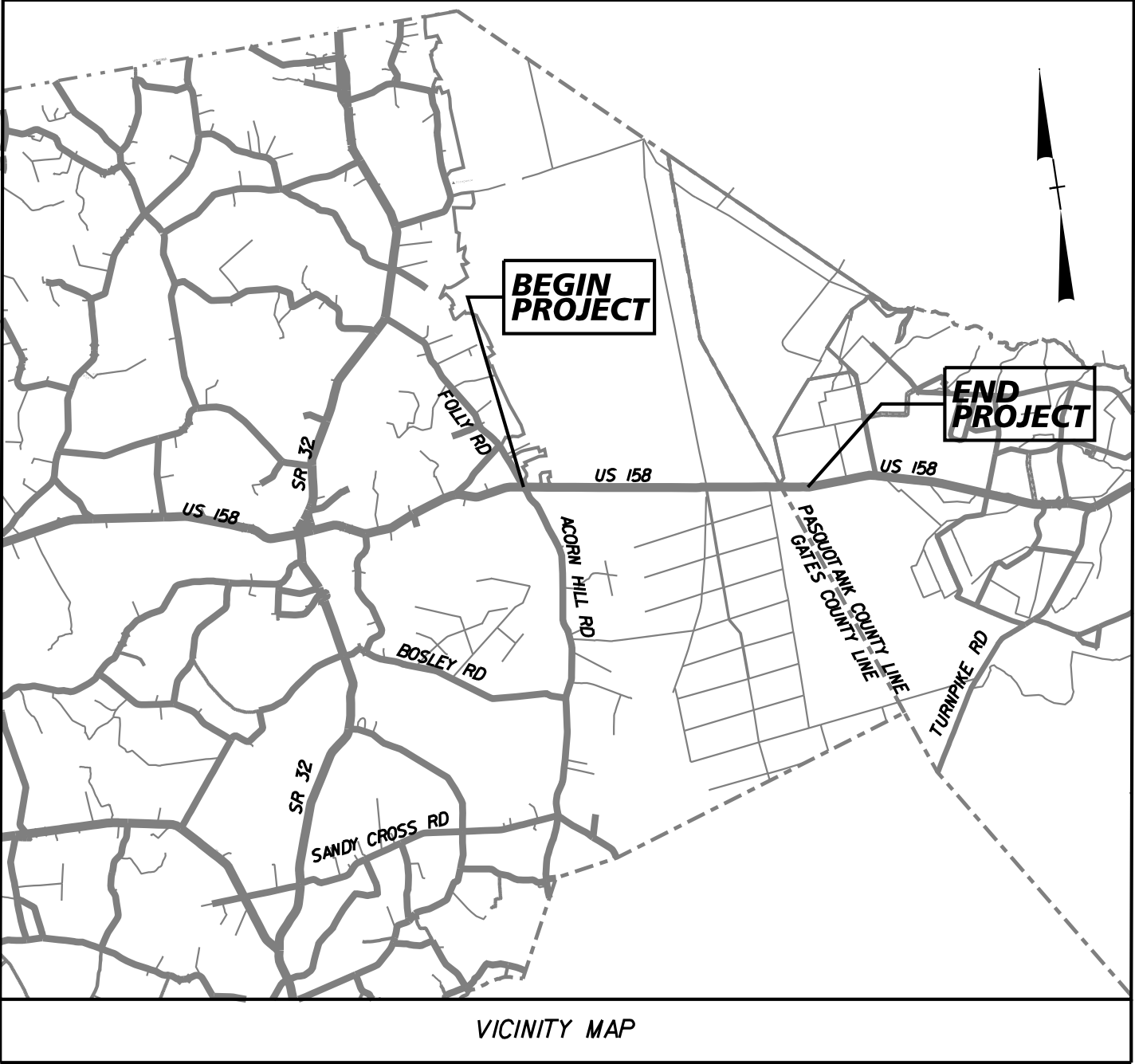


R-5808

TIP PROJECT:

CONTRACT: C204854



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

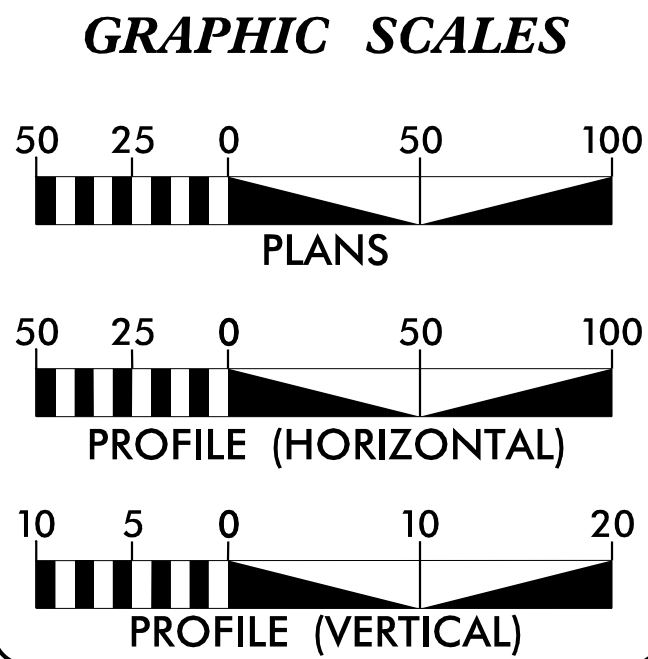
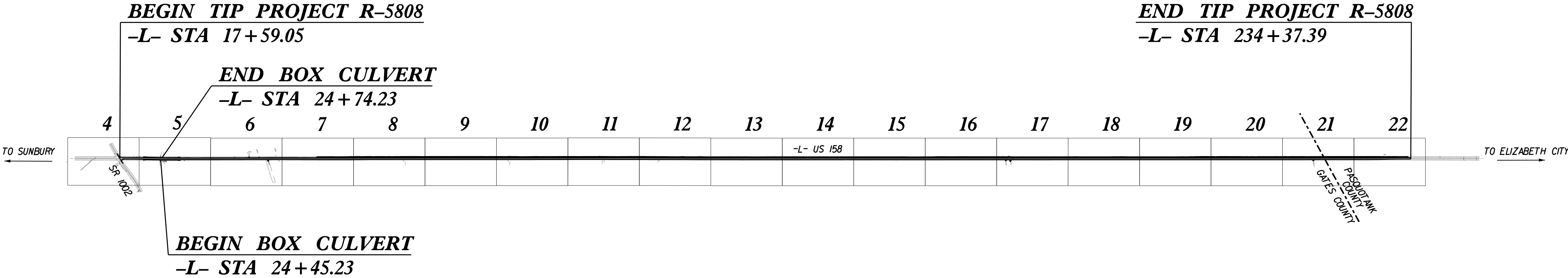
GATES AND PASQUOTANK COUNTY

LOCATION: US 158 FROM THE INTERSECTION OF SR 1002 (ACORN HILL ROAD)
AND US 158 TO 0.27 MI. EAST OF THE PASQUOTANK COUNTY LINE

TYPE OF WORK: GRADING, DRAINAGE, PAVING, WIDENING, AND CULVERT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5808	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
46972.1.2	NHP-0158(076)	PE	
46972.2.1	0158076	R / W	
46972.2.2	0158076	UTIL.	
46972.3.1	0158076	CONSTR.	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA	
ADT 2023	= 4,300
ADT 2043	= 6,200
K	= 10%
D	= 55%
T	= 12%
V	= 60 MPH
CLASSIFICATION:	
OTHER PRINCIPAL ARTERIAL	
* 7% TTST 5% DUAL STATEWIDE TIER	

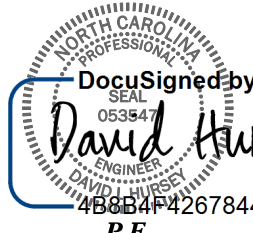
PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT R-5808	= 4.101 MILES
LENGTH OF STRUCTURE TIP PROJECT R-5808	= .005 MILES
TOTAL LENGTH TIP PROJECT R-5808	= 4.106 MILES

Prepared in the Office of:

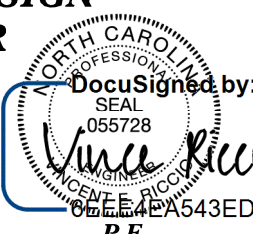

©2023
NO LICENSE REQUIRED
PAVING/PAVEMENT SURFING
PAVEMENT SURFING
PAVEMENT SURFING
PAVEMENT SURFING
PAVEMENT SURFING

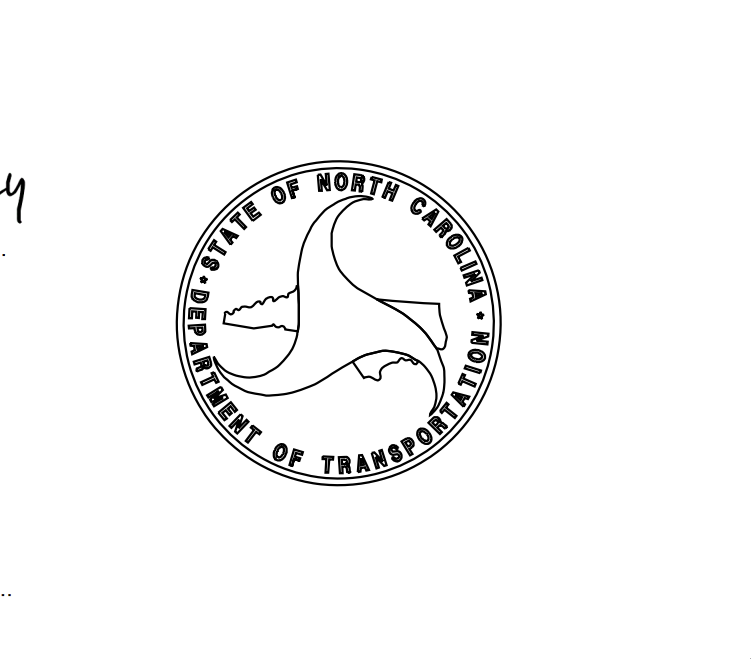
2024 STANDARD SPECIFICATIONS	VINCENT RICCIO, PE PROJECT ENGINEER
RIGHT OF WAY DATE: AUGUST 23, 2022	BRANDON GREGG PROJECT DESIGN ENGINEER
LETTING DATE: DECEMBER 17, 2024	RYAN SHOOK PROJECT MANAGER NCDOT HIGHWAY DIVISION

HYDRAULICS ENGINEER


9/6/2024
SIGNATURE: _____
P.E.

ROADWAY DESIGN ENGINEER


9/6/2024
SIGNATURE: _____
P.E.



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-5808	1A

R-5808
GATES COUNTY

SHEET NUMBER
I
1A
1B
2A-I THRU 2A-3
2G-I THRU 2G-3
3B-I THRU 3B-2
3D-I
3G-I
3P-I
4 THRU 22
23 THRU 32
RWOI THRU RW22
TMP-I THRU TMP-7
PMP-I THRU PMP-20
EC-I THRU EC-4I
CI-I THRU CI-10
UOOI THRU UO20
X-1A THRU X-1C
X-2 THRU X-54

INDEX OF SHEETS

SHEET
TITLE SHEET
INDEX OF SHEETS, GENERAL NOTES, LIST OF ROADWAY STANDARD DRAWINGS
CONVENTIONAL SYMBOLS SHEET
PAVEMENT SCHEDULE AND TYPICAL SECTIONS
STANDARD TEMPORARY WALL DETAILS
ROADWAY SUMMARIES
DRAINAGE SUMMARY
GEOTECH SUMMARY
PARCEL INDEX SHEETS
PLAN SHEETS
PROFILE SHEETS
SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENT AND PROPERTY TIES
TRAFFIC MANAGEMENT PLANS
PAVEMENT MARKING PLANS
EROSION CONTROL PLANS
CULVERT PLANS
UTILITY BY OTHERS PLANS
CROSS-SECTION SUMMARY
CROSS-SECTIONS

GENERAL NOTES:

2024 SPECIFICATIONS
EFFECTIVE: 01-16-2024
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES

ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED, GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY MODIFIED METHOD III.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADIUS OR RADIUS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR 'TEMPORARY SHORING'.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE ATT

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT.

2024 ROADWAY ENGLISH STANDARD DRAWINGS
REV.

EFF. 01-16-2024
REV.

The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit - N. C. Department of Transportation - Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superlevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
235.01	Embankment Monitoring
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.02	Subsurface Drain
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels and Ditches
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

REVISIONS

11/12/2024

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin (EIP)	
Computed Property Corner	
Existing Concrete Monument (ECM)	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	
Sign	
Well	
Small Mine	
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	
Dam	

HYDROLOGY:

Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Secondary Horiz and Vert Control Point	
Vertical Benchmark	
Existing Right of Way Monument	
Proposed Right of Way Monument (Rebar and Cap)	
Proposed Right of Way Monument (Concrete)	
Existing Permanent Easement Monument	
Proposed Permanent Easement Monument (Rebar and Cap)	
Existing C/A Monument	
Proposed C/A Monument (Rebar and Cap)	
Proposed C/A Monument (Concrete)	
Existing Right of Way Line	
Proposed Right of Way Line	
Existing Control of Access Line	
Proposed Control of Access Line	
Proposed ROW and CA Line	
Existing Easement Line	
Proposed Temporary Construction Easement	
Proposed Temporary Drainage Easement	
Proposed Permanent Drainage Easement	
Proposed Permanent Drainage/Utility Easement	
Proposed Permanent Utility Easement	
Proposed Temporary Utility Easement	
Proposed Aerial Utility Easement	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	
VEGETATION:	
Single Tree	
Single Shrub	
Hedge	

Woods Line	
Orchard	
Vineyard	

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

UTILITIES:

* SUE - Subsurface Utility Engineering
LOS - Level of Service - A,B,C or D (Accuracy)

POWER:

Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
U/G Power Line Test Hole (SUE - LOS A)*	
U/G Power Line (SUE - LOS B)*	
U/G Power Line (SUE - LOS C)*	
U/G Power Line (SUE - LOS D)*	

TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Test Hole (SUE - LOS A)*	
U/G Telephone Cable (SUE - LOS B)*	
U/G Telephone Cable (SUE - LOS C)*	
U/G Telephone Cable (SUE - LOS D)*	
U/G Telephone Conduit (SUE - LOS B)*	
U/G Telephone Conduit (SUE - LOS C)*	
U/G Telephone Conduit (SUE - LOS D)*	
U/G Fiber Optics Cable (SUE - LOS B)*	
U/G Fiber Optics Cable (SUE - LOS C)*	
U/G Fiber Optics Cable (SUE - LOS D)*	

WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line Test Hole (SUE - LOS A)*	
U/G Water Line (SUE - LOS B)*	
U/G Water Line (SUE - LOS C)*	
U/G Water Line (SUE - LOS D)*	
Above Ground Water Line	

TV:

TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Test Hole (SUE - LOS A)*	
U/G TV Cable (SUE - LOS B)*	
U/G TV Cable (SUE - LOS C)*	
U/G TV Cable (SUE - LOS D)*	
U/G Fiber Optic Cable (SUE - LOS B)*	
U/G Fiber Optic Cable (SUE - LOS C)*	
U/G Fiber Optic Cable (SUE - LOS D)*	

GAS:

Gas Valve	
Gas Meter	
U/G Gas Line Test Hole (SUE - LOS A)*	
U/G Gas Line (SUE - LOS B)*	
U/G Gas Line (SUE - LOS C)*	
U/G Gas Line (SUE - LOS D)*	
Above Ground Gas Line	

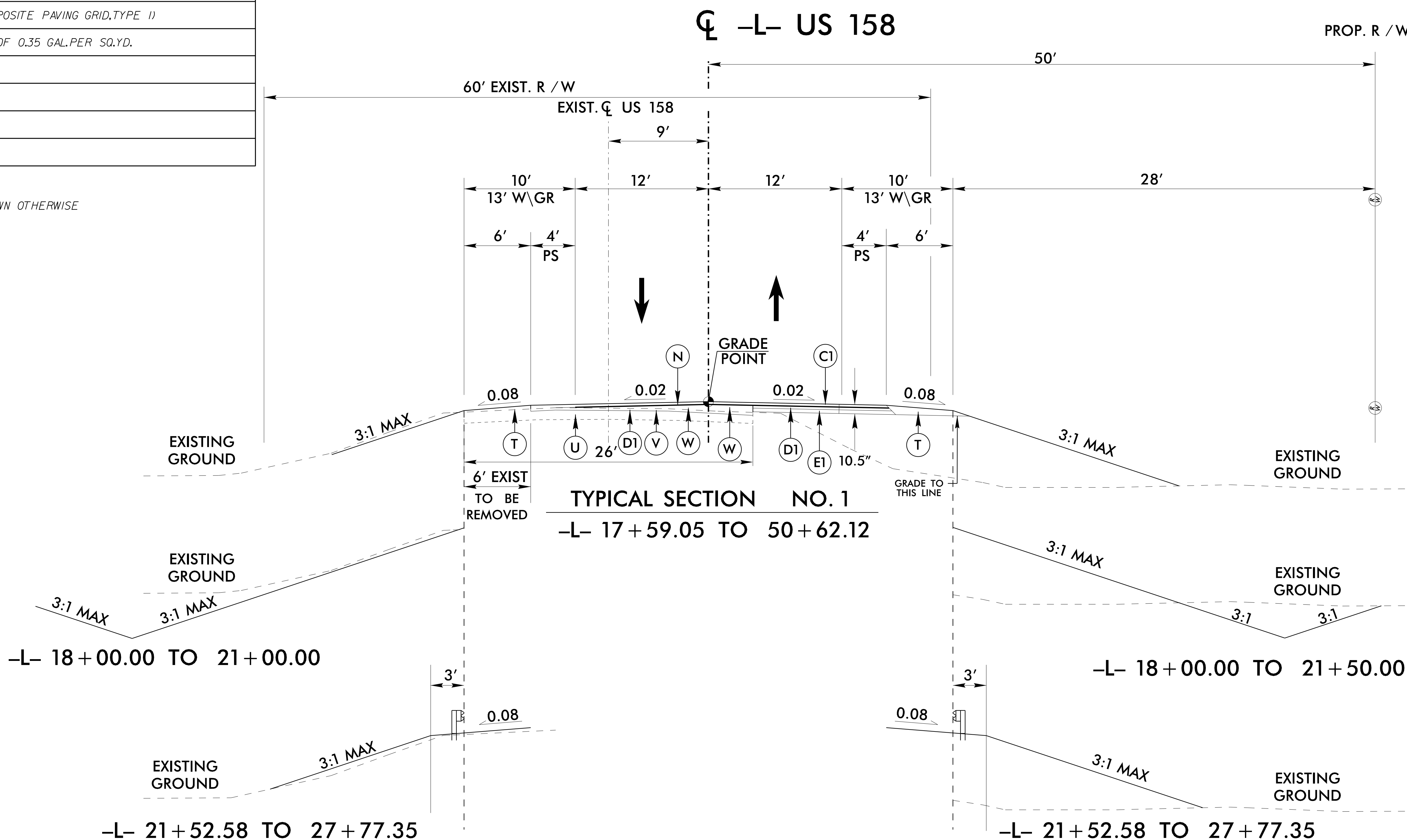
SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Force Main Line Test Hole (SUE - LOS A)*	
SS Force Main Line (SUE - LOS B)*	
SS Force Main Line (SUE - LOS C)*	
SS Force Main Line (SUE - LOS D)*	

