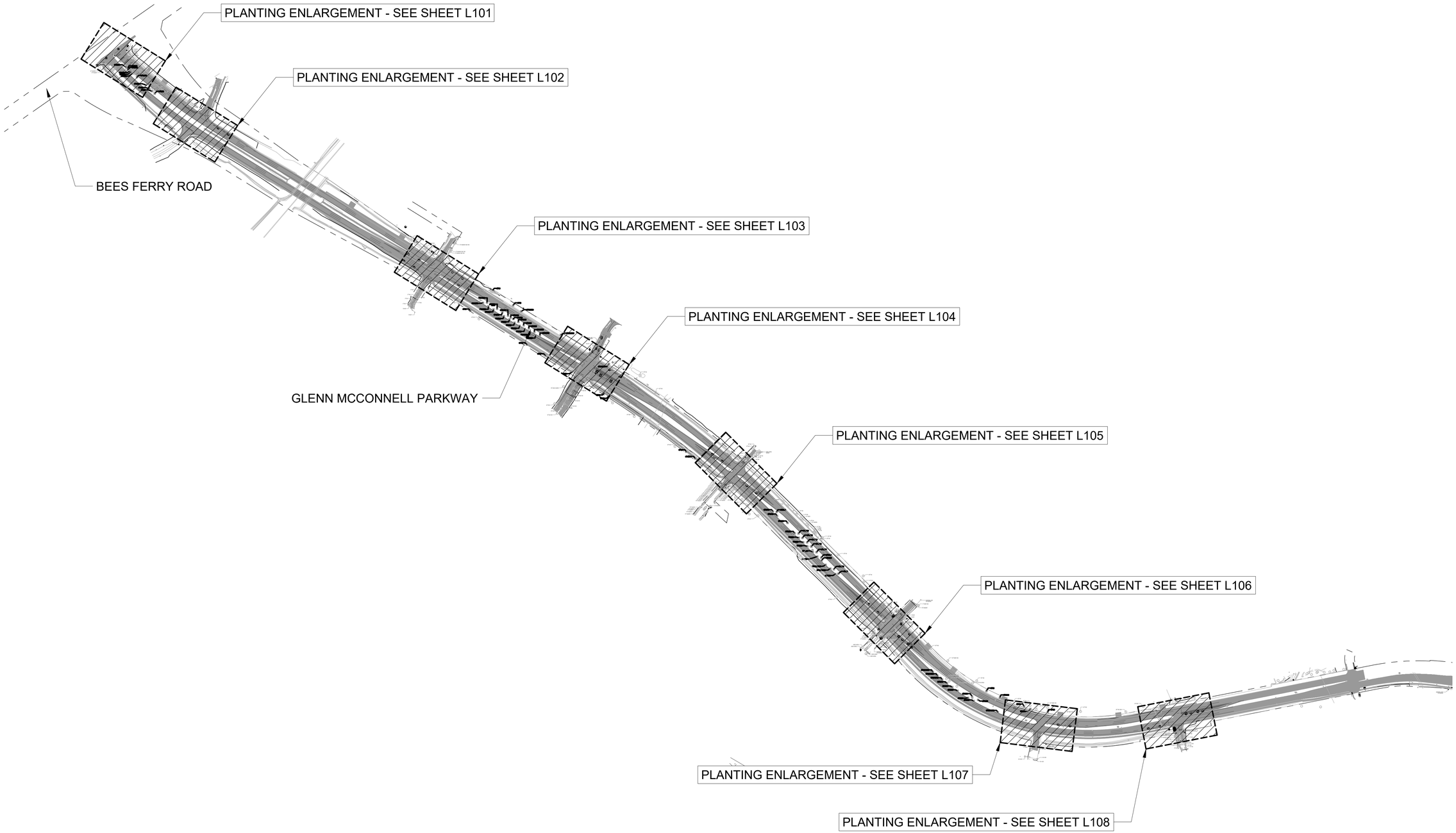
CHARLESTON COUNTY

EROSION CONTROL DATA SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= N.T.S. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	L100	



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PEN TABLE: $PENTBL$
PLOT DRIVER: $PLTDRV$
FILE: $FILEL$
$DATE$

0 400' 800'
SCALE: 1" = 400'

N
STATE PLANE

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

NOT FOR CONSTRUCTION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY DRV DRAWN BY DRV CHECKED BY CLH

CHARLESTON COUNTY

OVERALL LANDSCAPE CONTEXT PLAN

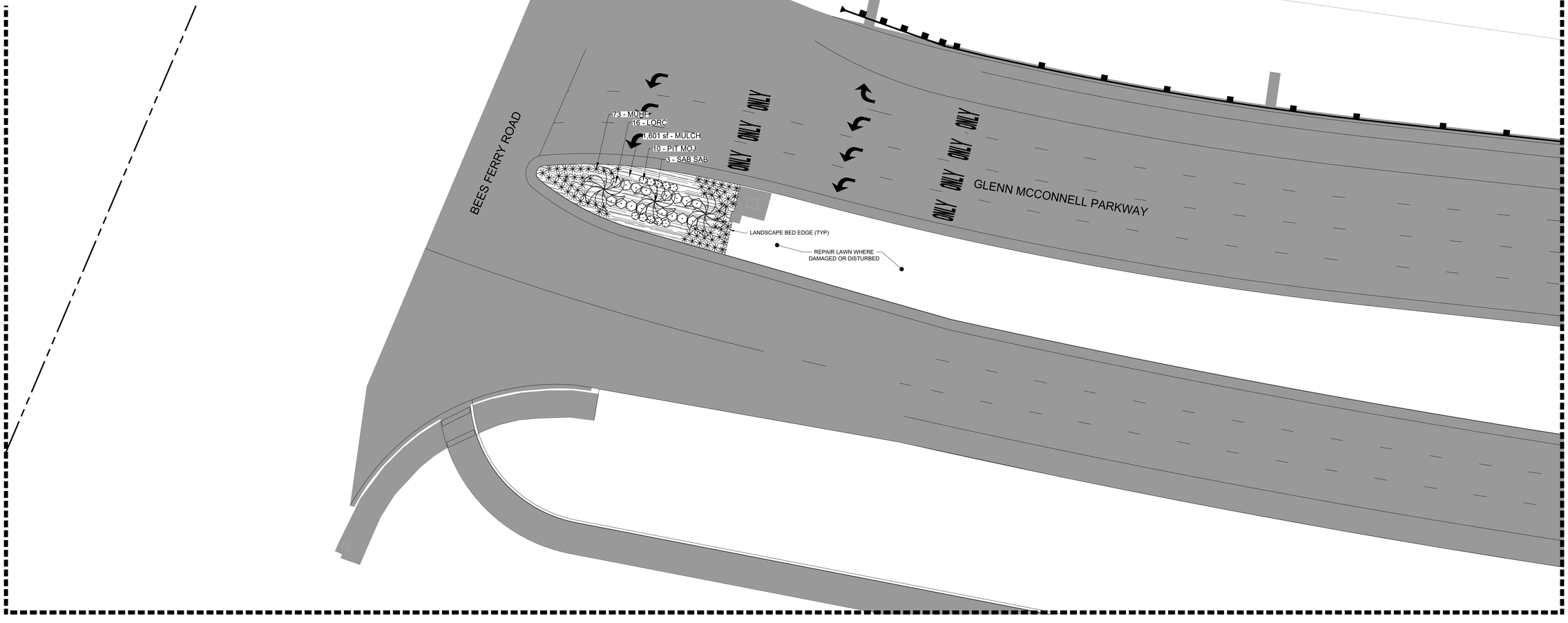
SCALE 1"= 20' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	L101	

PLANT SCHEDULE

TREES	CODE	BOTANICAL / COMMON NAME
	SAB SAB	Sabal palmetto / Cabbage Palmetto Full, Natural Form CTH - Clear Trunk Height
UNDERSTORY TREES	**CODE**	**BOTANICAL / COMMON NAME**
	LAG NAT	Lagerstroemia x `Natchez` / Crape Myrtle Single Stem, Tree Form Only
SHRUBS	**CODE**	**BOTANICAL / COMMON NAME**
	LORC	Loropetalum chinense `Ruby` / Ruby Loropetalum
	PIT MOJ	Pittosporum tobira `Mojo` / Mojo Pittosporum
PERENNIALS & GRASSES	**CODE**	**BOTANICAL / COMMON NAME**
	MUHF	Muhlenbergia filipes / Sweetgrass Full, Natural Form, Containerized Material
GROUND COVERS	**CODE**	**BOTANICAL / COMMON NAME**
	MULCH	Pinestraw Mulch Depth of 3"
	TURF	Turf Seed All Seed is to meet SCDOT Specifications



SCALE: $SCALE$
PEN TABLE: $PENTBL$
PLOT DRIVER: $PLTDRVL$
FILE: $FILEL$
$DATE$

0 20' 40'
SCALE: 1" = 20'

N
STATE PLANE

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

NOT FOR CONSTRUCTION

DAVIS & FLOYD
SINCE 1954
240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

REV. NO	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY DRV DRAWN BY DRV CHECKED BY CLH

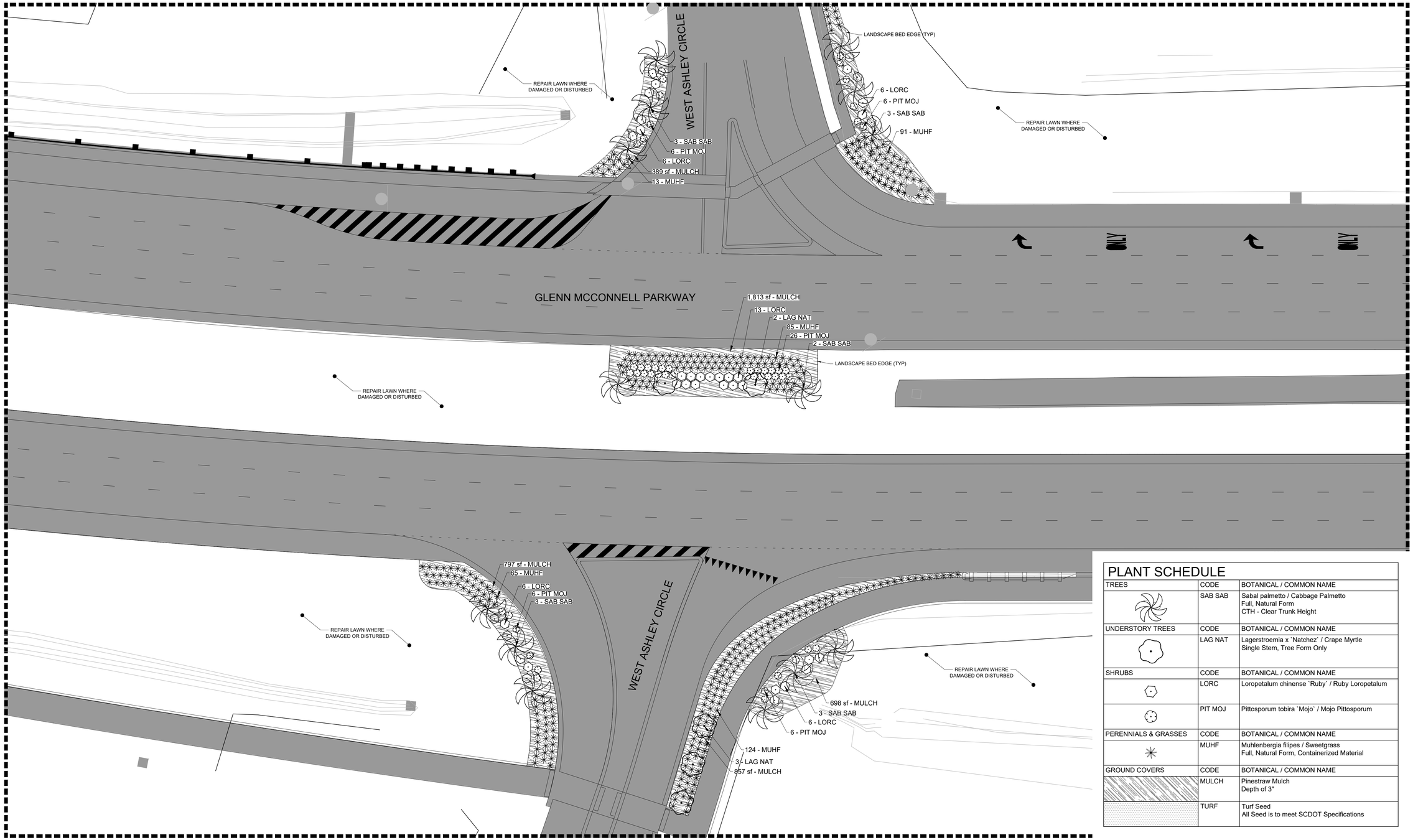
CHARLESTON COUNTY

LANDSCAPE PLAN

SCALE 1"= 20' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	L102	



PLANT SCHEDULE

TREES	CODE	BOTANICAL / COMMON NAME
	SAB SAB	Sabal palmetto / Cabbage Palmetto Full, Natural Form CTH - Clear Trunk Height
UNDERSTORY TREES	CODE	BOTANICAL / COMMON NAME
	LAG NAT	Lagerstroemia x `Natchez` / Crape Myrtle Single Stem, Tree Form Only
SHRUBS	CODE	BOTANICAL / COMMON NAME
	LORC	Loropetalum chinense `Ruby` / Ruby Loropetalum
	PIT MOJ	Pittosporum tobira `Mojo` / Mojo Pittosporum
PERENNIALS & GRASSES	CODE	BOTANICAL / COMMON NAME
	MUHF	Muhlenbergia filipes / Sweetgrass Full, Natural Form, Containerized Material
GROUND COVERS	CODE	BOTANICAL / COMMON NAME
	MULCH	Pinestraw Mulch Depth of 3"
	TURF	Turf Seed All Seed is to meet SCDOT Specifications

SCALE: $SCALE$
PEN TABLE: $PENTBL$
PLOT DRIVER: $PLTDRVL$
FILE: $FILEL$

0 20' 40'
SCALE: 1" = 20'

N
STATE PLANE

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

NOT FOR CONSTRUCTION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY DRV DRAWN BY DRV CHECKED BY CLH

CHARLESTON COUNTY

LANDSCAPE PLAN

SCALE 1"= 20' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	L103	

PLANT SCHEDULE

TREES	CODE	BOTANICAL / COMMON NAME
	SAB SAB	Sabal palmetto / Cabbage Palmetto Full, Natural Form CTH - Clear Trunk Height
UNDERSTORY TREES	**CODE**	**BOTANICAL / COMMON NAME**
	LAG NAT	Lagerstroemia x `Natchez` / Crape Myrtle Single Stem, Tree Form Only
SHRUBS	**CODE**	**BOTANICAL / COMMON NAME**
	LORC	Loropetalum chinense `Ruby` / Ruby Loropetalum
	PIT MOJ	Pittosporum tobira `Mojo` / Mojo Pittosporum
PERENNIALS & GRASSES	**CODE**	**BOTANICAL / COMMON NAME**
	MUHF	Muhlenbergia filipes / Sweetgrass Full, Natural Form, Containerized Material
GROUND COVERS	**CODE**	**BOTANICAL / COMMON NAME**
	MULCH	Pinestraw Mulch Depth of 3"
	TURF	Turf Seed All Seed is to meet SCDOT Specifications

GOODWILL WAY

REPAIR LAWN WHERE DAMAGED OR DISTURBED

3 - LAG NAT
79 - MUHF
6 - LORC
6 - PIT MOJ
3 - SAB SAB
1,580 sf - MULCH

521 sf - MULCH
6 - LORC
3 - SAB SAB
6 - PIT MOJ
33 - MUHF

REPAIR LAWN WHERE DAMAGED OR DISTURBED

GLENN MCCONNELL PARKWAY

288 sf - MULCH
10 - LORC
14 - PIT MOJ
18 - MUHF

ONLY

303 sf - MULCH
18 - MUHF
14 - PIT MOJ
10 - LORC

LANDSCAPE BED EDGE (TYP)

WILLIAM E MURRAY BOULEVARD

56 - MUHF
3 - LAG NAT
6 - PIT MOJ
5 - LORC
3 - SAB SAB
651 sf - MULCH

REPAIR LAWN WHERE DAMAGED OR DISTURBED

LANDSCAPE BED EDGE (TYP)

LAWN TO BE SEEDED PER SCDOT SPECIFICATION

95 - MUHF
3 - LAG NAT
1,245 sf - MULCH
3 - SAB SAB
6 - LORC
6 - PIT MOJ
359 sf - MULCH

REPAIR LAWN WHERE DAMAGED OR DISTURBED

SCALE: $SCALE$
PEN TABLE: $PENTBLL$
PLOT DRIVER: $PLTDRVL$
FILE: $FILEL$
$DATE$

0 20' 40'
SCALE: 1" = 20'

N
STATE PLANE

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

NOT FOR CONSTRUCTION

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SINCE 1954
240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

REV. NO	BY	DATE	DESCRIPTION OF REVISION
5			
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2			
1			

DESIGNED BY DRV DRAWN BY DRV CHECKED BY CLH

CHARLESTON COUNTY

LANDSCAPE PLAN

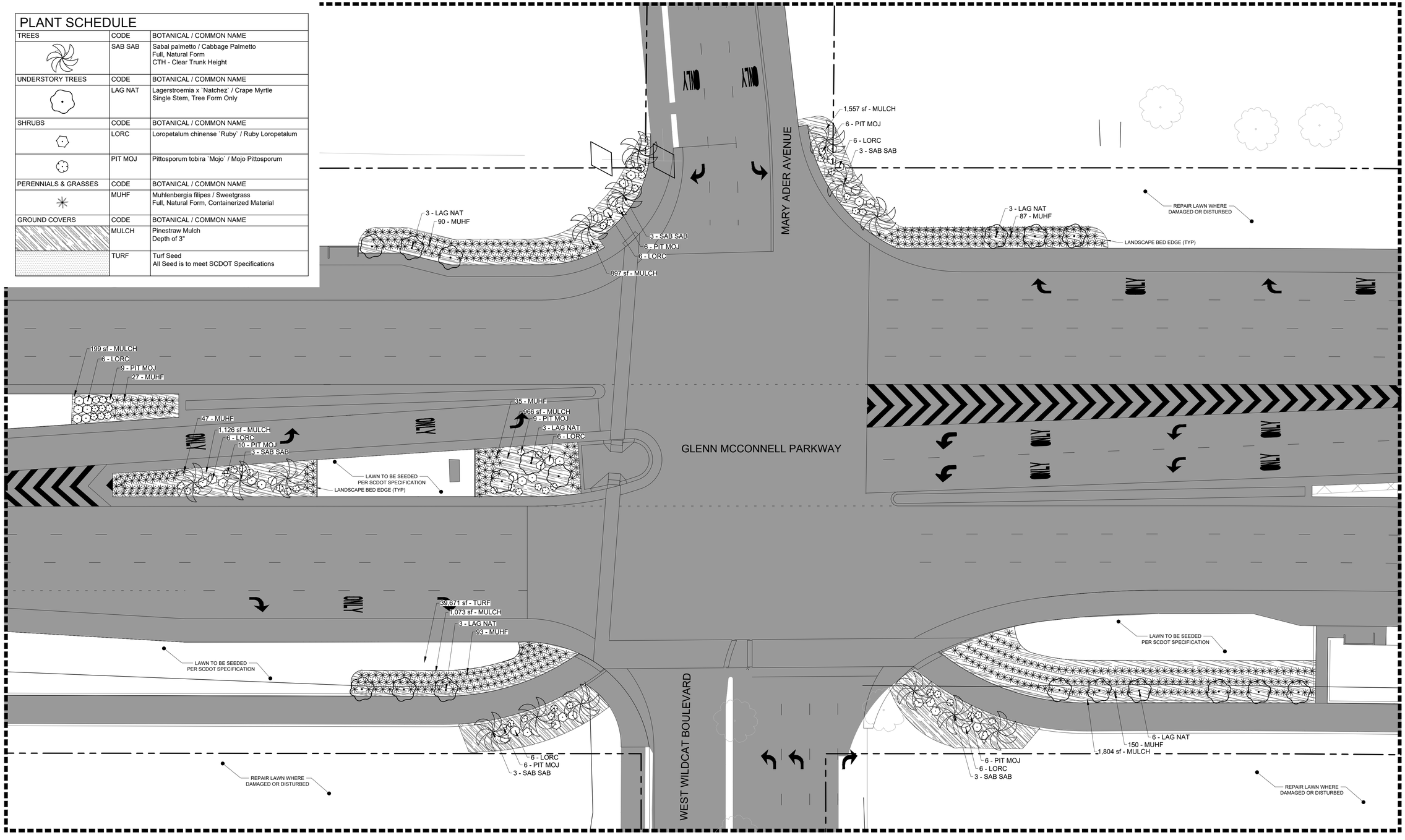
SCALE 1"= 20' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	L104	

PLANT SCHEDULE

TREES	CODE	BOTANICAL / COMMON NAME
	SAB SAB	Sabal palmetto / Cabbage Palmetto Full, Natural Form CTH - Clear Trunk Height
UNDERSTORY TREES	**CODE**	**BOTANICAL / COMMON NAME**
	LAG NAT	Lagerstroemia x `Natchez` / Crape Myrtle Single Stem, Tree Form Only
SHRUBS	**CODE**	**BOTANICAL / COMMON NAME**
	LORC	Loropetalum chinense `Ruby` / Ruby Loropetalum
	PIT MOJ	Pittosporum tobira `Mojo` / Mojo Pittosporum
PERENNIALS & GRASSES	**CODE**	**BOTANICAL / COMMON NAME**
	MUHF	Muhlenbergia filipes / Sweetgrass Full, Natural Form, Containerized Material
GROUND COVERS	**CODE**	**BOTANICAL / COMMON NAME**
	MULCH	Pinestraw Mulch Depth of 3"
	TURF	Turf Seed All Seed is to meet SCDOT Specifications



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PEN TABLE: $PENTBL$
PLOT DRIVER: $PLTDRVL$
FILE: $FILEL$
$DATE$

0 20' 40'
SCALE: 1" = 20'

NORTH
STATE PLANE

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

NOT FOR CONSTRUCTION

DAVIS & FLOYD
SINCE 1954
240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

REV. NO	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
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DESIGNED BY DRV DRAWN BY DRV CHECKED BY CLH

CHARLESTON COUNTY

LANDSCAPE PLAN

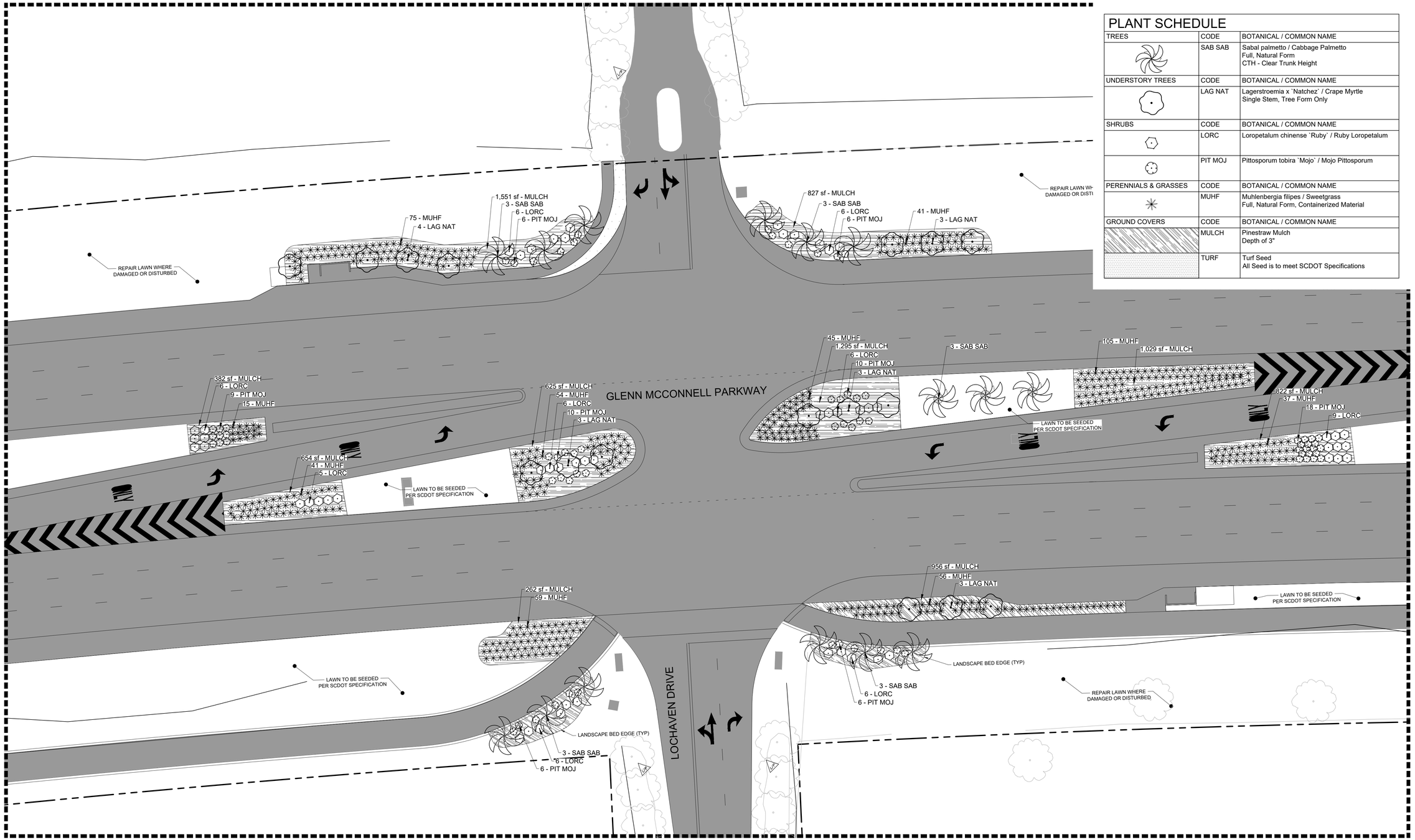
SCALE 1"= 20' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	L105	

PLANT SCHEDULE

TREES	CODE	BOTANICAL / COMMON NAME
	SAB SAB	Sabal palmetto / Cabbage Palmetto Full, Natural Form CTH - Clear Trunk Height
UNDERSTORY TREES	**CODE**	**BOTANICAL / COMMON NAME**
	LAG NAT	Lagerstroemia x `Natchez` / Crape Myrtle Single Stem, Tree Form Only
SHRUBS	**CODE**	**BOTANICAL / COMMON NAME**
	LORC	Loropetalum chinense `Ruby` / Ruby Loropetalum
	PIT MOJ	Pittosporum tobira `Mojo` / Mojo Pittosporum
PERENNIALS & GRASSES	**CODE**	**BOTANICAL / COMMON NAME**
	MUHF	Muhlenbergia filipes / Sweetgrass Full, Natural Form, Containerized Material
GROUND COVERS	**CODE**	**BOTANICAL / COMMON NAME**
	MULCH	Pinestraw Mulch Depth of 3"
	TURF	Turf Seed All Seed is to meet SCDOT Specifications



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PEN TABLE: $PENTBL$
PLOT DRIVER: $PLTDRV$
FILE: $FILE$
$DATE$

0 20' 40'
SCALE: 1" = 20'

STATE PLANE N

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
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DAVIS & FLOYD
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CHARLESTON COUNTY

LANDSCAPE PLAN

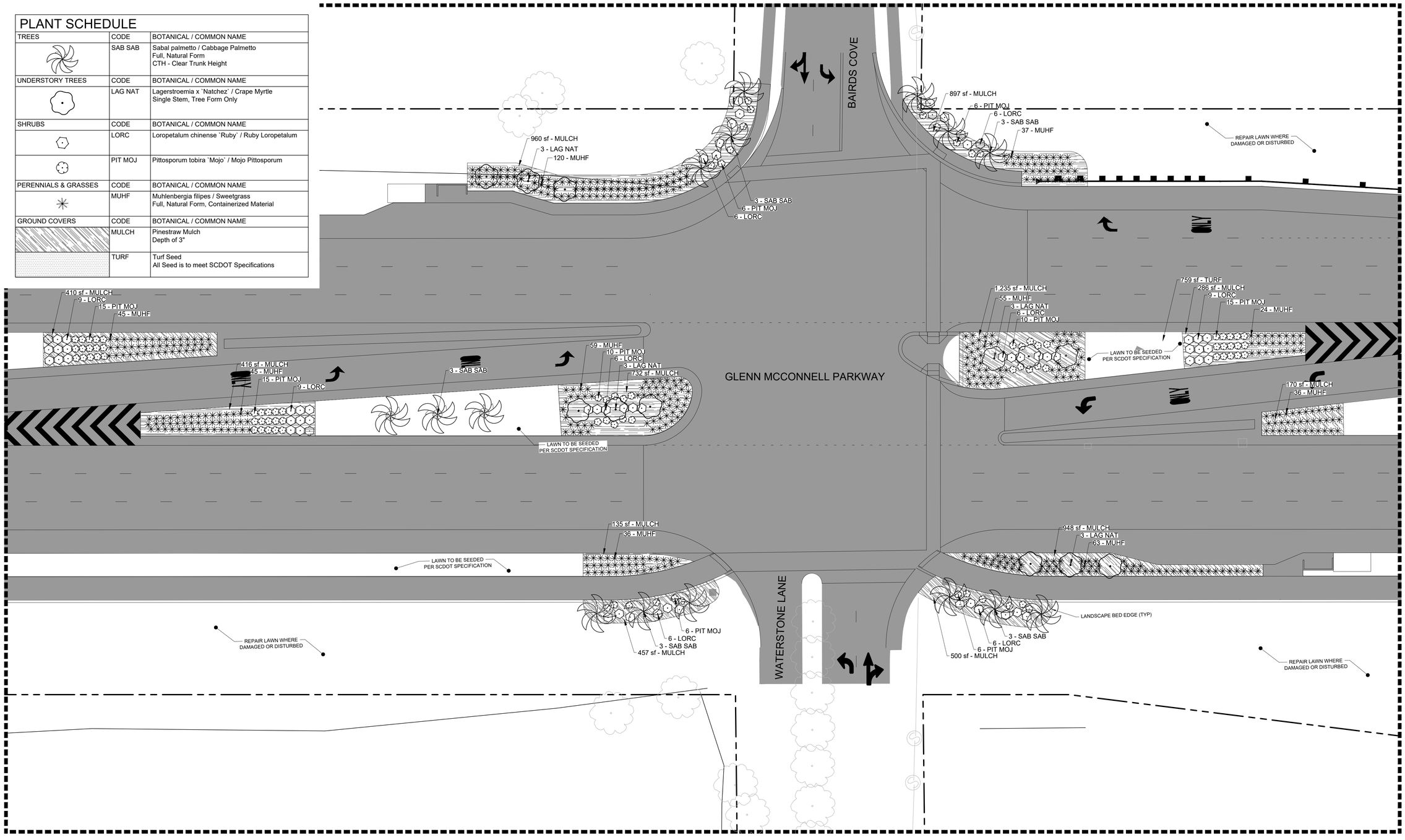
SCALE 1"= 20' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	L106	

PLANT SCHEDULE

TREES	CODE	BOTANICAL / COMMON NAME
	SAB SAB	Sabal palmetto / Cabbage Palmetto Full, Natural Form CTH - Clear Trunk Height
UNDERSTORY TREES	**CODE**	**BOTANICAL / COMMON NAME**
	LAG NAT	Lagerstroemia x `Natchez` / Crape Myrtle Single Stem, Tree Form Only
SHRUBS	**CODE**	**BOTANICAL / COMMON NAME**
	LORC	Loropetalum chinense `Ruby` / Ruby Loropetalum
	PIT MOJ	Pittosporum tobira `Mojo` / Mojo Pittosporum
PERENNIALS & GRASSES	**CODE**	**BOTANICAL / COMMON NAME**
	MUHF	Muhlenbergia filipes / Sweetgrass Full, Natural Form, Containerized Material
GROUND COVERS	**CODE**	**BOTANICAL / COMMON NAME**
	MULCH	Pinestraw Mulch Depth of 3"
	TURF	Turf Seed All Seed is to meet SCDOT Specifications



SCALE: $SCALE$
PEN TABLE: $PENTBL$
PLOT DRIVER: $PLTDRVR$
FILE: $FILE$
$DATE$

0 20' 40'
SCALE: 1" = 20'

NORTH STATE PLANE

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

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DAVIS & FLOYD
SINCE 1954
240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
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CHARLESTON COUNTY

LANDSCAPE PLAN

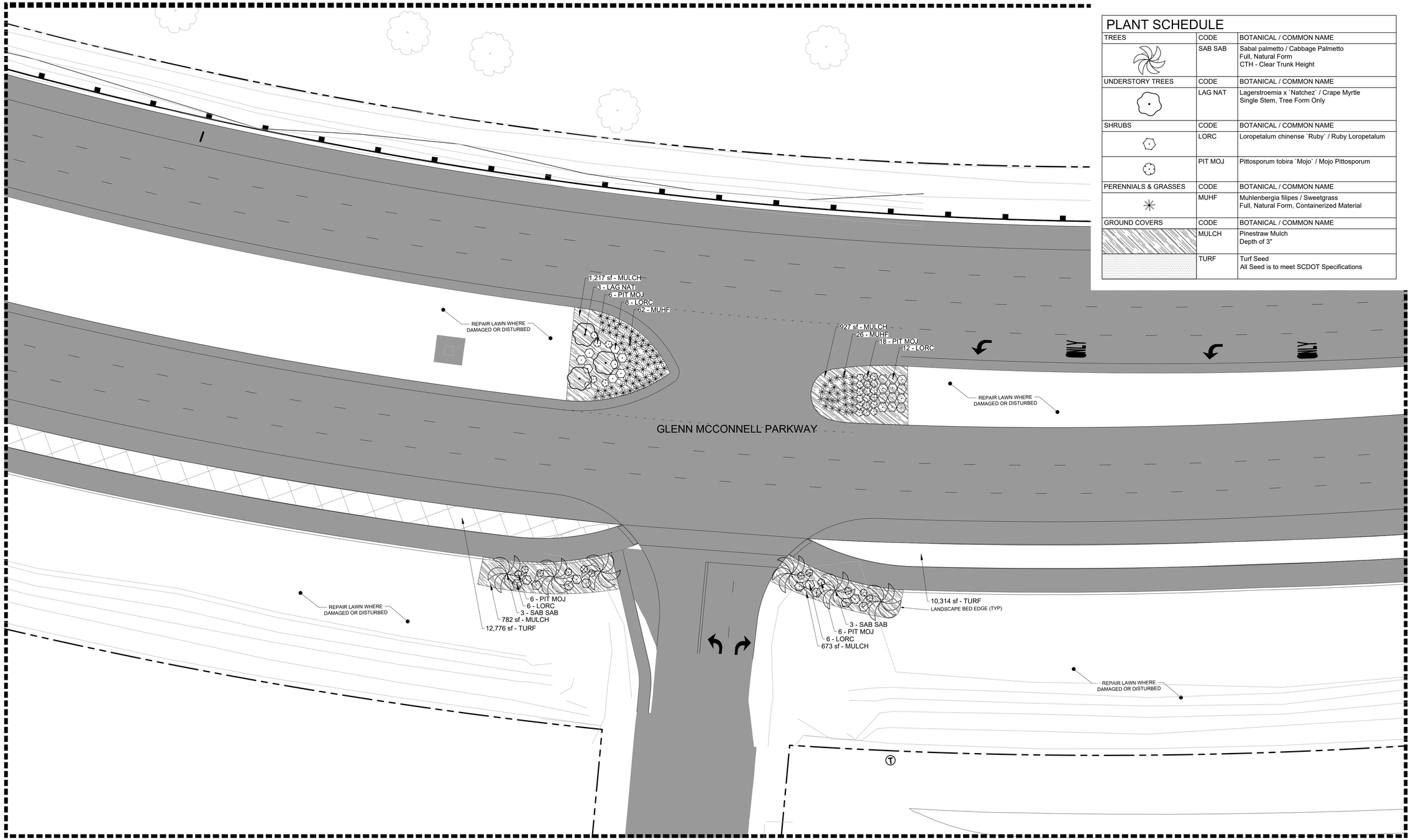
SCALE 1"= 20' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	L107	

PLANT SCHEDULE

TREES	CODE	BOTANICAL / COMMON NAME
	SAB SAB	Sabal palmetto / Cabbage Palmetto Full, Natural Form CTH - Clear Trunk Height
UNDERSTORY TREES	**CODE**	**BOTANICAL / COMMON NAME**
	LAG NAT	Lagerstroemia x `Natchez` / Crape Myrtle Single Stem, Tree Form Only
SHRUBS	**CODE**	**BOTANICAL / COMMON NAME**
	LORC	Loropetalum chinense `Ruby` / Ruby Loropetalum
	PIT MOJ	Pittosporum tobira `Mojo` / Mojo Pittosporum
PERENNIALS & GRASSES	**CODE**	**BOTANICAL / COMMON NAME**
	MUHF	Muhlenbergia filipes / Sweetgrass Full, Natural Form, Containerized Material
GROUND COVERS	**CODE**	**BOTANICAL / COMMON NAME**
	MULCH	Pinestraw Mulch Depth of 3"
	TURF	Turf Seed All Seed is to meet SCDOT Specifications



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PLOT DRIVER: $PLTDRVL$
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SCALE: 1" = 20'

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DAVIS & FLOYD
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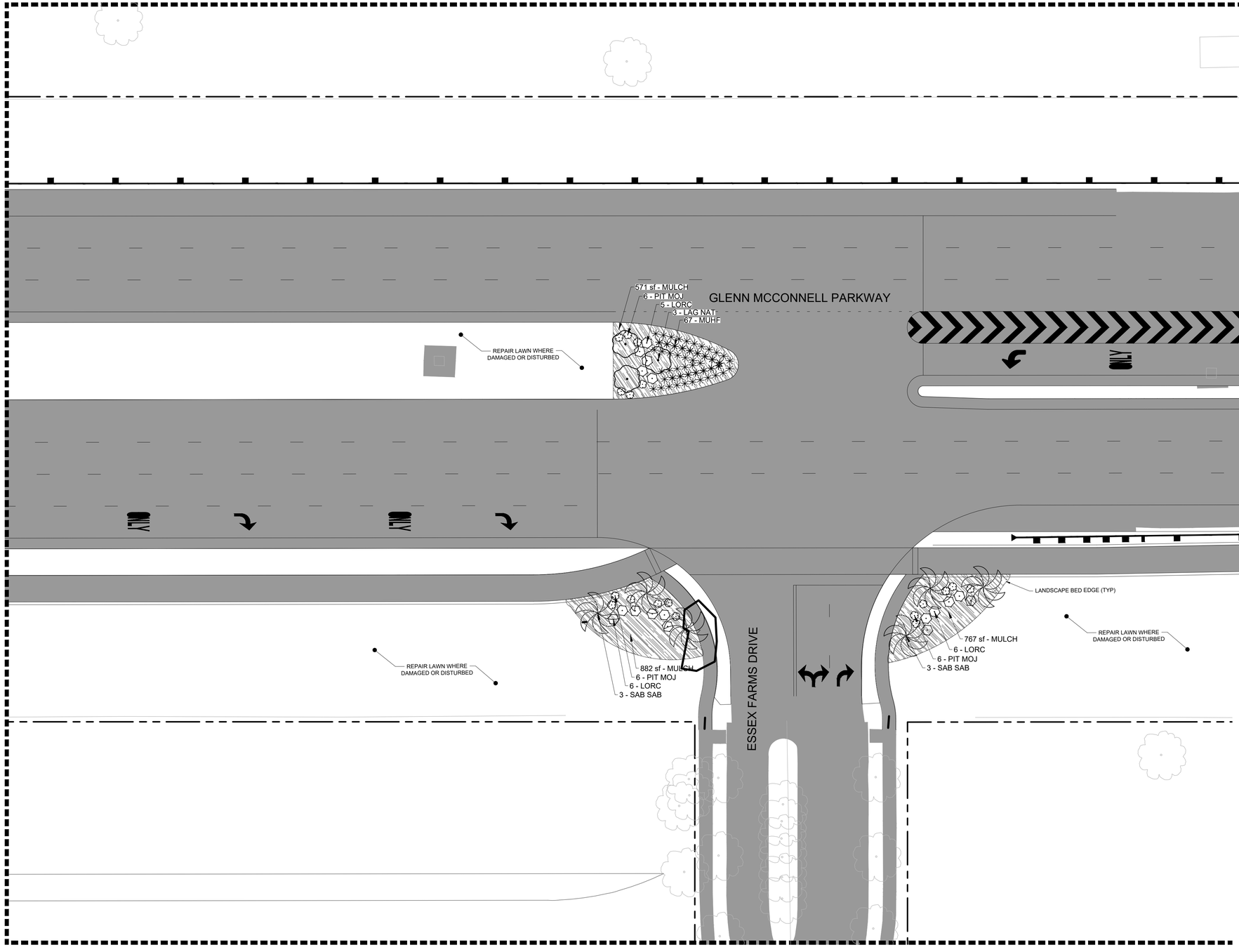
CHARLESTON COUNTY

LANDSCAPE PLAN

SCALE 1"= 20' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	L108	



PLANT SCHEDULE

TREES	CODE	BOTANICAL / COMMON NAME
	SAB SAB	Sabal palmetto / Cabbage Palmetto Full, Natural Form CTH - Clear Trunk Height
UNDERSTORY TREES	CODE	BOTANICAL / COMMON NAME
	LAG NAT	Lagerstroemia x `Natchez` / Crape Myrtle Single Stem, Tree Form Only
SHRUBS	CODE	BOTANICAL / COMMON NAME
	LORC	Loropetalum chinense `Ruby` / Ruby Loropetalum
	PIT MOJ	Pittosporum tobira `Mojo` / Mojo Pittosporum
PERENNIALS & GRASSES	CODE	BOTANICAL / COMMON NAME
	MUHF	Muhlenbergia filipes / Sweetgrass Full, Natural Form, Containerized Material
GROUND COVERS	CODE	BOTANICAL / COMMON NAME
	MULCH	Pinestraw Mulch Depth of 3"
	TURF	Turf Seed All Seed is to meet SCDOT Specifications

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STATE PLANE

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No. C00538
CERTIFICATE OF AUTHORIZATION

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240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

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DESIGNED BY DRV DRAWN BY DRV CHECKED BY CLH

CHARLESTON COUNTY

LANDSCAPE PLAN

SCALE 1"= 20' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	L200	

PLANT SCHEDULE

TREES	CODE	QTY	BOTANICAL / COMMON NAME	CONT./CAL.	SIZE	SPACING
	SAB SAB	86	Sabal palmetto / Cabbage Palmetto Full, Natural Form CTH - Clear Trunk Height	B & B	12` CTH	As Shown
UNDERSTORY TREES	CODE	QTY	BOTANICAL / COMMON NAME	CONT./CAL.	SIZE	SPACING
	LAG NAT	66	Lagerstroemia x `Natchez` / Crape Myrtle Single Stem, Tree Form Only	B&B 2.5" Cal	8`-10` H	As Shown
SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	CONT.	SIZE	SPACING
	LORC	307	Loropetalum chinense `Ruby` / Ruby Loropetalum	3 gal	24"-36"	As Shown
	PIT MOJ	378	Pittosporum tobira `Mojo` / Mojo Pittosporum	7 gal	---	As Shown
PERENNIALS & GRASSES	CODE	QTY	BOTANICAL / COMMON NAME	CONT.	SIZE	SPACING
	MUHF	2,482	Muhlenbergia filipes / Sweetgrass Full, Natural Form, Containerized Material	3 gal	---	As Shown
GROUND COVERS	CODE	QTY	BOTANICAL / COMMON NAME	CONT.	SIZE	SPACING
	MULCH	42,625 sf	Pinestraw Mulch Depth of 3"	--	---	---
	TURF		Turf Seed All Seed is to meet SCDOT Specifications	seed	---	---

GENERAL NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BOTH HORIZONTALLY & VERTICALLY OF ALL EXISTING & PROPOSED UTILITIES BEFORE COMMENCING WORK, AND HE SHALL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO UTILITIES THAT ARE DISTURBED AS A RESULT OF THE WORK.
2. ALL AREAS THAT ARE DISTURBED BY CONSTRUCTION INSIDE OR OUTSIDE OF THE LIMIT OF WORK NOT PROVIDED WITH LANDSCAPE MATERIAL SHALL BE HYDROSEEDED PER THE PERMANENT GRASSING SCHEDULE ON SWP SHEET WITHIN CIVIL DRAWINGS.
3. ALL TREES AND SHRUBS SHALL RECEIVE PINESTRAW MULCH AT A MINIMUM DEPTH OF 3".
4. ALL TREES LOCATED IN LAWN AREAS SHALL RECEIVE A MULCH RING AS INDICATED IN DETAIL 1, SHEET L200.
5. PROVIDE EROSION CONTROL WHERE SLOPES ARE GREATER THAN 3:1 AND WHERE EROSION KEEPS RE-OCCURRING.
6. ALL TREE, SHRUB, AND GROUNDCOVER MATERIAL SHALL BE PLANTED WITHIN 24 HOURS OF DELIVERY.
7. ANY PLANTS LOCATED IN DIRECT SUN SHALL BE NURSERY SUN GROWN.
8. ALL PLANT MATERIAL TO MEET OR EXCEED AAN STANDARDS.
9. ALL TREES TO BE PLANTED FOLLOWING ACCEPTED HORTICULTURAL PRACTICES. PLANTING HOLES TO BE BACKFILLED WITH 1/3 COMPOST. DO NOT APPLY FERTILIZER AT PLANTING.
10. ALL SHRUBS, GRASSES AND GROUNDCOVERS TO BE SURFACE FERTILIZED WITH OSMOCOTE SLOW-RELEASE FERTILIZER ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
11. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY LICENSES AND INSURANCE TO COMPLETE WORK.
12. FINAL CLEANUP OF SITE AS A RESULT OF LANDSCAPE OPERATIONS AND ALL FINE GRADING SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
13. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE.
14. ALL PLANT MATERIAL, AND WORKMANSHIP TO BE GUARANTEED FOR ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER OR OWNER'S REPRESENTATIVE.
15. CONTRACTOR TO MAINTAIN ALL PLANTBEDS, AND PLANT LIFE UNTIL FINAL ACCEPTANCE OF LANDSCAPE. WARRANTY PERIOD OF ONE YEAR FOR PLANT MATERIAL BEGINS WHEN COMPLETION OF ALL PUNCH LIST ITEMS AND FINAL ACCEPTANCE OF LANDSCAPE HAVE BEEN APPROVED.
16. CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION.
17. STAKING ONLY REQUIRED AS DEEMED NECESSARY BY THE LANDSCAPE CONTRACTOR.
18. THERE SHALL BE NO SUBSTITUTIONS, DELETIONS, OR ADDITIONS WITHOUT WRITTEN APPROVAL OF THE LANDSCAPE ARCHITECT.
19. ALL CONSTRUCTION SHALL CONFORM TO CITY, COUNTY, STATE, AND FEDERAL REQUIREMENTS.
20. ALL PRESERVED TREES TO RECEIVE TREE PROTECTION BARRICADES AS DETAILED IN CIVIL PLANS.

TREE GATOR BAG NOTE:

FOR ALL TREES, CONTRACTOR SHALL PROVIDE TREEGATOR BAGS OR COMPARABLE WATERING SYSTEM AT THE QUANTITIES BELOW TO BE ADEQUATELY MAINTAINED FOR THE DURATION OF THE ONE YEAR ESTABLISHMENT PERIOD. ALL TREES SHALL BE WATERED ACCORDING TO THE FOLLOWING SCHEDULE:

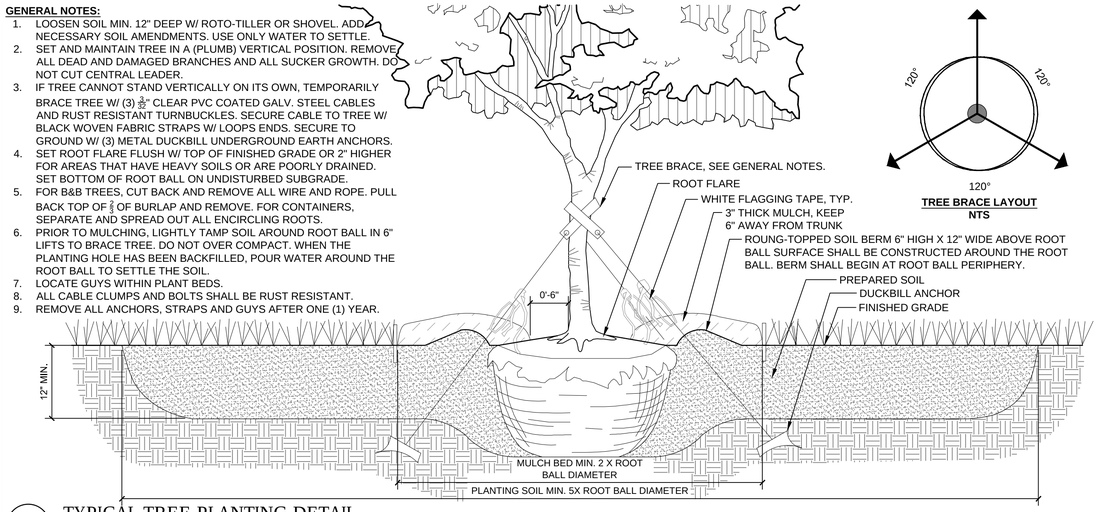
FLOW RATE: ROUGHLY 2.5 GPH DEPENDING ON SOIL TYPE AND TEMP.
RECOMMENDED 10 GALLOON CAPACITY PER CALIPER INCH.

RECOMMENDED FILL RATE BY CALIPER INCHES FOR STANDARD 20 GALLON CAPACITY BAGS:

1-2 INCH: 1 FILL/WEEK
3-4 INCH: 2 FILLS/WEEK
4-5 INCH (DOUBLE BAG): 1 FILL/WEEK
5-8 INCH (DOUBLE BAG): 2 FILLS/WEEK

GENERAL NOTES:

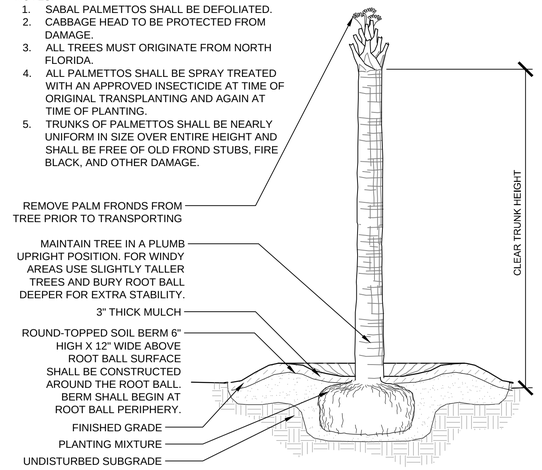
1. LOOSEN SOIL MIN. 12" DEEP W/ ROTO-TILLER OR SHOVEL. ADD NECESSARY SOIL AMENDMENTS. USE ONLY WATER TO SETTLE.
2. SET AND MAINTAIN TREE IN A (PLUMB) VERTICAL POSITION. REMOVE ALL DEAD AND DAMAGED BRANCHES AND ALL SUCKER GROWTH. DO NOT CUT CENTRAL LEADER.
3. IF TREE CANNOT STAND VERTICALLY ON ITS OWN, TEMPORARILY BRACE TREE W/ (3) $\frac{3}{32}$" CLEAR PVC COATED GALV. STEEL CABLES AND RUST RESISTANT TURNBUCKLES. SECURE CABLE TO TREE W/ BLACK WOVEN FABRIC STRAPS W/ LOOPS ENDS. SECURE TO GROUND W/ (3) METAL DUCKBILL UNDERGROUND EARTH ANCHORS.
4. SET ROOT FLARE FLUSH W/ TOP OF FINISHED GRADE OR 2" HIGHER FOR AREAS THAT HAVE HEAVY SOILS OR ARE POORLY DRAINED. SET BOTTOM OF ROOT BALL ON UNDISTURBED SUBGRADE.
5. FOR B&B TREES, CUT BACK AND REMOVE ALL WIRE AND ROPE. PULL BACK TOP OF $\frac{2}{3}$ OF BURLAP AND REMOVE. FOR CONTAINERS, SEPARATE AND SPREAD OUT ALL ENCIRCLING ROOTS.
6. PRIOR TO MULCHING, LIGHTLY TAMP SOIL AROUND ROOT BALL IN 6" LIFTS TO BRACE TREE. DO NOT OVER COMPACT. WHEN THE PLANTING HOLE HAS BEEN BACKFILLED, POUR WATER AROUND THE ROOT BALL TO SETTLE THE SOIL.
7. LOCATE GUYS WITHIN PLANT BEDS.
8. ALL CABLE CLUMPS AND BOLTS SHALL BE RUST RESISTANT.
9. REMOVE ALL ANCHORS, STRAPS AND GUYS AFTER ONE (1) YEAR.



1 TYPICAL TREE PLANTING DETAIL
NTS

TREE BRACE LAYOUT
NTS

NOTES:
1. SABAL PALMETTOS SHALL BE DEFOLIATED.
2. CABBAGE HEAD TO BE PROTECTED FROM DAMAGE.
3. ALL TREES MUST ORIGINATE FROM NORTH FLORIDA.
4. ALL PALMETTOS SHALL BE SPRAY TREATED WITH AN APPROVED INSECTICIDE AT TIME OF ORIGINAL TRANSPLANTING AND AGAIN AT TIME OF PLANTING.
5. TRUNKS OF PALMETTOS SHALL BE NEARLY UNIFORM IN SIZE OVER ENTIRE HEIGHT AND SHALL BE FREE OF OLD FROND STUBS, FIRE BLACK, AND OTHER DAMAGE.



2 TYPICAL PALM TREE PLANTING
NTS

ABBREVIATION NOTE:

WHERE AN ABBREVIATION IS SHOWN. THE FOLLOWING NOTES APPLY:
QTY - QUANTITY OF PLANT MATERIAL REQUIRED FOR THE PROJECT. (NOTE: CONTRACTOR RESPONSIBLE TO VERIFY QUANTITIES INDICATED. PLAN SHALL TAKE PRECEDENCE OVER SCHEDULE.)
BOTANICAL/COMMON NAME- PLANT MATERIAL TO BE INSTALLED.
CONT - CONTAINER TYPE WHICH PLANT MATERIAL IS ENCASED UPON SITE DELIVERY. (HEIGHT AND CALIPER SHALL TAKE PRECEDENCE OVER CONTAINER.)
CAL - CALIPER/DIAMETER OF TRUNK. (CALIPER SHALL TAKE PRECEDENCE OVER HEIGHT AND SPREAD.)
SIZE - HEIGHT AND/OR WIDTH OF PLANT MATERIAL AT INSTALLATION
SPACING - DISTANCE FROM CENTER OF EACH PLANT. (PLAN SHALL TAKE PRECEDENCE OVER SCHEDULE.)
REMARKS - SPECIFIC NOTES FURTHER SPECIFYING OR DESCRIBING PLANT MATERIAL.

QUANTITIES NOTES:

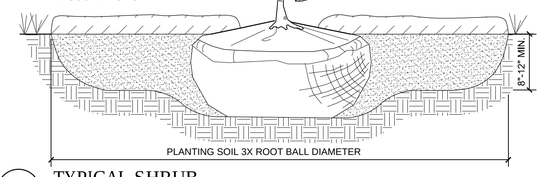
PLANT MATERIAL LIST, ROCK SCHEDULE, AND MULCH SCHEDULE PREPARED FOR ESTIMATING PURPOSES ONLY. QUANTITY ESTIMATES HAVE BEEN MADE CAREFULLY, BUT THE LANDSCAPE ARCHITECT ASSUMES NO LIABILITY FOR OMISSIONS OR ERRORS. CONTRACTORS SHALL MAKE THEIR OWN QUANTITY TAKE-OFFS USING DRAWINGS TO DETERMINE QUANTITIES TO THEIR SATISFACTION. REPORTING PROMPTLY TO THE LANDSCAPE ARCHITECT ANY DISCREPANCIES WHICH MAY AFFECT BIDDING. NO EXTRA COMPENSATION SHALL BE ALLOWED FOR EXTRA QUANTITIES NECESSARY TO COMPLETE THE WORK.

NOTES:

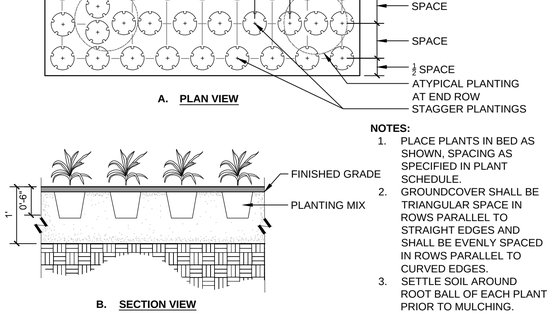
1. QUANTITIES PROVIDED DO NOT ACCOUNT FOR WASTE.
2. CONTRACTOR SHALL VERIFY ALL QUANTITIES AND INSTALL ACCORDING TO PLAN.

GENERAL NOTES:

1. LOOSEN SOIL MIN. 8"-12" DEEP W/ ROTO-TILLER OR SHOVEL. ADD NECESSARY SOIL AMENDMENTS AND SLOW RELEASE FERTILIZER. USE ONLY WATER TO SETTLE SOIL.
2. SET ROOT FLARE FLUSH W/ TOP OF FINISHED GRADE OR 2" HIGHER FOR AREAS THAT HAVE HEAVY SOILS OR ARE POORLY DRAINED. SET BOTTOM OF ROOT BALL ON UNDISTURBED SUBGRADE.
3. CUT BACK AND REMOVE ALL WIRE AND ROPE. PULL BACK TOP THIRD OF BURLAP AND REMOVE. SEPARATE AND SPREAD OUT ALL ENCIRCLING ROOTS.
4. SET AND MAINTAIN SHRUB IN A (PLUMB) VERTICAL POSITION. REMOVE ALL DEAD AND DAMAGED BRANCHES AND ALL SUCKER GROWTH.



3 TYPICAL SHRUB
NTS



NOTES:
1. PLACE PLANTS IN BED AS SHOWN, SPACING AS SPECIFIED IN PLANT SCHEDULE.
2. GROUNDCOVER SHALL BE TRIANGULAR SPACE IN ROWS PARALLEL TO STRAIGHT EDGES AND SHALL BE EVENLY SPACED IN ROWS PARALLEL TO CURVED EDGES.
3. SETTLE SOIL AROUND ROOT BALL OF EACH PLANT PRIOR TO MULCHING.

4 TYPICAL GROUNDCOVER & PERENNIAL PLANTING
NTS

SCALE: $SCALE$
PEN TABLE: $PENTBL$
PLOT DRIVER: $PLTDRVL$
FILE: $FILEL$
$DATE$

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DAVIS & FLOYD
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DESIGNED BY DRV DRAWN BY DRV CHECKED BY CLH

CHARLESTON COUNTY

OVERALL SCHEDULE & DETAILS

SCALE 1"= 20' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	PM6	

NOTES:

1. INSTALL RAISED PAVEMENT MARKERS ALONG ALL CENTERLINES AND LANE LINES IN ACCORDANCE WITH SCDOT STANDARD DRAWINGS 630-105-00 THROUGH 630-210-00.
2. INSTALL RAISED PAVEMENT MARKERS AT MEDIANS PER SCDOT STANDARD DRAWING 630-215-00.

(A) PLACE W11-2-36 PEDESTRIAN WARNING SIGN W/ W16-7P-24 DIAGONAL ARROW PLAQUE STA.10+52.00

℄ WEST ASHLEY CIRCLE NB

PLACE 4" DOUBLE YELLOW LINES TIE TO EXISTING +94.12 9.28

PLACE DETECTABLE WARNING MATERIAL

TIE TO EXISTING EDGE LINE +94.12 23.15

PLACE 30 LF 24" WHITE STOP BAR +50.03 44.79

RELOCATE EXISTING R1-1 STOP SIGN STA.10+53

RELOCATE EXISTING HISTORIC ASHLEY RIVER PLANTATION DISTRICT GUIDE SIGN STA.503+41

REMOVE EXISTING R1-2 YIELD SIGN
PLACE W11-2-36 PEDESTRIAN WARNING SIGN W/ W16-7P-24 DIAGONAL ARROW PLAQUE STA.500+71

℄ BEES FERRY RD.

REMOVE EXISTING R1-2 YIELD SIGN
PLACE W11-2-36 PEDESTRIAN WARNING SIGN W/ W16-7P-24 DIAGONAL ARROW PLAQUE STA.500+71

℄ GMP WB

RELOCATE EXISTING ROUTE SIGN ASSEMBLY AND SUMMERVILLE & BEES FERRY RD GUIDE SIGNS STA.501+66

PLACE 4" WHITE EDGE LINE

PLACE 4" YELLOW EDGE LINE

PLACE 4" WHITE SKIP LINE

BEGIN CONSTRUCTION GMP WB STA.500+57.35

BEGIN 8" MILL-IN RUMBLE STRIPES +55.24

BEGIN 12" MILL-IN RUMBLE STRIPES +09.64

RELOCATE EXISTING R5-1 DO NOT ENTER SIGN STA.500+65

RETAIN EXISTING PEDESTRIAN PUSH BUTTON STATION AND SIGN STA.300+38

℄ GMP ROW

RELOCATE EXISTING R3-7 SIGN RIGHT LANE MUST TURN RIGHT STA.505+89

PLACE 8' - 6' WIDE CROSSWALK +46.79 52.15

PLACE DETECTABLE WARNING MATERIAL

RELOCATE EXISTING ROUTE SIGN ASSEMBLY AND BEES FERRY RD GUIDE SIGN STA.507+94

PLACE 24" - 45°WHITE DIAGONAL HASH BARS WITH 8' SPACING

PLACE 4" WHITE EDGE LINE +31.39 24.00

END 12" MILL-IN RUMBLE STRIPES

RELOCATE EXISTING R1-2 YIELD SIGN STA.300+57

100' RR

+79.42 19.97

+49.45 24.00

R 65'

R 70.00

R 20'

+41.73 4.46

PLACE 4" DOUBLE YELLOW LINES TIE TO EXISTING +94.12 7.41

PLACE 4" WHITE EDGE LINE TIE TO EXISTING +94.12 24.24

+73.45 9.66

+77.87 25.33

PLACE 4" YELLOW EDGE LINE

PLACE 4" WHITE EDGE LINE

PLACE 4" YELLOW LINE

+45.79 8.97

PLACE 8' - 6' WIDE CROSSWALK +59.66 39.44

PLACE DETECTABLE WARNING MATERIAL

RETAIN EXISTING STREET NAME SIGN STA.10+34

PLACE 6" WHITE SKIP LINE

BEGIN 12" MILL-IN RUMBLE STRIPES +57.48

PLACE RIGHT TURN ARROWS AND WORDS "ONLY"

+96.07 16.58

R 81'

(A)

+07.33 12.00

RETAIN EXISTING R5-1 DO NOT ENTER SIGN STA.308+65

RELOCATE EXISTING R5-1 DO NOT ENTER SIGN STA.510+06

+00.00 12.00

+63.32 12.00

PLACE 4" WHITE EDGE LINE

+39.01 12.00

+30.85 12.00

+67.32 24.00

PLACE 4" WHITE EDGE LINE

PLACE 2' 4" WHITE SKIP LINE

BEGIN 12" MILL-IN RUMBLE STRIPES +01.00

PLACE 6 LF 12" WHITE STOP BAR +14.17 0.00

END 12" MILL-IN RUMBLE STRIPES +05.00

+30.24 24.00

+05.37 24.00

R 250'

R 130'

PLACE 4" YELLOW LINE

PLACE 4" WHITE EDGE LINE

PLACE 2' 4" WHITE SKIP LINE

PLACE 24" - 45°WHITE DIAGONAL HASH BARS WITH 8' SPACING

R 80'

RETAIN EXISTING STREET NAME SIGN STA.50+42

PLACE 4" WHITE EDGE LINE

+32.99 26.08

+37.05 62.67

+27.97 88.74

+75.18 24.00

PLACE 36 LF 24" WHITE STOP BAR

PLACE 4" WHITE EDGE LINE

PLACE 4" WHITE EDGE LINE

+89.71 31.14

R 100'

+30.68 27.00

+39.14 58.45

R 60'

PLACE RI-1-36 STOP SIGN STA.50+73.34

PLACE 4" WHITE SKIP LINE

PLACE RI-1-18 STOP SIGN STA.200+15.00

BEGIN 12" MILL-IN RUMBLE STRIPES

BEGIN SHARED-USE PATH STA.200+00.00 TIE TO EXISTING SIDEWALK AND INSTALL INSTALL DETECTABLE WARNING MATERIAL BEGIN HANDRAIL

BEGIN CONSTRUCTION GMP EB STA.302+23.94

℄ GMP EB

BEGIN 8" MILL-IN RUMBLE STRIPES

PLACE 4" WHITE SKIP LINE

RETAIN EXISTING R5-1A WRONG WAY SIGN STA.306+30

RETAIN EXISTING R3-7 SIGN RIGHT LANE MUST TURN RIGHT STA.306+30

PLACE W11-15-36 COMBINATION BICYCLE AND PEDESTRIAN WARNING SIGN W/ W16-7P-24 DIAGONAL ARROW PLAQUE STA.51+23.84

PLACE 4" WHITE EDGE LINE

+76.22 28.15

PLACE 4" WHITE EDGE LINE

PLACE RI-1-18 STOP SIGN STA.208+73.59

+44.19 22.70

PLACE RI-1-18 STOP SIGN STA.51+27.57

PLACE 6 LF 12" WHITE STOP BAR +75.79 12.00

+64.40 22.61

PLACE 6 LF 12" WHITE STOP BAR +29.46 27.95

PLACE 8' - 12' WIDE CROSSWALK +40.53 22.73

PLACE 4" YELLOW EDGE LINE

PLACE W11-15-36 COMBINATION BICYCLE AND PEDESTRIAN WARNING SIGN W/ W16-7P-24 DIAGONAL ARROW PLAQUE STA.51+44.00

℄ WEST ASHLEY CIRCLE SB

+64.80 21.98

END OVERLAY TRANSITION

INSTALL DETECTABLE WARNING MATERIAL

MATCHLINE – ROW STA. 113+00.00 – SEE SHEET 7

0 50 100 150 200

STANDARD DRAWINGS FOR PAVEMENT MARKINGS AND SIGNING:	
DRAWING NO.	DRAWING DESCRIPTION
625-305-00	STANDARD MARKINGS FOR INTERSECTIONS
625-310-00	TYPICAL MARKINGS FOR TURN LANE INSTALLATIONS
625-410-00	FOR ARROWS & ONLY(S)
630-105-00	PAVEMENT MARKING TYPICAL RAISED MARKER PLACEMENT & DETAIL
630-205-00	PAVEMENT MARKING TYPICAL LINE PATTERNS AND RAISED MARKER PLACEMENT
630-210-00	PAVEMENT MARKING TYPICAL MULTILANE ROADS - RAISED MARKER PLACEMENT
630-215-00	PAVEMENT MARKING TYPICAL CONCRETE ISLAND / MEDIAN PAINTING AND RAISED PAVEMENT MARKER PLACEMENT
633-105-00	RUMBLE STRIPS (SKIP PATTERN)
650-105-00	NOMENCLATURE USED ON PLAN SHEETS
650-110-XX	INSTALLATION GUIDE TYPICALS
651-110-00	FLAT SHEET MOUNTING DETAILS
651-115-XX	SOUTH CAROLINA STANDARD SIGNS

Copies of SCDOT Standard Drawings are available at the following web address: https://www.scdot.org/business/standard-drawings.aspx

SCALE: 50.000 ft / in.
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PLOT DRIVER: PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\13635-00 GMP PM Sheets.dgn
4/7/2020

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

DAVIS & FLOYD
SINCE 1954
240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

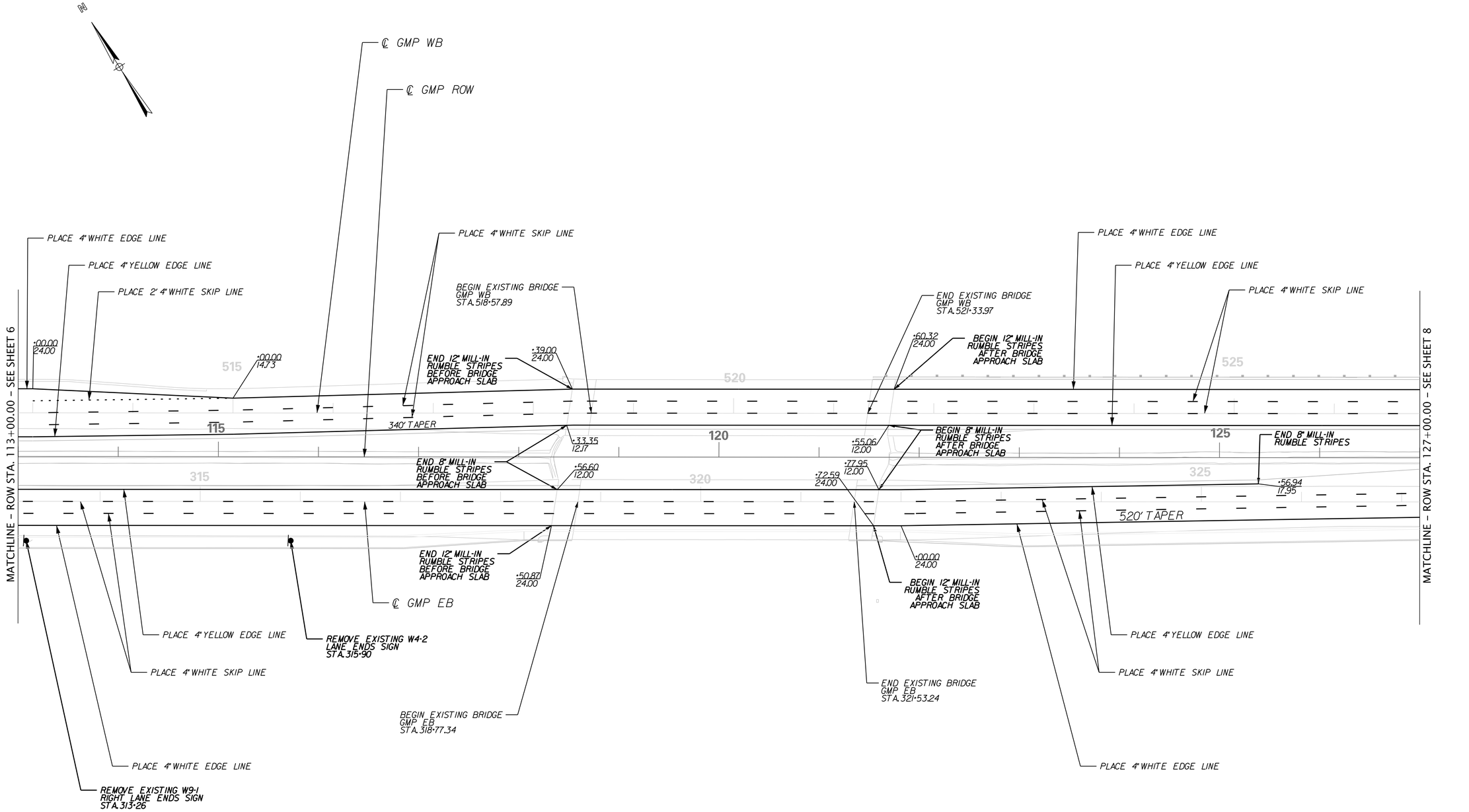
PAVEMENT MARKING & SIGNING SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 100+00.00 – STA. 113+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

NOTE:
PAVEMENT MARKINGS AND STRIPING ONLY ON WESTBOUND BRIDGE
PAVEMENT MARKINGS,STRIPING,BARRIER WALL AND PARAPET ON EASTBOUND BRIDGE

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	PM7	



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PLOT DRIVER: PDF.pltcfg
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240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

PAVEMENT MARKING & SIGNING SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 113+00.00 – STA. 127+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

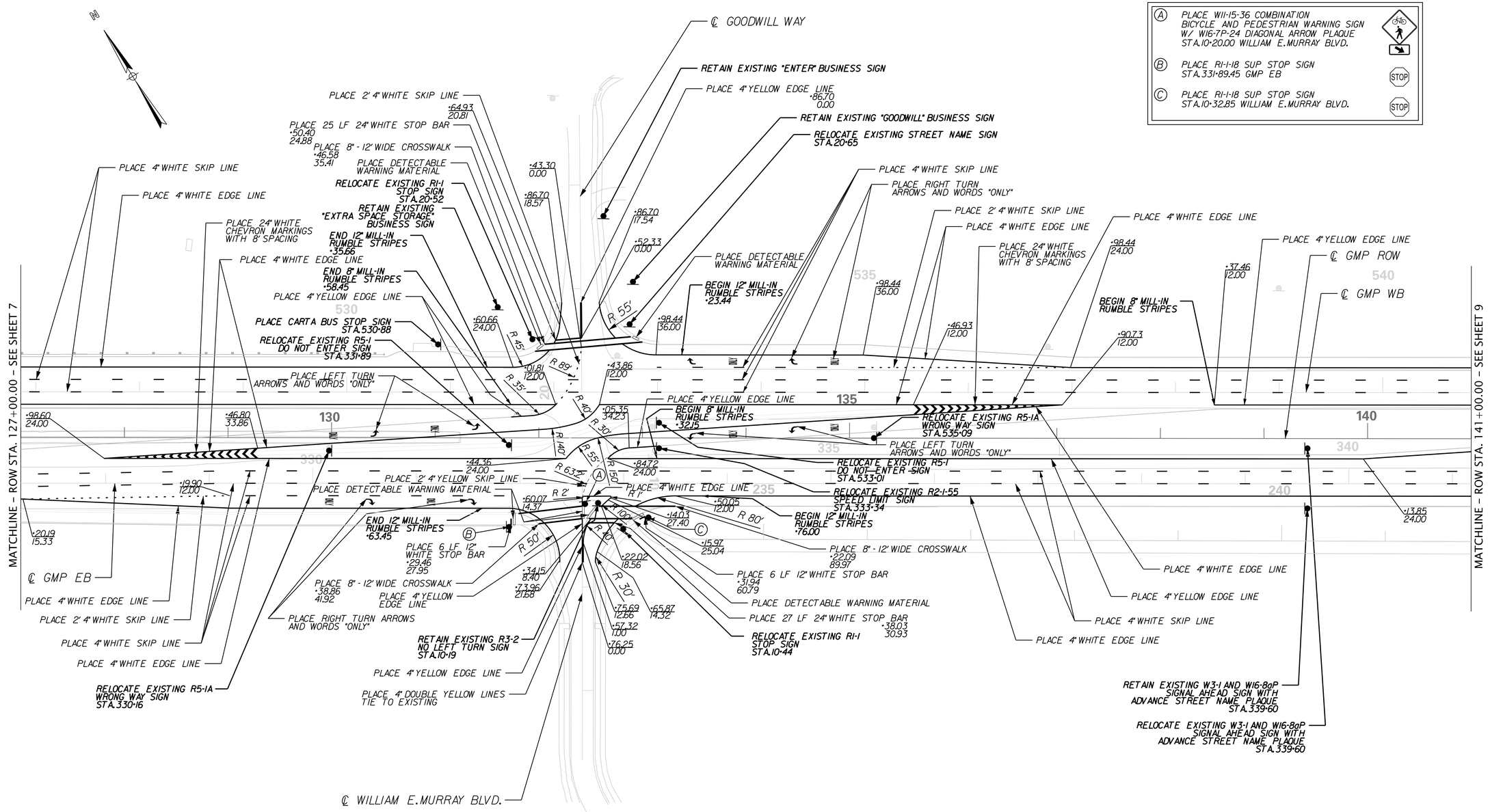
CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	PO37878	SC 461	PM8	

Ⓐ PLACE W11-15-36 COMBINATION BICYCLE AND PEDESTRIAN WARNING SIGN W/ W16-7P-24 DIAGONAL ARROW PLAQUE STA.10+20.00 WILLIAM E.MURRAY BLVD.

Ⓑ PLACE R1-1-18 SUP STOP SIGN STA.331+89.45 GMP EB

Ⓒ PLACE R1-1-18 SUP STOP SIGN STA.10+32.85 WILLIAM E.MURRAY BLVD.


℄ GOODWILL WAY
RETAIN EXISTING "ENTER" BUSINESS SIGN
PLACE 4" YELLOW EDGE LINE
RETAIN EXISTING "GOODWILL" BUSINESS SIGN
RELOCATE EXISTING STREET NAME SIGN STA.20+65
PLACE 2" 4" WHITE SKIP LINE
PLACE 25 LF 24" WHITE STOP BAR
PLACE 8" - 12" WIDE CROSSWALK
PLACE DETECTABLE WARNING MATERIAL
RELOCATE EXISTING RI-I STOP SIGN STA.20+52
RETAIN EXISTING "EXTRA SPACE STORAGE" BUSINESS SIGN
END 12" MILL-IN RUMBLE STRIPES
PLACE 4" WHITE SKIP LINE
PLACE 4" WHITE EDGE LINE
PLACE 24" WHITE CHEVRON MARKINGS WITH 8" SPACING
PLACE 4" YELLOW EDGE LINE
PLACE CARTA BUS STOP SIGN STA.530+88
RELOCATE EXISTING R5-1 DO NOT ENTER SIGN STA.331+89
PLACE LEFT TURN ARROWS AND WORDS "ONLY"
PLACE RIGHT TURN ARROWS AND WORDS "ONLY"
PLACE 2" 4" WHITE SKIP LINE
PLACE 4" WHITE EDGE LINE
PLACE 24" WHITE CHEVRON MARKINGS WITH 8" SPACING
PLACE 4" YELLOW EDGE LINE
℄ GMP ROW
℄ GMP WB
BEGIN 12" MILL-IN RUMBLE STRIPES
BEGIN 8" MILL-IN RUMBLE STRIPES
RELOCATE EXISTING R5-1A WRONG WAY SIGN STA.535+09
PLACE LEFT TURN ARROWS AND WORDS "ONLY"
RELOCATE EXISTING R5-1 DO NOT ENTER SIGN STA.533+01
RELOCATE EXISTING R2-1-55 SPEED LIMIT SIGN STA.333+34
BEGIN 12" MILL-IN RUMBLE STRIPES
PLACE 8" - 12" WIDE CROSSWALK
PLACE 6 LF 12" WHITE STOP BAR
PLACE DETECTABLE WARNING MATERIAL
PLACE 27 LF 24" WHITE STOP BAR
RELOCATE EXISTING RI-I STOP SIGN STA.10+44
PLACE 4" WHITE EDGE LINE
PLACE 4" YELLOW EDGE LINE
PLACE 4" WHITE SKIP LINE
PLACE 4" WHITE EDGE LINE
RETAIN EXISTING W3-1 AND W16-8aP SIGNAL AHEAD SIGN WITH ADVANCE STREET NAME PLAQUE STA.339+60
RELOCATE EXISTING W3-1 AND W16-8aP SIGNAL AHEAD SIGN WITH ADVANCE STREET NAME PLAQUE STA.339+60
MATCHLINE – ROW STA. 127+00.00 – SEE SHEET 7
MATCHLINE – ROW STA. 141+00.00 – SEE SHEET 9
PLACE 4" WHITE SKIP LINE
PLACE 4" WHITE EDGE LINE
PLACE 2" 4" WHITE SKIP LINE
PLACE 4" WHITE SKIP LINE
PLACE 4" WHITE EDGE LINE
RELOCATE EXISTING R5-1A WRONG WAY SIGN STA.330+16
PLACE RIGHT TURN ARROWS AND WORDS "ONLY"
PLACE 8" - 12" WIDE CROSSWALK
PLACE 4" YELLOW EDGE LINE
RETAIN EXISTING R3-2 NO LEFT TURN SIGN STA.10+19
PLACE 4" YELLOW EDGE LINE
PLACE 4" DOUBLE YELLOW LINES TIE TO EXISTING
℄ WILLIAM E.MURRAY BLVD.
℄ GMP EB
PLACE 2" 4" YELLOW SKIP LINE
PLACE DETECTABLE WARNING MATERIAL
PLACE 4" WHITE EDGE LINE
END 12" MILL-IN RUMBLE STRIPES
PLACE 6 LF 12" WHITE STOP BAR
PLACE 4" YELLOW EDGE LINE
130
135
140
330
335
340
530
535
540
235
240

0 50 100 150 200

SCALE: 50.000 ft / in.
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4/7/2020

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

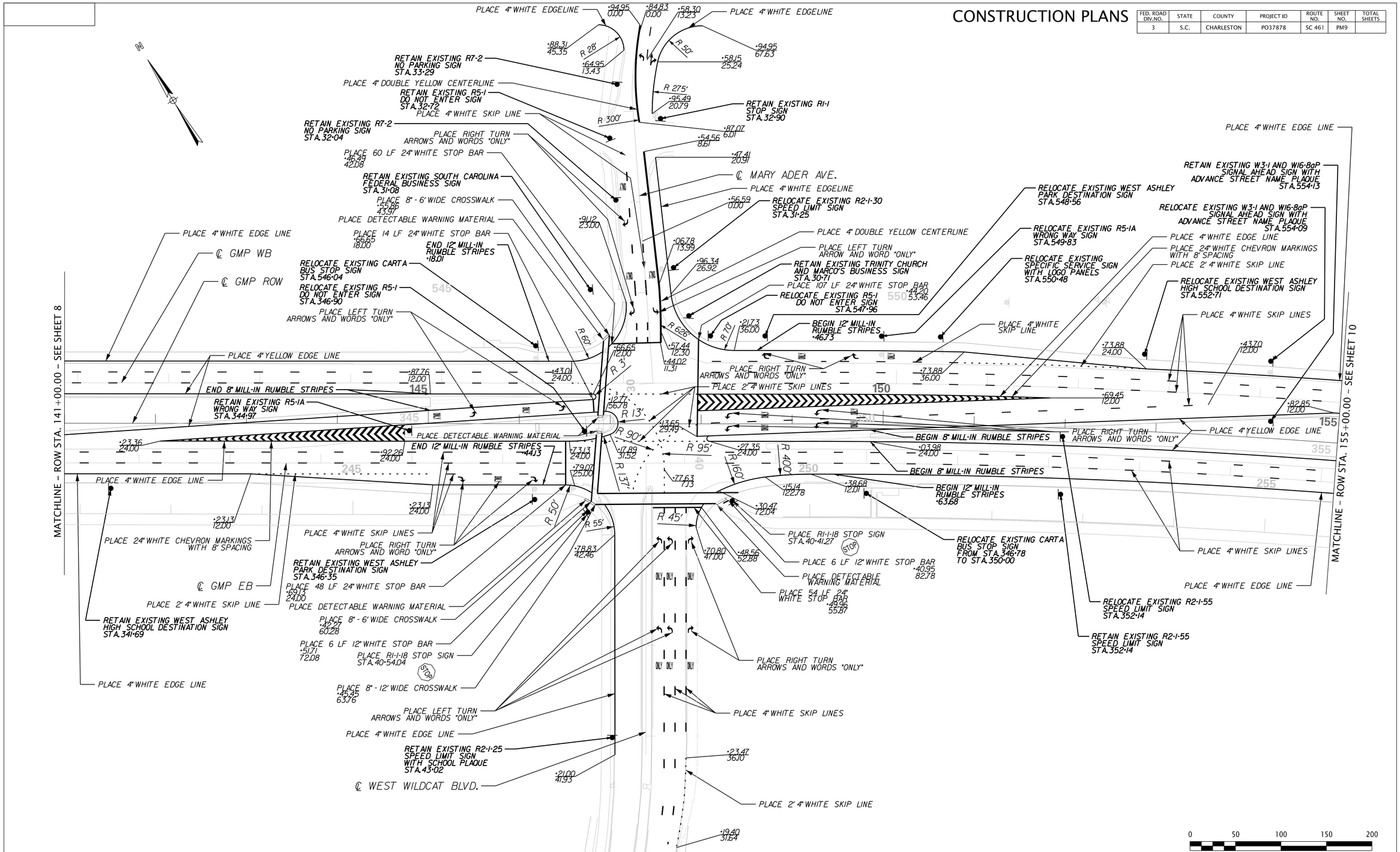
CHARLESTON COUNTY

PAVEMENT MARKING & SIGNING SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 127+00.00 – STA. 141+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	PM9	



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4/7/2020

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240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

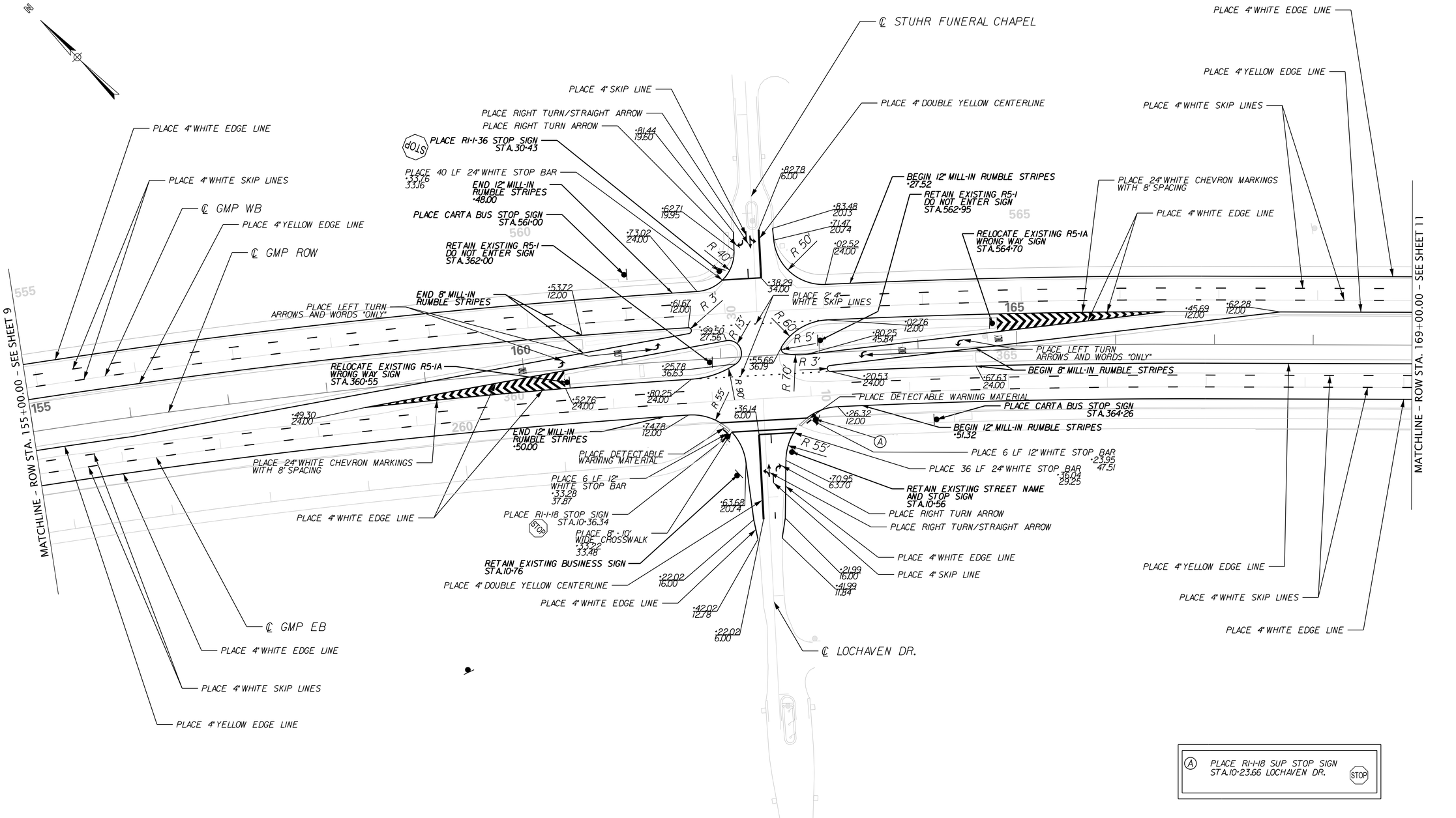
CHARLESTON COUNTY

PAVEMENT MARKING & SIGNING SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 141+00.00 – STA. 155+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	PM10	



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4/7/2020

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

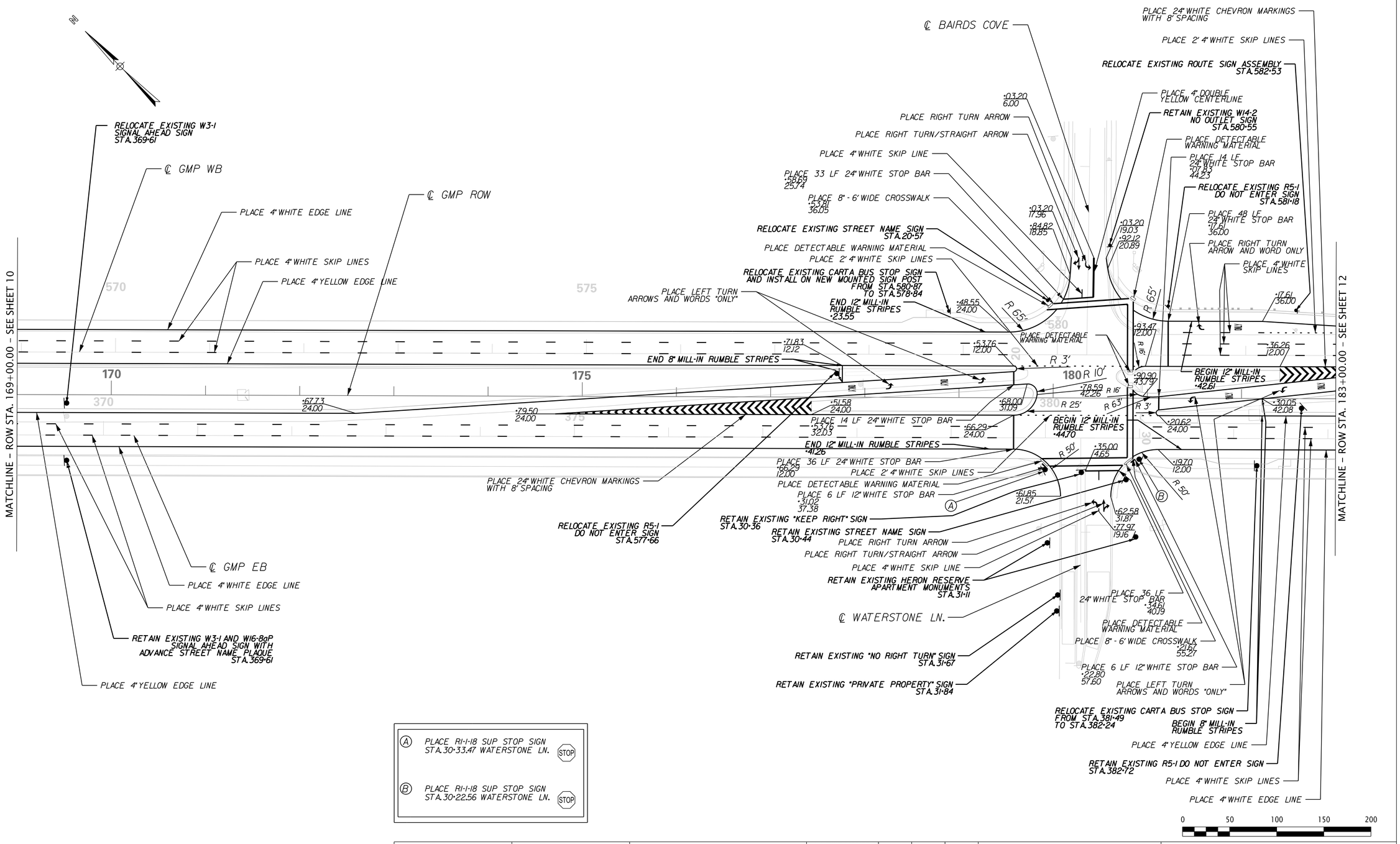
CHARLESTON COUNTY

PAVEMENT MARKING & SIGNING SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 155+00.00 - STA. 169+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	PM11	



Ⓐ PLACE R1-1-18 SUP STOP SIGN STA.30+33.47 WATERSTONE LN. (STOP)

Ⓑ PLACE R1-1-18 SUP STOP SIGN STA.30+22.56 WATERSTONE LN. (STOP)

SCALE: 50.000 ft / in.
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PLOT DRIVER: PDF.pltcfg
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240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

SOUTH CAROLINA
DAVIS & FLOYD, INC.
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DAVIS & FLOYD
SINCE 1954

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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

PAVEMENT MARKING & SIGNING SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 169+00.00 – STA. 183+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

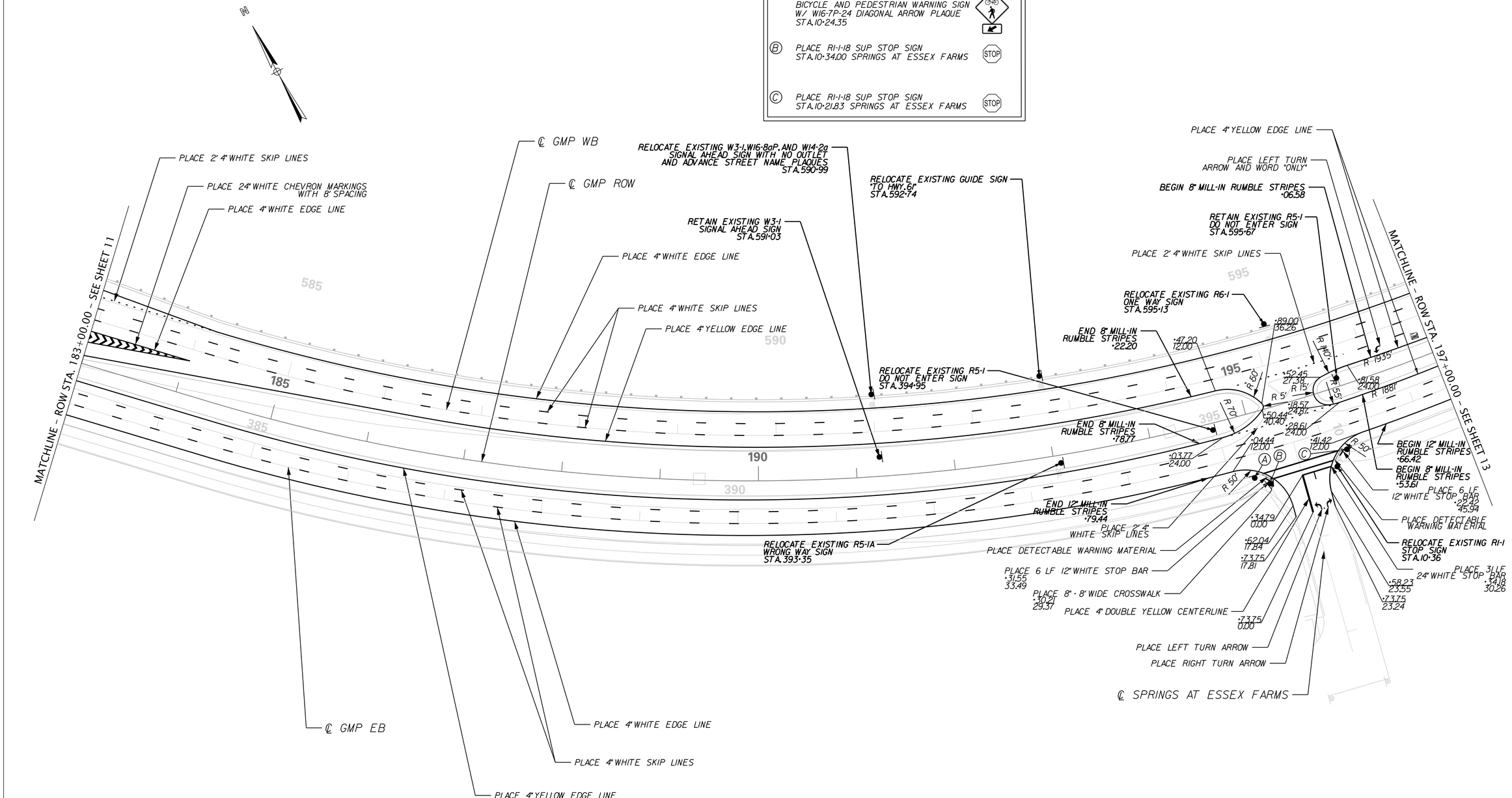
CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	PM12	

Ⓐ PLACE WII-15-36 COMBINATION BICYCLE AND PEDESTRIAN WARNING SIGN W/ WI6-7P-24 DIAGONAL ARROW PLAQUE STA.10+24.35

Ⓑ PLACE RI-1-18 SUP STOP SIGN STA.10+34.00 SPRINGS AT ESSEX FARMS

Ⓒ PLACE RI-1-18 SUP STOP SIGN STA.10+21.83 SPRINGS AT ESSEX FARMS



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SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

PAVEMENT MARKING & SIGNING SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 183+00.00 - STA. 197+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	PM13	

N

Ⓐ PLACE R1-1-18 SUP STOP SIGN STA.20+53.20 ESSEX FARMS DR.

Ⓑ PLACE R1-1-18 SUP STOP SIGN STA.308+87.94 GMP SUP 4

MATCHLINE - ROW STA. 197+00.00 - SEE SHEET 12

RETAIN EXISTING R5-1A WRONG WAY SIGN STA.596+98

PLACE LEFT TURN ARROW AND WORD "ONLY"

℄ GMP WB

PLACE 2' 4" WHITE SKIP LINE

PLACE 4" WHITE EDGE LINE

PLACE 4" WHITE SKIP LINES

PLACE 4" YELLOW EDGE LINE

RELOCATE EXISTING R2-1-55 SPEED LIMIT SIGN STA.605+12

END 8" MILL-IN RUMBLE STRIPES +35.92

RETAIN EXISTING R5-1 DO NOT ENTER SIGN STA.406+60

RETAIN EXISTING R2-1-55 SPEED LIMIT SIGN STA.605+12

RETAIN EXISTING R2-1-45 SPEED LIMIT SIGN STA.406+05

BEGIN 8" MILL-IN RUMBLE STRIPES +95.22

PLACE 36 LF 24" WHITE STOP BAR +77.49 24.00

PLACE 12 LF 24" WHITE STOP BAR +70.25 24.83

PLACE 2' 4" WHITE SKIP LINE

PLACE 24" WHITE CHEVRON MARKINGS WITH 8' SPACING

PLACE 4" YELLOW EDGE LINE

END 12" MILL-IN RUMBLE STRIPES

PLACE LEFT TURN ARROWS AND WORDS "ONLY"

PLACE 4" WHITE EDGE LINE

600 605 610 200 205 210 400 405 410 310

R 1935' R 2476' R 1881' R 100' R 60' R 10' R 135' R 50'

+00.00 24.00 | +80.00 24.00 | +23.41 20.89 | +80.00 12.00 | +71.42 12.00 | +00.12 20.02 | +60.92 12.00 | +77.49 12.00 | +76.77 24.00 | +50.00 24.00 | +06.59 23.04 | +98.05 19.50 | +53.66 12.00 | +54.00 0.00 | +70.01 12.84 | +94.60 12.00 | +06.95 24.00 | +70.22 24.63

END 8" MILL-IN RUMBLE STRIPES +28.66

BEGIN 8" MILL-IN RUMBLE STRIPES +19.60

RETAIN EXISTING R5-1A WRONG WAY SIGN STA.402+57

PLACE 2' 4" WHITE SKIP LINE

+00.00 36.00

RETAIN EXISTING R5-1A WRONG WAY SIGN STA.405+05

PLACE RIGHT TURN ARROWS AND WORDS "ONLY"

RELOCATE EXISTING R2-1-45 SPEED LIMIT SIGN STA.406+05

PLACE 4" WHITE SKIP LINE

END 12" MILL-IN RUMBLE STRIPES +22.63

PLACE 48 LF 24" WHITE STOP BAR +47.83 36.00

PLACE DETECTABLE WARNING MATERIAL

PLACE 5 LF 12" WHITE STOP BAR +50.61 53.89

PLACE 8' - 10' WIDE CROSSWALK +49.97 39.51

RETAIN EXISTING "ESSEX" BUSINESS SIGN STA.21+11

PLACE 4" DOUBLE YELLOW CENTERLINE

RETAIN EXISTING R4-7 KEEP RIGHT SIGN STA.21+14

℄ ESSEX FARMS DR.

+85.72 24.25 | +95.74 24.22 | +95.74 0.00 | +83.69 25.07 | +95.74 24.99

BEGIN 12" MILL-IN RUMBLE STRIPES +31.95

PLACE 5 LF 12" WHITE STOP BAR +85.94 0.00

PLACE DETECTABLE WARNING MATERIAL

RELOCATE EXISTING R1-1 AND R6-1 STOP SIGN AND ONE WAY SIGN WITH STREET NAME SIGNS STA.20+54

PLACE 34 LF 24" WHITE STOP BAR +54.04 33.15

RETAIN EXISTING "ESSEX" BUSINESS SIGN STA.21+10

PLACE 4" WHITE EDGE LINE

PLACE RIGHT TURN ARROW

PLACE 4" YELLOW EDGE LINE

PLACE 4" WHITE SKIP LINE

PLACE LEFT/RIGHT TURN ARROW

℄ GMP ROW

℄ GMP EB

PLACE 4" YELLOW EDGE LINE

RELOCATE EXISTING W3-5 REDUCED SPEED LIMIT AHEAD SIGN STA.400+17

RETAIN EXISTING W3-5 REDUCED SPEED LIMIT AHEAD SIGN STA.400+17

PLACE 4" WHITE EDGE LINE

PLACE 4" WHITE SKIP LINES

MATCHLINE - ROW STA. 211+00.00 - SEE SHEET 14

0 50 100 150 200

SCALE: 50.000 ft / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\13635-00 GMP PM Sheets.dgn
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240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

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DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

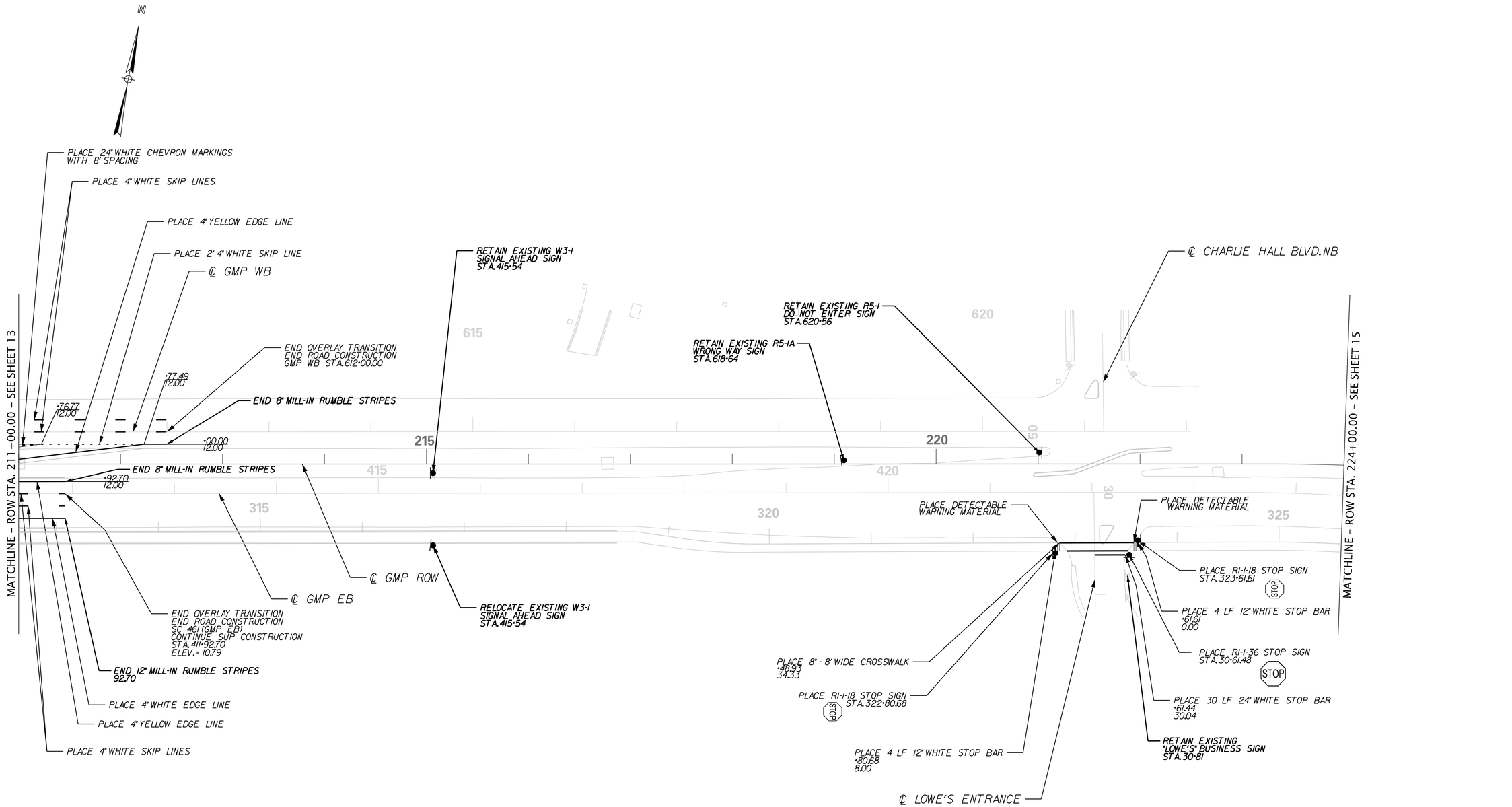
CHARLESTON COUNTY

PAVEMENT MARKING & SIGNING SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 197+00.00 - STA. 211+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	PM14	



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4/7/2020

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION DAVIS & FLOYD, INC. No. C00538

DAVIS & FLOYD
SINCE 1954
240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

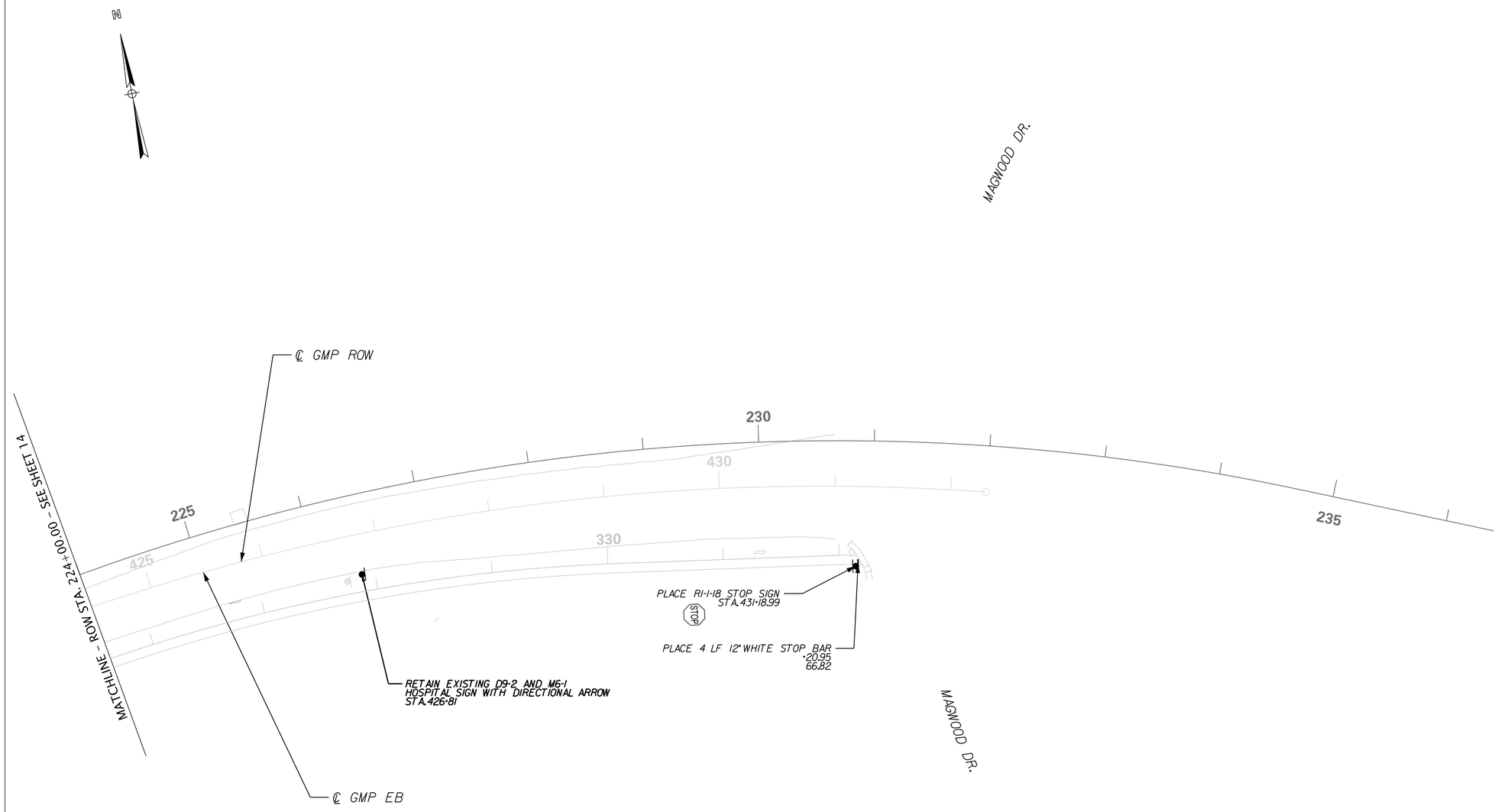
CHARLESTON COUNTY

PAVEMENT MARKING & SIGNING SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 211+00.00 – STA. 224+00.00

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	PM15	



0 50 100 150 200

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PLOT DRIVER: PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\13635-00 GMP PM Sheets.dgn
4/7/2020

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY BDW

CHARLESTON COUNTY

PAVEMENT MARKING & SIGNING SHEET
SC 461 (GLENN MCCONNELL PARKWAY)
STA. 224+00.00 – STA. 234+43.19

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	TS-1	XXX

			INTERSECTION #1 BEES FERRY ROAD	INTERSECTION #2 W. WILDCAT BLVD / MARY ADER AVE.	INTERSECTION #3 BAIRDS COVE / WATERSTONE LANE	INTERSECTION #4 ESSEX FARMS DRIVE	PROJECT SUMMARY
PAY ITEM	DESCRIPTION	UNIT	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
MOBILIZATION & MOBILIZATION OF MATERIAL							
1031000	MOBILIZATION	LS	1	1	1	1	**4**
TRAFFIC CONTROL							
1071000	TRAFFIC CONTROL	LS	1	1	1	1	**4**
ELECTRICAL CONDUIT							
6750275	FURNISH & INSTALL 1.0" SCHEDULE 80 PVC CONDUIT	LF	100	100	100	100	**400**
6750278	FURNISH & INSTALL 2.0" SCHEDULE 80 PVC CONDUIT	LF	200	1,000	1,000	1,000	**3,200**
675027C	FURNISH & INSTALL 3.0" SCHEDULE 80 PVC CONDUIT	LF	20	20	20	20	**80**
675027S	FURNISH & INSTALL 2.0" SCHEDULE 80 PVC CONDUIT (DIRECTION.BORED)	LF	0	500	500	350	**1,350**
675027Z	FURNISH ADDITIONAL 2" CONDUIT WITHIN DIRECTIONAL BORE	LF	0	500	500	350	**1,350**
ELECTRICAL WIRING							
6770388	FURNISH & INSTALL NO. 14 COPPER WIRE, 4 CONDUCTOR (BLACK)	LF	0	2,400	2,400	1,800	**6,600**
6770389	FURNISH & INSTALL NO. 14 COPPER WIRE, 4 CONDUCTOR (GRAY)	LF	0	2,400	2,400	1,800	**6,600**
6770393	FURNISH & INSTALL NO. 14 COPPER WIRE, 8 CONDUCTOR (BLACK)	LF	200	1,800	1,800	1,200	**5,000**
SPLICE / JUNCTION BOX							
6800508	FURNISH AND INSTALL 12"X12"X12"D.ELEC.FLUSH UNDGRD.ENCLOSURE-(STR.POLY.CONC.)HD	EA	0	2	2	2	**6**
6800518	FURNISH AND INSTALL 13"X24"X18"D.ELEC.FLUSH UNDGRD.ENCLOSURE-(STR.POLY.CONC.)HD	EA	1	12	9	8	**30**
6800528	FURNISH AND INSTALL 17"X30"X18"D.ELEC.FLUSH UNDGRD.ENCLOSURE-(STR.POLY.CONC.)HD	EA	1	5	6	2	**14**
COMMUNICATIONS							
6770506	FURNISH AND INSTALL CELLULAR WIRELESS ROUTER	EA	0	1	1	1	**3**
6845691	CLOSED CIRCUIT TV CAMERA - HIGHWAY USE	EA	0	1	1	1	**3**
6886072	INSTALL WIRELESS RADIO ASSEMBLY WITH ANTENNA	EA	1	1	1	1	**4**
STEEL POLE WITH MAST ARM							
6825120A	FURNISH 27' STEEL POLE WITH 26' MAST ARM INCLUDING MOUNTING HARDWARE (GALVANIZED, NON-DECORATIVE) - 15% ADDED - WIND	EA	0	2	4	1	**7**
6825310A	FURNISH 27' STEEL POLE WITH DUAL MASTS (BOTH 26' IN LENGTH) INCLUDING MOUNTING HARDWARE (GALVANIZED, NON-DECORATIVE) - 15% ADDED -	EA	1	3	1	1	**6**
No Item #	ADDED COST PER EACH 1' INCREMENT OVER 26' - 15% ADDED - WIND	EA	75	253	246	136	**710**
6888163	DESIGN MAST ARM FOUNDATION (DOES NOT INCLUDE SOIL BORING OR UTILITY CHECK)	EA	1	5	5	2	**13**
6888167	POWDERCOATING PER MAST ARM OVER GALVANIZED	EA	2	8	6	3	**19**
6888168	DECORATIVE OPTION PER MAST ARM	EA	2	8	6	3	**19**
6888173	SOIL BORING - UTILITY REVIEW FOR MAST ARM DESIGN PER SIGNAL QUADRANT	EA	1	4	4	2	**11**
No Item #	FOUNDATION FOR MAST ARM (ASSUMED COST - FINAL COST TO BE DETERMINED BY CONTRACTOR DESIGN)	EA	1	5	5	2	**13**
PEDESTRIAN POLE & BASE							
6825484	FURNISH AND INSTALL 10' BREAK-AWAY ALUMINUM PEDESTAL POLE AND BASE	EA	0	3	3	2	**8**
6825486	FURNISH & INSTALL ALUMINUM PEDESTAL POLE CONCRETE FOUNDATION	EA	0	3	3	2	**8**
6888194	POWDERCOATING OPTION FOR 10' ALUMINUM PEDESTAL POLE	EA	0	3	3	2	**8**
POLYCARBONATE VEHICLE SIGNAL HEAD							
6865731	FURNISH AND INSTALL 12" 1-WAY-3 SECTION(R.Y.G.)VEHICLE TRAFFIC SIGNAL	EA	6	8	12	8	**34**
6865733	FURNISH AND INSTALL 12" 1-WAY-3 SECTION(RA.YA.GA.)VEHICLE TRAFFIC SIGNAL	EA	2	4	0	1	**7**
6865710	FURNISH AND INSTALL 12" 1-WAY-5 SECTION(R.Y.YA.G.GA.)VEHICLE TRAFFIC SIGNAL	EA	0	4	0	0	**4**
6865722	FURNISH AND INSTALL 12" 1-WAY-4 SECTION(RA.YA.YAF.GA)VEHICLE TRAFFIC SIGNAL	EA	0	2	2	0	**4**
6887920	INSTALL LED MODULE	EA	8	18	14	9	**49**
6865834a	FURNISH AND INSTALL BACKPLATE W/ RETROREFL.BORDERS FOR 3 SECTION TRAFF. SIG.	EA	8	12	12	8	**40**
6865834a	FURNISH AND INSTALL BACKPLATE W/ RETROREFL.BORDERS FOR 4 SECTION (IN LINE) TRAFF. SIG.	EA	0	2	2	1	**5**
6865834a	FURNISH AND INSTALL BACKPLATE W/ RETROREFL.BORDERS FOR 5 SECTION TRAFF. SIG.	EA	0	4	0	0	**4**
6865831	FURNISH AND INSTALL TRAFFIC SIGNAL HEAD MOUNTING ASSEMBLY FOR MAST ARM	EA	8	18	14	9	**49**
PEDESTRIAN SIGNAL EQUIPMENT							
6865784	FURNISH & INSTALL 1-WAY-1SECT. (COUNTDOWN HAND/MAN EMBLEM) PEDESTRIAN SIGNAL HEAD	EA	0	6	8	2	**16**
6865788	FURNISH & INSTALL PEDESTRIAN LED MODULE	EA	0	6	8	2	**16**
6865787	FURNISH & INSTALL VISOR WITH ATTACHMENT SCREWS	EA	0	6	8	2	**16**
6865797	FURNISH AND INSTALL PEDESTRIAN PUSH BUTTON SOLID STATE WITH LIGHT AND TONE STATION ASSEMBLY (9"X15") AND SIGN (R-10-3E)	EA	0	6	8	2	**16**
REMOVAL, SALVAGE & DISPOSAL OF EQUIPMENT & MATERIALS							
6885990	REMOVAL, SALVAGE AND DISPOSAL OF EXISTING TRAFFIC SIGNAL EQUIP	EA	1	1	1	0	**3**
6885982	REMOVE FOUNDATION FOR STEEL STRAIN POLE - 18" BELOW GRADE	EA	1	4	4	0	**9**
DETECTOR LOOPS							
6770413	FURNISH AND INSTALL NO. 14 COPPER WIRE , 1-CONDUCTOR FOR LOOP WIRE	LF	800	3,200	2,200	1,500	**7,700**
SIGNAGE							
6510105	FLAT SHEET, TYPE III, FIXED SZ. & MSG. SIGN	SF	0	10	10	29	**49**
6510108	FLAT SHEET, TYPE VIII OR IX, SIZE DETERMINED BY MESSAGE (OVERHEAD)	SF	0	0	0	0	**0**
6513020	F&I MOUNTING ASSEMBLY FOR F.S. SIGN ERCTD ON MAST ARM	EA	0	2	2	4	**8**
CONTROLLER AND CABINET							
6845511	F&I - CONTROLLER AND 332/336 CABINET ASSEMBLY - BASE MOUNTED - INCLUDING FOUNDATION	EA	0	1	1	1	**3**
6885992	TEMPORARY ADJUSTMENT OF TRAFFIC SIGNAL EQUIPMENT	EA	1	1	1	0	**3**
6845518	FURNISH AND INSTALL BATTERY BACK-UP INCLUDING FOUNDATION	EA	0	1	1	1	**3**
6800499	FURNISH AND INSTALL ELECTRICAL SERVICE FOR TRAFFIC SIGNAL	EA	0	1	1	1	**3**

PRELIMINARY FOR REVIEW

PRELIMINARY FOR REVIEW

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design
Short Engineering & Consulting, LLC
1612 Marion Street - Suite 326
Columbia, SC 29201
Phone : (803) 361-9000

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY WMS DRAWN BY WMS CHECKED BY WMS

CHARLESTON COUNTY

TRAFFIC SIGNAL PLANS
SC 461 (GLENN MCCONNELL PARKWAY)

SUMMARY OF ESTIMATED QUANTITIES

SCALE : N/A PLOT SIZE = 22" x 34"

—SIGNAL EQUIPMENT—

ONE (1) 8 PHASE FULLY ACTUATED STANDARD (EXISTING)
2070 CONTROLLER WITH FLASHER, SIGNAL MONITOR UNIT,
AND POLE/(BASE)-MOUNTED 336S/(332A) CABINET. EXT. ▭ PROP. ■

4 MODEL 222, (2)-CHANNEL VEHICLE DETECTOR UNITS

PEDESTRIAN SIGNALS: EXT. △ P PROP. ▲ P W/ACT. & SIGN

VEHICLE SIGNALS: EXT. ○—▷ PROP. ●—▶

SIGNAL HEAD DISPLAY CHART

HEAD #	2	4	5	6	4P	6P
DISPLAY	R Y G	R Y G	R Y G	R Y G		
PHASE	2	4	5	6	4P	6P
SIZE	12"	12"	12"	12"	16"	16"
QUANTITY (EXIST)	0	0	0	2	2	2
QUANTITY (PROP)	3	3	2	0	0	0

OLA = NOT USED OLB = NOT USED OLC = NOT USED OLD = NOT USED

METAL MAST ARM & SUPPORT AS NECESSARY
▭ = EXISTING ■ = PROPOSED

LOOP DETECTORS AS NECESSARY
- - - - = EXISTING ▭ = PROPOSED

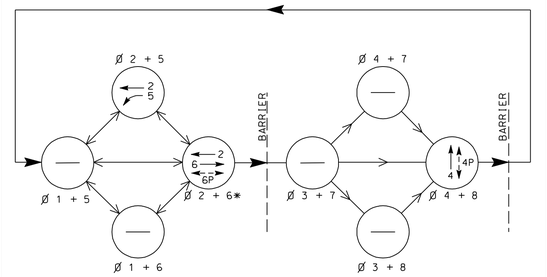
SIGNAL EQUIPMENT NOTES:

1. ALL UN-USED EXISTING TRAFFIC SIGNAL EQUIPMENT TO BE RETURNED TO SCDOT DEPOT.
2. ALL SIGNAL HEADS TO HAVE BACKPLATES WITH RETROREFLECTIVE BORDER.
3. ALL SIGNAL HEADS TO BE L.E.D.
4. ALL PEDESTRIAN SIGNAL HEADS TO BE COUNTDOWN.

GENERAL NOTES

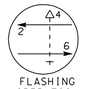
1. ALL MAST ARM RELATED EQUIPMENT TO MEET CURRENT CITY OF CHARLESTON SPECIFICATIONS.
   ALL OTHER SIGNAL RELATED EQUIPMENT (TRAFFIC SIGNALS, PEDESTRIAN SIGNALS, PEDESTRIAN SIGNAL POLES, PUSH-BUTTON ASSEMBLIES, ETC.) TO MEET CURRENT CITY OF CHARLESTON SPECIFICATIONS.
   CONTRACTOR SHALL SUBMIT ALL PROPOSED EQUIPMENT TO CITY OF CHARLESTON SIGNAL SYSTEMS MANAGER FOR APPROVAL PRIOR TO ORDERING/INSTALLATION.
2. ALL MATERIALS AND WORKMANSHIP SHALL MEET CURRENT CITY OF CHARLESTON & SCDOT STANDARDS.
3. TRAFFIC SIGNAL INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH SCDOT STANDARD DRAWINGS SECTION NO. 675-000 AND SPECIAL PROVISIONS.
4. ALL EQUIPMENT LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE WITH UTILITIES FOR FINAL LOCATIONS.
5. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE DETECTOR LOOPS WITH THE FINAL PAVEMENT MARKING PLANS.
6. ROADWAY DESIGN, PAVEMENT MARKINGS & RIGHT-OF-WAY INFORMATION PROVIDED BY DAVIS & FLOYD, INC.
7. BEFORE PLACING ANY TRAFFIC SIGNAL IN OPERATION, CITY OF CHARLESTON & SCDOT DISTRICT 6 TRAFFIC SIGNAL SHOP SHALL BE NOTIFIED.
8. BEFORE CONSTRUCTION BEGINS, CITY OF CHARLESTON & SCDOT DISTRICT 6 TRAFFIC SIGNAL SHOP SHALL BE INCLUDED IN ANY PRECONSTRUCTION CONFERENCES.
9. CITY OF CHARLESTON & SCDOT DISTRICT 6 TRAFFIC SIGNAL SHOP SHALL INSPECT ALL TRAFFIC SIGNAL WORK.

NEMA PHASING



NOTE: ACTUATED PHASES HAVING NO CALL, SHALL BE SKIPPED.

* N/S STREET COORDINATED



FLASHING OPERATION

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	TS-2	XXX

TABLE OF OPERATION

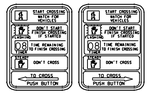
SIGNAL HEAD #	PHASE IN OPERATION								
	Ø1 + Ø5	Ø1 + Ø6	Ø2 + Ø5	Ø2 + Ø6	Ø3 + Ø7	Ø3 + Ø8	Ø4 + Ø7	Ø4 + Ø8	FLASH
2			G	G				R	Y
4			R	R				G	R
5			~~G~~	~~R~~				~~R~~	~~Y~~
6			R	G				R	Y
4P			DW	DW				W	DRK
6P			DW	W				DW	DRK

MAST ARM SUPPORT & MAST ARM NOTES

1. LOCATION OF MAST ARM SUPPORTS IS APPROXIMATE.
2. CONTRACTOR TO FIELD VERIFY LOCATIONS AND VERIFY MAST ARM LENGTHS ARE ACCEPTABLE BEFORE ORDERING.
3. ALL EQUIPMENT RELATED TO MAST ARM DESIGN TO BE APPROVED BY MAINTAINING AGENCY PRIOR TO ORDERING.

4P/6P SIGNAGE

INSTALL PEDESTRIAN PUSH BUTTON SIGNS



R10-3E(L) 9" X 15" R10-3E(R) 9" X 15"

INSTALL STEEL MAST ARM SUPPORT POLE
(Foundation Design By Contractor)
WITH 77-FOOT & 50-FOOT MAST ARM
WITH 17" x 30" SPLICE BOX AT BASE
WITH 1-3", 3-2" & 2-1" CONDUITS
(Or As Necessary For Complete Installation)

2" PVC CONDUIT
(Route to Existing Splice Box)

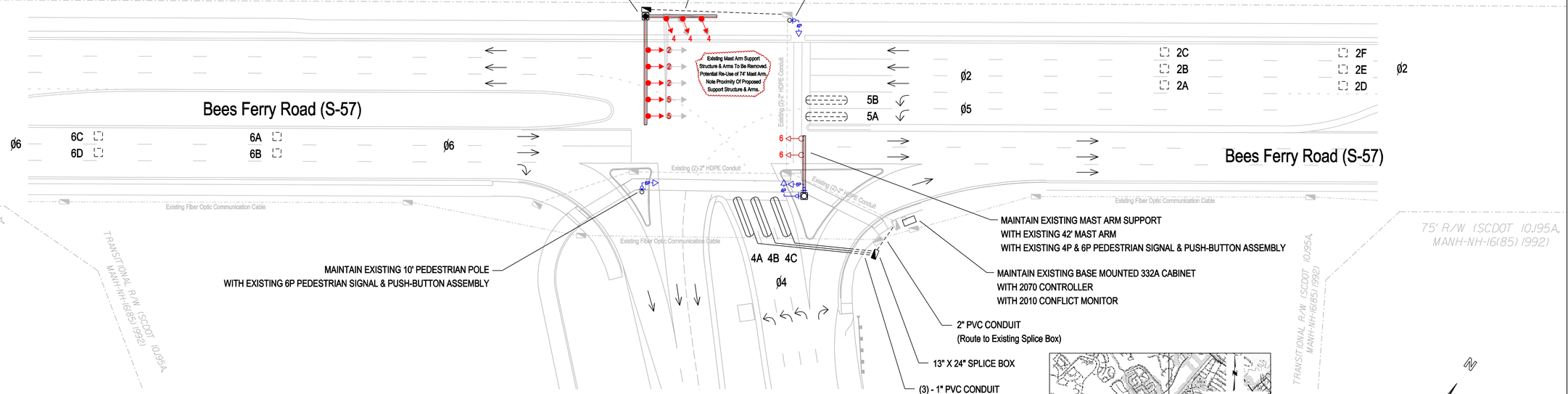
MAINTAIN EXISTING 10' PEDESTRIAN POLE
WITH EXISTING 4P PEDESTRIAN
SIGNAL & PUSH-BUTTON ASSEMBLY

75' R/W (SCDOT 10J95A, MANH-NH-16(85) 1992)

75' R/W (SCDOT 10J95A, MANH-NH-16(85) 1992)

TEMPORARY TRAFFIC SIGNAL & TRAFFIC CONTROL NOTES

1. TRAFFIC SIGNAL CONTRACTOR TO PROVIDE FOR MAINTENANCE OF TRAFFIC FLOW AND TEMPORARY TRAFFIC SIGNAL OPERATIONS DURING ALL PHASES OF CONSTRUCTION UNTIL PROJECT COMPLETION.
2. TRAFFIC SIGNAL CONTRACTOR TO COORDINATE WITH CITY OF CHARLESTON & SCDOT DISTRICT 6 STAFF TO PROVIDE FOR NECESSARY/APPLICABLE TRAFFIC CONTROL PLANS AND TEMPORARY TRAFFIC SIGNAL PLANS.
3. ALL TRAFFIC CONTROL PLANS AND TEMPORARY TRAFFIC SIGNAL PLANS TO BE APPROVED BY CITY OF CHARLESTON & SCDOT DISTRICT 6 PRIOR TO INCEPTION OF ANY RELATED WORK ITEMS.



SIGNAL TIMINGS

INTERVAL	PHASE 1	2	3	4	5	6	7	8
WALK								
DON'T WALK								
MIN INITIAL								
MAX INITIAL								
ADD / VEH								
VEH EXT								
TIM BFR REDUC								
TIME TO REDUC								
MIN GAP								
MAX LIMIT								
MAXIMUM 2								
YELLOW								
RED CLEAR								

TO BE PROVIDED
CURRENTLY COORDINATING WITH CITY T&T DEPT.

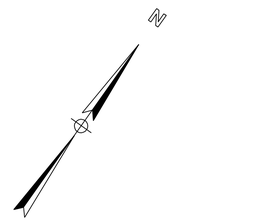
* SEE LOOP DETECTOR INSTALLATION CHART FOR LOOP DELAY SETTINGS.
* SUBJECT TO ADJUSTMENT BY SCDOT TRAFFIC ENGINEERING STAFF & CITY OF CHARLESTON T&T DEPT.

LOOP DETECTOR INSTALLATION

LOOP	DESIGN SIZE (FT)	TURNS	DIST. FROM STOPBAR (FT)	NEW	OPERATION PHASE	LOCK	CALL	EXTEND	DELAY	FULL TIME DELAY
2A	6x6	4	255	N	2	X	X	X	---	---
2B	6x6	4	255	N	2	X	X	X	---	---
2C	6x6	4	255	N	2	X	X	X	---	---
2D	6x6	4	385	N	2	X	X	X	---	---
2E	6x6	4	385	N	2	X	X	X	---	---
2F	6x6	4	385	N	2	X	X	X	---	---
4A	6x30	2-4-2	-2	Y	4	---	X	X	---	---
4B	6x30	2-4-2	-2	Y	4	---	X	X	---	---
4C	6x30	2-4-2	-2	Y	4	---	X	X	---	---
5A	6x30	2-4-2	-2	N	5	---	X	X	15	---
					2	---	X	X	3	X
6A	6x6	4	255	N	6	X	X	X	---	---
6B	6x6	4	255	N	6	X	X	X	---	---
6C	6x6	4	385	N	6	X	X	X	---	---
6D	6x6	4	385	N	6	X	X	X	---	---

ROUTE NUMBER	S-57	S-57		SC 461
APPROACH DIRECTION	NB	SB		WB
SIGNAL DESIGN SPEED	45*	45*		35*
GRADE (%)	-0.44*	0.44*		2.07*

* From Prior Signal Plan (TranSystems Corp.) Dated 6-3-11



PRELIMINARY FOR REVIEW — SOUTH CAROLINA — CERTIFICATE OF AUTHORIZATION

PRELIMINARY FOR REVIEW — SOUTH CAROLINA — PROFESSIONAL ENGINEER — NOT FOR CONSTRUCTION

SHORT ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design
Short Engineering & Consulting, LLC
1612 Marion Street - Suite 326
Columbia, SC 29201
Phone : (803) 361-9000

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DESIGNED BY WMS DRAWN BY WMS CHECKED BY WMS

CHARLESTON COUNTY

TRAFFIC SIGNAL PLAN
SC 461 (GLENN MCCONNELL PARKWAY)
AT
S-57 (BEES FERRY ROAD)

SCALE 1"= 40' HOR. PLOT SIZE = 22" x 34"

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	TS-3	XXX

—SIGNAL EQUIPMENT—

ONE (1) 8 PHASE FULLY ACTUATED STANDARD 2070 CONTROLLER WITH FLASHER, SIGNAL MONITOR UNIT, AND POLE (BASE) MOUNTED 336S (332A) CABINET. EXT. ☐ PROP. ■

8 MODEL 222. (2)-CHANNEL VEHICLE DETECTOR UNITS

PEDESTRIAN SIGNALS: EXT. ☐P PROP. ■P W/ACT. & SIGN

VEHICLE SIGNALS: EXT. ○▷ PROP. ●▶

METAL MAST ARM & SUPPORT AS NECESSARY

= EXISTING = PROPOSED

LOOP DETECTORS AS NECESSARY

= EXISTING = PROPOSED

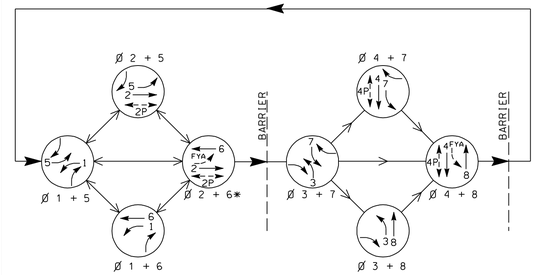
SIGNAL EQUIPMENT NOTES:

1. ALL UN-USED EXISTING TRAFFIC SIGNAL EQUIPMENT TO BE RETURNED TO SCDOT DEPOT.
2. ALL SIGNAL HEADS TO HAVE BACKPLATES WITH RETROREFLECTIVE BORDER.
3. ALL SIGNAL HEADS TO BE L.E.D.
4. ALL PEDESTRIAN SIGNAL HEADS TO BE COUNTDOWN.

GENERAL NOTES

1. BASED ON THE IMPACTS OF CONSTRUCTION RELATED TO THE GLENN MCCONNELL PARKWAY WIDENING PROJECT AND THE CONVERSION TO A MAST ARM CONFIGURATION, THIS TRAFFIC SIGNAL DESIGN PLAN ASSUMES THAT WORK CONSTITUTES A "NEW INSTALL". ALL EQUIPMENT IS SHOWN A NEW/PROPOSED. CONTRACTOR TO RETURN ALL EXISTING EQUIPMENT TO SCDOT DEPOT.
2. ALL MAST ARM RELATED EQUIPMENT TO MEET CURRENT CITY OF CHARLESTON SPECIFICATIONS. ALL OTHER SIGNAL RELATED EQUIPMENT (TRAFFIC SIGNALS, PEDESTRIAN SIGNALS, PEDESTRIAN SIGNAL POLES, PUSH-BUTTON ASSEMBLIES, ETC.) TO MEET CURRENT CITY OF CHARLESTON SPECIFICATIONS. CONTRACTOR SHALL SUBMIT ALL PROPOSED EQUIPMENT TO CITY OF CHARLESTON SIGNAL SYSTEMS MANAGER FOR APPROVAL PRIOR TO ORDERING/INSTALLATION.
3. ALL MATERIALS AND WORKMANSHIP SHALL MEET CURRENT CITY OF CHARLESTON & SCDOT STANDARDS.
4. TRAFFIC SIGNAL INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH SCDOT STANDARD DRAWINGS SECTION NO. 675-000 AND SPECIAL PROVISIONS.
5. ALL EQUIPMENT LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE WITH UTILITIES FOR FINAL LOCATIONS.
6. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE DETECTOR LOOPS WITH THE FINAL PAVEMENT MARKING PLANS.
7. ROADWAY DESIGN, PAVEMENT MARKINGS & RIGHT-OF-WAY INFORMATION PROVIDED BY DAVIS & FLOYD, INC.
8. BEFORE PLACING ANY TRAFFIC SIGNAL IN OPERATION, CITY OF CHARLESTON & SCDOT DISTRICT 6 TRAFFIC SIGNAL SHOP SHALL BE NOTIFIED.
9. BEFORE CONSTRUCTION BEGINS, CITY OF CHARLESTON & SCDOT DISTRICT 6 TRAFFIC SIGNAL SHOP SHALL BE INCLUDED IN ANY PRECONSTRUCTION CONFERENCES.
10. CITY OF CHARLESTON & SCDOT DISTRICT 6 TRAFFIC SIGNAL SHOP SHALL INSPECT ALL TRAFFIC SIGNAL WORK.

NEMA PHASING



NOTE: ACTUATED PHASES HAVING NO CALL, SHALL BE SKIPPED.

* E/W STREET COORDINATED

TABLE OF OPERATION	PHASE IN OPERATION								
SIGNAL HEAD #	Ø1 + Ø5	Ø1 + Ø6	Ø2 + Ø5	Ø2 + Ø6	Ø3 + Ø7	Ø3 + Ø8	Ø4 + Ø7	Ø4 + Ø8	FLASH
1	~~G~~	~~G~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~Y~~
2	R	R	G	G	R	R	R	R	Y
2,3	R	R	G	G	~~R~~	~~R~~	R	R	Y
3	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	~~G~~	~~R~~	~~R~~	~~R~~
4	R	R	R	R	R	R	G	G	R
4,5	~~R~~	~~G~~	R	~~R~~	~~G~~	R	R	R	R
5,6F	~~G~~	~~FY~~	~~G~~	~~FY~~	~~R~~	~~R~~	~~R~~	~~R~~	~~Y~~
6	R	G	R	G	R	R	R	R	Y
6,7	R	G	R	G	~~R~~	~~G~~	R	~~G~~	R
7,8F	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	~~FY~~	~~G~~	~~FY~~	~~R~~
8	R	R	R	R	R	G	R	G	R
8,1	~~R~~	~~G~~	~~R~~	R	R	R	G	R	G	R
2P	DW	DW	W	W	DW	DW	DW	DW	DRK
4P	DW	DW	DW	DW	DW	DW	W	W	DRK

SIGNAL HEAD DISPLAY CHART

HEAD #	1	2	2,3	3	4	4,5	5,6F	6	6,7	7,8F	8	8,1	2P	4P
DISPLAY	~~R~~ Y ~~G~~	R Y G	R Y Y G G	~~R~~ ~~Y~~ ~~G~~	R Y G	R Y Y G G	~~R~~ ~~Y~~ FY ~~G~~	R Y G	R Y Y G G	~~R~~ ~~Y~~ FY ~~G~~	R Y G	R Y Y G G		
PHASE	1	2	2,3	3	4	4,5	5,OLC	6	6,7	7,OLD	8	8,1	2P	4P
SIZE	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	16"	16"
QUANTITY	2	2	1	2	2	1	1	2	1	1	2	1	2	4

OLA = NOT USED OLB = NOT USED OLC = 5+6 (FYA) OLD = 7+8 (FYA)

125' R/W (SCDOT 10J95A, MANH-NH-16(85) 1992)

MAST ARM SUPPORT & MAST ARM NOTES

1. LOCATION OF MAST ARM SUPPORTS IS APPROXIMATE.
2. CONTRACTOR TO FIELD VERIFY LOCATIONS AND VERIFY MAST ARM LENGTHS ARE ACCEPTABLE BEFORE ORDERING.
3. ALL EQUIPMENT RELATED TO MAST ARM DESIGN TO BE APPROVED BY MAINTAINING AGENCY PRIOR TO ORDERING.

5,6F

OLC Red ◁R
OLC Yellow ◁Y
OLC Green ◁FY
Ø5 Green ◁G

7,8F

OLD Red ◁R
OLD Yellow ◁Y
OLD Green ◁FY
Ø7 Green ◁G

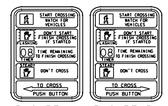
SIGN A

INSTALL SIGN FOR FLASHING YELLOW ARROW

R10-12A-30

2P/4P SIGNAGE

INSTALL PEDESTRIAN PUSH BUTTON SIGNS



R10-3E(L) R10-3E(R)
9" X 15"

Mary Ader Avenue

(3)-1" PVC CONDUIT
13" X 24" SPICE BOX
2" PVC CONDUIT
INSTALL BASE MOUNTED 332A CABINET
WITH 2070 CONTROLLER
WITH 2010 CONFLICT MONITOR
WITH WIRELESS RADIO FOR TRAFFIC RESPONSIVE SYSTEM
WITH NEW ELECTRICAL SERVICE
WITH 1-3", 3-2" & 2-1" CONDUITS
(Or As Necessary For Complete Installation)
INSTALL STEEL MAST ARM SUPPORT POLE
(Foundation Design By Contractor)
WITH 65-FOOT MAST ARM
WITH 4P PEDESTRIAN SIGNAL & PUSH-BUTTON ASSEMBLY
WITH 17" x 30" SPLICE BOX AT BASE
WITH 1-3", 3-2" & 2-1" CONDUITS
(Or As Necessary For Complete Installation)
INSTALL STEEL MAST ARM SUPPORT POLE
(Foundation Design By Contractor)
WITH 75-FOOT MAST ARM & 77-FOOT MAST ARM
WITH 17" x 30" SPLICE BOX AT BASE
WITH 1-3", 3-2" & 2-1" CONDUITS
(Or As Necessary For Complete Installation)
2" PVC CONDUIT
13" X 24" SPLICE BOX
(2) 1" PVC CONDUIT
2" PVC CONDUIT
13" X 24" SPLICE BOX
2" PVC CONDUIT
13" X 24" SPLICE BOX
(3) 1" PVC CONDUIT
Ø4 Ø7
4B 4A 7A
3 3 8 8,1
6,7
6
6
Ø6
SIGN "A"
5,6F
Ø5 5A
Currently Under Review With City T&T For Potential Support Structure/Mast Arm Options
1B
1A
Ø1
INSTALL (2) 10' PEDESTRIAN SIGNAL POLES
WITH (1) 4P PEDESTRIAN SIGNAL & PUSH-BUTTON ASSEMBLY PER POLE
WITH 13" X 24" SPLICE BOX PER POLE
6C
6B
6A
Ø6
Glenn McConnell Parkway (SC 461)
Glenn McConnell Parkway (SC 461)
Ø2
2A
2B
2C
(3)-1" PVC CONDUIT
13" X 24" SPICE BOX
2" PVC CONDUIT
13" X 24" SPICE BOX
2" PVC CONDUIT
(1) - 1" PVC CONDUIT
(2) - 2" HDPE CONDUIT
Directional Bore
Typical Between Mast Arm Supports
2
2
2,3
4,5 4 7,8F
SIGN "A"
3A 3B 8A 8B
Ø3 Ø8
INSTALL 10' PEDESTRIAN SIGNAL POLE
WITH 2P PEDESTRIAN SIGNAL & PUSH-BUTTON ASSEMBLY
WITH 13" X 24" SPLICE BOX
2" PVC CONDUIT
INSTALL STEEL MAST ARM SUPPORT POLE
(Foundation Design By Contractor)
WITH 77-FOOT MAST ARM
WITH 4P PEDESTRIAN SIGNAL & PUSH-BUTTON ASSEMBLY
WITH 17" x 30" SPLICE BOX AT BASE
WITH 1-3", 3-2" & 2-1" CONDUITS
(Or As Necessary For Complete Installation)
INSTALL STEEL MAST ARM SUPPORT POLE
(Foundation Design By Contractor)
WITH 70-FOOT MAST ARM (Phase 2) & 45-FOOT MAST ARM (Phase 8)
WITH 2P PEDESTRIAN SIGNAL & PUSH-BUTTON ASSEMBLY
WITH 17" x 30" SPLICE BOX AT BASE
WITH 1-3", 3-2" & 2-1" CONDUITS
(Or As Necessary For Complete Installation)
2" PVC CONDUIT
13" X 24" SPLICE BOX
(3) 1" PVC CONDUIT
W. Wildcat Boulevard
125' R/W (SCDOT 10J95A, MANH-NH-16(85) 1992)
125' R/W (SCDOT 10J95A, MANH-NH-16(85) 1992)

TEMPORARY TRAFFIC SIGNAL & TRAFFIC CONTROL NOTES

1. TRAFFIC SIGNAL CONTRACTOR TO PROVIDE FOR MAINTENANCE OF TRAFFIC FLOW AND TEMPORARY TRAFFIC SIGNAL OPERATIONS DURING ALL PHASES OF CONSTRUCTION UNTIL PROJECT COMPLETION.
2. TRAFFIC SIGNAL CONTRACTOR TO COORDINATE WITH CITY OF CHARLESTON & SCDOT DISTRICT 6 STAFF TO PROVIDE FOR NECESSARY/APPLICABLE TRAFFIC CONTROL PLANS AND TEMPORARY TRAFFIC SIGNAL PLANS.
3. ALL TRAFFIC CONTROL PLANS AND TEMPORARY TRAFFIC SIGNAL PLANS TO BE APPROVED BY CITY OF CHARLESTON & SCDOT DISTRICT 6 PRIOR TO INCEPTION OF ANY RELATED WORK ITEMS.

SIGNAL TIMINGS

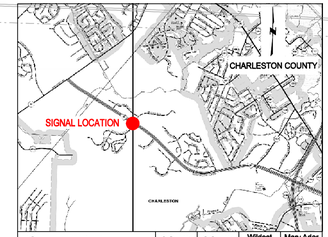
INTERVAL	PHASE 1	2	3	4	5	6	7	8
WALK								
DON'T WALK								
MIN INITIAL								
MAX INITIAL								
ADD / VEH								
VEH EXT								
TIM BFR REDUC								
TIME TO REDUC								
MIN GAP								
MAX LIMIT								
MAXIMUM 2								
YELLOW								
RED CLEAR								

TO BE PROVIDED
CURRENTLY COORDINATING WITH CITY T&T DEPT.

* SEE LOOP DETECTOR INSTALLATION CHART FOR LOOP DELAY SETTINGS.
* SUBJECT TO ADJUSTMENT BY SCDOT TRAFFIC ENGINEERING STAFF & CITY OF CHARLESTON T&T DEPT.

LOOP DETECTOR INSTALLATION

LOOP	DESIGN SIZE (FT)	TURNS	DIST. FROM STOPBAR (FT)	NEW	OPERATION PHASE	LOCK	CALL	EXTEND	DELAY	FULL TIME DELAY
1A	6x30	2-4-2	-2	Y	1	---	X	X	15	---
1B					6	---	X	X	3	X
2A	6x6	4	445	Y	2	X	X	X	---	---
2B	6x6	4	445	Y	2	X	X	X	---	---
2C	6x6	4	445	Y	2	X	X	X	---	---
3A	6x30	2-4-2	-2	Y	3	---	X	X	15	---
3B					8	---	X	X	3	X
4A	6x30	2-4-2	-2	Y	4	---	X	X	---	---
4B	6x30	2-4-2	-2	Y	4	---	X	X	10	---
5A	6x30	2-4-2	-2	Y	5	---	X	X	15	---
					2	---	X	X	3	X
6A	6x6	4	445	Y	6	X	X	X	---	---
6B	6x6	4	445	Y	6	X	X	X	---	---
6C	6x6	4	445	Y	6	X	X	X	---	---
7A	6x30	2-4-2	-2	Y	7	---	X	X	15	---
					4	---	X	X	3	X
8A	6x30	2-4-2	-2	Y	8	---	X	X	---	---
8B	6x30	2-4-2	-2	Y	8	---	X	X	10	---



ROUTE NUMBER	SC 461	SC 461	Wildcat Boulevard	Mary Ader Avenue
APPROACH DIRECTION	EB	WB	NB	SB
SIGNAL DESIGN SPEED	55	55	25	30
GRADE (%)	*0.0%	*0.0%	*0.0%	*0.0%

* ASSUMED

DKT. NO. SHEET NO.

0 40 80 120 160

PRELIMINARY FOR REVIEW — NOT FOR CONSTRUCTION — NOT FOR BIDDING — NOT FOR RECORDATION OR CONVEYANCE — NOT FOR PERMIT OR AUTHORIZATION

PRELIMINARY FOR REVIEW — NOT SHORT

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design
Short Engineering & Consulting, LLC
1612 Marion Street - Suite 326
Columbia, SC 29201
Phone : (803) 361-9000

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY WMS DRAWN BY WMS CHECKED BY WMS

CHARLESTON COUNTY

TRAFFIC SIGNAL PLAN
SC 461 (GLENN MCCONNELL PARKWAY)
AT
WEST WILDCAT BLVD / MARY ADER AVE

SCALE 1"= 40' HOR. PLOT SIZE = 22" x 34"

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	TS-4	XXX

—SIGNAL EQUIPMENT—

ONE (1) 8 PHASE FULLY ACTUATED STANDARD 2070 CONTROLLER WITH FLASHER, SIGNAL MONITOR UNIT, AND POLE/(BASE)-MOUNTED 336S/(332A) CABINET. EXT. ▭ PROP. ▬

8 MODEL 222, (2)-CHANNEL VEHICLE DETECTOR UNITS

PEDESTRIAN SIGNALS: EXT. △ P PROP. ▲ P W/ACT. & SIGN

VEHICLE SIGNALS: EXT. ○—▷ PROP. ●—▶

SIGNAL HEAD DISPLAY CHART

HEAD #	1,2F	2	4	5,6F	6	8	2P	6P	8P
DISPLAY	(R)(Y)(FY)(G)	(R)(Y)(G)	(R)(Y)(G)	(R)(Y)(FY)(G)	(R)(Y)(G)	(R)(Y)(G)	▯	▯	▯
PHASE	1,OLA	2	4	5,OLC	6	8	2P	6P	8P
SIZE	12"	12"	12"	12"	12"	12"	16"	16"	16"
QUANTITY	1	3	3	1	3	3	2	2	4

OLA = 1+2 (FYA) OLB = NOT USED OLC = 5+6 (FYA) OLD = NOT USED

METAL MAST ARM & SUPPORT AS NECESSARY
▭ = EXISTING ▬ = PROPOSED

LOOP DETECTORS AS NECESSARY
⌐¬⌐¬ = EXISTING ▭ = PROPOSED

SIGNAL EQUIPMENT NOTES:

1. ALL UN-USED EXISTING TRAFFIC SIGNAL EQUIPMENT TO BE RETURNED TO SCDOT DEPOT.
2. ALL SIGNAL HEADS TO HAVE BACKPLATES WITH RETROREFLECTIVE BORDER.
3. ALL SIGNAL HEADS TO BE L.E.D.
4. ALL PEDESTRIAN SIGNAL HEADS TO BE COUNTDOWN.

125' R/W(SCDOT I0.I95A, MANH-NH-I6(85) I992)

MAST ARM SUPPORT & MAST ARM NOTES

1. LOCATION OF MAST ARM SUPPORTS IS APPROXIMATE.
2. CONTRACTOR TO FIELD VERIFY LOCATIONS AND VERIFY MAST ARM LENGTHS ARE ACCEPTABLE BEFORE ORDERING.
3. ALL EQUIPMENT RELATED TO MAST ARM DESIGN TO BE APPROVED BY MAINTAINING AGENCY PRIOR TO ORDERING.

GENERAL NOTES

1. BASED ON THE IMPACTS OF CONSTRUCTION RELATED TO THE GLENN MCCONNELL PARKWAY WIDENING PROJECT AND THE CONVERSION TO A MAST ARM CONFIGURATION, THIS TRAFFIC SIGNAL DESIGN PLAN ASSUMES THAT WORK CONSTITUTES A "NEW INSTALL". ALL EQUIPMENT IS SHOWN A NEW/PROPOSED. CONTRACTOR TO RETURN ALL EXISTING EQUIPMENT TO SCDOT DEPOT.
2. ALL MAST ARM RELATED EQUIPMENT TO MEET CURRENT CITY OF CHARLESTON SPECIFICATIONS. ALL OTHER SIGNAL RELATED EQUIPMENT (TRAFFIC SIGNALS, PEDESTRIAN SIGNALS, PEDESTRIAN SIGNAL POLES, PUSH-BUTTON ASSEMBLIES, ETC.) TO MEET CURRENT CITY OF CHARLESTON SPECIFICATIONS. CONTRACTOR SHALL SUBMIT ALL PROPOSED EQUIPMENT TO CITY OF CHARLESTON SIGNAL SYSTEMS MANAGER FOR APPROVAL PRIOR TO ORDERING/INSTALLATION.
3. ALL MATERIALS AND WORKMANSHIP SHALL MEET CURRENT CITY OF CHARLESTON & SCDOT STANDARDS.
4. TRAFFIC SIGNAL INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH SCDOT STANDARD DRAWINGS SECTION NO. 675-000 AND SPECIAL PROVISIONS.
5. ALL EQUIPMENT LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE WITH UTILITIES FOR FINAL LOCATIONS.
6. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE DETECTOR LOOPS WITH THE FINAL PAVEMENT MARKING PLANS.
7. ROADWAY DESIGN, PAVEMENT MARKINGS & RIGHT-OF-WAY INFORMATION PROVIDED BY DAVIS & FLOYD, INC.
8. BEFORE PLACING ANY TRAFFIC SIGNAL IN OPERATION, CITY OF CHARLESTON & SCDOT DISTRICT 6 TRAFFIC SIGNAL SHOP SHALL BE NOTIFIED.
9. BEFORE CONSTRUCTION BEGINS, CITY OF CHARLESTON & SCDOT DISTRICT 6 TRAFFIC SIGNAL SHOP SHALL BE INCLUDED IN ANY PRECONSTRUCTION CONFERENCES.
10. CITY OF CHARLESTON & SCDOT DISTRICT 6 TRAFFIC SIGNAL SHOP SHALL INSPECT ALL TRAFFIC SIGNAL WORK.

1,2F
OLA Red ◁R
OLA Yellow ◁Y
OLA Green ◁FY
Ø1 Green ◁G

5,6F
OLC Red ◁R
OLC Yellow ◁Y
OLC Green ◁FY
Ø5 Green ◁G

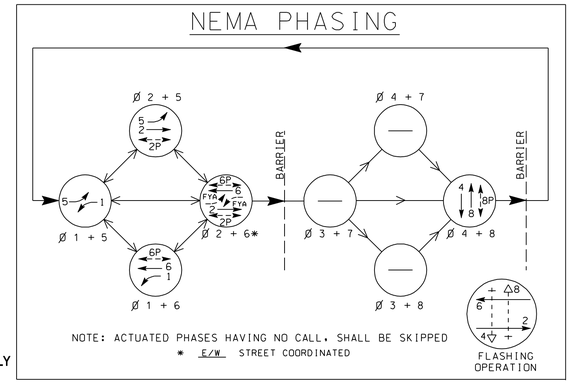
SIGN A
INSTALL SIGN FOR FLASHING YELLOW ARROW

R10-12A-30

2P/6P/4P SIGNAGE
INSTALL PEDESTRIAN PUSH BUTTON SIGNS

R10-3E(L) R10-3E(R)
9" X 15"

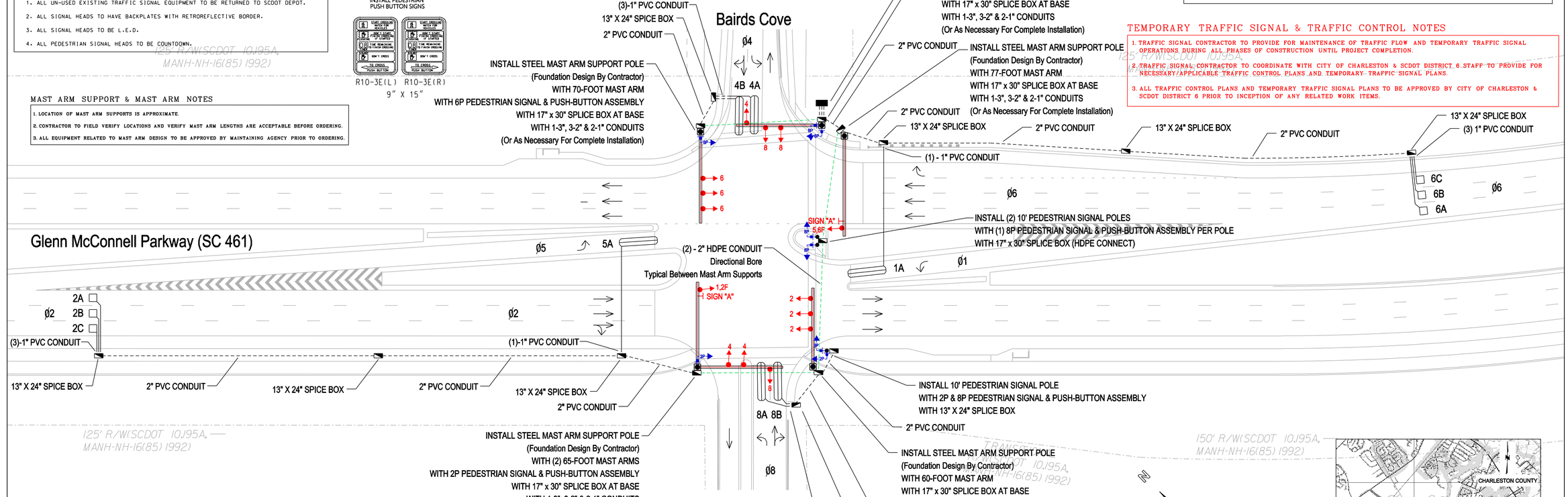
TABLE OF OPERATION	PHASE IN OPERATION								
SIGNAL HEAD #	Ø1 + Ø5	Ø1 + Ø6	Ø2 + Ø5	Ø2 + Ø6	Ø3 + Ø7	Ø3 + Ø8	Ø4 + Ø7	Ø4 + Ø8	FLASH
1,2F	~~G~~	~~G~~	~~FY~~	~~FY~~				~~R~~	~~Y~~
2	R	R	G	G				R	Y
4	R	R	R	R				G	R
5,6F	~~G~~	~~FY~~	~~G~~	~~FY~~				~~R~~	~~Y~~
6	R	G	R	G				R	Y
8	R	R	R	R				G	R
2P	DW	DW	W	W				DW	DRK
6P	DW	W	DW	W				DW	DRK
8P	DW	DW	DW	DW				W	DRK



NOTE: ACTUATED PHASES HAVING NO CALL, SHALL BE SKIPPED
* E/W STREET COORDINATED

TEMPORARY TRAFFIC SIGNAL & TRAFFIC CONTROL NOTES

1. TRAFFIC SIGNAL CONTRACTOR TO PROVIDE FOR MAINTENANCE OF TRAFFIC FLOW AND TEMPORARY TRAFFIC SIGNAL OPERATIONS DURING ALL PHASES OF CONSTRUCTION UNTIL PROJECT COMPLETION.
2. TRAFFIC SIGNAL CONTRACTOR TO COORDINATE WITH CITY OF CHARLESTON & SCDOT DISTRICT 6 STAFF TO PROVIDE FOR NECESSARY/APPLICABLE TRAFFIC CONTROL PLANS AND TEMPORARY TRAFFIC SIGNAL PLANS.
3. ALL TRAFFIC CONTROL PLANS AND TEMPORARY TRAFFIC SIGNAL PLANS TO BE APPROVED BY CITY OF CHARLESTON & SCDOT DISTRICT 6 PRIOR TO INCEPTION OF ANY RELATED WORK ITEMS.



SIGNAL TIMINGS

INTERVAL	PHASE 1	2	3	4	5	6	7	8
WALK								
DON'T WALK								
MIN INITIAL								
MAX INITIAL								
ADD / VEH								
VEH EXT								
TIM BFR REDUC								
TIME TO REDUC								
MIN GAP								
MAX LIMIT								
MAXIMUM 2								
YELLOW								
RED CLEAR								

TO BE PROVIDED
CURRENTLY COORDINATING WITH CITY T&T DEPT.

* SEE LOOP DETECTOR INSTALLATION CHART FOR LOOP DELAY SETTINGS.
* SUBJECT TO ADJUSTMENT BY SCDOT TRAFFIC ENGINEERING STAFF & CITY OF CHARLESTON T&T DEPT.

LOOP DETECTOR INSTALLATION

LOOP	DESIGN SIZE (FT)	DESIGN TURNS	DESIGN DIST. FROM STOPBAR (FT)	DESIGN NEW	OPERATION PHASE	OPERATION LOCK	OPERATION CALL	OPERATION EXTEND	OPERATION DELAY	OPERATION FULL TIME DELAY
1A	6x30	2-4-2	-2	Y	1	---	X	X	15	---
					6	---	X	X	3	X
2A	6x6	4	445	Y	2	X	X	X	---	---
2B	6x6	4	445	Y	2	X	X	X	---	---
2C	6x6	4	445	Y	2	X	X	X	---	---
4A	6x30	2-4-2	-2	Y	4	---	X	X	---	---
4B	6x30	2-4-2	-2	Y	4	---	X	X	10	---
5A	6x30	2-4-2	-2	Y	5	---	X	X	15	---
					2	---	X	X	3	X
6A	6x6	4	445	Y	6	X	X	X	---	---
6B	6x6	4	445	Y	6	X	X	X	---	---
6C	6x6	4	445	Y	6	X	X	X	---	---
8A	6x30	2-4-2	-2	Y	8	---	X	X	---	---
8B	6x30	2-4-2	-2	Y	8	---	X	X	10	---

ROUTE NUMBER	SC 461	SC 461	Waterstone Lane	Bairds Cove
APPROACH DIRECTION	EB	WB	NB	SB
SIGNAL DESIGN SPEED	55	55	10	20
GRADE (%)	*0.0%	*0.0%	*0.0%	*0.0%

* ASSUMED

DKT. NO. SHEET NO.

0 40 80 120 160

PRELIMINARY FOR REVIEW — SOUTH CAROLINA — CERTIFICATE OF AUTHORIZATION

PRELIMINARY FOR REVIEW — SOUTH CAROLINA — PROFESSIONAL ENGINEER — SHORT

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design
Short Engineering & Consulting, LLC
1612 Marion Street - Suite 326
Columbia, SC 29201
Phone : (803) 361-9000

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY WMS DRAWN BY WMS CHECKED BY WMS

CHARLESTON COUNTY

TRAFFIC SIGNAL PLAN
SC 461 (GLENN MCCONNELL PARKWAY)
AT
WATERSTONE LANE / BAIRDS COVE

SCALE 1"= 40' HOR. PLOT SIZE = 22" x 34"

—SIGNAL EQUIPMENT—

ONE (1) 8 PHASE FULLY ACTUATED STANDARD 2070 CONTROLLER WITH FLASHER, SIGNAL MONITOR UNIT, AND POLE/(BASE)-MOUNTED 336S/(332A) CABINET. EXT. ▭ PROP. ▬

8 MODEL 222, (2)-CHANNEL VEHICLE DETECTOR UNITS

PEDESTRIAN SIGNALS: EXT. △/P PROP. ▲/P W/ACT. & SIGN

VEHICLE SIGNALS: EXT. ○→ PROP. ●→

SIGNAL HEAD DISPLAY CHART

HEAD #	1,2F	2			6	8	2P		
DISPLAY	(R)(Y)(FY)(G)	(R)(Y)(G)			(R)(Y)(G)	(R)(Y)(G)	🚶		
PHASE	1,OLA	2			6	8	2P		
SIZE	12"	12"			12"	12"	16"		
QUANTITY	1	3			3	2	2		

OLA = 1+2 (FYA) OLB = NOT USED OLC = NOT USED OLD = NOT USED

METAL MAST ARM & SUPPORT AS NECESSARY

▭ = EXISTING ▬ = PROPOSED

LOOP DETECTORS AS NECESSARY

⌐¬⌐¬ = EXISTING ▭ = PROPOSED

SIGNAL EQUIPMENT NOTES:

1. ALL UN-USED EXISTING TRAFFIC SIGNAL EQUIPMENT TO BE RETURNED TO SCDOT DEPOT.
2. ALL SIGNAL HEADS TO HAVE BACKPLATES WITH RETROREFLECTIVE BORDER.
3. ALL SIGNAL HEADS TO BE L.E.D.
4. ALL PEDESTRIAN SIGNAL HEADS TO BE COUNTDOWN.

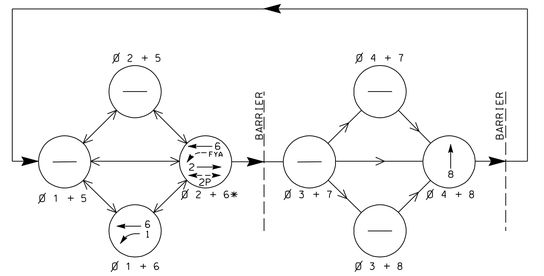
MAST ARM SUPPORT & MAST ARM NOTES

1. LOCATION OF MAST ARM SUPPORTS IS APPROXIMATE.
2. CONTRACTOR TO FIELD VERIFY LOCATIONS AND VERIFY MAST ARM LENGTHS ARE ACCEPTABLE BEFORE ORDERING.
3. ALL EQUIPMENT RELATED TO MAST ARM DESIGN TO BE APPROVED BY MAINTAINING AGENCY PRIOR TO ORDERING.

GENERAL NOTES

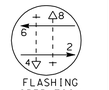
1. ALL MAST ARM RELATED EQUIPMENT TO MEET CURRENT CITY OF CHARLESTON SPECIFICATIONS. ALL OTHER SIGNAL RELATED EQUIPMENT (TRAFFIC SIGNALS, PEDESTRIAN SIGNALS, PEDESTRIAN SIGNAL POLES, PUSH-BUTTON ASSEMBLIES, ETC.) TO MEET CURRENT CITY OF CHARLESTON SPECIFICATIONS. CONTRACTOR SHALL SUBMIT ALL PROPOSED EQUIPMENT TO CITY OF CHARLESTON SIGNAL SYSTEMS MANAGER FOR APPROVAL PRIOR TO ORDERING/INSTALLATION.
2. ALL MATERIALS AND WORKMANSHIP SHALL MEET CURRENT CITY OF CHARLESTON & SCDOT STANDARDS.
3. TRAFFIC SIGNAL INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH SCDOT STANDARD DRAWINGS SECTION NO. 675-000 AND SPECIAL PROVISIONS.
4. ALL EQUIPMENT LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE WITH UTILITIES FOR FINAL LOCATIONS.
5. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE DETECTOR LOOPS WITH THE FINAL PAVEMENT MARKING PLANS.
6. ROADWAY DESIGN, PAVEMENT MARKINGS & RIGHT-OF-WAY INFORMATION PROVIDED BY DAVIS & FLOYD, INC.
7. BEFORE PLACING ANY TRAFFIC SIGNAL IN OPERATION, CITY OF CHARLESTON & SCDOT DISTRICT 6 TRAFFIC SIGNAL SHOP SHALL BE NOTIFIED.
8. BEFORE CONSTRUCTION BEGINS, CITY OF CHARLESTON & SCDOT DISTRICT 6 TRAFFIC SIGNAL SHOP SHALL BE INCLUDED IN ANY PRECONSTRUCTION CONFERENCES.
9. CITY OF CHARLESTON & SCDOT DISTRICT 6 TRAFFIC SIGNAL SHOP SHALL INSPECT ALL TRAFFIC SIGNAL WORK.

NEMA PHASING



NOTE: ACTUATED PHASES HAVING NO CALL, SHALL BE SKIPPED.

* E/W STREET COORDINATED



FLASHING OPERATION

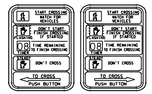
FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	TS-5	XXX

TABLE OF OPERATION	PHASE IN OPERATION								
SIGNAL HEAD #	Ø1 + Ø5	Ø1 + Ø6	Ø2 + Ø5	Ø2 + Ø6	Ø3 + Ø7	Ø3 + Ø8	Ø4 + Ø7	Ø4 + Ø8	FLASH
1,2F	~~G~~	~~G~~	~~FY~~	~~FY~~				~~R~~	~~Y~~
2	R	R	G	G				R	Y
6	R	G	R	G				R	Y
8	R	R	R	R				G	R
2P	DW	DW	W	W				DW	DRK

1,2F	SIGN A	SIGN B	SIGN C	SIGN D
OLA Red ◀R	LEFT TURN YIELD ON FLASHING	ONLY		NO TURN ON RED EXCEPT FROM RIGHT LANE
OLA Yellow ◀Y	R10-12A-30	R3-5R		R10-11c
OLA Green ◀FY	INSTALL SIGN FOR FLASHING YELLOW ARROW			
Ø1 Green ◀G				

2P SIGNAGE

INSTALL PEDESTRIAN PUSH BUTTON SIGNS

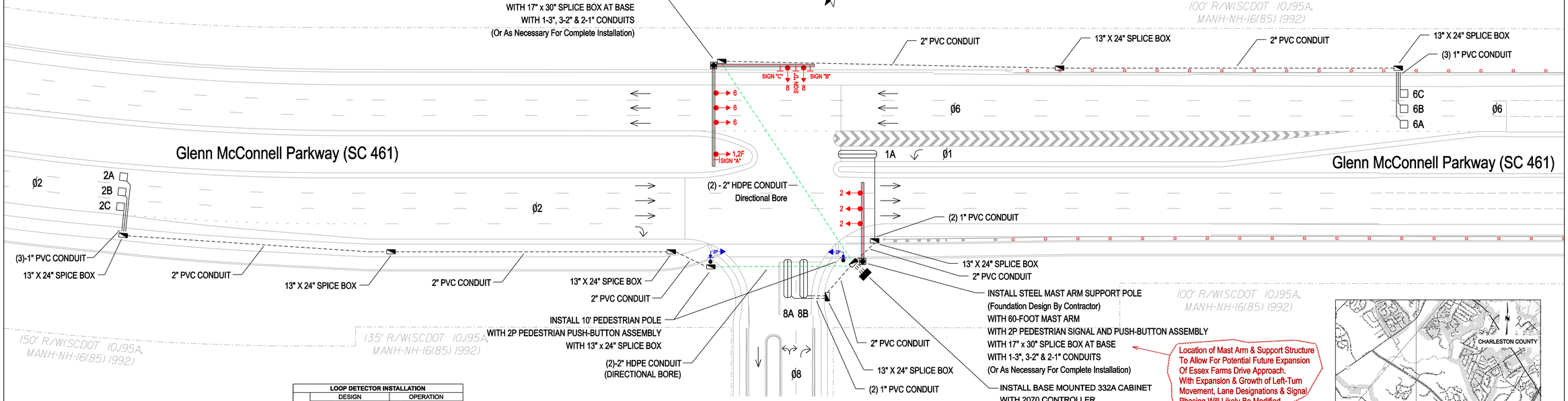


R10-3E(L) 9" X 15" R10-3E(R) 9" X 15"

N

TEMPORARY TRAFFIC SIGNAL & TRAFFIC CONTROL NOTES

1. TRAFFIC SIGNAL CONTRACTOR TO PROVIDE FOR MAINTENANCE OF TRAFFIC FLOW AND TEMPORARY TRAFFIC SIGNAL OPERATIONS DURING ALL PHASES OF CONSTRUCTION UNTIL PROJECT COMPLETION.
2. TRAFFIC SIGNAL CONTRACTOR TO COORDINATE WITH CITY OF CHARLESTON & SCDOT DISTRICT 6 STAFF TO PROVIDE FOR NECESSARY/APPLICABLE TRAFFIC CONTROL PLANS AND TEMPORARY TRAFFIC SIGNAL PLANS.
3. ALL TRAFFIC CONTROL PLANS AND TEMPORARY TRAFFIC SIGNAL PLANS TO BE APPROVED BY CITY OF CHARLESTON & SCDOT DISTRICT 6 PRIOR TO INCEPTION OF ANY RELATED WORK ITEMS.



SIGNAL TIMINGS

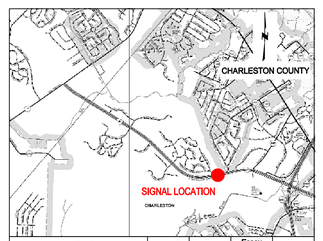
INTERVAL	PHASE 1	2	3	4	5	6	7	8
WALK								
DON'T WALK								
MIN INITIAL								
MAX INITIAL								
ADD / VEH								
VEH EXT								
TIM BFR REDUC								
TIME TO REDUC								
MIN GAP								
MAX LIMIT								
MAXIMUM 2								
YELLOW								
RED CLEAR								

TO BE PROVIDED
CURRENTLY COORDINATING WITH CITY T&T DEPT.

* SEE LOOP DETECTOR INSTALLATION CHART FOR LOOP DELAY SETTINGS.
* SUBJECT TO ADJUSTMENT BY SCDOT TRAFFIC ENGINEERING STAFF & CITY OF CHARLESTON T&T DEPT.

LOOP DETECTOR INSTALLATION

LOOP	DESIGN SIZE (FT)	TURNS	DIST. FROM STOPBAR (FT)	NEW	OPERATION PHASE	LOCK	CALL	EXTEND	DELAY	FULL TIME DELAY
1A	6x30	2-4-2	-2	Y	1	---	X	X	15	---
					6	---	X	X	3	X
2A	6x6	4	445	Y	2	X	X	X	---	---
2B	6x6	4	445	Y	2	X	X	X	---	---
2C	6x6	4	445	Y	2	X	X	X	---	---
6A	6x6	4	445	Y	6	X	X	X	---	---
6B	6x6	4	445	Y	6	X	X	X	---	---
6C	6x6	4	445	Y	6	X	X	X	---	---
8A	6x30	2-4-2	-2	Y	8	---	X	X	---	---
8B	6x30	2-4-2	-2	Y	8	---	X	X	10	---



ROUTE NUMBER	SC 461	SC 461	Essex Farms Dr	
APPROACH DIRECTION	EB	WB	NB	
SIGNAL DESIGN SPEED	55	55	*25	
GRADE (%)	*0.0%	*0.0%	*0.0%	

* ASSUMED

PRELIMINARY FOR REVIEW — SOUTH CAROLINA — NOT FOR CONSTRUCTION OR AUTHORIZATION

PRELIMINARY FOR REVIEW — SOUTH CAROLINA — NOT SHORT

SHORT ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design
Short Engineering & Consulting, LLC
1612 Marion Street - Suite 326
Columbia, SC 29201
Phone : (803) 361-9000

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

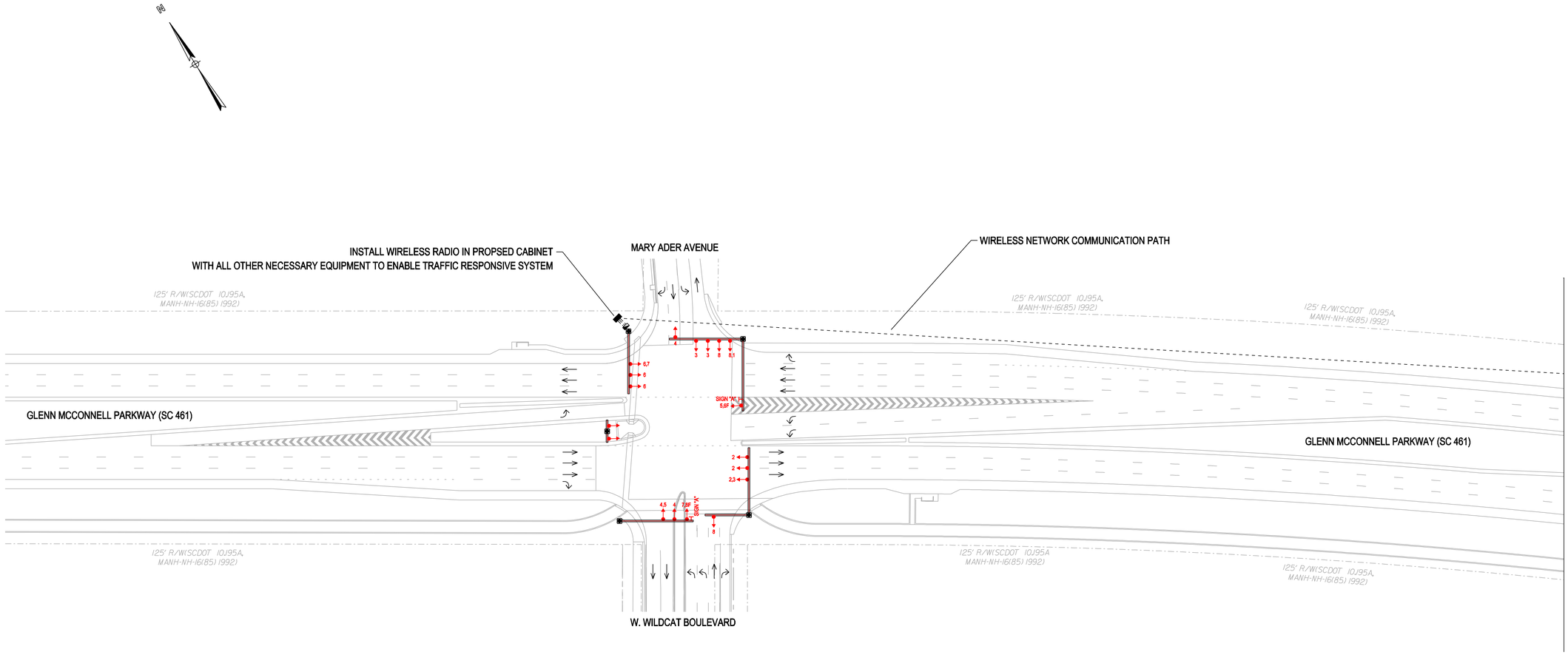
DESIGNED BY WMS DRAWN BY WMS CHECKED BY WMS

CHARLESTON COUNTY

TRAFFIC SIGNAL PLAN
SC 461 (GLENN MCCONNELL PARKWAY)
AT
ESSEX FARMS DRIVE

SCALE 1"= 40' HOR. PLOT SIZE = 22" x 34"

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	TS-6	XXX



DKT. NO. | SHEET NO.

0 60 120 180 240

PRELIMINARY FOR REVIEW

PRELIMINARY FOR REVIEW

SHORT ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design
Short Engineering & Consulting, LLC
1612 Marion Street - Suite 326
Columbia, SC 29201
Phone : (803) 361-9000

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

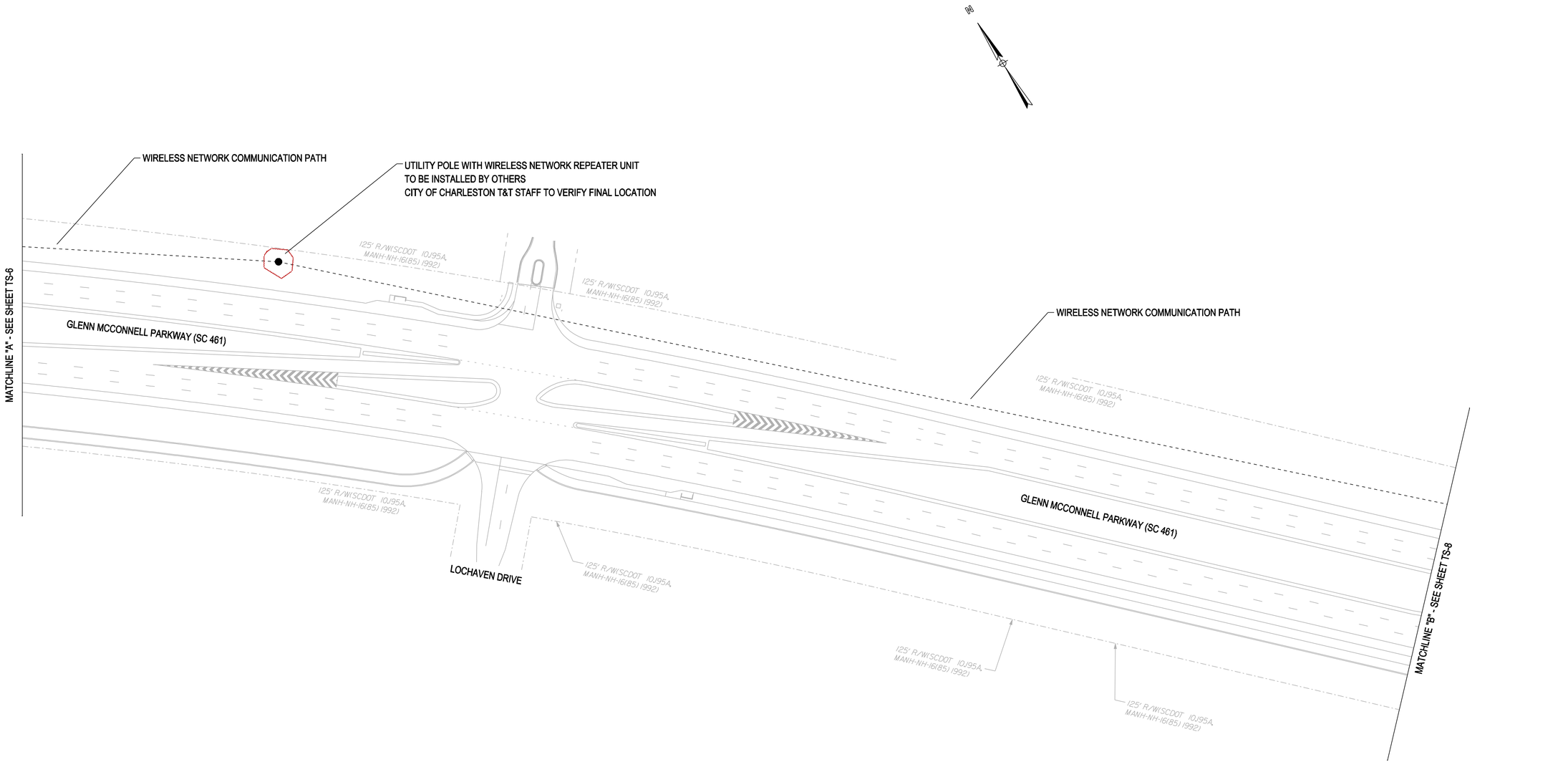
DESIGNED BY WMS DRAWN BY WMS CHECKED BY WMS

CHARLESTON COUNTY

WIRELESS COMMUNICATIONS PLAN
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 60' HOR. PLOT SIZE = 22" x 34"

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	TS-7	XXX



DKT. NO.	SHEET NO.

0 60 120 180 240

PRELIMINARY FOR REVIEW

PRELIMINARY FOR REVIEW NOT SHORT

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design
Short Engineering & Consulting, LLC
1612 Marion Street - Suite 326
Columbia, SC 29201
Phone : (803) 361-9000

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

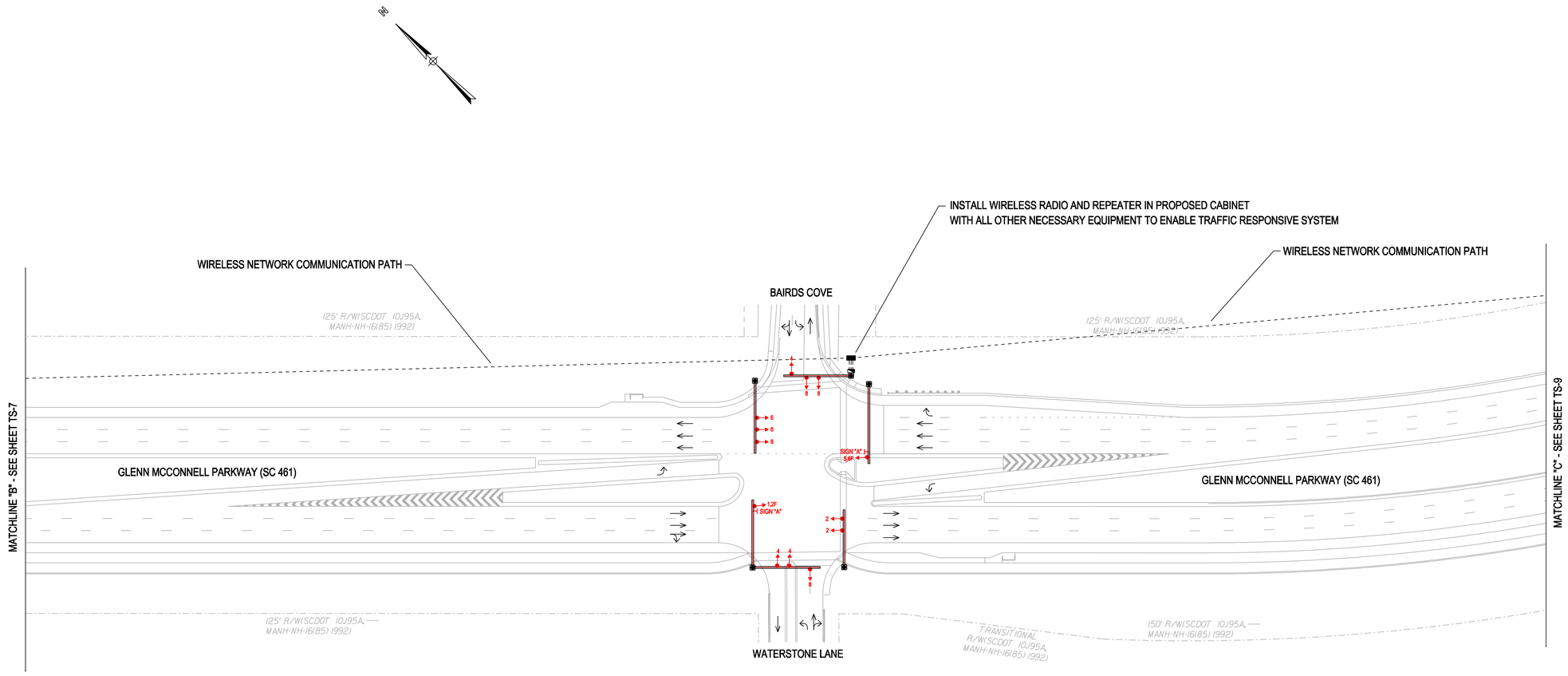
DESIGNED BY WMS DRAWN BY WMS CHECKED BY WMS

CHARLESTON COUNTY

WIRELESS COMMUNICATIONS PLAN
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 60' HOR. PLOT SIZE = 22" x 34"

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	TS-8	XXX



DKT. NO.	SHEET NO.

0 60 120 180 240

PRELIMINARY FOR REVIEW

PRELIMINARY FOR REVIEW

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design

Short Engineering & Consulting, LLC
1612 Marion Street - Suite 326
Columbia, SC 29201
Phone : (803) 361-9000

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

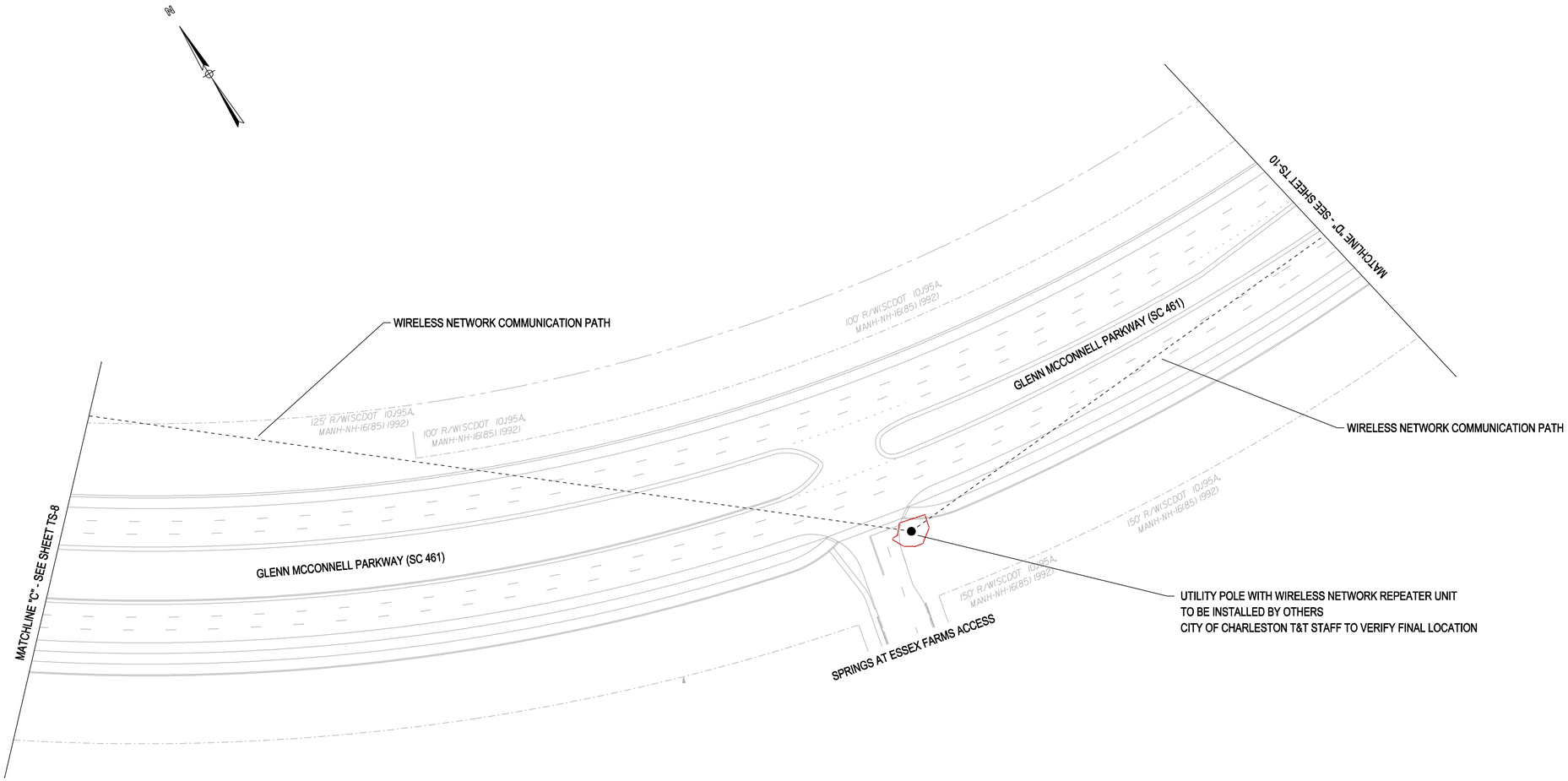
DESIGNED BY WMS DRAWN BY WMS CHECKED BY WMS

CHARLESTON COUNTY

WIRELESS COMMUNICATIONS PLAN
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 60' HOR. PLOT SIZE = 22" x 34"

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	TS-9	XXX



DKT. NO.	SHEET NO.

0 60 120 180 240

PRELIMINARY FOR REVIEW

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION

PRELIMINARY FOR REVIEW

SOUTH CAROLINA PROFESSIONAL ENGINEER SCOTT W. SHORT

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design

Short Engineering & Consulting, LLC
1612 Marion Street - Suite 326
Columbia, SC 29201
Phone : (803) 361-9000

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
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1			

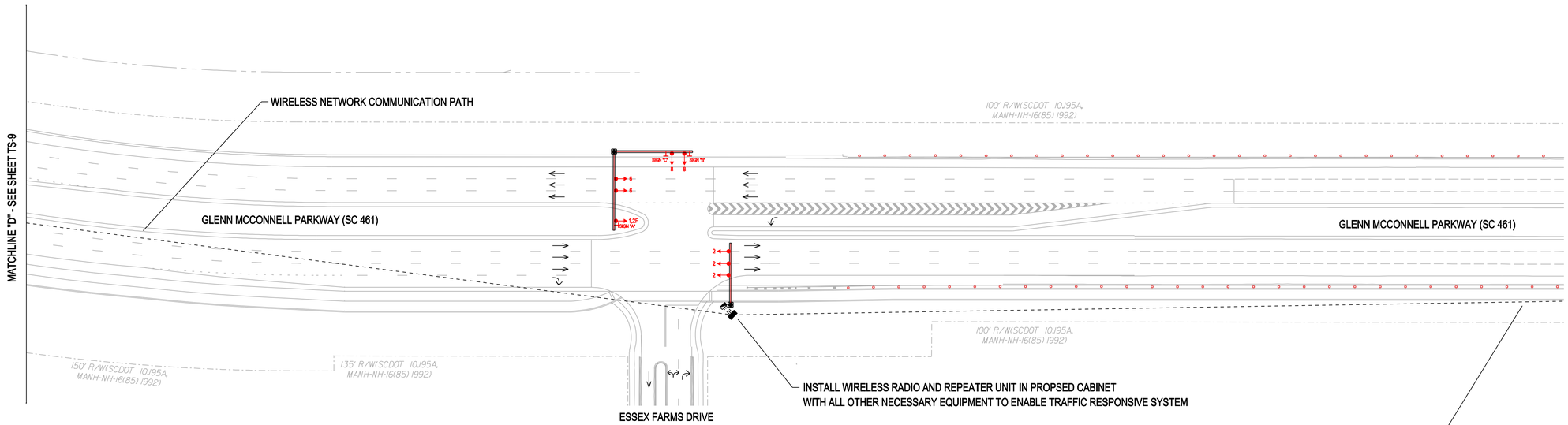
DESIGNED BY WMS DRAWN BY WMS CHECKED BY WMS

CHARLESTON COUNTY

WIRELESS COMMUNICATIONS PLAN
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 60' HOR. PLOT SIZE = 22" x 34"

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	TS-10	XXX



DKT. NO.	SHEET NO.

0 60 120 180 240

PRELIMINARY FOR REVIEW

PRELIMINARY FOR REVIEW

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design

Short Engineering & Consulting, LLC
1612 Marion Street - Suite 326
Columbia, SC 29201
Phone : (803) 361-9000

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY WMS DRAWN BY WMS CHECKED BY WMS

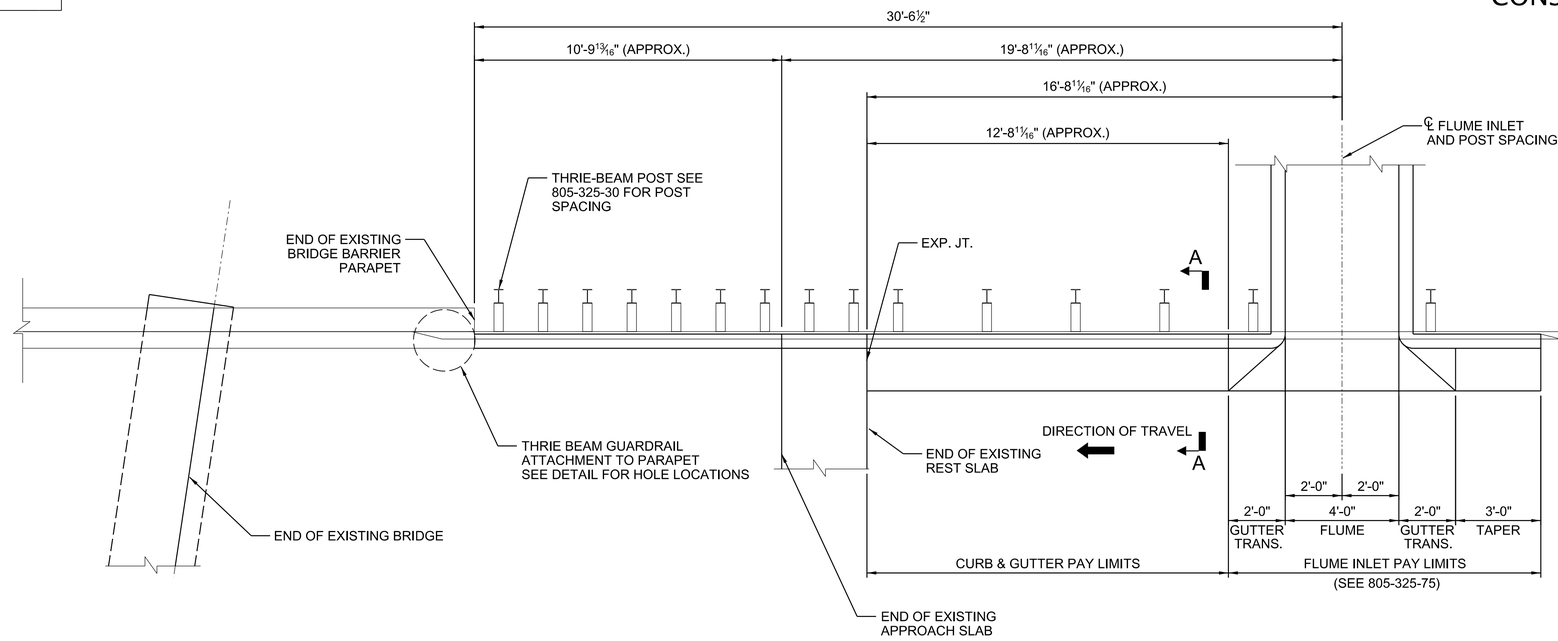
CHARLESTON COUNTY

WIRELESS COMMUNICATIONS PLAN
SC 461 (GLENN MCCONNELL PARKWAY)

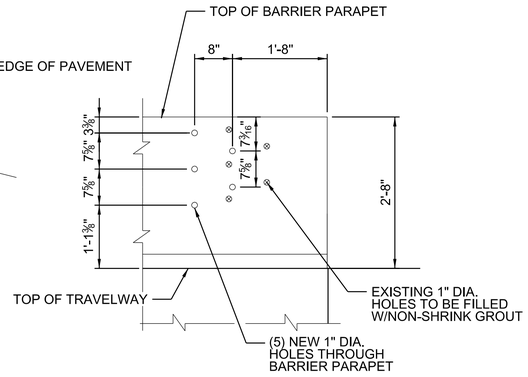
SCALE 1"= 60' HOR. PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

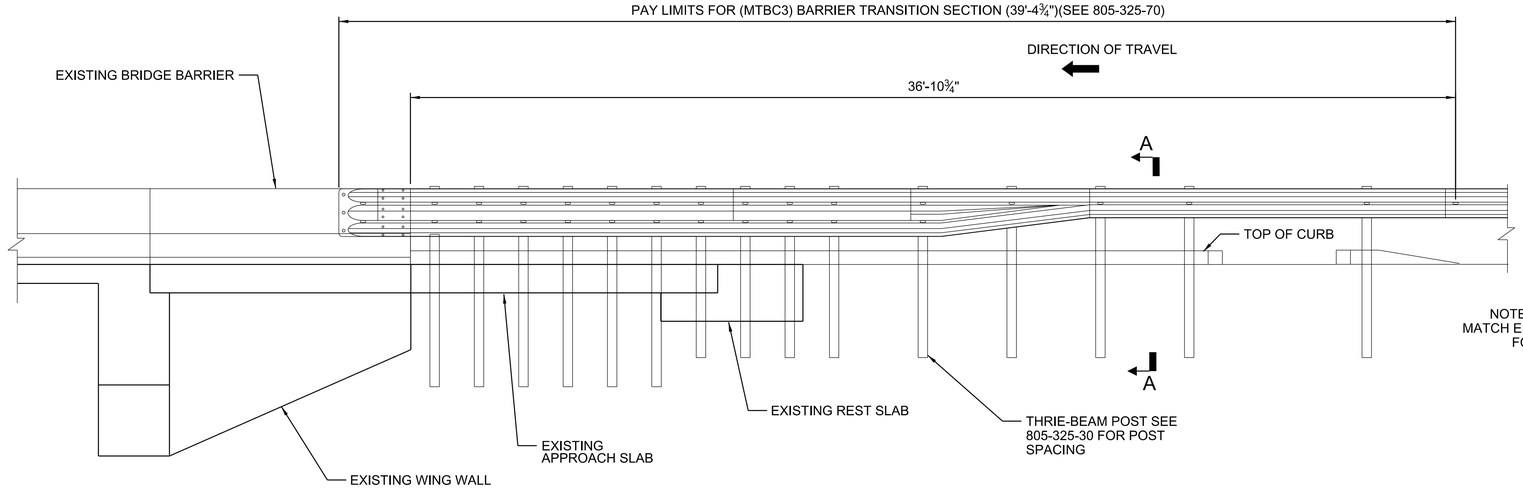
FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	PO37878	SC 461	S-1	



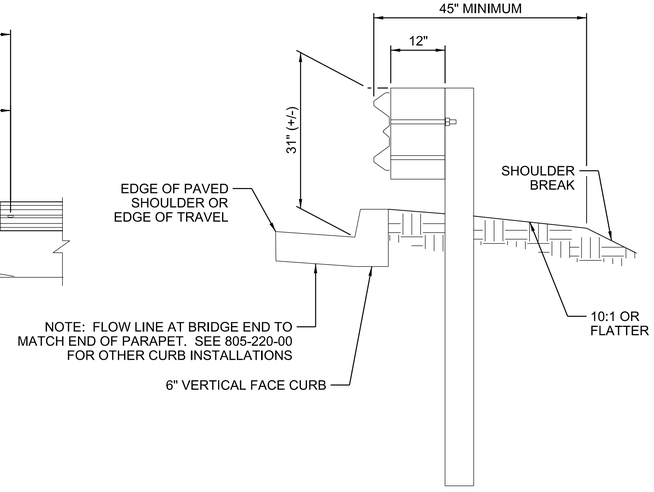
PLAN



THRIE BEAM GUARDRAIL ATTACHMENT DETAIL



ELEVATION



SECTION A-A

SCALE: 2:8 ":" / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\Jobs0dd\13635-00\Production\Transportation\SHEETS\13635-00 GMP Guardrail Attachment to Existing Parapet Details.dgn
4/7/2020

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
DAVIS & FLOYD, INC.
No. C00538

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY RGS DRAWN BY WCG CHECKED BY CLM

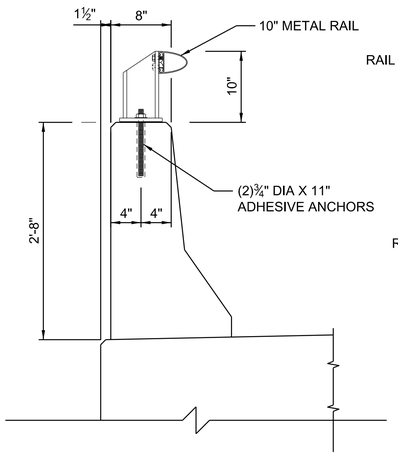
CHARLESTON COUNTY

GUARDRAIL ATTACHMENT TO EXISTING BRIDGE BARRIER PARAPET DETAILS

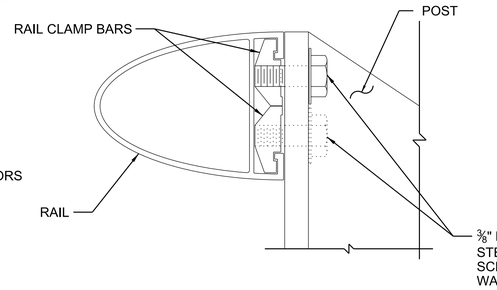
SCALE 3/8" = 1'-0" PLOT SIZE = 22" x 34"

CONSTRUCTION PLANS

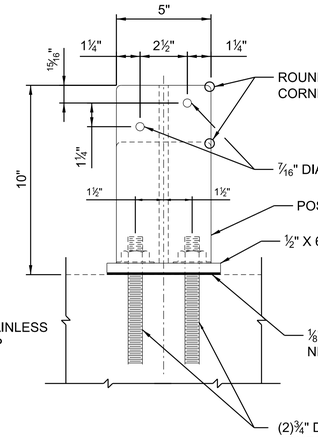
FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	S-2	



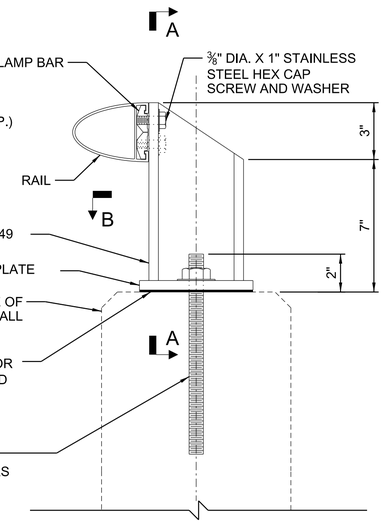
SECTION THRU EXISTING RAILING WALL AND METAL RAIL



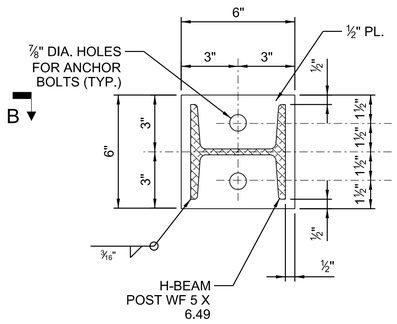
RAIL TO POST CONNECTION DETAIL



SECTION A-A



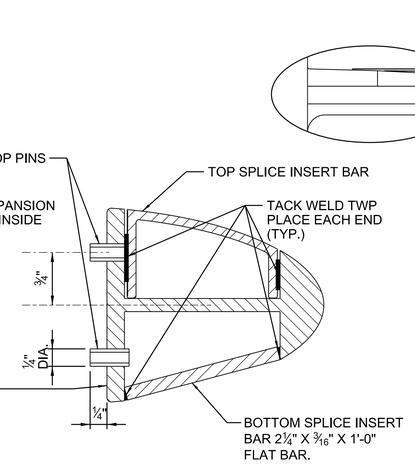
POST ELEVATION



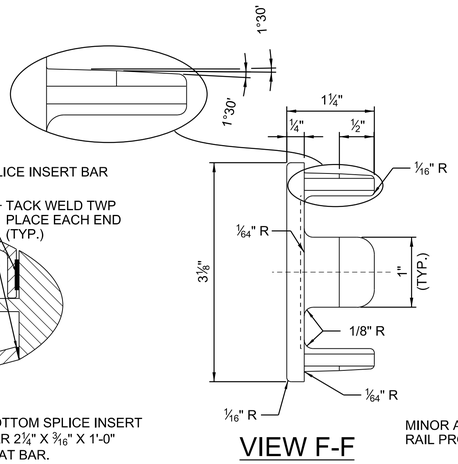
SECTION B-B

SECTION C-C
(TYPICAL SECTION THRU RAIL)

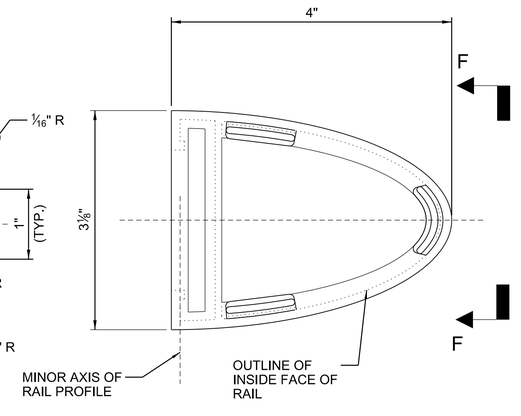
SECTION D-D
RAIL SPLICE EXPANSION BAR
RAIL NOT SHOWN FOR CLARITY



SECTION E-E



VIEW F-F



RAIL END CAP DETAIL

SCALE: 1:4 "/ in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\Jobs0dd\13635-00\Production\Transportation\SHEETS\13635-00 GMP Bullet Rail Attachment Sheet 1.dgn
4/7/2020

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

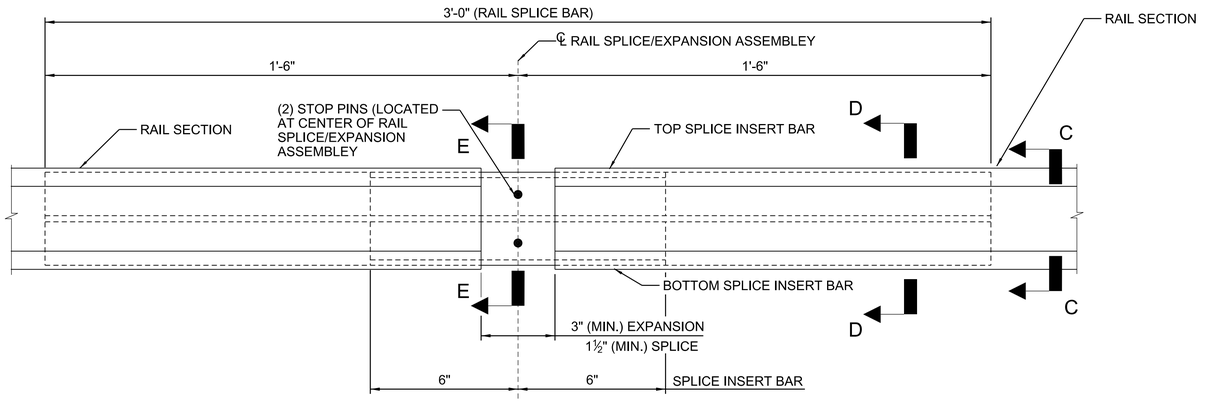
REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY RGS DRAWN BY WCG CHECKED BY CLM

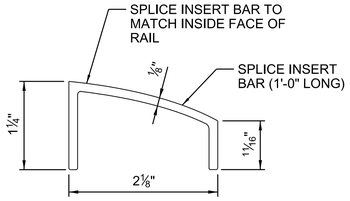
CHARLESTON COUNTY

BULLET RAIL DETAILS (SHEET 1 OF 3)

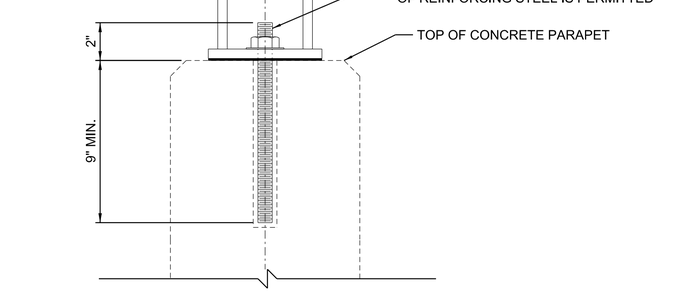
PLOT SIZE = 22" x 34"



RAIL SPLICE EXPANSION ASSEMBLY DETAIL



TOP SPLICE INSERT BAR DETAIL

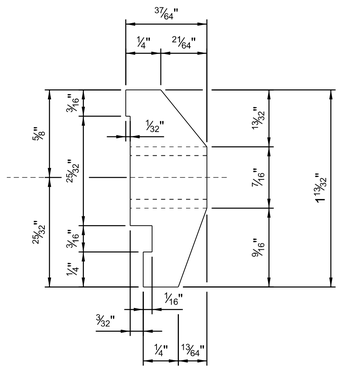


ADHESIVELY BONDED ANCHOR DETAIL

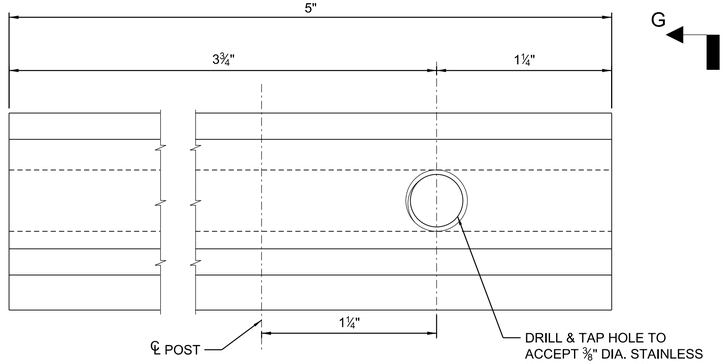
CLEAN CONTACT SURFACE OF OLD CONCRETE. ENSURE THAT THE SURFACE IS FREE OF LAITANCE AND ROUGHEN THE SURFACE TO AN AMPLITUDE OF ¼".

PROVIDE AND INSTALL ANCHORAGES IN ACCORDANCE WITH THE REQUIREMENTS OF THE SUPPLEMENTAL SPECIFICATION FOR ADHESIVELY BONDED ANCHORS AND DOWELS. USE AN ADHESIVE BONDING SYSTEM THAT HAS A MINIMUM BOND STRENGTH OF 1.5 KSI. FIELD TEST THE ANCHORAGES, USING A TEST LOAD OF 2.0 KIPS PER ANCHOR, IN ACCORDANCE WITH THE REQUIREMENTS OF THE SUPPLEMENTAL SPECIFICATION.

INCLUDE ALL COSTS OF ADHESIVELY BONDED DOWELS IN THE CONTRACT UNIT PRICE BID FOR METAL BICYCLE RAILING.



VIEW G-G



RAIL CLAMP BAR DETAIL

SCALE: 1:4 ":" / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\13635-00 GMP Bullet Rail Attachment Sheet 2.dgn
4/7/2020

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION — DAVIS & FLOYD, INC. No. C00538

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

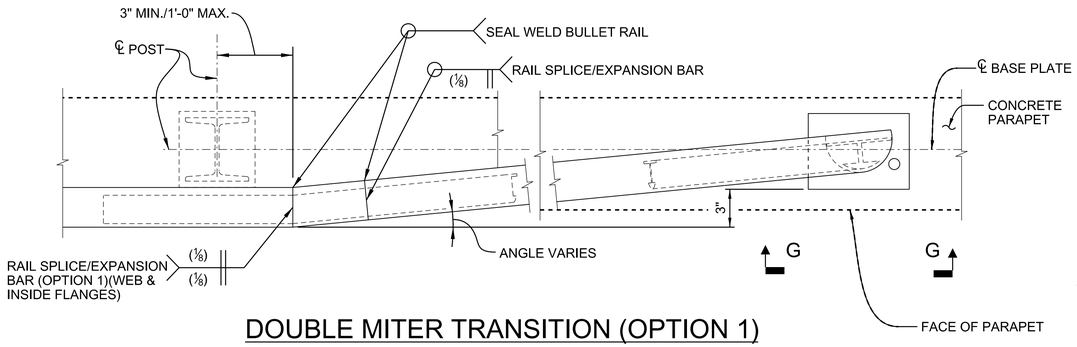
REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY RGS DRAWN BY WCG CHECKED BY CLM

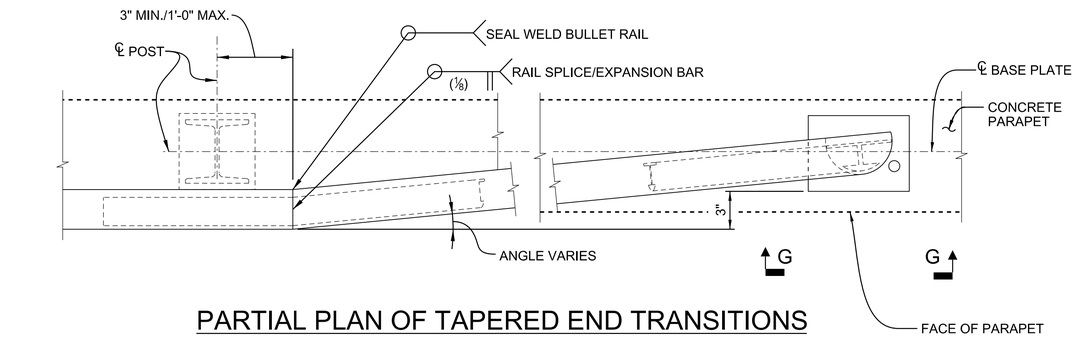
CHARLESTON COUNTY

BULLET RAIL DETAILS (SHEET 2 OF 3)

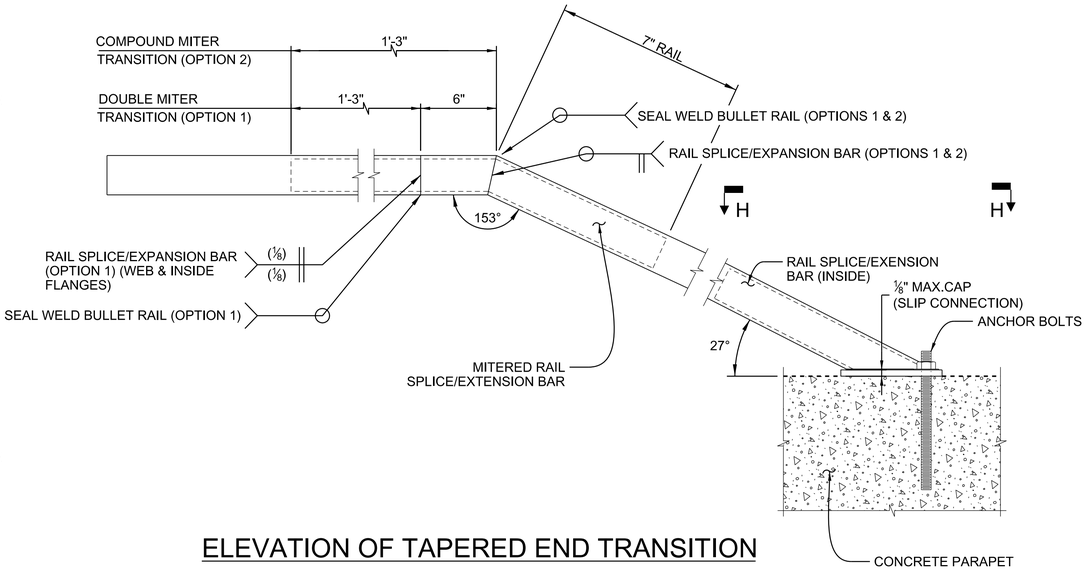
PLOT SIZE = 22" x 34"



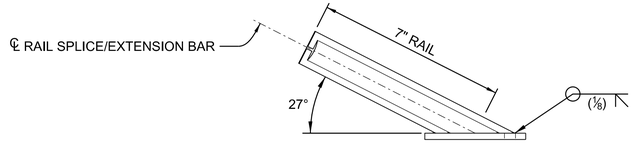
DOUBLE MITER TRANSITION (OPTION 1)



PARTIAL PLAN OF TAPERED END TRANSITIONS

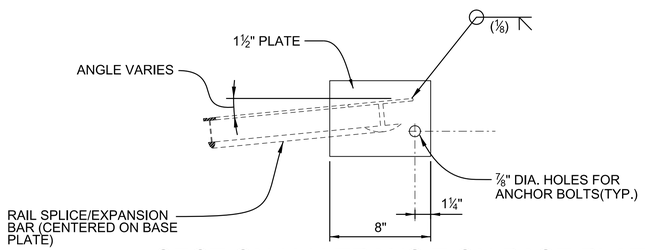


ELEVATION OF TAPERED END TRANSITION



SECTION G-G TRANSITION BASE

(BULLET RAIL NOT SHOWN FOR CLARITY)



SECTION H-H TRANSITION BASE PLATE

(BULLET RAIL NOT SHOWN FOR CLARITY)

1. SHOP DRAWINGS: SUBMIT SHOP DRAWINGS PRIOR TO FABRICATION.
   A. INCLUDE POST AND RAIL SPLICE/EXPANSION ASSEMBLY LOCATION FOR CURVED ALIGNMENTS WITH RADII < 40 FEET AND FOR ALL END TERMINATIONS.

3. MATERIALS:
   A. SUPPLY ALUMINUM MATERIALS IN ACCORDANCE WITH SECTION 205 OF THE STANDARD SPECIFICATION AND THE FOLLOWING:
      WROUGHT ALUMINUM POST: ASTM B221, ALLOY 6061-T6 OR 6351-T5
      RAIL END CAP: ASTM B26 SAND CAST ALUMINUM ALLOY 356.0-F
      PLATE AND BARS: ASTM B209 ALLOY 6061-T6
      RAILS: ASTM B221 ALLOY 6061-T6 OR 6351-T5.
      STOP PINS: PRESS-FIT ALUMINUM OR STAINLESS STEEL PINS OR TUBES
   B. STAINLESS STEEL FASTENERS: ASTM F-593, ALLOY GROUP 2 (316).
   C. NEOPRENE PADS: DUROMETER HARDNESS 60 OR 70
   D. ANCHOR BOLTS: ASTM F1554, GR. 36 ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATION.

4. LAYOUT:
   A. POSTS SHALL BE UNIFORMLY SPACED WITH REASONABLE CONSISTENCY. POST SPACING SHALL BE 6'-8" MAX.
   B. TAPERED END TRANSITIONS ARE REQUIRED AT THE TERMINUS OF THE APPROACH ENDS OF BULLET RAILING MOUNTED ON A TRAFFIC RAILING.
   C. ADJUST POST SPACING'S TO AVOID PARAPET OBSTACLES BY 9 INCHES MINIMUM.
   D. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF 3 POSTS, EXCEPT THAT LENGTHS LESS THAN 12 FEET NEED ONLY BE CONTINUOUS OVER 2 POSTS.
   E. SPACE SPLICES AT 40 FEET MAXIMUM.
   F. PROVIDE RAIL EXPANSION ASSEMBLIES IN PANELS BETWEEN POSTS ON EITHER SIDE OF A BRIDGE EXPANSION JOINT AND AT BEGINNING AND END OF APPROACH SLABS.

5. INSTALLATION:
   A. SET RAILS NEAR EXPANSION JOINTS TO ALLOW FOR EXPECTED MOVEMENT.
   B. SET RAIL POSTS NORMAL TO PROFILE LONGITUDINALLY AND VERTICAL TRANSVERSLEY.
   C. AFTER NUTES HAVE BEEN TIGHTENED, THE BOLT THREADS SHALL BE DEFORMED TO PREVENT REMOVAL OF NUTS. TACK WELDING OF NUT TO ANCHOR BOLTS IS PERMITTED. COAT DEFORMED OR TACK WELDED THREADS WITH A GALVANIZING COMPOUND IN ACCORDANCE WITH SECTION 705.2.3.3 OF THE STANDARD SPECIFICATION.
   D. REMOVE ANY BURRS OR SHARP EDGES ON RAIL AND POSTS TO PREVENT INJURY.

