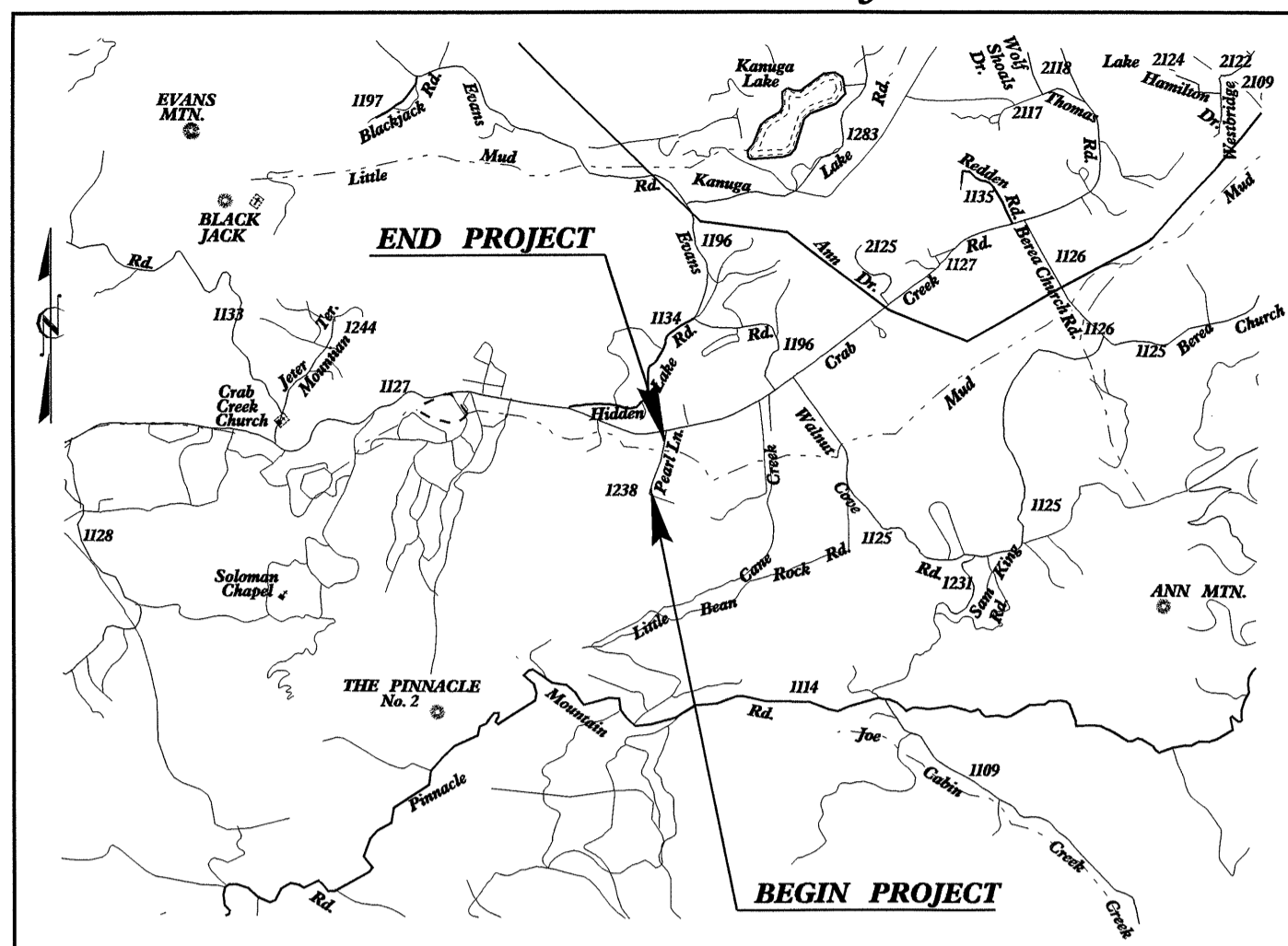


09/08/99

See Sheet I-A For Index of Sheets
See Sheet I-B For Conventional Symbols



VICINITY MAP

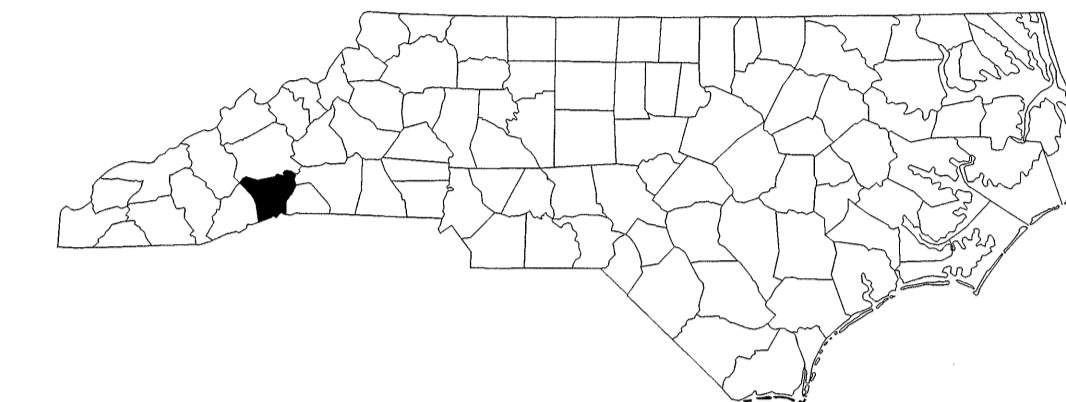
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HENDERSON COUNTY

LOCATION: BRIDGE NO. 335 OVER MUD CREEK AND
APPROACHES ON SR 1238 (PEARL LANE)

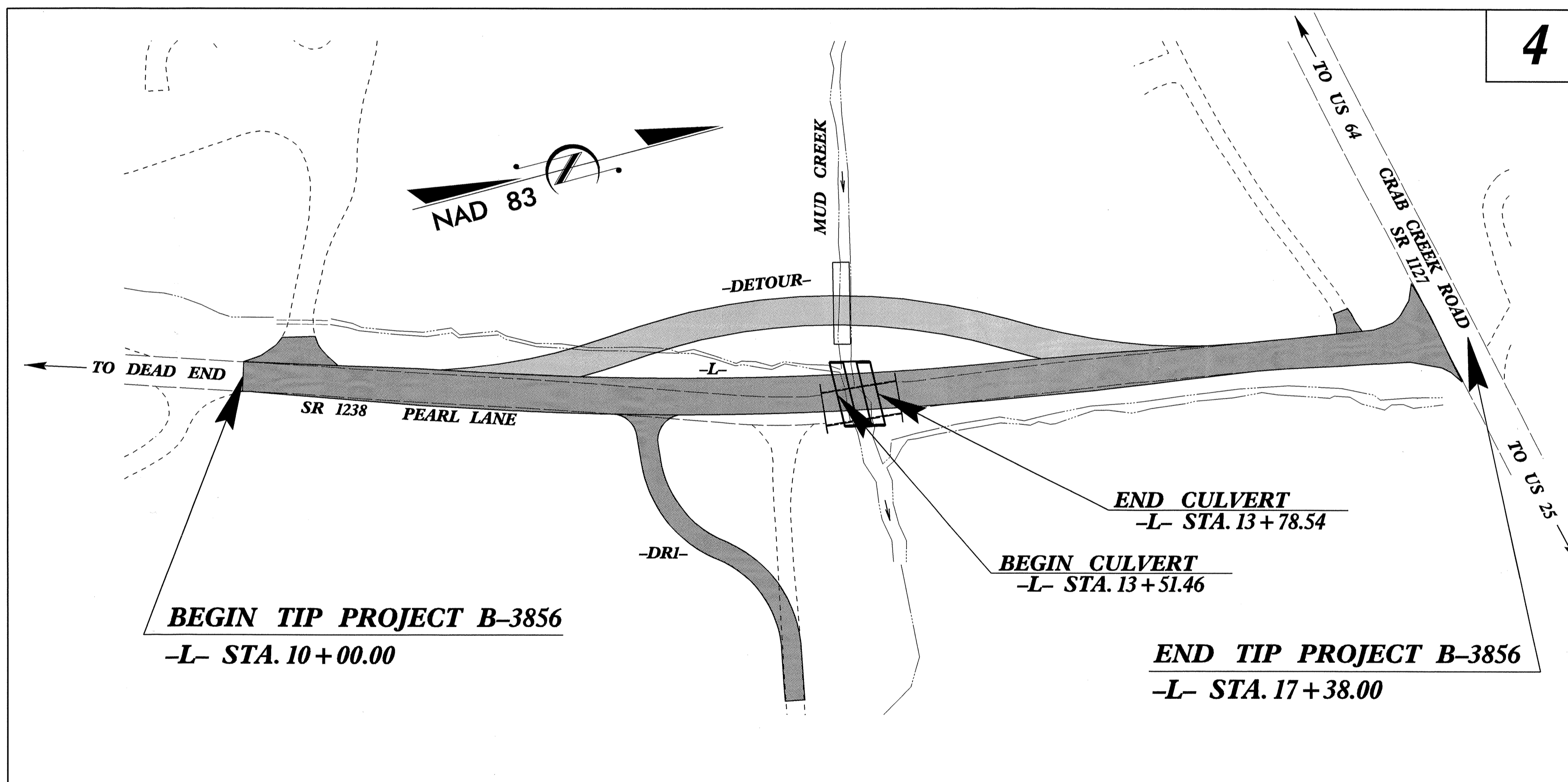
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND CULVERT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3856	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33303.1.1	BRZ-1238(2)	P.E.	
33303.2.1	BRZ-1238(2)	R/W & UTIL.	
33303.3.1	BRZ-1238(2)	CONST.	



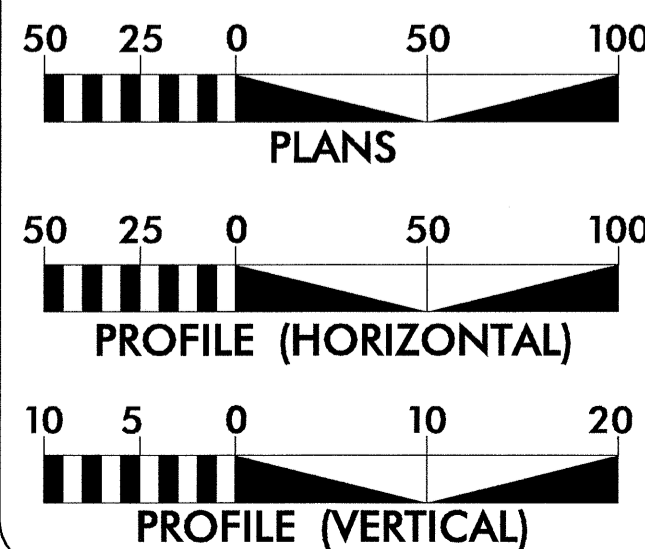
TIP PROJECT: B-3856

CONTRACT: C201618



** DESIGN EXCEPTIONS FOR VERTICAL ALIGNMENT AND VERTICAL STOPPING SIGHT DISTANCE ARE REQUIRED.

GRAPHIC SCALES



DESIGN DATA

ADT 2007 = 250 VPD
 ADT 2030 = 450 VPD
 DHV = 25 %
 D = 65 %
 * T = 3 %
 ** V = 60 MPH
 *(TTST 1% + DUAL 2%)
 FUNC. CLASS. = RURAL LOCAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3856 = 0.135 MILE
 LENGTH STRUCTURE TIP PROJECT B-3856 = 0.005 MILE
 TOTAL LENGTH TIP PROJECT B-3856 = 0.140 MILE

Prepared in the Office of:
DIVISION OF HIGHWAYS
 1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
 FEBRUARY 22, 2006

LETTING DATE:
 FEBRUARY 19, 2008

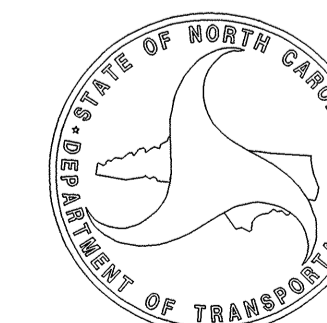
GLENN W. MUMFORD, P.E.
 PROJECT ENGINEER

JEFFREY L. TEAGUE, P.E.
 PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

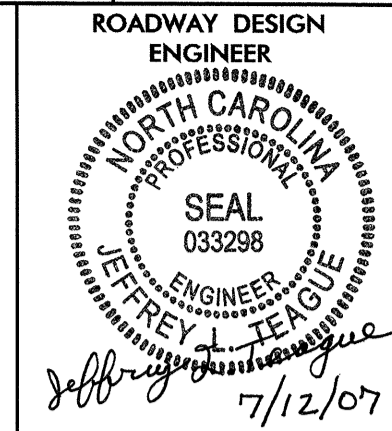
Signature: *Glenn W. Mumford* 7/12/07
 Signature: *Jeffrey L. Teague* 7/12/07

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



Aut millan
 STATE HIGHWAY DESIGN ENGINEER

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\$\$\$\$\$USERNAME\$\$\$\$\$



INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARDS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAIL
2-A	DETAIL OF ON-SITE DETOUR
2-B THROUGH 2-BJ	TEMPORARY SHORING DETAILS
2-C	DETAIL OF STREAM RELOCATION AND COIR FIBER MATTING DETAIL
2-D	DETAIL OF ROCK CROSS VANE
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF DRAINAGE QUANTITIES AND GUARDRAIL SUMMARY
3-B	SUMMARY OF EARTHWORK AND REMOVAL OF EXISTING ASPHALT PAVEMENT
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THROUGH TCP-6	TRAFFIC CONTROL PLANS
PM-1	PAVEMENT MARKING PLAN
EC-1 THROUGH EC-9	EROSION CONTROL PLANS
RF-1 THROUGH RF-2	REFORESTATION DETAIL SHEETS
UO-1 THROUGH UO-2	UTILITIES BY OTHERS PLANS
X-A	CROSS-SECTION SUMMARY
X-1 THROUGH X-7	CROSS-SECTIONS
C-1 THROUGH C-6	CULVERT PLANS

GENERAL NOTES:

2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-18-06

2006 ROADWAY STANDARD DRAWINGS

EFF. 07-18-06
REV. 01-02-07

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 ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT 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.

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" HIGHWAY DESIGN BRANCH - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JULY 18, 2006 ARE APPLICABLE TO THIS PROJECT AND REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS.

STD.NO. TITLE

DIVISION 2 - EARTHWORK

- 200.02 METHOD OF CLEARING - METHOD II
- 225.02 GUIDE FOR GRADING SUBGRADE - SECONDARY AND LOCAL
- 225.04 METHOD OF OBTAINING SUPERELEVATION - TWO LANE PAVEMENT

DIVISION 3 - PIPE CULVERTS

- 300.01 METHOD OF PIPE INSTALLATION - METHOD 'A'
- 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

- 815.03 PIPE UNDERDRAIN AND BLIND DRAIN
- 816.04 MARKERS FOR DRAINAGE STRUCTURE AND CONCRETE PAD
- 862.01 GUARDRAIL PLACEMENT
- 862.02 GUARDRAIL INSTALLATION
- 862.03 STRUCTURE ANCHOR UNITS
- 876.02 GUIDE FOR RIP RAP AT PIPE OUTLETS
- 876.04 DRAINAGE DITCHES WITH CLASS 'B' RIP RAP

CLEARING:

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

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.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS 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" OR "TEMPORARY SHORING-BARRIER SUPPORTED" DEPENDING UPON THE LOCATION OF THE SHORING.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE AT&T OF NORTH CAROLINA 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 OTHERS.

8/17/99

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Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

Table listing symbols for boundaries and property: State Line, County Line, Township Line, City Line, Reservation Line, Property Line, Existing Iron Pin, Property Corner, Property Monument, 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 High Quality Wetland Boundary, Existing Endangered Animal Boundary, Existing Endangered Plant Boundary.

BUILDINGS AND OTHER CULTURE:

Table listing symbols for 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:

Table listing symbols for hydrology: Stream or Body of Water, Hydro, Pool or Reservoir, River Basin Buffer, Flow Arrow, Disappearing Stream, Spring, Swamp Marsh, Proposed Lateral, Tail, Head Ditch, False Sump.

RAILROADS:

Table listing symbols for railroads: Standard Gauge, RR Signal Milepost, Switch, RR Abandoned, RR Dismantled.

RIGHT OF WAY:

Table listing symbols for right of way: Baseline Control Point, Existing Right of Way Marker, Existing Right of Way Line, Proposed Right of Way Line, Proposed Right of Way Line with Iron Pin and Cap Marker, Proposed Right of Way Line with Concrete or Granite Marker, Existing Control of Access, Proposed Control of Access, Existing Easement Line, Proposed Temporary Construction Easement, Proposed Temporary Drainage Easement, Proposed Permanent Drainage Easement, Proposed Permanent Utility Easement.

ROADS AND RELATED FEATURES:

Table listing symbols for roads and related features: Existing Edge of Pavement, Existing Curb, Proposed Slope Stakes Cut, Proposed Slope Stakes Fill, Proposed Wheel Chair Ramp, Curb Cut for Future Wheel Chair Ramp, Existing Metal Guardrail, Proposed Guardrail, Existing Cable Guiderail, Proposed Cable Guiderail, Equality Symbol, Pavement Removal.

VEGETATION:

Table listing symbols for vegetation: Single Tree, Single Shrub, Hedge, Woods Line, Orchard, Vineyard.

EXISTING STRUCTURES:

Table listing symbols for 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:

Table listing symbols for utilities: 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, Recorded U/G Power Line, Designated U/G Power Line (S.U.E.*); TELEPHONE: Existing Telephone Pole, Proposed Telephone Pole, Telephone Manhole, Telephone Booth, Telephone Pedestal, Telephone Cell Tower, U/G Telephone Cable Hand Hole, Recorded U/G Telephone Cable, Designated U/G Telephone Cable (S.U.E.*), Recorded U/G Telephone Conduit, Designated U/G Telephone Conduit (S.U.E.*), Recorded U/G Fiber Optics Cable, Designated U/G Fiber Optics Cable (S.U.E.*).

WATER:

Table listing symbols for water: Water Manhole, Water Meter, Water Valve, Water Hydrant, Recorded U/G Water Line, Designated U/G Water Line (S.U.E.*), Above Ground Water Line.

TV:

Table listing symbols for TV: TV Satellite Dish, TV Pedestal, TV Tower, U/G TV Cable Hand Hole, Recorded U/G TV Cable, Designated U/G TV Cable (S.U.E.*), Recorded U/G Fiber Optic Cable, Designated U/G Fiber Optic Cable (S.U.E.*).

GAS:

Table listing symbols for gas: Gas Valve, Gas Meter, Recorded U/G Gas Line, Designated U/G Gas Line (S.U.E.*), Above Ground Gas Line.

SANITARY SEWER:

Table listing symbols for sanitary sewer: Sanitary Sewer Manhole, Sanitary Sewer Cleanout, U/G Sanitary Sewer Line, Above Ground Sanitary Sewer, Recorded SS Forced Main Line, Designated SS Forced Main Line (S.U.E.*).

MISCELLANEOUS:

Table listing symbols for miscellaneous: Utility Pole, Utility Pole with Base, Utility Located Object, Utility Traffic Signal Box, Utility Unknown U/G Line, U/G Tank; Water, Gas, Oil, A/G Tank; Water, Gas, Oil, U/G Test Hole (S.U.E.*), Abandoned According to Utility Records, End of Information.

NOTES

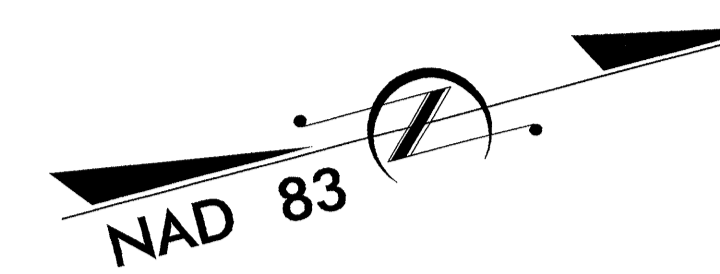
I. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
 HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/
 FILE: B3856_LS.CONTROL_050902.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT.

IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

B-3856 SURVEY CONTROL SHEET

PROJECT REFERENCE NO. B-3856	SHEET NO. I-C
LOCATION AND SURVEYS	



BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	562217.7640	947438.6600	2212.25	OUTSIDE PROJECT LIMITS	
2	BL-2	562823.1180	947660.3280	2184.56	12+94.22	19.65 RT
3	BL-3	563229.8160	947692.7500	2194.02	16+99.32	21.63 LT

BY POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
4	BY-4	563171.9950	947326.1190	2217.48	15+81.23	373.51 LT
33	BL-3	563229.8160	947692.7500	2194.02	16+99.32	21.63 LT
5	BY-5	563287.4290	947910.1300	2189.79	OUTSIDE PROJECT LIMITS	

⊙ NCDOT BASELINE STATION B3856-BY-4
 LOCALIZED PROJECT COORDINATES
 N = 56317.9950
 E = 947326.1190

END TIP PROJECT B-3856
-L- STA. 17+38.00
LOCALIZED PROJECT COORDINATES
 N = 563,264.3538
 E = 947,720.5232

 BM1 ELEVATION = 2210.84
 N 562225 E 947424
 L STATION 10+00
 S 22° 06' 43.4" W DIST 347.47
 CHISLED X IN ROCK

BEGIN TIP PROJECT B-3856
-L- POT STA. 10+00.00
LOCALIZED PROJECT COORDINATES
 N = 562,546.6630
 E = 947,554.8490

⊙ NCDOT BASELINE STATION B3856-BL1
 LOCALIZED PROJECT COORDINATES
 N = 562217.7640
 E = 947438.6600

 BM2 ELEVATION = 2179.83
 N 562857 E 947833
 L STATION 13+62 180 RIGHT
 8 INCH SPIKE IN BASE OF 12 INCH LOCUST TREE

⊙ NCDOT GPS STATION B3856-102
 LOCALIZED PROJECT COORDINATES
 N = 562474.5810
 E = 947559.4470

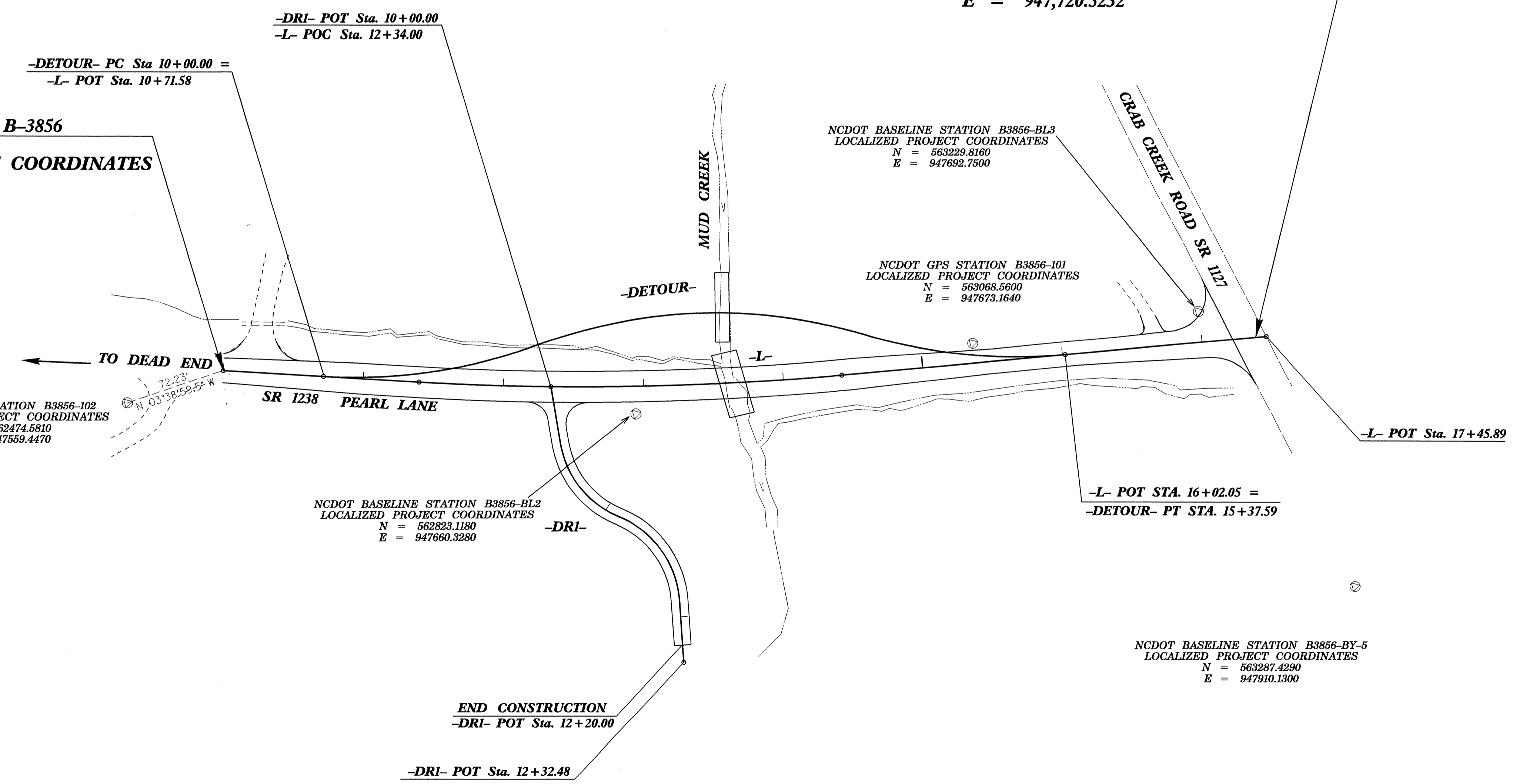
 BM3 ELEVATION = 2201.46
 N 563209 E 947619
 L STATION 16+66 91 LEFT
 CHISLED X IN CONCRETE PAD

⊙ NCDOT BASELINE STATION B3856-BL2
 LOCALIZED PROJECT COORDINATES
 N = 562823.1180
 E = 947660.3280

⊙ NCDOT GPS STATION B3856-101
 LOCALIZED PROJECT COORDINATES
 N = 563068.5600
 E = 947673.1640

-L- POT STA. 16+02.05 =
-DETOUR- PT STA. 15+37.59

⊙ NCDOT BASELINE STATION B3856-BY-5
 LOCALIZED PROJECT COORDINATES
 N = 563287.4290
 E = 947910.1300



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B3856-GPS102" WITH NAD 1983 STATE PLANE GRID COORDINATES OF NORTHING: 562474.5810(f1) EASTING: 947559.4470(f1) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 99976777 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B3856-GPS102" TO -L- STATION 10+00.00 IS N 03°38'59.5" W DISTANCE 72.23' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

