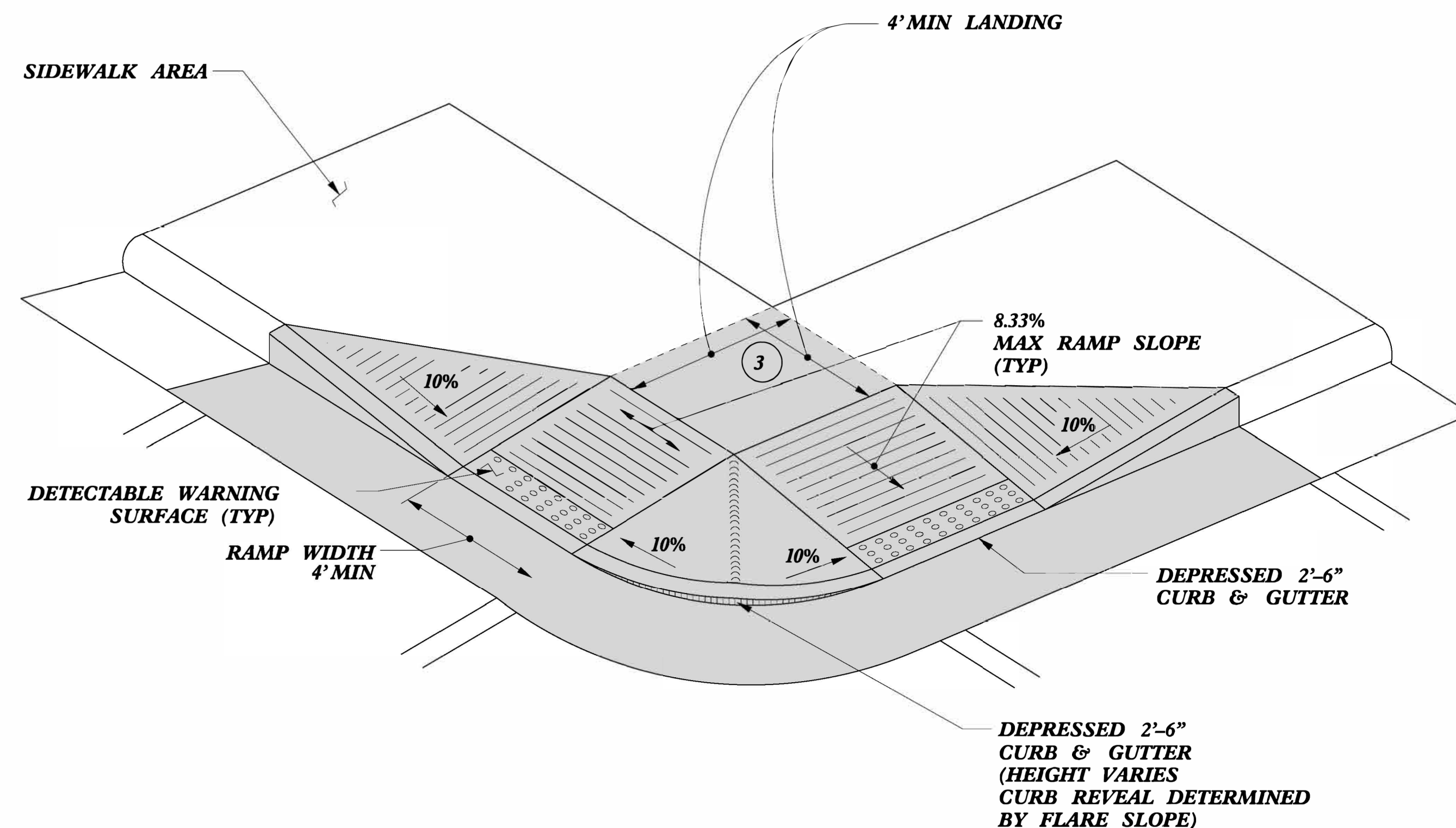
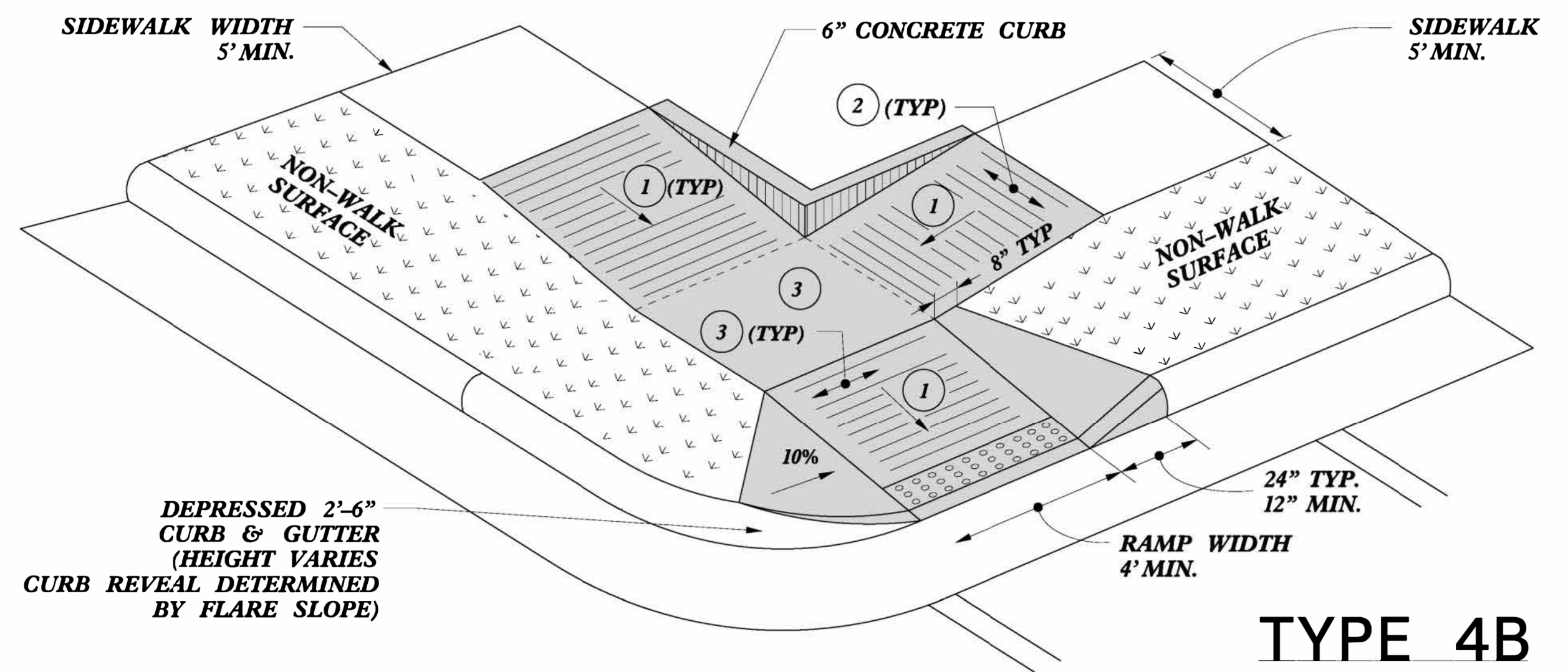


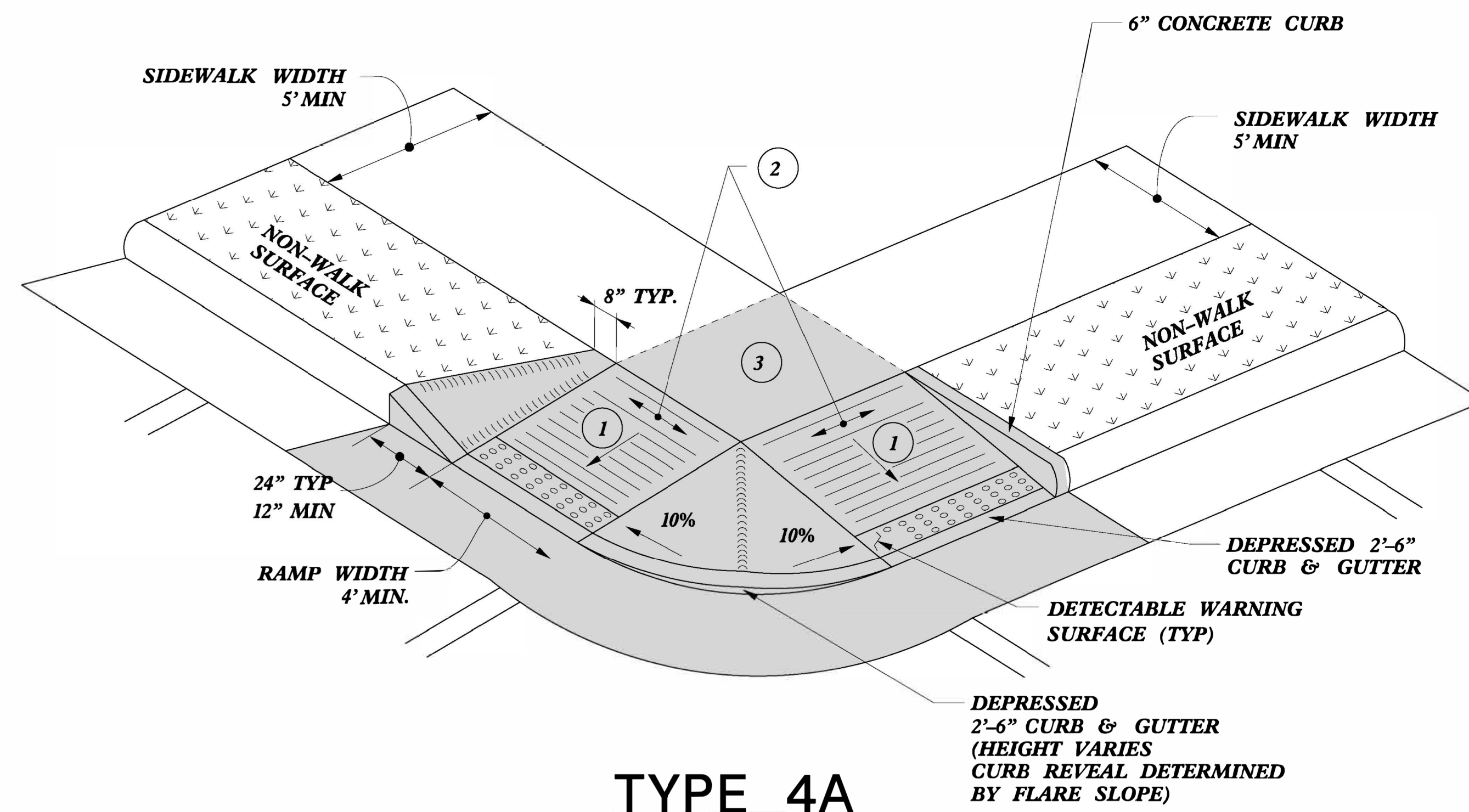
PAY LIMITS FOR 1 OR 2 CURB RAMPS  
(CALCULATE BASED ON NUMBER OF SETS  
OF TRUNCATED DOMES)



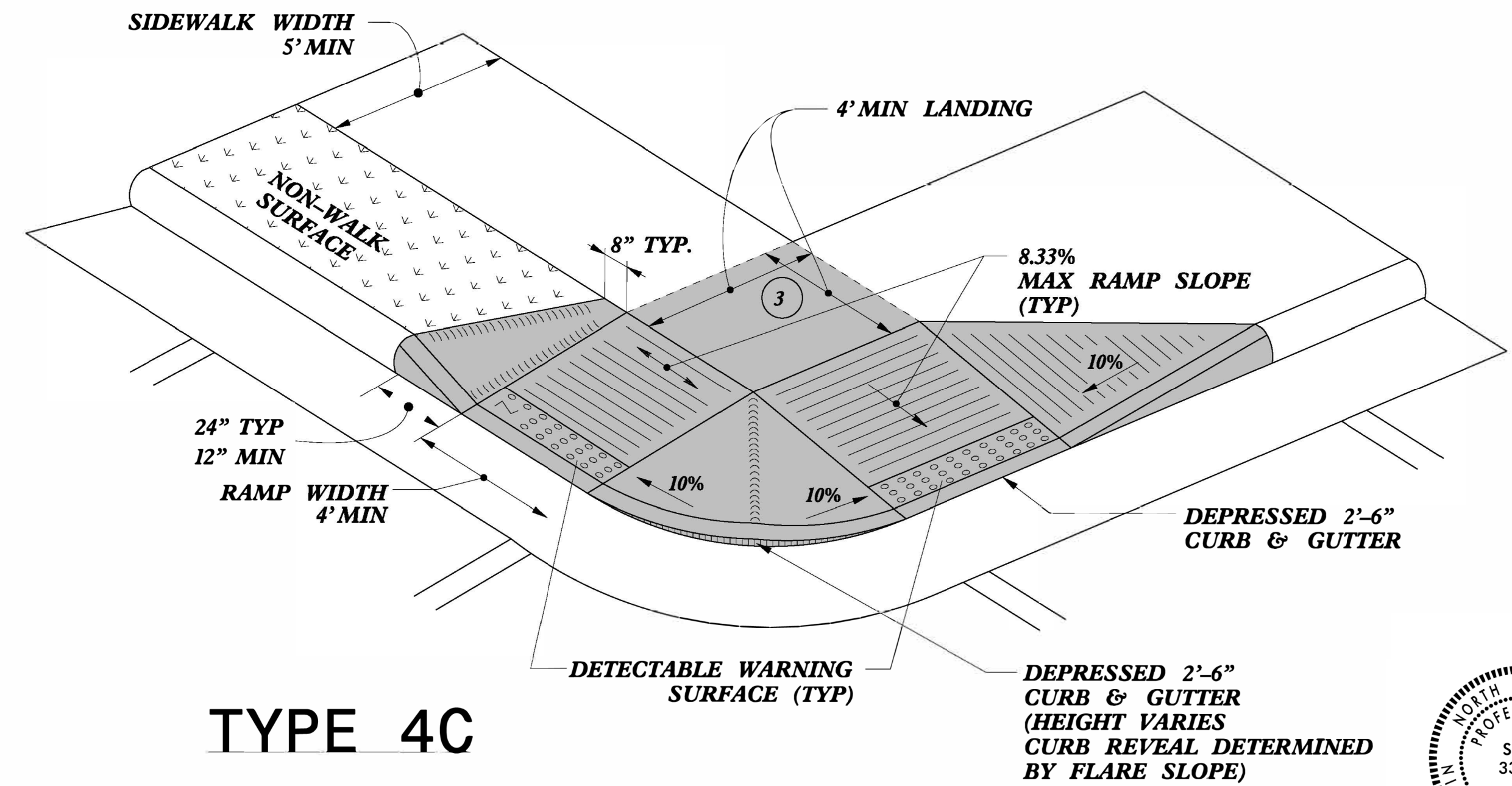
**TYPE 4**



**TYPE 4B**



**TYPE 4A**



**TYPE 4C**

- ① 8.33% (12:1) MAX RAMP SLOPE
- ② CROSS SLOPE: 2.00%
- ③ CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



DocuSigned by:  
Nicola M. Heckler  
8/11/2023  
588432034164C5

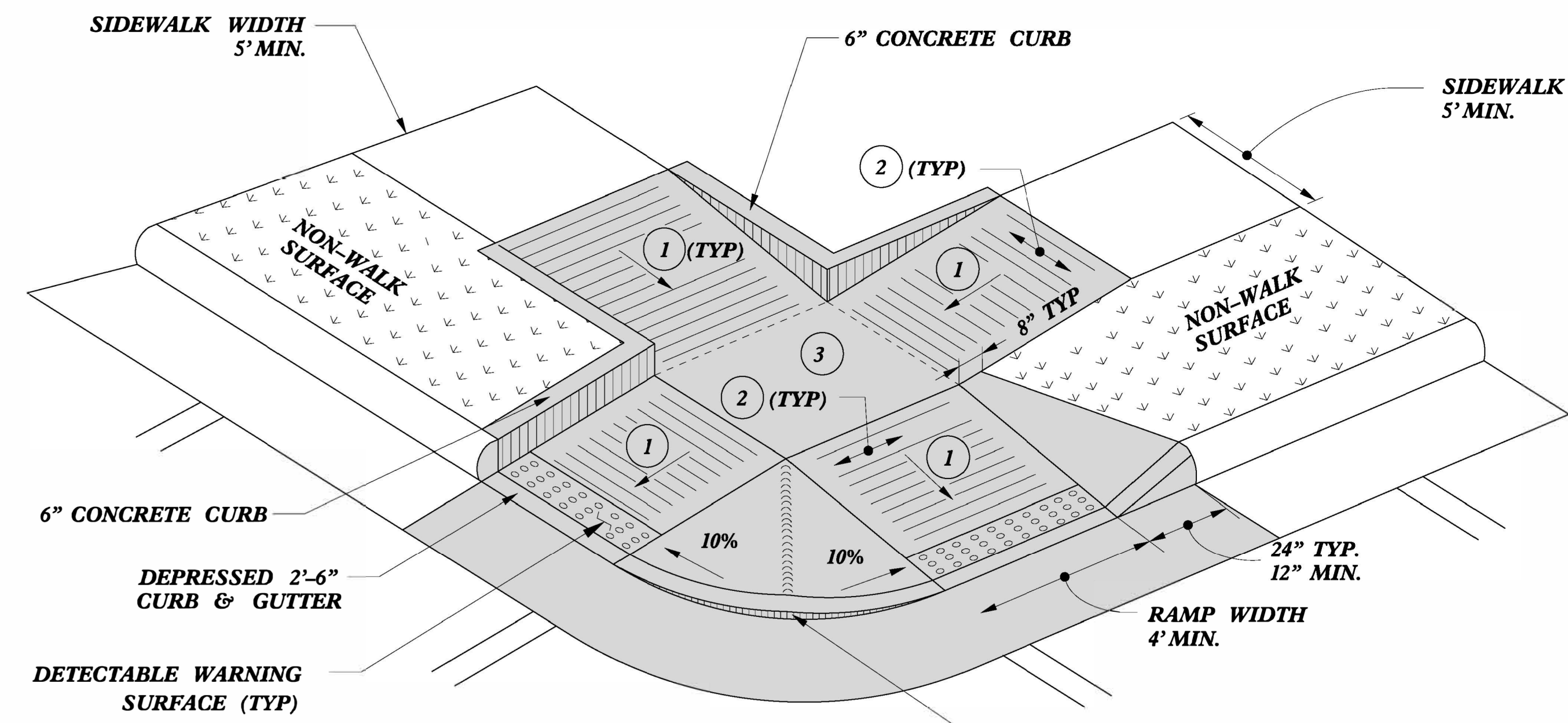
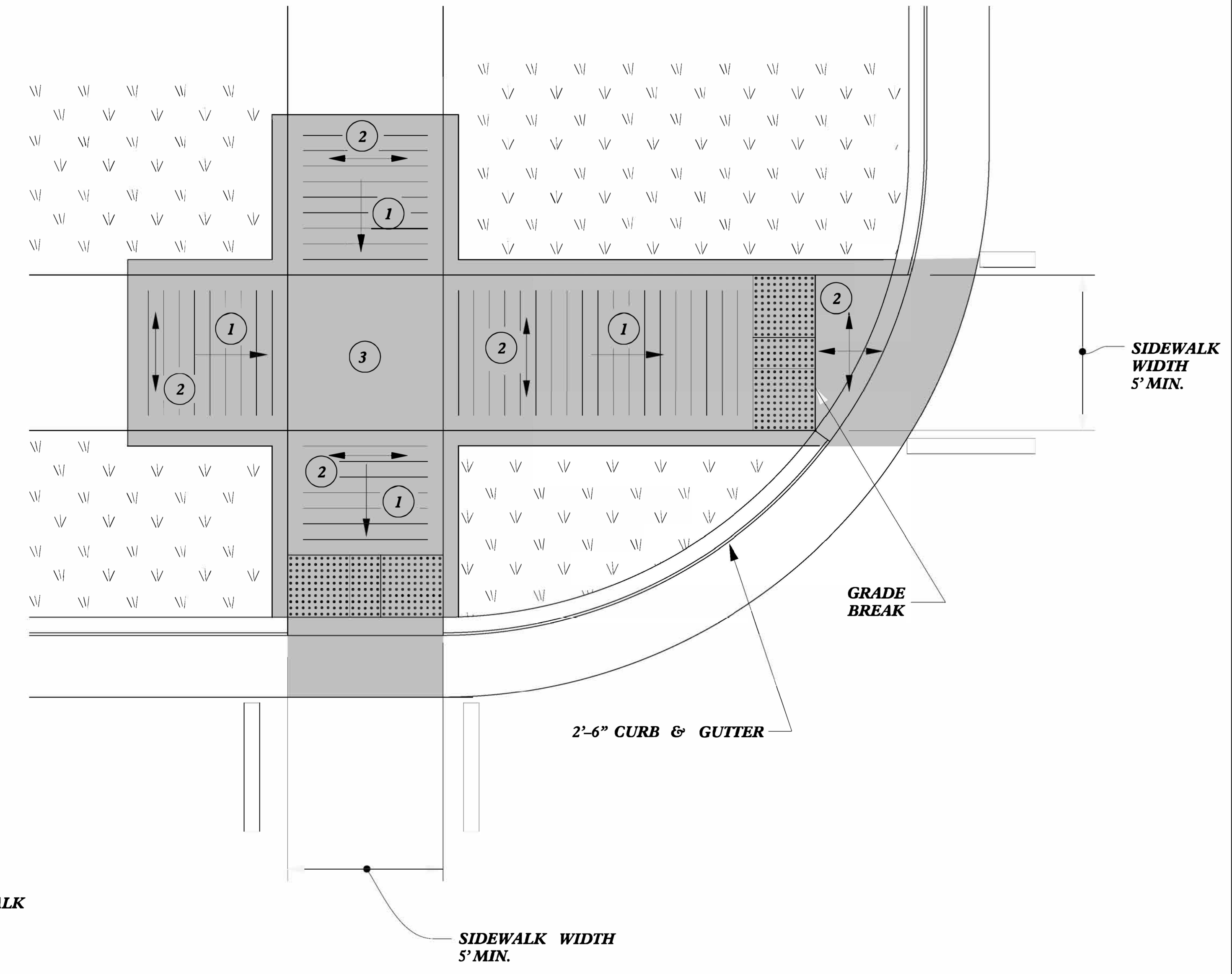
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

<b>CONTRACT STANDARDS AND DEVELOPMENT UNIT</b>	
Office 919-707-6950	FAX 919-250-4119
<b>CURB RAMPS</b>	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dgn	

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

5/14/99  
STANDARD CONDITIONS

PAY LIMITS FOR 1 OR 2 CURB RAMPS  
(CALCULATE BASED ON NUMBER OF SETS  
OF TRUNCATED DOMES)



**TYPE 5**

**TYPE 5A**

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



DocuSigned by:  
Nicole M. Hecker  
8/11/2023  
588432034164C5...

