J:\23300\23332.0000\Engineering\Drawings\Submittals\Submittal Sheets\23332.0000 - Cover Sheet.dwg - Jan 12, 2018 - 8:38:01 AM

GRAND STRAND WATER & SEWER AUTHORITY

SITE DEVELOPMENT PLANS
OF
NEW BUCKSPORT ACCESS ROAD

HORRY COUNTY, SC

PREPARED FOR:

GRAND STRAND WATER & SEWER AUTHORITY

166 JACKSON BLUFF ROAD
CONWAY, SC 29526

TM# 189-00-01-015 & 183-00-04-055

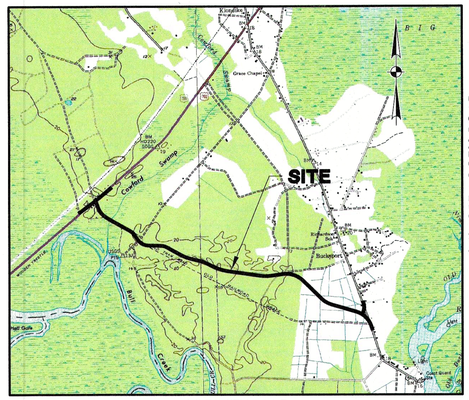
OCTOBER 17, 2013
LAST REVISED: JANUARY 12, 2018

J-23332.0000

PREPARED BY:

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting

Savannah, GA | Brunswick, GA | Charleston, SC | Myrtle Beach, SC | Wilmington, NC



VICINITY MAP
SCALE: 1" = 3000'

J-23332.0000
10/17/13
NEW BUCKSPORT ACCESS ROAD

Schedule of Drawings

Sheet Number	Sheet Title
C0	Cover Sheet
G1.1	Index and Survey Control Sheet
G1.2	General Notes
C1.1 - C1.11	Demolition Plan
C2.1 - C2.12	Staking Signage and Marking Plan
C2.13	Line and Curve Table
C3.1 - C3.3	Road - Plan and Profile
C3.4 - C3.21	Road - Plan and Profile
C4.1 - C4.30,C4.38 - C4.41	Cross Sections - New Bucksport Access Road
C4.31 - C4.32	Cross Sections - Bucksport Road
C4.33 - C4.37	Cross Sections -US 701
C5.1	Typical Sections
C6.1 - C6.2	Paving Grading and Drainage Details
EC.1 - EC.2	Erosion Control Notes
EC.3 - EC.12, EC.17, EC.18	Soil Erosion Control Plan
EC.13 - EC.16	Soil Erosion Control Details
S0.1	General Notes and Details
S1.1	Bridge Plan and Elevation
S1.2 - S1.4	Pile and Framing Plan
S2.1 - S2.2	Typical Bridge Slab Framing Plan
S2.3	MSE Retaining and Abutment Wall Plans and Details
S3.1 - S3.4	Bent Plans and Elevations
S3.5 - S3.8	Bridge Sections
S4.1	Deck Joint Details
S4.2	Pile Details and Elevations
S4.3	Barrier Transition Sections and Details
RW 1 - RW 8	MSE Retaining Wall Design

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 20704 JOHN H. RICHARDS SERVICE
12 JAN 18

SOUTH CAROLINA THOMAS & HUTTON ENGINEERING CO. No. C00285 CERTIFICATE OF AUTHORIZATION

APPROVED
FEB 26 2018
FOR CONSTRUCTION
2/6/18
ENGINEERING/STORMWATER

STORMWATER MANAGEMENT APPROVED
Horry County
2.6.2018

REVISION HISTORY

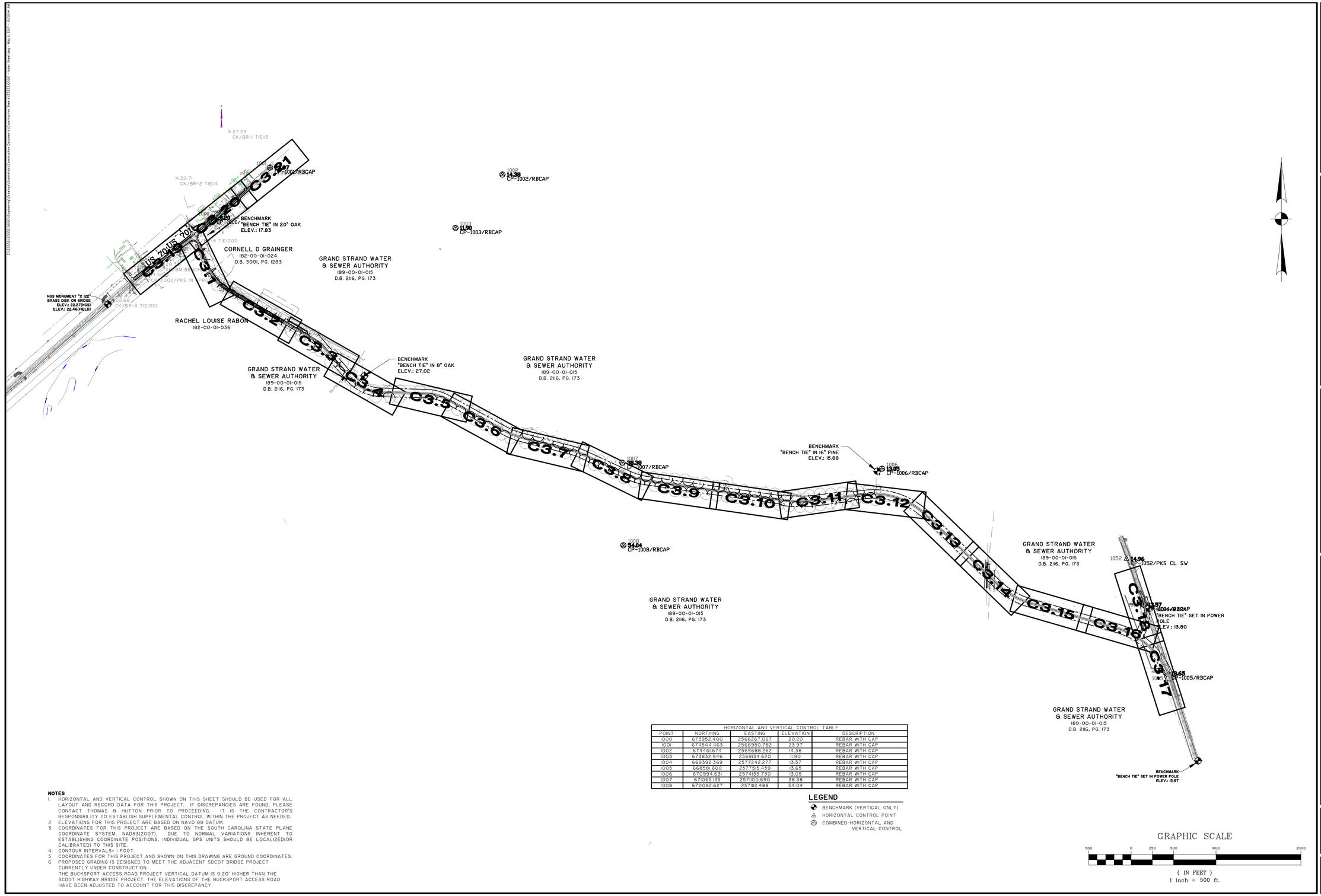
REV. NO.	REVISION	BY	DATE
F	ADDED EXISTING CONTOURS	CCR	11-29-17
E	LIGHT DUTY TYPICAL SECTION UPDATED	MDS	8-1-17
D	BUCKSPORT ROAD OVERLAY NOTES ADDED	MDS	6-12-17
C	HIGHWAY 701 TURNLANES ADDED	CCR	05/10/17
B	PER HORRY COUNTY	CVD	10/17/13

SUBMITTAL HISTORY

SUBMITTED TO	DATE
SUBMITTED FOR APPROVAL WITH TURN LANES	5/10/17
SUBMITTED FOR APPROVAL	10/17/13
SUBMITTED FOR PERMITTING	02/25/13

811 Know what's below. Call before you dig.

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NOTES

1. HORIZONTAL AND VERTICAL CONTROL SHOWN ON THIS SHEET SHOULD BE USED FOR ALL LAYOUT AND RECORD DATA FOR THIS PROJECT. IF DISCREPANCIES ARE FOUND, PLEASE CONTACT THOMAS & HUTTON PRIOR TO PROCEEDING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ESTABLISH SUPPLEMENTAL CONTROL WITHIN THE PROJECT AS NEEDED.
2. ELEVATIONS FOR THIS PROJECT ARE BASED ON NAVD 88 DATUM.
3. COORDINATES FOR THIS PROJECT ARE BASED ON THE SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM, NAD83(2007). DUE TO NORMAL VARIATIONS INHERENT TO ESTABLISHING COORDINATE POSITIONS, INDIVIDUAL GPS UNITS SHOULD BE LOCALIZED(OR CALIBRATED) TO THIS SITE.
4. CONTOUR INTERVALS= 1 FOOT.
5. COORDINATES FOR THIS PROJECT AND SHOWN ON THIS DRAWING ARE GROUND COORDINATES.
6. PROPOSED GRADING IS DESIGNED TO MEET THE ADJACENT SCDOT BRIDGE PROJECT CURRENTLY UNDER CONSTRUCTION.
   THE BUCKSPORT ACCESS ROAD PROJECT VERTICAL DATUM IS 0.20' HIGHER THAN THE SCDOT HIGHWAY BRIDGE PROJECT. THE ELEVATIONS OF THE BUCKSPORT ACCESS ROAD HAVE BEEN ADJUSTED TO ACCOUNT FOR THIS DISCREPANCY.

HORIZONTAL AND VERTICAL CONTROL TABLE

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
1000	673952.400	2566267.067	20.20	REBAR WITH CAP
1001	674544.463	2566950.782	23.97	REBAR WITH CAP
1002	674461.674	2569688.262	14.38	REBAR WITH CAP
1003	673832.946	2569134.620	11.90	REBAR WITH CAP
1004	669392.369	2577242.277	13.57	REBAR WITH CAP
1005	668581.600	2577515.459	13.65	REBAR WITH CAP
1006	670994.631	2574159.730	13.05	REBAR WITH CAP
1007	671065.135	2571100.690	38.38	REBAR WITH CAP
1008	670092.627	2571112.488	54.04	REBAR WITH CAP

LEGEND

- BENCHMARK (VERTICAL ONLY)
- HORIZONTAL CONTROL POINT
- COMBINED-HORIZONTAL AND VERTICAL CONTROL

GRAPHIC SCALE

500 0 250 500 1000 2000

(IN FEET)
1 inch = 500 ft.

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION — NOLLYWOOD

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOHN H. RICHARDSON — No. 27004 — 11-14-13

NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURNLANES ADDED	CCR	05/10/17
B	PER HORRY COUNTY	CVD	10/17/13
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

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GRAND STRAND WATER & SEWER AUTHORITY

HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

INDEX AND SURVEY CONTROL SHEET

JOB NO:	J-23332.0000
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DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 500'

G1.1

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DRAINAGE LEGEND

DESCRIPTION	EXISTING	PROPOSED
PIPE		
DITCH		
CURB INLET		
GRATE INLET		
JUNCTION BOX		
OUTLET STRUCTURE		

SEWER LEGEND

DESCRIPTION	EXISTING	PROPOSED
GRAVITY PIPE	SS	
MANHOLE		
CLEANOUT		
FORCEMAIN	10"FM	10"FM
VALVE AND BOX		
FLUSH HYDRANT		
CROSS		
TEE		
90° BEND - HORIZONTAL		
45° BEND - HORIZONTAL		
22-½° BEND - HORIZONTAL		
11-¼° BEND - HORIZONTAL		
BEND - VERTICAL		
PLUG		

WATER LEGEND

DESCRIPTION	EXISTING	PROPOSED
WATER MAIN	10"W	10"W
VALVE AND BOX		
FIRE HYDRANT W/VALVE & BOX		
CROSS		
TEE		
90° BEND - HORIZONTAL		
45° BEND - HORIZONTAL		
22-½° BEND - HORIZONTAL		
11-¼° BEND - HORIZONTAL		
BEND - VERTICAL		
CAP		

ABBREVIATIONS

BOT	BOTTOM	LF	LINEAR FEET	SDMH	STORM DRAINAGE MANHOLE
BW	BOTTOM OF WALL	JB	JUNCTION BOX	SF	SQUARE FEET
CI	CURB INLET	MAX	MAXIMUM	SS	SANITARY SEWER
CPP	CORRUGATED PLASTIC PIPE	MIN	MINIMUM	TC	TOP OF CURB
DIP	DUCTILE IRON PIPE	MH	MANHOLE	TG	TOP OF GRAVEL
EL	ELEVATION	OC	ON CENTER	TP	TOP OF PAVEMENT
FG	FINISH GRADE	PC	POINT OF CURVE	TW	TOP OF WALL
FH	FIRE HYDRANT	PH	POST HYDRANT	TYP	TYPICAL
FM	FORCE MAIN (SANITARY SEWER)	PT	POINT OF TANGENT	W	WATER
FR	FRAME	PVC	POLYVINYL CHLORIDE	W/	WITH
GI	GRATE INLET	RCP	REINFORCED CONCRETE PIPE	WV	WATER VALVE
GV	GATE VALVE	RJP	RESTRAINED JOINT PIPE	YI	YARD INLET
HDPE	HIGH DENSITY POLYETHELENE	R/W	RIGHT-OF-WAY		
INV	INVERT ELEVATION	SD	STORM DRAINAGE		

1. THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER 48 HOURS IN ADVANCE OF ALL REQUIRED TESTS AND OBSERVATIONS.
2. THE CONTRACTOR WILL NOTIFY THE ENGINEER IF UNSUITABLE MATERIAL IS DISCOVERED PRIOR TO BEGINNING ANY REMOVAL OPERATION.
3. SURVEYING AND BOUNDARY INFORMATION BY THOMAS AND HUTTON
4. ALL ELEVATIONS SHOWN ARE BASED ON NAVD88.
5. TOPOGRAPHIC SURVEY BY THOMAS AND HUTTON.
6. CONTRACTOR IS TO VERIFY ACCURACY OF ANY TEMPORARY BENCHMARKS SHOWN PRIOR TO UTILIZING THEM FOR CONSTRUCTION.
7. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES OTHER THAN THOSE SHOWN ARE ENCOUNTERED DURING CONSTRUCTION , THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY AND TAKE STEPS TO PROTECT THE LINE(S) AND ENSURE CONTINUED SERVICE. DAMAGE CAUSED TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR. ADDITIONALLY, THE CONTRACTOR SHALL CONFIRM THE CONNECTION POINTS OF NEW UTILITIES TO EXISTING UTILITIES PRIOR TO BEGINNING NEW CONSTRUCTION.
8. IF WORK IS SUSPENDED OR DELAYED FOR 14 DAYS, THE CONTRACTOR SHALL TEMPORARILY STABILIZE THE DISTURBED AREA AT NO ADDITIONAL COST TO THE OWNER.
9. THE CONTRACTOR SHALL INSTALL ANY BARRICADES PRIOR TO BEGINNING CONSTRUCTION
10. THE FOLLOWING NOTES ARE SPECIFIED BY THE COUNTY ENGINEER AND ARE TO BE EXECUTED BY THE CONTRACTOR FOR STREETS IN THE PROJECT WHICH ARE TO BE DEEDED TO THE COUNTY:
    a. ANY DAMAGE TO EXISTING PAVEMENT MUST BE REPAIRED AT CONTRACTORS EXPENSE AND TO THE SATISFACTION OF THE COUNTY ENGINEER AND THE PROJECT ENGINEER.
    b. ALL RIGHT-OF-WAY AND DRAINAGE EASEMENT CONSTRUCTION SHALL MEET SCDOT STANDARD SPECIFICATIONS UNLESS SPECIFIED ELSEWHERE AND APPROVED IN WRITING BY THE COUNTY ENGINEER.
    c. WHERE FIELD INSPECTIONS ARE REQUIRED BY THE COUNTY, THE CONTRACTOR SHALL NOTIFY THE ENGINEERING DIVISION A MINIMUM OF 48 HOURS IN ADVANCE TO SCHEDULE SUCH INSPECTIONS.
    d. A COMPLETE SET OF APPROVED DRAWINGS AND SPECIFICATIONS MUST BE MAINTAINED ON SITE AT ALL TIMES THAT THE CONTRACTOR IS PERFORMING WORK. THESE DRAWINGS SHALL BE MADE AVAILABLE UPON REQUEST.
    e. ANY REVISIONS DURING CONSTRUCTION WHICH ALTER THE ROAD LAYOUT, CONSTRUCTION METHODS, RIGHT-OF-WAY LOCATION OR DRAINAGE MUST BE SUBMITTED AND APPROVED IN WRITING BY THE COUNTY ENGINEER.
    f. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL CONSTRUCTION PERMITS NECESSARY FROM OTHER RESPONSIBLE AGENCIES.
    g. ALL TREES SHOWING DISTURBANCE WITHIN THE PROTECTED ROOT ZONE SHALL BE PRUNED AND FERTILIZED BY A CERTIFIED ARBORIST PRIOR TO RECEIVING FINAL PLAT APPROVAL (THIS WORK WILL BE DONE BY THE OWNER OUTSIDE OF THE CONTRACT.)
    h. ALL ABOVE GROUND UTILITIES ARE TO BE OUTSIDE OF THE R/W AND ALL AT GRADE UTILITIES ARE TO BE OUT OF THE CURB LINE.
    i. FINAL RECORD DRAWINGS SHALL BE SUBMITTED TO HORRY COUNTY PRIOR TO FINAL INSPECTION.
11. THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL AND PREVENTION STRUCTURES SHOWN ON THE PLANS. BOTH MUST BE APPROVED BY HORRY COUNTY PRIOR TO BEGINNING ANY LAND DISTURBING ACTIVITIES.
12. CONTRACTOR WILL BE REQUIRED TO ADJUST MANHOLE FRAMES TO MATCH FINAL GRADE AT NO ADDITIONAL COST.
13. THE FOLLOWING NOTES ARE SPECIFIED BY THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL - OFFICE OF OCEAN AND COASTAL RESOURCES MANAGEMENT (SCDHEC-OCRM) AND ARE TO BE EXECUTED BY THE CONTRACTOR:
    a. ALL SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND AFTER ANY STORM EVENT OF GREATER THAN 0.5 INCHES OF PRECIPITATION DURING ANY 24-HOUR PERIOD. ALL SEDIMENT CONTROL FEATURES SHALL BE MAINTAINED UNTIL FINAL STABILIZATION HAS BEEN OBTAINED.
    b. STABILIZATION MEASURES SHALL 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, UNLESS ACTIVITY IN THAT PORTION OF THE SITE WILL RESUME WITHIN 14 DAYS.
14. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH THE DISTURBANCE OF THE LAND AND SHALL REMAIN FUNCTIONAL UNTIL THE CONTRIBUTING DISTURBED AREAS ARE STABILIZED. SILT BARRIERS WILL BE INSTALLED AS NECESSARY TO PREVENT EXCESSIVE SEDIMENTATION OF DOWNSTREAM AREAS. DEVICES SHALL BE IN ACCORDANCE WITH THE MANUAL OF "EROSION AND SEDIMENT CONTROL PRACTICES FOR DEVELOPING AREAS" BY THE S.C. LAND RESOURCES CONSERVATION COMMISSION.
15. CONTRACTOR SHALL GRADE AREAS TO DRAIN FOR POSITIVE FLOW PRIOR TO FINAL ACCEPTANCE.
16. ALL TRAFFIC CONTROL SIGNS AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MANUAL ON "UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND "SOUTH CAROLINA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" BOTH CURRENT EDITIONS.
17. ALL AREAS DISTURBED WILL BE GRASSED IMMEDIATELY AFTER THE INSTALLATION. GRASSING SHALL BE IN ACCORDANCE WITH SECTION 810 OF THE SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION CURRENT EDITION. PAYMENT SHALL BE AS SHOWN IN THE BID FORM AND SHALL BE COMPENSATION FOR LL NECESSARY WORK AND MATERIALS TO COMPLETE THE SEEDING IN ACCORDANCE WITH THESE SPECIFICATIONS. (SEE SPECIFICATIONS BELOW)
18. ALL DRAINAGE WILL BE MADE FUNCTIONAL DAILY AS WORK PROGRESSES.
19. EACH EXISTING ROAD WILL BE CLEANED UP AND RESTORED DAILY.
20. NEW PAVEMENT TO BE FLUSH WITH EDGE OF EXISTING PAVEMENT.
21. ALL STORM DRAIN PIPE INVERTS IN AND OUT ARE THE SAME AS THE BOX INVERT UNLESS OTHERWISE NOTED ON THE PLAN SHEETS AND/OR PROFILES.
22. ONLY TYPE S AND M MORTAR IS TO BE USED IN STORMWATER SYSTEM CONSTRUCTION AND ALL BRICKWORK **AND BRICK MUST MEET SCDOT SPECIFICATIONS.**

GENERAL INFORMATION

COUNTY HORRY COUNTY

OWNER:
GRAND STRAND WATER & SEWER AUTHORITY
166 JACKSON BLUFF ROAD
P.O. BOX 2368
CONWAY, SC 29526

ENGINEER:
THOMAS & HUTTON ENGINEERING CO.
1350 FARROW PARKWAY
MYRTLE BEACH, SC 29577
(843) 839-3545

PREPARED FOR:
GRAND STRAND WATER & SEWER AUTHORITY
166 JACKSON BLUFF ROAD
P.O. BOX 2368
CONWAY, SC 29526

SURVEYOR:
THOMAS & HUTTON ENGINEERING CO.
1350 FARROW PARKWAY
MYRTLE BEACH, SC 29577
(843) 839-3545

UTILITY:
GRAND STRAND WATER & SEWER AUTHORITY
166 JACKSON BLUFF ROAD
P.O. BOX 2368
CONWAY, SC 29526

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030285 JOHN H. RICHARDSON II 11/30/17

NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURNLANES ADDED	CCR	05/10/17
B	PER HORRY COUNTY	CVD	10/17/13
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

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HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

GENERAL NOTES

JOB NO:	J-23332.0000
DATE:	10/17/13
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DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	N/A

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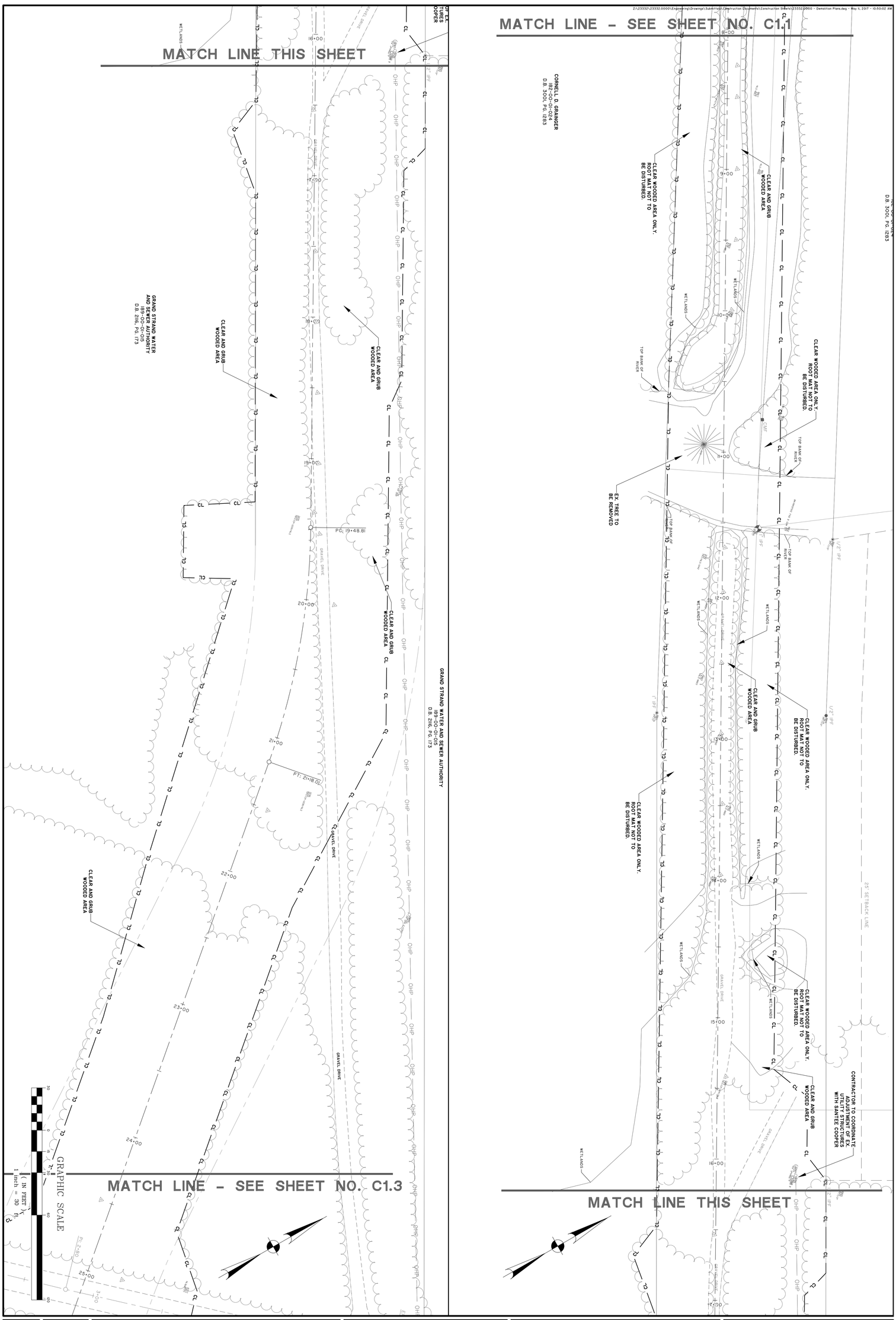
C1.1	GRAND STRAND WATER & SEWER AUTHORITY HORRY COUNTY, SC NEW BUCKSPORT ACCESS ROAD DEMOLITION PLAN	THOMAS & HUTTON Engineering | Surveying | Planning | GIS | Consulting 1350 Farrow Parkway • PO Box 8000 Myrtle Beach, SC 29578-8000 • 843.839-3545 www.thomasandhutton.com Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURLANES ADDED	CCR	05/10/17
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JOB NO: 23332.0000
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SOUTH CAROLINA — No. 20704 — REGISTERED PROFESSIONAL ENGINEER — JOHN H. RICHARDS — 11/14/17

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION



C1.2

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

DEMOLITION PLAN

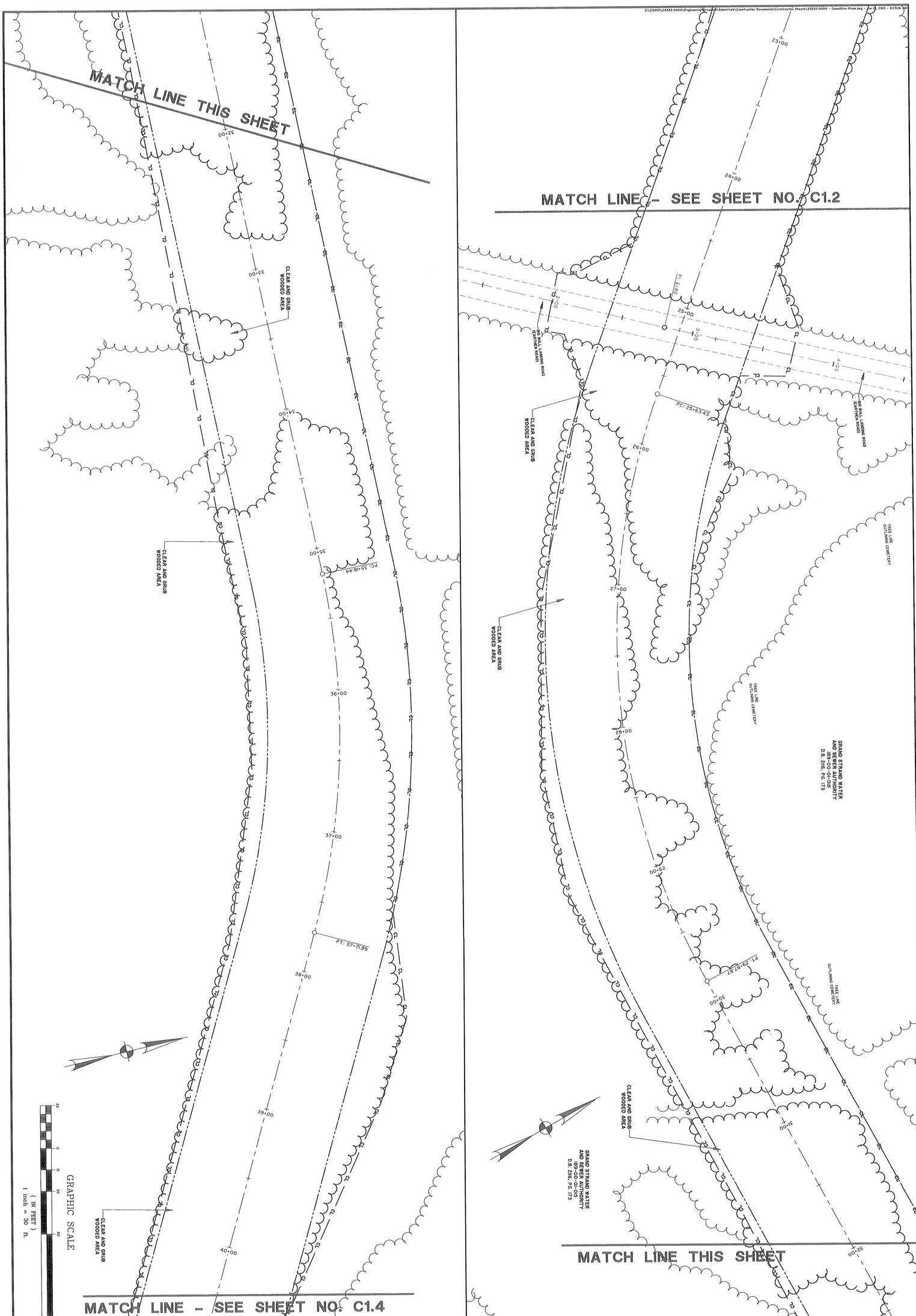
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SOUTH CAROLINA
No. 20704
JOHN H. RICHARDS
11/14/17

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION



C1.3

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

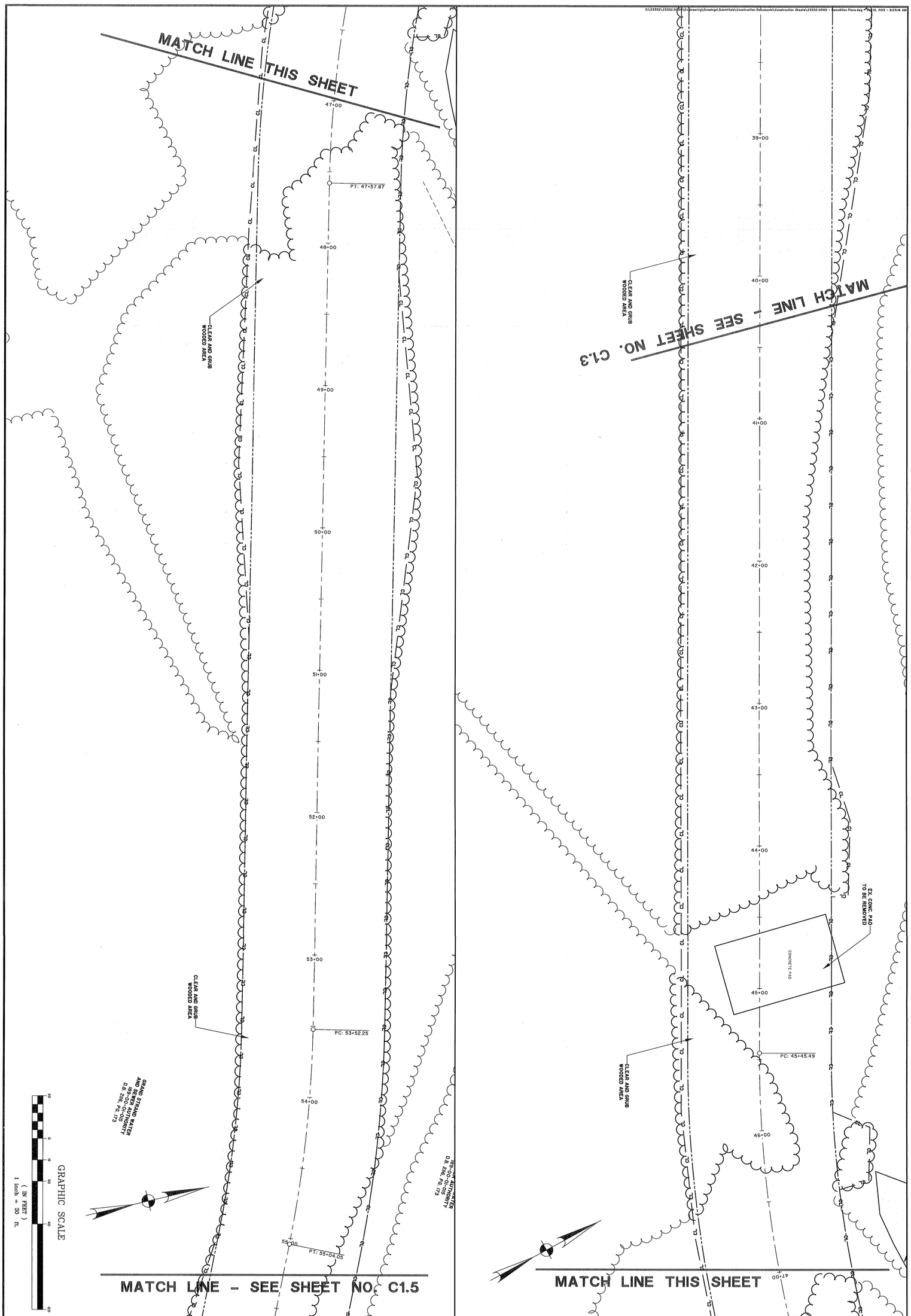
DEMOLITION PLAN

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A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA PROFESSIONAL ENGINEER
No. 20104
JOHN H. RICHARDS
11/04/13

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00265
CERTIFICATE OF AUTHORIZATION



C1.4

JOB NO:	J-23332.0000
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HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

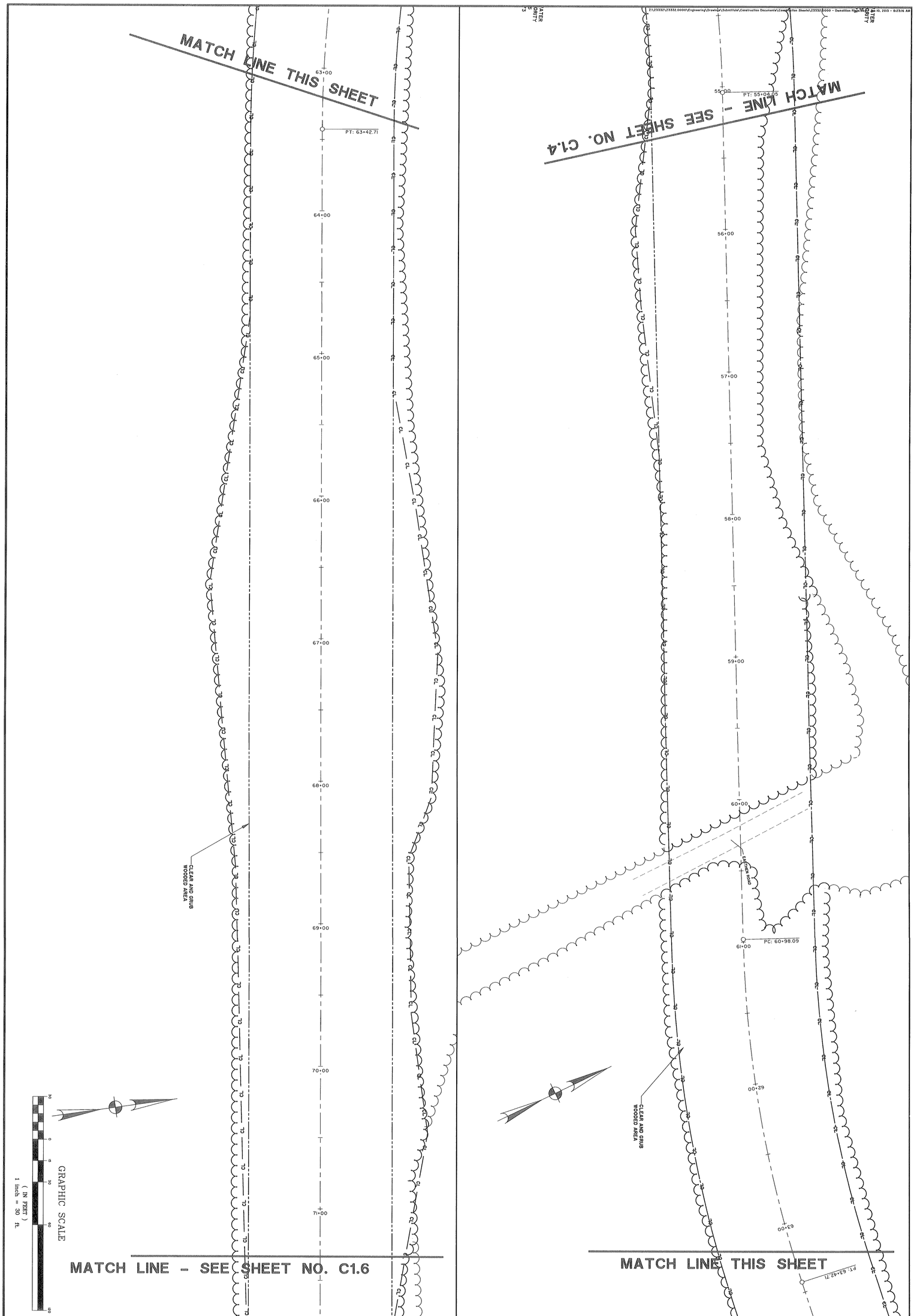
DEMOLITION PLAN

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NO.	REVISIONS	BY	DATE
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SOUTH CAROLINA PROFESSIONAL ENGINEER
No. 22204
JOHN H. RICHARDS
12/04/13

THOMAS & HUTTON ENGINEERING CO.
SOUTH CAROLINA
No. COA285
CERTIFICATE OF AUTHORIZATION



C1.5

JOB NO:	23332.0000
DATE:	10/7/13
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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

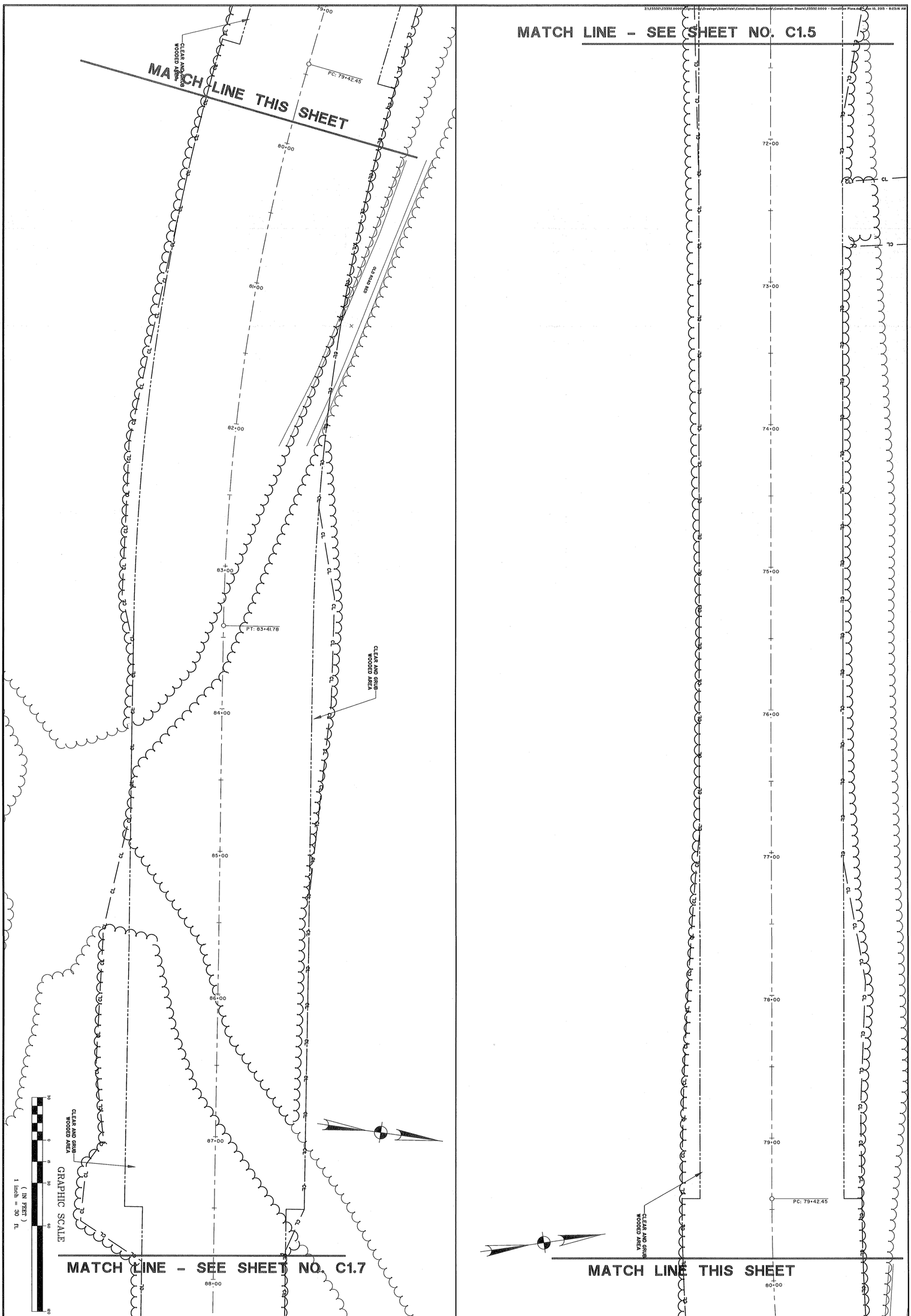
DEMOLITION PLAN

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NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA PROFESSIONAL ENGINEER 26784 JOHN H. RICHARDS 11/08/13

THOMAS & HUTTON ENGINEERING CO. No. C00285 CERTIFICATE OF AUTHORIZATION



C1.6

JOB NO.	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
CHECKED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

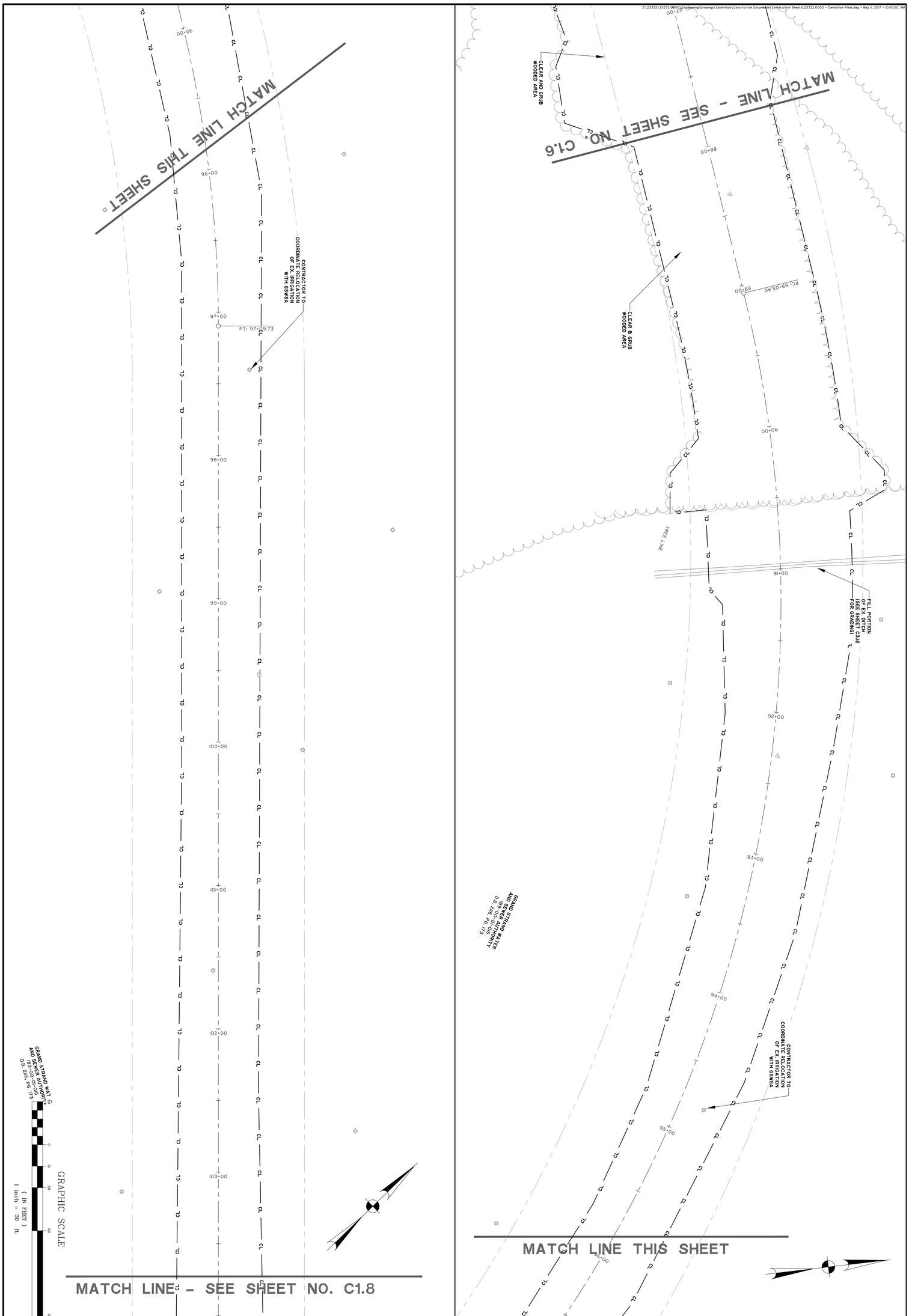
NEW BUCKSPORT ACCESS ROAD

DEMOLITION PLAN

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NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 20704 JOHN H. RICHARDS
SOUTH CAROLINA THOMAS & HUTTON ENGINEERING CO. No. C00285 CERTIFICATE OF AUTHORITY



C1.7

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

DEMOLITION PLAN

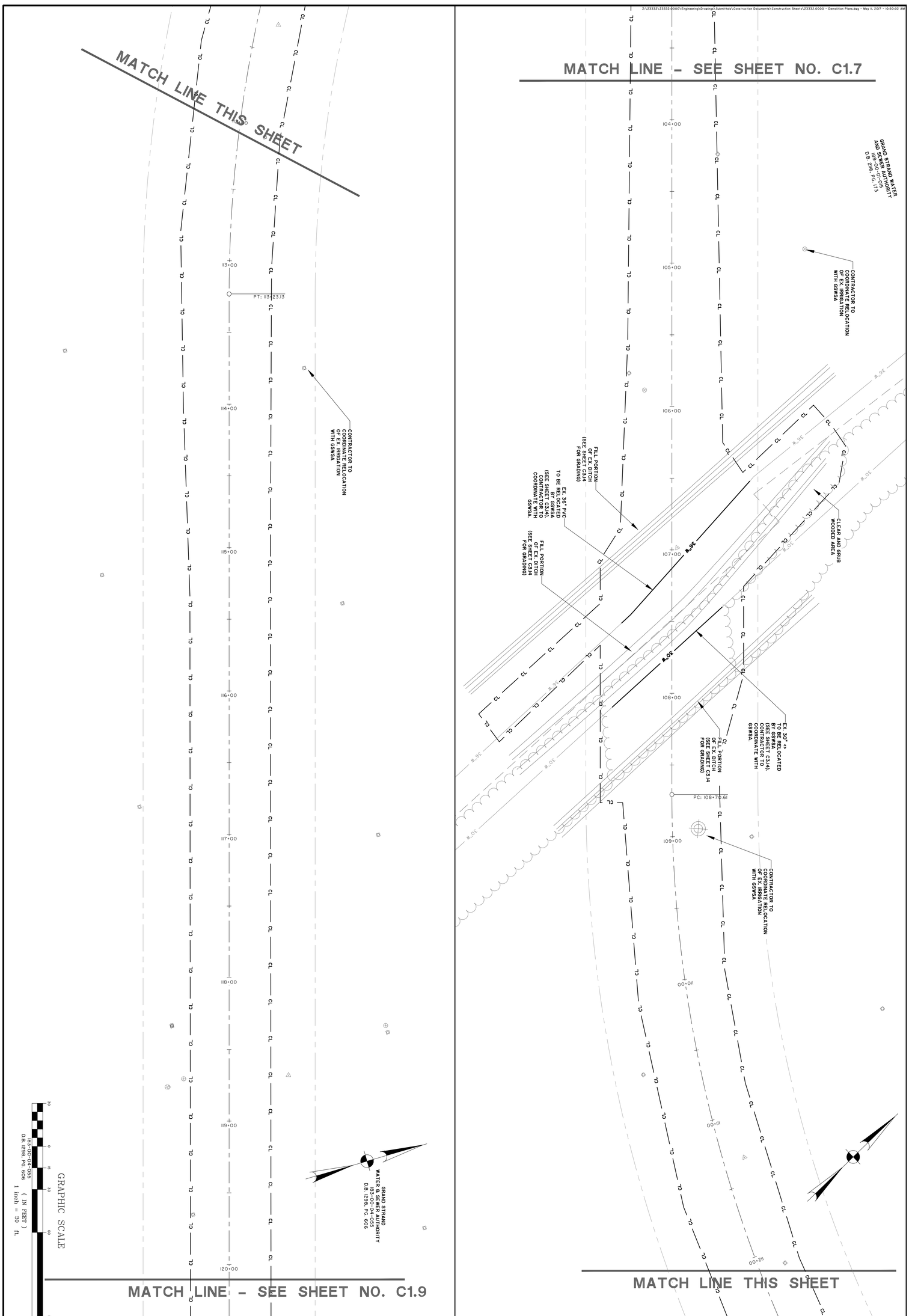
JOB NO:	23332.0000
DATE:	10/17/16
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JWW
APPROVED:	JHR
SCALE:	1" = 30'

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NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURLANES ADDED	CCR	05/10/17
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA
No. 20704
REGISTERED PROFESSIONAL ENGINEER
JOHN H. RICHARDS
11/14/17

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION



C1.8

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

DEMOLITION PLAN

JOB NO: 23332.0000
DATE: 10/17/16
DRAWN: CVD
DESIGNED: CVD
REVIEWED: JHR
APPROVED: JHR
SCALE: 1" = 30'

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A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 20704 JOHN H. RICHARDS
11/14/17

THOMAS & HUTTON ENGINEERING CO. No. C00285 CERTIFICATE OF AUTHORIZATION

MATCH LINE THIS SHEET

MATCH LINE – SEE SHEET NO. C1.10

MATCH LINE – SEE SHEET NO. C1.8

GRAND STRAND
WATER & SEWER AUTHORITY
183-00-04-055
D.B. 1298, PG. 606

CONTRACTOR TO COORDINATE RELOCATION OF EX. IRRIGATION WITH GSWSA

PC: 123+12.19

FILL PORTION OF EX. DITCH (SEE SHEET C3.16 FOR GRADING)

EX. 30" PVC TO BE RELOCATED BY GSWSA (SEE SHEET C3.16). CONTRACTOR TO COORDINATE WITH GSWSA.

LIMITS OF OVERLAY

LIMITS OF OVERLAY

CEMETERY ROAD

ST A+5+75.03
END MILLING

ST A+5+50.03
END OVERLAY/
BEGIN MILLING

BUCKSPORT ROAD
S.C. HWY. 48

EX. PAVEMENT TO BE REMOVED

PT: 4+69.18

SIDEWALK

3' ELECTRIC WIRE FENCE

5' METAL R/F FENCE

FILL PORTION OF EX. DITCH (SEE SHEET C3.18 FOR GRADING)

CONTRACTOR TO COORDINATE RELOCATION OF EX. COMMUNICATION STRUCTURES WITH UTILITY

EX. 6" PVC TO BE RELOCATED BY GSWSA (SEE SHEET C3.18). CONTRACTOR TO COORDINATE WITH GSWSA.

LIMITS OF OVERLAY

MATCH LINE THIS SHEET

MATCH LINE – SEE SHEET NO. C1.9

FILL PORTION OF EX. DITCH (SEE SHEET C3.16 FOR GRADING)

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
REGISTERED
ENGINEER
No. 24070
JOHN H. RICHARDSON

NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURLANES ADDED	CVD	02/25/13
A	SUBMITTED FOR PERMITTING	CCR	05/10/17

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NEW BUCKSPORT ACCESS ROAD

DEMOLITION PLAN

JOB NO:	J-23332.0000
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REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 30'

C1.9

EX. PAVEMENT TO BE REMOVED

FILL PORTION OF EX. DITCH (SEE SHEET C3.17 FOR GRADING)

EX. PAVEMENT TO BE REMOVED

EX. GATE TO BE RELOCATED. CONTRACTOR TO COORDINATE NEW LOCATION WITH GSWSA.

REMOVE 41 LF - 15" CMP

CONTRACTOR TO COORDINATE RELOCATION OF EX. UTILITY STRUCTURES WITH SANTEE COOPER

PORTION OF EX. DITCH TO BE RE-GRADED (SEE SHEET C3.17 FOR GRADING)

FILL PORTION OF EX. DITCH (SEE SHEET C3.17 FOR GRADING)

BUCKSPORT ROAD S.C. HWY. 48

LIMITS OF OVERLAY

EX. 6" PVC TO BE RELCOATED BY GSWSA (SEE SHEET C3.17). CONTRACTOR TO COORDINATE WITH GSWSA.

PORTION OF EX. DITCH TO BE RE-GRADED (SEE SHEET C3.17 FOR GRADING)

STA=134+86.70 END OVERLAY/ BEGIN MILLING

STA=134+86.70 END MILLING

METAL GATE

GRAVEL DRIVE

TREE LINE

DITCH

CONCRETE DRIVE

END 24" CMP I.E.: 7.63

END 24" CMP I.E.: 7.96

END 15" CMP I.E.: 11.03

END 15" CMP I.E.: 9.23

END 36" RCP I.E.: 9.15

END 18" RCP I.E.: 10.59

END 15" RCP I.E.: 12.52

END 15" RCP I.E.: 12.17

MATCH LINE - SEE SHEET NO. C1.9

MATCH LINE - SEE SHEET NO. C1.11

1 STORY BRICK DWELLING

325

326

327

RELOCATE EX. MAILBOX BEYOND NEW PAVEMENT

LIMITS OF OVERLAY

SHRUB LINE

SHRUB

DITCH

END 15" RCP I.E.: 20.52

END 15" RCP I.E.: 21.51

END 15" RCP I.E.: 21.58

U.S. HWY 701 (R/W VARIES)

STA=324+94.76 END OVERLAY/ BEGIN MILLING

STA=325+19.77 END MILLING

CMF #33

CMF

5/8" IRF

5/8" IRF

5/8" IRF

5/8" IRF

25.9" CYPRESS BENCHTIE

EDGE 328+21.78

CONC DRIVE

PINE

EARTHEN BERM

CONCRETE DRIVE

1 STORY FRAME DWELLING

SUE

OPANETANK

2" WOOD BOLLARDS

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

NO.	REVISIONS	BY	DATE
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DEMOLITION PLAN

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APPROVED:	JHR
SCALE:	1" = 30'

C1.10

MATCH LINE THIS SHEET

MATCH LINE - SEE SHEET NO. C1.10

MATCH LINE - SEE SHEET NO. C1.1

U.S. HWY 701 (R/W VARIES)

LIMITS OF OVERLAY

RELOCATE EX. MAILBOXES BEYOND NEW PAVEMENT

FILL PORTION OF EX. DITCH (SEE SHEET C3.20 FOR GRADING)

EX. HYDRANT, VALVE AND MARKER TO BE RELOCATED BY GSWSA

LUCAS BAY ROAD

RE-GRADE EX. DITCH (SEE SHEET C3.20 FOR GRADING)

REMOVE 40 LF - 15" RCP

CONTRACTOR TO COORDINATE RELOCATION OF EX. COMMUNICATION STRUCTURES WITH UTILITY

CONTRACTOR TO COORDINATE RELOCATION OF EX. UTILITY STRUCTURES WITH SANTEE COOPER

RELOCATE EX. MAILBOX BEYOND NEW PAVEMENT

CANOPY (PUMPS)

CONCRETE PARKING GAS STATION

CONC. PAD

PROPANE TANK

OLD DIRT ROAD

DIRT DRIVE

ALLIGATOR ALLEY

WOOD FENCE

TREE LINE

SHRUB

1 STORY FRAME DWELLING

1 1/2 STORY FRAME DWELLING

24" OAK

RET. WALL

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

NO.	REVISIONS	BY	DATE
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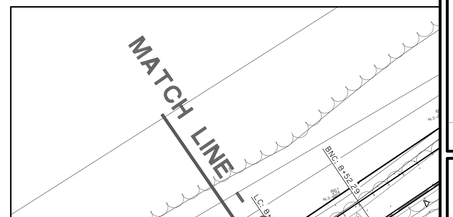
DEMOLITION PLAN

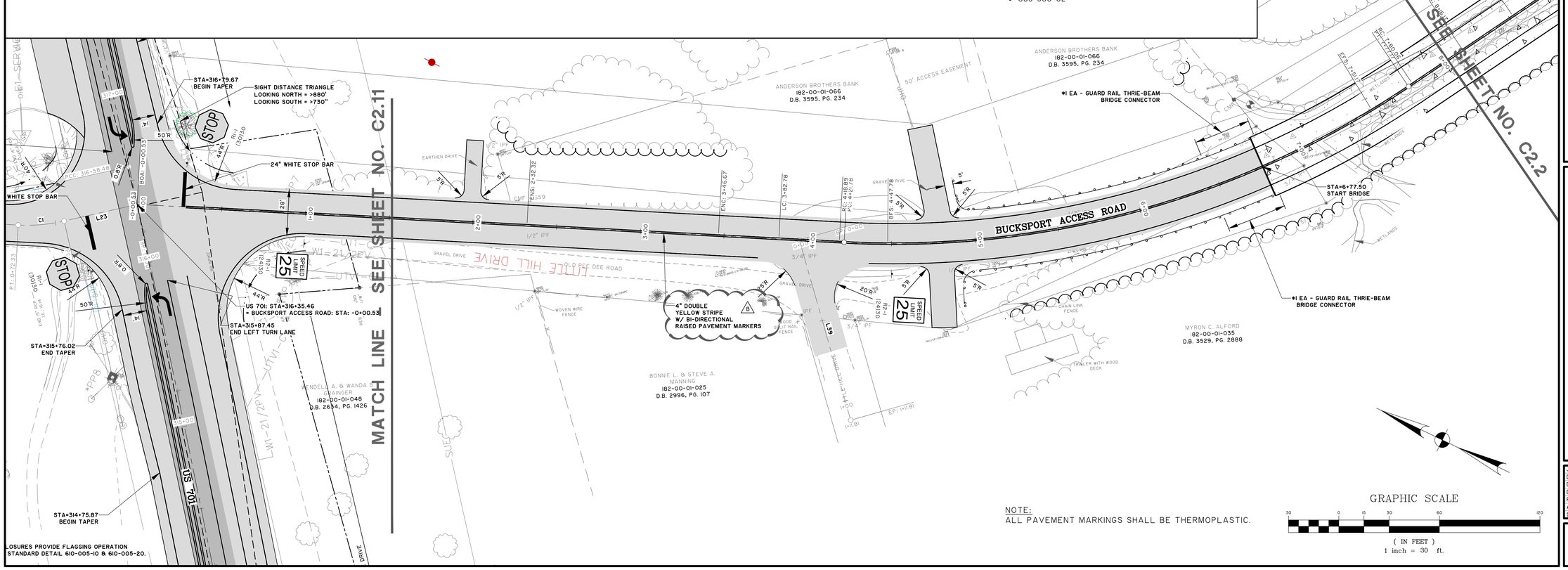
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DATE:	10/17/15
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 30'

C1.11

Z:\23332\23332.0000\Engineering\Driveway\Submittal\Construction Documents\Construction Sheets\23332.0000 - Striping and Signage Package - May 4, 2017 - 1:06:38 AM

* SEE THE FOLLOWING STANDARD SCDOT DETAILS FOR GUARD RAIL INSTALLATION
- 805-001-0 THROUGH 805-001-03
- 805-003-01 AND 805-003-02
- 805-009-00
- 805-010-00
- 805-011-00
- 805-012-00
- 805-013-00
- 805-014-00
- 805-145-00
- 805-330-00
- 805-325-00
- 805-705-00
- 805-710-00
- 805-750-01
- 805-580-01
- 805-580-02





LOSURES PROVIDE FLAGGING OPERATION
STANDARD DETAIL 610-005-10 & 610-005-20.

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION — NOT VALID WITHOUT ORIGINAL SEAL

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOSEPH H. RICHTER, JR. — No. 24070 — 11/17

NO.	REVISIONS	BY	DATE
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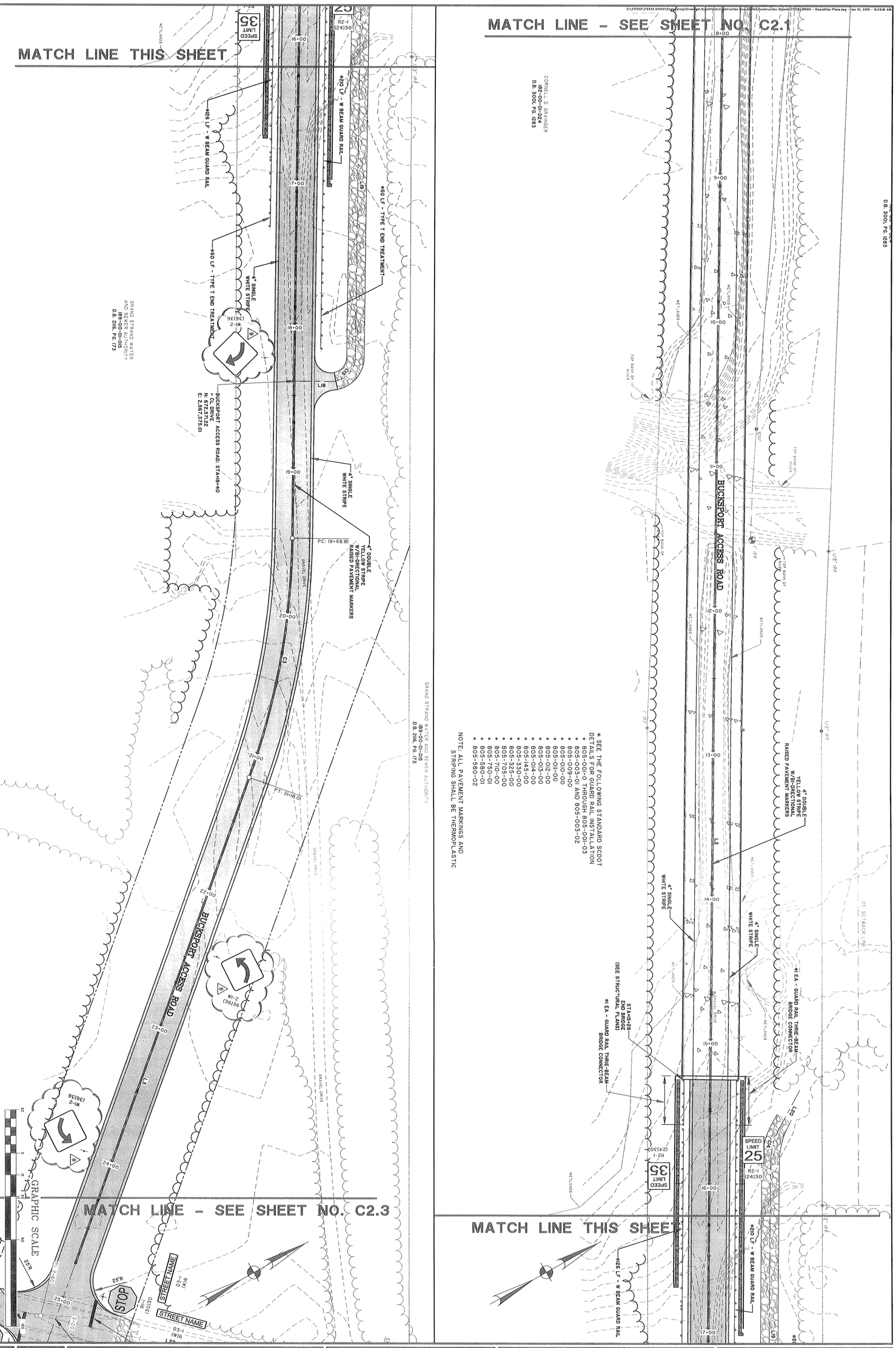
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HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

STAKING SIGNAGE AND MARKING PLAN

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 30'

C2.1



JOB NO:	23332.2000
DATE:	10/17/13
DESIGNED:	
DRAWN:	
CHECKED:	
APPROVED:	
SCALE:	1" = 30'

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

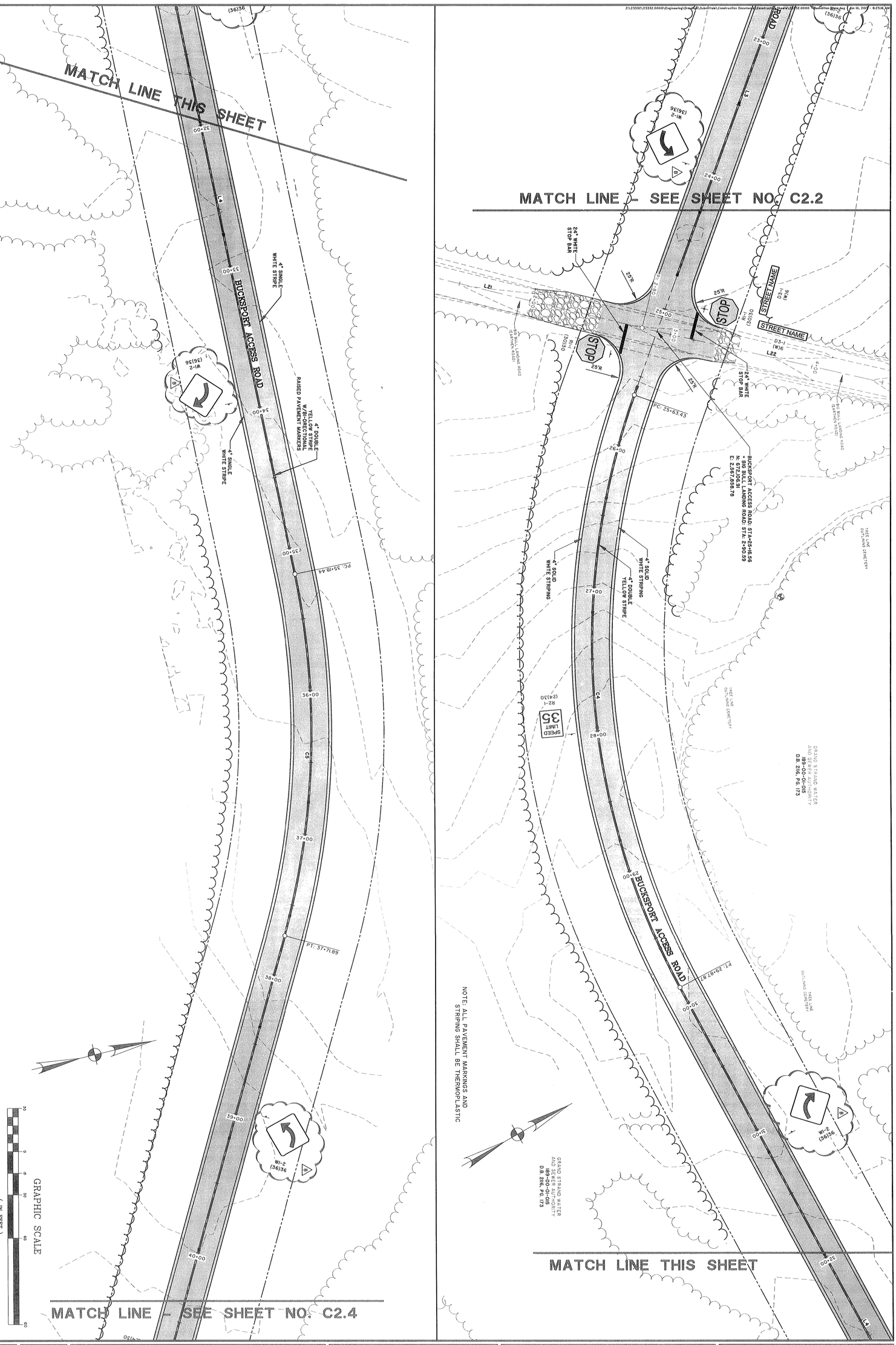
STAKING SIGNAGE AND MARKING PLAN

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NO.	REVISIONS	BY	DATE
B	PER HORRY COUNTY	CVD	10/17/13

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER JOHN H. RICHARDSON 24001 10/17/13

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JOB NO:	T-23332.0000		
DATE:	10/17/13		
DRAWN:	CVD		
DESIGNED:	CVD		
REVIEWED:	JHR		
APPROVED:	JHR		
SCALE:	1" = 30'		

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HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

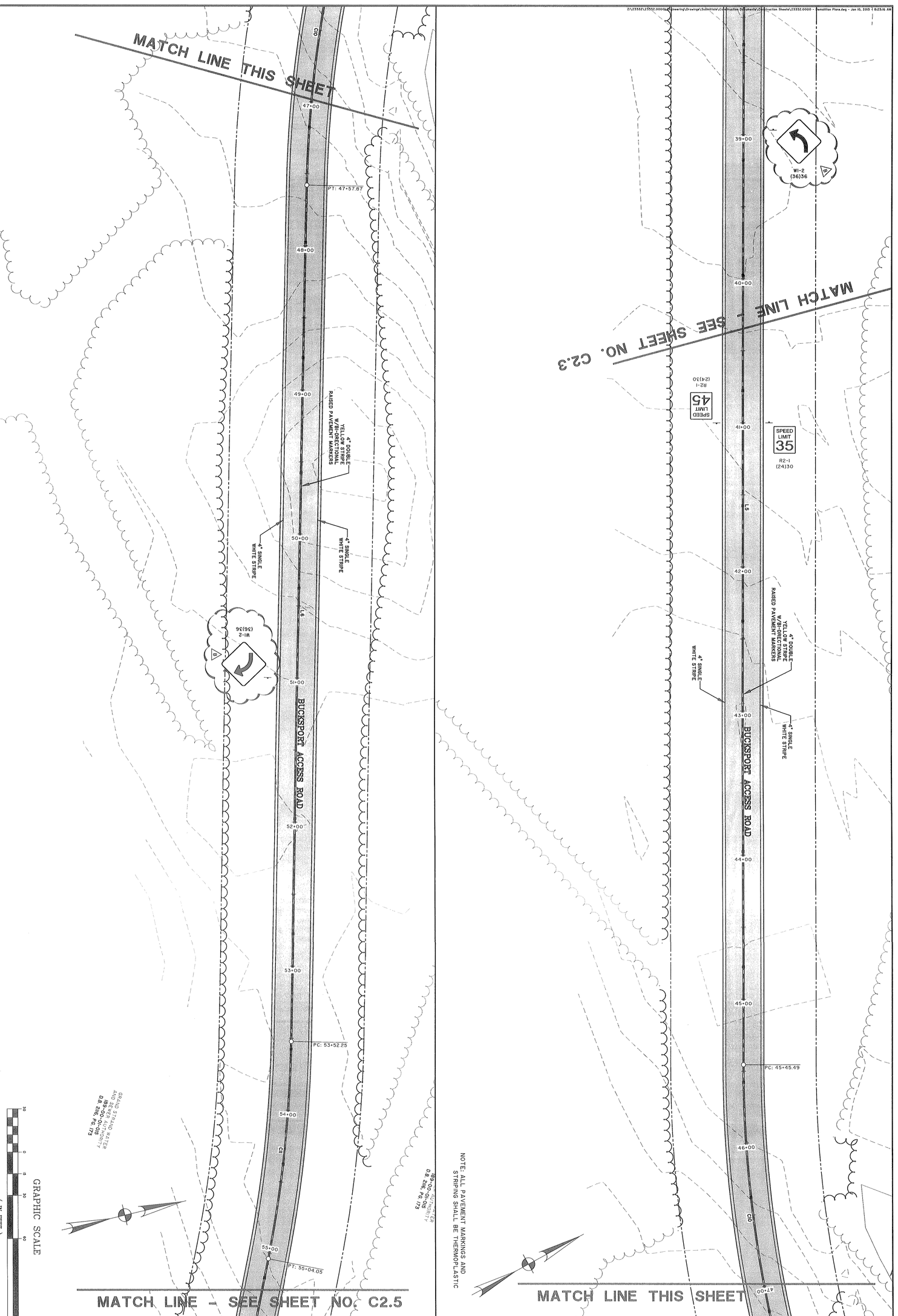
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A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 20704 JOHN H. RICHARDS 8 NOV 13

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JOB NO:	23332.0000
DATE:	10/17/13
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REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 30'

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

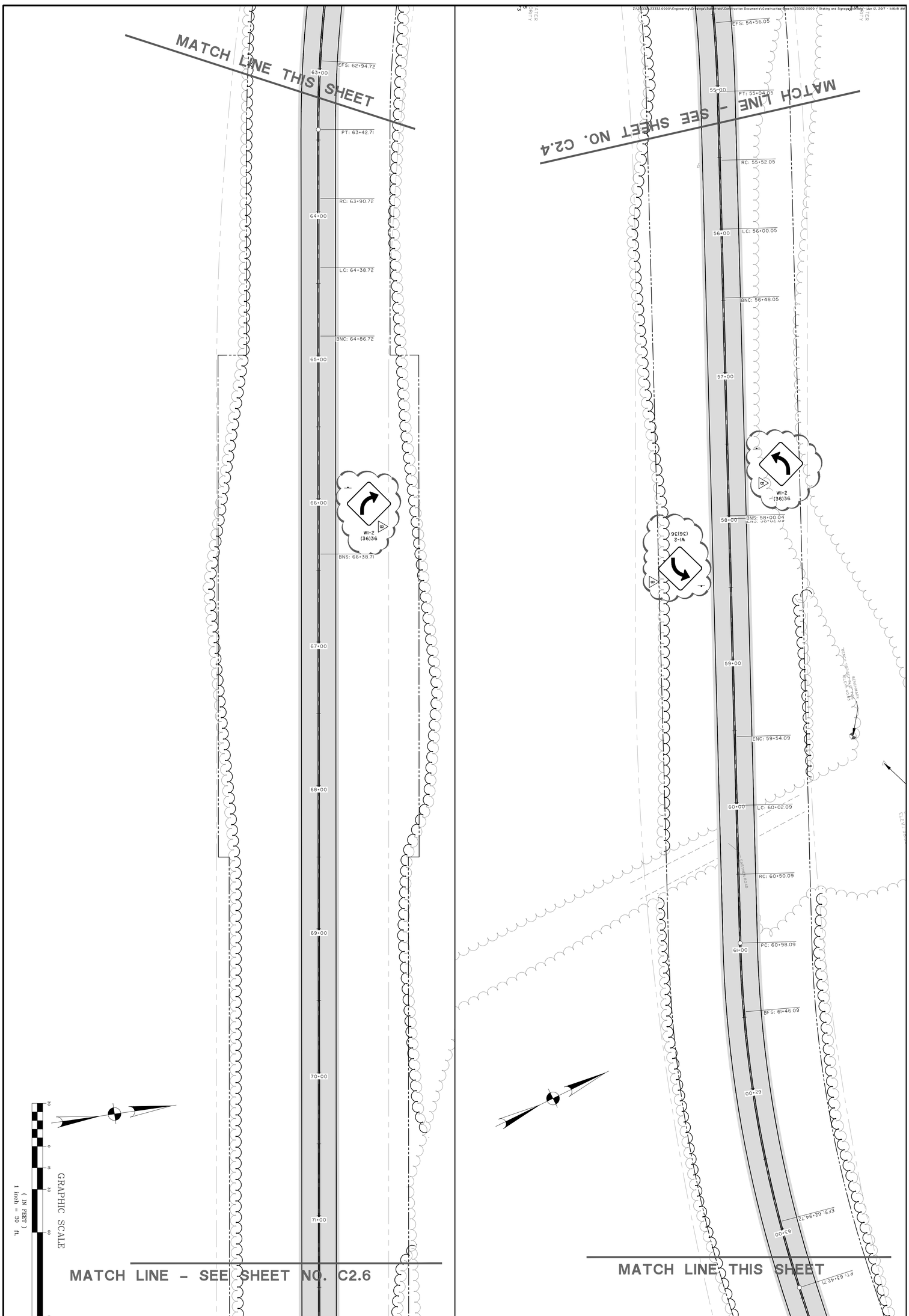
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A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 26004 JOHN H. RICHARDS 8 NOV 13

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C2.5

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

STAKING SIGNAGE AND MARKING PLAN

JOB NO: 25332.0000
DATE: 10/17/13
DRAWN: CVD
DESIGNED: CVD
REVIEWED: JHR
APPROVED: JHR
SCALE: 1" = 30'

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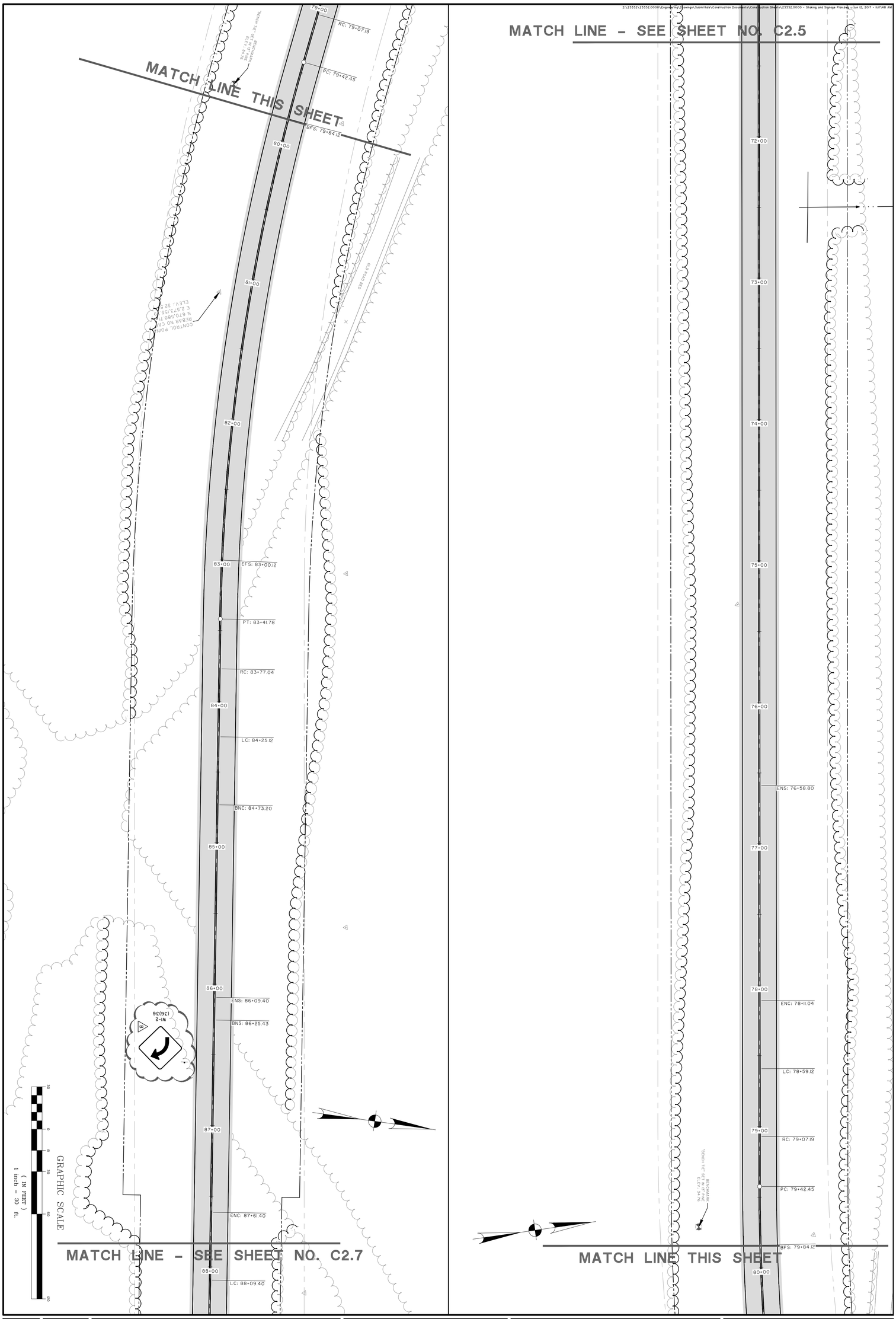
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B	PER HORRY COUNTY	CVD	10/17/13
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA
JOHN H. RICHARDS
20270
REGISTERED PROFESSIONAL ENGINEER
12/20/17

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION



C2.6

PROJECT NO:	25332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	MBB
APPROVED:	JHR
SCALE:	1" = 30'

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HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

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B	PER HORRY COUNTY	CVD	10/17/13
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA
JOHN H. RICHARDS
No. 20270
REGISTERED PROFESSIONAL ENGINEER
12/JUN/17

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION

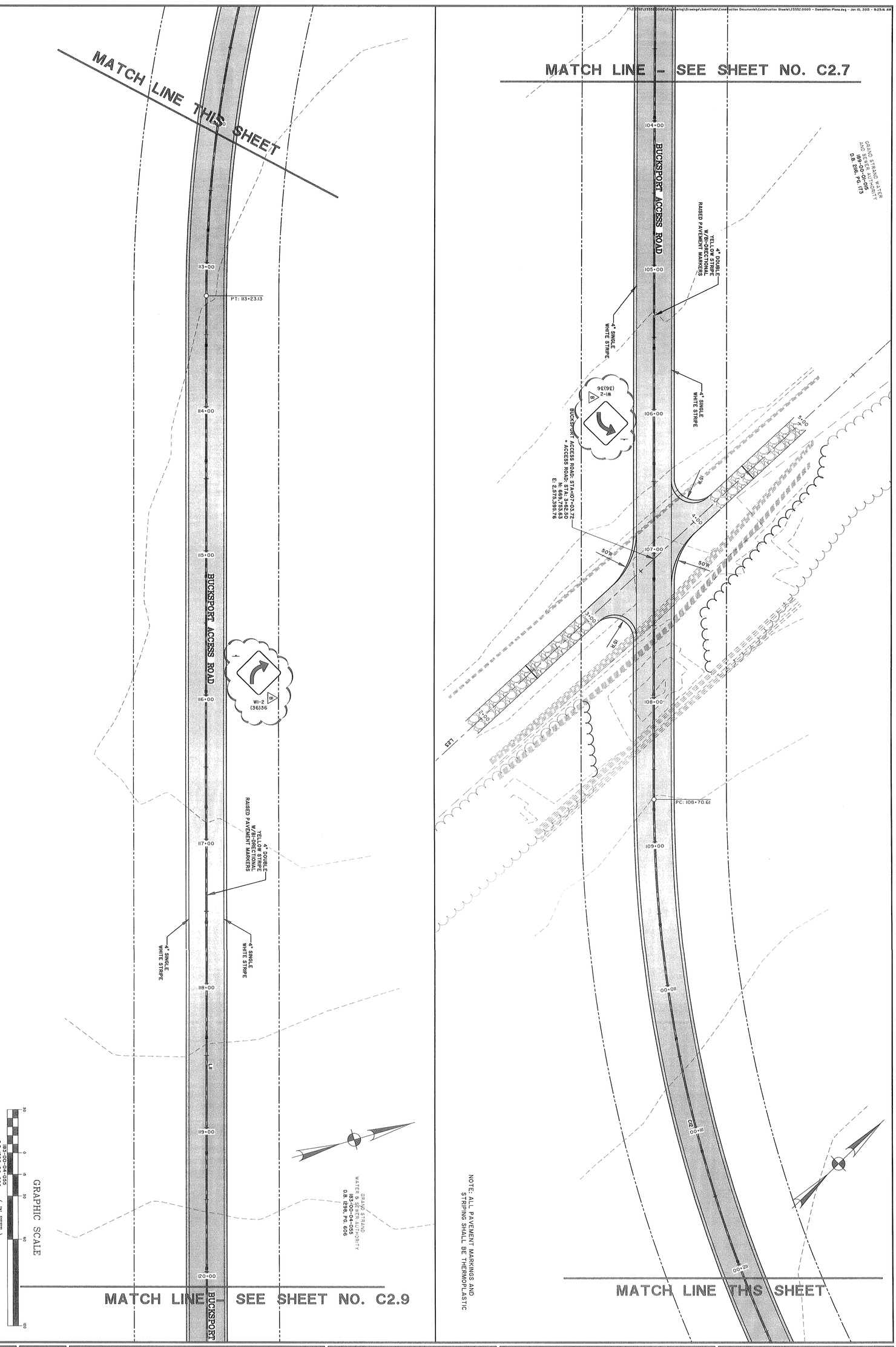


JOB NO:	J-23332.0000	**GRAND STRAND WATER & SEWER AUTHORITY**	THOMAS & HUTTON Engineering | Surveying | Planning | GIS | Consulting
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DRAWN:	CVD	NEW BUCKSPORT ACCESS ROAD	Myrtle Beach, SC 29578-8000 • 843.839-3545
DESIGNED:	CVD	STAKING SIGNAGE AND MARKING PLAN	www.thomasandhutton.com
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APPROVED:	JHR		
SCALE:	1" = 50'		

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A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 20704 JOHN H. RICHARDS 4/10/13

SOUTH CAROLINA THOMAS & HUTTON ENGINEERING CO. No. C00285 CERTIFICATE OF AUTHORIZATION



JOB NO:	P23332.0000
DATE:	10/17/13
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SCALE:	1" = 30'

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HORRY COUNTY, SC

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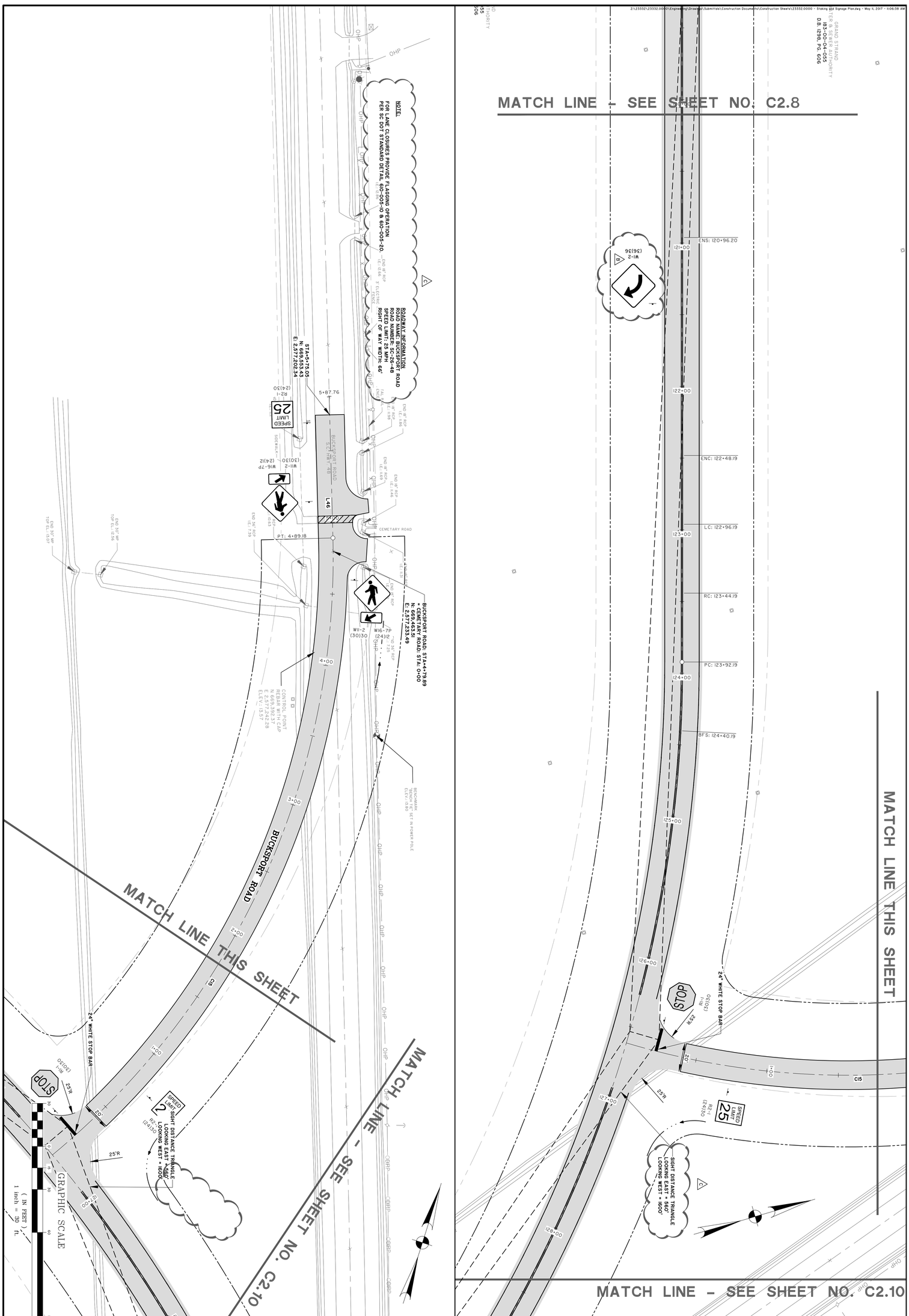
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SOUTH CAROLINA PROFESSIONAL ENGINEER 24704 JOHN H. RICHARDS 10/17/13

SOUTH CAROLINA THOMAS & HUTTON ENGINEERING CO. No. C00285 CERTIFICATE OF AUTHORIZATION



C2.9

JOB NO:	25253.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 20'

GRAND STRAND WATER & SEWER AUTHORITY

HORRY COUNTY, SC

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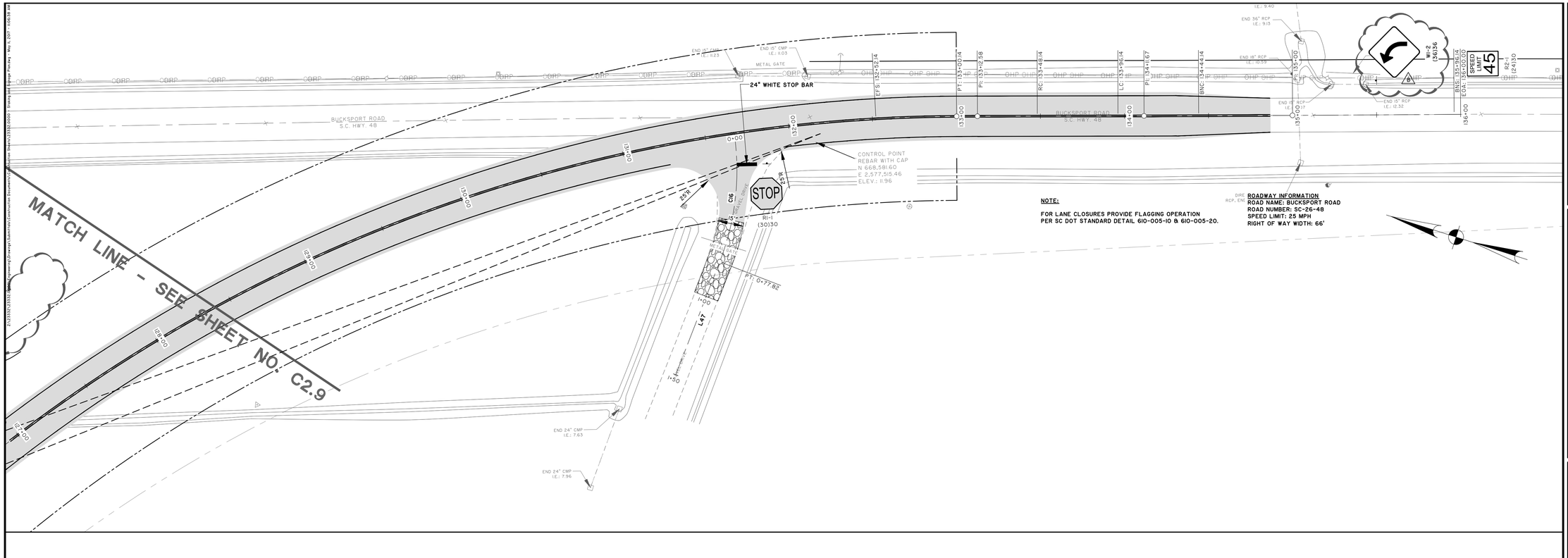
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B	PER HORRY COUNTY	CVD	10/17/13
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA — No. 30704 — PROFESSIONAL ENGINEER — JOHN H. RICHARDS — 11/14/17

THOMAS & HUTTON ENGINEERING CO. — SOUTH CAROLINA — No. C00285 — CERTIFICATE OF AUTHORIZATION



NOTE:

FOR LANE CLOSURES PROVIDE FLAGGING OPERATION PER SC DOT STANDARD DETAIL 610-005-10 & 610-005-20.

DIP, RCP, ERP

ROADWAY INFORMATION
ROAD NAME: BUCKSPORT ROAD
ROAD NUMBER: SC-26-48
SPEED LIMIT: 25 MPH
RIGHT OF WAY WIDTH: 66'

NOTE:
ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURLANES ADDED	CCR	05/10/17
B	PER HORRY COUNTY	CVD	10/17/13
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting
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Myrtle Beach, SC 29578-8000 • 843.839-3545
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SOUTH CAROLINA — JAMES HARRIS RICHARDSON — 24404 — REGISTERED PROFESSIONAL ENGINEER

11/14/17

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

STAKING SIGNAGE AND MARKING PLAN

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 30'

C2.10

NOTE:
ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.

NOTE:

FOR LANE CLOSURES PROVIDE FLAGGING OPERATION
PER SC DOT STANDARD DETAIL 610-005-10 & 610-005-20.

MATCH LINE THIS SHEET

MATCH LINE - SEE SHEET NO. C2.1

MATCH LINE - SEE SHEET NO. C2.12

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

NOLL & TOMSEU
SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
PROFESSIONAL ENGINEER
CHRISTOPHER V. DAVIS
No. 29684
11/14/17

NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURNLANES ADDED	CCR	05/10/17

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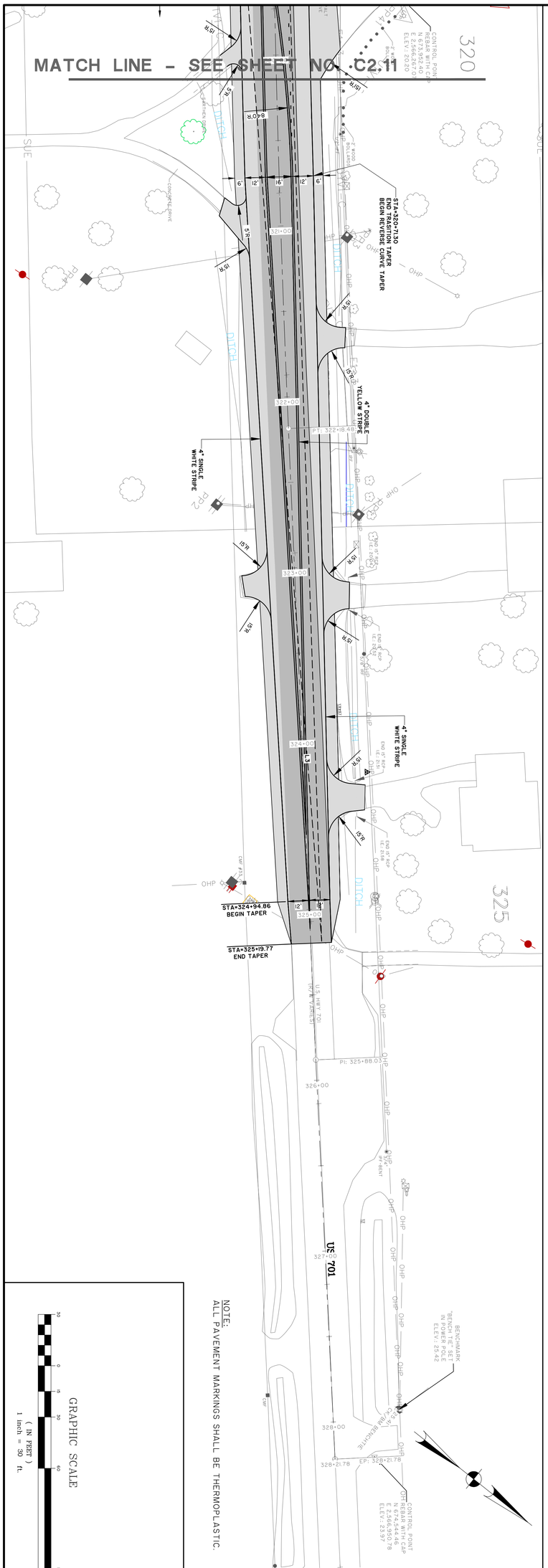
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

STAKING SIGNAGE AND MARKING PLAN

JOB NO:	J-23332.0000
DATE:	10/17/15
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 30'

C2.11



Z:\23332\23332.0000\Engineering\Drawings\Submittals\Construction Documents\Construction Sheets\23332.0000 - Staking and Signage Plan.dwg – May 11, 2017 – 11:06:38 AM

C2.12

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

STAKING SIGNAGE AND MARKING PLAN

JOB NO: 23332.0000
DATE: 10/17/16
DRAWN: CVD
DESIGNED: CVD
REVIEWED: JHR
APPROVED: JHR
SCALE: 1" = 30'

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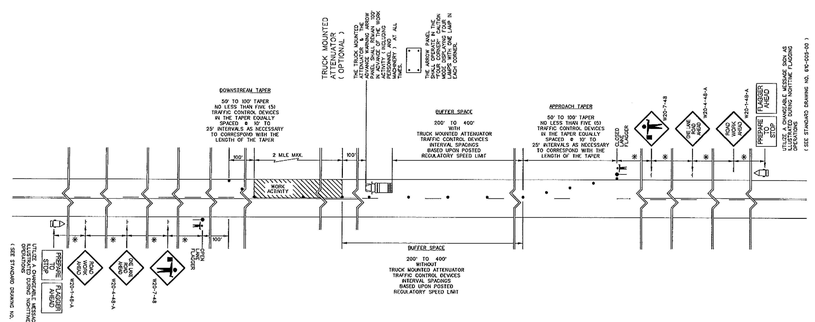
NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURLANES ADDED	CCR	05/10/17

SOUTH CAROLINA
No. 20704
JOHN H. RICHARDS
11/14/17

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION

DRAWING 610-005-10 NOTES

1. SEE STANDARD DRAWING NO. 610-005-00 FOR ALL GENERAL NOTES AND REQUIREMENTS.



THIS DRAWING IS NOT TO SCALE

TABLE A

SIGN PLACEMENT INTERVALS	
SPEED LIMIT	*
≤ 35 MPH LOW SPEED	200
* 40 - 50 MPH INTERMEDIATE SPEED	350
* 55 MPH HIGH SPEED	500

* REGULATORY POSTED SPEED LIMIT PRIOR TO BEGINNING WORK

TABLE B

TRAFFIC CONTROL DEVICE SPACING INTERVALS WORK ACTIVITY / BUFFER SPACE AREAS	
SPEED LIMIT	SPACING INTERVALS
≤ 35 MPH	25 FEET
40 - 55 MPH	50 FEET

REFERENCES

WORK ZONE TRAFFIC CONTROL ENGINEER

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER WILLIE E. McCONNELL, JR. NO. 24242

SIGNATURE 7/27/15 DATE

#	DATE	CHK	DESCRIPTION
0	1-15-15	JCS	NEW DRAWING

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

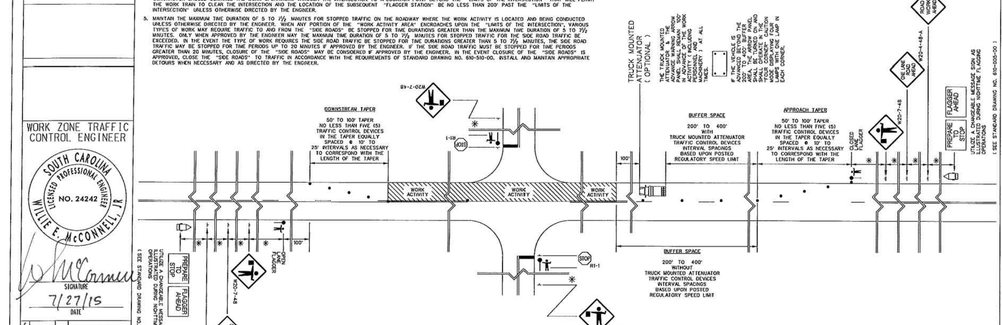
FLAGGING OPERATIONS TWO-LANE TWO-WAY ROADWAYS WITHOUT INTERSECTIONS

610-005-10

EFFECTIVE LETTING DATE: JAN 2016

DRAWING 610-005-20 NOTES

1. SEE STANDARD DRAWING NO. 610-005-00 FOR ALL GENERAL NOTES AND REQUIREMENTS. THE FOLLOWING NOTES ARE SPECIFIC REQUIREMENTS FOR THIS STANDARD DRAWING.
2. WHEN THE WORK ZONE PROCESS THROUGH OR MUST ENCROACH UPON THE "LIMITS OF THE INTERSECTION", DO NOT ALLOW THE "APPROACH TAPER" OR THE "BUFFER SPACE" TO EXTEND BEYOND THE "LIMITS OF THE INTERSECTION". ONLY THE "BUFFER SPACE" OR THE "WORK ACTIVITY AREA" OF THE LANE CLOSURE MAY ENCROACH UPON THE "LIMITS OF THE INTERSECTION".
3. WHEN THE WORK ZONE PROCESS THROUGH OR MUST ENCROACH UPON THE "LIMITS OF THE INTERSECTION" WITH "STOP SIGN CONTROLLED" "SIDE ROADS", UTILIZE FLAGGERS TO CONTROL THE TRAFFIC FROM THE INTERSECTING "SIDE ROADS" UNLESS OTHERWISE DIRECTED BY THE ENGINEER. MAINTAIN THESE FLAGGERS IN PLACE FOR THE DURATION THAT ANY PORTION OF THE "BUFFER SPACE" OR THE "WORK ACTIVITY AREA" MAY ENCROACH UPON THE "LIMITS OF THE INTERSECTION".
4. WHEN THE WORK ZONE PROCESS THROUGH OR MUST ENCROACH UPON THE "LIMITS OF THE INTERSECTION" WITH "STOP SIGN CONTROLLED" "SIDE ROADS", THE CONTRACTOR SHOULD CONTINUE THE WORK OPERATIONS THROUGH THE INTERSECTION TO A LOCATION POINT BEYOND THE "LIMITS OF THE INTERSECTION" THAT WILL PERMIT THE WORK TEAM TO CLEAR THE INTERSECTION AND THE LOCATION OF THE SUBSEQUENT "FLAGGER STATION" BE NO LESS THAN 200' PAST THE "LIMITS OF THE INTERSECTION" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
5. MAINTAIN THE MAXIMUM TIME DURATION OF 3 TO 7½ MINUTES FOR STOPPED TRAFFIC ON THE ROADWAY WHERE THE WORK ACTIVITY IS LOCATED AND BEING CONDUCTED UNLESS OTHERWISE DIRECTED BY THE ENGINEER. WHEN ANY PORTION OF THE "STOPPED TRAFFIC AREA" ENCROACHES ON THE "LIMITS OF THE INTERSECTION" OF VARIOUS "SIDE ROADS" OR DRIVEWAYS, THE MAXIMUM TIME DURATION OF STOPPED TRAFFIC MAY BE INCREASED TO 10 MINUTES. ONLY WHEN APPROVED BY THE ENGINEER MAY THE MAXIMUM TIME DURATION OF STOPPED TRAFFIC FOR THE SIDE ROAD TRAFFIC BE EXCEEDED. IN THE EVENT THE TYPE OF WORK REQUIRES THE SIDE ROAD TRAFFIC BE STOPPED FOR TIME DURATIONS GREATER THAN 5 TO 7½ MINUTES, THE SIDE ROAD TRAFFIC MAY BE STOPPED FOR TIME PERIODS UP TO 10 MINUTES IF APPROVED BY THE ENGINEER. IF THE SIDE ROAD TRAFFIC MUST BE STOPPED FOR TIME PERIODS GREATER THAN 20 MINUTES, CLOSURE OF THE "SIDE ROADS" MAY BE CONSIDERED IF APPROVED BY THE ENGINEER. IN THE EVENT CLOSURE OF THE "SIDE ROADS" IS APPROVED, INSTALL THE APPROPRIATE ROAD CLOSED SIGNS IN ACCORDANCE WITH THE REQUIREMENTS OF STANDARD DRAWING NO. 610-150-00. INSTALL AND MAINTAIN APPROPRIATE DETOURS WHEN NECESSARY AND AS DIRECTED BY THE ENGINEER.



THIS DRAWING IS NOT TO SCALE

TABLE A

SIGN PLACEMENT INTERVALS	
SPEED LIMIT	*
≤ 35 MPH LOW SPEED	200
* 40 - 50 MPH INTERMEDIATE SPEED	350
* 55 MPH HIGH SPEED	500

* REGULATORY POSTED SPEED LIMIT PRIOR TO BEGINNING WORK

TABLE B

TRAFFIC CONTROL DEVICE SPACING INTERVALS WORK ACTIVITY / BUFFER SPACE AREAS	
SPEED LIMIT	SPACING INTERVALS
≤ 35 MPH	25 FEET
40 - 55 MPH	50 FEET

REFERENCES

WORK ZONE TRAFFIC CONTROL ENGINEER

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER WILLIE E. McCONNELL, JR. NO. 24242

SIGNATURE 7/27/15 DATE

#	DATE	CHK	DESCRIPTION
0	1-15-15	JCS	NEW DRAWING

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

FLAGGING OPERATIONS WORK ZONES CONTINUING THROUGH STOP SIGN CONTROLLED SIDE ROADS

610-005-20

EFFECTIVE LETTING DATE: JAN 2016

FLAGGING OPERATIONS GENERAL NOTES

(ALL NOTES, SPECIFICATIONS AND REQUIREMENTS ON THIS STANDARD DRAWING APPLY TO ALL SUBSEQUENT STANDARD DRAWINGS REGARDING FLAGGING OPERATIONS UNLESS OTHERWISE NOTED)

FLAGGING OPERATIONS -

1. KEY FEATURES RELEVANT TO FLAGGING OPERATIONS:

APPROACH TAPER - THIS IS A ONE-LANE TWO-WAY TAPER PLACED IN THE TRAVEL LANE WHERE THE WORK ACTIVITY TAKES PLACE. THIS TAPER PRECEDES THE BUFFER SPACE AND THE WORK ACTIVITY AREA. THE LENGTH OF THIS TAPER MAY VARY FROM 50 FEET TO 100 FEET, BUT SHOULD NOT EXTEND BEYOND THE "LIMITS OF THE INTERSECTION", DEVICES EQUALLY SPACED AT 10' TO 25' INTERVALS AS NECESSARY TO CORRESPOND WITH THE LENGTH OF THE TAPER.

DOWNSTREAM TAPER - THIS TAPER, PLACED IN THE TRAVEL LANE WHERE THE WORK ACTIVITY TAKES PLACE, FOLLOWS THE WORK ACTIVITY AREA AND SERVES AS THE TERMINATION AREA FOR THE CLOSURE OF THE TRAVEL LANE. THE LENGTH OF THIS TAPER MAY VARY FROM 50 FEET TO 100 FEET. INSTALL AND MAINTAIN NO LESS THAN FIVE (5) TRAFFIC CONTROL DEVICES IN THIS TAPER.

FLAGGER STATION - THIS IS THE SPECIFIC LOCATION OF THE FLAGGER.

CLOSED LANE FLAGGER - THIS FLAGGER IS STATIONED ADJACENT TO THE FIRST TRAFFIC CONTROL DEVICE IN THE APPROACH TAPER WHO CONTROLS THE TRAFFIC THAT REQUIRES RELOCATION FROM THE TRAVEL LANE BEING CLOSED TO TRAFFIC.

OPEN LANE FLAGGER - THIS FLAGGER IS STATIONED 100 FEET BEYOND THE LAST TRAFFIC CONTROL DEVICE IN THE DOWNSTREAM TAPER WHO CONTROLS THE TRAFFIC OPERATING IN THE TRAVEL LANE REMAINING OPEN TO TRAFFIC.

BUFFER SPACE - THIS AREA IS LOCATED BETWEEN THE DOWNSTREAM END OF THE APPROACH TAPER AND THE NEAREST LIMITS OF THE WORK ACTIVITY AREA AND MAY PROVIDE SOME RECOVERY TIME FOR AN ERRANT VEHICLE. THE PRESENCE OF PERSONNEL, TOOLS, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. WITHIN THE LIMITS OF THE BUFFER SPACE IS PROHIBITED. HOWEVER, WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE BUFFER SPACE ARE UNAVAILABLE, A TRUCK MOUNTED ATTENUATOR MAY TEMPORARILY ENCROACH UPON THE BUFFER SPACE IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE SECTION BELOW ENTITLED, "BUFFER SPACE", WHEN APPROVED BY THE ENGINEER.

WORK ACTIVITY AREA - PERSONNEL, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. ARE PRESENT WITHIN THIS AREA TO CONDUCT THE WORK.

LIMITS of the WORK ACTIVITY AREA - THIS IS THE BOUNDARY OF THE WORK ACTIVITY AREA FIRST ENCOUNTERED, FROM EITHER DIRECTION, BY MOTORISTS PASSING BY THE WORK ACTIVITY AREA IN THE ADJACENT TRAVEL LANE OPEN TO TRAFFIC AND CONTROLLED BY THE FLAGGERS.

APPROACH LANE - TRAFFIC APPROACHES AN INTERSECTION OR A SPECIFIC LOCATION IN THIS TRAVEL LANE.

DEPARTURE LANE - TRAFFIC DEPARTS FROM AN INTERSECTION OR A SPECIFIC LOCATION IN THIS TRAVEL LANE.

MAINLINE APPROACH - THIS IS AN APPROACH TO THE WORK ACTIVITY AREA ON THE ROADWAY WHERE THE WORK ACTIVITY AREA IS LOCATED.

SIDE ROADS - THESE ROADS INTERSECT THE ROADWAY ON WHICH THE WORK ACTIVITY AREA IS LOCATED.

LIMITS of the INTERSECTION - THE LIMITS OF OR THE PHYSICAL AREA WITHIN AN INTERSECTION IS DEFINED BY THE LOCATION OF STOP BARS WHEN PRESENT, WHEN STOP BARS ARE ABSENT, THE LIMITS OF THE PHYSICAL AREA WITHIN AN INTERSECTION IS DEFINED BY THE LOCATION POINTS WHERE MOTORISTS OPERATING VEHICLES ON THE SIDE ROADS ENCOUNTER THE EDGE OF TRAVEL LANE ADJACENT TO THE EDGE OF PAVEMENT OF EACH ROADWAY.