⊙ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING USER SERVICE (OPUS)

NOTE: DRAWING NOT TO SCALE

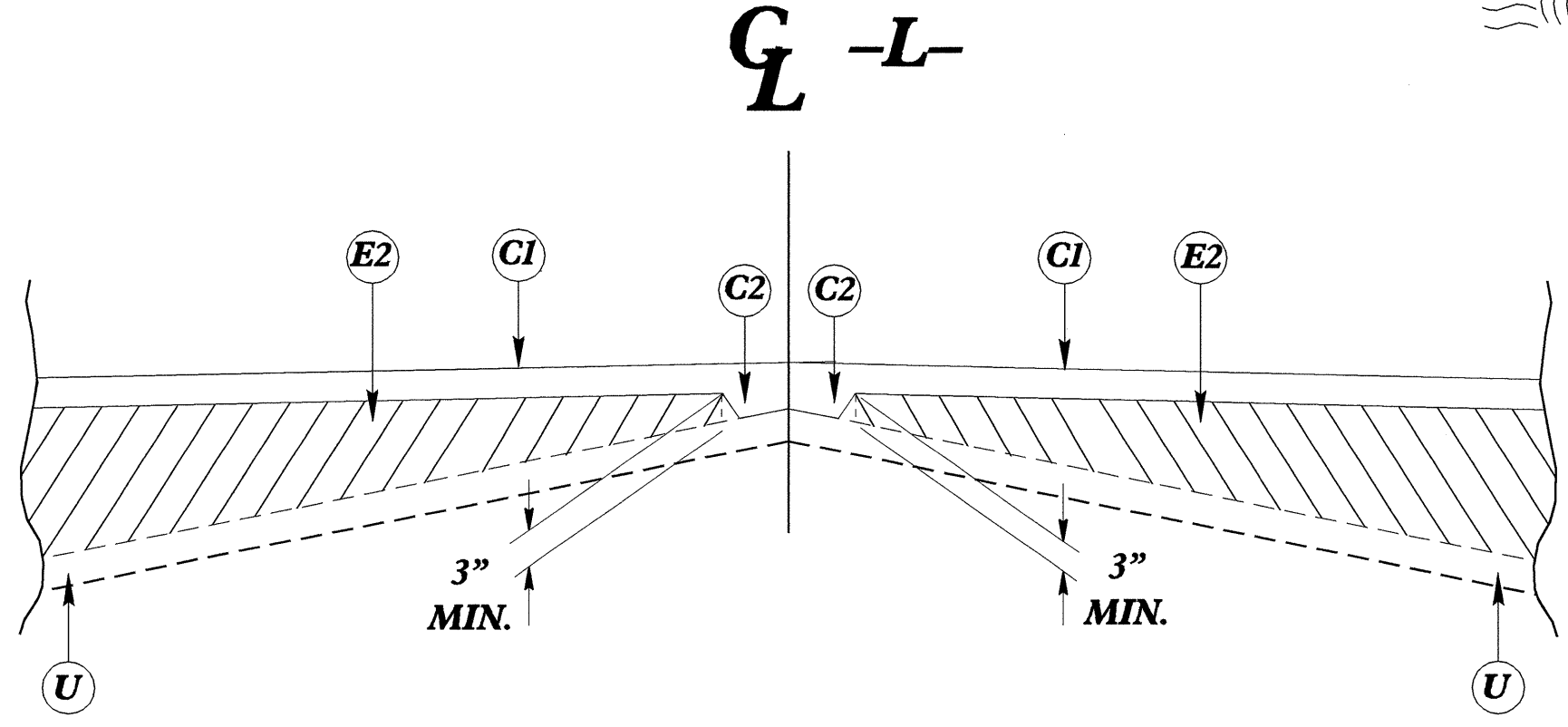
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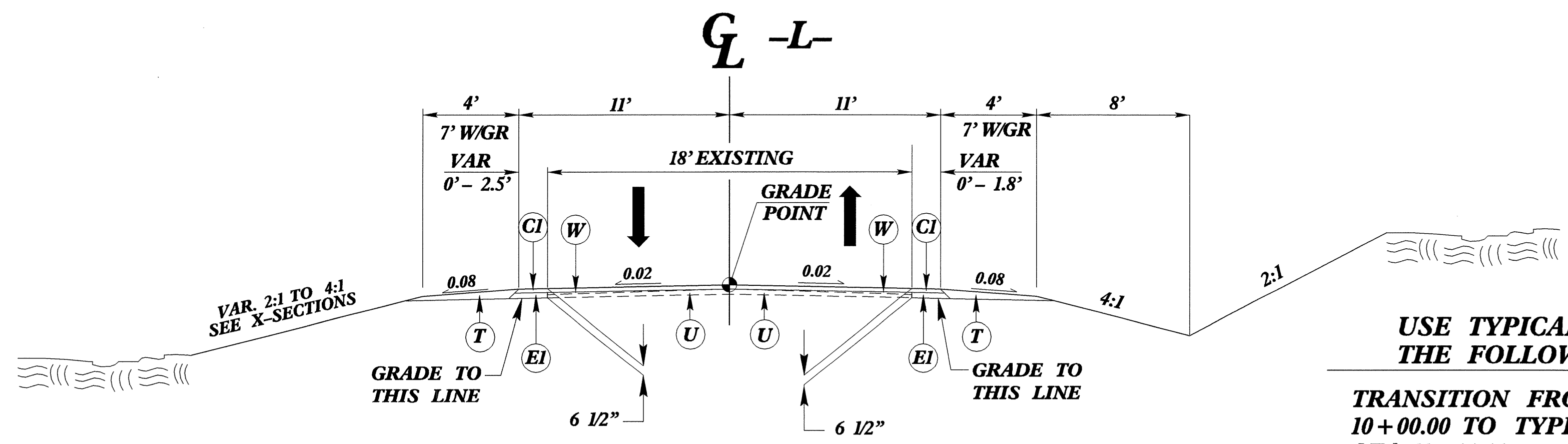
PROJECT REFERENCE NO. B-3856	SHEET NO. 2
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033288 JEFFREY A. TEAGUE 7/12/07	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22896 CLARK S. MORRISON 7/12/07

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1 1/2" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J	PROP. 6" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL).

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



DETAIL SHOWING METHOD OF WEDGING
USE IN CONJUNCTION WITH TYPICAL SECTION NO.1



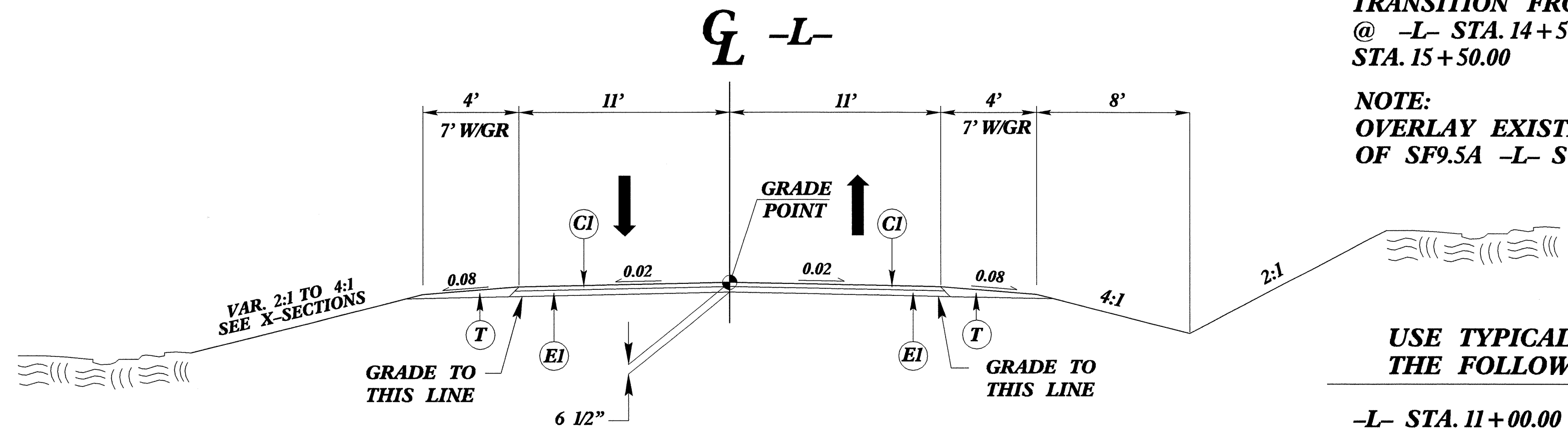
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO.1 AT THE FOLLOWING LOCATIONS:

TRANSITION FROM EXISTING @ -L- STA. 10+00.00 TO TYPICAL SECTION NO.1 @ -L- STA. 11+00.00

TRANSITION FROM TYPICAL SECTION NO.1 @ -L- STA. 14+50.00 TO EXISTING @ -L- STA. 15+50.00

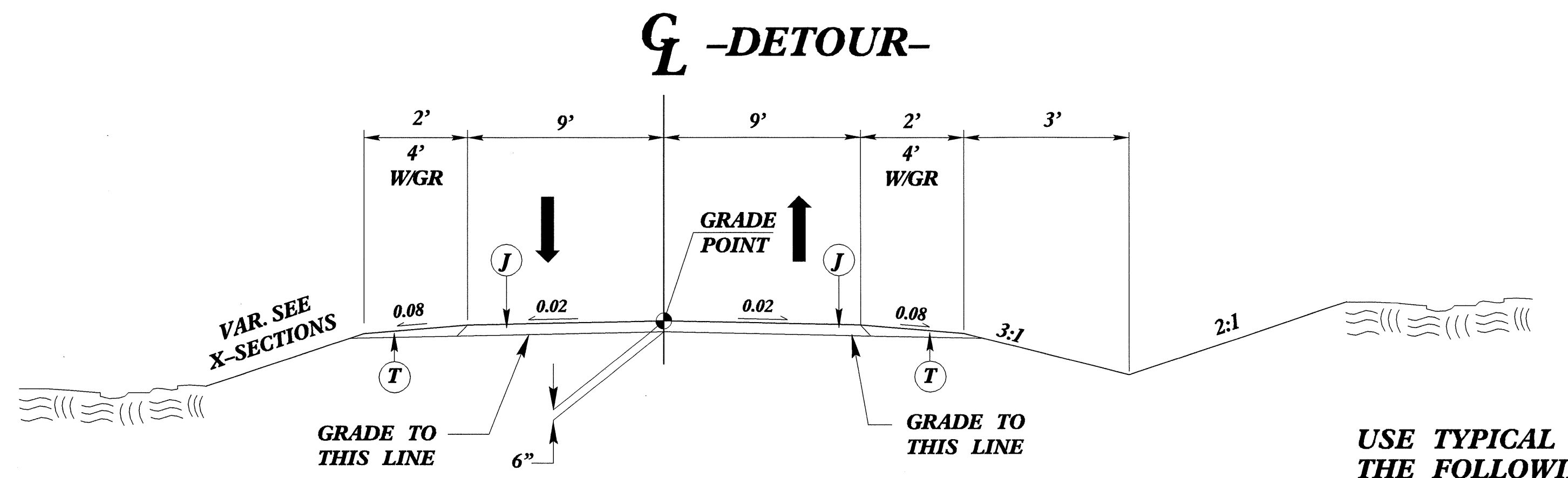
NOTE: OVERLAY EXISTING PAVEMENT WITH 1 1/4" OF SF9.5A -L- STA. 15+50.00 TO 17+21.97



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATION:

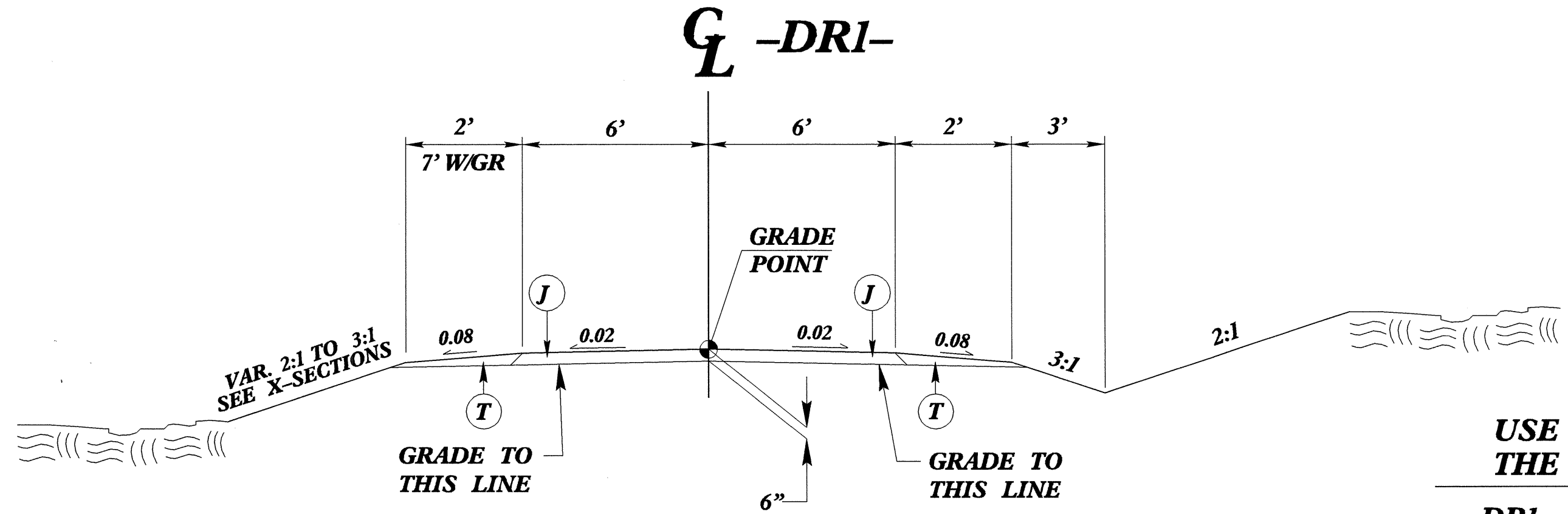
-L- STA. 11+00.00 TO STA. 14+50.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO.3 AT THE FOLLOWING LOCATION:

-DETOUR- STA. 10+80.24 TO 14+57.52



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO.4 AT THE FOLLOWING LOCATION:

-DRI- STA. 10+12.26 TO 12+20.00

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B3856

NOTES FOR TEMPORARY SHORING

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

TEMPORARY SHORING IS REQUIRED FOR PIPE INSTALLATION FROM -DETOUR- STA 12+75+/-, 10 FEET RIGHT FROM EOL TO -DETOUR- STA 13+05+/-, 10 FEET RIGHT FROM EOL. SEE TEMPORARY SHORING SPECIAL PROVISION.

USE A TEMPORARY MSE WALL FROM -DETOUR- STA 12+75+/-, 10 FEET RIGHT FROM EOL TO -DETOUR- STA 13+05+/-, 10 FEET RIGHT FROM EOL.

DO NOT USE STANDARD TEMPORARY SHORING FROM -DETOUR- STA 12+75+/-, 10 FEET RIGHT FROM EOL TO -DETOUR- STA 13+05+/-, 10 FEET RIGHT FROM EOL.

FOR CONTRACTOR DESIGNED SHORING, SURVEY THE SHORING LOCATION TO DETERMINE EXISTING ELEVATIONS AND ACTUAL DESIGN HEIGHTS BEFORE BEGINNING DESIGN.

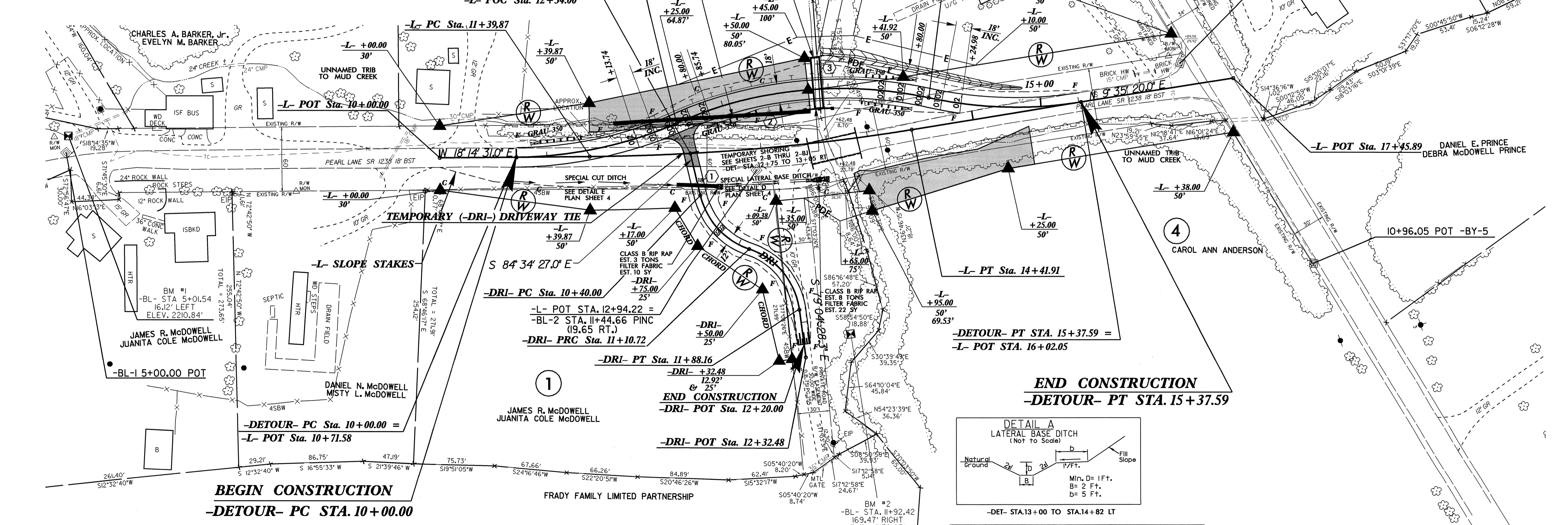
WHEN USING CONTRACTOR DESIGNED SHORING, USE THE FOLLOWING SOIL PARAMETERS:
 UNIT WEIGHT OF SOIL ABOVE WATER TABLE, $\gamma = 120$ PCF
 UNIT WEIGHT OF SOIL BELOW WATER TABLE, $\gamma = 60$ PCF
 FRICTION ANGLE, $\phi = 30$ DEGREES
 COHESION, $c = 0$ PSF

NO SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

FOR PORTABLE CONCRETE BARRIERS ABOVE AND BEHIND TEMPORARY SHORING, USE AN NCDOT PORTABLE CONCRETE BARRIER (UNANCHORED OR ANCHORED) OR AN OREGON TALL F-SHAPE CONCRETE BARRIER IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS.

DETOUR

TEMPORARY SHORING
SEE DETAIL SHEETS 2-B THRU 2-BJ



DETOUR		
PI Sta 10+78.24 $\Delta = 23' 16" 05.4" (LT)$ D = 15' 04' 40.2" L = 154.32' T = 78.24' R = 380.00' SE = SEE PLANS RO = SEE PLANS	PI Sta 12+78.53 $\Delta = 36' 12" 07.1" (RT)$ D = 15' 04' 40.2" L = 240.10' T = 124.21' R = 380.00' SE = NC RO = SEE PLANS	PI Sta 14+66.86 $\Delta = 21' 35" 12.7" (LT)$ D = 15' 04' 40.2" L = 143.17' T = 72.44' R = 380.00' SE = SEE PLANS RO = SEE PLANS

-I-
PI Sta 12+91.18 $\Delta = 8' 39" 11.0" (LT)$ D = 2' 51' 53.24" L = 302.05' T = 151.31' R = 2,000.00' SE = 0.04 RO = 84'

-DRI-	
PI Sta 10+78.71 $\Delta = 57' 53' 05.3" (LT)$ D = 81' 51' 04.0" L = 70.72' T = 38.71' R = 70.00' SE = NC	PI Sta 11+53.94 $\Delta = 63' 23' 04.0" (RT)$ D = 81' 51' 04.0" L = 77.44' T = 43.22' R = 70.00' SE = NC

NOTES:


- 1) FOR -L- PLAN VIEW SEE SHEET 4.
- 2) FOR -L- PROFILE SEE SHEET 5.
- 3) FOR -DETOUR- PROFILE SEE SHEET 5.
- 4) FOR -DRI- PLAN VIEW SEE SHEET 4.
- 5) FOR -DRI- PROFILE SEE SHEET 5.
- 6) ALL DRIVEWAY RADII ARE 15' UNLESS OTHERWISE NOTED.

STREAM MITIGATION AREA
SEE PLAN SHEET 4
REFER TO 401 PERMIT PROJECT CONDITIONS

STANDARD TEMPORARY MSE WALL OPTIONS

TEMPORARY MSE WALL OPTION	VENDOR	CONTACT INFORMATION	REINFORCEMENT TYPE	SHEETS
TEMPORARY FABRIC WALL	N/A	N/A	POLYESTER OR POLYPROPYLENE FABRIC	3
HILFIKER TEMPORARY WALL	HILFIKER RETAINING WALLS	1902 HILFIKER LANE, EUREKA, CA 95503-5711 707-443-5093 WWW.HILFIKER.COM	WELDED WIRE MAT	4
SIERRASCAPE TEMPORARY WALL	TENSAR EARTH TECHNOLOGIES, INC	5883 GLENRIDGE DRIVE, SUITE 200 ATLANTA, GA 30328-5363 404-250-1290 WWW.TENSARCORP.COM	GEOGRID	5
RETAINED EARTH TEMPORARY WALL	THE REINFORCED EARTH COMPANY	8614 WESTWOOD CENTER DRIVE, SUITE 1100 VIENNA, VA 22182-2233 703-749-4325 WWW.REINFORCEDEARTH.COM	WELDED WIRE MESH	6-8
TERRATREL TEMPORARY WALL	THE REINFORCED EARTH COMPANY	8614 WESTWOOD CENTER DRIVE, SUITE 1100 VIENNA, VA 22182-2233 703-749-4325 WWW.REINFORCEDEARTH.COM	RIBBED STEEL STRIPS	9-11

GEOTECHNICAL ENGINEER



Scott A. Hiddens 5/29/07

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

FOR STANDARD TEMPORARY MSE WALLS, SEE TEMPORARY SHORING SPECIAL PROVISION.

WHEN NOTES ON PLANS DO NOT PROHIBIT TEMPORARY MSE WALLS OR STANDARD SHORING, STANDARD TEMPORARY MSE WALLS ARE OPTIONAL.

WHEN NOTES ON PLANS REQUIRE TEMPORARY MSE WALLS, USE STANDARD TEMPORARY MSE WALLS OR CONTRACTOR DESIGNED TEMPORARY MSE WALLS.

WHEN THE ALIGNMENT OF STANDARD TEMPORARY MSE WALLS RESULTS IN AN INTERIOR ANGLE LESS THAN 90 DEGREES, SUBMIT AN ACUTE CORNER DETAIL FOR THE SPECIFIC SITUATION IN ACCORDANCE WITH THE WALL VENDOR RECOMMENDATIONS. ALSO, SUBMIT A "STANDARD TEMPORARY MSE WALL SELECTION FORM" FOR EACH TEMPORARY MSE WALL LOCATION. SUBMIT THESE ITEMS AT LEAST 14 DAYS BEFORE BEGINNING WALL CONSTRUCTION.

STANDARD TEMPORARY MSE WALLS ARE BASED ON THE FOLLOWING CONDITIONS:

- 1) MAXIMUM WALL HEIGHT IS 28'-0" (8.5m).
- 2) TRAFFIC SURCHARGE IS 240 PSF (11.5 KPA) MAXIMUM OR BACKSLOPE IS 2:1 (H:V) OR FLATTER.
- 3) EXISTING OR FINISHED GRADE IN FRONT OF WALL IS 6:1 (H:V) SLOPE OR FLATTER.
- 4) THE GRADE OF THE TOP OF WALL IS LESS THAN 4% FOR RETAINED EARTH AND TERRATREL TEMPORARY WALLS.
- 5) DESIGN SERVICE LIFE IS 3 YEARS.
- 6) MATERIAL IN REINFORCED ZONE IS SHORING BACKFILL.
- 7) MAXIMUM APPLIED BEARING PRESSURE IS 1 TSF (100 KPA) FOR WALL HEIGHTS UP TO 8'-0" (2.4m), 2 TSF (195 KPA) FOR WALL HEIGHTS BETWEEN 8'-0" AND 18'-0" (2.4m AND 5.5m) AND 3 TSF (290 KPA) FOR WALL HEIGHTS OVER 18'-0" (5.5m).

STANDARD TEMPORARY MSE WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:

- TOTAL UNIT WEIGHT = 120 PCF (18.8 KN/M³)
- FRICTION ANGLE = 30 DEGREES
- COHESION = 0 PSF (0 KPA)
- GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF REINFORCED ZONE.

DO NOT USE STANDARD TEMPORARY MSE WALLS WHEN THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT BELOW THE BOTTOM OF REINFORCED ZONE.

CONTROL DRAINAGE DURING CONSTRUCTION IN THE VICINITY OF STANDARD TEMPORARY MSE WALLS. COLLECT AND DIRECT RUNOFF AWAY FROM WALLS AND SHORING BACKFILL.

EXCAVATE AS NECESSARY FOR STANDARD TEMPORARY MSE WALLS IN ACCORDANCE WITH THE FOLLOWING FOR THE WALL OPTION CHOSEN:

- 1) MINIMUM EMBEDMENT OF 18" (450mm) UNLESS WALL BEARS ON ROCK, CONCRETE OR PAVEMENT AS DETERMINED BY THE ENGINEER
- 2) VERTICAL STEPS IN INCREMENT EQUAL TO THE VERTICAL REINFORCEMENT SPACING
- 3) WITH THE EXCEPTION OF EITHER THE FIRST OR LAST SECTION OF WALL, HORIZONTAL SECTION LENGTHS IN INCREMENTS EQUAL TO THE FOLLOWING:

STANDARD TEMPORARY MSE WALL OPTION	INCREMENT
TEMPORARY FABRIC WALL	9'-0" (2.7m) MIN (VARIES)
HILFIKER TEMPORARY WALL	10'-0" (3.0m) MIN (VARIES)
SIERRASCAPE TEMPORARY WALL	18'-7 1/4" (5.7m)
RETAINED EARTH TEMPORARY WALL	24'-0" (7.3m)
TERRATREL TEMPORARY WALL	19'-8" (6.0m)

DO NOT PLACE SHORING BACKFILL OR FIRST REINFORCEMENT LAYER UNTIL OBTAINING APPROVAL OF THE EXCAVATION DEPTH AND FOUNDATION MATERIAL.