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
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DESIGNED BY RGS DRAWN BY WCG CHECKED BY CLM

CHARLESTON COUNTY

BULLET RAIL DETAILS (SHEET 3 OF 3)

PLOT SIZE = 22" x 34"

SCALE: 1:4 "= / in.
PEN TABLE: 13635-00 GMP Plan-PDF.tbl
PLOT DRIVER: PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\13635-00 GMP Bullet Rail Attachment Sheet 3.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X1	

13.69 13.88 8.0% 14.36 14.50 3.70% 3.70% 14.95 3.70% 15.84 3.70% 16.21 3.7% 16.43 15.68

303+50.00

13.52 8.0% 14.00 14.15 3.70% 3.70% 14.59 3.70% 15.48 3.70% 15.85 3.7% 16.07 15.37

303+00.00

FOR SUP XS FROM
STA. 302+50.00 TO STA. 310+50.00
SEE SUP XS SHEETS
STA. 200+00.00 TO STA. 210+00.00

13.12 8.0% 13.60 13.75 3.70% 3.70% 14.20 3.70% 15.08 3.70% 15.45 3.7% 15.68 15.12

BEGIN CONSTRUCTION
GMP EB
STA. 302+23.94

TIE TO EXIST. CROSS SLOPE

302+50.00

CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 302+50.00

TO

STA. 303+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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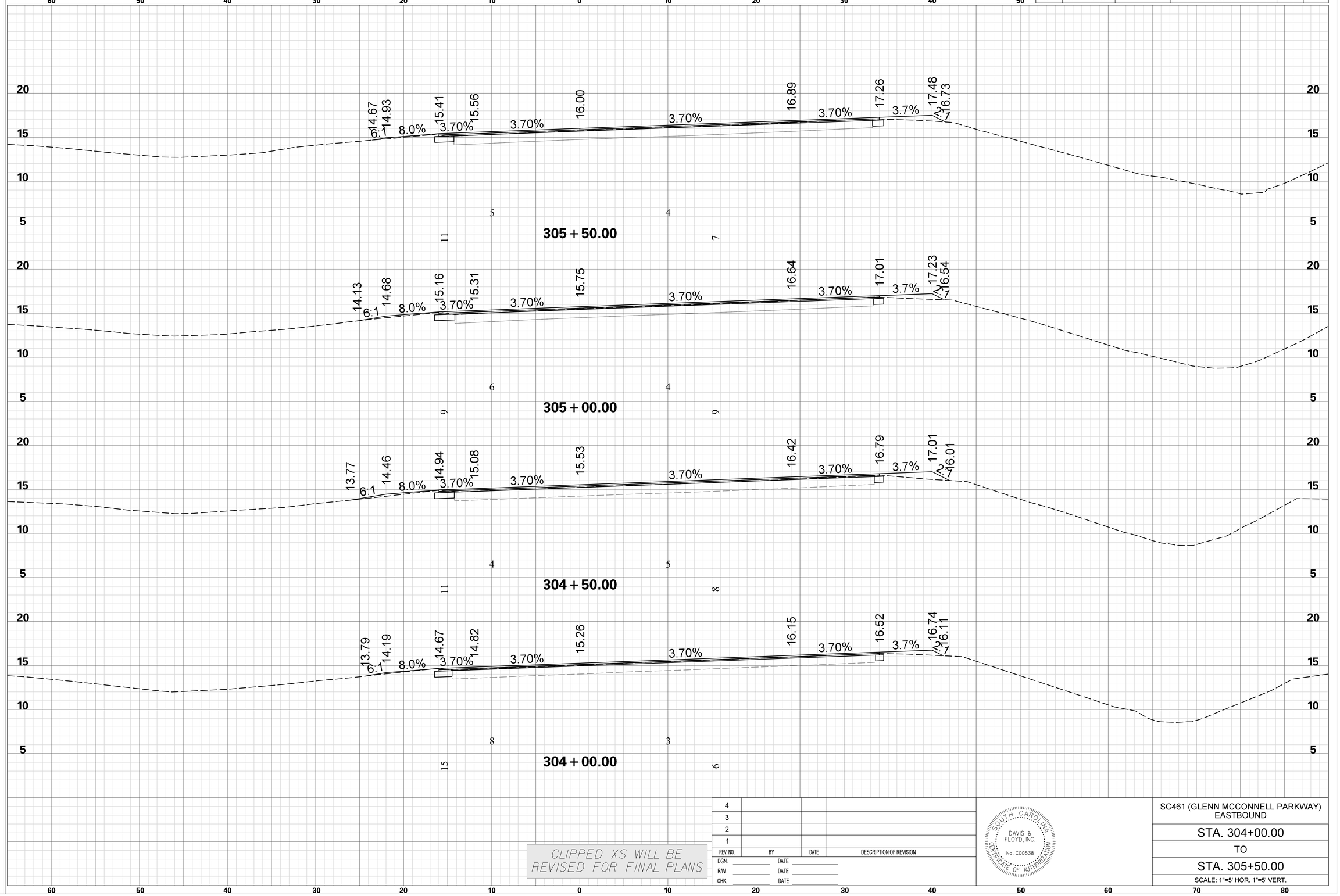
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X2	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 304+00.00

TO

STA. 305+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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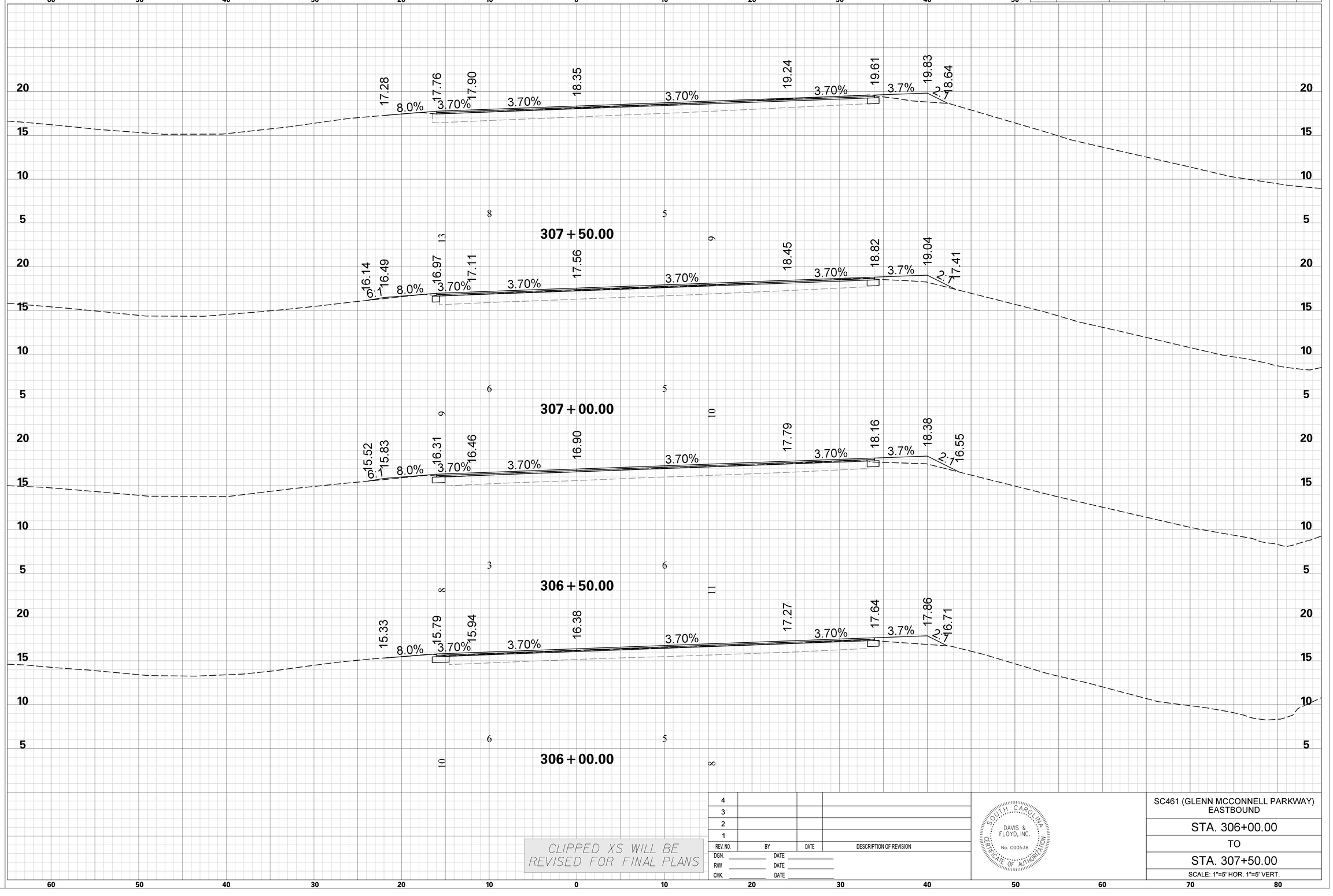
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X3	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 306+00.00

TO

STA. 307+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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4/7/2020

SCALE: 5.000 ft. / in.
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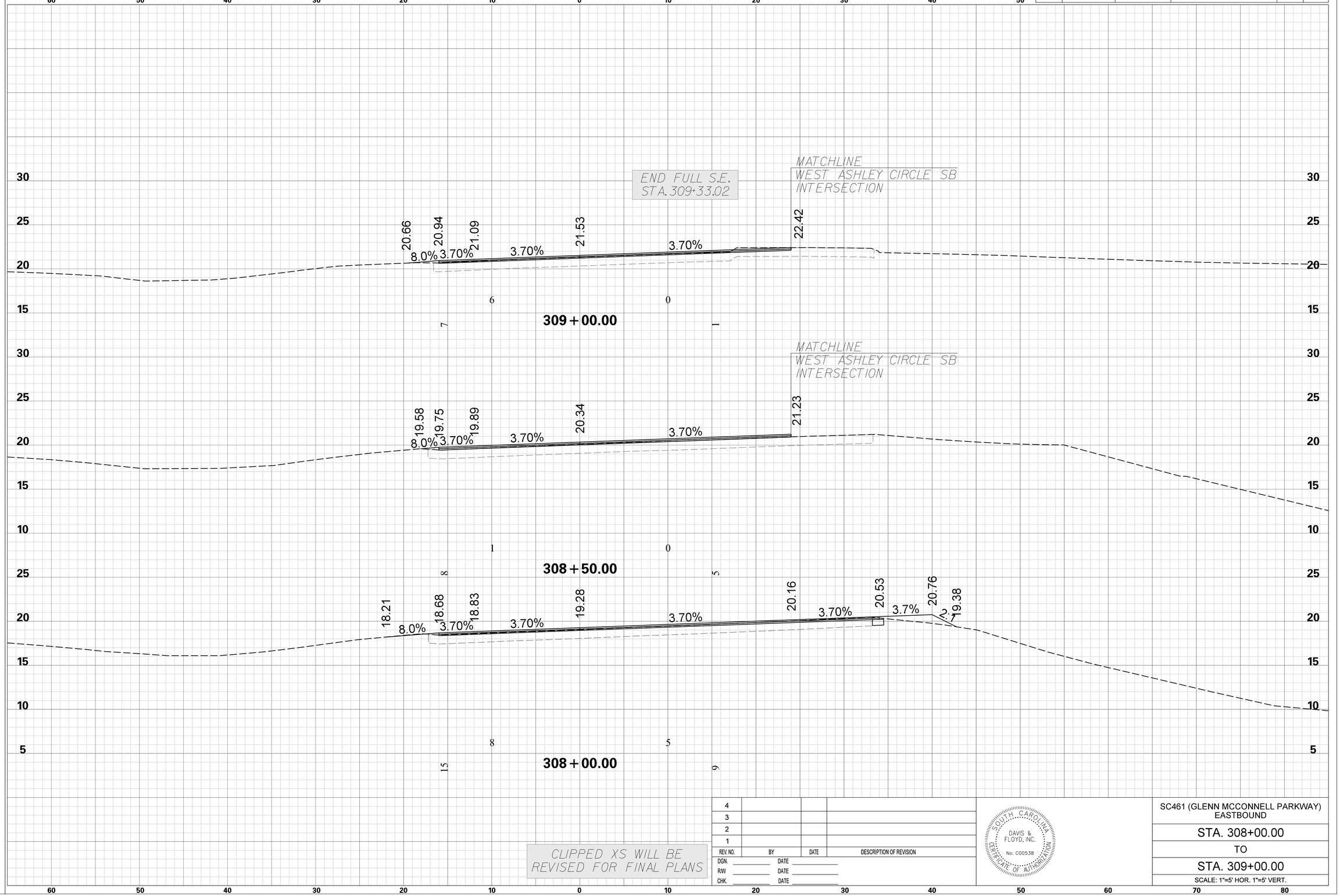
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X4	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 308+00.00

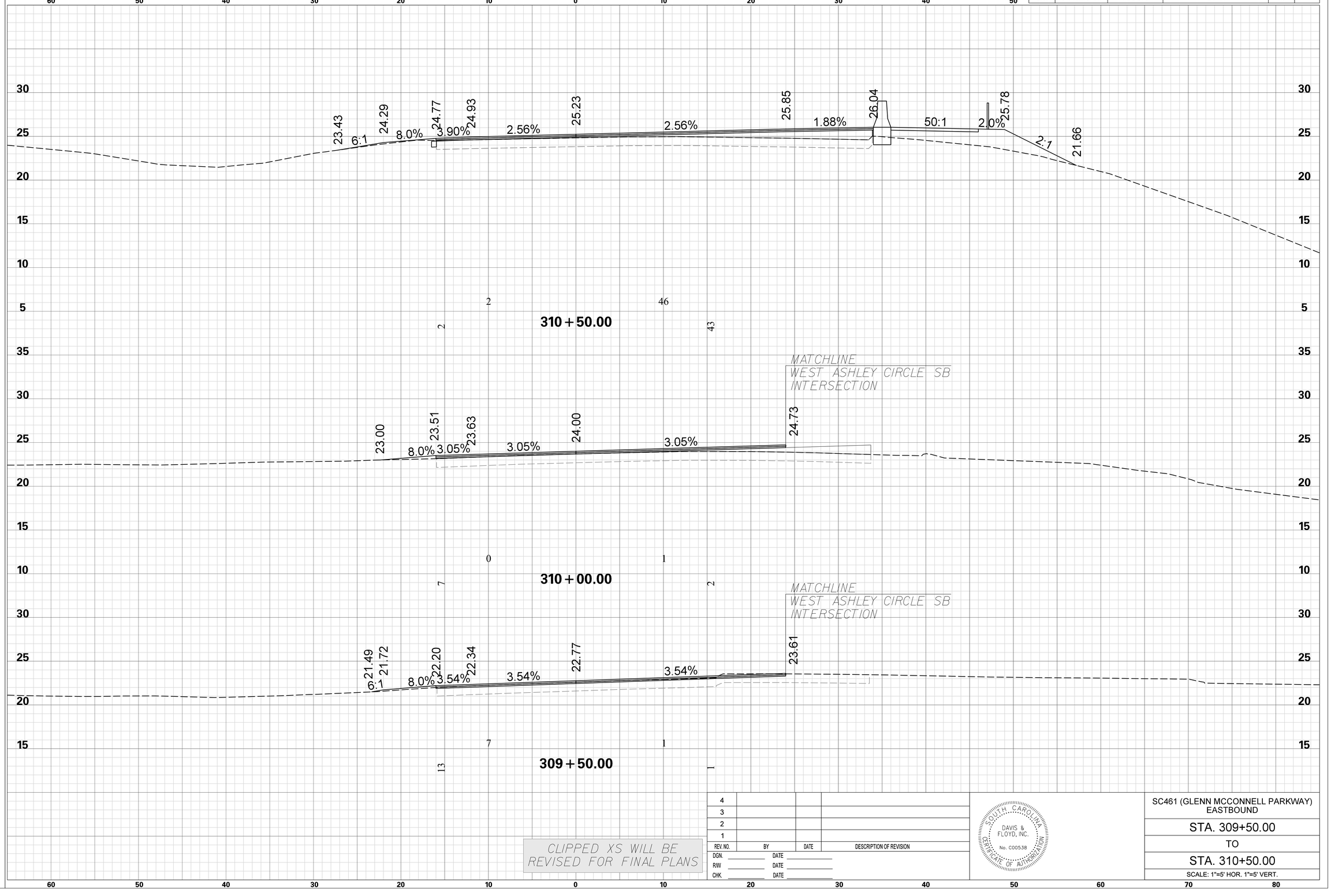
TO

STA. 309+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X5	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 309+50.00

TO

STA. 310+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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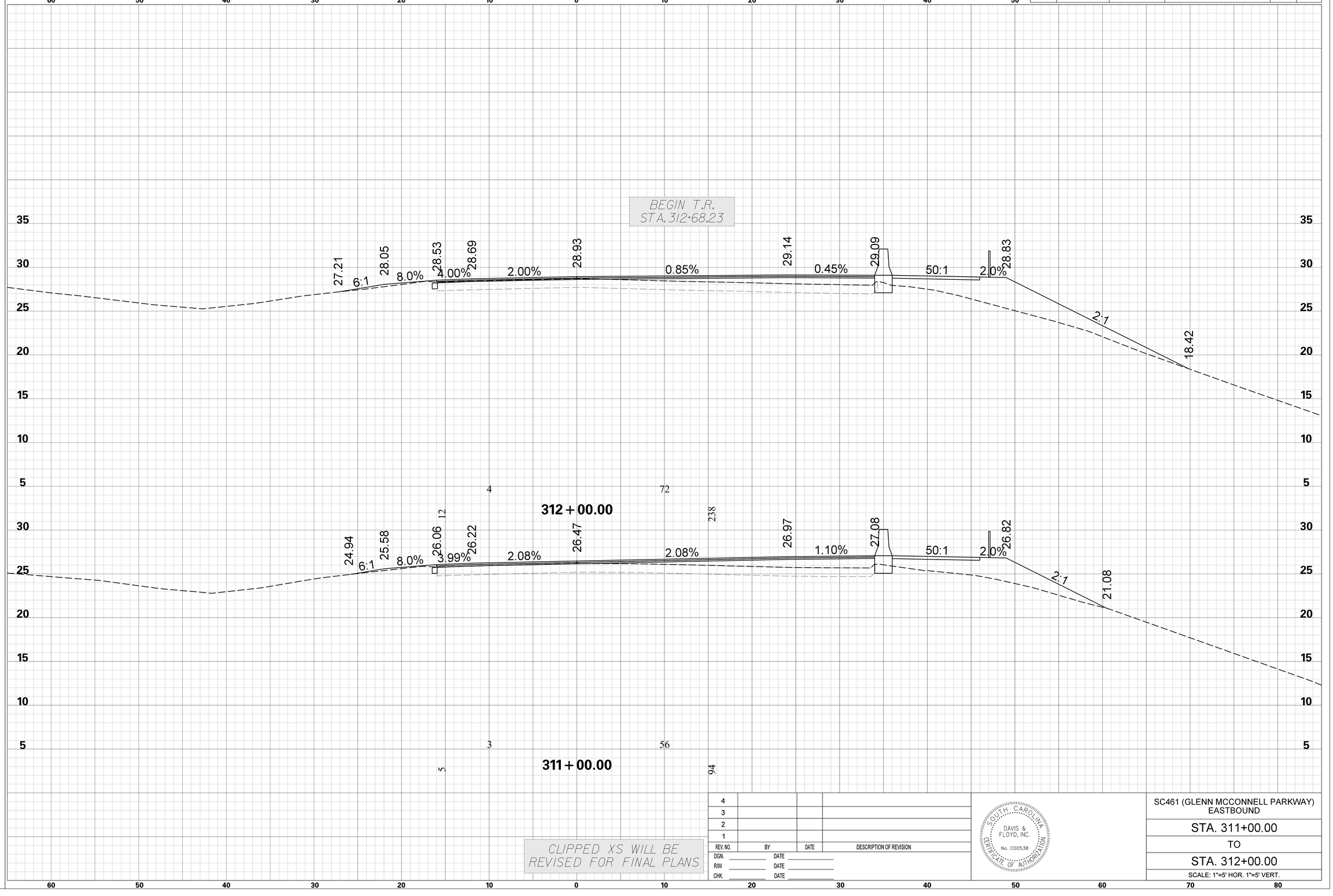
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X6	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

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R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 311+00.00

TO

STA. 312+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X7	

END T.R.
STA. 314+28.23

31.30 | 6:1 | 32.81 | 8.0% | 33.29 | 4.00% | 33.45 | 2.00% | 33.69 | 1.65% | 33.29 | 3.56% | 32.94 | 50:1 | 2.0% | 32.68 | 2:1

WETLAND

19 430

314 + 00.00

1175

29.30 | 6:1 | 30.52 | 8.0% | 31.00 | 41 | 4.00% | 31.16 | 2.00% | 31.40 | 0.40% | 31.30 | 2.01% | 31.10 | 50:1 | 2.0% | 30.84 | 2:1

3 205

313 + 00.00

13 513

CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 313+00.00

TO

STA. 314+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
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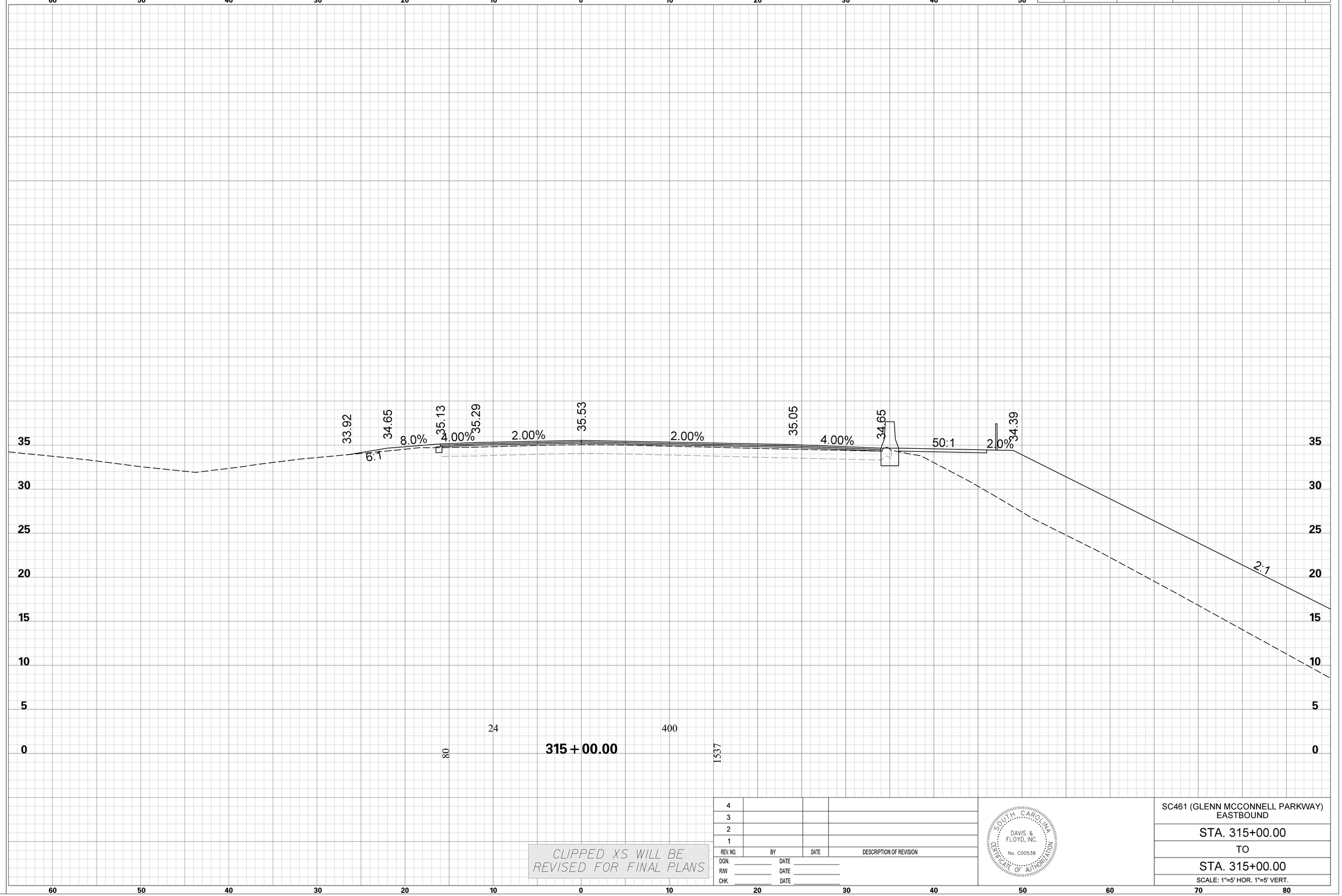
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X8	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 315+00.00

TO

STA. 315+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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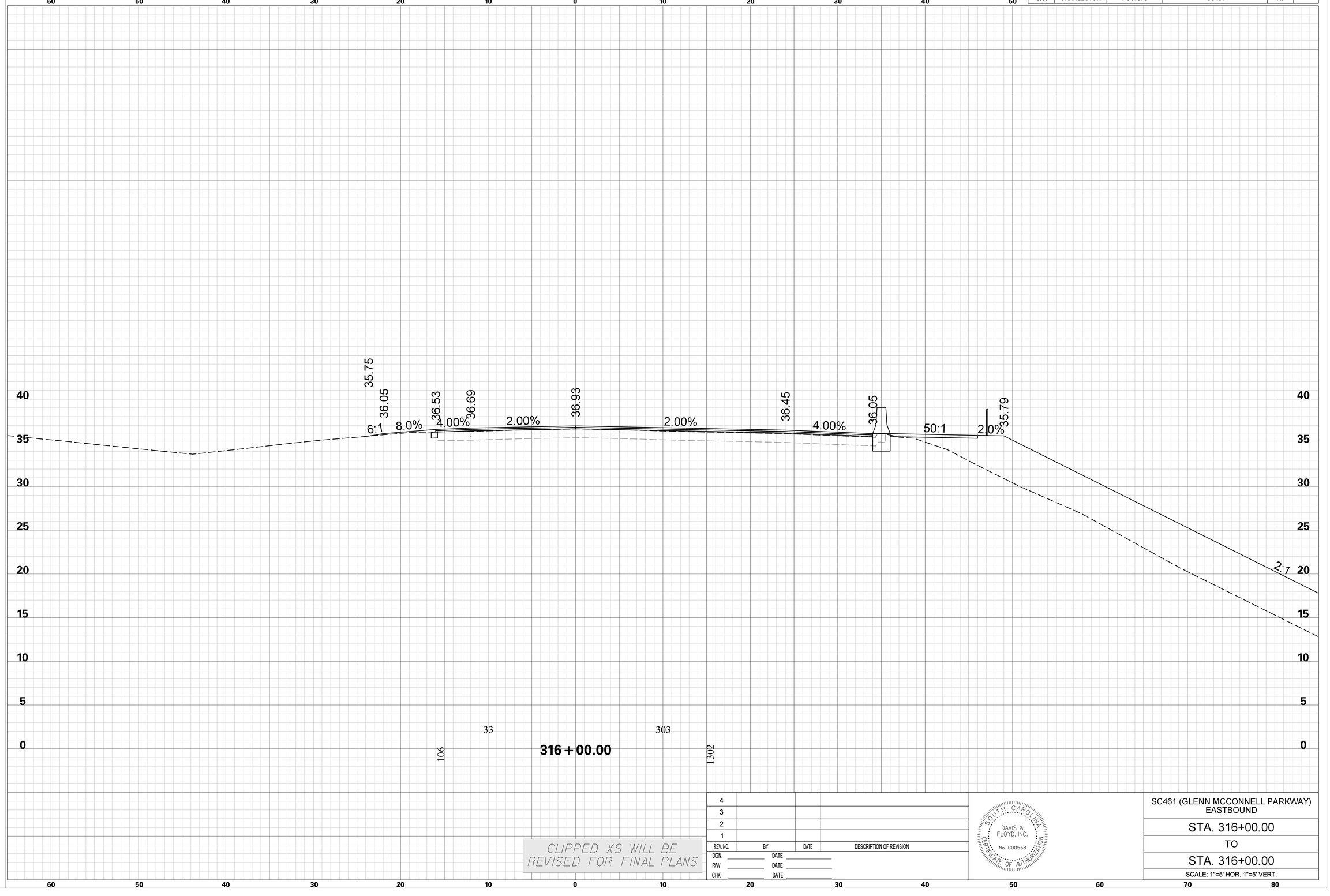
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X9	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 316+00.00

TO

STA. 316+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft. / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
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4/7/2020

SCALE: 5.000 ft / in.
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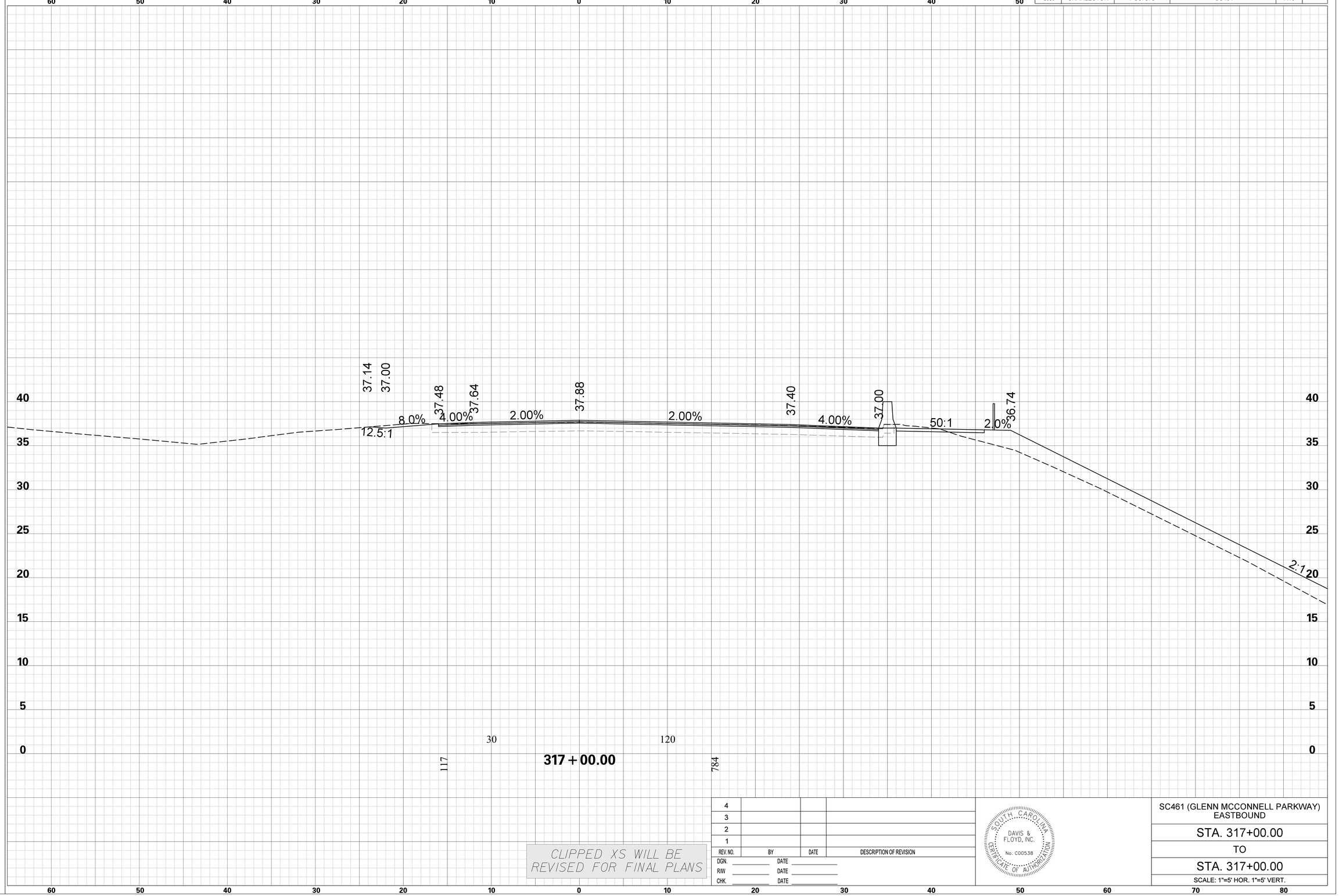
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X10	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C005338
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 317+00.00

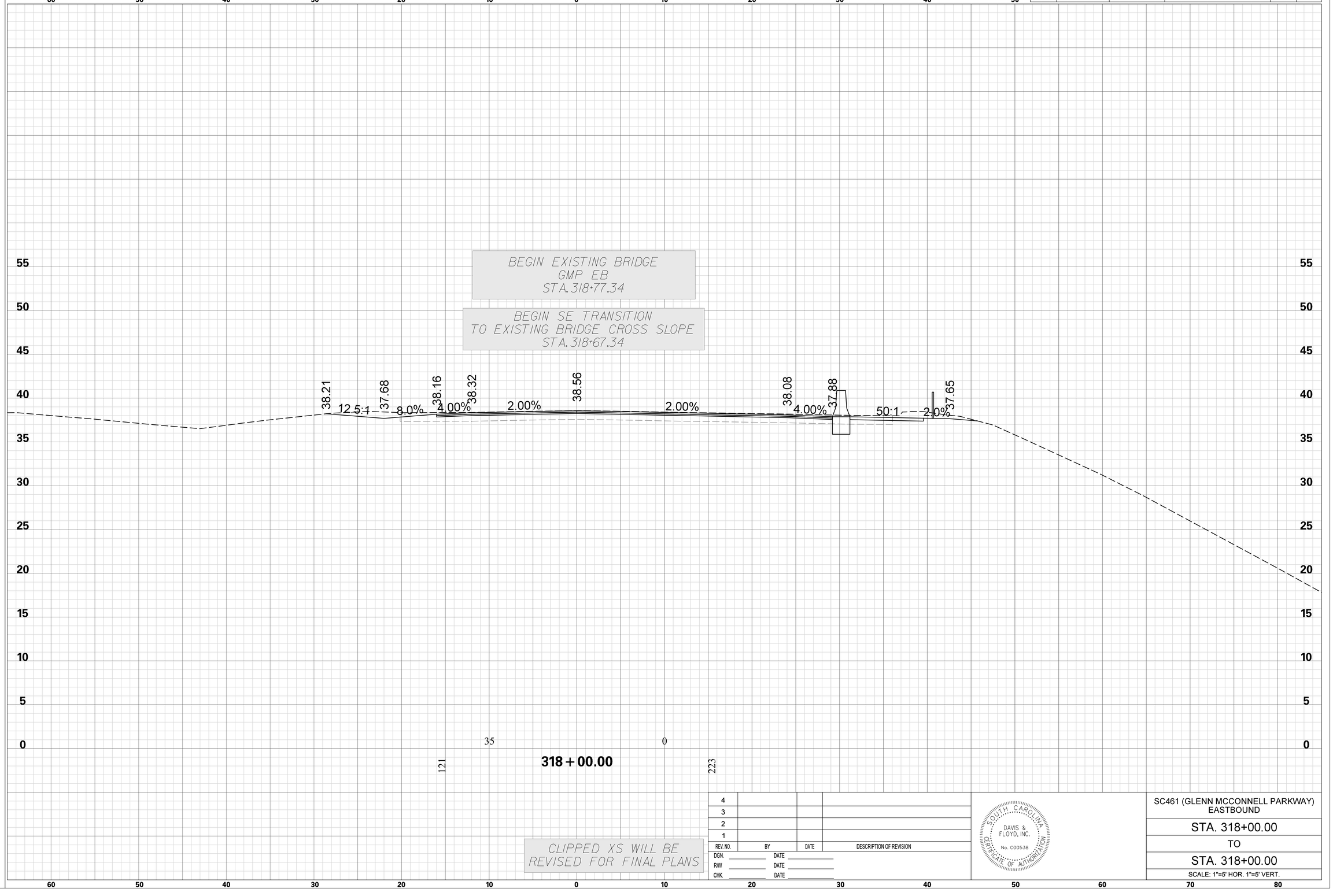
TO

STA. 317+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X11	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 318+00.00

TO

STA. 318+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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4/7/2020

SCALE: 5.000 ft / in.
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FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X12	

EXISTING BRIDGE
GMP EB

38.62

50:1

78 7 0

0

319+00.00

CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 319+00.00

TO

STA. 319+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X13	

EXISTING BRIDGE
GMP EB

38.81

50:1

26

7

0

320+00.00

0

CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 320+00.00

TO

STA. 320+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X14	

END SE TRANSITION
TO PROPOSED CROSS SLOPE
STA. 321+63.24

END EXISTING BRIDGE GMP EB STA. 321+53.24
BEGIN SE TRANSITION FROM
EXISTING BRIDGE CROSS SLOPE

38.72

50:1

26 7 0 0

321+00.00

CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 321+00.00

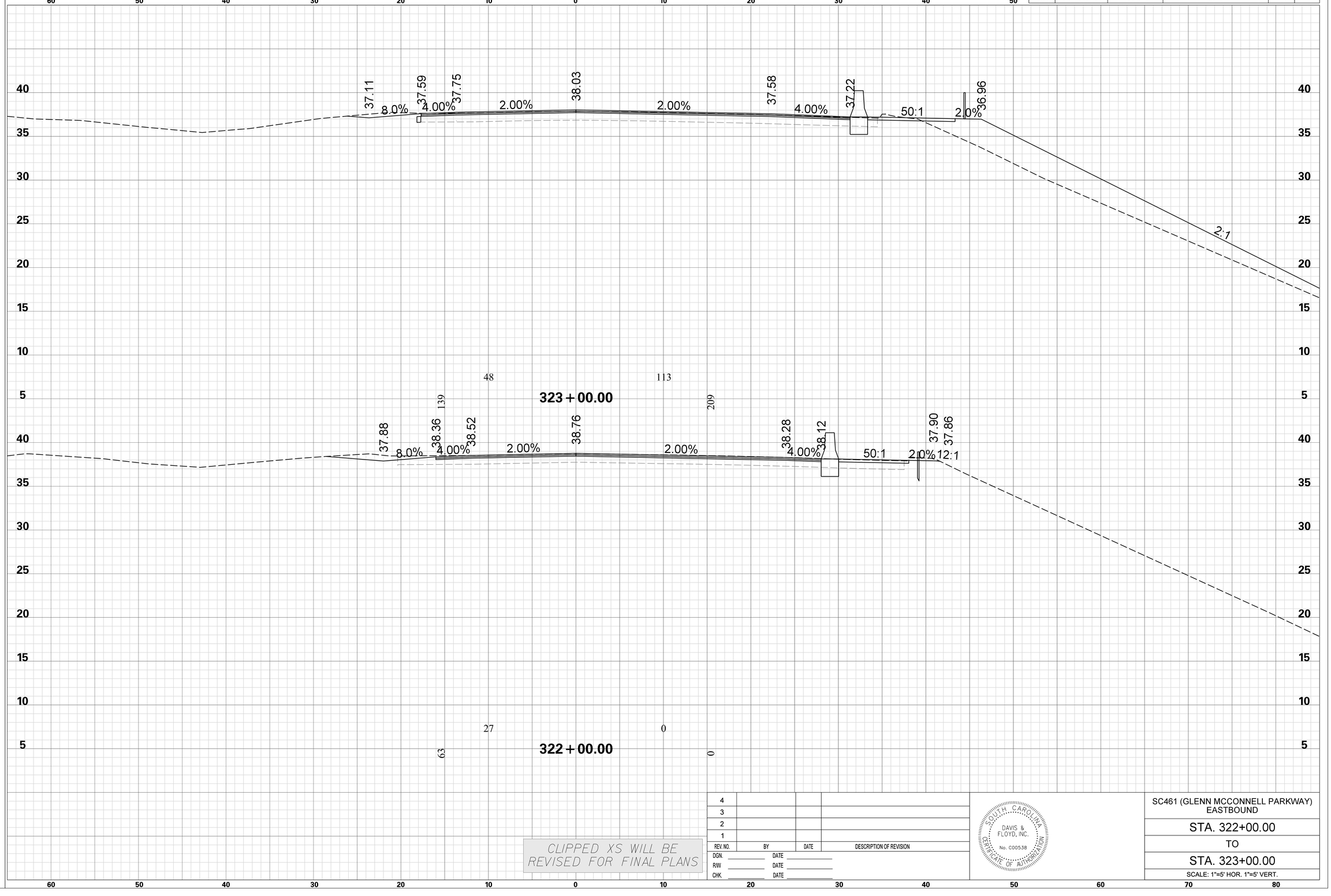
TO

STA. 321+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X15	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 322+00.00

TO

STA. 323+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
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4/7/2020

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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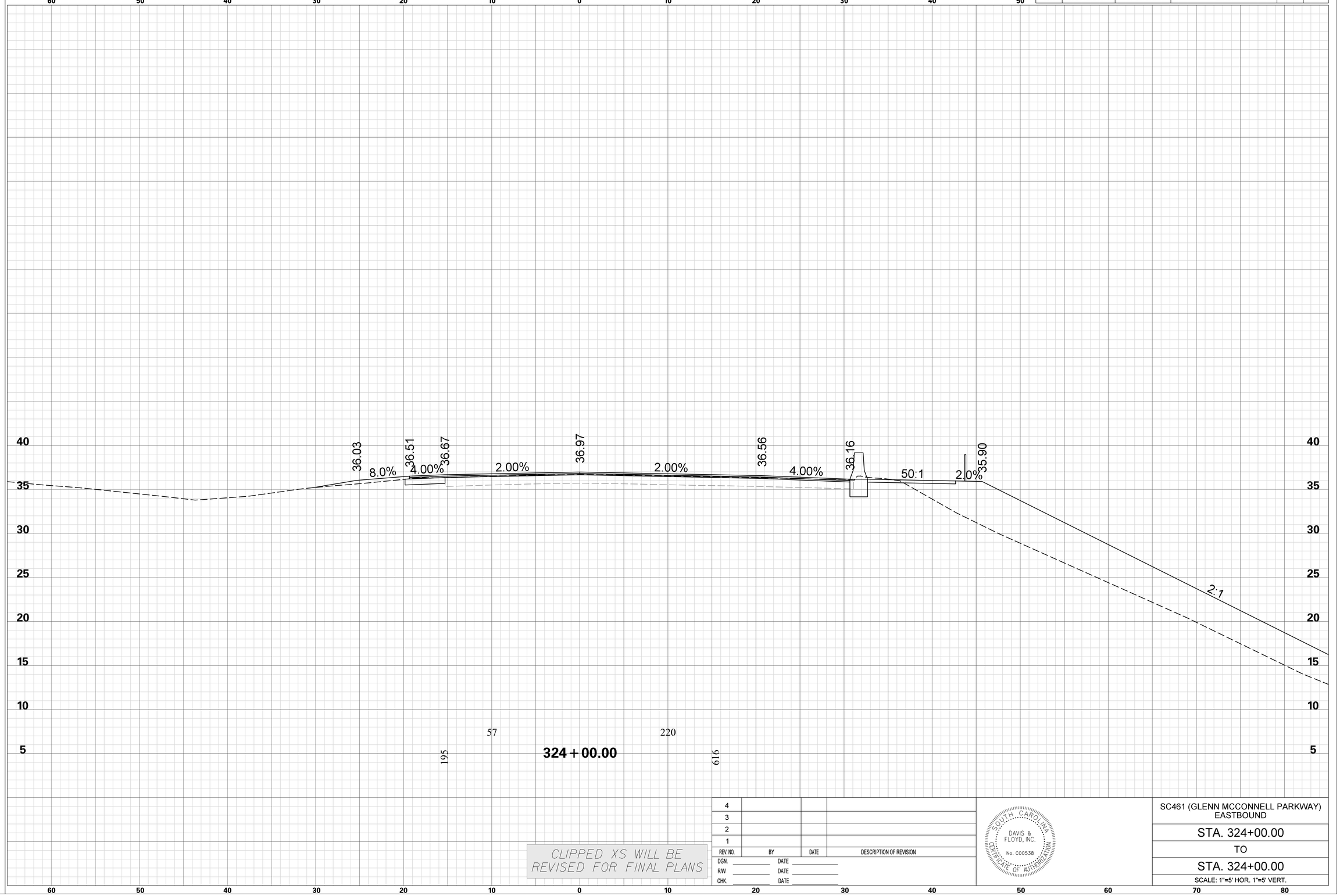
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X16	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 324+00.00

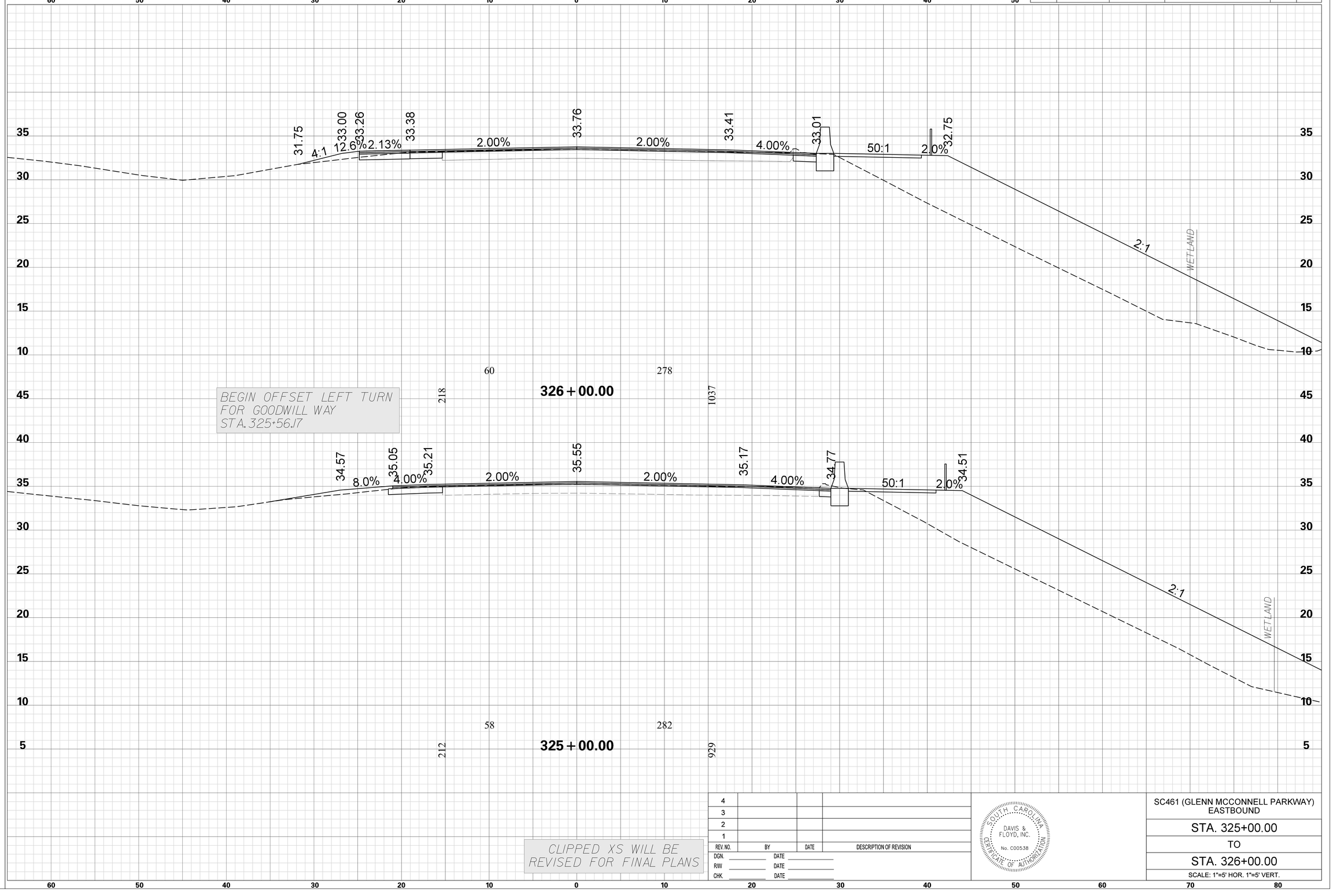
TO

STA. 324+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X17	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 325+00.00

TO

STA. 326+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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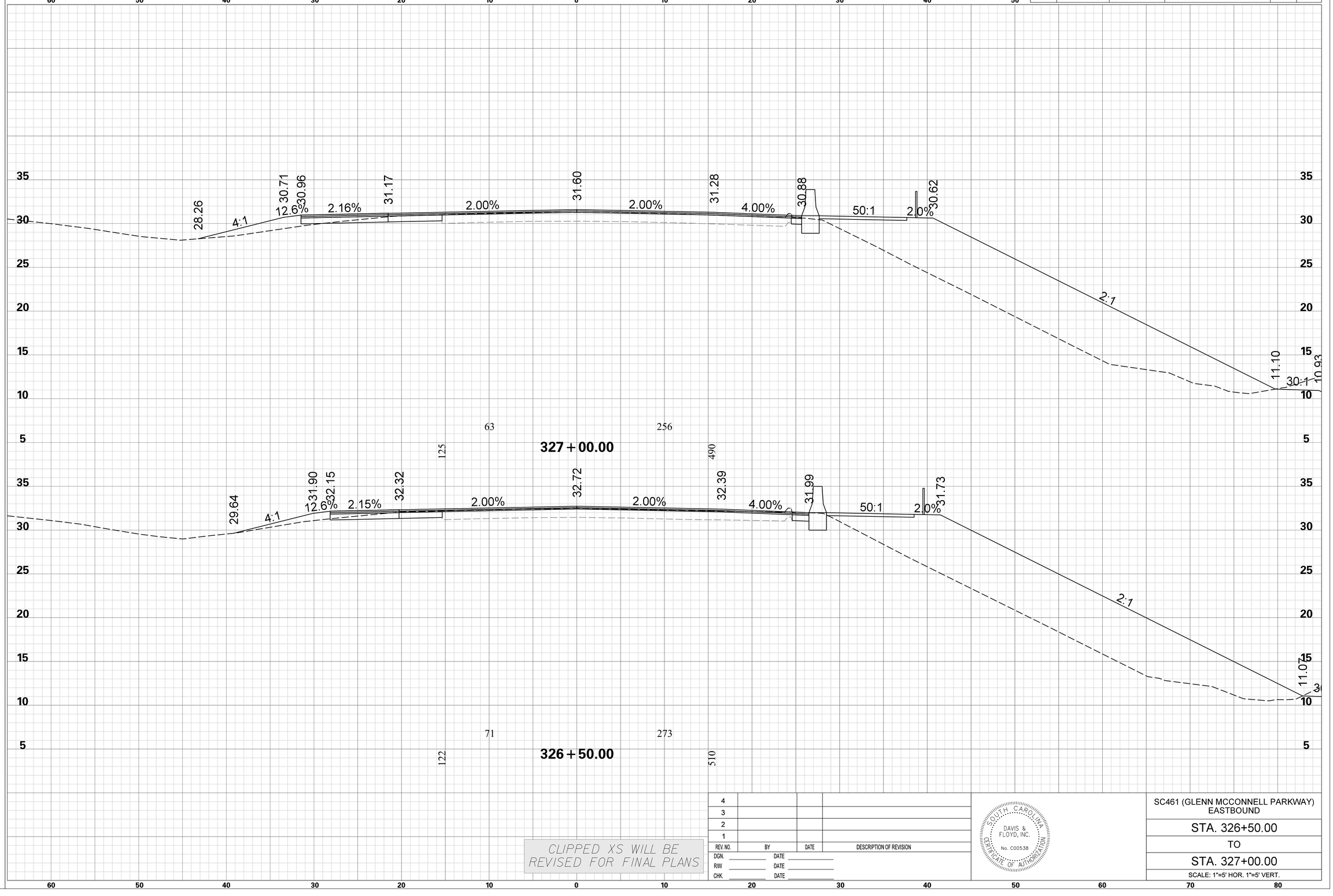
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X18	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 326+50.00

TO

STA. 327+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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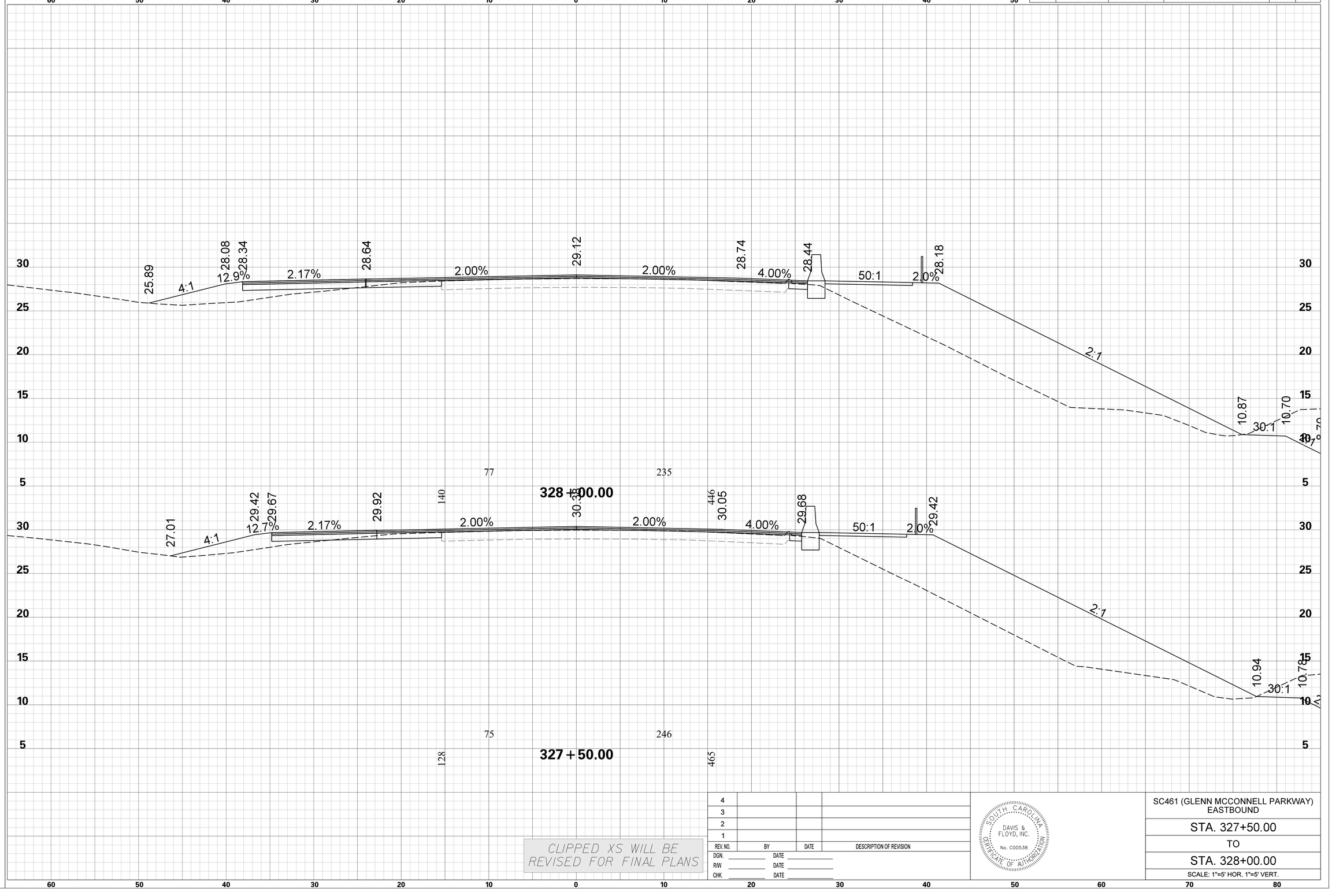
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X19	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 327+50.00

TO

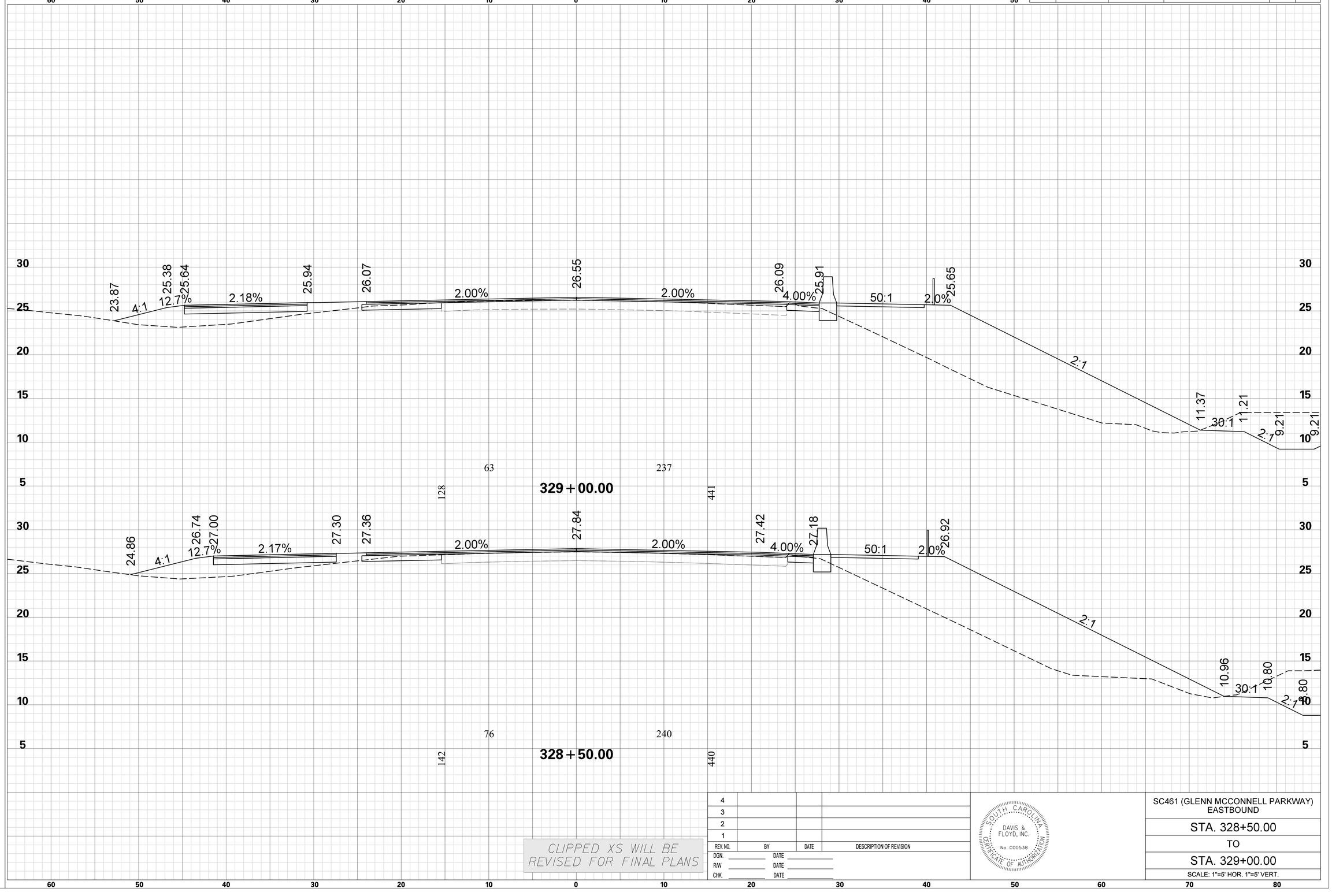
STA. 328+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X20	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 328+50.00

TO

STA. 329+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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4/7/2020

SCALE: 5,000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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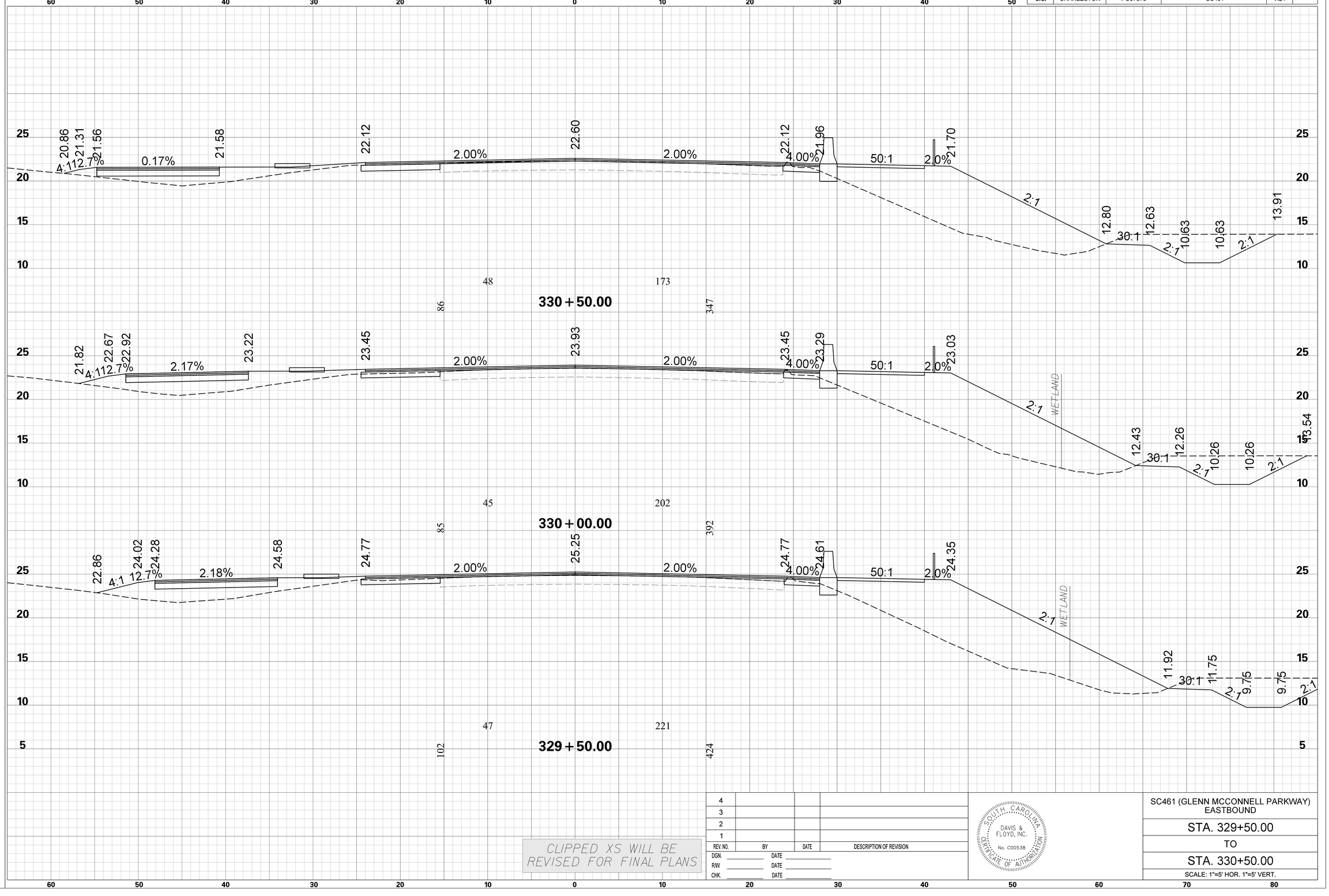
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X21	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 329+50.00

TO

STA. 330+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X22	

MATCHLINE
GOODWILL WAY
INTERSECTION

MATCHLINE
WILLIAM E MURRAY BLVD.
INTERSECTION

MATCHLINE
WILLIAM E MURRAY BLVD.
INTERSECTION

332+50.00

17.36 | 17.58 | 18.06 | 17.58 | 2.00% | 2.00% | 11 | 2 | 25 | 17

332+00.00

18.48 | 18.22 | 18.50 | 18.98 | 18.50 | 1.88% | 2.00% | 2.00% | 15 | 17 | 74 | 129

331+50.00

18.95 | 19.11 | 19.37 | 19.10 | 19.57 | 20.05 | 19.57 | 19.41 | 19.15 | 12.6% | 1.88% | 2.00% | 2.00% | 4.00% | 50:1 | 2.0% | 2:1 | 12.56 | 30:1 | 12.39 | 2:1 | 10.39 | 10.39 | 2:1 | 14.34 | 65 | 122 | 116 | 242

331+00.00

19.76 | 20.00 | 20.25 | 19.98 | 20.79 | 21.27 | 20.79 | 20.63 | 20.37 | 12.6% | 1.88% | 2.00% | 2.00% | 4.00% | 50:1 | 2.0% | 2:1 | 12.69 | 30:1 | 12.53 | 2:1 | 10.53 | 10.53 | 2:1 | 14.10 | 60 | 139 | 100 | 289

CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 331+00.00

TO

STA. 332+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X23	

MATCHLINE LEFT TURN OFFSET
SEE WB XS FOR TIE-IN

15.06 | 15.22 | 15.70 | 15.46 | 15.06 | 14.58 | 13.55

4.00% | 2.00% | 2.00% | 4.00% | 8.0%

WETLAND

Ex.R/W

335+00.00

FOR SUP XS FROM
STA. 335+00.00 TO STA. 363+50.00
SEE SUP XS SHEETS
STA. 234+00.00 TO STA. 262+50.00

MATCHLINE LEFT TURN OFFSET
SEE WB XS FOR TIE-IN

15.56 | 15.72 | 16.20 | 15.96 | 15.56 | 15.08 | 14.22

4.00% | 2.00% | 2.00% | 4.00% | 8.0%

WETLAND

Ex.R/W

334+00.00

MATCHLINE LEFT TURN OFFSET
SEE WB XS FOR TIE-IN

16.81 | 17.29 | 16.92

2.00% | 2.00%

MATCHLINE
WILLIAM E MURRAY BLVD.
INTERSECTION

333+00.00

CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 333+00.00

TO

STA. 335+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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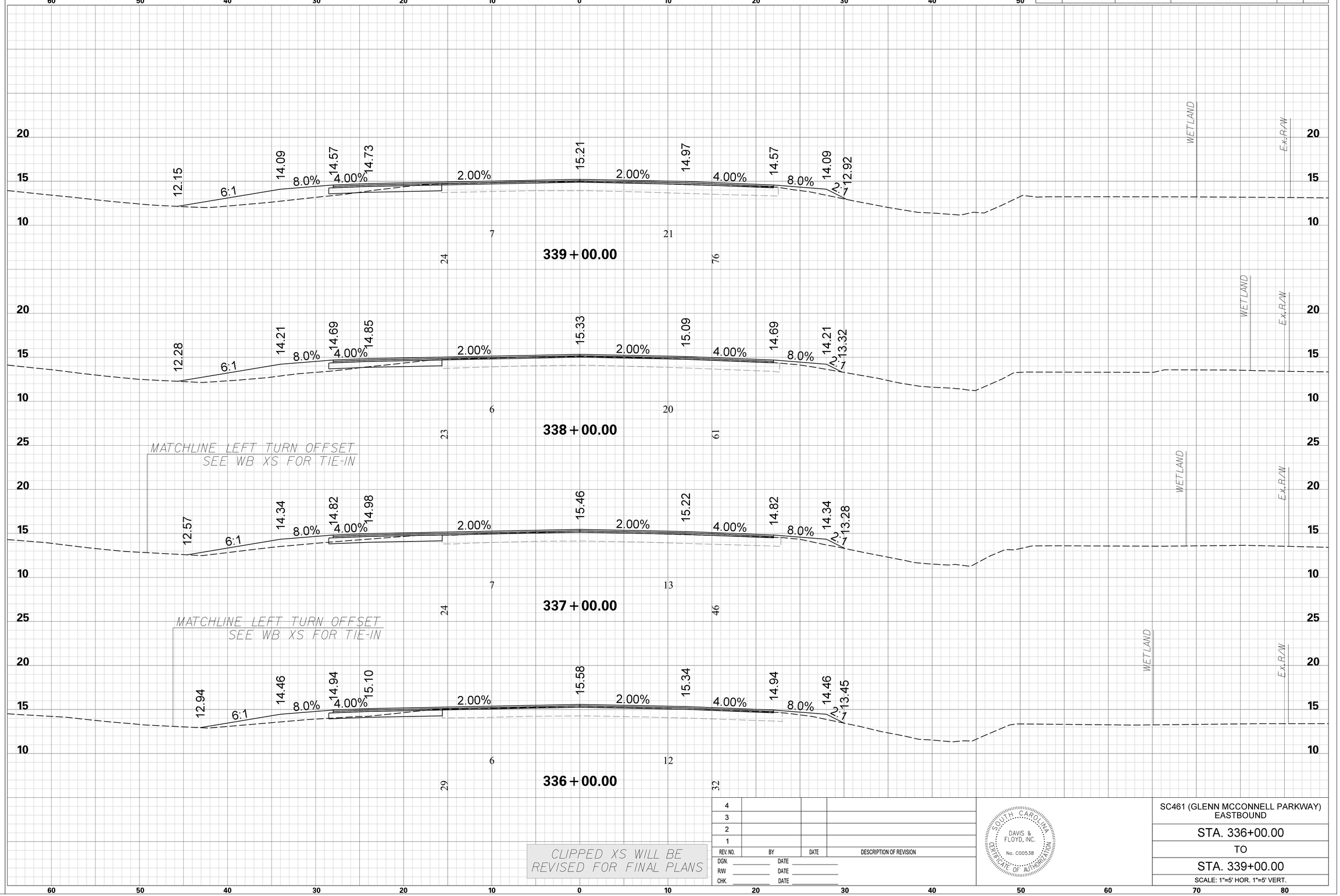
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X24	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 336+00.00

TO

STA. 339+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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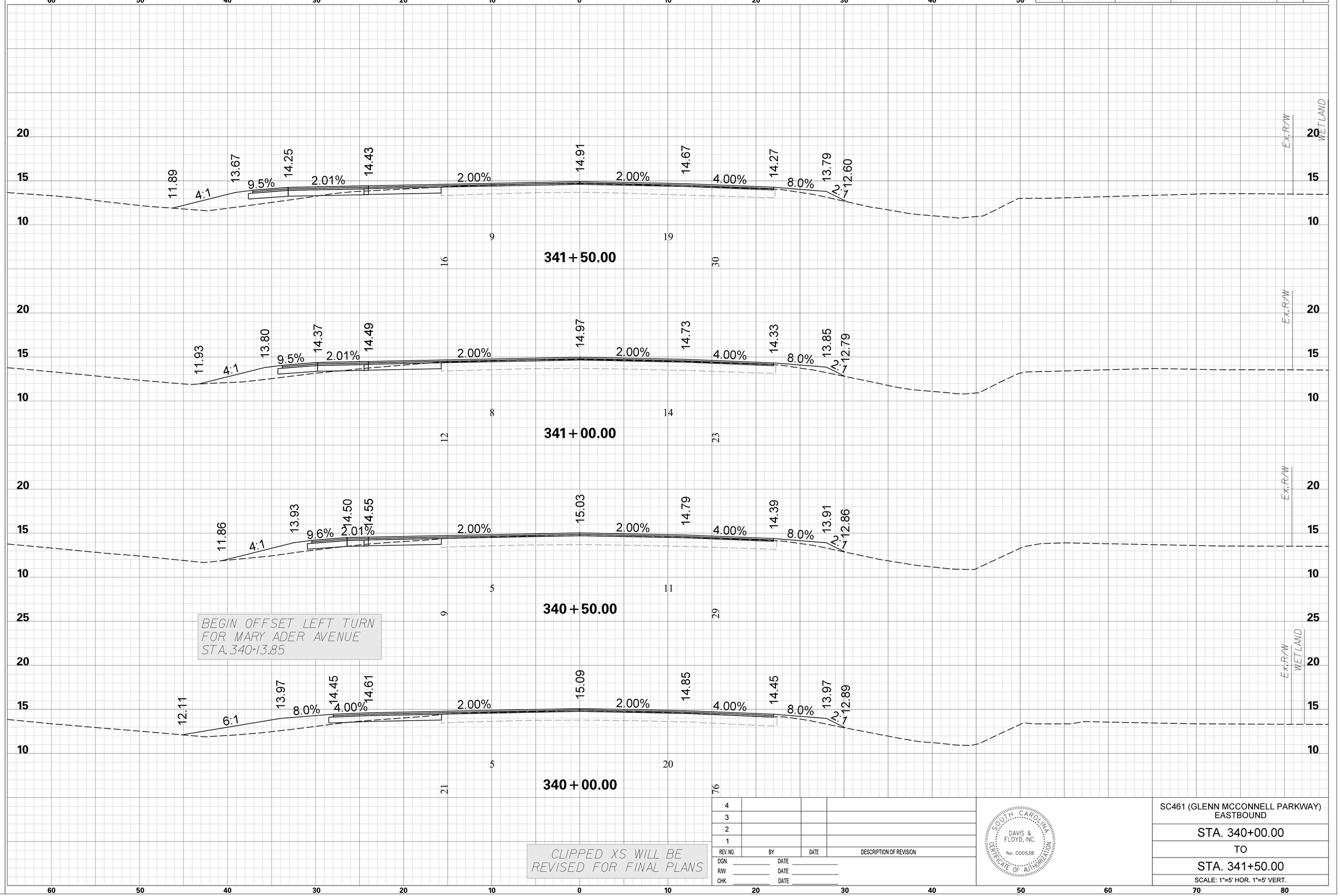
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X25	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 340+00.00

TO

STA. 341+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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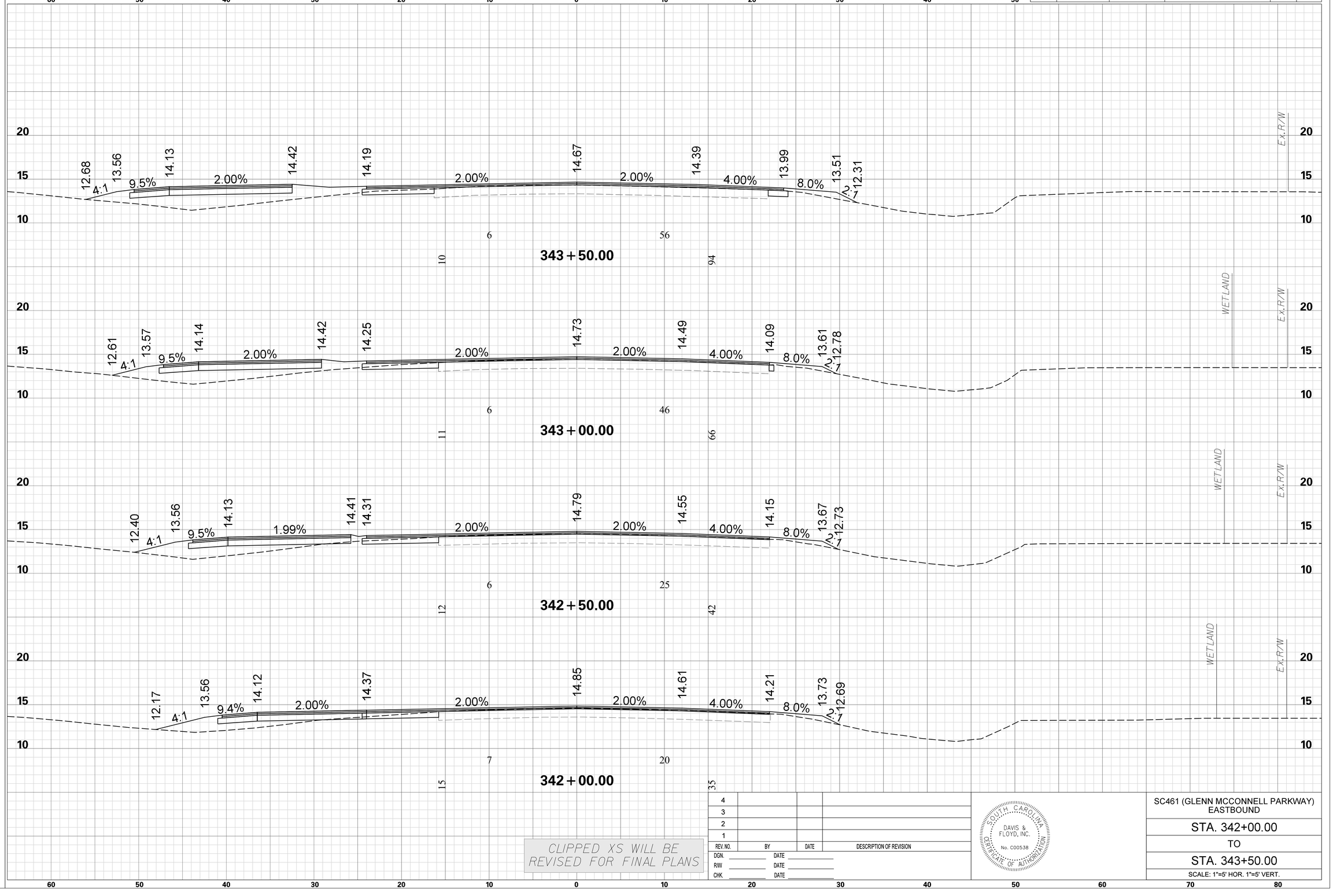
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X26	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 342+00.00

TO

STA. 343+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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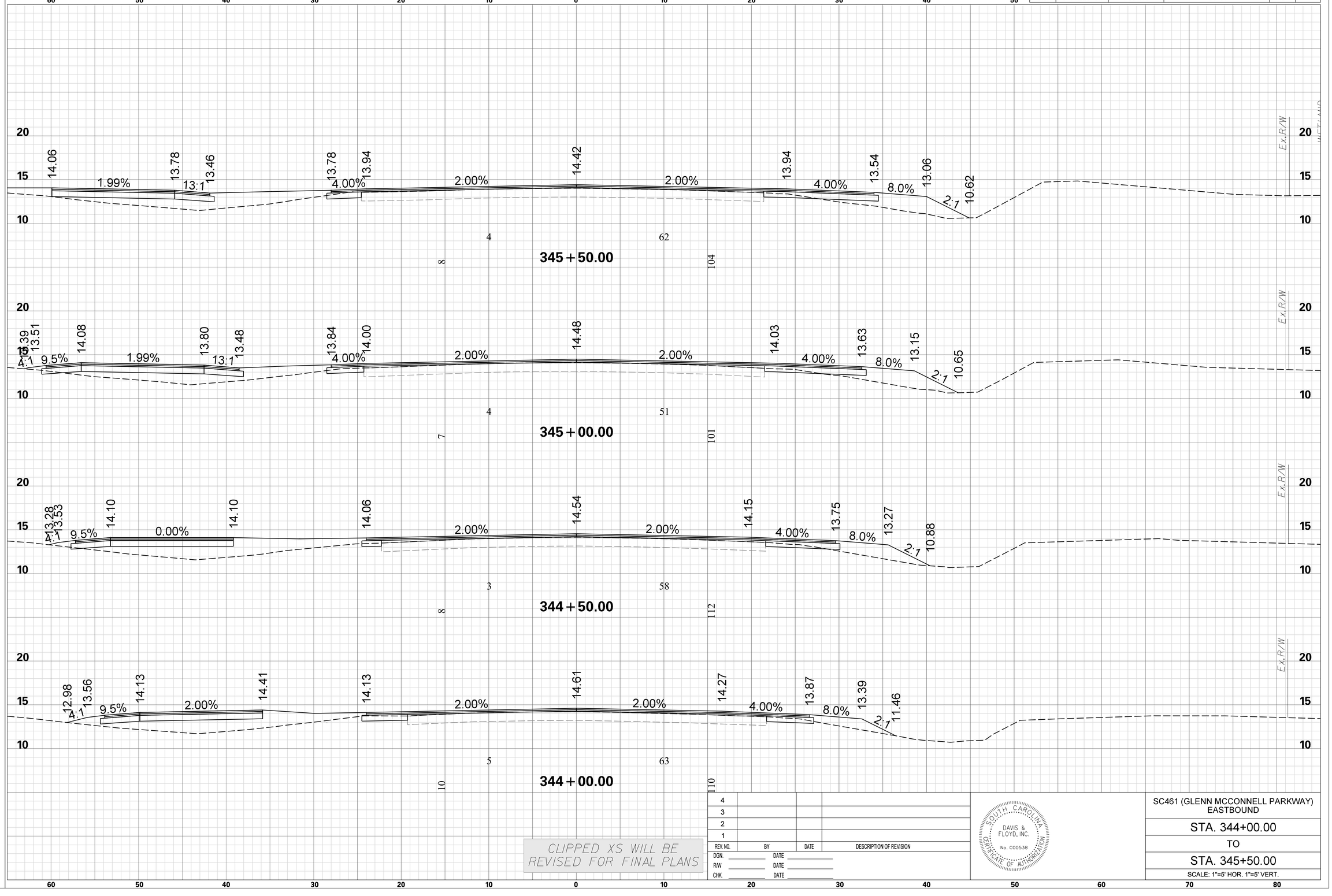
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X27	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 344+00.00

TO

STA. 345+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X28	

MATCHLINE LEFT TURN OFFSET
SEE WB XS FOR TIE-IN

BEGIN T.R.
STA. 348+30.00
END T.R.
STA. 348+95.00

MATCHLINE
WEST WILDCAT BLVD.
INTERSECTION

MATCHLINE
WEST WILDCAT BLVD.
INTERSECTION

Ex. R/W

Ex. R/W

WETLAND

348+00.00

347+00.00

346+50.00

346+00.00

CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 346+00.00

TO

STA. 348+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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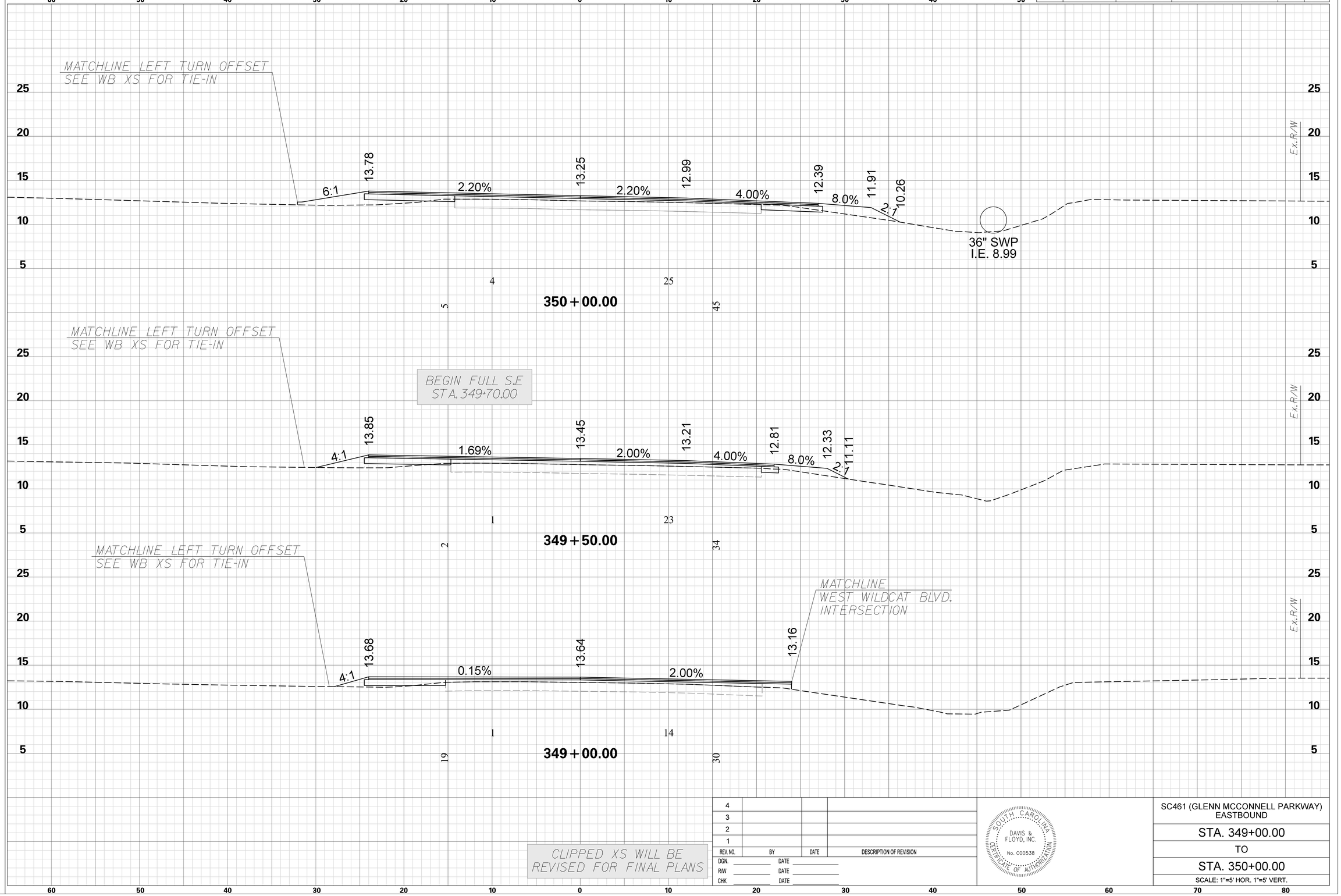
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X29	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 349+00.00

TO

STA. 350+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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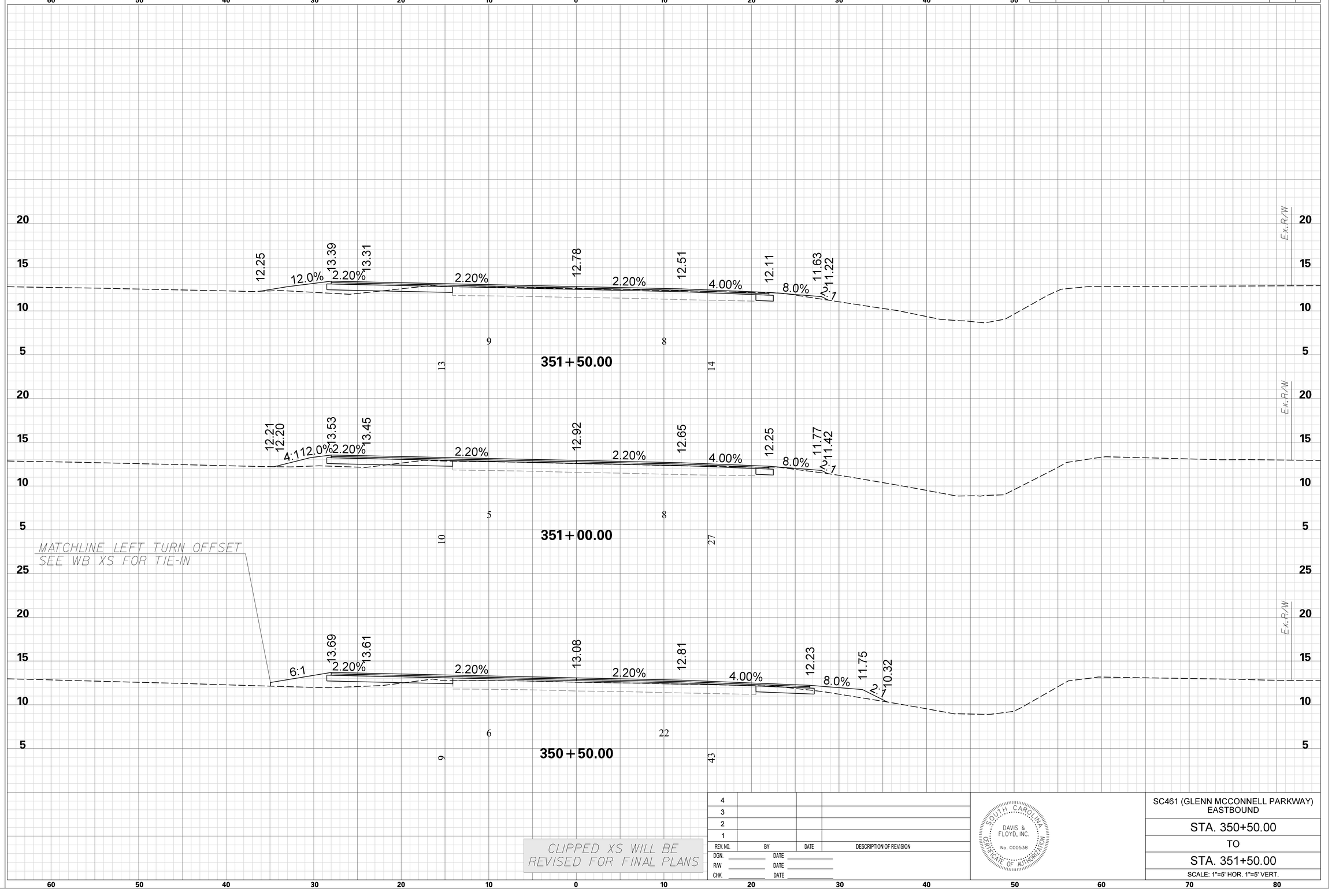
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X30	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 350+50.00

TO

STA. 351+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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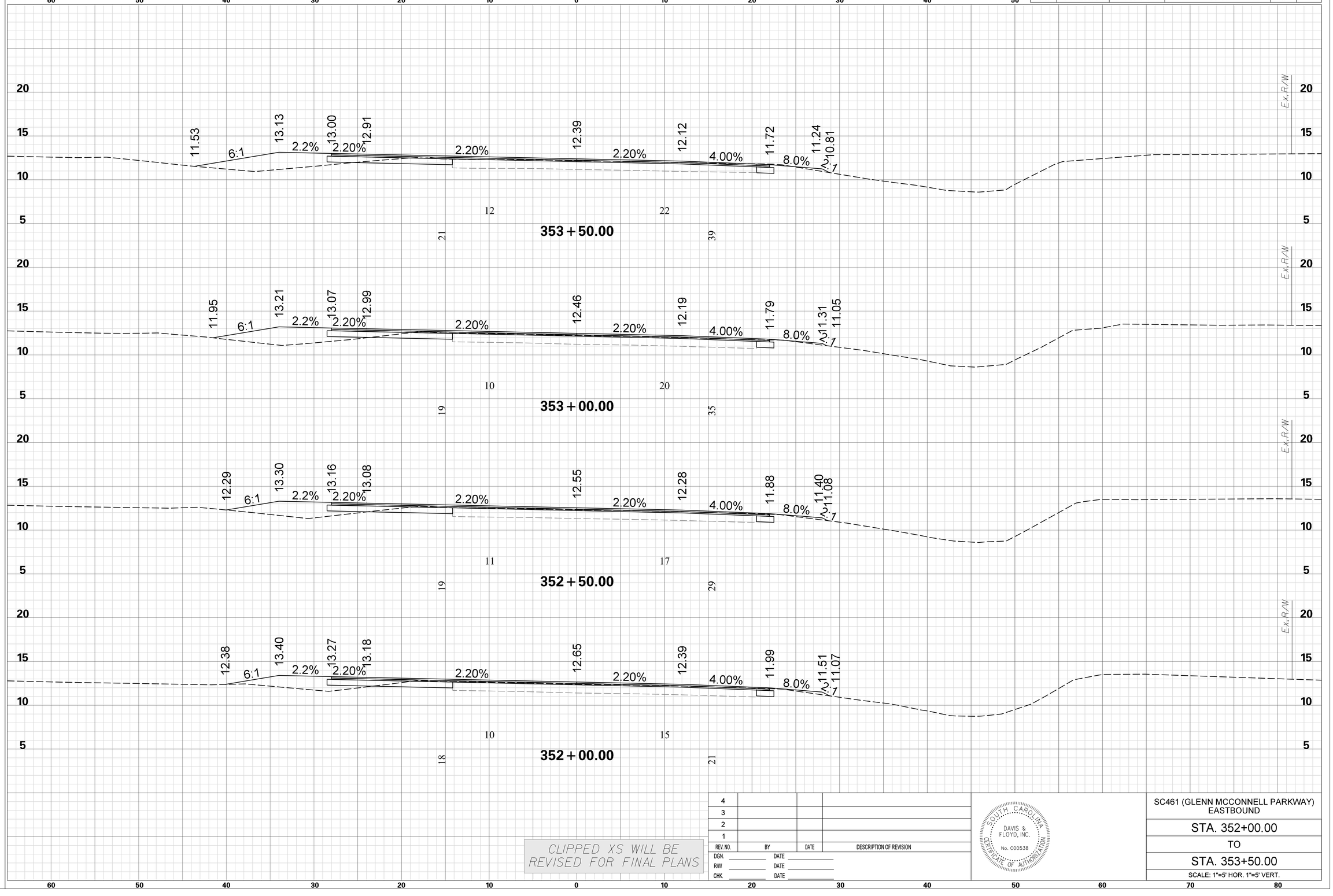
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X31	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 352+00.00

TO

STA. 353+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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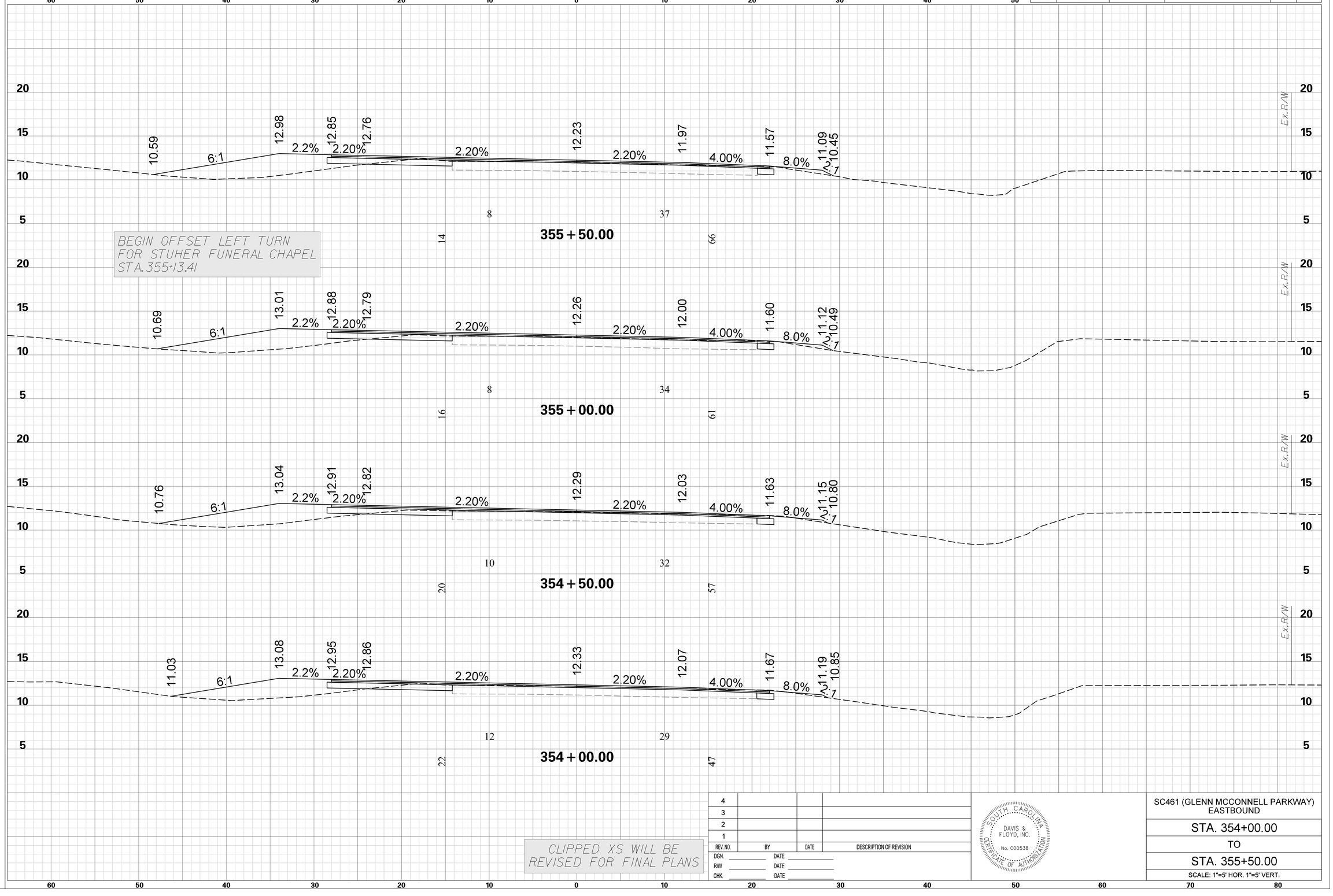
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X32	



BEGIN OFFSET LEFT TURN
FOR STUHER FUNERAL CHAPEL
STA. 355+13.41

CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 354+00.00

TO

STA. 355+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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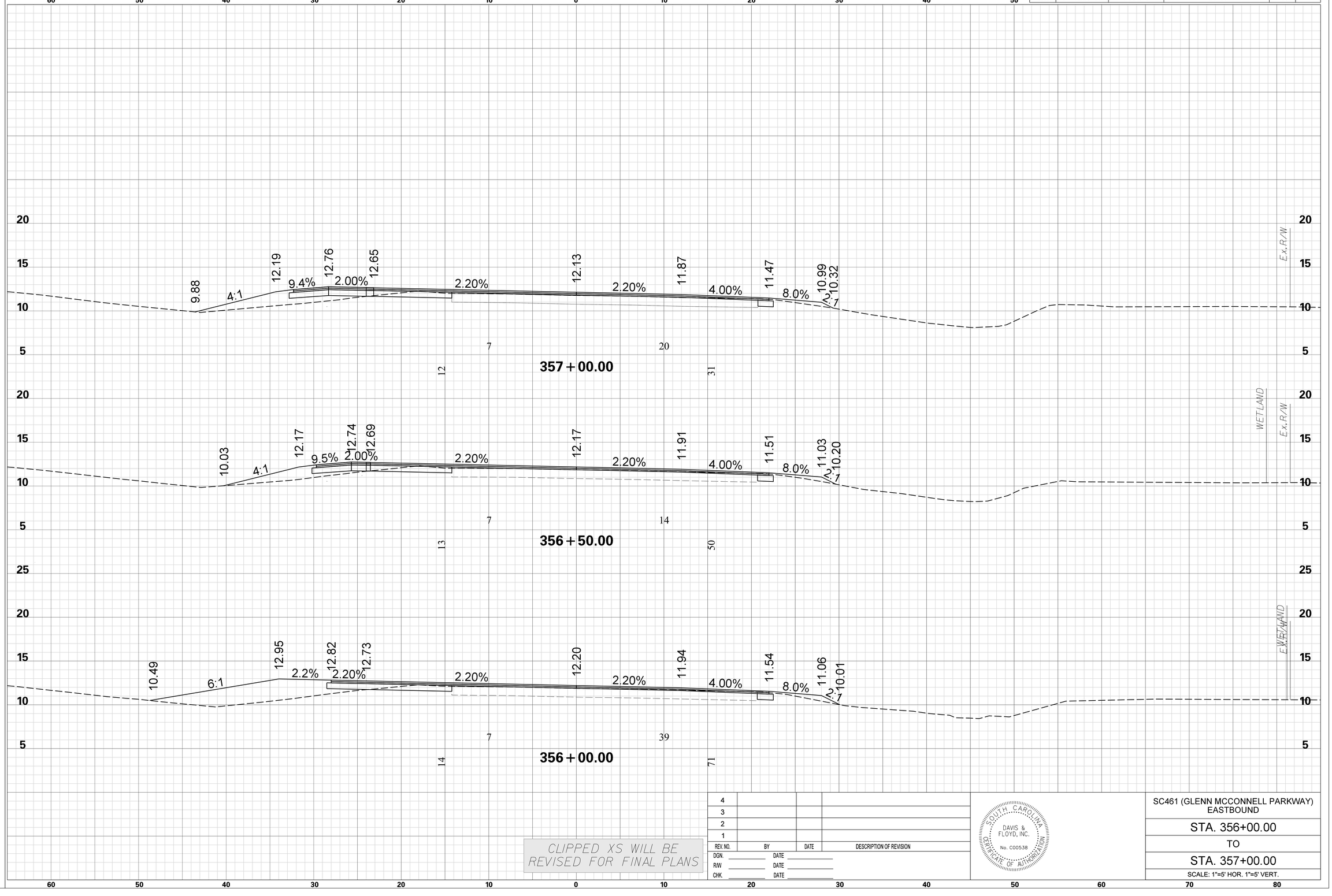
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X33	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 356+00.00

TO

STA. 357+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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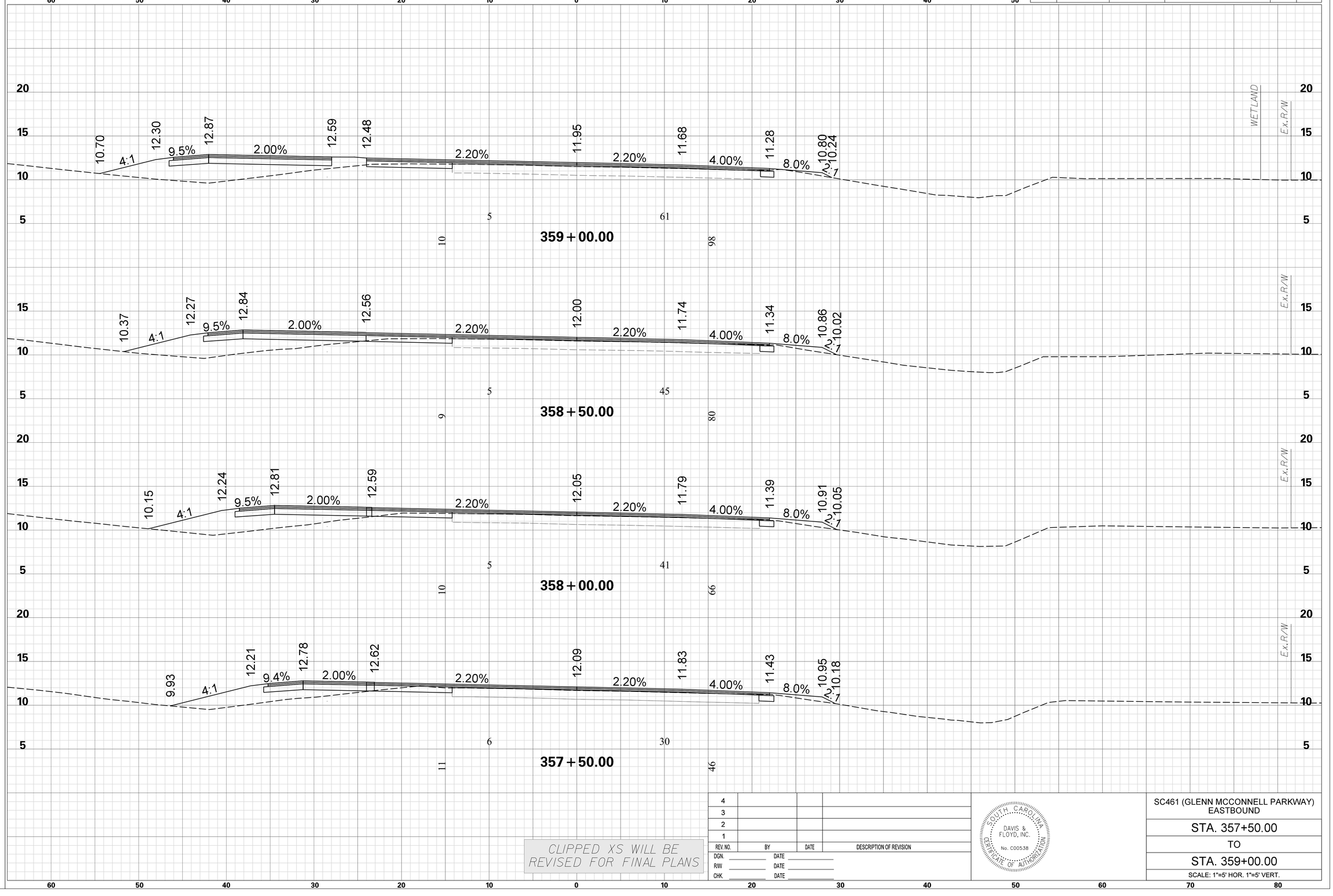
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X34	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

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CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 357+50.00

TO

STA. 359+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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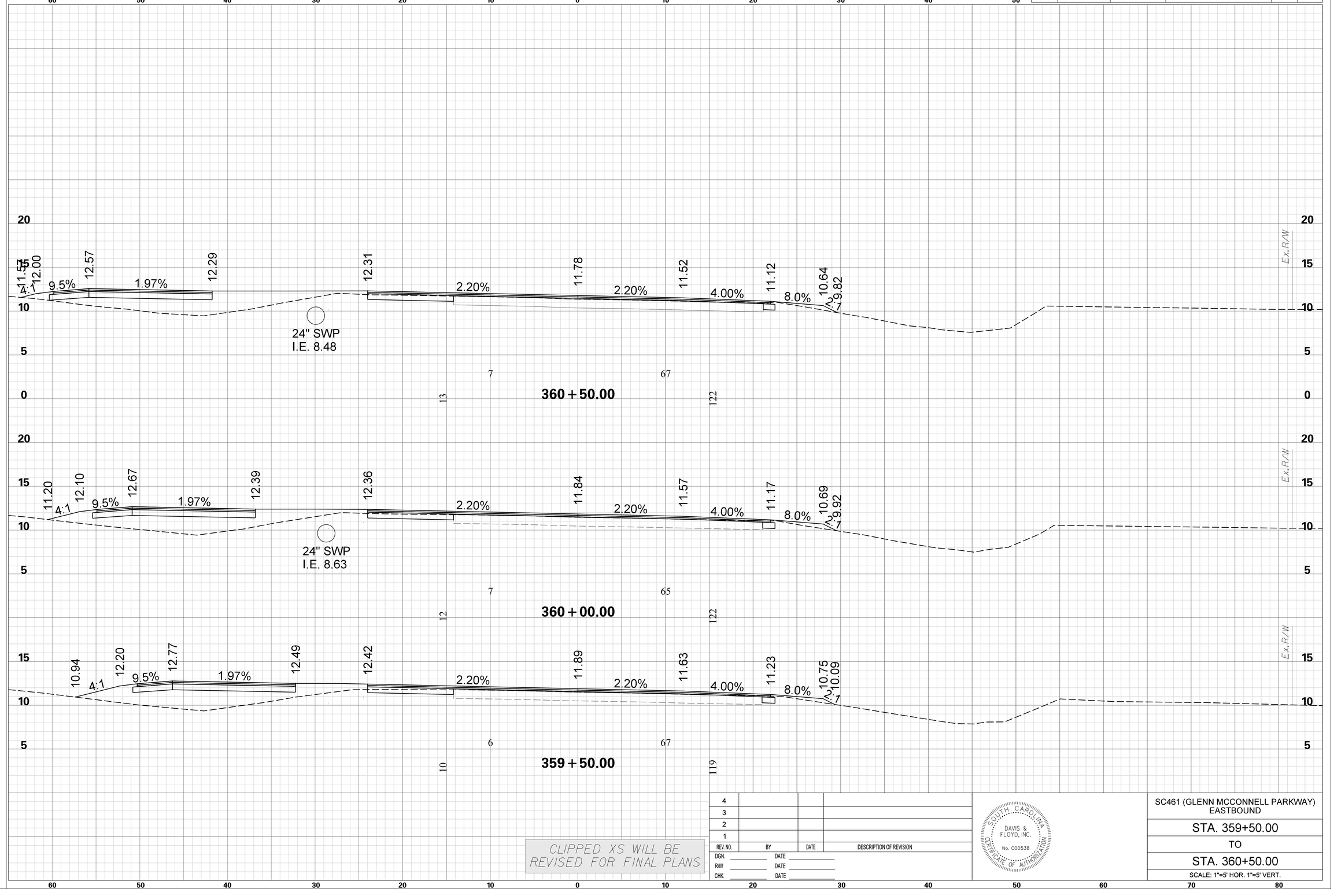
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X35	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 359+50.00

TO

STA. 360+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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SCALE: 5,000 ft / in.
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FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X36	

MATCHLINE
LOCHAVEN DR.
INTERSECTION

Ex.R/W
WETLAND

TWO (2) BARREL 30" SWP
I.E. 7.59

24" SWP
I.E. 8.33

362+00.00

1.96% 12.09 13:1 11.77 2.20% 12.28 12.20 2.20% 11.67 2.20% 11.40 4.00% 11.00 8.0% 10.52 9.90

23 19 31 58

361+50.00

1.97% 12.47 12.19 13:1 11.87 2.20% 12.34 12.25 2.20% 11.72 2.20% 11.46 4.00% 11.06 8.0% 10.58 10.05

11 43 19 102

9 67 15 124

361+00.00

CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 361+00.00

TO

STA. 362+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS					
STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X37	

MATCHLINE LEFT TURN OFFSET
SEE WB XS FOR TIE-IN

12.01 | 2.20% | 11.49 | 2.20% | 11.22 | 4.00% | 10.82 | 13:1 | 50:1 | 2.0% | 9.76 | 2.0% | 7.79 | 7.79 | 8.43

WETLAND

Ex.R/W

13 17 20 16

363+50.00

MATCHLINE LEFT TURN OFFSET
SEE WB XS FOR TIE-IN

12.03 | 2.20% | 11.51 | 2.20% | 10.98

MATCHLINE
LOCHAVEN DR.
INTERSECTION

WETLAND

Ex.R/W

TWO (2) BARREL 30" SWP
I.E. 7.45

9 1 15 4

363+00.00

MATCHLINE
STUHR FUNERAL CHAPEL
INTERSECTION

12.09 | 2.20% | 11.56 | 2.20% | 11.03

MATCHLINE
LOCHAVEN DR.
INTERSECTION

7 3 28 21

362+50.00

CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 362+50.00

TO

STA. 363+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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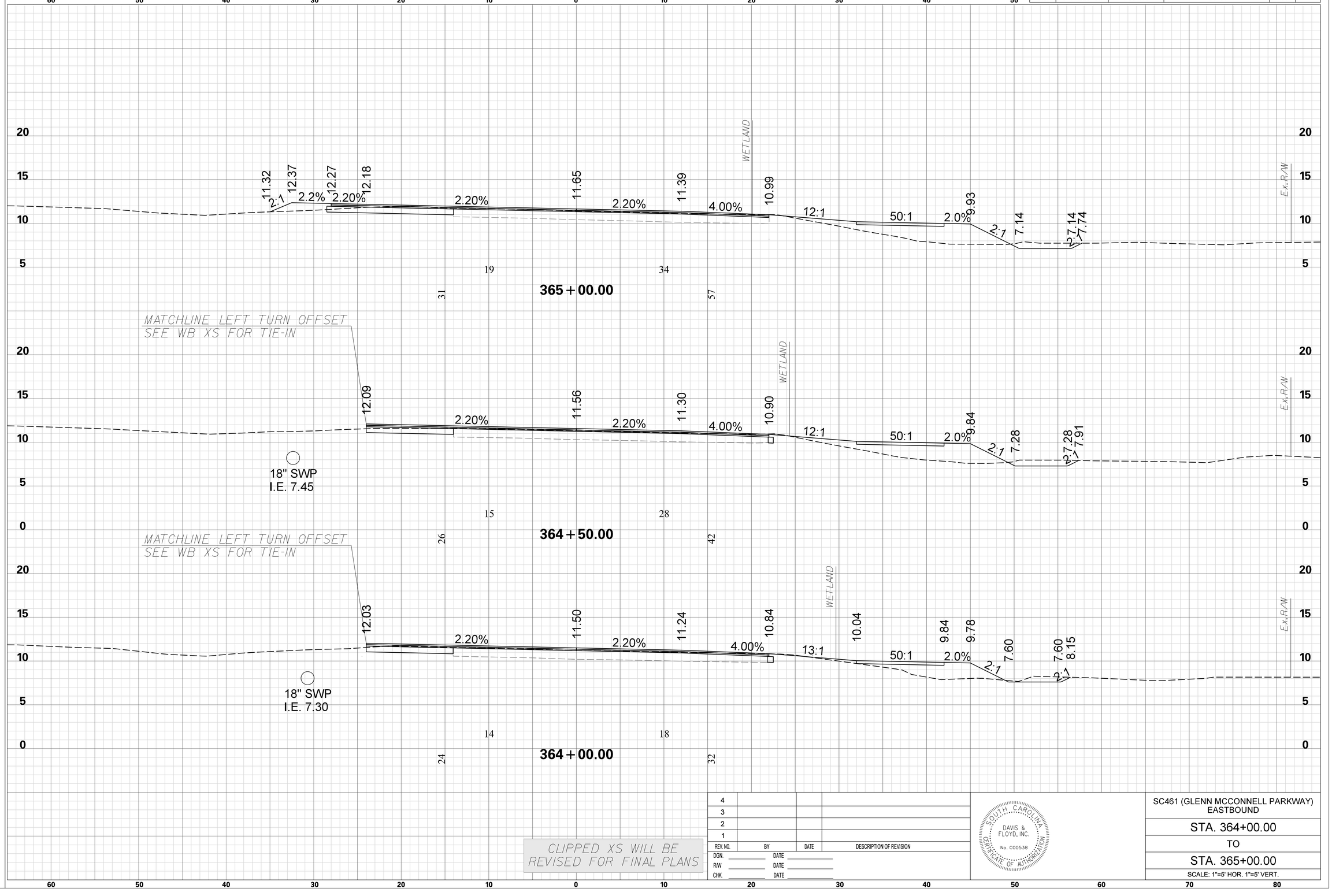
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X38	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 364+00.00

TO

STA. 365+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft. / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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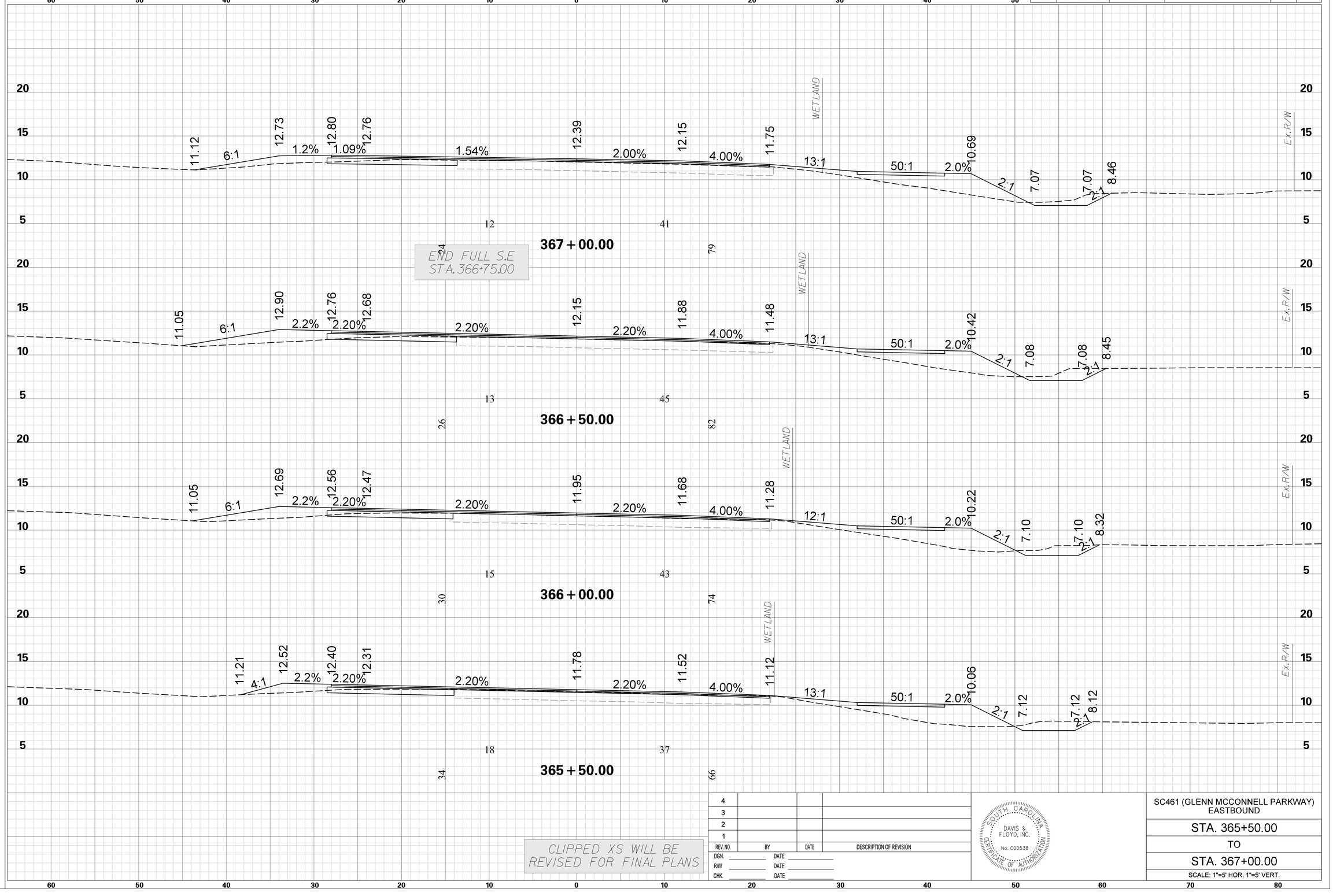
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X39	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 365+50.00

TO

STA. 367+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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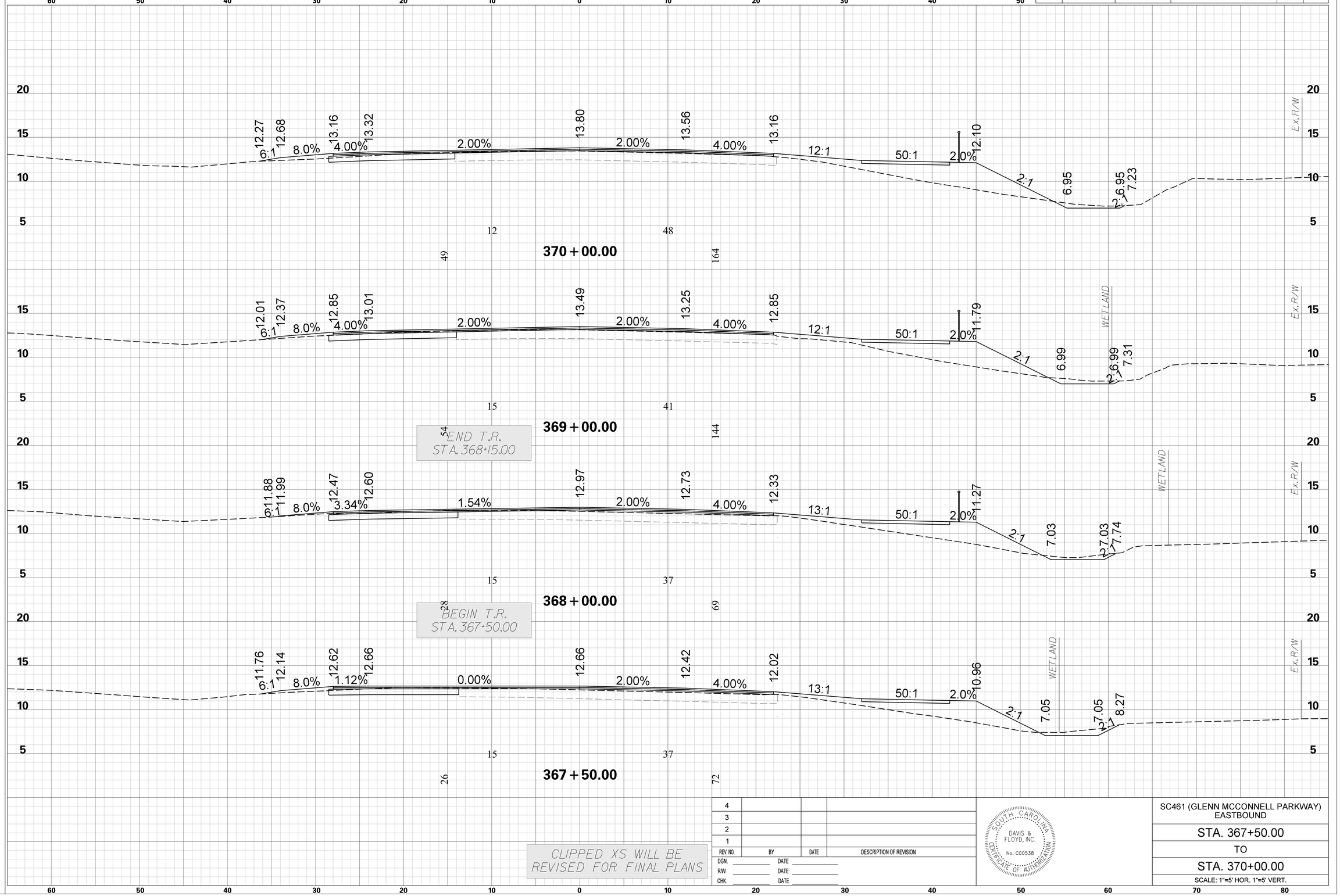
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X40	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
DAVIS & FLOYD, INC.
No. C00538

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 367+50.00

TO

STA. 370+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
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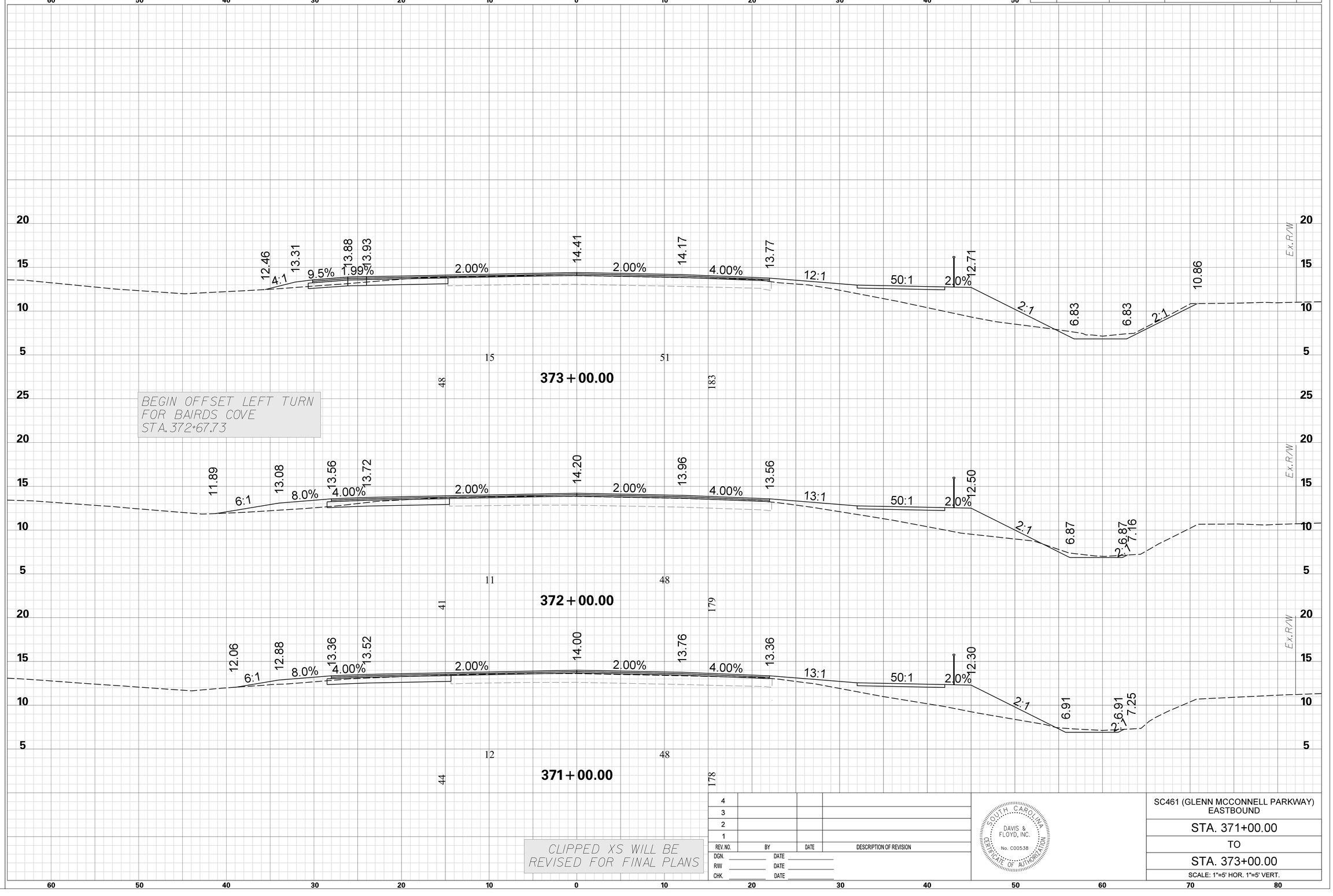
CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X41	



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CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 371+00.00

TO

STA. 373+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
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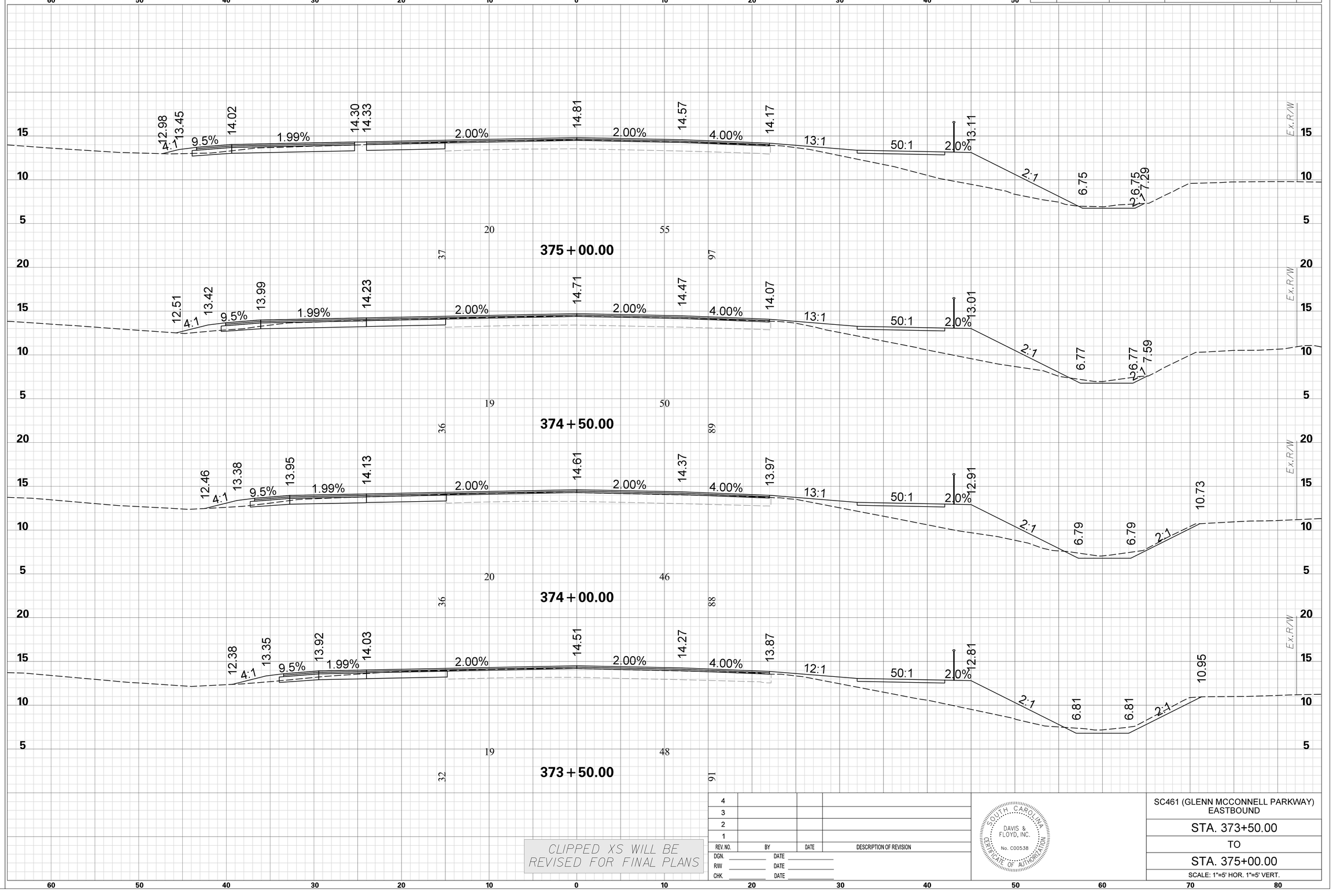
CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X42	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 373+50.00

TO

STA. 375+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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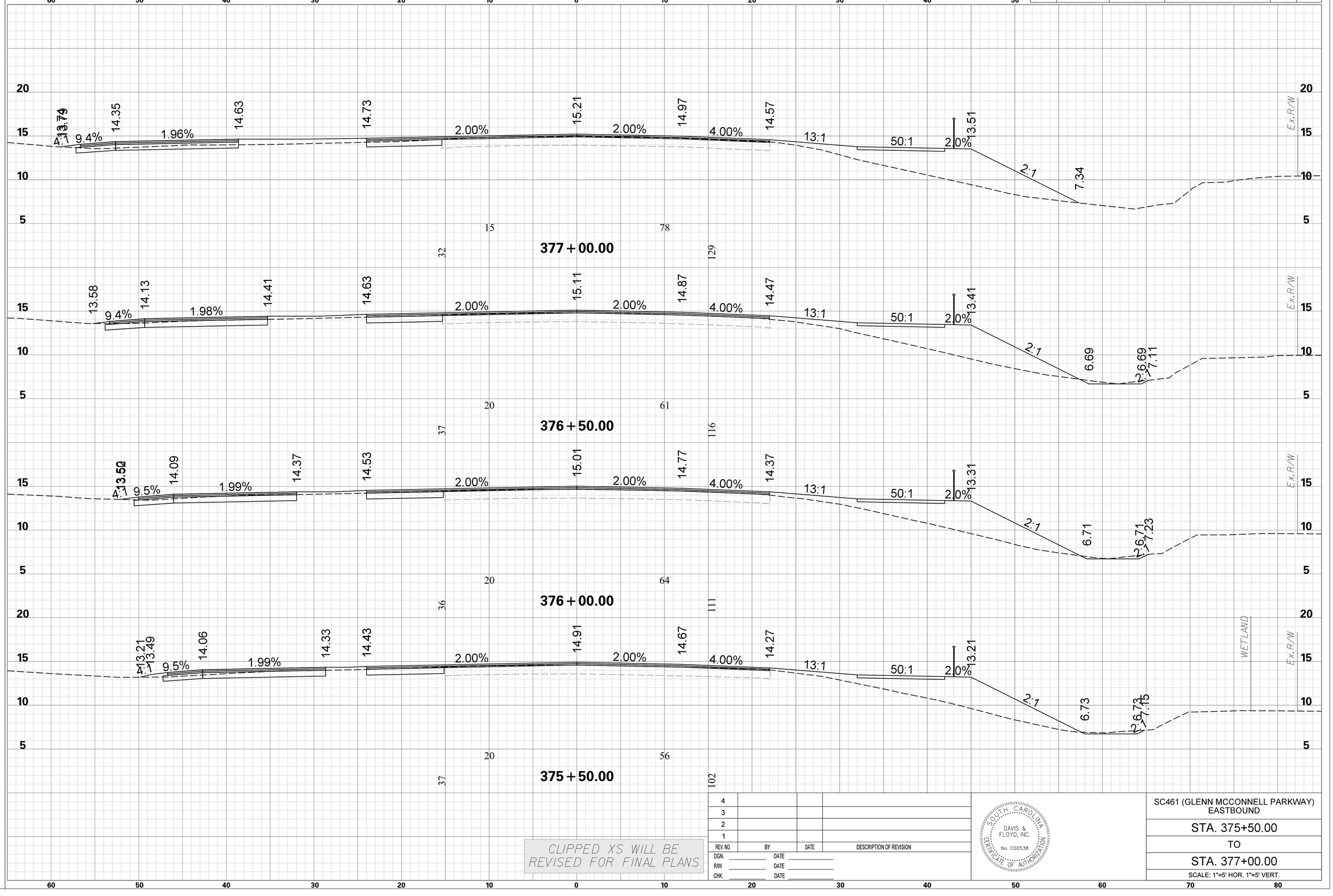
CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X43	



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CHK. ____ DATE ____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 375+50.00

TO

STA. 377+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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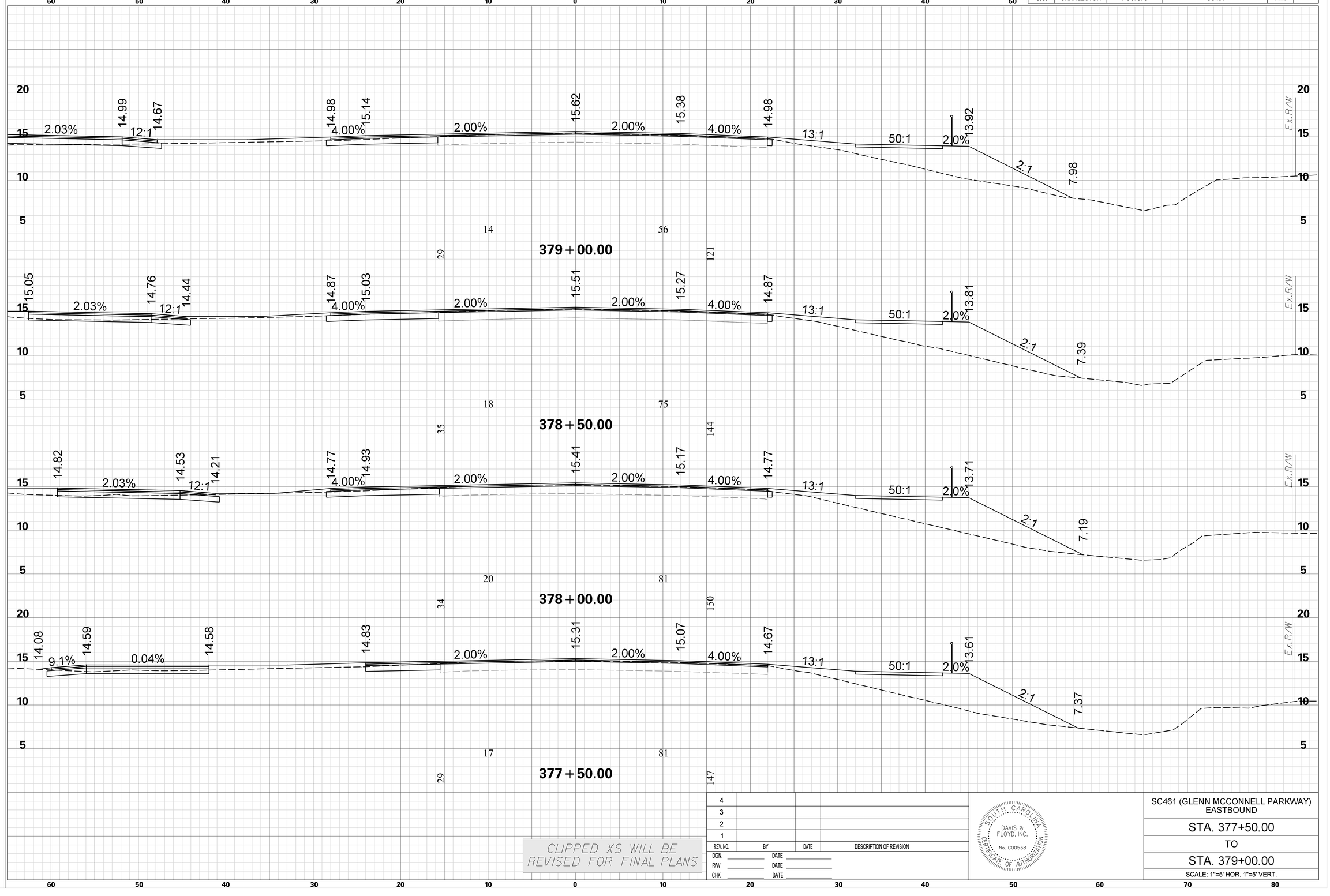
CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X44	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 377+50.00

TO

STA. 379+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X45	

MATCHLINE LEFT TURN OFFSET
SEE WB XS FOR TIE-IN

MATCHLINE
WATERSTONE LANE
INTERSECTION

15.75 | 2.00% | 16.23 | 2.00% | 15.75

Ex. R/W

0 | 9 | 7 | 16

381+00.00

MATCHLINE
BAIRDS COVE
INTERSECTION

MATCHLINE
WATERSTONE LANE
INTERSECTION

15.40 | 2.00% | 15.88 | 2.00% | 15.40

Ex. R/W

4 | 0 | 16 | 59

380+00.00

2.03% | 15.22 | 12:1 | 14.90 | 15.10 | 4.00% | 15.26 | 2.00% | 15.74 | 2.00% | 15.50 | 4.00% | 15.10 | 12:1 | 50:1 | 14.04 | 2.0% | 2:1 | 8.68

Ex. R/W

13 | 64 | 25 | 112

379+50.00

CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C005338
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 379+50.00

TO

STA. 381+00.00

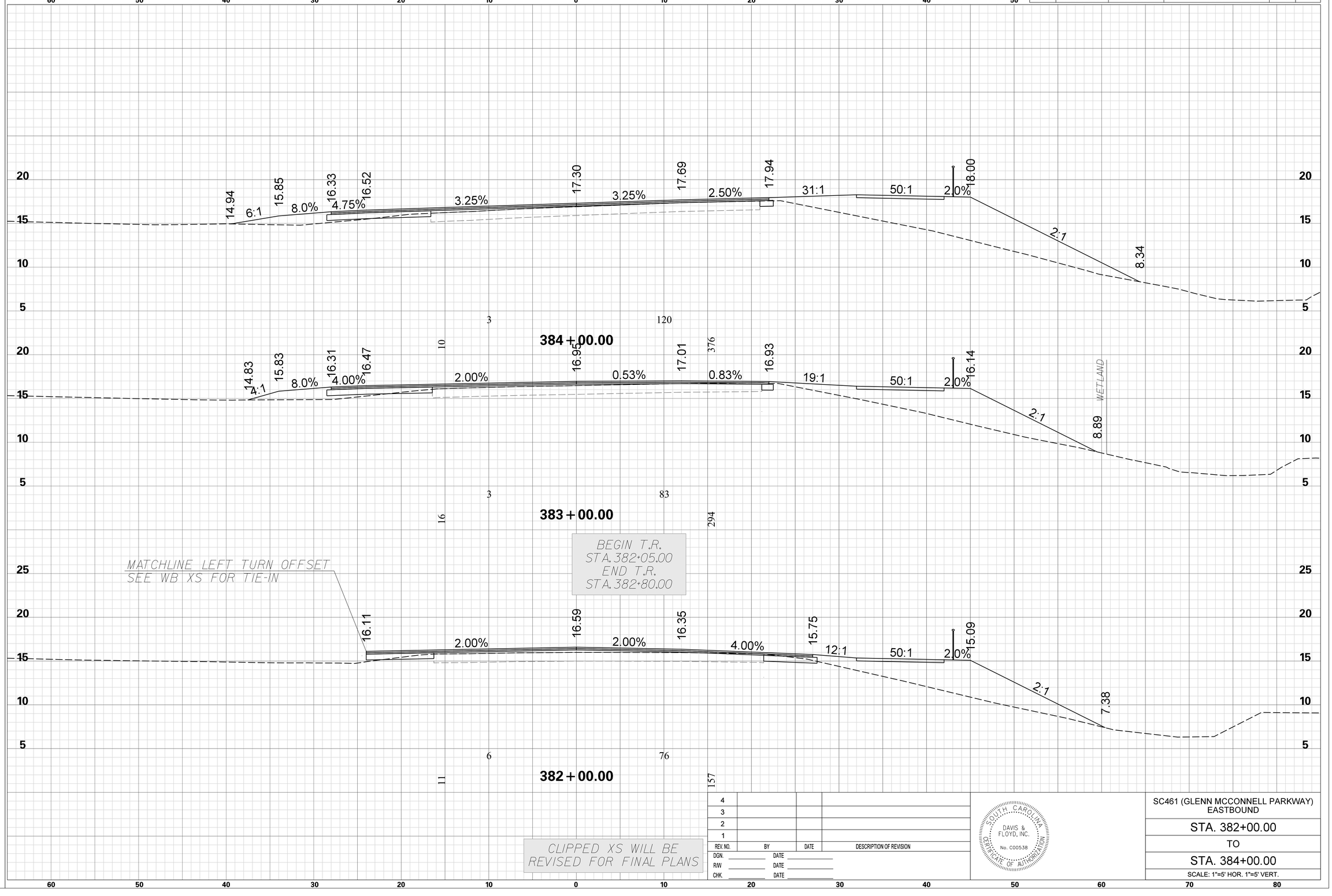
SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

SCALE: 5.000 ft. / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X46	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 382+00.00

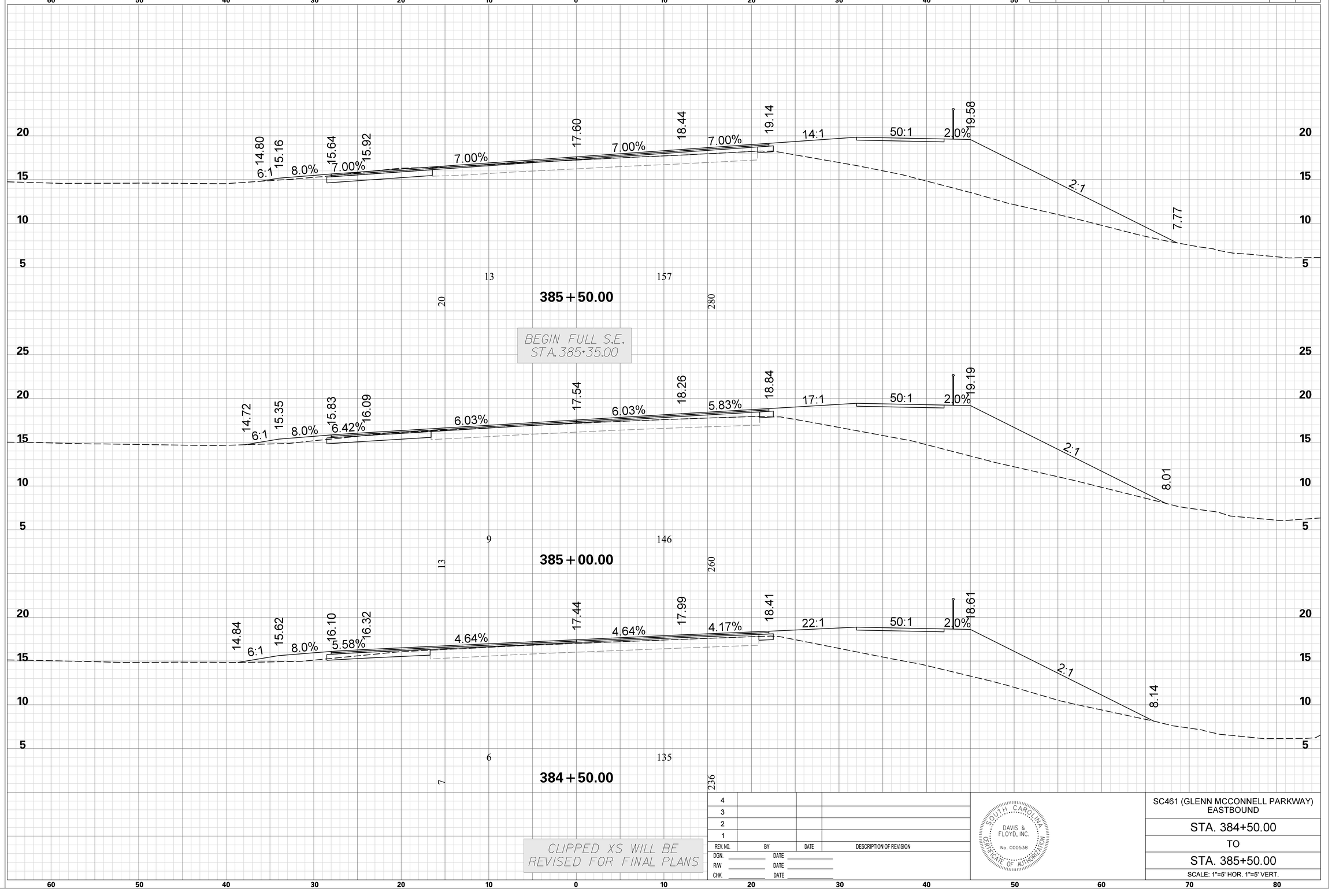
TO

STA. 384+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X47	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 384+50.00

TO

STA. 385+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft. / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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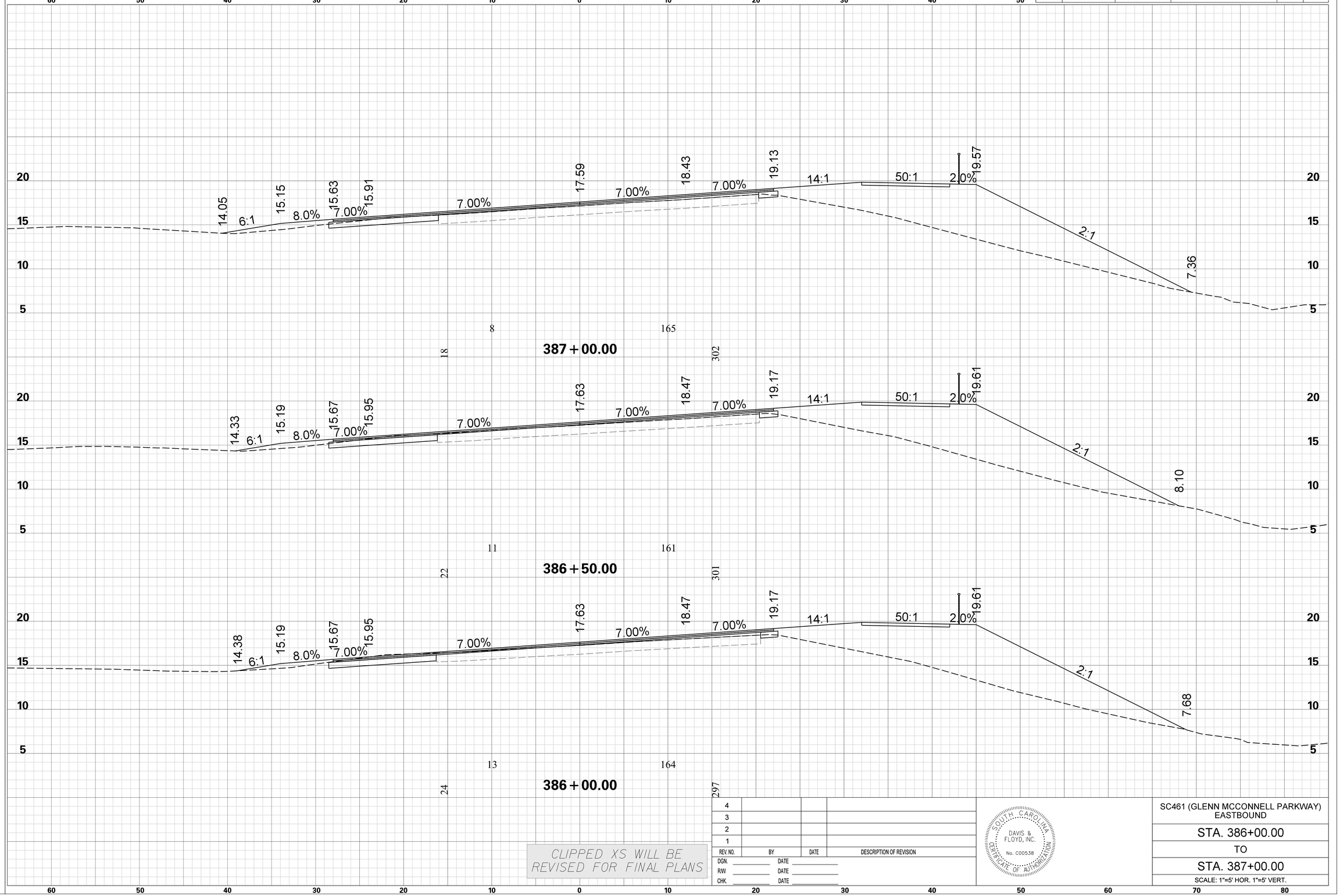
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X48	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 386+00.00

TO

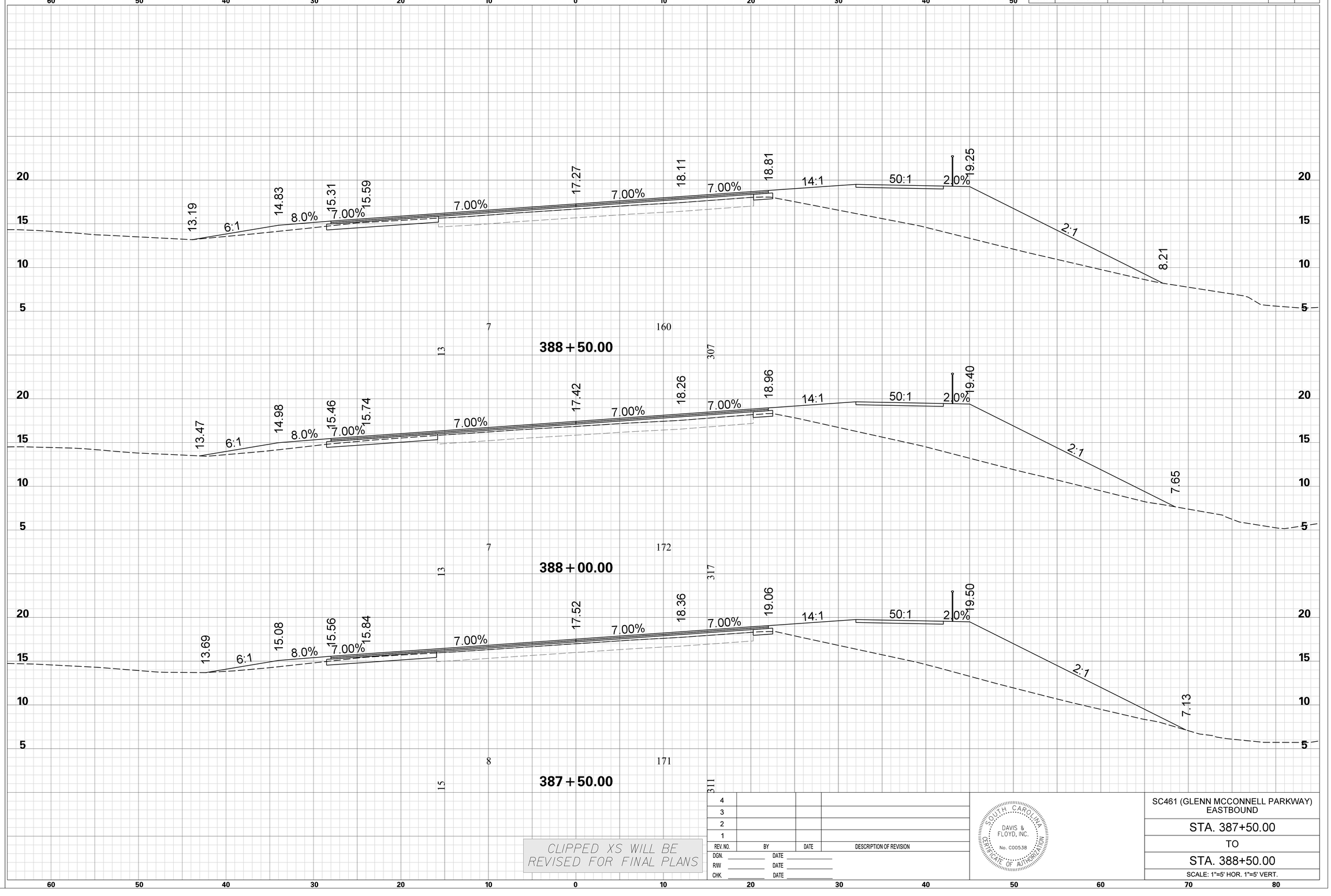
STA. 387+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X49	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 387+50.00

TO

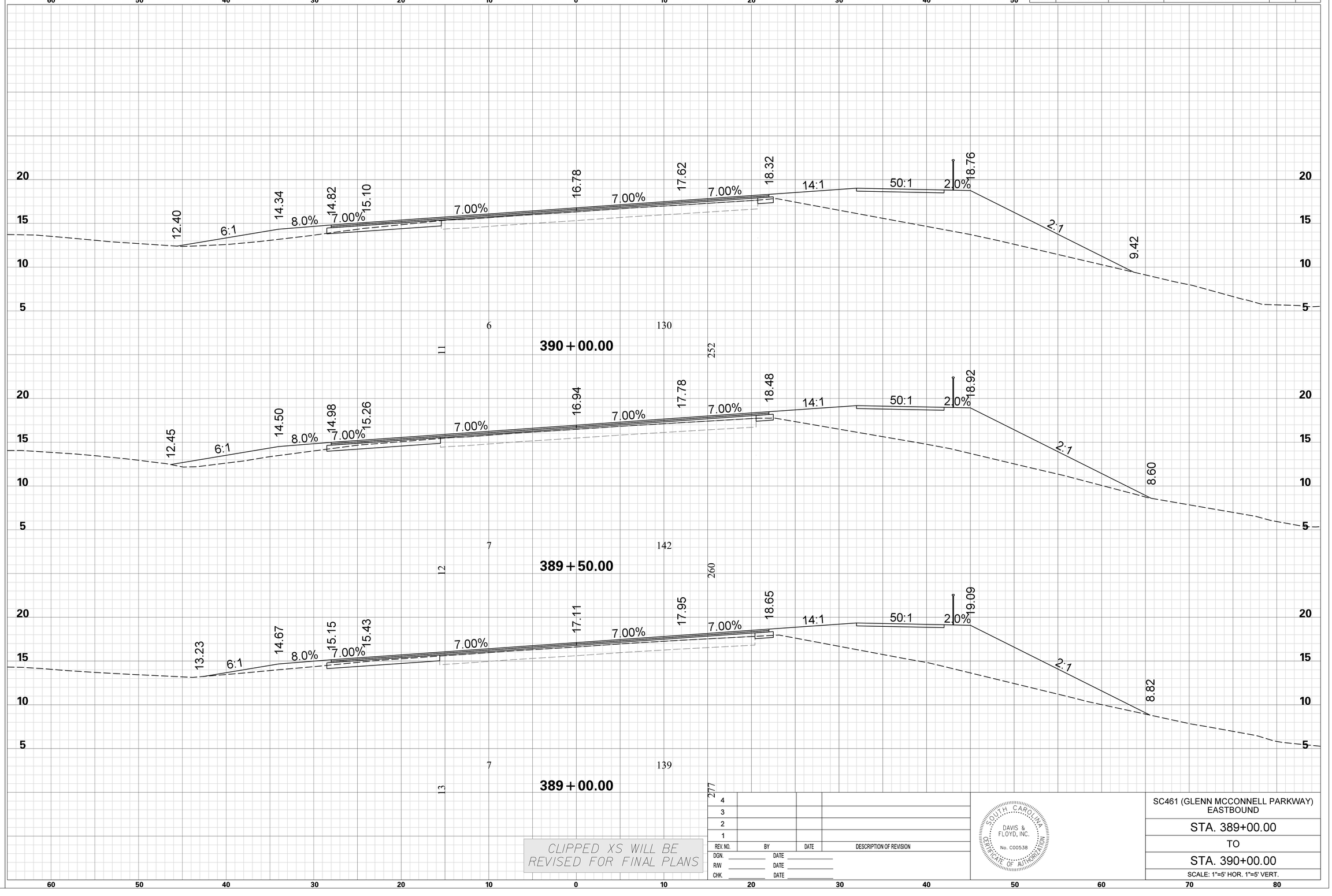
STA. 388+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X50	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 389+00.00

TO

STA. 390+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft. / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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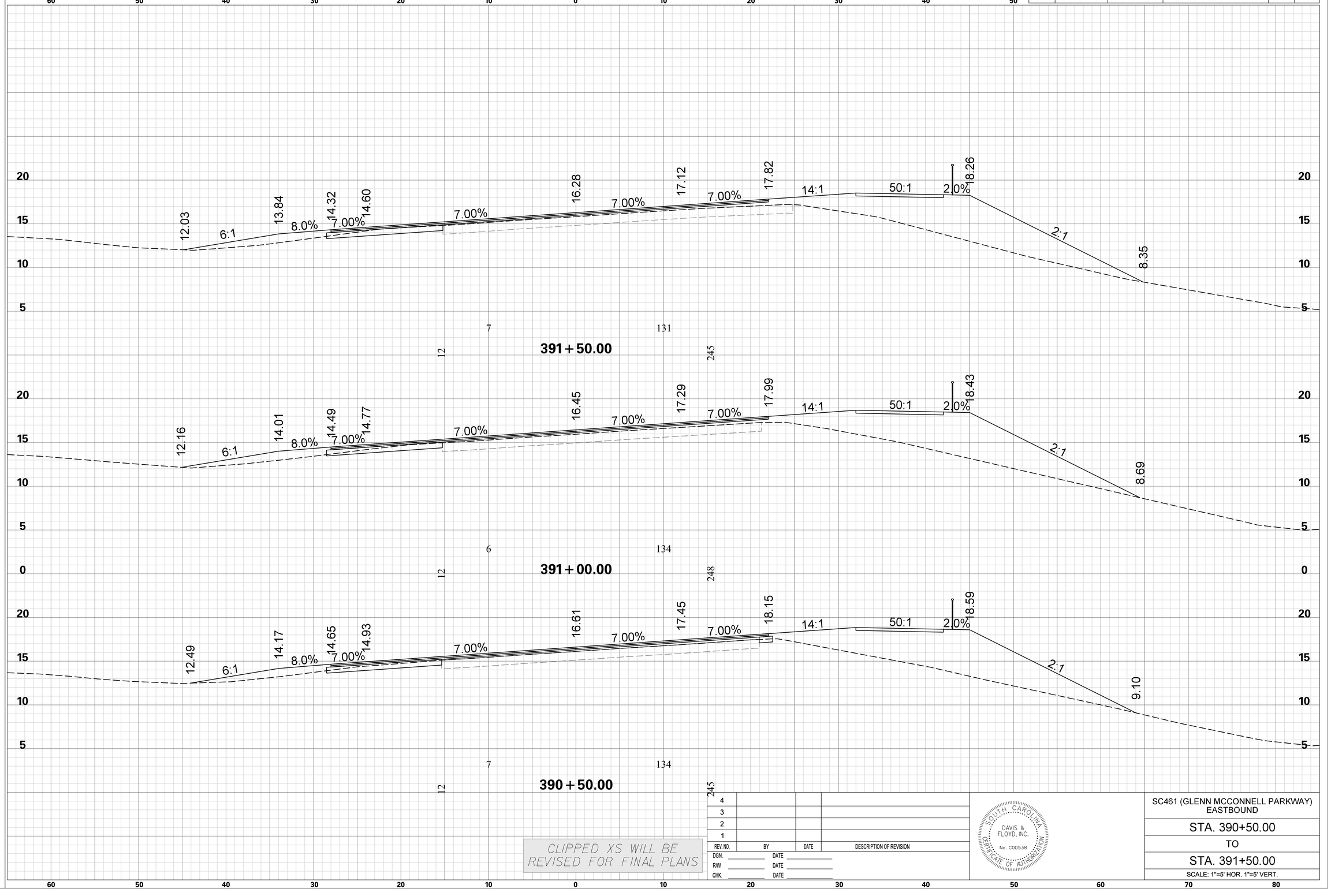
4/7/2020

SCALE: 5.000 ft. / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X51	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 390+50.00

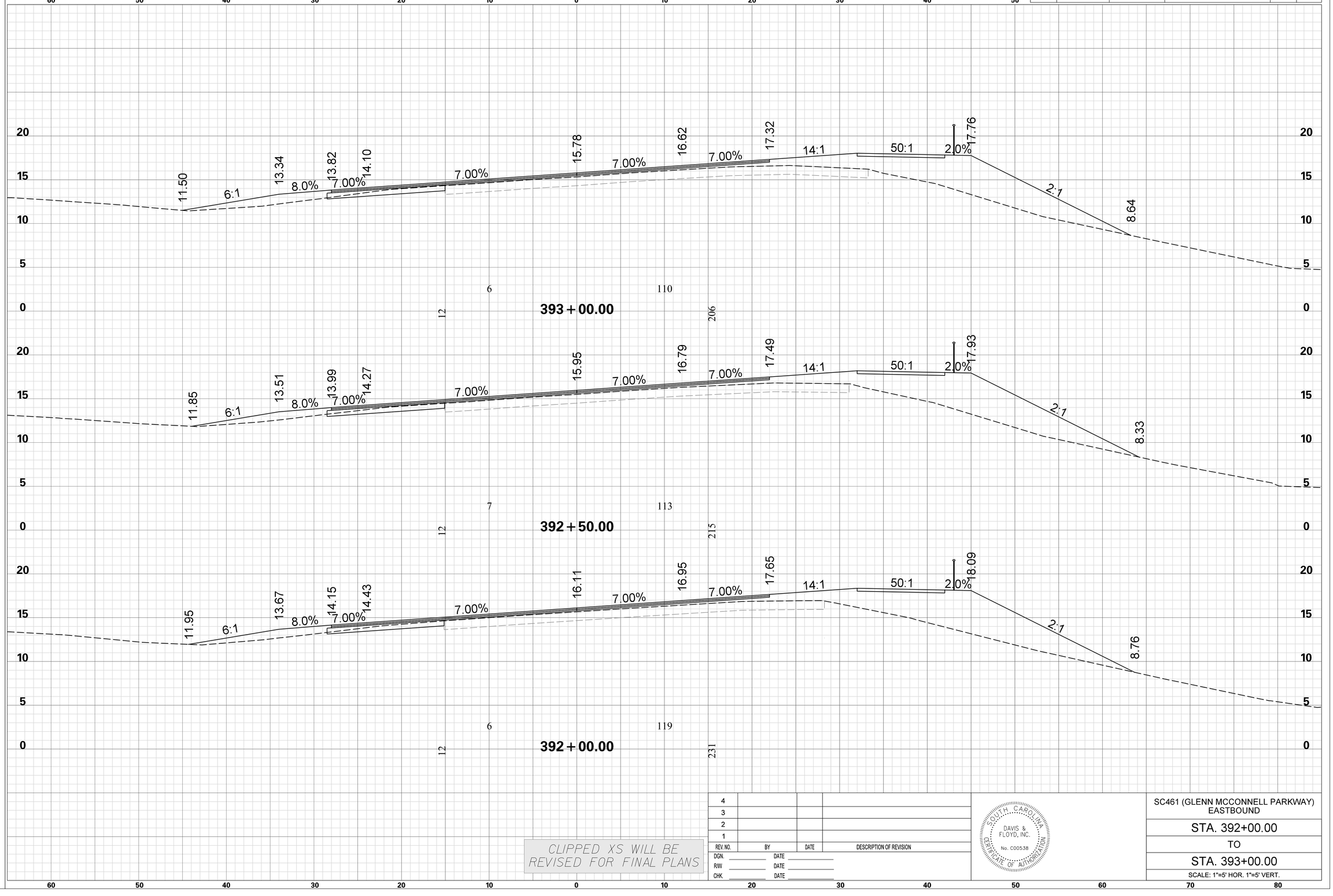
TO

STA. 391+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X52	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 392+00.00

TO

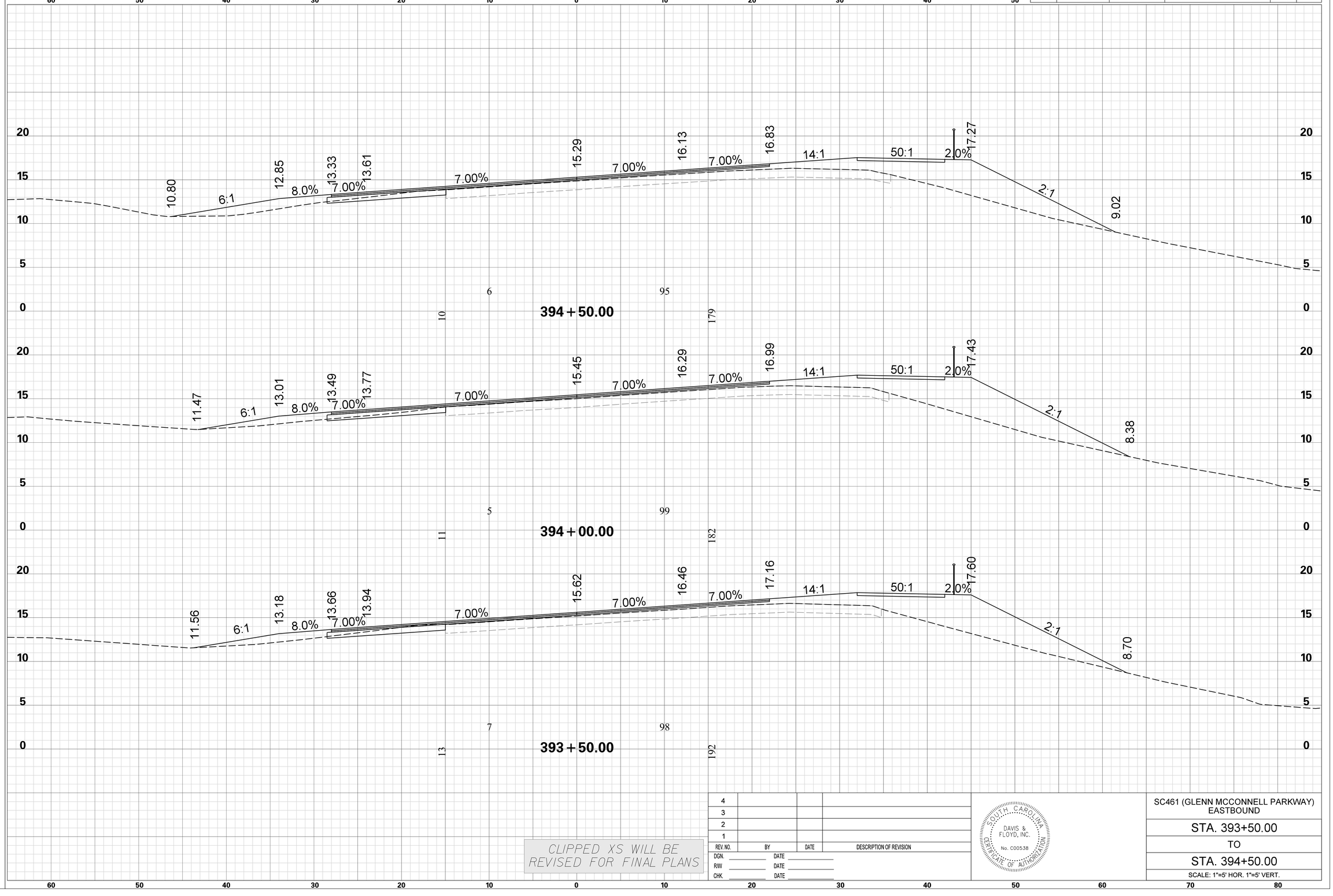
STA. 393+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X53	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 393+50.00

TO

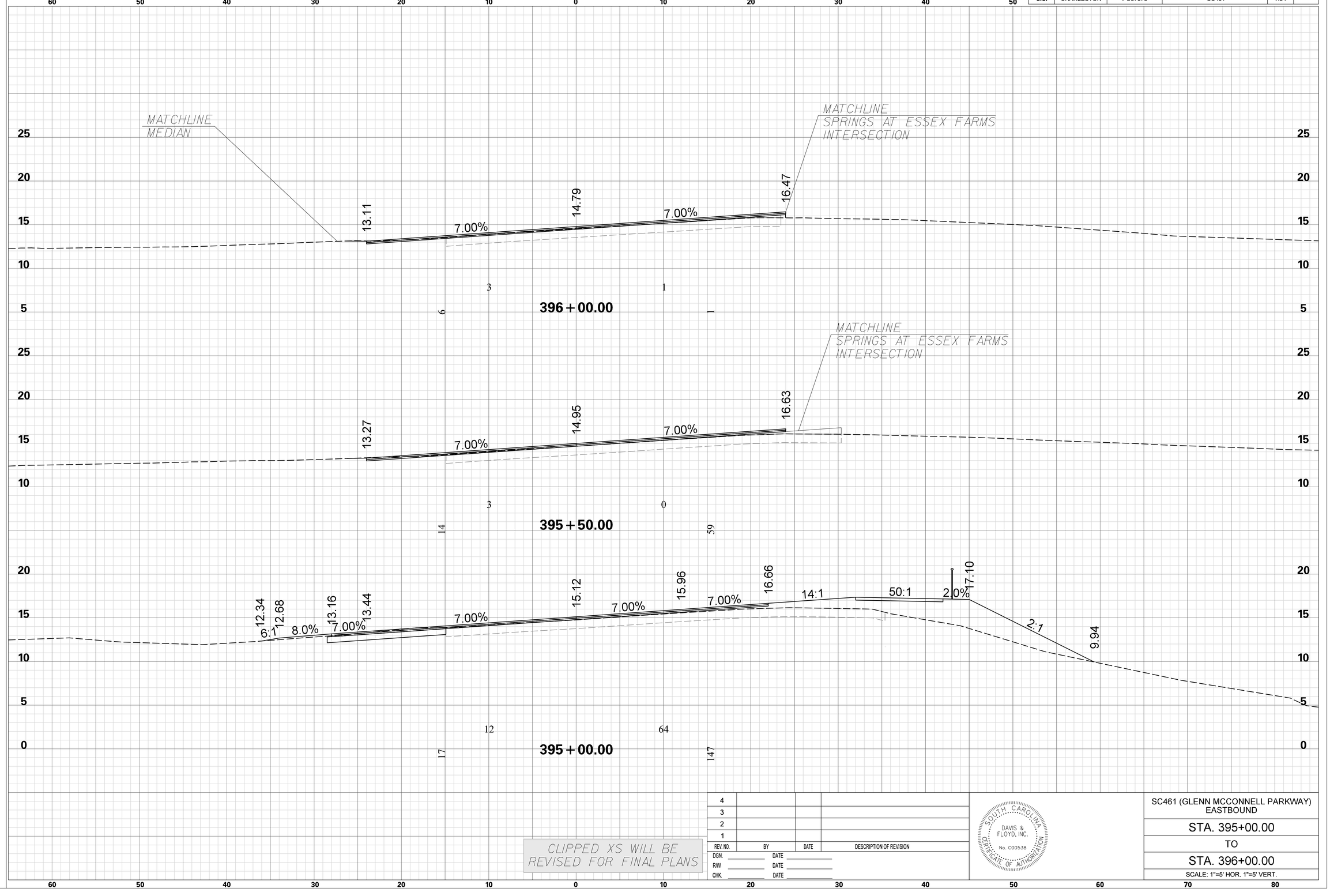
STA. 394+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X54	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 395+00.00

TO

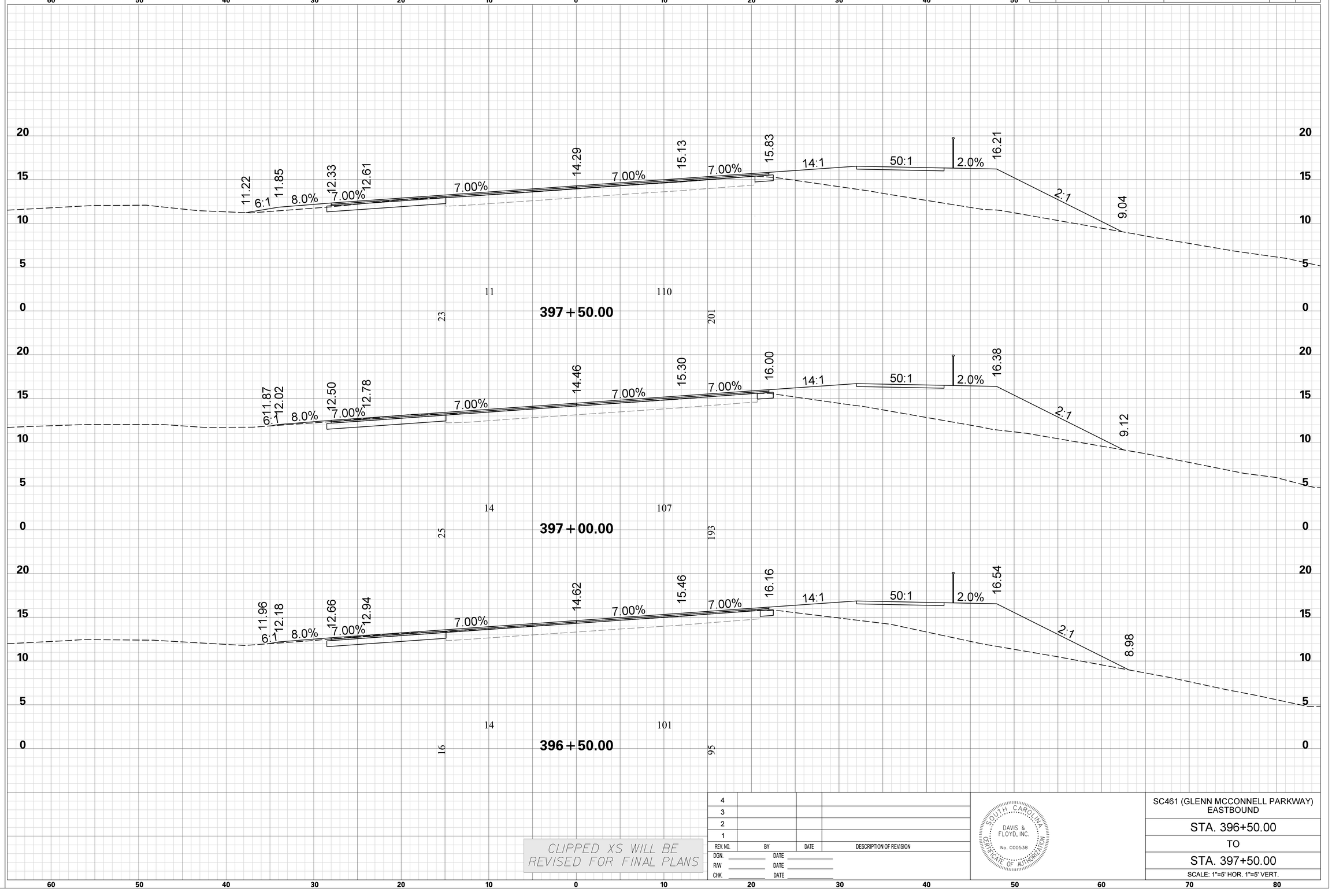
STA. 396+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft. / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X55	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 396+50.00

TO

STA. 397+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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4/7/2020

SCALE: 5.000 ft. / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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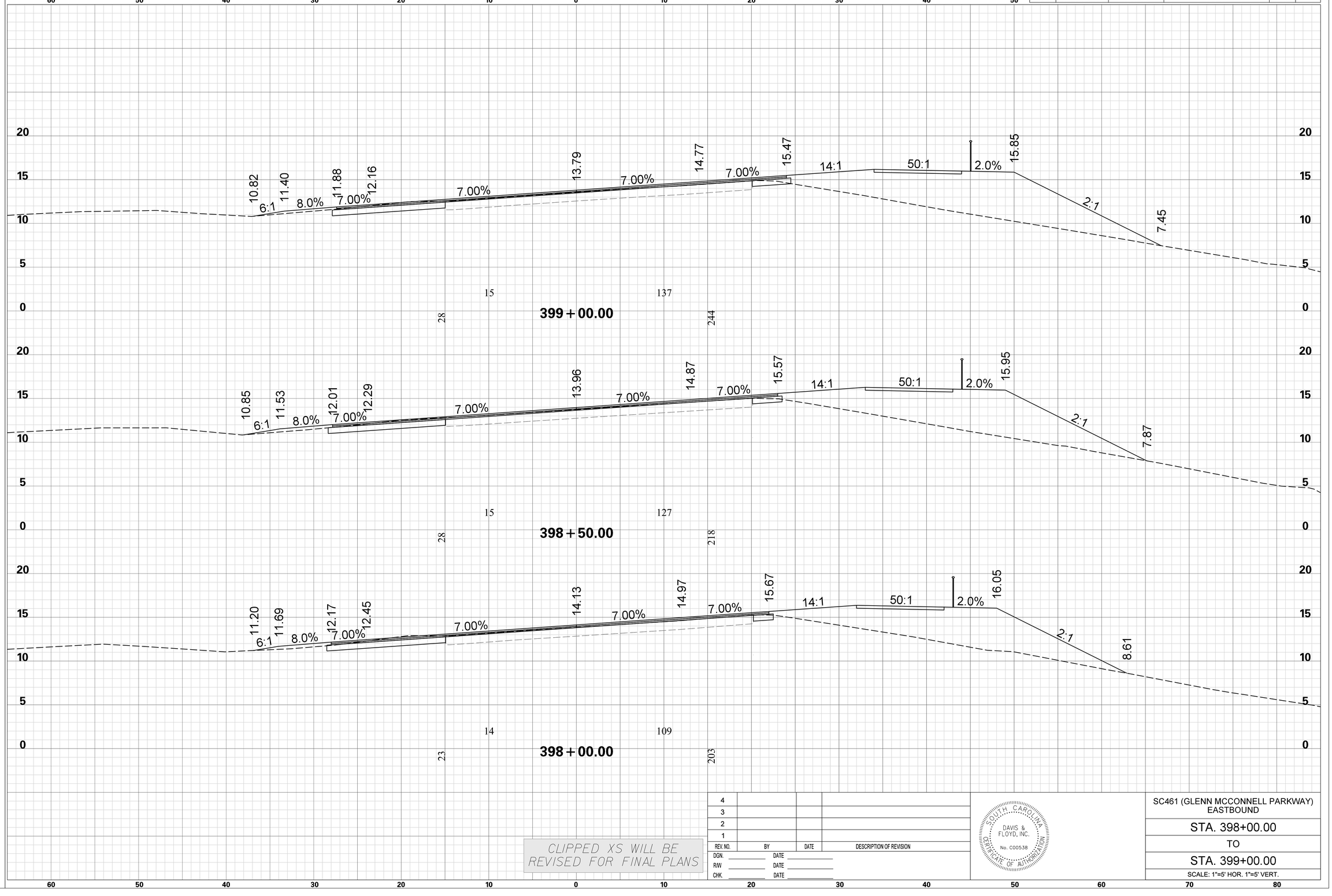
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X56	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 398+00.00

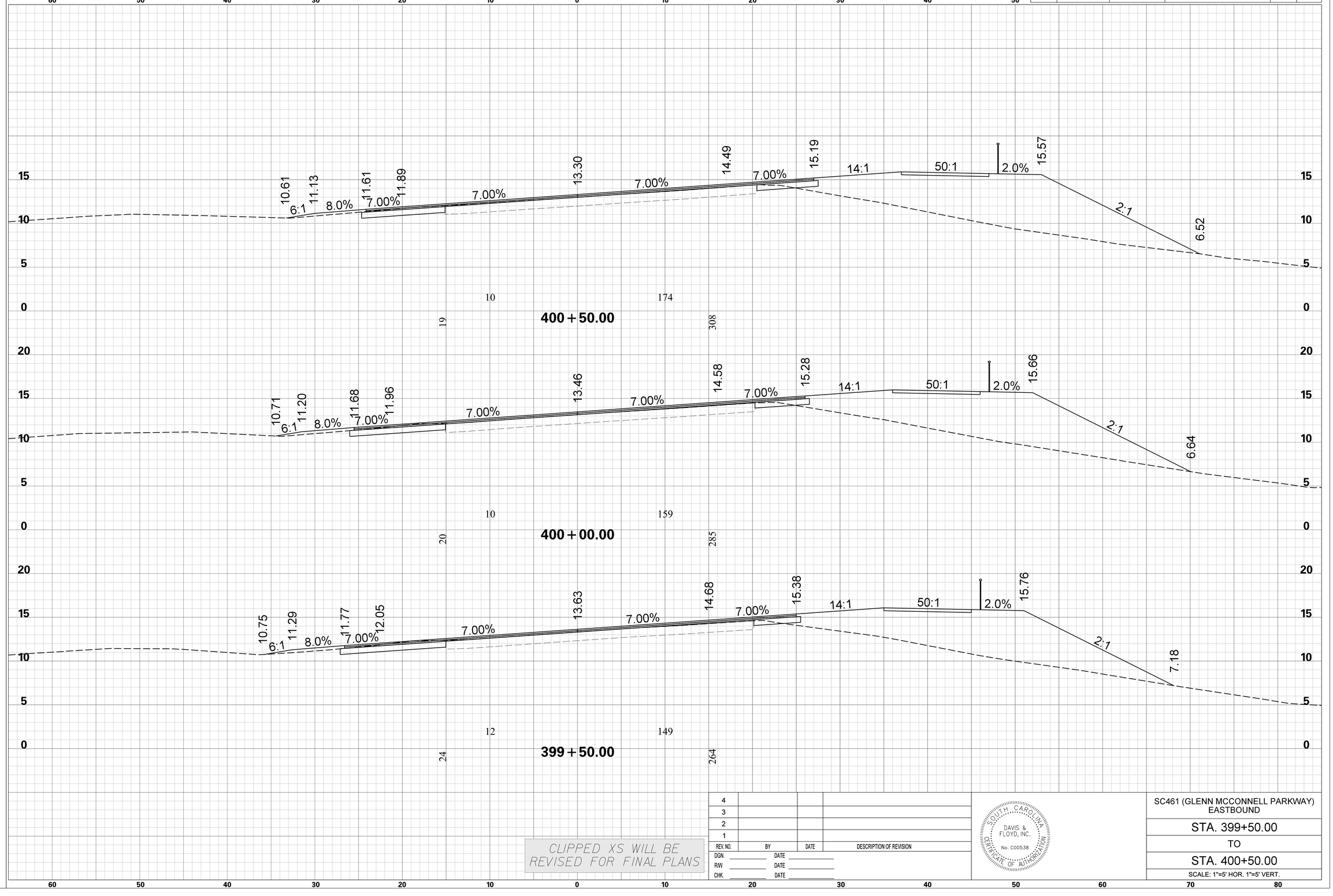
TO

STA. 399+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X57	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 399+50.00

TO

STA. 400+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X58	

END FULL S.E.
STA.402+35.00

402+00.00

10.24 | 6:1 | 10.89 | 8.0% | 11.37 | 7.00% | 11.65 | 7.00% | 12.77 | 7.00% | 14.17 | 7.00% | 14.87 | 14:1 | 50:1 | 2.0% | 15.25 | 2:1 | 5.61

7 | 188 | 15

402+00.00

10.44 | 6:1 | 10.99 | 8.0% | 11.47 | 7.00% | 11.75 | 7.00% | 12.96 | 7.00% | 14.29 | 7.00% | 14.99 | 14:1 | 50:1 | 2.0% | 15.37 | 2:1 | 5.77

9 | 184 | 16

401+50.00

10.61 | 6:1 | 11.06 | 8.0% | 11.54 | 7.00% | 11.82 | 7.00% | 13.13 | 7.00% | 14.39 | 7.00% | 15.09 | 14:1 | 50:1 | 2.0% | 15.47 | 2:1 | 5.94

9 | 180 | 17

401+00.00

CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 401+00.00

TO

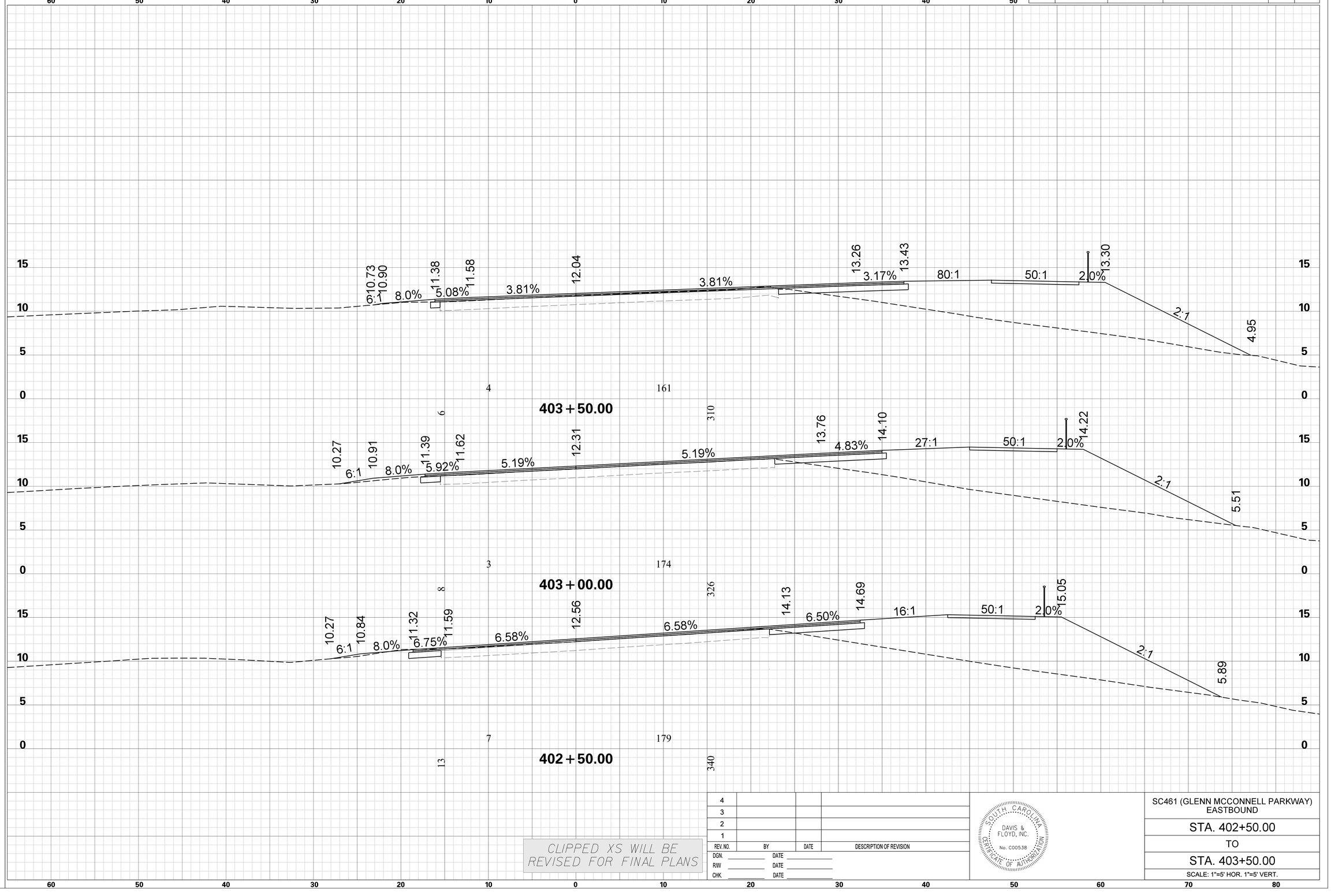
STA. 402+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X59	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 402+50.00

TO

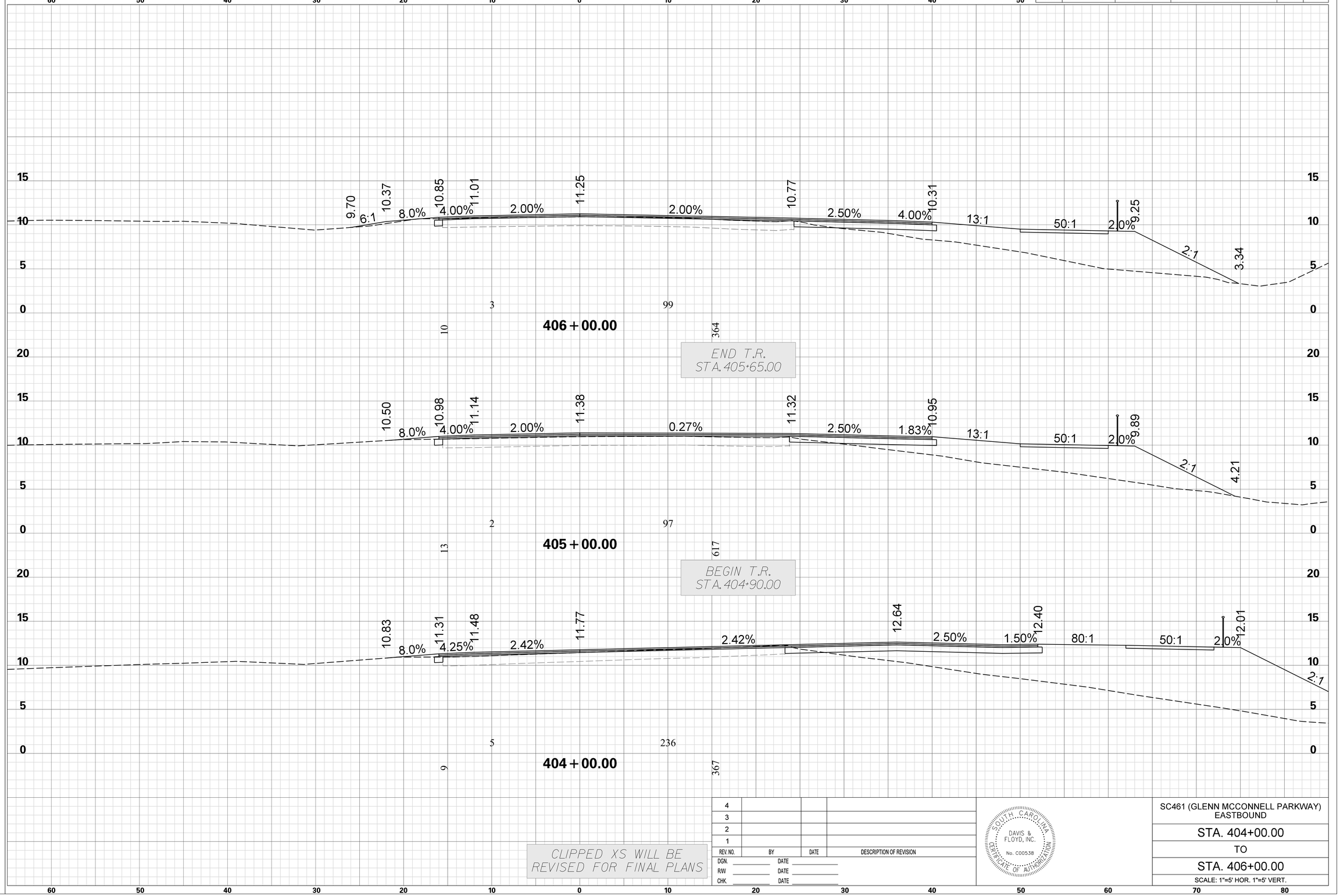
STA. 403+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X60	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) EASTBOUND

STA. 404+00.00

TO

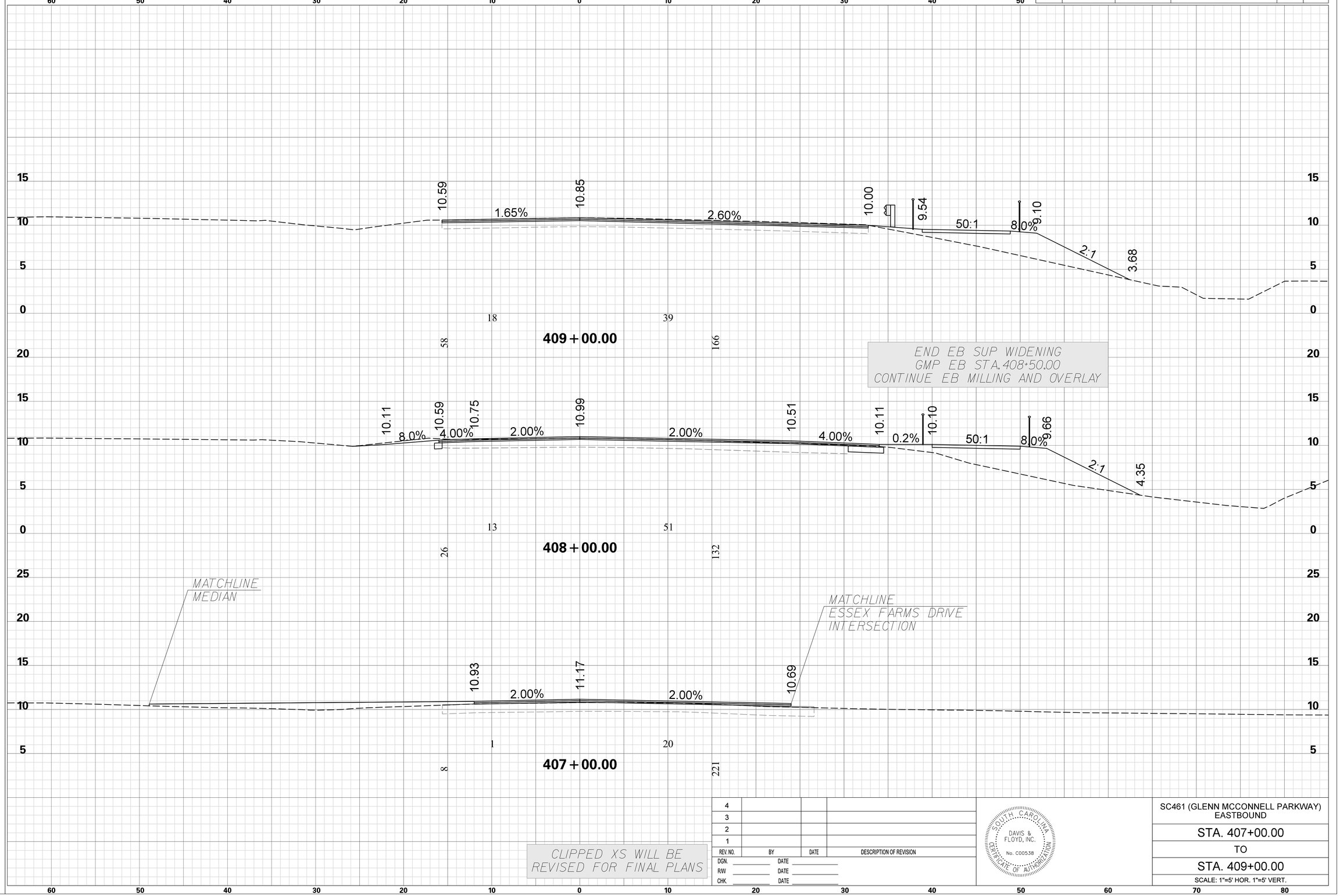
STA. 406+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X61	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND

STA. 407+00.00

TO

STA. 409+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X62	

END EB MILLING AND OVERLAY
GMP EB STA.411+92.70
SEE SUP XS SHEETS
STA.313+50.00 TO STA.331+50.00

411+92.70

10.45 | 10.80 | 9.90
2.21% | 2.76%
15 | 0
WETLAND | Ex.R/W

10.40 | 56 | 10.76 | 0 | 9.98
2.29% | 2.37%
18 | 0
WETLAND | Ex.R/W

411+00.00

10.49 | 63 | 10.77 | 0 | 10.01
1.77% | 2.33%
17 | 0
WETLAND | Ex.R/W

410+00.00

64 | 71

CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. ____ DATE ____
R/W ____ DATE ____
CHK. ____ DATE ____

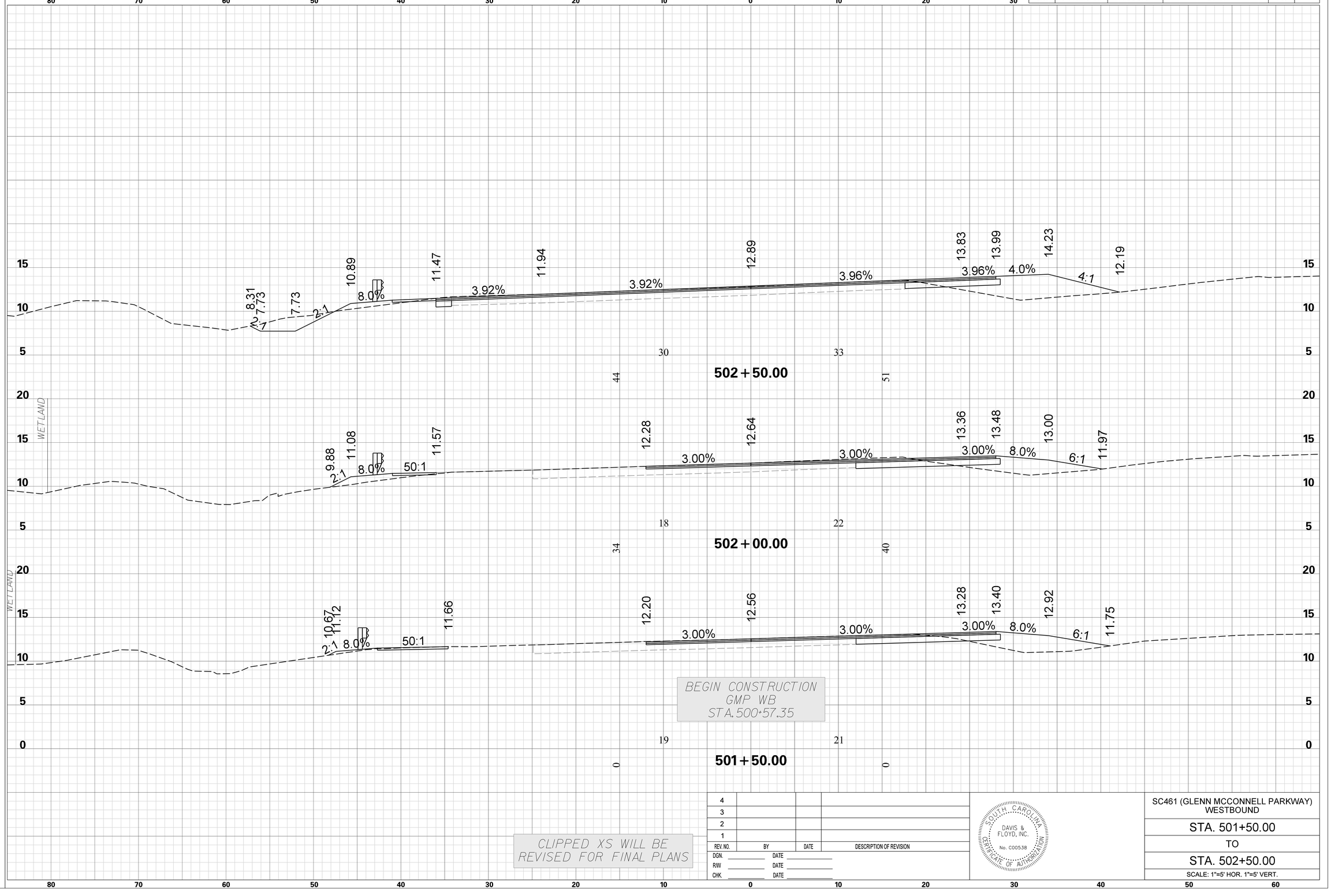
SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
EASTBOUND
STA. 410+00.00
TO
STA. 411+92.70
SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\01_13635-00 GMP EB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X63	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND

STA. 501+50.00

TO

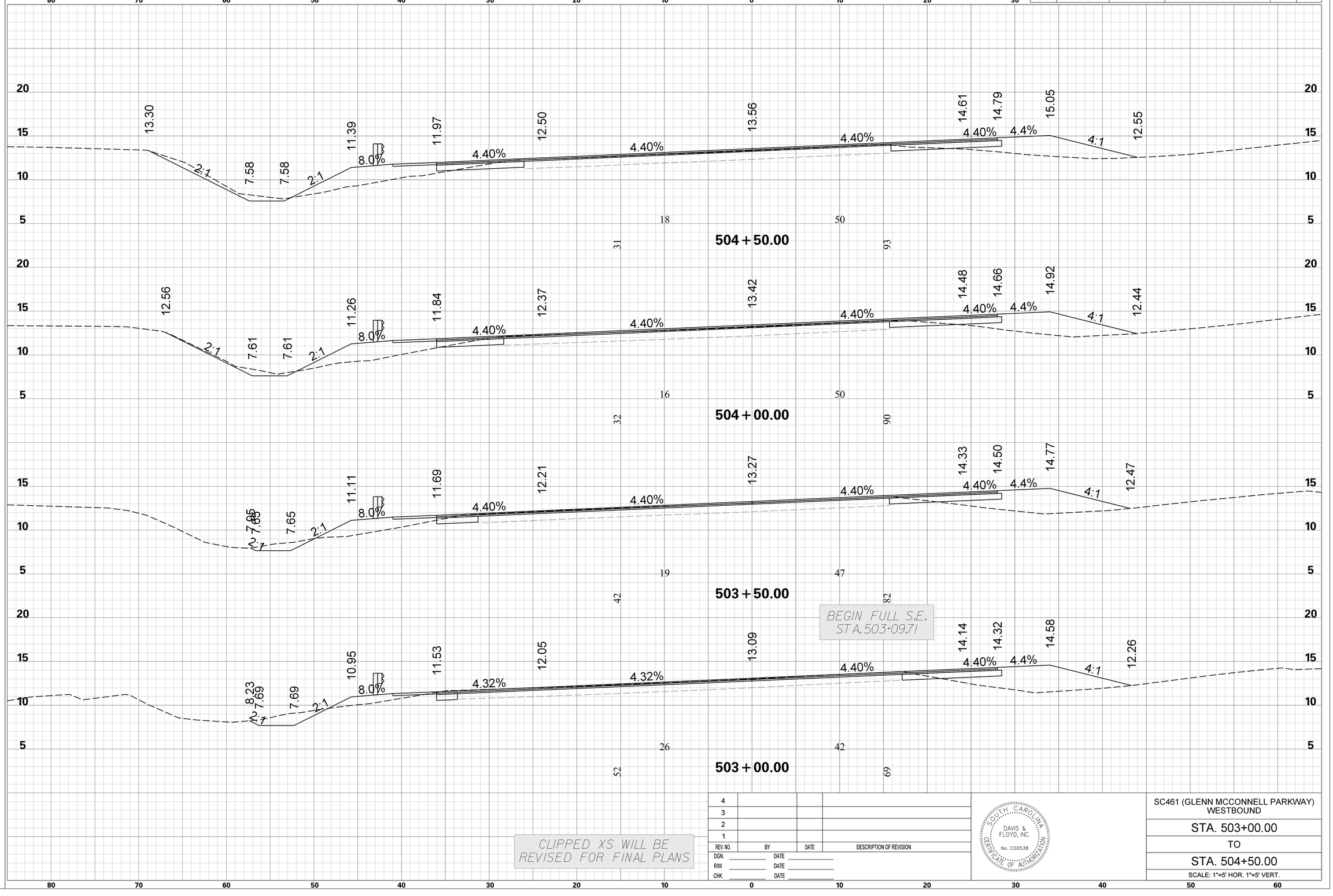
STA. 502+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X64	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND

STA. 503+00.00

TO

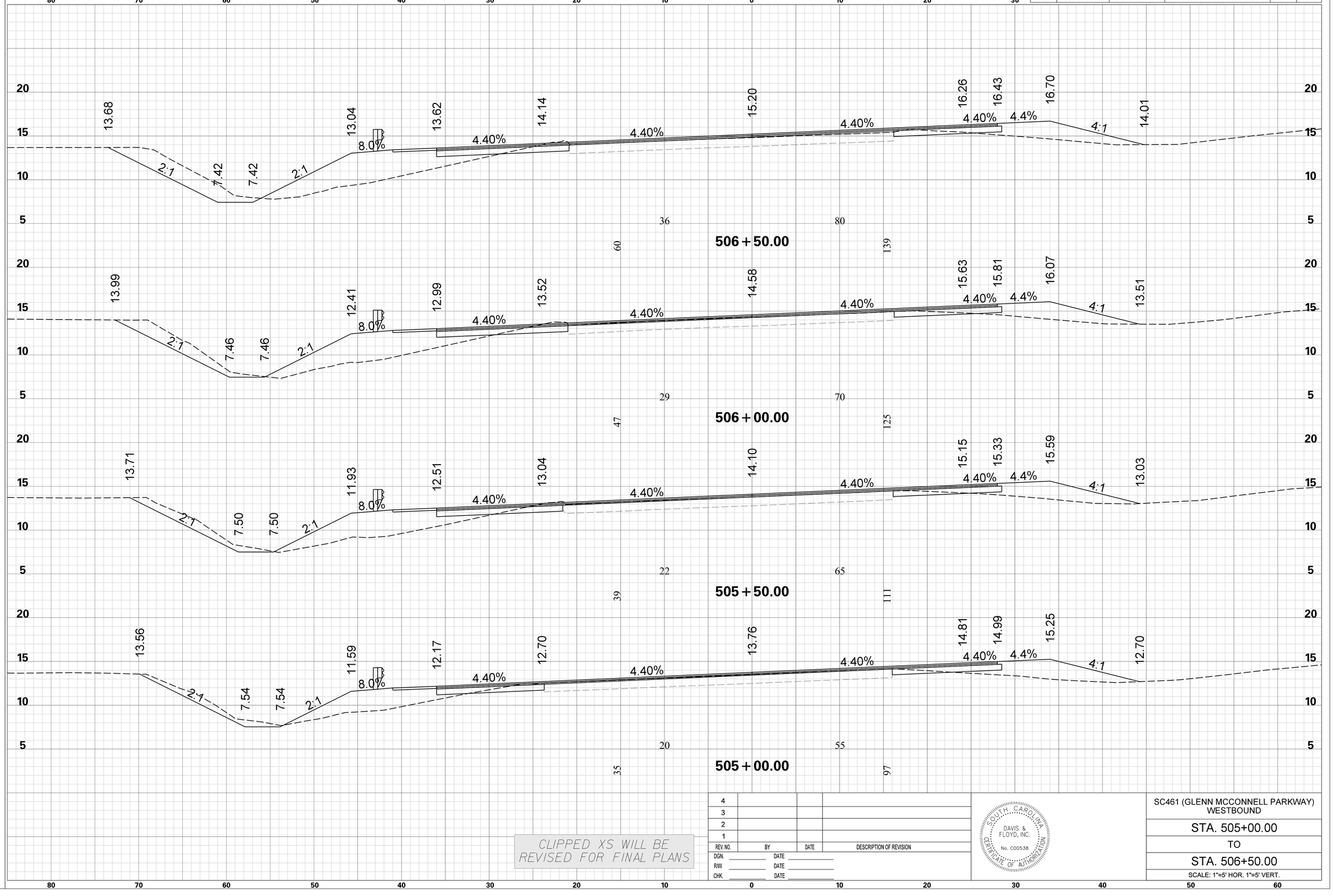
STA. 504+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X65	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 505+00.00

TO

STA. 506+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X66	

CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 507+00.00

TO

STA. 508+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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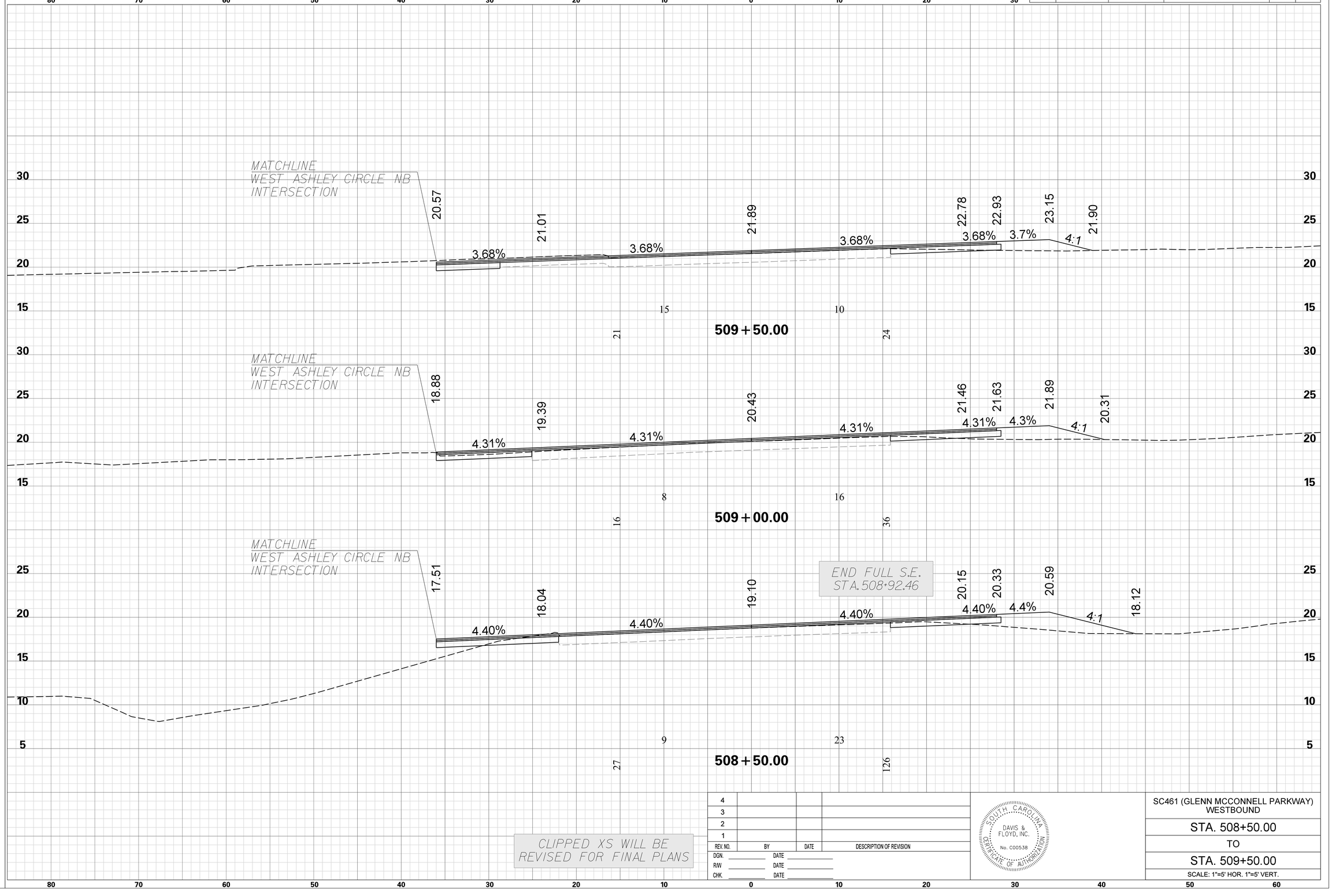
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X67	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND

STA. 508+50.00

TO

STA. 509+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft. / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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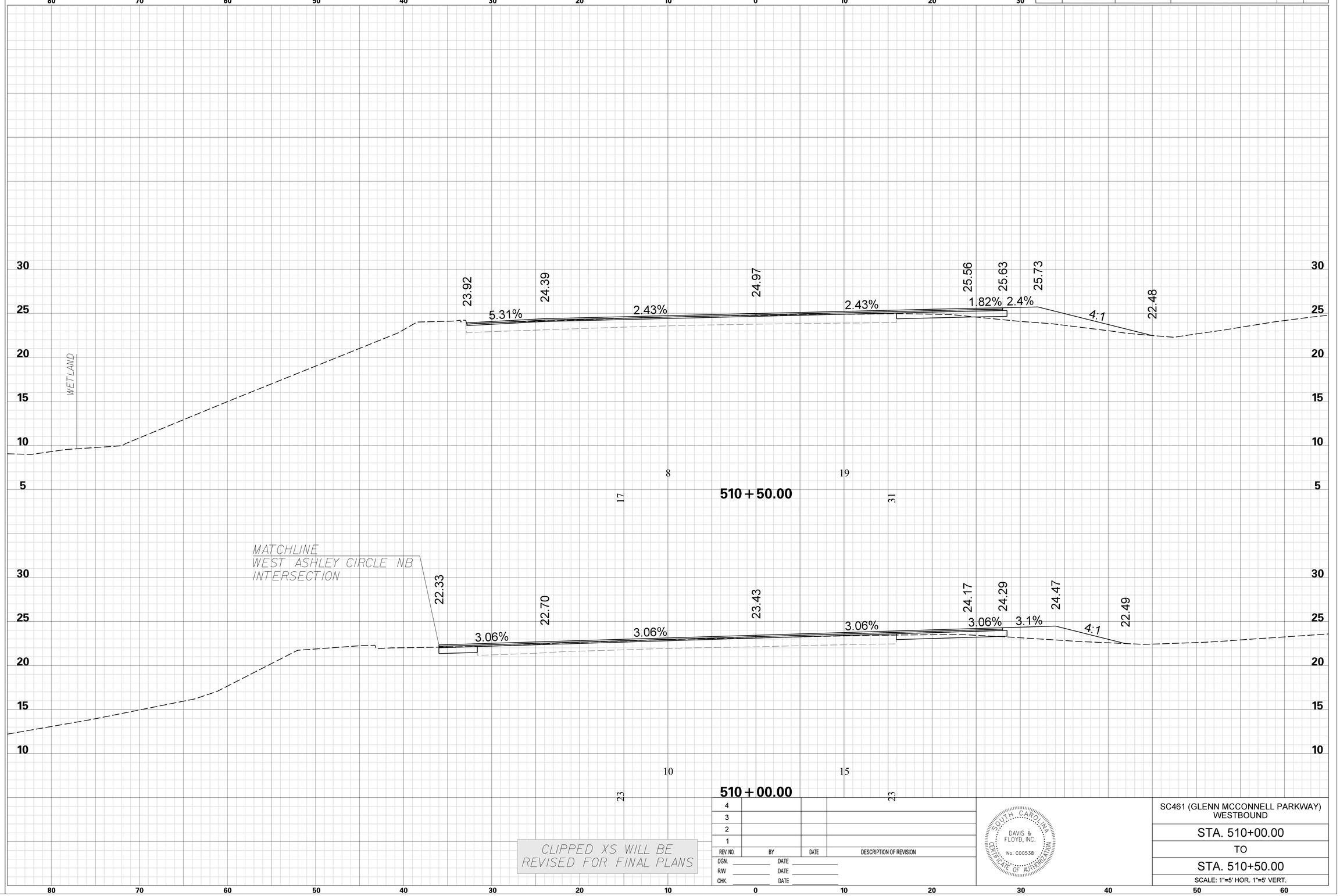
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X68	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 510+00.00

TO

STA. 510+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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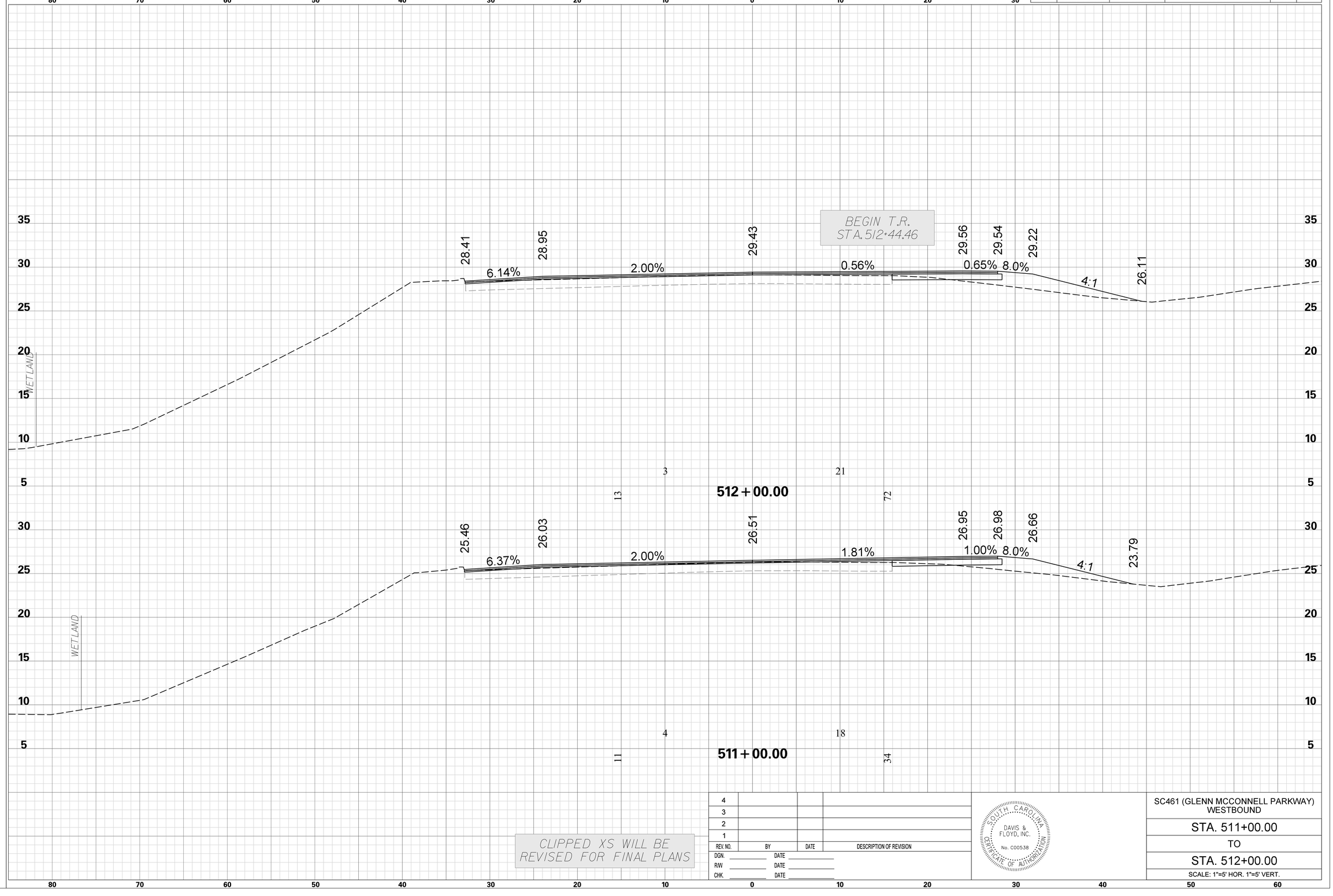
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X69	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 511+00.00

TO

STA. 512+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
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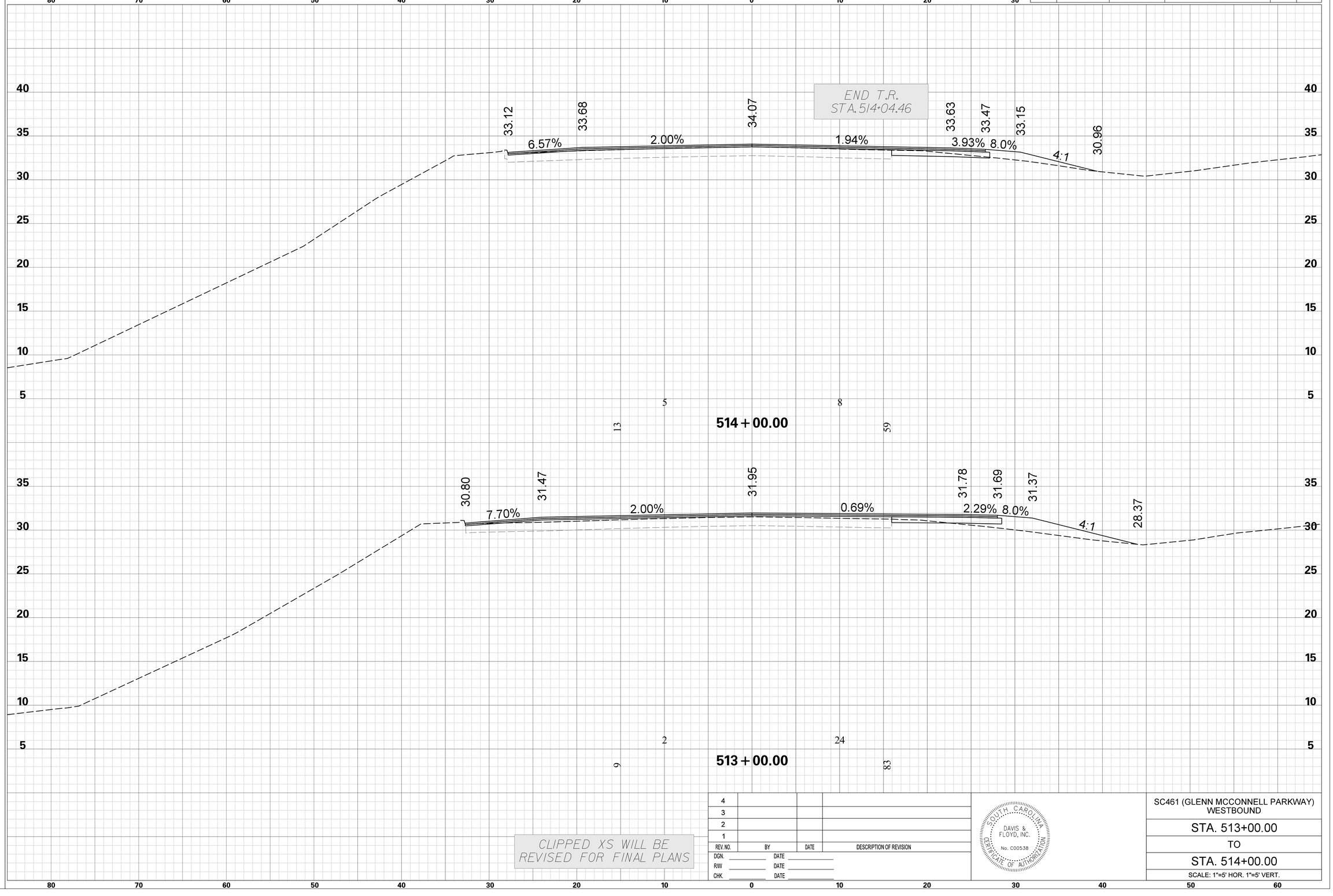
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X70	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 513+00.00

TO

STA. 514+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
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4/7/2020

SCALE: 5.000 ft / in.
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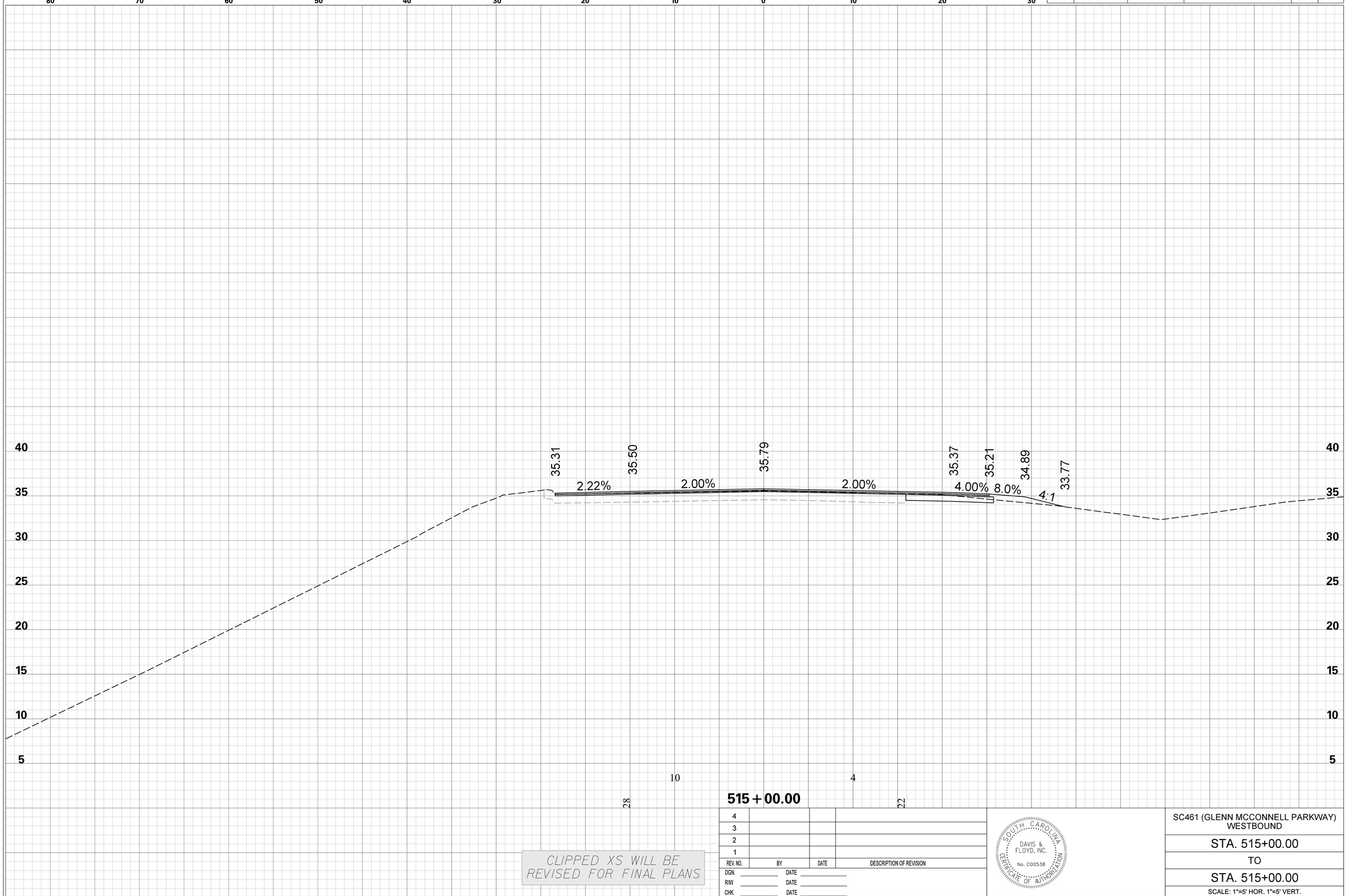
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X71	



515 + 00.00

CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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2			
1			

DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 515+00.00

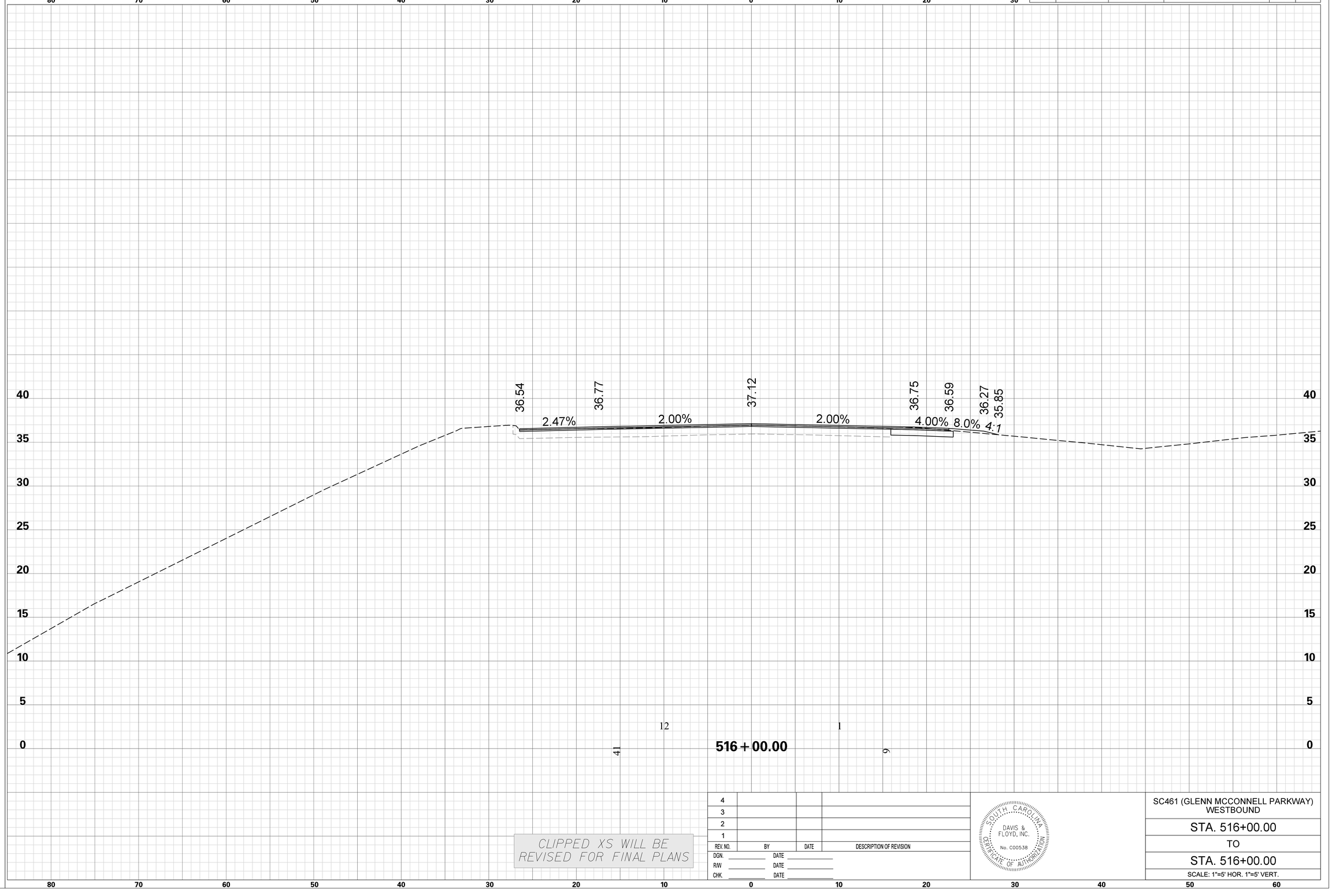
TO

STA. 515+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X72	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 516+00.00

TO

STA. 516+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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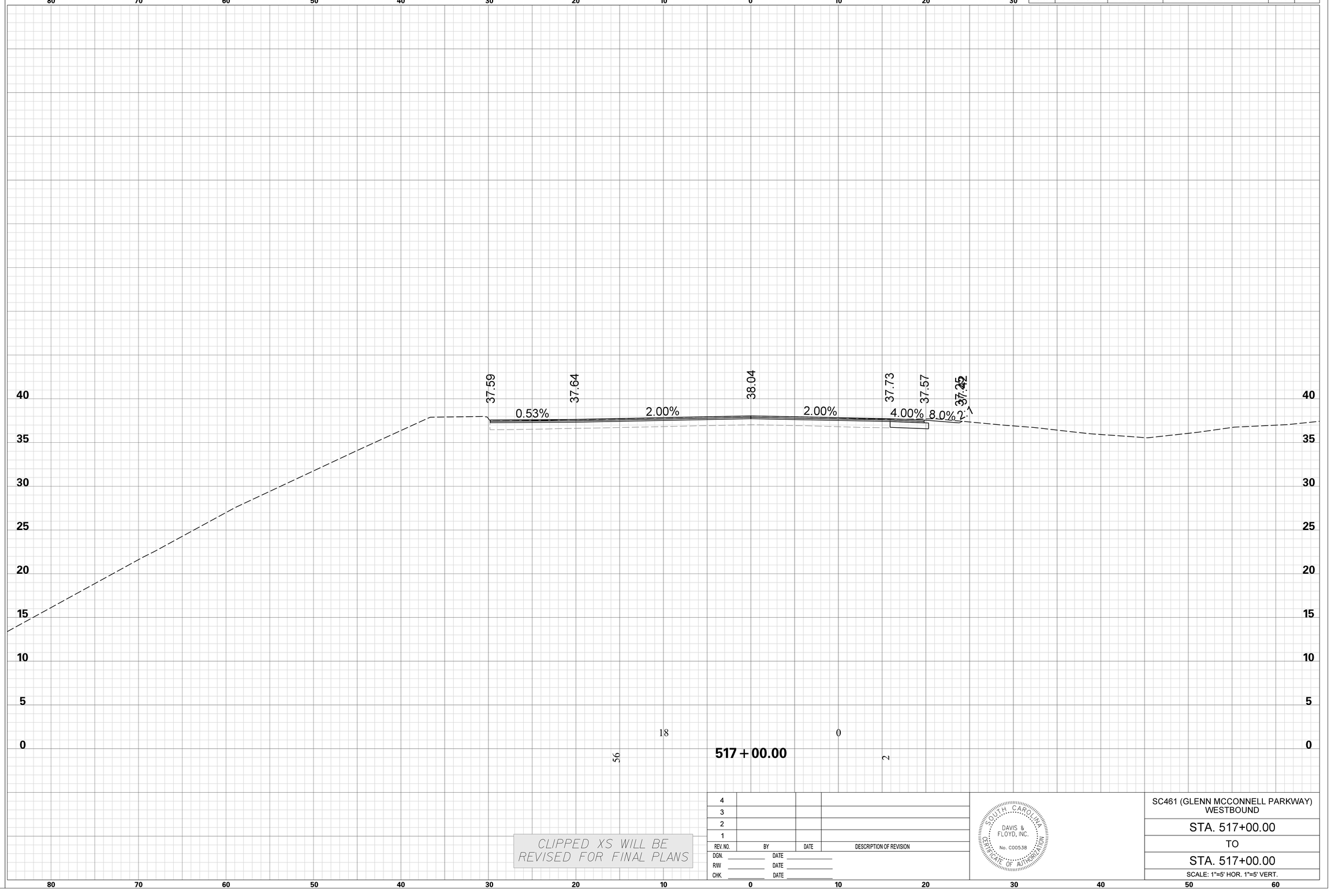
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X73	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 517+00.00

TO

STA. 517+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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4/7/2020

SCALE: 5.000 ft / in.
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FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X74	

BEGIN EXISTING BRIDGE
GMP WB
STA. 518+57.89

BEGIN SE TRANSITION
TO EXISTING BRIDGE CROSS SLOPE
GMP WB
STA. 518+47.89

38.26 38.27 38.73 38.47 38.31 37.99 38.50

0.11% 2.00% 2.00% 4.00% 8.0%

19 0 69 0

518 + 00.00

CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

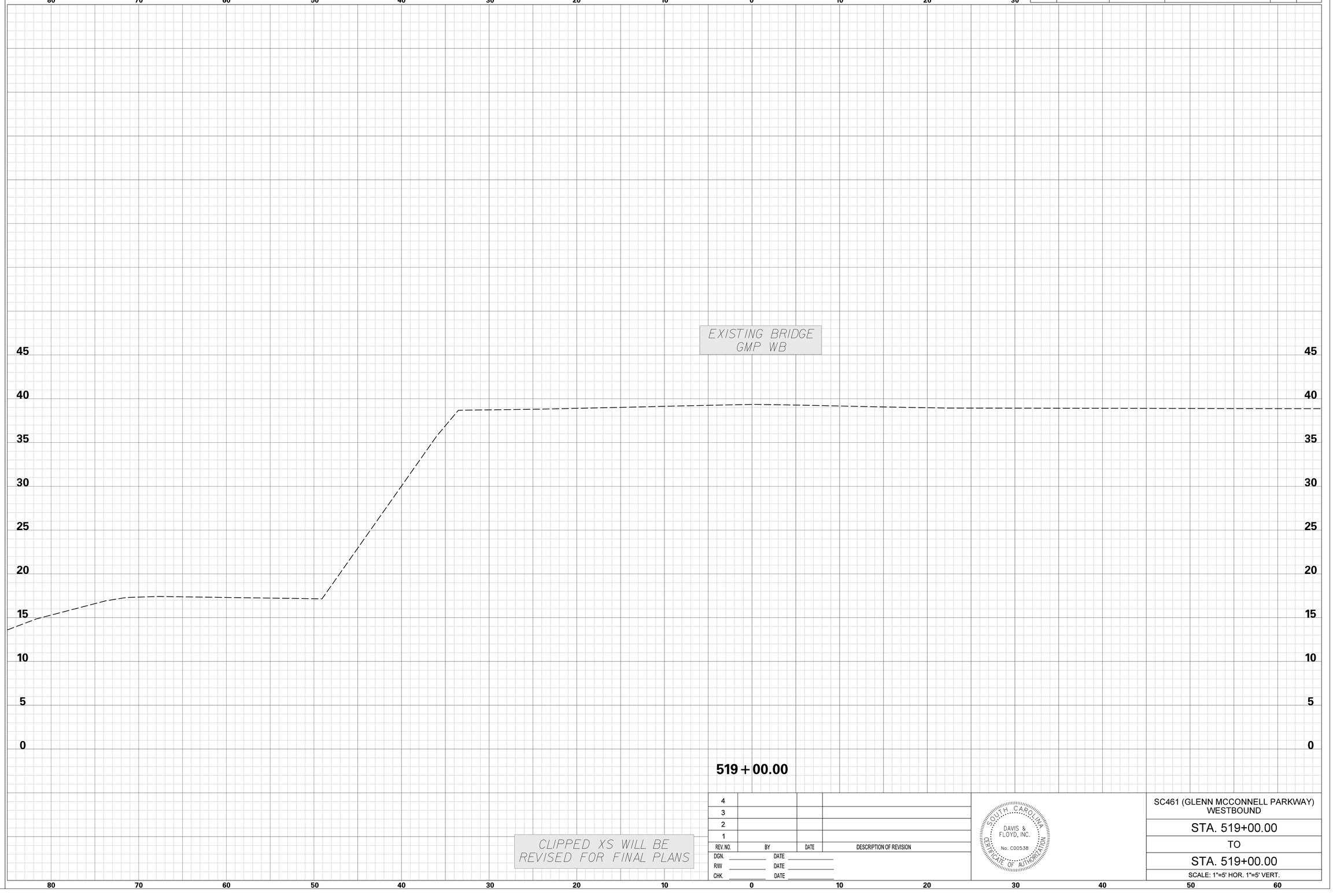
SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND
STA. 518+00.00
TO
STA. 518+00.00
SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X75	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 519+00.00

TO

STA. 519+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X76	

80 70 60 50 40 30 20 10 0 10 20 30

45
40
35
30
25
20
15
10
5

EXISTING BRIDGE
GMP WB

520+00.00

CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

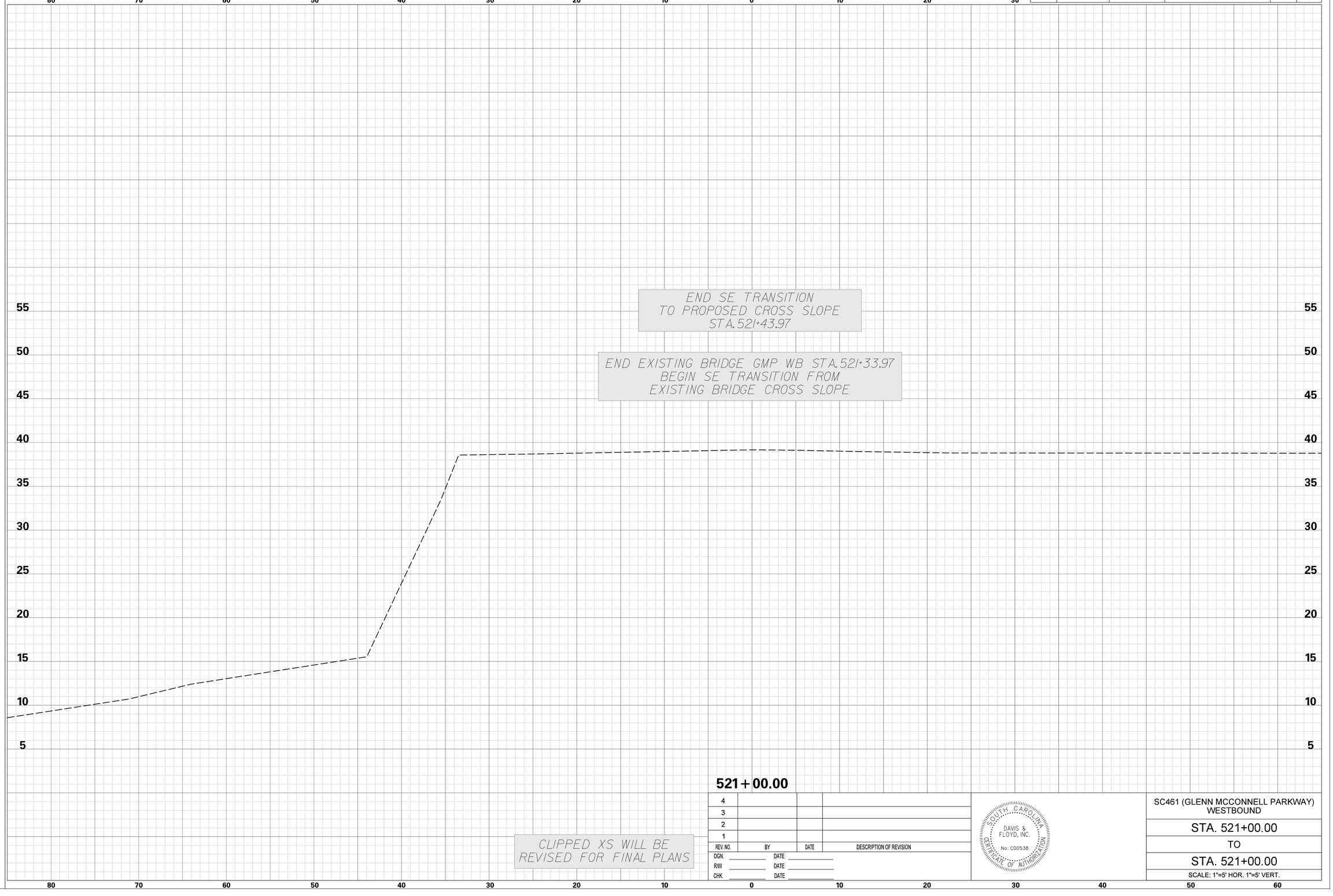
SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND
STA. 520+00.00
TO
STA. 520+00.00
SCALE: 1"=5' HOR. 1"=5' VERT.