2. INSTALL, CONDUCT AND MAINTAIN FLAGGING OPERATIONS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, THE STANDARD DRAWINGS, THE MUTCD AND THE "SOUTH CAROLINA FLAGGER'S HANDBOOK" UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. INSTALL ALL SIGNS RELATIVE TO A FLAGGING OPERATION PRIOR TO INITIATION OF THE OPERATION AND REMOVE OR COVER ALL SIGNS IMMEDIATELY UPON TERMINATION OF THE OPERATION. EQUIP EACH FLAGGER WITH A 24" x 24" STOP/SLOW PADDLE MOUNTED ON A ROD HANDLE WITH A MINIMUM LENGTH OF 7 FEET. THE DEPARTMENT PROHIBITS THE USE OF FLAGS FOR FLAGGING DURING EMERGENCY SITUATIONS.
3. LANE CLOSURES FOR FLAGGING OPERATIONS ARE RESTRICTED TO A MAXIMUM DISTANCE OF 2 MILES UNLESS OTHERWISE APPROVED BY THE ENGINEER. ENSURE WORK ZONES ALL COMPLY WITH THE CONTRACT AND SHALL REQUIRE THE ENGINEER'S APPROVAL PRIOR TO BEGINNING THE WORK.
4. INSTALL AND MAINTAIN THE PROPER ARRAY OF ADVANCE WARNING SIGNS FOR EACH "MAINLINE APPROACH" WHEN A FLAGGING OPERATION IS IN PLACE AND WHEN RELOCATING OR ESTABLISHING A "FLAGGER STATION". WHILE ACTIVELY MAINTAINING THE FLAGGING OPERATION, INSTALL AN ADDITIONAL ARRAY OF ADVANCE WARNING SIGNS FOR EACH "MAINLINE APPROACH" WHEN RELOCATING THE "FLAGGER STATION". REMOVE THIS ADDITIONAL ARRAY OF ADVANCE WARNING SIGNS IMMEDIATELY UPON COMPLETION OF THE RELOCATION OF THE "FLAGGER STATION" TO THE NEW "FLAGGER STATION".
5. INSTALL ALL ADVANCE WARNING SIGNS IMMEDIATELY PRIOR TO INITIATING A FLAGGING OPERATION AND REMOVE OR COVER ALL SIGNS IMMEDIATELY UPON TERMINATION OF THE OPERATION.
6. MAINTAIN TWO-WAY RADIO COMMUNICATIONS BETWEEN ALL FLAGGERS.

NIGHTTIME FLAGGING OPERATIONS -

1. EACH FLAGGER SHALL WEAR SAFETY APPAREL IN COMPLIANCE WITH THE REQUIREMENTS OF ANSI/ ISEA 107 STANDARD PERFORMANCE FOR CLASS 3 RISK EXPOSURE, LATEST REVISION, WHEN CONDUCTING NIGHTTIME FLAGGING OPERATIONS.
2. ILLUMINATE EACH "FLAGGER STATION" WITH ANY COMBINATION OF PORTABLE LIGHTS, STANDARD ELECTRIC LIGHTS, EXISTING STREET LIGHTS, ETC. THAT WILL PROVIDE A MINIMUM ILLUMINATION LEVEL OF 1.0 FOOT CANDLE OR 10 FOOT CANDLES FOR NIGHTTIME FLAGGING OPERATIONS.
3. SUPPLEMENT EACH ARRAY OF ADVANCE WARNING SIGNS OF EACH "MAINLINE APPROACH" WITH A TRAILER MOUNTED CHANGEABLE MESSAGE SIGN. THESE CHANGEABLE MESSAGE SIGNS ARE NOT REQUIRED FOR THE ADDITIONAL ARRAY OF ADVANCE WARNING SIGNS WHEN RELOCATING THE "FLAGGER STATION". ALSO, THESE CHANGEABLE MESSAGE SIGNS ARE NOT REQUIRED DURING DAYTIME FLAGGING OPERATIONS UNLESS OTHERWISE DIRECTED BY THE STANDARD DRAWINGS. INSTALL THE CHANGEABLE MESSAGE SIGNS IN ADVANCE OF THE ADVANCE WARNING SIGN ARRAYS. THE MESSAGES SHOULD BE "FIREPAKE TO FLAGGER AHEAD". TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS IS NOT AN ACCEPTABLE ALTERNATIVE TO A TRAILER MOUNTED CHANGEABLE MESSAGE SIGN DURING NIGHTTIME FLAGGING OPERATIONS.
4. UTILIZE PORTABLE FLEXIBLE DRUMS OR 42" OVERSIZED TRAFFIC CONES IN PLACE OF 36" STANDARD TRAFFIC CONES DURING NIGHTTIME FLAGGING OPERATIONS.

BUFFER SPACE -

1. THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE BASED UPON THE LEGAL POSTED REGULATORY SPEED LIMIT OF THE ROADWAY PRIOR TO BEGINNING THE WORK.

SPEED LIMIT	DISTANCES
LOW SPEED ≤ 35 MPH	200 FEET
INTERMEDIATE SPEED 40 - 50 MPH	350 FEET
HIGH SPEED 55 MPH	500 FEET

2. THE PRESENCE OF PERSONNEL, TOOLS, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. WITHIN THE LIMITS OF THE "BUFFER SPACE" IS PROHIBITED. A TRUCK MOUNTED ATTENUATOR IS THE ONLY WORK VEHICLE THAT MAY TEMPORARILY ENCROACH UPON THE "BUFFER SPACE" IN ACCORDANCE WITH THE CONDITIONS SPECIFIED IN THE FOLLOWING NOTE WHEN APPROVED BY THE ENGINEER. SEE NOTE NO. 3.
3. WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE UNAVAILABLE DUE TO FIELD CONDITIONS, IT MAY BE NECESSARY FOR A TRUCK MOUNTED ATTENUATOR TO TEMPORARILY ENCROACH UPON THE "BUFFER SPACE" WHEN APPROVED BY THE ENGINEER. A TRUCK MOUNTED ATTENUATOR IS THE ONLY VEHICLE PERMITTED TO TEMPORARILY ENCROACH UPON THE "BUFFER SPACE" AND THIS ENCROACHMENT IS ONLY PERMITTED WHEN THE WORK ACTIVITY AREA IS LOCATED IN THE ADJACENT TRAVEL LANE OPEN TO TRAFFIC. THE "BUFFER SPACE" IS APPROVED BY THE ENGINEER, MINIMIZE THE TIME DURATION OF THE ENCROACHMENT BY REMOVING OF THE TRUCK MOUNTED ATTENUATOR FROM THE "BUFFER SPACE" AT THE FIRST OPPORTUNITY THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" BECOME AVAILABLE.

SIGNS AND TRAFFIC CONTROL DEVICES -

1. MEASURE THE ADVANCE WARNING SIGN LOCATIONS FOR EACH APPROACH FROM THE "FLAGGER STATION" LOCATED ON THAT APPROACH.
2. INSTALL THE ADVANCE WARNING SIGNS AT SPACING INTERVALS RAISED UPON THE POSTED REGULATORY SPEED LIMIT OF THE ROADWAY PRIOR TO BEGINNING ANY WORK. THE ADVANCE WARNING SIGN SPACING INTERVALS INDICATED ARE FOR NORMAL CONDITIONS. ADJUSTMENTS TO THESE DISTANCES MAY BE NECESSARY DUE TO EXISTING SIGNS, INTERSECTING ROADWAYS, HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS. SEE TABLE A.
3. INSTALL ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH EARTH SHOULDERS AND NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH PAVED SHOULDERS. WHEN CURB & GUTTER IS PRESENT, INSTALL THE SIGN NO LESS THAN 2 FEET FROM THE NEAR EDGE OF THE SIGN TO THE FACE OF THE CURB.
4. ALL SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN. ALL SIGNS MOUNTED ON GROUND MOUNTED U-CHANNEL OR SQUARE STEEL TUBE POSTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 7 FEET FROM THE SIDE ROAD NEAR EDGE OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. MOUNT ALL SIGNS PERPENDICULAR TO THE ADJACENT TRAVEL LANE WITH THE FACE OF THE SIGNS PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
5. REFLECTORIZE ORANGE ADVANCE WARNING SIGNS AND LAMP, LENS OR SIGN FACE OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A FLUORESCENT ORANGE COLORED PRISMATIC RETROREFLECTIVE SHEETING. REFLECTORIZE ANY BLACK, WHITE OR ANY OTHER NON-ORANGE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING.
6. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE REQUIREMENTS OF NCHRP REPORT 350 OR THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) AND SHALL BE SUBJECT TO THE DEPARTMENT'S APPROVAL BY THE DEPARTMENT. ONLY THOSE TRAFFIC CONTROL DEVICES INCLUDED ON SUCH "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" ARE CONSIDERED ACCEPTABLE FOR USE. THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: www.scdot.org
7. REFLECTORIZATION OF 36" TRAFFIC CONES USED DURING DAYLIGHT HOURS IS NOT REQUIRED. IN THE EVENT A DAYTIME FLAGGING OPERATION EXTENDS INTO THE NIGHTTIME HOURS, REPLACE ALL 36" TRAFFIC CONES WITH OTHER PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES. REFLECTORIZE ALL PORTABLE PLASTIC DRUMS AND 42" OVERSIZED TRAFFIC CONES WITH TYPE V OR GREATER FLEXIBLE MICROPRISMATIC REFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
8. DELINEATE THE TRANSIENT AREA OF THE LANE CLOSURE WITH THE NECESSARY TRAFFIC CONTROL DEVICES TO MINIMIZE ENCROACHMENT BY MOTORISTS INTO THE CLOSED TRAVEL LANE USED BY THE WORK CREWS. WHEN THE POSTED REGULATORY SPEED LIMIT OF THE ROADWAY IS 40 MPH OR GREATER, INSTALL THE TRAFFIC CONTROL DEVICES AT SPACING INTERVALS OF 35 FEET. ON ROADWAYS WITH POSTED REGULATORY SPEED LIMITS OF 35 MPH OR LESS, INSTALL THE TRAFFIC CONTROL DEVICES AT SPACING INTERVALS OF 25 FEET. ON ROADWAYS WITH POSTED REGULATORY SPEED LIMITS OF 40 MPH OR GREATER, INSTALL THE TRAFFIC CONTROL DEVICES AT SPACING INTERVALS OF 50 FEET. SEE TABLE H.

ADVANCE WARNING ARROW PANEL -

1. DURING FLAGGING OPERATIONS, AN ADVANCE WARNING ARROW PANEL SHALL OPERATE IN THE "FOUR CORNERS" CAUTION MODE WHEN LOCATED WITHIN OR IN BETWEEN THE LIMITS OF THE ADVANCE WARNING SIGN ARRAYS SPECIFIC TO A FLAGGING OPERATION. OPERATION OF AN ADVANCE WARNING ARROW PANEL IN THE CAUTION MODE WITHIN THE LIMITS OF THE ADVANCE WARNING SIGN ARRAYS BUT MORE OFTEN THAN THE "FOUR CORNERS" CAUTION MODE WHEN LOCATED WITHIN OR IN BETWEEN THE LIMITS OF THE ADVANCE WARNING SIGN ARRAYS AS SPECIFIED HEREINBEFORE IS PROHIBITED.
2. ALL ADVANCE WARNING ARROW PANELS SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION. THE SPECIFIC LOCATION OF AN ADVANCE WARNING ARROW PANEL MAY REQUIRE ADJUSTMENTS DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENT OR OTHER SIGHT DISTANCE RESTRICTIONS.

TRUCK MOUNTED ATTENUATOR -

1. A TRUCK MOUNTED ATTENUATOR IS OPTIONAL. UTILIZATION OF A TRUCK MOUNTED ATTENUATOR SHOULD BE CONSIDERED WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE UNAVAILABLE DUE TO FIELD CONDITIONS. HOWEVER, A TRAILER MOUNTED ADVANCE WARNING ARROW PANEL MAY BE UTILIZED IN PLACE OF A TRUCK MOUNTED ATTENUATOR DURING TRAFFIC CONTROL SETUPS FOR WORK ACTIVITIES SUCH AS ASPHALT CONCRETE PLACEMENT OPERATIONS WHEN APPROVED BY THE ENGINEER.
2. WHEN UTILIZING A TRUCK MOUNTED ATTENUATOR, ENSURE THE TRUCK HAS THE CORRECT GROSS VEHICULAR WEIGHT RATING REQUIRED FOR THE TYPE OF TRUCK MOUNTED ATTENUATOR BEING UTILIZED. A DIRECT TRUCK MOUNTED TRUCK MOUNTED ATTENUATOR, A UNIT MOUNTED AND ATTACHED TO THE FRAME OF THE TRUCK VIA A PINTLE HOOK / HITCH, REQUIRES A TRUCK WITH A MINIMUM GVW OF 26,000 POUNDS. A TRUCK MOUNTED ATTENUATOR, A TRAILER TOWED TRUCK MOUNTED ATTENUATOR, A TRAILER TOWED TRUCK MOUNTED ATTENUATOR WITH A GOOSENECK BEHIND AND ATTACHED TO THE FRAME OF THE TRUCK VIA A PINTLE HOOK / HITCH, REQUIRES A TRUCK WITH A MINIMUM GVW OF 50,000 POUNDS (ACTUAL WEIGHT VARIES DEPENDING UPON THE TYPE OF TRUCK MOUNTED ATTENUATOR BEING UTILIZED). IF THE ADDITION OF SUPPLEMENTAL WEIGHT TO THE VEHICLE AS BALLAST IS NECESSARY, CONTAIN THE MATERIAL WITHIN A STRUCTURE CONSTRUCTED OF STEEL. CONSTRUCT THIS STEEL STRUCTURE TO HAVE A MINIMUM OF 3/16" STEEL PLATE THICKNESS. ATTACH THE STEEL STRUCTURE TO THE FRAME OF THE TRUCK USING ONLY BOLTS AND NUTS. DO NOT USE WELDING OR FASTENERS FOR ATTACHMENT OF THE STEEL STRUCTURE TO THE FRAME OF THE TRUCK TO ENSURE THE STRUCTURE WILL NOT SEPARATE FROM THE FRAME OF THE TRUCK DURING AN IMPACT UPON THE TRUCK MOUNTED ATTENUATOR. UTILIZE EITHER ONLY LOOSE SAND OR STEEL REINFORCED CONCRETE FOR FILL AND BALLAST MATERIAL WITHIN THE STEEL STRUCTURE TO ACHIEVE THE NECESSARY WEIGHT. THE BALLAST MATERIAL SHALL REMAIN CONTAINED WITHIN THE CONFINES OF THE STEEL STRUCTURE IN ITS ENTIRETY AND SHALL NOT PROTRUDE FROM THE STEEL STRUCTURE IN ANY MANNER.
3. LOCATE THE TRUCK MOUNTED ATTENUATOR APPROXIMATELY 100 FEET IN ADVANCE OF THE "WORK ACTIVITY AREA" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. PROVIDE, INSTALL AND MAINTAIN THE TRUCK MOUNTED ATTENUATOR AS SPECIFIED BY THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.

GENERAL -

1. CONDUCT THE WORK IN SUCH A MANNER SO AS NOT TO ENCROACH ONTO THE ADJACENT TRAVEL LANE OPEN TO TRAFFIC. INSTALL, MAINTAIN AND ADJUST THE TRAFFIC CONTROL DEVICES AS NECESSARY TO ENSURE PROPER ALIGNMENT OF THE WORK AREA.
2. IF WORK IS BEING CONDUCTED AT TWO DIFFERENT LOCATIONS AT THE SAME TIME, SEPARATE THE TWO LOCATIONS BY NO LESS THAN 2 MILES FROM THE LAST TRAFFIC CONTROL DEVICE IN THE DIRECTION OF TRAFFIC FLOW OF THE FIRST LANE CLOSURE TO THE FIRST TRAFFIC CONTROL DEVICE IN THE "APPROACH TAPER" OF THE SECOND LANE CLOSURE ENCOUNTERED BY A MOTORIST UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT WORK OPERATIONS AND/OR WITHHOLD THE MONTHLY ESTIMATE IF THE TRAFFIC CONTROL IS NOT PROPERLY INSTALLED AND MAINTAINED AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS AND/OR THE ENGINEER.

TABLE A

SIGN PLACEMENT INTERVALS	
SPEED LIMIT	*
≤ 35 MPH LOW SPEED	200
* 40 - 50 MPH INTERMEDIATE SPEED	350
* 55 MPH HIGH SPEED	500

* REGULATORY POSTED SPEED LIMIT PRIOR TO BEGINNING WORK

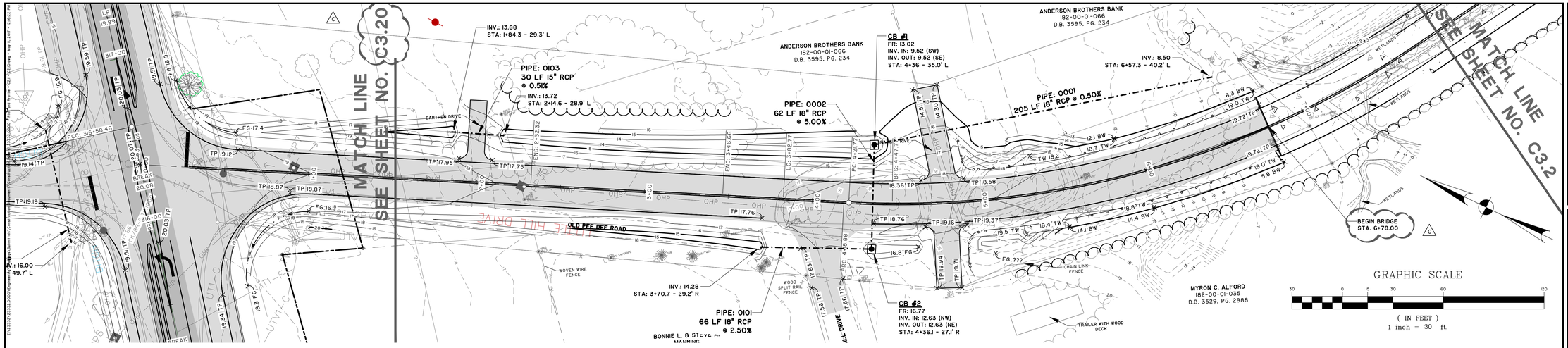
TABLE H

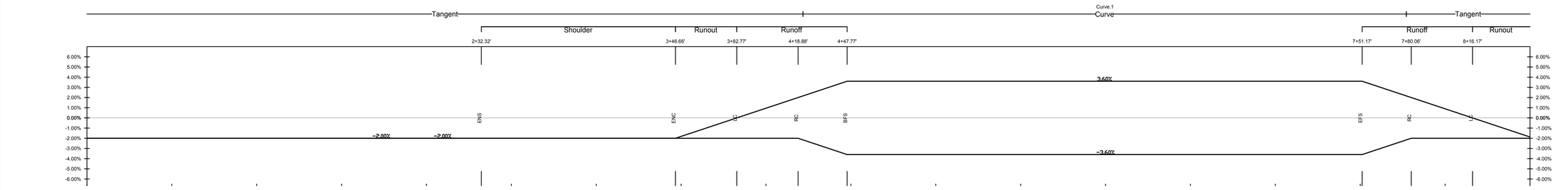
TRAFFIC CONTROL DEVICE SPACING INTERVALS WORK ACTIVITY / BUFFER SPACE AREAS	
SPEED LIMIT	SPACING INTERVALS
≤ 35 MPH	25 FEET
40 - 55 MPH	50 FEET

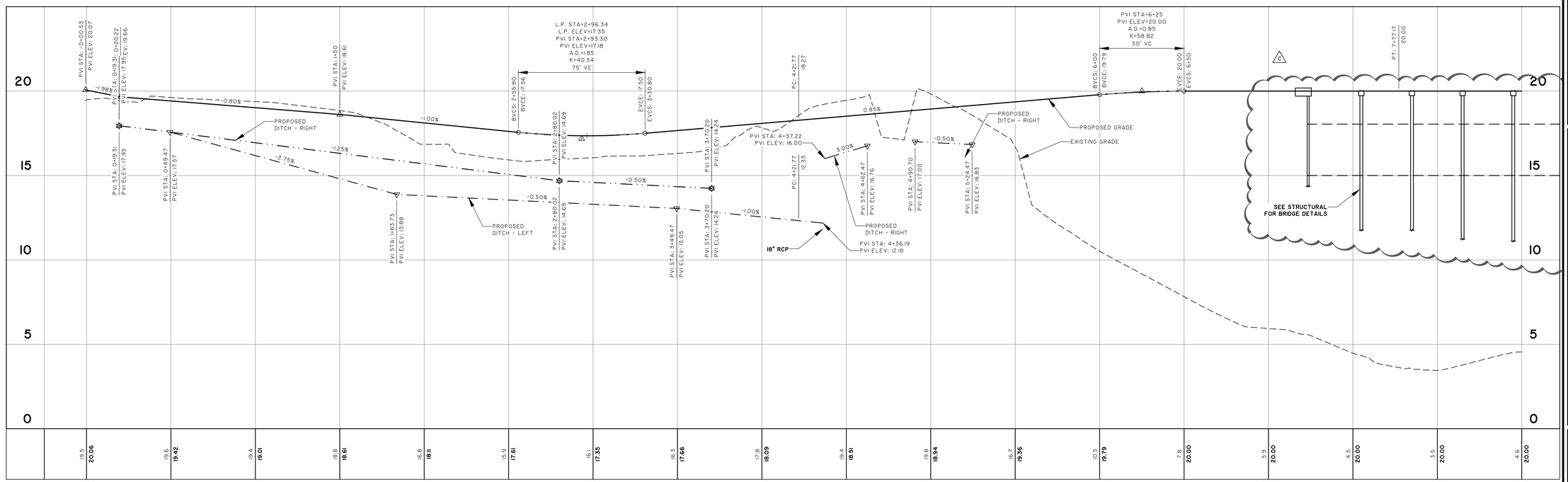
THIS DRAWING IS NOT TO SCALE

LINE TABLE		
LINE	BEARING	LENGTH
L1	N 48°51'30" E	688.86'
L2	N 54°13'28" E	295.08'
L3	N 48°55'38" E	369.55'
L23	N 38°40'11" W	44.72'
L24	N 22°51'10" W	67.77'
L39	S 48°16'48" W	111.81'
L40	S 30°13'47" W	24.99'
L41	S 59°46'15" E	238.41'
L42	S 32°17'55" E	30.40'
L43	N 43°23'37" E	280.00'
L44	N 42°29'48" E	234.61'
L45	N 1°05'28" E	725.00'
L46	N 19°06'23" W	98.59'
L47	N 86°19'18" W	72.18'

CURVE TABLE					
CURVE	RADIUS	LENGTH	CHORD	CHD BEARING	DELTA
C1	100.00'	27.61'	27.52'	N 30°45'







BUCKSPORT ACCESS ROAD

STATIONS: -0+25 – 8+50
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

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NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURN LANES ADDED	CCR	05/10/17
B	PER HORRY COUNTY	CVD	10/17/13
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

ROAD - PLAN AND PROFILE

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.1

D.B. 3001, PG. 1283

MATCH LINE -- SEE SHEET NO. C3.1

MATCH LINE -- SEE SHEET NO. C3.2

SEE MSE NOTES ON SHEET SO.1 AND SECTIONS OF MSE WALL ON SHEET RW-6 FOR BACKFILL REQUIREMENTS AND CRITERIA IN THIS AREA. SEE DETAIL 4 ON SHEET S2.3 FOR CONCRETE SWALE DETAIL

SEE MSE NOTES ON SHEET SO.1 AND SECTIONS OF MSE WALL ON SHEET RW-6 FOR BACKFILL REQUIREMENTS AND CRITERIA IN THIS AREA. SEE DETAIL 4 ON SHEET S2.3 FOR CONCRETE SWALE DETAIL

TOP BANK OF RIVER

WETLANDS

OHP

TG 11.6

12.9 TG

12.7 TG

9.4 FG

9.7 BW

12.8 BW

15.4 FG

16.8 BW

19.2 TW

19.1 TW

18.2 TW

19.6 FG

TP 19.72

18.7 TW

18.5 TW

6.0 BW

8.5 BW

Curve.1

Curve

Tangent

Runoff

Runout

Shoulder

7+51.17'

7+80.06'

8+16.17'

8+52.29'

9+66.63'

EOS

RC

LT

BNC

RKS

-2.00%

-2.00%

PT: 7+77.17
20.00

0.00%

PROPOSED GRADE

PROPOSED DITCH - LEFT

PVI STA: 15+50
PVI ELEV: 9.33

4.00%

EXISTING GRADE

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

4.5	3.5	4.6	3.8
20.00	20.00	20.00	20.00
4.9	5.2	3.2	1.0
20.00	20.00	20.00	20.00
0.4	4.9	4.6	4.3
20.00	20.00	20.00	20.00
4.8	4.9	5.6	6.9
20.00	20.00	20.00	20.00
7.9	10.5	11.2	
20.00	19.96	19.79	

8+00 9+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00 16+25

BUCKSPORT ACCESS ROAD

STATIONS: 7+50 – 16+25
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

SOUTH CAROLINA — THOMAS B. HUTTON ENGINEERING CO. No. C00285 — CERTIFICATE OF AUTHORIZATION — NOLAN WAYNE HUTTON

SOUTH CAROLINA — PROFESSIONAL ENGINEER — NOLAN WAYNE HUTTON — 24706

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/15
B	PER HORRY COUNTY	CVD	10/17/15

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HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

ROAD - PLAN AND PROFILE

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.2

SEE MSE NOTES ON SHEET SO.1 AND SECTIONS OF MSE WALL ON SHEET RW-6 FOR BACKFILL REQUIREMENTS AND CRITERIA IN THIS AREA. SEE DETAIL 4 ON SHEET S2.3 FOR CONCRETE SWALE DETAIL.

GRAND STRAND WATER AND SEWER AUTHORITY
189-00-01-015
D.B. 2116, PG. 173

INV.: 13.21
STA: 19+57 - 33.4' L

GRAVEL DRIVE

MATCH LINE SEE SHEET NO. C3.2

MATCH LINE SEE SHEET NO. C3.4

PIPE: 0105
65 LF 18" RCP
@ 0.70%
INV.: 12.75
STA: 19+57 - 32.0' R

WETLANDS

SEE MSE NOTES ON SHEET SO.1 AND SECTIONS OF MSE WALL ON SHEET RW-6 FOR BACKFILL REQUIREMENTS AND CRITERIA IN THIS AREA. SEE DETAIL 4 ON SHEET S2.3 FOR CONCRETE SWALE DETAIL.

GRAND STRAND WATER AND SEWER AUTHORITY
189-00-01-015
D.B. 2116, PG. 173

Tangent | Curve.2 Curve | Tangent

Shoulder | Runout | Runoff | Runoff | Runout | Shoulder | Shoulder

17+26.10' | 18+57.51' | 18+99.01' | 19+40.51' | 19+82.01' | 20+84.81' | 21+26.31' | 21+67.81' | 22+09.31' | 23+40.72'

PVI STA=16+03.88
PVI ELEV=20.00
A.D.=1.00
K=50.00
50' VC
BVCS: 15+78.88
BVCE: 20.00
EVCE: 19.75
EVCS: 16+28.88

PROPOSED GRADE

-1.00%

L.P. STA=18+83.39
L.P. ELEV=17.56
PVI STA=18+65.77
PVI ELEV=17.38
A.D.=1.50
K=70.11
105' VC
BVCS: 18+13.27
BVCE: 17.91
EVCE: 17.64
EVCS: 19+18.27

PC: 19+46.81
17.79

0.50%

PVI STA: 21+50
PVI ELEV: 18.80

-0.50%

PVI STA: 22+00
PVI ELEV: 18.55

-0.00%

PT: 21+18.01
18.64

PT: 21+18.01
14.42

PROPOSED DITCH - LEFT

PROPOSED DITCH - LEFT

PROPOSED DITCH - RIGHT

PVI STA: 19+56.36
PVI ELEV: 13.20

18" RCP

0.75%

0.30%

4.00%

0.50%

-0.75%

EXISTING GRADE

PVI STA: 17+00
PVI ELEV: 15.33

PVI STA: 18+23
PVI ELEV: 15.95

PVI STA: 19+75
PVI ELEV: 13.81

PVI STA: 19+57
PVI ELEV: 12.66

PT: 21+18.01
13.16

PVI STA: 21+50
PVI ELEV: 13.24

6.9 | 7.9 | 10.5 | 11.8 | 12.4 | 13.3 | 14.0 | 14.5 | 15.0 | 15.4 | 15.3 | 18.0 | 17.4 | 17.3 | 18.4 | 18.5 | 18.6 | 18.7 | 18.7
20.00 | 20.00 | 19.96 | 19.54 | 19.04 | 18.54 | 18.04 | 17.64 | 17.58 | 17.80 | 18.05 | 18.30 | 18.55 | 18.80 | 18.55 | 18.55 | 18.55 | 18.55 | 18.55

16+00 | 17+00 | 18+00 | 19+00 | 20+00 | 21+00 | 22+00 | 23+00 | 23+75

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

BUCKSPORT ACCESS ROAD
STATIONS: 15+00 - 23+75
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

SOUTH CAROLINA — NOLAN WAYNE HUTTON — 29578 — THOMAS & HUTTON ENGINEERING CO. No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — JOHN H. TROUTMAN IV — 29578 — REGISTERED PROFESSIONAL ENGINEER

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	10/17/13
B	PER HORRY COUNTY	CVD	02/25/15

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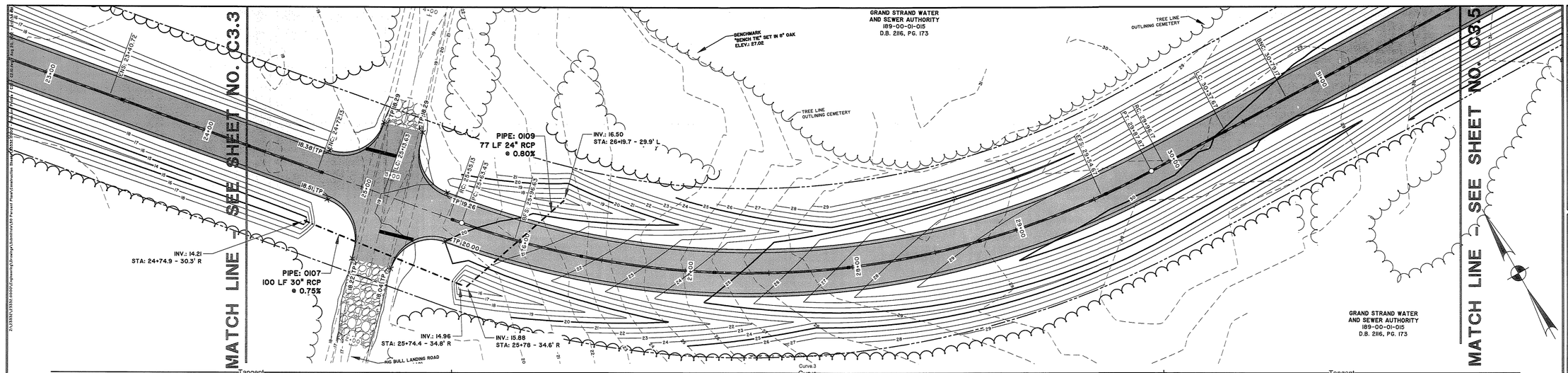
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

ROAD - PLAN AND PROFILE

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.3



BUCKSPORT ACCESS ROAD

STATIONS: 23+25 - 32+00
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — REGISTERED PROFESSIONAL ENGINEER — JOHN H. RICHARDSON — 27183 — 02/25/13

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

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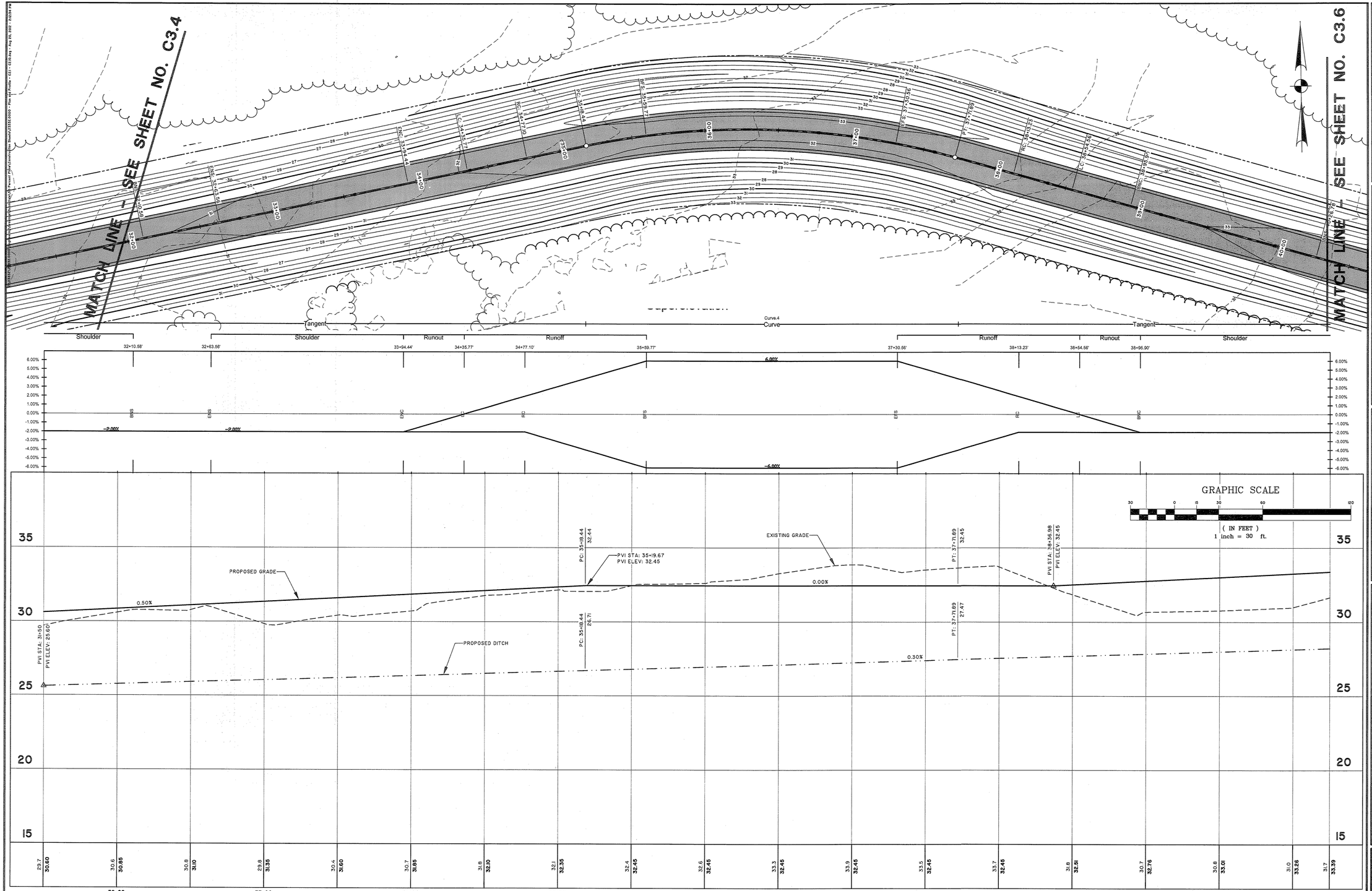
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

ROAD - PLAN AND PROFILE

JOB NO:	J-23532.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.4



BUCKSPORT ACCESS ROAD

STATIONS: 31+50 – 40+25
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00288
CERTIFICATE OF AUTHORIZATION
NOLLY WOOD

SOUTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
JOHN H. RIORDAN
No. 19238
COUNTY
02/25/13

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

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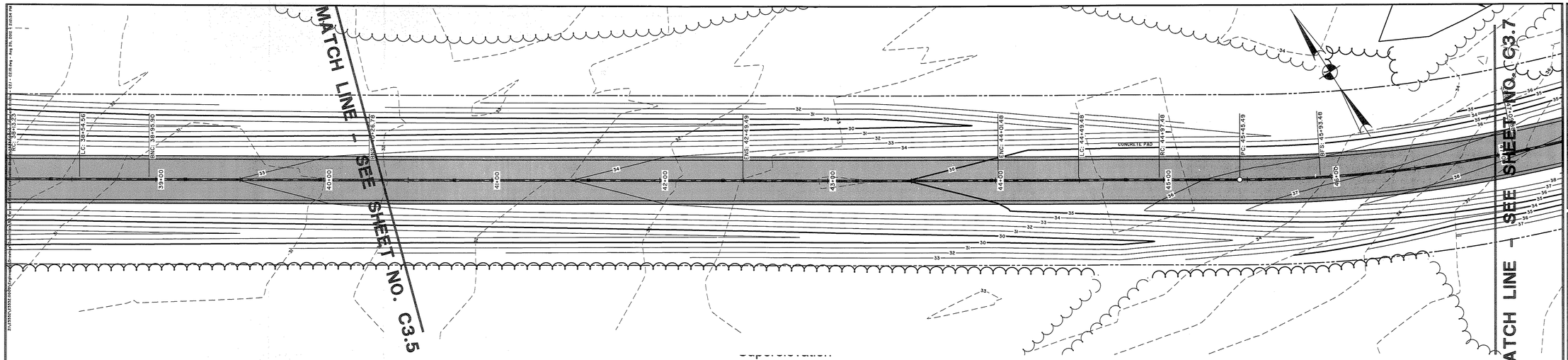
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HORRY COUNTY, SC

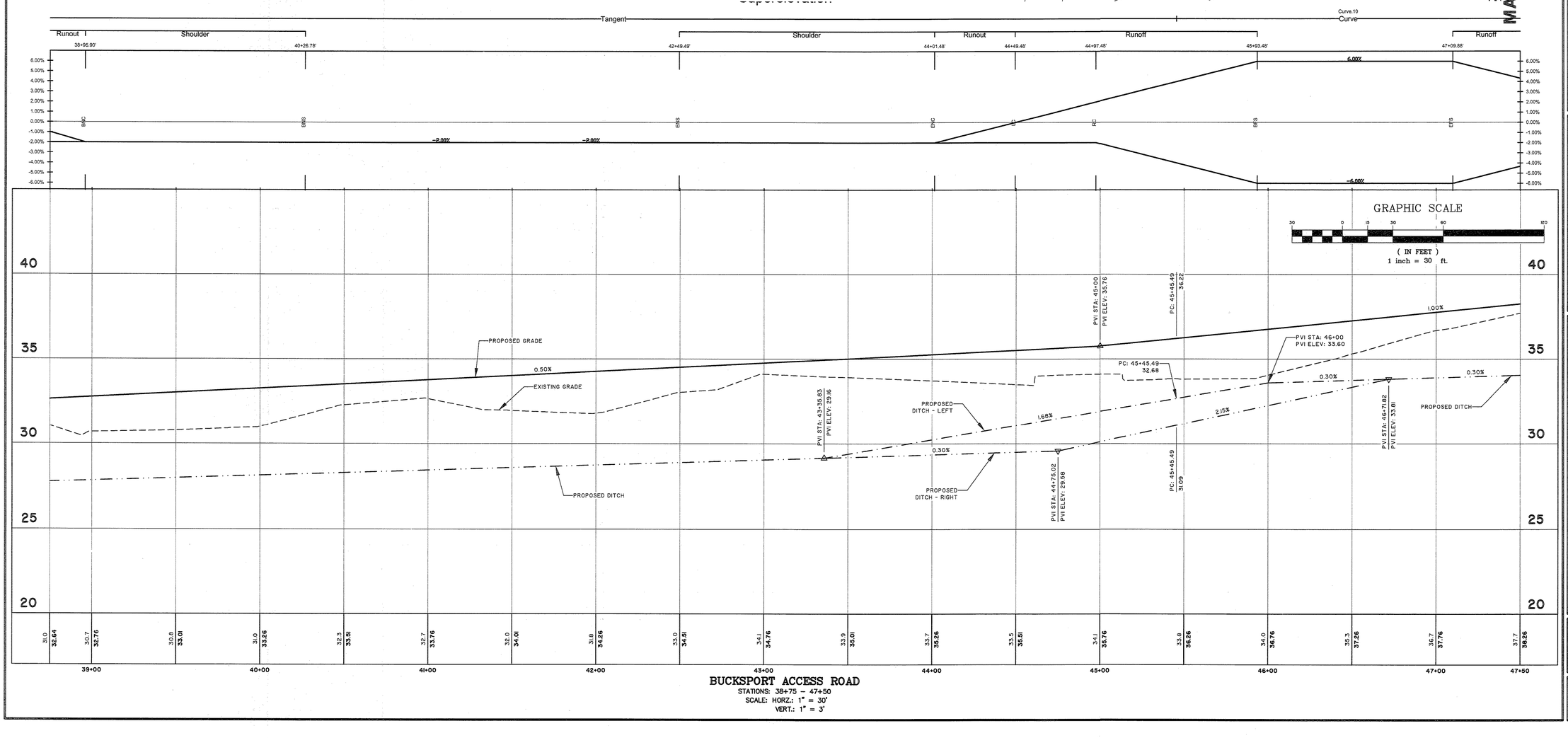
NEW BUCKSPORT ACCESS ROAD

ROAD - PLAN AND PROFILE

JOB NO:	J-25332.0000
DATE:	10/17/12
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.5





BUCKSPORT ACCESS ROAD
STATIONS: 38+75 – 47+50
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

SOUTH CAROLINA PROFESSIONAL ENGINEER — JOHN H. HUTTON, IV — 24702
THOMAS & HUTTON ENGINEERING CO. — No. C00265 — CERTIFICATE OF AUTHORIZATION

NO.	DESCRIPTION	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

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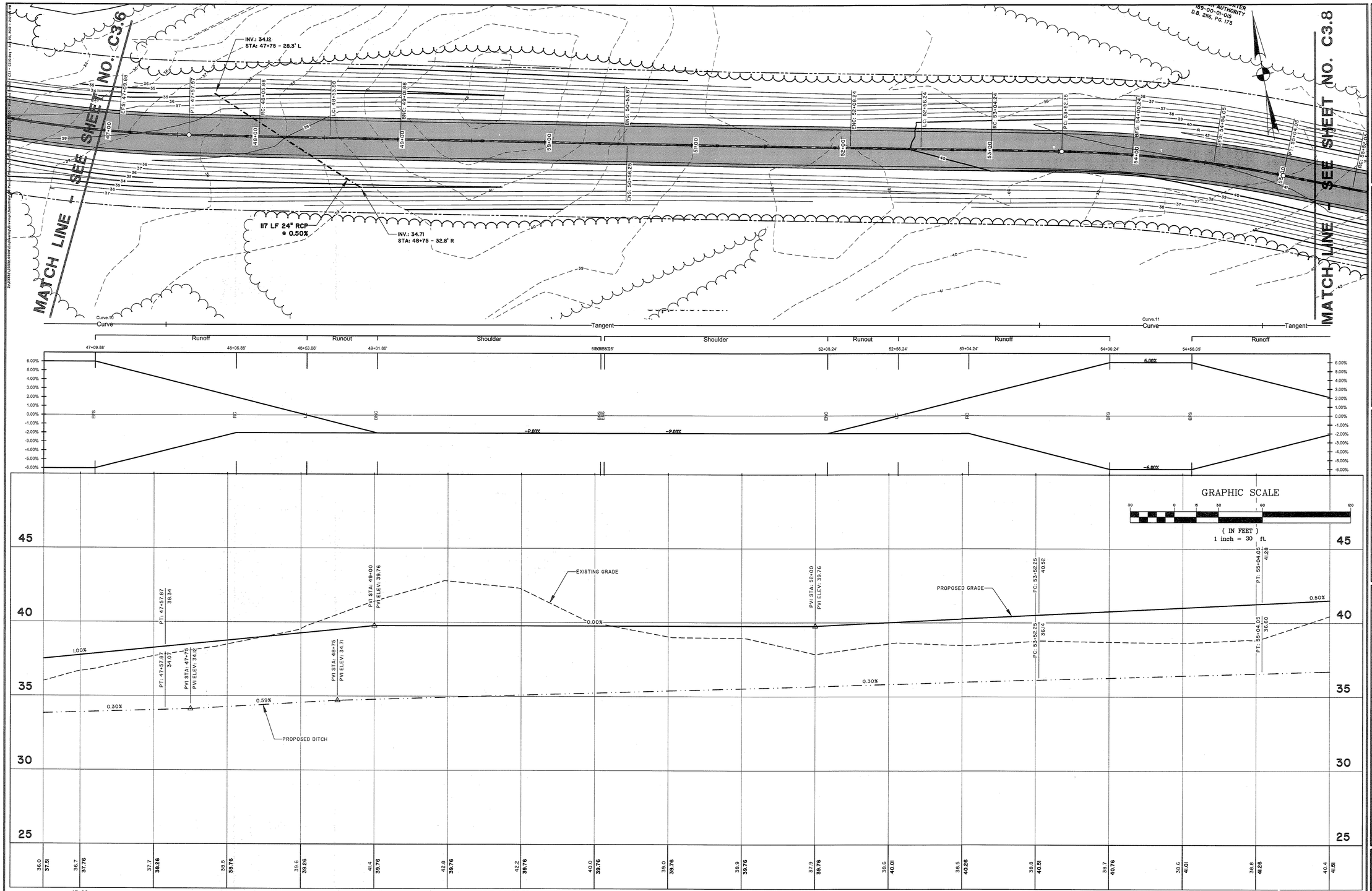
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

ROAD – PLAN AND PROFILE

JOB NO:	J-23332.0000
DATE:	05/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.6



BUCKSPORT ACCESS ROAD

STATIONS: 46+75 – 55+50
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING Co.
No. C00289
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
PROFESSIONAL ENGINEER
JOHN H. RICHARDSON
25152
02/25/13

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

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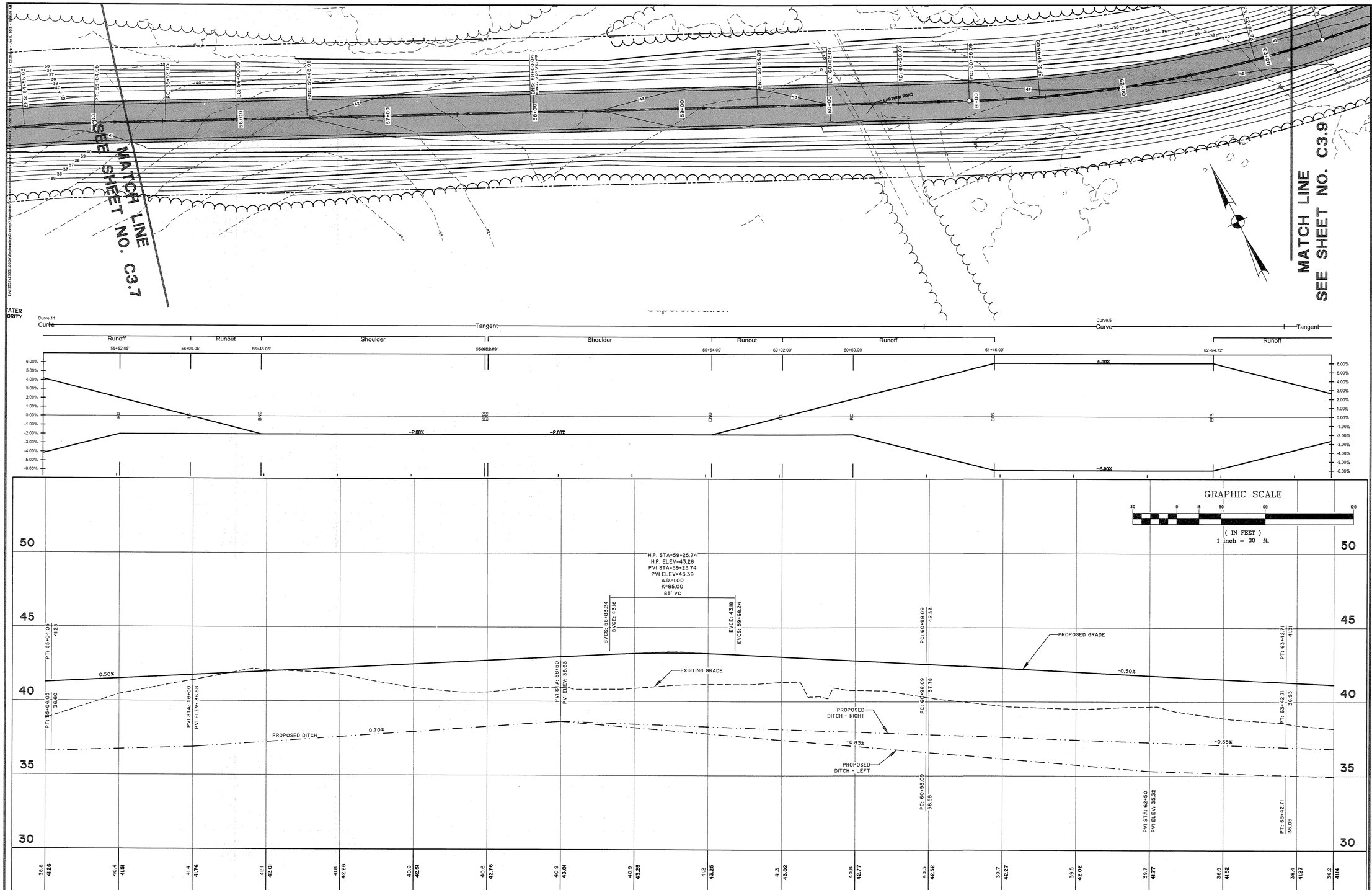
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

ROAD - PLAN AND PROFILE

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.7



BUCKSPORT ACCESS ROAD
STATIONS: 55+00 – 63+75
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

SOUTH CAROLINA
NOLAN V. HUTTON
THOMAS & HUTTON ENGINEERING
No. C003285
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
PROFESSIONAL ENGINEER
NOLAN V. HUTTON
No. 29578
REGISTERED

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/15

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HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

ROAD - PLAN AND PROFILE

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DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.8

BUCKSPORT ACCESS ROAD

STATIONS: 63+50 – 72+25
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036289 — THOMAS & HUTTON ENGINEERING CO. — No. C-0262 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER SEAL 24007 — THOMAS & HUTTON ENGINEERING CO. — No. C-0262 — CERTIFICATE OF AUTHORIZATION

2/4/2017

NO.	REVISIONS	BY	DATE
F	ADDED EXISTING CONTOURS	CCR	11/29/17
B	REVISED ROW	MBB	06/12/17
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

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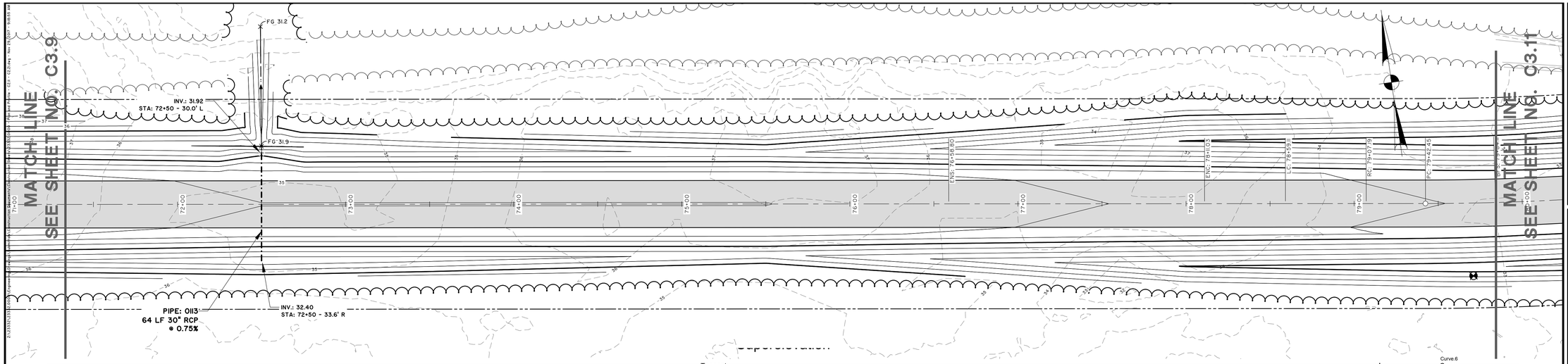
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HORRY COUNTY, SC

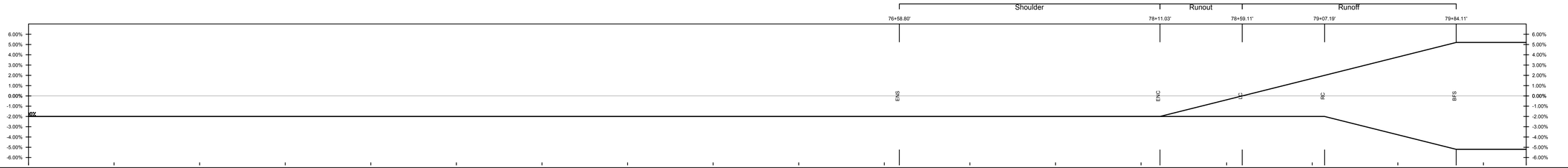
NEW BUCKSPORT ACCESS ROAD

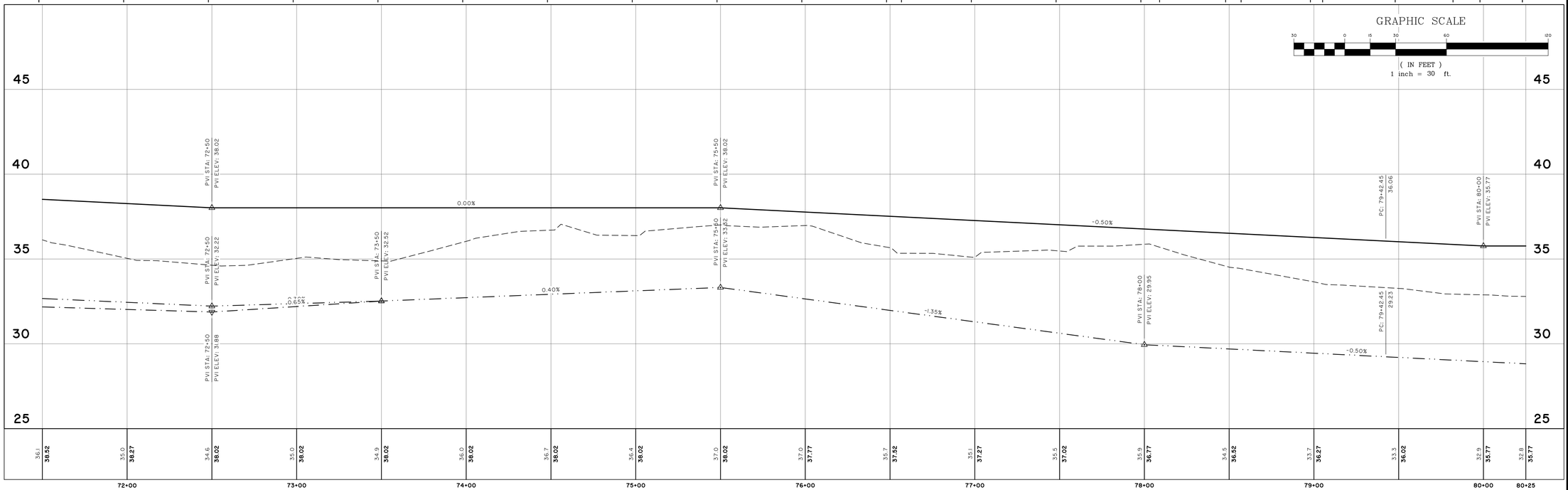
ROAD – PLAN AND PROFILE

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.9







BUCKSPORT ACCESS ROAD

STATIONS: 71+50 – 80+25
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

NORTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C-0262
CERTIFICATE OF AUTHORIZATION
NOLVEMBER 30, 2018

SOUTH CAROLINA
PROFESSIONAL ENGINEER
JOHN H. RUSSELL, IV
24007
REGISTERED
01/04/18
24 NOV 17

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
D	REVISED ROW	MBB	06/12/17
F	ADDED EXISTING CONTOURS	CCR	11/29/17

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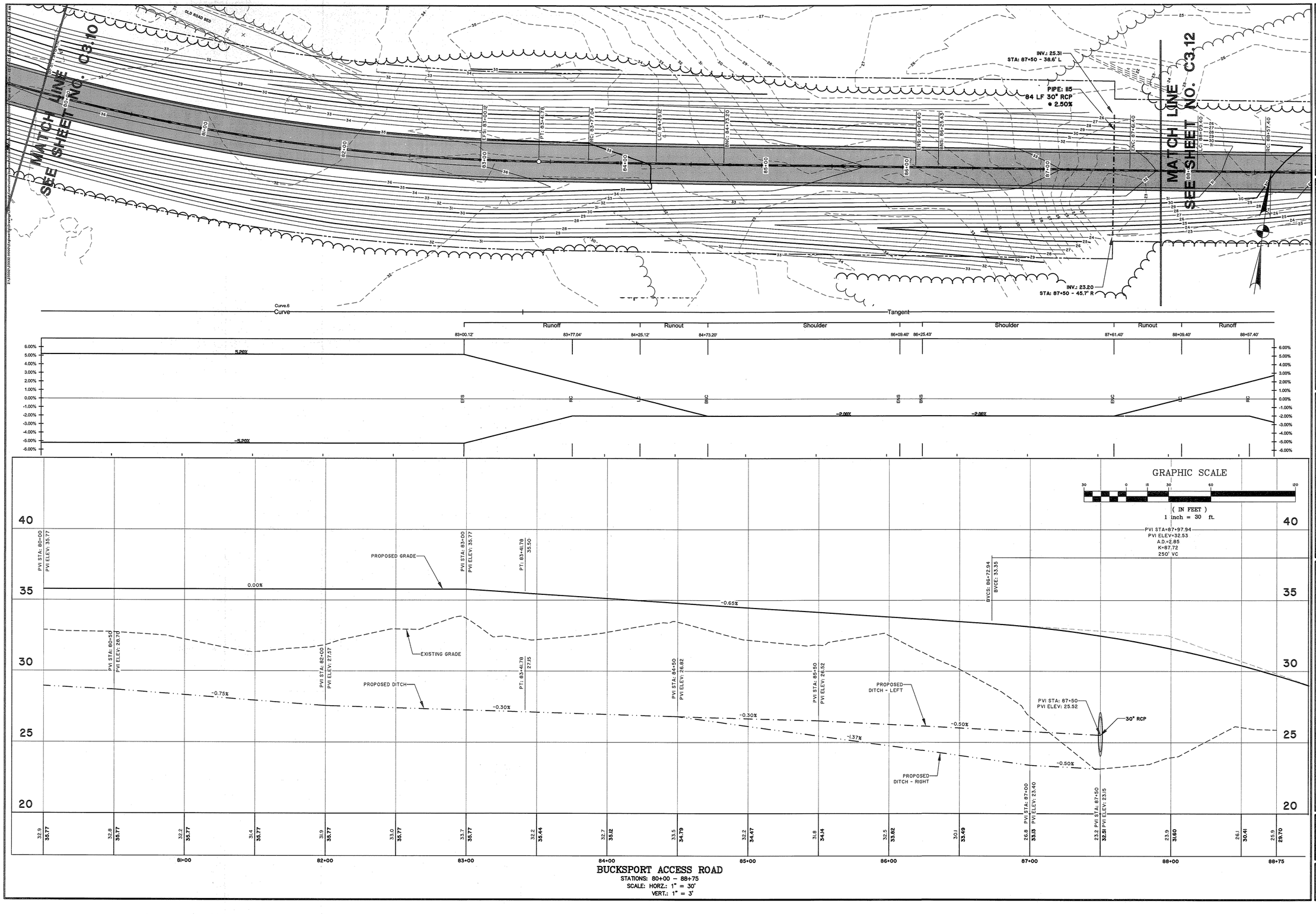
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

ROAD - PLAN AND PROFILE

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.10



BUCKSPORT ACCESS ROAD
STATIONS: 80+00 - 88+75
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
JOHN H. RICHARDSON
No. 20064

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

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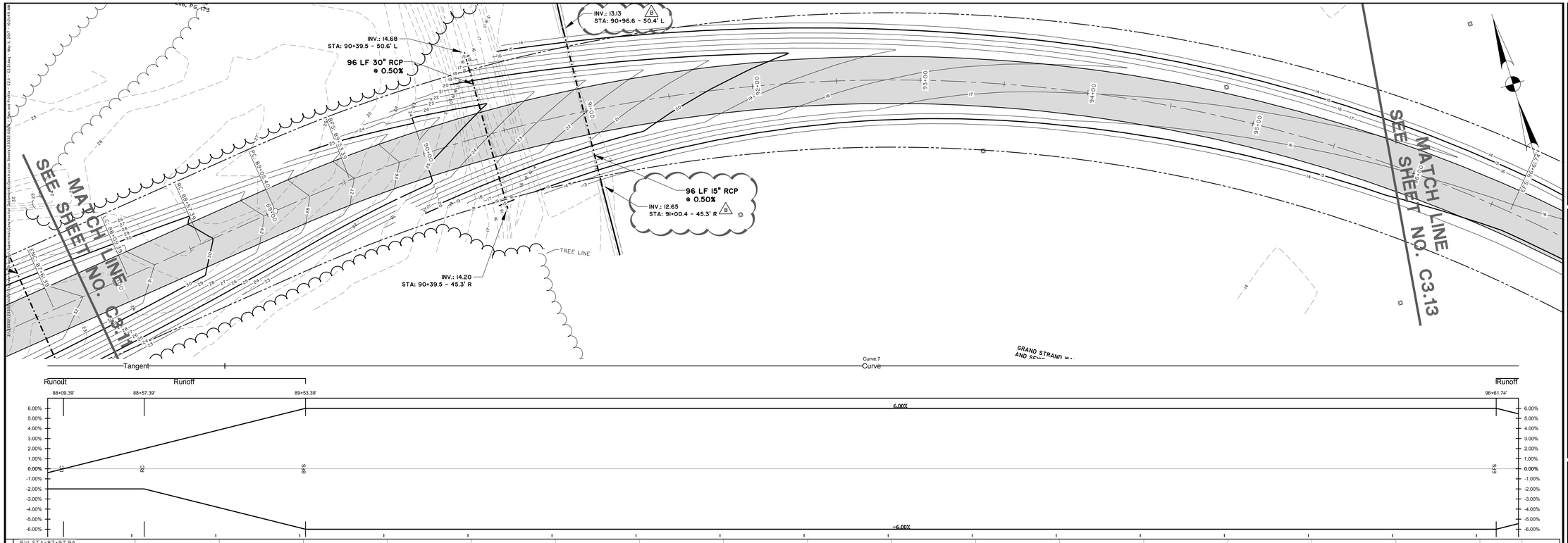
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

ROAD - PLAN AND PROFILE

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.11



BUCKSPORT ACCESS ROAD

STATIONS: 88+00 - 96+75
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

NORTH CAROLINA — PROFESSIONAL ENGINEER — JAMES H. RICHARDSON — SEAL 032885 — 12/31/2013

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION

11/14/13

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
B	PER HORRY COUNTY	CVD	5/6/13

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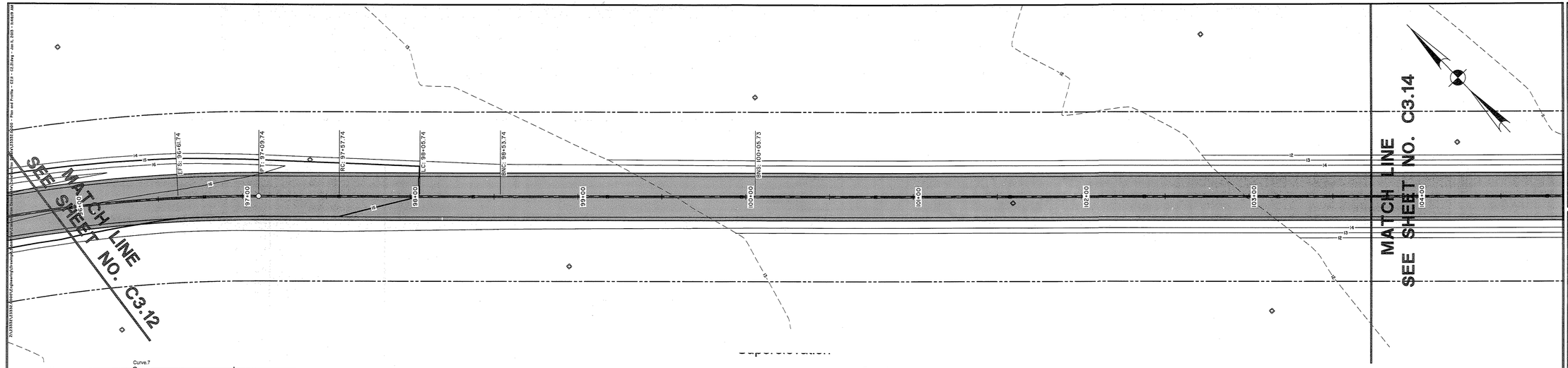
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

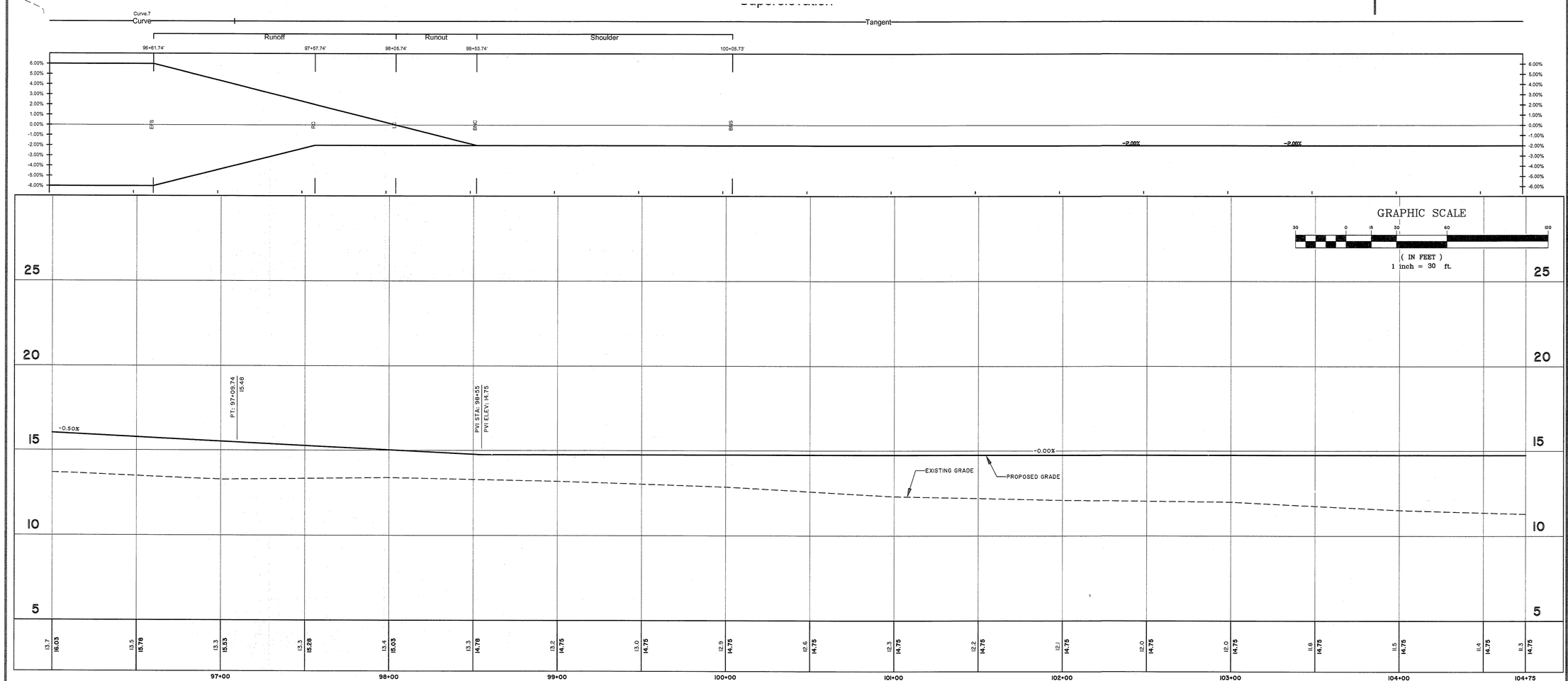
NEW BUCKSPORT ACCESS ROAD

ROAD - PLAN AND PROFILE

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.12





BUCKSPORT ACCESS ROAD
STATIONS: 96+00 – 104+75
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION
NOLVYBOOM

SOUTH CAROLINA
PROFESSIONAL ENGINEER
JOHN H. RIGGS
No. 28238
10-17-15

NO.	SUBMITTED FOR PERMITTING / REVISIONS	BY	DATE
A		CVD	02/25/13

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

ROAD – PLAN AND PROFILE

JOB NO:	J-23332.0000
DATE:	10/17/15
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.13

MATCH LINE – SEE SHEET NO. C3.13

MATCH LINE SEE SHEET NO. C3.15

INV.: 9.09
STA: 106+57.5 - 40.4' L
115 LF 24" RCP
@ 0.30%

INV.: 8.38
STA: 107+00 - 49.1' L
127 LF 36" RCP
@ 0.30%

INV.: 11.75
STA: 107+94.3 - 31.1' L
101 LF 24" RCP
@ 0.40%

INV.: 8.75
STA: 107+13.2 - 45.8' R

INV.: 8.00
STA: 107+90 - 40.8' R

INV.: 12.15
STA: 108+62.2 - 43.3' R

ENS: 105+74.61
BVCS: 105+23.42
BVCE: 14.75
EVCE: 16.75
EVCS: 107+23.42
L.C.: 107+74.61
RC: 108+22.61
PC: 108+70.61
BFS: 109+18.61
BVCS: 107+64.11
BVCE: 17.56
EVCE: 19.44
EVCS: 109+14.11
PI: 108+70.61
19.13

Tangent | Curve

Shoulder | Runout | Runoff

105+74.61 | 107+26.61 | 107+74.61 | 108+22.61 | 109+18.61

6.00% | -6.00%

200' VC
K=100.00
A.D.=2.00
PVI ELEV=14.75
PVI STA=106+23.42
L.P. ELEV=14.75
L.P. STA=105+23.42

150' VC
K=100.00
A.D.=1.50
PVI ELEV=19.06
PVI STA=108+39.11

2.00% | 0.50%

PROPOSED GRADE
EXISTING GRADE

24" RCP
36" RCP
24" RCP

APPROX. LOCATION OF RELOCATED 30" PVC
(CONTRACTOR TO COORDINATE WITH GSWSA)

APPROX. LOCATION OF RELOCATED 36" PVC
(CONTRACTOR TO COORDINATE WITH GSWSA)

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

11.8	14.75	11.5	14.75	11.4	14.75	11.2	14.75	10.9	14.79	10.5	15.04	10.0	15.55	13.3	16.31	8.0	17.28	17.1	18.22	15.8	18.91	16.3	19.36	16.5	19.62	16.7	19.87	16.9	20.12	17.2	20.37	17.5	20.62	17.7	20.87	17.8	20.99

104+00 | 105+00 | 106+00 | 107+00 | 108+00 | 109+00 | 110+00 | 111+00 | 112+00 | 112+25

BUCKSPORT ACCESS ROAD

STATIONS: 103+50 – 112+25
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

SOUTH CAROLINA PROFESSIONAL ENGINEER
JOHN H. RICHARDSON
29
CERTIFICATE OF AUTHORIZATION
THOMAS & HUTTON ENGINEERING CO.
No. C00288
NOLTE

NO.	DATE	BY
A	SUBMITTED FOR PERMITTING	CVD 6/6/13
B	PER HORRY COUNTY	CVD 02/25/13

REVISIONS

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NEW BUCKSPORT ACCESS ROAD

ROAD - PLAN AND PROFILE

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.14

BUCKSPORT ACCESS ROAD
STATIONS: 111+50 – 120+25
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

NOLLY TURNER THOMAS
SOUTH CAROLINA
No. 24706
REGISTERED ENGINEER
CERTIFICATE OF AUTHORIZATION
THOMAS & HUTTON ENGINEERING CO.
No. C00285

NOLLY TURNER THOMAS
SOUTH CAROLINA
No. 24706
REGISTERED ENGINEER
JAMES H. RICHARDSON
No. 28
11/14/17

NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURLANES ADDED	CVD	02/25/13
A	SUBMITTED FOR PERMITTING	CCR	05/10/17

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HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

ROAD - PLAN AND PROFILE

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.15

MATCH LINE – SEE SHEET NO. C3.18

MATCH LINE SEE SHEET NO. C3.15

MATCH LINE SEE SHEET NO. C3.17

ENS: 120+96.20 | ENC: 122+48.19 | LC: 122+96.19 | RC: 123+44.19 | PC: 123+92.19 | BFS: 124+40.19

BFS: 0+25.00 | 30LA: 0+00.00 | 0+00

TP1: 16.55 | TP2: 16.35 | TP3: 17.58 | TP4: 16.51

INV.: 10.00
STA: 127+90 - 38.4' L

PIPE: 0129
68 LF 24" RCP
@ 1.00%
INV.: 10.68
STA: 127+90 - 30.0' R

30°LA

30'TYP.

Tangent | Curve.8 | Curve

Shoulder | Runout | Runoff

120+96.20' | 122+48.19' | 122+96.19' | 123+44.19' | 124+40.19'

ENS | ENC | LC | RC | BFS

6.00% 5.00% 4.00% 3.00% 2.00% 1.00% 0.00% -1.00% -2.00% -3.00% -4.00% -5.00% -6.00%

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

PVI STA=120+33.33
PVI ELEV=18.37
A.D.=0.75
K=96.00
72' VC

BVCS: 119+97.33
BVCE: 18.64
EVCE: 18.37
EVCS: 120+69.33

PVI STA=122+55.05
PVI ELEV=18.37
A.D.=1.25
K=40.00
50' VC

BVCS: 122+35.05
BVCE: 18.37
EVCE: 18.06
EVCS: 122+80.05

PVI STA=123+25.08
PVI ELEV=17.49
A.D.=0.75
K=96.00
72' VC

ACS: 123+49.08
BVCE: 17.94
EVCE: 17.31
EVCS: 123+81.08

PVI STA=124+50
PVI ELEV=16.87
A.D.=0.25
K=84.00
21' VC

PC: 123+92.19
17.16

BVCS: 124+39.50
BVCE: 16.92
EVCE: 16.79
EVCS: 124+60.50

L.P. STA=126+60.04
L.P. ELEV=15.67
PVI STA=126+10.04
PVI ELEV=15.67
A.D.=0.75
K=133.33
100' VC

BVCS: 125+60.04
BVCE: 16.04
EVCE: 15.67
EVCS: 126+60.04

0.00% | -0.50% | -0.75%

PROPOSED GRADE

EXISTING GRADE

BUCKSPORT ACCESS ROAD: 126+61.63
= BUCKSPORT ROAD: 0+00
ELEV: 15.67

PVI STA: 127+00
PVI ELEV: 11.05

PROPOSED DITCH - LEFT

24" RCP

-0.50%

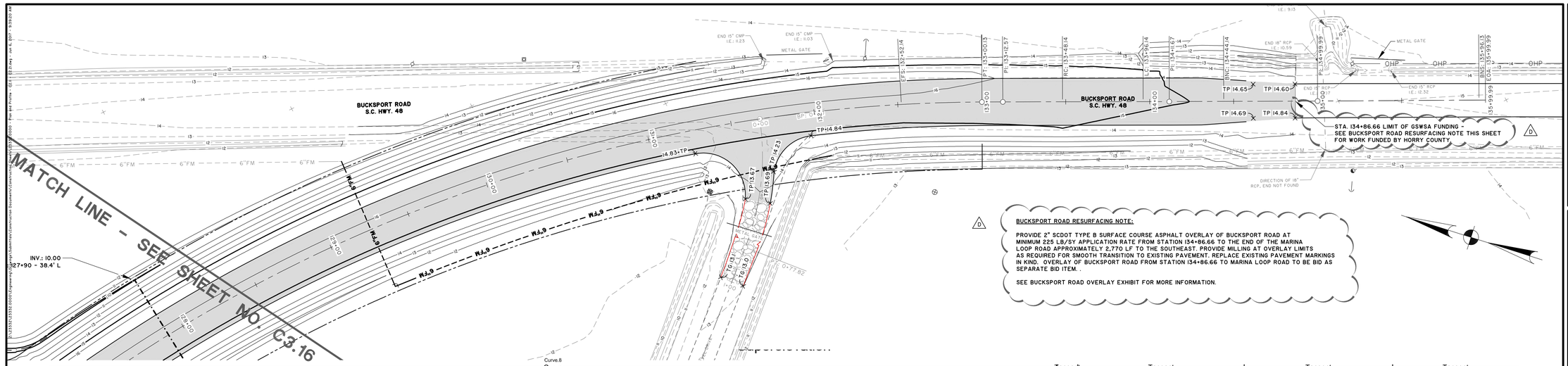
PROPOSED DITCH - RIGHT

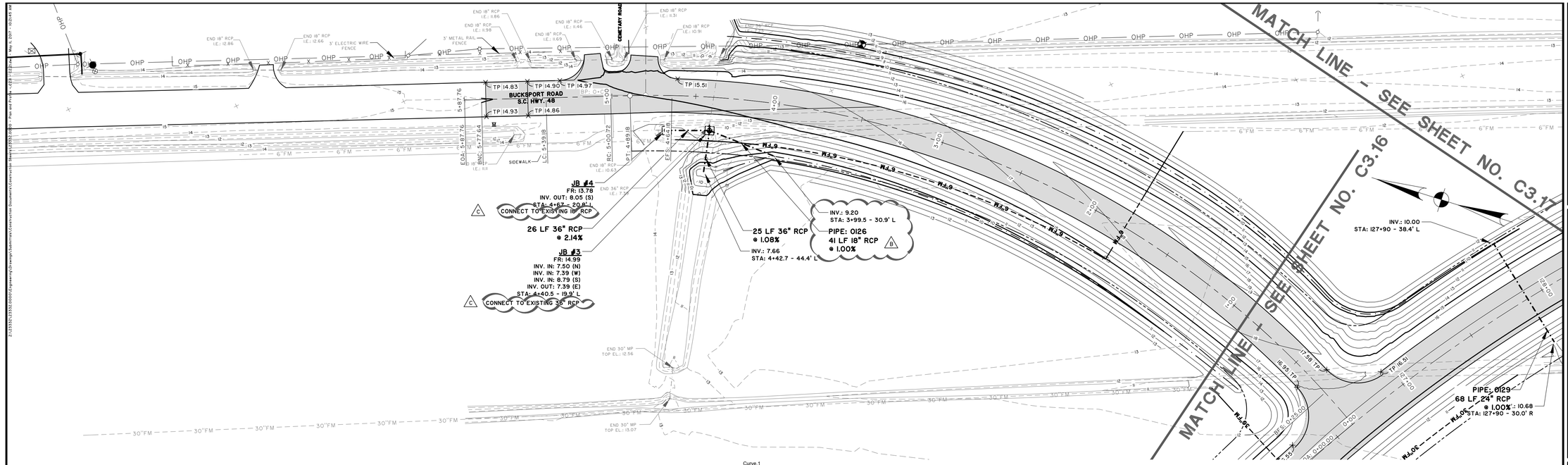
PVI STA: 127+50.10
PVI ELEV: 9.77

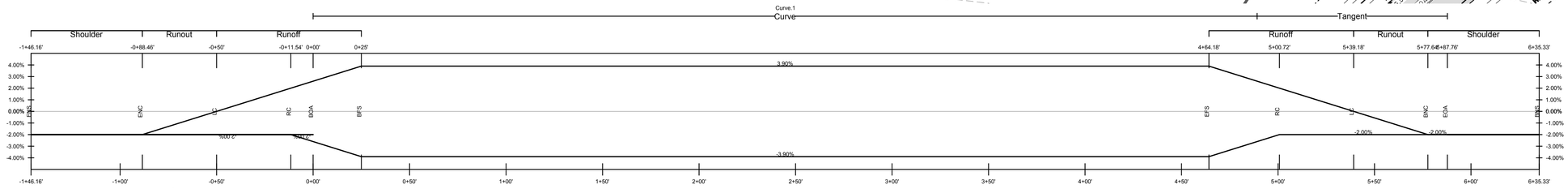
PVI STA: 127+90
PVI ELEV: 10.60

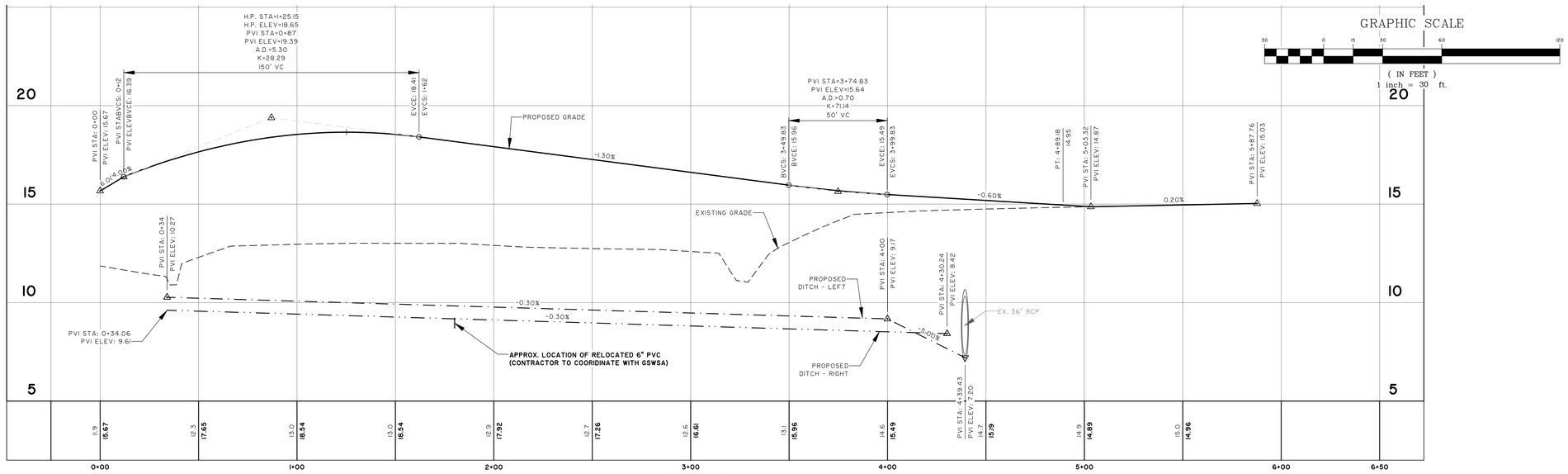
APPROX. LOCATION OF RELOCATED 30" PVC
(CONTRACTOR TO COORDINATE WITH GSWSA)

| | | |


BUCKSPORT ROAD
S.C. HWY. 48
MATCH LINE - SEE SHEET NO. C3.16
INV.: 10.00
127+90 - 38.4' L
BUCKSPORT ROAD
S.C. HWY. 48
STA. 134+86.66 LIMIT OF GSWSA FUNDING -
SEE BUCKSPORT ROAD RESURFACING NOTE THIS SHEET
FOR WORK FUNDED BY HORRY COUNTY
DIRECTION OF 18" RCP, END NOT FOUND
END 15" CMP I.E.: 11.23
END 15" CMP I.E.: 11.03
METAL GATE
END 18" RCP I.E.: 10.59
END 15" RCP I.E.: 10.37
END 15" RCP I.E.: 10.52
TP 14.84
TP 14.83+TP
TP 14.23
TP 13.69
TP 13.51
TP 14.65
TP 14.60
TP 14.69
TP 14.84
EFS: 132+52.14
PI: 133+00.13
PI: 133+12.57
RC: 133+48.14
CC: 133+96.14
PI: 134+11.67
BNC: 134+44.14
PI: 134+99.99
RNS: 135+69.83
EOA: 135+99.99
W3.9
W4.9
W3.9
W3.9
W3.9
W3.9
W3.9
W3.9
W4.9
W3.9
W3.9
W3.9
W3.9
W3.9
W3







GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

BUCKSPORT ROAD

STATIONS: −0+25 – 6+50

SCALE: HORZ.: 1" = 30'

VERT.: 1" = 3'

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
B	PER HORRY COUNTY	CVD	10/17/13
C	ADDED NOTES	MDS	5/10/17

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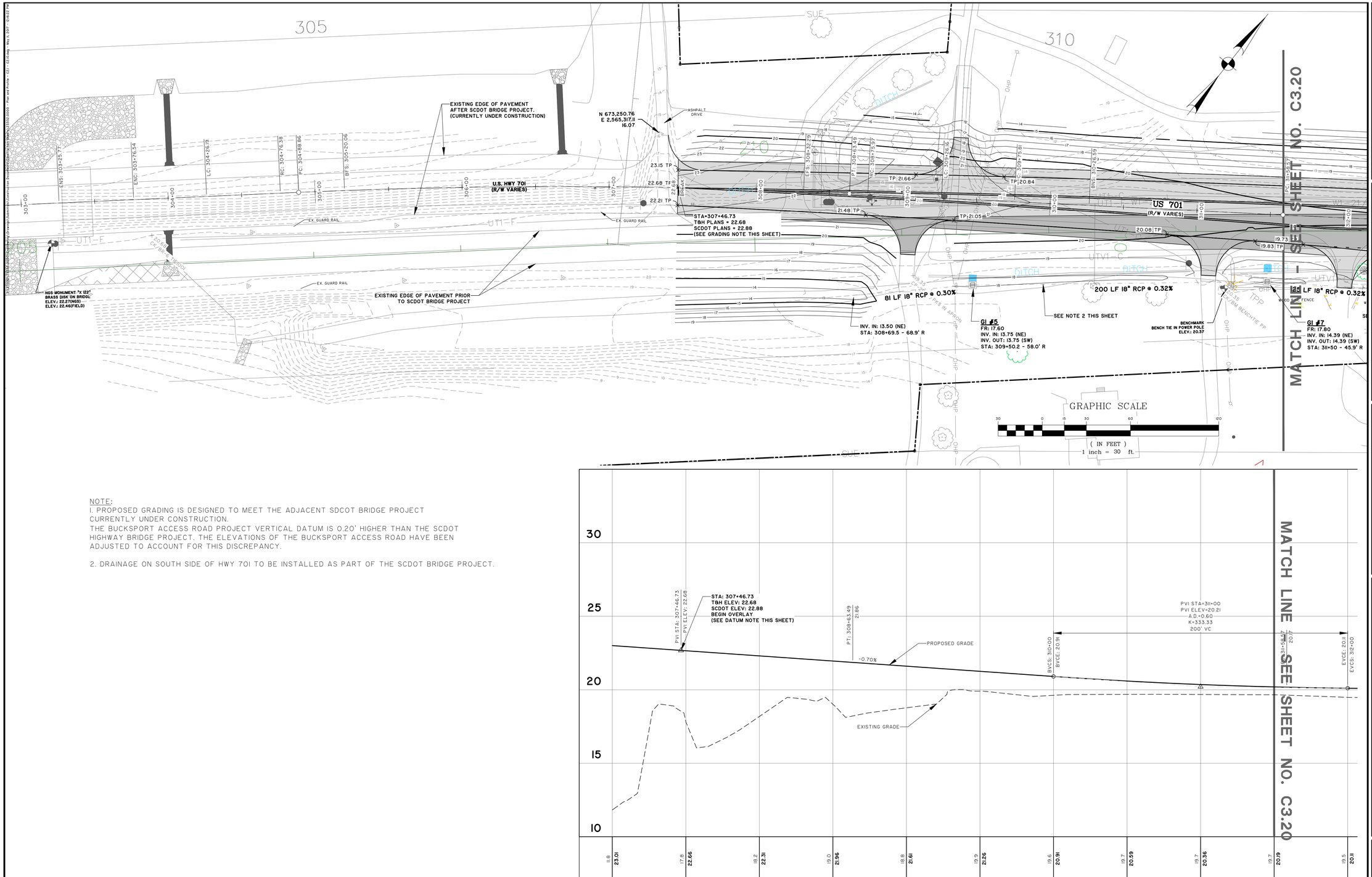
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

ROAD - PLAN AND PROFILE

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.18


305
310
SUE
UTI-F
UTV1 C
DITCH
OHP
OHP
OHP

NOTE:
1. PROPOSED GRADING IS DESIGNED TO MEET THE ADJACENT SDCOT BRIDGE PROJECT CURRENTLY UNDER CONSTRUCTION.
THE BUCKSPORT ACCESS ROAD PROJECT VERTICAL DATUM IS 0.20' HIGHER THAN THE SCDOT HIGHWAY BRIDGE PROJECT. THE ELEVATIONS OF THE BUCKSPORT ACCESS ROAD HAVE BEEN ADJUSTED TO ACCOUNT FOR THIS DISCREPANCY.

2. DRAINAGE ON SOUTH SIDE OF HWY 701 TO BE INSTALLED AS PART OF THE SCDOT BRIDGE PROJECT.

MATCH LINE - SEE SHEET NO. C3.19

MATCH LINE - SEE SHEET NO. C3.1

MATCH LINE - SEE SHEET NO. C3.21

LUCAS BAY ROAD

69 LF 15" RCP @ 1.03%
INV.: 16.00
STA: 315+98.8 - 49.7' L

INV.: 16.70
STA: 316+67.6 - 50.4' L

MATCH EX. GRADE

CONTROL POINT
REBAR WITH CAP
N 673,952.40
E 2,566,267.07
ELEV.: 20.20

CONCRETE PARKING
GAS STATION

ASPHALT DRIVE

2' WOOD BOLLARDS

U.S. HWY 701
(R/W VARIES)

US 701
(R/W VARIES)

125 LF 18" RCP @ 0.32%

WOOD RAIL FENCE

SEE NOTE 2 THIS SHEET

GI #7
FR: 17.80
INV. IN: 14.39 (NE)
INV. OUT: 14.39 (SW)
STA: 311+50 - 45.9' R

GI #8
FR: 17.80
INV. OUT: 14.79 (SW)
STA: 312+74.5 - 48.7' R

HEIRS OF WENDELL A. & WANDA BENJAMIN
PROPERTY
TMS# 282-00-01-0018
D.B. 2534 Pg. 1425

BENCHMARK
BENCH TIE IN 20" OAK
ELEV.: 17.85

EARTHEN DRIVE

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURLANES ADDED	CCR	05/10/17

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

US 701 - PLAN AND PROFILE

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C3.20

PC: 311+58.57
20.17

BVCS: 312+25
BVCE: 20.08

PVI STA=313+25
PVI ELEV=19.98
A.D.=0.10
K=2000.00
200' VC

EVCE: 19.98
EVCS: 314+25

PVI STA: 315+25
PVI ELEV: 19.98

PVI STA: 316+25
PVI ELEV: 20.08

PCC: 316+58.48
20.04

BVCS: 317+00
BVCE: 20.00

L.P. STA=317+25.09
L.P. ELEV=19.99
PVI STA=318+00
PVI ELEV=19.90
A.D.=0.80
K=249.87
200' VC

EVCE: 20.60
EVCS: 319+00

PVI STA=320+80
PVI ELEV=21.86
A.D.=0.20
K=984.62
200' VC

BVCS: 319+80
BVCE: 21.16

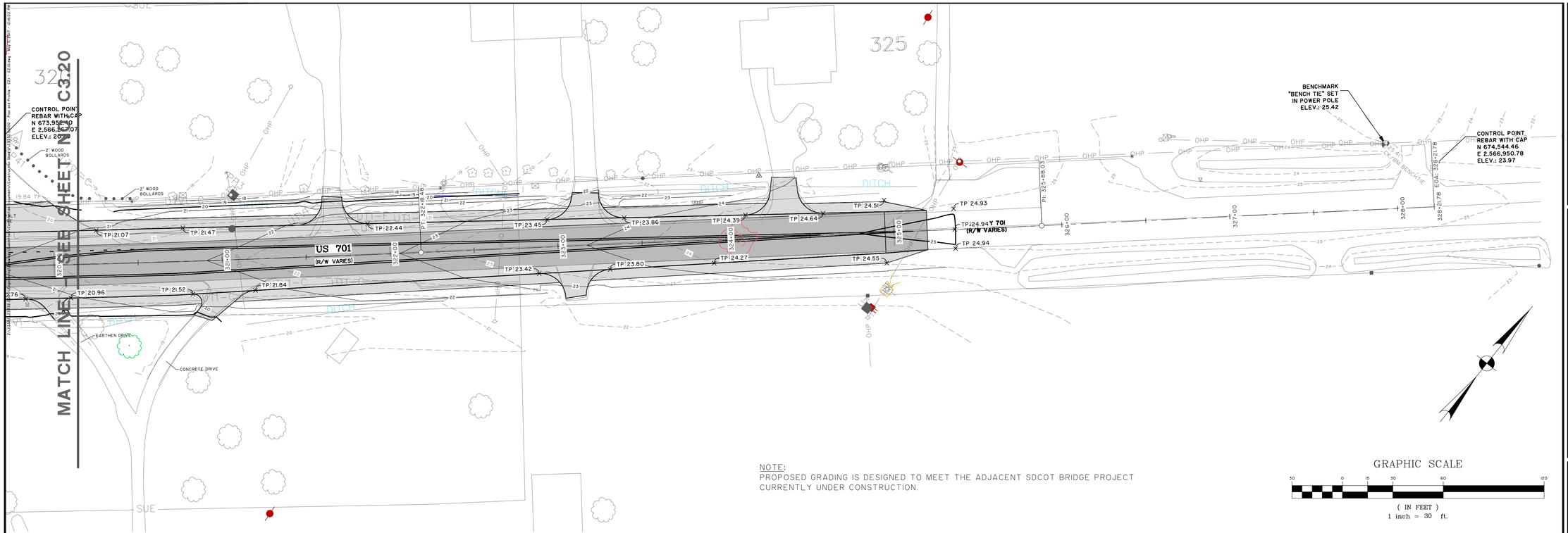
EVCE: 20.11
EVCS: 312+00

-0.10%
0.00%
0.10%
-0.10%
0.70%

PROPOSED GRADE
EXISTING GRADE

US 701: 316+35.46
= BUCKSPORT ACCESS ROAD: -0+00.53
= LUCAS BAY ROAD: 0+00
ELEV: 20.07

| | | |

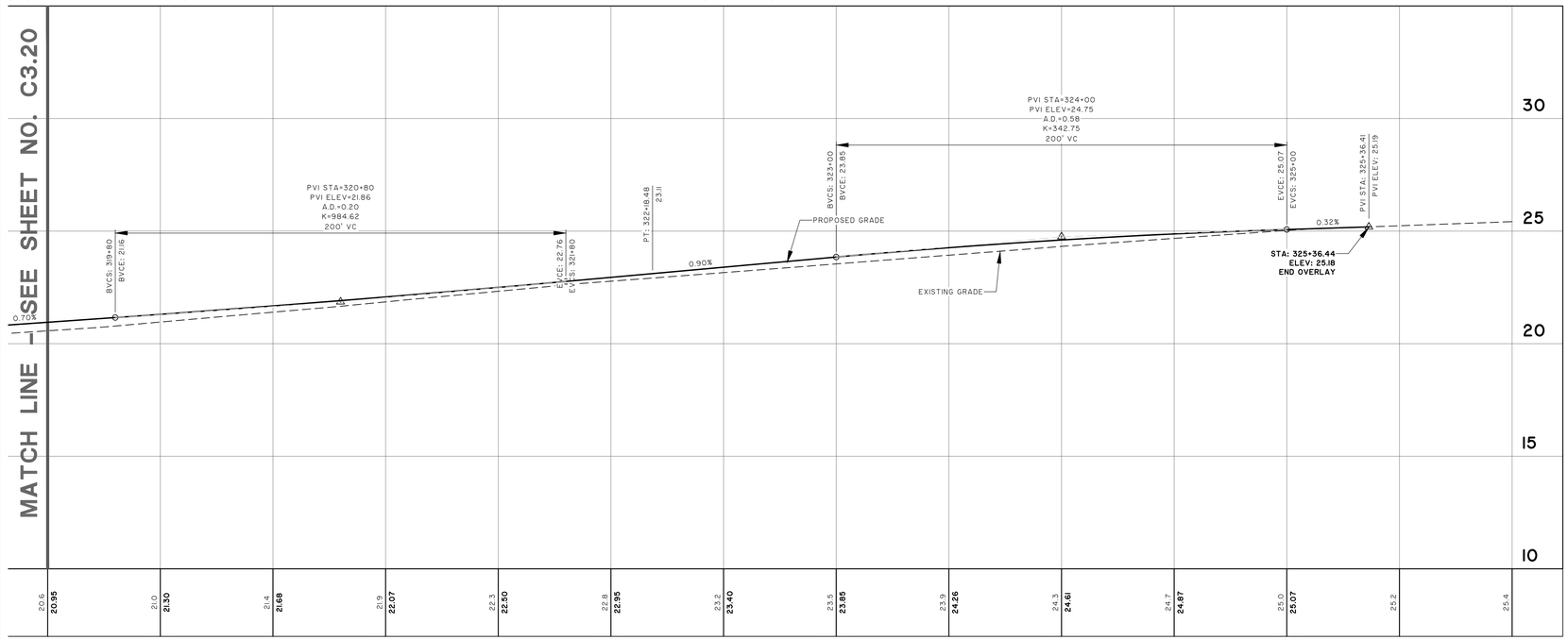


NOTE:
PROPOSED GRADING IS DESIGNED TO MEET THE ADJACENT SDCOT BRIDGE PROJECT CURRENTLY UNDER CONSTRUCTION.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



US 701
STATIONS: 319+00 – 326+00
SCALE: HORZ.: 1" = 30'
VERT.: 1" = 3'

NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURLANES ADDED	CCR	05/10/17

THOMAS & HUTTON
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1350 Farrow Parkway • PO Box 8000
Myrtle Beach, SC 29578-8000 • 843.839-3545
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Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

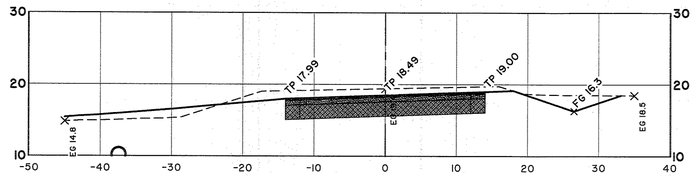
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

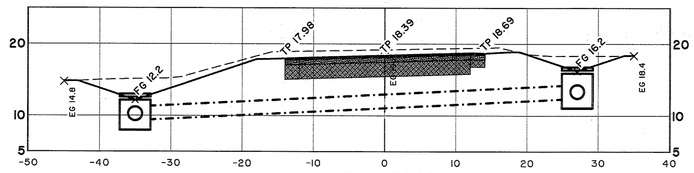
US 701 - PLAN AND PROFILE

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

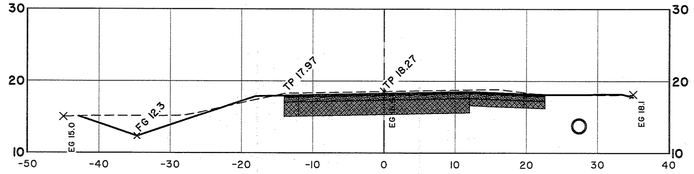
C3.21



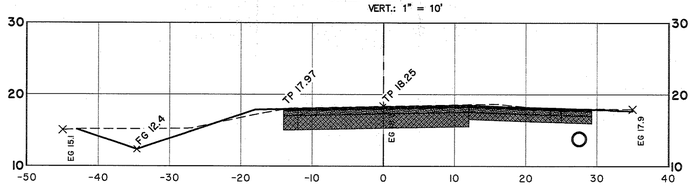
STA: 4+47.78
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



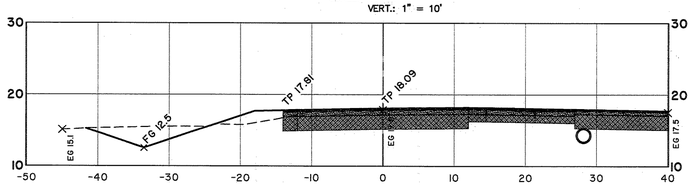
STA: 4+36.06
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VERT.: 1" = 10'



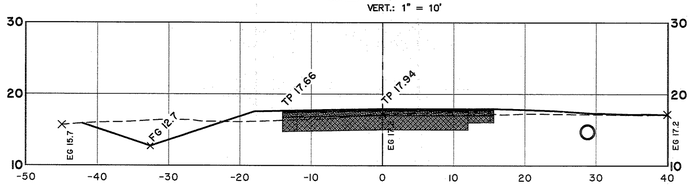
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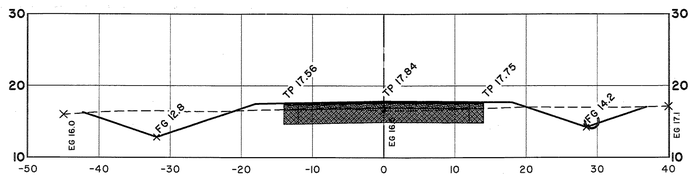
STA: 4+18.89
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VERT.: 1" = 10'



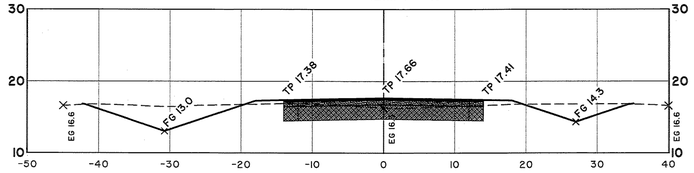
STA: 4+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



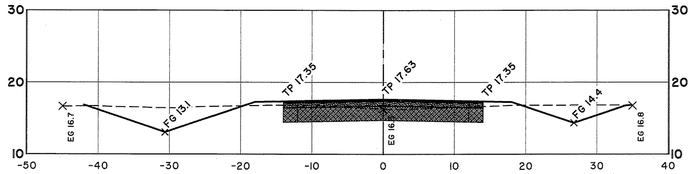
STA: 3+82.78
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VERT.: 1" = 10'



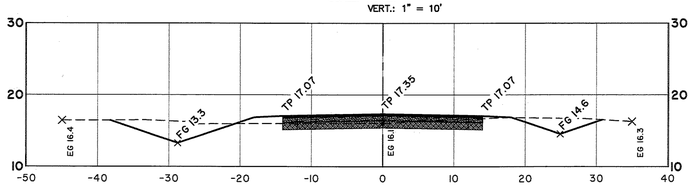
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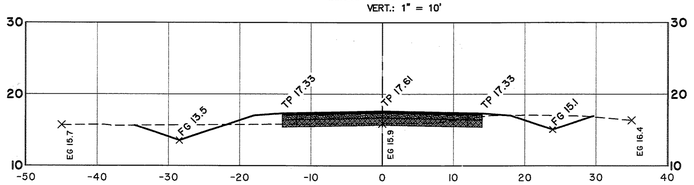
STA: 3+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



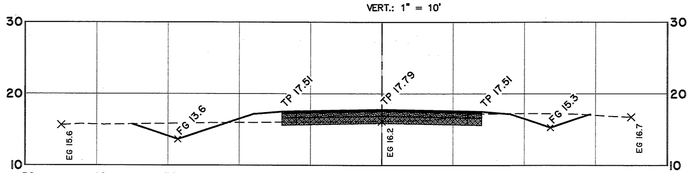
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VERT.: 1" = 10'



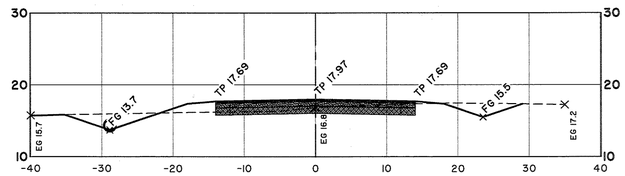
STA: 3+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



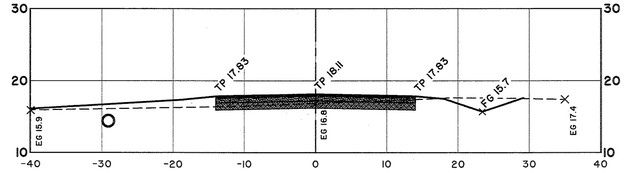
STA: 2+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



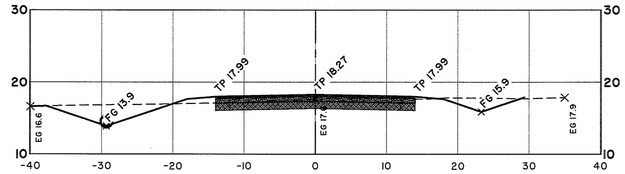
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VERT.: 1" = 10'



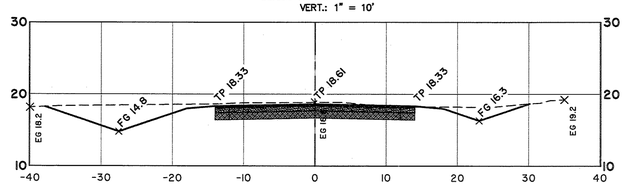
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VERT.: 1" = 10'



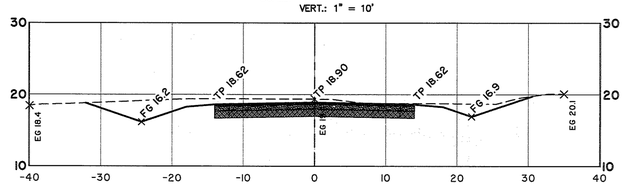
STA: 2+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



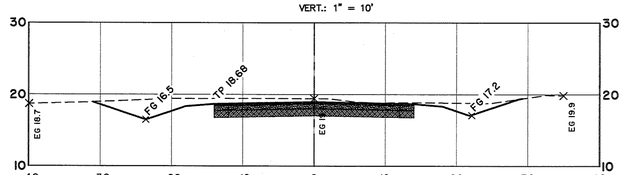
STA: 1+84.26
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 1+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 1+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 0+89.58
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE
(IN FEET)
1 inch = 10 ft.