IF APPLICABLE, INSTALL FOUNDATIONS LOCATED WITHIN THE REINFORCED ZONE BEFORE BEGINNING WALL CONSTRUCTION UNLESS DIRECTED OTHERWISE BY THE ENGINEER.

ERECT AND MAINTAIN FACINGS AND FORMS AS SHOWN ON THE STANDARD TEMPORARY MSE WALL DETAILS. STAGGER VERTICAL JOINTS OF FACINGS AND FORMS TO CREATE A RUNNING BOND WHEN POSSIBLE UNLESS SHOWN OTHERWISE ON THESE DETAILS.

PLACE FACINGS AND FORMS AS NEAR TO VERTICAL AS POSSIBLE WITH NO NEGATIVE BATTER. CONSTRUCT STANDARD TEMPORARY MSE WALLS WITH A VERTICAL AND HORIZONTAL TOLERANCE OF 3" (75mm) WHEN MEASURED WITH A 10'-0" (3m) STRAIGHT EDGE AND AN OVERALL VERTICAL PLUMBNESS (BATTER) AND HORIZONTAL ALIGNMENT OF LESS THAN 6" (150mm).

PLACE REINFORCEMENT AT LOCATIONS AND ELEVATIONS SHOWN ON THE STANDARD TEMPORARY MSE WALL DETAILS AND IN SLIGHT TENSION FREE OF KINKS, FOLDS, WRINKLES OR CREASES.

DO NOT SPLICE REINFORCEMENT IN THE REINFORCEMENT DIRECTION (RD), i.e., PARALLEL TO THE WALL FACE. SEAMS ARE ALLOWED IN THE CROSS-REINFORCEMENT DIRECTION (CRD).

CONTACT THE ENGINEER WHEN EXISTING OR FUTURE STRUCTURES SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT. TO AVOID STRUCTURES, DELFECT, SKEW AND MODIFY REINFORCEMENT.

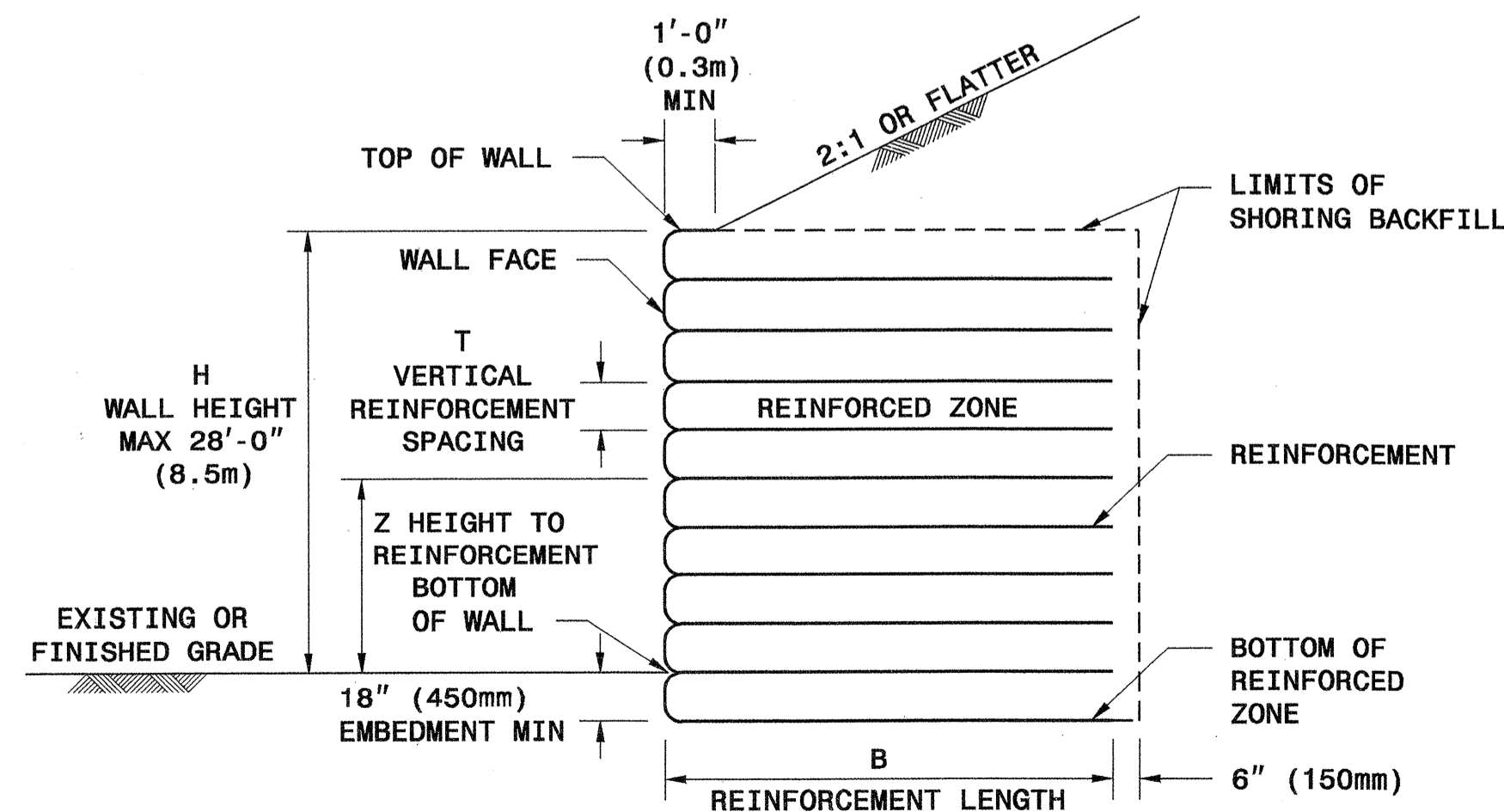
PLACE SHORING BACKFILL IN 8" TO 10" (200mm to 250mm) THICK LIFTS AND COMPACT IN ACCORDANCE WITH SUBARTICLE 235-4(C) OF THE STANDARD SPECIFICATIONS. USE ONLY HAND OPERATED COMPACTION EQUIPMENT WITHIN 3'-0" (1m) OF THE WALL FACE.

DO NOT DAMAGE REINFORCEMENT WHEN PLACING AND COMPACTING SHORING BACKFILL. DO NOT OPERATE HEAVY EQUIPMENT ON REINFORCEMENT UNTIL IT IS COVERED WITH AT LEAST 10" (250mm) OF SHORING BACKFILL. DO NOT USE SHEEPSFOOT, GRID ROLLERS OR OTHER TYPES OF COMPACTION EQUIPMENT WITH FEET.

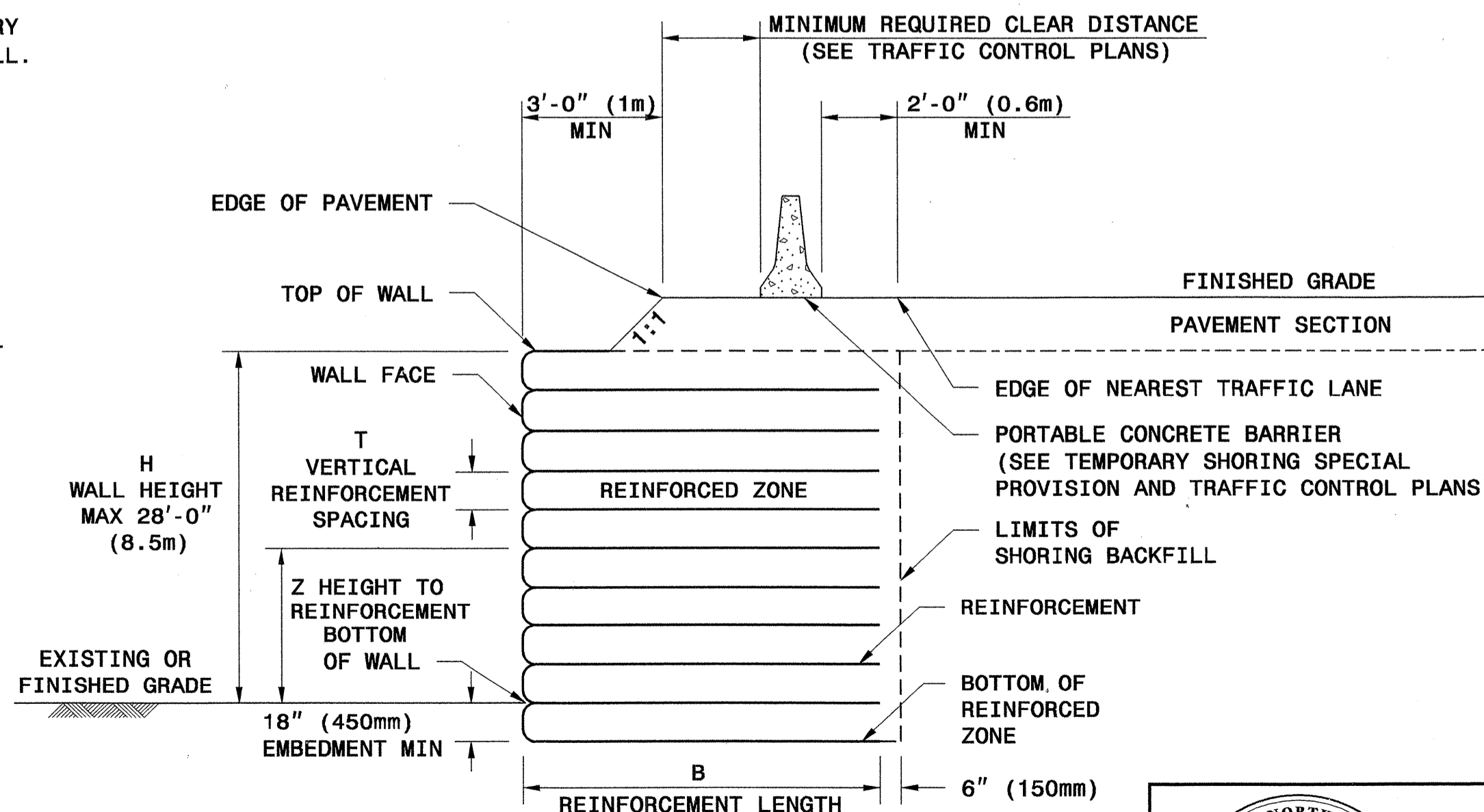
COVER REINFORCING AND RETENTION FABRIC WITH AT LEAST 3" (75mm) OF SHORING BACKFILL. PLACE TOP REINFORCEMENT LAYER BETWEEN 4" AND 24" (100mm and 600mm) BELOW TOP OF WALL DEPENDING ON WALL OPTION.

BENCH STANDARD TEMPORARY MSE WALLS INTO THE SIDES OF EXCAVATIONS WHERE APPLICABLE.

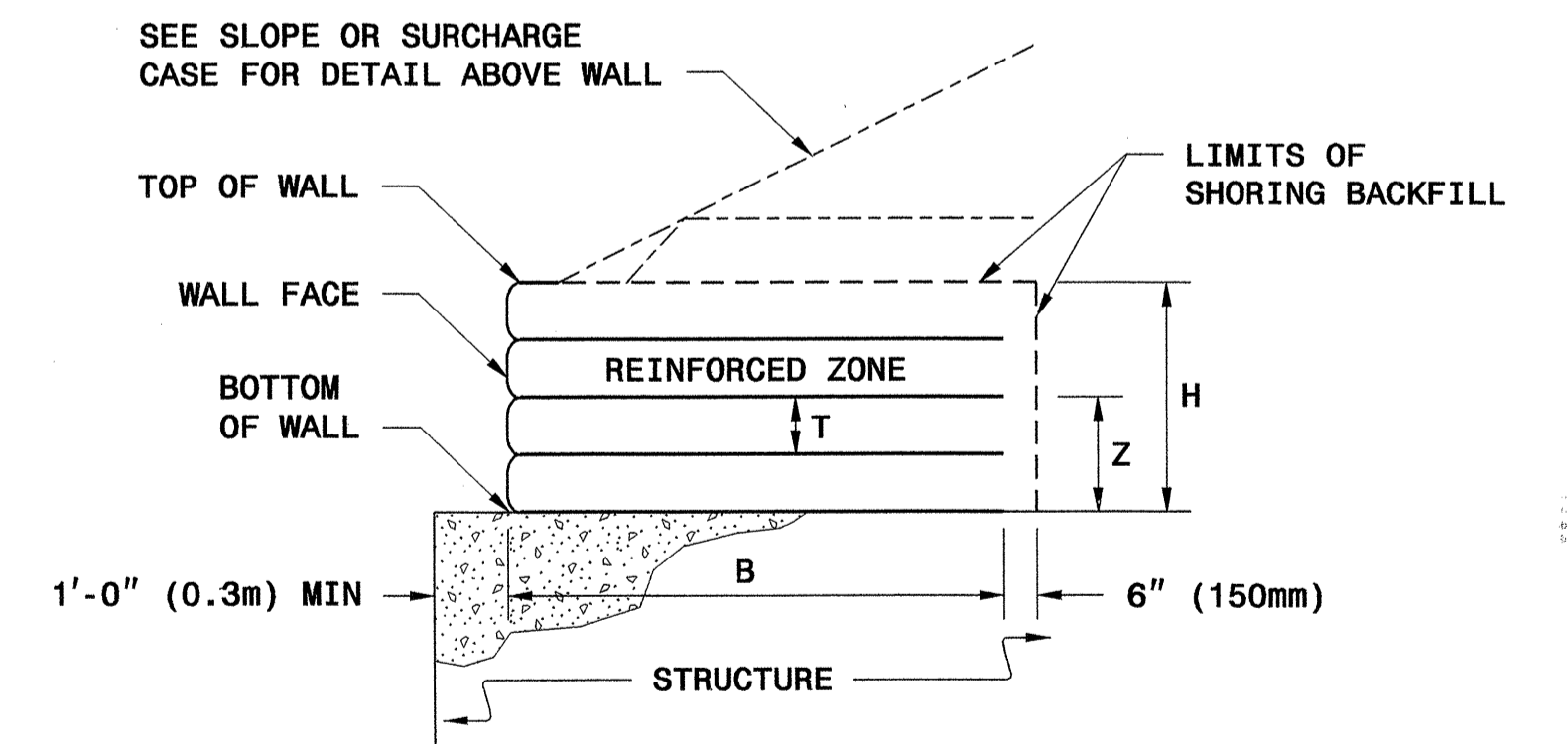
IF THE TOP OF WALL IS WITHIN 5'-0" (1.5m) OF FINISHED GRADE, REMOVE TOP FORM OR FACING AND INCORPORATE THE TOP REINFORCEMENT LAYER INTO THE FILL WHEN PLACING FILL IN FRONT OF THE WALL. STANDARD TEMPORARY MSE WALLS REMAIN IN PLACE PERMANENTLY UNLESS REQUIRED OTHERWISE.



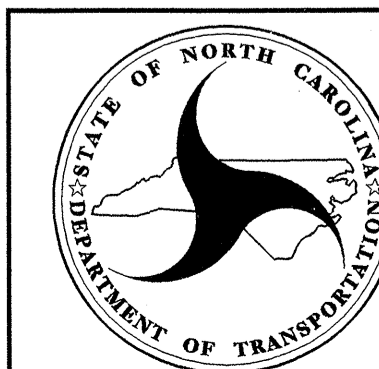
SLOPE CASE



SURCHARGE CASE



TEMPORARY MSE WALL ON STRUCTURE



GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS

GEOTECHNICAL ENGINEER

ENGINEER



Signature: Scott A. Nidda Date: 3/2/07

HOW TO USE THIS SHEET:

- FOR ALL WALL OPTIONS, DETERMINE MINIMUM REQUIRED REINFORCEMENT LENGTH (B) FROM TABLE AT RIGHT BASED ON WALL HEIGHT (H) AND SLOPE OR SURCHARGE CASE
- FOR STANDARD TEMPORARY FABRIC WALL, SEE SHEET 3 FOR FABRIC STRENGTH REQUIREMENTS BASED ON WALL HEIGHT (H)
- FOR ALL OTHER WALL OPTIONS, DETERMINE REINFORCEMENT TYPE FROM TABLES BELOW FOR EACH HEIGHT TO REINFORCEMENT (Z) BASED ON WALL HEIGHT (H) AND SLOPE OR SURCHARGE CASE

MINIMUM REQUIRED REINFORCEMENT LENGTH B (FT)

(FOR ALL WALL OPTIONS)

WALL HEIGHT H (FT)	<8	8 TO 10	10 TO 12	12 TO 14	14 TO 16	16 TO 18	18 TO 20	20 TO 22	22 TO 24	24 TO 26	26 TO 28
SLOPE CASE	8	11	13	14	16	18	20	22	24	25	27
SURCHARGE CASE	8	9	11	12	14	15	16	18	19	21	22

TERRATREL TEMPORARY WALL (STRIPS PER LEVEL PER PANEL)

H (FT)	<4	4 TO 6	6 TO 8	8 TO 10	10 TO 12	12 TO 14	14 TO 16	16 TO 18	18 TO 20	20 TO 22	22 TO 24	24 TO 26	26 TO 28
27 - 8												3	
26 - 10												3	3
25 - 2												3	3
23 - 6												3	3
21 - 10												3	3
20 - 2												3	3
18 - 6												3	3
16 - 10												3	3
15 - 2												3	3
13 - 6												3	3
11 - 10												3	3
10 - 2												3	3
8 - 6												3	3
6 - 10												3	3
5 - 2												3	3
3 - 6												3	3
1 - 10												3	3
0 - 2												3	3
-0 - 8												3	3

SLOPE AND SURCHARGE CASES Z (FT-INCHES)

SIERRASCAPE TEMPORARY WALL (GEOGRID TYPE)

11 = UX1100MSE 16 = UX1600MSE
14 = UX1400MSE 17 = UX1700MSE
15 = UX1500MSE

H (FT)	<4	4 TO 6	6 TO 8	8 TO 10	10 TO 12	12 TO 14	14 TO 16	16 TO 18	18 TO 20	20 TO 22	22 TO 24	24 TO 26	26 TO 28
26.5												11	
25.5												11	11
24												11	11
22.5												11	11
21												11	11
19.5												11	11
18												11	11
16.5												11	11
15												11	11
13.5												11	11
12												11	11
10.5												11	11
9												11	11
7.5												11	11
6												11	11
4.5												11	11
3												11	11
1.5												11	11
0												11	11
-1.5												11	11

SLOPE CASE SURCHARGE CASE Z (FT)

HILFIKER TEMPORARY WALL (WELDED WIRE MAT TYPE)

4.5 = W4.5 x W3.5
7.0 = W7.0 x W3.5
9.5 = W9.5 x W4.0

H (FT)	<4	4 TO 6	6 TO 8	8 TO 10	10 TO 12	12 TO 14	14 TO 16	16 TO 18	18 TO 20	20 TO 22	22 TO 24	24 TO 26	26 TO 28
26												4.5	
24												4.5	7.0
22												4.5	7.0
20												4.5	7.0
18												4.5	7.0
16												4.5	7.0
14												4.5	7.0
12												4.5	7.0
10												4.5	7.0
8												4.5	7.0
6												4.5	7.0
4												4.5	7.0
3												4.5	7.0
2												4.5	7.0
1												4.5	7.0
0												4.5	7.0
-1.5												4.5	7.0

SLOPE CASE SURCHARGE CASE Z (FT)

RETAINED EARTH TEMPORARY WALL (WELDED WIRE MESH TYPE)

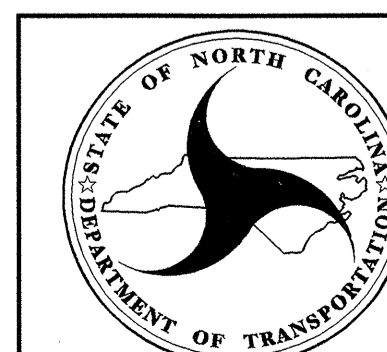
3X1 = 3W8 x W8 x 1.0'
3X2 = 3W8 x W8 x 2.0'

H (FT)	<4	4 TO 6	6 TO 8	8 TO 10	10 TO 12	12 TO 14	14 TO 16	16 TO 18	18 TO 20	20 TO 22	22 TO 24	24 TO 26	26 TO 28
27 - 6													3X1
26 - 10													3X1
25 - 2													3X1
23 - 6													3X1
21 - 10													3X1
20 - 2													3X1
18 - 6													3X1
16 - 10													3X1
15 - 2													3X1
13 - 6													3X1
11 - 10													3X1
10 - 2													3X1
8 - 6													3X1
6 - 10													3X1
5 - 2													3X1
3 - 6													3X1
1 - 10													3X1
0 - 2													3X1
-1 - 6													3X1

SLOPE AND SURCHARGE CASES Z (FT-INCHES)

NOTES FOR HILFIKER TEMPORARY WALL

- 1) CAP MAT AT TOP OF WALL IS NOT INCLUDED IN TABLES.
- 2) REINFORCEMENT IS NOT REQUIRED AT 1' LEVEL FOR SLOPE CASE UNTIL WALL HEIGHT (H) IS GREATER THAN 24'.
- 3) REINFORCEMENT IS NOT REQUIRED AT 3' LEVEL FOR SLOPE CASE UNTIL WALL HEIGHT (H) IS GREATER THAN 26'.
- 4) REINFORCEMENT IS NOT REQUIRED AT 1' LEVEL FOR SURCHARGE CASE UNTIL WALL HEIGHT (H) IS GREATER THAN 26'.




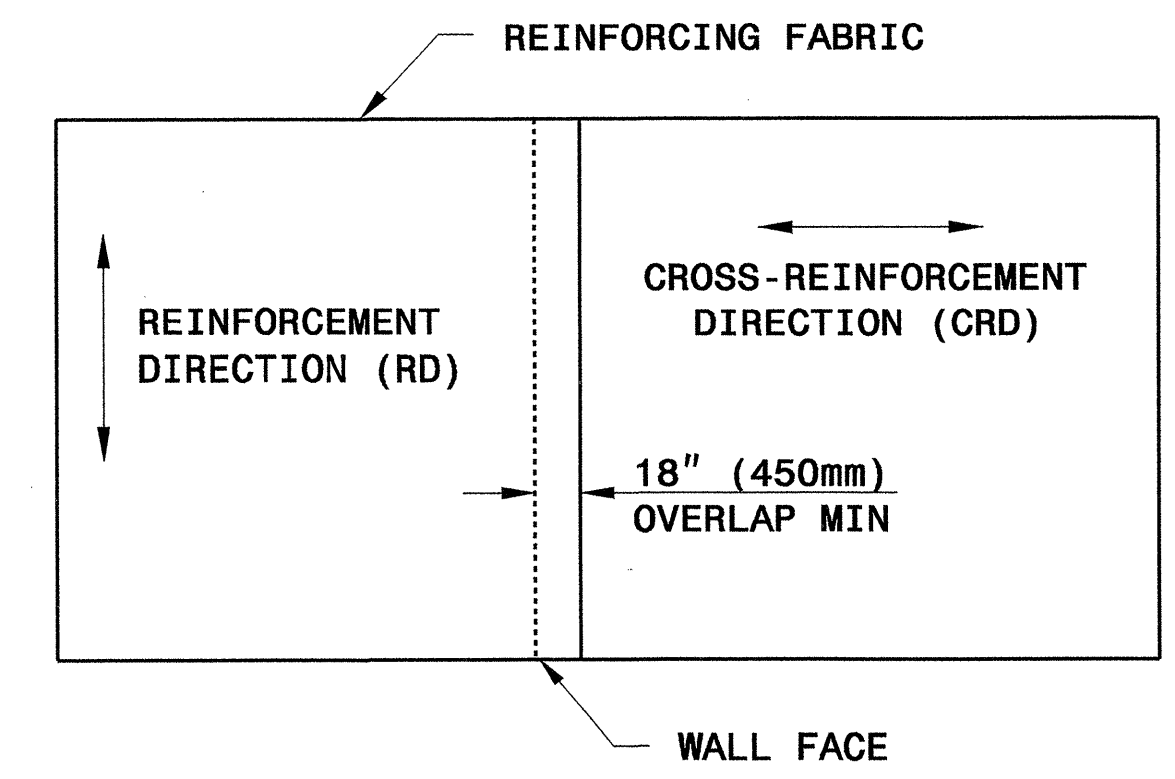
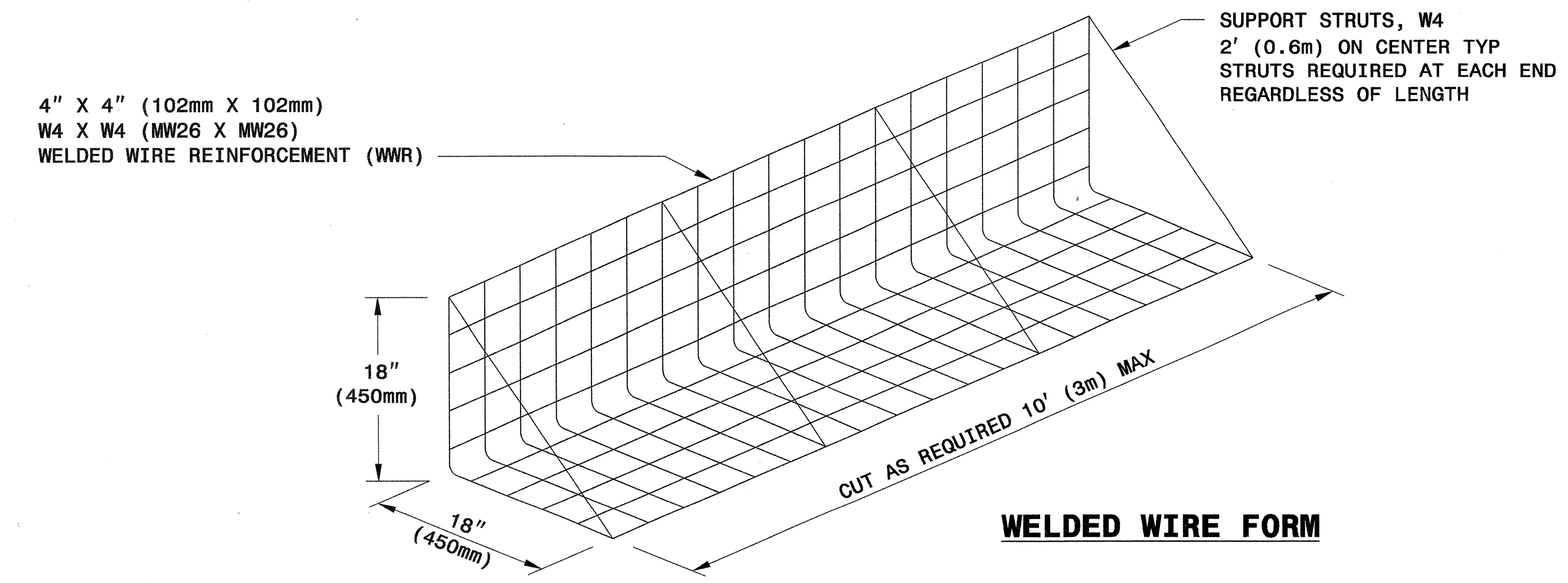
GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.02