80 70 60 50 40 30 20 10 0 10 20 30 40 50 60

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X77	



521+00.00

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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1			

DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND

STA. 521+00.00

TO

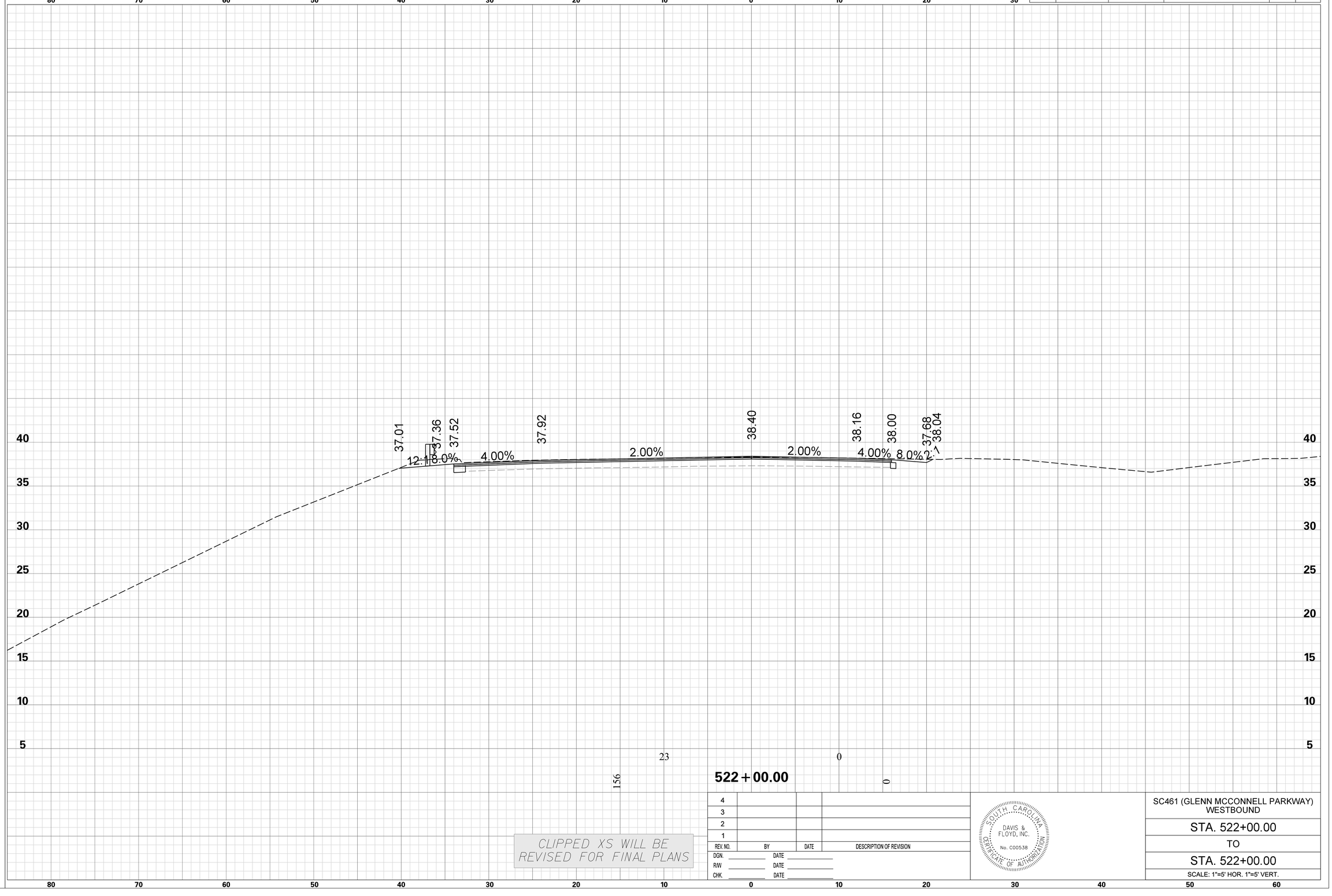
STA. 521+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X78	

CONSTRUCTION PLANS



522+00.00

CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 522+00.00

TO

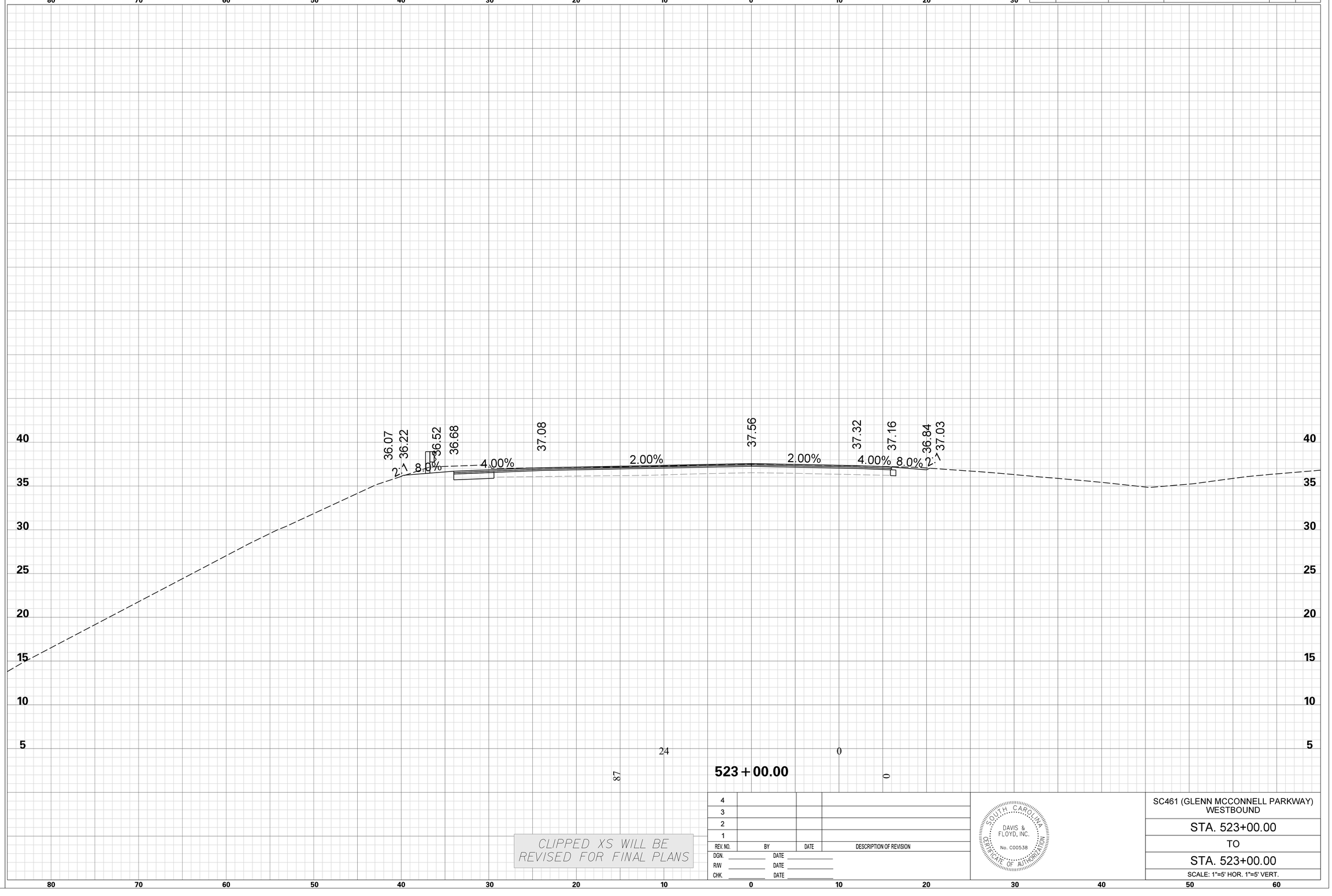
STA. 522+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X79	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 523+00.00

TO

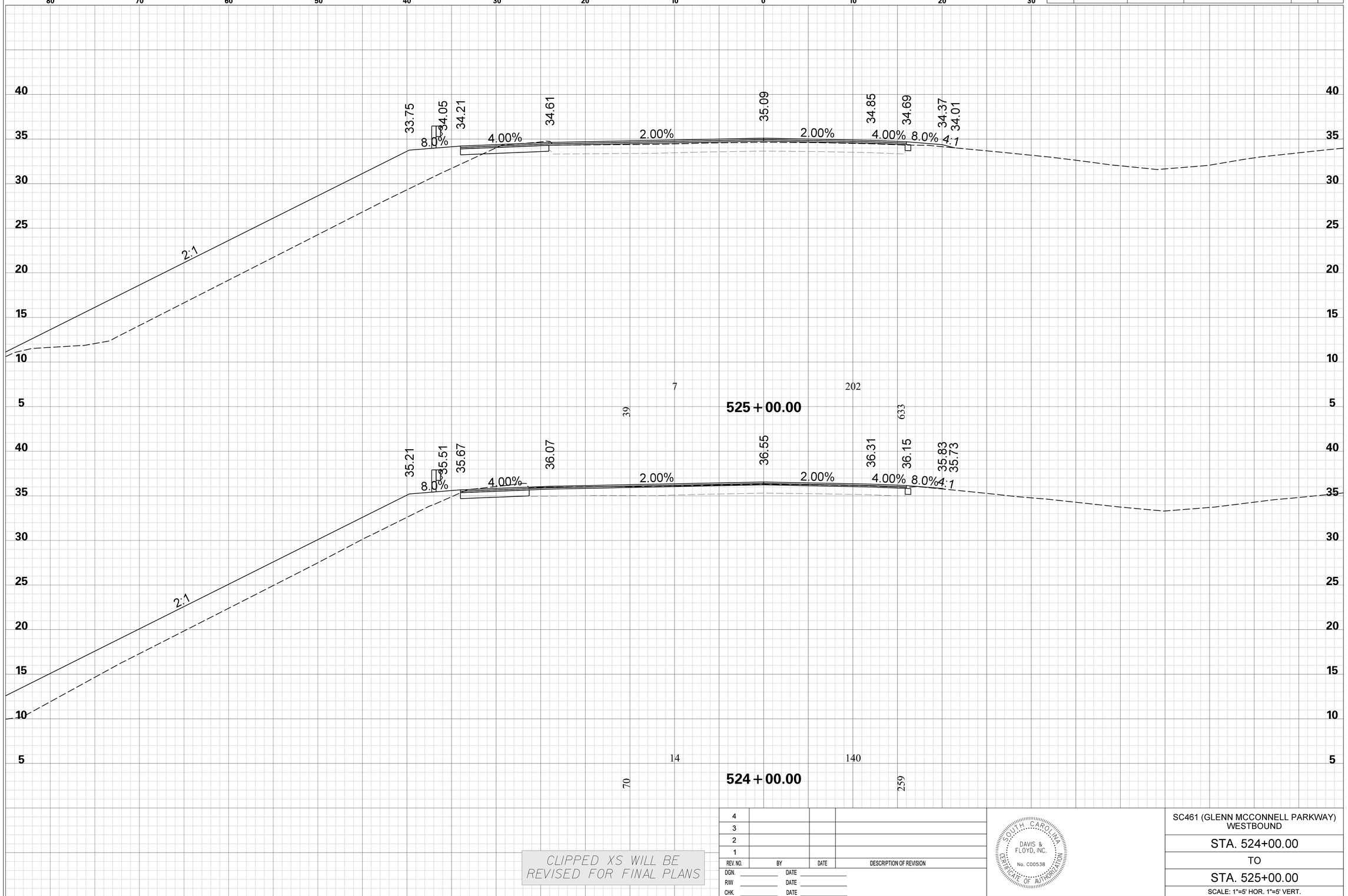
STA. 523+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X80	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND

STA. 524+00.00

TO

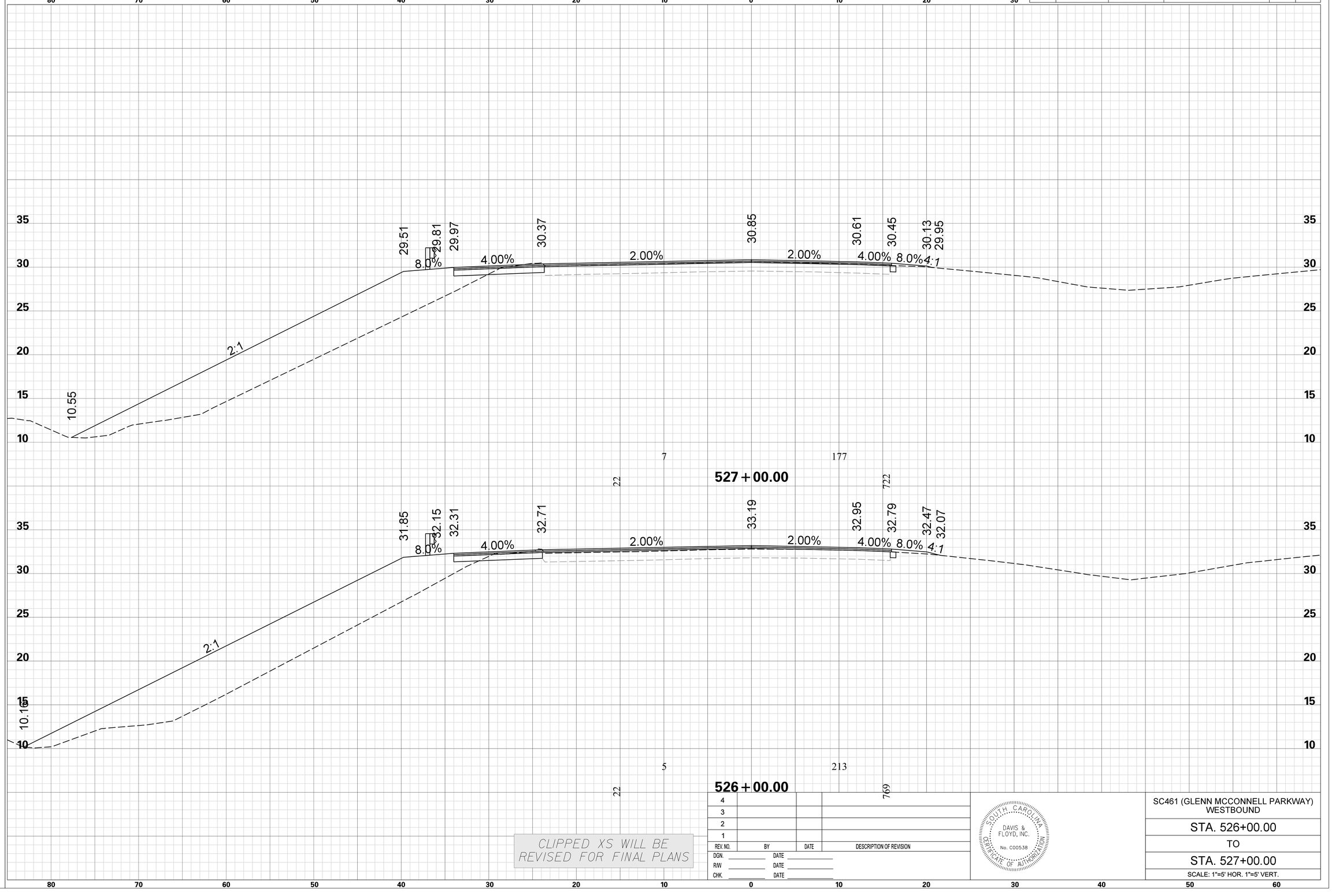
STA. 525+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X81	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 526+00.00

TO

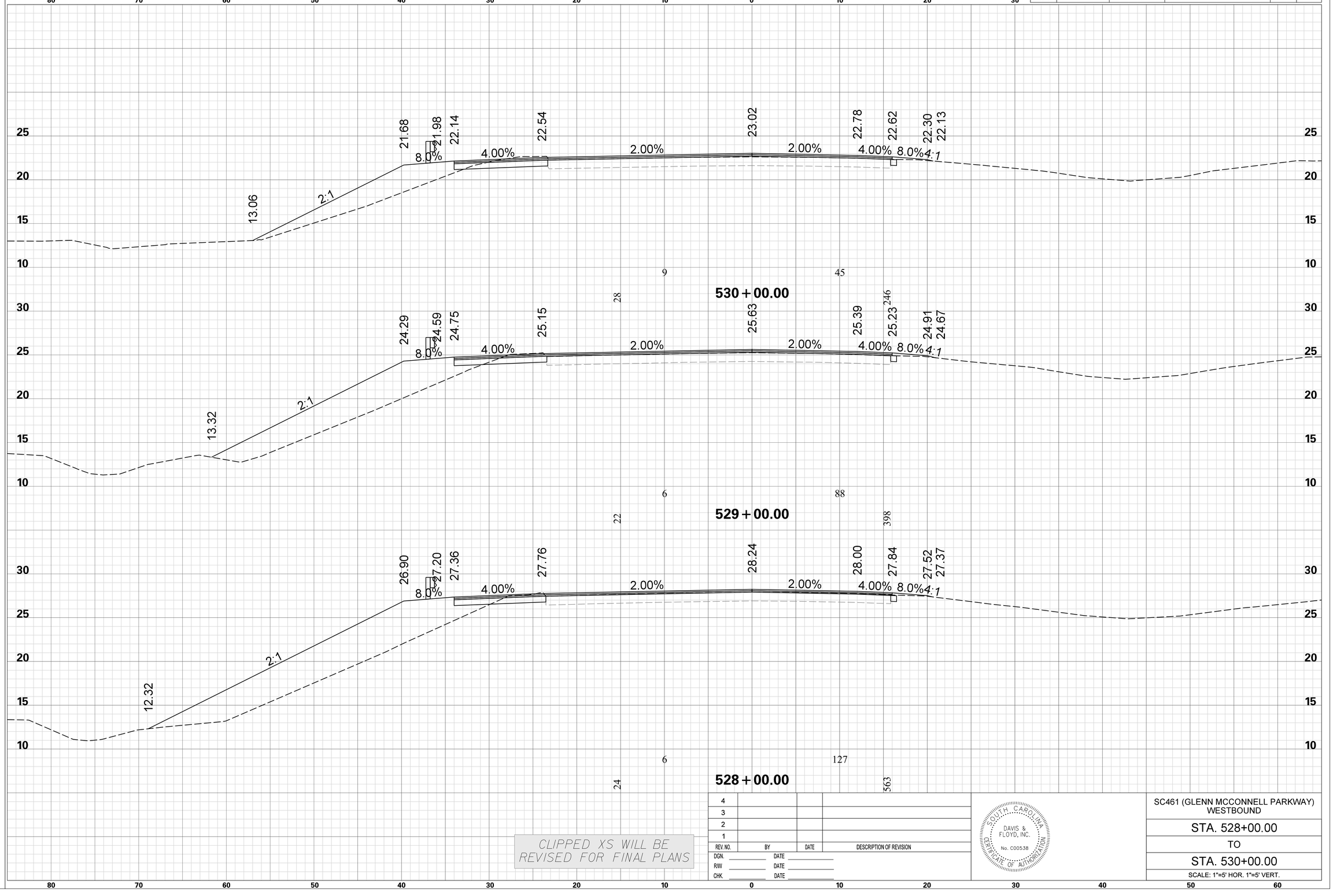
STA. 527+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft. / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X82	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 528+00.00

TO

STA. 530+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X83	

BEGIN AUXILIARY LANE
STA. 532+98.44

MATCHLINE
GOODWILL WAY
INTERSECTION

MATCHLINE LEFT TURN OFFSET
SEE EB XS FOR TIE-IN

16.91 | 2.00% | 17.55 | 2.00% | 17.38 | 16.54

21 | 0

532+50.00

19 | 4

MATCHLINE
GOODWILL WAY
INTERSECTION

MATCHLINE
WILLIAM E MURRAY BLVD.
INTERSECTION

17.81 | 2.00% | 18.36 | 2.00% | 18.12

0 | 4

532+00.00

24 | 120

EXIST

18.91 | 19.21 | 19.37 | 19.97 | 20.45 | 20.21 | 20.05 | 19.53

8.0% | 4.00% | 2.00% | 2.00% | 4.00% | 8.0% | 4:1

11.70 | 2:1

13 | 61

531+00.00

41 | 196

CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
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1			

DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND

STA. 531+00.00

TO

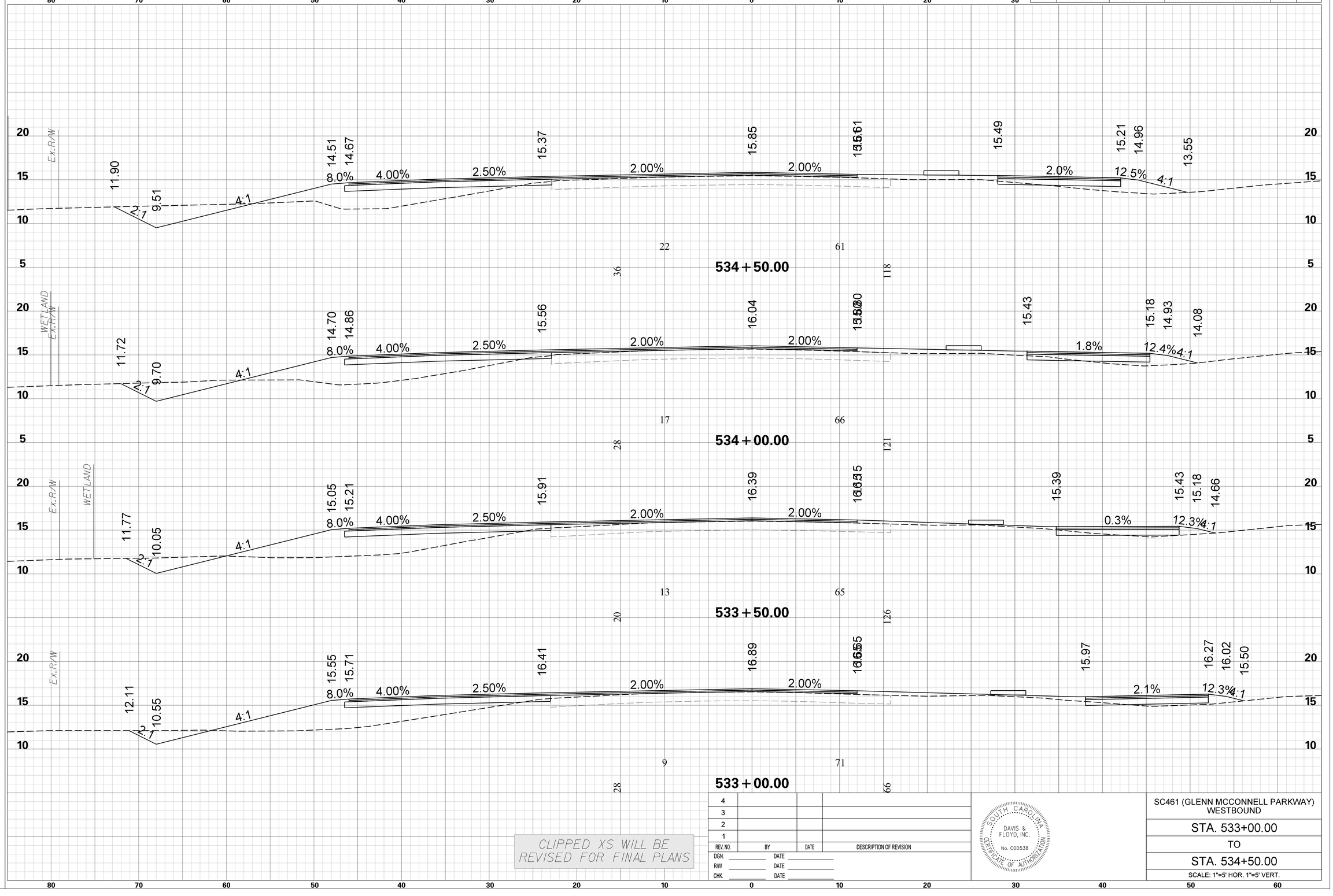
STA. 532+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X84	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 533+00.00

TO

STA. 534+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
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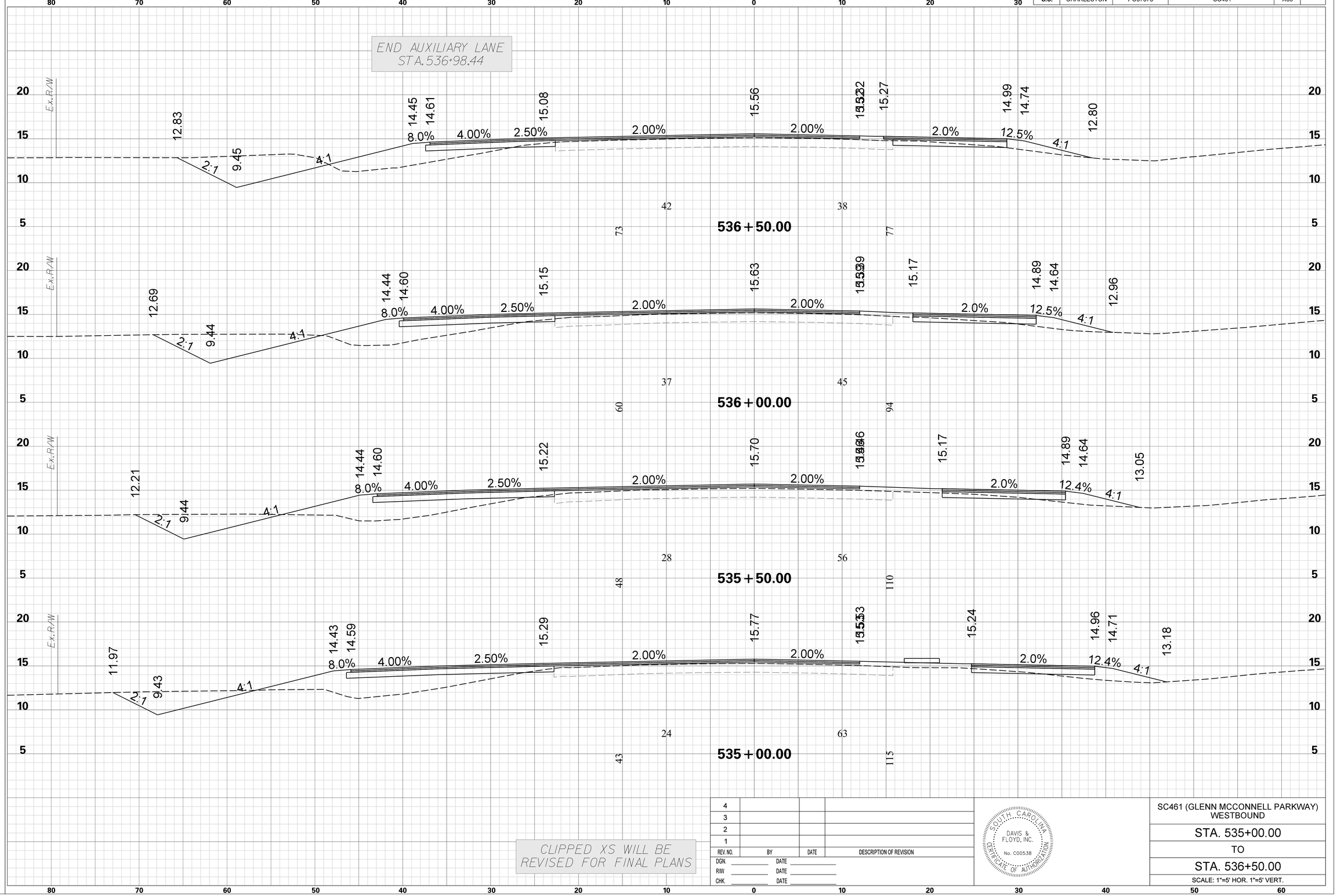
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X85	

END AUXILIARY LANE
STA. 536+98.44



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND

STA. 535+00.00

TO

STA. 536+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X86	

END OFFSET LEFT TURN
FOR WILLIAM E MURRAY BLVD.
STA.538+37.46

Ex.R/W

13.39 2:1 9.31 4:1 14.31 14.47 8.0% 4.00% 14.87 2.00% 15.35 2.00% 15.11 15.11 1.9% 14.97 14.73 12.5% 4:1 14.19

43 74 **538+00.00** 26 51

Ex.R/W

12.52 2:1 9.38 4:1 14.38 14.54 8.0% 4.00% 14.94 2.00% 15.42 2.00% 15.18 15.18 2.0% 14.98 14.73 12.4% 4:1 13.50

37 70 **537+50.00** 29 56

Ex.R/W

13.50 2:1 9.45 4:1 14.45 14.61 8.0% 4.00% 15.01 2.00% 15.49 2.00% 15.25 15.25 2.0% 14.98 14.73 12.4% 4:1 12.94

39 75 **537+00.00** 32 65

CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND
STA. 537+00.00
TO
STA. 538+00.00
SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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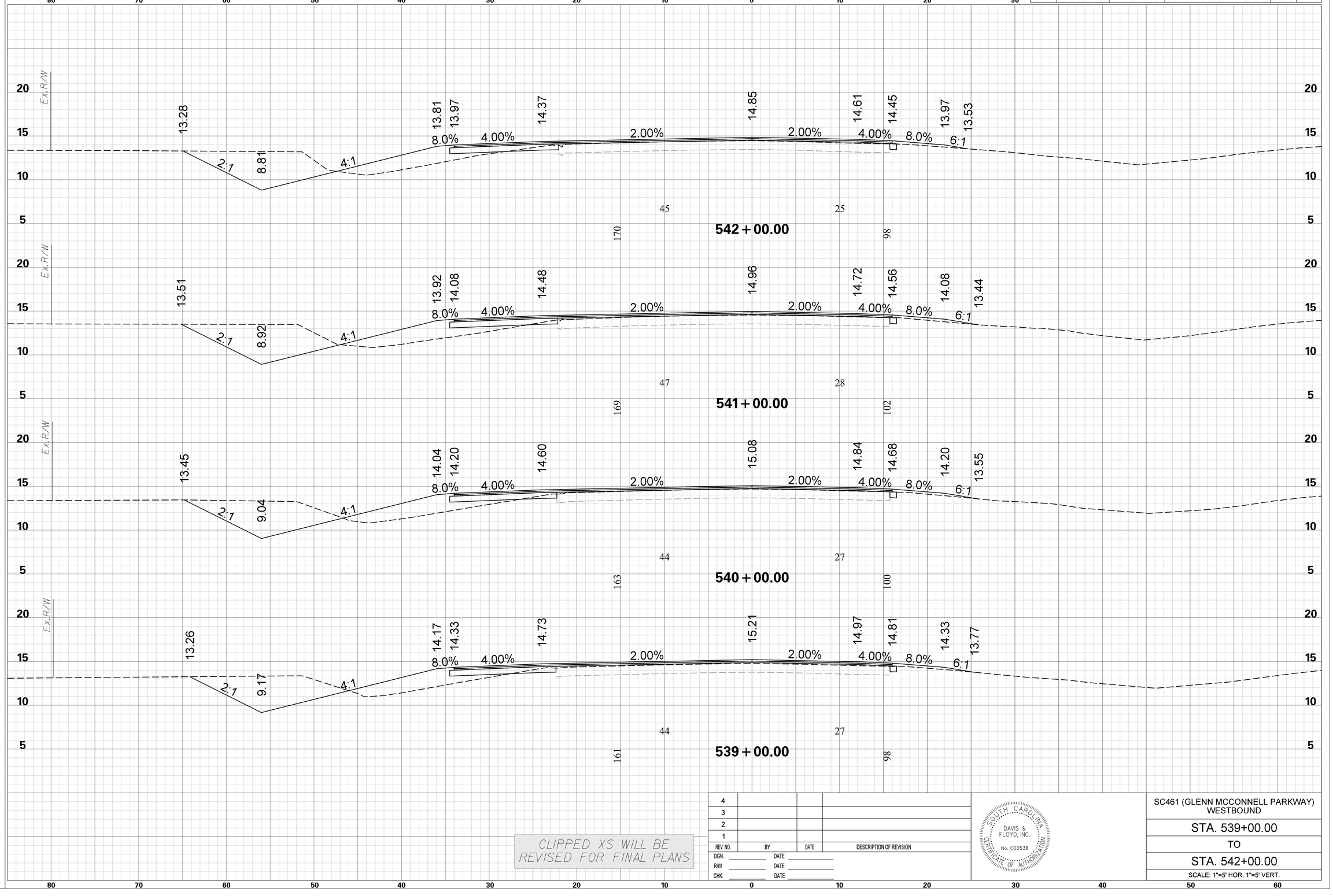
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X87	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 539+00.00

TO

STA. 542+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X88	

MATCHLINE LEFT TURN OFFSET
SEE EB XS FOR TIE-IN

Ex.R/W

13.13 | 2:1 | 8.47 | 4:1 | 13.47 | 13.63 | 8.0% | 4.00% | 14.03 | 2.00% | 14.51 | 2.00% | 14.27

46 | 26 | 170 | 85

545+00.00

Ex.R/W

13.02 | 2:1 | 8.58 | 4:1 | 13.58 | 13.74 | 8.0% | 4.00% | 14.14 | 2.00% | 14.62 | 2.00% | 14.38 | 4.00% | 14.22 | 8.0% | 13.74

46 | 20 | 157 | 78

544+00.00

Ex.R/W

12.92 | 2:1 | 8.69 | 4:1 | 13.69 | 13.85 | 8.0% | 4.00% | 14.25 | 2.00% | 14.73 | 2.00% | 14.49 | 4.00% | 14.33 | 8.0% | 13.85 | 13.62 | 6:1

39 | 22 | 156 | 87

543+00.00

CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

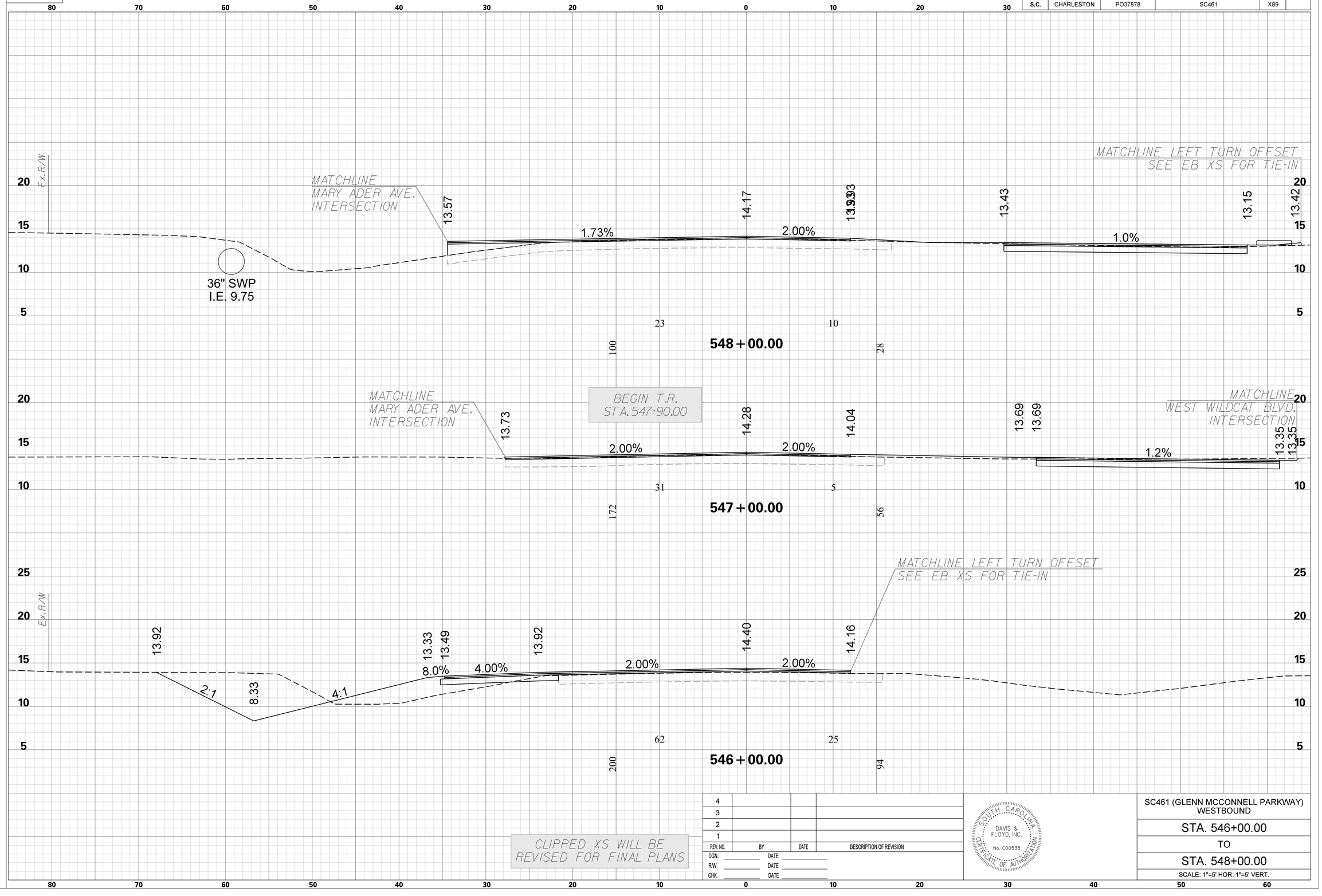
SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND
STA. 543+00.00
TO
STA. 545+00.00
SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X89	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 546+00.00

TO

STA. 548+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft. / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X90	

MATCHLINE LEFT TURN OFFSET
SEE EB XS FOR TIE-IN

Ex.R/W

13.34 | 10.06 | 2:1 | 4:1 | 15.06 | 15.01 | 2.2% | 14.53 | 2.20% | 14.00 | 2.20% | 13.74 | 13.41 | 2.0% | 12.85 | 12.53 | 8.0%

29 110 69 179

549+50.00

MATCHLINE LEFT TURN OFFSET
SEE EB XS FOR TIE-IN

Ex.R/W

13.75 | 9.41 | 2:1 | 4:1 | 14.41 | 14.49 | 3.5% | 14.28 | 0.93% | 0.93% | 14.06 | 13.82 | 13.41 | 2.00% | 12.85 | 12.53 | 2.0% | 8.0%

BEGIN FULL S.E.
STA. 549+45.00

46 83 119 134

549+00.00

MATCHLINE LEFT TURN OFFSET
SEE EB XS FOR TIE-IN

Ex.R/W

14.42 | 8.77 | 2:1 | 4:1 | 13.77 | 13.93 | 8.0% | 14.02 | 0.40% | 0.40% | 14.11 | 13.87 | 13.28 | 2.00% | 13.00 | 12.68 | 1.0% | 8.0%

END T.R.
STA. 548+65.00

82 62 97 67

548+50.00

CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 548+50.00

TO

STA. 549+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

SCALE: 5.000 ft / in.
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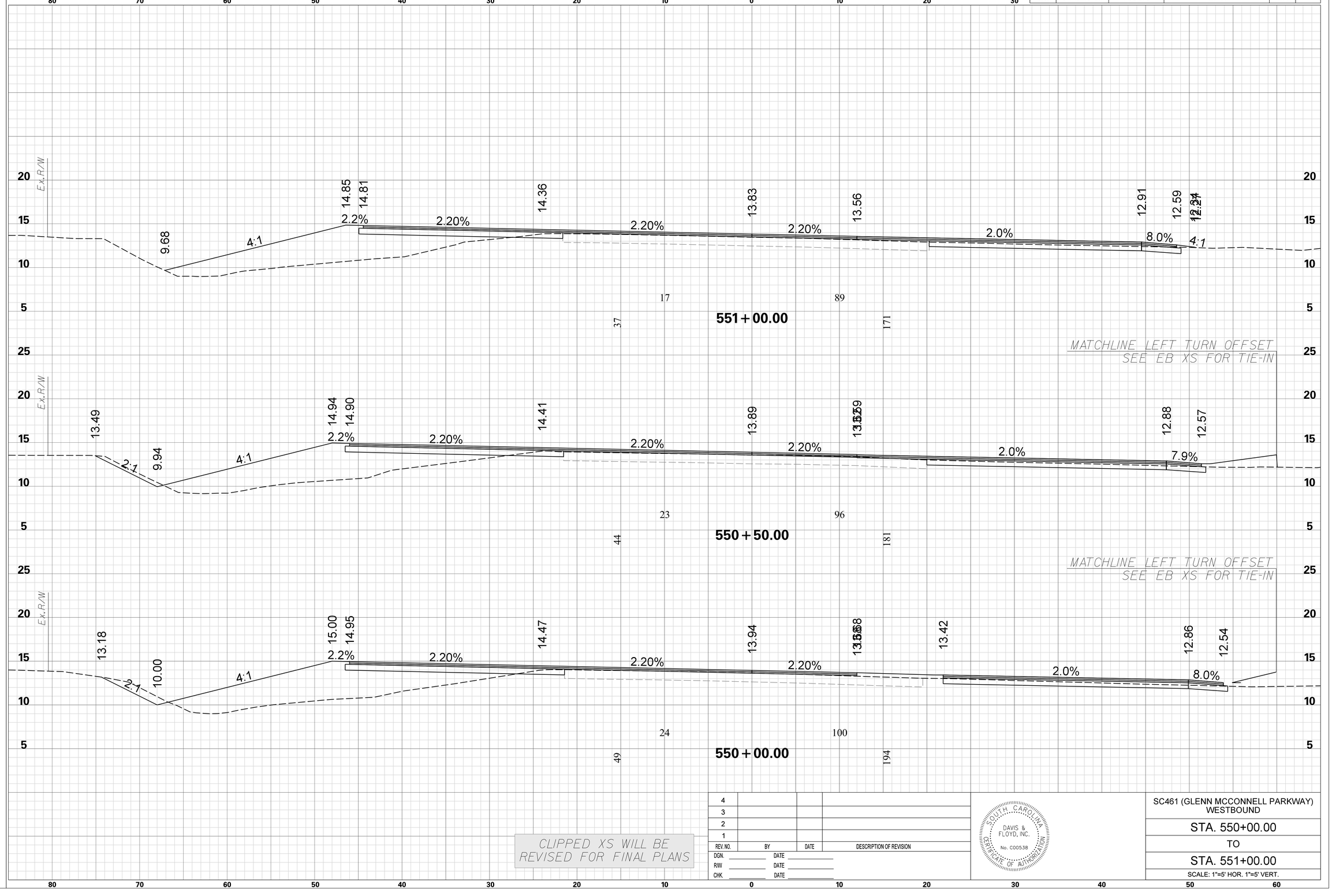
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X91	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 550+00.00

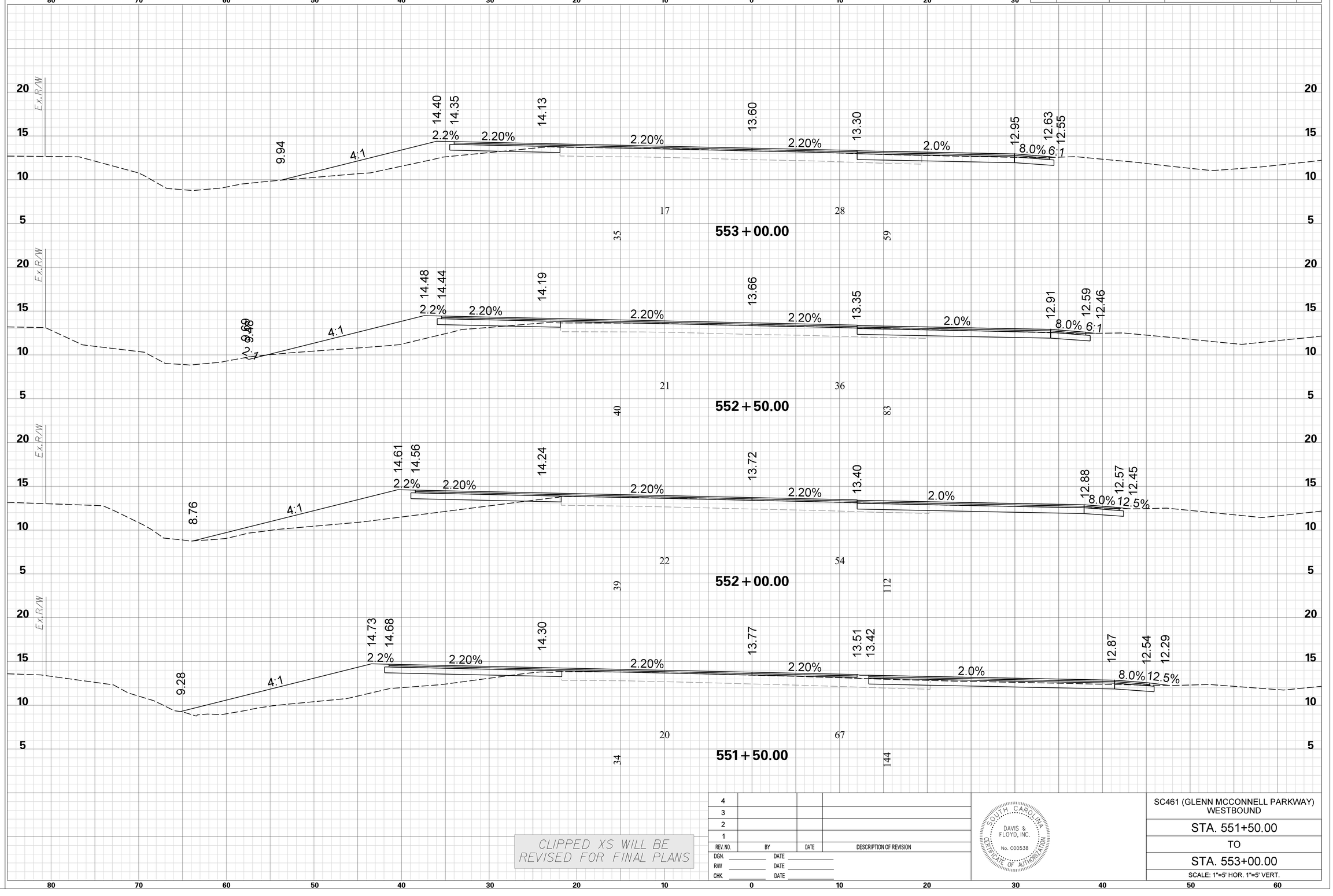
TO

STA. 551+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X92	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 551+50.00

TO

STA. 553+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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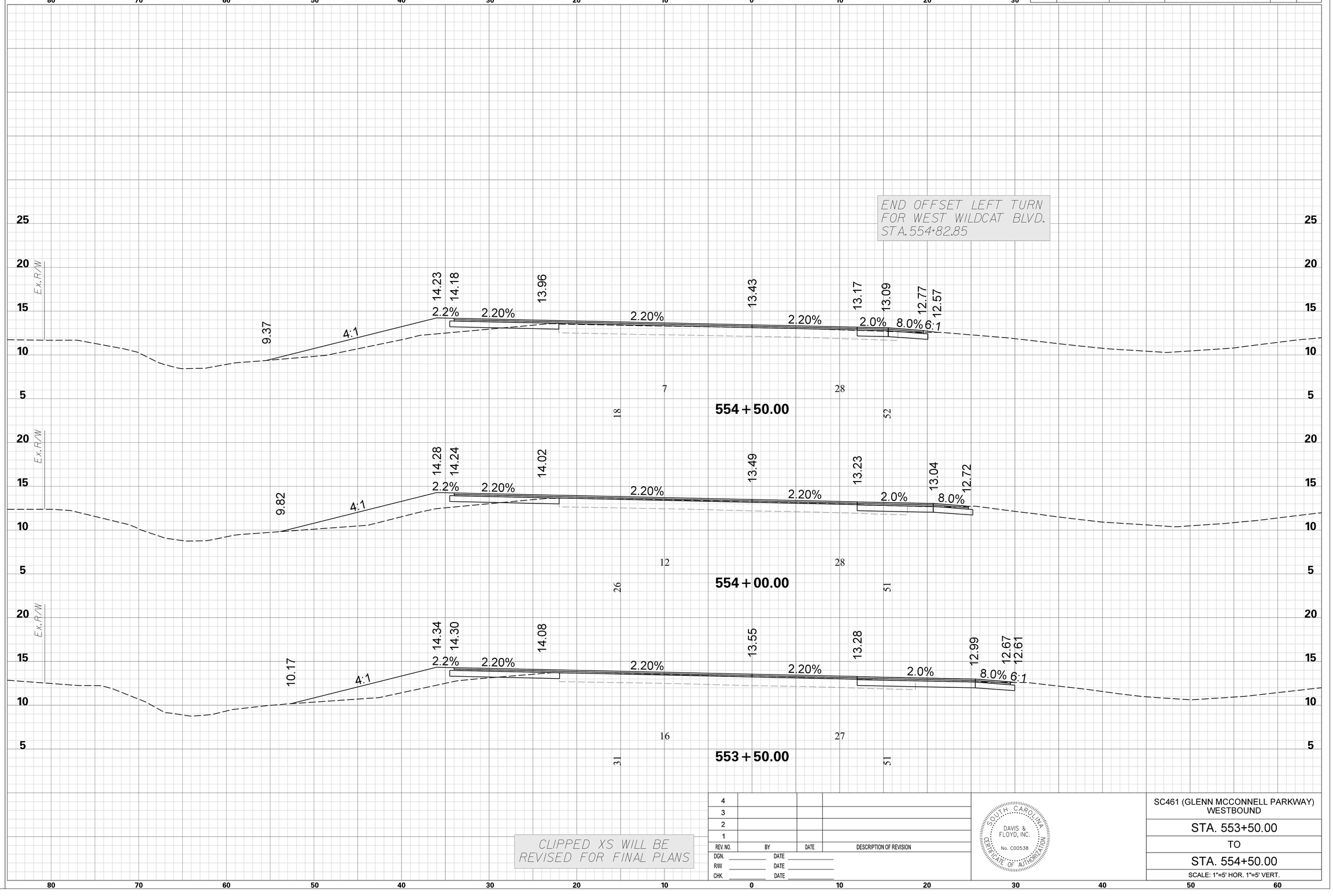
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X93	

END OFFSET LEFT TURN
FOR WEST WILDCAT BLVD.
STA.554+82.85



CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 553+50.00

TO

STA. 554+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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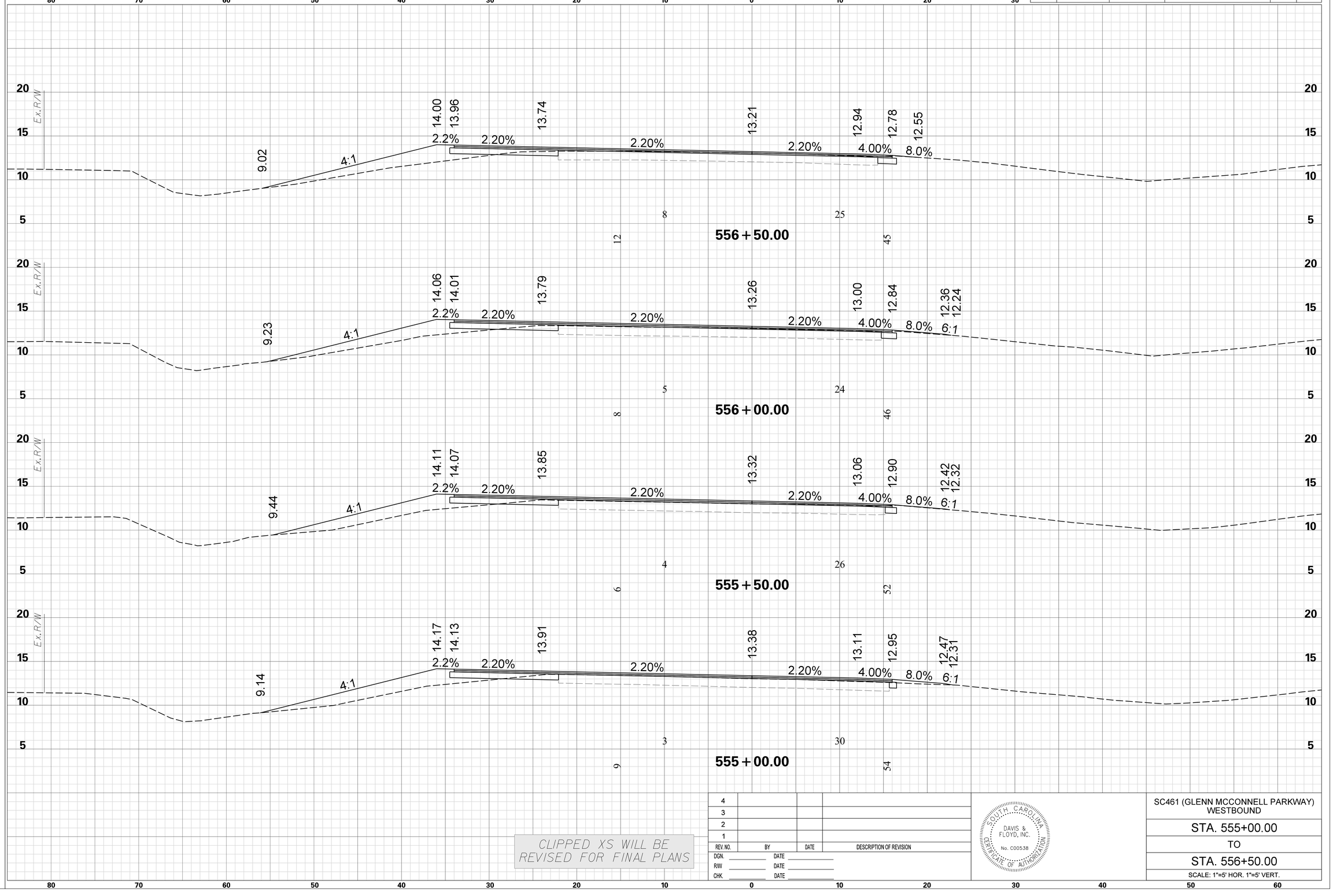
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X94	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 555+00.00

TO

STA. 556+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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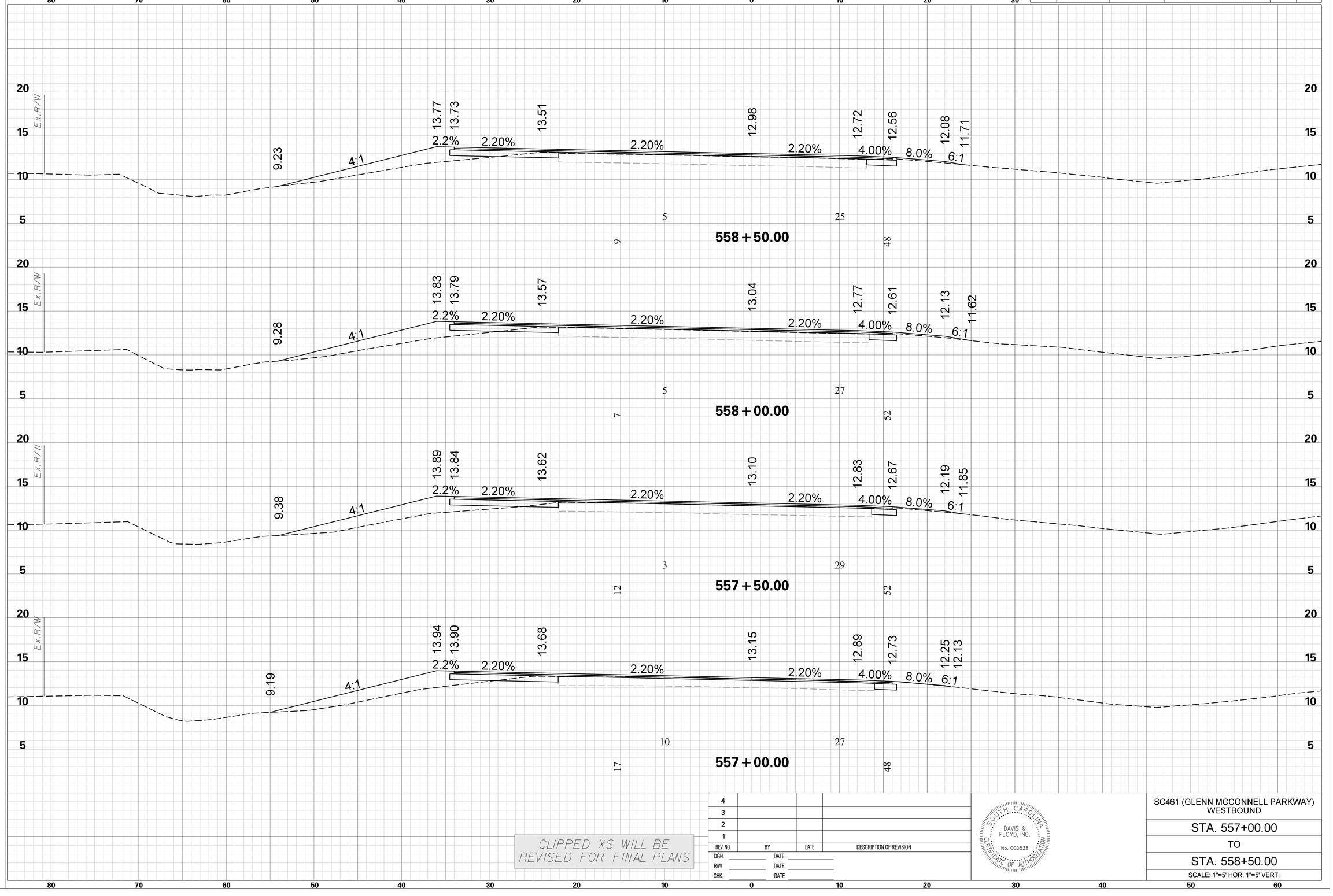
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X95	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 557+00.00

TO

STA. 558+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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4/7/2020

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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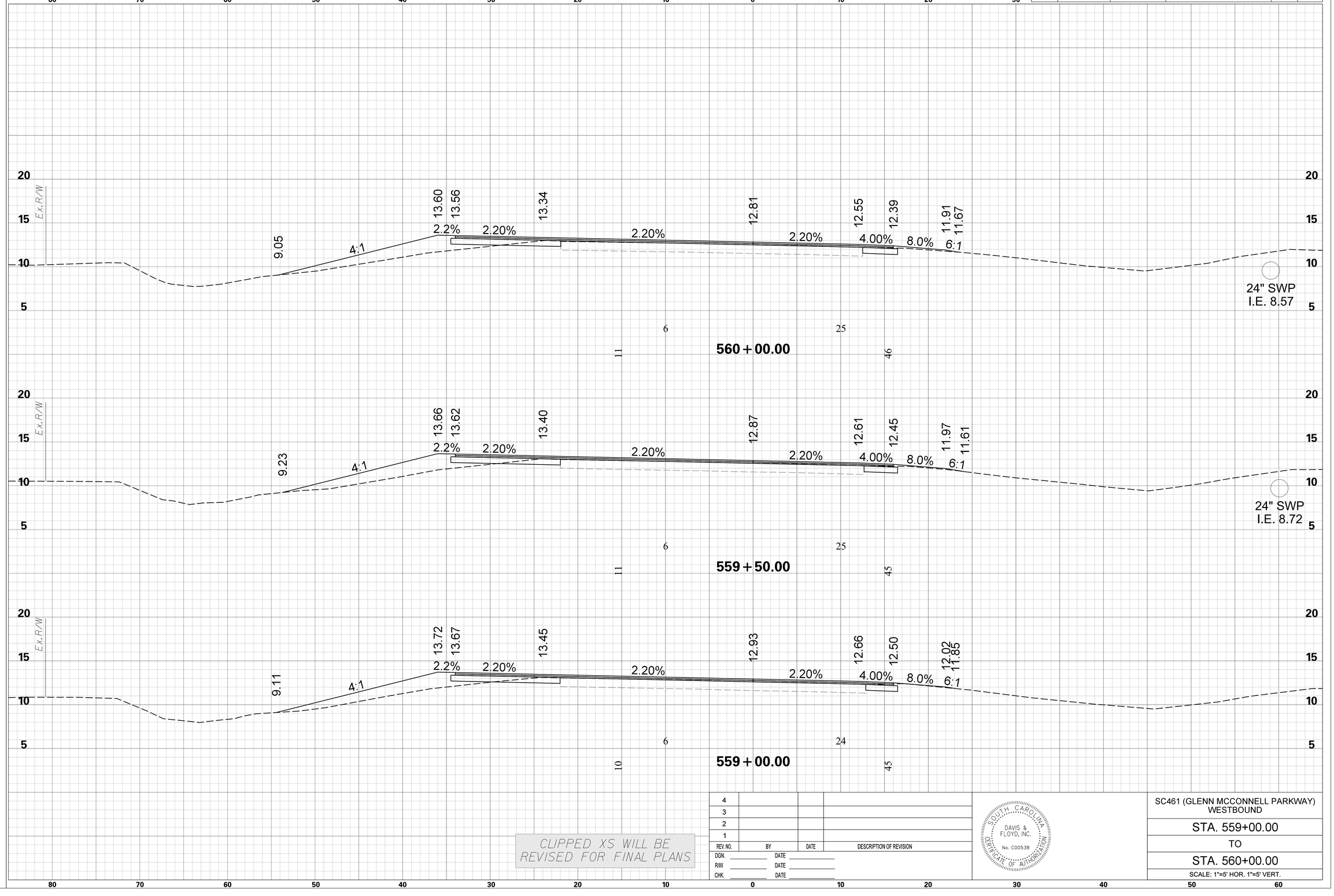
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X96	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 559+00.00

TO

STA. 560+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X97	

MATCHLINE LEFT TURN OFFSET
SEE EB XS FOR TIE-IN

Ex.R/W

8.59 4:1 13.44 13.39 13.17 12.64 12.38
2.2% 2.20% 2.20% 2.20%

5 25 7 51

561+50.00

MATCHLINE LEFT TURN OFFSET
SEE EB XS FOR TIE-IN

Ex.R/W

8.61 4:1 13.49 13.45 13.23 12.70 12.44
2.2% 2.20% 2.20% 2.20%

24" SWP
I.E. 8.27

3 30 7 54

561+00.00

Ex.R/W

9.16 4:1 13.55 13.50 13.28 12.76 12.49 12.33 11.85 11.61
2.2% 2.20% 2.20% 2.20% 4.00% 8.0% 6:1

24" SWP
I.E. 8.42

5 28 10 49

560+50.00

CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND

STA. 560+50.00

TO

STA. 561+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X98	

MATCHLINE
STUHR FUNERAL CHAPEL
INTERSECTION

EX.R/W

WETLAND

13.05 — 2.20% — 12.52 — 2.20% — 12.26 — 2.20% — 12.00

MATCHLINE LEFT TURN OFFSET
SEE EB XS FOR TIE-IN

12.31 — 7.9% — 12.03 — 2.0% — 12.02

563+00.00

MATCHLINE
STUHR FUNERAL CHAPEL
INTERSECTION

13.07 — 2.20% — 12.54 — 2.20% — 12.27

MATCHLINE
LOCHAVEN DR.
INTERSECTION

562+50.00

MATCHLINE LEFT TURN OFFSET
SEE EB XS FOR TIE-IN

MATCHLINE
STUHR FUNERAL CHAPEL
INTERSECTION

13.11 — 2.20% — 12.59 — 2.20% — 12.32

562+00.00

CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND

STA. 562+00.00

TO

STA. 563+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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4/7/2020

CONSTRUCTION PLANS

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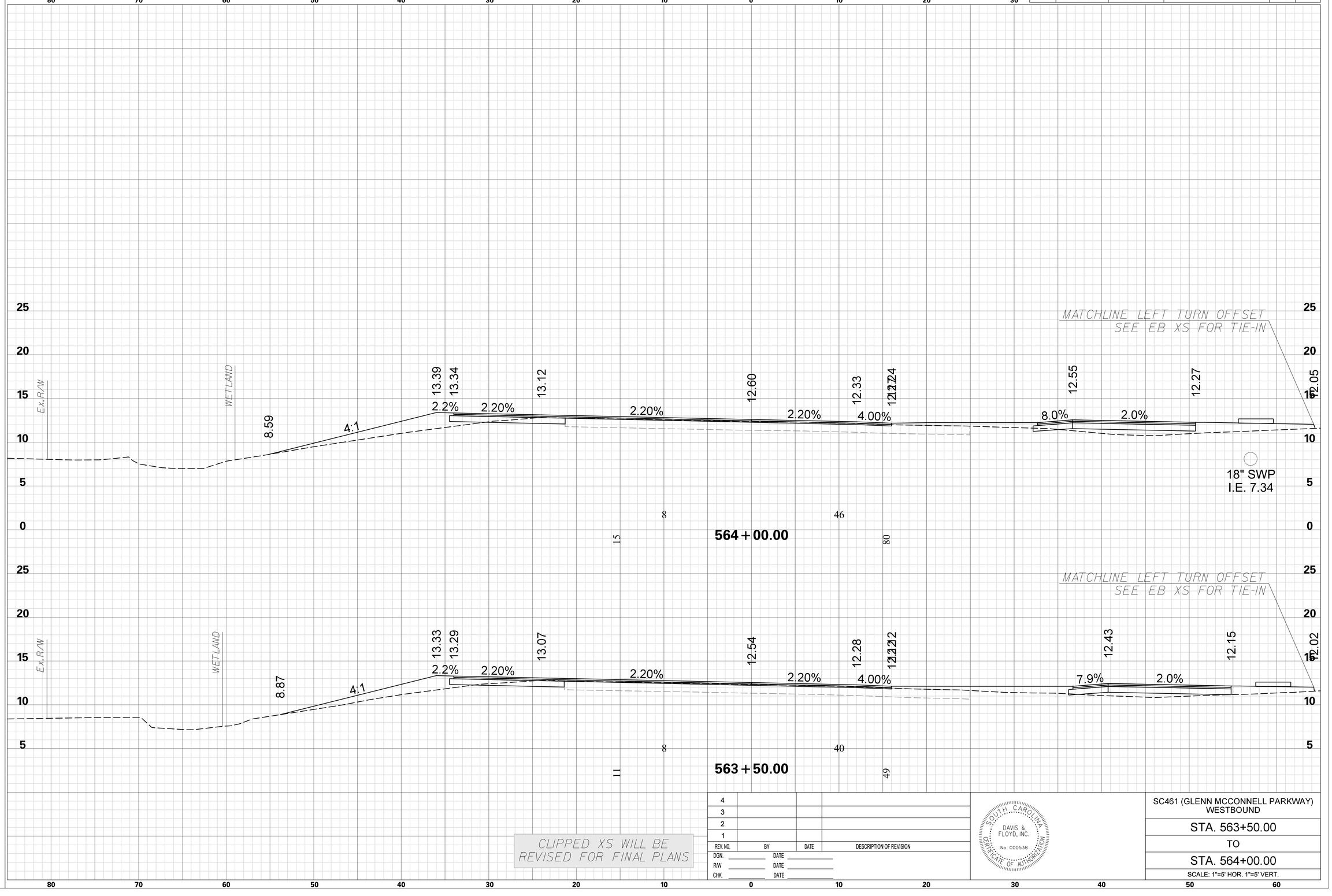
S.C.	CHARLESTON	P037878	SC461	X99	



REV.NO.	BY	DATE	DESCRIPTION OF REVISION
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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 563+50.00

TO

STA. 564+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
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SCALE: 5.000 ft. / in.
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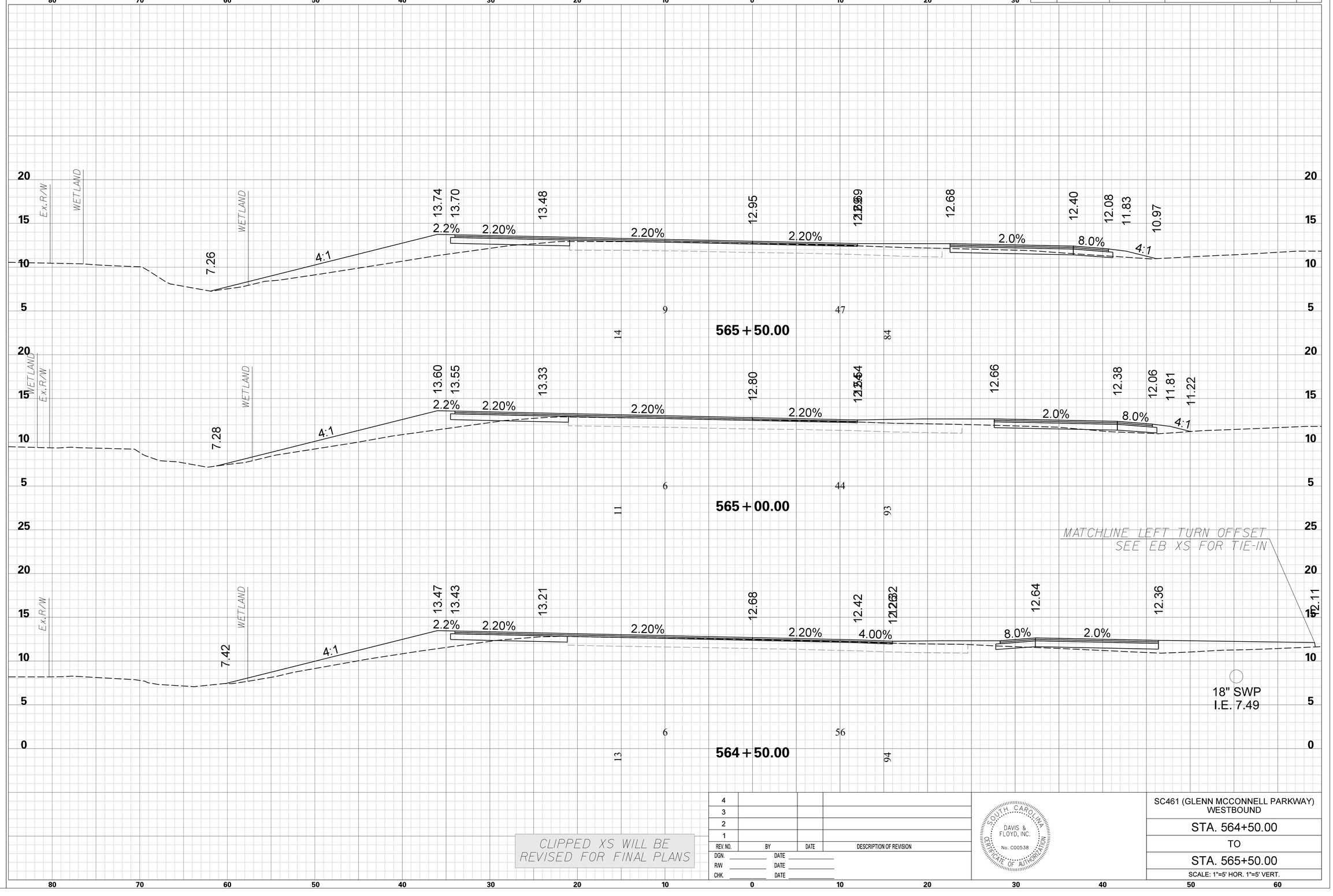
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X100	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

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CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 564+50.00

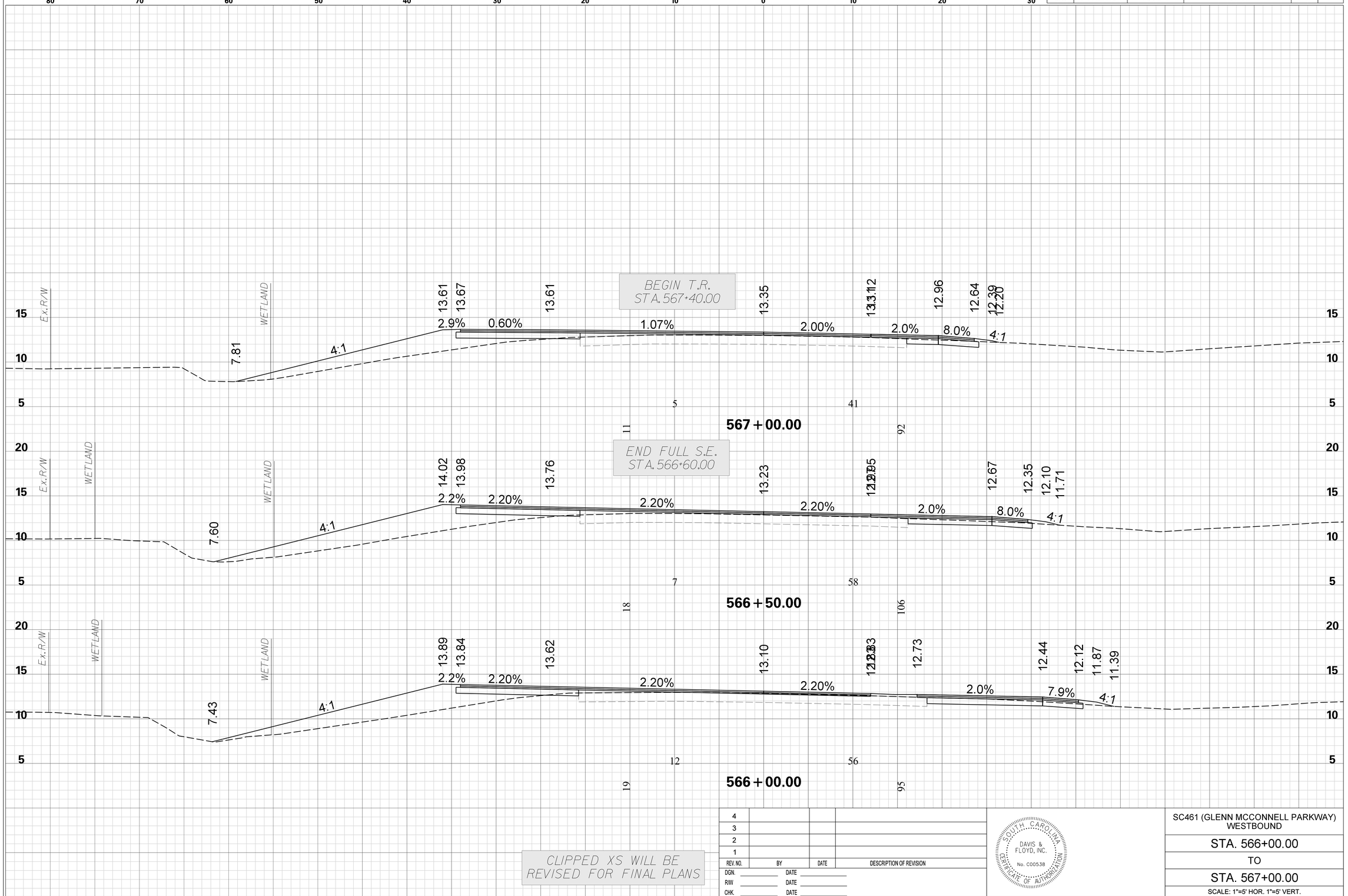
TO

STA. 565+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X101	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

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R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 566+00.00

TO

STA. 567+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
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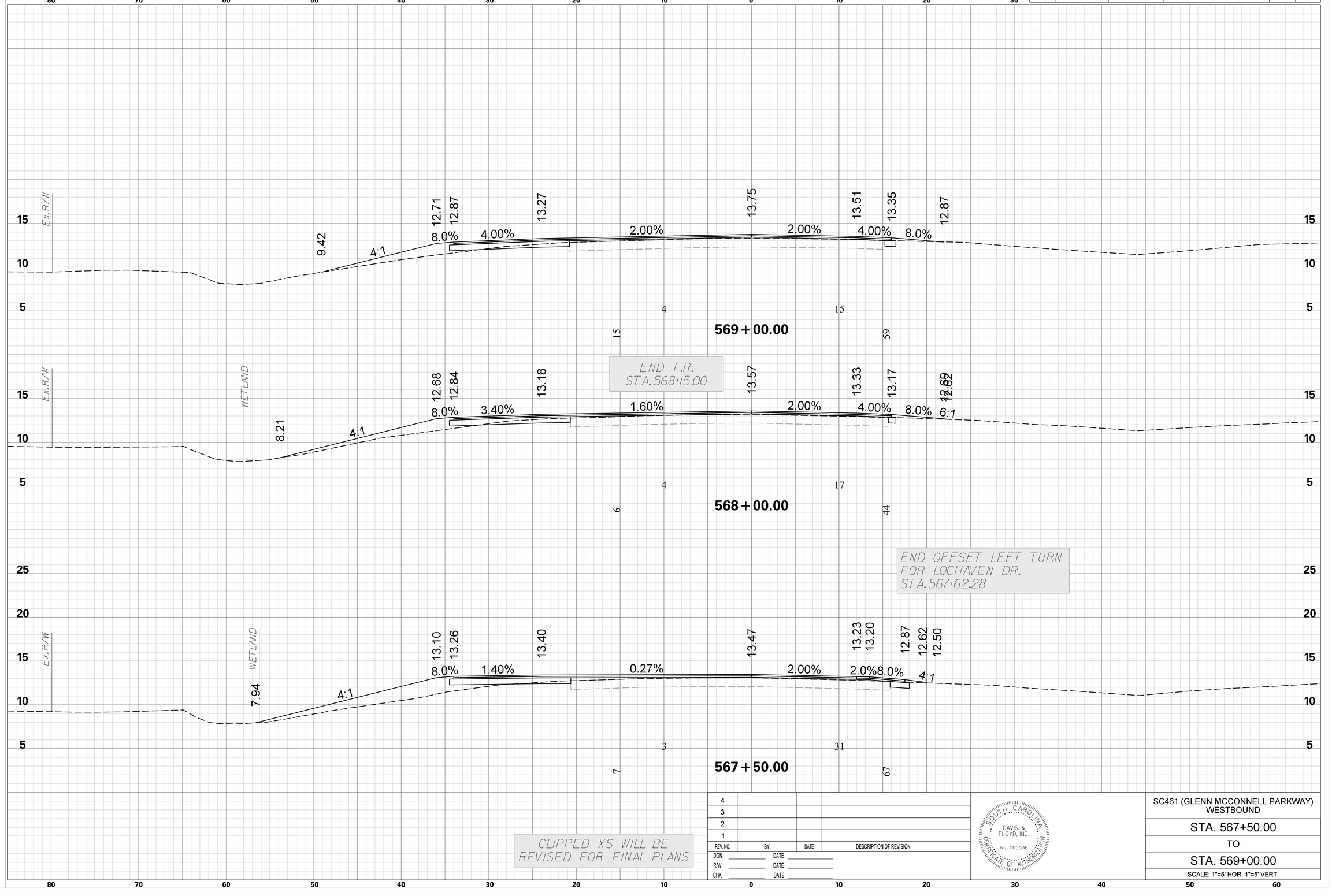
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X102	



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R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 567+50.00

TO

STA. 569+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft. / in.
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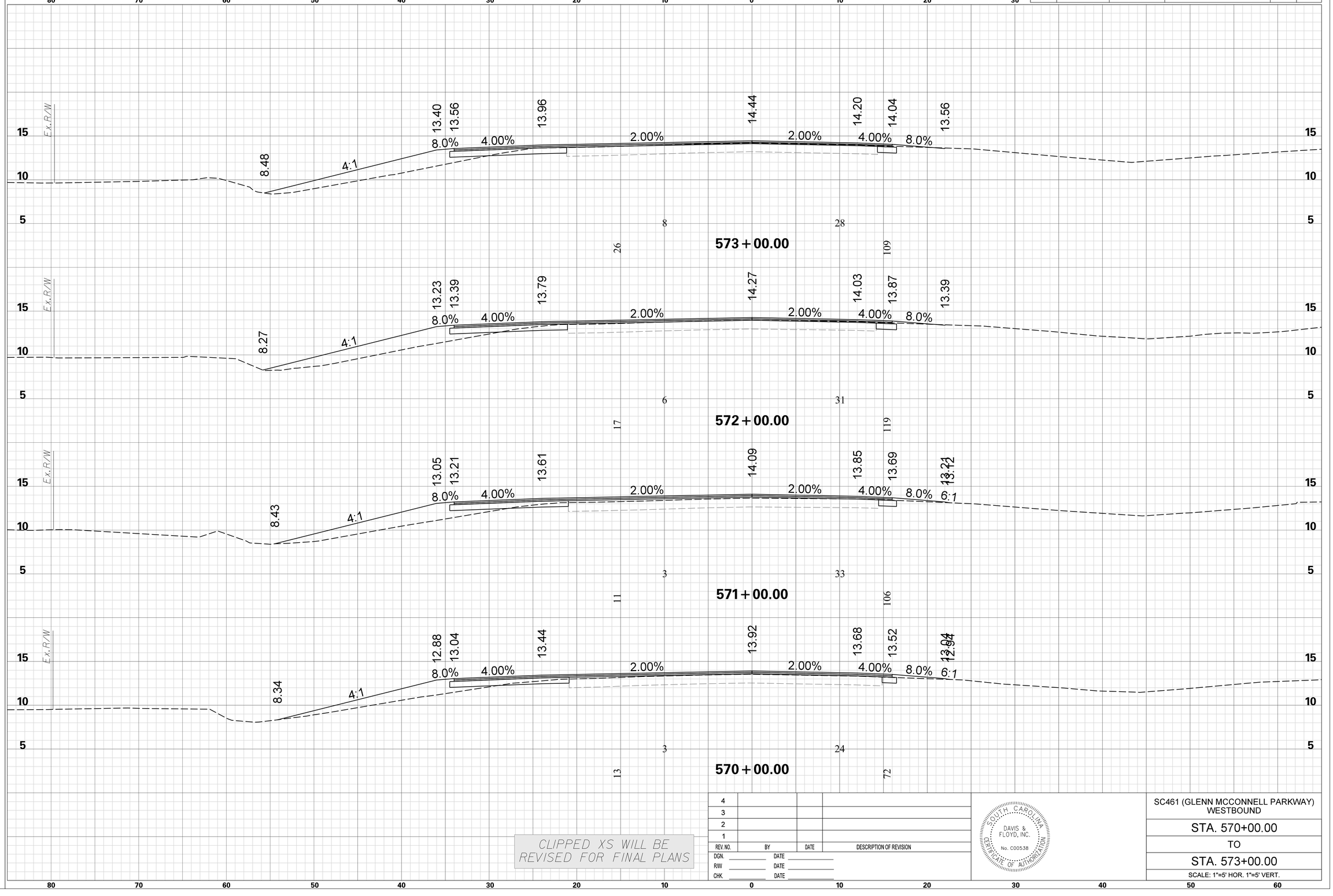
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X103	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 570+00.00

TO

STA. 573+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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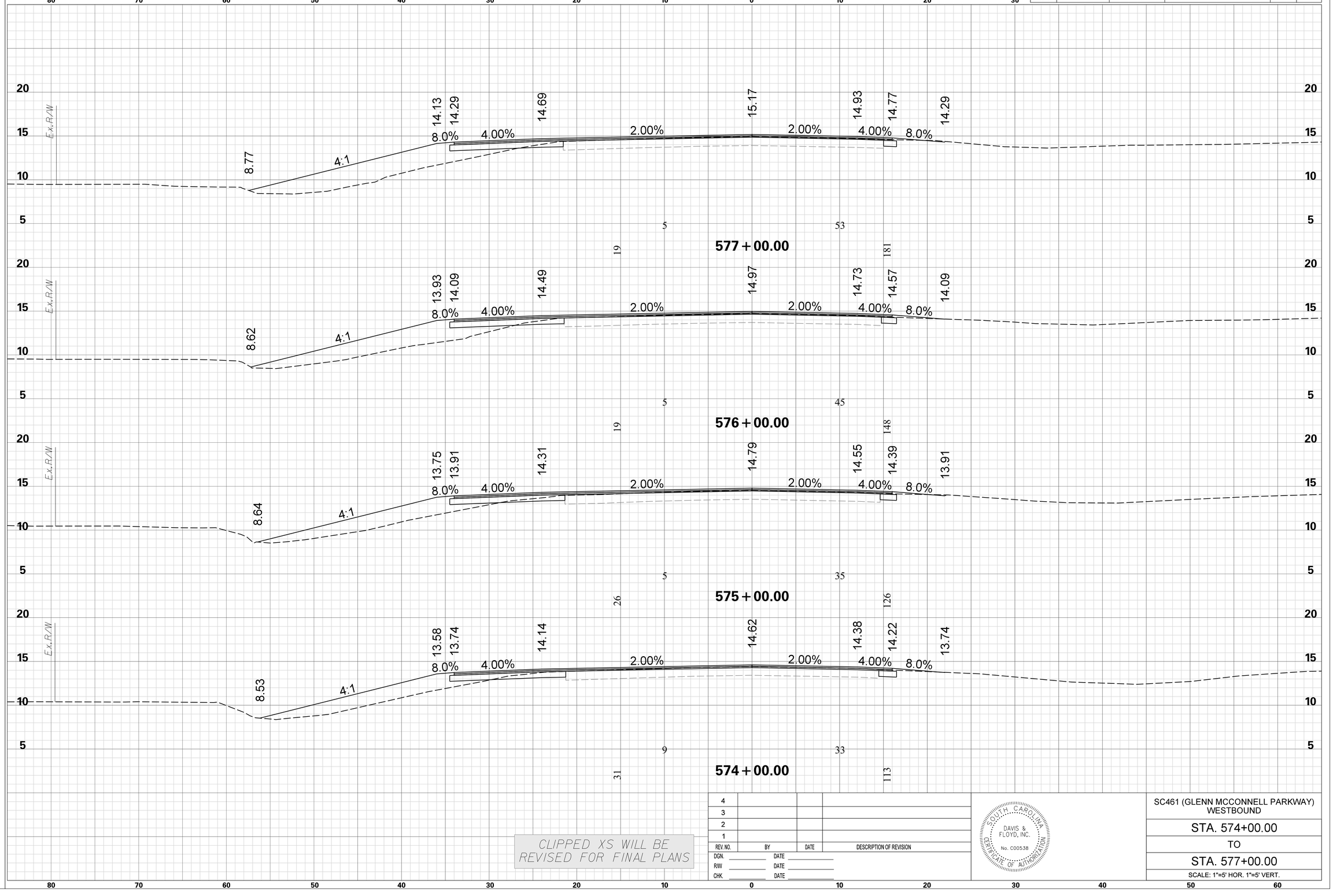
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X104	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 574+00.00

TO

STA. 577+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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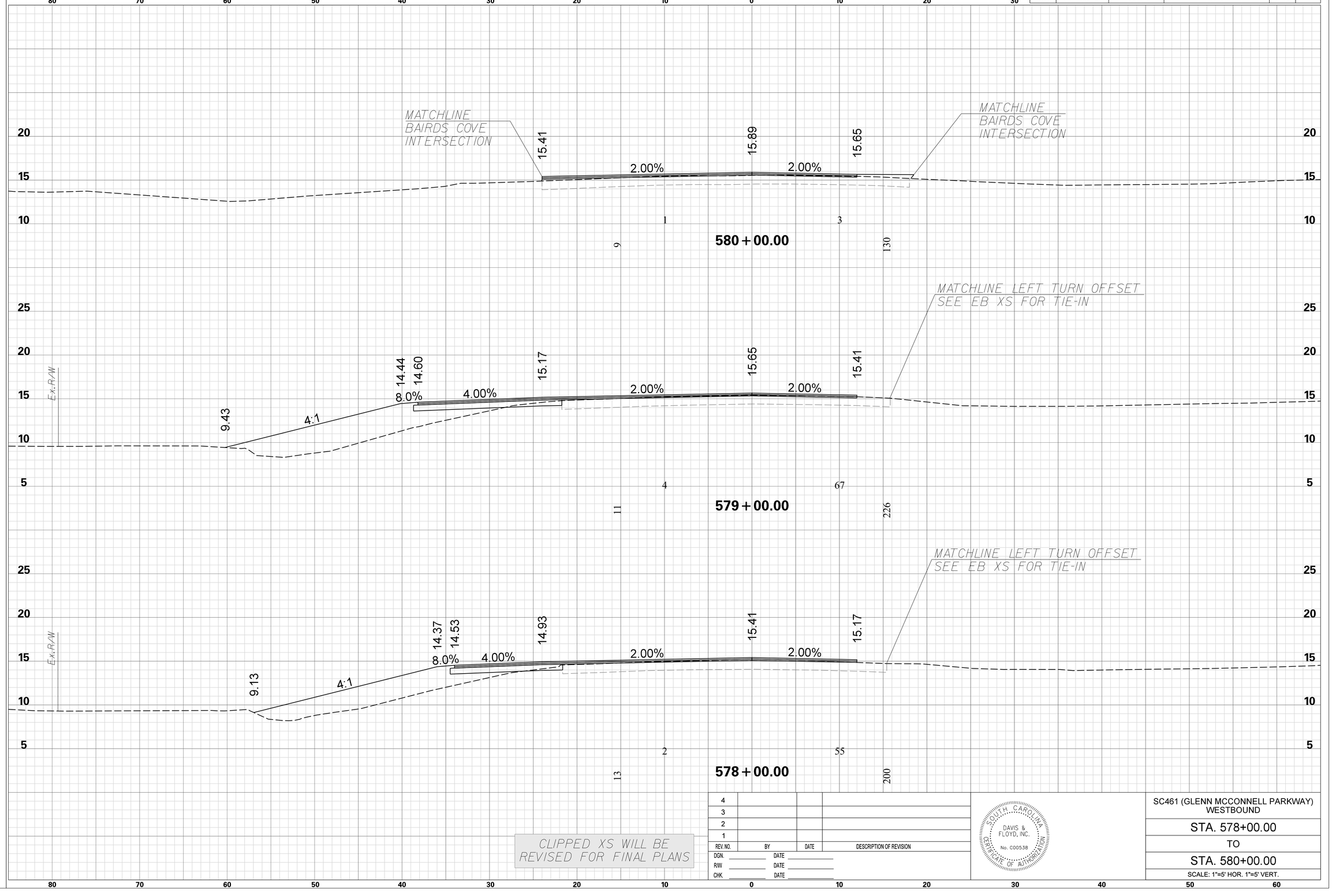
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X105	



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CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 578+00.00

TO

STA. 580+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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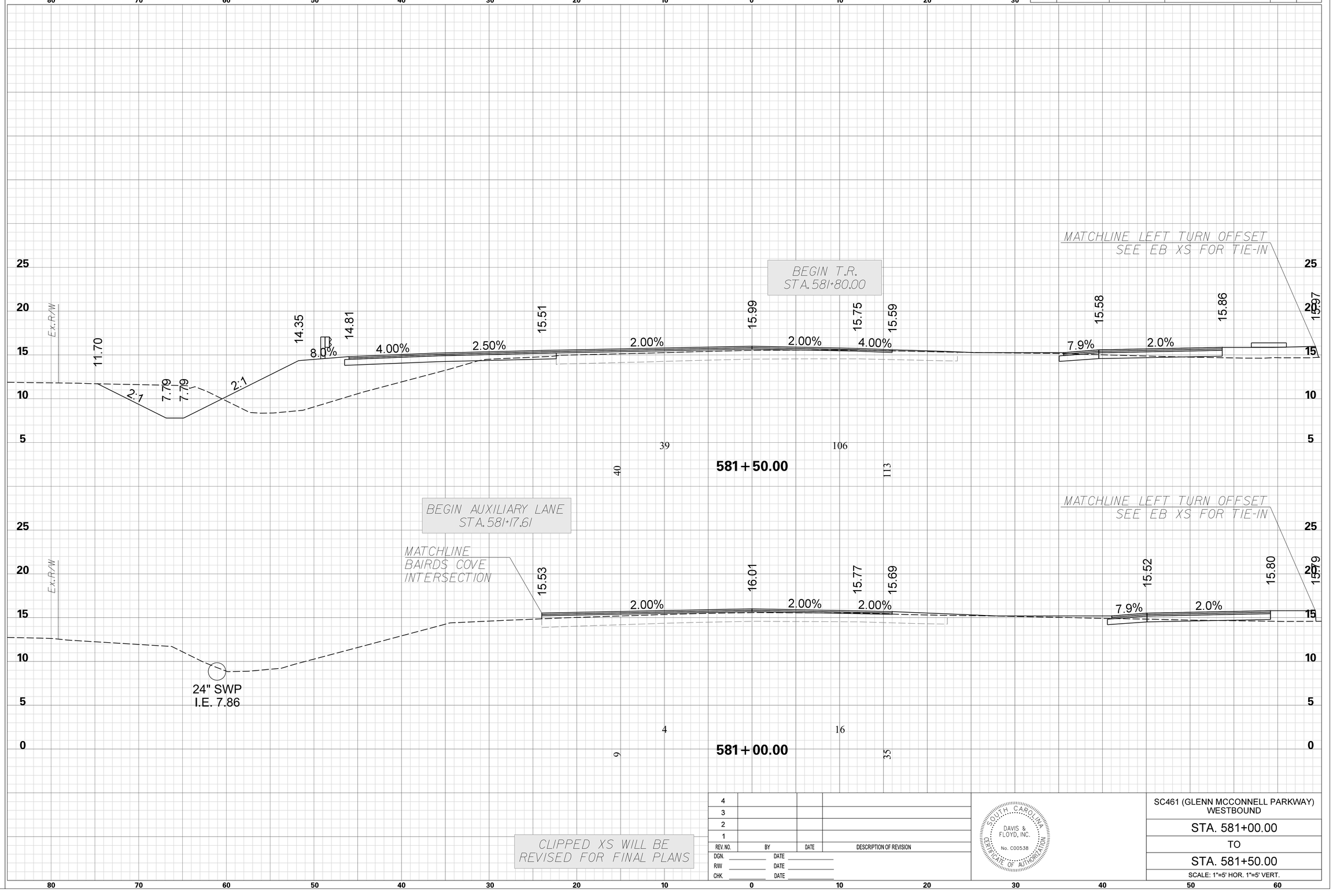
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X106	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND

STA. 581+00.00

TO

STA. 581+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X107	

583+00.00

END T.R.
STA.582+55.00

582+50.00

MATCHLINE LEFT TURN OFFSET
SEE EB XS FOR TIE-IN

582+00.00

CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 582+00.00

TO

STA. 583+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft. / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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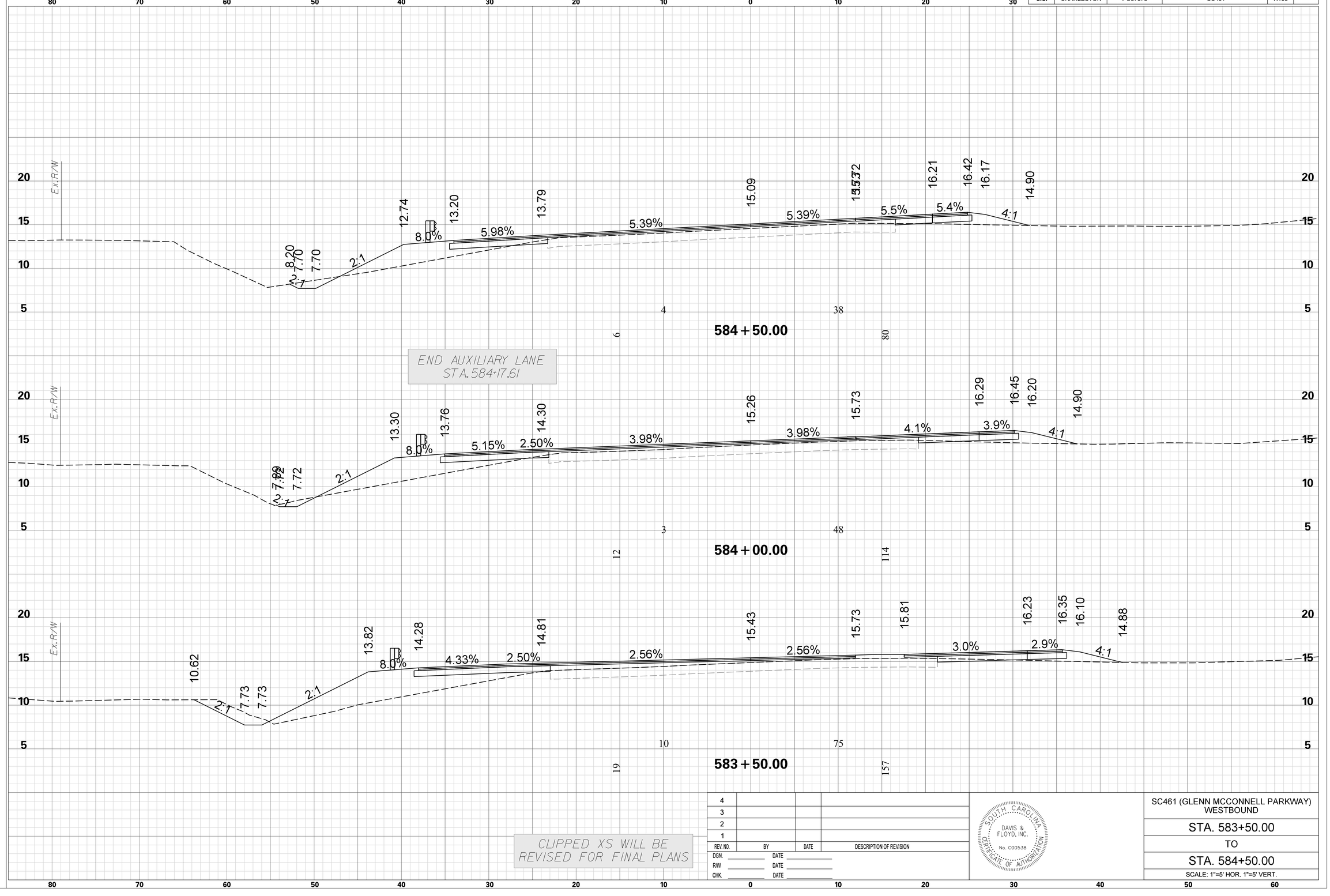
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X108	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 583+50.00

TO

STA. 584+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X109	

END OFFSET LEFT TURN
FOR WATERSTONE LANE
STA.586+32.38

Ex.R/W

8.34 7.66 7.66 2:1 11.81 8.0% 12.27 6.80% 12.95 6.80% 14.58 6.80% 15.39 6.8% 15.69 15.44 14.64 14.63 4:1

6 11 24 48

586+00.00

Ex.R/W

8.27 7.67 7.67 2:1 11.98 8.0% 12.44 6.80% 13.12 6.80% 14.75 6.80% 15.56 15.69 6.8% 15.96 15.71 14.77 4:1

6 10 28 55

585+50.00

BEGIN FULL S.E.
STA.585+00.00

Ex.R/W

8.31 7.69 7.69 2:1 12.15 8.0% 12.61 6.80% 13.29 6.80% 14.92 6.80% 15.37 6.8% 16.04 16.31 16.06 14.88 6.8% 4:1

5 8 31 64

585+00.00

CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
2			
1			

DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 585+00.00

TO

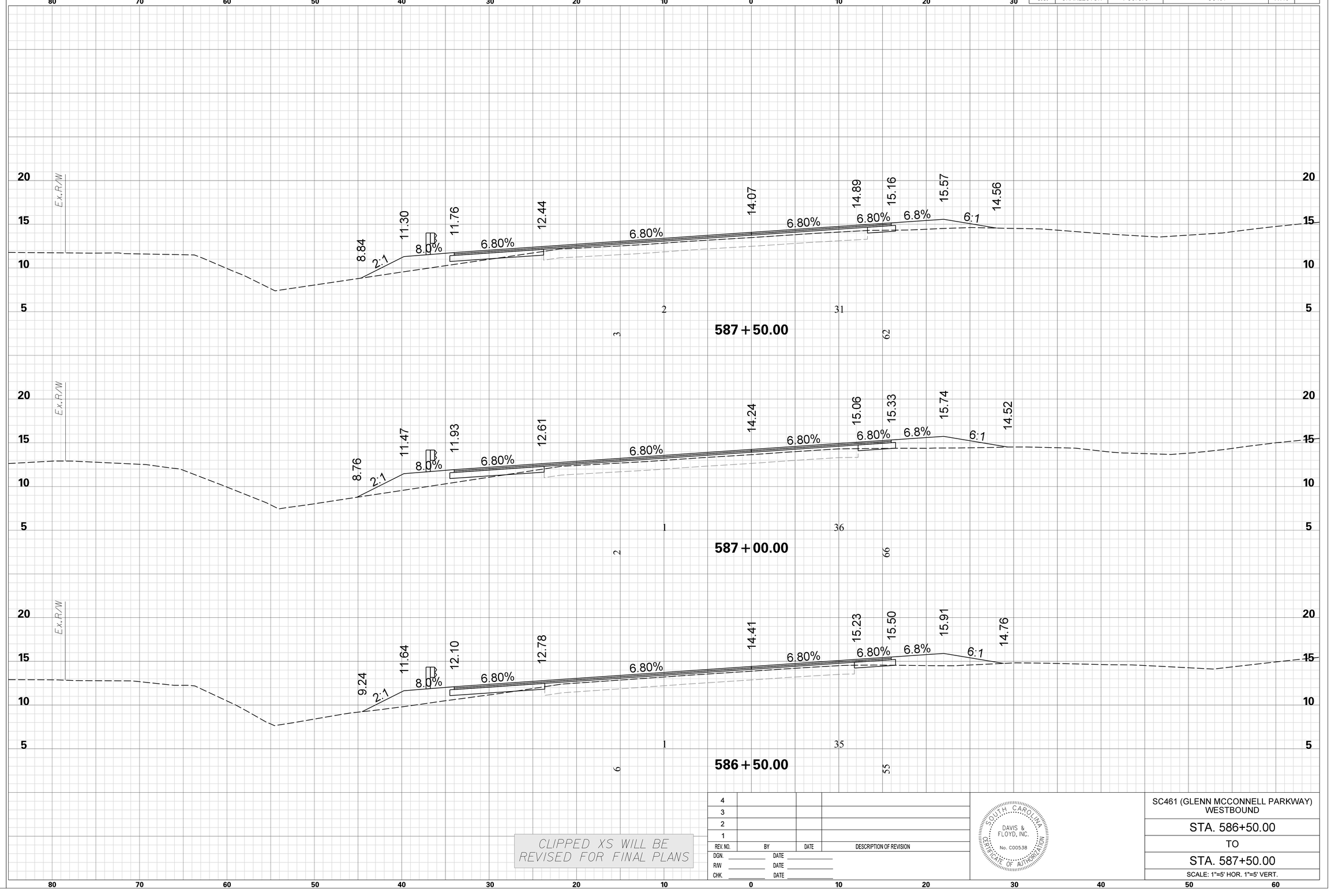
STA. 586+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft. / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X110	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 586+50.00

TO

STA. 587+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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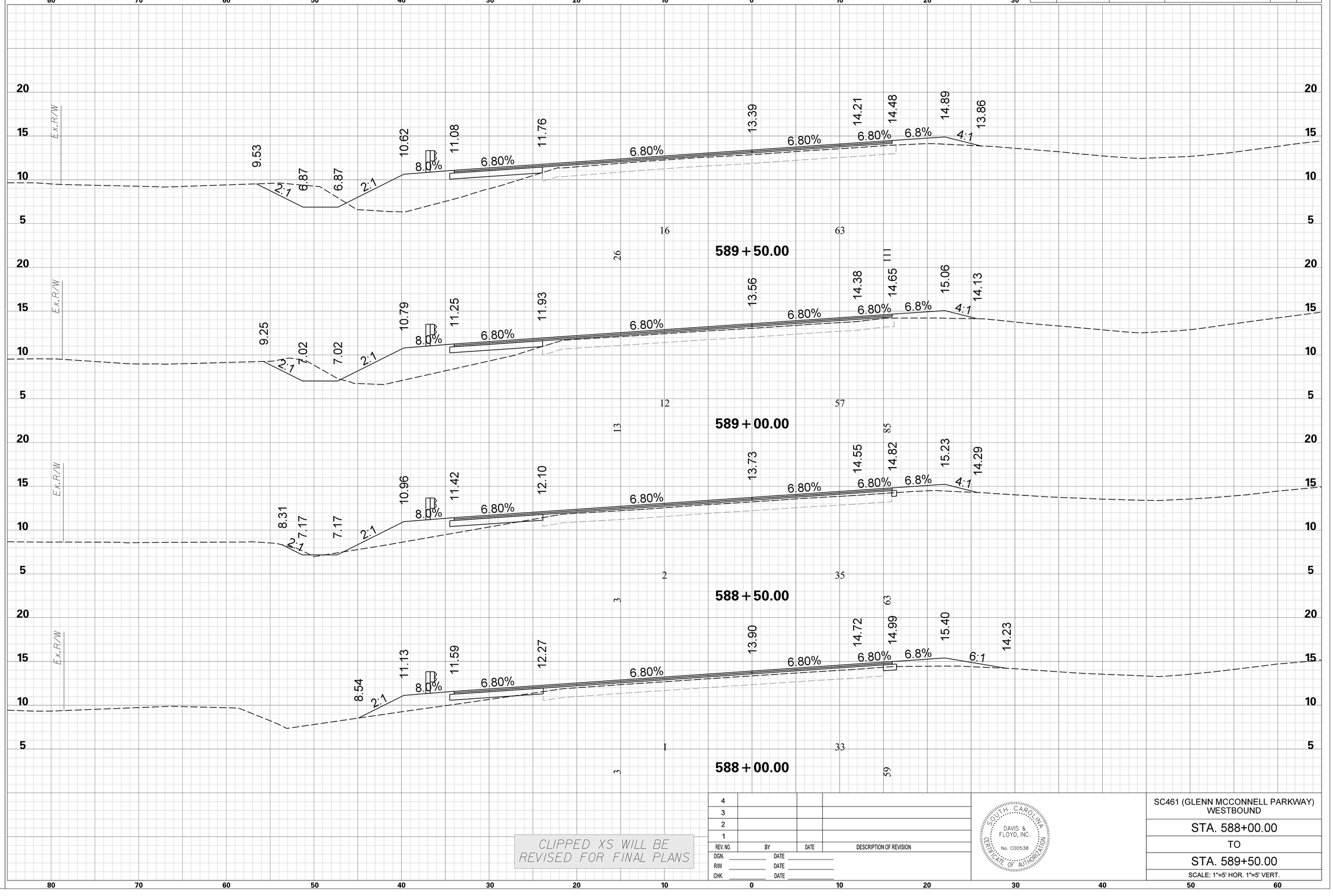
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X111	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 588+00.00

TO

STA. 589+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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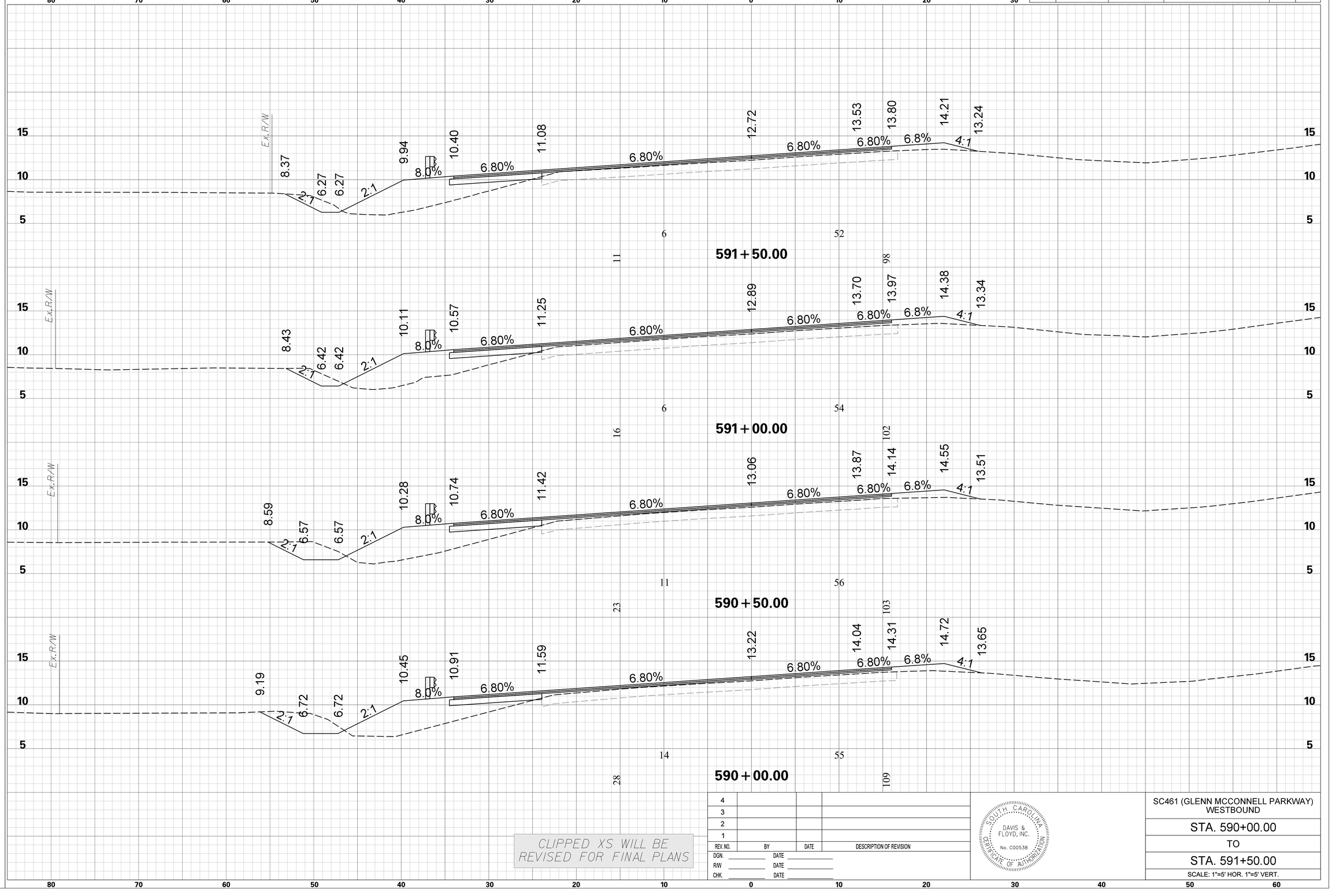
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X112	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

DAVIS & FLOYD, INC. No. C00538 — SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 590+00.00

TO

STA. 591+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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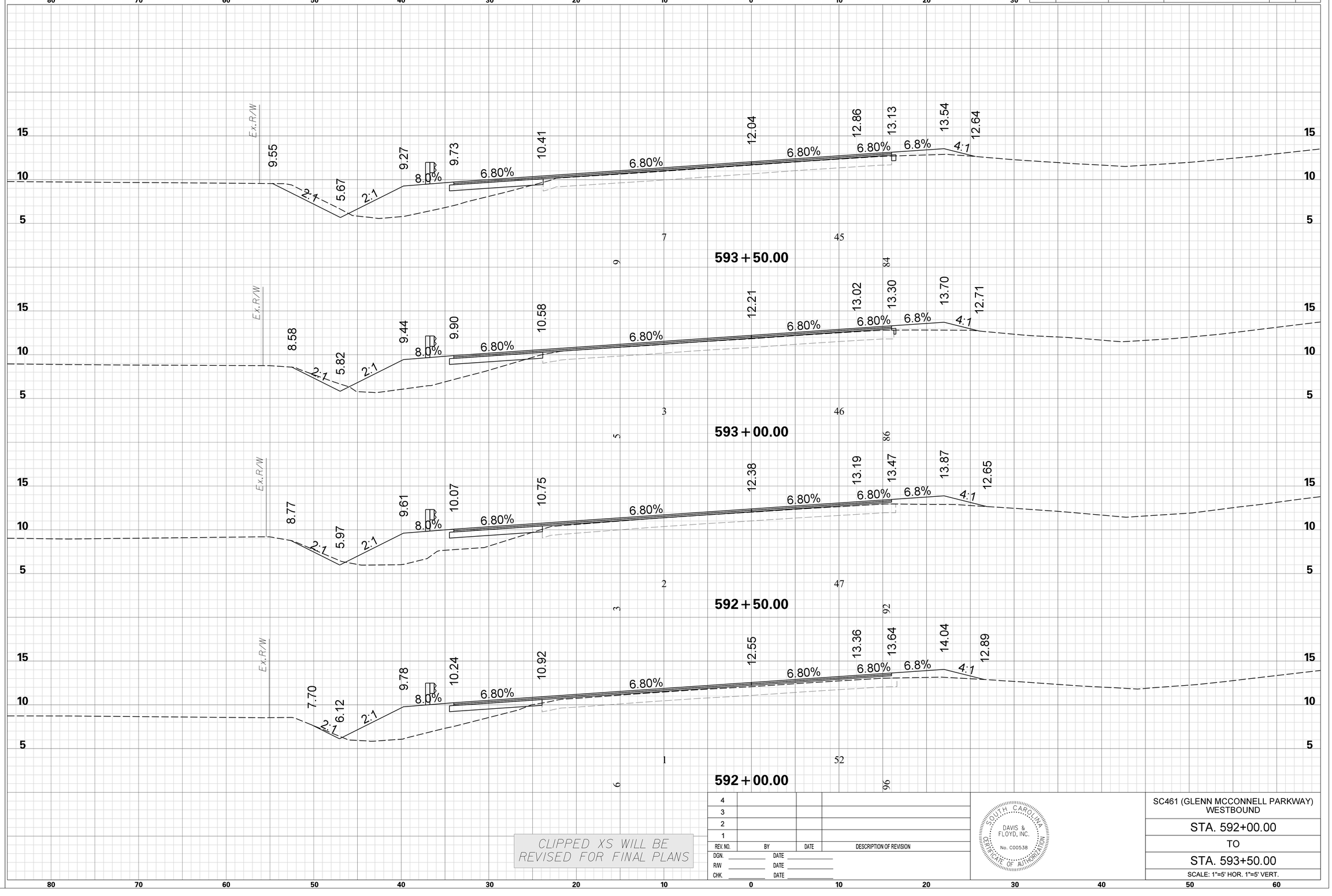
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X113	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 592+00.00

TO

STA. 593+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X114	

MATCHLINE
SPRINGS AT ESSEX FARMS
INTERSECTION

Ex.R/W
10.05
2:1
5.32
2:1
8.76
8.0%
9.22
6.80%
9.90
6.80%
11.53
6.80%
12.35
6.80%
12.62

595+00.00

Ex.R/W
7.21
2:1
5.37
2:1
8.93
8.0%
9.39
6.80%
10.07
6.80%
11.70
6.80%
12.52
6.80%
12.79

18" SWP
I.E. 5.43

594+50.00

Ex.R/W
10.24
2:1
5.52
2:1
9.10
8.0%
9.56
6.80%
10.24
6.80%
11.87
6.80%
12.69
6.80%
12.96
6.8%
13.37
4:1
12.76

594+00.00

CLIPPED XS WILL BE
REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
3			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND

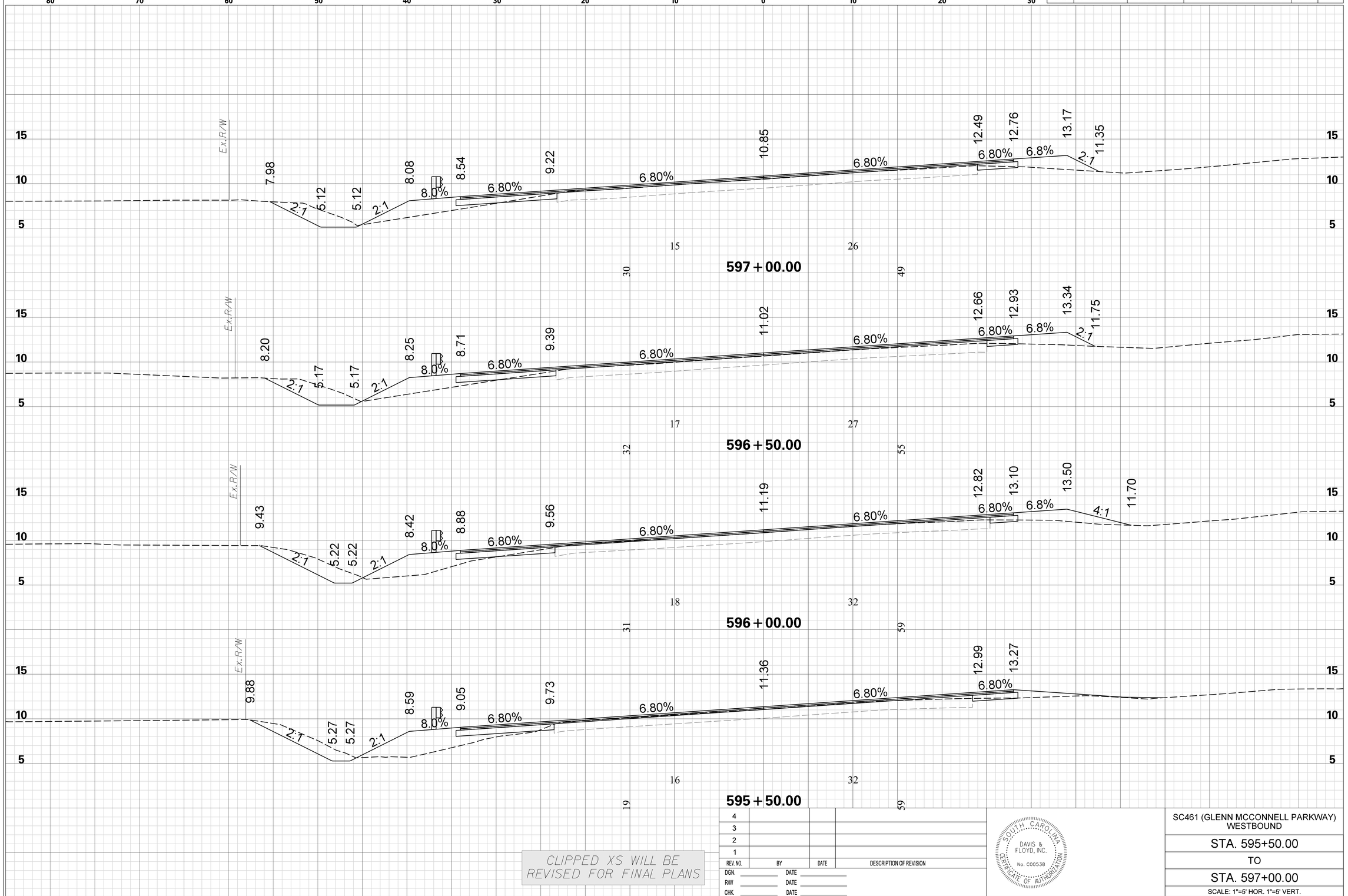
STA. 594+00.00
TO
STA. 595+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X115	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND

STA. 595+50.00

TO

STA. 597+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5,000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
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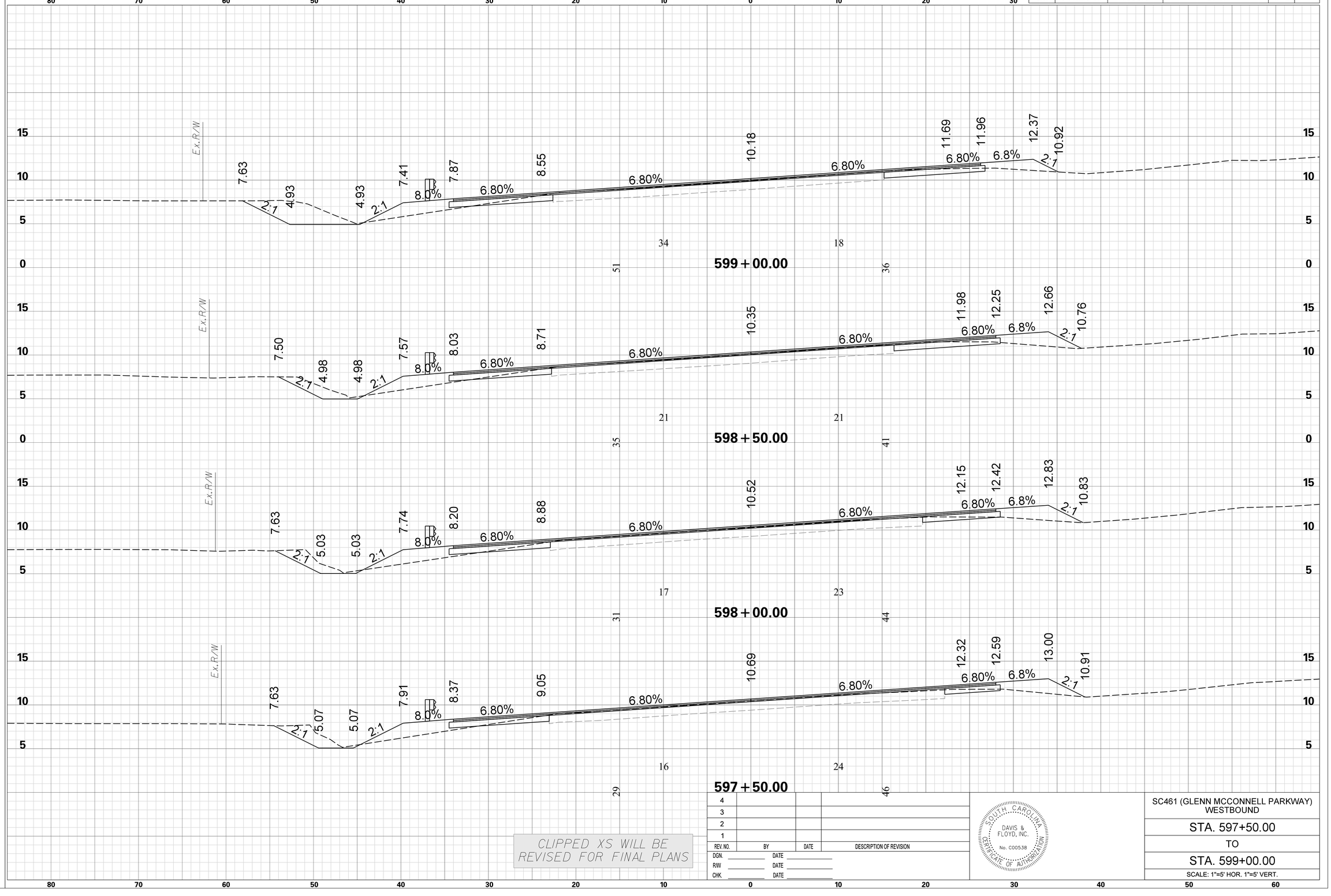
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X116	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 597+50.00

TO

STA. 599+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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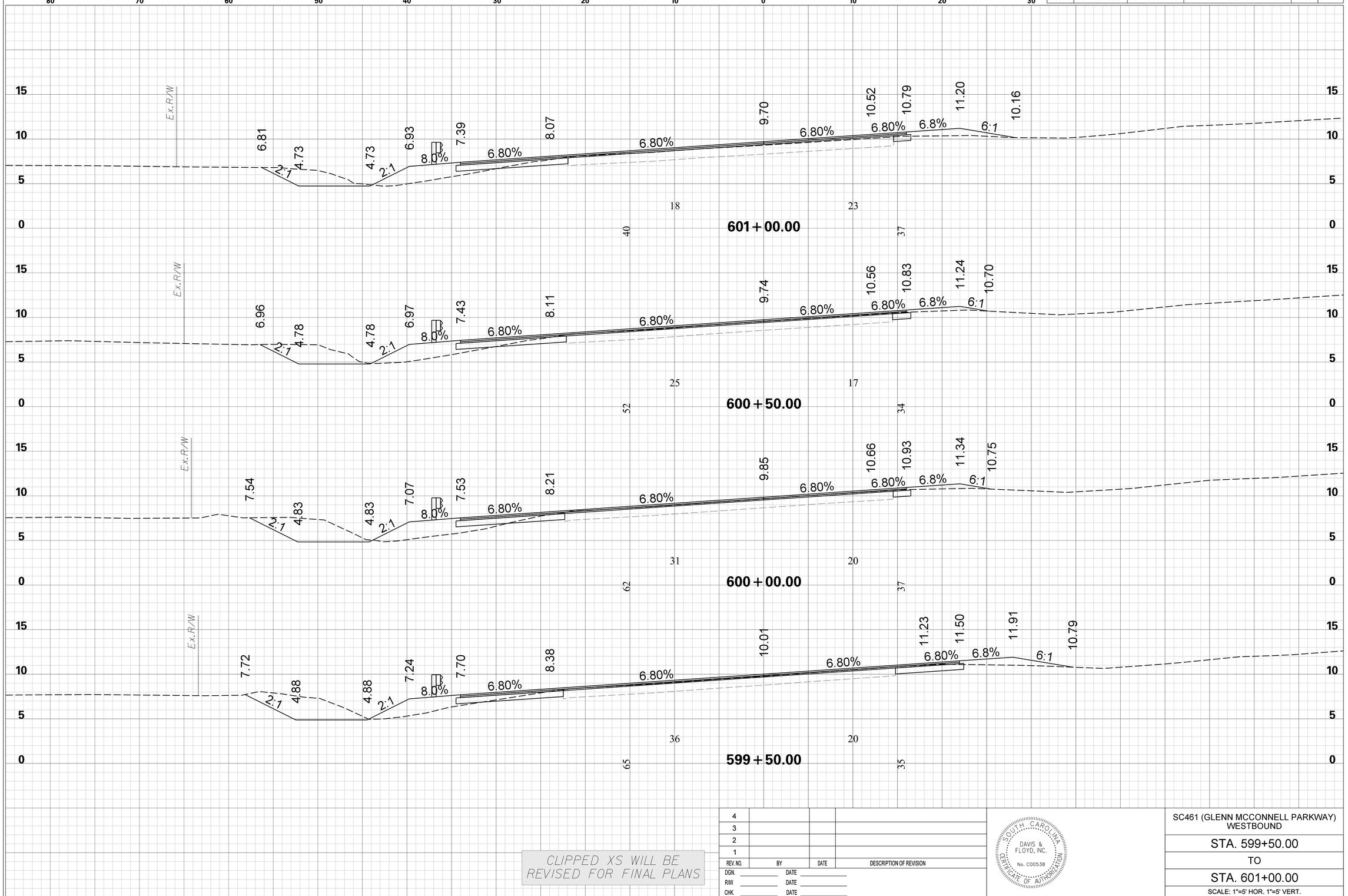
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X117	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND

STA. 599+50.00

TO

STA. 601+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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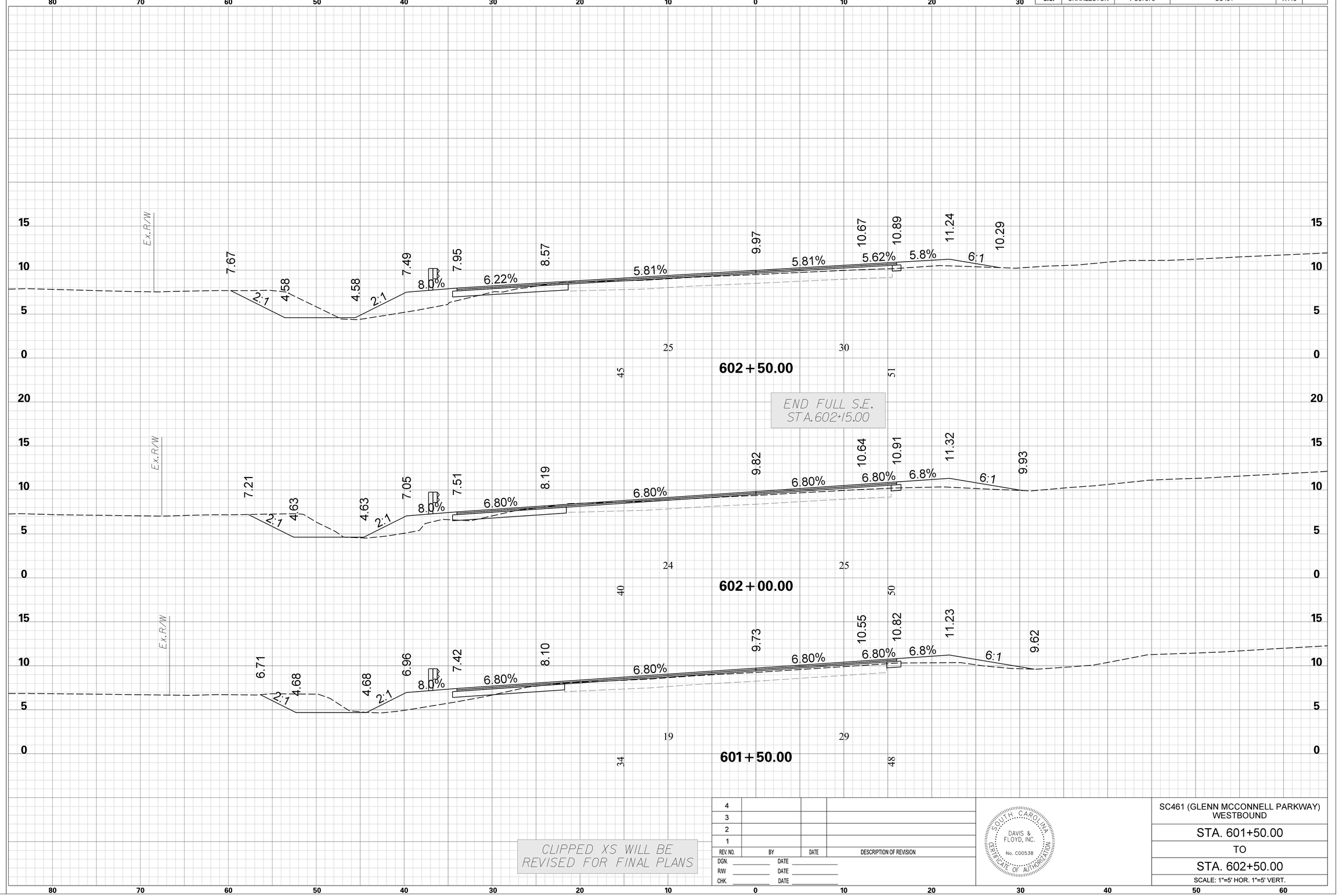
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X118	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND

STA. 601+50.00

TO

STA. 602+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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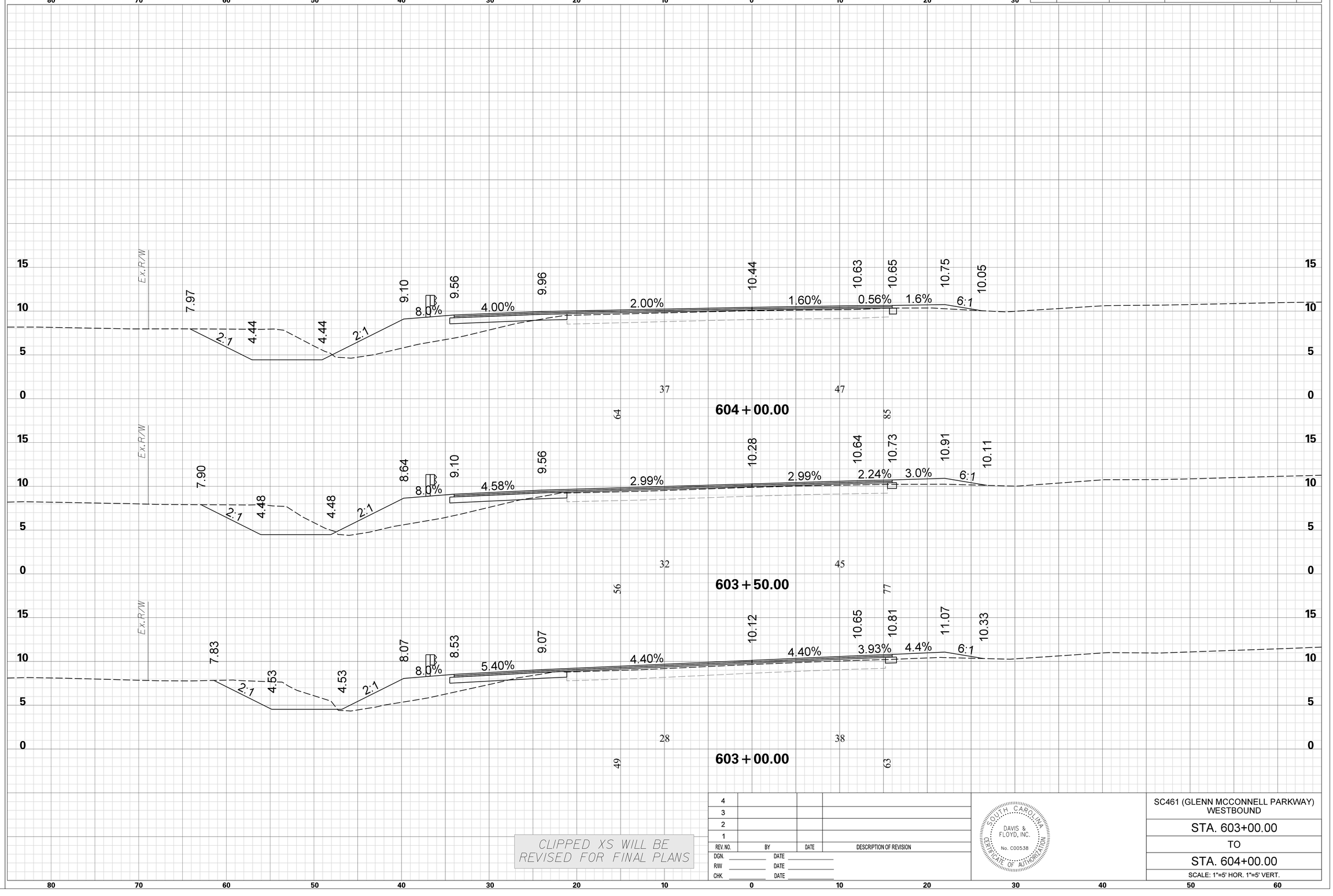
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X119	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 603+00.00

TO

STA. 604+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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4/7/2020

SCALE: 5.000 ft. / in.
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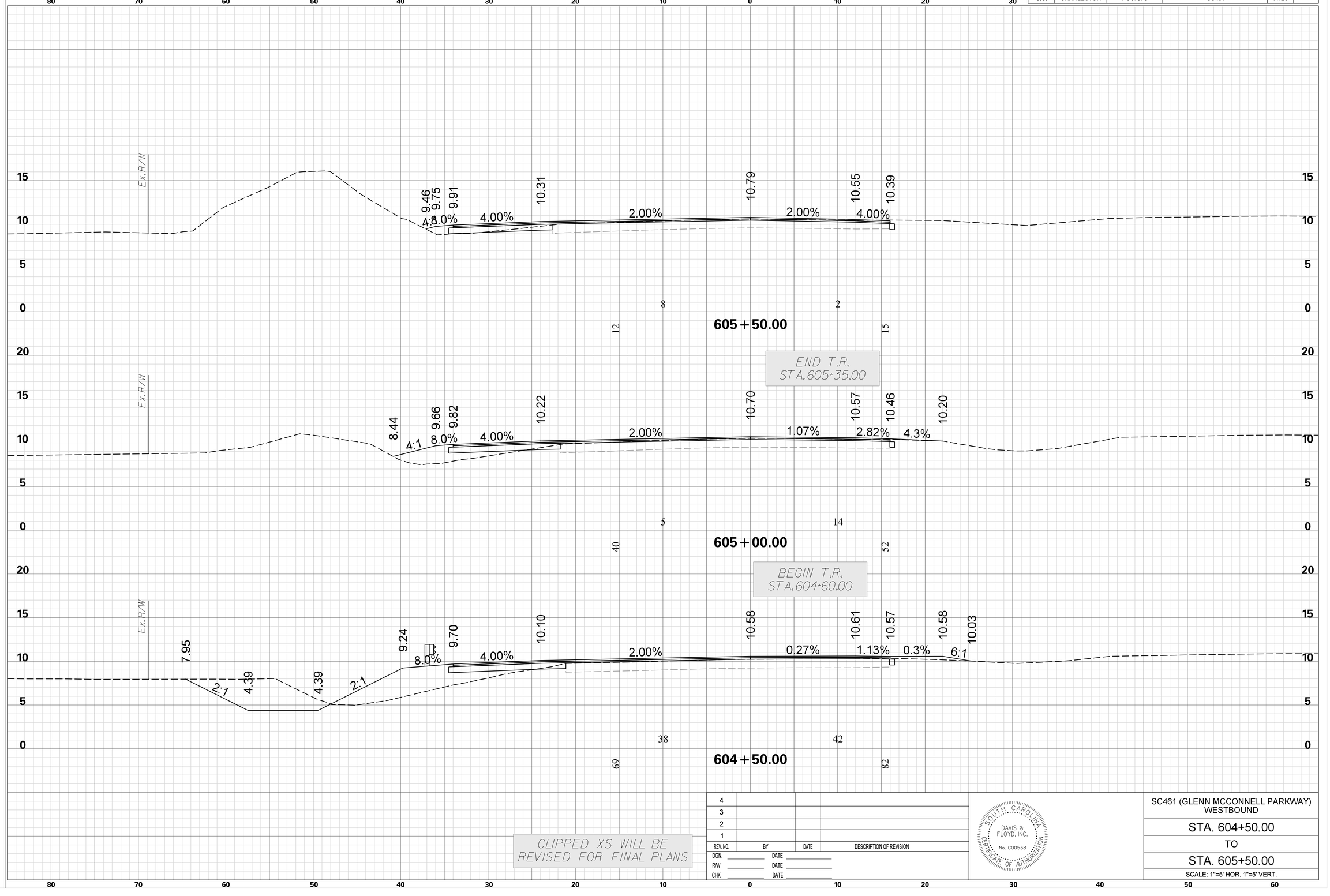
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X120	



CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 604+50.00

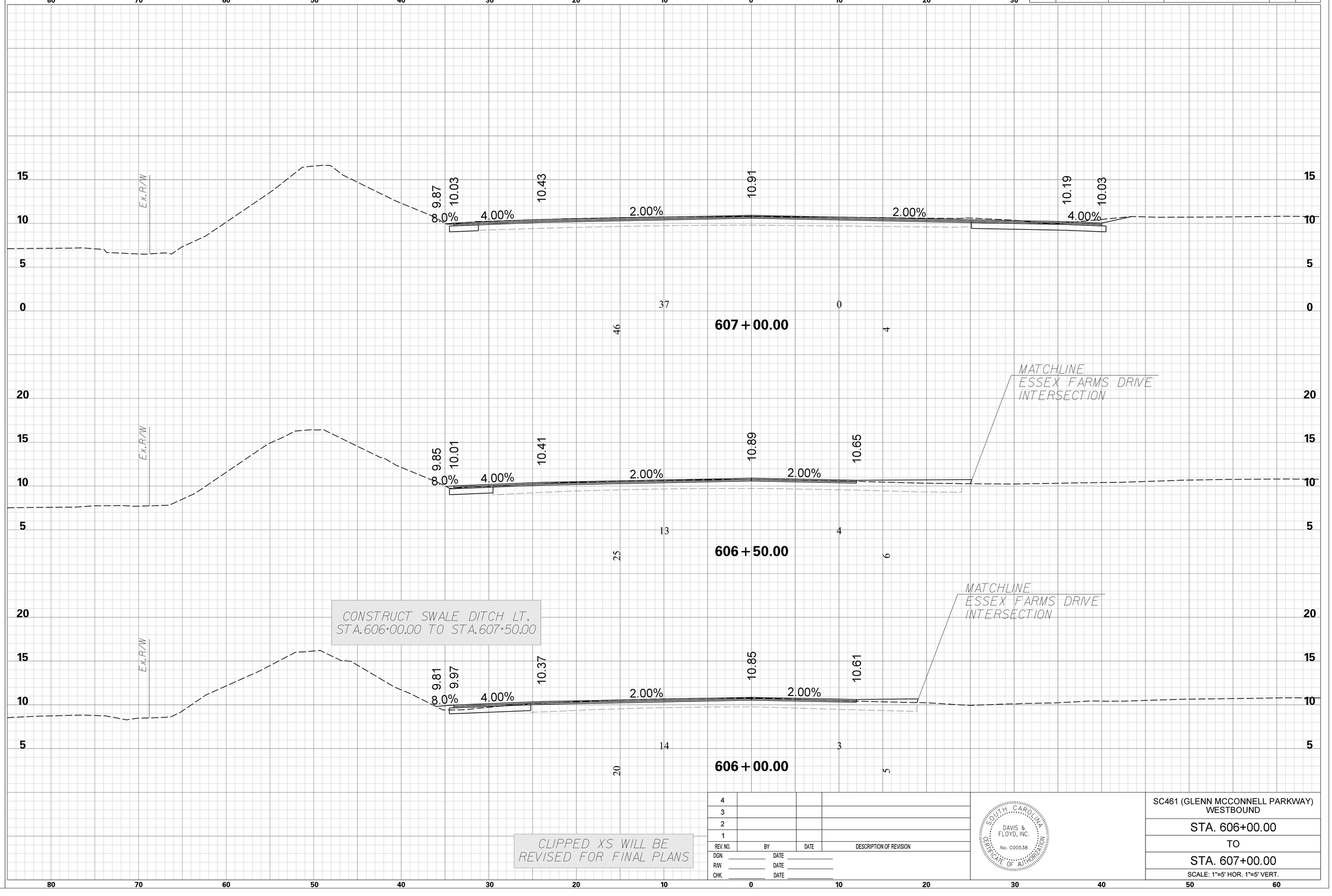
TO

STA. 605+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X121	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 606+00.00

TO

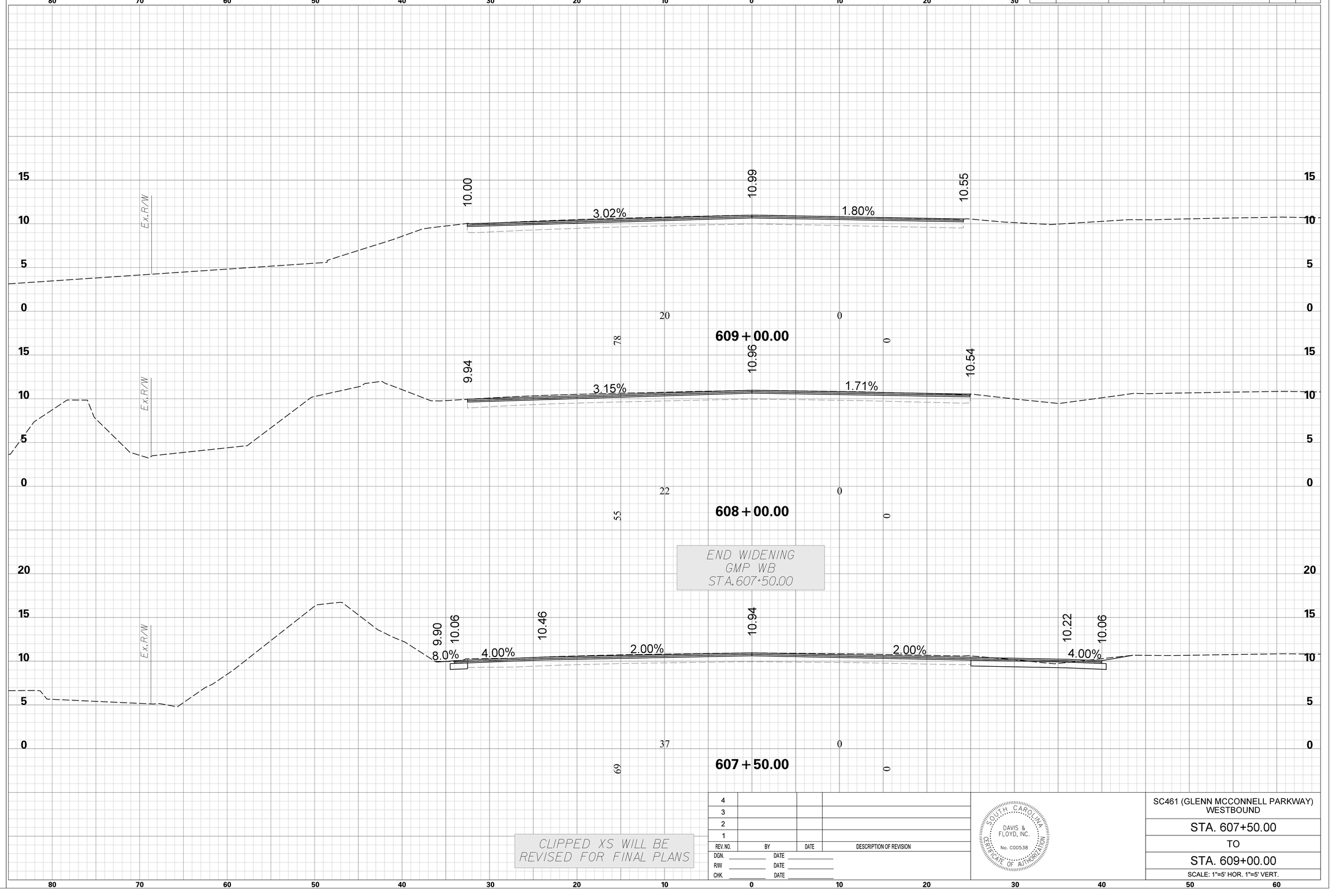
STA. 607+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X122	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WESTBOUND

STA. 607+50.00

TO

STA. 609+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

SCALE: 5.000 ft. / in.
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PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\02_13635-00 GMP WB XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X123	

END OVERLAY TRANS.
END CONSTRUCTION
GMP WB
STA.612+00.00

612+00.00

Ex.R/W — 10.05 — 2.87% — 10.99 — 2.07% — 10.65

18 | 0 | 65 | 0

Ex.R/W — 10.17 — 2.39% — 10.95 — 2.18% — 10.59

611+00.00

Ex.R/W — 10.06 — 2.85% — 10.99 — 2.71% — 10.45

17 | 0 | 69 | 0

610+00.00

20 | 0 | 74 | 0

CLIPPED XS WILL BE REVISED FOR FINAL PLANS

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) WESTBOUND

STA. 610+00.00

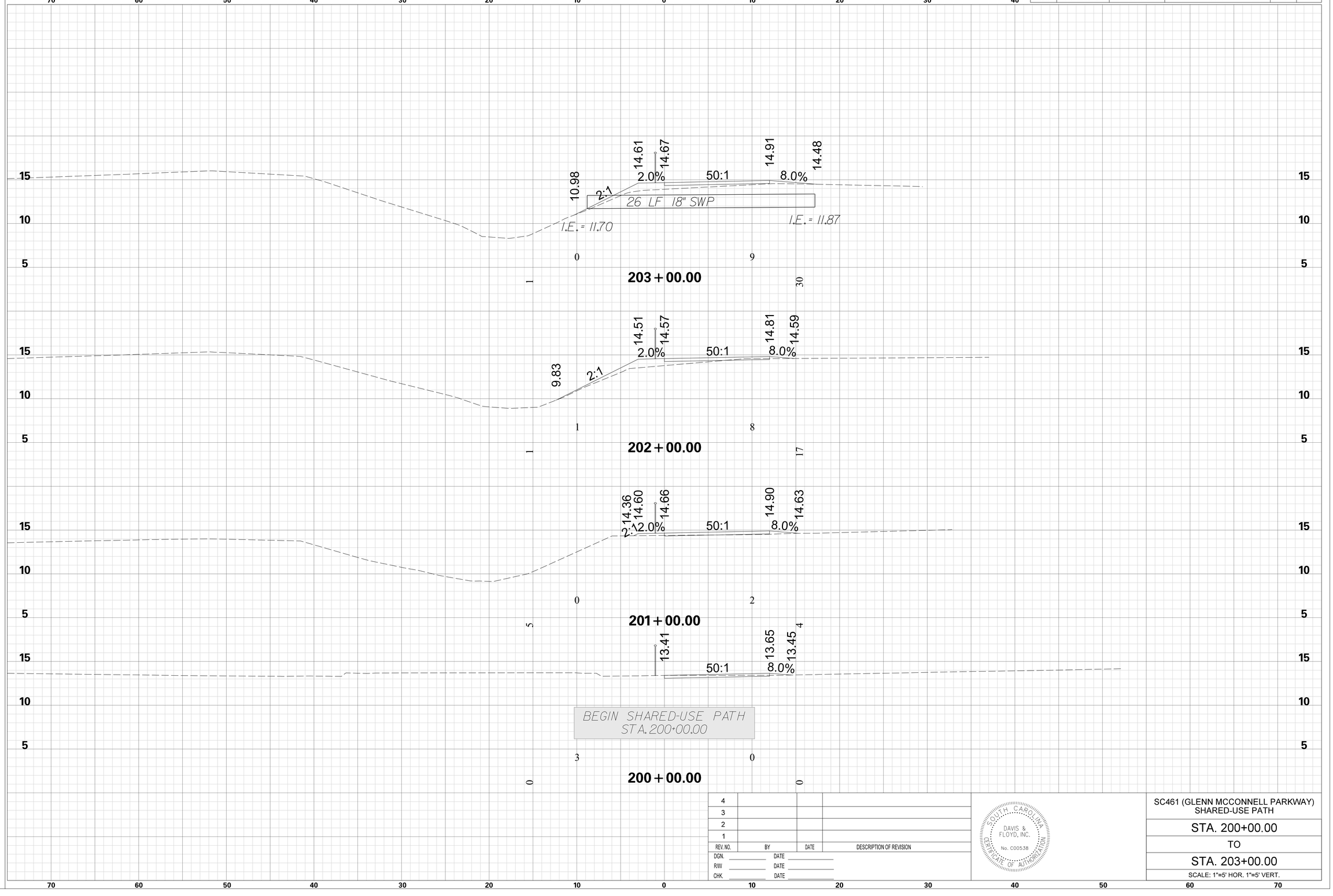
TO

STA. 612+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X124	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 200+00.00

TO

STA. 203+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
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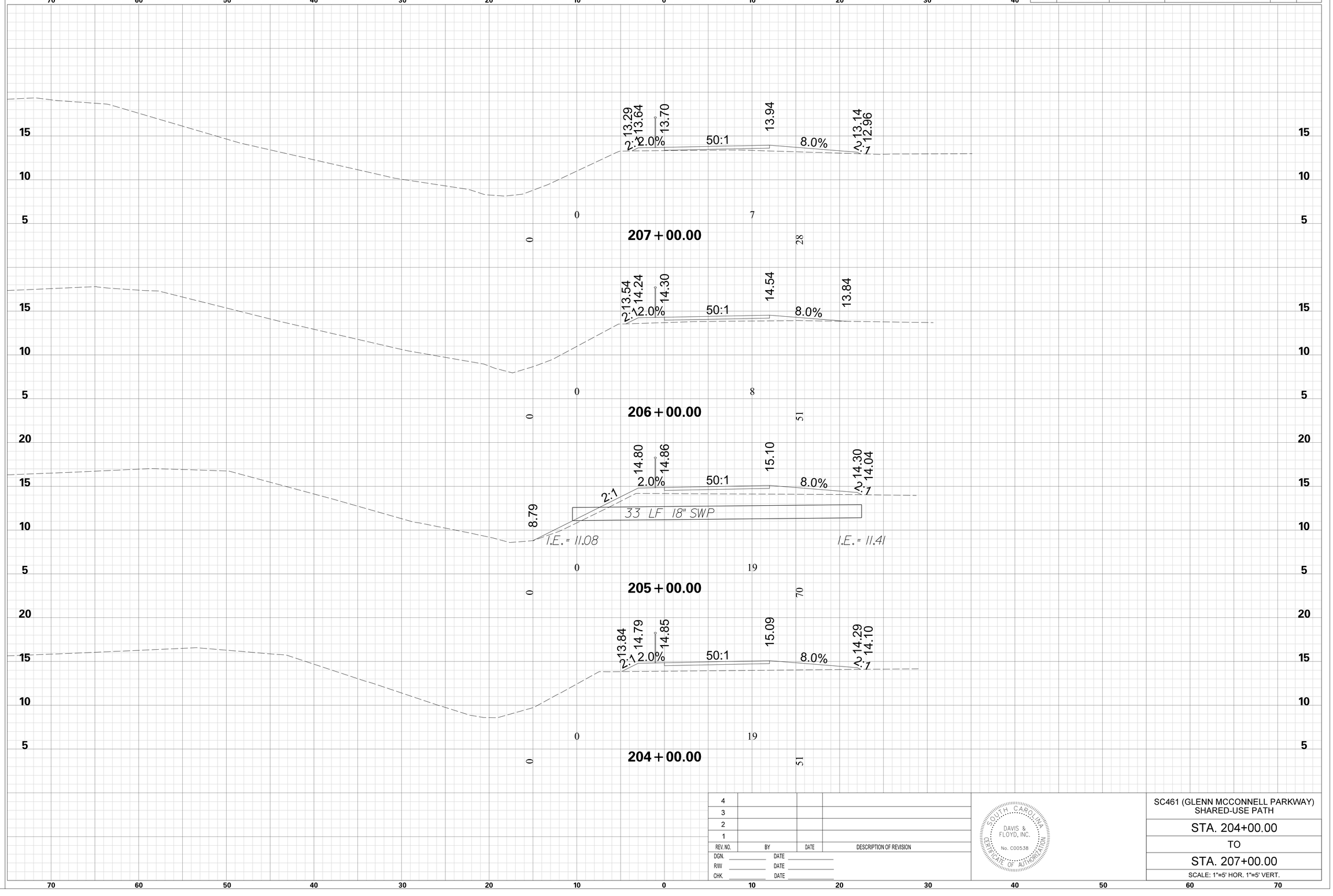
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X125	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 204+00.00

TO

STA. 207+00.00

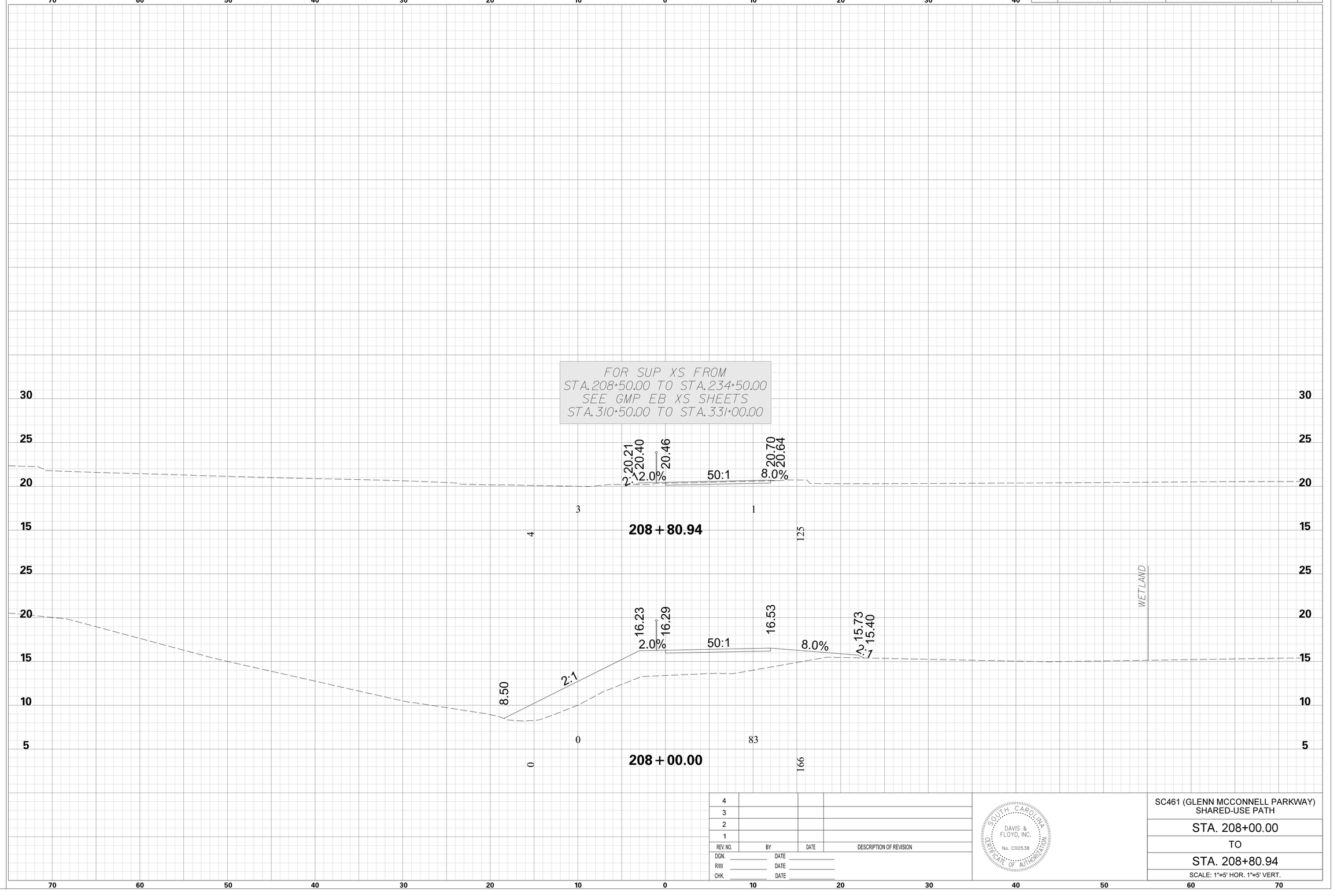
SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\03_13635-00 GMP SUP XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X126	

FOR SUP XS FROM
STA.208+50.00 TO STA.234+50.00
SEE GMP EB XS SHEETS
STA.310+50.00 TO STA.331+00.00



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 208+00.00

TO

STA. 208+80.94

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\03_13635-00 GMP SUP XPL.dgn
4/7/2020

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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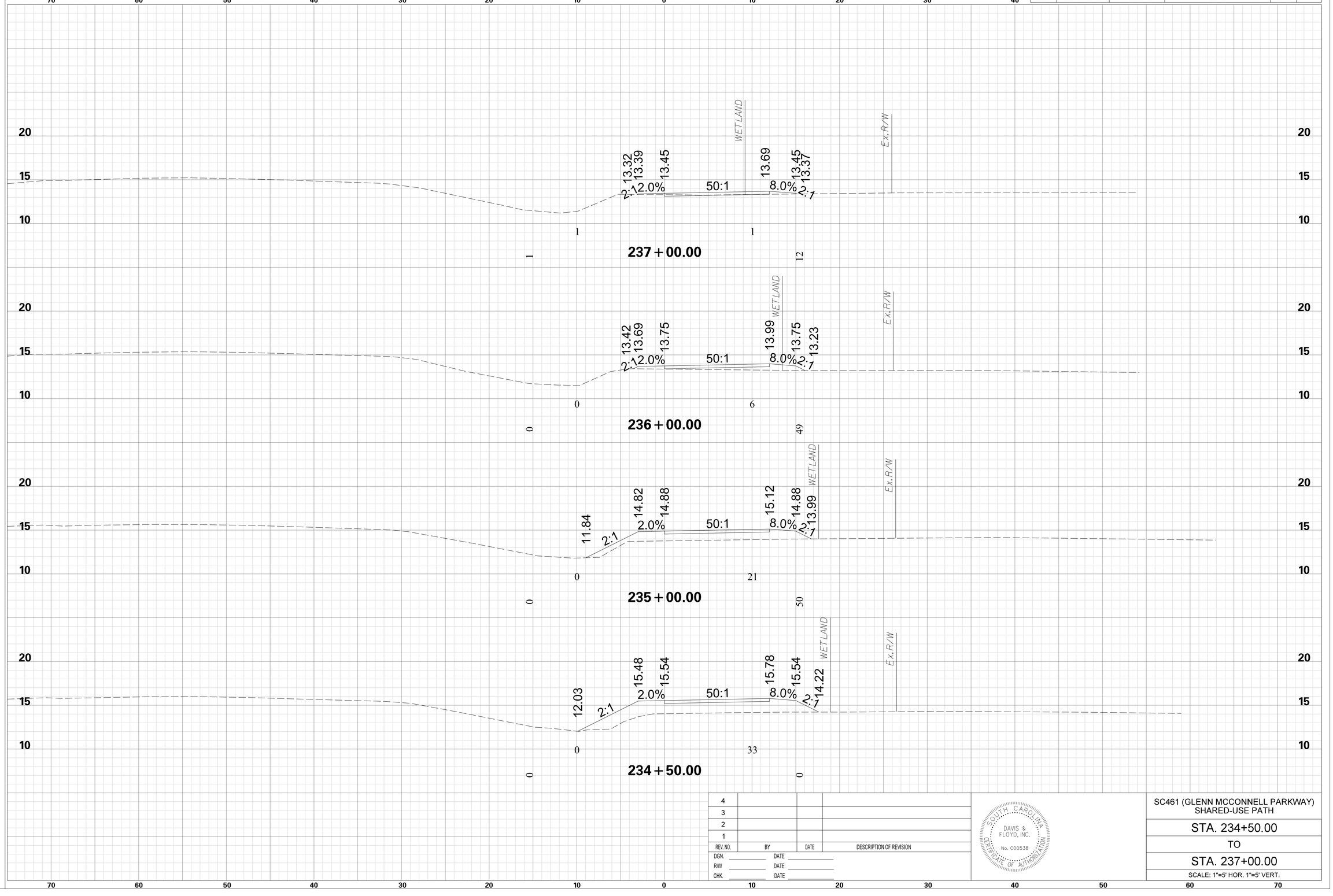
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\03_13635-00 GMP SUP XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X127	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 234+50.00

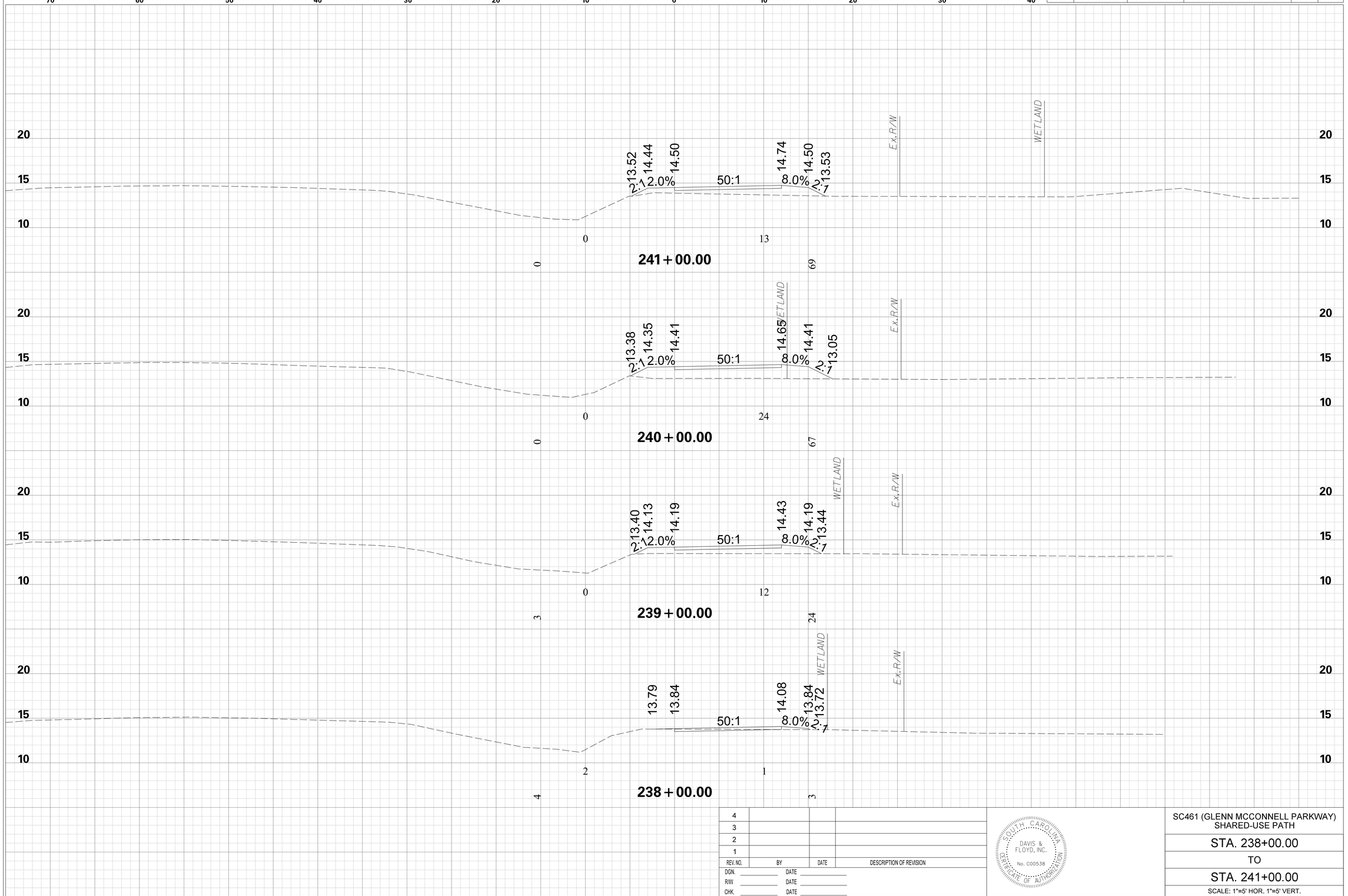
TO

STA. 237+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X128	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 238+00.00

TO

STA. 241+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
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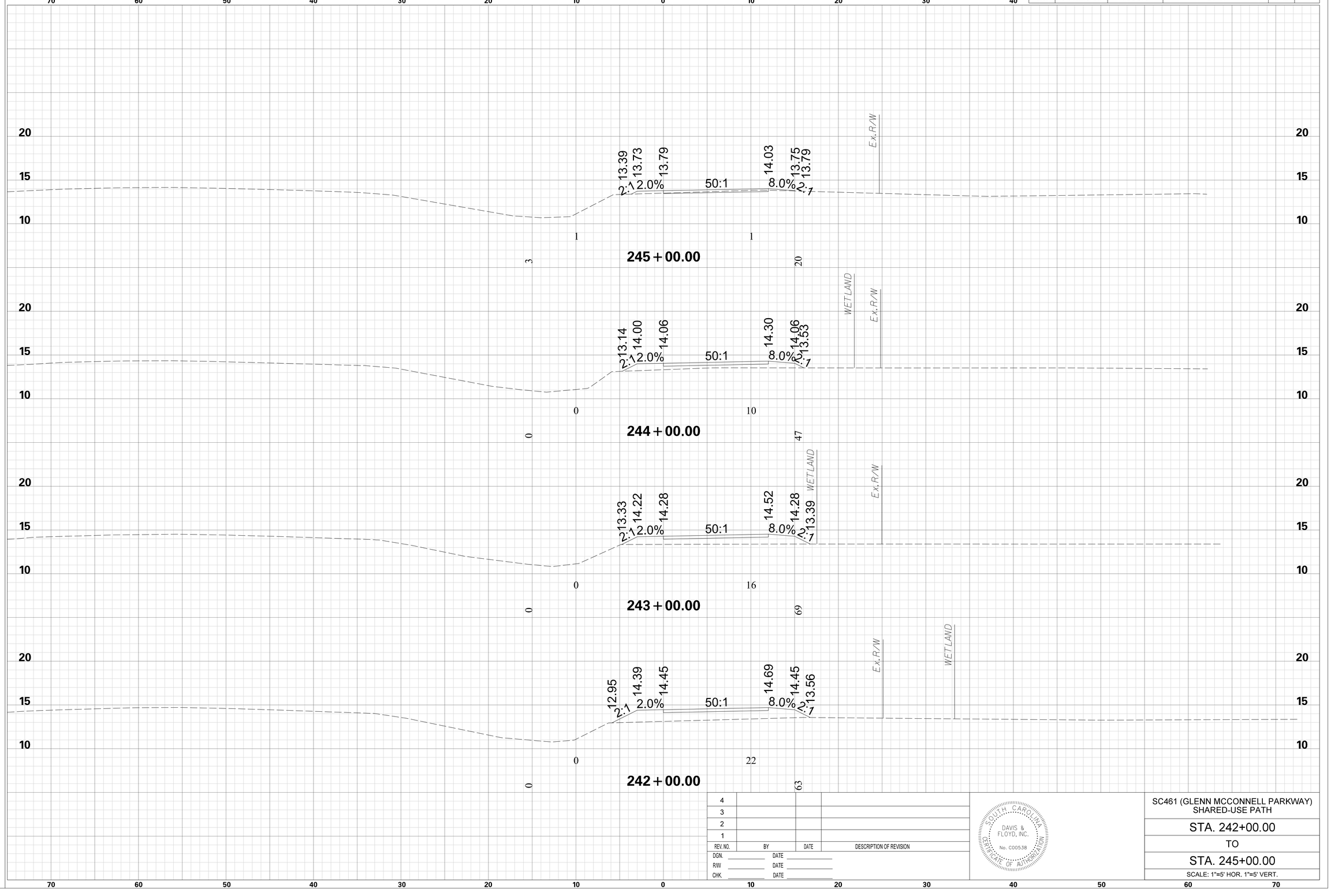
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X129	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 242+00.00

TO

STA. 245+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
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4/7/2020

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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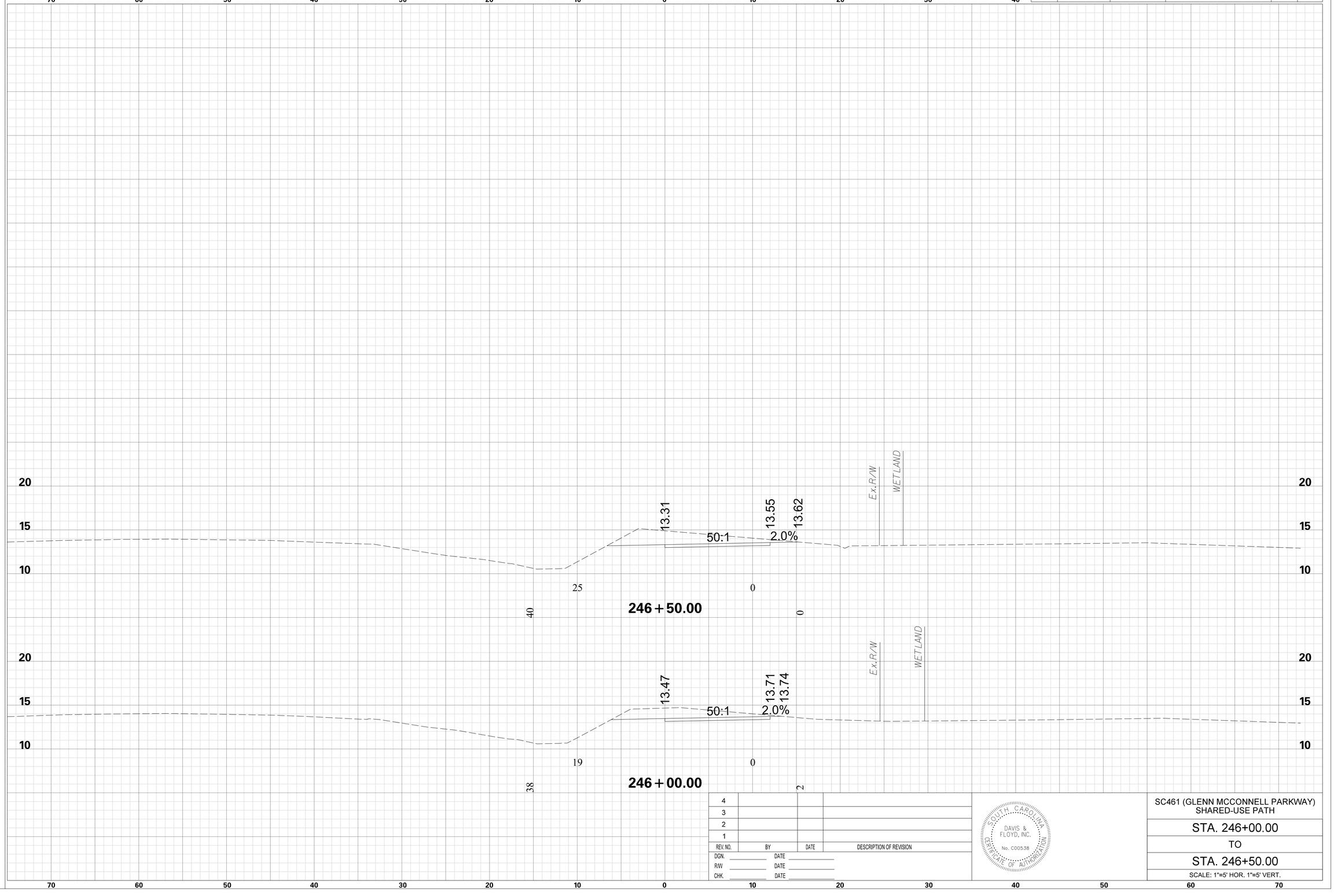
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\03_13635-00 GMP SUP XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X130	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 246+00.00

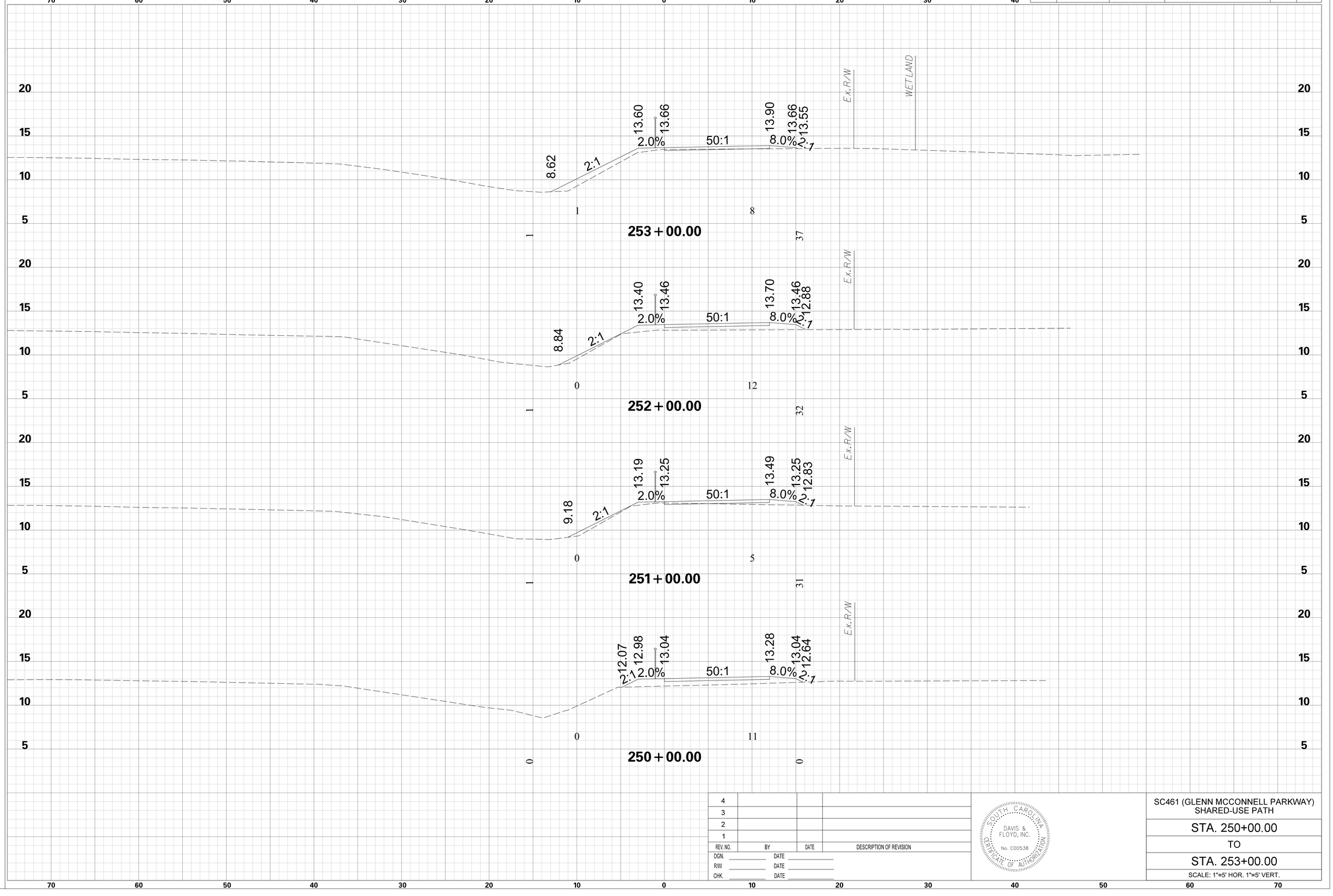
TO

STA. 246+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X131	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 250+00.00

TO

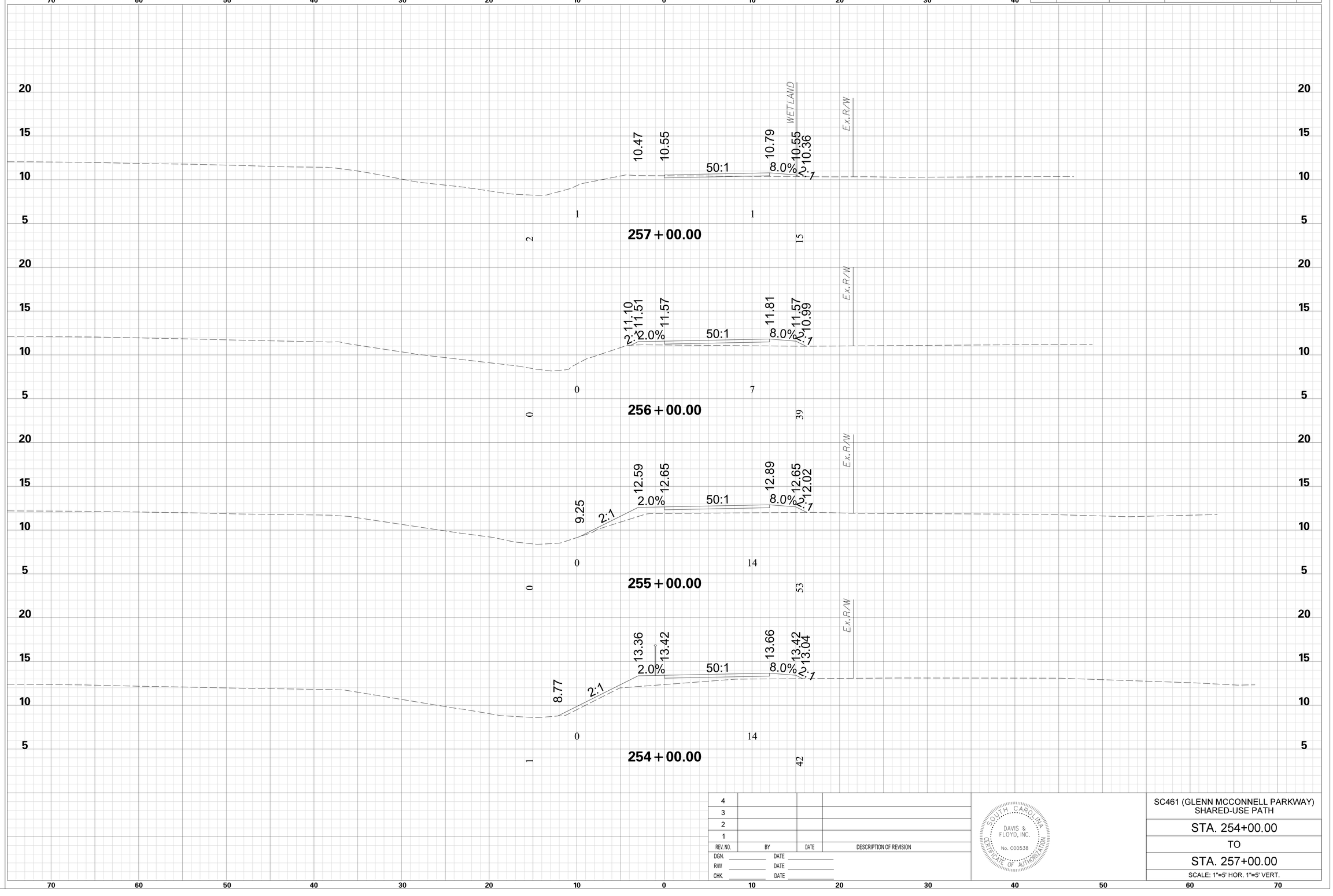
STA. 253+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\03_13635-00 GMP SUP XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X132	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 254+00.00

TO

STA. 257+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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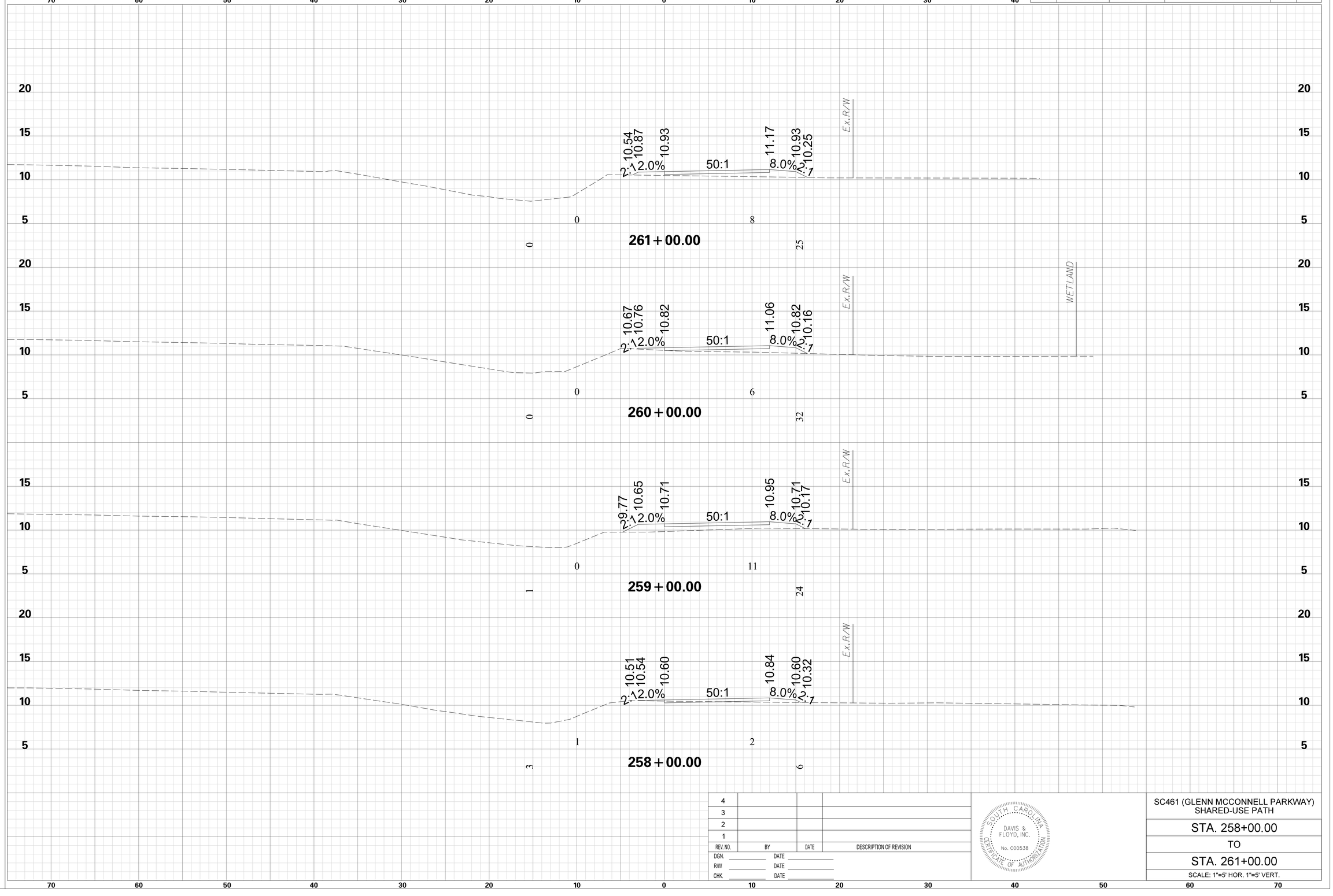
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X133	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) SHARED-USE PATH

STA. 258+00.00

TO

STA. 261+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
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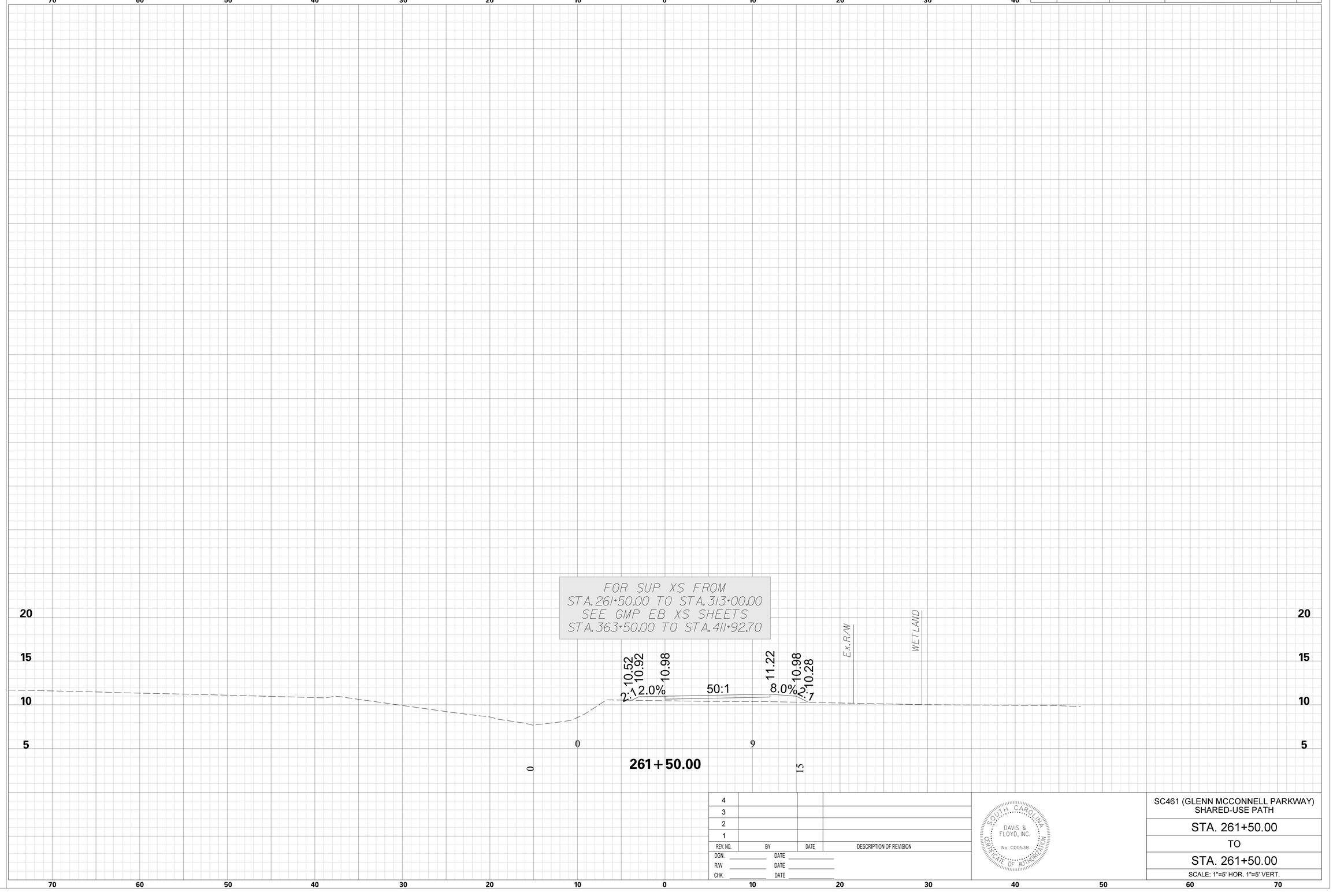
4/7/2020

CONSTRUCTION PLANS					
STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X134	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 261+50.00

TO

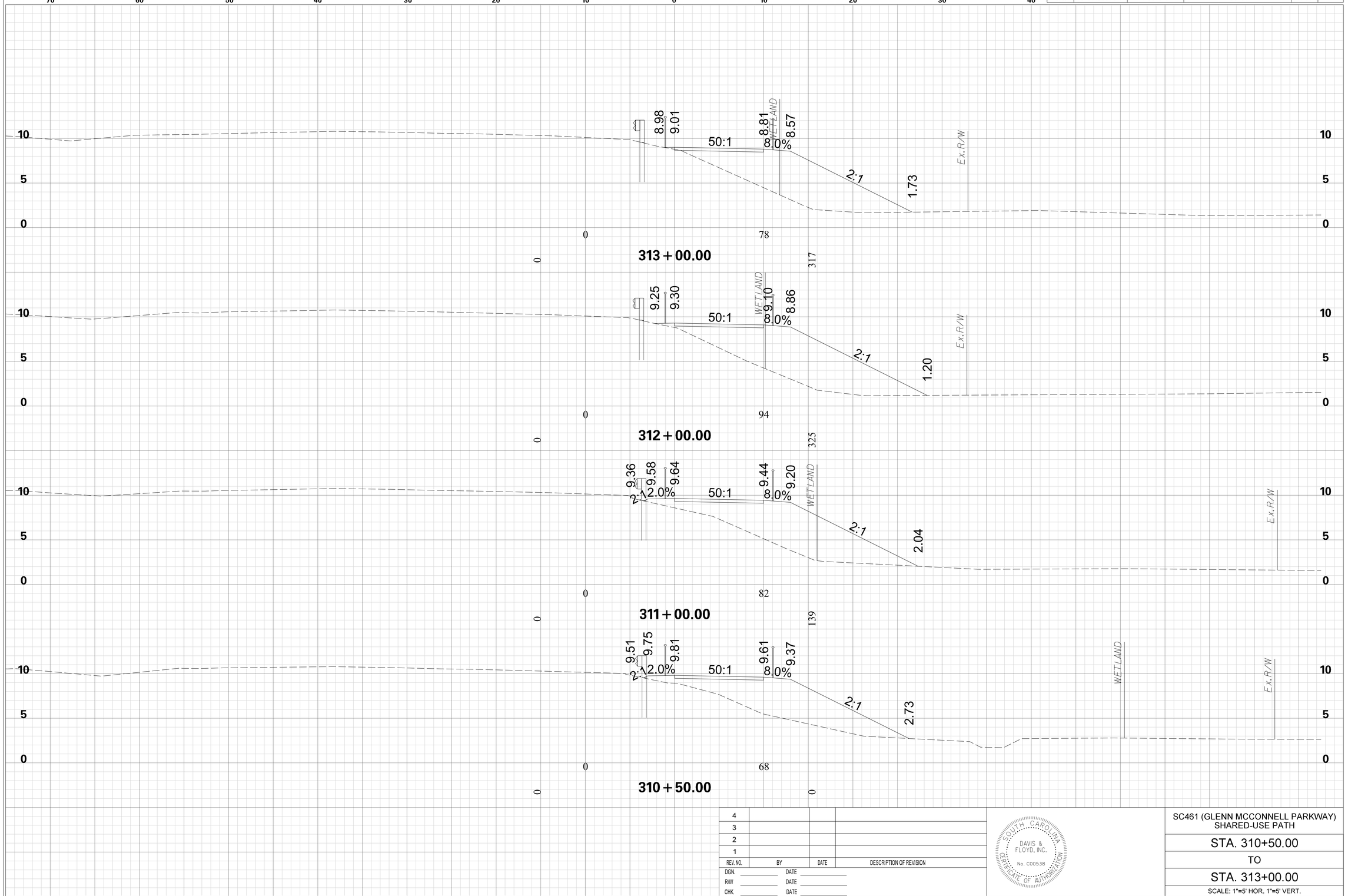
STA. 261+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\03_13635-00 GMP SUP XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X135	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 310+50.00

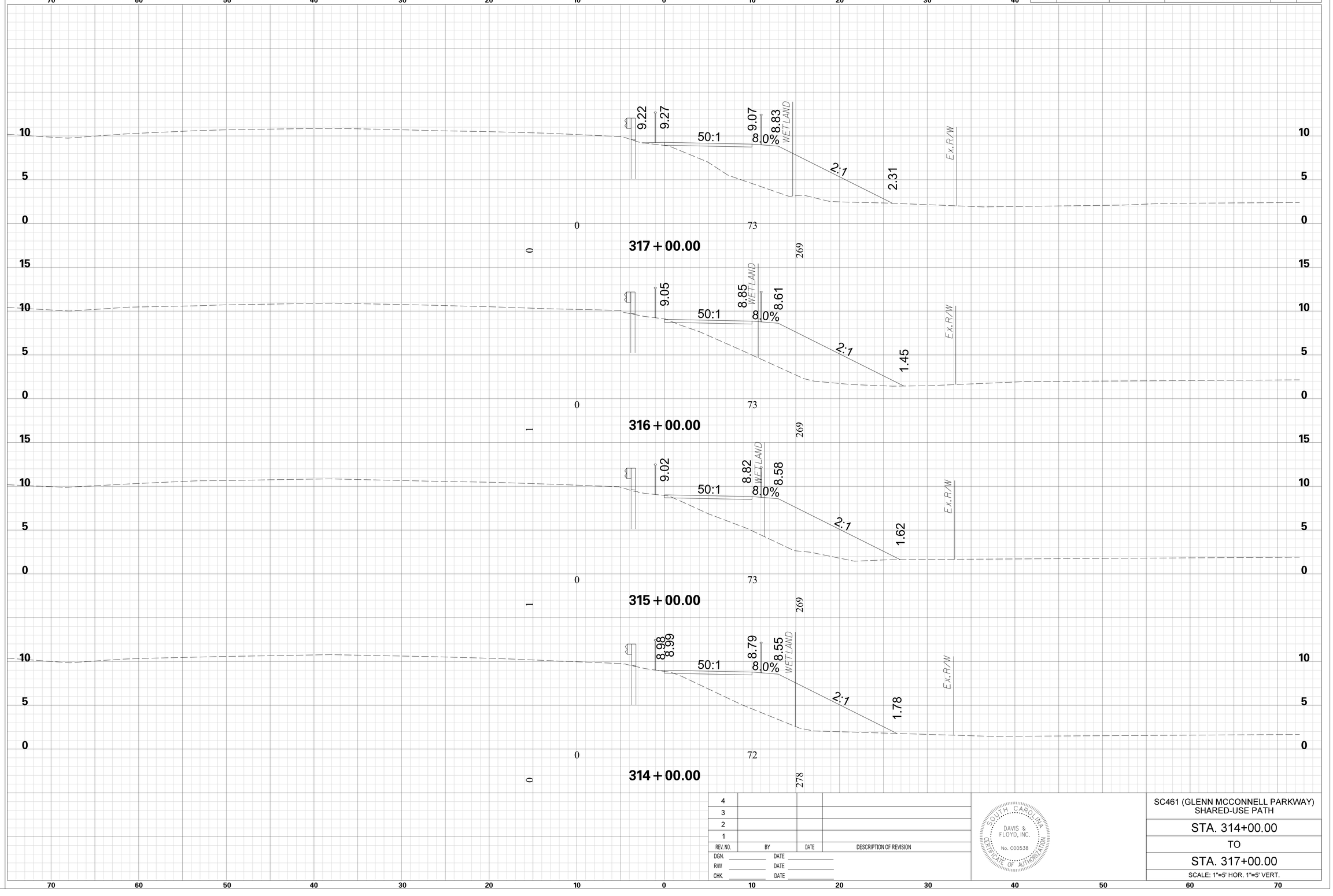
TO

STA. 313+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\03_13635-00 GMP SUP XPL.dgn
4/7/2020

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X136	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 314+00.00

TO

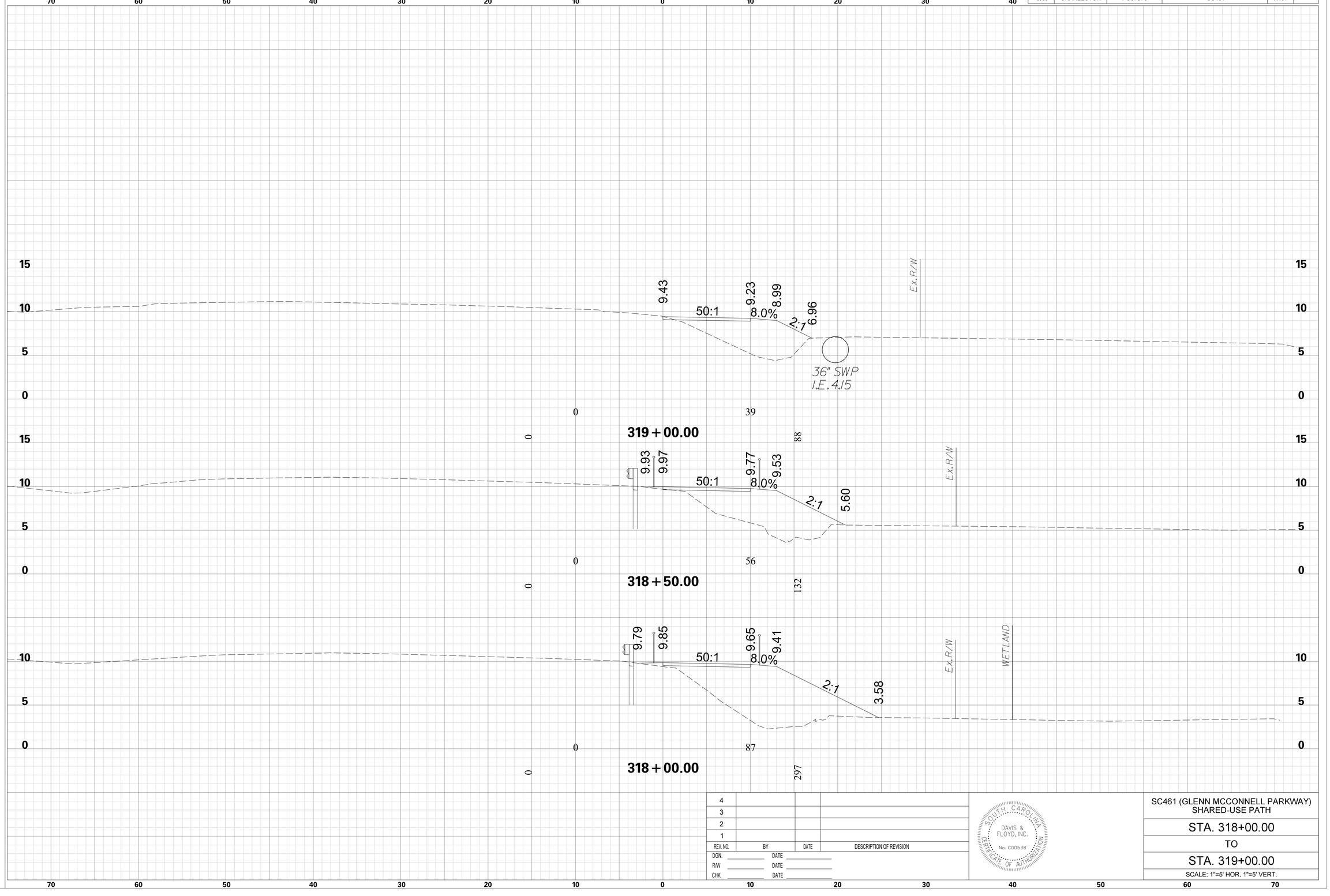
STA. 317+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\03_13635-00 GMP SUP XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X137	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 318+00.00

TO

STA. 319+00.00

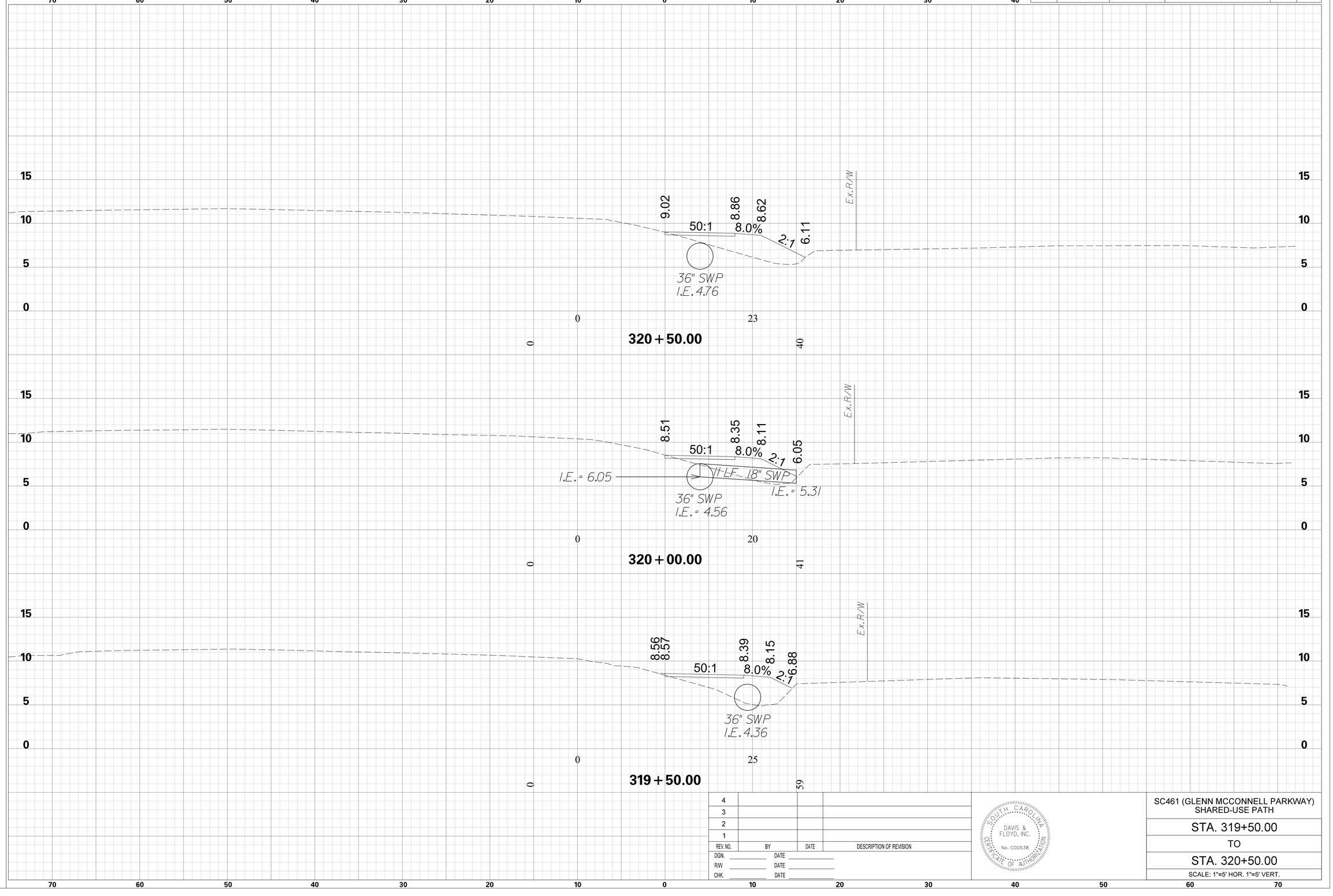
SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\03_13635-00 GMP SUP XPL.dgn
4/7/2020

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\03_13635-00 GMP SUP XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X138	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 319+50.00

TO

STA. 320+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
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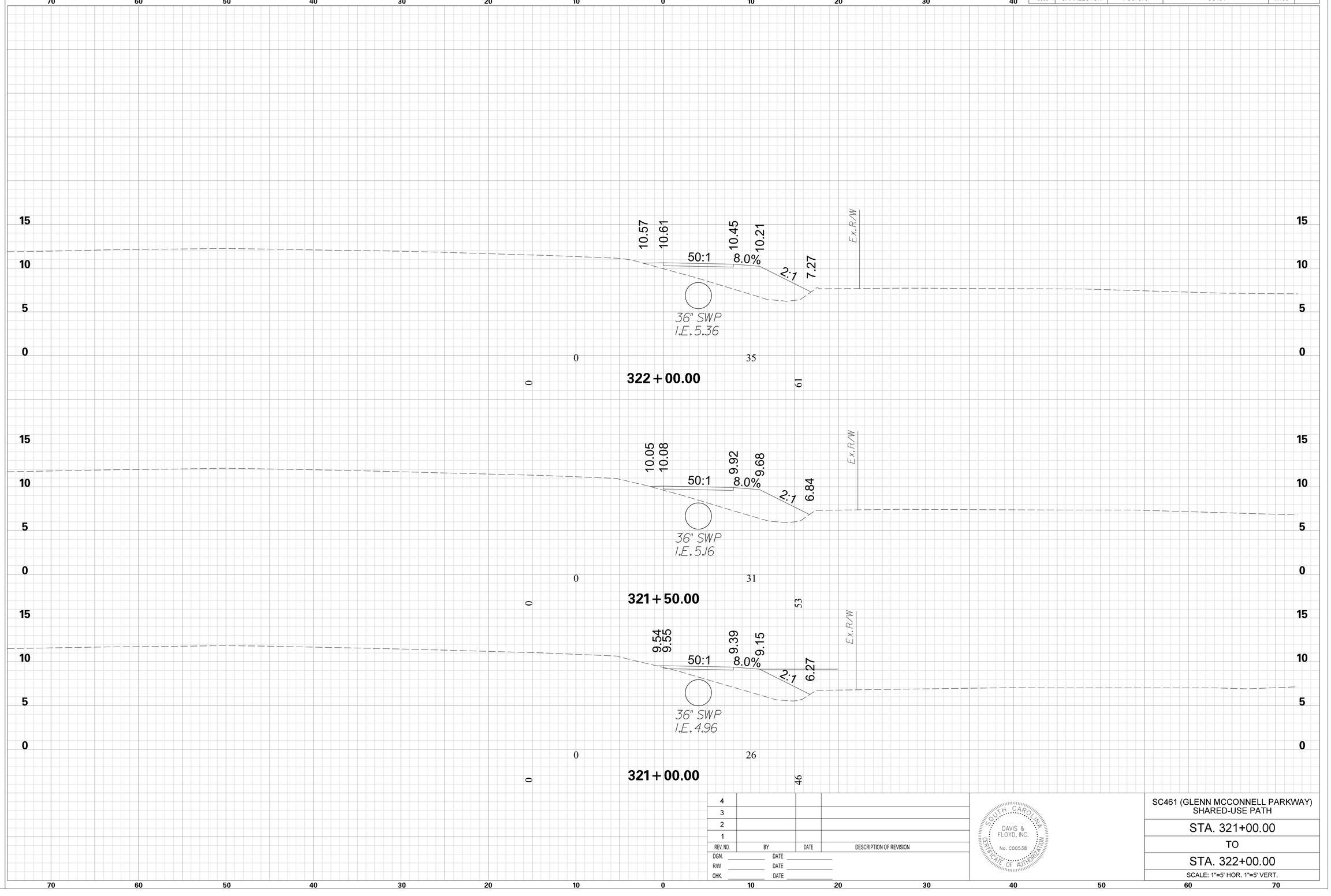
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X139	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 321+00.00

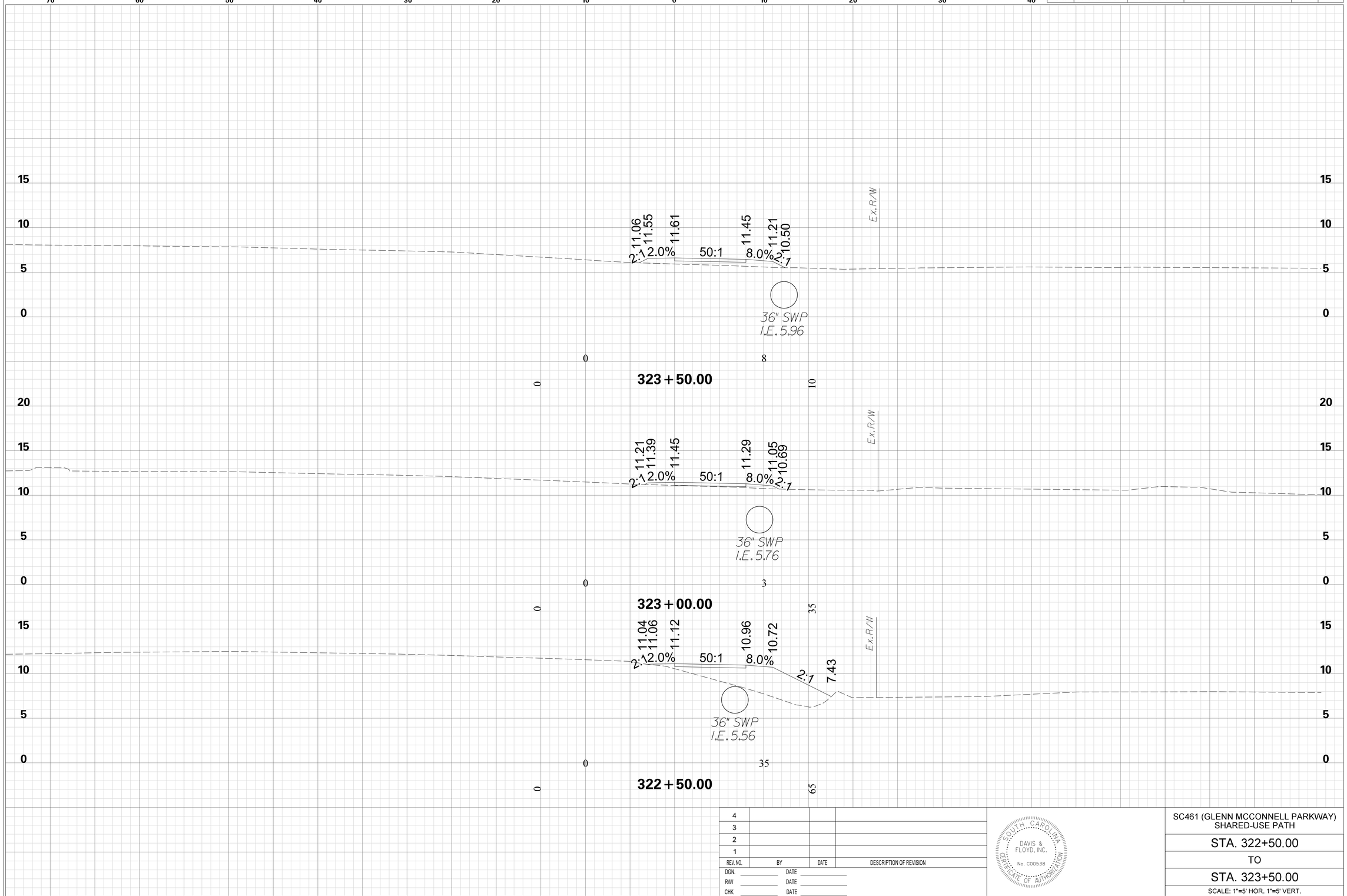
TO

STA. 322+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X140	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 322+50.00

TO

STA. 323+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
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FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\03_13635-00 GMP SUP XPL.dgn
4/7/2020

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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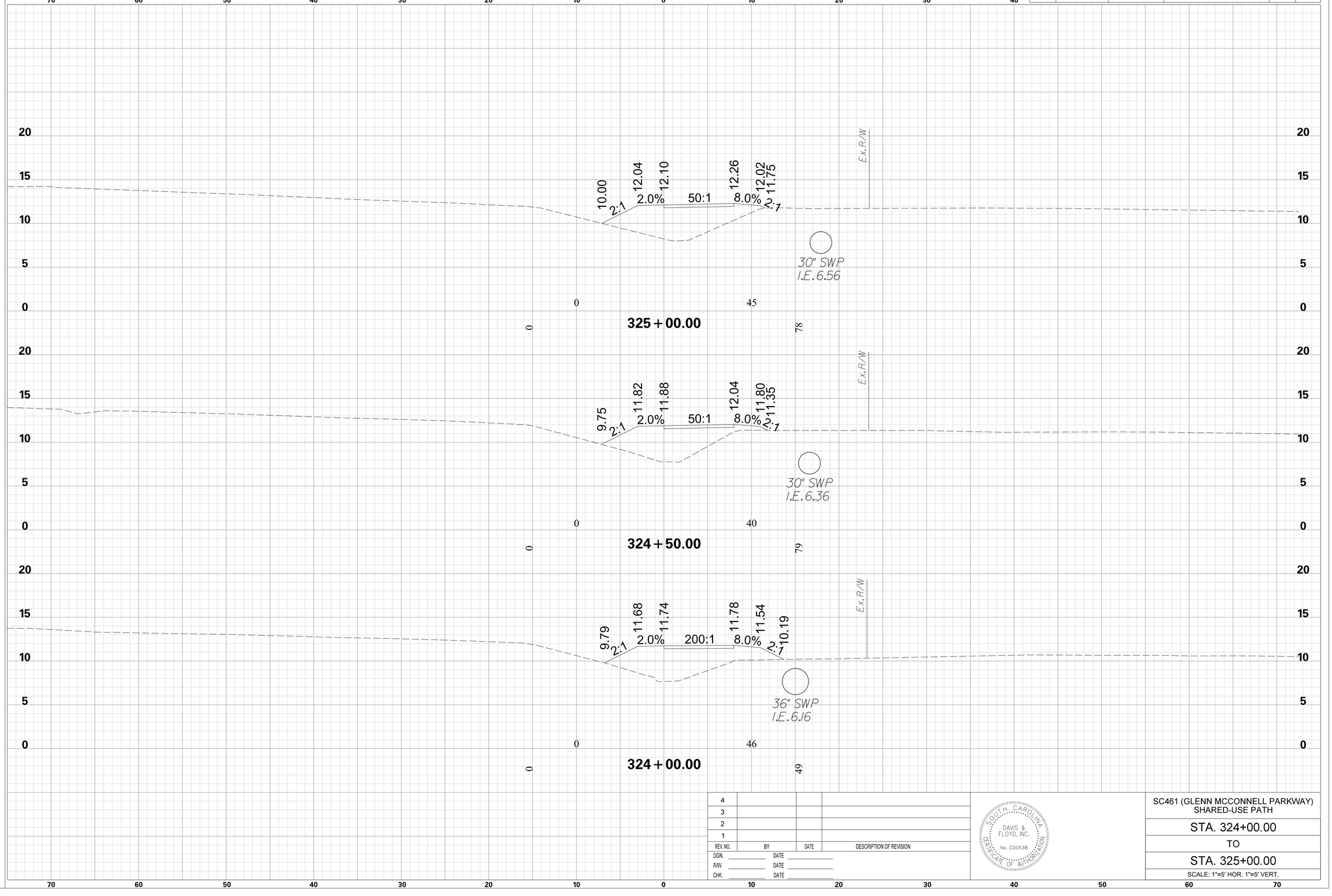
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X141	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) SHARED-USE PATH

STA. 324+00.00

TO

STA. 325+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X142	

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 325+50.00

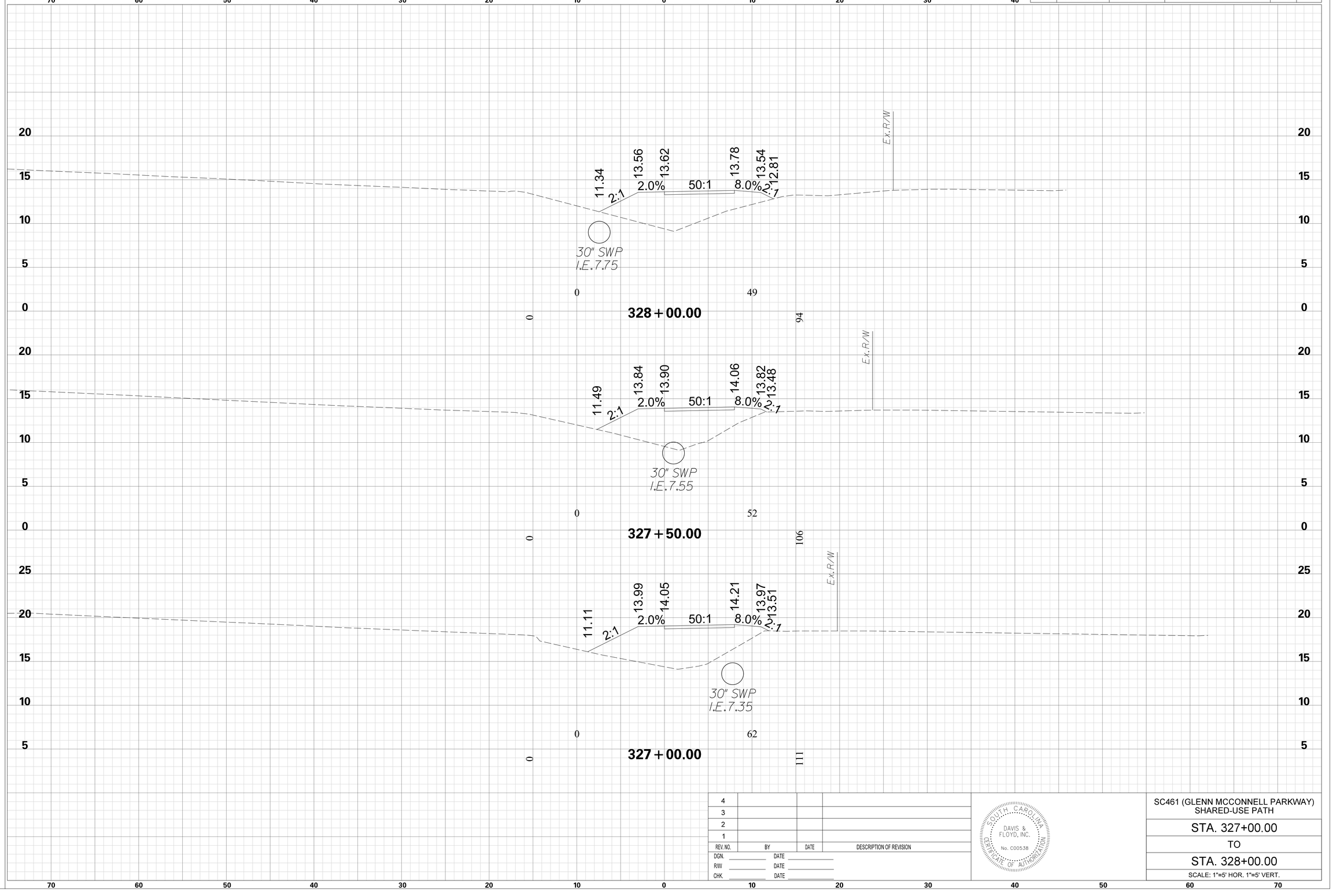
TO

STA. 326+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\03_13635-00 GMP SUP XPL.dgn
4/7/2020

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	SC461	X143	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 327+00.00

TO

STA. 328+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
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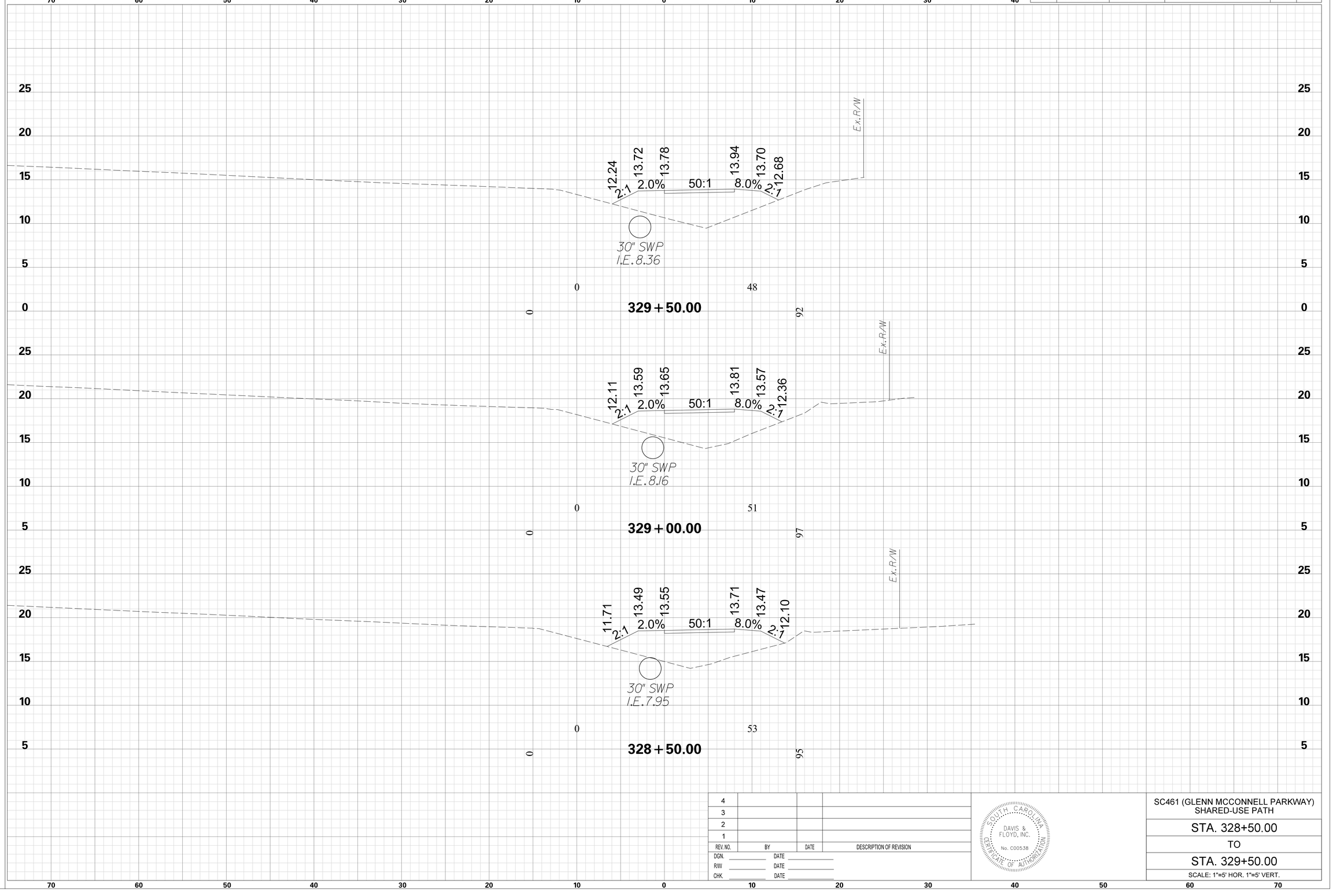
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X144	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY) SHARED-USE PATH

STA. 328+50.00

TO

STA. 329+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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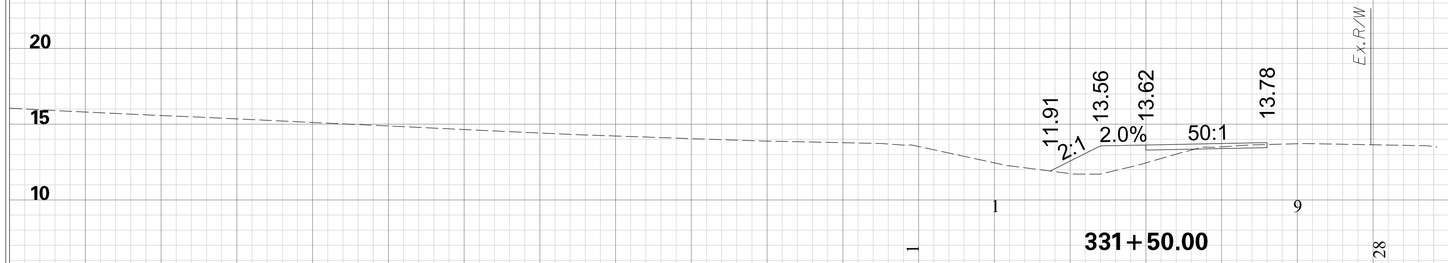
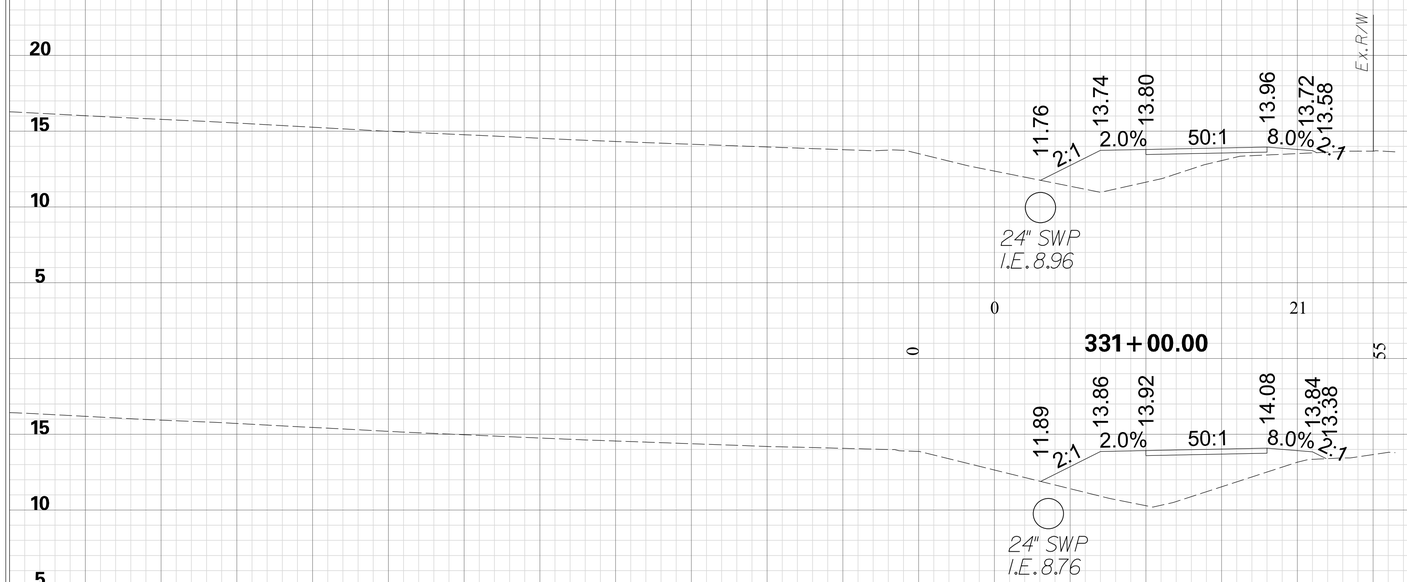
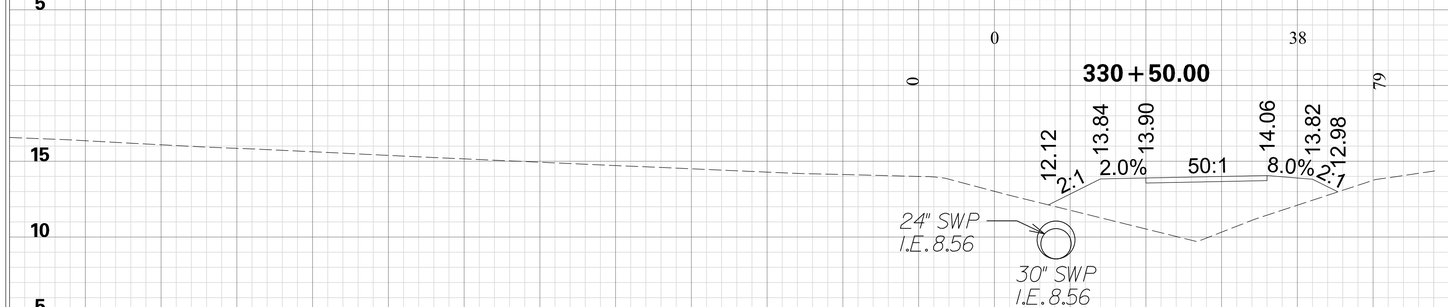
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X145	







REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 330+00.00

TO

STA. 331+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
PLOT DRIVER: G:\Resource\Standards\Bentley\Transportation\DF STANDARDS\MSfiles\plotting\PDF.pltcfg
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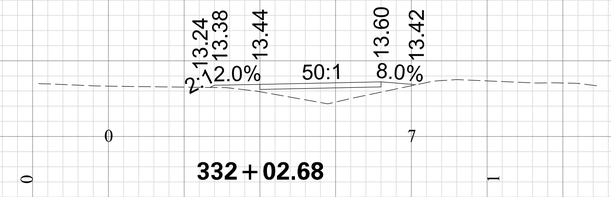
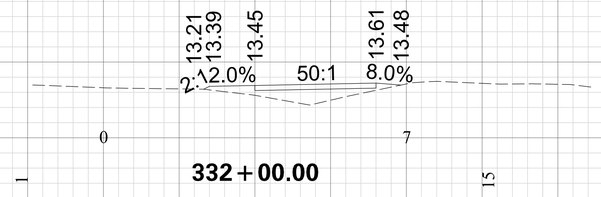
4/7/2020

CONSTRUCTION PLANS					
STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	SC461	X146	

TRANSITION 8' SUP
TO EXISTING SIDEWALK
END SUP CONSTRUCTION
STA. 332+02.68 (℄ SUP 4)



332+02.68



332+00.00

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
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CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
SHARED-USE PATH

STA. 332+00.00

TO

STA. 332+02.68

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
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4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	GOODWILL WAY	X147	

END CONSTRUCTION
GOODWILL SIDEWALK
STA. 23+03.17

22+50.00

Ex. R/W

12.23 | 12.13 | 12.11 | 10.67

50:1 50:1 4:1

Ex. R/W

22+00.00

Ex. R/W

13.20 | 13.27

71:1

Ex. R/W

21+50.00

Ex. R/W

13.99 | 13.89 | 13.87 | 11.10

51:1 51:1 4:1

Ex. R/W

21+00.00

Ex. R/W

14.63 | 14.54 | 14.52 | 13.61

56:1 56:1 4:1

Ex. R/W

BEGIN CONSTRUCTION
GOODWILL SIDEWALK
STA. 20+87.35

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
4			
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
GOODWILL WAY SIDEWALK

STA. 21+00.00

TO

STA. 22+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
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FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\04_I3635-00 GMP GOODWILL XPL.dgn
4/7/2020

SCALE: 5.000 ft / in.
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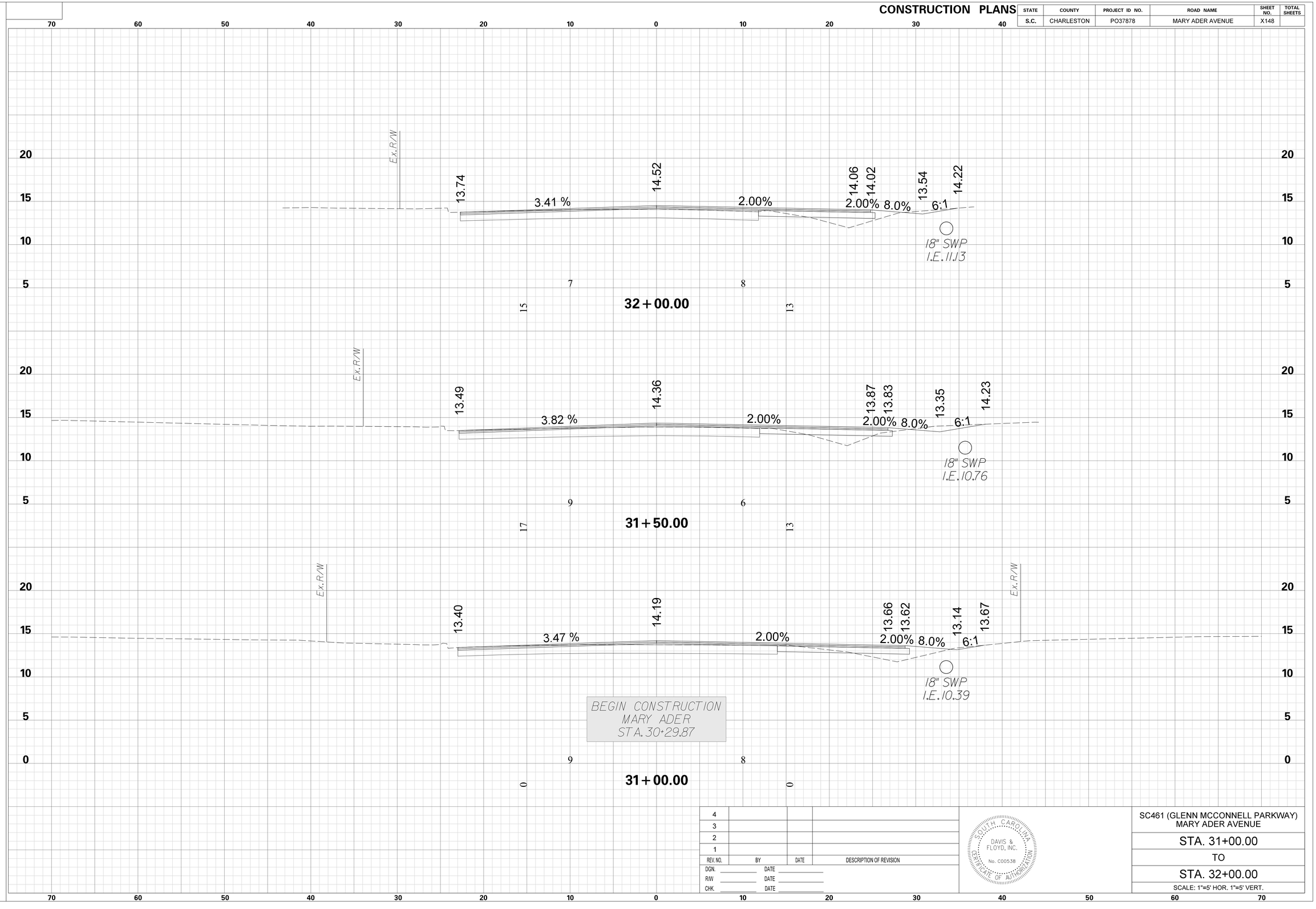
FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\05_13635-00 GMP MARYADER XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	MARY ADER AVENUE	X148	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
MARY ADER AVENUE

STA. 31+00.00

TO

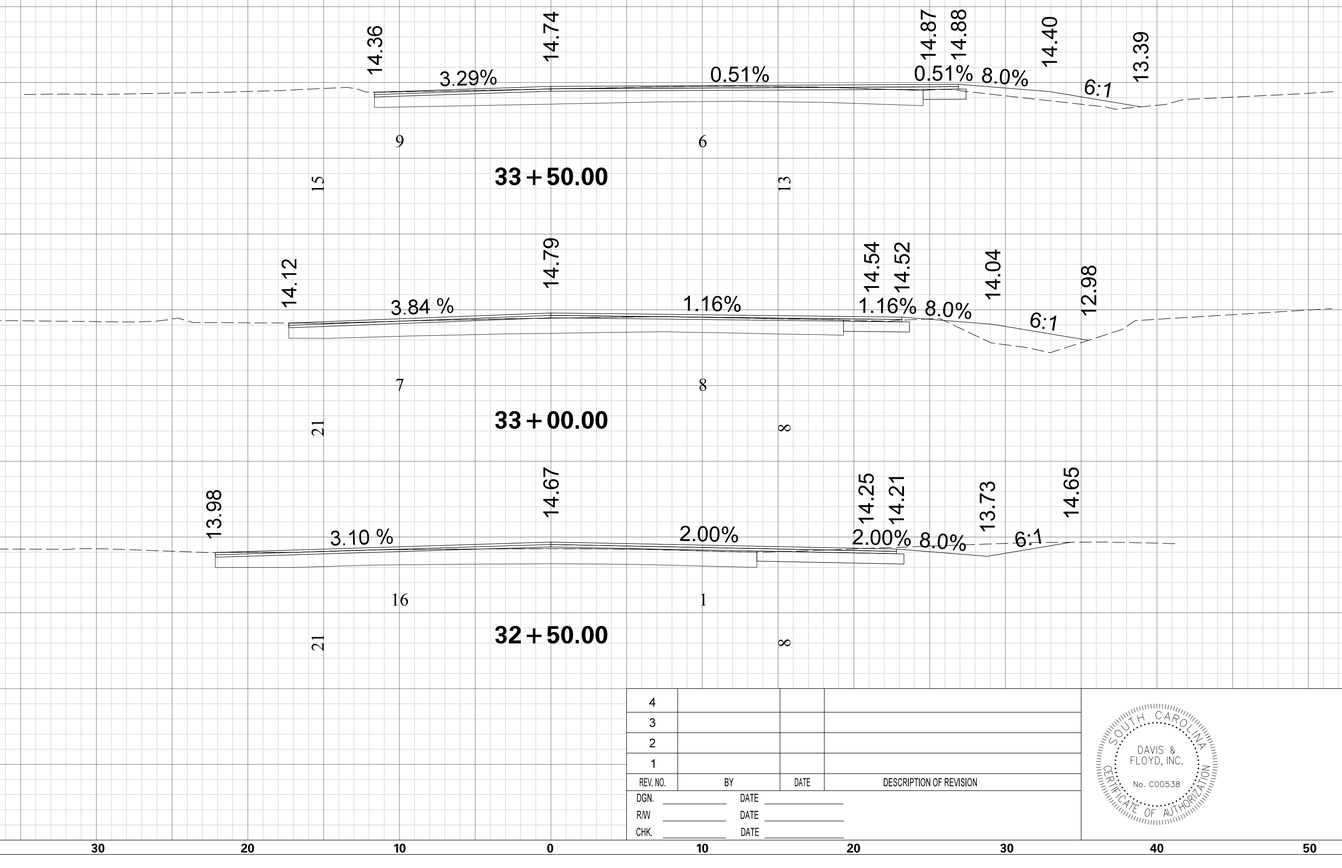
STA. 32+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	MARY ADER AVENUE	X149	

END CONSTRUCTION
MARY ADER
STA. 33+94.95



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DGN. _____ DATE _____
R/W _____ DATE _____
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SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
MARY ADER AVENUE

STA. 32+50.00

TO

STA. 33+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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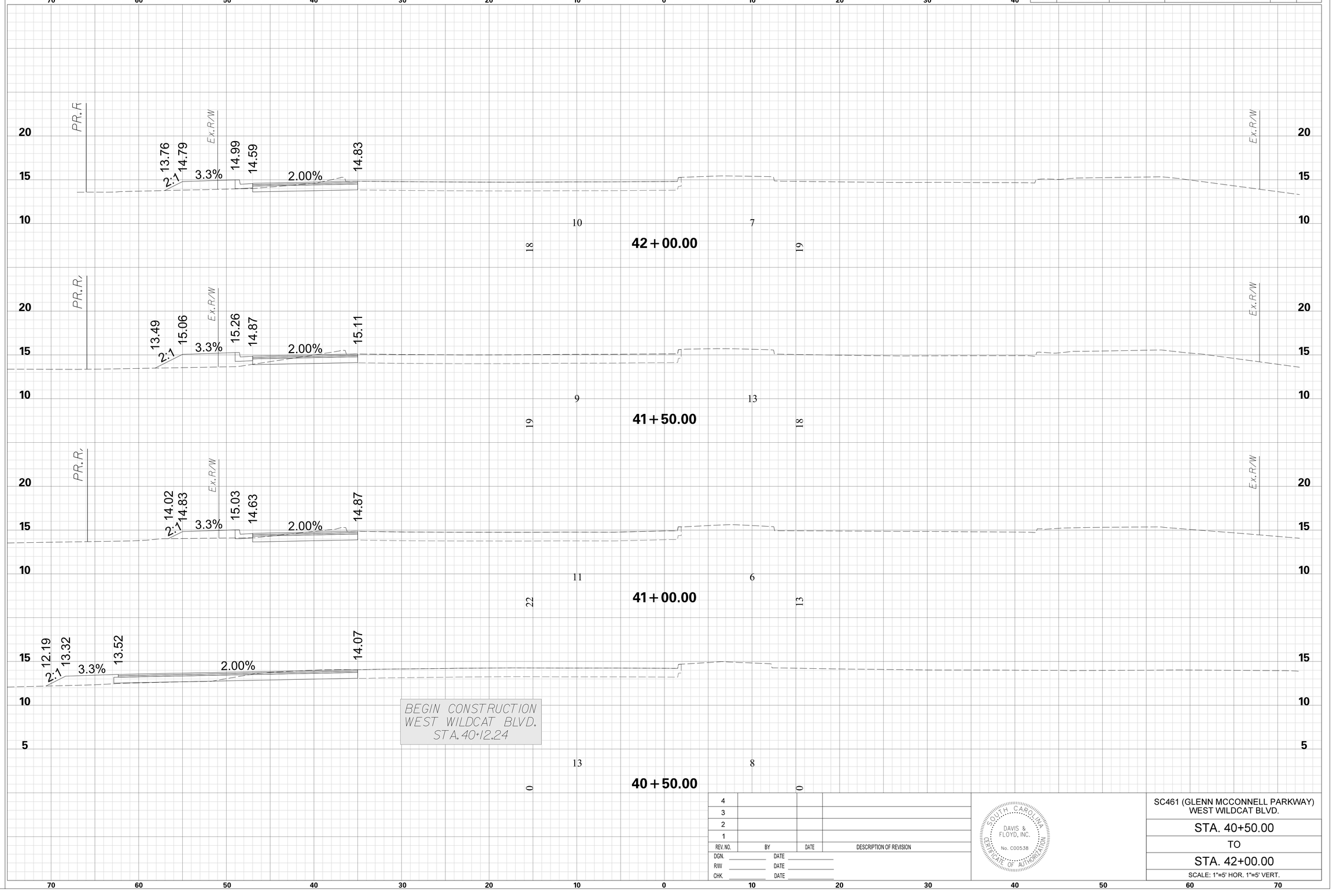
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	PO37878	WEST WILDCAT BLVD.	X150	



REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. _____ DATE _____
R/W _____ DATE _____
CHK. _____ DATE _____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WEST WILDCAT BLVD.

STA. 40+50.00

TO

STA. 42+00.00

SCALE: 1"=5' HOR. 1"=5' VERT.

SCALE: 5.000 ft / in.
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4/7/2020

SCALE: 5.000 ft / in.
PEN TABLE: J:\JobsOdd\13635-00\Production\Transportation\SHEETS\Print Organizer\Pen Tables\SCDOT Levels 2015 X Sections.tbl
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FILE: J:\JobsOdd\13635-00\Production\Transportation\CROSS SECTIONS\Cross Section Sheets\06_13635-00 GMP WILDCAT XPL.dgn
4/7/2020

CONSTRUCTION PLANS

STATE	COUNTY	PROJECT ID NO.	ROAD NAME	SHEET NO.	TOTAL SHEETS
S.C.	CHARLESTON	P037878	WEST WILDCAT BLVD.	X151	

END CONSTRUCTION
WEST WILDCAT BLVD.
STA. 44+10.48
TIE TO EXISTING

43 + 50.00

Ex.R/W 13.17 13.96 2:1 3.3% 14.16 13.77 2.00% 14.01 Ex.R/W

23 11 5 10

43 + 00.00

Ex.R/W 13.30 14.09 2:1 3.3% 14.29 13.89 2.00% 14.13 Ex.R/W

14 6

42 + 50.00

PR.R/ Ex.R/W 13.60 14.52 2:1 3.3% 14.72 14.33 2.00% 14.57 Ex.R/W WETLAND

13 6 21 12

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
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DGN. ____ DATE ____
R/W ____ DATE ____
CHK. ____ DATE ____

SOUTH CAROLINA
DAVIS & FLOYD, INC.
No. C00538
CERTIFICATE OF AUTHORIZATION

SC461 (GLENN MCCONNELL PARKWAY)
WEST WILDCAT BLVD.

STA. 42+50.00

TO

STA. 43+50.00

SCALE: 1"=5' HOR. 1"=5' VERT.

Appendix C

Coordination

Charleston County
Transportation Development

Glenn McConnell Parkway Widening Project

As part of the 2016 Transportation Sales Tax Referendum, the **Glenn McConnell Parkway Widening Project** was identified as a project of local significance. The goal of this project is to improve the capacity of the currently congested corridor by widening Glenn McConnell Parkway between Bees Ferry Road and Magwood Drive. This project is now in the early stages of planning and design.

Engineers, surveyors and others involved in the planning and design of the project will be working to gather information along the Glenn McConnell Parkway corridor. Information to be collected may include: location of roadway features, area topography, existing utilities (overhead and underground power lines, gas, water, sewer, telephone, cable TV, etc.), environmental surveys, storm drainage features (catch basins, ditches, pipes, culverts, canals, creeks and wetlands), and geotechnical data (existing soils and pavement).

The initial work will involve employees from consulting firms who are performing contractual services for Charleston County. The engineering firm, ***Davis & Floyd, Inc.***, will be leading the field surveys and design tasks for this project. Personnel from this firm, or designated representatives, will make every effort to contact you to request your permission prior to performing any field survey activities that may occur on your property. All County and consultant crews will display name badges and carry other forms of identification.

Contact information:

Charleston County Transportation Development:

843-202-6140 / TransportationDevelopment@charlestoncounty.org

Project Manager:

Sunshine Trakas, PE: 843-202-6154 / STrakas@charlestoncounty.org

Online Resources:

Website https://roads.Charlestoncounty.org

Please contact Charleston County directly if you have any questions regarding this project.

July 2018

Appendix D

Cultural Resources

Cultural Resources Survey of the Glenn McConnell Parkway (SC-461) Widening & Multiuse Lane Project

Charleston County, South Carolina

SHPO Project Number 19-JW0001

February 2019

Brockington®

CULTURAL RESOURCES CONSULTING

Cultural Resources Survey of the Glenn McConnell Parkway (SC-461) Widening & Multiuse Lane Project

Charleston County, South Carolina

SHPO Project Number 19-JW0001

Final Report

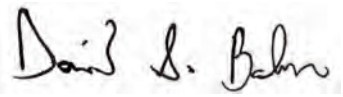
February 2019

Prepared for:
Davis & Floyd
Columbia, South Carolina

and

Charleston County, South Carolina

Prepared by:



David Baluha, R.P.A.
Principal Investigator

Brockington and Associates, Inc.

Atlanta • Charleston • Jackson • Nashville • Savannah

Abstract

Charleston County proposes to improve a 3.97-kilometer portion of SC-461 (Glenn McConnell Parkway [GMP]) between S-10-57 (Bees Ferry Road) and Magwood Drive in Charleston County, South Carolina. The GMP Widening & Multiuse Lane Project includes plans to improve at least seven intersections, the widening of the thoroughfare to at least six lanes, and drainage improvements in Church Creek. Davis & Floyd entered into an Agreement, dated May 17, 2018, to provide professional services to Charleston County for the GMP Widening & Multiuse Lane Project. The proposed project received funds from the Charleston County Sales Tax Program and is being managed by Charleston County. As part of this agreement, Davis & Floyd subcontracted Brockington and Associates, Inc. (Brockington), to identify any historic properties (i.e., sites, buildings, structures, objects, or districts listed on or eligible for the National Register of Historic Places [NRHP]) that may be affected by improvements made to the roadway. This survey provides partial compliance with Section 4(f) of the United States Department of Transportation Act of 1966, as amended (49 United States Code [USC] 303), and Section 106 of the National Historic Preservation Act of 1966, as amended (54 USC 306108).

Brockington conducted the cultural resources survey of the GMP Widening & Multiuse Lane Project from August 6 to 24, 2018. Brockington attempted to locate and assess the significance of all cultural resources that may be directly or indirectly affected by the GMP Widening & Multiuse Lane Project. To accomplish these objectives, Brockington conducted background research, archaeological and architectural survey, laboratory analyses, and NRHP assessment. The archaeological survey universe is equal to the project footprint provided by Davis & Floyd planners to Brockington, which includes the full extent of all preliminary design plans for the proposed project, encompassing approximately 98.6 acres east and west of the GMP. The architectural survey universe extends 91 meters (m) beyond the archaeological survey universe in all directions, encompassing approximately 253 acres. Combined, the archaeological and architectural survey universes constitute the Area of Potential Effect (APE).

Brockington conducted the archaeological survey from August 6 to 22, 2018. Roberts (1986) identified five archaeological sites (38CH975-38CH979) in the archaeological survey universe. During the current investigation, we revisited 38CH979, expanding the site boundary to the northeast. All of 38CH975, 38CH976, 38CH977, and 38CH978, and most of 38CH979 appear to have been destroyed by construction of the GMP. Site 38CH979 is recommended not eligible for the NRHP and requires no additional management.

Brockington conducted the architectural survey on August 24, 2018. Architectural survey documented two cultural landscape features (Resources 7940 and 7965). Baluha et al. (2018) first recorded Resource 7940, which was revisited during the current investigation. Resource 7940 is the remnants of an inland rice field associated with the former Woodford Plantation. Resource 7965 is the remnants of the Charleston Mining and Manufacturing Company's Springfield Mine, covering approximately 425 acres in the northern APE. We recommend Resources 7940 and 7965 not eligible for the NRHP. These resources require no additional management.

Two NRHP-eligible or listed properties are located south of the APE. These include the NRHP-listed Battery Magwood (38CH1678) and the NRHP-eligible Site 38CH1177. The proposed project will have no adverse effect on either of these properties.

Table of Contents

Table of Contents (continued)

List of Figures

List of Tables

1.0 Introduction

1.1 Project Setting

Charleston County proposes to improve a 3.97-kilometer (km) portion of SC-461 (Glenn McConnell Parkway [GMP]) between S-10-57 (Bees Ferry Road) and Magwood Drive in Charleston County, South Carolina. The GMP Widening & Multiuse Lane Project includes plans to improve at least seven intersections, the widening of the thoroughfare to at least six lanes, and drainage improvements in Church Creek. Figure 1.1 presents the location of the project.

1.2 Project Requirements

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1.3 Project Summary

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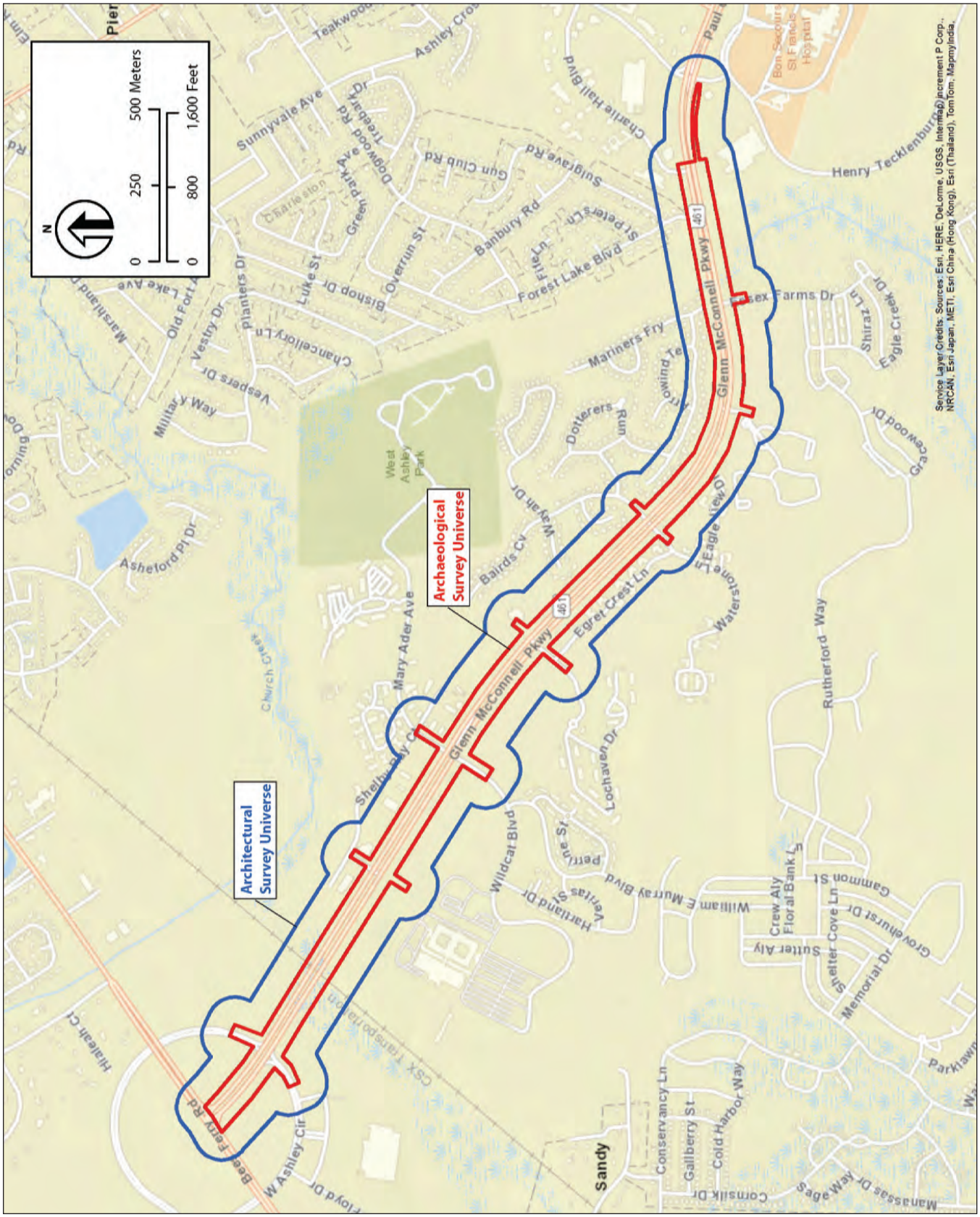

Figure 1.1 The location of the GMP Widening & Multiuse Lane Project.