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
B	PER HORRY COUNTY	CVD	5/6/13

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

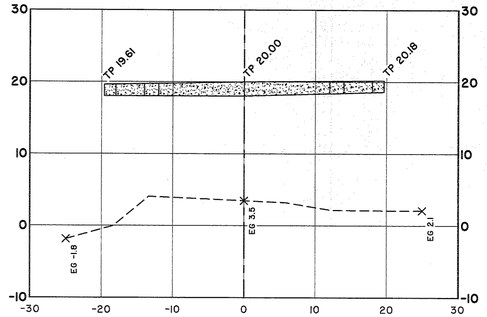
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.1

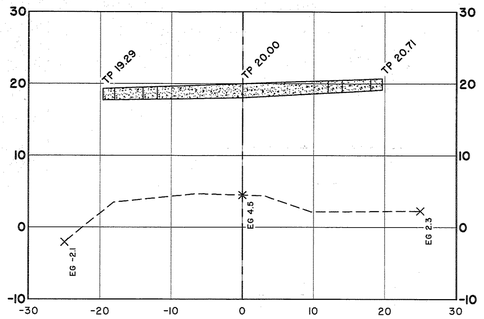
SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00289 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — REGISTERED PROFESSIONAL ENGINEER — JOHN H. RICHARDSON — No. 27284

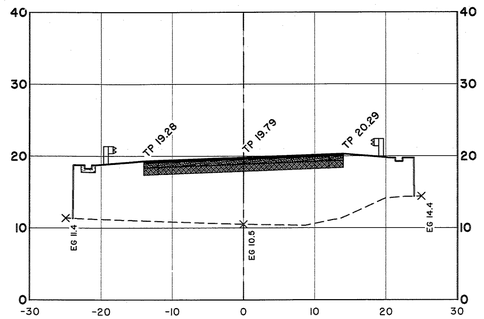
C:\Documents and Settings\chris.dyer\My Documents\Drawings • Jul 25, 2006 - 02:56:17 PM



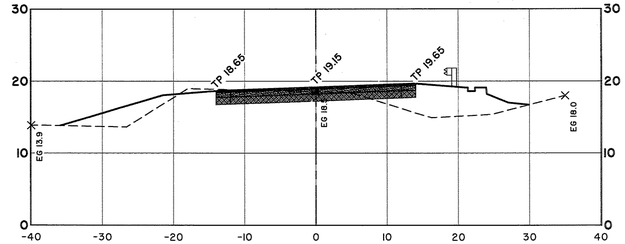
STA: 8+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



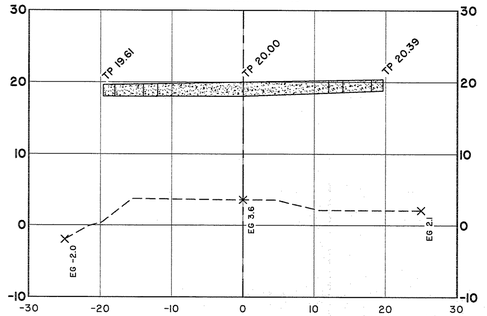
STA: 7+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



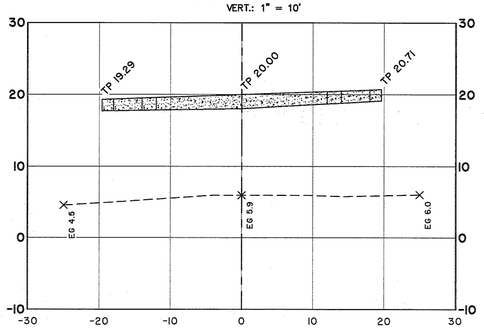
STA: 6+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



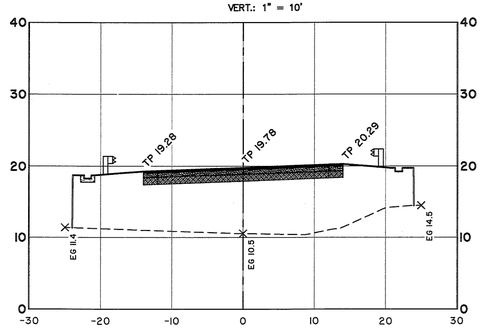
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



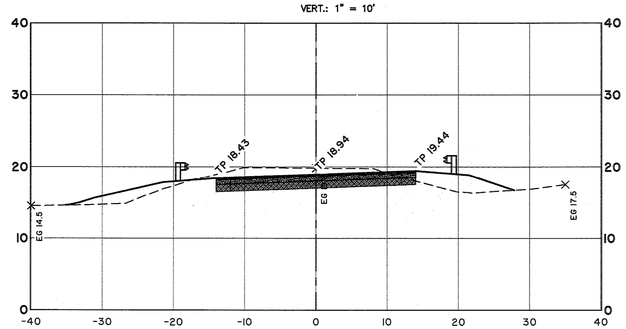
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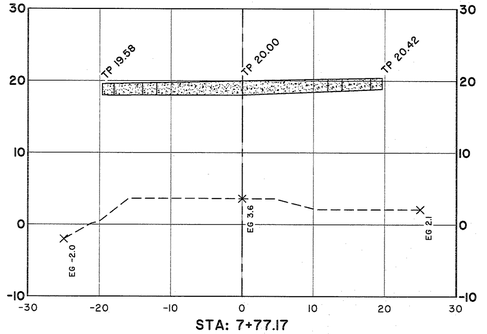
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SCALE: HORZ.: 1" = 10'
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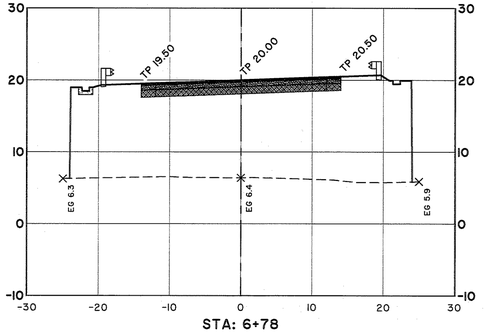
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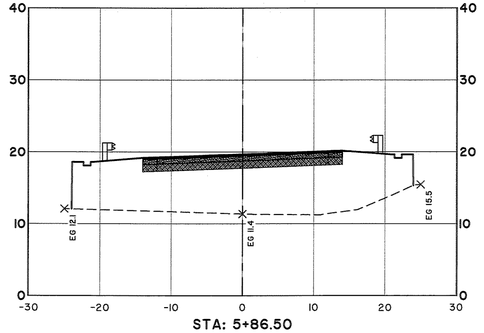
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VERT.: 1" = 10'



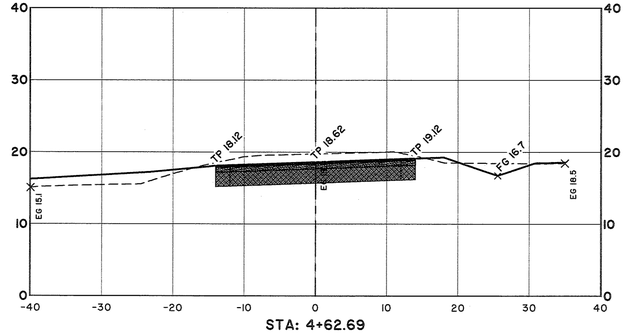
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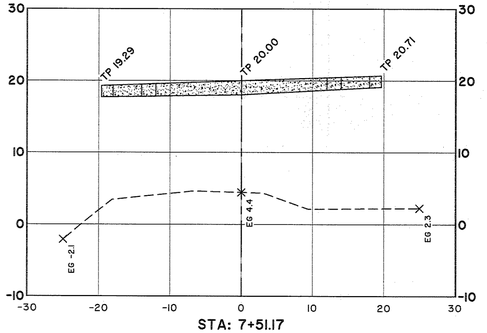
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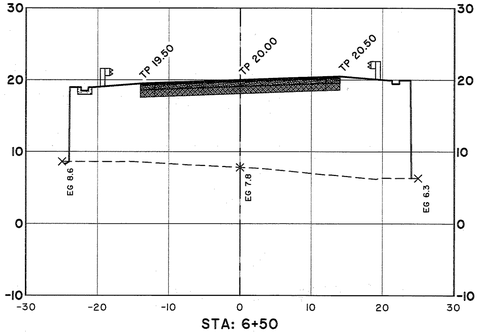
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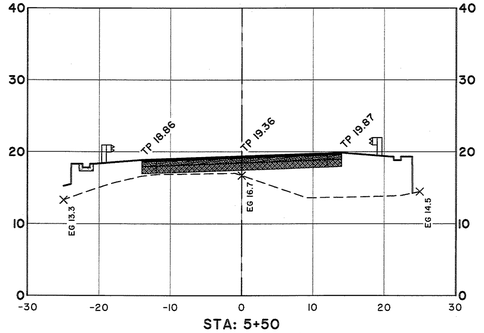
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VERT.: 1" = 10'



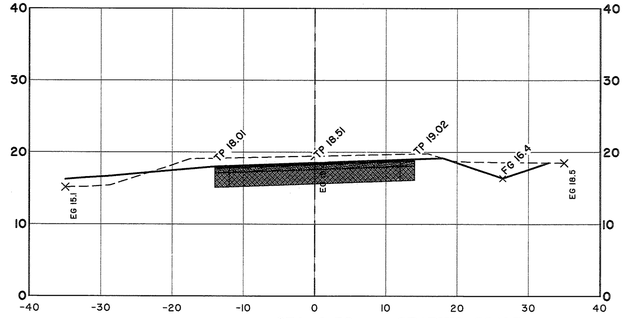
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 6+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 5+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 4+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER
THOMAS R HUTTON ENGINEERING CO.
No. C00289
CERTIFICATE OF AUTHORIZATION
NOLLY NORRIS
JOHN H. RICHARDSON
No. 29264
10/17/13

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
B	PER HORRY COUNTY	CVD	6/6/13

THOMAS & HUTTON
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Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

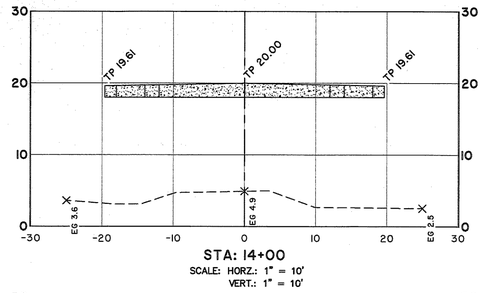
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

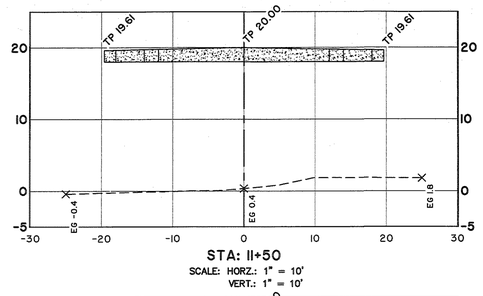
JOB NO:	J-25332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.2

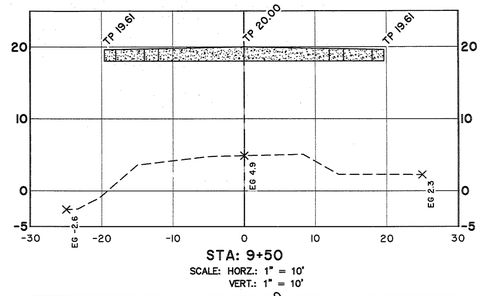
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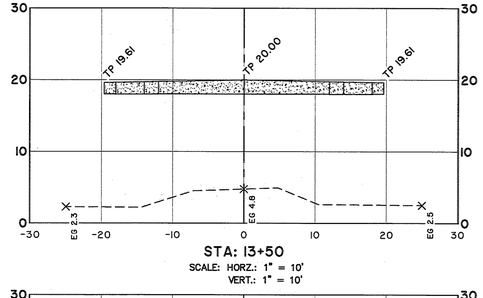
STA: 14+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



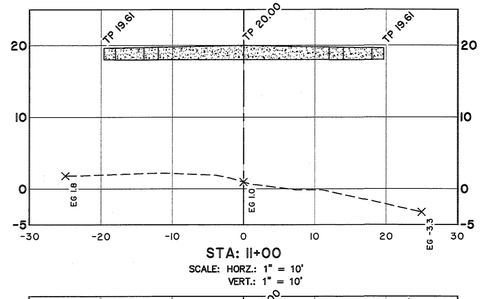
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



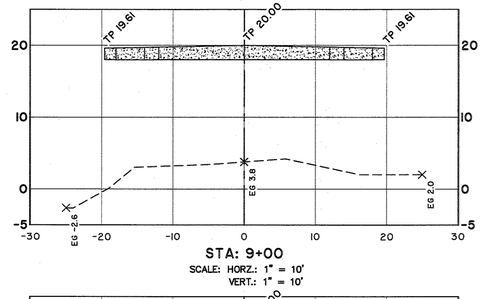
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



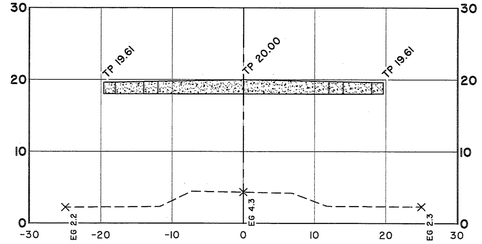
STA: 13+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



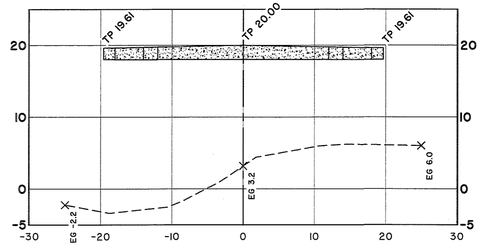
STA: 11+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



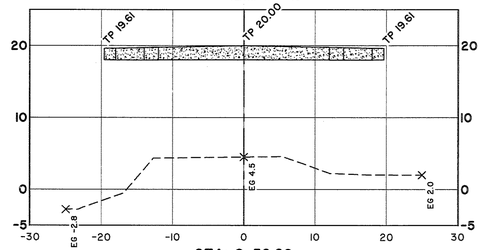
STA: 9+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



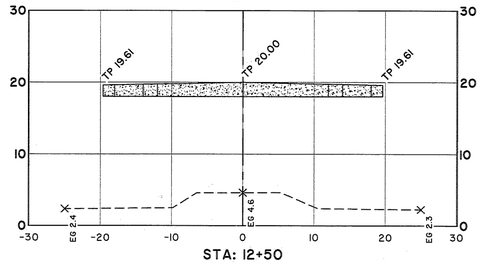
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VERT.: 1" = 10'



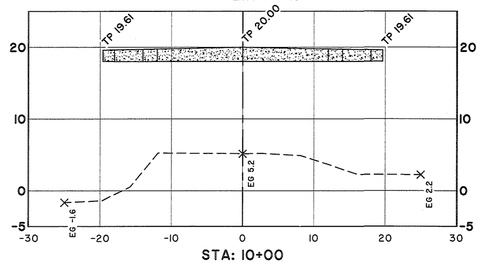
STA: 10+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



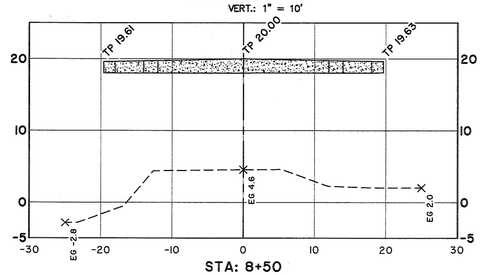
STA: 8+52.29
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VERT.: 1" = 10'



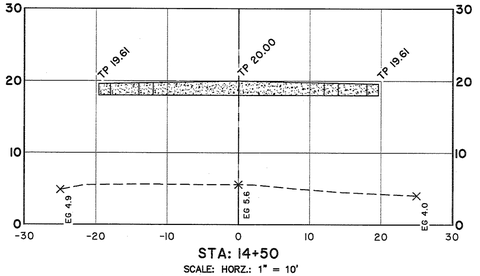
STA: 12+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



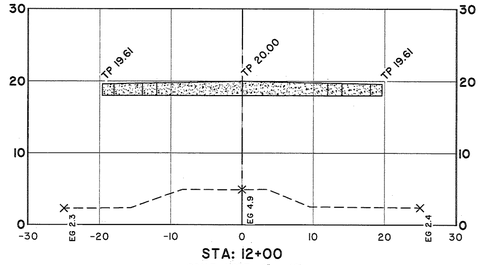
STA: 10+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



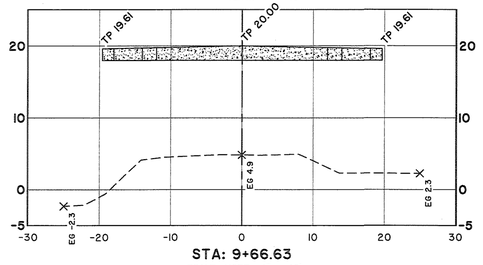
STA: 8+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



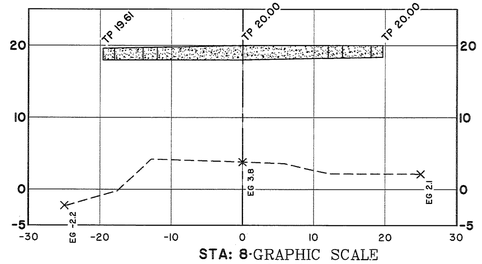
STA: 14+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 12+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 9+66.63
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 8+GRAPHIC SCALE
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER — THOMAS B. HUTTON ENGINEERING No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER — JOHN H. RICHARDSON No. 20004

2/2014

NO.	DESCRIPTION	BY	DATE
B	PER HORRY COUNTY	CVD	6/6/13
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
	REVISIONS		

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting
1350 Farrow Parkway • PO Box 8000
Myrtle Beach, SC 29578-8000 • 843.839-3545
www.thomasandhutton.com
Savannah, GA | Brunswick, GA | Bluffton, SC | Charleston, SC | Wilmington, NC

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

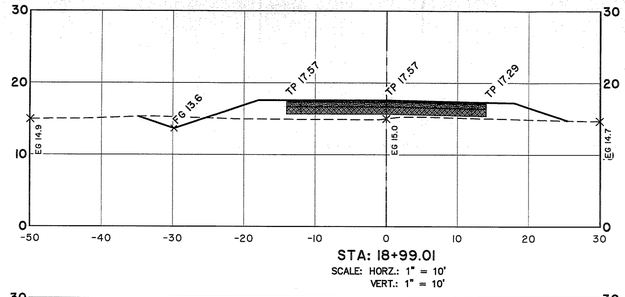
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

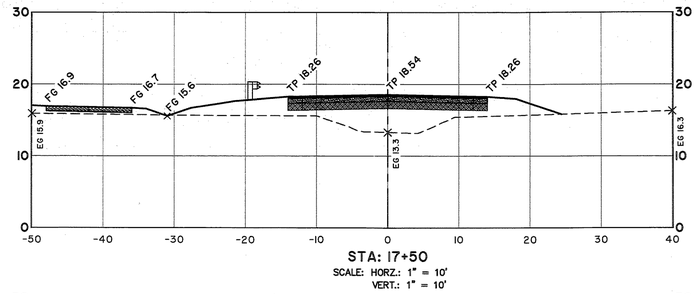
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.3

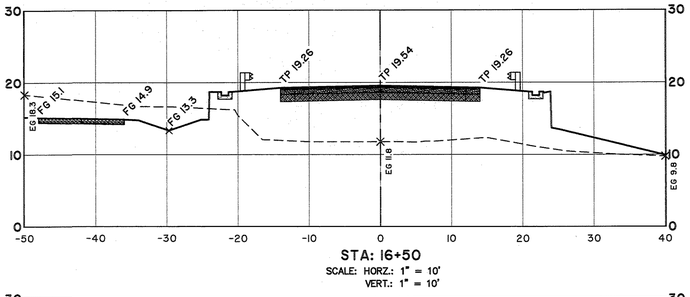
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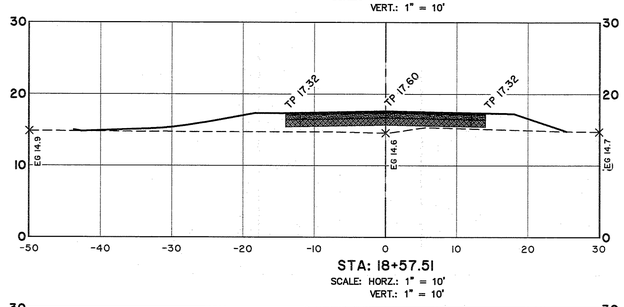
STA: 18+99.01
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



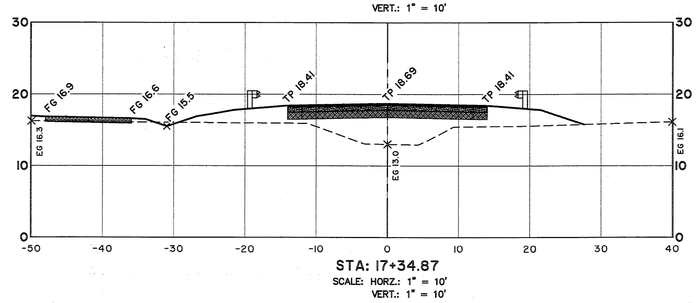
STA: 17+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



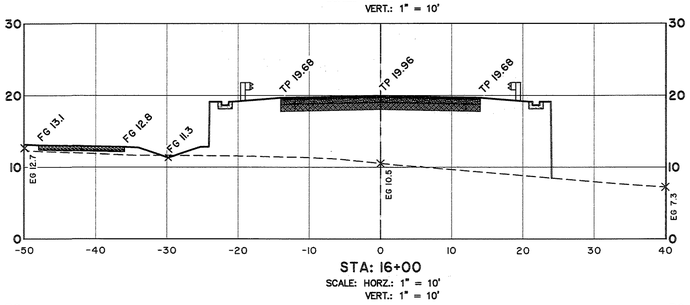
STA: 16+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



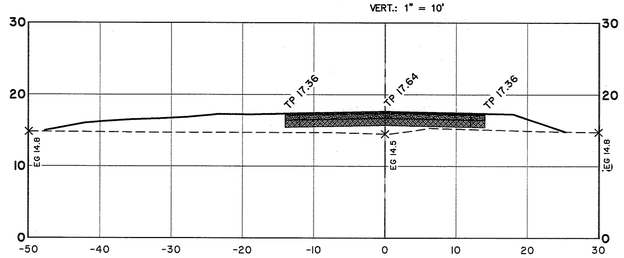
STA: 18+57.51
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



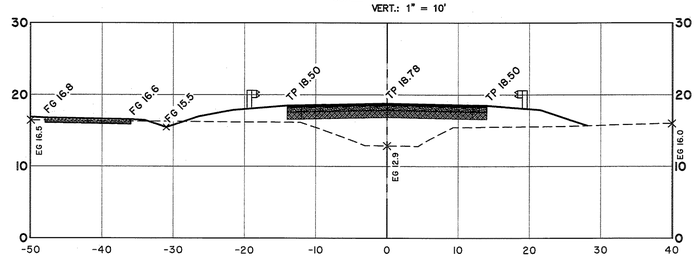
STA: 17+34.87
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VERT.: 1" = 10'



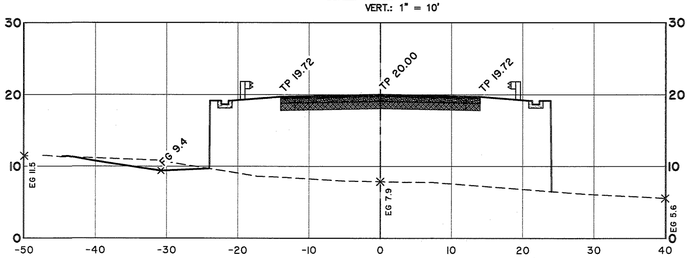
STA: 16+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



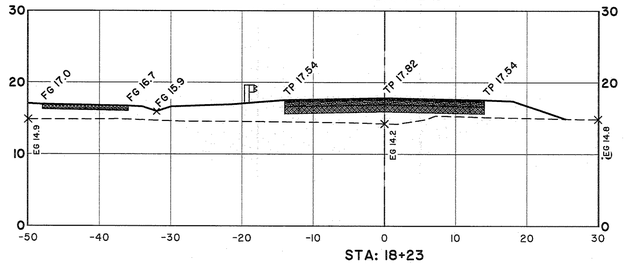
STA: 18+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



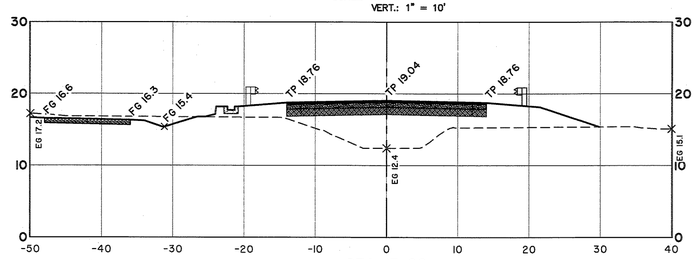
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VERT.: 1" = 10'



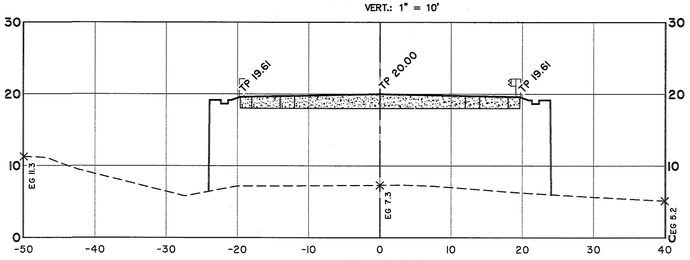
STA: 15+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



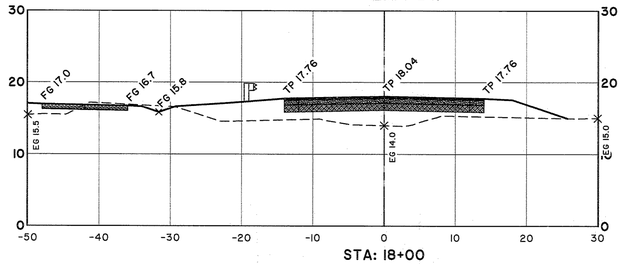
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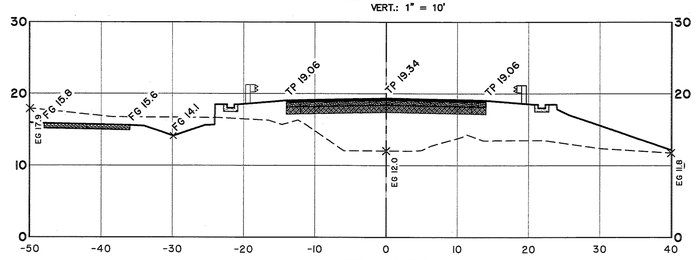
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



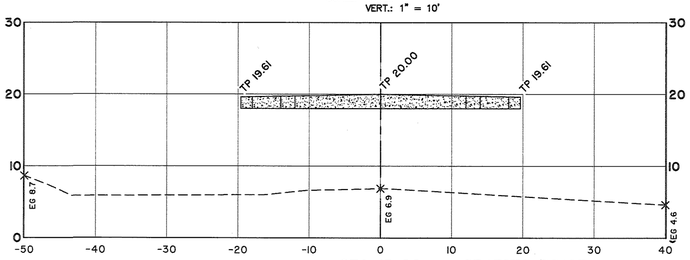
STA: 15+28
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 18+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 16+70
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 15+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

C:\Users\cvd\Desktop\GRAND STRAND WATER & SEWER AUTHORITY\NEW BUCKSPORT ACCESS ROAD\CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD.dwg Thursday, October 17, 2013 - 2:23:46 PM

SOUTH CAROLINA
PROFESSIONAL ENGINEER
CHRISTOPHER V. DUDA
No. 28016
10/17/13

SOUTH CAROLINA
PROFESSIONAL ENGINEER
JOSEPH H. RICHTER, JR.
No. 11405
10/17/13

NO.	BY	DATE
B	CVD	6/6/13
A	CVD	02/25/13

REVISIONS

B - PER HORRY COUNTY
A - SUBMITTED FOR PERMITTING

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting
1350 Farrow Parkway • PO Box 8000
Myrtle Beach, SC 29578-8000 • 843.839-3545
www.thomasandhutton.com
Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

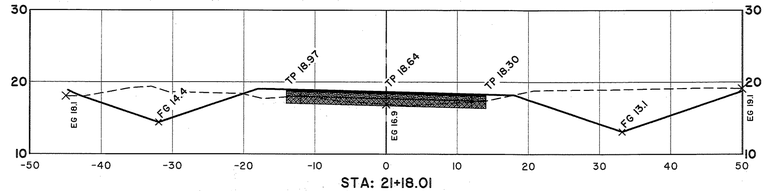
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

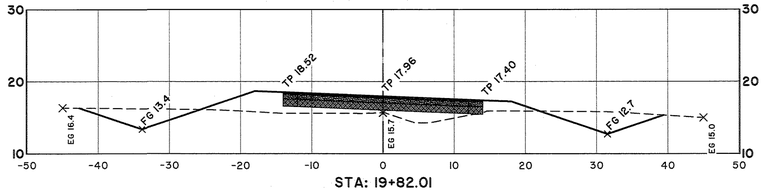
CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

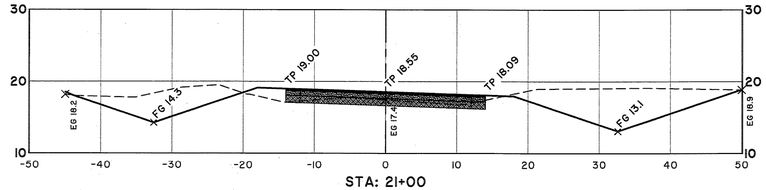
C4.4



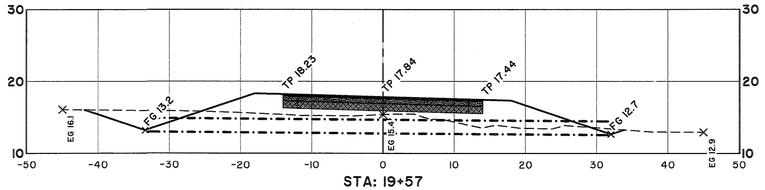
STA: 21+18.01
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



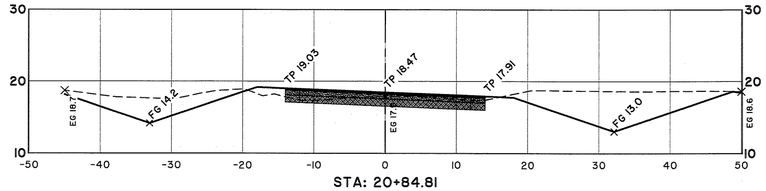
STA: 19+82.01
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



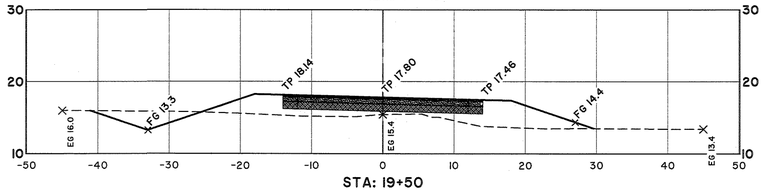
STA: 21+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



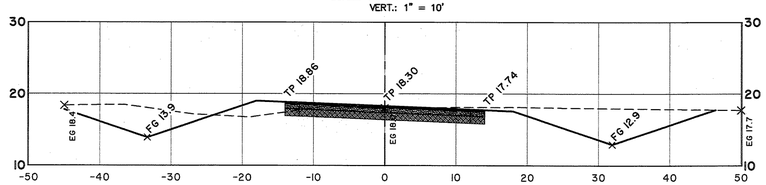
STA: 19+57
SCALE: HORZ.: 1" = 10'
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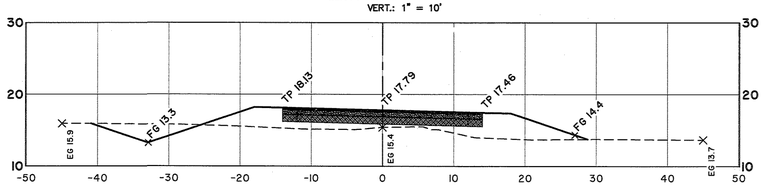
STA: 20+84.81
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



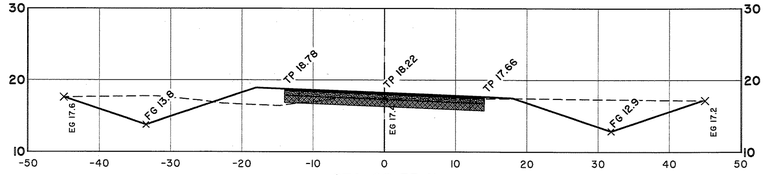
STA: 19+50
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VERT.: 1" = 10'



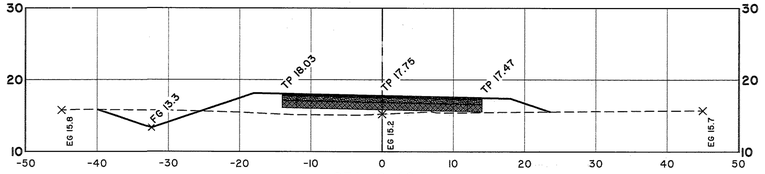
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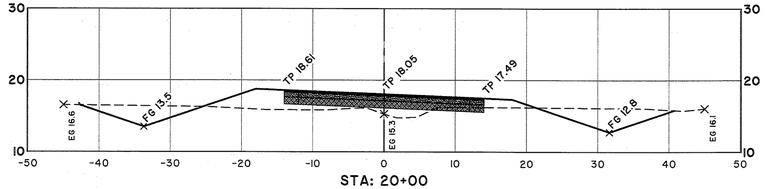
STA: 19+48.81
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



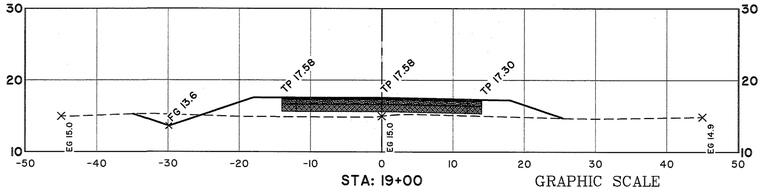
STA: 20+33.41
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 19+40.51
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 20+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 19+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA — NOLVEN — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOHN H. RICHARDSON — 27147 — 6/6/13

NO.	DESCRIPTION	BY	DATE
B	PER HORRY COUNTY	CVD	6/6/13
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
	REVISIONS		

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Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

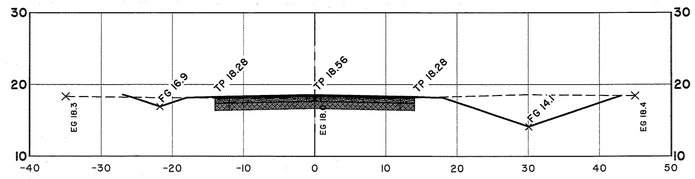
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

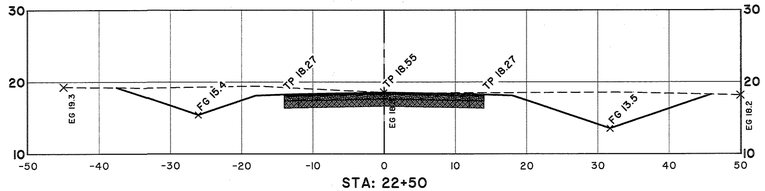
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.5

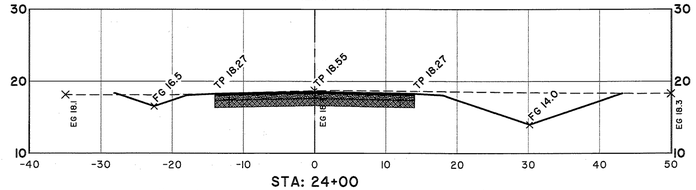
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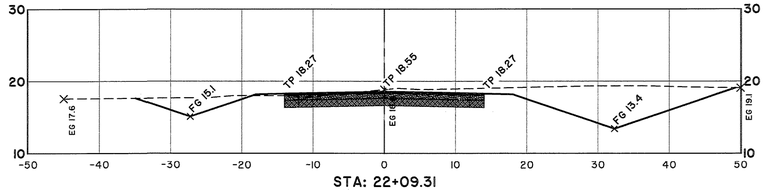
STA: 24+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



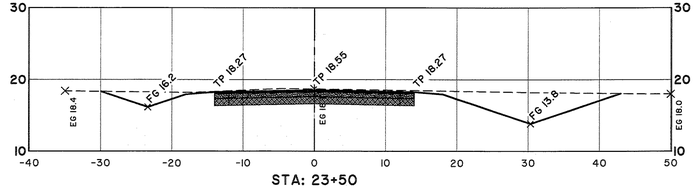
STA: 22+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



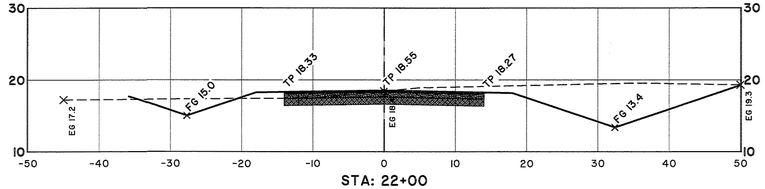
STA: 24+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



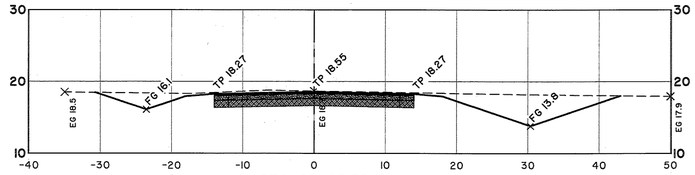
STA: 22+09.31
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



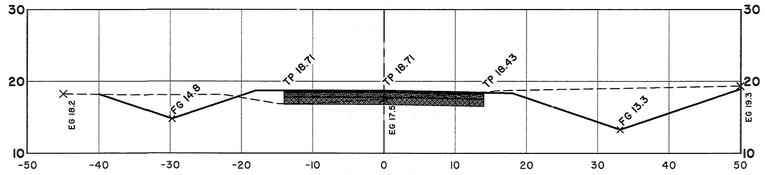
STA: 23+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



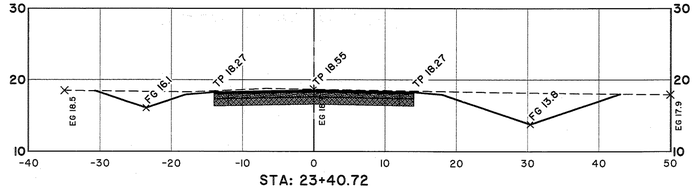
STA: 22+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



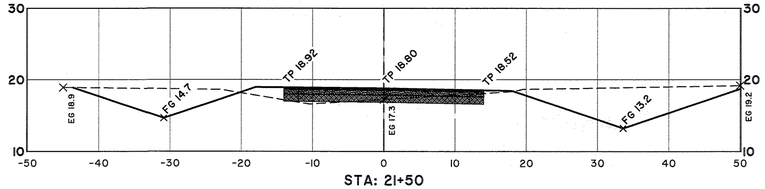
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



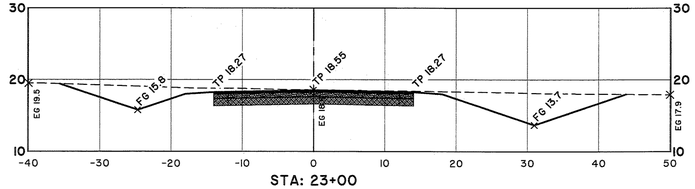
STA: 21+67.81
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



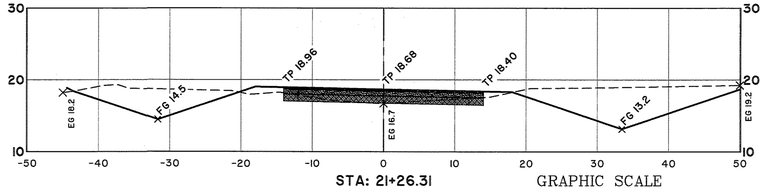
STA: 23+40.72
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 21+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 23+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 21+26.31
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

C:\Documents and Settings\chris.dyon\My Documents\Drawings\Grand Strand Water & Sewer Authority\Bucksport Access Road\Cross Sections.dwg, 10/17/2013 8:29:58 AM, chris.dyon

SOUTH CAROLINA PROFESSIONAL ENGINEER
JOHN H. RICHTER, JR.
No. 22407
CERTIFICATE OF AUTHORIZATION
THOMAS & HUTTON ENGINEERING CO.
No. C00288
SOUTH CAROLINA
NOLTE VERNON

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
B	PER HORRY COUNTY	CVD	6/6/13

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting
1350 Farrow Parkway • PO Box 8000
Myrtle Beach, SC 29578-8000 • 843.839-3545
www.thomasandhutton.com
Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

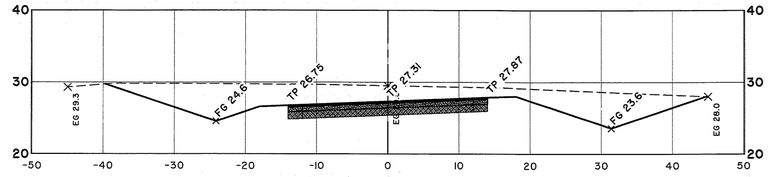
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

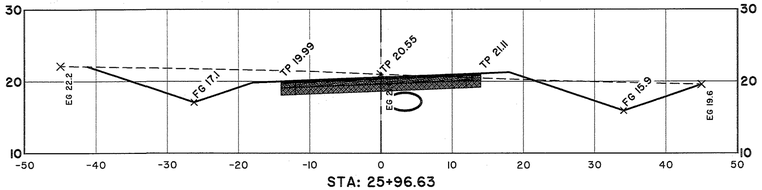
CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

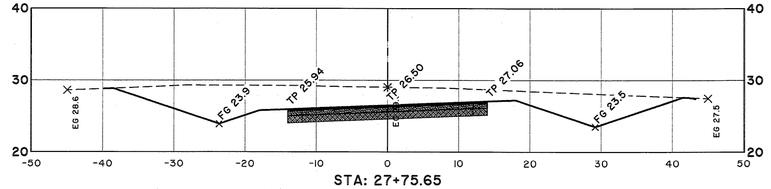
C4.6



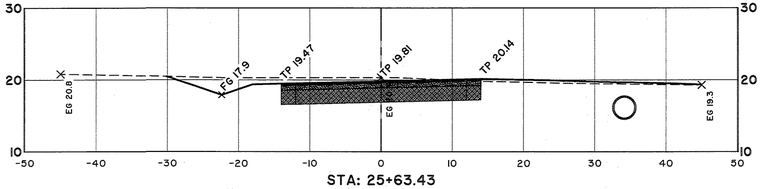
STA: 28+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



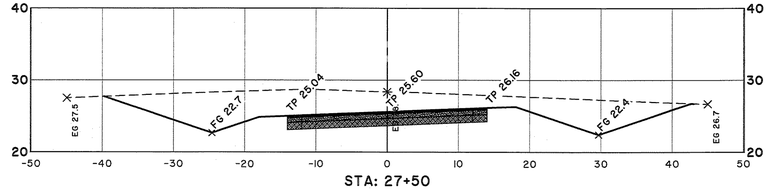
STA: 25+96.63
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



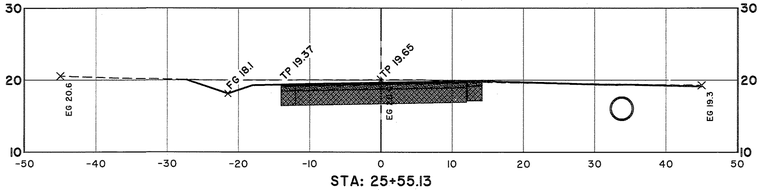
STA: 27+75.65
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



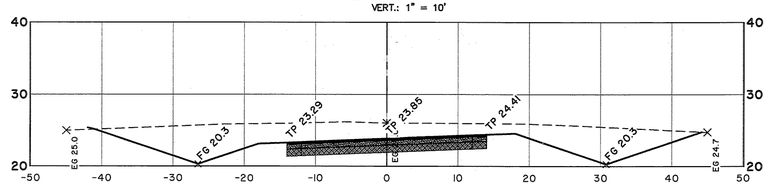
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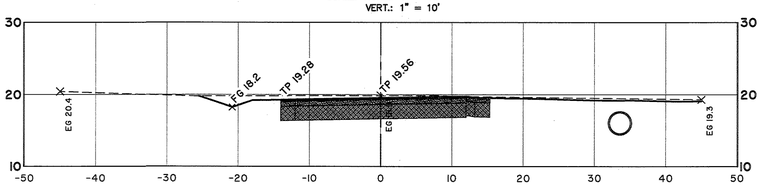
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



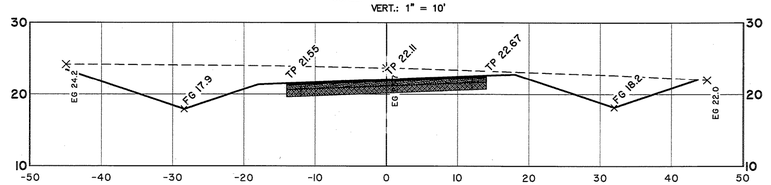
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VERT.: 1" = 10'



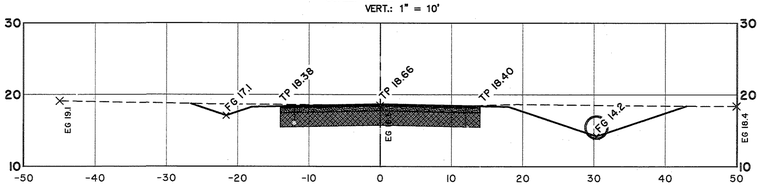
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



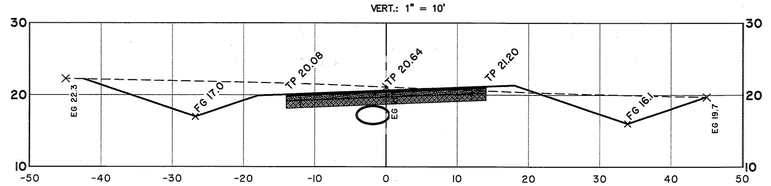
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



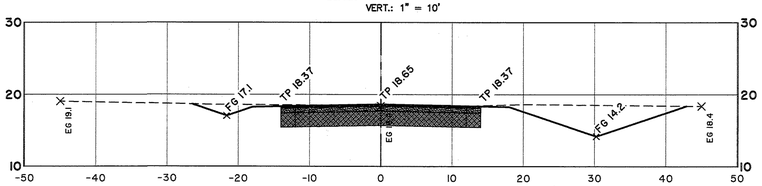
STA: 26+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 24+74.93
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

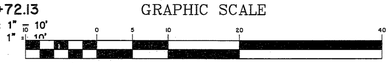


STA: 26+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 24+72.13
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE



SOUTH CAROLINA PROFESSIONAL ENGINEER JOHN H. RICHARDSON 24704 REGISTERED

SOUTH CAROLINA THOMAS & HUTTON ENGINEERING CO. No. COA2285 CERTIFICATE OF AUTHORIZATION

NO.	DESCRIPTION	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
B	PER HORRY COUNTY REVISIONS	CVD	6/6/15

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting
1350 Farrow Parkway • PO Box 8000
Myrtle Beach, SC 29578-8000 • 843.839-3545
www.thomasandhutton.com
Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

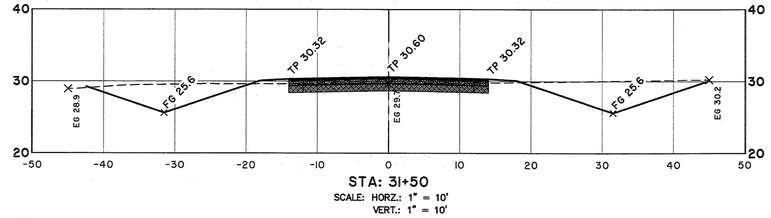
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

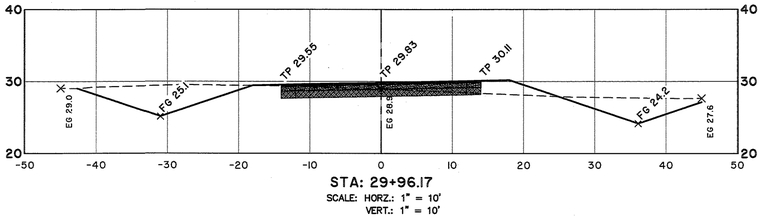
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.7

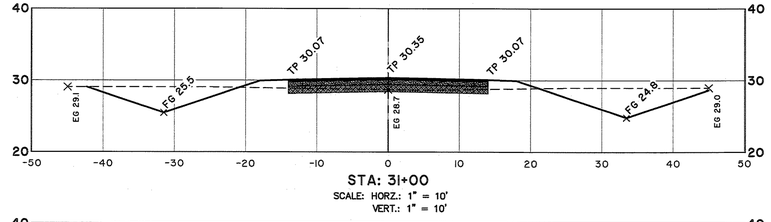
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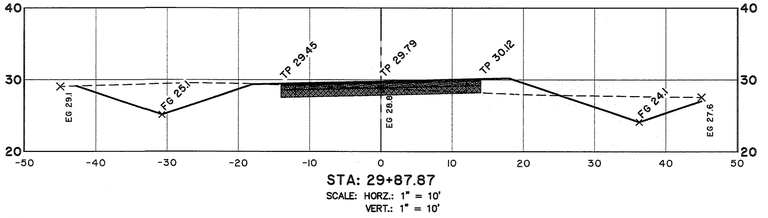
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



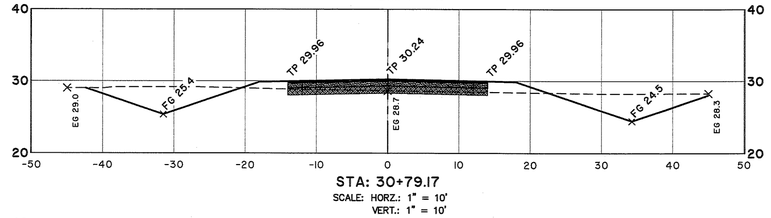
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VERT.: 1" = 10'



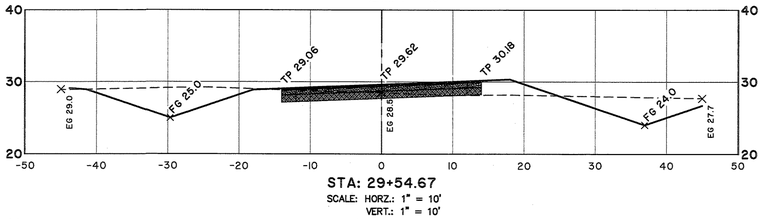
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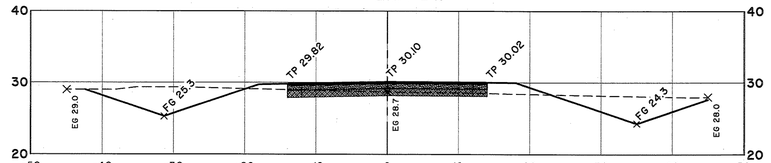
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VERT.: 1" = 10'



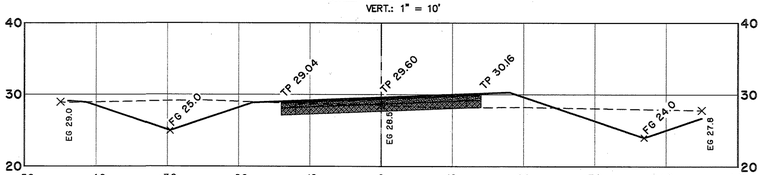
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VERT.: 1" = 10'



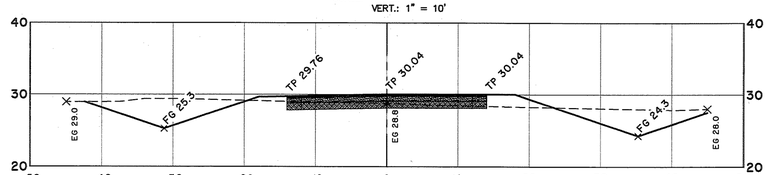
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VERT.: 1" = 10'



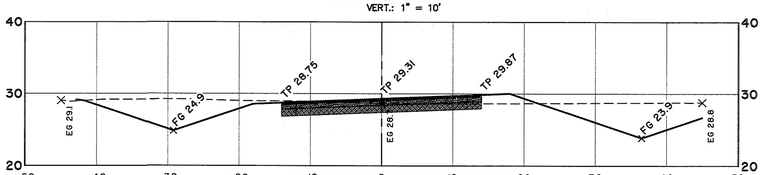
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VERT.: 1" = 10'



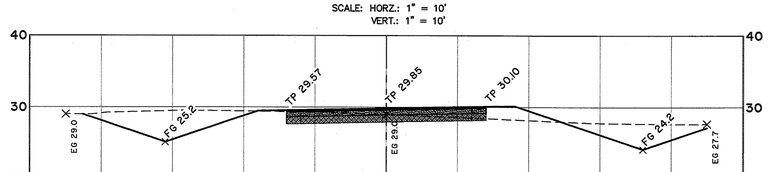
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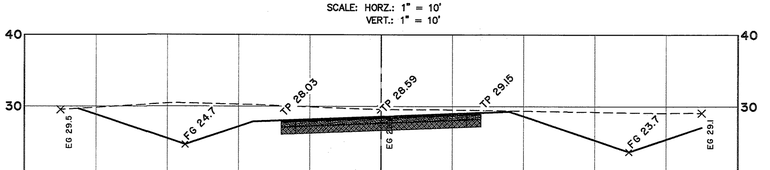
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 29+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 30+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 28+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	6/6/13
B	PER HORRY COUNTY		02/25/13

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Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

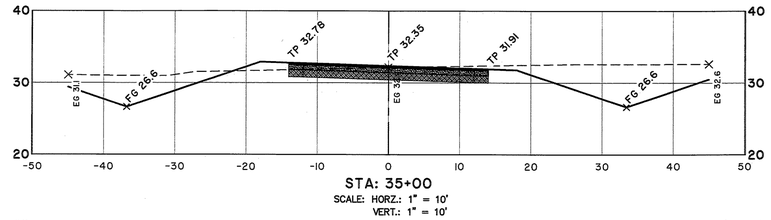
CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

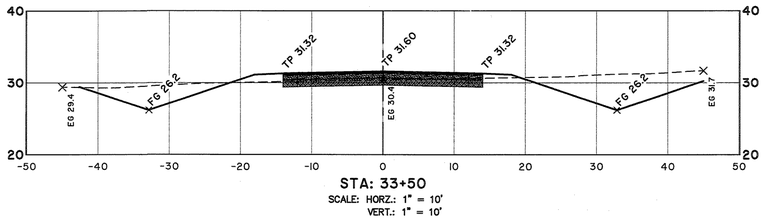
C4.8

SOUTH CAROLINA
CERTIFICATE OF AUTHORIZATION
THOMAS & HUTTON ENGINEERING CO.
No. C00285
SOUTH CAROLINA
PROFESSIONAL ENGINEER
JOHN H. RICHARDSON
No. 21577

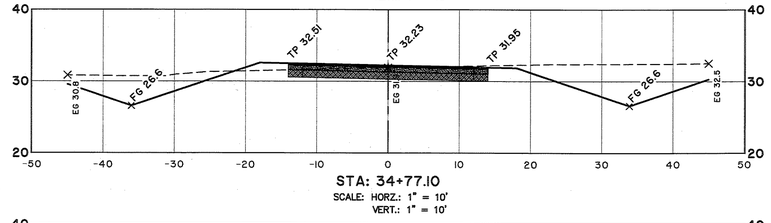
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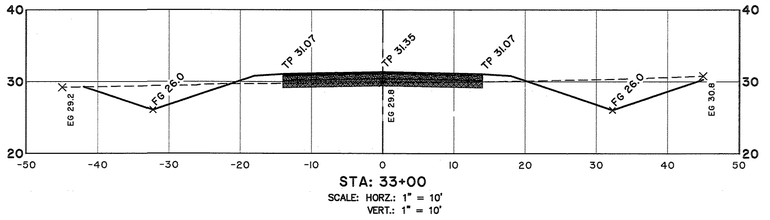
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VERT.: 1" = 10'



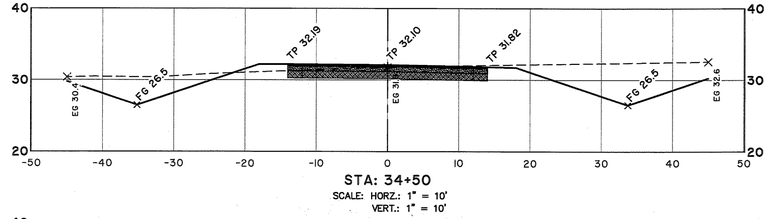
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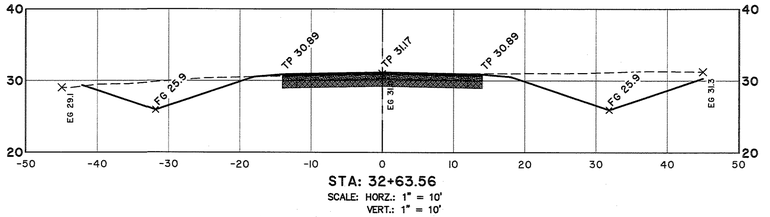
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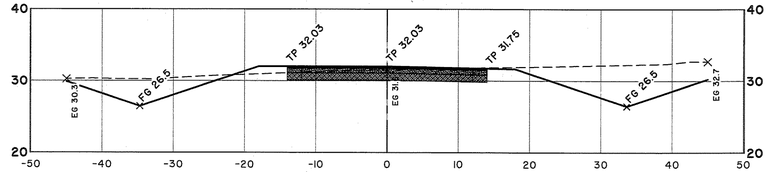
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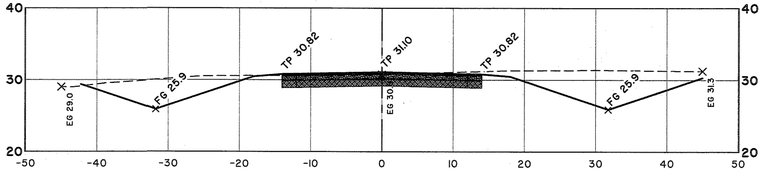
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



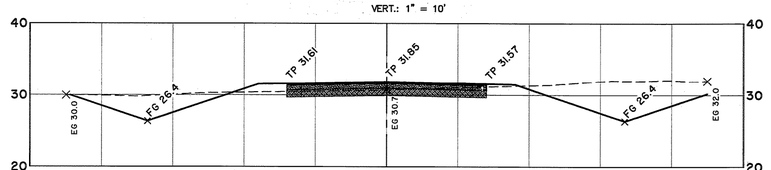
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



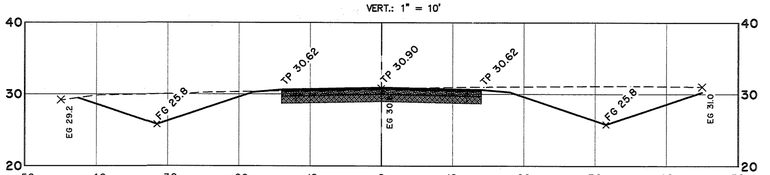
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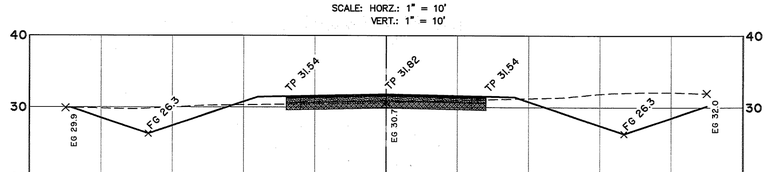
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VERT.: 1" = 10'



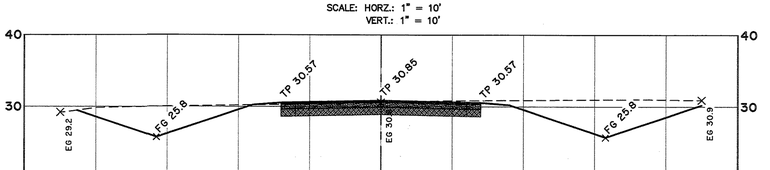
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 32+10.58
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 33+94.44
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 32+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER — JOHN H. RIGGINS — No. 24284 — 10/17/13

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00289 — CERTIFICATE OF AUTHORIZATION

NO.	DESCRIPTION	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
B	PER HORRY COUNTY REVISIONS	CVD	6/6/13

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting
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Myrtle Beach, SC 29578-8000 • 843.839-3545
www.thomasandhutton.com
Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

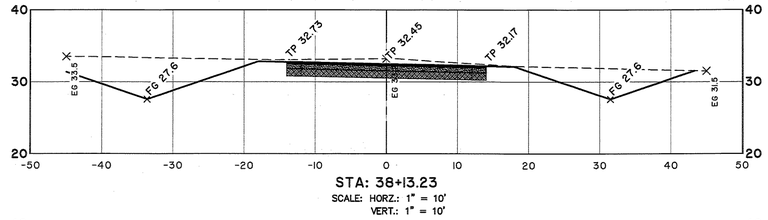
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

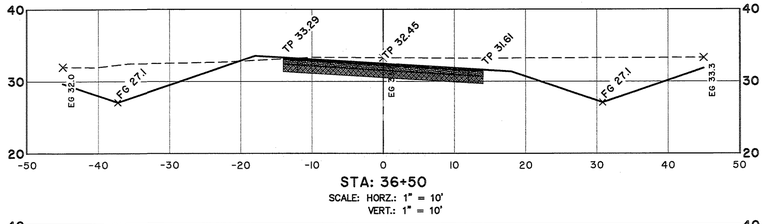
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.9

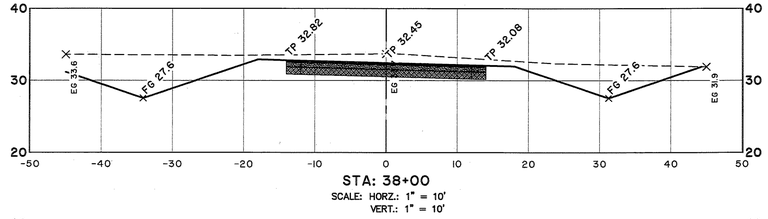
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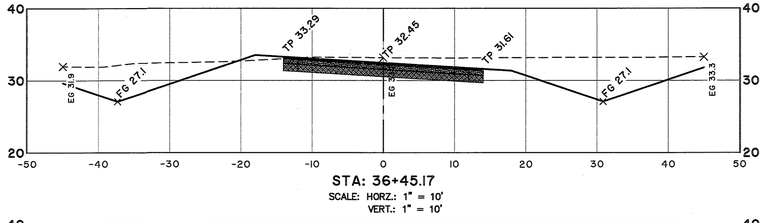
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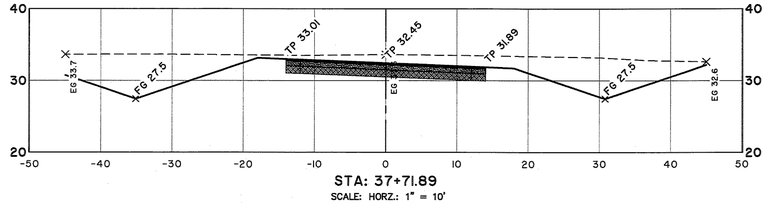
STA: 36+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



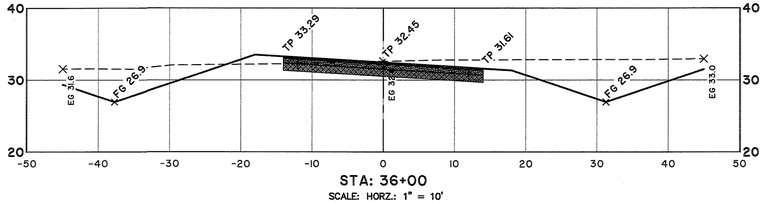
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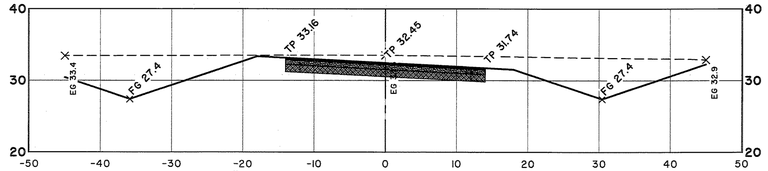
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



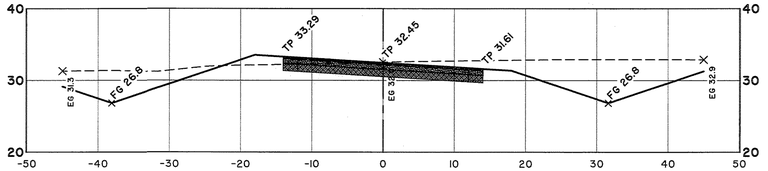
STA: 37+71.89
SCALE: HORZ.: 1" = 10'
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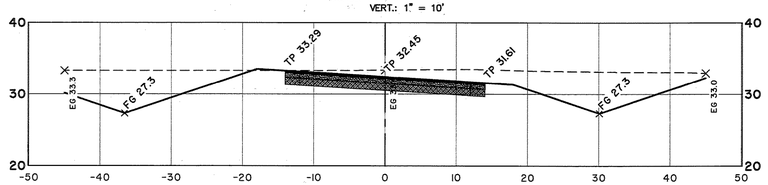
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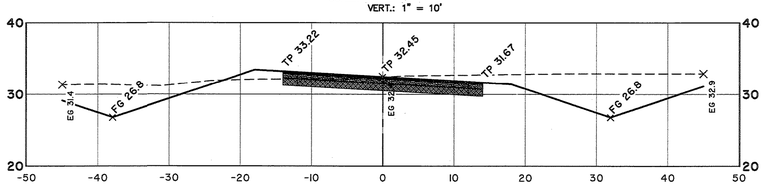
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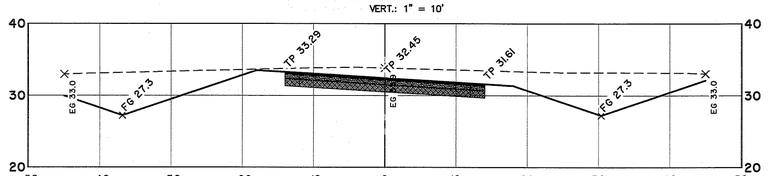
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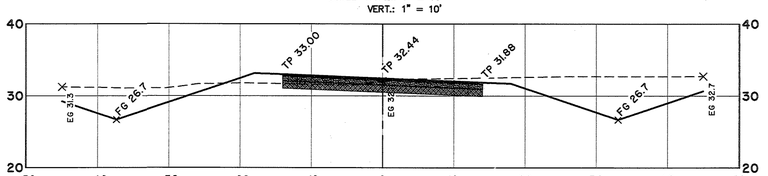
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VERT.: 1" = 10'



STA: 35+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

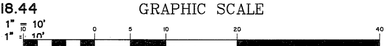


STA: 37+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 35+18.44
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE



(IN FEET)
1 inch = 10 ft.

NO.	REVISIONS	BY	DATE
B	PER HORRY COUNTY	CVD	6/6/15

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HORRY COUNTY, SC

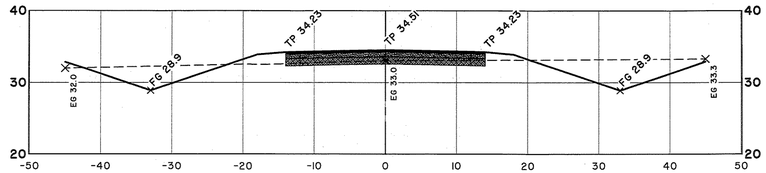
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

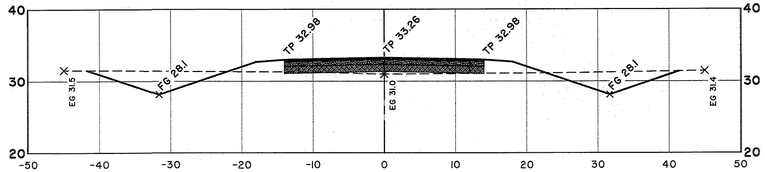
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.10

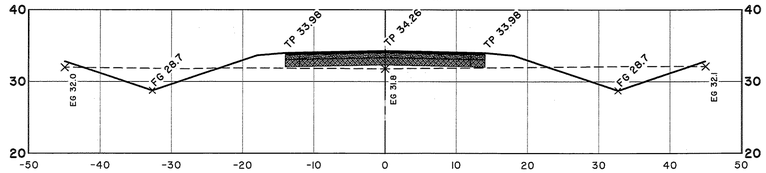
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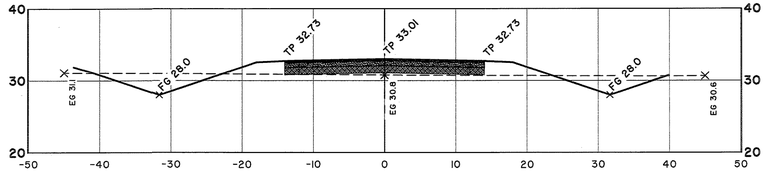
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VERT.: 1" = 10'



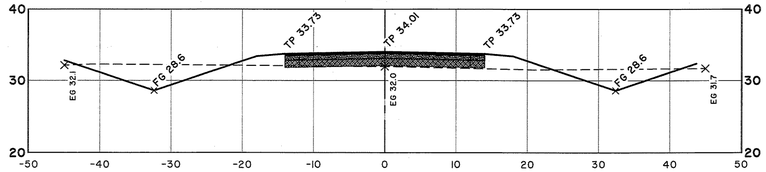
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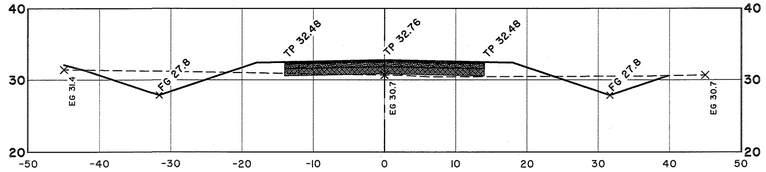
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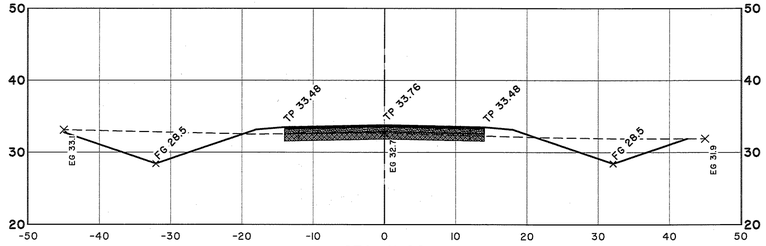
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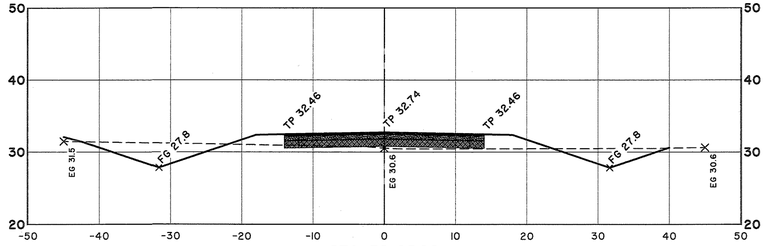
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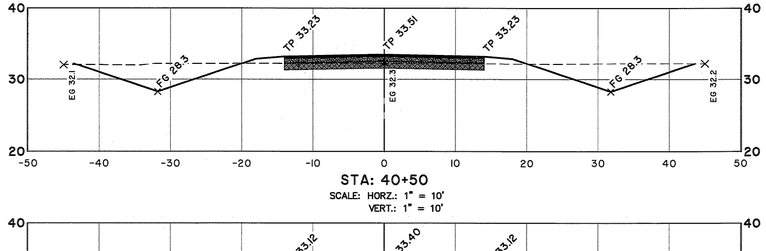
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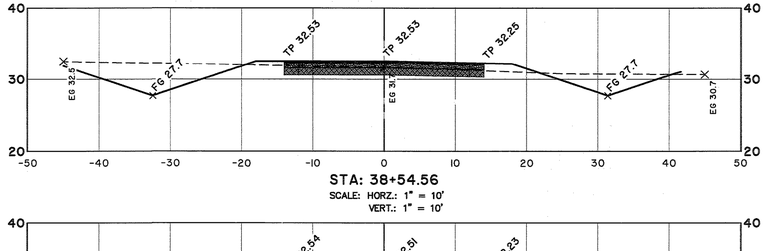
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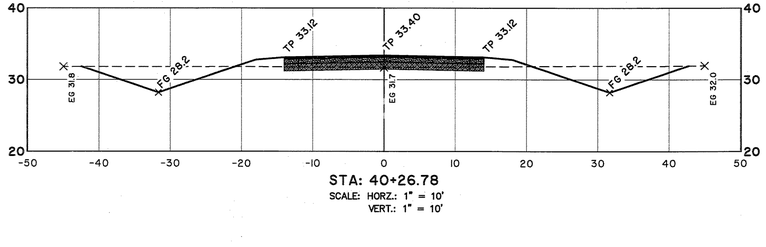
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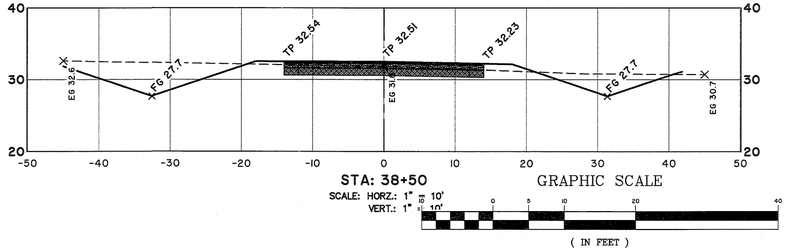
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VERT.: 1" = 10'



STA: 38+54.56
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 40+26.78
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 38+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00289 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOHN H. HUTTON, IV — 24702 — REGISTERED

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/15
B	PER HORRY COUNTY	CVD	6/5/15

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

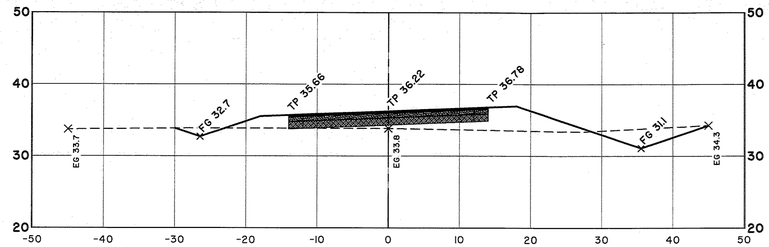
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

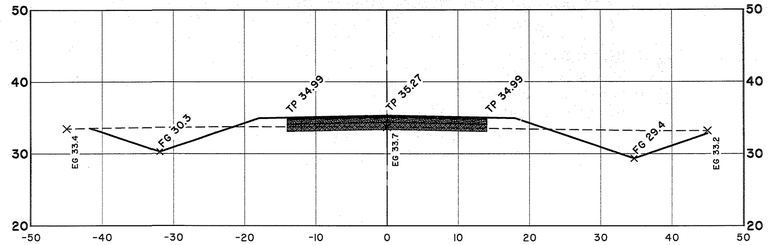
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.11

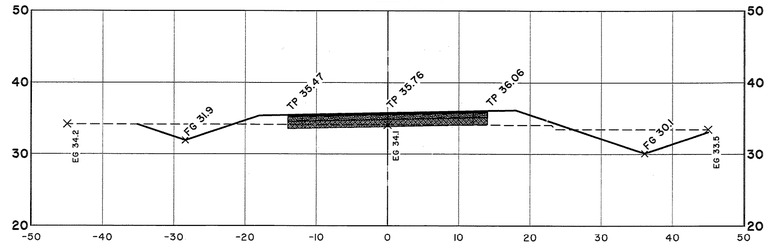
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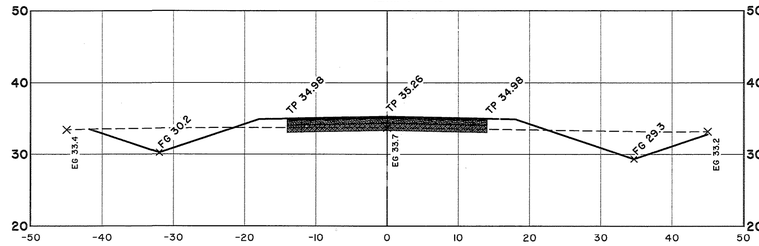
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VERT.: 1" = 10'



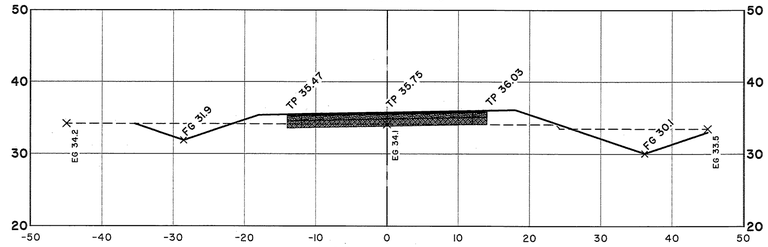
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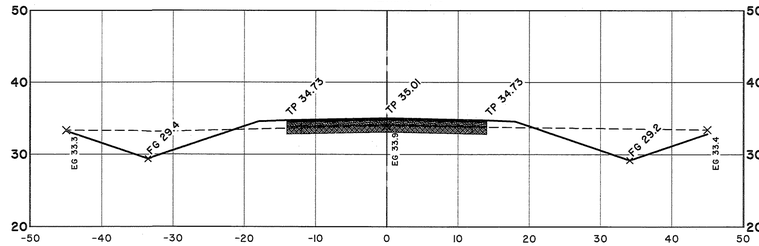
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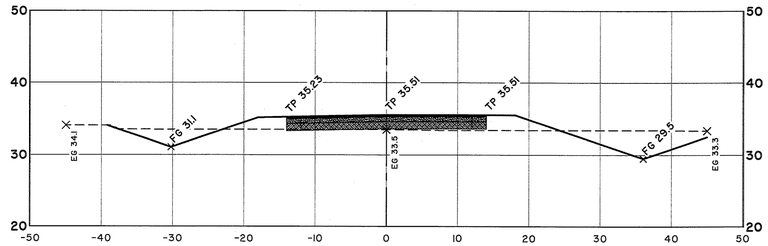
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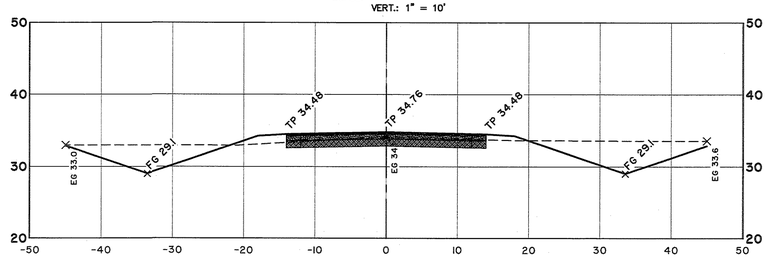
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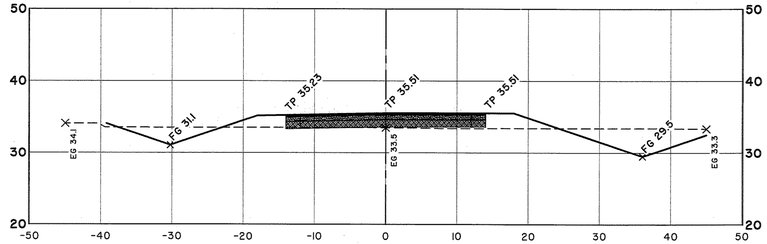
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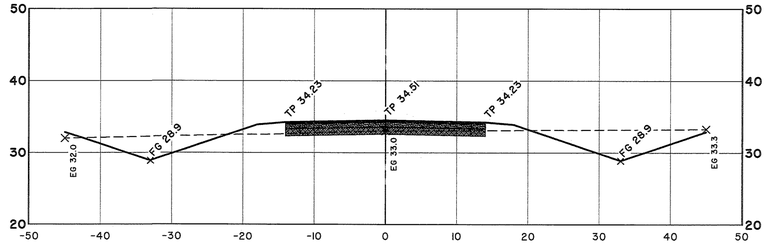
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VERT.: 1" = 10'



STA: 43+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 44+49.48
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 42+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER
JOHN H. RICHARDSON
No. 24945
CERTIFICATE OF AUTHORIZATION
THOMAS & HUTTON ENGINEERING CO.
No. C00285

NO.	BY	DATE
A	CVD	02/25/13
B	CVD	6/6/13

SUBMITTED FOR PERMITTING
PER HORRY COUNTY
REVISIONS

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

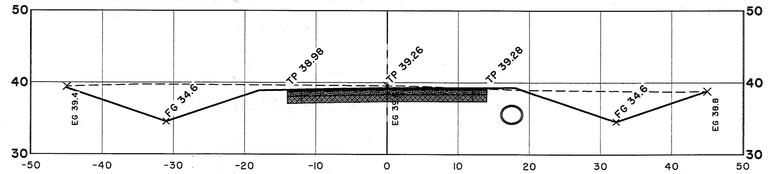
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

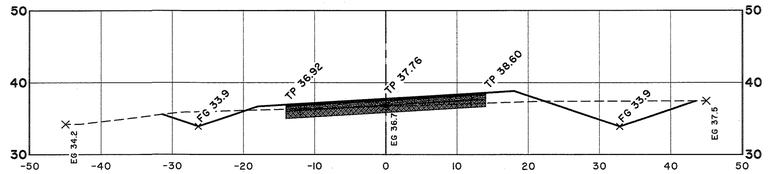
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.12

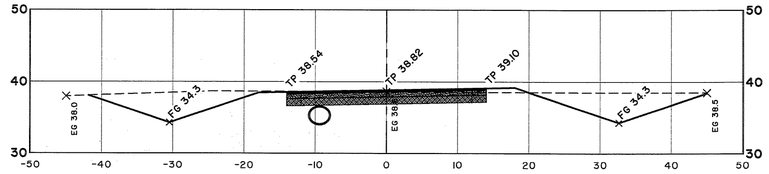
C:\Documents and Settings\cvd\Desktop\Xrefs\Xref Copy of Cross Sections.dwg, 10/17/2013 2:32:58 PM



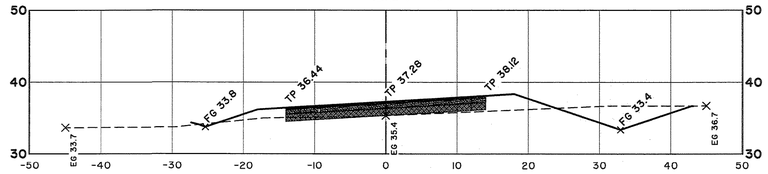
STA: 48+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



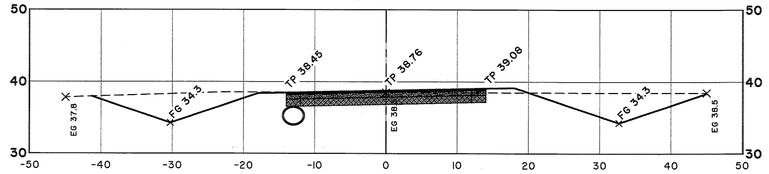
STA: 47+00
SCALE: HORZ.: 1" = 10'
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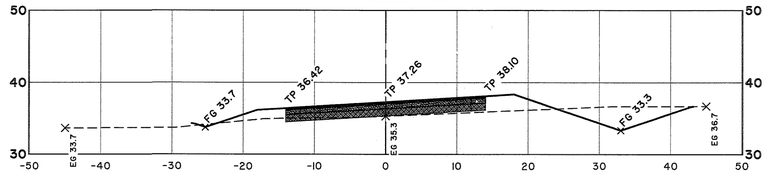
STA: 48+05.88
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



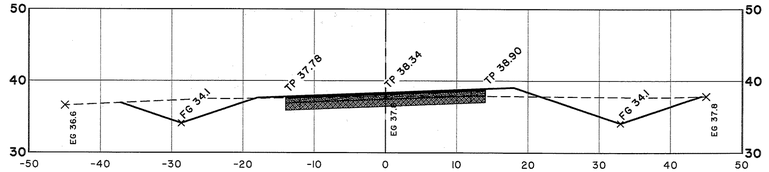
STA: 46+51.68
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VERT.: 1" = 10'



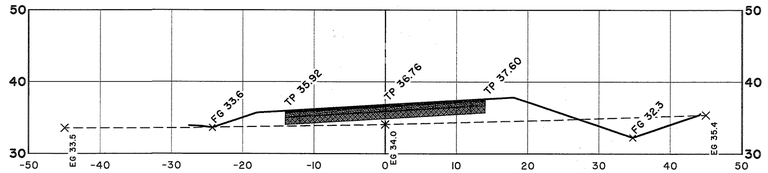
STA: 48+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



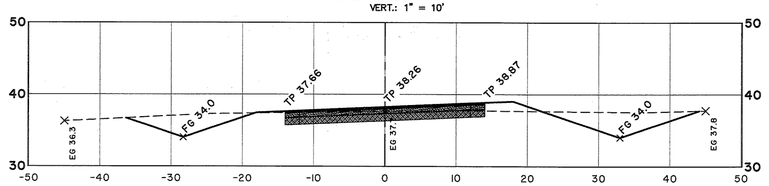
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



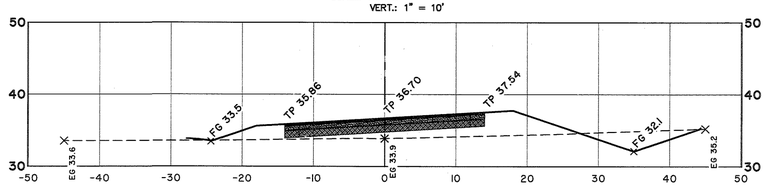
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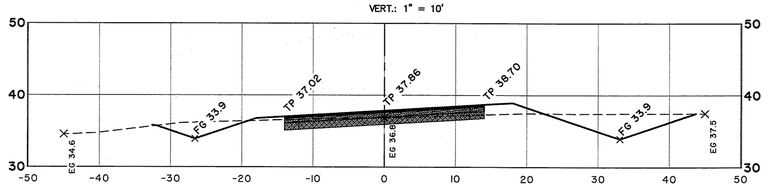
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



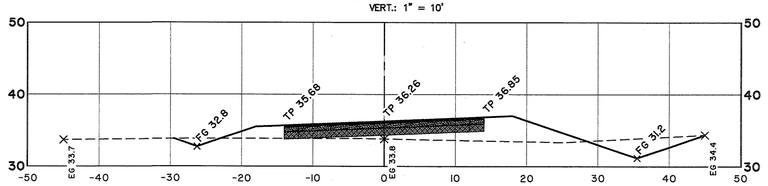
STA: 47+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 45+93.48
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

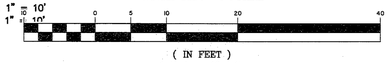


STA: 47+09.88
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 45+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE



(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER — THOMAS & HUTTON ENGINEERING CO. No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER — JOHN H. RHODEN — 24 — 6/6/15

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/15
B	PER HORRY COUNTY	CVD	6/6/15

THOMAS & HUTTON
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Myrtle Beach, SC 29578-8000 • 843.839.3545
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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

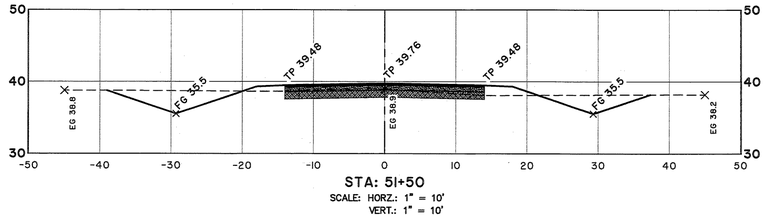
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

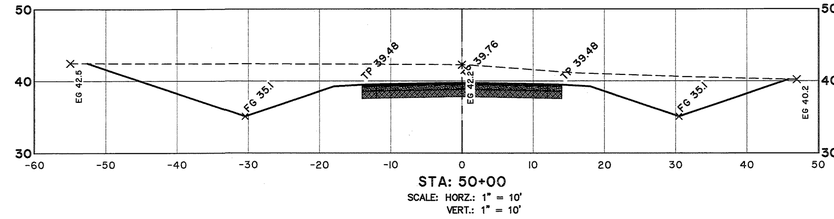
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.13

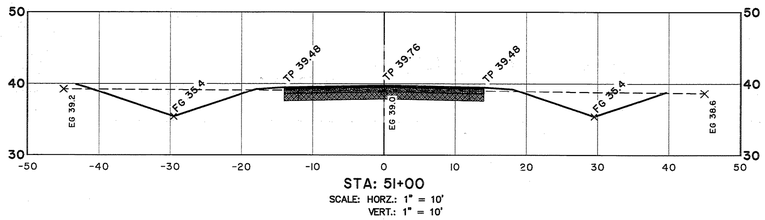
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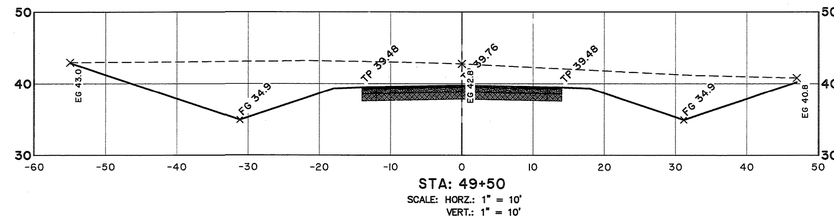
STA: 51+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



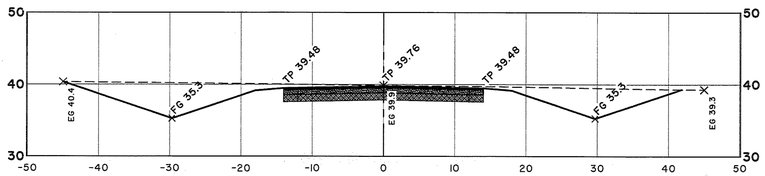
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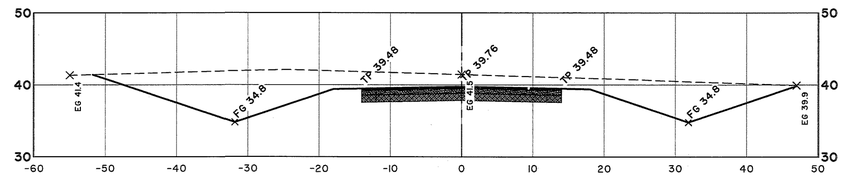
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VERT.: 1" = 10'



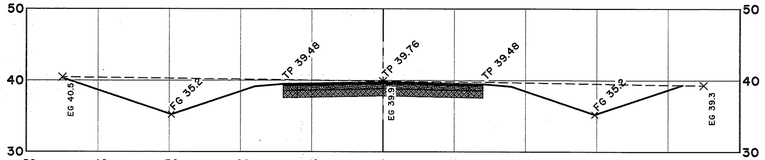
STA: 49+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



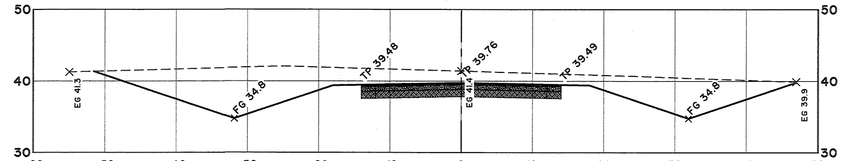
STA: 50+56.25
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



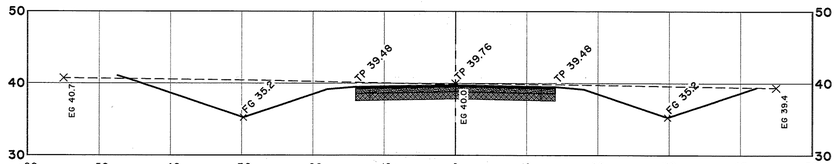
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SCALE: HORZ.: 1" = 10'
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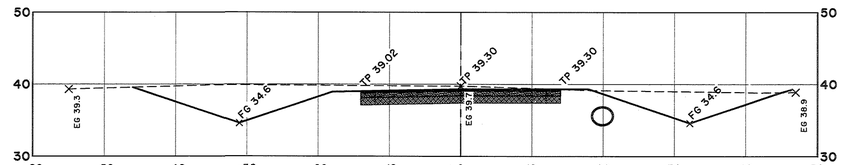
STA: 50+53.87
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 49+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 50+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 48+53.88
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER — THOMAS & HUTTON ENGINEERING CO. No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER — JOHN H. RICHARDSON — 24004 — 10/17/13

NO.	REVISIONS	BY	DATE
B	PER HORRY COUNTY	CVD	6/6/13
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

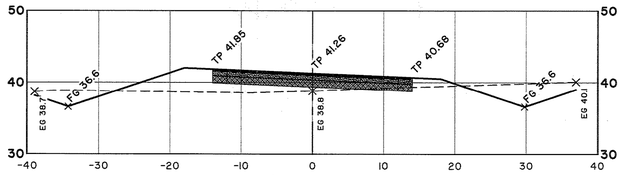
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

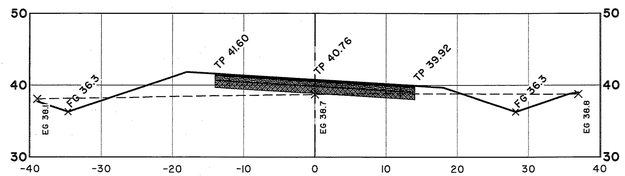
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.14

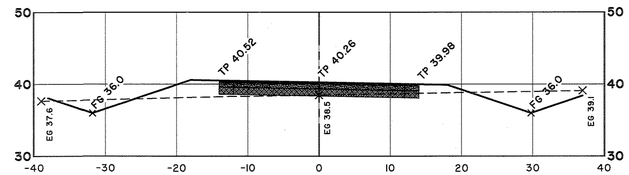
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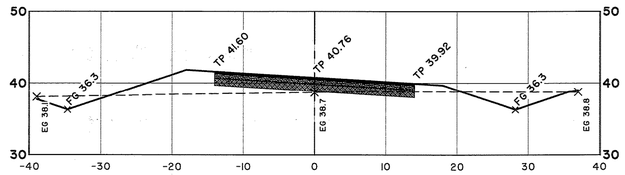
STA: 55+00
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VERT.: 1" = 10'



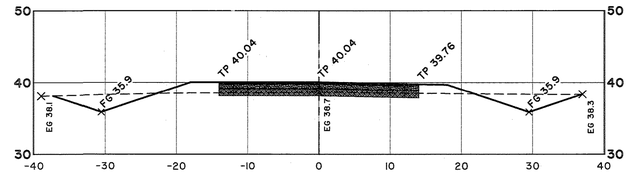
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



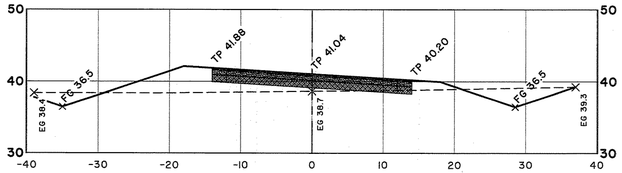
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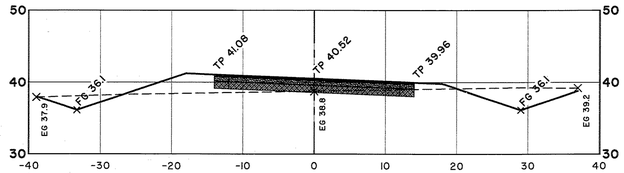
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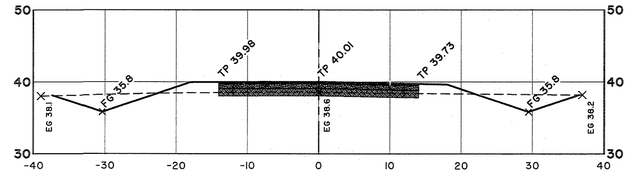
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VERT.: 1" = 10'



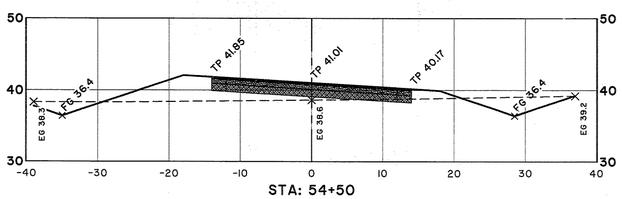
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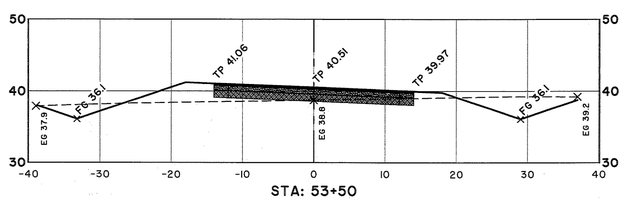
STA: 53+52.25
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



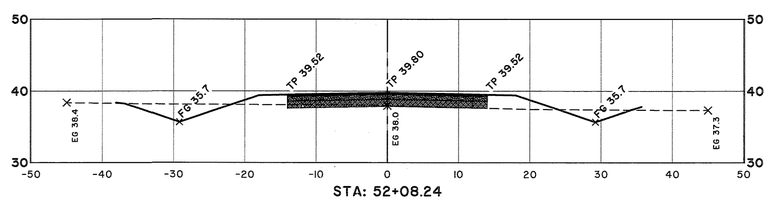
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VERT.: 1" = 10'



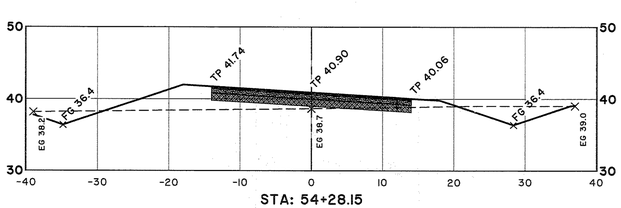
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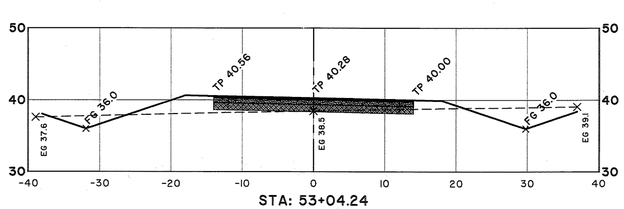
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VERT.: 1" = 10'



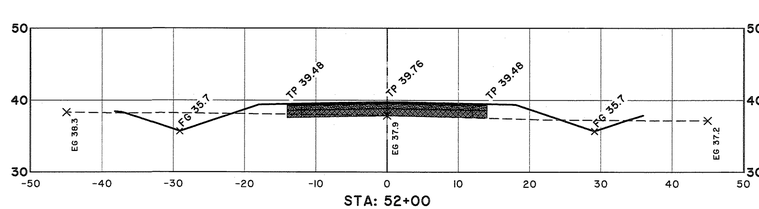
STA: 52+08.24
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 54+28.15
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 53+04.24
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 52+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER
THOMAS R. HUTTON
No. 23328
10/17/13

SOUTH CAROLINA
THOMAS R. HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION
NOLVEMBER

NO.	DESCRIPTION	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
B	PER HORRY COUNTY	CVD	6/6/13

REVISIONS

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

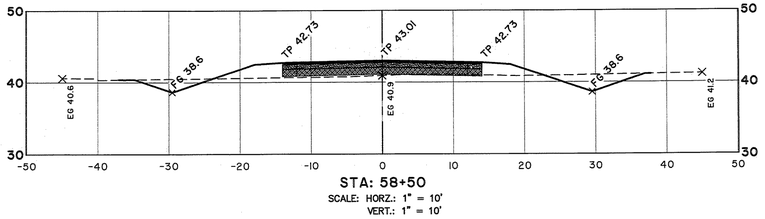
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

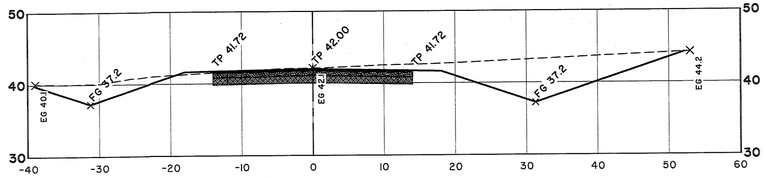
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.15

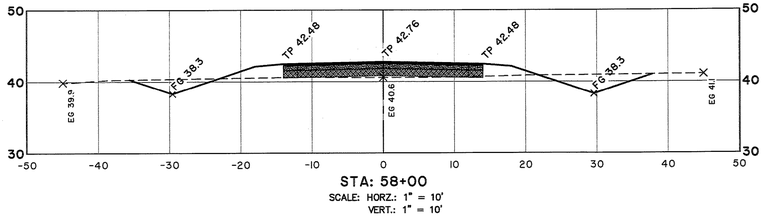
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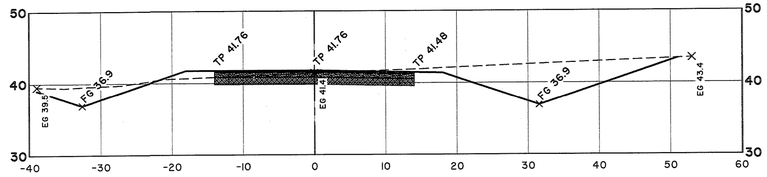
STA: 58+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



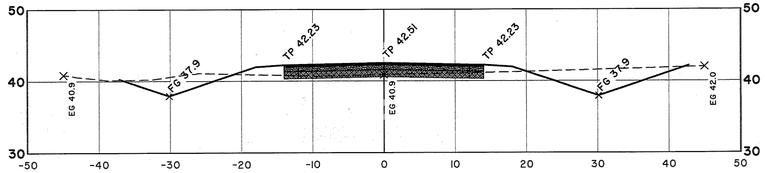
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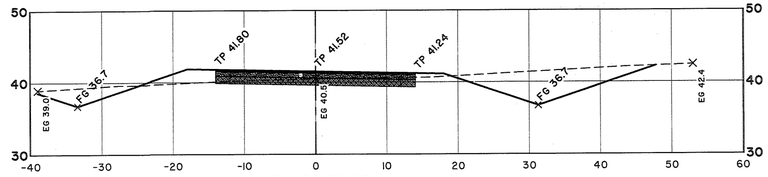
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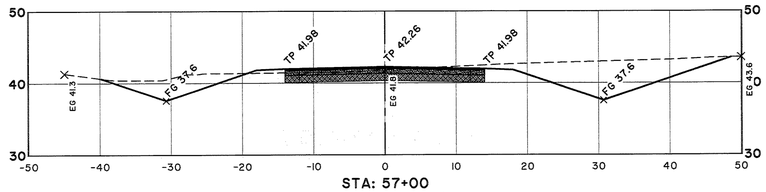
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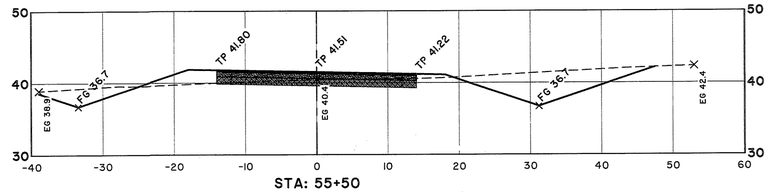
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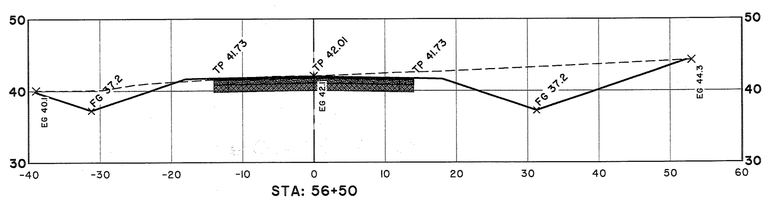
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VERT.: 1" = 10'



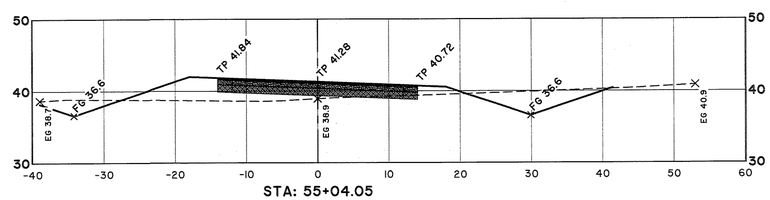
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 55+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 56+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 55+04.05
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER — JOHN H. RICHARDS — 24977 — 6/6/13

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
B	PER HORRY COUNTY	CVD	6/6/13

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

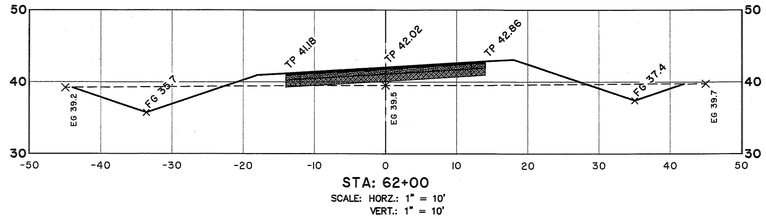
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

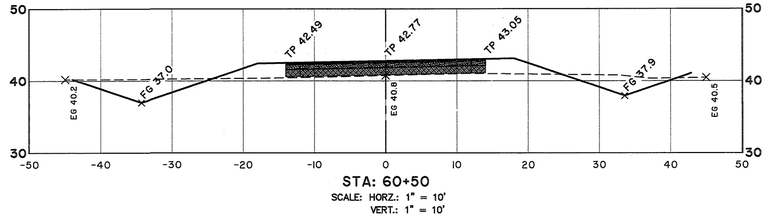
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.16

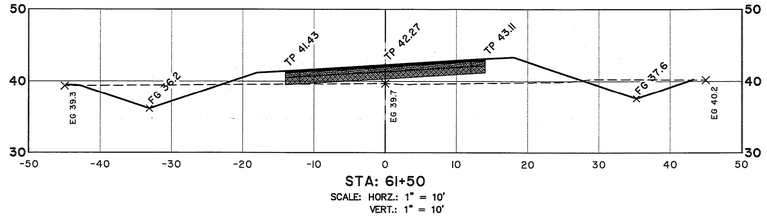
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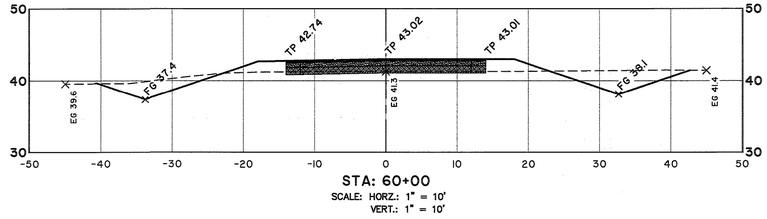
STA: 62+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



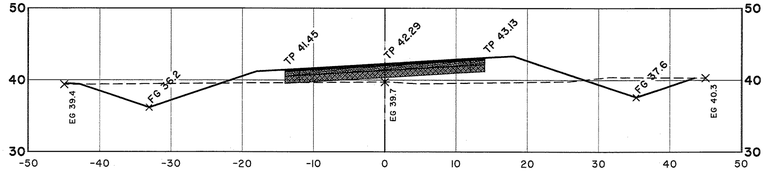
STA: 60+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



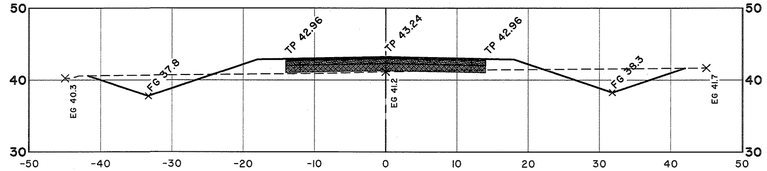
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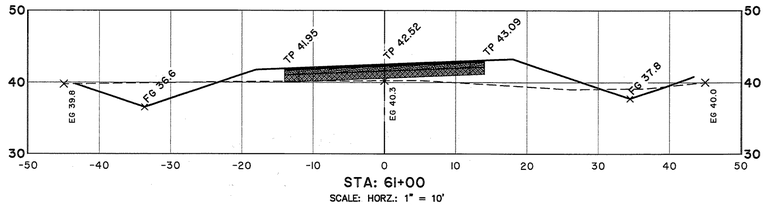
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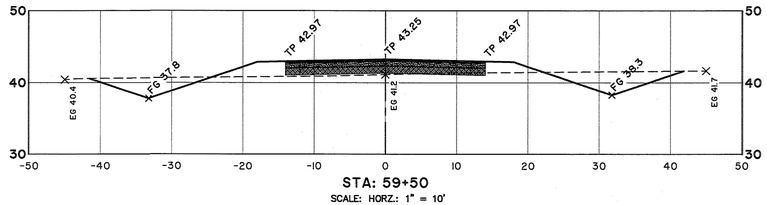
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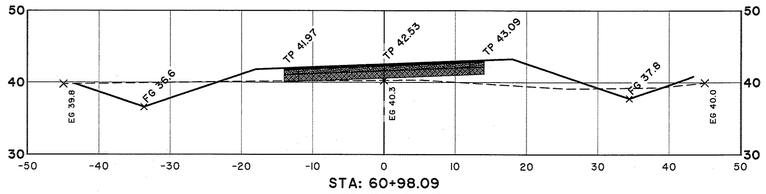
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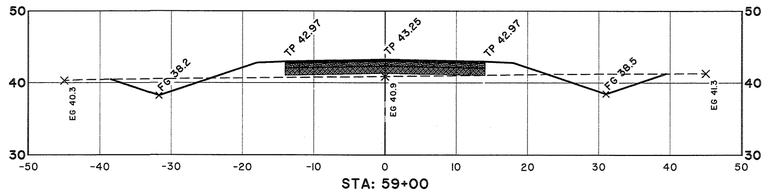
STA: 61+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 59+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 60+98.09
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 59+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER — JOHN H. RICHTER, JR. — No. 26893 — REGISTERED — 10/24/13

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION — NOLVOROC

NO.	DESCRIPTION	BY	DATE
B	PER HORRY COUNTY	CVD	6/6/15
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
	REVISIONS		

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

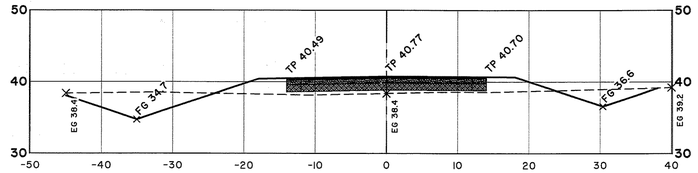
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

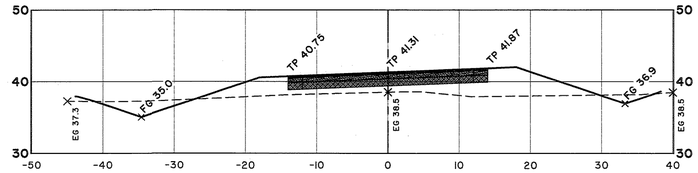
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.17

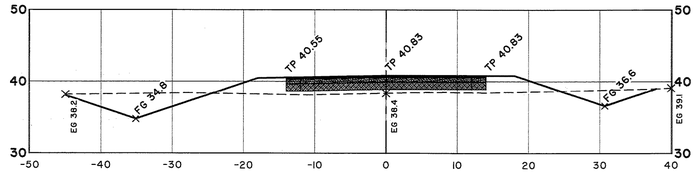
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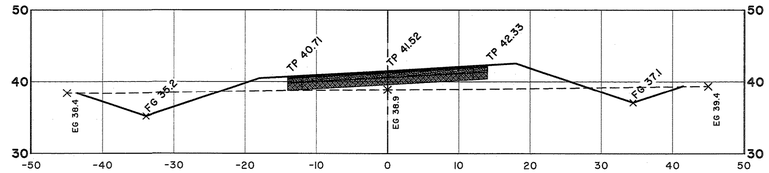
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VERT.: 1" = 10'



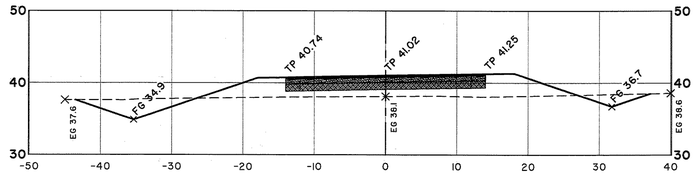
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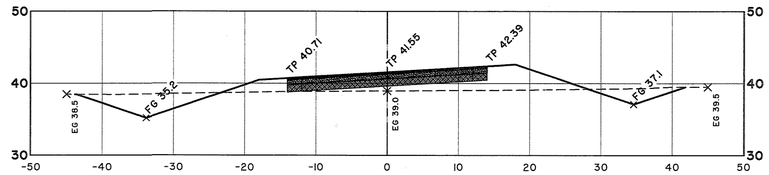
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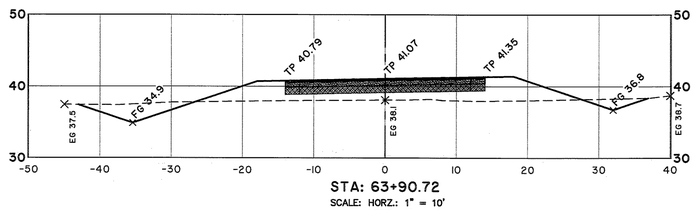
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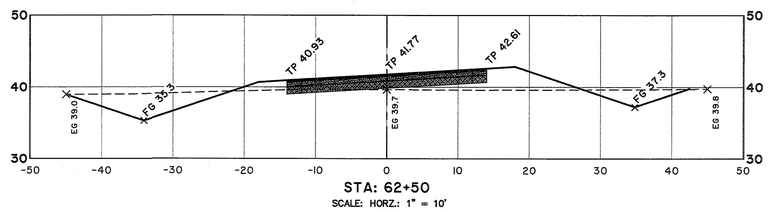
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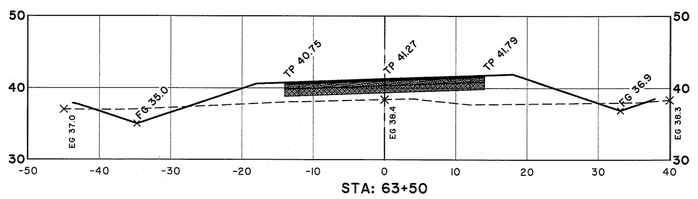
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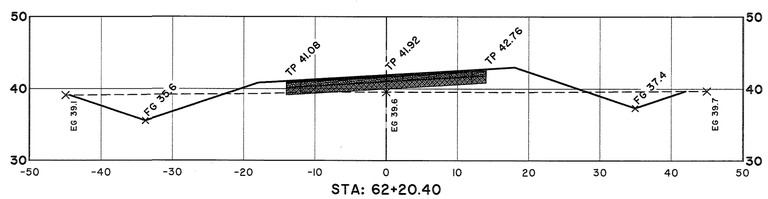
STA: 63+90.72
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VERT.: 1" = 10'



STA: 62+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 63+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 62+20.40
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION — NOLLYWOOD

SOUTH CAROLINA PROFESSIONAL ENGINEER — JOHN H. RICHTER, JR. — 24842

NO.	DESCRIPTION	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
B	PER HORRY COUNTY REVISIONS	CVD	6/6/13

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

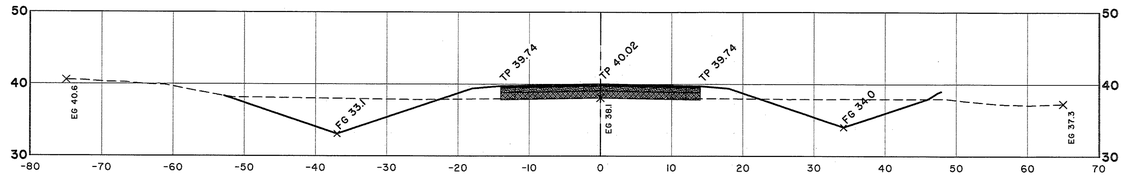
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

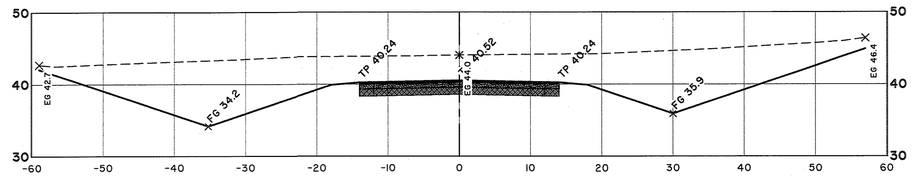
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.18

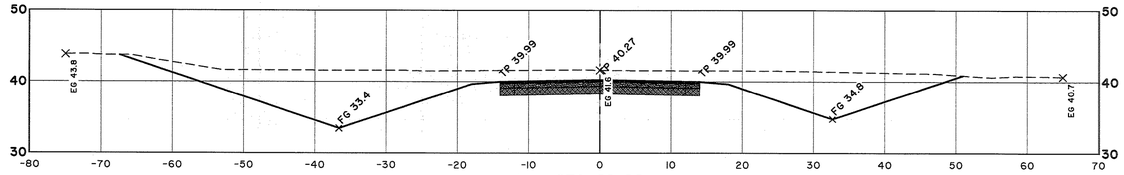
Plotted: 25 Feb 2013 - 3:59:32 PM By: Christopher Dowling
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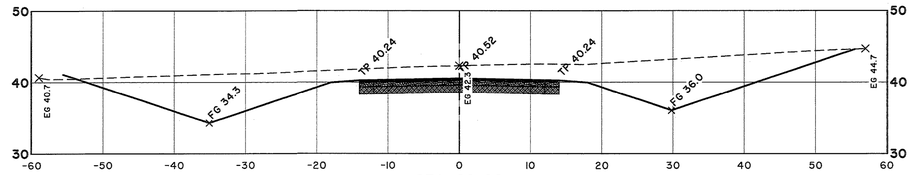
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VERT.: 1" = 10'