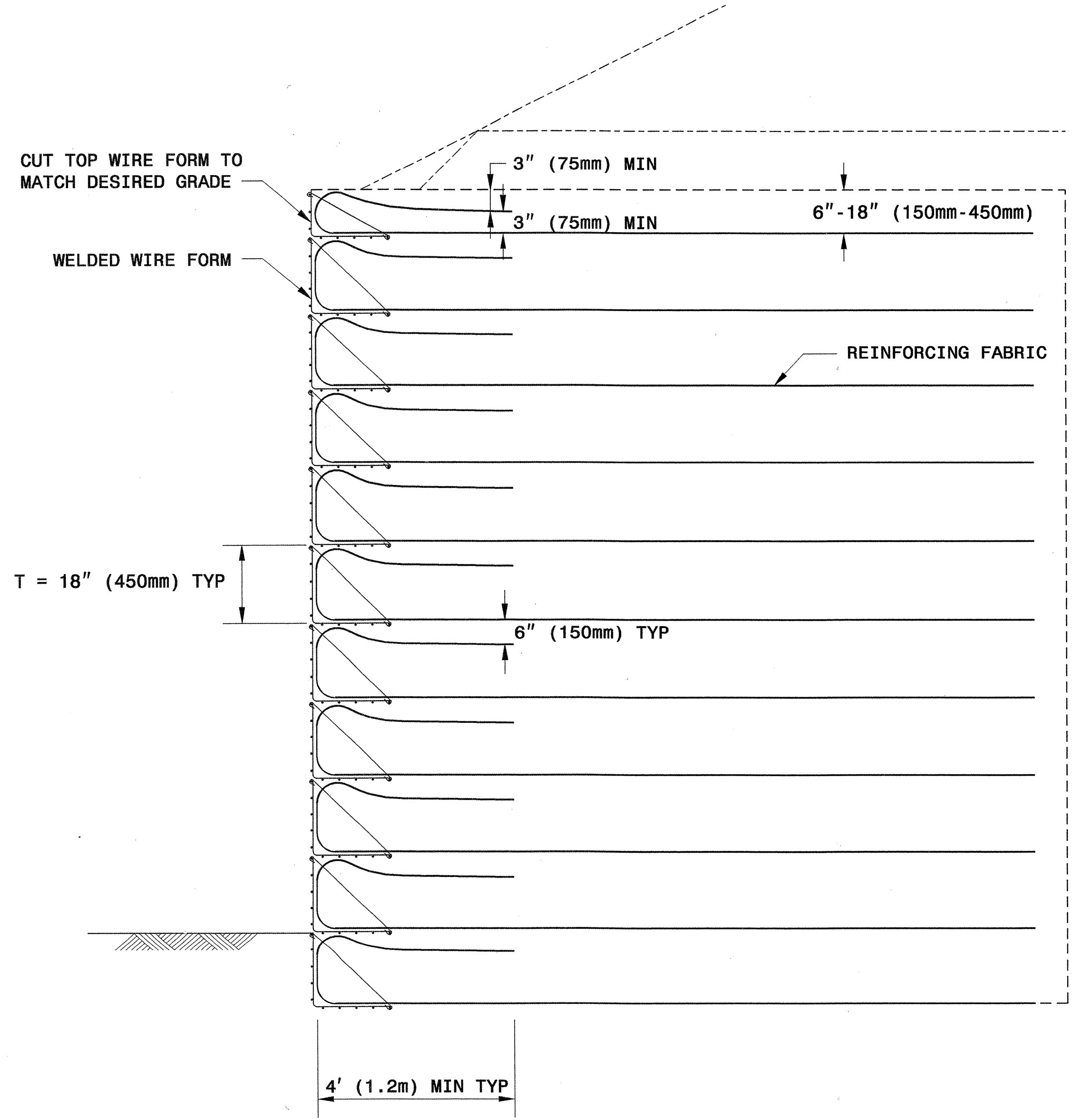
STANDARD TEMPORARY MSE WALL REINFORCEMENT TABLES - ENGLISH UNITS

SHEET 2 OF 11 DATE: 2-20-07

GEOTECHNICAL ENGINEER  Scott A. Hadden SIGNATURE DATE	ENGINEER SIGNATURE DATE
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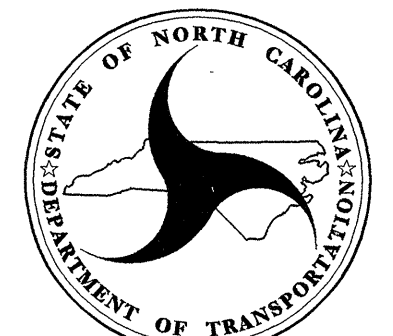
PLAN VIEW OF FABRIC OVERLAP



MINIMUM REQUIRED REINFORCING FABRIC STRENGTH FOR RD*
(SLOPE AND SURCHARGE CASES)

WALL HEIGHT H FEET (M)	POLYESTER WIDE WIDTH TENSILE STRENGTH @ ULTIMATE LB/INCH (KN/M)	POLYPROPYLENE WIDE WIDTH TENSILE STRENGTH @ ULTIMATE LB/INCH (KN/M)
4 (1.2)	200 (35)	200 (35)
6 (1.8)	200 (35)	200 (35)
8 (2.4)	200 (35)	200 (35)
10 (3.0)	200 (35)	230 (40)
12 (3.7)	220 (39)	264 (46)
14 (4.3)	248 (43)	297 (52)
16 (4.9)	276 (48)	330 (58)
18 (5.5)	304 (53)	364 (64)
20 (6.1)	332 (58)	397 (70)
22 (6.7)	359 (63)	431 (76)
24 (7.3)	387 (68)	464 (81)
26 (7.9)	415 (73)	497 (87)
28 (8.5)	443 (78)	531 (93)

*RD = REINFORCEMENT DIRECTION

 <p>GEOTECHNICAL ENGINEERING UNIT STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH</p>	STANDARD DRAWING NO. 1801.02
	TEMPORARY FABRIC WALL SHEET 3 OF 11 DATE: 12-19-06

GEOTECHNICAL ENGINEER

ENGINEER



Scott A. Hilder 3/29/07

SIGNATURE

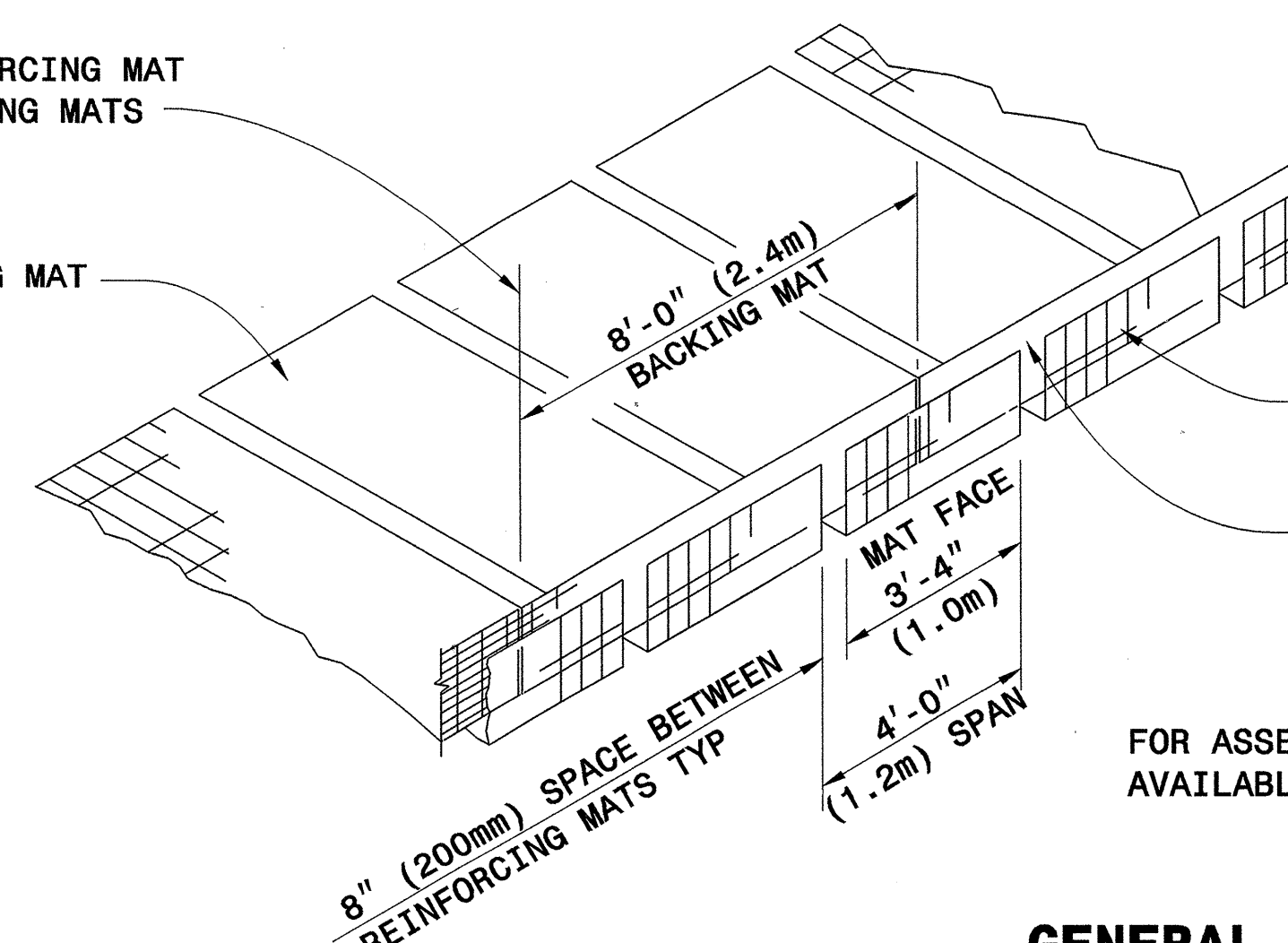
DATE

SIGNATURE

DATE

CENTERLINE OF REINFORCING MAT FACE = EDGE OF BACKING MATS

REINFORCING MAT



WALL FACE

BACKING MAT

8'-0" (2.4m) BACKING MAT

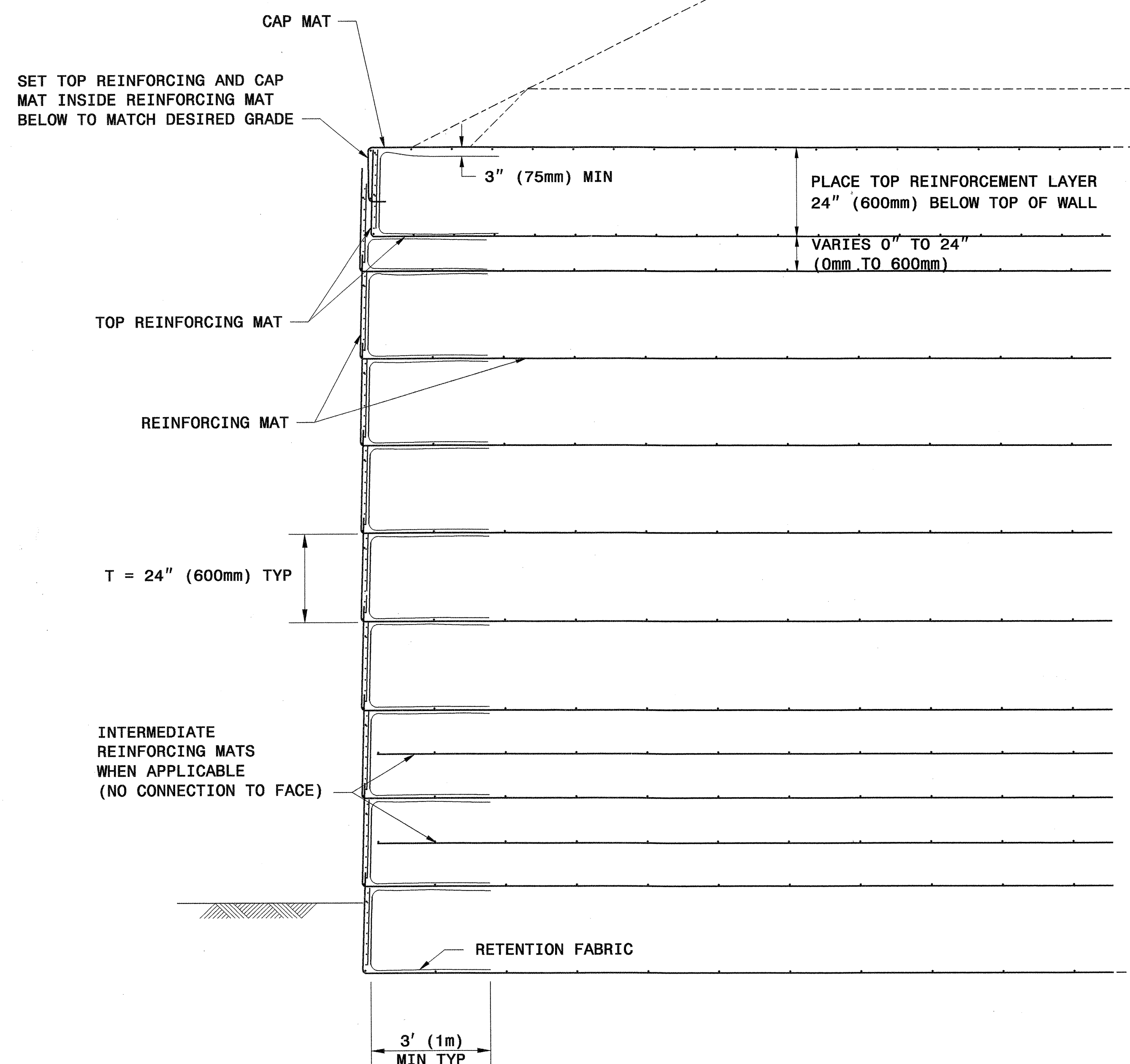
MAT FACE 3'-4" (1.0m)

4'-0" (1.2m) SPAN

8" (200mm) SPACE BETWEEN REINFORCING MATS TYP

FOR ASSEMBLY INSTRUCTIONS, SEE WELDED WIRE WALL CONSTRUCTION GUIDE AVAILABLE FROM HILFIKER WEBSITE AT WWW.HILFIKER.COM/WWW

GENERAL ASSEMBLY DETAIL



SET TOP REINFORCING AND CAP MAT INSIDE REINFORCING MAT BELOW TO MATCH DESIRED GRADE

CAP MAT

3" (75mm) MIN

PLACE TOP REINFORCEMENT LAYER 24" (600mm) BELOW TOP OF WALL

VARIES 0" TO 24" (0mm TO 600mm)

TOP REINFORCING MAT

REINFORCING MAT

T = 24" (600mm) TYP

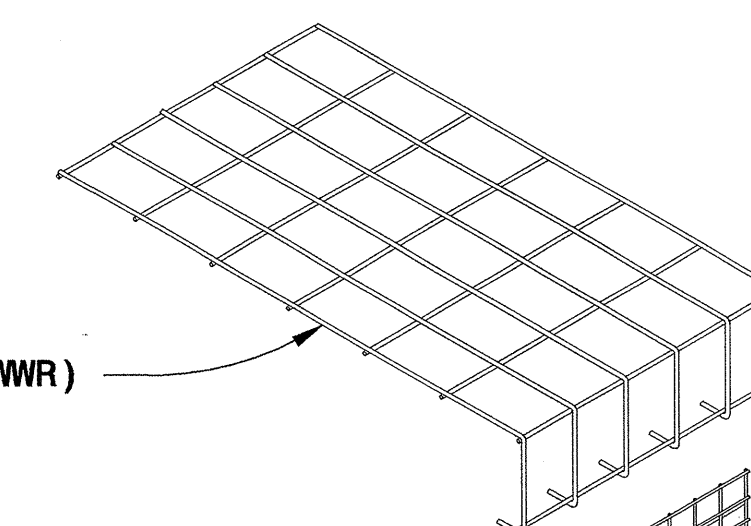
INTERMEDIATE REINFORCING MATS WHEN APPLICABLE (NO CONNECTION TO FACE)

RETENTION FABRIC

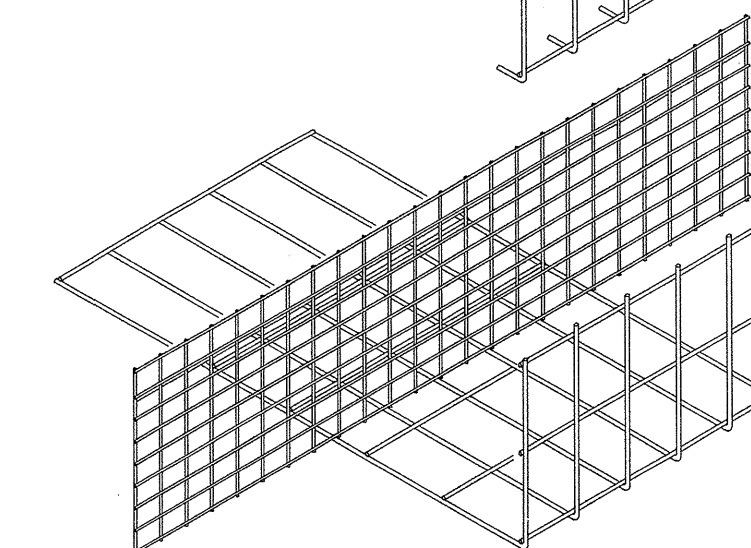
3' (1m) MIN TYP

TYPICAL SECTION

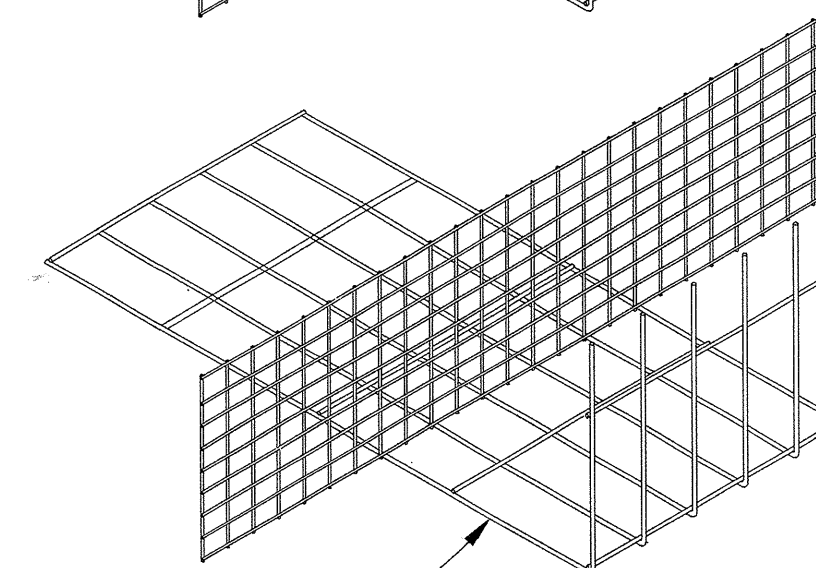
8" X 12" (203mm X 305mm) W4.5 X W3.5 (MW29 X MW23) CAP MAT WELDED WIRE REINFORCEMENT (WWR)



8" X 12" (203mm X 305mm) W4.5 X W3.5 (MW29 X MW23) WWR TOP REINFORCING MAT (NO PRONGS)