MISCELLANEOUS:

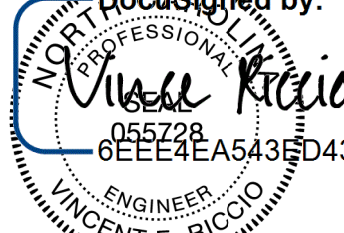
Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line (SUE - LOS B)*	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenvironmental Boring	
Abandoned According to Utility Records	
End of Information	

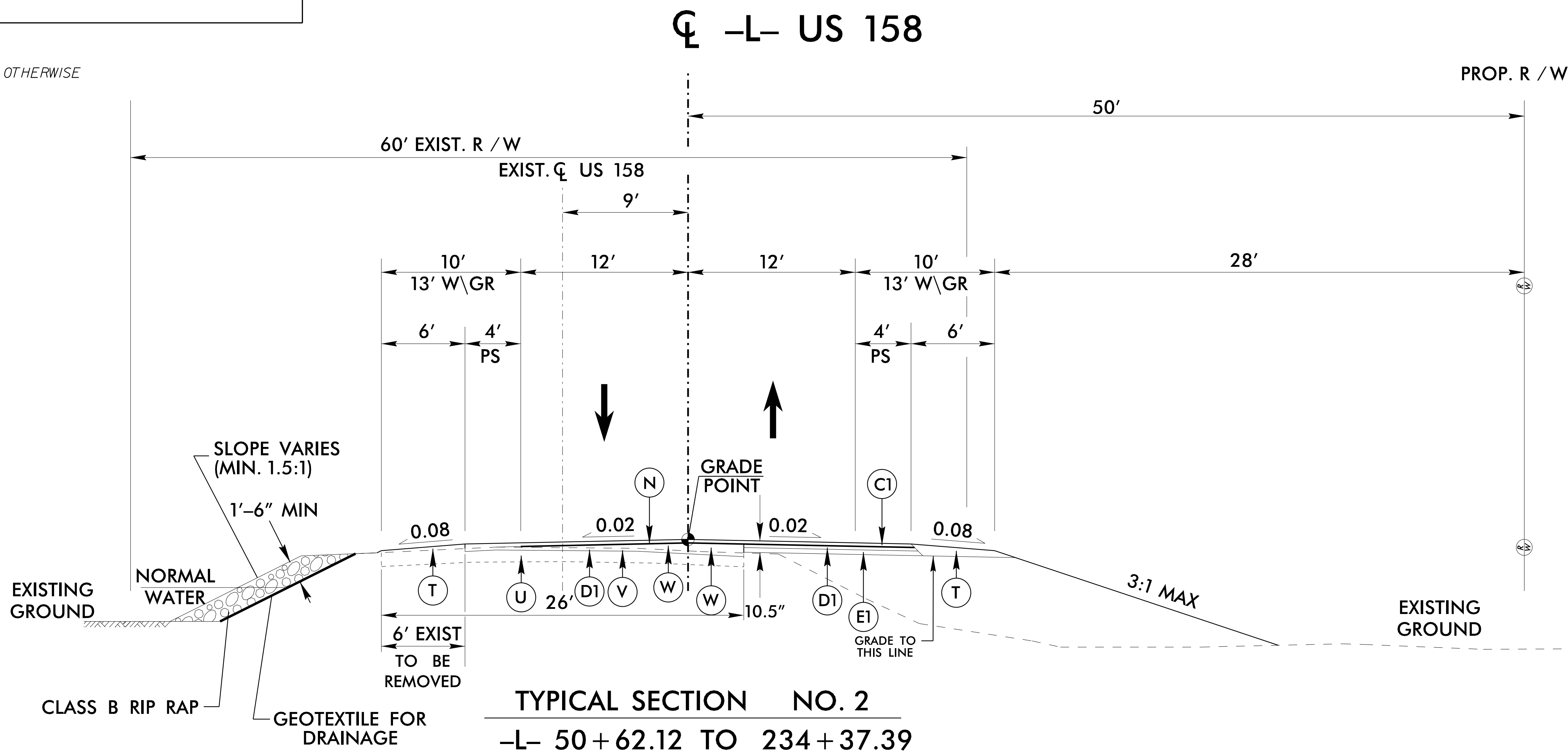
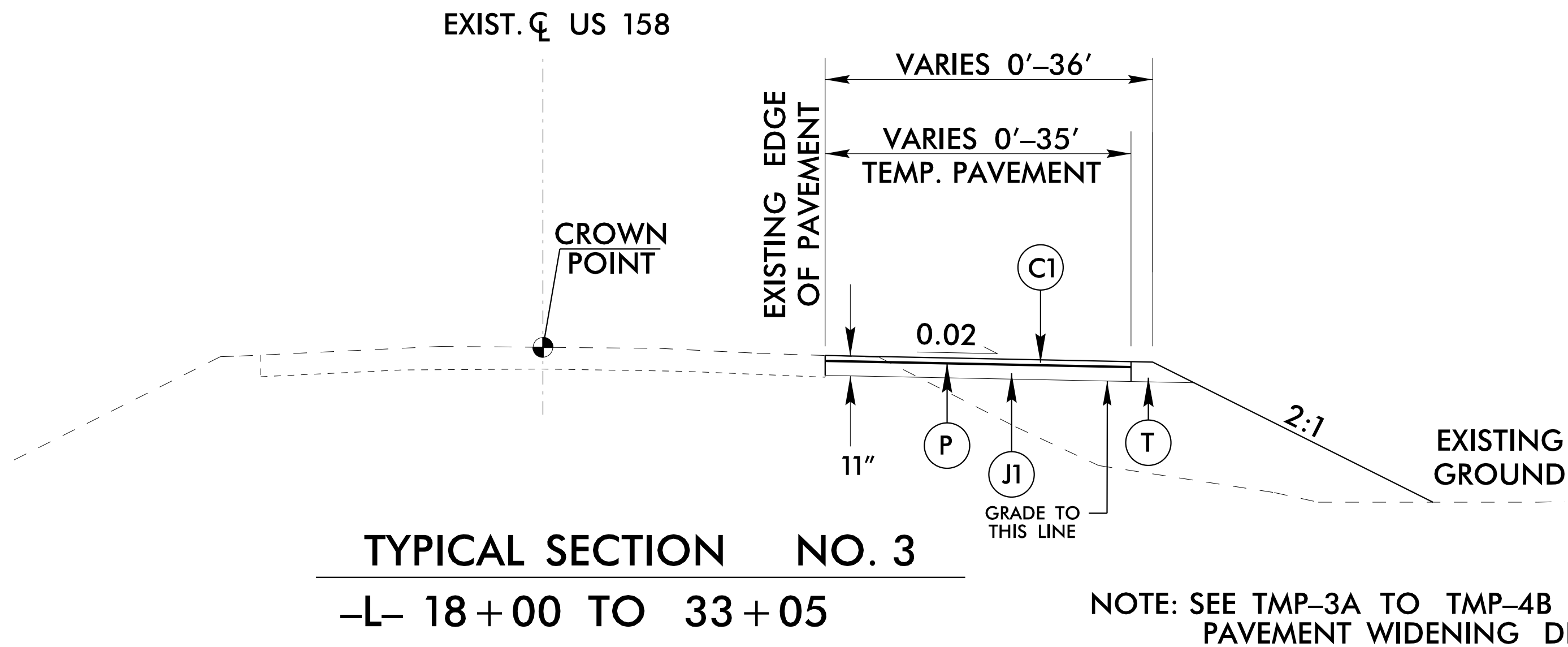
NOTES
PAVEMENT SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 119.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 119.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" DEPTH
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROPOSED VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE
N	PAVEMENT INTERLAYER (COMPOSITE PAVING GRID, TYPE 1)
P	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YD.
T	EARTH MATERIAL.
V	2.5" MILLING.
W	WEDGING.
U	EXISTING PAVEMENT.

NOTES
PAVEMENT SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

Kimley » Horn 4525 MAIN STREET, SUITE 1000 VIRGINIA BEACH, VA 23462	PROJECT REFERENCE NO. RD-5808		SHEET NO. 2A-2
	ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 	DATE 9/9/2024

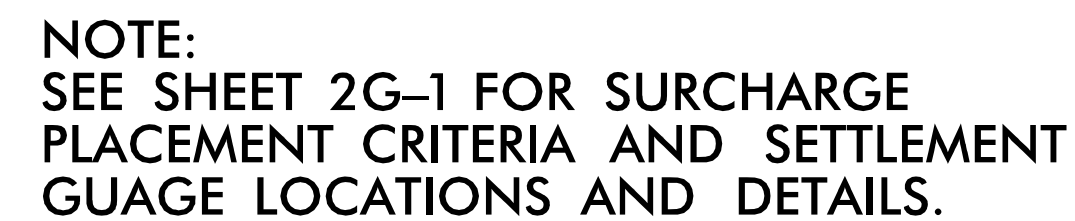


PROJECT REFERENCE NO. *R-5808*

ROADWAY DESIGN
ENGINEER

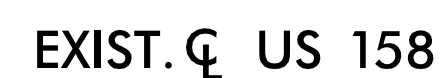
DESIGNED BY
Vincent Riccio
SEAL
6EE672B ED434
ENGINEER
VINCENT E. RICCIO

10/1/2024



SELECT GRANULAR MATERIAL, CLASS III

- L- STA. 24 + 86 TO STA. 27 + 96
 -L- STA. 44 + 65 TO STA. 64 + 75
 -L- STA. 65 + 75 TO STA. 82 + 75
 -L- STA. 83 + 25 TO STA. 98 + 25
 -L- STA. 99 + 25 TO STA. 166 + 25
 -L- STA. 167 + 25 TO STA. 217 + 75
 -L- STA. 218 + 25 TO STA. 220 + 25
 -L- STA. 220 + 75 TO STA. 234 + 37



-L- STA. 17+59 TO STA. 21+75
-L- STA. 29+25 TO STA. 43+25

PROJECT REFERENCE NO.
R-5808

SHEET NO.
26-1

GEOTECHNICAL ENGINEER

NC PROFESSIONAL SEAL
034020
YINHUI LIU

DocuSigned by
Yinhui Liu
673AB876CF14BE...

6/13/2024

ENGINEER

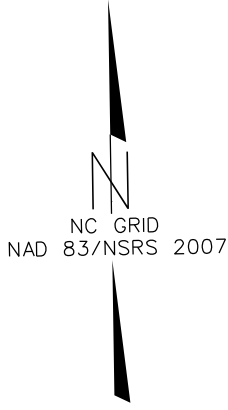
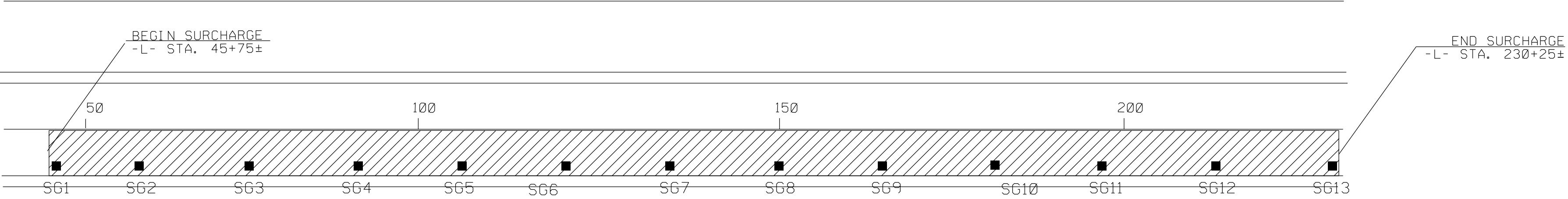
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DATE

SIGNATURE

DATE

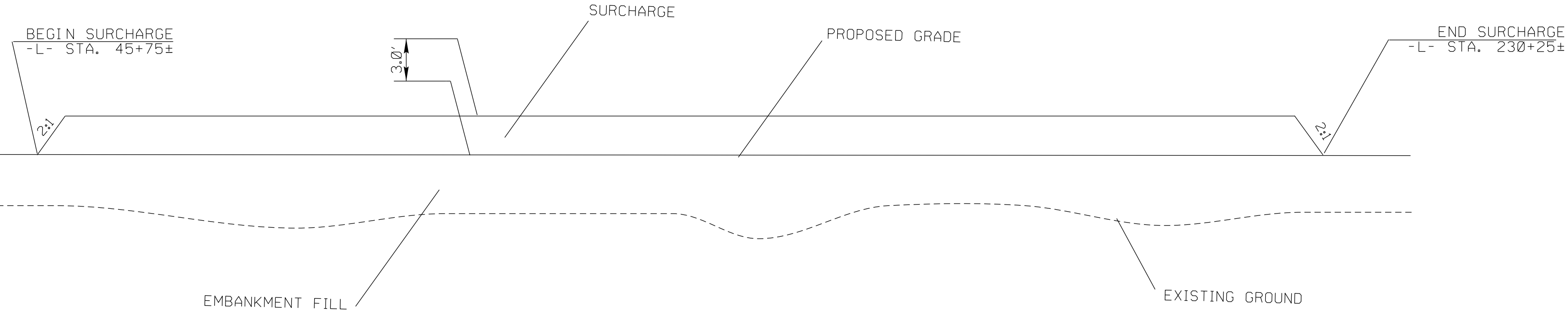
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UNLESS ALL SIGNATURES COMPLETED**



PLAN VIEW FOR SURCHARGE
NOT TO SCALE

■ SETTLEMENT GAUGES (SG)

SETTLEMENT GAUGES			
GAUGE NO.	LINE AND STATION NO.	OFFSET	
		DISTANCE FT	DIRECTION LT/RT
SG1	-L- 47+50	20	RT
SG2	-L- 60+00	20	RT
SG3	-L- 75+00	22	RT
SG4	-L- 90+50	22	RT
SG5	-L- 105+00	20	RT
SG6	-L- 120+00	20	RT
SG7	-L- 135+00	20	RT
SG8	-L- 150+00	20	RT
SG9	-L- 165+00	20	RT
SG10	-L- 180+00	20	RT
SG11	-L- 195+00	20	RT
SG12	-L- 210+00	20	RT
SG13	-L- 225+00	20	RT



SURCHARGE PROFILE VIEW
NOT TO SCALE

NOTES

- CONSTRUCT 3.0 FT OF SURCHARGE ABOVE THE FINAL GRADE WITH COMMON BORROW FROM -L- STA. 45+75 ± TO -L- STA. 230+25.00.
- OBSERVE A TWO MONTH WAITING PERIOD AFTER CONSTRUCTING THE SURCHARGE FROM -L- STA. 45+75± TO STA. 230+25.00.
- SETTLEMENT GAUGES SHALL BE INSTALLED ON THE EXISTING GROUND OR AS DIRECTED BY THE ENGINEER.
- FOR THE SURCHARGE AND SETTLEMENT GAUGES, SEE SECTION 235 OF THE STANDARD SPECIFICATIONS AND ROADWAY STANDARD DRAWING NO. 235.01.
- BORROW EXCAVATION INCLUDES SURCHARGE AND ADDITIONAL MATERIAL FOR MAINTAINING SURCHARGE ELEVATION.
- UNCLASSIFIED EXCAVATION INCLUDES SURCHARGE AND ADDITIONAL MATERIAL FOR MAINTAINING SURCHARGE ELEVATION.