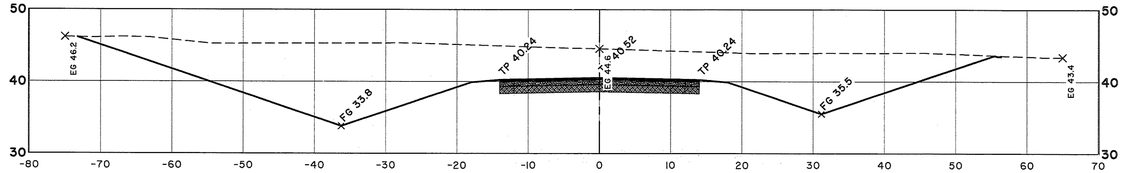
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VERT.: 1" = 10'



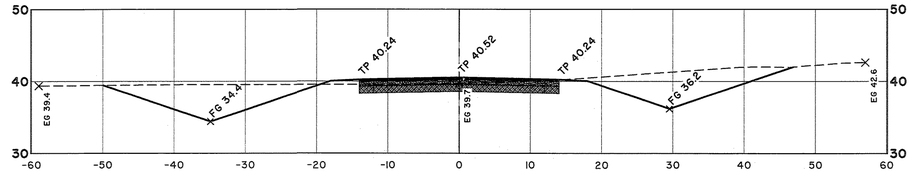
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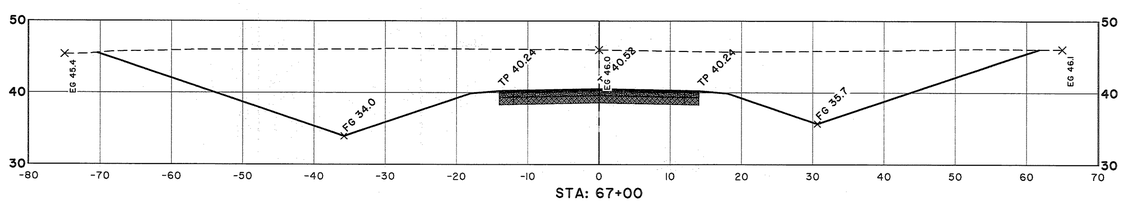
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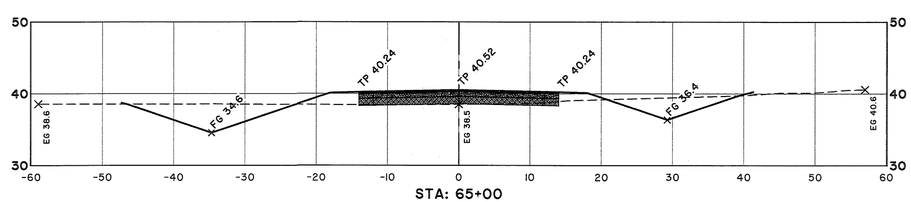
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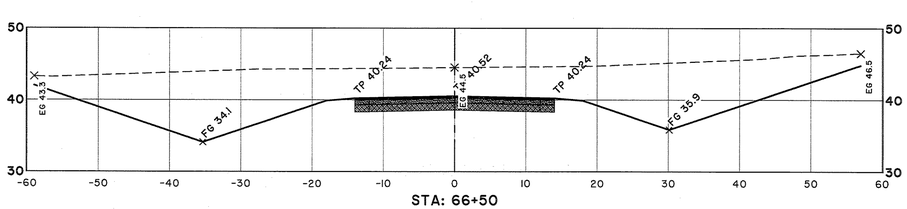
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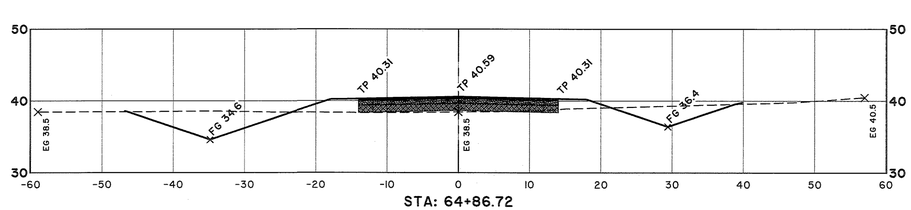
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VERT.: 1" = 10'



STA: 65+00
SCALE: HORZ.: 1" = 10'
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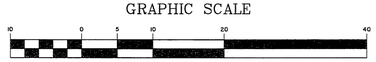


STA: 66+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 64+86.72
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE



(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA — CERTIFICATE OF AUTHORIZATION — THOMAS & HUTTON ENGINEERING CO. — No. C00258 — NOLVOROMOLVO

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOHN H. RUSSELL IV — No. 24927

NO.	DESCRIPTION	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
B.	PER HORRY COUNTY REVISIONS	CVD	6/6/13

THOMAS & HUTTON
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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

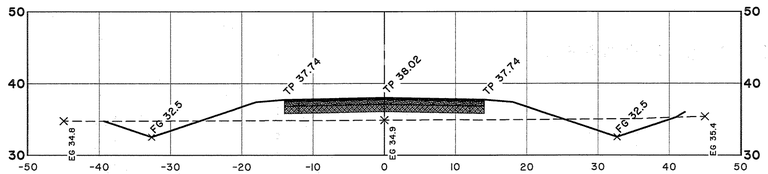
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

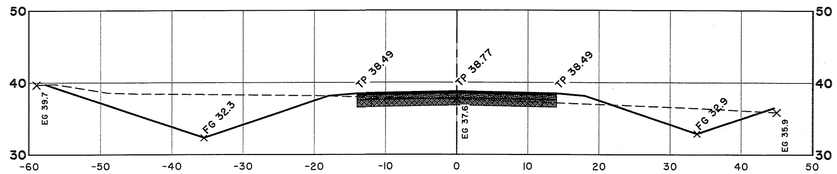
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.19

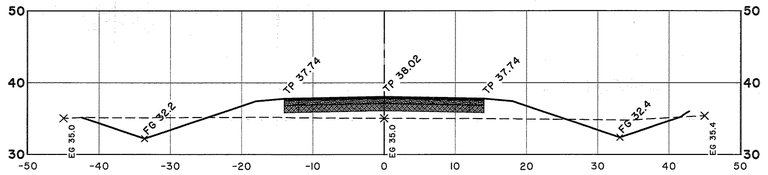
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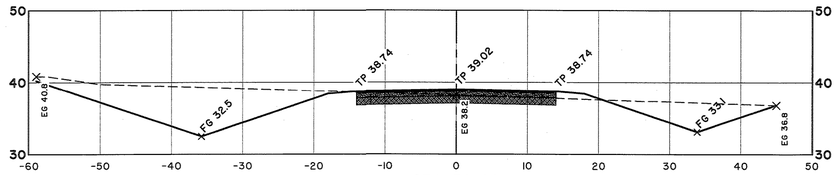
STA: 73+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



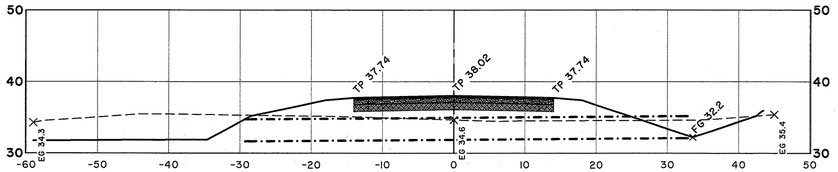
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SCALE: HORZ.: 1" = 10'
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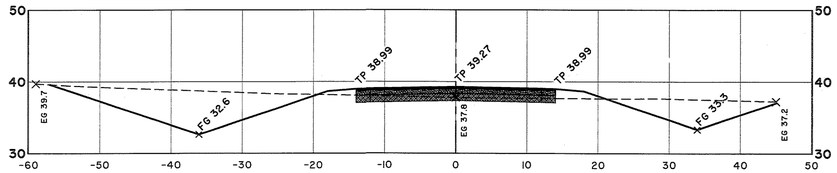
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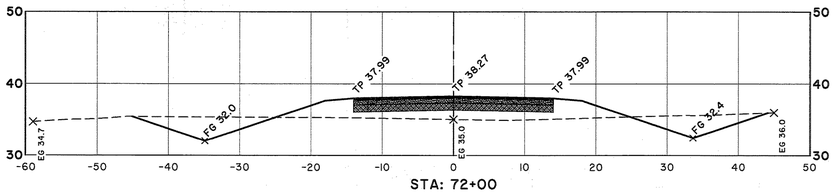
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VERT.: 1" = 10'



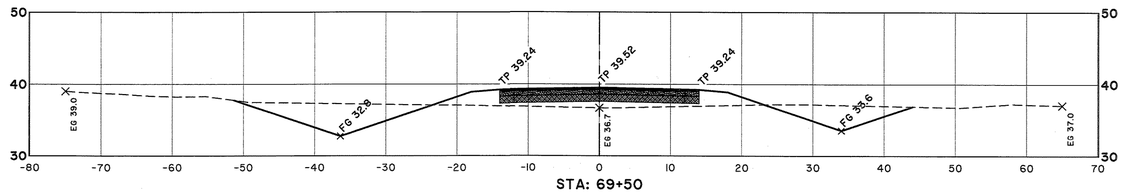
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VERT.: 1" = 10'



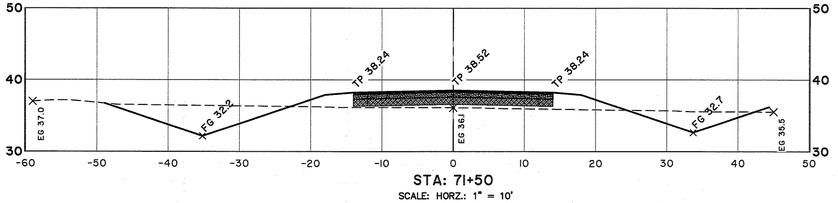
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VERT.: 1" = 10'



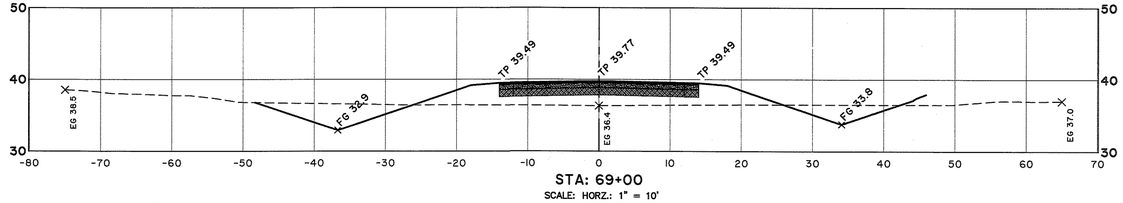
STA: 72+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 69+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 71+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 69+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER — JOHN H. RICHARDSON — 24844 — REGISTRATION — 10/17/13

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/28/13
B	PER HORRY COUNTY	CVD	6/6/13

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

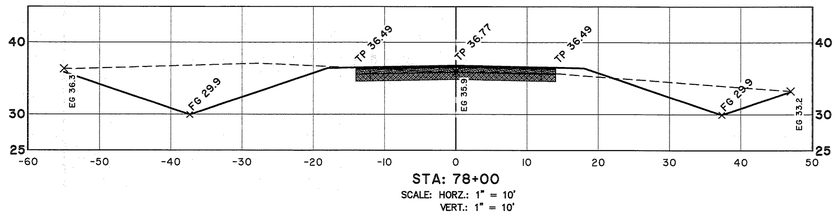
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

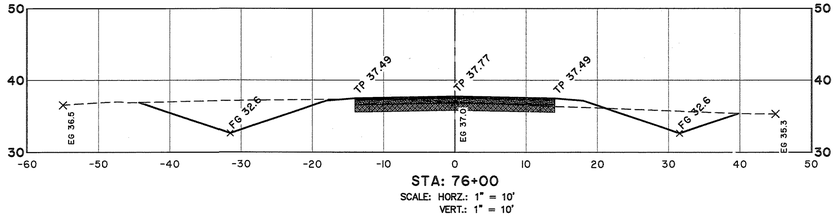
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.20

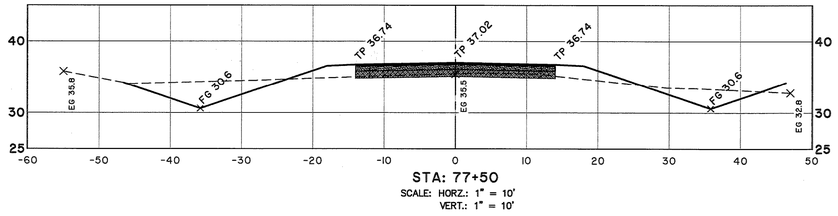
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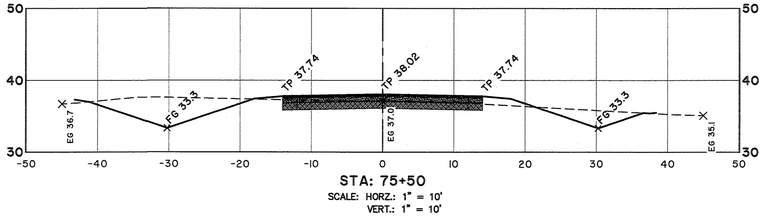
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



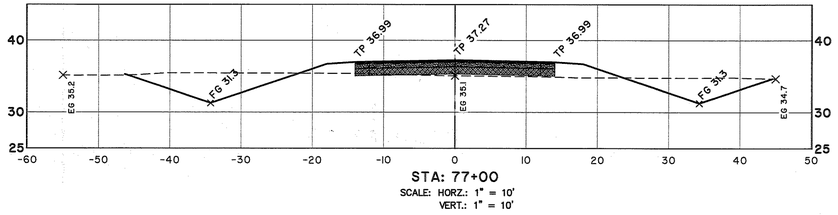
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VERT.: 1" = 10'



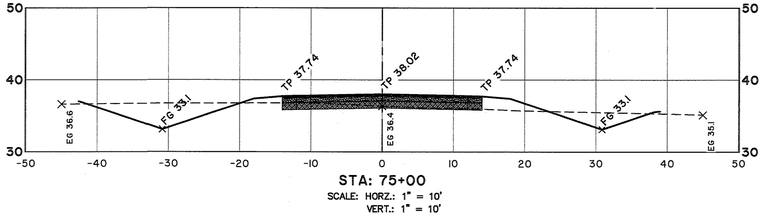
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VERT.: 1" = 10'



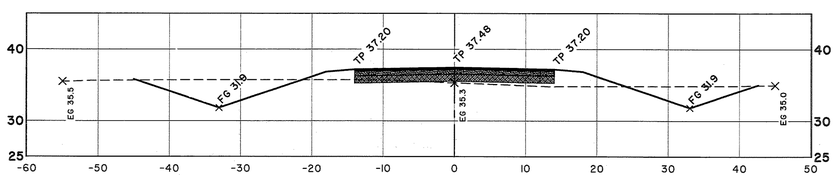
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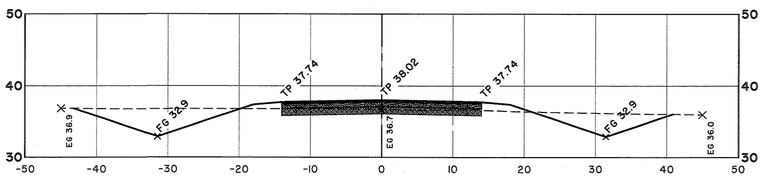
STA: 77+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



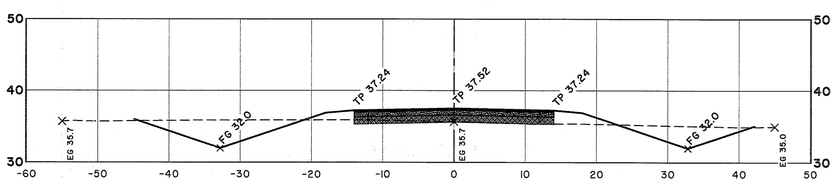
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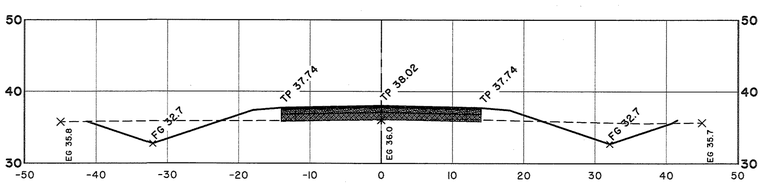
STA: 76+58.80
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 74+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 76+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 74+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION — NOLYN W. HUTTON

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOHN H. RICHARDSON — 28328

NO.	DESCRIPTION	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	6/6/13
B	PER HORRY COUNTY REVISIONS		02/25/13

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

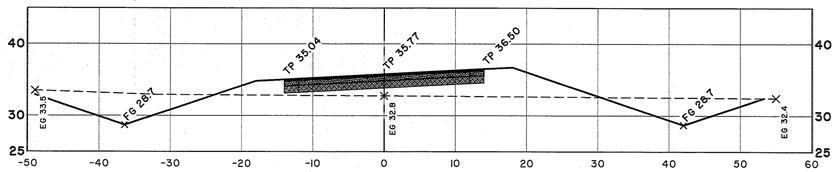
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

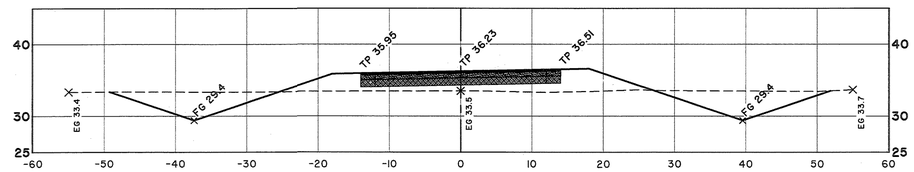
JOB NO:	J-23532.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.21

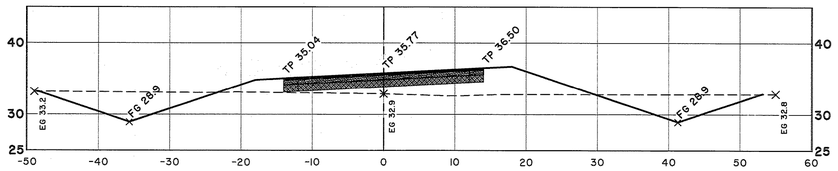
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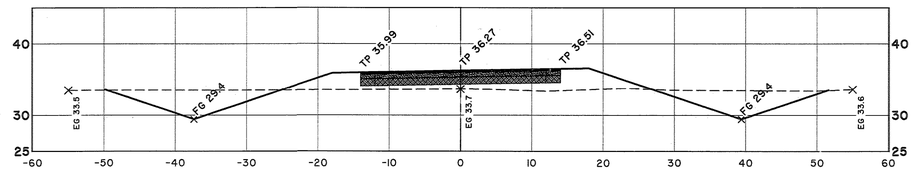
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VERT.: 1" = 10'



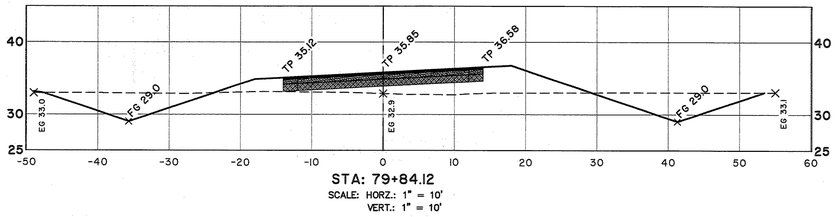
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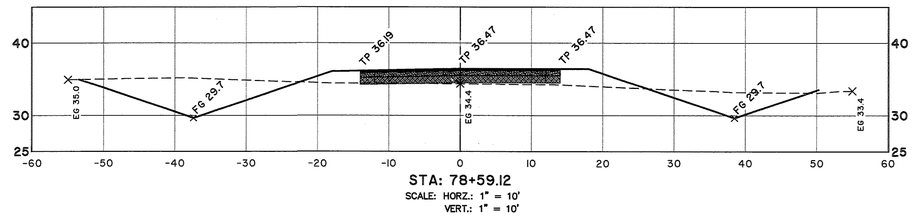
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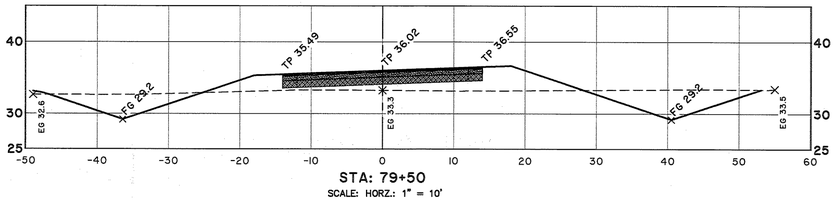
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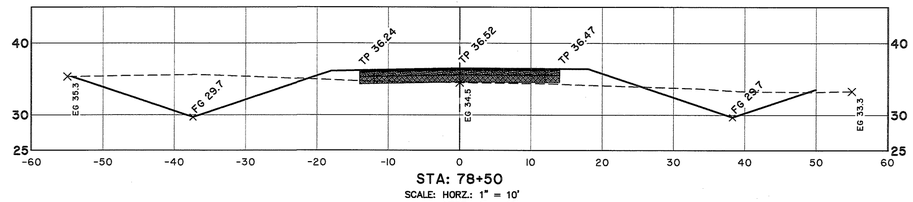
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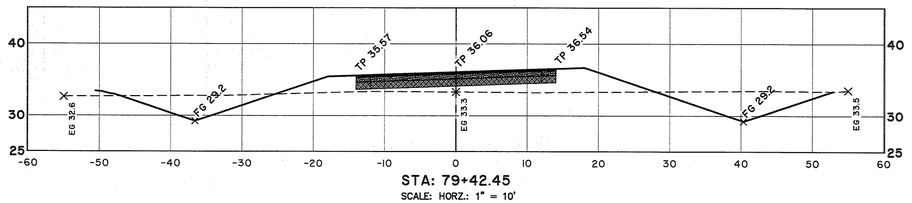
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



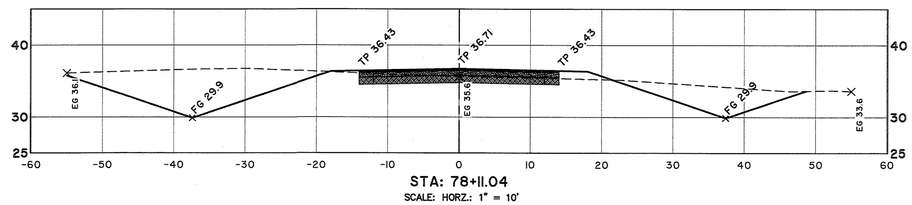
STA: 79+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 78+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 79+42.45
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 78+11.04
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE



(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER
JOHN H. RICHARDSON, JR.
No. 24284
CERTIFICATE OF AUTHORIZATION
THOMAS & HUTTON ENGINEERING CO.
No. C002685
NOV 17 2015

NO.	DESCRIPTION	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	6/6/13
B	PER HORRY COUNTY	CVD	02/25/15
	REVISIONS		

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

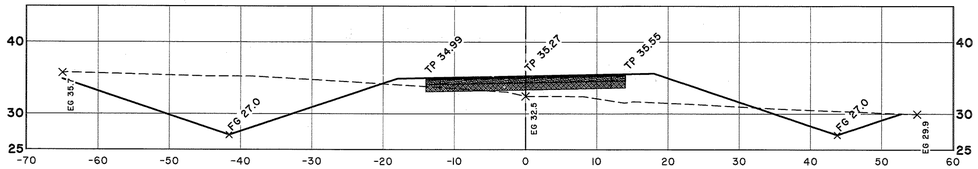
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

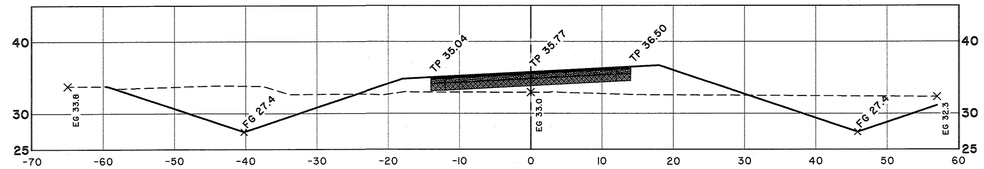
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.22

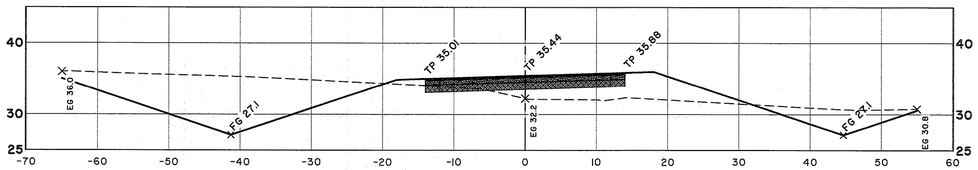
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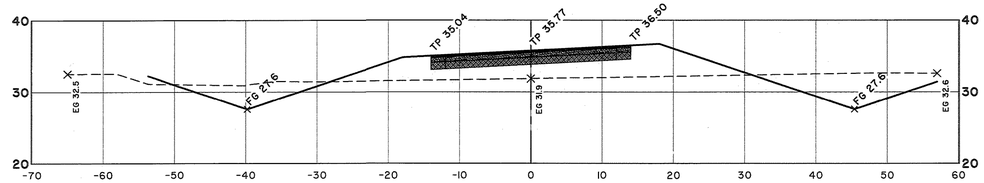
STA: 83+77.04
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



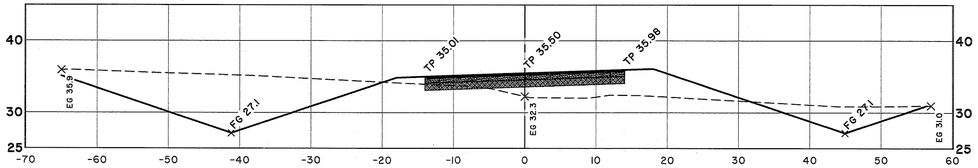
STA: 82+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



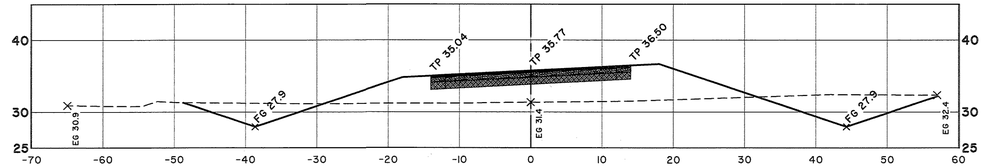
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SCALE: HORZ.: 1" = 10'
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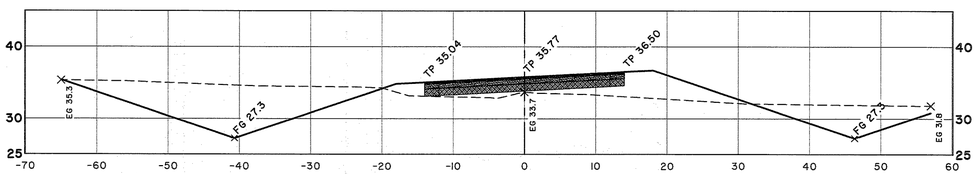
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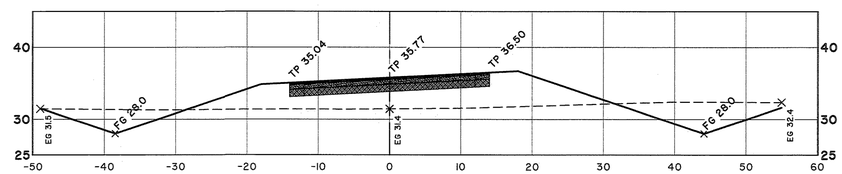
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VERT.: 1" = 10'



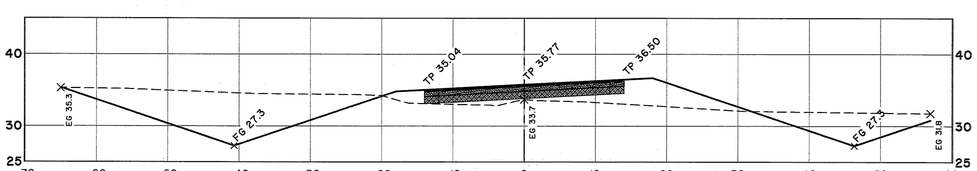
STA: 81+50
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VERT.: 1" = 10'



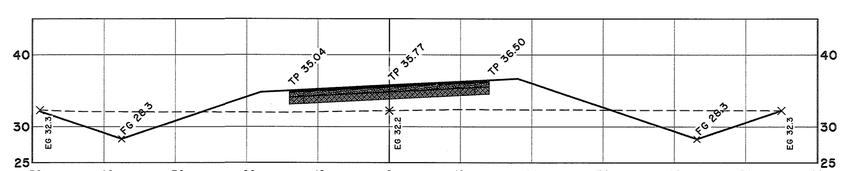
STA: 83+00.12
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 81+42.12
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

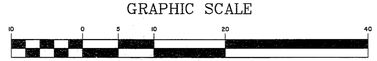


STA: 83+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 81+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE



(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION — NOLI TIMERE

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOHN H. ROWLAND — 24677 — REGISTERED

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/15
B	PER HORRY COUNTY	CVD	6/6/15

THOMAS & HUTTON
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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

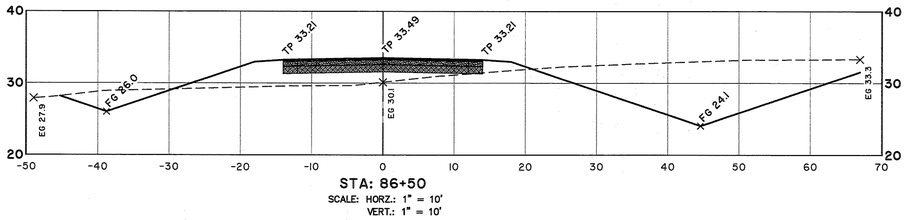
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

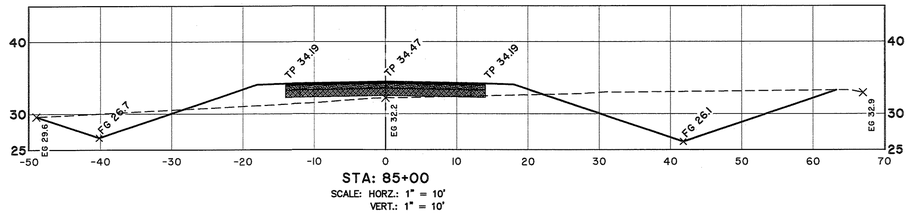
JOB NO:	J-25332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.23

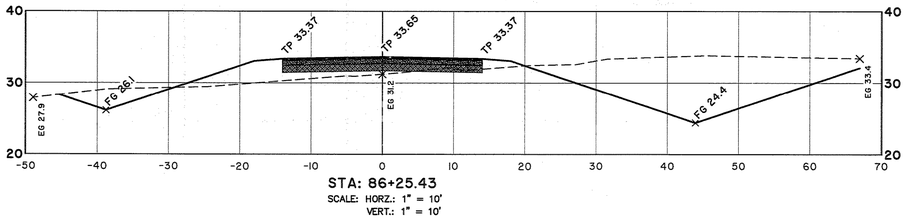
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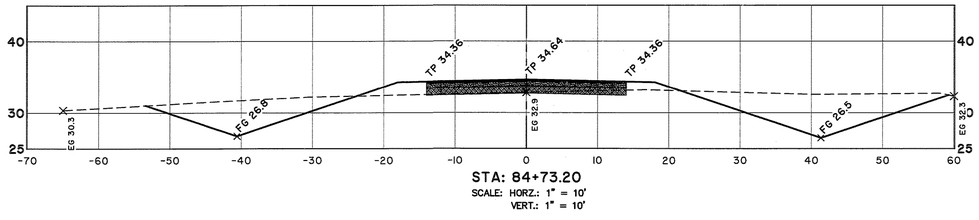
STA: 86+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



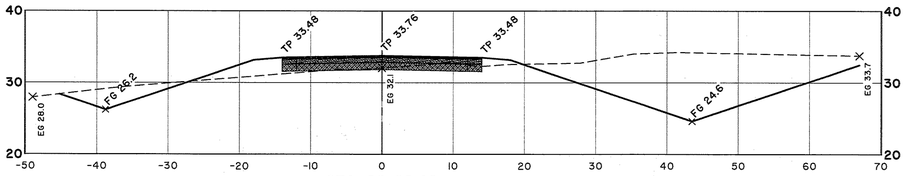
STA: 85+00
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VERT.: 1" = 10'



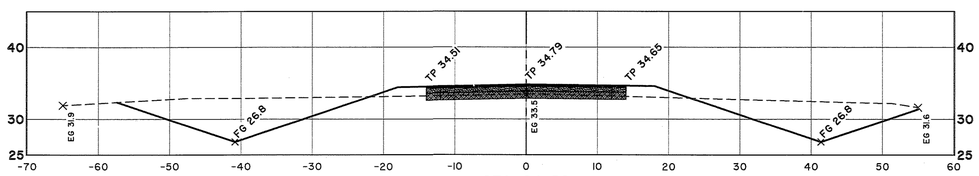
STA: 86+25.43
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VERT.: 1" = 10'



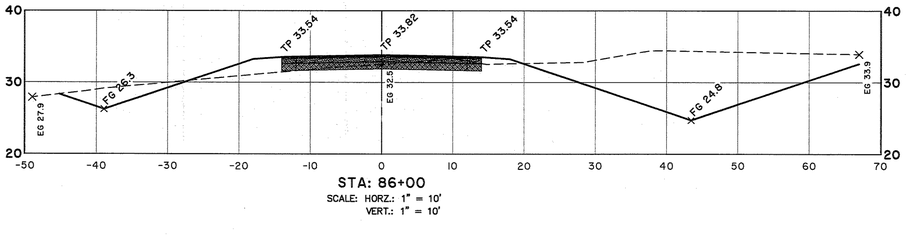
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



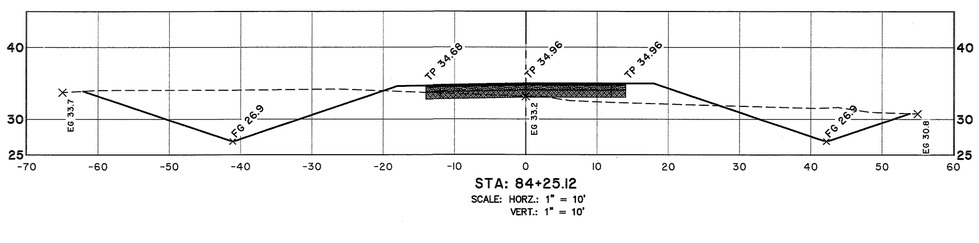
STA: 86+09.40
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



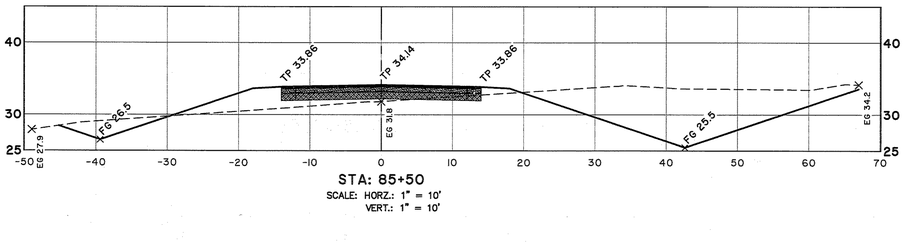
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



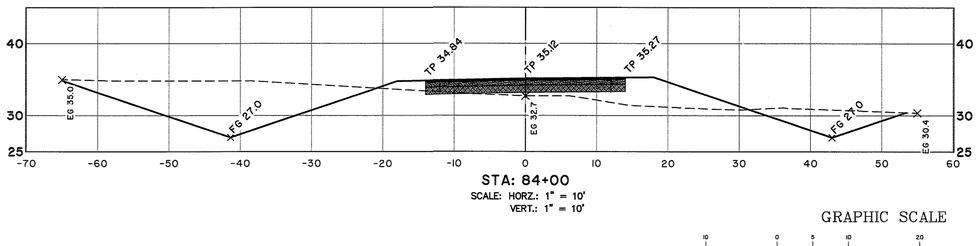
STA: 86+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 84+25.12
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

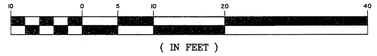


STA: 85+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 84+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE



(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER
THOMAS & HUTTON ENGINEERING CO.
No. C00289
CERTIFICATE OF AUTHORIZATION
NOLLY WYNNE

SOUTH CAROLINA PROFESSIONAL ENGINEER
JOHN H. RICHARDSON
No. 19239
COUNTY OF HORRY

NO.	BY	DATE
B	CVD	6/6/15
A	CVD	02/25/15

REVISIONS

A. PER HORRY COUNTY SUBMITTED FOR PERMITTING

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HORRY COUNTY, SC

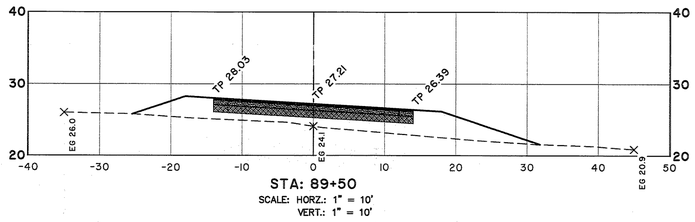
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

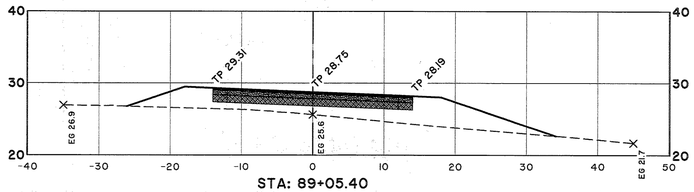
JOB NO:	J-25332.0000
DATE:	10/17/15
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.24

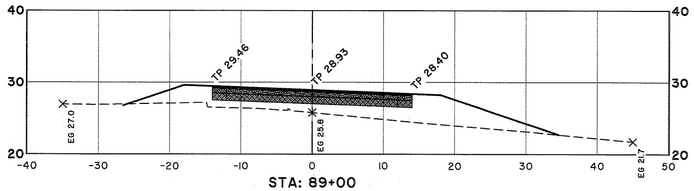
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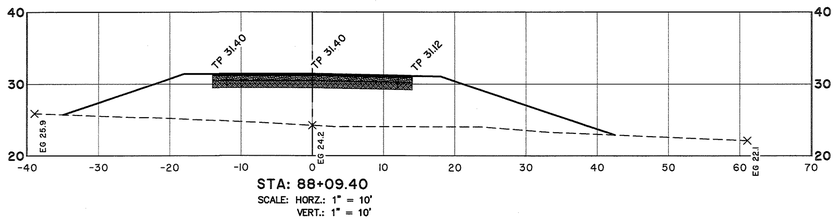
STA: 89+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



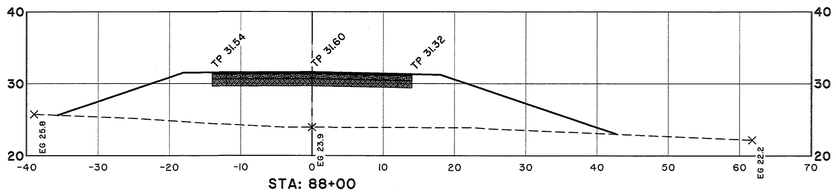
STA: 89+05.40
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



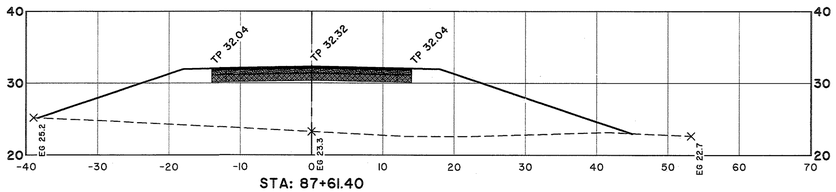
STA: 89+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



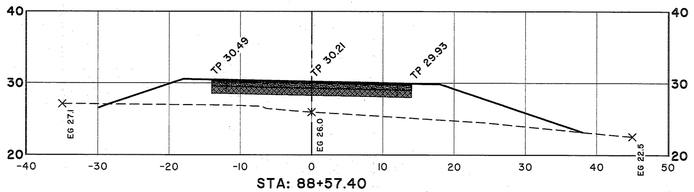
STA: 88+09.40
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



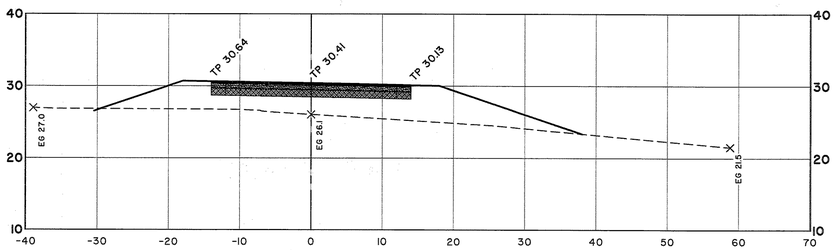
STA: 88+00
SCALE: HORZ.: 1" = 10'
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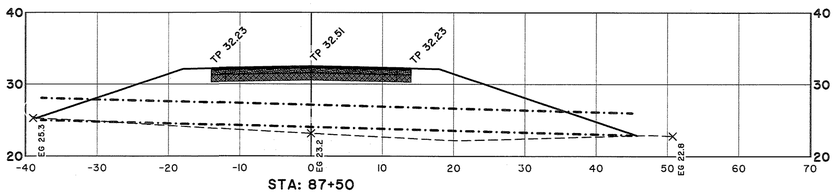
STA: 87+61.40
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



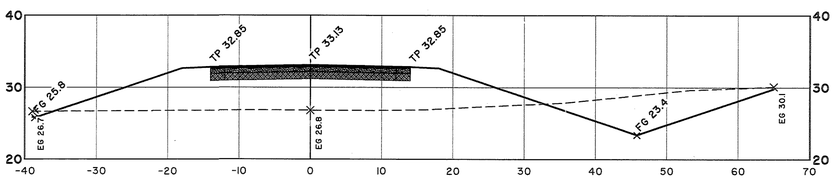
STA: 88+57.40
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 88+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 87+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 87+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00289
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
PROFESSIONAL ENGINEER
JOHN H. RICHARDSON
No. 29239

NO.	BY	DATE
A	CVD	02/25/13
B	CVD	6/6/13

SUBMITTED FOR PERMITTING
PER HORRY COUNTY
REVISIONS

THOMAS & HUTTON
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Myrtle Beach, SC 29578-8000 • 843.839-3545
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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

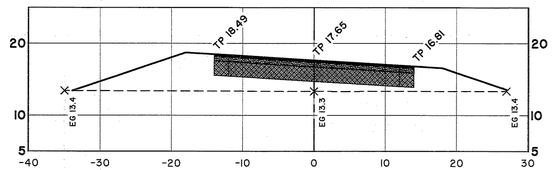
CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

JOB NO:	J-25332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

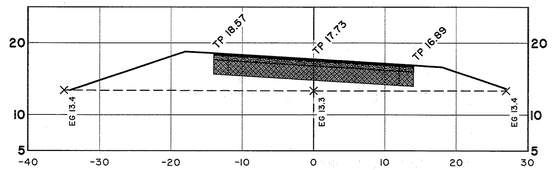
C4.25

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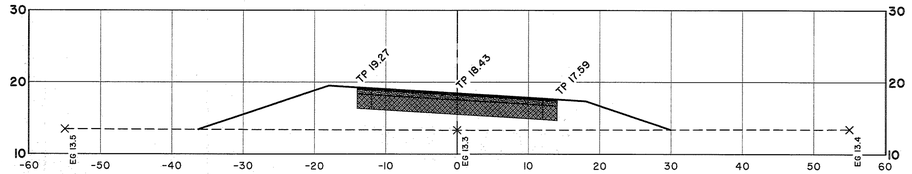
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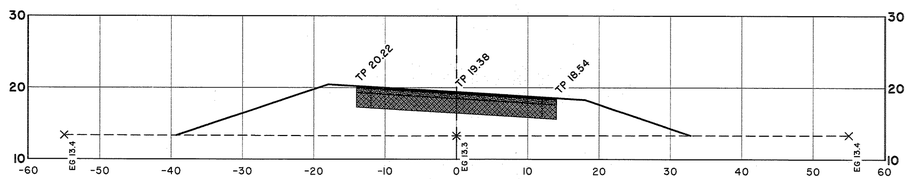
STA: 93+07.57
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



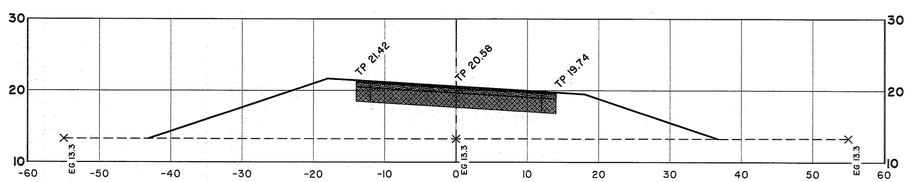
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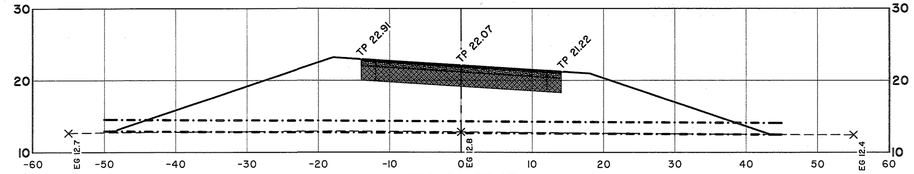
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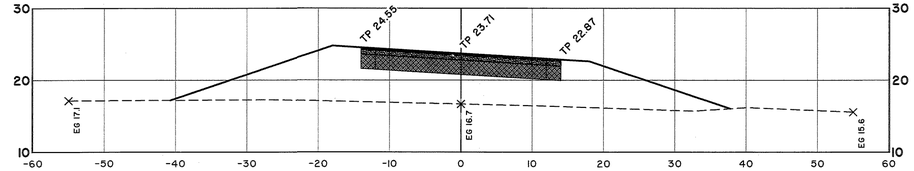
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VERT.: 1" = 10'



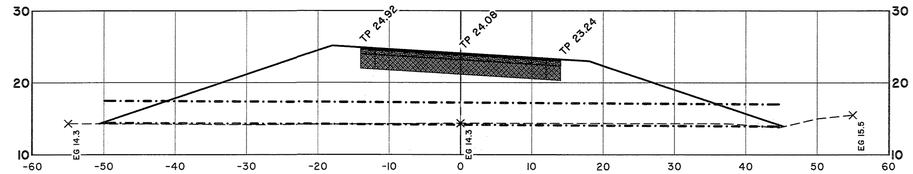
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VERT.: 1" = 10'



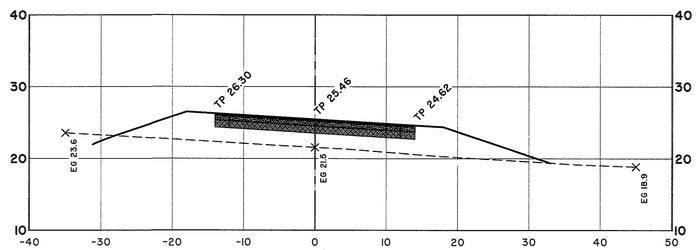
STA: 90+98.47
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



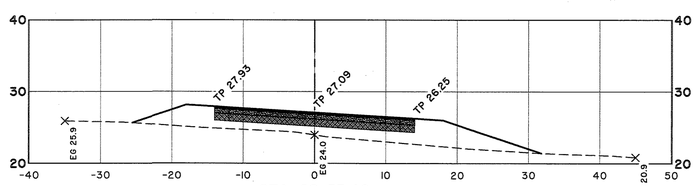
STA: 90+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 90+39.49
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 90+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 89+53.40
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE



(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER THOMAS E. HUTTON No. 030289 CERTIFICATE OF AUTHORIZATION THOMAS & HUTTON ENGINEERING CO. No. C00285

SOUTH CAROLINA PROFESSIONAL ENGINEER JOHN H. RICHARDSON No. 27777

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
B	PER HORRY COUNTY	CVD	6/6/13

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Myllte Beach, SC 29578-8000 • 843.839-3545
www.thomasandhutton.com
Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

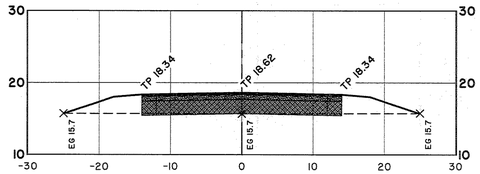
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

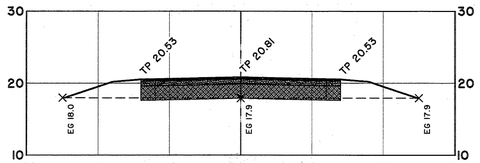
CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

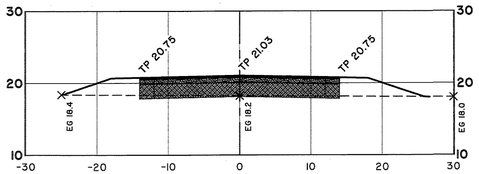
C4.26



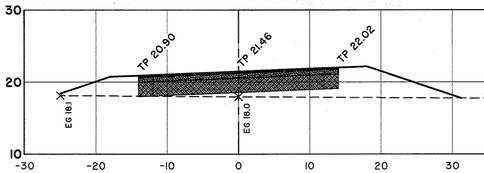
STA: 120+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



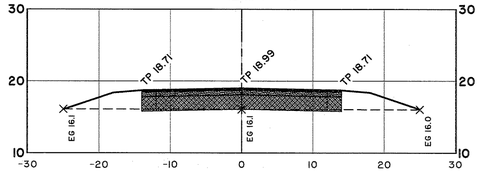
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SCALE: HORZ.: 1" = 10'
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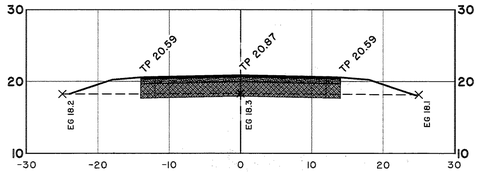
STA: 114+67.13
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



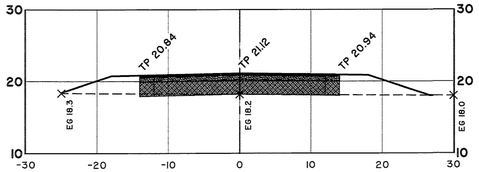
STA: 113+23.13
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



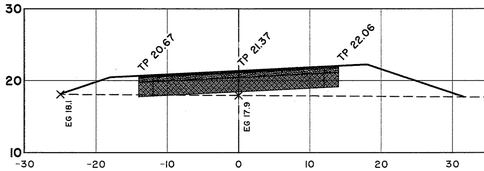
STA: 119+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



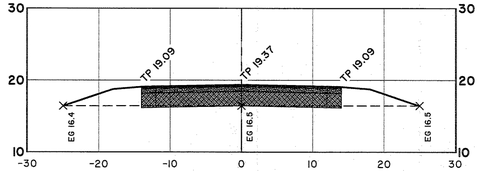
STA: 116+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



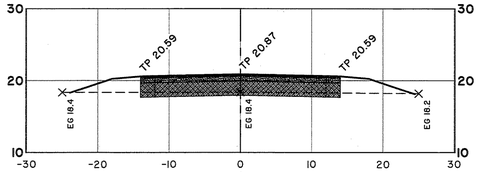
STA: 114+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



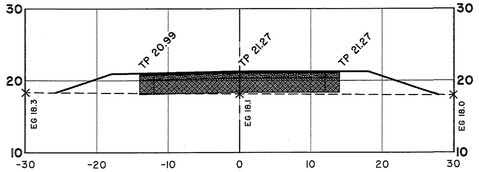
STA: 113+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



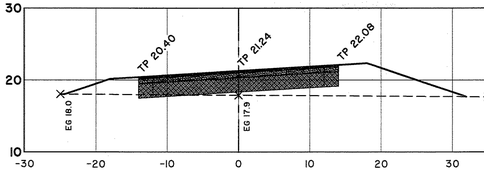
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



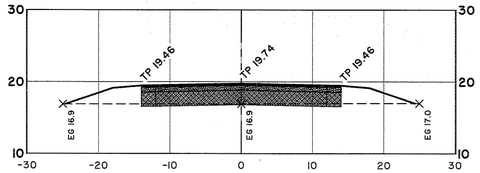
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



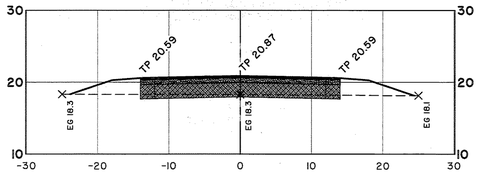
STA: 114+19.13
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



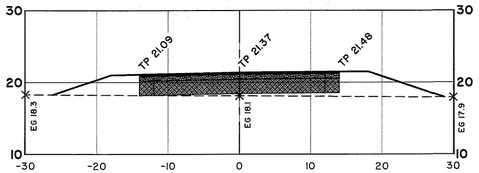
STA: 112+75.13
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



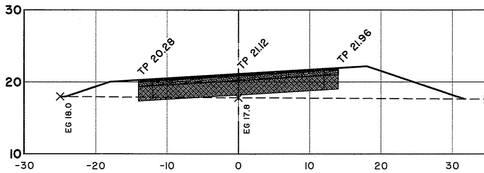
STA: 118+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



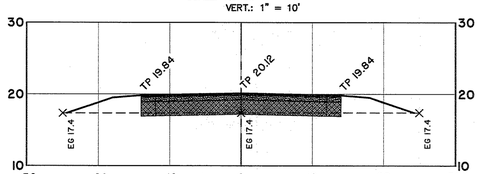
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



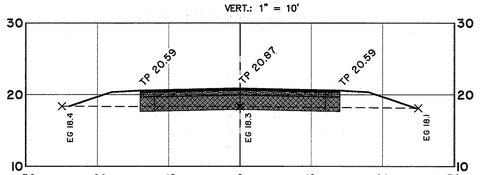
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



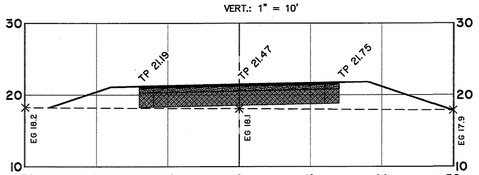
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



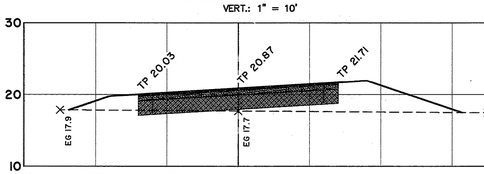
STA: 118+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



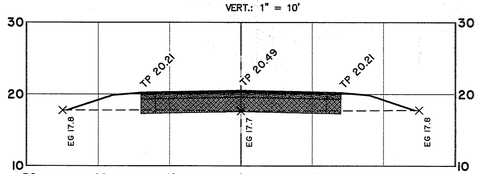
STA: 115+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



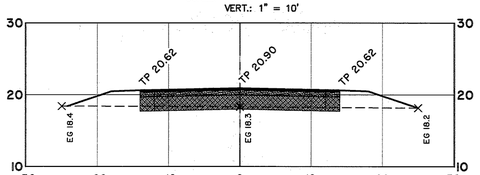
STA: 113+71.13
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



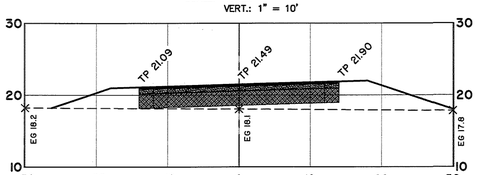
STA: 112+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



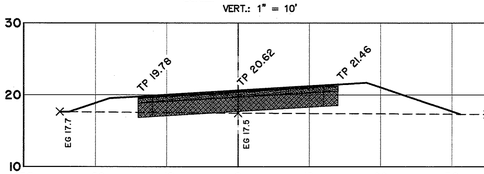
STA: 117+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 115+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 113+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 111+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE
10 5 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
B	PER HORRY COUNTY	CVD	6/6/13

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting
1350 Farrow Parkway • PO Box 8000
Myrtle Beach, SC 29578-8000 • 843.839-3545
www.thomasandhutton.com
Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

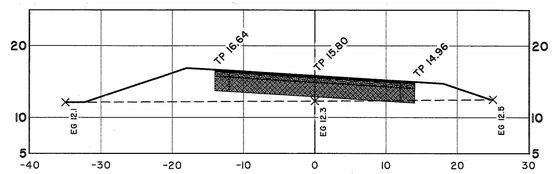
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

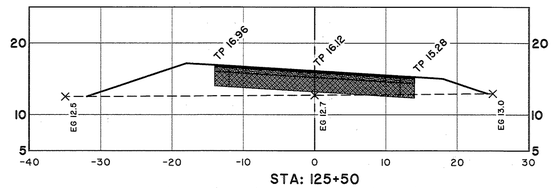
CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

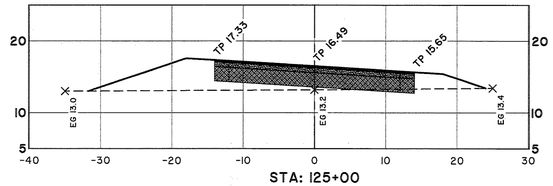
C4.27



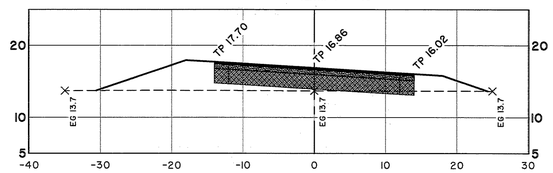
STA: 126+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



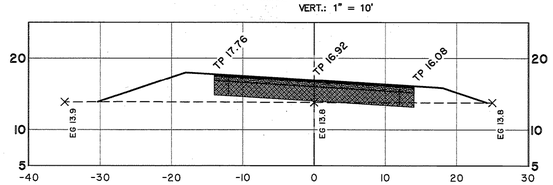
STA: 125+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



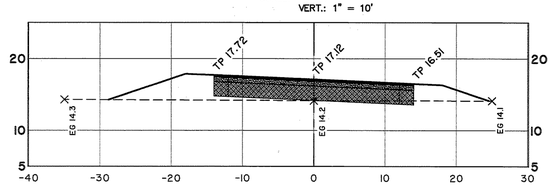
STA: 125+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 124+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

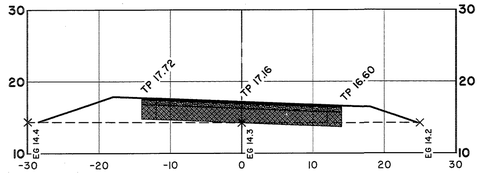


STA: 124+40.19
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

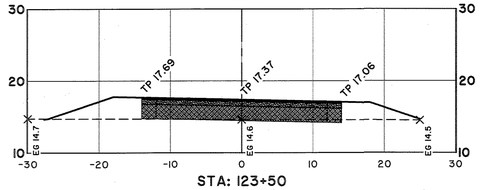


STA: 124+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

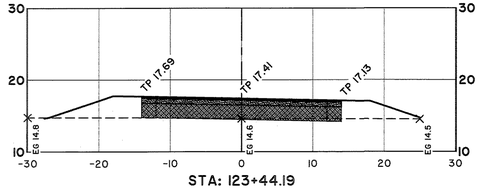
STA: 126+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



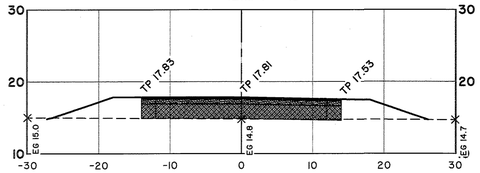
STA: 123+92.19
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



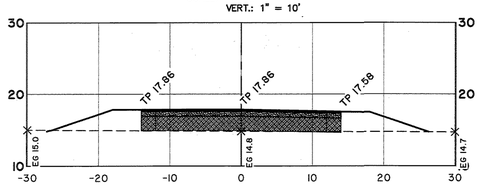
STA: 123+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



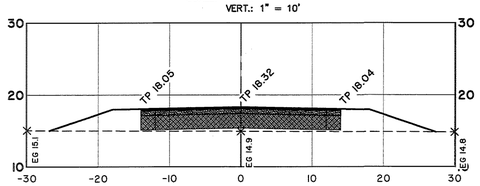
STA: 123+44.19
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



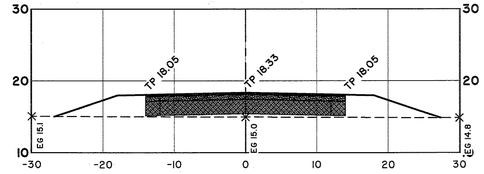
STA: 123+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



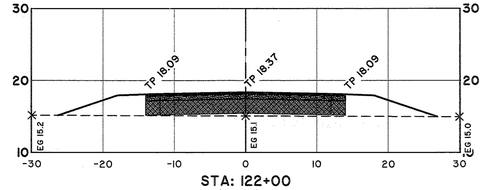
STA: 122+96.19
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



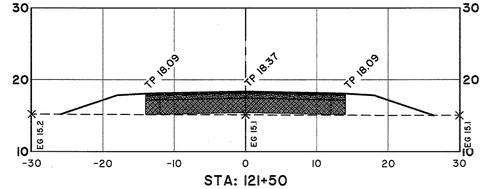
STA: 122+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



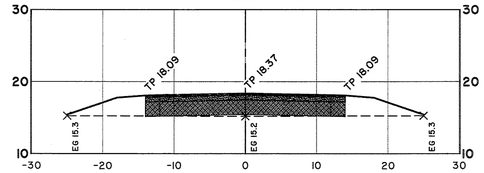
STA: 122+48.19
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



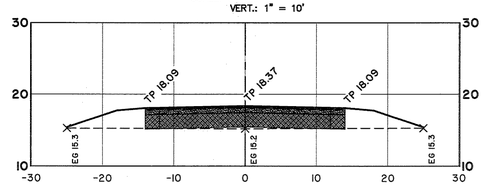
STA: 122+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



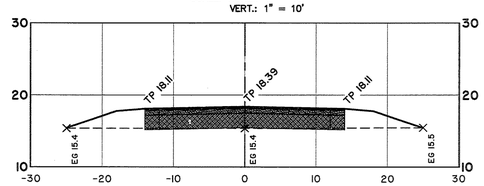
STA: 121+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 121+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 120+96.20
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 120+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'
(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER — JOHN H. HUTTON, JR. — No. 19703 — REGISTERED

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00288 — CERTIFICATE OF AUTHORIZATION

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13
B	PER HORRY COUNTY	CVD	6/6/13

THOMAS & HUTTON
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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

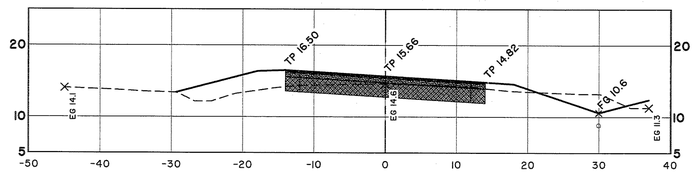
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

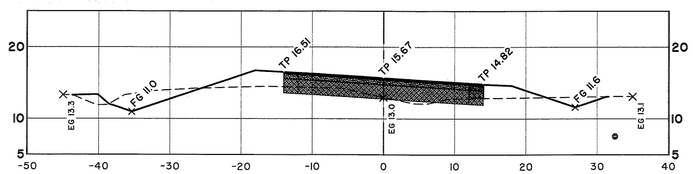
JOB NO:	J-23332.0000
DATE:	10/17/12
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.28

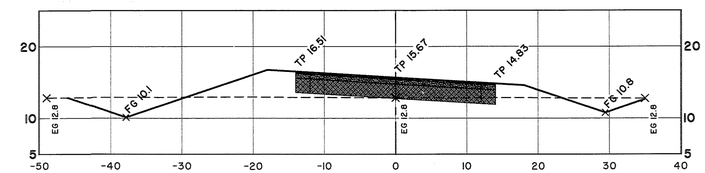
G:\Documents and Settings\mhf.jay\My Documents\Drawing1.dwg - Jul 15, 2008 - 02:04 PM



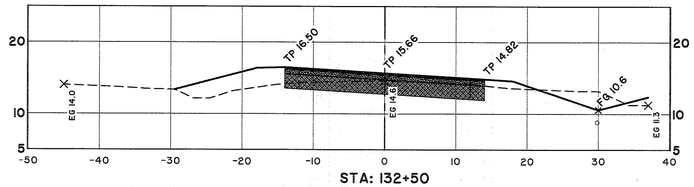
STA: 132+52.14
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



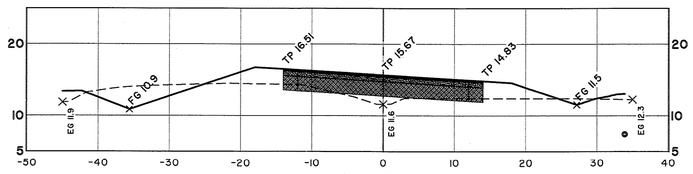
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VERT.: 1" = 10'



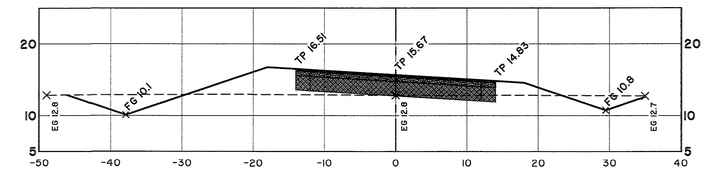
STA: 128+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



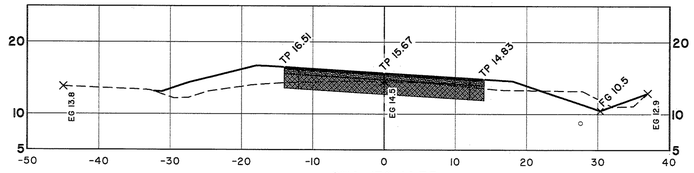
STA: 132+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



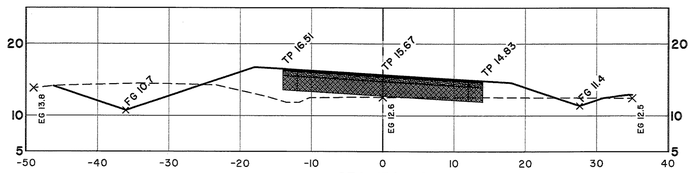
STA: 131+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



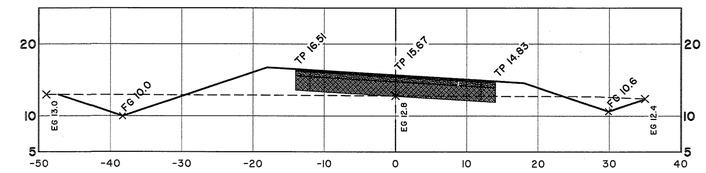
STA: 128+46.17
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



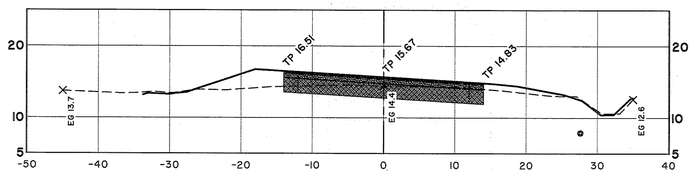
STA: 132+14.35
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



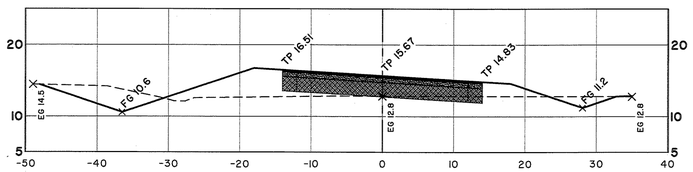
STA: 130+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



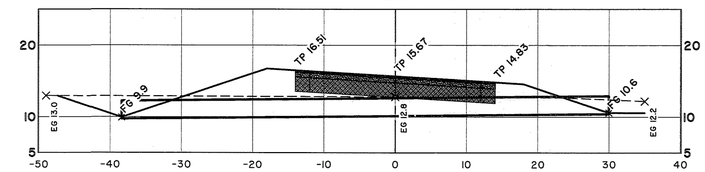
STA: 128+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



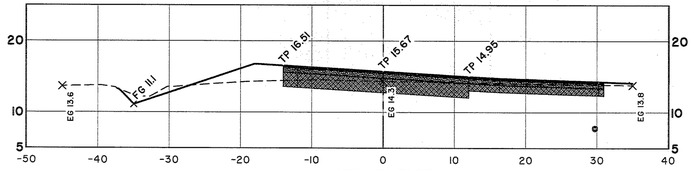
STA: 132+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



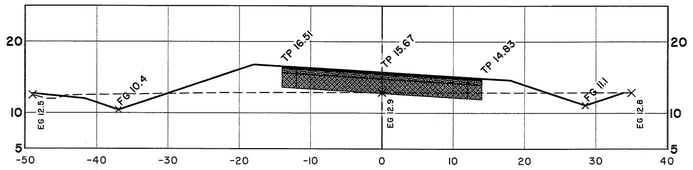
STA: 130+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



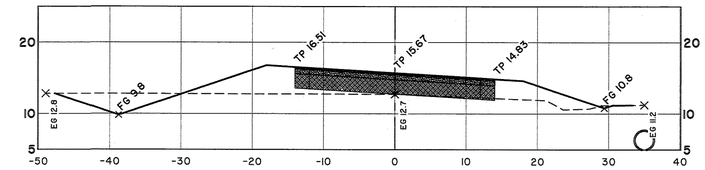
STA: 127+90
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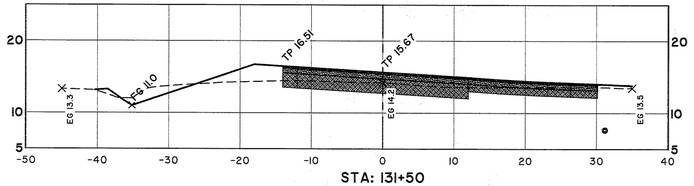
STA: 131+71.87
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



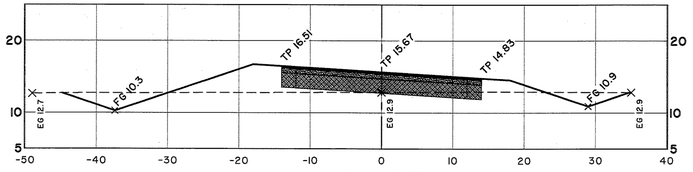
STA: 129+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



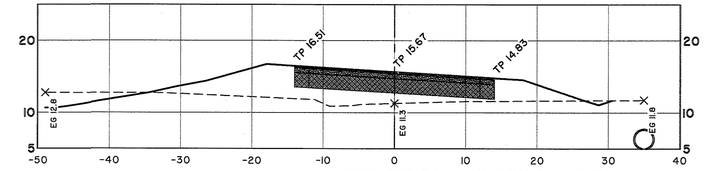
STA: 127+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 131+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 129+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 127+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOHN H. TRUMBO — 24577

NO.	DESCRIPTION	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/15
B	PER HORRY COUNTY REVISIONS	CVD	6/6/15

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Myrtle Beach, SC 29578-8000 • 843.839-3545
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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

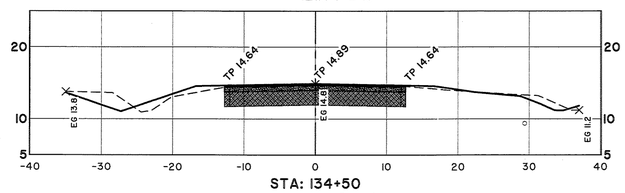
CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

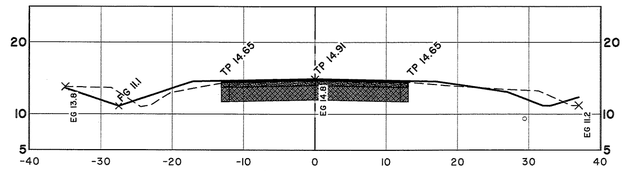
C4.29

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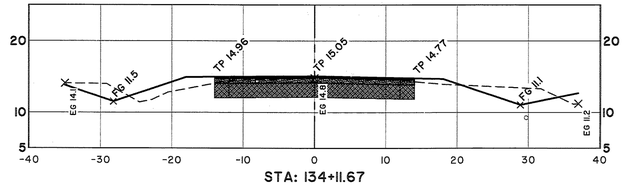
STA: 134+86.64
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



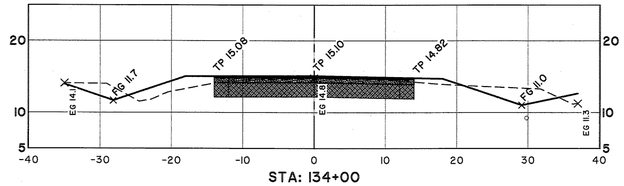
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SCALE: HORZ.: 1" = 10'
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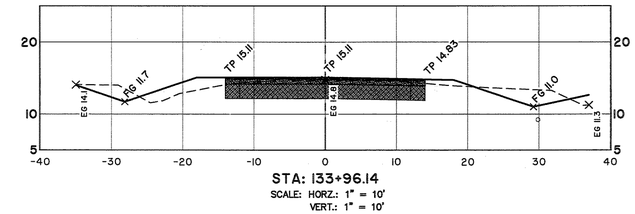
STA: 134+44.14
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



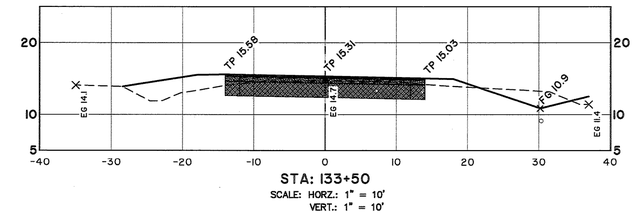
STA: 134+11.67
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



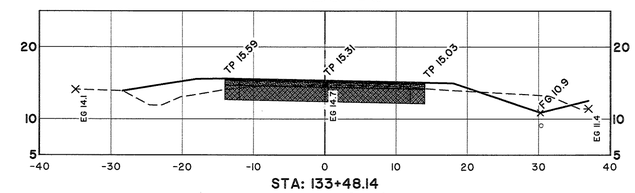
STA: 134+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



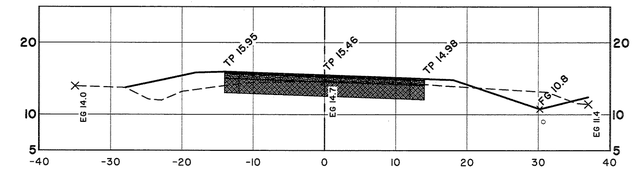
STA: 133+96.14
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



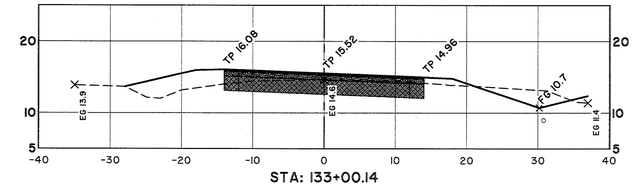
STA: 133+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



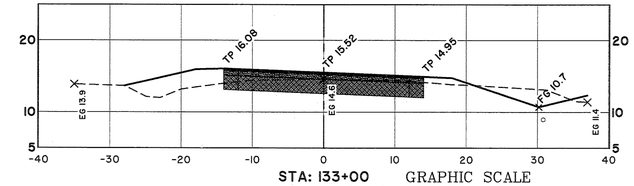
STA: 133+48.14
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 133+12.58
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 133+00.14
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 133+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE
10 0 10 5 10 20 40
(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER — JOHN H. ROSEN — No. 23903 — CERTIFICATE OF AUTHORIZATION — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — NOV 12, 2015

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/15
B	PER HORRY COUNTY	CVD	6/6/15

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

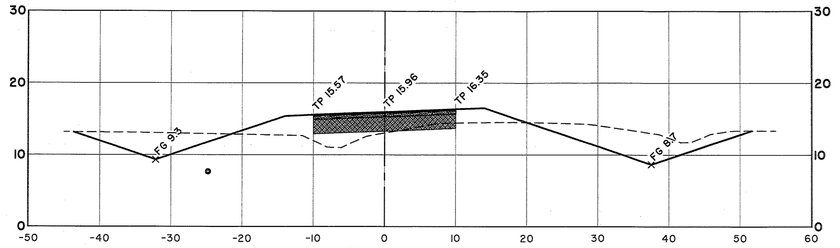
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - NEW BUCKSPORT ACCESS ROAD

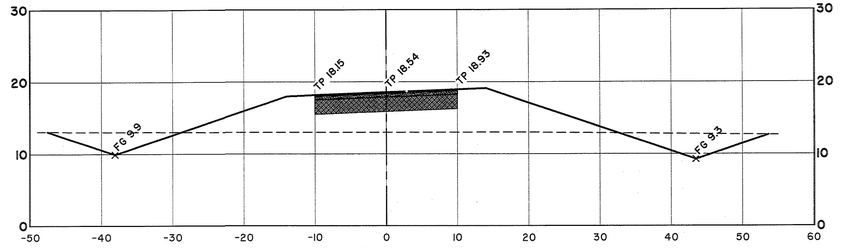
JOB NO:	J-23532.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.30

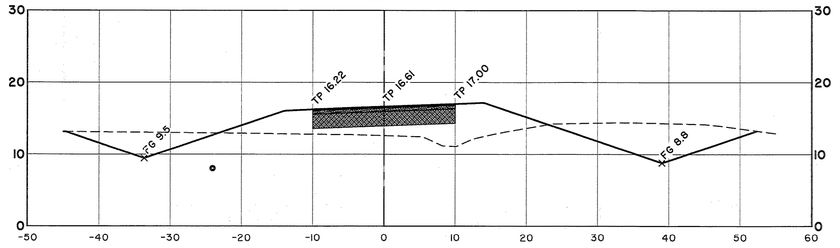
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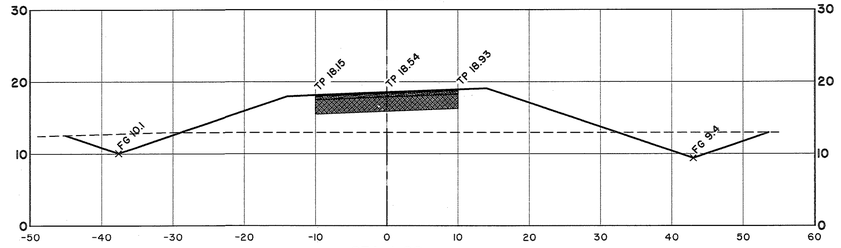
STA: 3+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



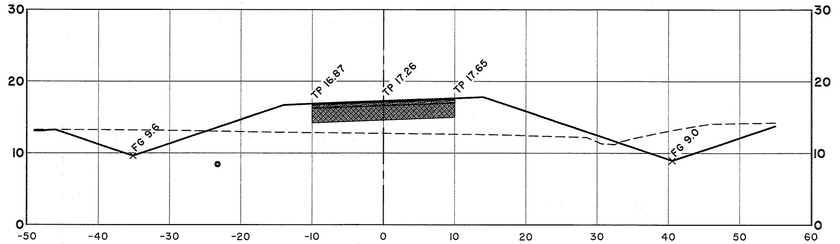
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



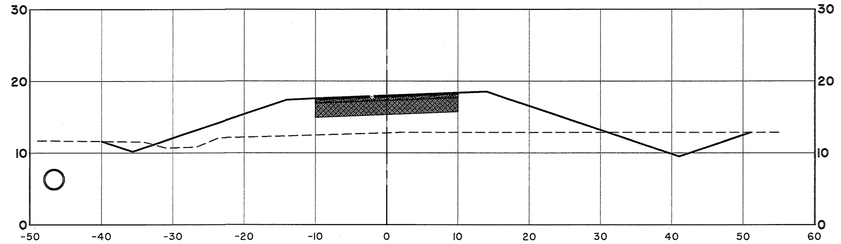
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



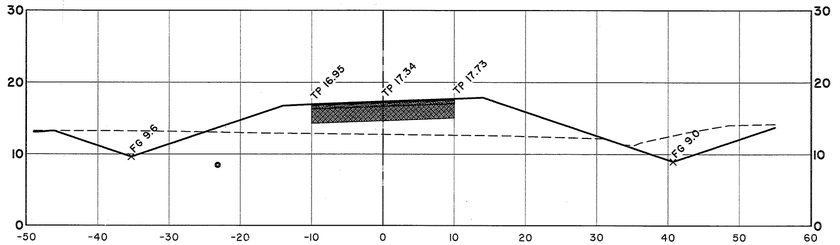
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VERT.: 1" = 10'



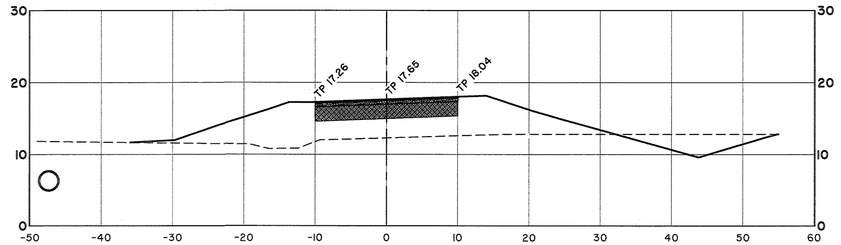
STA: 2+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



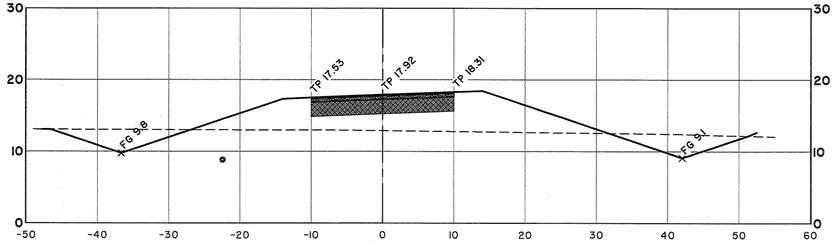
STA: 0+63.97
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



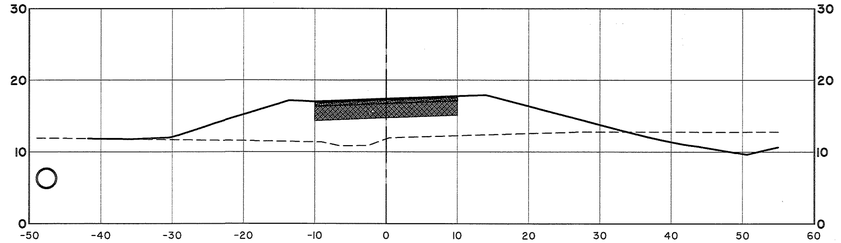
STA: 2+44.59
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 0+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 2+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 0+41.01
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
JOHN H. RICHARDSON
25937
10/17/13

NO.	BY	DATE
A	CVD	02/25/13
B	CVD	6/6/13

REVISIONS
SUBMITTED FOR PERMITTING
PER HORRY COUNTY

THOMAS & HUTTON
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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

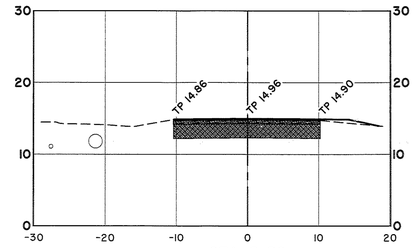
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - BUCKSPORT ROAD

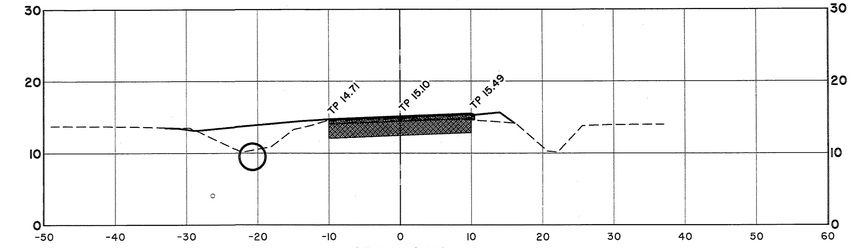
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.31

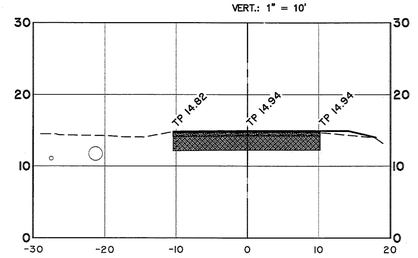
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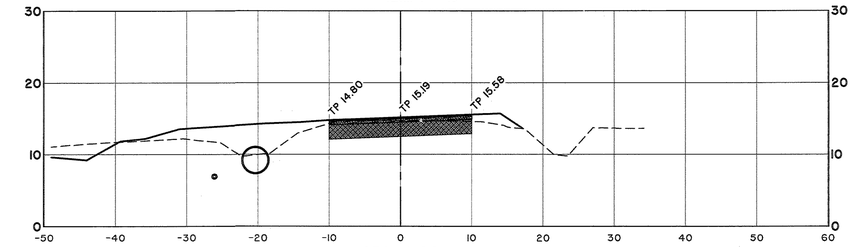
STA: 5+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



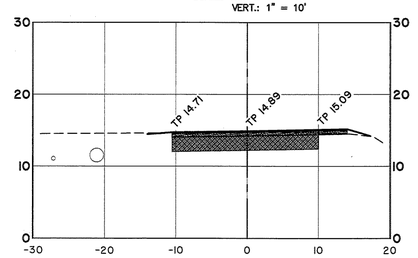
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SCALE: HORZ.: 1" = 10'
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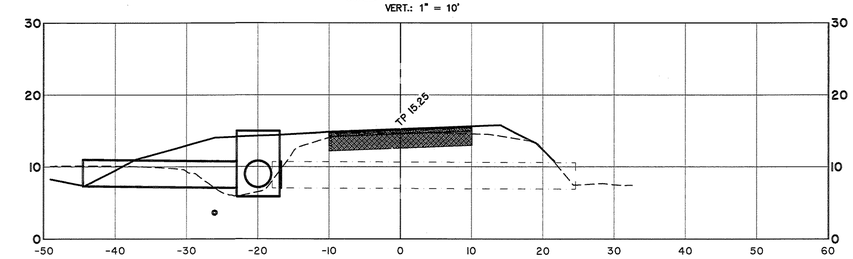
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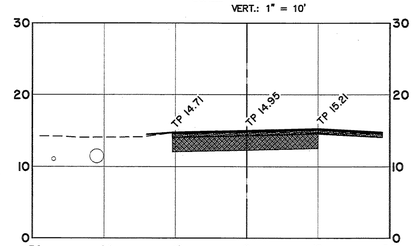
STA: 4+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



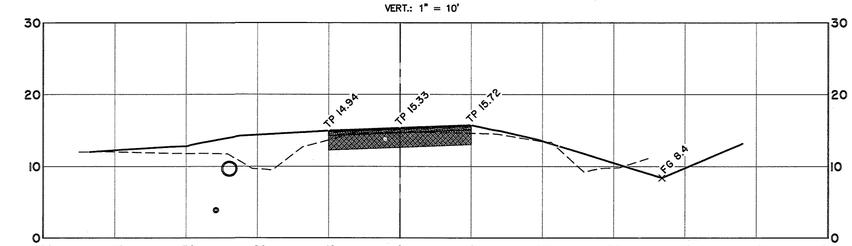
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SCALE: HORZ.: 1" = 10'
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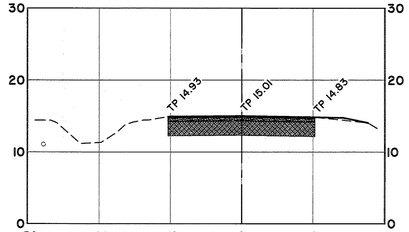
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VERT.: 1" = 10'



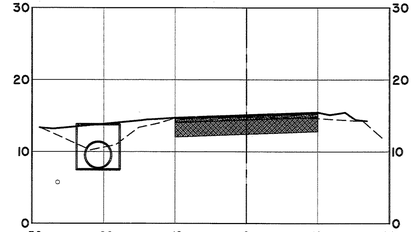
STA: 4+89.18
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



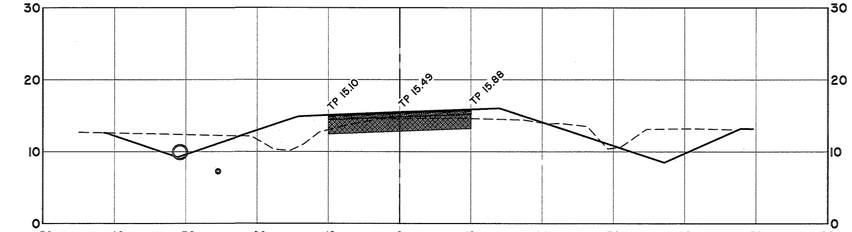
STA: 4+26.93
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 5+75
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 4+67.04
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 4+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE



(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING
No. C00288
CERTIFICATE OF AUTHORIZATION
NOLLY VAN DYKE

SOUTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
JOHN H. RICHTER, JR.
No. 24564
10/17/13

NO.	BY	DATE
A	CVD	02/25/13
B	CVD	6/6/13

REVISIONS
SUBMITTED FOR PERMITTING
PER HORRY COUNTY

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1350 Farrow Parkway • PO Box 8000
Myrtle Beach, SC 29578-8000 • 843.839-3545
www.thomasandhutton.com
Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - BUCKSPORT ROAD

JOB NO:	J-25332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.32

C:\Documents and Settings\cvd\Desktop\cvd_xref\M-Documents\Drawings\dgn - Jul 31, 2009 - 2:32:38 PM

STA: 308+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

STA: 308+32.29
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

STA: 308+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

STA: 307+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

STA: 307+46.73
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

THOMAS & HUTTON ENGINEERING CO.
SOUTH CAROLINA
No. C00285
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
REGISTERED
PROFESSIONAL ENGINEER
No. 24004
JOHN H. RICHARDSON

NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURNLANES ADDED	CCR	05/10/17

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

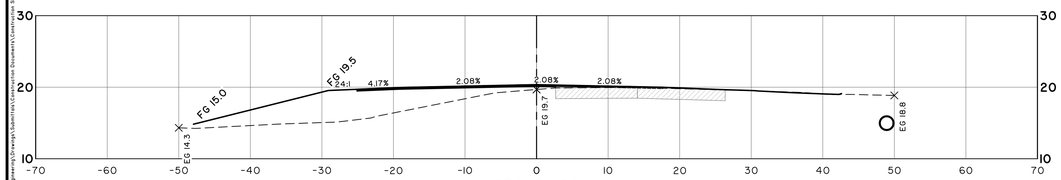
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - 701

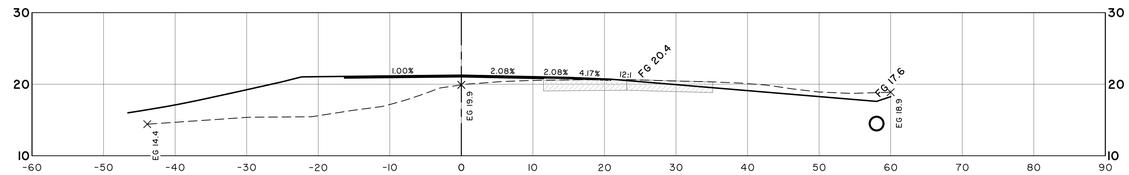
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 10'

C4.33

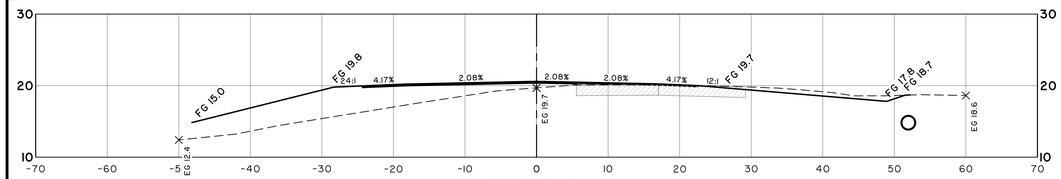
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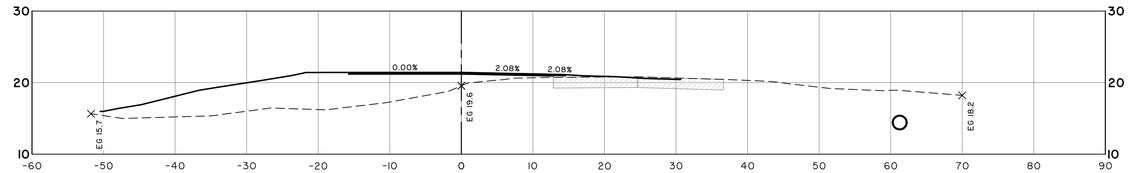
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 309+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



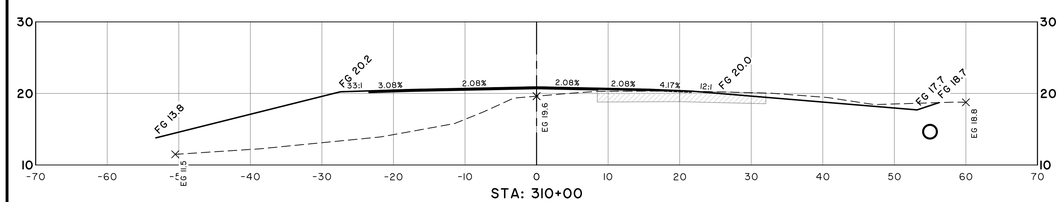
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



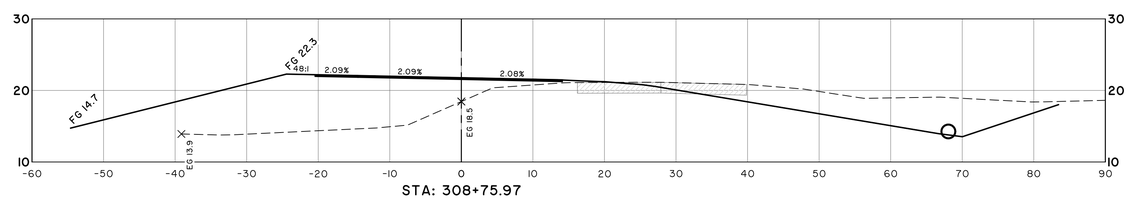
STA: 309+26.16
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

STA: 310+26.59
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

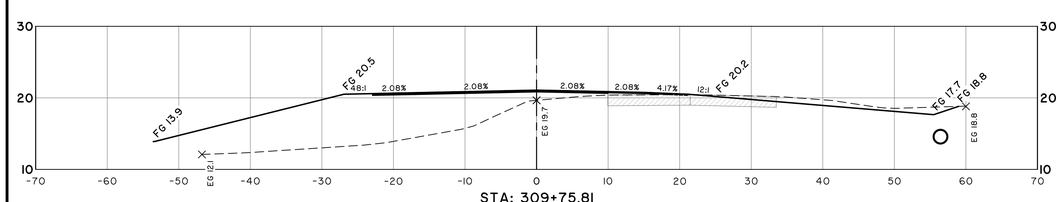
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



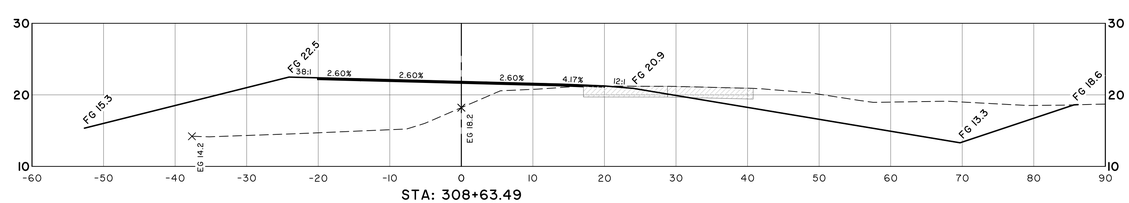
STA: 310+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 308+75.97
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 309+75.81
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 308+63.49
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 23004 JOSEPH H. RICHARDSON III

SOUTH CAROLINA NOLLY JEWELL No. C00285 THOMAS & HUTTON ENGINEERING CO. CERTIFICATE OF AUTHORIZATION

NO.	DESCRIPTION	BY	DATE
C	HIGHWAY 701 TURNLANES ADDED	CCR	05/10/17

REVISIONS

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - 701

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 10'

C4.34

Z:\23332\23332.0000\Engineering\Drawings\Submittals\Permit Documents\Cover Sheet\23332.0000 - Cross Sections - 701.dwg - May 9, 2017 - 4:54:38 PM

STA: 315+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

STA: 313+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

STA: 314+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

STA: 312+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

STA: 314+08.53
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

STA: 312+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

STA: 314+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

STA: 311+58.57
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

STA: 313+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

STA: 311+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA — NOLLY TOMMY THOMAS — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOHN H. RICHARDSON — No. 24004 — 11/17/17

NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURNLANES ADDED	CCR	05/10/17

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HORRY COUNTY, SC

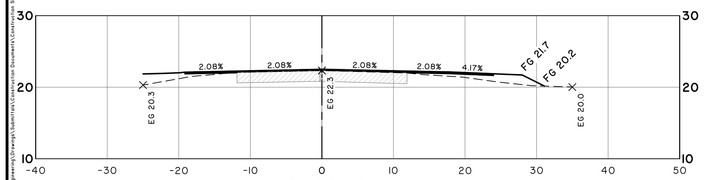
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - 701

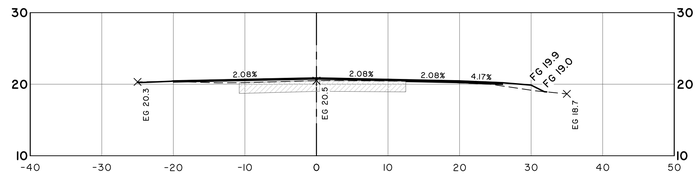
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DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 10'

C4.35

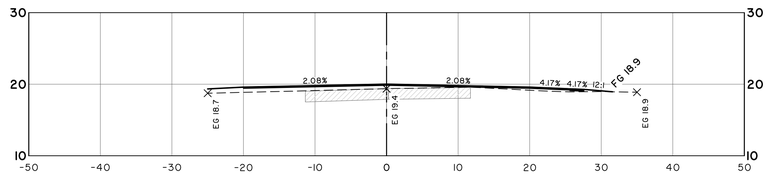
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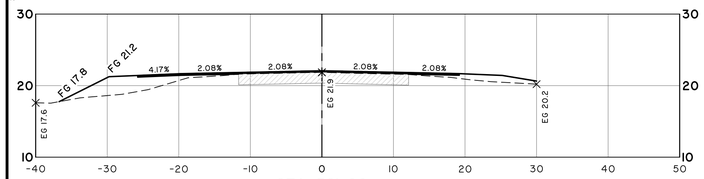
STA: 321+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



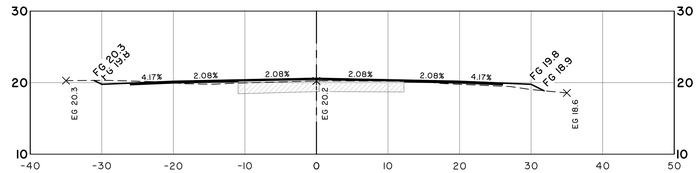
STA: 319+38.48
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



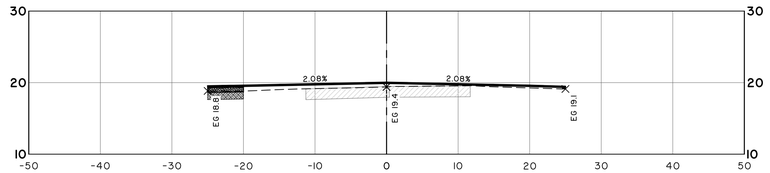
STA: 317+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



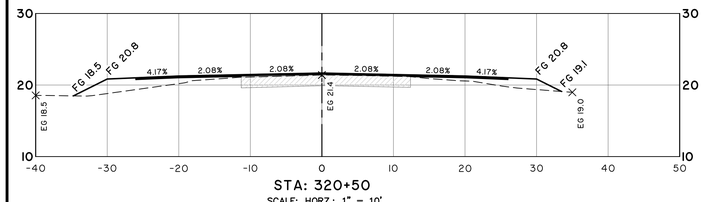
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



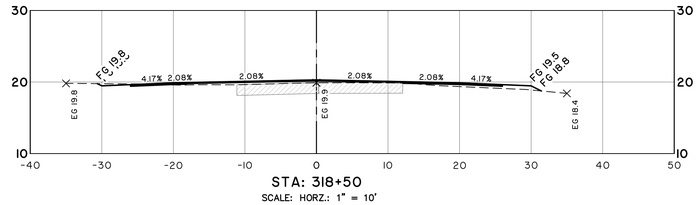
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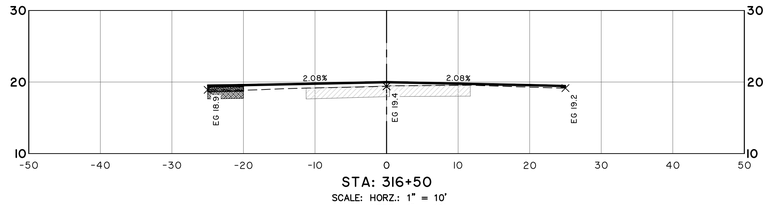
STA: 316+58.48
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VERT.: 1" = 10'



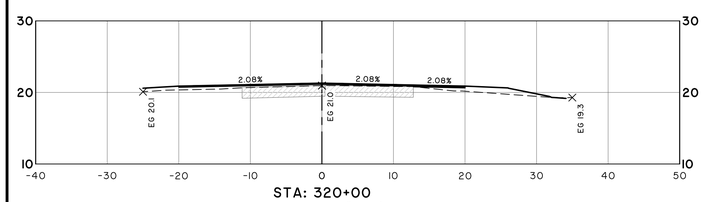
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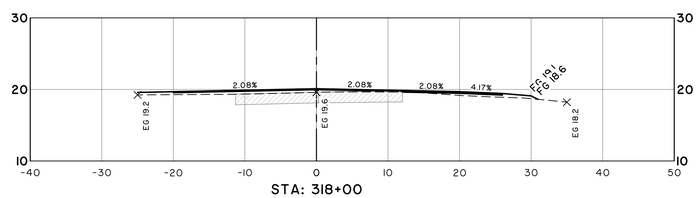
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



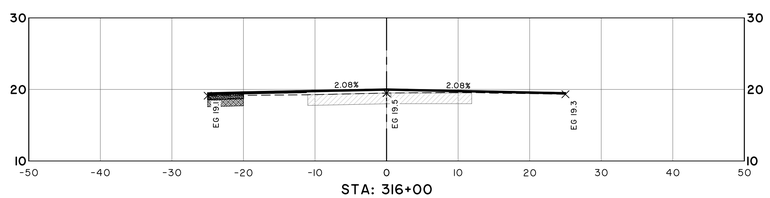
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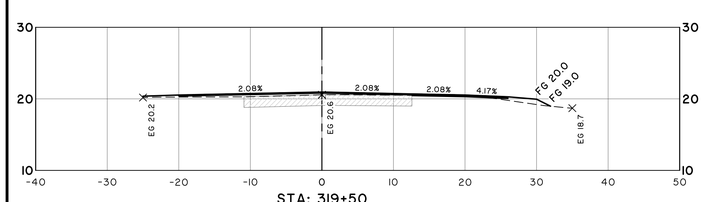
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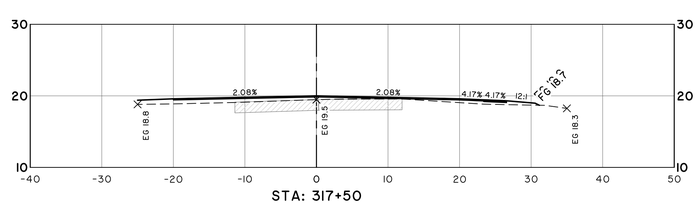
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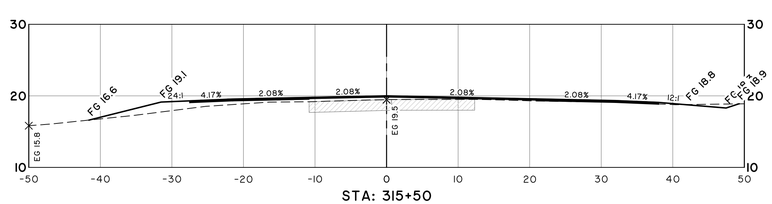
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VERT.: 1" = 10'



STA: 319+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 317+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 315+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

Z:\J23332\J23332.0000\Engineering\Submittals\Plan Set Documents\Construction Sheets\J23332.0000 - Cross Sections - 701.dwg - May 9, 2017 - 4:54:38 PM

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
REGISTERED
ENGINEER
No. 24604
JOSEPH H. RICHTER, JR.

NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURNLANES ADDED	CCR	05/10/17

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

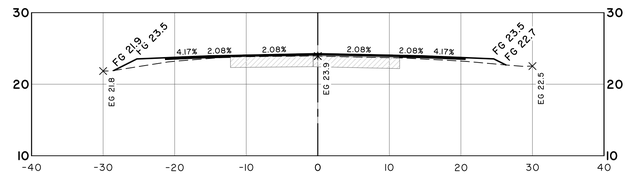
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - 701

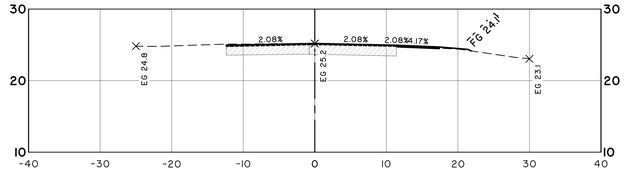
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
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APPROVED:	JHR
SCALE:	1" = 10'

C4.36

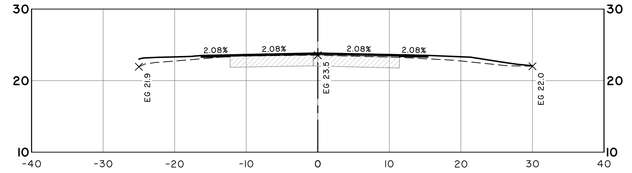
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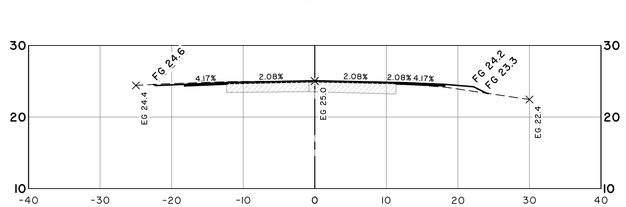
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



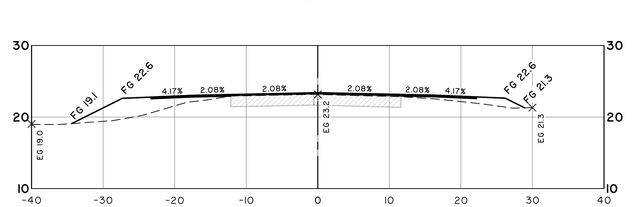
STA: 325+36.06
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



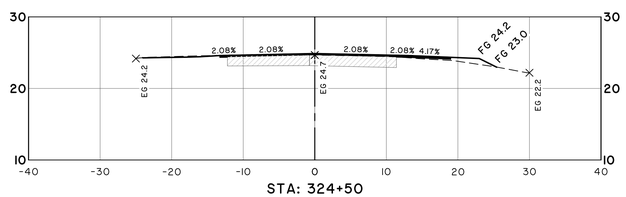
STA: 323+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



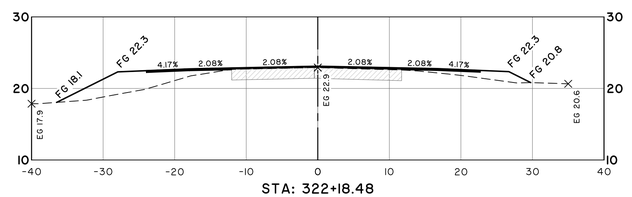
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VERT.: 1" = 10'



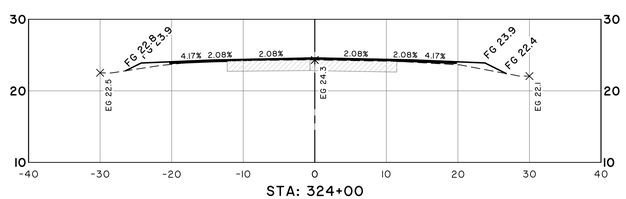
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SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



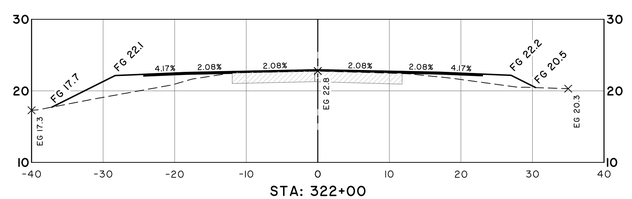
STA: 324+50
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VERT.: 1" = 10'



STA: 322+18.48
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 324+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 322+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA
PROFESSIONAL ENGINEER
JOHN H. RICHARDSON
No. 23004
CERTIFICATE OF AUTHORIZATION
THOMAS & HUTTON ENGINEERING CO.
No. C00285
NOT VALID WITHOUT ORIGINAL SIGNATURE AND SEAL

NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURNLANES ADDED	CCR	05/10/17

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting
611 Burroughs & Chapin Boulevard • Suite 202
Myrtle Beach, SC 29577 • 843.839.3545
www.thomasandhutton.com

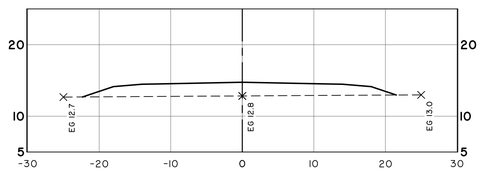
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

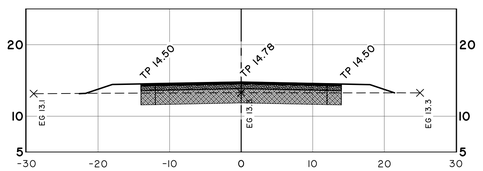
CROSS SECTIONS - 701

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 10'

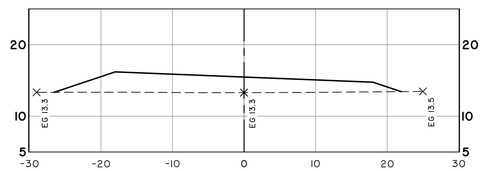
C4.37



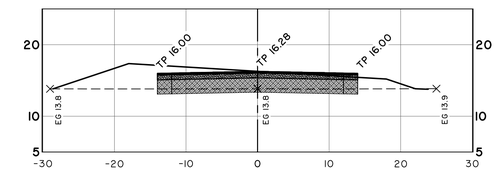
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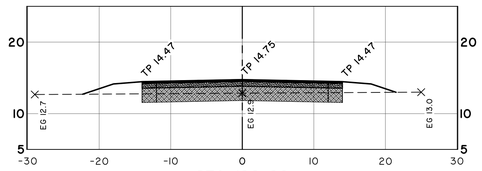
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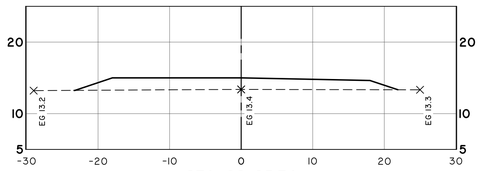
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VERT.: 1" = 10'



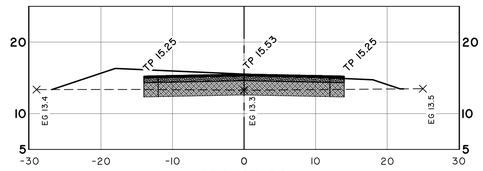
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VERT.: 1" = 10'



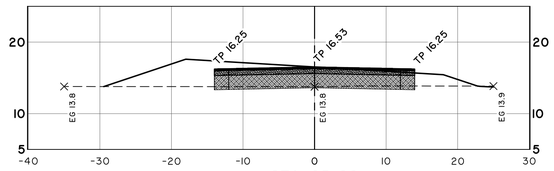
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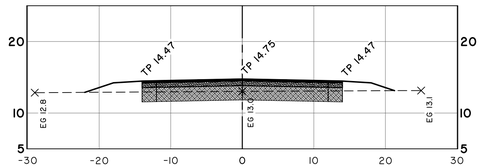
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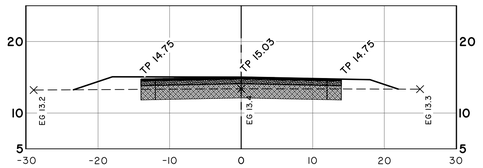
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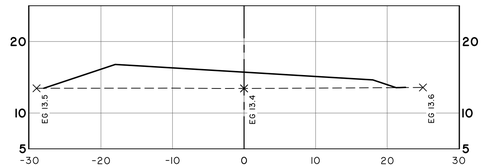
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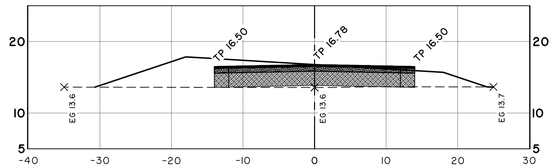
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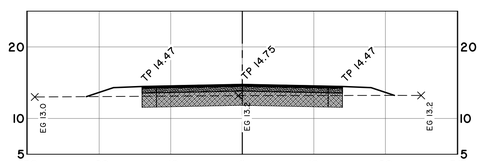
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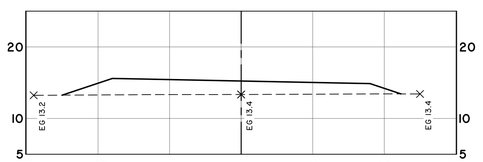
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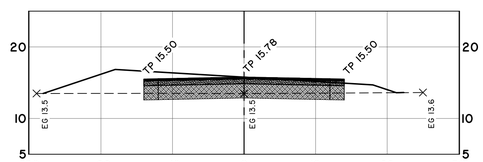
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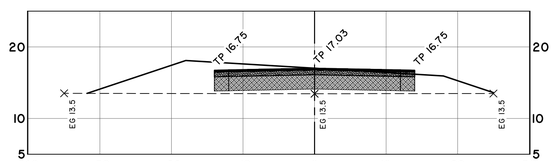
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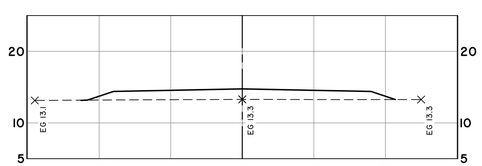
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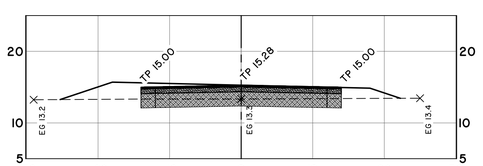
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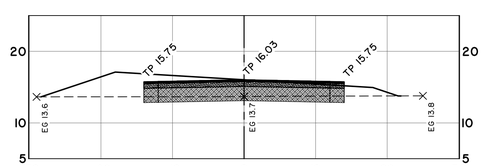
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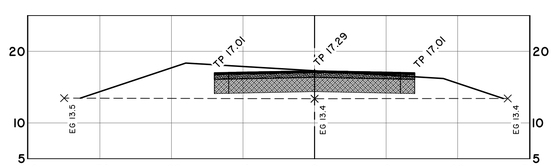
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VERT.: 1" = 10'



STA: 97+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 96+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 93+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER — THOMAS & HUTTON ENGINEERING — No. C002285 — CERTIFICATE OF AUTHORIZATION — NOLL TIMOTHY

SOUTH CAROLINA PROFESSIONAL ENGINEER — JOHN H. RICHARDSON — No. 24004 — 17 JAN 18

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting
1350 Farrow Parkway • PO Box 8000
Myrtle Beach, SC 29578-8000 • 843.839-3545
www.thomasandhutton.com
Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

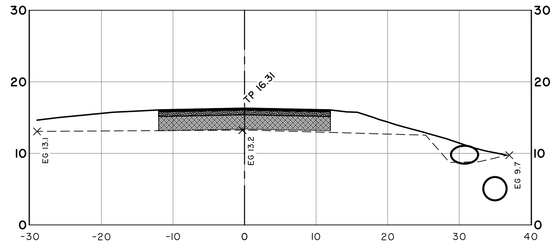
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

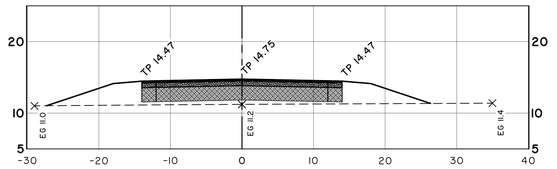
CROSS SECTIONS - BUCKSPORT ROAD

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

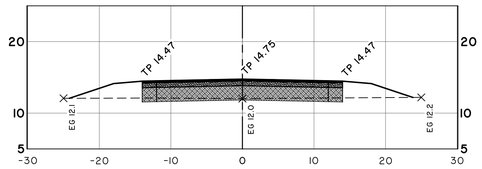
C4.38



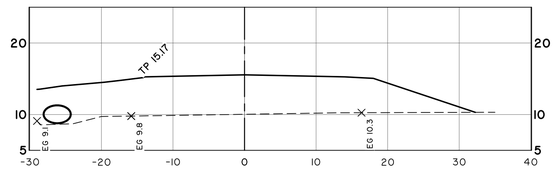
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VERT.: 1" = 10'



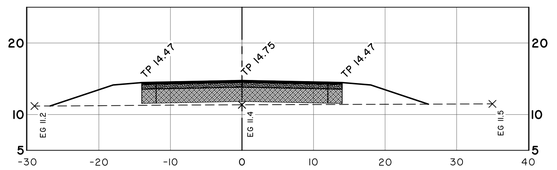
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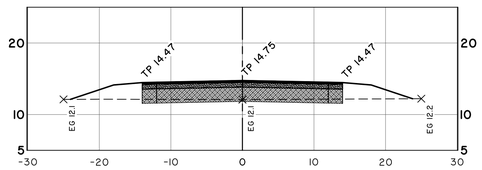
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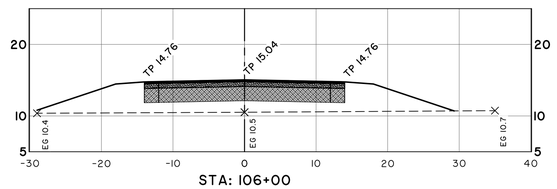
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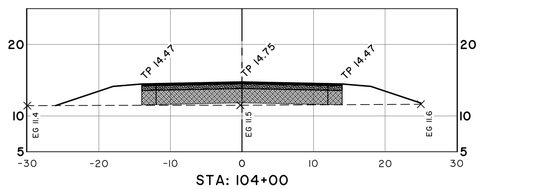
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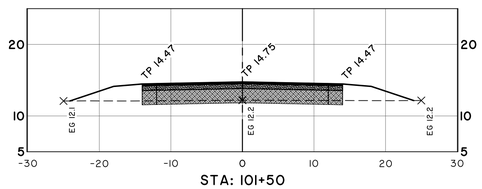
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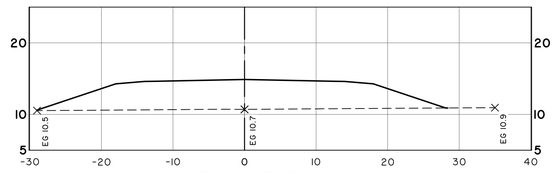
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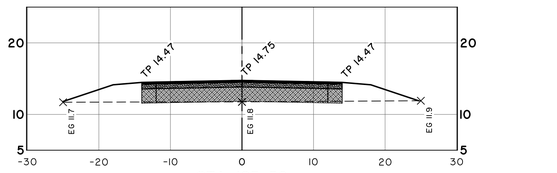
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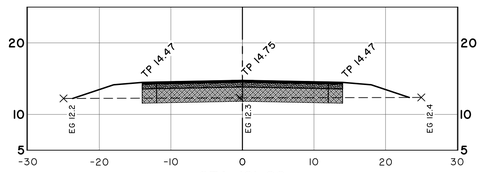
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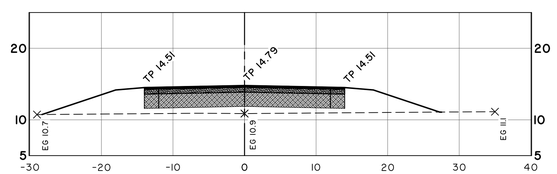
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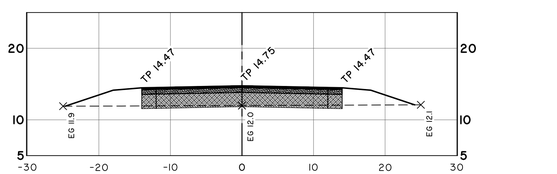
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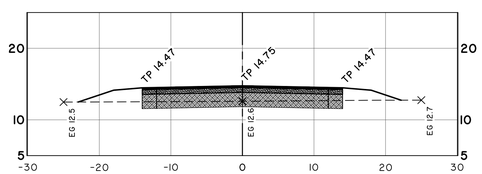
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STA: 105+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 103+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 100+50
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE



(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER — JOHN H. RICHARDSON — No. 24004 — REGISTERED — 10/17/13

SOUTH CAROLINA — NOTE/COMMENT — THOMAS & HUTTON ENGINEERING — No. C00285 — CERTIFICATE OF AUTHORIZATION

NO.	REVISIONS	BY	DATE

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting
1350 Farrow Parkway • PO Box 8000
Myrtle Beach, SC 29578-8000 • 843.839-3545
www.thomasandhutton.com
Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

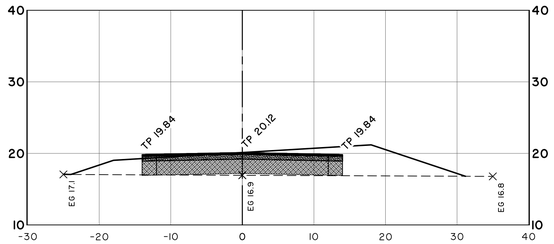
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - BUCKSPORT ROAD

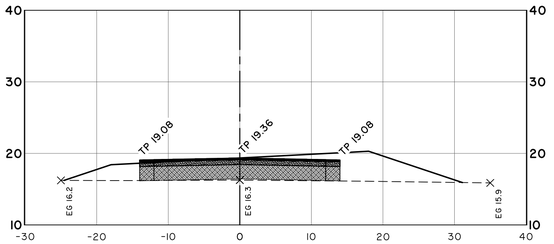
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.39

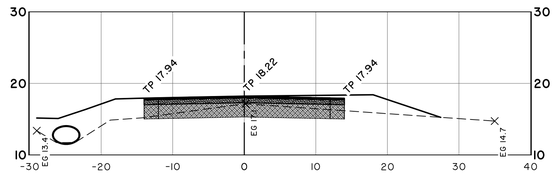
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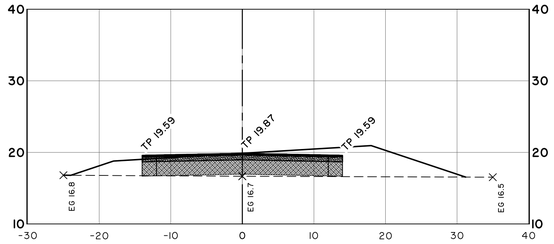
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VERT.: 1" = 10'



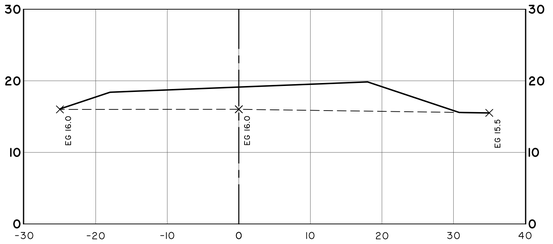
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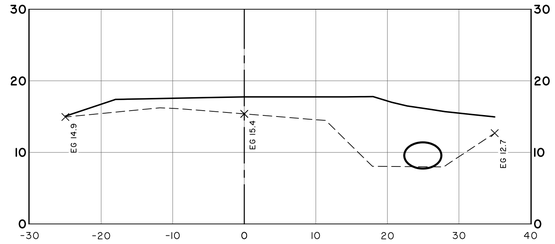
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VERT.: 1" = 10'



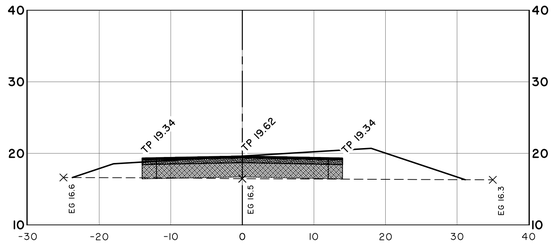
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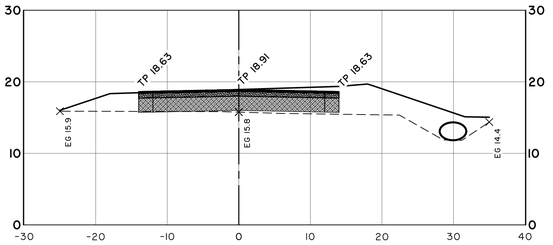
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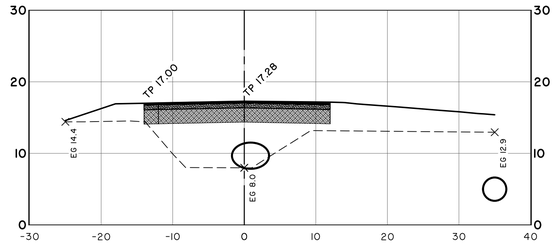
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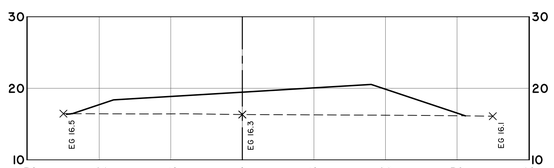
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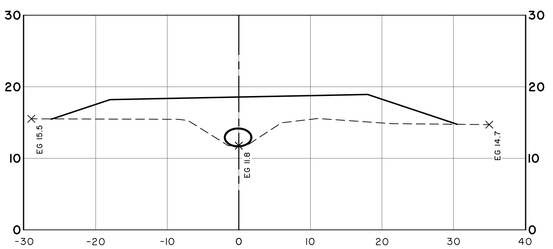
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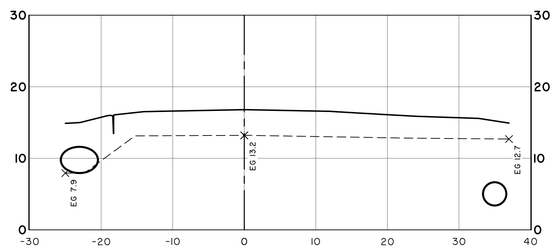
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STA: 109+18.61
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 108+22.61
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'



STA: 107+26.08
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER
THOMAS & HUTTON ENGINEERING CO.
No. C003285
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER
JOHN H. RICHARDSON
No. 30944
10/17/13

NO.	REVISIONS	BY	DATE

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Savannah, GA | Brunswick, GA | Charleston, SC | Wilmington, NC

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - BUCKSPORT ROAD

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

C4.40

STA: 111+00
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

STA: 110+96.87
SCALE: HORZ.: 1" = 10'
VERT.: 1" = 10'

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

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NO.	REVISIONS	BY	DATE

SOUTH CAROLINA
PROFESSIONAL ENGINEER
JOHN H. RICHARDSON
No. 24041
REGISTERED
12-JUN-18

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C003285
CERTIFICATE OF AUTHORIZATION

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

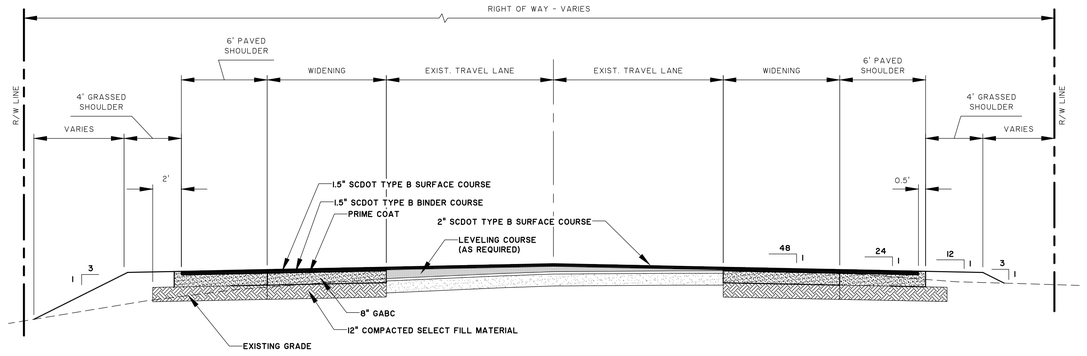
NEW BUCKSPORT ACCESS ROAD

CROSS SECTIONS - BUCKSPORT ROAD

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS NOTED

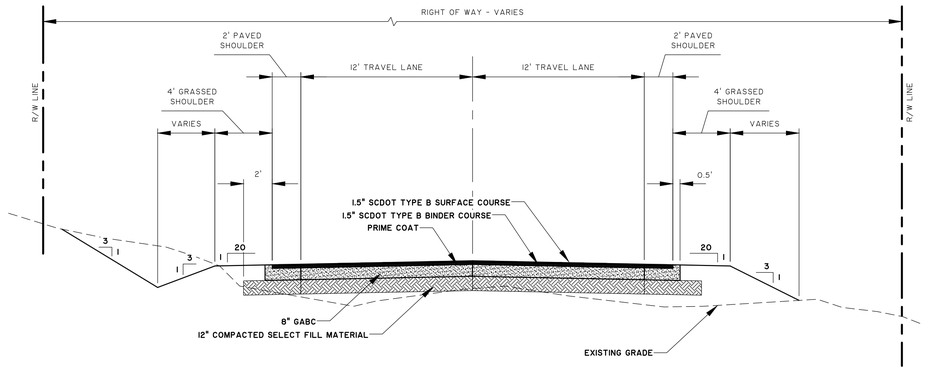
C4.41

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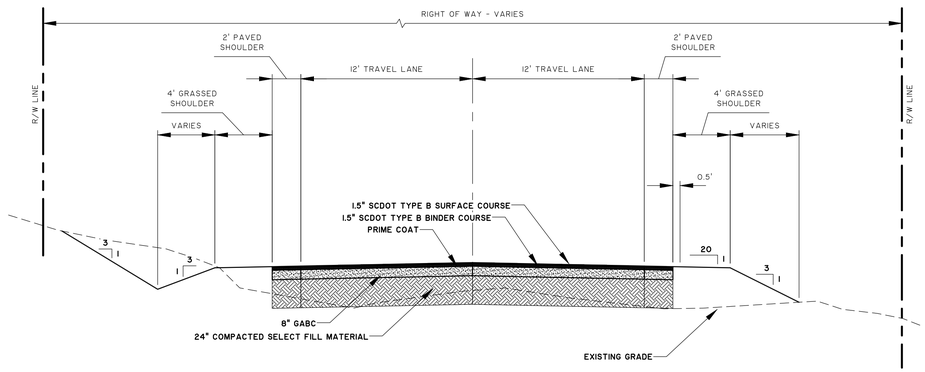
HEAVY DUTY PAVEMENT
US 701 WIDENING

NOT TO SCALE



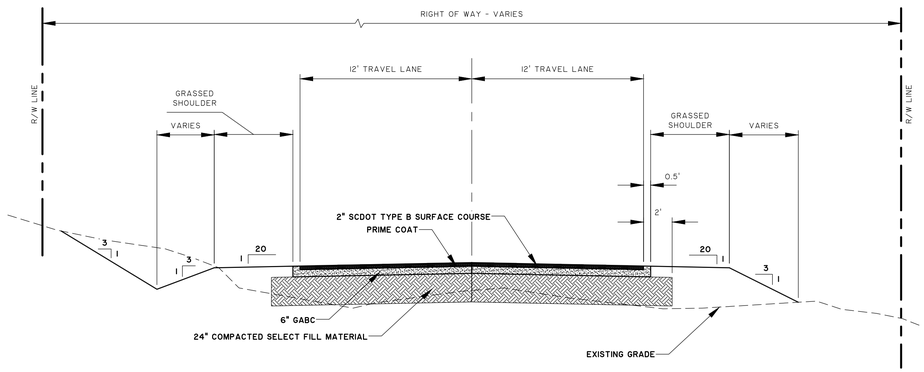
HEAVY DUTY PAVEMENT
STATIONS: 0+50 - 6+75, 25+50 - 90+00

NOT TO SCALE



HEAVY DUTY PAVEMENT
STATIONS: 15+25 - 25+50, 90+00 - 131+75

NOT TO SCALE



LIGHT DUTY PAVEMENT
SILT & CLAY SUBGADE SOILS
BUCKSPORT ROAD 0+00 - 5+75

NOT TO SCALE

NOTES:
1. SUBGRADE SHALL BE COMPACTED TO 95% BY MODIFIED PROCTOR.
2. GABC SHALL BE COMPACTED TO 100% BY MODIFIED PROCTOR.
3. ASPHALT CORES, DENSITIES AND GRADATION TO BE REQUIRED PER HORRY COUNTY ENGINEERING DEPARTMENT SPECIFICATIONS.
4. FINAL STANDARD PAVEMENT SECTION SUBJECT TO MODIFICATION BASED ON GEOTECHNICAL RECOMMENDATION.
5. SUBGRADE MATERIAL MUST BE APPROVED BY THE ENGINEER

NOLLEY THOMAS
NOTARY PUBLIC
SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION

CHRISTOPHER V. DAVIS
REGISTERED PROFESSIONAL ENGINEER
SOUTH CAROLINA
No. 29078
JAMES H. RICHARDSON
11/14/17

NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURNLANES ADDED	CCR	05/10/17
B	PER HORRY COUNTY	CVD	10/17/13
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

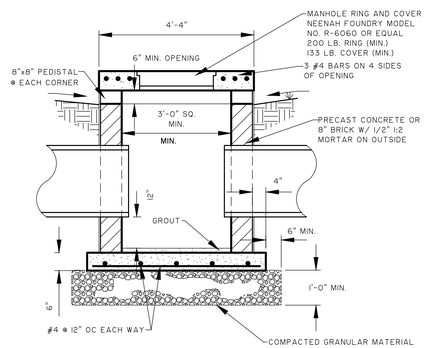
TYPICAL SECTIONS

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	NTS

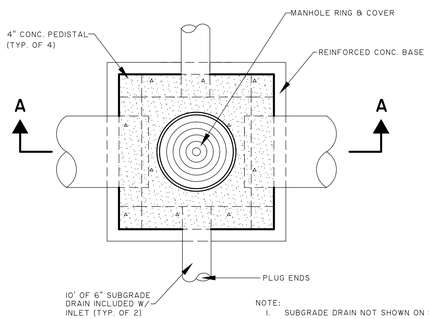
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SECTION A–A

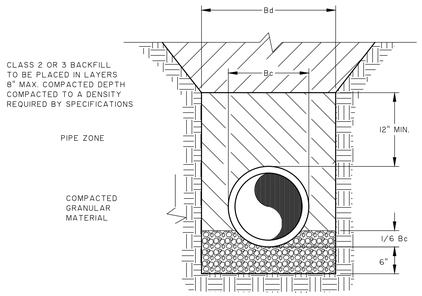


PLAN

NOTE:
1. SUBGRADE DRAIN NOT SHOWN ON SECTION FOR CLARITY.
2. REINFORCING NOT SHOWN ON PLAN FOR CLARITY

TYPE 9 INLET DETAIL

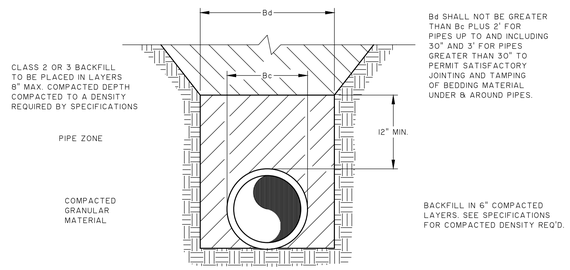
NOT TO SCALE



NOTE: TO BE USED WHEN REQUIRED BY THE ENGINEER

ALTERNATE STORM LINE BEDDING DETAIL

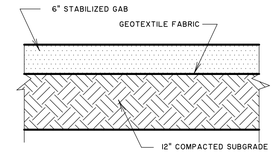
NOT TO SCALE



ALL STORM PIPE SHALL BE REINFORCED CONCRETE PIPE (RCP), CONFORMING TO ASTM C-76 CLASS III, UNLESS OTHERWISE NOTED.

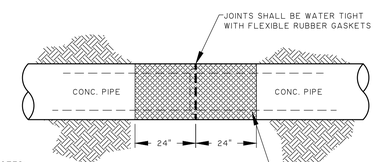
STORM LINE BEDDING DETAIL

NOT TO SCALE



GRAVEL ACCESS SECTION

NOT TO SCALE



NOTES:
1. INSTALLATION OF FILTER FABRIC AT JOINT- AFTER EACH SECTION IS JOINED UP, THE CONTRACTOR SHALL PLACE TWO (2) LAYERS OF FILTER FABRIC AROUND THE JOINT, A MINIMUM OF FOUR FEET WIDE, CENTERED ON THE JOINT.
2. FILTER FABRIC SHALL BE A NON-WOVEN HEAT-BONDED FIBER OF POLYPROPYLENE AND NYLON FILAMENTS EQUIVALENT TO MIRAFI 140 N.

CONCRETE PIPE JOINT DETAIL

NOT TO SCALE

STATE OF SOUTH CAROLINA — PROFESSIONAL ENGINEER — JOHN H. RICHARDSON — No. 23332 — CERTIFICATE OF AUTHORIZATION — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — NORTH CHARLESTON

11MAY17

NO.	BY	DATE
A	CVD	02/25/13
SUBMITTED FOR PERMITTING		
C	MDS	5/10/17
TURN LANE REVISIONS		

REVISIONS

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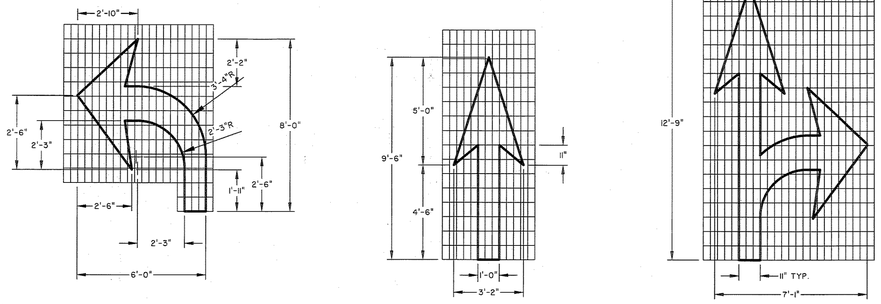
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

PAVING GRADING AND DRAINAGE DETAILS

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	AS SHOWN

C6.1



PAVEMENT ARROW DETAIL

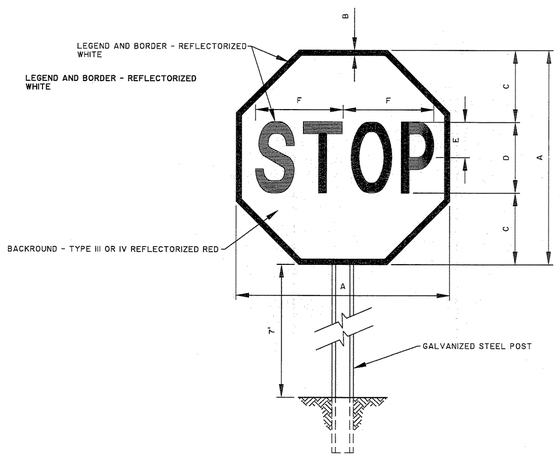
NOT TO SCALE



NOTE: STOP BAR SHALL BE PLACED 5' FROM EXISTING EDGE OF PAVEMENT AS SHOWN ON SITE PLAN

STOP BAR

NOT TO SCALE

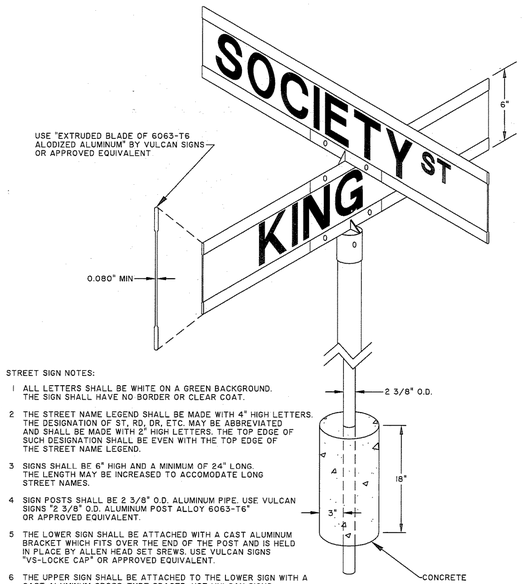


SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN.	30	3/4	10	10C	5	12.5

LETTER INDICATES STANDARD ALPHABET SERIES

STOP SIGN DETAIL

NOT TO SCALE



STREET SIGN NOTES:

1. ALL LETTERS SHALL BE WHITE ON A GREEN BACKGROUND. THE SIGN SHALL HAVE NO BORDER OR CLEAR COAT.
2. THE STREET NAME LEGEND SHALL BE MADE WITH 4" HIGH LETTERS. THE DESIGNATION OF ST, RD, DR, ETC. MAY BE ABBREVIATED AND SHALL BE MADE WITH 2" HIGH LETTERS. THE TOP EDGE OF SUCH DESIGNATION SHALL BE EVEN WITH THE TOP EDGE OF THE STREET NAME LEGEND.
3. SIGNS SHALL BE 6" HIGH AND A MINIMUM OF 24" LONG. THE LENGTH MAY BE INCREASED TO ACCOMODATE LONG STREET NAMES.
4. SIGN POSTS SHALL BE 2 3/8" O.D. ALUMINUM PIPE. USE VULCAN SIGNS "2 3/8" O.D. ALUMINUM POST ALLOY 6063-T6" OR APPROVED EQUIVALENT.
5. THE LOWER SIGN SHALL BE ATTACHED WITH A CAST ALUMINUM BRACKET WHICH FITS OVER THE END OF THE POST AND IS HELD IN PLACE BY ALLEN HEAD SET SREWS. USE VULCAN SIGNS "VS-LOCKE CAP" OR APPROVED EQUIVALENT.
6. THE UPPER SIGN SHALL BE ATTACHED TO THE LOWER SIGN WITH A CAST ALUMINUM CROSS-TYPE SPACER. USE VULCAN SIGNS "VS-LOCKE CROSS" OR APPROVED EQUIVALENT.
7. ALL SIGNS SHALL BE PLACED BETWEEN 6 AND 12 FEET FROM THE EDGE OF PAVEMENT.
8. ALL STREET SIGNS SHALL COMPLY WITH THE SOUTH CAROLINA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

STREET SIGN DETAIL

NOT TO SCALE



NOTES:

1. SEE "STOP SIGN DETAIL" FOR SIGN POST AND MOUNTING.

SPEED LIMIT SIGN DETAIL

NOT TO SCALE

NOTES:

1. SUBGRADE SHALL BE COMPACTED TO 95% MODIFIED PROCTOR.
2. GABC SHALL BE COMPACTED TO 100% MODIFIED PROCTOR.
3. ASPHALT CORES, DENSITIES AND GRADATION TO BE REQUIRED PER HORRY COUNTY ENGINEERING DEPARTMENT SPECIFICATIONS.
4. A MINIMUM OF 6" OF BASE COURSE SHALL BE PLACED UNDER ALL CURBING.
5. PROOF-ROLLING SHALL BE PERFORMED WITH A LOADED TANDEM AXLE DUMP TRUCK. WEIGHT TICKED SHOWING CURRENT LOAD COMING FROM A SC CERTIFIED SCALE MASTER MUST BE PROVIDED AT THE BEGINNING OF PROOF-ROLL INSPECTION. WEIGHT TICKET CANNOT HAVE BEEN ISSUED MORE THAN ONE HOUR PRIOR TO BEGINNING PROOF ROLL INSPECTION. GROSS VEHICLE WEIGHT SHALL BE NO LESS THAT 65,000 LBS. IN LIEU OF THIS REQUIREMENT CONTRACTOR MAY PROVIDE TANDEM DUMP TRUCK LOADED WITH GABC WITH ZERO FREEBOARD. LOAD MUST BE DUMPED ONSITE AT THE END OF THE PROOF ROLL FOR INSPECTION BY THE COUNTY INSPECTOR. ANY MATERIAL FOUND OTHER THAN GABC WILL RESULT IN AN INSPECTION FAILURE.

SOUTH CAROLINA — THOMAS B HUTTON ENGINEERING INC. No. C00286 — CERTIFICATE OF AUTHORIZATION — NOLTENIUS

SOUTH CAROLINA — REGISTERED PROFESSIONAL ENGINEER — JOHN H. RUSSELL — NUMBER 22603 — 10/17/13

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/15

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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

PAVING GRADING AND DRAINAGE DETAILS

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APPROVED:	JHR
SCALE:	AS SHOWN

C6.2

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STORMWATER POLLUTION PREVENTION PLAN

I. SITE DESCRIPTION

A. PROJECT DESCRIPTION

A.1.	PROJECT AREA	32.9 ACRES
A.2.	AREA DISTURBED	26.4 ACRES
A.3.	PERCENT IMPERVIOUS AREA BEFORE CONSTRUCTION	1.7 %
A.4.	RUNOFF COEFFICIENT BEFORE CONSTRUCTION	60 CN
A.5.	PERCENT IMPERVIOUS AREA AFTER CONSTRUCTION	28.0 %
A.6.	RUNOFF COEFFICIENT AFTER CONSTRUCTION	89 CN

B. DESCRIPTION OF CONSTRUCTION ACTIVITY

WORK CONSISTS OF CLEARING, GRADING, DRAINAGE IMPROVEMENTS, GRASSING, INSTALLATION OF ROADWAY AND BRIDGE

C. RUNOFF DATA

C.1.	SOIL CLASSIFICATIONS: (HSG)	A,B,C,D
C.2.	LAND USE(S):	ROADWAY - RURAL COLLECTOR

D. RECEIVING WATERS

D.1.	CLOSEST RECEIVING WATERS:	BULL CREEK
D.2.	ULTIMATE RECEIVING WATERS:	ICWW

E. FLOOD

E.1.	FEMA FLOOD ZONE(S):	A AND X
E.2.	FEMA FLOOD INSURANCE MAP(S):	45051C, PANELS 645 & 665

II. CONTROL MEASURES

1. EROSION AND SEDIMENT CONTROLS

PRIOR TO START OF CONSTRUCTION, ALL EXTERIOR SILT FENCE WILL BE INSTALLED AS SHOWN ON THE PLANS.

1.1. CLEARING

1.1.1. AS CLEARING IS COMPLETED, ADDITIONAL SILT FENCE WILL BE INSTALLED WHERE NECESSARY, SUCH AS POINTS WHERE FLOWS BECOME CHANNELIZED, AND OTHER POINTS WHERE EXCESSIVE RUNOFF VELOCITIES MAY OCCUR.
1.1.2. INSTALL CONSTRUCTION ENTRANCES / EXITS BEFORE BEGINNING CLEARING
1.1.3. CONSTRUCTION DELAYS IN ANY ONE AREA GREATER THAN 14 DAYS PRIOR TO START OF ROUGH GRADING WILL MANDATE STABILIZATION PROCEDURES. ACCEPTABLE METHODS OF STABILIZATION INCLUDE MULCHING AND TEMPORARY SEEDING.
1.1.4. MAINTAIN EXISTING VEGETATION WHENEVER POSSIBLE AND MINIMIZE THE AREA OF DISTURBANCE. RETAIN AND PROTECT TREES TO ENHANCE FUTURE LANDSCAPING EFFORTS AND REDUCE RAINDROP IMPACT.
1.1.5. INSTALL ALL SEDIMENT CONTROL PRACTICES PRIOR TO ANY UP-SLOPE SOIL DISTURBING ACTIVITIES.
1.1.6. PHASE CONSTRUCTION ACTIVITIES TO MINIMIZE THE AREAS DISTURBED AT ONE TIME. THIS WILL ALSO ALLOW COMPLETED AREAS TO BE STABILIZED AND REVEGETATED BEFORE DISTURBING ADJACENT SITES. THE NEED FOR TEMPORARY EROSION CONTROL MEASURES MAY BE AVOIDED BY COMPLETING A PHASE AND INSTALLING PERMANENT EROSION CONTROL MEASURES WHEN THE FINAL GRADE IS ATTAINED.
1.1.7. MAINTAIN AND PROTECT ALL NATURAL WATERWAYS. RETAIN AT LEAST A 35-FOOT UNDISTURBED BUFFER OF NATURAL VEGETATION ALONG ALL WATERWAYS TO FILTER OUT SEDIMENT AND OTHER POLLUTANTS. MAINTAIN A 45-FOOT UNDISTURBED BUFFER AROUND SENSITIVE WATERS.
1.1.8. INSTALL SILT FENCE (OR BIO ROLLS/ROCK SOCK PRODUCTS) ON THE DOWN-SLOPE PERIMETER OF ALL DISTURBED AREAS PRIOR TO ANY SOIL DISTURBING ACTIVITIES (INCLUDING CLEARING AND GRUBBING). SILT FENCE CAN TREAT A MAXIMUM OF 100 SQUARE FEET PER LINEAL FOOT OF FENCE. INSTALL SILT FENCE IN SHORTER REACHES ON THE CONTOUR WITH EACH END TURNED UP-SLOPE. SWALES AND SHORELAND AREAS SHOULD ALSO BE PROTECTED WITH SILT FENCE, BIO ROLLS, OR ROCK SOCKS.
1.1.9. IN AREAS OF CONCENTRATED FLOW INSTALL STRAW BALE CHECKS, ROCK CHECK DAMS, TRIANGULAR DIKES, BIO ROLL BLANKETS, OR ROCK SOCKS TO SLOW RUNOFF AND TRAP SEDIMENT.

1.1.10. USE TEMPORARY SLOPE DRAINS OR ROCK CHUTES TO MOVE WATER DOWN STEEP SLOPES.

1.1.11. CONSTRUCT SEDIMENT BASINS FOR DRAINAGE AREAS GREATER THAN 10 ACRES

1.2. ROUGH GRADING

1.2.1. ALL EXISTING CONTROLS WILL BE MAINTAINED DURING ROUGH GRADING, DELAYS OF GREATER THAN 14 DAYS PRIOR TO START OF NEXT ACTIVITY WILL MANDATE STABILIZATION PROCEDURES. ACCEPTABLE METHODS OF STABILIZATION INCLUDE MULCHING AND TEMPORARY SEEDING.
1.2.2. ALL AREAS NOT SUBJECT TO FURTHER CONSTRUCTION (DRAINAGE, SANITARY SEWER, ROADS, WATER DISTRIBUTION SYSTEMS, OR STORM WATER FACILITIES) SHALL BE GRASSED WITH A PERMANENT COVER.
1.2.3. COVER ANY STOCK PILED TOPSOIL WITH PLASTIC (OR OTHER IMPERVIOUS COVERING) OR USE A TEMPORARY SEED MIX. USE STOCKPILED TOPSOIL AS EARTHEN BERMS TO SERVE AS TEMPORARY SEDIMENT BASINS.

1.3. DRAINAGE

1.3.1. ALL EXISTING CONTROLS WILL BE MAINTAINED DURING DRAINAGE INSTALLATION.
1.3.2. CONSTRUCTION DRAINAGE WILL BE ROUTED THROUGH LAKES, WHICH WILL ACT AS SEDIMENT BASINS OR OTHER ACCEPTABLE SEDIMENT BASINS/TRAPS.
1.3.3. STORM DRAIN INLET PROTECTION AS SHOWN ON DETAIL SHEET SHALL BE INSTALLED ON ALL CURB INLETS, STORM DRAIN MANHOLES, JUNCTION BOXES, AND GRATE INLETS.
1.3.4. DELAYS OF GREATER THAN 14 DAYS PRIOR TO START OF THE NEXT CONSTRUCTION SEQUENCE WILL MANDATE STABILIZATION PROCEDURES. ACCEPTABLE METHODS OF STABILIZATION INCLUDE MULCHING AND TEMPORARY SEEDING.
1.3.5. ALL STORM LINES NOT IN STREETS OR OTHER PAVED AREAS ARE TO BE MULCHED AND SEEDED WITHIN 5 DAYS AFTER BACKFILL.

1.4. WASTE DISTRIBUTION SYSTEM INSTALLATION

1.4.1. ALL EXISTING CONTROLS WILL BE MAINTAINED DURING INSTALLATION OF THE WATER DISTRIBUTION SYSTEM.
1.4.2. DELAYS OF GREATER THAN 14 DAYS PRIOR TO START OF NEXT ACTIVITY WILL MANDATE STABILIZATION PROCEDURES. ACCEPTABLE METHODS OF STABILIZATION INCLUDE MULCHING AND TEMPORARY SEEDING.

1.5. WASTEWATER COLLECTION SYSTEM INSTALLATION

1.5.1. ALL EXISTING CONTROLS WILL BE MAINTAINED DURING INSTALLATION OF THE WASTEWATER SYSTEM.
1.5.2. DELAYS OF GREATER THAN 14 DAYS PRIOR TO START OF NEXT ACTIVITY WILL MANDATE STABILIZATION PROCEDURES. ACCEPTABLE METHODS OF STABILIZATION INCLUDE MULCHING AND TEMPORARY SEEDING.

1.6. CONSTRUCTION OF ROADS

1.6.1. ALL EXISTING CONTROLS WILL BE MAINTAINED DURING ROAD CONSTRUCTION.
1.6.2. DELAYS OF GREATER THAN 14 DAYS PRIOR TO START OF NEXT ACTIVITY WILL MANDATE STABILIZATION PROCEDURES. ACCEPTABLE METHODS OF STABILIZATION INCLUDE MULCHING AND TEMPORARY SEEDING.

1.7. GRASSING

1.7.1. ALL EXISTING CONTROLS WILL BE MAINTAINED UNTIL GRASSING IS ESTABLISHED
1.7.2. ANY AREAS THAT ERODE OR WHERE GRASS DOES NOT ESTABLISH ITSELF SHALL BE RE-GRADED AND RE-GRASSED.

2. STORM WATER MANAGEMENT

RUNOFF FROM THIS PROJECT WILL DISCHARGE INTO A STORM WATER MANAGEMENT SYSTEM. TREATMENT WILL OCCUR IN STORM WATER DETENTION PONDS.

3. OTHER CONTROLS

3.1. WASTE DISPOSAL

3.1.1. NO SOLID MATERIALS, INCLUDING BUILDING MATERIALS, SHALL BE DISCHARGED TO ANY RECEIVING WATERS.
3.1.2. OFFSITE VEHICLE TRACKING OF SEDIMENTS AND THE GENERATION OF DUST SHALL BE MINIMIZED.
3.1.3. THIS PLAN SHALL COMPLY WITH STATE AND/OR LOCAL WASTE DISPOSAL, SANITARY SEWER OR SEPTIC SYSTEM REGULATIONS.
3.1.4. DUST CONTROL ON DISTURBED AREAS - CONTROLLING SURFACE AND AIR MOVEMENT OF DUST ON CONSTRUCTION SITE AND HAUL ROUTES. THE PURPOSE OF THE MEASURE IS TO REDUCE THE PRESENCE OF AIRBORNE SUBSTANCES, WHICH MAY BE HARMFUL OR INJURIOUS TO HUMAN HEALTH, WELFARE OR SAFETY, OR TO ANIMALS OR PLANT LIFE.

III. MAINTENANCE

1. MAINTENANCE PROGRAM

1.1. THE SITE SUPERINTENDENT, OR HIS/HER REPRESENTATIVE, SHALL MAKE VISUAL INSPECTIONS OF ALL MECHANICAL CONTROLS AND NEWLY STABILIZED AREAS (I.E. SEEDED AND MULCHED AND/OR SODDED AREAS) ON A DAILY BASIS; ESPECIALLY AFTER HEAVY RAINFALL EVENT TO INSURE THAT ALL CONTROLS ARE MAINTAINED AND PROPERLY FUNCTIONING. ANY DAMAGED CONTROLS SHALL BE REPAIRED PRIOR TO THE END OF THE WORK DAY INCLUDING RE-SEEDING AND MULCHING OR RE-SODDING IF NECESSARY.

1.2. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSIONAL AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE. ALL DRAINAGE SWALES, POCKETS, DEPRESSION, LOW LINES, AND OUTLET DITCHES SHALL DRAIN EFFECTIVELY AT ALL TIMES. SETTLEMENT OR WASHING THAT MAY OCCUR SHALL BE REPAIRED BY THE CONTRACTOR. SEDIMENT WILL BE REMOVED FROM BEHIND THE SEDIMENT FENCE WHEN IT REACHES 1/3 THE HEIGHT OF THE FENCE. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN AN EFFECTIVE BARRIER. MAINTAIN THE CONSTRUCTION EXIT IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS. RESEED AND MULCH AREA WHERE SEEDING EMERGENCE IS POOR, OR WHERE EROSION OCCURS. PROTECT FROM TRAFFIC AS MUCH AS POSSIBLE. INSPECT ALL MULCHES PERIODICALLY, AND AFTER RAINSTORMS TO CHECK FOR EROSION, DISLOCATION OR FAILURE. IF WASHOUT OCCURS, REPAIR THE SLOPE GRADE, RESEED AND REINSTALL MULCH. FOLLOW THE CONSTRUCTION SEQUENCE THROUGHOUT THE PROJECT DEVELOPMENT. WHEN CHANGES IN CONSTRUCTION ACTIVITIES ARE NEEDED, AMEND THE SEQUENCE SCHEDULE IN ADVANCE TO MAINTAIN MANAGEMENT CONTROL. IF MAJOR CHANGES ARE NECESSARY, SEND A COPY OF THE MODIFIED SCHEDULE TO THE ENGINEER. SEDIMENT AND EROSION CONTROL MEASURES WILL REMAIN IN PLACE AND BE MAINTAINED UNTIL THE DISTURBED AREAS ARE STABILIZED.

2. SILT FENCE

SILT FENCES WILL BE MONITORED DURING CONSTRUCTION. ANY SILT FENCE WHICH IS NOT FUNCTIONING PROPERLY WILL BE PROMPTLY REPAIRED. CLEAN OUT THE SILT FENCE WHEN IT REACHES 1/3 THE HEIGHT OF THE FENCE OR REPLACE WITH FUNCTIONAL SILT FENCE WITHIN 24 HOURS. USE OF HOSES AND WATER TO FLUSH THE SEDIMENT INTO THE STORM INLETS IS UNACCEPTABLE.

3. SEDIMENTATION BASINS

SEDIMENTATION BASINS WHICH ARE AT 50% USED CAPACITY OR APPROACHING SUCH CAPACITY SHALL BE RE-EXCAVATED TO ORIGINAL DIMENSIONS AND THE SILT PROPERLY DISPOSED OF.

4. SEDIMENT LOGS/ROLLS

SEDIMENT LOGS/ROLLS OR OTHER CONTROL MEASURES WHICH BEGIN TO DISINTEGRATE OR FUNCTION INEFFECTIVELY SHALL BE PROMPTLY REPLACED.

5. VEGETATION COVER

ANY VEGETATION COVER SERVING TO STABILIZE DISTURBED SOILS WHICH IS ITSELF DISTURBED SHALL IMMEDIATELY BE REPLACED.

6. CONSTRUCTION ENTRANCE

MAINTAIN ROCK CONSTRUCTION ENTRANCE AND CLEAN ADJACENT ROADS OF ANY MUD TRACKED ONTO THEM.

IV. INSPECTIONS

1. QUALIFIED PERSONNEL WILL INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE, AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION THAT HAVE NOT BEEN FINALLY STABILIZED, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE AT LEAST ONCE EVERY SEVEN CALENDAR DAYS. WHERE SITES HAVE BEEN FINALLY STABILIZED SUCH INSPECTIONS SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH DURING THE WARRANTY PERIOD.

2. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATERS. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFFSITE SEDIMENT TRACKING.

3. A WRITTEN REPORT SUMMARIZING THE SCOPE OF THE INSPECTION, NAME(S) AND QUALIFICATIONS OF PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, WEATHER INFORMATION FOR THE PERIOD SINCE THE LAST INSPECTION (OR SINCE COMMENCEMENT OF CONSTRUCTION ACTIVITY) INCLUDING A BEST ESTIMATE OF THE BEGINNING OF EACH STORM EVENT, DURATION OF EACH STORM EVENT, APPROXIMATE AMOUNT OF RAINFALL FOR EACH STORM EVENT (IN INCHES) AND WHETHER ANY DISCHARGES OCCURRED, LOCATION(S) OF DISCHARGES OF SEDIMENT OR OTHER POLLUTANTS FROM THE SITE, LOCATION(S) OF BMP'S THAT NEED MAINTENANCE, LOCATION(S) OF BMP'S THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, LOCATION(S) WHERE ADDITIONAL BMP'S ARE NEEDED THAT DID NOT EXIST AT THE TIME OF INSPECTION AND ANY CORRECTIVE ACTION REQUIRED INCLUDING ANY CHANGES TO SWPPP NECESSARY AND IMPLEMENTATION DATES.

4. THE REPORT SHALL BE MAINTAINED AT LEAST THREE YEARS FROM THE DATE THE SITE IS FINALLY STABILIZED. THE REPORT MUST BE SIGNED AND SHALL CONTAIN A CERTIFICATION THAT THE FACILITY IS IN COMPLIANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN AND THE NPDES PERMIT REFERENCED ABOVE. THE CONTRACTOR SHALL MAINTAIN THIS REPORT. THE REPORT SHALL BE SUBMITTED TO THE ENGINEER AND OWNER.

V. LONG GERM MAINTENANCE OF DRAINAGE AND STORM WATER MANAGEMENT SYSTEM

THE ROADS AND DRAINAGE SYSTEM WILL BE OWNED AND MAINTAINED BY HORRY COUNTY AFTER CONSTRUCTION IS COMPLETE.

VI. SC DHEC STANDARD NOTES

1. IF NECESSARY, SLOPES WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO GRASSING / HYDROSEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.

2. STABILIZATION MEASURES SHALL 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 FOURTEEN (14) DAYS AFTER WORK HAS CEASED, EXCEPT AS STATED BELOW:

2.1. WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.
2.2. WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.

3. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY CALENDAR WEEK. IF SITE INSPECTIONS IDENTIFY BMP'S THAT ARE DAMAGED OR ARE NOT OPERATING EFFECTIVELY, MAINTENANCE MUST BE PERFORMED AS SOON AS PRACTICAL OR AS REASONABLY POSSIBLE BEFORE THE NEXT STORM EVENT WHENEVER PRACTICAL.

4. PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE ANY SEDIMENTS BEFORE BEING PUMPED INTO ANY WATERS OF THE STATE.

5. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.

6. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO THE PAVED ROADWAY FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT AS MAY BE REQUIRED.

7. RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURE AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING CONSTRUCTION OR OBTAIN APPROVAL OF AN INDIVIDUAL PLAN IN ACCORDANCE WITH S.C. REG. 72-300 AND SCR100000.

8. TEMPORARY DIVERSION BERMS AND/OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.

9. ALL WATERS OF THE STATE (WOS), INCLUDING WETLANDS, ARE TO BE FLAGGED OR OTHERWISE CLEARLY MARKED IN THE FIELD. A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS WHERE A 50-FOOT BUFFER CAN NOT BE MAINTAINED BETWEEN THE DISTURBED AREA AND ALL WOS. A 10-FOOT BUFFER SHOULD BE MAINTAINED BETWEEN THE LAST ROW OF SILT FENCE AND ALL WOS

10. LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.

11. A COPY OF THE SWPPP, INSPECTION RECORDS AND RAINFALL DATA MUST BE RETAINED AT THE CONSTRUCTION SITE OR A NEARBY LOCATION EASILY ACCESSIBLE DURING NORMAL BUSINESS HOURS, FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE DATE THAT FINAL STABILIZATION IS REACHED.

12. INITIATE STABILIZATION MEASURES ON ANY EXPOSED STEEP SLOPE (3H:1V OR GREATER) WHERE LAND DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED, AND WILL NOT RESUME FOR A PERIOD OF 7 CALENDAR DAYS.

13. MINIMIZE SOIL COMPACTION IN AREAS NOT UNDER PAVEMENTS AND /OR STRUCTURES AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.

14. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER AND OTHER WASH WATERS. WASH WATERS MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL THAT PROVIDES EQUAL OR BETTER TREATMENT PRIOR TO DISCHARGE.

15. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM DEWATERING OF TRENCHES AND EXCAVATED AREAS. THESE DISCHARGES ARE TO BE ROUTED THROUGH APPROPRIATE BMPS (SEDIMENT BASIN, FILTER BAG, ETC.).

16. THE FOLLOWING DISCHARGES ARE PROHIBITED:

16.1. WASTEWATER FROM WASHOUT OF CONCRETE, UNLESS MANAGED BY AN APPROPRIATE CONTROL;
16.2. WASTEWATER FROM WASHOUT AND CLEANOUT OF OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS;
16.3. FUELS, OILS OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE; AND
16.4. SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING.

17. AFTER CONSTRUCTION ACTIVITIES BEGIN, INSPECTIONS MUST BE CONDUCTED AT A MINIMUM OF AT LEAST ONCE EVERY CALENDAR WEEK AND MUST BE CONDUCTED UNTIL FINAL STABILIZATION IS REACHED ON ALL AREAS OF THE CONSTRUCTION SITE.

18. IF EXISTING BMPS NEED TO BE MODIFIED OR IF ADDITIONAL BMPS ARE NECESSARY TO COMPLY WITH THE REQUIREMENTS OF PERMIT SCR100000 AND/OR SCS WATER QUALITY STANDARDS, IMPLEMENTATION MUST BE COMPLETED BEFORE THE NEXT STORM EVENT WHENEVER PRACTICABLE. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICABLE, THE SITUATION MUST BE DOCUMENTED IN THE SWPPP AND ALTERNATIVE BMPS MUST BE IMPLEMENTED AS SOON AS REASONABLY POSSIBLE.

19. A PRE-CONSTRUCTION CONFERENCE MUST BE HELD FOR EACH CONSTRUCTION SITE WITH AN APPROVED ON-SITE SWPPP PRIOR TO THE IMPLEMENTATION OF CONSTRUCTION ACTIVITIES. FOR NON-LINEAR PROJECTS THAT DISTURB 10 ACRES OR MORE, THIS CONFERENCE MUST BE HELD ON-SITE UNLESS THE DEPARTMENT HAS APPROVED OTHERWISE.

VII. EROSION, SEDIMENTATION & POLLUTION CONTROL NOTES

1. THE IMPLEMENTATION OF THESE EROSION SEDIMENT CONTROL (ESC) PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.

2. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.

3. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT LEAVE THE SITE.

4. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.

5. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 24 HOURS FOLLOWING A MAJOR STORM EVENT.

6. AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING AND PRIOR TO FINAL INSPECTION. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.

7. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

8. BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY, THE EXISTING STORM WATER INLET(S) THAT RECEIVING RUNOFF FROM THE PROPOSED WORK AREA SHALL BE PROTECTED. THE TEMPORARY INLET PROTECTION MUST REMAIN IN PLACE UNTIL THE CONSTRUCTION ACTIVITY IS COMPLETED, THE STREET HAS BEEN SWEPT AND ANY EXPOSED SOILS ARE STABILIZED. THE CONTRACTOR IS ALSO RESPONSIBLE FOR REMOVING ANY TEMPORARY INLET PROTECTION INSTALLED; AFTER ALL DISTURBED AREAS ARE STABILIZED. TEMPORARY PROTECTION OF THE INLETS MAY BE ACCOMPLISHED BY ONE OR MORE OF THE FOLLOWING:

8.1. USE OF GRAVEL BAGS TO FILTER THE SEDIMENT FROM ANY RUNOFF. TO MAKE A GRAVEL BAG, USE A BAG MADE OF GEOTEXTILE FABRIC (NOT BURLAP) AND FILL WITH EITHER 3/4 INCH ROCK OR 1/4 INCH PEA GRAVEL.
8.2. USE OF SEDIMENT LOGS TO FILTER THE SEDIMENT FROM ANY RUNOFF (AVAILABLE THROUGH LOCAL EROSION CONTROL SUPPLIERS).
8.3. USE OF ABOVE OR UNDER-GRATE FILTER BAGS OR DEVICES TO FILTER THE SEDIMENT FROM ANY RUNOFF (AVAILABLE THROUGH EROSION CONTROL SUPPLIERS).

9. WATER MAY NOT BE DISCHARGED IN A MANNER THAT CAUSES EROSION, SEDIMENTATION, OR FLOODING ON THE SITE, ON DOWNSTREAM PROPERTIES, IN THE RECEIVING CHANNELS, OR IN ANY STORM WATER INLET. WHEN SITE DEWATERING, WATER PUMPED FROM THE SITE, INCLUDING TRENCHES, SHALL BE TREATED BY ONE OF THE FOLLOWING:

9.1. TEMPORARY SEDIMENTATION BASINS
9.2. SEDIMENT FILTERING BAGS

10. THE CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL EXISTING UTILITIES. EXISTING UTILITIES ARE ALL UTILITIES THAT EXIST ON THE PROJECT IN AN ORIGINAL, RELOCATED OR NEWLY INSTALLED POSITION. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE COST OF REPAIRS TO DAMAGED UNDERGROUND OR OVERHEAD FACILITIES, EVEN IF THE UTILITY IS NOT SHOWN ON THE SITE DEVELOPMENT PLANS. THE CONTRACTOR SHALL CONTACT THE LOCAL UTILITIES PROTECTION CENTER TO COORDINATE THE MARKING OF EXISTING UTILITY LINES A MINIMUM OF 96 HOURS PRIOR TO COMMENCEMENT OF ANY WORK.

11. THE CONTRACTOR SHALL FLUSH ALL INLETS AND PIPE AT THE COMPLETION OF CONSTRUCTION TO REMOVE SILT AND DEBRIS. THE CLEANING AND FLUSHING OF INLETS AND PIPE (EXISTING AND PROPOSED) SHALL BE CONSIDERED PART OF THE COST FOR THE PROJECT.

12. EGRESS FROM THE SITE SHALL BE CONTROLLED SUCH THAT VEHICLES LEAVING THE SITE MUST TRAVERSE CONSTRUCTION EXITS TO REMOVE MUD FROM TIRES.

13. SCHEDULE CONSTRUCTION ACTIVITIES TO MINIMIZE THE EXPOSED AREA AND DURATION OF EXPOSURE. IN SCHEDULING, TAKE INTO ACCOUNT THE SEASON AND THE WEATHER FORECAST.

14. EROSION CONTROL MEASURES ARE THE MINIMUM REQUIRED. THE CONTRACTOR SHALL PROVIDE ADDITIONAL CONTROL MEASURES AS DICTATED BY ACTUAL FIELD CONDITIONS AT THE TIME OF CONSTRUCTION IN ORDER TO PREVENT EROSION AND CONTROL SEDIMENT. EROSION AND SEDIMENT CONTROL MEASURES WILL REMAIN IN PLACE AND BE MAINTAINED UNTIL THE ENTIRE PROJECT IS TERMINATED OR SUSPENDED FOR AND INDEFINITE LENGTH OF TIME, ALL DISTURBED AREAS SHALL BE PLANTED WITH PERMANENT VEGETATION.

15. THE DATA, TOGETHER WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS, OR IN ANY WAY INDICATED THEREBY, WHETHER BY DRAWINGS OR NOTES, OR IN ANY OTHER MANNER, IS BASED UPON FIELD INVESTIGATIONS AND IS BELIEVED TO BE INDICATIVE OF ACTUAL CONDITIONS. HOWEVER, THE SAME IS SHOWN AS INFORMATION ONLY, IS NOT GUARANTEED AND DOES NOT BIND THOMAS & HUTTON, OR THE OWNER IN ANY WAY.

16. CONTRACTOR SHALL MAINTAIN SITE ON A DAILY BASIS TO PROVIDE FOR POSITIVE DRAINAGE. CONTRACTOR, AT HIS COST, SHALL GRADE SITE AND PROVIDE NECESSARY TEMPORARY DRAINAGE SWALES TO INSURE STORM WATER DOES NOT POND ON SITE.

17. SITE DRAINAGE SHALL BE ESTABLISHED TO PREVENT ANY PONDED WATER CONDITIONS WITHIN THE CONSTRUCTION AREA AND TO FACILITATE STORM WATER DISCHARGE.

18. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND DISTURBING ACTIVITIES.

19. LIME RATES AND ANALYSIS:

19.1. AGRICULTURAL LIME SHALL BE APPLIED AT THE RATE SHOWN IN THE SEEDING SECTION UNLESS SOIL TESTS INDICATE OTHERWISE. GRADED AREAS REQUIRE LIME APPLICATION. IF LIME IS APPLIED WITHIN SIX MONTHS OF PLANTING PERMANENT PEREN

STORM WATER POLLUTION PREVENTION PLAN

TEMPORARY SEEDING - COASTAL

SPECIES	LABS/AC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SANDY, DROUGHTY SITES													
BROWNTOP MILLET	40												
RYE, GRAIN	56												
RYEGRASS	50												
WELL DRAINED, CLAYEY/LOAMEY SITES													
BROWNTOP MILLET	40												
JAPANESE MILLET	40												
RYE, GRAIN	56												
OATS	75												
RYEGRASS	50												

PERMANENT SEEDING - COASTAL

SPECIES	LABS/AC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SANDY, DROUGHTY SITES													
BROWNTOP MILLET	10												
BAHIAGRASS	40												
BROWNTOP MILLET	10												
BAHIAGRASS	30												
SERICEA LESPEDEZA	40												
BROWNTOP MILLET	10												
ATLANTIC COASTAL	15												
PANICGRASS	PLS												
BROWNTOP MILLET	10												
SWITCHGRASS	8												
(ALAMO)	PLS												
LITTLE BLUESTEM	4												
SERICEA LESPEDEZA	20												
BROWNTOP MILLET	10												
WEEPING LOVEGRASS	8												
WELL DRAINED, CLAYEY/LOAMEY SITES													
BROWNTOP MILLET	10												
BAHIAGRASS	40												
RYE, GRAIN	10												
BAHIAGRASS	40												
CLOVER, CRIMSON (ANNUAL)	5												
BROWNTOP MILLET	10												
BAHIAGRASS	30												
SERICEA LESPEDEZA	40												
BROWNTOP MILLET	10												
BERMUDA, COMMON	10												
SERICEA LESPEDEZA	40												
BROWNTOP MILLET	10												
BERMUDA, COMMON	12												
KOBE LESPEDEZA (ANNUAL)	10												
BROWNTOP MILLET	10												
BAHIAGRASS	20												
BERMUDA, COMMON	6												
SERICEA LESPEDEZA	40												
BROWNTOP MILLET	10												
SWITCHGRASS	8												
LITTLE BLUESTEM	PLS												
INDIANGRASS	3												

NOTES:

ALL PERMANENT GRASS PLANTINGS SHALL BE MULCHED

1. CENTIPEDE SOD CAN BE USED AS PERMANENT COVER ANYTIME EXCEPT JUNE THRU OCTOBER
2. IF GRASSING OCCURS DURING A MONTH REQUIRING TEMPORARY COVER, THE CONTRACTOR SHALL APPLY PERMANENT COVER (IN ADDITION TO THE TEMPORARY COVER) AT THE APPROPRIATE TIME AT NO ADDITIONAL COST. THE CONTRACTOR MUST ACHIEVE A STRAND OF PERMANENT GRASS WITH AT LEAST 95% COVER. BARE SPOTS CAN NOT BE MORE THAN 1 INCH SQUARE IN ANY 10 SF.

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
SILT FENCE	
CLEARING LIMITS	CL
DIVERSION DIKE	DD
DIVERSION BERM	DB
TEMPORARY DIVERSION	TD
PERMANENT DIVERSION	PD
SUBSURFACE DRAIN	SSD
VEGETATED CHANNEL	
RIP RAP LINED CHANNEL	
ECB OR TRM LINED CHANNEL	
PAVED CHANNEL	PC
TREE PROTECTION	
SURFACE ROUGHENING	OR LG
TOP SOILING	
TEMPORARY SEEDING	TS
PERMANENT SEEDING	PS

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
MULCHING	M
EROSION CONTROL BLANKET OR TURF REINFORCEMENT MAT	
FLEXIBLE GROWTH MATRIX	FGM
BONDED FIBER MATRIX	BFM
SODDING	SO
SLOPED SODDING	
STAKED SOD	
STAKED SOD AROUND INLET	OR
RIPRAP	
OUTLET PROTECTION - RIP RAP	
OUTLET PROTECTION - ECB OR TRM	
DUST CONTROL	DC
POLYACRYLAMIDE (PAM)	PAM
SEDIMENT BASIN	
SEDIMENT BASIN WITH SKIMMER	
SEDIMENT TRAP	

EROSION CONTROL LEGEND

DESCRIPTION	PLAN SYMBOL
ROCK SEDIMENT DIKE	
SEDIMENT TUBE	
ROCK CHECK DAM	OR
POROUS BAFFLE	
GRAVEL CONSTRUCTION ENTRANCE	
STORM DRAIN INLET PROTECTION - TYPE A FILTER FABRIC	A
STORM DRAIN INLET PROTECTION - TYPE A SEDIMENT TUBE	A
STORM DRAIN INLET PROTECTION - TYPE B HARDWARE FABRIC AND STONE	B
STORM DRAIN INLET PROTECTION - TYPE C BLOCK AND GRAVEL	C
STORM DRAIN INLET PROTECTION - TYPE D RIGID INLET FILTER	D
STORM DRAIN INLET PROTECTION - TYPE E SURFACE COURSE CURB INLET FILTER	E
STORM DRAIN INLET PROTECTION - TYPE F INLET TUBE	F
STORM DRAIN INLET PROTECTION - TYPE G IMPERVIOUS AREA	G
PIPE SLOPE DRAINS	
TEMPORARY STREAM CROSSING	
LEVEL SPREADER	

CONSTRUCTION SEQUENCE

	CONSTRUCTION ACTIVITY	SCHEDULE CONSIDERATION
1	OBTAIN COPIES OF ALL PLAN APPROVALS AND OTHER APPLICABLE PERMITS.	CONTRACTOR TO HAVE ONSITE AT ALL TIMES DURING CONSTRUCTION.
2	FLAG THE WORK LIMITS AND BARRICADE TREES AND MARK BUFFER AREAS FOR PROTECTION.	HAVE LOCAL REGULATORY AGENCY INSPECT TREE BARRICADES.
3	HOLD PRE CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION.	REVIEW TREE PROTECTION (BARRICADE) WITH OWNER AND LOCAL REGULATORY AGENCY. TAKE PICTURES OF ALL PROTECTED TREES AND LOCATIONS WHERE SITE WORK TIES INTO EXISTING TO DOCUMENT PREDEVELOPMENT PROCEDURES.
4	INSTALL CONSTRUCTION ACCESS AND LAY DOWN AREAS	STABILIZE BARE AREAS IMMEDIATELY AND INSTALL CONSTRUCTION EXITS / ENTRANCES.
5	CONSTRUCT SEDIMENT TRAPS AND BARRIERS - BASIN TRAPS, SEDIMENT FENCES, AND OUTLET PROTECTION.	INSTALL PRINCIPAL BASINS AFTER CONSTRUCTION SITE IS ACCESSED. INSTALL ADDITIONAL TRAPS AND BARRIERS AS NEEDED DURING GRADING.
6	ESTABLISH RUNOFF CONTROL - DIVERSIONS, PERIMETER DIKES, WATER BARS, AND OUTLET PROTECTION.	INSTALL KEY PRACTICES AFTER PRINCIPAL SEDIMENT TRAPS AND BEFORE LAND GRADING. INSTALL ADDITIONAL RUNOFF-CONTROL MEASURES DURING GRADING.
7	LAND CLEARING AND GRADING-SITE PREPARATION CUTTING, FILLING AND GRADING, SEDIMENTATION TRAPS, BARRIERS, DIVERSIONS, DRAINS, SURFACE ROUGHENING.	BEGIN MAJOR CLEARING AND GRADING AFTER PRINCIPAL SEDIMENT AND KEY RUNOFF-CONTROL MEASURES ARE INSTALLED. CLEAR BORROW AND DISPOSAL AREAS ONLY AS NEEDED. INSTALL ADDITIONAL CONTROL MEASURES AS GRADING PROGRESSES. MARK TREES AND BUFFER AREAS FOR PRESERVATION.
8	RUNOFF CONVEYANCE SYSTEM- INSTALL STORM DRAINS, STABILIZE BANKS, CHANNELS, INSTALL INLET AND OUTLET PROTECTION, SLOPE DRAINS.	WHERE NECESSARY, STABILIZE BANKS AS EARLY AS POSSIBLE. INSTALL PRINCIPAL RUNOFF CONVEYANCE SYSTEM WITH RUNOFF- CONTROL MEASURES. INSTALL REMAINDER OF SYSTEM AFTER GRADING.
9	INSTALL WASTEWATER COLLECTION, WATER DISTRIBUTION, AND STORM DRAINAGE SYSTEMS	APPLY TEMPORARY OR PERMANENT STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS WHERE WORK IS DELAYED OR COMPLETE.
10	SURFACE STABILIZATION-TEMPORARY AND PERMANENT SEEDING, MULCHING, SODDING, RIP RAP.	APPLY TEMPORARY OR PERMANENT STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS WHERE WORK IS DELAYED OR COMPLETE.
11	BUILDING CONSTRUCTION- BUILDINGS UTILITIES, ROADS, ETC.	INSTALL NECESSARY EROSION AND SEDIMENTATION CONTROL PRACTICES AS WORK TAKES PLACE.
12	LANDSCAPING AND FINAL STABILIZATION - TOPSOILING, TREES AND SHRUBS, PERMANENT SEEDING, MULCHING, SODDING, RIP RAP.	LAST CONSTRUCTION PHASE--STABILIZE ALL OPEN AREAS, INCLUDING BORROW AND SPOIL AREAS. REMOVE AND STABILIZE ALL TEMPORARY CONTROL MEASURES.

LIST OF ACRONYMS FOR SEDIMENT AND EROSION CONTROL

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AMD	ACRYLAMIDE POLYMER
BFM	BONDED FIBER MATRIX
BMP(S)	BEST MANAGEMENT PRACTICE(S)
CFS	CUBIC FEET PER SECOND
CMP	CORRUGATED METAL PIPE
DHEC	DEPARTMENT OF HEATH AND ENVIRONMENTAL CONTROL
ECB	EROSION CONTROL BLANKET
EPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
EPSC	EROSION PREVENTION AND SEDIMENTATION CONTROL
FDA	UNITED STATES FOOD AND DRUG ADMINISTRATION
FGM	FLEXIBLE GROWTH MATRIX
HDPE	HIGH DENSITY POLYETHYLENE
MS4	MUNICIPAL SEPARATE STORM SEWER SYSTEM
MSDS	MATERIAL SAFETY DATA SHEETS
NPDES	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
PAM	POLYACRYLAMIDE OR POLYMER
RCP	REINFORCED CONCRETE PIPE
SCS	SOIL CONSERVATION SERVICE
SWPPP	STORMWATER POLLUTION PREVENTION PROGRAM
TRM	TURF REINFORCEMENT MAT
VFS	VEGETATED FILTER STRIP

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SOUTH CAROLINA REGISTERED LANDSCAPE ARCHITECT — JOHN H. RUSSELL — 1004

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

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HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

EROSION CONTROL NOTES

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	NA

EC.2



EC.3

JOB NO:	23332.0000
DATE:	10/17/16
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 30'

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

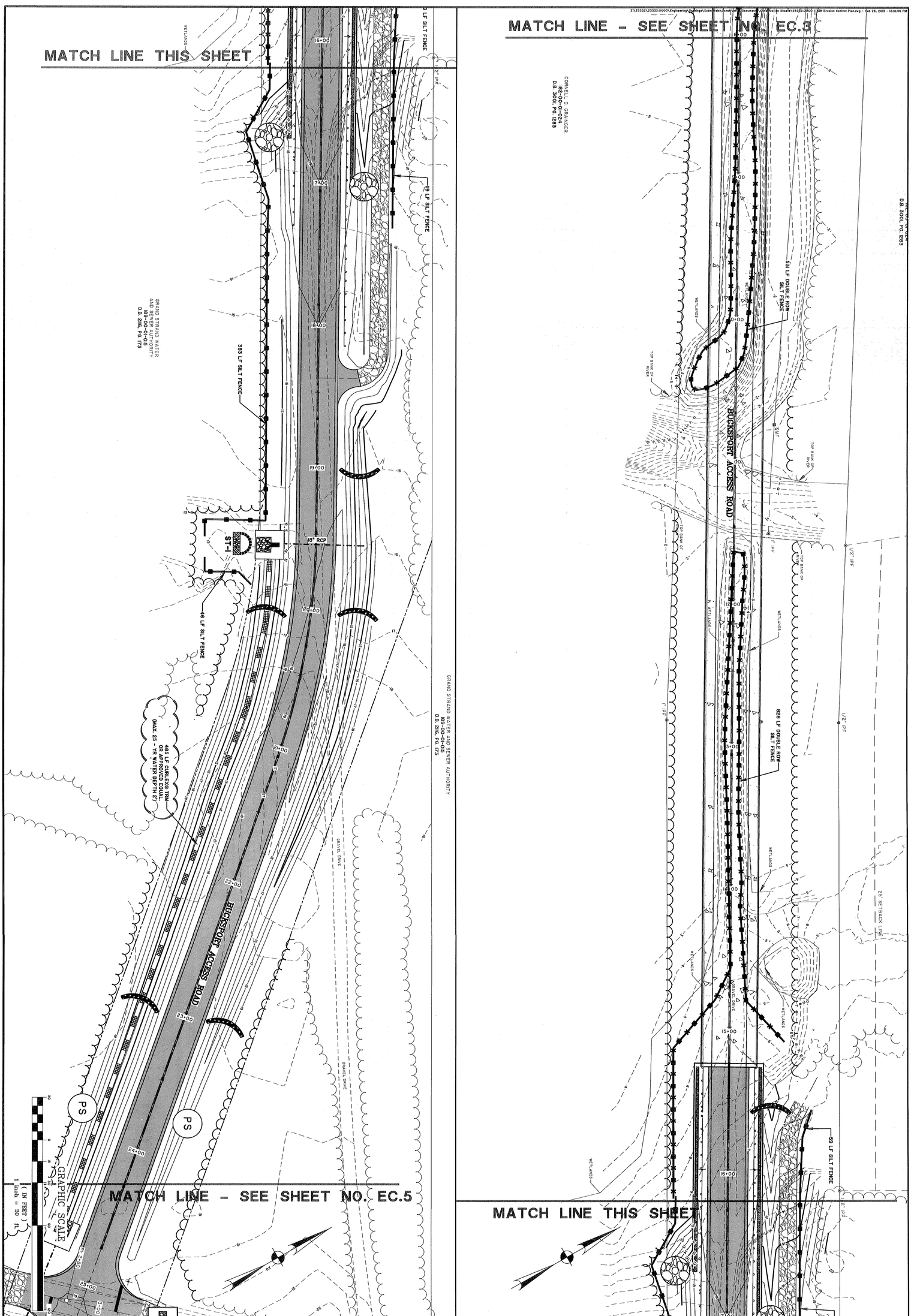
SOIL EROSION CONTROL PLAN

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C	HIGHWAY 701 TURLANES ADDED	CCR	05/10/17
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA — 30270 — JOHN H. RICHARDS — 11/14/17

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. No. C00285 — CERTIFICATE OF AUTHORIZATION



EC.4

JOB NO:	J-23332.0000
DATE:	10/17/13
DESIGNED:	CVD
DRAWN:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 30'

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HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

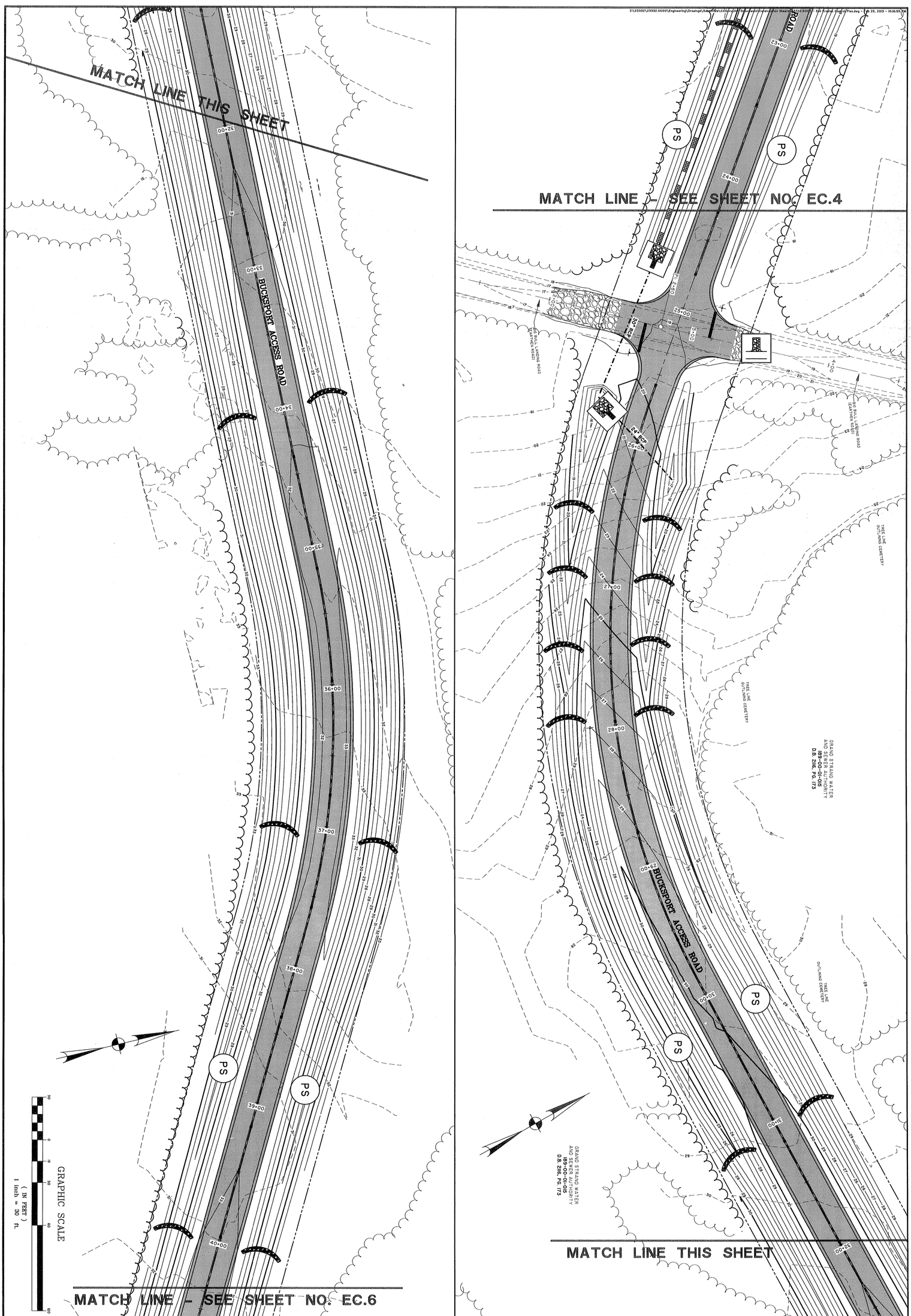
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NO.	REVISIONS	BY	DATE
B	ADDED TRM TO SWALE	CVD	6/6/13
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA PROFESSIONAL ENGINEER
JOHN H. RICHARDS
10613

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THOMAS & HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION



EC.5

JOB NO:	J-23352.0000
DATE:	10/17/13
DESIGNED:	CVD
DRAWN:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 30'

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NEW BUCKSPORT ACCESS ROAD

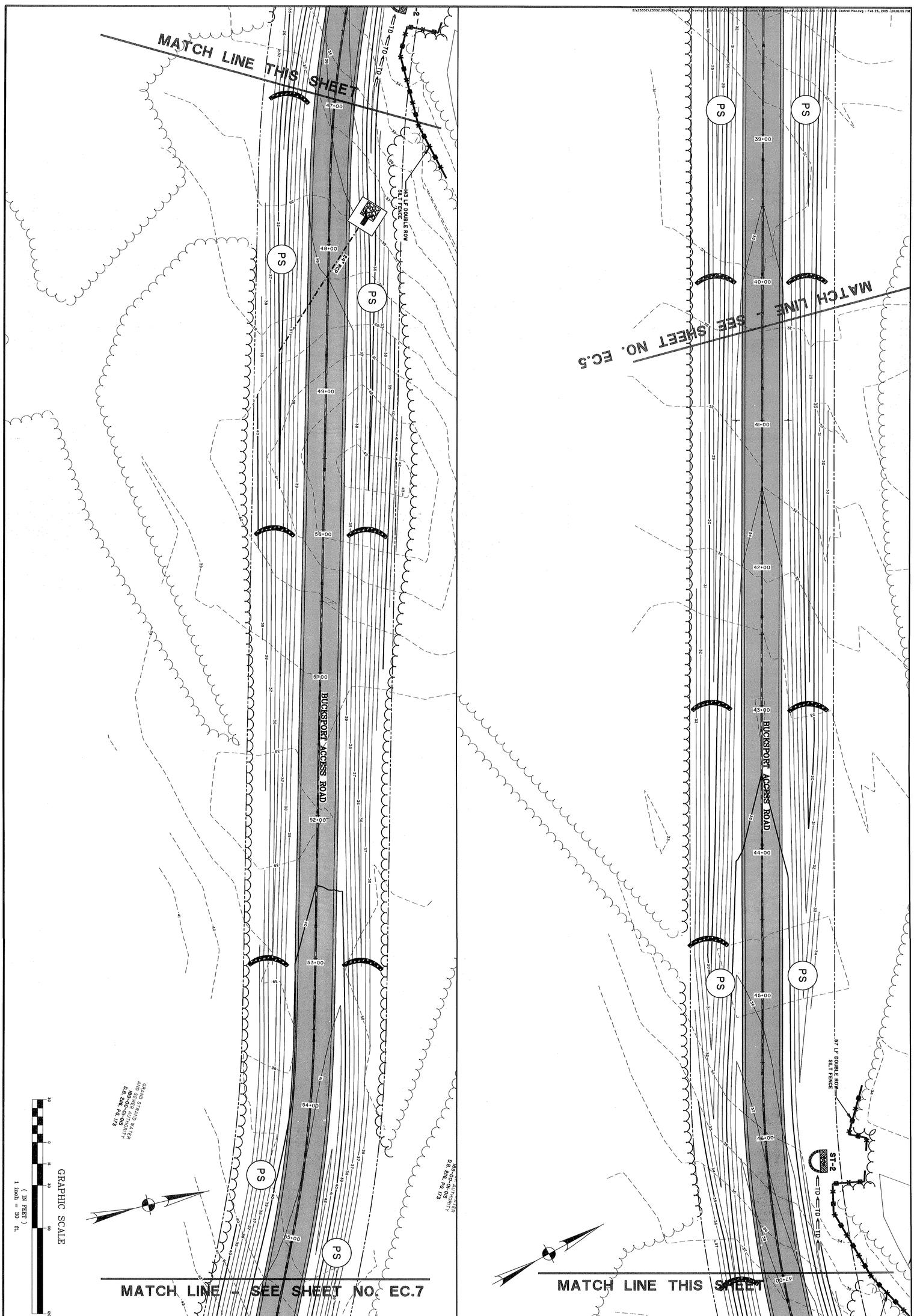
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A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA PROFESSIONAL ENGINEER
JOHN H. RICHARDS
10013

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SOUTH CAROLINA
No. C00285
CERTIFICATE OF AUTHORIZATION



EC.6

JOB NO:	J-23332.0000
DATE:	02/17/13
DRAWN BY:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 30'

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NEW BUCKSPORT ACCESS ROAD

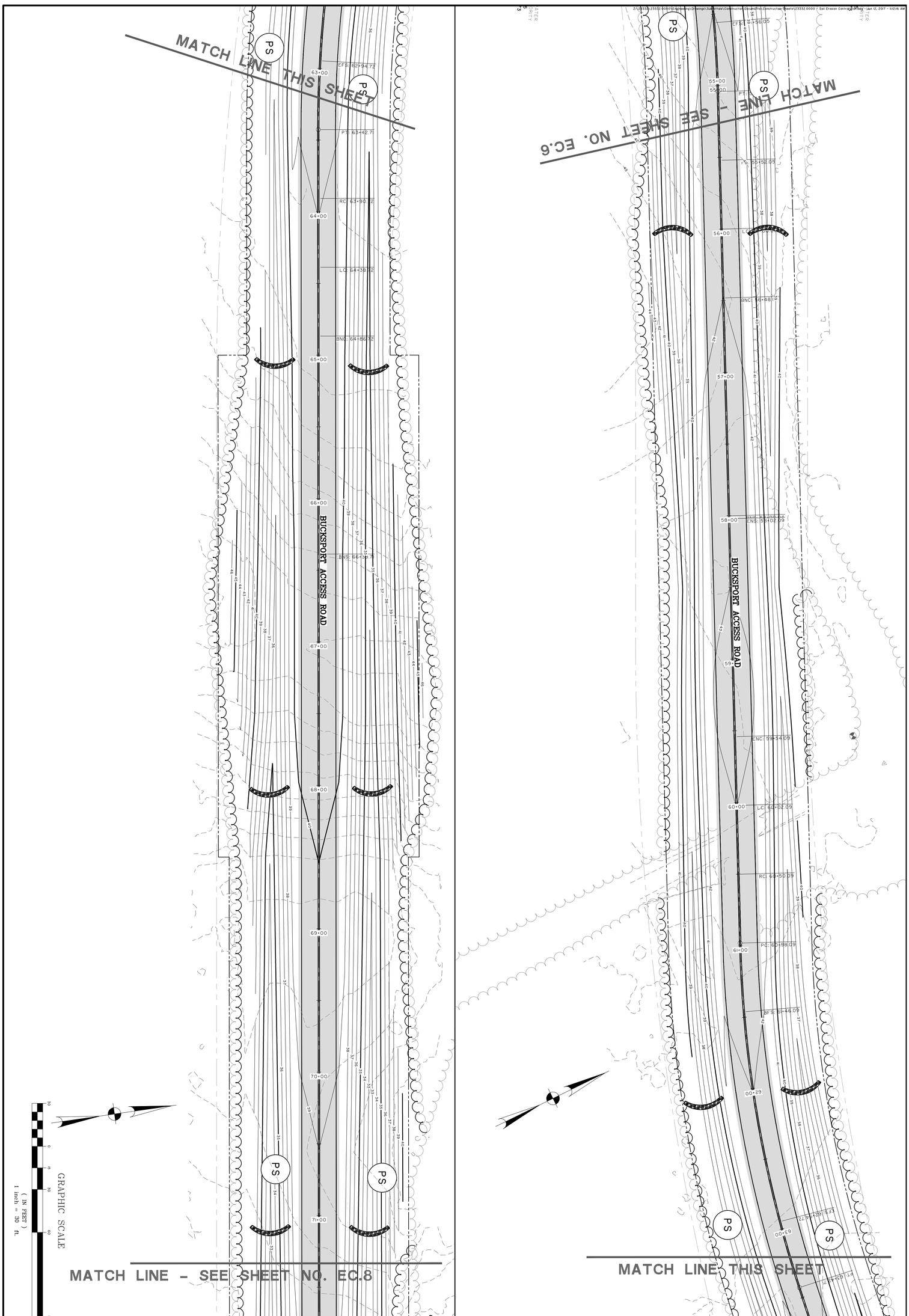
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A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 25701 JOHN H. RICHARDS
2/28/13

SOUTH CAROLINA THOMAS & HUTTON ENGINEERING CO. No. C00285 CERTIFICATE OF AUTHORIZATION



EC.7

JOB NO:	25332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	MBB
APPROVED:	JHR
SCALE:	1" = 30'

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

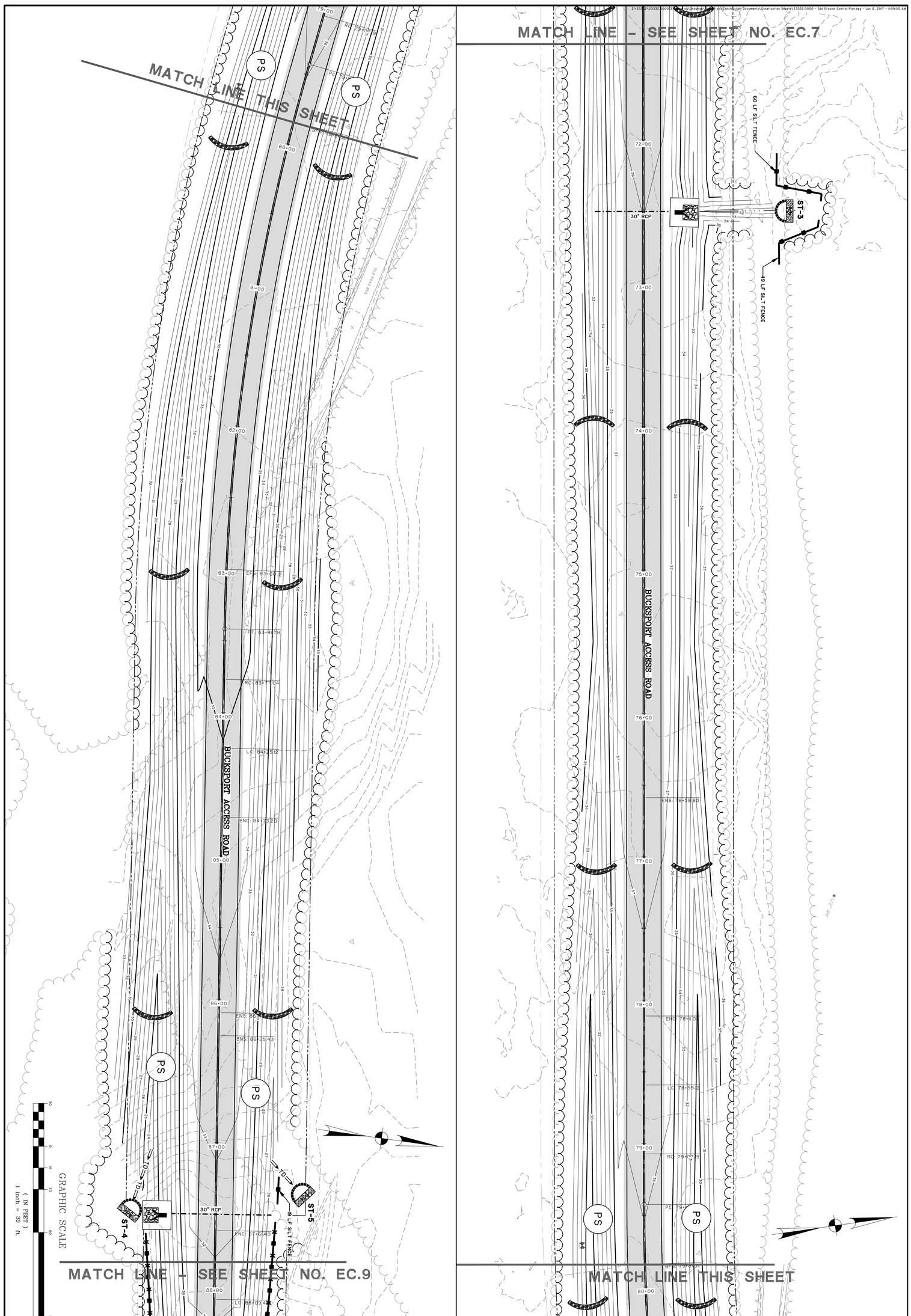
SOIL EROSION CONTROL PLAN

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D	REVISED ROW	MBB	06/12/17
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA
LICENSED PROFESSIONAL ENGINEER
No. 24070
JOHN H. RICHARDS
12Jun17

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00285
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EC.8

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HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

SOIL EROSION CONTROL PLAN

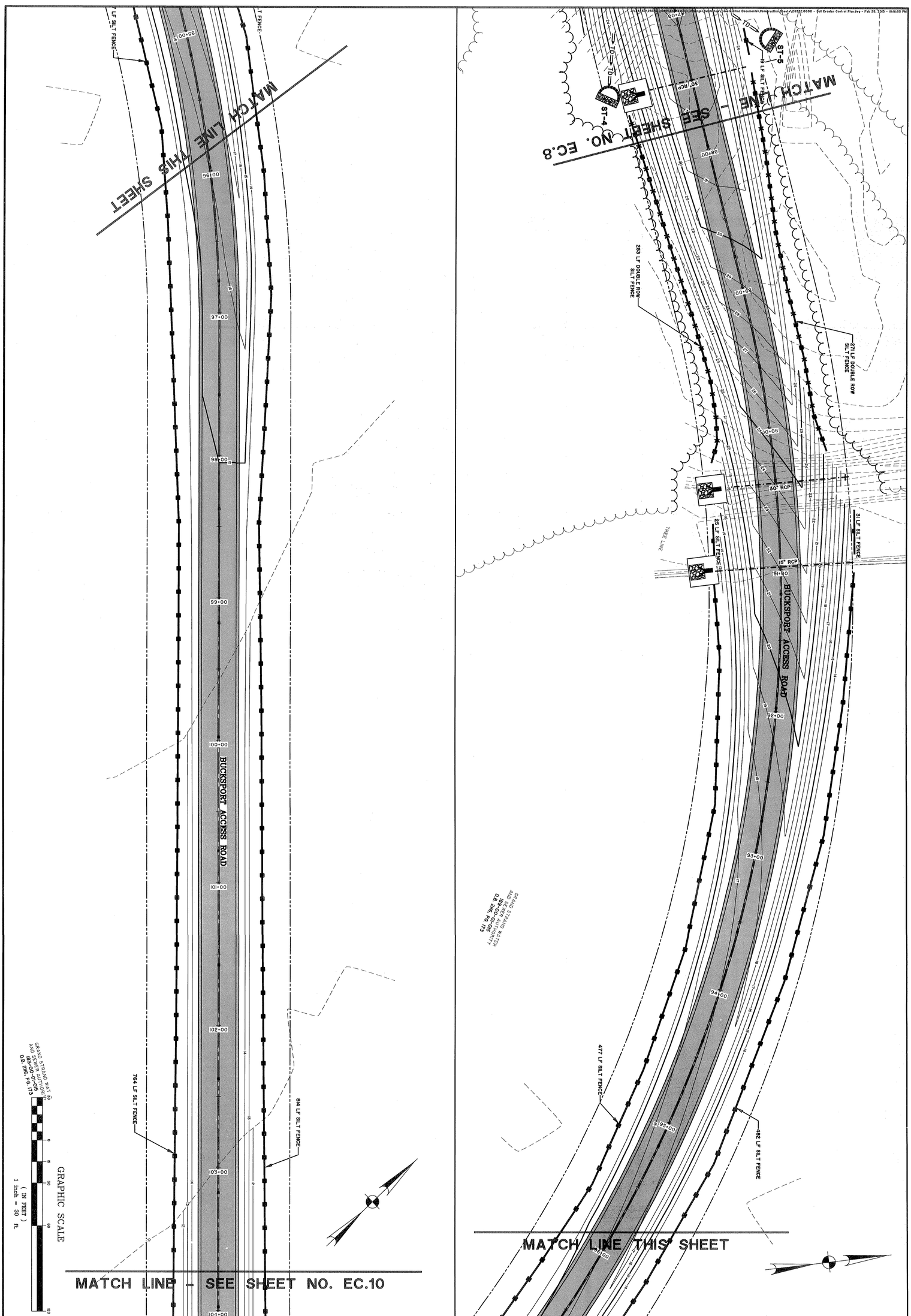
DESIGN NO:	23532.0000
DATE:	10/17/16
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	MBB
APPROVED:	JHR
SCALE:	1" = 30'

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D	REVISED ROW	MBB	06/12/17
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

SOUTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
No. 20270
JOHN H. RICHARDS
12/20/17

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THOMAS & HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION



EC.9

JOB NO:	J-23352.0000
DATE:	10/17/13
DESIGNED:	CVD
DRAWN:	CVD
REVIEWED:	JNR
APPROVED:	JNR
SCALE:	1" = 30'

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HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

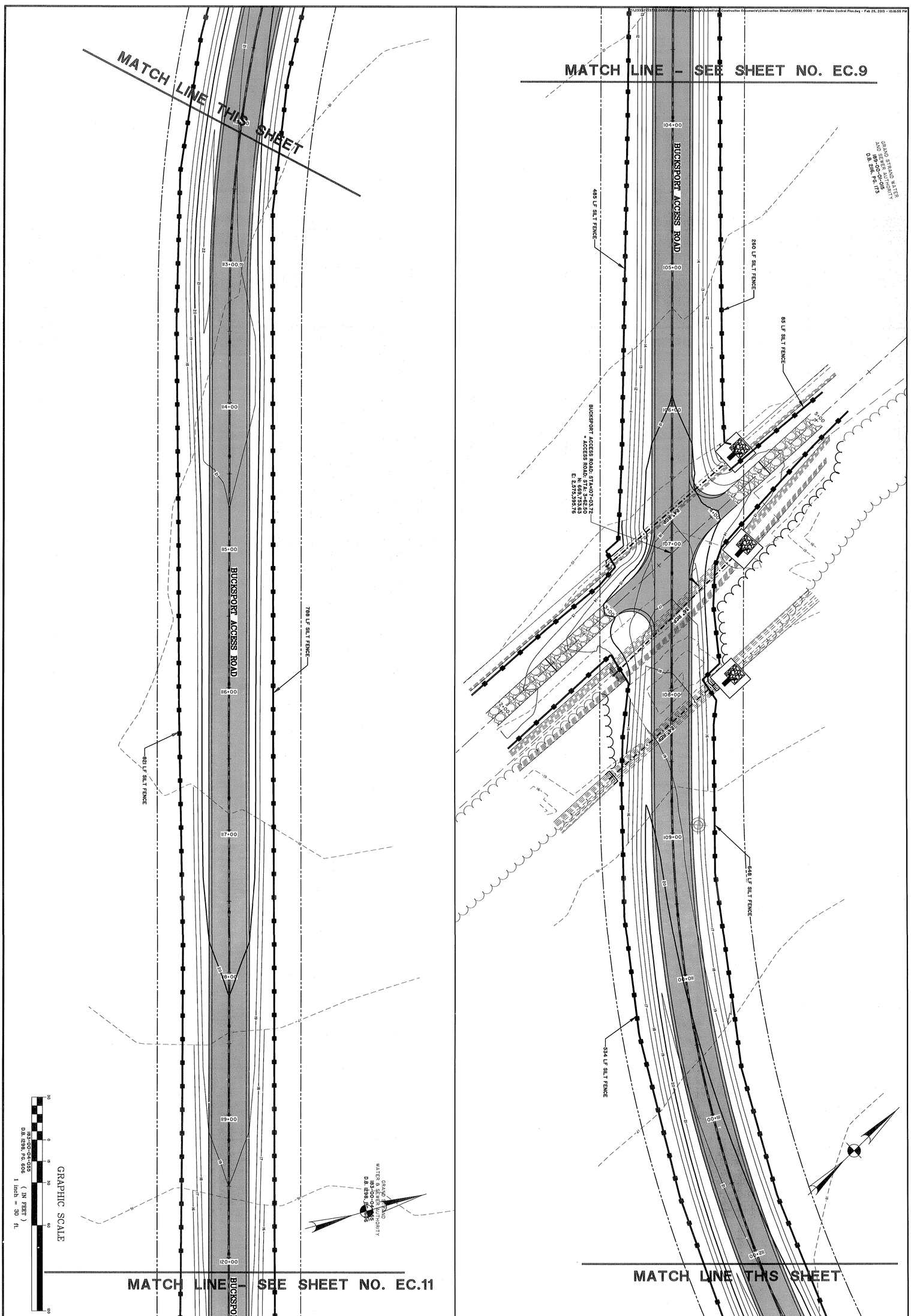
SOIL EROSION CONTROL PLAN

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SOUTH CAROLINA PROFESSIONAL ENGINEER JOHN H. RICHARDS 24010 2/25/13

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EC.10

JOB NO: J-23332.0000
DATE: 10/17/13
DRAWN BY: CVD
DESIGNED: CVD
REVIEWED: JHR
APPROVED: JHR
SCALE: 1" = 30'

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NEW BUCKSPORT ACCESS ROAD

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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
JOHN H. RICHARDS
2070
2/26/13

THOMAS & HUTTON ENGINEERING CO.
SOUTH CAROLINA
No. COA285
CERTIFICATE OF AUTHORIZATION

MATCH LINE THIS SHEET

MATCH LINE – SEE SHEET NO. EC.12

MATCH LINE – SEE SHEET NO. EC.10

GRAND STRAND WATER & SEWER AUTHORITY
183-00-04-055
D.B. 1298, PG. 606

BUCKSPORT ACCESS ROAD

657 LF SILT FENCE

675 LF SILT FENCE

39 LF SILT FENCE

24 LF SILT FENCE

24" RCP

64 LF SILT FENCE

45 LF SILT FENCE

83 LF SILT FENCE

36" RCP

EX. 18" RCP

EX. 36" RCP

CEMETARY ROAD

SIDEWALK

MATCH LINE THIS SHEET

MATCH LINE – SEE SHEET NO. EC.12

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.

SOUTH CAROLINA PROFESSIONAL ENGINEER
JOHN H. RUSSELL, IV
No. 27176
CERTIFICATE OF AUTHORIZATION
THOMAS & HUTTON ENGINEERING CO.
No. C002269
NOLLYWOOD
SOUTH CAROLINA
2/25/13

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A		CVD	02/25/13

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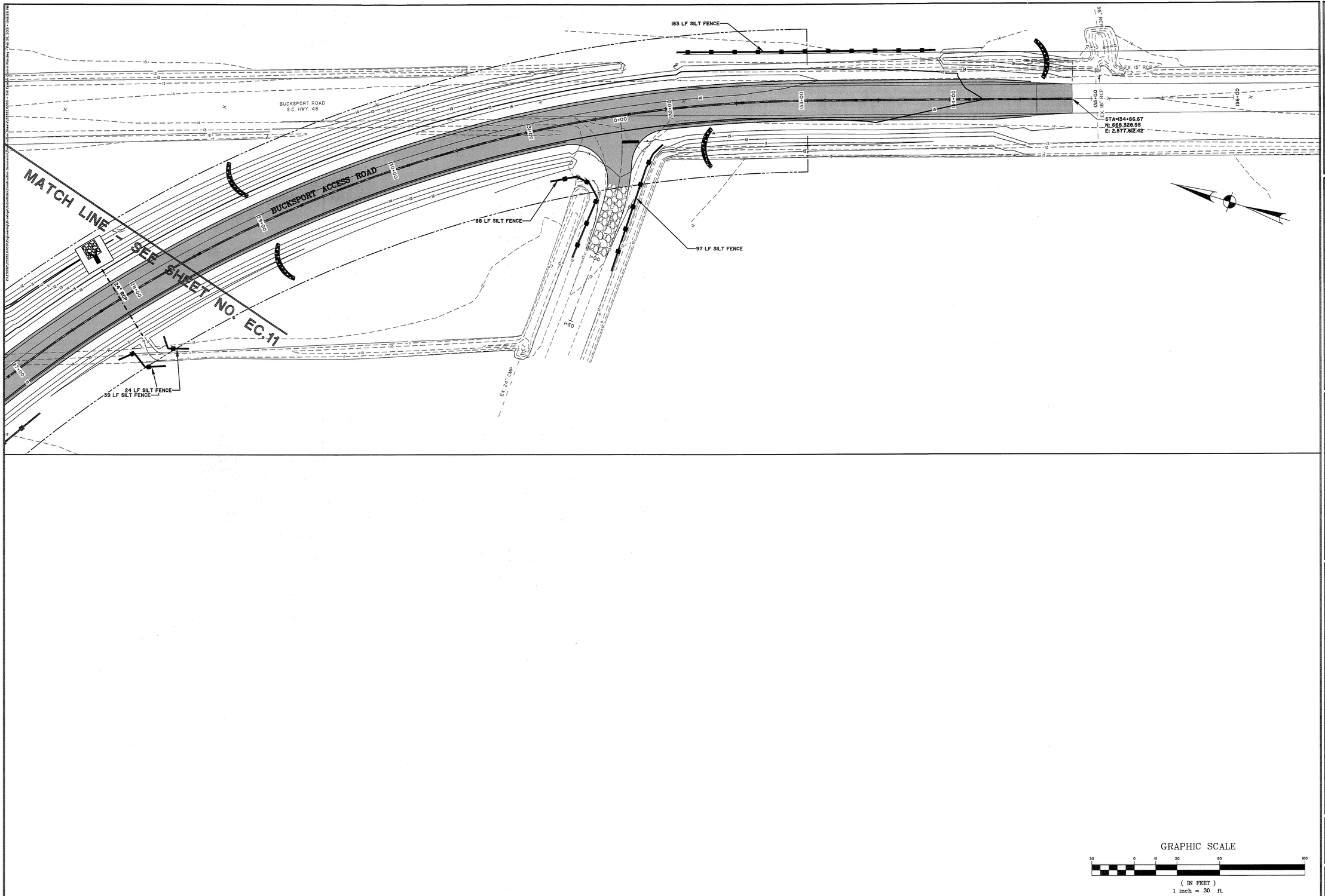
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HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

SOIL EROSION CONTROL PLAN

JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 30'

EC.11



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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SOUTH CAROLINA PROFESSIONAL ENGINEER JOHN H. RICHARDS

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NEW BUCKSPORT ACCESS ROAD

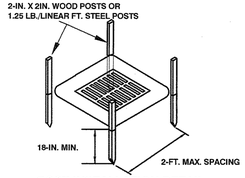
SOIL EROSION CONTROL PLAN

JOB NO:	J-23332.0000
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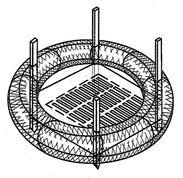
EC.12

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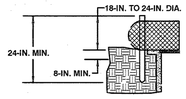
STORMWATER POLLUTION PREVENTION PLAN



POST INSTALLATION DETAIL



SEDIMENT TUBE INSTALLATION DETAIL



SEDIMENT TUBE BURIAL DETAIL

MATERIALS:
SEDIMENT TUBES FOR TYPE A INLET STRUCTURE FILTERS EXHIBIT THE FOLLOWING PROPERTIES:
PRODUCED BY A MANUFACTURER EXPERIENCED IN SEDIMENT TUBE MANUFACTURING.
COMPOSED OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBERS, HARDWOOD MULCH OR A MIX OF THESE MATERIALS ENCLOSED BY A FLEXIBLE NETTING MATERIAL.
STRAW, STRAW FIBER, STRAW BALES, PINE NEEDLES, AND LEAF MULCH ARE NOT ALLOWED UNDER THIS SPECIFICATION.
UTILIZES OUTER NETTING THAT CONSISTS OF SEAMLESS, HIGH-DENSITY POLYETHYLENE PHOTODEGRADABLE MATERIALS TREATED WITH ULTRAVIOLET STABILIZERS OR A SEAMLESS, HIGH-DENSITY POLYETHYLENE NON-DEGRADABLE MATERIALS.
DIAMETER RANGING FROM 18-INCHES TO 24-INCHES.
CURLED EXCELSIOR WOOD, OR NATURAL COCONUT ROLLED EROSION CONTROL PRODUCTS (RECPS) THAT ARE ROLLED UP TO CREATE A SEDIMENT TUBE ARE NOT ALLOWED UNDER THIS SPECIFICATION. SELECT APPLICABLE SEDIMENT TUBES FROM THE SCDOT APPROVED PRODUCTS LIST.

USE 48-INCH LONG WOOD POSTS THAT MEET THE FOLLOWING REQUIREMENTS:
2-INCH BY 2-INCH SIZE.
HEAVY-DUTY WIRE STAPLES AT LEAST 1½-INCH LONG, SPACED A MAXIMUM OF 6-INCHES APART TO ATTACH THE FILTER FABRIC TO WOODEN STAKES.

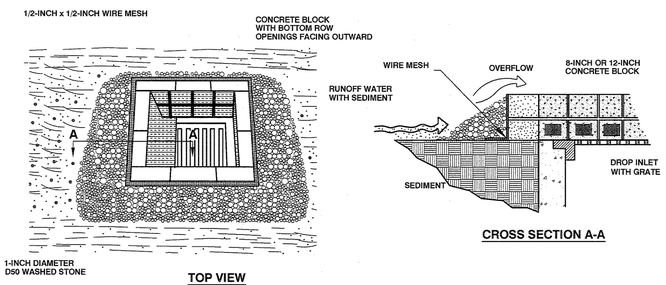
USE 48-INCH LONG STEEL POSTS THAT MEET THE FOLLOWING MINIMUM PHYSICAL REQUIREMENTS:
BE COMPOSED OF HIGH STRENGTH STEEL WITH MINIMUM YIELD STRENGTH OF 50,000 PSI.
HAVE A STANDARD "T" SECTION WITH A NOMINAL FACE WIDTH OF 1.38-INCHES AND NOMINAL "T" LENGTH OF 1.48-INCHES.
WEIGH 1.25 POUNDS PER FOOT (± 8%).
BE PAINTED WITH A WATER BASED BAKED ENAMEL PAINT.

INSTALLATION:
REMOVE ALL ROCKS, CLODS, VEGETATION OR OTHER OBSTRUCTIONS SO INSTALLED SEDIMENT TUBES HAVE DIRECT CONTACT WITH THE UNDERLYING SOIL OR SURFACE. INSTALL SEDIMENT TUBES BY LAYING THEM FLAT ON THE GROUND. CONSTRUCT A SMALL TRENCH TO A DEPTH THAT IS 20% OF THE SEDIMENT TUBE DIAMETER. LAY THE SEDIMENT TUBE IN THE TRENCH AND COMPACT THE UPSTREAM SEDIMENT TUBE SOIL INTERFACE. DO NOT COMPLETELY BURY SEDIMENT TUBES DURING INSTALLATION. LAP THE ENDS OF ADJACENT SEDIMENT TUBES A MINIMUM OF 6-INCHES TO PREVENT FLOW AND SEDIMENT FROM PASSING THROUGH THE FIELD JOINT. NEVER STACK SEDIMENT TUBES ON TOP OF ONE ANOTHER. SEDIMENT TUBES USING WOODEN STAKES (2-INCH X 2-INCH) OR STEEL POSTS (STANDARD "U" OR "T" SECTIONS WITH A MINIMUM WEIGHT OF 1.25 POUNDS PER FOOT) A MINIMUM OF 48-INCHES IN LENGTH PLACED ON 2-FOOT CENTERS. INTERTWINE THE STAKES WITH THE OUTER MESH ON THE DOWNSTREAM SIDE, AND DRIVE THE STAKES IN THE GROUND TO A MINIMUM DEPTH OF 24-INCHES LEAVING LESS THAN 12-INCHES OF STAKE ABOVE THE EXPOSED SEDIMENT TUBE.