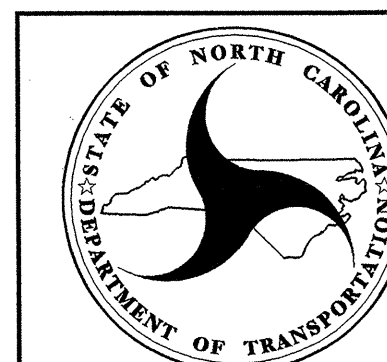


4" X 3" (102mm X 76mm) W5 X W2.5 (MW32 X MW16) WWR BACKING MAT 8' (2.4m) WIDE



8" X 21" (203mm X 533mm) REINFORCING MAT SEE SHEETS 2 AND 3 FOR GAUGE SIZES

WALL COMPONENTS

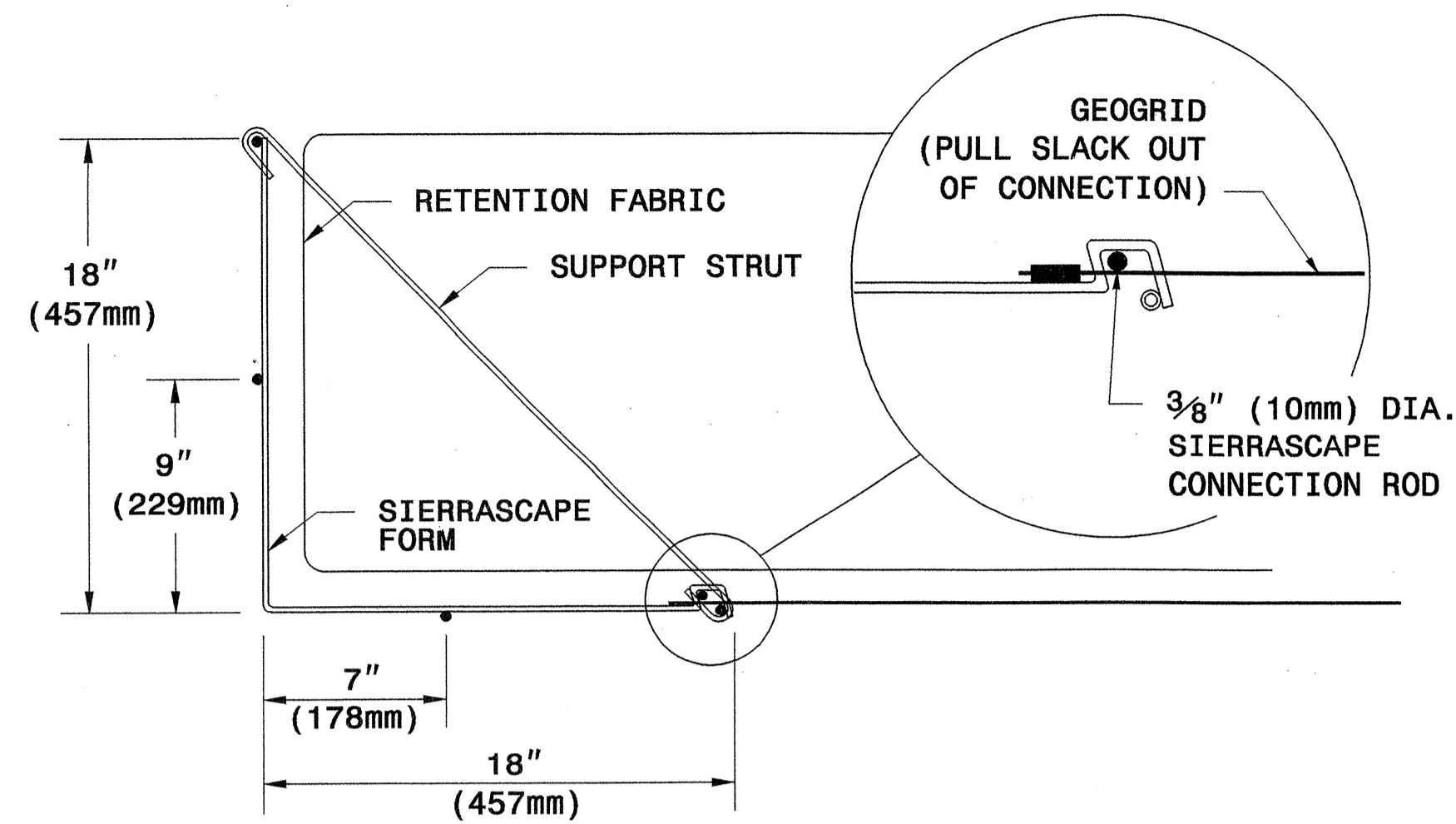


GEOTECHNICAL ENGINEER

ENGINEER

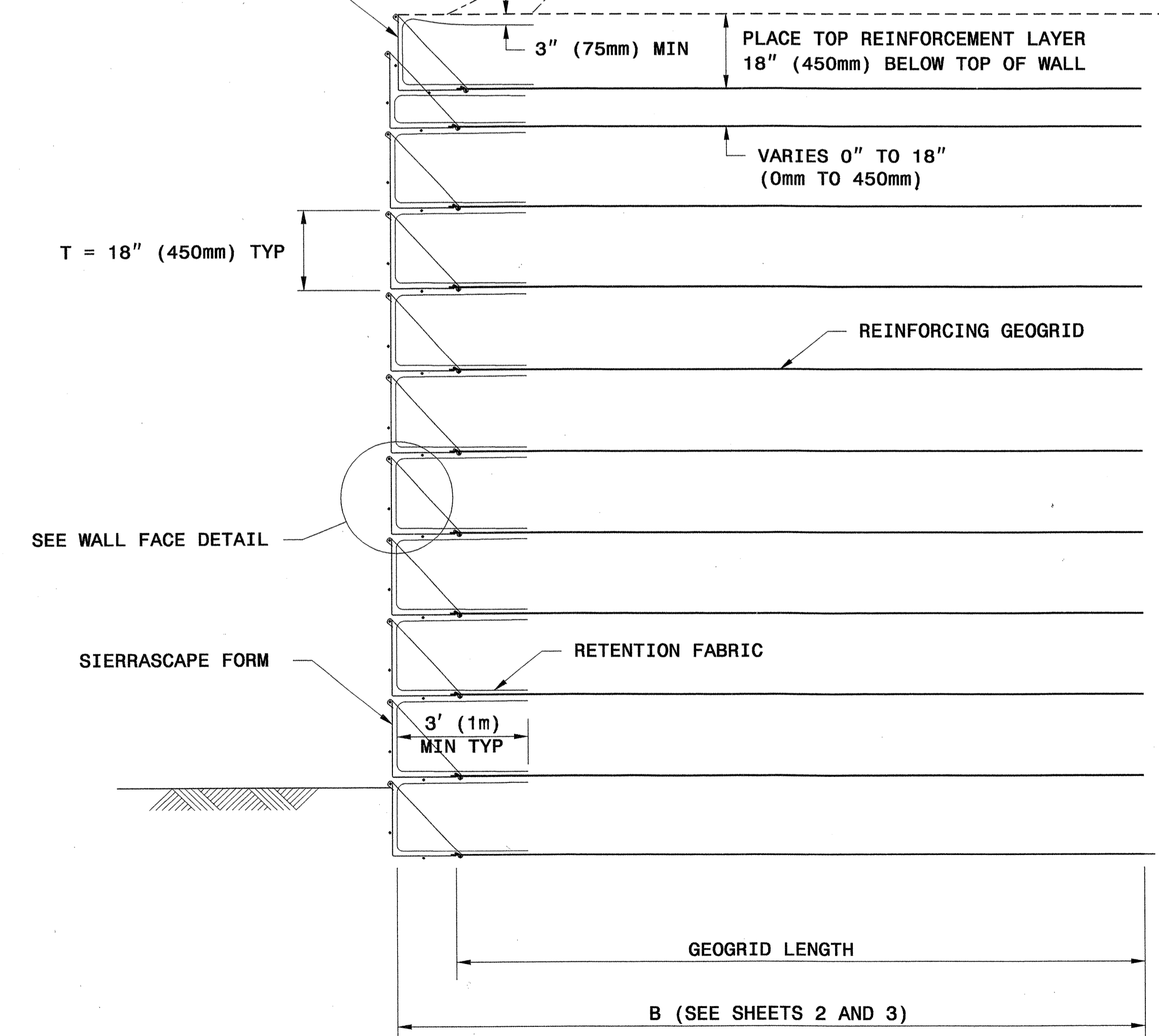


Scott A. Hiddle 5/29/07

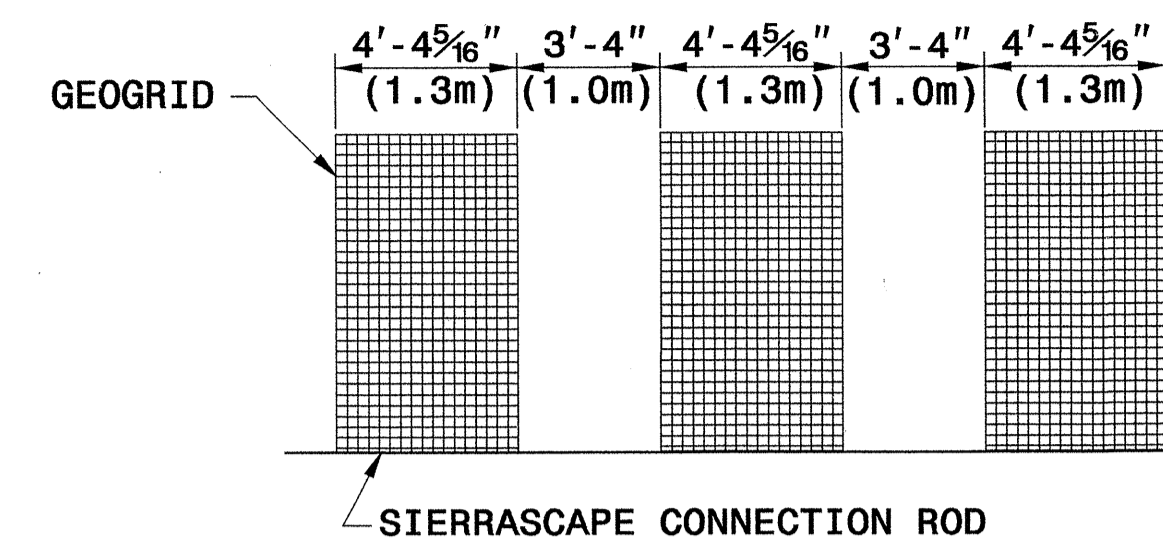


WALL FACE DETAIL

SET TOP WIRE FORM INSIDE WIRE FORM BELOW TO MATCH DESIRED GRADE

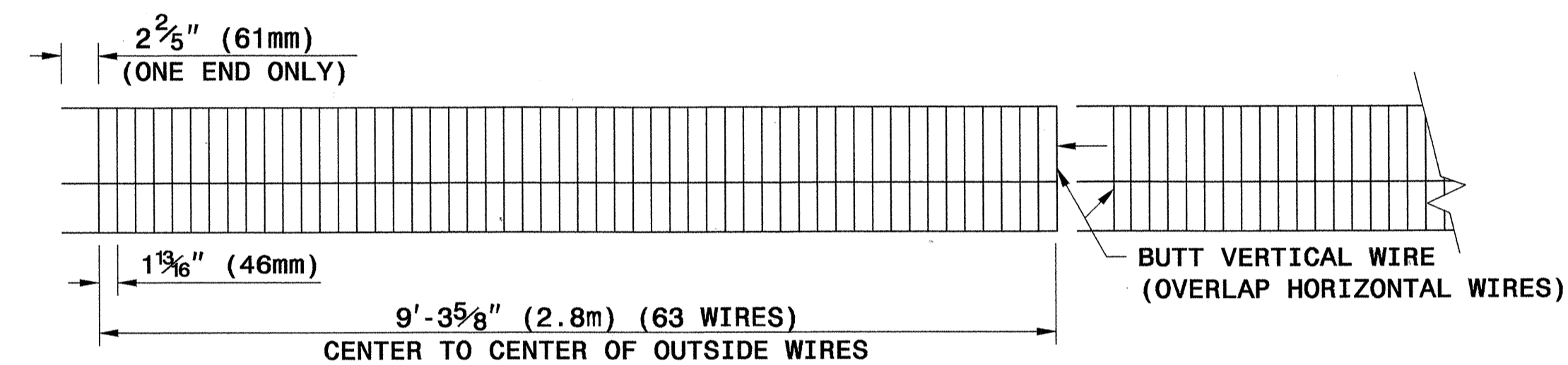


TYPICAL SECTION

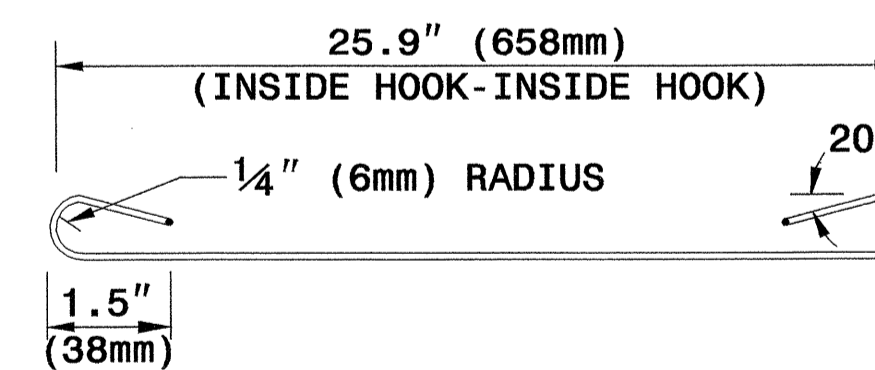


PLACE ALTERNATE LAYERS OF GEOGRID IN STAGGERED PATTERN SUCH THAT THE LAYER ABOVE IS CENTERED OVER SPACE BELOW

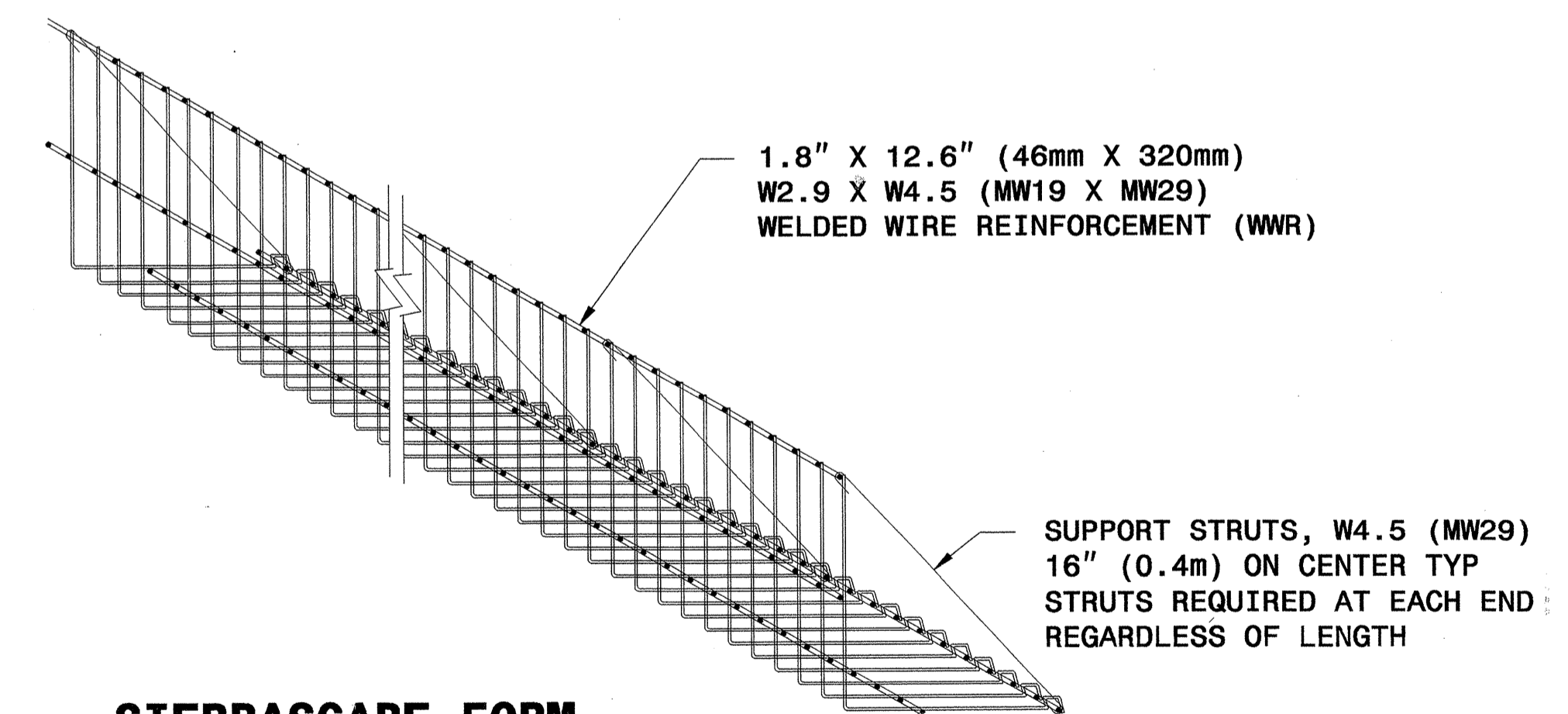
TYPICAL GEOGRID COVERAGE



ELEVATION VIEW

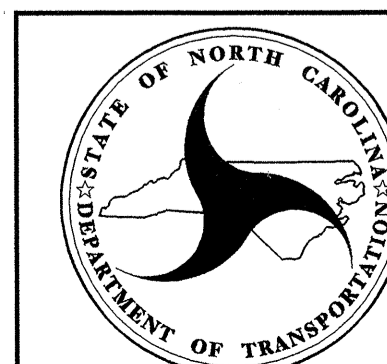
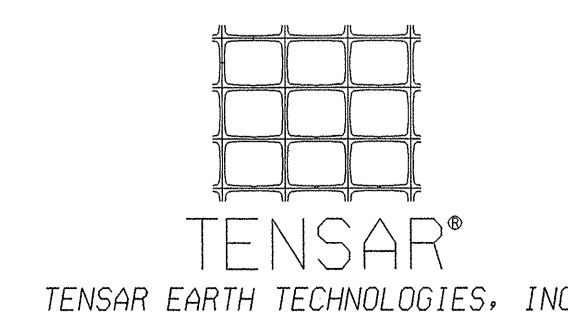


SUPPORT STRUT



SIERRASCAPE FORM

WALL COMPONENTS



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RALEIGH

STANDARD DRAWING NO. 1801.02

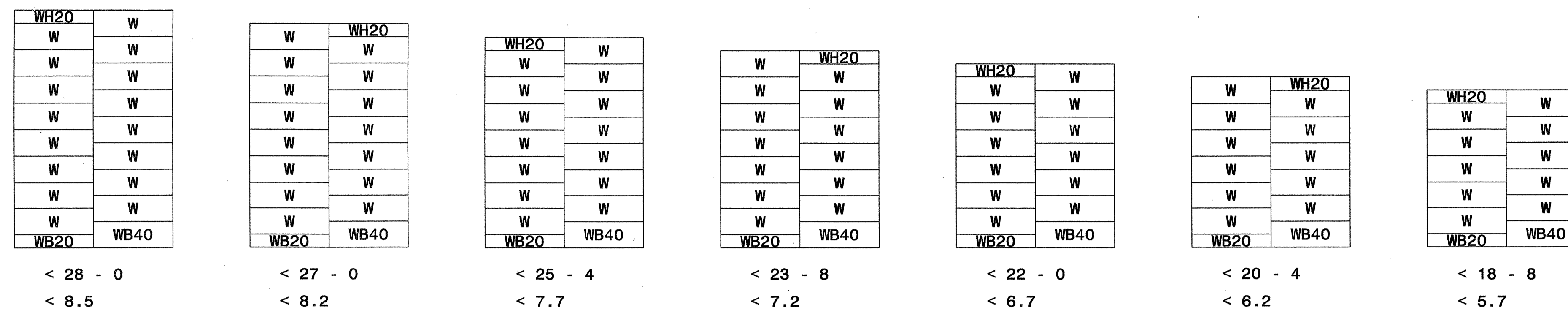
SIERRASCAPE TEMPORARY WALL



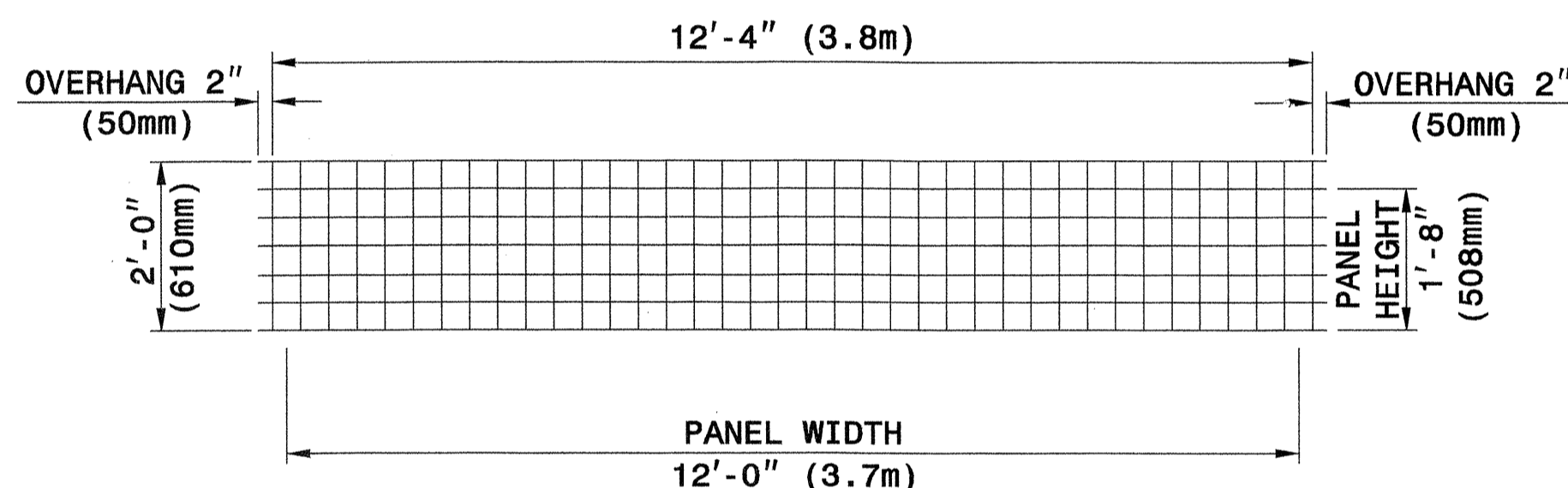
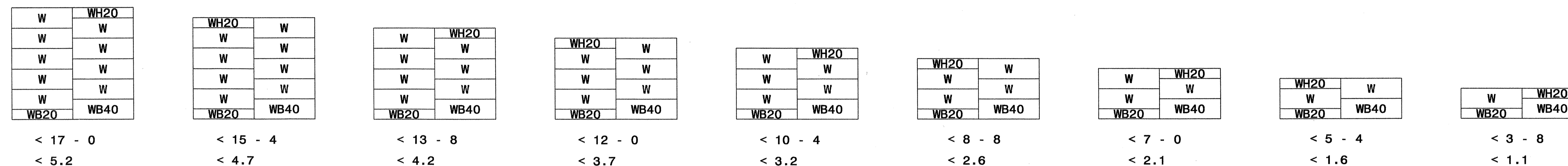
Signature: Scott A. Hiden, Date: 3/29/07

PANEL LAYOUTS

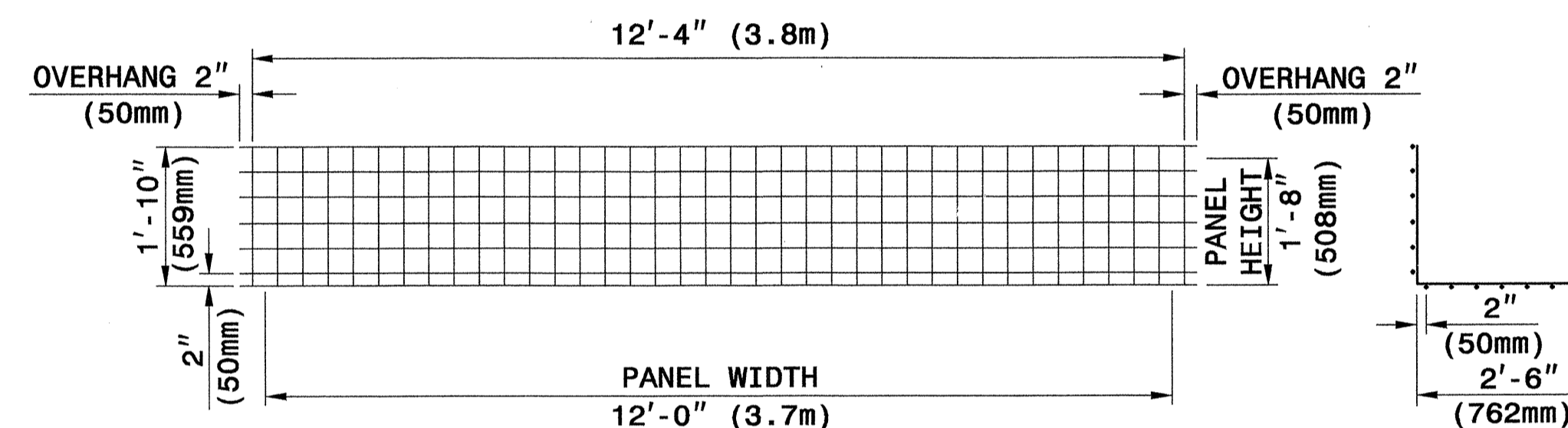
H - WALL HEIGHT
(FEET-INCHES)
(METER)



(FEET-INCHES)
(METER)

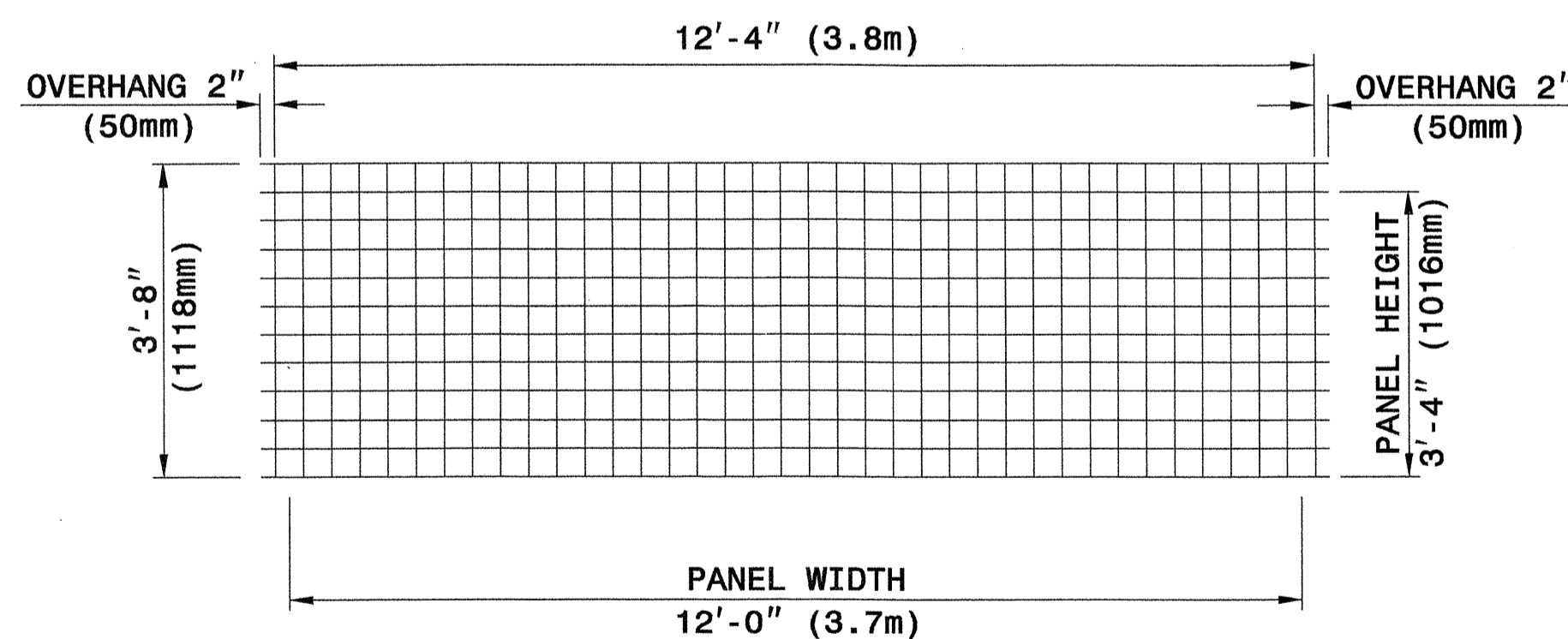


TYPE WH20

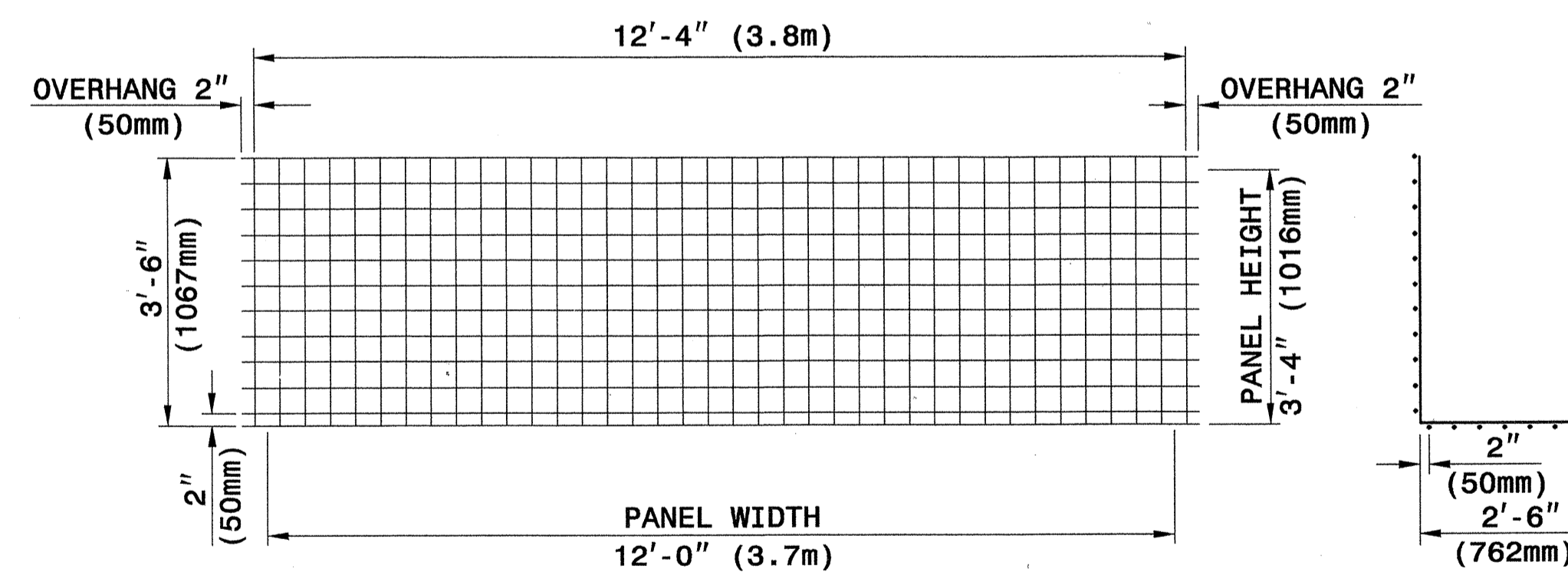


TYPE WB20

SECTION



TYPE W



TYPE WB40

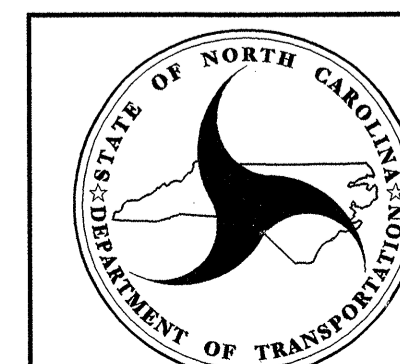
SECTION

WELDED WIRE FACINGS

WELDED WIRE FORMS

PANEL TYPES (WELDED WIRE FACINGS AND FORMS)

4" X 4" (100mm X 100mm), W8 X W8 (MW52 X MW52) WELDED WIRE REINFORCEMENT (WWR)