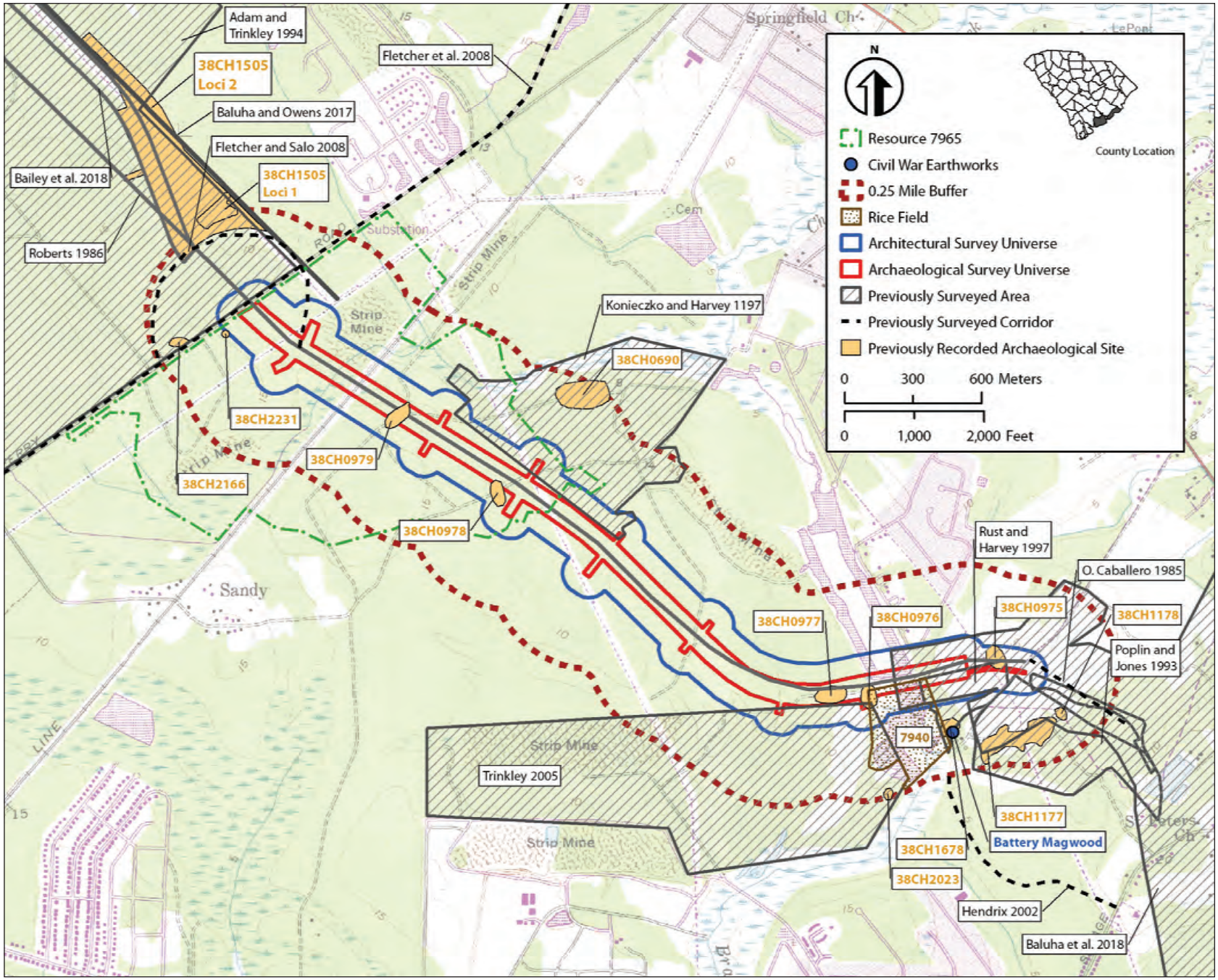

Figure 1.2 Location of the GMP Widening & Multiuse Lane Project, archaeological and architectural survey universes, previously identified cultural resources, newly identified cultural resources, and relevant previous investigations.

1.4 Report Outline

This report is organized into four chapters (Chapters 1-4) and two appendices (Appendices A and B). Chapter 2 describes the methods employed during this survey. Chapter 3 presents the environmental and cultural settings of the project. Chapter 4 presents the results of the archaeological and architectural surveys, respectively. The artifact catalog, architectural survey forms, and relevant project correspondence are attached as Appendices A, B, and C, respectively.

2.0 Methods of Investigation

2.1 Project Objectives

The cultural resources survey of the GMP Widening & Multiuse Lane Project attempted to locate and assess the significance of all cultural resources that may be directly or indirectly affected by implementation of the project. Tasks performed to accomplish these objectives included background research, archaeological and architectural survey, laboratory analyses, and NRHP assessment. Descriptions of methods employed for each of these tasks follow.

2.2 Background Research

The Principal Investigator utilized primary and secondary manuscript and online resources to conduct background research for this project. On December 18, 2018, the Geographic Information System (GIS) specialist consulted the ArchSite program (http://www.scarchsite.org/) to determine if previously identified archaeological sites, previously identified historic architectural resources, and historic properties lie in or near the project.

The Principal Investigator searched primary materials at three repositories: the Charleston County Register of Mesne Conveyance Office (RMC) in Charleston; the Charleston County Probate Office in Charleston; and the South Carolina Room (SCR) at the Charleston County Public Library in Charleston. Online research was conducted at Accessible-Archives.com (http://www.accessible-archives.com/), Ancestry.com (https://www.ancestry.com/), Fold3.com (https://www.fold3.com/), and Newspapers.com (https://www.newspapers.com/). Brockington personnel also consulted secondary resources such as cultural resource management reports and dissertations and theses at Brockington's office in Mt. Pleasant and at the SCR. Important secondary resources include Agha et al.'s (2011) discussion about inland rice agriculture, McKinley's (2014) examination of the South Carolina phosphate industry, and cultural resource management reports by Bailey et al. (2018), Baluha and Owens (2017), Baluha et al. (2018), and Reed et al. (2016).

2.3 Archaeological Survey

Brockington conducted archaeological survey of the GMP Widening & Multiuse Lane Project from August 6 to 22, 2018. Archaeological survey of the project corridor followed the *South Carolina Standards and Guidelines for Archaeological Investigations* (Council of South Carolina Professional Archaeologists [COSCAPA] et al. 2015). The archaeological survey universe is equal to the project footprint provided by Davis & Floyd planners to Brockington, which includes the full extent of all preliminary design plans for the proposed project, encompassing approximately 98.6 acres east and west of the GMP. The existing right-of-way (ROW) averages 61 m (200 feet) wide along the GMP and 22.9 m (75 feet) along all side roads. The initial transects were spaced 15 m to either side of the existing ROW. Investigators excavated shovel tests at 30-m intervals along each transect. We did not excavate shovel tests in areas that were investigated during previous cultural resources surveys, in wetlands, or outside the archaeological survey universe.

Each shovel test measured approximately 30 centimeters (cm) in diameter and was excavated into sterile subsoil. The fill from these tests was sifted through 1/4-inch mesh hardware cloth. All identifiable or suspected cultural materials were collected. Excavators recorded provenience information including transect, shovel test, and surface collection numbers on resealable, archivally stable plastic artifact collection bags. Information relating to each shovel test also was recorded in field notebooks. This information included the content (e.g., presence or absence of artifacts) and context (e.g., soil color, texture, stratification) of each test. Excavators flagged and labeled positive shovel tests (those where artifacts were present) for relocation and site delineation. Shovel tests were not excavated in wetlands and generally were not excavated in disturbed/developed areas.

Locales that produced artifacts from shovel testing or surface inspection were subjected to reduced-interval shovel testing. Investigators excavated additional shovel tests at 7.5- to 15-m intervals around positive tests until two consecutive shovel tests produced no artifacts or until natural features (i.e., edges

of developed/highly disturbed areas or wetlands) were encountered. An archaeological site is a locale that produces three or more contemporary artifacts within a 30-m (100-foot) radius or an area with visible or historically recorded cultural features. Locales that produce fewer than three artifacts are isolated finds. A map showing the location of each shovel test, extent of surface scatters, and approximate site boundaries was prepared in the field for each site. The locations of the sites and isolated finds were recorded with a Trimble survey-grade Global Positioning System (GPS) receiver. The Universal Transverse Mercator (UTM) coordinates obtained from the GPS readings were entered into the ArcGIS© software program. These coordinates were plotted on the digital United States Geological Survey (USGS) quadrangles for the project. Sufficient information was collected at the sites to complete South Carolina Institute of Archaeology and Anthropology (SCIAA) site forms; these forms were submitted to SCIAA at the completion of the fieldwork.

2.4 Architectural Survey

Brockington conducted architectural survey of the GMP Widening & Multiuse Lane Project on August 24, 2018. The survey attempted to identify, record, and evaluate all historic architectural resources (buildings, structures, objects, designed landscapes, and/or sites with aboveground components) in the project area. Field survey methods complied with the *Survey Manual: South Carolina Statewide Survey of Historic Properties* (South Carolina Department of Archives and History [SCDAH] 2015, 2018) and *National Register Bulletin 24, Guidelines for Local Surveys: A Basis for Preservation Planning* (Parker 1985). In accordance with the scope of work and standard SCDAH survey practice, the project Architectural Historian drove every street and road in the architectural survey universe and conducted a pedestrian inspection of all potential historic architectural resources.

The principal criterion used by the SCDAH to define historic architectural resources is a 50-year minimum age; however, that rule does not always allow for the recordation of all historically significant resources. This could include resources related to the civil rights movement, the Cold War, or the development of tourism in South Carolina. In addition, certain other classes of architectural resources may be recorded (SCDAH 2015:9):

- Architectural resources representative of a particular style, form of craftsmanship, method of construction, or building type
- Properties associated with significant events or broad patterns in local, state, or national history
- Properties that convey evidence of the community's historical patterns of development
- Historic cemeteries and burial grounds
- Historic landscapes such as parks, gardens, and agricultural fields
- Properties that convey evidence of significant "recent past" history (i.e., civil rights movement, Cold War, etc.)
- Properties associated with the lives or activities of persons significant in local, state, or national history
- Sites where ruins, foundations, or remnants of historically significant structures are present

For a resource to be eligible for documentation, the Architectural Historian must determine that it retains some degree of integrity. According to the SCDAH (2015:10), a resource that has integrity "retains its historic appearance and character… [and] conveys a strong feeling of the period in history during which it achieved significance. Integrity is the composite of seven qualities: location, design, setting, materials, workmanship, feeling, and association. To have a reasonable degree of integrity, a property must possess at least several of these qualities." Also, integrity is evaluated in the context of the local region. While in the field, the Architectural Historian evaluated the integrity of each identified historic architectural resource.

Following SCDAH (2015, 2018) guidelines, the Principal Investigator recorded all the architectural resources in the project area on South Carolina Statewide Survey (SCSS) forms in digital format using the survey database (Microsoft Access 2016™). The Architectural Historian took at least one digital photograph of each resource, typically showing the main or side elevations. Appropriate USGS maps

show the location of each architectural resource. The completed forms, including the various maps and photographs, were prepared for SCDAH for review. Following SCDAH (2015, 2018) guidelines, the architectural survey used English units of measurement in descriptions of resources presented in this report and in the forms. Photography for this project included digital images produced by methods demonstrated to meet the 75-year permanence standard required by the National Park Service (NPS) and the SCDAH (NPS 2013; SCDAH 2015:31).

2.5 Laboratory Analysis and Curation

These investigations recovered very few artifacts, all of which consisted of Post-Contact materials from 38CH979. The three recovered artifacts were transported to Brockington's Mt. Pleasant laboratory facility, where they were cleaned according to their material composition and fragility, sorted, and inventoried. Each separate archaeological context from within each site (surface collection, shovel test, test unit, scrape) was assigned a specific provenience number. The artifacts from each provenience were separated by artifact type/class (each of which was assigned a separate catalog number) and analyzed, and quantity and weight were recorded. In addition, we identified artifacts that were weighed but not counted (brick). These materials were weighed using a digital scale and redeposited in the original shovel test. All artifact analysis information was entered into a relational database (Microsoft Access 2016™); the computer-generated artifact catalog appears in Appendix A.

Post-Contact artifact analysis was based on observable stylistic and technological attributes. Artifacts were identified using published analytical sources commonly used for the specific region. Post-Contact artifacts were identified by material (e.g., ceramic, glass, metal), type (e.g., ironstone), color, decoration (e.g., undecorated), form (e.g., bowl, mug), method of manufacture (e.g., molded, wrought), production date range, and intended function (e.g., tableware). The primary sources used were Noël Hume (1969) and the Charleston Museum's type collection.

All artifacts were placed in 4-mil-thick, archivally stable polyethylene bags. Artifact types were bagged separately within each provenience and labeled using acid-free paper labels. Provenience bags were labeled with the site number, provenience number, and provenience information. Proveniences were separated by site and placed into appropriately labeled acid-free boxes. Artifacts are temporarily stored at the Mt. Pleasant office of Brockington and Associates, Inc., until they are ready for final curation. Upon the acceptance of the final report, the artifacts and all associated materials (artifact catalog, field notes, photographic materials, and maps) will be transferred to SCIAA for curation.

2.6 NRHP Assessment of Cultural Resources

2.6.1 Overview

All cultural resources encountered were assessed as to their significance based on the criteria of the NRHP. As per 36 CFR 60.4, there are four broad evaluative criteria for determining the significance of a particular resource and its eligibility for the NRHP. Any resource (building, structure, site, object, or district) may be eligible for the NRHP that:

A. is associated with events that have made a significant contribution to the broad pattern of history;
B. is associated with the lives of persons significant in the past;
C. embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, possesses high artistic value, or represents a significant and distinguishable entity whose components may lack individual distinction; or
D. has yielded, or is likely to yield, information important to history or prehistory.

A resource may be eligible under one or more of these criteria. Criteria A, B, and C are most frequently applied to historic buildings, structures, objects, non-archaeological sites (e.g., battlefields, natural features, designed landscapes, or cemeteries), or districts. The eligibility of archaeological sites is most frequently considered with respect to

Criterion D. Also, a general guide of 50 years of age is employed to define "historic" in the NRHP evaluation process. That is, all resources greater than 50 years of age may be considered. However, more recent resources may be considered if they display "exceptional" significance (Sherfy and Luce 1998).

2.6.2 Archaeological Sites and Architectural Resources

Following *National Register Bulletin*: *How to Apply the National Register Criteria for Evaluation* (Savage and Pope 1998), evaluation of any resource requires a twofold process. First, the resource must be associated with an important historical context. If this association is demonstrated, the integrity of the resource must be evaluated to ensure that it conveys the significance of its context. The applications of both of these steps are discussed in more detail below.

Determining the association of a resource with a historical context involves five steps (Savage and Pope 1998). First, the resource must be associated with a particular facet of local, regional (state), or national history. Secondly, one must determine the significance of the identified historical facet/context with respect to the resource under evaluation. A lack of Native American archaeological sites within a project area would preclude the use of contexts associated with the Pre-Contact use of a region.

The third step is to demonstrate the ability of a particular resource to illustrate the context. A resource should be a component of the locales and features created or used during the historical period in question. For example, early nineteenth-century farmhouses, the ruins of African American slave settlements from the 1820s, and/or field systems associated with particular antebellum plantations in the region would illustrate various aspects of the agricultural development of the region prior to the Civil War. Conversely, contemporary churches or road networks may have been used during this time period but do not reflect the agricultural practices suggested by the other kinds of resources.

The fourth step involves determining the specific association of a resource with aspects of the significant historical context. Savage and Pope (1998) define how one should consider a resource under each of the four criteria of significance. Under Criterion A, a property must have existed at the time that a particular event or pattern of events occurred, and activities associated with the event(s) must have occurred at the site. In addition, this association must be of a significant nature, not just a casual occurrence (Savage and Pope 1998). Under Criterion B, the resource must be associated with historically important individuals. Again, this association must relate to the period or events that convey historical significance to the individual, not just that this person was present at this locale (Savage and Pope 1998). Under Criterion C, a resource must possess physical features or traits that reflect a style, type, period, or method of construction; display high artistic value; or represent the work of a master (an individual whose work can be distinguished from others and possesses recognizable greatness) (Savage and Pope 1998). Under Criterion D, a resource must possess sources of information that can address specific important research questions (Savage and Pope 1998). These questions must generate information that is important in reconstructing or interpreting the past (Butler 1987; Townsend et al. 1993). For archaeological sites, recoverable data must be able to address specific research questions.

After a resource is associated with a specific significant historical context, one must determine which physical features of the resource reflect its significance. One should consider the types of resources that may be associated with the context, how these resources represent the theme, and which aspects of integrity apply to the resource in question (Savage and Pope 1998). As in the antebellum agriculture example given above, a variety of resources may reflect this context (farmhouses, ruins of slave settlements, field systems, etc.). One must demonstrate how these resources reflect the context. The farmhouses represent the residences of the principal landowners who were responsible for implementing the agricultural practices that drove the economy of the South Carolina area during the antebellum period. The slave settlements housed the workers who conducted most of the daily activities necessary to plant, harvest, process, and market crops.

Once the above steps are completed and the association with a historically significant context is demonstrated, one must consider the aspects of integrity applicable to a resource. Integrity is defined in seven aspects of a resource; one or more may be applicable

depending on the nature of the resource under evaluation. These aspects are location, design, setting, materials, workmanship, feeling, and association (36 CFR 60.4; Savage and Pope 1998). If a resource does not possess integrity with respect to these aspects, it cannot adequately reflect or represent its associated historically significant context. Therefore, it cannot be eligible for the NRHP. To be considered eligible under Criteria A and B, a resource must retain its essential physical characteristics that were present during the event(s) with which it is associated. Under Criterion C, a resource must retain enough of its physical characteristics to reflect the style, type, etc., or work of the artisan that it represents. Under Criterion D, a resource must be able to generate data that can address specific research questions that are important in reconstructing or interpreting the past.

2.6.3 Mining Landscapes

Phosphate mines, associated tram lines, and other features were assessed for NRHP eligibility as part of a mining landscape using the *National Register Bulletin: Guidelines for Identifying, Evaluating, and Registering Historic Mining Properties* (Noble and Spude 1997:13). Mining landscapes that are eligible for the NRHP generally are considered historic districts. We assessed the landscape within the historic context of the phosphate industry in South Carolina as developed by Shuler and Bailey (2004). Finally, we also reviewed previous cultural resource studies in which the evaluation of phosphate mines as historic resources has been considered. Primary examples of such studies include the recent NRHP nomination for the expansion of the Ashley River Historic District (ARHD; Felzer et al. 2010), cultural resources survey of the East Edisto Gas Main (Baluha and Owens 2017), and cultural resources survey and testing of the Long Savannah and HPH Tracts (Bailey et al. 2018).

Mining properties may be eligible for the NRHP under Criterion A: association with events that have made a significant contribution to the broad patterns of history; Criterion B: association with the lives of significant people; Criterion C: exhibition of characteristics that are distinctive, that are the work of a master or possess a high artistic value, or that represent a significant entity whose components may lack individual distinction; or Criterion D: yielded or may yield important information about the history of phosphate mining in South Carolina (Noble and Spude 1997:15).

After considering each of the four evaluation criteria, we assessed the overall integrity of the mining landscape. A property's integrity is its ability to convey its significance under one or more of the evaluation criteria. Elements of resource integrity include location, design, setting, materials, workmanship, feeling, and association. If a mining resource retains sufficient integrity, an observer should be able to visualize how various elements of the former mines relate to each other and to mining operations.

2.6.4 Assessing Historic Inland Swamp and Tidal Rice Fields

The APE encompasses part of an abandoned rice field. Typically, historic rice fields, whether inland swamp or tidal rice, include several inter-connected cultural landscape features (e.g., canals, dams, ditches, and embankments). Rice fields and the individual cultural landscape features are assessed together for NRHP eligibility as part of an agricultural landscape based on criteria established by the State Historic Preservation Office ([SHPO] 2011). Rice fields may be eligible for the NRHP under Criteria A-D (see above). SHPO (2011: Appendix A) provides specific evaluative criteria for inland swamp and tidal rice fields, which are summarized in Table 2.1. After considering each of the four evaluation criteria, we assessed the overall integrity of the rice fields in our APE. A property's integrity is its ability to convey its significance under one or more of the evaluation criteria. Elements of resource integrity include location, design, setting, materials, workmanship, feeling, and association. If an agricultural resource such as a rice field retains sufficient integrity, an observer should be able to visualize how various elements of the individual rice field relate to each other and to other examples of rice fields across the region. Rice fields that are eligible for the NRHP generally are considered historic districts. These historic properties are considered aboveground resources and are assigned Statewide Survey numbers. In the past, these rice fields or their individual components have been recorded as archaeological sites.

Table 2.1 NRHP criteria for rice fields (after SHPO 2011).

Type	Evaluative Criteria		
Inland	1		Is there an identifiable plantation settlement, such as the plantation house, slave cabins, overseer's house, cemeteries, outbuildings, rice mills, rice barns, hunting lodges, or guest cottages near the rice field system or verifiable through research?
	2		Can the rice field system contribute to a further understanding of the plantation that contains the system, as well as the plantation's historical development through time?
	3		Can the rice system contribute to our understanding of rice planting technology?
	4		Is the rice system in a historic swamp or lowland wetland?
	5		Can the historic flow of water be identified?
	6		Are earthworks, canals, water control structures present?
	7		Can ALL of the following features be identified?
		a	Dams
		b	Facing ditches
		c	Facing embankments
	8		Does the rice system retain the closed character of a lowland swamp between higher lands?
	9		Is the rice system associated with a fresh water source?
Tidal	1		Is there an identifiable plantation settlement, such as the plantation house, slave cabins, overseer's house, cemeteries, outbuildings, rice mills, rice barns, hunting lodges, or guest cottages near the rice field system or verifiable through research?
	2		Can the rice field system contribute to a further understanding of the plantation that contains the system, as well as the plantation's historical development through time?
	3		Can the rice system contribute to our understanding of rice planting technology?
	4		Is the rice system adjacent to a tidal river?
	5		Can the historic flow of water be identified?
	6		Are earthworks, canals, water control structures present?
	7		Can ALL of the following features be identified?
		a	River dike
		b	Interior dike
		c	Canals
	8		Does the rice system retain a feeling of openness and flatness?
	9		Is the rice system associated with uplands?

3.0 Environmental and Cultural Setting

3.1 Environmental Setting

3.1.1 Introduction

The proposed GMP Widening & Multiuse Lane Project extends approximately 3.97 km from Bees Ferry Road to Magwood Drive in the St. Andrews Public Service District (PSD) in western Charleston County, South Carolina. The project encompasses developed and undeveloped lands east and west of GMP. The project extends across relatively flat topography, with elevations ranging from approximately sea level at the Long Branch/Church Creek estuary to 4.6 m above mean sea level (amsl) near Mary Ader Avenue. Historically, the area was exploited for its agricultural, timber, and phosphate resources. The area remained largely undeveloped into the mid-twentieth century. Many of the modern mixed-use developments are built upon the remnants of old phosphate mines. The southern portion of the APE is heavily developed, including commercial developments centered on the Ashley Crossing shopping center, the Bon Secours St. Francis Hospital campus, mixed commercial and residential subdivisions such as Essex Farms and Forest Lakes, and residential subdivisions such as Carolina Bay. Undeveloped portions of the APE include upland and lowland areas. Lowland areas include march or swamp tributaries of Long Branch/Church Creek. These former lowlands once served as inland rice fields. Later, many of the lowlands were mined for phosphate ore, particularly closer to Bees Ferry Road. Undeveloped upland portions of the APE are wooded in mixed hardwood and pine forest, featuring dense understories. The following environmental overview provides both regional and local perspectives for the project area. Figures 3.1 and 3.2 provide views of the project setting in August 2018.

3.1.2 Regional Perspective

The GMP Widening & Multiuse Lane Project area extends across the Sea Islands/Coastal Marsh Level IV ecoregion (Griffith et al. 2002). According to Griffith et al. (2002), "An ecoregion denotes areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources." Griffith et al. (2002) summarize the Sea Island/Coastal Marsh ecoregion:

> The Sea Islands/Coastal Marsh region contains the lowest elevations in South Carolina and is a highly dynamic environment affected by ocean wave, wind, and river action. Quaternary unconsolidated sand, silt, and clay has been laid down as beach, dune, barrier beach, saline marsh, terrace, and nearshore marine deposits. Mostly sandy soils are found on the barrier islands, while organic and clayey soils often occur in the freshwater, brackish, and salt marshes. Maritime forests of live oak, red cedar, slash pine, and cabbage palmetto grow on parts of the sea islands, and various species of cordgrass, saltgrass, and rushes are dominant in the marshes. The island's dunes are dominated by sea oats, which play a primary role in stabilizing the dune. Other dune plants include bayberry, dogfennel, bitter panic grass, broomsedge, wax myrtle, and Spanish bayonet.
>
> The island, marsh, and estuary systems form an interrelated ecological web, with processes and functions valuable to humans, but also sensitive to human alterations and pollution. The coastal marshes, tidal creeks, and estuaries are important nursery areas for fish, crabs, shrimp, and other marine species. Charleston Harbor is one of the largest container ship ports on the East Coast, and it also contains one of the largest commercial shrimp fisheries in the state, raising concerns about the health of the estuary, coastal marshes and associated flora and fauna. The Sea Islands region has a long history of human alterations. Native Americans cultivated corn, melons, squash, and beans on some of these islands. During the colonial and antebellum periods in the 1700's and 1800's, a plantation agriculture economy dominated the region, producing rice, indigo, and Sea Island cotton. While parts of this region are now managed as wildlife refuges or estuarine research reserves, the expanding resort economy continues to broadly change land uses, water quality, and the once more isolated Gullah and Sea Island cultures.

Figure 3.1 Typical views of the APE: GMP and Essex Farms Drive looking west along GMP (top); eastern side of GMP looking north (bottom).

Figure 3.2 Typical views of the APE: utility corridor north of the GMP and Mary Ader Avenue intersection looking northwest (top); mined area near West Ashley Circle looking northwest (bottom).

Geologists have identified eight scarps and 12 marine terraces in this physiographic province (Hoyt and Hails 1967:1541-1543; Hoyt et al. 1968:381-393; Kovacik and Winberry 1987; Miller 1971:59-71). Changes in sea level through time resulted in the formation of these terraces; most are composed of sandy soils with some gravels derived from beach and deltaic deposits associated with the Atlantic shorelines of the Pleistocene epoch (Kovacik and Winberry 1989). The underlying limestone bedrock dates from the late Cretaceous to early Cenozoic, with orogenic processes causing uplifting and the deposition of clastic materials over bedrock (Platt 1999:26). The scarps represent former shoreline deposits and the marine terraces represent derelict ocean floor deposits as sea levels receded. The project area is situated between the Active (sea level) and Bethera (toe elevation 10.7 amsl) scarps and on the Silver Bluff (3.7-5.2 m amsl) terrace (Willoughby and Doar 2006). Generally, the area's topography is characterized by low knolls and ridges interspersed between broad inland swamps and tidal creeks, which is typical of the Sea Island/Coastal Marsh ecoregion (Griffith et al. 2002: Zone 75j).

All soils in the project area formed in Pleistocene epoch marine deposits dating to approximately 30,000 years ago (Hoyt and Hails 1967:1541-1543; Hoyt et al. 1968:381-393). Soils are generally poorly drained and have loamy surface layers with clayey subsoils. Soil moisture conditions in the study area range from subxeric to aquic (Natural Resources Conservation Service [NRCS] 2017). The study area extends across the Yonges-Hockley-Edisto soil association (United States Department of Agriculture [USDA] 1969). Within this general soil association, the archaeological survey universe extends across 10 specific soil types: Capers silty clay loam; Hockley loamy fine sand, 0 to 2 percent slopes; Edisto loamy fine sand; Mine pits and dumps; Quitman loamy sand; Seabrook loamy fine sand; Udorthents; Wadmalaw fine sandy loam; Wagram loamy fine sand, 0 to 6 percent slopes; and Yonges loamy fine sand (Miller 1971).

The National Oceanic and Atmospheric Association (NOAA) National Center for Environmental Information (NCEI) and the USDA soil survey provide climatic data for Charleston County (Miller 1971; NOAA 2018a). The climate of this area is subtropical, with mild winters and long, hot, and humid summers. NOAA's climatic data from 1895-2017 indicates the average daily maximum temperature peaks at 81.0° Fahrenheit (F) in July and nadirs at 48.4°F in January. During this time, the average daily temperature has risen 0.1°F per decade; in 2017, the average daily temperature was 67.8°F, 2.9°F above the mean of 64.9°F for the 1895-2017 period (NOAA 2018a). Average annual precipitation for Charleston County is about 123 cm, with most rain occurring in the summer months during thunderstorms (NOAA 2018a). Snowfall is very rare. The growing season averages 280 days, with first and last frosts generally occurring by November 2 and April 3, respectively. Although droughts do occur, they are rare. Also, the climate is very supportive of agriculture. Prevailing winds are light and generally from the south and southwest, although hurricanes and other tropical storms occasionally sweep through the area, particularly in the late summer and early fall.

Fraser (2009) summarizes the impact that storms like Hurricane Hugo have had on the project area. These storms have brought an enormous toll on the population and its animals, and serious economic loss, including damaged infrastructure and lost crops, income, and timber, at the very least (Mulcahy 2006:85). Hurricanes have played prominent roles in the region's history. Apparently, a hurricane thwarted the attempted Spanish attack on Charles Town in 1686 (Ludlum 1963:41). The 1752 hurricane brought a 16-foot storm surge that "leveled buildings, flooded warehouse, killed approximately two hundred colonists, and rendered the city's defensive fortifications nearly useless" (Polhemus 2010:14). Since 1852, seven known storms have crossed through the project area, most recently Hurricane Hugo in 1989 (NOAA 2018b). The three others include unnamed storms in 1874, 1885, and 1928. The 1874 storm originated in the Gulf of Mexico and made landfall in Florida before tracking northeast into the Atlantic and making landfall again near Seabrook Island. Not much is known about the impact of the 1885 hurricane on the project corridor other than it "wrecked" the Sea Island cotton crop (*Charleston News and Courier* 1885). This storm skirted the Florida coast before making landfall on Kiawah Island as a Category 2 storm on August 25, 1885. The 1928 storm devastated parts of Puerto Rico and Florida before making landfall on Edisto Island

as a Category 1 storm on September 18. Thirty years later, Hurricane Hugo made landfall at Isle of Palms. It's devastating storm surge and winds left a trail of destruction across the region as it tracked northwest. Most recently, coastal flooding associated with 2017's Hurricane Irma surpassed that of Hurricane Hugo in parts of the Charleston Harbor region.

Although managed loblolly pine forest is now the dominant vegetation zone in the project area, as many as four different ecological systems blanketed the area prior to European contact. The number of these systems and diversity within each system provides an indication of the area's former bounty and potential for commodity extraction. Table 3.1 lists these ecological systems.

Prior to European settlement, the Upland Longleaf Pine Woodland and Wet Pine Savanna and Flatwoods were the primary climax ecological

Table 3.1 Ecological systems in the project area.

System*	Summary
Central Atlantic Coastal Plain Maritime Forest	This system encompasses most woody vegetation of Atlantic Coast barrier islands and similar coastal strands, from Virginia Beach to central South Carolina (south approximately to the Cooper River where the true Sea Islands begin). It includes forests and shrublands whose structure and composition are influenced by salt spray, extreme disturbance events, and the distinctive climate of the immediate coast. Many examples of this system will include a component of Quercus virginiana or Morella cerifera. Also included are embedded freshwater depressional wetlands dominated by shrubs or small trees, such as Cornus foemina, Persea palustris, or Salix caroliniana. This system may experience less effects from fire than the equivalent Southern Atlantic Coastal Plain Maritime Forest.
Southern Atlantic Coastal Plain Mesic Hardwood Forest	This upland system of the Atlantic Coastal Plain ranges from Delaware south to interior Georgia in a variety of moist but non-wetland sites that are naturally sheltered from frequent fire. Such sites include lower slopes and bluffs along streams and rivers in dissected terrain, mesic flats between drier pine-dominated uplands and floodplains, and local topographic high areas within bottomland terraces or nonriverine wet flats. Soil textures are variable in both texture and pH. The vegetation consists of forests dominated by combinations of trees that include a significant component of mesophytic deciduous hardwood species, such as Fagus grandifolia or Acer barbatum. Its southern limit is generally exclusive of the natural range of Pinus glabra and Magnolia grandiflora. Upland and bottomland oaks at the mid range of moisture tolerance are usually also present, particularly Quercus alba, but sometimes also Quercus pagoda, falcata, michauxii, shumardii, or nigra. Pinus taeda is sometimes present, but it is unclear if it is a natural component or has entered only as a result of past cutting. Understories are usually well-developed. Shrub and herb layers may be sparse or moderately dense. Within its range, Sabal minor may be a prominent shrub. Species richness may be fairly high in basic sites but is fairly low otherwise.
Southern Atlantic Coastal Plain Salt and Brackish Tidal Marsh	This ecological system encompasses the brackish to saline intertidal marshes of the Atlantic Coast ranging from the vicinity of Morehead City, Carteret County, North Carolina (south of the Embayed Region), south to the vicinity of Marineland or Daytona Beach (Flagler/Volusia counties) in northern Florida. It is dominated by medium to extensive expanses of Spartina alterniflora, flooded twice daily by lunar tides. Juncus roemerianus and other brackish marshes occur on slightly higher marsh, including upstream along tidal creeks, and a variety of small-patch associations occur near the inland edges. Examples of this system may also support inclusions of shrublands dominated by either Baccharis halimifolia and/or Borrichia frutescens, as well as forests or woodlands with Juniperus virginiana var. silicicola in the overstory.
Southern Atlantic Coastal Plain Wet Pine Savanna and Flatwoods	This ecological system of pine-dominated savannas and/or flatwoods ranges from central South Carolina to northeastern Florida, centered near the coast in southeastern Georgia. It was the former matrix system in this region. This general area has been referred to as the Longleaf Pine Wiregrass Savannas region and the Sea Island Flatwoods Ecoregion (75f). Examples of this system and component community associations share the common features of wet, seasonally saturated, mineral soils and historic exposure to frequent low-intensity fire. They occur on a wide range of soil textures, which is an important factor in distinguishing different associations. The vegetation is naturally dominated by Pinus palustris or, on wetter sites, Pinus elliottii or less commonly Pinus serotina. Understory conditions may be dramatically altered by fire frequency and seasonality. In natural condition (with frequent fires, including some growing-season fire), there tends to be a dense ground cover of herbs and low shrubs; grasses can dominate, but there is often a large diversity of other herbs and shrubs.

*http://explorer.natureserve.org/servlet/NatureServe?init=Ecol

systems of the Middle Atlantic Coastal Plain. The *Great Savanna,* shown by Sanson (1696) extending between the Ashley and Edisto rivers, was part of a larger longleaf pine forest savanna that covered approximately 143,000 square miles from what is now Texas to Virginia (Frost 2000). Ecologists define savannas as part of a vegetation continuum between grasslands and woodlands, with approximately 25-80 percent canopy coverage, sufficient to permit a continuous grass understory (Anderson et al. 1999:1-6). A combination of historic activities, from free-ranging livestock, production of turpentine, clearcut logging, and twentieth-century fire suppression activities, have led to near total loss of longleaf pine habitat (Frost 1993:17). This loss of habitat confounded scholars, some of whom mistakenly concluded that the Southern Atlantic Coastal Plain Mesic Hardwood Forest superseded the longleaf pine forest and savanna (Batista and Platt 1997; Platt 1999:25; Quarterman and Keever 1962:167-185; Widmer 1976). Batista and Platt (1997:1) explain how longleaf pine forest and savanna systems were eventually replaced:

> Before European settlement, stands of [Southern Atlantic Coastal Plain Mesic Hardwood Forest] formed narrow bands of vegetation between floodplain forests and upland xeric forests or savannas dominated by longleaf pine.... After European settlement, virtually all pine savannas were clearcut, and their characteristic growing-season fires were suppressed. Following such disruption, hardwood species and pines, especially loblolly pine, replaced longleaf pine forming woodlands and forests that replaced most of the savannas.

Furthermore, ecologists stress the long-term importance of lightning and fire in longleaf habitats; while they counter the fallacious notion that Indian "old fields" represent upland savannas, they acknowledge that Indians employed controlled burns for a variety of purposes across the landscape, a practice that was continued by European settlers into the early nineteenth century (cf., Frost 2000:26, 54; Silver 1990:48-50; Smith 2012:31-32).

The four ecological systems listed in Table 3.2 include wide varieties of plants observed by eighteenth- and nineteenth-century naturalists such as William Bartram (Bartram 1792) and John Drayton (Drayton 1802). Across the upland zones, predominant tree canopy species include broad-leafed trees (e.g., beech, southern magnolia, sweetgum, black tupelo, bluejack oak, laurel oak, live oak, post oak, red oak, water oak, turkey oak, and white oak) and conifers (e.g., loblolly pine, longleaf pine, pond pine, slash pine). Dominant lowland tree canopy species include broad-leafed trees (e.g., beech, black and swamp tupelo, diamond leaf oak, poplar, red oak, sweetbay and grand magnolia, sweetgum, water oak, white oak) and conifers (e.g., bald and pond cypress, pond pine, and white cedar). Important understory species include American and yaupon holly, varieties of bay, blueberry, huckleberry, saw palmetto, sparkleberry, and wax myrtle. Important grasses and herbs include giant cane, muscadine, pineland threeawn, and varieties of fern, panicgrass, sedge, and switch grass.

Most of the extant woodlands today are mixed pine/hardwood forests. A mixed forest supports an active faunal community including deer and small mammals (e.g., various squirrels and mice, opossum, raccoon, rabbit, fox, skunk), birds (e.g., various songbirds, ducks and wading birds, quail, turkey, doves, hawks, owls), and reptiles/amphibians (e.g., frogs, toads, lizards, snakes, turtles, alligator). Freshwater and saltwater fish are abundant in the streams and marshes of the region, and shellfish are present in large numbers in most of the tidally affected waters throughout the region.

3.1.3 Holocene Changes in the Environment

Profound changes in climate and dependent biophysical aspects of regional environments have been documented over the last 20,000 years (the time of potential human occupation of the Southeast). Major changes include a general warming trend, melting of the large ice sheets of the Wisconsin glaciation in northern North America, and the associated rise in sea level. This sea level rise was dramatic along the South Carolina coast (Brooks et al. 1989), with an increase of as much as 100 m during the last 20,000 years. At least 10,000 years ago (the first documented presence of human groups in the region), the ocean was located 80 to 120 km east of its present position. Unremarkable Coastal Plain flatwoods

probably characterized the project area. Sea level rose steadily from that time until about 5,000 years ago, when the sea reached essentially modern levels. During the last 5,000 years, there has been a 400- to 500-year cycle of sea level fluctuations of about two meters (Brooks et al. 1989; Colquhoun et al. 1981).

As sea level quickly rose to modern levels, it altered the gradients of major rivers and flooded near-coast river valleys, creating estuaries such as the Cooper-Ashley-Wando River mouth. These estuaries became great centers for saltwater and freshwater resources and thus population centers for human groups. Such dramatic changes affected any human groups living in the region. The general warming trend that led to the melting of glacial ice and the rise in sea level greatly affected vegetation communities in the Southeast. During the late Wisconsin glacial period, until about 12,000 years ago, boreal forest dominated by pine and spruce covered most of the Southeast. This forest changed from coniferous trees to deciduous trees by 10,000 years ago. The new deciduous forest was dominated by northern hardwoods such as beech, hemlock, and alder, with oak and hickory beginning to increase in number. With continuation of the general warming and drying trend, the oak and hickory came to dominate, along with southern species of pine. Oak and hickory appear from pollen data to have reached a peak at 5,000 to 7,000 years ago (Watts 1970, 1980; Whitehead 1965, 1973). Since then, the general climatic trend in the Southeast has been toward cooler and moister conditions (Quarterman and Keever 1962). Faunal communities also changed dramatically during this time. Several large mammal species (e.g., mammoth, mastodon, horse, camel, giant sloth) became extinct at the end of the glacial period, approximately 10,000 to 12,000 years ago. Pre-Contact groups that had focused on hunting these large mammals adapted their strategy to exploitation of smaller mammals, primarily deer in the Southeast.

3.2 Cultural Setting

The cultural history of North America generally is divided into three eras: Pre-Contact, Contact, and Post-Contact. The Pre-Contact era refers primarily to the Native American groups and cultures that were present for at least 10,000 to 12,000 years prior to the arrival of Europeans. The Contact era refers to the time of exploration and initial European settlement on the continent. The Post-Contact era refers to the time after the establishment of European settlements, when Native American populations usually were in rapid decline. Within these eras, finer temporal and cultural subdivisions have been defined to permit discussions of particular events and the lifeways of the peoples who inhabited North America at that time.

3.2.1 The Pre-Contact Era

In South Carolina, the Pre-Contact era is divided into four stages (after Willey and Phillips 1958). These include the Lithic, Archaic, Woodland, and Mississippian. Specific technologies and strategies for procuring resources define each of these stages, with approximate temporal limits also in place. Within each stage, except for the Lithic stage, there are temporal periods that are defined on technological bases as well. A brief description of each stage follows, including discussions of the temporal periods within each stage. Readers are directed to Goodyear and Hanson (1989) for more detailed discussions of particular aspects of these stages and periods in South Carolina.

The Lithic Stage. It is probable that South Carolina, like other portions of the western hemisphere, witnessed human occupation before the beginning of the Paleoindian period or approximately 12,000 Before Present (BP). Unfortunately, the beginning of human occupation in the western hemisphere is unclear and is highly disputed in the archaeological community (Bever 2006; Dillehay et al. 1999; Fiedel 1999; Goodyear 2013; Suárez 2011). For most of the twentieth century, archaeologists believed that humans arrived in North America by crossing Beringia near the end of the last Pleistocene glaciation, termed the Wisconsinan in North America, a few centuries prior to 10,000 BC. The distinctive fluted projectile points and blade tool technology of the

Paleoindians (described below) occurs throughout North America by this time. During the last few decades of the twentieth century, researchers began to encounter artifacts and deposits that predate the Paleoindian period at several sites in North and South America. The most notable of these sites are Cactus Hill and Saltville in Virginia (Johnson 1998; McAvoy and McAvoy 1997; McDonald 2000), El Abra 2 and Pubenza in Colombia (Correal 1993; Correal and van der Hammen 1977; Hurt et al. 1977), Lapa Vermelha and Pedra Furada in Brazil (Guidon and Delibrias 1986; Laming-Empéraire et al. 1975; Meltzer et al. 1994; Prous 1986), Meadowcroft Rock Shelter in Pennsylvania (Adovasio et al. 1978; Adovasio et al. 1990; Adovasio et al. 1999; Carlisle and Adovasio 1982; Goldberg and Arpin 1999), Monte Verde in Chile (Dillehay 1989, 1997; Meltzer et al. 1997), Schafer and Hebior in Wisconsin (Overstreet and Stafford 1997; Overstreet et al. 1995), Taima in Venezuela (Ochsenius and Gruhn 1979), and the Topper/Big Pine Tree site in South Carolina (Goodyear 1999, 2000, 2013), among others. All these sites contain artifacts in stratigraphic locales below Paleoindian deposits. Radiocarbon dates indicate occupations at the Meadowcroft, Pedra Furada, and Topper/Big Pine Tree sites that are 10,000 to 20,000 years earlier than the earliest Paleoindian occupations. Cactus Hill produced evidence of a blade technology that predates Paleoindian sites by 2,000 to 3,000 years. Monte Verde produced radiocarbon dates comparable to those at North and South American Paleoindian sites but reflects a very different lithic technology than that evidenced at Paleoindian sites. Similarly, the lithic artifacts associated with the other pre-Paleoindian deposits discovered to date do not display the blade technology so evident during the succeeding period. Unfortunately, the numbers of artifacts recovered from these sites at present are too small to determine if they reflect a single technology or multiple approaches to lithic tool manufacture. Additional research at these and other sites is necessary to determine how they relate to the better-known sites of the succeeding Paleoindian period, and how these early sites reflect the peopling of North America and the New World.

Paleoindian Period (10,000–8000 BC). An identifiable human presence in the South Carolina Coastal Plain began about 12,000 years ago with the movement of Paleoindian hunter-gatherers into the region. Initially, the Paleoindian period is marked by the presence of distinctive fluted projectile points and other tools manufactured on stone blades. Excavations at sites throughout North America have produced datable remains that indicate that these types of stone tools were in use by about 10,000 BC.

Goodyear et al. (1989) review the evidence for the Paleoindian occupation of South Carolina. Based on the distribution of the distinctive fluted spear points, they see the major sources of highly workable lithic raw materials as the principal determinant of Paleoindian site location, with a concentration of sites at the Fall Line possibly indicating a subsistence strategy of seasonal relocation between the Piedmont and Coastal Plain. Based on data from many sites excavated in western North America, Paleoindian groups generally were nomadic, with subsistence focusing on the hunting of large mammals, specifically the now-extinct mammoth, horse, camel, and giant bison. In the east, Paleoindians apparently hunted smaller animals than their western counterparts, although extinct species (such as bison, caribou, and mastodon) were routinely exploited where present. Paleoindian groups were probably small, kin-based bands of 50 or fewer persons. As the environment changed at the end of the Wisconsinan glaciation, Paleoindian groups had to adapt to new forest conditions in the Southeast and throughout North America.

The Archaic Stage. The Archaic stage represents the adaptation of Southeastern Native Americans to Holocene environments. By 8000 BC, the forests had changed from sub-boreal types common during the Paleoindian period to more modern types. The Archaic stage is divided into three temporal periods: Early, Middle, and Late. Distinctive projectile point types serve as markers for each of these periods. Hunting and gathering was the predominant subsistence mode throughout the Archaic periods, although incipient use of cultigens probably occurred by the Late Archaic period. Also, the terminal Archaic witnessed the introduction of a new technology, namely, the manufacture and use of pottery.

Early Archaic Period (8000–6000 BC). The Early Archaic corresponds to the adaptation of native groups to Holocene conditions. The environment in coastal South Carolina during this period was still colder and moister than at present, and an oak-hickory forest was establishing itself on the Coastal Plain (Watts 1970, 1980; Whitehead 1965, 1973). The megafauna of the Pleistocene became extinct early in this period, and more typically modern woodland flora and fauna were established. The Early Archaic adaptation in the South Carolina Lower Coastal Plain is not clear, as Anderson and Logan (1981:13) report "At the present, very little is known about Early Archaic site distribution, although there is some suggestion that sites tend to occur along river terraces, with a decrease in occurrence away from this zone." Early Archaic finds in the Lower Coastal Plain are typically corner- or side-notched projectile points, determined to be Early Archaic through excavation of sites in other areas of the Southeast (Claggett and Cable 1982; Coe 1964). Generally, Early Archaic sites are small, indicating a high degree of mobility.

Archaic groups probably moved within a regular territory on a seasonal basis; exploitation of wild plant and animal resources was well planned and scheduled. Anderson and Hanson (1988) developed a settlement model for the Early Archaic period (8000–6000 BC) in South Carolina involving movement of relatively small groups (bands) on a seasonal basis within major river drainages. The Charleston region is located within the range of the Saluda/Broad band. Anderson and Hanson (1988) hypothesize that Early Archaic use of the Lower Coastal Plain was limited to seasonal (springtime) foraging camps and logistic camps. Aggregation camps and winter base camps are suggested to have been near the Fall Line.

Middle and Preceramic Late Archaic Period (6000–2500 BC). The trends initiated in the Early Archaic (i.e., increased population and adaptation to local environments) continued through the Middle Archaic and Preceramic Late Archaic. Climatically, the region was still warming, and an oak-hickory forest dominated the coast until after 3000 BC, when pines became more prevalent (Watts 1970, 1980). Stemmed projectile points and ground stone artifacts characterize this period, and sites increased in size and density through the period.

Blanton and Sassaman (1989) review the archaeological literature on the Middle Archaic period. They document an increased simplification of lithic technology during this period, with increased use of expedient, situational tools. Furthermore, they argue that the use of local lithic raw materials is characteristic of the Middle and Late Archaic periods. Blanton and Sassaman (1989:68) conclude, "the data at hand suggest that Middle Archaic populations resorted to a pattern of adaptive flexibility as a response to 'mid-Holocene environmental conditions' such as variable precipitation, sea level rise, and differential vegetational succession." These processes resulted in changes in the types of resources available from year to year.

Ceramic Late Archaic Period (2500–1000 BC). By the end of the Late Archaic period, two developments occurred that changed human lifeways on the South Carolina Coastal Plain. Sea level rose to within one meter of present levels and the extensive estuaries now present were established (Colquhoun et al. 1981). These estuaries were a reliable source of shellfish, and the Ceramic Late Archaic period saw the first documented emphasis on shellfish exploitation. During the Late Archaic, "the first extensive evidence of significant human occupations appears on the coast. Late Archaic coastal sites vary from isolated finds, small camps, and minor middens to large amorphous shell middens" (Russo 2002:E9). It was also during this time that the first pottery appeared on the South Carolina coast. In the project region, this pottery is represented by the fiber-tempered Stallings series and the sand-tempered or untempered Thom's Creek series. Decorations include punctation, incising, finger pinching, and simple stamping. The ceramic sequence for the central coast of South Carolina is presented in Table 3.2.

The best-known Ceramic Late Archaic-period sites are shell rings, which occur frequently along tidal marshes. "Preceding the Woodland and Mississippian mound-building periods by thousands of years, shell rings are among the earliest large-scale architectural features found in the United States" (Russo 2002:E8). These are usually round or oval rings of shell and other artifacts, with a relatively

Table 3.2 Ceramic sequence for the central South Carolina coast.

Period/Era	Date	Ceramic Types
Contact	AD 1550-1715	Ashley Burnished Plain, Complicated Stamped, Cob Marked, Line Block Stamped
Late Mississippian	AD 1400-1550	Irene/Pee Dee Burnished Plain, Complicated Stamped, Incised
Early Mississippian	AD 1100-1400	Savannah/Jeremy Burnished Plain, Check Stamped, Complicated Stamped
Late Woodland	AD 900-1100	Wilmington Cord Marked
		Wando Check Stamped, Cord Marked, Fabric Impressed, Simple Stamped
		Santee Simple Stamped
		McClellanville Cord Marked, Fabric Impressed
		St. Catherines Cord Marked, Fabric Impressed, Net Impressed
	AD 500-900	Wilmington Cord Marked, Fabric Impressed, Plain
		Wando Check Stamped, Cord Marked, Fabric Impressed, Simple Stamped
		McClellanville Cord Marked, Fabric Impressed
		Deptford Cord Marked, Fabric Impressed
		Cape Fear Cord Marked, Fabric Impressed, Plain
		Berkeley Cord Marked, Fabric Impressed, Plain
Middle Woodland	AD 200-500	Berkeley Check Stamped, Cord Marked, Fabric Impressed, Plain
		Cape Fear Cord Marked, Fabric Impressed, Plain
		Deptford Brushed, Check Stamped, Cord Marked, Fabric Impressed, Plain
		Wilmington Check Stamped, Cord Marked, Fabric Impressed, Plain
	200 BC-AD 200	Deptford Brushed, Check Stamped, Simple Stamped, Plain
Early Woodland	500-200 BC	Deptford Brushed, Check Stamped, Simple Stamped, Plain
	1500-500 BC	Refuge Dentate Stamped, Incised, Punctate, Simple Stamped, Plain
Ceramic Late Archaic	2500-1000 BC	Thom's Creek Drag and Jab Punctate, Finger Pinched, Incised, Simple Stamped, Plain
		Stallings Drag and Jab Punctate, Finger Pinched, Incised, Simple Stamped, Plain

sterile area in the center. Today, many of these rings are in tidal marsh waters. "In areas where the use of shell rings was a tradition, ring builders deposited the shells in circular and semi-circular piles ranging in size from 30 to 250 meters in diameter and 1 to 6 meters in height" (Russo 2002:E9). Russo (2002:E53) summarizes three commonly accepted theories for the function of shell rings:

> In terms of the place of shell rings in the larger pattern of settlement, other non-ring sites associated with shell rings are not well known. One model suggests that amorphous middens represent base camps, while shell rings served as communal centers (Michie 1979). Another suggests that shell rings were the base camps or villages of Thom's Creek coastal settlement (Trinkley 1980:312). A third suggests that shell rings may represent both villages and ceremonial centers, and it is up to the archeologist to figure out the function of each shell ring empirically rather than typologically (Russo 2004).

Brockington's archaeological investigations at 38CH1781, near the Lighthouse Point Shell Ring (38CH12) on James Island, supports Russo's (2004) idea that shell rings represent both villages and ceremonial centers (Baluha et al. 2005). Regardless, these sites attest to a high degree of sedentism, at least seasonally, by Ceramic Late Archaic peoples.

The Woodland Stage. The Woodland stage is marked by the widespread use of pottery, with many new and regionally diverse types appearing, and changes in the strategies and approaches to hunting and gathering. Native Americans appear to be living in smaller groups than during the preceding Ceramic Late Archaic period, but the overall population likely increased. The Woodland is divided into three temporal periods (Early, Middle, and Late), marked by distinctive pottery types. Also, there is an interval when Ceramic Late Archaic ceramic types and Early Woodland ceramic types were being manufactured at the same time, often on the same site (see Espenshade and Brockington 1989). It is unclear at present

if these coeval types represent distinct individual populations, some of whom continued to practice Archaic lifeways, or technological concepts that lingered in some areas longer than in others.

Early Woodland Period (1500 BC–AD 200). In the Early Woodland period, the region was apparently an area of interaction between widespread ceramic decorative and manufacturing traditions. The paddle-stamping tradition dominated the decorative tradition to the south, and fabric impressing and cord marking dominated to the north and west (Blanton et al. 1986; Caldwell 1958; Espenshade and Brockington 1989).

The subsistence and settlement patterns of the Early Woodland period suggest population expansion and the movement of groups into areas minimally used in the earlier periods. Early and Middle Woodland sites are the most common on the South Carolina coast and generally consist of shell middens near tidal marshes, along with ceramic and lithic scatters in a variety of other environmental zones. It appears that group organization during this period was based on the semi-permanent occupation of shell midden sites, with the short-term use of interior coastal strand sites.

Middle Woodland Period (200 BC–AD 500). The extreme sea level fluctuations that marked the Ceramic Late Archaic and Early Woodland periods ceased during the Middle Woodland period. The Middle Woodland period began as sea level rose from a significant low stand at 300 BC, and for most of the period the sea level remained within one meter of current levels (Brooks et al. 1989). The comments of Brooks et al. (1989:95) are pertinent in describing the changes in settlement:

> It is apparent that a generally rising sea level, and corresponding estuarine expansion, caused an increased dispersion of some resources (e.g., small inter-tidal oyster beds in the expanding tidal creek network). This hypothesized change in the structure of the subsistence resource base may partially explain why these sites tend to be correspondingly smaller, more numerous, and more dispersed through time.

Survey and testing data from several sites in the region clearly indicate that Middle Woodland period sites are the most frequently encountered throughout the region. These sites include small, single-house shell middens, larger shell middens, and a wide variety of shell-less sites of varying size and density in the interior. The present data from the region suggest seasonal mobility, with certain locations revisited on a regular basis (e.g., 38GE46 [Espenshade and Brockington 1989]). Subsistence remains indicate that oysters and estuarine fish were major faunal contributors, while hickory nut and acorn have been recovered from ethnobotanical samples (Drucker and Jackson 1984; Espenshade and Brockington 1989; Trinkley 1976, 1980).

The Middle Woodland period witnessed increased regional interaction and saw the incorporation of extra-local ceramic decorative modes into the established Deptford technological tradition. As Caldwell (1958) first suggested, the period apparently saw the expansion and subsequent interaction of groups of different regional traditions (Espenshade 1986, 1990).

Late Woodland Period (AD 500–1100). The nature of Late Woodland adaptation in the region is unclear due to a general lack of excavations of Late Woodland components, but Trinkley (1989:84) offers this summary:

> In many respects the South Carolina Late Woodland may be characterized as a continuation of previous Middle Woodland cultural assemblages. While outside the Carolinas there were major cultural changes, such as the continued development and elaboration of agriculture, the Carolina groups settled into a lifeway not appreciably different from that observed for the past 500 to 700 years.

The Late Woodland represents the most stable Pre-Contact period in terms of sea level change, with sea level for the entire period between 0.4 and 0.6 meter below the present high marsh surface (Brooks et al. 1989). It would be expected that this general stability in climate and sea level would result in a well-entrenched settlement pattern, but the data are not available to address this expectation. In fact, the

interpretation of Late Woodland adaptations in the region has been somewhat hindered by past typological problems.

Overall, the Late Woodland is noteworthy for its lack of check-stamped pottery. However, recent investigations by Poplin et al. (2002) indicate that the limestone-tempered Wando series found along the Wando and Cooper rivers near Charleston Harbor displays all the Middle Woodland decorative elements, including check stamping, but appears to have been manufactured between AD 700 and 1000. Excavations at the Buck Hall Site (38CH644) in the Francis Marion National Forest suggest that McClellanville and Santee ceramic types were employed between AD 500 and 900, and represent the dominant ceramic assemblages of this period (Poplin et al. 1993).

The sea level change at this time caused major shifts in settlement and subsistence patterns. The rising sea level and estuary expansion caused an increase in the dispersal of resources such as oyster beds, and thus a corresponding increase in the dispersal of sites. Semi-permanent shell midden sites continue to be common in this period, although overall site frequency appears to be lower than in the Early Woodland. Instead, there appears to be an increase in short-term occupations along the tidal marshes. Espenshade et al. (1994) state that at many of the sites postdating the Early Woodland period, the intact shell deposits appear to represent short-term activity areas rather than permanent or semi-permanent habitations.

The Mississippian Stage. Approximately 1,000 years ago, Native American cultures in much of the Southeast began a marked shift away from the settlement and subsistence practices common during the Woodland periods. Some settlements became quite large, often incorporating temple mounds or plazas. The use of tropical cultigens (e.g., corn and beans) became more common. Hierarchical societies developed, and technological, decorative, and presumably religious ideas spread throughout the Southeast, supplanting what had been distinct regional traditions in many areas. In coastal South Carolina, the Mississippian stage is divided into two temporal periods, Early and Late. Previous sequences for the region separated Mississippian ceramic types into three periods (Early, Middle, and Late), following sequences developed in other portions of the Southeast. However, a simpler characterization of the technological advancements made from AD 1000 to 1500 appears more appropriate. During these centuries, the decorative techniques that characterize the Early Mississippian period slowly evolved without the appearance of distinctly new ceramic types until the Late Mississippian.

Early Mississippian Period (AD 1100–1400). In much of the Southeast, the Mississippian stage is marked by major mound ceremonialism, regional redistribution of goods, chiefdoms, and maize horticulture as a major subsistence activity. It is unclear how early and to what extent similar developments occurred in coastal South Carolina. The ethnohistoric record, discussed in greater detail below, certainly indicates that seasonal villages and maize horticulture were present in the area, and that significant mound centers were present in the interior Coastal Plain to the north and west (Anderson 1989; DePratter 1989; Ferguson 1971, 1975).

Distinct Mississippian ceramic phases are recognized for the region (Anderson 1989; Anderson et al. 1982; Anderson et al. 1996). In coastal South Carolina, the Early Mississippian period is marked by the presence of Jeremy-phase (AD 1100–1400) ceramics, including Savannah Complicated Stamped, Savannah Check Stamped, and Mississippian Burnished Plain types. By the end of the Late Woodland period, cord-marked and fabric-impressed decorations are replaced by complicated-stamped decorations. Anderson (1989:115) notes that "characteristically Mississippian complicated stamped ceramics do not appear until at least AD 1100, and probably not until as late as AD 1200, over much of the South Carolina area." Poplin et al.'s (1993) excavations at the Buck Hall Site (38CH644) produced radiocarbon dates around AD 1000 for complicated-stamped ceramics like the Savannah series. This represents the earliest date for complicated-stamped wares in the region, and may indicate an earlier appearance of Mississippian types than previously assumed.

Sites of the period in the region include shell middens, sites with apparent multiple- and single-house shell middens, and oyster processing sites (e.g., 38CH644 [Poplin et al. 1993]). Adaptation

during this period apparently saw a continuation of the generalized Woodland hunting-gathering-fishing economy, with perhaps a growing importance on horticulture and storable foodstuffs. Anderson (1989) suggests that environmental unpredictability premised the organization of hierarchical chiefdoms in the Southeast beginning in the Early Mississippian period; the redistribution of stored goods (i.e., tribute) probably played an important role in the Mississippian social system. Maize was recovered from a feature suggested to date to the Early Mississippian period from 38BK226, near St. Stephen (Anderson et al. 1982:346).

Late Mississippian Period (AD 1400–1550). During this period, the regional chiefdoms apparently realigned, shifting away from the Savannah River centers to those located in the Oconee River basin and the Wateree-Congaree basin. As in the Early Mississippian, the Charleston Harbor area apparently lacked any mound centers, although a large Mississippian settlement was present on the Ashley River that may have been a "moundless" ceremonial center (South 2002). Regardless, it appears that the region was well removed from the core of Cofitachequi, the primary chiefdom to the interior (Anderson 1989; DePratter 1989). DePratter (1989:150) specifies:

> The absence of sixteenth-century mound sites in the upper Santee River valley would seem to indicate that there were no large population centers there. Any attempt to extend the limits of Cofitachequi even farther south and southeast to the coast is pure speculation that goes counter to the sparse evidence available.

Pee Dee Incised and Complicated Stamped, Irene Incised and Complicated Stamped, and Mississippian Burnished Plain ceramics mark the Late Mississippian period. Simple-stamped, cord-marked, and check-stamped pottery apparently was not produced in this period.

3.2.2 The Contact Era

The Europeans permanently settled the Carolina coast in 1670. The earlier Spanish attempts to settle at San Miguel de Gualdape (1526) to the north and at Santa Elena (1566–1587) to the south apparently had limited impact on the study area. The French attempt at Port Royal (1562) also had little impact. The establishment of Charles Town by the British in 1670, however, sparked a period of intensive trade with the Indians of the region, and provided a base from which settlers quickly spread north and south up the coast.

Indian groups encountered by the European explorers and settlers probably were living in a manner quite like the late Pre-Contact Mississippian groups identified in archaeological sites throughout the Southeast. Indeed, the highly structured Indian society of Cofitachequi, formerly located in central South Carolina and visited by De Soto in 1540, represents an excellent example of the Mississippian social organizations present throughout southeastern North America during the late Pre-Contact period (Anderson 1985). However, the initial European forays into the Southeast contributed to the disintegration and collapse of the aboriginal Mississippian social structures; disease, warfare, and European slave raids all contributed to the rapid decline of the regional Indian populations during the sixteenth and seventeenth centuries (Dobyns 1983; Ramenofsky 1982; Smith 1984, 1987). By the late seventeenth century, Indian groups in coastal South Carolina apparently lived in small, politically and socially autonomous, semi-sedentary groups (Waddell 1980). By the mid-eighteenth century, very few Indians remained in the region; all had been displaced or annihilated by the ever-expanding English colonial settlement of the Carolinas (Bull 1670 [in Anderson and Logan 1981:24-25]).

The ethnohistoric record from coastal South Carolina suggests that the Contact-era groups of the region followed a seasonal pattern that included summer aggregation in villages for planting and harvesting domesticates and dispersal into one- to three-family settlements for the remainder of the year (Rogel 1570 [in Waddell 1980:147-151]). This coastal Contact adaptation is apparently very similar to the Guale pattern of the Georgia coast, as reconstructed by Crook (1986:18). Specific accounts of

the Contact groups of the region, the Sewee and the Santee, have been summarized by Waddell (1980). It appears that both groups included horticultural production within their seasonal round, but did not have permanent, year-round villages. Trinkley (1981) suggests that a late variety of Pee Dee ceramics was produced by Sewee groups in the region; this late variety may correspond to the Ashley ware initially described by South (1973; see also Anderson et al. 1982).

Waddell (1980) identified 19 distinct groups between the mouth of the Santee River and the mouth of the Savannah River in the mid-sixteenth century. Anderson and Logan (1981:29) suggest that many of these groups probably were controlled by Cofitachequi, the dominant Mississippian center/polity in South Carolina, prior to its collapse. By the seventeenth century, all were independently organized. These groups included the Coosaw, Kiawah, Etiwan, and Sewee "tribes" near the project area. The Coosaw inhabited the area to the north and west along the Ashley River. The Kiawah were apparently residing at Albemarle Point and along the lower reaches of the Ashley River in 1670 but gave their settlement to the English colonists and moved to Kiawah Island; in the early eighteenth century, they moved south of the Combahee River (Swanton 1952:96). The Etiwans were mainly settled on or near Daniel Island, but their range extended to the head of the Cooper River. The territory of the Sewee met the territory of the Etiwan high up the Cooper and extended to the north as far as the Santee River and into the Bulls Bay area (Orvin 1973:14).

3.2.3 The Post-Contact Era

The following discussion provides a general overview of the St. Andrews PSD and the GMP area during the Post-Contact era. A discussion of previous cultural resource investigations in the project area concludes this chapter. Note that the following discussion uses English measurements without metric conversion to maintain consistency with historic documents.

The development of the GMP and the St. Andrews PSD recounts elements of several themes prevalent in the history of the South Carolina Lowcountry. Early proprietary land policy, development of commercially viable inland rice, the rise of an elite planter-merchant class, the growth of the African American slave labor system, the development of cotton production, postbellum phosphate mining and fertilizer production, the increase in tenant farming, and timber and silviculture growth all play a role in defining the use of the land over the last three centuries. The discussion looks at these themes from a regional and local perspective.

The Colonial Period. European colonization into South Carolina began with temporary Spanish and French settlements in the Beaufort area during the sixteenth century. The English, however, were the first Europeans to establish permanent colonies. In 1663, King Charles II made a proprietary grant to a group of powerful English courtiers who had supported his return to the throne in 1660 and who sought to profit from the sale of the new lands. These Lords Proprietors, including Sir John Colleton, Sir William Berkeley, and Lord Ashley Cooper, provided the basic rules of governance for the new Carolina colony. They also sought to encourage settlers, many of whom came from the overcrowded island of Barbados. These Englishmen from Barbados first settled at Albemarle Point on the west bank of the Ashley River in 1670; by 1680 they had moved their town to Oyster Point and called it Charles Town (Dunn 1973:111-116). The early settlers quickly spread along the central South Carolina coast. By the second decade of the eighteenth century, they had established settlements from Port Royal Harbor in Beaufort County northward to the Santee River in Georgetown County.

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Ashley River in 1670. By 1680, they moved their town down the river to Oyster Point, the present location of Charleston, and called it Charles Towne. These initial settlers, and more who followed them, quickly spread along the central South Carolina coast. By the second decade of the eighteenth century, they had established settlements from the Port Royal Harbor in Beaufort County northward to the Santee River in Georgetown County.

The Lords Proprietors hoped to establish a benevolent, land-based aristocracy in Carolina. They granted large tracts, called baronies, to the aristocracy and smaller grants to commoners. Commoners received land based on headrights, the number of persons they brought into the colony. Each head of household could obtain 60 acres for himself and 50 acres for every woman, child, and slave (Fagg 1970:172). Additionally, the Proprietors offered the aristocracy grants of 12,000 acres called baronies. A special barony granted to a Lord Proprietor was called a seigniory (Smith 1988:1). The end of the Proprietors' ownership in 1719 ended the granting of titles with attached baronies.

Initially, the South Carolina colony's early settlements grew slowly, despite its geographic spread. In 1700, the colony's population numbered approximately 5,000 European and African American inhabitants. The early colonial economy centered on trade with the Native American population, the naval stores industry, and beef and pork production. By the end of the seventeenth century, however, many colonists began to experiment with rice cultivation. The regular flood conditions of the immediate tidal area proved valuable, and production for export increased rapidly. By 1715, Charles Towne exported more than 8,000 barrels of rice annually; this number increased to 40,000 by the 1730s.

Angered by mistreatment from traders and encroachments on their land, Native Americans attacked colonial enclaves in the Yamassee War of 1715. The insurrection failed to dislodge the English (Covington 1978:12). While the Yamassee staged several successful raids through the 1720s, by 1728 the English had secured the area and made it more accessible to settlers. With the rapidly increasing wealth in the South Carolina Lowcountry, and with the Yamassee War behind them, the population began to swell. By 1730 the colony had 30,000 residents, at least half of whom were black slaves. A 1755 magazine, cited by Peter Wood, estimates that South Carolina residents had imported over 32,000 slaves by 1723 (Wood 1974:151). The growing population increased pressure for territorial expansion, which was compounded by the growing black majority in the Lowcountry. Fears of a slave rebellion, along with continuing fears of attack from Native Americans, led Charles Towne residents to encourage settlement in the backcountry.

The capacity of the Lords Proprietors to govern the colony effectively declined in the early years of the eighteenth century. Governance under the Lords Proprietors became increasingly arbitrary, while wars with the Native population arose and the colonial currency went into steep depreciation. According to a historian of colonial South Carolina, "proprietary attitudes and behavior convinced many of the dissenters—who at one time had composed the most loyal faction—that the crown was a more reliable source of protection against arbitrary rule" (Weir 1983:94). South Carolina's legislature sent a petition to Parliament in 1719, requesting that royal rule supplant that of the Lords Proprietors. After several years in limbo, South Carolinians received a degree of certainty in 1729 when the crown purchased the Proprietors' interests, and in 1730 when the new royal governor, Robert Johnson, arrived in the colony.

The new colony was organized with the parish as the local unit of government. The present project tract is within the St. Andrews Parish, created by the Church Act of 1706. St. Andrews Parish extended between the Ashley and Stono Rivers and northwest to the boundary with St. George's Dorchester Parish, which was separated from St. Andrew's Parish in 1717. The parish church was in the southeastern portion of the parish near the confluence of the Ashley River and Church Creek and still stands today. The parish church building served both religious and political purposes. As Gregorie (1961:5) explains, "the parish church as a public building was to be the center for the administration of some local government in each parish, for at that time there was not a courthouse in the province, not even in Charleston." Many of the colonial project tract owners were actively involved in affairs of the parish.

In 1702, the War of Spanish Secession (1702–1712) in Europe erupted into Queen Anne's War

in the American colonies. Carolinians took advantage of the war to make a series of raids against the Spanish and their Indian allies in Florida. In the first decade of the eighteenth century, Carolinians made three separate invasions into Florida, sacking the city of St. Augustine. They returned with hundreds of Indian slaves, effectively destroying Native American threats from the south (Arnade 1959:55; Eliades 1981:93-94).

Angered by mistreatment from traders and continued encroachments on their land, Native Americans throughout the colony attacked the British settlers in the spring of 1715. The Yamasee War failed in dislodging the settlers from the country, and most of the surviving Indians moved from the colony to Spanish Florida or west to modern-day Georgia and Alabama (Covington 1978:12). However, Yamasee raiders from Florida continued to attack outlying settlements in Carolina until 1728 when John Palmer's raid on St. Augustine ended their activities.

The conclusion of the Yamasee War also made settlement easier in the Charleston vicinity. Many early settlements and plantations in the area focused on the Ashley, Cooper, Wando and Stono Rivers. These waterways provided the best opportunity for profitable agricultural production (i.e., rice cultivation) and the best avenues of transportation to Charleston and other settlements in the region (South and Hartley 1985). Evidence of the many plantations along these rivers remains today as archaeological sites and surviving architectural structures.

Early South Carolina also sought certainty through a secure economic base. It was not clear, during South Carolina's first generation or two, what its economic base would be. The plan was for the colony to produce tropical goods that would not grow elsewhere in British colonies. Neither silk, wine, olives, lemons, nor oranges thrived in the colony, however. As a result, the economic development in the Charleston area initially focused on Indian trade until a more stable economy was established. Colonists aggressively pursued trade with Native Americans through the beginning of the eighteenth century, but by 1716, conflicts with the Europeans and disease had drastically reduced or displaced the local native population.

Naval stores, including pine tar, pitch, rosin, and turpentine, fueled the next minor economic boom in South Carolina. European wars in the late seventeenth and early eighteenth century made the traditional continental suppliers of these goods less stable, and Parliament established bounties, or subsidies, on naval stores from the colony in 1704. With this bounty in place, the production of naval stores quickly surpassed demand, and the boom was short-lived. Naval stores fell off quickly as a major export from South Carolina in the 1720s when parliament eliminated the bounty, and when the Royal Navy opted to acquire its naval stores from Baltic countries (Kovacik and Winberry 1987:70-71; Weir 1983:143-144).

Produce, including beef, pork, and vegetables, also represented important exports for the South Carolina economy. Barbados and other Caribbean islands were importers of produce, and South Carolina was their principal supplier. Livestock became an important segment of the South Carolina economy. As Weir (1983:142) has noted, however, "lucrative as cattle raising might be for a few individuals, it never made fortunes for many."

Rice provided the fortune that the early South Carolina settlers sought. As early as 1720, rice accounted for half of the colony's profits and remained central to South Carolina's economy through the Civil War. From 113,636 kilograms (kg) in 1699, the colony exported 30,000,000 kg in 1770 (McCurry 1995:32). The rice was grown in the multitude of freshwater swamps and creeks that had a dramatic impact on the environment. By the later third of the eighteenth century, rice cultivation was based on a new technology, which relied on the power of tides to control water levels; by means of levees, dams, and canals, planters were able to inundate their rice crops with fresh water that would kill off weeds. In order to do this, the landscape was radically altered. Freshwater streams that were close to tidally influenced rivers such as the Ashley River were ideal for the new rice culture. St. Andrews Parish, which bordered on the Ashley River, became a wealthy one as a result of rice culture. The mansions and plantations that remain, including Drayton Hall and Middleton Place, testify to the level of wealth in the area. Rice was complemented by the introduction of indigo as a cash crop in 1740 (Pinckney 1976).

In the 1740s, Lowcountry residents began to experiment with growing and processing indigo, a

blue dye that was very popular in Europe and which became one of South Carolina's principal exports during the eighteenth century. Both indigo and rice were labor-intensive and laid the basis for South Carolina's dependence on African slave labor, much as tobacco had done in the Virginia colony (Coclanis 1989; Wood 1974). While the early rice production was restricted to the freshwater inland swamps, indigo cultivation in South Carolina practically ceased after the Revolutionary War as the British removed the bounty on the crop. Rice, however, continued to grow as an important crop into the antebellum era.

Revolution and Early National Period. The colonies declared their independence from Britain in 1776, following several years of increasing tension due in large part to what the colonists considered to be unfair taxation and trade restrictions imposed on them by the British Parliament. South Carolinians were divided during the war. The people of the Lowcountry were predominantly, but not completely, Patriots, while most of the loyalists resided in Charleston or in certain enclaves within the interior of the province.

Britain's Royal Navy attacked Fort Sullivan (later renamed Fort Moultrie) near Charleston in 1776. The British failed to take the fort, and the defeat bolstered the morale of American revolutionaries throughout the colonies. The British military then turned its attention northward. The British returned in 1778, however, besieging and capturing Savannah in late December. A major British expeditionary force landed on Seabrook Island in the winter of 1780 and then marched north and east to invade Charleston from its landward approaches (Lumpkin 1981:42-46). The patriot South Carolinians were not prepared for an attack and were besieged in May after offering a weak defense. Charleston subsequently became a base of operations for British campaigns into the interior of South Carolina, Georgia, and North Carolina. However, the combined American and French victory over Lord Cornwallis at Yorktown in 1782 effectively destroyed British military activity in the South and forced a negotiated peace (Lumpkin 1981). The 13 colonies gained full independence, and the English evacuated Charleston in December 1782.

The project area was not directly involved in any battles of the Revolutionary War, and South Carolina saw little action between the failed British attempt to take Charleston in 1776 and the successful British occupation of the city in 1780. A significant outcome of the Revolutionary War was the removal of royal trade protection, which caused a drastic reduction in rice profitability. As a result, many planters of St. Andrews and surrounding areas began to supplement their rice plantings with cotton agriculture.

The end of the Revolution in 1783 to the end of the War of 1812 is a period of trial and testing for the new nation, referred to as the Early National Period (1783-1815). Topics like westward expansion, Native American relations, tariffs, and early industrialization caught the interest of most Americans and dominated political discussion. Slavery was temporarily subjugated as a topic. Massive numbers of slaves were imported into Charleston and other ports to meet the growing labor market of the rice expansion and the exploding cotton kingdom. However, the foreign slave trade ended by Constitutional fiat in 1808.

In South Carolina, cotton became king of the backcountry after the invention of the cotton gin in the 1790s. Settlers poured into the South Carolina backcountry claiming rich cotton lands and bringing their slaves with them. By the first decade of the nineteenth century, the "peculiar institution' of slavery was as firmly a part of the political landscape in the region as it had been in the Lowcountry in the eighteenth century. When lands in South Carolina were taken up settlers moved into the adjoining states of Georgia, Alabama, Mississippi, Louisiana, and after 1821 into Texas and Florida.

A Sea Island version of the product was successfully experimented with by Kinsey Burden on Johns Island and the Carolina, Georgia and Florida Sea Islands quickly became its primary growing region. Rice and cotton were combined on some plantations to add even more wealth to the landowners (Porcher and Fick 2005). Older areas of the Lowcountry; however, began to decline. St. Paul's and St. George's parishes, largely limited to their inland rice plantations and its antiquated system of rice production declined in value, the richer rice plantations were those using the tides to manage their water flows. Some planters offset their losses by converting to upland cotton, but many were either abandoned or became provision and ranch lands by the 1820s.

The War of 1812 established the United States' place among the Western powers when they successfully fought the British to a standstill. The war had little effect on South Carolina save the naval expansion in and around the City of Charleston as the government sought to protect the rich rice and cotton products shipped daily from the docks the coastal towns and cities. The state emerged from the war with little to no damage, as most of the land fighting had occurred along the Canadian border, near Washington and Baltimore, and in Louisiana and Alabama. When the war ended with Andrew Jackson's defeat of a major British force at New Orleans, Carolinians joined their fellow Americans in a new sense of optimism and of their region and the country's destiny.

The Antebellum Period and Civil War. The period between the close of the War of 1812 and the beginning of the Civil War was characterized in South Carolina, and throughout the South, by plantation agriculture based on slave labor and the production of staple crops such as cotton and rice. It was also a period of increasing sectional tensions, with Southerners emphasizing the political expedience of states' rights, nullification, and agricultural expansion as a means of protecting their slave-based society.

In the wake of the Revolutionary War, indigo waned quickly as an important crop in the region, while Sea Island planters were beginning their experiments with long staple cotton. Rice continued to be an important crop. It had grown quickly during the eighteenth century in its importance to the Lowcountry's economy, and with the development of new technologies, rice cultivation increased still further. After the Revolutionary War, some planters experimented with new technology that relied on the power of tides to raise river levels; this inundated crops with fresh water that would kill off the weeds. A series of elaborate canals, dikes, and gates were created in the marshes and swamps to keep the salt water out of the fields. In order to do this, the process of radically altering the landscape was expanded as lands along the tidal rivers were drained, canals were built, and fields were surrounded by levies to control their access to the water from southeastern North Carolina to Georgia and later to Northeast Florida (Chaplin 1993:227-276). At the same time, this placed a high priority on geography, for only some rivers had tides strong enough to force tidal action up into the freshwater sections of the rivers.

Duncan Clinch Heyward, the fifth generation of his family to plant rice in the Lowcountry, gave a useful description of the process and the difficulties of clearing the swamps in his 1937 memoirs (Heyward 1993:18-20):

> There were many large white gum, cedar, and cypress trees, and the dark alluvial soil was so soft that one could scarcely walk any distance upon it. To avoid sinking he would have to step from one root to another, or trust his weight to some treacherous tussock. Everywhere his progress was impeded by dense undergrowth, and his clothes and flesh torn by briars ... .The first step in reclaiming the swamp lands was to build a bank along the edge of the river, with both ends joined to strips of highland where they approached the river's edge, and through the bank to place trunks, similar to those used in the inland swamps, for the water to pass through. When the bank had been built and the trunks installed, the digging of the canals and ditches in the swamp followed. Then the trees and undergrowth had to be removed, the greatest undertaking of all. The trees were cut down and burned, but their stumps were never completely removed.

The result was a distinctive landscape, which plats from the late eighteenth and nineteenth century capture. Plats of the rice plantations show a series of buildings including rice machines, slave cabins, and the main house, that seem minor features during the pattern of rice canals and dams. Plantations also tended to be widely spaced as rice and cotton agriculture drove the economy of St. Andrews Parish during the first half of the century. This mode of production continued until the Civil War (1861-1865).

Sectional differences, the debates over slavery in the new territories, and nullification ultimately led to South Carolina leading the Southern states out of the Union in 1860. The Civil War that followed made extensive social, political and cultural changes to the country especially in the South. Emancipation of the slaves and the dissection and redistribution of some of the plantations at the end of the war ef-

fectively destroyed the plantation system of production. The Civil War also witnessed the construction of several defensive structures along Long Branch/Church Creek and other drainages to the south and east of the project area. These include Batteries Gaillard, Magwood, and Wilkes along the Long Branch/Church Creek estuary, Batteries Barker and Bulow on the Stono River, and Fort Bull near the Ashley River (Davis et al. 1978; Trinkley and Fick 2000). Battery Barker and Battery Bulow, located south of the project tract and along the northern bank of the Stono River, were erected early in the War. Probably constructed by local slaves for Confederate engineers, these fortifications had little value since a Union presence that far up the Stono River would have surely meant the war was over.

Reconstruction and the Postbellum Period. The Civil War effectively destroyed the plantation system in South Carolina and the rest of the South. This meant profound changes for Charleston County both economically and socially. The antebellum economic system disintegrated as a result of emancipation and the physical destruction of agricultural property through neglect and (to a lesser extent) military action. A constricted money supply coupled with huge debt made the readjustments worse. The changes were enormous. Land ownership was reshuffled, as outsiders began purchasing plots and former plantations that had been abandoned in the wake of the Civil War. Newly freed slaves often exercised their freedom by moving, making the labor situation even more unsettled.

One result of this migration was a variety of labor systems for whites as well as freed African Americans; this fostered an era of experimentation and redefinition in the socio-economic relationships between the freed African Americans and white landowners. The Reconstruction period also witnessed a drastic increase in the number of farms and a drastic decrease in average farm size as predominately white landowners began selling and/or renting portions of their holdings. Many subdivided their lands and sold small, one- to 10-acre parcels to the freedmen and their families, often supplying financing as well.

Farm tenancy emerged as a dominant form of agricultural land management toward the end of the nineteenth century in South Carolina and presented itself in two basic forms, sharecropping and cash renting (Brockington et al. 1985; Orser and Holland 1984; Trinkley 1983). Sharecropping was a system whereby the landowner provided all that the renter might need to tend and cultivate the land (i.e., draft animals, farming implements and tools, seed, and fertilizer). A variety of methods of payment by the renter could be arranged. However, usually an agreed portion of the crop (i.e., a share) would be surrendered to the landowner. Sharecropping was appropriate when tenants could not afford the capital necessary to purchase seed, animals, and tools. Cash renting generally represented arrangements in which an agreed sum of money was paid to the landowner by the tenant farmer. In these instances, the farmer was more independent and farther removed from the landowner and would provide his own animals, feed, seed, and equipment. This system generally allowed small farmers to accrue larger sums of money and, according to Brockington et al. (1985), was the preferred arrangement for tenant farmers, as it was regarded as a profitable operation that would help tenants to eventually acquire their own property. Cash renting was desirable to the landlord because it removed him from the uncertainties of market prices; removed the capital burden of supplying seed, fertilizer, and equipment; and assured steady cash income.

The advent of phosphate mining in the 1870s benefitted some plantations in the northern part of St. Andrews Parish. It was a short-lived industry, however, and did not produce any changes in the class structure or race relations that developed as a result of the plantation agricultural system in the region. Even though mining created a large demand for wage laborers, the many African Americans who were hired were under the control of white bosses. Also, the company provided housing, medical services, and general stores to the miners, with payment extracted from each workers' wages. Since the usual wage was between $3.50 and $7.50 per month, most miners were always in debt to the company (Schick and Doyle 1985:13).

For many years prior to the Civil War, local residents and geologists were intensively engaged in discussion about the potential for the phosphate marl rock along several of South Carolina's rivers

to be processed into rich fertilizer. Southern cotton expansion had exhausted soils throughout the region and extracting an acceptable return on the land relied upon increased use of fertilizers, much of which was nutrient-rich guano imported from Latin America. As early as the 1820s, geologist, writer, and Southern radical Edmund Ruffin was experimenting with the use of phosphate-rich marl to improve soil conditions (McKinley 2014:21). In the 1840s, Ruffin, known as the "prophet of marl," surveyed South Carolina looking for easy to mine marl rock that was rich enough in phosphate materials to be of use (Mathew 1992; McKinley 2014:21). However, the report of his findings languished until after the Civil War.

In the years immediately following the Civil War four Charlestonians set the foundations for the phosphate industry in South Carolina. Francis Simmons Holmes, Nathaniel A. Pratt, Charles U. Shepard, and St. Julian Ravenel established the industry in the Lowcountry, through experimentation and later by corporate organization. In September 1867, Pratt and Holmes along with northern investors, George T. Lewis and Frederick Klett of Philadelphia, formed the Charleston South Carolina Mining and Manufacturing Company (CMMC; McKinley 2014:43). McKinley (2014:43-44) says of this firm that "combining expertise and local knowledge with ample funding, the new mining company held substantial advantages over later entrants into the industry" and gave CMMC the ability in time to "dominate if not monopolize" the Lowcountry land mining. Eventually their holdings along the Ashley River amounted to more than 17,000 acres that included the project tract.

As part of their expanding operations, Pratt and Holmes used their personal contacts with local planters and bought or leased tracts along the Ashley River from cash-strapped owners. They expanded a narrow-gage rail line focusing first on river marl but quickly also shifted to land mining operations. On September 1, 1869, Pratt and George T. Lewis negotiated with John Grimke Drayton to purchase his Magnolia Plantation, excepting lands around the former house and some other river front acreages he had previously leased. In all, their purchase included more than 1,500 acres most of it west of Ashley River Road (Charleston County, South Carolina Deed Book [CCDB] H15:628). In 1870, the two men vested their ownership into the company, and CMMC continued in ownership until 1937 (CCDB W15:22).

The CMMC expanded land mining operations into their Magnolia lands excluding only the western-most portion, likely due to the cost of drainage in that very wet section of the land. They drove their narrow-gage railroad down through the tract and used both hand-mining and later steam shovel mechanical mining. The latter was particularly destructive on the land. The mining produced a ridged, corduroy appearance that is still reflected in the landscape today (Shuler and Bailey 2004:40). The company hand-mined much of the eastern third of the project tract and drove their rail cars into the area creating spur lines to expedite the raw mined marl to the company docks on the Ashley River. Due to the extreme low, wet nature of the region, large canals were created by the workers to aide in drainage.

The hand operations that dominated extraction until about 1900 required a large labor force. Freedmen made up much of the force and by the 1880s, mining camps had replaced former slave quarters at the fields. Owners also contracted with counties for the use of convict labor and even tried to entice Southern European immigrants to work the phosphate fields (Shuler and Bailey 2004:29-40). Mining camps were usually located on the small hills in the wet mining region. While miners took advantage of living in the owner-run camps for temporary residences, the camps represent another example of how "the strongly institutionalized class system of the Old South retained its paternalistic hold on African Americans" throughout the Phosphate Era (Shuler and Bailey 2004:42).

The Twentieth Century and the Rise of the Sunbelt. The economic downturn of 1893 and several turn-of-the-century hurricanes along with more productive phosphate fields in Florida and Tennessee brought about a waning of the industry in South Carolina. The CMMC was one of the strongest and longest-lasting operations in the state but by the Great Depression, it too was forced to sell. In 1937, the company sold its Ashley River holdings including the project tract to David K. E. Bruce of Virginia (CCDB S39:243). It had ceased mining some years earlier. Bruce held the lands for several years and

attempted some limited development but at the end of World War II, in 1945, he sold his holdings to Donald D. Shepard (CCDB T43:706).

Shepard did not hold the lands long, but sold them to Williams Furniture Company in 1946 (CCDB C46:58). Williams Furniture Company was a North Carolina-based furniture and veneer firm that during the Great Depression located plants in Camden and Sumter, South Carolina. They obtained substantial contracts with New York outlets that aided them in surviving the economic depression and allowed the company to rebound in the 1940s, buying the large Russellville Lumber Company in 1942 (Fetters 1990:34). The company continued expanding through most of the 1950s and 1960s and eventually in 1973 they merged with Georgia Pacific (CCDB E102:280).

In the post-World War II period, Williams Furniture began selling sections of their lands near the City of North Charleston for subdivision. They conveyed parcels along Dorchester Road near the former Lambs Phosphate operation around the Charleston Air Force Base. In the 1960s, they leased much of their Ashley River holdings, including the project tract, to Southern Coatings Corporation, a paint and chemical manufacturer in Sumter. The two companies merged in 1967 and were absorbed by GP when it merged with Williams in 1973. In 1985, GP sold two tracts to C.R. Hipp, a Charleston-businessman who owned and ran C.R. Hipp, a mechanical contracting company (CCDB H148:401, F150:40). The tract remains with the Hipp family to the present day.

In addition to corn, cotton, phosphate mining, and timber, truck farming was an important element of the postbellum economy in St. Andrews Parish in the early twentieth century. Truck crops accounted for 24 percent of the agricultural value for Charleston County by 1900. The importance of truck farming in Charleston County grew significantly, and in 1930, truck crops represented 79 percent of all crops grown in Charleston County (Brockington et al. 1985:133). This level of importance remained relatively stable through the present. This represented a shift in the use of arable land in St. Andrews Parish.

World War II had a profound impact on the entire Charleston area, as it did on much of the South. The war created an economic boom throughout the nation, which was more pronounced in the South given the number of military bases that arose. Charleston was a perfect example. The Charleston Navy Yard received new destroyers, shipbuilding plants, and other support facilities, while other military activities emerged in the city's surrounding region such as the Army Embarkation Depot and the Charleston Army Air Corps Base (later Charleston Air Force Base).

In 1949, the South Carolina General Assembly created the St. Andrews Public Service District, which consists of five districts in the former St. Andrews Parish in Charleston County. The district was created to provide environmental and first responder services. Today, the district serves 18,600 people and is divided into two administrative subdistricts.

Since World War II, the Charleston region has continued to possess significant numbers of small farms. However, labor demands of the new industries in Charleston brought new people into the region. Many of the new arrivals settled in old St. Andrews Parish, an area now known as West Ashley. The West Ashley area had been growing unabated since the end of World War I in 1918, and after 1945, new subdivisions continued to be created along US Highway 17 South and South Carolina Highway 61. These highways provided the primary arteries for travel into and out of the city from the west side. In the early 1960s, US Interstate Highway 26 was completed from Columbia and provided access to the city from the northwest. Continued growth in the Charleston area has witnessed a steady influx of new suburban residents into the parish, and the development of service facilities and industries for these residents.

3.3 Previous Investigations in the Project Area

3.3.1 Introduction

The Principal Investigator consulted the NRHP property listings at SCDAH and the state site files at SCIAA to obtain information regarding previous cultural resources investigations and to determine the locations of cultural resources located within 0.4 km of the proposed project. This data was accessed through ArchSite (http://www.scarchsite.org/), the online cultural resource system sponsored and maintained by SCDAH and SCIAA. Fourteen previous investigations, 13 archaeological sites, and two historic above-ground resources have been identified within 0.4 km of the project. Tables 3.3 through 3.5 list the previous investigations, previously recorded above-ground resources, and archaeological sites, respectively.

3.3.2 Previous Investigations

Research indicates at least 14 previous investigations within 0.4 km of the APE. These include six cultural resource surveys conducted for the South Carolina Department of Transportation (SCDOT), five for the South Carolina Department of Health and Environmental Control's Office of Ocean and Coastal Resource Management (OCRM), one for the SCDAH, and two for the United States Army Corps of Engineers (USACE). The previous investigations include cultural resource reconnaissances (Adams and Trinkley 1994; Caballero 1985; Hartley 1984; Konieczko and Harvey 1997; Roberts 1986; Trinkley and Fick 2000; and Trinkley et al. 2005); intensive

Table 3.3 Previous investigations within 0.4 km of the APE.

Study	Year	Agency (Affiliation)	Description	Cultural Resources In APE
Caballero	1985	SCDOT	Archaeological survey of the proposed Magwood Road Extension Project	N/A
Roberts	1986	SCDOT	Archaeological Survey of a portion of the proposed SC Route 61 Expressway	38CH975-38CH979
Poplin and Jones	1993	OCRM (Brockington)	Archaeological survey and testing of the Bon Secour-St. Francis Xavier Hospital, Essex Farms Tract	38CH1177, 38CH1178
Adams and Trinkley	1994	OCRM (Chicora Research Foundation, Inc.)	Cultural resources reconnaissance of the Bees Ferry Road Tract	38CH1505
Rust and Harvey	1997	OCRM (Brockington)	Cultural resources survey of a 20-acre parcel in the Essex Farms Tract	38CH1678
Konieczko and Harvey	1997	OCRM (Brockington)	Cultural resources reconnaissance of the Ross Tract	38CH690
Trinkley and Fick	2000	SCDAH	A survey of Civil War fortifications in Charleston, Beaufort, Berkeley, Hampton, and Jasper Counties	38CH1678
Hendrix	2002	SCDOT (Brockington)	Cultural resources survey of the proposed Henry Tecklenburg Boulevard	N/A
Trinkley et al.	2005	OCRM (Chicora Research Foundation, Inc.)	Cultural resources reconnaissance of the Essex Farms Tract	38CH2023
Fletcher and Salo	2008	SCDOT (Brockington)	Cultural resources survey of the West Ashley Circle	38CH2166
Fletcher et al.	2008	SCDOT (Brockington)	Cultural resources survey of the Bees Ferry Road Widening Project	38CH2231
Baluha and Owens	2017	USACE (Brockington)	Cultural resources survey of the East Edisto Gas Main	38CH1505
Bailey et al.	2018	USACE (Brockington)	Cultural resources survey and testing of the HPH Parcel	38CH1505
Baluha et al.	2018	SCDOT (Brockington)	Cultural resources survey of the I-526 Improvements Project	7940

Table 3.4 Previously recorded above-ground resources within 0.4 km of the APE.

Number	Description	Date	NRHP Status	Source	Effect
Battery Magwood*	Civil War Earthwork	19th century	Eligible	Rust and Harvey (1997); Trinkley and Fick (2000)	None
7940	Inland rice field	18th-19th century	Not eligible	Baluha et al. (2018)	None

Table 3.5 Previously recorded archaeological sites within 0.4 km of the APE.

Number	Description	Date	NRHP Status	Source	Effect
38CH690	Pre-Contact lithic scatter;	Unknown Pre-Contact;	Not eligible	Hartley (1984); Konieczko and Harvey (1997)	None
	Post-Contact scatter	18th-19th century			
38CH975	Post-Contact scatter	19th century	Not eligible	Roberts (1986)	None
38CH976	Post-Contact scatter	19th century	Not eligible		None
38CH977	Post-Contact scatter	18th-19th century	Not eligible		None
38CH978	Pre-Contact lithic scatter	Middle Archaic	Not eligible		None
38CH979	Post-Contact scatter	17th-19th century	Not Eligible		None
38CH1177	Pre-Contact ceramic scatter;	Woodland, Mississippian;	Eligible	Poplin and Jones (1993)	None
	Post-Contact scatter (Magwood Plantation)	18th-20th century			
38CH1178	Post-Contact scatter	19th century	Not eligible		None
38CH1505	Post-Contact scatter	18th-19th century	Eligible	Adams and Trinkley (1994); Baluha and Owens (2017); Bailey et al. (2018)	None
38CH1678*	Post-Contact scatter	Unknown Post-Contact	Eligible	Rust and Harvey (1997)	None
38CH2023	Post-Contact scatter	19th-20th century	Not eligible	Trinkley et al. (2005)	None
38CH2166	Pre-Contact ceramic scatter;	Unknown Pre-Contact;	Not eligible	Fletcher and Salo (2008)	None
	Post-Contact scatter	19th-20th century			
38CH2231	Post-Contact scatter	Unknown Post-Contact	Not eligible	Fletcher et al. (2008)	None

surveys (Baluha and Owens 2017; Baluha et al. 2018; Fletcher and Salo 2008; Fletcher et al. 2008; Hendrix 2002; and Rust and Harvey 1997); and archaeological survey and testing projects (Bailey et al. 2018; and Poplin and Jones 1993). Of these 14 previous investigations, 10 intersect the current APE, including Adams and Trinkley (1994), Baluha et al. (2018), Caballero (1985), Fletcher et al. (2008), Fletcher and Salo (2008), Konieczko and Harvey (1997), Poplin and Jones (1993), Roberts (1986), Rust and Harvey (1997), and Trinkley et al. (2005).

The proposed project will have no effect on NRHP-eligible Sites 38CH1177, 38CH1505, or 38CH1678. The current investigation relocated one cultural landscape feature (Resource 7940) and one archaeological site (38CH979), which are discussed in detail in Chapter 4.

4.0 Results and Recommendations

4.1 Introduction

Cultural resources survey of the GMP Widening & Multiuse Lane Project included archaeological and architectural survey. These investigations were conducted over six days from August 6 to 24, 2018. These investigations revisited one archaeological site (38CH979), one cultural landscape feature (Resource 7940) and identified one new historic area (Resource 7965). Summaries and NRHP and management recommendations for these resources follow. Figure 4.1 shows the location of the APE and all identified cultural resources on recent aerial imagery.

4.2 Architectural Survey

4.2.1 Introduction

Brockington Architectural Historian Sheldon Owens conducted the architectural survey on August 24, 2018. The project Historian traveled every street and road within the architectural survey universe to inspect above-ground resources and record all historic architectural resources that retained sufficient historic characteristics to be included in the South Carolina Statewide Survey. There are no survey-eligible architectural resources within the architectural survey universe. However, one previously recorded cultural landscape feature (Resource 7940) and one newly identified historic area (Resource 7965) are in the APE. Resources 7940 and 7965 are described below.

4.2.2 Resource 7940

Introduction. Brockington recorded Resource 7940 during cultural resources survey of the I-526 Phase I Improvements Project (Baluha et al. 2018). However, Baluha et al.'s (2018) report has not been submitted for SCDAH review. Therefore, in this report we provide a complete description and NRHP assessment of Resource 7940. The following description is taken verbatim from Baluha et al. (2018).

Description. Water Control Resource 7940 is a 23-acre historic area that includes the remnants of an eighteenth- to nineteenth-century water control feature associated with the former Woodford Plantation. Resource 7940 is located west of the intersection of the GMP, Henry Tecklenburg Boulevard, and Magwood Road (see Figures 1.1, 1.2, and 4.1). Figure 4.2 presents a plan of Resource 7940 on Light Detecting and Ranging (LiDAR) imagery. Figure 4.3 provides views of Resource 7940. The boundary of Resource 7940 was determined by LiDAR and field inspection. The APE extends through the northern portion of Resource 7940, along the GMP.

Historic maps and plats show Resource 7940. These include four historic plats (Diamond 1816; Kollock 1919; Parker 1868; and Purcell 1790), four historic topographic maps (USACE 1919; USGS 1948, 1958, 1979), and historic aerial imagery. Parker's (1868) and Purcell's (1790) plats of Woodford Plantation and Diamond's (1816) plat of Magwood Plantation show Resource 7940 flanking the western side of a settlement, integrated with a much larger water control system. The system included a large reservoir to the east and additional rice fields to the southwest. Today, the settlement is represented by two archaeological sites, including 38CH1171, first recorded by Poplin and Jones (1993), and 38CH1678, first recorded by Rust and Harvey (1997). These plats show several features at Resource 7940 that are still extant, including three inter-connected banks equivalent to the embankments that form the resource's northern, eastern, and southern boundaries, and an L-shaped bank along the southwestern edge of the water control feature. Parker (1868) and Diamond (1816) show the northern dam as the "cockfield dam," which was likely destroyed by construction of the GMP. Diamond (1816) shows a settlement at the terminus of a plantation road (now Magwood Drive), near the location of 38CH1678, which includes the Civil War Battery Magwood and an eighteenth- to nineteenth-century subsurface artifact scatter. Kollock's (1919) plat continues to show Resource 7940 as part of a much larger rice field, demarcated by two causeways to the north and south. The USACE (1919) and USGS (1948) quadrangles show Resource 7940 surrounded by roads, including a road that follows the current route of the GMP and another road that extends along the southern bank of Resource 7940. The USGS (1948) quadrangle also

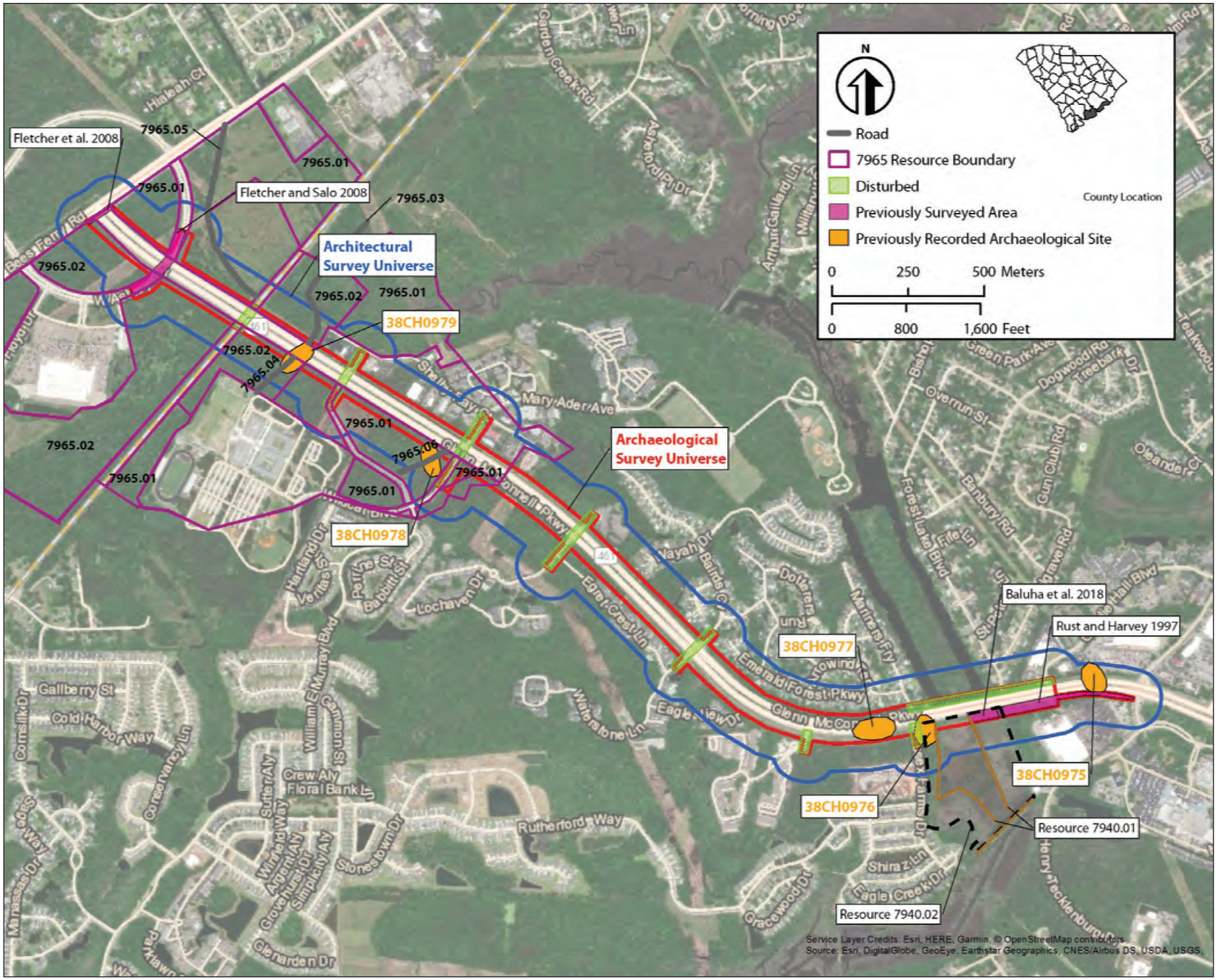


Figure 4.1 The location of the APE, all cultural resources in the APE, and shovel-tested areas in the archaeological survey universe on recent aerial imagery.

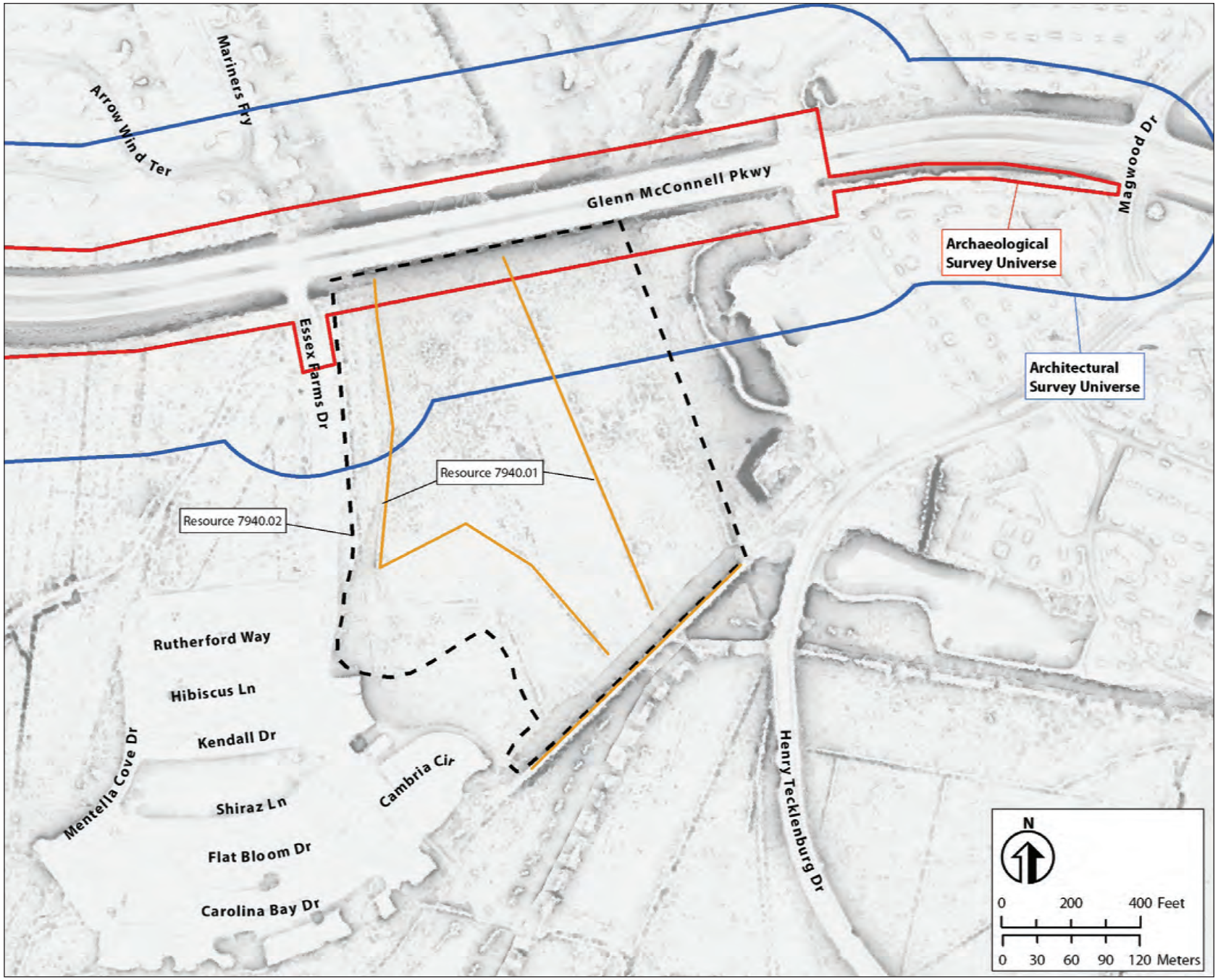


Figure 4.2 Plan of Resource 7940.

Figure 4.3 Views of Resource 7940: looking south-southeast from the GMP (top); embankment on southern end looking southwest (bottom).

shows a canal extending north/south through Resource 7940, roughly equivalent to the present-day canal. This canal is not shown on the USACE (1919) quadrangle. The USGS (1958, 1979) quadrangles no longer show these roads but continue to show the canal. USGS (1979) shows a large borrowed area in Resource 7940, which is not evident on LiDAR imagery. However, Google EarthPro (1989) aerial imagery shows this area borrowed out. Thus, the borrowed-out area in Resource 7940 appears to have infilled over the last 30 years.

Parker (1868) indicates parcels A-E on Woodford Plantation. Resource 7940 was part of Parcel C, an 80-acre tract of land originally granted to Allen Wells (1711). This parcel covers two large rice fields in Long Branch, including Resource 7940, indicating the land was targeted for its potential value in the cultivation of rice. The Wells family also received the original grant for Parcel B, a 140-acre tract that included the location of the Woodford Plantation settlement. These factors suggest that the Wells family was the first to attempt rice cultivation at Resource 7940. At some point, both parcels were acquired by Thomas Holman, who in 1730 devised the land to his sons Thomas, Walter, and William (Charleston County Will Book [CCWB] 1729-1731:344). Thomas Holman's grandson John sold the land to Lambert Lance, who sold the land to William Miles in 1800; in 1816, Woodford Plantation was sold by Miles' heirs to Simon Magwood (CCDB D7:45; P8:273). The Magwood family incorporated the tract into a much larger holding known as Magwood Plantation, which they possessed into the early twentieth century (Kollock 1919).

NRHP Evaluation. We assessed Resource 7940 for NRHP eligibility with respect to Criteria A-D (see Section 2.6.4). Resource 7940 covers 23.0 acres and represents a portion of an extensive water control system associated with the former Woodford Plantation. Resource 7940 is in Long Branch, an estuary that connects directly with the Stono River to the south and indirectly with the Ashley River to the northeast through Church Creek. Long Branch was used for the cultivation of rice from the early part of the eighteenth century into the mid-nineteenth century. Indeed, the Long Branch/Church Creek drainage may have been navigable, either because the rice fields were routinely flooded or because of the presence of drainage canals, which prompted Confederate forces to erect a series of batteries along the drainage, including Battery Magwood, which is adjacent to Resource 7940. Investigators observed a series of intact banks and a central drainage canal at Resource 7940, but no other features typically associated with a functional rice field. Land development activities have destroyed the southern portion of Woodford Plantation's former rice fields and totally altered the layout of its historic landscape. Thus, it appears many elements of the original system have been destroyed by development activities. Therefore, Resource 7940 conveys little sense of a historic landscape, nor is there any exceptional construction or design elements that can supply new information about inland rice agriculture. Resource 7940 is not eligible for the NRHP and requires no further management.

4.2.3 Resource 7965

Resource 7965 is the remnants of a portion of the CMMC's Springfield Phosphate Mine, which featured both hand-excavated and mechanically excavated mines, roads, settlements, and tram lines. Resource 7965 includes eight components: hand-excavated mines, mechanically excavated mines, Roads C-F, and the remnants of two possible phosphate camps at 38CH979 and 38CH2231. Resource 7965 covers a total of 1,719,793 m^2 (425 acres). However, approximately 665,286 m^2 (164.4 acres) have been destroyed by modern development. The APE covers 512,109 m^2 (127 acres) of Resource 7965's overall boundary. The boundary of Resource 7965 is based on historic documents that depict mined areas, including the USACE (1919) and USGS (1948 and 1958) *Johns Island, SC* quadrangles; Wiswall's (1919) map of CMMC landholdings; and recent LiDAR imagery. Wiswall's (1919) maps show that Resource 7965 included both hand-excavated and mechanically excavated mines extending southeast from Bees Ferry Road across an unnamed swamp tributary of Long Branch. The CSX Railroad corridor (formerly the Atlantic Coastline Railroad) bisects Resource 7965. Figure 4.4 shows a plan of Resource 7965 on LiDAR imagery. Table 4.1 lists Resource 7965's components. Figures 4.5 through 4.8 present views of Resource 7965 in August 2018.

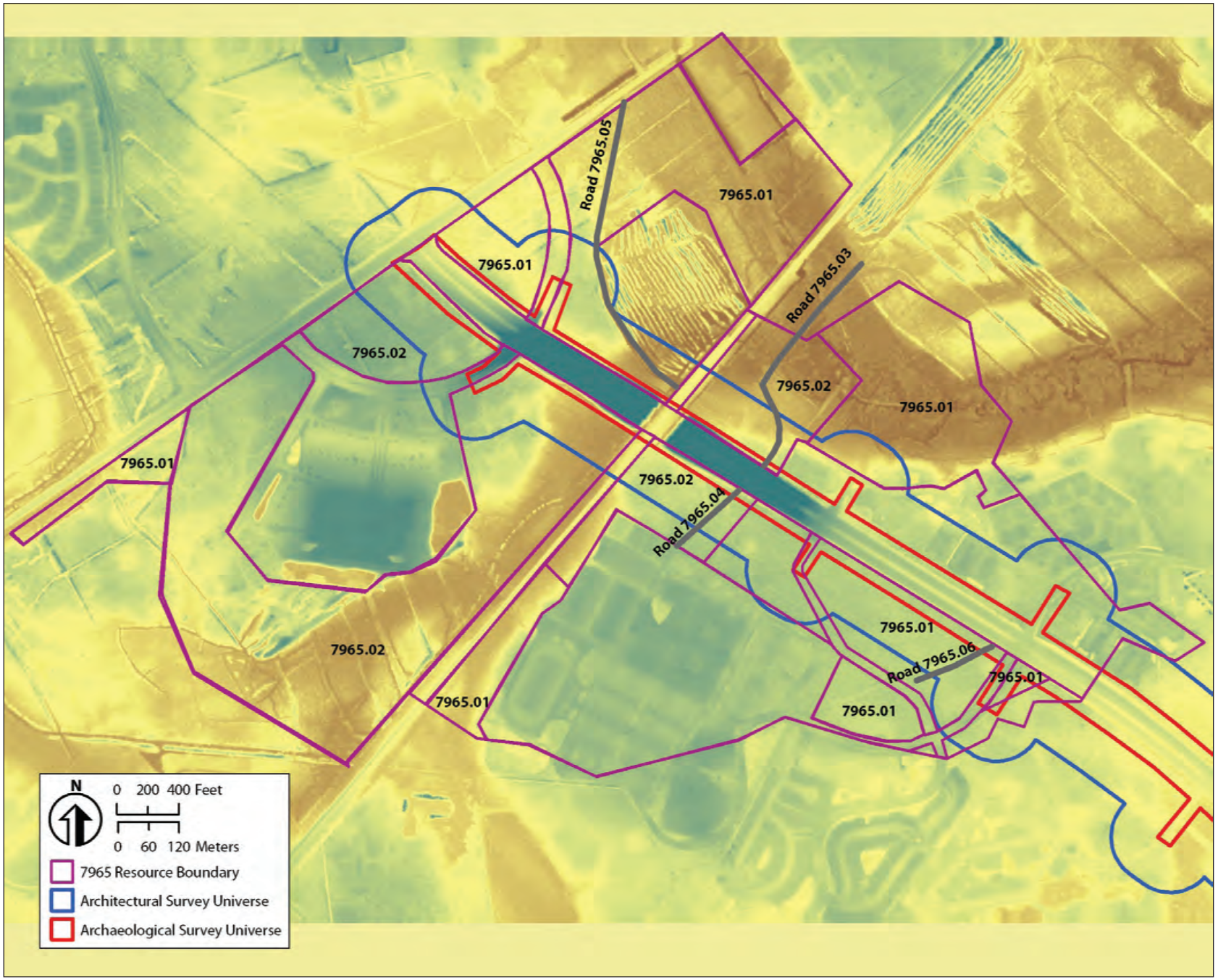


Figure 4.4 The location of Resource 7965 on LiDAR imagery.

Table 4.1 Elements of Resource 7965, the CMMC's Springfield Phosphate Mining Complex.

Element Number/Description		Relative Location	Area (acres)	Length (feet)	Width (feet)
38CH979	19th-20th century artifact scatter	Southeast of the West Ashley Circle, northeast of the GMP	1.5	417	197
38CH2231	19th-20th century artifact scatter	Inside the West Ashley Circle	0.04	49	49
7965.01	19th-20th century hand-excavated phosphate mines	Bees Ferry Rd. (northwest)	4.19	951	1,082
		Bees Ferry Rd. (northeast)	36.8	2,132	1,984
		Inside West Ashley Circle	9.1	918	754
		Between CSX railroad and West Ashley High School	7.2	1,164	902
		West of the GMP and William Murray Blvd. intersection	7.12	951	804
		West of the GMP between William Murray and West Wildcat Blvds.	15.2	1,214	1,312
		South of the GMP and West Wildcat Blvd. intersection	1.1	328	443
		West of William Murray and West Wildcat Blvd. intersection	5.28	541	722
		North of Goodwill Way and Shelby Ray Court intersection	27.1	1,460	1,361
7965.02	20th century mechanically excavated phosphate mines (4 areas)	Northwest of CSX railroad	77.7	2,722	3,050
		Southeast of CSX railroad	11.7	951	1,378
		Inside West Ashley Circle	13.8	787	1,296
		East of West Ashley Circle	16.7	0	0
		East of the GMP overpass over the CSX railroad	14.8	1,148	1,574
7965.03	20th century road (Road C)	Southeast of the West Ashley Circle, northeast of the GMP	0.73	1,588	20
7965.04	20th century road (Road D)	Southeast of the West Ashley Circle, northeast of the GMP	0.25	541	20
7965.05	20th century road (Road E)	Southeast of the West Ashley Circle, northeast of the GMP	0.94	2,037	20
7965.06	20th century road (Road F)	West of the GMP and West Wildcat Blvd. intersection	0.25	541	20

Figure 4.5 Views of hand-excavated mines at Resource 7965: mined area inside West Ashley Circle looking northwest (top); hand-excavated mine pit looking southwest (bottom).

Figure 4.6 Views of mechanically-excavated mines at Resource 7965: earthen berm looking southwest (top); mined area looking north (bottom).

Figure 4.7 Views of Resource 7965: Road 7965.03 looking northeast from 38CH979 (top); Road 7965.04 looking southwest (bottom).

Figure 4.8 Views of Resource 7965: northern end of Road 7965.05 looking south from Bees Ferry Road (top); Road 7965.06 looking west (bottom).

Site 38CH979. As discussed above, 38CH979 includes artifacts indicative of nineteenth- to twentieth-century activities. Roberts (1986) observed artifacts scattered on the ground surface at the intersection of two dirt roads, portions of which form Roads 7965.05 and 7965.06 (see below). No historic maps or plats show a building near 38CH979. However, artifacts recovered from 38CH979 are like other archaeological sites interpreted as phosphate camps (Baluha and Owens 2017:182). Site 38CH979 is not eligible for the NRHP and is a contributing element of Resource 7965.

Site 38CH2231. Fletcher et al. (2008) identified 38CH2231 during cultural resources investigation of the Bees Ferry Road Widening Project. Site 38CH2231 is a nineteenth- to twentieth-century scatter of domestic artifacts. The USGS (1948) quadrangle shows a cluster of four buildings near 38CH2231. These buildings likely housed CMMC miners. Site 38CH2231 is not eligible for the NRHP and is not a contributing element of Resource 7965.

Resource 7965.01 - Hand-Excavated Mines. Wiswall (1919) indicates that most of the Springfield Mine was hand excavated. Wiswall (1919) shows three hand-excavated areas across the Springfield Mine. Modern development has splintered these mines into nine distinct areas covering approximately 113.09 acres across Resource 7965 (see Table 4.1). Significant portions of these mines have been destroyed by development activities since the mines were abandoned in the early twentieth century. Modern developments and roads have permanently altered this historic landscape. None of the hand-excavated mines observed at Resource 7965 are eligible for the NRHP.

Resource 7965.02 - Mechanically Excavated Mines. Wiswall (1919) indicates a significant portion of the Springfield Mine was mechanically excavated. Wiswall (1919) shows a large, contiguous, mechanically excavated mine in the northern portion of the Springfield Mine. This mine was bisected by the railroad. LiDAR and USGS (1957) aerial imagery indicate a third area was mechanically excavated east of the West Ashley Circle on CC Parcel 3050800060. Modern development has split these mines into five distinct areas, covering approximately 134.70 acres across Resource 7965 (see Table 4.1). Significant portions of these mines have been destroyed by development activities since the mines were abandoned in the early twentieth century. Modern developments and roads have permanently altered this historic landscape. None of the mechanically excavated mines observed at Resource 7965 are eligible for the NRHP.

Roads 7965.03-7965.06. Roads 7965.03-7965.06 are the remnants of early twentieth-century dirt roads that may have been part the CMMC Springfield Mine infrastructure. All four of these roads average approximately 6.1 m (20 feet) wide. While Roads 7965.03 and 7965.05 are ground-level roadbeds, Roads 7965.04 and 7965.06 feature raised roadbeds standing approximately 0-0.6 m (0-2 feet) above ground surface. Generally, Roads 7965.03-7965.06 are overgrown with subclimax maritime forest. The former road surfaces are not visible but appear to be earthen rather than aggregate. Roads 7965.03-7965.06 are not eligible for the NRHP.

Road 7965.03 is located northeast of the GMP and extends from the GMP embankment northeast through 38CH979. Road 7965.03 measures approximately 484 m and covers 0.73 acre. The USACE (1919) and USGS (1948, 1958) quadrangles and USGS (1957) aerial photograph show Road 7965.03 extending roughly parallel to the railroad corridor. Prior to construction of the GMP, Roads 7965.03 and 7965.04 would have linked.

Road 7965.04 is located southwest of the GMP, extending from the GMP embankment southwest through CC Parcel 3060000934 before terminating at the West Ashley High School (WAHS) campus. Road 7965.04 measures approximately 165 m and covers 0.25 acre. As mentioned above, prior to construction of the GMP, Roads 7965.03 and 7965.04 would have linked. The USGS (1957) aerial photograph shows Road 7965.04 extending to the southwest before intersecting another dirt road, which has been destroyed by construction of WAHS.

Road 7965.05 is located north and east of the GMP and the West Ashley Circle. Road 7965.05 extends north from the CSX Railroad through CC Parcel 3050800060 before terminating at Bees Ferry Road. Road 7965.05 measures approximately 484 m and covers 0.73 acre. Neither USGS (1948 and

1958) quadrangle shows Road 7965.05, but the USGS (1957) aerial photograph does. However, the USGS (1958) quadrangle and USGS (1957) aerial photograph show an area east of Road 7965.05 that has been mechanically excavated. It is likely Road 7965.05 served as an access road for this part of the Springfield Mine. It is possible Road 7965.05 may have functioned as a tram line.

Road 7965.06 is located west of the GMP and West Wildcat Boulevard intersection, southwest of the GMP. Road 7965.06 extends from the GMP corridor approximately 165 m through CC Parcel 3060000012 before terminating at William Murray Boulevard. The USGS (1948 and 1958) quadrangles and USGS (1957) aerial photograph show Road 7965.06 extending northeast across the APE.

NRHP Evaluation. We assessed the NRHP eligibility of Resource 7965 using the criteria outlined by Savage and Pope (1998) and Noble and Spude (1997), as summarized in Section 2.6.3. Wiswall (1919) indicates that Resource 7965 is located on lands formerly owned by the CMMC, which operated extensive phosphate mining and processing activities in the surrounding area. According to Noble and Spude (1997:15), mining properties may be eligible for the NRHP under Criterion A (association with events that have made a significant contribution to the broad patterns of history); Criterion B (association with the lives of significant people); Criterion C (exhibits characteristics that are distinctive, that are the work of a master or possess a high artistic value, or that represent a significant entity whose components may lack individual distinction); or Criterion D (it has yielded or may yield important information about the history of phosphate mining in South Carolina). After considering each of the four evaluation criteria, we assessed the overall integrity of the mining landscape. A property's integrity is its ability to convey its significance under one or more of the evaluation criteria. Elements of resource integrity include location, design, setting, materials, workmanship, feeling, and association.

Unlike other CMMC mines identified by Bailey et al. (2018) at 38CH2084 or Baluha and Owens (2017) in the Ashley River Historic District, the mining elements in Resource 7965 provide a limited sample of the different elements of the actual process of strip-mining raw phosphate. The examination of historic maps and LiDAR imagery combined with field observations show that none of the mining elements in Resource 7965 retain integrity. The integrity of Resource 7965 is poor because it has lost a considerable amount of feeling, association, and setting. Modern development has splintered the hand-excavated and mechanically excavated mines and permanently altered the mine's infrastructure. This mining area is isolated and truncated from the rest of the CMMC's operations. Therefore, Resource 7965 is not eligible for the NRHP as a mining landscape because it lacks integrity of setting, feeling, and association.

4.3 Archaeological Survey

4.3.1 Introduction

Brockington archaeologists Scott Kitchens (Crew Chief) and James Lefebre (Field Technician) conducted the archaeological survey over five days from August 6 to 22, 2018. The archaeological survey consisted of shovel testing all undisturbed upland portions of the archaeological survey universe. No shovel tests were excavated in wetlands. The investigators traversed a total of two pedestrian transects across the undeveloped portions of the project area. Shovel tests were excavated at 30-m intervals along each of these transects. The ground surface of each shovel test transect was visually inspected. Archaeologists excavated a total of 88 shovel tests during the survey. These investigations revisited one previously recorded archaeological site (38CH979).

The fill from these tests was sifted through ¼-inch mesh hardware cloth. Investigators excavated shovel tests to an average depth of 50 cm below surface (cmbs) and ranged from 40 to 60 cmbs in depth. Most of the excavated shovel tests encountered Edisto loamy fine sand or Yonges loamy fine sand in upland areas or Wando fine sandy loam in lower areas (California Soil Resource Lab 2008). Edisto loamy fine sand displays a typical soil profile consisting of 0-25 cm of very dark grayish-brown (10YR 3/2) loamy fine sand and 25-40 cm of pale brown (10YR 6/3) loamy fine sand, underlain by 40-60 cm of light olive brown (10YR 5/1) fine sandy loam. Yonges loamy fine sand displays a typical soil

profile consisting of 0-30 cm of dark grayish-brown (10YR 4/2) loamy fine sand and 30-45 cm of light brownish-gray (10YR 6/2) fine sandy loam, underlain by 45-60 cm of gray (10YR 5/1) sandy clay loam. Investigators identified Wadmalaw fine sandy loam soils as hydric in the field; typical soil profiles for these soils include 0-30 cm of black (10YR 2/1) to very dark gray (10YR 3/1) fine sandy loam, 30-45 cm of dark gray (10YR 4/1) fine sandy loam, underlain by 45-60 cm of gray (10YR 5/1) sandy clay loam. Yonges loamy fine sand was encountered at 38CH979.

4.3.2 Site 38CH979

Introduction. The UTM coordinates for 38CH979 are Easting 586720, Northing 3631730. The original site boundary covered approximately 127-by-60 m (1.50 acres), oriented northeast/southwest (True North [TN]). The newly recorded portion of 38CH979 covers an area measuring approximately 15 m diameter, expanding the total site boundary to 142-by-60 m (1.50 acres) northeast of the GMP in the archaeological survey universe. However, it is likely most of the western portion of 38CH979 was destroyed by construction of the GMP. Vegetation in the newly identified portion of 38CH979 consists of subclimax maritime forest and grass, with no surface visibility. An overhead powerline corridor running parallel to the GMP extends through the northern portion of 38CH979. The GMP is embanked along this portion of the APE. Two consecutive negative shovel tests define the new site boundary. Figures 4.9 and 4.10 present a plan and views of 38CH979, respectively.

Previous Investigations. SCDOT archaeologists first recorded 38CH979 during archaeological survey of the proposed SC 61 Expressway, a portion of which now serves as the GMP (Roberts 1986). Roberts (1986) identified 38CH979 by searching the ground surface at the intersection of two dirt roads shown on the USGS (1979) quadrangle. Roberts (1986:12) reported finding no subsurface artifacts, features, or middens, despite "intensive shovel testing." A total of 29 artifacts were recovered from 38CH979, including one porcelain insulator fragment, six brick fragments, one window glass fragment, one Delft sherd, four slipware sherds, one porcelain sherd, five whiteware sherds, two colonoware sherds, two amethyst glass container fragments, and six dark olive green glass container fragments. Roberts (1986:12) identified two Post-Contact components at 38CH979, dating to the eighteenth-nineteenth and nineteenth-twentieth centuries.

Current Investigations. Brockington archaeologists revisited 38CH979 on August 8 and 15, 2018. Archaeologists excavated eight shovel tests at 7.5- and 15-m intervals in and around 38CH979; one of these shovel tests (Shovel Test 2.1) produced artifacts. Shovel Test 2.1 is located at Easting 586797.4, Northing 3631825.0. Shovel tests excavated across the site encountered uniform soil conditions. These soils are like the published description of Yonges loamy fine sand (Miller 1971). Shovel Test 2.1 produced artifacts from 0-30 cmbs. However, none of the shovel tests excavated in or near 38CH979 exposed subsurface cultural features. Figure 4.11 presents a typical soil profile encountered at 38CH979.

Archaeologists recovered four artifacts weighing a total of 17.9 grams from 38CH979. Artifacts include one brick fragment and three undecorated ironstone sherds. For a complete artifact inventory, see Appendix A. Undecorated ironstone indicates a mid-nineteenth- to early twentieth-century occupation.

The artifacts recovered from 38CH979 during the current investigation augment Robert's (1986) original findings. Site 38CH979 contains two distinct occupations dating from the eighteenth-nineteenth and nineteenth-twentieth centuries. The USACE (1919) quadrangle shows one historic road extending through 38CH979. The USGS (1948, 1958, and 1979) quadrangles show a second road intersecting the first at 38CH979. No historic maps or plats show buildings near 38CH979. However, Roberts' (1986) assumption that 38CH979 represents the Miles' settlement is likely incorrect. Plats by Diamond (1816), Parker (1868), and Purcell (1790) show the name "Lloyd" northwest of Woodford (later Magwood) Plantation. These lands would later become part of John Lloyd's 1,100-acre Springfield Plantation. Near 38CH979, Dean (1767) shows "Clay, later William Snipes," southwest of a 300-acre parcel recently acquired by John Lloyd. Hume and Tennent's (1866) plat shows 38CH979 on Springfield Plantation on a

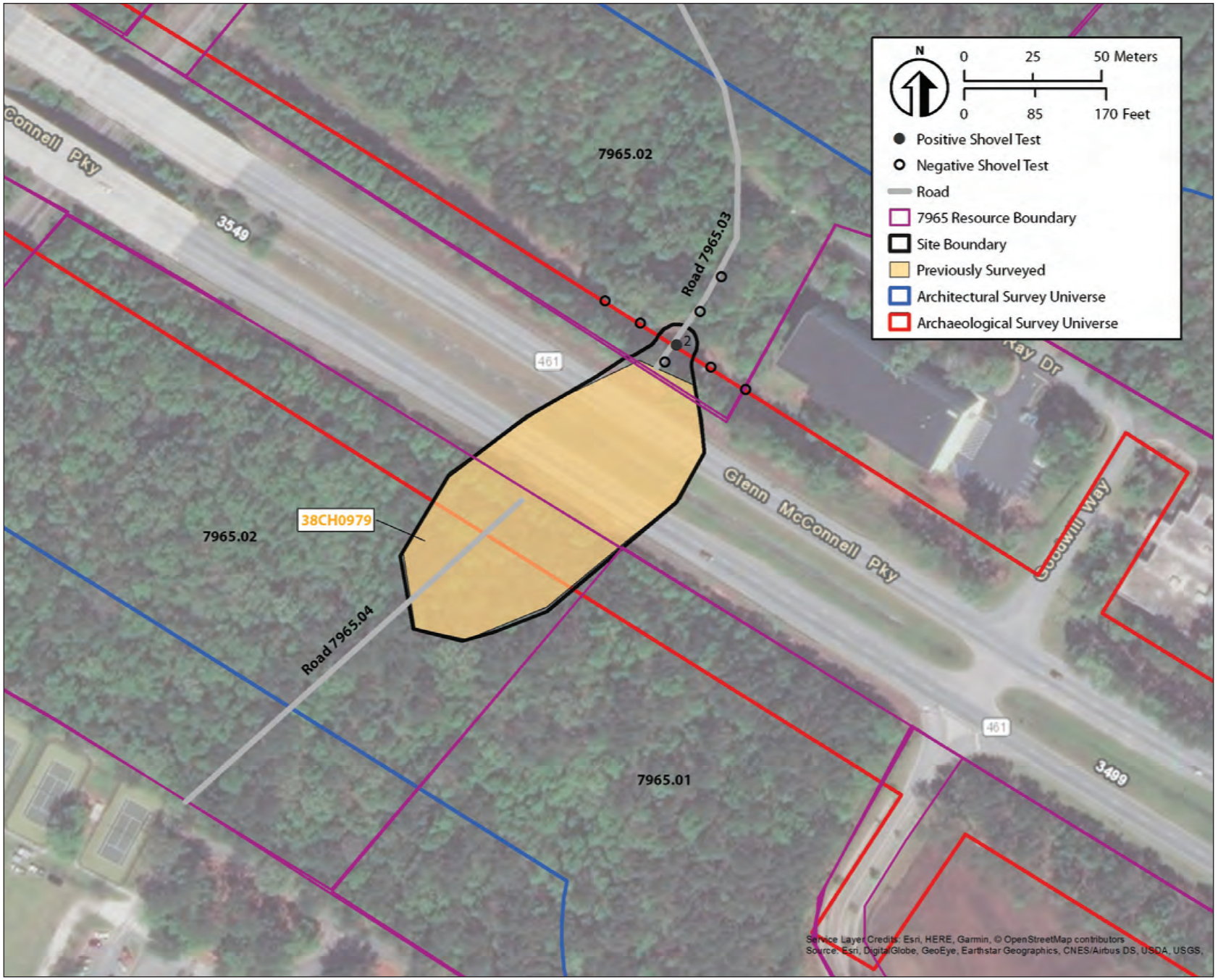
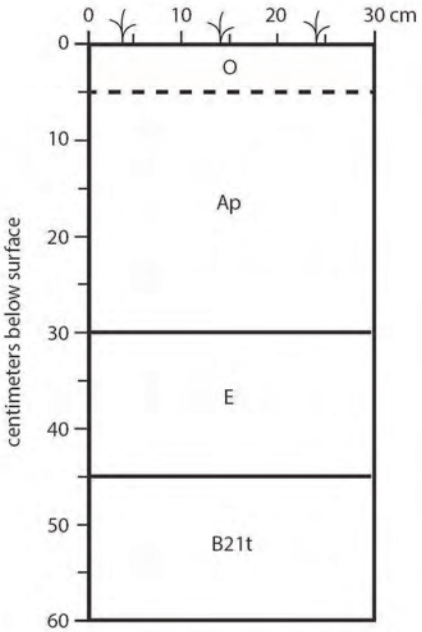


Figure 4.9 Plan of 38CH979 in August 2018.

Figure 4.10 Views of 38CH979 in August 2018 looking southeast (top) and southwest (bottom).



38CH979
Typical Soil Profile

0 10 20 cm

O/Ap Horizon. 10YR 3/2 very dark grayish brown loamy fine sand
E Horizon. Mottled 10YR 6/2 light brownish gray fine sandy loam, and; 10YR 3/2 very dark grayish brown fine sandy loam
B21t Horizon. 10YR 5/1 gray sandy clay loam

Figure 4.11 Typical shovel test profile, 38CH979.

parcel of land about to be conveyed to Colonel P.C. Gaillard. Gaillard later sold this tract to Thomas Dotterer. In 1905, M.E. Hertz prospected the Dotterer Tract for phosphate deposits. Thomas Dotterer served as superintendent of the Wando Mining and Manufacturing Company, Inc., a late nineteenth-century phosphate mining company (Trinkley 2006:38). It is possible the nineteenth-twentieth century component at 38CH979 and the roads that once intersected at the site were part of a phosphate mining complex. We identified the remnants of the CMMC's Springfield Mine as Resource 7965. Site 38CH979 is included as an element in Resource 7965, which is discussed above.

NRHP Evaluation. We evaluated 38CH979 for NRHP eligibility based on Criteria A-D (Savage and Pope 1998; Townsend et al. 1993). According to ArchSite, 38CH979 is not eligible. Roberts (1986:15) suggested that if part of 38CH979 "were found intact with features and foundations, it may be eligible for the" NRHP. Although the current investigation expanded 38CH979 to the northeast, no intact features or foundations were encountered. Furthermore, it is likely most of the western portion of 38CH979 was destroyed by construction of the GMP. Therefore, we recommend 38CH979 not eligible for the NRHP. Site 38CH979 warrants no further management consideration.

4.4 Summary and Management Recommendations

Brockington's intensive cultural resources survey of the GMP Widening & Multiuse Lane Project included intensive archaeological and architectural survey of the APE. The APE includes the 93-acre archaeological survey universe and the 253-acre architectural survey universe. The project follows the current GMP ROW, extending 3.97 km from Bees Ferry Road to Magwood Drive in western Charleston County, South Carolina. Previous investigations identified five archaeological sites (38CH975-38CH979) and one cultural landscape feature (7940) in the APE. During the current investigation, we revisited 38CH979 and 7940 and identified one new cultural resource, the remnants of a phosphate mining complex (7965). All of 38CH975, 38CH976, 38CH977, and 38CH978, and most of 38CH979 appear to have been destroyed by construction of the GMP. Site 38CH979 and Resources 7940 and 7965 are recommended not eligible for the NRHP. These cultural resources require no additional management. In addition, the proposed project will have no adverse effect on the NRHP-listed Battery Magwood (38CH1678) or the NRHP-eligible Site 38CH1177. These resources are located just outside the APE. If design plans change, additional cultural resource investigation may be necessary.

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Appendix A
Artifact Catalog

Artifact Catalog

Brockington and Associates, Inc. uses the following proveniencing system. Provenience 1 designates general surface collections. Numbers after the decimal point designate subsequent surface collections, or trenches. Proveniences 2 to 200 designate shovel tests. Controlled surface collections and 50 by 50 cm units are also designated by this provenience range. For all provenience numbers except 1, the numbers after the decimal point designate levels. Provenience X.0 is a surface collection at a shovel test or unit. X .1 designates level one, and X.2 designates level two.

Site Number: 38CH979

Catalog #	*Count*	*Weight (in g)*	*Artifact Description*	*Lithic Type*	*Ceramic Type*	*Temporal Range*	*Comments*
SITE NUMBER:	38CH979						
Provenience Number:		**2 . 1**	**Shovel Test , N500, E500, 0-30 cmbs**				
1	0	7.4	Brick Fragment,				Discarded
2	3	14.5	Ironstone, Undecorated Body			1815 - 1900	

Appendix B

South Carolina Statewide Survey of Historic Properties
Survey Forms

Statewide Survey of Historic Properties

State Historic Preservation Office
South Carolina Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905 (803) 896-6100

U / 7940
Status Site No.

Revisit: ☐

Quadrangle Name: Johns Island

Tax Map No.: 3090000260

Survey Form

Identification

Historic Name: Woodford Plantation water control feature

Common Name: Woodford Plantation rice field

Address/Location: Adjacent to western side of 3925 Glenn McConnell Parkway

City: Charleston Vicinity of ☐ County: Charleston

Ownership: Private Category: District

Historical Use: Agriculture/Subsistence Historical Use (if Other):

Current Use: Vacant/Not in use Current Use (if Other):

SHPO National Register Determination of Eligibility:

Property Description

Construction Date: c. 1750

Construction: Construction (if Other)

Historic Core Shape: Historic Core Shape (if Other):

Exterior Walls: Exterior Walls (if Other):

Foundation: Foundation (if Other):

Commercial Form: Commercial Form (if Other):

Roof Shape: Roof Shape (if Other)

Roof Materials: Roof Materials (if Other)

Stories: Stories (if Other):

Porch Width: Porch Width (if Other):

Porch Shape: Porch Shape (if Other)

Description/Significant Features: Water Control Resource 7940 is a 23-acre historic area that includes the remnants of an eighteenth-nineteenth century water control feature associated with the former Woodford Plantation. Parker's (1868) and Purcell's (1790) plats of Woodford Plantation and Diamond's (1816) plat of Magwood Plantation show Resource 7940 flanking the western side of a settlement, integrated with a much larger water control system. The system included a large reservoir to the east and additional rice fields to the southwest. Plats show several features at Resource 7940 that are still extant, including 3 inter-connected banks equivalent to the embankments that form the resource's northern. eastern. and southern boundaries. and an L-

Alterations (include date(s), if known: USGS (1979) shows a large borrowed area in Resource 7940, which is not evident on LiDAR imagery. However, Google EarthPro (1989) aerial imagery shows this area borrowed out. Thus, the borrowed-out area in Resource 7940 appears to have infilled over the last 30 years. Parker (1868) and Diamond (1816) show the northern dam as the "cockfield dam," which was likely destroyed by construction of the GMP

Architect(s)/Builder(s):

Historical Information

Historical Information: Historic maps and plats show Resource 7940. These include 4 historic plats (Diamond 1816; Kollock 1919; Parker 1868; and Purcell 1790), 4 historic topographic maps (USACE 1919; USGS 1948, 1958, 1979), and historic aerial imagery (USGS 1957). Diamond (1816) shows a settlement at the terminus of a plantation road (now Magwood Drive), near the location of 38CH1678, which includes the Civil War Battery Magwood and an eighteenth-nineteenth century subsurface artifact scatter. Kollock's (1919) plat continues to show Resource 7940 as part of a much larger rice field, demarcated by 2 causeways to the north and south. The USACE (1919) and USGS (1948) quadrangles show Resource 7940 surrounded by roads, including a road that follows the current route of the GMP and another road that extends along the southern bank of Resource 7940. The USGS (1948) quadrangle also shows a canal extending north/south through Resource 7940, roughly equivalent to the present-day canal. This canal is not shown on the USACE (1919) quadrangle. The USGS (1958, 1979) quadrangles no longer show these roads but continue to show the canal.

Source of Information:

Dean, Nathaniel
1767Plat of 300 Acres of Land Situated on West Side of Ashley River. Charleston County Plat Book X3:358, Charleston County Register of Mesne Conveyance, Charleston.

Diamond, John
1816Plan of a Body of Lands Being Four Plantations Adjoining Situated in St. Andrews Parish, State of South Carolina. John McCrady plat collection, 5889, Charleston County Register of Mesne Conveyance, Charleston.

Fletcher, Joshua N., and Edward Salo
2008 Cultural Resources Survey of the Glenn McConnell/Bees Ferry Intersection Improvement (West Ashley

Digital Photo ID(s):

Digital Photo ID 01:	07940001.jpg	Digital Photo ID 06:	
View 01	Plan of Resource 7	View 06	
Digital Photo ID 02:		Digital Photo ID 07:	
View 02		View 07	
Digital Photo ID 03:		Digital Photo ID 08:	
View 03		View 08	
Digital Photo ID 04:		Digital Photo ID 09:	
View 04		View 09	
Digital Photo ID 05:		Digital Photo ID 10:	
View 05		View 10	

Program Management

Recorded by: DB Organization: Brockington
Date Recorded: 09/11/2018

Statewide Survey of Historic Properties

State Historic Preservation Office
South Carolina Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905 (803) 896-6100

U / 7940.01 Revisit: ☐
Status Site No.

Quadrangle Name: Johns Island

Tax Map No.: 3090000260

Survey Form

Identification

Historic Name: Woodford Plantation embankments

Common Name: canals and embankments

Address/Location: Adjacent to western side of 3925 Glenn McConnell Parkway

City: Charleston Vicinity of ☐ County: Charleston

Ownership: Private Category: District

Historical Use: Agriculture/Subsistence Historical Use (if Other):

Current Use: Vacant/Not in use Current Use (if Other):

SHPO National Register Determination of Eligibility:

Property Description

Construction Date: c. 1750

Construction: Construction (if Other)

Historic Core Shape: Historic Core Shape (if Other):

Exterior Walls: Exterior Walls (if Other):

Foundation: Foundation (if Other):

Commercial Form: Commercial Form (if Other):

Roof Shape: Roof Shape (if Other)

Roof Materials: Roof Materials (if Other)

Stories: Stories (if Other):

Porch Width: Porch Width (if Other):

Porch Shape: Porch Shape (if Other)

Description/Significant Features: Water Control Resource 7940.01 is the remnants of canals and embankments. These includ an embankment that defines the resource's southern boundary, an L-shaped bank along the southwestern edge of the water control feature, and a central canal. Together, these features extend a total of 1,110 meters (3,610 feet), ranging approximatley 2.0-3.0 meters (6-10 feet) wide.

Alterations (include date(s), if known

Architect(s)/Builder(s):

Historical Information

Historical Information:

Source of Information:

Digital Photo ID(s):

Digital Photo ID 01:	07940002.jpg	Digital Photo ID 06:	
View 01	Facing Southwest	View 06	
Digital Photo ID 02:		Digital Photo ID 07:	
View 02		View 07	
Digital Photo ID 03:		Digital Photo ID 08:	
View 03		View 08	
Digital Photo ID 04:		Digital Photo ID 09:	
View 04		View 09	
Digital Photo ID 05:		Digital Photo ID 10:	
View 05		View 10	

Program Management

Recorded by: DB
Organization: Brockington
Date Recorded: 09/11/2018

Statewide Survey of Historic Properties

State Historic Preservation Office
South Carolina Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905 (803) 896-6100

U / 7940.02 Revisit: ☐
Status Site No.

Quadrangle Name: Johns Island

Tax Map No.: 3090000260

Survey Form

Identification

Historic Name: Woodford Plantation rice field

Common Name: rice field

Address/Location: Adjacent to western side of 3925 Glenn McConnell Parkway

City: Charleston Vicinity of ☐ County: Charleston

Ownership: Private Category: District

Historical Use: Agriculture/Subsistence Historical Use (if Other):

Current Use: Vacant/Not in use Current Use (if Other):

SHPO National Register Determination of Eligibility:

Property Description

Construction Date: c. 1750

Construction: Construction (if Other)

Historic Core Shape: Historic Core Shape (if Other):

Exterior Walls: Exterior Walls (if Other):

Foundation: Foundation (if Other):

Commercial Form: Commercial Form (if Other):

Roof Shape: Roof Shape (if Other)

Roof Materials: Roof Materials (if Other)

Stories: Stories (if Other):

Porch Width: Porch Width (if Other):

Porch Shape: Porch Shape (if Other)

Description/Significant Features: Water Control Resource 7940 is a 23-acre historic area that includes the remnants of an eighteenth-nineteenth century water control feature associated with the former Woodford Plantation. Resource 7940 includes two elements: (A) the remnants of canals and embankments and (B) the rice field. Historic maps and plats show Resource 7940.02, which covers the full 23-acre extent of the whole complex, inclusive of canals and embankments.

Alterations (include date(s), if known

Architect(s)/Builder(s):

Historical Information

Historical Information:

Source of Information:

Digital Photo ID(s):

Digital Photo ID 01:	07940003.jpg	Digital Photo ID 06:	
View 01	Facing Southeast	View 06	
Digital Photo ID 02:		Digital Photo ID 07:	
View 02		View 07	
Digital Photo ID 03:		Digital Photo ID 08:	
View 03		View 08	
Digital Photo ID 04:		Digital Photo ID 09:	
View 04		View 09	
Digital Photo ID 05:		Digital Photo ID 10:	
View 05		View 10	

Program Management

Recorded by: DB
Organization: Brockington
Date Recorded: 09/11/2018

Statewide Survey of Historic Properties

State Historic Preservation Office
South Carolina Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905 (803) 896-6100

U / 7965 Revisit: ☐
Status Site No.

Quadrangle Name: Johns Island

Tax Map No.: Multiple

Survey Form

Identification

Historic Name: Charleston Mining & Manufacturing Company

Common Name: CMMC Springfield Mine

Address/Location: 425 acre complex located near intersection of Glenn McConnell Parkway and Bees Ferry Road

City: Charleston Vicinity of ☐ County: Charleston

Ownership: Private Category: District

Historical Use: Industry Historical Use (if Other):

Current Use: Vacant/Not in use Current Use (if Other):

SHPO National Register Determination of Eligibility:

Property Description

Construction Date: c. 1890-1930

Construction: Construction (if Other)

Historic Core Shape: Historic Core Shape (if Other):

Exterior Walls: Exterior Walls (if Other):

Foundation: Foundation (if Other):

Commercial Form: Commercial Form (if Other):

Roof Shape: Roof Shape (if Other)

Roof Materials: Roof Materials (if Other)

Stories: Stories (if Other):

Porch Width: Porch Width (if Other):

Porch Shape: Porch Shape (if Other)

Description/Significant Features: Resource 7965 is the remnants of a portion of the Charleston Mining and Manufacturing Company's (CMMC's) Springfield Phosphate Mine, which featured both hand- and mechanically-excavated mines, roads, settlements, and tram lines. Resource 7965 includes three components: hand-excavated mines (7965.01), mechanically-excavated mines (7965.02), 4 roads (7965.03-7965.06), and the remnants of two possible phosphate camps at 38CH979 and 38CH2231. Resource 7965 covers a total of 1,719,793 m2 (425 acres). However, approximately 665,286 m2 (164.4) acres have been destroyed by modern development.

Alterations (include date(s), if known

Architect(s)/Builder(s):

Historical Information

Historical Information: The boundary of Resource 7965 is based on historic documents that depict mined areas, including the USACE (1919) and USGS (1948 and 1958) Johns Island, SC quadrangles, Wiswall's (1919) map of CMMC landholdings, and recent LiDAR imagery. Wiswall (1919) indicates that Resource 7965 is located on lands formerly owned by the CMMC, which operated extensive phosphate mining and processing activities in the surrounding area. Plats by Diamond (1816), Parker (1868), and Purcell (1790) show the name Lloyd northwest of Woodford (later Magwood) Plantation. These lands would later become part of John Lloyd's 1,100-acre Springfield Plantation. Near 38CH979, Dean (1767) shows "Clay, later William Snipes," southwest of a 300-acre parcel recently acquired by John Lloyd. Hume and Tennent's (1866) plat shows Springfield Plantation, a parcel of land about to be conveyed to Colonel P.C. Gaillard. Gaillard later sold this tract to Thomas Dotterer. In 1905, M.E. Hertz prospected the Dotterer Tract for phosphate deposits. Thomas Dotterer served as superintendent of the Wando Mining and Manufacturing Company, Inc., a late nineteenth century phosphate mining company (Trinkley 2006: 38).

Source of Information:

Dean, Nathaniel
1767Plat of 300 Acres of Land Situated on West Side of Ashley River. Charleston County Plat Book X3:358, Charleston County Register of Mesne Conveyance, Charleston.

Diamond, John
1816Plan of a Body of Lands Being Four Plantations Adjoining Situated in St. Andrews Parish, State of South Carolina. John McCrady plat collection, 5889, Charleston County Register of Mesne Conveyance, Charleston.

Kollock, J.T.
1919Map of Land Owned by the Oak Realty Company Formerly a Part of the Magwood Plantation Situate in

Digital Photo ID(s):

Digital Photo ID 01:	07965001.jpg	Digital Photo ID 06:	
View 01	Plan of Resource 7	View 06	
Digital Photo ID 02:		Digital Photo ID 07:	
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Digital Photo ID 03:		Digital Photo ID 08:	
View 03		View 08	
Digital Photo ID 04:		Digital Photo ID 09:	
View 04		View 09	
Digital Photo ID 05:		Digital Photo ID 10:	
View 05		View 10	

Program Management

Recorded by: DB Organization: Brockington

Date Recorded: 09/11/2018

Statewide Survey of Historic Properties

State Historic Preservation Office
South Carolina Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905 (803) 896-6100

U / 7965.01 Revisit: ☐
Status Site No.

Quadrangle Name: Johns Island

Tax Map No.: Multiple

Survey Form

Identification

Historic Name: CMMC Springfield Mine hand-excavated mines

Common Name: hand-excavated mines

Address/Location: Includes multiple areas across complex

City: Charleston Vicinity of ☐ County: Charleston

Ownership: Private Category: Site

Historical Use: Industry Historical Use (if Other):

Current Use: Vacant/Not in use Current Use (if Other):

SHPO National Register Determination of Eligibility:

Property Description

Construction Date: c. 1890-1930

Construction: Construction (if Other)

Historic Core Shape: Historic Core Shape (if Other):

Exterior Walls: Exterior Walls (if Other):

Foundation: Foundation (if Other):

Commercial Form: Commercial Form (if Other):

Roof Shape: Roof Shape (if Other)

Roof Materials: Roof Materials (if Other)

Stories: Stories (if Other):

Porch Width: Porch Width (if Other):

Porch Shape: Porch Shape (if Other)

Description/Significant Features: Whether arbitrary or following a grid, hand-excavated mines are less destructive on the landscape than those fields exposed to machine mining. The hand mining was carried out using shovels and rakes to remove phosphate rock in a series of pits located between larger lateral earthen berms. The lateral berms ran perpendicular to a longer line that ultimately linked up to the main tram line. These lateral berms accomplished the double purpose of providing hydrological control for the wet area and serving as a raised roadway for animal-driven carts to remove the phosphate down the lateral to the main tram line. Inside the lateral berms were often tailing berms. Across 7965. Resource 7965a (hand-excavated mines)

Alterations (include date(s), if known: The CSX railroad and modern development have truncated these mine features. Much of the mine is overgrown, eroded, and/or graded.

Architect(s)/Builder(s):

Historical Information

Historical Information: Wiswall (1919) indicates that most of the Springfield Mine was hand excavated. Wiswall (1919) shows 3 hand-excavated areas across the Springfield Mine. Modern development has splintered these mines into 9 distinct areas, covering approximately 113.09 acres across Resource 7965. Significant portions of these mines have been destroyed by development activities since the mines were abandoned in the early twentieth century. Modern developments and roads have permanently altered this historic landscape.

Source of Information: Wiswall, Howard
1919Map of Lambs Showing Land Owned by the Charleston SC Mining and MFG. Co., Berkeley and Charleston Counties, South Carolina. Westrock, Summerville, South Carolina.

Digital Photo ID(s):

Digital Photo ID 01:	07965002.jpg	Digital Photo ID 06:
View 01	Facing Southwest	View 06
Digital Photo ID 02:	07965003.jpg	Digital Photo ID 07:
View 02	Facing Northwest	View 07
Digital Photo ID 03:		Digital Photo ID 08:
View 03		View 08
Digital Photo ID 04:		Digital Photo ID 09:
View 04		View 09
Digital Photo ID 05:		Digital Photo ID 10:
View 05		View 10

Program Management

Recorded by: DB
Organization: Brockington
Date Recorded: 09/11/2018

Statewide Survey of Historic Properties

State Historic Preservation Office
South Carolina Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905 (803) 896-6100

U / 7965.02 Revisit: ☐
Status Site No.

Quadrangle Name: Johns Island

Tax Map No.: Multiple

Survey Form

Identification

Historic Name: CMMC Springfield Mine mechanically-excavated mines

Common Name: mechanically-excavated mines

Address/Location: Includes multiple areas across complex

City: Charleston Vicinity of ☐ County: Charleston

Ownership: Private Category: Site

Historical Use: Industry Historical Use (if Other):

Current Use: Vacant/Not in use Current Use (if Other):

SHPO National Register Determination of Eligibility:

Property Description

Construction Date: c. 1890-1930

Construction: Construction (if Other)

Historic Core Shape: Historic Core Shape (if Other):

Exterior Walls: Exterior Walls (if Other):

Foundation: Foundation (if Other):

Commercial Form: Commercial Form (if Other):

Roof Shape: Roof Shape (if Other)

Roof Materials: Roof Materials (if Other)

Stories: Stories (if Other):

Porch Width: Porch Width (if Other):

Porch Shape: Porch Shape (if Other)

Description/Significant Features: Steam-powered, mechanical shovels used to access deeper phosphate deposits. Mechanically-excavated mines leave dramatic signatures across the landscape, with berms reaching as high as 6.1 m (15 feet) tall; linear mode of excavation; Based on LiDAR & aerial imagry, Resource 7965b covers five distinct areas covering a total of 134.7 acres.

Alterations (include date(s), if known Modern development and the CSX railroad have truncated these mined areas. One mined area on CC Parcel 3050800060 appears to have beeng graded since the late 1950s.

Architect(s)/Builder(s):

Historical Information

Historical Information: Wiswall (1919) indicates a significant portion of the Springfield Mine was mechanically-excavated. Wiswall (1919) shows a large, contiguous, mechanically-excavated mine in the northern portion of the Springfield Mine. This mine was bisected by the railroad. LiDAR and USGS (1957) aerial imagery indicate a third area was mechanically excavated, east of the West Ashley Circle on CC Parcel 3050800060. Modern development has split these mines into 5 distinct areas, covering approximately 134.70 acres across Resource 7965. Significant portions of these mines have been destroyed by development activities since the mines were abandoned in the early twentieth century. Modern developments and roads have permanently altered this historic landscape.

Source of Information: United States Geological Survey (USGS)
1957Aerial Photography Single Frame Records Collection, 1937-2008. EarthExplorer website. United States Geological Survey, Reston, Virginia. https://earthexplorer.usgs.gov/, accessed August 20, 2018.
Wiswall, Howard
1919Map of Lambs Showing Land Owned by the Charleston SC Mining and MFG. Co., Berkeley and Charleston Counties, South Carolina. Westrock, Summerville, South Carolina.

Digital Photo ID(s):

Digital Photo ID 01:	07965004.jpg	Digital Photo ID 06:	
View 01	Facing Southwest	View 06	
Digital Photo ID 02:	07965005.jpg	Digital Photo ID 07:	
View 02	Facing North	View 07	
Digital Photo ID 03:		Digital Photo ID 08:	
View 03		View 08	
Digital Photo ID 04:		Digital Photo ID 09:	
View 04		View 09	
Digital Photo ID 05:		Digital Photo ID 10:	
View 05		View 10	

Program Management

Recorded by: DB
Organization: Brockington
Date Recorded: 09/11/2018

Statewide Survey of Historic Properties

State Historic Preservation Office
South Carolina Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905 (803) 896-6100

U / 7965.03
Status Site No.

Revisit: ☐

Quadrangle Name: Johns Island

Tax Map No.: 3060000003

Survey Form

Identification

Historic Name: CMMC Springfield Mine Road c

Common Name: Road c

Address/Location: Extends northeast through vacant land (CC Parcel 3060000003) from Glenn McConnell Parkway between CSX Railroad easement and 3510 Glenn McConnell Parkway

City: Charleston Vicinity of ☐ County: Charleston

Ownership: Private Category: Site

Historical Use: Transportation Historical Use (if Other):

Current Use: Vacant/Not in use Current Use (if Other):

SHPO National Register Determination of Eligibility:

Property Description

Construction Date: c. 1890-1960

Construction: Construction (if Other)

Historic Core Shape: Historic Core Shape (if Other):

Exterior Walls: Exterior Walls (if Other):

Foundation: Foundation (if Other):

Commercial Form: Commercial Form (if Other):

Roof Shape: Roof Shape (if Other)

Roof Materials: Roof Materials (if Other)

Stories: Stories (if Other):

Porch Width: Porch Width (if Other):

Porch Shape: Porch Shape (if Other)

Description/Significant Features: Road C is located northeast of the GMP and extends from the GMP embankment northeast through 38CH979. Road C measures approximately 484 m and covers 0.73 acre.

Alterations (include date(s), if known

Architect(s)/Builder(s):

Historical Information

Historical Information: The USACE (1919) and USGS (1948 and 1958) quadrangles and USGS (1957) aerial photograph show Road C extending roughly parallel to the railroad corridor. Prior to construction of the GMP, Roads C and D would have linked.

Source of Information: United States Army Corps of Engineers (USACE)
1919 Johns Island, SC quadrangle. United States Government Printing Office, Washington D.C..

United States Geological Survey (USGS)
1948 Johns Island, SC quadrangle. United States Geological Survey, Reston, Virginia.

1957Aerial Photography Single Frame Records Collection, 1937-2008. EarthExplorer website. United States Geological Survey, Reston, Virginia. https://earthexplorer.usgs.gov/, accessed August 20, 2018.

1958 Johns Island, SC quadrangle. United States Geological Survey, Reston, Virginia

Digital Photo ID(s):

Digital Photo ID 01:	07965006.jpg	Digital Photo ID 06:	
View 01	Facing Northeast	View 06	
Digital Photo ID 02:		Digital Photo ID 07:	
View 02		View 07	
Digital Photo ID 03:		Digital Photo ID 08:	
View 03		View 08	
Digital Photo ID 04:		Digital Photo ID 09:	
View 04		View 09	
Digital Photo ID 05:		Digital Photo ID 10:	
View 05		View 10	

Program Management

Recorded by: DB Organization: Brockington
Date Recorded: 09/11/2018

Statewide Survey of Historic Properties

State Historic Preservation Office
South Carolina Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905 (803) 896-6100

U / 7965.04 Revisit: ☐
Status Site No.

Quadrangle Name: Johns Island

Tax Map No.: 3060000934

Survey Form

Identification

Historic Name: CMMC Springfield Mine Road d

Common Name: Road d

Address/Location: Extends southwest through vacant land (CC Parcel 3060000934) from Glenn McConnell Parkway between CSX Railroad easement and William E. Murray Blvd.

City: Charleston Vicinity of ☐ County: Charleston

Ownership: Private Category: Site

Historical Use: Transportation Historical Use (if Other):

Current Use: Vacant/Not in use Current Use (if Other):

SHPO National Register Determination of Eligibility:

Property Description

Construction Date: c. 1890-1960

Construction: Construction (if Other)

Historic Core Shape: Historic Core Shape (if Other):

Exterior Walls: Exterior Walls (if Other):

Foundation: Foundation (if Other):

Commercial Form: Commercial Form (if Other):

Roof Shape: Roof Shape (if Other)

Roof Materials: Roof Materials (if Other)

Stories: Stories (if Other):

Porch Width: Porch Width (if Other):

Porch Shape: Porch Shape (if Other)

Description/Significant Features: Road D is located southwest of the GMP, extending from the GMP embankment southwest through CC Parcel 3060000934 before terminating at the West Ashley High School (WAHS) campus. Road D measures approximately 165 m and covers 0.25 acre.

Alterations (include date(s), if known

Architect(s)/Builder(s):

Historical Information

Historical Information: As mentioned above, prior to construction of the GMP, Roads C and D would have linked. The USGS (1957) aerial photograph shows Road D extending to the southwest before intersecting another dirt road, which has been destroyed by construction of WAHS.

Source of Information: United States Geological Survey (USGS)
1957Aerial Photography Single Frame Records Collection, 1937-2008. EarthExplorer website. United States Geological Survey, Reston, Virginia. https://earthexplorer.usgs.gov/, accessed August 20, 2018.

Digital Photo ID(s):

Digital Photo ID 01:	07965007.jpg	Digital Photo ID 06:	
View 01	Facing Southwest	View 06	
Digital Photo ID 02:		Digital Photo ID 07:	
View 02		View 07	
Digital Photo ID 03:		Digital Photo ID 08:	
View 03		View 08	
Digital Photo ID 04:		Digital Photo ID 09:	
View 04		View 09	
Digital Photo ID 05:		Digital Photo ID 10:	
View 05		View 10	

Program Management

Recorded by: DB
Organization: Brockington
Date Recorded: 09/11/2018

Statewide Survey of Historic Properties

State Historic Preservation Office
South Carolina Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905 (803) 896-6100

U / 7965.05
Status Site No.

Revisit: ☐

Quadrangle Name: Johns Island

Tax Map No.: 3050800060

Survey Form

Identification

Historic Name: CMMC Springfield Mine Road e

Common Name: Road e

Address/Location: Extends northeast through vacant land (CC Parcel 305080060) from Glenn McConnell Parkway between CSX Railroad easement and Bees Ferry Road.

City: Charleston Vicinity of ☐ County: Charleston

Ownership: Private Category: Site

Historical Use: Transportation Historical Use (if Other):

Current Use: Vacant/Not in use Current Use (if Other):

SHPO National Register Determination of Eligibility:

Property Description

Construction Date: c. 1890-1960

Construction: Construction (if Other)

Historic Core Shape: Historic Core Shape (if Other):

Exterior Walls: Exterior Walls (if Other):

Foundation: Foundation (if Other):

Commercial Form: Commercial Form (if Other):

Roof Shape: Roof Shape (if Other)

Roof Materials: Roof Materials (if Other)

Stories: Stories (if Other):

Porch Width: Porch Width (if Other):

Porch Shape: Porch Shape (if Other)

Description/Significant Features: Road E is located north and east of the GMP and the West Ashley Circle. Road E extends north from the CSX Railroad through CC Parcel 3050800060 before terminating at Bees Ferry Road. Road E measures approximately 484 m and covers 0.73 acre.

Alterations (include date(s), if known

Architect(s)/Builder(s):

Historical Information

Historical Information: Neither USGS (1948 and 1958) shows Road E but the USGS (1957) aerial photograph does. However, the USGS (1958) quadrangle and USGS (1957) aerial photograph shows an area east of Road E that has been mechanically-excavated. It is likely Road E served as an access road for this part of the Springfield Mine. It is possible Road E may have functioned as a tram line.

Source of Information: United States Geological Survey (USGS)
1948 Johns Island, SC quadrangle. United States Geological Survey, Reston, Virginia.

1957Aerial Photography Single Frame Records Collection, 1937-2008. EarthExplorer website. United States Geological Survey, Reston, Virginia. https://earthexplorer.usgs.gov/, accessed August 20, 2018.

1958 Johns Island, SC quadrangle. United States Geological Survey, Reston, Virginia.

1979Johns Island, SC quadrangle. United States Geological Survey, Reston, Virginia.

Digital Photo ID(s):

Digital Photo ID 01:	07965008.jpg	Digital Photo ID 06:	
View 01	Facing South	View 06	
Digital Photo ID 02:		Digital Photo ID 07:	
View 02		View 07	
Digital Photo ID 03:		Digital Photo ID 08:	
View 03		View 08	
Digital Photo ID 04:		Digital Photo ID 09:	
View 04		View 09	
Digital Photo ID 05:		Digital Photo ID 10:	
View 05		View 10	

Program Management

Recorded by: DB
Organization: Brockington
Date Recorded: 09/11/2018

Statewide Survey of Historic Properties

State Historic Preservation Office
South Carolina Department of Archives and History
8301 Parklane Road
Columbia, SC 29223-4905 (803) 896-6100

U / 7965.06
Status Site No.

Revisit: ☐

Quadrangle Name: Johns Island

Tax Map No.: 3060000012

Survey Form

Identification

Historic Name: CMMC Springfield Mine Road f

Common Name: Road f

Address/Location: Extends southwest through vacant land (CC Parcel 3060000012) from Glenn McConnell Parkway between William E. Murray Blvd. and W. Wildcat Blvd.

City: Charleston Vicinity of ☐ County: Charleston

Ownership: Private Category: Site

Historical Use: Transportation Historical Use (if Other):

Current Use: Vacant/Not in use Current Use (if Other):

SHPO National Register Determination of Eligibility:

Property Description

Construction Date: c. 1920-1970

Construction: Construction (if Other)

Historic Core Shape: Historic Core Shape (if Other):

Exterior Walls: Exterior Walls (if Other):

Foundation: Foundation (if Other):

Commercial Form: Commercial Form (if Other):

Roof Shape: Roof Shape (if Other)

Roof Materials: Roof Materials (if Other)

Stories: Stories (if Other):

Porch Width: Porch Width (if Other):

Porch Shape: Porch Shape (if Other)

Description/Significant Features: Road F is located west of the GMP and West Wildcat Boulevard intersection, southwest of the GMP. Road F extends from the GMP corridor approximately 165 m through CC Parcel 3060000012 before terminating at William Murray Boulevard.

Alterations (include date(s), if known

Architect(s)/Builder(s):

Historical Information

Historical Information: The USGS (1948 and 1958) quadrangle and USGS (1957) aerial photograph show Road F extending northeast across the APE.

Source of Information: United States Geological Survey (USGS)
1948 Johns Island, SC quadrangle. United States Geological Survey, Reston, Virginia.

1957Aerial Photography Single Frame Records Collection, 1937-2008. EarthExplorer website. United States Geological Survey, Reston, Virginia. https://earthexplorer.usgs.gov/, accessed August 20, 2018.

1958 Johns Island, SC quadrangle. United States Geological Survey, Reston, Virginia.

Digital Photo ID(s):

Digital Photo ID 01:	07965009.jpg	Digital Photo ID 06:	
View 01	Facing West	View 06	
Digital Photo ID 02:		Digital Photo ID 07:	
View 02		View 07	
Digital Photo ID 03:		Digital Photo ID 08:	
View 03		View 08	
Digital Photo ID 04:		Digital Photo ID 09:	
View 04		View 09	
Digital Photo ID 05:		Digital Photo ID 10:	
View 05		View 10	

Program Management

Recorded by: DB
Organization: Brockington
Date Recorded: 09/11/2018

Appendix C
Relevant Project Correspondence

EST. 1905
SOUTH CAROLINA DEPARTMENT OF
ARCHIVES • HISTORY

February 20, 2019

David Baluha
Archaeologist and SCDOT Program Manager
Brockington and Associates, Inc.
498 Wando Park Blvd, Suite 700
Mount Pleasant, SC 29464

Re: CRS of the Glenn McConnell Parkway (SC-461) Widening Project
Charleston County, South Carolina
SHPO Project No. 19-JW0001

Dear Mr. Baluha,

Our Office has received the documentation dated February 5th, that you submitted as due diligence for the project referenced above, including the report titled "*Cultural Resources Survey of the Glenn McConnell Parkway (SC-461) Widening & Multiuse Lane Project, Charleston County, South Carolina,"* the Section 106 Due Diligence Project Review Form, survey cards and photos, and GIS shapefiles. This letter is for preliminary, informational purposes only and does not constitute consultation or agency coordination with our Office as defined in 36 CFR 800: "Protection of Historic Properties" or by any state regulatory process. The recommendation stated below could change if this project receives federal funding or a federal permit and the responsible federal and/or state agency initiates consultation with our Office.

The identified resources within the proposed project area are 38CH975, 38CH976, 38CH977, 38CH978, 39CH979, 38CH2231, #7940, and #7965. Our office believes that these resources do not meet the criteria for listing in the National Register of Historic Places. All of these resources have been impacted by modern development, and no longer retain integrity that would qualify them for this consideration.

Our office knows of no documented historic properties that are eligible for listing or listed in the National Register of Historic Places that are within the proposed project area.

If the Glenn McConnell Parkway Widening and Multiuse Lane Project were to require state permits or federal permits, licenses, funds, loans, grants, or assistance for development, we would recommend to the federal or state agency or agencies that additional cultural resources/historic property identification survey are not needed. Should project plans change, then further consultation with our office is recommended in order to evaluate the potential for the new project plans to impact historic resources.

The federal or state agency or agencies will take our recommendation(s) into consideration when evaluating the project and will determine if additional survey will be required.

The State Historic Preservation Office will provide comments regarding historic architectural and archaeological resources and effects to them once the federal or state agency initiates consultation. Project Review Forms and additional guidance regarding our Office's role in the compliance process and historic preservation can be found on our website at: https://scdah.sc.gov/historic-preservation/programs/review-compliance.

Our office has additional technical comments on the report that we ask to see addressed (please see attached). We will accept the report as final once these comments are addressed; there is no need to send a revised draft. To complete the reporting process, please provide at least three (3) hard copies of a final report: one (1) bound hard copy and a digital copy in ADOBE Acrobat PDF format for the SHPO; one (1) bound and one (1) unbound hard copies and a digital copy in ADOBE Acrobat PDF format for SCIAA. Investigators should send all copies directly to the SHPO. The SHPO will distribute the appropriate copies to SCIAA.

Please provide GIS shapefiles for the surveyed area (and architectural sites as applicable). Shapefiles for identified archaeological sites should be coordinated with SCIAA. Shapefiles should be compatible with ArcGIS (.shp file format) and should be sent as a bundle in .zip format. Please see our GIS Data Submission Requirements and shapefile templates, available on our website at: https://scdah.sc.gov/historic-preservation/historic-properties-research/archsitegis. SHPO recommends e-mailing the shapefiles to the address link on the noted webpage or using a File Transfer Protocol website such as WeTransfer.com to send large files.

Please refer to SHPO Project Number 19-JW0001 in any future correspondence regarding this project. If you have any questions, please contact me at (803) 896-6184 or at jwilkinson@scdah.sc.gov

Sincerely,

Joseph E. Wilkinson

Joseph E. Wilkinson
Review Coordinator for Transportation Projects
State Historic Preservation Office
8301 Parklane Road
Columbia, SC 29223
Ph: 803.896.6184 Fax: 803.896.6167
jwilkinson@scdah.sc.gov

Technical Comments

p.6 There is a statement that says: "Resources exhibiting poor integrity were not recorded." We realize that this survey was completed back before our newly released guidance, but we now require that all resources are documented and photos with arguments for or against eligibility included (except when coordination with our office results in some other agreed upon representative survey plan, such as for planning surveys, etc.). For future work please keep this in mind, though for the present project it appears as if everything was surveyed and documented as there are no statements in the results that suggest specific resources were excluded.

p.46 The last sentence of the first paragraph (describing 38CH979) needs to be reconfigured, insert "and" between "NRHP" and "is." Remove "not" as this resource does contribute per Table 4.1.

p.46 "Resource 7965.01" – The last sentence of this section states it doesn't contribute to 7965. This statement is contradictory and should be deleted from the end of the sentence.

p.46 "Resource 7965.02" – The last sentence of this section states it doesn't contribute to 7965. This statement is contradictory and should be deleted from the end of the sentence.

p.46 "Resource 7965.03-7965.06" – The last sentence of the first paragraph of this section states that these resources do not contribute to 7965. This statement is contradictory and should be deleted from the end of the sentence.

Lastly, GIS shapefiles of the archaeological and architectural survey APEs should be submitted according to our GIS submission guidelines. These two shapefiles are the only remaining GIS files that we require for inclusion in ArchSite.

From:	David Baluha
To:	Brian L. Taylor; Justin K. Lyles
Subject:	Glenn McConnell Parkway
Date:	Monday, February 25, 2019 3:33:53 PM
Attachments:	image001.png image002.png

FYI

From: Wilkinson, Joseph E. <JWilkinson@scdah.sc.gov>
Sent: Monday, February 25, 2019 2:30 PM
To: David Baluha <DavidBaluha@brockington.org>
Subject: RE: Main Road Segment A, Charleston County - Possible Cultural Landscape Features

Dave,

I have received the shapefiles and the report copies. I believe I have everything I need. Let me know if you need anything further from me.

Thanks,

Joseph E. Wilkinson
Review Coordinator for Transportation Projects
State Historic Preservation Office
SC Department of Archives & History
8301 Parklane Road
Columbia, SC 29223
Ph: 803.896.6184 Fax: 803.896.6167 https://scdah.sc.gov/historic-preservation
jwilkinson@scdah.sc.gov

From: David Baluha [mailto:DavidBaluha@brockington.org]
Sent: Friday, February 22, 2019 12:01 PM
To: Wilkinson, Joseph E. <JWilkinson@scdah.sc.gov>
Cc: Brian L. Taylor <btaylor@davisfloyd.com>; Justin K. Lyles <jlyles@davisfloyd.com>
Subject: RE: Main Road Segment A, Charleston County - Possible Cultural Landscape Features

Joe,

Attached are the Glenn McConnell Parkway survey universe shape files as requested.

Thanks for your comments and guidance. We sent the final report to your office yesterday afternoon.

Best,

Dave

From: Wilkinson, Joseph E. <JWilkinson@scdah.sc.gov>
Sent: Wednesday, February 20, 2019 11:27 AM
To: David Baluha <DavidBaluha@brockington.org>
Subject: RE: Main Road Segment A, Charleston County - Possible Cultural Landscape Features

Dave,

Attached you will find a letter that covers our offices comments on the report and this project. Also attached to the letter is a small list of technical comments and a request for the GIS survey area shapefiles. Please let me know if you have any questions.

Thanks,

Joseph E. Wilkinson
Review Coordinator for Transportation Projects
State Historic Preservation Office
SC Department of Archives & History
8301 Parklane Road
Columbia, SC 29223
Ph: 803.896.6184 Fax: 803.896.6167 https://scdah.sc.gov/historic-preservation
jwilkinson@scdah.sc.gov

From: David Baluha [mailto:DavidBaluha@brockington.org]
Sent: Tuesday, February 05, 2019 11:10 AM
To: Wilkinson, Joseph E. <JWilkinson@scdah.sc.gov>
Cc: Sylvest, John <JSylvest@scdah.sc.gov>; Justin K. Lyles <jlyles@davisfloyd.com>; Brian L. Taylor <btaylor@davisfloyd.com>
Subject: RE: Main Road Segment A, Charleston County - Possible Cultural Landscape Features

Joe,

I sent via WeTransfer files for the Glenn McConnell Parkway (SC-461) Widening & Multiuse Lane Project in Charleston County. Files include the SHPO review form, draft report, survey form database, and survey form photos. I will send the necessary shape files later when our server is working properly.

Brockington was subcontracted by Davis & Floyd on behalf of Charleston County to conduct these investigations. Brian Taylor and Justin Lyles are the primary contacts at Davis Floyd and they have been cc-ed in this email.

I completed the SHPO review form as a due diligence project because there is no federal money and no known federal or state permit required at this time. Please let me know if you have any questions of comments.

Thanks for your help on this project. I look forward to your comments.

Sincerely,

Dave Baluha

From: Wilkinson, Joseph E. <JWilkinson@scdah.sc.gov>
Sent: Thursday, January 03, 2019 3:22 PM
To: David Baluha <DavidBaluha@brockington.org>
Cc: Sylvest, John <JSylvest@scdah.sc.gov>
Subject: RE: Main Road Segment A, Charleston County - Possible Cultural Landscape Features

Dave,

I believe what John was saying in this previous email, is that the resources you listed in your original email (listed by resource name behind a., b., and e.; or "a. Mechanically mined areas" etc.) should all be listed as secondary resources (the SHPO XXXX.01, XXXX.02, etc. format) under the primary resource which in this example was listed in your email as "Resource 1." He was trying to identify which resources, rather than saying to use an alphanumeric format I think. John also says in this email that the archaeological sites should be referenced on the primary resource survey form and referenced in the report as being a contributing resource, but would not be given a SHPO secondary resource number, which means it shouldn't be documented with an above ground resource survey form.

Regarding changing the numbers, it would be best from a management consistency standpoint to revise the numbers before submitting the reports and survey forms and photos for review. All you will need to do is replace the alphabetic suffix with a numeric one, which I understand is tedious. That would be a revision we would request upon review though.

I hope this helps clear up your concerns, and I'm sorry for the confusion. As John said, these complex resources often test our management protocols quite a bit. Please let me know if you have any further questions. He has read this response and concurs with my interpretation of his previous email.

Thanks,
Joe

Joseph E. Wilkinson
Review Coordinator for Transportation Projects
State Historic Preservation Office
SC Department of Archives & History
8301 Parklane Road
Columbia, SC 29223
Ph: 803.896.6184 Fax: 803.896.6167 https://scdah.sc.gov/historic-preservation
jwilkinson@scdah.sc.gov

From: David Baluha [mailto:DavidBaluha@brockington.org]
Sent: Thursday, January 03, 2019 2:57 PM

To: Wilkinson, Joseph E. <JWilkinson@scdah.sc.gov>
Cc: Sylvest, John <JSylvest@scdah.sc.gov>
Subject: FW: Main Road Segment A, Charleston County - Possible Cultural Landscape Features

John and Joseph,

Attached is an email that John sent me regarding phosphate, rice, and linear resources recorded on the Main Road project in Charleston County. See the highlighted section below. We completed the Main Road report and submitted it to the client a while ago. For this project, we used alphanumeric numbering for both the phosphate mine and the rice field.

I just want to get this clear. We are to use numeric suffixes from now on. This means we need to change both the Glenn McConnell Parkway (7940 and 7965) numbering as well as the Main Road numbering?

I apologize for any misunderstanding on my part. Thanks for your help!

Dave

From: Sylvest, John <JSylvest@scdah.sc.gov>
Sent: Monday, August 27, 2018 2:19 PM
To: David Baluha <DavidBaluha@brockington.org>; Lewis, Keely <KLewis@scdah.sc.gov>
Subject: RE: Main Road Segment A, Charleston County - Possible Cultural Landscape Features

Dave,

Our draft survey manual (attached) has yet to be finalized, but its guidance can be used for recording the resource types you have identified.

Resource 1 and 3 should be recorded on SHPO Survey Forms and photographed. Resource 1 can be recorded as a District with a, b, and e recorded as resource sub-numbers. The archaeological sites (38CH2017 and AD-2) should be considered elements of the district and discussed on the survey form and in the report, but not assigned a SHPO resource sub-number. See the Historic District Survey Methodology and the Site Numbering sections in the draft Manual for guidance.

Resource 2's entire length and significance as a railroad should be discussed, illustrated, and evaluated in the survey report based on the research available to you. The segment and boundary within the APE should be recorded and documented on SHPO Survey Form and photographed. A NRHP evaluation can be provided for the entire length and the segment based on the research available to you. See the draft Manual's Appendix F: Linear Resources for more information, and the Oregon SHPO publication linked under that section (in particular pages 8+ and 18+).

Hope this helps.

John D. Sylvest
Project Review Coordinator
State Historic Preservation Office (SHPO)
SC Department of Archives & History
8301 Parklane Road
Columbia, SC 29223
803.896.6129 https://scdah.sc.gov/historic-preservation
Note that our web site address has changed.

From: David Baluha [mailto:DavidBaluha@brockington.org]
Sent: Friday, August 24, 2018 1:35 PM
To: Lewis, Keely <KLewis@scdah.sc.gov>; Sylvest, John <JSylvest@scdah.sc.gov>
Subject: Main Road Segment A, Charleston County - Possible Cultural Landscape Features

Keely and John,

I wanted to reach out to you both to see if you want us to document possible cultural landscape features located at least partially within the Main Road Segment A APE. These resources include the following:

1. Bolton Phosphate Mine District
a. Mechanically mined area
b. Old road (shown on 1919 quad)
c. 38CH2017
d. Site AD-2
e. Possible tram lines and ditches

2. West Ashley Greenway

3. Bernard Tract Rice Field

I have attached Google EarthPro kmz files showing the location of these resources. A jpg showing these areas is also attached.

The boundary for the Bolton Phosphate Mine District is based on an 1867 plat of Bolton Plantation (McCrady 747). Extensive mechanical mining was conducted in the marsh north of the Stono River. A historic road extended north/south through this district, linking the settlement at 38CH2017 to another settlement on the Stono River. The newly identified site AD-1 includes a brick pile that likely represents a phosphate-era settlement. Also, there are probably old tram lines and ditches in the marsh.

Likewise, the boundary for the Bernard Tract rice field is based on aerial and LiDAR data and a plat of the area (McCrady 2489).

As for the West Ashley Greenway, I'm not sure how you'd want to document it. Where should the

boundary be drawn? The West Ashley Greenway is the former Croghan Branch of the Atlantic Coast Line/Seaboard Coast Line railroad. Technically, this feature extends all the way to the Ashley River.

Thanks for your help in advance. I look forward to hearing from you.

Sincerely,

Dave

David S. Baluha, RPA
Archaeologist and SCDOT Program Manager
davidbaluha@brockington.org

Brockington and Associates, Inc.
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Appendix E

Jurisdictional Determination Letter and Mapping (SAC-2019-00276)

DEPARTMENT OF THE ARMY
CHARLESTON DISTRICT, CORPS OF ENGINEERS
69A HAGOOD AVENUE
CHARLESTON, SOUTH CAROLINA 29403-5107

19 Aug 2019

Regulatory Division

Mr Russell Chandler
Three Oaks Engineering
1310 Lady St, Ste 400
Columbia, South Carolina 29201
russell.chandler@threeoaksengineering.com

Dear Mr. Chandler:

This is in response to your request for a Preliminary Jurisdictional Determination (PJD) (SAC-2019-00276) received in our office on February 7, 2019, for a 218-acre site located along Glenn McConnell Parkway from its intersection with Magwood Drive northwesterly to its termination with Bees Ferry Road, in the City of Charleston, Charleston County, South Carolina (Latitude: 32.826782°, Longitude: -80.080242°). A PJD is used to indicate the approximate location(s) and boundaries of wetlands and/or other aquatic resources presumed to be waters of the United States on a site pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. § 1344) and/or navigable waters of the United States pursuant to Section 10 of the Rivers and Harbors Act of 1899 (RHA) (33 U.S.C. § 403).

The site in question is shown on the attached maps entitled “Glenn McConnell Parkway Widening and Improvements” and dated May 2, 2019 prepared by Three Oaks Engineering. Based upon on-site inspection, a review of aerial photography, topographic maps, National Wetlands Inventory maps, and soil survey information, elevation data, and Wetland Determination Data Form(s), it is concluded the boundaries shown on the referenced map are a reasonable approximation of the aquatic resources found within the site that are presumed to be subject to regulatory jurisdiction of the Corps of Engineers. The site in question contains 4.91 acres of federally defined wetlands and 380 linear feet (0.1 acre) of other aquatic resources that are presumed to be waters of the United States subject to regulatory jurisdiction under Section 404 of the CWA. The site in question also contains 0.53 acres of federally defined wetlands which are also navigable waters of the United States subject to regulatory jurisdiction under Section 10 of the RHA.

You are cautioned the boundaries of the delineated wetlands and/or other aquatic resources presumed to be subject to regulatory jurisdiction of the Corps of Engineers shown on the attached depiction are approximate and subject to change.

By providing this PJD, the Corps of Engineers is making no legally binding determination of any type regarding whether jurisdiction exists over the particular aquatic resource(s) in question. This PJD is not a definitive determination of the presence or absence of areas within the Corps of Engineers’ jurisdiction, and, therefore, it does not have an expiration date. A PJD is “preliminary” in the sense that a recipient of a PJD can later request and obtain an Approved Jurisdictional Determination (AJD) for a definitive, official determination of the presence or absence of jurisdictional aquatic resources on a site, including the identification of the

geographic limits of the jurisdictional aquatic resources. In order for a definitive determination of jurisdiction to be provided, you must submit a request for an AJD.

Be aware a permit from this office may be required for certain activities in the areas identified as wetlands and/or other aquatic resources that are presumed to be subject to regulatory jurisdiction of the Corps of Engineers, and these areas may be subject to restrictions or requirements of other state or local government entities. A PJD may be used as the basis of a permit decision; however, for purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a PJD will treat all aquatic resources affected in any way by the permitted activity as jurisdictional. If you intend to request an AJD in the future, you are advised not to commence work in these wetlands and/or other aquatic resources presumed to be jurisdictional prior to receiving the AJD. Attached is a Preliminary Jurisdictional Determination Form describing the areas in question and clarifying the option to request an AJD.

Please note that this is a PJD, and is not an appealable action under the Corps of Engineers' administrative appeal procedures defined at 33 CFR 331. If a permit application is forthcoming as a result of this PJD, a copy of this letter, as well as the map, should be submitted as part of the application. Otherwise, a delay could occur in confirming that a PJD was performed for the proposed project area.

It should also be noted that some or all of these areas may be regulated by other state or local government entities, and you should contact the South Carolina Department of Health and Environmental Control to determine the limits of their jurisdiction.

This PJD was conducted to identify approximate location(s) of aquatic resources presumed to be subject to regulatory jurisdiction of the Corps of Engineers on the particular site identified in this request. This PJD may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

Attached is a copy of the Preliminary Jurisdictional Determination Form signed by our office. Please sign, retain a copy for your records, and return a signed copy to this office within 30 days of receipt of this letter.

In all future correspondence, please refer to file number SAC-2019-00276. A copy of this letter is being forwarded to State and/or Federal agencies for their information. If you have any questions, please contact Shawn Boone, Project Manager, at (843) 329-8158, or by email at Shawn.A.Boone@usace.army.mil.

Sincerely,

Amanda L. Heath
Chief, Special Projects Branch

Attachments:
Preliminary Jurisdictional Determination Form
Glenn McConnell Parkway Widening and Improvements maps
Copies Furnished:

Ms. Sunshine Trakas
Charleston County Transportation Development
4045 Bridge View Drive, Ste C204
North Charleston, South Carolina 29405
STrakas@charlestoncounty.org

SCDHEC - OCRM
1362 McMillan Avenue, Suite 400
North Charleston, South Carolina 29405
williabn@dhec.sc.gov

ATTACHMENT

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): July 24, 2019

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
Ms. Sunshine Trakas
Charleston County – Transportation Development
4045 Bridgeview Drive, Suite C204
North Charleston, SC 29405

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:SAC-2019-00276

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION: Review area is a corridor along Glenn McConnel PKWY in Charleston, South Carolina. The delineation will be used for planning purposes for the widening of the road.

(SEE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State:SC County/parish/borough: Charleston City: Charleston
Center coordinates of site (lat/long in degree decimal format): Lat. 32.812278° N, Long. 80.048054° W.
Universal Transverse Mercator:
Name of nearest waterbody: Church Creek & Long Branch Creek

Identify (estimate) amount of waters in the review area:

Non-wetland waters: 380 linear feet: 10 width (ft) and/or acres.
Cowardin Class: Riverine
Stream Flow: Perennial
Wetlands: 4.91 acres.
Cowardin Class: Forested and Emergent Palustrine and Estuarine

Name of any water bodies on the site that have been identified as Section 10 waters:
Tidal: Tidal tributary of Church Creek
Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): March 6, 2019

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:Three Oaks Engineering.

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

- ☒ Office concurs with data sheets/delineation report.
- ☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

- ☐ USGS NHD data.
- ☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name:Johns Island 1:24K Quad.

☒ USDA Natural Resources Conservation Service Soil Survey. Citation:Charleston County.

☐ National wetlands inventory map(s). Cite name: .

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date):Various from Google Earth.

or ☐ Other (Name & Date): .

☒ Previous determination(s). File no. and date of response letter:Numerous within the corridor.

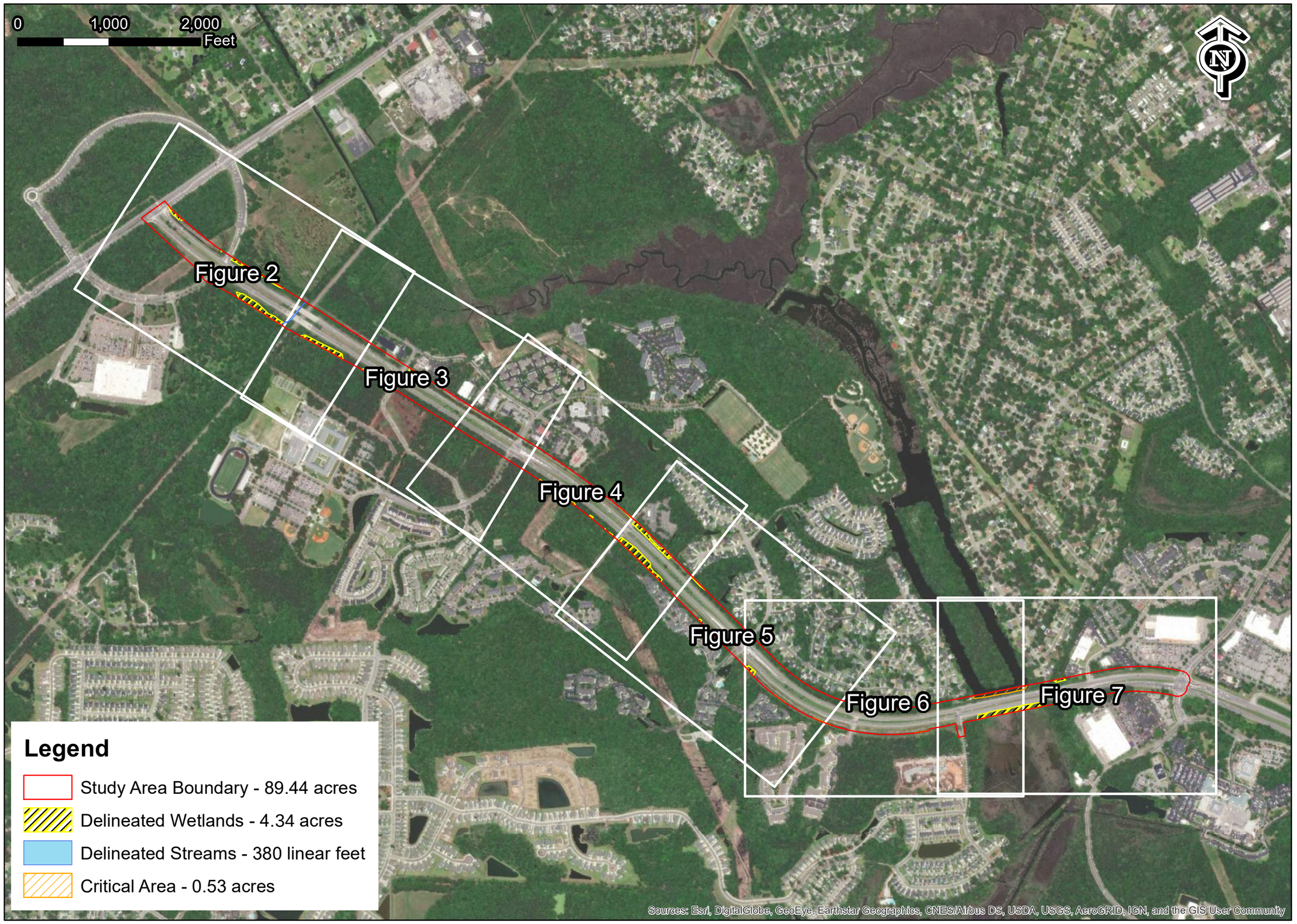
☒ Other information (please specify):LIDAR data; Digital Elevation Model.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

BOONE.SHAWN.A.1039108921 Digitally signed by BOONE.SHAWN.A.1039108921 Date: 2019.08.19 10:10:41 -04'00'

Signature and date of Regulatory Project Manager (REQUIRED)	Signature and date of person requesting preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

Waters_Name	Cowardin_Code	Meas_Type	Amount	Units	Latitude	Longitude
WRC	PFO	Area	0.11	ACRE	-80.079422	32.826552
WRD	PFO	Area	0.01	ACRE	-80.077765	32.825424
WRF	PFO	Area	0.05	ACRE	-80.075831	32.824398
WRG	PFO	Area	0.24	ACRE	-80.076898	32.824937
WRP	PFO	Area	0.09	ACRE	-80.070897	32.821703
WRH	PFO	Area	0.68	ACRE	-80.076526	32.823735
WWW	PFO	Area	0.84	ACRE	-80.063002	32.816118
WWAA	PFO	Area	0.05	ACRE	-80.060888	32.81529
WWY	PFO	Area	0.02	ACRE	-80.06356	32.817509
WWZ	PFO	Area	0.48	ACRE	-80.06254	32.816624
WWAB	PFO	Area	0.01	ACRE	-80.060836	32.814179
WWAD	PFO	Area	0.11	ACRE	-80.059048	32.81266
WWAJ	PFO	Area	0.02	ACRE	-80.056579	32.811116
WWAK	PFO	Area	0.01	ACRE	-80.05372	32.810771
WWAF	PFO	Area	0.07	ACRE	-80.048054	32.812278
WWAI	PFO	Area	0.01	ACRE	-80.057998	32.811781
WWT	PFO	Area	0.03	ACRE	-80.066363	32.818369
WWV	PFO	Area	0.07	ACRE	-80.064946	32.817482
WWAC	PFO	Area	0.89	ACRE	-80.049782	32.811385
WRI	PFO	Area	0.1	ACRE	-80.072572	32.821762
WRK	PFO	Area	0.49	ACRE	-80.074166	32.822517
SRA	R3UB	Linear	380	FOOT	-80.075249	32.82346
CriticalArea	E2EM	Area	0.53	ACRE	-80.050167	32.811929



THREE OAKS ENGINEERING · THREE OAKS ENGINEERING ·

Prepared For:

CHARLESTON COUNTY
SOUTH CAROLINA

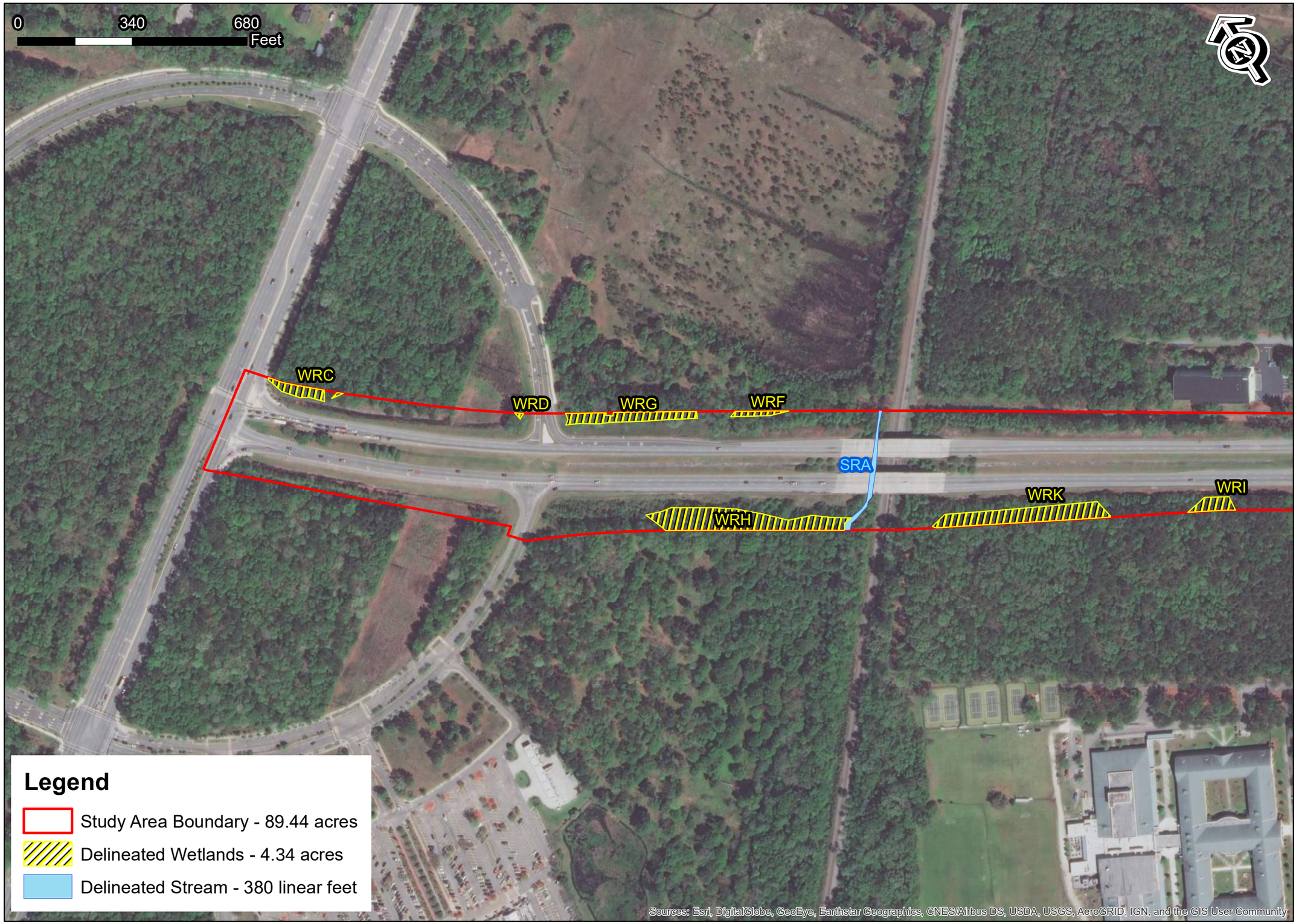
Glenn McConnell Parkway

Widening
and
Improvements

Charleston County,
South Carolina

Date:	May 02, 2019
Scale:	1:12,000
Job No.:	18-036
Drawn By: WCB	Checked By: TRC

Figure
1



THREE OAKS ENGINEERING · THREE OAKS ENGINEERING ·

Prepared For:

CHARLESTON COUNTY
SOUTH CAROLINA

Glenn McConnell Parkway

Widening and Improvements

Charleston County, South Carolina

Date:	May 02, 2019
Scale:	1:3,260
Job No.:	18-036
Drawn By: WCB	Checked By: TRC

Figure

2

THREE OAKS ENGINEERING · THREE OAKS ENGINEERING ·

Prepared For:

CHARLESTON COUNTY
SOUTH CAROLINA

Glenn McConnell Parkway

Widening
and
Improvements

Charleston County,
South Carolina

Date:	May 02, 2019
Scale:	1:2,400
Job No.:	18-036
Drawn By: WCB	Checked By: TRC

Figure

3

THREE OAKS ENGINEERING

Prepared For:

CHARLESTON COUNTY
SOUTH CAROLINA

Glenn McConnell Parkway

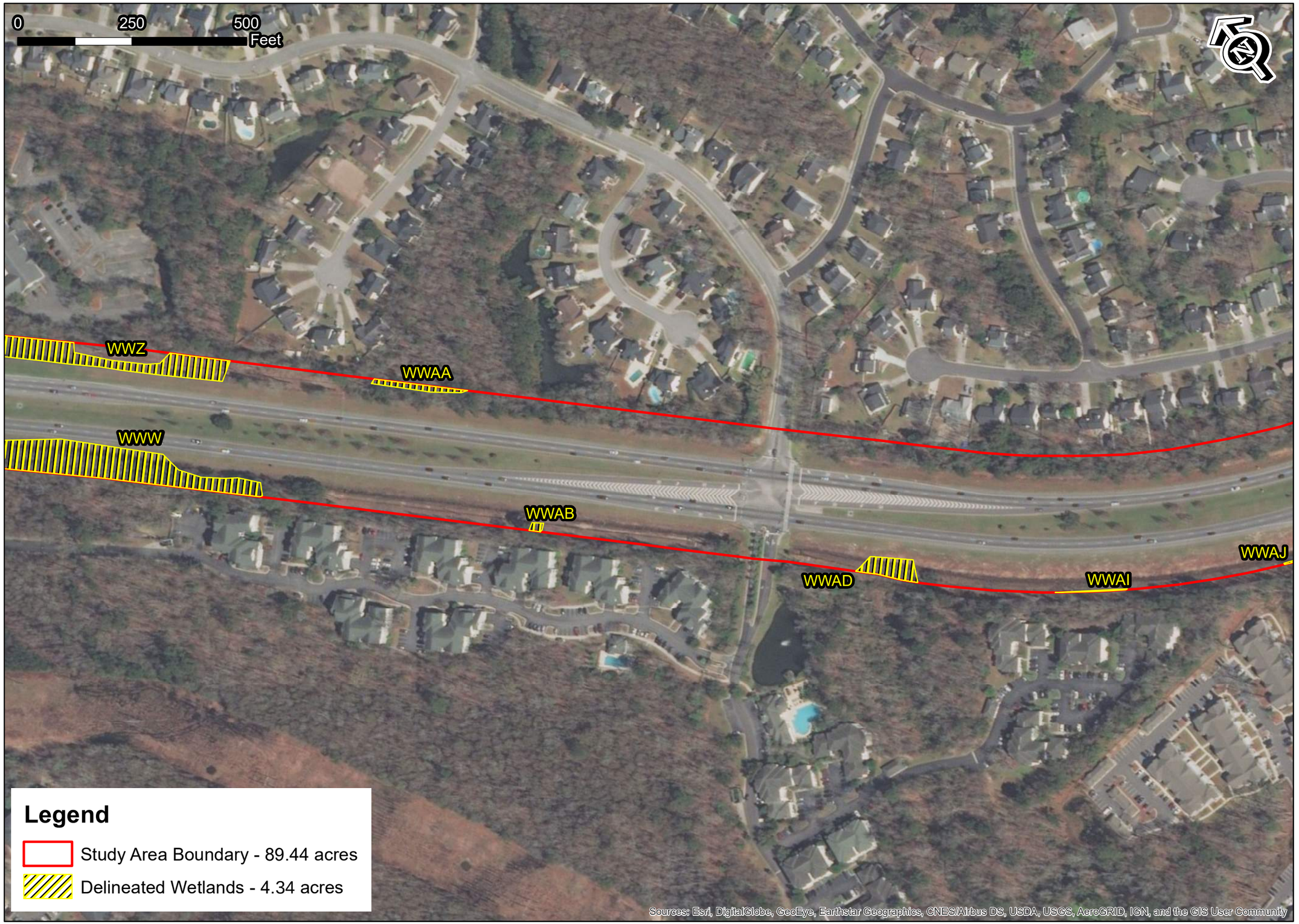
Widening
and
Improvements

Charleston County,
South Carolina

Date:	May 02, 2019
Scale:	1:2,400
Job No.:	18-036
Drawn By: WCB	Checked By: TRC

Figure

4



THREE OAKS ENGINEERING

Prepared For:

CHARLESTON COUNTY
SOUTH CAROLINA

Glenn McConnell Parkway

Widening and Improvements

Charleston County, South Carolina

Date:	May 02, 2019
Scale:	1:2,400
Job No.:	18-036
Drawn By: WCB	Checked By: TRC

Figure

5

0 250 500 Feet

N

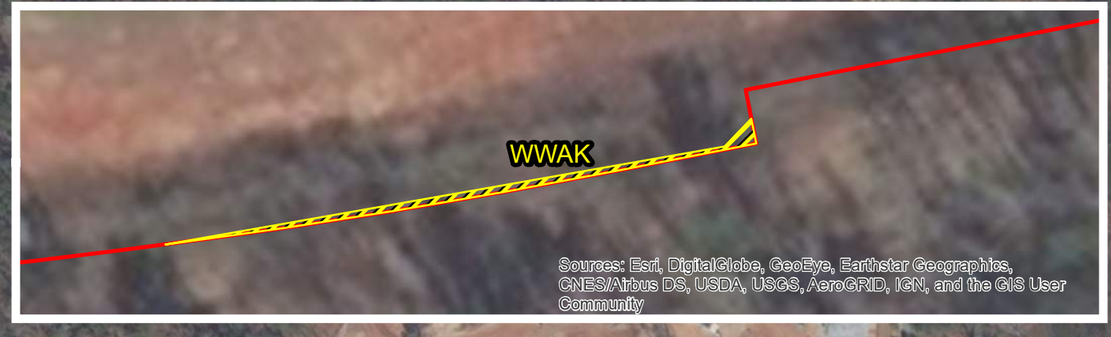
WWAI

WWAJ

WWAK

WWAC

Critical Area



Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Study Area Boundary - 89.44 acres
- Delineated Wetlands - 4.34 acres
- Critical Area - 0.53 acres

THREE OAKS ENGINEERING · THREE OAKS ENGINEERING ·

Prepared For:

CHARLESTON COUNTY
SOUTH CAROLINA

Glenn McConnell Parkway

Widening and Improvements

Charleston County, South Carolina

Date:	May 02, 2019
Scale:	1:2,400
Job No.:	18-036
Drawn By: WCB	Checked By: TRC

Figure

6

THREE OAKS ENGINEERING · THREE OAKS ENGINEERING ·

Prepared For:

CHARLESTON COUNTY
SOUTH CAROLINA

Glenn McConnell Parkway

Widening
and
Improvements

Charleston County,
South Carolina

Date:	May 02, 2019
Scale:	1:2,400
Job No.:	18-036
Drawn By: WCB	Checked By: TRC

Figure

7

Delineated Wetlands				
Name	**Area**	**Latitude**	**Longitude**	**Figure**
WRC	0.11	32.826552	-80.079422	2
WRD	0.01	32.825424	-80.077765	2
WRF	0.05	32.824398	-80.075831	2
WRG	0.24	32.824937	-80.076898	2
WRH	0.68	32.823735	-80.076526	2
WRI	0.10	32.821762	-80.072572	2 & 3
WRK	0.49	32.822517	-80.074166	2 & 3
WRP	0.09	32.821703	-80.070897	3
WWAA	0.05	32.815290	-80.060888	5
WWAB	0.01	32.814179	-80.060836	5
WWAC	0.89	32.811385	-80.049782	6 & 7
WWAD	0.11	32.812660	-80.059048	5
WWAF	0.07	32.812278	-80.048054	5
WWAI	0.01	32.811781	-80.057998	5 & 6
WWAJ	0.02	32.811116	-80.056579	5 & 6
WWAK	0.01	32.810773	-80.052917	6
WWT	0.03	32.818369	-80.066363	4
WWV1	0.04	32.817770	-80.065366	4
WWV2	0.02	32.817319	-80.064684	4
WWV3	0.01	32.816834	-80.064035	4
WWW	0.84	32.816118	-80.063002	4
WWY	0.01	32.817362	-80.063357	4 & 5
WWZ	0.48	32.816624	-80.062540	4 & 5
TOTAL	**4.34**			

Delineated Non-Wetlands (Streams)				
Name	**Length (ft)**	**Latitude**	**Longitude**	**Figure**
SRA	380.00	32.823460	-80.075249	2

Delineated Non-Wetlands (Critical Area)				
Name	**Area (acres)**	**Latitude**	**Longitude**	**Figure**
Critical Area	0.53	32.811929	-80.050167	6, 7

Proposed Widening of

SC 461 - Glenn McConnell Parkway

Charleston County, South Carolina

Preliminary Jurisdictional Determination Package

Request to Have Critical Area Line Established Package

Prepared for:

DAVIS & FLOYD, INC.

&

CHARLESTON COUNTY
SOUTH CAROLINA

Prepared by:

THREE OAKS ENGINEERING · THREE OAKS ENGINEERING ·

1310 Lady Street, Suite 400
Columbia, South Carolina 29201

February 2019

Three Oaks Engineering, Inc.
1310 Lady Street, Suite 400
Columbia, South Carolina 29201
c/o Mr. Russell Chandler - (803) 360-5197

February 5, 2019

US Army Corps of Engineers
Regulatory Division
69A Hagood Avenue
Charleston, SC 29403

Subject: Preliminary Jurisdictional Determination Request Package;
Glenn McConnell Parkway (SC 461) Widening & Improvements; Charleston County, SC

Dear Sir/Madam:

Charleston County, in coordination with the South Carolina Department of Transportation (SCDOT), proposes to widen the Glenn McConnell Parkway (SC 461) in Charleston County, South Carolina. The proposed project is located between Bees Ferry Road (S-10-57) and Magwood Drive (S-10-1863), approximately 3.5 miles in length. The purpose of the proposed project is to improve traffic congestion by increasing roadway capacity within the Glenn McConnell Parkway corridor.

A project study area (PSA) has been established to encompass all potential impacts of the project. The PSA encompasses a total of approximately 218 acres, and includes the following:

- An area, approximately 600 feet wide, established 300 feet from both sides of the existing centerline of Glenn McConnell Parkway from Bees Ferry Road to Magwood Drive (approximately 3.5 miles)
- An area encompassing potential design improvements to intersecting roadways, business entrances, and side roads throughout the corridor
- Sufficient area to encompass any potential drainage improvements or other construction activities that may go beyond the existing Right of Way

Prior to conducting fieldwork, Three Oaks Engineering staff reviewed reference material including:

- US Geological Survey (USGS) 7.5 minute topographic quadrangles: John's Island, SC (1958, ed. 1979)
- US Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database: Charleston County, South Carolina (2013)
- USDA-NRCS National List of Hydric Soils Database; National List; South Carolina. (Last updated 2018)
- US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Seamless Wetlands Data for South Carolina (Last updated October 2018)
- USGS National Hydrography Dataset (NHD) for South Carolina (Last updated May 2018)

- South Carolina Department of Natural Resources (SCDNR) 1:24000 ft Hydrography Dataset (2009)
- SCDNR LiDAR Digital Elevation Model (DEM) 10x10 ft grid: Charleston County (2015)
- South Carolina Department of Health and Environmental Control (SCDHEC) Office of Coastal Zone Management (OCRM) Coastal Zone Feature Classification data (2015)
- 0.5 meter Color Orthoimagery; Charleston County, South Carolina (2017)

Field delineations began on September 4, 2018 and were concluded on October 8, 2018. During the field survey window there were regular rain events as well as two hurricanes (Florence and Michael) that affected the corridor and field studies.

The boundaries of delineated waters within the PSA were flagged (delineated) in the field at that time. Wetlands were delineated with pink flagging tape, pre-printed with the words "Wetland Delineation" in black letters. Non-Wetlands were delineated with white and blue stripped flagging tape. Furthermore, delineated waters and flag locations were geolocated using a handheld Trimble Geo7x Global Positioning System (GPS) unit capable of sub-meter accuracy. Representative photographs of delineated features and routine wetland determination forms were obtained throughout the corridor and are included as part of this request package.

Field reviews of the PSA identified; thirty-seven freshwater wetlands, totaling 26.93 acres; seven Non-Wetland ponds/waters, totaling 2.88 acres and two Non-Wetland streams, totaling 836 linear feet (lf).

Coordinates of the delineated features identified within the PSA are provided in Tables 1 through 3 below. These tables are also included in the attached request package along with depictions of the delineated features.

TABLE 1

Delineated Wetlands				
Name	**Area**	**Latitude**	**Longitude**	**Figure**
WRA	0.16	32.827277	-80.079726	2
WRB	0.02	32.824734	-80.078706	2
WRC	1.77	32.826814	-80.078981	2
WRD	0.15	32.825731	-80.077606	2
WRE	0.02	32.825723	-80.077094	2
WRF	0.38	32.824285	-80.075468	2
WRG	0.65	32.825049	-80.076920	2
WRH	2.18	32.823464	-80.076452	2
WRI	0.14	32.821267	-80.073078	3
WRJ	0.05	32.821941	-80.073572	3
WRK	0.12	32.822015	-80.074054	2, 3
WRL	0.40	32.823568	-80.073837	2
WRM	0.27	32.823154	-80.072636	3
WRN	1.25	32.823064	-80.071480	3
WRO	0.01	32.822450	-80.070551	3

WRP	0.18	32.821724	-80.070866	3
WRQ	1.49	32.819622	-80.069647	3
WRR	0.19	32.819037	-80.068144	3
WWAA	0.15	32.815343	-80.060709	4
WWAB	0.02	32.814173	-80.060862	4
WWAC	4.02	32.811138	-80.049779	5, 6
WWAD	0.91	32.812415	-80.059317	4, 5
WWAE	0.06	32.812495	-80.047990	6
WWAF	0.09	32.812291	-80.048053	6
WWAG	0.04	32.810923	-80.057035	5
WWAH	0.14	32.812235	-80.058951	5
WWAI	0.10	32.811770	-80.058081	5
WWAJ	1.05	32.810761	-80.056703	5
WWAK	1.17	32.810721	-80.053395	5
WWS	0.43	32.817646	-80.066046	3, 4
WWT	1.47	32.818117	-80.066813	3, 4
WWU	0.05	32.817773	-80.065407	4
WWV	1.81	32.816912	-80.064717	4
WWW	2.22	32.816083	-80.063224	4
WWX	0.74	32.815718	-80.063680	4
WWY	2.33	32.817995	-80.063759	4
WWZ	0.70	32.816612	-80.062453	4
TOTAL	**26.93 acres**			

TABLE 2

Delineated Non-Wetlands (Open Water)				
Name	**Area (acres)**	**Latitude**	**Longitude**	**Figure**
OWRA	0.06	32.819306	-80.068788	3
OWWB	2.11	32.812116	-80.050276	5, 6
SPA	0.02	32.819290	-80.066128	3
SPB	0.01	32.819190	-80.065928	3
SPC	0.10	32.816740	-80.061767	4
SPD	0.23	32.814922	-80.059990	4
SPE	0.35	32.812704	-80.060002	4, 5
TOTAL	**2.88 acres**			

TABLE 3

Delineated Non-Wetlands (Streams)				
Name	**Length (ft)**	**Latitude**	**Longitude**	**Figure**
SRA	612	32.823344	-80.075427	2
SWB	224	32.812065	-80.059457	4, 5
TOTAL	**836 feet**			

If you have any questions, or if Three Oaks Engineering can be of additional assistance, please feel free to contact Russell Chandler at (803) 360-5197 or by email: russell.chandler@threeoaksengineering.com.

Respectfully,

T. Russell Chandler, II
Three Oaks Engineering

Enclosures

cc:

Ms. Sunshine Trakas, Charleston County Transportation Development (w/enclosures)
Mr. Brian Taylor, Davis & Floyd (w/ enclosures)
SCDHEC-OCRM, Wetlands Section Permitting (w/enclosures)

Three Oaks Engineering, Inc.
1310 Lady Street, Suite 400
Columbia, South Carolina 29201
c/o Mr. Russell Chandler - (803) 360-5197

February 5, 2019

SCDHEC - OCRM
Attn: Wetland Section Permitting
1362 McMillan Ave, Suite 400
Charleston, SC 29405

Subject: Request to Have a Critical Line Established Package;
Glenn McConnell Parkway (SC 461) Widening & Improvements; Charleston County, SC

Dear Sir/Madam:

Charleston County, in coordination with the South Carolina Department of Transportation (SCDOT), proposes to widen the Glenn McConnell Parkway (SC 461) in Charleston County, South Carolina. The proposed project is located between Bees Ferry Road (S-10-57) and Magwood Drive (S-10-1863), approximately 3.5 miles in length. The purpose of the proposed project is to improve traffic congestion by increasing roadway capacity within the Glenn McConnell Parkway corridor.

A project study area (PSA) has been established to encompass all potential impacts of the project. The PSA encompasses a total of approximately 218 acres, and includes the following:

- An area, approximately 600 feet wide, established 300 feet from both sides of the existing centerline of Glenn McConnell Parkway from Bees Ferry Road to Magwood Drive (approximately 3.5 miles)
- An area encompassing potential design improvements to intersecting roadways, business entrances, and side roads throughout the corridor
- Sufficient area to encompass any potential drainage improvements or other construction activities that may go beyond the existing Right of Way

Prior to conducting fieldwork, Three Oaks Engineering staff reviewed reference material including:

- US Geological Survey (USGS) 7.5 minute topographic quadrangles: John's Island, SC (1958, ed. 1979)
- US Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database: Charleston County, South Carolina (2013)
- USDA-NRCS National List of Hydric Soils Database; National List; South Carolina. (Last updated 2018)
- US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Seamless Wetlands Data for South Carolina (Last updated October 2018)
- USGS National Hydrography Dataset (NHD) for South Carolina (Last updated May 2018)

- South Carolina Department of Natural Resources (SCDNR) 1:24000 ft Hydrography Dataset (2009)
- SCDNR LiDAR Digital Elevation Model (DEM) 10x10 ft grid: Charleston County (2015)
- South Carolina Department of Health and Environmental Control (SCDHEC) Office of Coastal Zone Management (OCRM) Coastal Zone Feature Classification data (2015)
- 0.5 meter Color Orthoimagery; Charleston County, South Carolina (2017)

Field delineations began on September 4, 2018 and were concluded on October 8, 2018. During the field survey window there were regular rain events as well as two hurricanes (Florence and Michael) that affected the corridor and field studies.

The boundaries of delineated waters within the PSA were flagged (delineated) in the field at that time. Wetlands were delineated with pink flagging tape, pre-printed with the words "Wetland Delineation" in black letters. Non-Wetlands were delineated with white and blue stripped flagging tape. Furthermore, delineated waters and flag locations were geolocated using a handheld Trimble Geo7x Global Positioning System (GPS) unit capable of sub-meter accuracy. Representative photographs of delineated features and routine wetland determination forms were obtained throughout the corridor and are included as part of this request package.

Field reviews of the PSA identified; thirty-seven freshwater wetlands, totaling 26.93 acres; seven Non-Wetland ponds/waters, totaling 2.88 acres and two Non-Wetland streams, totaling 836 linear feet (lf).

Coordinates of the delineated features identified within the PSA are provided in Tables 1 through 3 below. These tables are also included in the attached request package along with depictions of the delineated features.

TABLE 1

Delineated Wetlands				
Name	**Area**	**Latitude**	**Longitude**	**Figure**
WRA	0.16	32.827277	-80.079726	2
WRB	0.02	32.824734	-80.078706	2
WRC	1.77	32.826814	-80.078981	2
WRD	0.15	32.825731	-80.077606	2
WRE	0.02	32.825723	-80.077094	2
WRF	0.38	32.824285	-80.075468	2
WRG	0.65	32.825049	-80.076920	2
WRH	2.18	32.823464	-80.076452	2
WRI	0.14	32.821267	-80.073078	3
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WWT	1.47	32.818117	-80.066813	3, 4
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If you have any questions, or if Three Oaks Engineering can be of additional assistance, please feel free to contact Russell Chandler at (803) 360-5197 or by email: russell.chandler@threeoaksengineering.com.

Respectfully,

T. Russell Chandler, II
Three Oaks Engineering

Enclosures

cc:

Ms. Sunshine Trakas, Charleston County Transportation Development (w/enclosures)
Mr. Brian Taylor, Davis & Floyd (w/ enclosures)
US Army Corps of Engineers, Regulatory Division (w/enclosures)

U.S. Army Corps of Engineers – Charleston District - Regulatory Division

REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD) / DELINEATION

(For Jurisdictional Status and Identifying Wetlands and Other Aquatic Resources)

I. PROPERTY AND AGENT INFORMATION

A. Site Details/Location:

Site Name: SC 461 - Glenn McConnell Parkway Date: 02-05-2019

City/Township/Parish: Charleston County: Charleston

Latitude/Longitude: Start: 32.826782, -80.080242 End: 32.8117515, -80.042290 Acreage: 217.98

Tax Map Sequence (TMS) #(s):

Property Address(es): Existing and Potential New Right of Way along SC 461 (Glenn McConnell Parkway)

[✔] Please attach a survey/plat map and vicinity map identifying location and review area for the JD/delineation. An accurate depiction of the review area must be provided (survey, tax map, or GPS coordinates). Tax maps may only be used if the site includes the entire tax map parcel.

B. Requestor of Jurisdictional Determination/Delineation *(if there are multiple property owners, please attach additional pages)*

Name: Ms. Sunshine Trakas

Company Name (*if applicable*): Charleston County - Transportation Development

Address: 4045 Bridgeview Drive, Suite C204, North Charleston, SC 29405

Phone: (843) 202-6154 Email: STrakas@charlestoncounty.org

Check one: [ ] I currently own this property

[ ] I plan to purchase this property

[✔] Other, please explain Existing and Potential New Right of Way

C. Agent/Environmental Consultant Acting on Behalf of the Requestor *(if applicable)*:

Consultant/Agent Name: Russell Chandler

Company Name: Three Oaks Engineering

Address: 1310 Lady Street, Suite 400, Columbia, SC 29201 Phone: 803-360-5197

Email: russell.chandler@threeoaksengineering.com

II. REASON FOR REQUEST *(check all that apply)*

[ ] I intend to construct/develop a project or perform activities on this site which would be designed to avoid all aquatic resources.

[ ] I intend to construct/develop a project or perform activities on this site which would be designed to avoid all jurisdictional aquatic resources under Corps authority.

[✔] I intend to construct/develop a project or perform activities on this site which may require authorization from the Corps, and the Jurisdictional Determination would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.

[ ] I intend to construct/develop a project or perform activities on this site which may require authorization from the Corps; this request is accompanied by my permit application and the jurisdictional determination is to be used in the permitting process.

[ ] I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is subject to the ebb and flow of the tide.

[ ] A Corps jurisdictional determination is required in order to obtain my local/state authorization.

[ ] I intend to contest jurisdiction over a particular aquatic resource and the request the Corps to confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.

[ ] I believe that the site may be comprised entirely of dry land.

[ ] Other:

*Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.

Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.

Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.

Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an jurisdictional determination cannot be evaluated nor can a jurisdictional determination be issued.

III. TYPE OF REQUEST:

☐ **Approved[1] Jurisdictional Determination (AJD) Only**

☑ **Preliminary[2] Jurisdictional Determination (PJD) Only**

☐ **Approved Jurisdictional Determination (AJD)** with submittal of a Pre-Construction Notification or Department of the Army permit application

☐ **Preliminary Jurisdictional Determination (PJD)** with submittal of a Pre-Construction Notification or Department of the Army permit application

☐ **Delineation of Wetlands and/or Other Aquatic Resources Only Conducted By Agent/Environmental Consultant** with submittal of a Pre-Construction Notification or Department of the Army permit application (No jurisdictional determination requested)

☐ I request that the **Corps delineate** the wetlands and/or other aquatic resources that may be present on my property with the attached **Pre-Construction Notification or Department of the Army permit application**

☐ I request that the **Corps delineate** the wetlands and/or other aquatic resources that may be present on my property **with an AJD or PJD**

☐ **"No Permit Required" (NPR) Letter** as I believe my proposed activity is not regulated[3]

☐ **Unclear** as to which jurisdictional determination I would like to request and require additional information to inform my decision

[1]Approved – An AJD is defined in Corps regulations at 33 CFR 331.2. As explained in further detail in RGL 16-01, an AJD is used to indicate that this office has identified the presence or absence of wetlands and/or other aquatic resources on a site, including their accurate location(s) and boundaries, as well as their jurisdictional status. AJDs are valid for 5 years.

[2]Preliminary – A PJD is defined in Corps regulations at 33 CFR 331.2. As explained in further detail in RGL 16-01, a PJD is used to indicate that this office has identified the approximate location(s) and boundaries of wetlands and/or other aquatic resources on a site that are presumed to be subject to regulatory jurisdiction of the Corps of Engineers. Unlike an AJD, a PJD does not represent a definitive, official determination that there are, or that there are not, jurisdictional aquatic resources on a site, and does not have an expiration date.

[3] "No Permit Required" (NPR) Letter- A NPR letter may be provided by the Corps to notify the requestor that an activity will not require a permit (authorization) from the Corps; this letter can only be used if the proposed activity is not a regulated activity, regardless of where the activity may occur. A NPR letter cannot be used to indicate the presence or absence of wetlands and/or other aquatic resources, nor can it be used to determine their jurisdictional status.

IV. **LEGAL RIGHT OF ENTRY**

By signing below, I am indicating that I have the authority, or am acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant U.S. Army Corps of Engineers personnel right of entry to legally access the property(ies) subject to this request for the purposes of conducting on-site investigations (e.g., digging and refilling shallow holes) and issuing a jurisdictional determination. I acknowledge that my signature is an affirmation that I possess the requisite property rights to request a jurisdictional determination on the properties subject to this request.

1310 Lady Street, Suite 400, Columbia, SC 29201	
Mailing Address	Property Address / TMS #(s)
russell.chandler@threeoaksengineering.com	(803) 360-5197
Email Address	Daytime Phone Number
T. Russell Chandler	T. Russell Chandler, II 02/05/2019
*Signature:	Printed Name and Date

Charleston Office:	**Columbia Office:**	**Conway Office:**
US Army Corps of Engineers Regulatory Division 69A Hagood Avenue Charleston, SC 29403 (ph) 843-329-8044	US Army Corps of Engineers Regulatory Office 1835 Assembly Street, Room 865 B-1 Columbia, SC 29201 (ph) 803-253-3444	US Army Corps of Engineers Regulatory Office 1949 Industrial Park Road, Room 140 Conway, SC 29526 (ph) 843-365-4239

*Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an jurisdictional determination cannot be evaluated nor can a jurisdictional determination be issued.

Request to Have a Critical Area Line Established

Property owners: Name: Ms. Sunshine Trakas -- Charleston County Transportation Development

Address: 4045 Bridgeview Drive, Suite C024, North Charleston, SC 29405

Email: STrakas@charlestoncounty.org Phone number: (843) 202-6154

Surveyor: Name: Russell Chandler -- Three Oaks Engineering

Email: russell.chandler@threeoaksengineering.com Phone number: (803) 360-5197

This is a request to:

- [x] Set a new critical area line
- [ ] Certify a line set by OCRM
- [ ] Certify a line set by another party
- [ ] Resubmittal

Site address: SC 641 - Glenn McConnell Parkway County: Charleston

Tax map number: 3090000260 & 3060000007 Acreage: approx. 5 acres

Adjacent waterbody/marshes of: Church Creek and Long Branch

Special instructions (examples–dog, locked gate, landmarks, marked property corners):

Please coordinate directly with the surveyor listed above. Surveyor would like to meet on-site with DHEC-OCRM project manager to discuss their assessment.

Please attach any previous plats or surveys and a site map. This form must be completed in full in order for OCRM to process the request. Any additional information that will assist staff fulfill this request may be included. Incomplete requests will be returned.