INSPECTION AND MAINTENANCE:
INSPECT EVERY SEVEN CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES ½-INCHES OR MORE OF PRECIPITATION. INSPECT SEDIMENT TUBES AFTER INSTALLATION FOR GAPS UNDER THE TUBES AND FOR GAPS BETWEEN JOINTS OF ADJACENT ENDS OF SEDIMENT TUBES. REPAIR RILLS, GULLIES, AND ALL UNDERCUTTING NEAR SEDIMENT TUBES. REMOVE AND/OR REPLACE INSTALLED SEDIMENT TUBES AS REQUIRED TO ADAPT TO CHANGING CONSTRUCTION SITE CONDITIONS. REMOVE ALL SEDIMENT TUBES FROM THE SITE WHEN THE FUNCTIONAL LONGEVITY IS EXCEEDED AS DETERMINED BY THE ENGINEER, OR MANUFACTURER'S REPRESENTATIVE. DISPOSE OF SEDIMENT TUBES IN REGULAR MEANS AS NON-HAZARDOUS, INERT MATERIAL.

(A) SEDIMENT TUBE INLET PROTECTION (TYPE A)

NOT TO SCALE



TOP VIEW

CROSS SECTION A-A

INSTALLATION:
BLOCK AND GRAVEL FILTERS CAN BE USED WHERE HEAVY FLOWS AND HIGHER VELOCITIES ARE EXPECTED AND WHERE AN OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE.

GRAVEL SHALL CONSIST OF 1-INCH D50 WASHED STONE AND SHOULD EXTEND TO HEIGHT EQUAL TO THE ELEVATION OF THE TOP OF THE BLOCKS.

PLACE THE BOTTOM ROW OF THE CONCRETE BLOCKS LENGTHWISE ON THEIR SIDE SO THAT THE OPEN END FACES OUTWARD, NOT UPWARD.

THE HEIGHT OF THE BARRIER CAN BE VARIED, DEPENDING UPON DESIGN NEEDS BY STACKING A COMBINATION OF BLOCKS THAT ARE 8- AND 12-INCHES WIDE.

WIRE MESH SHOULD BE PLACED OVER THE OUTSIDE VERTICAL FACE OF THE CONCRETE BLOCKS TO PREVENT STONES FROM BEING WASHED THROUGH THE HOLES IN THE BLOCKS. HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH ½-INCH X ½-INCH OPENINGS SHOULD BE USED.

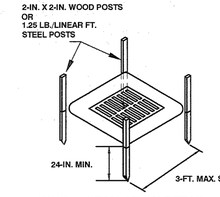
INSPECTION AND MAINTENANCE:
SEDIMENT SHOULD BE REMOVED WHEN IT REACHES APPROXIMATELY 1/3 THE HEIGHT OF THE BLOCKS. IF A SUMP IS USED, SEDIMENT SHOULD BE REMOVED WHEN IT FILLS APPROXIMATELY 1/3 THE DEPTH OF THE HOLE.

IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT, THE STONES MUST BE PULLED AWAY FROM THE INLET AND CLEANED OR REPLACED. SINCE CLEANING OF GRAVEL AT A CONSTRUCTION SITE MAY BE DIFFICULT, AN ALTERNATIVE APPROACH WOULD BE TO USE THE CLOGGED STONE AS FILL AND PUT FRESH STONE AROUND THE INLET.

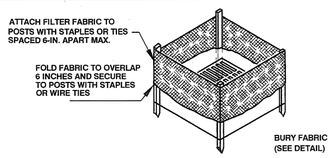
STORM DRAIN INLET PROTECTION STRUCTURES SHOULD BE REMOVED ONLY AFTER THE DISTURBED AREAS ARE PERMANENTLY STABILIZED. REMOVE ALL CONSTRUCTION MATERIAL AND SEDIMENT, AND DISPOSE OF THEM PROPERLY. GRADE THE DISTURBED AREA TO THE ELEVATION OF THE DROP INLET STRUCTURE CREST. STABILIZE ALL BARE AREAS IMMEDIATELY.

(C) BLOCK AND GRAVEL DROP INLET PROTECTION (TYPE C)

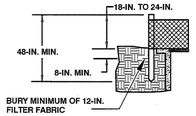
NOT TO SCALE



POST INSTALLATION DETAIL



FILTER FABRIC INSTALLATION DETAIL



FILTER FABRIC BURIAL DETAIL

MATERIALS:
USE FILTER FABRIC THAT CONFORMS TO SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (LATEST EDITION).

USE STEEL POSTS THAT MEET THE FOLLOWING MINIMUM PHYSICAL REQUIREMENTS:
BE COMPOSED OF HIGH STRENGTH STEEL WITH MINIMUM YIELD STRENGTH OF 50,000 PSI.
HAVE A STANDARD "T" SECTION WITH A NOMINAL FACE WIDTH OF 1.38-INCHES AND NOMINAL "T" LENGTH OF 1.48-INCHES.
WEIGH 1.25 POUNDS PER FOOT (± 8%).
BE PAINTED WITH A WATER BASED BAKED ENAMEL PAINT.

INSTALLATION:
EXCAVATE A TRENCH 6-INCHES WIDE AND 6-INCHES DEEP AROUND THE OUTSIDE PERIMETER OF THE INLET UNLESS THE FABRIC IS PNEUMATICALLY INSTALLED.

EXTEND THE FILTER FABRIC A MINIMUM OF 12-INCHES INTO THE TRENCH. BACKFILL THE TRENCH WITH SOIL OR CRUSHED STONE AND COMPACT OVER THE FILTER FABRIC UNLESS THE FABRIC IS PNEUMATICALLY INSTALLED.

USE STEEL POSTS WITH A MINIMUM POST LENGTH OF 60-INCHES CONSISTING OF STANDARD "T" SECTIONS WITH A WEIGHT OF 1.25 POUNDS PER FOOT (±8%). INSTALL THE FILTER FABRIC TO A MINIMUM HEIGHT OF 24-INCHES ABOVE GRADE. SPACE THE STEEL POSTS AROUND THE PERIMETER OF THE INLET A MAXIMUM OF 3-FEET APART AND DRIVE THEM INTO THE GROUND A MINIMUM OF 24-INCHES. CUT THE FILTER FABRIC FROM A CONTINUOUS ROLL TO THE LENGTH OF THE PROTECTED AREA TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, WRAP FILTER FABRIC TOGETHER ONLY AT A SUPPORT POST WITH BOTH ENDS SECURELY FASTENED TO THE POST, WITH A MINIMUM 6-INCH OVERLAP.

ATTACH FABRIC TO STEEL POSTS WITH HEAVY-DUTY PLASTIC TIES.

ATTACH AT LEAST FOUR (4) EVENLY SPACED TIES IN A MANNER TO PREVENT SAGGING OR TEARING OF THE FABRIC. IN ALL CASES, AFFIX TIES IN NO LESS THAN FOUR (4) PLACES.

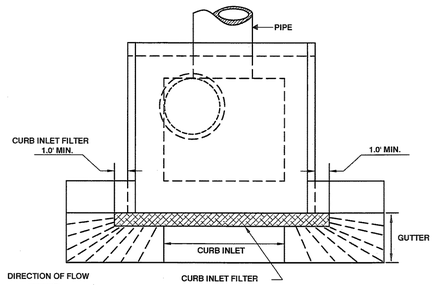
INSPECTION AND MAINTENANCE:

SEDIMENT SHOULD BE REMOVED WHEN IT REACHES APPROXIMATELY 1/3 THE HEIGHT OF THE FENCE. TAKE CARE NOT TO DAMAGE OR UNDERCUT FABRIC WHEN REMOVING SEDIMENT. IF A SUMP IS USED, SEDIMENT SHOULD BE REMOVED WHEN IT FILLS APPROXIMATELY 1/3 THE DEPTH OF THE HOLE. MAINTAIN THE POOL AREA, ALWAYS PROVIDING ADEQUATE SEDIMENT STORAGE VOLUME FOR THE NEXT STORM.

STORM DRAIN INLET PROTECTION STRUCTURES SHOULD BE REMOVED ONLY AFTER THE DISTURBED AREAS ARE PERMANENTLY STABILIZED. REMOVE ALL CONSTRUCTION MATERIAL AND SEDIMENT, AND DISPOSE OF THEM PROPERLY. GRADE THE DISTURBED AREA TO THE ELEVATION OF THE DROP INLET STRUCTURE CREST. USE APPROPRIATE PERMANENT STABILIZATION METHODS TO STABILIZE BARE AREAS AROUND THE INLET.

(A) FILTER FABRIC INLET PROTECTION (TYPE A)

NOT TO SCALE



TOP VIEW

MATERIALS:
ONLY USE SURFACE COURSE INLET FILTERS THAT HAVE A MINIMUM HEIGHT OR DIAMETER OF 9-INCHES AND HAVE A MINIMUM LENGTH THAT IS 2-FEET LONGER THAN THE LENGTH OF THE CURB OPENING. SURFACE COURSE INLET FILTERS ARE NOT DESIGNED TO COMPLETELY BLOCK THE INLET OPENING.

SURFACE COURSE INLET FILTERS ARE CONSTRUCTED WITH A SYNTHETIC MATERIAL THAT WILL ALLOW STORM WATER TO FREELY FLOW THROUGH WHILE TRAPPING SEDIMENT AND DEBRIS. THE GEOTEXTILE IS NON-BIODEGRADABLE AND RESISTANT TO DEGRADATION BY ULTRAVIOLET EXPOSURE AND RESISTANT TO CONTAMINANTS COMMONLY ENCOUNTERED IN STORM WATER. STRAW, STRAW FIBER, STRAW BALES, PINE NEEDLES AND LEAF MULCH ARE NOT PERMISSIBLE FILTER MATERIALS.

SURFACE COURSE INLET FILTERS HAVE AGGREGATE COMPARTMENTS FOR STONE, SAND OR OTHER WEIGHTED MATERIALS OR MECHANISMS TO HOLD THE UNIT IN PLACE.

USE FILTER FABRIC THAT IS CAPABLE OF REDUCING EFFLUENT SEDIMENT CONCENTRATIONS BY NO LESS THAN 80% UNDER TYPICAL SEDIMENT MIGRATION CONDITIONS.

APPLICABLE TYPE E INLET FILTERS MAY BE SELECTED FROM THE SCDOT APPROVED PRODUCTS LIST.

INSTALLATION:
SURFACE COURSE INLET FILTERS ARE APPLICABLE FOR ROAD CATCH BASIN AFTER THE ROAD SURFACE COURSE IS PLACED. PLACE SURFACE COURSE INLET FILTERS WHERE SEDIMENT MAY SPILL OVER SIDEWALKS AND CURBS.

INSTALL SURFACE COURSE INLET FILTERS IN FRONT OF CURB INLET OPENINGS. THE FILTER SHALL HAVE A MINIMUM HEIGHT OR DIAMETER OF 9-INCHES AND HAVE A MINIMUM LENGTH THAT IS 2-FEET LONGER THAN THE LENGTH OF THE CURB OPENING. THIS WILL ALLOW SUFFICIENT LENGTH TO COVER THE INLET WITH AT LEAST 1-FOOT OF CLEARANCE BEYOND THE INLET ON BOTH ENDS.

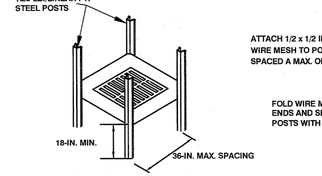
DO NOT COMPLETELY BLOCK THE INLET OPENING WITH SURFACE COURSE INLET FILTERS. INSTALL SURFACE COURSE INLET FILTERS IN A MANNER TO ALLOW OVERFLOWS TO ENTER THE CATCH BASIN.

FILL THE AGGREGATE COMPARTMENT TO A LEVEL (AT LEAST 1/2 FULL) THAT WILL KEEP THE SURFACE COURSE INLET FILTER IN PLACE AND CREATE A SEAL BETWEEN THE SURFACE COURSE INLET FILTER AND THE ROAD SURFACE.

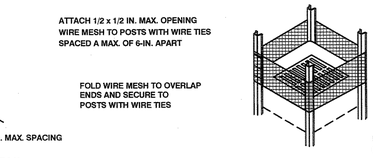
INSPECTION AND MAINTENANCE:
PONDING IS LIKELY IF SEDIMENT IS NOT REMOVED REGULARLY, THEREFORE ROUTINE MAINTENANCE MUST BE PROVIDED.
INSPECT SURFACE COURSE CURB INLET FILTERS ON A REGULAR BASIS AND IMMEDIATELY AFTER MAJOR RAIN EVENTS.
CLEAN THE SURFACE COURSE CURB INLET FILTER IF A VISUAL INSPECTION SHOWS SILT AND DEBRIS BUILD UP AROUND THE FILTER.

(E) SURFACE COURSE CURB INLET FILTERS (TYPE E)

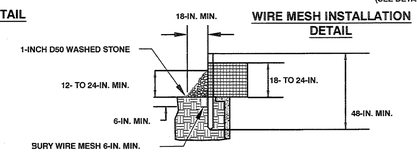
NOT TO SCALE



POST INSTALLATION DETAIL



WIRE MESH INSTALLATION DETAIL



STONE AND WIRE MESH INSTALLATION DETAIL

MATERIALS:
USE HARDWARE FABRIC OR COMPARABLE WIRE MESH WITH MAXIMUM OPENINGS OF 0.5-INCHES X 0.5-INCHES AS THE SUPPORTING MATERIAL.

USE STEEL POSTS THAT MEET THE FOLLOWING MINIMUM PHYSICAL REQUIREMENTS:
BE COMPOSED OF HIGH STRENGTH STEEL WITH MINIMUM YIELD STRENGTH OF 50,000 PSI.
HAVE A STANDARD "T" SECTION WITH A NOMINAL FACE WIDTH OF 1.38-INCHES AND NOMINAL "T" LENGTH OF 1.48-INCHES.
WEIGH 1.25 POUNDS PER FOOT (± 8%).
BE PAINTED WITH A WATER BASED BAKED ENAMEL PAINT.

USE HEAVY-DUTY WIRE TIES TO ATTACH THE WIRE MESH MATERIAL TO THE STEEL POSTS.

PLACE AGGREGATE NO. 5 WASHED STONE AGAINST THE HARDWARE FABRIC ON ALL SIDES.

INSTALLATION:
EXCAVATE A TRENCH 6-INCHES DEEP AROUND THE OUTSIDE PERIMETER OF THE INLET.

USE HARDWARE FABRIC OR COMPARABLE WIRE MESH WITH MAXIMUM OPENINGS OF 0.5-INCHES BY 0.5-INCHES AS THE SUPPORTING MATERIAL.
EXTENDED THE FABRIC A MINIMUM OF 6-INCHES INTO THE GROUND. BACKFILL THE TRENCH WITH SOIL OR CRUSHED STONE AND COMPACT OVER THE FABRIC.

USE STEEL POSTS WITH A MINIMUM POST LENGTH OF 36-INCHES CONSISTING OF STANDARD "T" SECTIONS WITH A WEIGHT OF 1.25 POUNDS PER FOOT (±8%).
INSTALL THE WIRE MESH FABRIC ABOVE GRADE A MINIMUM OF 18-INCHES WITHOUT EXCEEDING 24-INCHES.

SPACE THE STEEL POSTS A MAXIMUM OF 3-FEET APART AROUND THE PERIMETER OF THE INLET AND DRIVE THEM INTO THE GROUND A MINIMUM OF 18-INCHES.

USE HEAVY-DUTY WIRE TIES SPACED A MAXIMUM OF 6-INCHES APART TO ATTACH THE WIRE MESH MATERIAL TO THE STEEL POSTS.

PLACE AGGREGATE NO. 5 WASHED STONE TO A MINIMUM HEIGHT OF 12-INCHES, AND A MAXIMUM HEIGHT OF 24-INCHES AGAINST THE HARDWARE FABRIC ON ALL SIDES.

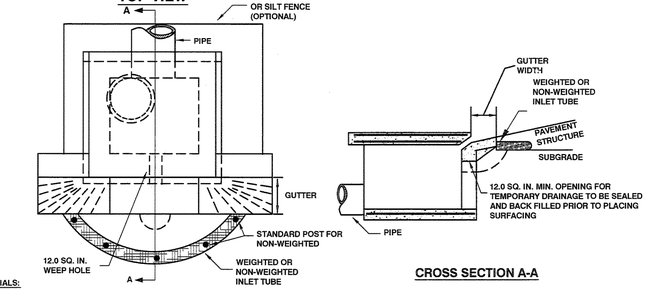
INSPECTIONS AND MAINTENANCE:
IF THE STONE BECOMES CLOGGED WITH SEDIMENT, PULL THE STONES AWAY FROM THE INLET AND CLEAN OR REPLACE THEM.

SINCE CLEANING OF GRAVEL AT A CONSTRUCTION SITE MAY BE DIFFICULT, AN ALTERNATIVE APPROACH WOULD BE TO USE THE CLOGGED STONE AS FILL AND PUT FRESH STONE AROUND THE INLET.

REMOVE ACCUMULATED SEDIMENT FROM STONE WHEN SEDIMENT REACHES 1/3 OF THE HEIGHT OF THE STRUCTURE.

(B) HARDWARE FABRIC AND STONE INLET PROTECTION (TYPE B)

NOT TO SCALE



CROSS SECTION A-A

MATERIALS:

USE INLET TUBES THAT EXHIBIT THE FOLLOWING PROPERTIES:
PRODUCED BY A MANUFACTURER EXPERIENCED IN SEDIMENT TUBE MANUFACTURING.
COMPOSED OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBERS OR HARDWOOD MULCH OR A MIX OF THESE MATERIALS ENCLOSED BY A FLEXIBLE NETTING MATERIAL. DO NOT USE STRAW, STRAW FIBER, STRAW BALES, PINE NEEDLES OR LEAF MULCH UNDER THIS SPECIFICATION. UTILIZE AN OUTER NETTING THAT CONSISTS OF SEAMLESS, HIGH-DENSITY POLYETHYLENE PHOTODEGRADABLE MATERIALS TREATED WITH ULTRAVIOLET STABILIZERS OR A SEAMLESS, HIGH-DENSITY POLYETHYLENE NON-DEGRADABLE MATERIALS. CURLED WOOD EXCELSIOR FIBER, OR NATURAL COCONUT FIBER ROLLED EROSION CONTROL PRODUCTS (RECP) ROLLED UP TO CREATE AN INLET TUBE DEVICES ARE NOT ALLOWED UNDER THIS SPECIFICATION.

WEIGHTED INLET TUBES:
WEIGHTED INLET TUBES ARE SEDIMENT TUBES CAPABLE OF STAYING IN PLACE WITHOUT EXTERNAL STABILIZATION MEASURES AND MAY HAVE A WEIGHTED INNER CORE OR OTHER WEIGHTED MECHANISM TO KEEP THEM IN PLACE.

MATERIALS:
APPLICABLE TYPE F WEIGHTED INLET TUBES MAY BE SELECTED FROM THE SCDOT APPROVED PRODUCTS LIST.

INSTALLATION:
INSTALL WEIGHTED INLET TUBES LYING FLAT ON THE GROUND, WITH NO GAPS BETWEEN THE UNDERLYING SURFACE AND THE INLET TUBE.
NEVER STACK WEIGHTED INLET TUBES ON TOP OF ONE ANOTHER.

DO NOT COMPLETELY BLOCK INLETS WITH WEIGHTED INLET TUBES.

INSTALL WEIGHTED INLET TUBES IN SUCH A MANNER THAT ALL OVERFLOW OR OVERTOPPING WATER HAS THE ABILITY TO ENTER THE INLET UNOBSTRUCTED.

TO AVOID POSSIBLE FLOODING, TWO OR THREE CONCRETE CINDER BLOCKS MAY BE PLACED BETWEEN THE WEIGHTED INLET TUBES AND THE INLET.

NON-WEIGHTED INLET TUBES
NON-WEIGHTED INLET TUBES ARE DEFINED AS SEDIMENT TUBES THAT REQUIRE STAKING OR OTHER STABILIZATION METHODS TO KEEP THEM SAFELY IN PLACE.

MATERIALS:
APPLICABLE TYPE F NON-WEIGHTED INLET TUBES MAY BE SELECTED FROM THE SCDOT APPROVED PRODUCTS LIST.

INSPECTION AND MAINTENANCE:
INLET TUBES MAY BE TEMPORARILY MOVED DURING CONSTRUCTION AS NEEDED.
REPLACE INLET TUBES DAMAGED DURING INSTALLATION AS DIRECTED BY THE ENGINEER OR MANUFACTURER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.

(F) TYPE F INLET TUBES

NOT TO SCALE

SOUTH CAROLINA — NOLVOM — THOMAS & HUTTON ENGINEERING CO. — No. C00258 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — REGISTERED PROFESSIONAL ENGINEER — JOHN H. MAJOR — No. 20104 — 10/17/13

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

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HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

SOIL EROSION CONTROL DETAILS

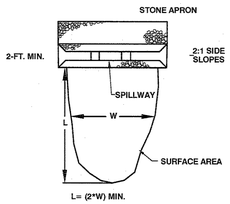
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DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	N/A

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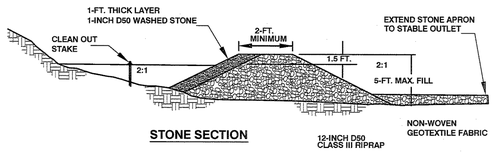
STORMWATER POLLUTION PREVENTION PLAN

SEDIMENT TRAP DIMENSIONS						
SEDIMENT TRAP	BOTTOM LENGTH (ft)	BOTTOM WIDTH (ft)	TOP LENGTH (ft)	TOP WIDTH (ft)	INSIDE SIDE SLOPES (XH:1V)	DEPTH (ft)
ST-1	24	12	36	24	2:1	3
ST-2	20	10	32	22	2:1	3
ST-3	26	13	38	25	2:1	3
ST-4	16	8	28	20	2:1	3
ST-5	24	12	36	24	2:1	3

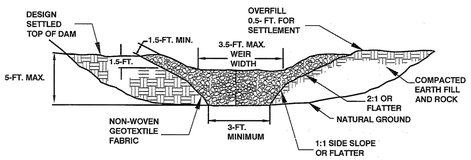
SEDIMENT TRAP ROCK OUTLET						
ROCK OUTLET	HEIGHT (ft)	BOTTOM WIDTH (ft)	INSIDE SIDE SLOPES (XH:1V)	TOP WEIR WIDTH (ft)	BOTTOM RIPRAP FLOW LENGTH (ft)	TOP RIPRAP FLOW LENGTH (ft)
ST-1	2	3	2:1	5	3	2
ST-2	2	3	2:1	5	3	2
ST-3	2	3	2:1	5	3	2
ST-4	2	3	2:1	5	3	2
ST-5	2	3	2:1	5	3	2



PLAN VIEW



STONE SECTION



EMBANKMENT AND SPILLWAY ELEVATION

WHEN AND WHERE TO USE IT:
SEDIMENT TRAPS SHOULD NOT BE PLACED IN WATERS OF THE STATE OR USGS BLUE-LINE STREAMS.

INSTALLATION:
ROCK OUTLET STRUCTURE REQUIREMENTS:

THE MAXIMUM SEDIMENT TRAP HEIGHT SHALL BE 5-FEET.
THE MAXIMUM STONE HEIGHT OF THE OUTLET WEIR SHALL BE 3.5-FEET.
THE MINIMUM BOTTOM FLOW WIDTH OF THE STRUCTURE SHALL BE 3-FEET.
THE MINIMUM TOP FLOW LENGTH OF THE STRUCTURE SHALL BE 2-FEET.

THE MAIN BODY OF THE OUTLET STRUCTURE SHALL CONSIST OF 12-INCH D50 CLASS III RIPRAP. THE UPSTREAM FACE OF THE OUTLET STRUCTURE SHALL CONSIST OF A 1-FOOT THICK LAYER OF 1-INCH D50 WASHED STONE. THE MAXIMUM SIDESLOPE OF THE ROCK STRUCTURE SHALL BE 2:1.

INSTALL A NON-WOVEN GEOTEXTILE FILTER FABRIC BEFORE INSTALLING THE STONE FOR THE OUTLET STRUCTURE. ALLOW THE STONE TO EXTEND DOWNSTREAM PAST THE TOE OF THE EMBANKMENT.

ALL INSIDE SEDIMENT TRAP SLOPES SHOULD BE 3:1 OR FLATTER.

MARK THE SEDIMENT CLEANOUT LEVEL OF TRAP WITH A STAKE IN THE FIELD. SEED AND MULCH ALL DISTURBED AREAS.

INSPECTION AND MAINTENANCE:
CONTRACTOR SHALL PROVIDE CONTINUAL MONITORING, REGULAR MAINTENANCE AND REGULAR SEDIMENT REMOVAL.

REMOVE SEDIMENT WHEN IT REACHES 50% OF STORAGE VOLUME OR REACHES THE TOP OF CLEANOUT STAKE.

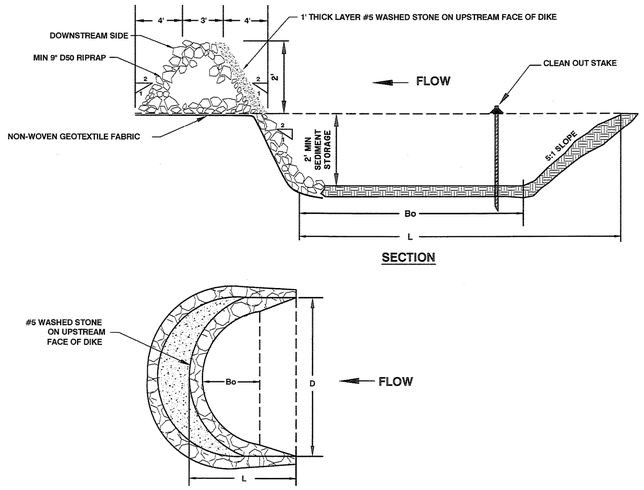
ALL TEMPORARY SEDIMENT TRAPS SHOULD BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER IT IS NO LONGER NEEDED.

TRAPPED SEDIMENT SHOULD BE REMOVED FROM, OR STABILIZED ON SITE.

DISTURBED AREAS RESULTING FROM THE REMOVAL OF THE SEDIMENT TRAP SHOULD BE PERMANENTLY STABILIZED.

TEMPORARY SEDIMENT TRAP

NOT TO SCALE



SECTION

D	L	Bo	PEAK FLOW (CFS)	TOTAL STORAGE VOL. (CU. FT.)	SEDIMENT STORAGE VOLUME (CU. FT.)
15'	17.5'	3.5'	24.1	838	250
20'	20.0'	6.0'	32.1	1263	406
25'	22.5'	8.5'	40.1	1766	601
30'	25.0'	11.0'	48.2	2348	836

TYPICAL ROCK DIKE PLAN DIMENSIONS

WHEN AND WHERE TO USE IT:
ROCK SEDIMENT DIKES ARE MOST EFFECTIVE IN AREAS WHERE SEDIMENT CONTROL IS NEEDED WITH MINIMAL DISTURBANCE. THEY CAN BE USED AS SEDIMENT CONTROL STRUCTURES FOR THE OUTFALLS OF DIVERSION SWALES, DIVERSION DIKES, IN LOW AREAS OR OTHER AREAS WHERE CONCENTRATED SEDIMENT LADEN FLOW IS EXPECTED. ROCK SEDIMENT DIKES SHOULD NOT BE PLACED IN WATERS OF THE STATE OR ANY OTHER STREAMS THAT HAVE A BASE FLOW. MAXIMUM 2 - ACRE DRAINAGE AREA TO DIKE.

INSTALLATION:
A NON-WOVEN GEOTEXTILE FABRIC SHALL BE INSTALLED OVER THE SOIL SURFACE WHERE THE ROCK SEDIMENT DIKE IS TO BE PLACED.

THE BODY OF THE ROCK SEDIMENT DIKE SHALL BE COMPOSED OF MINIMUM 9-INCH D50 RIPRAP.

THE UPSTREAM FACE OF THE ROCK SEDIMENT DIKE SHALL BE COMPOSED OF A 1-FOOT THICK LAYER OF 3/4-INCH TO 1-INCH D50 WASHED STONE PLACED AT A SLOPE OF 2H:1V.

ROCK SEDIMENT DIKES SHALL HAVE A MINIMUM TOP FLOW LENGTH OF 3-FEET (2-FOOT FLOW LENGTH THROUGH THE RIPRAP AND 1-FOOT FLOW LENGTH THROUGH THE WASHED STONE).

THE ROCK MUST BE PLACED BY HAND OR MECHANICAL PLACEMENT (NO DUMPING OF ROCK TO FORM THE SEDIMENT DIKE) TO ACHIEVE THE PROPER

DIMENSIONS.
A SEDIMENT SUMP SHALL BE LOCATED ON THE UPSTREAM SIDE OF THE STRUCTURE TO PROVIDE SEDIMENT STORAGE. THE UPSTREAM SIDE OF THE SEDIMENT SUMP SHALL HAVE A SLOPE OF 5H:1V TO INHIBIT EROSION OF THE SEDIMENT STORAGE AREA. THE MINIMUM DEPTH OF THE SEDIMENT SUMP SHALL BE 2-FEET. MARK THE SEDIMENT CLEANOUT LEVEL OF THE SEDIMENT DIKE WITH A STAKE IN THE FIELD.

SEED AND MULCH ALL DISTURBED AREAS.

INSPECTION AND MAINTENANCE:

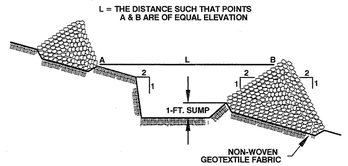
CONTRACTOR SHALL PROVIDE CONTINUAL MONITORING, REGULAR MAINTENANCE AND REGULAR SEDIMENT REMOVAL.

REMOVE SEDIMENT WHEN IT REACHES 50% OF THE SEDIMENT STORAGE VOLUME OR WHEN REACHES THE TOP OF CLEANOUT STAKE. REMOVED SEDIMENT FROM THE SUMP SHOULD BE REMOVED FROM, OR STABILIZED ON SITE.

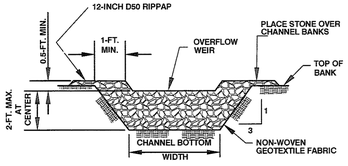
ALL ROCK SEDIMENT DIKES SHOULD BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THEY ARE NO LONGER NEEDED. DISTURBED AREAS RESULTING FROM THE REMOVAL OF ROCK SEDIMENT DIKES SHOULD BE PERMANENTLY STABILIZED.

ROCK SEDIMENT DIKES

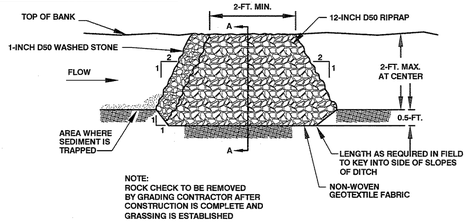
NOT TO SCALE



SPACING BETWEEN DITCH CHECK



CROSS SECTION A-A THRU STONE DITCH CHECK



NOTE:
ROCK CHECK TO BE REMOVED BY GRADING CONTRACTOR AFTER CONSTRUCTION IS COMPLETE AND GRASSING IS ESTABLISHED

TYPICAL DITCH CHECK SECTION

WHEN AND WHERE TO USE IT:
A ROCK DITCH CHECK SHOULD BE INSTALLED IN STEEPLY SLOPED SWALES, OR IN SWALES WHERE ADEQUATE VEGETATION CANNOT BE ESTABLISHED. ROCK DITCH CHECKS SHOULD BE USED ONLY IN SMALL OPEN CHANNELS. ROCK DITCH CHECKS SHOULD NOT BE PLACED IN WATERS OF THE COMMONWEALTH OR USGS BLUE-LINE STREAMS.

INSTALLATION:
A NON-WOVEN GEOTEXTILE FABRIC SHALL BE INSTALLED OVER THE SOIL SURFACE WHERE THE ROCK DITCH CHECK IS TO BE PLACED.

THE BODY OF THE ROCK DITCH CHECK SHALL BE COMPOSED OF 12-INCH D50 RIPRAP.

THE UPSTREAM FACE OF THE ROCK DITCH CHECK MAY BE COMPOSED OF 1-INCH D50 WASHED STONE.

ROCK DITCH CHECKS SHOULD NOT EXCEED A HEIGHT OF 2-FEET AT THE CENTERLINE OF THE CHANNEL.

ROCK DITCH CHECKS SHOULD HAVE A MINIMUM TOP FLOW LENGTH OF 2-FEET.

STONE SHOULD BE PLACED OVER THE CHANNEL BANKS TO PREVENT WATER FROM CUTTING AROUND THE DITCH CHECK.

THE ROCK MUST BE PLACED BY HAND OR MECHANICAL PLACEMENT (NO DUMPING OF ROCK TO FORM DAM) TO ACHIEVE COMPLETE COVERAGE OF THE DITCH OR SWALE AND TO ENSURE THAT THE CENTER OF THE CHECK IS LOWER THAN THE EDGES.

THE MAXIMUM SPACING BETWEEN THE DAMS SHOULD BE SUCH THAT THE TOE OF THE UPSTREAM CHECK IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM CHECK.

INSPECTION AND MAINTENANCE:

INSPECT FOR SEDIMENT AND DEBRIS ACCUMULATION. INSPECT DITCH CHECK EDGES FOR EROSION AND REPAIR PROMPTLY AS REQUIRED.

SEDIMENT SHOULD BE REMOVED WHEN IT REACHES 1/3 THE ORIGINAL CHECK HEIGHT.

IN THE CASE OF GRASS-LINED DITCHES AND SWALES, ROCK DITCH CHECKS SHOULD BE REMOVED WHEN THE GRASS HAS MATURED SUFFICIENTLY TO PROTECT THE DITCH OR SWALE UNLESS THE SLOPE OF THE SWALE IS GREATER THAN 4%.

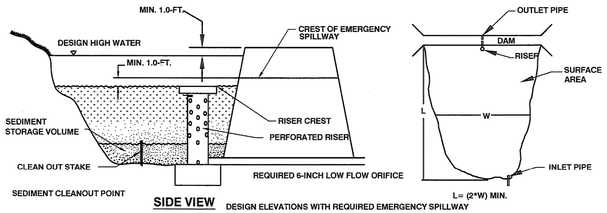
AFTER CONSTRUCTION IS COMPLETE, ALL STONE SHOULD BE REMOVED BY THE GRADING CONTRACTOR IF VEGETATION WILL BE USED FOR PERMANENT EROSION CONTROL MEASURES.

THE AREA BENEATH THE ROCK DITCH CHECKS SHOULD BE SEEDED AND MULCHED IMMEDIATELY AFTER ROCK CHECK DAM REMOVAL.

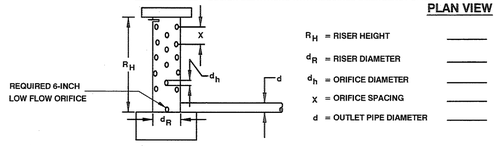
OR

ROCK DITCH CHECK

NOT TO SCALE



DESIGN ELEVATIONS WITH REQUIRED EMERGENCY SPILLWAY



RISER PIPE DETAIL

WHEN AND WHERE TO USE IT:
SEDIMENT BASINS SHALL NOT BE PLACED IN WATERS OF THE STATE OR USGS BLUE-LINE STREAMS.

INSPECTION AND MAINTENANCE:
CONTRACTOR SHALL PROVIDE CONTINUED MONITORING, REGULAR MAINTENANCE AND REGULAR SEDIMENT REMOVAL.

REMOVE SEDIMENT WHEN IT REACHES 50% OF STORAGE VOLUME OR THE TOP OF THE CLEANOUT STAKE.

ALL TEMPORARY SEDIMENT BASINS SHOULD BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER IT IS NO LONGER NEEDED AT NO ADDITIONAL COST.

TRAPPED SEDIMENT SHOULD BE REMOVED FROM, OR STABILIZED ON SITE.

DISTURBED AREAS RESULTING FROM THE REMOVAL OF THE SEDIMENT BASIN SHOULD BE PERMANENTLY STABILIZED.

SEDIMENT BASIN

NOT TO SCALE

SOUTH CAROLINA PROFESSIONAL ENGINEER — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER — JOHN H. RICHARDSON — No. 24284 — 10/17/13

NO.	REVISIONS	BY	DATE
A	SUBMITTED FOR PERMITTING	CVD	02/25/13

THOMAS & HUTTON
Engineering | Surveying | Planning | GIS | Consulting
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GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

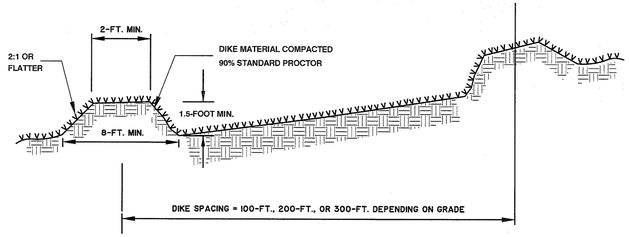
SOIL EROSION CONTROL DETAILS

JOB NO:	J-25332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	N/A

EC.14

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STORMWATER POLLUTION PREVENTION PLAN



SECTION

INSTALLATION:

SLOPES SHALL BE STABILIZED IMMEDIATELY USING VEGETATION, SOD, AND EROSION CONTROL BLANKETS OR TURF REINFORCEMENT MATS TO PREVENT EROSION.

THE UPSLOPE SIDE OF THE DIKE SHOULD PROVIDE POSITIVE DRAINAGE SO NO EROSION OCCURS AT THE OUTLET. PROVIDE ENERGY DISSIPATION MEASURES AS NECESSARY. SEDIMENT-LADEN RUNOFF MUST BE RELEASED THROUGH A SEDIMENT TRAPPING FACILITY.

SEDIMENT-LADEN RUNOFF SHALL BE DIRECTED TO A SEDIMENT TRAPPING FACILITY.

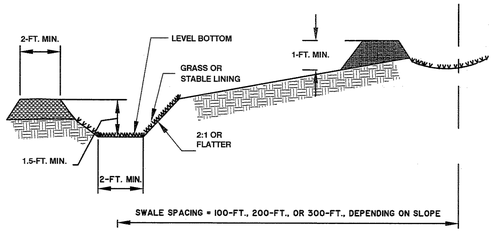
MINIMIZE CONSTRUCTION TRAFFIC OVER DIVERSION DIKES AND BERMS.

INSPECTION AND MAINTENANCE:

DAMAGE CAUSED BY CONSTRUCTION TRAFFIC OR OTHER ACTIVITY MUST BE REPAIRED BEFORE THE END OF EACH WORKING DAY.

DIVERSION DIKE OR BERM

NOT TO SCALE



SECTION

INSTALLATION:

THE BOTTOM WIDTH SHOULD BE A MINIMUM OF 2-FEET, AND THE BOTTOM SHOULD BE LEVEL.

THE DEPTH SHOULD BE A MINIMUM OF 1.5-FEET AND THE SIDE SLOPES SHOULD BE 2H:1V OR FLATTER.

THE MAXIMUM GRADE SHALL BE 5%, WITH POSITIVE DRAINAGE TO A SUITABLE OUTLET.

SLOPES SHALL BE STABILIZED IMMEDIATELY USING VEGETATION, SOD, AND EROSION CONTROL BLANKETS OR TURF REINFORCEMENT MATS TO PREVENT EROSION.

THE UPSLOPE SIDE OF THE SWALE SHOULD PROVIDE POSITIVE DRAINAGE SO NO EROSION OCCURS AT THE OUTLET. PROVIDE ENERGY DISSIPATION MEASURES AS NECESSARY.

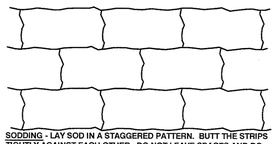
SEDIMENT-LADEN RUNOFF SHALL BE DIRECTED TO A SEDIMENT TRAPPING FACILITY.

INSPECTION AND MAINTENANCE:

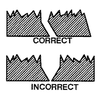
DAMAGE CAUSED BY CONSTRUCTION TRAFFIC OR OTHER ACTIVITY MUST BE REPAIRED BEFORE THE END OF EACH WORKING DAY.

TEMPORARY DIVERSION DITCH OR SWALE

NOT TO SCALE

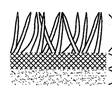


SODDING - LAY SOD IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASON'S TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.



BUTTING - ANGLED ENDS CAUSED BY THE AUTOMATIC SOD CUTTER MUST BE MATCHED CORRECTLY

ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL. WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID. MOW WHEN THE SOD IS ESTABLISHED - IN 2 - 3 WEEKS. SET THE MOWER HIGH (2"-3").



SHOOTS OR GRASS BLADES - GRASS SHOULD BE GREEN AND HEALTHY

THATCH - GRASS CLIPPINGS AND DEAD LEAVES, UP TO 1/2" THICK

ROOT ZONE - SOIL AND ROOTS SHOULD BE 1/2" TO 3/4" THICK, WITH DENSE ROOT MAT FOR STRENGTH

SODDING

NOT TO SCALE

SPECIFICATIONS:

IF FEASIBLE, SOD SHOULD NOT BE LAID IN EXCESSIVELY WET OR DRY WEATHER.

DURING PERIODS OF HIGH TEMPERATURE, OR IF THE SOIL IS DRY, THE SOIL SHOULD BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.

THE FIRST ROW OF SOD SHOULD BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND BUTTING TIGHTLY AGAINST EACH OTHER. JOINTS SHOULD BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH AND TO REDUCE THE CHANCE OF WASHOUTS UNDERNEATH THE SOD. CARE SHOULD BE EXERCISED TO INSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE DRYING OF THE ROOTS. SMALL GAPS OR VOIDS REMAINING AFTER THE SOIL IS LAID SHOULD BE FILLED WITH TOPSOIL.

PLACEMENT SHOULD BEGIN AT THE LOWER END OF SLOPES AND CHANNELS. ON SLOPES 3:1 OR GREATER, OR WHEREVER EROSION MAY BE A PROBLEM, SOD SHOULD BE SECURED BY PEGGING OR OTHER APPROVED METHODS. SOD SHOULD BE INSTALLED WITH THE LENGTH PERPENDICULAR TO THE SLOPE (ON THE CONTOUR).

AS SODDING IS COMPLETED, SOD SHOULD BE ROLLED OR TAMPED TO PROVIDE FIRM CONTACT BETWEEN ROOTS AND SOIL.

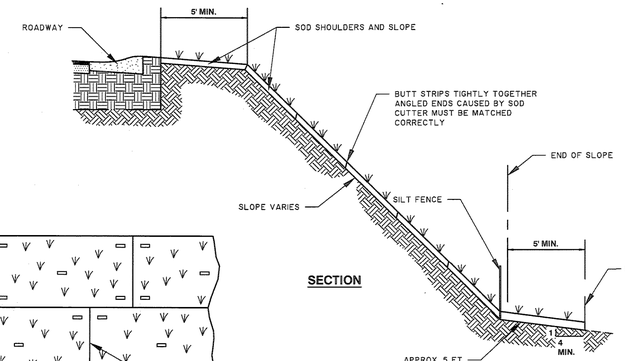
AFTER ROLLING, SOD SHOULD BE IRRIGATED TO A DEPTH SUFFICIENT THAT THE UNDERSIDE OF THE SOD PAD AND THE SOIL 4" BELOW THE SOD IS THOROUGHLY WET.

ESTABLISHMENT AND MAINTENANCE OF SOD:

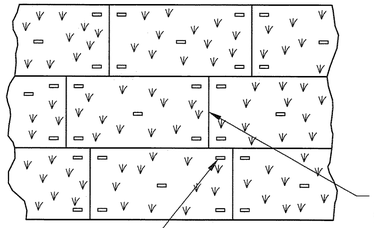
DURING THE FIRST 3 - 4 WEEKS WATERING SHOULD BE PERFORMED AS OFTEN AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF AT LEAST 2 INCHES.

THE FIRST MOWING SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED, USUALLY 2 - 3 WEEK. THE MOWER SHOULD BE SET HIGH (2 -3 INCHES) FOR THE FIRST MOWING. NO MORE THAN 1/3 OF THE SHOOT (GRASS LEAF) SHOULD BE REMOVED IN ANY MOWING.

FERTILIZER SHOULD BE APPLIED, AS NECESSARY, TO OBTAIN AND MAINTAIN THE DESIRED GROWTH AND DENSITY. LIME SHOULD BE ADDED, AS NEEDED, TO MAINTAIN PROPER pH. SOIL SHOULD BE TESTED EVERY 1 - 2 YEARS TO DETERMINE FERTILIZER AND LIME REQUIREMENTS.



SECTION



USE PEGS OR STAPLES TO FASTEN SOD FIRMLY AT THE ENDS OF STRIPS AND IN THE CENTER AND EVERY 3-4 FEET IF THE STRIPS ARE LONG. PEGS SHALL BE 6"-10" IN LENGTH.

LAY SOD IN A STAGGERED PATTERN. DO NOT LEAVE SPACES AND DO NOT OVERLAP. TUCK DOWN ENDS AND TRIM PIECES W/ A SHARPENED MASONS TROWEL.

PLAN

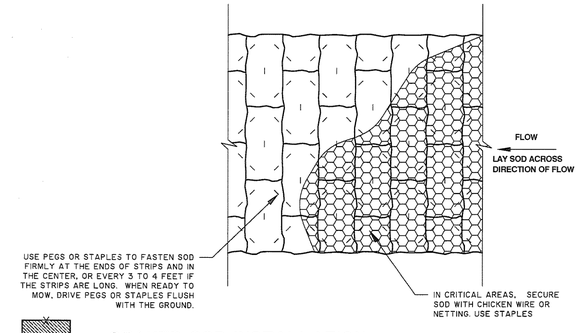
INSTALLATION AND MAINTENANCE OF SOD SHALL BE IN ACCORDANCE WITH "EROSION AND SEDIMENT CONTROL PRACTICES FOR DEVELOPING AREAS" BY THE SOUTH CAROLINA RESOURCES CONSERVATION COMMISSION.

THE FIRST ROW OF SOD SHOULD BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND BUTTING TIGHTLY AGAINST EACH OTHER. JOINTS SHOULD BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH AND TO REDUCE THE CHANCE OF WASHOUTS UNDERNEATH THE SOD. CARE SHOULD BE EXERCISED TO INSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE DRYING OF THE ROOTS. SMALL GAPS OR VOIDS REMAINING AFTER THE SOIL IS LAID SHOULD BE FILLED WITH TOPSOIL.

PROVIDE STRONGLY ROOTED ST AUGUSTINE SOD, NOT LESS THAN 2 YEARS OLD AND FREE OF WEEDS AND UNDESIRABLE NATIVE GRASSES. PROVIDE ONLY SOD CERTIFIED BY THE CROP PEST COMMISSION CAPABLE OF GROWTH WHEN PLANTED (VIABLE NOT DORMANT), AND IN STRIPS OF NOT MORE THAN 18 INCHES WIDE AND 72 INCHES LONG.

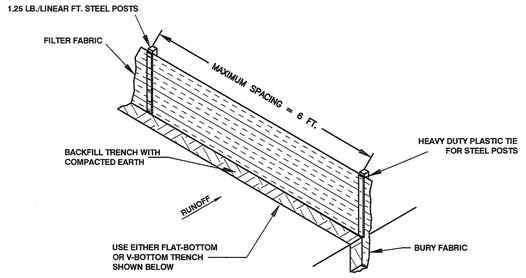
SLOPED SODDING DETAIL

NOT TO SCALE

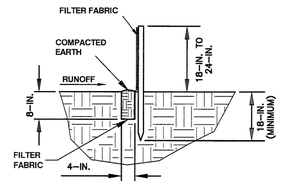


STAKED SOD INSTALLATION

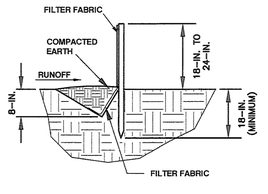
NOT TO SCALE



SILT FENCE INSTALLATION



FLAT-BOTTOM TRENCH DETAIL



V-SHAPED TRENCH DETAIL

WHEN AND WHERE TO USE IT:
SILT FENCE IS APPLICABLE IN AREAS:

WHERE THE MAXIMUM SHEET OR OVERLAND FLOW PATH LENGTH TO THE FENCE IS 100-FEET.
WHERE THE MAXIMUM SLOPE STEEPNESS (NORMAL (PERPENDICULAR) TO FENCE LINE) IS 2H:1V.
THAT DO NOT RECEIVE CONCENTRATED FLOWS GREATER THAN 0.5 CFS.

DO NOT PLACE SILT FENCE ACROSS CHANNELS OR USE IT AS A VELOCITY CONTROL BMP.

MATERIALS:

STEEL POSTS
USE 48-INCH LONG STEEL POSTS THAT MEET THE FOLLOWING MINIMUM PHYSICAL REQUIREMENTS:
COMPOSED OF HIGH STRENGTH STEEL WITH MINIMUM YIELD STRENGTH OF 50,000 PSI.
HAVE A STANDARD "T" SECTION WITH A NOMINAL FACE WIDTH OF 1.38-INCHES AND NOMINAL "T" LENGTH OF 1.48-INCHES.
WEIGH 1.25 POUNDS PER FOOT (± 8%).
HAVE A SOIL STABILIZATION PLATE WITH A MINIMUM CROSS SECTION AREA OF 17-SQUARE INCHES ATTACHED TO THE STEEL POSTS.
PAINTED WITH A WATER BASED BAKED ENAMEL PAINT.

USE STEEL POSTS WITH A MINIMUM LENGTH OF 4-FEET, WEIGHING 1.25 POUNDS PER LINEAR FOOT (± 8%) WITH PROJECTIONS TO AID IN FASTENING THE FABRIC. EXCEPT WHEN HEAVY CLAY SOILS ARE PRESENT ON SITE, STEEL POSTS WILL HAVE A METAL SOIL STABILIZATION PLATE WELDED NEAR THE BOTTOM SUCH THAT WHEN THE POST IS DRIVEN TO THE PROPER DEPTH, THE PLATE WILL BE BELOW THE GROUND LEVEL FOR ADDED STABILITY.
THE SOIL PLATES SHOULD HAVE THE FOLLOWING CHARACTERISTICS:
BE COMPOSED OF MINIMUM 15 GAUGE STEEL.
HAVE A MINIMUM CROSS SECTION AREA OF 17-SQUARE INCHES.

GEOTEXTILE FILTER FABRIC:
FILTER FABRIC IS:
COMPOSED OF FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS COMPOSED OF AT LEAST 85% BY WEIGHT OF POLYOLEFINS, POLYESTERS, OR POLYAMIDES.
FORMED INTO A NETWORK SUCH THAT THE FILAMENTS OR YARNS RETAIN DIMENSIONAL STABILITY RELATIVE TO EACH OTHER.
FREE OF ANY TREATMENT OR COATING WHICH MIGHT ADVERSELY ALTER ITS PHYSICAL PROPERTIES AFTER INSTALLATION.
FREE OF DEFECTS OR FLAWS THAT SIGNIFICANTLY AFFECT ITS PHYSICAL AND/OR FILTERING PROPERTIES.
CUT TO A MINIMUM WIDTH OF 36 INCHES.

USE ONLY FABRIC APPEARING ON SCDOT APPROVAL SHEET #34 MEETING THE REQUIREMENTS OF THE MOST CURRENT EDITION OF THE SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

INSTALLATION:
EXCAVATE A TRENCH APPROXIMATELY 6-INCHES WIDE AND 6-INCHES DEEP WHEN PLACING FABRIC BY HAND. PLACE 12-INCHES OF GEOTEXTILE FABRIC INTO THE 6-INCH DEEP TRENCH, EXTENDING THE REMAINING 6-INCHES TOWARDS THE UPSLOPE SIDE OF THE TRENCH. BACKFILL THE TRENCH WITH SOIL OR GRAVEL AND COMPACT. BURY 12-INCHES OF FABRIC INTO THE GROUND WHEN PNEUMATICALLY INSTALLING SILT FENCE WITH A SLICING METHOD. PURCHASE FABRIC IN CONTINUOUS ROLLS AND CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, WRAPPED THE FABRIC TOGETHER AT A SUPPORT POST WITH BOTH ENDS FASTENED TO THE POST, WITH A 6-INCH MINIMUM OVERLAP.
INSTALL POSTS TO A MINIMUM DEPTH OF 24-INCHES. INSTALL POSTS A MINIMUM OF 1- TO 2- INCHES ABOVE THE FABRIC, WITH NO MORE THAN 3-FEET OF THE POST ABOVE THE GROUND. SPACE POSTS TO MAXIMUM 6-FEET CENTERS. ATTACH FABRIC TO WOOD POSTS USING STAPLES MADE OF HEAVY-DUTY WIRE AT LEAST 1-1/2-INCH LONG, SPACED A MAXIMUM OF 6-INCHES APART. STAPLE A 2-INCH WIDE LATHE OVER THE FILTER FABRIC TO SECURELY FASTEN IT TO THE UPSLOPE SIDE OF WOODEN POSTS. ATTACH FABRIC TO THE STEEL POSTS USING HEAVY-DUTY PLASTIC TIES THAT ARE EVENLY SPACED AND PLACED IN A MANNER TO PREVENT SAGGING OR TEARING OF THE FABRIC. IN CALL CASES, TIES SHOULD BE AFFIXED IN NO LESS THAN 4 PLACES. INSTALL THE FABRIC A MINIMUM OF 24-INCHES ABOVE THE GROUND. WHEN NECESSARY, THE HEIGHT OF THE FENCE ABOVE GROUND MAY BE GREATER THAN 24-INCHES. IN TIDAL AREAS, EXTRA SILT FENCE HEIGHT MAY BE REQUIRED. THE POST HEIGHT WILL BE TWICE THE EXPOSED POST HEIGHT. POST SPACING WILL REMAIN THE SAME AND EXTRA HEIGHT FABRIC WILL BE 4-, 5-, OR 6-FEET TALL.
LOCATE SILT FENCE CHECKS EVERY 100 FEET MAXIMUM AND AT LOW POINTS. INSTALL THE FENCE PERPENDICULAR TO THE DIRECTION OF FLOW AND PLACE THE FENCE THE PROPER DISTANCE FROM THE TOE OF STEEP SLOPES TO PROVIDE SEDIMENT STORAGE AND ACCESS FOR MAINTENANCE AND CLEANOUT.

INSPECTION AND MAINTENANCE:
CHECK FOR SEDIMENT BUILDUP AND FENCE INTEGRITY. CHECK WHERE RUNOFF HAS ERODED A CHANNEL BENEATH THE FENCE, OR WHERE THE FENCE HAS SAGGED OR COLLAPSED BY FENCE OVERTOPPING. IF THE FENCE FABRIC TEARS, BEGINS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE SECTION OF FENCE IMMEDIATELY. REMOVE SEDIMENT ACCUMULATED ALONG THE FENCE WHEN IT REACHES 1/3 THE HEIGHT OF THE FENCE, ESPECIALLY IF HEAVY RAINS ARE EXPECTED. REMOVE TRAPPED SEDIMENT FROM THE SITE OR STABILIZE IT ON SITE. REMOVE SILT FENCE WITHIN 30 DAYS AFTER FINAL STABILIZATION IS ACHIEVED OR

AFTER TEMPORARY BEST MANAGEMENT PRACTICES (BMPS) ARE NO LONGER NEEDED, PERMANENTLY STABILIZE DISTURBED AREAS RESULTING FROM FENCE REMOVAL.

SILT FENCE

NOT TO SCALE

SOUTH CAROLINA NOLL NUMBER THOMAS & HUTTON ENGINEERING CO. No. C00285 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER JOHN T. HUTTON No. 20644 SEAL

02/25/13

NO.	SUBMITTED FOR PERMITTING REVISIONS	BY	DATE
A		CVD	02/25/13

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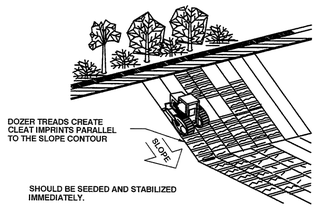
NEW BUCKSPORT ACCESS ROAD

SOIL EROSION CONTROL DETAILS

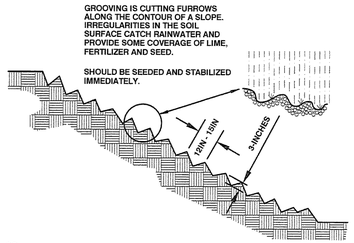
JOB NO:	J-23332.0000
DATE:	10/17/13
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	N/A

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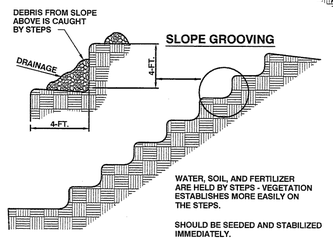
STORMWATER POLLUTION PREVENTION PLAN



TRACKING



SLOPE GROOVING

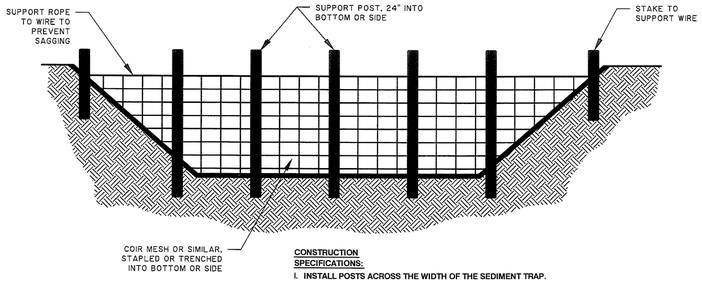


STAIR-STEP GRADING

OR LG

LAND GRADING TECHNIQUES

NOT TO SCALE

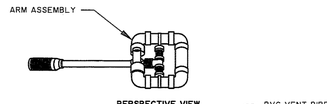


CONSTRUCTION SPECIFICATIONS:

1. INSTALL POSTS ACROSS THE WIDTH OF THE SEDIMENT TRAP.
2. STEEL POSTS SHOULD BE DRIVEN TO A DEPTH OF 24 INCHES, SPACED A MAXIMUM OF 4 FEET APART, AND INSTALLED UP THE SIDES OF THE BASIN AS WELL. THE TOP OF THE FABRIC SHOULD BE 6 INCHES HIGHER THAN THE INVERT OF THE SPILLWAY. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS.
3. INSTALL AT LEAST THREE ROWS OF BAFFLES BETWEEN THE INLET AND OUTLET DISCHARGE POINT.
4. WHEN USING POSTS, ADD A SUPPORT WIRE OR ROPE ACROSS THE TOP OF THE MEASURE TO PREVENT SAGGING.
5. WRAP POROUS MATERIAL, LIKE JUTE BACKED BY COIR MATERIAL, OVER THE TOP WIRE. THE FABRIC SHOULD HAVE FIVE TO TEN PERCENT OPENINGS IN THE WEAVE. ATTACH FABRIC TO A ROPE AND A SUPPORT STRUCTURE WITH ZIP TIES, WIRE, OR STAPLES.
6. THE BOTTOM SIDES OF THE FABRIC SHOULD BE ANCHORED IN A TRENCH OR PINNED WITH 8 INCH EROSION CONTROL MATTING STAPLES.
7. DO NOT SPLICE THE FABRIC, BUT USE A CONTINUOUS PIECE ACROSS THE BASIN.
8. AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BAFFLE MATERIALS, AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.

POROUS BAFFLE DETAIL

NOT TO SCALE



NOTES:

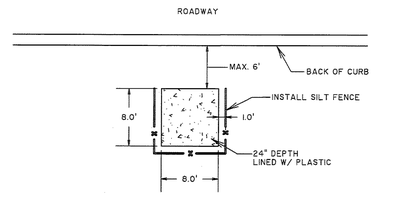
1. CONTRACTOR TO REMOVE SKIMMER UPON STABILIZATION OF THE CONTRIBUTING DRAINAGE AREA AND INSTALL PERMANENT PVC ORFICE PER OUTLET STRUCTURE DETAILS.

DESIGN CRITERIA				
POND NUMBER	SKIMMER SIZE (IN)	ORIFICE RADIUS (IN)	ORIFICE DIA. (IN)	VOLUME (CF) *

*SKIMMER SIZE IS BASED ON THE VOLUME OF THE NEXT HIGHEST WEIR ELEVATION ABOVE NORMAL POOL WHICH IS GREATER THAN THE REQUIRED SEDIMENT BASIN VOLUME.

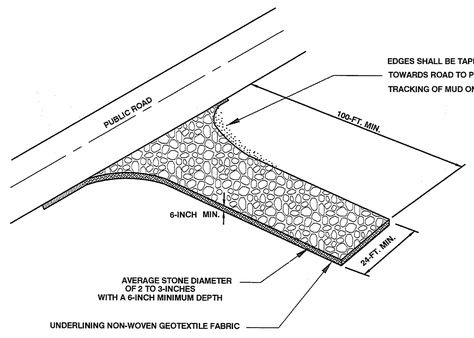
SKIMMER DETAIL

NOT TO SCALE



CONCRETE WASHOUT DETAIL

NOT TO SCALE



INSTALL A CULVERT PIPE ACROSS THE ENTRANCE WHEN NEEDED TO PROVIDE POSITIVE DRAINAGE.

DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN OR OTHER SEDIMENT TRAPPING STRUCTURE.

WHEN AND WHERE TO USE IT:
STABILIZED CONSTRUCTION ENTRANCES SHOULD BE USED AT ALL POINTS WHERE TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE AND MOVING DIRECTLY ONTO A PUBLIC ROAD.

IMPORTANT CONSIDERATIONS:
IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFFSITE. WASHDOWN FACILITIES SHALL BE REQUIRED AS DIRECTED BY SCDHEC AS NEEDED. WASHDOWN AREAS IN GENERAL MUST BE ESTABLISHED WITH CRUSHED GRAVEL AND DRAIN INTO A SEDIMENT TRAP OR SEDIMENT BASIN.

CONSTRUCTION ENTRANCES SHOULD BE USED IN CONJUNCTION WITH THE STABILIZATION OF CONSTRUCTION ROADS TO REDUCE THE AMOUNT OF MUD PICKED UP BY VEHICLES.

INSTALLATION:
REMOVE ALL VEGETATION AND ANY OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA.

DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM STONES TO A SEDIMENT TRAP OR BASIN.

INSTALL A NON-WOVEN GEOTEXTILE FABRIC PRIOR TO PLACING ANY STONE.

INSTALL A CULVERT PIPE ACROSS THE ENTRANCE WHEN NEEDED TO PROVIDE POSITIVE DRAINAGE.

THE ENTRANCE SHALL CONSIST OF 1-INCH TO 3-INCH D50 STONE PLACED AT A MINIMUM DEPTH OF 6-INCHES.

MINIMUM DIMENSIONS OF THE ENTRANCE SHALL BE 24-FEET WIDE BY 100-FEET LONG, AND MAY BE MODIFIED AS NECESSARY TO ACCOMMODATE SITE CONSTRAINTS.

THE EDGES OF THE ENTRANCE SHALL BE TAPERED OUT TOWARDS THE ROAD TO PREVENT TRACKING OF MUD AT THE EDGE OF THE ENTRANCE.

INSPECTION AND MAINTENANCE:
CHECK FOR MUD AND SEDIMENT BUILDUP AND PAD INTEGRITY. MAKE DAILY INSPECTIONS DURING PERIODS OF WET WEATHER. MAINTENANCE IS REQUIRED MORE FREQUENTLY IN WET WEATHER CONDITIONS. RESHAPE THE STONE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.

WASH OR REPLACE STONES AS NEEDED. THE STONE IN THE ENTRANCE SHOULD BE WASHED OR REPLACED WHENEVER THE ENTRANCE FAILS TO REDUCE MUD BEING CARRIED OFF-SITE BY VEHICLES.

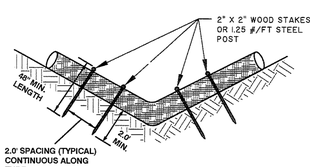
FREQUENT WASHING WILL EXTEND THE USEFUL LIFE OF STONE.

IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. FLUSHING SHOULD ONLY BE USED WHEN THE WATER CAN BE DISCHARGED TO A SEDIMENT TRAP OR BASIN.

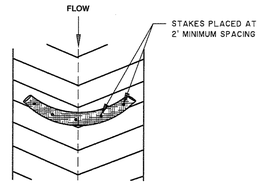
REPAIR ANY BROKEN PAVEMENT IMMEDIATELY.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



END VIEW OF DITCH



TOP VIEW OF DITCH

DESCRIPTION:
SEDIMENT TUBES ARE ELONGATED TUBES OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBER OR HARDWOOD MULCH. STRAW.
PINE NEEDLE AND LEAF MULCH-FILLED SEDIMENT TUBES ARE NOT PERMITTED UNDER THIS SPECIFICATION.

WHEN AND WHERE TO USE IT:
INSTALL SEDIMENT TUBES ALONG CONTOURS, IN DRAINAGE CONVEYANCE SWALES, AND AROUND INLETS TO HELP REDUCE THE EFFECTS OF SOIL EROSION BY ENERGY DISSIPATION AND RETAIN SEDIMENT.

MATERIALS:
SEDIMENT TUBES FOR DITCH CHECKS AND TYPE A INLET STRUCTURE FILTERS EXHIBIT THE FOLLOWING PROPERTIES:
PRODUCED BY A MANUFACTURER EXPERIENCED IN SEDIMENT TUBE MANUFACTURING.
COMPOSED OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBERS, HARDWOOD MULCH OR A MIX OF THESE MATERIALS ENCLOSED BY A FLEXIBLE NETTING MATERIAL.
STRAW, STRAW FIBER, STRAW BALES, PINE NEEDLES AND LEAF MULCH ARE NOT ALLOWED UNDER THIS SPECIFICATION.
UTILIZES OUTER NETTING THAT CONSISTS OF SEAMLESS, HIGH-DENSITY POLYETHYLENE PHOTODEGRADABLE MATERIALS TREATED WITH ULTRAVIOLET STABILIZERS OR A SEAMLESS, HIGH-DENSITY POLYETHYLENE NON-DEGRADABLE MATERIALS. DIAMETER RANGING FROM 18-INCHES TO 24-INCHES.
CURLED EXCELSIOR WOOD, OR NATURAL COCONUT ROLLED EROSION CONTROL PRODUCTS (RECPS) THAT ARE ROLLED UP TO CREATE A SEDIMENT TUBE ARE NOT ALLOWED UNDER THIS SPECIFICATION.

INSTALLATION:
INSTALL OVER BARE SOIL, MULCHED AREAS OR EROSION CONTROL BLANKETS.
BE COMPOSED OF GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBER OR HARDWOOD MULCH ENCLOSED BY A FLEXIBLE NETTING MATERIAL.
STRAW, STRAW FIBER, STRAW BALES, PINE NEEDLES AND LEAF MULCH ARE NOT ALLOWED.

THE MINIMUM DIAMETER SHOULD BE 18 INCHES.
SEDIMENT TUBES SHOULD BE STAKED USING WOODEN STAKES (2-INCH X 2-INCH) OR STEEL POSTS (STANDARD "U" OR "T" SECTIONS WITH A MINIMUM WEIGHT OF 1.25 POUNDS PER FOOT) A MINIMUM OF 48-INCHES IN LENGTH PLACED ON 2-FOOT CENTERS.

STAKES SHOULD BE INTERTWINED WITH THE OUTER MESH ON THE DOWNSTREAM SIDE AND DRIVEN IN THE GROUND TO A MINIMUM DEPTH OF 1.5 FEET LEAVING LESS THAN 1 FOOT OF STAKE EXPOSED ABOVE THE SEDIMENT TUBE. ALWAYS REFER TO THE MANUFACTURER'S RECOMMENDATIONS FOR THE STAKING DETAIL. INSTALL ALL SEDIMENT TUBES INSURING THAT NO GAPS EXIST BETWEEN THE SOIL AND THE BOTTOM OF THE SEDIMENT TUBE.
THE ENDS OF ADJACENT SEDIMENT TUBES SHOULD BE LAPPED 6-INCH TO PREVENT FLOW AND SEDIMENT FROM PASSING THROUGH THE FIELD JOINT.
IN NO SITUATIONS SHOULD SEDIMENT TUBES BE STACKED ON TOP OF ONE ANOTHER.

CONSTRUCT A TRENCH THAT IS 20% OF THE TUBE DIAMETER TO INSTALL THE TUBE IN.
AVOID DAMAGE TO SEDIMENT TUBES WHILE INSTALLING THEM. IF THE SEDIMENT TUBE BECOMES DAMAGED DURING INSTALLATION, A STAKE SHOULD BE PLACED ON BOTH SIDES OF THE DAMAGED AREA TERMINATING THE TUBE SEGMENT AND A NEW TUBE SEGMENT SHOULD BE INSTALLED.
SHOULD BE INSTALLED IN SWALES OR DRAINAGE DITCHES PERPENDICULAR TO THE FLOW OF WATER. SEDIMENT TUBES SHOULD CONTINUE UP THE SIDE SLOPES A MINIMUM OF 1 FOOT ABOVE THE DESIGN FLOW DEPTH. SEDIMENT TUBES SHOULD BE SPACED ACCORDING TO THE FOLLOWING TABLE.

SEDIMENT TUBE SPACING

SLOPE	MAXIMUM SEDIMENT TUBE SPACING
LESS THAN 2%	150-FEET
2%	100-FEET
3%	75-FEET
4%	50-FEET
5%	40-FEET
6%	30-FEET
GREATER THAN 6%	25-FEET

SEDIMENT TUBE LENGTH SELECTED SHOULD MINIMIZE THE NUMBER OF SEDIMENT TUBES NEEDED TO SPAN THE WIDTH OF THE DRAINAGE CONVEYANCE. IF THE DITCH CHECK LENGTH (PERPENDICULAR TO THE WATER FLOW) IS 15 FEET, THEN ONE 15 FOOT SEDIMENT TUBE IS PREFERRED COMPARED TO TWO OVERLAPPING 10 FOOT SEDIMENT TUBES.

SEDIMENT TUBES FOR DITCH CHECKS SHOULD REMAIN IN PLACE UNTIL FULLY ESTABLISHED VEGETATION AND ROOT SYSTEMS HAVE COMPLETELY DEVELOPED AND CAN SURVIVE ON THEIR OWN.

INSPECTION AND MAINTENANCE:
LARGE DEBRIS, TRASH, AND LEAVES SHOULD BE REMOVED.

IF EROSION CAUSES THE EDGES TO FALL TO A HEIGHT EQUAL TO OR BELOW THE HEIGHT OF THE CENTER, REPAIRS SHOULD BE MADE IMMEDIATELY.

REMOVE ACCUMULATED SEDIMENT FROM THE UPSTREAM SIDE OF THE SEDIMENT TUBE WHEN THE SEDIMENT HAS REACHED A HEIGHT OF APPROXIMATELY ONE-THIRD OF THE EXPOSED HEIGHT OF THE TUBE (MEASURED AT THE CENTER).

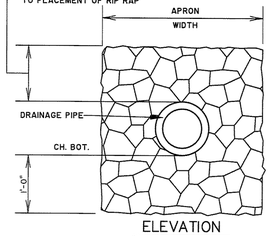
ACCUMULATED SEDIMENT SHOULD BE REMOVED PRIOR TO REMOVING SEDIMENT TUBES.

SEDIMENT TUBE REMOVAL SHOULD BE COMPLETED ONLY AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN COMPLETELY STABILIZED. PERMANENT VEGETATION SHOULD REPLACE AREAS FROM WHICH GRAVEL, STONE, SEDIMENT TUBES, OR OTHER MATERIALS HAVE BEEN REMOVED.

SEDIMENT TUBES

NOT TO SCALE

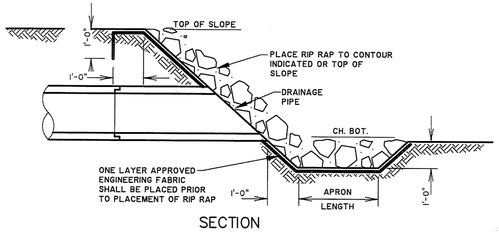
ONE LAYER APPROVED ENGINEERING FABRIC SHALL BE PLACED PRIOR TO PLACEMENT OF RIP RAP



ELEVATION

SIZING ROCK AND OUTLET APRONS			
PIPE SIZE	ROCK DIAMETER	APRON WIDTH	APRON LENGTH
8"	3"	2 FT	3 FT
12"	5"	3 FT	4 FT
18"	8"	4 FT	6 FT
24"	10"	6 FT	8 FT
30"	12"	8 FT	12 FT
36"	14"	10 FT	14 FT
42"	16"	12 FT	16 FT
48"	20"	14 FT	18 FT

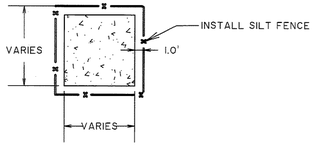
NOTE:
1. CONCRETE END SECTION SHOWN IN THIS VIEW
2. RIP RAP IS TO BE PLACED ALONG SLOPE OF DITCH BEGINNING ONE FOOT BELOW THE BOTTOM OF DITCH AND EXTENDING UP THE SLOPE TO THE TOP OF SLOPE OR THE CONTOUR INDICATED.
3. SEE TABLE FOR OCRM MINIMUM REQUIRED APRON DIMENSIONS.



SECTION

RIP RAP DETAIL

NOT TO SCALE



STOCKPILE DETAIL

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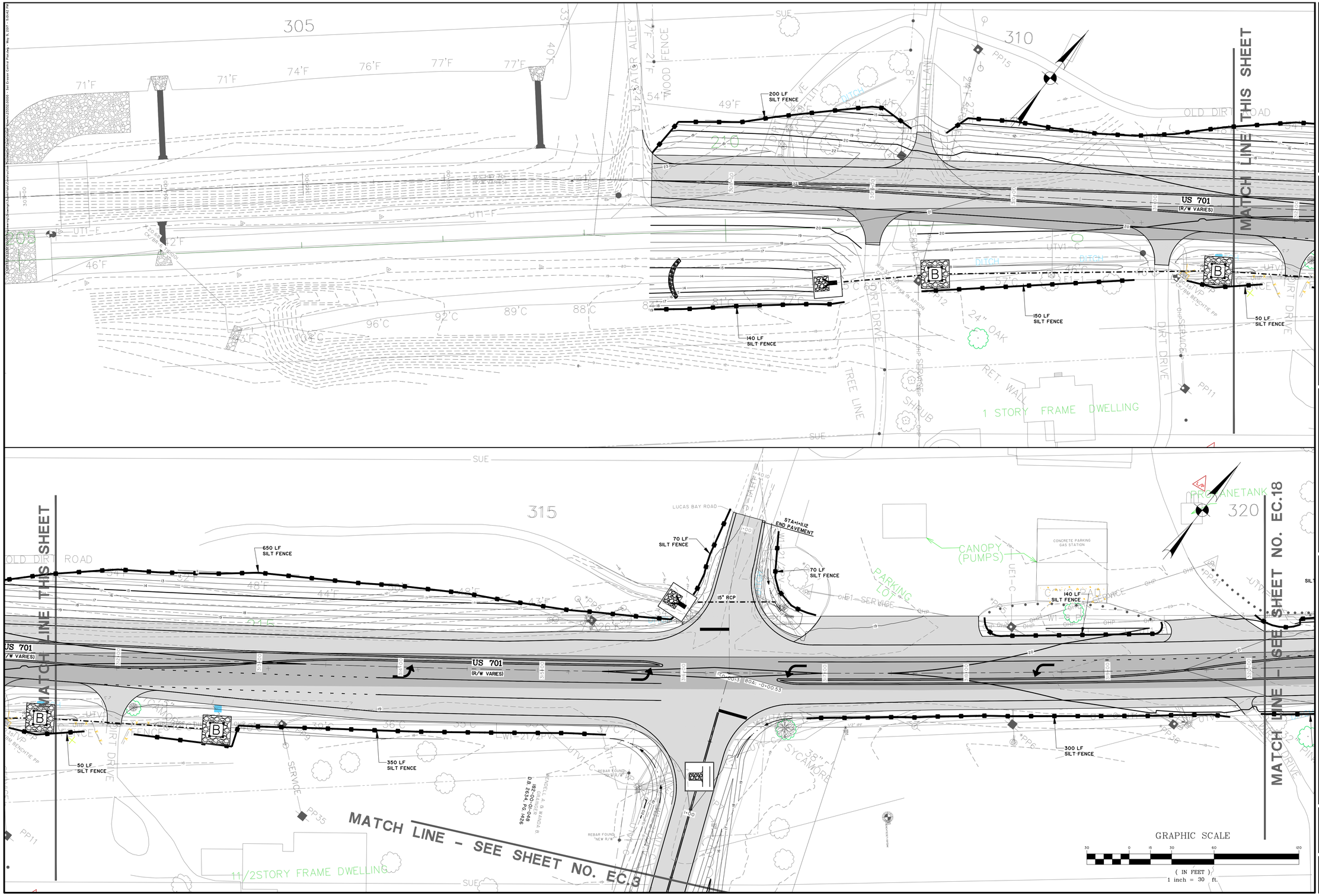
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

SOIL EROSION CONTROL DETAILS

JOB NO:	J-23332.0000
DATE:	10/17/15
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	N/A

EC.16



NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURLANES ADDED	CCR	05/10/17

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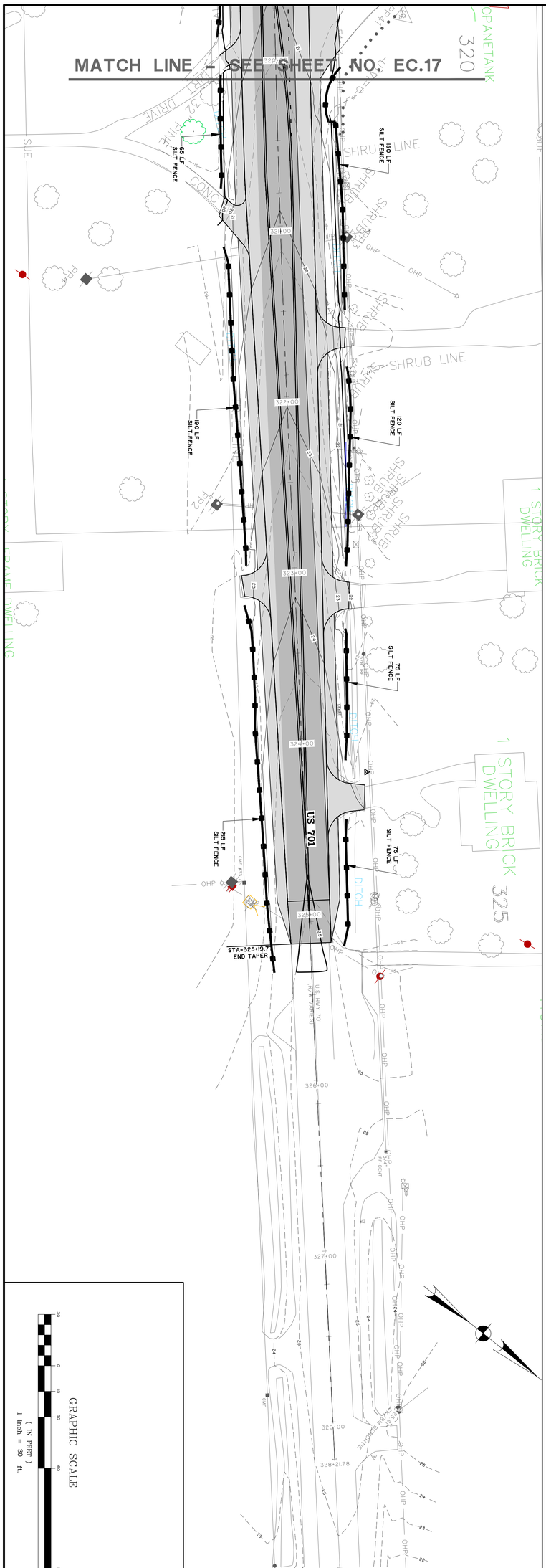
NEW BUCKSPORT ACCESS ROAD

SOIL EROSION CONTROL PLAN

JOB NO:	J-23332.0000
DATE:	10/17/15
DRAWN:	CVD
DESIGNED:	CVD
REVIEWED:	JHR
APPROVED:	JHR
SCALE:	1" = 30'

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EC.18

DESIGN NO: 23332.0000
DATE: 10/17/16
DRAWN: CYD
DESIGNED: CYD
REVIEWED: JHR
APPROVED: JHR
SCALE: 1" = 30'

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

SOIL EROSION CONTROL PLAN

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NO.	REVISIONS	BY	DATE
C	HIGHWAY 701 TURLANES ADDED	CCR	05/10/17

SOUTH CAROLINA
No. 28704
PROFESSIONAL ENGINEER
JOHN H. RICHARDS
11 MAY 17

SOUTH CAROLINA
THOMAS & HUTTON ENGINEERING CO.
No. C00285
CERTIFICATE OF AUTHORIZATION

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MATERIAL & WORKMANSHIP

PROVIDE ALL MATERIAL AND WORKMANSHIP IN ACCORDANCE WITH THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION 2007 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, UNLESS OTHERWISE SPECIFIED ON THE PLANS OR IN THE SPECIAL PROVISIONS.

COORDINATION OF PLANS, SPECIFICATIONS, AND SPECIAL PROVISIONS

GENERALLY, IN CASE OF DISCREPANCY, THIS GENERAL NOTES SHEET GOVERNS OVER THE STANDARD SPECIFICATIONS BUT THE REMAINDER OF THE PLANS GOVERN OVER NOTES ON THIS SHEET AND SPECIAL PROVISIONS GOVERN OVER ALL. SEE SUBSECTION 105.4 OF THE STANDARD SPECIFICATIONS.

WATER ELEVATIONS

THE WATER ELEVATIONS SHOWN IN THE PLANS ARE FOR INFORMATION ONLY AND THE ACTUAL WATER ELEVATION DURING CONSTRUCTION MAY VARY DEPENDING ON WEATHER CONDITIONS AND SEASONAL FLUCTUATIONS.

COMPLETION DATES

ON INSIDE FACE OF RIGHT SIDE BARRIER PARAPET/RAILING AT BEGINNING OF BRIDGE AND ON LEFT SIDE BARRIER PARAPET/RAILING AT END OF BRIDGE, PLACE YEAR OF COMPLETION ADJACENT TO GUARDRAIL ATTACHMENT. PLACE THIS COMPLETION DATE SO THAT IT WILL NOT BE COVERED BY THE GUARDRAIL CONNECTOR WHEN IT IS INSTALLED. RECESS NUMBERS IN THE CONCRETE USING NUMBERS FABRICATED FROM REUSABLE/DURABLE MATERIAL THAT IS APPROVED BY THE RCE. PROVIDE NUMBERS IN ACCORDANCE WITH SCDOT STANDARD DRAWING NO. 702-305-00.

REINFORCING STEEL

FABRICATE REINFORCING BARS IN ACCORDANCE WITH THE CURRENT C.R.S.I. MANUAL OF STANDARD PRACTICE EXCEPT FOR TIES AND STIRRUPS. PROVIDE ALL TIES AND STIRRUPS WITH 135° HOOKS THAT HAVE EXTENSIONS NO LESS THAN THE LARGER OF TEN BAR DIAMETERS OR SIX INCHES. THIS 135° HOOK REQUIREMENT DOES NOT APPLY TO STIRRUPS EXTENDING FROM PRESTRESSED CONCRETE BEAMS ASTM A615 GRADE 60 UNLESS OTHERWISE NOTED.

CONCRETE

PROVIDE THE CLASS OF CONCRETE AS NOTED IN THE CONTRACT DOCUMENTS. FOR CAST-IN-PLACE STRUCTURAL ELEMENTS, USE CLASS 4000 CONCRETE WHERE THE CLASS OF CONCRETE IS NOT SPECIFIED IN THE CONTRACT DOCUMENTS.

WHEN HOLES ARE CAST IN BEAMS TO ACCOMMODATE FALSEWORK, FILL THE HOLES WITH A NON-SHRINK STRUCTURAL GROUT SUITABLE FOR OVERHEAD REPAIRS AFTER FALSEWORK IS REMOVED.

AFTER ERECTION OF THE BEAMS AND PRIOR TO THE ERECTION OF THE DECK SLAB FALSEWORK, MEASURE BEAM CAMBERS. COMPARE THE MEASURED BEAM CAMBERS TO THE VALUES SHOWN ON THE PLANS TO AID IN DETERMINING IF FIELD ADJUSTMENTS ARE NEEDED. SUBMIT BEAM CAMBER MEASUREMENTS AND ANY PROPOSED FIELD ADJUSTMENTS TO THE ENGINEER FOR APPROVAL. ALL COST OF PERFORMING THIS WORK IS CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION IS ALLOWED FOR THE PERFORMANCE OF THIS WORK.

PAYMENT FOR CONCRETE IN SLAB IS BASED ON THEORETICAL PLAN QUANTITY. NO ADJUSTMENT IS MADE FOR VARIATION IN CAMBER.

CHAMFER ALL EXPOSED EDGES ¾" UNLESS OTHERWISE NOTED.

THE MINIMUM ACCEPTABLE CONCRETE COVER FOR REINFORCING STEEL IS ½" LESS THAN THE PLAN DIMENSIONS WHEN REQUIRED BY REINFORCING BAR FABRICATION TOLERANCES.

CAST BUILD-UPS AND SHEAR KEYS ON BENT CAPS MONOLITHIC WITH THE CAP UNLESS INDICATED OTHERWISE IN THESE PLANS. CONSTRUCT THE TOP OF EACH BUILD-UP AND SHEAR KEY LEVEL.

1

GRINDING & TEXTURING CONCRETE DECKS

PRIOR TO CASTING ANY CLOSURE POUR, GRINDING, OR TEXTURING, MAKE PROFILE LINE SURVEYS OF EACH STAGE OF THE BRIDGE DECKS. MAKE ONE OF THESE PROFILE LINE SURVEYS FOR EACH STAGE ALONG THE EDGE OF THE DECK ADJACENT TO THE CLOSURE POUR. COMPARE THE SURVEYS WITHIN EACH STAGE AND COMPARE THE SURVEYS OF EACH STAGE TO SURVEYS OF THE ADJACENT STAGE TO AID IN DETERMINING THE AMOUNT OF GRINDING AND TEXTURING NEEDED TO MEET THE RIDEABILITY AND ROLLING STRAIGHTEDGE REQUIREMENTS. SUBMIT ALL GRINDING AND TEXTURING PROCEDURES, PLOTTED SURVEY PROFILES, AND PROPOSED GRINDING DEPTHS TO THE ENGINEER FOR APPROVAL. MAINTAIN A FINAL COVER OF 2" MINIMUM OVER THE BRIDGE DECK REINFORCING STEEL.

FOLLOW THE ABOVE PROCEDURES FOR ALL STAGES OF THE WORK. FOR ALL SURVEYS PERFORMED ON THE SAME BRIDGE, USE IDENTICAL STATIONS FOR SURVEY SHOTS IN ORDER TO FACILITATE SURVEY COMPARISONS. ALL COSTS FOR PERFORMING, EVALUATING, AND SUBMITTING THE SURVEYS ARE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION IS ALLOWED FOR THE PERFORMANCE OF THIS WORK.

PAYMENT FOR GRINDING AND TEXTURING CONCRETE BRIDGE DECKS AT THE JUNCTION OF NEW AND EXISTING BRIDGE DECK SLABS IS DETERMINED IN ACCORDANCE WITH SUBSECTION 702.6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT IS MADE FOR GRINDING AND TEXTURING OF NEW BRIDGE DECKS TO CORRECT IRREGULARITIES AND EXCESSIVE DEVIATIONS.

ALLOWANCE FOR DEAD LOAD DEFLECTION & SETTLEMENT

IN SETTING FALSEWORK FOR REINFORCED CONCRETE SPANS, MAKE AN ALLOWANCE FOR THE DEFLECTION OF THE FALSEWORK, FOR ANY SETTLEMENT OF THE FALSEWORK, FOR THE INSTANTANEOUS DEAD LOAD DEFLECTION OF THE SPAN, AND FOR THE LONG-TIME DEAD LOAD DEFLECTION OF THE SPAN SUCH THAT ON REMOVAL OF THE FALSEWORK THE TOP OF THE STRUCTURE SHALL CONFORM TO THEORETICAL FINISHED GRADE PLUS THE ALLOWANCE FOR LONG-TIME DEFLECTION.

DRIVEN PILE FOUNDATIONS

WHERE PILES OCCUR IN FILL, PLACE FILL BEFORE DRIVING PILES.

WHERE PRESTRESSED CONCRETE PILES ARE TO BE DRIVEN THROUGH FILL, INSTALL PILES IN PRE-BORED HOLES EXTENDING TO THE ORIGINAL GROUND. FOR SQUARE PRESTRESSED CONCRETE PILES, BORE HOLES HAVING A MINIMUM DIAMETER OF 1.25 TIMES THE NOMINAL PILE SIZE. INCLUDE ALL COST OF PRE-BORING FILLS FOR PILE INSTALLATION IN THE UNIT PRICE BID FOR THE PILES.

EXCAVATION FOR END BENTS

INCLUDE ALL COST OF EXCAVATION NECESSARY TO CONSTRUCT END BENTS AND TO REMOVE MATERIAL UNDER SUPERSTRUCTURE TO AN ELEVATION TWELVE INCHES BELOW TOPS OF END BENT CAPS, IN THE UNIT PRICE BID FOR CLASS OF CONCRETE SPECIFIED IN THE PLANS.

REFERENCE SPECIFICATIONS

IN GENERAL ACCORDANCE WITH AASHTO 2014 LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH. EDITION, WITH INTERIM REVISIONS THROUGH 2016.

DESIGN DATA

LOAD AND RESISTANCE FACTOR DESIGN (LRFD) METHOD

LIVE LOAD: AASHTO HL-93 LOADING

THE TOP ¼" OF ALL CONCRETE SLABS IS CONSIDERED AS A WEARING SURFACE AND IS NOT INCLUDED IN THE SLAB DEPTH USED FOR THE CALCULATION OF SECTION PROPERTIES.

AN EXTRA DEAD LOAD OF 0.030 KSF IS INCORPORATED INTO THE DESIGN OF THIS STRUCTURE AS AN ALLOWANCE FOR A FUTURE WEARING SURFACE.

SEISMIC DESIGN IS IN GENERAL ACCORDANCE WITH THE 2008 SCDOT "SEISMIC DESIGN SPECIFICATIONS FOR HIGHWAY BRIDGES", VERSION 2.0, WITH THE FOLLOWING PARAMETERS:

SEISMIC DESIGN CATEGORY: B

ANALYSIS METHOD: STATIC ANALYSIS; DEMANDS BASED ON SCDOT SEISMIC PROVISIONS AND SPIRAL FOR PILES BASED ON IBC MINIMUM VOLUMETRIC RATIO

OPERATIONAL CLASSIFICATION: II

SITE CLASS: F

DESIGN ACCELERATION COEFFICIENTS:

P_{GA} (SEE): 0.26 G

S_{DS} (SEE): 0.827 G

S_{D1} (SEE): 0.35 G

VALUES DETERMINED FROM GEOTECHNICAL REPORT PREPARED BY GEOMETRICS CONSULTING LLC DATED 7/11/2012

FINAL FINISH OF EXPOSED CONCRETE

APPLY THE FINAL SURFACE FINISH ON THE BRIDGE(S) ONLY TO THE FOLLOWING:

ENTIRE SURFACE OF ALL BARRIER RAILS, PARAPET WALLS, APPROACH SLAB CURBS, CONCRETE UTILITY SUPPORTS, AND WING WALLS; OUTSIDE VERTICAL EDGE OF BRIDGE DECK SLABS AND SIDEWALKS.

MECHANICALLY STABILIZED EARTH WALL (MSE)

1. SEE SHTS. RW-1 THRU RW-8 FOR MSE WALL INSTALLATION AND CRITERIA.
2. BACKFILL BEHIND MSE WALL TO BE IN ACCORDANCE WITH GEOTECHNICAL REPORT DATED 9-10-2013 BY S & ME, INC. AND AS FOLLOWS:
   - REINFORCED (GRANULAR) MATERIAL:
     - MAX. PARTICLE SIZE : 3/4" WITH LESS THAN 15% PASSING NO. 200 SIEVE.
     - UNIT WEIGHT : 120 PCF

1

SPECIAL INSPECTIONS

THE OWNER SHALL EMPLOY SPECIAL INSPECTORS TO PROVIDE INSPECTIONS DURING CONSTRUCTION IN ACCORDANCE WITH CHAPTER 17 OF IBC 2015.

THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO DEMONSTRATES COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR THE INSPECTION OF THE ASSIGNED TYPE OF CONSTRUCTION OR OPERATION.

TEST PILE INSTALLATION & PILE LOAD TESTING

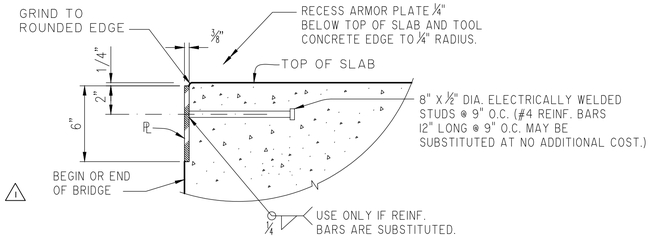
ONE PRODUCTION PILE AT BENT 2 AND ONE PRODUCTION PILE AT BENT 8 SHALL UNDERGO DYNAMIC PILE ANALYSIS (REFERRED TO AS THE LOAD VERIFICATION TEST PILES) VIA PILE DRIVING ANALYZER (PDA) TESTING. THESE PILES SHALL BE DRIVEN AND TESTED PRIOR TO THE INSTALLATION OF ANY OTHER PILES. THE LOAD TESTS FOR THE TEST PILES AT BENTS 2 AND 8 SHALL BE CONDUCTED PRIOR TO ORDERING ANY PRODUCTION PILES AND THE RESULTS OF THOSE TESTS WILL DETERMINE THE PILE LENGTHS FOR THE FIRST (APPROX.) 10 BENTS. THE RESULTS OF THE LOAD TESTS AT BENTS 13 AND 17 WILL BE USED TO DETERMINE THE PILE LENGTHS FOR THE NEXT 10 BENTS AND RESULTS OF THE LOAD TESTS FOR BENTS 21 AND 29 WILL BE USED TO DETERMINE THE PILE LENGTHS OF THE REMAINING (EASTERN MOST) 10 BENTS. THEY SHALL BE OF THE LENGTH SPECIFIED WITHIN THE CONSTUCTION PLANS AND SHALL BE DRIVEN AT THE LOCATIONS DESIGNATED ON THE PILE PLAN.

CONTRACTOR SHALL SUBMIT DETAILED PLANS FOR THE PILE LOAD TESTING METHOD INCLUDING ALL DRAWINGS, DETAILS AND STRUCTURAL DESIGN CALCULATIONS NECESSARY TO CLEARLY DESCRIBE THE PROPOSED TEST METHOD, REACTION LOAD SYSTEM CAPACITY AND EQUIPMENT SETUP, TYPE AND ACCURACY OF APPARATUS TO BE USED FOR APPLYING AND MEASURING THE TEST LOADS.

METHODS AND EQUIPMENT USED FOR INSTALLATION OF TEST PILES SHALL BE THE SAME METHODS USED FOR INSTALLATION OF ALL OTHER PRODUCTION PILES.

LOAD TESTS SHALL BE IN GENERAL ACCORDANCE WITH THE "STANDARD TEST METHOD FOR HIGH-STRAIN DYNAMIC TESTING OF PILES" (ASTM D-4945). THE RESULTS FROM THE TESTING SHALL BE ANALYZED USING THE CAPWAPC (CASE PILE WAVE ANALYSIS PROGRAM - CONTINUOUS VERSION) COMPUTER PROGRAM OR OTHER ACCEPTED ANALYSIS METHODS.

DYNAMIC PILE TESTING SHALL HAVE A MINIMUM FACTOR OF SAFETY OF 2.5.



1 / S.01 **ARMOR PLATE DETAIL**
N.T.S.

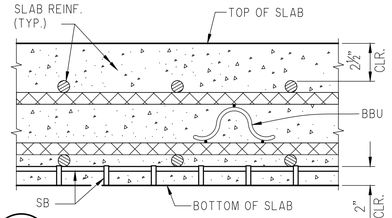
INSTALL ⅜" THICK PLATES, AS DETAILED ABOVE, AT THE BEGINNING AND END OF THE BRIDGE.

PROVIDE STEEL FOR THE ARMOR PLATES THAT CONFORMS TO THE LATEST AASHTO M 270 GRADE 50W (ASTM A 709 GR. 50W) STEEL AND NEITHER THE PLATES NOR THE ANCHOR STUDS NEED TO BE PAINTED.

PROVIDE FABRICATED PLATES THAT CONFORM TO THE CROWN AND GRADE OF THE ROADWAY AND EXTEND FROM GUTTER LINE TO GUTTER LINE. THE PLATES MAY BE FABRICATED IN REASONABLE LENGTHS AND CONNECTED AT THE JOB SITE WITH FULL PENETRATION BUTT WELDS GROUND FLUSH ALONG THE TOP FACE OF CONNECTED PLATES.

HOLES, ⅝" DIA., SPACED APPROXIMATELY 2'-0" ON CENTER MAY BE PROVIDED IN THE LOWER PORTION OF THE PLATES TO BOLT THE PLATES TO THE FORMS.

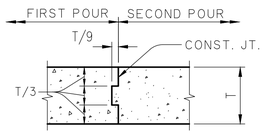
INCLUDE ALL COSTS OF MATERIAL AND WORKMANSHIP TO FABRICATE, FURNISH, AND INSTALL THE ARMOR PLATES AND ANCHOR STUDS COMPLETE IN PLACE IN THE UNIT PRICE BID FOR CLASS 4000 CONCRETE.



2 / S.01 **BAR SUPPORT DETAIL**
N.T.S.

(SECTION PARALLEL TO ℄ ROADWAY)

FOR BAR SUPPORTS THAT CONTACT FORMS OR FLOOR SURFACES, USE PLASTIC BAR SUPPORTS THAT CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS. PROTECT THE PLASTIC BAR SUPPORTS FROM EXPOSURE TO SUNLIGHT UNTIL PLACED IN THE FORM. DO NOT USE CONTINUOUS LEGS OR RAILS ON FORMS OR FLOOR SURFACES. FOR SUPPORTS THAT DO NOT CONTACT FORMS OR FLOOR SURFACES, USE WIRE BAR SUPPORTS THAT CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS. IN APPLICATIONS WHERE GALVANIZED COATED BARS ARE USED, GALVANIZE WIRE SUPPORTS.



3 / S.01 **CONSTRUCTION JOINT DETAIL**
N.T.S.

ALLOW A MINIMUM 4-DAY INTERVAL BETWEEN THE FIRST POUR AND THE SECOND POUR.

SOUTH CAROLINA — NO. 30471 — PROFESSIONAL ENGINEER — SCOTT HUTTON — CERTIFICATE OF AUTHORIZATION — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — NOV 2, 2017

NO.	REVISIONS	BY	DATE
1	ADDENDUM #4 REVISIONS	SHG	12/21/17
0	ISSUED FOR BIDS	SHG	9/25/17
B	ABUTMENT REVISIONS	CLG	10/17/13
A	ISSUED FOR PERMITTING	SHG	2/25/13

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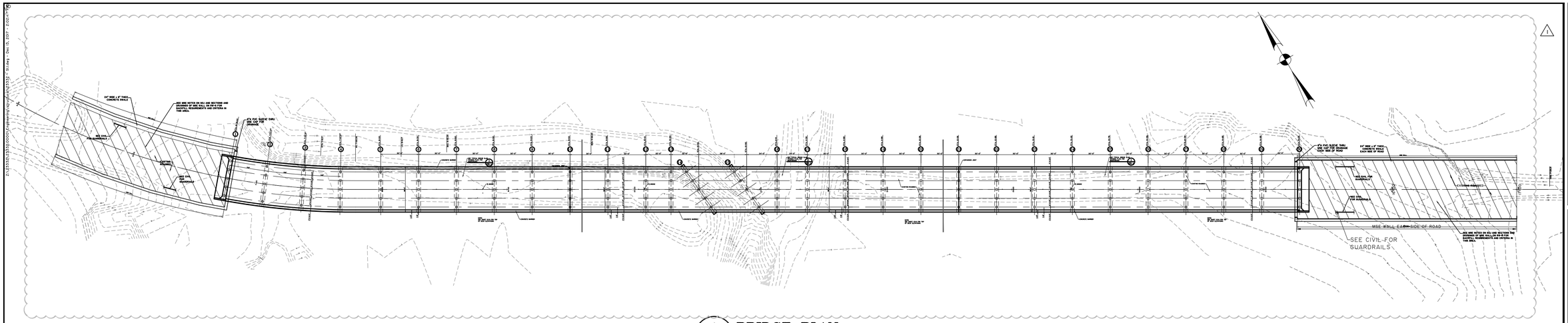
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MYRTLE BEACH, SOUTH CAROLINA

BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

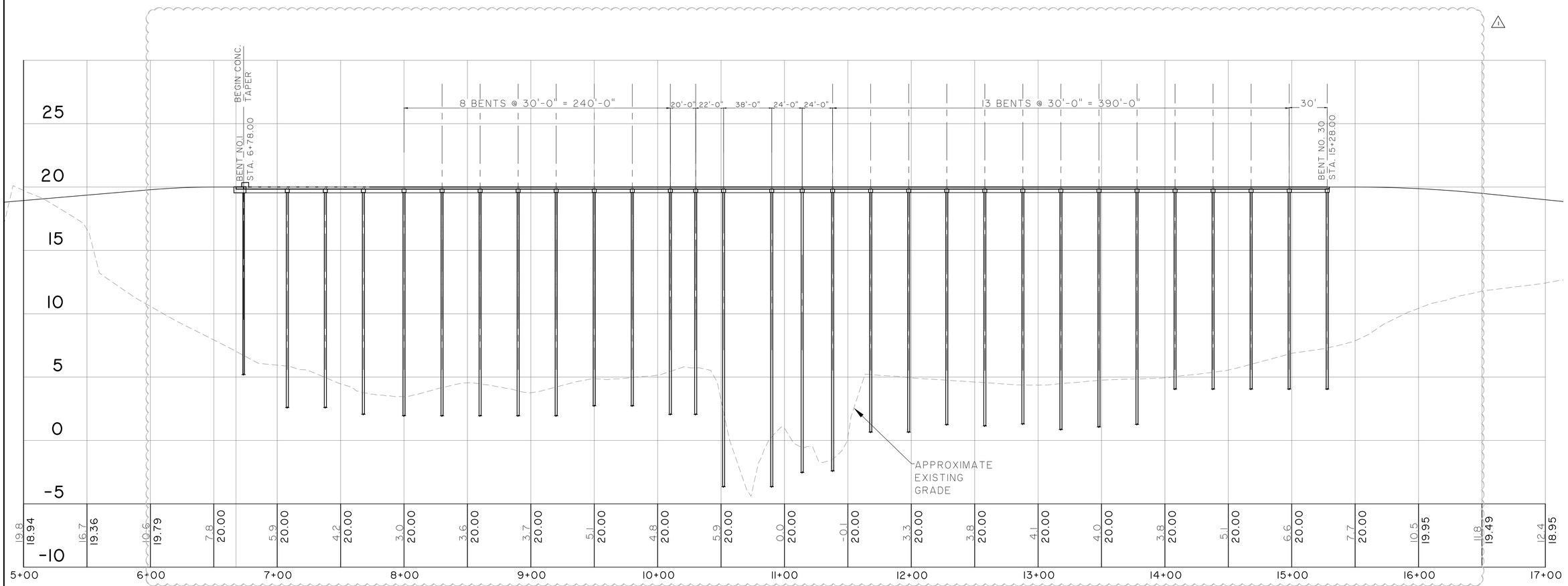
GENERAL NOTES AND DETAILS

JOB NO:	J-23332.0000
DATE:	2/25/13
DRAWN:	JWR
DESIGNED:	CLG
REVIEWED:	CLG
APPROVED:	SHG
SCALE:	AS SHOWN

S0.1



1 / S1.1 **BRIDGE PLAN**
SCALE: 1" = 40'-0"



2 / S1.1 **BRIDGE ELEVATION**
SCALE: 1" = 40'-0" HORIZONTAL
1" = 4'-0" VERTICAL

SOUTH CAROLINA NOLAN C. HUTTON No. C00285 THOMAS & HUTTON ENGINEERING CO. CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 30471 SCOTT H. GIBSON

NO.	REVISIONS	BY	DATE
1	ADDENDUM #4 REVISIONS	SHG	12/21/17
0	ISSUED FOR BIDS	SHG	9/25/17
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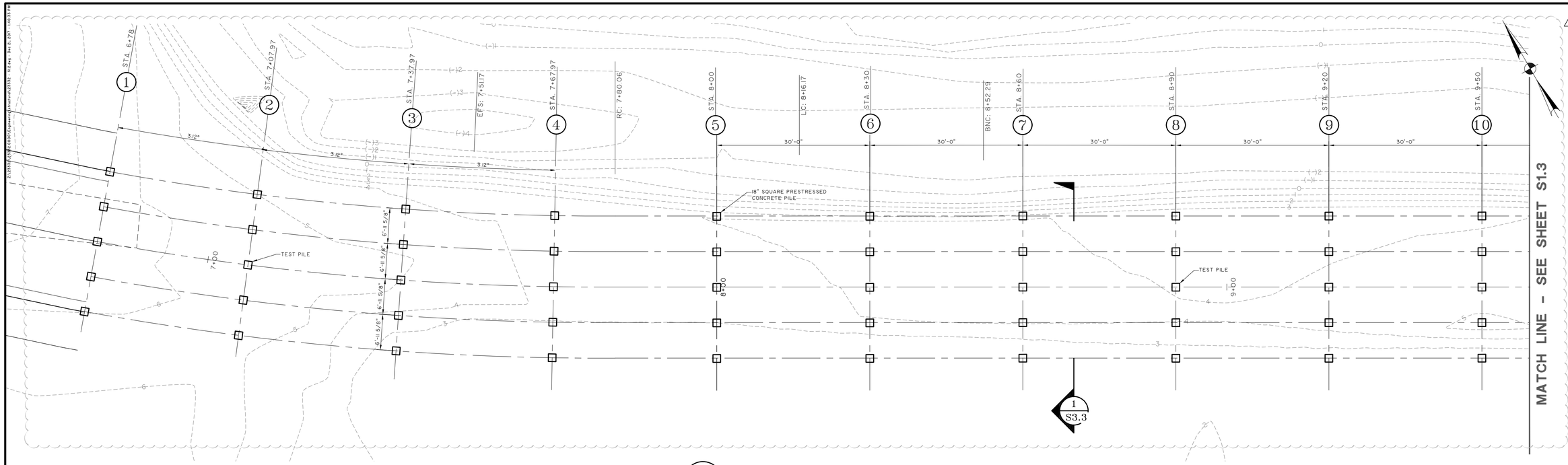
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BRIDGE PLAN AND ELEVATION

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APPROVED:	SHG
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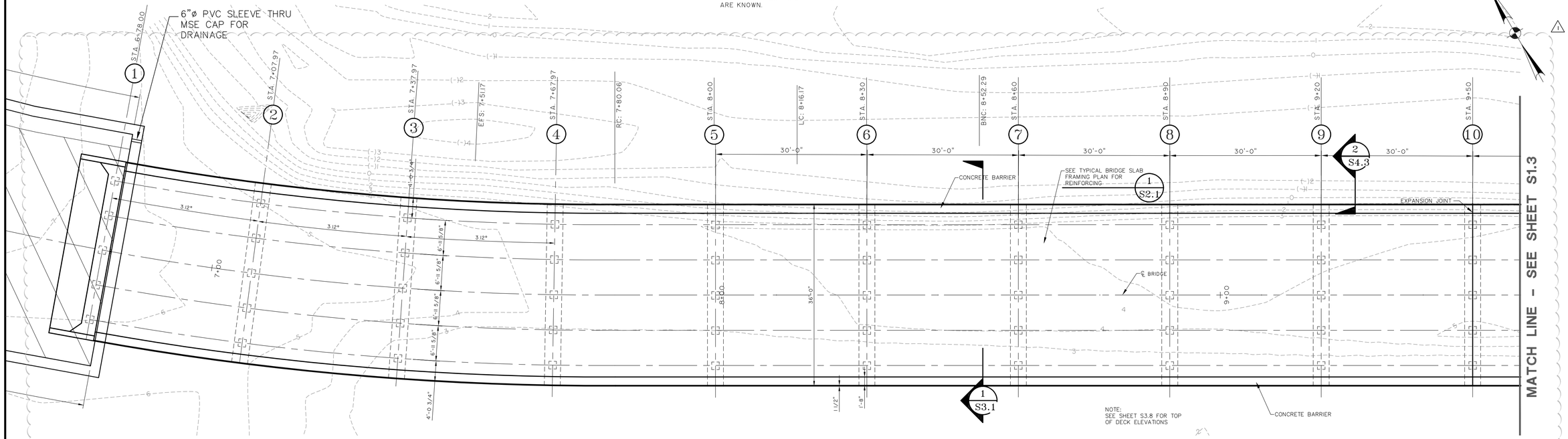
S1.1



1 / S1.2 **PILE PLAN**

SCALE: 1" = 10'-0"

NOTE:
PERFORM PDA AT BENT 2 IN ACCORDANCE WITH ASTM D4945. ORDER PILES ONLY FOR BENT 2 UNTIL THE RESULTS OF THE PDA ARE KNOWN.