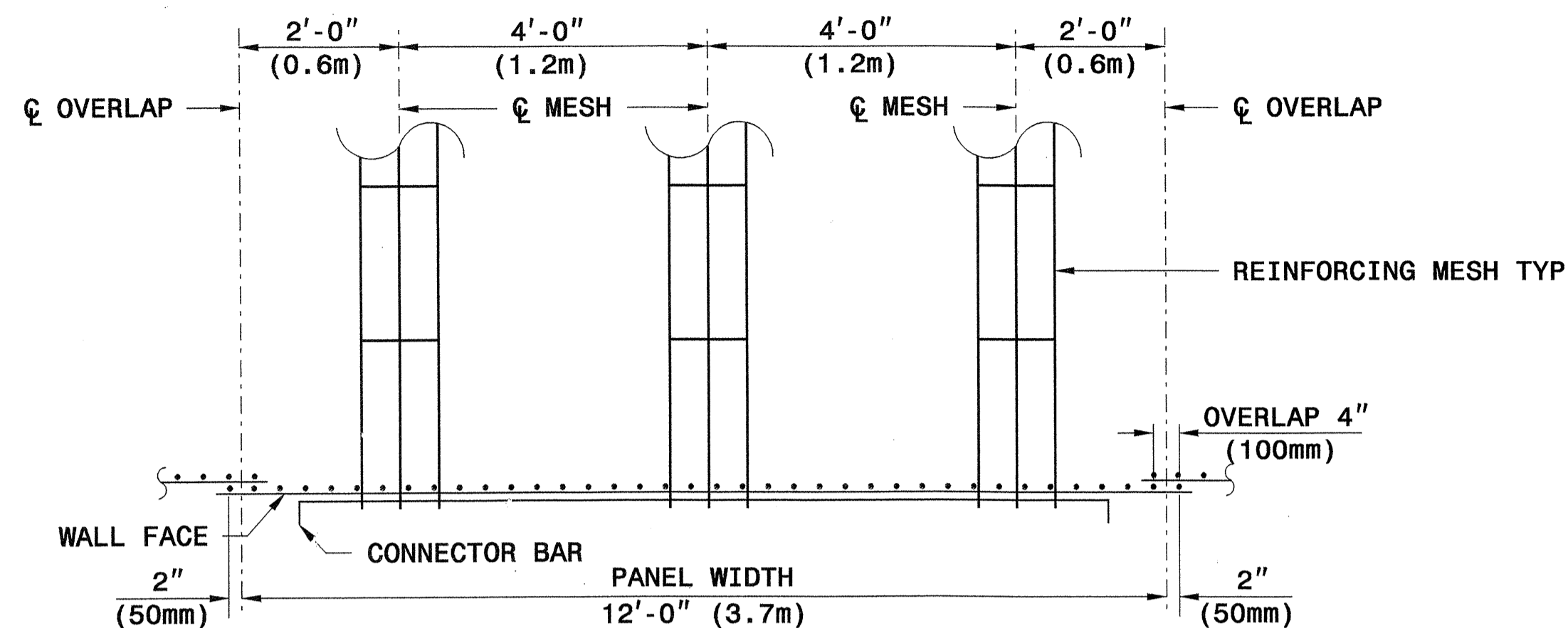
GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.02

RETAINED EARTH
TEMPORARY WALL



Scott A. Hadden 3/29/07

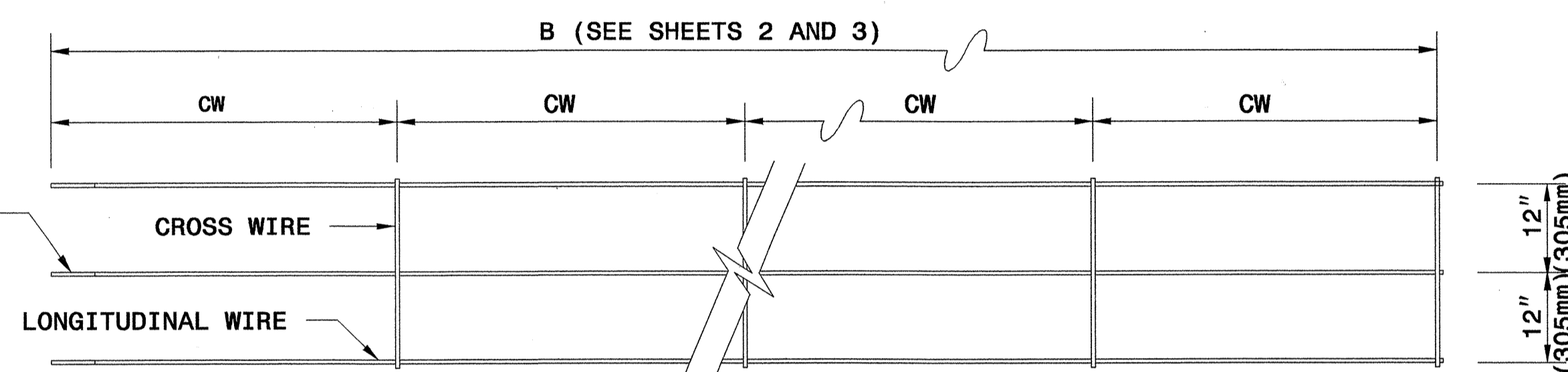


**REINFORCING MESH PLACEMENT DETAIL
(PLAN VIEW)**



1/2" (13mm) DIA. BAR

CONNECTOR BAR

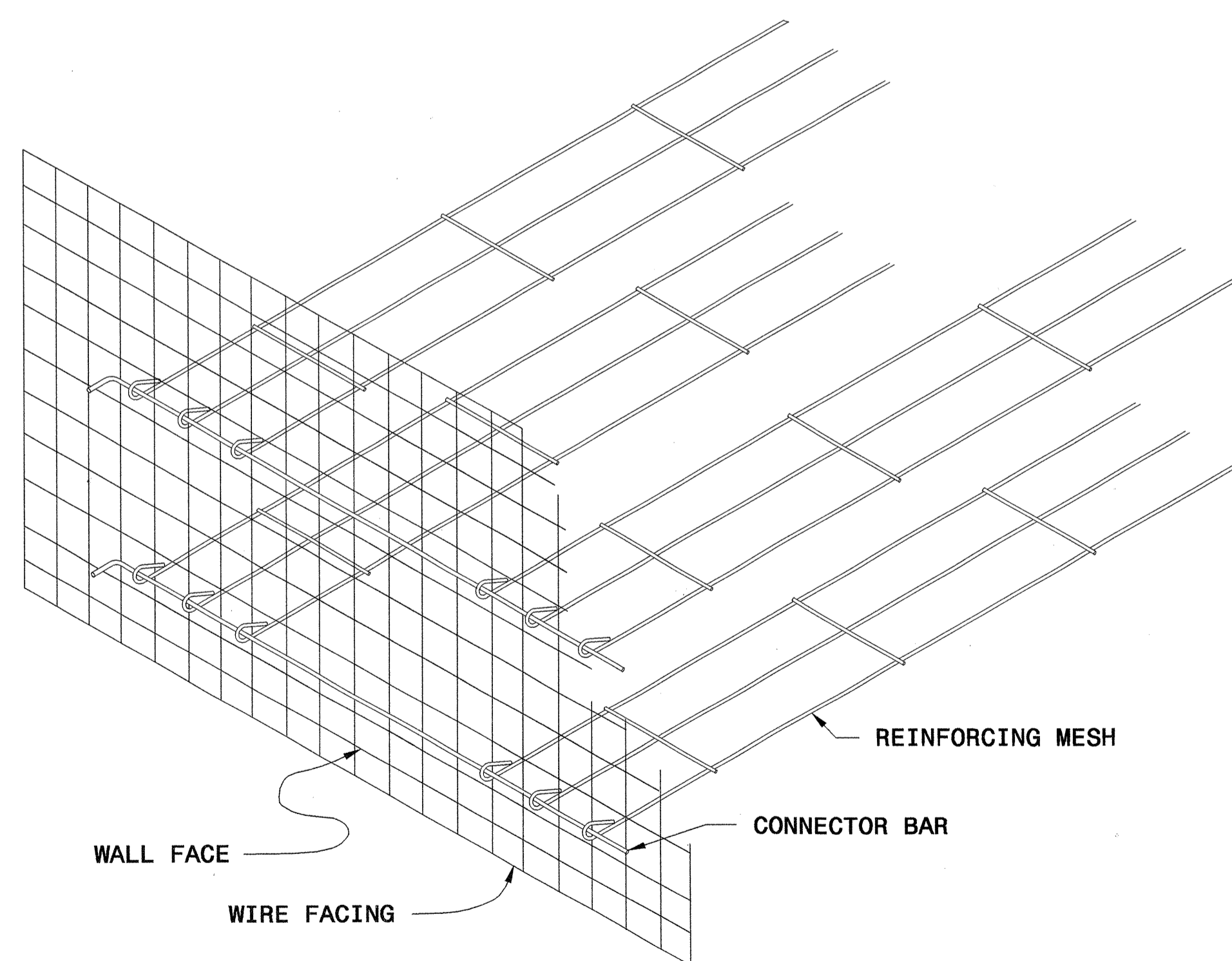


LOOPED END OF MESH
(SEE REINFORCING MESH LOOP DETAIL)

IF REINFORCEMENT LENGTH IS NOT AN INCREMENT OF 2'-0" (610mm) MAKE CW EQUAL TO 12" (305mm) AT THE END OF THE REINFORCING MESH OPPOSITE THE LOOPED END

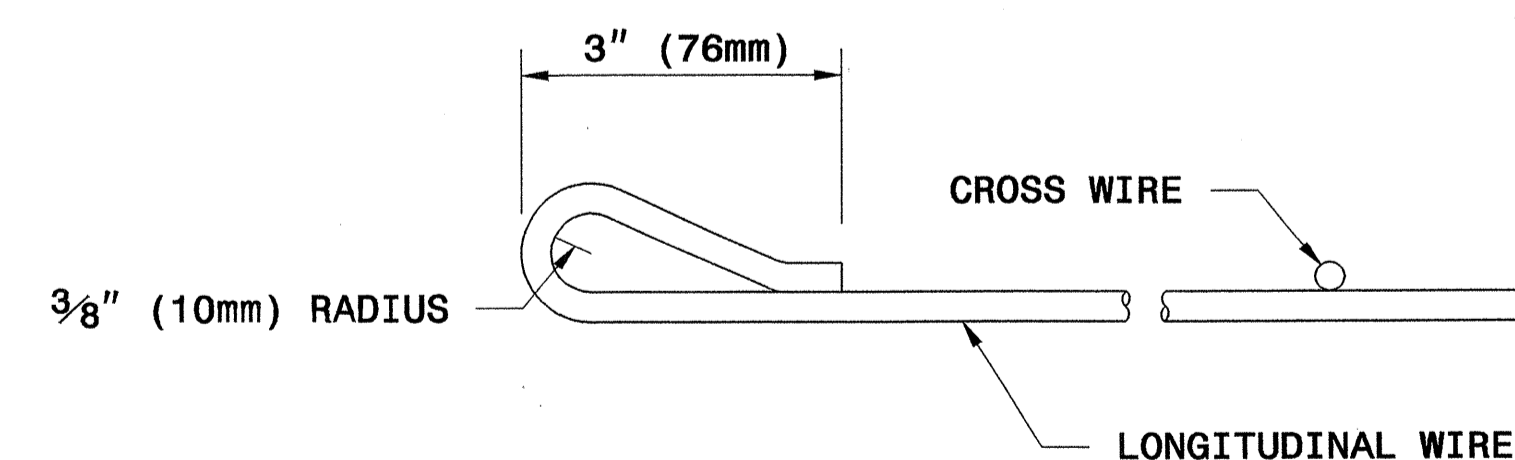
3W8 X W8 x 2.0' (3MW52 X MW52 X 610mm)
 NO. OF LONGITUDINAL WIRES
 GAUGE OF LONGITUDINAL WIRES
 GAUGE OF CROSS WIRES
 SPACING OF CROSS WIRES IN FT (mm), CW

REINFORCING MESH DESIGNATION

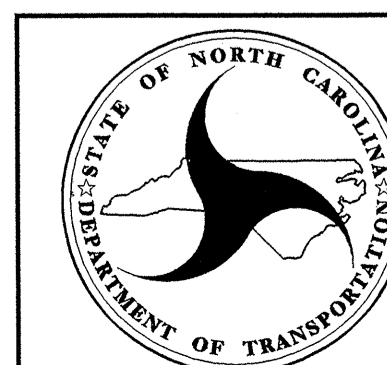


GENERAL ASSEMBLY DETAIL

REINFORCING MESH



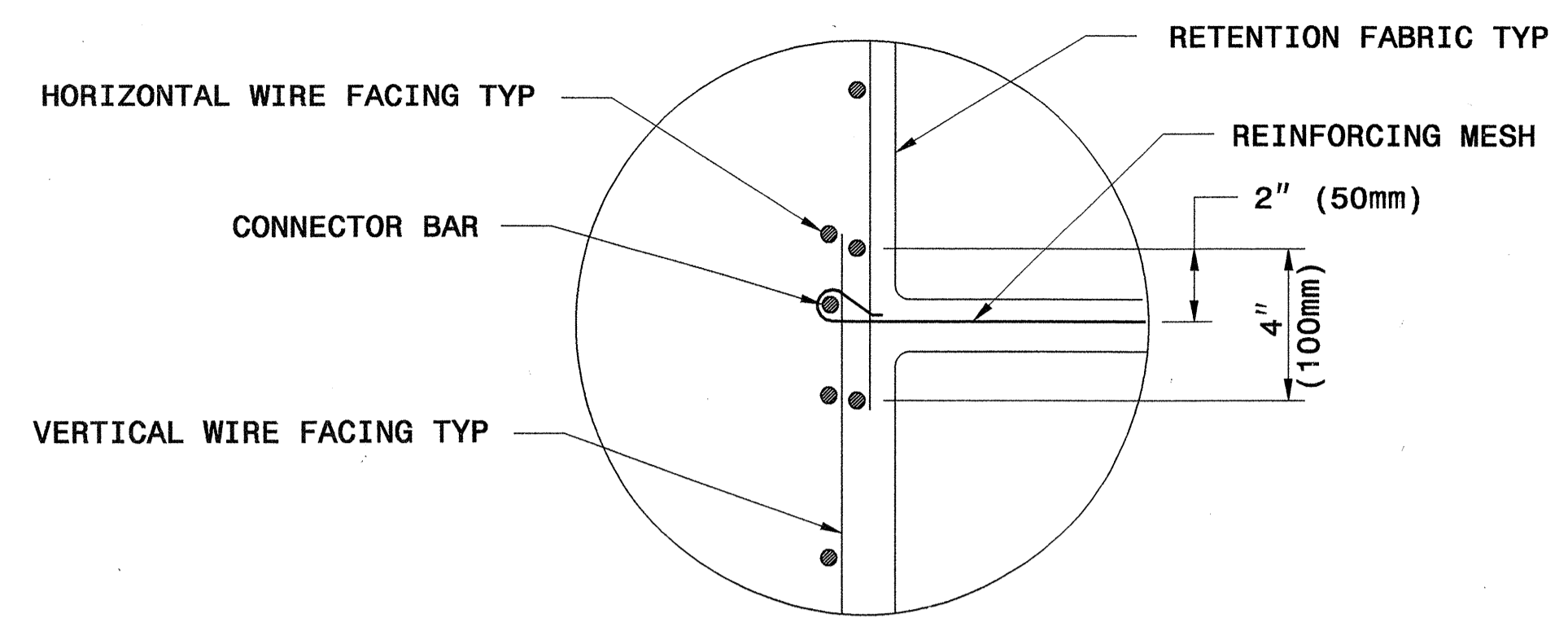
REINFORCING MESH LOOP DETAIL



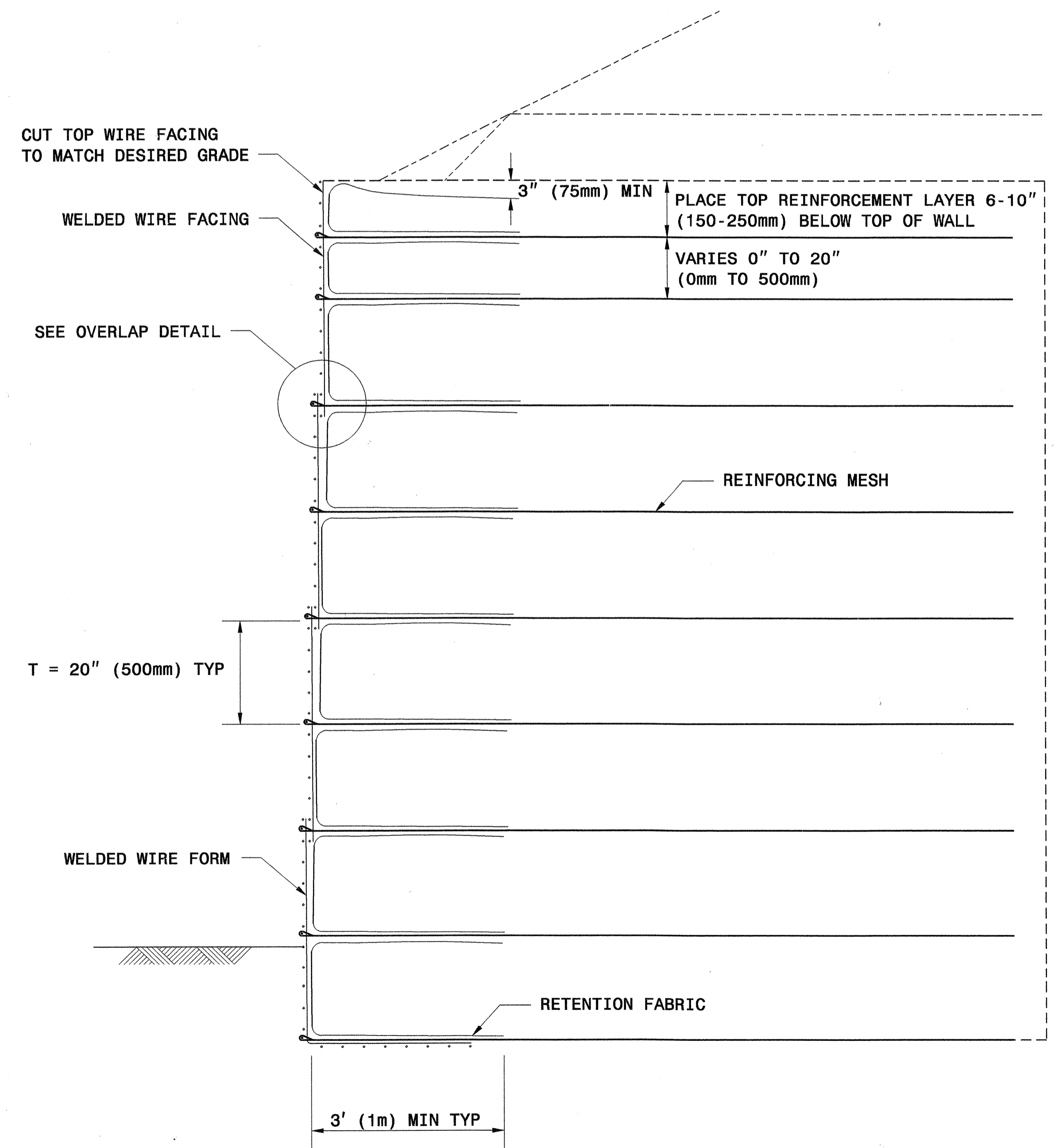
GEOTECHNICAL ENGINEERING UNIT
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD DRAWING NO. 1801.02

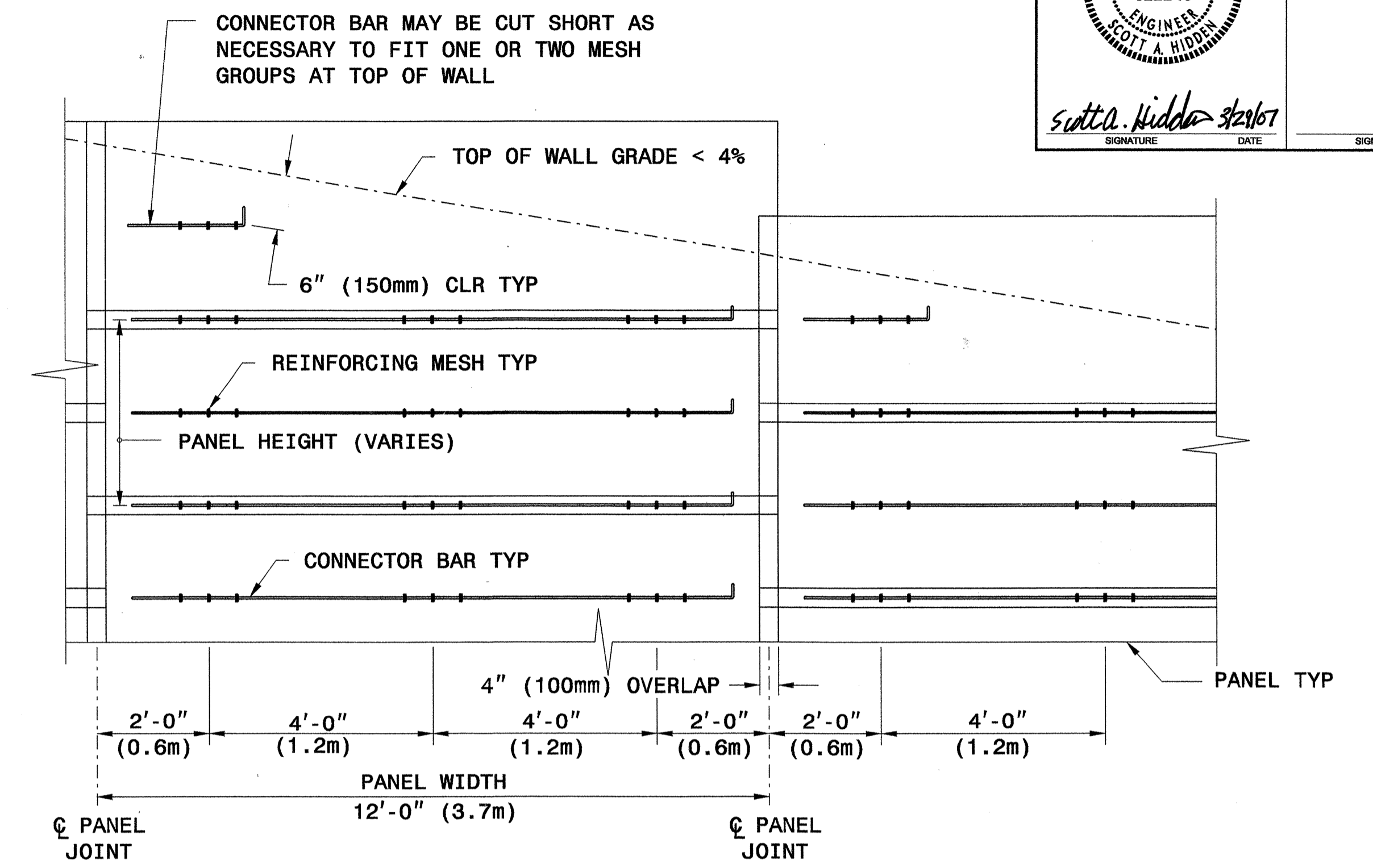
**RETAINED EARTH
TEMPORARY WALL**



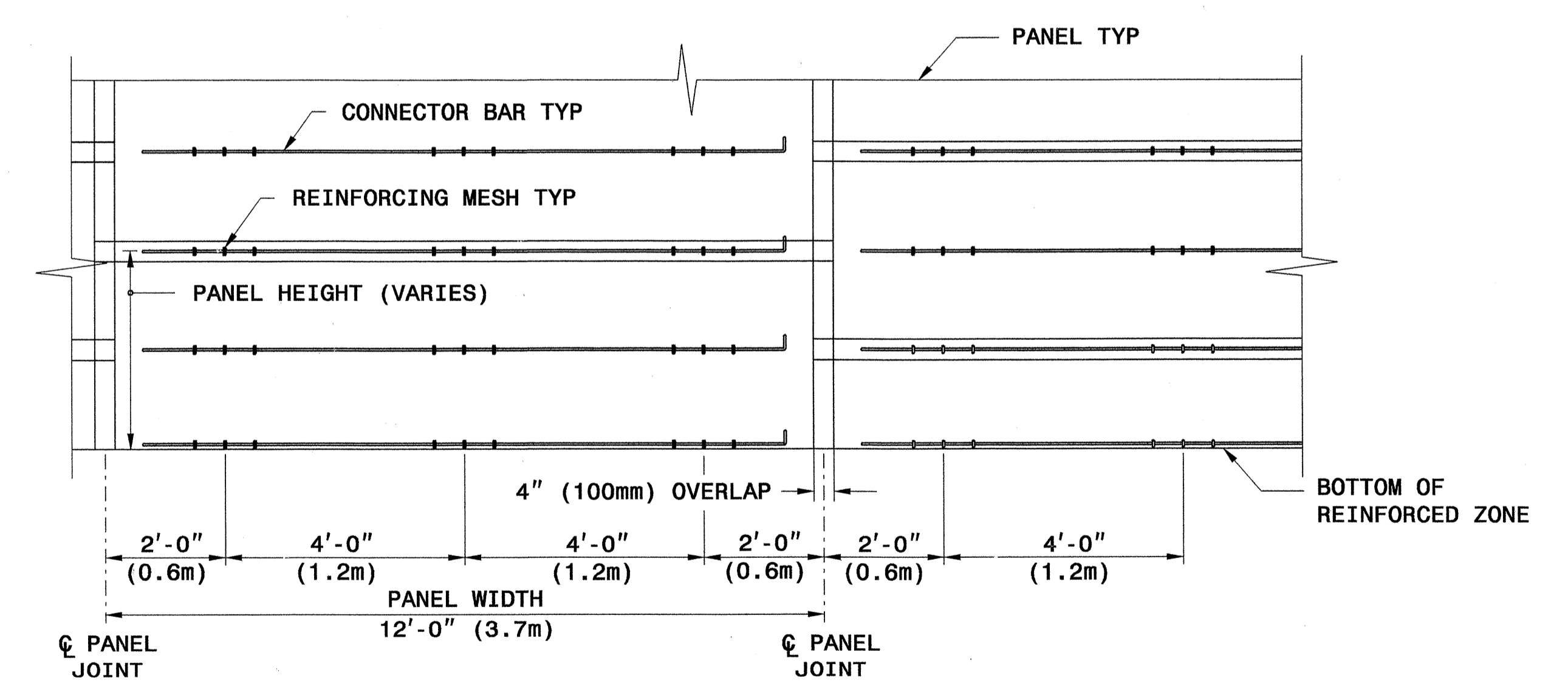
OVERLAP DETAIL



TYPICAL SECTION



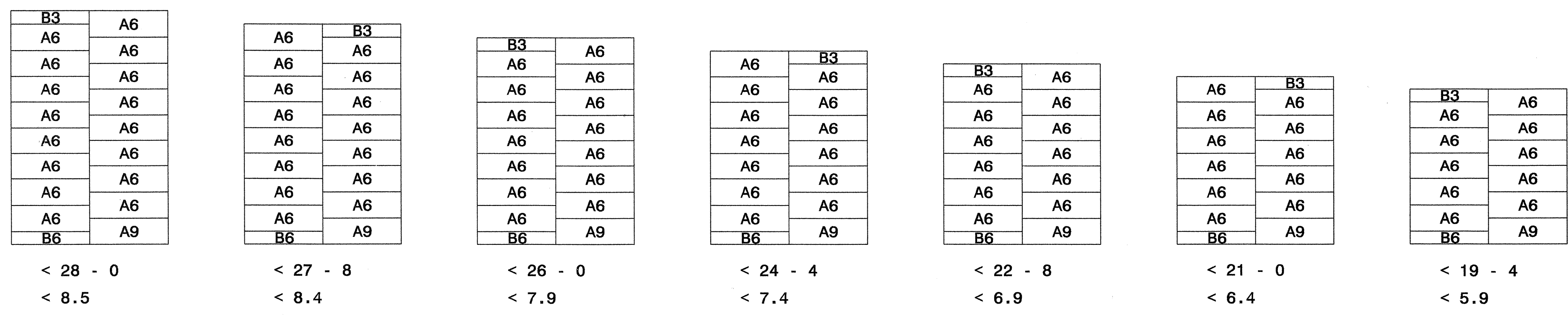
**TYPICAL ELEVATION @ TOP OF WALL
(WIRES NOT SHOWN FOR CLARITY)**