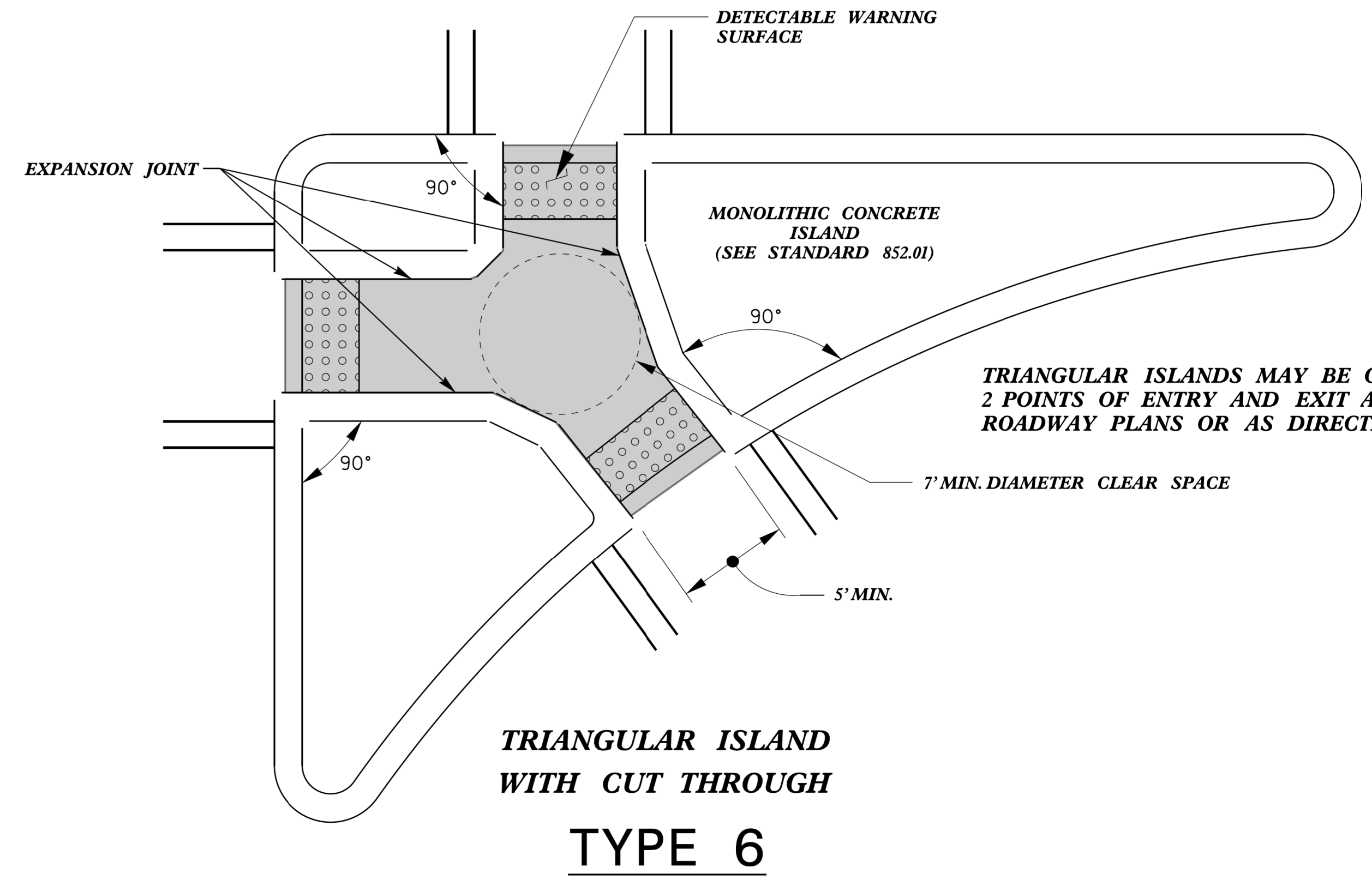
**CONTRACT STANDARDS  
AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

**CURB RAMPS**

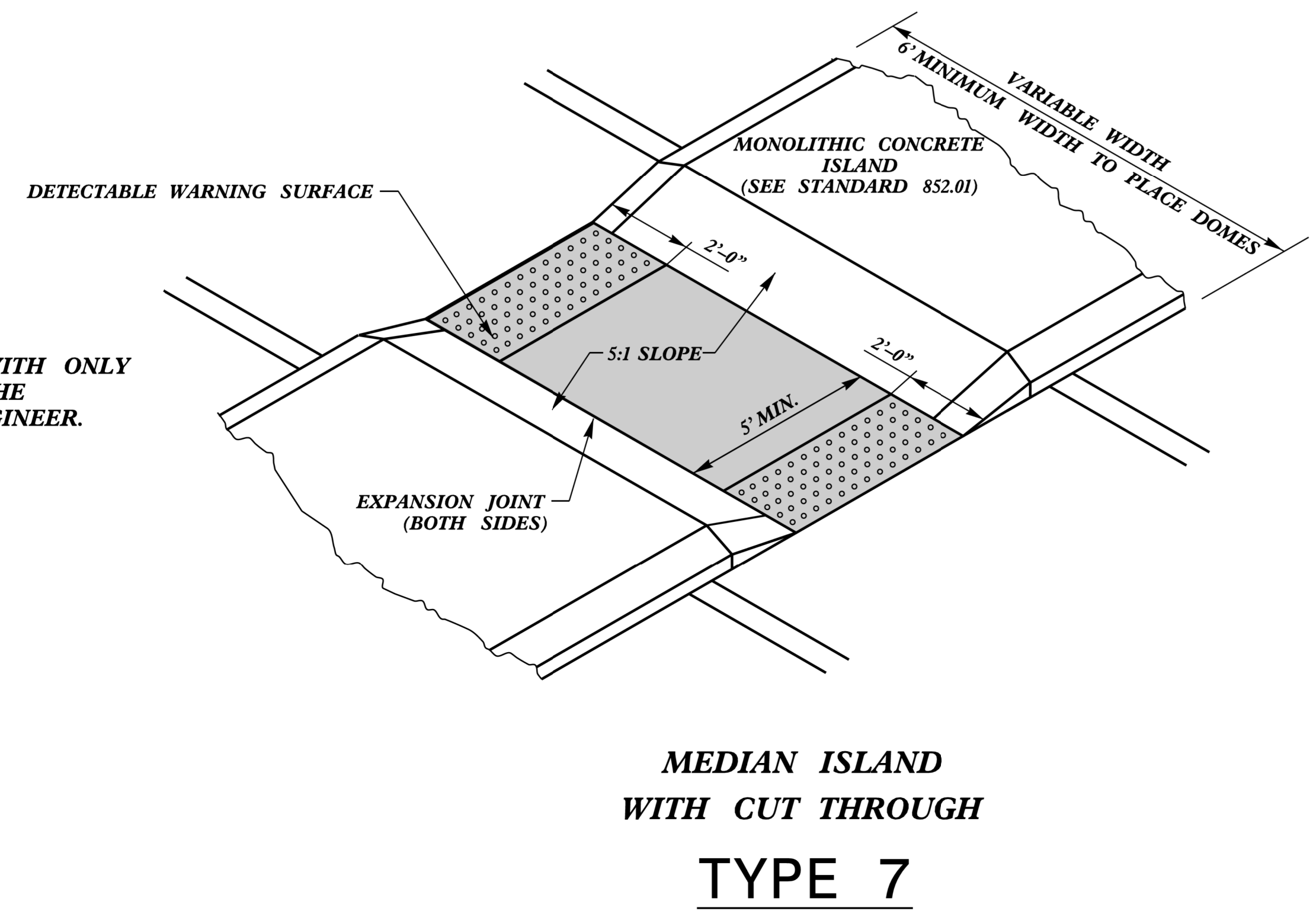
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 MODIFIED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 FILE SPEC: stds/2012CurbRamp/CurbRampDetails.dgn


REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

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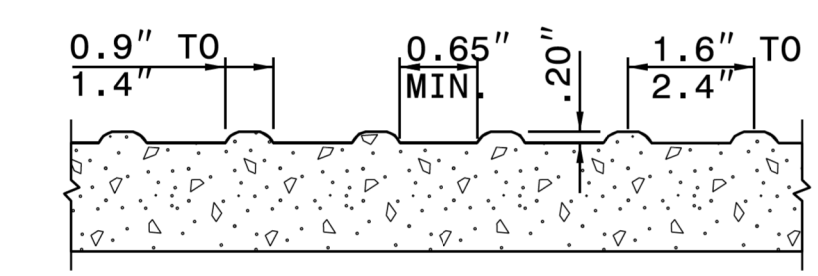
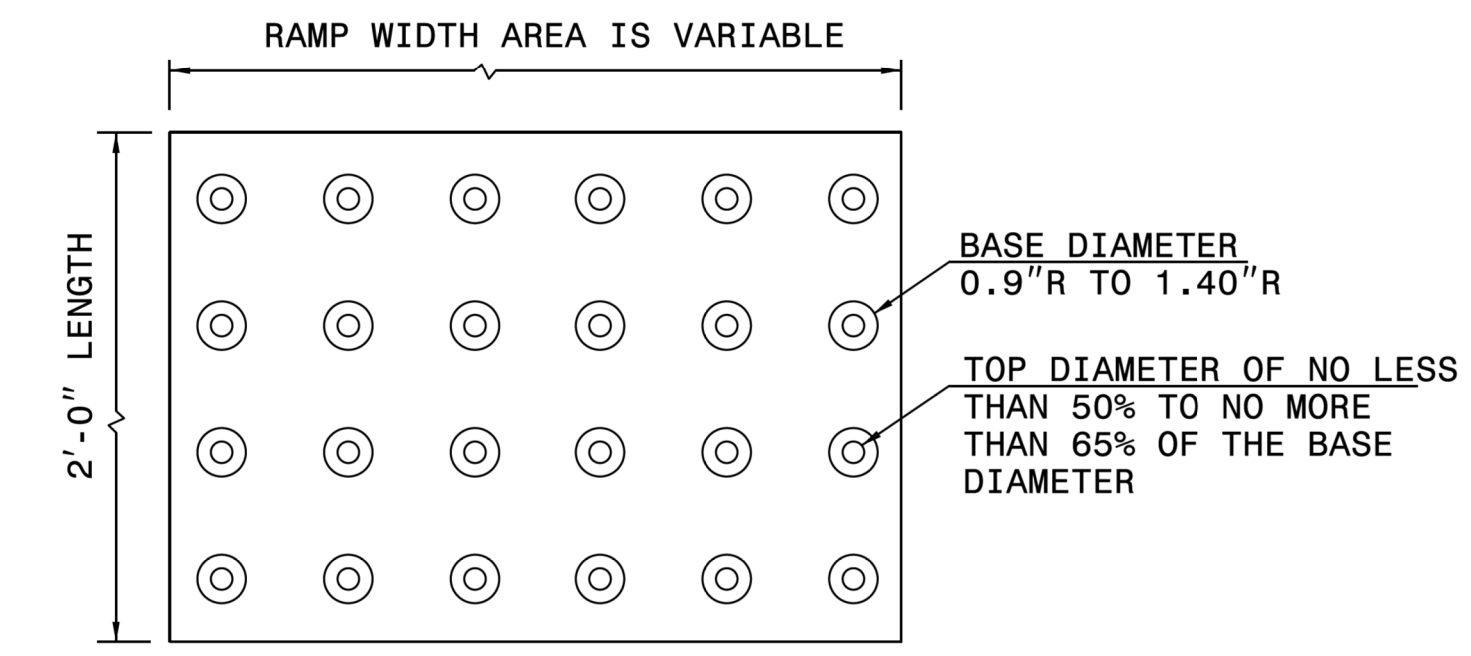
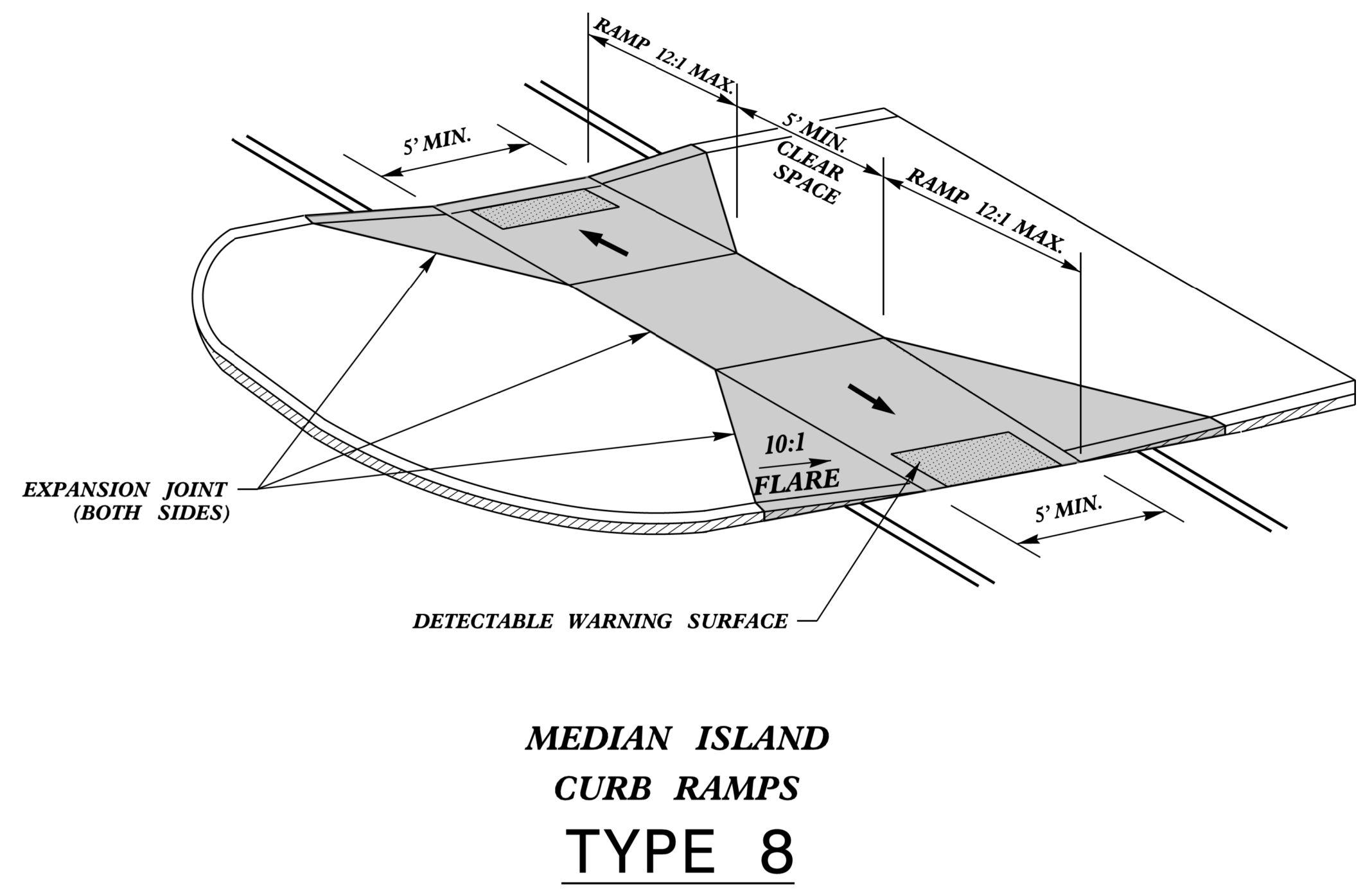


TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.



 PAY LIMITS FOR 2 OR 3 CURB RAMPS (CALCULATE BASED ON NUMBER OF SETS OF DETECTABLE WARNING SURFACES)

NOTES:  
 DETECTABLE WARNING SURFACE SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.  
 DETECTABLE WARNING SURFACE SHALL CONTRAST VISIBLY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



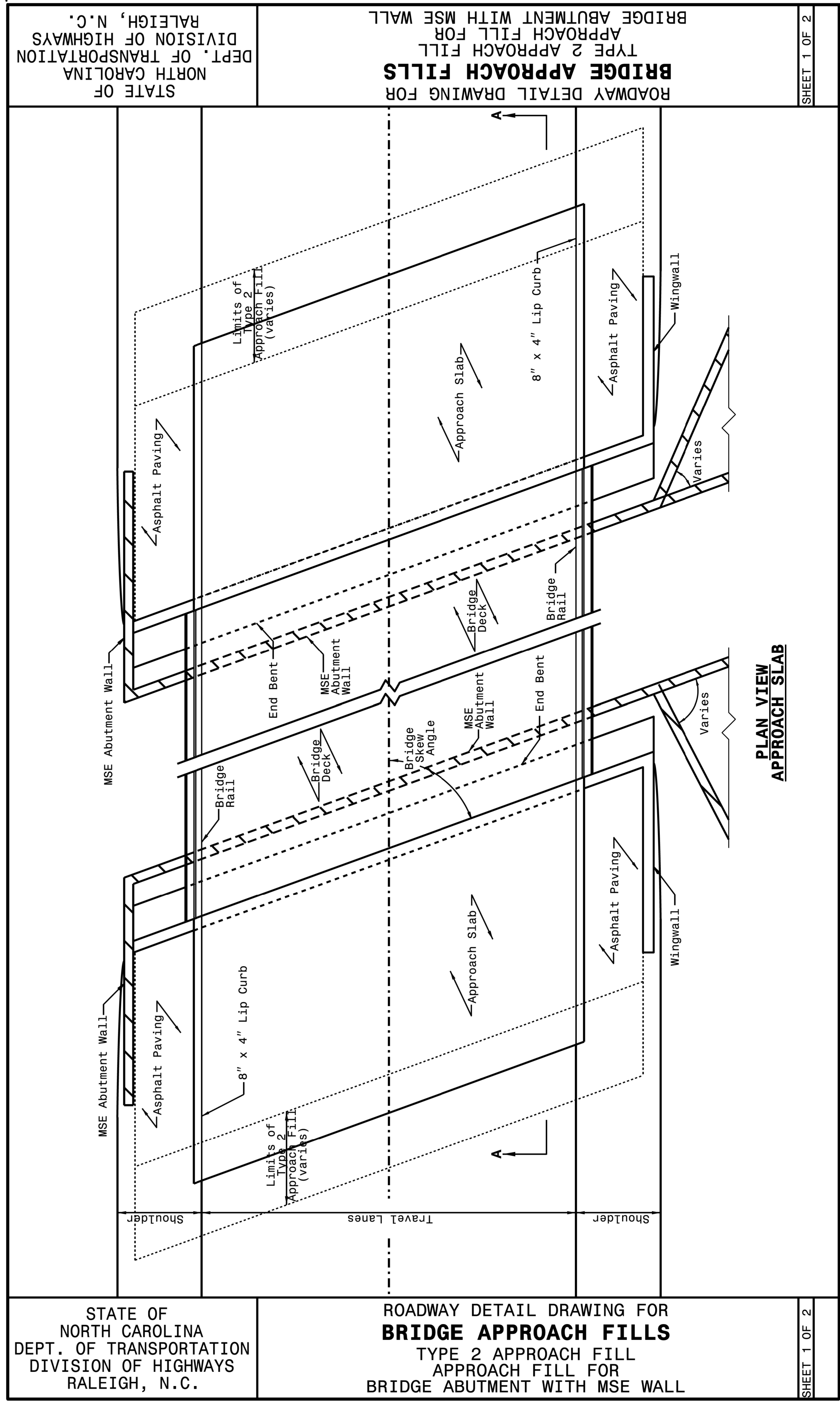
DocuSigned by:  
 Nicole M. Hecker  
 8/11/2023  
 588432034164C5

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**DETECTABLE WARNING SURFACE**

CONTRACT STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119	
<b>CURB RAMP TYPE 6, 7 &amp; 8</b>	
ORIGINAL BY: K KEMPF	DATE: 07-30-23
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	

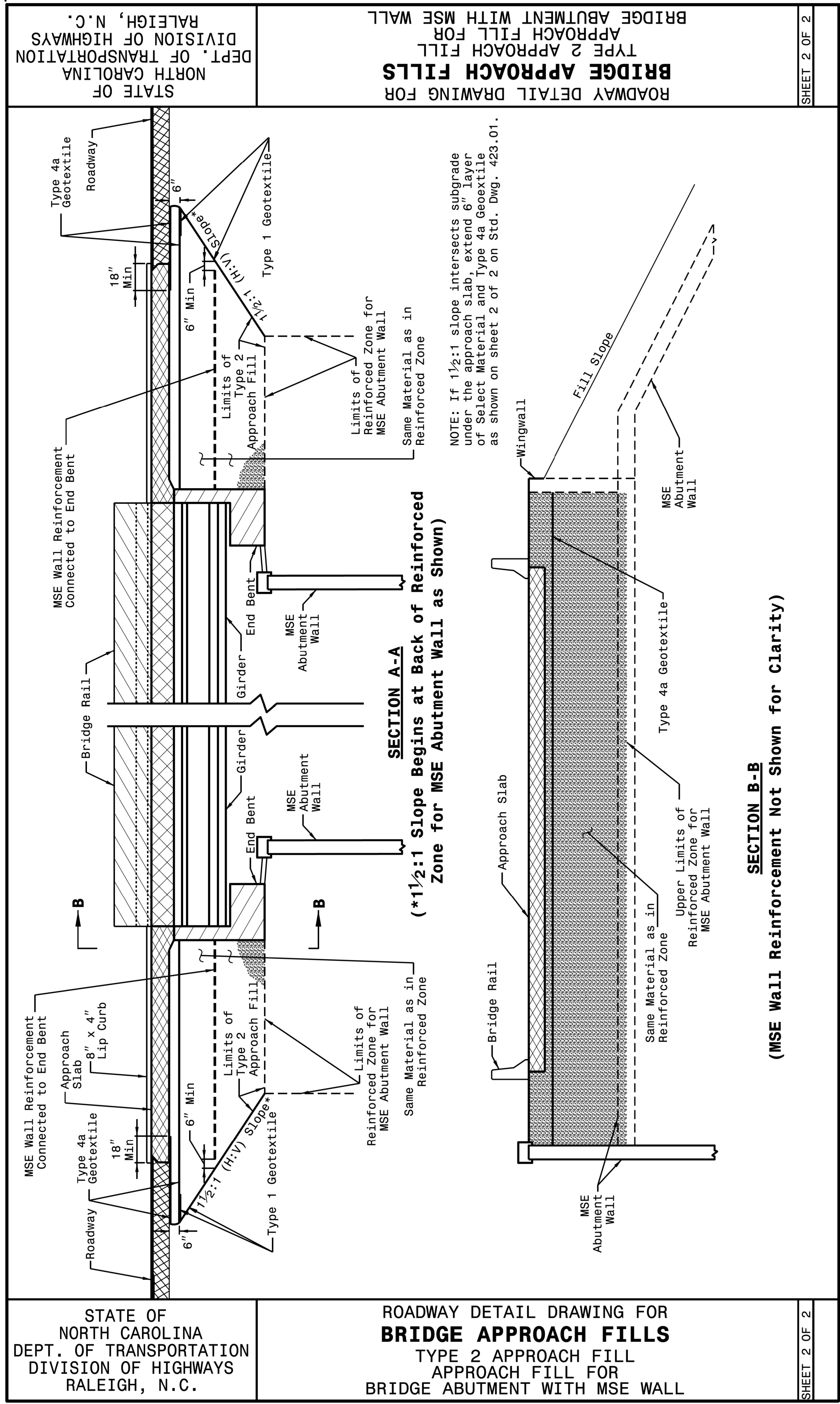
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STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR  
**BRIDGE APPROACH FILLS**  
TYPE 2 APPROACH FILL  
APPROACH FILL FOR  
BRIDGE ABUTMENT WITH MSE WALL