Please submit this request to:

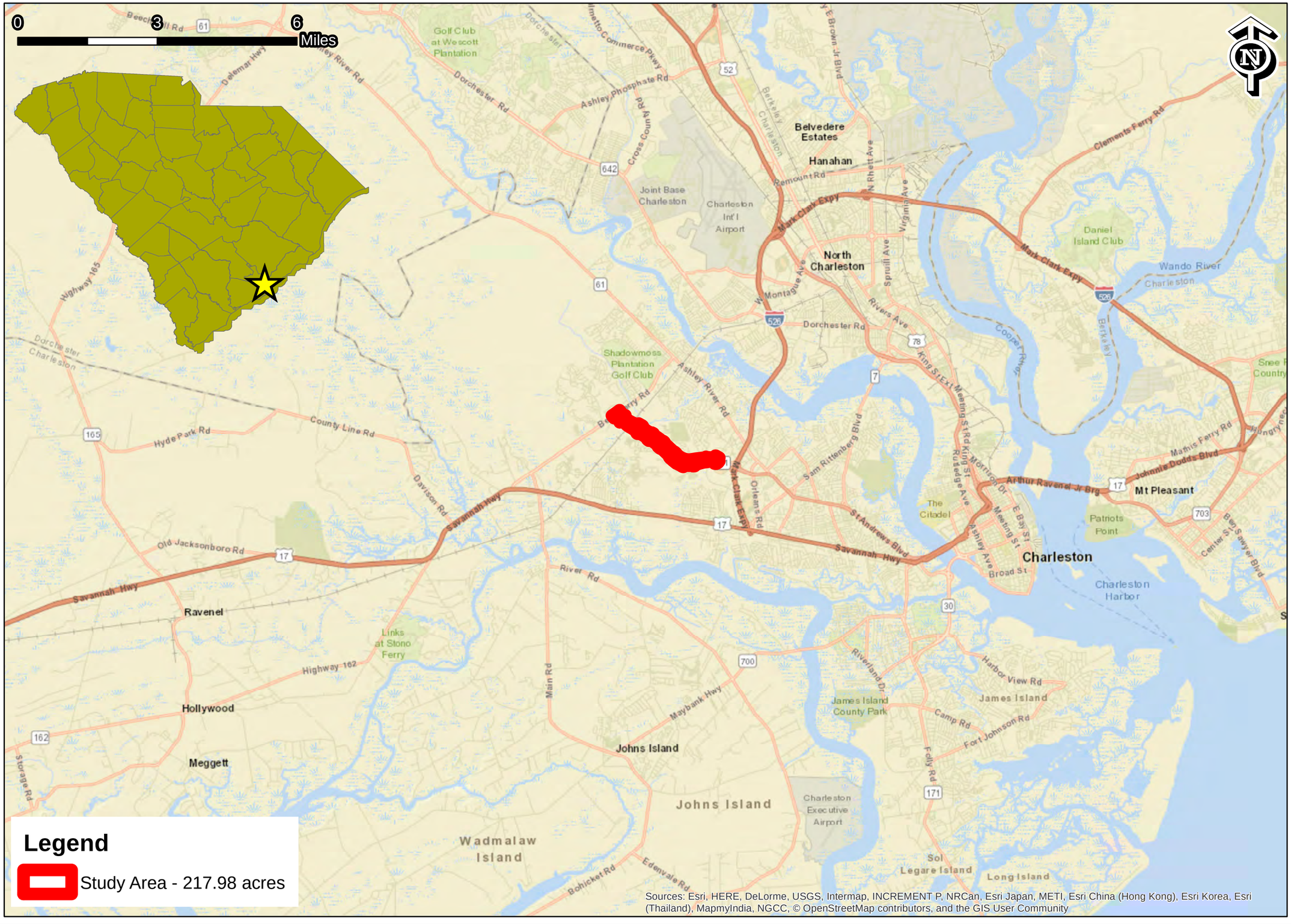
DHEC OCRM
Attn: Wetland Section Permitting
1362 McMillan Ave., Suite 400
Charleston, SC 29405

For official use only:

Tracking #: _____ Date received: _____

Date flagged: _____ Date certified: _____

Supplemental Maps



THREE OAKS ENGINEERING

Prepared For:

CHARLESTON COUNTY
SOUTH CAROLINA

SC 461

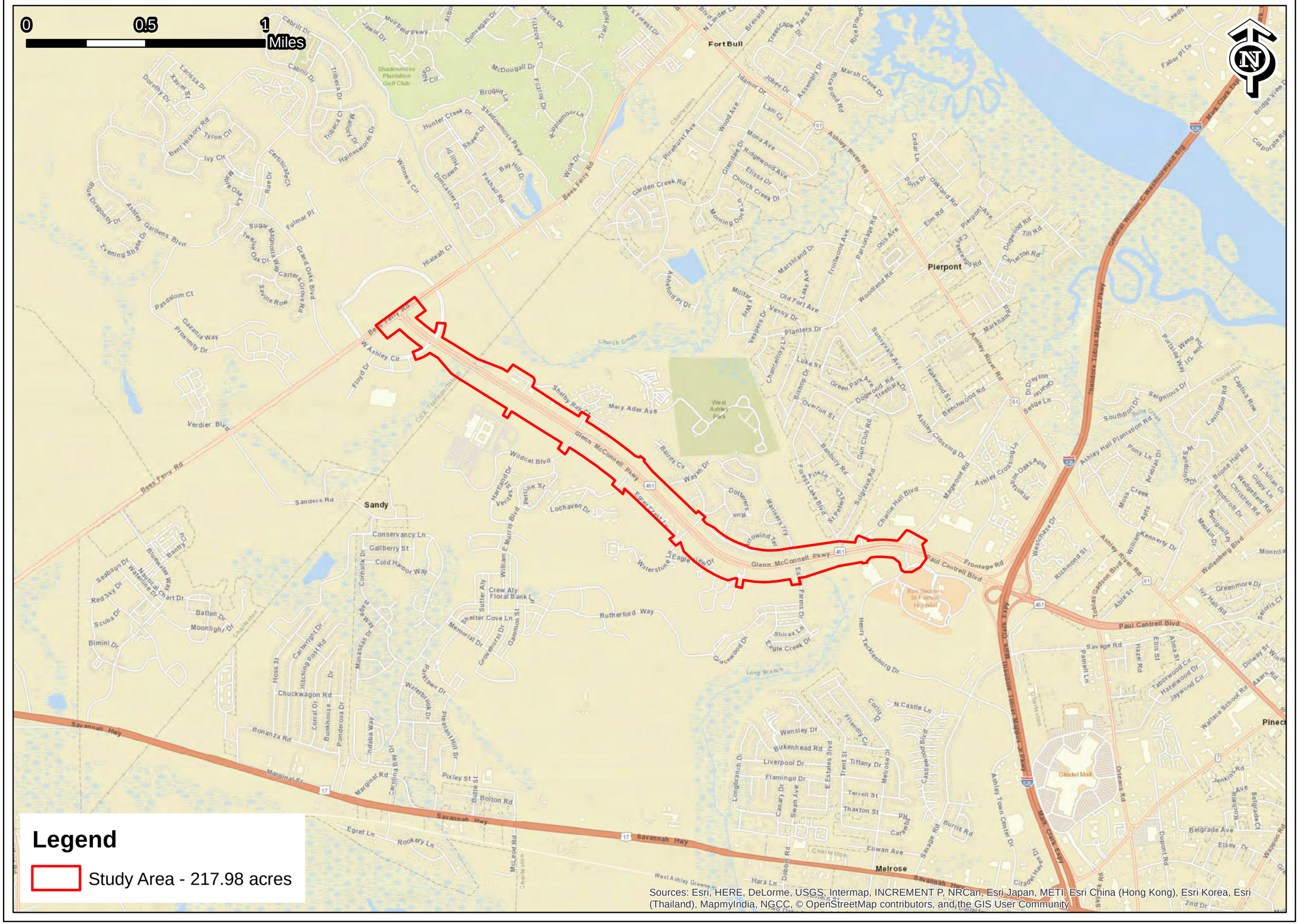
Glenn McConnell Parkway

Widening and Improvements

Charleston County, South Carolina

Date:	February 2019
Scale:	1:124,000
Job No.:	18-036
Drawn By: WCB	Checked By: TRC

Small Scale Location Map



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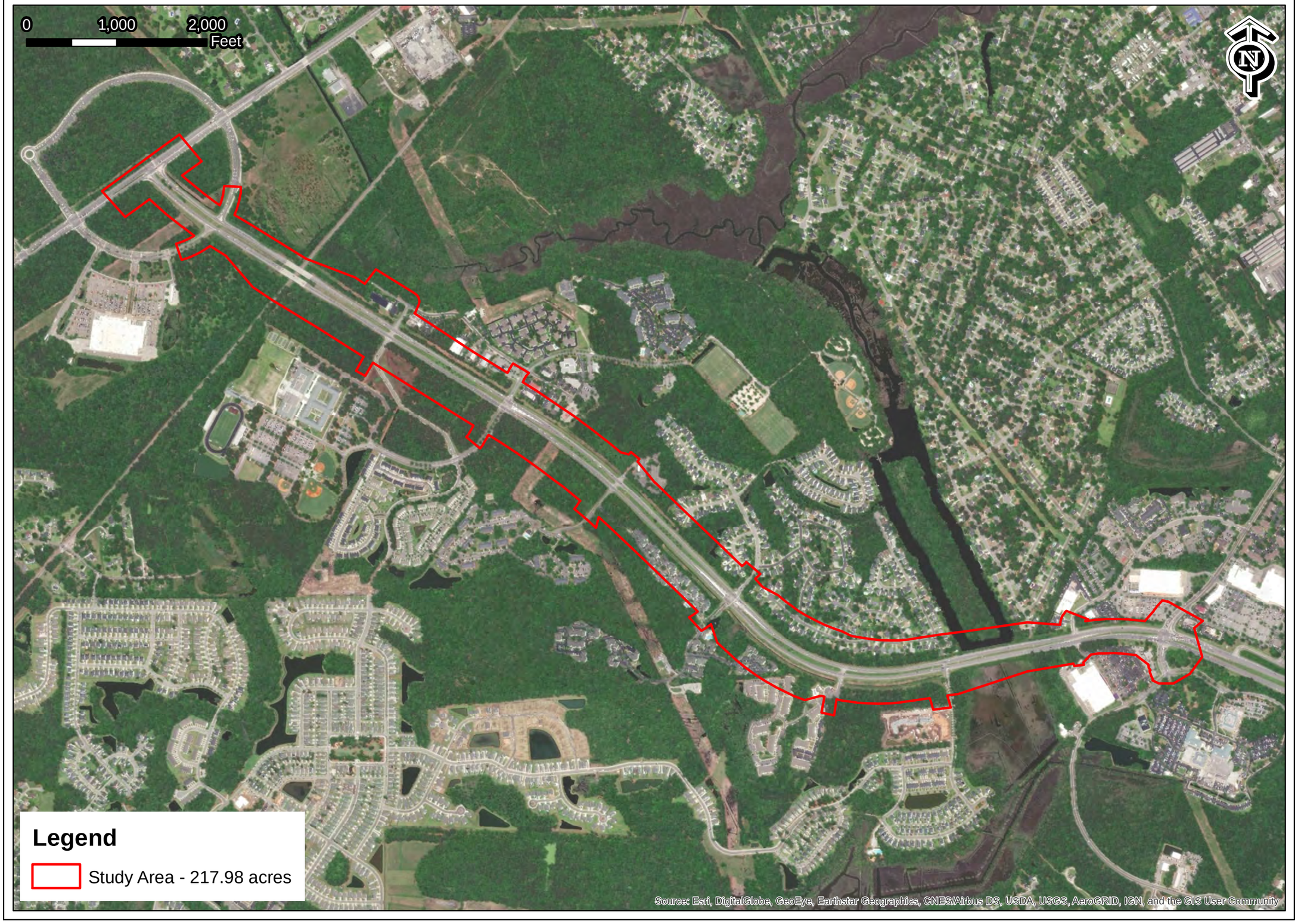
Large Scale Location Map



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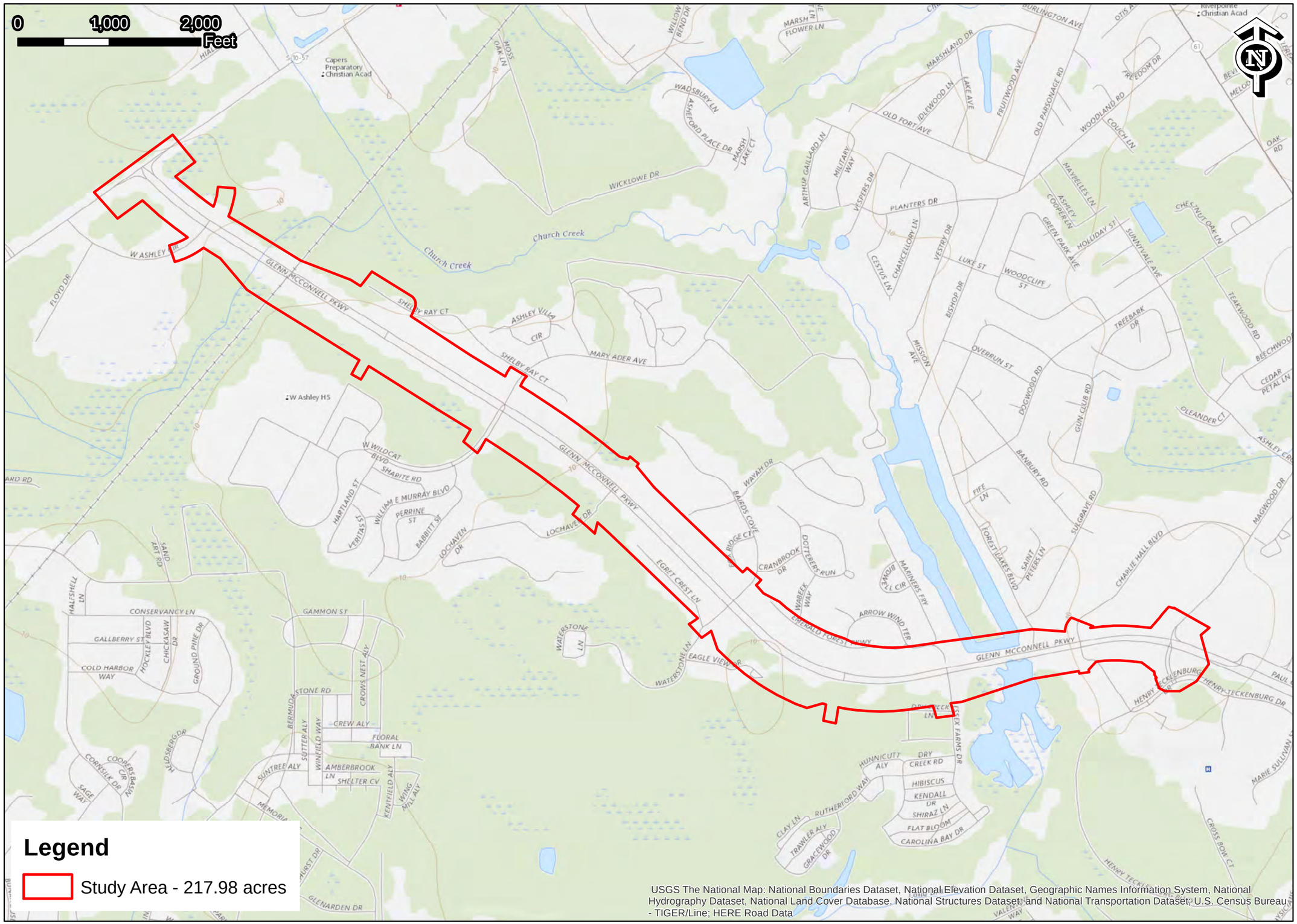
Aerial Imagery



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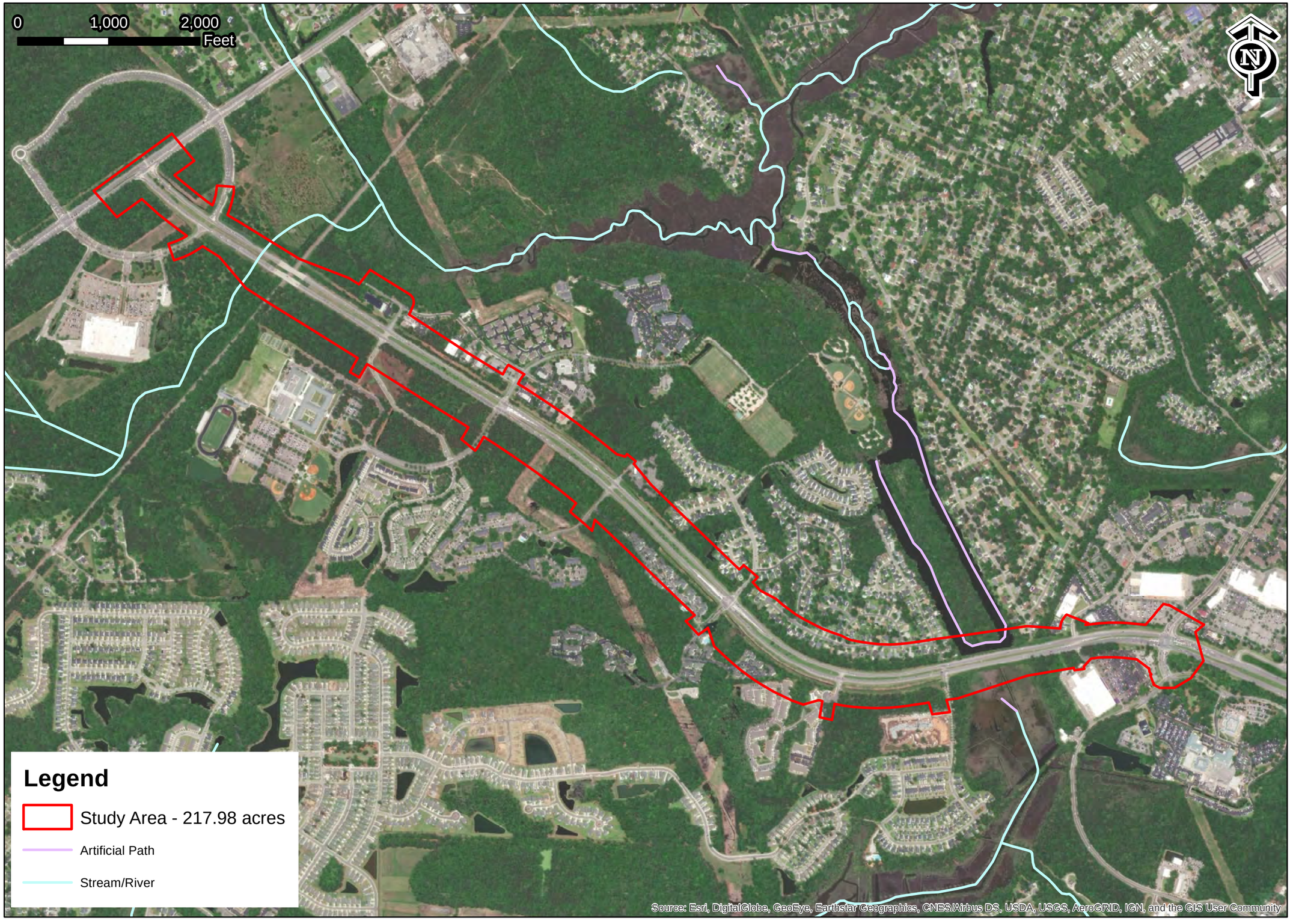
USGS Topographic Map



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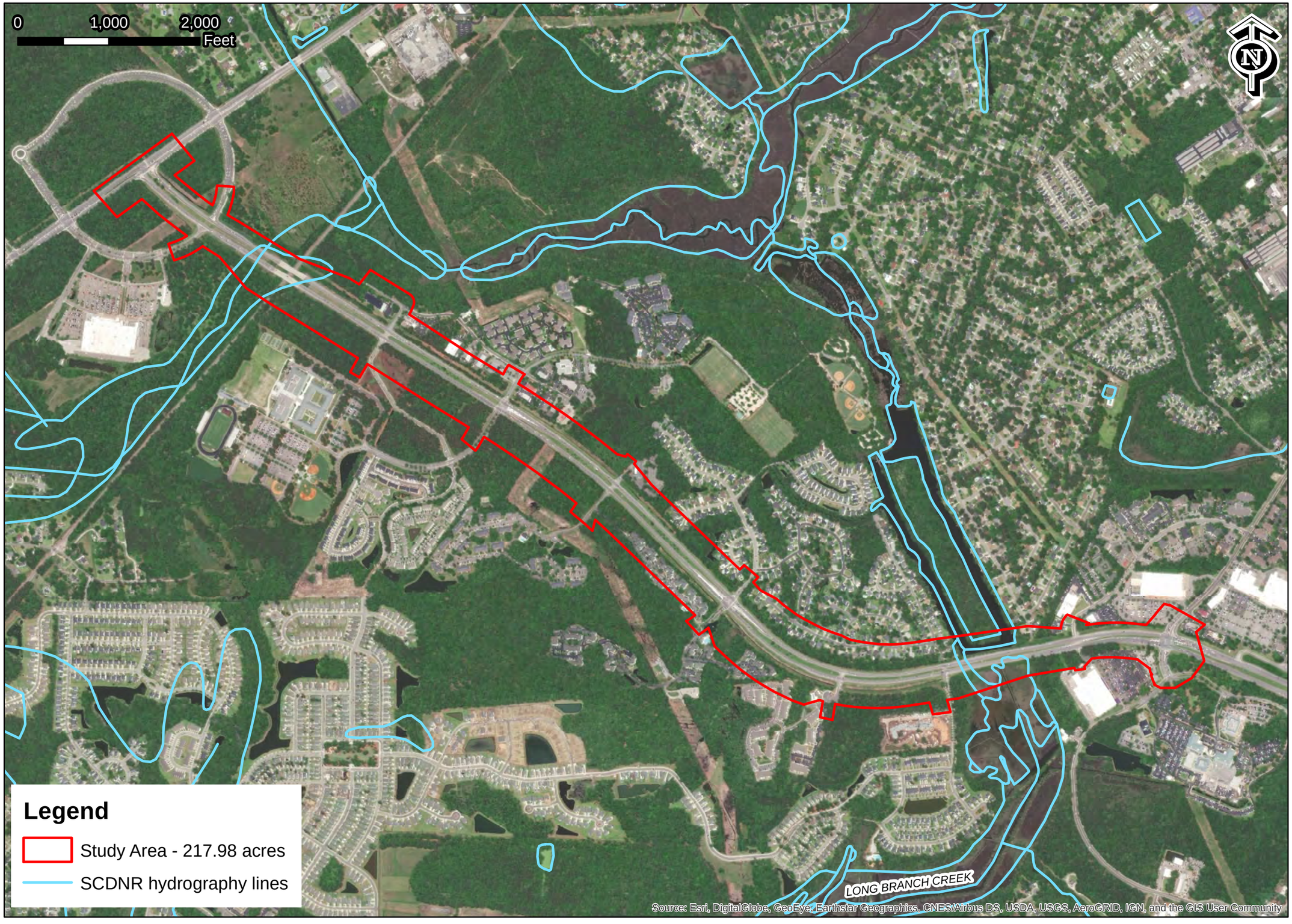
USGS NHD Flowlines Map



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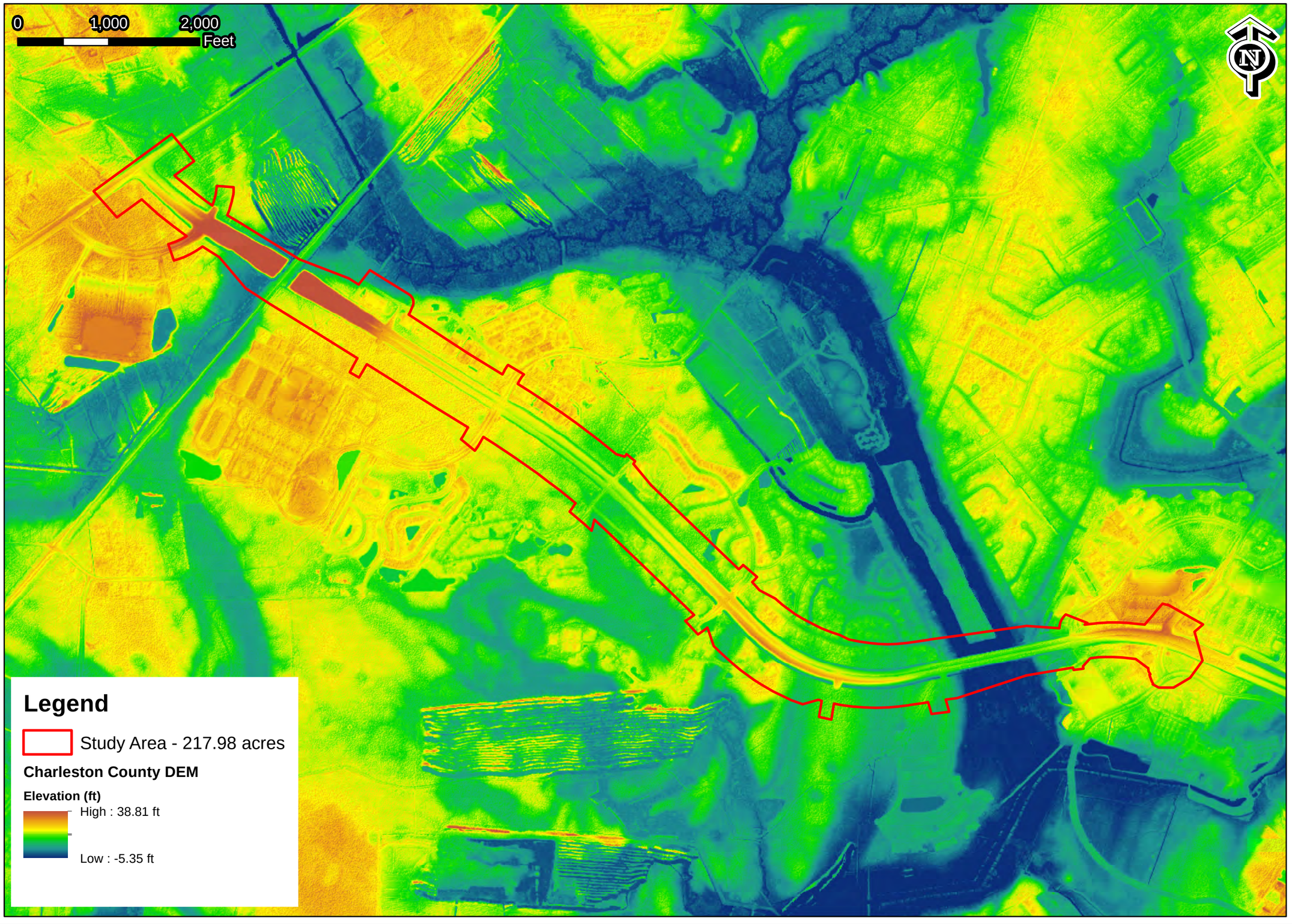
SCDNR Hydrography Map



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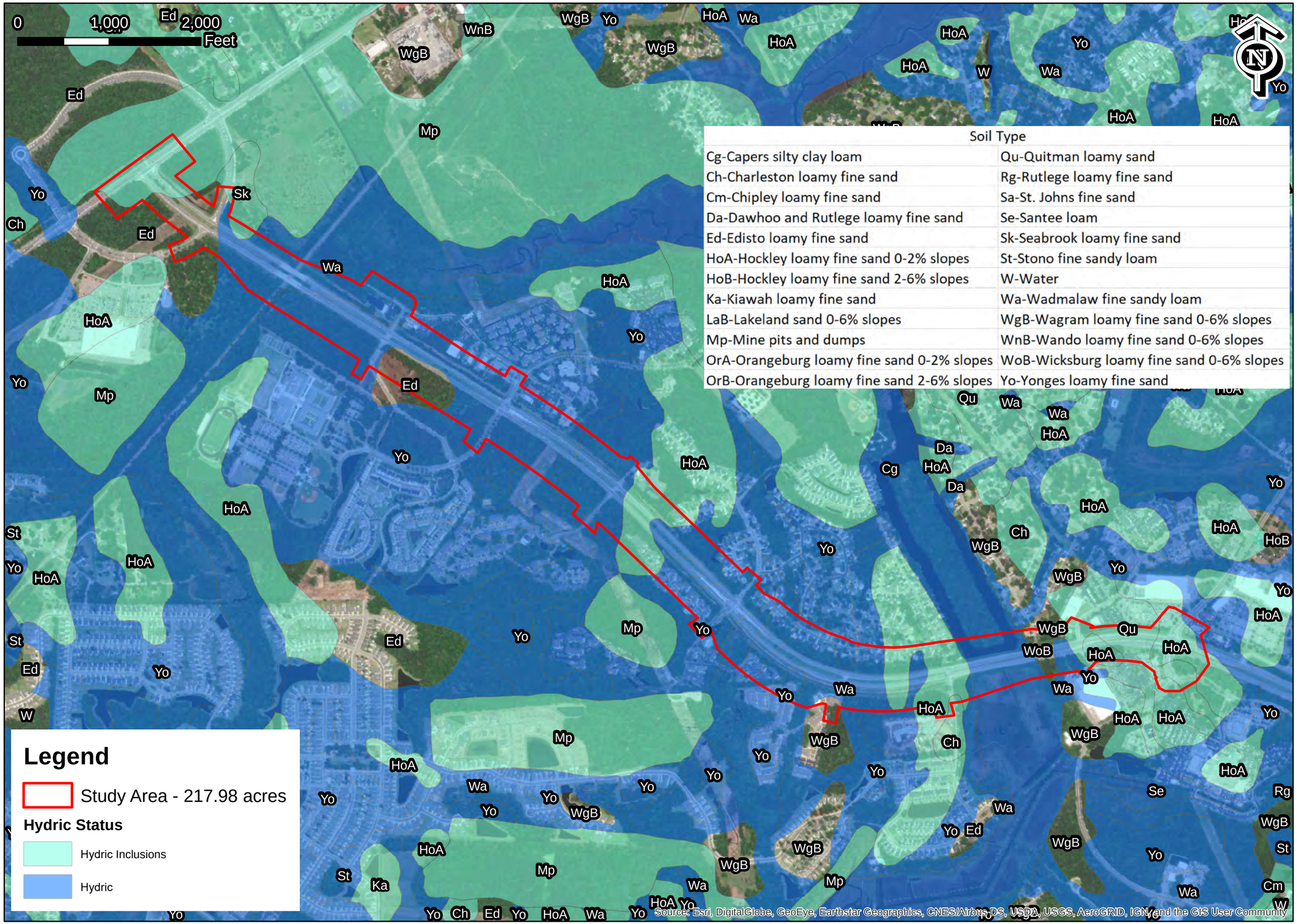
Digital Elevation Model



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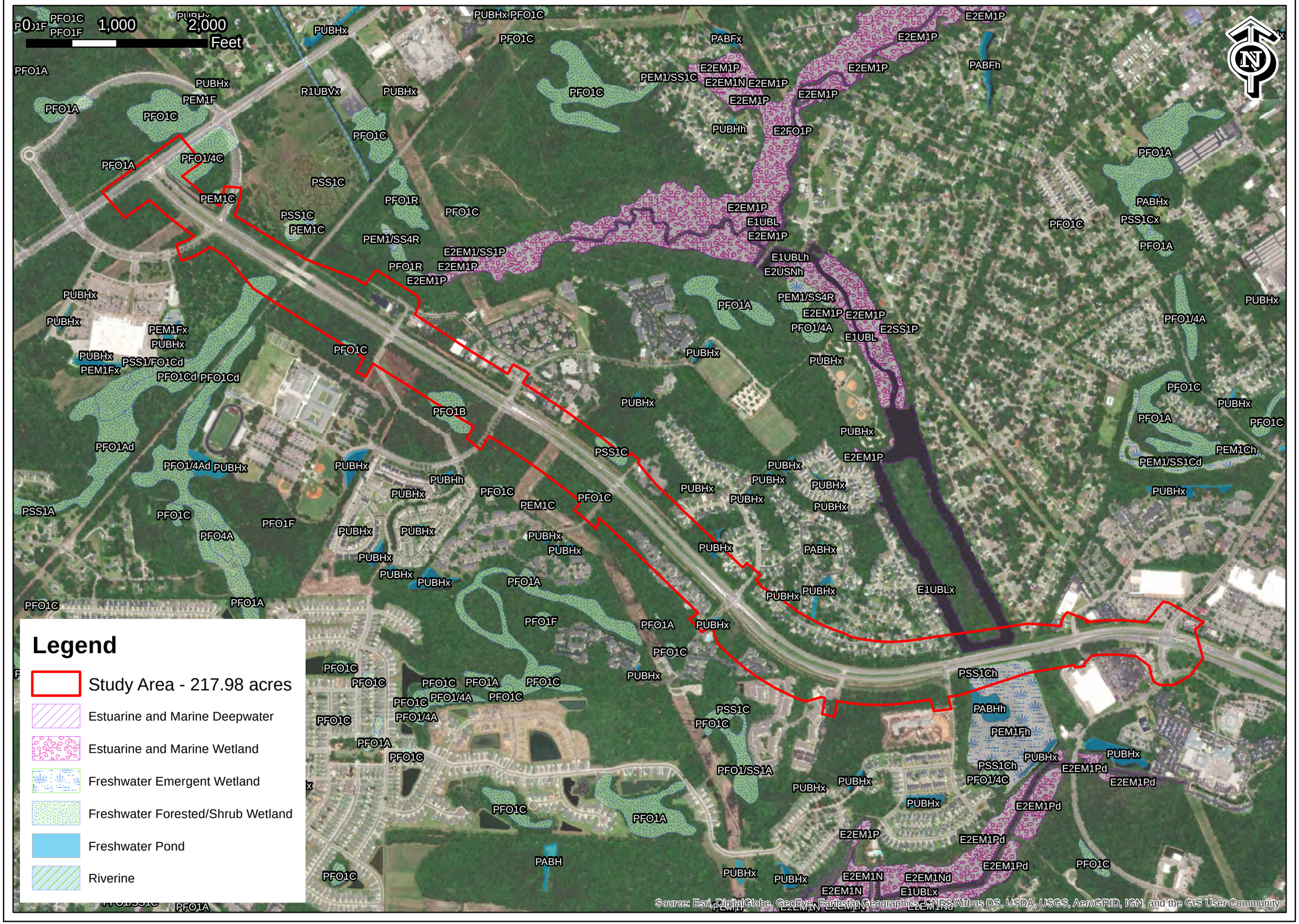
Drawn By: WCB	Checked By: TRC

NRCS Soils Map



THREE OAKS ENGINEERING

Prepared For:

CHARLESTON COUNTY
SOUTH CAROLINA

SC 461

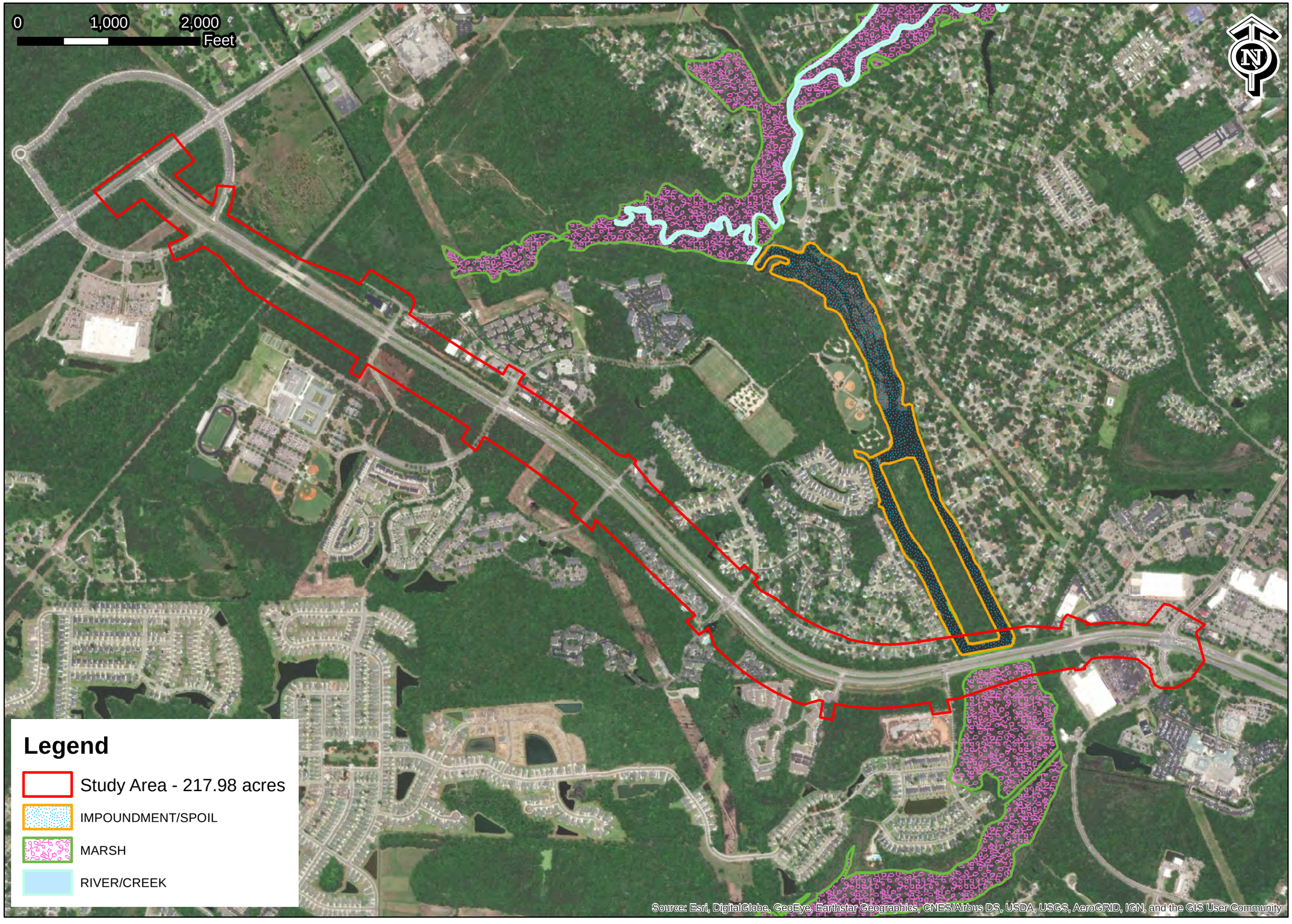
Glenn McConnell Parkway

Widening and Improvements

Charleston County, South Carolina

Date:	February 2019
Scale:	1:12,000
Job No.:	18-036
Drawn By: WCB	Checked By: TRC

NWI Map



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SCDHEC-OCRM Coastal Zone Feature Classification Map

Delineated Wetland and Non-Wetland Table & Figures

SC 461

Glenn McConnell Parkway Widening Improvements

TABLE 1

Delineated Wetlands				
Name	**Area**	**Lattitude**	**Longitude**	**Figure**
WRA	0.16	32.827277	-80.079726	2
WRB	0.02	32.824734	-80.078706	2
WRC	1.77	32.826814	-80.078981	2
WRD	0.15	32.825731	-80.077606	2
WRE	0.02	32.825723	-80.077094	2
WRF	0.38	32.824285	-80.075468	2
WRG	0.65	32.825049	-80.076920	2
WRH	2.18	32.823464	-80.076452	2
WRI	0.14	32.821267	-80.073078	3
WRJ	0.05	32.821941	-80.073572	3
WRK	0.12	32.822015	-80.074054	2, 3
WRL	0.40	32.823568	-80.073837	2
WRM	0.27	32.823154	-80.072636	3
WRN	1.25	32.823064	-80.071480	3
WRO	0.01	32.822450	-80.070551	3
WRP	0.18	32.821724	-80.070866	3
WRQ	1.49	32.819622	-80.069647	3
WRR	0.19	32.819037	-80.068144	3
WWAA	0.15	32.815343	-80.060709	4
WWAB	0.02	32.814173	-80.060862	4
WWAC	4.02	32.811138	-80.049779	5, 6
WWAD	0.91	32.812415	-80.059317	4, 5
WWAE	0.06	32.812495	-80.047990	6
WWAF	0.09	32.812291	-80.048053	6
WWAG	0.04	32.810923	-80.057035	5
WWAH	0.14	32.812235	-80.058951	5
WWAI	0.10	32.811770	-80.058081	5
WWAJ	1.05	32.810761	-80.056703	5
WWAK	1.17	32.810721	-80.053395	5
WWS	0.43	32.817646	-80.066046	3, 4
WWT	1.47	32.818117	-80.066813	3, 4
WWU	0.05	32.817773	-80.065407	4
WWV	1.81	32.816912	-80.064717	4
WWW	2.22	32.816083	-80.063224	4
WWX	0.74	32.815718	-80.063680	4
WWY	2.33	32.817995	-80.063759	4
WWZ	0.70	32.816612	-80.062453	4
TOTAL	**26.93 acres**			

SC 461

Glenn McConnell Parkway Widening Improvements

TABLE 2

Delineated Non-Wetlands (Open Water)				
Name	**Area (acres)**	**Lattitude**	**Longitude**	**Figure**
OWRA	0.06	32.819306	-80.068788	3
OWWB	2.11	32.812116	-80.050276	5, 6
SPA	0.02	32.819290	-80.066128	3
SPB	0.01	32.819190	-80.065928	3
SPC	0.10	32.816740	-80.061767	4
SPD	0.23	32.814922	-80.059990	4
SPE	0.35	32.812704	-80.060002	4, 5
TOTAL	**2.88 acres**			

TABLE 3

Delineated Non-Wetlands (Streams)				
Name	**Length (ft)**	**Lattitude**	**Longitude**	**Figure**
SRA	612	32.823344	-80.075427	2
SWA	224	32.812065	-80.059457	4, 5
TOTAL	**836 feet**			

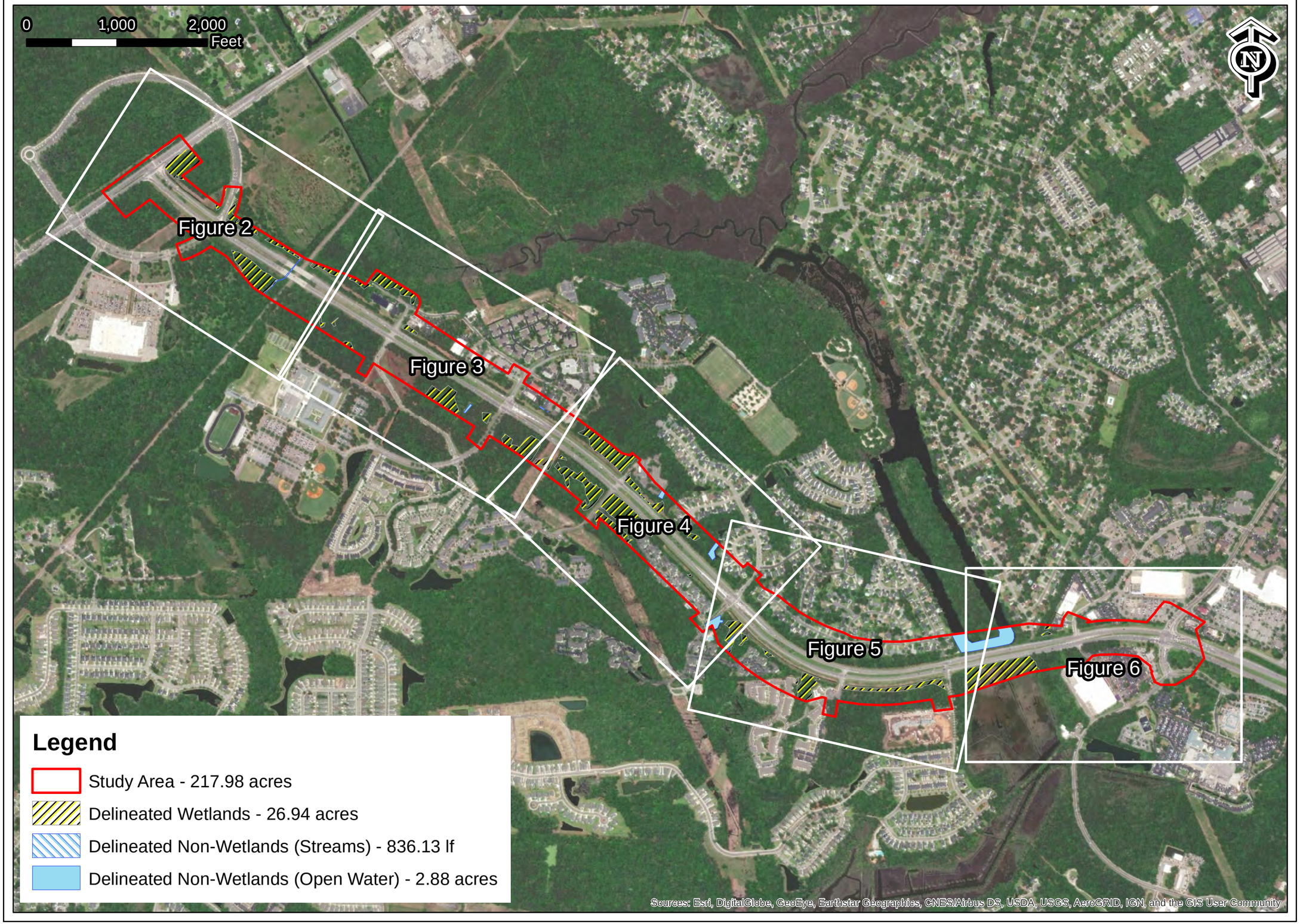

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Figure

1

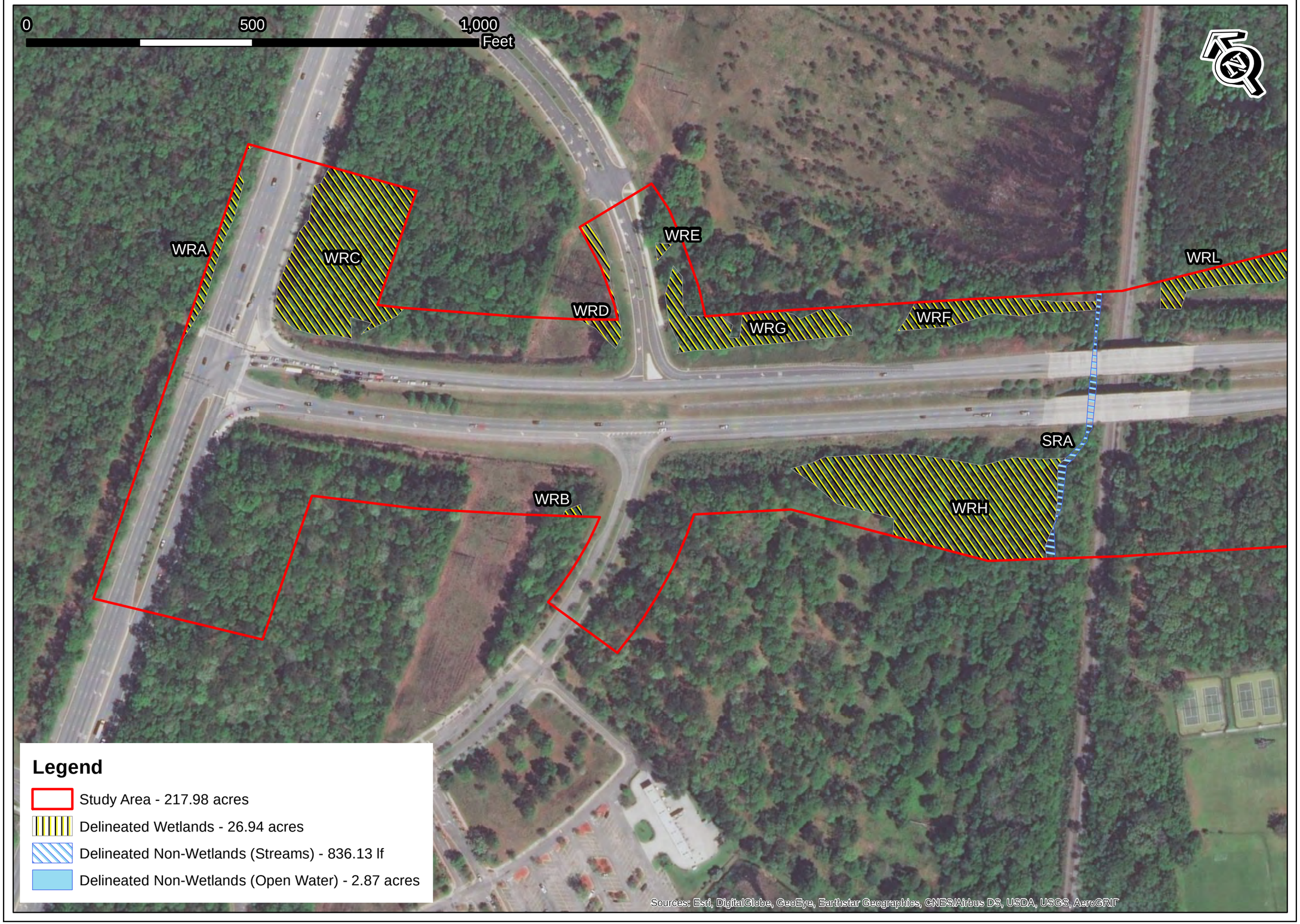

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Figure

2

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Figure
3

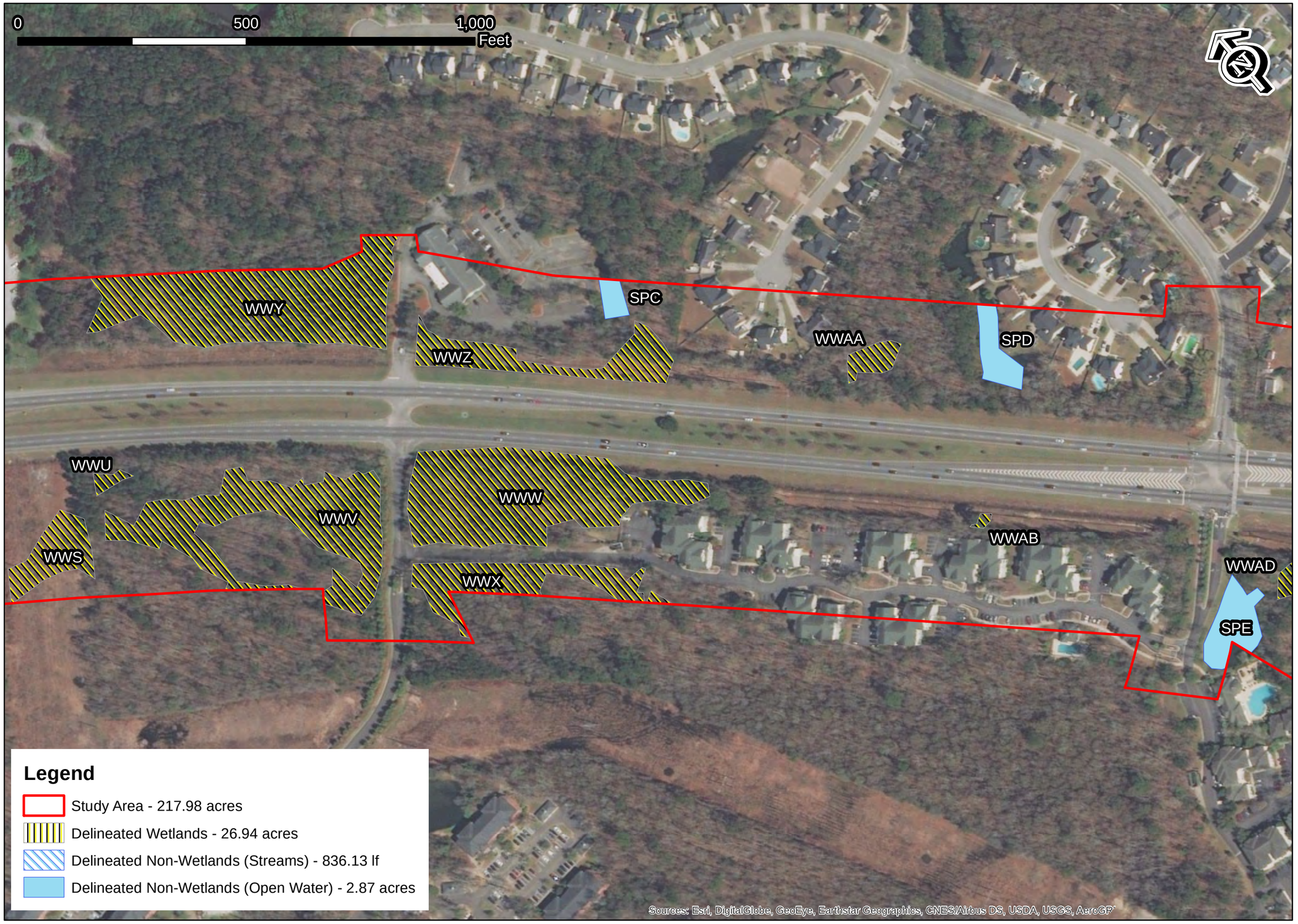

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Figure

4

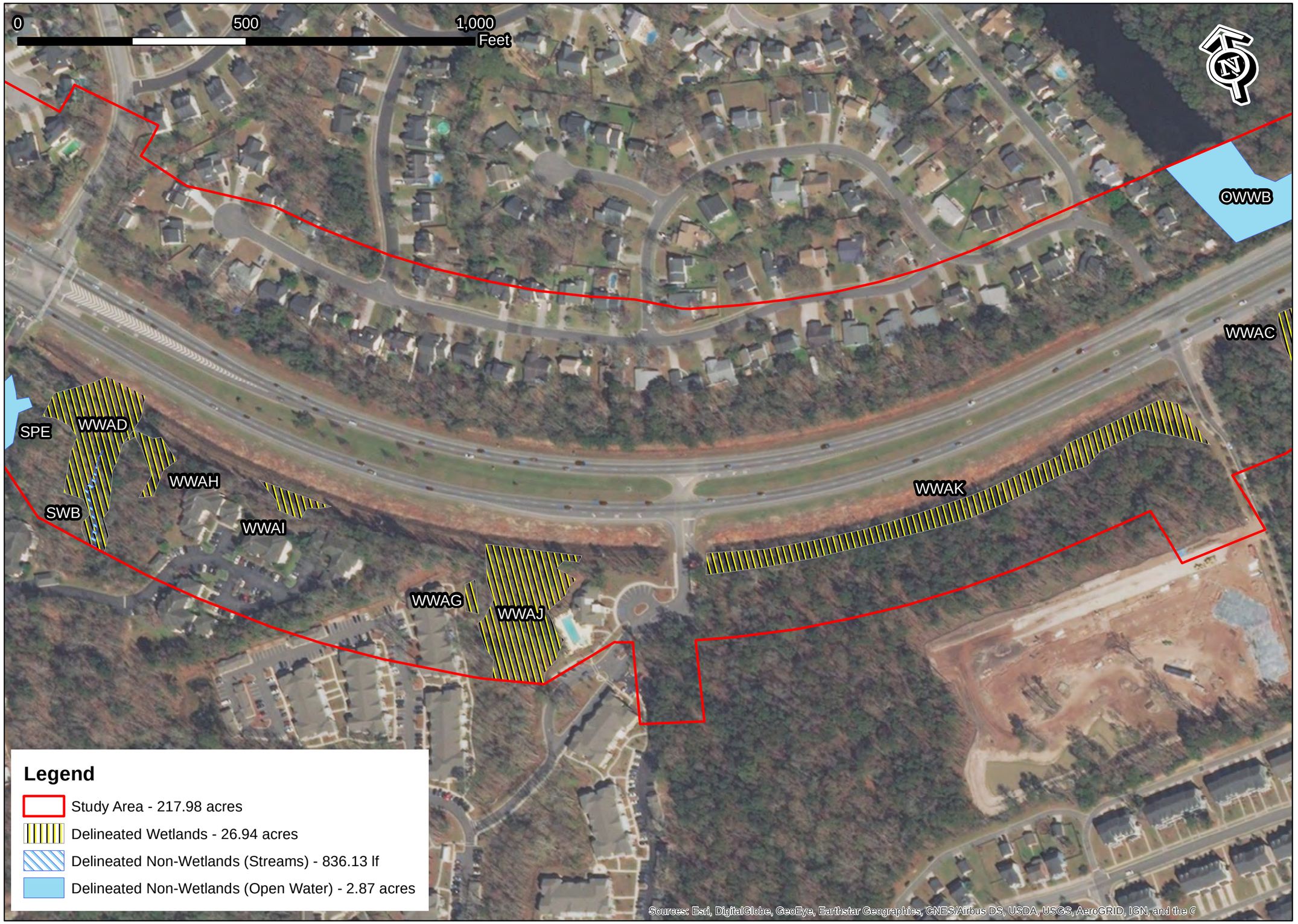

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Figure

5

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Figure

6

Photograph and Data Point Location Maps

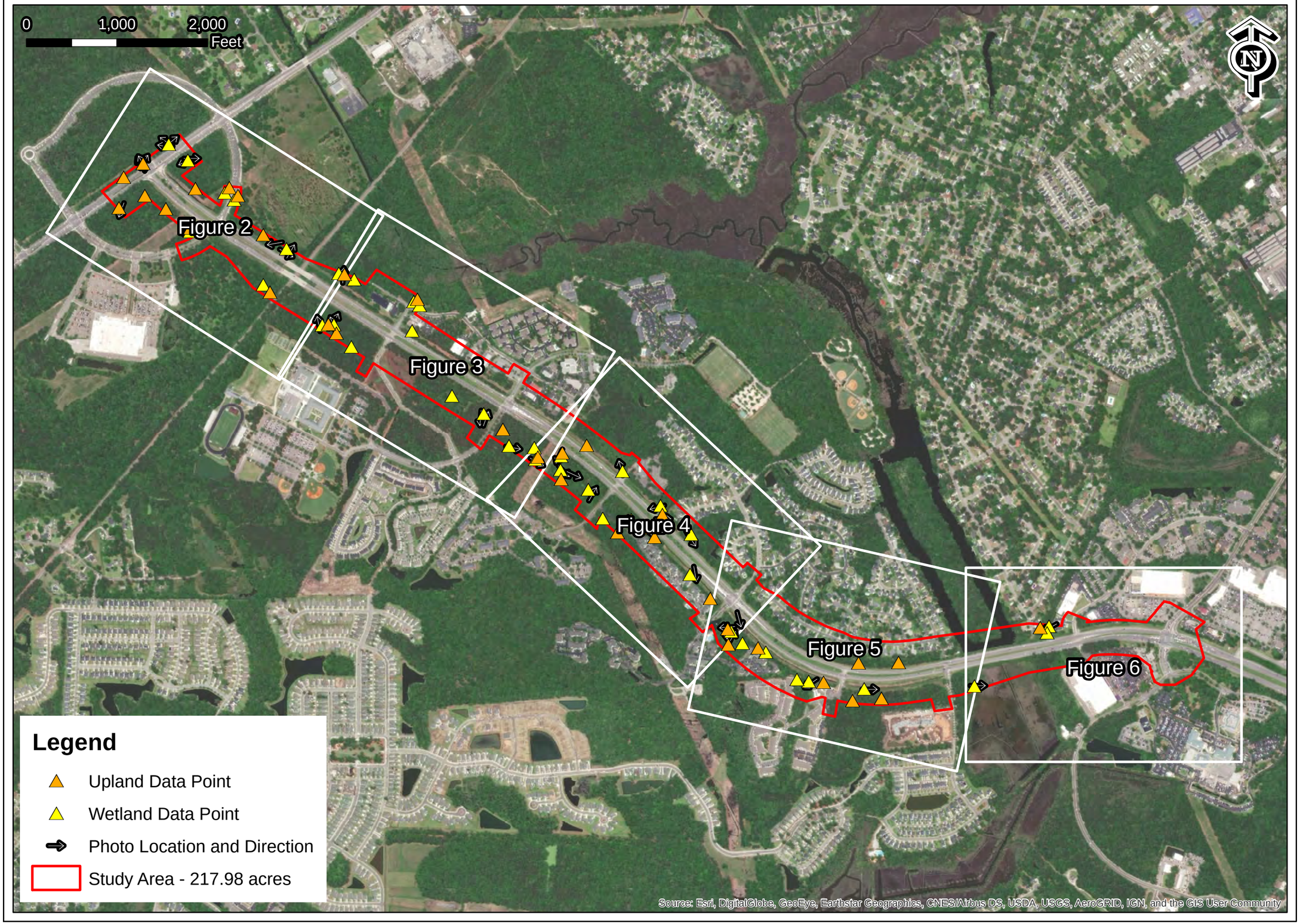

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Figure

1

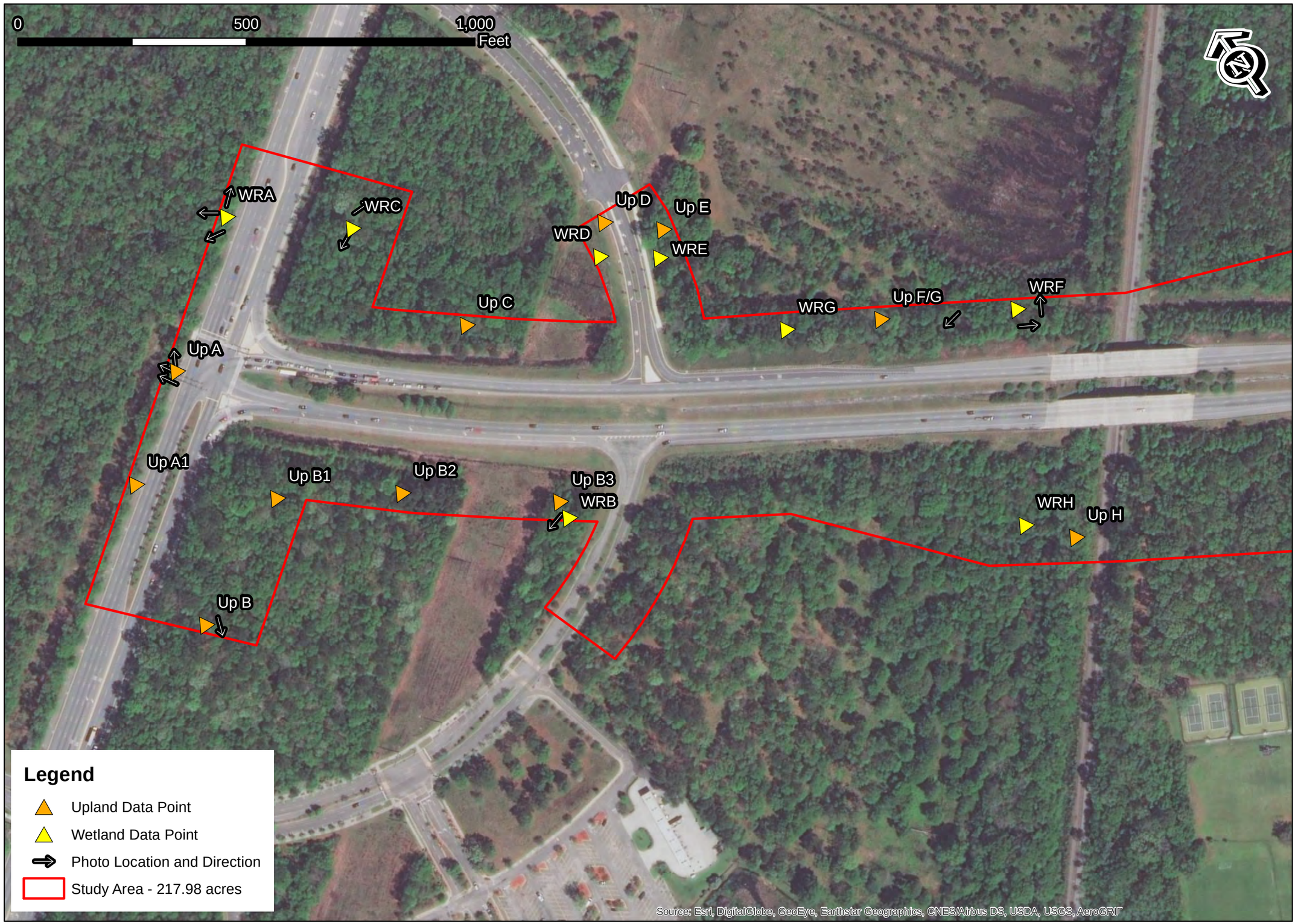

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Figure

2

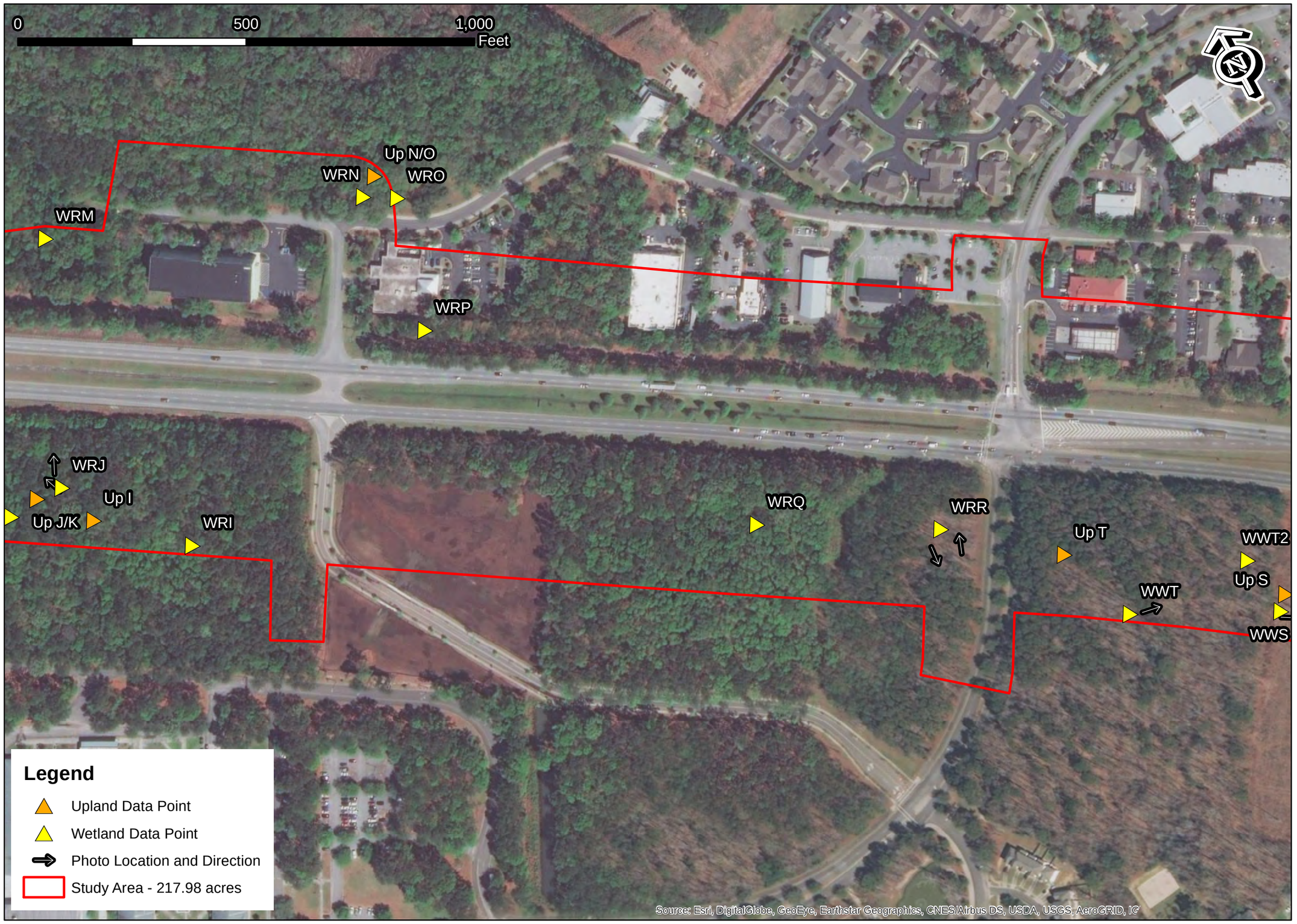

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Figure
3

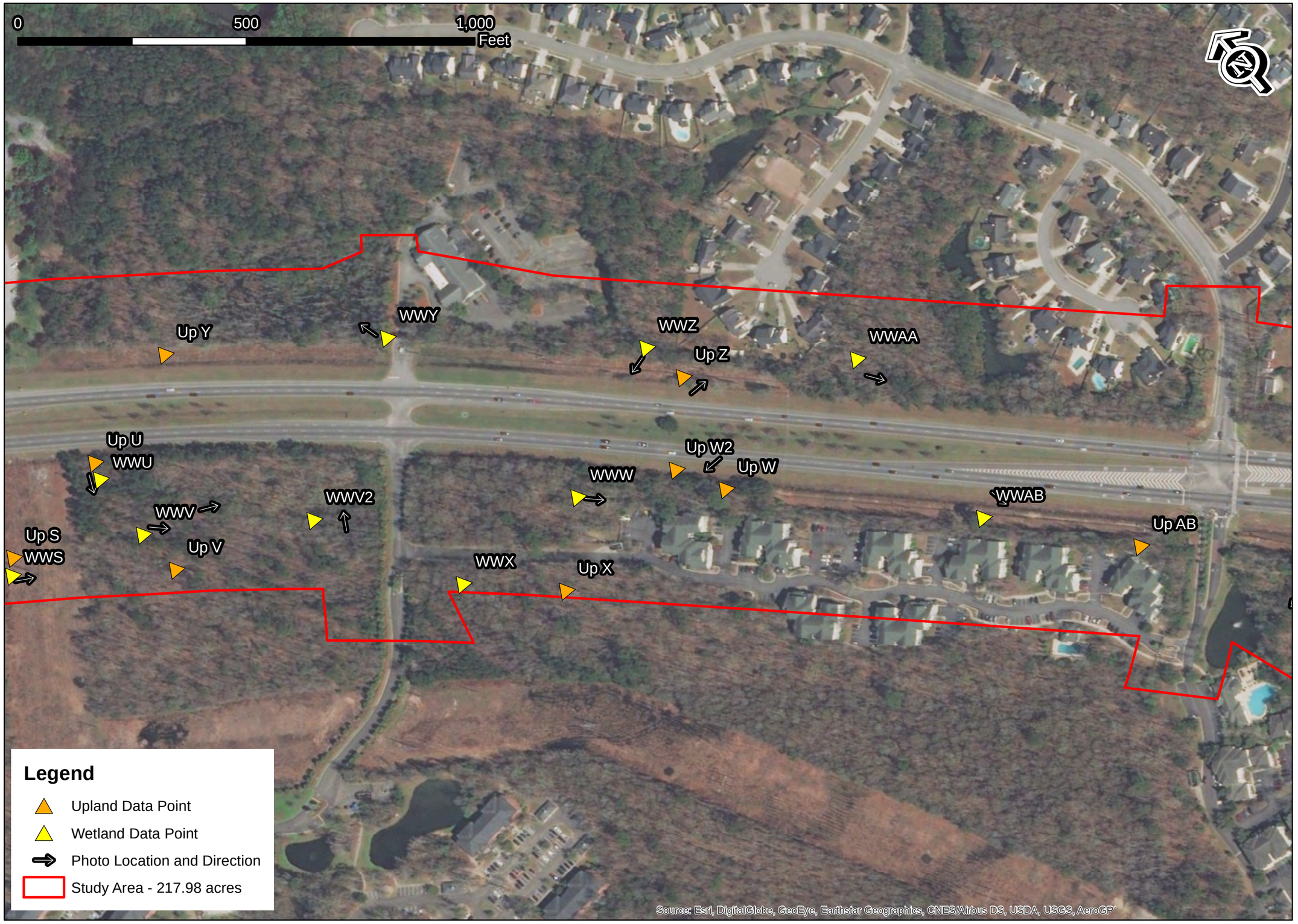

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Figure

4

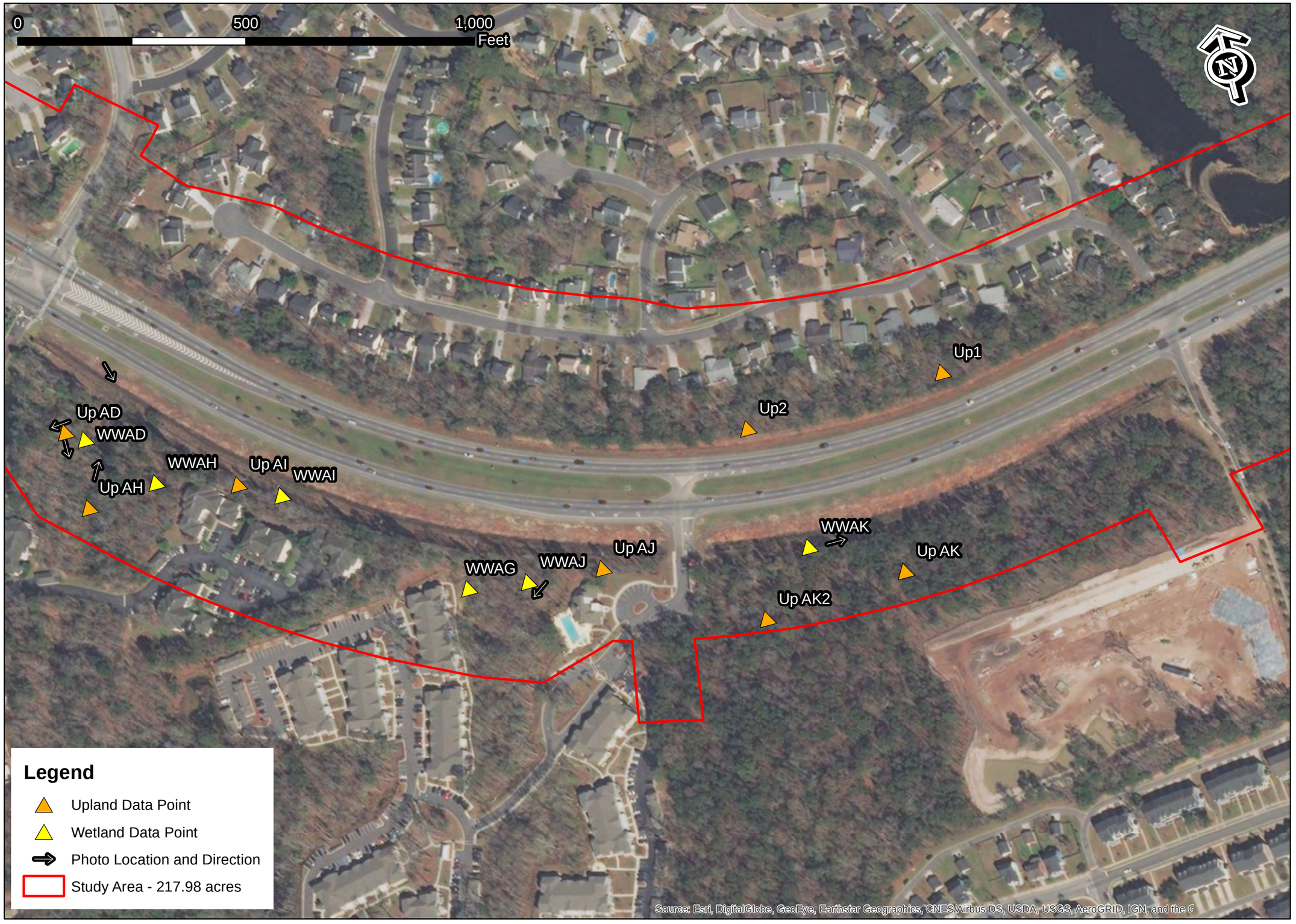

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Figure

5

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Figure

6

Photo Log

SWA

32.812255 , -80.0593641

UpA

32.826884 , -80.080358

UpA 2

32.826807 , -80.080481

UpA 3

32.826860 , -80.080434

UpAD

32.812580 , -80.059526

UpB

32.825420 , -80.081195

UpL

32.823374 , -80.073232

UpW

32.815485 , -80.062061

UpZ

32.815896 , -80.061783

WRA

32.827484 , -80.079554

WRA 2

32.8274892 , -80.079372

WRA 3

32.827351 , -80.079608

WRB

32.824760 , -80.078818

WRC

32.826869 , -80.078873

WRC 2

32.826975 , -80.078646

WRF

32.824069 , -80.075264

WRF 2

32.824364 , -80.075685

WRF 3

32.824124 , -80.075113

WRJ

32.822009 , -80.073544

WRJ 2

32.822009 , -80.073544

WRJ 3

32.821902 , -80.073619

WRK

32.821909 , -80.074136

WRR

32.819000 , -80.068332

WRR 2

32.818985 , -80.068137

WWS

32.817651 , -80.066319

WWT

32.818093 , -80.067163

WWU

32.817823 , -80.065516

WWV

32.817362 , -80.065353

WWV soil

32.817362 , -80.065353

WWV 2

32.817257 , -80.064989

WWV2

32.816663 , -80.064320

WWV2soils

32.816663 , -80.064320

WWW

32.815790 , -80.062862

WWY

32.817446 , -80.063305

WWY soil

32.817446 , -80.063305

WWY soil

32.817446 , -80.063305

WWAA

32.815247 , -80.060781

WWAA soil

32.815247 , -80.060781

WWAB

32.814213 , -80.060667

WWAC

32.810741 , -80.050524

WWAD

32.812436 , -80.059524

WWAD2

32.812809 , -80.059088

WWAE

32.812476 , -80.047913

WWAK

32.810652 , -80.054416

WWAJ soils

32.810849 , -80.056543

WWAJ

32.810849 , -80.056543

Data Forms

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 10/09/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: Up1

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-2%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.811472 Long: -80.053371 Datum: NAD83

Soil Map Unit Name: Hockley loamy fine sand 0-2% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area has scattered ditches and small depressions to allow water-stained leaves, but soils don't pass. Maybe the WSL are remnant from before houses and ditch/ highway were built.

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: Up

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus phellos	35	YES	FACW
2. Triadica sebifera	20	YES	FAC
3. Acer rubrum	10	NO	FAC
4.			
5.			
6.			
	65% = Total Cover		
50% of total cover: 32.5%	20% of total cover: 13%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Quercus phellos	20	YES	FACW
2. Acer rubrum	10	YES	FAC
3. Magnolia grandiflora	10	YES	FAC
4. Liquidambar styraciflua	10	YES	FAC
5.			
6.			
	35% = Total Cover		
50% of total cover: 17.5%	20% of total cover: 7%		
Shrub Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	% = Total Cover		
50% of total cover: %	20% of total cover: %		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	10	YES	FAC
2. Solidago sp	10	YES	FAC
3. Carex sp	3	NO	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	23% = Total Cover		
50% of total cover: 11.5%	20% of total cover: 4.6%		
Woody Vine Stratum (Plot size: _____)			
1. Smilax rotundifolia	20	YES	FAC
2. Lonicera japonica	15	YES	FAC
3. Campsis radicans	15	NO	FAC
4.			
5.			
	50% = Total Cover		
50% of total cover: 25%	20% of total cover: 10%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 11 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5"	10 YR 5/2	100					Lm Sand	
5-16"	10 YR 7/1	80					Lm Sand	
	10 YR 6/6	20						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 10/09/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: Up2

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.811459 Long: -80.054814 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area has scattered ditches and small depressions to allow water-stained leaves, but soils don't pass. Maybe the WSL are remnant from before houses and ditch/ highway were built.

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: Up2

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ulmus alata	35	YES	FACU
2. Liquidambar styraciflua	20	YES	FAC
3. Quercus michauxii	5	NO	FACW
4.			
5.			
6.			
	60% = Total Cover		
50% of total cover: 30%	20% of total cover: 12%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Quercus phellos	20	YES	FACW
2. Acer rubrum	10	YES	FAC
3. Magnolia grandiflora	10	YES	FAC
4. Liquidambar styraciflua	10	YES	FAC
5.			
6.			
	35% = Total Cover		
50% of total cover: 17.5%	20% of total cover: 7%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Phyllostachys nigra	10	YES	FACU
2.			
3.			
4.			
5.			
6.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	15	YES	FAC
2. Arundinaria gigantea	10	YES	FAC
3. Carex sp	3	NO	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	28% = Total Cover		
50% of total cover: 14%	20% of total cover: 5.6%		
Woody Vine Stratum (Plot size:)			
1. Smilax rotundifolia	20	YES	FAC
2. Lonicera japonica	15	YES	FAC
3. Campsis radicans	15	NO	FAC
4.			
5.			
	50% = Total Cover		
50% of total cover: 25%	20% of total cover: 10%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 81.8% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: Up2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5"	10 YR 5/3	100					Lm Sand	
5-16"	10 YR 7/1	80					Lm Sand	
	10 YR 6/6	20						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Soil compacted

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway | City/County: West Ashley/ Charleston | Sampling Date: 08/01/18

Applicant/Owner: SCDOT, Charleston County | State: SC | Sampling Point: WRA

Investigator(s): Three Oaks Engineering | Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested | Local relief (concave, convex, none): None | Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland | Lat: 32.827419 | Long: -80.079470 | Datum: NAD83

Soil Map Unit Name: Mp - mine pits and dumps | NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

Afternoon thunderstorms and tropical conditions are normal in this area. However, precipitation occurred during sampling and was above average for the month of July [(July Total: 10.87"; Depart from Normal: +5.40" (National Weather Service)].

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✓] Surface Water (A1)
- [✓] High Water Table (A2)
- [✓] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [✓] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [✓]	No [ ]	Depth (inches): 2
Water Table Present?	Yes [✓]	No [ ]	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes [✓]	No [ ]	Depth (inches): 3

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WRA

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Nyssa sylvatica	45	Yes	FAC
2. Quercus michauxii	25	Yes	FACW
3. Acer rubrum	18	No	FAC
4. Liquidambar styraciflua	5	No	FAC
5. Triadica sebifera	3	No	FAC
6.			
	96% = Total Cover		
50% of total cover: 48%	20% of total cover: 19.2%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Triadica sebifera	30	Yes	FAC
2. Acer rubrum	10	Yes	FAC
3. Liquidambar styraciflua	5	No	FAC
4.			
5.			
6.			
	45% = Total Cover		
50% of total cover: 22.5%	20% of total cover: 9%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Sabal minor	25	Yes	FACW
2. Ilex myrtifolia	5	No	FACW
3. Myrica cerifera	5	No	FAC
4.			
5.			
6.			
	35% = Total Cover		
50% of total cover: 17.5%	20% of total cover: 7%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	60	Yes	FAC
2. Boehmeria cylindrica	15	No	FACW
3. Arundinaria gigantea	15	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90% = Total Cover		
50% of total cover: 45%	20% of total cover: 18%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	5	Yes	FAC
2.			
3.			
4.			
5.			
	5% = Total Cover		
50% of total cover: 2.5%	20% of total cover: 1%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	85	x 2 =	170
FAC species	186	x 3 =	558
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	271 (A)		728 (B)

Prevalence Index = B/A = 2.69

Hydrophytic Vegetation Indicators:

- [✓] 1 - Rapid Test for Hydrophytic Vegetation
- [✓] 2 - Dominance Test is >50%
- [✓] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [✓] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WRA

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 yr 2/1	100					StCL	Silty Clay Loam
2-14	2.5 yr 6/1	50	7.5 YR 6/8	40	D	M	SnCL	Sandy Clay Loam
			2.5 YR 5/8	10	D	PL		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 08/01/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpA

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.826839 Long: -80.080398 Datum: NAD83

Soil Map Unit Name: Mp - mine pits and dumps NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

Afternoon thunderstorms and tropical conditions are normal in this area. However, precipitation occurred during sampling and was above average for the month of July [(July Total: 10.87"; Depart from Normal: +5.40" (National Weather Service)].

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpA

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fagus grandifolia	40	Yes	FACU
2. Quercus pagoda	20	Yes	FACW
3. Carpinus caroliniana	15	No	FAC
4. Nyssa sylvatica	5	No	FAC
5. Liquidambar styraciflua	5	No	FAC
6. Pinus taeda	3	No	FAC
	88%	= Total Cover	
50% of total cover: 44%	20% of total cover: 17.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Triadica sebifera	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	5%	= Total Cover	
50% of total cover: 2.5%	20% of total cover: 1%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Sabal minor	10	Yes	FACW
2.			
3.			
4.			
5.			
6.			
	10%	= Total Cover	
50% of total cover: 5%	20% of total cover: 2%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	60	Yes	FAC
2. Arundinaria gigantea	10	No	FACW
3. Eupatorium capillifolium	10	No	FACU
4. Boehmeria cylindrica	8	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	88%	= Total Cover	
50% of total cover: 44%	20% of total cover: 17.6%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	30	Yes	FAC
2.			
3.			
4.			
5.			
	30	= Total Cover	
50% of total cover: 15%	20% of total cover: 6%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	48	x 2 =	96
FAC species	123	x 3 =	369
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	221 (A)		665 (B)

Prevalence Index = B/A = 3.01

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpA

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10 yr 2/2	100					CL	Clay Loam
3-16	7.5 YR 4/1	70					CL	Clay Loam
	7.5 YR 6/8	30						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Soil is disturbed.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 08/01/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpA-1

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.826427 Long: -80.081102 Datum: NAD83

Soil Map Unit Name: Mp - mine pits and dumps NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

Afternoon thunderstorms and tropical conditions are normal in this area. However, precipitation occurred during sampling and was above average for the month of July [(July Total: 10.87"; Depart from Normal: +5.40" (National Weather Service)].

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpA-1

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	60	Yes	FAC
2. Carya glabra	15	No	FACU
3. Liriodendron tulipifera	5	No	FACU
4. Acer rubrum	3	No	FAC
5. Triadica sebifera	3	No	FAC
6.			
	86% = Total Cover		
50% of total cover: 43%	20% of total cover: 17.2		
Sapling Stratum (Plot size: 30 ft radius)			
1. Quercus michauxii	15	Yes	FACW
2. Liquidambar styraciflua	3	No	FAC
3.			
4.			
5.			
6.			
	18% = Total Cover		
50% of total cover: 9%	20% of total cover: 3.6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	15	Yes	FAC
2. Leucothoe racemosa	10	Yes	FACW
3.			
4.			
5.			
6.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Herb Stratum (Plot size: 30 ft radius)			
1. Arundinaria gigantea	40	Yes	FACW
2. Grass spp.	20	Yes	FAC
3. Chasmanthium sessiliflorum	10	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70% = Total Cover		
50% of total cover: 35%	20% of total cover: 14%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	10	Yes	FAC
2. Toxicodendron radicans	5	Yes	FAC
3.			
4.			
5.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	65	x 2 =	130
FAC species	129	x 3 =	387
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	214 (A)		597 (B)

Prevalence Index = B/A = 2.79

Hydrophytic Vegetation Indicators:

- [x] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [x] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpA-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5 YR 2/2	100						
5-16	10 YR 7/2	90						
	7.5 YR 6/8	10						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 08/01/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WRB

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.824751 Long: -80.078730 Datum: NAD83

Soil Map Unit Name: Ed - Edisto loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

Afternoon thunderstorms and tropical conditions are normal in this area. However, precipitation occurred during sampling and was above average for the month of July [(July Total: 10.87"; Depart from Normal: +5.40" (National Weather Service)].

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✓] Surface Water (A1)
- [✓] High Water Table (A2)
- [✓] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [✓] No [ ]	Depth (inches):	2
Water Table Present?	Yes [✓] No [ ]	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes [✓] No [ ]	Depth (inches):	3

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WRB

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus nigra	20	Yes	FAC
2. Magnolia grandiflora	15	Yes	FACU
3. Liquidambar styraciflua	10	No	FAC
4. Quercus michauxii	8	No	FACW
5. Pinus taeda	5	No	FAC
6. Pinus glabra	5	No	FACW
	63%	= Total Cover	
50% of total cover: 31.5%	20% of total cover: 12.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Quercus nigra	10	Yes	FAC
2. Liquidambar styraciflua	5	Yes	FAC
3. Magnolia grandiflora	5	Yes	FACU
4. Symplocos tinctoria	3		FAC
5.			
6.			
	23%	= Total Cover	
50% of total cover: 11.5%	20% of total cover: 4.6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Symplocos tinctoria	5	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	5%	= Total Cover	
50% of total cover: 2.5%	20% of total cover: 1%		
Herb Stratum (Plot size: 30 ft radius)			
1. Osmunda cinnamomea	15	Yes	FACW
2. Arundinaria gigantea	10	Yes	FACW
3. Chasmanthium sessiliflorum	10	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35%	= Total Cover	
50% of total cover: 17.5%	20% of total cover: 7%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	10	Yes	FAC
2.			
3.			
4.			
5.			
	10%	= Total Cover	
50% of total cover: 5%	20% of total cover: 2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	38	x 2 =	76
FAC species	78	x 3 =	234
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	136 (A)		390 (B)

Prevalence Index = B/A = 2.87

Hydrophytic Vegetation Indicators:

- [x] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [x] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WRB

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 yr 2/1	100					SnL	Sandy Loam
6-12	10 YR 7/1	100					SnL	Sandy Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☑ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 08/01/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpB

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.825495 Long: -80.081278 Datum: NAD83

Soil Map Unit Name: Ed - Edisto loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

Afternoon thunderstorms and tropical conditions are normal in this area. However, precipitation occurred during sampling and was above average for the month of July [(July Total: 10.87"; Depart from Normal: +5.40" (National Weather Service)].

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [✓] High Water Table (A2)
- [✓] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [✓]	No [ ]	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes [✓]	No [ ]	Depth (inches): 9

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Observations may be skewed by amount of recent rainfall in the area.

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpB

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Magnolia grandiflora	25	Yes	FACU
2. Quercus alba	20	Yes	FACU
3. Pinus taeda	15	No	FAC
4. Liquidambar styraciflua	15	No	FAC
5. Fagus grandifolia	5	No	FACU
6.			
	80% = Total Cover		
50% of total cover: 40%	20% of total cover: 16%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	15	Yes	FAC
2. Myrica cerifera	10	Yes	FAC
3. Quercus nigra	5	No	FAC
4.			
5.			
6.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Herb Stratum (Plot size: 30 ft radius)			
1. Arundinaria gigantea	25	Yes	FACW
2. Chasmanthium sessiliflorum	20	Yes	FAC
3. Grass spp.	15	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60% = Total Cover		
50% of total cover: 30%	20% of total cover: 12%		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
50% of total cover: _____	20% of total cover: _____		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	115	x 3 =	345
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	190 (A)		595 (B)

Prevalence Index = B/A = 3.13

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpB

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 yr 2/1	100					SnCL	Sandy Clay Loam
3-8	10 YR 7/4	100					SnL	Sandy Loam
8-14	10 YR 6/4	50					SnL	Sandy Loam
	10 YR 4/1	50						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 08/01/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpB-1

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.825867 Long: -80.080342 Datum: NAD83

Soil Map Unit Name: Mp - mine pits and dumps NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

Afternoon thunderstorms and tropical conditions are normal in this area. However, precipitation occurred during sampling and was above average for the month of July [(July Total: 10.87"; Depart from Normal: +5.40" (National Weather Service)].

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpB-1

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Magnolia grandiflora	20	Yes	FACU
2. Liquidambar styraciflua	20	Yes	FAC
3. Quercus pagoda	15	Yes	FACW
4. Quercus alba	15	Yes	FACU
5.			
6.			
	70% = Total Cover		
50% of total cover: 35%	20% of total cover: 14%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	30	Yes	FAC
2. Magnolia grandiflora	20	Yes	FACU
3. Carya glabra	10	No	FACU
4.			
5.			
6.			
	60% = Total Cover		
50% of total cover: 30%	20% of total cover: 12%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	25	Yes	FAC
2. Symplocos tinctoria	20	Yes	FAC
3.			
4.			
5.			
6.			
	45% = Total Cover		
50% of total cover: 22.5%	20% of total cover: 9%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	20	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	10	Yes	FAC
2. Toxicodendron radicans	5	Yes	FAC
3.			
4.			
5.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 72.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	130	x 3 =	390
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column Totals:	210 (A)		680 (B)

Prevalence Index = B/A = 3.24

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpB-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 yr 2/2	100					SnL	Sandy Loam
6-14	10 YR 7/6	95					SnL	Sandy Loam
	7.5 YR 6/8	5						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 08/01/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpB-2

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.825454 Long: -80.079594 Datum: NAD83

Soil Map Unit Name: Edisto loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

Afternoon thunderstorms and tropical conditions are normal in this area. However, precipitation occurred during sampling and was above average for the month of July [(July Total: 10.87"; Depart from Normal: +5.40" (National Weather Service)].

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpB-2

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus glabra	35	Yes	FACW
2. Carya glabra	15	Yes	FACU
3. Liquidambar styraciflua	15	Yes	FAC
4. Ilex opaca	5	No	FACU
5.			
6.			
	70% = Total Cover		
50% of total cover: 35%	20% of total cover: 14%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	15	Yes	FAC
2. Magnolia grandiflora	15	Yes	FACU
3. Pinus glabra	15	Yes	FACW
4. Symplocos tinctoria	15	Yes	FAC
5.			
6.			
	60% = Total Cover		
50% of total cover: 30%	20% of total cover: 12%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Symplocos tinctoria	15	Yes	FAC
2. Myrica cerifera	5	Yes	FAC
3.			
4.			
5.			
6.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Herb Stratum (Plot size: 30 ft radius)			
1. Athyrium asplenioides	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Lonicera japonica	10	Yes	FACU
2. Parthenocissus quinquefolia	5	Yes	FACU
3. Vitis rotundifolia	5	Yes	FAC
4.			
5.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 13 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 69.2% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	80	x 3 =	240
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	180 (A)		540 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpB-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5 YR 2/2	100					SnL	Sandy Loam
8-16	7.5 YR 7/1	90					SnL	Sandy Loam
	7.5 YR 5/8	10						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 08/01/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpB-3

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.824862 Long: -80.078716 Datum: NAD83

Soil Map Unit Name: Ed - Edisto loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?**	**Yes** [ ]	**No** [✓]
Hydric Soil Present?	Yes [ ]	No [✓]			
Wetland Hydrology Present?	Yes [ ]	No [✓]			

Remarks:

Afternoon thunderstorms and tropical conditions are normal in this area. However, precipitation occurred during sampling and was above average for the month of July [(July Total: 10.87"; Depart from Normal: +5.40" (National Weather Service)].

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? **Yes** [ ] **No** [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpB-3

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Magnolia grandiflora	30	Yes	FACU
2. Quercus alba	20	Yes	FACU
3. Quercus nigra	10	No	FAC
4. Liquidambar styraciflua	10	No	FAC
5. Pinus taeda	5	No	FAC
6. Pinus glabra	3	No	FACW
	78%	= Total Cover	
50% of total cover: 39%	20% of total cover: 15.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Symplocos tinctoria	15	Yes	FAC
2. Liquidambar styraciflua	10	Yes	FAC
3. Quercus nigra	5	No	FAC
4. Magnolia grandiflora	5	No	FACU
5. Quercus alba	3	No	FACU
6.			
	38%	= Total Cover	
50% of total cover: 19%	20% of total cover: 7.6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Symplocos tinctoria	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	10%	= Total Cover	
50% of total cover: 5%	20% of total cover: 2%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	5	Yes	FAC
2. Arundinaria gigantea	5	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20%	= Total Cover	
50% of total cover: 10%	20% of total cover: 4%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	10	Yes	FAC
2. Toxicodendron radicans	5	Yes	FAC
3.			
4.			
5.			
	15%	= Total Cover	
50% of total cover: 7.5%	20% of total cover: 3%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 77.8% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	8	x 2 =	16
FAC species	85	x 3 =	255
FACU species	58	x 4 =	232
UPL species	0	x 5 =	0
Column Totals:	151 (A)		503 (B)

Prevalence Index = B/A = 3.33

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpB-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 yr 2/2	100					SnL	Sandy Loam
3-12	10 YR 7/6	100					LSn	Loamy Sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 08/01/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WRC

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.82692343 Long: -80.07878727 Datum: NAD83

Soil Map Unit Name: Mine pits and dumps NWI classification: PFO1/4C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

Afternoon thunderstorms and tropical conditions are normal in this area. However, precipitation occurred during sampling and was above average for the month of July [(July Total: 10.87"; Depart from Normal: +5.40" (National Weather Service)].

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✓] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [✓]	No [ ]	Depth (inches): 2	
Water Table Present?	Yes [✓]	No [ ]	Depth (inches): 6	
Saturation Present? (includes capillary fringe)	Yes [✓]	No [ ]	Depth (inches): 3	**Wetland Hydrology Present?** Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WRC

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	30	Yes	FAC
2. Liriodendron tulipifera	15	Yes	FACU
3. Magnolia grandiflora	10	No	FACU
4. Tilia americana var. caroliniana	10	No	FACU
5. Triadica sebifera	3	No	FACU
6.			
	68% = Total Cover		
50% of total cover: 34%	20% of total cover: 13.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Magnolia grandiflora	20	Yes	FACU
2. Carpinus caroliniana	20	Yes	FAC
3.			
4.			
5.			
6.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Sabal minor	80	Yes	FACW
2.			
3.			
4.			
5.			
6.			
	80% = Total Cover		
50% of total cover: 40%	20% of total cover: 16%		
Herb Stratum (Plot size: 30 ft radius)			
1. Osmunda cinnamomea	15	Yes	FACW
2. Athyrium asplenioides	10	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	5	Yes	FAC
2.			
3.			
4.			
5.			
	5% = Total Cover		
50% of total cover: 2.5%	20% of total cover: 1%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	95	x 2 =	190
FAC species	65	x 3 =	195
FACU species	58	x 4 =	232
UPL species	0	x 5 =	0
Column Totals:	218 (A)		617 (B)

Prevalence Index = B/A = 2.83

Hydrophytic Vegetation Indicators:

- [x] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [x] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WRC

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10 yr 2/1	100					StCL	Silty Clay Loam
4-6	7.5 yr 4/1	80					SnCL	Sandy Clay Loam
	7.5 YR 6/8	20						
6-14	10 YR 7/1	80					SnCL	Sandy Clay Loam
	7.5 YR 6/7	20						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 08/01/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpC

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed.1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): Convex Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.826053 Long: -80.078527 Datum: NAD83

Soil Map Unit Name: Mp - mine pits and dumps NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

Afternoon thunderstorms and tropical conditions are normal in this area. However, precipitation occurred during sampling and was above average for the month of July [(July Total: 10.87"; Depart from Normal: +5.40" (National Weather Service)].

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpC

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Magnolia grandiflora	20	Yes	FACU
2. Carpinus caroliniana	15	Yes	FAC
3. Fagus grandifolia	10	No	FACU
4. Pinus taeda	10	No	FAC
5. Quercus michauxii	5	No	FACW
6. Pinus glabra	5	No	FACW
	65%	= Total Cover	
50% of total cover: 32.5%	20% of total cover: 13%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Fagus grandifolia	15	Yes	FACU
2. Carpinus caroliniana	15	Yes	FAC
3. Quercus michauxii	5	No	FACW
4.			
5.			
6.			
	35%	= Total Cover	
50% of total cover: 17.5%	20% of total cover: 7%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Symplocos tinctoria	25	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	25%	= Total Cover	
50% of total cover: 12.5%	20% of total cover: 5%		
Herb Stratum (Plot size: 30 ft radius)			
1. Athyrium asplenioides	15	Yes	FAC
2. Osmunda cinnamomea	15	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30%	= Total Cover	
50% of total cover: 15%	20% of total cover: 6%		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	80	x 3 =	240
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	155 (A)		480 (B)

Prevalence Index = B/A = 3.1

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpC

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5 YR 2/2	100					SnCL	Sandy Clay Loam
3-6	10 YR 4/2	100					SnCL	Sandy Clay Loam
6-14	10 YR 5/4	90					SnCL	Sandy Clay Loam
	10 YR 3/2	10						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Soil is disturbed.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway | City/County: West Ashley/ Charleston | Sampling Date: 08/01/18

Applicant/Owner: SCDOT, Charleston County | State: SC | Sampling Point: WRD

Investigator(s): Three Oaks Engineering | Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested | Local relief (concave, convex, none): None | Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland | Lat: 32.825922 | Long: -80.077469 | Datum: NAD83

Soil Map Unit Name: Ed - Edisto loamy fine sand | NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

Afternoon thunderstorms and tropical conditions are normal in this area. However, precipitation occurred during sampling and was above average for the month of July [(July Total: 10.87"; Depart from Normal: +5.40" (National Weather Service)].

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✓] Surface Water (A1)
- [✓] High Water Table (A2)
- [✓] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [✓] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [✓]	No [ ]	Depth (inches): 1
Water Table Present?	Yes [✓]	No [ ]	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes [✓]	No [ ]	Depth (inches): 0

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WRD

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30 ft radius)			
1. Typha angustifolia	35	Yes	OBL
2. Elymus virginicus	30	Yes	FACW
3. Tripsacum dactyloides	25	Yes	FACW
4. Sesbania herbacea	5	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95% = Total Cover		
50% of total cover: 47.5%	20% of total cover: 19%		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	35	x 1 =	35
FACW species	60	x 2 =	120
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		155 (B)

Prevalence Index = B/A = 0.79

Hydrophytic Vegetation Indicators:

- [x] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [x] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WRD

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 2/1	75						
	10 YR 5/6	20						
	Gley1 5/5G/2	5						
10-16	10 YR 2/1	60						
	10 YR 5/6	30						
	Gley1 5/5G/2	10						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☑ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 08/01/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpD

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed.1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.826074 Long: -80.077302 Datum: NAD83

Soil Map Unit Name: Ed - Edisto loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

Afternoon thunderstorms and tropical conditions are normal in this area. However, precipitation occurred during sampling and was above average for the month of July [(July Total: 10.87"; Depart from Normal: +5.40" (National Weather Service)].

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpD

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus nigra	10	Yes	FAC
2. Quercus virginiana	5	Yes	FACU
3. Fraxinus americana	5	Yes	FACU
4.			
5.			
6.			
	20%	= Total Cover	
50% of total cover: 10%	20% of total cover: 4%		
Sapling Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			
		= Total Cover	
50% of total cover:	20% of total cover:		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	15	Yes	FAC
2. Baccharis halimifolia	10	Yes	FAC
3.			
4.			
5.			
6.			
	25%	= Total Cover	
50% of total cover: 12.5%	20% of total cover: 5%		
Herb Stratum (Plot size: 30 ft radius)			
1. Tripsacum dactyloides	30	Yes	FAC
2. Elymus virginicus	20	Yes	FAC
3. Eupatorium capillifolium	10	No	FACU
4. Sesbania herbacea	10	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70%	= Total Cover	
50% of total cover: 35%	20% of total cover: 14%		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	95	x 3 =	285
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	115 (A)		365 (B)

Prevalence Index = B/A = 3.17

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [ ] No [x]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpD

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 2/1	75						
	10 YR 5/6	20						
	Gley1 5/5G/2	5						
10-16	10 YR 2/1	60						
	10 YR 5/6	30						
	Gley1 5/5G/2	10						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☑ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Soil is disturbed.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/04/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: Up E/F

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.812491 Long: -80.048259 Datum: NAD83

Soil Map Unit Name: Wagram loamy fine sand 0-6% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: Up E/F

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	25	YES	FAC
2. Carya glabra	15	YES	FACU
3. Liriodendron tulipifera	10	NO	FACU
4. Tilia caroliniana	10	NO	FACU
5. Pinus taeda	8	NO	FAC
6. Quercus nigra	8	NO	FAC
	76%	= Total Cover	
50% of total cover: 38%	20% of total cover: 15.2%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Cornus florida	10	YES	FAC
2. Tilia caroliniana	10	YES	FACU
3. Carya glabra	10	YES	FACU
4. Liquidambar styraciflua	10	YES	FAC
5. Ilex opaca	3	NO	FACU
6.			
	43%	= Total Cover	
50% of total cover: 21.5%	20% of total cover: 8.6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Simplocos tinctoria	20	YES	FAC
2. Myrica cerifera	10	YES	FAC
3.			
4.			
5.			
6.			
	30%	= Total Cover	
50% of total cover: 15%	20% of total cover: 6%		
Herb Stratum (Plot size: 30 ft radius)			
1. Arundinaria gigantea	25	YES	FACW
2. Polystichum acrostichoides	15	YES	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40%	= Total Cover	
50% of total cover: 20%	20% of total cover: 8%		
Woody Vine Stratum (Plot size: _____)			
1. Vitis rotundifolia	15	YES	FAC
2. Lonicera japonica	5	YES	FACU
3.			
4.			
5.			
	20%	= Total Cover	
50% of total cover: 10%	20% of total cover: 4%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 58.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: Up E/F

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/3						Sn Loam	
3-16	10 YR 5/4						Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/04/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WRF

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.824207 Long: -80.075267 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [✓] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [✓] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [✓] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: WRF

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	25	YES	FAC
2. Acer rubrum	20	YES	FAC
3. Fagus grandifolia	10	NO	FACU
4. Fraxinus americana	8	NO	FACU
5. Triadica sebifera	5	NO	FAC
6. Quercus nigra	5	NO	FAC
	73%	= Total Cover	
50% of total cover: 36.5%	20% of total cover: 14.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	15	YES	FAC
2.			
3.			
4.			
5.			
6.			
	15%	= Total Cover	
50% of total cover: 7.5%	20% of total cover: 3%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	5	YES	FAC
2.			
3.			
4.			
5.			
6.			
	5%	= Total Cover	
50% of total cover: 2.5%	20% of total cover: 1%		
Herb Stratum (Plot size: 30 ft radius)			
1. Saururus cernuus	25	Yes	OBL
2. Sabal minor	15	Yes	FACW
3. Arundinaria gigantea	10	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50%	= Total Cover	
50% of total cover: 25%	20% of total cover: 10%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Ampelopsis arborea	5	YES	FAC
2.			
3.			
4.			
5.			
	5%	= Total Cover	
50% of total cover: 2.5%	20% of total cover: 1%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [x] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WRF

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 2/2	95%	5 YR 4/6	5%	C	M	SC Lm	
2-6	10 YR 2/2	90%	5 YR 4/6	10%	C	M	SC Lm	
6-10	10 YR 2/2	80%	5 YR 4/6	10%	C	M	SC Lm	
			7.5 YR 5/6	10%	C	M	SC Lm	
10-16	10 YR 3/1	80%	5 YR 4/6	10%	C	M	SC Lm	
			7.5 YR 5/6	10%	C	M	SC Lm	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/04/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WRG

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.824913 Long: -80.076690 Datum: NAD83

Soil Map Unit Name: Seabrook loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [✓] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [✓]	No [ ]	Depth (inches): 6"

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WRG

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus michauxii	25	YES	FAC
2. Liquidambar styraciflua	20	YES	FAC
3. Pinus glabra	10	NO	FACU
4. Fagus grandifolia	10	NO	FACU
5. Carpinus caroliniana	10	NO	FAC
6. Nyssa sylvatica	5	NO	FAC
	80%	= Total Cover	
50% of total cover: 40%	20% of total cover: 16%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	15	YES	FAC
2.			
3.			
4.			
5.			
6.			
	15%	= Total Cover	
50% of total cover: 7.5%	20% of total cover: 3%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	5	YES	FAC
2.			
3.			
4.			
5.			
6.			
	5%	= Total Cover	
50% of total cover: 2.5%	20% of total cover: 1%		
Herb Stratum (Plot size: 30 ft radius)			
1. Saururus cernuus	25	Yes	OBL
2. Sabal minor	15	Yes	FACW
3. Arundinaria gigantea	10	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50%	= Total Cover	
50% of total cover: 25%	20% of total cover: 10%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Ampelopsis arborea	5	YES	FAC
2.			
3.			
4.			
5.			
	5%	= Total Cover	
50% of total cover: 2.5%	20% of total cover: 1%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [x] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WRF

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 2/2	95%	5 YR 4/6	5%	C	M	SC Lm	
2-6	10 YR 2/2	90%	5 YR 4/6	10%	C	M	SC Lm	
6-10	10 YR 2/2	80%	5 YR 4/6	10%	C	M	SC Lm	
			7.5 YR 5/6	10%	C	M	SC Lm	
10-16	10 YR 3/1	80%	5 YR 4/6	10%	C	M	SC Lm	
			7.5 YR 5/6	10%	C	M	SC Lm	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/04/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: Up H

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.822885 Long: -80.075871 Datum: NAD83

Soil Map Unit Name: Wagram loamy fine sand 0-6% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: Up H

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	20	YES	FAC
2. Acer rubrum	20	YES	FAC
3. Liriodendron tulipifera	15	YES	FACU
4. Quercus pagoda	10	NO	FACW
5. Nyssa sylvatica	5	NO	FAC
6.			
	70% = Total Cover		
50% of total cover: 35%	20% of total cover: 14%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	25	YES	FAC
2. Acer rubrum	15	YES	FAC
3. Quercus pagoda	10	YES	FACW
4.			
5.			
6.			
	50% = Total Cover		
50% of total cover: 25%	20% of total cover: 10%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Sabal minor	15	YES	FACW
2. Myrica cerifera	10	YES	FAC
3. Sabal palmetto	5	NO	FAC
4.			
5.			
6.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		
Herb Stratum (Plot size: 30 ft radius)			
1. Woodwardia areolata	10	YES	OBL
2. Commelina virginica	5	YES	FACW
3. Osmunda cinnamomea	3	NO	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	18% = Total Cover		
50% of total cover: 9%	20% of total cover: 3.6%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	8	YES	FAC
2. Rubus hispidus	5	YES	FACW
3.			
4.			
5.			
	13% = Total Cover		
50% of total cover: 6.5%	20% of total cover: 2.6%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 11 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 92% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: Up H

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 2/1	100					Loam	
6-9	10 YR 2/1	50					Lm Sand	
	10 YR 5/2	50					Lm Sand	
9-14	10 YR 6/1	95	10 YR 5/6	5			Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/06/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WRI

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.821208 Long: -80.072963 Datum: NAD83

Soil Map Unit Name: Yonges loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✓] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [✓]	No [ ]	Depth (inches): 1-2"
Water Table Present?	Yes [✓]	No [ ]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [ ]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WRI

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	35	YES	FAC
2. Quercus nigra	20	YES	FAC
3. Nyssa sylvatica	10	NO	FAC
4.			
5.			
6.			

65% = Total Cover

50% of total cover: 32.5% 20% of total cover: 13%

Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	15	YES	FAC
2. Quercus nigra	10	YES	FAC
3.			
4.			
5.			
6.			

25% = Total Cover

50% of total cover: 12.5% 20% of total cover: 5%

Shrub Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 30 ft radius)			
1. Osmunda cinnamomea	30	YES	FACW
2. Onoclea sensibilis	30	YES	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

60% = Total Cover

50% of total cover: 30% 20% of total cover: 12%

Woody Vine Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WRI

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14"	10 YR 2/1	100%					Sn Loam	
14-16"	10 YR 3/1	100%					Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ✓ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/06/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: Up I

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.821625 Long: -80.073497 Datum: NAD83

Soil Map Unit Name: Yonges loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: Up I

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus nigra	20	YES	FAC
2. Pinus glabra	15	YES	FACW
3. Quercus pagoda	15	YES	FACW
4. Liquidambar styraciflua	10	NO	FAC
5.			
6.			
	60% = Total Cover		
50% of total cover: 30%	20% of total cover: 12%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	30	YES	FAC
2. Quercus nigra	15	YES	FAC
3.			
4.			
5.			
6.			
	45% = Total Cover		
50% of total cover: 22.5%	20% of total cover: 9%		
Shrub Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30 ft radius)			
1. Osmunda cinnamomea	20	YES	FACW
2. Arundinaria gigantea	15	YES	FACW
3. Clethra alnifolia	13	YES	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	48% = Total Cover		
50% of total cover: 24%	20% of total cover: 9.6%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	25	YES	FAC
2.			
3.			
4.			
5.			
	13% = Total Cover		
50% of total cover: 6.5%	20% of total cover: 2.6%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: Up I

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 2/1	100					Sn Loam	
10-14	10 YR 3/1	100					Sn Loam	
14-16+	10 YR 3/1	75	7.5 YR 4/6	25	C		Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/06/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WRJ

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.821889 Long: -80.073583 Datum: NAD83

Soil Map Unit Name: Yonges loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [ ]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WRJ

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	20	YES	FAC
2. Liquidambar styraciflua	15	YES	FAC
3. Acer rubrum	10	NO	FAC
4. Quercus nigra	8	NO	FAC
5. Nyssa sylvatica	5	NO	FAC
6.			
	58% = Total Cover		
50% of total cover: 29%	20% of total cover: 11.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	15	YES	FAC
2. Quercus nigra	10	YES	FAC
3. Nyssa sylvatica	5	NO	FAC
4.			
5.			
6.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	10	YES	FAC
2. Vaccinium corymbosum	3	YES	FACW
3.			
4.			
5.			
6.			
	13% = Total Cover		
50% of total cover: 6.5%	20% of total cover: 2.6%		
Herb Stratum (Plot size: 30 ft radius)			
1. Arundinaria gigantea	15	YES	FACW
2. Osmunda cinnamomea	10	YES	FACW
3. Chasmanthium sessiliflorum	5	NO	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	10	YES	FAC
2.			
3.			
4.			
5.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WRJ

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5"	10 YR 4/1	60%					Lm Sand	
	10 YR 5/2	40%						
5-16"	10 YR 6/2	60%	10 YR 6/6	40%	D	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/06/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WRK

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: Long: Datum: NAD83

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WRK

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	20	YES	FAC
2. Liquidambar styraciflua	15	YES	FAC
3. Acer rubrum	10	NO	FAC
4. Quercus nigra	8	NO	FAC
5. Nyssa sylvatica	5	NO	FAC
6.			

58% = Total Cover

50% of total cover: 29% 20% of total cover: 11.6%

Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	15	YES	FAC
2. Quercus nigra	10	YES	FAC
3. Nyssa sylvatica	5	NO	FAC
4.			
5.			
6.			

30% = Total Cover

50% of total cover: 15% 20% of total cover: 6%

Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	10	YES	FAC
2. Vaccinium corymbosum	3	YES	FACW
3.			
4.			
5.			
6.			

13% = Total Cover

50% of total cover: 6.5% 20% of total cover: 2.6%

Herb Stratum (Plot size: 30 ft radius)			
1. Arundinaria gigantea	15	YES	FACW
2. Osmunda cinnamomea	10	YES	FACW
3. Chasmanthium sessiliflorum	5	NO	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

30% = Total Cover

50% of total cover: 15% 20% of total cover: 6%

Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	10	YES	FAC
2.			
3.			
4.			
5.			

10% = Total Cover

50% of total cover: 5% 20% of total cover: 2%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WRK

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5"	10 YR 4/1	60%					Lm Sand	
	10 YR 5/2	40%						
5-16"	10 YR 6/2	60%	10 YR 6/6	40%	D	M	Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/06/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: Up J/K

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.821991 Long: -80.073769 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: Up J/K

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus nigra	20	YES	FAC
2. Liquidambar styraciflua	18	YES	FAC
3. Pinus glabra	15	YES	FACW
4. Quercus pagoda	10	NO	FAC
5.			
6.			
	63% = Total Cover		
50% of total cover: 31.5%	20% of total cover: 12.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	20	YES	FAC
2. Quercus nigra	15	YES	FAC
3.			
4.			
5.			
6.			
	35% = Total Cover		
50% of total cover: 17.5%	20% of total cover: 7%		
Shrub Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30 ft radius)			
1. Osmunda cinnamomea	20	YES	FACW
2. Arundinaria gigantea	15	YES	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35% = Total Cover		
50% of total cover: 17.5%	20% of total cover: 7%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	15	YES	FAC
2.			
3.			
4.			
5.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: Up J/K

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 2/1	100					Sn Loam	
8-12	10 YR 3/1	100					Sn Loam	
12-16+	10 YR 3/1	75	7.5 YR 4/6	25	C		Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/06/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WRL

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.82344312 Long: -80.07338857 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [✓] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WRL

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	35	YES	FAC
2. Quercus pagoda	20	YES	FACW
3. Nyssa sylvatica	15	NO	FAC
4. Quercus nigra	10	NO	FAC
5. Fraxinus caroliniana	5	NO	OBL
6.			
	85% = Total Cover		
50% of total cover: 42.5%	20% of total cover: 17%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	10	YES	FAC
2. Nyssa sylvatica	10	YES	FAC
3. Quercus nigra	8	YES	FAC
4.			
5.			
6.			
	28% = Total Cover		
50% of total cover: 14%	20% of total cover: 5.6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Sabal minor	10	YES	FACW
2. Myrica cerifera	8	YES	FAC
3.			
4.			
5.			
6.			
	18% = Total Cover		
50% of total cover: 9%	20% of total cover: 3.6%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	20	YES	FAC
2. Arundinaria gigantea	15	YES	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35% = Total Cover		
50% of total cover: 17.5%	20% of total cover: 7%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Ampelopsis arborea	10	YES	FAC
2. Vitis rotundifolia	5	YES	FAC
3.			
4.			
5.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 11 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WRL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5"	10 YR 2/1	95%					Sn Loam	
	10 YR 6/1	5%						
5-14"	10 YR 2/1	100%					Sn Loam	
14-16"	7.5 YR 3/1	100%					Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ✓ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/06/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WRM

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.823253 Long: -80.072840 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [✓] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WRM

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	YES	FAC
2. Quercus phellos	25	YES	FAC
3. Liquidambar styraciflua	10	NO	FAC
4. Fraxinus caroliniana	5	NO	OBL
5.			
6.			
	85% = Total Cover		
50% of total cover: 42.5%	20% of total cover: 17%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Acer rubrum	15	YES	FAC
2. Liquidambar styraciflua	10	YES	FAC
3. Quercus phellos	8	YES	FAC
4.			
5.			
6.			
	32% = Total Cover		
50% of total cover: 16%	20% of total cover: 6.4%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	10	YES	FAC
2. Sabal minor	5	YES	FACW
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	20	YES	FAC
2. Arundinaria gigantea	15	YES	FACW
3. Osmunda cinnamomea	5	NO	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	15	YES	FAC
2.			
3.			
4.			
5.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 10 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WRM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14"	10 YR 2/1	100%					Sn Loam	
14-16"	10 YR 4/1	95%	7.5 YR 6/6	5%	C	M	Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ✓ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/06/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpL/M

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.823408 Long: -80.073187 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [ ]	No [ ]	
Wetland Hydrology Present?	Yes [ ]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpL/M

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus pagoda	35	YES	FACW
2. Liquidambar styraciflua	15	YES	FAC
3. Quercus nigra	15	YES	FAC
4. Pinus taeda	10	NO	FAC
5.			
6.			

75% = Total Cover

50% of total cover: 37.5% 20% of total cover: 15%

Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	15	YES	FAC
2.			
3.			
4.			
5.			
6.			

15% = Total Cover

50% of total cover: 7.5% 20% of total cover: 3%

Shrub Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			

% = Total Cover

50% of total cover: % 20% of total cover: %

Herb Stratum (Plot size: 30 ft radius)			
1. Grass sp.	10	YES	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

10% = Total Cover

50% of total cover: 5% 20% of total cover: 2%

Woody Vine Stratum (Plot size: 30 ft radius)			
1. Rubus hispidus	15	YES	FACW
2.			
3.			
4.			
5.			

10% = Total Cover

50% of total cover: 5% 20% of total cover: 2%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpL/M

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	10 YR 4/2	100%					Sn Loam	
12-16"	10 YR 4/2	95%	7.5 YR 6/6	5%	C		Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/06/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WRN

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.82256028 Long: -80.07070721 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [✓] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WRN

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	25	YES	FAC
2. Acer rubrum	20	YES	FAC
3. Fraxinus caroliniana	15	YES	OBL
4. Quercus nigra	5	NO	FAC
5. Quercus pagoda	5	NO	FACW
6.			
	70%	= Total Cover	
50% of total cover: 35%	20% of total cover: 14%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	15	YES	FAC
2. Quercus nigra	10	YES	FAC
3. Acer rubrum	8	YES	FAC
4.			
5.			
6.			
	32%	= Total Cover	
50% of total cover: 16%	20% of total cover: 6.4%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	20	YES	FAC
2. Sabal minor	5	YES	FACW
3.			
4.			
5.			
6.			
	25%	= Total Cover	
50% of total cover: 12.5%	20% of total cover: 5%		
Herb Stratum (Plot size: 30 ft radius)			
1. Grass sp.	15	YES	FAC
2. Chasmanthium sessiliflorum	10	YES	FAC
3. Clethra alnifolia	10	YES	FACW
4. Arundinaria gigantea	8	NO	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	43%	= Total Cover	
50% of total cover: 21.5%	20% of total cover: 8.6%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	10	YES	FAC
2.			
3.			
4.			
5.			
	10%	= Total Cover	
50% of total cover: 5%	20% of total cover: 2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 12 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [x] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WRM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	10 YR 2/1	80%					Sn Loam	
	10 YR 4/1	15%	7.5 YR 6/6	5%	C	M	Sn Loam	
4-14"	10 YR 2/1	80%					Sn Loam	
	10 YR 4/1	20%					Sn Loam	
14-16"	10 YR 4/1	75%					Sn Loam	
	10 YR 2/1	25%					Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/06/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpN/O

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.822638 Long: -80.070567 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [ ]	No [ ]	
Wetland Hydrology Present?	Yes [ ]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpN/O

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus virginiana	35	YES	FACU
2. Fagus grandifolia	20	YES	FACU
3. Quercus nigra	15	NO	FAC
4. Liquidambar styraciflua	10	NO	FAC
5.			
6.			

80% = Total Cover

50% of total cover: 40% 20% of total cover: 16%

Sapling Stratum (Plot size: 30 ft radius)			
1. Quercus nigra	15	YES	FAC
2. Liquidambar styraciflua	10	YES	FAC
3. Ilex opaca	8	YES	FAC
4.			
5.			
6.			

32% = Total Cover

50% of total cover: 16% 20% of total cover: 6.4%

Shrub Stratum (Plot size: 30 ft radius)			
1. Ilex vomitoria	15	YES	FAC
2.			
3.			
4.			
5.			
6.			

15% = Total Cover

50% of total cover: 7.5% 20% of total cover: 3%

Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	8	YES	FAC
2. Osmunda cinnamomea	5	NO	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

13% = Total Cover

50% of total cover: 6.5% 20% of total cover: 2.6%

Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	15	YES	FAC
2.			
3.			
4.			
5.			

10% = Total Cover

50% of total cover: 5% 20% of total cover: 2%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpN/O

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16"	10 YR 4/3	100%					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/06/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WRQ

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.819696 Long: -80.069357 Datum: NAD83

Soil Map Unit Name: Edisto loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WRQ

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	25	YES	FAC
2. Pinus taeda	20	YES	FAC
3. Quercus michauxii	15	YES	FACW
4. Quercus nigra	10	NO	FAC
5. Nyssa sylvatica	8	NO	FAC
6.			
	78% = Total Cover		
50% of total cover: 39%	20% of total cover: 14.4%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	10	YES	FAC
2. Acer rubrum	5	YES	FAC
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Shrub Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	% = Total Cover		
50% of total cover: %	20% of total cover: %		
Herb Stratum (Plot size: 30 ft radius)			
1. Osmunda cinnamomea	25	YES	FACW
2. Chasmanthium sessiliflorum	25	YES	FAC
3. Arundinaria gigantea	20	YES	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65% = Total Cover		
50% of total cover: 32.5%	20% of total cover: 13%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Toxicodendron radicans	8	YES	FAC
2. Vitis rotundifolia	5	YES	FAC
3.			
4.			
5.			
	13% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 2.6%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 12 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WRQ

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	10 YR 3/1	100%					Sn Loam	
12-16"	7.5 YR 5/1	100%					Lm Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/06/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpS

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.817810 Long: -80.066283 Datum: NAD83

Soil Map Unit Name: Yonges loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpS

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	30	YES	FAC
2. Liquidambar styraciflua	15	YES	FAC
3. Quercus nigra	15	YES	FAC
4. Carya glabra	10	NO	FACU
5.			
6.			
	78% = Total Cover		
50% of total cover: 39%	20% of total cover: 14.4%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	10	YES	FAC
2. Triadica sebifera	3	YES	FAC
3.			
4.			
5.			
6.			
	13% = Total Cover		
50% of total cover: 6.5%	20% of total cover: 2.6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Persea palustris	5	YES	FACW
2. Nyssa sylvatica	3	YES	FAC
3.			
4.			
5.			
6.			
	8% = Total Cover		
50% of total cover: 4%	20% of total cover: 1.6%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	15	YES	FAC
2. Arundinaria gigantea	10	YES	FACW
3. Osmunda cinnamomea	8	YES	FACW
4. Woodwardia areolata	3	NO	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	36% = Total Cover		
50% of total cover: 18%	20% of total cover: 7.2%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	25	YES	FAC
2. Smilax bona-nox	10	YES	FAC
3.			
4.			
5.			
	35% = Total Cover		
50% of total cover: 17.5%	20% of total cover: 7%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 12 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpS

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	10 YR 2/1	100%					Sn Loam	
4-12"	10 YR 3/2	80%	7.5 YR 5/6	20%			Sn Loam	
12-16"	10 YR 5/3	75%	7.5 YR 5/8	25%			Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/06/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpU

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.817837 Long: -80.065416 Datum: NAD83

Soil Map Unit Name: Yonges loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpU

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	35	YES	FAC
2. Liquidambar styraciflua	20	YES	FAC
3. Quercus nigra	18	YES	FAC
4. Carya glabra	15	NO	FACU
5.			
6.			
	88% = Total Cover		
50% of total cover: 44%	20% of total cover: 17.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	10	YES	FAC
2. Carya glabra	8	YES	FACU
3. Quercus nigra	5	YES	FAC
4.			
5.			
6.			
	23% = Total Cover		
50% of total cover: 11.5%	20% of total cover: 4.6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	10	YES	FACW
2. Callicarpa americana	5	YES	FAC
3. Vaccinium simulatum	3	NO	FACU
4.			
5.			
6.			
	18% = Total Cover		
50% of total cover: 9%	20% of total cover: 3.6%		
Herb Stratum (Plot size: 30 ft radius)			
1. Arundinaria gigantea	8	YES	FACW
2. Chasmanthium sessiliflorum	5	YES	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	13% = Total Cover		
50% of total cover: 6.5%	20% of total cover: 2.6%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Toxicodendron radicans	5	YES	FAC
2. Vitis rotundifolia	3	YES	FAC
3.			
4.			
5.			
	8% = Total Cover		
50% of total cover: 4%	20% of total cover: 1.6%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 11 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 91.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpU

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10"	10 YR 2/1	100%					Lm Sand	
10-14"	10 YR 2/1	60%					Lm Sand	
	10 YR 6/1	40%					Lm Sand	
14-16"	10 YR 6/1	100%					Lm Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/24/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpV

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.817120 Long: -80.065458 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpV

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fagus grandifolia	20	YES	FACU
2. Quercus nigra	18	YES	FAC
3. Carya glabra	15	YES	FACU
4. Liquidambar styraciflua	10	NO	FAC
5.			
6.			
	63% = Total Cover		
50% of total cover: 31.5%	20% of total cover: 12.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	10	YES	FAC
2. Fagus grandifolia	8	YES	FACU
3. Carya glabra	8	YES	FACU
4. Quercus nigra	5	NO	FAC
5.			
6.			
	31% = Total Cover		
50% of total cover: 15.5%	20% of total cover: 6.2%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	10	YES	FACW
2. Callicarpa americana	5	YES	FAC
3. Vaccinium simulatum	3	NO	FACU
4.			
5.			
6.			
	18% = Total Cover		
50% of total cover: 9%	20% of total cover: 3.6%		
Herb Stratum (Plot size: 30 ft radius)			
1. Arundinaria gigantea	8	YES	FACW
2. Chasmanthium sessiliflorum	5	YES	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	13% = Total Cover		
50% of total cover: 6.5%	20% of total cover: 2.6%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Toxicodendron radicans	5	YES	FAC
2. Vitis rotundifolia	3	YES	FAC
3.			
4.			
5.			
	8% = Total Cover		
50% of total cover: 4%	20% of total cover: 1.6%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpV

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	7.5 YR 2.5/3	100%					Lm Sand	
4-14"	10 YR 4/3	100%					Lm Sand	
14-16+"	10 YR 5/3	60%					Lm Sand	
	10 YR 7/8	40%						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/24/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpW

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.815341 Long: -80.062110 Datum: NAD83

Soil Map Unit Name: Hockley loamy fine sand 0-2% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpW

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus nigra	20	YES	FAC
2. Quercus michauxii	12	YES	FACW
3. Liriodendron tulipifera	10	NO	FACU
4. Carya glabra	10	NO	FACU
5. Ilex opaca	8	NO	FAC
6.			
	60% = Total Cover		
50% of total cover: 30%	20% of total cover: 12%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	10	YES	FAC
2. Quercus nigra	10	YES	FAC
3. Ilex opaca	5	YES	FAC
4.			
5.			
6.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Symplocos tinctoria	20	YES	FAC
2. Hamamelis virginiana	10	YES	FACU
3. Callicarpa americana	5	NO	FACU
4. Vaccinium simulatum	3	NO	FACU
5. Persea palustris	3	NO	FACW
6. Ilex vomitoria	3	NO	FAC
	44% = Total Cover		
50% of total cover: 22%	20% of total cover: 8.8%		
Herb Stratum (Plot size: 30 ft radius)			
1. Arundinaria gigantea	10	YES	FAC
2. Chasmanthium sessiliflorum	10	YES	FAC
3. Elaphantopus caroliniena	5	YES	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	8	YES	FAC
2. Gelsemium sempervirens	5	YES	FAC
3. Smilax rotundifolia	5	YES	FAC
4. Vitis aestivilus	3	NO	FACU
5.			
	21% = Total Cover		
50% of total cover: 10.5%	20% of total cover: 4.2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 85 (A)

Total Number of Dominant Species Across All Strata: 13 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 62.5% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpW

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10"	10 YR 4/3	100%					Lm Sand	
10-16+"	10 YR 7/8	100%					Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/24/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpW-2

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.815709 Long: -80.062470 Datum: NAD83

Soil Map Unit Name: Hockley loamy fine sand 0-2% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpW-2

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fagus grandifolia	15	YES	FAC
2. Magnolia grandiflora	15	YES	FAC
3. Quercus nigra	10	YES	FAC
4. Liquidambar styraciflua	10		FAC
5. Carpinus caroliniana	10		FACW
6. Nyssa sylvatica	5		FAC
	65%	= Total Cover	
50% of total cover: 32.5%	20% of total cover: 13%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Carpinus caroliniana	10	YES	FAC
2. Fagus grandifolia	10	YES	FAC
3. Pinus glabra	8	YES	FAC
4. Persea palustris	5	NO	FACW
5. Symplocos tinctoria	5	NO	FAC
6.			
	38%	= Total Cover	
50% of total cover: 19%	20% of total cover: 7.6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Persea palustris	10	YES	FAC
2. Symplocos tinctoria	8	YES	FAC
3. Callicarpa americana	5	YES	FACU
4.			
5.			
6.			
	23%	= Total Cover	
50% of total cover: 11.5%	20% of total cover: 4.6%		
Herb Stratum (Plot size: 30 ft radius)			
1. Arundinaria gigantea	15	YES	FACW
2. Chasmanthium sessiliflorum	5	NO	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20%	= Total Cover	
50% of total cover: 10%	20% of total cover: 4%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Smilax laurifolia	5	YES	FAC
2. Vitis rotundifolia	3	YES	FAC
3.			
4.			
5.			
	8%	= Total Cover	
50% of total cover: 4%	20% of total cover: 1.6%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 11 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 92% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpW-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	10 YR 5/3	100%					Lm Sand	
4-16"+	10 YR 7/4	100%					Lm Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/24/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpX

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.815501 Long: -80.063443 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpX

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Carya glabra	25	YES	FACU
2. Liriodendron tulipifera	20	YES	FACU
3. Quercus nigra	15	NO	FAC
4. Quercus michauxii	12	NO	FACW
5. Pinus taeda	10	NO	FAC
6.			
	82% = Total Cover		
50% of total cover: 41%	20% of total cover: 16%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Carpinus caroliniana	15	YES	FAC
2. Quercus michauxii	15	YES	FACW
3. Carya glabra	10	YES	FACU
4.			
5.			
6.			
	40% = Total Cover		
50% of total cover: 15%	20% of total cover: 8%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	10	YES	FAC
2.			
3.			
4.			
5.			
6.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	10	YES	FACW
2. Polystichum acrostichoides	3	NO	FACU
3. Carex sp	3	NO	FAC
4. Grass sp	3	NO	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	19% = Total Cover		
50% of total cover: 9.5%	20% of total cover: 3.8%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	12	YES	FAC
2.			
3.			
4.			
5.			
	12% = Total Cover		
50% of total cover: 6%	20% of total cover: 2.4%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 62.5% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpX

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8"	10 YR 4/3	100%					Lm Sand	
10-16+"	10 YR 5/4	100%					Lm Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/24/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpY

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed.1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.818147 Long: -80.064521 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpY

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus nigra	10	YES	FAC
2. Liquidambar styraciflua	10	YES	FAC
3. Carya glabra	3	NO	FACU
4.			
5.			
6.			
	23% = Total Cover		
50% of total cover: 11.5%	20% of total cover: 4.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Pinus taeda	40	YES	FAC
2.			
3.			
4.			
5.			
6.			
	40% = Total Cover		
50% of total cover: 20%	20% of total cover: 8%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Ilex vomitoria	30	YES	FAC
2. Rubus sp	10	YES	FAC
3. Pinus glabra	5	NO	FACW
4.			
5.			
6.			
	45% = Total Cover		
50% of total cover: 22.5%	20% of total cover: 9%		
Herb Stratum (Plot size: 30 ft radius)			
1. Grass sp	15	YES	FAC
2. Pteridium aquilinum	10	YES	FACU
3. Andropogon sp	8	YES	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	33% = Total Cover		
50% of total cover: 16.5%	20% of total cover: 6.6%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	10	YES	FAC
2. Smilax rotundifolia	10	YES	FAC
3.			
4.			
5.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 90% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpY

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4"	10 YR 2/1	100%					Sn Loam	
4-12"	10 YR 4/2	50%	5 YR 5/8	50			Lm Sand	
12-16"	10 YR 6/2	50	5 YR 5/8	50			Lm Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/24/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpZ

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.816021 Long: -80.061821 Datum: NAD83

Soil Map Unit Name: Hockley loamy fine sand 0-2% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [ ]	No [✓]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpZ

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	10	YES	FAC
2. Liquidambar styraciflua	5	YES	FAC
3. Quercus nigra	5	YES	FAC
4.			
5.			
6.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Pinus taeda	10	YES	FAC
2. Liquidambar styraciflua	10	YES	FAC
3. Acer rubrum	3	NO	FAC
4. Quercus pagoda	3	NO	FACW
5.			
6.			
	16% = Total Cover		
50% of total cover: 8%	20% of total cover: 3.2%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	5	YES	FAC
2.			
3.			
4.			
5.			
6.			
	5% = Total Cover		
50% of total cover: 2.5%	20% of total cover: 1%		
Herb Stratum (Plot size: 30 ft radius)			
1. Osmunda cinnamomea	5	YES	FACW
2. Eupatorium sp	5	YES	FAC
3. Andropogon sp	5	YES	FAC
4. Elaphantopus carolinianus	5	YES	FACU
5. Lespedeza cuneata	5	YES	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Rubus hisbidus	5	YES	FACW
2. Smilax laurifolia	3	YES	FACW
3. Vitis rotundifolia	3	YES	FAC
4. Berchemia scandens	3	YES	FAC
5.			
	11% = Total Cover		
50% of total cover: 5.5%	20% of total cover: 2.2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 13 (A)

Total Number of Dominant Species Across All Strata: 15 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 87% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpZ

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	10 YR 4/2	100%					Sn Loam	
4-16"+	10 YR 4/4	100%					Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/25/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWAA

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.8154224 Long: -80.06079515 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [✓] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWAA

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus nigra	20	YES	FAC
2. Liquidambar styraciflua	20	YES	FAC
3. Nyssa sylvatica	15	YES	FAC
4. Acer rubrum	10	NO	FAC
5.			
6.			
	60% = Total Cover		
50% of total cover: 30%	20% of total cover: 15%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Nyssa sylvatica	15	YES	FAC
2. Acer rubrum	10	YES	FAC
3. Liquidambar styraciflua	10	YES	FAC
4. Persea palustris	5	YES	FACW
5.			
6.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Persea palustris	12	YES	FACW
2. Myrica cerifera	10	YES	FAC
3. Vaccinium formosum	10	YES	FAC
4.			
5.			
6.			
	32% = Total Cover		
50% of total cover: 16%	20% of total cover: 6.4%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	20	YES	FAC
2. Carex sp	10	YES	FAC
3. Woodwardia areolata	10	YES	OBL
4. Arisaema triphyllum	5	NO	FACW
5. Osmunda spectabilis	5	NO	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	50% = Total Cover		
50% of total cover: 25%	20% of total cover: 10%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
5.			
	% = Total Cover		
50% of total cover: %	20% of total cover: %		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 13 (A)

Total Number of Dominant Species Across All Strata: 13 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWAA

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14"	10 YR 2/1	100%					Sn Loam	
14-16"	10 YR 2/1	80%					Sn Loam	
10-16"	10 YR 4/1	20%					Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☑ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: ~1" muck

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/28/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWAD

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.81246232 Long: -80.05938722 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✓] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [✓] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [✓]	No [ ]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWAD

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	% = Total Cover		
50% of total cover: %	20% of total cover: %		
Sapling Stratum (Plot size: 30 ft radius)			
1. Triadica sebifera	15	YES	FAC
2. Pinus glabra	5	YES	FAC
3.			
4.			
5.			
6.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	10	YES	FAC
2. Baccharis halimifolia	10	YES	FACW
3. Sabal minor	5	YES	FACW
4.			
5.			
6.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Herb Stratum (Plot size: 30 ft radius)			
1. Scirpus sp	80	YES	OBL
2. Grass sp	5	NO	FAC
3. Hydrocotyle americana	3	NO	OBL
4. Eupatorium perfoliatum	3	NO	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	91% = Total Cover		
50% of total cover: 45.5%	20% of total cover: 18.2%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Mikania scandens	5	YES	FACW
2. Toxicodendron radicans	5	YES	FAC
3.			
4.			
5.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWAD

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16"		100%					Muck	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☑ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: muck throughout

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/28/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpAD

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.812535 Long: -80.059511 Datum: NAD83

Soil Map Unit Name: Yonges loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpAD

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus glabra	25	Yes	FACW
2. Fagus grandifolia	15	Yes	FACU
3. Quercua nigra	10	No	FAC
4. Carya glabra	10	No	FACU
5. Quercus michauxii	8	No	FACW
6. Ilex opaca	5	No	FAC
	73%	= Total Cover	
50% of total cover: 36.5%	20% of total cover: 14.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Fagus grandifolia	15	Yes	FACU
2. Quercua nigra	10	YES	FAC
3. Triadica sebifera	10	YES	FAC
4. Nyssa sylvatica	8	NO	FAC
5. Magnolia grandiflora	8	NO	FAC
6.			
	51%	= Total Cover	
50% of total cover: 25.5%	20% of total cover: 10.2%		
Shrub Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	%	= Total Cover	
50% of total cover: %	20% of total cover: %		
Herb Stratum (Plot size: 30 ft radius)			
1. Arundinaria gigantea	30	YES	FACW
2. Chasmanthium sessiliflorum	10	YES	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40%	= Total Cover	
50% of total cover: 20%	20% of total cover: 8%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	5	Yes	FAC
2.			
3.			
4.			
5.			
	5%	= Total Cover	
50% of total cover: 2.5%	20% of total cover: 1%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [ ] No [x]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpAD

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5"	10 YR 2/1	100					Sn Loam	Sandy Loam
5-16"	10 YR 5/1	75					Lm Sand	Loamy Sand
	10 YR 2/1	25						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Soil is disturbed.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 10/08/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWAE

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.81252535 Long: -80.04795091 Datum: NAD83

Soil Map Unit Name: Wagram loamy fine sand 0-6% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✓] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [✓]	No [ ]	Depth (inches):
Water Table Present?	Yes [✓]	No [ ]	Depth (inches): 2
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWAE

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	%	= Total Cover	
50% of total cover: %	20% of total cover: %		
Sapling Stratum (Plot size: 30 ft radius)			
1. Pinus taeda	8	YES	FAC
2.			
3.			
4.			
5.			
6.			
	8%	= Total Cover	
50% of total cover: 4%	20% of total cover: 1.6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	10	YES	FAC
2. Rubus sp	5	YES	FAC
3.			
4.			
5.			
6.			
	15%	= Total Cover	
50% of total cover: 7.5%	20% of total cover: 3%		
Herb Stratum (Plot size: 30 ft radius)			
1. Grass sp	50	YES	FAC
2. Helianthus angustifolius	10	NO	FACW
3. Pontederia cordata	10	NO	OBL
4. Juncus sp	10	NO	FACW
5. Hydrocotyle americana	8	NO	OBL
6. Habenaria repens	3	NO	OBL
7.			
8.			
9.			
10.			
11.			
	91%	= Total Cover	
50% of total cover: 45.5%	20% of total cover: 18.2%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Mikania scandens	5	YES	FACW
2.			
3.			
4.			
5.			
	5%	= Total Cover	
50% of total cover: 2.5%	20% of total cover: 1%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWAE

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2"	muck							muck
2-12"	2.5 Y 7/1	80%	10 YR 6/8	20%			Sn Loam	
	Gley1 5/5G_/1	80%	10 YR 5/8	20%			Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☑ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 10/08/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWAF

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.8123254 Long: -80.04801627 Datum: NAD83

Soil Map Unit Name: Wagram loamy fine sand 0-6% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWAF

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	25	YES	FAC
2. Pinus taeda	20	YES	FAC
3. Nyssa sylvatica	5	NO	FAC
4.			
5.			
6.			
	50% = Total Cover		
50% of total cover: 25%	20% of total cover: 10%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Triadica sebifera	15	YES	FAC
2. Quercus nigra	15	YES	FAC
3. Acer rubrum	10	YES	FAC
4. Liquidambar styraciflua	10	YES	FAC
5. Magnolia grandiflora	5	NO	FAC
6.			
	55% = Total Cover		
50% of total cover: 27.5%	20% of total cover: 11%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	10	YES	FAC
2. Sabal minor	5	YES	FACW
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Herb Stratum (Plot size: 30 ft radius)			
1. Persicaria sp	15	YES	FACW
2. Chasmanthium sessiliflorum	10	YES	FAC
3. Saccharum giganteum	10	YES	FACW
4. Carex gigantea	5	NO	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	50% = Total Cover		
50% of total cover: 25%	20% of total cover: 10%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Rubus sp	15	YES	FAC
2. Vitis rotundifolia	10	YES	FAC
3. Campsis radicans	5	YES	FAC
4.			
5.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 14 (A)

Total Number of Dominant Species Across All Strata: 14 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWAF

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10"	10 YR 2/1	100%					Sn Loam	
10-16"	10 YR 2/1	50%					Sn Loam	
	10 YR 7/6	50%					Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☑ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 10/08/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWAH

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.81209687 Long: -80.05898273 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWAH

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus michauxii	20	YES	FAC
2. Liquidambar styraciflua	15	YES	FAC
3. Fagus grandifolia	15	NO	FAC
4. Magnolia grandiflora	10		FAC
5.			
6.			
	60% = Total Cover		
50% of total cover: 30%	20% of total cover: 12%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Quercus nigra	12	YES	FAC
2. Magnolia grandiflora	10	YES	FAC
3. Fagus grandifolia	5	YES	FAC
4. Carpinus caroliniana	5	YES	FAC
5.			
6.			
	55% = Total Cover		
50% of total cover: 27.5%	20% of total cover: 11%		
Shrub Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Herb Stratum (Plot size: 30 ft radius)			
1. Arundinaria gigantea	20	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20% = Total Cover		
50% of total cover: 10%	20% of total cover: 4%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	10	YES	FAC
2.			
3.			
4.			
5.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 14 (A)

Total Number of Dominant Species Across All Strata: 14 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWAH

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	10 YR 2/1	100%					Sn Loam	
12-16"	10 YR 5/1	75%	10 YR 7/6	25%			Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/28/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpAH

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): Convex Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.812185 Long: -80.059083 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpAH

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Carya glabra	20	YES	FACU
2. Fagus grandifolia	15	YES	FAC
3. Liquidambar styraciflua	10	NO	FAC
4.			
5.			
6.			
	60% = Total Cover		
50% of total cover: 30%	20% of total cover: 12%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Fagus grandifolia	25	YES	FAC
2.			
3.			
4.			
5.			
6.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 12.5%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Symplocos tinctoria	15	YES	FAC
2.			
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Herb Stratum (Plot size: 30 ft radius)			
1. Arundinaria gigantea	10	YES	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	15	YES	FAC
2.			
3.			
4.			
5.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpAH

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	10 YR 3/2	100					Lm Sand	
4-16"	10 YR 5/3	100					Lm Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Soil is disturbed.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 10/08/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWAI

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.811822 Long: -80.058142 Datum: NAD83

Soil Map Unit Name: Yonges loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWAI

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	25	YES	FAC
2. Quercus phellos	20	YES	FAC
3. Triadica sebifera	10	NO	FAC
4. Quercus nigra	10	NO	FAC
5. Liquidambar styraciflua	8	NO	FAC
6.			
	73% = Total Cover		
50% of total cover: 36.5%	20% of total cover: 14.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	12	YES	FAC
2. Acer rubrum	10	YES	FAC
3. Triadica sebifera	5	YES	FAC
4.			
5.			
6.			
	27% = Total Cover		
50% of total cover: 13.5%	20% of total cover: 5.4%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Sabal minor	5	YES	FACW
2. Baccharis halimifolia	5	YES	FAC
3.			
4.			
5.			
6.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		
Herb Stratum (Plot size: 30 ft radius)			
1. Arundinaria gigantea	45	YES	FACW
2. Rubus sp	15	NO	FAC
3. Saururus cernuus	8	NO	OBL
4. Eupatorium capillifolium	8	NO	FACU
5. Boehmeria cylindrica	8	NO	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	84% = Total Cover		
50% of total cover: 42%	20% of total cover: 16.8%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	15	YES	FAC
2. Vitis aestivalis	10	YES	FACU
3. Ampelopsis arborea	3	NO	FAC
4.			
5.			
	28% = Total Cover		
50% of total cover: 14%	20% of total cover: 5.6%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 90% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWAI

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	10 YR 2/1	100%					Sn Loam	
12-16"	10 YR 2/1	100%					Lm Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 10/08/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWAJ

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.81092281 Long: -80.05661343 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: WWAJ

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	20	YES	FAC
2. Quercus michauxii	15	YES	FACW
3. Acer rubrum	10	NO	FAC
4. Liriodendron tulipifera	8	NO	FACU
5. Ulmus alata	5	NO	FACU
6. Magnolia grandiflora	5	NO	FAC
	63%	= Total Cover	
50% of total cover: 31.5%	20% of total cover: 12.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	20	YES	FAC
2. Quercus michauxii	10	YES	FACW
3. Acer rubrum	10	NO	FAC
4. Quercus phellos	8	NO	FACW
5. Persea palustris	5	NO	FACW
6.			
	53%	= Total Cover	
50% of total cover: 21.5%	20% of total cover: 10.6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Sabal minor	20	YES	FACW
2. Persea palustris	18	YES	FACW
3.			
4.			
5.			
6.			
	38%	= Total Cover	
50% of total cover: 19%	20% of total cover: 7.6%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	20	YES	FAC
2. Boehmeria cylindrica	5	NO	FACW
3. Asplenium platyneuron	3	NO	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	28%	= Total Cover	
50% of total cover: 14%	20% of total cover: 5.6%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Toxicodendron radicans	15	YES	FAC
2. Smilax rotundifolia	5	YES	FAC
3.			
4.			
5.			
	20%	= Total Cover	
50% of total cover: 10%	20% of total cover: 4%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWAJ

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5"	10 YR 2/1	100%					Sn Loam	
5-12"	10 YR 4/1	95%	10 YR 6/6	5%			Lm Clay	
12-16"	10 YR 5/1	80%	10 YR 5/6	20%				

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Very disturbed area

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 10/09/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpAJ

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.810880 Long: -80.056076 Datum: NAD83

Soil Map Unit Name: Wagram loamy fine sand 0-6% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpAJ

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pinus taeda	15	YES	FAC
2. Liriodendron tulipifera	15	YES	FAC
3. Liquidambar styraciflua	15	YES	FAC
4. Quercus nigra	10	NO	FAC
5. Magnolia grandiflora	10	NO	FAC
6. Nyssa sylvatica	5	NO	FAC
	90%	= Total Cover	
50% of total cover: 45%	20% of total cover: 18%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Magnolia grandiflora	20	YES	FAC
2. Liquidambar styraciflua	10	YES	FAC
3. Liriodendron tulipifera	8	YES	FAC
4. Acer rubrum	5	NO	FAC
5.			
6.			
	43%	= Total Cover	
50% of total cover: 21.5%	20% of total cover: 9%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Symplocos tinctoria	25	YES	FAC
2. Myrica cerifera	15	YES	FAC
3. Vaccinium simulatum	8	NO	FACU
4.			
5.			
6.			
	48%	= Total Cover	
50% of total cover: 24%	20% of total cover: 9.6%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	5	YES	FAC
2. Polystichum acrostichoides	3	YES	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	8%	= Total Cover	
50% of total cover: 4%	20% of total cover: 1.6%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	15	YES	FAC
2. Smilax rotundifolia	10	YES	FAC
3.			
4.			
5.			
	25%	= Total Cover	
50% of total cover: 12.5%	20% of total cover: 5%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 11 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 91.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpAJ

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8"	10 YR 5/3	100%					Sn Loam	
8-16"	10 YR 6/6	75%					Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Soil is disturbed.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 10/08/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWAK

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.81067326 Long: -80.05461786 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWAK

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	%	= Total Cover	
50% of total cover: %	20% of total cover: %		
Sapling Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
5.			
6.			
	%	= Total Cover	
50% of total cover: %	20% of total cover: %		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	15	YES	FAC
2. Salix nigra	10	YES	OBL
3. Baccharis halimifolia	5	YES	FAC
4.			
5.			
6.			
	20%	= Total Cover	
50% of total cover: 10%	20% of total cover: 4%		
Herb Stratum (Plot size: 30 ft radius)			
1. Iva annua	80	YES	FAC
2. Juncus effusus	5	NO	OBL
3. Solidago sp	5	NO	FAC
4. Typha	3	NO	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	93%	= Total Cover	
50% of total cover: 46.5%	20% of total cover: 18.6%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Campsis radicans	3	YES	FAC
2. Bignonia capreolata	3	YES	FAC
3. Gelsemium sempervirens	3	YES	FAC
4.			
5.			
	9%	= Total Cover	
50% of total cover: 4.5%	20% of total cover: 1.8%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWAK

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10"	10 YR 3/1	90%	7.5 YR 4/6	10			Sn Loam	
10-16"	Gley 1 5/5GY	70%	10 YR 5/8	10			Lm Clay	
	5 YR 3/4	20%						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Very disturbed area

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 10/09/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: UpAK2

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.810322 Long: -80.055043 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [✓] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [ ]	No [✓]	**Is the Sampled Area within a Wetland?** Yes [ ] No [✓]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [ ]	No [✓]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [ ] No [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UpAK2

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	20	YES	FAC
2. Quercus pagoda	15	YES	FACW
3. Magnolia grandiflora	10	NO	FAC
4. Quercus phellos	10	NO	FACW
5. Qercus nigra	8	NO	FAC
6. Nyssa sylvatica	5	NO	FAC
	68%	= Total Cover	
50% of total cover: 34%	20% of total cover: 13.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Magnolia grandiflora	15	YES	FAC
2. Qercus nigra	10	YES	FAC
3. Quercus laurifolia	5	NO	FACW
4. Quercus michauxii	5	NO	FACW
5. Persea palustris	5	NO	FACW
6.			
	40%	= Total Cover	
50% of total cover: 20%	20% of total cover: 8%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Symplocos tinctoria	10	YES	FAC
2. Ilex vomitoria	5	YES	FAC
3.			
4.			
5.			
6.			
	15%	= Total Cover	
50% of total cover: 7.5%	20% of total cover: 3%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	10	YES	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10%	= Total Cover	
50% of total cover: 5%	20% of total cover: 2%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	20	YES	FAC
2. Toxicodendron radicans	5	YES	FAC
3.			
4.			
5.			
	25%	= Total Cover	
50% of total cover: 12.5%	20% of total cover: 5%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: UpAK2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5"	10 YR 4/2	100%					Lm Sand	
5-12"	10 YR 5/2	70%	10 YR 6/8	30%			Lm Sand	
12-16"	10 YR 6/2	50%	10 YR 6/8	30%			Lm Sand	
	10 YR 4/2	20%					Lm Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Soil is disturbed.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/24/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWS

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.81773273 Long: -80.06637151 Datum: NAD83

Soil Map Unit Name: Yonges loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [✓] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [✓] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Signs of pooling

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWS

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
	= Total Cover		
50% of total cover: %	20% of total cover: %		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	8	YES	FAC
2. Pinus glabra	5	YES	FACW
3.			
4.			
5.			
6.			
	13% = Total Cover		
50% of total cover: 6.5%	20% of total cover: 2.6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Rubus arvensis	10	YES	FAC
2. Myrica cerifera	8	YES	FAC
3. Aralia spinosa	5	YES	FAC
4.			
5.			
6.			
	23% = Total Cover		
50% of total cover: 11.5%	20% of total cover: 4.6%		
Herb Stratum (Plot size: 30 ft radius)			
1. Juncus effusus			OBL
2. Carex lupuliformis			OBL
3. Solidago gigantea			FACW
4. Andropogon virginicus			FACU
5. Rhexia cubensis			FACW
6. Agalinis purpurea			FACW
7.			
8.			
9.			
10.			
11.			
	% = Total Cover		
50% of total cover:	20% of total cover: %		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Rubus hispidus	10	YES	FACW
2.			
3.			
4.			
5.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 11 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWS

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8"	10 YR 2/1	100%					Lm Sand	
8-12"	10 YR 3/2	100%					Lm Sand	
12-16"	10 YR 6/1	100%					Lm Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/24/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWT

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.818152 Long: -80.067324 Datum: NAD83

Soil Map Unit Name: Yonges loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWT

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	35	YES	FAC
2. Acer rubrum	20	YES	FAC
3. Pinus taeda	15	NO	FAC
4. Carya glabra	10	NO	FACU
5. Quercus nigra	8	NO	FAC
6.			
	88% = Total Cover		
50% of total cover: 44%	20% of total cover: 16.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	10	YES	FAC
2. Quercus nigra	10	YES	FAC
3. Persea palustris	8	YES	FACW
4.			
5.			
6.			
	28% = Total Cover		
50% of total cover: 14%	20% of total cover: 5.6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Persea palustris	10	YES	FACW
2.			
3.			
4.			
5.			
6.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	15	YES	FAC
2. Arundinaria gigantea	10	YES	FACW
3. Woodwardia areolata	5	NO	OBL
4. Osmunda cinnamomea	5	NO	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35% = Total Cover		
50% of total cover: 17.5%	20% of total cover: 7%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	5	YES	FAC
2. Smilax bona-nox	3	YES	FAC
3.			
4.			
5.			
	8% = Total Cover		
50% of total cover: 4%	20% of total cover: 1.6%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 10 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWT

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	10 YR 2/1	100%					Lm Sand	
6-14"	10 YR 3/1	100%					Lm Sand	
14-18"	7.5 YR 3/2	100%					Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/24/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWT2

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.81809714 Long: -80.06640768 Datum: NAD83

Soil Map Unit Name: Yonges loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWT2

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	25	YES	FAC
2. Nyssa sylvatica	15	YES	FAC
3. Pinus taeda	10	NO	FAC
4. Quercus michauxii	10	NO	FACW
5. Quercus nigra	10	NO	FAC
6. Quercus pagoda	8	NO	FACW
	78%	= Total Cover	
50% of total cover: 39%		20% of total cover: 14.4%	
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	10	YES	FAC
2. Quercus nigra	5	YES	FAC
3.			
4.			
5.			
6.			
	15%	= Total Cover	
50% of total cover: 7.5%		20% of total cover: 3%	
Shrub Stratum (Plot size: 30 ft radius)			
1. Persea palustris	10	YES	FACW
2. Vaccinium corymbosum	3	YES	FACW
3.			
4.			
5.			
6.			
	13%	= Total Cover	
50% of total cover: 6.5%		20% of total cover: 2.6%	
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	10	YES	FAC
2. Arundinaria gigantea	10	YES	FACW
3. Osmunda cinnamomea	8	YES	OBL
4. Callicarpa americana	5	NO	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	33%	= Total Cover	
50% of total cover: 16.5%		20% of total cover: 6.6%	
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	10	YES	FAC
2. Smilax bona-nox	5	YES	FAC
3.			
4.			
5.			
	15%	= Total Cover	
50% of total cover: 7.5%		20% of total cover: 3%	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 11 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWT2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8"	10 YR 2/1	80%	5 YR 5/8	20%			Sn Loam	
8-12"	10 YR 4/2	60%	5 YR 5/8	15%			Sn Loam	
	10 YR 6/4	25%						
12-16"	10 YR 6/8	40%	5 YR 5/8	20%			Sn Loam	
	10 YR 6/3	40%						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/24/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWU

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.878270 Long: -80.065449 Datum: NAD83

Soil Map Unit Name: Yonges loamy fine sand NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWU

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	40	YES	FAC
2. Pinus taeda	30	YES	FAC
3.			
4.			
5.			
6.			
	70% = Total Cover		
50% of total cover: 35%	20% of total cover: 14%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	15	YES	FAC
2.			
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	15	YES	FAC
2. Vaccinium corymbosum	10	YES	FACW
3.			
4.			
5.			
6.			
	25% = Total Cover		
50% of total cover: 12.5%	20% of total cover: 5%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	15	YES	FAC
2. Osmunda cinnamomea	15	YES	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Ampelopsis arborea	3	YES	FAC
2. Parthenocissus quinquefolia	3	YES	FACU
3.			
4.			
5.			
	6% = Total Cover		
50% of total cover: 3%	20% of total cover: 1.2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 89% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWU

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10"	10 YR 2/1	100%					Lm Sand	
10-14"	10 YR 2/1	60%					Lm Sand	
	10 YR 6/1	40%					Lm Sand	
14-16	10 YR 6/1	100%					Lm Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/25/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWV

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.81740879 Long: -80.06547371 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [✓] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches): _____
Water Table Present?	Yes [ ]	No [✓]	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches): _____

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWV

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	40	YES	FAC
2. Pinus glabra	25	YES	FACW
3.			
4.			
5.			
6.			
	65% = Total Cover		
50% of total cover: 32.5%	20% of total cover: 13%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	25	YES	FAC
2. Liquidambar styraciflua	20	YES	FAC
3. Acer rubrum	10	NO	FAC
4.			
5.			
6.			
	55% = Total Cover		
50% of total cover: 27.5%	20% of total cover: 11%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	10	YES	FAC
2.			
3.			
4.			
5.			
6.			
	10% = Total Cover		
50% of total cover: 5%	20% of total cover: 2%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	15	YES	FAC
2. Arundinaria gigantea	10	YES	FACW
3. Saururus cernuus	10	YES	OBL
4. Osmunda cinnamomea	8	NO	FACW
5. Grass spp.	8	NO	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	51% = Total Cover		
50% of total cover: 25.5%	20% of total cover: 10.2%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1.			
2.			
3.			
4.			
5.			
	% = Total Cover		
50% of total cover: %	20% of total cover: %		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWV

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10"	10 YR 2/1	100%					Lm Sand	
10-12"	10 YR 3/1	100%					Lm Sand	
12-16"	10 YR 6/1	100%					Lm Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/25/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWV2

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.81680996 Long: -80.0644828 Datum: NAD83

Soil Map Unit Name: Yonges loamy fine sand NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [✓] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches): _____
Water Table Present?	Yes [ ]	No [✓]	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches): _____

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWV2

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar styraciflua	15	YES	FAC
2. Quercus nigra	15	YES	FAC
3. Quercus phellos	10	NO	FACW
4. Acer rubrum	10	NO	FAC
5. Quercus michauxii	8	NO	FACW
6.			
	58% = Total Cover		
50% of total cover: 29%	20% of total cover: 11.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Liquidambar styraciflua	10	YES	FAC
2. Acer rubrum	8	YES	FAC
3. Quercus nigra	8	YES	FAC
4. Nyssa sylvatica	8	YES	FAC
5. Triadica sebifera	5	NO	FAC
6.			
	39% = Total Cover		
50% of total cover: 19.5%	20% of total cover: 7.8%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Sabal minor	15	YES	FACW
2. Triadica sebifera	10	YES	FAC
3. Myrica cerifera	5	NO	FAC
4.			
5.			
6.			
	30% = Total Cover		
50% of total cover: 15%	20% of total cover: 6%		
Herb Stratum (Plot size: 30 ft radius)			
1. Arundinaria gigantea	15	YES	FACW
2. Osmunda cinnamomea	12	YES	FACW
3. Chasmanthium sessiliflorum	10	YES	FAC
4. Carex comosa	8	NO	OBL
5. Juncus effusus	5	NO	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	50% = Total Cover		
50% of total cover: 25%	20% of total cover: 10%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	8	YES	FAC
2. Smilax bona-nox	5	YES	FAC
3.			
4.			
5.			
	13% = Total Cover		
50% of total cover: 6.5%	20% of total cover: 2.6%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 13 (A)

Total Number of Dominant Species Across All Strata: 13 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWV2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	10 YR 2/1	100%					Sn Loam	
12-16"	10 YR 2/1	80%					Sn Loam	
	10 YR 5/1	20%					Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/25/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWW

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.81588246 Long: -80.06294735 Datum: NAD83

Soil Map Unit Name: Hockley loamy fine sand 0-2% slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches): _____
Water Table Present?	Yes [ ]	No [✓]	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches): _____

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWW

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus nigra	20	YES	FAC
2. Quercus phellos	15	YES	FACW
3. Quercus michauxii	10	YES	FACW
4. Carpinus caroliniana	10	NO	FAC
5. Liquidambar styraciflua	8	NO	FAC
6. Ilex opaca	8	NO	FAC
	71%	= Total Cover	
50% of total cover: 35.5%	20% of total cover: 14.2%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Carpinus caroliniana	15	YES	FAC
2. Liquidambar styraciflua	10	YES	FAC
3. Quercus michauxii	8	NO	FACW
4.			
5.			
6.			
	33%	= Total Cover	
50% of total cover: 16.5%	20% of total cover: 6.6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Triadica sebifera	10	YES	FAC
2. Sabal minor	8	YES	FACW
3. Myrica cerifera	5	YES	FAC
4.			
5.			
6.			
	23%	= Total Cover	
50% of total cover: 11.5%	20% of total cover: 4.6%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	20	YES	FAC
2. Arundinaria gigantea	15	YES	FACW
3. Saururus cernuus	5	YES	OBL
4. Carex comosa	5	NO	FACW
5. Persicaria hydropiperoides	3	NO	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	48%	= Total Cover	
50% of total cover: 24%	20% of total cover: 9.6%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Smilax bona-nox	5	YES	FAC
2. Vitis rotundifolia	5	YES	FAC
3. Campsis radicans	3	NO	FAC
4. Parthenocissus quinquefolia	3	NO	FACU
5.			
	16%	= Total Cover	
50% of total cover: 8%	20% of total cover: 3.2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 13 (A)

Total Number of Dominant Species Across All Strata: 13 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWW

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14"	10 YR 2/1	100%					Sn Loam	
14-16+"	10 YR 5/1	100%					Lm Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/25/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWX

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.81593271 Long: -80.06396942 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWX

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus phellos	25	YES	FACW
2. Quercus nigra	20	YES	FAC
3. Liquidambar styraciflua	15	YES	FAC
4. Acer rubrum	10	NO	FAC
5.			
6.			
	70% = Total Cover		
50% of total cover: 35%	20% of total cover: 14%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Quercus phellos	15	YES	FACW
2. Quercus nigra	10	YES	FAC
3. Nyssa sylvatica	8	YES	FAC
4. Fraxinus caroliniana	3	NO	OBL
5.			
6.			
	36% = Total Cover		
50% of total cover: 18%	20% of total cover: 7.2%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Sabal minor	15	YES	FACW
2.			
3.			
4.			
5.			
6.			
	15% = Total Cover		
50% of total cover: 7.5%	20% of total cover: 3%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	15	YES	FAC
2. Saururus cernuus	10	YES	OBL
3. Arundinaria gigantea	8	NO	FACW
4. Carex comosa	5	NO	FACW
5. Lobelia sp.	3	NO	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	41% = Total Cover		
50% of total cover: 20.5%	20% of total cover: 8.2%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Smilax bona-nox	3	YES	FAC
2. Toxicodendron radicans	3	YES	FAC
3. Bignonia capreolata	3	NO	FAC
4. Parthenocissus quinquefolia	3	NO	FACU
5.			
	12% = Total Cover		
50% of total cover: 6%	20% of total cover: 3.2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 11 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWX

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16"+	10 YR 2/1	100%					Sn Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☑ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: ~1" mucky mineral

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/25/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWY

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.81735639 Long: -80.06324124 Datum: NAD83

Soil Map Unit Name: Wadmalaw fine sandy loam NWI classification: PSS1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [✓] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [ ] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [✓]	No [ ]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWY

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	15	YES	OBL
2. Liquidambar styraciflua	10	YES	FAC
3. Nyssa biflora	10	YES	OBL
4. Acer rubrum	5	NO	FAC
5. Quercus nigra	5	NO	FACW
6. Pinus glabra	5	NO	FACW
	50%	= Total Cover	
50% of total cover: 25%	20% of total cover: 10%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Salix nigra	10	YES	OBL
2. Pinus glabra	10	YES	FAC
3. Liquidambar styraciflua	5	YES	FACW
4.			
5.			
6.			
	25%	= Total Cover	
50% of total cover: 12.5%	20% of total cover: 5%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Myrica cerifera	3	YES	FAC
2.			
3.			
4.			
5.			
6.			
	3%	= Total Cover	
50% of total cover: 1.5%	20% of total cover: .6%		
Herb Stratum (Plot size: 30 ft radius)			
1. Juncus effusus	40	YES	OBL
2. Saururus cernuus	25	YES	OBL
3. Boehmeria cylindric	10	NO	FACW
4. Carex sp	10	NO	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95%	= Total Cover	
50% of total cover: 47.5%	20% of total cover: 19%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	3	YES	FAC
2. Ampelopsis arborea	3	YES	FAC
3.			
4.			
5.			
	6%	= Total Cover	
50% of total cover: 3%	20% of total cover: 1.2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 11 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWY

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"+	10 YR 4/1	100%					Sn Loam	
4-12"	10 YR 4/1	50%					Sn Loam	
	Gley 1:6 10 GY	50%					Lm Clay	
12-16	10 YR 4/1	75%					Sn Loam	
	Gley 1:5 5G_/2	25%					Lm Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☑ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: ~1" mucky mineral

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Glenn McConnell Parkway City/County: West Ashley/ Charleston Sampling Date: 09/25/18

Applicant/Owner: SCDOT, Charleston County State: SC Sampling Point: WWZ

Investigator(s): Three Oaks Engineering Section, Township, Range: Johns Island, SC (1958, ed. 1979) 1:24k

Landform (hillslope, terrace, etc.): Forested Local relief (concave, convex, none): None Slope (%): 0-3%

Subregion (LRR or MLRA): Atlantic Gulf Coast Lowland Lat: 32.816296 Long: -80.061885 Datum: NAD83

Soil Map Unit Name: Hockley loamy fine sand 0-2% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes [✓] No [ ] (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? [ ] Are "Normal Circumstances" present? Yes [✓] No [ ]

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? [ ] (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes [✓]	No [ ]	**Is the Sampled Area within a Wetland?** Yes [✓] No [ ]
Hydric Soil Present?	Yes [✓]	No [ ]	
Wetland Hydrology Present?	Yes [✓]	No [ ]	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1)
- [ ] Sediment Deposits (B2)
- [ ] Drift Deposits (B3)
- [ ] Algal Mat or Crust (B4)
- [ ] Iron Deposits (B5)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [✓] Water-Stained Leaves (B9)
- [ ] Aquatic Fauna (B13)
- [ ] Marl Deposits (B15) **(LRR U)**
- [ ] Hydrogen Sulfide Odor (C1)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- [ ] Surface Soil Cracks (B6)
- [ ] Sparsely Vegetated Concave Surface (B8)
- [✓] Drainage Patterns (B10)
- [ ] Moss Trim Lines (B16)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [✓] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [✓] FAC-Neutral Test (D5)
- [ ] Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes [ ]	No [✓]	Depth (inches):
Water Table Present?	Yes [ ]	No [✓]	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes [ ]	No [✓]	Depth (inches):

Wetland Hydrology Present? Yes [✓] No [ ]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WWZ

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus michauxii	25	YES	FACW
2. Pinus taeda	15	YES	FAC
3. Quercus nigra	10	YES	FAC
4. Liquidambar styraciflua	8	NO	FAC
5.			
6.			
	58% = Total Cover		
50% of total cover: 29%	20% of total cover: 10.6%		
Sapling Stratum (Plot size: 30 ft radius)			
1. Quercus michauxii	15	YES	FACW
2. Quercus nigra	10	YES	FAC
3. Liquidambar styraciflua	10	YES	FAC
4. Acer rubrum	8	YES	FAC
5.			
6.			
	33% = Total Cover		
50% of total cover: 16.5%	20% of total cover: 6.6%		
Shrub Stratum (Plot size: 30 ft radius)			
1. Sabal minor	5	YES	FACW
2.			
3.			
4.			
5.			
6.			
	5% = Total Cover		
50% of total cover: 2.5%	20% of total cover: 1%		
Herb Stratum (Plot size: 30 ft radius)			
1. Chasmanthium sessiliflorum	20	YES	FAC
2. Carex sp	10	YES	FAC
3. Woodwardia areolata	10	YES	OBL
4. Arisaema triphyllum	5	NO	FACW
5. Osmunda spectabilis	5	NO	OBL
6.			
7.			
8.			
9.			
10.			
11.			
	50% = Total Cover		
50% of total cover: 25%	20% of total cover: 10%		
Woody Vine Stratum (Plot size: 30 ft radius)			
1. Vitis rotundifolia	3	YES	FAC
2. Bignonia capreolata	3	YES	FAC
3.			
4.			
5.			
	6% = Total Cover		
50% of total cover: 3%	20% of total cover: 1.2%		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 13 (A)

Total Number of Dominant Species Across All Strata: 13 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- [ ] 1 - Rapid Test for Hydrophytic Vegetation
- [x] 2 - Dominance Test is >50%
- [ ] 3 - Prevalence Index is ≤3.0[1]
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes [x] No [ ]

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WWZ

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	10 YR 421	100%					Sn Loam	
6-10"	10 YR 4/1	100%					Sn Loam	
10-16"	10 YR 5/1	90%	10 YR 7/6	10			Sn Loam	concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☑ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: ~1" muck

Appendix F

Biological Evaluation

Proposed Widening of SC 461 - Glenn McConnell Parkway

Charleston County, South Carolina

Biological Evaluation

Prepared for:

DAVIS & FLOYD, INC.

&

CHARLESTON COUNTY
SOUTH CAROLINA

Prepared by:

1022 State Street, Building 2

Cayce, South Carolina 29033

September 2019

Biological Evaluation

SC 641 (Glenn McConnell Parkway) Improvements

Charleston County, South Carolina

Pursuant to Section 7 of the Endangered Species Act, a field survey was conducted for the proposed SC 641 (Glenn McConnell Parkway) improvements in Charleston County. The US Fish and Wildlife Service (USFWS) considers at-risk species, "Species that the USFWS has been petitioned to list and for which a positive 90-day finding has been issued (listing may be warranted); information is provided only for conservation actions as no Federal protections currently exist."[1] All threatened and endangered species are fully protected by the Endangered Species Act. Bald eagles are protected by the Bald and Golden Eagle Protection Act (BGEPA). The following list of at-risk species, threatened (T) species, endangered (E) species, and species protected by the Bald and Golden Eagle Protection Act for Charleston County was obtained from the US Fish and Wildlife Service:

Animals

Wood stork (*Mycteria americana*) **–** T
Bachman's Warbler (*Vermivora bachmanii*) – E
Kirtland's Warbler (*Setophaga kirtlandii*)-E[2]
Red-cockaded woodpecker (*Picoides borealis*) – E
Piping plover (*Charadrius melodus*) – T
Red knot (*Calidris canutus rufa*) – T
Eastern Black Rail (*Laterallus jamaicensis jamaicensis*) – T*
Atlantic sturgeon (*Acipenser oxyrinchus*) – E
Shortnose sturgeon (*Acipenser brevirostrum*) – E
Frosted Flatwoods Salamander (*Ambystoma cingulatum*)- T
Northern long-eared bat (*Myotis septentrionalis*) – T
Finback whale (*Balaenoptera physalus*) – E
Humpback whale (*Megaptera novaengliae*) – E
Right whale (*Balaena glacialis*) – E
Sei Whale (*Balaenoptera borealis*) – E
Sperm Whale (*Physeter macrocephalus*) – E
West Indian manatee (*Trichechus manatus*) – T
Green sea turtle (*Chelonia mydas*) – T
Kemp's ridley sea turtle (*Lepidochelys kempii*) – E
Leatherback sea turtle (*Dermochelys coriacea*) – E
Loggerhead sea turtle (*Caretta caretta*) – T
** - Proposed for listing as Threatened*

[1] United States Fish and Wildlife Service. South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species – https://www.fws.gov/southeast/pdf/fact-sheet/south-carolina-species-list-by-county.pdf (Aug 20, 2019)
[2] IPaC Information for Planning and Consultation U.S. Fish & Wildlife Service. https://ecos.fws.gov/ipac/location/CIO75P6D3FEWBFNJXKENCZPS34/resources (Sept 4, 2019)

Plants
American chaffseed (*Schwalbea americana*) – T
Canby's dropwort (*Oxypolis canbyi*) – E
Pondberry (*Lindera melissifolia*) – E
Seabeach amaranth (*Amaranthus pumilus*) – T

Bald and Golden Eagle Protection Act (BGEPA)
Bald Eagle (*Haliaeetus leucocephalus*)

At-Risk Species
Gopher frog (*Lithobates capito*)
Black-capped petrel (*Pterodroma hasitata*)
Saltmarsh sparrow (*Ammospiza caudacuta*)
Frosted elfin (*Callophrys irus*)
Monarch butterfly (*Danaus plexippus*)
Tri-colored bat (*Perimyotis subflavus*)
Boykin's lobelia (*Lobelia boykinii*)
Ciliate-leaf tickseed (*Coreopsis integrifolia*)
Eastern Diamondback Rattlesnake (*Crotalus adamanteus*)
Southern hognose snake (*Heterodon simus*)
Spotted turtle (*Clemmys guttata*)

Federally listed endangered, threatened, and protected species and their respective habitats are briefly described below:

Wood stork (*Mycteria americana*) – Federally Threatened


Figure 2: "American wood stork." Hagerty, Ryan. FWS. https://www.upi.com/Science_News/2014/06/27/The-Souths-wood-stork-to-be-taken-off-endangered-list/9631403907725/. (Aug. 23, 2019)

American wood storks are large wading birds standing about 45 inches tall with white plumage except on the black trailing edges of the wings. The head and neck are unfeathered and dark gray. They have a large dark bill that is heavy at the base and decurved and pointed at the tip. They soar on thermals with neck outstretched and a wingspan of 60-65 inches. Wood storks feed by moving the bill through shallow (6-10 inches deep) water slightly open until it touches a small fish when they snap the bill shut. They feed in both freshwater and estuarine waters including marshes, tidal creeks, and swamps. They are especially attracted to concentrated pools of water during falling water levels. They build nests in colonies in swamps primarily using cypress tree canopies. They can be found nesting and feeding in South Carolina from mid-February until September.[3]

[3] "Wood Stork" USFWS. https://www.fws.gov/northflorida/Species-Accounts/Wood-stork-2005.htm (Jan 23, 2019)

Bachman's Warbler (*Vermivora bachmanii*) – Federally Endangered

Bachman's warblers are extremely rare, and many scientists believe it to be extinct due to the lack of sightings since 1988. They are very small, only 10 to 11 cm in total length. Males are "olive-green above with yellow forehead, lores, eye-ring, chin, and underparts, a black throat and crown, and dusky wings and tail" and have a yellow shoulder patch and bright rump. The female is considerably more difficult to identify as they are drab olive green with yellow forehead and under parts. Both sexes tend to raise the feathers on their foreheads, giving them a fluffy appearance. As neotropical migrants, they use the Atlantic Coast and the Mississippi alluvial plain for nesting and Cuba for overwintering. The historical nesting habitat for this warbler included low wetlands with dense thickets of cane (*Aruninaria gigantea*) and dwarf palmetto (*Sabal minor*). They tend place the nest within 1 meter of the ground. They nest between late March and early June. [4]

Figure 3: "Bachman's Warbler." Mitch Waite Group. https://identify.whatbird.com/obj/822/_/Bachmans_Warbler.aspx . (Aug. 23, 2019)

Kirtland's Warbler (*Setophaga kirtlandii*) – Federally Endangered, Proposed for delisting

Kirtland's Warblers use the coast of South Carolina as a migration path on their way to the Bahamas. Their fall migration occurs from August to October. Their spring migration occurs from April to May. Their breeding diet consists primarily of arthropods and their winter diet consists primarily of small fruits and arthropods. They feed close to or on the ground. During migration, they prefer dense scrubby habitat less than 1.5 meters in height. Kirtland's warblers have been proposed for delisting from the Endangered Species List due to population recoveries.[5]

Figure 5: "Kirtland's Warbler: Male." J B. Macauley Library (May 09, 2016). https://www.allaboutbirds.org/guide/Kirtlands_Warbler/id. (Aug. 23, 2019)

Red-cockaded woodpecker (*Picoides borealis*) – Federally Endangered

Red-cockaded woodpeckers are small (7 inches long) colonial woodpeckers that are black with white horizontal stripes on the body and a large white cheek patch with a black cap and nape on the head. The small patch of red feathers can be found in the upper corner of the cheek patch but are only exposed when agitated. They nest in living pine trees by hollowing out cavities in trees over 70 years old. They prefer long-leaf pines (*Pinus palustris*) that have been maintained by a regular fire regimen. They nest colonially in clusters of 1-20 nests over 3-60 acres. Cavity trees in use are obvious due to maintained sap drips around the cavity hole that turn white when hardened. They forage for insects and eat some fruit in the bark of pine trees at least 30 years old with trees over 10 inches in diameter at

Figure 7: "Red-cockaded Woodpecker: Adult male." Seitz, Luke. Macaulay Library (Jan. 08,2014). https://www.allaboutbirds.org/guide/Red-cockaded_Woodpecker/id. (Aug. 23, 2019)

[4] "Multi-Species Recovery Plan for South Florida: Bachman's Warbler." USFWS. https://www.fws.gov/verobeach/MSRPPDFs/Bachmanswarbler.pdf (April 24, 2019)
[5] "Multi-species Recovery Plan for South Florida: Kirtland's Warbler." USFWS. https://www.fws.gov/verobeach/MSRPPDFs/Kirtlandswarbler.pdf (April 24, 2019)

breast height.[6]

Piping plover (*Charadrius melodus*) – Federally Threatened

Figure 6: "Piping Plover – *Charadius melodus.*" Nieminen, Gene. US Fish and Wildlife. https://nhpbs.org/natureworks/pipingplover.htm. (Aug. 23, 2019)

Piping plovers are a small (7-inch-long) shorebirds that frequent the sparsely vegetated sandy beaches and muddy tidal creek banks for feeding on small invertebrates and nesting. They breed in the northern Atlantic Coast and the Great Lakes. They winter along the South Atlantic, Gulf Coast, and Caribbean beaches and islands. The migration to breeding grounds occurs between February and April. The migration to wintering grounds occurs between July and September. While the color of the birds is generally sandy-gray back with a white underside and rump, the breeding plumage consists of a black breastband, a black brow bar, orange legs, and an orange bill with a black tip. In the winter, the orange legs fade slightly to yellow, the bills appear all black, and the black bands disappear.[7]

Red knot (*Calidris canutus rufa*) – Federally Threatened

Figure 8: "Red Knot." Breese, Gregory. https://www.fws.gov/refuge/Ten_Thousand_Islands/wildlife_and_habitat/birds/red_knot.htm[l]. (Aug. 23, 2019)

Rufus red knots are a medium-sized shorebird that winter on the beaches and tidal flats of South Carolina. Their nonbreeding/wintering plumage is gray above and whitish undersides. Their black bill is stout with a tapered tip that is a little bit longer than the head length. Their short legs and feet are dark gray. They have a small head, small eyes, and short neck. During breeding season, much of the face, breast, and upper belly are reddish. They feed on invertebrates in sandy, gravel, or cobble beaches, tidal mudflats, salt marshes, shallow coastal impoundments and lagoons, and peat banks.[8]

Eastern black rail (*Laterallus jamaicensis jamaicensis*) – Proposed Threatened

Figure 4: "An Eastern Black Rail rests in a bander's grip in Texas." Hand, Christy. SCDNR. https://www.birdwatchingdaily.com/news/conservation/feds-list-eastern-black-rail-threatened/. (Aug. 23, 2019)

Eastern black rails are 10-15 cm in total length, blackish-gray undersides, chestnut back with small white spots, pointed black bill, bright red eyes, and long dark gray legs and toes. They live in brackish to fresh marshes that may or may not be tidally influenced. They will also live in impoundments. According to the USFWS, "the birds occupy relatively high elevations along heavily vegetated wetland gradients, with soils that are moist or flooded to a shallow depth." They require a dense canopy and fine

[6] "Red-Cockaded Woodpecker" USFWS. https://www.fws.gov/rcwrecovery/rcw.html (Jan 23, 2019)
[7] "Natural History: Piping Plover." Center for Biological Diversity. https://www.biologicaldiversity.org/species/birds/piping_plover/natural_history.html (April 17, 2019)
[8] "Rufa Red Knot Ecology and Abundance." USFWS. https://www.fws.gov/northeast/redknot/pdf/20130923_REKN_PL_Supplement02_Ecology%20Abundance_Final.

stemmed emergent plants to safely forage for small invertebrates and seeds. Coastal South Carolina was considered a historical stronghold for this subspecies. They nest from March to August in the higher marsh areas near moist soil. They are difficult to detect because of their preference to run or walk through dense vegetation than fly.[9]

Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) – Federally Endangered

Atlantic sturgeon are large (14 ft) fish with five rows of bony plates called scutes along the length of their body and have a blue-ish black to olive back with a pale belly. They have long snouts with 4 whisker-like barbels for detecting prey. Their tail fin is longer at the top than at the bottom.[10] Atlantic sturgeon are anadromous fish that spend much of their lives in the saltwater and enter freshwater to spawn. They spawn in flowing water below the fall line of large freshwater rivers with a coastal estuary in the spring (February to March), and possibly again in the fall. Spawning sites must be well-oxygenated, between 13 and 26C, more than 1.2 meters deep, and have rocky substrate. Juveniles grow in transitional salinity zones (salinities of 0.5-5 ppt, 5-18 ppt, and 18-30 ppt) with soft substrate. Once the subadults enter marine waters (salinity greater than 30 ppt), they remain in oceanic and estuarine waters until spawning occurs. Adults mature between 5 and 19 years old. They spawn every 1-5 years. Atlantic sturgeon are benthic foragers which suck food into their mouths from the bottom of the water column at all stages of life.[11]

Figure 9: "Atlantic Sturgeon." NOAA. https://www.fisheries.noaa.gov/species/atlantic-sturgeon. (Aug. 26, 2019)

Shortnose sturgeon (*Acipenser brevirostrum*) – Federally Endangered

Shortnose sturgeon are 4 ft long at maturity with rows of bony plates called scutes along the length of their body and have a dark back with a pale belly. They have short, wide, rounded snouts with 4 whisker-like barbels for detecting prey. Their tail fin is longer at the top than at the bottom. They are benthic feeders using their large mouths to feed on insects, crustaceans, mollusks, and benthic fish and crushing them with their mouth plates. Shortnose sturgeon spawn in freshwater and forage in mesohaline habitat (salinities of 5-18 ppt). They do venture into the ocean to undergo coastal migrations but are typically estuarine. There are populations of shortnose sturgeon upstream of dams including the Pinopolis Dam. Males mature at 2-3 years and may spawn annually, while females mature by 6 years and spawn every 3-5 years. Spawning

Figure 10: "Shortnose Sturgeon." NOAA Fisheries. https://www.fisheries.noaa.gov/species/shortnose-sturgeon. (Aug. 26, 2019)

[9] "Endangered and Threatened Wildlife and Plants; 12-Month Petition Finding and Threatened Species Status for Eastern Black Rail With a Section 4(d) Rule." USFWS. Oct 9, 2019. https://www.federalregister.gov/d/2018-21799 (Mar 3, 2019)

[10] "Altantic Sturgeon." NOAA. https://www.fisheries.noaa.gov/species/atlantic-sturgeon (Jan 24, 2019)

[11] "Endangered and Threatened Species; Designation of Critical Habitat for the Endangered New York Bight, Chesapeake Bay, Carolina and South Atlantic Distinct Population Segments of Atlantic Sturgeon and the Threatened Gulf of Maine Distinct Population Segment of Atlantic Sturgeon." Federal Register. NOAA Rule. https://www.federalregister.gov/d/2017-17207 (Jan 24, 2019)

occurs in late winter, typically before Atlantic sturgeons, in water temperatures from 8 to 15 C and water velocities 25-130 cm/s in gravel substrate. They require similar foraging habitat and resources to the Atlantic sturgeon but can be found farther upriver.[12]

Frosted Flatwoods Salamander (*Ambystoma cingulatum*) – Federally Threatened

Frosted flatwoods salamander adults are black or dark gray with white or silver reticulations, spots, or stripes covering their bodies. They have a white-speckled dark underside. They are 3.5-5.3 inches long as adults. They have 13-16 costal grooves. The adults migrate up to 1700 meters to breeding ponds from October to November and leave from December to January during rain events or when soils are saturated. Larvae hatch and grow in inundated fire-dependent pine flatwood forest ponds from January to the end of April. Larvae are dark brown, darker on top gradually turning lighter to the underside with a tan to gold lateral stripe down their side. Larvae can take up to 2 years to reach adulthood. Frosted flatwoods salamanders can tolerate low salt concentrations.[13]

Figure 1: "Frosted Flatwood salamander (Threatened) *Ambystoma cingulatum.*" Jensen, John. https://www.fws.gov/athens/endangered/teherps.html. (Aug. 23, 2019)

Northern long-eared bat (*Myotis septentrionalis*) – Federally Threatened

The Northern long-eared bat has a body length of 3 to 3.7 inches long. Their fur is dark brown on their backs and lighter brown underneath. It has long ears with a pointed triangular tragus. They hibernate in caves, where white-nose syndrome (WNS) is prevalent. In summer, they roost in a wide variety of dead trees, under bark, in caves, and human structures. In the mountains, they hibernate in deep crevices in caves and mines. These bats forage for insects in a wide variety of forest types but are especially found near wetlands on the forest edge.[14] Since WNS is the primary cause of species decline, critical habitat is not protected under the ESA.[15]

Figure 11: "Northern Long-Eared Bat – *Myotis septentrionalis*." Hicks Al. New York Department of Environmental Conservation. USFWS. https://www.fws.gov/Midwest/endangered/mammals/nleb/nlebFactSheet.html. (Aug. 23, 2019)

[12] "Endangered and Threatened Wildlife; 12-Month Finding on a Petition To Identify and Delist a Saint John River Distinct Population Segment of Shortnose Sturgeon Under the Endangered Species Act." NOAA. 2015. https://www.greateratlantic.fisheries.noaa.gov/protected/snsturgeon/docs/12-month_determination_sns.pdf (Jan 24 2019)

[13] "Ambystoma cingulatum: Flatwoods Salamander." Diana Nickle. Animal Diversity Web. https://animaldiversity.org/accounts/Ambystoma_cingulatum/ (Mar 3, 2019)

[14] "Northern Long-eared Bat." USFWS. https://www.fws.gov/Midwest/endangered/mammals/nleb/nlebFactSheet.html (Mar 11, 2019)

[15] "Endangered and Threatened Wildlife and Plants; Determination That Designation of Critical Habitat Is Not Prudent for the Northern Long-Eared Bat." USFWS. https://www.govinfo.gov/content/pkg/FR-2016-04-27/pdf/2016-09673.pdf (Mar 11, 2019)

Finback whale (*Balaenoptera physalus*) – Federally Endangered

Finback, or Fin, whales are found in deep, offshore waters. They are the second largest whale growing to be 75-85 feet long. They are easily distinguished by their hooked fin located two-thirds of the way down their back, short pectoral fins, and V-shaped head. They are easily recognized by the bi-colored jaw which is pale on the right side and dark on the left.[16] According to the National Oceanic and Atmospheric Association (NOAA), they are found in all oceans but migrate mostly between temperate latitudes for calving in the winter and polar latitudes for feeding in the summer.[17] They feed by filtering small fish and krill through their baleen plates, eating up to 2 tons of food a day.

Figure 12: "Fin Whale." NOAA Fisheries. https://www.fisheries.noaa.gov/species/fin-whale. (Aug. 26, 2019)

Humpback whale (*Megaptera novaengliae*) – Federally Endangered

Humpback whales are primarily black-bodied, with white on their fins, bellies, and tails. They grow up to 60 feet long with fins as wide as 18 feet. They have a small fin about two-thirds of the way down their bodies. They can generally be found close to shore.[18] They filter-feed on small crustaceans and fish through baleen plates. According to NOAA, they migrate between Arctic feeding grounds in the summer to calving in shallow, warm water near reefs in the tropics. [19]

Figure 13: "Humpback Whale." NOAA Fisheries. https://www.fisheries.noaa.gov/species/humpback-whale. (Aug. 26, 2019)

Right whale (*Balaena glacialis*) – Federally Endangered

Right whales are one of the most endangered large whales with only 450 individuals remaining.[17] They have rounded heads which take up about one-third of their body length and no dorsal fin. They reach lengths of 60 feet long and have stout pectoral fins. Their faces are generally covered in yellowish-white bumps. Their bodies are black with white spots on the belly.[20] In the winter of 2018-2019, six calves were born and identified by biologists on the southeastern coast, including the Hilton Head area.[21] Right whales

Figure 14: "North Atlantic Right Whale." NOAA Fisheries. https://www.fisheries.noaa.gov/species/north-atlantic-right-whale. (Aug. 26, 2019)

[16] "Fin Whale Fact Sheet." Azores Whale Watching Blogspot. https://azoreswhales.blogspot.com/2007/07/fin-whale.html (Mar 28, 2019)
[17] "Fin Whale." NOAA. https://www.fisheries.noaa.gov/species/fin-whale (Mar 1, 2019)
[18] "Humpback Whale." Cupka and Murphy, SCDNR. 2005. http://www.dnr.sc.gov/cwcs/pdf/HumpbackWhale.pdf (Mar 1, 2019)
[19] "Humpback Whale." NOAA. https://www.fisheries.noaa.gov/species/humpback-whale (Mar 1, 2019)
[20] "North Atlantic Right Whale." Cupka and Murphy, SCDNR. 2005. http://www.dnr.sc.gov/cwcs/pdf/rightwhale.pdf
[21] "Right whale calves off Southeast coast give hope for nearly extinct SC visitors." Bo Peterson. Feb 14, 2019. https://www.postandcourier.com/news/right-whale-calves-off-southeast-coast-give-hope-for-nearly/article_47d0b47a-2f0d-11e9-b428-b77dec1e7238.html?fbclid=IwAR2LJN6fulAyQ89typAzayzVsL3yCrpVDn9cjxRgEA2t_Iu7AYvrrm8vsEM (Mar 3, 2019)

filter feed on small fish and crustaceans near the continental shelf, but have been known to move over deep waters as well. NOAA recognizes the shallow, coastal waters between Cape Fear, North Carolina to below Cape Canaveral, Florida, as critical habitat for calving.[22]

Sei Whale (*Balaenoptera borealis*) – Federally Endangered

Sei whales can reach lengths of 40 to 60 feet long. They are long, sleek and have a dark blueish-gray body with a cream-colored underside. They have a tall hooked dorsal fin two-thirds of the way down their back. They are found in subtropical, temperate, and subpolar waters around the world. They feed by straining food through their baleen plates. They are unusual in that they sink below the surface of the water vertically when they dive. They do not arc and then dive like other whales. They live individually or in small family groups of two to five animals.[23]

Figure 15: "Sei Whale." NOAA Fisheries. https://www.fisheries.noaa.gov/species/sei-whale. (Aug. 26, 2019)

Sperm whale (*Physeter macrocephalus*)- Federally Endangered

Sperm whales are large dark grey whale reaching lengths of 40 to 52 feet. They have a single blowhole offset to the left side of the head. The head is about a third of the length of the body with the skin wrinkled behind the head. The lower jaw is narrow, with a visible row of white teeth, and a white mouth. They have smallish rounded flippers and a small, low, thick, rounded dorsal fin. They live in all oceanic waters where some populations migrate, but other populations don't seem to migrate. Calves are born at about 13 feet long. Sperm whales are typically found in the open ocean and dive up to 2000 feet deep to capture prey like the giant squid.[24]

Figure 16: "Sperm Whale." NOAA Fisheries. https://www.fisheries.noaa.gov/species/sperm-whale. (Aug. 26, 2019)

West Indian manatee (*Trichechus manatus*) – Federally Threatened

West Indian manatees are greyish marine mammals with bulbous bodies and no dorsal fin. They reach lengths over 14 feet long. They reside in shallow marine, brackish, and freshwater systems eating vegetation. They cannot live in temperatures under 68 F, so their range expands and contracts from warmer to cooler months.[25] In South Carolina, they will move far into the freshwater rivers until the river becomes too shallow or they encounter an obstruction. [26]

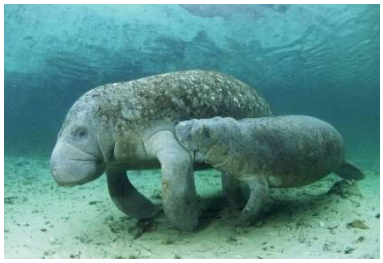

Figure 17: "West Indian Manatee." https://www.fws.gov/southeast/wildlife/mammals/manatee/. (Aug. 26, 2019)

[22] "North Atlantic Right Whale." NOAA. https://www.fisheries.noaa.gov/species/north-atlantic-right-whale (Mar 3, 2019)
[23] "Sei Whale." NOAA. https://www.fisheries.noaa.gov/species/sei-whale (Mar 3, 2019)
[24] "Sperm Whale." NOAA. https://www.fisheries.noaa.gov/species/sperm-whale (April 4, 2019)
[25] "West Indian Manatee." USFWS. https://www.fws.gov/southeast/wildlife/mammals/manatee/ (Mar 1, 2019)
[26] "Florida Manatee." Murphy and DuBose, SCDNR. http://www.dnr.sc.gov/cwcs/pdf/FloridaManatee.pdf (Mar 1, 2019)

Green sea turtle (*Chelonia mydas*) – Federally Threatened

Green sea turtles reach shell lengths of three to four feet long. They are easily recognized by the two large scales located between their eyes. They primarily eat vegetation and reside nearshore to feed on seagrass beds.[27] They use South Carolina's beaches for nesting.[28]

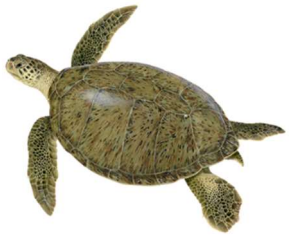

Figure 21: "Green Turtle." NOAA Fisheries. https://www.fisheries.noaa.gov/species/green-turtle. (Aug. 26, 2019)

Kemp's ridley sea turtle (*Lepidochelys kempii*) – Federally Endangered

Kemp's ridley is a small grayish-olive colored sea turtle only reaching shell lengths of 26 inches. They feed on fast swimming crabs such as the blue crab (*Callinectes sapidus*). They spend much of their time in coastal areas such as estuaries.[29] Two nests have been identified on South Carolina's beaches.[30]

Figure 22: "Kemp's Ridley Turtle." NOAA Fisheries. https://www.fisheries.noaa.gov/species/kemps-ridley-turtle. (Aug. 26, 2019)

Leatherback sea turtle (*Dermochelys coriacea*) – Federally Endangered

Leatherback sea turtles are very large (shell up to 5.5 feet long) black sea turtles with a leathery covered carapace. They spend most of their adult lives feeding on jellyfish in the open ocean only coming to land to lay eggs on sandy beaches.[31] In South Carolina, they have been found feeding on cannonball jellyfish near the coastline and are found nesting on sandy beaches infrequently.[32]

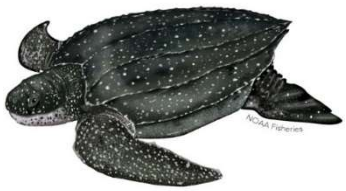

Figure 23: "Leatherback Turtle." NOAA Fisheries. https://www.fisheries.noaa.gov/species/leatherback-turtle. (Aug. 26, 2019)

[27] "Green Turtle." NOAA. https://www.fisheries.noaa.gov/species/green-turtle (Mar 1, 2019)
[28] "SC Marine Turtle Conservation Program." SCDNR. http://www.dnr.sc.gov/marine/turtles/nest.htm (Mar 1, 2019)
[29] "Kemp's Ridley Sea Turtle (*Lepidochelys kempii*) 5-Year Review: Summary and Evaluation." NMFS and USFWS. 2015. Pgs 9-17. https://repository.library.noaa.gov/view/noaa/17048 (Mar 1, 2019)
[30] "Kemp's Ridley." SCDNR. http://www.dnr.sc.gov/marine/turtles/lk.htm (Mar 1, 2019)
[31] "Leatherback Sea Turtle." NOAA. https://www.fisheries.noaa.gov/species/leatherback-turtle (Mar 1, 2019)
[32] "Leatherback turtle." Griffin, SCDNR. 2013. http://dnr.sc.gov/swap/supplemental/reptilesandamphibians/leatherbackseaturtle2015.pdf (Mar 1, 2019)

Loggerhead sea turtle (*Caretta caretta*) – Federally Threatened

Loggerhead sea turtles are a large turtle (up to 3 feet long) with relatively large heads that enable them to feed on hard-shelled prey such as whelks.[33] They have a reddish-brown shell color. While they spend much of their adult lives foraging along the Mid-Atlantic Bight to Cape Hatteras, NC, they return to the same nest they hatched from during nesting season (mid-May to mid-August). South Carolina oceanic beaches represents 65% of the 1272 nesting females averages within the Northern Recovery Unit (Georgia, South Carolina, North Carolina and Virginia).[34]

Figure 24: "Loggerhead Turtle." NOAA Fisheries. https://www.fisheries.noaa.gov/species/loggerhead-turtle. (Aug. 26, 2019)

American Chaffseed (*Schwalbea americana*) – Federally Endangered

American chaffseed is a perennial herb with unbranched stems, purpleish and yellow tube-like flowers, lance-shaped entire leaves are 1-2 inches long, and the plants are densely hairy throughout. Fruits are long, narrow capsules enclosed in a sac-like structure. It is hemiparasitic, relying on other plants for some nutrients, but not host-specific. It occurs in "open, moist pine flatwoods, fire-maintained savannas, ecotonal areas between peaty wetlands and xeric sandy soils, and other open grass-sedge systems."[35] It is dependent on disturbance in the form of fire, mowing, or fluctuating water tables to maintain open canopies. They bloom from May to August typically 1-2 months after a fire.

Figure 26: "American chaffseed." USFWS. https://www.fws.gov/southeast/wildlife/plants/american-chaffseed/. (Aug. 26, 2019)

Canby's dropwort (*Oxypolis canbyi*) – Federally Endangered

Canby's dropwort is a small perennial herb that grows to be 2.6-3.9 ft tall. It has a round stem with stiff, slender, hollow leaves. The inflorescence is made of compound umbels of small, five-parted, white flowers. They bloom from mid-July to September. The seed is a small (0.16-0.24 inch) compressed elliptical schizocarp. They seed as early as October. Canby's dropwort suitable soil is sandy loam or acidic peat mucks underlain with clay. They grow in "natural ponds dominated by pond cypress, grass-sedge dominated Carolina bays, wet pine savannas, shallow pineland ponds and cypress-pine swamps or sloughs." They grow best with little or no canopy cover. [36]

Figure 28: "Canby's dropwort." Suiter, Dale. https://www.fws.gov/raleigh/species/es_canbys_dropwort.html. (Aug. 26, 2019)

[33] "Loggerhead turtle." SCDNR. http://www.dnr.sc.gov/marine/turtles/cc.htm (Mar 1, 2019)
[34]"Loggerhead turtle". SCDNR. http://dnr.sc.gov/swap/supplemental/reptilesandamphibians/loggerheadseaturtle2015.pdf (Mar 1, 2019)
[35] "American Chaffseed." USFWS. Raleigh Ecological Services Field Office. https://www.fws.gov/raleigh/species/es_american_chaffseed.html
[36] "Canby's dropwort." USFWS. Raleigh Ecological Services Field Office. https://www.fws.gov/raleigh/species/es_canbys_dropwort.html (Jan 24, 2019)

Pondberry (*Lindera melissifolia*) – Federally Endangered

Figure 36: "*Lindera melissifolia*." Nourse, Carol & Nourse, Hugh. https://www.fs.fed.us/wildflowers/Rare_Plants/profiles/TEP/lindera_melissifolia/index.shtml. (Aug. 26, 2019)

Pondberry is a small (1-6 ft) deciduous shrub with oval to oblong-shaped, thin, alternate leaves. The tips are more pointed, while the base is more rounded. The leaf margins are entire. The leaf undersides are sparsely to densely covered in fine hairs. The leaf is strongly aromatic when crushed and resembles the smell of Sassafras (*Sassafras albidum*). It blooms before leaf emergence during February and March with small yellow flowers. They reproduce either through seeds, which are a bright red 0.5-inch long drupe, or vegetatively through colonial expansion of numerous stems. They are found in wetlands from North Carolina to Georgia, but the preferred South Carolina habitats are the "margins of limestone sinks and shallow depressions."[37]

Seabeach amaranth (*Amaranthus pumilus*) – Federally Threatened

Figure 40: "Seabeach Amaranth." Nieminen. USFWS. https://www.fws.gov/raleigh/species/es_seabeach_amaranth.html. (Aug. 26, 2019)

The seabeach amaranth is a clumping annual plant with fleshy stems and leaves that grows in the dunes of the Atlantic coast. The leaves are small (0.5-1 inch diameter) with indented veins and cluster near the tip of the stem. They have a small notch at the rounded tip. The flowers and fruits are inconspicuous. The stems are pink and branch profusely to create clumps of up to a meter across. They grow best in temporary dunes without competition. The USFWS describes their habitat as "occur[ing] on barrier island beaches, where its primary habitat consists of overwash flats at accreting ends of islands and lower foredunes and upper strands of non-eroding beaches. It occasionally establishes small temporary populations in other habitats, including sound-side beaches, blowouts in foredunes, and sand and shell material placed as beach replenishment or dredge spoil." It is best to survey them after they have reached a significant size and before tropical storm over wash, so between July and October is ideal for surveys. [38]

Bald Eagle (*Haliaeetus leucocephalus*) – BGEPA

Figure 25: "Bald and Golden Eagles in the Midwest." Thompson, Mick. Creative Commons. https://www.fws.gov/midwest/eagle/index.html. (Aug. 26, 2019)

Bald eagles are large raptors (6 ft wingspan) which are mottled brown and white until they reach maturity at 4-5 years old when they develop a brown body with a white head and tail. They primarily feed on fish, but also feed on waterfowl, carrion, and small terrestrial animals. They hunt by sight and are often seen soaring or perched high in a tree near an open field or water. It nests in canopies of large trees usually within half of a mile from

[37] "SCDNR-Species: Pondberry." SCDNR. http://www.dnr.sc.gov/marine/mrri/acechar/speciesgallery/Plants/Pondberry/index.html (April 24, 2019)
[38] Seabeach Amaranth." USFWS. Raleigh Ecological Services Field Office. https://www.fws.gov/raleigh/species/es_seabeach_amaranth.html (April 24, 2019)

coastlines, rivers, and lakes. Nests are usually around 4-6 feet across and 3 feet deep. Nests are constructed out of large limbs and lined with soft plant fibers. They typically return to the same areas each year and reuse the same nest. They can be found nesting and rearing young in South Carolina from October until May.[39]

Project and Survey Area Description

The proposed project consists of improving Glen McConnell Parkway in Charleston County. The project involves the road widening of Glenn McConnell Parkway (SC-461) from four to six lanes and a multiuse lane between Bees Ferry Road (S-57) and Magwood Drive (S-1863). Activities associated with roadway construction will include clearing, grubbing, placement of fill material, regular use of heavy machinery, and potentially minor modifications to the alignment of the current roadway.

The project study area limits are 500 feet beyond each mainline terminus, 200 feet each side from the center line, 500 feet along each side street from its intersection with the mainline and then 100 feet each side of the side street's centerline.

Methods

The project area was examined using GIS desktop surveys and field surveys on March 4, 5, and 7, 2019 and July 31, 2019. The study area was surveyed for the presence or absence of threatened, endangered, and at risk-species. The survey was then used to eliminate species based on the lack of habitat existence in the study area. At-risk species are not yet protected by the Endangered Species Act and so were not specifically surveyed for but were noted if observed in the project study area.

Survey Results

The project corridor is dominated by urban development with well-maintained mowing and landscaping. Fallow and forested areas exist between developments. The fallow areas within utility corridors are primarily herbaceous. Therefore, they must be maintained by herbicide or mowing, at least annually, to prevent the growth of trees. The forested areas are predominantly wetlands made up of mixed hardwood and pines. Along the north side of the project exists a tidally influenced, saline impoundment with a forested island. Directly opposite the impoundment on the south side of Glenn McConnell Parkway is a brackish marsh dominated by sedges. At least one forested property between developments may be a mitigation site (Appendix A). If this mitigation site is impacted by the project, additional coordination with the US Army Corps of Engineers and SCDHEC OCRM will be required.

The wood stork (*Mycteria americana*) forages in shallow muddy ponds and nests and roosts in colonies in trees.[40] There are multiple locations that could be used as foraging habitat in the proposed project area. Feeding wood storks have been reported approximately 2 miles away near the Ashley River

[39] "Bald Eagle Natural History and Sensitivity to Human Activity Information" USFWS. https://www.fws.gov/midwest/eagle/conservation/baea_nhstry_snstvty.html (Jan 23, 2019)

[40] Sibley, David. 2013. The Sibley Field Guide to Birds of Eastern North America. New York: Random House, Inc. 8th printing. Pg 58.

on iNaturalist.[41] According to the Heritage Trust database of endangered, threatened, and rare species, the nearest nesting colony is in Dungannon Heritage Preserve, approximately 9 miles away.[42] No individuals were observed during the survey period. With suitable foraging habitat present in the project area, it is possible that wood storks' use of these areas could be affected by the project. The foraging areas will be minimally impacted by the proposed project. Foraging habitat outside the project area would remain intact and abundant. The project will result in no impacts to nesting habitat. Any impacts to the wood stork would be insignificant, if any impact at all. Therefore, the project may affect, but is not likely to adversely affect the wood stork.

The Bachman's warbler (*Vermivora bachmanii*) utilizes extensive stands of cane and dwarf palmettos for nesting and foraging.[43] This habitat is not found within the project study area. The project will not impact any foraging or nesting habitat for the Bachman's warbler. The project will have no effect on the Bachman's warbler.

The Kirtland's warbler (*Setophaga kirtlandii*) migrates through the South Carolina coast from August to October. They may utilize many different habitat types including fencerows and woodlands but prefer dense scrubby habitat around 1.5 m in height.[44] The Kirtland's warbler may be able to utilize habitats for foraging within the project study area, but could move to a similar nearby area if disturbed. The project will not impact any nesting habitat for the Kirtland's warbler. The foraging areas may be minimally impacted by the proposed project. Any impacts to the Kirtland's warbler would be insignificant, if any impact at all. Therefore, the project may affect, but is not likely to adversely affect the Kirtland's warbler.

The red-cockaded woodpecker (*Picoides borealis*) nests and forages in mature open pine forests. According to the Heritage Trust database of endangered, threatened, and rare species, the nearest nest record is in the Cainhoy Plantation is 13 miles away (recorded in 1992).[45] The physical and temporal distance would likely eliminate the presence of nesting or foraging RCW's within the project study area. No cavity trees were observed. The project will not affect any potential nesting or foraging habitat for the red-cockaded woodpecker.

The piping plover (*Charadrius melodus*) overwinters on the South Carolina Coast. It forages on beaches, mudflats, and sandflats, as well as barrier island beaches and spoil islands near large inlets and passes.[46] The closest known occurrence is 13 miles away in Lighthouse Inlet Heritage Preserve.[47] According to the National Audubon Society, they nest as far south as North Carolina but is not known to

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[41] Wood Stork reported on iNaturalist.org by "sharleen_j". https://www.inaturalist.org/observations/19363358 (Mar 11, 2019)

[42] "Rare-Threatened-Endangered Species in South Carolina—June 2017." SCDNR. https://fusiontables.googleusercontent.com/embedviz?viz=CARD&q=select+*+from+1-MosGfgdBYslPZW3xThvS-cRQnjMLMz_FYfS6_hu+where+col0+%3D+8379&tmplt=1&cpr=1 (Mar 11, 2019)

[43] "Multi-Species Recovery Plan for South Florida: Bachman's Warbler." USFWS. https://www.fws.gov/verobeach/MSRPPDFs/Bachmanswarbler.pdf (April 24, 2019)

[44] "Multi-species Recovery Plan for South Florida: Kirtland's Warbler." USFWS. https://www.fws.gov/verobeach/MSRPPDFs/Kirtlandswarbler.pdf (April 24, 2019)

[45] "Rare-Threatened-Endangered Species in South Carolina—June 2017." SCDNR. https://fusiontables.googleusercontent.com/embedviz?viz=CARD&q=select+*+from+1-MosGfgdBYslPZW3xThvS-cRQnjMLMz_FYfS6_hu+where+col0+%3D+4224&tmplt=1&cpr=1 (Mar 11, 2019)

[46] "Piping Plover." Multi-species Recovery Plan for South Florida. 1999. US Fish and Wildlife Service. p 4-328.

[47] Reported by Cherrie Sneed, Feb 27, 2015. eBird. https://ebird.org/view/checklist/S22098936 (Jan 15, 2019)

nest in South Carolina.[48] Habitat for piping plovers is not existent within the project boundary. The project will not impact any potential nesting or foraging habitat for the piping plover. The project will have no effect on the piping plover.

Red knot (*Calidris canutus rufa*) overwinters on the South Carolina Coast. It forages near marine or estuarine beaches, tidal inlets, and sandy shoals.[49] The closest known occurrence was recorded approximately 12 miles away on North Folly Beach.[50] According to the National Audubon Society, they nest in the far north mostly above the Arctic Circle.[51] Habitat for red knots was not found within the project boundary. The project will not impact any potential nesting or foraging habitat for the red knot. The project will have no effect on the red knot.

Eastern black rails (*Laterallus jamaicensis jamaicensis*) are very small, secretive, cryptic birds. They are not currently listed as a Threatened species but were surveyed for under the assumption that they could be listed soon. Callback surveys were conducted in the marshy areas of the project study area on March 6, 2019. The callback series included playing black rail territorial calls and clapper rail calls for approximately 2 minutes and then listening for responses. No rails were heard or seen. The nearest known population of eastern black rails is 60 miles away at the Savannah National Wildlife Refuge.[52] The proposed project will have no effect on the eastern black rail.

Atlantic sturgeon (*Acipenser oxyrinchus*) and shortnose sturgeon (*Acipenser brevirostrum*) are anadromous fish and require freshwater for spawning but live in the ocean as adults. The closest known occurrence of an Atlantic sturgeon is 26 miles away near Monck's Corner from a relocation completed in 2017.[53] The closest known occurrence of the shortnose sturgeon is 10 miles away in the Charleston Harbor near James Island.[54] The waterways in the project area do not have an uninterrupted connection to the ocean and are therefore not suitable habitat for the sturgeons. The project will not impact any potential spawning habitat for the Atlantic or shortnose sturgeon. The project will have no effect on the Atlantic sturgeon or shortnose sturgeon.

Finback whale (*Balaenoptera physalus*), Humpback whale (*Megaptera novaengliae*), Sei whale (*Balaenoptera borealis*), Right whale (*Balaena glacialis*), and Sperm whale (*Physeter macrochepalus*) species require open ocean habitats. There is not suitable habitat for any protected whale species within the study area. The project will not impact any potential nesting or foraging habitat for the protected whale species. The project will have no effect on the Finback, Humpback, Sei, Right, or Sperm whales.

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[48] "Piping Plover." Piping Plover Map. National Audubon Society. https://www.audubon.org/field-guide/bird/piping-plover (Jan 18, 2019)

[49] "Rufa Red Knot Background Information and Threats Assessment." Supplement to Endangered and Threatened Wildlife and Plants; Final Threatened Status for the Rufa Red Knot (*Calidris canutus rufa*). 2014. US Fish and Wildlife Service. 63-64.

[50] Ebird.org. Reported by Carl Miller, Oct 27, 2018. https://ebird.org/view/checklist/S49498517 (Mar 14, 2019)

[51] "Red Knot." National Audubon Society. https://www.audubon.org/field-guide/bird/red-knot (Jan 18, 2019)

[52] Savannah National Wildlife Refuge. Audubon Society. https://www.audubon.org/important-bird-areas/savannah-national-wildlife-refuge-0 (Aug 20, 2019)

[53] "Rare-Threatened-Endangered Species in South Carolina—June 2017." SCDNR. https://fusiontables.googleusercontent.com/embedviz?viz=CARD&q=select+*+from+1-MosGfgdBYslPZW3xThvS-cRQnjMLMz_FYfS6_hu+where+col0+%3D+8194&tmplt=1&cpr=1 (Mar 14, 2019)

[54] "Rare-Threatened-Endangered Species in South Carolina—June 2017." SCDNR. https://fusiontables.googleusercontent.com/embedviz?viz=CARD&q=select+*+from+1-MosGfgdBYslPZW3xThvS-cRQnjMLMz_FYfS6_hu+where+col0+%3D+3358&tmplt=1&cpr=1 (Jan 18, 2019)

Green sea turtle (*Chelonia mydas*), Kemp's ridley sea turtle (*Lepidochelys kempii*), Leatherback sea turtle (*Dermochelys coriacea*), and Loggerhead sea turtle (*Caretta caretta*) all require open ocean habitats for foraging. Nesting occurs on large expanses of sandy beaches. Neither foraging nor nesting habitat is found within the study area. The project will not impact any potential nesting or foraging habitat for the protected sea turtles. The project will have no effect on the Green, Kemp's ridley, Leatherback, or Loggerhead sea turtles.

Northern long-eared bats (*Myotis septentrionalis*) frequently use bridges and other human structures as summer roost sites. Activities may not take place within ¼ mile of a known, occupied pup-rearing hibernacula that is in use between June 1 and July 31.[55] There are no known maternity roosts within Charleston County according to the South Carolina Heritage Trust website.[56] The project will have no effect the northern long-eared bat.

West Indian manatee (*Trichechus manatus*) forages for aquatic vegetation in shallow salt or fresh water and can frequently be found in brackish creeks. However, the waterways within the study area are not suitable foraging habitat for the West Indian manatee. The project will not impact any potential foraging habitat for the manatee. The project will have no effect the West Indian manatee.

The bald eagle (*Haliaeetus leucocephalus*) typically nests near large bodies of water such as lakes, rivers, or marshes where it can fish and hunt. The impoundment at the end of Church Creek was surveyed heavily for nests and foraging eagles. No nests or nesting activity were identified within the project study area on March 7, 2019. A juvenile bald eagle was observed flying over this area on March 5, 2019 and November 2018. The closest known bald eagle nest is located approximately 1000 feet from the project area near the Essex Farms apartments and was active in 2017 (Appendix B).[57] The area between the nest and the roadway is forested and not visible from Glenn McConnell. The USFWS recommends maintaining a vegetate buffer of at least 660 feet between construction activities and the nest or avoiding bald eagle nesting season for construction activities.[58] Bald eagle nesting season occurs from November to March in South Carolina.[59] Project construction activities will not happen within the buffer zone of nesting bald eagles, so are not expected to have a negative impact on the nesting eagles. Construction activities could prevent eagles from foraging within the impoundment nearest to the nest. Therefore, activities could affect normal eagle behavior. However, eagles could utilize several potential foraging areas nearby, so activities are unlikely to negatively affect the eagles. The proposed project will not disturb or take any bald eagles.

American chaffseed (*Schwalbea americana*) requires fire-maintained longleaf pine (*Pinus*

[55] SC Bat Conservation Plan: CH 1: Status and Conservation Issues. SCDNR. http://myscmap.sc.gov/wildlife/bats/SCBatConservationPlanChapter1.pdf (Aug 20, 2019)
[56] "Rare-Threatened-Endangered Species in South Carolina—June 2017." SCDNR. https://fusiontables.google.com/DataSource?docid=1pDPB402GWRHyPSSyvGeiorNdtU4qtXm65vdOvvk_#map:id=3 (Aug 20, 2019)
[57] "Rare-Threatened-Endangered Species in South Carolina—June 2017." SCDNR. https://fusiontables.googleusercontent.com/embedviz?viz=CARD&q=select+*+from+1-MosGfgdBYslPZW3xThvS-cRQnjMLMz_FYfS6_hu+where+col0+%3D+20366&tmplt=1&cpr=1 (Mar 11, 2019)
[58] National Bald Eagle Management Guidelines - May 2007. UFWS. https://www.fws.gov/southdakotafieldoffice/NationalBaldEagleManagementGuidelines.pdf (Aug 20, 2019)
[59] South Carolina's Bald Eagles – Biology. http://www.dnr.sc.gov/baldeagle/biology.html (Aug 20, 2019)

palustris) flatwoods and savannas. They parasitize a wide variety of plants.[60] The closest known occurrence is 19 miles away in Francis Marion National Forest.[61] Regular disturbances in pine habitats are required. The essential habitat does not exist within the project study area. The project will not impact any potential habitat for American chaffseed. The project will have no effect on American chaffseed.

Canby's dropwort (*Oxypolis canbyi*) grows in wetlands with acidic, organic soils and patchy or no canopy cover. The closest known occurrence is 37 miles away on private property near Poston, SC.[62] A survey was conducted within potential habitats on July 31, 2019. No specimens were found. The project will not impact any potential habitat for Canby's dropwort. The project will have no effect on Canby's dropwort.

Pondberry (*Lindera melissifolia*) is found in pond margins, swampy depressions, sandy sinks, and seasonally flooded wetlands.[63] The closest known occurrence is approximately 16 miles away in Francis Marion National Forest.[64] The ponds found within the study area appeared to be regularly maintained, and their edges are mowed. Surveys completed March 4, 5 and 7, 2019 completed along the ponds in the study area did not find the presence of this species. The project will not impact any potential habitat for pondberry. The project will have no effect on pondberry.

Seabeach amaranth (*Amaranthus pumilus*) primarily grows in "overwash flats at accreting ends of islands, lower foredunes, and upper strands of non-eroding beaches."[65] This habitat was not found within the study area. The project will not impact any potential habitat for seabeach amaranth. The project will have no effect on seabeach amaranth.

Conclusions

Based on multiple surveys, it was determined there is suitable foraging habitat within the proposed project area for the wood stork. The noise from construction may prevent these species from utilizing potential foraging habitat as they might normally. These impacts are temporary, and the animals would be allowed to resume normal activities after construction is completed. Therefore, it has been determined that the proposed project **may affect but is not likely to adversely affect wood storks.**

Based on multiple surveys, it was determined there is suitable foraging habitat within the proposed project area for the Kirtland's warbler. The noise from construction may prevent these species from utilizing potential foraging habitat during their fall migration as they might normally. These impacts

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[60] American chaffseed Schwalbea americana. US Fish and Wildlife Service. https://www.fws.gov/southeast/wildlife/plants/american-chaffseed/ (Jan 15, 2019).

[61] "Rare-Threatened-Endangered Species in South Carolina—June 2017." SCDNR. https://fusiontables.googleusercontent.com/embedviz?viz=CARD&q=select+*+from+1-MosGfgdBYslPZW3xThvS-cRQnjMLMz_FYfS6_hu+where+col0+%3D+7240&tmplt=1&cpr=1 (Mar 14, 2019)

[62] "Rare-Threatened-Endangered Species in South Carolina—June 2017." SCDNR. https://fusiontables.googleusercontent.com/embedviz?viz=CARD&q=select+*+from+1-MosGfgdBYslPZW3xThvS-cRQnjMLMz_FYfS6_hu+where+col0+%3D+8165&tmplt=1&cpr=1 (Mar 14, 2019)

[63] Pondberry (*Lindera melissifolia*). SC Department of Natural Resources- Wildlife- Species. http://www.dnr.sc.gov/marine/mrri/acechar/speciesgallery/Plants/Pondberry/index.html (Jan 15, 2019).

[64] https://fusiontables.googleusercontent.com/embedviz?viz=CARD&q=select+*+from+1-MosGfgdBYslPZW3xThvS-cRQnjMLMz_FYfS6_hu+where+col0+%3D+2962&tmplt=1&cpr=1 (Mar 14, 2019)

[65] Seabeach Amaranth. US Fish and Wildlife-New Jersey Field Office. https://www.fws.gov/northeast/njfieldoffice/Endangered/amaranth.html (Jan 15, 2019).

are temporary, and the animals would be allowed to resume normal activities after construction is completed. Their migration period is from August to October and could potentially be avoided. Therefore, it has been determined that the proposed project **may affect but is not likely to adversely affect the Kirtland's warbler.**

Additionally, suitable foraging habitat for the bald eagle also is present in the proposed project area. A bald eagle nest was identified near the project, but it was determined the nest is well outside of the buffer area set by the USFWS for construction projects (Appendix B). Furthermore, the area between the nest and roadway is vegetated, decreasing potential impacts from construction activities. Therefore, it has been determined that the proposed project will not disturb or take any bald eagles.

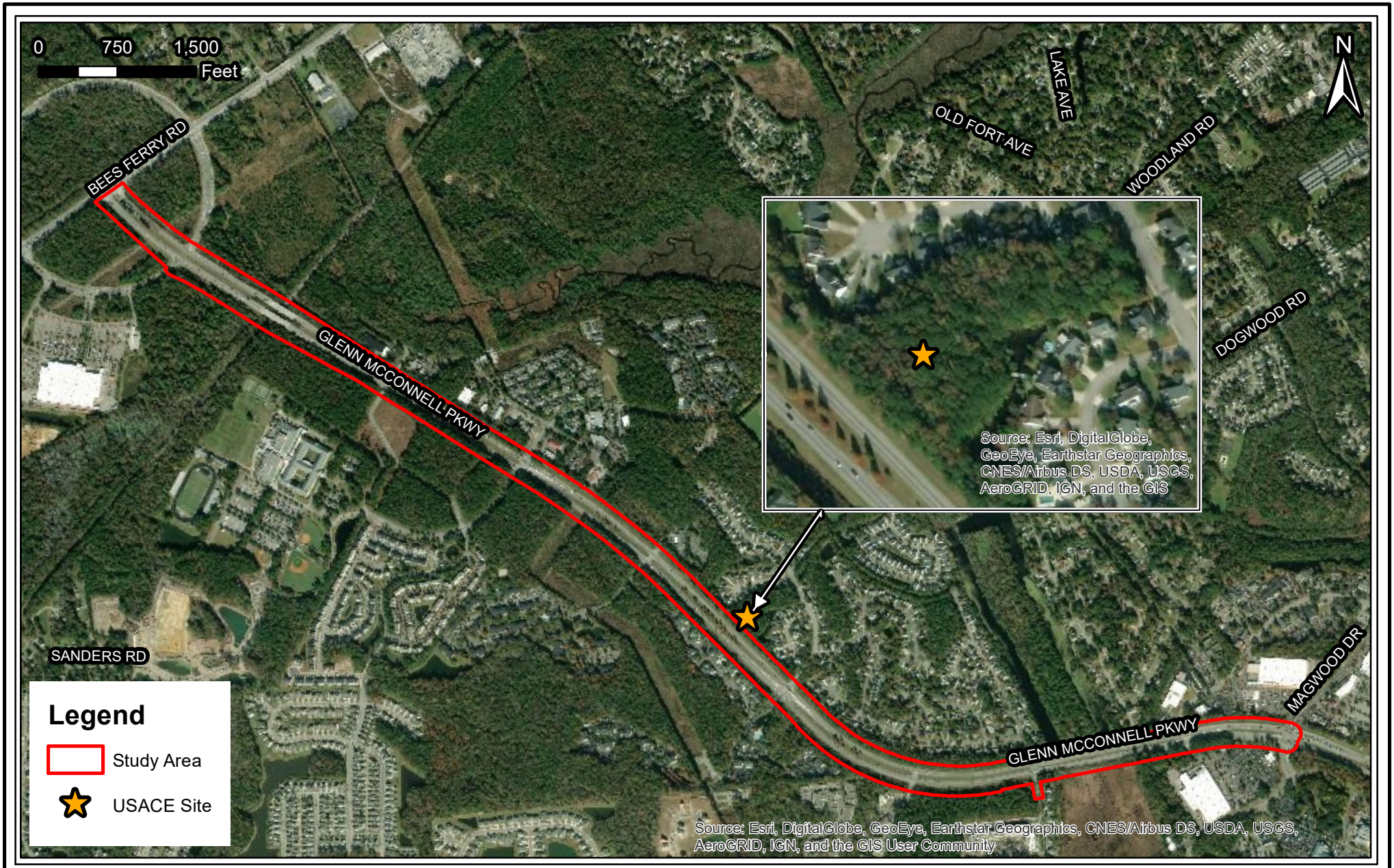
Based on lack of suitable habitat and/or no observations of additional listed species during field surveys, results of the threatened and endangered species study indicate that the proposed action will have no effect on any additional threatened or endangered species or critical habitats currently listed by the USFWS.

In the event additional species are listed as federally threatened or endangered prior to the construction of the project, Charleston County will consult with USFWS on the results of the surveys performed, if necessary, and will follow any USFWS regulations/requirements resulting from that consultation.

Report completed by: Tess Moody

Signature and Date:  09/20/19

Appendix A



THREE OAKS ENGINEERING

Prepared For:

CHARLESTON COUNTY
SOUTH CAROLINA

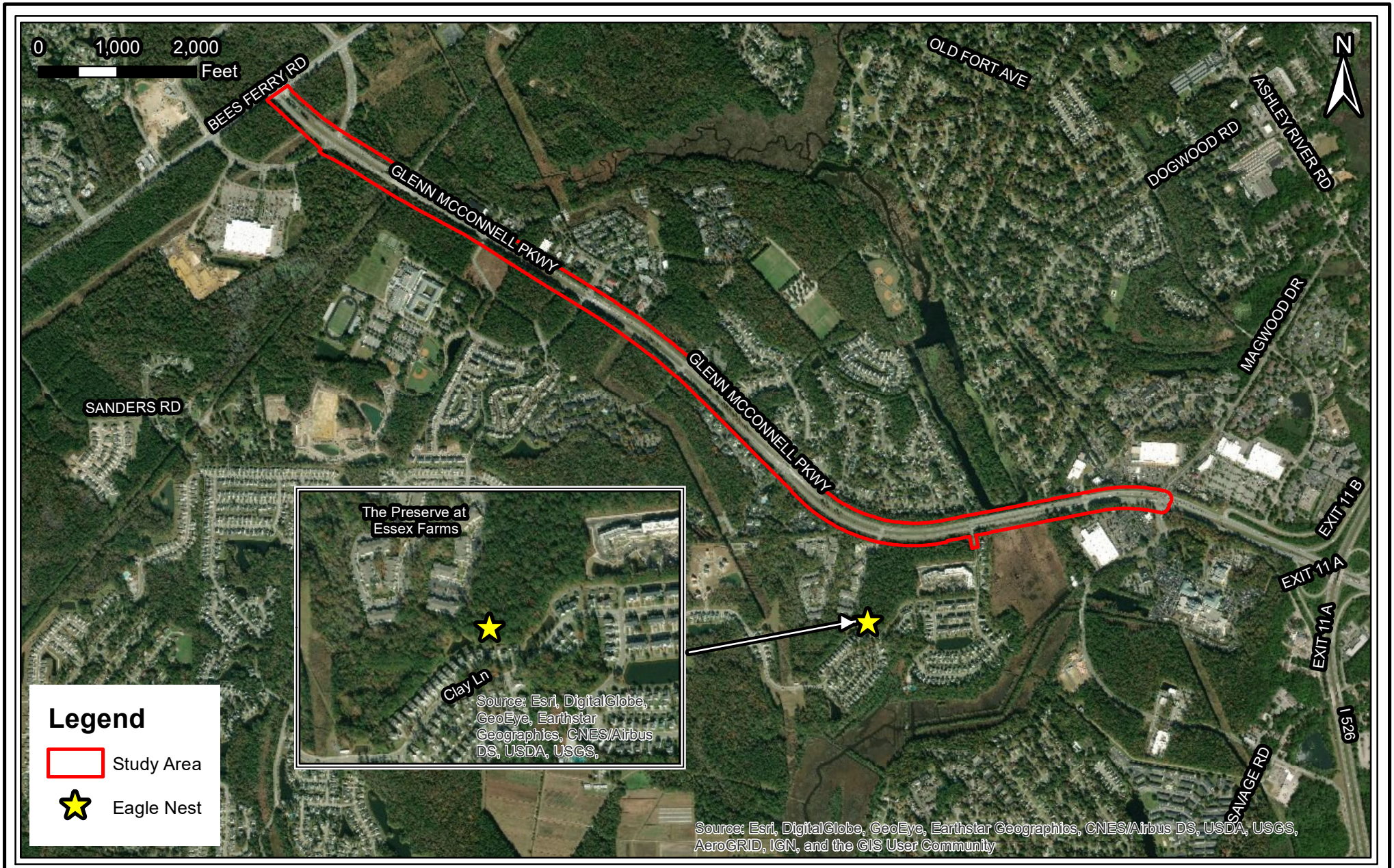
SC 641 (Glenn McConnell Parkway) Improvements

Charleston County, SC

Date:	September 2019
Scale:	1:15,000
Job No.:	18-036
Drawn By:	TDM
Checked By:	TRC

Existing Mitigation Site Location

Appendix B



THREE OAKS ENGINEERING · THREE OAKS ENGINEERING ·

Prepared For:

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SC 641 (Glenn McConnell Parkway) Improvements

Charleston County, SC

Date:	September 2019
Scale:	1:20,000
Job No.:	18-036
Drawn By:	TDM
Checked By:	TRC

Bald Eagle Nest Location Map

Appendix G

Noise Analysis

Glenn McConnell Parkway

Highway Traffic Noise

Technical Memorandum

April 2020

Charleston County

Transportation Development

CHARLESTON COUNTY SOUTH CAROLINA

DAVIS & FLOYD

SINCE 1954

HIGHWAY TRAFFIC NOISE

TECHNICAL MEMORANDUM

for the

GLENN MCCONNELL PARKWAY

(SC-461 FROM MAGWOOD DRIVE TO BEES FERRY ROAD)

Prepared for: Charleston County

Prepared by: Davis & Floyd, Inc.

April 28, 2020

Table of Contents

Exhibits

Appendix

Highway Traffic Noise
Technical Memorandum

for

Glenn McConnell Parkway

Charleston County, South Carolina

April 28, 2020

Introduction

PURPOSE OF STUDY

The purpose of this study is to determine existing noise levels and assess the potential traffic and construction noise impacts resulting from the proposed widening and transportation improvements to SC Route 461 (Glenn McConnell Parkway) from Magwood Drive (S-1863) to Bees Ferry Road (S-57) in Charleston County, South Carolina. The procedures for this study follow Title 23: Highways – Part 772 (23 CFR 772) – "Procedures for the Abatement of Highway Traffic Noise and Construction Noise, U.S. Department of Transportation, Federal Highway Administration". This project is classified as a Type I project under 23 CFR 772. A "Type I project" is defined as a proposed project for the construction of a new highway or the physical alteration of an existing highway that significantly changes either the horizontal or the vertical alignment or increases the number of through-traffic lanes. As a Type I project, it is evaluated for the need of constructing noise barriers.

PROJECT DESCRIPTION

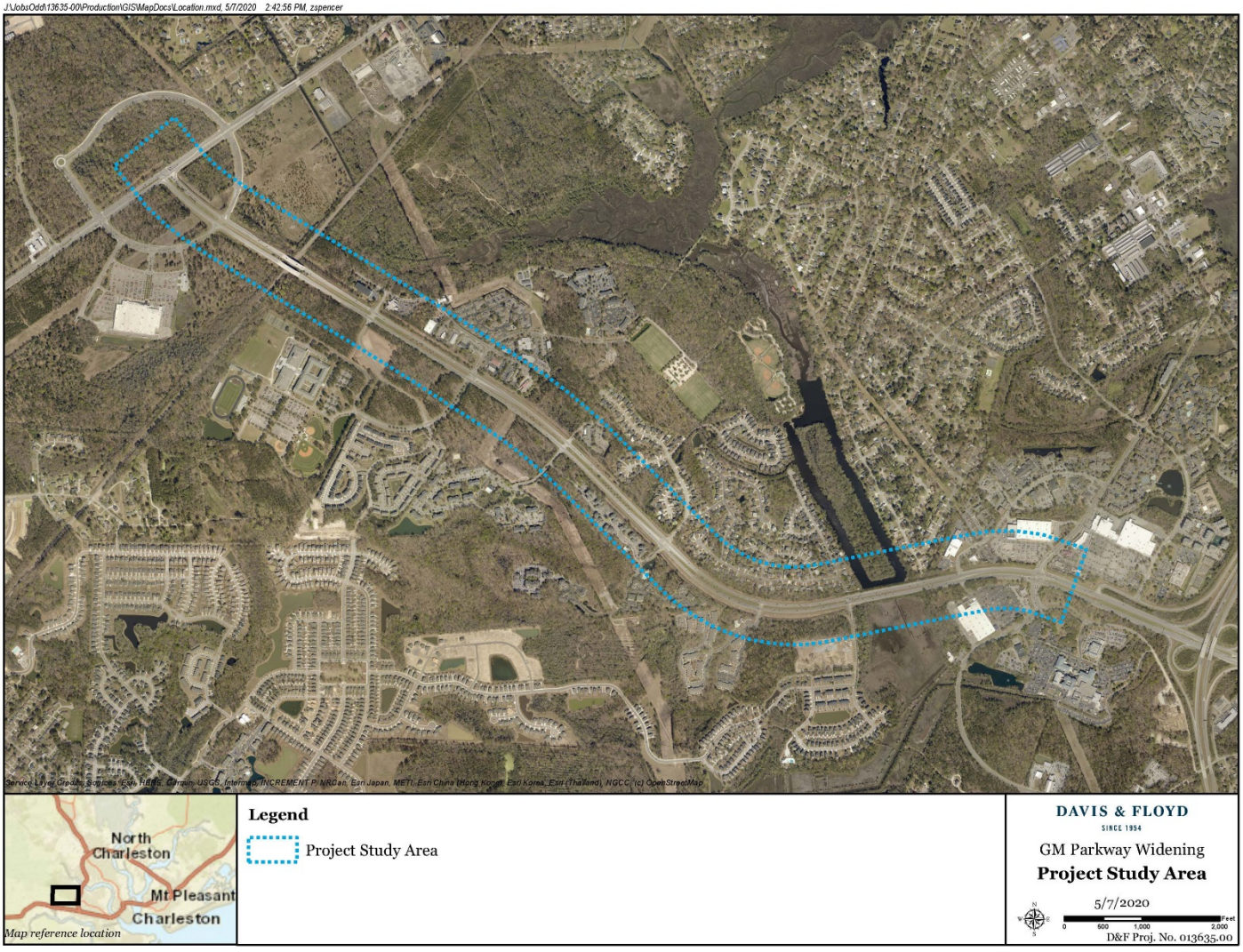
The proposed improvements include widening the Glenn McConnell Parkway (Parkway) to accommodate existing and future forecast traffic volumes. An additional travel lane would be added in each direction for the length of the corridor. Intersection improvements including turning lanes are proposed along the corridor to improve roadway geometry and to facilitate traffic flow through intersections. An eight to 12-foot shared use path for bicycles and pedestrians is proposed along the corridor.

The right-of-way along the corridor is transitional in areas and varies greatly along the corridor from 100 feet each side out to over 150+ feet each side nearest the Bees Ferry Road intersection. As currently proposed no new right-of-way would be required to implement and construct the planned transportation improvements and no displacement of residences or businesses are anticipated.

PROJECT PURPOSE AND NEED

The purpose and need for the project is to relieve traffic congestion on the Parkway by widening the roadway from four to six lanes. One additional travel lane will be added in each direction of travel. A shared use path will also be constructed to improve and provide alternate transportation options to bicyclists and pedestrians with a safer means to travel within the Parkway corridor and over the CSX railway. Existing (2018) average daily traffic (ADT) volumes along the Parkway are 34,900 vehicles per day and is expected to increase to 62,840 vehicles per day by the year 2040.

Exhibit 1: Glenn McConnell Parkway Location Map



Noise Fundamentals

NOISE

Noise is comprised of three characteristics: frequency (or pitch), amplitude (or loudness), and intensity. Frequency relates to whether noise has a high pitch, low pitch, or contains a combination of pitches ranging from low (rumble) to high (squeal) and is measured in cycles per seconds, or Hertz (Hz) units. The human ear is capable of discerning noise in the range of 20 Hz to 20,000 Hz. Various frequencies of noise allow identification of the source. For example, a door slamming shut will produce noise identified with the action. A car pass-by is identified because the motor (and vehicle exhaust) generates similar frequencies that are identified with all cars. Heavy-duty trucks carry a signature of frequencies that distinguish them from cars or motorcycles. Cars tend to generate noise emitted closer to the ground, higher in frequencies, and less in intensity than trucks.

The intensity of noise is a measure of the magnitude of the sound pressure level (SPL). The ear is responsive to sounds having a tremendous range in intensity. For this reason, and because the sensitivity of the ear is more logarithmic than linear in its response, sound levels are expressed on a logarithmic scale. Using a base 10 logarithm to measure relative sound pressure, the range is compressed to a scale of 0 to 9. Thus, this is a system based on the number of tenfold increases, rather than on the actual number itself. The numbers 0 to 9 represent relative quantities, and the quantity measured on this scale is referred to as a level. The unit on this scale is called a bel. The bel has been divided into 10 smaller units known as decibels (dB), so that the range of sound pressures from the approximate threshold of hearing to rocket noise runs from 0 to 180 decibels. The decibel is the common term used for noise density. Human hearing is less sensitive at low and high frequencies than in the frequency mid-range; therefore, the A-weighted system favoring mid-range frequencies is used to determine how frequencies impact human hearing. The use of this system is denoted as dBA.

Increases in noise levels produce varying effects. For example, a 1-dBA increase, except in controlled laboratory conditions, cannot be perceived, a 3-dBA increase is considered barely noticeable in exterior environments, and a 5-dBA increase is considered noticeable in exterior environments. Exhibit 2 shows a listing of common noise levels.

Since noise varies over time, a statistical parameter, known as the equivalent sound level, $L_{(eq)}$ has been developed to quantify the time varying pattern of noise, or the intensity of the noise. Noise levels are based on a $L_{(eq)}$ descriptor, which refers to the steady-state (constant sound) A-weighted sound level. Therefore, the fluctuating sound levels of traffic noise over a period of time are represented in terms of a constant noise level with the same energy content. The time period used corresponds with the peak-hour traffic period. The Federal Highway Administration (FHWA) in traffic noise analyses commonly uses the $L_{(eq)}$ noise descriptor. The $L_{(eq)}$ descriptor has been used to quantify the noise levels in this analysis.

Exhibit 2: Common Noise Sources and Levels

OUTDOOR SOUND LEVELS	SOUND LEVEL (DBA)	INDOOR SOUND LEVELS
	110	Rock Band at 5 m (16 feet)
Jet Over-Flight at 300 m (1,000 feet)	105	
	100	Inside New York Subway Train
Gas Lawn Mower at 1m (3 feet)	95	
	90	Food Blender at 1 m (3 feet)
Diesel Truck at 15 m (50 feet)	85	
Noisy Urban Area-Daytime	80	Garbage Disposal at 1 m (3 feet)
	75	Shouting at 1 m (3 feet)
Gas Lawn Mower at 30 m (100 feet)	70	Vacuum Cleaner at 3 m (10 feet)
Suburban Commercial Area	65	Normal Speech at 1 m (3 feet)
	60	
Quiet Urban Area-Daytime	55	Quiet Conversation at 1 m (3 feet)
	50	Dishwasher in Next Room
Quiet Urban Area at Night	45	
	40	Empty Theater or Library
Quiet Suburb at Night	35	
	30	Quiet Bedroom at Night
Quiet Rural Area at Night	25	Empty Concert Hall
Rustling Leaves	20	
	15	Broadcast and Recording Studios
	10	
	5	
Reference Pressure Level	0	Threshold of Hearing
Source: Highway Noise Fundamentals, Federal Highway Administration, September 1980.		

TRAFFIC NOISE

Traffic noise is dependent on the following variables: the volume of vehicles, speed of the traffic, and the number and size of the trucks in the traffic flow. The higher the number of cars or trucks, the faster the traffic is traveling, and the larger their size, the louder the traffic noise. For example, traffic traveling at 65 miles per hour (mph) will sound twice as loud as traffic traveling at 30 mph. Tire and pavement interaction is the predominant noise source from autos traveling at highway speeds,

with engine noise contributing a smaller amount of noise. The combination of the tire and pavement interaction and exhaust are the primary source of noise for heavy trucks at highway speeds. One truck at 55 miles per hour (mph) can create as much noise as 10 cars at 55 mph.[1] In addition to noise emitted from tire design and pavement surface, the area of the engine and exhaust contribute to noise coming from motor vehicles. Cars are relatively quiet when found in small numbers while a single tractor-trailer pass-by can sound much louder at close distances.

Traffic noise can follow four paths: Direct, Diffracted, Reflected, and Transmitted. Direct refers to the noise following a straight path from the roadway to the receiver whereas diffracted is when the noise follows a path from the roadway to the top of a barrier and then bends toward the receiver. Reflected paths occur when noise bounces off a barrier and is reflected toward the receiver on the opposite side of the roadway from the barrier and transmitted paths occur when the noise is transmitted through the barrier.[2]

The FHWA publication, "Highway Traffic Noise Analysis and Abatement Policy and Guidance", June 1995, describes several general relationships that affect sound generation and dispersion (propagation). The decibel scale is extremely useful; however, it could be puzzling since decibels are logarithmic units, sound levels cannot be added arithmetically. On a linear scale, the total sound generated by two identical noise sources would be twice the sound of one of the sources operating alone. For example, two vehicles that each produces 70 dB of noise would combine to produce 73 dB, rather than 140 dB. Thus, two noise sources of the same intensity or loudness would combine to produce a 3 dB increase in the sound pressure level. Furthermore, an increase or decrease of 10 dB in the sound pressure level would be perceived by an observer as a doubling or halving of the sound. For example, an 80 dB sound would be perceived as twice as loud as a 70 dB sound. If two sound sources whose levels differ by more than 10 dBA are added together, the resulting level would be less than 0.5 dBA higher than the level produced by the greater source operating alone.

The general relationship is that sound intensity decreases in proportion with the square of the distance from the source. Therefore, sound levels for a point source would decrease by approximately 6 dB for each doubling of distance. Sound levels for a highway line source vary differently with distance, since sound pressure waves are propagated or dispersed all along the roadway and overlap at the point of measurement. A long, closely spaced continuous line of vehicles along a roadway (hard surface) would produce a 3 dB decrease in sound level for each doubling of distance. However, evidence has shown that where sound from a highway propagates close to "soft" ground, such as yards, pastures and cultivated areas, a drop-off rate of 4.5 dB per doubling of distance is more suitable in estimating the drop-off rate in traffic noise analyses. Thus, if a stream of traffic moving at 60 miles per hour produces 78 dBA over a soft, grassy surface at a distance of 50 feet, the sound level at 100 feet would be 73.5 dBA, and the sound level would be 68.5 dBA at 200 feet.

[1] USDOT and FHWA. Environment. Highway Traffic Noise. URL: < http://www.fhwa.dot.gov/environment/htnoise.htm>

[2] FHWA Planning, Environment, and Realty. Highway Traffic Noise. URL: <http://www.fhwa.dot.gov/environment/htnoise.htm>

NOISE IMPACTS

Noise will impact people differently depending on their environment and other considerations. The sounds generated by vehicular traffic constitute noise to people and could interfere with normal activities when they reach uncomfortable levels. The type of noise source determines the general frequencies present in noise measurements. The noise source is important in determining impacts and so is the number of sources. The number and distance (of vehicles) to the receiver determines the intensity or loudness. Time of day also affects the determination of impact to receptors.

To determine if highway noise levels are compatible with various land uses, the FHWA has developed noise abatement criteria and procedures to be used in the planning and design of highways. These abatement criteria and procedures are in accordance with 23 CFR, Part 772; Procedures for Noise Abatement of Highway Traffic Noise and Construction Noise. One factor in determining whether a noise impact occurs is when the projected future noise level at a receiver either approaches or exceeds the criteria level for the respective activity category. When dBA levels reach the point where it creates a disruption to the activity, it is considered an impact. Areas receiving noise levels above the designated Noise Abatement Criteria (NAC) require further study to determine if noise abatement procedures are warranted and justified.[3] A noise impact can also occur if the predicted future noise levels exceed the existing noise levels for a receiver by more than 15 dBA, which is referred to as a "substantial increase." The NAC found in Exhibit 3 identifies land use categories in which the criteria or standard has been set in determining impact.

[3] 23 CFR PART 772 Procedure for Abatement of Highway Traffic Noise and Construction Noise.

Exhibit 3: NAC for Land Use Categories

Activity Category	Leq (h)\1,2\	L10 (h) \1,2\	Evaluation Location	Description of Activity Category
A	57	60	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B\3\	67	70	Exterior	Residential.
C\3\	67	70	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	55	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E\3\	72	75	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	--	--	--	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	--	--	Undeveloped lands that are not permitted.

SOURCE: SCDOT Traffic Noise Abatement Policy, October 2019.

\1\ Either Leq(h) or L10(h) (but not both) may be used on a project.
\2\ The Leq(h) and L10(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures.
\3\ Includes undeveloped lands permitted for this activity category.