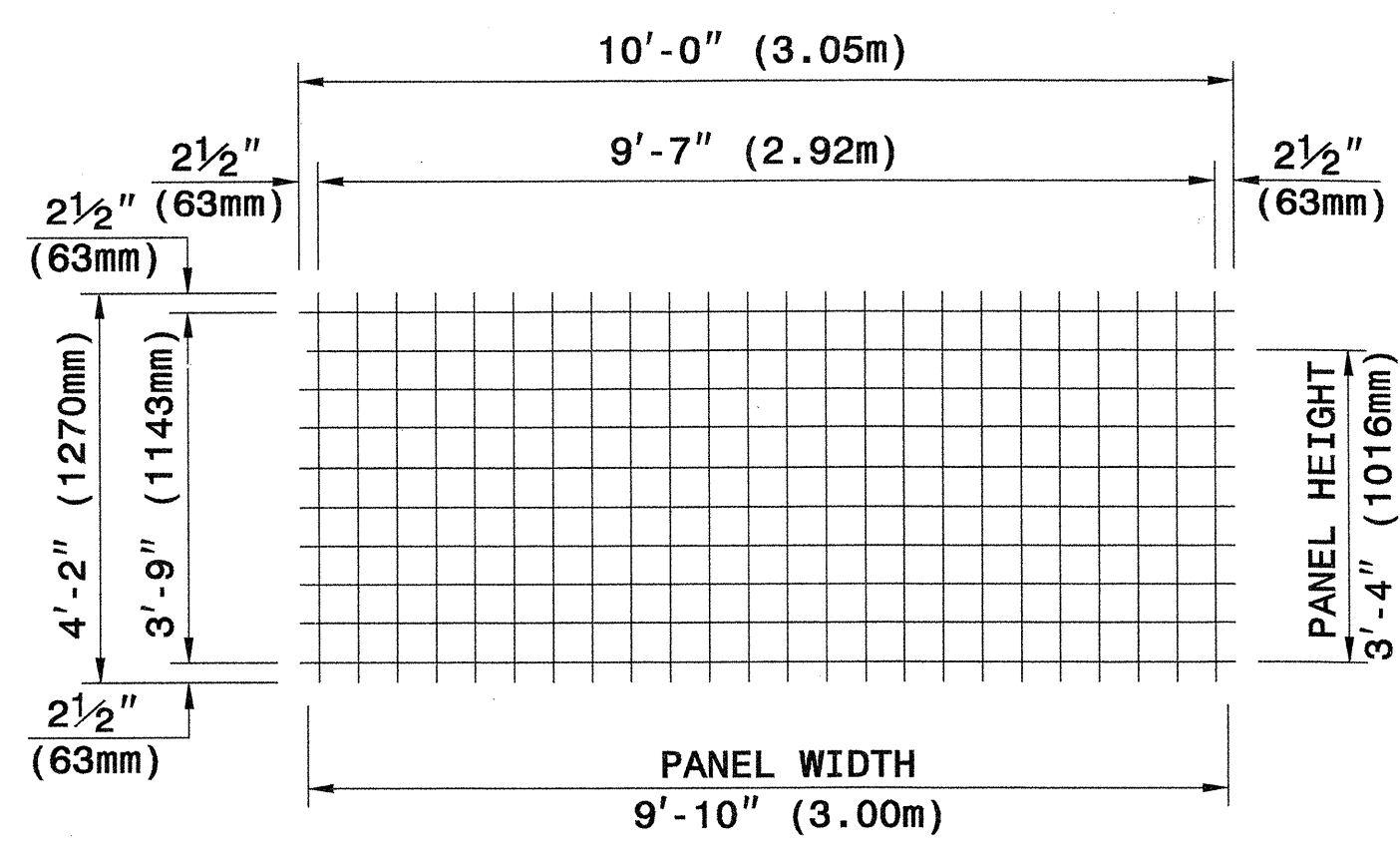
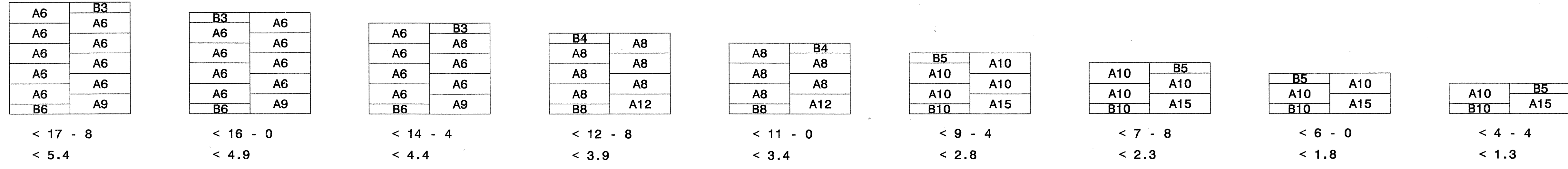
**TYPICAL ELEVATION @ BOTTOM OF WALL
(WIRES NOT SHOWN FOR CLARITY)**

PANEL LAYOUTS

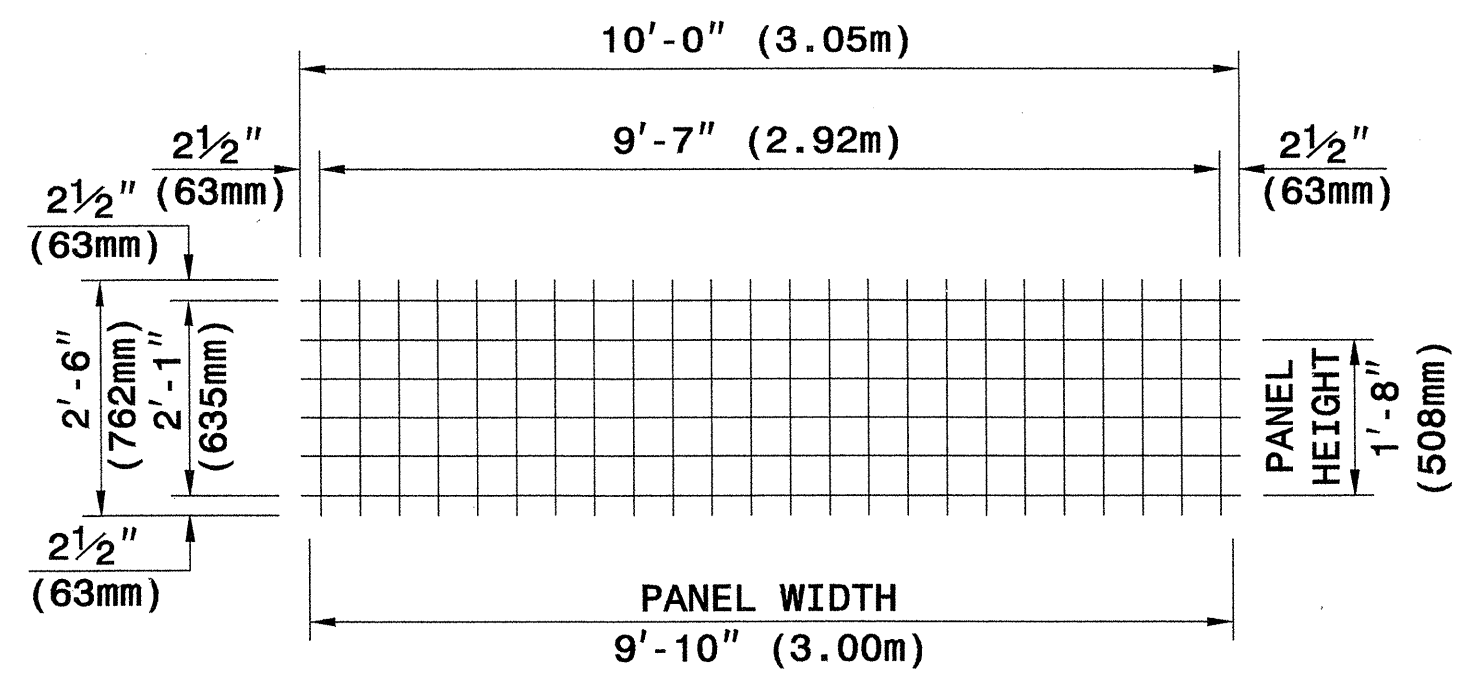
H - WALL HEIGHT
 (FEET-INCHES)
 (METER)



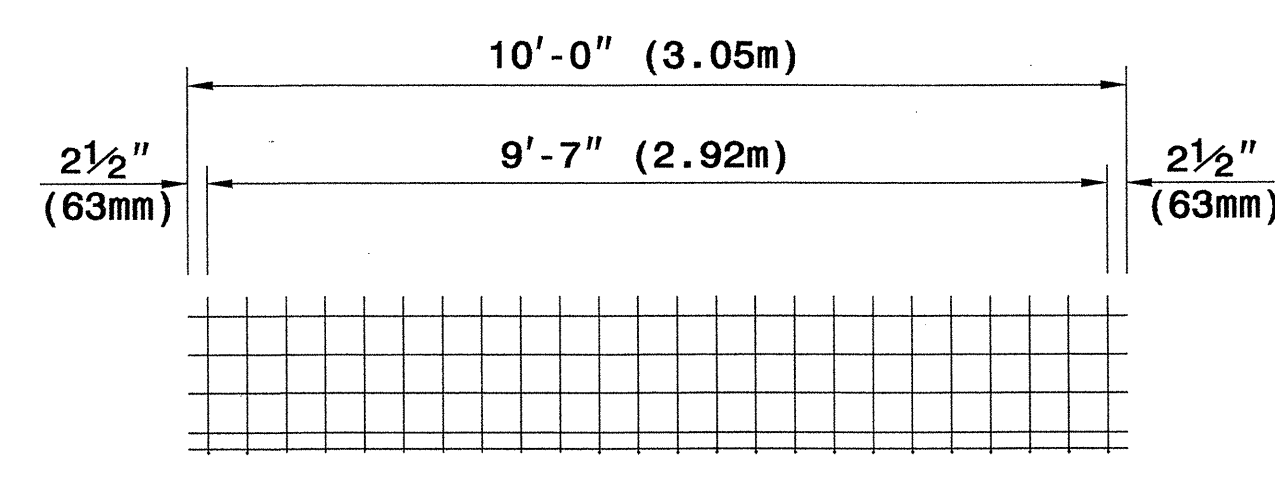
(FEET-INCHES)
 (METER)



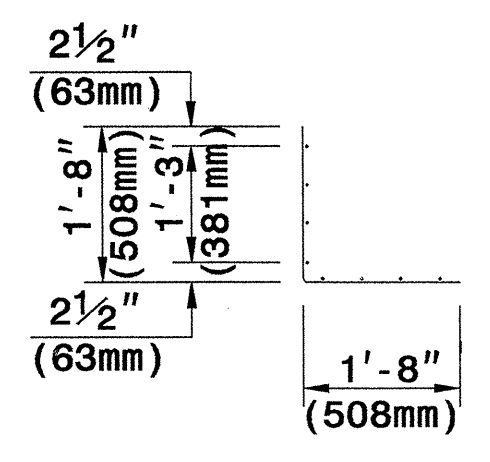
TYPE A



TYPE B



WELDED WIRE FORM



SECTION

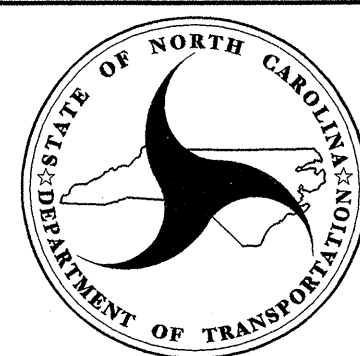
WELDED WIRE FACINGS

PANEL TYPES (WELDED WIRE FACINGS AND FORM)

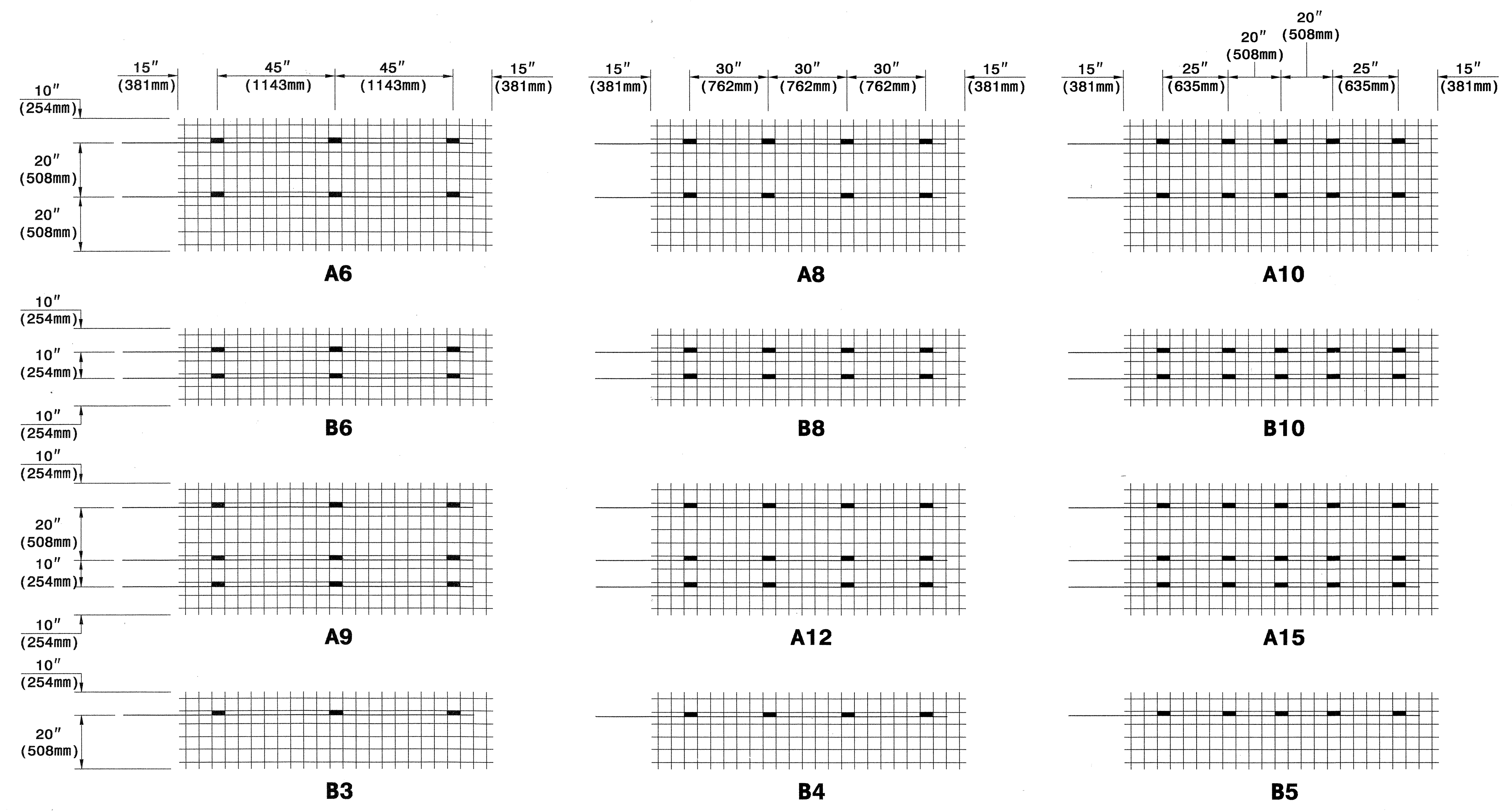
5" X 5" (125mm X 125mm), W5 X W5 (MW32 X MW32) WELDED WIRE REINFORCEMENT (WWR)



GEOTECHNICAL ENGINEERING UNIT
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

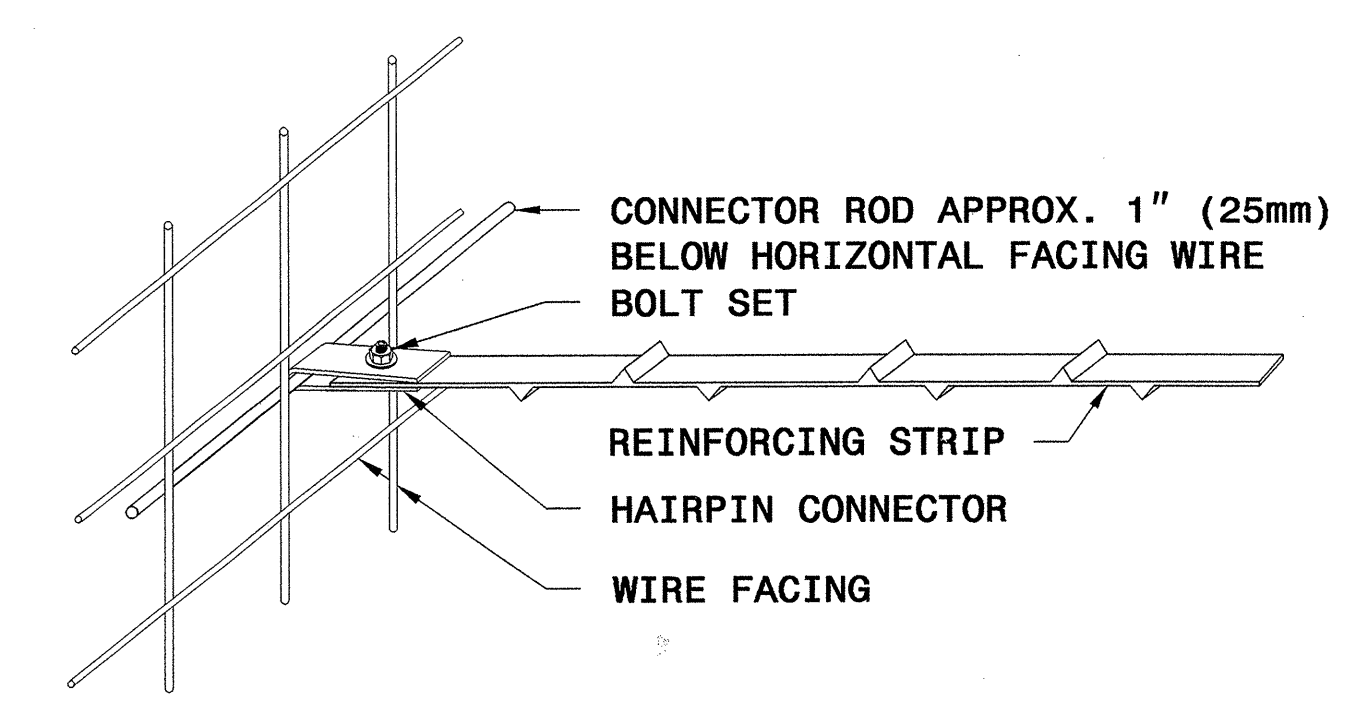
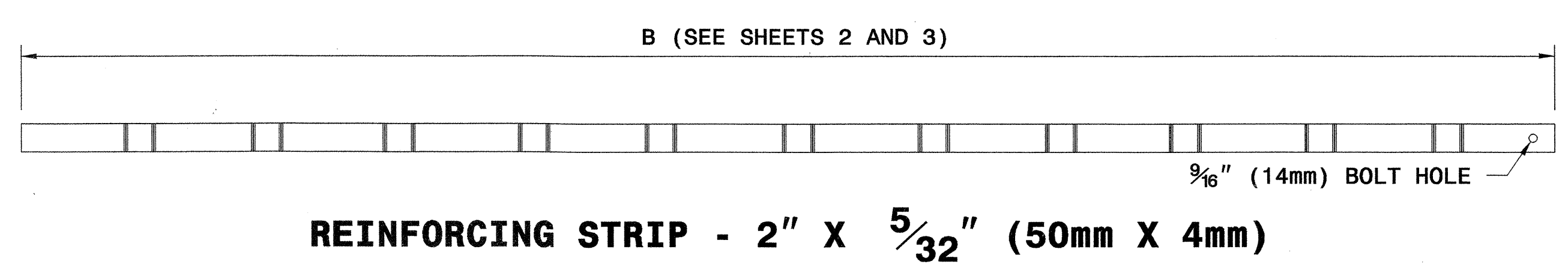


STANDARD DRAWING NO. 1801.02
TERRATREL TEMPORARY WALL
 SHEET 9 OF 11 DATE: 12-19-06

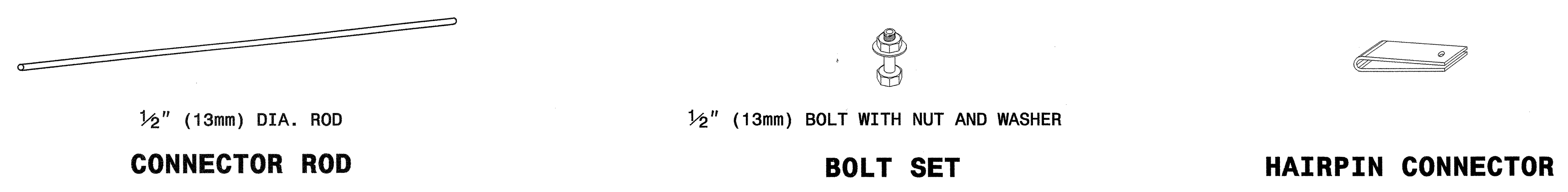


KEY: A8
 NUMBER OF REINFORCING STRIPS
 PANEL TYPE

CONNECTOR ROD AND REINFORCING STRIP PLACEMENT DIAGRAMS

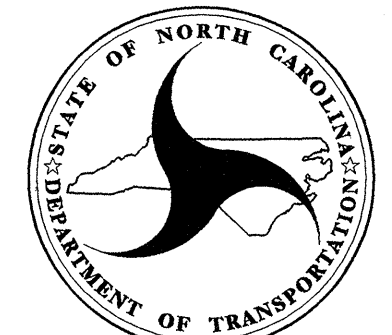


STRIP TO FACING CONNECTION



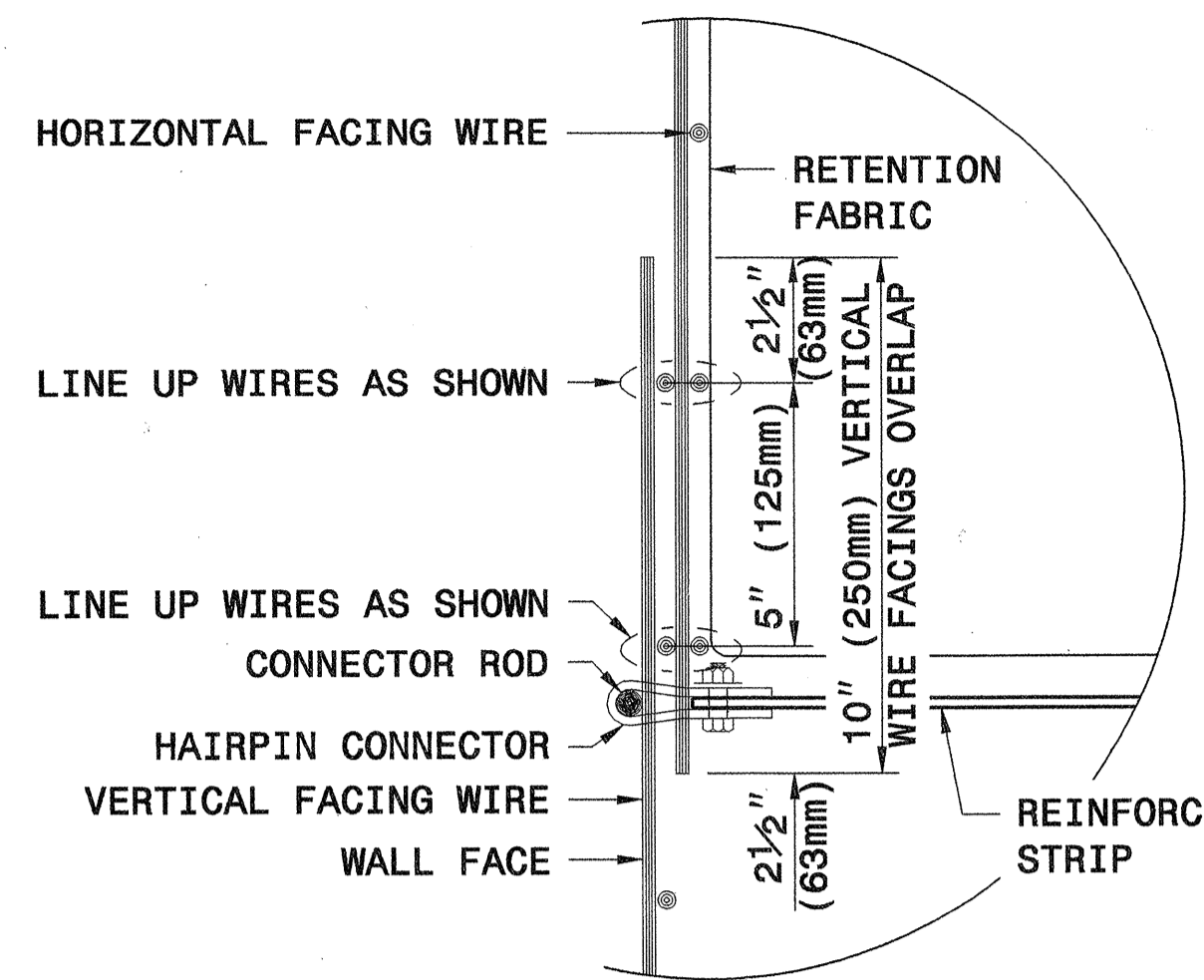
WALL COMPONENTS




GEOTECHNICAL ENGINEERING UNIT
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