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR  
**BRIDGE APPROACH FILLS**  
TYPE 2 APPROACH FILL  
APPROACH FILL FOR  
BRIDGE ABUTMENT WITH MSE WALL

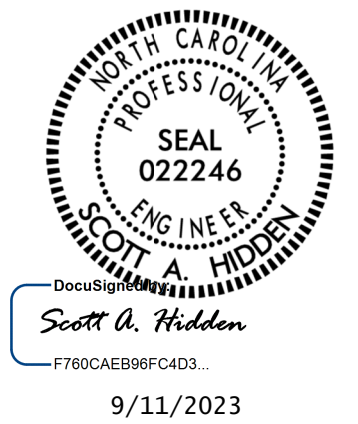
SHEET 2 OF 2

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**CONTRACT STANDARDS  
AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

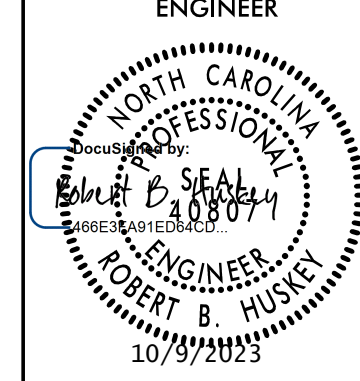
**SEE TITLE BLOCK**

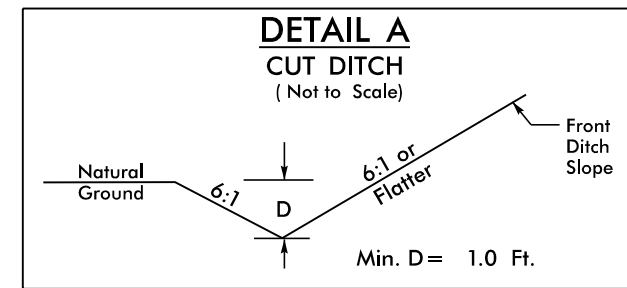
ORIGINAL BY: K KEMPF DATE: 07-30-23  
MODIFIED BY: DATE: \_\_\_\_\_  
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FILE SPEC.: \_\_\_\_\_



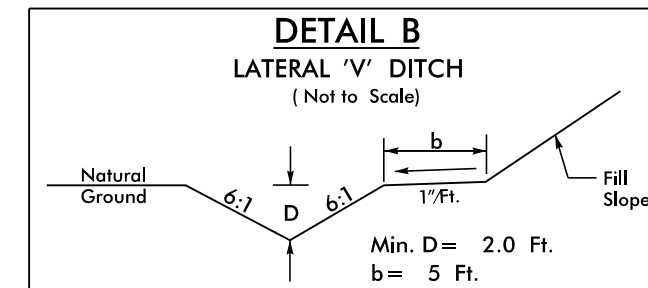
30-JUN-2023 12:28 S:\Contracts\2018 Standard Drawings\Details in Lieu of Standards\Division 4\423d03.dgn

# PLAN SHEET 5 DITCH DETAILS

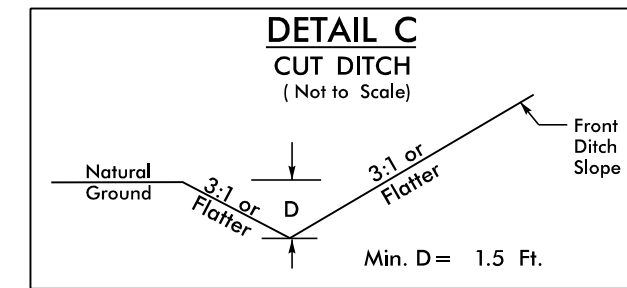
PROJECT REFERENCE NO. 1-5972	SHEET NO. 2D-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



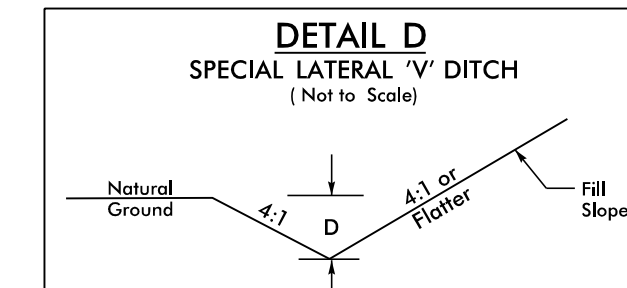
-Y1- STA. 46+00 TO STA. 53+75 LT  
-Y1- STA. 46+80 TO STA. 54+50 RT



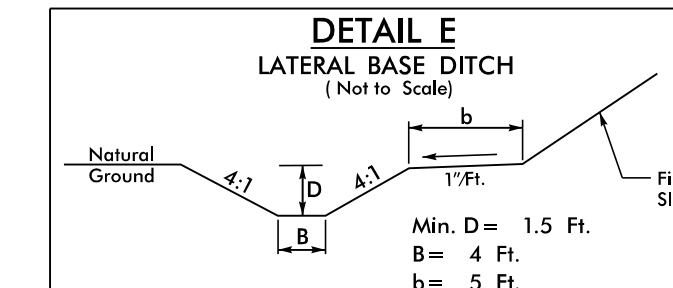
-Y1- STA. 44+50 TO STA. 46+00 LT



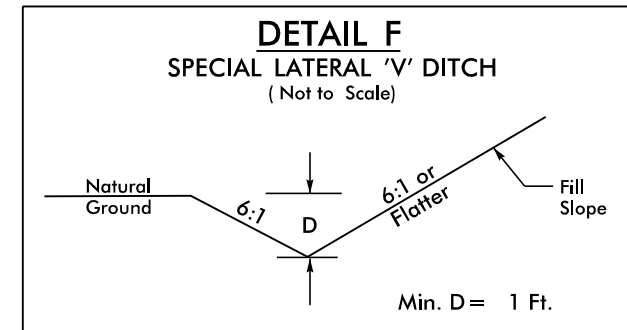
-RPD- STA. 20+50 TO STA. 29+00 LT



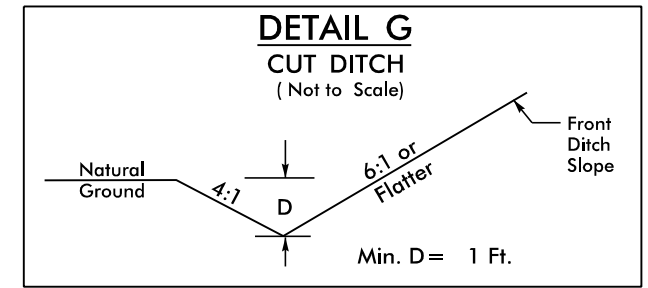
-RPC- STA. 20+00 TO STA. 24+20 LT  
-RPD- STA. 29+00 TO STA. 29+25 LT



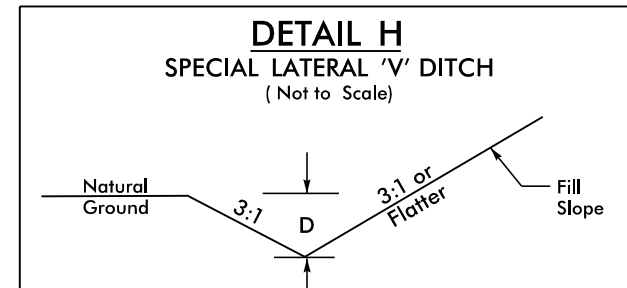
-L- STA. 61+00 TO STA. 63+32.5 LT  
-RPA- STA. 19+05.65 TO STA. 21+15 RT



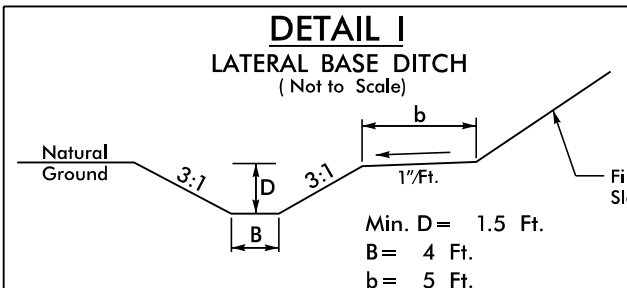
-L- STA. 46+00 TO STA. 47+00 RT  
-RPC- STA. 18+00 TO STA. 20+00 LT



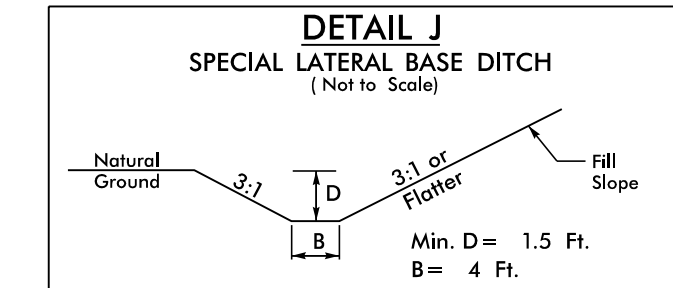
-RPB- STA. 13+90.79 TO STA. 19+00 RT  
-RPC- STA. 12+00 TO STA. 15+50 LT  
-RPD- STA. 18+50 TO STA. 20+50 LT  
-RPD- STA. 15+50 TO STA. 21+00 RT  
-Y1- STA. 45+50 TO STA. 46+65 RT



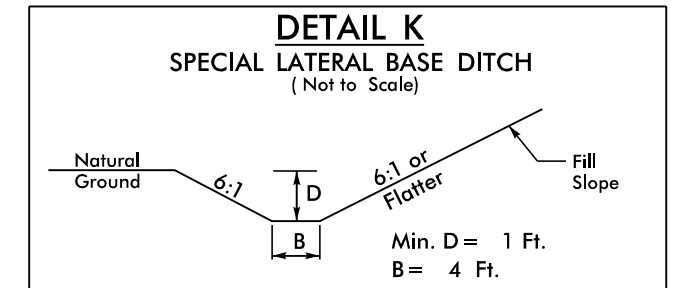
-RPD- STA. 27+50 TO STA. 29+50 RT  
-Y1- STA. 39+37.5 TO STA. 41+85 LT



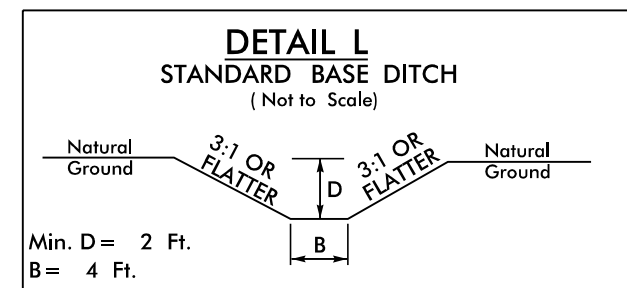
-RPC- STA. 15+50 TO STA. 18+00 LT



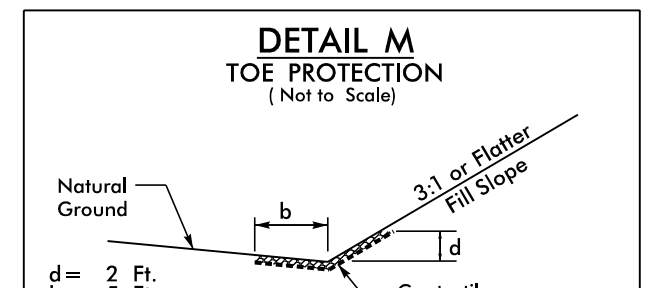
-RPD- STA. 10+00 TO STA. 13+00 RT  
-Y1- STA. 32+25 TO STA. 34+54 RT



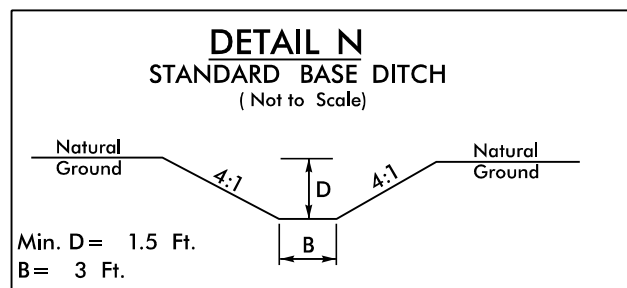
-L- STA. 50+70 TO STA. 54+00 LT



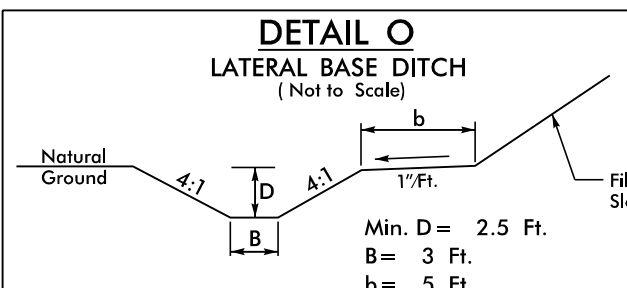
-L- STA. 54+00 RT, L=136',  
BEG. EL=145.00', END EL= 144.85', S=0.10%  
-L- STA. 61+00 RT, L=250',  
BEG. EL=142.68', END EL= 142.61', S=0.21%  
-RPC- STA. 17+10 RT, L=30',  
BEG. EL=144.00', END EL=143.90', S=0.30%



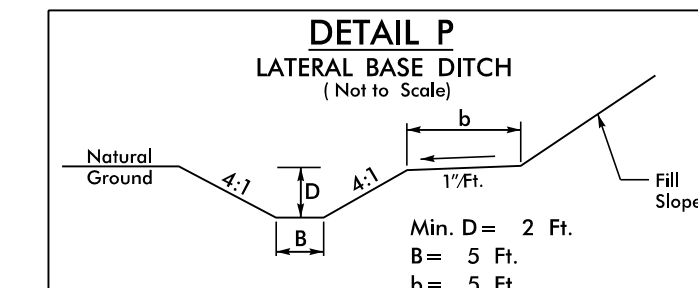
Type of Liner = Class B Rip-Rap  
-Y1- FROM STA. 44+50 TO STA. 45+00 RT



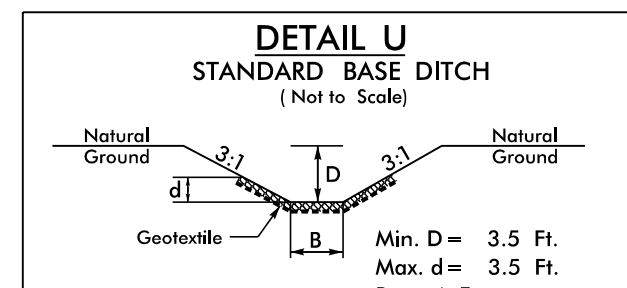
-RPA- STA. 20+75 TO STA. 21+42 LT  
BEG. EL 144.34', END EL 144.14', S=0.30%  
-Y1- STA. 30+50 TO STA. 31+57 LT  
BEG. EL 143.69', END EL 143.68', S=0.10%



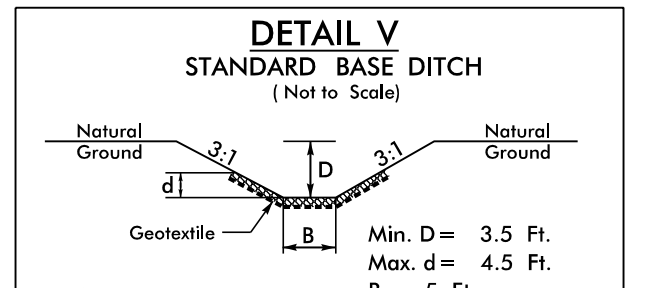
-Y1- STA. 28+50 TO STA. 30+50 LT  
-Y1- STA. 32+89 TO STA. 36+75 LT  
-L- STA. 57+87 TO STA. 61+00 LT



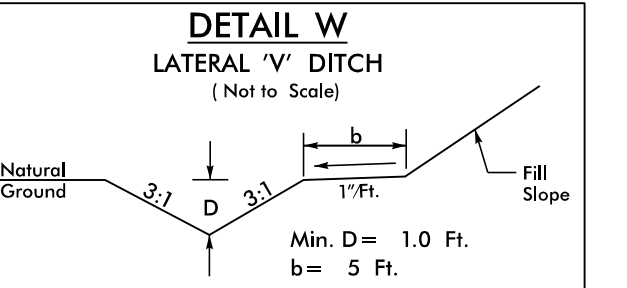
-RPD- STA. 29+25 TO STA. 29+94 LT



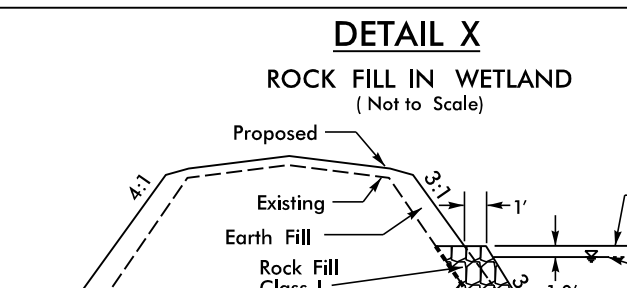
\*When B is < 6.0'  
Type of Liner = Class 1 Rip-Rap  
-RPD- STA. 15+50 RT, L=46',  
BEG. EL=143.10', END EL= 142.90', S=0.40%



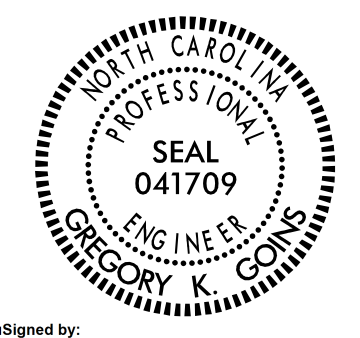
\*When B is < 6.0'  
Type of Liner = Class 1 Rip-Rap  
-RPD- STA. 29+50 RT, L=80',  
BEG. EL=141.54', END EL= 141.40', S=0.18%



-Y1- STA. 44+50 TO STA. 45+50 RT



-Y1- FROM STA. 37+40 TO STA. 41+54 RT

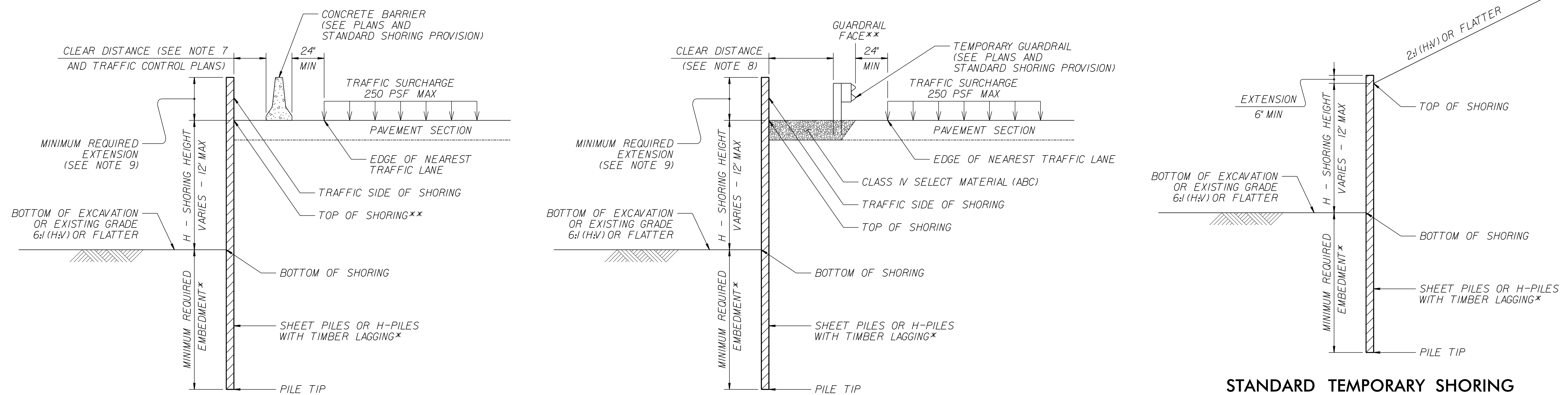
GEOTECHNICAL ENGINEER  
 ENGINEER  
  
 Documented by: *Gregory Goins* 10/12/2023  
 SIGNATURE DATE SIGNATURE DATE  
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT						SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING				SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN <sup>3</sup> /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		HP 10x42	HP 12x53
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0	
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5	
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5	
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0	
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5	
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0	
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5	
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5	
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5	
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5	
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5	
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5	
12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5		

- NOTES:**
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
  - FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
  - STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:  
 UNIT WEIGHT,  $\gamma = 120$  PCF  
 FRICTION ANGLE,  $\phi = 30$  DEGREES  
 COHESION,  $c = 0$  PSF
  - DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
  - DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
  - USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
  - AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
  - AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
  - MINIMUM REQUIRED EXTENSION IS 6' FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32' FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
  - MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
  - SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM:  
[connect.ncdot.gov/resources/Geological/Pages/Geotech\\_Forms\\_Details.aspx](http://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx)
  - CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.

**MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS**

**\*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".**




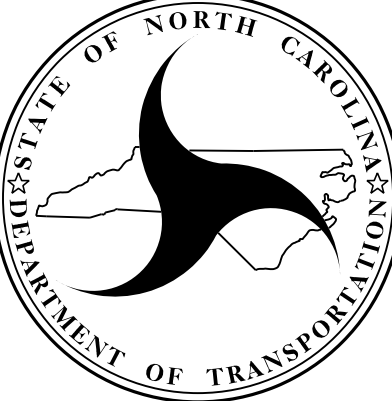
**CONCRETE BARRIER**  
**\*\*TOP OF SHORING = EDGE OF PAVEMENT**

**TEMPORARY GUARDRAIL**  
**\*\*GUARDRAIL FACE = EDGE OF PAVEMENT**

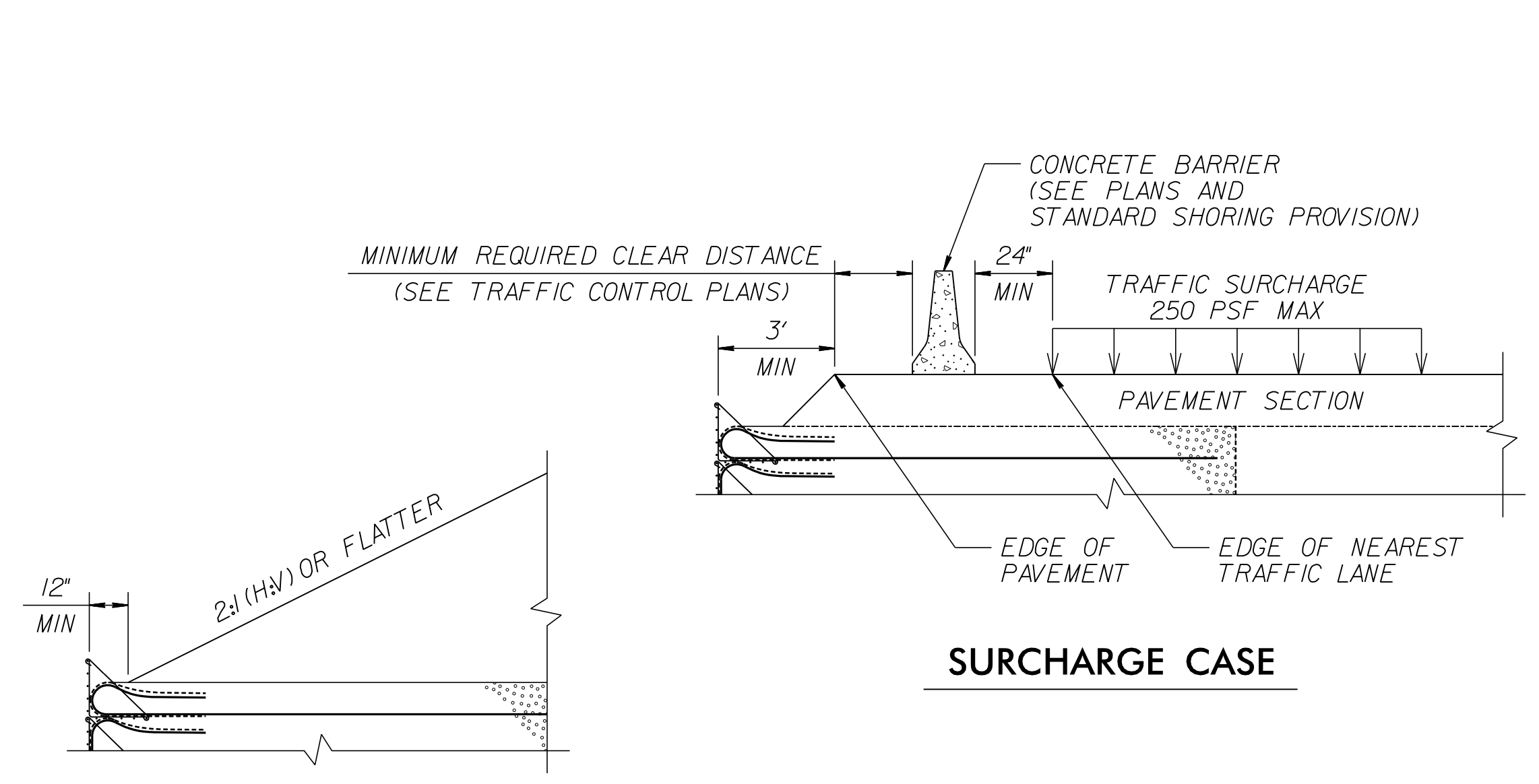
**STANDARD TEMPORARY SHORING (SLOPE CASE)**  
**\*SEE TABLE ABOVE.**

**STANDARD TEMPORARY SHORING (SURCHARGE CASE)**  
**\*SEE TABLE ABOVE.**

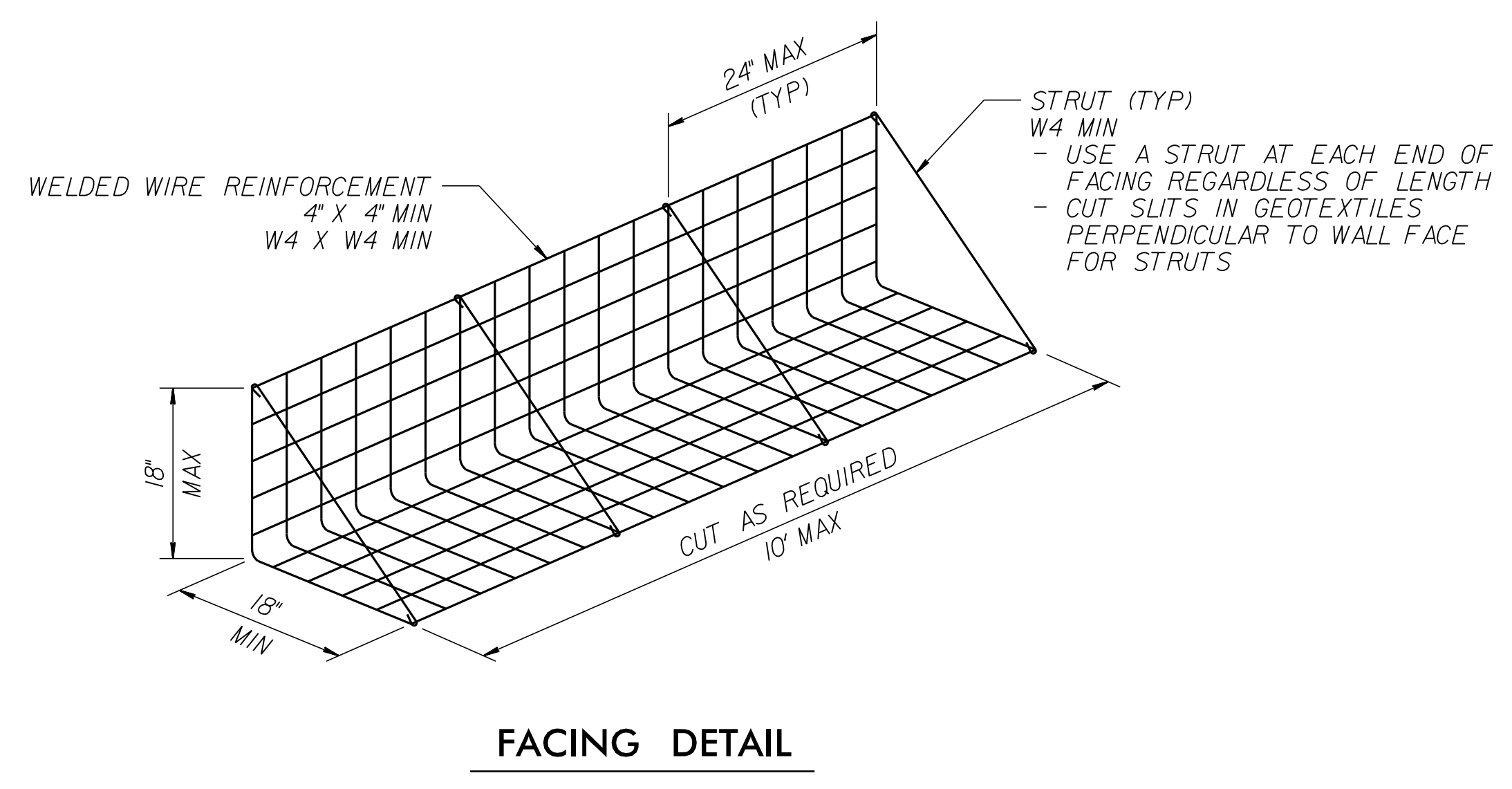
  
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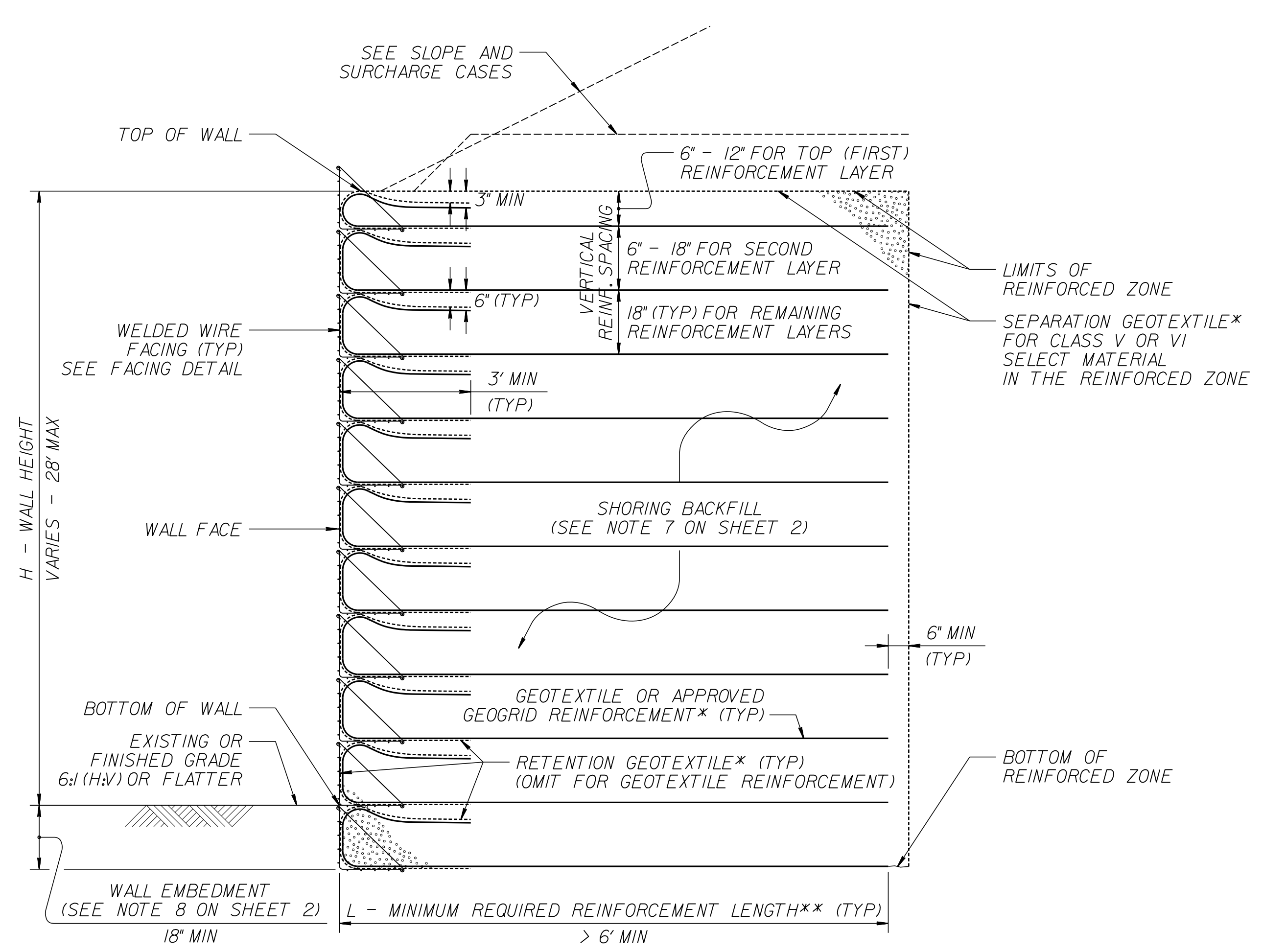
**STANDARD DETAIL NO. 1801.01**  
**STANDARD TEMPORARY SHORING**  
 DATE: 11-19-13



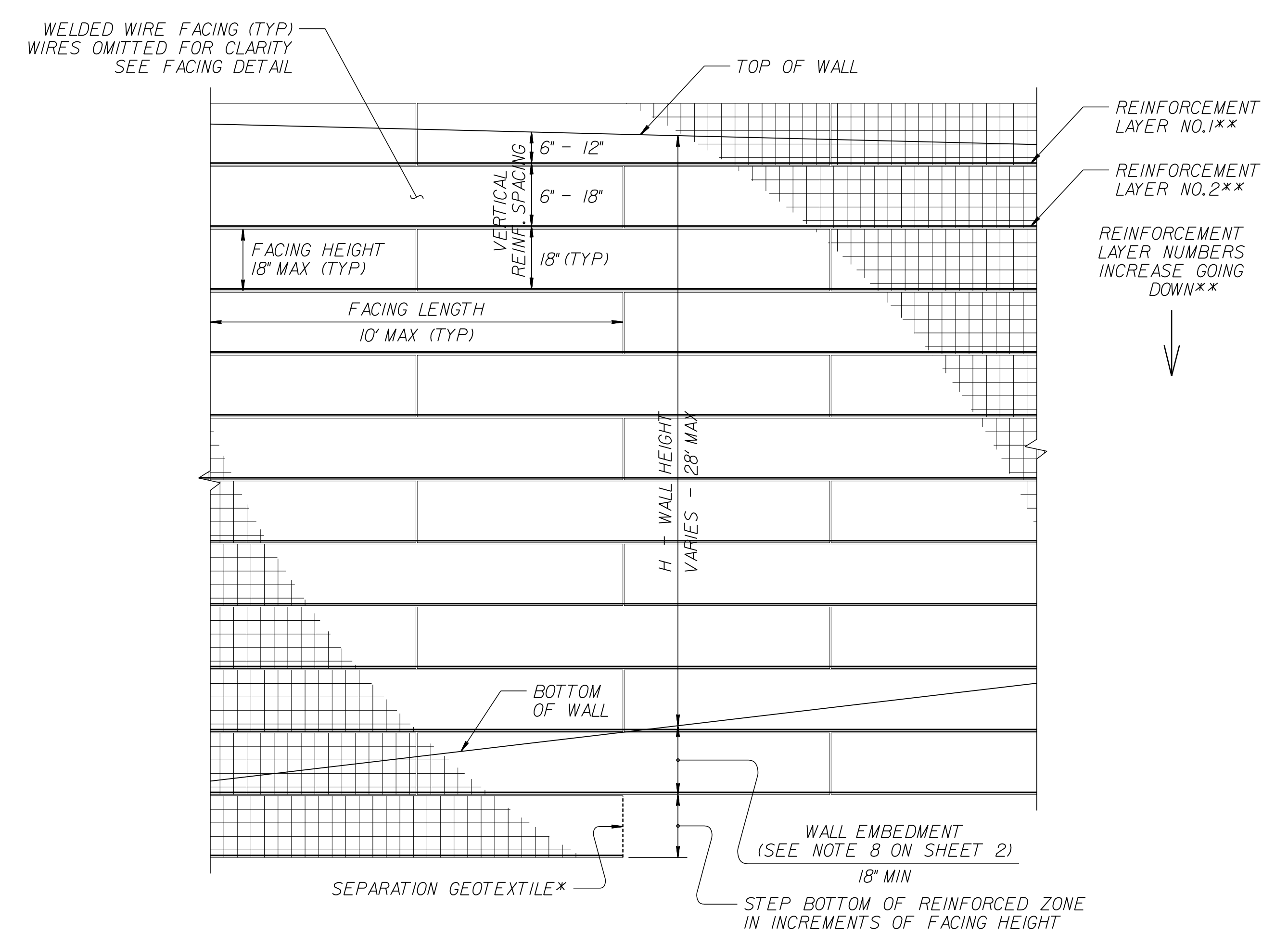
**SLOPE CASE**



**FACING DETAIL**

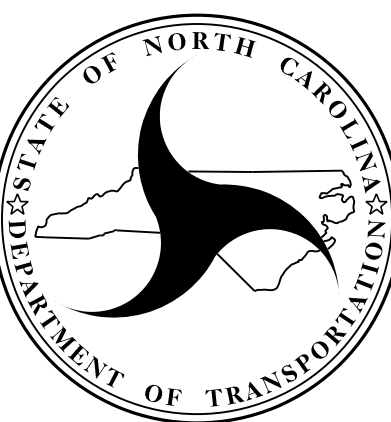


**STANDARD TEMPORARY WALL**  
(FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)  
\*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.  
\*\*SEE REINFORCEMENT TABLES ON SHEET 3.

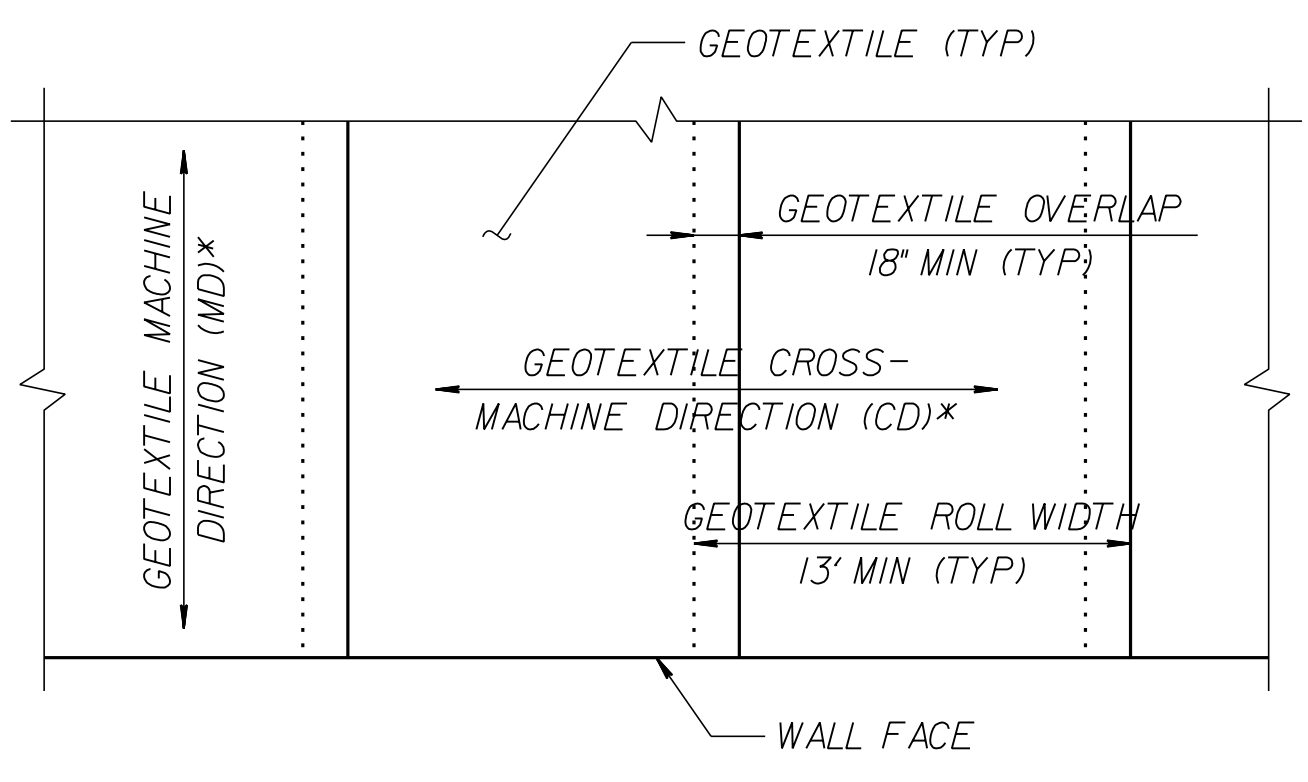


**STANDARD TEMPORARY WALL – PARTIAL ELEVATION**  
\*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.  
\*\*SEE REINFORCEMENT TABLES ON SHEET 3.

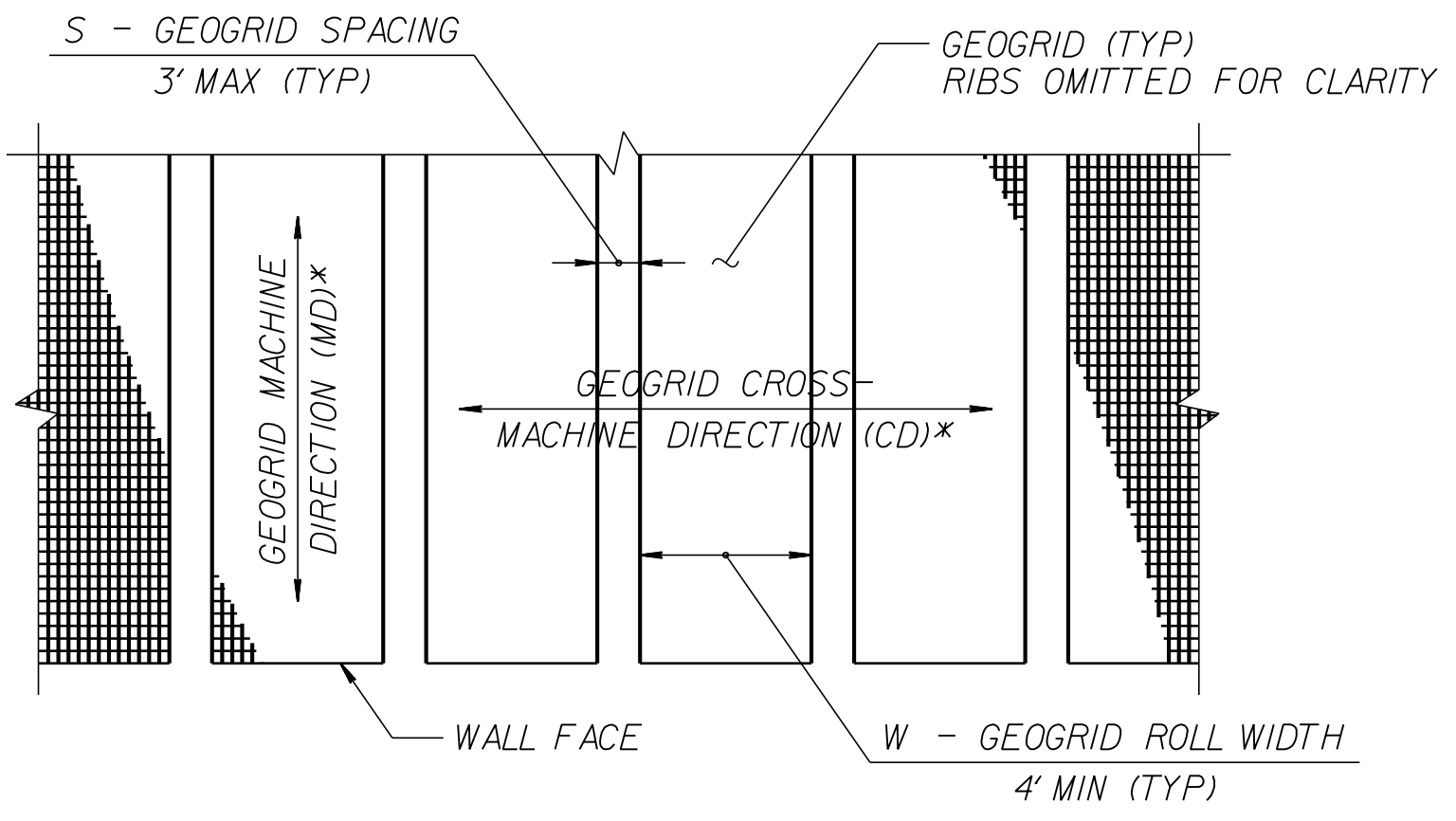
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STANDARD DETAIL NO. 1801.02  
**STANDARD TEMPORARY WALL**  
SHEET 1 OF 3  
DATE: 11-19-13