2 / S1.2 **DECK PLAN**

SCALE: 1" = 10'-0"

NOTE:
WHERE FEASIBLE, CONTRACTOR SHALL ANTICIPATE 90' NOMINAL DECK POURS FOR CAST-IN-PLACE DECK SPANS

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NO.	REVISIONS	BY	DATE
1	ADDENDUM #4 REVISIONS	SHG	12/21/17
0	ISSUED FOR BIDS	SHG	9/25/17
B	ABUTMENT REVISIONS	CLG	10/17/13
A	ISSUED FOR PERMITTING	SHG	2/25/13

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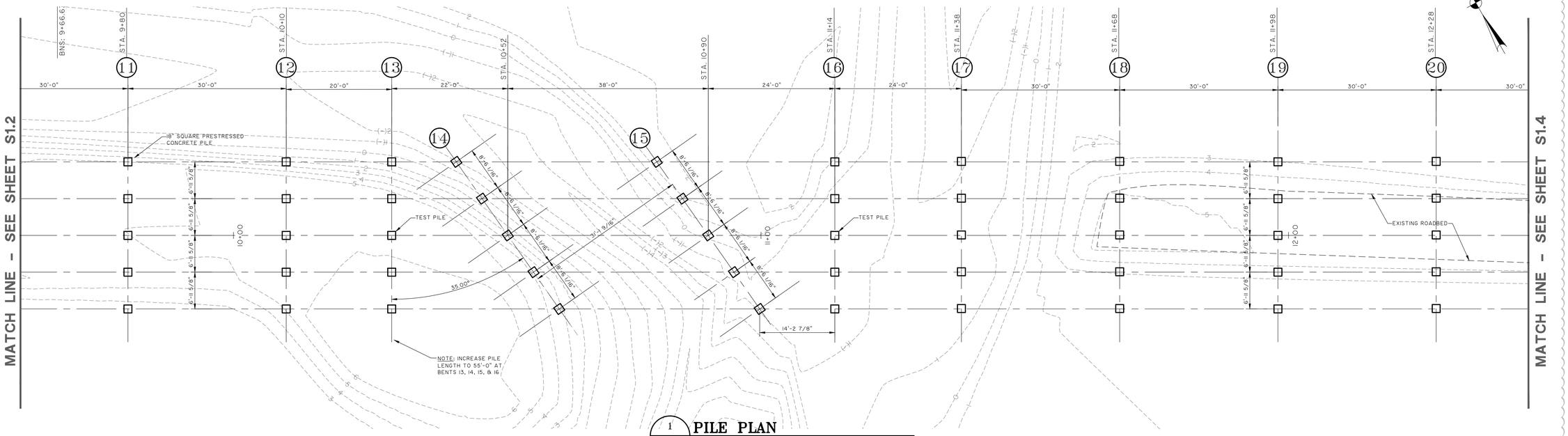
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BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

PILE/FRAMING PLAN

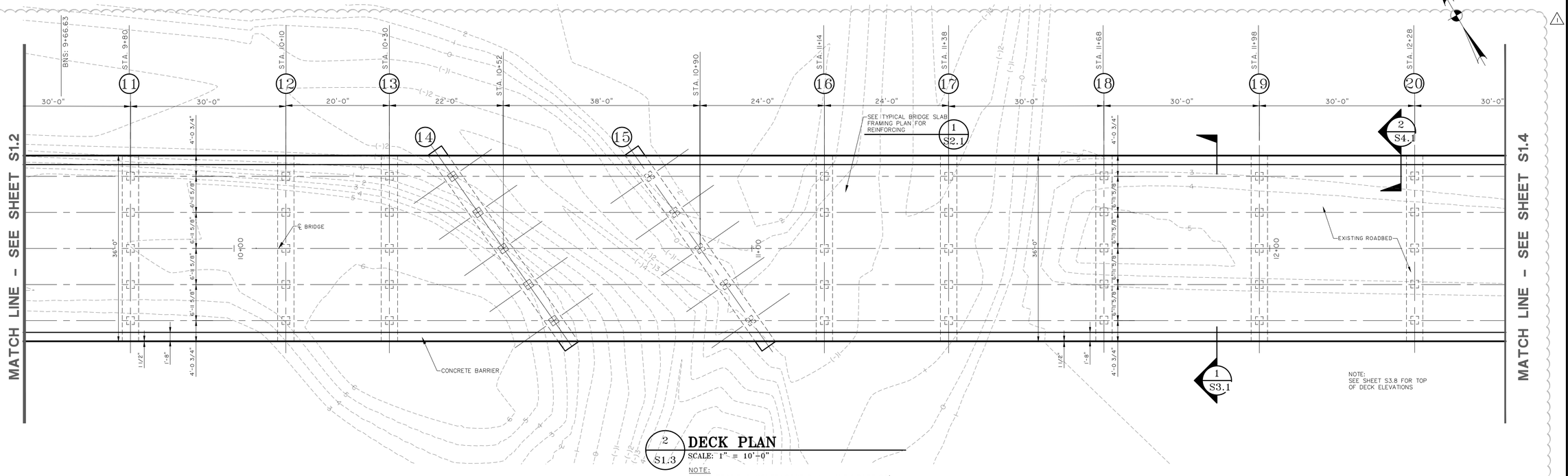
JOB NO:	J-23332.0000
DATE:	2/25/13
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DESIGNED:	CLG
REVIEWED:	CLG
APPROVED:	SHG
SCALE:	AS SHOWN

S1.2



1 / S1.3 **PILE PLAN**
SCALE: 1" = 10'-0"

NOTE:
PERFORM PDA AT BENT 13 IN ACCORDANCE WITH ASTM D4945.



2 / S1.3 **DECK PLAN**
SCALE: 1" = 10'-0"

NOTE:
WHERE FEASIBLE, CONTRACTOR SHALL ANTICIPATE 90' NOMINAL DECK POURS FOR CAST-IN-PLACE DECK SPANS

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NO.	REVISIONS	BY	DATE
1	ADDENDUM #4 REVISIONS	SHG	12/21/17
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A	ISSUED FOR PERMITTING	SHG	2/25/13

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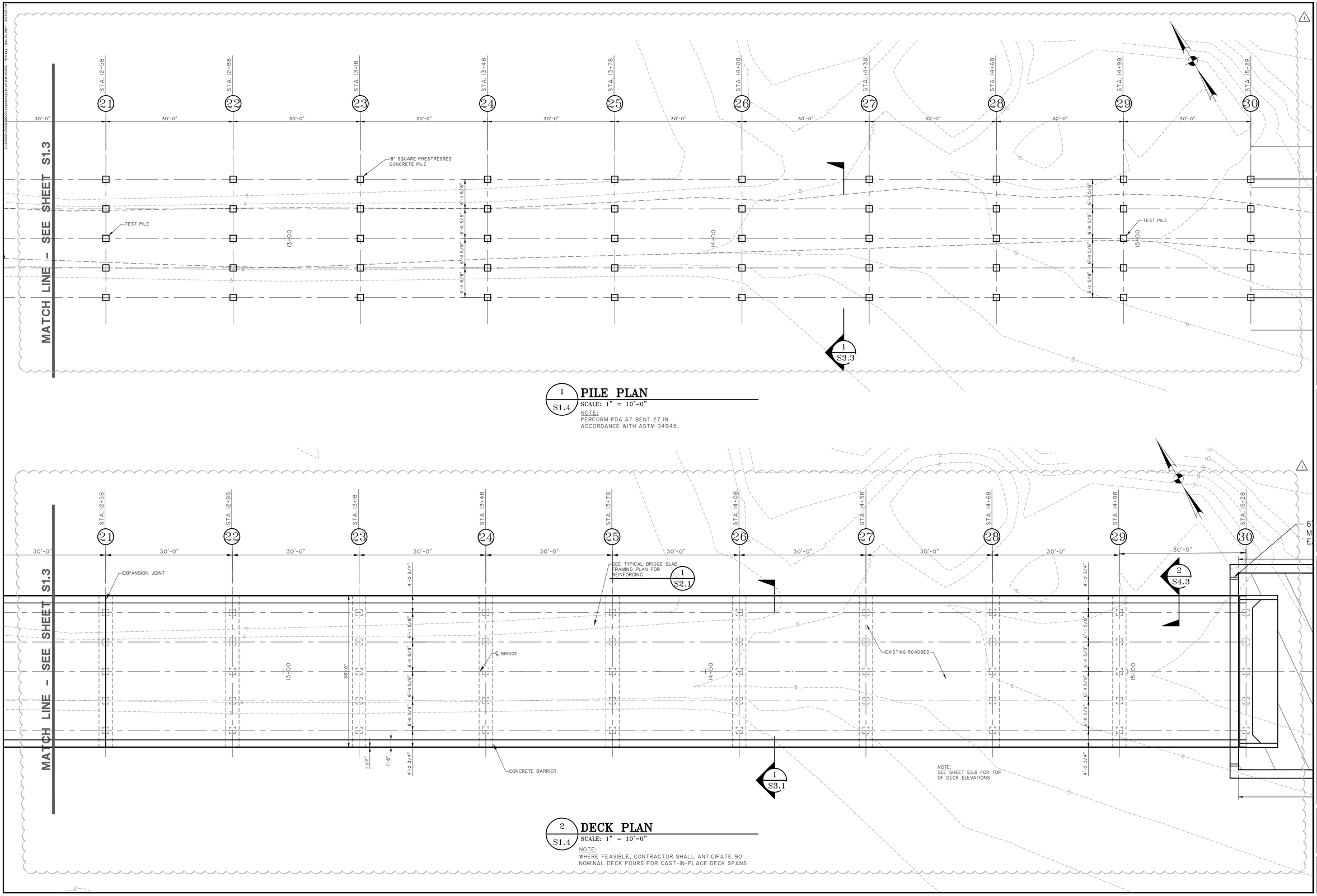
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BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

PILE/FRAMING PLAN

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REVIEWED:	CLG
APPROVED:	SHG
SCALE:	AS SHOWN

S1.3



1 / S1.4 **PILE PLAN**
SCALE: 1" = 10'-0"

NOTE:
PERFORM PDA AT BENT 27 IN ACCORDANCE WITH ASTM D4945.

2 / S1.4 **DECK PLAN**
SCALE: 1" = 10'-0"

NOTE:
WHERE FEASIBLE, CONTRACTOR SHALL ANTICIPATE 90' NOMINAL DECK POURS FOR CAST-IN-PLACE DECK SPANS

SOUTH CAROLINA — NOLTY ZACHARY — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — No. 30471 — SCOTT HUTTON — No. 6/30/18

NO.	REVISIONS	BY	DATE
1	ADDENDUM #4 REVISIONS	SHG	12/21/17
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B	ABUTMENT REVISIONS	CLG	10/17/13
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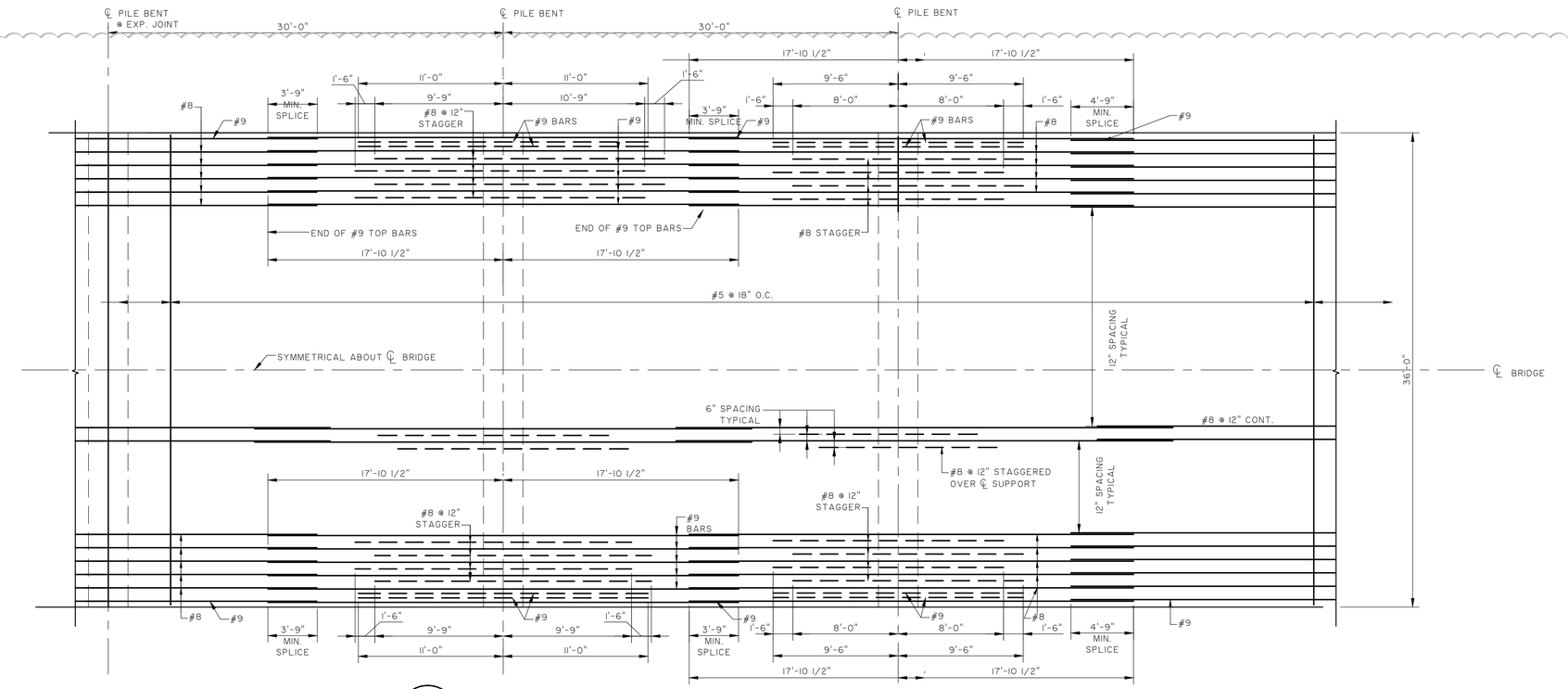
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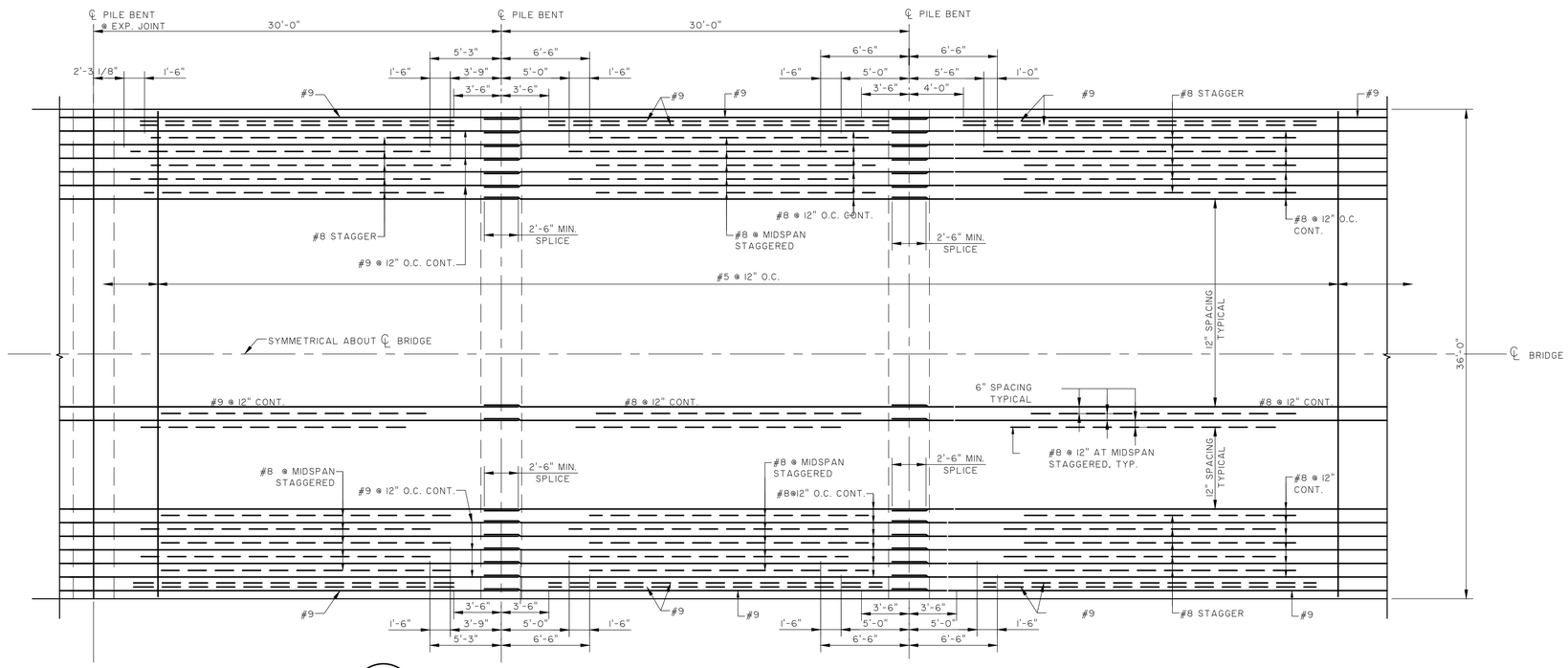
PILE/FRAMING PLAN

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REVIEWED:	CLG
APPROVED:	SHG
SCALE:	AS SHOWN

S1.4



1 / S2.1 **TYPICAL BRIDGE SLAB (TOP LAYER) FRAMING PLAN**
SCALE: 3/16" = 1'-0"



2 / S2.1 **TYPICAL BRIDGE SLAB (BOTTOM LAYER) FRAMING PLAN**
SCALE: 3/16" = 1'-0"

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — No. 30471 — SCOTT HUTTON — 12-21-17

NO.	REVISIONS	BY	DATE
1	ADDENDUM #4 REVISIONS	SHG	12/21/17
0	ISSUED FOR BIDS	SHG	9/25/17
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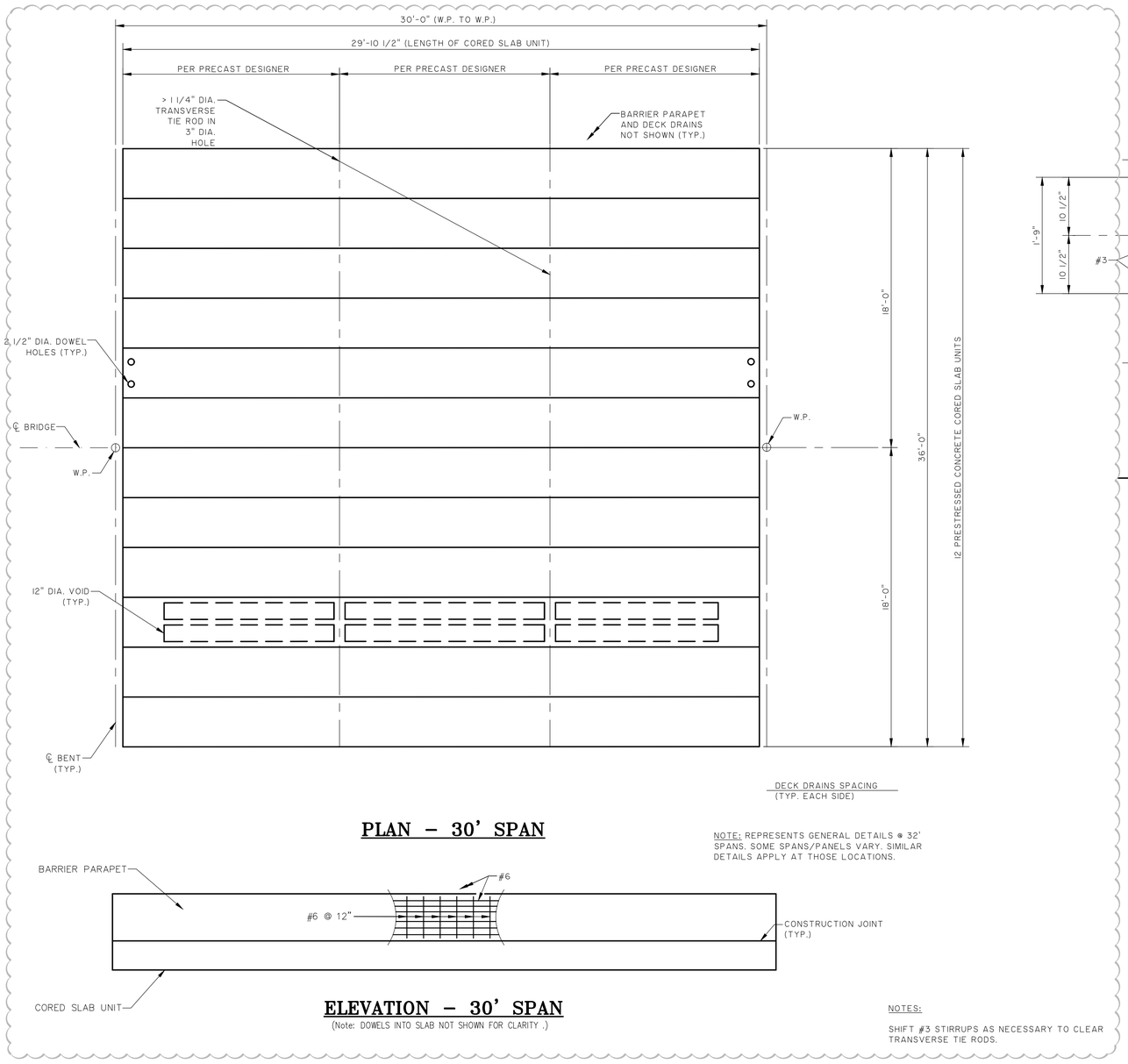
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BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

TYPICAL BRIDGE SLAB FRAMING PLAN

JOB NO:	J-23332.0000
DATE:	2/25/13
DRAWN:	JWR
DESIGNED:	CLG
REVIEWED:	CLG
APPROVED:	SHG
SCALE:	AS SHOWN

S2.1



PLAN – 30' SPAN

NOTE: REPRESENTS GENERAL DETAILS @ 32' SPANS. SOME SPANS/PANELS VARY. SIMILAR DETAILS APPLY AT THOSE LOCATIONS.

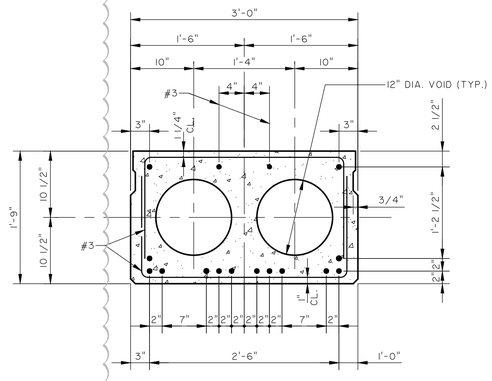
ELEVATION – 30' SPAN

(Note: DOWELS INTO SLAB NOT SHOWN FOR CLARITY .)

NOTES:

SHIFT #3 STIRRUPS AS NECESSARY TO CLEAR TRANSVERSE TIE RODS.

1



f'c = 5.0 ksi
f'ci = 4.0 ksi

(Note: FOR GENERAL REFERENCE ONLY.)

INTERIOR SLAB SECTION

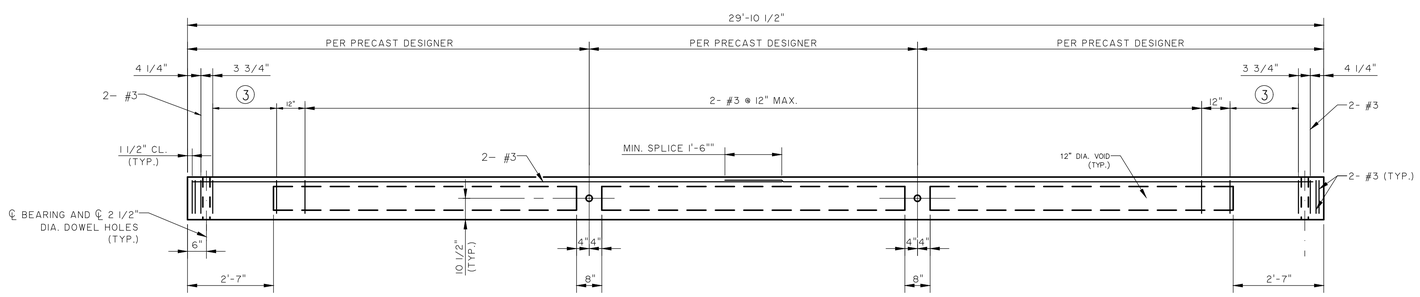
SCALE: 1" = 1'-0"

(CAMBER 14-1/2" DIA. L.R. STRAND LAYOUT FOR PRICING ONLY. FINAL DESIGN BY PRECAST MANUFACTURER/DESIGNER)

DEAD LOAD DEFLECTION & CAMBER

Camber at Erection (Slab alone in place)	11/16" ↑
Deflection due to Barrier Parapet and Asphalt Wearing Surface	1/8" ↓
Final Camber	9/16" ↑

1



TYPICAL ELEVATION – 30' CORED SLAB UNIT

SOUTH CAROLINA NOVEMBER 30, 2017 THOMAS & HUTTON ENGINEERING CO. No. C00285 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 30471 SCOTT HENRY

NO.	REVISIONS	BY	DATE
1	ADDENDUM #4 REVISIONS	SHG	12/21/17
0	ISSUED FOR BIDS	SHG	9/25/17
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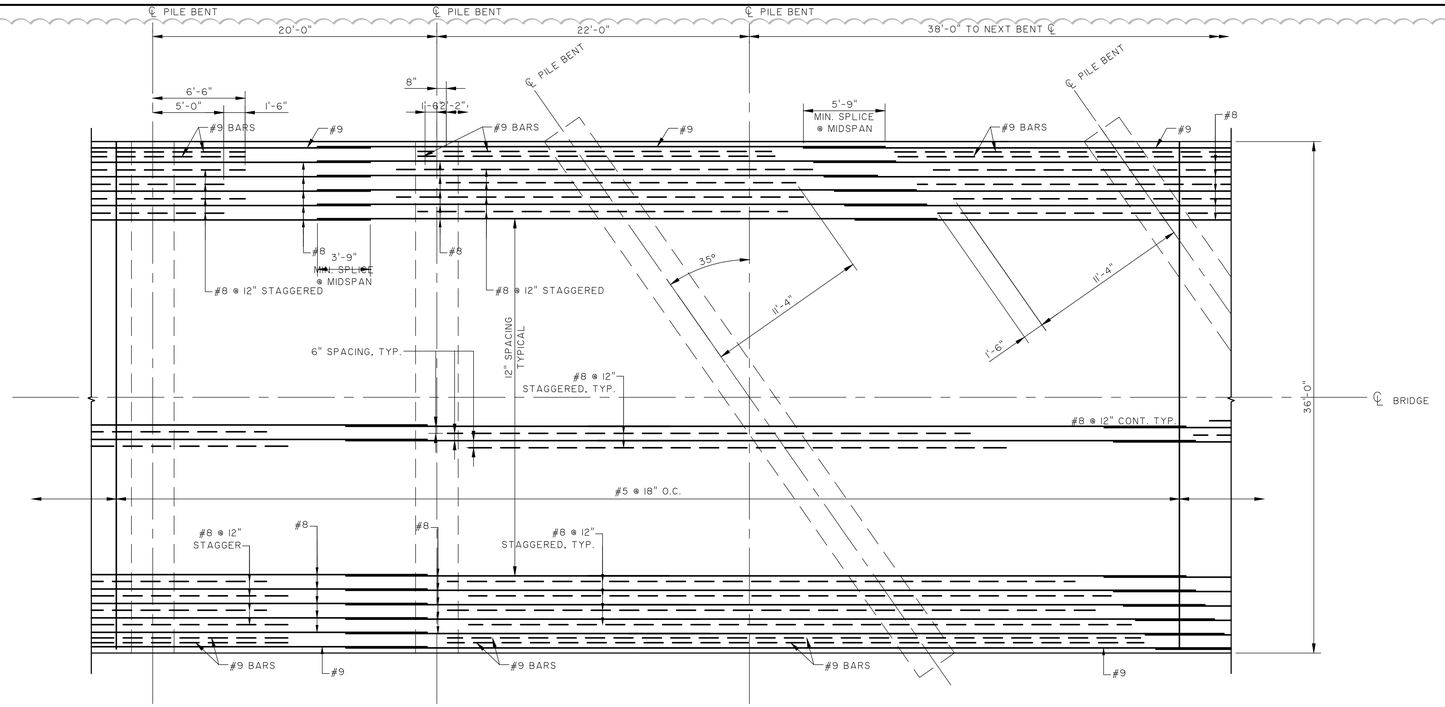
BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

PRECAST DECK ALTERNATE

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APPROVED:	SHG
SCALE:	AS SHOWN

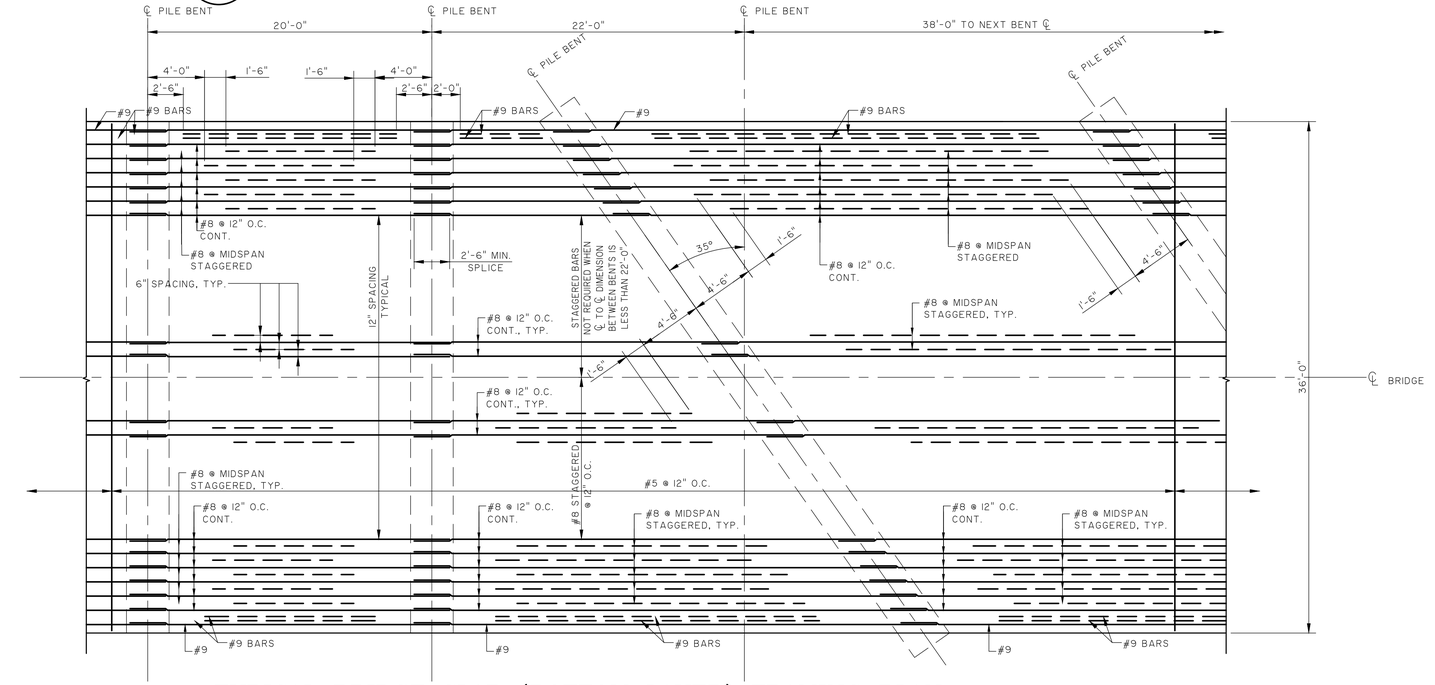
S2.1A

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1 S2.2 TYPICAL BRIDGE SLAB (TOP LAYER) FRAMING PLAN AT SKEWED BENTS

SCALE: 3/16" = 1'-0"



2 S2.2 TYPICAL BRIDGE SLAB (BOTTOM LAYER) FRAMING PLAN AT SKEWED BENTS

SCALE: 3/16" = 1'-0"

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION — NOV 1, 2017 — JUNE 30, 2019

SOUTH CAROLINA — PROFESSIONAL ENGINEER — No. 30471 — SCOTT HENRY — NOV 30, 2018

NO.	REVISIONS	BY	DATE
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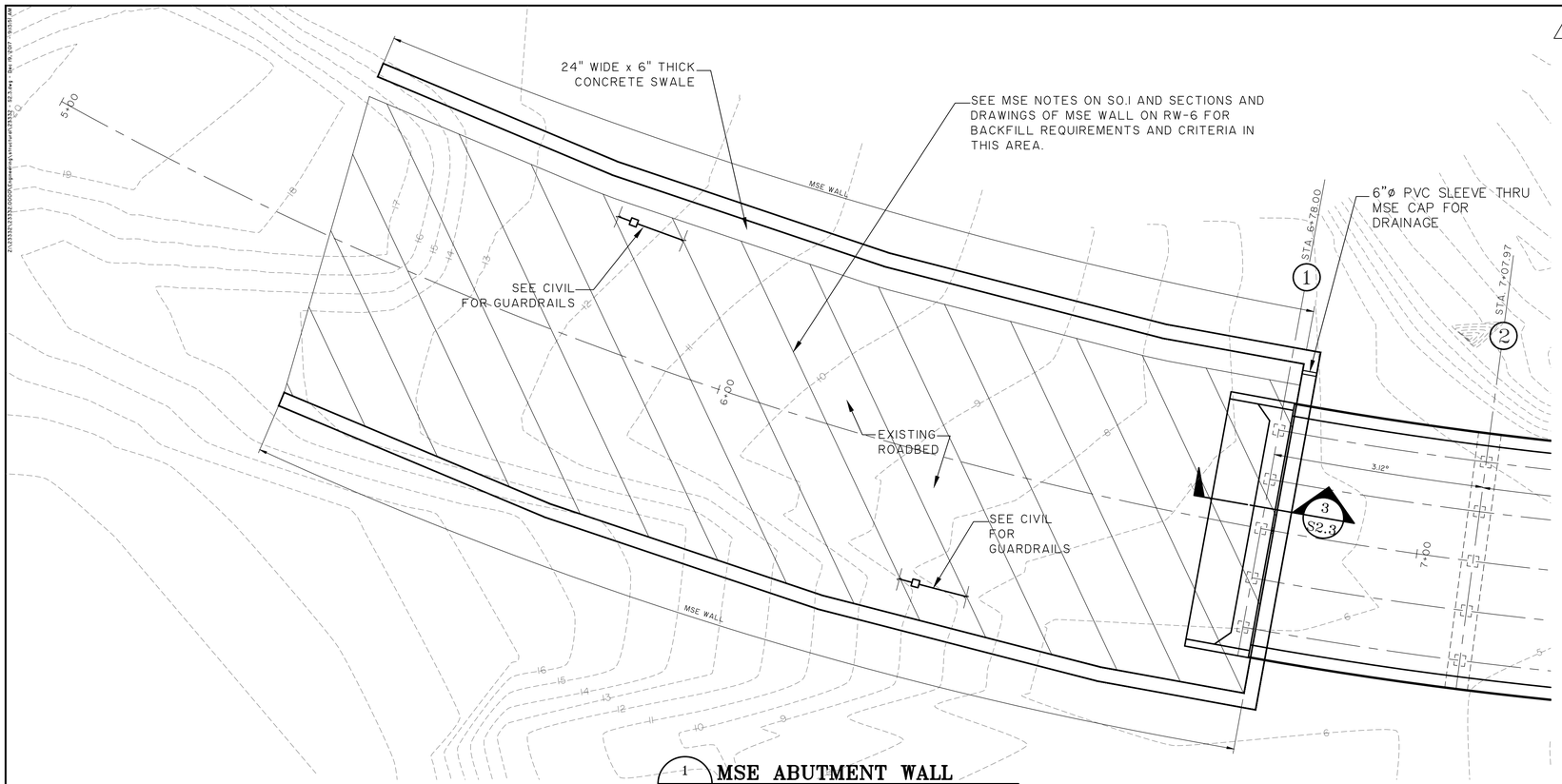
BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

TYPICAL BRIDGE SLAB FRAMING PLAN

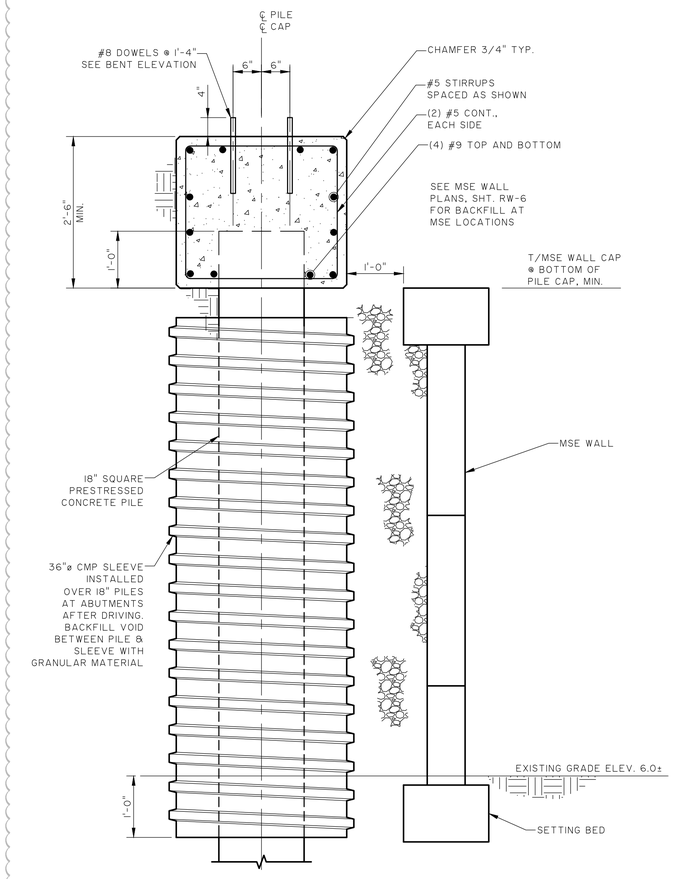
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S2.2

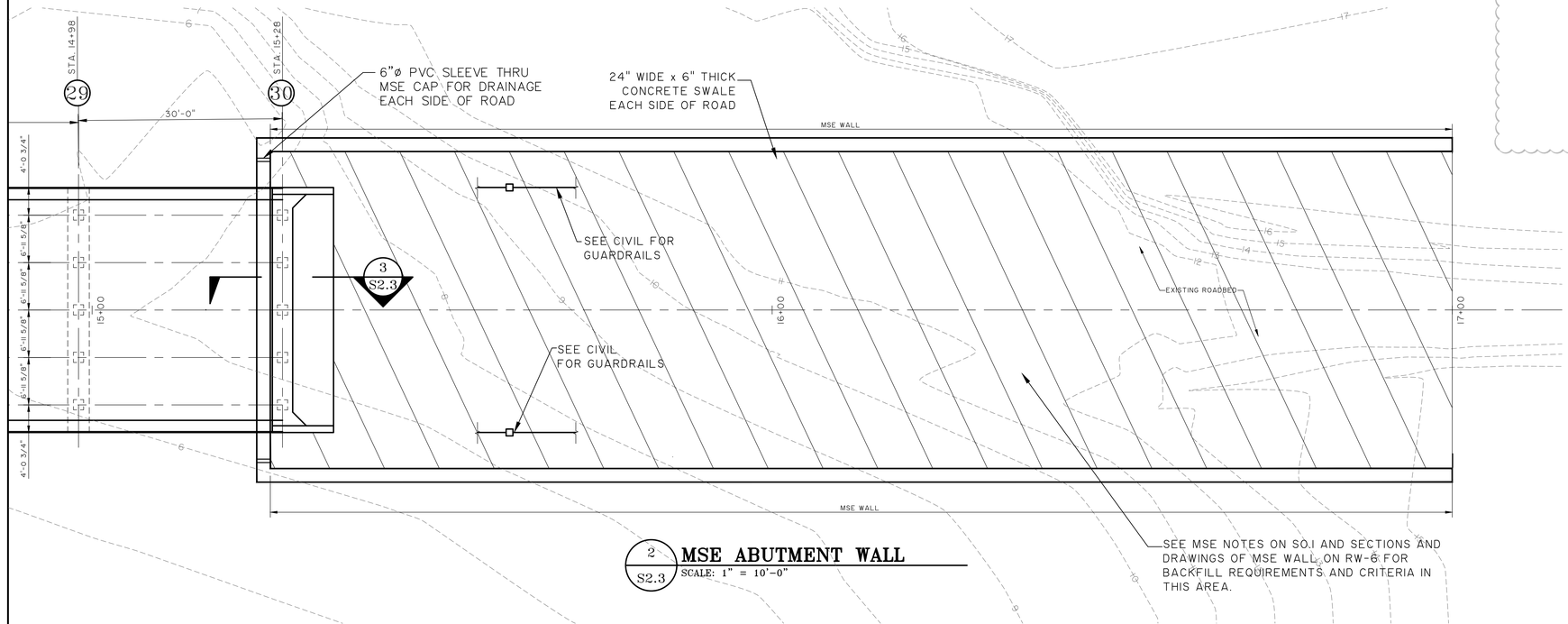
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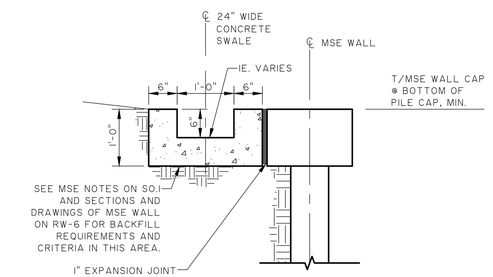
1 S2.3 **MSE ABUTMENT WALL**
SCALE: 1" = 10'-0"



3 S2.3 **SECTION @ BENT NO.1 & 30**
SCALE: 3/4" = 1'-0"



2 S2.3 **MSE ABUTMENT WALL**
SCALE: 1" = 10'-0"



4 S2.3 **DETAIL**
SCALE: 3/4" = 1'-0"

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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 30471 SCOTT HUTTON

NO.	DATE	BY
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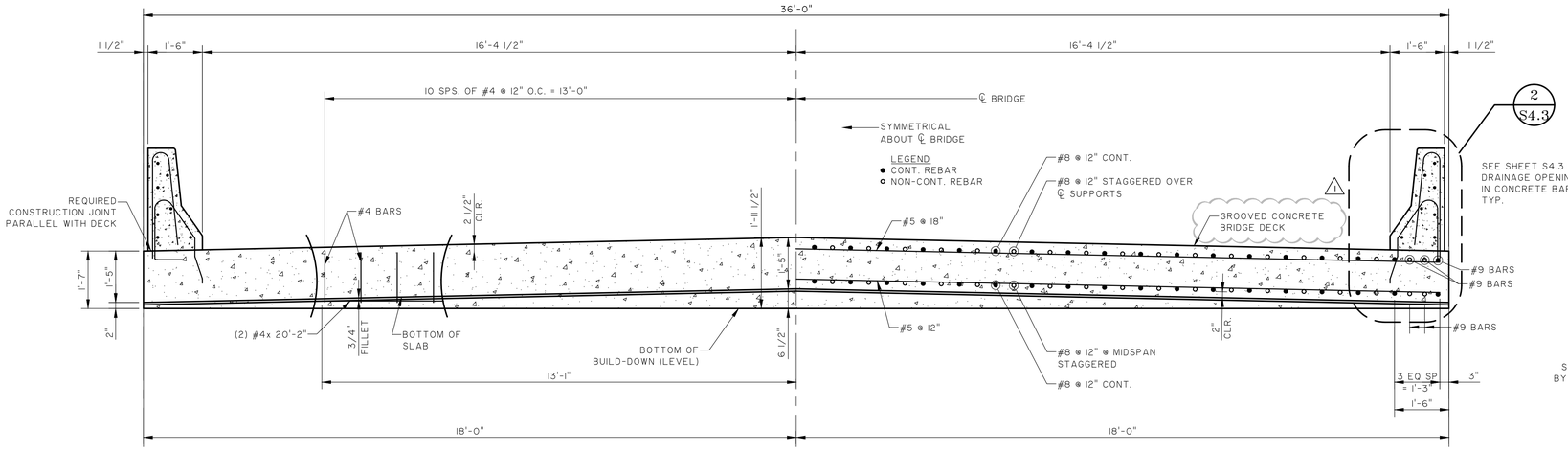
GRAND STRAND WATER & SEWER AUTHORITY
MYRTLE BEACH, SOUTH CAROLINA

BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

MSE RETAINING AND ABUTMENT WALL PLANS AND DETAILS

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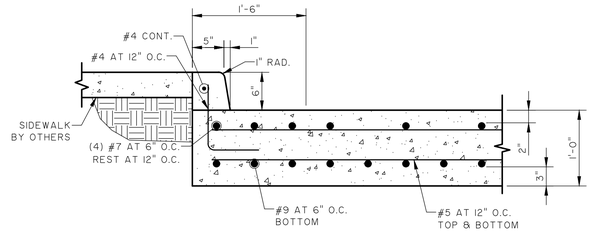
S2.3



SEE SHEET S3.5 TO S3.8 FOR DECK SLOPES AND ELEVATIONS

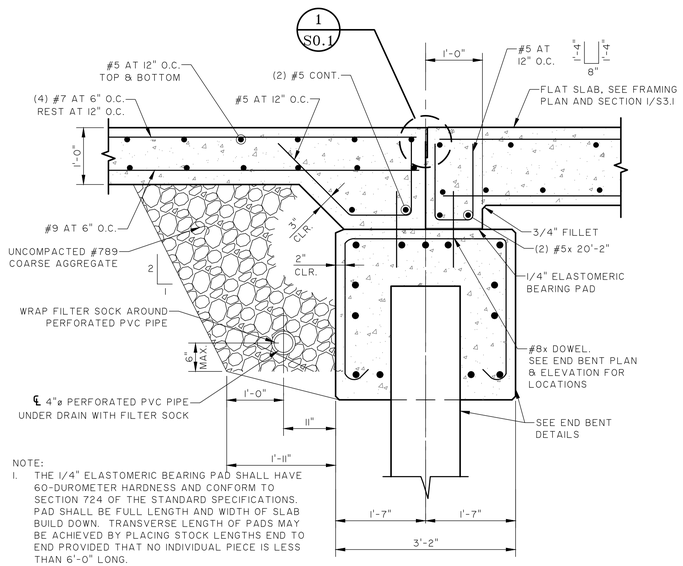
1 / S3.1 SECTION THRU CAST IN PLACE SLAB

SCALE: 1/2" = 1'-0"



2 / S3.1 APPROACH SLAB DETAIL

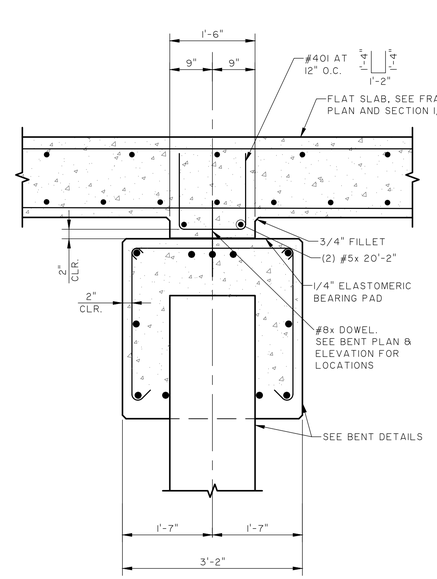
SCALE: 1" = 1'-0"



NOTE:
1. THE 1/4" ELASTOMERIC BEARING PAD SHALL HAVE 60-DUROMETER HARDNESS AND CONFORM TO SECTION 724 OF THE STANDARD SPECIFICATIONS. PAD SHALL BE FULL LENGTH AND WIDTH OF SLAB BUILD DOWN. TRANSVERSE LENGTH OF PADS MAY BE ACHIEVED BY PLACING STOCK LENGTHS END TO END PROVIDED THAT NO INDIVIDUAL PIECE IS LESS THAN 6'-0" LONG.
2. ALL FLAT SLAB AND BENT CAP 1 REINFORCING SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A767, CLASS II.

3 / S3.1 SECTION THRU END BENT 1 & 30

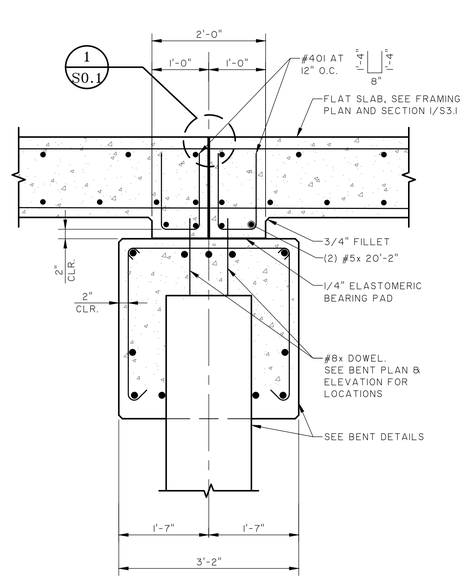
SCALE: 3/4" = 1'-0"



4 / S3.1 SECTION THRU INTERIOR BENTS @ CONTINUOUS DECK SPANS

SCALE: 3/4" = 1'-0"

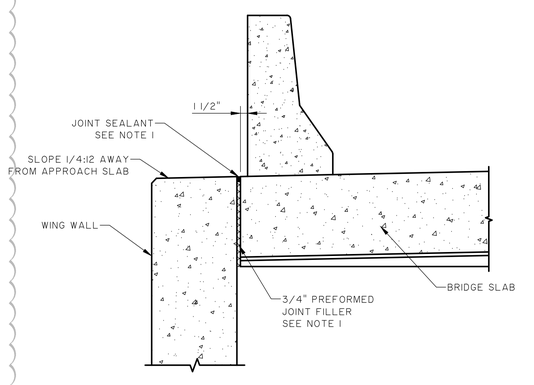
NOTE:
1. THE 1/4" ELASTOMERIC BEARING PAD SHALL HAVE 60-DUROMETER HARDNESS AND CONFORM TO SECTION 724 OF THE STANDARD SPECIFICATIONS. PAD SHALL BE FULL LENGTH AND WIDTH OF SLAB BUILD DOWN. TRANSVERSE LENGTH OF PADS MAY BE ACHIEVED BY PLACING STOCK LENGTHS END TO END PROVIDED THAT NO INDIVIDUAL PIECE IS LESS THAN 6'-0" LONG.
2. ALL FLAT SLAB AND BENT CAPS 2-6 REINFORCING SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A767, CLASS II.



4A / S3.1 SECTION THRU INTERIOR BENTS @ DISCONTINUOUS DECK SPANS

SCALE: 3/4" = 1'-0"

NOTE:
1. THE 1/4" ELASTOMERIC BEARING PAD SHALL HAVE 60-DUROMETER HARDNESS AND CONFORM TO SECTION 724 OF THE STANDARD SPECIFICATIONS. PAD SHALL BE FULL LENGTH AND WIDTH OF SLAB BUILD DOWN. TRANSVERSE LENGTH OF PADS MAY BE ACHIEVED BY PLACING STOCK LENGTHS END TO END PROVIDED THAT NO INDIVIDUAL PIECE IS LESS THAN 6'-0" LONG.
2. ALL FLAT SLAB AND BENT CAPS 2-6 REINFORCING SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A767, CLASS II.
3. WHERE FEASIBLE, CONTRACTOR SHALL ANTICIPATE 90' NOMINAL DECK SPANS FOR CAST-IN-PLACE DECK SPANS.



5 / S3.1 SECTION THRU WING WALL/ SLAB

SCALE: 3/4" = 1'-0"

NOTE:
1. JOINT SEALANT SHALL BE A COLD APPLIED BRIDGE JOINT SEALANT MEETING THE REQUIREMENTS OF SUBSECTION 702.03H OF THE STANDARD SPECIFICATIONS. THE DEPTH OF THE SEALANT SHALL BE SET IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. 3/4" PREFORMED JOINT FILLER - SEE SUBSECTION 702.03A PF THE STANDARD SPECIFICATIONS

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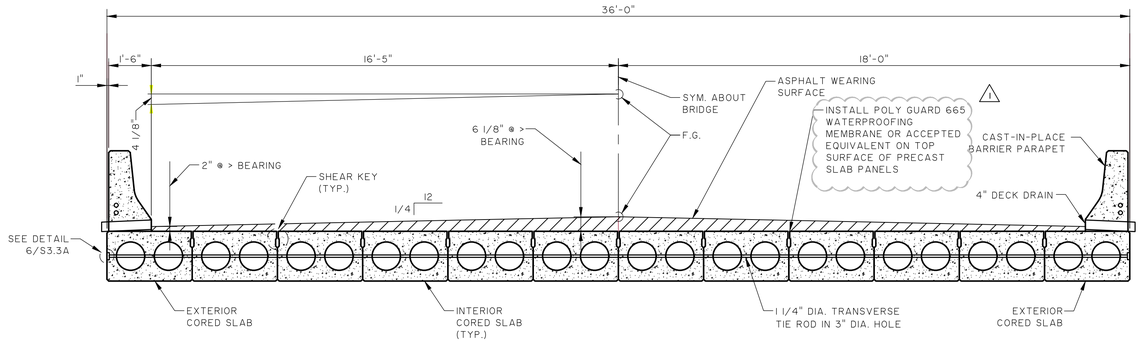
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BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

BENT PLANS AND ELEVATIONS

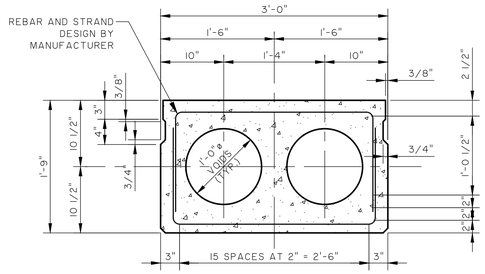
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S3.1



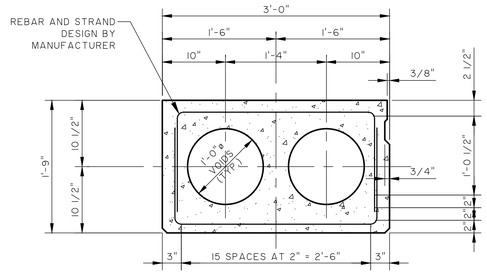
1 S3.1A DECK SECTION

SCALE: 3/8" = 1'-0"



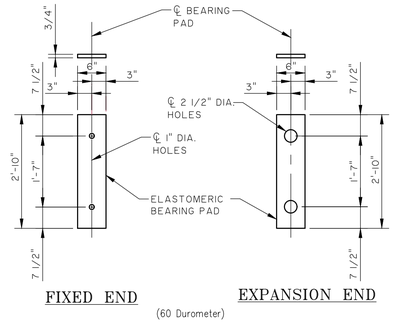
2 S3.1A INTERIOR SLAB SECTION

SCALE: 1" = 1'-0"



3 S3.1A EXTERIOR SLAB SECTION

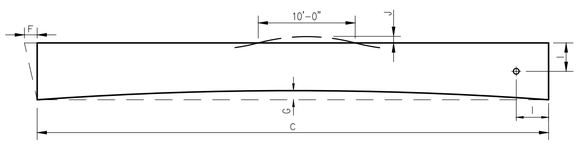
SCALE: 1" = 1'-0"



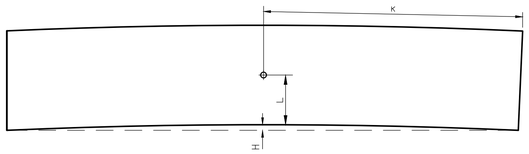
4 S3.1A ELASTOMERIC BEARING DETAILS

SCALE: 3/4" = 1'-0"

TOLERANCES

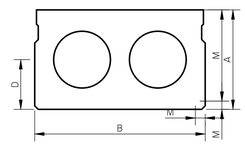


PLAN



ELEVATION

A	DEPTH	+ 3/8" TO -1/8"
B	WIDTH	±1/4"
C	LENGTH (LENGTH OF ADJACENT SLAB UNITS MUST BE WITHIN ±1/4")	±1/8" PER 10'
D	POSITION OF VOIDS VERTICAL	
E	NOT USED	
	NOT USED	
F	SQUARE ENDS: DEVIATION FROM SQUARE (HORIZONTAL OR VERTICAL) DESIGNATED SKEW	±1/4"
G	HORIZONTAL ALIGNMENT: DEVIATION FROM A STRAIGHT LINE PARALELL TO THE CENTER LINE OF MEMBER	±3/8"
H	CAMBER: DIFFERENTIAL BETWEEN ADJACENT UNITS	1/4" IN 10', 3/4" MAX
	CAMBER: DIFFERENTIAL BETWEEN HIGH AND LOW MEMBERS OF THE SAME SPAN	3/4" MAX
I	POSITION OF DOWEL HOLES: DEVIATION FROM	±1/4"
	WIDTH: DIFFERENTIAL OF ADJACENT SPANS IN THE SAME STRUCTURE	±3/4"
	BEARING AREA: DEVIATION FROM PLAN SURFACE	±1/16"
J	LOCAL SMOOTHNESS OF ANY SURFACE	1/4" IN 10'
K	HORIZONTAL POSITION OF HOLES FOR TRANSVERSE TIE RODS	±1/2"
L	VERTICAL POSITION OF HOLES FOR TRANSVERSE TIE RODS	±3/8"
M	POSITION OF STRANDS	±1/4"



CROSS SECTION

NOTES:

PRECAST SLAB DETAILS PROVIDED ARE FOR REFERENCE ONLY. FINAL DESIGN SHALL BE PERFORMED BY PRECAST MANUFACTURER/DESIGNER. SEALED CALCULATIONS AND SEALED DRAWINGS SHALL BE PREPARED BY A REGISTERED STRUCTURAL ENGINEER IN THE STATE OF SOUTH CAROLINA. SEALED CALCULATIONS AND PLANS SHALL BE SUBMITTED FOR REVIEW OF GENERAL CONFORMANCE TO CONTRACT DOCUMENTS.

SEE SECTION 507 OF THE SCDOT STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND INFORMATION REGARDING PRE STRESSED CONCRETE CORED SLAB UNITS. SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING, FABRICATING, AND PLACING CONCRETE, PRESTRESSING STRANDS, AND REINFORCING STEEL CAST INTO THE CORED SLAB UNITS IN THE LUMP SUM PRICE BID FOR BRIDGE CONSTRUCTION

USE PRESTRESSING STRANDS THAT CONFORM TO THE LATEST AASHTO M 203 FOR GRADE 270 (LOW RELAXATION). TENSILE STRENGTH (FPU) = 270 KSI. INITIAL PRESTRESS = 0.75 FPM = 202.5 KSI.

USE REINFORCING STEEL THAT CONFORMS TO ASTM A 706 GRADE 60.

CONCRETE SHALL BE NORMAL WEIGHT AND CONFORM TO CLASS "AAA" CONCRETE WITH F'CI=6,000 PSI AND F'CI=4,500 PSI.

DO NOT RELEASE THE STRANDS UNTIL THE COMPRESSIVE STRENGTH OF THE CONCRETE HAS REACHED THE VALUE SHOWN FOR F'CI.

ALWAYS MAINTAIN SLAB UNITS IN AN UPRIGHT POSITION. USE LIFTING DEVICES LOCATED WITHIN 2'-6' OF THE ENDS TO LIFT OR HANDLE THE CORED SLAB UNITS. PROVIDE A 1" DEEP RECESS AT THE LIFTING DEVICES. GROUT THE RECESSES PRIOR TO WATERPROOFING THE TOP SURFACE OF THE SLAB UNITS. DO NOT PERMIT THE SLAB UNITS TO BE PLACED OR STORED ON INTERIOR SUPPORTS CAUSING NEGATIVE MOMENTS.

TIE ROD ASSEMBLIES INCLUDE A 1 1/4" DIA. ROD, TWO HEAVY HEX NUTS ,TWO LOCK WASHERS, AND TWO 5"x5"x5/8" PLATE WASHERS. THREAD 8" ON EACH END TO THE TIE RODS. PROVIDE TIE RODS AND PLATE WASHERS MEETING THE REQUIREMENTS OF AASHTO M 270, GRADE 36. PROVIDE NUTS MEETING THE REQUIREMENTS OF ASTM A 563, GRADE A. GALVANIZE TIE RODS AND ALL HARDWARE IN ACCORDANCE WITH ASTM A 123, ASTM A 153, OR ASTM F 2329 AS APPLICABLE. TIE RODS ARE TO BE INSTALLED FOR TEST FIT DURING FIT UP OF SPAN IN CASTING YARD. INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING TIE ROD ASSEMBLIES IN THE LUMP SUM PRICE BID FOR BRIDGE CONSTRUCTION.

PLACE SLAB UNITS SO THAT THE MAXIMUM TRANSVERSE JOINT WIDTH AT ANY LOCATION ALONG THE BENT DOES NOT EXCEED 1 7/8".

GROUT ALL SHEAR KEYS, DOWEL HOLES, AND RECESSES FOR TRANSVERSE TIE RODS AFTER TIGHTENING THE TRANSVERSE TIE RODS. AT EXPANSION ENDS OF SLAB UNITS, FILL THE DOWEL HOLES WITH COLD APPLIED ELASTIC FILLER TO 1 1/2" ABOVE THE TOP OF DOWELS AND FILL THE REMAINING PORTION WITH GROUT. AFTER THE GROUT HAS CURED FOR A MINIMUM OF THREE DAYS, AND HAS ATTAINED THE REQUIRED STRENGTH, PLACE THE BARRIER PARAPET.

APPLY BRIDGE DECK WATERPROOFING SYSTEM, THAT COMPLIES WITH THE REQUIREMENTS OF SECTION 533 OF THE STANDARD SPECIFICATIONS, TO THE TOP SURFACE OF THE SLAB UNITS PRIOR TO PLACING THE WEARING SURFACE.

INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING JOINT, SHEAR KEY, RECESS, AND DOWEL HOLE FILLER MATERIALS INCLUDING GROUT, BACKER ROD, AND COLD APPLIED ELASTIC FILLER IN THE LUMP SUM PRICE BID FOR BRIDGE CONSTRUCTION.

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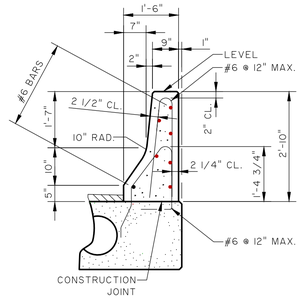
GRAND STRAND WATER & SEWER AUTHORITY
MYRTLE BEACH, SOUTH CAROLINA

BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

PRECAST DECK ALTERNATE - DETAILS

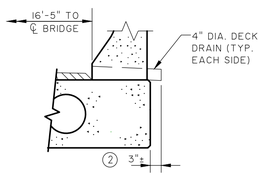
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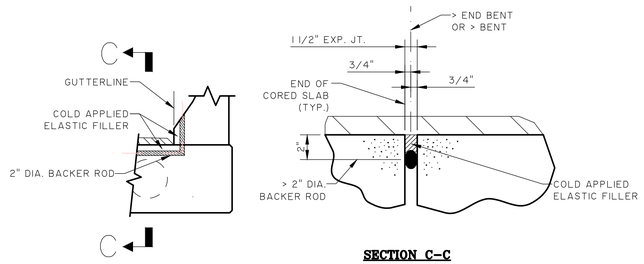


1 S3.1B **SECTION THRU BARRIER PARAPET**

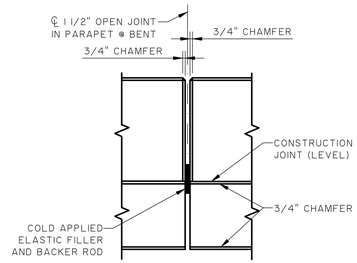
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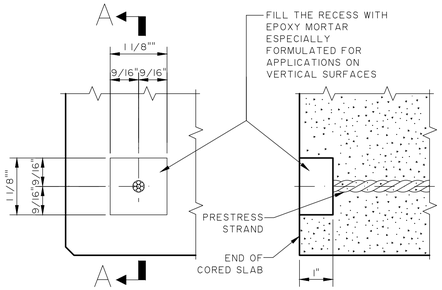
2 S3.1B **DRAIN DETAIL**



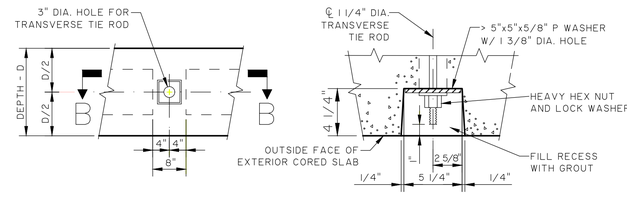
3 S3.1B **INTERIOR BENT JOINT DETAIL**



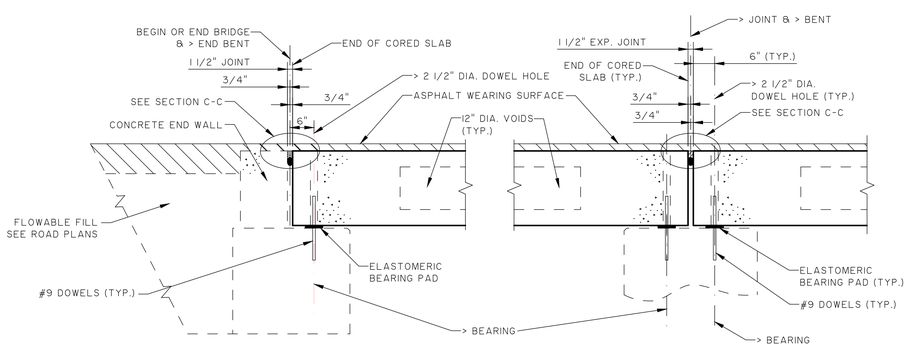
4 S3.1B **ELEVATION AT INTERIOR BENT**



5 S3.1B **GROUTED RECESS AT END OF PRETENSIONED STRAND**



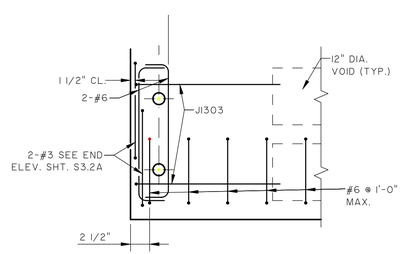
6 S3.1B **TIE ROD DETAILS**



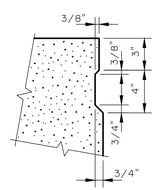
7 S3.1B **SECTION AT END BENT**

(Without Approach Slab)

8 S3.1B **SECTION AT INTERIOR BENT**



9 S3.1B **PART PLAN EXTERIOR SLAB**



10 S3.1B **SHEAR KEY DETAIL**

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00265 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — REGISTERED PROFESSIONAL ENGINEER — No. 30471 — SCOTT HUTTON — NO. 6/30/13

NO.	REVISIONS	BY	DATE
		SHG	12/21/17
1	ADDENDUM #4 REVISIONS	SHG	9/25/17
0	ISSUED FOR BIDS	SHG	2/25/13
A	ISSUED FOR PERMITTING	SHG	2/25/13

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GRAND STRAND WATER & SEWER AUTHORITY
MYRTLE BEACH, SOUTH CAROLINA

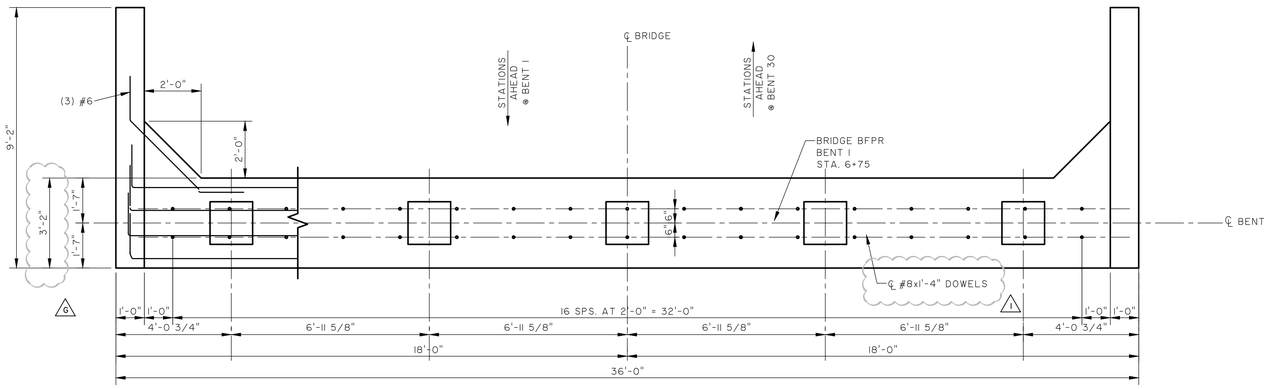
BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

PRECAST DECK ALTERNATE - DETAILS

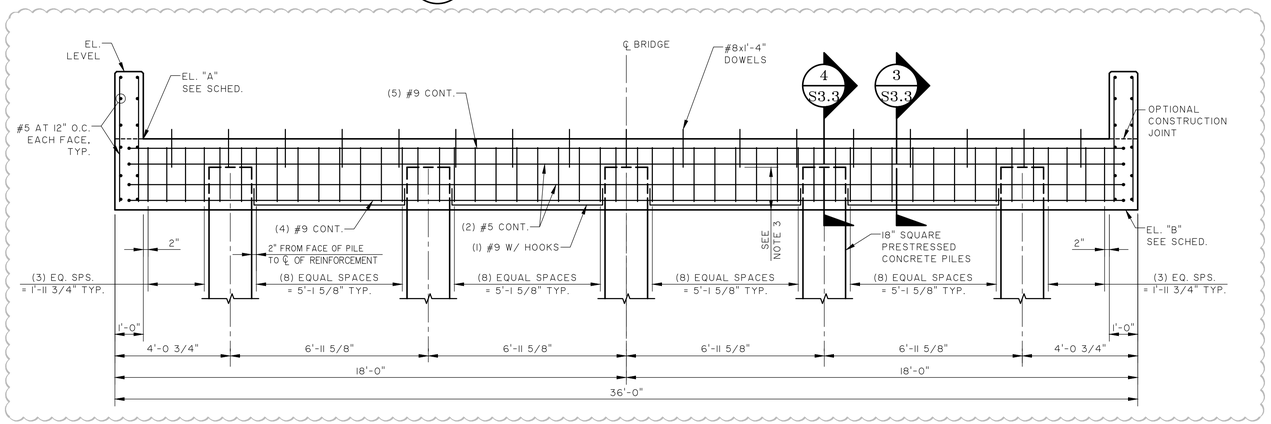
JOB NO:	J-23332.0000
DATE:	2/25/13
DRAWN:	JWR
DESIGNED:	SHG
REVIEWED:	SHG
APPROVED:	SHG
SCALE:	AS SHOWN

S3.1B

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1 / S3.2 **BENT 1 & 30 PLAN**
SCALE: 3/8" = 1'-0"



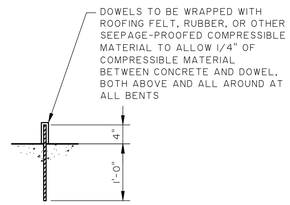
PILE BEARING	
	ONE PILE
DESIGN BEARING	60 TONS
RESISTANCE FACTOR	0.45
ULTIMATE DESIGN BEARING	125 TONS
THE FOLLOWING ESTIMATED PARAMETERS WERE USED FOR PERFORMING A DRIVABILITY ANALYSIS:	
SKIN QUAKE (QS)	0.10 IN
TOE QUAKE (QT)	0.23 IN
SKIN DAMPING (SD)	0.05 S/FT
TOE DAMPING (TD)	0.15 S/FT
SKIN FRICTION DISTRIBUTION NO.	0.0
% SKIN FRICTION	85%

NOTES:
1. PRACTICAL REFUSAL OF PILES IS DEFINED AS 20 BLOWS PER INCH
2. ALL PILES SHALL HAVE A MINIMUM TIP ELEVATION OF -28.20'.
3. STEEL PILING SHALL CONFORM TO ASTM A709 GRADE 50

2 / S3.2 **BENT 1 & 30 ELEVATION**
SCALE: 3/8" = 1'-0"

NOTES:
1. POUR WINGWALLS MONOLITHICALLY WITH THE CAP.
2. MAINTAIN 2" CLEAR ON ALL REINFORCEMENT UNLESS NOTED OTHERWISE.
3. PILE SHALL BE EMBEDDED 1'-10" INTO THE BENT WITH A TOLERANCE OF ±3". 1

BENT SCHEDULE		
BENT	A	B
1	17.69	15.02
30	17.80	15.23



1

3 / S3.2 **TYPICAL CONCRETE DOWEL DETAIL**
SCALE: 3/4" = 1'-0"

NORTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — No. 30471 — SCOTT HUTTON — 12-12-17

NO.	REVISIONS	BY	DATE
		SHG	12/21/17
1	ADDENDUM #4 REVISIONS	SHG	9/25/17
0	ISSUED FOR BIDS	SHG	2/25/13
A	ISSUED FOR PERMITTING	SHG	2/25/13

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GRAND STRAND WATER & SEWER AUTHORITY
MYRTLE BEACH, SOUTH CAROLINA

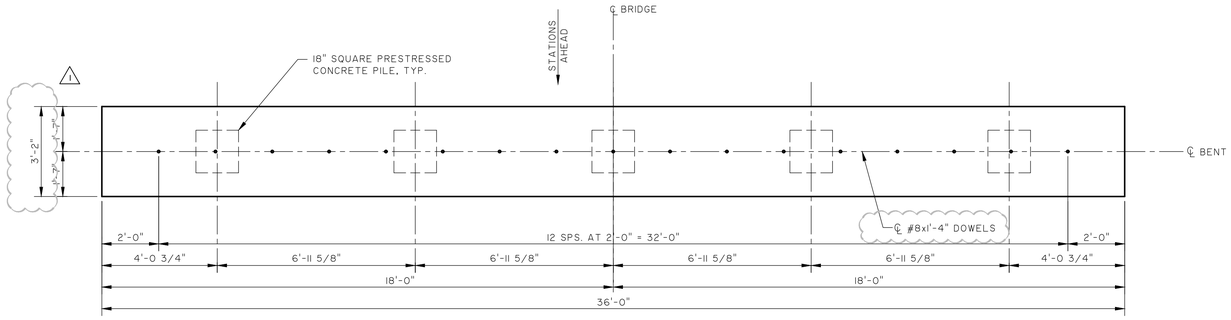
BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

BENT PLANS AND ELEVATIONS

JOB NO:	J-23332.0000
DATE:	2/25/13
DRAWN:	JWR
DESIGNED:	CLG
REVIEWED:	CLG
APPROVED:	SHG
SCALE:	AS SHOWN

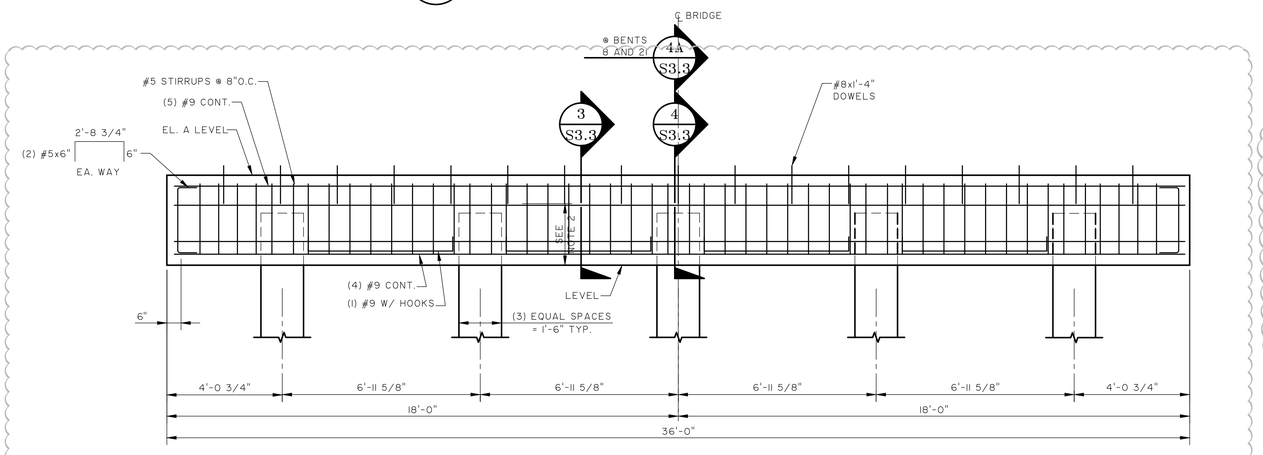
S3.2

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1 S3.3 BENT 2 THRU 13 & 16 THRU 29 PLAN

SCALE: ~~3/8"~~ = 1'-0"



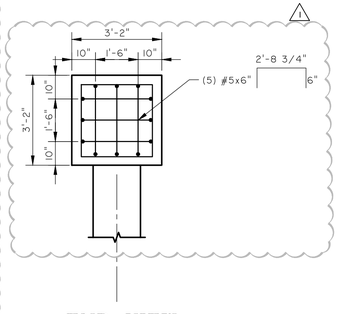
2 S3.3 BENT 2 THRU 13 & 16 THRU 29 ELEVATION

SCALE: 3/8" = 1'-0"

PILE BEARING	
	ONE PILE
DESIGN BEARING	60 TONS
RESISTANCE FACTOR	0.45
ULTIMATE DESIGN BEARING	134 TONS
THE FOLLOWING ESTIMATED PARAMETERS WERE USED FOR PERFORMING A DRIVABILITY ANALYSIS:	
SKIN QUAKE (QS)	0.10 IN
TOE QUAKE (QT)	0.30 IN
SKIN DAMPING (SD)	0.05 S/FT
TOE DAMPING (TD)	0.15 S/FT
SKIN FRICTION DISTRIBUTION NO.	0.0
% SKIN FRICTION	50%

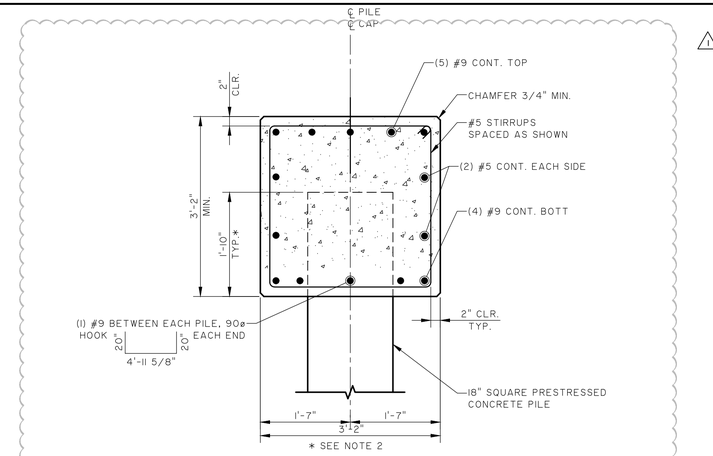
NOTES:
1. PRACTICAL REFUSAL OF PILES IS DEFINED AS 20 BLOWS PER INCH
2. REFER TO GEOTECH REPORT FOR ALLOWABLE AND ULTIMATE LOAD INFORMATION

NOTES:
1. MAINTAIN 2" CLEAR ON ALL REINFORCEMENT UNLESS NOTED OTHERWISE.
2. PILE SHALL BE EMBEDDED 1'-10" INTO THE BENT WITH A TOLERANCE OF ±3". THE ENTIRE PORTION OF THE EMBEDDED PILE SHALL BE FREE FROM ANY LAITANCE PRIOR TO POURING THE BENT CAP.



END VIEW

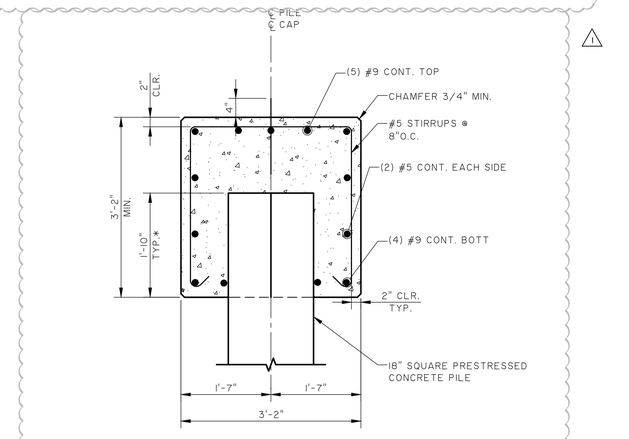
ELEVATIONS	
BENT NO.	A
BENT 2	17.48
BENT 3	17.48
BENT 4	17.73
BENT 5	17.80
BENT 6	17.80
BENT 7	17.80
BENT 8	17.80
BENT 9	17.80
BENT 10	17.80
BENT 11	17.80
BENT 12	17.80
BENT 13	17.80
BENT 14	17.80
BENT 15	17.80
BENT 16	17.80
BENT 17	17.80
BENT 18	17.80
BENT 19	17.80
BENT 20	17.80
BENT 21	17.80
BENT 22	17.80
BENT 23	17.80
BENT 24	17.80
BENT 25	17.80
BENT 26	17.80
BENT 27	17.80
BENT 28	17.80
BENT 29	17.80
BENT 30	17.80



3 S3.3 SECTION

SCALE: 3/4" = 1'-0"

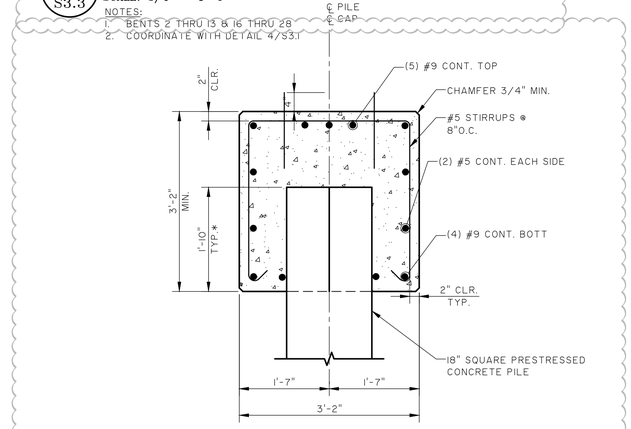
BENTS 2 THRU 12 & 15 THRU 27



4 S3.3 SECTION

SCALE: 3/4" = 1'-0"

NOTES:
1. BENTS 2 THRU 13 & 16 THRU 28
2. COORDINATE WITH DETAIL 4/S3.1



4A S3.3 SECTION AT EXP. JOINTS

SCALE: 3/4" = 1'-0"

NOTES:
1. BENTS 2 THRU 13 & 16 THRU 28
2. COORDINATE WITH DETAIL 4/S3.1

SOUTH CAROLINA — THOMAS SHELTON HUTTON ENGINEERING CO. No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — REGISTERED PROFESSIONAL ENGINEER — No. 30471 — SCOTT HUTTON

NO.	REVISIONS	BY	DATE
		SHG	12/21/17
I	ADDENDUM #4 REVISIONS	SHG	9/25/17
O	ISSUED FOR BIDS	SHG	2/25/13
A	ISSUED FOR PERMITTING	SHG	2/25/13

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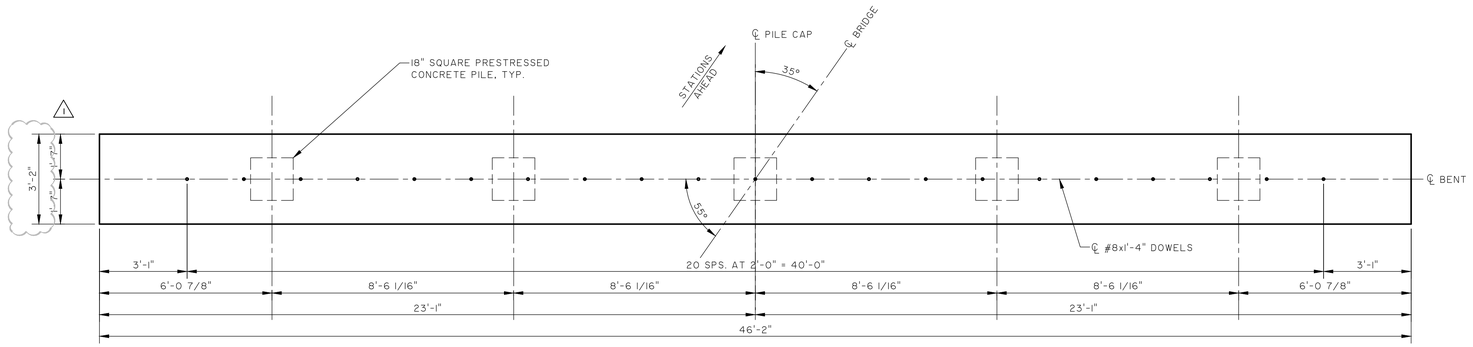
GRAND STRAND WATER & SEWER AUTHORITY
MYRTLE BEACH, SOUTH CAROLINA

BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

BENT PLANS AND ELEVATIONS

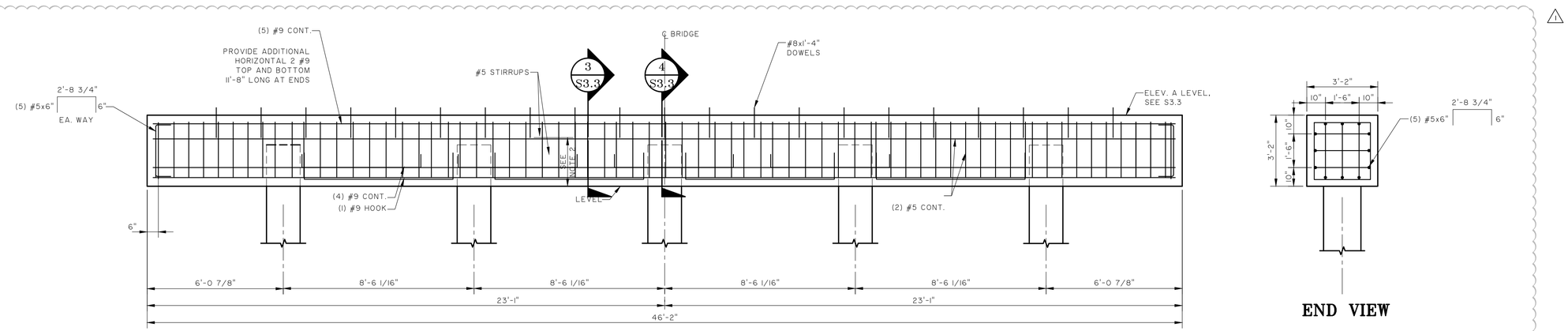
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DATE:	2/25/13
DRAWN:	JWR
DESIGNED:	CLG
REVIEWED:	CLG
APPROVED:	SHG
SCALE:	AS SHOWN

S3.3



1 / S3.4 **BENT 14 & 15 PLAN**

SCALE: 3/8" = 1'-0"



END VIEW

2 / S3.4 **BENT 14 & 15 ELEVATION**

SCALE: 3/8" = 1'-0"

PILE BEARING	
	ONE PILE
DESIGN BEARING	60 TONS
RESISTANCE FACTOR	0.45
ULTIMATE DESIGN BEARING	134 TONS
THE FOLLOWING ESTIMATED PARAMETERS WERE USED FOR PERFORMING A DRIVABILITY ANALYSIS:	
SKIN QUAKE (QS)	0.10 IN
TOE QUAKE (QT)	0.30 IN
SKIN DAMPING (SD)	0.05 S/FT
TOE DAMPING (TD)	0.15 S/FT
SKIN FRICTION DISTRIBUTION NO.	0.0
% SKIN FRICTION	50%

NOTES:
1. PRACTICAL REFUSAL OF PILES IS DEFINED AS 20 BLOWS PER INCH
2. REFER TO GEOTECH REPORT FOR ALLOWABLE AND ULTIMATE LOAD INFORMATION

NOTES:
1. MAINTAIN 2" CLEAR ON ALL REINFORCEMENT UNLESS NOTED OTHERWISE.
2. PILE SHALL BE EMBEDDED 1'-10" INTO THE BENT WITH A TOLERANCE OF ±3". THE ENTIRE PORTION OF THE EMBEDDED PILE SHALL BE FREE FROM ANY LAITANCE PRIOR TO POURING THE BENT CAP.

SOUTH CAROLINA — NOT VALID WITHOUT ORIGINAL SEAL — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — REGISTERED PROFESSIONAL ENGINEER — No. 30471 — SCOTT HENRY — NOT VALID WITHOUT ORIGINAL SEAL

NO.	REVISIONS	BY	DATE
		SHG	12/21/17
1	ADDENDUM #4 REVISIONS	SHG	9/25/17
0	ISSUED FOR BIDS	SHG	2/25/13
A	ISSUED FOR PERMITTING	SHG	2/25/13

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MYRTLE BEACH, SOUTH CAROLINA

BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

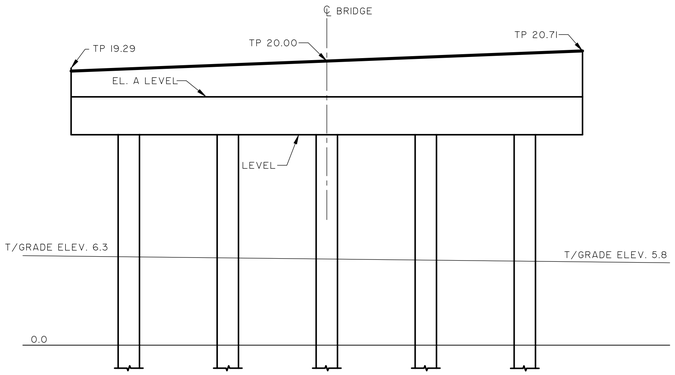
BENT PLANS AND ELEVATIONS

JOB NO:	J-23332.0000
DATE:	2/25/13
DRAWN:	JWR
DESIGNED:	CLG
REVIEWED:	CLG
APPROVED:	SHG
SCALE:	AS SHOWN

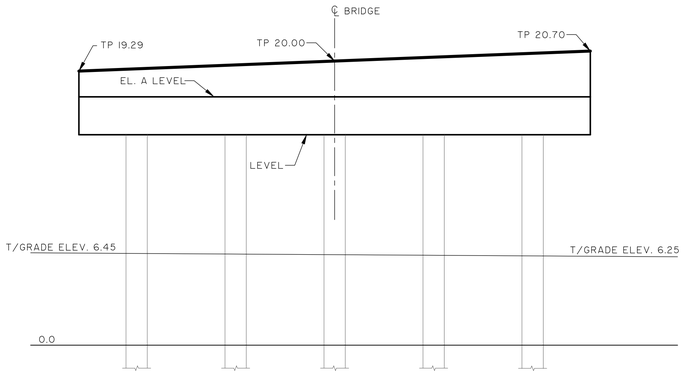
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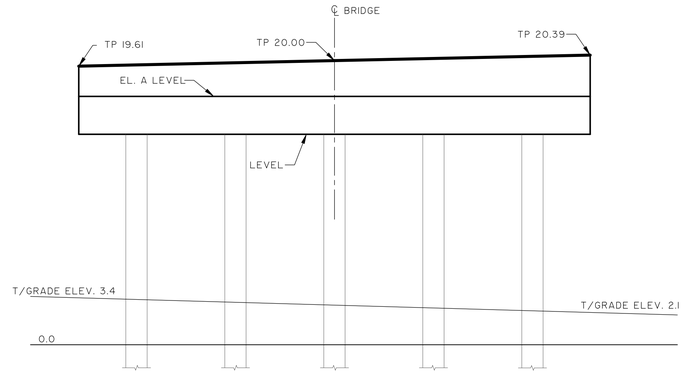
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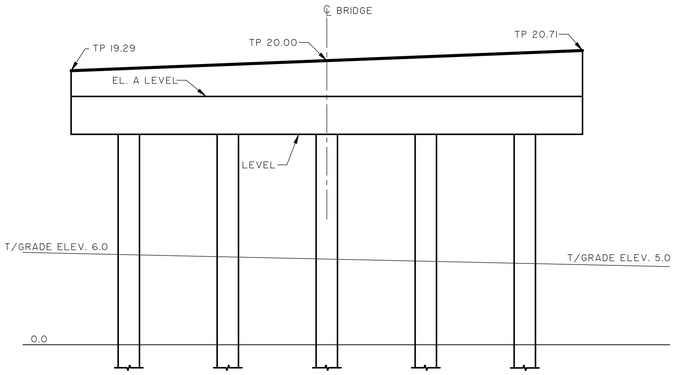
1 S3.5 **BENT NO. 1 STA. 6+78**
SCALE: 3/16" = 1'-0"



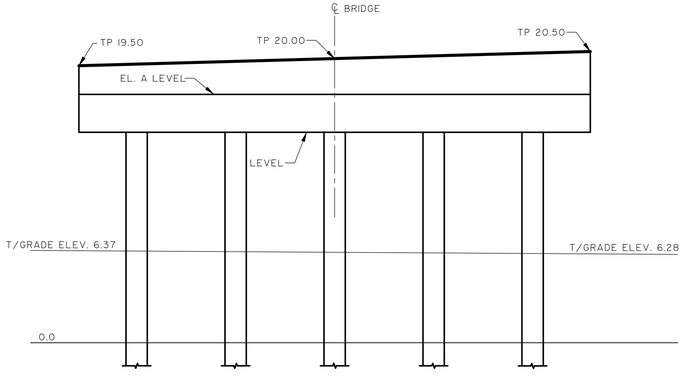
5 S3.5 **SECTION @ STA. 7+51.17**
SCALE: 3/16" = 1'-0"



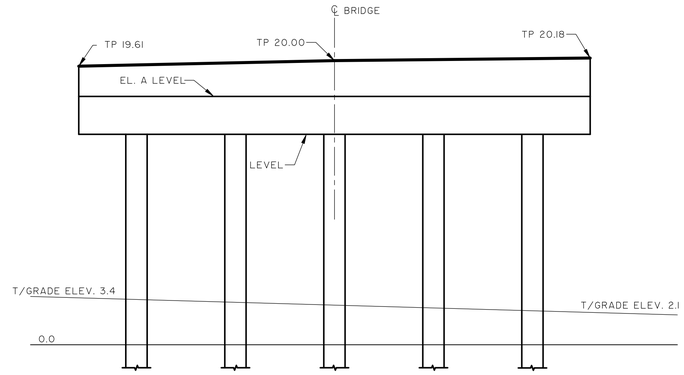
7 S3.5 **SECTION @ STA. 7+80.06**
SCALE: 3/16" = 1'-0"



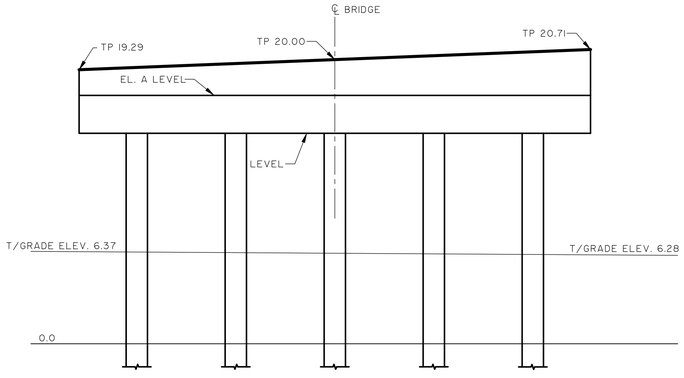
2 S3.5 **BENT NO. 2 STA. 7+07.97**
SCALE: 3/16" = 1'-0"



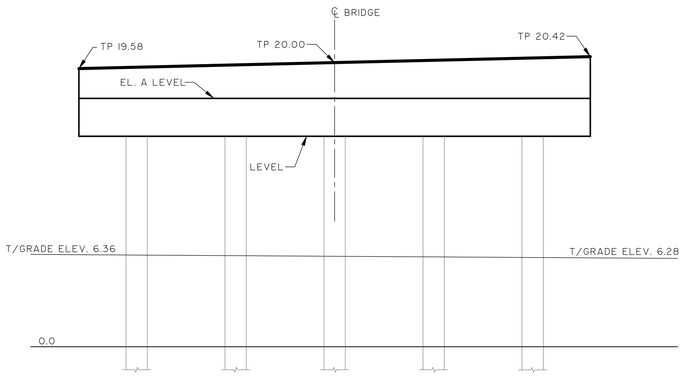
4 S3.5 **BENT NO. 4 STA. 7+67.97**
SCALE: 3/16" = 1'-0"



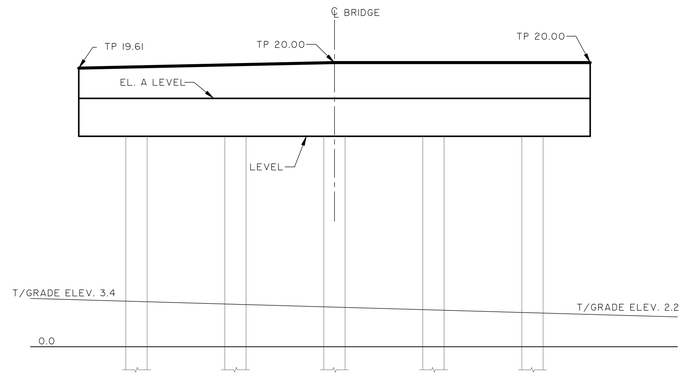
8 S3.5 **BENT NO. 5 STA. 8+00**
SCALE: 3/16" = 1'-0"



3 S3.5 **BENT NO. 3 STA. 7+37.97**
SCALE: 3/16" = 1'-0"



6 S3.5 **SECTION @ STA. 7+77.17**
SCALE: 3/16" = 1'-0"



9 S3.5 **SECTION @ STA. 8+16.17**
SCALE: 3/16" = 1'-0"

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — No. 30471 — SCOTT HUTTON GIBBS — 12-21-17

NO.	REVISIONS	BY	DATE
1	ADDENDUM #4 REVISIONS	SHG	12/21/17
0	ISSUED FOR BIDS	SHG	9/25/17
A	ISSUED FOR PERMITTING	SHG	2/25/13

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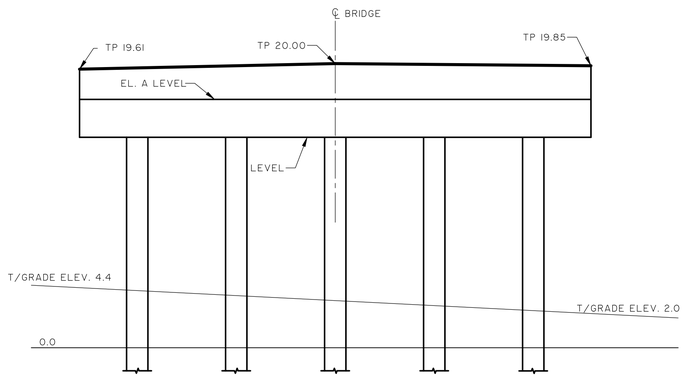
BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

BRIDGE SECTIONS

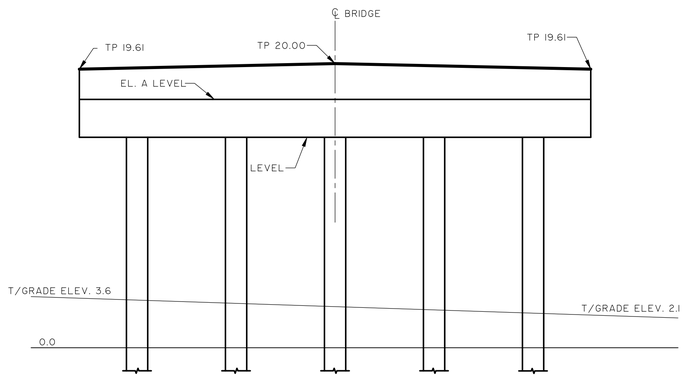
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APPROVED:	SHG
SCALE:	AS SHOWN

S3.5

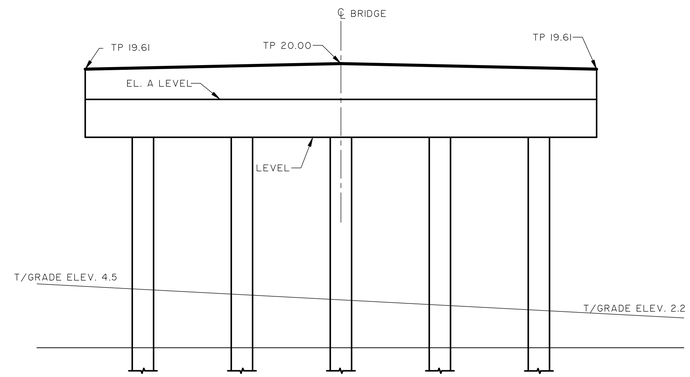
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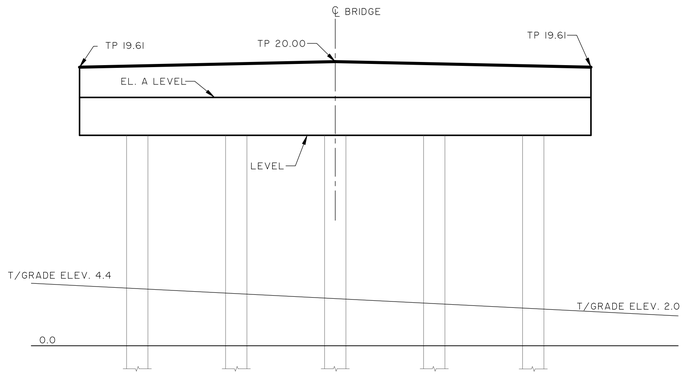
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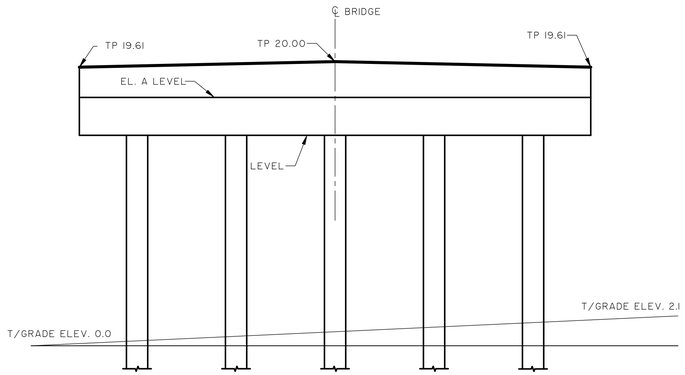
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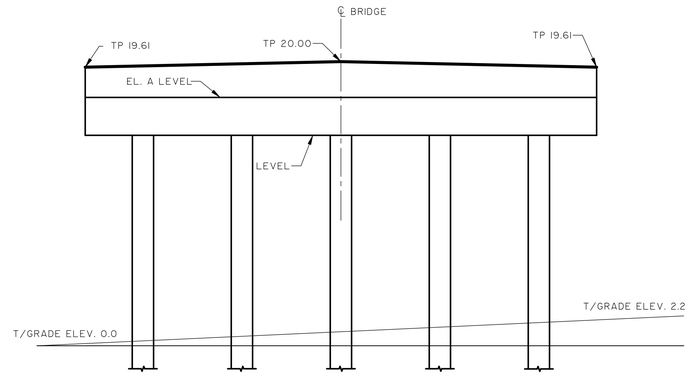
16 S3.6 **BENT NO. 10 STA. 9+50**
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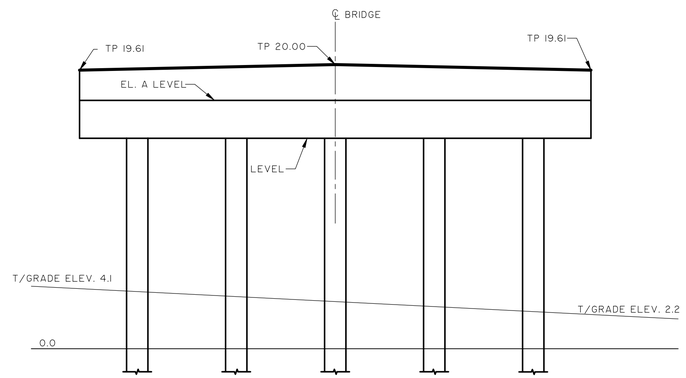
11 S3.6 **SECTION @ STA. 8+52.29**
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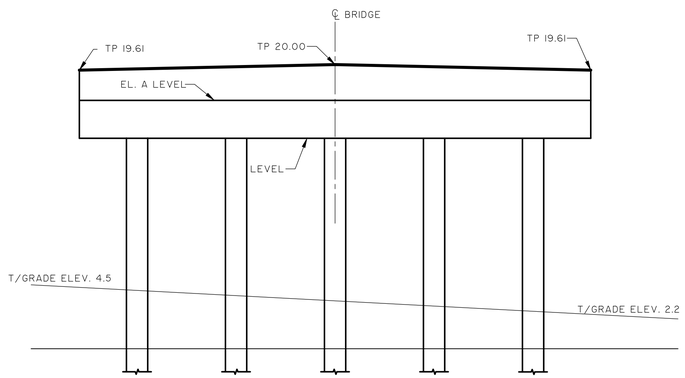
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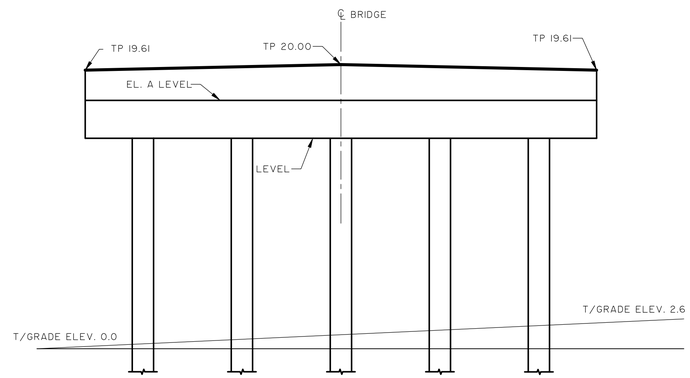
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SCALE: 3/16" = 1'-0"



12 S3.6 **BENT NO. 7 STA. 8+60**
SCALE: 3/16" = 1'-0"



15 S3.6 **BENT NO. 10 STA. 9+50**
SCALE: 3/16" = 1'-0"



18 S3.6 **BENT NO. 12 STA. 10+10**
SCALE: 3/16" = 1'-0"

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SOUTH CAROLINA PROFESSIONAL ENGINEER SCOTT H. GRAY No. 30471 — NOT VALID WITHOUT ORIGINAL SIGNATURE AND SEAL — 12-12-17

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION THOMAS & HUTTON ENGINEERING CO. No. C00285

NO.	REVISIONS	BY	DATE
A	ISSUED FOR PERMITTING	SHG	2/25/13
O	ISSUED FOR BIDS	SHG	9/25/17
1	ADDENDUM #4 REVISIONS	SHG	12/21/17

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MYRTLE BEACH, SOUTH CAROLINA

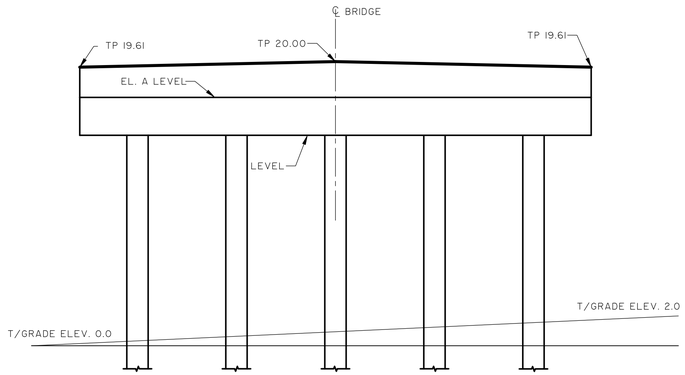
BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

BRIDGE SECTIONS

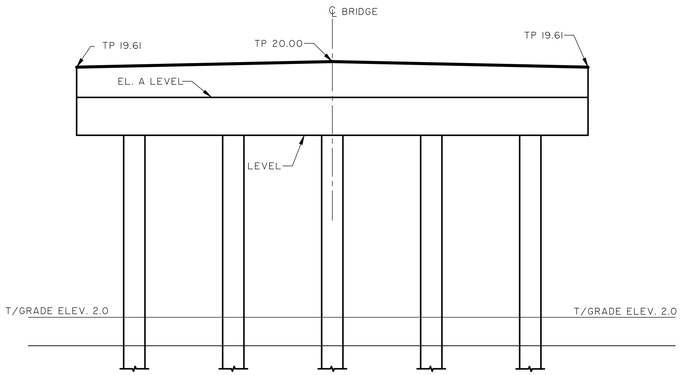
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DATE:	2/25/13
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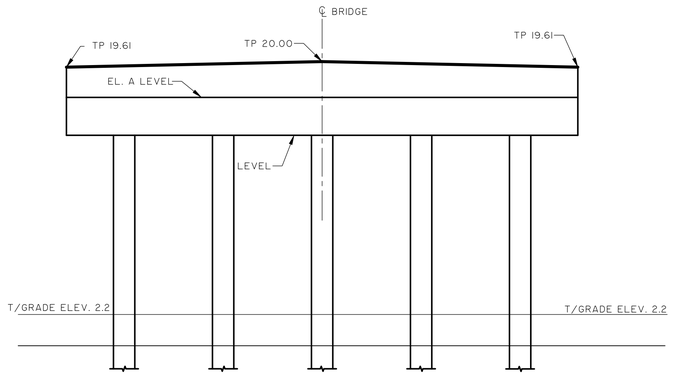
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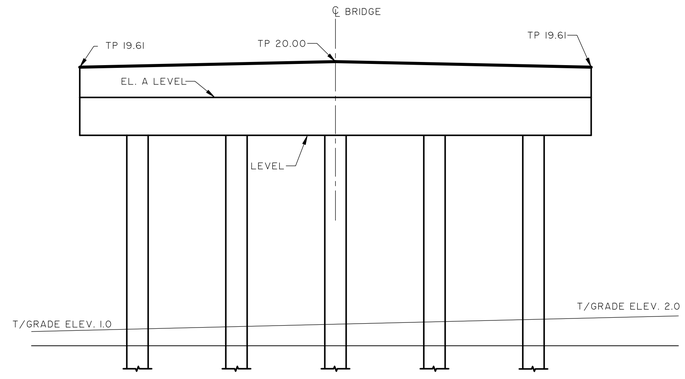
19 / S3.7 **BENT NO. 13 STA. 10+30**
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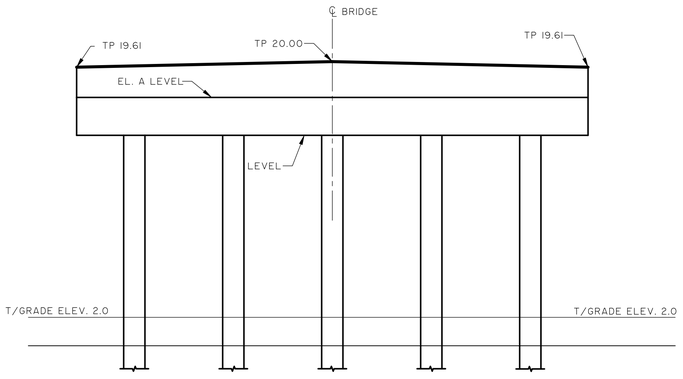
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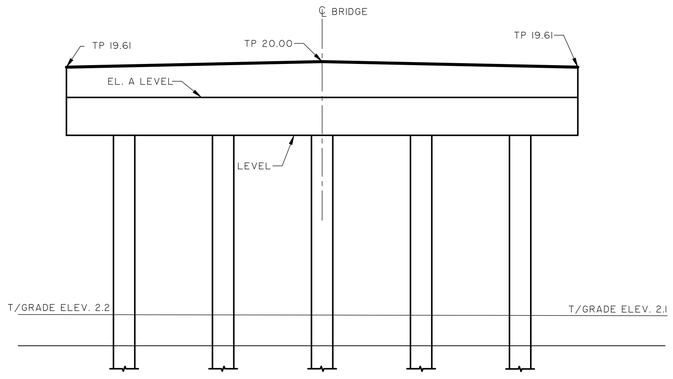
26 / S3.7 **BENT NO. 19 STA. 11+98**
SCALE: 3/16" = 1'-0"



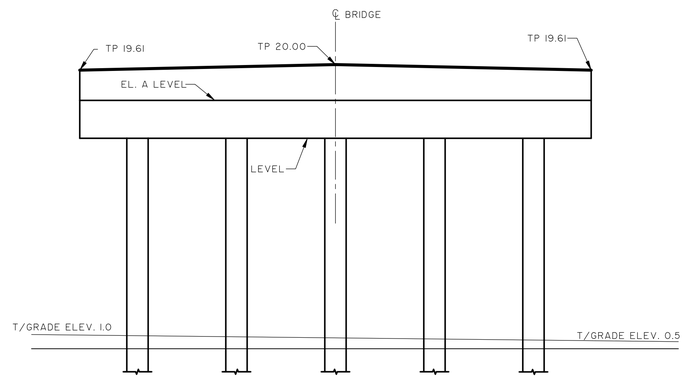
20 / S3.7 **BENT NO. 14 STA. 10+52**
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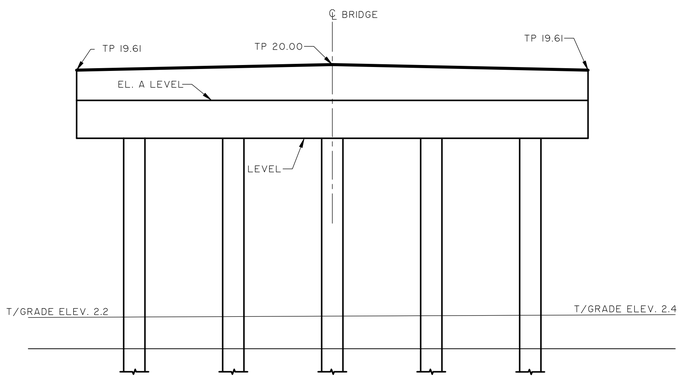
23 / S3.7 **BENT NO. 17 STA. 11+38**
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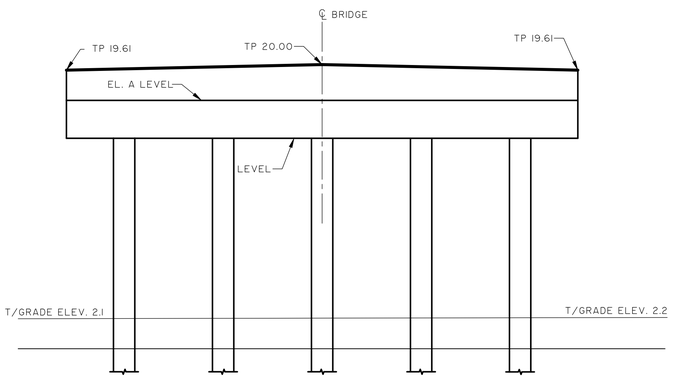
27 / S3.7 **BENT NO. 20 STA. 12+28**
SCALE: 3/16" = 1'-0"



21 / S3.7 **BENT NO. 15 STA. 10+90**
SCALE: 3/16" = 1'-0"



25 / S3.7 **BENT NO. 18 STA. 11+68**
SCALE: 3/16" = 1'-0"



28 / S3.8 **BENT NO. 21 STA. 12+58**
SCALE: 3/16" = 1'-0"

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — No. 30471 — SCOTT HUTTON — NO. 6180

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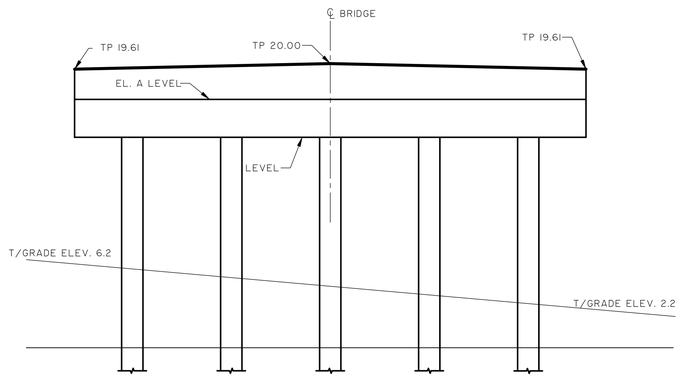
GRAND STRAND WATER & SEWER AUTHORITY
MYRTLE BEACH, SOUTH CAROLINA

BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

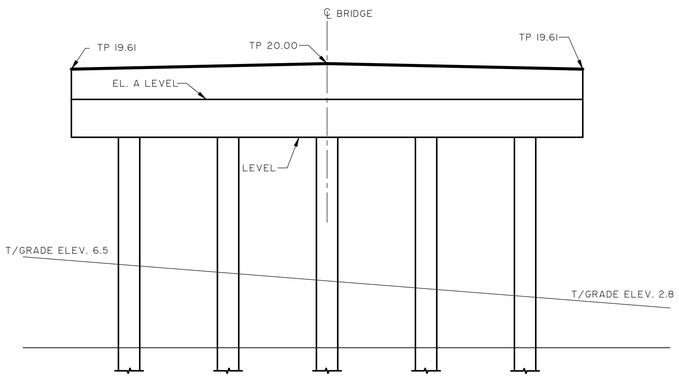
BRIDGE SECTIONS

JOB NO:	J-23332.0000
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APPROVED:	SHG
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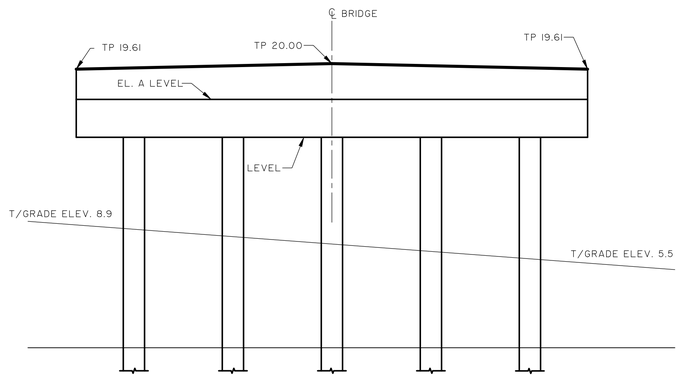
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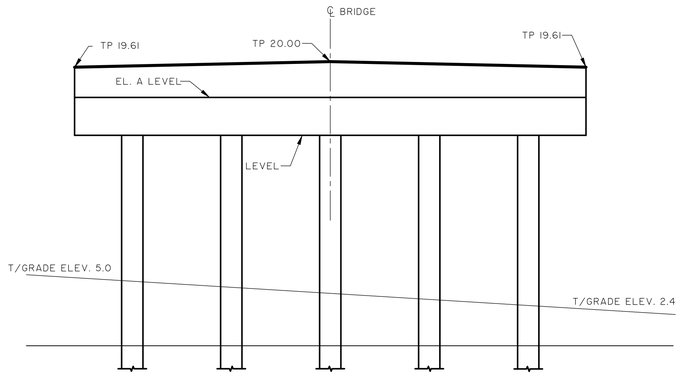
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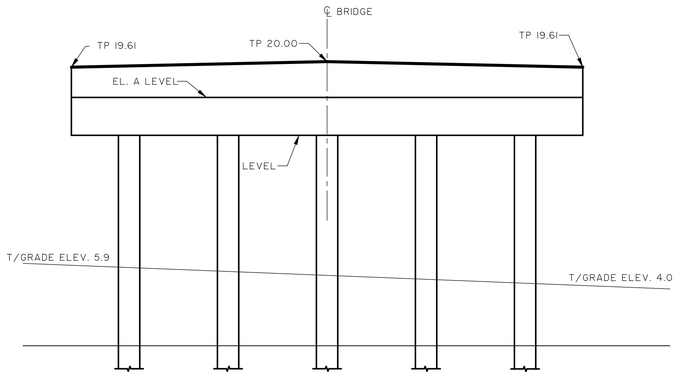
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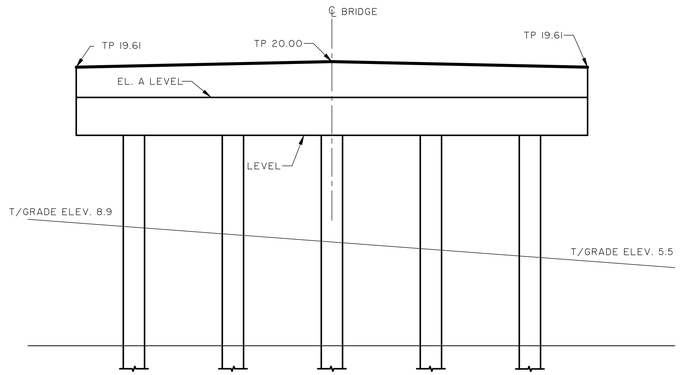
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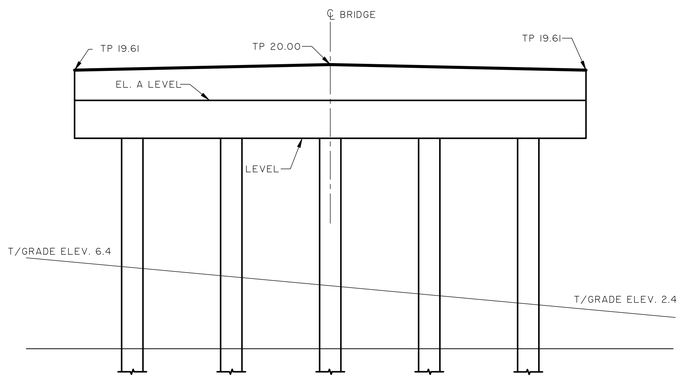
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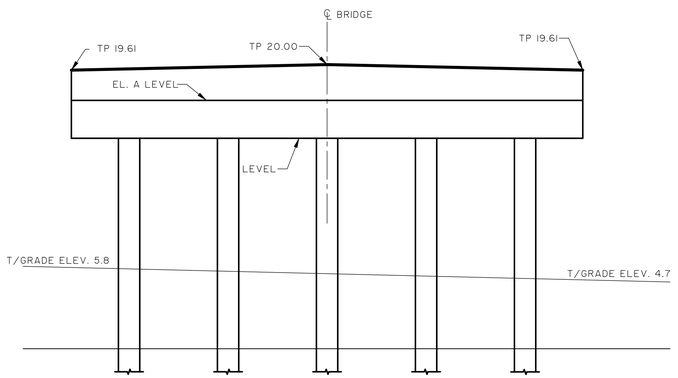
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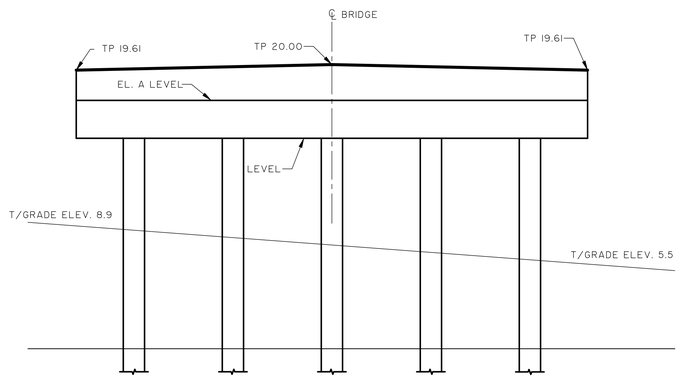
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31 S3.8 **BENT NO. 24 STA. 13+48**
SCALE: 3/16" = 1'-0"



34 S3.8 **BENT NO. 27 STA. 14+38**
SCALE: 3/16" = 1'-0"



35 S3.8 **BENT NO. 30 STA. 15+28**
SCALE: 3/16" = 1'-0"

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SOUTH CAROLINA PROFESSIONAL ENGINEER No. 30471 SCOTT HUTTON
SOUTH CAROLINA NO. 6180 CERTIFICATE OF AUTHORIZATION
THOMAS & HUTTON ENGINEERING CO. No. C00285

NO.	REVISIONS	BY	DATE
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I	ADDENDUM #4 REVISIONS	SHG	12/21/17
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BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

BRIDGE SECTIONS

JOB NO:	J-23332.0000
DATE:	2/25/13
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SCALE:	AS SHOWN

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SEALS

THE SEALS SHALL BE PREFORMED, COMPATIBLE WITH CONCRETE AND RESISTANT TO ABRASION, OXIDATION, OILS, GASOLINE, SALT AND OTHER MATERIALS THAT MAY BE SPILLED ON OR APPLIED TO THE SURFACE. THE SEAL SHALL BE A LOW-DENSITY CLOSED CELL, CROSS-LINKED ETHYLENE VINYL ACETATE POLYETHYLENE COPOLYMER NITROGEN BLOWN MATERIAL.