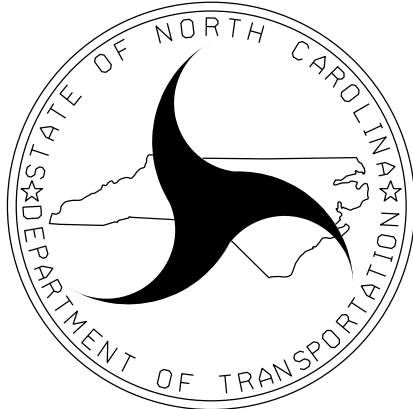
ESTIMATED QUANTITIES FOR SURCHARGE

BORROW EXCAVATION	25,600 CY
UNCLASSIFIED EXCAVATION	25,600 CY

TYPICAL SECTION FOR SURCHARGE
NOT TO SCALE

PREPARED BY: Yinhui Liu	DATE: 06/24
REVIEWED BY: Ben Lackey	DATE: 06/24

Prepared in the Office of:



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

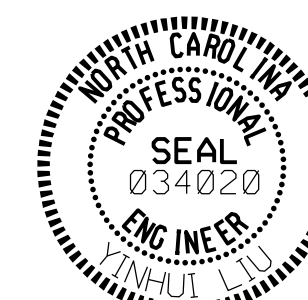
SURCHARGE DETAILS

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

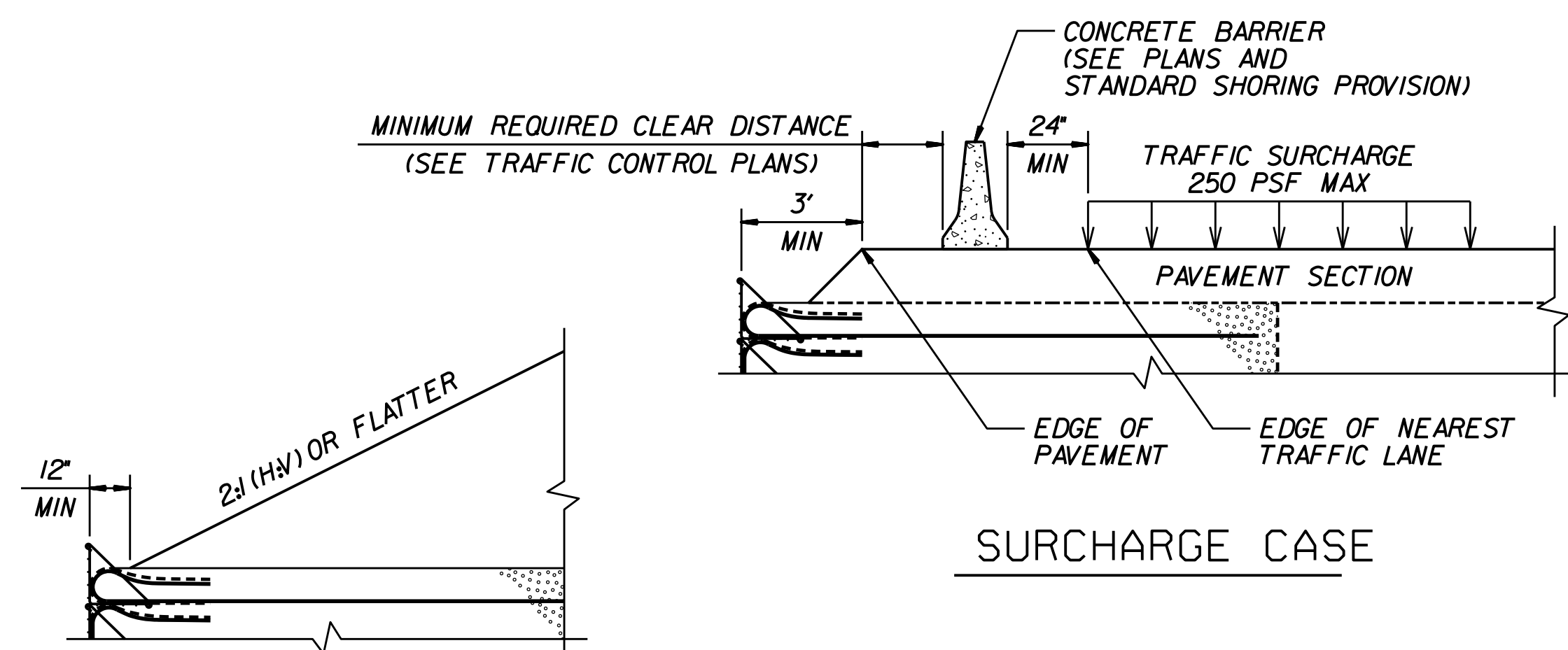
GEOTECHNICAL
ENGINEER

ENGINEER

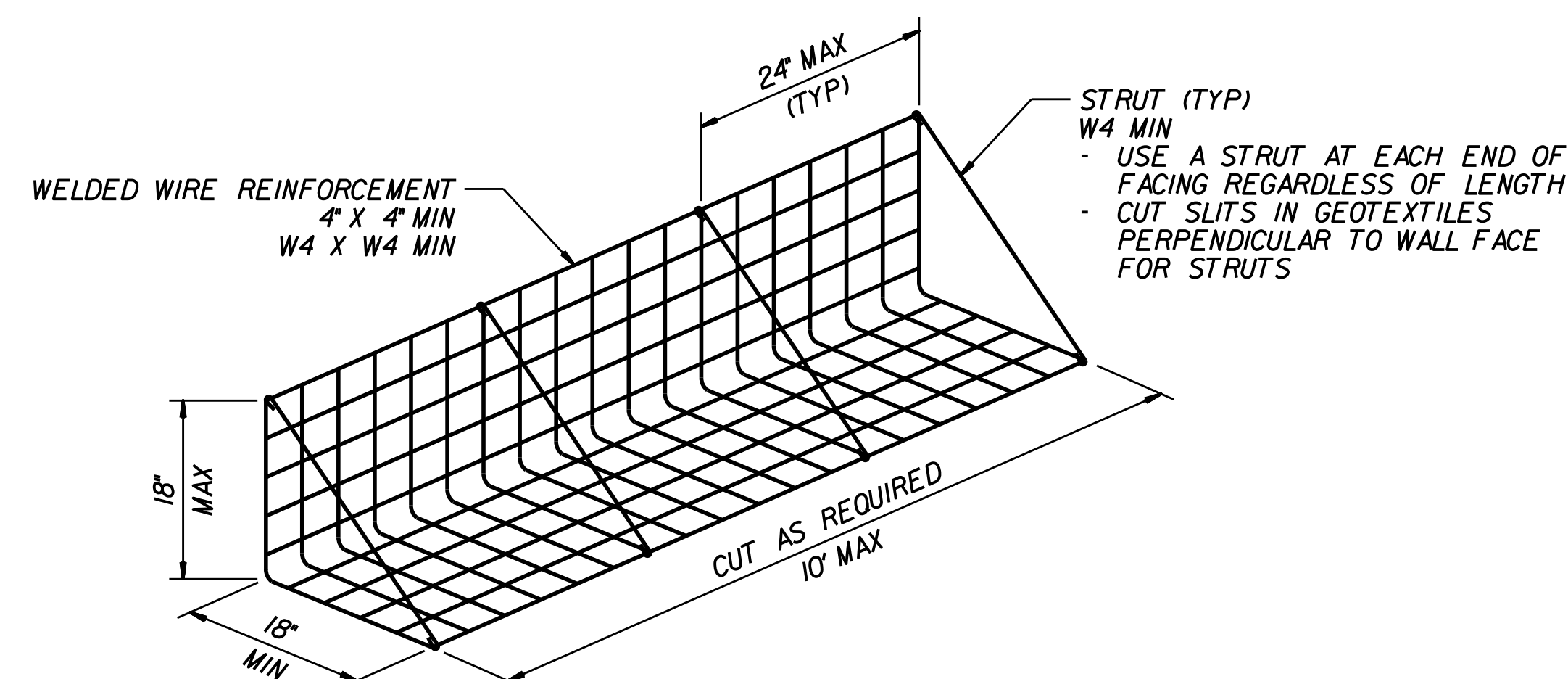


DocuSigned by:
Yinhui Lin 6/13/2022
673A8A76BCF14BE...

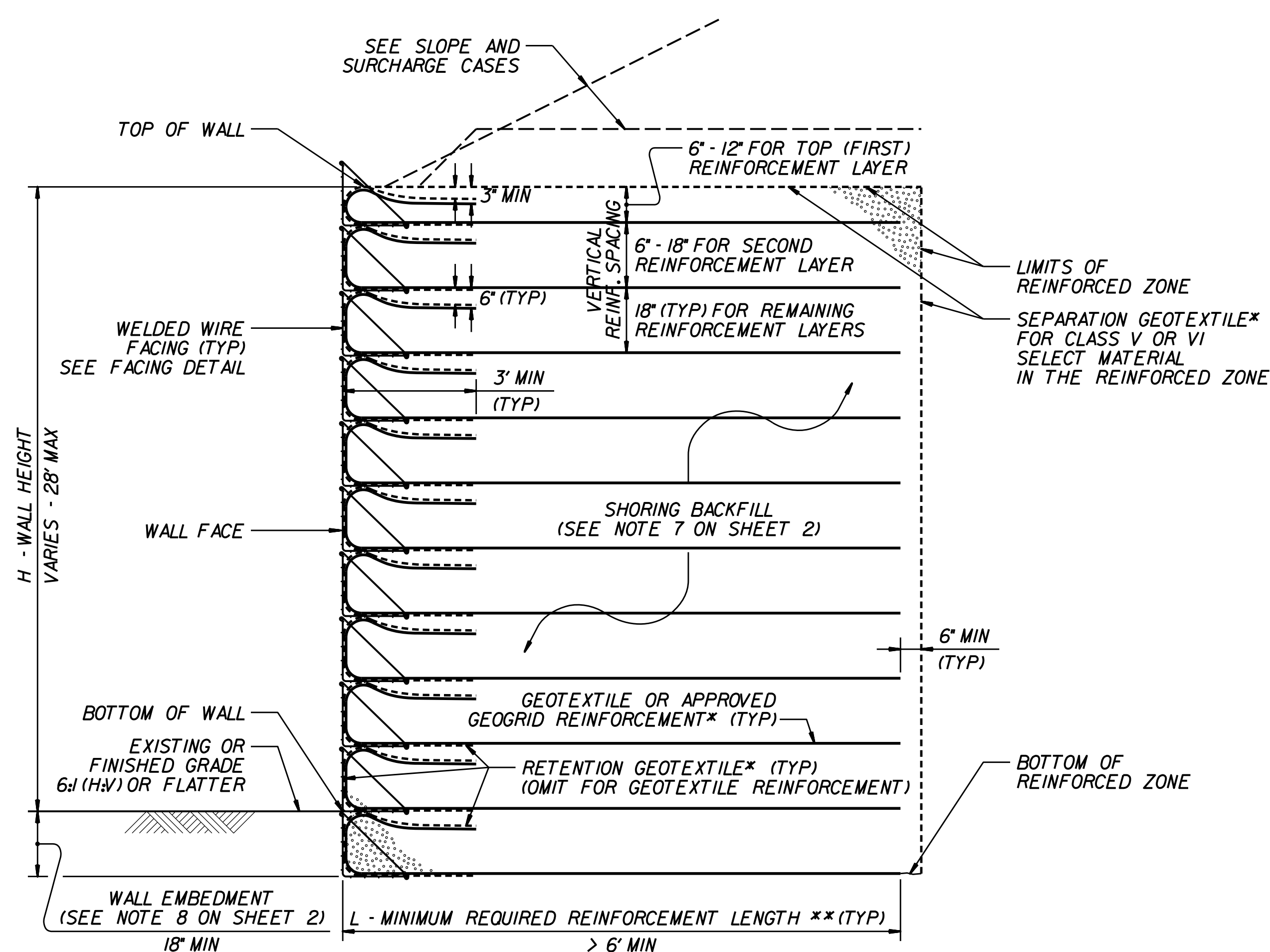
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SLOPE CASE



FACING DETAIL

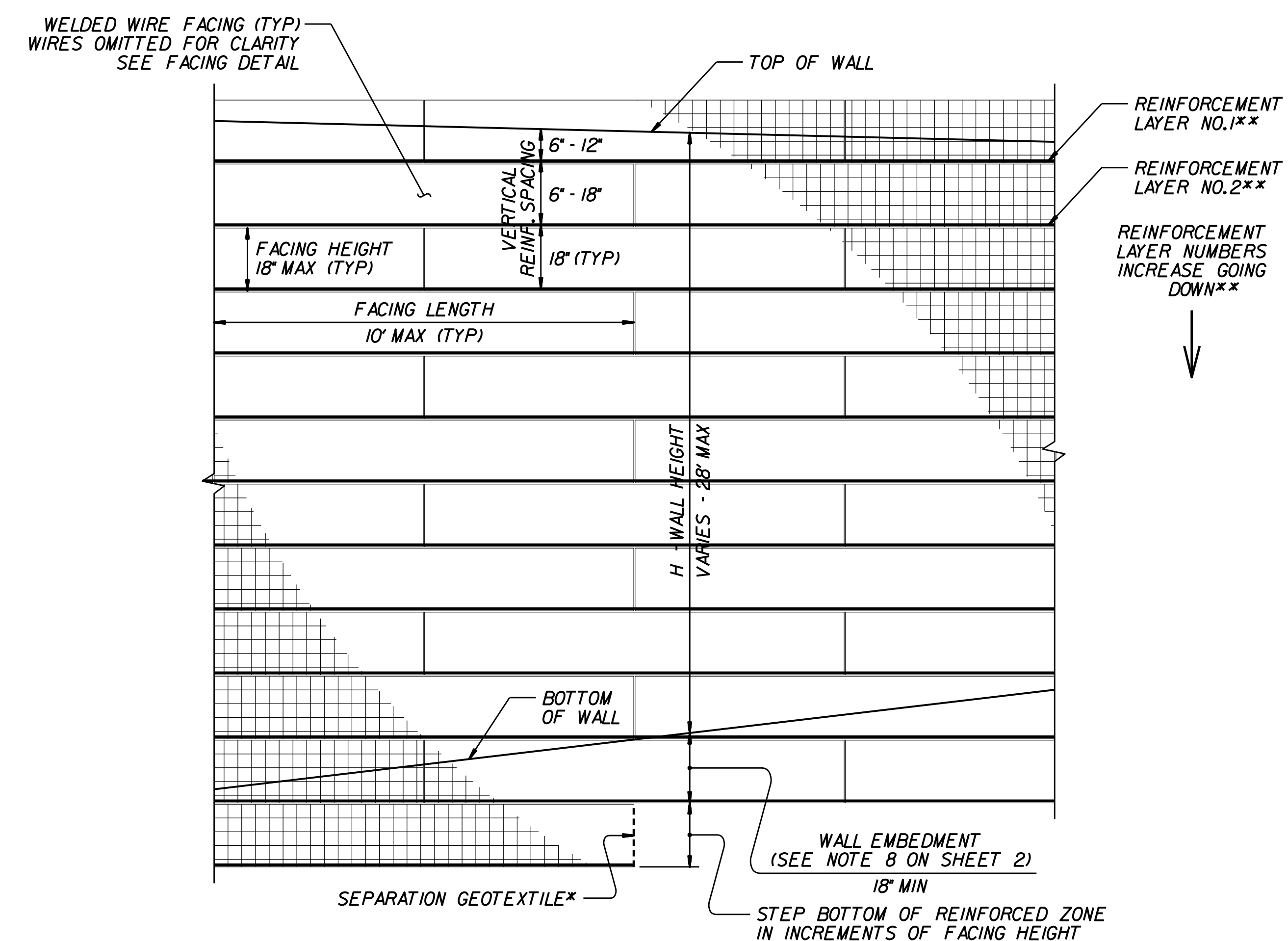


STANDARD TEMPORARY WALL

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES,
SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)

*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.

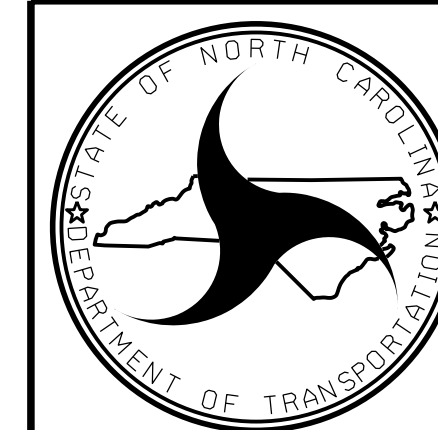
**SEE REINFORCEMENT TABLES ON SHEET 3.



STANDARD TEMPORARY WALL - PARTIAL ELEVATION

*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.