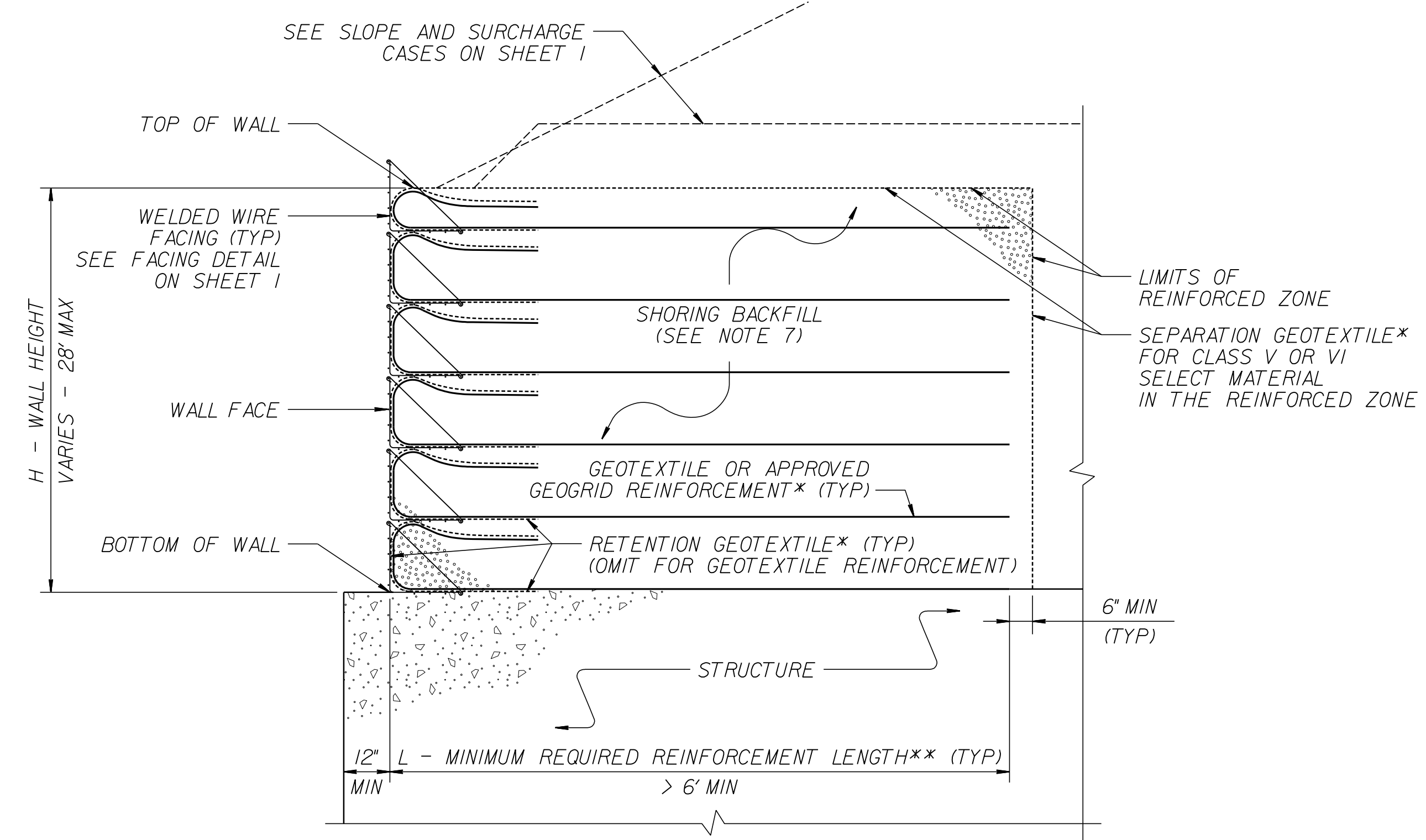


**GEOTEXTILE PLACEMENT**  
(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)



**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.

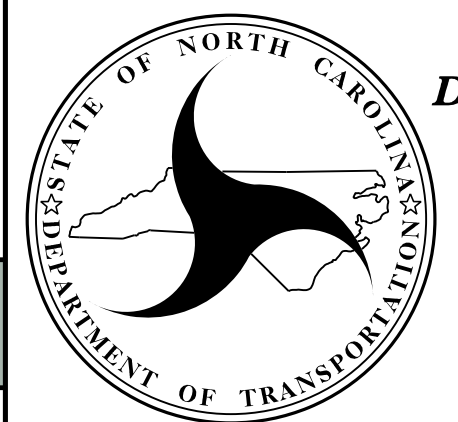
**NOTES:**

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:  
UNIT WEIGHT,  $\gamma = 120$  PCF  
FRICTION ANGLE,  $\phi = 30$  DEGREES  
COHESION,  $c = 0$  PSF
4. DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
6. 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.
7. 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.
8. WALL EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
9. DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
10. 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](http://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

11. FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
12. 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) + 4.5'
  - REINFORCEMENT STRENGTH IN CD  $\geq$  MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
13. 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](http://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx)
14. DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
15. FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
16. DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
17. CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
18. FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
19. 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.

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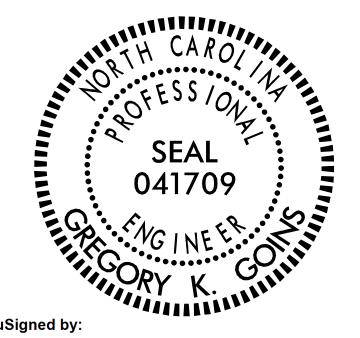
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STANDARD DETAIL NO. 1801.02

STANDARD  
 TEMPORARY WALL  
 SHEET 2 OF 3



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
		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
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	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

<b>PROJECT REFERENCE NO.</b> I-5972	<b>SHEET NO.</b> 2G-4
GEOTECHNICAL ENGINEER  SEAL 041709 GREGORY K. GOINS	ENGINEER
DocuSigned by: Gregory Goins A408118A1E2843C	10/12/2023 DATE
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**L - MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)**  
(FOR ALL REINFORCEMENT TYPES)

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.

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

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

**GEOTEXTILE REINFORCEMENT  
ULTIMATE TENSILE STRENGTH (LB/FT)**

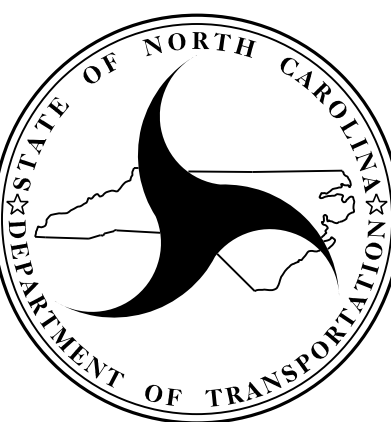
**GEOGRID REINFORCEMENT  
SHORT-TERM DESIGN STRENGTH (LB/FT)**

**MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD (SEE NOTE 10 ON SHEET 2.)**

(SEE NOTE 9 ON SHEET 2.)  
\*SEE PARTIAL ELEVATION ON SHEET 1 FOR REINFORCEMENT LAYER NUMBERING.



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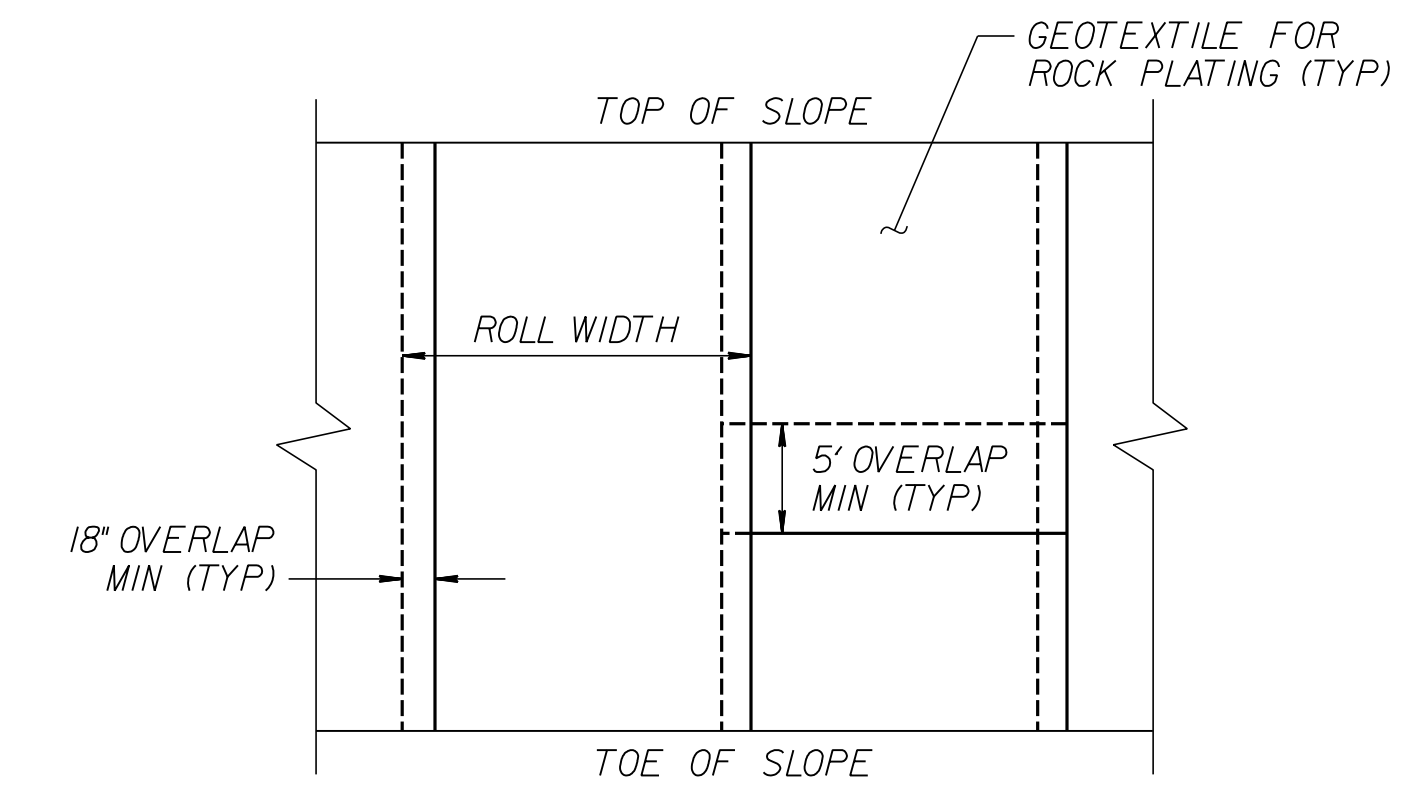
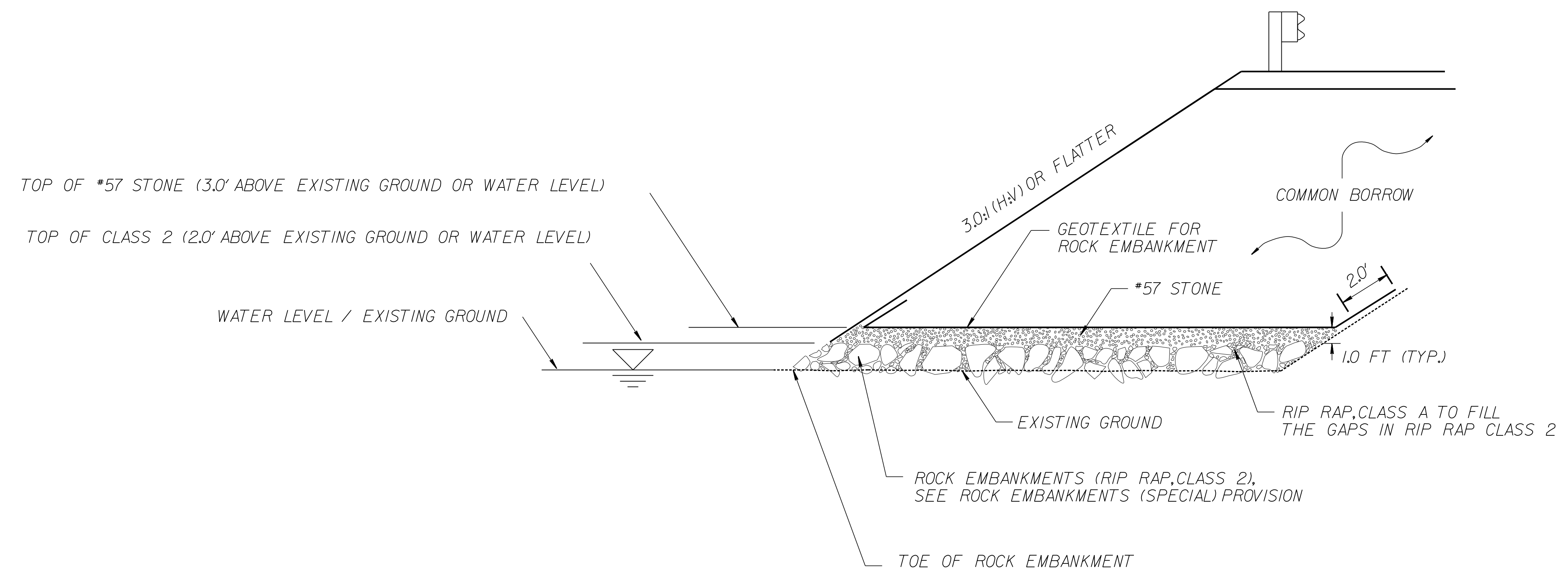
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STANDARD DETAIL NO. 1801.02

STANDARD  
TEMPORARY WALL  
SHEET 3 OF 3

DATE: 11-19-13

<b>PROJECT REFERENCE NO.</b>	<b>SHEET NO.</b>
I-5972	2G-5
GEOTECHNICAL ENGINEER  Documented by Margaret M. Sweitzer 10/11/2023 SIGNATURE DATE	ENGINEER SIGNATURE DATE
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**ROCK EMBANKMENT TYPICAL SECTION**  
(NOT TO SCALE)

ROCK EMBANKMENT			
LINE	BEGIN	END	LOCATION
-Y1-	37+75 +/-	41+55 +/-	Right

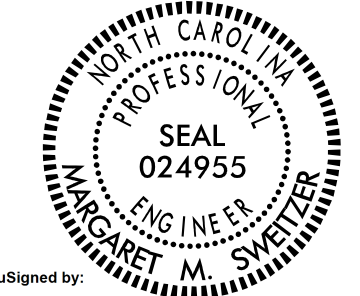
ESTIMATED QUANTITIES	
RIP RAP, CLASS 2	2,400 TONS
RIP RAP CLASS A	700 TONS
*57 STONE (SELECT MATERIAL, CLASS VI)	1,300 TONS
GEOTEXTILE FOR ROCK EMBANKMENT	2,500 SY

**NOTES**

1. FOR ROCK EMBANKMENTS, SEE ROCK EMBANKMENTS (SPECIAL) PROVISION.
2. USE CLASS 2 RIP RAP FOR ROCK EMBANKMENTS.
3. INSTALL ROCK EMBANKMENTS USING CLASS 2 RIP RAP AS SHOWN IN THE PLAN
4. FILL VOIDS IN THE TOP OF ROCK EMBANKMENTS WITH RIP RAP, CLASS A.
5. PLACE \*57 STONE (SELECT MATERIAL, CLASS VI) 1 FT. (TYP.) ABOVE RIP RAP, CLASS 2, AS SHOWN IN THE PLAN.
6. INSTALL GEOTEXTILE FOR ROCK EMBANKMENT ON TOP OF \* 57 STONE.

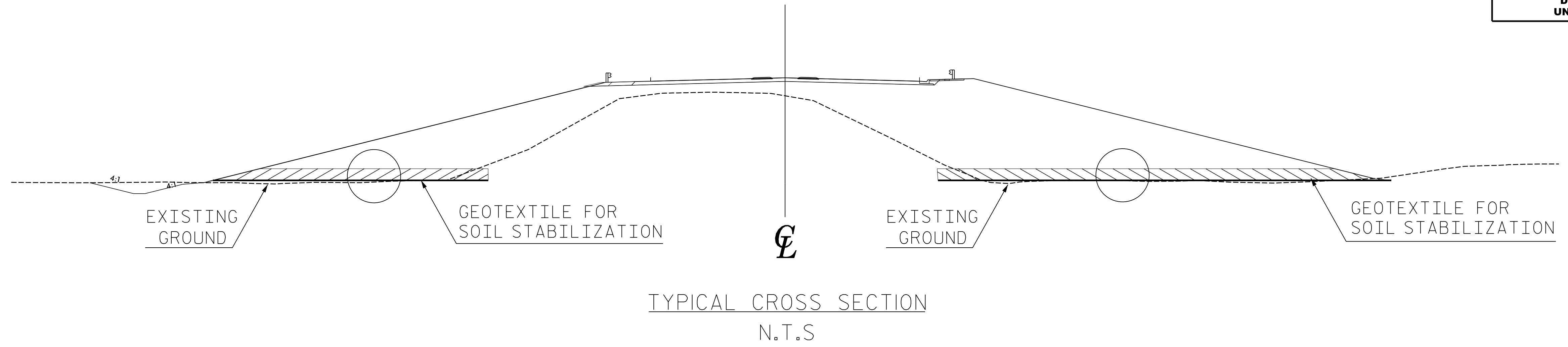
ROCK EMBANKMENT DETAIL & NOTES					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE

5/14/99

<b>PROJECT REFERENCE NO.</b> 1-5972	<b>SHEET NO.</b> 2G-6
GEOTECHNICAL ENGINEER  Margaret M. Sweitzer 11/14/2023	ENGINEER
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<u>QUANTITIES</u>	
GEOTEXTILE FOR SOIL STABILIZATION	13,300 SY*
SELECT GRANULAR MATERIAL	13,300 CY*

\* GEOTEXTILE FOR SOIL STABILIZATION ESTIMATED QUANTITY DOES NOT INCLUDE OVERLAPS OR WASTE

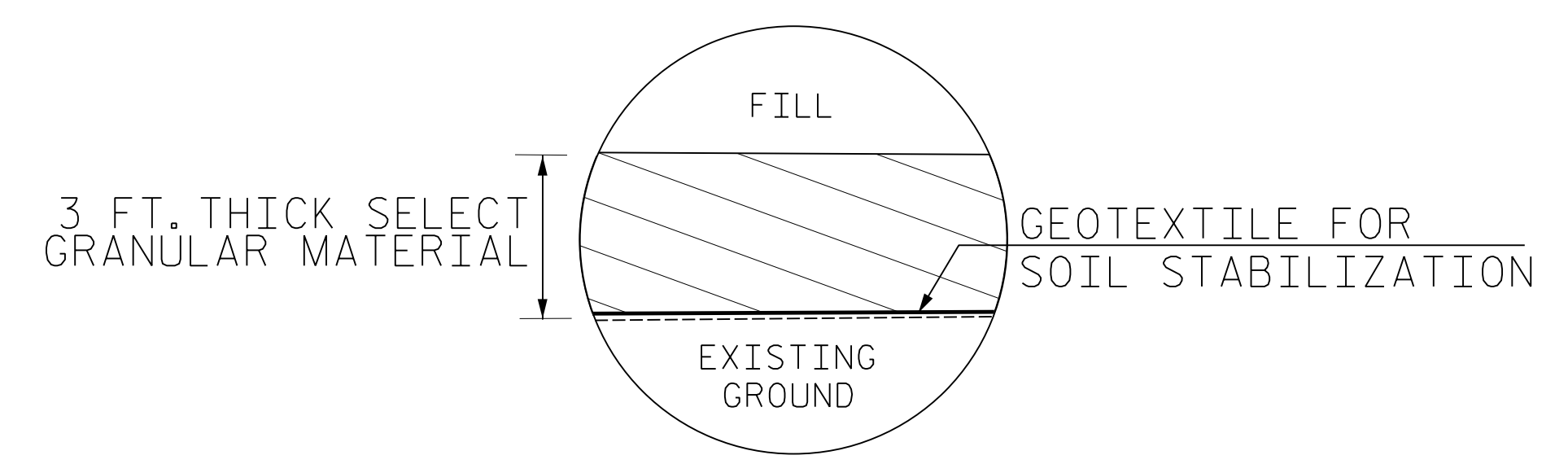
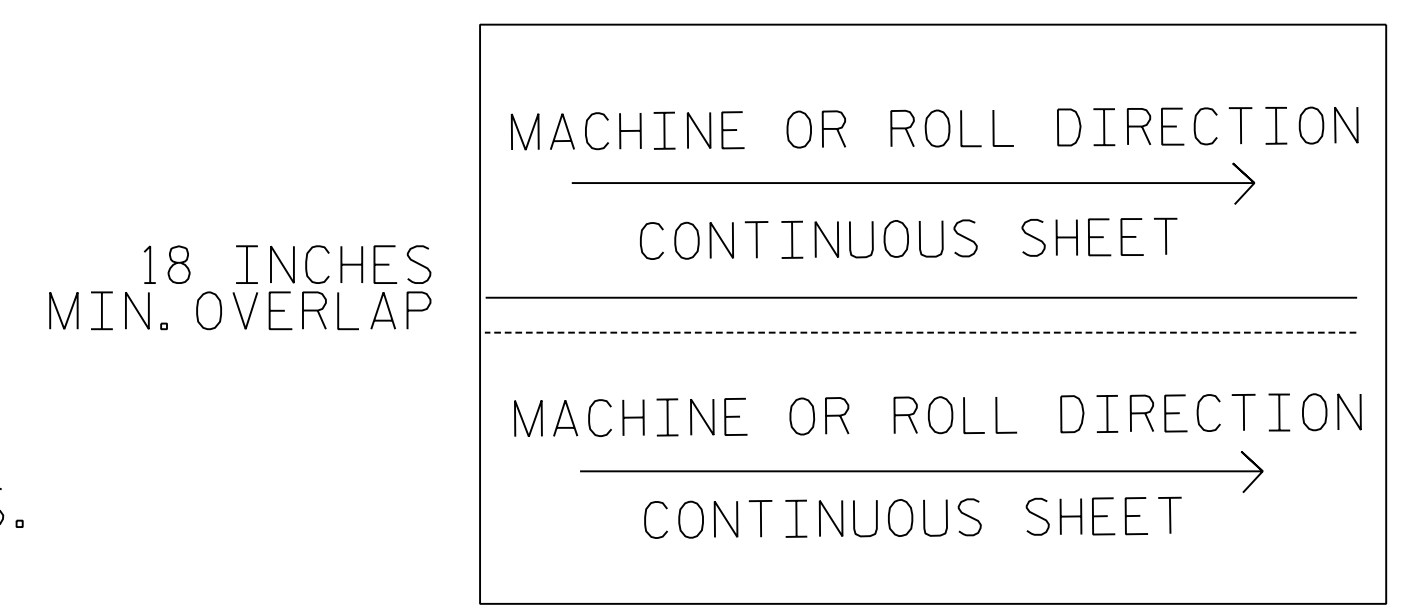


NOTES

1. AFTER CLEARING, PLACE GEOTEXTILE FOR SOIL STABILIZATION ON THE EXISTING GROUND IN ACCORDANCE WITH SECTION 270 OF THE STANDARD SPECIFICATIONS WITH THE EXCEPTION OF INSTALLING GEOTEXTILES WITH THE ROLL DIRECTION PERPENDICULAR TO THE CENTERLINE OF THE ROADWAY.
2. PLACE 3 FEET OF SELECT GRANULAR MATERIAL ON THE GEOTEXTILE PER SECTION 265 OF THE STANDARD SPECIFICATIONS.
3. GEOTEXTILE FOR SOIL STABILIZATION SHOULD BE USED IN THE FOLLOWING LOCATIONS AND AT OTHER LOCATIONS AT THE DISCRETION OF THE ENGINEER.