THE SEALS ARE TO BE MANUFACTURED WITH GROOVES ALONG THE BOND SURFACE RUNNING THE LENGTH OF THE JOINT. THE GROOVES SHALL BE ⅜" WIDE BY ⅜" DEEP AND SPACED BETWEEN ¾ AND 1 INCH APART. THE DEPTH OF SEAL SHALL BE AS RECOMMENDED BY THE MANUFACTURER, BUT SHALL NOT BE LESS THAN 70% OF THE UNCOMPRESSED WIDTH. THE SEAL SHALL BE DESIGNED SO THAT, WHEN COMPRESSED, THE CENTER PORTION OF THE TOP WILL NOT EXTEND UPWARD ABOVE THE ORIGINAL HEIGHT OF THE SEAL BY MORE THAN ⅛INCH. SPLICING OF THE SEAL SHALL BE DONE USING THE HEAT WELDING METHOD BY PLACING THE JOINT MATERIAL ENDS AGAINST A TEFLON HEATING IRON OF 350° F FOR 7 – 10 SECONDS, THEN PRESSING THE ENDS TOGETHER TIGHTLY. DO NOT TEST THE WELDING UNTIL THE MATERIAL HAS COMPLETELY COOLED. THE MATERIAL SHALL BE RESISTANT TO WEATHERING AND ULTRA-VIOLET RAYS. THE SEAL SHALL HAVE A WORKING RANGE OF 30% TENSION AND 60% COMPRESSION. A WATERTIGHT SEAL SHALL BE PROVIDED ALONG THE ENTIRE LENGTH INCLUDING THE ENDS OF THE EVAZOTE SEAL.

THE SEAL SHALL BE SHOP MARKED TO INDICATE THE TOP SIDE OF THE SEAL IN SUCH A WAY AS TO BE CLEARLY VISIBLE UPON INSTALLATION.

ADHESIVES

THE ADHESIVE TO BE USED WITH THE SEAL SHALL BE TWO COMPONENT, 100% SOLID, MODIFIED EPOXY ADHESIVE MEETING THE REQUIREMENTS OF ASTM C881, TYPE 1, GRADE 2, CLASS B & C.

THE ADHESIVE SHALL ALSO HAVE THE FOLLOWING PHYSICAL PROPERTIES:

TENSILE STRENGTH	3500 PSI MIN.
COMPRESSIVE STRENGTH	7000 PSI MIN.
SHORE D HARDNESS	75 PSI MIN.
WATER ABSORPTION	0.25% BY WEIGHT
BOND STRENGTH	430 PSI

THE ADHESIVE SHALL BE WORKABLE TO 40° F. FOR INSTALLATION TEMPERATURES BELOW 40° F OR FOR APPLICATION ON MOIST, HARD TO DRY CONCRETE SURFACES, THE ADHESIVE SHALL BE AS SPECIFIED BY THE MANUFACTURER OF THE JOINT MATERIAL.

JOINT PREPARATION

THE ARMORED JOINT OPENING SHALL BE CLEANED WITH A PRESSURE WASHER RATED AT 3000 PSI MINIMUM. THE CLEANED SURFACE SHALL BE DRY PRIOR TO SEAL INSTALLATION.

THE CLEANED SURFACE SHALL BE EXAMINED FOR TRACES OF OIL, GREASE OR SMUDGE DEPOSITED DURING THE CLEANING OPERATIONS.

THE SEAL SHALL BE BONDED TO THE CLEANED SURFACE ON THE SAME DAY THE CLEANING IS DONE.

SEAL INSTALLATION

THE JOINT SEAL SHALL BE INSTALLED ACCORDING TO THE PROCEDURES AND RECOMMENDATIONS OF THE MANUFACTURER AND AS RECOMMENDED BELOW. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT DURING THE INSTALLATION OF THE FIRST SEAL OF THE PROJECT.

START INSTALLATION AT LOW END OF JOINT AFTER APPLYING THE MIXED EPOXY TO THE SIDES OF BOTH THE JOINT MATERIAL AND BOTH SIDES OF THE JOINT, BEING CERTAIN TO COMPLETELY FILL THE GROOVES WITH THE EPOXY. WITH GLOVED HANDS, COMPRESS THE MATERIAL AND WITH THE HELP OF A BLUNT PROBE, PUSH IT DOWN INTO THE JOINT UNTIL IT IS RECESSED APPROXIMATELY ¼ INCH BELOW THE SURFACE. CARE IS TO BE TAKEN SO AS NOT TO PUSH AT AN ANGLE THAT WOULD STRETCH THE MATERIAL. ONCE STARTED ON A JOINT, DO NOT STOP UNTIL COMPLETED. CLEAN THE EXCESS EPOXY OFF THE SURFACE OF THE JOINT MATERIAL QUICKLY AND THOROUGHLY. THE USE OF SOLVENTS TO REMOVE EXCESS EPOXY IS NOT ALLOWED. EXCESS EPOXY SHALL BE REMOVED IN ACCORDANCE WITH THE JOINT MANUFACTURER'S RECOMMENDATIONS.

THE INSTALLED SEAL SHALL BE WATERTIGHT. NO TESTING OF THE JOINT SEAL WILL BE REQUIRED, BUT IT WILL BE OBSERVED UNTIL FINAL INSPECTION.

The seal shall comply with the requirements given in the table below.

TEST	TEST METHOD	REQUIREMENT
Elongation at break	ASTM D3575	210 ± 15%
Tensile strength (psi)	ASTM D3575	110 ± 15
Compression Recovery (% of original width)	AASHTO T42 50% compr. for 22 hr. @ 73^ F ½ hr.recovery	87 ± 3
Weather/Deterioration	AASHTO T42 Accelerated Weathering	No deterioration for 10 years min.
Compression/Deflection	@ 50% deflection of original width @50% deflection of original width	10 psi min 60 psi max
Tear Strength (psi)	ASTM D624	16 ± 3
Density	ASTM D545	2.8 to 3.4
Water Absorption (% vol/vol)	ASTM D3575 Total immersion for 3 months	3

FIELD WELD DETAIL

NOTES FOR EVAZOTE SEALS

THE NOMINAL JOINT WIDTH, "W"@ 68°F SHALL EQUAL TO VALUES SHOWN IN TABLE BELOW. AT THE TIME OF CONSTRUCTION, DECREASE THE JOINT OPENING BY THE VALUE SHOWN IN THE TABLE BELOW FOR EACH 10°F THAT THE TEMPERATURE EXCEEDS 68°F OR INCREASE THE JOINT OPENING BY THE VALUE SHOWN IN THE TABLE BELOW FOR EACH 10°F THAT THE TEMPERATURE IS BELOW 68°F. THE TEMPERATURE SHALL BE THE ACTUAL AIR TEMPERATURE AVERAGED OVER THE PRECEDING 24 HOUR PERIOD MEASURED IN THE SHADE.

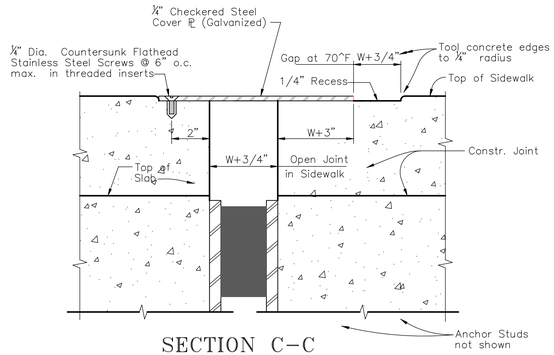
PRIOR TO INSTALLATION OF SEALS, THE CONTRACTOR SHALL FURNISH THE ENGINEER 3 COPIES OF CERTIFICATIONS OF CONFORMANCE WITH THE SPECIFICATIONS FOR SEALS AND LUBRICANT/ADHESIVE. THESE CERTIFICATIONS SHALL CONSIST OF A COPY OF THE MANUFACTURER'S TEST REPORTS, OR A STATEMENT BY THE SUPPLIER ACCOMPANIED BY THE TEST RESULTS, CERTIFYING THAT THE MATERIALS HAVE BEEN SAMPLED, TESTED AND INSPECTED. CERTIFICATIONS SHALL BE SIGNED BY AN AUTHORIZED AGENT OF THE MANUFACTURER OR SUPPLIER. FAILURE TO PROVIDE THE ABOVE CERTIFICATION FOR SEALS AND LUBRICANT/ADHESIVES MAY BE CONSIDERED GROUNDS FOR REJECTION OF THE SEALS.

EACH LOT OF SEAL SHALL BE MARKED TO SHOW THE LOT NUMBER AND SHALL BE IDENTIFIABLE AS TO THE MANUFACTURER. EACH CONTAINER OF LUBRICANT/ADHESIVE SHALL BE CLEARLY MARKED WITH THE MANUFACTURER, THE LOT NUMBER AND THE SHELF LIFE EXPIRATION DATE. THE SEAL SHALL BE SHOP MARKED TO INDICATE THE TOP SIDE OF THE SEAL IN SUCH A WAY AS TO BE CLEARLY VISIBLE UPON INSTALLATION.

NORMAL UNCOMPRESSED SEAL WIDTH = XX

JOINT OPENING TABLE

LOCATION	W	DECREASE	INCREASE
1 APPROACH SLAB @ BENT 1	1 1/4"	1/16"	1/16"
BENT 10 & 21	2 1/2"	1/4"	1/4"
APPROACH SLAB @ BENT 30	1 1/4"	1/8"	1/8"



SECTION C–C

NOTES FOR EXPANSION JOINTS

ALL PLATES SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST AASHTO M270 GRADE 50W (ASTM A709 GR.50W) AND SHALL BE OF WELDABLE QUALITY.

TOP SURFACE OF ⅜" PLATES SHALL CONFORM TO CROWN OF FINISHED ROADWAY AND SHALL HAVE SMOOTH EDGES. ⅜" PLATES MAY BE FABRICATED IN REASONABLE LENGTHS AND CONNECTED AT JOB SITE WITH FULL PENETRATION BUTT WELDS. TOP AND INSIDE SURFACES OF WELDS SHALL BE GROUND FLUSH AFTER WELDING. SPLICES SHALL BE WELDED BEFORE BONDING SEALS. IF DESIRED BY THE CONTRACTOR, ⅜" DIA. HOLES AT APPROXIMATELY 2 FT. ON CENTER MAY BE PROVIDED IN LOWER PORTIONS OF ⅜" PLATES TO BOLT PLATES TO FORMS.

ALL STUDS SHALL BE ELECTRICALLY WELDED.

EXPOSED AREAS OF ARMOR PLATES SHALL BE PAINTED WITH ONE SHOP COAT OF INORGANIC ZINC SILICATE PAINT. A MINIMUM OF 3.5 MILS DRY FILM THICKNESS WILL BE REQUIRED. FIELD PAINTING WILL NOT BE REQUIRED. ANCHOR STUDS NEED NOT BE PAINTED.

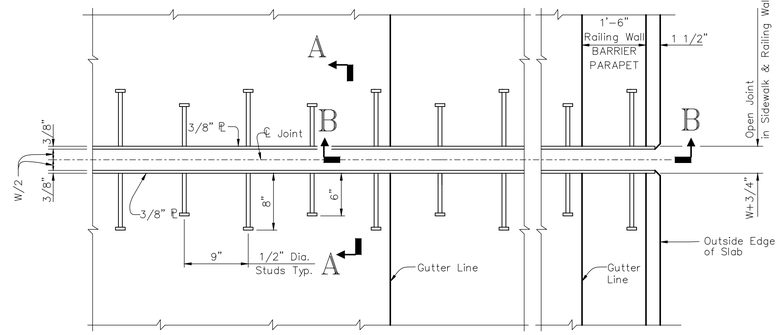
FIELD BEND TOP SLAB REINFORCING AS REQUIRED TO PREVENT FOULING ANCHOR STUDS.

EXPANSION JOINT DIMENSIONS SHOWN ON THIS SHEET TO BE ADJUSTED FOR THE TEMPERATURE AT TIME OF CASTING SLABS.

INSTALLATION OF SEALS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS UNLESS OTHERWISE STIPULATED IN THESE PLANS OR THE SPECIAL PROVISIONS FOR THIS PROJECT.

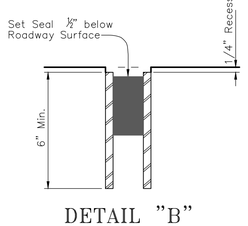
ALL COST FOR FURNISHING MATERIALS, FABRICATING AND INSTALLING ARMOR PLATES AND SEALS COMPLETE AND IN PLACE SHALL BE INCLUDED IN THE UNIT PRICE BID PER LINEAR FOOT FOR "COMPRESSION SEAL JOINT".

MEASUREMENT OF EXPANSION JOINT LENGTH WILL BE TAKEN ALONG THE CENTERLINE OF JOINT FROM EDGE OF SLAB TO EDGE OF SLAB.

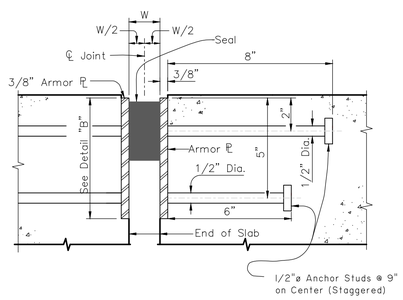


PART PLAN – EXPANSION JOINT

SEAL NOT SHOWN



DETAIL "B"

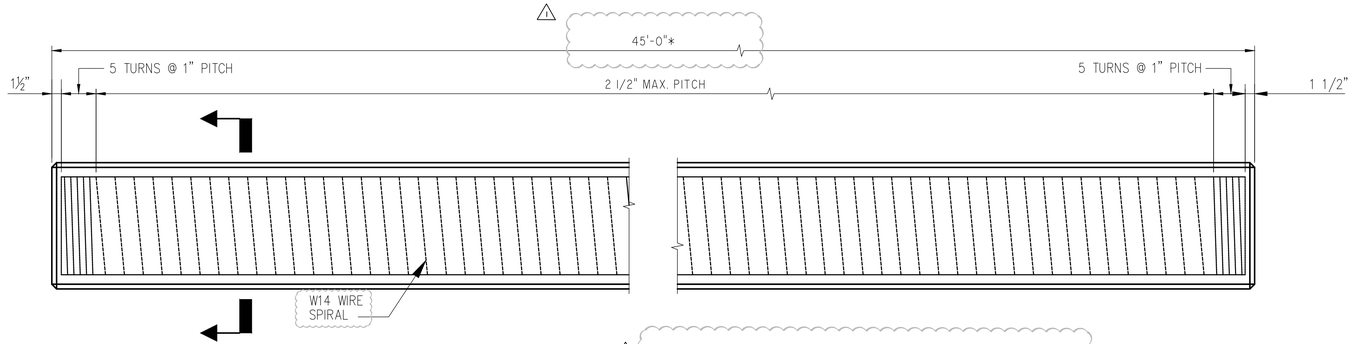


SECTION A–A

SOUTH CAROLINA — NOVEMBER 2012 — THOMAS BYRD SMITH ENGINEERING CO. No. COA2585 — CERTIFICATE OF AUTHORIZATION

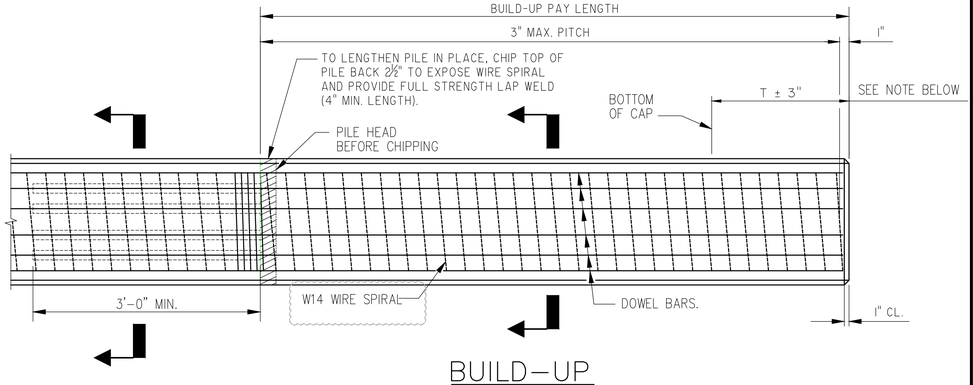
SOUTH CAROLINA — REGISTERED PROFESSIONAL ENGINEER — No. 30471 — SCOTT HUTTON — 2/25/13

NO.	REVISIONS	BY	DATE



TYPICAL PILE ELEVATION

*NOTE: INCREASE PILE LENGTH TO 55'-0" AT BENTS 13, 14, 15, & 16

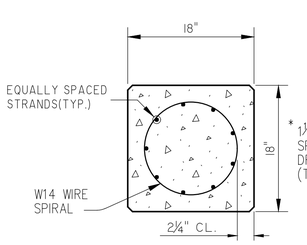


BUILD-UP

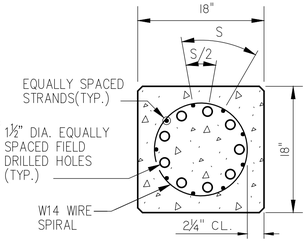
PILE DATA

PILE SIZE "T"	STRANDS	STRESS (ksi)	DOWEL BARS	MAXIMUM L		
				1 PICK-UP POINT	2 PICK-UP POINTS	3 PICK-UP POINTS
18"	8 - 0.6"	0.890	8 # 9	66'	94'	134'

PILE DETAILS PROVIDED FOR REFERENCE ONLY. PILE DESIGN AND DETAILING SHALL BE PERFORMED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF SOUTH CAROLINA. PLANS AND CALCULATIONS SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF SOUTH CAROLINA AND SHALL BE SUBMITTED FOR GENERAL ACCEPTANCE AND CONFORMANCE WITH THE CONTRACT DOCUMENTS.

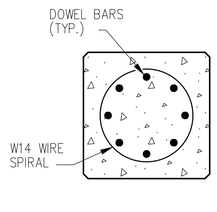


SECTION A-A



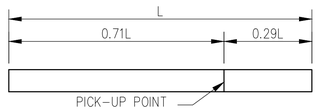
SECTION B-B

* FIELD DRILL DOWEL HOLES. LOCATE DOWEL HOLES TO PROVIDE ½" CL. TO WIRE SPIRAL.

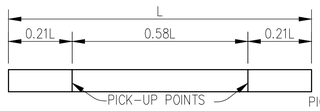


SECTION C-C

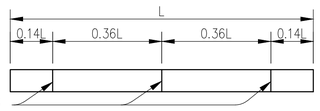
NOTE: DOWELS FOR BUILD-UP SECTIONS ONLY



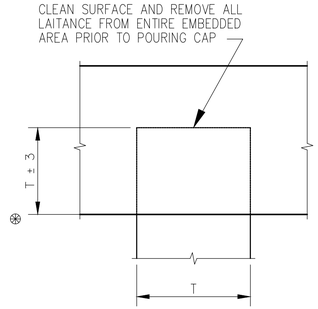
SINGLE POINT PICK-UP



DOUBLE POINT PICK-UP

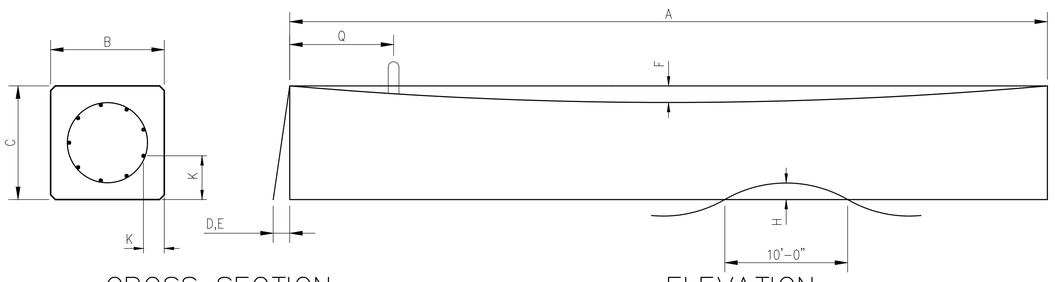


TRIPLE POINT PICK-UP



PILE ANCHORAGE DETAILS

IF THIS DIMENSION IS LESS THAN T - 3", BUILD UP THE PILE AS DETAILED ABOVE.



CROSS SECTION

ELEVATION

TOLERANCES

A. LENGTH ---------- ± 1"
B. WIDTH OR DIAMETER---------- ± ⅜", + ½" (INCLUDING FORM DRAFT)
C. DEPTH---------- ± ⅜"
D. VARIATION FROM SPECIFIED PLAN END SQUARENESS OR SKEW---------- ± ¼" PER 12", + ½" MAXIMUM
E. VARIATION FROM SPECIFIED ELEVATION END SQUARENESS OR SKEW---------- ± ¼" PER 12", + ½" MAXIMUM
F. SWEEP (VARIATION FROM STRAIGHT LINE PARALLEL TO CENTERLINE OF MEMBER) (CONSIDERED TO BE A FORM TOLERANCE)---- ± ⅛" PER 10'
H. LOCAL SMOOTHNESS OF ANY SURFACE-------- ¼" IN 10'
K. LOCATION OF STRAND---------- ± ¼"
Q. LOCATION OF HANDLING DEVICE---------- ± 6"
LONGITUDINAL SPACING OF STIRRUPS OR SPIRAL REINFORCEMENT---------- ± ¾"

NOTES FOR BUILD-UP

CHIP BACK TOP OF PILES AND FIELD DRILL HOLES AS SHOWN. GROUT DOWEL BARS IN THE HOLES USING AN APPROVED NON-SHRINK GROUT WITH F'C = 5KSI. TERMINATE DOWEL BARS 1" CLEAR FROM THE TOP OF PILE. INCLUDE ALL COSTS ASSOCIATED WITH PREPARATION OF THE PILE FOR BUILD-UP IN THE UNIT PRICE BID FOR PILE BUILD-UP PREPARATION.

BUILD UP ALL PILES THAT HAVE AN EMBEDMENT LENGTH LESS THAN THE MINIMUM SHOWN IN THE PLANS. USE THE BUILD-UP DETAILS SHOWN ON THIS SHEET. THE OPTION IS AVAILABLE TO CAST BUILD-UPS WITH BENT CAPS PROVIDED REBAR AND WIRE SPIRAL ARE CONTINUED A DISTANCE EQUAL TO ONE PILE WIDTH INTO THE CAP AND THE CAP IS CAST WITH CLASS 5000 CONCRETE. PAY FOR CAP CONCRETE AS CLASS 4000 CONCRETE REGARDLESS OF THE ACTUAL CLASS USED. INCLUDE AN EMBEDMENT LENGTH EQUAL TO THE PILE WIDTH, "T", IN THE PILE BUILD-UP LENGTH MEASURED FOR PAYMENT. PAY FOR THE PILE BUILD-UP, INCLUDING ALL COSTS FOR DOWEL BARS, WIRE SPIRALS, AND BUILD-UP CONCRETE, AS AN ADDITIONAL LENGTH OF PRESTRESSED CONCRETE PILING EQUAL TO THE BUILD-UP PAY LENGTH SHOWN IN THE BUILD-UP DETAIL.

GENERAL NOTES

PILE DETAILS PROVIDED FOR REFERENCE ONLY. PILE DESIGN AND DETAILING SHALL BE PERFORMED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF SOUTH CAROLINA. PLANS AND CALCULATIONS SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF SOUTH CAROLINA AND SHALL BE SUBMITTED FOR GENERAL ACCEPTANCE AND CONFORMANCE WITH THE CONTRACT DOCUMENTS.

SPLICE WIRE SPIRAL USING FULL STRENGTH LAP WELDS.

SUBMIT DOWEL BAR LENGTHS TO THE RCE FOR APPROVAL.

CHAMFER ALL EXPOSED EDGES ¾" UNLESS NOTED OTHERWISE.

ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERS OF BARS (EXCEPT AS NOTED).

RELEASE ALTERNATE STRANDS SIMULTANEOUSLY AT OPPOSITE ENDS WITHOUT SHOCK.

TIE WIRE SPIRAL TO CABLES AND REINFORCING BARS AS REQUIRED TO MAINTAIN PITCH OF THE SPIRAL.

MARK PILES AT PICK-UP POINTS TO INDICATE PROPER POINTS FOR ATTACHING HANDLING LINES.

ANCHOR THE PILES INTO THE BENT CAPS USING THE DETAILS SHOWN ON THIS SHEET. INCLUDE ALL COSTS FOR THIS WORK IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE PILING.

MATERIALS

PRESTRESSING STRAND - GRADE 270, LOW RELAXATION AASHTO M 203
WIRE SPIRAL - AASHTO M 32, M 225
REINFORCING STEEL - GRADE 60 ASTM A 706
CONCRETE - CLASS 6000 STANDARD SPEC. SECT. 701

DESIGN DATA

LOW RELAXATION STRANDS

TENSILE STRENGTH (FPU) = 270 KSI
INITIAL PRESTRESS (0.75 FPU) = 202.5 KSI

CLASS 6000 CONCRETE

F'C = 6 KSI
F'CI = 4.5 KSI

SOUTH CAROLINA NOV/2016 THOMAS & HUTTON ENGINEERING CO. No. C00285 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 30471 SCOTT HENRY

NO.	REVISIONS	BY	DATE
		SHG	12/21/17
1	ADDENDUM #4 REVISIONS	SHG	9/25/17
0	ISSUED FOR BIDS	SHG	2/25/13
A	ISSUED FOR PERMITTING		

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GRAND STRAND WATER & SEWER AUTHORITY
MYRTLE BEACH, SOUTH CAROLINA

BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

PILE DETAILS AND ELEVATIONS

JOB NO:	J-23332.0000
DATE:	2/25/13
DRAWN:	JWR
DESIGNED:	CLG
REVIEWED:	CLG
APPROVED:	SHG
SCALE:	AS SHOWN

S4.2

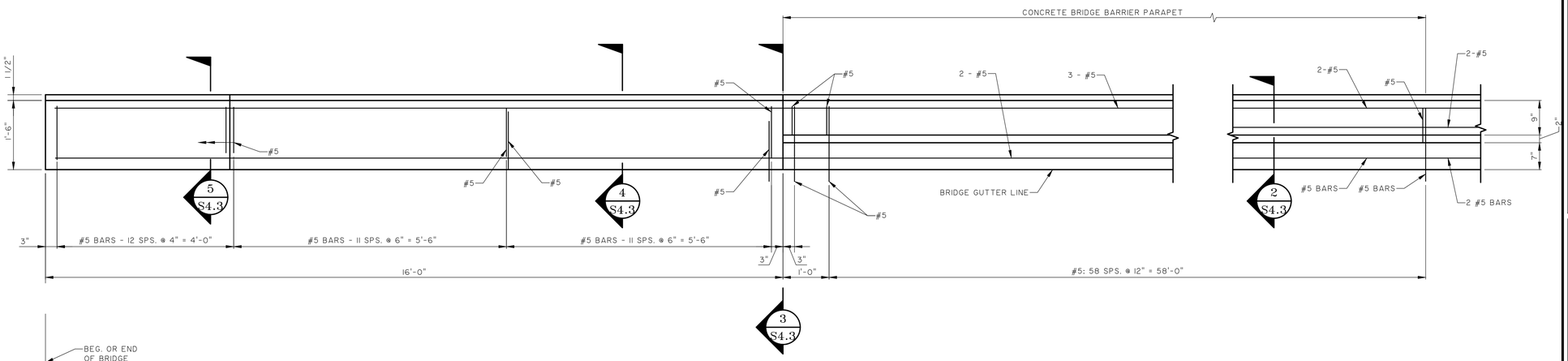
Z:\23332\23332.0000\Engineering\Working\23332 - S4.3.dwg - Dec 20, 2017 - 4:28:58 PM

THREE BEAM GUARD RAIL ATTACHMENT TO PARAPET

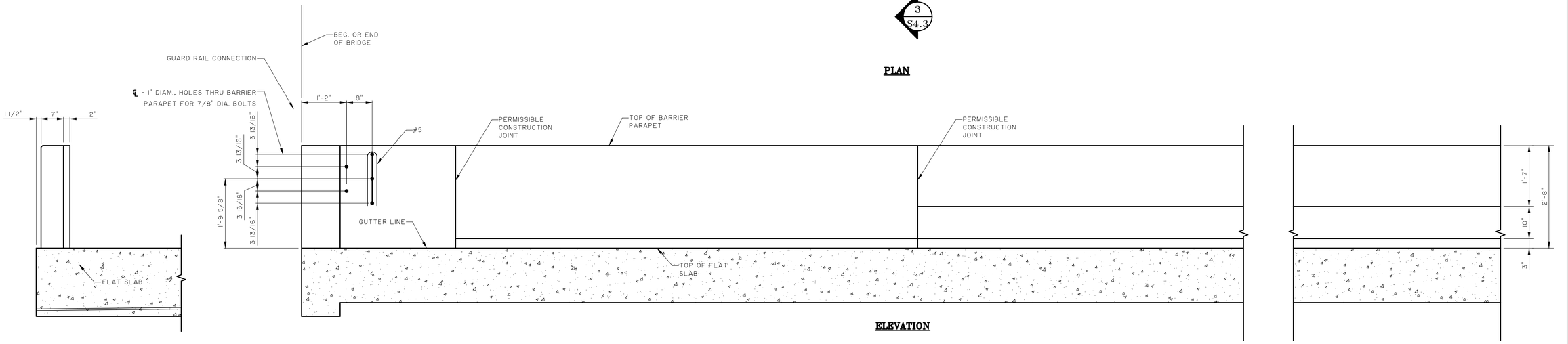
THE 1" DIAM. HOLES MAY BE FORMED WITH PLASTIC OR PVC PIPE HAVING AN INSIDE DIAMETER OF 1" (±1/8") OR 1" INSIDE DIAMETER GALVANIZED STANDARD WEIGHT STEEL PIPE.

ALL COST OF PIPE AND INSTALLATION SHALL BE INCLUDED IN THE PRICE BID FOR REINFORCING STEEL.

ALL PIPE TO REMAIN IN PLACE WHEN FORMS ARE REMOVED.



PLAN

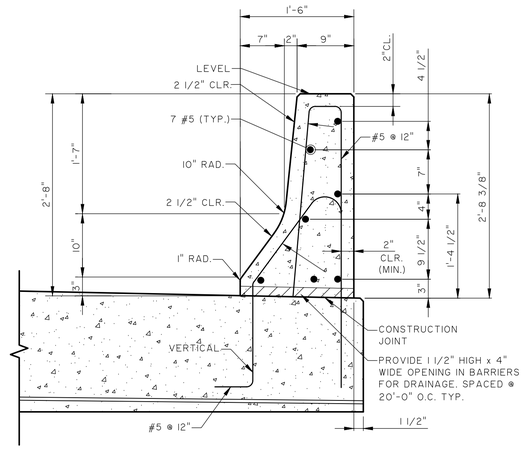


ELEVATION

END ELEVATION

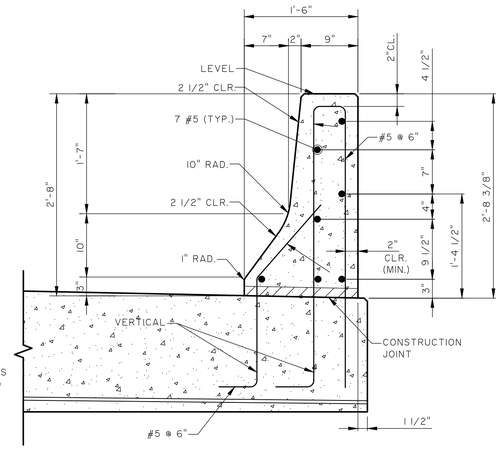
1 S4.3 BARRIER TRANSITION DETAILS

SCALE: 3/4" = 1'-0"



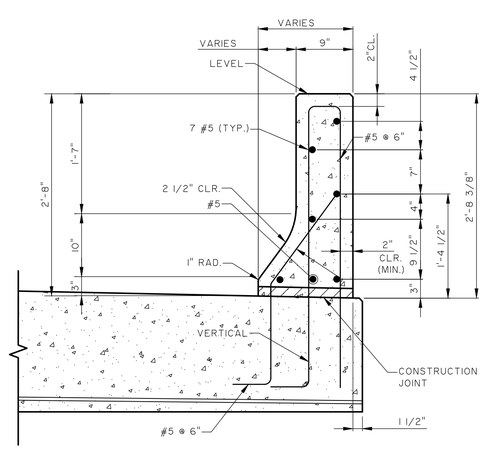
2 S4.3 SECTION

SCALE: 1" = 1'-0"



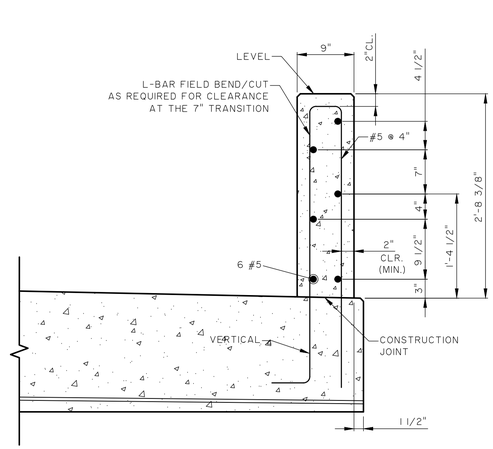
3 S4.3 SECTION

SCALE: 1" = 1'-0"



4 S4.3 SECTION

SCALE: 1" = 1'-0"



5 S4.3 SECTION

SCALE: 1" = 1'-0"

SOUTH CAROLINA — THOMAS & HUTTON ENGINEERING CO. — No. C00285 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — PROFESSIONAL ENGINEER — No. 30471 — SCOTT HENRY — NO. 030471

NO.	REVISIONS	BY	DATE
1	ADDENDUM #4 REVISIONS	SHG	12/21/17
0	ISSUED FOR BIDS	SHG	9/25/17
A	ISSUED FOR PERMITTING	SHG	2/25/13

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GRAND STRAND WATER & SEWER AUTHORITY
MYRTLE BEACH, SOUTH CAROLINA

BUCKSPORT MARINE INDUSTRIAL PARK ACCESS ROAD

BARRIER TRANSITION SECTIONS AND DETAILS

JOB NO:	J-23332.0000
DATE:	2/25/13
DRAWN:	JWR
DESIGNED:	CLG
REVIEWED:	CLG
APPROVED:	SHG
SCALE:	AS SHOWN

S4.3

MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL DESIGN

NEW BUCKSPORT ACCESS ROAD

HORRY COUNTY, SOUTH CAROLINA

SPECIAL NOTES

THIS DESIGN IS BASED ON KEYSTONE COMPAC III BEVELED FACE UNITS (COLOR TBD) AND MIRAFI GEOGRID REINFORCEMENT PROPERTIES. THE USE OF ANY MATERIALS OTHER THAN THOSE SPECIFIED HEREIN SHALL NOT BE ALLOWED WITHOUT PRIOR REVIEW AND APPROVAL BY S&ME, INC.

REINFORCED STONE BACKFILL REQUIRED FOR WALL #1 STA. 1+40± – 2+26± AND WALL #2 STA. 1+55± – 2+40± AND HIGH WATER ELEVATION ELSEWHERE.

REINFORCED GRANULAR AND STONE BACKFILL SHALL MEET THE REQUIREMENTS OF SECTION 2.1.1. AND 2.2.1 ON SHEET R8. AN OFF-SITE BORROW SOURCE WILL BE REQUIRED.

REINFORCEMENT WILL EXTEND BENEATH THE PROPOSED PAVEMENT. ACCORDINGLY, EXCAVATION FOR PAVEMENT AND CURB AND GUTTER SHALL BE COORDINATED WITH WALL CONSTRUCTION AND SHALL BE COMPLETED WITHOUT DAMAGE TO THE MSE WALL REINFORCEMENT AND/OR MSE WALL SYSTEM.

SETTLEMENT/MOVEMENT OF THE WALL SYSTEM WILL OCCUR DUE TO THE WEIGHT OF FILL. SETTLEMENT OF THE NATURAL SOILS, AND MOBILIZATION OF THE RESISTING FORCES. THIS SETTLEMENT COULD BE REALIZED IN THE PAVEMENT IN THE FORM OF CRACKS. SETTLEMENT/MOVEMENT OF THE WALL SYSTEM SHALL BE EVALUATED PRIOR TO INSTALLATION OF THE APPROACH SLAB AND PAVEMENT/CURB AND GUTTER SYSTEMS.

GUARDRAIL SYSTEMS ARE DESIGNED TO FAIL UNDER IMPACT, THEREFORE THERE MAY OR MAY NOT BE SOME LOCALIZED DISPLACEMENT OF THE SOIL AND UPPER WALL UNITS AS A RESULT OF A MAJOR IMPACT. HOWEVER, FOR GUARDRAILS INSTALLED CLOSER THAN 3 FEET FROM BACK OF WALL, SIGNIFICANT DISPLACEMENT OF THE WALL UNITS COULD OCCUR AS A RESULT OF AN IMPACT.

BRIDGE PILES AND CORRUGATED SLEEVES SHALL BE INSTALLED PRIOR TO WALL CONSTRUCTION.

UTILITIES SHALL NOT BE INSTALLED WITHIN THE REINFORCED ZONE AFTER WALL CONSTRUCTION IS COMPLETE. TRENCHING AND EXCAVATION THROUGH THE WALL REINFORCEMENT WILL DAMAGE WALL INTEGRITY.

DEWATERING WILL MOST LIKELY BE REQUIRED TO FACILITATE WALL CONSTRUCTION.

UNDERCUTTING AND STABILIZATION MAY BE REQUIRED TO PROVIDE ADEQUATE BEARING BENEATH THE LEVELING PAD & REINFORCED ZONE.

WALL BATTER SHALL BE ACCOUNTED FOR IN ESTABLISHING THE WALL LOCATION AND FINAL GRADES AT THE TOP OF WALL. CONSULT KEYSTONE FOR ACTUAL WALL BATTER WHEN USING NEAR VERTICAL OPTION.

GENERAL NOTES

ELEVATION DEVELOPED FROM ROAD – PLAN AND PROFILE (SHEETS C3.4 & C3.5 DATED FEBRUARY 25, 2013) PREPARED AND PROVIDED BY THOMAS & HUTTON IN ELECTRONIC FORMAT. S&ME, INC. SHALL BE NOTIFIED OF ANY CHANGES TO OR DEVIATIONS FROM THE ABOVE REFERENCED PLAN(S) IN ORDER TO REEVALUATE THIS DESIGN.

IT IS THE RESPONSIBILITY OF THE OWNER, OWNER'S REPRESENTATIVE OR CONTRACTOR TO FIELD VERIFY ALL CONDITIONS, GRADES, AND DIMENSIONS AT THE SITE PRIOR TO WALL CONSTRUCTION. IF THE WALL CONTRACTOR DISCOVERS ANY ERRORS, OMISSIONS OR DISCREPANCIES, HE SHALL CONTACT THE S&ME WALL DESIGN ENGINEER. THE WALL DESIGN ENGINEER WILL THEN ISSUE INSTRUCTIONS AS TO HOW TO PROCEED. SHOULD THE CONTRACTOR FAIL TO CONTACT THE WALL DESIGN ENGINEER, THEN THE DESIGN SHALL BE CONSIDERED VOID AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY ADDITIONAL WORK NECESSARY.

THE GENERAL CONTRACTOR AND/OR OWNER SHALL BE RESPONSIBLE FOR INSTALLING ANY GUARDRAILS AND/OR FENCING NEEDED TO SATISFY SAFETY CONCERNS AND/OR GOVERNMENTAL REGULATIONS. THE CONTRACTOR AND/OR OWNER SHALL BE RESPONSIBLE FOR OBSERVING ALL APPLICABLE SAFETY LAWS AND REGULATIONS.

THE DESIGN PARAMETERS UPON WHICH THE WALL DESIGN IS BASED SHALL BE VERIFIED PRIOR TO WALL CONSTRUCTION.

EXCAVATION BEHIND THE WALLS FOR IRRIGATION, LANDSCAPING, CURB AND GUTTER AND UTILITIES SHALL BE COORDINATED WITH WALL CONSTRUCTION AND SHALL BE COMPLETED WITHOUT DAMAGE TO THE MSE WALL REINFORCEMENT AND/OR MSE WALL SYSTEM.

DESIGN PREPARED IN ACCORDANCE WITH S&ME PROPOSAL NO. 13351 DATED JUNE 13, 2013.

WALL CONSTRUCTION TO BE STARTED AFTER INSTALLATION OF PILES AND PILE SLEEVES.

Plan Sheet Index

RW-1.....Title Sheet & Notes

RW-2.....MSE Wall #1 Face Elevation

RW-3.....MSE Wall #1 Face Elevation (Cont.)

RW-3.....MSE Wall #2 Face Elevation

RW-4.....MSE Wall #2 Face Elevation (Cont.)

RW-6.....MSE Wall Typical Sections

RW-7.....MSE Wall Details

RW-8.....Specifications

S&ME, INC.
NO. C00473
CERTIFICATE OF AUTHORIZATION
SOUTH CAROLINA

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
NO. 19495
MICHAEL G. RAUM
10-17-13

NO.	REVISIONS	BY	DATE
1	REVISED MSE TYPICAL WALL SECTION PER T&H COMMENTS	MGR	10/17/13

S&ME, Inc.
GREENVILLE, SC
SPARTANBURG, SC
Spartanburg 864.574.2345
Greenville 864.232.8987
Fax 864.232.3178
NC PE FIRM NO. F-0776

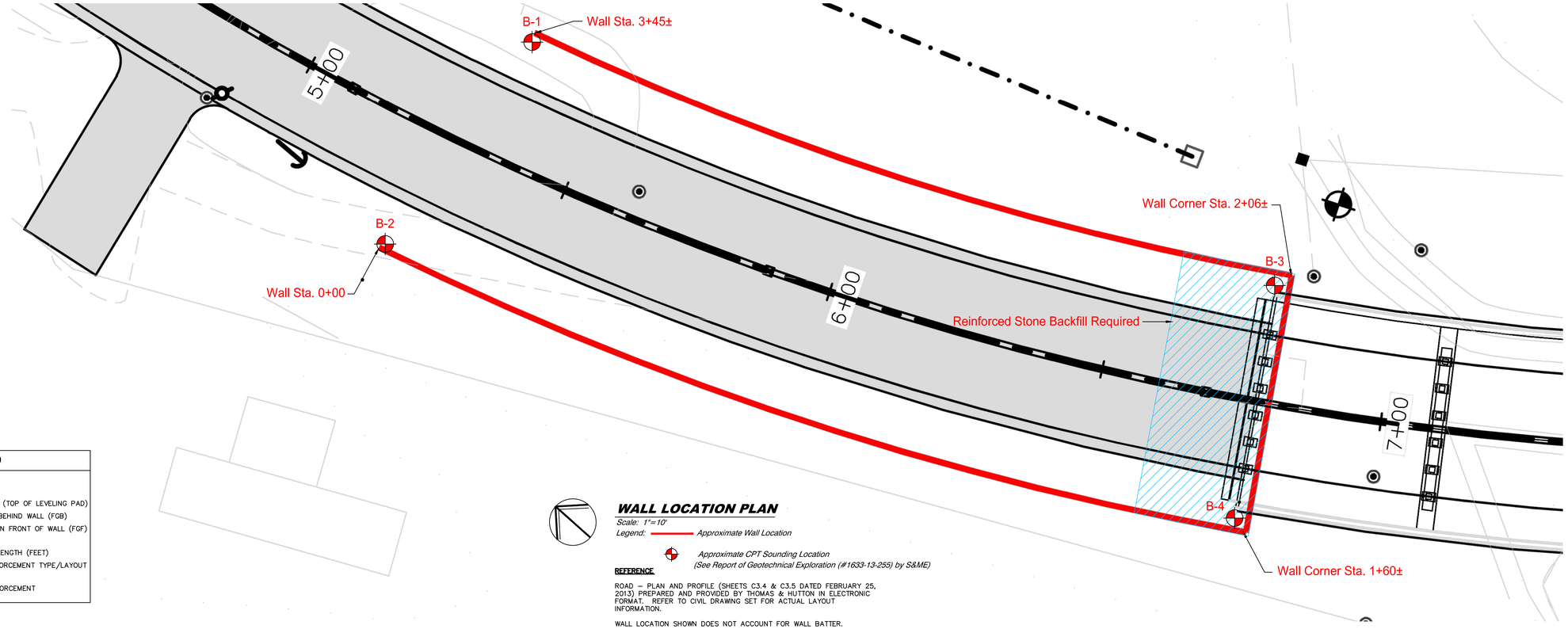
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

TITLE SHEET & NOTES

JOB NO.:	1261-13-282
DATE:	09/10/13
DRAWN:	MGR
DESIGNED:	MGR
REVIEWED:	DAS
APPROVED:	N/A
SCALE:	AS SHOWN

RW-1



LEGEND

TOC	– TOP OF CAP
TOW	– TOP OF WALL
BOW	– BOTTOM OF WALL (TOP OF LEVELING PAD)
	– FINISHED GRADE BEHIND WALL (FGB)
	– FINISHED GRADE IN FRONT OF WALL (FGF)
(8.0)	– REINFORCEMENT LENGTH (FEET)
X	– CHANGE IN REINFORCEMENT TYPE/LAYOUT
	– MIRAFI 3XT REINFORCEMENT

WALL LOCATION PLAN

Scale: 1"=10'

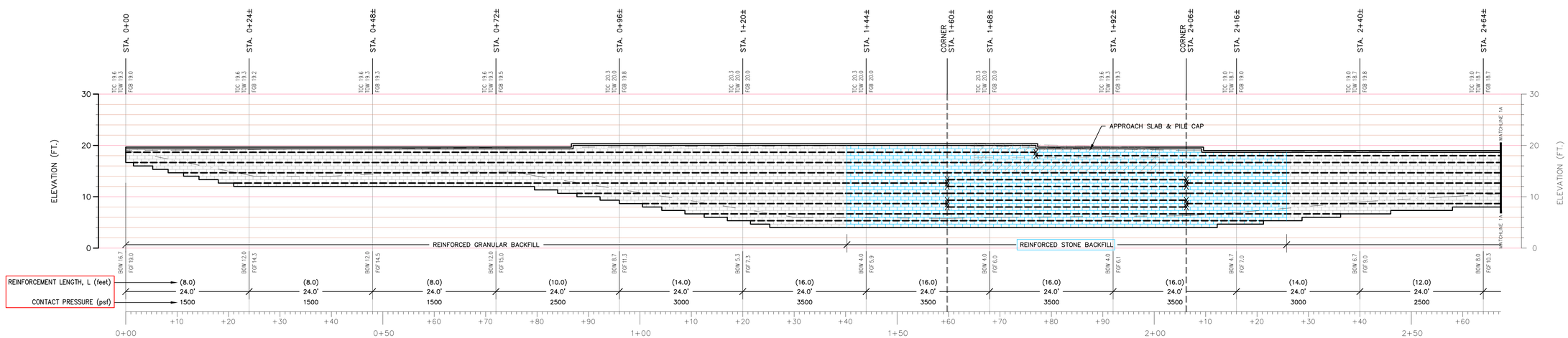
Legend: *Approximate Wall Location*

Approximate CPT Sounding Location (See Report of Geotechnical Exploration (#1633-13-255) by S&ME)

REFERENCE

ROAD – PLAN AND PROFILE (SHEETS C3.4 & C3.5 DATED FEBRUARY 25, 2013) PREPARED AND PROVIDED BY THOMAS & HUTTON IN ELECTRONIC FORMAT. REFER TO CIVIL DRAWING SET FOR ACTUAL LAYOUT INFORMATION.

WALL LOCATION SHOWN DOES NOT ACCOUNT FOR WALL BATTER.



MSE WALL #1 FACE ELEVATION

SCALE: 1"=10' Horizontal / 1"=10' Vertical

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
S&ME, INC.
NO. C00473

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
NO. 19495
MICHAEL G. RAMEY
10-17-13

NO.	REVISIONS	BY	DATE
1	REVISED MSE TYPICAL WALL SECTION PER T&H COMMENTS	MGR	10/17/13

S&ME

S&ME, Inc.
GREENVILLE, SC
SPARTANBURG, SC

864.574.2760 Spartanburg
864.232.8987 Greenville
864.574.2538 Fax
NC PE FIRM NO. P-0716

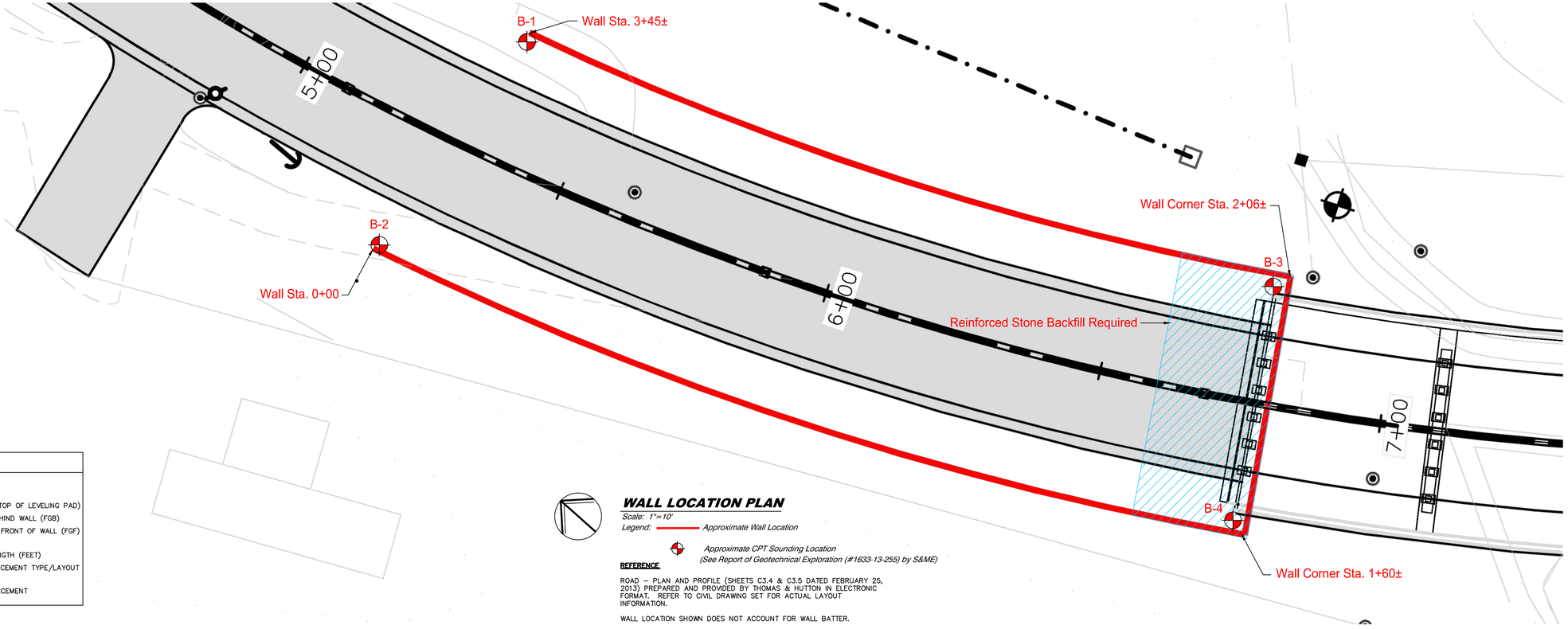
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

MSE WALL #1 FACE ELEVATION

JOB NO.:	1261-13-282
DATE:	09/10/13
DRAWN:	MGR
DESIGNED:	MGR
REVIEWED:	DAS
APPROVED:	N/A
SCALE:	AS SHOWN

RW-2



LEGEND

TOC	– TOP OF CAP
TOW	– TOP OF WALL
BOW	– BOTTOM OF WALL (TOP OF LEVELING PAD)
—— · ——	– FINISHED GRADE BEHIND WALL (FGB)
—— · ——	– FINISHED GRADE IN FRONT OF WALL (FGF)
(8.0)	– REINFORCEMENT LENGTH (FEET)
X	– CHANGE IN REINFORCEMENT TYPE/LAYOUT
– – – – –	– MIRAFI 3XT REINFORCEMENT

WALL LOCATION PLAN

Scale: 1"=10'

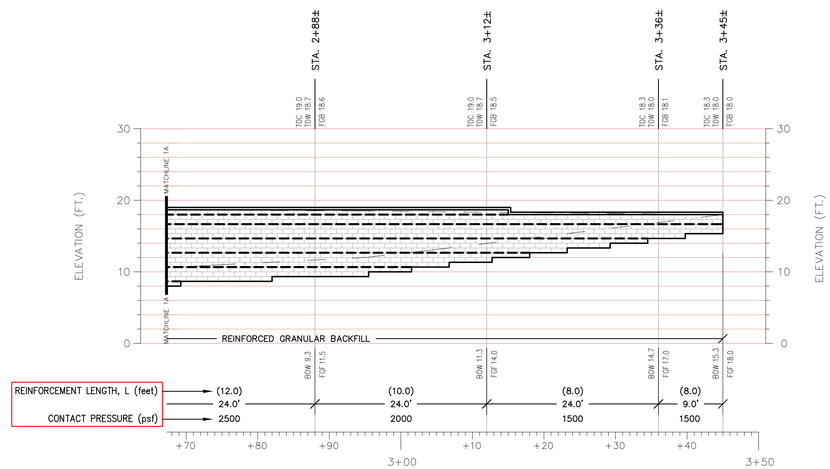
Legend: *Approximate Wall Location*

Approximate CPT Sounding Location
(See Report of Geotechnical Exploration (#1633-13-255) by S&ME)

REFERENCE

ROAD – PLAN AND PROFILE (SHEETS C3.4 & C3.5 DATED FEBRUARY 25, 2013) PREPARED AND PROVIDED BY THOMAS & HUTTON IN ELECTRONIC FORMAT. REFER TO CIVIL DRAWING SET FOR ACTUAL LAYOUT INFORMATION.

WALL LOCATION SHOWN DOES NOT ACCOUNT FOR WALL BATTER.



MSE WALL #1 FACE ELEVATION

SCALE: 1"=10' Horizontal / 1"=10' Vertical

RW STA. 5+33±
23'± LEFT

SCALE
–10 0 10
FEET

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NO.	REVISIONS	BY	DATE
1	REVISED MSE TYPICAL WALL SECTION PER T&H COMMENTS	MGR	10/17/13

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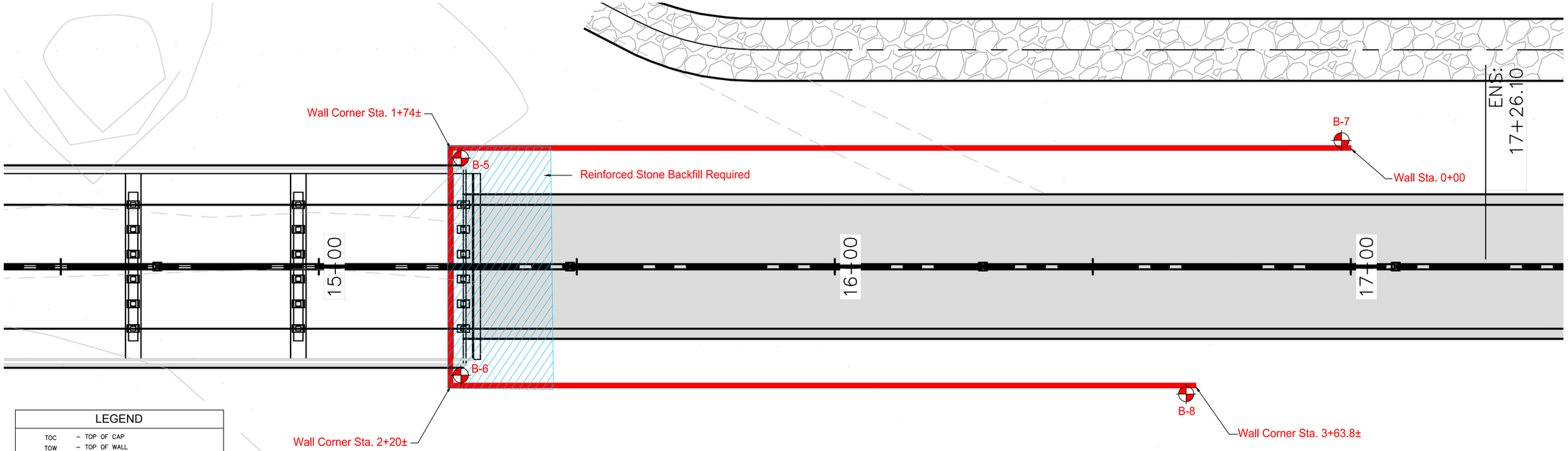
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

MSE WALL #1 FACE ELEVATION (CONT.)

JOB NO.:	1261-13-282
DATE:	09/10/13
DRAWN:	MGR
DESIGNED:	MGR
REVIEWED:	DAS
APPROVED:	N/A
SCALE:	AS SHOWN

RW-3



LEGEND	
TOC	– TOP OF CAP
TOW	– TOP OF WALL
BOW	– BOTTOM OF WALL (TOP OF LEVELING PAD)
	– FINISHED GRADE BEHIND WALL (FGB)
	– FINISHED GRADE IN FRONT OF WALL (FGF)
(8.0)	– REINFORCEMENT LENGTH (FEET)
X	– CHANGE IN REINFORCEMENT TYPE/LAYOUT
	– MIRAFI 3XT REINFORCEMENT

WALL LOCATION PLAN

Scale: 1"=10'

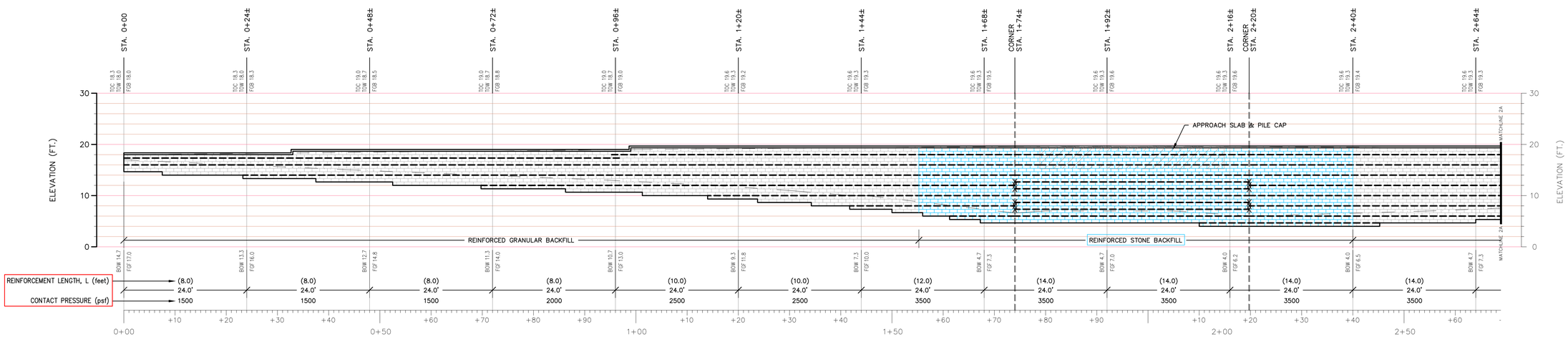
Legend: *Approximate Wall Location*

Approximate CPT Sounding Location
(See Report of Geotechnical Exploration (#1633-13-255) by S&ME)

REFERENCE

ROAD – PLAN AND PROFILE (SHEETS C3.4 & C3.5 DATED FEBRUARY 25, 2013) PREPARED AND PROVIDED BY THOMAS & HUTTON IN ELECTRONIC FORMAT. REFER TO CIVIL DRAWING SET FOR ACTUAL LAYOUT INFORMATION.

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MSE WALL #2 FACE ELEVATION

SCALE: 1"=10' Horizontal / 1"=10' Vertical

SCALE
−10 0 10
FEET

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10-17-13

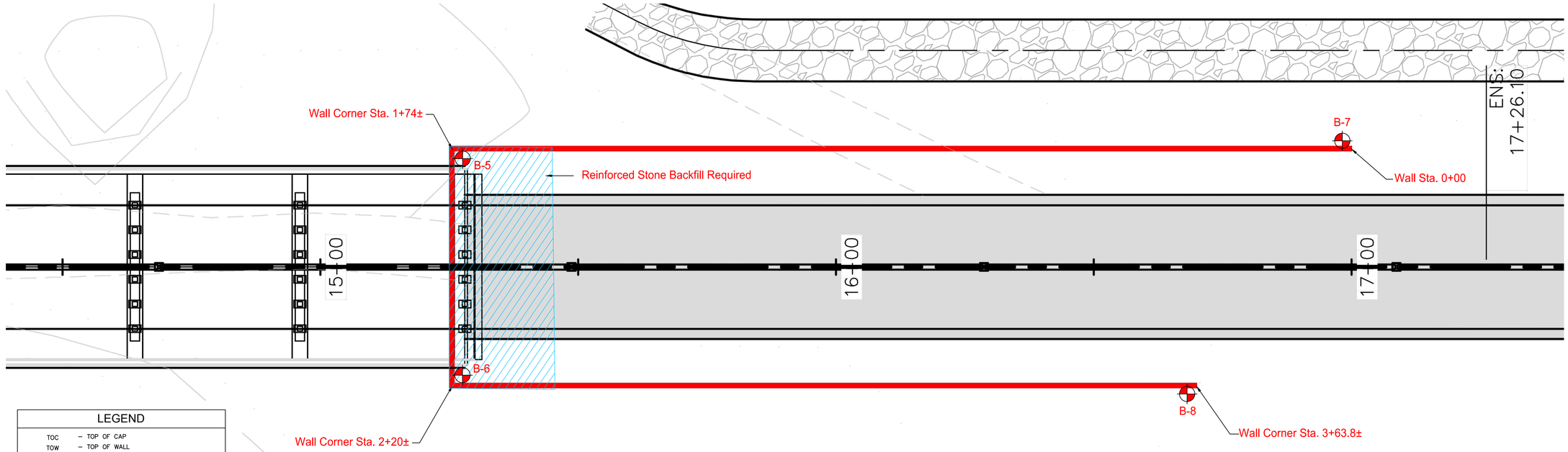
NO.	REVISIONS	BY	DATE
1	REVISED MSE TYPICAL WALL SECTION PER T&H COMMENTS	MGR	10/17/13

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HORRY COUNTY, SC
NEW BUCKSPORT ACCESS ROAD
MSE WALL #2 FACE ELEVATION

JOB NO.:	1261-13-282
DATE:	09/10/13
DRAWN:	MGR
DESIGNED:	MGR
REVIEWED:	DAS
APPROVED:	N/A
SCALE:	AS SHOWN

RW-4



LEGEND	
TOC	– TOP OF CAP
TOW	– TOP OF WALL
BOW	– BOTTOM OF WALL (TOP OF LEVELING PAD)
——— ———	– FINISHED GRADE BEHIND WALL (FGB)
——— ———	– FINISHED GRADE IN FRONT OF WALL (FGF)
(8.0)	– REINFORCEMENT LENGTH (FEET)
X	– CHANGE IN REINFORCEMENT TYPE/LAYOUT
– – – – –	– MIRAFI 3XT REINFORCEMENT

WALL LOCATION PLAN

Scale: 1"=10'

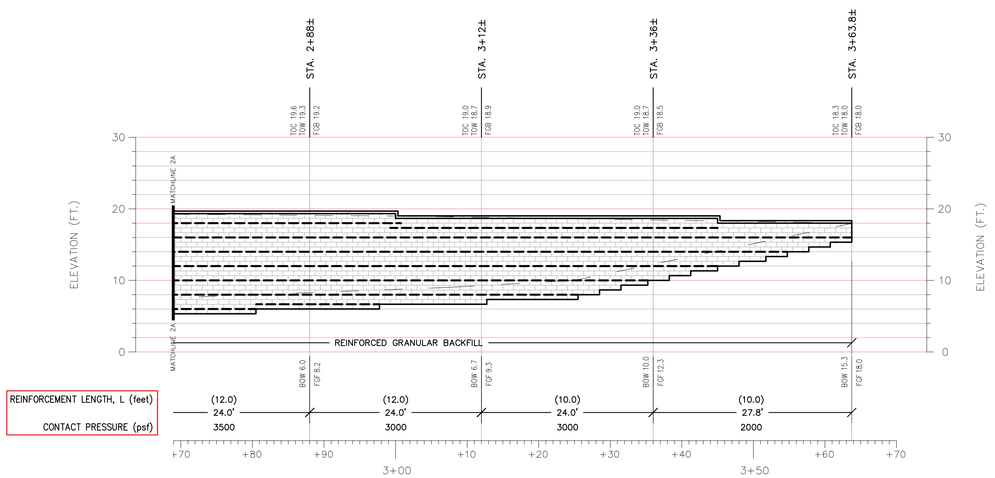
Legend: *Approximate Wall Location*

Approximate CPT Sounding Location
(See Report of Geotechnical Exploration (#1633-13-255) by S&ME)

REFERENCE

ROAD – PLAN AND PROFILE (SHEETS C3.4 & C3.5 DATED FEBRUARY 25, 2013) PREPARED AND PROVIDED BY THOMAS & HUTTON IN ELECTRONIC FORMAT. REFER TO CIVIL DRAWING SET FOR ACTUAL LAYOUT INFORMATION.

WALL LOCATION SHOWN DOES NOT ACCOUNT FOR WALL BATTER.



MSE WALL #2 FACE ELEVATION

SCALE: 1"=10' Horizontal / 1"=10' Vertical

RW STA. 16+77±
23'± RIGHT

SCALE
–10 0 10
FEET

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MICHAEL G. RAMEY
10-17-13

NO.	REVISIONS	BY	DATE
1	REVISED MSE TYPICAL WALL SECTION PER T&H COMMENTS	MGR	10/17/13

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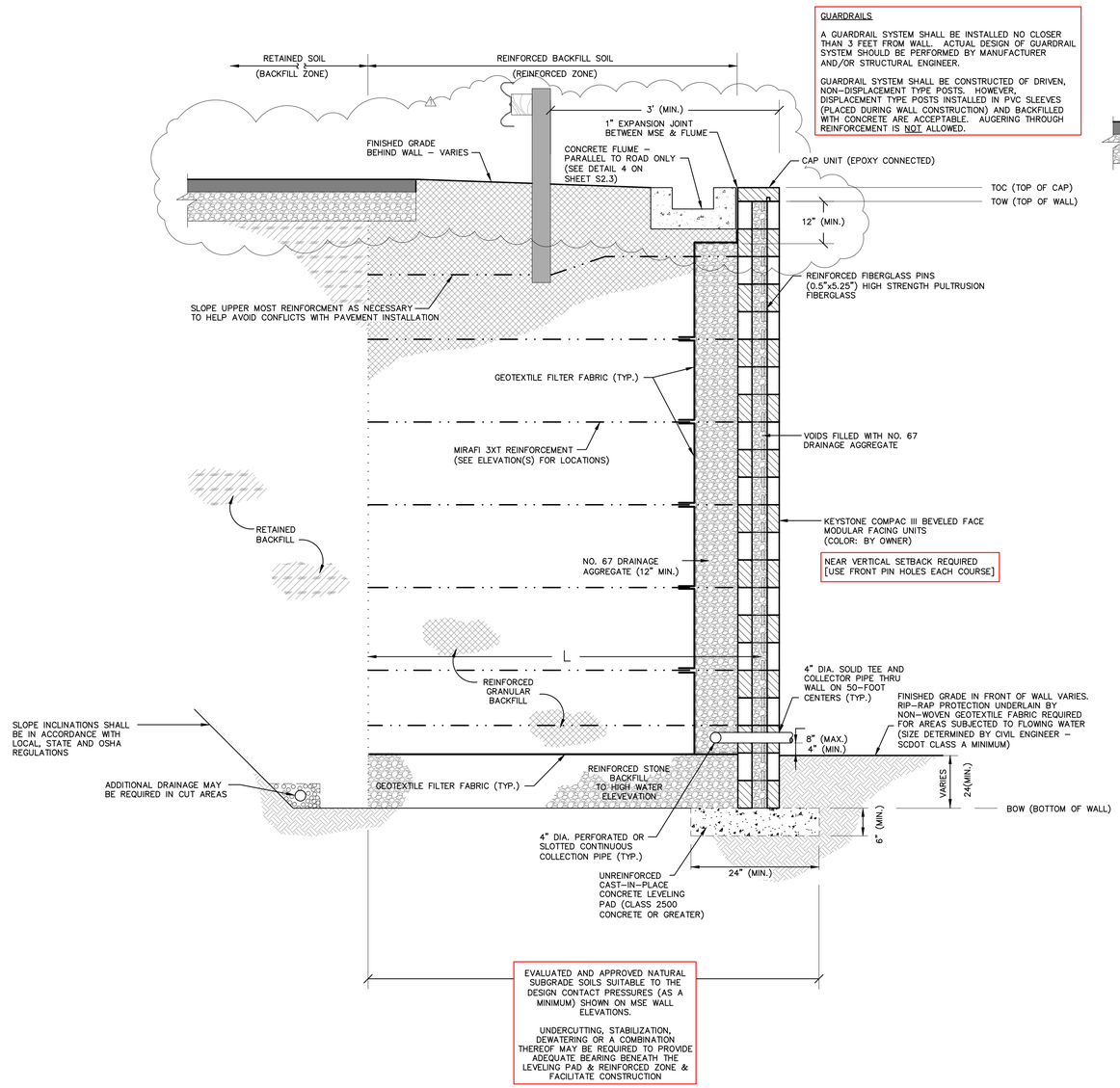
GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

MSE WALL #2 FACE ELEVATION (CONT.)

JOB NO.:	1261-13-282
DATE:	09/10/13
DRAWN:	MGR
DESIGNED:	MGR
REVIEWED:	DAS
APPROVED:	N/A
SCALE:	AS SHOWN

RW-5



GUARDRAILS

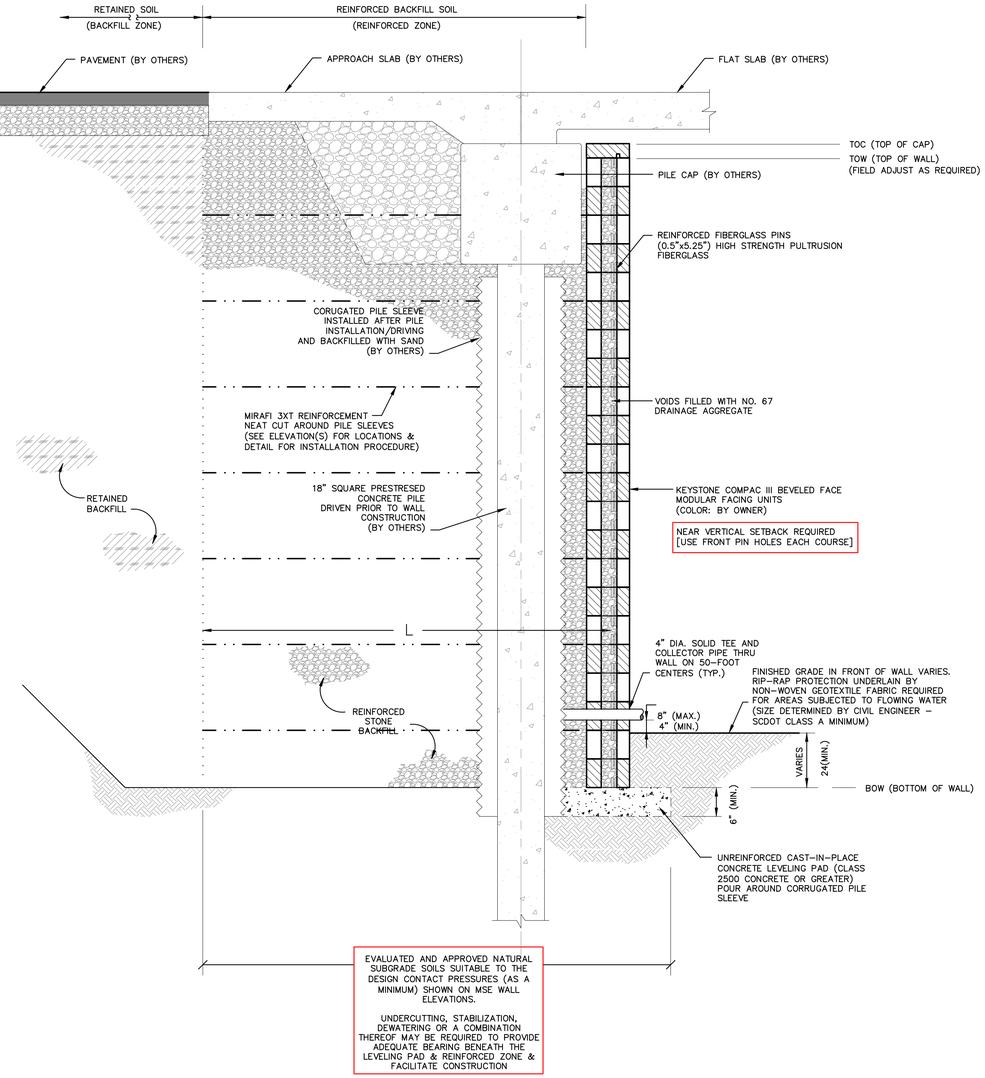
A GUARDRAIL SYSTEM SHALL BE INSTALLED NO CLOSER THAN 3 FEET FROM WALL. ACTUAL DESIGN OF GUARDRAIL SYSTEM SHOULD BE PERFORMED BY MANUFACTURER AND/OR STRUCTURAL ENGINEER.

GUARDRAIL SYSTEM SHALL BE CONSTRUCTED OF DRIVEN, NON-DISPLACEMENT TYPE POSTS. HOWEVER, DISPLACEMENT TYPE POSTS INSTALLED IN PVC SLEEVES (PLACED DURING WALL CONSTRUCTION) AND BACKFILLED WITH CONCRETE ARE ACCEPTABLE. AUGERING THROUGH REINFORCEMENT IS NOT ALLOWED.

MSE WALL TYPICAL SECTION

SCALE: Not to Scale

NOTE: Wall #1: Sta. 0+00 - 1+60± & 2+06± - 3+45±
Wall #2: Sta. 0+00 - 1+74± & 2+20± - 3+63.8±
Reinforced stone backfill required for Wall #1 Sta. 1+40± - 2+26± and Wall #2 Sta. 1+55± - 2+40± and to high water elevation elsewhere.



MSE WALL TYPICAL SECTION @ PILES

SCALE: Not to Scale

NOTE: Wall #1: Sta. 1+60± - 2+06±
Wall #2: Sta. 1+74± - 2+20±
Reinforced stone backfill required for Wall #1 Sta. 1+40± - 2+26± and Wall #2 Sta. 1+55± - 2+40± and to high water elevation elsewhere.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
S&ME, INC.
NO. C00473

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
NO. 19495
MICHAEL G. RILEY
10-17-13

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NO.	REVISIONS	BY	DATE
1	REVISED MSE TYPICAL WALL SECTION PER T&H COMMENTS	MGR	10/17/13

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

MSE WALL TYPICAL SECTIONS

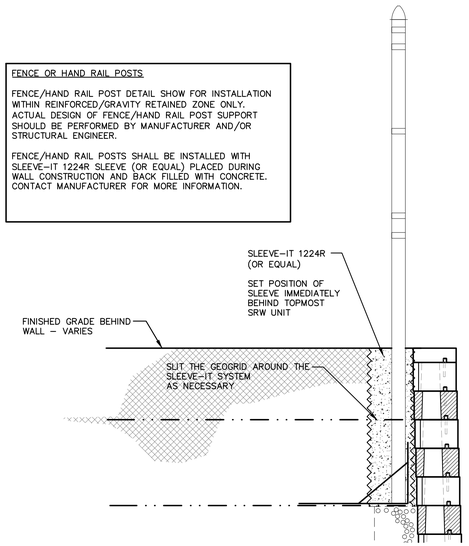
JOB NO.:	1261-13-282
DATE:	09/10/13
DRAWN:	MGR
DESIGNED:	MGR
REVIEWED:	DAS
APPROVED:	N/A
SCALE:	AS SHOWN

RW-6

FENCE OR HAND RAIL POSTS

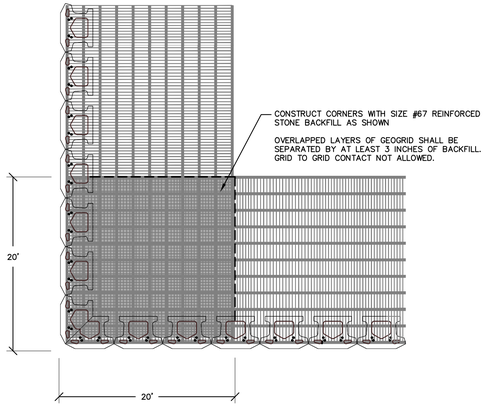
FENCE/HAND RAIL POST DETAIL SHOW FOR INSTALLATION WITHIN REINFORCED/GRAVITY RETAINED ZONE ONLY. ACTUAL DESIGN OF FENCE/HAND RAIL POST SUPPORT SHOULD BE PERFORMED BY MANUFACTURER AND/OR STRUCTURAL ENGINEER.

FENCE/HAND RAIL POSTS SHALL BE INSTALLED WITH SLEEVE-IT 1224R SLEEVE (OR EQUAL) PLACED DURING WALL CONSTRUCTION AND BACK FILLED WITH CONCRETE. CONTACT MANUFACTURER FOR MORE INFORMATION.



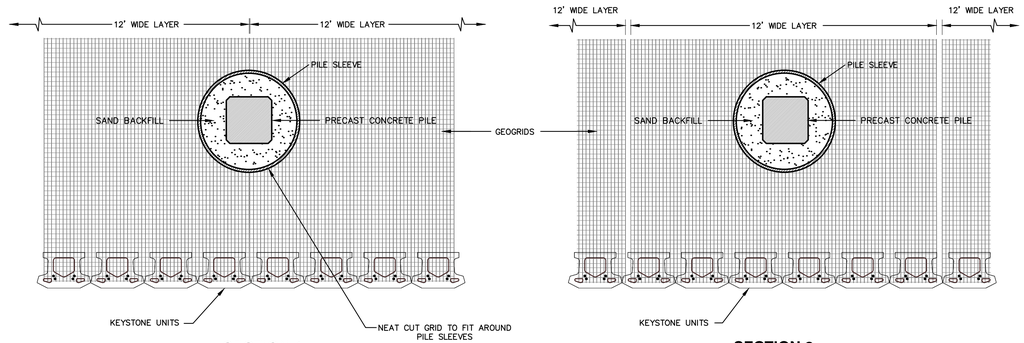
TYPICAL FENCE INSTALLATION DETAIL

SCALE: Not to Scale



TYPICAL INSTALLATION DETAIL @ CORNER

SCALE: Not to Scale

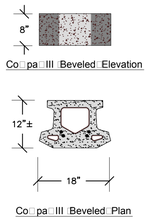


TYPICAL GEOGRID INSTALLATION DETAIL @ PILES

SCALE: Not to Scale

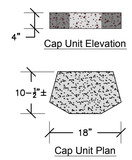
INSTALLATION SEQUENCE:

1. SEE ELEVATION VIEWS FOR REINFORCEMENT LENGTHS AND LOCATIONS. (SEE CIVIL/BRIDGE PLANS FOR PILE LOCATIONS AND ELEVATIONS.
2. INSTALL FIRST LAYER OF REINFORCEMENT JUST BELOW THE PILE SLEEVE AS SHOWN IN THE SECTION 1 DETAIL.
3. INSTALL THE SECOND LAYER OF REINFORCEMENT AS SHOWN IN THE SECTION 2 DETAIL.
4. REPEAT SEQUENCE STEPS 1 AND 2 TO THE TOP OF THE WALL.



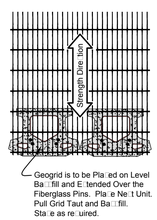
TYPICAL COMPAC III UNIT

SCALE: Not to Scale
NOTE: Alternate units shall meet dimensions as shown above as a minimum.



TYPICAL CAP UNIT

SCALE: Not to Scale
NOTE: Alternate units shall meet dimensions as shown above as a minimum.



TYPICAL GRID CONNECTION

SCALE: Not to Scale
NOTE: Positive connection required for alternate units.

S&ME, INC.
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MICHAEL G. RAMEY
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NO.	REVISIONS	BY	DATE
1	REVISED MSE TYPICAL WALL SECTION PER T&H COMMENTS	MGR	10/17/13

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S&ME, Inc.
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NC PE FIRM NO. F-0776

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

MSE WALL DETAILS

JOB NO.:	1261-13-282
DATE:	09/10/13
DRAWN:	MGR
DESIGNED:	MGR
REVIEWED:	DAS
APPROVED:	N/A
SCALE:	AS SHOWN

RW-7

SPECIFICATIONS

1.0 GENERAL

1.1 CONSTRUCTION AND INSPECTION OF THE SEGMENTAL RETAINING WALL SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE BLOCK AND GEOGRID MANUFACTURER(S), THE ELEVATION VIEW(S), AND DETAIL(S) AND THESE SPECIFICATIONS, AND SUPPLEMENTAL TECHNICAL SPECIFICATION FOR MECHANICALLY STABILIZED EARTH (MSE) WALLS (SCDOT DOCUMENT SC-M-713 (03/12)).

2.0 MATERIALS

2.1 REINFORCED GRANULAR BACKFILL

2.1.1 MATERIAL PLACED IN THE REINFORCED ZONE SHALL MEET THE FOLLOWING CRITERIA:

USCS CLASSIFICATION: WELL GRADED
EFFECTIVE ANGLE OF INTERNAL FRICTION, $\phi' \geq 32°$
PERCENT PASSING NO. 3/4" SIEVE ≤ 100
PERCENT PASSING NO. 40 SIEVE ≤ 60
PERCENT PASSING NO. 200 SIEVE ≤ 15
LIQUID LIMIT, LL ≤ 30
PLASTIC INDEX, PI ≤ 6
ORGANIC MATERIAL $< 1\%$
pH>3

2.1.2 OFF-SITE BORROW MATERIALS MAY BE REQUIRED TO MEET SPECIFICATIONS AND COMPLETE WALL CONSTRUCTION. REPRESENTATIVE SAMPLES SHALL BE SUBJECTED TO THE FOLLOWING TESTING FOR APPROVAL PRIOR TO CONSTRUCTION:

GRAIN SIZE DISTRIBUTION – AASHTO T 27
ATTERBERG LIMITS – AASHTO T 2487
STANDARD PROCTOR COMPACTION – AASHTO T 180
DIRECT SHEAR – AASHTO T 236
pH – AASHTO T 289
ORGANIC CONTENT – AASHTO T 267

2.2 REINFORCED STONE BACKFILL

2.2.1 REINFORCED STONE BACKFILL SHALL CONSIST OF SCDOT NO. 67 CRUSHED STONE AND EXHIBIT AN EFFECTIVE ANGLE OF INTERNAL FRICTION OF AT LEAST 32 DEGREES.

2.3 RETAINED BACKFILL

2.3.1 SOIL INSTALLED IN THE RETAINED ZONE SHALL BE FREE OF ORGANIC OR OTHER DELETERIOUS MATERIALS AND EXHIBIT AN EFFECTIVE ANGLE OF INTERNAL FRICTION OF AT LEAST 30 DEGREES.

2.4 SRW UNITS – SRW UNITS SHALL CONSIST OF KEYSTONE COMPAC III BEVELED FACE UNITS (COLOR TBD) AND CAPS AS MANUFACTURED BY KEYSTONE RETAINING WALL SYSTEMS.

2.5 SHEAR CONNECTORS – SHEAR CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPTHALIC POLYESTER RESIN-PULTRUDED FIBERGLASS REINFORCEMENT RODS OR PINS TO PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS. STRENGTH OF SHEAR CONNECTORS BETWEEN VERTICAL ADJACENT UNITS SHALL BE APPLICABLE OVER A DESIGN TEMPERATURE OF 10°F TO 100°F.

2.6 GEOGRID REINFORCEMENT – GEOGRID REINFORCEMENT SHALL CONSIST OF MIRAFI 3XT AS MANUFACTURED BY TENCATE. ALTERNATE GEOGRID MUST BE APPROVED BY S&ME, INC. PRIOR TO CONSTRUCTION.

2.7 FILTER FABRIC – GEOTEXTILE FILTER FABRIC SHALL CONSIST OF NEEDLE PUNCHED OR NON-WOVEN POLYPROPYLENE MATERIAL WHICH MEETS THE AASHTO M 288-2000 CLASS 3 STRENGTH CRITERIA. IT SHALL ALSO HAVE A MAXIMUM AVERAGE ROLL VALUE OF 0.25 MM FOR ITS APPARENT OPENING SIZE AND PERMITTIVITY OF AT LEAST 0.2/SEC. PRE-APPROVED NONWOVEN GEOTEXTILES INCLUDE TC MIRAFI 140N, GEOTEX 104F AND CARTHAGE MILLS FX-40HS.

2.8 DRAINAGE AGGREGATE – SHALL CONSIST OF SCDOT 67 STONE.

2.9 LEVELING PAD – CONCRETE FOR LEVELING PAD SHALL CONSIST OF SCDOT CLASS 2500 OR GREATER.

2.10 DRAINAGE PIPE – DRAINAGE PIPE LOCATED BEHIND SRW FACE SHALL CONSIST OF 4-INCH DIAMETER SLOTTED OR PERFORATED HDPE OR SCHEDULE 40 PVC PIPE. SLOTS OR PERFORATIONS SHALL BE SIZED BASED ON THE GRADATION OF THE DRAINAGE AGGREGATE.

3.0 EXCAVATION AND FOUNDATION PREPARATION

3.1 THE CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. EXCAVATIONS SHALL BE MAINTAINED IN ACCORDANCE WITH OSHA, STATE AND LOCAL REGULATIONS.

3.2 EXCAVATION AT THE BACK OF THE REINFORCED ZONE SHALL BE BENCH CUT AS DIRECTED BY THE OWNER'S ENGINEER TO ALLOW SOIL COMPACTION TO BE ACCOMPLISHED IN A HORIZONTAL PLANE AND TO TIE THE NEW BACKFILL INTO THE TEMPORARY SLOPE.

3.3 FOUNDATION AND RETAINED SOIL AREAS SHALL BE EVALUATED AND PROOF-ROLLED BY THE OWNER'S ENGINEER TO VERIFY THAT THE LEVELING PAD AND REINFORCED FILL AREA IS DIRECTLY UNDERLAIN BY SUITABLE BEARING MATERIALS TO SUPPORT THE CONTACT PRESSURES SHOWN IN THE WALL FACE ELEVATION(S).

3.4 ADDITIONAL UNDERCUTTING, DEWATERING OR STABILIZATION USING SURGE STONE AND/OR GEOTEXTILE FABRIC COULD BE REQUIRED TO PROVIDE SUITABLE BEARING. THE REQUIREMENT FOR UNDERCUTTING AND/OR STABILIZATION SHALL BE AS DETERMINED BY THE OWNER'S GEOTECHNICAL ENGINEER.

4.0 LEVELING PAD PREPARATION AND CONSTRUCTION

4.1 THE LEVELING PAD MAY BE CONSTRUCTED WITH UNREINFORCED CONCRETE THAT MEETS THE CRITERIA IN SECTION 2.0.

4.2 THE LEVELING PAD SHALL BE AT LEAST 24 INCHES WIDE AND 6 INCHES THICK.

4.3 THE LEVELING PAD SHALL BE CONSTRUCTED SO AS TO PROVIDE A LEVEL, HARD SURFACE UPON WHICH TO PLACE THE FIRST COURSE OF SRW UNITS.

4.4 IF CRUSHED AGGREGATE IS USED TO BACKFILL UNDERCUT AREAS BENEATH THE LEVELING PAD, IT SHALL BE COMPACTED USING A VIBRATORY SLED TO THE SATISFACTION OF THE OWNER'S ENGINEER.

4.5 THE LEVELING PAD SHALL BE PREPARED TO ENSURE FULL CONTACT BETWEEN THE PAD AND THE FIRST COURSE OF SRW UNITS.

5.0 WALL CONSTRUCTION

5.1 THE WALL SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SRW MANUFACTURER'S RECOMMENDATIONS, SCDOT DESIGNATION SC-M-713 (3/12) AND THESE REQUIREMENTS.

5.2 INSTALL GEOSYNTHETIC REINFORCEMENT AT LOCATIONS AND ELEVATIONS SHOWN ON THE WALL ELEVATION(S).

5.3 REINFORCEMENT PANELS SHALL BE CONTINUOUS. SEAMS OR CONNECTIONS ARE NOT PERMITTED. SPLICES OR OVERLAPPING IN THE STRONG DIRECTION OF THE REINFORCEMENT ARE NOT PERMITTED. ADJACENT PANELS SHALL BE ABUTTED. 100 PERCENT REINFORCEMENT COVERAGE IS REQUIRED.

5.4 IN AREAS WHERE ADJACENT LAYER(S) OF REINFORCEMENT WILL OVERLAP (I.E., OUTSIDE RADIUS OR OUTSIDE CORNER), A MINIMUM OF 3 INCHES OF FILL SHALL BE USED TO SEPARATE THE OVERLAPPING LAYERS.

5.5 PANELS OF GEOSYNTHETIC REINFORCEMENT SHALL BE TENSIONED SUCH THAT FOLDS AND WRINKLES ARE REMOVED BEFORE REINFORCED SOIL IS PLACED. PANELS SHALL BE STAKED OR ANCHORED AS NECESSARY TO MAINTAIN TAUT CONDITION.

5.6 GEOSYNTHETIC REINFORCEMENT LENGTH IS MEASURED FROM THE WALL FACE AND IS SHOWN ON THE WALL ELEVATION(S).

5.7 WALL CONTRACTOR AND OWNER'S ENGINEER SHALL VERIFY THAT GEOSYNTHETIC TYPE AND LENGTH CORRESPONDS TO THE TYPE SHOWN ON THE WALL ELEVATION(S) BEFORE ITS INSTALLATION.

5.8 TRACKED VEHICLES MAY NOT OPERATE ON GEOSYNTHETIC REINFORCEMENT WITH LESS THAN 6 INCHES OF COMPACTED SOIL BETWEEN THE REINFORCEMENT AND THE TRACKS. TURNING OF TRACKED VEHICLES SHOULD BE KEPT TO A MINIMUM TO PREVENT DAMAGE AND DISTURBANCE TO THE REINFORCEMENT.

5.9 RUBBER-TIRE VEHICLES MAY OPERATE DIRECTLY ON THE GEOSYNTHETIC REINFORCEMENT AND SPEEDS LESS THAN 10 MPH IF PERMITTED BY THE REINFORCEMENT MANUFACTURER. SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.

5.10 INSTALL DRAINAGE AGGREGATE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 2.0 AND AS SHOWN IN THE TYPICAL SECTION(S). DRAINAGE AGGREGATE SHALL BE PLACED WITHIN THE CORES OF, BETWEEN, AND BEHIND THE SRW UNITS.

5.11 THE DRAINAGE PIPE SHALL BE CONNECTED TO A SOLID COLLECTOR PIPE AND DISCHARGED FROM THE LOWEST POINT(S) ALONG THE WALL (EITHER THROUGH THE WALL FACE AT THE FINISHED GRADE OR FROM BEYOND THE END OF THE WALL) TO AN APPROVED OUTFALL AREA.

5.12 INSTALL REINFORCED BACKFILL BEGINNING DIRECTLY BEHIND THE WALL AND PROCEEDING TOWARD THE END (TAIL) OF THE GEOGRID REINFORCEMENT.

5.13 INSTALL MATERIAL IN REINFORCED AND RETAINED ZONES IN COMPACTED LIFTS NO GREATER THAN 8 INCHES IN THICKNESS AND IN ACCORDANCE WITH THE REQUIREMENTS IN SECTION 6.

5.14 INSTALL SINGLE COURSE OF FACING UNITS, PLACE DRAINAGE AGGREGATE WITHIN THE CORES OF, BETWEEN, AND BEHIND SRW UNITS AND THEN REINFORCED BACKFILL WORKING AWAY FROM THE WALL. TOP OF SRW UNITS SHALL BE CLEANED OF EXCESS STONE BEFORE PLACING NEXT COURSE. NO MORE THAN ONE COURSE SHALL BE PLACED/STACKED BEFORE COMPLETING FILL PLACEMENT AND COMPACTION.

5.15 INSTALL KEYSTONE SHEAR CONNECTOR PINS EVERY COURSE AND TO CONNECT GEOSYNTHETIC REINFORCEMENT TO SRW UNITS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND THESE DRAWINGS SUCH THAT THE SPECIFIED WALL BATTER IS ACHIEVED.

5.16 INSTALL CAP UNITS USING AN EPOXY ADHESIVE IN ACCORDANCE WITH SRW MANUFACTURER'S RECOMMENDATIONS.

6.0 SOIL COMPACTION

6.1 THE OWNER'S ENGINEER SHALL EVALUATE AND DOCUMENT COMPACTION OF SOIL IN THE REINFORCED SOIL ZONE IN ACCORDANCE WITH THESE REQUIREMENTS. ALL FILL SHALL MEET THE REQUIREMENTS OF SECTION 2.0 AND SHALL BE PLACED IN MAXIMUM 8-INCH THICK LIFTS (LOOSE MEASURE) AND UNIFORMLY COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR COMPACTION TEST METHOD (AASHTO T 180). COMPACTION REQUIREMENT WITHIN THE UPPER 18 INCHES BENEATH PAVEMENTS SHALL BE INCREASED TO 98 PERCENT.

6.2 THE MOISTURE CONTENT OF THE FILL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE AT PLUS 2 TO MINUS 2 PERCENTAGE POINTS OF OPTIMUM AS DETERMINED BY AASHTO T 180.

6.3 REINFORCED STONE BACKFILL AND DRAINAGE AGGREGATE (SCDOT #67) SHALL BE PLACED IN 12-INCH THICK OR LESS LIFTS AND DENSIFIED USING VIBRATORY SMOOTH DRUM ROLLER (MIN. 4 PASSES).

6.4 HEAVY COMPACTION EQUIPMENT OR OTHER HEAVY CONSTRUCTION EQUIPMENT MAY NOT BE OPERATED WITHIN 3 FEET OF THE BACK OF THE SRW UNITS.

6.5 WITHIN 3 FEET OF THE BACK OF THE SRW UNITS, ONLY HAND-OPERATED COMPACTION MAY BE USED AND COMPACTION SHALL BE ACHIEVED BY AT LEAST 3 PASSES. REDUCE LIFT THICKNESS IF NECESSARY TO ACHIEVE COMPACTION.

6.6 THE COMPACTED DENSITY AND MOISTURE CONTENT OF MATERIAL IN THE REINFORCED ZONE SHALL BE TESTED IN ACCORDANCE WITH THE FOLLOWING MINIMUMS:

6.6.1 AT LEAST ONCE PER EVERY TWO 8-INCH LIFTS FOR EVERY 25 FEET OF WAL

6.7 IN THE ABSENCE OF THE OWNER'S REQUIREMENTS FOR MORE STRINGENT COMPACTION SPECIFICATIONS, FILL SOIL IN TOE AND CREST SLOPES SHALL BE COMPACTED TO WITHIN 95 PERCENT OF ITS MAXIMUM DRY DENSITY AND TO WITHIN 2 PERCENT OF ITS OPTIMUM MOISTURE CONTENT AS DETERMINED IN ACCORDANCE WITH AASHTO T 180.

7.0 DRAINAGE AND EROSION PROTECTION

7.1 AT THE END OF EACH WORK DAY, THE CONTRACTOR SHALL GRADE THE SURFACE OF THE LAST LIFT OF REINFORCED SOIL AWAY FROM THE WALL FACE AND COMPACT.

7.2 THE CONTRACTOR SHALL INSTALL TEMPORARY SOIL BERMS AND DRAINAGE DITCHES AS NECESSARY TO PREVENT THE SURFACE FLOW OF WATER TOWARD THE REINFORCED SOIL ZONE.

7.3 THE PONDING OF WATER ABOVE OR WITHIN 20 FEET BEHIND THE REINFORCED SOIL ZONE DURING OR AFTER WALL CONSTRUCTION SHALL NOT BE PERMITTED.

7.4 ALL TOE AND CREST SLOPES SHALL BE CONSTRUCTED OUTSIDE OF DESIGN LIMITS AND CUT BACK TO ACHIEVE PROPER COMPACTION AT THE SLOPE FACE. ADDITIONALLY, SLOPES SHALL BE VEGETATED AND PROTECTED FROM EROSION AS SOON AS POSSIBLE FOLLOWING THEIR CONSTRUCTION.

8.0 WALL DESIGN

8.1 THE DESIGN WAS PERFORMED IN ACCORDANCE WITH AASHTO GUIDELINES FOR MSE RETAINING WALLS BASED ON S&ME'S EXPERIENCE WITH NATURAL SOILS COMMON TO THE HORRY COUNTY, SOUTH CAROLINA AREA, AND REPORT OF GEOTECHNICAL EXPLORATION REPORT PERFORMED BY S&ME, INC. ON SEPTEMBER 10, 2013. THE FOLLOWING DESIGN PROPERTIES USED FOR DESIGN SHOULD BE VERIFIED PRIOR TO WALL CONSTRUCTION:

8.2 DESIGN SOIL PROPERTIES

ZONE	ϕ'	c' **	γ_m	
REINFORCED	32°	0 PSF	120 PCF	** COHESION ONLY INCORPORATE INTO GLOBAL STABILITY ANALYSES.
RETAINED SOIL	30°	0 PSF	115 PCF	
FOUNDATION SOIL	30°	0 PSF	115 PCF	

8.3 GEOGRID REINFORCEMENT

TYPE	Tult	LTDS	Tall
MIRAFI 3XT	3500 LB/FT	1918 LB/FT	1279 LB/FT

8.4 RESISTANCE FACTORS

SLIDING = 1.0
BEARING = 0.65
GLOBAL STABILITY = 0.65

CONNECTION = 0.9
PULLOUT = 0.9
TENSILE = 0.9
L = 8 FT. (MINIMUM)

8.5 EXTERNAL LOADING

250 PSF LIVE SURCHARGE LOAD

8.6 ADDITIONAL LOADS

ANY UTILITIES SUCH AS LIGHT POLES, HAND RAILS, GUARDRAILS, OR DRAINAGE STRUCTURES TO BE INSTALLED IN THE VICINITY OF THE WALLS MUST BE DESIGNED AND CONSTRUCTED SO THAT THEY DO NOT ADD LATERAL FORCES TO BE RESISTED BY THE WALL SYSTEM. IN ADDITION, ANY EXCAVATION (I.E., INSTALLATION OF CONCRETE GUTTERS, SHRUB AND TREE PLANTING, ETC.) CONDUCTED IN THE VICINITY OF THE WALL (ESPECIALLY IN THE "REINFORCED ZONE") AFTER THE WALL HAS BEEN CONSTRUCTED MUST BE DONE WITHOUT DAMAGING THE WALL OR GEOGRIDS. PLEASE CONTACT THE WALL DESIGN ENGINEER IF THERE ARE ANY QUESTIONS.

9.0 ENGINEER INSPECTION

9.1 A LETTER FROM THE ON-SITE GEOTECHNICAL ENGINEER SHALL BE PROVIDED TO THE OWNER AND/OR OWNER'S REPRESENTATIVE STATING THE FOUNDATION MATERIALS ARE ACCEPTABLE FOR WALL SUPPORT, THE BACKFILL MATERIALS HAVE BEEN PROPERLY COMPACTED AND HAVE MET THE SPECIFICATIONS AND THAT THE REINFORCEMENT TYPE, LENGHTS AND LAYOUT ARE INSTALL PROPERLY. THIS LETTER SHALL BE SIGNED BY AN ENGINEER REGISTERED IN SOUTH CAROLINA.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
S&ME, INC.
NO. C00473

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
NO. 19495
MICHAEL G. RALPH
10-17-13

NO.	REVISIONS	BY	DATE
1	REVISED MSE TYPICAL WALL SECTION PER T&H COMMENTS	MGR	10/17/13

S&ME, Inc.
CHARLESTON, SC 843.571.4500
COLUMBIA, SC 803.741.3224
GREENVILLE, SC 864.676.2660 Spartanburg
SPARTANBURG, SC 864.574.2660 Greenville
WILMINGTON, NC 910.509.5078 Fax
NC FIRM NO. F-0716

GRAND STRAND WATER & SEWER AUTHORITY
HORRY COUNTY, SC

NEW BUCKSPORT ACCESS ROAD

SPECIFICATIONS

JOB NO.:	1261-13-282
DATE:	09/10/13
DRAWN:	MGR
DESIGNED:	MGR
REVIEWED:	DAS
APPROVED:	N/A
SCALE:	AS SHOWN

RW-8