**SEE REINFORCEMENT TABLES ON SHEET 3.



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

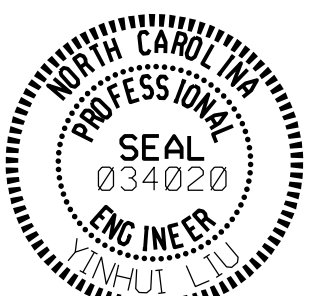
STANDARD
TEMPORARY WALL
SHEET 1 OF 3

DATE: 11-19-13

PROJECT REFERENCE NO.
R-5808

SHEET NO.
2G-3

GEOTECHNICAL ENGINEER

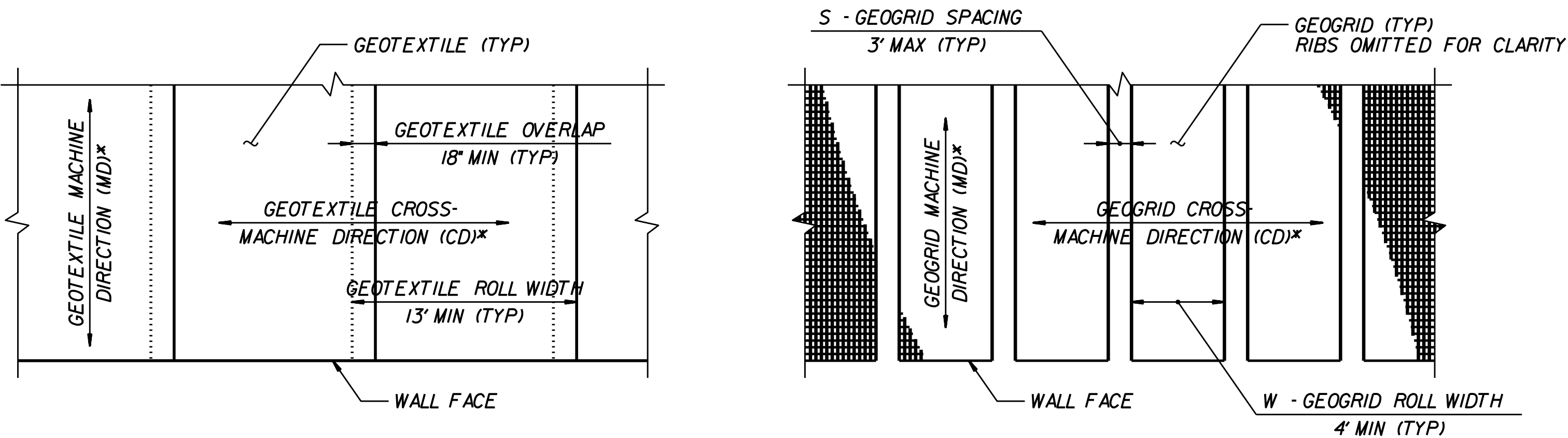


DocuSigned by:
Yanhui Lin
6/13/2024

ENGINEER

SIGNATURE
DATE

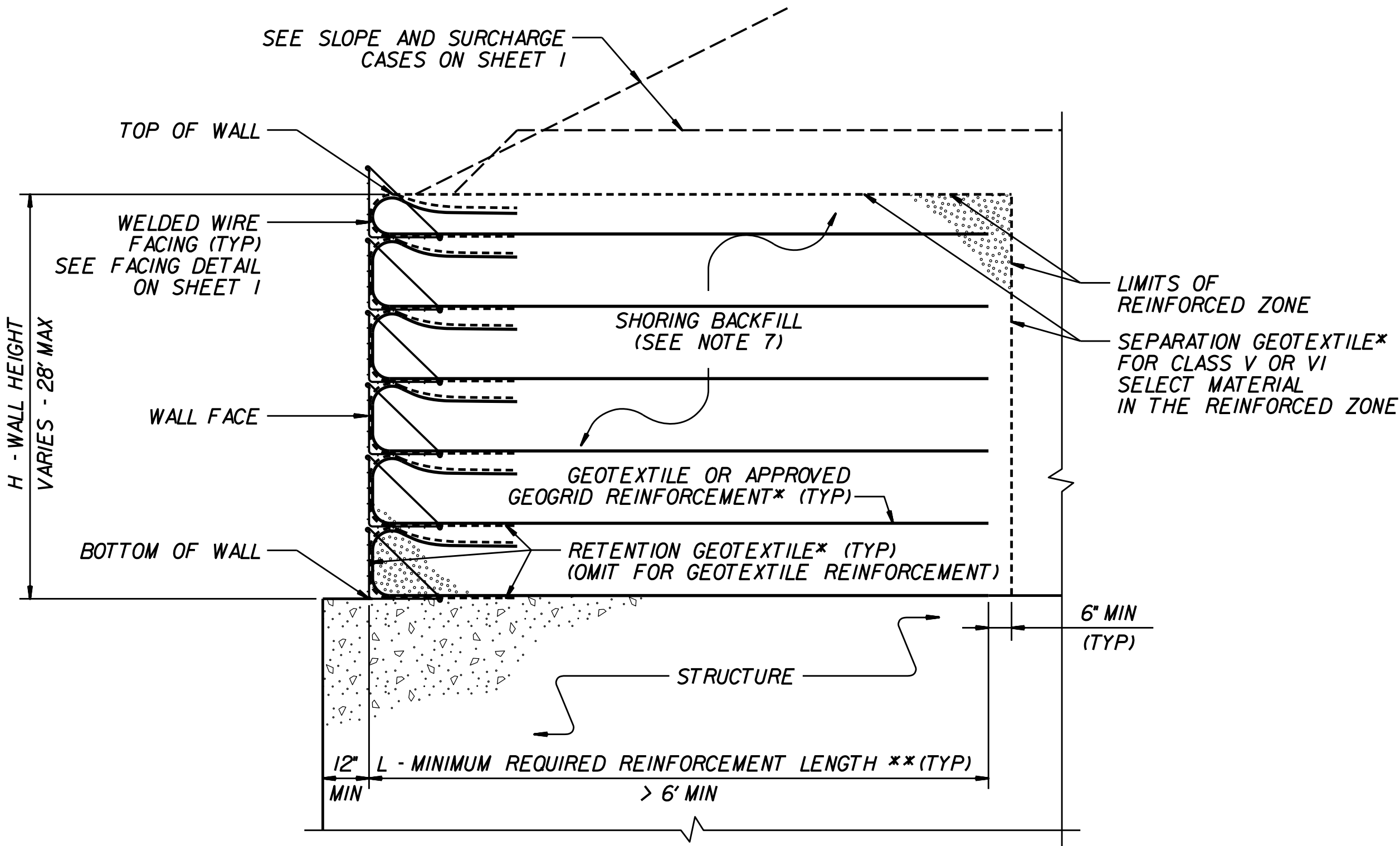
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UNLESS ALL SIGNATURES COMPLETED



GEOTEXTILE PLACEMENT
(100% COVERAGE MIN FOR
GEOTEXTILE REINFORCEMENT)

GEOGRID PLACEMENT
(80% COVERAGE MIN FOR
GEOGRID REINFORCEMENT -
 $\frac{W}{W+S} \times 100 \geq 80\%$,
SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS
(PLAN VIEW)
*SEE NOTE 12.

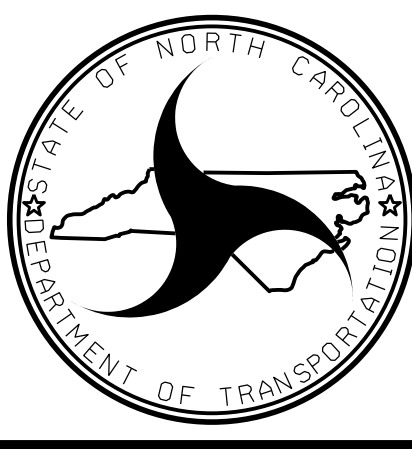


TEMPORARY WALL ON STRUCTURE DETAIL
*SEE GEOSYNTHETIC PLACEMENT DETAILS.
**SEE REINFORCEMENT TABLES ON SHEET 3.

- NOTES:
- AT THE CONTRACTOR'S OPTION,USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
 - FOR STANDARD TEMPORARY WALLS,SEE STANDARD SHORING PROVISION.
 - STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, γ = 120 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF
 - DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
 - DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
 - USE GROUNDWATER ELEVATION NOTED IN THE PLANS.IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS,ASSUME GROUNDWATER DEPTH IS LESS THAN 7'BELOW BOTTOM OF REINFORCED ZONE.DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER OR FLOOD ELEVATION IS ABOVE BOTTOM OF REINFORCED ZONE.
 - DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES.DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
 - WALL EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
 - DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
 - GEOGRIDS FOR GEOGRID REINFORCEMENT ARE APPROVED FOR SHORT TERM DESIGN STRENGTHS (3-YEAR DESIGN LIFE) IN THE MD AND CD BASED ON MATERIAL TYPE.THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM:connect.ncdot.gov/resources/Geological/Pages/Products.aspx
DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II,TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

- FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE,STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
- AT THE CONTRACTOR'S OPTION,REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:
-W (REINFORCEMENT ROLL WIDTH) $\geq$ (MINIMUM REQUIRED REINFORCEMENT LENGTH) $\cdot$ 4.5' AND
- REINFORCEMENT STRENGTH IN CD $\geq$ MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
- SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION.STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM:
connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
- DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
- FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE,DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
- DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
- CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS,PAVEMENTS,PIPES,INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
- FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES,WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
- FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5'OF FINISHED GRADE.REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

STANDARD DETAIL NO.1801.02

STANDARD
TEMPORARY WALL
SHEET 2 OF 3

DATE: 10-19-21

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																											
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28			
SLOPE CASE	> 0	CLASS II,TYPE I, CLASS III,CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27			
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H ≥ 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22			
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21			
		CLASS II,TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20			
		CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19			

L - MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)
(FOR ALL REINFORCEMENT TYPES)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

GEOTEXTILE REINFORCEMENT
ULTIMATE TENSILE STRENGTH (LB/FT)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

GEOGRID REINFORCEMENT
SHORT-TERM DESIGN STRENGTH (LB/FT)
(SEE NOTE 10 ON SHEET 2.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD
(SEE NOTE 9 ON SHEET 2.)
*SEE PARTIAL ELEVATION ON SHEET 1
FOR REINFORCEMENT LAYER NUMBERING.

PROJECT REFERENCE NO.
R-5808

SHEET NO.
26-4

GEOTECHNICAL ENGINEER



DocuSigned by
Yinhui Lin
6/13/2024

ENGINEER

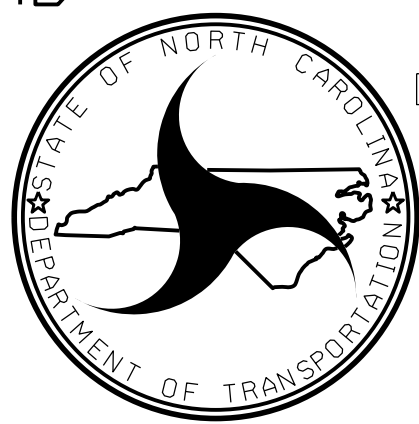
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DATE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

WALL HEIGHT (H) • WALL EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

STANDARD
TEMPORARY WALL
SHEET 3 OF 3

REVISIONS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.
R-5808

SHEET NO.
3B-1

Kimley»Horn

4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

SUMMARY OF EARTHWORK
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT EXCAVATION	EMBT + %	BORROW	WASTE
-L- 17+59.05 TO 41+00.00	753	1229	5286	4533	1229
-L- 41+00.00 TO 71+00.00	1086	7721	19312	18226	7721
-L- 71+00.00 TO 101+00.00	240	8177	23552	23312	8177
-L- 101+00.00 TO 131+00.00	154	7435	23482	23328	7435
-L- 131+00.00 TO 161+00.00	202	8997	25464	25262	8997
-L- 161+00.00 TO 191+00.00	151	10391	30909	30758	10391
-L- 191+00.00 TO 221+00.00	127	10662	26491	26364	10662
-L- 221+00.00 TO 234+37.39	409	2792	7037	6628	2792
TEMPORARY EARTHWORK (TMP PHASES 1-4)					
-L- 17+99.63 TO 33+04.31	151		1125	974	
DETOUR REMOVAL	866				866
TOTAL	4139	57404	162657	159384	58270
MATERIAL FOR SHOULDER CONSTRUCTION			10855	10855	
UNSUITABLE WASTE MATERIAL	550				550
ADDITIONAL UNDERCUT EXCAVATION		10500	13650	13650	10500
SELECT GRANULAR IN LIEU OF BORROW			-78000	-78000	
SURCHARGE			33280	33280	
SURCHARGE REMOVAL	25600				25600
PROJECT TOTAL	30289	67904	142442	139169	94920
5% FOR REPLACING TOPSOIL				6958	
GRAND TOTAL	30500	68000		146200	

- NOTES:
1. EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGNER.
THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED
BY THE GEOTECHNICAL ENGINEERING UNIT.
2. QUANTITIES ARE APPROXIMATE ONLY. THE RESIDENT ENGINEER WILL USE METHODS
INCLUDING BUT NOT LIMITED TO RECROSS -SECTIONING, TRUCK MEASUREMENTS, AND
AERIAL SURVEYS TO COMPUTE FINAL QUANTITIES WHICH THE CONTRACTOR WILL BE PAID.

COMPUTED BY: J.L. Stone, PG DATE: 06/06/24 CHECKED BY: Y. Liu P.E. DATE: 06/06/24			(2-3-23)					PROJECT NO. R-5808		SHEET NO. 3G-1					
STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS															
SUMMARY OF SUBSURFACE DRAINAGE						SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION									
LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF	LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
						L	17+59	21+75	ASU(1)	12"	150	300	450		
						L	29+25	43+25	ASU(1)	12"	250	500	750		
CONTINGENCY				SD	500										
				TOTAL LF:	500			ASU(1)	12"	100	200	300			
								TOTAL CY/TONS/SY:		500	1000**	1500**			
*UD = Underdrain *BD = Blind Drain *SD = Subsurface Drain						*ASU(1/2) = Aggregate Subgrade (Type 1 or 2) *AST = Aggregate Stabilization **Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.									
SUMMARY OF SURCHARGES AND SURCHARGE WAITING PERIODS						SUMMARY OF SETTLEMENT GAUGES									
LINE	Station	Station	Surcharge Height FT	MONTHS		Gauge No.	LINE and Station	Offset							
								Distance FT	Direction LT/RT						
-L-	45+75	230+25	3.0	2		SG1	-L- 47+50	20	RT						
						SG2	-L- 60+00	20	RT						
						SG3	-L- 75+00	22	RT						
						SG4	-L- 90+50	22	RT						
						SG5	-L- 105+00	20	RT						
						SG6	-L- 120+00	20	RT						
						SG7	-L- 135+00	20	RT						
						SG8	-L- 150+00	20	RT						
						SG9	-L- 165+00	20	RT						
						SG10	-L- 180+00	20	RT						
						SG11	-L- 195+00	20	RT						
						SG12	-L- 210+00	20	RT						
						SG13	-L- 225+00	20	RT						
							TOTAL GAUGES (EACH):	13							

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-5808	3P-1

PARCEL INDEX SHEET

[illegible]

REVISIONS

7/17/2024

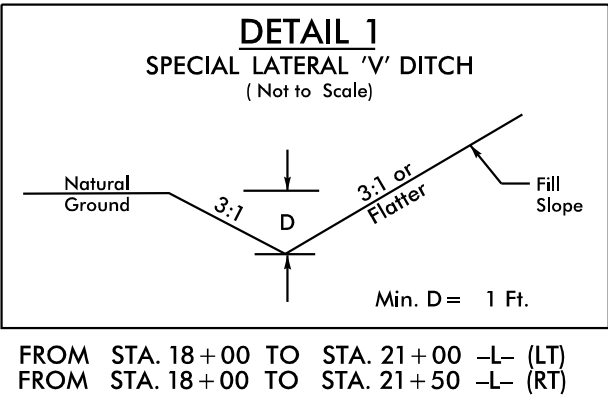
5/14/99

REVISIONS

7/17/2024

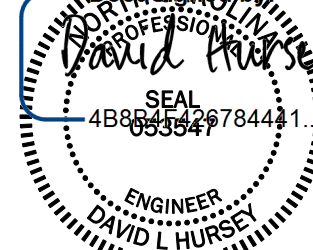
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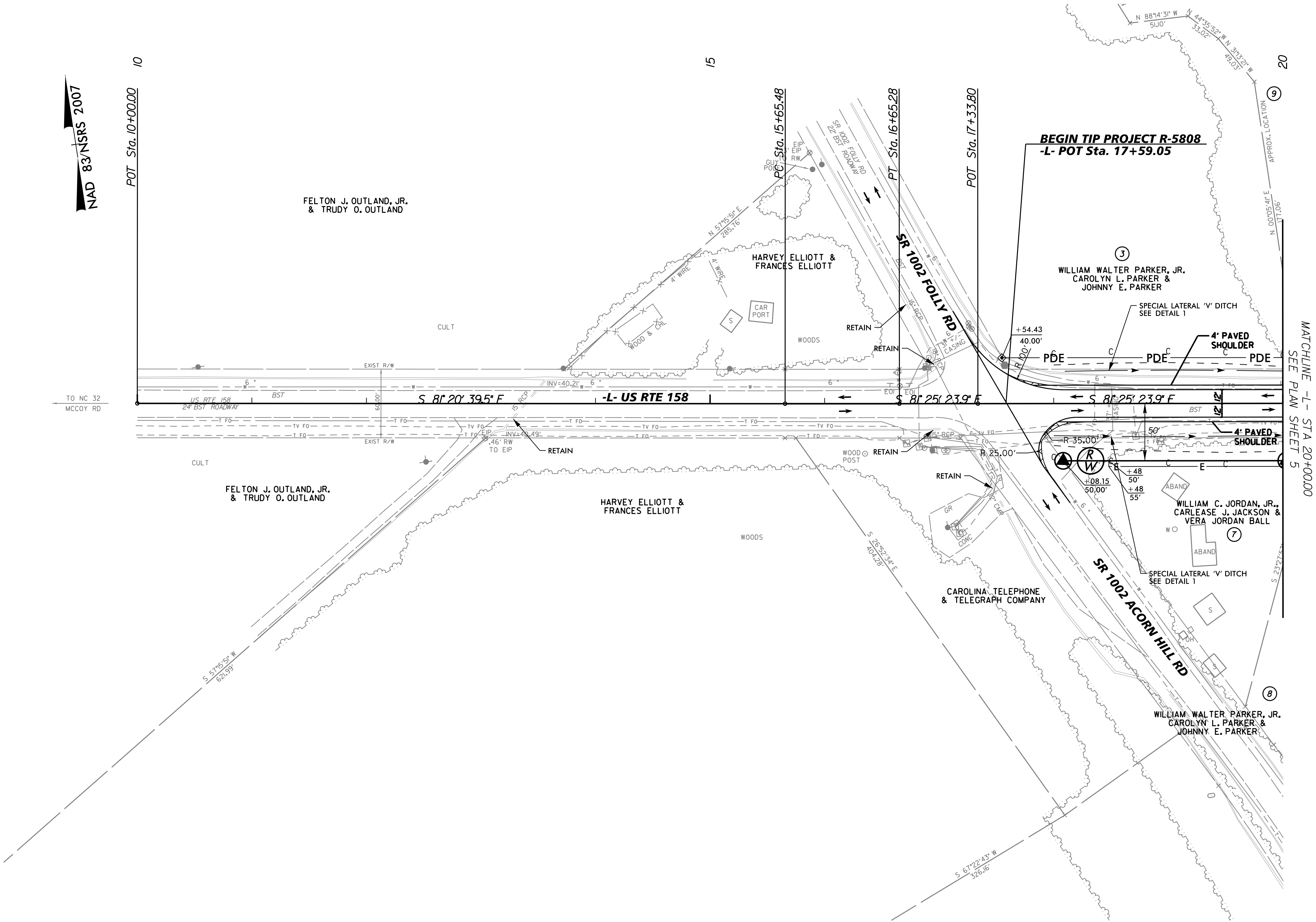
PI Sta 16+15.38
Δ = 0° 04' 44.4" (LT)
D = 0° 04' 45.0"
L = 99.80'
T = 49.90'
R = 72,370.32'



Kimley » Horn

4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.		SHEET NO.	
R-5808		4	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
9/6/2024		9/6/2024	



SEE SHEET NO. 23 FOR -L- PROFILE

5/14/99

-L-

PI Sta 21+61.22

$\Delta = 1^{\circ}34'37.8"$ (RT)

$D = 0^{\circ}29'53.6"$

$L = 316.56'$

$T = 158.29'$

$R = 11,500.00'$

PI Sta 24+74.63

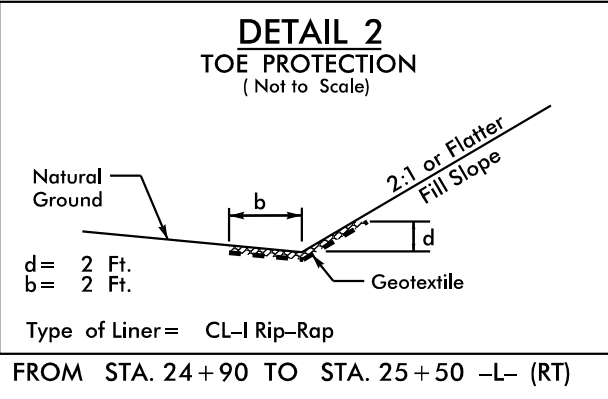
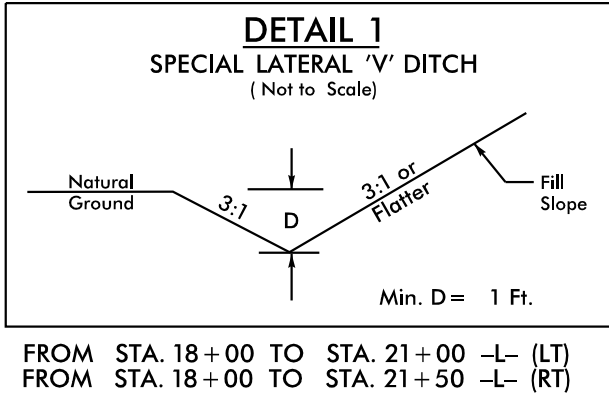
$\Delta = 1^{\circ}32'44.9"$ (LT)

$D = 0^{\circ}29'53.6"$

$L = 310.26'$

$T = 155.14'$

$R = 11,500.00'$



Kimley » Horn

4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.