LINE	STATIONS	OFFSET
-L-	33+40 TO 45+00	RT
-Y1-	34+30 TO 35+30	RT
-Y2-	16+25 TO 18+75	LT & RT
-RPA-	19+50 TO 22+00	LT & RT

4. ENGINEER MAY DETERMINE IF CONDITIONS WARRANT INSTALLATION OF THE WORKING PLATFORM.

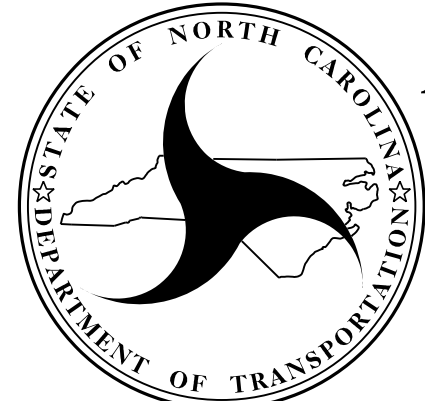


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PREPARED BY : M. SWEITZER	DATE : 11/2023
REVIEWED BY : J. BATTS	DATE : 11/2023



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<b>GEOTEXTILE FOR SOIL STABILIZATION DETAIL</b>					
<b>REVISIONS</b>					
NO.	BY	DATE	NO.	BY	DATE

DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA

**SUMMARY OF EARTHWORK**  
 IN CUBIC YARDS

CHAIN	BEGINNING STATION	ENDING STATION	UNCL. EXCA. C.Y.	UNDERCUT C.Y.	EMBANK. +% C.Y.	BORROW C.Y.	WASTE C.Y.
<b>SUMMARY 1</b>							
-L- LT	28+00.00	58+00.00	2,289		3,096	847	40
-L- LT	58+00.00	77+11.40	2,709		1,314		1,395
-Y1-	21+70.00	36+75.00	828		43,525	43,377	680
-RPB-	12+00.00	26+50.00	2,483		18,764	17,281	1,000
-RPC-	10+00.00	24+50.00	915		19,829	19,564	650
<b>SUBTOTAL</b>			<b>9,224</b>		<b>86,528</b>	<b>81,069</b>	<b>3,765</b>
<b>SUMMARY 2</b>							
-L- RT	33+50.00	63+50.00	3,473		2,580		893
-L- RT	63+50.00	82+00.00	2,598		1,590		1,008
-Y1-	38+04.00	56+50.00	2,391		40,956	38,565	
-RPA-	14+00.00	21+50.00	837		5,543	4,786	80
-RPD-	10+00.00	30+50.00	5,784		4,404		1,380
<b>SUBTOTAL</b>			<b>15,083</b>		<b>55,072</b>	<b>43,351</b>	<b>3,361</b>
<b>SUMMARY 3</b>							
-Y2-	10+50.00	33+50.00	7,683	2,169	16,325	10,802	4,329
<b>SUBTOTAL</b>			<b>7,683</b>	<b>2,169</b>	<b>16,325</b>	<b>10,802</b>	<b>4,329</b>
<b>SUMMARY 4</b>							
-TEMPRPB-	11+00.00	17+50.00	138		13,231	13,093	
-TEMPRPC-	11+50.00	22+00.00	128		19,118	18,990	
-TEMPRPC-REMOVE	12+00.00	16+00.00	90				
<b>SUBTOTAL</b>			<b>356</b>		<b>32,349</b>	<b>32,083</b>	
<b>SHEET TOTALS</b>			<b>32,346</b>	<b>2,169</b>	<b>190,274</b>	<b>167,305</b>	<b>11,456</b>
<b>MATERIAL FOR SHOULDER CONSTRUCTION</b>					<b>10,671</b>		
<b>GRADE POINT UNDERCUT CONTINGENCY</b>				<b>150</b>	<b>188</b>	<b>188</b>	<b>150</b>
<b>CONTINGENCY UNDERCUT FOR SUBGRADE</b>				<b>500</b>			
<b>ADDITIONAL UNDERCUT CONTINGENCY</b>				<b>500</b>			
<b>EARTH WASTE IN LIEU OF BORROW</b>						<b>-1,777</b>	<b>-1,777</b>
<b>PROJECT TOTAL</b>			<b>32,346</b>	<b>3,319</b>	<b>201,133</b>	<b>165,716</b>	<b>9,829</b>
<b>EST. 5% TO REPLACE TOP SOIL ON BORROW PIT</b>						<b>8,286</b>	
<b>GRAND TOTAL</b>			<b>32,346</b>			<b>174,001</b>	
<b>SAY</b>			<b>32,350</b>			<b>174,010</b>	

\*UNCLASSIFIED EXCAVATION - ACCEPTABLE BUT NOT TO BE USED IN THE TOP 3' OF EMBANKMENT OR BACKFILL (5,100 CY) SEE LOCATIONS BELOW

-L- 43+75 - 45+75 (150 CY)	-RPB- 15+25 - 18+75 (630 CY)	-RPD- 13+00 - 18+50 (930 CY)
-Y1- 47+25 - 54+00 (1950 CY)	-RPC- 16+75 - 20+75 (420 CY)	-RPD- 24+75 - 29+60 (960 CY)

Note: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

5/9/2016  
 1/18/2023  
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 sheet

DIVISION OF HIGHWAYS  
 STATE OF NORTH CAROLINA

GUARDRAIL SUMMARY

COMPUTED BY: EBS		DATE: 1/22/19		DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA <h2 style="text-align: center;">GUARDRAIL SUMMARY</h2>																			
CHECKED BY: MJA		DATE: 2/12/19																					
"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT. FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL W = TOTAL WIDTH OF FLARE FROM BEGIN				G = GATING IMPACT ATTENUATOR TYPE 350 NG = NON-GATING IMPACT ATTENUATOR TYPE 350																			
ALN.	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS					REMOVE EXISTING GR	REMARKS		
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPRO ACH END	TRAILI NG END	APPR. END	TRAIL. END	B-77	TYPE-III	CAT-1	GREU TL-3	AT-1				
-Y1-	30+48.01	35+80.87	RT																		532.86		
-Y1-	30+92.93	36+01.44	LT																		508.51		
-Y1-	33+41.43	35+51.70	RT	210.27				33+41.34	11.5		50		1				1			1			
-Y1-	37+72.72	42+01.46	RT	428.74				37+71.49	11.5			50		1			1			1			
-Y1-	35+20.83	36+16.48	LT	95.65				36+13.51	10	13		50		1			1			1			
-Y1-	38+07.00	42+04.72	RT																		397.7		
-Y1-	38+36.27	40+43.33	LT	207.06				38+36.27	10	13	50		1				1			1			
-Y1-	38+28.65	43+35.59	LT																		506.9		
-L-	54+91.63	56+00.00	CL	108.37				54+91.63	12	15						1							
-L-	54+91.63	56+00.00	CL	108.37				56+00.00	12	15						1							
-L-	54+50.94	57+02.56	RT																		251.6		
-L-	54+91.63	58+43.37	CL																		703.5		
-L-	56+74.82	57+93.58	LT																		118.8		
-L-	57+35.00	58+43.37	CL	108.37				57+35.00	12	15						1							
-L-	57+35.00	58+43.37	CL	108.37				58+43.37	12	15						1							
-RPB-	23+51.17	24+54.97	RT																		103.8		
-RPB-	23+88.51	24+36.36	RT																		47.8		
-RPD-	26+97.16	29+69.63	RT	274.25				28+00.00	13	16	50		1				1			1			
-Y3-	23+91.75	23+91.75	CL	50.00				23+91.75													2		
<b>SUBTOTAL:</b>				1,699.45	0.00											4	4	1	5	2	3171.54		
<b>ANCHOR UNIT DEDUCTIONS:</b>																							
B-77 4 @ 22.875' Each																							
TYPE-III 4 @ 18.75' Each																							
GREU TL-3 5 @ 50' Each																							
CAT-1 1 @ 6.25' Each																							
AT-1 2 @ 6.25' Each																							
<b>LESS GUARDRAIL DEDUCTIONS:</b>				1,264.20	0.00																		
<b>PROJECT TOTAL:</b>				1,264.20	0.00																	3171.5	
<b>SAY:</b>				<b>1,300.0</b>	<b>0.0</b>											<b>4</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>2</b>	<b>3180.0</b>		
<b>(10 ADDITIONAL GUARDRAIL POSTS)</b>																							

5/9/06  
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# ASPHALT PAVEMENT REMOVAL SUMMARY

PROJECT REFERENCE NO.	SHEET NO.
1-5972	3B-3
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
L LT	27+95	38+75	LT	6990.94		776.77
L LT	41+97	66+56	LT	25185.32		2798.37
L LT	69+79	77+11	LT	4137.38		459.71
L LT	54+37	58+96	RT	3879.15		431.02
L RT	33+39	40+79	RT	4909.14		545.46
L RT	44+20	68+83	RT	25017.00		2779.67
L RT	68+85	82+41	RT	7570.93		841.21
L RT	54+37	58+96	LT	4352.31		483.59
Y1	31+63	35+81	CL	12139.28		1348.81
Y1	38+07	40+00	CL	5479.19		608.80
RPA	10+00	19+56	CL	20844.13		2316.01
RPB	10+00	23+35	CL	35358.39		3928.71
RPC	10+00	18+65	CL	22001.10		2444.57
RPD	10+00	30+07	CL	40956.27		4550.70
RPD	27+88	30+95	CL	6276.64		697.40
RPD	30+66	31+09	CL	655.93		72.88
L TEMP	24+05	50+00	MED LT	10380.48		1153.39
L TEMP	24+41	50+00	MED RT	10236.11		1137.35
L TEMP	60+63	85+86	MED LT	10087.93		1120.88
L TEMP	62+00	86+31	MED RT	9725.11		1080.57
Y1	30+75	35+82	RT	2059.44		228.83
Y1	38+04	41+82	RT	1508.75		167.64
TEMP RPB	10+00	16+01	CL	24259.41		2695.49
TEMP RPC	11+96	20+44	CL	15357.73		1706.41
TEMP RPD	13+15	19+52	CL	9339.77		1037.75
					TOTAL	35,411.98
					SAY	35,420

# WOVEN WIRE FENCE, 48" FABRIC SUMMARY

STATION TO STATION	LT.	A	B	C	D	E	F
	OR RT.	FABRIC L.F.	END BRACE	CORNER BRACE	LINE BRACE	4" POSTS	5" POSTS
-RPB- 17+87 TO 23+51	RT.	606	2		1	40	7
-RPC- 14+60 TO 16+20	LT	156	2			9	4
-RPD- 13+35 TO 16+30	RT.	338.00	1	5		15	17
-RPD- 16+30 TO 21+42	RT.	564.00		1	1	37	6
-RPD- 21+75 TO 30+42	RT.	1,010.00		6	1	61	21
-Y1- 44+40 TO 46+50	RT.	209.00	1	1		12	5
TOTAL		2,883.00				173	60
SAY		2,890				174	60

# RIP RAP AND GEOTEXTILE FOR WETLAND AREA

DETAIL	RANGE	TOT L (FT)	GEO FAB (SY)	CL I (TON)
X	-Y1- 37+40 TO 41+54 RT (UNDER FILL PORTION)	414	188	133
X	-Y1- 38+24 TO 40+30 RT (TOE PROTECTION PORTION)	206	145	68
	<b>SUM:</b>		<b>333</b>	<b>201</b>



8/17/19

COMPUTED BY: MJB DATE: 7/26/2023
CHECKED BY: RBH DATE: 7/26/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. 1-5972 SHEET NO. 3D-2

Note: Invert Elevations Indicated are for Information Purposes only and should be verified by the contractor for project construction stakeout. See "Standard Specifications for Roads and Structures, Section 300-5."

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

Table with columns for LINE & STATION, SIZE, THICKNESS OR GAUGE, OFFSET, STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, SIDE DRAIN PIPE, C.S. PIPE, R.C. PIPE CLASS III, R.C. PIPE CLASS IV, PIPE AS NOTED, ENDWALLS, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME GRATES AND HOOD STANDARD, CONCRETE TRANSITIONAL SECTION, PIPE REMOVAL LIN. FT., and REMARKS. Includes a summary row for SHEET TOTALS.

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STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

**SUMMARY OF SUBSURFACE DRAINAGE**

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
-L-	27+95	33+40	LT	SD	600
-L-	34+50	77+12	LT& RT	SD	8,650
-L-	77+12	82+41	RT	SD	550
-Y1-	21+70	30+25	RT	SD	900
-Y1-	45+25	56+50	RT	SD	1,150
-Y2-	10+10	17+00	LT	SD	750
-Y2-	22+00	33+60	LT	SD	1,200
CONTINGENCY					1,000
<b>TOTAL LF:</b>					<b>14,800</b>

\*UD = Underdrain  
 \*BD = Blind Drain  
 \*SD = Subsurface Drain

**SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION**

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 Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
-L-	38+75	40+75	ASU1	12	150	290	450		
-L-	43+25	43+75	ASU1	12	40	80	120		
-L-	49+75	67+75	ASU1	12	2,620	5,920	9,330		
-L-	69+75	82+40	ASU1	12	1,140	2,560	4,020		
-Y1-	21+70	30+25	ASU1	12	620	1,320	2,070		
-Y1-	45+25	54+25	ASU1	12	760	2,270	3,480		
-RPA-	10+00	17+25	ASU1	12	1,160	2,370	3,740		
-RPB-	10+00	21+75	ASU1	12	1,600	3,390	5,340		
-RPC-	10+00	15+25	ASU1	12	700	1,390	2,190		
-RPD-	10+00	13+00	ASU1	12	320	630	990		
-RPD-	15+75	20+75	ASU1	12	690	1,380	2,170		
CONTINGENCY			ASU1	12	500	1,000	2,000		
<b>TOTAL CY/TONS/SY:</b>					<b>10,300</b>	<b>22,600**</b>	<b>35,900**</b>	<b>0</b>	<b>0</b>

\*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 Soil 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.

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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**PARCEL INDEX SHEET**

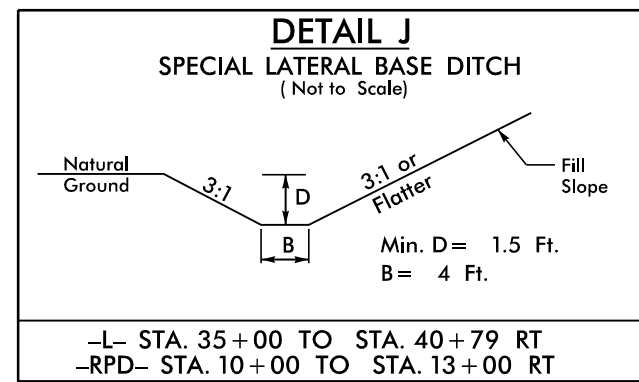
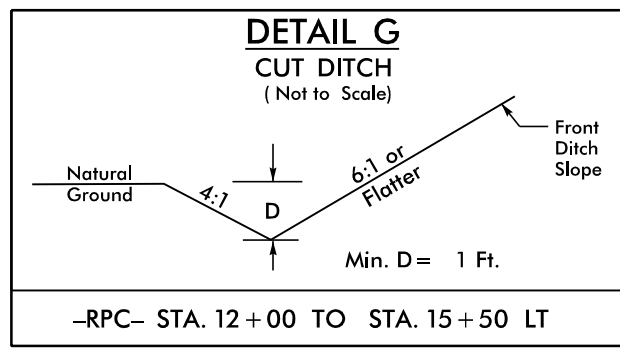
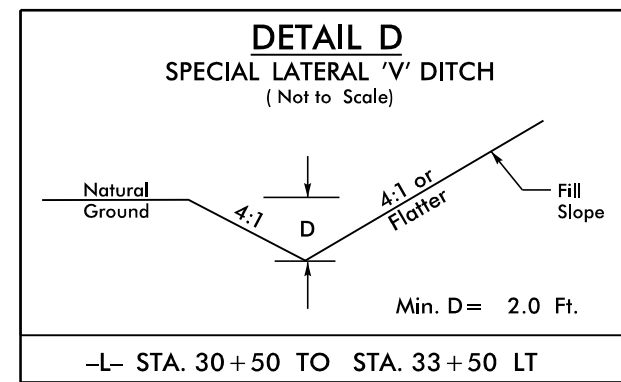
PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	5	I98 Mallard INC.
2	5	Shri Saibaba, LLC
3	5 & 8	Old Brogden Farms, LLC
4	7	Duffy Development Co.
5	7	Tat Smith, LLC
6	7	Grand IX Ventures, LLC
7	8	Johnston County Board of Education
8	8 & 9	Old Brogden Farms, LLC
9	9	Old Brogden Farms, LLC
10	4 & 5	Motaparthi Properties, LLC
11	5	Smithfield Hotel Investors, LLC
12	5	Motaparthi Properties, LLC
13	5 & 7	Smith NC Pooh, LLC
14	5 & 7	Roselle Building Co., INC
15	5 & 8	Rebecca L. Guin

8/17/199

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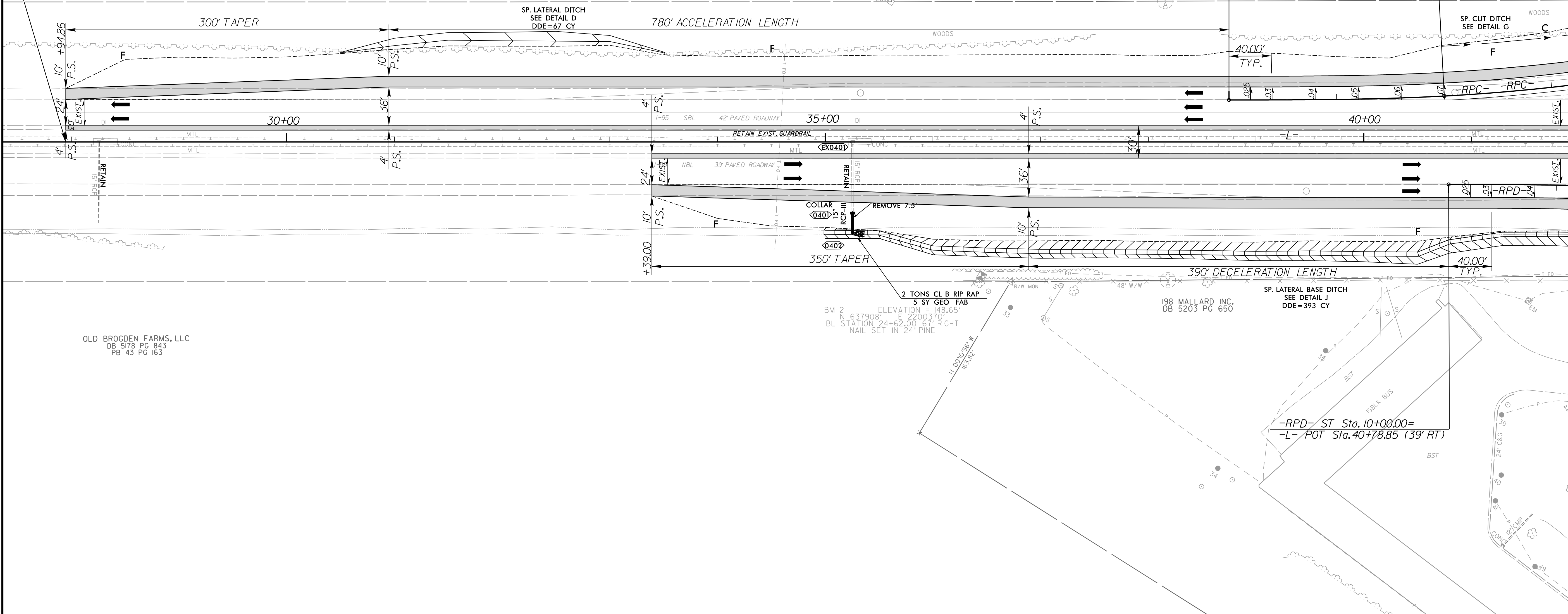
8/17/99

-RPC-		-RPD-	
Pls Sta 11+33.35	PI Sta 13+58.05	Pls Sta 11+33.38	
$\theta_s = 3'05'49.4"$	$\Delta = 10'00'40.9" (LT)$	$\theta_s = 4'46'28.7"$	
$L_s = 200.00'$	$D = 3'05'49.4"$	$L_s = 200.00'$	
$LT = 133.35'$	$L = 323.25'$	$LT = 133.38'$	
$ST = 66.69'$	$T = 162.04'$	$ST = 66.71'$	
	$R = 1,850.00'$		
	$Se = 0.07$		



PROJECT REFERENCE NO. 1-5972	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

**BEGIN CONSTRUCTION**  
**BEGIN TIP PROJECT I-5972**  
**-L- Sta. 27+94.86**

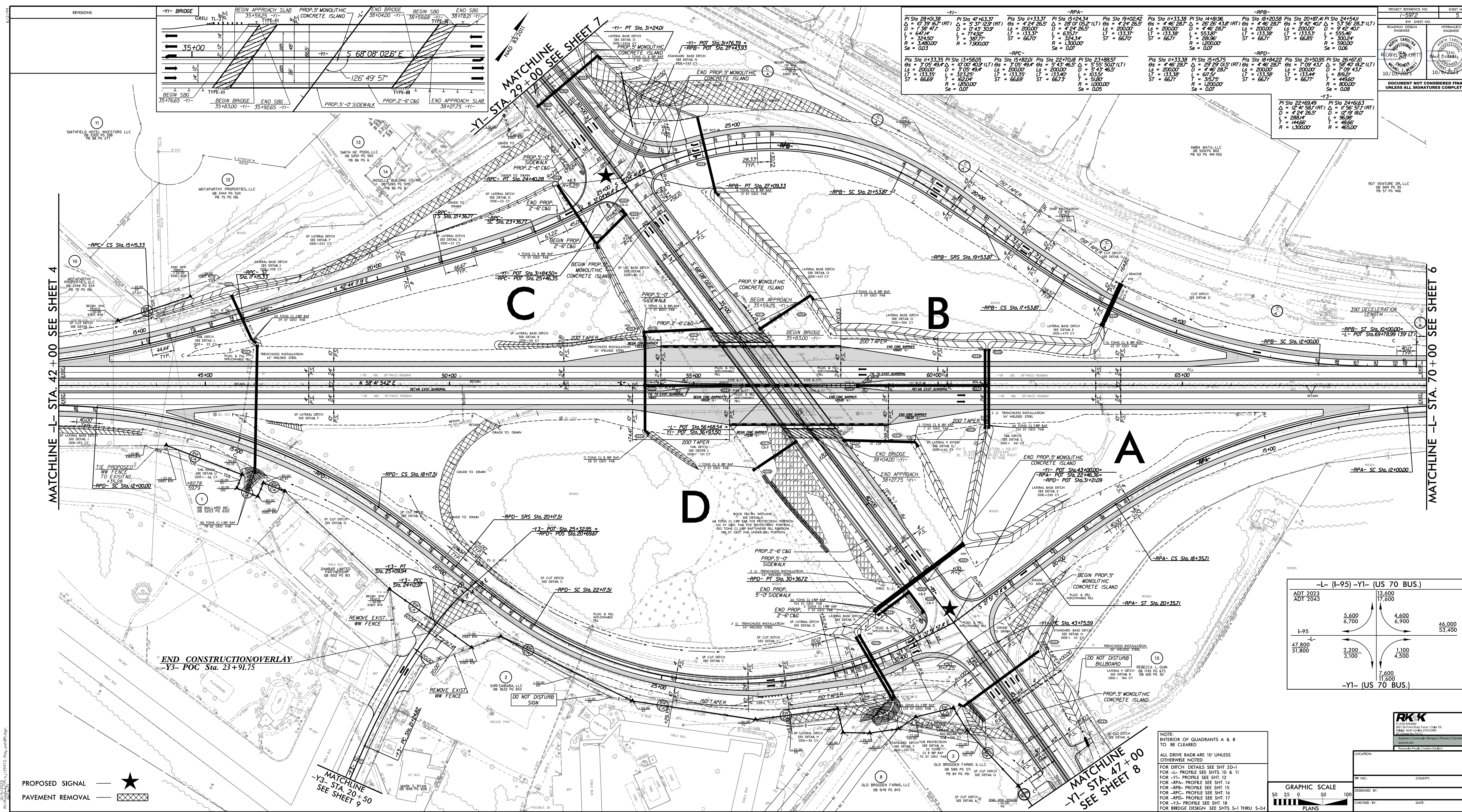


MATCHLINE -L- STA. 42+00 SEE SHEET 5

10/5/2023 R:\Roadway\Pro\15972\_Rdy.psh04.dgn

FOR -L- PROFILE SEE SHT. 10  
FOR -RPC- PROFILE SEE SHT. 16  
FOR -RPD- PROFILE SEE SHT. 17

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REVISIONS

1	Y1 BRIDGE	GREU TL-3
2	BEGIN APPROACH SLAB	35+92.25 -Y1
3	PROP. 5' MONOLITHIC CONCRETE ISLAND	38+76.20 -Y1
4	END BRIDGE	38+76.20 -Y1
5	BEGIN SBC	38+76.20 -Y1
6	END SBC	38+76.20 -Y1
7	BEGIN BRIDGE	35+83.00 -Y1
8	END BRIDGE	35+92.65 -Y1
9	PROP. 5'-0" SIDEWALK	
10	PROP. 2'-6" C&G	
11	END APPROACH SLAB	38+76.20 -Y1