NOISE ANALYSIS METHODOLOGY

The procedures and requirements contained in the Federal-Aid Policy Guide, Subchapter H, Part 772 (23 CFR 772), “Procedures for the Abatement of Highway Traffic Noise and Construction Noise” were followed in conducting the noise analysis for this project. The following methods are used to determine existing noise levels, predict future noise levels, and assess impacts on the project's adjacent environment:

- Existing land uses for the project area were established.
- Existing (ambient) noise levels were determined by obtaining noise measurements at selected representative locations along the proposed project.
- The proposed and existing systems were modeled utilizing the FHWA Traffic Noise Model 2.5 (TNM 2.5).
- The noise levels modeled for the existing conditions were compared to the actual field measurements in order to verify the accuracy of the inputs for the noise model.
- Predicted noise levels were compared to the existing noise levels to determine the extent of the noise impact caused by the proposed project.
- Where an impact is expected to occur, noise abatement measures were examined and evaluated.

LAND USE

Existing land uses within the project area were identified. Following 23 CFR 722, the activity categories were identified and the corresponding FHWA NAC was assigned to each land use. The NAC represents the upper limit of acceptable highway traffic noise and is a compromise between noise levels that are desirable and those that are achievable. Land uses in the project study area include less developed areas, residential communities, undeveloped land, offices, retail stores and other commercial/industrial areas.

It was determined that Land Use Categories B, C and E occur along the project corridor; therefore, existing and future noise levels were determined for each category and the noise abatement criteria applied to determine effect. Noise abatement measures, such as the construction of noise barriers, must be considered when traffic noise impacts occur. The feasibility of barriers is based on several factors including cost, wall height, amount of land needed and ability to construct, land use changes, and number of impacted receptors benefiting from the barrier.

Existing Noise Levels

AMBIENT NOISE MEASUREMENTS

Using land use surveys and aerial photographs, the study team identified areas to take noise level readings that typically represent noise levels throughout that area and for that land use. These existing or “ambient” noise levels were used to calibrate the model and to determine if there will be any substantial increases in noise levels when the project is constructed.

Ambient noise measurements were taken on February 11, 2019 at multiple locations along the project corridor. Measurements were taken during peak traffic hours (morning, midday and afternoon) using a Quest Technologies Sound Pro SE/DL Sound Level Datalogger at selected locations determined using aerial photographs and field verified visits. Measurements with traffic counts were taken at two locations along the corridor. In addition, ambient measurements were taken at 5 locations within adjacent neighborhoods to the Parkway. As the roadway could not be viewed from these locations no traffic data was collected. Noise levels recorded were the $L_{(eq)}$ and these measurements were then utilized as ambient existing noise levels along the project corridor.

The noise meter was placed five feet above the ground and approximately 50 feet from the edge-of-pavement (EOP) at each sampling site. Sampling periods were taken for 15 minutes and traffic counts were conducted simultaneously at each location. Traffic characteristics such as the number of automobiles, motorcycles, medium trucks, and heavy trucks were noted. Medium trucks are those with two axles and six wheels and a gross vehicle weight of over five tons while heavy trucks are those with three or more axles and a gross vehicle weight of over 13 tons. Observations of temperature, humidity, precipitation, and vehicle speed in miles per hour were estimated at each location as well as any events that could affect the noise measurements such as the passing by of an ambulance with siren or an airplane or helicopter flyover.

EXISTING NOISE PREDICTIONS AND NOISE MODEL VALIDATION

The FHWA-developed Traffic Noise Model (TNM 2.5) was used in predicting existing traffic noise. TNM 2.5 was developed and tested extensively under the auspices of the Federal Highway Administration against previously collected field data and results from other traffic noise models.[4] To ensure applicability of model output to traffic flow conditions in this study area, the existing traffic noise measurements taken in the field were used for comparison to the TNM predicted noise levels. Noise levels (L_{eq}) measured in the field along the Parkway ranged from 69.1 dBA to 74.1 dBA. The model developed for the corridor reflects close agreement (within +/- 2.3 dBA) for these four sets of field measurements. These results show that the TNM should be useful in predicting values in areas where traffic is the predominate source of noise and actual field measurements are not taken. It should be noted that it takes an approximately 3 dBA change in noise level to be barely perceptible to the human ear; therefore, the model accuracy of within 1.3 to 2.3 dBA is sufficient for these studies.

[4] FHWA Traffic Noise Model Technical Manual, Final Report February 1998, USDOT, Research and Special Programs Administration, John A. Volpe NTSC Acoustics Facility, Cambridge, MA 02142-1093.

Exhibit 4: Ambient Noise Measurements and FHWA TNM Model Validation

Field Receiver Location	Field Measurement	TNM Measurement	Difference (+/-)
Field Measurement 1	74.1	71.8	2.3
Field Measurement 2	73.5	71.9	1.6
Field Measurement 3	73.4	72.1	1.3
Field Measurement 4	73.9	71.7	2.2

Existing ambient noise measurements were also taken at five locations within the adjacent neighborhoods to the Parkway. Consecutive sets of two five-minute grab samples were taken for ambient noise level measurements. These samples were taken along Egret Crest Lane, Eagle View Drive, Emerald Forest Parkway, Arrow Wind Terrace, and Wayah Drive. Noise levels (Leq) measured at these locations measured from 57.2 dBA to 66.7 dBA.

Predicted Noise Levels

The TNM was also used to predict future traffic noise levels in terms of $L_{(eq)}$ both with and without implementation of the proposed project. The three-dimensional noise model can predict existing and future traffic noise depending on a variety of input parameters that include traffic volume, vehicle mix, vehicle speed, roadway grades, traffic flow, and receiver location and elevation. Using these inputs, TNM was run to predict the worst-case traffic noise levels for existing conditions, the No-build Alternative, and the Build Alternative along the project corridor.

Predicted peak hour traffic volumes for the 2018 existing and 2040 No-build and Build Alternatives were used in the model to predict traffic noise to adjacent receivers. These projections were performed for the existing conditions, No-build Alternative, and Build Alternative and then compared to existing noise levels to determine if there would be a substantial increase (over 15 dBA) in noise levels.

Exhibit 5: GMP Traffic Date – Peak Hour Volume for Existing and Design Year

Road	Traffic Station*	Existing AADT	Peak Hour Volume	Build AADT	Peak Hour Volume
Glenn McConnell Parkway	684	34,900	3,929	62,840	5,872

In addition to the identification of residential and commercial noise receptors within the project area, large tracts of undeveloped lands were also present along the corridor. Representative receptors were modeled at 50 and 100-foot increments from the edge of pavement to predict future noise levels at these locations. These receptors were modeled in the same manner as each of the proposed alternatives and elevations are the same for this analysis, this group of discrete receptors is assumed to be representative of all areas along each proposed alignment. A summary of this information is provided in Exhibit 6.

Exhibit 6: Approximate Distances (feet) to NAC for Undeveloped Lands

Distance from Edge of Pavement	dBA (L_{eq})
50-feet	74.3
100-feet	71.1
150-feet	68.4
200-feet	66.2
300-feet	62.7
400-feet	60.2
500-feet	58.2
600-feet	56.5

Potential Noise Impacts

Impact analysis was conducted for the proposed project using the requirements of FHWA's 23 CFR 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise". Under these guidelines, impact can occur under either of two conditions; either when future predicted noise levels approach or exceed the NAC for the particular land use in question or when there is a substantial increase of future build levels over existing levels. The SCDOT defines "approach" as 1 dBA below the specified FHWA NAC for each of the land use types. In South Carolina, a substantial increase is defined as being 15 decibels over existing noise levels.

All receivers within 400 feet of each side of the centerline were imported into the model to determine the noise level at those receivers and verify impacts. These included 92 residential and 16 commercial receptors. Receptors beyond 400 feet each side of the centerline were not modeled since the greatest distance for a noise impact to occur is approximately 250 feet. In all, 108 receivers were analyzed using TNM. The table below shows the potential noise impacts for residential and commercial receivers in the existing, future no build and future build conditions.

Exhibit 7: Predicted Noise Impacts to Receivers

CONDITION	CATEGORY B (66 DBA) RESIDENTIAL	CATEGORY C (71 DBA) COMMERCIAL, INDUSTRIAL, OFFICE	TOTAL IMPACTS
Existing (2018)	33	0	33
No-build (2040)	41	3	44
Build (2040)	52	7	59
Source: D&F Inc., 2019.			

NOISE ABATEMENT MEASURES

When noise impacts occur, consideration of abatement measures is required. Abatement measures to be considered may include the construction of noise barriers, change in horizontal and/or vertical roadway alignment and truck lane designation. An initial consideration in minimizing noise impacts is to place the roadway in uninhabited or sparsely populated areas, where possible, consistent with the project's intended purpose and need and logical termini. The No-build Alternative must also be considered.[5] While noise impacts are currently occurring and are expected to occur in the future, further efforts to mitigate or reduce these impacts remain. The following considerations will be undertaken in further development of the project:

HORIZONTAL AND VERTICAL ALIGNMENT

Change in project alignment will be carefully considered during the public involvement process and will consider noise impacts and other factors when exploring further alignment shifts. While horizontal shifts remain challenging due to the right of way limits, lowering of grades sufficiently to reduce noise levels to adjacent receptors is not possible because of the area's slightly above sea level ground elevation.

[5] Highway Traffic Noise Analysis and Abatement Policy and Guidance. USDOT FHWA Office of Environmental and Planning Noise and Air Quality Branch. Washington D.C. June 1995.

NOISE BARRIERS

Noise barriers are solid obstructions placed between the roadway and impacted receivers to reduce highway traffic noise. The SCDOT's noise abatement policy requires a rigorous analysis be completed to determine if a barrier meets both the feasible and reasonable criteria established by the policy. A proposed noise barrier must meet both the feasibility and reasonableness criteria to be considered a viable noise abatement measure.

Feasibility refers to whether a barrier can be built at a modeled and evaluated location. The modeled noise barrier must reduce highway traffic noise and be free of conflicts within its surroundings. Examples of these potential engineering feasibility conflicts and considerations include the topography, safety, drainage, utility, maintenance, and access to the modeled location. Subsequently, a constructability review should be conducted during this phase to determine if any engineering considerations, such as seismic or hurricane specifications, would increase the overall cost of the barrier. Noise barriers are considered feasible if a substantial noise reduction can be obtained through the implementation of this noise abatement measure. For a barrier to be feasible the barrier must be less than 25 feet in height and must provide at least a 5 dBA reduction to at least 75 percent of the impacted receivers. This 5 dBA reduction is the minimum needed to ensure the receiver can discern a noticeable difference in the noise levels.

The reasonableness criteria are determined through the evaluation of three reasonable factors: the noise reduction design goal, cost effectiveness, and the viewpoints of the property owners and residents of the benefitted receptors. For a potential noise barrier to be considered reasonable under the noise reduction design criteria it must reduce noise levels by a minimum of 8 dBA for 80 percent or more of the benefited receivers in the first two rows of buildings. A noise barrier must cost less than $30,000 per benefitted receiver to meet the cost effectiveness factor. Finally, if the first two reasonable factors are met then the viewpoints of the property owners and residents who desire and do not desire a noise barrier must be taken into consideration.

For this project four clusters of three or more impacted receivers were identified along the Parkway corridor and evaluated to determine if noise abatement measures could be implemented. A detailed noise barrier analysis was conducted for each group of receivers and a SCDOT Feasibility and Reasonableness Worksheet was completed for each modeled barrier (included in the Appendix) . Areas along the corridor where impacted receivers numbered less than three or were scattered over a larger distance were considered isolated and were not included in the barrier analysis. These modeled barriers were labeled barriers one through four and are summarized in the following paragraphs.

Barrier 1

Barrier 1 was modeled between Mary Ader Avenue and Baird's Cove on the north side of the Parkway. A cul-de-sac and neighborhood along Wayah Drive was evaluated within the project study area and included five residences that would receive noise levels above their NAC. A barrier approximately 360 feet long was modeled for these and the adjacent residences. Engineering and constructability concerns included an overhead power line that crosses the Parkway at this location and then extends to the west paralleling the Parkway and a large wetland area immediately west of this

neighborhood. A barrier at this location would benefit only the two receivers closest to the roadway by reducing noise levels by at least 5 dBA. As less than 50 percent of the receivers (2 of 5 or 40 percent) would only be benefitted by the barrier, the barrier at this location does not meet the feasibility criteria and is not considered a viable noise abatement measure. A copy of the SCDOT Feasibility and Reasonableness Worksheet is included in the Appendix.

Barrier 2

Barrier 2 was modeled on the north side of the Parkway between Mary Ader Avenue and Baird's Cove near its intersection with the Parkway. A cul-de-sac and neighborhood along Fox Ridge Court was evaluated within the project study area and included six residences that would receive noise levels above their NAC. A barrier approximately 500 feet long was modeled for these and the adjacent residences. Engineering and constructability concerns included the barrier's proximity to the intersection of the Parkway with Baird's Cove. The barrier could not be extended to the intersection due to safety concerns from a potential reduction in vehicle sight distances. Due to this restriction a barrier at this location would benefit the two receivers closest to the roadway by reducing noise levels by at least 5 dBA. As less than 50 percent of the receivers (2 of 6 or 33 percent) would only be benefitted by the barrier, the barrier at this location does not meet the feasibility criteria and is not considered a viable noise abatement measure. A copy of the SCDOT Feasibility and Reasonableness Worksheet is included in the Appendix.

Barrier 3

Barrier 3 was modeled between Baird's Cove and Charlie Hall Blvd along the north side of the Parkway. Emerald Forest Parkway runs parallel with the Glenn McConnell Parkway with a row of single-family residences along each side of the street. This neighborhood was evaluated within the project study area and included 33 residences that would receive noise levels above their NAC. A barrier approximately 1,100 feet long was modeled for these and the adjacent residences. Engineering and constructability concerns included the barrier's proximity to the intersection of the Parkway with Baird's Cove. The barrier could not be extended to the intersection due to safety concerns from a potential reduction in vehicle sight distances. In addition, the Parkway's right of way limits are substantially reduced along this section of the Parkway. The modeled noise barrier at this location would benefit 11 receivers by reducing noise levels by at least 5 dBA. As less than 50 percent of the receivers (11 of 33 or 33 percent) would only be benefitted by the barrier, the barrier at this location does not meet the feasibility criteria and is not considered a viable noise abatement measure. A copy of the SCDOT Feasibility and Reasonableness Worksheet is included in the Appendix.

Barrier 4

Barrier 4 was modeled between Lochaven Drive and Waterstone Lane on the south side of the Parkway. Eight multi-family buildings of 16 units each and a community swimming pool are along Egret Crest Lane. Each building (considered a receiver) has six units on the first floor, six units on the second floor and 4 units on the third floor (16 dwelling units per receiver). This neighborhood was evaluated within the project study area and included 122 residences (dwelling units) that would receive noise levels above their NAC. A barrier approximately 1,100 feet long was modeled for these and the adjacent

multi-family buildings and the community swimming pool. Engineering and constructability concerns included the barrier's proximity to the intersection of the Parkway with Egret Crest Lane. The barrier could not be extended to the intersection due to safety concerns from a potential reduction in vehicle sight distances. In addition, an overhead power line parallels the Parkway to the west and then crosses the Parkway at perpendicularly and a large wetland area is present in front of an immediately west of the westernmost multi-family residential building in this neighborhood. The modeled noise barrier at this location would benefit 113 receivers by reducing noise levels by at least 5 dBA. This corresponds to 93 percent of the receivers (113 of 122) being benefitted by the barrier, thus meeting the feasibility criteria at this location. However, a barrier at this location would be in conflict with the overhead powerlines and could not be constructed. A copy of the SCDOT Feasibility and Reasonableness Worksheet is included in the Appendix.

CONSTRUCTION NOISE CONSIDERATIONS

A key element of a highway traffic noise study is the consideration of construction noise. 23 CFR 772 requires the evaluation of construction noise and the possible mitigation of impacts if they should occur. Construction noise is defined like that of noise in general, being any unwanted or undesirable sound that can adversely affect the quality of people's lives. In addition, construction noise can be perceived as any loud, disruptive, impulsive and uncontrollable sound occurring unexpectedly and/or at undesirable times of day. Depending on the construction site location, noise can be unwelcomed during nighttime hours or daytime hours. Loud noises may interfere with speech and activities of humans and other species. Construction noise may affect species such as domestic and wild animals in terms of mating, nesting, feeding activities and migration.[6]

The purpose of construction noise assessments is to obtain information on impacts and evaluate possible mitigation strategies if impacts occur. General construction noise criteria include identifying and determining the following factors:

- Areas of potential impact (direct and indirect)
- Existing noise levels
- Construction operations
- Time of operations (day, night, holidays, weekends)
- Adjacent land uses (residential, commercial, rural)
- Duration and frequency of noise
- Assessment methods
- Any differences in existing and expected noise levels
- Impacts and mitigation (if necessary)

Areas along the project corridor may be affected by construction noise. It is expected that those individuals living and working near the project area will experience construction noise impacts. Impacts may also affect wildlife and domestic animals living near the project. Possible noise generating construction activities may include earth moving, hauling of debris and paving. To mitigate any expected construction noise, low-cost, easy-to-implement measures can be implemented.

[6] Federal Highway Administration Highway Construction Noise Handbook.

These include choosing work hours and locations of haul roads that least impact the area, requiring mufflers on equipment, and elimination of unnecessary noises such as “tail gate banging”.[7] However, impacts are not expected to be substantial since project work hours should occur during normal weekday work hours.

SUMMARY

A detailed traffic noise analysis was conducted for the existing, future no build and future build scenarios for the Parkway. In all, 108 receivers were analyzed using TNM 2.5 (Traffic Noise Model) software. The analysis determined potential noise impacts would occur for some receivers adjacent to the proposed project corridor. Noise abatement measures were considered and evaluated where noise impacts occurred. Four noise barriers were considered and analyzed along the project corridor. Utilizing the SCDOT noise abatement policy (effective date 10/10/19) these four barriers did not meet the established feasibility criteria and their construction was determined not to be feasible.

[7] Highway Traffic Noise Analysis and Abatement Policy and Guidance. USDOT FHWA Office of Environmental and Planning Noise and Air Quality Branch. Washington D.C. June 1995.

APPENDIX

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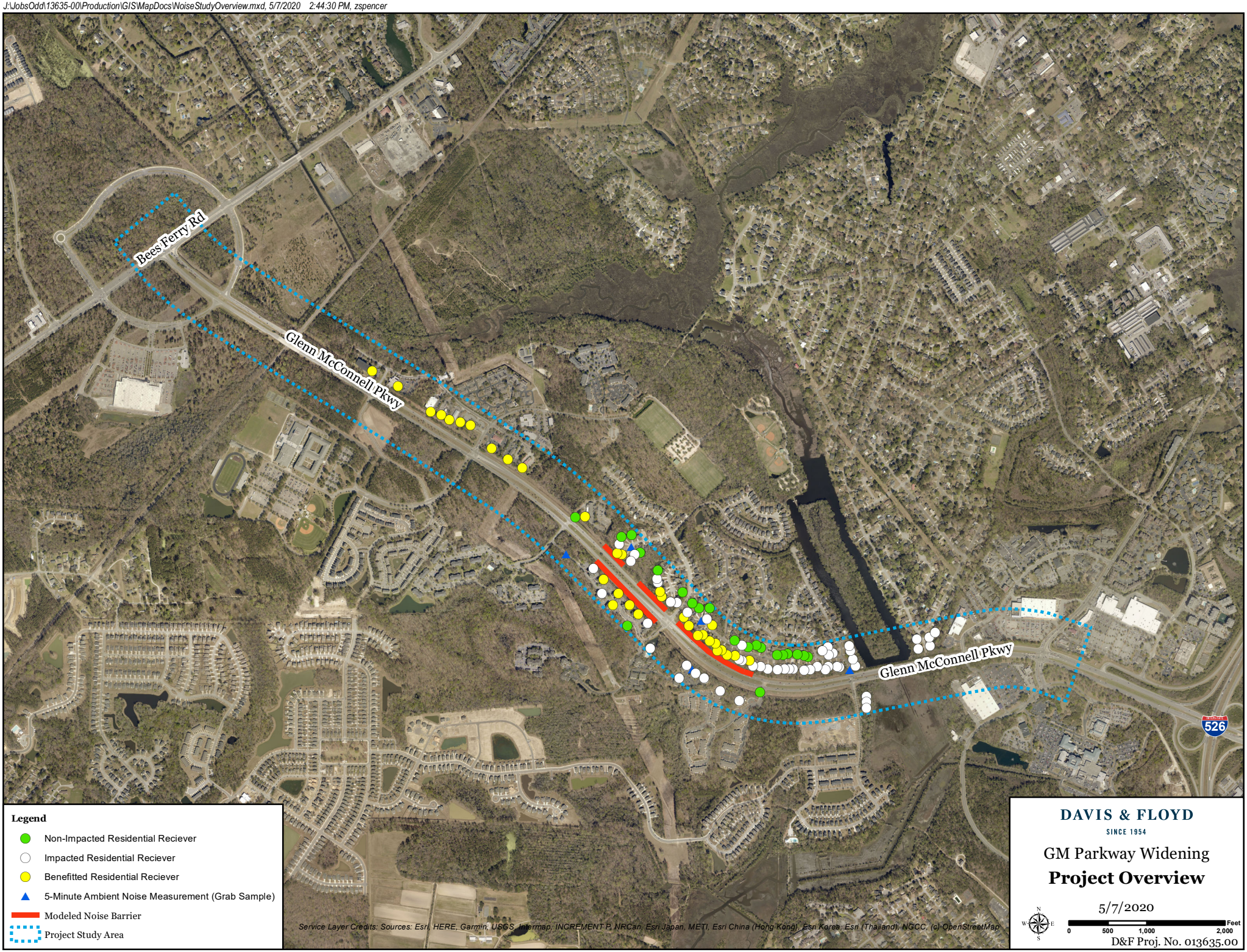

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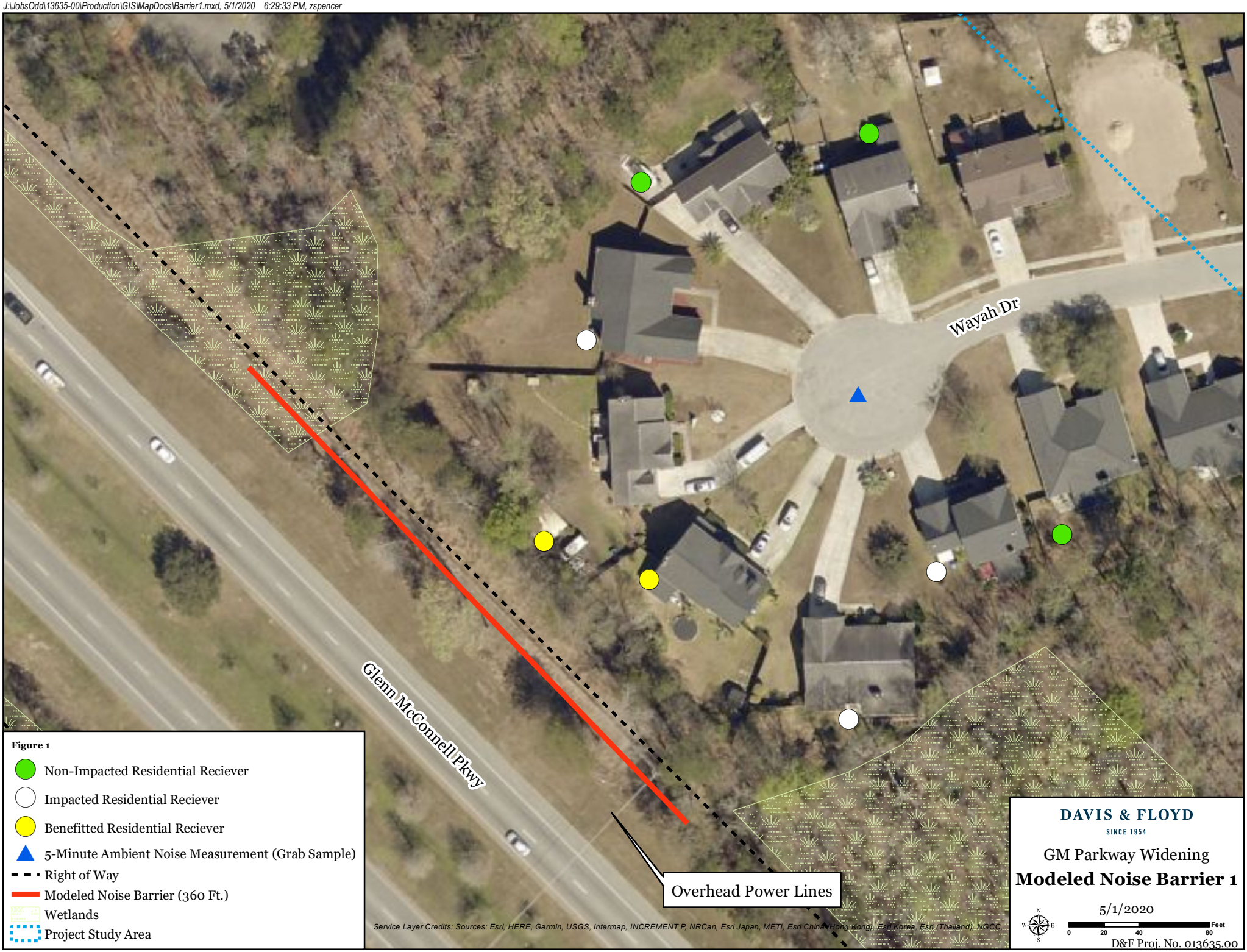

Figure 1

- Non-Impacted Residential Reciever
- Impacted Residential Reciever
- Benefitted Residential Reciever
- 5-Minute Ambient Noise Measurement (Grab Sample)
- Right of Way
- Modeled Noise Barrier (360 Ft.)
- Wetlands
- Project Study Area

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC,

DAVIS & FLOYD
SINCE 1954

GM Parkway Widening

Modeled Noise Barrier 1

5/1/2020

0 20 40 80 Feet

D&F Proj. No. 013635.00

SCDOT Feasibility and Reasonableness Worksheet

Date: Apr 28, 2020

Project Name Glenn McConnell Parkway

Highway Traffic Noise Abatement Measure Noise Barrier #1

Feasibility

Number of Impacted Receivers: 5

Number of Benefited Receivers: 2

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure: 40

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.

☐ Yes ☒ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☐ Yes	☒ No
Safety	☐ Yes	☒ No
Drainage	☐ Yes	☒ No
Utilities	☒ Yes	☐ No
Maintenance	☐ Yes	☒ No
Access	☐ Yes	☒ No
Exposed Height of Wall	☐ Yes	☒ No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description

Barrier 1 would be in conflict with an existing overhead power line that runs across the Parkway at this location and then turns and parallels the west bound lanes of the Parkway. In addition, there is a wetland located at the west end of the wall prohibiting the barrier from being lengthened any farther.

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 2

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 1

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.: 50

Does the proposed noise abatement measure meet the noise reduction design goal? ☐ Yes ☒ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure:

Estimated construction cost for noise abatement measure:

Estimated cost per Benefited Receiver:

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☐ No
NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation.

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Final Determination for Noise Abatement Measure

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Figure 2

- Non-Impacted Residential Reciever
- Impacted Residential Reciever
- Benefitted Residential Reciever
- 5-Minute Ambient Noise Measurement (Grab Sample)
- Right of Way
- Modeled Noise Barrier (500 Ft.)
- Wetlands
- Project Study Area

DAVIS & FLOYD
SINCE 1954

GM Parkway Widening

Modeled Noise Barrier 2

4/30/2020

0 25 50 100 Feet

D&F Proj. No. 013635.00

SCDOT Feasibility and Reasonableness Worksheet

Date: Apr 28, 2020

Project Name Glenn McConnell Parkway

Highway Traffic Noise Abatement Measure Noise Barrier #2

Feasibility

Number of Impacted Receivers: 6

Number of Benefited Receivers: 2

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure: 33

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.

☐ Yes ☒ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☐ Yes	☒ No
Safety	☒ Yes	☐ No
Drainage	☐ Yes	☒ No
Utilities	☐ Yes	☒ No
Maintenance	☐ Yes	☒ No
Access	☐ Yes	☒ No
Exposed Height of Wall	☐ Yes	☒ No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description

Barrier 2 would be in conflict with an existing intersection (Baird's Cove @ Glenn McConnell Parkway) and could not be extended any farther to the east. A barrier too close to the intersection could reduce driver sight distance and safety.

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 2

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 0

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.: 0

Does the proposed noise abatement measure meet the noise reduction design goal? ☐ Yes ☒ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure:

Estimated construction cost for noise abatement measure:

Estimated cost per Benefited Receiver:

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☐ No
NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation.

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Final Determination for Noise Abatement Measure

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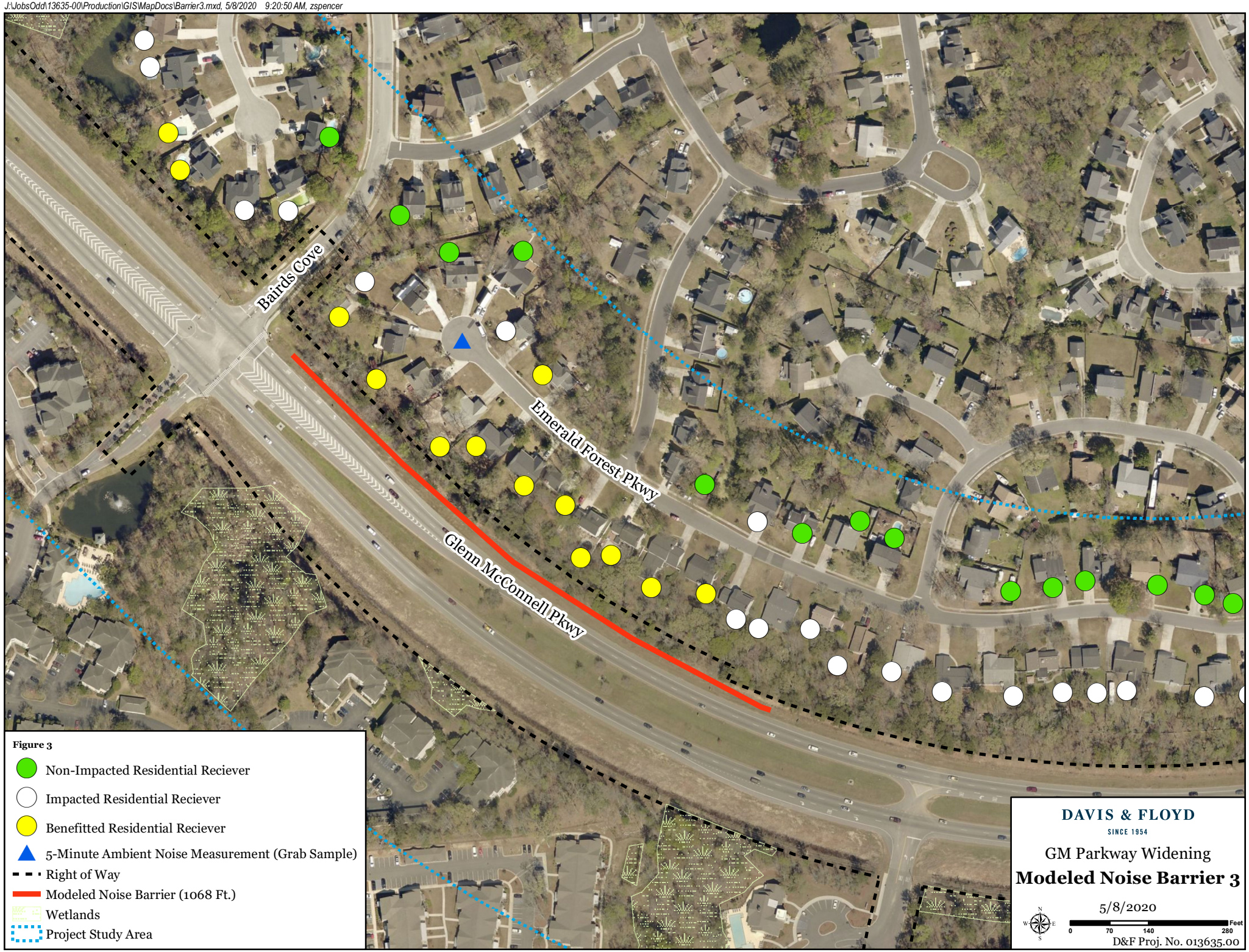

Figure 3

- Non-Impacted Residential Reciever
- Impacted Residential Reciever
- Benefitted Residential Reciever
- 5-Minute Ambient Noise Measurement (Grab Sample)
- Right of Way
- Modeled Noise Barrier (1068 Ft.)
- Wetlands
- Project Study Area

DAVIS & FLOYD
SINCE 1954

GM Parkway Widening

Modeled Noise Barrier 3

5/8/2020

0 70 140 280 Feet

D&F Proj. No. 013635.00

SCDOT Feasibility and Reasonableness Worksheet

Date: Apr 28, 2020

Project Name Glenn McConnell Parkway

Highway Traffic Noise Abatement Measure Noise Barrier #3

Feasibility

Number of Impacted Receivers: 33

Number of Benefited Receivers: 11

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure: 33

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.

☐ Yes ☒ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☐ Yes	☒ No
Safety	☒ Yes	☐ No
Drainage	☐ Yes	☒ No
Utilities	☐ Yes	☒ No
Maintenance	☐ Yes	☒ No
Access	☒ Yes	☐ No
Exposed Height of Wall	☐ Yes	☒ No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description

Barrier 3 would be in conflict with an existing intersection (Baird's Cove @ Glenn McConnell Parkway) and could not be extended any farther to the west. A barrier too close to the intersection could reduce driver sight distance and safety. A barrier could not be extended farther to the east as the SCDOT right of way is substantially reduced and there would not be enough right of way to be able to construct a barrier.

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 11

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 8

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.: 73

Does the proposed noise abatement measure meet the noise reduction design goal? ☐ Yes ☒ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure:

Estimated construction cost for noise abatement measure:

Estimated cost per Benefited Receiver:

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation. ☐ Yes ☐ No

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Final Determination for Noise Abatement Measure

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Figure 4

- Non-Impacted Residential Reciever
- Impacted Residential Reciever
- Benefitted Residential Reciever
- 5-Minute Ambient Noise Measurement (Grab Sample)
- Right of Way
- Modeled Noise Barrier (1094 Ft.)
- Wetlands
- Project Study Area

DAVIS & FLOYD
SINCE 1954

GM Parkway Widening

Modeled Noise Barrier 4

5/1/2020

0 55 110 220 Feet

D&F Proj. No. 013635.00

SCDOT Feasibility and Reasonableness Worksheet

Date: Apr 28, 2020

Project Name Glenn McConnell Parkway

Highway Traffic Noise Abatement Measure Noise Barrier #4

Feasibility

Number of Impacted Receivers: 122

Number of Benefited Receivers: 113

Percentage of Impacted Receivers that would achieve a 5 dBA reduction from the proposed noise abatement measure: 93

Is the proposed noise abatement measure acoustically feasible?
NOTE:SCDOT Policy indicates that 75% of the impacted receivers must achieve at least a 5 dBA reduction for it to be acoustically feasible.

☒ Yes ☐ No

Would any of the following issues limit the ability of the abatement measure to achieve the noise reduction goal?

Topography	☐ Yes	☒ No
Safety	☒ Yes	☐ No
Drainage	☐ Yes	☒ No
Utilities	☒ Yes	☐ No
Maintenance	☐ Yes	☒ No
Access	☐ Yes	☒ No
Exposed Height of Wall	☐ Yes	☒ No

If "Yes" was marked for any of the questions above, please explain below.

Detailed Description

Barrier 4 would be in conflict with an existing intersection (Water Stone Lane @ Glenn McConnell Parkway) and could not be extended any farther to the east. A barrier too close to the intersection could reduce driver sight distance and safety. A barrier could not be extended farther to the west as an overhead power line parallels the Parkway and crosses the parkway preventing a wall from being constructed.

Reasonableness

According to 23 CFR 772.13(d)(2)(iv) the abatement measure must collectively achieve each of these criteria to be reasonable. Therefore if any of the three mandatory reasonable factors are not achieved, then the abatement measure is determined NOT to be reasonable. When completing the form it is not necessary to detail each of the criteria if one was determined not to be reasonable.

#1: Noise Reduction Design Goal

Number of Benefited Receivers: 113

Number of Benefited Receivers that achieve at least an 8 dBA reduction: 64

Percentage of Benefited Receivers in the first two building rows that would achieve at least a 8 dBA reduction from the proposed noise abatement measure. NOTE: SCDOT Policy indicates that 80% of the benefited receivers in the first two building rows must achieve at least a 8 dBA reduction for it to be reasonable.: 57

Does the proposed noise abatement measure meet the noise reduction design goal? ☐ Yes ☒ No

If "Yes" is marked, continue to #2. If "No" is marked, then abatement is determined NOT to be reasonable.

#2: Cost Effectiveness

Estimated cost per square foot for noise abatement measure:

Estimated construction cost for noise abatement measure:

Estimated cost per Benefited Receiver:

Based on the SCDOT policy of $30,000 per Benefited Receiver, would the abatement measure be reasonable? ☐ Yes ☐ No
NOTE: SCDOT Policy states that the preliminary noise analysis is based on $35.00 per square foot and a more project-specific construction cost should be applied at a cost per square foot basis during the detailed noise abatement evaluation.

If "Yes" is marked, continue to #3. If "No" is marked, then abatement is determined NOT to be reasonable.

#3: Viewpoints of the property owners and residents of the benefitted receivers

Number of Benefited Receivers (same as above):

Number of Benefited Receivers in **support** of noise abatement measure:

Percentage of Benefited Receivers in **support** of noise abatement measure:

Number of Benefited Receivers **opposed** to noise abatement measure:

Percentage of Benefited Receivers **opposed** to noise abatement measure:

Number of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Percentage of Benefited Receivers **that did not respond** to solicitation on noise abatement measure:

Based on the viewpoints of the property owners and residents of the Benefited Receivers, would the abatement measure be reasonable? NOTE: SCDOT Policy indicates that the noise abatement shall be constructed unless greater than 50% of the benefited receptors are opposed to noise abatement. ☐ Yes ☐ No

Final Determination for Noise Abatement Measure


Glenn McConnell
Parkway Widening

Appendix H

Transportation Planning Report

DRAFT

TRANSPORTATION PLANNING STUDY

GLENN MCCONNELL PARKWAY WIDENING PROJECT

FROM BEES FERRY ROAD (S-57) TO 0.19 MILES WEST OF CHARLIE HALL BOULEVARD

CHARLESTON COUNTY, SOUTH CAROLINA

PROJECT ID P037878

Prepared for:

CHARLESTON COUNTY
SOUTH CAROLINA

CHARLESTON COUNTY

DAVIS & FLOYD
SINCE 1954

DAVIS & FLOYD, INC.
240 Stoneridge Drive – Suite 305
Columbia, SC 29210

Prepared by:

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design

SHORT ENGINEERING & CONSULTING, LLC
1612 Marion Street – Suite 326
Columbia, SC 29201

DRAFT SUBMITTAL – REVISION #1
APRIL - 2019

DRAFT

TRANSPORTATION PLANNING STUDY

GLENN MCCONNELL PARKWAY WIDENING PROJECT

FROM BEES FERRY ROAD (S-57) TO 0.19 MILES WEST OF CHARLIE HALL BOULEVARD

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SINCE 1954

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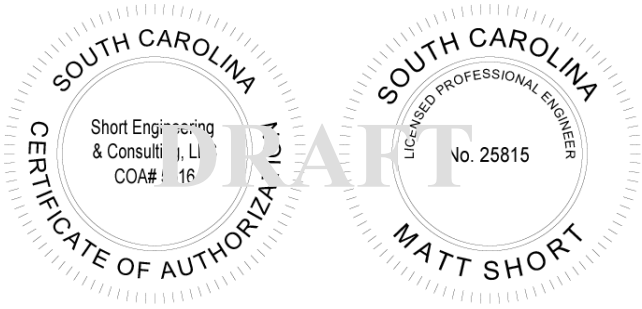


SHORT ENGINEERING & CONSULTING, LLC
1612 Marion Street – Suite 326
Columbia, SC 29201

DRAFT SUBMITTAL – REVISION #1
APRIL - 2019

CONTENTS

TABLES

FIGURES

INTRODUCTION & PROJECT OVERVIEW

INTRODUCTION

Short Engineering & Consulting, LLC has completed the accompanying traffic and transportation review/assessment for the proposed Glenn McConnell Parkway Widening Project which is to be completed as part of the Charleston County 2016 Transportation Sales Tax Referendum. As cited under this referendum, the existing Glenn McConnell Parkway, between Bees Ferry Road and Magwood Drive, will be improved/widened to provide additional carrying capacity in order to accommodate projected future traffic volumes/development. This study includes the following:

- Review of existing traffic volumes in the project study area and associated operational characteristics.
- Projection of future 2040 Design-Year traffic volumes and analysis without improvement.
- Recommendations regarding intersection geometrics and traffic control requirements based on projected future 2040 Design-Year traffic volumes and assumed baseline roadway widening.
- Analyses depicting projected future operational characteristics within the study area assuming the cited intersection geometrics/traffic control recommendations along with the assumed baseline roadway widening.

GENERAL PROJECT OVERVIEW

Based on the large amount of development that has occurred over recent years, combined with the large amount of future planned development that is anticipated within this area of Charleston County, traffic operations issues along the County's local/regional infrastructure have come to the forefront. To address critical transportation issues in this specific area, the County has authorized the improvement/widening of the Glenn McConnell Parkway.

At present, Charleston County's consultant (Davis & Floyd, Inc.) has been released to begin the engineering design for the Glenn McConnell Parkway Widening Project. To accompany this major arterial widening project, Short Engineering & Consulting, LLC has been contracted by the County (via Davis & Floyd, Inc.) to provide a transportation review/assessment of the subject corridor in terms of projected operational characteristics for the overall roadway as well as several defined critical intersections.

EXISTING CONDITIONS

A comprehensive field inventory of the project study area has been conducted. The field inventory included a collection of geometric data, traffic volumes, and traffic control within the study area. The following sections describe the project study area as well as the current traffic conditions.

PROJECT STUDY AREA

The study area for this project primarily focuses on the segment/section of Glenn McConnell Parkway (SC 461) from Bees Ferry Road (S-57) to a point just west of Magwood Drive.

Within the above-cited study area segment, nine (9) critical study area intersection locations have been defined for specific study/analysis. These specific primary study area intersections are as follows:

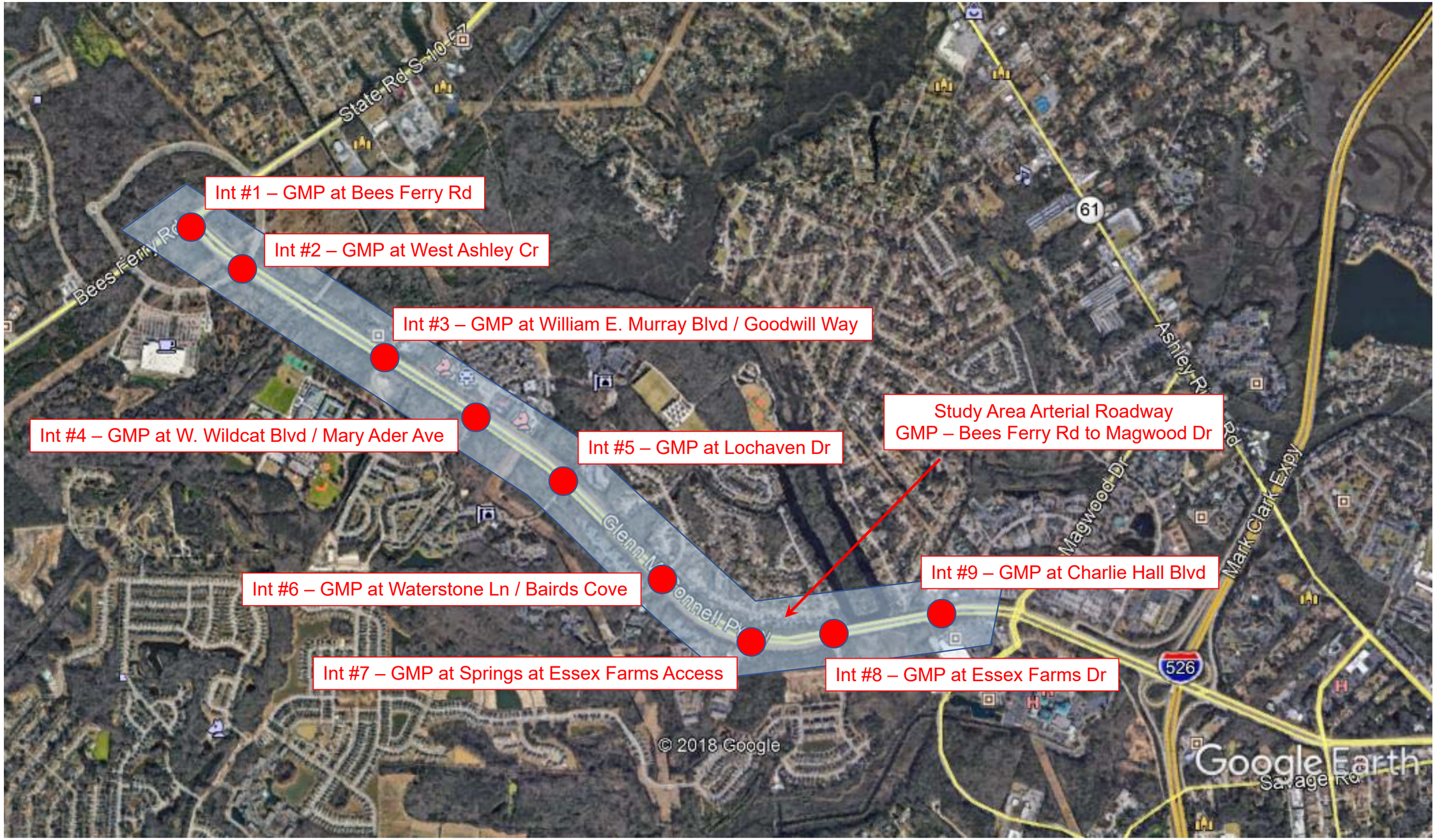
- Glenn McConnell Parkway (SC 461) at Bees Ferry Road
- Glenn McConnell Parkway at West Ashley Circle
- Glenn McConnell Parkway at William E. Murray Boulevard / Goodwill Way
- Glenn McConnell Parkway at West Wildcat Boulevard / Mary Ader Avenue
- Glenn McConnell Parkway at Lochaven Drive
- Glenn McConnell Parkway at Waterstone Lane / Bairds Cove
- Glenn McConnell Parkway at Springs at Essex Farms Access
- Glenn McConnell Parkway at Essex Farms Drive
- Glenn McConnell Parkway at Charlie Hall Boulevard

Figure 1 graphically depicts the project study area and highlights the critical study area intersections which are to be studied/analyzed.

TRAFFIC VOLUME DATA

In order to determine the existing traffic volume flow patterns within the study area, manual turning movement count data was collected. Weekday morning (7:00-9:00 AM) and evening (4:00-6:00 PM) peak period turning movement specific manual count data was collected for the above-cited nine (9) study area intersections.

It should also be noted that, for informational/balancing purposes, turning movement specific manual count data was collected for the Glenn McConnell Parkway at Magwood Drive intersection and the upstream/downstream traffic flow impacts of this signalized intersection have also been accounted for in all study area analyses. The operational characteristics for this intersection have not



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NOT TO SCALE

Figure 1

PROJECT STUDY AREA

Glenn McConnell Parkway Widening Project
Charleston County, SC

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ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design

been formally accounted for/reported as part of this Transportation Planning Study due to the fact that it is currently included in the SCDOT's I-526 (Mark Clark Expressway) improvement project.

During the data collection activities, it was noted that the following intersections exhibit high turning movement volumes outside of the standard/normal commuter peaks due to the influence of local schools:

- Glenn McConnell Parkway at William E. Murray Boulevard / Goodwill Way
- Glenn McConnell Parkway at West Wildcat Boulevard / Mary Ader Avenue

As such, a third review period (School Arrival Peak-Hour) has been included for these two (2) specific study area intersections. Existing turning movement data for the School Arrival peak-hour was taken directly from the Traffic Impact Analysis (TIA) completed for the proposed C.E. Williams Middle School project. A copy of the applicable volumetric figures is included in the Appendix of this document.

Figures 2-4 graphically depict the Existing School Arrival, Commuter AM and Commuter PM peak-hour traffic volumes at the study area intersections. The raw data collection sheets for all cited intersections are included in the Appendix of this document.

In addition to the collected intersection specific peak-hour turning movement data, the most up-to-date Average Annual Daily Traffic (AADT) volume information was obtained from the South Carolina Department of Transportation (SCDOT) for all available study area roadway segments.

Table 1 depicts the collected AADT volume information for all available applicable study area roadway segments.

Table 1
SCDOT AADT INFORMATION

Glenn McConnell Parkway Roadway Segment	SCDOT Sta. #	SCDOT AADT				
		2013	2014	2015	2016	2017
From West Ashley Cr. & Goodwill Way	684	30,100	27,300	33,100	35,300	34,900

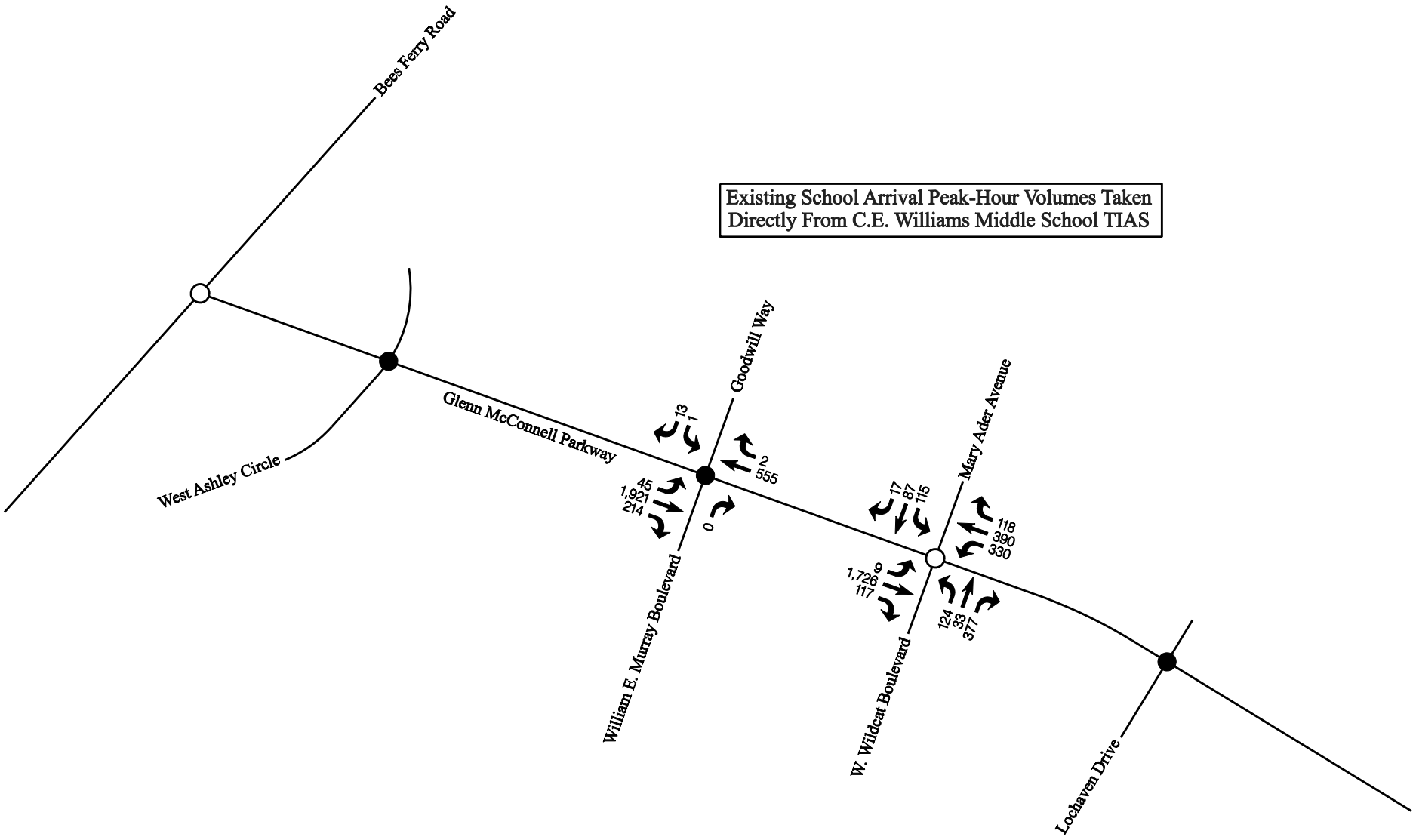

Figure 2

EXISTING TRAFFIC VOLUMES
SCHOOL ARRIVAL PEAK-HOUR

Glenn McConnell Parkway Widening Project : Charleston County, SC

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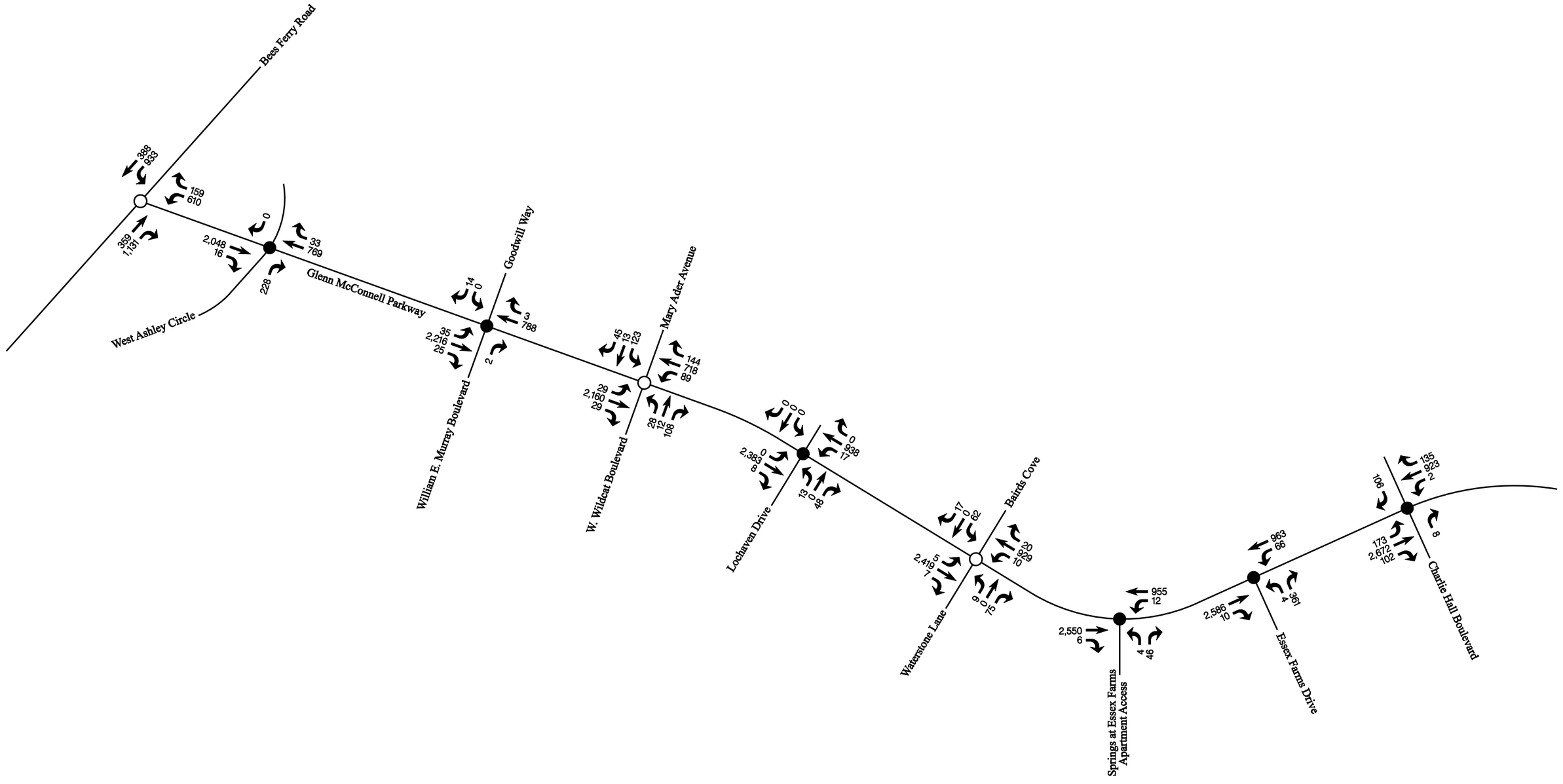

NOT TO SCALE

○ = Signalized Intersection

● = Unsignalized Intersection

Figure 3

2018 EXISTING TRAFFIC VOLUMES AM PEAK-HOUR

Glenn McConnell Parkway Widening Project : Charleston County, SC

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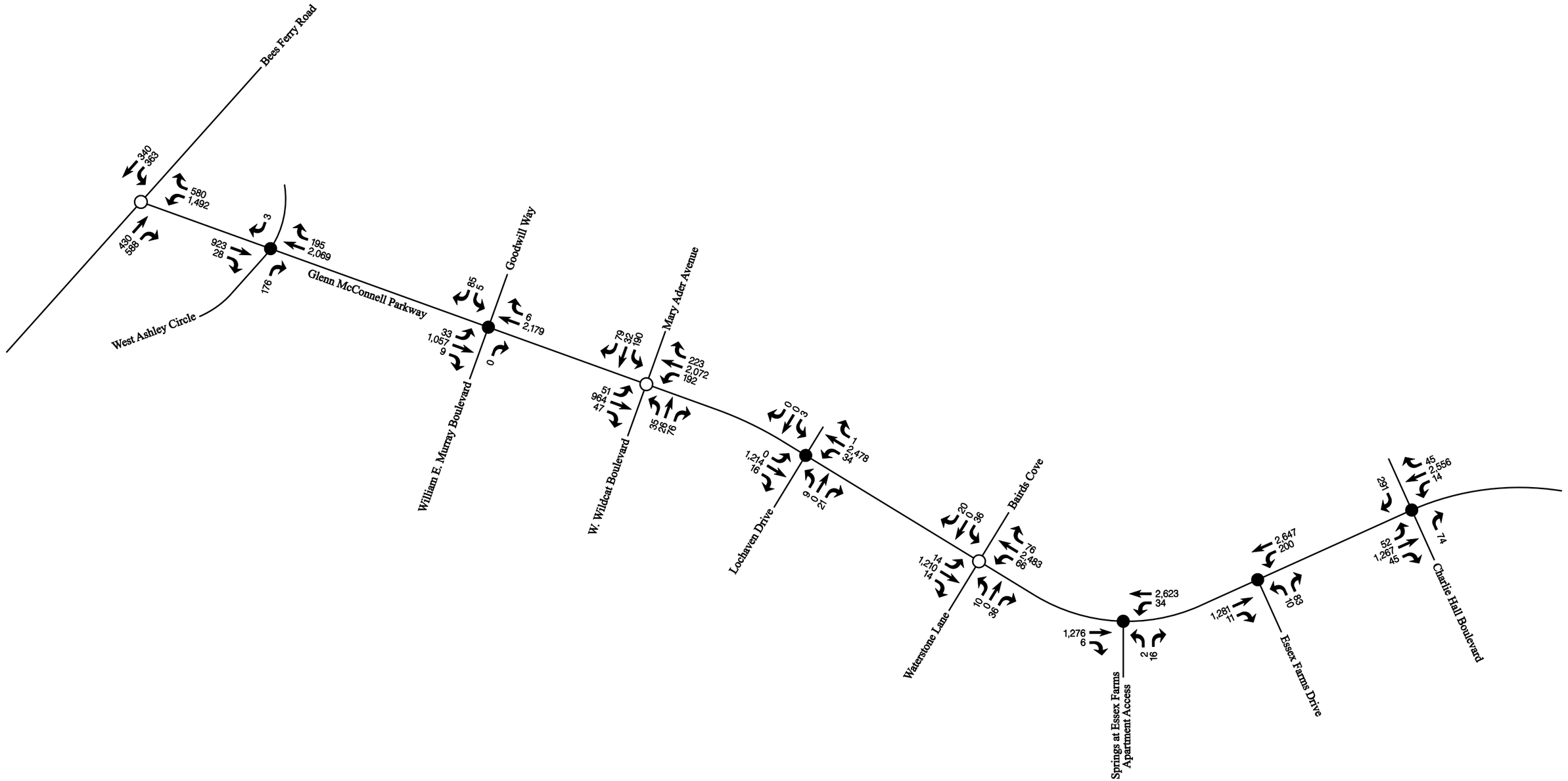


NOT TO SCALE

○ = Signalized Intersection

● = Unsignalized Intersection

Figure 4

2018 EXISTING TRAFFIC VOLUMES PM PEAK-HOUR

Glenn McConnell Parkway Widening Project : Charleston County, SC

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design

FUTURE 2040 DESIGN-YEAR TRAFFIC CONDITIONS

To estimate the future 2040 Design-Year traffic volume conditions within the study area roadway network, existing traffic volumes in the study area were projected to the 2040 Design-Year. Traffic volumes on the roadway network at this time will include all existing traffic, new traffic due to normal growth in the area, and new traffic related to a specific development and/or infrastructure project(s) expected to be completed by 2040 (in excess of normal traffic volume growth). Consideration of these factors resulted in the development of the projected 2040 Design-Year traffic volumes.

ANNUAL GROWTH RATE PROJECTION

Based on a review of historical traffic count data within the primary and peripheral study area, a generalized 1.5-percent per year annual growth rate was determined for usage in this Transportation Planning Study.

TRANSPORTATION MODEL

For comparative purposes, and to provide a potential alternate projection method, the currently approved Charleston Area Transportation Study (CHATS) Long-Range Transportation Plan (LRTP) model was reviewed. This model incorporates historical demographic trends specific to the study area and anticipates the growth in land development as stated in the current zoning plan.

Upon review, and via coordination with Berkeley-Charleston-Dorchester Council of Governments (BCDCOG) staff, it was determined that the current CHATS LRTP transportation model does not provide for the necessary micro/intersection-specific level of detail to warrant its utilization in this specific study area.

A copy of all model data provided by BCDCOG staff is included in the Appendix of this document.

BACKGROUND DEVELOPMENT PROJECTS

The following specific background development project is currently approved and/or permitted and has been assumed to cause an increase/change in traffic volume (in excess of the cited normal annual volume growth) within the immediate study area prior to or concurrent with the 2040 Design Year:

- C.E. Williams Middle School.

Trip generation/distribution information for the C.E. Williams Middle School project, as taken directly from the associated Traffic Impact Study, is included in the Appendix of this document. New trips generated by this cited background development will be accounted for during the School Arrival peak-hour time period.

Although not formally approved, but at the direction of County staff, the following additional development projects have been accounted for due to their likely impact to critical study area intersections:

- 400-Unit Apartment Project along William E. Murray Boulevard, just south of Glenn McConnell Parkway.

- 250-Unit Single-Family Detached Residential Project along Goodwill Way, just north of Glenn McConnell Parkway.

- Mixed-Use Commercial/Retail Project along Essex Farms Drive, just south of Glenn McConnell Parkway.

Given that no formal Traffic Impact Study currently exists for these projects, an estimated trip generation has been calculated and trips were distributed throughout the study area based on a generalized arrival/departure pattern. The estimated trip generation and trip distribution information for these developments is included in the Appendix of this document. New trips generated by these three (3) cited background developments will be accounted for during the Commuter AM and Commuter PM peak-hour time periods.

It should be noted that, to allow for the potential of additional direct access driveways, internal capture, etc., a 25-percent reduction in the total trips generated by the Mixed-Use Commercial/Retail Project along Essex Farms Drive has been assumed.

PLANNED ROADWAY/INTERSECTION IMPROVEMENTS

Per direction from County staff, a traffic signal system upgrade project is planned for the Glenn McConnell Parkway signal system from the West Wildcat Boulevard / Mary Ader Avenue intersection to the Tobias Gadson Boulevard intersection.

A copy of the plan set for this improvement project is included in the Appendix of this document.

Upon review of the provided plan set, the following summarizes the impacts of this project with the study area for this widening project:

- Install FYA (Flash Yellow Arrow) signal heads for all applicable left-turn movements within the study area.

- Re-stripe the northbound (West Wildcat Boulevard) approach to Glenn McConnell Parkway to provide a separate left-turn lane, a shared left-turn/through lane and a separate right-turn lane.

PROJECTED 2040 DESIGN-YEAR VOLUMES

Critical Intersections - Peak-Hour Turning Movement Volumes (*Without Traffic Control Modifications*)

Figures 5-7 depict the resultant/projected 2040 Design-Year study area peak-hour turning movement volumes assuming the cited 1.5-percent annual growth in traffic as well as the inclusion of the cited/applicable background development traffic.

Critical Intersections - Peak-Hour Turning Movement Volumes (*With Traffic Control Modifications*)

Per direction from County staff, traffic control modifications are proposed at two (2) intersections within the project study area.

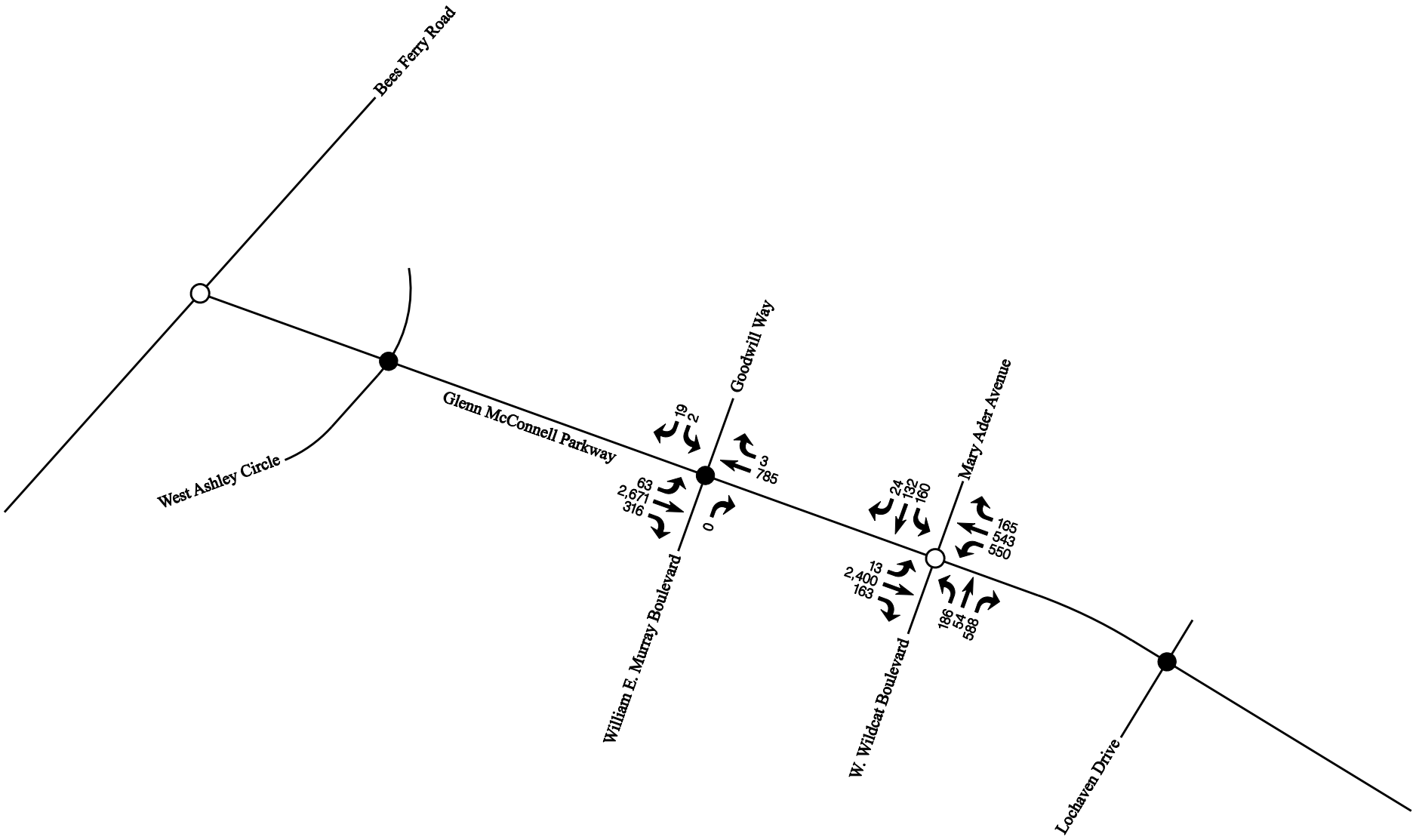
The Glenn McConnell Parkway at William E. Murray Boulevard/Goodwill Way intersection is to be converted to function as a formalized "Leftover Treatment" type intersection. As such, the existing southbound (Goodwill Way) left-turn movement would be removed/prohibited and accommodations would be made to allow for the addition/inclusion of a westbound (Glenn McConnell Parkway) left-turn movement onto William E. Murray Boulevard. Traffic volumes for the Glenn McConnell Parkway at William E. Murray Boulevard/Goodwill Way and Glenn McConnell Parkway at W. Wildcat Boulevard/Mary Ader Avenue intersections will be adjusted to account for the proposed Leftover Treatment.

Based on the existing/projected traffic volumes for the Glenn McConnell Parkway at Essex Farms Drive intersection, the installation of traffic signal control is planned. This traffic control modification will be discussed in detail in later sections of this document. Given the installation of traffic control, it is possible that some percentage of the existing/projected northbound (Essex Farms Drive) right-turn volume may now choose to execute a left-turn movement. To account for this, 10-percent of the projected right-turn volume has been re-assigned to the left-turn movement with applicable adjustments to upstream/downstream intersections along Glenn McConnell Parkway.

Figures 8-10 depict the resultant/projected 2040 Design-Year study area peak-hour turning movement volumes assuming the cited 1.5-percent annual growth, the inclusion of the cited/applicable background development traffic and the assumption of the above-cited traffic control modifications.

Roadway Segments – Average Daily Traffic (ADT)

Weekday daily traffic volumes for all applicable study area roadway segments were projected assuming that the higher peak-hour (AM or PM) volume represents 10-percent (k-factor = 0.10) of the weekday daily traffic volume. **Table 2** reflects the projected 2040 Design-Year weekday daily roadway segment volumes.



NOT TO SCALE

○ = Signalized Intersection

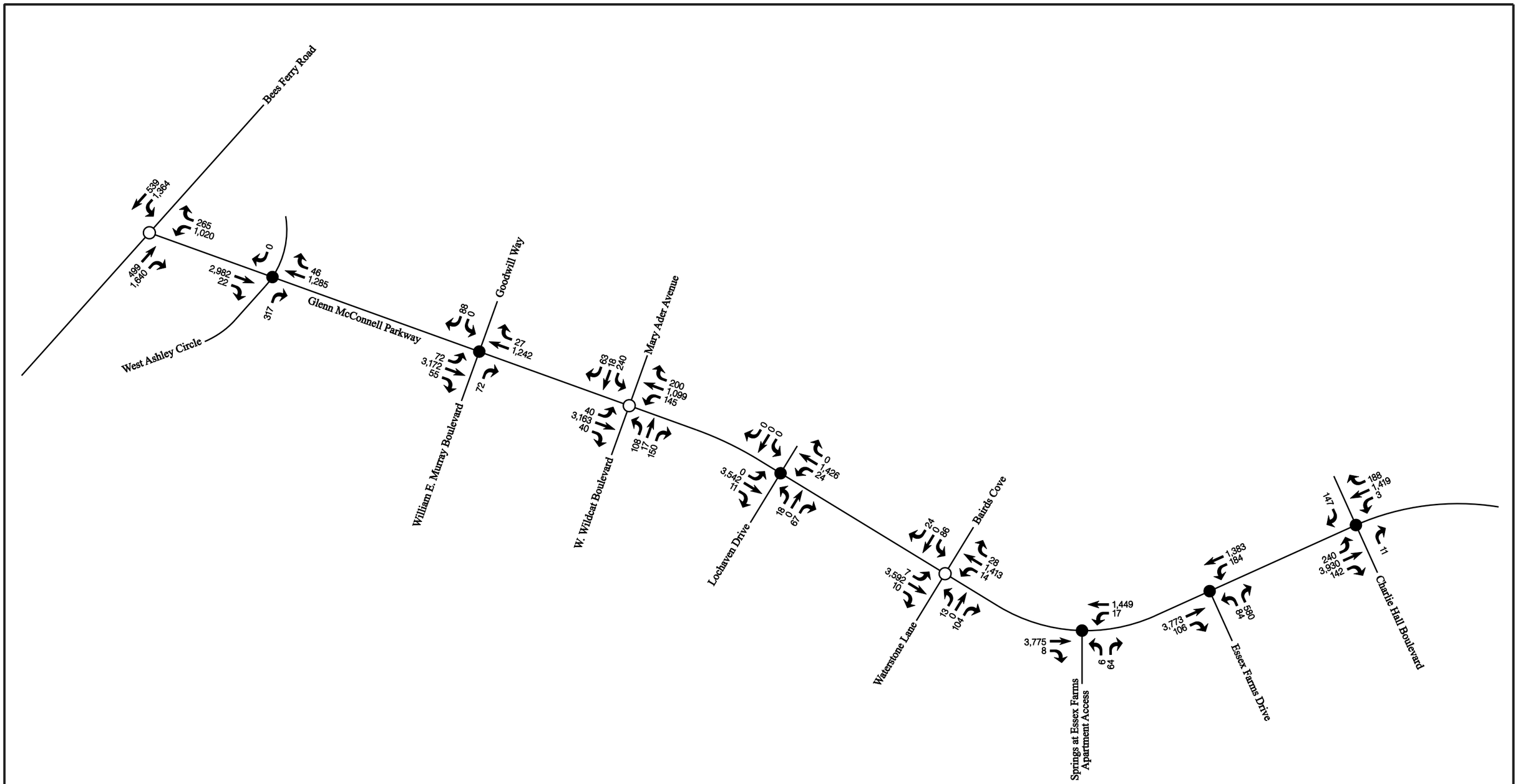
● = Unsignalized Intersection

Figure 5

2040 DESIGN-YEAR TRAFFIC VOLUMES
SCHOOL ARRIVAL PEAK-HOUR - W/O TRAFFIC CONTROL MODS

Glenn McConnell Parkway Widening Project : Charleston County, SC

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design



NOT TO SCALE

○ = Signalized Intersection

● = Unsignalized Intersection

Figure 6

2040 DESIGN-YEAR TRAFFIC VOLUMES
AM PEAK-HOUR - W/O TRAFFIC CONTROL MODS

Glenn McConnell Parkway Widening Project : Charleston County, SC

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design

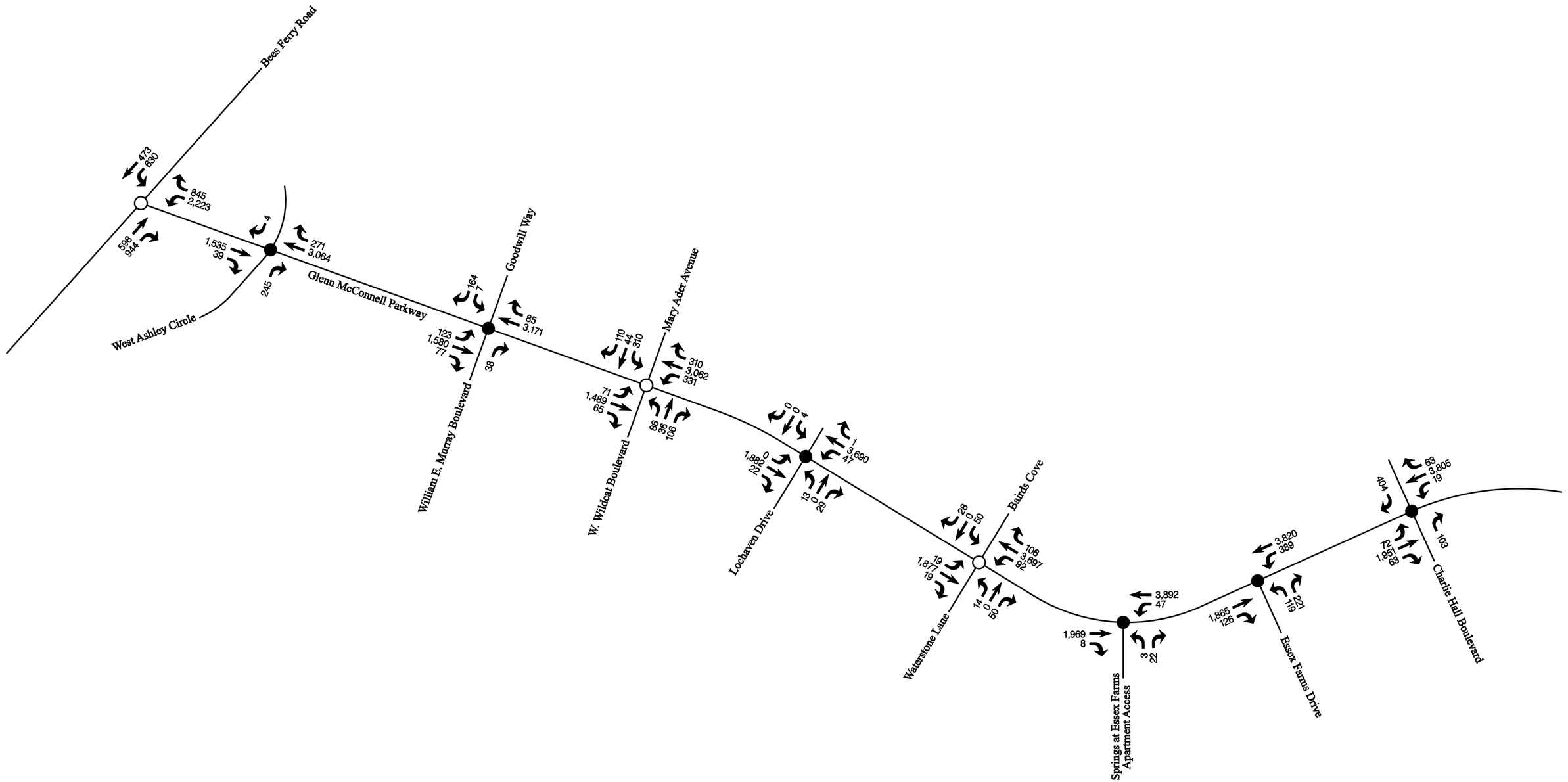
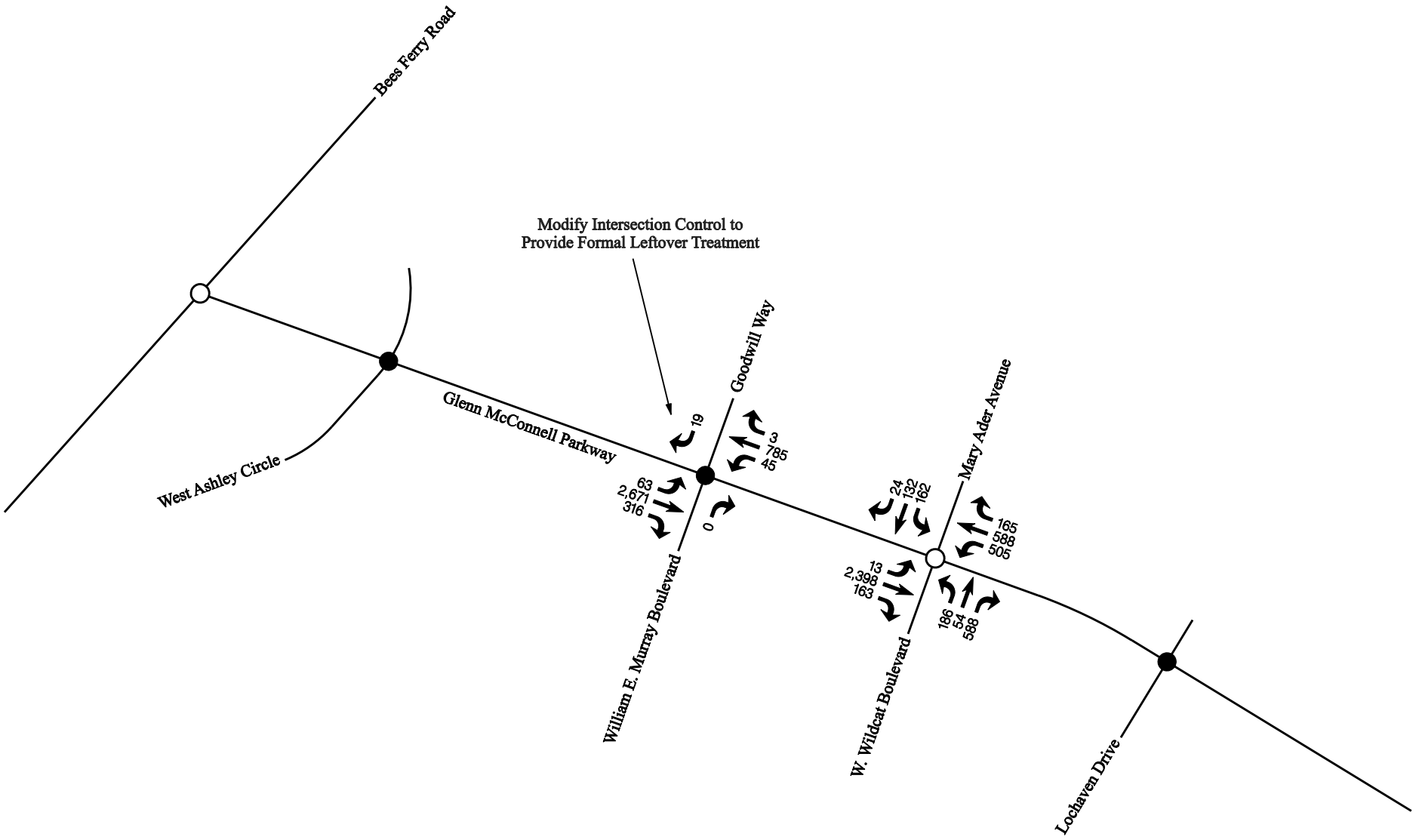


Figure 7

2040 DESIGN-YEAR TRAFFIC VOLUMES
PM PEAK-HOUR - W/O TRAFFIC CONTROL MODS

Glenn McConnell Parkway Widening Project : Charleston County, SC

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design



NOT TO SCALE

○ = Signalized Intersection

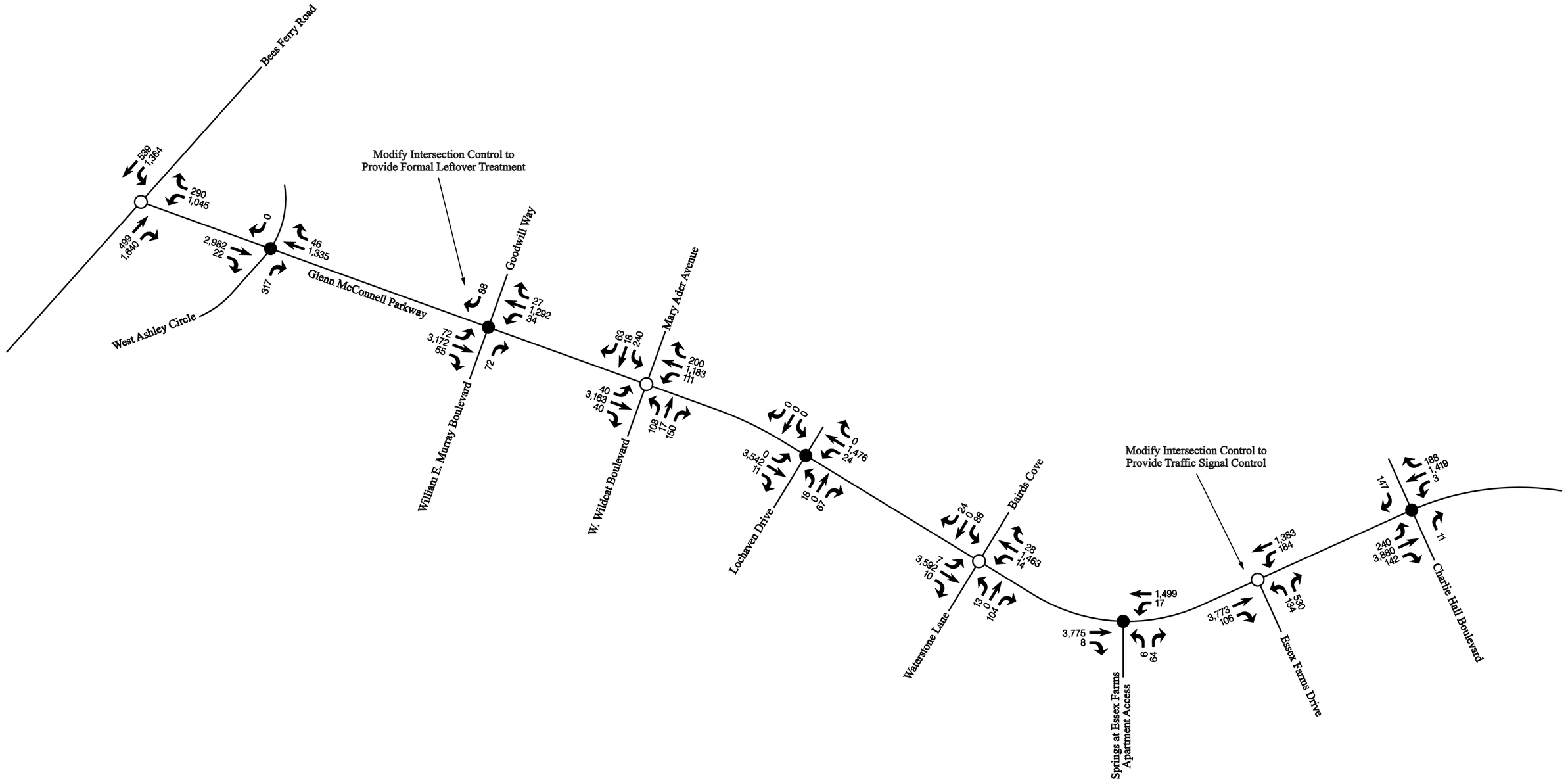
● = Unsignalized Intersection

Figure 8

2040 DESIGN-YEAR TRAFFIC VOLUMES
SCHOOL ARRIVAL PEAK-HOUR - WITH TRAFFIC CONTROL MODS

Glenn McConnell Parkway Widening Project : Charleston County, SC

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design



NOT TO SCALE

○ = Signalized Intersection

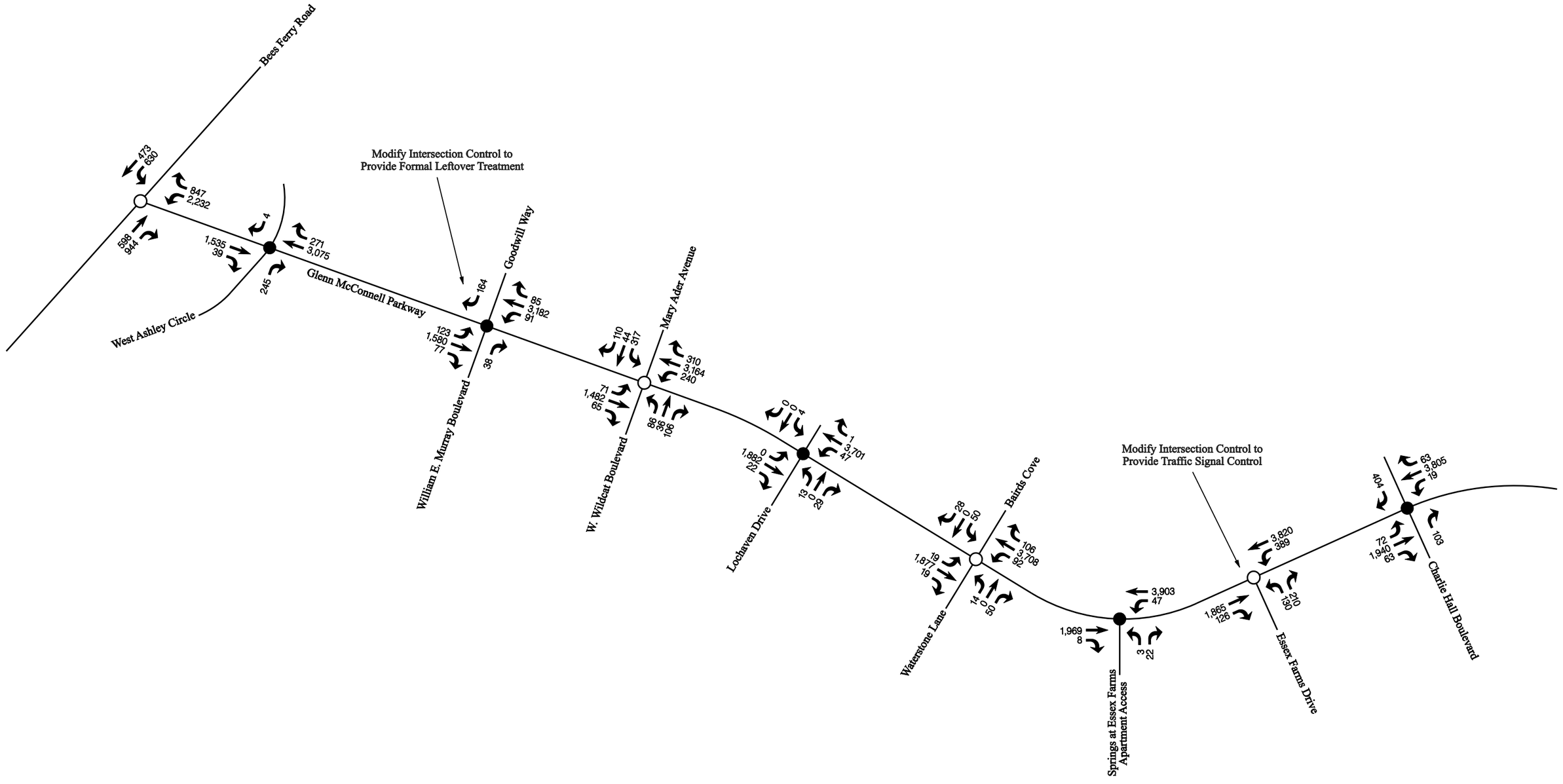
● = Unsignalized Intersection

Figure 9

2040 DESIGN-YEAR TRAFFIC VOLUMES
AM PEAK-HOUR - WITH TRAFFIC CONTROL MODS

Glenn McConnell Parkway Widening Project : Charleston County, SC

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design



NOT TO SCALE

○ = Signalized Intersection

● = Unsignalized Intersection

Figure 10

2040 DESIGN-YEAR TRAFFIC VOLUMES
PM PEAK-HOUR - WITH TRAFFIC CONTROL MODS

Glenn McConnell Parkway Widening Project : Charleston County, SC

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design

Table 2
2040 DESIGN-YEAR WEEKDAY DAILY TRAFFIC VOLUME PROJECTIONS
STUDY AREA ROADWAY SEGMENTS

GLENN McCONNELL PARKWAY ROADWAY SEGMENTS	2040 DESIGN-YEAR ADT WITH CONTROL MODIFICATIONS
Bees Ferry Road to West Ashley Cirle	46,530
West Ashley Circle to William E. Murray Blvd / Goodwill Way	51,260
William E. Murray Blvd / Goodwill Way to W. Wildcat Blvd / Mary Ader Ave	49,780
W. Wildcat Blvd / Mary Ader Ave to Lochaven Drive	56,190
Lochaven Drive to Waterstone Lane / Bairds Cove	56,650
Waterstone Lane / Bairds Cove to Springs at Essex Farms Access	58,830
Springs at Essex Farms Access to Essess Farms Drive	57,410
Essex Farms Drive to Charlie Hall Boulevard	62,840
Charlie Hall Boulevard to Magwood Drive	59,300

FUTURE ROADWAY & INTERSECTION DESIGN

Short Engineering & Consulting, LLC (via coordination with Charleston County and Davis & Floyd, Inc. staff) has developed the following recommended design measures. As previously stated, the primary purpose of this transportation planning study is to ensure that the proposed future widened section of Glenn McConnell Parkway as well as the cited critical corridor intersections are adequately designed (within feasible limitations) to provide the best possible service level for those motorists who are expected to utilize this transportation facility.

ROADWAY CROSS-SECTION

As cited under the Charleston County 2016 Transportation Sales Tax Referendum, the existing Glenn McConnell Parkway roadway cross-section, from Bees Ferry Road (S-57) to Magwood Drive, will be improved/widen to provide a continuous six (6) lane divided cross-section.

In addition to the general pavement widening, and in order to provide connectivity for alternate modes of non-motorized travel, the project will also include the following:

- A continuous 10-foot Multi-Use Path along the south side of Glenn McConnell Parkway from Bees Ferry Road to Magwood Drive.

- Inclusion of all existing CARTA stops with the potential addition of others based on coordination with CARTA staff in the development of the final project design.

Per these above-cited design directives, all subsequent recommendations/analyses will be completed assuming the corresponding arterial cross-section improvements are in-place.

CRITICAL STUDY AREA INTERSECTIONS

The following describes the recommended geometrics and traffic control characteristics to best accommodate the projected 2040 Design-Hour turning movement volumes at each of the defined critical study area intersections. It should be noted that these recommendations were formulated based on several designated limitations (in terms of project scope, available funding, available right-of-way, constructability, etc.) of potential mitigation as set forth by Charleston County/Davis & Floyd, Inc. staff.

Also note that these are general design recommendations. Davis & Floyd, Inc. will provide preliminary design drawings which will be reviewed to ensure compliance with these general design recommendations as well as current SCDOT traffic engineering design guidelines.

Glenn McConnell Parkway (SC 461) at Bees Ferry Road (S-57)

General Intersection Alignment

- Existing general intersection location/alignment to be maintained. No significant re-alignments, etc. are proposed as part of this project.

Westbound (Glenn McConnell Parkway) Approach

- Provide three (3) left-turn lanes to be developed via the termination of the two (2) upstream (inside) through/travel lanes with the construction of a third left-turn lane (with approximately **550**-feet of storage capacity) within the center grassed median area.
- Provide a single separate "free-flow" right-turn lane to be developed via the termination of the upstream (outside) through/travel lane.

Northbound (Bees Ferry Road) Approach

- Provide two (2) through/travel lanes.
- Provide a single separate "free-flow" right-turn lane to be developed via the termination of the upstream (outside) through/travel lane.

Southbound (Bees Ferry Road) Approach

- Provide two (2) left-turn lanes with approximately **300**-feet of (average) storage capacity.
- Provide three (3) through/travel lanes.

Traffic Control

- Existing traffic signal phasing/timing to be generally maintained. See capacity analysis worksheets for assumed phasing/timing operation.

Figure 11 depicts a conceptual design (*as provided by Davis & Floyd*) for the intersection that represents the recommended geometric design.

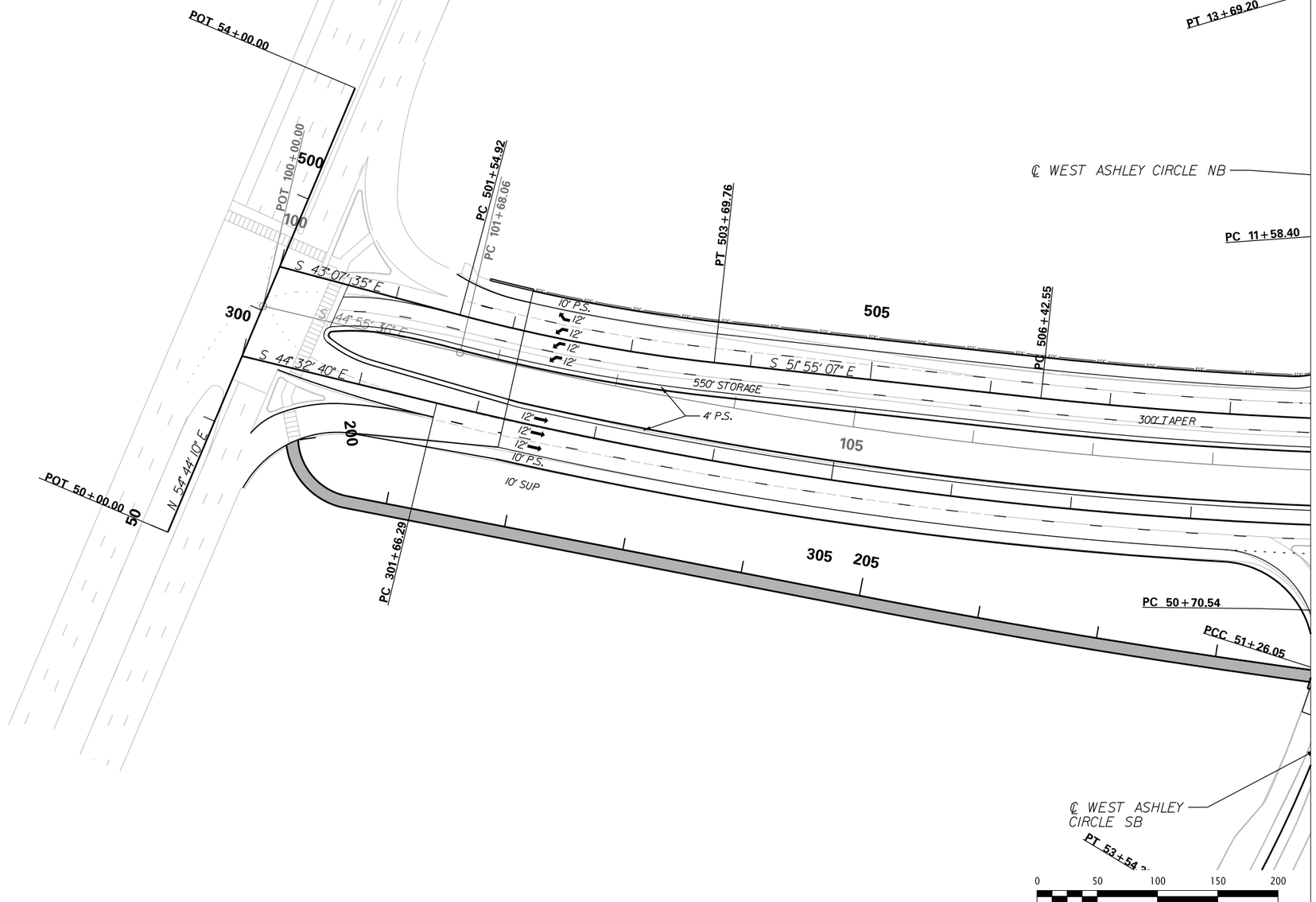
Figure 11

CONCEPTUAL INTERSECTION DESIGN

Glenn McConnell Parkway at Bees Ferry Road

PRELIMINARY PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461		1



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CHARLESTON COUNTY

PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

Glenn McConnell Parkway (SC 461) at West Ashley Circle

General Intersection Alignment

- Existing general intersection location/alignment to be maintained. No significant re-alignments, etc. are proposed as part of this project.

Eastbound (Glenn McConnell Parkway) Approach

- Provide three (3) through/travel lanes where right-turn movements onto West Ashley Circle are executed from the outside through/travel lane.

Westbound (Glenn McConnell Parkway) Approach

- Provide three (3) through/travel lanes.
- Provide a single separate right-turn lane with **250**-feet of storage capacity.

Northbound (West Ashley Circle) Approach

- Provide a single separate right-turn lane to be developed via the termination of the upstream through/travel lane.

Southbound (West Ashley Circle) Approach

- Provide a single separate right-turn lane to be developed via the termination of the upstream through/travel lane.

Traffic Control

- Northbound/southbound (West Ashley Circle) approaches to operate under STOP sign control. It should be noted that, with the proposed widening of Glenn McConnell Parkway, the "free-flow" characteristics of the existing northbound right-turn movement will be removed.

Figure 12 depicts a conceptual design (*as provided by Davis & Floyd*) for the intersection that represents the recommended geometric design.

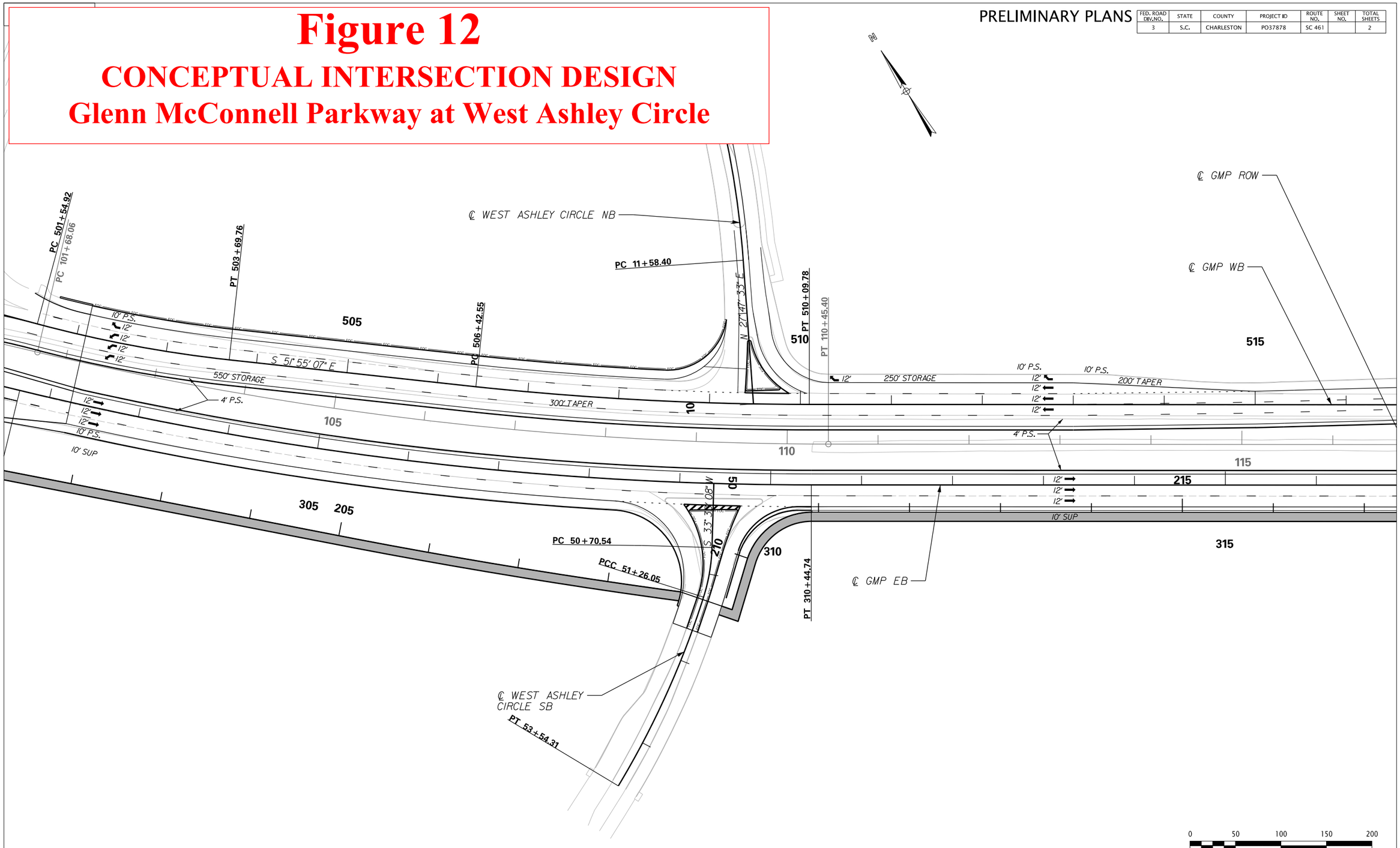
Figure 12

CONCEPTUAL INTERSECTION DESIGN

Glenn McConnell Parkway at West Ashley Circle

PRELIMINARY PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461		2



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PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

Glenn McConnell Parkway at William E. Murray Boulevard / Goodwill Way

General Intersection Alignment

- Existing general intersection location/alignment to be maintained. No significant re-alignments, etc. are proposed as part of this project.

Eastbound (Glenn McConnell Parkway) Approach

- Provide a single separate left-turn lane with **580**-feet of storage capacity.
- Provide three (3) through/travel lanes.
- Provide a single separate right-turn lane with **250**-feet of storage capacity.

Westbound (Glenn McConnell Parkway) Approach

- Provide a single separate left-turn lane with **370**-feet of storage capacity.
- Provide three (3) through/travel lanes.
- Provide a single separate right-turn lane with **200**-feet of storage capacity.

Northbound (William E. Murray Boulevard) Approach

- Provide a single separate right-turn lane to be developed via the termination of the upstream through/travel lane.

Southbound (Goodwill Way) Approach

- Provide a single separate right-turn lane to be developed via the termination of the upstream through/travel lane.

Traffic Control

- As previously mentioned, traffic control for this intersection will be modified to allow for a formalized Leftover Treatment. Place northbound (William E. Murray Boulevard) and southbound (Goodwill Way) approaches under STOP sign control.

Figure 13 depicts a conceptual design (*as provided by Davis & Floyd*) for the intersection that represents the recommended geometric design.

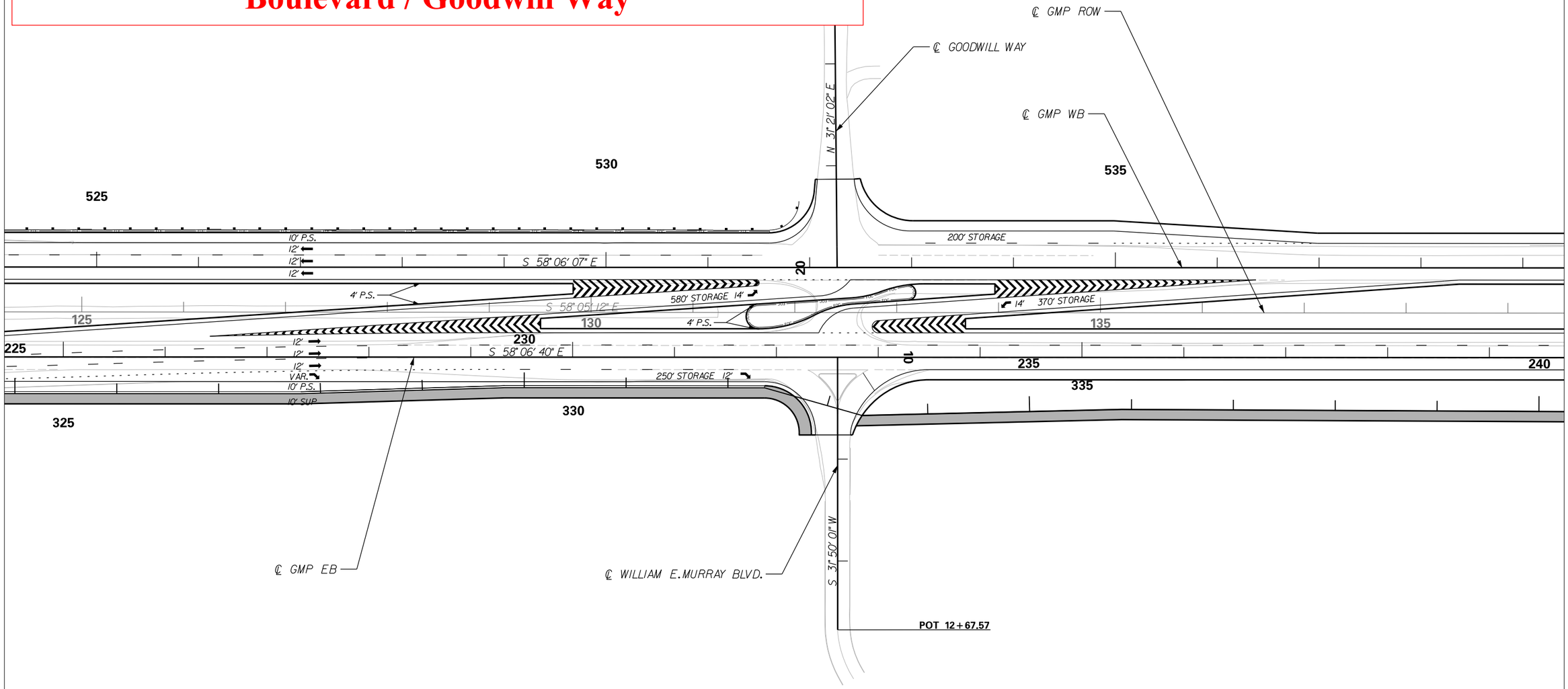
Figure 13

CONCEPTUAL INTERSECTION DESIGN

Glenn McConnell Parkway at William E. Murray Boulevard / Goodwill Way

PRELIMINARY PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	3	



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CHARLESTON COUNTY

PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

Glenn McConnell Parkway at West Wildcat Boulevard / Mary Ader Avenue

General Intersection Alignment

- Existing general intersection location/alignment to be maintained. No significant re-alignments, etc. are proposed as part of this project.

Eastbound (Glenn McConnell Parkway) Approach

- Provide a single separate left-turn lane with **485**-feet of storage capacity.
- Provide three (3) through/travel lanes.
- Provide a single separate right-turn lane with **150**-feet of storage capacity.

Westbound (Glenn McConnell Parkway) Approach

- Provide two (2) left-turn lanes with approximately **330**-feet of (average) storage capacity.
- Provide three (3) through/travel lanes.
- Provide a single separate right-turn lane with **250**-feet of storage capacity.

Northbound (West Wildcat Boulevard) Approach

- Provide two (2) left-turn lanes with approximately **275**-feet of storage capacity.
- Provide one (1) through/travel lane.
- Provide a single separate right-turn lane with **275**-feet of storage capacity.

Southbound (Mary Ader Avenue) Approach

- Provide a single separate left-turn lane with **150**-feet of storage capacity.
- Provide one (1) through/travel lane.
- Provide a single separate right-turn lane with **230**-feet of storage capacity.

Traffic Control

- Existing "split-phase" traffic signal control to be removed to allow for implementation of more traditional/standardized signal phasing with above-cited geometric improvements. See capacity analysis worksheets for assumed phasing/timing operation.

Figure 14 depicts a conceptual design (*as provided by Davis & Floyd*) for the intersection that represents the recommended geometric design.

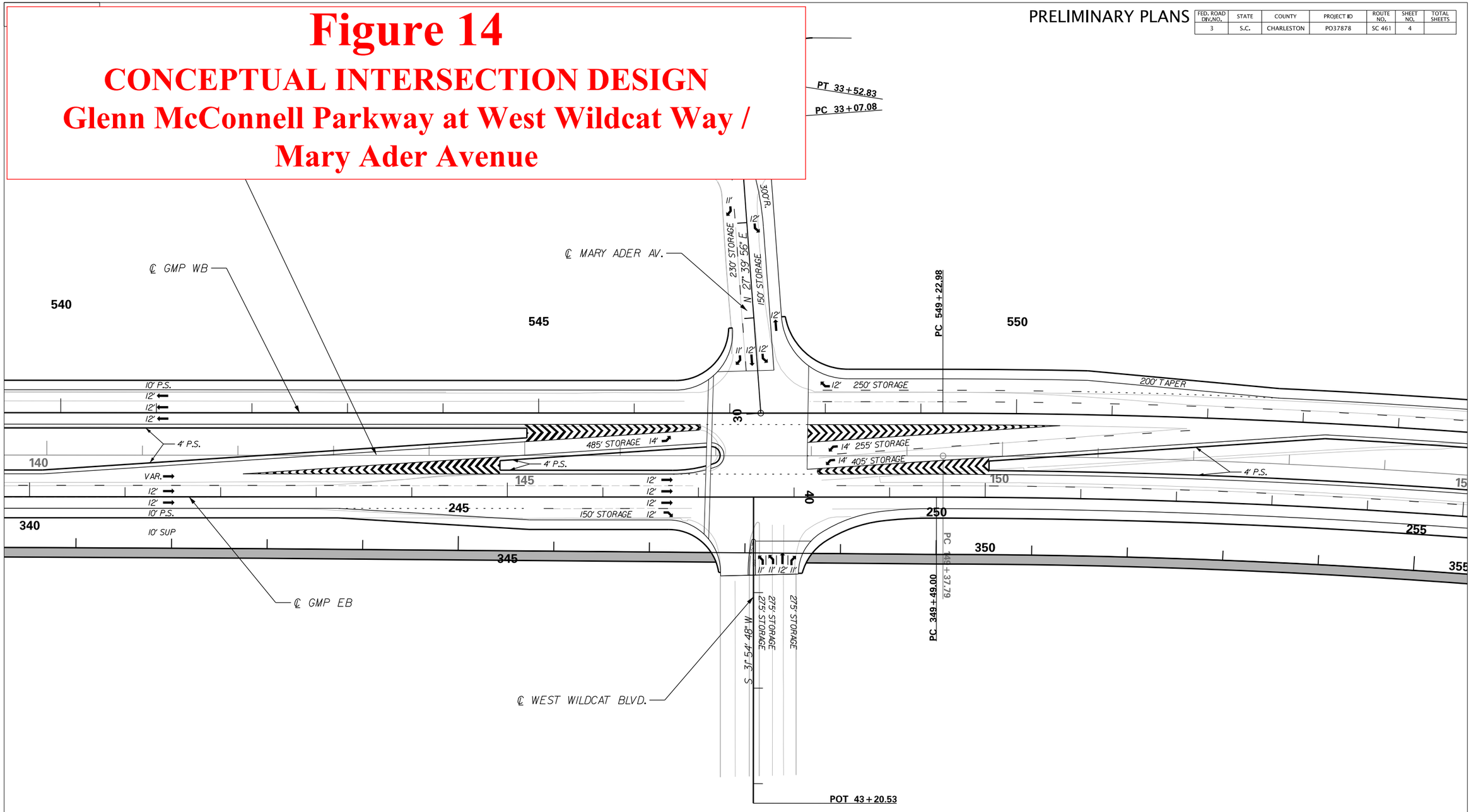
Figure 14

CONCEPTUAL INTERSECTION DESIGN

Glenn McConnell Parkway at West Wildcat Way / Mary Ader Avenue

PRELIMINARY PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	4	



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CHARLESTON COUNTY

PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

Glenn McConnell Parkway at Lochaven Drive

General Intersection Alignment

- Existing general intersection location/alignment to be maintained. No significant re-alignments, etc. are proposed as part of this project.

Eastbound (Glenn McConnell Parkway) Approach

- Provide a single separate left-turn lane with **370**-feet of storage capacity.
- Provide three (3) through/travel lanes where right-turn movements onto Lochaven Drive are executed from the outside through/travel lane.

Westbound (Glenn McConnell Parkway) Approach

- Provide a single separate left-turn lane with **360**-feet of storage capacity.
- Provide three (3) through/travel lanes where right-turn movements onto Lochaven Drive are executed from the outside through/travel lane.

Northbound (Lochaven Drive) Approach

- Provide a shared left-turn/through lane.
- Provide a single separate right-turn lane with **100**-feet of storage capacity.

Southbound (Lochaven Drive) Approach

- Provide a shared left-turn/through lane.
- Provide a single separate right-turn lane with **50**-feet of storage capacity.

Traffic Control

- Northbound/southbound (Lochaven Drive) approaches to operate under STOP sign control.

Figure 15 depicts a conceptual design (*as provided by Davis & Floyd*) for the intersection that represents the recommended geometric design.

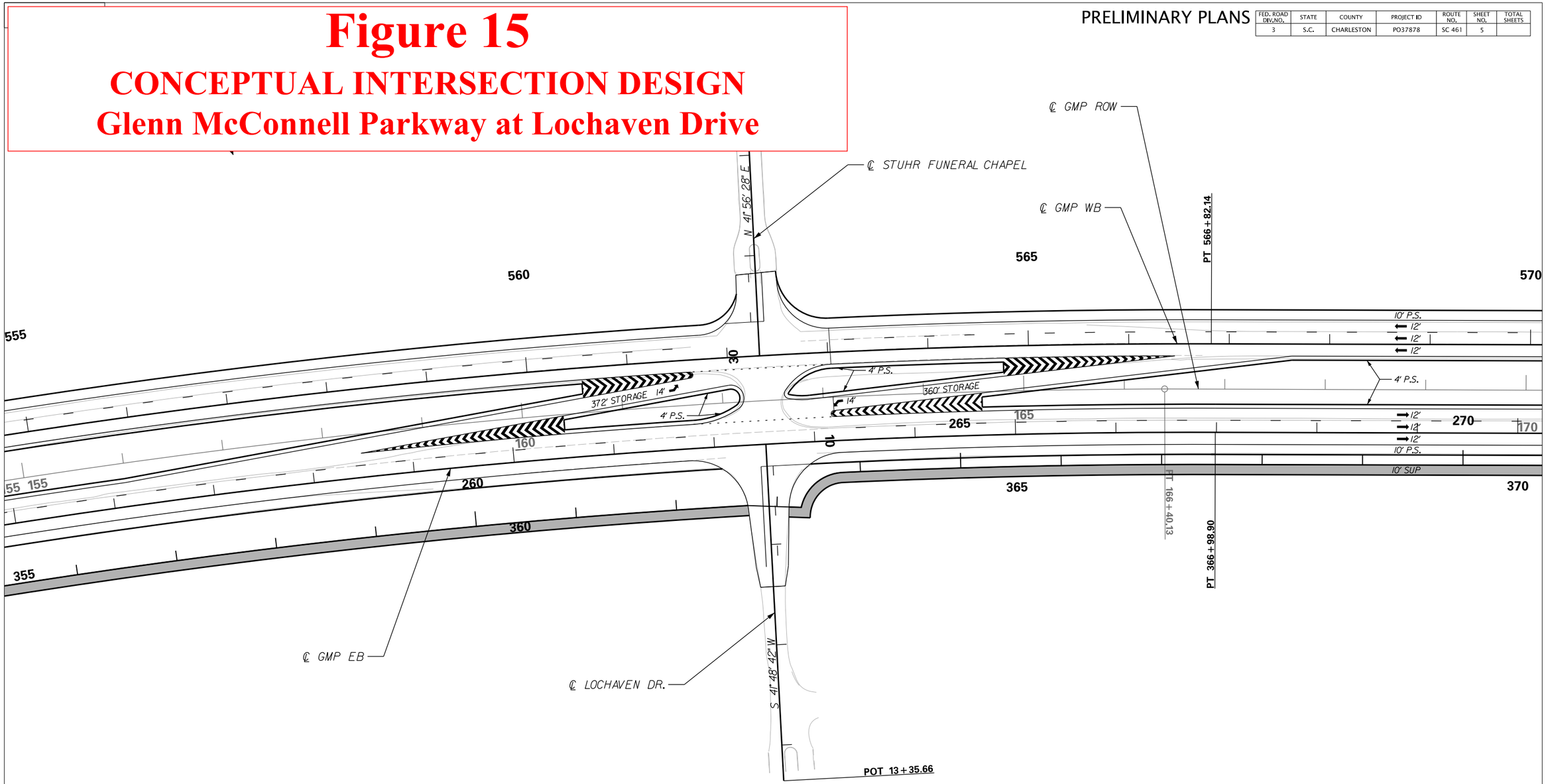
Figure 15

CONCEPTUAL INTERSECTION DESIGN

Glenn McConnell Parkway at Lochaven Drive

PRELIMINARY PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	5	



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PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

Glenn McConnell Parkway at Waterstone Lane / Bairds Cove

General Intersection Alignment

- Existing general intersection location/alignment to be maintained. No significant re-alignments, etc. are proposed as part of this project.

Eastbound (Glenn McConnell Parkway) Approach

- Provide a single separate left-turn lane with **500**-feet of storage capacity.
- Provide three (3) through/travel lanes where right-turn movements onto Waterstone Lane are executed from the outside through/travel lane.

Westbound (Glenn McConnell Parkway) Approach

- Provide a single separate left-turn lane with **300**-feet of storage capacity.
- Provide three (3) through/travel lanes.
- Provide a single separate right-turn lane with **100**-feet of storage capacity.

Northbound (Waterstone Lane) Approach

- Provide a single separate left-turn lane with **150**-feet of storage capacity.
- Provide a single shared through/right-turn lane.

Southbound (Bairds Cove) Approach

- Provide a single separate left-turn lane with **200**-feet of storage capacity.
- Provide a single shared through/right-turn lane.

Traffic Control

- Existing traffic signal phasing/timing to be generally maintained. See capacity analysis worksheets for assumed phasing/timing operation.

Figure 16 depicts a conceptual design (*as provided by Davis & Floyd*) for the intersection that represents the recommended geometric design.

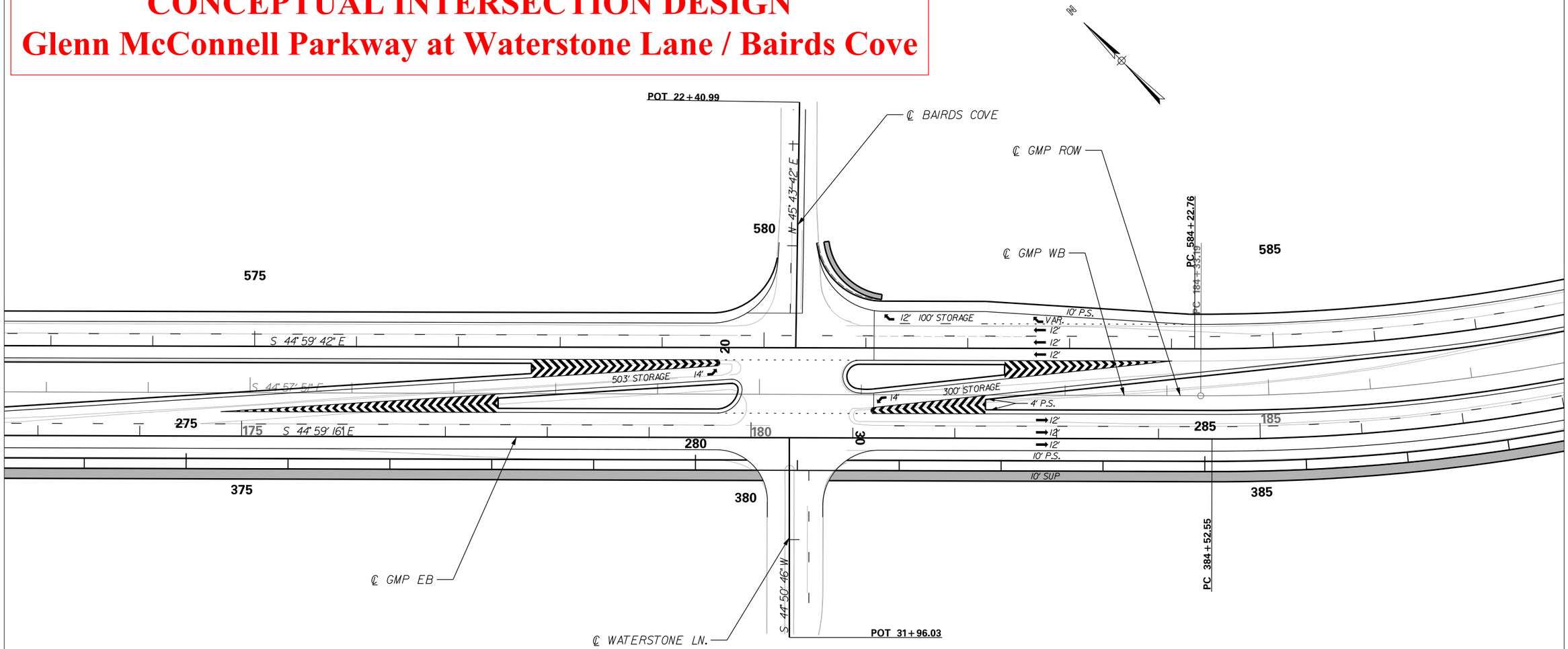
Figure 16

CONCEPTUAL INTERSECTION DESIGN

Glenn McConnell Parkway at Waterstone Lane / Bairds Cove

PRELIMINARY PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	6	



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CHARLESTON COUNTY

PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

Glenn McConnell Parkway at Springs at Essex Farms Access

General Intersection Alignment

- Existing general intersection location/alignment to be maintained. No significant re-alignments, etc. are proposed as part of this project.

Eastbound (Glenn McConnell Parkway) Approach

- Provide three (3) through/travel lanes where right-turn movements onto the Springs at Essex Farms access roadway are executed from the outside through/travel lane.

Westbound (Glenn McConnell Parkway) Approach

- Provide a single separate left-turn lane with **300**-feet of storage capacity.
- Provide three (3) through/travel lanes.

Northbound (Springs at Essex Farms Access) Approach

- Northbound (Springs at Essex Farms Access) approach to provide a separate left-turn lane and a separate right-turn lane where each provide full-width storage for approximately **250**-feet prior to tapering back to a single lane.

Traffic Control

- Northbound (Springs at Essex Farms Access) approach to operate under STOP sign control.

Figure 17 depicts a conceptual design (*as provided by Davis & Floyd*) for the intersection that represents the recommended geometric design.

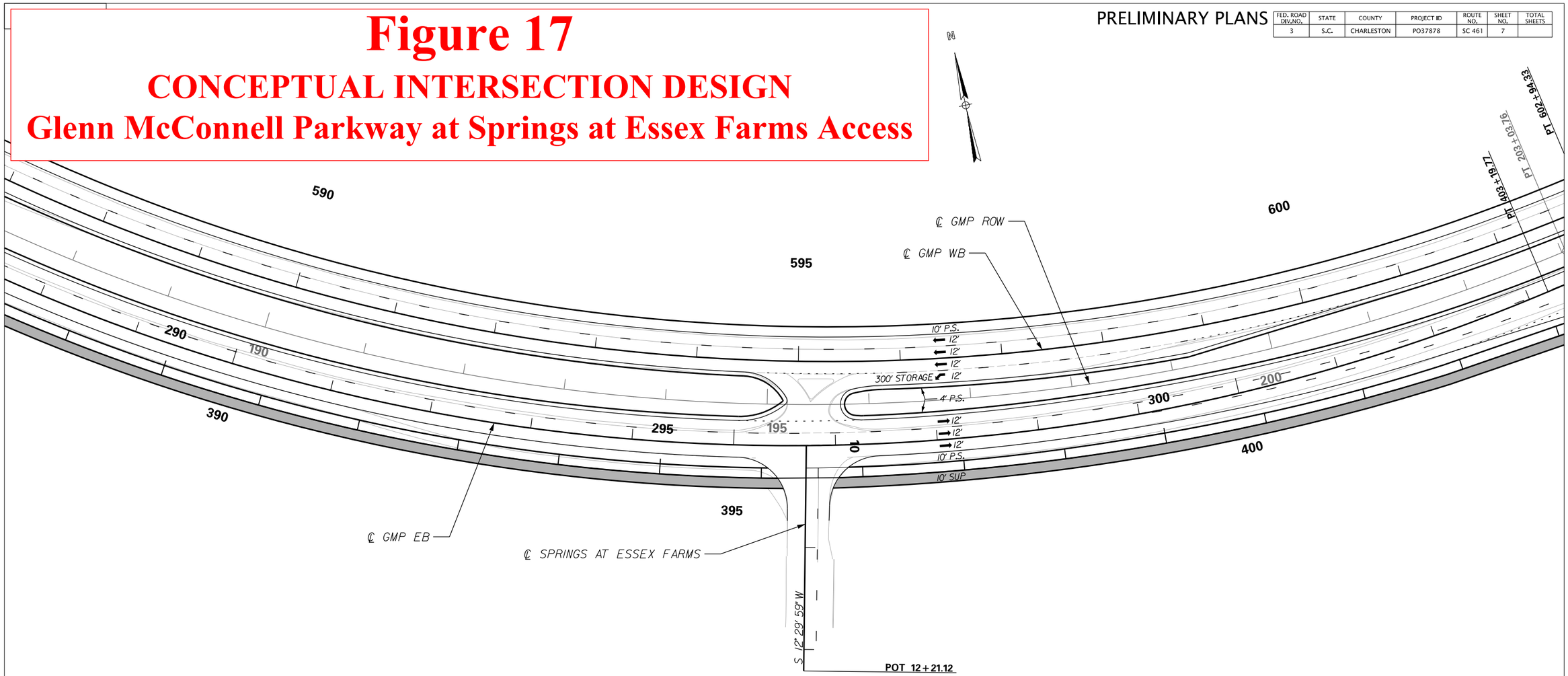
Figure 17

CONCEPTUAL INTERSECTION DESIGN

Glenn McConnell Parkway at Springs at Essex Farms Access

PRELIMINARY PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	7	



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PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

Glenn McConnell Parkway at Essex Farms Drive

General Intersection Alignment

- Existing general intersection location/alignment to be maintained. No significant re-alignments, etc. are proposed as part of this project.

Eastbound (Glenn McConnell Parkway) Approach

- Provide three (3) through/travel lanes.
- Provide a single separate right-turn lane with **250**-feet of storage capacity.

Westbound (Glenn McConnell Parkway) Approach

- Provide dual (2) separate left-turn lanes with **300**-feet of storage capacity.

  It should be noted that, for the purposes of this Transportation Planning Study, only one (1) of the separate left-turn lanes has been assumed to be in operation with the second to be striped out for potential future use. This is due to the fact that only a single receiving lane exists along Essex Farms Drive. It is assumed that, when the previously cited commercial/retail project is realized along Essex Farms Drive, additional infrastructure will be implemented (*to be the responsibility of the developer*) that will include the widening of Essex Farms Drive to allow for two (2) receiving lanes and thus allowing for dual (2) left-turn movements from Glenn McConnell Parkway.

- Provide three (3) through/travel lanes.

Northbound (Essex Farms Drive) Approach

- Provide a shared left-turn/right-turn lane to be developed via the termination of the upstream though/travel lane.
- Provide a single separate right-turn lane with **150**-feet of storage capacity.

  As cited above, a large-scale commercial/retail development is planned along Essex Farms Drive. It is assumed that, when the planned commercial/retail project is realized along Essex Farms, additional infrastructure will be implemented (*to be the responsibility of the developer*) that will include the widening of Essex Farms Drive to allow for a minimum of three (3) approach lanes.

  This additional infrastructure has not been accounted for as part of the County's Glenn McConnell Parkway widening project.

Figure 18 depicts a conceptual design (*as provided by Davis & Floyd*) for the intersection that represents the recommended geometric design.

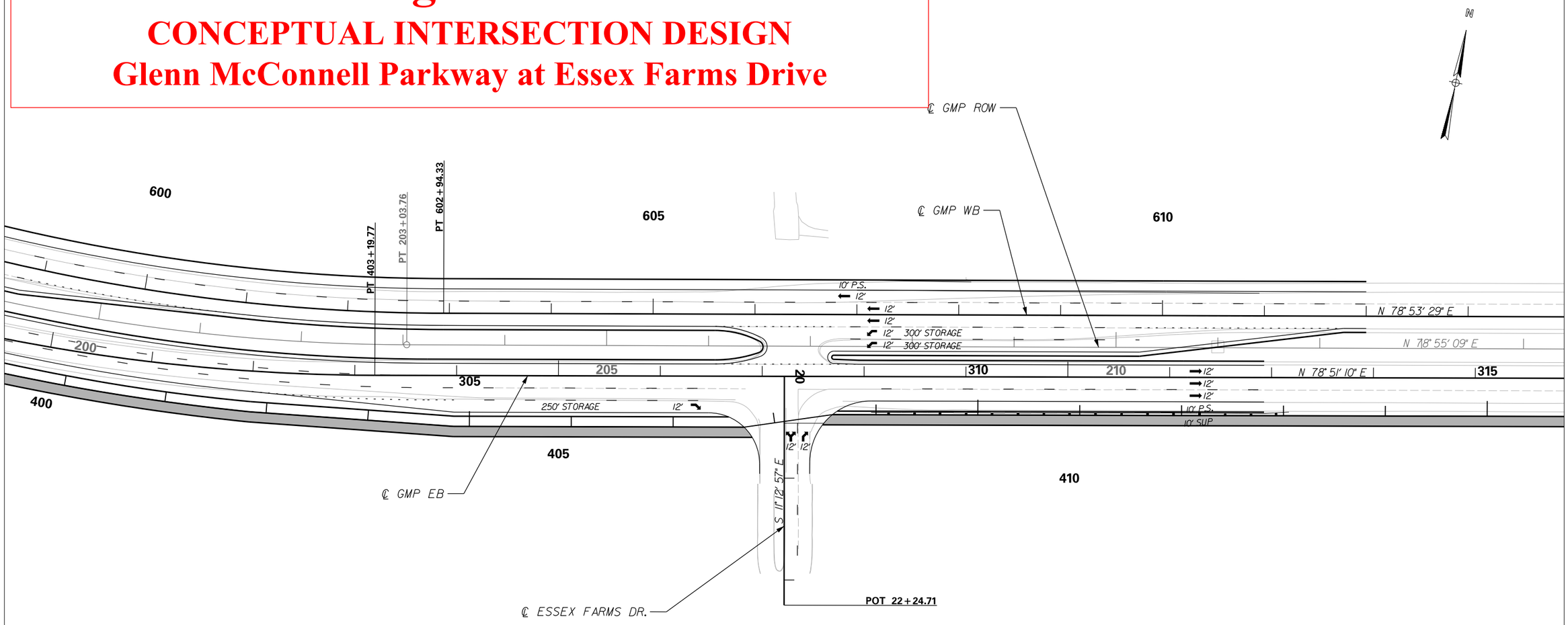
Figure 18

CONCEPTUAL INTERSECTION DESIGN

Glenn McConnell Parkway at Essex Farms Drive

PRELIMINARY PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461	8	



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4/22/2019

SOUTH CAROLINA — DAVIS & FLOYD, INC. — No. C00538 — CERTIFICATE OF AUTHORIZATION

240 STONERIDGE DRIVE, SUITE 305
COLUMBIA, SC 29210
(803) 256-4121

DAVIS & FLOYD
SINCE 1954

REV. NO.	BY	DATE	DESCRIPTION OF REVISION
5			
4			
3			
2			
1			

DESIGNED BY PLD DRAWN BY PLD CHECKED BY JKL

CHARLESTON COUNTY

PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

Traffic Control

- Install multi-phased traffic signal control with appropriate phasing/timing to accommodate the projected geometric design and traffic volumes. See capacity analysis worksheets for assumed phasing/timing operation.

Traffic Signal Warrants Study (TSWS)

As part of this Transportation Planning Study, a traffic signal warrants analysis has been conducted for the Glenn McConnell Parkway at Essex Farms Drive intersection in accordance with the most recent *Manual on Uniform Traffic Control Devices* (MUTCD[1]). This analysis was conducted to determine if the traffic volumes under Existing Conditions meet the minimum volume requirements of the MUTCD to justify the installation of traffic signal control. The following specific MUTCD warrants were used/examined:

- Warrant 1 (Condition A), Minimum Vehicular Volume
- Warrant 1 (Condition B), Interruption of Continuous Traffic
- Warrant 2, Four-Hour Volumes
- Warrant 3, Peak-Hour Volumes

In order to gather the traffic volume data necessary to perform this TSWS, traffic volume data for this intersection was collected for a 12-hour period (7:00 AM – 7:00 PM) on a typical weekday. The raw data collection sheets are included in the Appendix of this document.

A summary of the formal traffic signal warrants analysis is provided in **Tables 3a** (minor-street as one-lane approach) & **3b** (minor-street as two-lane approach).

1 *Manual on Uniform Traffic Control Devices*; Federal Highway Administration, Washington, DC, 2009 Edition.

Table 3a
TRAFFIC SIGNAL WARRANT ANALYSIS[a]
Glenn McConnell Parkway at Essex Farms Drive
Minor-Street as One-Lane Approach

	Traffic Volumes (vph[b])		MUTCD Warrant			
Time	Major Street[c]	Minor Street[d]	1A[e]	1B[f]	2[g]	3[h]
7:00 AM - 8:00 AM	2,503	124	YES	YES	YES	YES
8:00 AM - 9:00 AM	3,069	487	YES	YES	YES	YES
9:00 AM - 10:00 AM	3,243	267	YES	YES	YES	YES
10:00 AM - 11:00 AM	2,405	86	NO	YES	YES	YES
11:00 AM - 12:00 NOON	2,351	72	NO	YES	YES	NO
12:00 NOON - 1:00 PM	2,578	74	NO	YES	YES	NO
1:00 PM - 2:00 PM	3,009	91	NO	YES	YES	YES
2:00 PM - 3:00 PM	2,948	91	NO	YES	YES	YES
3:00 PM - 4:00 PM	3,304	99	NO	YES	YES	YES
4:00 PM - 5:00 PM	3,506	76	NO	YES	YES	YES
5:00 PM - 6:00 PM	3,584	90	NO	YES	YES	YES
6:00 PM - 7:00 PM	3,564	105	YES	YES	YES	YES
SIGNAL WARRANT MET			**NO**	**YES**	**YES**	**YES**

a. This analysis assumes the existing geometry of the minor street approach as a one-lane approach and a major street speed limit of more than 40 miles-per-hour.
b. Vehicles-per-hour.
c. The major street is Glenn McConnell Parkway and the volumes reflect the approach totals (through movements only) for both eastbound and westbound traffic.
d. The minor street utilized in the signal warrants analysis is Essex Farms Drive. Volumes reflect the right-turn movement ONLY.
e. Warrant 1 (Condition A), Minimum Vehicular Volume, is satisfied for any hour if the total vehicles-per-hour on both approaches of the major street is at least 420 and the total vehicles-per-hour on the minor street approach is at least 105. These thresholds must be satisfied for at least eight hours of the day.
f. Warrant 1 (Condition B), Interruption of Continuous Traffic, is satisfied for any hour if the total vehicles-per-hour on both approaches of the major street is at least 630 and the total vehicles-per-hour on the minor street approach is at least 53. These thresholds must be satisfied for at least eight hours of the day.
g. Warrant 2, Four Hour Volumes, is met when, for each of any four hours of the day, plotted traffic volumes fall above the appropriate curve shown in Figure 4C-2 on page 440 of the MUTCD.
h. Warrant 3, Peak Hour Volume Warrant, is met when, for one hour of the day, plotted traffic volumes fall above the appropriate curve shown in Figure 4C-4 on page 441 of the MUTCD.

Table 3b
TRAFFIC SIGNAL WARRANT ANALYSIS[a]
Glenn McConnell Parkway at Essex Farms Drive
Minor-Street as Two-Lane Approach

	Traffic Volumes (vph[b])		MUTCD Warrant			
Time	Major Street[c]	Minor Street[d]	1A[e]	1B[f]	2[g]	3[h]
7:00 AM - 8:00 AM	2,503	130	NO	YES	YES	YES
8:00 AM - 9:00 AM	3,069	489	YES	YES	YES	YES
9:00 AM - 10:00 AM	3,243	270	YES	YES	YES	YES
10:00 AM - 11:00 AM	2,405	91	NO	YES	YES	NO
11:00 AM - 12:00 NOON	2,351	81	NO	YES	YES	NO
12:00 NOON - 1:00 PM	2,578	87	NO	YES	YES	NO
1:00 PM - 2:00 PM	3,009	97	NO	YES	YES	NO
2:00 PM - 3:00 PM	2,948	100	NO	YES	YES	YES
3:00 PM - 4:00 PM	3,304	113	NO	YES	YES	YES
4:00 PM - 5:00 PM	3,506	81	NO	YES	YES	NO
5:00 PM - 6:00 PM	3,584	95	NO	YES	YES	NO
6:00 PM - 7:00 PM	3,564	112	NO	YES	YES	YES
SIGNAL WARRANT MET			**NO**	**YES**	**YES**	**YES**

a. This analysis assumes the existing geometry of the minor street approach as a two-lane approach and a major street speed limit of more than 40 miles-per-hour.
b. Vehicles-per-hour.
c. The major street is Glenn McConnell Parkway and the volumes reflect the approach totals (through movements only) for both eastbound and westbound traffic.
d. The minor street utilized in the signal warrants analysis is Essex Farms Drive. Volumes reflect left-turn & right-turn movement.
e. Warrant 1 (Condition A), Minimum Vehicular Volume, is satisfied for any hour if the total vehicles-per-hour on both approaches of the major street is at least 420 and the total vehicles-per-hour on the minor street approach is at least 140. These thresholds must be satisfied for at least eight hours of the day.
f. Warrant 1 (Condition B), Interruption of Continuous Traffic, is satisfied for any hour if the total vehicles-per-hour on both approaches of the major street is at least 630 and the total vehicles-per-hour on the minor street approach is at least 70. These thresholds must be satisfied for at least eight hours of the day.
g. Warrant 2, Four Hour Volumes, is met when, for each of any four hours of the day, plotted traffic volumes fall above the appropriate curve shown in Figure 4C-2 on page 440 of the MUTCD.
h. Warrant 3, Peak Hour Volume Warrant, is met when, for one hour of the day, plotted traffic volumes fall above the appropriate curve shown in Figure 4C-4 on page 441 of the MUTCD.

As shown in Tables 3a & 3b, the intersection volumes at the Glenn McConnell Parkway at Essex Farms Drive intersection currently meet MUTCD Warrant #1B, Warrant #2 and Warrant #3 threshold requirements under either minor-street analysis scenario.

It should be noted that Tables 3a/3b only account for existing traffic. The inclusion of the cited retail/commercial development will cause MUTCD warrant thresholds to be greatly exceeded.

Glenn McConnell Parkway at Charlie Hall Boulevard

General Intersection Alignment

- Existing general intersection location/alignment to be maintained. No significant re-alignments, etc. are proposed as part of this project.

Eastbound (Glenn McConnell Parkway) Approach

- Provide a single separate left-turn lane with **200**-feet of storage capacity.
- Provide three (3) through/travel lanes.
- Provide a single separate right-turn lane with **200**-feet of storage capacity.

Westbound (Glenn McConnell Parkway) Approach

- Provide a single separate left-turn lane with **250**-feet of storage capacity.
- Provide three (3) through/travel lanes.
- Provide a single separate right-turn lane with **250**-feet of storage capacity.

Northbound (Charlie Hall Boulevard) Approach

- Provide a single separate right-turn lane to be developed via the termination of the upstream through/travel lane.

Southbound (Charlie Hall Boulevard) Approach

- Provide a single separate right-turn lane to be developed via the termination of the upstream through/travel lane.

Traffic Control

- Northbound/southbound (Charlie Hall Boulevard) approaches to operate under STOP sign control.

Figure 19 depicts a conceptual design (*as provided by Davis & Floyd*) for the intersection that represents the recommended geometric design.

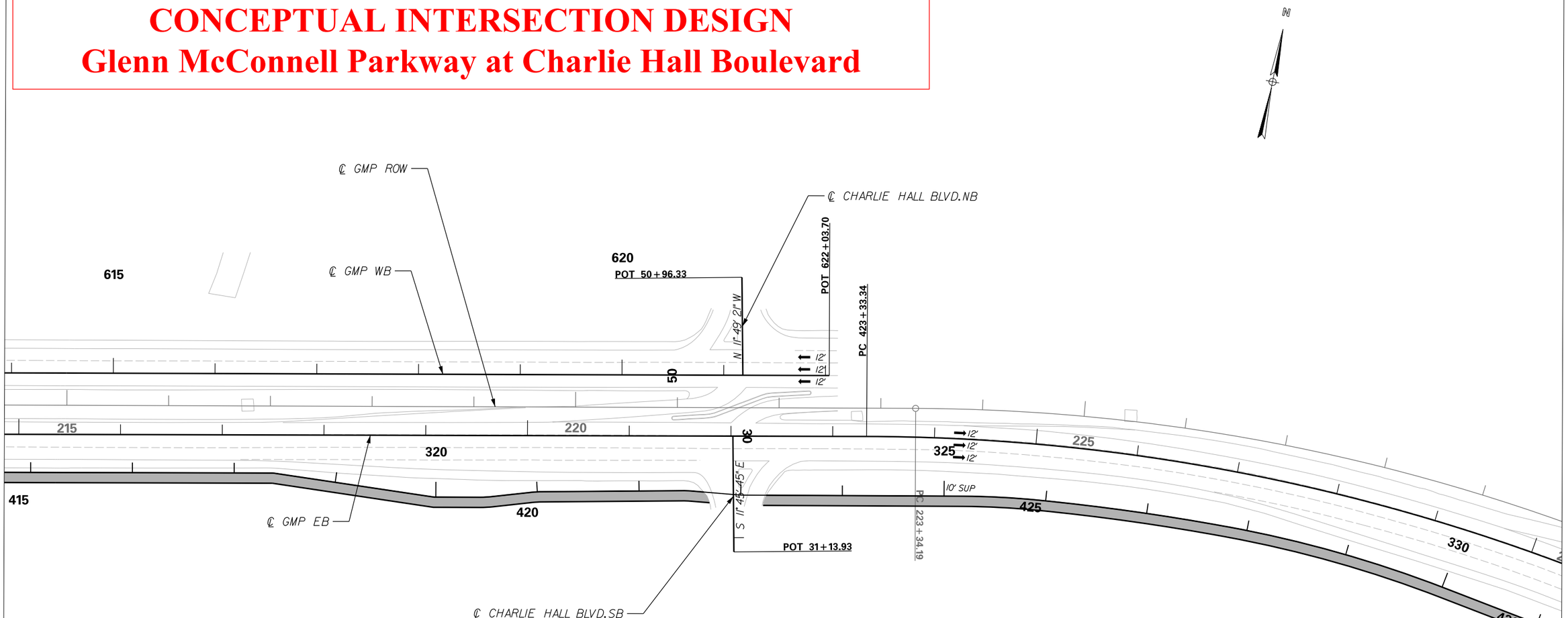
Figure 19

CONCEPTUAL INTERSECTION DESIGN

Glenn McConnell Parkway at Charlie Hall Boulevard

PRELIMINARY PLANS

FED. ROAD DIV.NO.	STATE	COUNTY	PROJECT ID	ROUTE NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	CHARLESTON	P037878	SC 461		9



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DESIGNED BY PLD DRAWN BY PLD CHECKED BY JKL

CHARLESTON COUNTY

PLAN SHEET
SC 461 (GLENN MCCONNELL PARKWAY)

SCALE 1"= 50' HOR. PLOT SIZE = 22" x 34"

TRAFFIC OPERATIONS & QUEUING ANALYSIS

Measuring existing and future traffic volumes quantifies traffic flow within the study area. To assess quality of flow, capacity analyses were conducted to provide an indication of how well the study area intersections serve existing and future traffic demands. The following provides a description of the methodology utilized to complete these analyses.

METHODOLOGY

Level-of-Service

A primary result of capacity analyses is the assignment of level-of-service (LOS) to traffic facilities under various traffic flow conditions[2]. The concept of level-of-service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels-of-service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst.

Since the level-of-service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels-of-service, depending on the time of day, day of week, or period of a year.

Signalized Intersections

The six levels-of-service for signalized intersections may be described as follows:

- LOS A describes operations with very low delay; most vehicles do not stop at all.
- LOS B describes operations with relatively low delay. However, more vehicles stop than LOS A.
- LOS C describes operations with higher delays. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

[2] The capacity analysis methodology is based on the concepts and procedures in the *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2010.

- LOS D describes operations with delay in the range where the influence of congestion becomes more noticeable. Many vehicles stop and individual cycle failures are noticeable.

- LOS E describes operations with high delay values. Individual cycle failures are frequent occurrences.

- LOS F describes operations with high delay values that often occur with over-saturation. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Levels-of-service for signalized intersections are calculated using the operational analysis methodology of the 2010 *Highway Capacity Manual.* This method assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on delay. Level-of-service designations are based solely on the criterion of calculated control delay per vehicle, since delay is a measure of driver discomfort, frustration, fuel consumption, and increased travel time.

Unsignalized Intersections

The six levels-of-service for two-way stop-controlled intersections may be described as follows:

- LOS A represents a condition with little or no delay to minor street traffic.

- LOS B represents a condition with short delays to minor street traffic.

- LOS C represents a condition with average delays to minor street traffic.

- LOS D represents a condition with long delays to minor street traffic.

- LOS E represents operating conditions at or near capacity level, with very long delays to minor street traffic.

- LOS F represents a condition where minor street demand volume exceeds capacity of an approach lane, with extreme delays resulting.

The levels-of-service of unsignalized intersections are determined by application of a procedure described in the 2010 *Highway Capacity Manual*. The procedure accounts for lane configuration on both the minor and major approaches, and conflicting traffic stream volumes. First, the theoretical maximum or capacity flow of vehicles for each minor approach lane is calculated based on a gap acceptance procedure. The capacities are then compared to the demand at the respective minor approaches to determine the control delay for each vehicle. Control delay is used as the criterion for estimating level-of-service for minor street traffic.

Table 4 summarizes the relationship between level-of-service and delay for both signalized and unsignalized intersections. The tabulated delay criterion may be applied in assigning level-of-service designations to individual lane groups, to individual intersection approaches, or to entire intersections.

Table 4
LEVEL-OF-SERVICE CRITERIA[1]
STUDY AREA INTERSECTIONS

Level-of-Service	Signalized Intersection[2]	Unsignalized Intersection[2]
A	0.0 to 10.0	0.0 to 10.0
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 80.0	35.1 to 50.0
F	>80.0	>50.0

1. Source: Highway Capacity Manual, Transportation Research Board; Washington, DC; 2010.
2. Delay in seconds-per-vehicle.

Roadway Segments – Daily Traffic Volume

Level-of-Service designations (based on projected daily traffic volume) for individual roadway segments have been determined through the usage of capacity data provided in the most up-to-date "Maximum ADT by Level-of-Service for Urban Facilities for SCDOT Travel Demand Models" reference table.

Arterial Analysis – Peak-Hour Traffic Volume

Level-of-Service designations for the study area arterial (to include individual segments) have been determined using standard HCM methodology for the analysis of multi-lane highways that accounts for the arterial's posted speed limit as well as the interruption of traffic flow due to intersections/driveways. **Table 5** depicts the service level designations based on average travel speed.

Table 5
LEVEL-OF-SERVICE CRITERIA
STUDY AREA ARTERIAL

Urban Street Class	I	II	III	IV
Range of FFS	55-45 mph	45-35 mph	35-30 mph	35-25mph
Typical FFS	50 mph	40 mph	35 mph	30 mph
Level-of-Service (LOS)	**Average Travel Speed (mph)**			
A	> 42	> 35	> 30	> 25
B	> 34-42	> 28-35	> 24-30	> 19-25
C	> 27-34	> 22-28	> 18-24	> 13-19
D	> 21-27	> 17-22	> 14-18	> 9-13
E	> 16-21	> 13-17	> 10-14	> 7-9
F	≤ 16	≤ 10	≤ 10	≤ 7

ANALYSIS RESULTS

Critical Study Area Intersections

Capacity analyses have been performed for each of the defined study area intersections for the Commuter AM and Commuter PM peak-hour time periods under the following scenarios:

2018 Existing Conditions

- 2018 Existing traffic volumes (Figure 3 & 4).
- Existing geometrics and traffic control.

2040 Design Year Conditions – Without Widening Project

- 2040 Design-Year traffic volumes (Figure 6 & 7) assuming 1.5-percent/year annual growth and inclusion of all applicable background development.
- Existing geometrics and traffic control with modifications related to the cited (page 5) signal system upgrade project.

2040 Design Year Conditions – With Widening Project

- 2040 Design-Year traffic volumes (Figure 9 & 10) assuming 1.5-percent/year annual growth, the inclusion of all applicable background development and volume diversions/adjustments related to the cited (page 6) traffic control modifications.
- Recommended geometric and traffic control characteristics cited (page 9-20) for each study area intersection.

The results of these analyses are summarized in **Table 6 - 14**.

Table 6
LEVEL-OF-SERVICE & QUEUING SUMMARY
Glenn McConnell Parkway (SC 61) at Bees Ferry Road

		2018 EXISTING CONDITIONS				FUTURE 2040 DESIGN-YEAR WITHOUT GMP WIDENING				FUTURE 2040 DESIGN-YEAR WITH GMP WIDENING			
Time Period	**Overall Int./ Movement/Lane Group**	**Delay [a]**	**LOS [b]**	**Average Queue [c]**	**95th % Queue [d]**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**
AM	***Overall Intersection***	***54.4***	***D***	***NA***	***NA***	***91.3***	***F***	***NA***	***NA***	***78.8***	***E***	***NA***	***NA***
WB	Left	72.6	E	309	497	95.0	F	585	999	66.7	E	330	510
WB	Right	Free	Free	20	180	Free	Free	276	686	Free	Free	0	0
NB	Thru	43.4	D	148	235	87.7	F	183	370	64.5	E	202	416
NB	Right	Free	Free	87	526	Free	Free	2,916	3,493	Free	Free	2,952	3,153
SB	Left	65.8	E	478	481	119.9	F	478	482	119.9	F	478	481
SB	Thru	8.5	A	1,679	3,636	15.5	B	2,385	3,701	11.5	B	2,223	3,580
PM	***Overall Intersection***	***59.7***	***E***	***NA***	***NA***	***199.8***	***F***	***NA***	***NA***	***95.4***	***F***	***NA***	***NA***
WB	Left	59.2	E	639	943	244.0	F	803	1,018	59.8	E	387	493
WB	Right	Free	Free	339	723	Free	Free	432	712	Free	Free	0	0
NB	Thru	56.5	E	175	264	66.3	E	260	381	66.3	E	273	389
NB	Right	Free	Free	0	0	Free	Free	0	0	Free	Free	0	0
SB	Left	93.7	F	251	372	297.0	F	478	482	297.0	F	478	482
SB	Thru	30.1	C	100	237	31.7	C	2,361	4,282	31.7	C	2,216	4,255

a. HCM 2010 - Control Delay in seconds-per-vehicle.

b. LOS = Level-of-Service.

c. Average Queue Length in Feet from SimTraffic Simulations.

d. 95th Percentile Queue Length in Feet from SimTraffic Simulations.

** Denotes that conflict volume is greater than upper threshold limits to allow for calculation of delay value. Represents LOS F operating level.

Table 7
LEVEL-OF-SERVICE & QUEUING SUMMARY
Glenn McConnell Parkway (SC 61) at West Ashley Circle

		2018 EXISTING CONDITIONS				FUTURE 2040 DESIGN-YEAR WITHOUT GMP WIDENING				FUTURE 2040 DESIGN-YEAR WITH GMP WIDENING			
Time Period	**Overall Int./ Movement/Lane Group**	**Delay [a]**	**LOS [b]**	**Average Queue [c]**	**95th % Queue [d]**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**
AM	***Overall Intersection***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***
EB	Thru	Free	Free	426	1,131	Free	Free	518	1,186				
EB	Right	Free	Free	134	666	Free	Free	186	801				
EB	Thru/Right									Free	Free	6	120
WB	Thru	Free	Free	0	0	Free	Free	62	284	Free	Free	0	0
WB	Right	Free	Free	0	0	Free	Free	10	111	Free	Free	0	0
NB	Right	Free	Free	0	0	Free	Free	0	0	1,673.5	F	120	251
SB	Right	0.0	A	0	0	0.0	A	0	0	0.0	A	0	0

PM	***Overall Intersection***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***
EB	Thru	Free	Free	28	276	Free	Free	51	382				
EB	Right	Free	Free	0	0	Free	Free	6	133				
EB	Thru/Right									Free	Free	6	123
WB	Thru	Free	Free	79	334	Free	Free	262	806	Free	Free	0	0
WB	Right	Free	Free	33	209	Free	Free	81	336	Free	Free	0	0
NB	Right	Free	Free	0	0	Free	Free	0	0	105.7	F	16	67
SB	Right	23.4	C	0	0	49.1	E	0	0	57.4	F	0	0

a. HCM 2010 - Control Delay in seconds-per-vehicle.

b. LOS = Level-of-Service.

c. Average Queue Length in Feet from SimTraffic Simulations.

d. 95th Percentile Queue Length in Feet from SimTraffic Simulations.

** Denotes that conflict volume is greater than upper threshold limits to allow for calculation of delay value. Represents LOS F operating level.

Table 8
LEVEL-OF-SERVICE & QUEUING SUMMARY
Glenn McConnell Parkway (SC 61) at William E. Murray Boulevard / Goodwill Way

		2018 EXISTING CONDITIONS				FUTURE 2040 DESIGN-YEAR WITHOUT GMP WIDENING				FUTURE 2040 DESIGN-YEAR WITH GMP WIDENING			
Time Period	**Overall Int./ Movement/Lane Group**	**Delay [a]**	**LOS [b]**	**Average Queue [c]**	**95th % Queue [d]**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**
AM	***Overall Intersection***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***
EB	Left	9.9	A	13	67	13.7	B	77	302	25.9	D	28	65
EB	Thru	Free	Free	27	214	Free	Free	1,173	2,834	Free	Free	21	208
EB	Right	Free	Free	2	46	Free	Free	48	240	Free	Free	3	61
WB	Left									705.1	F	67	210
WB	Thru	Free	Free	0	0	Free	Free	0	0	Free	Free	8	91
WB	Right	Free	Free	0	0	Free	Free	1	9	Free	Free	0	0
NB	Right	25.7	D	0	0	196.3	F	104	272	268.8	F	18	77
SB	Left	0.0	A	0	0	0.0	A	3	25				
SB	Right	11.4	B	9	28	17.0	C	32	62	20.6	C	3	26

PM	***Overall Intersection***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***
EB	Left	26.8	D	26	65	582.1	F	126	232	2,634.8	F	103	188
EB	Thru	Free	Free	0	0	Free	Free	18	115	Free	Free	0	0
EB	Right	Free	Free	0	0	Free	Free	0	0	Free	Free	0	0
WB	Left									49.9	E	38	79
WB	Thru	Free	Free	0	2	Free	Free	0	3	Free	Free	17	254
WB	Right	Free	Free	0	0	Free	Free	1	10	Free	Free	0	0
NB	Right	0.0	A	0	0	18.9	C	0	0	21.7	C	0	8
SB	Left	176.9	F	58	162	**	F	289	565				
SB	Right	43.6	E	68	121	702.5	F	116	149	903.5	F	35	101

a. HCM 2010 - Control Delay in seconds-per-vehicle.
b. LOS = Level-of-Service.
c. Average Queue Length in Feet from SimTraffic Simulations.
d. 95th Percentile Queue Length in Feet from SimTraffic Simulations.

** Denotes that conflict volume is greater than upper threshold limits to allow for calculation of delay value. Represents LOS F operating level.

Table 9
LEVEL-OF-SERVICE & QUEUING SUMMARY
Glenn McConnell Parkway (SC 61) at West Wildcat Way / Mary Ader Avenue

		2018 EXISTING CONDITIONS				FUTURE 2040 DESIGN-YEAR WITHOUT GMP WIDENING				FUTURE 2040 DESIGN-YEAR WITH GMP WIDENING			
Time Period	**Overall Int./ Movement/Lane Group**	**Delay [a]**	**LOS [b]**	**Average Queue [c]**	**95th % Queue [d]**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**
AM	***Overall Intersection***	***43.9***	***D***	***NA***	***NA***	***191.0***	***F***	***NA***	***NA***	***45.2***	***D***	***NA***	***NA***
EB	Left	9.7	A	25	125	14.7	B	46	217	9.2	A	72	371
EB	Thru	36.9	D	677	1,298	237.8	F	1,314	1,859	34.0	C	474	1,120
EB	Right	7.0	A	47	244	7.6	A	21	153	6.9	A	38	210
WB	Left	142.0	F	64	120	214.0	F	69	141	150.6	F	88	147
WB	Thru	11.3	B	71	194	17.2	B	52	160	10.3	B	112	274
WB	Right	5.3	A	4	22	7.8	A	4	21	3.5	A	10	35
NB	Left	118.6	F	29	80	112.5	F	84	153	145.4	F	89	148
NB	Left/Thru/Right	118.6	F	84	149								
NB	Left/Thru					112.5	F	116	263				
NB	Thru									116.9	F	50	201
NB	Right	112.8	F	51	123	131.8	F	181	305	218.3	F	177	306
SB	Left	229.9	F	194	259	659.8	F	218	231	183.6	F	244	257
SB	Thru/Right	121.2	F	234	635	146.0	F	1,203	1,460				
SB	Thru									103.8	F	1,124	1,461
SB	Right									104.7	F	105	336

PM	***Overall Intersection***	***55.0***	***E***	***NA***	***NA***	***222.7***	***F***	***NA***	***NA***	***54.6***	***D***	***NA***	***NA***
EB	Left	52.6	D	42	85	63.0	E	52	106	69.3	E	60	113
EB	Thru	19.6	B	134	219	32.4	C	237	354	16.8	B	169	253
EB	Right	10.7	B	10	35	10.8	B	22	109	9.4	A	12	36
WB	Left	192.3	F	207	465	538.8	F	333	606	303.6	F	168	306
WB	Thru	49.8	D	500	801	300.6	F	693	1,218	50.6	D	322	424
WB	Right	7.2	A	195	499	10.7	B	217	519	5.3	A	22	90
NB	Left	81.9	F	27	70	76.4	E	52	98	86.7	F	56	106
NB	Left/Thru/Right	87.2	F	58	107								
NB	Left/Thru					77.1	E	64	120				
NB	Thru									75.1	E	50	109
NB	Right	72.7	E	17	49	70.5	E	53	103	72.9	E	45	95
SB	Left	183.3	F	221	233	477.1	F	222	230	117.8	F	247	256
SB	Thru/Right	86.7	F	932	1,506	141.0	F	1,260	1,350				
SB	Thru									60.8	E	1,084	1,624
SB	Right									60.1	E	169	407

a. HCM 2010 - Control Delay in seconds-per-vehicle.
b. LOS = Level-of-Service.
c. Average Queue Length in Feet from SimTraffic Simulations.
d. 95th Percentile Queue Length in Feet from SimTraffic Simulations.

** Denotes that conflict volume is greater than upper threshold limits to allow for calculation of delay value. Represents LOS F operating level.

Table 10
LEVEL-OF-SERVICE & QUEUING SUMMARY
Glenn McConnell Parkway (SC 61) at Lochaven Drive

		2018 EXISTING CONDITIONS				FUTURE 2040 DESIGN-YEAR WITHOUT GMP WIDENING				FUTURE 2040 DESIGN-YEAR WITH GMP WIDENING			
Time Period	**Overall Int./ Movement/Lane Group**	**Delay [a]**	**LOS [b]**	**Average Queue [c]**	**95th % Queue [d]**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**
AM	***Overall Intersection***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***
EB	Left	0.0	A	0	0	0.0	A	0	0	0.0	A	4	75
EB	Thru	Free	Free	0	0	Free	Free	10	198				
EB	Right	Free	Free	0	0	Free	Free	0	0				
EB	Thru/Right									Free	Free	420	1,410
WB	Left	29.7	D	13	42	138.2	F	15	56	1,057.4	F	9	33
WB	Thru	Free	Free	0	0	Free	Free	0	0				
WB	Right	Free	Free	0	0	Free	Free	0	0				
WB	Thru/Right									Free	Free	0	1
NB	Left/Thru	282.3	F	49	149	3,438.1	F	410	1,068	**	F	248	747
NB	Right	40.2	E	47	89	331.2	F	50	102	450.8	F	82	156
SB	Left/Thru	0.0	A	0	0	0.0	A	0	0	0.0	A	0	0
SB	Right	0.0	A	0	0	0.0	A	0	0	0.0	A	0	0

PM	***Overall Intersection***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***
EB	Left	0.0	A	0	0	0.0	A	0	0	0.0	A	0	0
EB	Thru	Free	Free	0	0	Free	Free	10	201				
EB	Right	Free	Free	0	8	Free	Free	0	1				
EB	Thru/Right									Free	Free	0	0
WB	Left	12.6	B	11	32	21.7	C	14	44	59.2	F	15	48
WB	Thru	Free	Free	0	0	Free	Free	23	172				
WB	Right	Free	Free	0	0	Free	Free	0	0				
WB	Thru/Right									Free	Free	0	0
NB	Left/Thru	46.7	E	17	66	195.7	F	258	703	251.5	F	23	62
NB	Right	14.4	B	14	42	22.9	C	21	69	26.7	D	20	50
SB	Left/Thru	244.9	F	4	19	3,422.1	F	16	52	7,117.0	F	8	29
SB	Right	0.0	A	0	0	0.0	A	0	0	0.0	A	0	0

a. HCM 2010 - Control Delay in seconds-per-vehicle.

b. LOS = Level-of-Service.

c. Average Queue Length in Feet from SimTraffic Simulations.

d. 95th Percentile Queue Length in Feet from SimTraffic Simulations.

** Denotes that conflict volume is greater than upper threshold limits to allow for calculation of delay value. Represents LOS F operating level.

Table 11
LEVEL-OF-SERVICE & QUEUING SUMMARY
Glenn McConnell Parkway (SC 61) at Waterstone Lane / Bairds Cove

		2018 EXISTING CONDITIONS				FUTURE 2040 DESIGN-YEAR WITHOUT GMP WIDENING				FUTURE 2040 DESIGN-YEAR WITH GMP WIDENING			
Time Period	**Overall Int./ Movement/Lane Group**	**Delay [a]**	**LOS [b]**	**Average Queue [c]**	**95th % Queue [d]**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**
AM	***Overall Intersection***	***28.8***	***C***	***NA***	***NA***	***167.9***	***F***	***NA***	***NA***	***38.1***	***D***	***NA***	***NA***
EB	Left	6.4	A	3	14	10.9	B	2	13	8.3	A	17	178
EB	Thru	31.1	C	133	329	233.6	F	267	643				
EB	Right	5.9	A	0	5	7.3	A	1	11				
EB	Thru/Right									47.8	D	855	2,118
WB	Left	60.7	E	9	30	84.7	F	5	19	83.3	F	8	26
WB	Thru	8.3	A	51	154	13.2	B	87	254	10.5	B	62	169
WB	Right	5.7	A	2	14	7.2	A	3	21	7.2	A	4	21
NB	Left	104.8	F	9	33	101.1	F	16	72	101.1	F	21	68
NB	Thru/Right	109.2	F	82	174	107.2	F	137	249	107.2	F	117	222
SB	Left	125.2	F	78	143	167.3	F	107	197	167.3	F	113	195
SB	Thru/Right	103.0	F	8	22	98.5	F	14	51	98.5	F	17	72
PM	***Overall Intersection***	***24.3***	***C***	***NA***	***NA***	***163.0***	***F***	***NA***	***NA***	***37.4***	***D***	***NA***	***NA***
EB	Left	53.5	D	12	36	54.5	D	14	40	54.5	D	15	42
EB	Thru	8.0	A	98	222	15.5	B	185	359				
EB	Right	4.7	A	3	17	5.7	A	7	78				
EB	Thru/Right									10.7	B	123	240
WB	Left	6.2	A	33	73	29.1	C	32	69	11.3	B	39	84
WB	Thru	31.0	C	141	287	250.4	F	195	376	51.2	D	96	188
WB	Right	4.6	A	10	63	5.7	A	10	64	5.7	A	8	30
NB	Left	77.6	E	7	27	75.3	E	14	45	75.3	E	17	51
NB	Thru/Right	78.8	E	14	34	75.8	E	21	48	75.8	E	32	60
SB	Left	83.3	F	38	86	82.8	F	48	100	82.8	F	51	106
SB	Thru/Right	76.6	E	14	39	73.5	E	23	60	73.5	E	16	42

a. HCM 2010 - Control Delay in seconds-per-vehicle.

b. LOS = Level-of-Service.

c. Average Queue Length in Feet from SimTraffic Simulations.

d. 95th Percentile Queue Length in Feet from SimTraffic Simulations.

** Denotes that conflict volume is greater than upper threshold limits to allow for calculation of delay value. Represents LOS F operating level.

Table 12
LEVEL-OF-SERVICE & QUEUING SUMMARY
Glenn McConnell Parkway (SC 61) at Springs at Essex Farms Access

		2018 EXISTING CONDITIONS				FUTURE 2040 DESIGN-YEAR WITHOUT GMP WIDENING				FUTURE 2040 DESIGN-YEAR WITH GMP WIDENING			
Time Period	**Overall Int./ Movement/Lane Group**	**Delay [a]**	**LOS [b]**	**Average Queue [c]**	**95th % Queue [d]**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**
AM	***Overall Intersection***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***
EB	Thru	Free	Free	5	76	Free	Free	19	287				
EB	Right	Free	Free	0	0	Free	Free	0	0				
EB	Thru/Right									Free	Free	932	2,007
WB	Left	33.6	D	18	54	162.5	F	18	62	1,294.4	F	17	54
WB	Thru	Free	Free	0	0	Free	Free	0	0	Free	Free	0	0
NB	Left	139.2	F	7	26	1,447.2	F	21	54	**	F	16	56
NB	Right	47.5	E	85	227	456.5	F	308	706	598.0	F	360	831

PM	***Overall Intersection***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***
EB	Thru	Free	Free	0	0	Free	Free	0	0				
EB	Right	Free	Free	0	7	Free	Free	0	4				
EB	Thru/Right									Free	Free	0	0
WB	Left	13.0	B	19	47	23.3	C	21	52	68.2	F	21	52
WB	Thru	Free	Free	8	171	Free	Free	0	0	Free	Free	0	0
NB	Left	37.2	E	3	16	102.8	F	11	39	129.9	F	8	32
NB	Right	14.8	B	8	24	23.6	C	14	35	27.3	D	17	45

a. HCM 2010 - Control Delay in seconds-per-vehicle.

b. LOS = Level-of-Service.

c. Average Queue Length in Feet from SimTraffic Simulations.

d. 95th Percentile Queue Length in Feet from SimTraffic Simulations.

** Denotes that conflict volume is greater than upper threshold limits to allow for calculation of delay value. Represents LOS F operating level.

Table 13
LEVEL-OF-SERVICE & QUEUING SUMMARY
Glenn McConnell Parkway (SC 61) at Essex Farms Drive

		2018 EXISTING CONDITIONS				FUTURE 2040 DESIGN-YEAR WITHOUT GMP WIDENING				FUTURE 2040 DESIGN-YEAR WITH GMP WIDENING			
Time Period	**Overall Int./ Movement/Lane Group**	**Delay [a]**	**LOS [b]**	**Average Queue [c]**	**95th % Queue [d]**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**				
AM	***Overall Intersection***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***119.0***	***F***	***NA***	***NA***
EB	Thru	Free	Free	82	489	Free	Free	6	24	149.0	F	991	1,468
EB	Right	Free	Free	4	65	Free	Free	4	21	4.8	A	271	631
WB	Left	60.0	F	299	468	2,197.7	F	389	428	217.9	F	256	406
WB	Thru	Free	Free	153	650	Free	Free	677	1,527	10.0	A	45	170
NB	Left	149.9	F	41	99	**	F	1,293	1,512				
NB	Left/Right									219.9	F	1,320	1,424
NB	Right	Free	Free	2	25	Free	Free	3	40	120.8	F	185	237

PM	***Overall Intersection***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***40.3***	***D***	***NA***	***NA***
EB	Thru	Free	Free	5	21	Free	Free	11	33	31.0	C	308	465
EB	Right	Free	Free	1	10	Free	Free	17	45	12.0	B	51	212
WB	Left	18.5	C	67	125	381.4	F	156	279	78.6	E	177	284
WB	Thru	Free	Free	147	218	Free	Free	139	215	36.6	D	57	111
NB	Left	70.0	F	41	108	**	F	1,296	1,513				
NB	Left/Right									151.3	F	809	1,368
NB	Right	Free	Free	0	0	Free	Free	3	40	47.3	D	172	267

a. HCM 2010 - Control Delay in seconds-per-vehicle.

b. LOS = Level-of-Service.

c. Average Queue Length in Feet from SimTraffic Simulations.

d. 95th Percentile Queue Length in Feet from SimTraffic Simulations.

** Denotes that conflict volume is greater than upper threshold limits to allow for calculation of delay value. Represents LOS F operating level.

Table 14
LEVEL-OF-SERVICE & QUEUING SUMMARY
Glenn McConnell Parkway (SC 61) at Charlie Hall Boulevard

		2018 EXISTING CONDITIONS				FUTURE 2040 DESIGN-YEAR WITHOUT GMP WIDENING				FUTURE 2040 DESIGN-YEAR WITH GMP WIDENING			
Time Period	**Overall Int./ Movement/Lane Group**	**Delay [a]**	**LOS [b]**	**Average Queue [c]**	**95th % Queue [d]**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**	**Delay**	**LOS**	**Average Queue**	**95th % Queue**
AM	***Overall Intersection***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***
EB	Left	22.5	C	128	374	183.8	F	119	306	183.8	F	196	474
EB	Thru	Free	Free	530	1,475	Free	Free	86	341	Free	Free	1,170	1,962
EB	Right	Free	Free	93	393	Free	Free	0	0	Free	Free	180	543
WB	Left	93.1	F	1	10	638.4	F	5	63	638.4	F	3	15
WB	Thru	Free	Free	0	0	Free	Free	538	1,256	Free	Free	0	0
WB	Right	Free	Free	12	63	Free	Free	129	450	Free	Free	12	57
NB	Right	43.1	E	0	0	160.0	F	0	0	148.4	F	0	0
SB	Right	16.1	C	3	24	30.9	D	332	932	30.9	D	13	58

PM	***Overall Intersection***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***	***NA***
EB	Left	300.0	F	50	145	4,272.7	F	40	84	4,272.7	F	86	299
EB	Thru	Free	Free	28	174	Free	Free	5	47	Free	Free	253	892
EB	Right	Free	Free	0	0	Free	Free	0	0	Free	Free	12	132
WB	Left	19.9	C	7	29	45.6	E	10	33	45.1	E	9	31
WB	Thru	Free	Free	34	314	Free	Free	6	129	Free	Free	35	317
WB	Right	Free	Free	0	0	Free	Free	0	0	Free	Free	1	10
NB	Right	19.2	C	0	0	48.5	E	0	0	47.5	E	11	68
SB	Right	893.3	F	188	369	4,951.5	F	968	1,569	4,951.5	F	1,148	1,488

a. HCM 2010 - Control Delay in seconds-per-vehicle.

b. LOS = Level-of-Service.

c. Average Queue Length in Feet from SimTraffic Simulations.

d. 95th Percentile Queue Length in Feet from SimTraffic Simulations.

** Denotes that conflict volume is greater than upper threshold limits to allow for calculation of delay value. Represents LOS F operating level.

As shown in Tables 6-14, under Future 2040 Design-Year conditions without the proposed Glenn McConnell Parkway widening project, all signalized study area intersections are anticipated to degrade to overall unacceptable service levels whereby numerous individual movements/lane groups are projected to experience extreme delays and significant queuing. In concert, all study area unsignalized intersections are projected to experience unacceptable operating levels for the critical minor-street movements/lane groups/approaches with significant queuing.

With the proposed Glenn McConnell Parkway widening project in-place, projected overall operating levels at the study area signalized intersections are anticipated to be significantly improved such that only the following intersection/time periods combinations do not reflect overall acceptable operating levels:

- Glenn McConnell Parkway at Bees Ferry Road – AM / PM Peak-Hour

  This intersection is projected to operate at marginally overall unacceptable service level during the AM (overall delay = 78.8 seconds) and PM (overall delay = 95.4 seconds) peak-hour, but it should be noted that a significant improvement in operations is projected due to the implementation of the Glenn McConnell Parkway widening project.

- Glenn McConnell Parkway at Essex Farms Drive – AM Peak-Hour

  This intersection is projected to operate at an overall unacceptable service level during the AM (overall delay = 119.0 seconds) peak-hour.

  It should be noted the operational analysis for this intersection assumes a very conservative/worst-case scenario with the inclusion of projected traffic associated with the planned commercial/retail development but, due to project scope limitations, does not account for the full geometric design that will be necessary to support the commercial/retail development. As detailed on page 16, it is assumed that when the commercial/retail development is realized, additional geometric/traffic control infrastructure (*at the developer's expense*) will be required. As such, once this additional geometric/traffic control infrastructure is in-place, it is anticipated that overall acceptable operating levels can be achieved.

With the proposed Glenn McConnell Parkway widening project in-place, projected operating levels at the study area unsignalized intersections are not anticipated to be significantly improved and unacceptable operating levels for the critical minor-street movements/lane groups/approaches are projected to remain with continued queuing. Note that this is not uncommon, and very typical for minor-street movements along high-volume major arterials such as Glenn McConnell Parkway, especially given the increased cross-section width. It is recommended that, as properties are developed throughout the study area, all applicable governmental agencies encourage/promote the interconnection of adjacent properties and/or construction of a frontage road system such that access to/from signalized intersections can be achieved. This would allow for the safer, more efficient accessing of the Glenn McConnell Parkway arterial and the potential consideration of access control along this section of Glenn McConnell Parkway where all unsignalized intersections could be modified to operate as Right-in/Right-Out ONLY or either under a Leftover Treatment configuration.

It should also be noted that all future year analysis scenarios assume no geometric and/or operational improvement measures for the Glenn McConnell Parkway at Magwood Drive intersection. This intersection currently operates as a choke point for all traffic flow along Glenn McConnell Parkway, especially for the eastbound (toward Interstate 526) direction in the AM peak-hour, which produces significant queuing that produces upstream constraints and constricts the ability of traffic to flow through the study area. Based on information provided by Charleston County staff, this intersection is currently being evaluated by the SCDOT for large-scale improvement/modification measures. It is anticipated that when/if these improvements/modifications are realized, operating levels throughout the study area should be greatly enhanced.

As previously cited, traffic volume data has been collected/projected for the School Arrival peak-hour at two (2) of the defined study area intersections due to impacts of local/adjacent school facilities. Although not formally analyzed as part of this Transportation Planning Study, these intersection/time period combinations were reviewed in a cursory manner to ensure that the recommended geometrics and traffic control for the Commuter AM/PM time periods is also adequate to support the School Arrival time period demand.

Study Area Roadway Segments

Capacity analyses have been performed for each of the applicable study area roadway segments based on the projected future 2040 Design-Year daily volume. The results of these analyses are summarized in **Table 15**.

Table 15
LEVEL-OF-SERVICE SUMMARY
STUDY AREA ROADWAY SEGMENTS

GLENN McCONNELL PARKWAY ROADWAY SEGMENTS	2040 DESIGN-YEAR CONDITIONS		
	Daily Volume	LOS Without Project	LOS With Project
Bees Ferry Road to West Ashley Cirle	46,530	**F**	C
West Ashley Circle to William E. Murray Blvd / Goodwill Way	51,260	**F**	D
William E. Murray Blvd / Goodwill Way to W. Wildcat Blvd / Mary Ader Ave	49,780	**F**	C
W. Wildcat Blvd / Mary Ader Ave to Lochaven Drive	56,190	**F**	D
Lochaven Drive to Waterstone Lane / Bairds Cove	56,650	**F**	D
Waterstone Lane / Bairds Cove to Springs at Essex Farms Access	58,830	**F**	**E**
Springs at Essex Farms Access to Essess Farms Drive	57,410	**F**	D
Essex Farms Drive to Charlie Hall Boulevard	62,840	**F**	**E**
Charlie Hall Boulevard to Magwood Drive	59,300	**E**	**E**

As shown in Table 15, under Future 2040 Design-Year traffic volume conditions without the proposed widening project in-place, all study area roadway segments are anticipated to exhibit unacceptable LOS F operating levels with the exception of the segment between Charlie Hall Boulevard and Magwood Drive which currently provides three (3) travel lanes in each direction and is projected to exhibit unacceptable LOS E operating levels.

Under the projected 2040 Design-Year traffic volume condition and assuming all previously cited roadway cross-section enhancements are in-place, all future study area roadway segments of Glenn McConnell Parkway are projected to exhibit acceptable (LOS D or better) operating levels with the exception of the following segments:

- Waterstone Lane / Bairds Cove to Springs at Essex Farms Access
- Essex Farms Drive to Charlie Hall Boulevard
- Charlie Hall Boulevard to Magwood Drive

All of these roadway segments are projected to exhibit daily traffic volumes that are just in excess of the upper volumetric threshold for LOS D operations. As such, a LOS E is reported.

Arterial Analysis

In addition to the capacity analyses for the individual roadway segments, an arterial analysis has been completed for the segment(s) of Glenn McConnell Parkway from Bees Ferry Road to Magwood Drive. Arterial analyses examine the speeds and travel times along the arterial for use in the determination of Level-of-Service. The results of these analyses are shown in **Table 16**. The arterial analysis worksheets are included in the Appendix of this document.

Table 16
ARTERIAL LEVEL-OF-SERVICE SUMMARY

Study Area Arterial	Time Period	Direction	2018 EXISTING CONDITIONS Arterial Speed	2018 EXISTING CONDITIONS Arterial LOS	2040 DESIGN-YEAR W/O WIDENING Arterial Speed	2040 DESIGN-YEAR W/O WIDENING Arterial LOS	2040 DESIGN-YEAR WITH WIDENING Arterial Speed	2040 DESIGN-YEAR WITH WIDENING Arterial LOS
INDIVIDUAL SEGMENTS								
Glenn McConnell Parkway *Bees Ferry Road to W. Wildcat Boulevard / Mary Ader Avenue (0.90 mile)*	**AM**	EB	31.0	C	**11.7**	**F**	29.5	C
		WB	23.0	D	**20.1**	**E**	24.3	D
	PM	EB	40.0	B	37.1	B	39.7	B
		WB	29.4	C	**10.9**	**F**	30.2	C
Glenn McConnell Parkway *W. Wildcat Boulevard / Mary Ader Avenue to Waterstone Lane / Bairds Cove (0.62 miles)*	**AM**	EB	41.5	B	**9.5**	**F**	36.3	B
		WB	33.9	C	30.9	C	34.1	B
	PM	EB	47.9	A	39.4	B	46.1	A
		WB	26.2	D	**6.7**	**F**	**16.1**	**E**
Glenn McConnell Parkway *Waterstone Lane / Bairds Cove to Essex Farms Drive (0.51 miles)*	**AM**	EB					**11.0**	**F**
		WB					42.5	A
	PM	EB					24.3	D
		WB					34.7	B
Glenn McConnell Parkway *Essex Farms Drive to Magwood Drive (0.47 miles)*	**AM**	EB					**4.5**	**F**
		WB					37.9	B
	PM	EB					21.4	D
		WB					21.6	D
Glenn McConnell Parkway *Waterstone Lane / Bairds Cove to Magwood Drive (0.98 miles)*	**AM**	EB	**20.3**	**E**	**8.5**	**F**		
		WB	46.1	A	43.4	A		
	PM	EB	35.3	B	32.8	C		
		WB	38.8	B	**12.7**	**F**		
OVERALL ARTERIAL								
Glenn McConnell Parkway *Bees Ferry Road to Magwood Road (2.50 mile)*	**AM**	EB	27.1	C	**9.7**	**F**	**12.5**	**F**
		WB	31.8	C	28.7	C	31.4	C
	PM	EB	39.6	B	35.8	B	31.6	C
		WB	31.4	C	**9.9**	**F**	23.8	D

As shown in Table 16, under 2040 Design-Year conditions without the proposed widening project in-place, all segments of Glenn McConnell Parkway, as well as the overall arterial are projected to degrade to unacceptable service levels (in terms of arterial speed) during the AM and/or PM peak-hour.

Under the projected 2040 Design-Year traffic volume condition and assuming all previously cited roadway cross-section enhancements are in-place, significant improvements are realized such that all segments of Glenn McConnell Parkway are projected to exhibit acceptable (LOS D or better) operating levels with the exception of the following segment/directional flow/time period combinations:

- W. Wildcat Boulevard/Mary Ader Avenue to Waterstone Lane/Bairds Cove
  PM Peak-Hour – Westbound Direction

- Waterstone Lane/Bairds Cove to Essex Farms Drive
  AM Peak-Hour – Eastbound Direction

- Essex Farms Drive to Magwood Drive
  AM Peak-Hour – Eastbound Direction

In concert, the overall arterial is anticipated to experience a significant improvement in operating level, but is projected to continue to exhibit unacceptable operating levels during the AM peak-hour for the eastbound direction. This can be directly attributed to the congestion and restriction of flow that is present at the Glenn McConnell/Magwood Drive intersection. As previously discussed, when/if the proposed large-scale improvements/modifications are realized for this intersection, operating levels for the eastbound directional flow along the arterial should be greatly improved.

APPENDIX

- Count Data
- BCDCOG Model Data
- Background Development Information
- GMP Signal Upgrade Project
- Capacity / Queuing Analyses

COUNT DATA

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Bees Ferry Rd
Site Code :
Start Date : 4/25/2018
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Bees Ferry Rd Southbound				GMP Westbound				Bees Ferry Rd Northbound				GMP Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	303	116	0	0	91	0	41	0	0	32	207	0	0	0	0	0	790
07:15	163	93	0	0	105	0	41	0	0	83	136	0	0	0	0	0	621
07:30	169	121	0	0	128	0	30	0	0	91	180	0	0	0	0	0	719
07:45	213	93	0	0	152	0	40	0	0	89	212	0	0	0	0	0	799
Total	848	423	0	0	476	0	152	0	0	295	735	0	0	0	0	0	2929
08:00	188	82	0	0	170	0	29	0	0	119	236	0	0	0	0	0	824
08:15	207	107	0	0	127	0	49	0	0	99	247	0	0	0	0	0	836
08:30	195	106	0	0	161	0	41	0	0	52	279	0	0	0	0	0	834
08:45	178	76	0	0	128	0	37	0	0	56	221	0	0	0	0	0	696
Total	768	371	0	0	586	0	156	0	0	326	983	0	0	0	0	0	3190
16:00	107	102	0	0	324	0	73	0	0	106	130	0	0	0	0	0	842
16:15	81	87	0	0	405	0	133	0	0	114	129	0	0	0	0	0	949
16:30	78	65	0	0	372	0	139	0	0	89	152	0	0	0	0	0	895
16:45	92	103	0	0	345	0	147	0	0	108	129	0	0	0	0	0	924
Total	358	357	0	0	1446	0	492	0	0	417	540	0	0	0	0	0	3610
17:00	83	85	0	0	310	0	136	0	0	119	131	0	0	0	0	0	864
17:15	86	90	0	0	334	0	133	0	0	107	139	0	0	0	0	0	889
17:30	98	91	0	0	314	0	173	0	0	101	145	0	0	0	0	0	922
17:45	87	82	0	0	288	0	147	0	0	129	135	0	0	0	0	0	868
Total	354	348	0	0	1246	0	589	0	0	456	550	0	0	0	0	0	3543
Grand Total	2328	1499	0	0	3754	0	1389	0	0	1494	2808	0	0	0	0	0	13272
Apprch %	60.8	39.2	0	0	73	0	27	0	0	34.7	65.3	0	0	0	0	0	
Total %	17.5	11.3	0	0	28.3	0	10.5	0	0	11.3	21.2	0	0	0	0	0	
Passenger Vehicles	2309	1480	0	0	3612	0	1374	0	0	1460	2712	0	0	0	0	0	12947
% Passenger Vehicles	99.2	98.7	0	0	96.2	0	98.9	0	0	97.7	96.6	0	0	0	0	0	97.6
Heavy Vehicles	9	16	0	0	116	0	11	0	0	26	87	0	0	0	0	0	265
% Heavy Vehicles	0.4	1.1	0	0	3.1	0	0.8	0	0	1.7	3.1	0	0	0	0	0	2
Buses	10	3	0	0	26	0	4	0	0	8	9	0	0	0	0	0	60
% Buses	0.4	0.2	0	0	0.7	0	0.3	0	0	0.5	0.3	0	0	0	0	0	0.5

SHORT COUNTS, LLC

735 Maryland St
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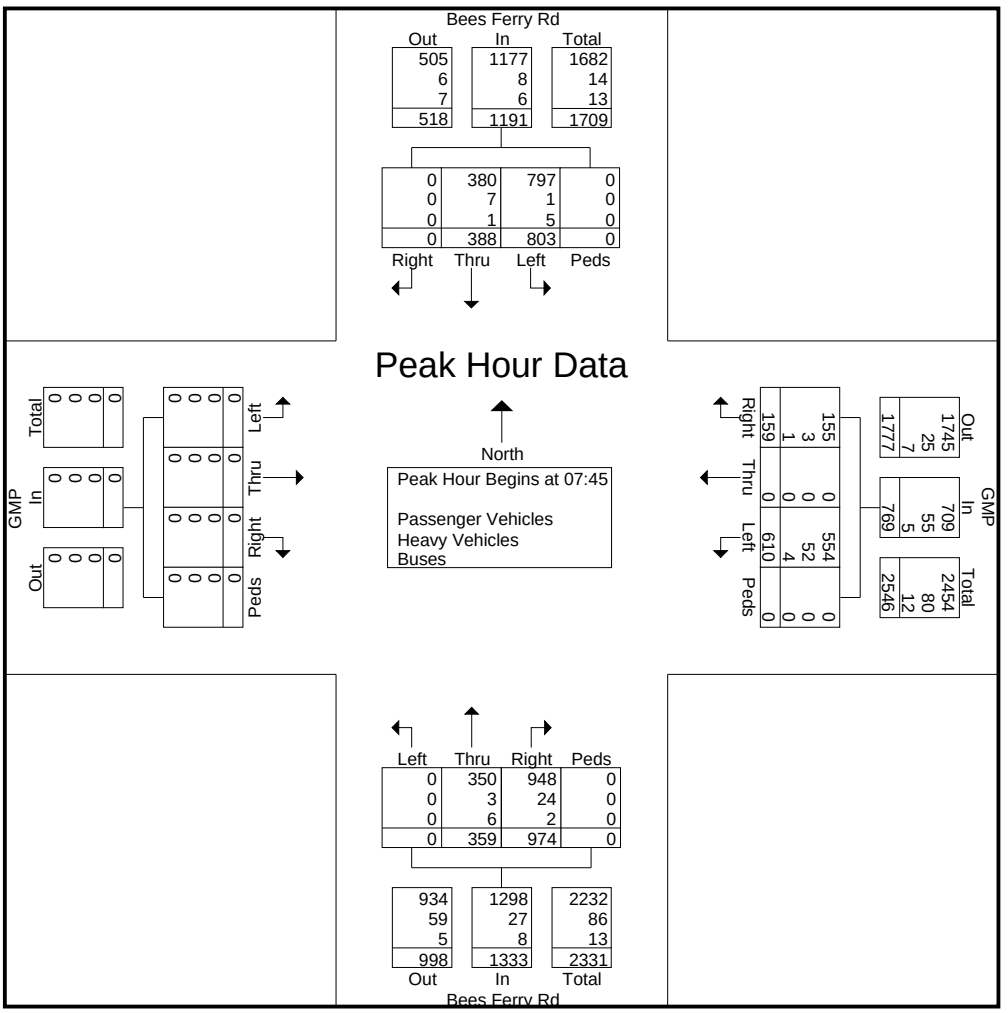
File Name : GMP @ Bees Ferry Rd
Site Code :
Start Date : 4/25/2018
Page No : 3

	Bees Ferry Rd Southbound					GMP Westbound					Bees Ferry Rd Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	**213**	93	0	0	306	152	0	40	0	192	0	89	212	0	301	0	0	0	0	0	799
08:00	188	82	0	0	270	**170**	0	29	0	199	0	**119**	236	0	**355**	0	0	0	0	0	824
08:15	207	**107**	0	0	**314**	127	0	**49**	0	176	0	99	247	0	346	0	0	0	0	0	**836**
08:30	195	106	0	0	301	161	0	41	0	**202**	0	52	**279**	0	331	0	0	0	0	0	834
Total Volume	803	388	0	0	1191	610	0	159	0	769	0	359	974	0	1333	0	0	0	0	0	3293
% App. Total	67.4	32.6	0	0		79.3	0	20.7	0		0	26.9	73.1	0		0	0	0	0		
PHF	.942	.907	.000	.000	.948	.897	.000	.811	.000	.952	.000	.754	.873	.000	.939	.000	.000	.000	.000	.000	.985
Passenger Vehicles	797	380	0	0	1177	554	0	155	0	709	0	350	948	0	1298	0	0	0	0	0	3184
% Passenger Vehicles																					
Heavy Vehicles	1	7	0	0	8	52	0	3	0	55	0	3	24	0	27	0	0	0	0	0	90
% Heavy Vehicles	0.1	1.8	0	0	0.7	8.5	0	1.9	0	7.2	0	0.8	2.5	0	2.0	0	0	0	0	0	2.7
Buses	5	1	0	0	6	4	0	1	0	5	0	6	2	0	8	0	0	0	0	0	19
% Buses	0.6	0.3	0	0	0.5	0.7	0	0.6	0	0.7	0	1.7	0.2	0	0.6	0	0	0	0	0	0.6



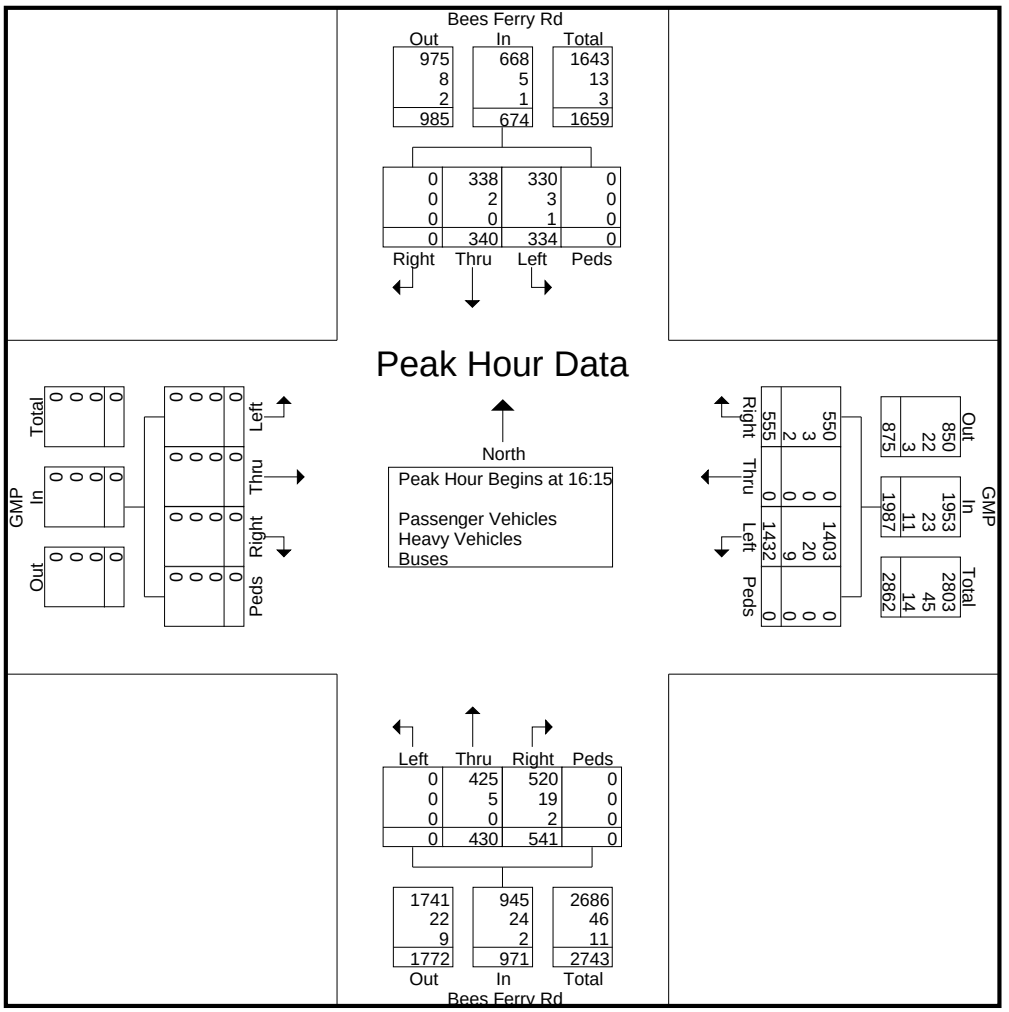
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Bees Ferry Rd
Site Code :
Start Date : 4/25/2018
Page No : 4

	Bees Ferry Rd Southbound					GMP Westbound					Bees Ferry Rd Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	81	87	0	0	168	**405**	0	133	0	**538**	0	114	129	0	243	0	0	0	0	0	**949**
16:30	78	65	0	0	143	372	0	139	0	511	0	89	**152**	0	241	0	0	0	0	0	895
16:45	**92**	**103**	0	0	**195**	345	0	**147**	0	492	0	108	129	0	237	0	0	0	0	0	924
17:00	83	85	0	0	168	310	0	136	0	446	0	**119**	131	0	**250**	0	0	0	0	0	864
Total Volume	334	340	0	0	674	1432	0	555	0	1987	0	430	541	0	971	0	0	0	0	0	3632
% App. Total	49.6	50.4	0	0		72.1	0	27.9	0		0	44.3	55.7	0		0	0	0	0		
PHF	.908	.825	.000	.000	.864	.884	.000	.944	.000	.923	.000	.903	.890	.000	.971	.000	.000	.000	.000	.000	.957
Passenger Vehicles	330	338	0	0	668	1403															
% Passenger Vehicles	98.8	99.4	0	0	99.1	98.0	0	99.1	0	98.3	0	98.8	96.1	0	97.3	0	0	0	0	0	98.2
Heavy Vehicles	3	2	0	0	5	20	0	3	0	23	0	5	19	0	24	0	0	0	0	0	52
% Heavy Vehicles	0.9	0.6	0	0	0.7	1.4	0	0.5	0	1.2	0	1.2	3.5	0	2.5	0	0	0	0	0	1.4
Buses	1	0	0	0	1	9	0	2	0	11	0	0	2	0	2	0	0	0	0	0	14
% Buses	0.3	0	0	0	0.1	0.6	0	0.4	0	0.6	0	0	0.4	0	0.2	0	0	0	0	0	0.4



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ WAC
Site Code :
Start Date : 4/25/2018
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	W. Ashley Cir. Southbound				GMP Westbound				W. Ashley Cir. Northbound				GMP Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	0	0	0	0	94	4	0	0	0	112	0	0	442	5	0	657
07:15	0	0	0	0	0	156	5	0	0	0	97	0	0	320	5	0	583
07:30	0	0	0	0	0	130	6	0	0	0	79	0	0	363	18	0	596
07:45	0	0	0	0	0	223	3	0	0	0	83	0	0	384	6	0	699
Total	0	0	0	0	0	603	18	0	0	0	371	0	0	1509	34	0	2535
08:00	0	0	0	0	0	181	10	0	0	0	45	0	0	439	4	0	679
08:15	0	0	0	0	0	214	10	0	0	0	61	0	0	466	2	0	753
08:30	0	0	0	0	0	181	10	0	0	0	39	0	0	474	4	0	708
08:45	0	0	1	0	0	168	7	0	0	0	28	0	0	376	5	0	585
Total	0	0	1	0	0	744	37	0	0	0	173	0	0	1755	15	0	2725
16:00	0	0	0	0	0	467	72	0	0	0	51	0	0	225	7	0	822
16:15	0	0	2	0	0	524	39	0	0	0	53	0	0	236	6	0	860
16:30	0	0	0	0	0	481	38	0	0	0	37	0	0	214	7	0	777
16:45	0	0	1	0	0	503	46	0	0	0	35	0	0	190	8	0	783
Total	0	0	3	0	0	1975	195	0	0	0	176	0	0	865	28	0	3242
17:00	0	0	1	0	0	469	25	0	0	0	43	0	0	231	6	0	775
17:15	0	0	1	0	0	422	47	0	0	0	41	0	0	237	7	0	755
17:30	0	0	0	0	0	482	52	0	0	0	34	0	0	208	7	0	783
17:45	0	0	0	0	0	488	38	0	0	0	34	0	0	227	7	0	794
Total	0	0	2	0	0	1861	162	0	0	0	152	0	0	903	27	0	3107
Grand Total	0	0	6	0	0	5183	412	0	0	0	872	0	0	5032	104	0	11609
Apprch %	0	0	100	0	0	92.6	7.4	0	0	0	100	0	0	98	2	0	
Total %	0	0	0.1	0	0	44.6	3.5	0	0	0	7.5	0	0	43.3	0.9	0	
Passenger Vehicles	0	0	5	0	0	5036	409	0	0	0	863	0	0	4926	104	0	11343
% Passenger Vehicles	0	0	83.3	0	0	97.2	99.3	0	0	0	99	0	0	97.9	100	0	97.7
Heavy Vehicles	0	0	1	0	0	126	3	0	0	0	4	0	0	87	0	0	221
% Heavy Vehicles	0	0	16.7	0	0	2.4	0.7	0	0	0	0.5	0	0	1.7	0	0	1.9
Buses	0	0	0	0	0	21	0	0	0	0	5	0	0	19	0	0	45
% Buses	0	0	0	0	0	0.4	0	0	0	0	0.6	0	0	0.4	0	0	0.4

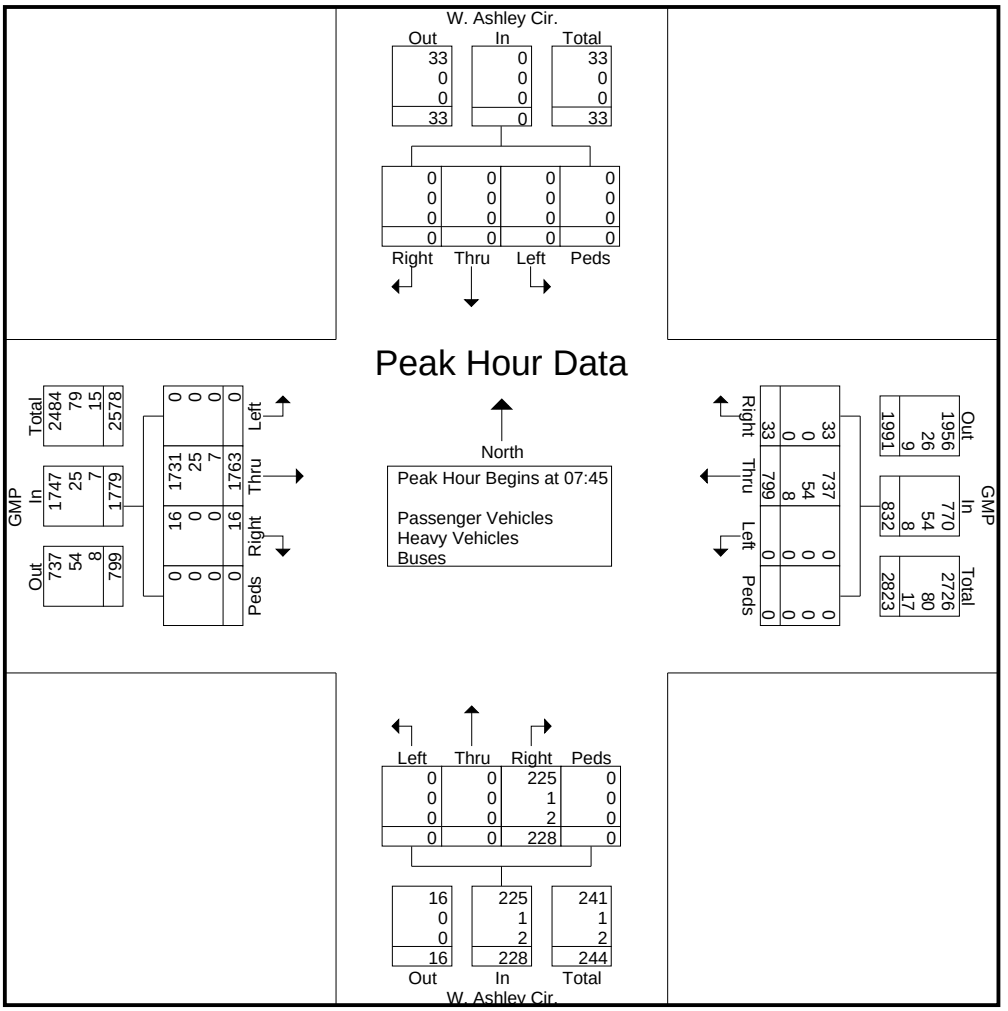
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ WAC
Site Code :
Start Date : 4/25/2018
Page No : 3

	W. Ashley Cir. Southbound					GMP Westbound					W. Ashley Cir. Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	0	0	0	0	0	0	**223**	3	0	**226**	0	0	**83**	0	**83**	0	384	**6**	0	390	699
08:00	0	0	0	0	0	0	181	**10**	0	191	0	0	45	0	45	0	439	4	0	443	679
08:15	0	0	0	0	0	0	214	10	0	224	0	0	61	0	61	0	466	2	0	468	**753**
08:30	0	0	0	0	0	0	181	10	0	191	0	0	39	0	39	0	**474**	4	0	**478**	708
Total Volume	0	0	0	0	0	0	799	33	0	832	0	0	228	0	228	0	1763	16	0	1779	2839
% App. Total	0	0	0	0		0	96	4	0		0	0	100	0		0	99.1	0.9	0		
PHF	.000	.000	.000	.000	.000	.000	.896	.825	.000	.920	.000	.000	.687	.000	.687	.000	.930	.667	.000	.930	.943
Passenger Vehicles	0	0	0	0	0	0	737	33	0	770	0	0	225	0	225	0	1731				
% Passenger Vehicles	0	0	0	0	0	0	92.2	100	0	92.5	0	0	98.7	0	98.7	0	98.2	100	0	98.2	96.6
Heavy Vehicles	0	0	0	0	0	0	54	0	0	54	0	0	1	0	1	0	25	0	0	25	80
% Heavy Vehicles	0	0	0	0	0	0	6.8	0	0	6.5	0	0	0.4	0	0.4	0	1.4	0	0	1.4	2.8
Buses	0	0	0	0	0	0	8	0	0	8	0	0	2	0	2	0	7	0	0	7	17
% Buses	0	0	0	0	0	0	1.0	0	0	1.0	0	0	0.9	0	0.9	0	0.4	0	0	0.4	0.6



SHORT COUNTS, LLC

735 Maryland St
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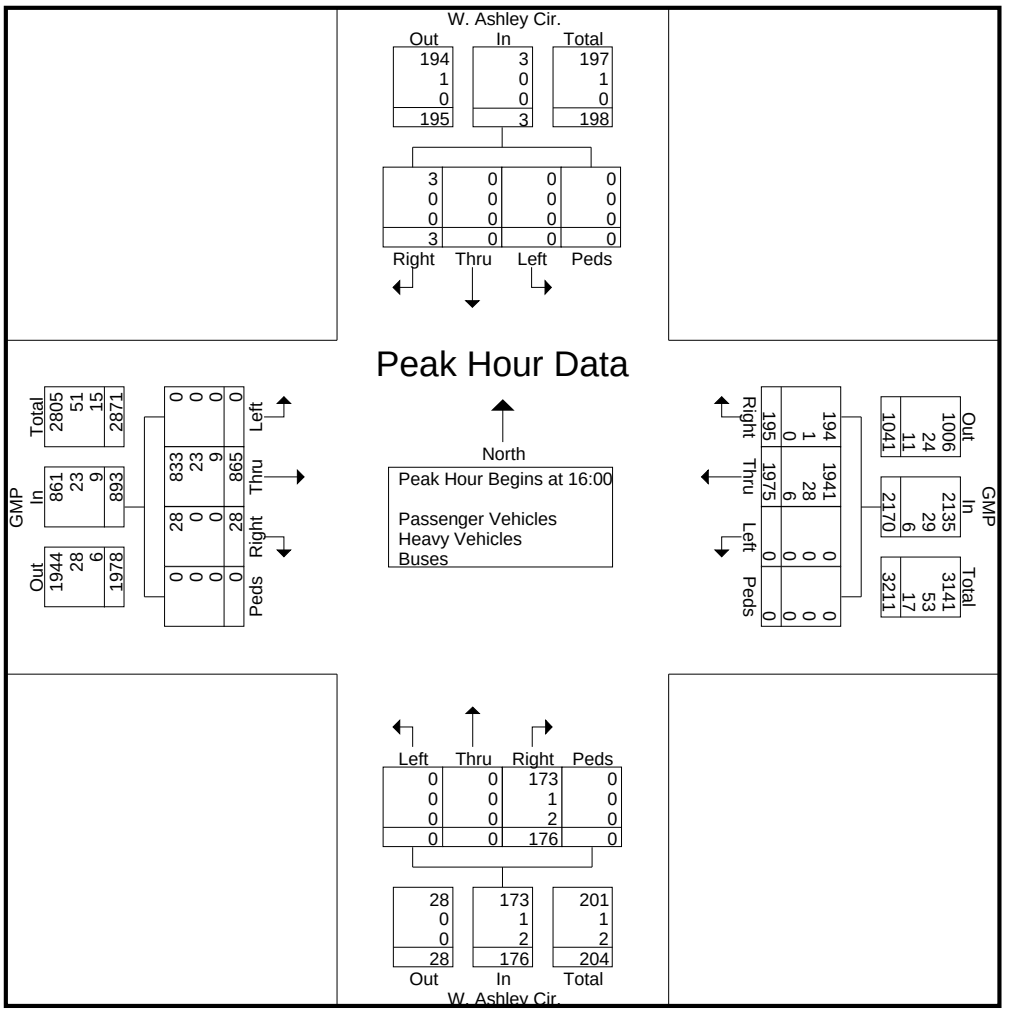
We can't say we're the Best, but you Can!