R-5808

SHEET NO.

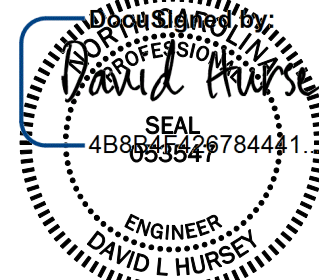
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ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

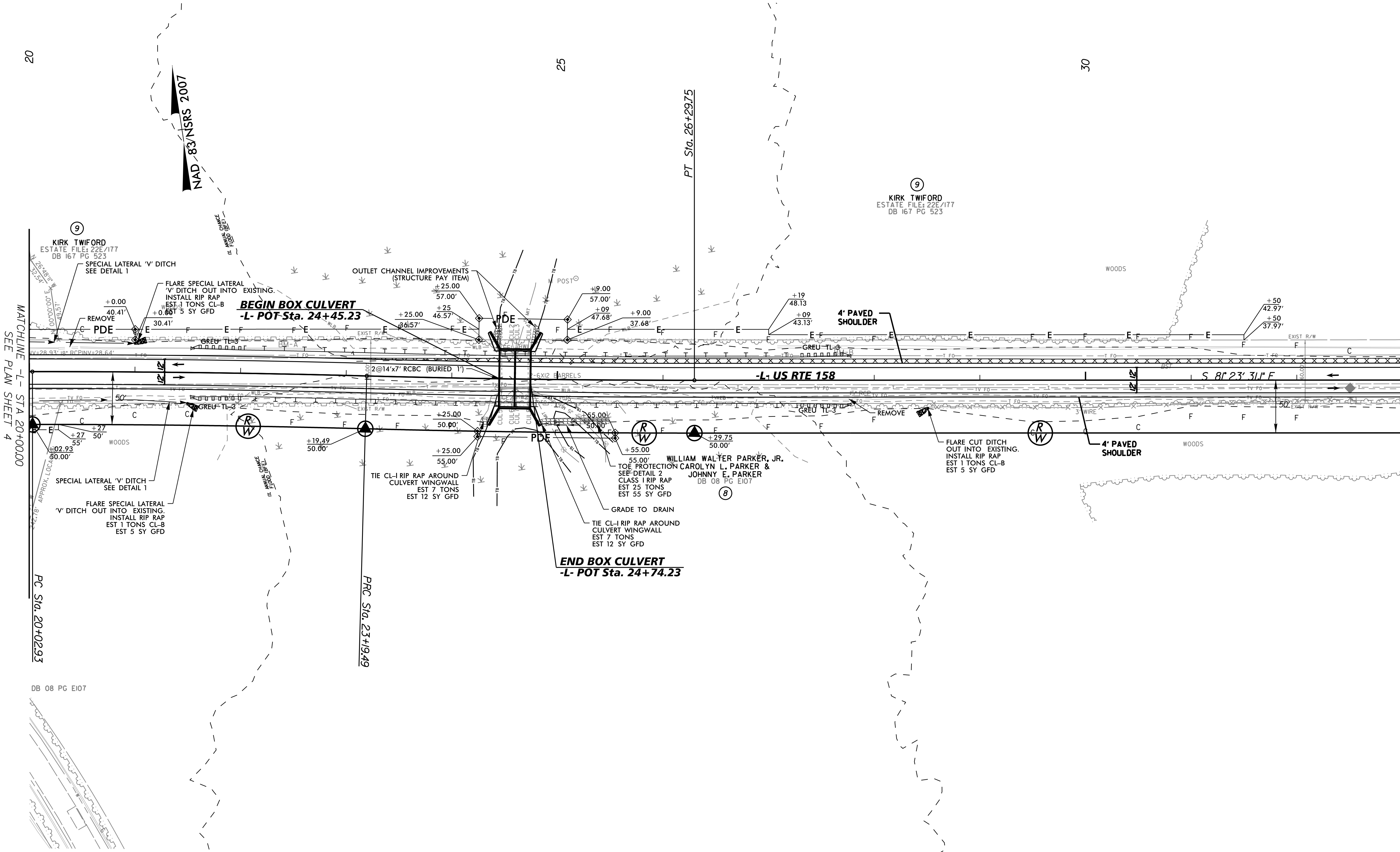


9/6/2024



9/6/2024

REVISIONS



DB 08 PG E107

SEE SHEET NO. 23 FOR -L- PROFILE

7/17/2024

PROJECT REFERENCE NO.

R-5808

SHEET NO.

6

ROADWAY DESIGN ENGINEER

Kimley»Horn

4525 MAIN STREET, SUITE 1000

VIRGINIA BEACH, VA 23462

9/6/2024

HYDRAULICS ENGINEER

Seal

Seal

9/6/2024

This engineering plan view illustrates the layout of US Route 158, including its 4-foot paved shoulders and various easements. The plan shows several property parcels with owner names and addresses, such as Kirk Twiford (DB 167 PG 523), William J. Briggs (DB 301 PG 479), and George T. Briggs (DB 301 PG 481). It also depicts proposed infrastructure like a 15-inch pipe, a flare-out ditch, and a rip-rap area. The plan includes numerous survey points, bearings, and distances, as well as a north arrow pointing towards the top left. The route is labeled 'L- US RTE 158' and the plan is identified as 'MATCHLINE -L- STA 33+00.00' and 'MATCHLINE -L- STA 45+00.00'.

REVISIONS

SEE SHEET NO. 23 FOR -L- PROFILE

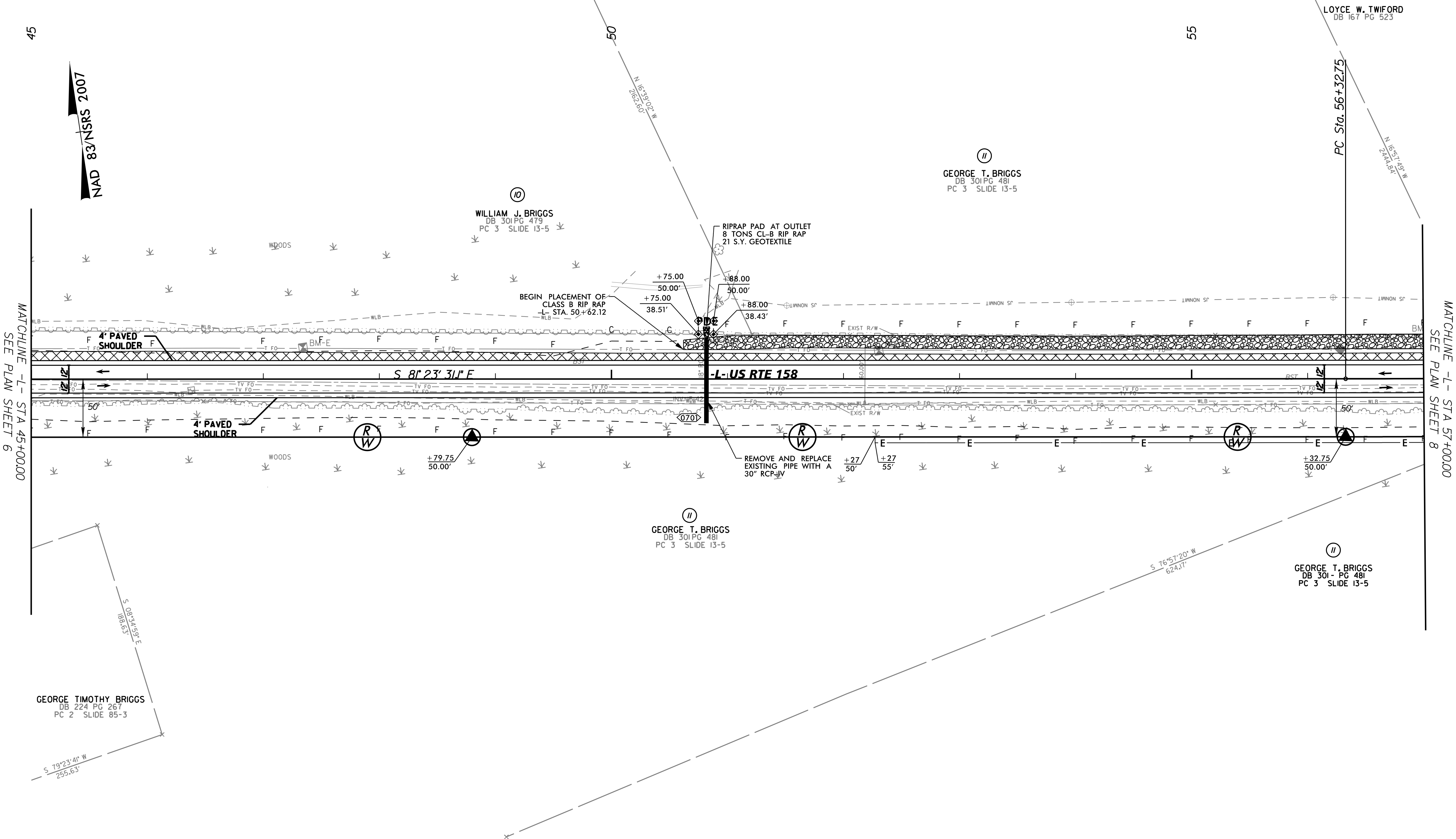
5/14/99

REVISIONS

7/17/2024

PI Sta 56+83.31
Δ = 0° 25' 44.9" (LT)
D = 0° 25' 27.9"
L = 101.11'
T = 50.56'
R = 13,500.00'

-L-



Kimley » Horn

4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.		SHEET NO.
R-5808		7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
9/6/2024	9/6/2024	

SEE SHEET NO. 23 AND 24 FOR -L- PROFILE

5/14/99

7/17/2024

-L-

$PI Sta\ 56+83.31$
 $\Delta = 0^\circ 25' 44.9" (LT)$
 $D = 0^\circ 25' 27.9"$
 $L = 101.11'$
 $T = 50.56'$
 $R = 13,500.00'$

$PI Sta\ 59+83.31$
 $\Delta = 0^\circ 26' 17.4'' (RT)$
 $D = 0^\circ 25' 27.9''$
 $L = 103.24'$
 $T = 51.62'$
 $R = 13,500.00'$

Kimley»Horn

4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.

R-5808

ROADWAY DESIGN ENGINEER

Permitted by:

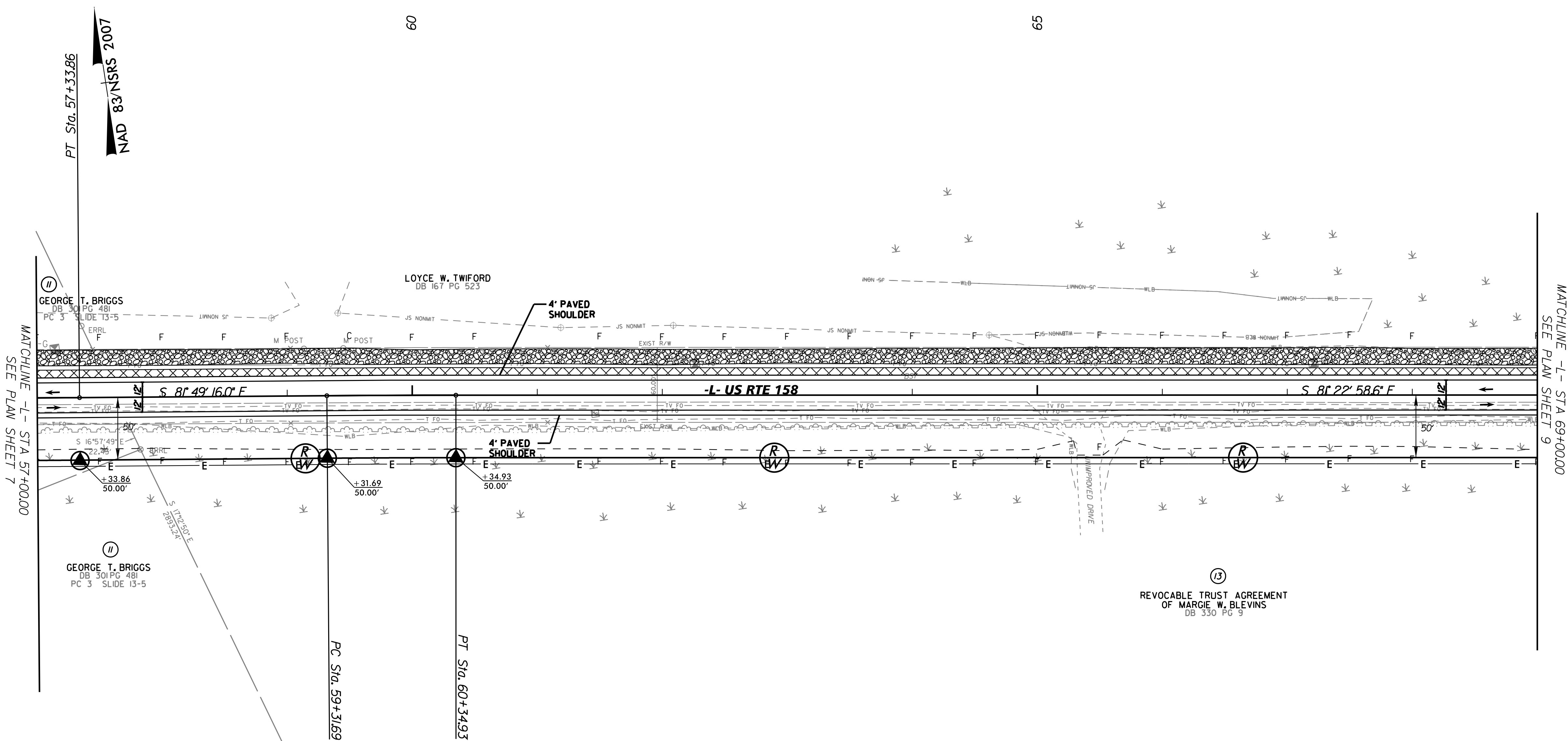
 9/6/2024

SHEET NO.

8

**HYDRAULICS
ENGINEER**

Seal of the State of Florida Professional Engineer
 David L. Hursey
 License No. 4B8545426784431
 Expires 9/6/2024



SEE SHEET NO. 24 FOR -L- PROFILE

SEE SHEET NO. 24 AND 25 FOR -L- PROFILE

5/14/99

7/17/2024

REVISIONS

-L-

PI Sta 82+51.22

$\Delta = 0^{\circ}09'36.0"$ (LT)

$D = 0^{\circ}09'17.5"$

$L = 103.32'$

$T = 51.66'$

$R = 37,000.00'$

PI Sta 89+96.70

$\Delta = 0^{\circ}03'13.2"$ (RT)

$D = 0^{\circ}03'07.5"$

$L = 103.05'$

$T = 51.53'$

$R = 110,000.00'$

Kimley»Horn

4525 MAIN STREET, SUITE 1000

VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.

R-5808

SHEET NO.

10

ROADWAY DESIGN ENGINEER

Seal

DAVID L. HURSEY

9/6/2024

HYDRAULICS ENGINEER

Seal

DAVID L. HURSEY

9/6/2024

Plan view of -L- US RTE 158 showing stationing, curves, and property boundaries. The drawing includes a north arrow pointing towards the top left, labeled 'NAD 83/NSRS 2007'. The road is shown with a centerline and shoulders. Key features include:

- Stationing: PC Sta. 81+99.56, PT Sta. 83+02.88, PC Sta. 89+45.17, PT Sta. 90+48.23.
- Curves: S 81° 32' 34.6" E, S 81° 29' 21.3" E.
- Property boundaries: LOYCE W. TWIFORD DB 167 PG 523, REVOCABLE TRUST AGREEMENT OF MARGIE W. BLEVINS DB 330 PG 9.
- Other features: 4' PAVED SHOULDER, 2" CONDUIT, UNPAVED DRIVE, EXIST. R/W, WOODS.