<b>-Y1-</b>	<b>-RPA-</b>	<b>-RPB-</b>	<b>-RPC-</b>	<b>-RPD-</b>	<b>-RPE-</b>
P1 Sta 28+01.38 $\Delta = 17.38^\circ$ (RT) $D = 138.47'$ $L = 64.50'$ $T = 32.450'$ $R = 7300.00'$ $Se = 0.00'$	P1 Sta 41+63.37 $\Delta = 5.37^\circ$ (RT) $D = 743.309'$ $L = 77.492'$ $T = 38.777'$ $R = 7300.00'$ $Se = 0.00'$	P1 Sta 11+33.37 $\Delta = 27.01^\circ$ (LT) $D = 47.24' 26.5"$ $L = 200.00'$ $T = 133.37'$ $R = 1000.00'$ $Se = 0.00'$	P1 Sta 15+24.34 $\Delta = 27.01^\circ$ (LT) $D = 47.24' 26.5"$ $L = 200.00'$ $T = 133.37'$ $R = 1000.00'$ $Se = 0.00'$	P1 Sta 19+02.42 $\Delta = 47.24' 26.5"$ $L = 200.00'$ $T = 133.37'$ $R = 1000.00'$ $Se = 0.00'$	P1 Sta 14+18.96 $\Delta = 47.24' 26.5"$ $L = 200.00'$ $T = 133.37'$ $R = 1000.00'$ $Se = 0.00'$

**-L- (I-95) -Y1- (US 70 BUS.)**

ADT 2023	13,600	46,000
ADT 2043	17,600	53,400
I-95	5,600	6,900
-Y1- (US 70 BUS.)	4,600	6,900
47,800	2,200	1,100
51,800	3,100	4,500
	7,600	11,600

PROPOSED SIGNAL   
 PAVEMENT REMOVAL

NOTE:  
 INTERIOR OF QUADRANTS A & B TO BE CLEARED  
 ALL DRIVE RADII ARE 10' UNLESS OTHERWISE NOTED  
 FOR DITCH DETAILS SEE SHT. 20-1  
 FOR -L- PROFILE SEE SHTS. 10 & 11  
 FOR -Y1- PROFILE SEE SHT. 12  
 FOR -RPA- PROFILE SEE SHT. 14  
 FOR -RPB- PROFILE SEE SHT. 15  
 FOR -RPC- PROFILE SEE SHT. 16  
 FOR -RPD- PROFILE SEE SHT. 17  
 FOR -RPE- PROFILE SEE SHT. 18  
 FOR BRIDGE DESIGN, SEE SHTS. 5-1 THRU 5-4

GRAPHIC SCALE  
 0 25 50 100  
 PLANS

PROJECT REFERENCE NO. 17-5972  
 SHEET NO. 5  
 ROADWAY DESIGN ENGINEER  
 CIVIL ENGINEER  
 10/17/2015  
 10/17/2015

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

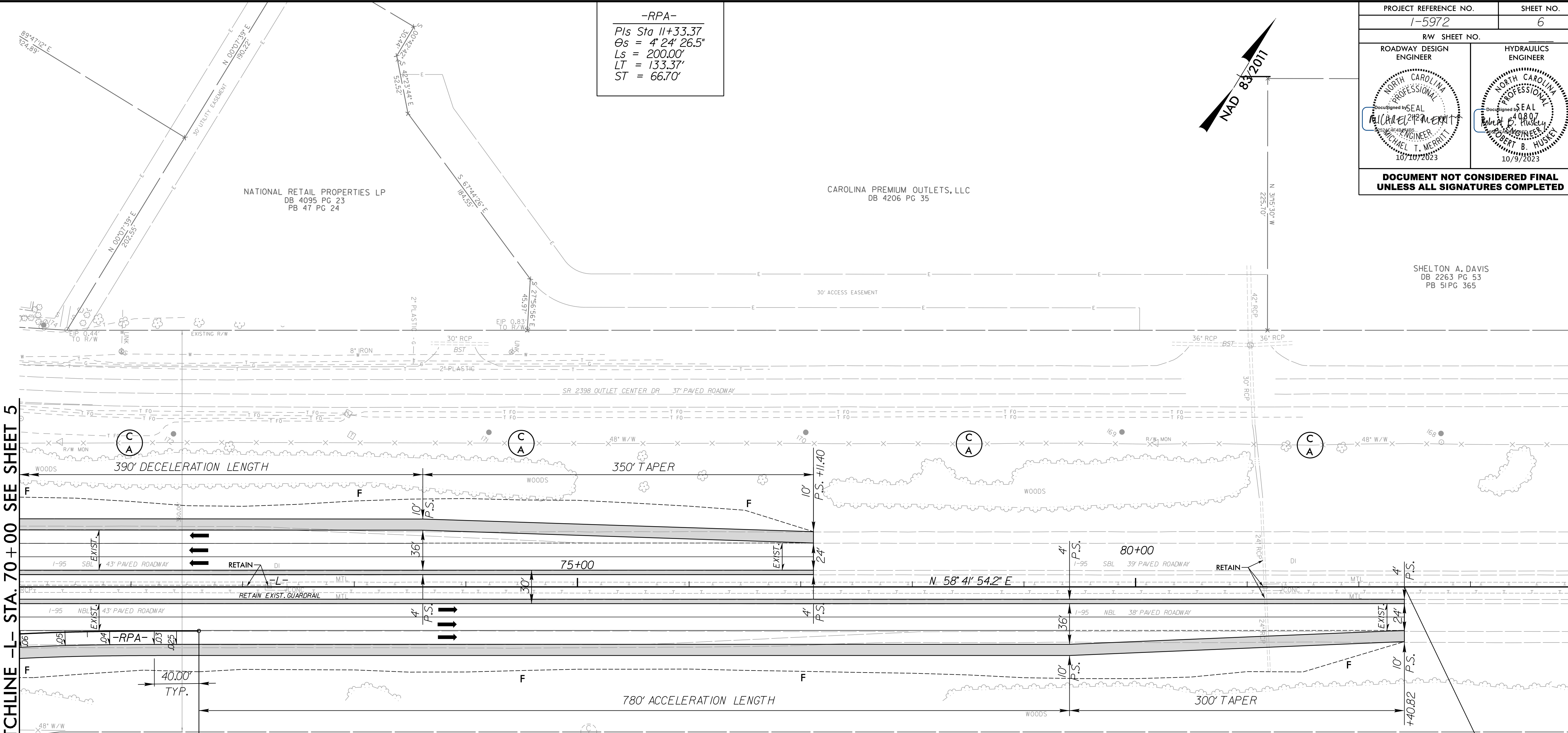
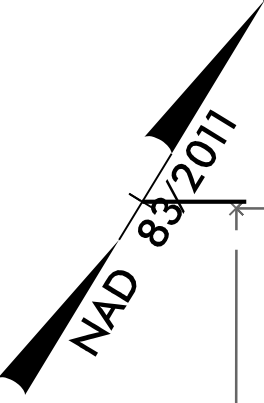
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LOCATION: \_\_\_\_\_ COUNTY: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_ CHECKED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_

8/17/99

PROJECT REFERENCE NO. 1-5972		SHEET NO. 6	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>			

-RPA-  
 PIs Sta 11+33.37  
 $\theta_s = 4' 24'' 26.5''$   
 $L_s = 200.00'$   
 $LT = 133.37'$   
 $ST = 66.70'$



MATCHLINE -L- STA. 70 + 00 SEE SHEET 5

-RPA- ST Sta. 10+00.00 =  
 -L- POT Sta. 71+60.82 (39' RT)

**END CONSTRUCTION  
 END TIP PROJECT I-5972  
 -L- Sta. 82 + 40.82**

JOHN TIMOTHY HUGHES  
 JAMES WILLIAM HUGHES  
 DB 1293 PG 564

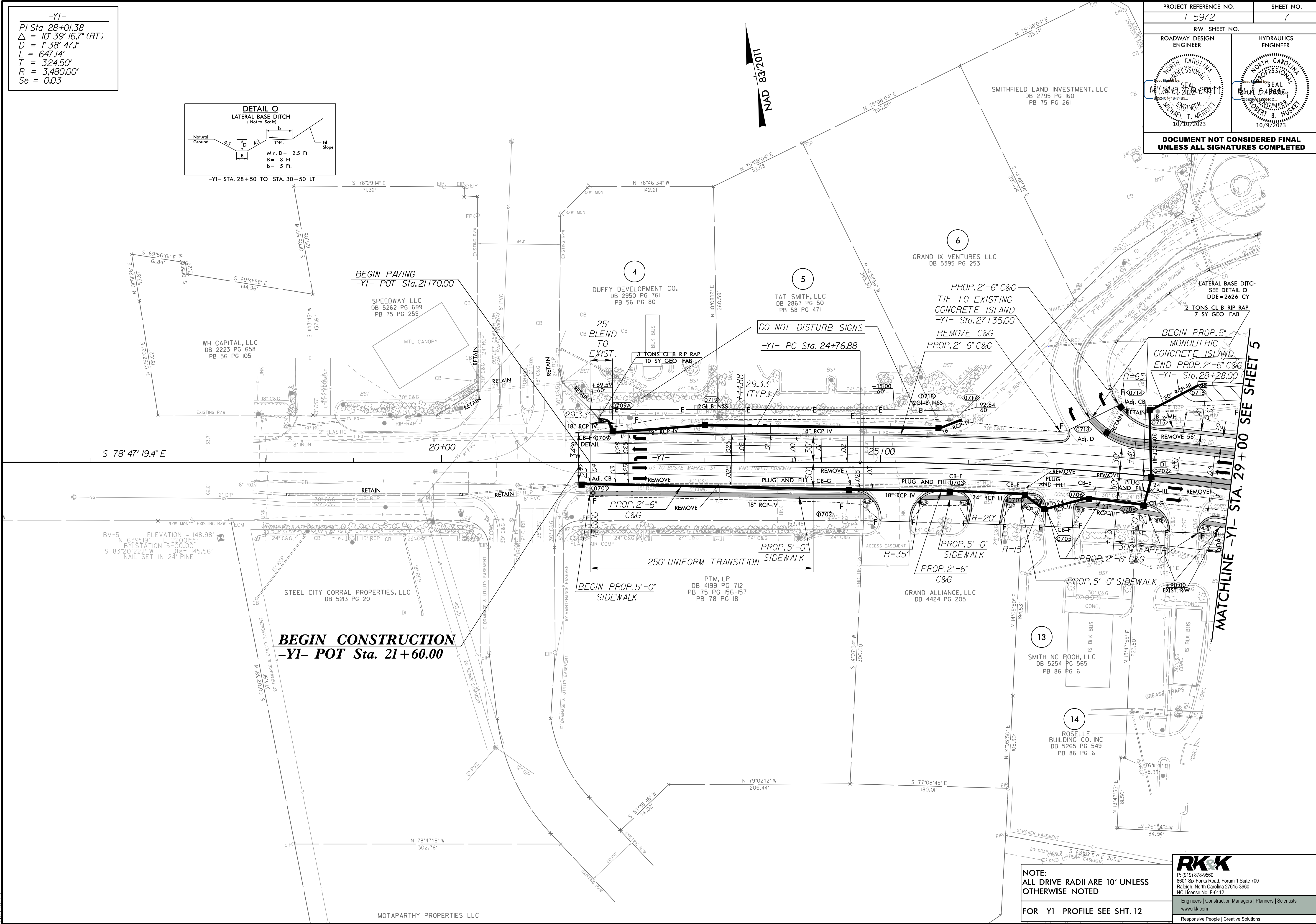
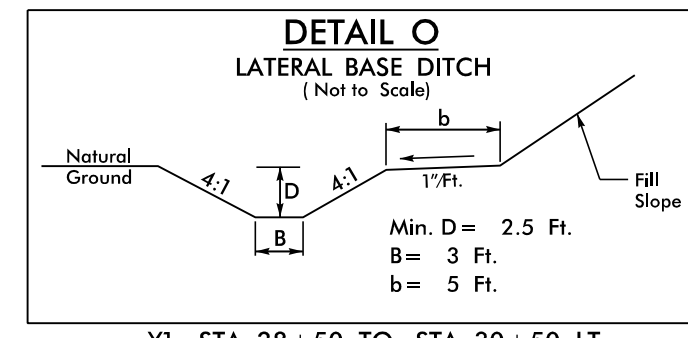
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FOR -L- PROFILE SEE SHT. 11  
 FOR -RPA- PROFILE SEE SHT. 14

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

-YI-  
 PI Sta 28+01.38  
 $\Delta = 10^{\circ} 39' 16.7''$  (RT)  
 D = 1' 38' 47.1"  
 L = 647.14'  
 T = 324.50'  
 R = 3,480.00'  
 Se = 0.03



MATCHLINE -YI- STA. 29+00 SEE SHEET 5

**NOTE:**  
 ALL DRIVE RADII ARE 10' UNLESS  
 OTHERWISE NOTED  
 FOR -YI- PROFILE SEE SHT. 12



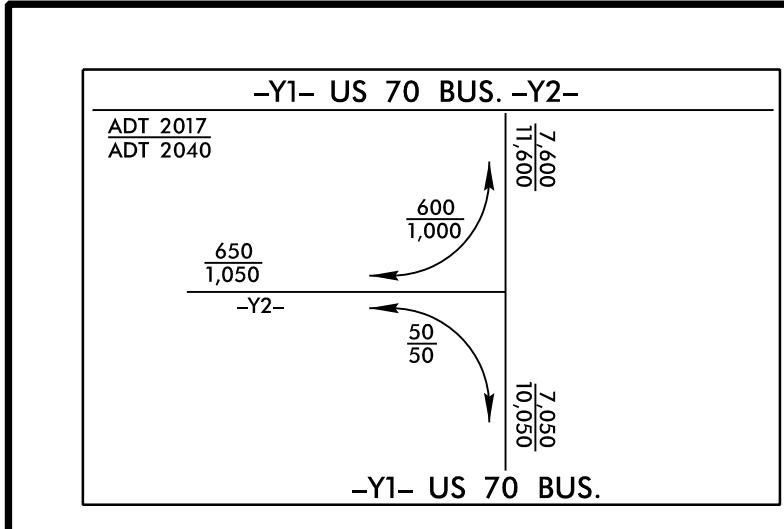
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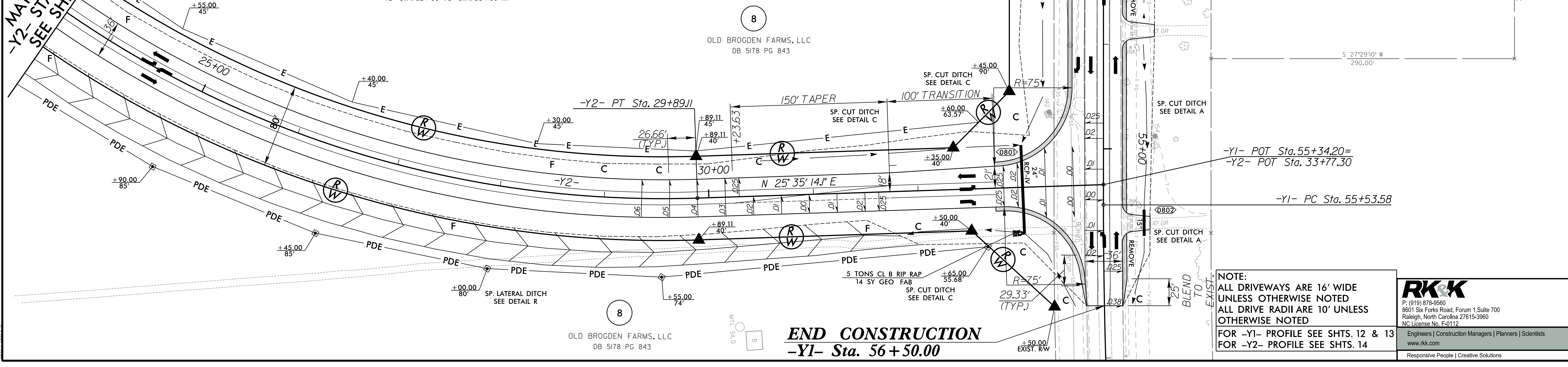
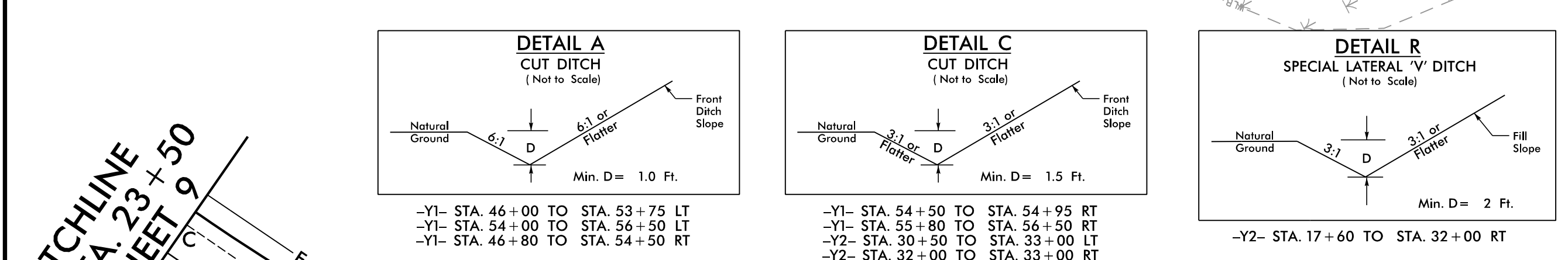


**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

-Y1-	
PI Sta 47+63.37	PI Sta 58+74.92
$\Delta = 5' 37" 12.9" (RT)$	$\Delta = 7' 21" 16.3" (LT)$
$D = 0' 43' 30.9"$	$D = 1' 08' 45.3"$
$L = 774.92'$	$L = 641.80'$
$T = 387.77'$	$T = 321.34'$
$R = 7,900.00'$	$R = 5,000.00'$
	$Se = EXIST.$
-Y2-	
PI Sta 24+96.11	
$\Delta = 6' 09' 43.2" (LT)$	
$D = 5' 43' 46.5"$	
$L = 1,119.84'$	
$T = 626.84'$	
$R = 1,000.00'$	
	$Se = 0.06$



**MATCHLINE -Y1- STA. 47+00 SEE SHEET 5**



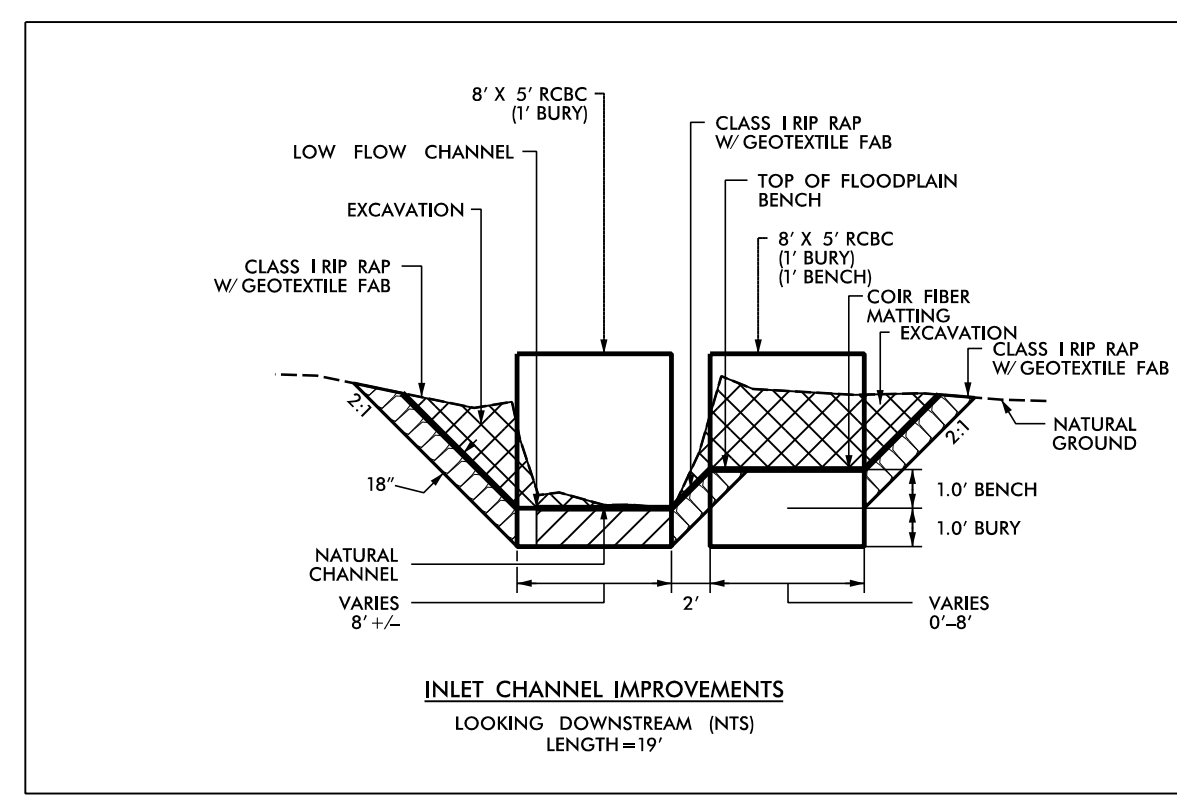
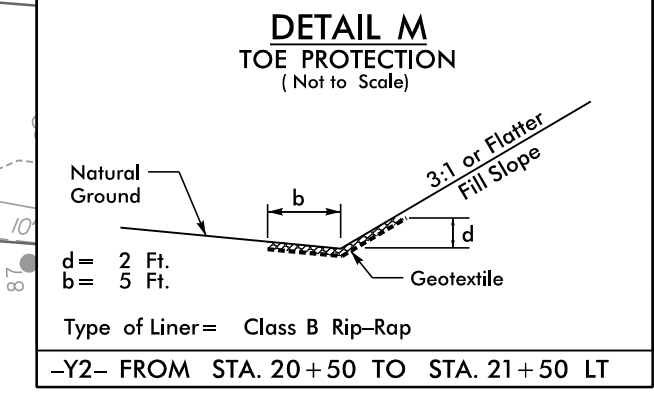
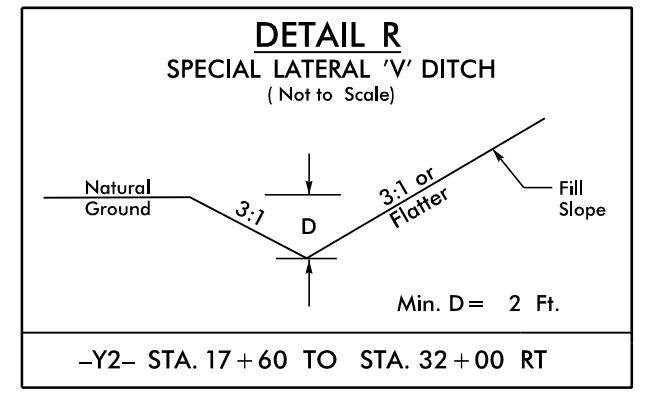
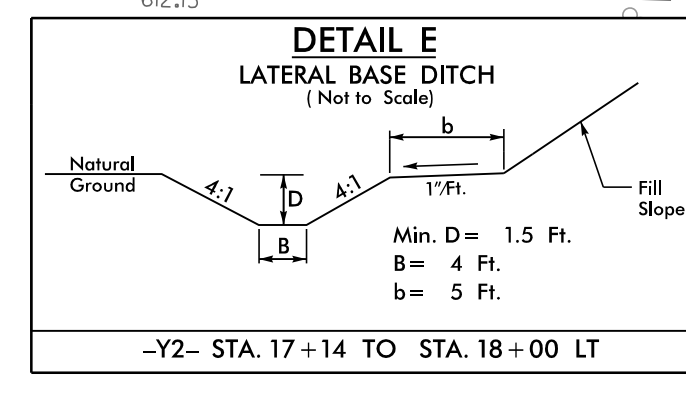
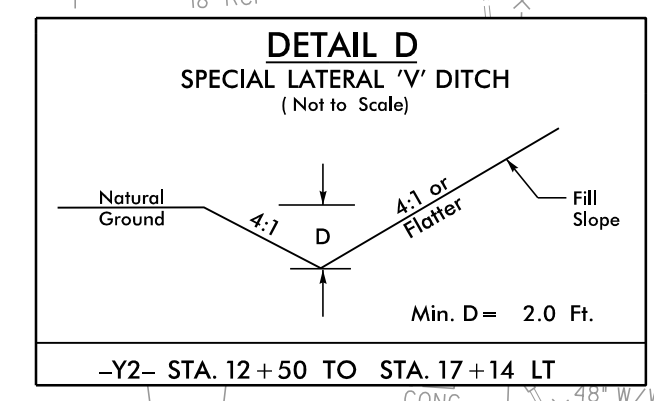
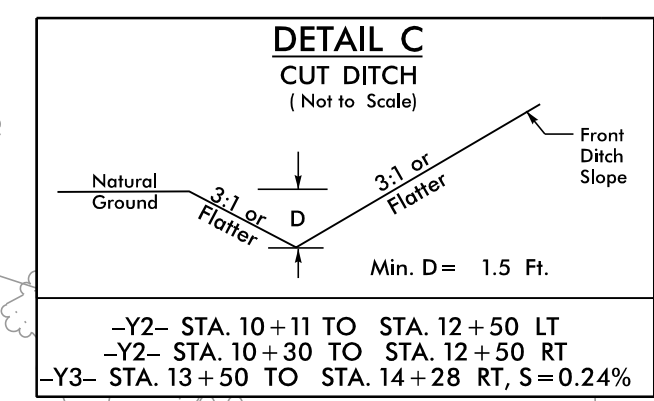
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**NOTE:**  
ALL DRIVEWAYS ARE 16' WIDE UNLESS OTHERWISE NOTED  
ALL DRIVE RADII ARE 10' UNLESS OTHERWISE NOTED  
FOR -Y1- PROFILE SEE SHTS. 12 & 13  
FOR -Y2- PROFILE SEE SHTS. 14