File Name : GMP @ WAC
Site Code :
Start Date : 4/25/2018
Page No : 4

	W. Ashley Cir. Southbound					GMP Westbound					W. Ashley Cir. Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	0	0	0	0	0	467	**72**	0	539	0	0	51	0	51	0	225	7	0	232	822
16:15	0	0	**2**	0	**2**	0	**524**	39	0	**563**	0	0	**53**	0	**53**	0	**236**	6	0	**242**	**860**
16:30	0	0	0	0	0	0	481	38	0	519	0	0	37	0	37	0	214	7	0	221	777
16:45	0	0	1	0	1	0	503	46	0	549	0	0	35	0	35	0	190	**8**	0	198	783
Total Volume	0	0	3	0	3	0	1975	195	0	2170	0	0	176	0	176	0	865	28	0	893	3242
% App. Total	0	0	100	0		0	91	9	0		0	0	100	0		0	96.9	3.1	0		
PHF	.000	.000	.375	.000	.375	.000	.942	.677	.000	.964	.000	.000	.830	.000	.830	.000	.916	.875	.000	.923	.942
Passenger Vehicles	0	0	3	0	3	0	1941														
% Passenger Vehicles	0	0	100	0	100	0	98.3	99.5	0	98.4	0	0	98.3	0	98.3	0	96.3	100	0	96.4	97.8
Heavy Vehicles	0	0	0	0	0	0	28	1	0	29	0	0	1	0	1	0	23	0	0	23	53
% Heavy Vehicles	0	0	0	0	0	0	1.4	0.5	0	1.3	0	0	0.6	0	0.6	0	2.7	0	0	2.6	1.6
Buses	0	0	0	0	0	0	6	0	0	6	0	0	2	0	2	0	9	0	0	9	17
% Buses	0	0	0	0	0	0	0.3	0	0	0.3	0	0	1.1	0	1.1	0	1.0	0	0	1.0	0.5



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Goodwill Way
Site Code : 11111111
Start Date : 4/26/2018
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Good Will Way Southbound				GMP Westbound				Good Will Way Northbound				GMP Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	1	1	2	0	1	111	0	0	0	0	1	0	8	394	45	0	564
07:15	0	0	2	0	0	159	2	0	0	0	1	0	11	378	3	0	556
07:30	0	0	3	0	0	135	1	0	1	0	0	0	19	368	6	0	533
07:45	0	0	2	0	0	195	1	0	0	0	1	0	21	420	5	0	645
Total	1	1	9	0	1	600	4	0	1	0	3	0	59	1560	59	0	2298
08:00	0	0	2	0	0	131	1	0	0	0	0	0	4	363	3	0	504
08:15	0	1	2	0	0	134	1	0	0	0	0	0	3	424	2	0	567
08:30	0	1	8	0	0	135	0	0	0	0	1	0	7	439	15	0	606
08:45	0	0	1	0	1	145	1	0	0	0	0	0	9	325	2	0	484
Total	0	2	13	0	1	545	3	0	0	0	1	0	23	1551	22	0	2161
16:00	0	1	18	0	0	460	2	0	0	1	0	0	7	264	4	0	757
16:15	1	0	20	0	0	466	2	0	0	0	0	0	6	219	2	0	716
16:30	2	0	25	0	1	380	1	0	1	0	0	0	13	234	0	0	657
16:45	2	0	22	0	0	317	1	0	3	0	0	0	7	134	3	0	489
Total	5	1	85	0	1	1623	6	0	4	1	0	0	33	851	9	0	2619
17:00	3	0	6	0	2	357	2	0	0	0	0	0	13	194	2	0	579
17:15	0	0	13	0	1	338	3	0	0	0	1	0	14	217	3	0	590
17:30	2	0	23	0	1	388	1	0	1	1	0	0	9	188	1	0	615
17:45	0	0	18	0	0	350	2	0	0	0	0	0	5	175	2	0	552
Total	5	0	60	0	4	1433	8	0	1	1	1	0	41	774	8	0	2336
Grand Total	11	4	167	0	7	4201	21	0	6	2	5	0	156	4736	98	0	9414
Apprch %	6	2.2	91.8	0	0.2	99.3	0.5	0	46.2	15.4	38.5	0	3.1	94.9	2	0	
Total %	0.1	0	1.8	0	0.1	44.6	0.2	0	0.1	0	0.1	0	1.7	50.3	1	0	
Passenger Vehicles	11	4	167	0	7	4201	21	0	6	2	5	0	156	4736	98	0	9414
% Passenger Vehicles	100	100	100	0	100	100	100	0	100	100	100	0	100	100	100	0	100
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

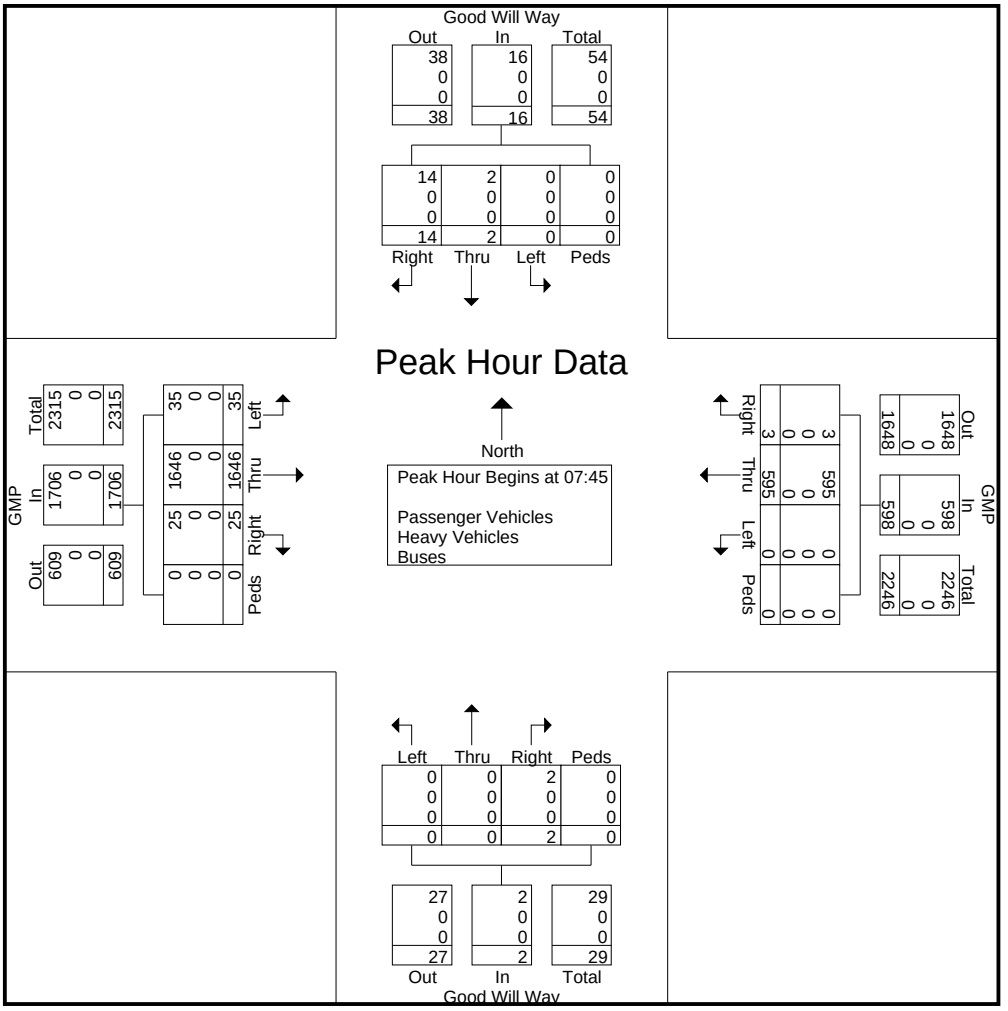
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Goodwill Way
Site Code : 11111111
Start Date : 4/26/2018
Page No : 3

	Good Will Way Southbound					GMP Westbound					Good Will Way Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	0	0	2	0	2	0	**195**	**1**	0	**196**	0	0	**1**	0	**1**	**21**	420	5	0	446	**645**
08:00	0	0	2	0	2	0	131	1	0	132	0	0	0	0	0	4	363	3	0	370	504
08:15	0	**1**	2	0	3	0	134	1	0	135	0	0	0	0	0	3	424	2	0	429	567
08:30	0	1	**8**	0	**9**	0	135	0	0	135	0	0	1	0	1	7	**439**	**15**	0	**461**	606
Total Volume	0	2	14	0	16	0	595	3	0	598	0	0	2	0	2	35	1646	25	0	1706	2322
% App. Total	0	12.5	87.5	0		0	99.5	0.5	0		0	0	100	0		2.1	96.5	1.5	0		
PHF	.000	.500	.438	.000	.444	.000	.763	.750	.000	.763	.000	.000	.500	.000	.500	.417	.937	.417	.000	.925	.900
Passenger Vehicles	0	2	14	0	16	0	595	3	0	598	0	0	2	0	2	35	1646				
% Passenger Vehicles	0	100	100	0	100	0	100	100	0	100	0	0	100	0	100	100	100	100	0	100	100
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



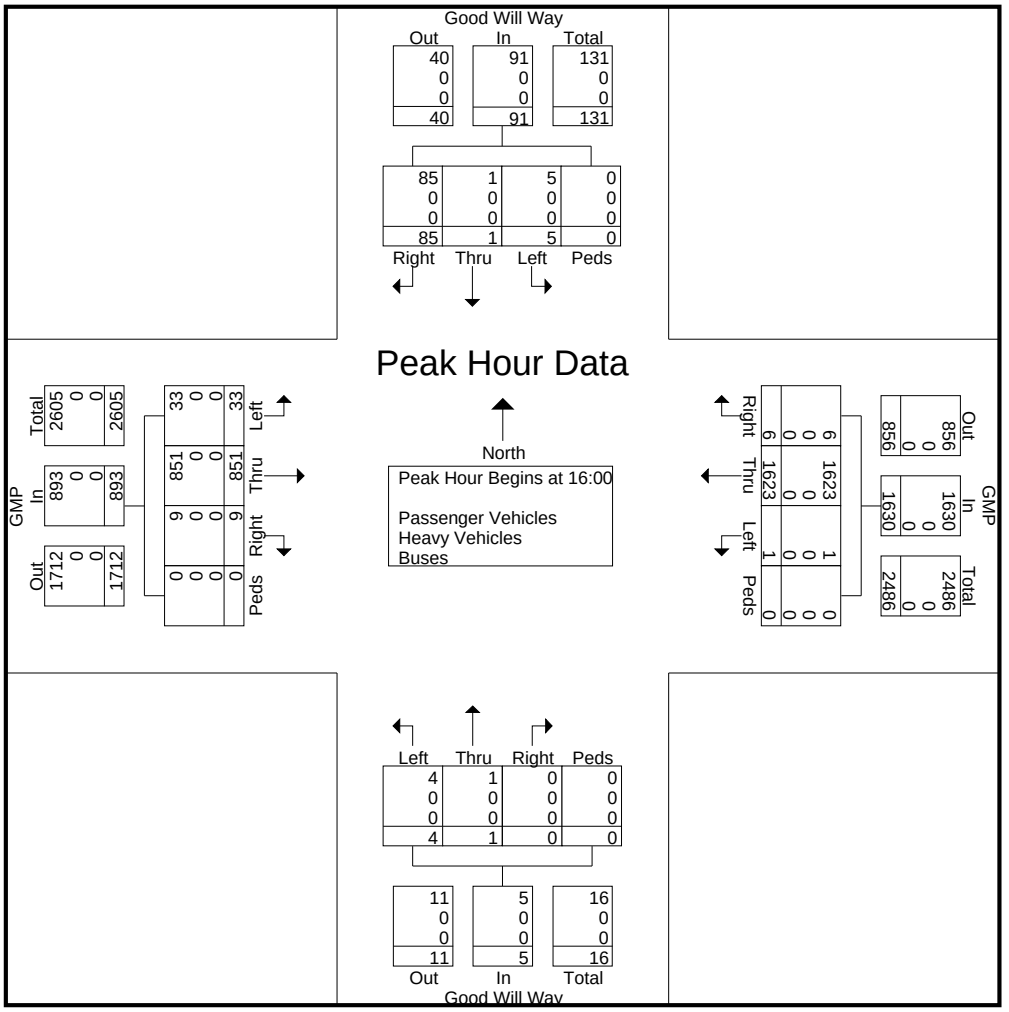
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Goodwill Way
Site Code : 11111111
Start Date : 4/26/2018
Page No : 4

	Good Will Way Southbound					GMP Westbound					Good Will Way Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	**1**	18	0	19	0	460	**2**	0	462	0	**1**	0	0	1	7	**264**	**4**	0	**275**	**757**
16:15	1	0	20	0	21	0	**466**	2	0	**468**	0	0	0	0	0	6	219	2	0	227	716
16:30	**2**	0	**25**	0	**27**	**1**	380	1	0	382	1	0	0	0	1	**13**	234	0	0	247	657
16:45	2	0	22	0	24	0	317	1	0	318	**3**	0	0	0	**3**	7	134	3	0	144	489
Total Volume	5	1	85	0	91	1	1623	6	0	1630	4	1	0	0	5	33	851	9	0	893	2619
% App. Total	5.5	1.1	93.4	0		0.1	99.6	0.4	0		80	20	0	0		3.7	95.3	1	0		
PHF	.625	.250	.850	.000	.843	.250	.871	.750	.000	.871	.333	.250	.000	.000	.417	.635	.806	.563	.000	.812	.865
Passenger Vehicles	5	1	85	0	91	1	1623														
% Passenger Vehicles	100	100	100	0	100	100	100	100	0	100	100	100	0	0	100	100	100	100	0	100	100
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Wildcat Blvd-Mary Ader Ave
Site Code :
Start Date : 4/25/2018
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Mary Ader Ave Southbound				GMP Westbound				Wildcat Blvd Northbound				GMP Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	36	25	5	0	80	114	36	0	31	4	124	0	3	427	15	0	900
07:15	29	5	6	0	10	145	20	0	20	7	58	0	1	422	0	0	723
07:30	33	5	8	0	11	120	40	0	5	3	31	0	3	421	1	0	681
07:45	29	2	13	0	10	210	44	0	6	2	23	0	0	489	1	0	829
Total	127	37	32	0	111	589	140	0	62	16	236	0	7	1759	17	0	3133
08:00	32	2	13	0	23	170	35	0	11	4	28	0	8	466	3	0	795
08:15	25	3	11	0	21	210	32	0	4	1	25	0	7	501	8	1	849
08:30	37	6	8	0	35	170	33	0	7	5	32	0	14	469	17	0	833
08:45	20	1	8	0	11	154	27	0	7	1	35	0	20	386	7	0	677
Total	114	12	40	0	90	704	127	0	29	11	120	0	49	1822	35	1	3154
16:00	39	7	10	0	39	520	55	0	5	5	15	0	14	248	11	3	971
16:15	56	6	31	0	47	471	58	0	11	5	14	0	15	230	6	1	951
16:30	54	10	18	0	58	475	55	0	9	7	21	1	12	239	9	1	969
16:45	41	9	20	0	48	499	55	0	10	9	26	0	10	202	21	1	951
Total	190	32	79	0	192	1965	223	0	35	26	76	1	51	919	47	6	3842
17:00	47	10	16	0	39	449	64	0	10	14	21	0	20	208	7	2	907
17:15	56	9	31	0	45	423	82	0	4	8	19	0	34	211	8	2	932
17:30	34	5	33	0	36	492	80	0	2	7	18	0	16	231	14	0	968
17:45	34	7	20	0	40	482	70	0	6	4	26	0	23	218	15	0	945
Total	171	31	100	0	160	1846	296	0	22	33	84	0	93	868	44	4	3752
Grand Total	602	112	251	0	553	5104	786	0	148	86	516	1	200	5368	143	11	13881
Apprch %	62.4	11.6	26	0	8.6	79.2	12.2	0	19.7	11.5	68.7	0.1	3.5	93.8	2.5	0.2	
Total %	4.3	0.8	1.8	0	4	36.8	5.7	0	1.1	0.6	3.7	0	1.4	38.7	1	0.1	
Passenger Vehicles	598	112	249	0	549	4950	775	0	147	86	508	0	197	5249	140	11	13571
% Passenger Vehicles	99.3	100	99.2	0	99.3	97	98.6	0	99.3	100	98.4	0	98.5	97.8	97.9	100	97.8
Heavy Vehicles	2	0	2	0	1	136	10	0	1	0	1	1	2	98	2	0	256
% Heavy Vehicles	0.3	0	0.8	0	0.2	2.7	1.3	0	0.7	0	0.2	100	1	1.8	1.4	0	1.8
Buses	2	0	0	0	3	18	1	0	0	0	7	0	1	21	1	0	54
% Buses	0.3	0	0	0	0.5	0.4	0.1	0	0	0	1.4	0	0.5	0.4	0.7	0	0.4

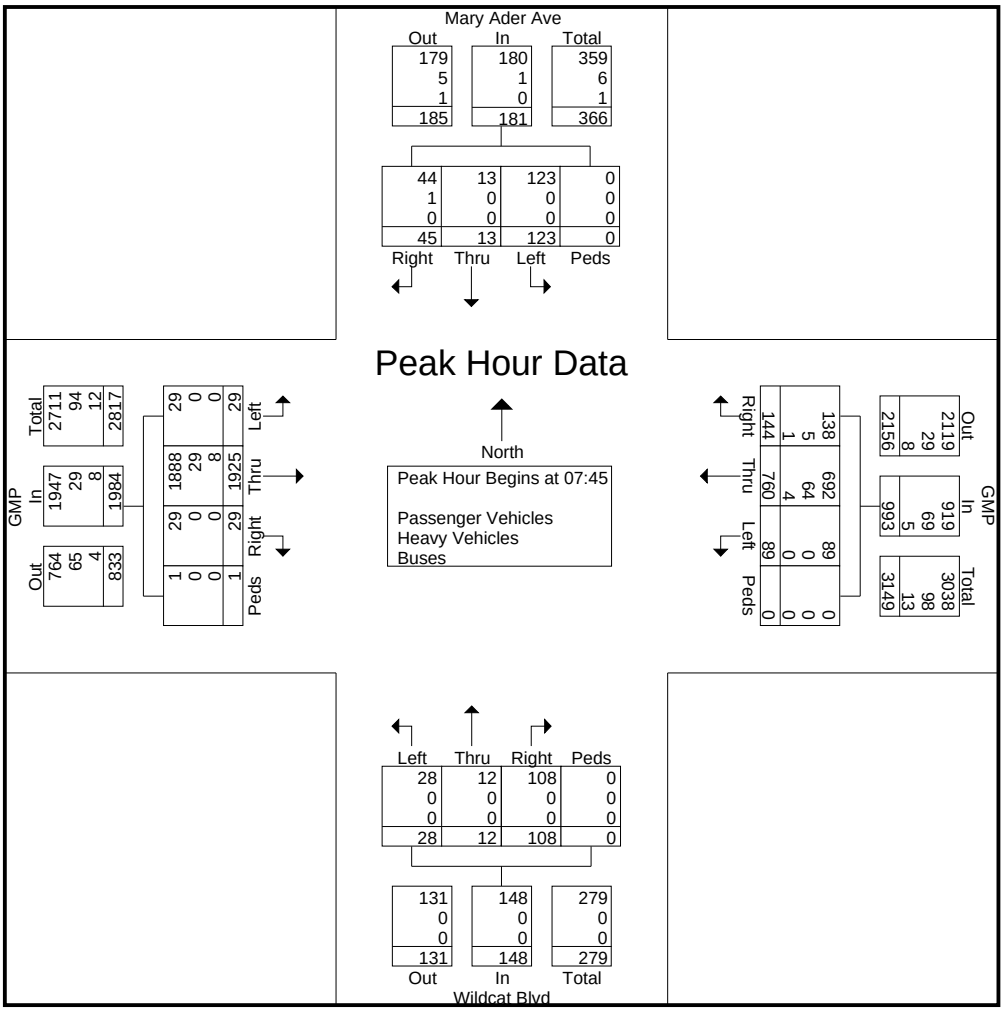
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Wildcat Blvd-Mary Ader Ave
Site Code :
Start Date : 4/25/2018
Page No : 3

	Mary Ader Ave Southbound					GMP Westbound					Wildcat Blvd Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	29	2	**13**	0	44	10	**210**	**44**	0	**264**	6	2	23	0	31	0	489	1	0	490	829
08:00	32	2	13	0	47	23	170	35	0	228	**11**	4	28	0	43	8	466	3	0	477	795
08:15	25	3	11	0	39	21	210	32	0	263	4	1	25	0	30	7	**501**	8	**1**	**517**	**849**
08:30	**37**	**6**	8	0	**51**	**35**	170	33	0	238	7	**5**	**32**	0	**44**	**14**	469	**17**	0	500	833
Total Volume	123	13	45	0	181	89	760	144	0	993	28	12	108	0	148	29	1925	29	1	1984	3306
% App. Total	68	7.2	24.9	0		9	76.5	14.5	0		18.9	8.1	73	0		1.5	97	1.5	0.1		
PHF	.831	.542	.865	.000	.887	.636	.905	.818	.000	.940	.636	.600	.844	.000	.841	.518	.961	.426	.250	.959	.973
Passenger Vehicles	123	13	44	0	180	89	692	138	0	919	28	12	108	0	148	29	1888				
% Passenger Vehicles	100	100	97.8	0	99.4	100	91.1	95.8	0	92.5	100	100	100	0	100	100	98.1	100	100	98.1	96.6
Heavy Vehicles	0	0	1	0	1	0	64	5	0	69	0	0	0	0	0	0	29	0	0	29	99
% Heavy Vehicles	0	0	2.2	0	0.6	0	8.4	3.5	0	6.9	0	0	0	0	0	0	1.5	0	0	1.5	3.0
Buses	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	8	0	0	8	13
% Buses	0	0	0	0	0	0	0.5	0.7	0	0.5	0	0	0	0	0	0	0.4	0	0	0.4	0.4



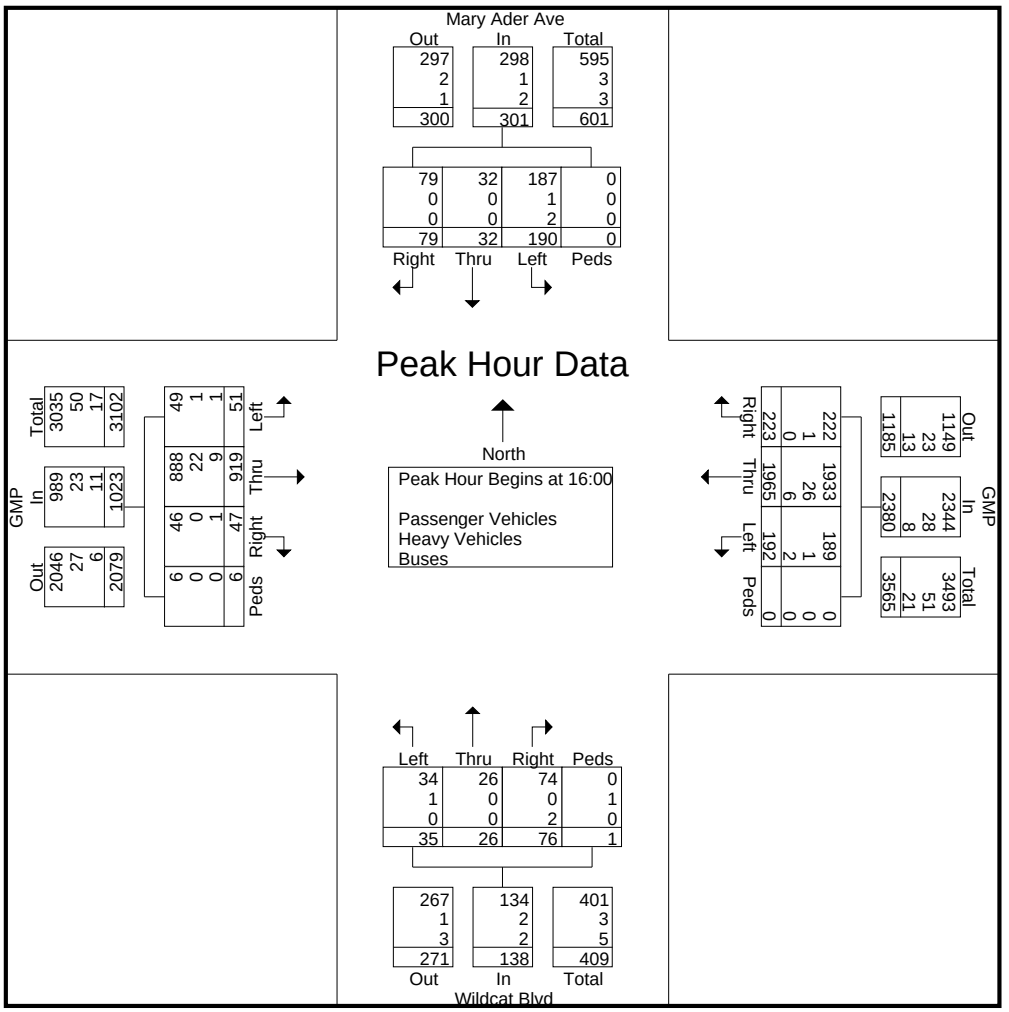
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Wildcat Blvd-Mary Ader Ave
Site Code :
Start Date : 4/25/2018
Page No : 4

	Mary Ader Ave Southbound					GMP Westbound					Wildcat Blvd Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	39	7	10	0	56	39	**520**	55	0	**614**	5	5	15	0	25	14	**248**	11	**3**	**276**	**971**
16:15	**56**	6	**31**	0	**93**	47	471	**58**	0	576	**11**	5	14	0	30	**15**	230	6	1	252	951
16:30	54	**10**	18	0	82	**58**	475	55	0	588	9	7	21	**1**	38	12	239	9	1	261	969
16:45	41	9	20	0	70	48	499	55	0	602	10	**9**	**26**	0	**45**	10	202	**21**	1	234	951
Total Volume	190	32	79	0	301	192	1965	223	0	2380	35	26	76	1	138	51	919	47	6	1023	3842
% App. Total	63.1	10.6	26.2	0		8.1	82.6	9.4	0		25.4	18.8	55.1	0.7		5	89.8	4.6	0.6		
PHF	.848	.800	.637	.000	.809	.828	.945	.961	.000	.969	.795	.722	.731	.250	.767	.850	.926	.560	.500	.927	.989
Passenger Vehicles	187	32	79	0	298	189	1933														
% Passenger Vehicles	98.4	100	100	0	99.0	98.4	98.4	99.6	0	98.5	97.1	100	97.4	0	97.1	96.1	96.6	97.9	100	96.7	98.0
Heavy Vehicles	1	0	0	0	1	1	26	1	0	28	1	0	0	1	2	1	22	0	0	23	54
% Heavy Vehicles	0.5	0	0	0	0.3	0.5	1.3	0.4	0	1.2	2.9	0	0	100	1.4	2.0	2.4	0	0	2.2	1.4
Buses	2	0	0	0	2	2	6	0	0	8	0	0	2	0	2	1	9	1	0	11	23
% Buses	1.1	0	0	0	0.7	1.0	0.3	0	0	0.3	0	0	2.6	0	1.4	2.0	1.0	2.1	0	1.1	0.6



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Lochaven Dr
Site Code :
Start Date : 4/25/2018
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Lochaven Dr Southbound				GMP Westbound				Lochaven Dr Northbound				GMP Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	0	0	0	2	195	0	0	3	0	21	0	0	559	3	0	783
07:15	0	0	0	0	0	173	0	0	1	0	21	0	0	517	4	0	716
07:30	0	0	0	0	1	188	0	0	5	0	14	0	0	491	1	0	700
07:45	0	0	0	0	4	246	0	0	3	0	12	0	0	547	0	0	812
Total	0	0	0	0	7	802	0	0	12	0	68	0	0	2114	8	0	3011
08:00	0	0	0	0	4	250	0	0	7	0	11	1	0	528	1	0	802
08:15	0	0	0	0	3	242	0	0	2	0	14	2	0	549	3	0	815
08:30	0	0	0	0	6	234	0	0	1	0	11	0	0	577	4	0	833
08:45	0	0	0	0	4	197	0	0	2	0	18	0	1	437	1	0	660
Total	0	0	0	0	17	923	0	0	12	0	54	3	1	2091	9	0	3110
16:00	0	0	0	0	12	567	0	0	1	0	4	0	0	290	5	0	879
16:15	1	0	0	0	7	597	0	0	2	0	8	0	0	309	3	0	927
16:30	0	0	0	0	10	597	0	0	4	0	5	0	0	302	2	0	920
16:45	2	0	0	0	5	591	1	0	2	0	4	0	0	248	6	0	859
Total	3	0	0	0	34	2352	1	0	9	0	21	0	0	1149	16	0	3585
17:00	2	0	0	0	10	527	0	0	6	0	5	0	0	283	4	0	837
17:15	0	0	0	0	13	578	0	0	1	0	5	0	0	296	4	0	897
17:30	0	0	0	0	19	606	0	0	4	0	8	0	0	260	6	0	903
17:45	0	0	0	0	17	533	0	0	6	0	10	0	0	269	4	0	839
Total	2	0	0	0	59	2244	0	0	17	0	28	0	0	1108	18	0	3476
Grand Total	5	0	0	0	117	6321	1	0	50	0	171	3	1	6462	51	0	13182
Apprch %	100	0	0	0	1.8	98.2	0	0	22.3	0	76.3	1.3	0	99.2	0.8	0	
Total %	0	0	0	0	0.9	48	0	0	0.4	0	1.3	0	0	49	0.4	0	
Passenger Vehicles	5	0	0	0	117	6169	1	0	50	0	169	3	1	6325	49	0	12889
% Passenger Vehicles	100	0	0	0	100	97.6	100	0	100	0	98.8	100	100	97.9	96.1	0	97.8
Heavy Vehicles	0	0	0	0	0	128	0	0	0	0	0	0	0	103	0	0	231
% Heavy Vehicles	0	0	0	0	0	2	0	0	0	0	0	0	0	1.6	0	0	1.8
Buses	0	0	0	0	0	24	0	0	0	0	2	0	0	34	2	0	62
% Buses	0	0	0	0	0	0.4	0	0	0	0	1.2	0	0	0.5	3.9	0	0.5

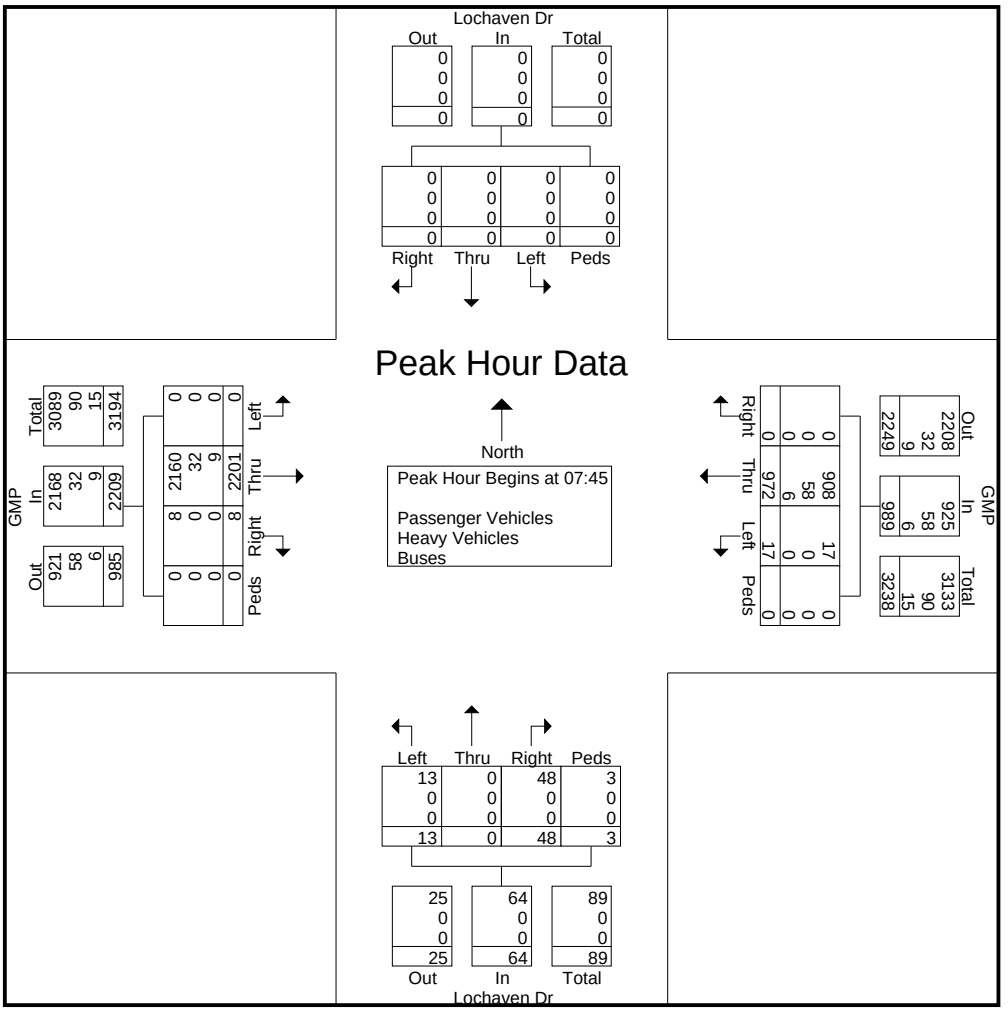
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Lochaven Dr
Site Code :
Start Date : 4/25/2018
Page No : 3

	Lochaven Dr Southbound					GMP Westbound					Lochaven Dr Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	0	0	0	0	0	4	246	0	0	250	3	0	12	0	15	0	547	0	0	547	812
08:00	0	0	0	0	0	4	**250**	0	0	**254**	**7**	0	11	1	**19**	0	528	1	0	529	802
08:15	0	0	0	0	0	3	242	0	0	245	2	0	**14**	**2**	18	0	549	3	0	552	815
08:30	0	0	0	0	0	**6**	234	0	0	240	1	0	11	0	12	0	**577**	**4**	0	**581**	**833**
Total Volume	0	0	0	0	0	17	972	0	0	989	13	0	48	3	64	0	2201	8	0	2209	3262
% App. Total	0	0	0	0		1.7	98.3	0	0		20.3	0	75	4.7		0	99.6	0.4	0		
PHF	.000	.000	.000	.000	.000	.708	.972	.000	.000	.973	.464	.000	.857	.375	.842	.000	.954	.500	.000	.951	.979
Passenger Vehicles	0	0	0	0	0	17	908	0	0	925	13	0	48	3	64	0	2160				
% Passenger Vehicles	0	0	0	0	0	100	93.4	0	0	93.5	100	0	100	100	100	0	98.1	100	0	98.1	96.8
Heavy Vehicles	0	0	0	0	0	0	58	0	0	58	0	0	0	0	0	0	32	0	0	32	90
% Heavy Vehicles	0	0	0	0	0	0	6.0	0	0	5.9	0	0	0	0	0	0	1.5	0	0	1.4	2.8
Buses	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	9	0	0	9	15
% Buses	0	0	0	0	0	0	0.6	0	0	0.6	0	0	0	0	0	0	0.4	0	0	0.4	0.5



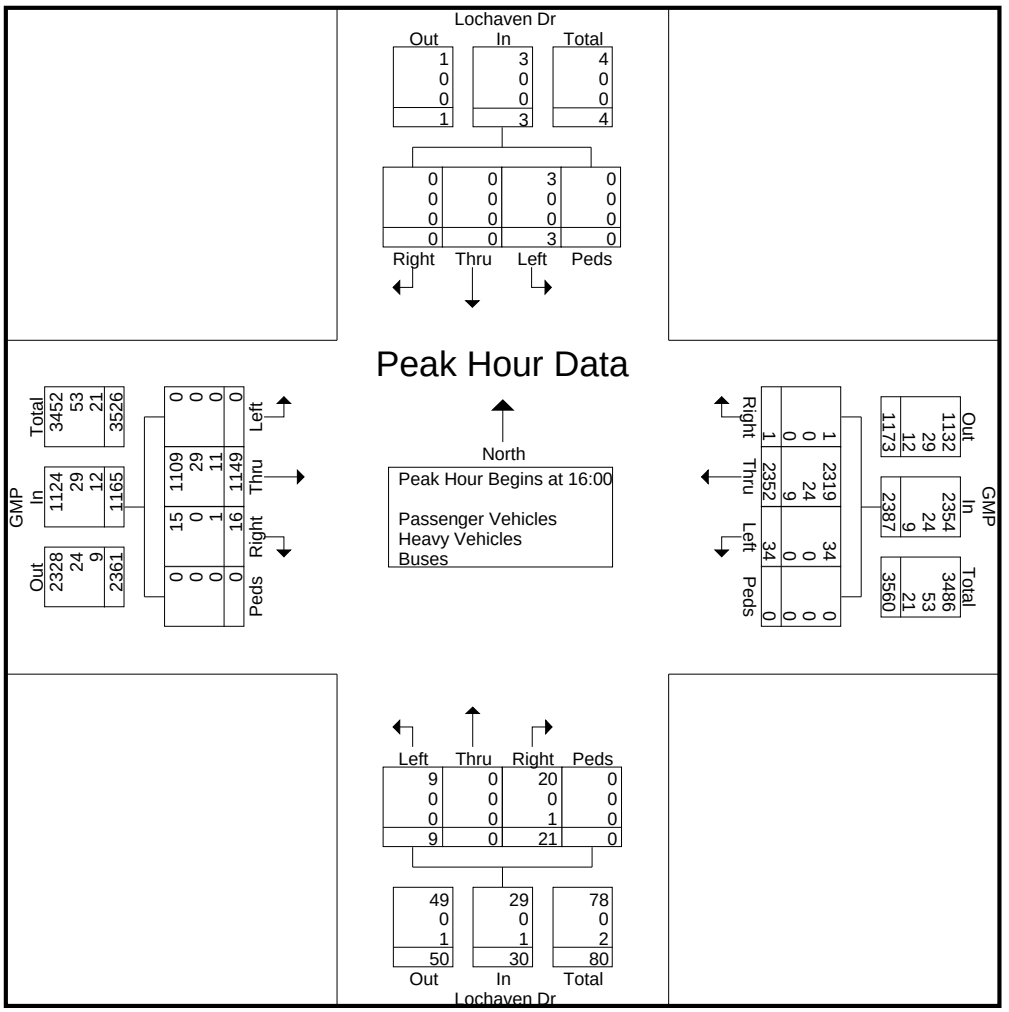
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Lochaven Dr
Site Code :
Start Date : 4/25/2018
Page No : 4

	Lochaven Dr Southbound					GMP Westbound					Lochaven Dr Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	0	0	0	0	**12**	567	0	0	579	1	0	4	0	5	0	290	5	0	295	879
16:15	1	0	0	0	1	7	**597**	0	0	604	2	0	**8**	0	**10**	0	**309**	3	0	**312**	**927**
16:30	0	0	0	0	0	10	597	0	0	**607**	**4**	0	5	0	9	0	302	2	0	304	920
16:45	**2**	0	0	0	**2**	5	591	**1**	0	597	2	0	4	0	6	0	248	**6**	0	254	859
Total Volume	3	0	0	0	3	34	2352	1	0	2387	9	0	21	0	30	0	1149	16	0	1165	3585
% App. Total	100	0	0	0		1.4	98.5	0	0		30	0	70	0		0	98.6	1.4	0		
PHF	.375	.000	.000	.000	.375	.708	.985	.250	.000	.983	.563	.000	.656	.000	.750	.000	.930	.667	.000	.933	.967
Passenger Vehicles	3	0	0	0	3	34	2319										1109				
% Passenger Vehicles	100	0	0	0	100	100	98.6	100	0	98.6	100	0	95.2	0	96.7	0	96.5	93.8	0	96.5	97.9
Heavy Vehicles	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	0	29	0	0	29	53
% Heavy Vehicles	0	0	0	0	0	0	1.0	0	0	1.0	0	0	0	0	0	0	2.5	0	0	2.5	1.5
Buses	0	0	0	0	0	0	9	0	0	9	0	0	1	0	1	0	11	1	0	12	22
% Buses	0	0	0	0	0	0	0.4	0	0	0.4	0	0	4.8	0	3.3	0	1.0	6.3	0	1.0	0.6



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Springs at Essex Farms Apts
Site Code : 00050218
Start Date : 5/2/2018
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Southbound				GMP Westbound				Spring @ Essex Farms Apts Northbound				GMP Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	0	0	0	2	207	0	1	1	0	18	0	0	627	0	0	856
07:15	0	0	0	0	2	169	0	0	0	0	18	0	0	551	1	0	741
07:30	0	0	0	0	2	203	0	0	2	0	22	0	0	518	0	0	747
07:45	0	0	0	0	2	199	0	0	0	0	16	0	0	529	0	0	746
Total	0	0	0	0	8	778	0	1	3	0	74	0	0	2225	1	0	3090
08:00	0	0	0	0	2	263	0	0	0	0	10	0	0	592	0	0	867
08:15	0	0	0	0	1	203	0	0	2	0	13	0	0	659	0	0	878
08:30	0	0	0	0	7	259	0	0	2	0	16	0	0	601	2	0	887
08:45	0	0	0	0	2	223	0	0	0	0	7	0	0	512	4	0	748
Total	0	0	0	0	12	948	0	0	4	0	46	0	0	2364	6	0	3380
16:00	0	0	0	0	13	675	0	0	0	0	1	0	0	310	0	0	999
16:15	0	0	0	0	7	618	0	0	1	0	5	0	0	330	4	1	966
16:30	0	0	0	0	3	689	0	0	0	0	4	0	0	299	1	0	996
16:45	0	0	0	0	11	651	0	0	1	0	6	0	0	292	1	0	962
Total	0	0	0	0	34	2633	0	0	2	0	16	0	0	1231	6	1	3923
17:00	0	0	0	0	7	574	0	0	0	0	5	0	0	309	2	0	897
17:15	0	0	0	0	14	637	0	0	0	0	2	0	0	301	0	0	954
17:30	0	0	0	0	19	633	0	0	0	0	7	0	0	308	3	0	970
17:45	0	0	0	0	16	652	0	0	3	0	9	0	0	270	2	0	952
Total	0	0	0	0	56	2496	0	0	3	0	23	0	0	1188	7	0	3773
Grand Total	0	0	0	0	110	6855	0	1	12	0	159	0	0	7008	20	1	14166
Apprch %	0	0	0	0	1.6	98.4	0	0	7	0	93	0	0	99.7	0.3	0	
Total %	0	0	0	0	0.8	48.4	0	0	0.1	0	1.1	0	0	49.5	0.1	0	
Passenger Vehicles	0	0	0	0	110	6768	0	1	12	0	159	0	0	6926	20	0	13996
% Passenger Vehicles	0	0	0	0	100	98.7	0	100	100	0	100	0	0	98.8	100	0	98.8
Heavy Vehicles	0	0	0	0	0	59	0	0	0	0	0	0	0	37	0	0	96
% Heavy Vehicles	0	0	0	0	0	0.9	0	0	0	0	0	0	0	0.5	0	0	0.7
Buses	0	0	0	0	0	28	0	0	0	0	0	0	0	45	0	1	74
% Buses	0	0	0	0	0	0.4	0	0	0	0	0	0	0	0.6	0	100	0.5

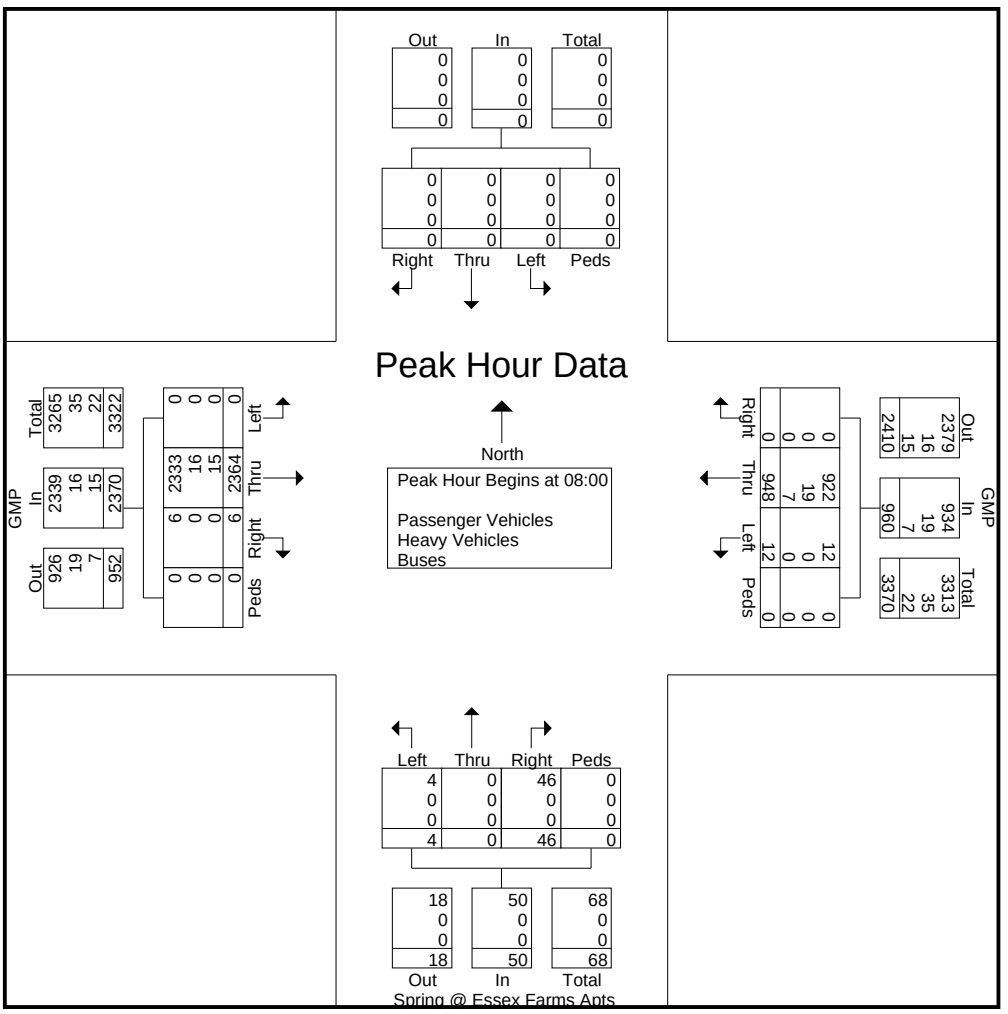
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Springs at Essex Farms Apts
Site Code : 00050218
Start Date : 5/2/2018
Page No : 3

	Southbound					GMP Westbound					Spring @ Essex Farms Apts Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00																					
08:00	0	0	0	0	0	2	**263**	0	0	265	0	0	10	0	10	0	592	0	0	592	867
08:15	0	0	0	0	0	1	203	0	0	204	**2**	0	13	0	15	0	**659**	0	0	**659**	878
08:30	0	0	0	0	0	**7**	259	0	0	**266**	2	0	**16**	0	**18**	0	601	2	0	603	**887**
08:45	0	0	0	0	0	2	223	0	0	225	0	0	7	0	7	0	512	**4**	0	516	748
Total Volume	0	0	0	0	0	12	948	0	0	960	4	0	46	0	50	0	2364	6	0	2370	3380
% App. Total	0	0	0	0		1.2	98.8	0	0		8	0	92	0		0	99.7	0.3	0		
PHF	.000	.000	.000	.000	.000	.429	.901	.000	.000	.902	.500	.000	.719	.000	.694	.000	.897	.375	.000	.899	.953
Passenger Vehicles	0	0	0	0	0	12	922	0	0	934	4	0	46	0	50	0	2333				
% Passenger Vehicles	0	0	0	0	0	100	97.3	0	0	97.3	100	0	100	0	100	0	98.7	100	0	98.7	98.3
Heavy Vehicles	0	0	0	0	0	0	19	0	0	19	0	0	0	0	0	0	16	0	0	16	35
% Heavy Vehicles	0	0	0	0	0	0	2.0	0	0	2.0	0	0	0	0	0	0	0.7	0	0	0.7	1.0
Buses	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	15	0	0	15	22
% Buses	0	0	0	0	0	0	0.7	0	0	0.7	0	0	0	0	0	0	0.6	0	0	0.6	0.7



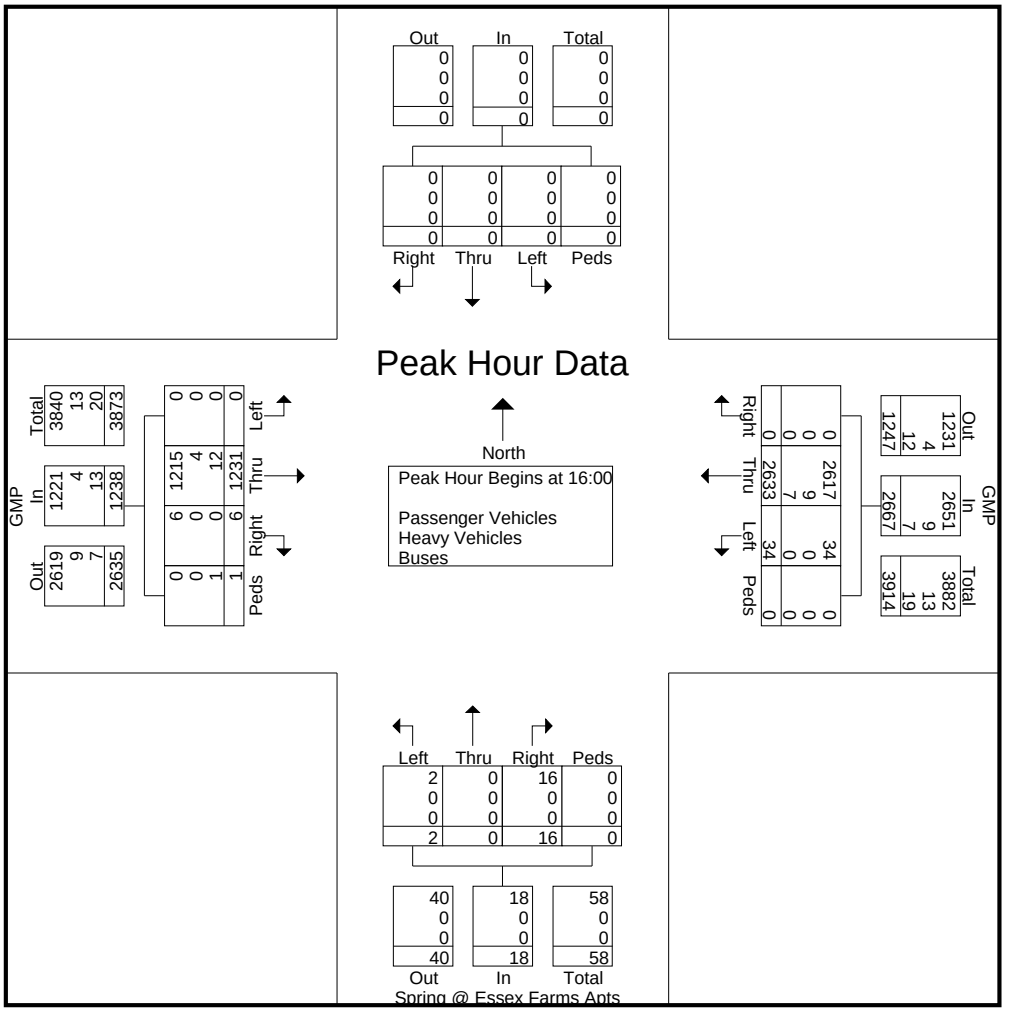
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Springs at Essex Farms Apts
Site Code : 00050218
Start Date : 5/2/2018
Page No : 4

	Southbound					GMP Westbound					Spring @ Essex Farms Apts Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	0	0	0	0	**13**	675	0	0	688	0	0	1	0	1	0	310	0	0	310	**999**
16:15	0	0	0	0	0	7	618	0	0	625	**1**	0	5	0	6	0	**330**	**4**	**1**	**335**	966
16:30	0	0	0	0	0	3	**689**	0	0	**692**	0	0	4	0	4	0	299	1	0	300	996
16:45	0	0	0	0	0	11	651	0	0	662	1	0	**6**	0	**7**	0	292	1	0	293	962
Total Volume	0	0	0	0	0	34	2633	0	0	2667	2	0	16	0	18	0	1231	6	1	1238	3923
% App. Total	0	0	0	0		1.3	98.7	0	0		11.1	0	88.9	0		0	99.4	0.5	0.1		
PHF	.000	.000	.000	.000	.000	.654	.955	.000	.000	.964	.500	.000	.667	.000	.643	.000	.933	.375	.250	.924	.982
Passenger Vehicles	0	0	0	0	0	34	2617										1215				
% Passenger Vehicles	0	0	0	0	0	100	99.4	0	0	99.4	100	0	100	0	100	0	98.7	100	0	98.6	99.2
Heavy Vehicles	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	4	0	0	4	13
% Heavy Vehicles	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0	0.3	0	0	0.3	0.3
Buses	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	12	0	1	13	20
% Buses	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0	1.0	0	100	1.1	0.5



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Essex Farms Dr
Site Code :
Start Date : 4/25/2018
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Southbound				GMP Westbound				Essex Farms Dr Northbound				GMP Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	0	0	0	22	196	0	0	2	0	87	0	0	569	5	0	881
07:15	0	0	0	0	10	172	0	0	0	0	129	0	0	597	2	0	910
07:30	0	0	0	0	17	193	0	0	1	0	101	0	0	584	0	0	896
07:45	0	0	0	0	18	267	0	0	1	0	134	0	0	649	0	0	1069
Total	0	0	0	0	67	828	0	0	4	0	451	0	0	2399	7	0	3756
08:00	0	0	0	0	10	227	0	0	0	0	99	0	0	588	6	0	930
08:15	0	0	0	0	22	269	0	0	2	0	65	0	0	655	1	0	1014
08:30	0	0	0	0	16	210	0	0	1	0	63	0	0	660	3	0	953
08:45	0	0	0	0	12	227	0	0	0	0	36	0	0	512	1	0	788
Total	0	0	0	0	60	933	0	0	3	0	263	0	0	2415	11	0	3685
16:00	0	0	0	0	47	645	0	0	1	0	15	0	0	307	1	0	1016
16:15	0	0	0	0	50	653	0	0	1	0	24	0	0	314	4	0	1046
16:30	0	0	0	0	47	659	0	0	5	0	19	0	0	322	4	0	1056
16:45	0	0	0	0	56	630	0	0	3	0	25	0	0	264	2	0	980
Total	0	0	0	0	200	2587	0	0	10	0	83	0	0	1207	11	0	4098
17:00	0	0	0	0	55	597	0	0	1	0	30	1	0	302	4	0	990
17:15	0	0	0	0	54	618	0	0	3	0	27	0	0	313	5	0	1020
17:30	0	0	0	0	58	694	0	0	2	0	28	0	0	285	2	0	1069
17:45	0	0	0	0	67	629	0	0	0	0	27	0	0	288	5	0	1016
Total	0	0	0	0	234	2538	0	0	6	0	112	1	0	1188	16	0	4095
Grand Total	0	0	0	0	561	6886	0	0	23	0	909	1	0	7209	45	0	15634
Apprch %	0	0	0	0	7.5	92.5	0	0	2.5	0	97.4	0.1	0	99.4	0.6	0	
Total %	0	0	0	0	3.6	44	0	0	0.1	0	5.8	0	0	46.1	0.3	0	
Passenger Vehicles	0	0	0	0	558	6728	0	0	21	0	903	1	0	7077	42	0	15330
% Passenger Vehicles	0	0	0	0	99.5	97.7	0	0	91.3	0	99.3	100	0	98.2	93.3	0	98.1
Heavy Vehicles	0	0	0	0	3	137	0	0	1	0	5	0	0	97	1	0	244
% Heavy Vehicles	0	0	0	0	0.5	2	0	0	4.3	0	0.6	0	0	1.3	2.2	0	1.6
Buses	0	0	0	0	0	21	0	0	1	0	1	0	0	35	2	0	60
% Buses	0	0	0	0	0	0.3	0	0	4.3	0	0.1	0	0	0.5	4.4	0	0.4

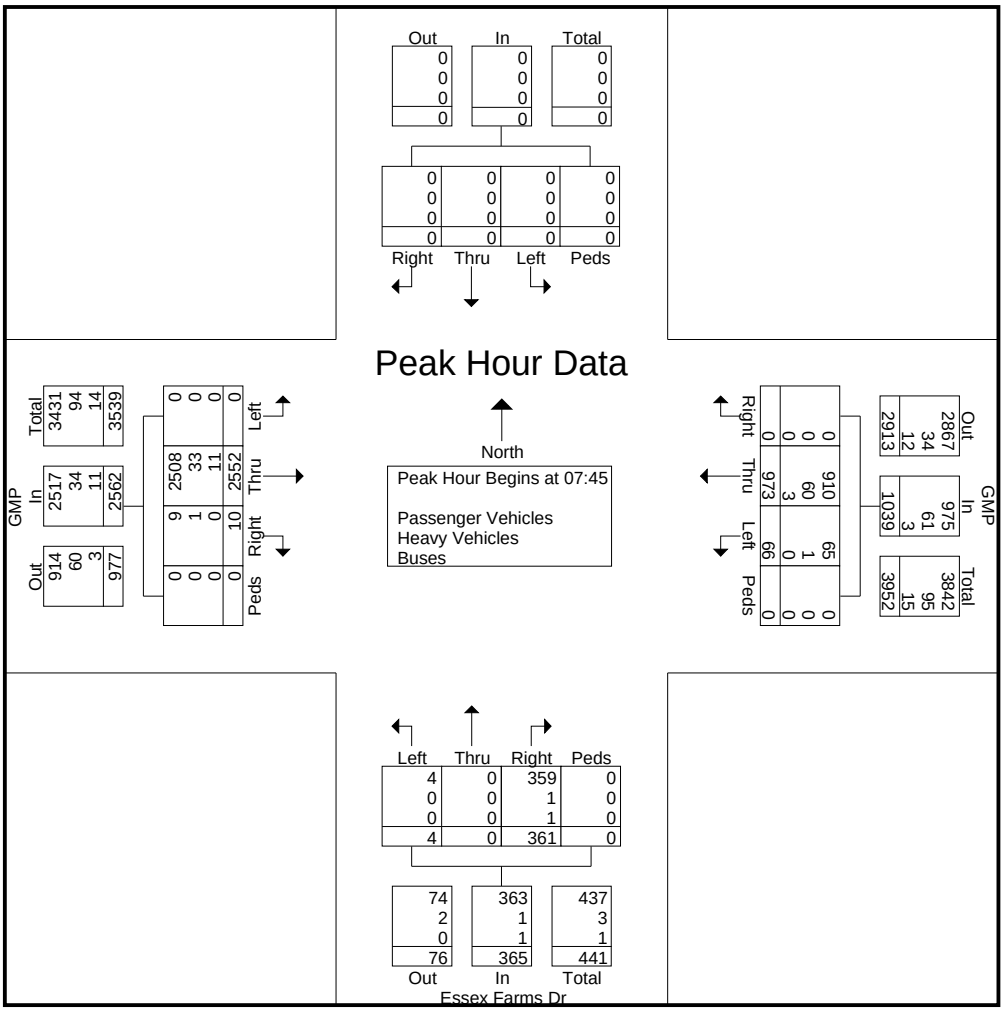
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Essex Farms Dr
Site Code :
Start Date : 4/25/2018
Page No : 3

	Southbound					GMP Westbound					Essex Farms Dr Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	0	0	0	0	0	18	267	0	0	285	1	0	**134**	0	**135**	0	649	0	0	649	**1069**
08:00	0	0	0	0	0	10	227	0	0	237	0	0	99	0	99	0	588	**6**	0	594	930
08:15	0	0	0	0	0	**22**	**269**	0	0	**291**	**2**	0	65	0	67	0	655	1	0	656	1014
08:30	0	0	0	0	0	16	210	0	0	226	1	0	63	0	64	0	**660**	3	0	**663**	953
Total Volume	0	0	0	0	0	66	973	0	0	1039	4	0	361	0	365	0	2552	10	0	2562	3966
% App. Total	0	0	0	0		6.4	93.6	0	0		1.1	0	98.9	0		0	99.6	0.4	0		
PHF	.000	.000	.000	.000	.000	.750	.904	.000	.000	.893	.500	.000	.674	.000	.676	.000	.967	.417	.000	.966	.928
Passenger Vehicles	0	0	0	0	0	65	910	0	0	975	4	0	359	0	363	0	2508				
% Passenger Vehicles	0	0	0	0	0	98.5	93.5	0	0	93.8	100	0	99.4	0	99.5	0	98.3	90.0	0	98.2	97.2
Heavy Vehicles	0	0	0	0	0	1	60	0	0	61	0	0	1	0	1	0	33	1	0	34	96
% Heavy Vehicles	0	0	0	0	0	1.5	6.2	0	0	5.9	0	0	0.3	0	0.3	0	1.3	10.0	0	1.3	2.4
Buses	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	0	11	0	0	11	15
% Buses	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0.3	0	0.3	0	0.4	0	0	0.4	0.4



SHORT COUNTS, LLC

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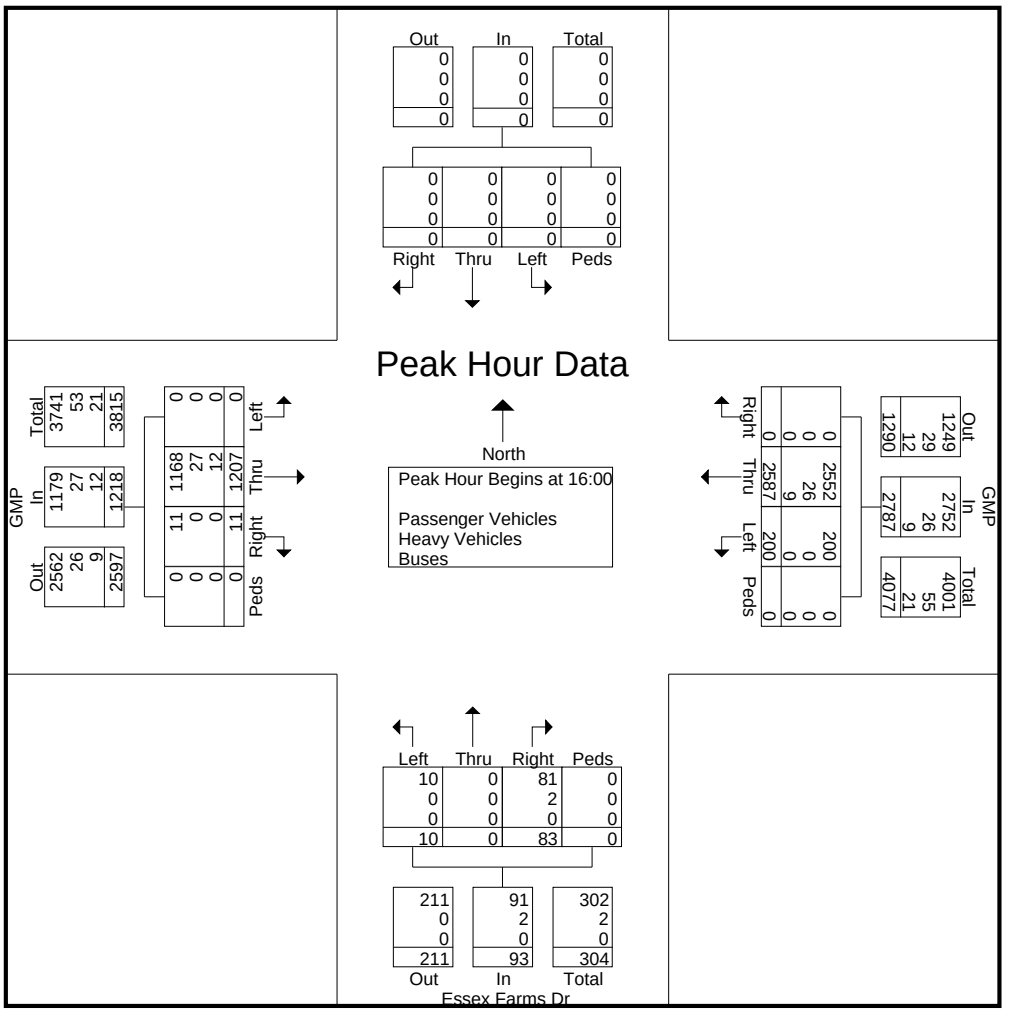
We can't say we're the Best, but you Can!

File Name : GMP @ Essex Farms Dr
Site Code :
Start Date : 4/25/2018
Page No : 4

	Southbound					GMP Westbound					Essex Farms Dr Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	0	0	0	0	47	645	0	0	692	1	0	15	0	16	0	307	1	0	308	1016
16:15	0	0	0	0	0	50	653	0	0	703	1	0	24	0	25	0	314	**4**	0	318	1046
16:30	0	0	0	0	0	47	**659**	0	0	**706**	**5**	0	19	0	24	0	**322**	4	0	**326**	**1056**
16:45	0	0	0	0	0	**56**	630	0	0	686	3	0	**25**	0	**28**	0	264	2	0	266	980
Total Volume	0	0	0	0	0	200	2587	0	0	2787	10	0	83	0	93	0	1207	11	0	1218	4098
% App. Total	0	0	0	0		7.2	92.8	0	0		10.8	0	89.2	0		0	99.1	0.9	0		
PHF	.000	.000	.000	.000	.000	.893	.981	.000	.000	.987	.500	.000	.830	.000	.830	.000	.937	.688	.000	.934	.970
Passenger Vehicles	0	0	0	0	0	200	2552										1168				
% Passenger Vehicles	0	0	0	0	0	100	98.6	0	0	98.7	100	0	97.6	0	97.8	0	96.8	100	0	96.8	98.1
Heavy Vehicles	0	0	0	0	0	0	26	0	0	26	0	0	2	0	2	0	27	0	0	27	55
% Heavy Vehicles	0	0	0	0	0	0	1.0	0	0	0.9	0	0	2.4	0	2.2	0	2.2	0	0	2.2	1.3
Buses	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	12	0	0	12	21
% Buses	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0	1.0	0	0	1.0	0.5



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

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File Name : GMP @ Waterstone Ln-Bairds Cove
Site Code :
Start Date : 4/25/2018
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Bairds Cove Rd Southbound				GMP Westbound				Waterstone Ln Northbound				GMP Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	36	0	4	0	1	166	3	0	2	0	29	0	6	560	1	0	808
07:15	32	1	5	0	1	160	5	0	4	0	30	0	1	488	2	0	729
07:30	26	0	8	0	1	180	5	0	3	0	23	0	2	539	1	0	788
07:45	26	0	6	0	5	226	4	0	4	0	18	0	1	503	1	0	794
Total	120	1	23	0	8	732	17	0	13	0	100	0	10	2090	5	0	3119
08:00	16	0	1	0	1	239	6	0	2	0	21	0	0	577	1	0	864
08:15	7	0	6	0	3	213	6	0	0	0	24	0	0	557	3	0	819
08:30	13	0	4	0	1	220	4	0	3	0	12	0	4	590	2	0	853
08:45	18	0	5	0	3	181	3	0	3	0	11	0	2	529	0	0	755
Total	54	0	16	0	8	853	19	0	8	0	68	0	6	2253	6	0	3291
16:00	7	0	4	0	9	606	25	0	1	0	8	0	4	282	2	0	948
16:15	11	0	4	0	17	566	22	0	2	0	10	0	2	290	6	0	930
16:30	11	0	6	0	13	557	19	0	3	0	7	0	4	307	2	0	929
16:45	7	0	6	0	27	577	10	0	4	0	11	0	4	239	4	0	889
Total	36	0	20	0	66	2306	76	0	10	0	36	0	14	1118	14	0	3696
17:00	11	0	5	0	18	533	10	0	5	0	12	0	0	283	7	0	884
17:15	11	0	6	0	17	541	15	1	4	0	9	0	1	293	8	0	906
17:30	9	0	4	0	33	623	29	0	1	0	8	0	2	259	7	0	975
17:45	6	1	2	0	20	555	17	0	6	0	12	0	4	268	5	0	896
Total	37	1	17	0	88	2252	71	1	16	0	41	0	7	1103	27	0	3661
Grand Total	247	2	76	0	170	6143	183	1	47	0	245	0	37	6564	52	0	13767
Apprch %	76	0.6	23.4	0	2.6	94.6	2.8	0	16.1	0	83.9	0	0.6	98.7	0.8	0	
Total %	1.8	0	0.6	0	1.2	44.6	1.3	0	0.3	0	1.8	0	0.3	47.7	0.4	0	
Passenger Vehicles	242	2	75	0	170	5985	182	1	47	0	243	0	36	6429	48	0	13460
% Passenger Vehicles	98	100	98.7	0	100	97.4	99.5	100	100	0	99.2	0	97.3	97.9	92.3	0	97.8
Heavy Vehicles	2	0	0	0	0	137	1	0	0	0	0	0	0	103	1	0	244
% Heavy Vehicles	0.8	0	0	0	0	2.2	0.5	0	0	0	0	0	0	1.6	1.9	0	1.8
Buses	3	0	1	0	0	21	0	0	0	0	2	0	1	32	3	0	63
% Buses	1.2	0	1.3	0	0	0.3	0	0	0	0	0.8	0	2.7	0.5	5.8	0	0.5

SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

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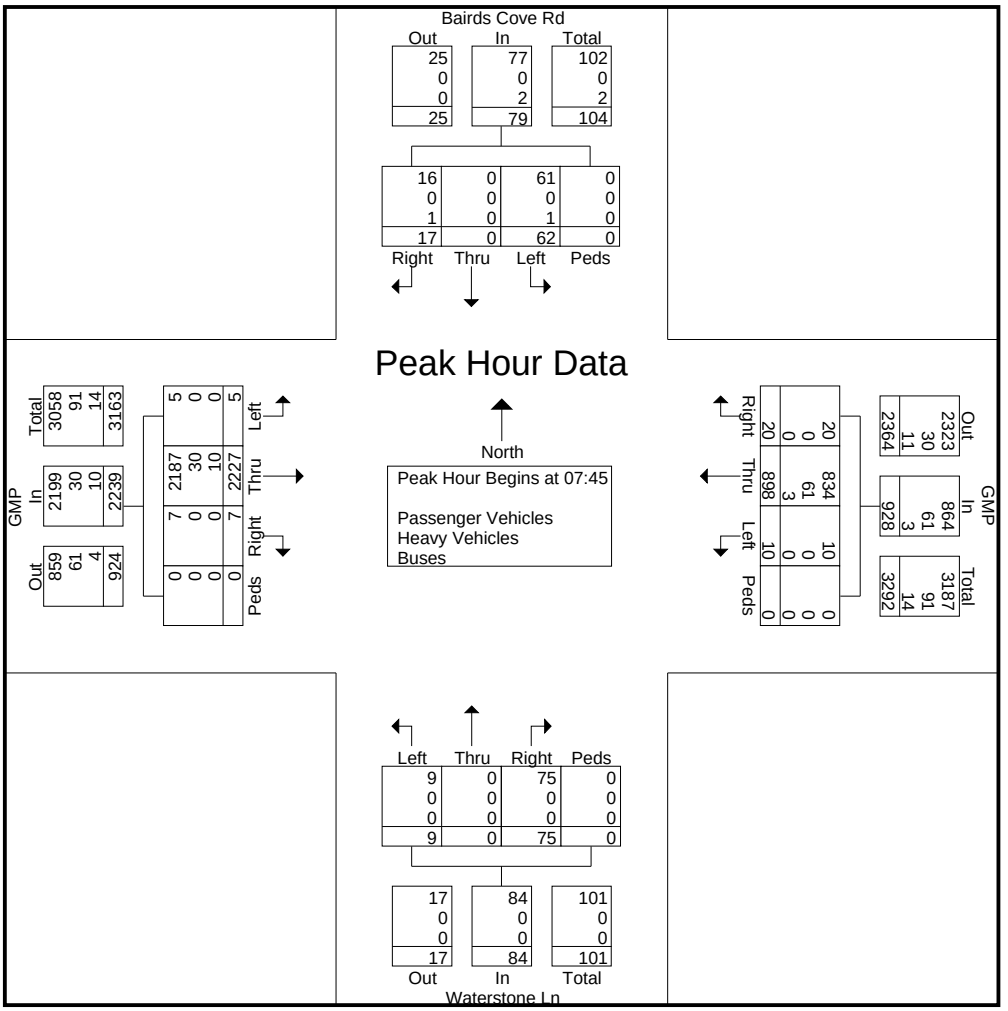
File Name : GMP @ Waterstone Ln-Bairds Cove
Site Code :
Start Date : 4/25/2018
Page No : 3

	Bairds Cove Rd Southbound					GMP Westbound					Waterstone Ln Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	**26**	0	**6**	0	**32**	**5**	226	4	0	235	**4**	0	18	0	22	1	503	1	0	505	794
08:00	16	0	1	0	17	1	**239**	**6**	0	**246**	2	0	21	0	23	0	577	1	0	578	**864**
08:15	7	0	6	0	13	3	213	6	0	222	0	0	**24**	0	**24**	0	557	**3**	0	560	819
08:30	13	0	4	0	17	1	220	4	0	225	3	0	12	0	15	**4**	**590**	2	0	**596**	853
Total Volume	62	0	17	0	79	10	898	20	0	928	9	0	75	0	84	5	2227	7	0	2239	3330
% App. Total	78.5	0	21.5	0		1.1	96.8	2.2	0		10.7	0	89.3	0		0.2	99.5	0.3	0		
PHF	.596	.000	.708	.000	.617	.500	.939	.833	.000	.943	.563	.000	.781	.000	.875	.313	.944	.583	.000	.939	.964
Passenger Vehicles	61	0	16	0	77	10	834	20	0	864	9	0	75	0	84	5	2187				
% Passenger Vehicles	98.4	0	94.1	0	97.5	100	92.9	100	0	93.1	100	0	100	0	100	100	98.2	100	0	98.2	96.8
Heavy Vehicles	0	0	0	0	0	0	61	0	0	61	0	0	0	0	0	0	30	0	0	30	91
% Heavy Vehicles	0	0	0	0	0	0	6.8	0	0	6.6	0	0	0	0	0	0	1.3	0	0	1.3	2.7
Buses	1	0	1	0	2	0	3	0	0	3	0	0	0	0	0	0	10	0	0	10	15
% Buses	1.6	0	5.9	0	2.5	0	0.3	0	0	0.3	0	0	0	0	0	0	0.4	0	0	0.4	0.5



SHORT COUNTS, LLC

735 Maryland St
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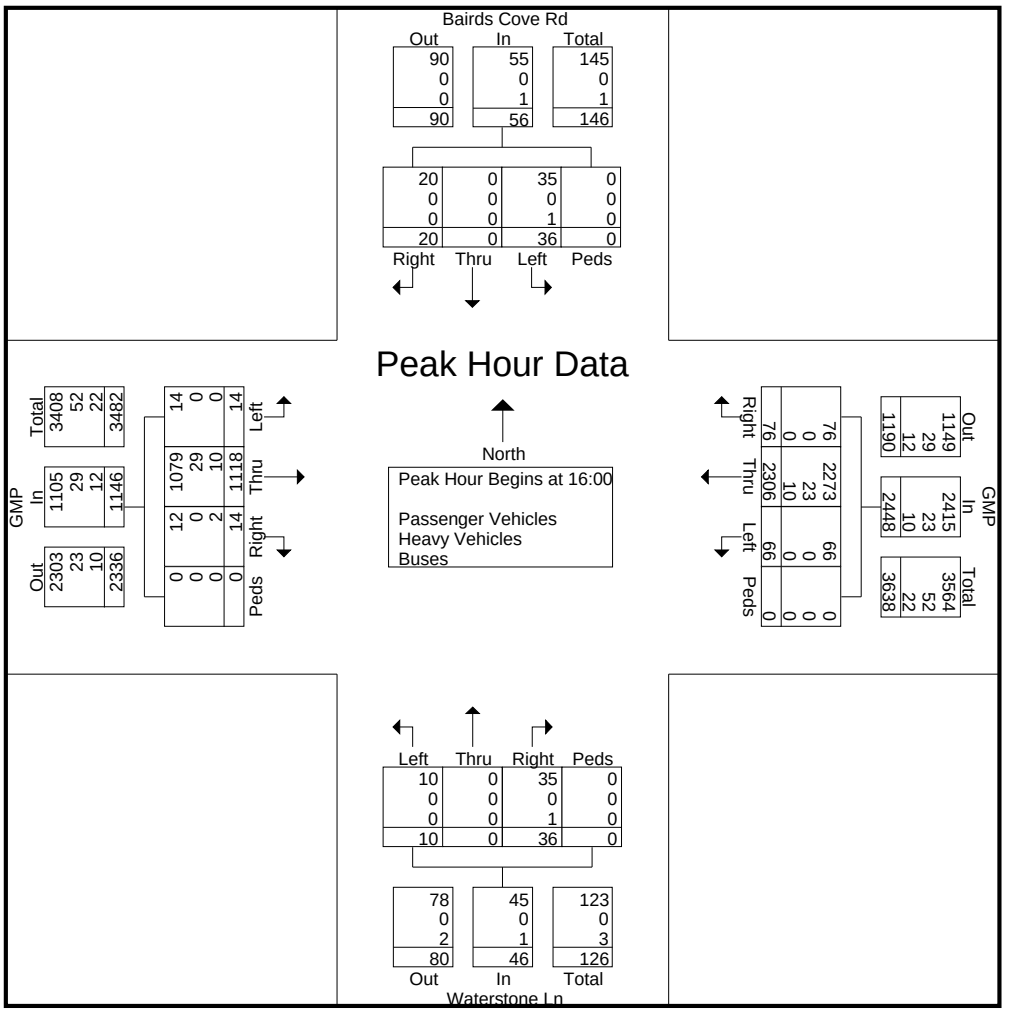
File Name : GMP @ Waterstone Ln-Bairds Cove
Site Code :
Start Date : 4/25/2018
Page No : 4

	Bairds Cove Rd Southbound					GMP Westbound					Waterstone Ln Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	7	0	4	0	11	9	**606**	**25**	0	**640**	1	0	8	0	9	**4**	282	2	0	288	**948**
16:15	**11**	0	4	0	15	17	566	22	0	605	2	0	10	0	12	2	290	**6**	0	298	930
16:30	11	0	**6**	0	**17**	13	557	19	0	589	3	0	7	0	10	4	**307**	2	0	**313**	929
16:45	7	0	6	0	13	**27**	577	10	0	614	**4**	0	**11**	0	**15**	4	239	4	0	247	889
Total Volume	36	0	20	0	56	66	2306	76	0	2448	10	0	36	0	46	14	1118	14	0	1146	3696
% App. Total	64.3	0	35.7	0		2.7	94.2	3.1	0		21.7	0	78.3	0		1.2	97.6	1.2	0		
PHF	.818	.000	.833	.000	.824	.611	.951	.760	.000	.956	.625	.000	.818	.000	.767	.875	.910	.583	.000	.915	.975
Passenger Vehicles	35	0	20	0	55	66	2273										1079				
% Passenger Vehicles	97.2	0	100	0	98.2	100	98.6	100	0	98.7	100	0	97.2	0	97.8	100	96.5	85.7	0	96.4	97.9
Heavy Vehicles	0	0	0	0	0	0	23	0	0	23	0	0	0	0	0	0	29	0	0	29	52
% Heavy Vehicles	0	0	0	0	0	0	1.0	0	0	0.9	0	0	0	0	0	0	2.6	0	0	2.5	1.4
Buses	1	0	0	0	1	0	10	0	0	10	0	0	1	0	1	0	10	2	0	12	24
% Buses	2.8	0	0	0	1.8	0	0.4	0	0	0.4	0	0	2.8	0	2.2	0	0.9	14.3	0	1.0	0.6



SHORT COUNTS, LLC

735 Maryland St
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We can't say we're the Best, but you Can!

File Name : GMP @ Charlie Hall Blvd
Site Code :
Start Date : 4/25/2018
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Charlie Hall Blvd Southbound				GMP Westbound				Charlie Hall Blvd Northbound				GMP Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	0	0	23	0	0	196	13	0	0	0	0	0	17	641	19	0	909
07:15	0	0	19	0	0	152	21	0	0	0	2	0	23	615	18	0	850
07:30	0	0	18	0	0	200	19	0	0	0	1	0	30	675	13	0	956
07:45	0	0	25	0	0	258	30	0	0	0	1	0	44	594	31	0	983
Total	0	0	85	0	0	806	83	0	0	0	4	0	114	2525	81	0	3698
08:00	0	0	22	0	0	215	30	0	0	0	4	0	39	645	23	0	978
08:15	0	0	24	0	2	263	40	0	0	0	1	0	37	589	27	0	983
08:30	0	0	35	0	0	193	35	0	0	0	2	0	53	701	21	0	1040
08:45	0	0	23	0	3	216	26	0	0	0	0	0	33	499	17	0	817
Total	0	0	104	0	5	887	131	0	0	0	7	0	162	2434	88	0	3818
16:00	0	0	80	0	2	617	17	0	0	0	18	0	21	302	10	0	1067
16:15	0	0	75	0	5	635	13	0	0	0	14	0	14	306	11	0	1073
16:30	0	0	82	0	2	640	7	0	0	0	24	0	10	348	10	1	1124
16:45	0	0	54	0	5	619	8	0	0	0	18	0	7	285	14	0	1010
Total	0	0	291	0	14	2511	45	0	0	0	74	0	52	1241	45	1	4274
17:00	0	0	60	0	6	598	6	0	0	0	16	0	7	302	11	0	1006
17:15	0	0	47	0	1	606	4	0	0	0	21	0	8	334	15	0	1036
17:30	0	0	54	0	3	677	9	0	0	0	13	0	7	274	12	0	1049
17:45	0	0	36	0	2	629	7	0	0	0	14	0	7	305	16	0	1016
Total	0	0	197	0	12	2510	26	0	0	0	64	0	29	1215	54	0	4107
Grand Total	0	0	677	0	31	6714	285	0	0	0	149	0	357	7415	268	1	15897
Apprch %	0	0	100	0	0.4	95.5	4.1	0	0	0	100	0	4.4	92.2	3.3	0	
Total %	0	0	4.3	0	0.2	42.2	1.8	0	0	0	0.9	0	2.2	46.6	1.7	0	
Passenger Vehicles	0	0	670	0	31	6560	282	0	0	0	149	0	350	7287	261	1	15591
% Passenger Vehicles	0	0	99	0	100	97.7	98.9	0	0	0	100	0	98	98.3	97.4	100	98.1
Heavy Vehicles	0	0	5	0	0	139	1	0	0	0	0	0	5	93	7	0	250
% Heavy Vehicles	0	0	0.7	0	0	2.1	0.4	0	0	0	0	0	1.4	1.3	2.6	0	1.6
Buses	0	0	2	0	0	15	2	0	0	0	0	0	2	35	0	0	56
% Buses	0	0	0.3	0	0	0.2	0.7	0	0	0	0	0	0.6	0.5	0	0	0.4

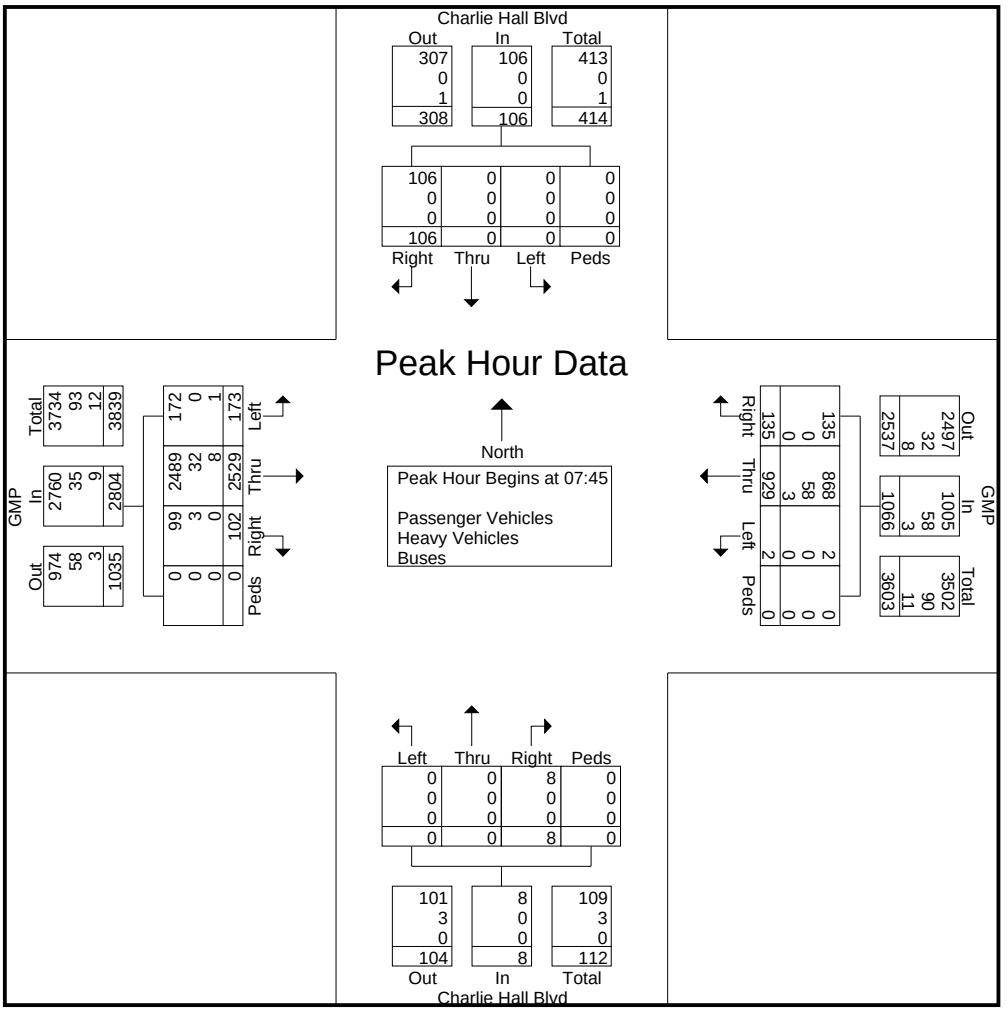
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Charlie Hall Blvd
Site Code :
Start Date : 4/25/2018
Page No : 3

	Charlie Hall Blvd Southbound					GMP Westbound					Charlie Hall Blvd Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	0	0	25	0	25	0	258	30	0	288	0	0	1	0	1	44	594	**31**	0	669	983
08:00	0	0	22	0	22	0	215	30	0	245	0	0	**4**	0	**4**	39	645	23	0	707	978
08:15	0	0	24	0	24	**2**	**263**	**40**	0	**305**	0	0	1	0	1	37	589	27	0	653	983
08:30	0	0	**35**	0	**35**	0	193	35	0	228	0	0	2	0	2	**53**	**701**	21	0	**775**	**1040**
Total Volume	0	0	106	0	106	2	929	135	0	1066	0	0	8	0	8	173	2529	102	0	2804	3984
% App. Total	0	0	100	0		0.2	87.1	12.7	0		0	0	100	0		6.2	90.2	3.6	0		
PHF	.000	.000	.757	.000	.757	.250	.883	.844	.000	.874	.000	.000	.500	.000	.500	.816	.902	.823	.000	.905	.958
Passenger Vehicles	0	0	106	0	106	2	868	135	0	1005	0	0	8	0	8	172	2489				
% Passenger Vehicles	0	0	100	0	100	100	93.4	100	0	94.3	0	0	100	0	100	99.4	98.4	97.1	0	98.4	97.4
Heavy Vehicles	0	0	0	0	0	0	58	0	0	58	0	0	0	0	0	0	32	3	0	35	93
% Heavy Vehicles	0	0	0	0	0	0	6.2	0	0	5.4	0	0	0	0	0	0	1.3	2.9	0	1.2	2.3
Buses	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	1	8	0	0	9	12
% Buses	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0.6	0.3	0	0	0.3	0.3



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735 Maryland St
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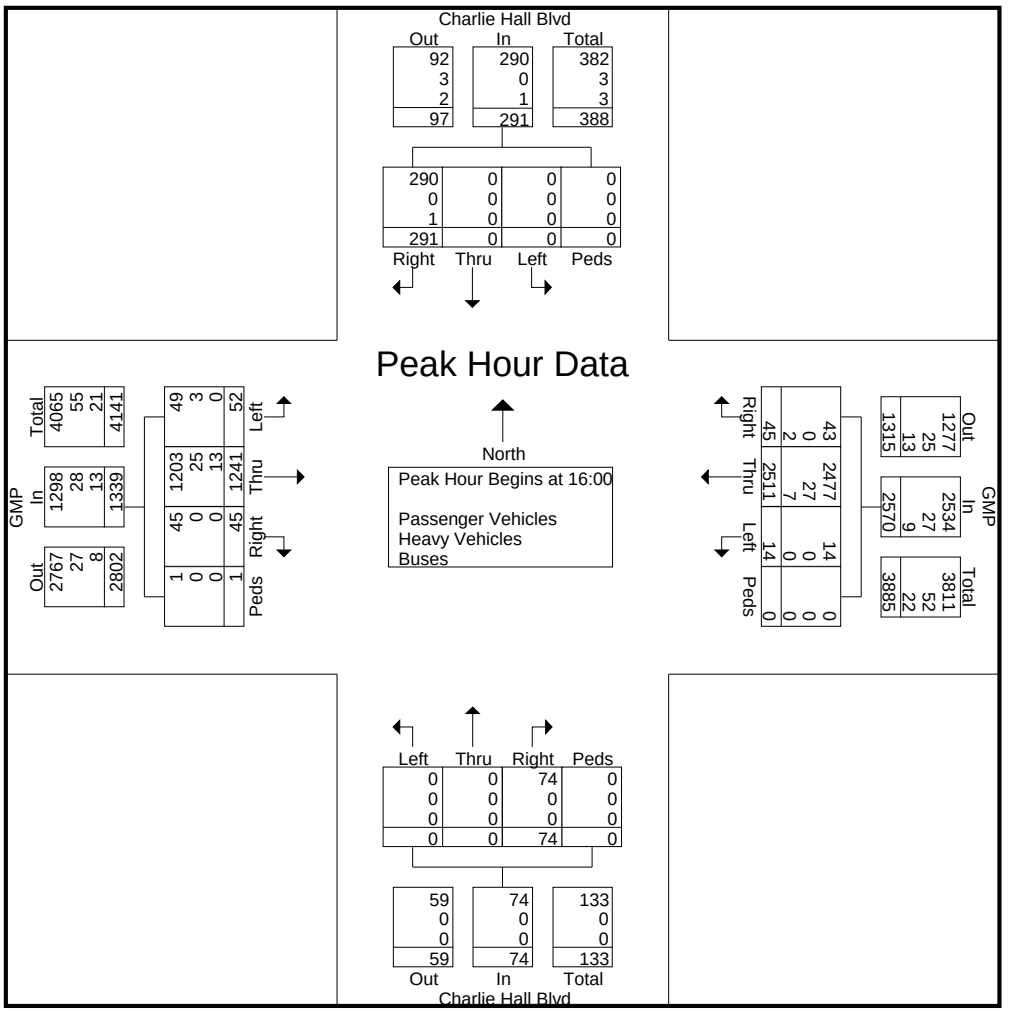
We can't say we're the Best, but you Can!

File Name : GMP @ Charlie Hall Blvd
Site Code :
Start Date : 4/25/2018
Page No : 4

	Charlie Hall Blvd Southbound					GMP Westbound					Charlie Hall Blvd Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	0	0	80	0	80	2	617	**17**	0	636	0	0	18	0	18	**21**	302	10	0	333	1067
16:15	0	0	75	0	75	**5**	635	13	0	**653**	0	0	14	0	14	14	306	11	0	331	1073
16:30	0	0	**82**	0	**82**	2	**640**	7	0	649	0	0	**24**	0	**24**	10	**348**	10	**1**	**369**	**1124**
16:45	0	0	54	0	54	5	619	8	0	632	0	0	18	0	18	7	285	**14**	0	306	1010
Total Volume	0	0	291	0	291	14	2511	45	0	2570	0	0	74	0	74	52	1241	45	1	1339	4274
% App. Total	0	0	100	0		0.5	97.7	1.8	0		0	0	100	0		3.9	92.7	3.4	0.1		
PHF	.000	.000	.887	.000	.887	.700	.981	.662	.000	.984	.000	.000	.771	.000	.771	.619	.892	.804	.250	.907	.951
Passenger Vehicles	0	0	290	0	290	14	2477										1203				
% Passenger Vehicles	0	0	99.7	0	99.7	100	98.6	95.6	0	98.6	0	0	100	0	100	94.2	96.9	100	100	96.9	98.2
Heavy Vehicles	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	3	25	0	0	28	55
% Heavy Vehicles	0	0	0	0	0	0	1.1	0	0	1.1	0	0	0	0	0	5.8	2.0	0	0	2.1	1.3
Buses	0	0	1	0	1	0	7	2	0	9	0	0	0	0	0	0	13	0	0	13	23
% Buses	0	0	0.3	0	0.3	0	0.3	4.4	0	0.4	0	0	0	0	0	0	1.0	0	0	1.0	0.5



SHORT COUNTS, LLC

735 Maryland St
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We can't say we're the Best, but you Can!

File Name : GMP @ Magwood Dr
Site Code :
Start Date : 4/25/2018
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Magwood Dr Southbound				GMP Westbound				Magwood Dr Northbound				GMP Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00	157	20	5	0	52	155	72	0	18	18	33	0	17	701	10	0	1258
07:15	220	33	6	0	65	182	87	0	22	17	34	0	17	556	18	0	1257
07:30	171	21	4	0	86	165	93	0	12	19	39	0	20	690	31	0	1351
07:45	178	40	6	0	91	232	115	0	30	27	26	0	15	601	27	0	1388
Total	726	114	21	0	294	734	367	0	82	81	132	0	69	2548	86	0	5254
08:00	168	35	8	0	89	217	117	0	28	22	25	0	20	592	28	0	1349
08:15	147	46	12	1	76	286	119	0	17	22	27	0	15	598	43	0	1409
08:30	141	29	9	0	77	208	109	1	23	22	25	0	29	597	49	0	1319
08:45	137	33	5	0	86	225	129	0	19	38	35	0	24	504	43	0	1278
Total	593	143	34	1	328	936	474	1	87	104	112	0	88	2291	163	0	5355
16:00	138	39	34	0	63	535	217	0	59	58	99	0	38	242	24	1	1547
16:15	135	37	40	0	57	601	215	0	53	45	81	0	33	304	13	0	1614
16:30	134	27	21	0	31	566	220	0	64	42	96	0	41	296	26	1	1565
16:45	158	27	45	0	46	533	238	0	63	49	80	0	34	246	24	0	1543
Total	565	130	140	0	197	2235	890	0	239	194	356	0	146	1088	87	2	6269
17:00	153	36	23	0	44	546	259	0	60	48	93	0	39	268	17	0	1586
17:15	136	29	27	0	39	559	276	0	43	40	66	0	39	284	23	0	1561
17:30	113	31	44	0	32	556	255	0	59	43	57	0	41	224	28	0	1483
17:45	97	36	32	0	48	557	262	0	40	50	39	0	50	229	32	0	1472
Total	499	132	126	0	163	2218	1052	0	202	181	255	0	169	1005	100	0	6102
Grand Total	2383	519	321	1	982	6123	2783	1	610	560	855	0	472	6932	436	2	22980
Apprch %	73.9	16.1	10	0	9.9	61.9	28.1	0	30.1	27.7	42.2	0	6	88.4	5.6	0	
Total %	10.4	2.3	1.4	0	4.3	26.6	12.1	0	2.7	2.4	3.7	0	2.1	30.2	1.9	0	
Passenger Vehicles	2347	516	318	1	971	5981	2731	1	602	558	848	0	464	6812	432	2	22584
% Passenger Vehicles	98.5	99.4	99.1	100	98.9	97.7	98.1	100	98.7	99.6	99.2	0	98.3	98.3	99.1	100	98.3
Heavy Vehicles	23	3	3	0	10	121	47	0	7	2	7	0	6	86	2	0	317
% Heavy Vehicles	1	0.6	0.9	0	1	2	1.7	0	1.1	0.4	0.8	0	1.3	1.2	0.5	0	1.4
Buses	13	0	0	0	1	21	5	0	1	0	0	0	2	34	2	0	79
% Buses	0.5	0	0	0	0.1	0.3	0.2	0	0.2	0	0	0	0.4	0.5	0.5	0	0.3

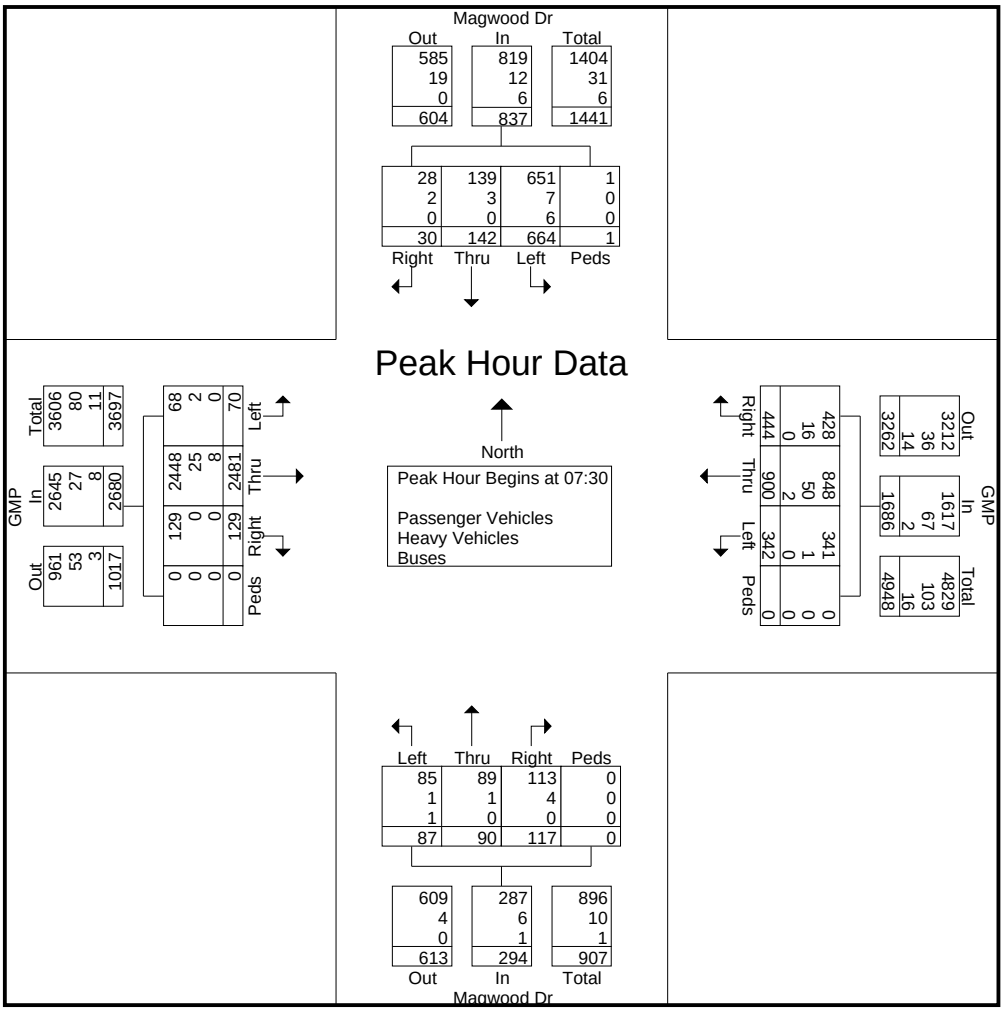
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Magwood Dr
Site Code :
Start Date : 4/25/2018
Page No : 3

	Magwood Dr Southbound					GMP Westbound					Magwood Dr Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	171	21	4	0	196	86	165	93	0	344	12	19	**39**	0	70	**20**	**690**	31	0	**741**	1351
07:45	**178**	40	6	0	**224**	**91**	232	115	0	438	**30**	**27**	26	0	**83**	15	601	27	0	643	1388
08:00	168	35	8	0	211	89	217	117	0	423	28	22	25	0	75	20	592	28	0	640	1349
08:15	147	**46**	**12**	**1**	206	76	**286**	**119**	0	**481**	17	22	27	0	66	15	598	**43**	0	656	**1409**
Total Volume	664	142	30	1	837	342	900	444	0	1686	87	90	117	0	294	70	2481	129	0	2680	5497
% App. Total	79.3	17	3.6	0.1		20.3	53.4	26.3	0		29.6	30.6	39.8	0		2.6	92.6	4.8	0		
PHF	.933	.772	.625	.250	.934	.940	.787	.933	.000	.876	.725	.833	.750	.000	.886	.875	.899	.750	.000	.904	.975
Passenger Vehicles	651	139	28	1	819	341	848	428	0	1617	85	89	113	0	287	68	2448				
% Passenger Vehicles	98.0	97.9	93.3	100	97.8	99.7	94.2	96.4	0	95.9	97.7	98.9	96.6	0	97.6	97.1	98.7	100	0	98.7	97.7
Heavy Vehicles	7	3	2	0	12	1	50	16	0	67	1	1	4	0	6	2	25	0	0	27	112
% Heavy Vehicles	1.1	2.1	6.7	0	1.4	0.3	5.6	3.6	0	4.0	1.1	1.1	3.4	0	2.0	2.9	1.0	0	0	1.0	2.0
Buses	6	0	0	0	6	0	2	0	0	2	1	0	0	0	1	0	8	0	0	8	17
% Buses	0.9	0	0	0	0.7	0	0.2	0	0	0.1	1.1	0	0	0	0.3	0	0.3	0	0	0.3	0.3



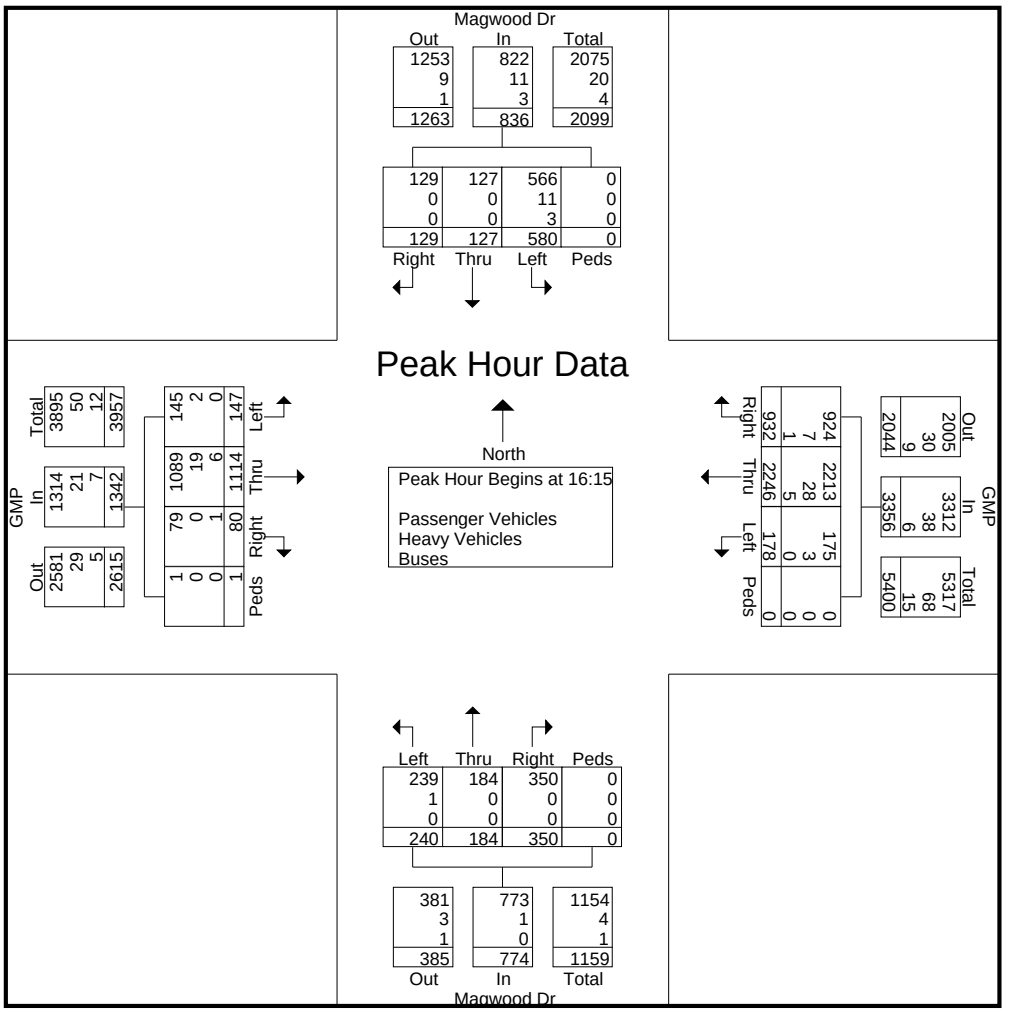
SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : GMP @ Magwood Dr
Site Code :
Start Date : 4/25/2018
Page No : 4

	Magwood Dr Southbound					GMP Westbound					Magwood Dr Northbound					GMP Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:15																					
16:15	135	**37**	40	0	212	**57**	**601**	215	0	**873**	53	45	81	0	179	33	**304**	13	0	350	**1614**
16:30	134	27	21	0	182	31	566	220	0	817	**64**	42	**96**	0	**202**	**41**	296	**26**	**1**	**364**	1565
16:45	**158**	27	**45**	0	**230**	46	533	238	0	817	63	**49**	80	0	192	34	246	24	0	304	1543
17:00	153	36	23	0	212	44	546	**259**	0	849	60	48	93	0	201	39	268	17	0	324	1586
Total Volume	580	127	129	0	836	178	2246	932	0	3356	240	184	350	0	774	147	1114	80	1	1342	6308
% App. Total	69.4	15.2	15.4	0		5.3	66.9	27.8	0		31	23.8	45.2	0		11	83	6	0.1		
PHF	.918	.858	.717	.000	.909	.781	.934	.900	.000	.961	.938	.939	.911	.000	.958	.896	.916	.769	.250	.922	.977
Passenger Vehicles	566	127	129	0	822	175	2213										1089				
% Passenger Vehicles	97.6	100	100	0	98.3	98.3	98.5	99.1	0	98.7	99.6	100	100	0	99.9	98.6	97.8	98.8	100	97.9	98.6
Heavy Vehicles	11	0	0	0	11	3	28	7	0	38	1	0	0	0	1	2	19	0	0	21	71
% Heavy Vehicles	1.9	0	0	0	1.3	1.7	1.2	0.8	0	1.1	0.4	0	0	0	0.1	1.4	1.7	0	0	1.6	1.1
Buses	3	0	0	0	3	0	5	1	0	6	0	0	0	0	0	0	6	1	0	7	16
% Buses	0.5	0	0	0	0.4	0	0.2	0.1	0	0.2	0	0	0	0	0	0	0.5	1.3	0	0.5	0.3



SHORT COUNTS, LLC

735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Glenn McConnell @ Essex Farms Dr
Site Code :
Start Date : 11/28/2018
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Southbound				Glenn McConnell Pkwy Westbound				Essex Farms Dr Northbound				Glenn McConnell Pkwy Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:00	0	0	0	0	4	100	0	0	0	0	17	0	0	256	0	0	377
06:15	0	0	0	0	1	114	0	0	3	0	33	0	0	429	0	0	580
06:30	0	0	0	0	6	209	0	0	3	0	24	0	0	485	0	0	727
06:45	0	0	0	0	10	252	0	0	0	0	50	0	0	658	0	0	970
Total	0	0	0	0	21	675	0	0	6	0	124	0	0	1828	0	0	2654
07:00	0	0	0	0	7	196	0	0	1	0	116	0	0	626	0	0	946
07:15	0	0	0	0	5	157	0	0	0	0	124	0	0	597	2	0	885
07:30	0	0	0	0	6	201	0	0	0	0	135	0	0	549	3	0	894
07:45	0	0	0	0	10	185	0	0	1	0	112	0	0	558	3	0	869
Total	0	0	0	0	28	739	0	0	2	0	487	0	0	2330	8	0	3594
08:00	0	0	0	0	11	236	0	0	2	0	105	0	0	521	0	0	875
08:15	0	0	0	0	9	221	0	0	1	0	66	1	0	656	2	0	956
08:30	0	0	0	0	8	201	0	0	0	0	56	0	0	639	4	0	908
08:45	0	0	0	0	15	216	0	0	0	0	40	0	0	553	9	0	833
Total	0	0	0	0	43	874	0	0	3	0	267	1	0	2369	15	0	3572
09:00	0	0	0	0	14	220	0	0	3	0	23	0	0	362	6	0	628
09:15	0	0	0	0	7	206	0	0	0	0	22	0	0	397	2	0	634
09:30	0	0	0	0	10	232	0	0	1	0	19	0	0	393	0	0	655
09:45	0	0	0	0	16	245	0	0	1	0	22	1	0	350	2	0	637
Total	0	0	0	0	47	903	0	0	5	0	86	1	0	1502	10	0	2554
10:00	0	0	0	0	10	251	0	0	0	0	23	0	0	311	6	0	601
10:15	0	0	0	0	12	231	0	0	0	0	22	0	0	323	6	0	594
10:30	0	0	0	0	14	264	0	0	5	0	10	0	0	332	2	0	627
10:45	0	0	0	0	15	284	0	0	4	0	17	0	0	355	5	0	680
Total	0	0	0	0	51	1030	0	0	9	0	72	0	0	1321	19	0	2502
11:00	0	0	0	0	15	283	0	0	1	0	15	0	0	319	0	0	633
11:15	0	0	0	0	17	274	0	0	2	0	21	0	0	321	2	0	637
11:30	0	0	0	0	22	317	0	0	6	0	26	0	0	371	1	0	743
11:45	0	0	0	0	22	368	0	0	4	0	12	0	0	325	6	0	737
Total	0	0	0	0	76	1242	0	0	13	0	74	0	0	1336	9	0	2750
12:00	0	0	0	0	17	389	0	0	1	0	28	0	0	358	3	0	796
12:15	0	0	0	0	24	387	0	0	0	0	26	0	0	336	4	0	777
12:30	0	0	0	0	25	383	0	0	2	0	16	0	0	378	3	0	807
12:45	0	0	0	0	33	381	0	0	3	0	21	0	0	397	4	0	839
Total	0	0	0	0	99	1540	0	0	6	0	91	0	0	1469	14	0	3219
13:00	0	0	0	0	24	373	0	0	2	0	23	0	0	346	3	0	771
13:15	0	0	0	0	20	396	0	0	0	0	22	0	0	334	3	0	775
13:30	0	0	0	0	23	401	0	0	3	0	28	0	0	366	2	0	823
13:45	0	0	0	0	22	390	0	0	4	0	18	0	0	342	4	0	780
Total	0	0	0	0	89	1560	0	0	9	0	91	0	0	1388	12	0	3149
14:00	0	0	0	0	22	454	0	0	6	0	33	0	0	324	3	0	842
14:15	0	0	0	0	28	399	0	0	3	0	26	0	0	406	4	0	866
14:30	0	0	0	0	21	421	0	0	1	0	20	0	0	451	5	0	919
14:45	0	0	0	0	34	483	0	0	4	0	20	0	0	366	2	0	909
Total	0	0	0	0	105	1757	0	0	14	0	99	0	0	1547	14	0	3536
15:00	0	0	0	0	28	507	0	0	2	0	17	0	0	348	5	0	907
15:15	0	0	0	0	32	514	0	0	2	0	23	0	0	316	7	0	894
15:30	0	0	0	0	27	596	0	0	0	0	22	0	0	344	2	0	991
15:45	0	0	0	0	46	610	0	0	1	0	14	0	0	271	2	0	944
Total	0	0	0	0	133	2227	0	0	5	0	76	0	0	1279	16	0	3736

SHORT COUNTS, LLC

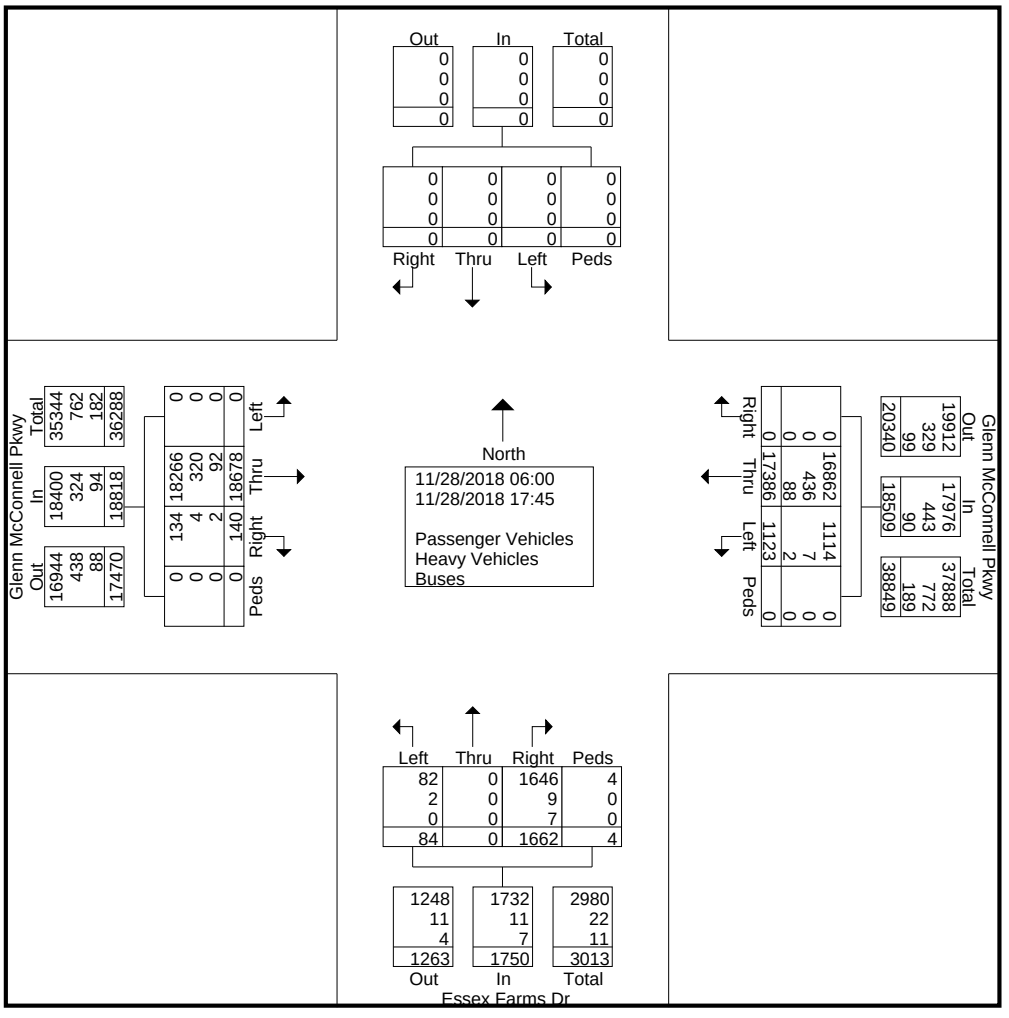
735 Maryland St
Columbia, SC 29201

We can't say we're the Best, but you Can!

File Name : Glenn McConnell @ Essex Farms Dr
Site Code :
Start Date : 11/28/2018
Page No : 2

Groups Printed- Passenger Vehicles - Heavy Vehicles - Buses

	Southbound				Glenn McConnell Pkwy Westbound				Essex Farms Dr Northbound				Glenn McConnell Pkwy Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
16:00	0	0	0	0	39	609	0	0	0	0	22	0	0	306	4	0	980
16:15	0	0	0	0	50	557	0	0	1	0	26	0	0	298	6	0	938
16:30	0	0	0	0	44	628	0	0	2	0	18	0	0	258	1	0	951
16:45	0	0	0	0	58	651	0	0	2	0	24	0	0	277	4	0	1016
Total	0	0	0	0	191	2445	0	0	5	0	90	0	0	1139	15	0	3885
17:00	0	0	0	0	61	631	0	0	0	0	35	2	0	335	1	0	1065
17:15	0	0	0	0	49	617	0	0	3	0	23	0	0	289	2	0	983
17:30	0	0	0	0	66	621	0	0	1	0	26	0	0	270	5	0	989
17:45	0	0	0	0	64	525	0	0	3	0	21	0	0	276	0	0	889
Total	0	0	0	0	240	2394	0	0	7	0	105	2	0	1170	8	0	3926
Grand Total	0	0	0	0	1123	17386	0	0	84	0	1662	4	0	18678	140	0	39077
Apprch %	0	0	0	0	6.1	93.9	0	0	4.8	0	95	0.2	0	99.3	0.7	0	
Total %	0	0	0	0	2.9	44.5	0	0	0.2	0	4.3	0	0	47.8	0.4	0	
Passenger Vehicles	0	0	0	0	1114	16862	0	0	82	0	1646	4	0	18266	134	0	38108
% Passenger Vehicles	0	0	0	0	99.2	97	0	0	97.6	0	99	100	0	97.8	95.7	0	97.5
Heavy Vehicles	0	0	0	0	7	436	0	0	2	0	9	0	0	320	4	0	778
% Heavy Vehicles	0	0	0	0	0.6	2.5	0	0	2.4	0	0.5	0	0	1.7	2.9	0	2
Buses	0	0	0	0	2	88	0	0	0	0	7	0	0	92	2	0	191
% Buses	0	0	0	0	0.2	0.5	0	0	0	0	0.4	0	0	0.5	1.4	0	0.5



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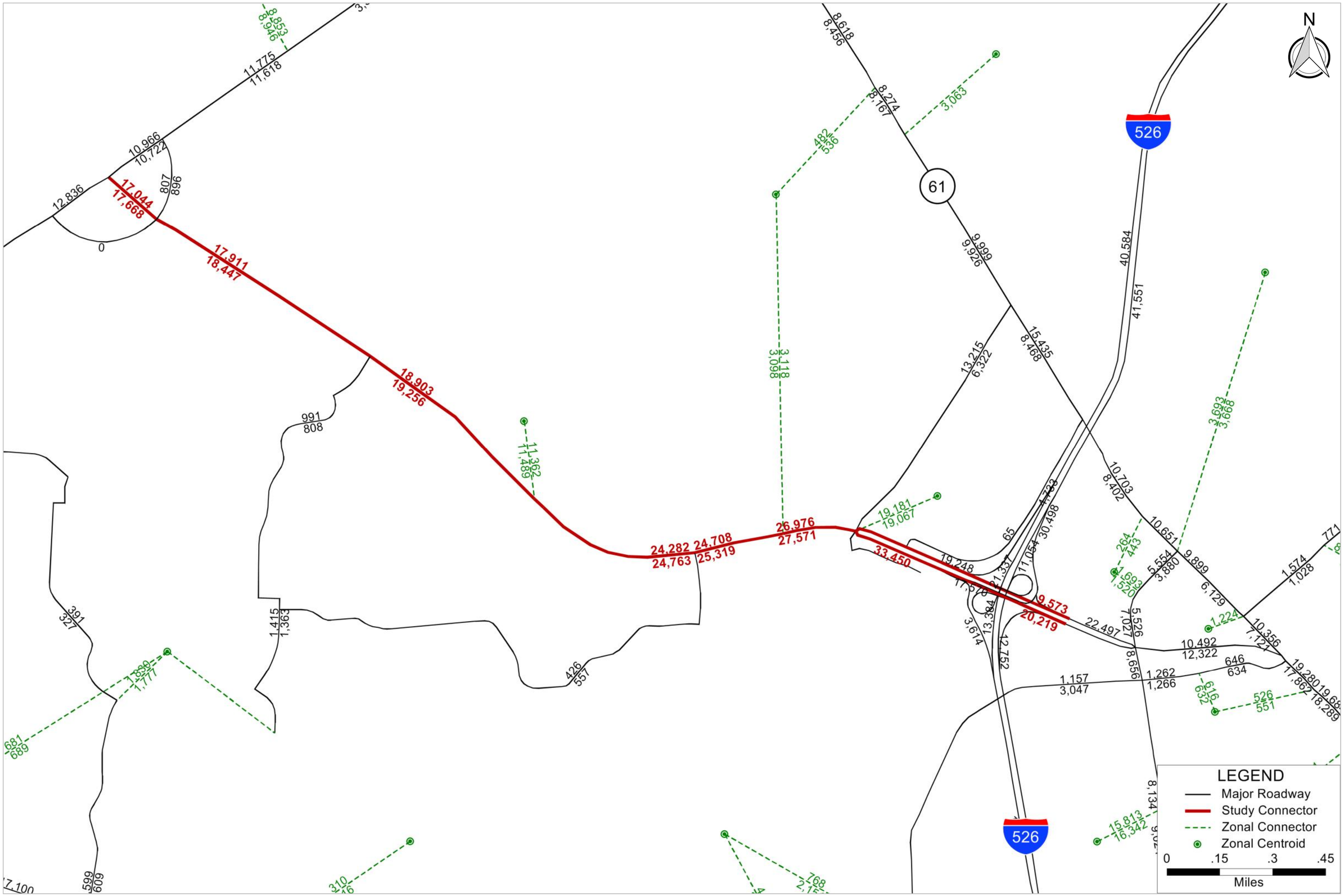

AVERAGE DAILY (MID-BLOCK) TRAFFIC VOLUMES ON GLENN McCONNELL PARKWAY

Scenario: Existing 4-Lane (Divided) Configuration

Under Year 2015 Socio-Economic and Roadway Conditions

DATA SOURCES: CHATS Travel Demand Model (Interim Version dated January 2018); CHATS LRTP 2040

FILE SOURCE: Y:\ MacroSim \ 2015 Update \ RunRequests \ DATA-Xmittals \ ShortEngg \ GMP-BY15&EC40-MidBlkVol-080818.pptx (*.pdf)

MAP DATE: August 2018

DISCLAIMER: This map is a graphical representation of data obtained from various sources. All efforts have been made to warrant the accuracy of this map. However, BCD Council of Governments disclaims all responsibility and liability for the use of this map.

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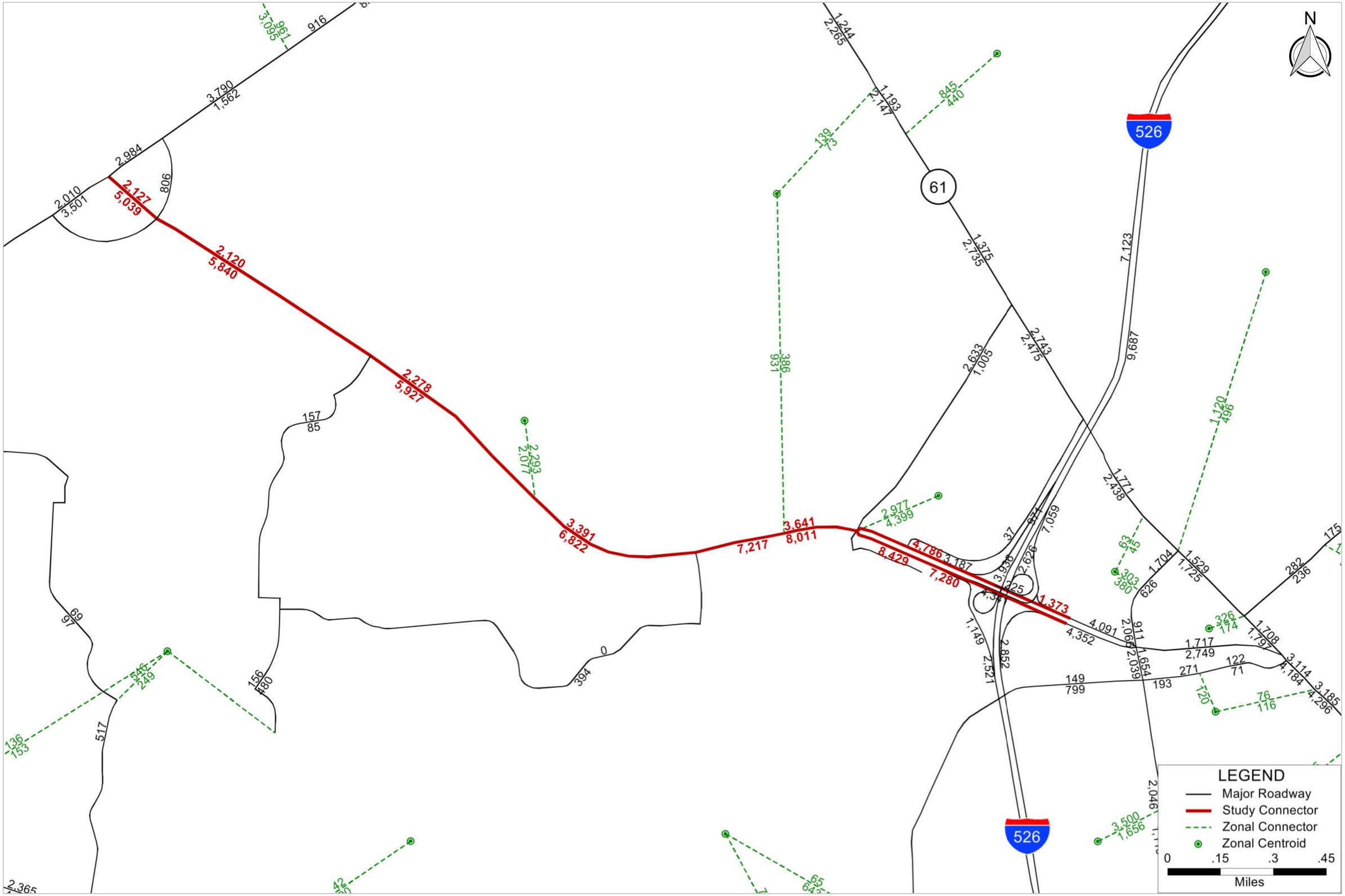

MORNING PEAK PERIOD (MID-BLOCK) TRAFFIC VOLUMES ON GLENN McCONNELL PARKWAY

Scenario: Existing 4-Lane (Divided) Configuration

Under Year 2015 Socio-Economic and Roadway Conditions

DATA SOURCES: CHATS Travel Demand Model (Interim Version dated January 2018); CHATS LRTP 2040

FILE SOURCE: Y:\ MacroSim \ 2015 Update \ RunRequests \ DATA-Xmittals \ ShortEngg \ GMP-BY15&EC40-MidBlkVol-080818.pptx (*.pdf)

MAP DATE: August 2018

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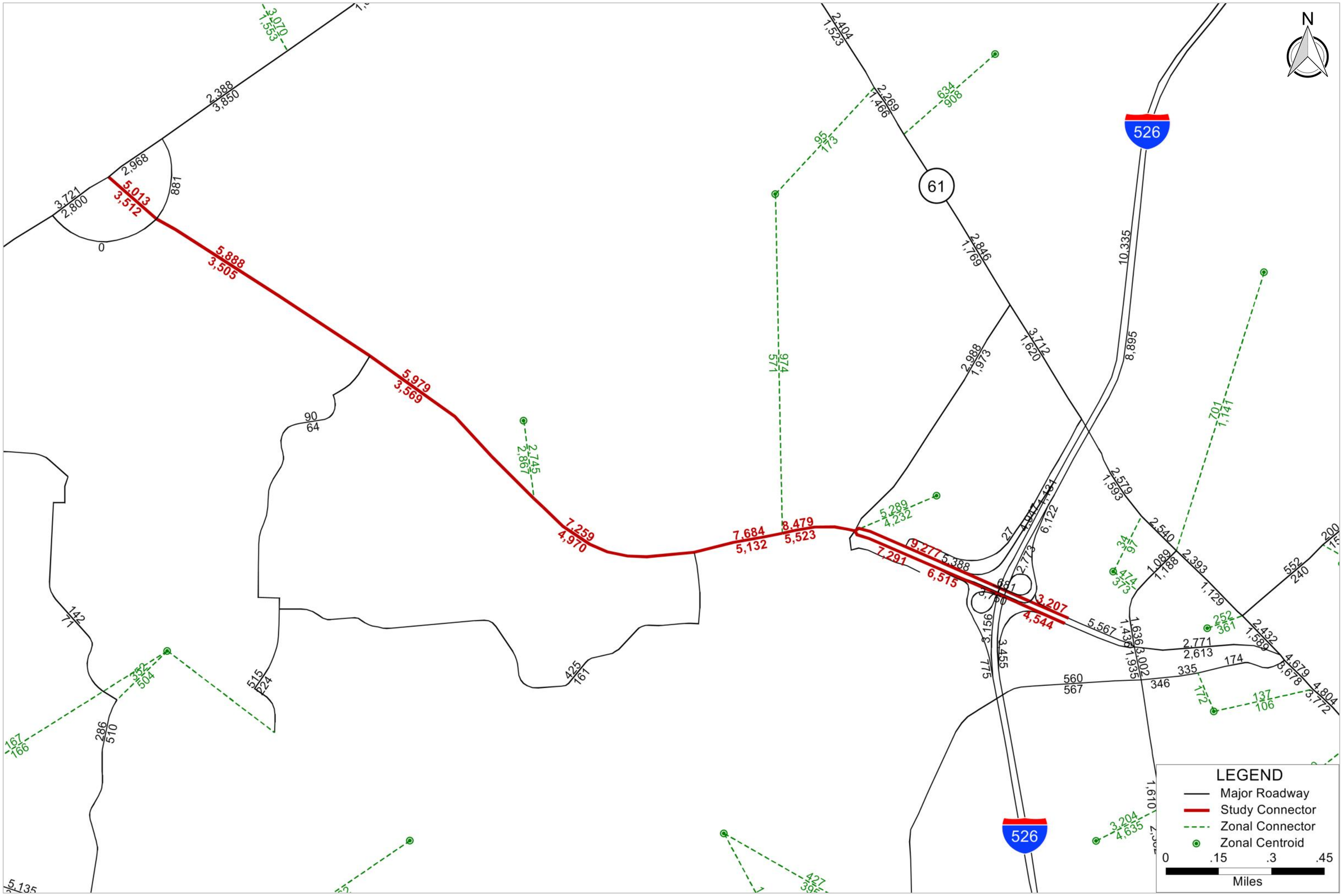

AFTERNOON PEAK PERIOD (MID-BLOCK) TRAFFIC VOLUMES ON GLENN McCONNELL PARKWAY

Scenario: Existing 4-Lane (Divided) Configuration

Under Year 2015 Socio-Economic and Roadway Conditions

DATA SOURCES: CHATS Travel Demand Model (Interim Version dated January 2018); CHATS LRTP 2040

FILE SOURCE: Y:\ MacroSim \ 2015 Update \ RunRequests \ DATA-Xmittals \ ShortEngg \ GMP-BY15&EC40-MidBlkVol-080818.pptx (*.pdf)

MAP DATE: August 2018

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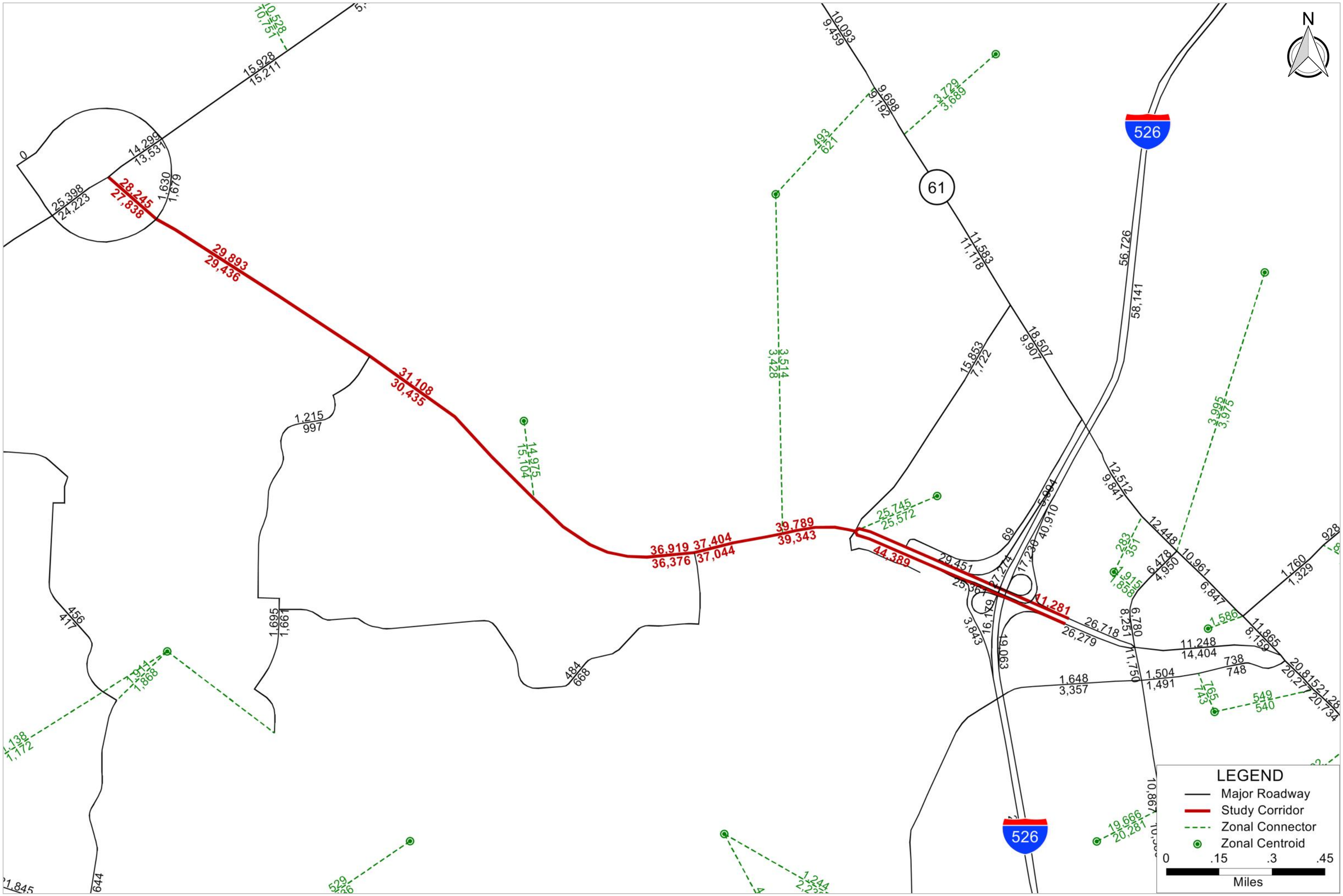
PLANNING, PARTNERSHIP & PROSPERITY



AVERAGE DAILY (MID-BLOCK) TRAFFIC VOLUMES ON GLENN McCONNELL PARKWAY

Scenario: Existing plus Committed 6-Lane (Divided) Configuration

Under Year 2040 Socio-Economic and E+C Roadway Conditions

DATA SOURCES: CHATS Travel Demand Model (Interim Version dated January 2018); CHATS LRTP 2040

FILE SOURCE: Y:\ MacroSim \ 2015 Update \ RunRequests \ DATA-Xmittals \ ShortEngg \ GMP-BY15&EC40-MidBlkVol-080818.pptx (*.pdf)

MAP DATE: August 2018

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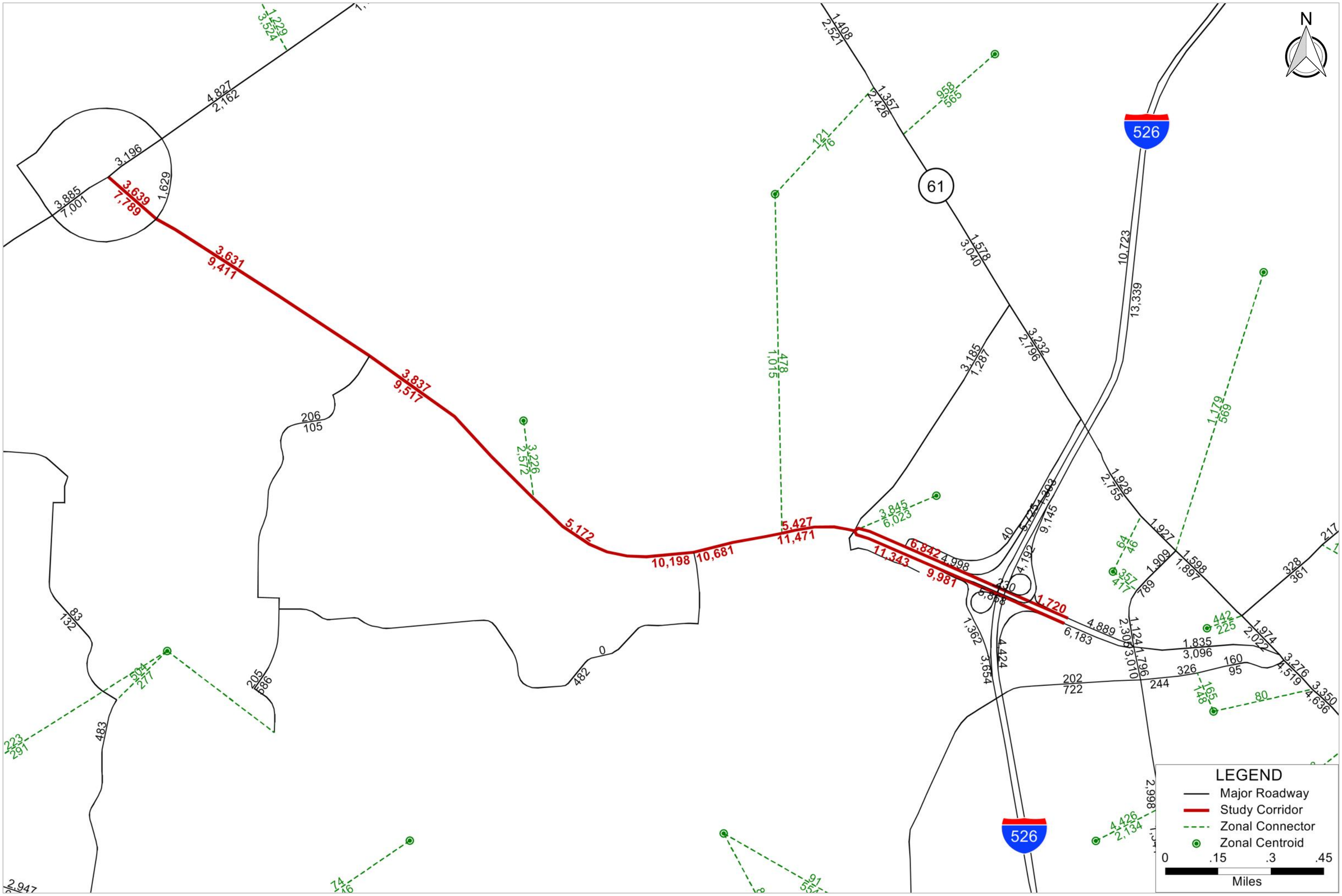
BERKELEY-CHARLESTON-DORCHESTER COUNCIL OF GOVERNMENTS
PLANNING, PARTNERSHIP & PROSPERITY



MORNING PEAK PERIOD (MID-BLOCK) TRAFFIC VOLUMES ON GLENN McCONNELL PARKWAY

Scenario: Existing plus Committed 6-Lane (Divided) Configuration

Under Year 2040 Socio-Economic and E+C Roadway Conditions

DATA SOURCES: CHATS Travel Demand Model (Interim Version dated January 2018); CHATS LRTP 2040

FILE SOURCE: Y:\ MacroSim \ 2015 Update \ RunRequests \ DATA-Xmittals \ ShortEngg \ GMP-BY15&EC40-MidBlkVol-080818.pptx (*.pdf)

MAP DATE: August 2018

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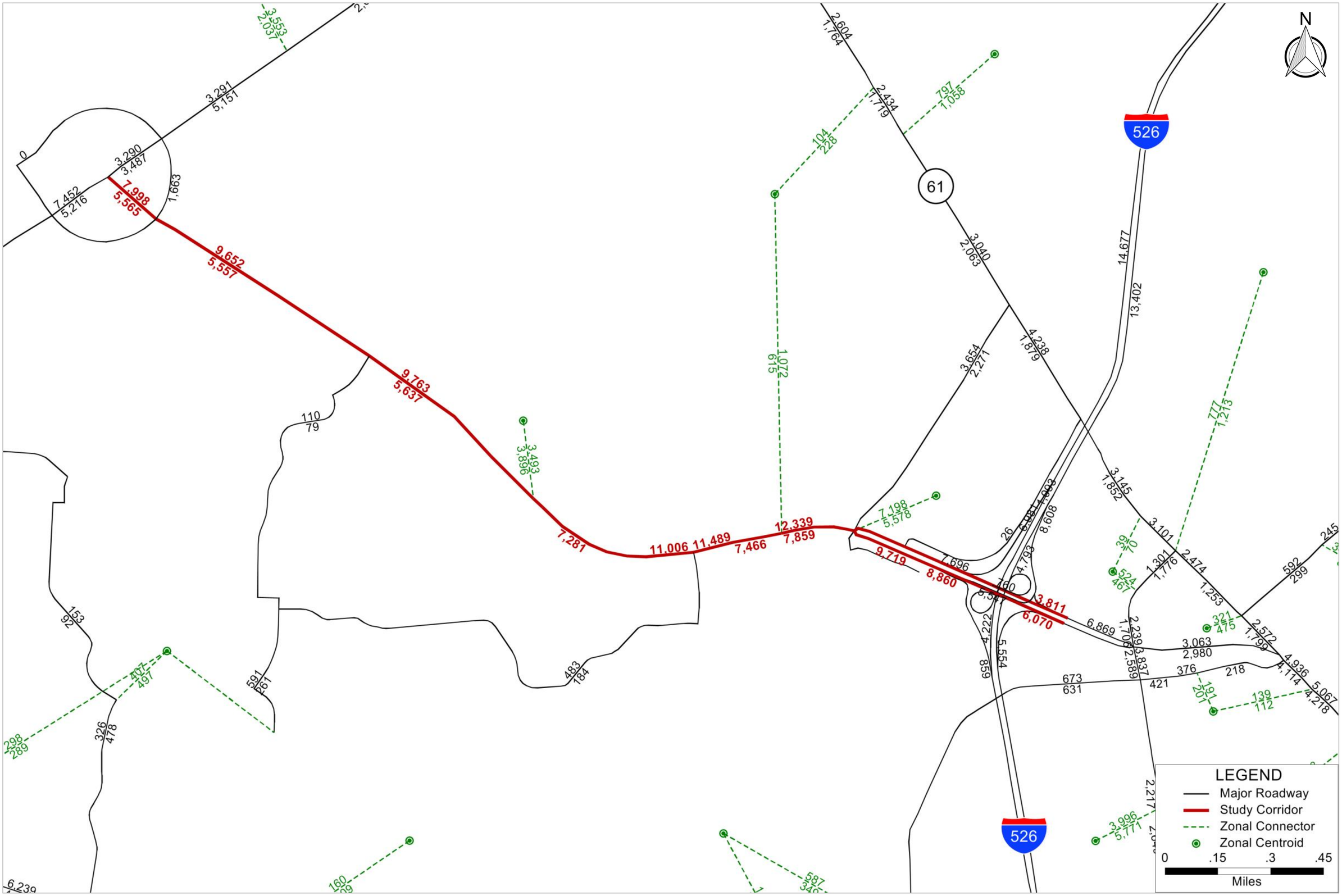
BERKELEY-CHARLESTON-DORCHESTER COUNCIL OF GOVERNMENTS

PLANNING, PARTNERSHIP & PROSPERITY



AFTERNOON PEAK PERIOD (MID-BLOCK) TRAFFIC VOLUMES ON GLENN McCONNELL PARKWAY

Scenario: Existing plus Committed 6-Lane (Divided) Configuration

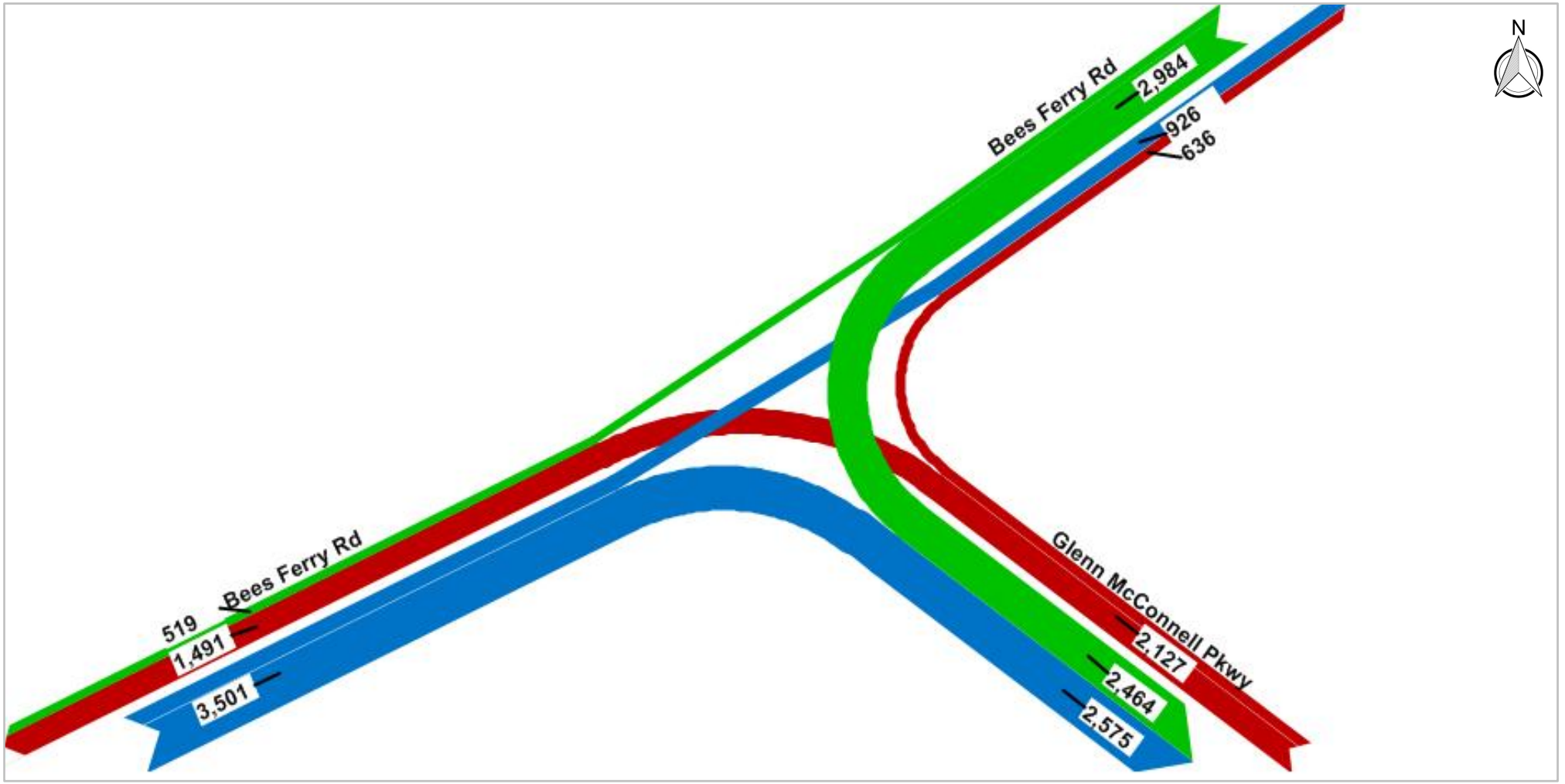
Under Year 2040 Socio-Economic and E+C Roadway Conditions

DATA SOURCES: CHATS Travel Demand Model (Interim Version dated January 2018); CHATS LRTP 2040

FILE SOURCE: Y:\ MacroSim \ 2015 Update \ RunRequests \ DATA-Xmittals \ ShortEngg \ GMP-BY15&EC40-MidBlkVol-080818.pptx (*.pdf)

MAP DATE: August 2018

BCDCOG
BERKELEY-CHARLESTON-DORCHESTER COUNCIL OF GOVERNMENTS
PLANNING, PARTNERSHIP & PROSPERITY



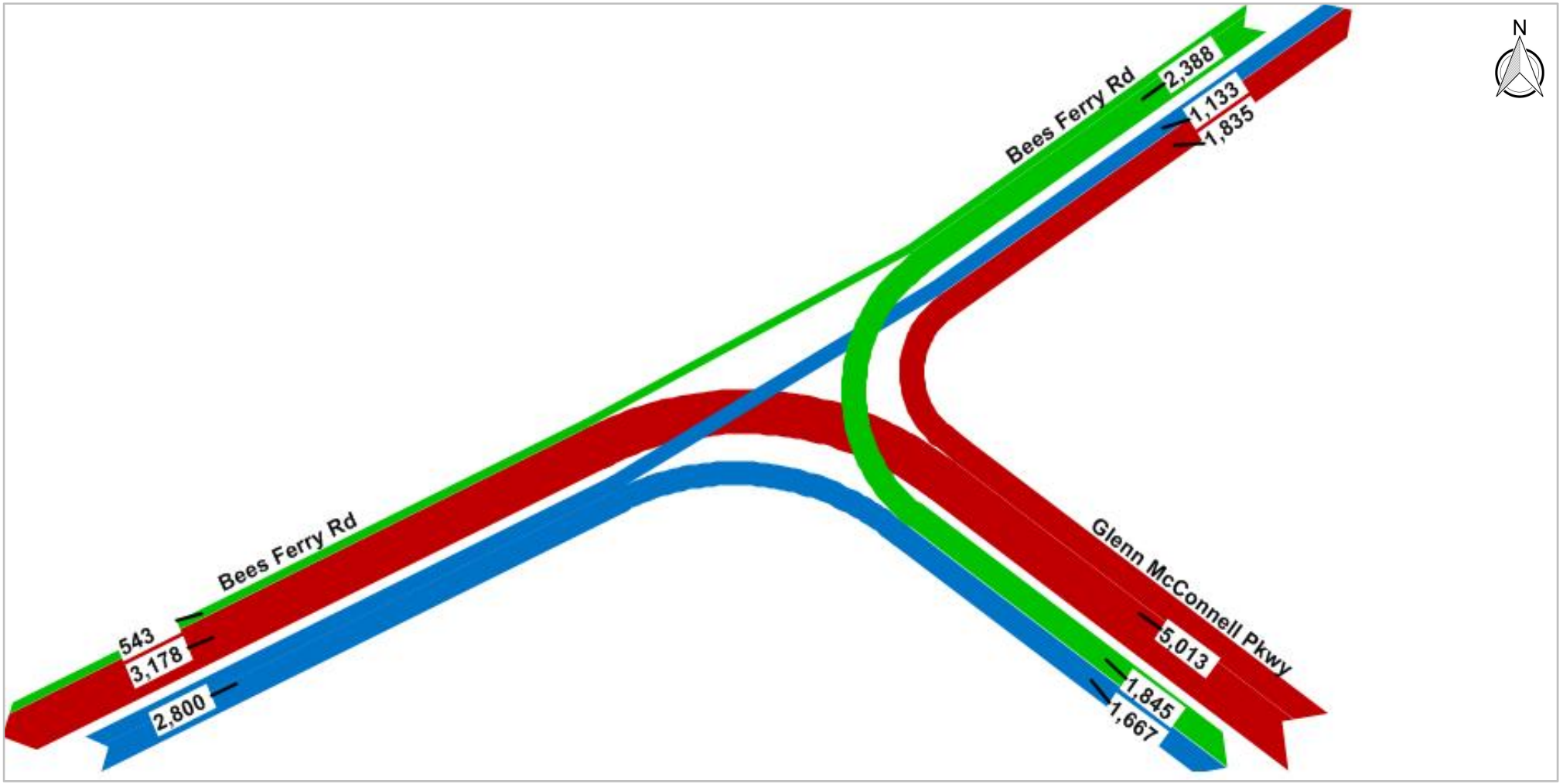
MORNING PEAK PERIOD (MID-BLOCK) TRAFFIC VOLUMES ON GLENN McCONNELL PARKWAY
Scenario: Existing 4-Lane (Divided) Configuration
Under Year 2015 Socio-Economic and Roadway Conditions

BERKELEY-CHARLESTON-DORCHESTER COUNCIL OF GOVERNMENTS
PLANNING, PARTNERSHIP & PROSPERITY

DATA SOURCES: CHATS Travel Demand Model (Interim Version dated January 2018); CHATS LRTP 2040

FILE SOURCE: Y:\ MacroSim \ 2015 Update \ RunRequests \ DATA-Xmittals \ ShortEngg \ GMP-BY15&EC40-IntTurnVol-080818.pptx (*.pdf)

MAP DATE: August 2018



AFTERNOON PEAK PERIOD (MID-BLOCK) TRAFFIC VOLUMES ON GLENN McCONNELL PARKWAY
Scenario: Existing 4-Lane (Divided) Configuration
Under Year 2015 Socio-Economic and Roadway Conditions

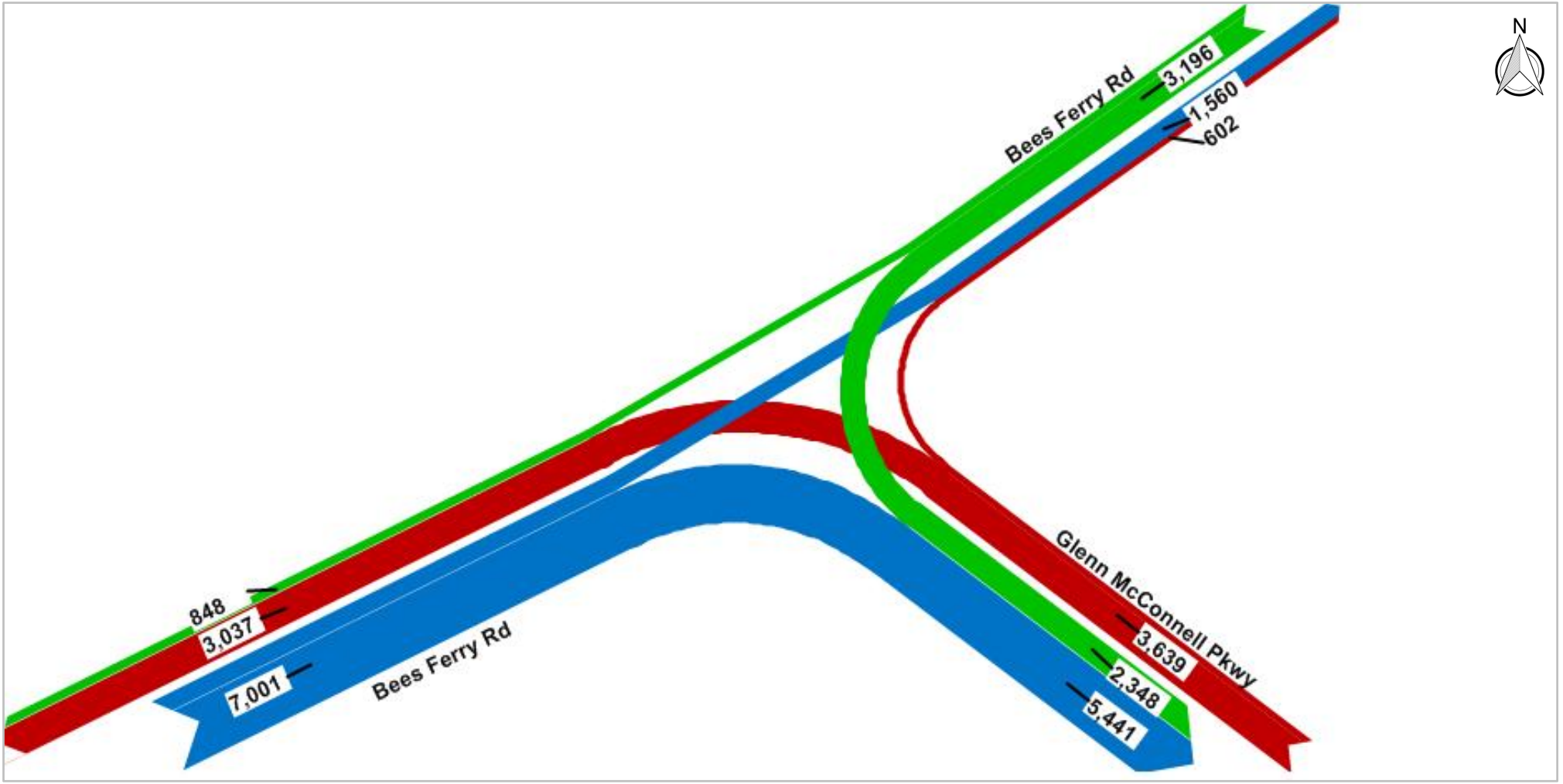
DATA SOURCES: CHATS Travel Demand Model (Interim Version dated January 2018); CHATS LRTP 2040

FILE SOURCE: Y:\ MacroSim \ 2015 Update \ RunRequests \ DATA-Xmittals \ ShortEngg \ GMP-BY15&EC40-IntTurnVol-080818.pptx (*.pdf)

MAP DATE: August 2018

DISCLAIMER: This map is a graphical representation of data obtained from various sources. All efforts have been made to warrant the accuracy of this map. However, BCD Council of Governments disclaims all responsibility and liability for the use of this map.

BCDCOG
BERKELEY-CHARLESTON-DORCHESTER COUNCIL OF GOVERNMENTS
PLANNING, PARTNERSHIP & PROSPERITY



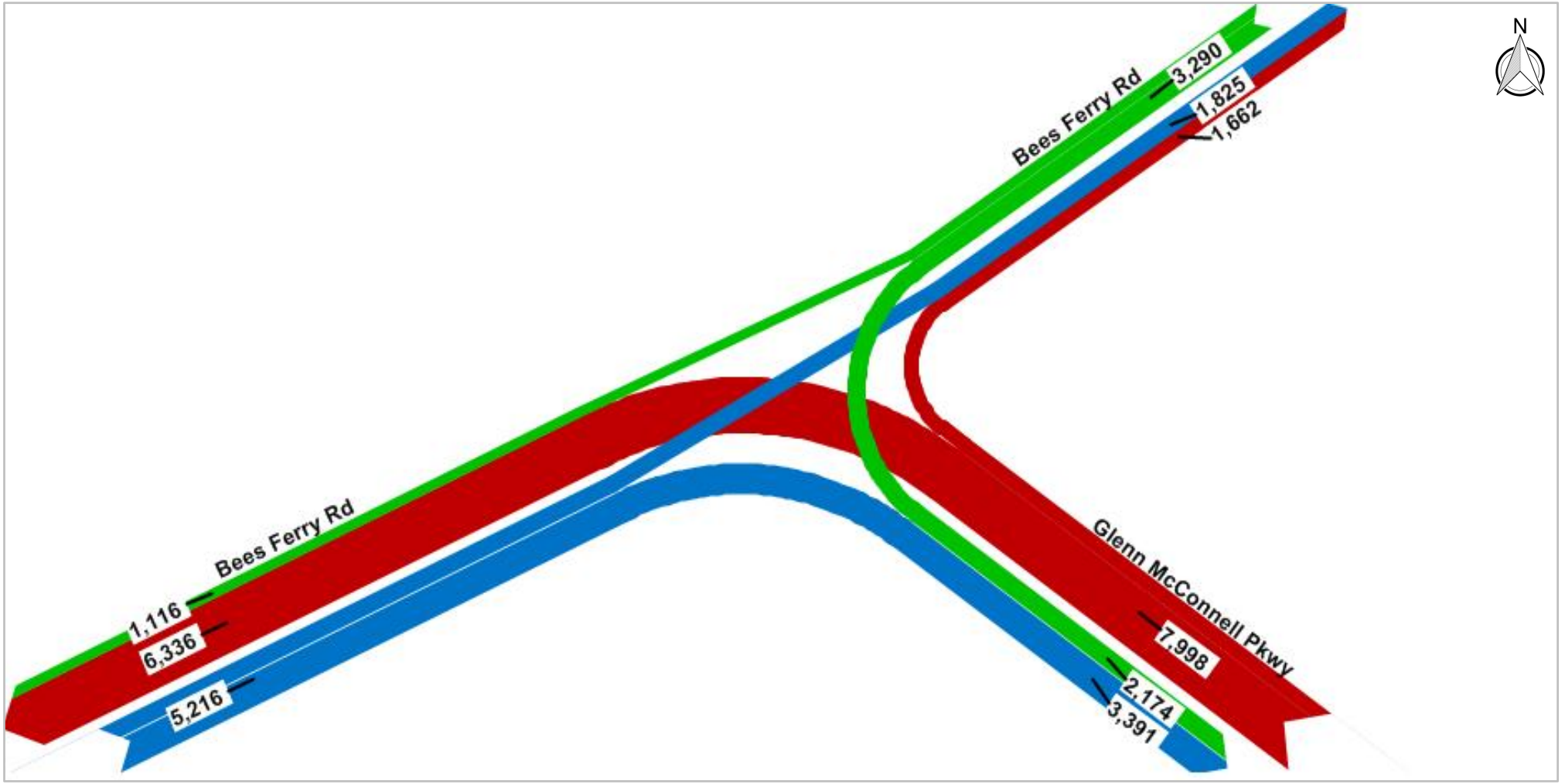
MORNING PEAK PERIOD (MID-BLOCK) TRAFFIC VOLUMES ON GLENN McCONNELL PARKWAY
Scenario: Existing plus Committed 6-Lane (Divided) Configuration
Under Year 2040 Socio-Economic and E+C Roadway Conditions

BERKELEY-CHARLESTON-DORCHESTER COUNCIL OF GOVERNMENTS
PLANNING, PARTNERSHIP & PROSPERITY

DATA SOURCES: CHATS Travel Demand Model (Interim Version dated January 2018); CHATS LRTP 2040

FILE SOURCE: Y:\ MacroSim \ 2015 Update \ RunRequests \ DATA-Xmittals \ ShortEngg \ GMP-BY15&EC40-IntTurnVol-080818.pptx (*.pdf)

MAP DATE: August 2018



AFTERNOON PEAK PERIOD (MID-BLOCK) TRAFFIC VOLUMES ON GLENN McCONNELL PARKWAY
Scenario: Existing plus Committed 6-Lane (Divided) Configuration
Under Year 2040 Socio-Economic and E+C Roadway Conditions

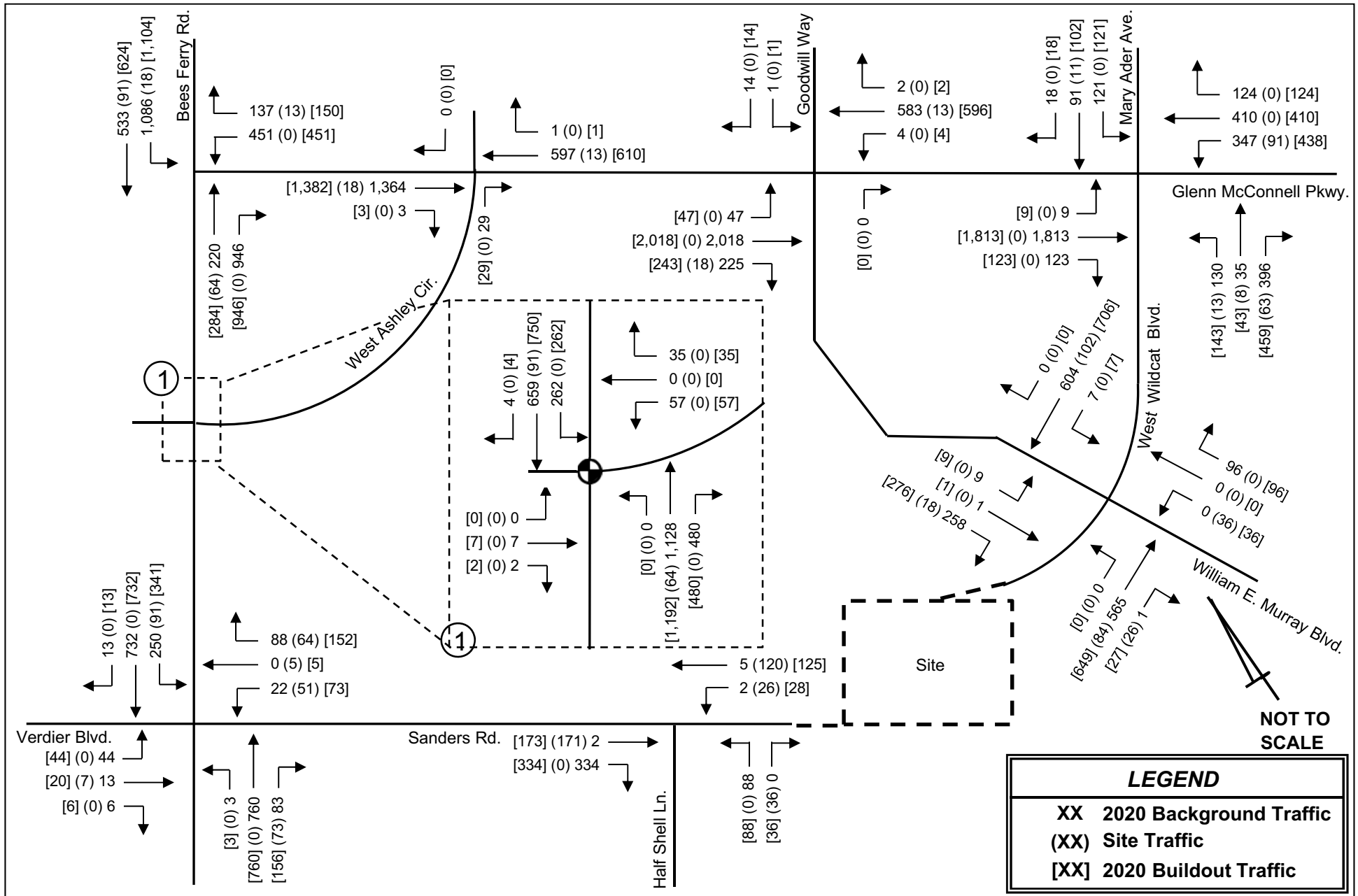
BERKELEY-CHARLESTON-DORCHESTER COUNCIL OF GOVERNMENTS
PLANNING, PARTNERSHIP & PROSPERITY

DATA SOURCES: CHATS Travel Demand Model (Interim Version dated January 2018); CHATS LRTP 2040

FILE SOURCE: Y:\ MacroSim \ 2015 Update \ RunRequests \ DATA-Xmittals \ ShortEngg \ GMP-BY15&EC40-IntTurnVol-080818.pptx (*.pdf)

MAP DATE: August 2018

BACKGROUND DEVELOPMENT INFORMATION

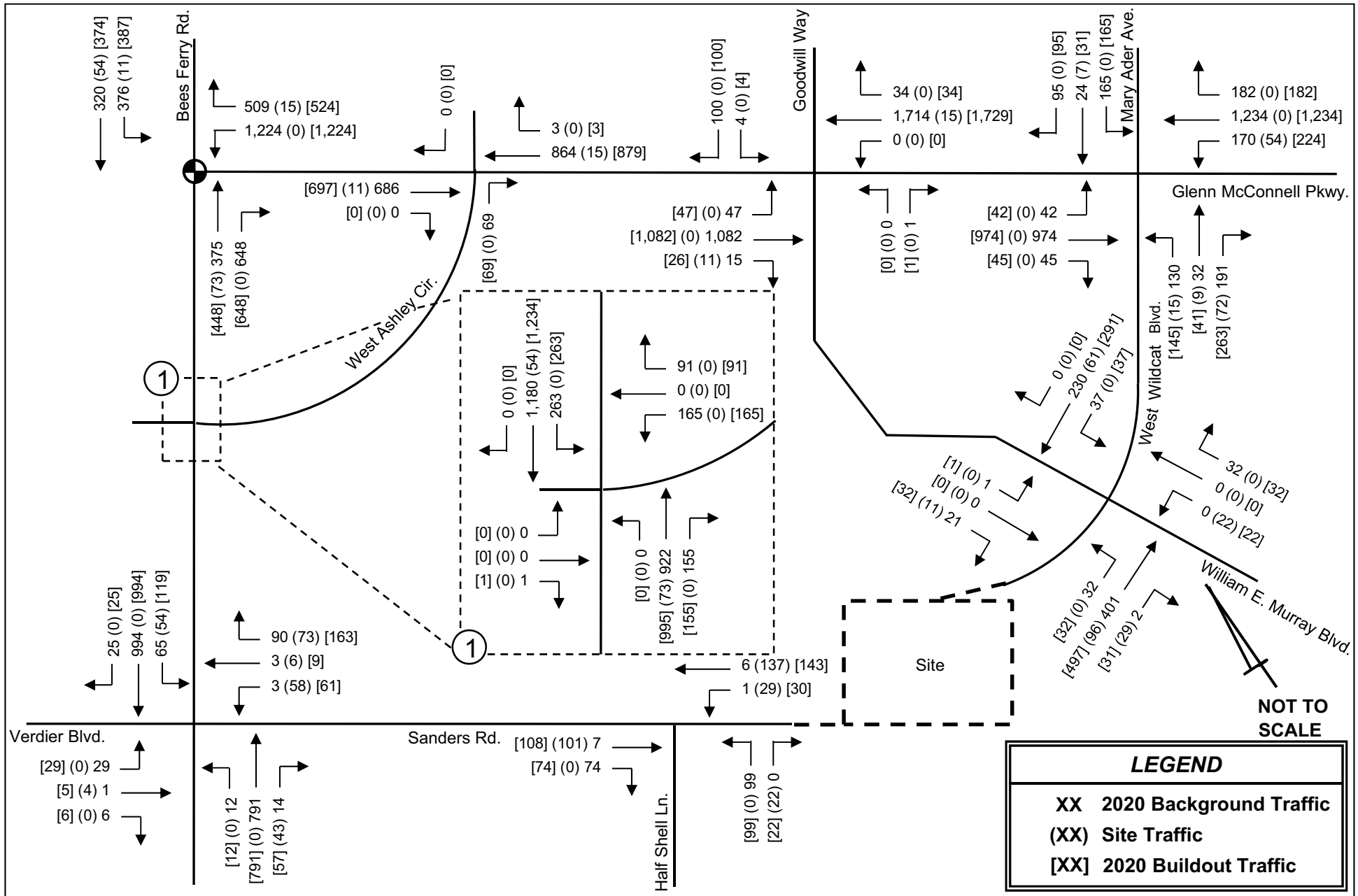


BIHL ENGINEERING

CE Williams Middle School Traffic Impact Analysis

2020 AM Peak Traffic Volumes

Figure 6



BIHL ENGINEERING

CE Williams Middle School Traffic Impact Analysis

2020 PM Peak Traffic Volumes

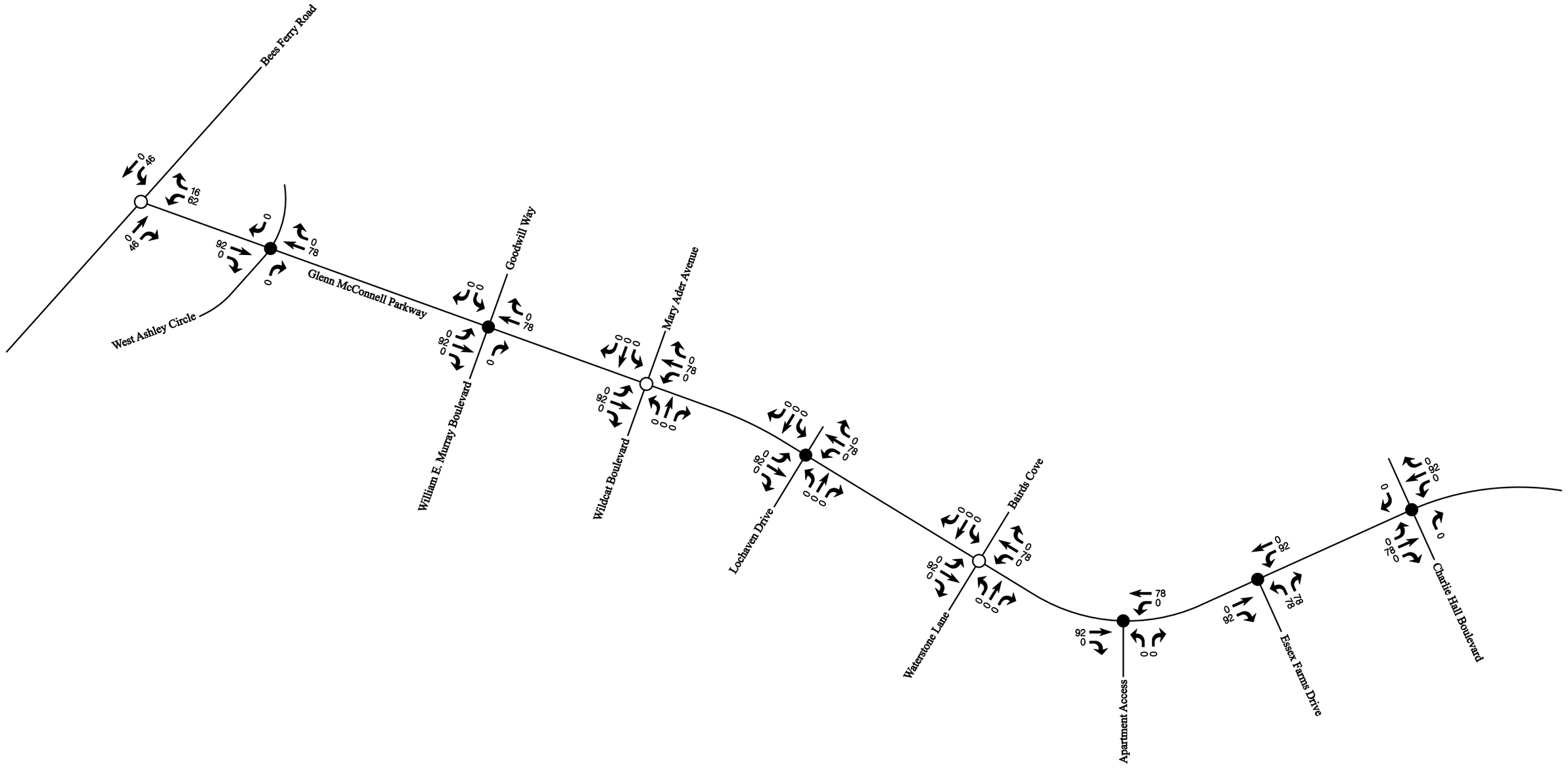
Figure 7

PROJECT TRIP GENERATION SUMMARY[1]

Essex Farms Drive Commercial Development

Time Period	SuperMarket [2] 20,000 sf (a)	High-Turnover Sit-Down Rest. [3] 6,500 sf (b)	Daycare [4] 200 Children (c)	Self Storage [5] 150 Units (d)	Gas Station w/ Conv. Mkt. [6] 12 Fueling Positions (e)	Total Trips Σ(a thru e)
Weekday Daily	2,140	730	820	30	2,470	**6,190**
AM Peak-Hour						
Enter	46	36	83	2	77	**244**
Exit	31	29	73	1	73	**207**
Total	77	65	156	3	150	**451**
PM Peak-Hour						
Enter	94	40	74	1	86	**295**
Exit	91	24	84	2	82	**283**
Total	185	64	158	3	168	**578**

1. ITE Trip Generation manual, Tenth Edition. Weekday Daily estimates rounded up to nearest 10.
2. ITE Trip Generation manual - LUC 850.
3. ITE Trip Generation manual - LUC 932.
4. ITE Trip Generation manual - LUC 565.
5. ITE Trip Generation manual - LUC 151.
6. ITE Trip Generation manual - LUC 945.
7. ITE Trip Generation manual - LUC 937.
8. ITE Trip Generation manual - LUC 934.
9. ITE Trip Generation manual - LUC 945.



N

NOT TO SCALE

○ = Signalized Intersection

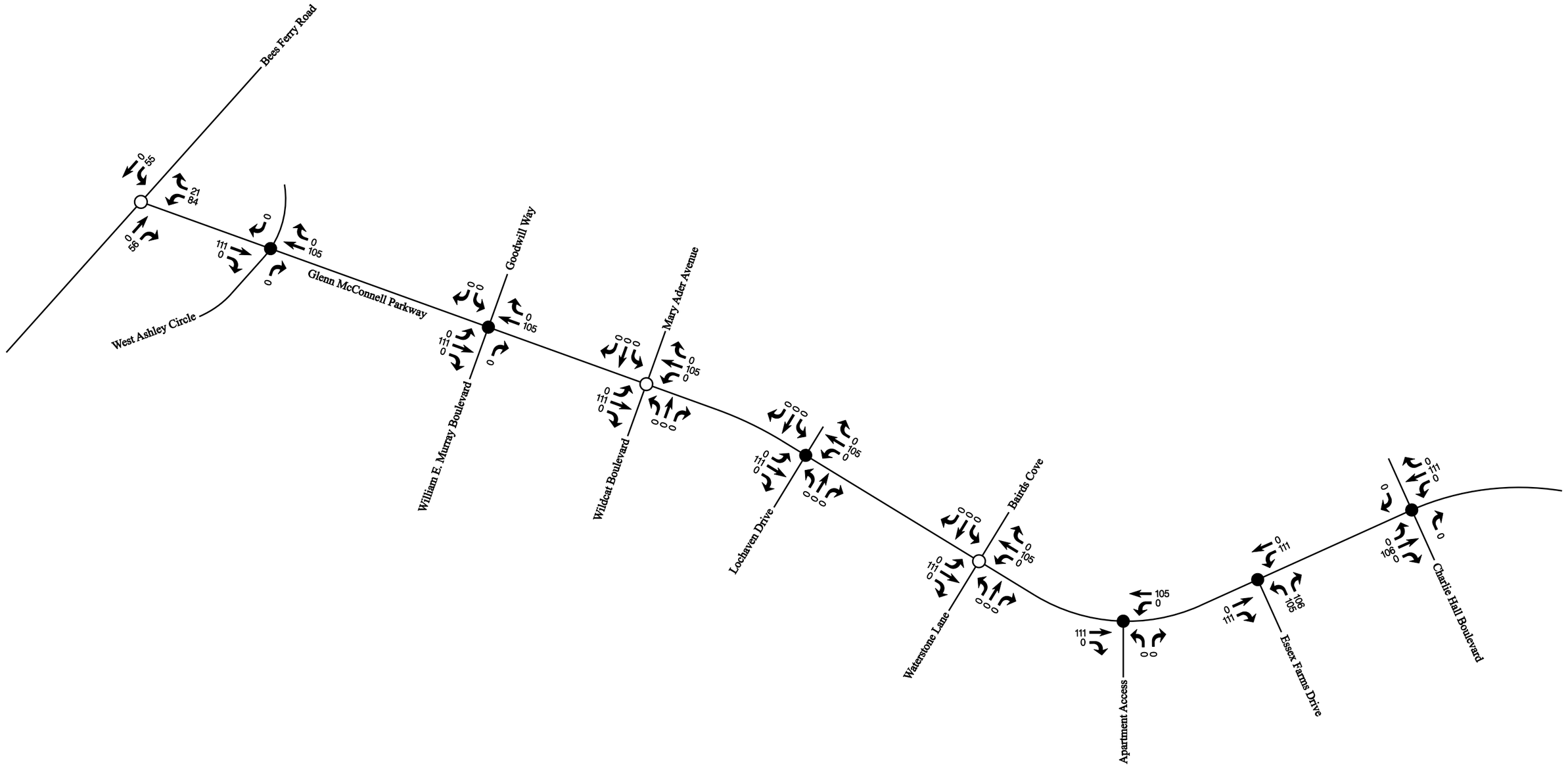
● = Unsignalized Intersection

Appendix Figure

ESSEX FARMS COMMERCIAL - SITE TRIPS
AM PEAK-HOUR

Glenn McConnell Parkway Widening Project : Charleston County, SC

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design



N

NOT TO SCALE

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Appendix Figure

ESSEX FARMS COMMERCIAL - SITE TRIPS
PM PEAK-HOUR

Glenn McConnell Parkway Widening Project : Charleston County, SC

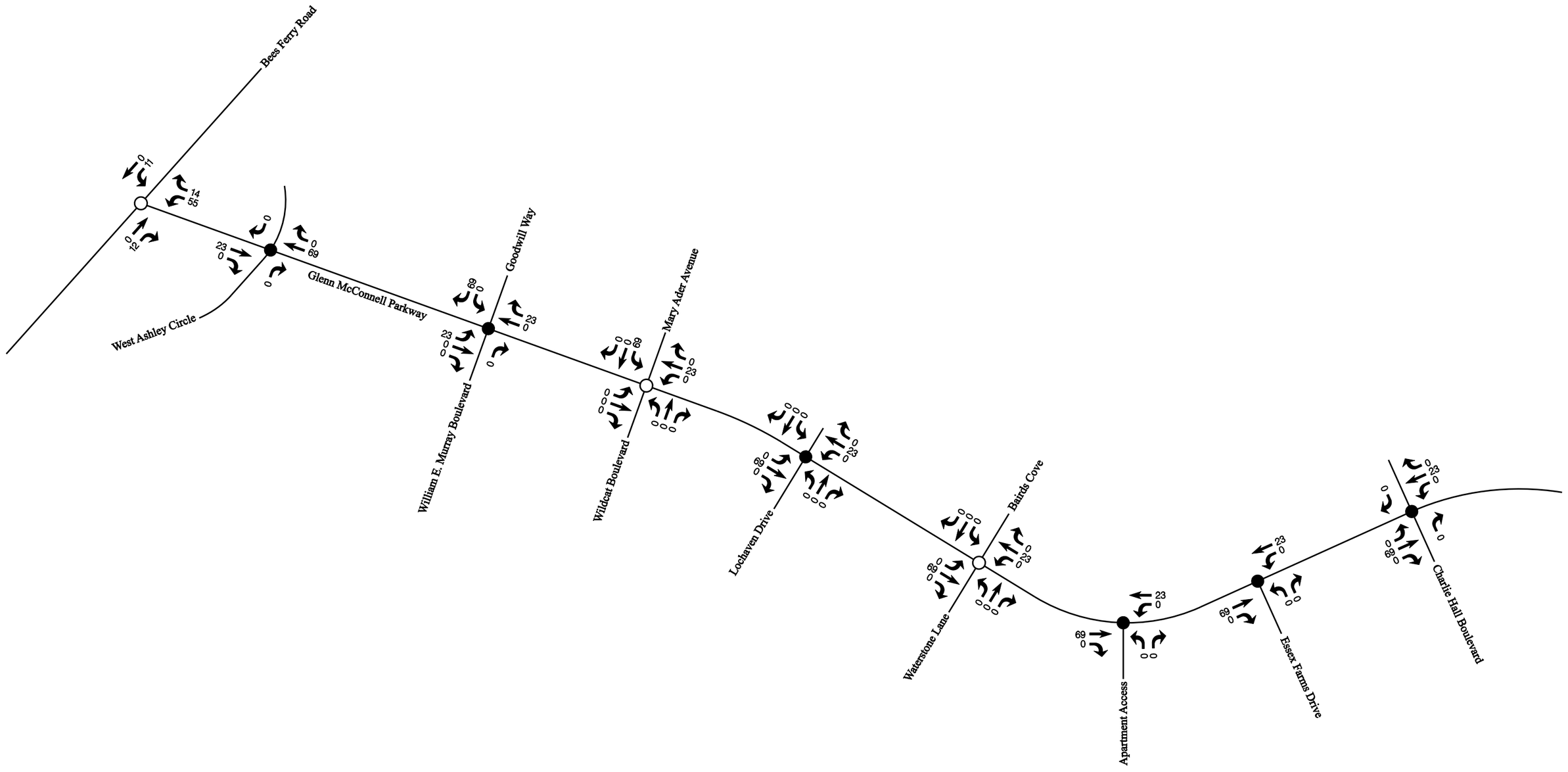
SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design

PROJECT TRIP GENERATION SUMMARY[1]

Goodwill Way Single-Family Residential Project

Time Period	Single-Family Detached Residential 250 Units[2]
Weekday Daily	2,420
AM Peak-Hour	
Enter	46
Exit	137
Total	183
PM Peak-Hour	
Enter	154
Exit	91
Total	245

1. ITE Trip Generation manual, Tenth Edition.
2. ITE Trip Generation manual - LUC 210.
   Weekday Daily rounded up to nearest applicable 10.



NOT TO SCALE

○ = Signalized Intersection

● = Unsignalized Intersection

Appendix Figure

GOODWILL WAY RESIDENTIAL - SITE TRIPS
AM PEAK-HOUR

Glenn McConnell Parkway Widening Project : Charleston County, SC

SHORT
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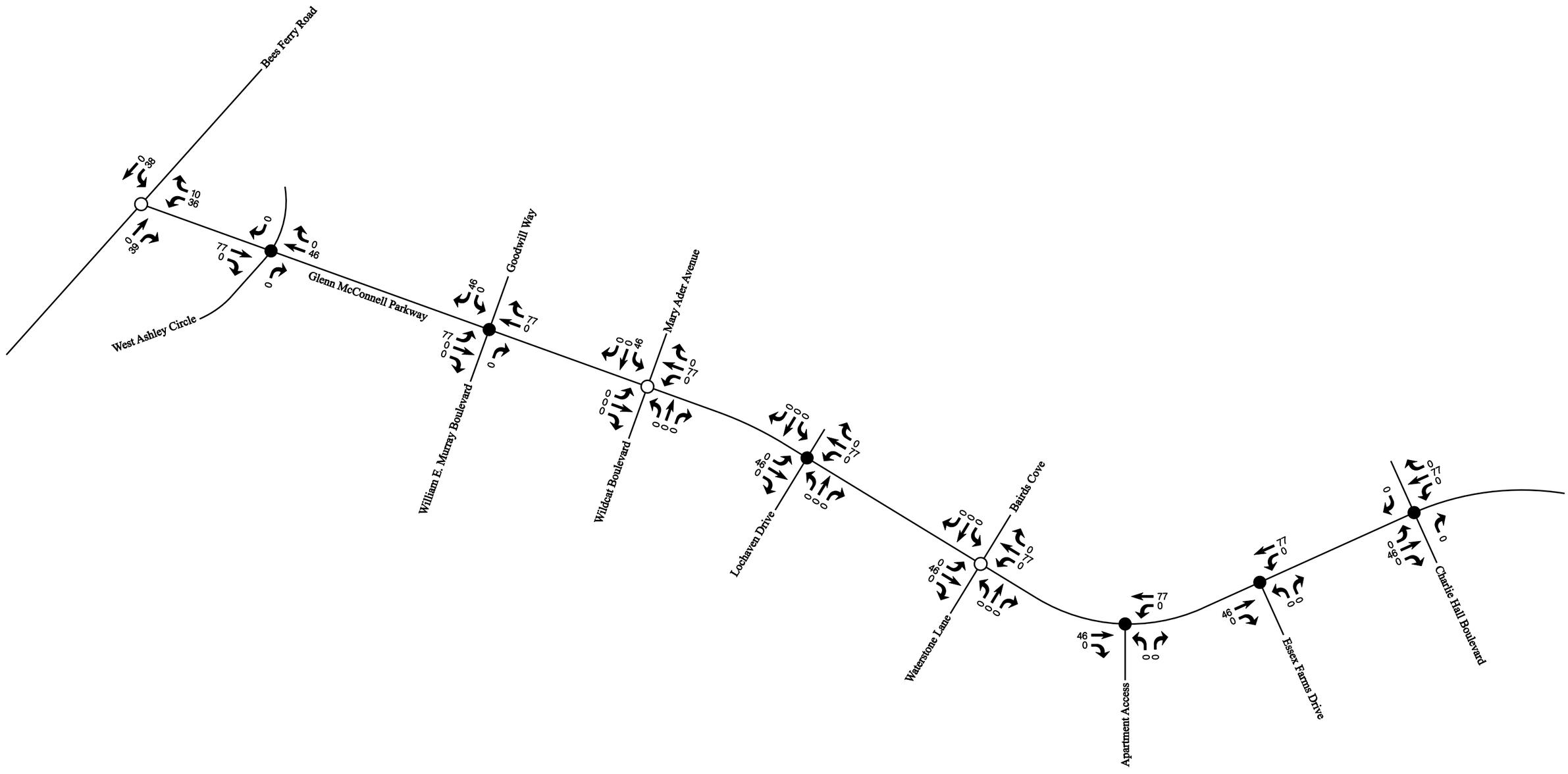

N

NOT TO SCALE

○ = Signalized Intersection

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Appendix Figure

GOODWILL WAY RESIDENTIAL - SITE TRIPS
PM PEAK-HOUR

Glenn McConnell Parkway Widening Project : Charleston County, SC

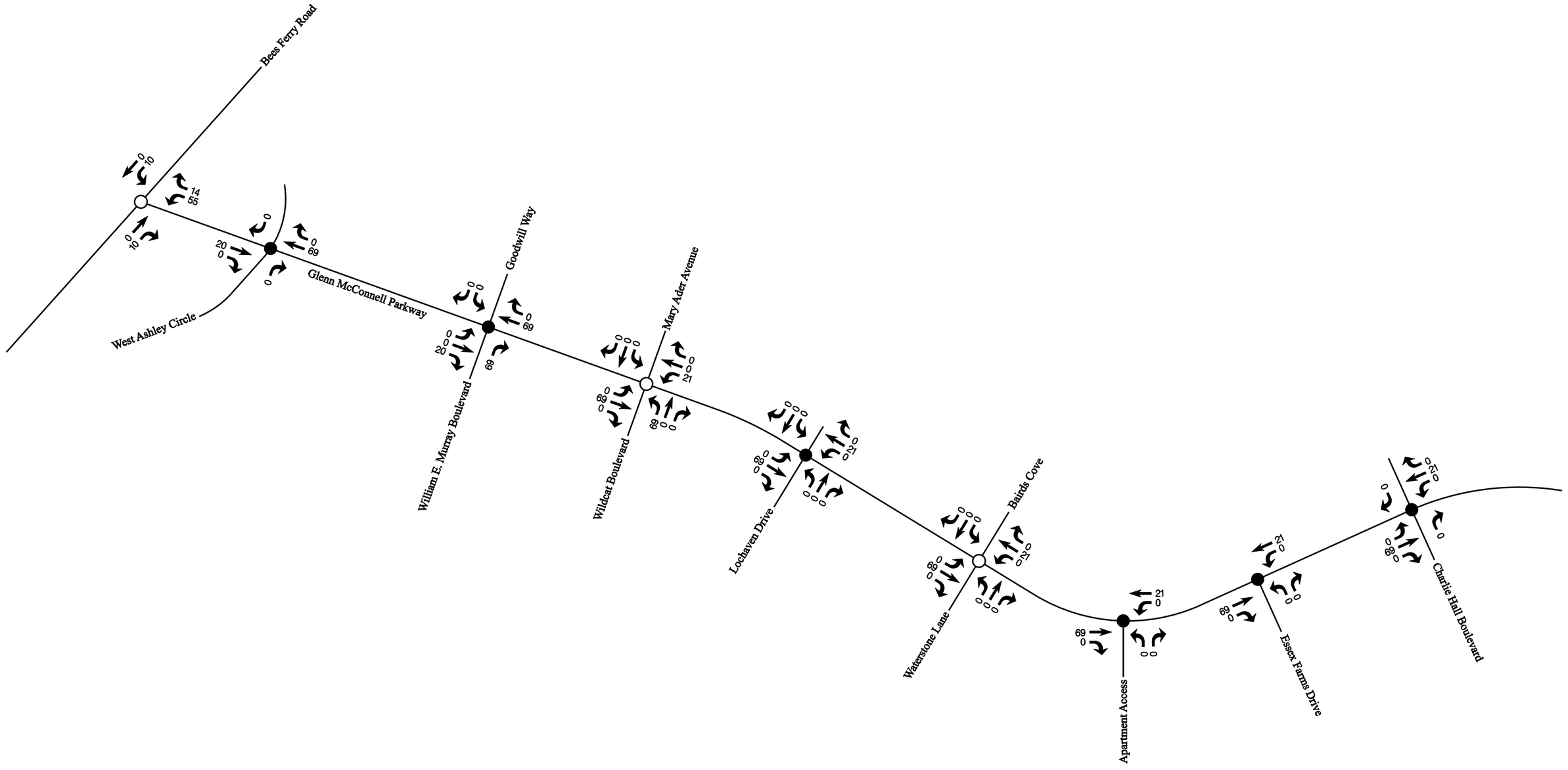
SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design

PROJECT TRIP GENERATION SUMMARY[1]

William E. Murray Apartment Project

Time Period	Residential Apartments 400 Units[2]
Weekday Daily	2,990
AM Peak-Hour	
Enter	41
Exit	138
Total	179
PM Peak-Hour	
Enter	128
Exit	75
Total	203

1. ITE Trip Generation manual, Tenth Edition.
2. ITE Trip Generation manual - LUC 220.
   Weekday Daily rounded up to nearest applicable 10.



NOT TO SCALE

○ = Signalized Intersection

● = Unsignalized Intersection

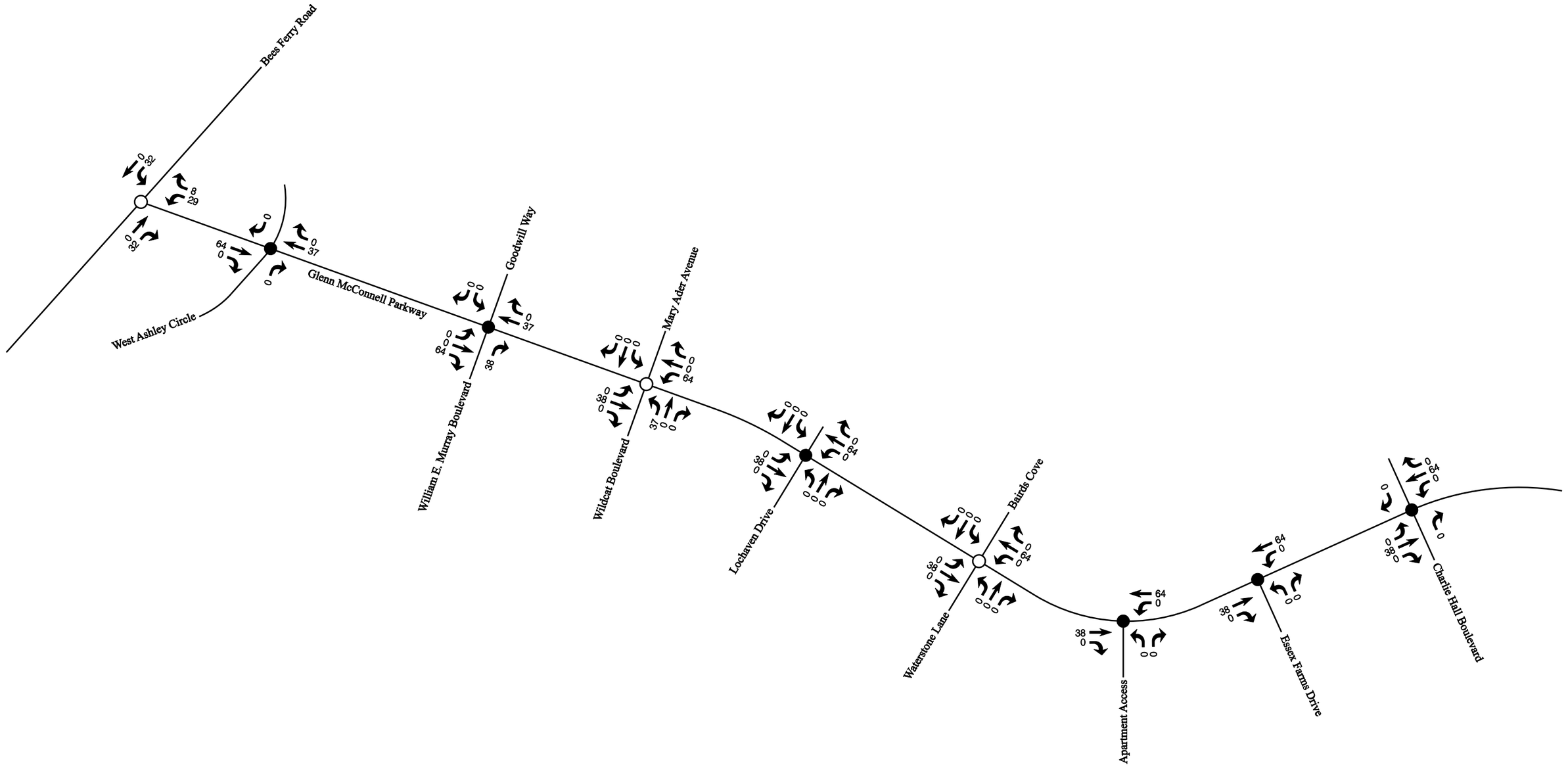
Appendix Figure

WILLIAM E. MURRAY APARTMENTS - SITE TRIPS AM PEAK-HOUR

Glenn McConnell Parkway Widening Project : Charleston County, SC

SHORT ENGINEERING & CONSULTING, LLC

Traffic & Transportation Engineering - Parking Operations & Design



NOT TO SCALE

○ = Signalized Intersection

● = Unsignalized Intersection

Appendix Figure

WILLIAM E. MURRAY APARTMENTS - SITE TRIPS
PM PEAK-HOUR

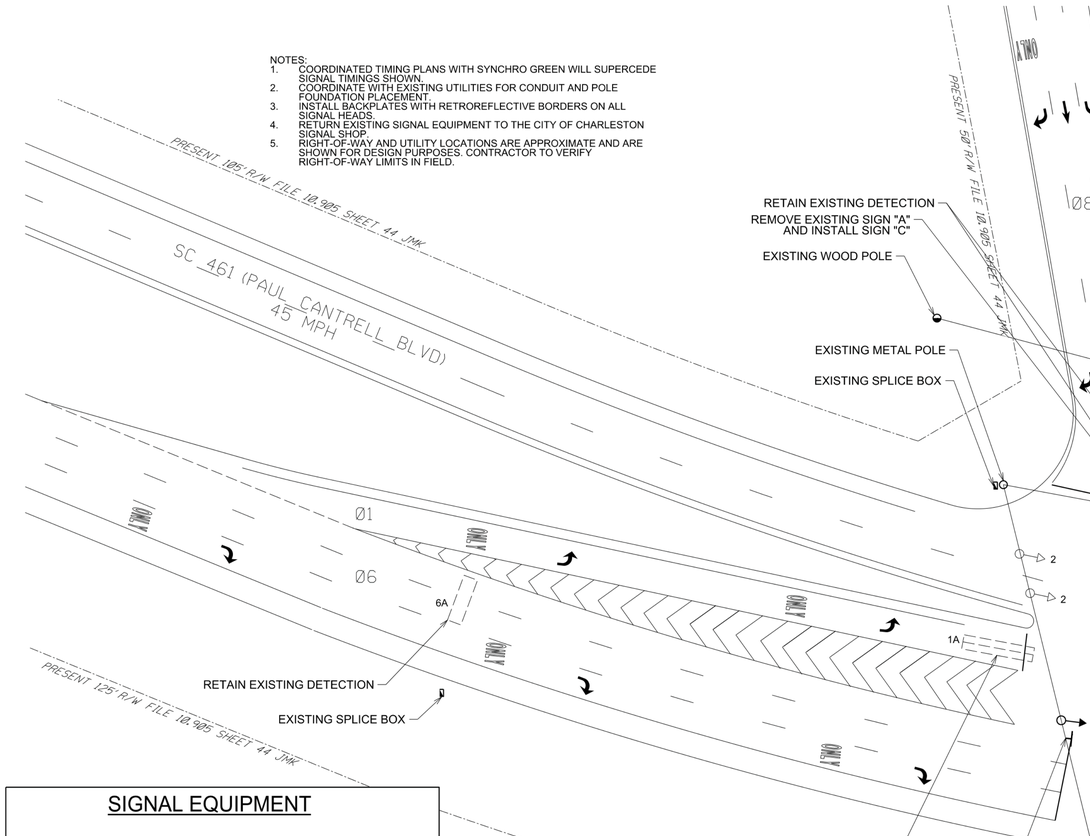
Glenn McConnell Parkway Widening Project : Charleston County, SC

SHORT
ENGINEERING & CONSULTING, LLC
Traffic & Transportation Engineering - Parking Operations & Design

GMP SIGNAL UPGRADE PROJECT

FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
..	SC	CHARLESTON	.....	P028928	SC 61	TS70	..

NOTES:
1. COORDINATED TIMING PLANS WITH SYNCHRO GREEN WILL SUPERCEDE SIGNAL TIMINGS SHOWN.
2. COORDINATE WITH EXISTING UTILITIES FOR CONDUIT AND POLE FOUNDATION PLACEMENT.
3. INSTALL BACKPLATES WITH RETROREFLECTIVE BORDERS ON ALL SIGNAL HEADS.
4. RETURN EXISTING SIGNAL EQUIPMENT TO THE CITY OF CHARLESTON SIGNAL SHOP.
5. RIGHT-OF-WAY AND UTILITY LOCATIONS ARE APPROXIMATE AND ARE SHOWN FOR DESIGN PURPOSES. CONTRACTOR TO VERIFY RIGHT-OF-WAY LIMITS IN FIELD.



SIGNAL TIMINGS

INTERVAL	PHASE 1	2	3	4	5	6	7	8
WALK								
DON'T WALK								
MIN INITIAL	6	16		10		16	5	10
MAX INITIAL	---	---		---		---	---	---
ADD/VEH	---	---		---		---	---	---
VEH EXT	3.0	5.0		4.5		5.0	4.0	4.5
TIM BFR REDUC	---	---		---		---	---	---
TIME TO REDUC	---	---		---		---	---	---
MIN GAP	---	---		---		---	---	---
MAX LIMIT	15	39		20		39	15	20
MAXIMUM 2	42	109		71		109	35	53
YELLOW	4.5	4.5		4.0		4.5	4.0	4.5
RED CLEAR	3.0	3.0		4.0		3.0	4.0	2.5

SIGNAL DISPLAY SEQUENCE CHART

R - RED
→ - RED ARROW
Y - YELLOW
→ - STEADY YELLOW ARROW
→ - FLASHING YELLOW ARROW
G - GREEN
→ - GREEN ARROW
W - WALK **
DW - DON'T WALK

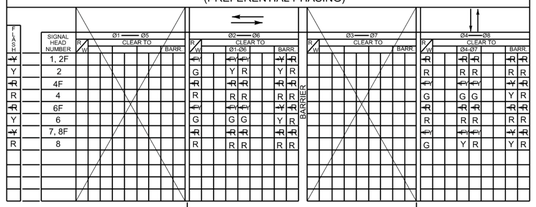
PHASE ON (A)	NON-CONFLICTION PHASE (B)	CONFLICTING PHASE*
1	5, 6, 6P	2,3,4,7,8, 2P, 4P, 8P
2	5,6, 2P, 6P	1,3,4, 7, 8, 4P, 8P
3	7, 8, 8P	1,2,4, 5, 6, 2P, 4P, 6P
4	7, 8, 4P, 8P	1,2,3,5,6, 2P, 6P
5	1,2, 2P	3,4,6,7, 8,4P, 6P, 8P
6	1,2, 2P, 6P	3,4, 5,7, 8,4P, 8P
7	3, 4, 4P,	1,2, 5, 6, 8, 2P, 6P
8	3, 4, 4P, 8P	1,2, 5, 6, 7, 2P, 6P

'C' = COORDINATE Ø2 , Ø6

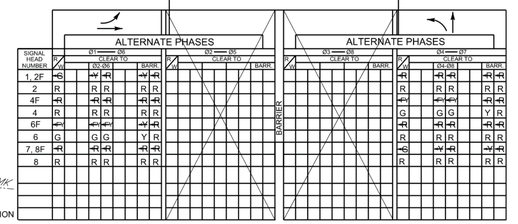
NOTE A: ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE OMITTED.
NOTE B: WHEN ONE PHASE IS ON ALONE, ANY NON-CONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL (SEE CHART).
* CONFLICTING PHASES REQUIRE A CLEARANCE INTERVAL.

** WHEN CALLED, DISPLAY SOLID 'WALKING PERSON' AND TIMES OUT WALK TIMING, THEN DISPLAYS FLASHING 'UPRAISED HAND' AND TIMES WALK CLEARANCE (DON'T WALK TIMING), THEN DISPLAYS A SOLID 'UPRAISED HAND'.

SIGNAL DISPLAY SEQUENCE (PREFERENTIAL PHASING)



ALTERNATE PHASES



SIGNAL EQUIPMENT

ONE (1) 8 PHASE FULLY ACTUATED STANDARD 2070 CONTROLLER WITH FLASHER, SIGNAL MONITOR UNIT, AND BASE - MOUNTED 332A CABINET. EXT. ▭ PROP. ▬

SIX (6) NEW MODEL 222, (2)-CHANNEL VEHICLE DETECTOR UNITS

PEDESTRIAN SIGNALS: EXT. P PROP. P W/ACT. & SIGN

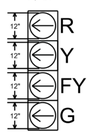
VEHICLE SIGNALS: EXT. ○→ PROP. ○→

BACKPLATES FOR ALL VEHICLE SIGNALS

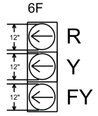
HEAD NUMBER	1, 2F	2	4F	4	6F	6	7, 8F	8		
LENS	◄R ◄Y ◄FY ◄G	R Y G	◄R ◄Y ◄FY ◄G	R Y G	◄R ◄Y ◄FY ◄G	R Y G	◄R ◄Y ◄FY ◄G	R Y G		
PHASE	1,OLA	2	OLB	4	OLC	6	7,OLD	8		
SIZE	12"	12"	12"	12"	12"	12"	12"	12"		
QUANTITY	1	2	1	2	1	2	1	2		

OLA = Ø1+Ø2 (FYA) OLC = Ø6 (FYA)
OLB = Ø4 (FYA) OLD = Ø7+Ø8 (FYA)
METAL POLES AS NECESSARY: EXT. ○ PROP. ●M
WOOD POLES AS NECESSARY: EXT. ◒ PROP. ●W

INSTALL 1, 2F 7, 8F



INSTALL 4F 6F



SIGN "A"

R10-12

SIGN "B"

R34

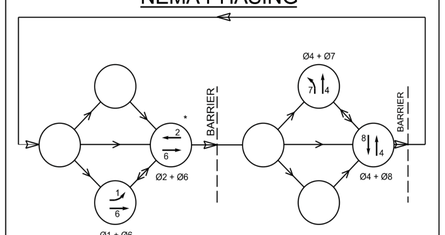
INSTALL SIGN "C"

R10-12A-30

LOOP DETECTOR INSTALLATION CHART

PHASE/ LOOP LTR#	DETECTOR AMP NO.	DETECTOR CHAN NO.	WIRED TO PHASE(S)	LOCK X	NON-LOCK X	PULSE X	PRES X	OPERATION DELAY SEC	OPERATION EXT SEC	SPECIAL FEATURES TIME OF DAY-TOD SWITCHING, etc.	LOOP DESIGN SIZE _X	NO.OF TURNS	DIST. FROM ℄
1A	1	_	1	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	-2'
2A	2	_	2	X	_	_	X	___	___	----------	6' x 20'	4	160'
4A	3	_	4	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	0'
6A	4	_	6	X	_	_	X	___	___	----------	6' x 20'	4	260'
7A	5	_	7	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	0'
8A	6	_	8	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	0'
8B	6	_	8	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	0'

NEMA PHASING



ROUTE NUMBER	SC 461		S-1168	
APPROACH DIRECTION	EB	WB	NB	SB
SIGNAL DESIGN SPEED	45	35	30	45
GRADE (%)	-1	0	+2	-1

SOUTH CAROLINA PROFESSIONAL ENGINEER 2/2018 No. 29471 Docusigned by: Andrew R. Ross ANDREW ROSS, PE

SOUTH CAROLINA KIMLEY-HORN AND ASSOCIATES, INC. No. C00166 CERTIFICATE OF AUTHORIZATION

Kimley»Horn
2 SUN COURT, SUIT 450
PEACHTREE CORNERS, GA 30092

SCDOT South Carolina Department of Transportation
Post Office Box 191
Columbia, South Carolina 29201 ©

This intersection border drawing including the information blocks contained within, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on the sheet without written authorization from the SCDOT Traffic Engineering office is prohibited.

DATE	REVISIONS
.....	.....
.....	.....
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.....	.....
.....	.....

DESIGNED	____
DRAWN	SET
CHECKED	____
REVIEWED	____
RECOMMENDED	____

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION
COLUMBIA, S.C.

SUBJECT TITLE: Traffic Signal Plan

SPECIFIC LOCATION: SC 461 (Paul Cantrell Blvd) & S-1168 (Tobias Gadson Blvd)

CITY: Charleston COUNTY: Charleston

APPROVED BY

DISTRICT # TRAFFIC ENGINEER ENGINEER

SCALE	DATE	SHEET NO.	INDEX NO.
1" = 30'	--------	1 OF 1	--------

FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
..	SC	CHARLESTON	.....	P028928	SC 61	TS71	..

G-GREEN
Y-YELLOW
R-RED
G-G, ARROW
Y-Y, ARROW
W-WALK **
DW-DON'T WALK

SIGNAL DISPLAY SEQUENCE CHART

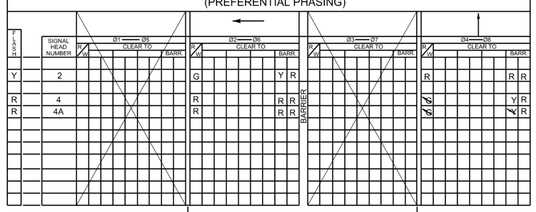
PHASE ON (A)	NON-CONFLICTION PHASE (B)	CONFLICTING PHASE *
1	5, 6, 6P	2,3,4,7, 8, 2P, 4P, 8P
2	5, 6, 2P, 6P	1,3, 4, 7, 8, 4P , 8P
3	7, 8, 8P	1,2,4, 5, 6,2P, 4P, 6P
4	7, 8, 4P, 8P	1,2, 3, 5, 6, 2P, 6P
5	1, 2, 2P	3,4, 6,7, 8,4P, 6P, 8P
6	1, 2, 2P, 6P	3,4, 5, 7, 8,4P, 8P
7	3, 4, 4P,	1,2, 5, 6, 8, 2P, 6P
8	3, 4, 4P, 8P	1,2, 5, 6, 7, 2P, 6P

'C' = COORDINATE Ø2 : Ø6

NOTE A: ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE OMITTED.
NOTE B: WHEN ONE PHASE IS ON ALONE, ANY/NON-CONFLICTING PHASE MAY START TIMING CON-CURRENTLY WITHOUT A CLEARANCE INTERVAL (SEE CHART).
* CONFLICTING PHASES REQUIRE A CLEARANCE INTERVAL.

** WHEN CALLED, DISPLAY SOLID 'WALKING PERSON' AND TIMES OUT WALK TIMING; THEN DISPLAYS FLASHING 'UPRAISED HAND' AND TIMES WALK CLEARANCE (DON'T WALK TIMING), THEN DISPLAYS A SOLID 'UPRAISED HAND'.

SIGNAL DISPLAY SEQUENCE (PREFERENTIAL PHASING)



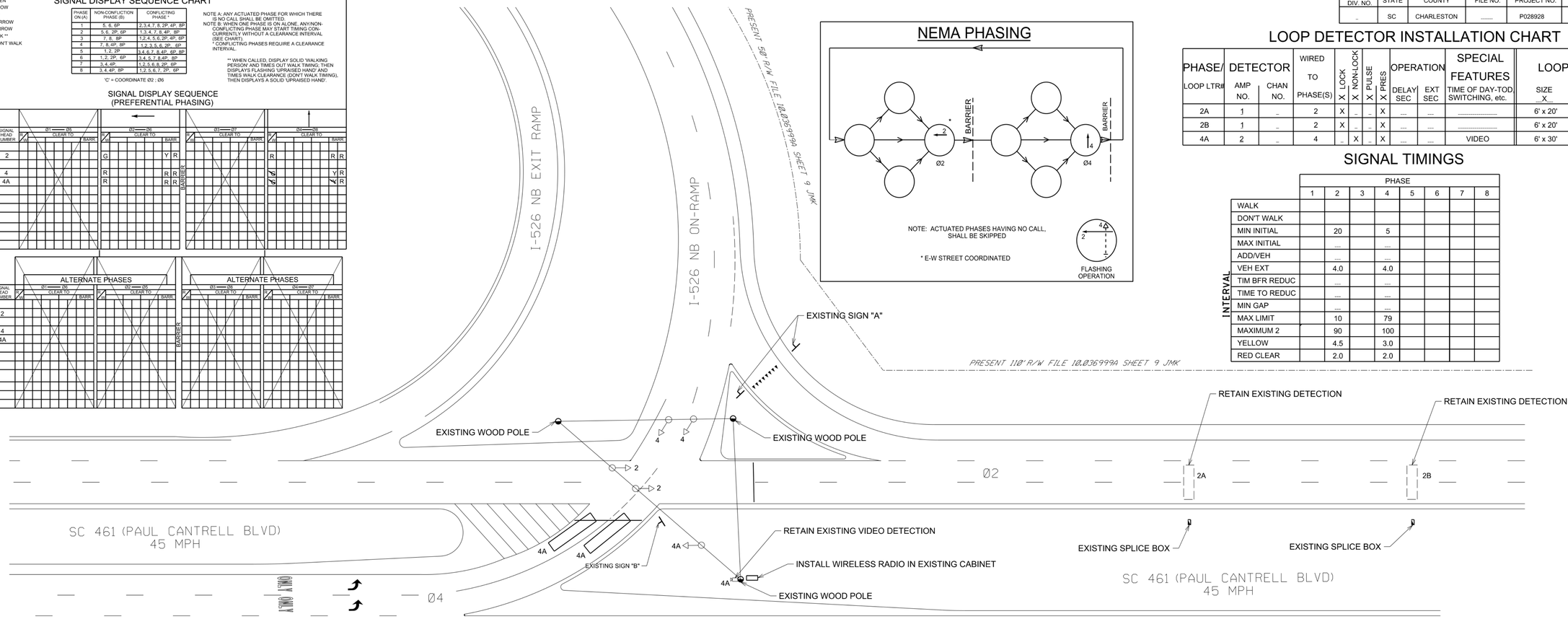
NEMA PHASING

LOOP DETECTOR INSTALLATION CHART

PHASE/ LOOP LTR#	DETECTOR AMP NO.	DETECTOR CHAN NO.	WIRED TO PHASE(S)	LOCK	NON-LOCK	PULSE	PRES	OPERATION DELAY SEC	OPERATION EXT SEC	SPECIAL FEATURES TIME OF DAY-TOD SWITCHING, etc.	LOOP DESIGN SIZE _X_	LOOP DESIGN NO.OF TURNS	LOOP DESIGN DIST. FROM ⊕
2A	1	_	2	X	_	_	X	___	___	.....	6' x 20'	4	250'
2B	1	_	2	X	_	_	X	___	___	.....	6' x 20'	4	380'
4A	2	_	4	_	X	_	X	___	___	VIDEO	6' x 30'	0	-2'

SIGNAL TIMINGS

INTERVAL	1	2	3	4	5	6	7	8
WALK								
DON'T WALK								
MIN INITIAL		20		5				
MAX INITIAL		___		___				
ADD/VEH		___		___				
VEH EXT		4.0		4.0				
TIM BFR REDUC		___		___				
TIME TO REDUC		___		___				
MIN GAP		___		___				
MAX LIMIT		10		79				
MAXIMUM 2		90		100				
YELLOW		4.5		3.0				
RED CLEAR		2.0		2.0				



SIGNAL EQUIPMENT

ONE (1) EXISTING 8-PHASE FULLY ACTUATED STANDARD 2070 CONTROLLER WITH FLASHER, SIGNAL MONITOR UNIT, AND BASE-MOUNTED 336S CABINET. EXT. ▭ PROP. ▬

TWO (2) MODEL 222, (2)-CHANNEL VEHICLE DETECTOR UNITS

PEDESTRIAN SIGNALS: EXT. P PROP. P W/ACT. & SIGN

VEHICLE SIGNALS: EXT. PROP.

HEAD NUMBER		2		4	4A					
LENS		R		R	R					
		Y		Y	Y					
		G		G	G					
PHASE		2		4	4					
SIZE		12"		12"	12"					
QUANTITY		2		2	1					

OLA OLC
OLB OLD
METAL POLES AS NECESSARY: EXT. ○ PROP. ●M
WOOD POLES AS NECESSARY: EXT. ◒ PROP. ●W

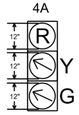
SIGN "A"

R12

SIGN "B"

R51

4A



SCALE IN FEET
0 30 60 120

NOTE:
1. RIGHT-OF-WAY AND UTILITY LOCATIONS ARE APPROXIMATE AND ARE SHOWN FOR DESIGN PURPOSES. CONTRACTOR TO VERIFY RIGHT-OF-WAY LIMITS IN FIELD.

ROUTE NUMBER	SC 461		I-526	
APPROACH DIRECTION	EB	WB	NB	SB
SIGNAL DESIGN SPEED	45	45	..	..
GRADE (%)	0	0	+1	..

SOUTH CAROLINA PROFESSIONAL ENGINEER
12/2018
No. 29471
DocuSigned by:
Andrew R. King
ANDREW ROSS KING

SOUTH CAROLINA
KIMLEY-HORN AND ASSOCIATES, INC.
No. C00166
CERTIFICATE OF AUTHORIZATION

Kimley»Horn
2 SUN COURT, SUIT 450
PEACHTREE CORNERS, GA 30092

SCDOT
South Carolina Department of Transportation
Post Office Box 191
Columbia, South Carolina 29201 ©

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DATE	REVISIONS
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DESIGNED	____
DRAWN	SET
CHECKED	____
REVIEWED	____
RECOMMENDED	____

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION
COLUMBIA, S.C.

SUBJECT TITLE
Traffic Signal Plan

SPECIFIC LOCATION
SC 461 (Paul Cantrell Blvd) & I-526

CITY	COUNTY
Charleston	Charleston

APPROVED BY

DISTRICT # TRAFFIC ENGINEER

ENGINEER

SCALE	DATE	SHEET NO.	INDEX NO.
1" = 30'	--------	1 OF 1	--------

FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
..	SC	CHARLESTON	.....	P028928	SC 61	TS72	..

SIGNAL EQUIPMENT

ONE (1) EXISTING 8-PHASE FULLY ACTUATED STANDARD 2070 CONTROLLER WITH FLASHER, SIGNAL MONITOR UNIT, AND BASE-MOUNTED 332A CABINET. EXT. ▭ PROP. ▬

FOURTEEN (14) NEW MODEL 222, (2)-CHANNEL VEHICLE DETECTOR UNITS

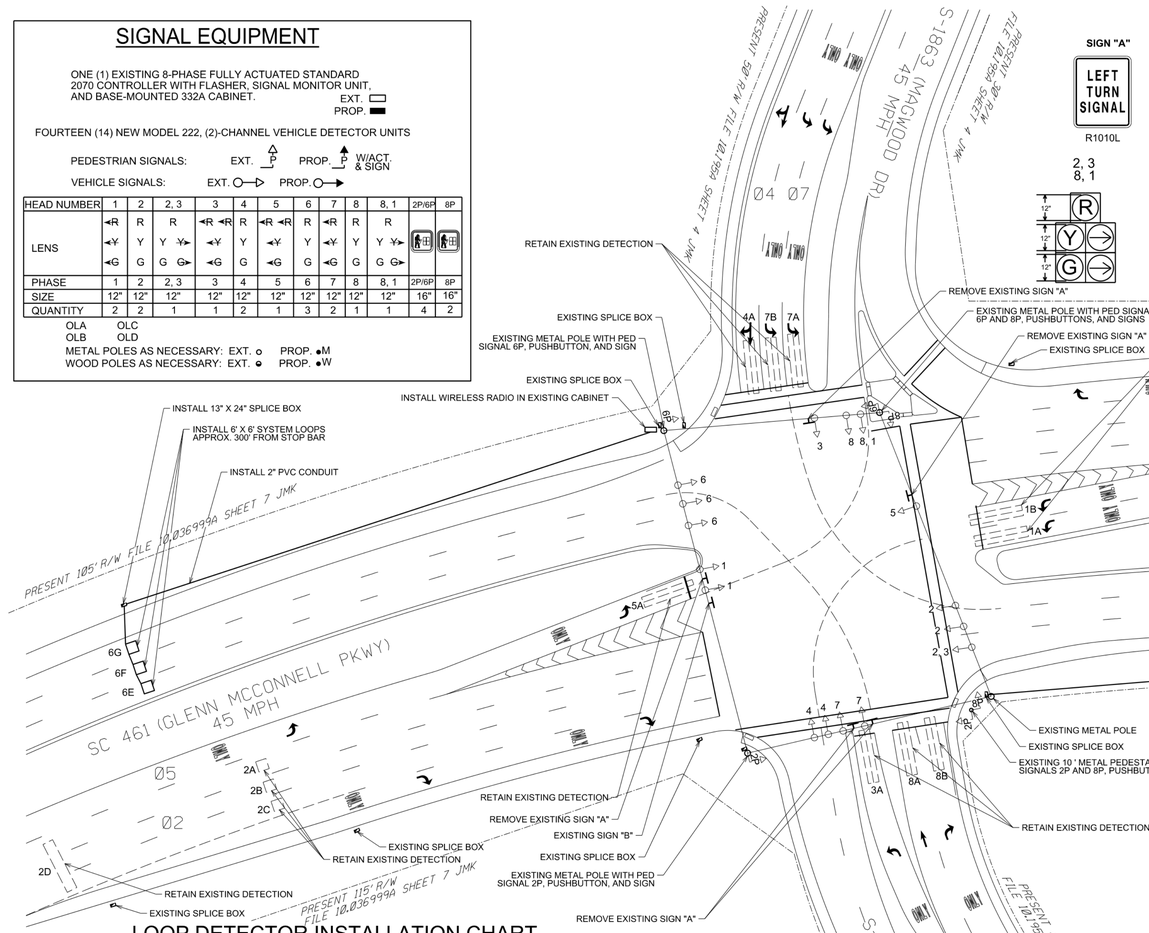
PEDESTRIAN SIGNALS: EXT. PROP. W/ACT. & SIGN

VEHICLE SIGNALS: EXT. PROP.

HEAD NUMBER	1	2	2, 3	3	4	5	6	7	8	8, 1	2P/6P	8P
LENS	◂R ◂Y ◂G	R Y G	R Y Y▸ G G▸	◂R ◂R ◂Y ◂G	R Y G	◂R ◂R ◂Y ◂G	R Y G	◂R ◂Y ◂G	R Y G	R Y Y▸ G G▸		
PHASE	1	2	2, 3	3	4	5	6	7	8	8, 1	2P/6P	8P
SIZE	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	16"	16"
QUANTITY	2	2	1	1	2	1	3	2	1	1	4	2

OLA OLC
OLB OLD

METAL POLES AS NECESSARY: EXT. ○ PROP. ●M
WOOD POLES AS NECESSARY: EXT. ● PROP. ●W



SIGN "A" — LEFT TURN SIGNAL — R1010L

SIGN "B" — R34

R10-3eL 9" x 15"

R10-3eR 9" x 15"

2, 3 / 8, 1 — 1 / 7 — 3 / 5

SIGNAL TIMINGS

INTERVAL	PHASE 1	2	3	4	5	6	7	8
WALK		7				7		7
DON'T WALK		34				26		47
MIN INITIAL	6	15	6	8	6	15	6	8
MAX INITIAL	___	___	___	___	___	___	___	___
ADD/VEH	___	___	___	___	___	___	___	___
VEH EXT	3.5	4.0	3.5	3.5	3.5	4.0	3.5	3.5
TIM BFR REDUC	___	___	___	___	___	___	___	___
TIME TO REDUC	___	___	___	___	___	___	___	___
MIN GAP	___	___	___	___	___	___	___	___
MAX LIMIT	25	60	25	43	25	60	25	43
MAXIMUM 2	25	84	25	55	25	84	40	43
YELLOW	4.5	4.5	3.5	4.5	4.5	4.5	3.5	4.0
RED CLEAR	4.0	4.0	4.0	3.0	4.0	4.0	4.0	3.5

SIGNAL DISPLAY SEQUENCE CHART

G-GREEN
Y-YELLOW
R-RED
G-G, ARROW
Y-Y, ARROW
W-WALK **
DW-DON'T WALK

PHASE ON (A)	NON-CONFLICTION PHASE (B)	CONFLICTING PHASE *
1	5, 6, 6P	2,3,4,7 8, 2P, 4P, 8P
2	5, 6, 2P, 6P	1,3,4, 7, 8, 4P, 8P
3	7, 8, 8P	1,2,4, 5,6, 2P, 4P, 6P
4	7, 8, 4P, 8P	1,2,3,5,6, 2P, 6P
5	1,2, 2P	3,4,6,7, 8,4P, 6P, 8P
6	1,2, 2P, 6P	3,4, 5,7, 8,4P, 8P
7	3,4,4P,	1,2,5,6,8, 2P, 6P
8	3,4, 4P, 8P	1,2,5,6,7, 2P, 6P

'C' = COORDINATE Ø2 ; Ø6

NOTE A: ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE OMITTED.
NOTE B: WHEN ONE PHASE IS ON ALONE, ANY NON-CONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL (SEE CHART).
* CONFLICTING PHASES REQUIRE A CLEARANCE INTERVAL.

** WHEN CALLED, DISPLAY SOLID 'WALKING PERSON' AND TIMES OUT WALK TIMING. THEN DISPLAYS FLASHING 'UPRAISED HAND' AND TIMES WALK CLEARANCE (DON'T WALK TIMING), THEN DISPLAYS A SOLID 'UPRAISED HAND'.

SIGNAL DISPLAY SEQUENCE (PREFERENTIAL PHASING)

PHASE	SIGNAL HEAD NUMBER	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
		CLEAR TO							
		Ø1,Ø5	Ø2,Ø6	Ø3,Ø7	Ø4,Ø8	Ø1,Ø5	Ø2,Ø6	Ø3,Ø7	Ø4,Ø8
Y	1	G	G	R	R	G	Y	R	R
Y	2	R	R	R	R	G	Y	R	R
Y	2, 3	R	R	R	R	G	Y	R	R
R	3	R	R	G	G	R	R	Y	Y
R	4	R	R	R	R	G	Y	R	R
R	5	G	G	Y	Y	R	R	R	R
Y	6	R	R	R	R	G	Y	R	R
R	7	R	R	G	G	R	R	Y	Y
R	8	R	R	R	R	G	Y	R	R
R	8, 1	R	R	R	R	G	Y	R	R
	2P	DW	DW	DW	DW	W	W	W	W
	6P	DW	DW	DW	DW	W	W	W	W
	8P	DW	DW	DW	DW	W	W	W	W

ALTERNATE PHASES

PHASE	SIGNAL HEAD NUMBER	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
		CLEAR TO							
		Ø1,Ø5	Ø2,Ø6	Ø3,Ø7	Ø4,Ø8	Ø1,Ø5	Ø2,Ø6	Ø3,Ø7	Ø4,Ø8
	1	G	G	R	R	G	Y	R	R
	2	R	R	R	R	G	Y	R	R
	2, 3	R	R	R	R	G	Y	R	R
	3	R	R	G	G	R	R	Y	Y
	4	R	R	R	R	G	Y	R	R
	5	G	G	Y	Y	R	R	R	R
	6	G	Y	R	G	G		Y	R
	7	R	R	G	G	R		Y	R
	8	R	R	R	R	G	Y	R	R
	8, 1	R	R	R	R	G	Y	R	R
	2P	DW	DW	DW	DW	W	W	DW	DW
	6P	W	DW	DW	W	W	W	DW	DW
	8P	DW	DW	DW	DW	W	W	DW	DW

ALTERNATE PHASES

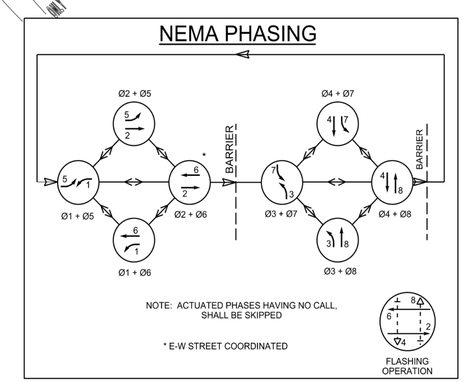
PHASE	SIGNAL HEAD NUMBER	Ø1	Ø3	Ø5	Ø7
		CLEAR TO			
		Ø1,Ø3	Ø3,Ø5	Ø5,Ø7	Ø7,Ø1
	1	R	R	R	R
	2	R	R	R	R
	2, 3	R	R	R	R
	3	R	R	R	R
	4	R	R	R	R
	5	R	R	R	R
	6	R	R	R	R
	7	R	R	R	R
	8	R	R	R	R
	8, 1	R	R	R	R
	2P	DW	DW	DW	DW
	6P	DW	DW	DW	DW
	8P	DW	DW	DW	DW

LOOP DETECTOR INSTALLATION CHART

PHASE/ LOOP LTR#	DETECTOR AMP NO.	DETECTOR CHAN NO.	WIRED TO PHASE(S)	LOCK X	NON-LOCK X	PULSE X	PRES X	OPERATION DELAY SEC	OPERATION EXT SEC	SPECIAL FEATURES TIME OF DAY-TOD SWITCHING, etc.	LOOP DESIGN SIZE _X_	LOOP DESIGN NO.OF TURNS	LOOP DESIGN DIST. FROM ⊄
1A	1	_	1	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	-2'
1B	1	_	1	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	-2'
2A	2	_	2	X	_	_	X	___	___	.....	6' x 6'	4	250'
2B	2	_	2	X	_	_	X	___	___	.....	6' x 6'	4	250'
2C	3	_	2	X	_	_	X	___	___	.....	6' x 6'	4	250'
2D	3	_	2	X	_	_	X	___	___	.....	6' x 30'	4	375'
2E	4	_	2	_	X	_	X	___	___	System	6' x 6'	4	300'
2F	4	_	2	_	X	_	X	___	___	System	6' x 6'	4	300'
2G	5	_	2	_	X	_	X	___	___	System	6' x 6'	4	300'
3A	6	_	3	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	-2'
4A	7	_	4	_	X	_	X	8	___	Quadrupole	6' x 30'	2-4-2	-2'
5A	8	_	5	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	-2'
6A	9	_	6	X	_	_	X	___	___	.....	6' x 6'	4	255'
6B	9	_	6	X	_	_	X	___	___	.....	6' x 6'	4	255'
6C	10	_	6	X	_	_	X	___	___	.....	6' x 6'	4	255'
6D	10	_	6	X	_	_	X	___	___	.....	6' x 30'	4	355'
6E	11	_	6	_	X	_	X	___	___	System	6' x 6'	4	300'
6F	11	_	6	_	X	_	X	___	___	System	6' x 6'	4	300'
6G	12	_	6	_	X	_	X	___	___	System	6' x 6'	4	300'
7A	12	_	7	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	-2'
7B	13	_	7	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	-2'
8A	14	_	8	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	-2'
8B	14	_	8	_	X	_	X	8	___	Quadrupole	6' x 30'	2-4-2	-2'

NOTES:
1. COORDINATED TIMING PLANS WITH SYNCHRO GREEN WILL SUPERCEDE SIGNAL TIMINGS SHOWN.
2. COORDINATE WITH EXISTING UTILITIES FOR CONDUIT AND POLE FOUNDATION PLACEMENT.
3. INSTALL BACKPLATES WITH RETROREFLECTIVE BORDERS ON ALL SIGNAL HEADS.
4. RETURN EXISTING SIGNAL EQUIPMENT TO THE CITY OF CHARLESTON SIGNAL SHOP.
5. LOOPS 2E, 2F, 2G, 6E, 6F, AND 6G ARE FOR COORDINATED SIGNAL TIMING ONLY. DO NOT PROGRAM THESE LOOPS TO EXTEND GREEN.
6. RIGHT-OF-WAY AND UTILITY LOCATIONS ARE APPROXIMATE AND ARE SHOWN FOR DESIGN PURPOSES. CONTRACTOR TO VERIFY RIGHT-OF-WAY LIMITS IN FIELD.

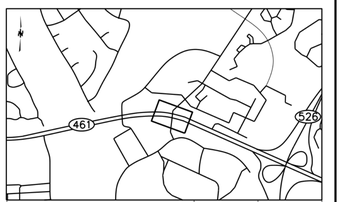
NEMA PHASING



SCALE IN FEET
0 40 80 160

SOUTH CAROLINA PROFESSIONAL ENGINEER 3/12/2018 No: 29471 Digitally Signed by: Andrew R. Kelly

SOUTH CAROLINA KIMLEY-HORN AND ASSOCIATES, INC. No. C00166 CERTIFICATE OF AUTHORIZATION



ROUTE NUMBER	SC 461		S-1863	
APPROACH DIRECTION	EB	WB	NB	SB
SIGNAL DESIGN SPEED	45	45	35	45
GRADE (%)	0	+1	0	+3

* ESTIMATED FILE # : SHEET # :

Kimley»Horn
2 SUN COURT, SUIT 450
PEACHTREE CORNERS, GA 30092

SCDOT
South Carolina Department of Transportation
Post Office Box 191
Columbia, South Carolina 29201

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REVIEWED	____
RECOMMENDED	____

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION
COLUMBIA, S.C.

SUBJECT TITLE: Traffic Signal Plan

SPECIFIC LOCATION: SC 461 (Glenn McConnell Pkwy) & S-1863 (Magwood Dr)

CITY	COUNTY
Charleston	Charleston

APPROVED BY

DISTRICT # TRAFFIC ENGINEER ENGINEER

SCALE	DATE	SHEET NO.	INDEX NO.
1" = 40'	.....	1 OF 1	.....

FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
_	SC	CHARLESTON	_____	P028928	SC 61	TS73	_

LOOP DETECTOR INSTALLATION CHART

PHASE/ LOOP LTR#	DETECTOR AMP NO.	DETECTOR CHAN NO.	WIRED TO PHASE(S)	LOCK	NON-LOCK	PULSE	PRES	OPERATION DELAY SEC	OPERATION EXT SEC	SPECIAL FEATURES TIME OF DAY-TOD SWITCHING, etc.	LOOP DESIGN SIZE _X_	NO.OF TURNS	DIST. FROM ⊕
1A	1	_	1	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	-2'
2A	2	_	2	X	_	_	X	___	___	----------	6' x 6'	4	260'
2B	2	_	2	X	_	_	X	___	___	----------	6' x 6'	4	260'
2C	3	_	2	X	_	_	X	___	___	----------	6' x 6'	4	370'
2D	3	_	2	X	_	_	X	___	___	----------	6' x 6'	5	370'
4A	4	_	4	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	-2'
4B	4	_	4	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	-2'
5A	5	_	5	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	-2'
6A	6	_	6	X	_	_	X	___	___	----------	6' x 6'	4	270'
6B	6	_	6	X	_	_	X	___	___	----------	6' x 6'	4	270'
6C	7	_	6	X	_	_	X	___	___	----------	6' x 6'	4	370'
6D	7	_	6	X	_	_	X	___	___	----------	6' x 6'	5	370'
8A	8	_	8	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	-2'
8B	8	_	8	_	X	_	X	___	___	Quadrupole	6' x 30'	2-4-2	-2'

SIGNAL TIMINGS

INTERVAL	PHASE 1	2	3	4	5	6	7	8
WALK								7
DON'T WALK								44
MIN INITIAL	6	20		8	5	20		8
MAX INITIAL	___	___		___	___	___		___
ADD/VEH	___	___		___	___	___		___
VEH EXT	2.5	6.5		2.5	2.5	6.5		2.5
TIM BFR REDUC	___	___		___	___	___		___
TIME TO REDUC	___	___		___	___	___		___
MIN GAP	___	___		___	___	___		___
MAX LIMIT	25	45		25	25	45		25
MAXIMUM 2	32	115		50	32	115		50
YELLOW	5.0	5.0		3.0	5.0	5.0		3.0
RED CLEAR	4.0	4.0		4.0	4.0	4.0		4.0

SIGNAL EQUIPMENT

ONE (1) EXISTING 8-PHASE FULLY ACTUATED STANDARD 2070 CONTROLLER WITH FLASHER, SIGNAL MONITOR UNIT, AND BASE-MOUNTED 332A CABINET. EXT. ▭ PROP. ▬

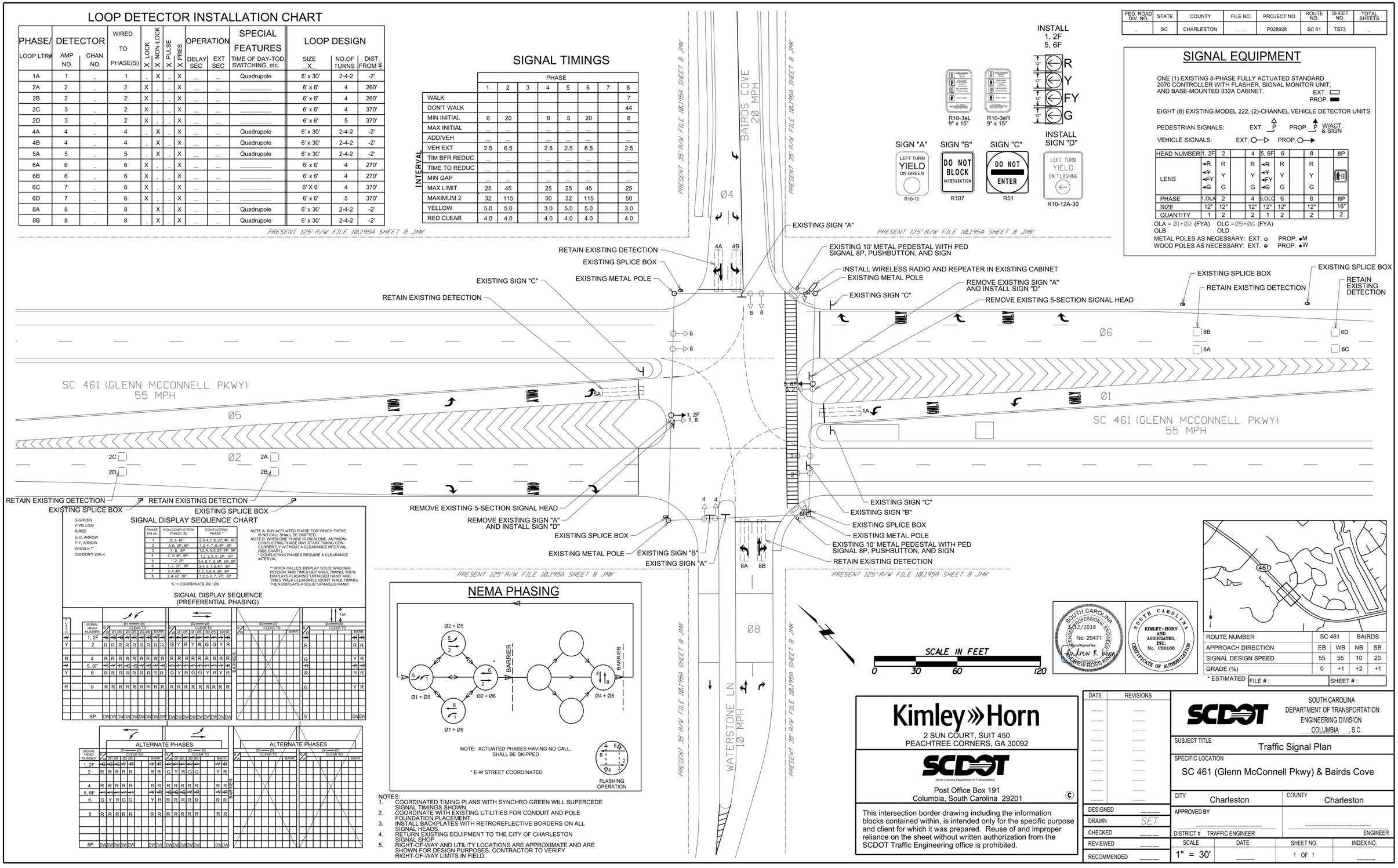
EIGHT (8) EXISTING MODEL 222, (2)-CHANNEL VEHICLE DETECTOR UNITS

PEDESTRIAN SIGNALS: EXT. P PROP. P W/ACT. & SIGN

VEHICLE SIGNALS: EXT. ○→ PROP. ●→

HEAD NUMBER	1, 2F	2		4	5, 6F	6		8		8P
LENS	◄R	R		R	◄R	R		R		
	◄Y	Y		Y	◄FY	Y		Y		
	◄G	G		G	◄G	G		G		
PHASE	1,OLA	2		4	5,OLC	6		8		8P
SIZE	12"	12"		12"	12"	12"		12"		16"
QUANTITY	1	2		2	1	2		2		2

OLA = Ø1+Ø2 (FYA) OLC = Ø5+Ø6 (FYA)
OLB OLD
METAL POLES AS NECESSARY: EXT. ○ PROP. ●M
WOOD POLES AS NECESSARY: EXT. ● PROP. ●W



SIGNAL DISPLAY SEQUENCE CHART

G-GREEN
Y-YELLOW
R-RED
G-G, ARROW
Y-Y, ARROW
W-WALK **
DW-DON'T WALK

PHASE ON (A)	NON-CONFLICTION PHASE (B)	CONFLICTING PHASE *
1	5, 6, 6P	2,3,4,7, 8, 2P, 4P, 8P
2	5, 6, 2P, 6P	1,3,4, 7, 8, 4P, 8P
3	7, 8, 8P	1,2,4, 5, 6, 2P, 4P, 6P
4	7, 8, 4P, 8P	1,2, 3, 5, 6, 2P, 6P
5	1, 2, 2P	3,4, 6, 7, 8, 4P, 6P, 8P
6	1, 2, 2P, 6P	3,4, 5, 7, 8,4P, 8P
7	3, 4, 4P	1,2, 5, 6, 7, 2P, 6P
8	3, 4, 4P, 8P	1,2, 5, 6, 7, 2P, 6P

'C' = COORDINATE Ø2 ; Ø6

NOTE A: ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE OMITTED.
NOTE B: WHEN ONE PHASE IS ON ALONE, ANY NON-CONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL (SEE CHART).
* CONFLICTING PHASES REQUIRE A CLEARANCE INTERVAL.

** WHEN CALLED, DISPLAY SOLID WALKING PERSON' AND TIMES OUT WALK TIMING; THEN DISPLAYS FLASHING 'UPRAISED HAND' AND TIMES WALK CLEARANCE (DON'T WALK TIMING), THEN DISPLAYS A SOLID 'UPRAISED HAND'.

SIGNAL DISPLAY SEQUENCE (PREFERENTIAL PHASING)

ALTERNATE PHASES

NEMA PHASING

NOTE: ACTUATED PHASES HAVING NO CALL, SHALL BE SKIPPED

* E-W STREET COORDINATED

FLASHING OPERATION

NOTES:
1. COORDINATED TIMING PLANS WITH SYNCHRO GREEN WILL SUPERCEDE SIGNAL TIMINGS SHOWN.
2. COORDINATE WITH EXISTING UTILITIES FOR CONDUIT AND POLE FOUNDATION PLACEMENT.
3. INSTALL BACKPLATES WITH RETROREFLECTIVE BORDERS ON ALL SIGNAL HEADS.
4. RETURN EXISTING EQUIPMENT TO THE CITY OF CHARLESTON SIGNAL SHOP.
5. RIGHT-OF-WAY AND UTILITY LOCATIONS ARE APPROXIMATE AND ARE SHOWN FOR DESIGN PURPOSES. CONTRACTOR TO VERIFY RIGHT-OF-WAY LIMITS IN FIELD.

ROUTE NUMBER	SC 461		BAIRDS	
APPROACH DIRECTION	EB	WB	NB	SB
SIGNAL DESIGN SPEED	55	55	10	20
GRADE (%)	0	+1	+2	+1

* ESTIMATED

SOUTH CAROLINA PROFESSIONAL ENGINEER 12/2018 No. 29471 Digitally signed by: Andrew R. King ANDREW ROSS KING

SOUTH CAROLINA KIMLEY-HORN AND ASSOCIATES, INC. No. C00166 CERTIFICATE OF AUTHORIZATION

Kimley»Horn
2 SUN COURT, SUIT 450
PEACHTREE CORNERS, GA 30092

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South Carolina Department of Transportation
Post Office Box 191
Columbia, South Carolina 29201

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SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION
COLUMBIA, S.C.

SUBJECT TITLE: Traffic Signal Plan

SPECIFIC LOCATION: SC 461 (Glenn McConnell Pkwy) & Bairds Cove

CITY	COUNTY
Charleston	Charleston

APPROVED BY
DISTRICT # TRAFFIC ENGINEER ENGINEER

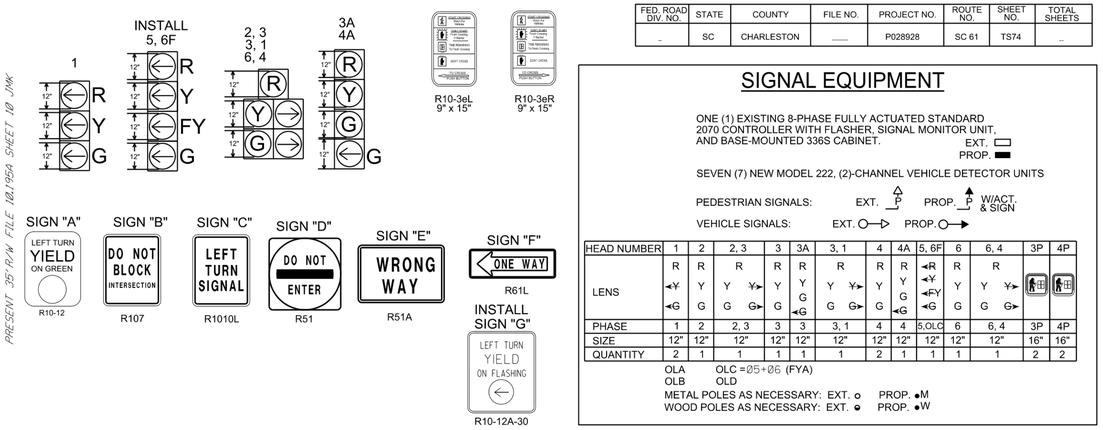
SCALE	DATE	SHEET NO.	INDEX NO.
1" = 30'	--------	1 OF 1	--------

LOOP DETECTOR INSTALLATION CHART

PHASE/ LOOP LTR#	DETECTOR AMP NO.	DETECTOR CHAN NO.	WIRED TO PHASE(S)	LOCK	NON-LOCK	PULSE	PRES	OPERATION DELAY SEC	OPERATION EXT SEC	SPECIAL FEATURES TIME OF DAY-TOD SWITCHING, etc.	LOOP DESIGN SIZE _X_	NO.OF TURNS	DIST. FROM ⊕
1A	1	_	1	_	X	_	X	___	___	----------	6' x 30'	4	0'
1B	1	_	1	_	X	_	X	___	___	----------	6' x 30'	4	0'
2A	2	_	2	X	_	_	X	___	___	----------	6' x 20'	4	250'
2B	2	_	2	X	_	_	X	___	___	----------	6' x 20'	4	380'
3A	3	_	3	_	X	_	X	___	___	----------	6' x 30'	4	0'
3B	3	_	3	_	X	_	X	___	___	----------	6' x 30'	4	0'
3C	4	_	3	_	X	_	X	___	___	----------	6' x 30'	4	0'
4A	5	_	4	_	X	_	X	___	___	----------	6' x 30'	4	-2'
4B	5	_	4	_	X	_	X	___	___	----------	6' x 30'	4	-2'
5A	6	_	5	_	X	_	X	___	___	----------	6' x 30'	4	-2'
6A	7	_	6	X	_	_	X	___	___	----------	6' x 20'	4	250'
6B	7	_	6	X	_	_	X	___	___	----------	6' x 20'	4	380'

SIGNAL TIMINGS

INTERVAL	PHASE 1	2	3	4	5	6	7	8
WALK			7	7				
DON'T WALK			18	18				
MIN INITIAL	5	20	7	7	5	20		
MAX INITIAL	___	___	___	___	___	___		
ADD/VEH	___	___	___	___	___	___		
VEH EXT	4.0	5.0	4.0	4.0	4.0	5.0		
TIM BFR REDUC	___	___	___	___	___	___		
TIME TO REDUC	___	___	___	___	___	___		
MIN GAP	___	___	___	___	___	___		
MAX LIMIT	25	40	20	15	10	40		
MAXIMUM 2	30	115	26	35	16	115		
YELLOW	5.0	5.0	3.0	3.5	5.0	5.0		
RED CLEAR	4.0	4.0	4.0	4.0	4.0	4.0		



SIGNAL EQUIPMENT

ONE (1) EXISTING 8-PHASE FULLY ACTUATED STANDARD 2070 CONTROLLER WITH FLASHER, SIGNAL MONITOR UNIT, AND BASE-MOUNTED 336S CABINET. EXT. ▭ PROP. ▬

SEVEN (7) NEW MODEL 222, (2)-CHANNEL VEHICLE DETECTOR UNITS

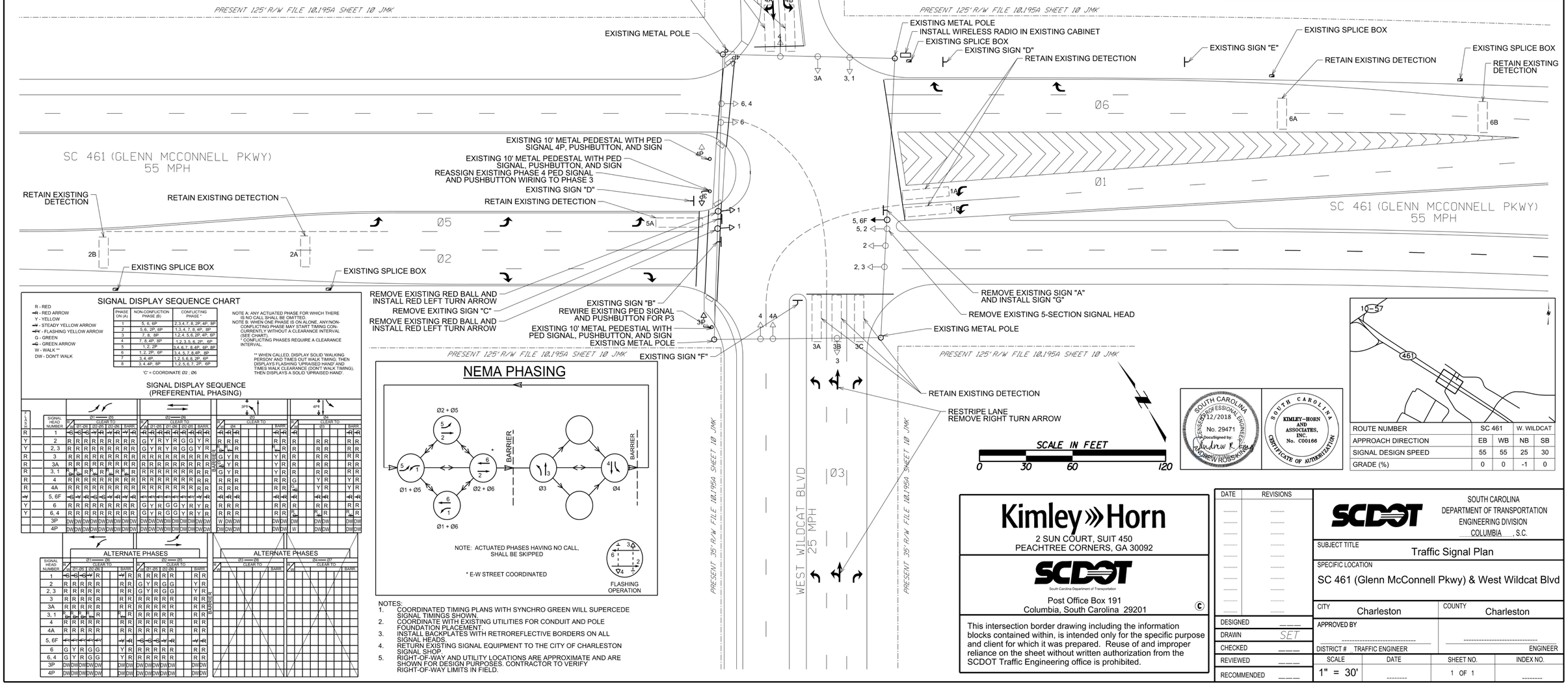
PEDESTRIAN SIGNALS: EXT. P PROP. P W/ACT. & SIGN

VEHICLE SIGNALS: EXT. ○→ PROP. ●→

HEAD NUMBER	1	2	2, 3	3	3A	3, 1	4	4A	5, 6F	6	6, 4	3P	4P
LENS	R ◄Y► ◄G	R Y G	R Y Y► G G►	R Y G ◄G	R Y G ◄G	R Y Y► G G►	R Y G ◄G	R Y G ◄G	◄R ◄Y ◄FY ◄G	R Y G	R Y Y► G G►		
PHASE	1	2	2, 3	3	3	3, 1	4	4	5,OLC	6	6, 4	3P	4P
SIZE	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	12"	16"	16"
QUANTITY	2	1	1	1	1	1	2	1	1	1	1	2	2

OLA OLC = Ø5+Ø6 (FYA)
OLB OLD
METAL POLES AS NECESSARY: EXT. ○ PROP. ●M
WOOD POLES AS NECESSARY: EXT. ⊘ PROP. ●W

FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
_	SC	CHARLESTON	-------	P028928	SC 61	TS74	_



SIGNAL DISPLAY SEQUENCE CHART

R - RED
-R- RED ARROW
Y - YELLOW
-Y- STEADY YELLOW ARROW
-FY- FLASHING YELLOW ARROW
G - GREEN
-G- GREEN ARROW
W - WALK **
DW - DONT WALK

PHASE ON (A)	NON-CONFLICTION PHASE (B)	CONFLICTING PHASE *
1	5, 6, 6P	2,3,4,7,8, 2P, 4P, 8P
2	5,6, 2P, 6P	1,3,4,7,8, 4P, 8P
3	7, 8, 8P	1,2,4,5,6,2P, 4P, 6P
4	7, 8, 8P	1,2,3,5,6, 2P, 6P
5	1,2, 2P	3,4,6,7, 8,4P, 6P, 8P
6	1,2, 2P, 6P	3,4, 5,7,8,4P, 8P
7	3,4, 4P,	1,2,5,6,8, 2P, 6P
8	3,4, 4P, 8P	1,2,5,6,7, 2P, 6P

'C' = COORDINATE Ø2 ; Ø6

NOTE A: ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE OMITTED.
NOTE B: WHEN ONE PHASE IS ON ALONE, ANY(NON-CONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL (SEE CHART).
* CONFLICTING PHASES REQUIRE A CLEARANCE INTERVAL.

** WHEN CALLED, DISPLAY SOLID 'WALKING PERSON' AND TIMES OUT WALK TIMING; THEN DISPLAYS FLASHING 'UPRAISED HAND' AND TIMES WALK CLEARANCE (DON'T WALK TIMING), THEN DISPLAYS A SOLID 'UPRAISED HAND'.

SIGNAL DISPLAY SEQUENCE (PREFERENTIAL PHASING)

SIGNAL HEAD NUMBER	Ø1 — Ø5 CLEAR TO Ø1,Ø5	Ø1,Ø5	Ø2,Ø6	BARR	Ø2 — Ø6 CLEAR TO Ø2,Ø6	Ø2,Ø6	Ø1,Ø5	BARR	Ø3 — Ø4 CLEAR TO Ø3	Ø4	BARR	Ø4 — Ø3 CLEAR TO Ø3	Ø4	BARR
1	G	G	R	R	R	R	R	R	R	R	R	R	R	R
2	R	R	R	R	R	R	G	R	G	Y	R	R	R	R
2, 3	R	R	R	R	R	R	G	R	G	Y	R	R	R	R
3	R	R	R	R	R	R	R	R	R	Y	R	R	R	R
3A	R	R	R	R	R	R	R	R	R	Y	R	R	R	R
3, 1	G	G	R	R	R	R	R	R	G	Y	R	R	R	R
4	R	R	R	R	R	R	R	R	R	R	R	G	Y	R
4A	R	R	R	R	R	R	R	R	R	R	R	R	Y	R
5, 6F	-FY-	-FY-	R	R	R	R	R	R	-FY-	-FY-	R	R	-FY-	R
6	G	Y	R	R	R	R	R	R	Y	R	R	R	R	R
6, 4	G	Y	R	R	R	R	R	R	Y	R	R	R	R	R
3P	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW
4P	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW

BARRIER

ALTERNATE PHASES

SIGNAL HEAD NUMBER	Ø1 — Ø5 CLEAR TO Ø1,Ø5	Ø1,Ø5	Ø2,Ø6	BARR	Ø2 — Ø6 CLEAR TO Ø2,Ø6	Ø2,Ø6	Ø1,Ø5	BARR
1	G	G	-FY-	R	R	R	R	R
2	R	R	R	R	R	G	Y	R
2, 3	R	R	R	R	R	G	Y	R
3	R	R	R	R	R	R	R	R
3A	R	R	R	R	R	R	R	R
3, 1	G	G	R	R	R	R	R	R
4	R	R	R	R	R	R	R	R
4A	R	R	R	R	R	R	R	R
5, 6F	-FY-	-FY-	R	R	R	R	R	R
6	G	Y	R	G	G	Y	R	R
6, 4	G	Y	R	G	G	Y	R	R
3P	DW	DW	DW	DW	DW	DW	DW	DW
4P	DW	DW	DW	DW	DW	DW	DW	DW

SIGNAL HEAD NUMBER	Ø3 — Ø8 CLEAR TO Ø8	Ø8	BARR	Ø4 — Ø7 CLEAR TO Ø7	Ø7	BARR
1	R	R	R	R	R	R
2	R	R	R	R	Y	R
2, 3	R	R	R	R	Y	R
3	R	R	R	R	R	R
3A	R	R	R	R	R	R
3, 1	R	R	R	R	R	R
4	R	R	R	R	R	R
4A	R	R	R	R	R	R
5, 6F	-FY-	-FY-	R	-FY-	-FY-	R
6	Y	R	R	R	R	R
6, 4	Y	R	R	R	R	R
3P	DW	DW	DW	DW	DW	DW
4P	DW	DW	DW	DW	DW	DW

BARRIER

NEMA PHASING

NOTES:
1. COORDINATED TIMING PLANS WITH SYNCHRO GREEN WILL SUPERCEDE SIGNAL TIMINGS SHOWN.
2. COORDINATE WITH EXISTING UTILITIES FOR CONDUIT AND POLE FOUNDATION PLACEMENT.
3. INSTALL BACKPLATES WITH RETROREFLECTIVE BORDERS ON ALL SIGNAL HEADS.
4. RETURN EXISTING SIGNAL EQUIPMENT TO THE CITY OF CHARLESTON SIGNAL SHOP.
5. RIGHT-OF-WAY AND UTILITY LOCATIONS ARE APPROXIMATE AND ARE SHOWN FOR DESIGN PURPOSES. CONTRACTOR TO VERIFY RIGHT-OF-WAY LIMITS IN FIELD.

ROUTE NUMBER	SC 461		W. WILDCAT	
APPROACH DIRECTION	EB	WB	NB	SB
SIGNAL DESIGN SPEED	55	55	25	30
GRADE (%)	0	0	-1	0

SOUTH CAROLINA PROFESSIONAL ENGINEER 12/2018 No. 29471 DocuSigned by: Andrew K. Rosenkranz ANDREW K. ROSENKRANZ

SOUTH CAROLINA KIMLEY-HORN AND ASSOCIATES, INC. No. C00166 CERTIFICATE OF AUTHORIZATION

Kimley»Horn
2 SUN COURT, SUIT 450
PEACHTREE CORNERS, GA 30092

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South Carolina Department of Transportation
Post Office Box 191
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SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION
COLUMBIA, S.C.

SUBJECT TITLE: Traffic Signal Plan

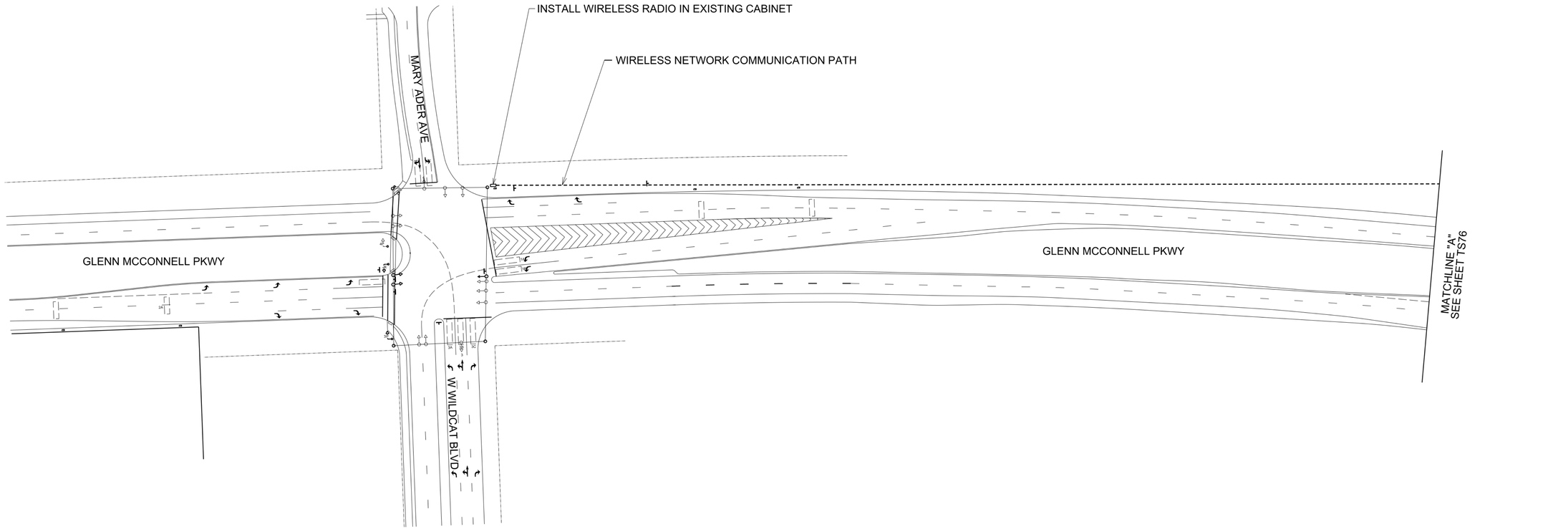
SPECIFIC LOCATION: SC 461 (Glenn McConnell Pkwy) & West Wildcat Blvd

CITY: Charleston COUNTY: Charleston

APPROVED BY: ---------- DISTRICT # TRAFFIC ENGINEER ---------- ENGINEER

SCALE	DATE	SHEET NO.	INDEX NO.
1" = 30'	-------	1 OF 1	-------

FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
..	SC	CHARLESTON	.....	P028928	SC 61	TS75	..



NOTES:
1.FURNISH AND INSTALL ALL NECESSARY HARDWARE TO PROVIDE A DATA LINK BETWEEN FIELD DEVICES (I.E. TRAFFIC SIGNAL CONTROLLERS),INCLUDING ANTENNA, CONNECTING CABLE, AND MOUNTING EQUIPMENT.

SOUTH CAROLINA PROFESSIONAL ENGINEER
12/2018
No. 29471
DocuSigned by:
Andrew R. King
ANDREW ROSS KING

SOUTH CAROLINA
KIMLEY-HORN AND ASSOCIATES, INC.
No. C00168
CERTIFICATE OF AUTHORIZATION

Kimley»Horn
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PEACHTREE CORNERS, GA 30092

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South Carolina Department of Transportation

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SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION
COLUMBIA, S.C.

SUBJECT TITLE
Fiber Optic Interconnect Plan

SPECIFIC LOCATION
SC 461 (Glenn McConnell Pkwy)

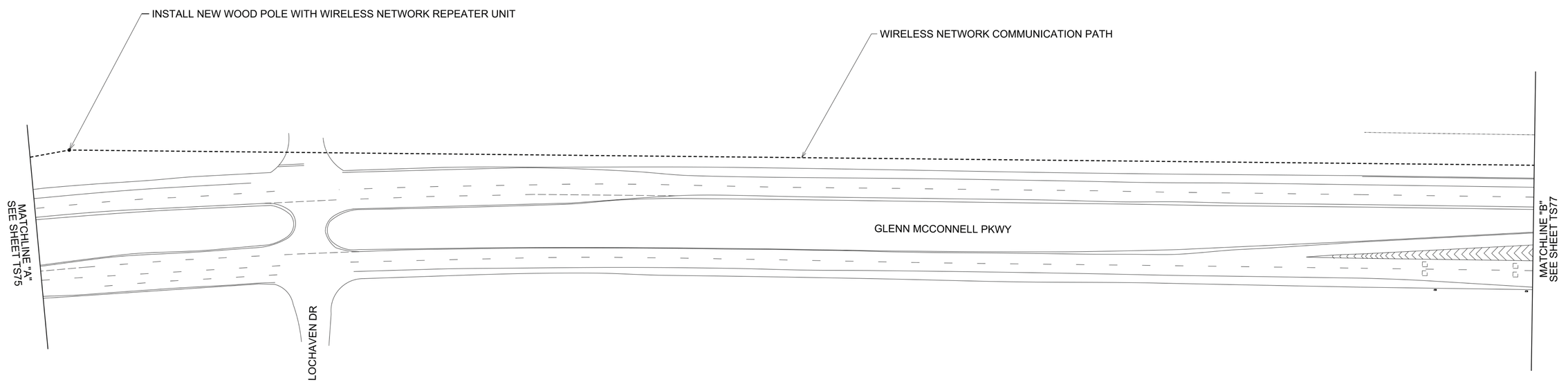
CITY	COUNTY
Charleston	Charleston

APPROVED BY

_____ _____
DISTRICT # TRAFFIC ENGINEER ENGINEER

SCALE	DATE	SHEET NO.	INDEX NO.
1" = 60'	.....	1 OF 1	.....

FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
..	SC	CHARLESTON	.....	P028928	SC 61	TS76	..



SCALE IN FEET
0 60 120 240

NOTES:
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2. NEW WOOD POLES AND ELECTRICAL SERVICE TO REPEATER STATIONS TO BE INCLUDED AS ADDITIONAL SEPARATE PAY ITEMS.

SOUTH CAROLINA PROFESSIONAL ENGINEER
12/2018
No. 29471
Digitally signed by:
ANDREW ROSS KING
SOUTH CAROLINA
KIMLEY-HORN AND ASSOCIATES, INC.
No. C00166
CERTIFICATE OF AUTHORIZATION

Kimley»Horn
2 SUN COURT, SUIT 450
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ENGINEERING DIVISION
COLUMBIA, S.C.