SEE SHEET NO. 25 FOR -L- PROFILE

5/14/99

7/17/2024

REVISIONS

-L-

PI Sta 94+91.90

$\Delta = 0^{\circ} 07' 12.6" (RT)$

$D = 0^{\circ} 06' 52.5"$

$L = 104.87'$

$T = 52.44'$

$R = 50,000.00'$

PI Sta 103+03.52

$\Delta = 0^{\circ} 08' 23.7" (RT)$

$D = 0^{\circ} 07' 59.7"$

$L = 105.00'$

$T = 52.50'$

$R = 43,000.00'$

The plan view shows a section of US Route 158, labeled '-L- US RTE 158'. The road is shown with a centerline and shoulders. Key features include:

- Stationing:** The road is marked with stationing from 93+00.00 to 105+00.00. Key points include PC Sta. 94+39.46, PT Sta. 95+44.33, PC Sta. 102+51.02, and PT Sta. 103+56.02.
- Bearings and Distances:** The road segments are defined by bearings and distances: S 81° 29' 21.3" E, S 81° 22' 08.7" E, and S 81° 13' 45.0" E.
- Property Boundaries:** The plan shows several property boundaries, including 'LOYCE W. TWIFORD DB 167 PG 523' and 'REVOCABLE TRUST AGREEMENT OF MARGIE W. BLEVINS DB 330 PG 9'. There is also an 'ABAND' (abandoned) area marked.
- Shoulders:** The road has '4' PAVED SHOULDER' on both sides.
- Matchlines:** The plan is bounded by matchlines at STA 93+00.00 and STA 105+00.00, with references to 'SEE PLAN SHEET 10' and 'SEE PLAN SHEET 12'.
- North Arrow:** A north arrow is located in the upper left, pointing towards the top right, labeled 'NAD 83/NSRS 2007'.

Kimley»Horn
4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.		SHEET NO.
R-5808		11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
9/6/2024	9/6/2024	

SEE SHEET NO. 25 AND 26 FOR -L- PROFILE

PROJECT REFERENCE NO.

R-5808

SHEET NO.

12

ROADWAY DESIGN ENGINEER

Seal

Seal

Seal

Seal

9/6/2024

HYDRAULICS ENGINEER

Seal

Seal

Seal

Seal

9/6/2024

Kimley»Horn

4525 MAIN STREET, SUITE 1000

VIRGINIA BEACH, VA 23462

PI Sta 114+83.26
Δ = 0° 02' 45.5" (LT)
D = 0° 02' 45.0"
L = 100.27'
T = 50.13'
R = 125,000.00'

105
NAD 83/NSRS 2007

110

115

LOYCE W. TWIFORD
DB 167 PG 523

MATCHLINE -L- STA 105+00.00
SEE PLAN SHEET 11

MATCHLINE -L- STA 117+00.00
SEE PLAN SHEET 13

4' PAVED SHOULDER

4' PAVED SHOULDER

S 81° 13' 45.0" E
-L- US RTE 158

S 81° 16' 30.5" E

13
REVOCABLE TRUST AGREEMENT
OF MARGIE W. BLEVINS
DB 330 PG 9

±33.12
50.00'

±33.39
50.00'

REVISIONS

7/17/2024

SEE SHEET NO. 26 FOR -L- PROFILE

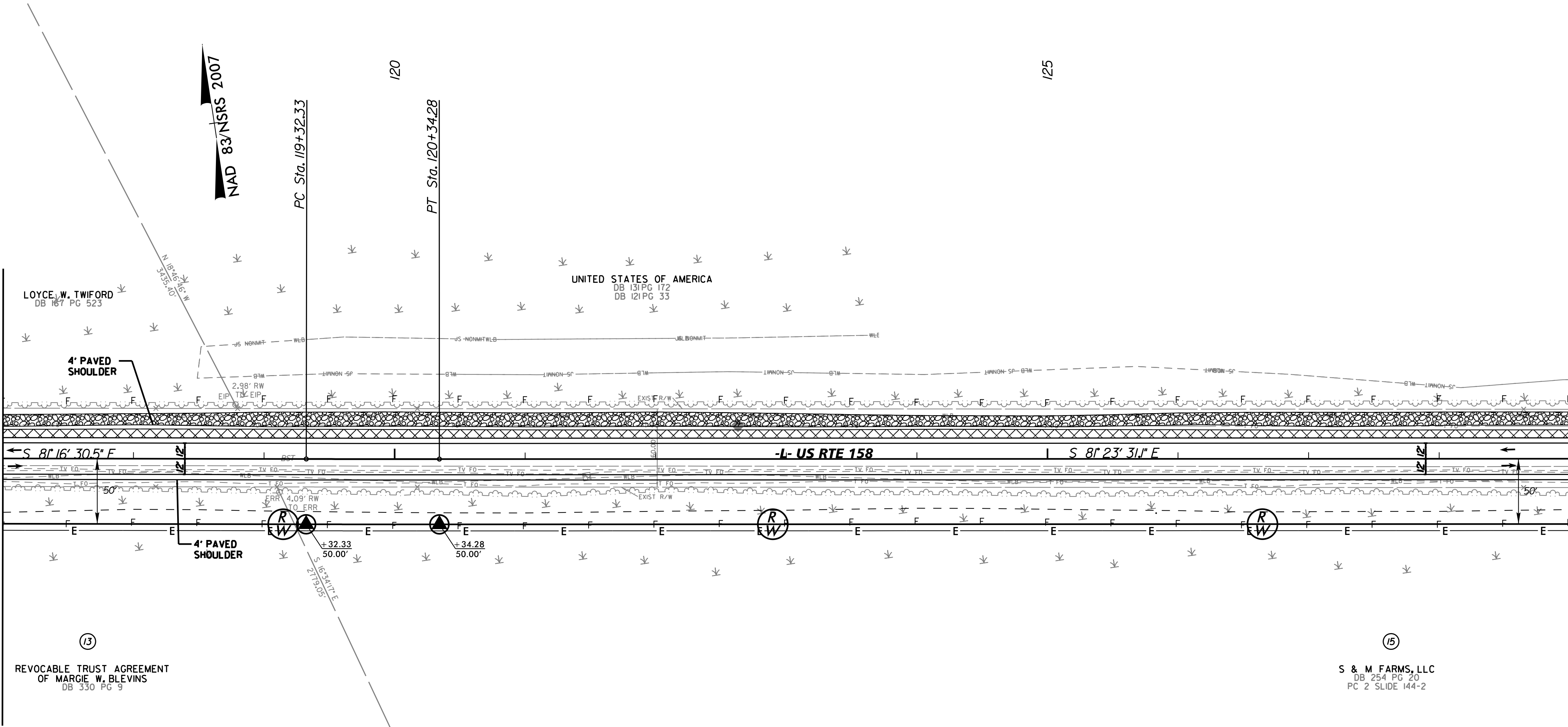
5/14/99

REVISIONS

7/17/2024

PI Sta. 119+83.31
Δ = 0° 07' 00.6" (LT)
D = 0° 06' 52.5"
L = 101.95'
T = 50.97'
R = 50,000.00'

MATCHLINE -L- STA 117+00.00
SEE PLAN SHEET 12



REVOCABLE TRUST AGREEMENT
OF MARGIE W. BLEVINS
DB 330 PG 9

S & M FARMS, LLC
DB 254 PG 20
PC 2 SLIDE 144-2

Kimley » Horn

4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.		SHEET NO.	
R-5808		13	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
9/6/2024		9/6/2024	

SEE SHEET NO. 26 AND 27 FOR -L- PROFILE

SEE SHEET NO. 27 FOR -L- PROFILE

5/14/99

REVISIONS

7/17/2024

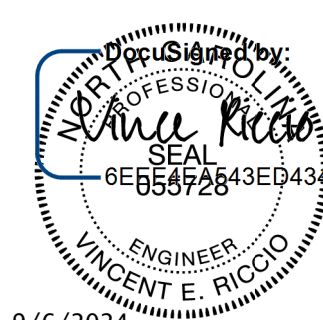
Kimley»Horn

4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.

R-5808

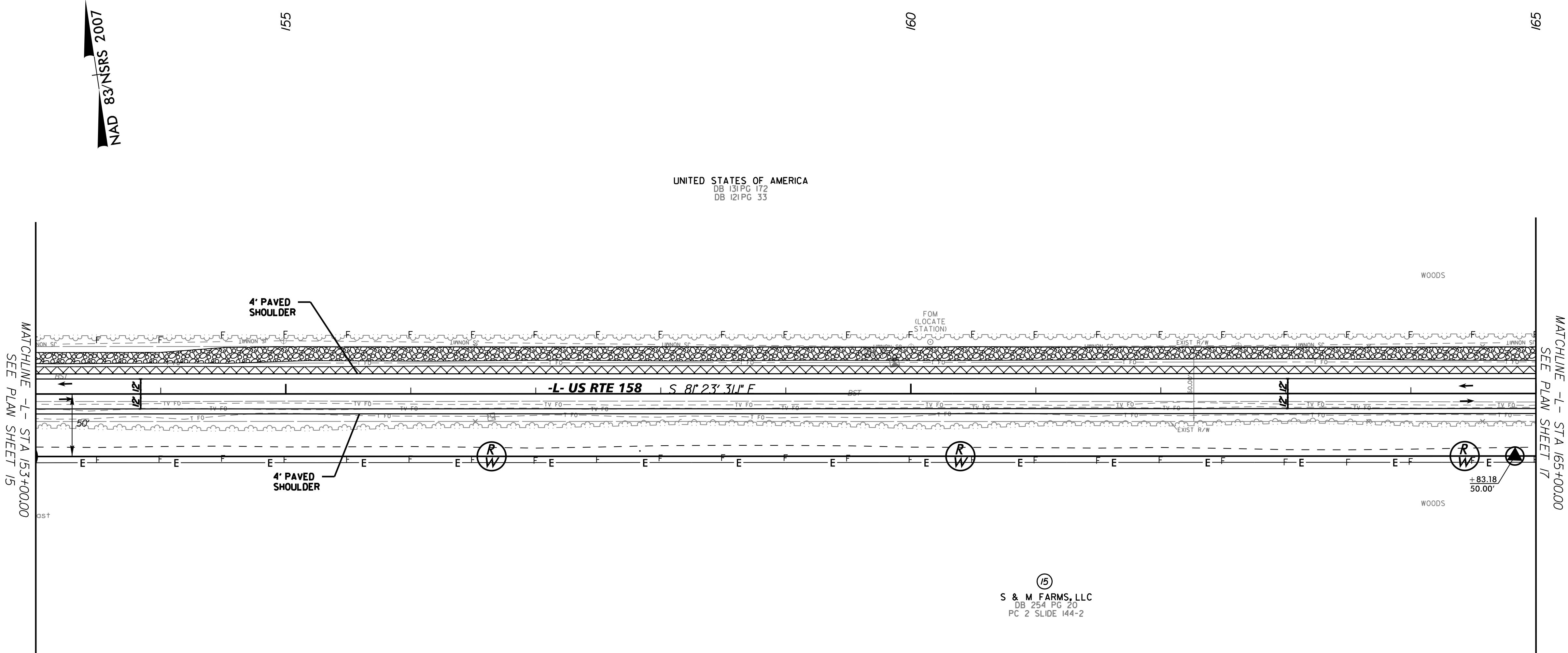
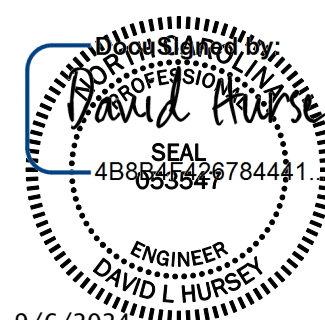
ROADWAY DESIGN
ENGINEER



SHEET NO.

16

HYDRAULICS
ENGINEER

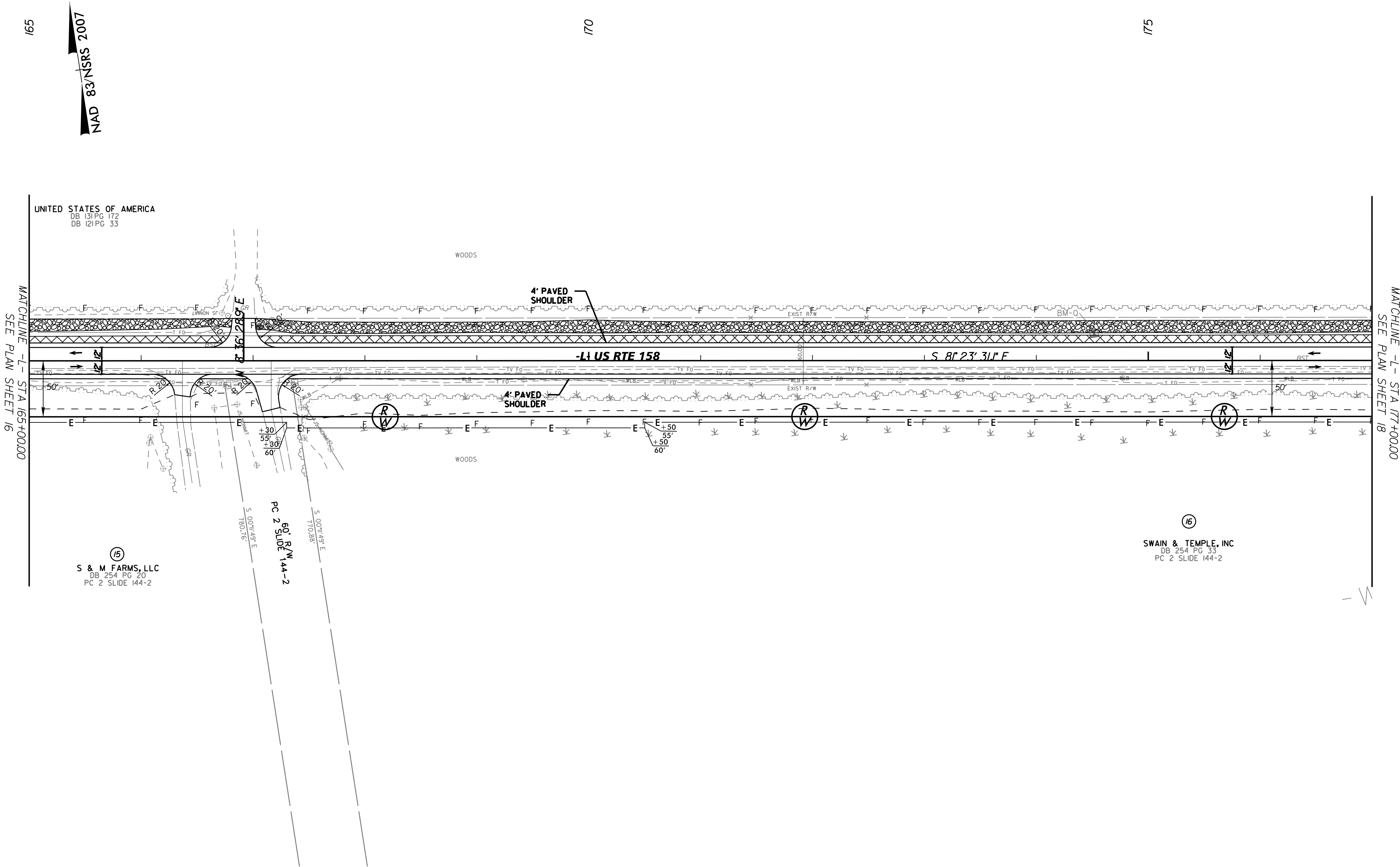


SEE SHEET NO. 27 AND 28 FOR -L- PROFILE

5/14/99

7/17/2024

REVISIONS



Kimley » Horn
4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.		SHEET NO.
R-5808		17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
9/6/2024	9/6/2024	

SEE SHEET NO. 28 FOR -L- PROFILE

5/14/99

REVISIONS

7/17/2024

MATCHLINE -L- STA 177+00.00
SEE PLAN SHEET 17

NAD 83/NSRS 2007

180

185

UNITED STATES OF AMERICA
DB 131 PG 172
DB 121 PG 33

WOODS

WOODS

(16)
SWAIN & TEMPLE, INC
DB 254 PG 33
PC 2 SLIDE 144-2

Kimley»Horn

4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.

R-5808

SHEET NO.

18

ROADWAY DESIGN
ENGINEER

PROFESSIONAL
SEAL

VINCENT E. RICCIO
ENGINEER
9/6/2024

HYDRAULICS
ENGINEER

PROFESSIONAL
SEAL

DAVID L. HURSEY
ENGINEER
9/6/2024

4' PAVED
SHOULDER

4' PAVED
SHOULDER

-L- US RTE 158

S 81°23'31" E

MATCHLINE -L- STA 189+00.00
SEE PLAN SHEET 19

SEE SHEET NO. 28 AND 29 FOR -L- PROFILE

5/14/99

REVISIONS

7/17/2024

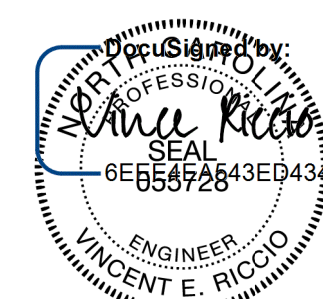
Kimley»Horn

4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.