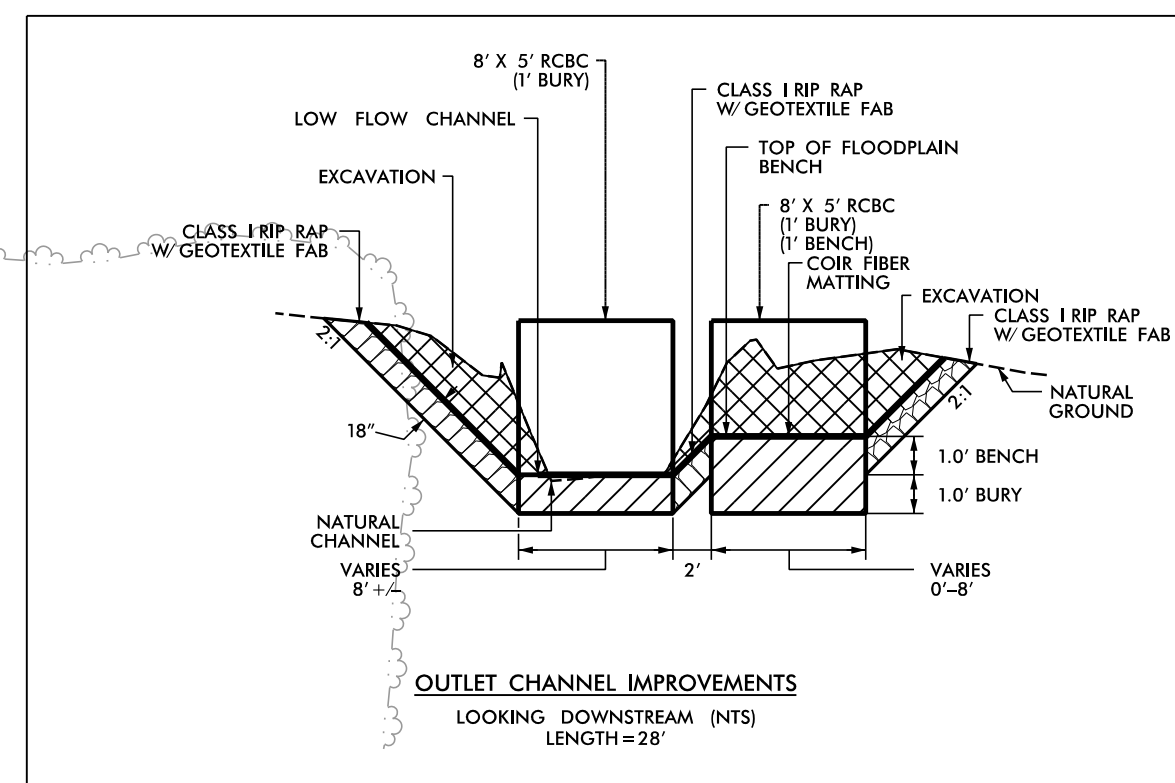
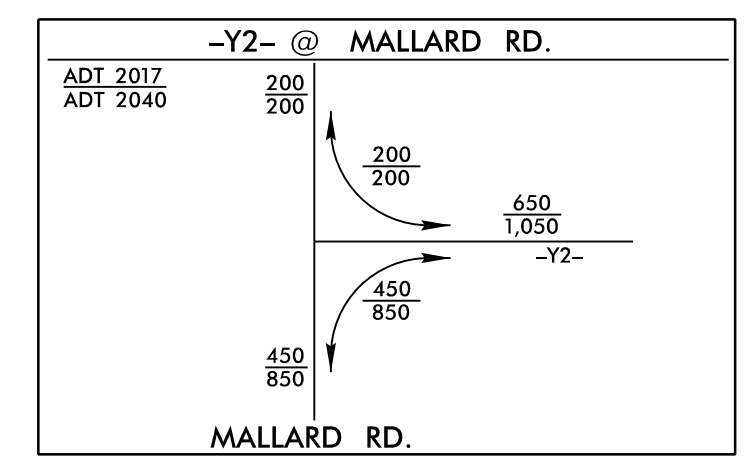
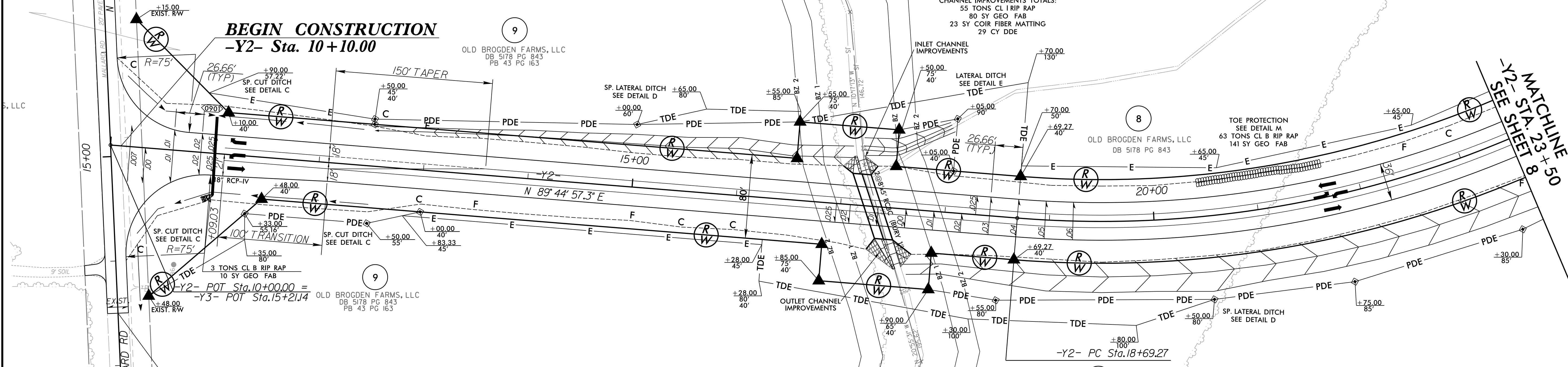
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NAD 83/2011

**MATCHLINE**  
-Y3- STA. 20+50  
SEE SHEET 5



CHANNEL IMPROVEMENTS TOTALS:  
55 TONS CL 1 RIP RAP  
80 SY GEO FAB  
23 SY COIR FIBER MATTING  
29 CY DDE



-Y2-  
PI Sta. 24+96.11  
 $\Delta = 64^{\circ} 09' 43.2''$  (LT)  
D = 5' 43' 46.5"  
L = 1,119.84'  
T = 626.84'  
R = 1,000.00'  
Se = 0.06

**NOTE:**  
ALL DRIVE RADII ARE 10' UNLESS OTHERWISE NOTED

FOR -Y2- PROFILE SEE SHT. 13  
FOR -Y3- PROFILE SEE SHT. 18  
FOR CULVERT CONST. PLANS SEE SHTS. C1-1 THRU C1-5

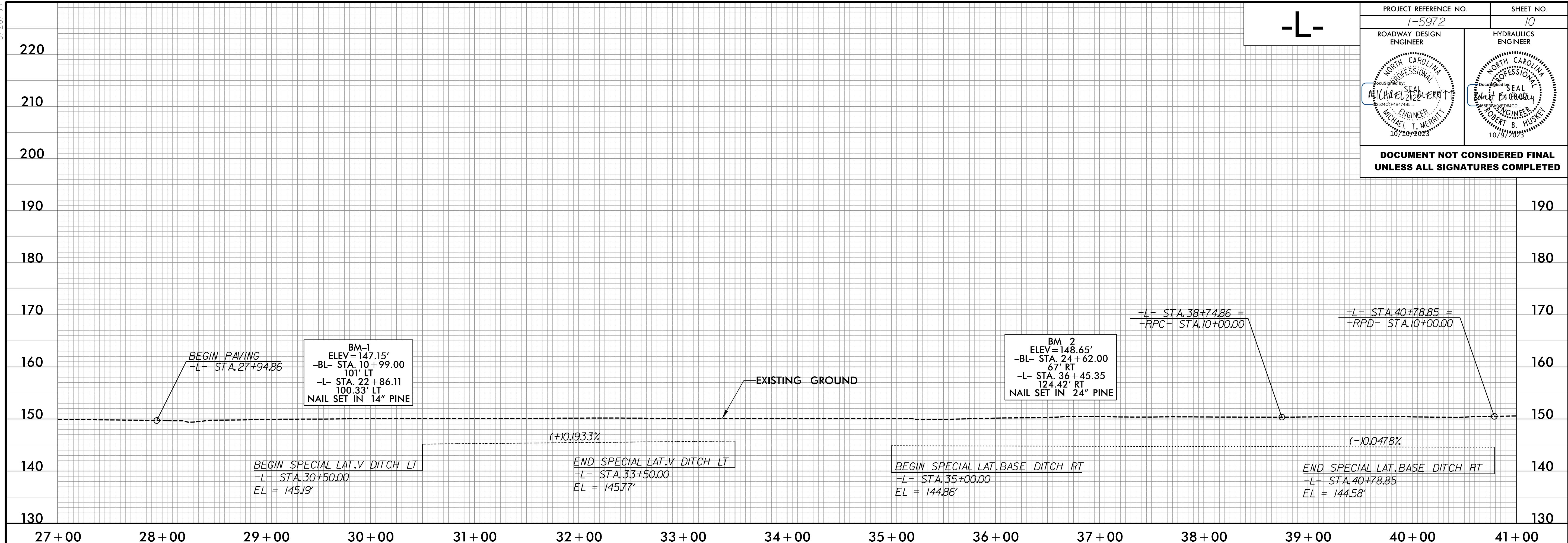
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10/5/2023  
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5/28/99

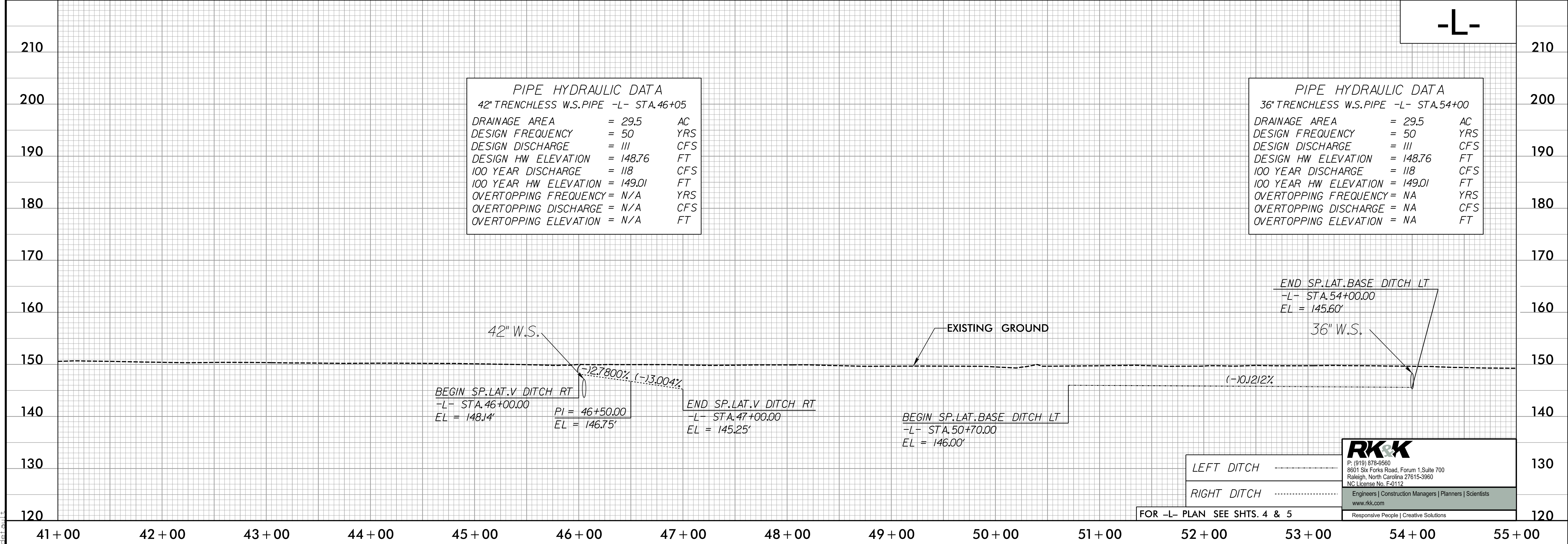
-L-

PROJECT REFERENCE NO. 1-5972	SHEET NO. 10
ROADWAY DESIGN ENGINEER MICHAEL T. MERRITT	HYDRAULICS ENGINEER JOHN B. HUSKEY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



-L-



**PIPE HYDRAULIC DATA**  
42" TRENCHLESS W.S. PIPE -L- STA. 46+05

DRAINAGE AREA	= 29.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= III	CFS
DESIGN HW ELEVATION	= 148.76	FT
100 YEAR DISCHARGE	= 118	CFS
100 YEAR HW ELEVATION	= 149.01	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

**PIPE HYDRAULIC DATA**  
36" TRENCHLESS W.S. PIPE -L- STA. 54+00

DRAINAGE AREA	= 29.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= III	CFS
DESIGN HW ELEVATION	= 148.76	FT
100 YEAR DISCHARGE	= 118	CFS
100 YEAR HW ELEVATION	= 149.01	FT
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING ELEVATION	= NA	FT

LEFT DITCH .....  
RIGHT DITCH .....



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FOR -L- PLAN SEE SHTS. 4 & 5

10/5/2023  
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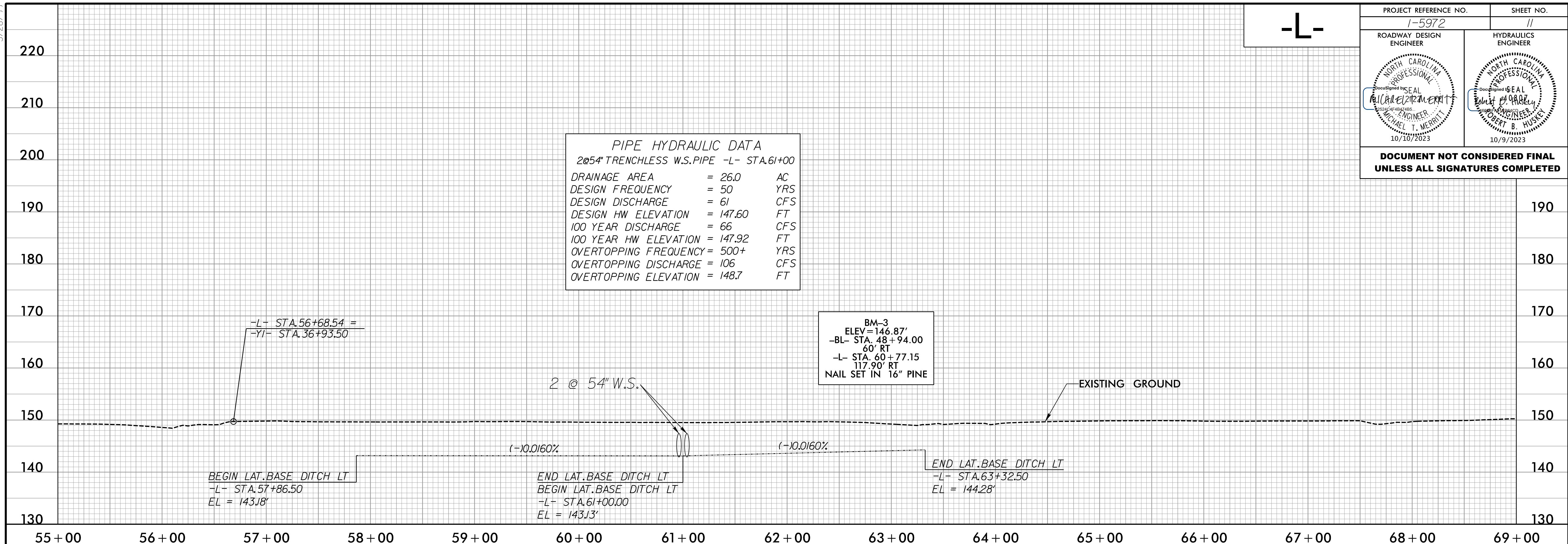
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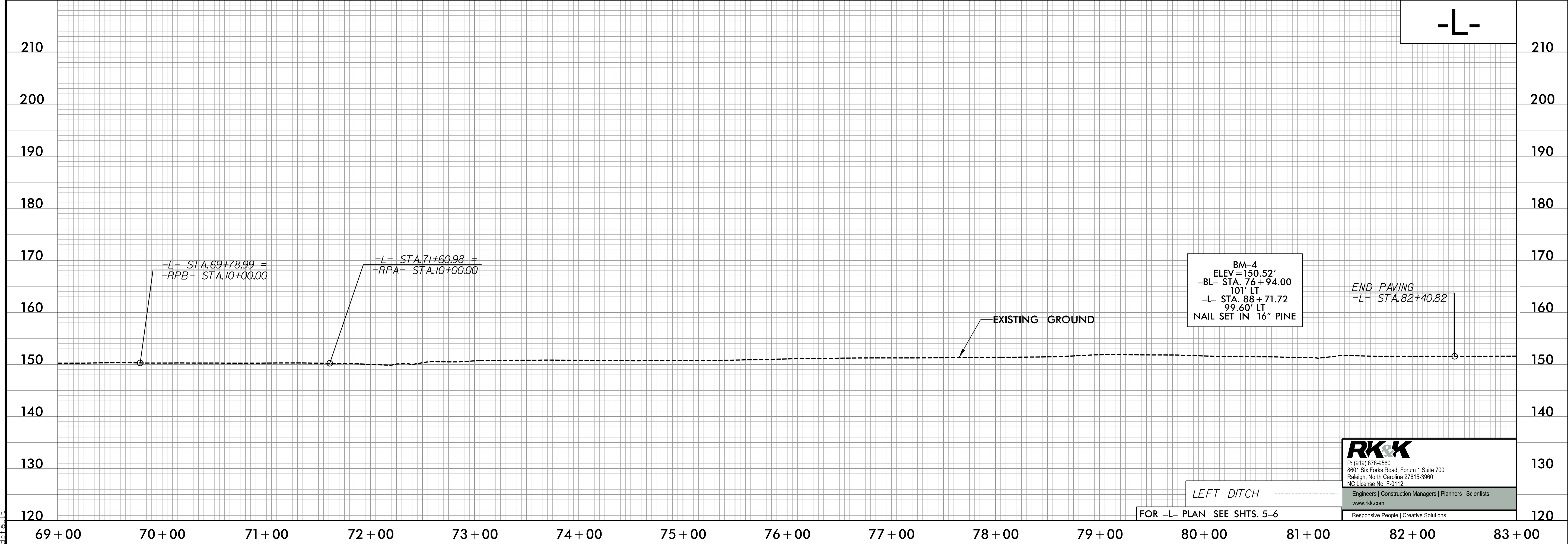
PROJECT REFERENCE NO. 1-5972	SHEET NO. 11
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>	

**PIPE HYDRAULIC DATA**  
 2@54" TRENCHLESS W.S. PIPE -L- STA. 61+00

DRAINAGE AREA	= 26.0	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 61	CFS
DESIGN HW ELEVATION	= 147.60	FT
100 YEAR DISCHARGE	= 66	CFS
100 YEAR HW ELEVATION	= 147.92	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 106	CFS
OVERTOPPING ELEVATION	= 148.7	FT



-L-



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LEFT DITCH  
 FOR -L- PLAN SEE SHTS. 5-6

10/5/2023 10:45:00 AM I:\Projects\15972\_Rdwy\_p\11.dgn