SUBJECT TITLE
Fiber Optic Interconnect Plan

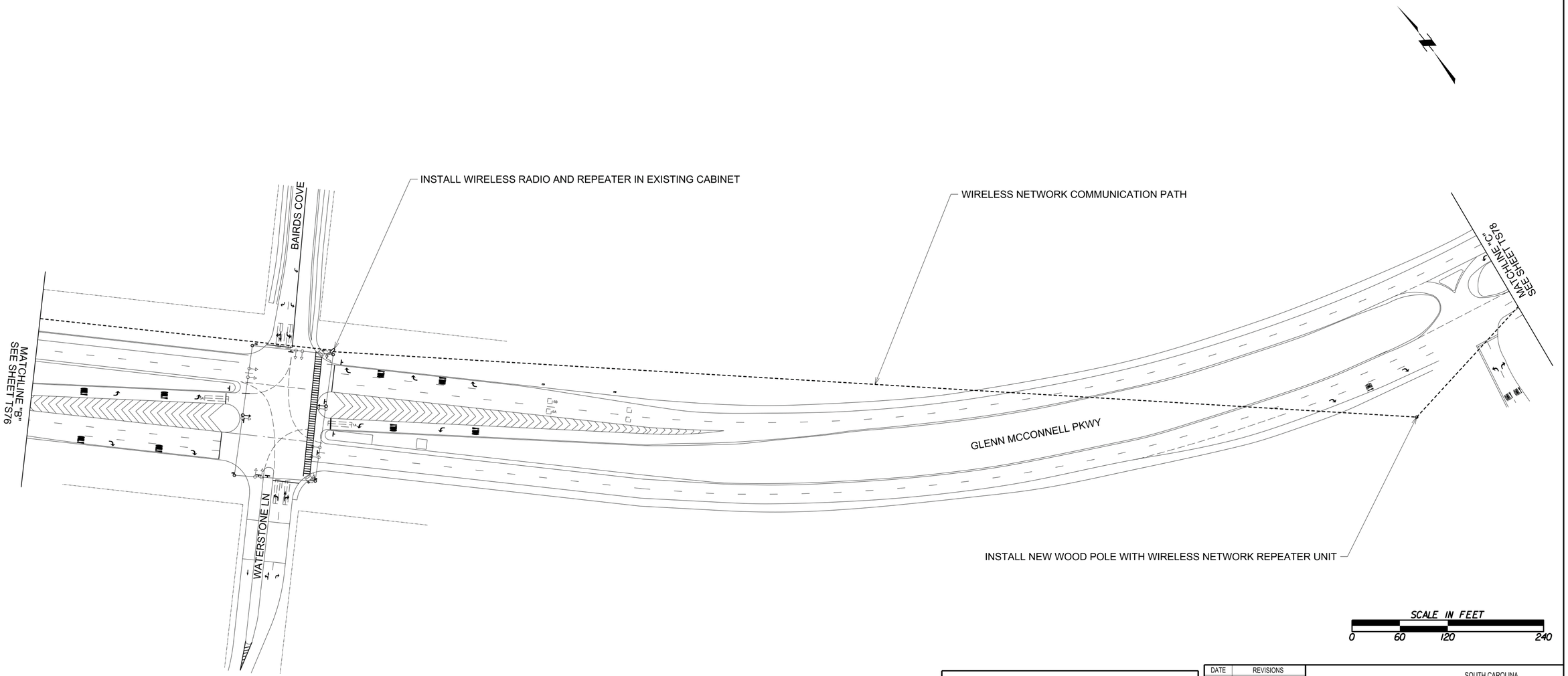
SPECIFIC LOCATION
SC 461 (Glenn McConnell Pkwy)

CITY	COUNTY
Charleston	Charleston

APPROVED BY
_____ DISTRICT # TRAFFIC ENGINEER
_____ ENGINEER

SCALE	DATE	SHEET NO.	INDEX NO.
1" = 60'	_____	1 OF 1	_____

FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
..	SC	CHARLESTON	.....	P028928	SC 61	TS77	..



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COLUMBIA, S.C.

SUBJECT TITLE
Fiber Optic Interconnect Plan

SPECIFIC LOCATION
SC 461 (Glenn McConnell Pkwy)

CITY	COUNTY
Charleston	Charleston

APPROVED BY

DISTRICT # TRAFFIC ENGINEER ENGINEER

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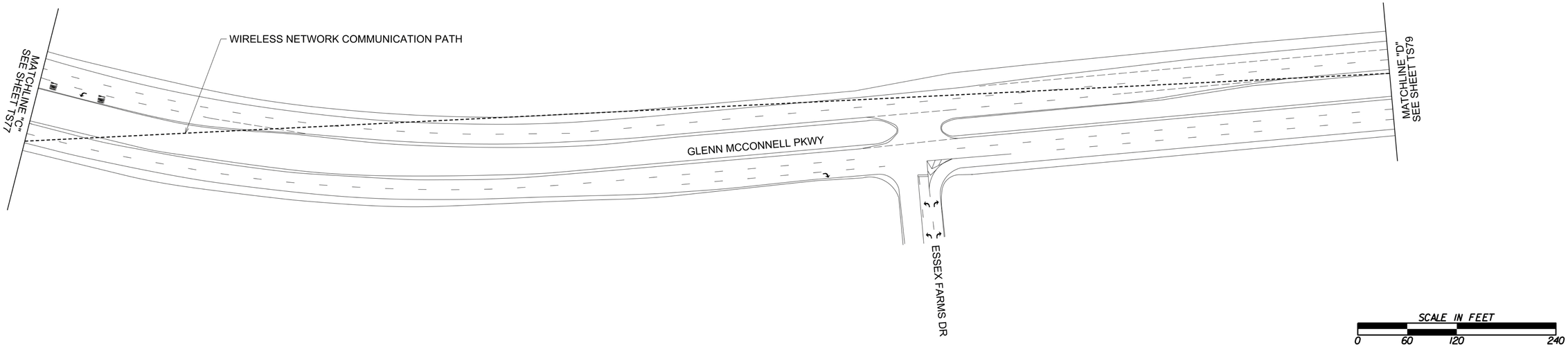
1" = 60'	.....	1 OF 1	.....

FED. ROAD DIV. NO.	STATE	COUNTY	FILE NO.	PROJECT NO.	ROUTE NO.	SHEET NO.	TOTAL SHEETS
..	SC	CHARLESTON	.....	P028928	SC 61	TS78	..



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SOUTH CAROLINA PROFESSIONAL ENGINEER
12/2018
No. 29471
DocuSigned by:
Andrew R. Kimley
ANDREW ROSS KIMLEY

SOUTH CAROLINA
KIMLEY-HORN AND ASSOCIATES, INC.
No. C00166
CERTIFICATE OF AUTHORIZATION

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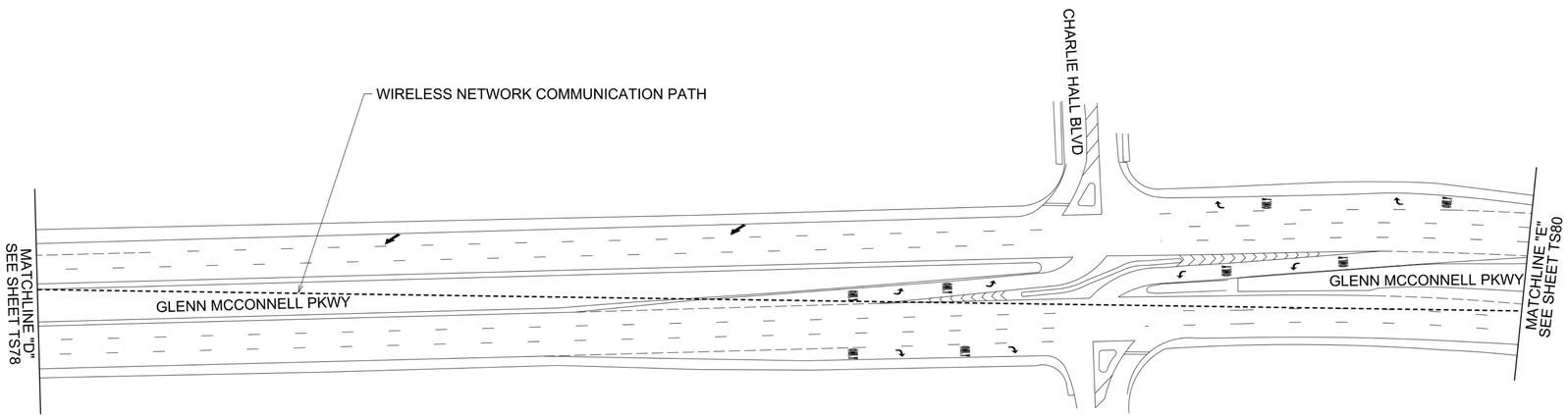
..	SC	CHARLESTON	.....	P028928	SC 61	TS79	..



SCALE IN FEET

0 60 120 240

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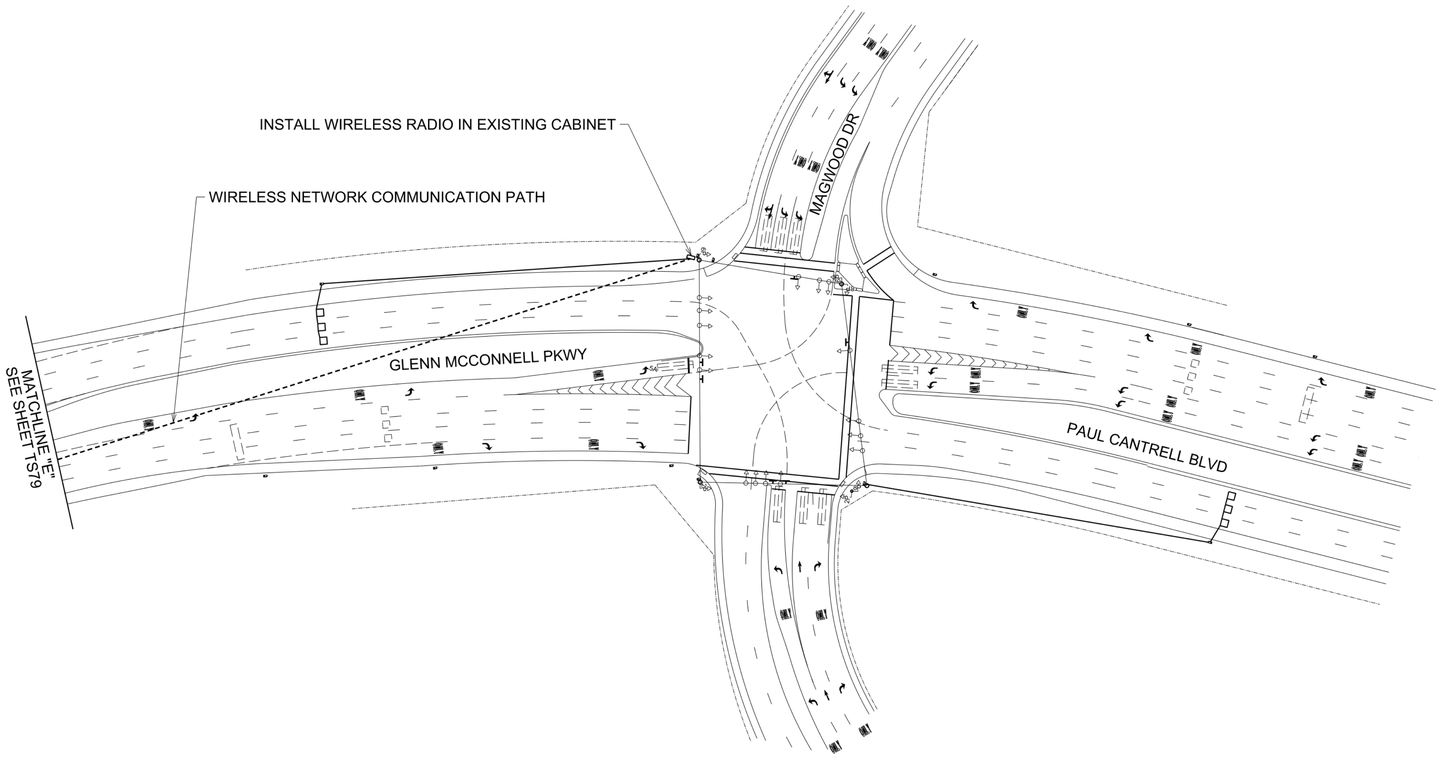
..	SC	CHARLESTON	.....	P028928	SC 61	TS80	..



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RECOMMENDED	___

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION
COLUMBIA, S.C.

SUBJECT TITLE
Fiber Optic Interconnect Plan

SPECIFIC LOCATION
SC 461 (Glenn McConnell Pkwy)

CITY	COUNTY
Charleston	Charleston

APPROVED BY
DISTRICT # TRAFFIC ENGINEER
ENGINEER

SCALE	DATE	SHEET NO.	INDEX NO.
1" = 60'	-------	1 OF 1	-------

CAPACITY / QUEUING ANALYSIS RESULTS

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (veh/h)	610	159	359	1131	933	388
Future Volume (veh/h)	610	159	359	1131	933	388
Number	7	14	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	663	0	390	0	1014	422
Adj No. of Lanes	2	1	2	1	2	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	737	339	1174	525	1097	3548
Arrive On Green	0.21	0.00	0.33	0.00	0.32	0.70
Sat Flow, veh/h	3442	1583	3632	1583	3442	5253
Grp Volume(v), veh/h	663	0	390	0	1014	422
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1583	1721	1695
Q Serve(g_s), s	31.9	0.0	14.1	0.0	48.4	4.7
Cycle Q Clear(g_c), s	31.9	0.0	14.1	0.0	48.4	4.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	737	339	1174	525	1097	3548
V/C Ratio(X)	0.90	0.00	0.33	0.00	0.92	0.12
Avail Cap(c_a), veh/h	1073	494	1174	525	1316	3548
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	0.0	42.7	0.0	55.9	8.5
Incr Delay (d2), s/veh	7.5	0.0	0.8	0.0	9.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.0	0.0	7.0	0.0	24.5	2.2
LnGrp Delay(d),s/veh	72.6	0.0	43.4	0.0	65.8	8.5
LnGrp LOS	E		D		E	A
Approach Vol, veh/h	663		390			1436
Approach Delay, s/veh	72.6		43.4			49.0
Approach LOS	E		D			D

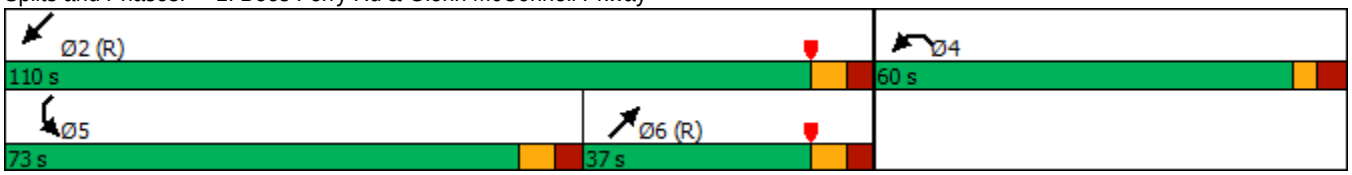
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		126.6		43.4	62.2	64.4		
Change Period (Y+Rc), s		8.0		7.0	8.0	8.0		
Max Green Setting (Gmax), s		102.0		53.0	65.0	29.0		
Max Q Clear Time (g_c+I1), s		6.7		33.9	50.4	16.1		
Green Ext Time (p_c), s		12.0		2.5	3.8	5.0		

Intersection Summary	
HCM 2010 Ctrl Delay	54.4
HCM 2010 LOS	D

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	610	159	359	1131	933	388
Future Volume (vph)	610	159	359	1131	933	388
Turn Type	Prot	Free	NA	Free	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		Free		Free		2
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	4.0		4.0		4.0	4.0
Minimum Split (s)	20.0		20.0		20.0	20.0
Total Split (s)	60.0		37.0		73.0	110.0
Total Split (%)	35.3%		21.8%		42.9%	64.7%
Yellow Time (s)	3.0		4.5		4.5	4.5
All-Red Time (s)	4.0		3.5		3.5	3.5
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	7.0		8.0		8.0	8.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None		C-Max		None	C-Max
Act Effct Green (s)	38.8	170.0	51.1	170.0	57.1	116.2
Actuated g/C Ratio	0.23	1.00	0.30	1.00	0.34	0.68
v/c Ratio	0.85	0.11	0.37	0.78	0.88	0.12
Control Delay	73.2	0.1	50.4	3.8	62.5	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.2	0.1	50.4	3.8	62.5	9.9
LOS	E	A	D	A	E	A
Approach Delay	58.1		15.0			47.0
Approach LOS	E		B			D

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 164 (96%), Referenced to phase 2:SWT and 6:NET, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 36.1	Intersection LOS: D
Intersection Capacity Utilization 73.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Bees Ferry Rd & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑	↱		↑↑	↱			↱			↱
Traffic Vol, veh/h	0	2048	16	0	769	33	0	0	228	0	0	0
Future Vol, veh/h	0	2048	16	0	769	33	0	0	228	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Free	-	-	Stop
Storage Length	-	-	0	-	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2226	17	0	836	36	0	0	248	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	-	-	-	-	-	418
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	0	0	0	584
Stage 1	0	-	0	0	-	0	0	0	0	0	0	-
Stage 2	0	-	0	0	-	0	0	0	0	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	-	-	-	584
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	0	0	0	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NELn1	EBT	WBT	SWLn1
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	0
HCM Lane LOS	A	-	-	A
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	35	2216	25	0	0	788	3	0	0	2	0	0	14
Future Vol, veh/h	35	2216	25	0	0	788	3	0	0	2	0	0	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	-	None	-	-	Stop	-	-	None
Storage Length	200	-	150	-	200	-	200	-	-	0	0	-	50
Veh in Median Storage, #	-	0	-	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	2409	27	0	0	857	3	0	0	2	0	0	15

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	860	0	-	2409	-	-	0	-	-	1205	2138	-	429
Stage 1	-	-	-	-	-	-	-	-	-	-	857	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	1281	-	-
Critical Hdwy	4.14	-	-	6.44	-	-	-	-	-	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	2.52	-	-	-	-	-	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	777	-	0	40	0	-	-	0	0	176	28	0	574
Stage 1	-	-	0	-	0	-	-	0	0	-	318	0	-
Stage 2	-	-	0	-	0	-	-	0	0	-	175	0	-
Platoon blocked, %		-				-	-						
Mov Cap-1 Maneuver	777	-	-	40	-	-	-	-	-	176	27	-	574
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	108	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	302	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	164	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	25.7	11.4
HCM LOS			D	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBU	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	176	777	-	40	-	-	-	574
HCM Lane V/C Ratio	0.012	0.049	-	-	-	-	-	0.027
HCM Control Delay (s)	25.7	9.9	-	0	-	-	0	11.4
HCM Lane LOS	D	A	-	A	-	-	A	B
HCM 95th %tile Q(veh)	0	0.2	-	0	-	-	-	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	2160	29	89	718	144	28	12	108	123	13	45
Future Volume (veh/h)	29	2160	29	89	718	144	28	12	108	123	13	45
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	32	2348	32	97	780	157	24	0	132	134	14	49
Adj No. of Lanes	1	2	1	2	2	1	1	0	2	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	451	2545	1216	124	2622	1282	87	0	269	122	25	87
Arrive On Green	0.01	0.72	0.72	0.04	0.74	0.74	0.05	0.00	0.05	0.07	0.07	0.07
Sat Flow, veh/h	1774	3539	1583	3442	3539	1583	1774	0	3167	1774	364	1274
Grp Volume(v), veh/h	32	2348	32	97	780	157	24	0	132	134	0	63
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1721	1770	1583	1774	0	1583	1774	0	1638
Q Serve(g_s), s	1.3	141.2	1.2	7.1	18.7	5.3	3.3	0.0	10.2	17.5	0.0	9.5
Cycle Q Clear(g_c), s	1.3	141.2	1.2	7.1	18.7	5.3	3.3	0.0	10.2	17.5	0.0	9.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.78
Lane Grp Cap(c), veh/h	451	2545	1216	124	2622	1282	87	0	269	122	0	112
V/C Ratio(X)	0.07	0.92	0.03	0.78	0.30	0.12	0.28	0.00	0.49	1.10	0.00	0.56
Avail Cap(c_a), veh/h	502	2545	1216	148	2622	1282	146	0	375	122	0	112
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.6	29.9	7.0	121.9	11.0	5.1	116.9	0.0	111.4	118.8	0.0	115.0
Incr Delay (d2), s/veh	0.1	7.0	0.0	20.1	0.3	0.2	1.7	0.0	1.4	111.2	0.0	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	71.3	0.7	3.8	9.2	3.3	1.7	0.0	4.5	12.3	0.0	4.5
LnGrp Delay(d),s/veh	9.7	36.9	7.0	142.0	11.3	5.3	118.6	0.0	112.8	229.9	0.0	121.2
LnGrp LOS	A	D	A	F	B	A	F		F	F		F
Approach Vol, veh/h		2412			1034			156			197	
Approach Delay, s/veh		36.2			22.6			113.7			195.1	
Approach LOS		D			C			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.2	192.4		25.0	12.6	197.9		19.5
Change Period (Y+Rc), s	9.0	9.0		7.5	9.0	9.0		7.0
Max Green Setting (Gmax), s	11.0	173.0		17.5	11.0	173.0		21.0
Max Q Clear Time (g_c+I1), s	9.1	143.2		19.5	3.3	20.7		12.2
Green Ext Time (p_c), s	0.0	29.5		0.0	0.0	25.6		0.3

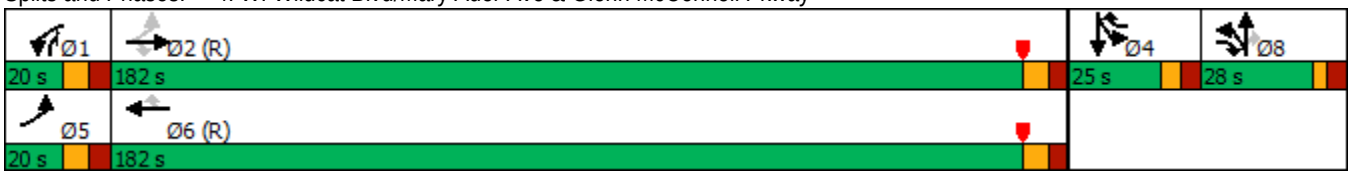
Intersection Summary	
HCM 2010 Ctrl Delay	43.9
HCM 2010 LOS	D

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	29	2160	29	89	718	144	28	12	108	123	13
Future Volume (vph)	29	2160	29	89	718	144	28	12	108	123	13
Turn Type	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6	4	8	8	1	4	4
Permitted Phases	2		2			6			8		
Detector Phase	5	2	8	1	6	4	8	8	1	4	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	13.0	20.0	20.0	13.0	20.0	20.0	20.0	20.0	13.0	20.0	20.0
Total Split (s)	20.0	182.0	28.0	20.0	182.0	25.0	28.0	28.0	20.0	25.0	25.0
Total Split (%)	7.8%	71.4%	11.0%	7.8%	71.4%	9.8%	11.0%	11.0%	7.8%	9.8%	9.8%
Yellow Time (s)	5.0	5.0	3.0	5.0	5.0	3.5	3.0	3.0	5.0	3.5	3.5
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.0	9.0	7.0	9.0	9.0	7.5	7.0	7.0	9.0	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag				Lead		
Lead-Lag Optimize?											
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	190.8	184.4	196.4	10.6	191.5	218.0	10.0	10.0	27.6	17.5	17.5
Actuated g/C Ratio	0.75	0.72	0.77	0.04	0.75	0.85	0.04	0.04	0.11	0.07	0.07
v/c Ratio	0.06	0.92	0.03	0.68	0.29	0.11	0.42	0.64	0.31	1.11	0.40
Control Delay	6.2	36.5	0.1	114.1	25.4	7.7	136.5	64.9	27.7	211.0	41.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.2	36.5	0.1	114.1	25.4	7.7	136.5	64.9	27.7	211.0	41.9
LOS	A	D	A	F	C	A	F	E	C	F	D
Approach Delay		35.7			31.1			61.7			156.9
Approach LOS		D			C			E			F

Intersection Summary	
Cycle Length: 255	
Actuated Cycle Length: 255	
Offset: 84 (33%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 41.8	Intersection LOS: D
Intersection Capacity Utilization 92.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	1.8

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	2383	8	17	938	0	13	0	48	0	0	0
Future Vol, veh/h	0	2383	8	17	938	0	13	0	48	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	200	250	-	200	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2590	9	18	1020	0	14	0	52	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1020	0	0	2599	0	0	3136	3646	1295	2351	3655	510
Stage 1	-	-	-	-	-	-	2590	2590	-	1056	1056	-
Stage 2	-	-	-	-	-	-	546	1056	-	1295	2599	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	676	-	-	164	-	-	~ 5	5	153	19	5	509
Stage 1	-	-	-	-	-	-	25	51	-	241	300	-
Stage 2	-	-	-	-	-	-	490	300	-	172	50	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	676	-	-	164	-	-	~ 5	4	153	11	4	509
Mov Cap-2 Maneuver	-	-	-	-	-	-	24	47	-	83	30	-
Stage 1	-	-	-	-	-	-	25	51	-	241	267	-
Stage 2	-	-	-	-	-	-	436	267	-	113	50	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0.5	91.8	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	24	153	164	-	-	676	-	-	-	-
HCM Lane V/C Ratio	0.589	0.341	0.113	-	-	-	-	-	-	-
HCM Control Delay (s)	282.3	40.2	29.7	-	-	0	-	-	0	0
HCM Lane LOS	F	E	D	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	1.8	1.4	0.4	-	-	0	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	5	2419	7	10	929	20	9	0	75	62	0	17
Future Volume (veh/h)	5	2419	7	10	929	20	9	0	75	62	0	17
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	5	2629	8	11	1010	22	10	0	82	67	0	18
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	421	2781	1244	62	2795	1250	163	0	170	105	0	170
Arrive On Green	0.00	0.79	0.79	0.01	0.79	0.79	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1389	0	1583	1311	0	1583
Grp Volume(v), veh/h	5	2629	8	11	1010	22	10	0	82	67	0	18
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1389	0	1583	1311	0	1583
Q Serve(g_s), s	0.2	157.7	0.3	0.3	21.4	0.8	1.7	0.0	12.4	12.9	0.0	2.6
Cycle Q Clear(g_c), s	0.2	157.7	0.3	0.3	21.4	0.8	4.3	0.0	12.4	25.4	0.0	2.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	421	2781	1244	62	2795	1250	163	0	170	105	0	170
V/C Ratio(X)	0.01	0.95	0.01	0.18	0.36	0.02	0.06	0.00	0.48	0.64	0.00	0.11
Avail Cap(c_a), veh/h	454	2781	1244	89	2795	1250	194	0	205	134	0	205
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.4	22.7	5.9	59.4	7.9	5.7	104.6	0.0	107.1	119.0	0.0	102.7
Incr Delay (d2), s/veh	0.0	8.3	0.0	1.3	0.4	0.0	0.2	0.0	2.1	6.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	79.5	0.1	0.6	10.5	0.3	0.6	0.0	5.5	4.9	0.0	1.2
LnGrp Delay(d),s/veh	6.4	31.1	5.9	60.7	8.3	5.7	104.8	0.0	109.2	125.2	0.0	103.0
LnGrp LOS	A	C	A	E	A	A	F		F	F		F
Approach Vol, veh/h		2642			1043			92			85	
Approach Delay, s/veh		31.0			8.8			108.7			120.5	
Approach LOS		C			A			F			F	

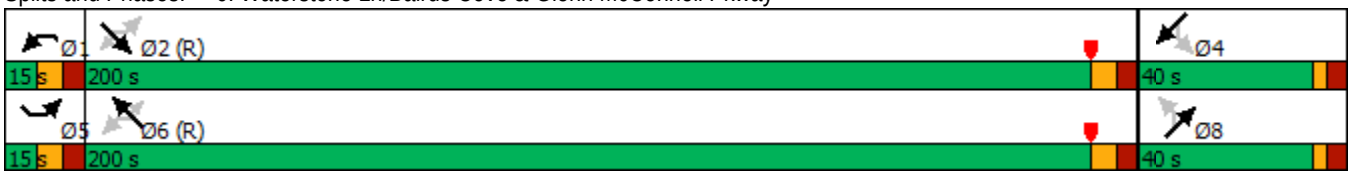
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.2	209.4		34.4	10.2	210.4		34.4
Change Period (Y+Rc), s	9.0	9.0		7.0	9.0	9.0		7.0
Max Green Setting (Gmax), s	6.0	191.0		33.0	6.0	191.0		33.0
Max Q Clear Time (g_c+I1), s	2.3	159.7		27.4	2.2	23.4		14.4
Green Ext Time (p_c), s	0.0	31.2		0.1	0.0	42.6		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	28.8
HCM 2010 LOS	C

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	5	2419	7	10	929	20	9	0	62	0
Future Volume (vph)	5	2419	7	10	929	20	9	0	62	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	13.0	20.0	20.0	13.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	15.0	200.0	200.0	15.0	200.0	200.0	40.0	40.0	40.0	40.0
Total Split (%)	5.9%	78.4%	78.4%	5.9%	78.4%	78.4%	15.7%	15.7%	15.7%	15.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.0	9.0	9.0	9.0	9.0	9.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	213.6	210.1	210.1	217.3	216.1	216.1	20.0	20.0	20.0	20.0
Actuated g/C Ratio	0.84	0.82	0.82	0.85	0.85	0.85	0.08	0.08	0.08	0.08
v/c Ratio	0.01	0.90	0.01	0.16	0.34	0.02	0.09	0.45	0.84	0.06
Control Delay	0.8	13.3	0.0	26.3	5.5	0.1	107.2	37.9	176.3	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.8	13.3	0.0	26.3	5.5	0.1	107.2	37.9	176.3	0.4
LOS	A	B	A	C	A	A	F	D	F	A
Approach Delay		13.3			5.6			45.5		139.0
Approach LOS		B			A			D		F

Intersection Summary	
Cycle Length: 255	
Actuated Cycle Length: 255	
Offset: 153 (60%), Referenced to phase 2:SETL and 6:NWTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 14.7	Intersection LOS: B
Intersection Capacity Utilization 90.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Waterstone Ln/Bairds Cove & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2550	6	12	955	4	46
Future Vol, veh/h	2550	6	12	955	4	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	250	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2772	7	13	1038	4	50

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2779	0	3317	1386
Stage 1	-	-	-	-	2772	-
Stage 2	-	-	-	-	545	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	139	-	6	133
Stage 1	-	-	-	-	33	-
Stage 2	-	-	-	-	545	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	139	-	5	133
Mov Cap-2 Maneuver	-	-	-	-	31	-
Stage 1	-	-	-	-	33	-
Stage 2	-	-	-	-	494	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	54.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	31	133	-	-	139	-
HCM Lane V/C Ratio	0.14	0.376	-	-	0.094	-
HCM Control Delay (s)	139.2	47.5	-	-	33.6	-
HCM Lane LOS	F	E	-	-	D	-
HCM 95th %tile Q(veh)	0.4	1.6	-	-	0.3	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2586	10	66	963	4	361
Future Vol, veh/h	2586	10	66	963	4	361
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	-	250	200	-	0	150
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2811	11	72	1047	4	392

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2822	0	3374	-
Stage 1	-	-	-	-	2811	-
Stage 2	-	-	-	-	563	-
Critical Hdwy	-	-	4.14	-	6.29	-
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	-	-	2.22	-	3.67	-
Pot Cap-1 Maneuver	-	-	133	-	10	0
Stage 1	-	-	-	-	31	0
Stage 2	-	-	-	-	501	0
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	133	-	5	-
Mov Cap-2 Maneuver	-	-	-	-	29	-
Stage 1	-	-	-	-	31	-
Stage 2	-	-	-	-	230	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.8	149.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	29	-	-	-	133	-
HCM Lane V/C Ratio	0.15	-	-	-	0.539	-
HCM Control Delay (s)	149.9	0	-	-	60	-
HCM Lane LOS	F	A	-	-	F	-
HCM 95th %tile Q(veh)	0.5	-	-	-	2.6	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	173	2672	102	2	923	135	0	0	8	0	0	106
Future Vol, veh/h	173	2672	102	2	923	135	0	0	8	0	0	106
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Stop	-	-	Stop
Storage Length	200	-	200	250	-	250	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	188	2904	111	2	1003	147	0	0	9	0	0	115

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1003	0	-	2904	0	0	-	-	1452	-	-	502
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.34	-	-	5.34	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	390	-	0	43	-	0	0	0	103	0	0	440
Stage 1	-	-	0	-	-	0	0	0	-	0	0	-
Stage 2	-	-	0	-	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	390	-	-	43	-	-	-	-	103	-	-	440
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.2	43.1	16.1
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	SBLn1
Capacity (veh/h)	103	390	-	43	-	440
HCM Lane V/C Ratio	0.084	0.482	-	0.051	-	0.262
HCM Control Delay (s)	43.1	22.5	-	93.1	-	16.1
HCM Lane LOS	E	C	-	F	-	C
HCM 95th %tile Q(veh)	0.3	2.5	-	0.2	-	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	2481	129	342	943	444	87	90	117	664	142	30
Future Volume (veh/h)	70	2481	129	342	943	444	87	90	117	664	142	30
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	76	2697	140	372	1025	0	95	98	127	722	154	33
Adj No. of Lanes	1	3	1	2	3	1	1	1	1	2	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	2489	853	404	2831	881	87	91	263	752	325	70
Arrive On Green	0.05	0.49	0.49	0.12	0.56	0.00	0.05	0.05	0.05	0.22	0.22	0.22
Sat Flow, veh/h	1774	5085	1583	3442	5085	1583	1774	1863	1583	3442	1488	319
Grp Volume(v), veh/h	76	2697	140	372	1025	0	95	98	127	722	0	187
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1695	1583	1774	1863	1583	1721	0	1806
Q Serve(g_s), s	10.8	124.8	11.4	27.3	28.5	0.0	12.5	12.5	12.5	52.9	0.0	23.0
Cycle Q Clear(g_c), s	10.8	124.8	11.4	27.3	28.5	0.0	12.5	12.5	12.5	52.9	0.0	23.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	89	2489	853	404	2831	881	87	91	263	752	0	395
V/C Ratio(X)	0.85	1.08	0.16	0.92	0.36	0.00	1.09	1.07	0.48	0.96	0.00	0.47
Avail Cap(c_a), veh/h	101	2489	853	466	2831	881	87	91	263	776	0	407
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	120.2	65.1	29.8	111.4	31.4	0.0	121.3	121.2	96.3	98.5	0.0	86.8
Incr Delay (d2), s/veh	43.5	45.4	0.4	21.9	0.4	0.0	123.8	115.4	1.4	22.6	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	69.0	5.1	14.3	13.5	0.0	9.1	9.4	8.2	27.5	0.0	11.6
LnGrp Delay(d),s/veh	163.6	110.5	30.2	133.3	31.7	0.0	245.2	237.2	97.7	121.1	0.0	87.7
LnGrp LOS	F	F	C	F	C		F	F	F	F		F
Approach Vol, veh/h		2913			1397			320			909	
Approach Delay, s/veh		108.0			58.8			184.2			114.2	
Approach LOS		F			E			F			F	

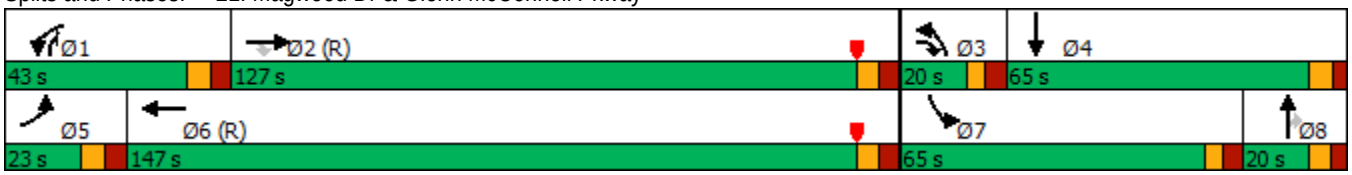
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	38.4	133.3	20.0	63.2	21.3	150.5	63.2	20.0
Change Period (Y+Rc), s	8.5	8.5	7.5	7.5	8.5	8.5	7.5	7.5
Max Green Setting (Gmax), s	34.5	118.5	12.5	57.5	14.5	138.5	57.5	12.5
Max Q Clear Time (g_c+I1), s	29.3	126.8	14.5	25.0	12.8	30.5	54.9	14.5
Green Ext Time (p_c), s	0.7	0.0	0.0	0.5	0.0	44.1	0.9	0.0

Intersection Summary		
HCM 2010 Ctrl Delay		101.0
HCM 2010 LOS		F

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	70	2481	129	342	943	444	87	90	117	664	142
Future Volume (vph)	70	2481	129	342	943	444	87	90	117	664	142
Turn Type	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			Free			8		
Detector Phase	5	2	3	1	6		3	8	1	7	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.5	24.5	11.5	12.5	24.5		11.5	20.0	12.5	11.5	22.5
Total Split (s)	23.0	127.0	20.0	43.0	147.0		20.0	20.0	43.0	65.0	65.0
Total Split (%)	9.0%	49.8%	7.8%	16.9%	57.6%		7.8%	7.8%	16.9%	25.5%	25.5%
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5		3.5	4.0	4.5	3.5	4.5
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	3.5	4.0	4.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	8.5	7.5	8.5	8.5		7.5	7.5	8.5	7.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None
Act Effct Green (s)	13.8	122.9	143.9	31.6	140.7	255.0	12.5	12.5	51.6	56.0	56.0
Actuated g/C Ratio	0.05	0.48	0.56	0.12	0.55	1.00	0.05	0.05	0.20	0.22	0.22
v/c Ratio	0.80	1.10	0.15	0.88	0.37	0.31	1.10	1.08	0.33	0.96	0.47
Control Delay	146.8	103.6	6.6	131.3	32.8	0.5	226.7	218.6	29.7	120.8	88.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	146.8	103.6	6.6	131.3	32.8	0.5	226.7	218.6	29.7	120.8	88.5
LOS	F	F	A	F	C	A	F	F	C	F	F
Approach Delay		100.1			44.0			146.0			114.2
Approach LOS		F			D			F			F

Intersection Summary	
Cycle Length: 255	
Actuated Cycle Length: 255	
Offset: 128 (50%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 87.2	Intersection LOS: F
Intersection Capacity Utilization 108.0%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 21: Magwood Dr & Glenn McConnell Pkway



Arterial Level of Service: EB Glenn McConnell Pkway

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
W. Wildcat Blvd	I	48	67.9	36.5	104.4	0.90	31.0	C
Waterstone Ln	I	55	40.9	13.3	54.2	0.62	41.5	B
Magwood Dr	I	50	71.4	103.6	175.0	0.98	20.3	E
Total	I		180.2	153.4	333.6	2.51	27.1	C

Arterial Level of Service: NW Glenn McConnell Pkway

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Magwood Dr	I	45	39.2	32.8	72.0	0.42	20.8	E
Bairds Cove	I	50	71.4	5.5	76.9	0.98	46.1	A
Mary Ader Ave	I	55	40.9	25.4	66.3	0.62	33.9	C
Bees Ferry Rd	I	48	67.9	73.2	141.1	0.90	23.0	D
Total	I		219.4	136.9	356.3	2.93	29.6	C

Arterial Level of Service: EB Glenn McConnell Pkway

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
West Ashley Circle	2	10.8	30.9	0.2	21
	30	4.8	23.1	0.2	35
William E. Murray Bl	3	6.1	23.0	0.2	33
W. Wildcat Blvd	4	57.3	75.6	0.3	14
Lochaven Dr	5	17.6	36.4	0.3	28
Waterstone Ln	6	12.6	34.7	0.3	35
Apartment Access	7	9.2	27.9	0.3	37
Essex Farms Dr	8	13.0	27.8	0.2	29
	34	12.9	23.7	0.1	20
Charlie Hall Blvd	9	41.4	53.4	0.2	10
Magwood Dr	21	102.4	116.6	0.2	6
Total		288.1	473.2	2.5	19

Arterial Level of Service: WB Glenn McConnell Pkway

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Magwood Dr	21	32.1	64.4	0.4	23
Charlie Hall Blvd	9	5.0	20.7	0.2	33
	34	5.7	17.9	0.2	30
Essex Farms Dr	8	8.1	18.8	0.1	25
Apartment Access	7	3.1	18.6	0.2	44
Bairds Cove	6	5.2	23.7	0.3	43
Lockaven Dr	5	2.9	25.2	0.3	49
Mary Ader Ave	4	11.6	30.1	0.3	34
Goodwill Way	3	5.4	24.1	0.3	42
	30	1.1	17.8	0.2	42
West Ashley Circle	2	1.3	19.4	0.2	42
Bees Ferry Rd	1	69.7	87.2	0.2	7
Total		151.3	368.0	2.9	29

Intersection: 1: Bees Ferry Rd & Glenn McConnell Pkway

Movement	NW	NW	NW	NE	NE	NE	SW	SW	SW	SW	SW	B27
Directions Served	L	L	R	T	T	R	L	L	T	T	T	T
Maximum Queue (ft)	533	547	398	248	259	652	390	480	1831	1750	1585	994
Average Queue (ft)	299	309	20	146	148	87	387	478	1706	1217	251	512
95th Queue (ft)	489	497	180	226	235	526	404	481	2026	2306	1107	1368
Link Distance (ft)	856	856		1524	1524	1524			1725	1725	1725	1475
Upstream Blk Time (%)									46	1	0	10
Queuing Penalty (veh)									0	0	0	0
Storage Bay Dist (ft)			300				300	300				
Storage Blk Time (%)		18					52	60				
Queuing Penalty (veh)		31					73	84				

Intersection: 1: Bees Ferry Rd & Glenn McConnell Pkway

Movement	B27
Directions Served	T
Maximum Queue (ft)	952
Average Queue (ft)	462
95th Queue (ft)	1330
Link Distance (ft)	1475
Upstream Blk Time (%)	4
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: West Ashley Circle & Glenn McConnell Pkway

Movement	EB	EB	EB
Directions Served	T	T	R
Maximum Queue (ft)	904	901	952
Average Queue (ft)	426	411	134
95th Queue (ft)	1131	1118	666
Link Distance (ft)	856	856	856
Upstream Blk Time (%)	1	1	1
Queuing Penalty (veh)	5	9	5
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: William E. Murray Blvd/Goodwill Way & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	SB
Directions Served	L	T	T	R	R
Maximum Queue (ft)	111	118	137	65	34
Average Queue (ft)	13	20	27	2	9
95th Queue (ft)	67	176	214	46	28
Link Distance (ft)		1037	1037		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200			150	50
Storage Blk Time (%)		2	2		0
Queuing Penalty (veh)		1	1		0

Intersection: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	T	R	L	LTR	R
Maximum Queue (ft)	254	1124	1124	310	118	138	227	238	41	109	188	171
Average Queue (ft)	25	651	677	47	39	64	65	71	4	29	84	51
95th Queue (ft)	125	1285	1298	244	95	120	178	194	22	80	149	123
Link Distance (ft)		1413	1413				1402	1402		1679	1679	
Upstream Blk Time (%)		1	2									
Queuing Penalty (veh)		14	22									
Storage Bay Dist (ft)	200			200	465	465			200			300
Storage Blk Time (%)		25	26					1			0	
Queuing Penalty (veh)		8	8					1			0	

Intersection: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway

Movement	SB	SB	B15
Directions Served	L	TR	T
Maximum Queue (ft)	224	391	153
Average Queue (ft)	194	195	39
95th Queue (ft)	259	461	174
Link Distance (ft)		324	851
Upstream Blk Time (%)		21	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)	200		
Storage Blk Time (%)	47	4	
Queuing Penalty (veh)	30	5	

Intersection: 5: Lochaven Dr/Lockaven Dr & Glenn McConnell Pkway

Movement	NW	NE	NE
Directions Served	L	LT	R
Maximum Queue (ft)	67	190	75
Average Queue (ft)	13	49	47
95th Queue (ft)	42	149	89
Link Distance (ft)		443	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	250		50
Storage Blk Time (%)		26	31
Queuing Penalty (veh)		13	4

Intersection: 6: Waterstone Ln/Bairds Cove & Glenn McConnell Pkway

Movement	SE	SE	SE	SE	NW	NW	NW	NW	NE	NE	SW	SW
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	25	329	369	11	43	221	224	25	51	202	158	24
Average Queue (ft)	3	125	133	0	9	41	51	2	9	82	78	8
95th Queue (ft)	14	312	329	5	30	135	154	14	33	174	143	22
Link Distance (ft)		1710	1710			1431	1431			197		710
Upstream Blk Time (%)										1		
Queuing Penalty (veh)										0		
Storage Bay Dist (ft)	500			200	500			200	150		200	
Storage Blk Time (%)			5				0			5		
Queuing Penalty (veh)			0				0			1		

Intersection: 7: Apartment Access & Glenn McConnell Pkway

Movement	EB	EB	WB	NB	NB	B17
Directions Served	T	T	L	L	R	T
Maximum Queue (ft)	121	154	68	33	182	54
Average Queue (ft)	4	5	18	7	80	5
95th Queue (ft)	65	76	54	26	181	46
Link Distance (ft)	1431	1431		127	127	548
Upstream Blk Time (%)					19	
Queuing Penalty (veh)					0	
Storage Bay Dist (ft)			250			
Storage Blk Time (%)		0				
Queuing Penalty (veh)		0				

Intersection: 8: Essex Farms Dr & Glenn McConnell Pkway

Movement	EB	EB	EB	WB	WB	WB	WB	B34	B34	B34	NB	NB
Directions Served	T	T	R	L	T	T	T	T	T	T	L	R
Maximum Queue (ft)	652	666	103	399	672	638	394	222	221	200	104	41
Average Queue (ft)	71	82	4	299	267	130	33	33	23	9	41	2
95th Queue (ft)	454	489	65	468	739	494	210	180	156	96	99	25
Link Distance (ft)	1132	1132			644	644	644	746	746	746	261	
Upstream Blk Time (%)		0			15	0						
Queuing Penalty (veh)		0			58	1						
Storage Bay Dist (ft)			250	200								150
Storage Blk Time (%)		3		78	0						0	
Queuing Penalty (veh)		0		271	0						1	

Intersection: 9: Charlie Hall Blvd & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	EB	B34	B34	B34	WB	WB	SB	
Directions Served	L	T	T	T	R	T	T	T	L	R	R	
Maximum Queue (ft)	400	838	838	835	450	580	578	606	16	106	45	
Average Queue (ft)	128	363	383	407	93	107	114	123	1	12	3	
95th Queue (ft)	374	951	968	987	393	450	470	488	10	63	24	
Link Distance (ft)		746	746	746		644	644	644			1235	
Upstream Blk Time (%)		11	13	15		1	1	2				
Queuing Penalty (veh)		123	135	160		7	12	21				
Storage Bay Dist (ft)	200				200				250	250		
Storage Blk Time (%)		23		28								
Queuing Penalty (veh)		42		31								

Intersection: 21: Magwood Dr & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	L	T	T	T	L	T
Maximum Queue (ft)	700	952	962	962	400	443	487	499	453	325	260	342
Average Queue (ft)	235	840	855	874	175	275	302	209	190	166	160	251
95th Queue (ft)	642	1133	1113	1113	482	469	509	428	382	329	298	409
Link Distance (ft)		923	923	923				2145	2145	2145	339	339
Upstream Blk Time (%)		21	22	27							2	32
Queuing Penalty (veh)		206	213	266							0	0
Storage Bay Dist (ft)	450				200	400	400					
Storage Blk Time (%)		45		52		7	9	0				
Queuing Penalty (veh)		34		72		22	31	0				

Intersection: 21: Magwood Dr & Glenn McConnell Pkway

Movement	NB	SB	SB	SB
Directions Served	R	L	L	TR
Maximum Queue (ft)	212	838	811	357
Average Queue (ft)	75	607	568	193
95th Queue (ft)	180	924	879	318
Link Distance (ft)	339	1202	1202	1202
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 2021

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (veh/h)	1492	580	430	588	363	340
Future Volume (veh/h)	1492	580	430	588	363	340
Number	7	14	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	1622	0	467	0	395	370
Adj No. of Lanes	2	1	2	1	2	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1664	765	901	403	436	2178
Arrive On Green	0.48	0.00	0.25	0.00	0.13	0.43
Sat Flow, veh/h	3442	1583	3632	1583	3442	5253
Grp Volume(v), veh/h	1622	0	467	0	395	370
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1583	1721	1695
Q Serve(g_s), s	78.3	0.0	19.3	0.0	19.2	7.6
Cycle Q Clear(g_c), s	78.3	0.0	19.3	0.0	19.2	7.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1664	765	901	403	436	2178
V/C Ratio(X)	0.97	0.00	0.52	0.00	0.91	0.17
Avail Cap(c_a), veh/h	1680	773	901	403	466	2178
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	0.0	54.4	0.0	73.2	30.0
Incr Delay (d2), s/veh	16.3	0.0	2.1	0.0	20.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	40.9	0.0	9.7	0.0	10.4	3.6
LnGrp Delay(d),s/veh	59.2	0.0	56.5	0.0	93.7	30.1
LnGrp LOS	E		E		F	C
Approach Vol, veh/h	1622		467			765
Approach Delay, s/veh	59.2		56.5			62.9
Approach LOS	E		E			E

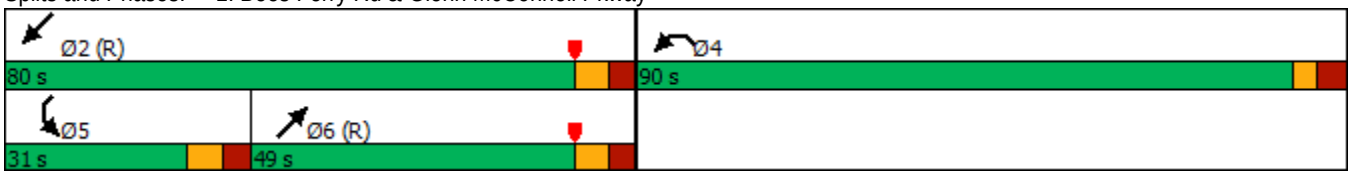
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		80.8		89.2	29.5	51.3		
Change Period (Y+Rc), s		8.0		7.0	8.0	8.0		
Max Green Setting (Gmax), s		72.0		83.0	23.0	41.0		
Max Q Clear Time (g_c+I1), s		9.6		80.3	21.2	21.3		
Green Ext Time (p_c), s		9.8		1.9	0.3	8.0		

Intersection Summary	
HCM 2010 Ctrl Delay	59.7
HCM 2010 LOS	E

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	1492	580	430	588	363	340
Future Volume (vph)	1492	580	430	588	363	340
Turn Type	Prot	Free	NA	Free	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		Free		Free		2
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	4.0		4.0		4.0	4.0
Minimum Split (s)	20.0		20.0		20.0	20.0
Total Split (s)	90.0		49.0		31.0	80.0
Total Split (%)	52.9%		28.8%		18.2%	47.1%
Yellow Time (s)	3.0		4.5		4.5	4.5
All-Red Time (s)	4.0		3.5		3.5	3.5
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	7.0		8.0		8.0	8.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None		C-Max		None	C-Max
Act Effct Green (s)	82.5	170.0	42.2	170.0	22.3	72.5
Actuated g/C Ratio	0.49	1.00	0.25	1.00	0.13	0.43
v/c Ratio	0.97	0.40	0.53	0.40	0.88	0.17
Control Delay	42.1	0.2	58.3	0.8	92.9	30.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.1	0.2	58.3	0.8	92.9	30.5
LOS	D	A	E	A	F	C
Approach Delay	30.4		25.1			62.8
Approach LOS	C		C			E

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 32 (19%), Referenced to phase 2:SWT and 6:NET, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 35.0	Intersection LOS: C
Intersection Capacity Utilization 84.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Bees Ferry Rd & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑	↱		↑↑	↱			↱			↱
Traffic Vol, veh/h	0	923	28	0	2069	195	0	0	176	0	0	3
Future Vol, veh/h	0	923	28	0	2069	195	0	0	176	0	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Free	-	-	Stop
Storage Length	-	-	0	-	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1003	30	0	2249	212	0	0	191	0	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	-	-	-	-	-	1125
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	0	0	0	199
Stage 1	0	-	0	0	-	0	0	0	0	0	0	-
Stage 2	0	-	0	0	-	0	0	0	0	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	-	-	-	199
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	0	0	0	23.4
HCM LOS			A	C

Minor Lane/Major Mvmt	NELn1	EBT	WBT	SWLn1
Capacity (veh/h)	-	-	-	199
HCM Lane V/C Ratio	-	-	-	0.016
HCM Control Delay (s)	0	-	-	23.4
HCM Lane LOS	A	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	33	1057	9	0	0	2179	6	0	0	0	5	0	85
Future Vol, veh/h	33	1057	9	0	0	2179	6	0	0	0	5	0	85
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	-	None	-	-	Stop	-	-	None
Storage Length	200	-	150	-	200	-	200	-	-	0	0	-	50
Veh in Median Storage, #	-	0	-	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	1149	10	0	0	2368	7	0	0	0	5	0	92

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	2375	0	-	1149	-	-	0	-	-	575	3015	-	1184
Stage 1	-	-	-	-	-	-	-	-	-	-	2368	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	647	-	-
Critical Hdwy	4.14	-	-	6.44	-	-	-	-	-	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	2.52	-	-	-	-	-	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	201	-	0	266	0	-	-	0	0	461	6	0	182
Stage 1	-	-	0	-	0	-	-	0	0	-	36	0	-
Stage 2	-	-	0	-	0	-	-	0	0	-	426	0	-
Platoon blocked, %		-				-	-						
Mov Cap-1 Maneuver	201	-	-	266	-	-	-	-	-	461	~ 5	-	182
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	26	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	30	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	350	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0	0	51
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBU	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	201	-	266	-	-	26	182
HCM Lane V/C Ratio	-	0.178	-	-	-	-	0.209	0.508
HCM Control Delay (s)	0	26.8	-	0	-	-	176.9	43.6
HCM Lane LOS	A	D	-	A	-	-	F	E
HCM 95th %tile Q(veh)	-	0.6	-	0	-	-	0.6	2.5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	964	47	192	2072	223	35	26	76	190	32	79
Future Volume (veh/h)	51	964	47	192	2072	223	35	26	76	190	32	79
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	55	1048	51	209	2252	242	35	57	57	207	35	86
Adj No. of Lanes	1	2	1	2	2	1	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	82	2143	1034	182	2252	1171	84	88	159	183	49	121
Arrive On Green	0.02	0.61	0.61	0.05	0.64	0.64	0.05	0.05	0.05	0.10	0.10	0.10
Sat Flow, veh/h	1774	3539	1583	3442	3539	1583	1774	1863	1583	1774	479	1176
Grp Volume(v), veh/h	55	1048	51	209	2252	242	35	57	57	207	0	121
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1721	1770	1583	1774	1863	1583	1774	0	1655
Q Serve(g_s), s	2.0	28.2	2.0	9.0	108.1	8.0	3.3	5.1	5.7	17.5	0.0	12.0
Cycle Q Clear(g_c), s	2.0	28.2	2.0	9.0	108.1	8.0	3.3	5.1	5.7	17.5	0.0	12.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.71
Lane Grp Cap(c), veh/h	82	2143	1034	182	2252	1171	84	88	159	183	0	170
V/C Ratio(X)	0.67	0.49	0.05	1.15	1.00	0.21	0.42	0.65	0.36	1.13	0.00	0.71
Avail Cap(c_a), veh/h	136	2143	1034	182	2252	1171	240	252	298	183	0	170
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.3	18.8	10.6	80.5	30.9	6.8	78.7	79.6	71.4	76.3	0.0	73.8
Incr Delay (d2), s/veh	9.3	0.8	0.1	111.8	18.9	0.4	3.3	7.7	1.4	107.0	0.0	12.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	13.9	1.0	7.1	58.5	5.0	1.7	2.8	2.6	14.0	0.0	6.1
LnGrp Delay(d),s/veh	52.6	19.6	10.7	192.3	49.8	7.2	81.9	87.2	72.7	183.3	0.0	86.7
LnGrp LOS	D	B	B	F	D	A	F	F	E	F		F
Approach Vol, veh/h		1154			2703			149			328	
Approach Delay, s/veh		20.8			57.0			80.4			147.6	
Approach LOS		C			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.0	111.9		25.0	12.8	117.2		15.1
Change Period (Y+Rc), s	9.0	9.0		7.5	9.0	9.0		7.0
Max Green Setting (Gmax), s	9.0	88.0		17.5	9.0	88.0		23.0
Max Q Clear Time (g_c+I1), s	11.0	30.2		19.5	4.0	110.1		7.7
Green Ext Time (p_c), s	0.0	32.0		0.0	0.0	0.0		0.4

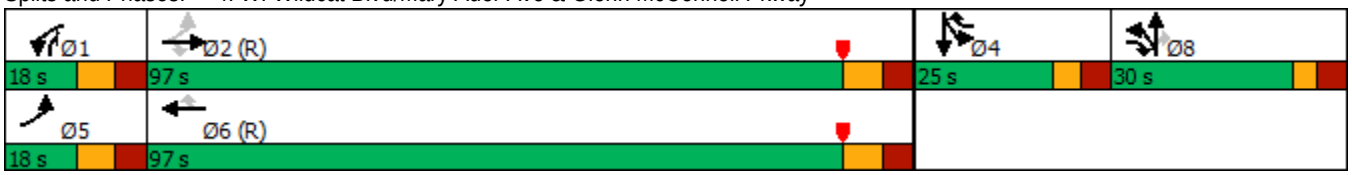
Intersection Summary	
HCM 2010 Ctrl Delay	55.0
HCM 2010 LOS	E

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	51	964	47	192	2072	223	35	26	76	190	32
Future Volume (vph)	51	964	47	192	2072	223	35	26	76	190	32
Turn Type	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6	4	8	8	1	4	4
Permitted Phases	2		2			6			8		
Detector Phase	5	2	8	1	6	4	8	8	1	4	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	13.0	20.0	20.0	13.0	20.0	20.0	20.0	20.0	13.0	20.0	20.0
Total Split (s)	18.0	97.0	30.0	18.0	97.0	25.0	30.0	30.0	18.0	25.0	25.0
Total Split (%)	10.6%	57.1%	17.6%	10.6%	57.1%	14.7%	17.6%	17.6%	10.6%	14.7%	14.7%
Yellow Time (s)	5.0	5.0	3.0	5.0	5.0	3.5	3.0	3.0	5.0	3.5	3.5
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.0	9.0	7.0	9.0	9.0	7.5	7.0	7.0	9.0	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag				Lead		
Lead-Lag Optimize?											
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	108.4	101.2	113.0	9.0	105.9	132.4	9.8	9.8	25.8	17.5	17.5
Actuated g/C Ratio	0.64	0.60	0.66	0.05	0.62	0.78	0.06	0.06	0.15	0.10	0.10
v/c Ratio	0.46	0.50	0.05	1.15	1.02	0.19	0.35	0.55	0.18	1.14	0.54
Control Delay	39.5	13.1	0.1	159.3	45.0	1.2	85.5	69.3	3.8	172.4	47.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	13.1	0.1	159.3	45.0	1.2	85.5	69.3	3.8	172.4	47.2
LOS	D	B	A	F	D	A	F	E	A	F	D
Approach Delay		13.7			49.9			48.8			126.2
Approach LOS		B			D			D			F

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 90 (53%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 46.0	Intersection LOS: D
Intersection Capacity Utilization 99.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	0.5

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	1214	16	34	2478	1	9	0	21	3	0	0
Future Vol, veh/h	0	1214	16	34	2478	1	9	0	21	3	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	200	250	-	200	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1320	17	37	2693	1	10	0	23	3	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2694	0	0	1337	0	0	2741	4088	660	3427	4104	1347
Stage 1	-	-	-	-	-	-	1320	1320	-	2767	2767	-
Stage 2	-	-	-	-	-	-	1421	2768	-	660	1337	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	150	-	-	512	-	-	~ 9	2	406	~ 3	2	141
Stage 1	-	-	-	-	-	-	166	225	-	19	41	-
Stage 2	-	-	-	-	-	-	143	41	-	418	220	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	150	-	-	512	-	-	~ 9	2	406	~ 3	2	141
Mov Cap-2 Maneuver	-	-	-	-	-	-	96	35	-	18	35	-
Stage 1	-	-	-	-	-	-	166	225	-	19	38	-
Stage 2	-	-	-	-	-	-	133	38	-	394	220	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0.2	24.1	244.9
HCM LOS			C	F

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	96	406	512	-	-	150	-	-	18	-
HCM Lane V/C Ratio	0.102	0.056	0.072	-	-	-	-	-	0.181	-
HCM Control Delay (s)	46.7	14.4	12.6	-	-	0	-	-	244.9	0
HCM Lane LOS	E	B	B	-	-	A	-	-	F	A
HCM 95th %tile Q(veh)	0.3	0.2	0.2	-	-	0	-	-	0.5	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	14	1210	14	66	2483	76	10	0	36	36	0	20
Future Volume (veh/h)	14	1210	14	66	2483	76	10	0	36	36	0	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	15	1315	15	72	2699	83	11	0	39	39	0	22
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	2713	1214	340	2751	1231	112	0	101	97	0	101
Arrive On Green	0.01	0.77	0.77	0.02	0.78	0.78	0.06	0.00	0.06	0.06	0.00	0.06
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1384	0	1583	1363	0	1583
Grp Volume(v), veh/h	15	1315	15	72	2699	83	11	0	39	39	0	22
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1384	0	1583	1363	0	1583
Q Serve(g_s), s	0.3	23.5	0.4	1.5	121.6	2.1	1.3	0.0	4.0	4.8	0.0	2.2
Cycle Q Clear(g_c), s	0.3	23.5	0.4	1.5	121.6	2.1	3.5	0.0	4.0	8.8	0.0	2.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	70	2713	1214	340	2751	1231	112	0	101	97	0	101
V/C Ratio(X)	0.22	0.48	0.01	0.21	0.98	0.07	0.10	0.00	0.39	0.40	0.00	0.22
Avail Cap(c_a), veh/h	122	2713	1214	373	2751	1231	171	0	168	154	0	168
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.0	7.4	4.7	5.9	17.8	4.4	77.2	0.0	76.4	80.6	0.0	75.6
Incr Delay (d2), s/veh	1.5	0.6	0.0	0.3	13.3	0.1	0.4	0.0	2.4	2.7	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	11.6	0.2	0.7	63.5	0.9	0.5	0.0	1.8	1.9	0.0	1.0
LnGrp Delay(d),s/veh	53.5	8.0	4.7	6.2	31.0	4.6	77.6	0.0	78.8	83.3	0.0	76.6
LnGrp LOS	D	A	A	A	C	A	E		E	F		E
Approach Vol, veh/h		1345			2854			50			61	
Approach Delay, s/veh		8.5			29.6			78.5			80.9	
Approach LOS		A			C			E			F	

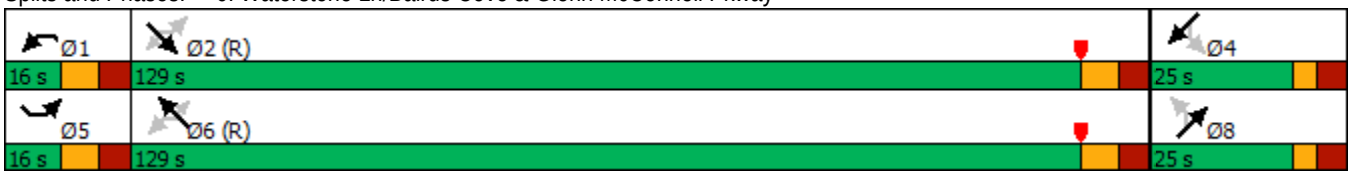
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.9	139.3		17.8	11.0	141.1		17.8
Change Period (Y+Rc), s	9.0	9.0		7.0	9.0	9.0		7.0
Max Green Setting (Gmax), s	7.0	120.0		18.0	7.0	120.0		18.0
Max Q Clear Time (g_c+I1), s	3.5	25.5		10.8	2.3	123.6		6.0
Green Ext Time (p_c), s	0.0	57.5		0.1	0.0	0.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	24.3
HCM 2010 LOS	C

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	14	1210	14	66	2483	76	10	0	36	0
Future Volume (vph)	14	1210	14	66	2483	76	10	0	36	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	13.0	20.0	20.0	13.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	16.0	129.0	129.0	16.0	129.0	129.0	25.0	25.0	25.0	25.0
Total Split (%)	9.4%	75.9%	75.9%	9.4%	75.9%	75.9%	14.7%	14.7%	14.7%	14.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.0	9.0	9.0	9.0	9.0	9.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	136.5	130.8	130.8	143.1	142.1	142.1	10.2	10.2	10.2	10.2
Actuated g/C Ratio	0.80	0.77	0.77	0.84	0.84	0.84	0.06	0.06	0.06	0.06
v/c Ratio	0.14	0.48	0.01	0.22	0.91	0.06	0.13	0.17	0.48	0.12
Control Delay	8.7	6.1	0.0	1.1	20.0	0.0	77.1	1.6	95.0	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.7	6.1	0.0	1.1	20.0	0.0	77.1	1.6	95.0	1.3
LOS	A	A	A	A	C	A	E	A	F	A
Approach Delay		6.0			19.0			18.2		61.2
Approach LOS		A			B			B		E

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 87 (51%), Referenced to phase 2:SETL and 6:NWTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 15.5	Intersection LOS: B
Intersection Capacity Utilization 90.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Waterstone Ln/Bairds Cove & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1276	6	34	2623	2	16
Future Vol, veh/h	1276	6	34	2623	2	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	250	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1387	7	37	2851	2	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1394	0	2887	694
Stage 1	-	-	-	-	1387	-
Stage 2	-	-	-	-	1500	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	487	-	13	385
Stage 1	-	-	-	-	197	-
Stage 2	-	-	-	-	171	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	487	-	12	385
Mov Cap-2 Maneuver	-	-	-	-	114	-
Stage 1	-	-	-	-	197	-
Stage 2	-	-	-	-	158	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	17.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	114	385	-	-	487	-
HCM Lane V/C Ratio	0.019	0.045	-	-	0.076	-
HCM Control Delay (s)	37.2	14.8	-	-	13	-
HCM Lane LOS	E	B	-	-	B	-
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1281	11	200	2647	10	83
Future Vol, veh/h	1281	11	200	2647	10	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	-	250	200	-	0	150
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1392	12	217	2877	11	90

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1404	0	2977	-
Stage 1	-	-	-	-	1392	-
Stage 2	-	-	-	-	1585	-
Critical Hdwy	-	-	4.14	-	6.29	-
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	-	-	2.22	-	3.67	-
Pot Cap-1 Maneuver	-	-	482	-	17	0
Stage 1	-	-	-	-	192	0
Stage 2	-	-	-	-	138	0
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	482	-	~ 9	-
Mov Cap-2 Maneuver	-	-	-	-	66	-
Stage 1	-	-	-	-	192	-
Stage 2	-	-	-	-	76	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	70
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	66	-	-	-	482	-
HCM Lane V/C Ratio	0.165	-	-	-	0.451	-
HCM Control Delay (s)	70	0	-	-	18.5	-
HCM Lane LOS	F	A	-	-	C	-
HCM 95th %tile Q(veh)	0.5	-	-	-	2.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	65.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	52	1267	45	14	2556	45	0	0	74	0	0	291
Future Vol, veh/h	52	1267	45	14	2556	45	0	0	74	0	0	291
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Stop	-	-	Stop
Storage Length	200	-	200	250	-	250	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	57	1377	49	15	2778	49	0	0	80	0	0	316

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2778	0	-	1377	0	0	-	-	689	-	-	1389
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.34	-	-	5.34	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	~ 50	-	0	256	-	0	0	0	333	0	0	~ 113
Stage 1	-	-	0	-	-	0	0	0	-	0	0	-
Stage 2	-	-	0	-	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	~ 50	-	-	256	-	-	-	-	333	-	-	~ 113
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.8	0.1	19.2	$ 893.3
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	SBLn1
Capacity (veh/h)	333	~ 50	-	256	-	113
HCM Lane V/C Ratio	0.242	1.13	-	0.059	-	2.799
HCM Control Delay (s)	19.2	300	-	19.9	-	$ 893.3
HCM Lane LOS	C	F	-	C	-	F
HCM 95th %tile Q(veh)	0.9	5	-	0.2	-	29.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	1114	80	178	2246	932	240	184	350	580	127	129
Future Volume (veh/h)	147	1114	80	178	2246	932	240	184	350	580	127	129
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	160	1211	87	193	2441	0	261	200	380	630	138	140
Adj No. of Lanes	1	3	1	2	3	1	1	1	1	2	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	2286	958	235	2199	685	277	192	271	658	117	119
Arrive On Green	0.09	0.45	0.45	0.07	0.43	0.00	0.16	0.10	0.10	0.19	0.14	0.14
Sat Flow, veh/h	1774	5085	1583	3442	5085	1583	1774	1863	1583	3442	849	862
Grp Volume(v), veh/h	160	1211	87	193	2441	0	261	200	380	630	0	278
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1695	1583	1774	1863	1583	1721	0	1711
Q Serve(g_s), s	14.5	29.3	3.9	9.4	73.5	0.0	24.8	17.5	17.5	30.8	0.0	23.5
Cycle Q Clear(g_c), s	14.5	29.3	3.9	9.4	73.5	0.0	24.8	17.5	17.5	30.8	0.0	23.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	151	2286	958	235	2199	685	277	192	271	658	0	236
V/C Ratio(X)	1.06	0.53	0.09	0.82	1.11	0.00	0.94	1.04	1.40	0.96	0.00	1.18
Avail Cap(c_a), veh/h	151	2286	958	294	2199	685	277	192	271	658	0	236
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	77.8	33.8	14.0	78.2	48.3	0.0	71.0	76.3	70.5	68.1	0.0	73.3
Incr Delay (d2), s/veh	89.2	0.9	0.2	14.0	56.8	0.0	39.1	76.8	201.9	25.0	0.0	114.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.9	13.9	1.7	4.9	46.0	0.0	15.2	13.1	27.9	17.0	0.0	18.6
LnGrp Delay(d),s/veh	167.0	34.7	14.2	92.2	105.1	0.0	110.1	153.0	272.4	93.0	0.0	187.5
LnGrp LOS	F	C	B	F	F		F	F	F	F		F
Approach Vol, veh/h		1458			2634			841			908	
Approach Delay, s/veh		48.0			104.1			193.7			121.9	
Approach LOS		D			F			F			F	

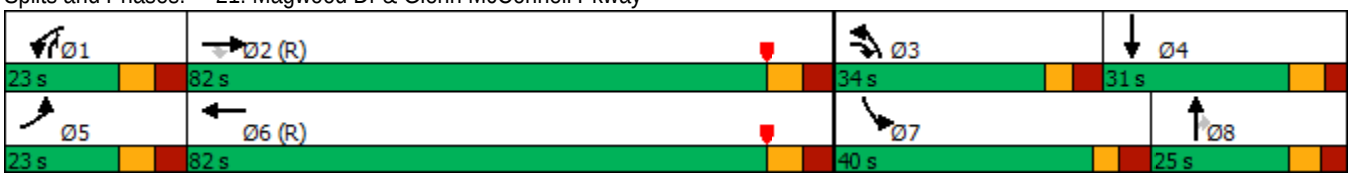
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.1	84.9	34.0	31.0	23.0	82.0	40.0	25.0
Change Period (Y+Rc), s	8.5	8.5	7.5	7.5	8.5	8.5	7.5	7.5
Max Green Setting (Gmax), s	14.5	73.5	26.5	23.5	14.5	73.5	32.5	17.5
Max Q Clear Time (g_c+I1), s	11.4	31.3	26.8	25.5	16.5	75.5	32.8	19.5
Green Ext Time (p_c), s	0.2	31.7	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	105.8
HCM 2010 LOS	F

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	147	1114	80	178	2246	932	240	184	350	580	127
Future Volume (vph)	147	1114	80	178	2246	932	240	184	350	580	127
Turn Type	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			Free			8		
Detector Phase	5	2	3	1	6		3	8	1	7	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.5	24.5	11.5	12.5	24.5		11.5	20.0	12.5	11.5	22.5
Total Split (s)	23.0	82.0	34.0	23.0	82.0		34.0	25.0	23.0	40.0	31.0
Total Split (%)	13.5%	48.2%	20.0%	13.5%	48.2%		20.0%	14.7%	13.5%	23.5%	18.2%
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5		3.5	4.0	4.5	3.5	4.5
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	3.5	4.0	4.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	8.5	7.5	8.5	8.5		7.5	7.5	8.5	7.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None
Act Effct Green (s)	14.5	74.2	109.0	13.9	73.6	170.0	26.3	17.5	38.9	32.4	23.6
Actuated g/C Ratio	0.09	0.44	0.64	0.08	0.43	1.00	0.15	0.10	0.23	0.19	0.14
v/c Ratio	1.07	0.55	0.08	0.69	1.11	0.64	0.96	1.05	0.89	0.96	1.07
Control Delay	156.4	29.0	5.2	89.1	100.9	2.0	114.0	148.1	72.7	94.2	134.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	156.4	29.0	5.2	89.1	100.9	2.0	114.0	148.1	72.7	94.2	134.9
LOS	F	C	A	F	F	A	F	F	E	F	F
Approach Delay		41.6			72.8			103.4			106.7
Approach LOS		D			E			F			F

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 152 (89%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 74.4	Intersection LOS: E
Intersection Capacity Utilization 106.1%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 21: Magwood Dr & Glenn McConnell Pkway



Arterial Level of Service: EB Glenn McConnell Pkway

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
W. Wildcat Blvd	I	48	67.9	13.1	81.0	0.90	40.0	B
Waterstone Ln	I	55	40.9	6.1	47.0	0.62	47.9	A
Magwood Dr	I	50	71.4	29.0	100.4	0.98	35.3	B
Total	I		180.2	48.2	228.4	2.51	39.6	B

Arterial Level of Service: NW Glenn McConnell Pkway

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Magwood Dr	I	45	39.2	100.9	140.1	0.42	10.7	F
Bairds Cove	I	50	71.4	20.0	91.4	0.98	38.8	B
Mary Ader Ave	I	55	40.9	45.0	85.9	0.62	26.2	D
Bees Ferry Rd	I	48	67.9	42.1	110.0	0.90	29.4	C
Total	I		219.4	208.0	427.4	2.93	24.6	D

Arterial Level of Service: EB Glenn McConnell Pkway

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
West Ashley Circle	2	5.5	26.2	0.2	25
	30	1.6	19.8	0.2	41
William E. Murray Bl	3	1.1	17.9	0.2	42
W. Wildcat Blvd	4	13.4	32.0	0.3	32
Lochaven Dr	5	4.3	23.2	0.3	44
Waterstone Ln	6	8.1	30.3	0.3	41
Apartment Access	7	3.9	22.7	0.3	45
Essex Farms Dr	8	2.8	17.6	0.2	46
	34	0.7	11.6	0.1	41
Charlie Hall Blvd	9	3.3	15.5	0.2	35
Magwood Dr	21	32.8	47.4	0.2	14
Total		77.5	264.1	2.5	34

Arterial Level of Service: WB Glenn McConnell Pkway

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Magwood Dr	21	196.1	349.3	0.4	7
Charlie Hall Blvd	9	13.6	29.2	0.2	23
	34	3.2	15.3	0.2	36
Essex Farms Dr	8	13.3	23.9	0.1	20
Apartment Access	7	7.4	22.7	0.2	36
Bairds Cove	6	10.9	29.4	0.3	35
Lockaven Dr	5	10.2	32.6	0.3	38
Mary Ader Ave	4	45.4	63.7	0.3	16
Goodwill Way	3	17.1	35.8	0.3	29
	30	3.5	20.2	0.2	37
West Ashley Circle	2	11.2	29.5	0.2	28
Bees Ferry Rd	1	75.6	92.7	0.2	7
Total		407.5	744.4	2.9	17

Intersection: 1: Bees Ferry Rd & Glenn McConnell Pkway

Movement	NW	NW	NW	NE	NE	SW	SW	SW	SW	SW
Directions Served	L	L	R	T	T	L	L	T	T	T
Maximum Queue (ft)	816	852	500	296	284	341	374	280	177	137
Average Queue (ft)	624	639	339	174	175	228	251	100	97	52
95th Queue (ft)	925	943	723	261	264	348	372	237	159	124
Link Distance (ft)	856	856		1524	1524			1725	1725	1725
Upstream Blk Time (%)	7	8								
Queuing Penalty (veh)	74	94								
Storage Bay Dist (ft)			300			300	300			
Storage Blk Time (%)		45				5	8	0		
Queuing Penalty (veh)		283				6	10	0		

Intersection: 2: West Ashley Circle & Glenn McConnell Pkway

Movement	EB	EB	WB	WB	WB
Directions Served	T	T	T	T	R
Maximum Queue (ft)	344	514	232	282	152
Average Queue (ft)	17	28	67	79	33
95th Queue (ft)	213	276	295	334	209
Link Distance (ft)	856	856	1143	1143	
Upstream Blk Time (%)	0	0			
Queuing Penalty (veh)	0	0			
Storage Bay Dist (ft)					200
Storage Blk Time (%)				6	
Queuing Penalty (veh)				13	

Intersection: 3: William E. Murray Blvd/Goodwill Way & Glenn McConnell Pkway

Movement	EB	WB	SB	SB
Directions Served	L	T	L	R
Maximum Queue (ft)	82	4	205	125
Average Queue (ft)	26	0	58	68
95th Queue (ft)	65	2	162	121
Link Distance (ft)		1413	680	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200			50
Storage Blk Time (%)			4	33
Queuing Penalty (veh)			3	2

Intersection: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	T	R	L	LTR	R
Maximum Queue (ft)	100	229	241	53	206	564	800	864	380	88	127	63
Average Queue (ft)	42	120	134	10	123	207	471	500	195	27	58	17
95th Queue (ft)	85	204	219	35	210	465	771	801	499	70	107	49
Link Distance (ft)		1413	1413				1402	1402		1679	1679	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200			200	465	465			200			300
Storage Blk Time (%)		1	1			0	11	28				
Queuing Penalty (veh)		0	1			0	22	69				

Intersection: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway

Movement	SB	SB	B15
Directions Served	L	TR	T
Maximum Queue (ft)	225	424	889
Average Queue (ft)	221	388	544
95th Queue (ft)	233	468	1038
Link Distance (ft)		324	851
Upstream Blk Time (%)		77	24
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)	200		
Storage Blk Time (%)	85	3	
Queuing Penalty (veh)	102	7	

Intersection: 5: Lochaven Dr/Lockaven Dr & Glenn McConnell Pkway

Movement	SE	NW	NE	NE	SW
Directions Served	R	L	LT	R	LT
Maximum Queue (ft)	11	50	82	51	30
Average Queue (ft)	0	11	17	14	4
95th Queue (ft)	8	32	66	42	19
Link Distance (ft)			443		278
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200	250		50	
Storage Blk Time (%)			11	1	1
Queuing Penalty (veh)			3	0	0

Intersection: 6: Waterstone Ln/Bairds Cove & Glenn McConnell Pkway

Movement	SE	SE	SE	SE	NW	NW	NW	NW	NE	NE	SW	SW
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	50	239	259	28	89	300	323	110	42	44	101	58
Average Queue (ft)	12	83	98	3	33	125	141	10	7	14	38	14
95th Queue (ft)	36	203	222	17	73	263	287	63	27	34	86	39
Link Distance (ft)		1710	1710			1431	1431			197		710
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500			200	500			200	150		200	
Storage Blk Time (%)			1				2					
Queuing Penalty (veh)			0				2					

Intersection: 7: Apartment Access & Glenn McConnell Pkway

Movement	EB	WB	WB	NB	NB
Directions Served	R	L	T	L	R
Maximum Queue (ft)	9	60	243	18	25
Average Queue (ft)	0	19	8	3	8
95th Queue (ft)	7	47	171	16	24
Link Distance (ft)			1132	127	127
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)	200	250			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 8: Essex Farms Dr & Glenn McConnell Pkway

Movement	EB	EB	EB	WB	WB	WB	WB	B34	NB
Directions Served	T	T	R	L	T	T	T	T	L
Maximum Queue (ft)	18	37	18	164	209	234	221	6	88
Average Queue (ft)	1	5	1	67	109	147	147	0	41
95th Queue (ft)	10	21	10	125	207	213	214	4	108
Link Distance (ft)	1132	1132			644	644	644	746	261
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			250	200					
Storage Blk Time (%)				0	0				4
Queuing Penalty (veh)				0	0				4

Intersection: 9: Charlie Hall Blvd & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	SB
Directions Served	L	T	T	T	L	T	T	T	R
Maximum Queue (ft)	164	196	144	66	38	196	555	525	398
Average Queue (ft)	50	28	15	2	7	12	34	30	188
95th Queue (ft)	145	174	123	34	29	190	314	293	369
Link Distance (ft)		746	746	746		923	923	923	1235
Upstream Blk Time (%)						0	0	0	
Queuing Penalty (veh)						0	0	0	
Storage Bay Dist (ft)	200				250				
Storage Blk Time (%)		3		0					
Queuing Penalty (veh)		2		0					

Intersection: 21: Magwood Dr & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	L	T	T	T	R	L	L	T	T	T	R	L
Maximum Queue (ft)	699	889	849	730	212	182	700	2168	2177	2185	725	354
Average Queue (ft)	498	425	309	272	26	82	451	1755	1861	1889	676	265
95th Queue (ft)	805	912	673	522	105	148	940	2525	2677	2697	974	407
Link Distance (ft)		923	923	923				2145	2145	2145		339
Upstream Blk Time (%)		9	1	1				4	12	40		18
Queuing Penalty (veh)		42	5	5				0	0	0		0
Storage Bay Dist (ft)	450				200	400	400				700	
Storage Blk Time (%)	55	0		16				56		33	1	
Queuing Penalty (veh)	222	0		14				108		337	7	

Intersection: 21: Magwood Dr & Glenn McConnell Pkway

Movement	NB	NB	SB	SB	SB
Directions Served	T	R	L	L	TR
Maximum Queue (ft)	370	358	654	719	919
Average Queue (ft)	338	171	412	384	608
95th Queue (ft)	400	316	649	637	963
Link Distance (ft)	339	339	1202	1202	1202
Upstream Blk Time (%)	51	2			
Queuing Penalty (veh)	0	0			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 1439

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (veh/h)	1020	265	499	1640	1364	539
Future Volume (veh/h)	1020	265	499	1640	1364	539
Number	7	14	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	1109	0	542	0	1483	586
Adj No. of Lanes	2	1	2	1	2	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1073	494	604	270	1316	3051
Arrive On Green	0.31	0.00	0.17	0.00	0.38	0.60
Sat Flow, veh/h	3442	1583	3632	1583	3442	5253
Grp Volume(v), veh/h	1109	0	542	0	1483	586
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1583	1721	1695
Q Serve(g_s), s	53.0	0.0	25.5	0.0	65.0	8.9
Cycle Q Clear(g_c), s	53.0	0.0	25.5	0.0	65.0	8.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1073	494	604	270	1316	3051
V/C Ratio(X)	1.03	0.00	0.90	0.00	1.13	0.19
Avail Cap(c_a), veh/h	1073	494	604	270	1316	3051
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	0.0	69.0	0.0	52.5	15.4
Incr Delay (d2), s/veh	36.5	0.0	18.6	0.0	67.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	30.6	0.0	14.1	0.0	43.2	4.2
LnGrp Delay(d),s/veh	95.0	0.0	87.7	0.0	119.9	15.5
LnGrp LOS	F		F		F	B
Approach Vol, veh/h	1109		542			2069
Approach Delay, s/veh	95.0		87.7			90.4
Approach LOS	F		F			F

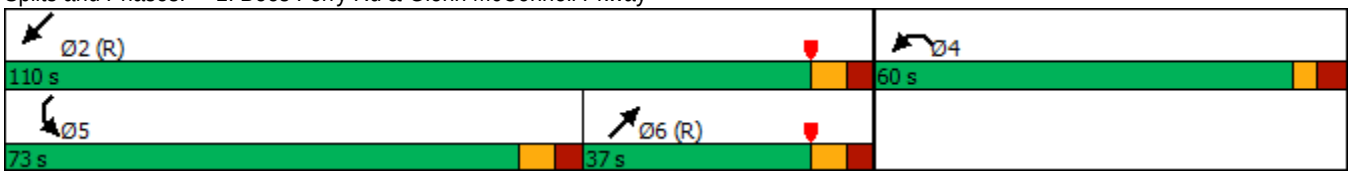
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		110.0		60.0	73.0	37.0		
Change Period (Y+Rc), s		8.0		7.0	8.0	8.0		
Max Green Setting (Gmax), s		102.0		53.0	65.0	29.0		
Max Q Clear Time (g_c+I1), s		10.9		55.0	67.0	27.5		
Green Ext Time (p_c), s		18.2		0.0	0.0	1.0		

Intersection Summary	
HCM 2010 Ctrl Delay	91.3
HCM 2010 LOS	F

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	1020	265	499	1640	1364	539
Future Volume (vph)	1020	265	499	1640	1364	539
Turn Type	Prot	Free	NA	Free	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		Free		Free		2
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	4.0		4.0		4.0	4.0
Minimum Split (s)	20.0		20.0		20.0	20.0
Total Split (s)	60.0		37.0		73.0	110.0
Total Split (%)	35.3%		21.8%		42.9%	64.7%
Yellow Time (s)	3.0		4.5		4.5	4.5
All-Red Time (s)	4.0		3.5		3.5	3.5
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	7.0		8.0		8.0	8.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None		C-Max		None	C-Max
Act Effct Green (s)	53.0	170.0	29.0	170.0	65.0	102.0
Actuated g/C Ratio	0.31	1.00	0.17	1.00	0.38	0.60
v/c Ratio	1.04	0.18	0.90	1.13	1.13	0.19
Control Delay	93.1	0.3	87.5	71.9	115.8	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.1	0.3	87.5	71.9	115.8	15.6
LOS	F	A	F	E	F	B
Approach Delay	74.0		75.5			87.4
Approach LOS	E		E			F

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 164 (96%), Referenced to phase 2:SWT and 6:NET, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 79.4	Intersection LOS: E
Intersection Capacity Utilization 101.0%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 1: Bees Ferry Rd & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑	↱		↑↑	↱			↱			↱
Traffic Vol, veh/h	0	2982	22	0	1285	46	0	0	317	0	0	0
Future Vol, veh/h	0	2982	22	0	1285	46	0	0	317	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Free	-	-	Stop
Storage Length	-	-	0	-	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3241	24	0	1397	50	0	0	345	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	-	-	-	-	-	699
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	0	0	0	382
Stage 1	0	-	0	0	-	0	0	0	0	0	0	-
Stage 2	0	-	0	0	-	0	0	0	0	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	-	-	-	382
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	0	0	0	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NELn1	EBT	WBT	SWLn1
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	0	-	-	0
HCM Lane LOS	A	-	-	A
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	72	3172	55	0	0	1242	27	0	0	72	0	0	88
Future Vol, veh/h	72	3172	55	0	0	1242	27	0	0	72	0	0	88
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	-	None	-	-	Stop	-	-	None
Storage Length	200	-	150	-	200	-	200	-	-	0	0	-	50
Veh in Median Storage, #	-	0	-	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	3448	60	0	0	1350	29	0	0	78	0	0	96

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	1379	0	-	3448	-	-	0	-	-	1724	3230	-	675
Stage 1	-	-	-	-	-	-	-	-	-	-	1350	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	1880	-	-
Critical Hdwy	4.14	-	-	6.44	-	-	-	-	-	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	2.52	-	-	-	-	-	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	493	-	0	8	0	-	-	0	0	~ 78	4	0	396
Stage 1	-	-	0	-	0	-	-	0	0	-	159	0	-
Stage 2	-	-	0	-	0	-	-	0	0	-	73	0	-
Platoon blocked, %		-				-	-						
Mov Cap-1 Maneuver	493	-	-	1	-	-	-	-	-	~ 78	-	-	396
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	134	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	196.3	17
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBU	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	78	493	-	1	-	-	-	396
HCM Lane V/C Ratio	1.003	0.159	-	-	-	-	-	0.242
HCM Control Delay (s)	196.3	13.7	-	0	-	-	0	17
HCM Lane LOS	F	B	-	A	-	-	A	C
HCM 95th %tile Q(veh)	5.4	0.6	-	0	-	-	-	0.9

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	3163	40	145	1099	200	108	17	150	240	18	63
Future Volume (veh/h)	40	3163	40	145	1099	200	108	17	150	240	18	63
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	43	3438	43	158	1195	217	130	0	163	261	20	68
Adj No. of Lanes	1	2	1	2	2	1	2	0	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	266	2401	1205	148	2501	1227	292	0	199	122	26	87
Arrive On Green	0.01	0.68	0.68	0.04	0.71	0.71	0.08	0.00	0.08	0.07	0.07	0.07
Sat Flow, veh/h	1774	3539	1583	3442	3539	1583	3548	0	1583	1774	373	1267
Grp Volume(v), veh/h	43	3438	43	158	1195	217	130	0	163	261	0	88
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1721	1770	1583	1774	0	1583	1774	0	1639
Q Serve(g_s), s	1.9	173.0	1.7	11.0	38.1	9.1	8.9	0.0	21.0	17.5	0.0	13.5
Cycle Q Clear(g_c), s	1.9	173.0	1.7	11.0	38.1	9.1	8.9	0.0	21.0	17.5	0.0	13.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.77
Lane Grp Cap(c), veh/h	266	2401	1205	148	2501	1227	292	0	199	122	0	112
V/C Ratio(X)	0.16	1.43	0.04	1.06	0.48	0.18	0.44	0.00	0.82	2.14	0.00	0.78
Avail Cap(c_a), veh/h	316	2401	1205	148	2501	1227	292	0	199	122	0	112
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.4	41.0	7.5	122.0	16.6	7.5	111.4	0.0	108.7	118.8	0.0	116.9
Incr Delay (d2), s/veh	0.3	196.8	0.1	92.0	0.7	0.3	1.1	0.0	23.1	541.1	0.0	29.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	149.7	1.0	7.1	18.8	5.3	4.4	0.0	12.5	26.9	0.0	7.0
LnGrp Delay(d),s/veh	14.7	237.8	7.6	214.0	17.2	7.8	112.5	0.0	131.8	659.8	0.0	146.0
LnGrp LOS	B	F	A	F	B	A	F		F	F		F
Approach Vol, veh/h		3524			1570			293			349	
Approach Delay, s/veh		232.2			35.7			123.2			530.3	
Approach LOS		F			D			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	20.0	182.0		25.0	12.8	189.2		28.0
Change Period (Y+Rc), s	9.0	9.0		7.5	9.0	9.0		7.0
Max Green Setting (Gmax), s	11.0	173.0		17.5	11.0	173.0		21.0
Max Q Clear Time (g_c+I1), s	13.0	175.0		19.5	3.9	40.1		23.0
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	58.9		0.0

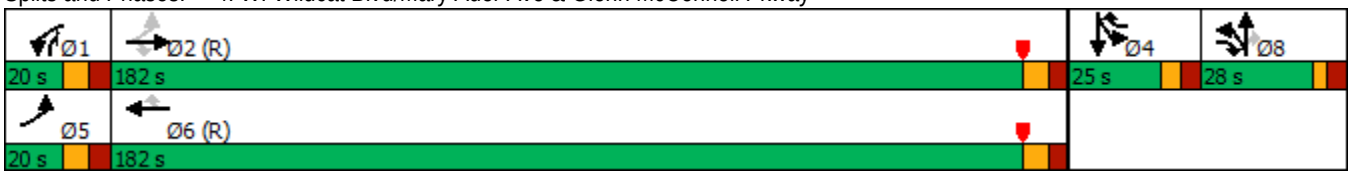
Intersection Summary		
HCM 2010 Ctrl Delay		191.0
HCM 2010 LOS		F

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	40	3163	40	145	1099	200	108	17	150	240	18
Future Volume (vph)	40	3163	40	145	1099	200	108	17	150	240	18
Turn Type	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6	4	8	8	1	4	4
Permitted Phases	2		2			6			8		
Detector Phase	5	2	8	1	6	4	8	8	1	4	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	13.0	20.0	20.0	13.0	20.0	20.0	20.0	20.0	13.0	20.0	20.0
Total Split (s)	20.0	182.0	28.0	20.0	182.0	25.0	28.0	28.0	20.0	25.0	25.0
Total Split (%)	7.8%	71.4%	11.0%	7.8%	71.4%	9.8%	11.0%	11.0%	7.8%	9.8%	9.8%
Yellow Time (s)	5.0	5.0	3.0	5.0	5.0	3.5	3.0	3.0	5.0	3.5	3.5
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.0	9.0	7.0	9.0	9.0	7.5	7.0	7.0	9.0	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag				Lead		
Lead-Lag Optimize?											
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	185.5	178.6	196.0	11.0	182.6	209.1	15.4	15.4	33.4	17.5	17.5
Actuated g/C Ratio	0.73	0.70	0.77	0.04	0.72	0.82	0.06	0.06	0.13	0.07	0.07
v/c Ratio	0.14	1.39	0.03	1.07	0.47	0.16	0.66	0.66	0.63	2.16	0.55
Control Delay	8.2	208.9	0.3	180.5	31.9	7.6	145.7	145.4	77.7	587.5	62.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	208.9	0.3	180.5	31.9	7.6	145.7	145.4	77.7	587.5	62.0
LOS	A	F	A	F	C	A	F	F	E	F	E
Approach Delay		203.9			43.5			108.4			455.0
Approach LOS		F			D			F			F

Intersection Summary	
Cycle Length: 255	
Actuated Cycle Length: 255	
Offset: 84 (33%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.16	
Intersection Signal Delay: 170.4	Intersection LOS: F
Intersection Capacity Utilization 131.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	17.2

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	3542	11	24	1426	0	18	0	67	0	0	0
Future Vol, veh/h	0	3542	11	24	1426	0	18	0	67	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	200	250	-	200	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3850	12	26	1550	0	20	0	73	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1550	0	0	3862	0	0	4677	5452	1925	3527	5464	775
Stage 1	-	-	-	-	-	-	3850	3850	-	1602	1602	-
Stage 2	-	-	-	-	-	-	827	1602	-	1925	3862	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	424	-	-	50	-	-	0	0	~ 57	2	0	341
Stage 1	-	-	-	-	-	-	~ 4	10	-	110	163	-
Stage 2	-	-	-	-	-	-	332	163	-	69	10	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	424	-	-	50	-	-	0	0	~ 57	-	0	341
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 4	9	-	~ -24	~ -14	-
Stage 1	-	-	-	-	-	-	~ 4	10	-	110	78	-
Stage 2	-	-	-	-	-	-	159	78	-	-	10	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	2.3	$ 989.1	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	4	57	50	-	-	424	-	-	-	-
HCM Lane V/C Ratio	4.891	1.278	0.522	-	-	-	-	-	-	-
HCM Control Delay (s)	$ 3438.1	$ 331.2	138.2	-	-	0	-	-	0	0
HCM Lane LOS	F	F	F	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	3.9	6.3	2	-	-	0	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	7	3592	10	14	1413	28	13	0	104	86	0	24
Future Volume (veh/h)	7	3592	10	14	1413	28	13	0	104	86	0	24
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	3904	11	15	1536	30	14	0	113	93	0	26
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	2698	1207	46	2710	1212	187	0	205	108	0	205
Arrive On Green	0.01	0.76	0.76	0.01	0.77	0.77	0.13	0.00	0.13	0.13	0.00	0.13
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1379	0	1583	1275	0	1583
Grp Volume(v), veh/h	8	3904	11	15	1536	30	14	0	113	93	0	26
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1379	0	1583	1275	0	1583
Q Serve(g_s), s	0.3	194.4	0.4	0.5	45.8	1.2	2.3	0.0	17.1	15.9	0.0	3.7
Cycle Q Clear(g_c), s	0.3	194.4	0.4	0.5	45.8	1.2	6.0	0.0	17.1	33.0	0.0	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	232	2698	1207	46	2710	1212	187	0	205	108	0	205
V/C Ratio(X)	0.03	1.45	0.01	0.32	0.57	0.02	0.08	0.00	0.55	0.86	0.00	0.13
Avail Cap(c_a), veh/h	262	2698	1207	70	2710	1212	187	0	205	108	0	205
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.9	30.3	7.3	80.7	12.4	7.1	100.9	0.0	104.1	120.7	0.0	98.2
Incr Delay (d2), s/veh	0.1	203.3	0.0	3.9	0.9	0.0	0.2	0.0	3.2	46.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	170.6	0.2	0.9	22.5	0.5	0.9	0.0	7.7	8.0	0.0	1.6
LnGrp Delay(d),s/veh	10.9	233.6	7.3	84.7	13.2	7.2	101.1	0.0	107.2	167.3	0.0	98.5
LnGrp LOS	B	F	A	F	B	A	F		F	F		F
Approach Vol, veh/h		3923			1581			127			119	
Approach Delay, s/veh		232.5			13.8			106.5			152.3	
Approach LOS		F			B			F			F	

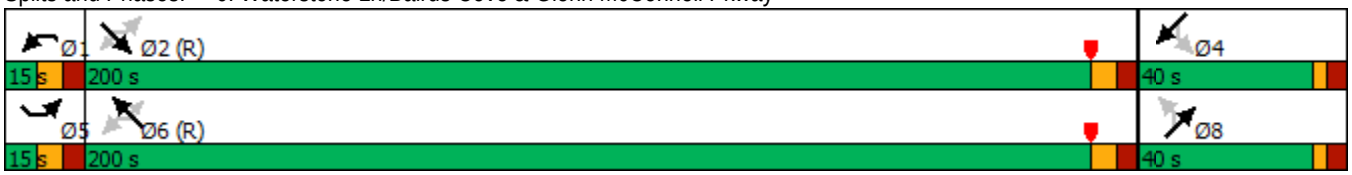
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.6	203.4		40.0	10.7	204.3		40.0
Change Period (Y+Rc), s	9.0	9.0		7.0	9.0	9.0		7.0
Max Green Setting (Gmax), s	6.0	191.0		33.0	6.0	191.0		33.0
Max Q Clear Time (g_c+I1), s	2.5	196.4		35.0	2.3	47.8		19.1
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	93.8		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	167.9
HCM 2010 LOS	F

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	7	3592	10	14	1413	28	13	0	86	0
Future Volume (vph)	7	3592	10	14	1413	28	13	0	86	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	13.0	20.0	20.0	13.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	15.0	200.0	200.0	15.0	200.0	200.0	40.0	40.0	40.0	40.0
Total Split (%)	5.9%	78.4%	78.4%	5.9%	78.4%	78.4%	15.7%	15.7%	15.7%	15.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.0	9.0	9.0	9.0	9.0	9.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	205.4	201.9	201.9	207.3	204.9	204.9	28.2	28.2	28.2	28.2
Actuated g/C Ratio	0.81	0.79	0.79	0.81	0.80	0.80	0.11	0.11	0.11	0.11
v/c Ratio	0.03	1.39	0.01	0.22	0.54	0.02	0.09	0.49	0.94	0.10
Control Delay	1.1	196.3	0.0	30.6	10.2	0.1	100.5	52.1	183.8	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.1	196.3	0.0	30.6	10.2	0.1	100.5	52.1	183.8	0.8
LOS	A	F	A	C	B	A	F	D	F	A
Approach Delay		195.4			10.2			57.5		143.8
Approach LOS		F			B			E		F

Intersection Summary	
Cycle Length: 255	
Actuated Cycle Length: 255	
Offset: 153 (60%), Referenced to phase 2:SETL and 6:NWTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.39	
Intersection Signal Delay: 140.4	Intersection LOS: F
Intersection Capacity Utilization 124.1%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Waterstone Ln/Bairds Cove & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	7.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	3775	8	17	1449	6	64
Future Vol, veh/h	3775	8	17	1449	6	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	250	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4103	9	18	1575	7	70

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	4112	0	4927	2052
Stage 1	-	-	-	-	4103	-
Stage 2	-	-	-	-	824	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	39	-	0	~ 46
Stage 1	-	-	-	-	~ 5	-
Stage 2	-	-	-	-	391	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	39	-	0	~ 46
Mov Cap-2 Maneuver	-	-	-	-	~ 5	-
Stage 1	-	-	-	-	~ 5	-
Stage 2	-	-	-	-	210	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	$ 541.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	5	46	-	-	39	-
HCM Lane V/C Ratio	1.304	1.512	-	-	0.474	-
HCM Control Delay (s)	$ 1447.2	$ 456.5	-	-	162.5	-
HCM Lane LOS	F	F	-	-	F	-
HCM 95th %tile Q(veh)	1.7	6.8	-	-	1.6	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	73.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	3733	106	184	1383	84	580
Future Vol, veh/h	3733	106	184	1383	84	580
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	-	250	200	-	0	150
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4058	115	200	1503	91	630

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	4173	0	5059	-
Stage 1	-	-	-	-	4058	-
Stage 2	-	-	-	-	1001	-
Critical Hdwy	-	-	4.14	-	6.29	-
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	-	-	2.22	-	3.67	-
Pot Cap-1 Maneuver	-	-	~ 37	-	~ 1	0
Stage 1	-	-	-	-	~ 6	0
Stage 2	-	-	-	-	292	0
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	~ 37	-	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	~ 6	-
Stage 2	-	-	-	-	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	258.1	
HCM LOS			-

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	-	~ 37	-
HCM Lane V/C Ratio	-	-	-	-	5.405	-
HCM Control Delay (s)	-	0	-	-	$ 2197.7	-
HCM Lane LOS	-	A	-	-	F	-
HCM 95th %tile Q(veh)	-	-	-	-	23.6	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	9.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	240	3930	142	3	1419	188	0	0	11	0	0	147
Future Vol, veh/h	240	3930	142	3	1419	188	0	0	11	0	0	147
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Stop	-	-	Stop
Storage Length	200	-	200	250	-	250	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	261	4272	154	3	1542	204	0	0	12	0	0	160

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1542	0	-	4272	0	0	-	-	2136	-	-	771
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.34	-	-	5.34	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	~ 212	-	0	8	-	0	0	0	34	0	0	294
Stage 1	-	-	0	-	-	0	0	0	-	0	0	-
Stage 2	-	-	0	-	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	~ 212	-	-	8	-	-	-	-	34	-	-	294
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.6	1.3	160	30.9
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	SBLn1
Capacity (veh/h)	34	~ 212	-	8	-	294
HCM Lane V/C Ratio	0.352	1.231	-	0.408	-	0.543
HCM Control Delay (s)	160	183.8	-	$ 638.4	-	30.9
HCM Lane LOS	F	F	-	F	-	D
HCM 95th %tile Q(veh)	1.1	13.4	-	0.8	-	3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	3665	180	476	1447	618	121	126	163	923	198	42
Future Volume (veh/h)	98	3665	180	476	1447	618	121	126	163	923	198	42
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	107	3984	196	517	1573	0	132	137	177	1003	215	46
Adj No. of Lanes	1	3	1	2	3	1	1	1	1	2	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	2363	813	466	2762	860	87	91	292	776	336	72
Arrive On Green	0.06	0.46	0.46	0.14	0.54	0.00	0.05	0.05	0.05	0.23	0.23	0.23
Sat Flow, veh/h	1774	5085	1583	3442	5085	1583	1774	1863	1583	3442	1488	318
Grp Volume(v), veh/h	107	3984	196	517	1573	0	132	137	177	1003	0	261
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1695	1583	1774	1863	1583	1721	0	1807
Q Serve(g_s), s	14.5	118.5	17.5	34.5	52.2	0.0	12.5	12.5	12.5	57.5	0.0	33.4
Cycle Q Clear(g_c), s	14.5	118.5	17.5	34.5	52.2	0.0	12.5	12.5	12.5	57.5	0.0	33.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	101	2363	813	466	2762	860	87	91	292	776	0	407
V/C Ratio(X)	1.06	1.69	0.24	1.11	0.57	0.00	1.52	1.50	0.61	1.29	0.00	0.64
Avail Cap(c_a), veh/h	101	2363	813	466	2762	860	87	91	292	776	0	407
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	120.2	68.3	34.4	110.2	38.5	0.0	121.3	121.2	95.5	98.8	0.0	89.4
Incr Delay (d2), s/veh	106.9	310.5	0.7	75.3	0.9	0.0	283.0	273.8	3.6	141.2	0.0	3.4
Initial Q Delay(d3),s/veh	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	123.5	7.8	21.3	24.7	0.0	13.0	13.4	11.8	42.6	0.0	17.1
LnGrp Delay(d),s/veh	227.8	378.8	35.1	185.5	39.4	0.0	404.3	395.0	99.1	239.9	0.0	92.8
LnGrp LOS	F	F	D	F	D		F	F	F	F		F
Approach Vol, veh/h		4287			2090			446			1264	
Approach Delay, s/veh		359.3			75.5			280.3			209.5	
Approach LOS		F			E			F			F	

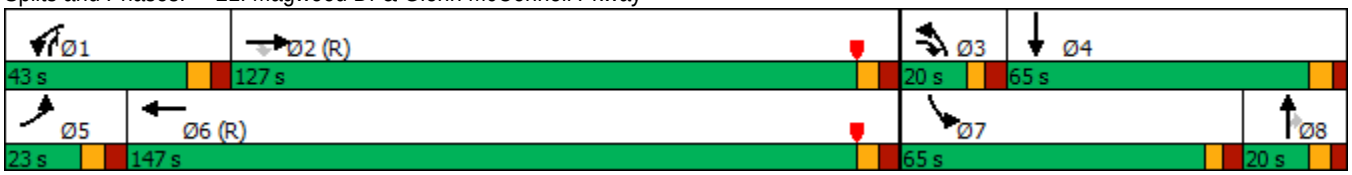
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	43.0	127.0	20.0	65.0	23.0	147.0	65.0	20.0
Change Period (Y+Rc), s	8.5	8.5	7.5	7.5	8.5	8.5	7.5	7.5
Max Green Setting (Gmax), s	34.5	118.5	12.5	57.5	14.5	138.5	57.5	12.5
Max Q Clear Time (g_c+I1), s	36.5	120.5	14.5	35.4	16.5	54.2	59.5	14.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.0	67.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	258.2
HCM 2010 LOS	F

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	98	3665	180	476	1447	618	121	126	163	923	198
Future Volume (vph)	98	3665	180	476	1447	618	121	126	163	923	198
Turn Type	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			Free			8		
Detector Phase	5	2	3	1	6		3	8	1	7	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.5	24.5	11.5	12.5	24.5		11.5	20.0	12.5	11.5	22.5
Total Split (s)	23.0	127.0	20.0	43.0	147.0		20.0	20.0	43.0	65.0	65.0
Total Split (%)	9.0%	49.8%	7.8%	16.9%	57.6%		7.8%	7.8%	16.9%	25.5%	25.5%
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5		3.5	4.0	4.5	3.5	4.5
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	3.5	4.0	4.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	8.5	7.5	8.5	8.5		7.5	7.5	8.5	7.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None
Act Effct Green (s)	14.5	118.5	139.5	34.5	138.5	255.0	12.5	12.5	54.5	57.5	57.5
Actuated g/C Ratio	0.06	0.46	0.55	0.14	0.54	1.00	0.05	0.05	0.21	0.23	0.23
v/c Ratio	1.07	1.69	0.21	1.11	0.57	0.42	1.53	1.51	0.43	1.30	0.63
Control Delay	142.8	347.3	12.8	169.7	39.6	0.8	354.9	342.2	46.2	212.0	95.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	142.8	347.3	12.8	169.7	39.6	0.8	354.9	342.2	46.2	212.0	95.7
LOS	F	F	B	F	D	A	F	F	D	F	F
Approach Delay		326.9			54.5			228.5			188.0
Approach LOS		F			D			F			F

Intersection Summary	
Cycle Length: 255	
Actuated Cycle Length: 255	
Offset: 128 (50%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.69	
Intersection Signal Delay: 215.9	Intersection LOS: F
Intersection Capacity Utilization 144.0%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 21: Magwood Dr & Glenn McConnell Pkway



Arterial Level of Service: EB Glenn McConnell Pkway

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
W. Wildcat Blvd	I	48	67.9	208.9	276.8	0.90	11.7	F
Waterstone Ln	I	55	40.9	196.3	237.2	0.62	9.5	F
Magwood Dr	I	50	71.4	347.3	418.7	0.98	8.5	F
Total	I		180.2	752.5	932.7	2.51	9.7	F

Arterial Level of Service: NW Glenn McConnell Pkway

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Magwood Dr	I	45	39.2	39.6	78.8	0.42	19.0	E
Bairds Cove	I	50	71.4	10.2	81.6	0.98	43.4	A
Mary Ader Ave	I	55	40.9	31.9	72.8	0.62	30.9	C
Bees Ferry Rd	I	48	67.9	93.1	161.0	0.90	20.1	E
Total	I		219.4	174.8	394.2	2.93	26.7	D

Arterial Level of Service: EB Glenn McConnell Pkway

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
West Ashley Circle	2	23.8	43.9	0.2	15
	30	43.5	61.4	0.2	13
William E. Murray Bl	3	61.2	77.7	0.2	10
W. Wildcat Blvd	4	107.6	125.6	0.3	8
Lochaven Dr	5	19.6	38.3	0.3	27
Waterstone Ln	6	30.6	52.5	0.3	23
Apartment Access	7	15.1	33.8	0.3	30
Essex Farms Dr	8	5.4	20.3	0.2	40
	34	1.1	11.9	0.1	40
Charlie Hall Blvd	9	5.8	18.1	0.2	30
Magwood Dr	21	78.0	92.3	0.2	7
Total		391.7	575.8	2.5	16

Arterial Level of Service: WB Glenn McConnell Pkway

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Magwood Dr	21	222.5	398.0	0.4	6
Charlie Hall Blvd	9	165.8	181.1	0.2	4
	34	89.6	101.4	0.2	5
Essex Farms Dr	8	13.0	23.6	0.1	20
Apartment Access	7	3.0	18.4	0.2	44
Bairds Cove	6	9.3	27.6	0.3	37
Lockaven Dr	5	4.8	27.2	0.3	45
Mary Ader Ave	4	9.1	27.7	0.3	37
Goodwill Way	3	5.0	23.6	0.3	43
	30	1.2	18.0	0.2	42
West Ashley Circle	2	10.7	28.9	0.2	28
Bees Ferry Rd	1	137.8	155.3	0.2	4
Total		671.8	1030.8	2.9	12

Intersection: 1: Bees Ferry Rd & Glenn McConnell Pkway

Movement	NW	NW	NW	NE	NE	NE	B24	B24	SW	SW	SW	SW
Directions Served	L	L	R	T	T	R	T	T	L	L	T	T
Maximum Queue (ft)	837	851	500	288	581	1633	1390	1396	390	480	1837	1742
Average Queue (ft)	569	585	276	164	183	1563	1345	1353	387	478	1801	889
95th Queue (ft)	982	999	686	261	370	1949	1544	1525	400	482	1818	2168
Link Distance (ft)	856	856		1524	1524	1524	1342	1342			1725	1725
Upstream Blk Time (%)	8	10				53	24	83			72	2
Queuing Penalty (veh)	58	69				0	0	0			0	0
Storage Bay Dist (ft)			300						300	300		
Storage Blk Time (%)		51							54	62		
Queuing Penalty (veh)		147							106	121		

Intersection: 1: Bees Ferry Rd & Glenn McConnell Pkway

Movement	SW	B27	B27
Directions Served	T	T	T
Maximum Queue (ft)	1613	1522	1526
Average Queue (ft)	212	1496	1490
95th Queue (ft)	990	1512	1533
Link Distance (ft)	1725	1475	1475
Upstream Blk Time (%)	0	91	45
Queuing Penalty (veh)	0	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: West Ashley Circle & Glenn McConnell Pkway

Movement	EB	EB	EB	WB	WB	WB
Directions Served	T	T	R	T	T	R
Maximum Queue (ft)	903	899	951	168	193	76
Average Queue (ft)	518	497	186	52	62	10
95th Queue (ft)	1186	1182	801	256	284	111
Link Distance (ft)	856	856	856	1143	1143	
Upstream Blk Time (%)	1	2	2			
Queuing Penalty (veh)	10	23	26			
Storage Bay Dist (ft)						200
Storage Blk Time (%)					5	
Queuing Penalty (veh)					3	

Intersection: 3: William E. Murray Blvd/Goodwill Way & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	B30	B30	B30	WB	NB	SB	SB
Directions Served	L	T	T	R	T	T		R	R	L	R
Maximum Queue (ft)	380	1134	1144	330	1191	1182	1176	16	241	43	87
Average Queue (ft)	77	666	715	48	440	458	253	1	104	3	32
95th Queue (ft)	302	1453	1518	240	1300	1316	1012	9	272	25	62
Link Distance (ft)		1037	1037		1143	1143	1143		540	680	
Upstream Blk Time (%)		18	22		4	7	0				
Queuing Penalty (veh)		321	398		43	87	6				
Storage Bay Dist (ft)	200			150				200			50
Storage Blk Time (%)		23	26							0	3
Queuing Penalty (veh)		18	16							0	0

Intersection: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	T	R	L	LT	R
Maximum Queue (ft)	379	1451	1509	314	137	152	193	200	36	182	327	338
Average Queue (ft)	46	1188	1314	21	49	69	46	52	4	84	116	181
95th Queue (ft)	217	1803	1859	153	121	141	147	160	21	153	263	305
Link Distance (ft)		1413	1413				1402	1402		1679	1679	
Upstream Blk Time (%)		16	22									
Queuing Penalty (veh)		279	391									
Storage Bay Dist (ft)	200			200	465	465			200			300
Storage Blk Time (%)		29	30					0			1	2
Queuing Penalty (veh)		13	13					0			2	2

Intersection: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway

Movement	SB	SB	B15
Directions Served	L	TR	T
Maximum Queue (ft)	225	417	895
Average Queue (ft)	218	394	809
95th Queue (ft)	231	409	1051
Link Distance (ft)		324	851
Upstream Blk Time (%)		92	81
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)	200		
Storage Blk Time (%)	93	0	
Queuing Penalty (veh)	82	0	

Intersection: 5: Lochaven Dr/Lockaven Dr & Glenn McConnell Pkway

Movement	SE	SE	NW	NE	NE	B13
Directions Served	T	T	L	LT	R	T
Maximum Queue (ft)	280	291	76	461	75	266
Average Queue (ft)	9	10	15	298	50	112
95th Queue (ft)	198	196	56	611	102	457
Link Distance (ft)	1402	1402		443		653
Upstream Blk Time (%)	0			33		7
Queuing Penalty (veh)	0			0		0
Storage Bay Dist (ft)			250		50	
Storage Blk Time (%)				55	57	
Queuing Penalty (veh)				40	11	

Intersection: 6: Waterstone Ln/Bairds Cove & Glenn McConnell Pkway

Movement	SE	SE	SE	SE	NW	NW	NW	NW	NE	NE	B10	SW
Directions Served	L	T	T	R	L	T	T	R	L	TR	T	L
Maximum Queue (ft)	22	675	690	27	28	304	292	46	113	249	29	233
Average Queue (ft)	2	259	267	1	5	77	87	3	16	136	1	107
95th Queue (ft)	13	630	643	11	19	239	254	21	72	232	17	197
Link Distance (ft)		1710	1710			1431	1431			197	688	
Upstream Blk Time (%)									0	5		
Queuing Penalty (veh)									0	0		
Storage Bay Dist (ft)	500			200	500			200	150			200
Storage Blk Time (%)		3	13				2			19		2
Queuing Penalty (veh)		0	1				1			3		1

Intersection: 6: Waterstone Ln/Bairds Cove & Glenn McConnell Pkway

Movement	SW
Directions Served	TR
Maximum Queue (ft)	96
Average Queue (ft)	14
95th Queue (ft)	51
Link Distance (ft)	710
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Apartment Access & Glenn McConnell Pkway

Movement	EB	EB	WB	NB	NB	B17
Directions Served	T	T	L	L	R	T
Maximum Queue (ft)	566	283	72	52	213	482
Average Queue (ft)	19	9	18	21	160	148
95th Queue (ft)	287	200	62	54	259	447
Link Distance (ft)	1431	1431		127	127	548
Upstream Blk Time (%)	0	0			68	5
Queuing Penalty (veh)	0	0			0	0
Storage Bay Dist (ft)			250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 8: Essex Farms Dr & Glenn McConnell Pkway

Movement	EB	EB	EB	WB	WB	WB	WB	B34	B34	B34	NB	NB
Directions Served	T	T	R	L	T	T	T	T	T	T	L	R
Maximum Queue (ft)	22	35	38	400	720	654	401	772	789	828	323	40
Average Queue (ft)	3	6	4	389	675	102	26	593	575	555	320	3
95th Queue (ft)	16	24	21	428	887	458	168	1043	1069	1173	345	40
Link Distance (ft)	1132	1132			644	644	644	746	746	746	261	
Upstream Blk Time (%)					87	0	0	64	46	32	99	
Queuing Penalty (veh)					494	1	0	363	260	180	0	
Storage Bay Dist (ft)			250	200								150
Storage Blk Time (%)				99							100	
Queuing Penalty (veh)				495							629	

Intersection: 8: Essex Farms Dr & Glenn McConnell Pkway

Movement	B26
Directions Served	T
Maximum Queue (ft)	998
Average Queue (ft)	973
95th Queue (ft)	1167
Link Distance (ft)	989
Upstream Blk Time (%)	96
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Charlie Hall Blvd & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	SB
Directions Served	L	T	T	T	L	T	T	T	R	R
Maximum Queue (ft)	331	433	350	302	105	952	959	973	450	946
Average Queue (ft)	119	86	69	68	5	535	538	499	129	332
95th Queue (ft)	306	341	314	267	63	1248	1256	1226	450	932
Link Distance (ft)		746	746	746		923	923	923		1235
Upstream Blk Time (%)						32	22	17		3
Queuing Penalty (veh)						189	130	98		0
Storage Bay Dist (ft)	200				250				250	
Storage Blk Time (%)	16	1		4		59		25		
Queuing Penalty (veh)	221	3		6		2		52		

Intersection: 21: Magwood Dr & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	L	T	T	T	R	L	L	T	T	T	R	L
Maximum Queue (ft)	699	908	922	942	400	550	700	2182	2175	2172	725	341
Average Queue (ft)	180	700	738	770	150	482	647	1808	1751	1526	208	248
95th Queue (ft)	551	1052	1048	1057	446	697	900	2681	2729	2797	748	427
Link Distance (ft)		923	923	923				2145	2145	2145		339
Upstream Blk Time (%)		3	4	7				31	21	20		46
Queuing Penalty (veh)		41	56	96				0	0	0		0
Storage Bay Dist (ft)	450				200	400	400				700	
Storage Blk Time (%)		33		48		68	73	40		28	0	
Queuing Penalty (veh)		36		94		358	383	205		190	2	

Intersection: 21: Magwood Dr & Glenn McConnell Pkway

Movement	NB	NB	SB	SB	SB
Directions Served	T	R	L	L	TR
Maximum Queue (ft)	355	190	1244	1236	1240
Average Queue (ft)	256	35	1207	1204	1110
95th Queue (ft)	468	142	1289	1300	1608
Link Distance (ft)	339	339	1202	1202	1202
Upstream Blk Time (%)	49	0	72	81	55
Queuing Penalty (veh)	0	0	0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 6873

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (veh/h)	2223	845	598	944	630	473
Future Volume (veh/h)	2223	845	598	944	630	473
Number	7	14	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	2416	0	650	0	685	514
Adj No. of Lanes	2	1	2	1	2	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1680	773	854	382	466	2154
Arrive On Green	0.49	0.00	0.24	0.00	0.14	0.42
Sat Flow, veh/h	3442	1583	3632	1583	3442	5253
Grp Volume(v), veh/h	2416	0	650	0	685	514
Grp Sat Flow(s),veh/h/ln	1721	1583	1770	1583	1721	1695
Q Serve(g_s), s	83.0	0.0	29.0	0.0	23.0	11.0
Cycle Q Clear(g_c), s	83.0	0.0	29.0	0.0	23.0	11.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1680	773	854	382	466	2154
V/C Ratio(X)	1.44	0.00	0.76	0.00	1.47	0.24
Avail Cap(c_a), veh/h	1680	773	854	382	466	2154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	0.0	60.0	0.0	73.5	31.4
Incr Delay (d2), s/veh	200.5	0.0	6.4	0.0	223.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	86.2	0.0	14.9	0.0	25.4	5.2
LnGrp Delay(d),s/veh	244.0	0.0	66.3	0.0	297.0	31.7
LnGrp LOS	F		E		F	C
Approach Vol, veh/h	2416		650			1199
Approach Delay, s/veh	244.0		66.3			183.2
Approach LOS	F		E			F

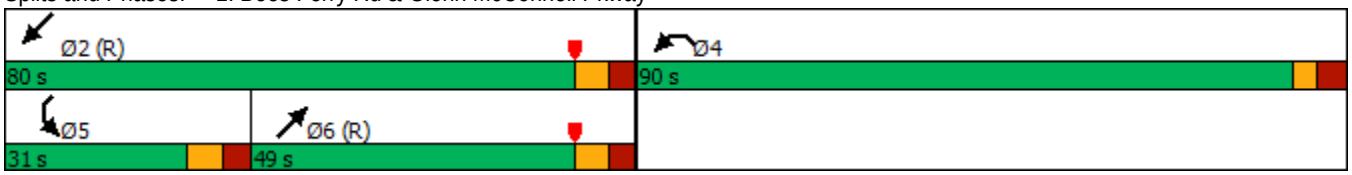
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		80.0		90.0	31.0	49.0		
Change Period (Y+Rc), s		8.0		7.0	8.0	8.0		
Max Green Setting (Gmax), s		72.0		83.0	23.0	41.0		
Max Q Clear Time (g_c+I1), s		13.0		85.0	25.0	31.0		
Green Ext Time (p_c), s		14.3		0.0	0.0	6.4		

Intersection Summary	
HCM 2010 Ctrl Delay	199.8
HCM 2010 LOS	F

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	2223	845	598	944	630	473
Future Volume (vph)	2223	845	598	944	630	473
Turn Type	Prot	Free	NA	Free	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		Free		Free		2
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	4.0		4.0		4.0	4.0
Minimum Split (s)	20.0		20.0		20.0	20.0
Total Split (s)	90.0		49.0		31.0	80.0
Total Split (%)	52.9%		28.8%		18.2%	47.1%
Yellow Time (s)	3.0		4.5		4.5	4.5
All-Red Time (s)	4.0		3.5		3.5	3.5
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	7.0		8.0		8.0	8.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None		C-Max		None	C-Max
Act Effct Green (s)	83.0	170.0	41.0	170.0	23.0	72.0
Actuated g/C Ratio	0.49	1.00	0.24	1.00	0.14	0.42
v/c Ratio	1.44	0.58	0.76	0.65	1.48	0.24
Control Delay	228.6	2.1	66.7	2.1	272.6	31.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	228.6	2.1	66.7	2.1	272.6	31.8
LOS	F	A	E	A	F	C
Approach Delay	166.2		27.1			169.4
Approach LOS	F		C			F

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 32 (19%), Referenced to phase 2:SWT and 6:NET, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.48	
Intersection Signal Delay: 129.3	Intersection LOS: F
Intersection Capacity Utilization 117.1%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 1: Bees Ferry Rd & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑	↱		↑↑	↱			↱			↱
Traffic Vol, veh/h	0	1535	39	0	3064	271	0	0	245	0	0	4
Future Vol, veh/h	0	1535	39	0	3064	271	0	0	245	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Free	-	-	Stop
Storage Length	-	-	0	-	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1668	42	0	3330	295	0	0	266	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	-	-	0	-	-	-	-	-	1665
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	0	0	0	86
Stage 1	0	-	0	0	-	0	0	0	0	0	0	-
Stage 2	0	-	0	0	-	0	0	0	0	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	-	-	-	86
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	0	0	0	49.1
HCM LOS			A	E

Minor Lane/Major Mvmt	NELn1	EBT	WBT	SWLn1
Capacity (veh/h)	-	-	-	86
HCM Lane V/C Ratio	-	-	-	0.051
HCM Control Delay (s)	0	-	-	49.1
HCM Lane LOS	A	-	-	E
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	14

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	123	1580	77	0	0	3171	85	0	0	38	7	0	164
Future Vol, veh/h	123	1580	77	0	0	3171	85	0	0	38	7	0	164
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	-	None	-	-	Stop	-	-	None
Storage Length	200	-	150	-	200	-	200	-	-	0	0	-	50
Veh in Median Storage, #	-	0	-	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	134	1717	84	0	0	3447	92	0	0	41	8	0	178

Major/Minor	Major1			Major2			Minor1			Minor2			
Conflicting Flow All	3539	0	-	1717	-	-	0	-	-	859	4574	-	1724
Stage 1	-	-	-	-	-	-	-	-	-	-	3447	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	1127	-	-
Critical Hdwy	4.14	-	-	6.44	-	-	-	-	-	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	2.52	-	-	-	-	-	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	~ 68	-	0	114	0	-	-	0	0	300	0	0	~ 78
Stage 1	-	-	0	-	0	-	-	0	0	-	~ 7	0	-
Stage 2	-	-	0	-	0	-	-	0	0	-	218	0	-
Platoon blocked, %		-				-	-						
Mov Cap-1 Maneuver	~ 68	-	-	100	-	-	-	-	-	300	-	-	~ 78
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	~ 7	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	42	0	18.9	
HCM LOS			C	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBU	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	300	~ 68	-	100	-	-	-	78
HCM Lane V/C Ratio	0.138	1.966	-	-	-	-	-	2.285
HCM Control Delay (s)	18.9	$ 582.1	-	0	-	-	-	$ 702.5
HCM Lane LOS	C	F	-	A	-	-	-	F
HCM 95th %tile Q(veh)	0.5	12.3	-	0	-	-	-	16.6

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	1489	65	331	3062	310	86	36	106	310	44	110
Future Volume (veh/h)	71	1489	65	331	3062	310	86	36	106	310	44	110
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	77	1618	71	360	3328	337	66	77	115	337	48	120
Adj No. of Lanes	1	2	1	2	2	1	1	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	2018	1034	182	2098	1102	147	154	215	183	49	122
Arrive On Green	0.03	0.57	0.57	0.05	0.59	0.59	0.08	0.08	0.08	0.10	0.10	0.10
Sat Flow, veh/h	1774	3539	1583	3442	3539	1583	1774	1863	1583	1774	473	1182
Grp Volume(v), veh/h	77	1618	71	360	3328	337	66	77	115	337	0	168
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1721	1770	1583	1774	1863	1583	1774	0	1654
Q Serve(g_s), s	3.2	61.5	2.8	9.0	100.8	14.0	6.0	6.7	11.5	17.5	0.0	17.2
Cycle Q Clear(g_c), s	3.2	61.5	2.8	9.0	100.8	14.0	6.0	6.7	11.5	17.5	0.0	17.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.71
Lane Grp Cap(c), veh/h	96	2018	1034	182	2098	1102	147	154	215	183	0	170
V/C Ratio(X)	0.80	0.80	0.07	1.98	1.59	0.31	0.45	0.50	0.54	1.85	0.00	0.99
Avail Cap(c_a), veh/h	136	2018	1034	182	2098	1102	240	252	298	183	0	170
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.3	28.9	10.7	80.5	34.6	10.0	74.3	74.6	68.5	76.3	0.0	76.1
Incr Delay (d2), s/veh	19.8	3.5	0.1	458.3	266.0	0.7	2.1	2.5	2.1	400.8	0.0	64.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	30.9	1.5	15.9	126.5	8.4	3.0	3.6	5.2	28.9	0.0	11.0
LnGrp Delay(d),s/veh	63.0	32.4	10.8	538.8	300.6	10.7	76.4	77.1	70.5	477.1	0.0	141.0
LnGrp LOS	E	C	B	F	F	B	E	E	E	F		F
Approach Vol, veh/h		1766			4025			258			505	
Approach Delay, s/veh		32.9			297.6			74.0			365.3	
Approach LOS		C			F			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	18.0	105.9		25.0	14.1	109.8		21.1
Change Period (Y+Rc), s	9.0	9.0		7.5	9.0	9.0		7.0
Max Green Setting (Gmax), s	9.0	88.0		17.5	9.0	88.0		23.0
Max Q Clear Time (g_c+I1), s	11.0	63.5		19.5	5.2	102.8		13.5
Green Ext Time (p_c), s	0.0	22.7		0.0	0.0	0.0		0.6

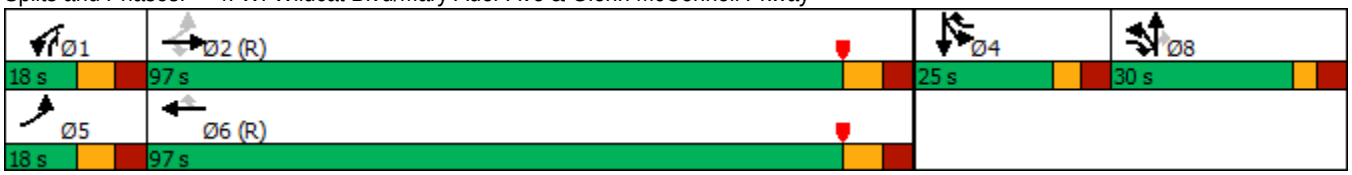
Intersection Summary	
HCM 2010 Ctrl Delay	222.7
HCM 2010 LOS	F

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	71	1489	65	331	3062	310	86	36	106	310	44
Future Volume (vph)	71	1489	65	331	3062	310	86	36	106	310	44
Turn Type	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6	4	8	8	1	4	4
Permitted Phases	2		2			6			8		
Detector Phase	5	2	8	1	6	4	8	8	1	4	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	13.0	20.0	20.0	13.0	20.0	20.0	20.0	20.0	13.0	20.0	20.0
Total Split (s)	18.0	97.0	30.0	18.0	97.0	25.0	30.0	30.0	18.0	25.0	25.0
Total Split (%)	10.6%	57.1%	17.6%	10.6%	57.1%	14.7%	17.6%	17.6%	10.6%	14.7%	14.7%
Yellow Time (s)	5.0	5.0	3.0	5.0	5.0	3.5	3.0	3.0	5.0	3.5	3.5
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.0	9.0	7.0	9.0	9.0	7.5	7.0	7.0	9.0	7.5	7.5
Lead/Lag	Lead	Lag		Lead	Lag				Lead		
Lead-Lag Optimize?											
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	106.9	99.0	113.0	9.0	100.2	126.7	12.0	12.0	28.0	17.5	17.5
Actuated g/C Ratio	0.63	0.58	0.66	0.05	0.59	0.75	0.07	0.07	0.16	0.10	0.10
v/c Ratio	0.62	0.79	0.07	1.99	1.60	0.28	0.55	0.55	0.35	1.85	0.75
Control Delay	51.2	19.3	0.1	483.2	293.5	1.9	92.9	92.4	21.0	440.8	68.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	19.3	0.1	483.2	293.5	1.9	92.9	92.4	21.0	440.8	68.2
LOS	D	B	A	F	F	A	F	F	C	F	E
Approach Delay		20.0			286.0			59.3			316.8
Approach LOS		B			F			E			F

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 90 (53%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.99	
Intersection Signal Delay: 208.0	Intersection LOS: F
Intersection Capacity Utilization 136.2%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	3.2

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	1882	22	47	3690	1	13	0	29	4	0	0
Future Vol, veh/h	0	1882	22	47	3690	1	13	0	29	4	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	250	-	200	250	-	200	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2046	24	51	4011	1	14	0	32	4	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	4012	0	0	2070	0	0	4154	6160	1023	5136	6183	2006
Stage 1	-	-	-	-	-	-	2046	2046	-	4113	4113	-
Stage 2	-	-	-	-	-	-	2108	4114	-	1023	2070	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	43	-	-	266	-	-	~ 1	0	233	0	0	50
Stage 1	-	-	-	-	-	-	58	98	-	~ 2	7	-
Stage 2	-	-	-	-	-	-	52	7	-	252	95	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	43	-	-	266	-	-	~ 1	0	233	0	0	50
Mov Cap-2 Maneuver	-	-	-	-	-	-	31	6	-	~ 2	6	-
Stage 1	-	-	-	-	-	-	58	98	-	~ 2	6	-
Stage 2	-	-	-	-	-	-	42	6	-	218	95	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0.3	76.4	$ 3422.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	31	233	266	-	-	43	-	-	2	-
HCM Lane V/C Ratio	0.456	0.135	0.192	-	-	-	-	-	2.174	-
HCM Control Delay (s)	195.7	22.9	21.7	-	-	0	-	-	$ 3422.1	0
HCM Lane LOS	F	C	C	-	-	A	-	-	F	A
HCM 95th %tile Q(veh)	1.5	0.5	0.7	-	-	0	-	-	1.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	19	1877	19	92	3697	106	14	0	50	50	0	28
Future Volume (veh/h)	19	1877	19	92	3697	106	14	0	50	50	0	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	21	2040	21	100	4018	115	15	0	54	54	0	30
Adj No. of Lanes	1	2	1	1	2	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	2631	1177	167	2669	1194	134	0	133	112	0	133
Arrive On Green	0.01	0.74	0.74	0.03	0.75	0.75	0.08	0.00	0.08	0.08	0.00	0.08
Sat Flow, veh/h	1774	3539	1583	1774	3539	1583	1374	0	1583	1345	0	1583
Grp Volume(v), veh/h	21	2040	21	100	4018	115	15	0	54	54	0	30
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1770	1583	1374	0	1583	1345	0	1583
Q Serve(g_s), s	0.5	59.4	0.6	2.3	128.2	3.3	1.8	0.0	5.5	6.7	0.0	3.0
Cycle Q Clear(g_c), s	0.5	59.4	0.6	2.3	128.2	3.3	4.8	0.0	5.5	12.2	0.0	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	69	2631	1177	167	2669	1194	134	0	133	112	0	133
V/C Ratio(X)	0.31	0.78	0.02	0.60	1.51	0.10	0.11	0.00	0.41	0.48	0.00	0.23
Avail Cap(c_a), veh/h	115	2631	1177	195	2669	1194	164	0	168	141	0	168
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.0	13.2	5.7	25.4	20.9	5.5	74.9	0.0	73.8	79.6	0.0	72.7
Incr Delay (d2), s/veh	2.5	2.3	0.0	3.7	229.5	0.2	0.4	0.0	2.0	3.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	29.5	0.3	3.4	147.0	1.5	0.7	0.0	2.5	2.6	0.0	1.3
LnGrp Delay(d),s/veh	54.5	15.5	5.7	29.1	250.4	5.7	75.3	0.0	75.8	82.8	0.0	73.5
LnGrp LOS	D	B	A	C	F	A	E		E	F		E
Approach Vol, veh/h		2082			4233			69			84	
Approach Delay, s/veh		15.8			238.5			75.7			79.5	
Approach LOS		B			F			E			E	

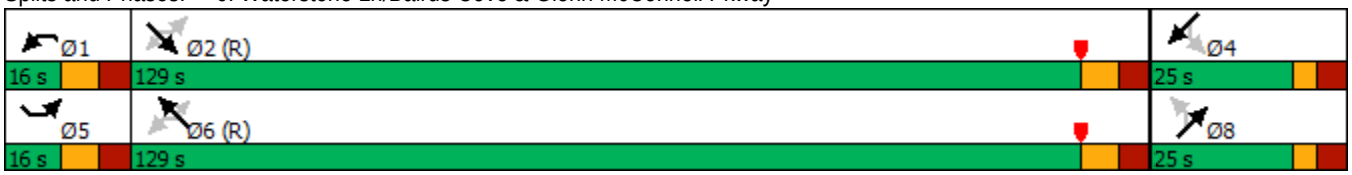
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.4	135.4		21.3	11.5	137.2		21.3
Change Period (Y+Rc), s	9.0	9.0		7.0	9.0	9.0		7.0
Max Green Setting (Gmax), s	7.0	120.0		18.0	7.0	120.0		18.0
Max Q Clear Time (g_c+I1), s	4.3	61.4		14.2	2.5	130.2		7.5
Green Ext Time (p_c), s	0.0	56.0		0.1	0.0	0.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	163.0
HCM 2010 LOS	F

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations										
Traffic Volume (vph)	19	1877	19	92	3697	106	14	0	50	0
Future Volume (vph)	19	1877	19	92	3697	106	14	0	50	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	13.0	20.0	20.0	13.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	16.0	129.0	129.0	16.0	129.0	129.0	25.0	25.0	25.0	25.0
Total Split (%)	9.4%	75.9%	75.9%	9.4%	75.9%	75.9%	14.7%	14.7%	14.7%	14.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.0	9.0	9.0	9.0	9.0	9.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?										
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	134.6	128.7	128.7	139.8	137.4	137.4	11.9	11.9	12.2	12.2
Actuated g/C Ratio	0.79	0.76	0.76	0.82	0.81	0.81	0.07	0.07	0.07	0.07
v/c Ratio	0.20	0.76	0.02	0.66	1.41	0.09	0.16	0.27	0.56	0.15
Control Delay	8.9	16.2	0.0	39.0	207.1	0.0	75.4	3.6	97.3	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	16.2	0.0	39.0	207.1	0.0	75.4	3.6	97.3	1.5
LOS	A	B	A	D	F	A	E	A	F	A
Approach Delay		16.0			197.5			19.2		63.1
Approach LOS		B			F			B		E

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 87 (51%), Referenced to phase 2:SETL and 6:NWTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.41	
Intersection Signal Delay: 135.4	Intersection LOS: F
Intersection Capacity Utilization 125.0%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 6: Waterstone Ln/Bairds Cove & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1969	8	47	3892	3	22
Future Vol, veh/h	1969	8	47	3892	3	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	250	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2140	9	51	4230	3	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2149	0	4357	1070
Stage 1	-	-	-	-	2140	-
Stage 2	-	-	-	-	2217	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	247	-	~ 1	217
Stage 1	-	-	-	-	76	-
Stage 2	-	-	-	-	69	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	247	-	~ 1	217
Mov Cap-2 Maneuver	-	-	-	-	40	-
Stage 1	-	-	-	-	76	-
Stage 2	-	-	-	-	55	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	33.1
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	40	217	-	-	247	-
HCM Lane V/C Ratio	0.082	0.11	-	-	0.207	-
HCM Control Delay (s)	102.8	23.6	-	-	23.3	-
HCM Lane LOS	F	C	-	-	C	-
HCM 95th %tile Q(veh)	0.3	0.4	-	-	0.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	23.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1865	126	389	3820	119	221
Future Vol, veh/h	1865	126	389	3820	119	221
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Free
Storage Length	-	250	200	-	0	150
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2027	137	423	4152	129	240

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2164	0	4534	-
Stage 1	-	-	-	-	2027	-
Stage 2	-	-	-	-	2507	-
Critical Hdwy	-	-	4.14	-	6.29	-
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	-	-	2.22	-	3.67	-
Pot Cap-1 Maneuver	-	-	~ 244	-	~ 2	0
Stage 1	-	-	-	-	~ 87	0
Stage 2	-	-	-	-	~ 41	0
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	~ 244	-	0	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	~ 87	-
Stage 2	-	-	-	-	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	35.2	
HCM LOS			-

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	-	~ 244	-
HCM Lane V/C Ratio	-	-	-	-	1.733	-
HCM Control Delay (s)	-	0	-	-	$ 381.4	-
HCM Lane LOS	-	A	-	-	F	-
HCM 95th %tile Q(veh)	-	-	-	-	28	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	364.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	72	1951	63	19	3805	63	0	0	103	0	0	404
Future Vol, veh/h	72	1951	63	19	3805	63	0	0	103	0	0	404
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Stop	-	-	Stop
Storage Length	200	-	200	250	-	250	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	2121	68	21	4136	68	0	0	112	0	0	439

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	4136	0	-	2121	0	0	-	-	1061	-	-	2068
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.34	-	-	5.34	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	~ 9	-	0	109	-	0	0	0	189	0	0	~ 38
Stage 1	-	-	0	-	-	0	0	0	-	0	0	-
Stage 2	-	-	0	-	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	~ 9	-	-	109	-	-	-	-	189	-	-	~ 38
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	152.1	0.2	48.5	$ 4951.5
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	SBLn1
Capacity (veh/h)	189	~ 9	-	109	-	38
HCM Lane V/C Ratio	0.592	8.696	-	0.189	-	11.556
HCM Control Delay (s)	48.5	$ 4272.7	-	45.6	-	$ 4951.5
HCM Lane LOS	E	F	-	E	-	F
HCM 95th %tile Q(veh)	3.3	11.3	-	0.7	-	53.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	1739	112	248	3374	1296	334	256	487	807	177	180
Future Volume (veh/h)	205	1739	112	248	3374	1296	334	256	487	807	177	180
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	223	1890	122	270	3667	0	363	278	529	877	192	196
Adj No. of Lanes	1	3	1	2	3	1	1	1	1	2	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	2199	931	294	2199	685	277	192	298	658	117	119
Arrive On Green	0.09	0.43	0.43	0.09	0.43	0.00	0.16	0.10	0.10	0.19	0.14	0.14
Sat Flow, veh/h	1774	5085	1583	3442	5085	1583	1774	1863	1583	3442	846	864
Grp Volume(v), veh/h	223	1890	122	270	3667	0	363	278	529	877	0	388
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1695	1583	1774	1863	1583	1721	0	1710
Q Serve(g_s), s	14.5	57.1	5.8	13.2	73.5	0.0	26.5	17.5	17.5	32.5	0.0	23.5
Cycle Q Clear(g_c), s	14.5	57.1	5.8	13.2	73.5	0.0	26.5	17.5	17.5	32.5	0.0	23.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.51
Lane Grp Cap(c), veh/h	151	2199	931	294	2199	685	277	192	298	658	0	236
V/C Ratio(X)	1.47	0.86	0.13	0.92	1.67	0.00	1.31	1.45	1.77	1.33	0.00	1.64
Avail Cap(c_a), veh/h	151	2199	931	294	2199	685	277	192	298	658	0	236
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	77.8	43.6	15.6	77.2	48.3	0.0	71.8	76.3	69.0	68.7	0.0	73.3
Incr Delay (d2), s/veh	245.3	4.7	0.3	32.4	302.6	0.0	164.1	229.1	362.0	160.1	0.0	306.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.4	27.6	2.6	7.6	96.0	0.0	25.6	21.2	44.0	30.1	0.0	31.2
LnGrp Delay(d),s/veh	323.1	48.3	15.9	109.6	350.8	0.0	235.9	305.4	431.0	228.8	0.0	380.1
LnGrp LOS	F	D	B	F	F		F	F	F	F		F
Approach Vol, veh/h		2235			3937			1170			1265	
Approach Delay, s/veh		73.9			334.3			340.6			275.2	
Approach LOS		E			F			F			F	

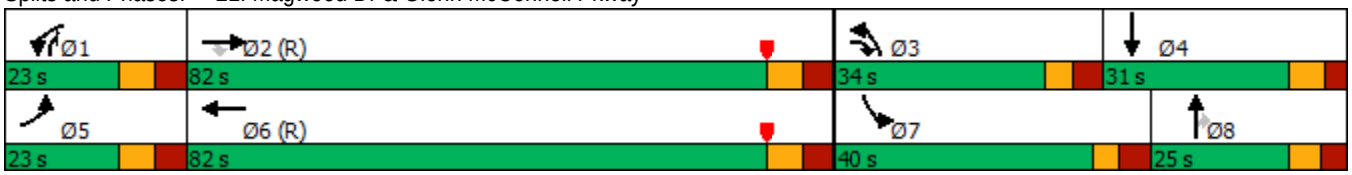
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	82.0	34.0	31.0	23.0	82.0	40.0	25.0
Change Period (Y+Rc), s	8.5	8.5	7.5	7.5	8.5	8.5	7.5	7.5
Max Green Setting (Gmax), s	14.5	73.5	26.5	23.5	14.5	73.5	32.5	17.5
Max Q Clear Time (g_c+I1), s	15.2	59.1	28.5	25.5	16.5	75.5	34.5	19.5
Green Ext Time (p_c), s	0.0	14.1	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	258.8
HCM 2010 LOS	F

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	205	1739	112	248	3374	1296	334	256	487	807	177
Future Volume (vph)	205	1739	112	248	3374	1296	334	256	487	807	177
Turn Type	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			Free			8		
Detector Phase	5	2	3	1	6		3	8	1	7	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.5	24.5	11.5	12.5	24.5		11.5	20.0	12.5	11.5	22.5
Total Split (s)	23.0	82.0	34.0	23.0	82.0		34.0	25.0	23.0	40.0	31.0
Total Split (%)	13.5%	48.2%	20.0%	13.5%	48.2%		20.0%	14.7%	13.5%	23.5%	18.2%
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5		3.5	4.0	4.5	3.5	4.5
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	3.5	4.0	4.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	8.5	7.5	8.5	8.5		7.5	7.5	8.5	7.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None
Act Effct Green (s)	14.5	73.5	108.5	14.5	73.5	170.0	26.5	17.5	39.5	32.5	23.5
Actuated g/C Ratio	0.09	0.43	0.64	0.09	0.43	1.00	0.16	0.10	0.23	0.19	0.14
v/c Ratio	1.49	0.86	0.12	0.92	1.67	0.89	1.32	1.46	1.23	1.34	1.50
Control Delay	291.9	36.7	4.8	112.2	334.5	8.3	219.2	280.4	165.1	211.6	286.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	291.9	36.7	4.8	112.2	334.5	8.3	219.2	280.4	165.1	211.6	286.2
LOS	F	D	A	F	F	A	F	F	F	F	F
Approach Delay		60.4			237.3			209.3			234.4
Approach LOS		E			F			F			F

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 152 (89%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.67	
Intersection Signal Delay: 194.2	Intersection LOS: F
Intersection Capacity Utilization 142.0%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 21: Magwood Dr & Glenn McConnell Pkway



Arterial Level of Service: EB Glenn McConnell Pkway

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
W. Wildcat Blvd	I	48	67.9	19.3	87.2	0.90	37.1	B
Waterstone Ln	I	55	40.9	16.2	57.1	0.62	39.4	B
Magwood Dr	I	50	71.4	36.7	108.1	0.98	32.8	C
Total	I		180.2	72.2	252.4	2.51	35.8	B

Arterial Level of Service: NW Glenn McConnell Pkway

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Magwood Dr	I	45	39.2	334.5	373.7	0.42	4.0	F
Bairds Cove	I	50	71.4	207.1	278.5	0.98	12.7	F
Mary Ader Ave	I	55	40.9	293.5	334.4	0.62	6.7	F
Bees Ferry Rd	I	48	67.9	228.6	296.5	0.90	10.9	F
Total	I		219.4	1063.7	1283.1	2.93	8.2	F

Arterial Level of Service: EB Glenn McConnell Pkway

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
West Ashley Circle	2	6.3	26.9	0.2	24
	30	2.1	20.3	0.2	40
William E. Murray Bl	3	1.9	18.8	0.2	40
W. Wildcat Blvd	4	21.2	39.8	0.3	26
Lochaven Dr	5	7.6	26.4	0.3	39
Waterstone Ln	6	14.1	36.2	0.3	34
Apartment Access	7	6.3	25.1	0.3	41
Essex Farms Dr	8	3.9	18.8	0.2	44
	34	0.9	11.7	0.1	41
Charlie Hall Blvd	9	1.4	13.6	0.2	40
Magwood Dr	21	35.3	49.9	0.2	14
Total		101.1	287.5	2.5	31

Arterial Level of Service: WB Glenn McConnell Pkway

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Magwood Dr	21	232.5	1682.3	0.4	6
Charlie Hall Blvd	9	13.9	29.6	0.2	23
	34	3.3	15.5	0.2	35
Essex Farms Dr	8	12.7	23.3	0.1	20
Apartment Access	7	7.2	22.6	0.2	36
Bairds Cove	6	13.7	32.2	0.3	32
Lockaven Dr	5	14.9	37.3	0.3	33
Mary Ader Ave	4	62.7	80.9	0.3	13
Goodwill Way	3	18.4	37.1	0.3	28
	30	4.4	21.2	0.2	35
West Ashley Circle	2	26.7	45.0	0.2	18
Bees Ferry Rd	1	94.0	111.1	0.2	6
Total		504.5	2138.0	2.9	15

Intersection: 1: Bees Ferry Rd & Glenn McConnell Pkway

Movement	NW	NW	NW	NE	NE	SW	SW	SW	SW	SW	B27	B27
Directions Served	L	L	R	T	T	L	L	T	T	T	T	T
Maximum Queue (ft)	887	895	500	394	410	390	480	1828	1732	1676	1521	1520
Average Queue (ft)	788	803	432	254	260	384	478	1775	1153	431	1208	1188
95th Queue (ft)	1004	1018	712	368	381	407	482	1944	2241	1425	2031	2041
Link Distance (ft)	856	856		1524	1524			1725	1725	1725	1475	1475
Upstream Blk Time (%)	14	18						89	1	0	65	44
Queuing Penalty (veh)	237	297						0	0	0	0	0
Storage Bay Dist (ft)			300			300	300					
Storage Blk Time (%)		51				83	90					
Queuing Penalty (veh)		469				142	154					

Intersection: 2: West Ashley Circle & Glenn McConnell Pkway

Movement	EB	EB	EB	WB	WB	WB	B30
Directions Served	T	T	R	T	T	R	T
Maximum Queue (ft)	692	686	189	829	884	380	5
Average Queue (ft)	51	50	6	231	262	81	0
95th Queue (ft)	382	378	133	738	801	336	5
Link Distance (ft)	856	856	856	1143	1143		1037
Upstream Blk Time (%)	0	0	0	0	1		
Queuing Penalty (veh)	0	0	0	1	10		
Storage Bay Dist (ft)						200	
Storage Blk Time (%)					16		
Queuing Penalty (veh)					47		

Intersection: 3: William E. Murray Blvd/Goodwill Way & Glenn McConnell Pkway

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	R	L	R
Maximum Queue (ft)	255	198	35	4	18	491	125
Average Queue (ft)	126	18	1	0	1	289	116
95th Queue (ft)	232	115	25	3	10	565	149
Link Distance (ft)		1037	1037	1413		680	
Upstream Blk Time (%)						0	
Queuing Penalty (veh)						0	
Storage Bay Dist (ft)	200				200		50
Storage Blk Time (%)	6	0				29	87
Queuing Penalty (veh)	56	0				52	7

Intersection: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	T	R	L	LT	R
Maximum Queue (ft)	133	376	385	243	388	564	1071	1064	380	117	147	133
Average Queue (ft)	52	224	237	22	247	333	669	693	217	52	64	53
95th Queue (ft)	106	347	354	109	428	606	1187	1218	519	98	120	103
Link Distance (ft)		1413	1413				1402	1402		1679	1679	
Upstream Blk Time (%)							0	0				
Queuing Penalty (veh)							6	8				
Storage Bay Dist (ft)	200			200	465	465			200			300
Storage Blk Time (%)	0	12	14		1	5	18	33				
Queuing Penalty (veh)	0	9	10		23	86	64	112				

Intersection: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway

Movement	SB	SB	B15
Directions Served	L	TR	T
Maximum Queue (ft)	225	424	896
Average Queue (ft)	222	398	862
95th Queue (ft)	230	409	941
Link Distance (ft)		324	851
Upstream Blk Time (%)		87	92
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)	200		
Storage Blk Time (%)	89	3	
Queuing Penalty (veh)	149	9	

Intersection: 5: Lochaven Dr/Lockaven Dr & Glenn McConnell Pkway

Movement	SE	SE	SE	NW	NW	NW	NE	NE	B13	SW
Directions Served	T	T	R	L	T	T	LT	R	T	LT
Maximum Queue (ft)	282	286	2	57	122	135	419	75	148	47
Average Queue (ft)	9	10	0	14	20	23	225	21	33	16
95th Queue (ft)	199	201	1	44	158	172	530	69	173	52
Link Distance (ft)	1402	1402			1710	1710	443		653	278
Upstream Blk Time (%)	0	0					20			
Queuing Penalty (veh)	0	0					0			
Storage Bay Dist (ft)			200	250				50		
Storage Blk Time (%)					1	1	78	4		24
Queuing Penalty (veh)					0	0	25	1		0

Intersection: 6: Waterstone Ln/Bairds Cove & Glenn McConnell Pkway

Movement	SE	SE	SE	SE	NW	NW	NW	NW	NE	NE	SW	SW
Directions Served	L	T	T	R	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	57	383	421	98	88	384	384	98	67	57	135	66
Average Queue (ft)	14	167	185	7	32	176	195	10	14	21	48	23
95th Queue (ft)	40	338	359	78	69	348	376	64	45	48	100	60
Link Distance (ft)		1710	1710			1431	1431			197		710
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500			200	500			200	150		200	
Storage Blk Time (%)			6				5					
Queuing Penalty (veh)			1				6					

Intersection: 7: Apartment Access & Glenn McConnell Pkway

Movement	EB	WB	NB	NB
Directions Served	R	L	L	R
Maximum Queue (ft)	4	58	36	46
Average Queue (ft)	0	21	11	14
95th Queue (ft)	4	52	39	35
Link Distance (ft)			127	127
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200	250		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Essex Farms Dr & Glenn McConnell Pkway

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	B26
Directions Served	T	T	R	L	T	T	T	L	R	T
Maximum Queue (ft)	27	50	64	306	244	225	218	339	80	1001
Average Queue (ft)	5	11	17	156	99	133	139	334	3	962
95th Queue (ft)	20	33	45	279	215	195	198	365	40	1148
Link Distance (ft)	1132	1132			644	644	644	261		989
Upstream Blk Time (%)								100		91
Queuing Penalty (veh)								0		0
Storage Bay Dist (ft)			250	200					150	
Storage Blk Time (%)				8	0			100		
Queuing Penalty (veh)				116	0			240		

Intersection: 9: Charlie Hall Blvd & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	SB
Directions Served	L	T	T	T	L	T	T	T	R
Maximum Queue (ft)	105	88	68	46	39	183	11	148	1277
Average Queue (ft)	40	5	2	2	10	6	0	5	968
95th Queue (ft)	84	47	35	33	33	129	5	105	1569
Link Distance (ft)		746	746	746		923	923	923	1235
Upstream Blk Time (%)						0			45
Queuing Penalty (veh)						0			0
Storage Bay Dist (ft)	200				250				
Storage Blk Time (%)		0		0					
Queuing Penalty (veh)		0		0					

Intersection: 21: Magwood Dr & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	L	T	T	T	R	L	L	T	T	T	R	L
Maximum Queue (ft)	618	715	723	733	196	136	700	2173	2183	2199	725	370
Average Queue (ft)	459	421	374	317	38	68	443	2092	2159	2165	700	292
95th Queue (ft)	777	857	735	537	163	124	947	2288	2174	2183	915	425
Link Distance (ft)		923	923	923				2145	2145	2145		339
Upstream Blk Time (%)		2	1	1				12	20	59		35
Queuing Penalty (veh)		16	5	4				0	0	0		0
Storage Bay Dist (ft)	450				200	400	400				700	
Storage Blk Time (%)	45	0		21				58		39	1	
Queuing Penalty (veh)	282	0		25				156		546	10	

Intersection: 21: Magwood Dr & Glenn McConnell Pkway

Movement	NB	NB	SB	SB	SB
Directions Served	T	R	L	L	TR
Maximum Queue (ft)	371	354	1233	1249	1225
Average Queue (ft)	327	201	1121	1161	1164
95th Queue (ft)	438	376	1418	1437	1419
Link Distance (ft)	339	339	1202	1202	1202
Upstream Blk Time (%)	57	5	40	67	70
Queuing Penalty (veh)	0	0	0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 27: Bend

Movement	NE
Directions Served	T
Maximum Queue (ft)	642
Average Queue (ft)	32
95th Queue (ft)	402
Link Distance (ft)	1725
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 3382

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (veh/h)	1045	290	499	1640	1364	539
Future Volume (veh/h)	1045	290	499	1640	1364	539
Number	7	14	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	1136	0	542	0	1483	586
Adj No. of Lanes	3	1	2	1	2	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1279	405	803	359	1316	3337
Arrive On Green	0.26	0.00	0.23	0.00	0.38	0.66
Sat Flow, veh/h	5003	1583	3632	1583	3442	5253
Grp Volume(v), veh/h	1136	0	542	0	1483	586
Grp Sat Flow(s),veh/h/ln	1668	1583	1770	1583	1721	1695
Q Serve(g_s), s	37.2	0.0	23.8	0.0	65.0	7.6
Cycle Q Clear(g_c), s	37.2	0.0	23.8	0.0	65.0	7.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1279	405	803	359	1316	3337
V/C Ratio(X)	0.89	0.00	0.68	0.00	1.13	0.18
Avail Cap(c_a), veh/h	1560	494	803	359	1316	3337
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	60.9	0.0	60.0	0.0	52.5	11.4
Incr Delay (d2), s/veh	5.8	0.0	4.5	0.0	67.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.8	0.0	12.2	0.0	43.2	3.6
LnGrp Delay(d),s/veh	66.7	0.0	64.5	0.0	119.9	11.5
LnGrp LOS	E		E		F	B
Approach Vol, veh/h	1136		542			2069
Approach Delay, s/veh	66.7		64.5			89.2
Approach LOS	E		E			F

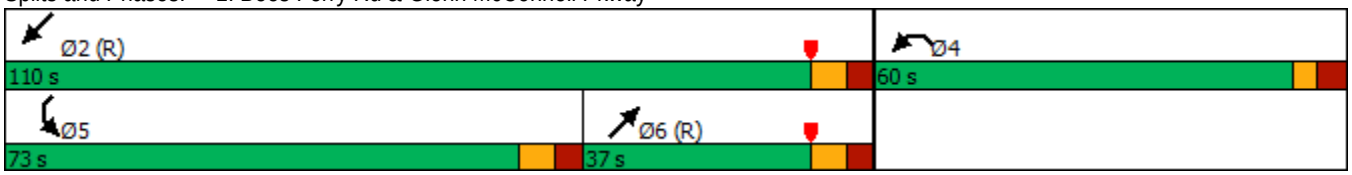
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		119.6		50.4	73.0	46.6		
Change Period (Y+Rc), s		8.0		7.0	8.0	8.0		
Max Green Setting (Gmax), s		102.0		53.0	65.0	29.0		
Max Q Clear Time (g_c+I1), s		9.6		39.2	67.0	25.8		
Green Ext Time (p_c), s		18.2		4.3	0.0	2.0		

Intersection Summary	
HCM 2010 Ctrl Delay	78.8
HCM 2010 LOS	E

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	1045	290	499	1640	1364	539
Future Volume (vph)	1045	290	499	1640	1364	539
Turn Type	Prot	Free	NA	Free	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		Free		Free		2
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	4.0		4.0		4.0	4.0
Minimum Split (s)	20.0		20.0		20.0	20.0
Total Split (s)	60.0		37.0		73.0	110.0
Total Split (%)	35.3%		21.8%		42.9%	64.7%
Yellow Time (s)	3.0		4.5		4.5	4.5
All-Red Time (s)	4.0		3.5		3.5	3.5
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	7.0		8.0		8.0	8.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None		C-Max		None	C-Max
Act Effct Green (s)	45.7	170.0	36.3	170.0	65.0	109.3
Actuated g/C Ratio	0.27	1.00	0.21	1.00	0.38	0.64
v/c Ratio	0.85	0.20	0.72	1.13	1.13	0.18
Control Delay	65.3	0.3	68.6	71.9	115.8	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.3	0.3	68.6	71.9	115.8	12.8
LOS	E	A	E	E	F	B
Approach Delay	51.2		71.1			86.7
Approach LOS	D		E			F

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 164 (96%), Referenced to phase 2:SWT and 6:NET, Start of Yellow	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 71.7	Intersection LOS: E
Intersection Capacity Utilization 91.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 1: Bees Ferry Rd & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	113.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	2982	22	0	1335	46	0	0	317	0	0	0
Future Vol, veh/h	0	2982	22	0	1335	46	0	0	317	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	250	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3241	24	0	1451	50	0	0	345	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	1633	-	-	726
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	-	0	0	0	~ 77	0	0	315
Stage 1	0	-	-	0	-	0	0	0	-	0	0	-
Stage 2	0	-	-	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	~ 77	-	-	315
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	0	0	$ 1673.5	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBT	SWLn1
Capacity (veh/h)	77	-	-	-	-
HCM Lane V/C Ratio	4.475	-	-	-	-
HCM Control Delay (s)	$ 1673.5	-	-	-	0
HCM Lane LOS	F	-	-	-	A
HCM 95th %tile Q(veh)	36.9	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	9.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	72	3172	55	34	1292	27	0	0	72	0	0	88
Future Vol, veh/h	72	3172	55	34	1292	27	0	0	72	0	0	88
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Stop	-	-	Stop
Storage Length	580	-	250	370	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	3448	60	37	1404	29	0	0	78	0	0	96

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1404	0	0	3448	0	0	-	-	1724	-	-	702
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.34	-	-	5.34	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	249	-	-	~ 22	-	-	0	0	~ 67	0	0	326
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	249	-	-	~ 22	-	-	-	-	~ 67	-	-	326
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	17.7	268.8	20.6
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	67	249	-	-	~ 22	-	-	326
HCM Lane V/C Ratio	1.168	0.314	-	-	1.68	-	-	0.293
HCM Control Delay (s)	268.8	25.9	-	-	$ 705.1	-	-	20.6
HCM Lane LOS	F	D	-	-	F	-	-	C
HCM 95th %tile Q(veh)	6.2	1.3	-	-	4.8	-	-	1.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	3163	40	111	1183	200	108	17	150	240	18	63
Future Volume (veh/h)	40	3163	40	111	1183	200	108	17	150	240	18	63
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	43	3438	43	121	1286	217	117	18	163	261	20	68
Adj No. of Lanes	1	3	1	2	3	1	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	289	3711	1221	147	3852	1348	144	95	148	245	193	187
Arrive On Green	0.01	0.73	0.73	0.04	0.76	0.76	0.04	0.05	0.05	0.09	0.10	0.10
Sat Flow, veh/h	1774	5085	1583	3442	5085	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	43	3438	43	121	1286	217	117	18	163	261	20	68
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1695	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	1.6	143.9	1.6	8.9	20.9	6.0	8.6	2.4	13.0	24.0	2.5	10.1
Cycle Q Clear(g_c), s	1.6	143.9	1.6	8.9	20.9	6.0	8.6	2.4	13.0	24.0	2.5	10.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	289	3711	1221	147	3852	1348	144	95	148	245	193	187
V/C Ratio(X)	0.15	0.93	0.04	0.82	0.33	0.16	0.81	0.19	1.10	1.06	0.10	0.36
Avail Cap(c_a), veh/h	339	3711	1221	148	3852	1348	162	95	148	245	193	187
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.0	28.8	6.8	121.1	10.0	3.3	121.2	116.0	115.6	108.0	103.6	103.6
Incr Delay (d2), s/veh	0.2	5.3	0.1	29.5	0.2	0.3	24.1	1.0	102.7	75.6	0.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	68.7	0.7	4.9	9.8	2.7	4.6	1.2	14.7	5.1	1.3	4.5
LnGrp Delay(d),s/veh	9.2	34.0	6.9	150.6	10.3	3.5	145.4	116.9	218.3	183.6	103.8	104.7
LnGrp LOS	A	C	A	F	B	A	F	F	F	F	F	F
Approach Vol, veh/h		3524			1624			298			349	
Approach Delay, s/veh		33.4			19.8			183.5			163.7	
Approach LOS		C			B			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.9	195.5	19.6	33.9	12.8	202.5	33.0	20.5
Change Period (Y+Rc), s	9.0	9.0	9.0	7.5	9.0	9.0	9.0	* 7.5
Max Green Setting (Gmax), s	11.0	173.0	12.0	24.5	11.0	173.0	24.0	* 13
Max Q Clear Time (g_c+I1), s	10.9	145.9	10.6	12.1	3.6	22.9	26.0	15.0
Green Ext Time (p_c), s	0.0	27.1	0.0	0.2	0.0	65.7	0.0	0.0

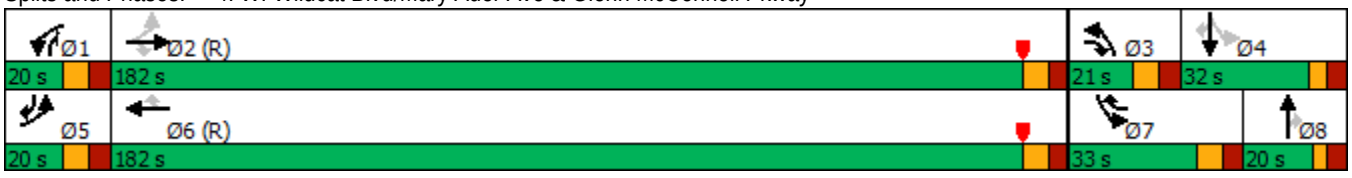
Intersection Summary	
HCM 2010 Ctrl Delay	45.2
HCM 2010 LOS	D

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	3163	40	111	1183	200	108	17	150	240	18	63
Future Volume (vph)	40	3163	40	111	1183	200	108	17	150	240	18	63
Turn Type	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2			6			8	4		4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	13.0	20.0	13.0	13.0	20.0	13.0	13.0	20.0	13.0	13.0	20.0	13.0
Total Split (s)	20.0	182.0	21.0	20.0	182.0	33.0	21.0	20.0	20.0	33.0	32.0	20.0
Total Split (%)	7.8%	71.4%	8.2%	7.8%	71.4%	12.9%	8.2%	7.8%	7.8%	12.9%	12.5%	7.8%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.5	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	7.0	9.0	9.0	7.5	9.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	187.4	180.5	203.9	11.0	184.7	217.7	14.4	8.0	23.5	36.5	17.2	28.9
Actuated g/C Ratio	0.73	0.71	0.80	0.04	0.72	0.85	0.06	0.03	0.09	0.14	0.07	0.11
v/c Ratio	0.15	0.95	0.03	0.82	0.35	0.16	0.61	0.31	0.68	1.34	0.16	0.28
Control Delay	8.1	41.7	0.1	128.4	25.0	5.6	131.3	133.8	54.8	253.9	112.2	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	41.7	0.1	128.4	25.0	5.6	131.3	133.8	54.8	253.9	112.2	18.7
LOS	A	D	A	F	C	A	F	F	D	F	F	B
Approach Delay		40.8			30.1			89.6			199.9	
Approach LOS		D			C			F			F	

Intersection Summary	
Cycle Length: 255	
Actuated Cycle Length: 255	
Offset: 84 (33%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.34	
Intersection Signal Delay: 49.9	Intersection LOS: D
Intersection Capacity Utilization 104.9%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	4.9

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	3542	11	24	1476	0	18	0	67	0	0	0
Future Vol, veh/h	0	3542	11	24	1476	0	18	0	67	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	370	-	-	360	-	-	-	-	100	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3850	12	26	1604	0	20	0	73	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1604	0	0	3862	0	0	4550	5512	1931	3196	5518	802
Stage 1	-	-	-	-	-	-	3856	3856	-	1656	1656	-
Stage 2	-	-	-	-	-	-	694	1656	-	1540	3862	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pot Cap-1 Maneuver	198	-	-	~ 13	-	-	~ 1	0	~ 48	11	0	281
Stage 1	-	-	-	-	-	-	~ 2	10	-	68	154	-
Stage 2	-	-	-	-	-	-	363	154	-	107	10	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	198	-	-	~ 13	-	-	-	0	~ 48	-	0	281
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	~ -21	0	-
Stage 1	-	-	-	-	-	-	~ 2	10	-	68	0	-
Stage 2	-	-	-	-	-	-	-	0	-	-	10	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	16.9		0
HCM LOS			-	A

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	-	48	~ 13	-	-	198	-	-	-	-
HCM Lane V/C Ratio	-	1.517	2.007	-	-	-	-	-	-	-
HCM Control Delay (s)	-$	450.8	$ 1057.4	-	-	0	-	-	0	0
HCM Lane LOS	-	F	F	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	-	7	4.1	-	-	0	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	7	3592	10	14	1463	28	13	0	104	86	0	24
Future Volume (veh/h)	7	3592	10	14	1463	28	13	0	104	86	0	24
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	3904	11	15	1590	30	14	0	113	93	0	26
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	245	3991	11	48	3894	1212	187	0	205	108	0	205
Arrive On Green	0.01	0.76	0.76	0.01	0.77	0.77	0.13	0.00	0.13	0.13	0.00	0.13
Sat Flow, veh/h	1774	5236	15	1774	5085	1583	1379	0	1583	1275	0	1583
Grp Volume(v), veh/h	8	2527	1388	15	1590	30	14	0	113	93	0	26
Grp Sat Flow(s),veh/h/ln	1774	1695	1860	1774	1695	1583	1379	0	1583	1275	0	1583
Q Serve(g_s), s	0.3	177.4	178.4	0.5	27.2	1.2	2.3	0.0	17.1	15.9	0.0	3.7
Cycle Q Clear(g_c), s	0.3	177.4	178.4	0.5	27.2	1.2	6.0	0.0	17.1	33.0	0.0	3.7
Prop In Lane	1.00		0.01	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	245	2584	1418	48	3894	1212	187	0	205	108	0	205
V/C Ratio(X)	0.03	0.98	0.98	0.31	0.41	0.02	0.08	0.00	0.55	0.86	0.00	0.13
Avail Cap(c_a), veh/h	275	2584	1418	72	3894	1212	187	0	205	108	0	205
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.2	28.3	28.4	79.7	10.2	7.1	100.9	0.0	104.1	120.7	0.0	98.2
Incr Delay (d2), s/veh	0.1	13.2	19.4	3.6	0.3	0.0	0.2	0.0	3.2	46.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	87.2	98.7	0.9	12.8	0.5	0.9	0.0	7.7	8.0	0.0	1.6
LnGrp Delay(d),s/veh	8.3	41.5	47.8	83.3	10.5	7.2	101.1	0.0	107.2	167.3	0.0	98.5
LnGrp LOS	A	D	D	F	B	A	F		F	F		F
Approach Vol, veh/h		3923			1635			127			119	
Approach Delay, s/veh		43.7			11.1			106.5			152.3	
Approach LOS		D			B			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.6	203.4		40.0	10.7	204.3		40.0
Change Period (Y+Rc), s	9.0	9.0		7.0	9.0	9.0		7.0
Max Green Setting (Gmax), s	6.0	191.0		33.0	6.0	191.0		33.0
Max Q Clear Time (g_c+I1), s	2.5	180.4		35.0	2.3	29.2		19.1
Green Ext Time (p_c), s	0.0	10.6		0.0	0.0	98.1		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	38.1
HCM 2010 LOS	D

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	7	3592	14	1463	28	13	0	86	0
Future Volume (vph)	7	3592	14	1463	28	13	0	86	0
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2	1	6			8		4
Permitted Phases	2		6		6	8		4	
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	13.0	20.0	13.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	15.0	200.0	15.0	200.0	200.0	40.0	40.0	40.0	40.0
Total Split (%)	5.9%	78.4%	5.9%	78.4%	78.4%	15.7%	15.7%	15.7%	15.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.0	9.0	9.0	9.0	9.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?									
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	205.4	201.9	207.3	204.9	204.9	28.2	28.2	28.2	28.2
Actuated g/C Ratio	0.81	0.79	0.81	0.80	0.80	0.11	0.11	0.11	0.11
v/c Ratio	0.03	0.97	0.22	0.39	0.02	0.09	0.49	0.94	0.10
Control Delay	1.9	21.0	27.0	6.0	0.0	100.5	52.1	183.8	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.9	21.0	27.0	6.0	0.0	100.5	52.1	183.8	0.8
LOS	A	C	C	A	A	F	D	F	A
Approach Delay		21.0		6.1			57.5		143.9
Approach LOS		C		A			E		F

Intersection Summary

Cycle Length: 255
Actuated Cycle Length: 255
Offset: 153 (60%), Referenced to phase 2:SETL and 6:NWTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 20.1 Intersection LOS: C
Intersection Capacity Utilization 94.4% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 6: Waterstone Ln/Bairds Cove & Glenn McConnell Pkway

Intersection	
Int Delay, s/veh	4.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	3775	8	17	1499	6	64
Future Vol, veh/h	3775	8	17	1499	6	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	300	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4103	9	18	1629	7	70

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	4112	0	4796	2056
Stage 1	-	-	-	-	4108	-
Stage 2	-	-	-	-	688	-
Critical Hdwy	-	-	5.34	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	-	-	3.12	-	3.82	3.92
Pot Cap-1 Maneuver	-	-	~ 9	-	~ 2	~ 39
Stage 1	-	-	-	-	~ 2	-
Stage 2	-	-	-	-	419	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	~ 9	-	0	~ 39
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	~ 2	-
Stage 2	-	-	-	-	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	14.5	
HCM LOS			-

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	39	-	-	~ 9	-
HCM Lane V/C Ratio	-	1.784	-	-	2.053	-
HCM Control Delay (s)	-	$ 598	-	-	$ 1294.4	-
HCM Lane LOS	-	F	-	-	F	-
HCM 95th %tile Q(veh)	-	7.4	-	-	3.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	3733	106	184	1383	134	530
Future Volume (veh/h)	3733	106	184	1383	134	530
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	4058	115	200	1503	347	361
Adj No. of Lanes	3	1	1	3	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	3310	1292	174	3909	292	391
Arrive On Green	0.65	0.65	0.08	0.77	0.16	0.16
Sat Flow, veh/h	5253	1583	1774	5253	1774	1583
Grp Volume(v), veh/h	4058	115	200	1503	347	361
Grp Sat Flow(s),veh/h/ln	1695	1583	1774	1695	1774	1583
Q Serve(g_s), s	166.0	3.7	21.0	24.8	42.0	42.0
Cycle Q Clear(g_c), s	166.0	3.7	21.0	24.8	42.0	42.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3310	1292	174	3909	292	391
V/C Ratio(X)	1.23	0.09	1.15	0.38	1.19	0.92
Avail Cap(c_a), veh/h	3310	1292	174	3909	292	391
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.5	4.7	104.6	9.7	106.5	93.6
Incr Delay (d2), s/veh	104.5	0.1	113.3	0.3	113.4	27.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	109.6	3.1	17.8	11.7	29.8	27.8
LnGrp Delay(d),s/veh	149.0	4.8	217.9	10.0	219.9	120.8
LnGrp LOS	F	A	F	A	F	F
Approach Vol, veh/h	4173			1703	708	
Approach Delay, s/veh	145.0			34.4	169.4	
Approach LOS	F			C	F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	30.0	175.0				205.0		50.0
Change Period (Y+Rc), s	9.0	9.0				9.0		8.0
Max Green Setting (Gmax), s	21.0	166.0				196.0		42.0
Max Q Clear Time (g_c+I1), s	23.0	168.0				26.8		44.0
Green Ext Time (p_c), s	0.0	0.0				15.7		0.0

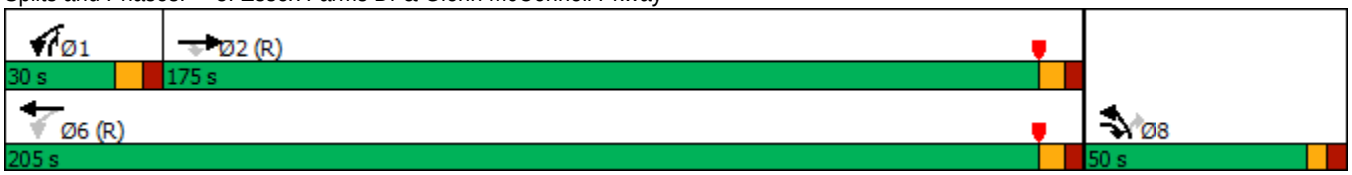
Intersection Summary	
HCM 2010 Ctrl Delay	119.0
HCM 2010 LOS	F

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	3733	106	184	1383	134	530
Future Volume (vph)	3733	106	184	1383	134	530
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	25.0	24.0	13.0	25.0	24.0	13.0
Total Split (s)	175.0	50.0	30.0	205.0	50.0	30.0
Total Split (%)	68.6%	19.6%	11.8%	80.4%	19.6%	11.8%
Yellow Time (s)	5.0	4.0	5.0	5.0	4.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.0	8.0	9.0	9.0	8.0	9.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?						
Recall Mode	C-Max	None	None	C-Max	None	None
Act Effct Green (s)	166.0	217.0	196.0	196.0	42.0	71.0
Actuated g/C Ratio	0.65	0.85	0.77	0.77	0.16	0.28
v/c Ratio	1.23	0.08	1.14	0.38	1.26	0.84
Control Delay	130.4	1.1	213.9	1.9	211.2	104.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	130.4	1.1	213.9	1.9	211.2	104.8
LOS	F	A	F	A	F	F
Approach Delay	126.8			26.8	159.4	
Approach LOS	F			C	F	

Intersection Summary	
Cycle Length: 255	
Actuated Cycle Length: 255	
Offset: 186 (73%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.26	
Intersection Signal Delay: 104.6	Intersection LOS: F
Intersection Capacity Utilization 122.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 8: Essex Farms Dr & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	9.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	240	3880	142	3	1419	188	0	0	11	0	0	147
Future Vol, veh/h	240	3880	142	3	1419	188	0	0	11	0	0	147
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Stop	-	-	Stop
Storage Length	200	-	200	250	-	250	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	261	4217	154	3	1542	204	0	0	12	0	0	160

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1542	0	-	4217	0	0	-	-	2109	-	-	771
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.34	-	-	5.34	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	~ 212	-	0	8	-	0	0	0	36	0	0	294
Stage 1	-	-	0	-	-	0	0	0	-	0	0	-
Stage 2	-	-	0	-	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	~ 212	-	-	8	-	-	-	-	36	-	-	294
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	1.3	148.4	30.9
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	SBLn1
Capacity (veh/h)	36	~ 212	-	8	-	294
HCM Lane V/C Ratio	0.332	1.231	-	0.408	-	0.543
HCM Control Delay (s)	148.4	183.8	-$	638.4	-	30.9
HCM Lane LOS	F	F	-	F	-	D
HCM 95th %tile Q(veh)	1.1	13.4	-	0.8	-	3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	3615	180	476	1447	618	121	126	163	923	198	42
Future Volume (veh/h)	98	3615	180	476	1447	618	121	126	163	923	198	42
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	107	3929	196	517	1573	0	132	137	177	1003	215	46
Adj No. of Lanes	1	3	1	2	3	1	1	1	1	2	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	2363	813	466	2762	860	87	91	292	776	336	72
Arrive On Green	0.06	0.46	0.46	0.14	0.54	0.00	0.05	0.05	0.05	0.23	0.23	0.23
Sat Flow, veh/h	1774	5085	1583	3442	5085	1583	1774	1863	1583	3442	1488	318
Grp Volume(v), veh/h	107	3929	196	517	1573	0	132	137	177	1003	0	261
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1695	1583	1774	1863	1583	1721	0	1807
Q Serve(g_s), s	14.5	118.5	17.5	34.5	52.2	0.0	12.5	12.5	12.5	57.5	0.0	33.4
Cycle Q Clear(g_c), s	14.5	118.5	17.5	34.5	52.2	0.0	12.5	12.5	12.5	57.5	0.0	33.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.18
Lane Grp Cap(c), veh/h	101	2363	813	466	2762	860	87	91	292	776	0	407
V/C Ratio(X)	1.06	1.66	0.24	1.11	0.57	0.00	1.52	1.50	0.61	1.29	0.00	0.64
Avail Cap(c_a), veh/h	101	2363	813	466	2762	860	87	91	292	776	0	407
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	120.2	68.3	34.4	110.2	38.5	0.0	121.3	121.2	95.5	98.8	0.0	89.4
Incr Delay (d2), s/veh	106.9	300.1	0.7	75.3	0.9	0.0	283.0	273.8	3.6	141.2	0.0	3.4
Initial Q Delay(d3),s/veh	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	121.2	7.8	21.3	24.7	0.0	13.0	13.4	11.8	42.6	0.0	17.1
LnGrp Delay(d),s/veh	227.8	368.3	35.1	185.5	39.4	0.0	404.3	395.0	99.1	239.9	0.0	92.8
LnGrp LOS	F	F	D	F	D		F	F	F	F		F
Approach Vol, veh/h		4232			2090			446			1264	
Approach Delay, s/veh		349.3			75.5			280.3			209.5	
Approach LOS		F			E			F			F	

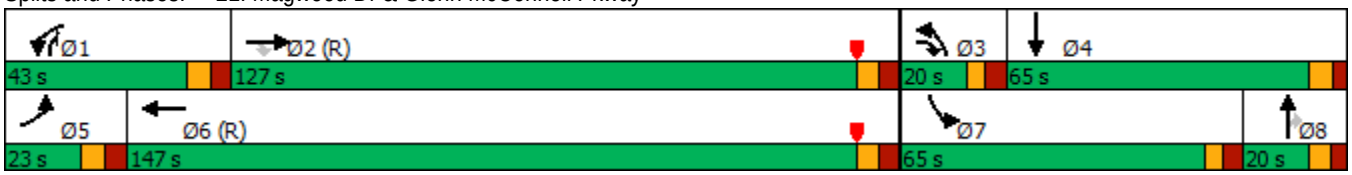
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	43.0	127.0	20.0	65.0	23.0	147.0	65.0	20.0
Change Period (Y+Rc), s	8.5	8.5	7.5	7.5	8.5	8.5	7.5	7.5
Max Green Setting (Gmax), s	34.5	118.5	12.5	57.5	14.5	138.5	57.5	12.5
Max Q Clear Time (g_c+I1), s	36.5	120.5	14.5	35.4	16.5	54.2	59.5	14.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.0	67.3	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	252.3
HCM 2010 LOS	F

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	98	3615	180	476	1447	618	121	126	163	923	198
Future Volume (vph)	98	3615	180	476	1447	618	121	126	163	923	198
Turn Type	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			Free			8		
Detector Phase	5	2	3	1	6		3	8	1	7	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.5	24.5	11.5	12.5	24.5		11.5	20.0	12.5	11.5	22.5
Total Split (s)	23.0	127.0	20.0	43.0	147.0		20.0	20.0	43.0	65.0	65.0
Total Split (%)	9.0%	49.8%	7.8%	16.9%	57.6%		7.8%	7.8%	16.9%	25.5%	25.5%
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5		3.5	4.0	4.5	3.5	4.5
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	3.5	4.0	4.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	8.5	7.5	8.5	8.5		7.5	7.5	8.5	7.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None
Act Effct Green (s)	14.5	118.5	139.5	34.5	138.5	255.0	12.5	12.5	54.5	57.5	57.5
Actuated g/C Ratio	0.06	0.46	0.55	0.14	0.54	1.00	0.05	0.05	0.21	0.23	0.23
v/c Ratio	1.07	1.66	0.21	1.11	0.57	0.42	1.53	1.51	0.43	1.30	0.63
Control Delay	136.9	339.5	16.4	169.7	39.6	0.8	354.9	342.2	46.2	212.0	95.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	136.9	339.5	16.4	169.7	39.6	0.8	354.9	342.2	46.2	212.0	95.7
LOS	F	F	B	F	D	A	F	F	D	F	F
Approach Delay		319.4			54.5			228.5			188.0
Approach LOS		F			D			F			F

Intersection Summary	
Cycle Length: 255	
Actuated Cycle Length: 255	
Offset: 128 (50%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.66	
Intersection Signal Delay: 211.6	Intersection LOS: F
Intersection Capacity Utilization 143.1%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 21: Magwood Dr & Glenn McConnell Pkway



Arterial Level of Service: EB Glenn McConnell Pkway

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
W. Wildcat Blvd	I	48	67.9	41.7	109.6	0.90	29.5	C
Waterstone Ln	I	55	40.9	21.0	61.9	0.62	36.3	B
Essex Farms Dr	I	55	37.3	130.4	167.7	0.51	11.0	F
Magwood Dr	I	45	43.1	339.5	382.6	0.47	4.5	F
Total	I		189.2	532.6	721.8	2.51	12.5	F

Arterial Level of Service: WB Glenn McConnell Pkway

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Magwood Dr	I	45	39.2	39.6	78.8	0.42	19.0	E
Essex Farms Dr	I	45	43.1	1.9	45.0	0.47	37.9	B
Bairds Cove	I	55	37.3	6.0	43.3	0.51	42.5	A
Mary Ader Ave	I	55	40.9	25.0	65.9	0.62	34.1	B
Bees Ferry Rd	I	48	67.9	65.3	133.2	0.90	24.3	D
Total	I		228.4	137.8	366.2	2.93	28.8	C

Arterial Level of Service: EB Glenn McConnell Pkway

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
West Ashley Circle	2	8.6	28.6	0.2	23
	30	2.4	21.0	0.2	39
William E. Murray Bl	3	4.4	21.0	0.2	36
W. Wildcat Blvd	4	49.6	67.8	0.3	15
Lochaven Dr	5	57.7	75.9	0.3	13
Waterstone Ln	6	114.1	135.5	0.3	9
Apartment Access	7	119.6	138.1	0.3	7
Essex Farms Dr	8	129.5	144.1	0.2	6
	34	39.8	50.6	0.1	9
Charlie Hall Blvd	9	85.7	97.8	0.2	6
Magwood Dr	21	117.5	131.7	0.2	5
Total		728.9	912.0	2.5	10

Arterial Level of Service: WB Glenn McConnell Pkway

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Magwood Dr	21	68.5	191.5	0.4	15
Charlie Hall Blvd	9	5.7	21.5	0.2	32
	34	1.2	13.3	0.2	41
Essex Farms Dr	8	3.8	14.3	0.1	33
Apartment Access	7	1.7	17.4	0.2	47
Bairds Cove	6	5.3	23.7	0.3	43
Lockaven Dr	5	2.9	25.5	0.3	48
Mary Ader Ave	4	16.5	35.0	0.3	29
Goodwill Way	3	8.6	27.3	0.3	37
	30	1.7	18.3	0.2	41
West Ashley Circle	2	2.0	20.1	0.2	41
Bees Ferry Rd	1	67.2	84.9	0.2	8
Total		185.1	492.9	2.9	26

Intersection: 1: Bees Ferry Rd & Glenn McConnell Pkway

Movement	NW	NW	NW	NE	NE	NE	B24	B24	SW	SW	SW	SW
Directions Served	L	L	L	T	T	R	T	T	L	L	T	T
Maximum Queue (ft)	486	531	497	311	749	1636	1380	1394	390	480	1832	1729
Average Queue (ft)	296	330	280	171	202	1591	1352	1361	386	478	1802	734
95th Queue (ft)	467	510	459	269	416	1712	1441	1439	403	481	1819	1986
Link Distance (ft)		839	839	1524	1524	1524	1342	1342			1725	1725
Upstream Blk Time (%)						47	22	81			58	0
Queuing Penalty (veh)						0	0	0			0	0
Storage Bay Dist (ft)	550								300	300		
Storage Blk Time (%)		0							43	50		
Queuing Penalty (veh)		1							83	98		

Intersection: 1: Bees Ferry Rd & Glenn McConnell Pkway

Movement	SW	B27	B27
Directions Served	T	T	T
Maximum Queue (ft)	1612	1525	1522
Average Queue (ft)	176	1489	1481
95th Queue (ft)	882	1569	1594
Link Distance (ft)	1725	1475	1475
Upstream Blk Time (%)	0	84	32
Queuing Penalty (veh)	0	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: West Ashley Circle & Glenn McConnell Pkway

Movement	EB	EB	NE
Directions Served	T	T	R
Maximum Queue (ft)	160	170	286
Average Queue (ft)	5	6	120
95th Queue (ft)	113	120	251
Link Distance (ft)	839	839	342
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: William E. Murray Blvd/Goodwill Way & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	T	T	R	L	T	R	R
Maximum Queue (ft)	90	499	548	533	86	171	85	120	52
Average Queue (ft)	28	19	21	20	3	67	8	18	3
95th Queue (ft)	65	192	208	200	61	210	91	77	26
Link Distance (ft)		1044	1044	1044			1416	512	680
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	580				250	370			
Storage Blk Time (%)		1		2		2	0		
Queuing Penalty (veh)		0		1		8	0		

Intersection: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	L	T	T	T	R	L	L	T	T	T	R	L
Maximum Queue (ft)	684	1435	1446	1474	350	150	165	248	290	287	59	148
Average Queue (ft)	72	413	445	474	38	65	88	84	107	112	10	54
95th Queue (ft)	371	1066	1095	1120	210	128	147	222	261	274	35	122
Link Distance (ft)		1416	1416	1416				1402	1402	1402		
Upstream Blk Time (%)		2	3	3								
Queuing Penalty (veh)		19	30	37								
Storage Bay Dist (ft)	485				150	330	330				250	275
Storage Blk Time (%)		12		32						1		
Queuing Penalty (veh)		5		14						3		

Intersection: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway

Movement	NB	NB	NB	SB	SB	SB	B15
Directions Served	L	T	R	L	T	R	T
Maximum Queue (ft)	166	236	312	250	407	312	895
Average Queue (ft)	89	50	177	244	385	105	739
95th Queue (ft)	148	201	306	257	397	336	1064
Link Distance (ft)	1667	1667			312		851
Upstream Blk Time (%)					86	0	57
Queuing Penalty (veh)					0	0	0
Storage Bay Dist (ft)			275	150		230	
Storage Blk Time (%)		1	4	89			
Queuing Penalty (veh)		1	1	79			

Intersection: 5: Lochaven Dr/Lockaven Dr & Glenn McConnell Pkway

Movement	SE	SE	SE	SE	NW	NW	NE	NE	B13
Directions Served	L	T	T	TR	L	T	LT	R	T
Maximum Queue (ft)	106	1422	1426	1421	54	2	422	125	240
Average Queue (ft)	4	402	420	415	9	0	205	82	43
95th Queue (ft)	75	1376	1410	1403	33	1	517	156	230
Link Distance (ft)		1402	1402	1402		1709	441		653
Upstream Blk Time (%)		1	1	2			20		
Queuing Penalty (veh)		16	17	25			0		
Storage Bay Dist (ft)	370				360			100	
Storage Blk Time (%)		23					25	35	
Queuing Penalty (veh)		0					18	7	

Intersection: 6: Waterstone Ln/Bairds Cove & Glenn McConnell Pkway

Movement	SE	SE	SE	SE	NW	NW	NW	NW	NW	NE	NE	B10
Directions Served	L	T	T	TR	L	T	T	T	R	L	TR	T
Maximum Queue (ft)	294	1745	1747	1740	32	162	199	212	41	88	249	10
Average Queue (ft)	17	835	847	855	8	31	48	62	4	21	117	0
95th Queue (ft)	178	2103	2107	2118	26	103	140	169	21	68	215	7
Link Distance (ft)		1709	1709	1709		1431	1431	1431			198	688
Upstream Blk Time (%)		7	8	9						0	4	
Queuing Penalty (veh)		86	101	115						0	0	
Storage Bay Dist (ft)	500				300				100	150		
Storage Blk Time (%)		35						4			10	
Queuing Penalty (veh)		3						1			1	

Intersection: 6: Waterstone Ln/Bairds Cove & Glenn McConnell Pkway

Movement	SW	SW
Directions Served	L	TR
Maximum Queue (ft)	213	147
Average Queue (ft)	113	17
95th Queue (ft)	195	72
Link Distance (ft)		698
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	200	
Storage Blk Time (%)	1	0
Queuing Penalty (veh)	0	0

Intersection: 7: Apartment Access & Glenn McConnell Pkway

Movement	EB	EB	EB	WB	NB	NB	B17
Directions Served	T	T	TR	L	L	R	T
Maximum Queue (ft)	1467	1460	1473	76	69	201	549
Average Queue (ft)	913	927	932	17	16	149	211
95th Queue (ft)	1984	2002	2007	54	56	240	591
Link Distance (ft)	1431	1431	1431		128	128	548
Upstream Blk Time (%)	8	10	11			65	21
Queuing Penalty (veh)	116	140	154			0	0
Storage Bay Dist (ft)				300			
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 8: Essex Farms Dr & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	B26
Directions Served	T	T	T	R	L	T	T	T	LR	R	T
Maximum Queue (ft)	1161	1175	1159	450	402	306	108	122	349	200	1039
Average Queue (ft)	972	987	991	271	256	40	36	45	322	185	998
95th Queue (ft)	1468	1451	1446	631	406	170	96	113	337	237	1087
Link Distance (ft)	1133	1133	1133			633	633	633	249		989
Upstream Blk Time (%)	17	18	18						70		72
Queuing Penalty (veh)	241	255	250						0		0
Storage Bay Dist (ft)				250	300					150	
Storage Blk Time (%)			61		20	0			74	57	
Queuing Penalty (veh)			70		98	0			212	248	

Intersection: 9: Charlie Hall Blvd & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	EB	B34	B34	B34	WB	WB	SB
Directions Served	L	T	T	T	R	T	T	T	L	R	R
Maximum Queue (ft)	400	846	860	856	450	655	668	646	27	98	84
Average Queue (ft)	196	709	726	733	180	367	411	437	3	12	13
95th Queue (ft)	474	1124	1113	1115	543	785	821	838	15	57	58
Link Distance (ft)		746	746	746		633	633	633			1235
Upstream Blk Time (%)		38	41	45		1	1	1			
Queuing Penalty (veh)		584	629	693		10	15	21			
Storage Bay Dist (ft)	200				200				250	250	
Storage Blk Time (%)	0	43		49							
Queuing Penalty (veh)	0	111		76							

Intersection: 21: Magwood Dr & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	R	L	L	T	T	T	L	T
Maximum Queue (ft)	700	951	966	974	400	550	700	2194	2174	2160	361	375
Average Queue (ft)	210	901	910	924	146	531	684	1750	1691	1182	267	302
95th Queue (ft)	610	1036	1023	1032	442	579	758	2699	2757	2660	448	436
Link Distance (ft)		923	923	923				2145	2145	2145	339	339
Upstream Blk Time (%)		35	36	42				35	13	2	48	53
Queuing Penalty (veh)		498	512	598				0	0	0	0	0
Storage Bay Dist (ft)	450				200	400	400					
Storage Blk Time (%)		50		53		81	86	1				
Queuing Penalty (veh)		54		105		427	452	4				

Intersection: 21: Magwood Dr & Glenn McConnell Pkway

Movement	NB	SB	SB	SB
Directions Served	R	L	L	TR
Maximum Queue (ft)	222	1245	1242	1244
Average Queue (ft)	56	1192	1185	1047
95th Queue (ft)	181	1321	1339	1645
Link Distance (ft)	339	1202	1202	1202
Upstream Blk Time (%)	0	65	74	46
Queuing Penalty (veh)	0	0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 7342

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (veh/h)	2232	847	598	944	630	473
Future Volume (veh/h)	2232	847	598	944	630	473
Number	7	14	6	16	5	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	2426	0	650	0	685	514
Adj No. of Lanes	3	1	2	1	2	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2443	773	854	382	466	2154
Arrive On Green	0.49	0.00	0.24	0.00	0.14	0.42
Sat Flow, veh/h	5003	1583	3632	1583	3442	5253
Grp Volume(v), veh/h	2426	0	650	0	685	514
Grp Sat Flow(s),veh/h/ln	1668	1583	1770	1583	1721	1695
Q Serve(g_s), s	81.9	0.0	29.0	0.0	23.0	11.0
Cycle Q Clear(g_c), s	81.9	0.0	29.0	0.0	23.0	11.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	2443	773	854	382	466	2154
V/C Ratio(X)	0.99	0.00	0.76	0.00	1.47	0.24
Avail Cap(c_a), veh/h	2443	773	854	382	466	2154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	43.2	0.0	60.0	0.0	73.5	31.4
Incr Delay (d2), s/veh	16.6	0.0	6.4	0.0	223.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	41.3	0.0	14.9	0.0	25.4	5.2
LnGrp Delay(d),s/veh	59.8	0.0	66.3	0.0	297.0	31.7
LnGrp LOS	E		E		F	C
Approach Vol, veh/h	2426		650			1199
Approach Delay, s/veh	59.8		66.3			183.2
Approach LOS	E		E			F

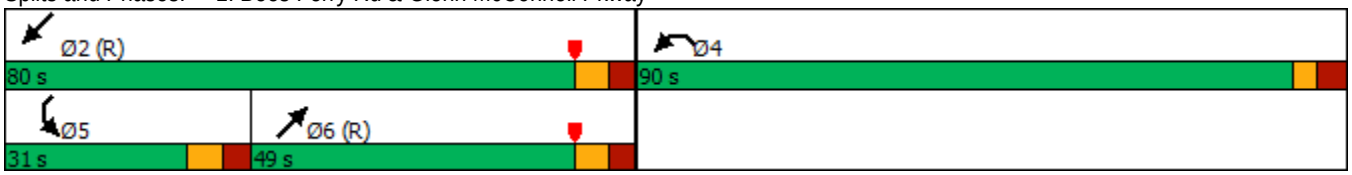
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		80.0		90.0	31.0	49.0		
Change Period (Y+Rc), s		8.0		7.0	8.0	8.0		
Max Green Setting (Gmax), s		72.0		83.0	23.0	41.0		
Max Q Clear Time (g_c+I1), s		13.0		83.9	25.0	31.0		
Green Ext Time (p_c), s		14.3		0.0	0.0	6.4		

Intersection Summary	
HCM 2010 Ctrl Delay	95.4
HCM 2010 LOS	F

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	2232	847	598	944	630	473
Future Volume (vph)	2232	847	598	944	630	473
Turn Type	Prot	Free	NA	Free	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		Free		Free		2
Detector Phase	4		6		5	2
Switch Phase						
Minimum Initial (s)	4.0		4.0		4.0	4.0
Minimum Split (s)	20.0		20.0		20.0	20.0
Total Split (s)	90.0		49.0		31.0	80.0
Total Split (%)	52.9%		28.8%		18.2%	47.1%
Yellow Time (s)	3.0		4.5		4.5	4.5
All-Red Time (s)	4.0		3.5		3.5	3.5
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	7.0		8.0		8.0	8.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None		C-Max		None	C-Max
Act Effct Green (s)	83.0	170.0	41.0	170.0	23.0	72.0
Actuated g/C Ratio	0.49	1.00	0.24	1.00	0.14	0.42
v/c Ratio	1.00	0.58	0.76	0.65	1.48	0.24
Control Delay	39.3	2.6	66.7	2.1	272.6	31.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.3	2.6	66.7	2.1	272.6	31.8
LOS	D	A	E	A	F	C
Approach Delay	29.2		27.1			169.4
Approach LOS	C		C			F

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 32 (19%), Referenced to phase 2:SWT and 6:NET, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.48	
Intersection Signal Delay: 55.6	Intersection LOS: E
Intersection Capacity Utilization 96.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 1: Bees Ferry Rd & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	1535	39	0	3075	271	0	0	245	0	0	4
Future Vol, veh/h	0	1535	39	0	3075	271	0	0	245	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	250	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1668	42	0	3342	295	0	0	266	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	855	-	-	1671
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	0	-	0	0	0	~ 259	0	0	73
Stage 1	0	-	-	0	-	0	0	0	-	0	0	-
Stage 2	0	-	-	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	~ 259	-	-	73
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NE	SW
HCM Control Delay, s	0	0	105.7	57.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NELn1	EBT	EBR	WBT	SWLn1
Capacity (veh/h)	259	-	-	-	73
HCM Lane V/C Ratio	1.028	-	-	-	0.06
HCM Control Delay (s)	105.7	-	-	-	57.4
HCM Lane LOS	F	-	-	-	F
HCM 95th %tile Q(veh)	10.5	-	-	-	0.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	89.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	123	1580	77	91	3182	85	0	0	38	0	0	164
Future Vol, veh/h	123	1580	77	91	3182	85	0	0	38	0	0	164
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Yield	-	-	Yield	-	-	Stop	-	-	Stop
Storage Length	580	-	250	370	-	200	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	134	1717	84	99	3459	92	0	0	41	0	0	178

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	3459	0	0	1717	0	0	-	-	859	-	-	1730
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.34	-	-	5.34	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	~ 22	-	-	174	-	-	0	0	257	0	0	~ 66
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	~ 22	-	-	174	-	-	-	-	257	-	-	~ 66
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	182.1	1.4	21.7	$ 903.5
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	257	~ 22	-	-	174	-	-	66
HCM Lane V/C Ratio	0.161	6.077	-	-	0.568	-	-	2.701
HCM Control Delay (s)	21.9	$ 2634.8	-	-	49.9	-	-	$ 903.5
HCM Lane LOS	C	F	-	-	E	-	-	F
HCM 95th %tile Q(veh)	0.6	16.9	-	-	3	-	-	17.8

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	1482	65	240	3164	310	86	36	106	317	44	110
Future Volume (veh/h)	71	1482	65	240	3164	310	86	36	106	317	44	110
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	77	1611	71	261	3439	337	93	39	115	345	48	120
Adj No. of Lanes	1	3	1	2	3	1	2	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	3246	1073	182	3361	1251	135	142	205	342	310	312
Arrive On Green	0.03	0.64	0.64	0.05	0.66	0.66	0.04	0.08	0.08	0.13	0.17	0.17
Sat Flow, veh/h	1774	5085	1583	3442	5085	1583	3442	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	77	1611	71	261	3439	337	93	39	115	345	48	120
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1695	1583	1721	1863	1583	1774	1863	1583
Q Serve(g_s), s	3.2	28.5	2.6	9.0	112.4	9.6	4.5	3.4	11.6	22.0	3.7	11.2
Cycle Q Clear(g_c), s	3.2	28.5	2.6	9.0	112.4	9.6	4.5	3.4	11.6	22.0	3.7	11.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	96	3246	1073	182	3361	1251	135	142	205	342	310	312
V/C Ratio(X)	0.80	0.50	0.07	1.43	1.02	0.27	0.69	0.27	0.56	1.01	0.15	0.39
Avail Cap(c_a), veh/h	136	3246	1073	182	3361	1251	445	142	205	342	310	312
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	16.3	9.3	80.5	28.8	4.7	80.6	74.0	69.5	66.5	60.6	59.3
Incr Delay (d2), s/veh	19.7	0.5	0.1	223.1	21.7	0.5	6.1	1.0	3.4	51.2	0.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	13.4	1.2	9.9	59.1	4.4	2.3	1.8	5.3	4.9	2.0	5.0
LnGrp Delay(d),s/veh	69.3	16.8	9.4	303.6	50.6	5.3	86.7	75.1	72.9	117.8	60.8	60.1
LnGrp LOS	E	B	A	F	F	A	F	E	E	F	E	E
Approach Vol, veh/h		1759			4037			247			513	
Approach Delay, s/veh		18.8			63.1			78.5			99.0	
Approach LOS		B			E			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	118.0	15.7	35.8	14.1	121.9	31.0	20.5
Change Period (Y+Rc), s	9.0	9.0	9.0	7.5	9.0	9.0	9.0	* 7.5
Max Green Setting (Gmax), s	9.0	92.0	22.0	12.5	9.0	92.0	22.0	* 13
Max Q Clear Time (g_c+I1), s	11.0	30.5	6.5	13.2	5.2	114.4	24.0	13.6
Green Ext Time (p_c), s	0.0	50.3	0.2	0.0	0.0	0.0	0.0	0.0

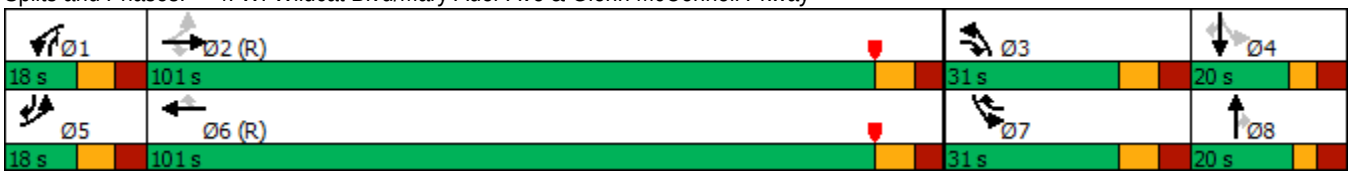
Intersection Summary	
HCM 2010 Ctrl Delay	54.6
HCM 2010 LOS	D

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	1482	65	240	3164	310	86	36	106	317	44	110
Future Volume (vph)	71	1482	65	240	3164	310	86	36	106	317	44	110
Turn Type	pm+pt	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases	2		2			6			8	4		4
Detector Phase	5	2	3	1	6	7	3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	13.0	20.0	13.0	13.0	20.0	13.0	13.0	20.0	13.0	13.0	20.0	13.0
Total Split (s)	18.0	101.0	31.0	18.0	101.0	31.0	31.0	20.0	18.0	31.0	20.0	18.0
Total Split (%)	10.6%	59.4%	18.2%	10.6%	59.4%	18.2%	18.2%	11.8%	10.6%	18.2%	11.8%	10.6%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0	5.0	3.5	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.0	9.0	9.0	9.0	9.0	9.0	9.0	7.0	9.0	9.0	7.5	9.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None
Act Effct Green (s)	106.5	98.6	120.5	9.0	99.7	130.7	13.0	8.9	22.4	35.4	17.7	30.4
Actuated g/C Ratio	0.63	0.58	0.71	0.05	0.59	0.77	0.08	0.05	0.13	0.21	0.10	0.18
v/c Ratio	0.61	0.55	0.06	1.44	1.15	0.27	0.36	0.40	0.39	1.24	0.25	0.33
Control Delay	51.0	13.6	0.1	260.5	99.0	0.4	79.7	89.0	19.8	186.1	71.3	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	13.6	0.1	260.5	99.0	0.4	79.7	89.0	19.8	186.1	71.3	17.2
LOS	D	B	A	F	F	A	E	F	B	F	E	B
Approach Delay		14.7			101.2			53.3			135.8	
Approach LOS		B			F			D			F	

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 90 (53%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.44	
Intersection Signal Delay: 78.9	Intersection LOS: E
Intersection Capacity Utilization 110.5%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	6.2

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	1882	22	47	3701	1	13	0	29	4	0	0
Future Vol, veh/h	0	1882	22	47	3701	1	13	0	29	4	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	370	-	-	360	-	-	-	-	100	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2046	24	51	4023	1	14	0	32	4	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	4024	0	0	2070	0	0	3769	6184	1035	4944	6196	2012
Stage 1	-	-	-	-	-	-	2058	2058	-	4126	4126	-
Stage 2	-	-	-	-	-	-	1711	4126	-	818	2070	-
Critical Hdwy	5.34	-	-	5.34	-	-	6.44	6.54	7.14	6.44	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	7.34	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.74	5.54	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	3.82	4.02	3.92	3.82	4.02	3.92
Pot Cap-1 Maneuver	11	-	-	115	-	-	~ 5	0	197	~ 1	0	42
Stage 1	-	-	-	-	-	-	35	96	-	~ 1	7	-
Stage 2	-	-	-	-	-	-	83	7	-	305	95	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	11	-	-	115	-	-	~ 3	0	197	~ 1	0	42
Mov Cap-2 Maneuver	-	-	-	-	-	-	26	4	-	~ 1	4	-
Stage 1	-	-	-	-	-	-	35	96	-	~ 1	4	-
Stage 2	-	-	-	-	-	-	46	4	-	256	95	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0.7	96.3	$ 7117
HCM LOS			F	F

Minor Lane/Major Mvmt	NELn1	NELn2	NWL	NWT	NWR	SEL	SET	SER	SWLn1	SWLn2
Capacity (veh/h)	26	197	115	-	-	11	-	-	1	-
HCM Lane V/C Ratio	0.543	0.16	0.444	-	-	-	-	-	4.348	-
HCM Control Delay (s)	251.5	26.7	59.2	-	-	0	-	-	$ 7117	0
HCM Lane LOS	F	D	F	-	-	A	-	-	F	A
HCM 95th %tile Q(veh)	1.7	0.6	1.9	-	-	0	-	-	1.5	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	19	1877	19	92	3708	106	14	0	50	50	0	28
Future Volume (veh/h)	19	1877	19	92	3708	106	14	0	50	50	0	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	21	2040	21	100	4030	115	15	0	54	54	0	30
Adj No. of Lanes	1	3	0	1	3	1	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	3858	40	204	3835	1194	134	0	133	112	0	133
Arrive On Green	0.01	0.74	0.74	0.03	0.75	0.75	0.08	0.00	0.08	0.08	0.00	0.08
Sat Flow, veh/h	1774	5190	53	1774	5085	1583	1374	0	1583	1345	0	1583
Grp Volume(v), veh/h	21	1332	729	100	4030	115	15	0	54	54	0	30
Grp Sat Flow(s),veh/h/ln	1774	1695	1853	1774	1695	1583	1374	0	1583	1345	0	1583
Q Serve(g_s), s	0.5	28.3	28.3	2.3	128.2	3.3	1.8	0.0	5.5	6.7	0.0	3.0
Cycle Q Clear(g_c), s	0.5	28.3	28.3	2.3	128.2	3.3	4.8	0.0	5.5	12.2	0.0	3.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	69	2520	1377	204	3835	1194	134	0	133	112	0	133
V/C Ratio(X)	0.31	0.53	0.53	0.49	1.05	0.10	0.11	0.00	0.41	0.48	0.00	0.23
Avail Cap(c_a), veh/h	115	2520	1377	232	3835	1194	164	0	168	141	0	168
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.0	9.2	9.2	9.5	20.9	5.5	74.9	0.0	73.8	79.6	0.0	72.7
Incr Delay (d2), s/veh	2.5	0.8	1.5	1.8	30.3	0.2	0.4	0.0	2.0	3.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	13.4	14.9	1.6	70.0	1.5	0.7	0.0	2.5	2.6	0.0	1.3
LnGrp Delay(d),s/veh	54.5	10.0	10.7	11.3	51.2	5.7	75.3	0.0	75.8	82.8	0.0	73.5
LnGrp LOS	D	B	B	B	F	A	E		E	F		E
Approach Vol, veh/h		2082			4245			69			84	
Approach Delay, s/veh		10.7			49.0			75.7			79.5	
Approach LOS		B			D			E			E	

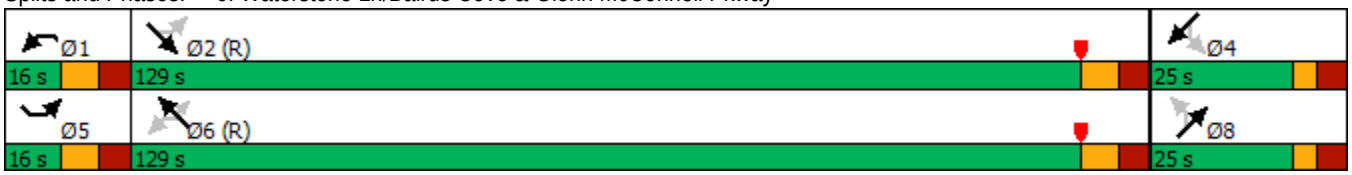
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.4	135.4		21.3	11.5	137.2		21.3
Change Period (Y+Rc), s	9.0	9.0		7.0	9.0	9.0		7.0
Max Green Setting (Gmax), s	7.0	120.0		18.0	7.0	120.0		18.0
Max Q Clear Time (g_c+I1), s	4.3	30.3		14.2	2.5	130.2		7.5
Green Ext Time (p_c), s	0.0	81.4		0.1	0.0	0.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	37.4
HCM 2010 LOS	D

Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	19	1877	92	3708	106	14	0	50	0
Future Volume (vph)	19	1877	92	3708	106	14	0	50	0
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2	1	6			8		4
Permitted Phases	2		6		6	8		4	
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	13.0	20.0	13.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (s)	16.0	129.0	16.0	129.0	129.0	25.0	25.0	25.0	25.0
Total Split (%)	9.4%	75.9%	9.4%	75.9%	75.9%	14.7%	14.7%	14.7%	14.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	3.0	3.0	3.0	3.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.0	9.0	9.0	9.0	9.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?									
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	134.8	128.9	139.8	137.4	137.4	11.9	11.9	12.2	12.2
Actuated g/C Ratio	0.79	0.76	0.82	0.81	0.81	0.07	0.07	0.07	0.07
v/c Ratio	0.20	0.54	0.57	0.98	0.09	0.16	0.27	0.56	0.15
Control Delay	13.7	7.9	12.8	15.7	2.7	75.4	3.6	97.3	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	7.9	12.8	15.7	2.7	75.4	3.6	97.3	1.5
LOS	B	A	B	B	A	E	A	F	A
Approach Delay		7.9		15.2			19.2		63.1
Approach LOS		A		B			B		E

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 87 (51%), Referenced to phase 2:SETL and 6:NWTL, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 13.6	Intersection LOS: B
Intersection Capacity Utilization 99.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 6: Waterstone Ln/Bairds Cove & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1969	8	47	3903	3	22
Future Vol, veh/h	1969	8	47	3903	3	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	300	-	0	0
Veh in Median Storage, #	0	-	-	0	2	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2140	9	51	4242	3	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2149	0	3944	1075
Stage 1	-	-	-	-	2145	-
Stage 2	-	-	-	-	1799	-
Critical Hdwy	-	-	5.34	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	-	-	3.12	-	3.82	3.92
Pot Cap-1 Maneuver	-	-	105	-	7	185
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	103	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	105	-	4	185
Mov Cap-2 Maneuver	-	-	-	-	32	-
Stage 1	-	-	-	-	46	-
Stage 2	-	-	-	-	53	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	39.6
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	32	185	-	-	105	-
HCM Lane V/C Ratio	0.102	0.129	-	-	0.487	-
HCM Control Delay (s)	129.9	27.3	-	-	68.2	-
HCM Lane LOS	F	D	-	-	F	-
HCM 95th %tile Q(veh)	0.3	0.4	-	-	2.2	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1865	126	389	3820	130	210
Future Volume (veh/h)	1865	126	389	3820	130	210
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	2027	137	423	4152	182	184
Adj No. of Lanes	3	1	1	3	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2771	1021	445	4068	177	478
Arrive On Green	0.54	0.54	0.20	0.80	0.10	0.10
Sat Flow, veh/h	5253	1583	1774	5253	1774	1583
Grp Volume(v), veh/h	2027	137	423	4152	182	184
Grp Sat Flow(s),veh/h/ln	1695	1583	1774	1695	1774	1583
Q Serve(g_s), s	51.3	5.7	31.6	136.0	17.0	15.6
Cycle Q Clear(g_c), s	51.3	5.7	31.6	136.0	17.0	15.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2771	1021	445	4068	177	478
V/C Ratio(X)	0.73	0.13	0.95	1.02	1.03	0.38
Avail Cap(c_a), veh/h	2771	1021	515	4068	177	478
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.3	11.7	52.9	17.0	76.5	46.8
Incr Delay (d2), s/veh	1.7	0.3	25.7	19.6	74.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.2	0.0
%ile BackOfQ(50%),veh/ln	24.5	3.3	22.7	69.9	12.0	6.9
LnGrp Delay(d),s/veh	31.0	12.0	78.6	36.6	151.3	47.3
LnGrp LOS	C	B	E	F	F	D
Approach Vol, veh/h	2164			4575	366	
Approach Delay, s/veh	29.8			40.5	99.0	
Approach LOS	C			D	F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	43.4	101.6				145.0		25.0
Change Period (Y+Rc), s	9.0	9.0				9.0		8.0
Max Green Setting (Gmax), s	41.0	86.0				136.0		17.0
Max Q Clear Time (g_c+I1), s	33.6	53.3				138.0		19.0
Green Ext Time (p_c), s	0.8	19.1				0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	40.3
HCM 2010 LOS	D

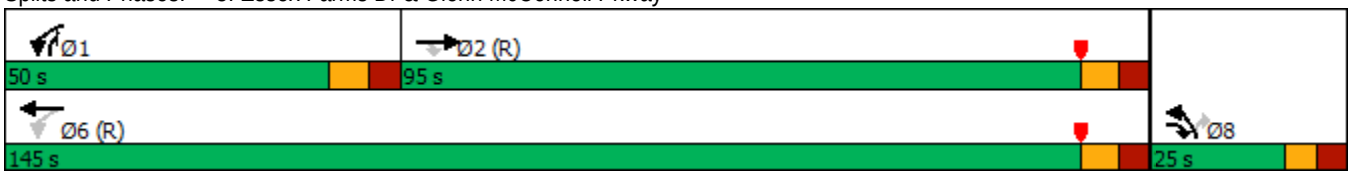
Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1865	126	389	3820	130	210
Future Volume (vph)	1865	126	389	3820	130	210
Turn Type	NA	pm+ov	pm+pt	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2	6			8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	25.0	24.0	13.0	25.0	24.0	13.0
Total Split (s)	95.0	25.0	50.0	145.0	25.0	50.0
Total Split (%)	55.9%	14.7%	29.4%	85.3%	14.7%	29.4%
Yellow Time (s)	5.0	4.0	5.0	5.0	4.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	9.0	8.0	9.0	9.0	8.0	9.0
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?						
Recall Mode	C-Max	None	None	C-Max	None	None
Act Effct Green (s)	88.3	114.3	136.0	136.0	17.0	63.7
Actuated g/C Ratio	0.52	0.67	0.80	0.80	0.10	0.37
v/c Ratio	0.77	0.12	0.95	1.02	1.07	0.31
Control Delay	38.6	1.2	55.3	35.8	151.9	38.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.6	1.2	55.3	35.8	151.9	38.0
LOS	D	A	E	D	F	D
Approach Delay	36.2			37.6	97.0	
Approach LOS	D			D	F	

Intersection Summary

Cycle Length: 170
Actuated Cycle Length: 170
Offset: 86 (51%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 40.3 — Intersection LOS: D
Intersection Capacity Utilization 99.5% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 8: Essex Farms Dr & Glenn McConnell Pkway



Intersection	
Int Delay, s/veh	364.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	72	1940	63	19	3805	63	0	0	103	0	0	404
Future Vol, veh/h	72	1940	63	19	3805	63	0	0	103	0	0	404
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	Stop	-	-	Stop
Storage Length	200	-	200	250	-	250	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	2	-	-	2	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	78	2109	68	21	4136	68	0	0	112	0	0	439

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	4136	0	-	2109	0	0	-	-	1055	-	-	2068
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	5.34	-	-	5.34	-	-	-	-	7.14	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.12	-	-	3.12	-	-	-	-	3.92	-	-	3.92
Pot Cap-1 Maneuver	~ 9	-	0	110	-	0	0	0	191	0	0	~ 38
Stage 1	-	-	0	-	-	0	0	0	-	0	0	-
Stage 2	-	-	0	-	-	0	0	0	-	0	0	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	~ 9	-	-	110	-	-	-	-	191	-	-	~ 38
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	152.9	0.2	47.5	$ 4951.5
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	SBLn1
Capacity (veh/h)	191	~ 9	-	110	-	38
HCM Lane V/C Ratio	0.586	8.696	-	0.188	-	11.556
HCM Control Delay (s)	47.5	$ 4272.7	-	45.1	-	$ 4951.5
HCM Lane LOS	E	F	-	E	-	F
HCM 95th %tile Q(veh)	3.2	11.3	-	0.7	-	53.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	1728	112	248	3374	1296	334	256	487	807	177	180
Future Volume (veh/h)	205	1728	112	248	3374	1296	334	256	487	807	177	180
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	223	1878	122	270	3667	0	363	278	529	877	192	196
Adj No. of Lanes	1	3	1	2	3	1	1	1	1	2	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	2199	931	294	2199	685	277	192	298	658	117	119
Arrive On Green	0.09	0.43	0.43	0.09	0.43	0.00	0.16	0.10	0.10	0.19	0.14	0.14
Sat Flow, veh/h	1774	5085	1583	3442	5085	1583	1774	1863	1583	3442	846	864
Grp Volume(v), veh/h	223	1878	122	270	3667	0	363	278	529	877	0	388
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1721	1695	1583	1774	1863	1583	1721	0	1710
Q Serve(g_s), s	14.5	56.5	5.8	13.2	73.5	0.0	26.5	17.5	17.5	32.5	0.0	23.5
Cycle Q Clear(g_c), s	14.5	56.5	5.8	13.2	73.5	0.0	26.5	17.5	17.5	32.5	0.0	23.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.51
Lane Grp Cap(c), veh/h	151	2199	931	294	2199	685	277	192	298	658	0	236
V/C Ratio(X)	1.47	0.85	0.13	0.92	1.67	0.00	1.31	1.45	1.77	1.33	0.00	1.64
Avail Cap(c_a), veh/h	151	2199	931	294	2199	685	277	192	298	658	0	236
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	77.8	43.4	15.6	77.2	48.3	0.0	71.8	76.3	69.0	68.7	0.0	73.3
Incr Delay (d2), s/veh	245.3	4.5	0.3	32.4	302.6	0.0	164.1	229.1	362.0	160.1	0.0	306.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.4	27.3	2.6	7.6	96.0	0.0	25.6	21.2	44.0	30.1	0.0	31.2
LnGrp Delay(d),s/veh	323.1	47.9	15.9	109.6	350.8	0.0	235.9	305.4	431.0	228.8	0.0	380.1
LnGrp LOS	F	D	B	F	F		F	F	F	F		F
Approach Vol, veh/h		2223			3937			1170			1265	
Approach Delay, s/veh		73.8			334.3			340.6			275.2	
Approach LOS		E			F			F			F	

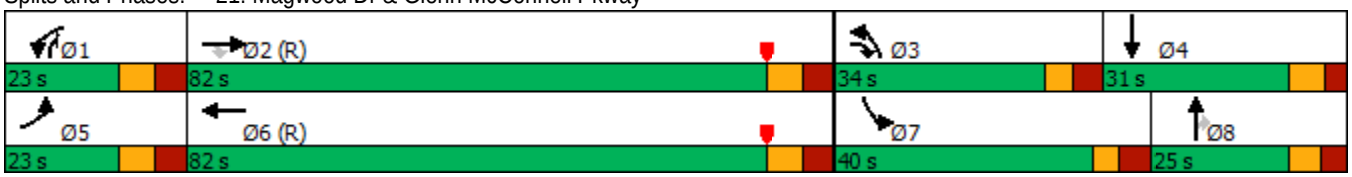
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	82.0	34.0	31.0	23.0	82.0	40.0	25.0
Change Period (Y+Rc), s	8.5	8.5	7.5	7.5	8.5	8.5	7.5	7.5
Max Green Setting (Gmax), s	14.5	73.5	26.5	23.5	14.5	73.5	32.5	17.5
Max Q Clear Time (g_c+I1), s	15.2	58.5	28.5	25.5	16.5	75.5	34.5	19.5
Green Ext Time (p_c), s	0.0	14.7	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	259.1
HCM 2010 LOS	F

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	205	1728	112	248	3374	1296	334	256	487	807	177
Future Volume (vph)	205	1728	112	248	3374	1296	334	256	487	807	177
Turn Type	Prot	NA	pm+ov	Prot	NA	Free	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			Free			8		
Detector Phase	5	2	3	1	6		3	8	1	7	4
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.5	24.5	11.5	12.5	24.5		11.5	20.0	12.5	11.5	22.5
Total Split (s)	23.0	82.0	34.0	23.0	82.0		34.0	25.0	23.0	40.0	31.0
Total Split (%)	13.5%	48.2%	20.0%	13.5%	48.2%		20.0%	14.7%	13.5%	23.5%	18.2%
Yellow Time (s)	4.5	4.5	3.5	4.5	4.5		3.5	4.0	4.5	3.5	4.5
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	3.5	4.0	4.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.5	8.5	7.5	8.5	8.5		7.5	7.5	8.5	7.5	7.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?											
Recall Mode	None	C-Max	None	None	C-Max		None	None	None	None	None
Act Effct Green (s)	14.5	73.5	108.5	14.5	73.5	170.0	26.5	17.5	39.5	32.5	23.5
Actuated g/C Ratio	0.09	0.43	0.64	0.09	0.43	1.00	0.16	0.10	0.23	0.19	0.14
v/c Ratio	1.49	0.85	0.12	0.92	1.67	0.89	1.32	1.46	1.23	1.34	1.50
Control Delay	288.5	36.5	8.2	112.2	334.5	8.3	219.2	280.4	165.1	211.6	286.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	288.5	36.5	8.2	112.2	334.5	8.3	219.2	280.4	165.1	211.6	286.2
LOS	F	D	A	F	F	A	F	F	F	F	F
Approach Delay		60.2			237.3			209.3			234.4
Approach LOS		E			F			F			F

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 152 (89%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.67	
Intersection Signal Delay: 194.3	Intersection LOS: F
Intersection Capacity Utilization 142.0%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 21: Magwood Dr & Glenn McConnell Pkway



Arterial Level of Service: EB Glenn McConnell Pkway

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
W. Wildcat Blvd	I	48	67.9	13.6	81.5	0.90	39.7	B
Waterstone Ln	I	55	40.9	7.9	48.8	0.62	46.1	A
Essex Farms Dr	I	55	37.3	38.6	75.9	0.51	24.3	D
Magwood Dr	I	45	43.1	36.5	79.6	0.47	21.4	D
Total	I		189.2	96.6	285.8	2.51	31.6	C

Arterial Level of Service: WB Glenn McConnell Pkway

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Magwood Dr	I	45	39.2	334.5	373.7	0.42	4.0	F
Essex Farms Dr	I	45	43.1	35.8	78.9	0.47	21.6	D
Bairds Cove	I	55	37.3	15.7	53.0	0.51	34.7	B
Mary Ader Ave	I	55	40.9	99.0	139.9	0.62	16.1	E
Bees Ferry Rd	I	48	67.9	39.3	107.2	0.90	30.2	C
Total	I		228.4	524.3	752.7	2.93	14.0	F

Arterial Level of Service: EB Glenn McConnell Pkway

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
West Ashley Circle	2	6.2	26.6	0.2	24
	30	1.4	19.8	0.2	41
William E. Murray Bl	3	1.1	17.7	0.2	42
W. Wildcat Blvd	4	17.3	35.9	0.3	28
Lochaven Dr	5	5.4	24.3	0.3	42
Waterstone Ln	6	8.7	30.8	0.3	40
Apartment Access	7	4.1	22.9	0.3	45
Essex Farms Dr	8	34.9	49.5	0.2	17
	34	8.4	19.2	0.1	25
Charlie Hall Blvd	9	20.4	32.6	0.2	17
Magwood Dr	21	33.0	47.7	0.2	14
Total		141.0	327.0	2.5	28

Arterial Level of Service: WB Glenn McConnell Pkway

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Magwood Dr	21	226.1	1656.1	0.4	6
Charlie Hall Blvd	9	14.0	29.7	0.2	23
	34	2.6	14.7	0.2	37
Essex Farms Dr	8	3.1	13.5	0.1	35
Apartment Access	7	3.5	19.1	0.2	43
Bairds Cove	6	5.6	24.0	0.3	43
Lockaven Dr	5	3.7	26.2	0.3	47
Mary Ader Ave	4	31.1	49.3	0.3	21
Goodwill Way	3	14.7	33.4	0.3	31
	30	3.1	19.8	0.2	38
West Ashley Circle	2	3.6	21.9	0.2	37
Bees Ferry Rd	1	49.1	66.5	0.2	10
Total		360.2	1974.4	2.9	18

Intersection: 1: Bees Ferry Rd & Glenn McConnell Pkway

Movement	NW	NW	NW	NE	NE	SW	SW	SW	SW	SW	B27	B27
Directions Served	L	L	L	T	T	L	L	T	T	T	T	T
Maximum Queue (ft)	504	540	502	405	423	390	480	1826	1740	1650	1518	1520
Average Queue (ft)	353	387	334	264	273	381	478	1766	1043	366	1173	1154
95th Queue (ft)	455	493	454	377	389	414	482	1977	2194	1308	2060	2061
Link Distance (ft)		839	839	1524	1524			1725	1725	1725	1475	1475
Upstream Blk Time (%)								85	1	0	64	38
Queuing Penalty (veh)								0	0	0	0	0
Storage Bay Dist (ft)	550					300	300					
Storage Blk Time (%)	0	0				82	89					
Queuing Penalty (veh)	0	3				140	152					

Intersection: 2: West Ashley Circle & Glenn McConnell Pkway

Movement	EB	NE
Directions Served	T	R
Maximum Queue (ft)	174	98
Average Queue (ft)	6	16
95th Queue (ft)	123	67
Link Distance (ft)	839	342
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: William E. Murray Blvd/Goodwill Way & Glenn McConnell Pkway

Movement	EB	WB	WB	WB	NB	SB
Directions Served	L	L	T	T	R	R
Maximum Queue (ft)	228	97	499	502	11	130
Average Queue (ft)	103	38	17	17	0	35
95th Queue (ft)	188	79	253	254	8	101
Link Distance (ft)			1416	1416	512	680
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	580	370				
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	L	T	T	T	R	L	L	T	T	T	R	L
Maximum Queue (ft)	134	226	246	274	45	243	257	400	415	447	144	96
Average Queue (ft)	60	117	151	169	12	149	168	267	299	322	22	26
95th Queue (ft)	113	204	226	253	36	293	306	375	402	424	90	70
Link Distance (ft)		1416	1416	1416				1402	1402	1402		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	485				150	330	330				250	275
Storage Blk Time (%)				12		1	3	1		25		
Queuing Penalty (veh)				8		13	32	3		84		

Intersection: 4: W. Wildcat Blvd/Mary Ader Ave & Glenn McConnell Pkway

Movement	NB	NB	NB	SB	SB	SB	B15
Directions Served	L	T	R	L	T	R	T
Maximum Queue (ft)	125	119	128	250	416	312	905
Average Queue (ft)	56	50	45	247	381	169	703
95th Queue (ft)	106	109	95	256	447	407	1177
Link Distance (ft)	1667	1667			312		851
Upstream Blk Time (%)					73	1	59
Queuing Penalty (veh)					0	0	0
Storage Bay Dist (ft)			275	150		230	
Storage Blk Time (%)				85	1		
Queuing Penalty (veh)				142	4		

Intersection: 5: Lochaven Dr/Lockaven Dr & Glenn McConnell Pkway

Movement	NW	NE	NE	SW
Directions Served	L	LT	R	LT
Maximum Queue (ft)	72	73	64	36
Average Queue (ft)	15	23	20	8
95th Queue (ft)	48	62	50	29
Link Distance (ft)		441		278
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	360		100	
Storage Blk Time (%)		0	0	2
Queuing Penalty (veh)		0	0	0

Intersection: 6: Waterstone Ln/Bairds Cove & Glenn McConnell Pkway

Movement	SE	SE	SE	SE	NW	NW	NW	NW	NW	NE	NE	SW
Directions Served	L	T	T	TR	L	T	T	T	R	L	TR	L
Maximum Queue (ft)	60	216	230	257	109	141	170	195	42	65	66	126
Average Queue (ft)	15	78	99	123	39	51	76	96	8	17	32	51
95th Queue (ft)	42	180	207	240	84	121	155	188	30	51	60	106
Link Distance (ft)		1709	1709	1709		1431	1431	1431			198	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500				300				100	150		200
Storage Blk Time (%)								7				
Queuing Penalty (veh)								8				

Intersection: 6: Waterstone Ln/Bairds Cove & Glenn McConnell Pkway

Movement	SW
Directions Served	TR
Maximum Queue (ft)	61
Average Queue (ft)	16
95th Queue (ft)	42
Link Distance (ft)	698
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 7: Apartment Access & Glenn McConnell Pkway

Movement	WB	NB	NB
Directions Served	L	L	R
Maximum Queue (ft)	73	42	48
Average Queue (ft)	21	8	17
95th Queue (ft)	52	32	45
Link Distance (ft)		128	128
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	300		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Essex Farms Dr & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	B26
Directions Served	T	T	T	R	L	T	T	T	LR	R	T
Maximum Queue (ft)	464	494	512	375	315	210	117	120	345	200	872
Average Queue (ft)	274	294	308	51	177	28	51	57	314	172	495
95th Queue (ft)	413	444	465	212	284	103	107	111	372	267	996
Link Distance (ft)	1133	1133	1133			633	633	633	249		989
Upstream Blk Time (%)									73		7
Queuing Penalty (veh)									0		0
Storage Bay Dist (ft)				250	300					150	
Storage Blk Time (%)			19		1	0			81	2	
Queuing Penalty (veh)			26		12	0			92	6	

Intersection: 9: Charlie Hall Blvd & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	EB	B34	B34	B34	WB	WB	WB	WB
Directions Served	L	T	T	T	R	T	T	T	L	T	T	T
Maximum Queue (ft)	400	775	730	607	270	282	133	116	34	355	372	188
Average Queue (ft)	86	222	171	87	12	31	26	22	9	23	35	6
95th Queue (ft)	299	674	575	442	132	218	198	186	31	253	317	132
Link Distance (ft)		746	746	746		633	633	633		923	923	923
Upstream Blk Time (%)		7	1	1							0	0
Queuing Penalty (veh)		55	6	4							0	0
Storage Bay Dist (ft)	200				200				250			
Storage Blk Time (%)		29		1								
Queuing Penalty (veh)		22		1								

Intersection: 9: Charlie Hall Blvd & Glenn McConnell Pkway

Movement	WB	NB	SB
Directions Served	R	R	R
Maximum Queue (ft)	20	107	1280
Average Queue (ft)	1	11	1148
95th Queue (ft)	10	68	1488
Link Distance (ft)		644	1235
Upstream Blk Time (%)			63
Queuing Penalty (veh)			0
Storage Bay Dist (ft)	250		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 21: Magwood Dr & Glenn McConnell Pkway

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	WB	NB
Directions Served	L	T	T	T	R	L	L	T	T	T	R	L
Maximum Queue (ft)	700	940	966	979	400	176	700	2173	2175	2193	725	366
Average Queue (ft)	627	746	569	474	65	78	461	2086	2154	2160	710	272
95th Queue (ft)	861	1181	1068	951	263	149	950	2295	2237	2237	877	416
Link Distance (ft)		923	923	923				2145	2145	2145		339
Upstream Blk Time (%)		38	4	8				10	19	56		23
Queuing Penalty (veh)		283	31	60				0	0	0		0
Storage Bay Dist (ft)	450				200	400	400				700	
Storage Blk Time (%)	82	0		18				58		38	1	
Queuing Penalty (veh)	515	1		21				156		540	12	

Intersection: 21: Magwood Dr & Glenn McConnell Pkway

Movement	NB	NB	SB	SB	SB
Directions Served	T	R	L	L	TR
Maximum Queue (ft)	372	365	1228	1239	1228
Average Queue (ft)	340	212	1044	1161	1143
95th Queue (ft)	412	376	1431	1408	1470
Link Distance (ft)	339	339	1202	1202	1202
Upstream Blk Time (%)	66	9	32	64	69
Queuing Penalty (veh)	0	0	0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 24: Bend

Movement	WB	WB
Directions Served	T	T
Maximum Queue (ft)	236	242
Average Queue (ft)	8	8
95th Queue (ft)	167	170
Link Distance (ft)	1524	1524
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 27: Bend

Movement	NE	NE
Directions Served	T	T
Maximum Queue (ft)	638	320
Average Queue (ft)	21	11
95th Queue (ft)	323	226
Link Distance (ft)	1725	1725
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 2431

Appendix I

Conceptual Renderings

GLENN McCONNELL PARKWAY - PERSPECTIVE I - OUTSIDE / INSIDE WIDENING

WEST ASHLEY, SOUTH CAROLINA

DECEMBER, 2018

CHARLESTON COUNTY SOUTH CAROLINA

DAVIS & FLOYD

SINCE 1954

GLENN McCONNELL PARKWAY - PERSPECTIVE II - INSIDE WIDENING

WEST ASHLEY, SOUTH CAROLINA

DECEMBER, 2018

CHARLESTON COUNTY
SOUTH CAROLINA

DAVIS & FLOYD
SINCE 1954

GLENN McCONNELL PARKWAY - PERSPECTIVE III - BRIDGE SECTION

WEST ASHLEY, SOUTH CAROLINA

DECEMBER, 2018

CHARLESTON COUNTY
SOUTH CAROLINA

DAVIS & FLOYD
SINCE 1954

Appendix J

Pubic Involvement

Glenn McConnell Parkway Widening

Charleston County
Transportation Development

PUBLIC INFORMATION MEETING

Charleston County Transportation Development Department invites you to learn about the proposed roadway widening, intersection improvements and multi-use path for Glenn McConnell Parkway. The meeting will have an open house format and allow an oportunity for you to provide input on the project.

WHEN: Monday, December 3, 2018

TIME: 5:00 PM - 7:00 PM

LOCATION: West Ashley High School Cafeteria
4060 W. Wildcat Boulevard
Charleston, SC 29414

Glenn McConnell Parkway

Widening & Improvements

Public Information Meeting Summary

December 3, 2018

OVERALL MEETING SUMMARY	
Attendees	116
Written Comments	75
Website Comments	221

Charleston County
Transportation Development

DAVIS & FLOYD
SINCE 1954

CATEGORY	NUMBER OF RESPONSES
Support of Widening	32
No Widening	10
Inside/Outside Widening	31
Inside/Inside Widening	8
Trees/Greenspace	84
Essex Farms Intersection	67
Bike/Pedestrian Path	42
Drainage	40
Bees Ferry Intersection	19
Noise	18
Public Transit	17
Magwood Intersection	8
Street Lights	8
Speed	7
Development	1

Glenn McConnell Parkway Widening

PUBLIC INFORMATION MEETING

CHARLESTON COUNTY
SOUTH CAROLINA

Charleston County invites you to learn about the proposed design for the roadway widening, intersection improvements and multi-use path for Glenn McConnell Parkway. The meeting will have an open house format and allow an oportunity for you to provide input on the project.

WHEN: Wednesday, January 29, 2020
TIME: 5:00 PM - 7:00 PM
LOCATION: West Ashley High School Media Room
Second Floor
4060 W. Wildcat Boulevard
Charleston, SC 29414

For more information please visit the website at:
roads.charlestoncounty.org

Public Information Meeting Summary
Glenn McConnell Parkway Widening

Wednesday
January 29, 2020
5:00 pm - 7:00 pm

West Ashley High School
4060 W Wildcat Blvd
Charleston, SC 29414

149 Meeting Attendees

47 Written Comment Forms

38 Online Comments

85 Total Comments

What We Heard

Numbers represent comments received on each topic.

Intersection Concerns
- **4** Magwood Drive
- **5** W Wildcat Boulevard
- **5** Bairds Cove
- **8** Essex Farms Drive

12 Signal Timings

11 Noise

9 Multi-Use Path/ Crosswalks

9 Bees Ferry Road Improvements

8 Traffic Projections/ Development

7 Reduce Speed Limit

3 Street Lighting

2 Drainage

2 Bus Stop/Multimodal Improvements

CHARLESTON COUNTY
SOUTH CAROLINA

* Each comment received may contain more than one suggestion.