R-5808

ROADWAY DESIGN
ENGINEER

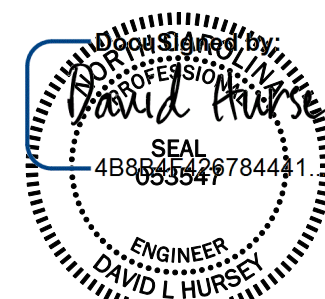


9/6/2024

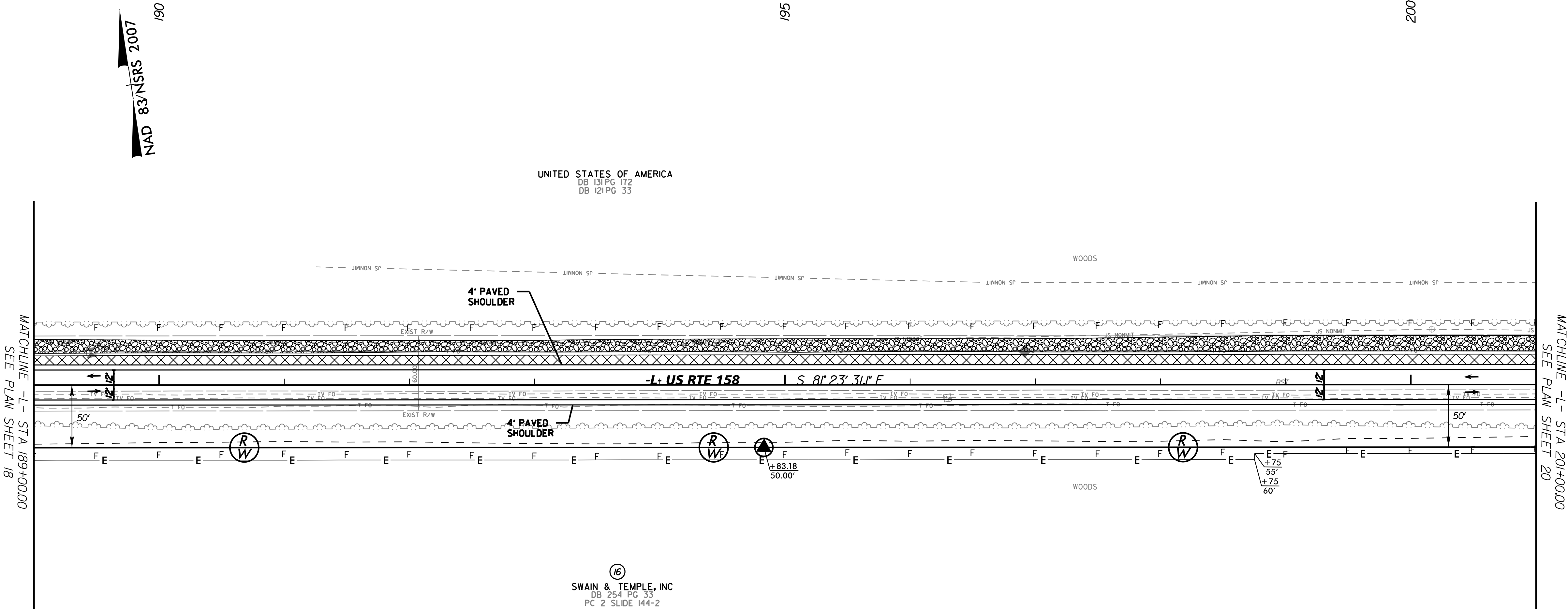
SHEET NO.

19

HYDRAULICS
ENGINEER



9/6/2024



SEE SHEET NO. 29 FOR -L- PROFILE

5/14/99

7/17/2024

Kimley»Horn

4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.

R-5808

ROADWAY DESIGN ENGINEER

Notarized by:
 PROFESSIONAL
 SEAL
 6E0545A843ED434
 0555728
 ENGINEER
 VINCENT E. RICCO
 6/2024

SHEET NO.

20

**HYDRAULICS
ENGINEER**

DAVID L. HURSEY, INC.
 PROFESSIONAL ENGINEER
 SEAL
 48854-12678444
 033347
 ENGINEER
 DAVID L. HURSEY
 9/6/2024

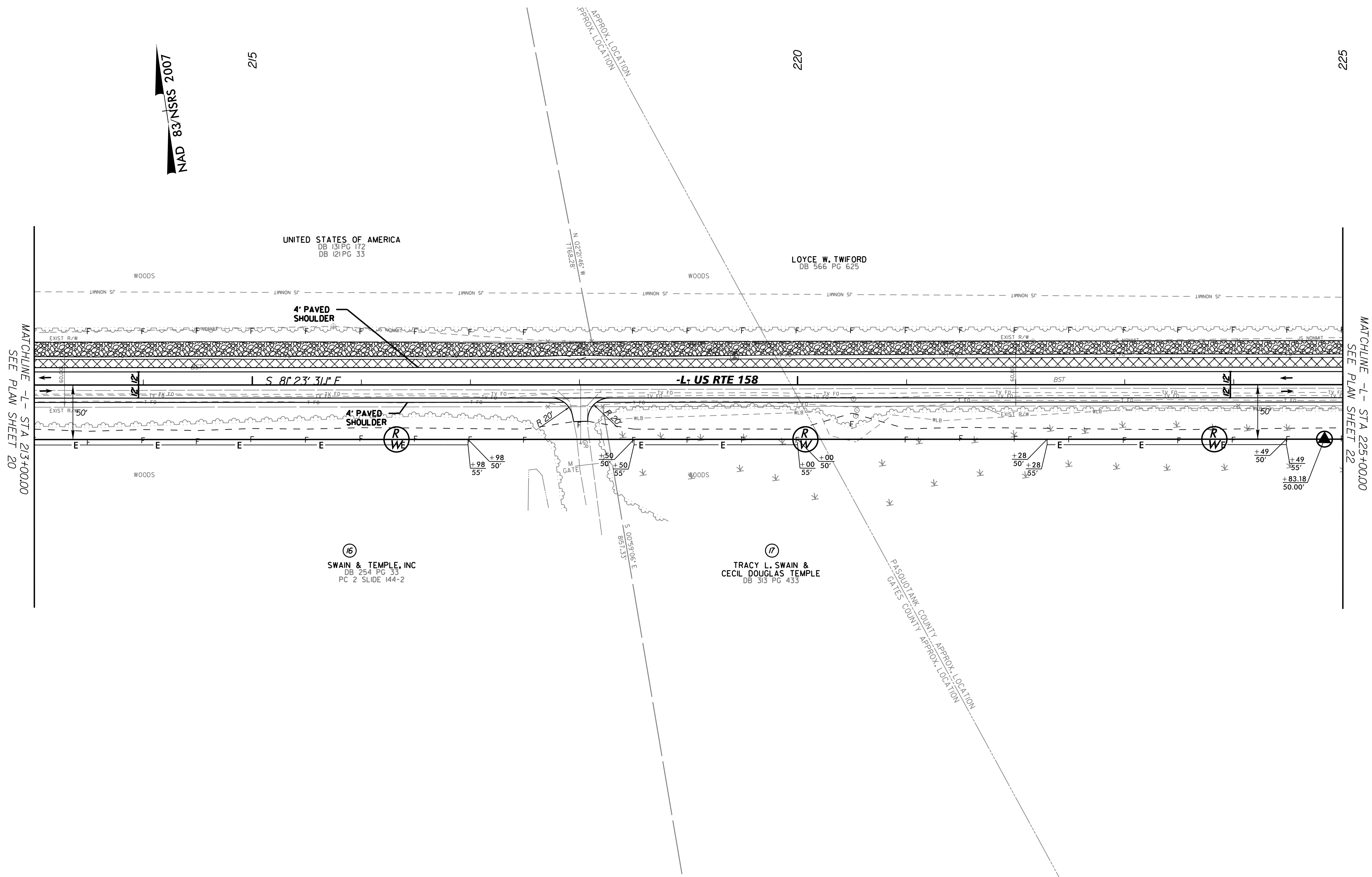
Plan view of a proposed four-lane highway with a center turn lane. The drawing shows the alignment of the road, including the center turn lane and the main travel lanes. Key features include:

- Center Turn Lane:** A 31-foot wide center turn lane, labeled "S 81' 23' 31" F -L- US RTE 158".
- Main Travel Lanes:** Two 36-foot wide main travel lanes on either side of the center turn lane.
- Shoulders:** 4-foot paved shoulders on both sides of the main travel lanes.
- Stationing:** Stationing is marked along the alignment, starting from the left edge of the drawing.
- Elevations:** Elevation points are shown at various locations, including +86.50' and +86.55' on the left side, and +57.50' and +57.55' on the right side.
- Right of Way (R/W):** The right of way is indicated by a dashed line on the left side of the drawing.
- Proposed Roadway:** The proposed roadway is shown with a cross-hatched pattern.
- Existing Roadway:** The existing roadway is shown with a solid line.
- Matchlines:** Matchlines are shown at both ends of the drawing, indicating the connection to adjacent sheets.

Additional information includes:

- Scale:** 1" = 40.00'
- North Arrow:** A north arrow is located in the upper right corner, pointing towards the top of the drawing.
- Sheet Information:** The drawing is labeled "PLAN SHEET 19" and "SEE PLAN SHEET 19".

SEE SHEET NO. 29 AND 30 FOR -L- PROFILE



SEE SHEET NO. 30 FOR -L- PROFILE

Kimley » Horn 4525 MAIN STREET, SUITE 1000 VIRGINIA BEACH, VA 23462	PROJECT REFERENCE NO. <i>R-5808</i>		SHEET NO. <i>21</i>
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
	9/6/2024	9/6/2024	

<i>PI Sta 228+13.41</i>	<i>PI Sta 231+53.44</i>
$\Delta = 1^{\circ} 39' 16.0" (LT)$	$\Delta = 1^{\circ} 44' 01.4" (RT)$
$D = 0^{\circ} 29' 53.6"$	$D = 0^{\circ} 29' 53.6"$
$L = 332.07'$	$L = 347.98'$
$T = 166.04'$	$T = 174.00'$
$R = 11,500.00'$	$R = 11,500.00'$

4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

R-5808

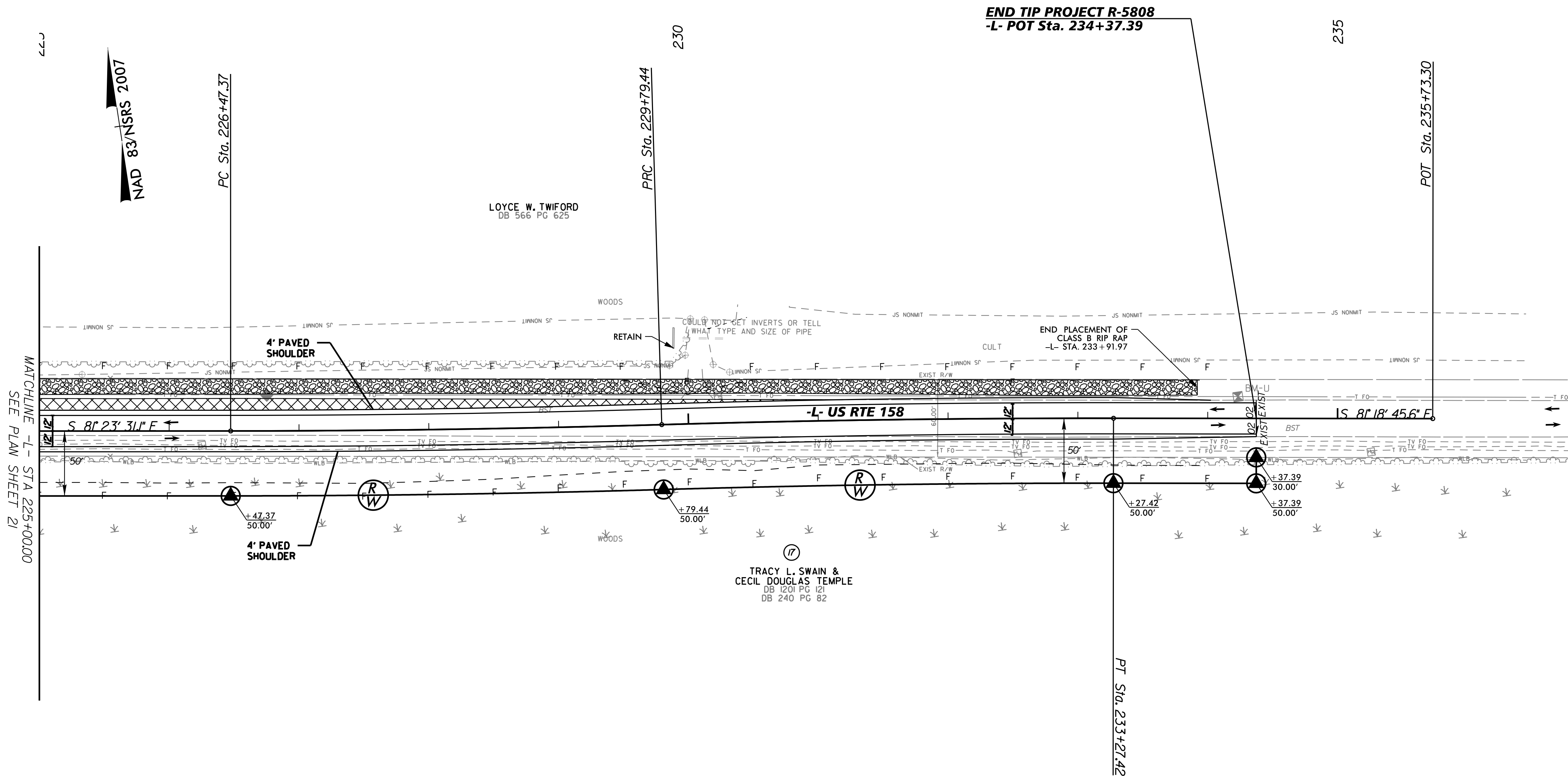
22

DocuSigned by:
Nancy K...
PROFESSIONAL
SEAL
6F5E45A543FB

9/6/2024

DocuSigned by:
NORMAN POLIN
PROFESSIONAL
David Hursey
SEAL
4B8B4426784441

9/6/202



SEE SHEET NO. 30 FOR -L- PROFILE

5/14/99

Kimley » Horn

4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.
R-5808

ROADWAY DESIGN ENGINEER

48884156A084441

053547

ENGINEER

VINCENT E. RICO

10/2/2024

SHEET NO.
23

HYDRAULICS ENGINEER

48884156A084441

053547

ENGINEER

DAVID L. HURSEY

10/2/2024

**BEGIN CONSTRUCTION
BEGIN TIP PROJECT R-5808
-L- Sta. 17+59.05**

SSD = 1066'
ex = -0'
PI = 19+10.00
K = 155
EL = 37.20'
VC = 170'

BEGIN SPECIAL DITCH GRADE RT
-L- STA 18+00
ELEV = 36.58'

BEGIN SPECIAL DITCH GRADE LT
-L- STA 18+00
ELEV = 36.58'

PROPOSED GRADE

END SPECIAL DITCH GRADE LT
-L- STA 21+00
ELEV = 29.00'

EXISTING GROUND

END SPECIAL DITCH GRADE RT
-L- STA 21+50
ELEV = 28.00'

ex = 3'
PI = 23+10.00
K = 137
EL = 24.80'
VC = 560'

**SEE SHEET NO. 4 AND 5 FOR -L- PLAN
-L- US 158**

UNDERCUT

10

11 12 13 14 15 16 17 18 19 20 21 22 23 24

50

40 30 20 10 0

BM-A ELEVATION = 26.07
N 988979 E 2722075
BL STATION 9+99.00 0 LEFT
ROD & CAP IN GROUND

CULVERT HYDRAULIC DATA
2 @ 14'x7' RCBC (BURIED 1')
STA 24+60 -L-

DESIGN DISCHARGE = 600 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 22.85 FT
BASE DISCHARGE = 1290 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 25.08 FT
OVERTOPPING DISCHARGE = 1800 CFS
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING ELEVATION = 26.91 FT

BM-B ELEVATION = 28.29
N 988903 E 2722568
BL STATION 14+98.00 15 LEFT
ROD & CAP IN GROUND

BM-C ELEVATION = 45.67
N 988722 E 2723543
BL STATION 24+90.00 20 RIGHT
ROD & CAP IN GROUND

**SEE SHEET NO. 5 AND 6 FOR -L- PLAN
-L- US 158**

UNDERCUT

ex = 1'
PI = 27+50.00
K = 142
EL = 29.20'
VC = 300'

SSD = 631'
ex = -1'
PI = 32+40.00
K = 160
EL = 44.49'
VC = 400'

EXISTING GROUND

PROPOSED GRADE

**SEE SHEET NO. 5 AND 6 FOR -L- PLAN
-L- US 158**

UNDERCUT

10/2/2024

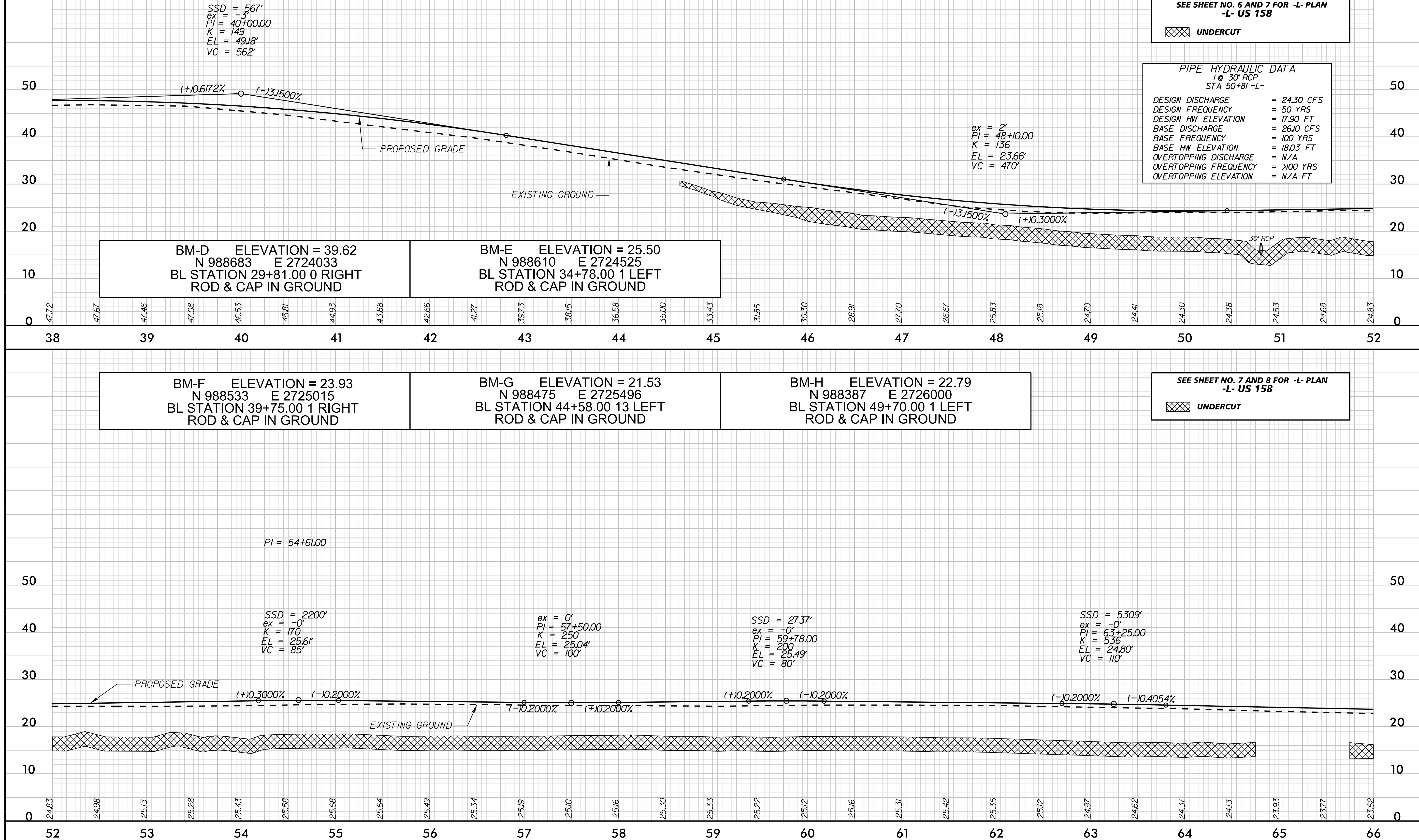
24 25 26 27 28 29 30 31 32 33 34 35 36 37 38

50

40 30 20 10 0

 **UNDERCUT**

DESIGN DISCHARGE	=	24.30 CFS
DESIGN FREQUENCY	=	50 YRS
DESIGN HW ELEVATION	=	17.90 FT
BASE DISCHARGE	=	26.10 CFS
BASE FREQUENCY	=	100 YRS
BASE HW ELEVATION	=	18.03 FT
OVERTOPPING DISCHARGE	=	N/A
OVERTOPPING FREQUENCY	=	>100 YRS
OVERTOPPING ELEVATION	=	N/A FT

 UNDERCUT

5/14/99

10/2/2024

BM-I ELEVATION = 20.63
N 988313 E 2726489
BL STATION 54+65.00 1 LEFT
ROD & CAP IN GROUND

BM-J ELEVATION = 21.55
N 988164 E 2727472
BL STATION 64+59.00 0 LEFT
ROD & CAP IN GROUND

Kimley » Horn

4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.
R-5808

SHEET NO.
25

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

SEAL

455728

055728

ENGINEER

VINCENT E. RICOLO

10/2/2024

SEAL

488415

053547

ENGINEER

DAVID L. HURSEY

10/2/2024

SEE SHEET NO. 8 AND 9 FOR -L- PLAN
-L- US 158

UNDERCUT

BM-K ELEVATION = 21.01
N 988004 E 2728534
BL STATION 75+33.00 1 LEFT
ROD & CAP IN

SEE SHEET NO. 9, 10 AND 11 FOR -L- PLAN
-L- US 158

UNDERCUT

5/14/99

BM-L ELEVATION = 20.18
N 987821 E 2729750
BL STATION 87+63.00 1 LEFT
ROD & CAP IN GROUND

Kimley » Horn

4525 MAIN STREET, SUITE 1000

VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.

R-5808

SHEET NO.

26

ROADWAY DESIGN

ENGINEER

SEAL

434

055728

ENGINEER

VINCENT E. RICOLO

10/2/2024

HYDRAULICS

ENGINEER

SEAL

4441

053547

ENGINEER

DAVID L. HURSEY

10/2/2024

SEE SHEET NO. 11 AND 12 FOR -L- PLAN
-L- US 158

UNDERCUT

Profile view of road segment 94 to 108. The vertical axis shows elevation from 0 to 50 feet. The horizontal axis shows stationing from 94 to 108. The profile includes a proposed grade line and an existing ground line. Vertical curve data is provided for several segments:

- Segment 94-95: $ex = 0'$, $PI = 94+25.00$, $K = 167$, $EL = 21.66'$, $VC = 100'$
- Segment 97-98: $SSD = 1848'$, $ex = -0'$, $PI = 97+25.00$, $K = 167$, $EL = 22.56'$, $VC = 100'$
- Segment 100-101: $ex = 0'$, $PI = 100+75.00$, $K = 183$, $EL = 21.51'$, $VC = 110'$
- Segment 103-104: $SSD = 1848'$, $ex = -0'$, $PI = 103+10.00$, $K = 167$, $EL = 22.21'$, $VC = 100'$
- Segment 106-107: $ex = 0'$, $PI = 106+75.00$, $K = 167$, $EL = 21.12'$, $VC = 100'$

The profile shows a series of vertical curves with grades of +0.3000% and -10.3000%. The existing ground is shown as a dashed line, and the proposed grade is shown as a solid line. The area between the existing ground and the proposed grade is shaded with a cross-hatch pattern, indicating an undercut.

BM-M ELEVATION = 19.23
N 987595 E 2731229
BL STATION 102+59.00 0 LEFT
ROD & CAP IN GROUND

SEE SHEET NO. 12 AND 13 FOR -L- PLAN
-L- US 158

UNDERCUT

Profile view of road segment 108 to 122. The vertical axis shows elevation from 0 to 50 feet. The horizontal axis shows stationing from 108 to 122. The profile includes a proposed grade line and an existing ground line. Vertical curve data is provided for several segments:

- Segment 108-109: $SSD = 1848'$, $ex = -0'$, $PI = 108+50.00$, $K = 167$, $EL = 21.64'$, $VC = 100'$
- Segment 110-111: $ex = 0'$, $PI = 110+85.00$, $K = 167$, $EL = 20.94'$, $VC = 100'$
- Segment 112-113: $SSD = 1848'$, $ex = -0'$, $PI = 112+00.00$, $K = 167$, $EL = 21.28'$, $VC = 100'$
- Segment 114-115: $ex = 0'$, $PI = 114+30.00$, $K = 167$, $EL = 20.59'$, $VC = 100'$
- Segment 116-117: $SSD = 1848'$, $ex = -0'$, $PI = 116+20.00$, $K = 167$, $EL = 21.16'$, $VC = 100'$
- Segment 118-119: $ex = 0'$, $PI = 118+60.00$, $K = 167$, $EL = 20.44'$, $VC = 100'$
- Segment 120-121: $SSD = 1848'$, $ex = -0'$, $PI = 120+75.00$, $K = 167$, $EL = 21.09'$, $VC = 100'$

The profile shows a series of vertical curves with grades of +0.3000% and -10.3000%. The existing ground is shown as a dashed line, and the proposed grade is shown as a solid line. The area between the existing ground and the proposed grade is shaded with a cross-hatch pattern, indicating an undercut.

10/2/2024

5/14/99

BM-N ELEVATION = 18.56
N 987369 E 2732706
BL STATION 117+53.00 1 RIGHT
ROD & CAP IN GROUND

PROJECT REFERENCE NO.

R-5808

SHEET NO.

27

Kimley » Horn

4525 MAIN STREET, SUITE 1000

VIRGINIA BEACH, VA 23462

ROADWAY DESIGN ENGINEER

SEAL

ED434

055728

ENGINEER

VINCENT E. RICOLO

10/2/2024

SEAL

84441

053547

ENGINEER

DANIEL L. HURSEY

10/2/2024

SEE SHEET NO. 13 AND 14 FOR -L- PLAN
-L- US 158

UNDERCUT

This profile view shows the vertical alignment of a road segment from station 122 to 136. The vertical axis represents elevation in feet, ranging from 0 to 50. The horizontal axis shows stationing. A solid line represents the proposed grade, and a dashed line represents the existing ground. The area between the proposed grade and the existing ground is shaded with a cross-hatch pattern, indicating an undercut. The proposed grade consists of several segments with different grades: (+)0.3000% and (-)0.3000%. Vertical curve data is provided for each segment, including the stationing of the beginning of the curve (ex), the stationing of the point of intersection (PI), the length of the curve (K), the elevation of the point of intersection (EL), and the vertical curve length (VC). The existing ground is shown as a dashed line with a relatively constant elevation of approximately 18 feet.

Station	Proposed Grade (%)	Existing Ground (ft)	Undercut (ft)
122	(+)0.3000%	18.0	1.0
123	(+)0.3000%	18.0	1.0
124	(+)0.3000%	18.0	1.0
125	(+)0.3000%	18.0	1.0
126	(+)0.3000%	18.0	1.0
127	(-)0.3000%	18.0	1.0
128	(-)0.3000%	18.0	1.0
129	(-)0.3000%	18.0	1.0
130	(-)0.3000%	18.0	1.0
131	(-)0.3000%	18.0	1.0
132	(-)0.3000%	18.0	1.0
133	(-)0.3000%	18.0	1.0
134	(-)0.3000%	18.0	1.0
135	(-)0.3000%	18.0	1.0
136	(-)0.3000%	18.0	1.0

BM-O ELEVATION = 18.62
N 987145 E 2734180
BL STATION 132+44.00 1 RIGHT
ROD & CAP IN GROUND

SEE SHEET NO. 14 AND 15 FOR -L- PLAN
-L- US 158

UNDERCUT

This profile view shows the vertical alignment of a road segment from station 136 to 150. The vertical axis represents elevation in feet, ranging from 0 to 50. The horizontal axis shows stationing. A solid line represents the proposed grade, and a dashed line represents the existing ground. The area between the proposed grade and the existing ground is shaded with a cross-hatch pattern, indicating an undercut. The proposed grade consists of several segments with different grades: (+)0.3000% and (-)0.3000%. Vertical curve data is provided for each segment, including the stationing of the beginning of the curve (ex), the stationing of the point of intersection (PI), the length of the curve (K), the elevation of the point of intersection (EL), and the vertical curve length (VC). The existing ground is shown as a dashed line with a relatively constant elevation of approximately 18 feet.

Station	Proposed Grade (%)	Existing Ground (ft)	Undercut (ft)
136	(+)0.3000%	18.0	1.0
137	(+)0.3000%	18.0	1.0
138	(+)0.3000%	18.0	1.0
139	(+)0.3000%	18.0	1.0
140	(-)0.3000%	18.0	1.0
141	(-)0.3000%	18.0	1.0
142	(-)0.3000%	18.0	1.0
143	(-)0.3000%	18.0	1.0
144	(-)0.3000%	18.0	1.0
145	(-)0.3000%	18.0	1.0
146	(-)0.3000%	18.0	1.0
147	(-)0.3000%	18.0	1.0
148	(-)0.3000%	18.0	1.0
149	(-)0.3000%	18.0	1.0
150	(-)0.3000%	18.0	1.0

10/2/2024

5/14/99

BM-P ELEVATION = 19.02
N 986923 E 2735651
BL STATION 147+31.00 2 RIGHT
ROD & CAP IN GROUND

Kimley » Horn
4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.
R-5808

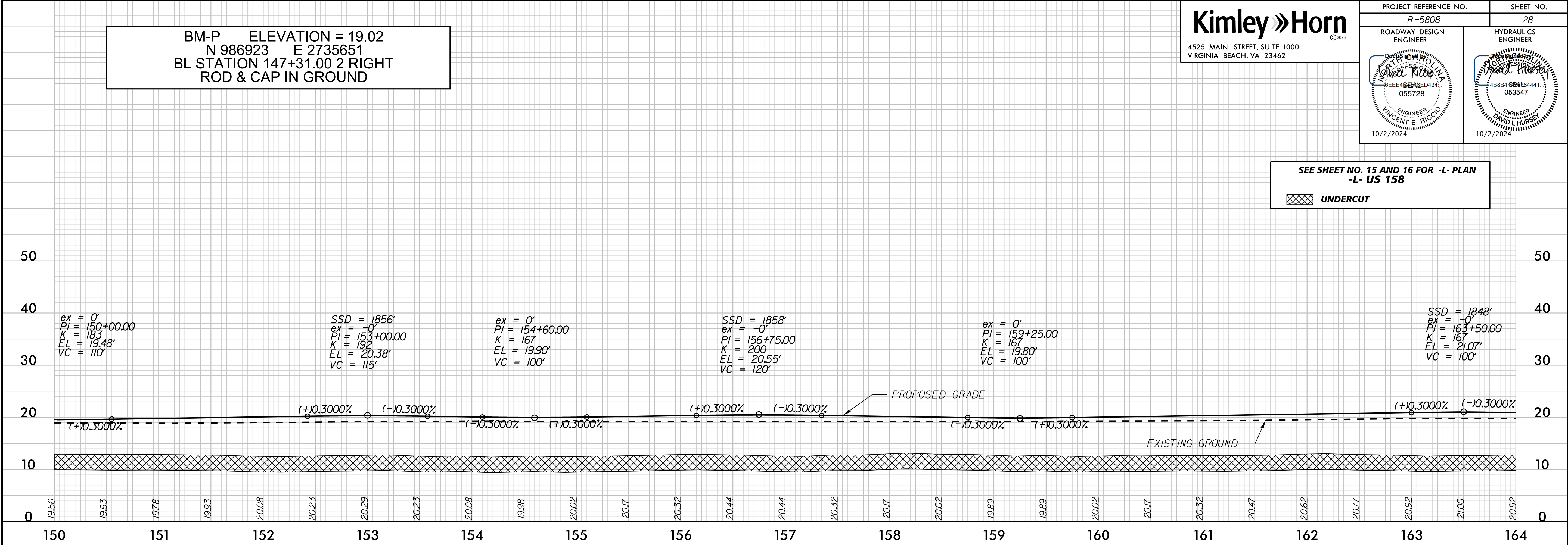
SHEET NO.
28

ROADWAY DESIGN
ENGINEER
VINCENT E. RICOLO
055728
10/2/2024

HYDRAULICS
ENGINEER
DAVID L. HURSEY
053547
10/2/2024

SEE SHEET NO. 15 AND 16 FOR -L- PLAN
-L- US 158

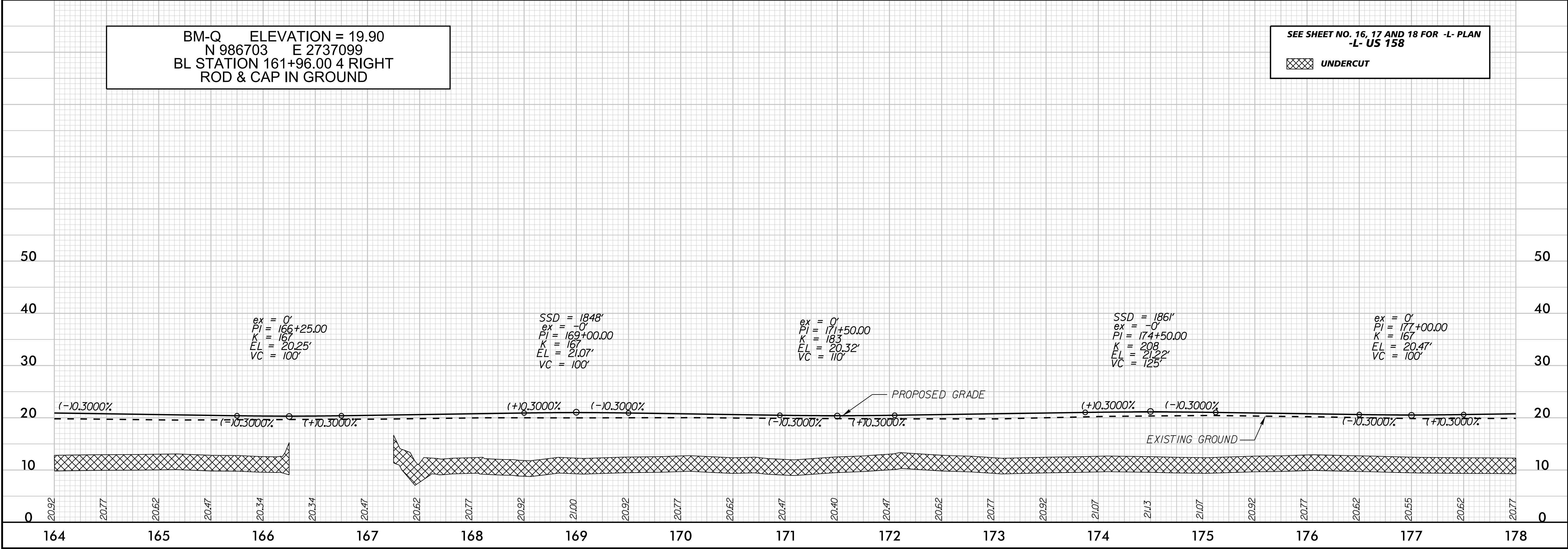
UNDERCUT



BM-Q ELEVATION = 19.90
N 986703 E 2737099
BL STATION 161+96.00 4 RIGHT
ROD & CAP IN GROUND

SEE SHEET NO. 16, 17 AND 18 FOR -L- PLAN
-L- US 158

UNDERCUT



10/2/2024 K:\VAB_RDM\17093000 - R-5808 (US 158)\Roadway\Pro\15808_rdy.plt.dgn

5/14/99

BM-R ELEVATION = 20.53
N 986481 E 2738576
BL STATION 176+90.00 0 RIGHT
ROD & CAP IN GROUND

Kimley»Horn

4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

PROJECT REFERENCE NO.

R-5808

SHEET NO.

29

ROADWAY DESIGN
ENGINEER

SEAL

4344

055728

ENGINEER
VINCENT E. RICCIO

10/2/2024

HYDRAULICS
ENGINEER

SEAL

4441

053547

ENGINEER
DAVID L. HURSEY

10/2/2024

SEE SHEET NO. 18 AND 19 FOR -L- PLAN
-L- US 158

UNDERCUT

BM-S ELEVATION = 21.18
N 986258 E 2740053
BL STATION 191+83.00 0 RIGHT
ROD & CAP IN GROUND

SEE SHEET NO. 19 AND 20 FOR -L- PLAN
-L- US 158

UNDERCUT

10/2/2024 K:\VAB_RDM\17093000 - R-5808 (US 158)\Roadway\Proj\N5808_rdy.plt.dgn

4525 MAIN STREET, SUITE 1000
VIRGINIA BEACH, VA 23462

R-5808

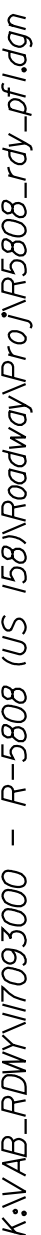
30

ENGINEER

10/2/2024

ENGINEER


10/2/2024

 UNDERCUT

5/14/99

10/2/2024 K:\V\AB_RDW\17093000 - R-5808 (US 158)\Roadway\Pro\15808_rdy.plt.dgn