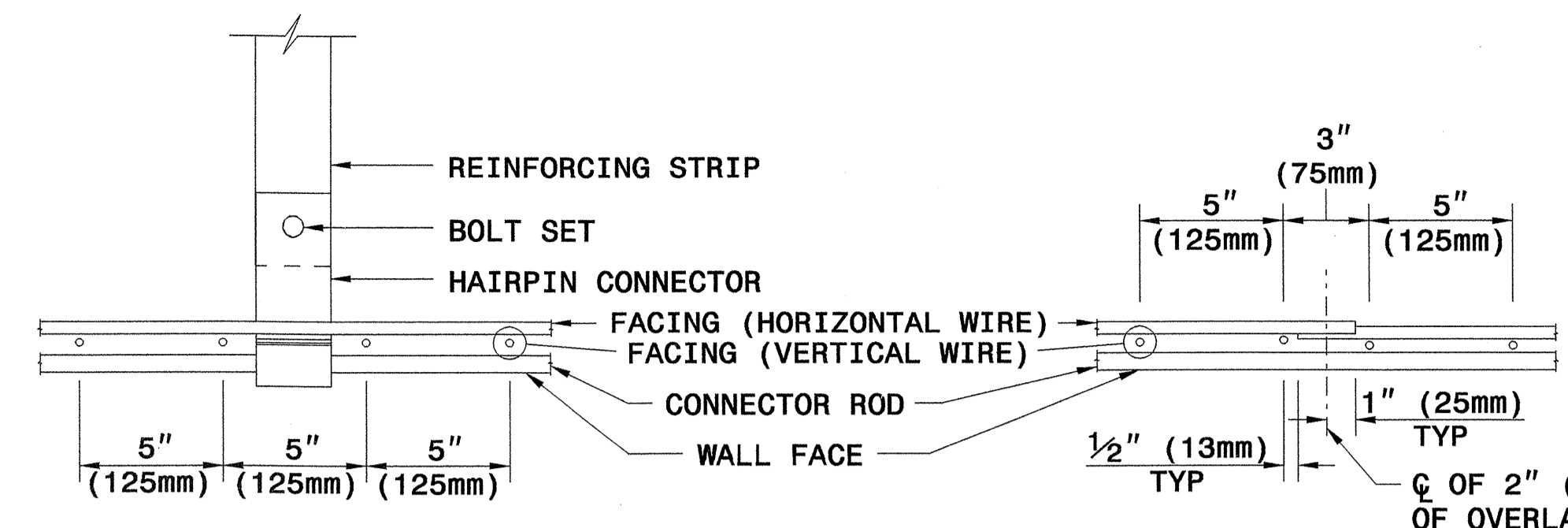
GEOTECHNICAL ENGINEER ENGINEER

Scott A. Hadden
DATE

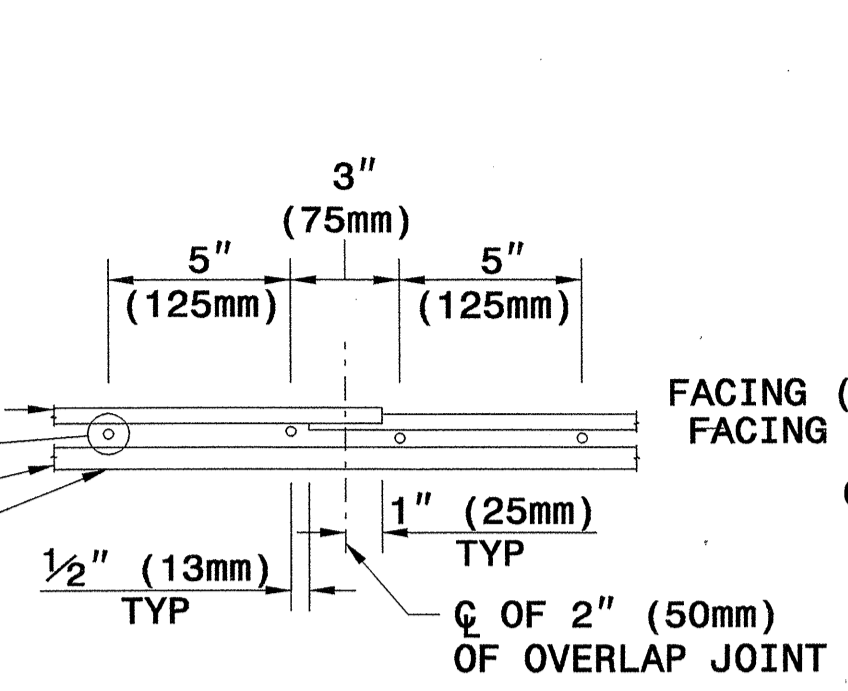


OVERLAP FACINGS VERTICALLY ONE FULL 5" (125mm) WIRE SQUARE DISREGARDING HALF SQUARES AT EDGES

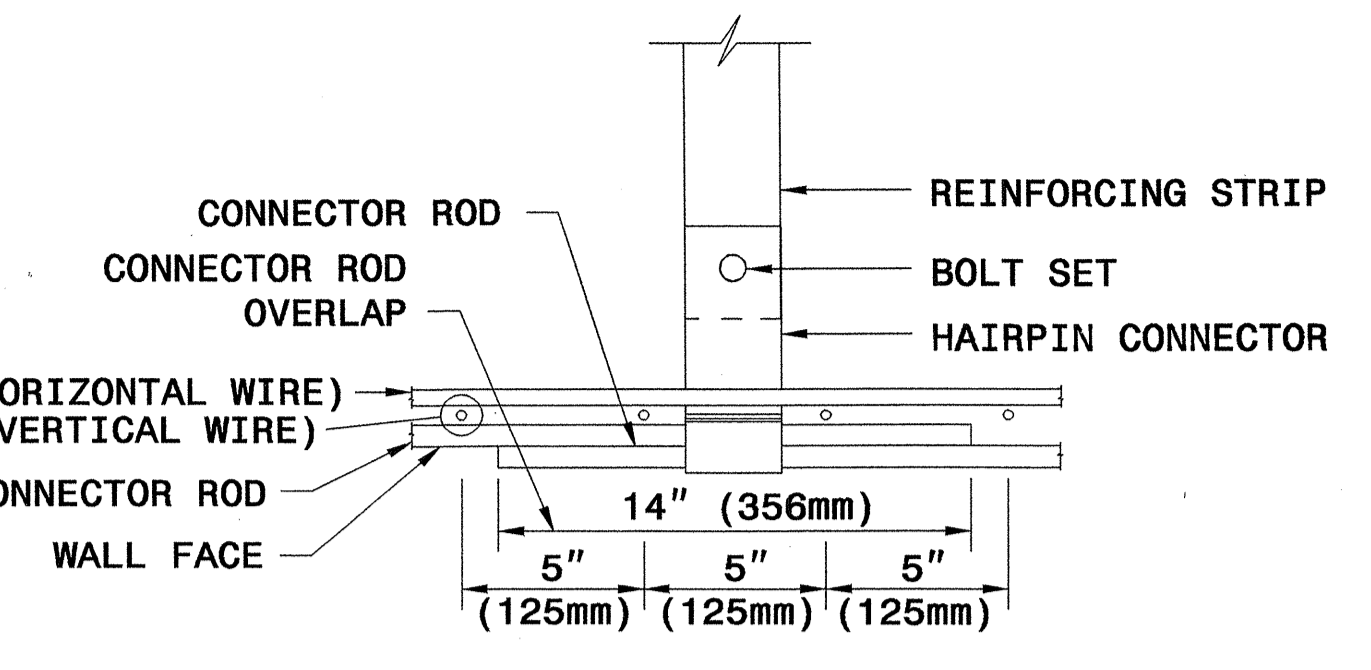
VERTICAL OVERLAP DETAIL



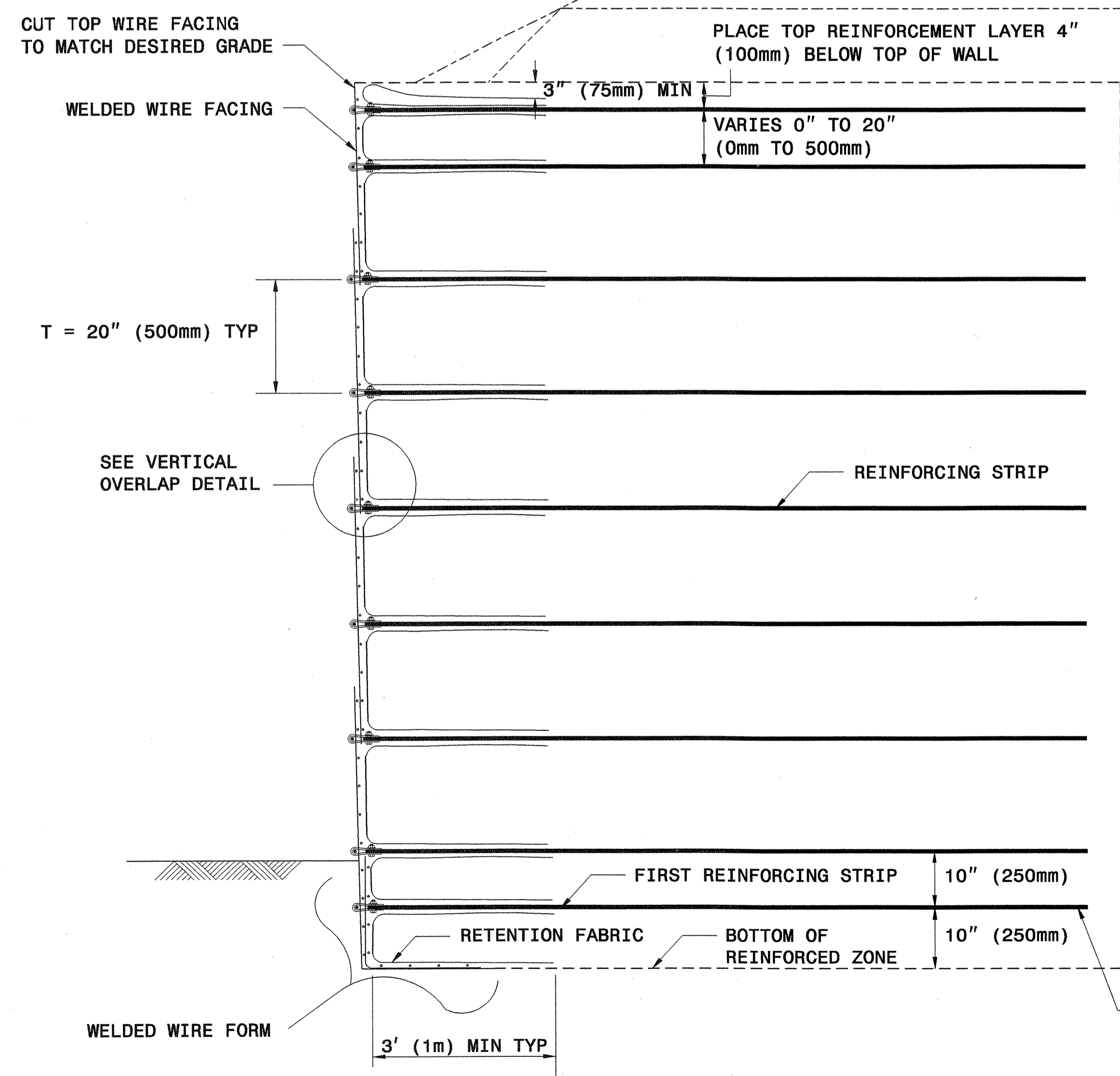
PLAN DETAIL 'A' STRIP CONNECTION



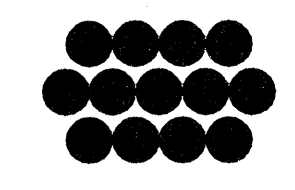
PLAN DETAIL 'B' HORIZONTAL OVERLAP DETAIL



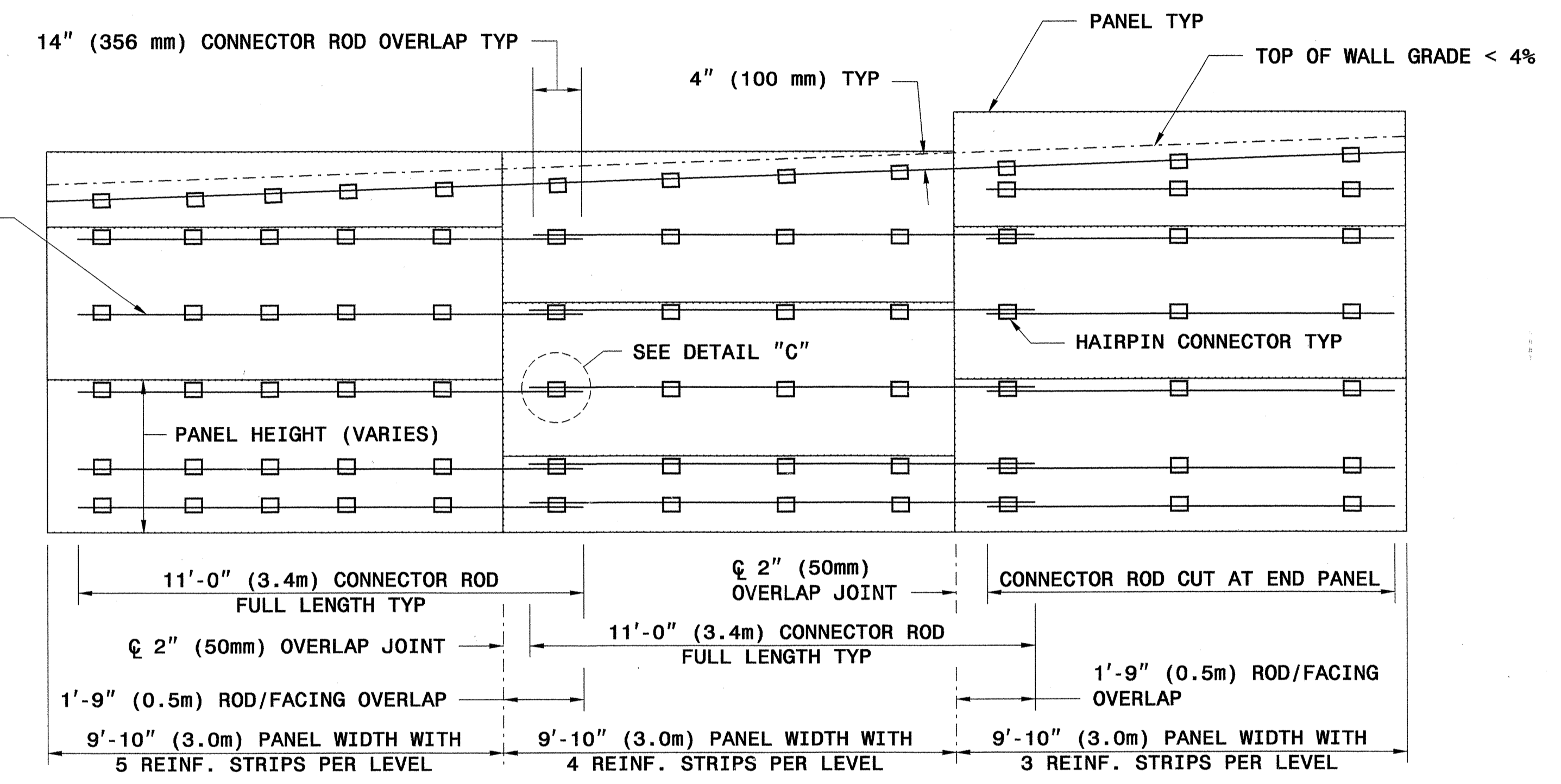
PLAN DETAIL 'C' STRIP CONNECTION WITH HORIZONTAL OVERLAP DETAIL



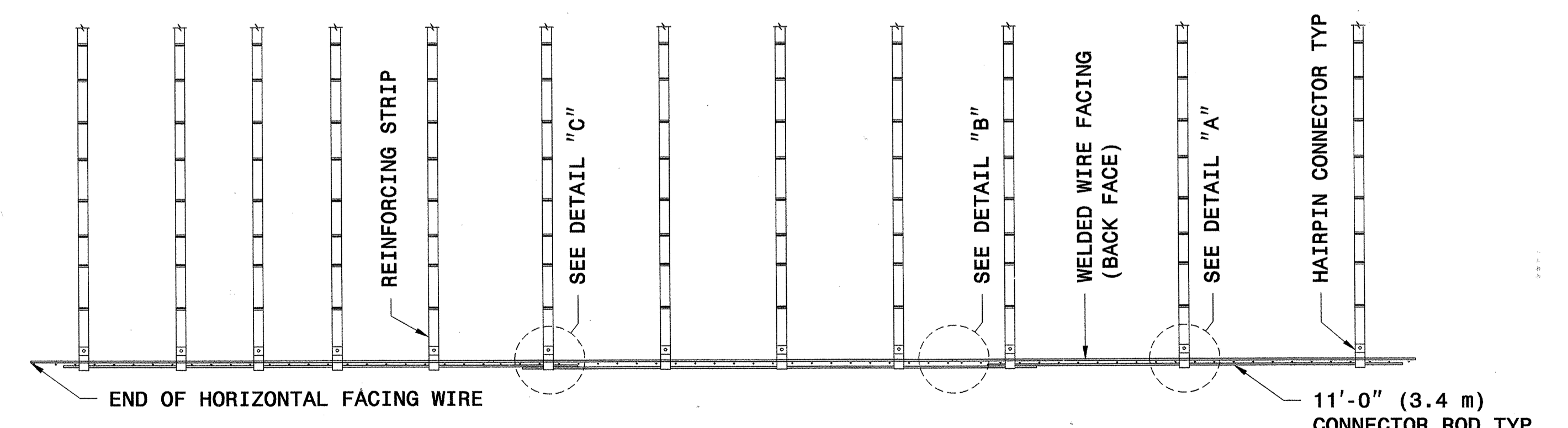
TYPICAL SECTION



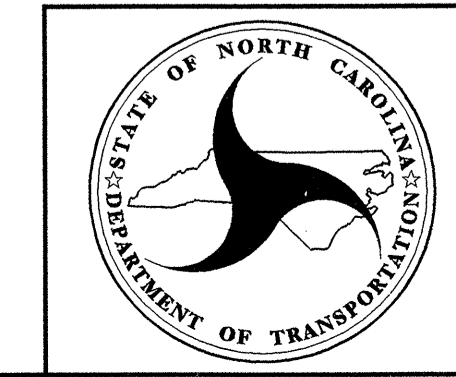
The Reinforced Earth Company



TYPICAL ELEVATION (WIRES NOT SHOWN FOR CLARITY)



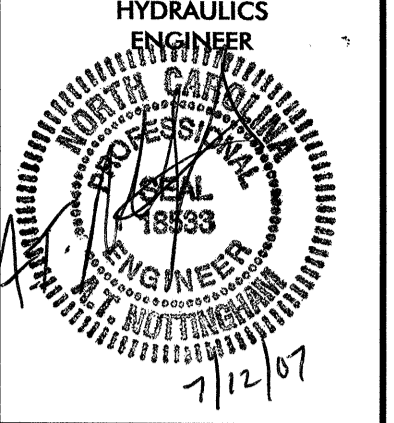
TYPICAL PLAN



GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

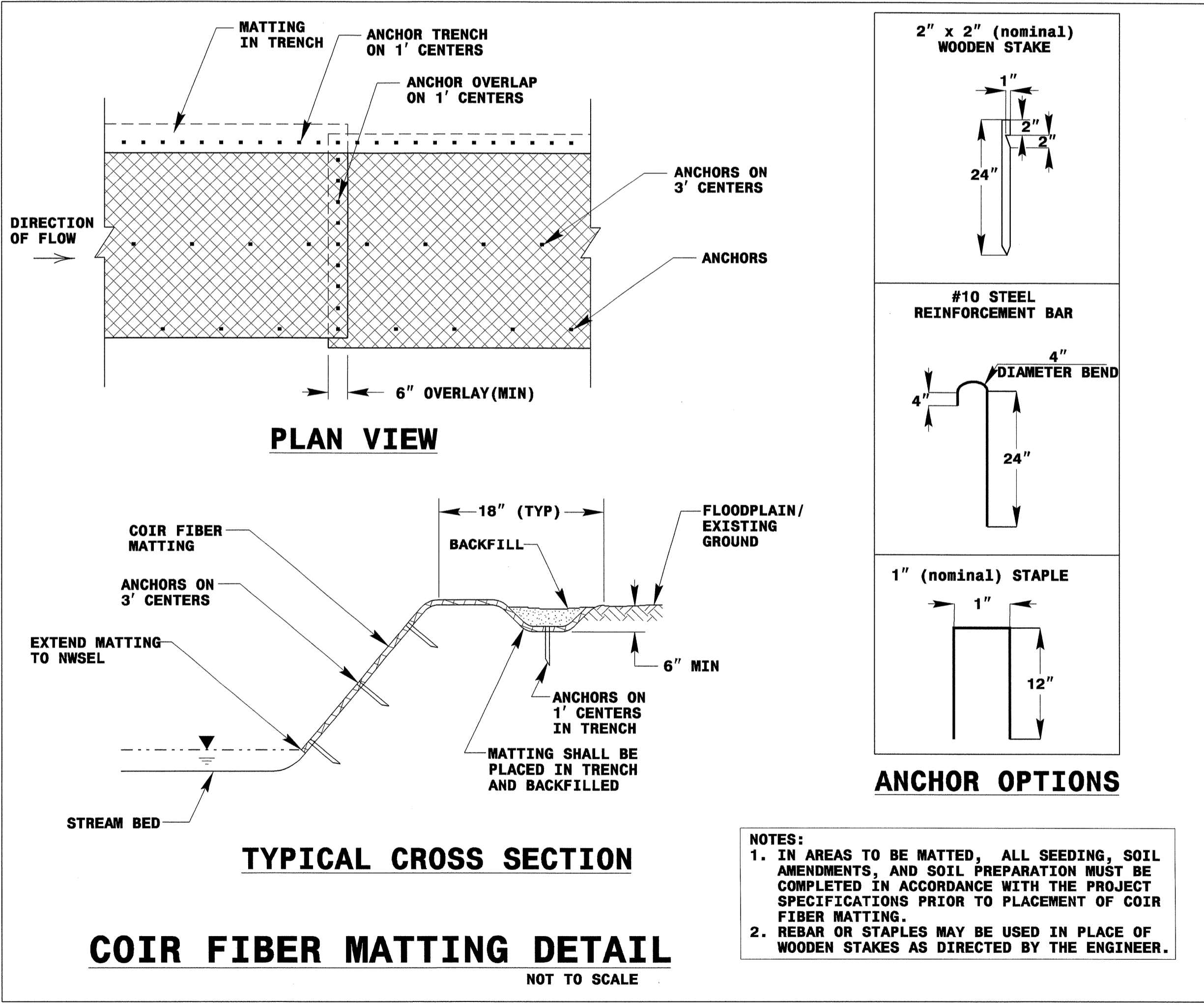
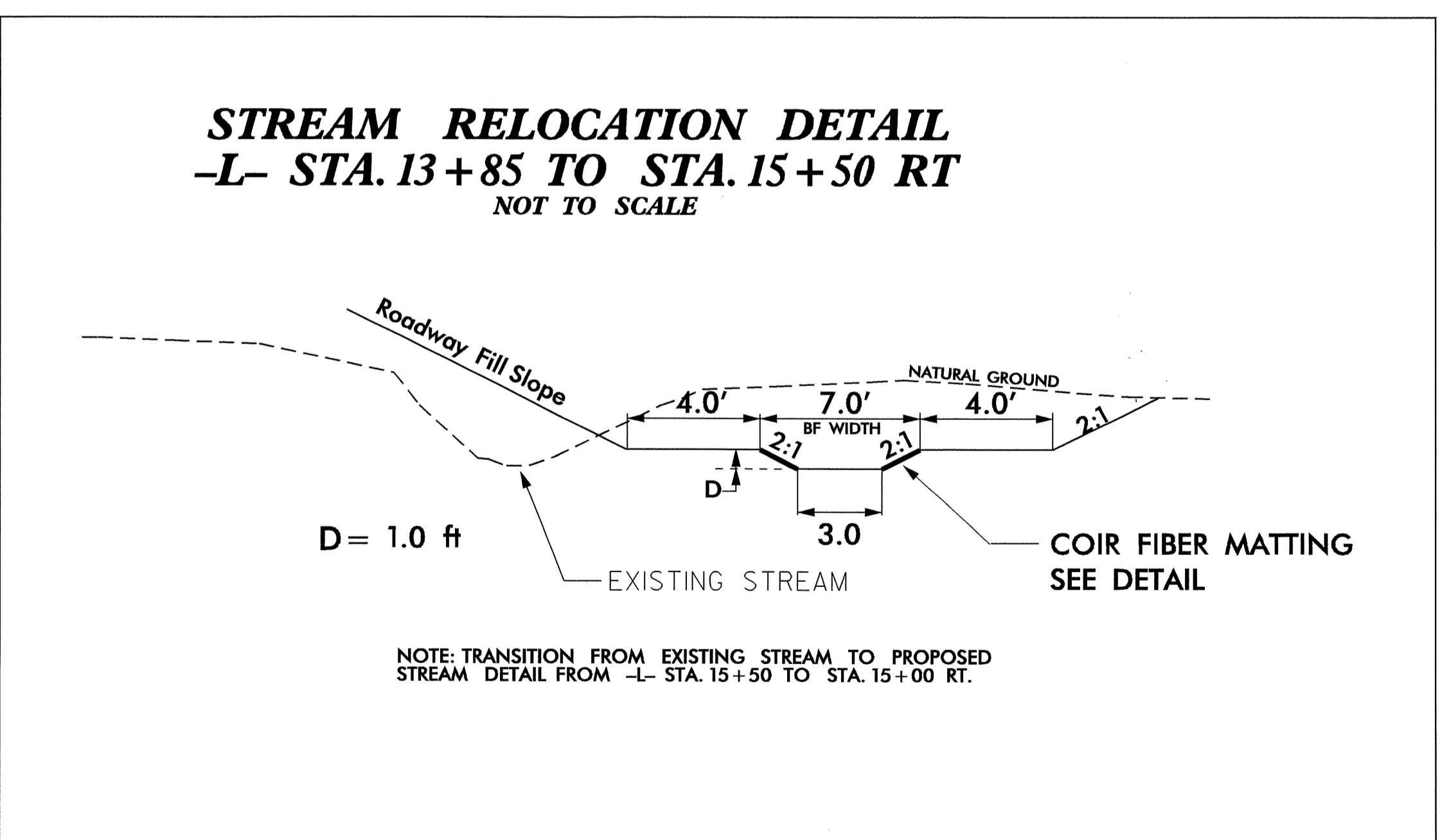
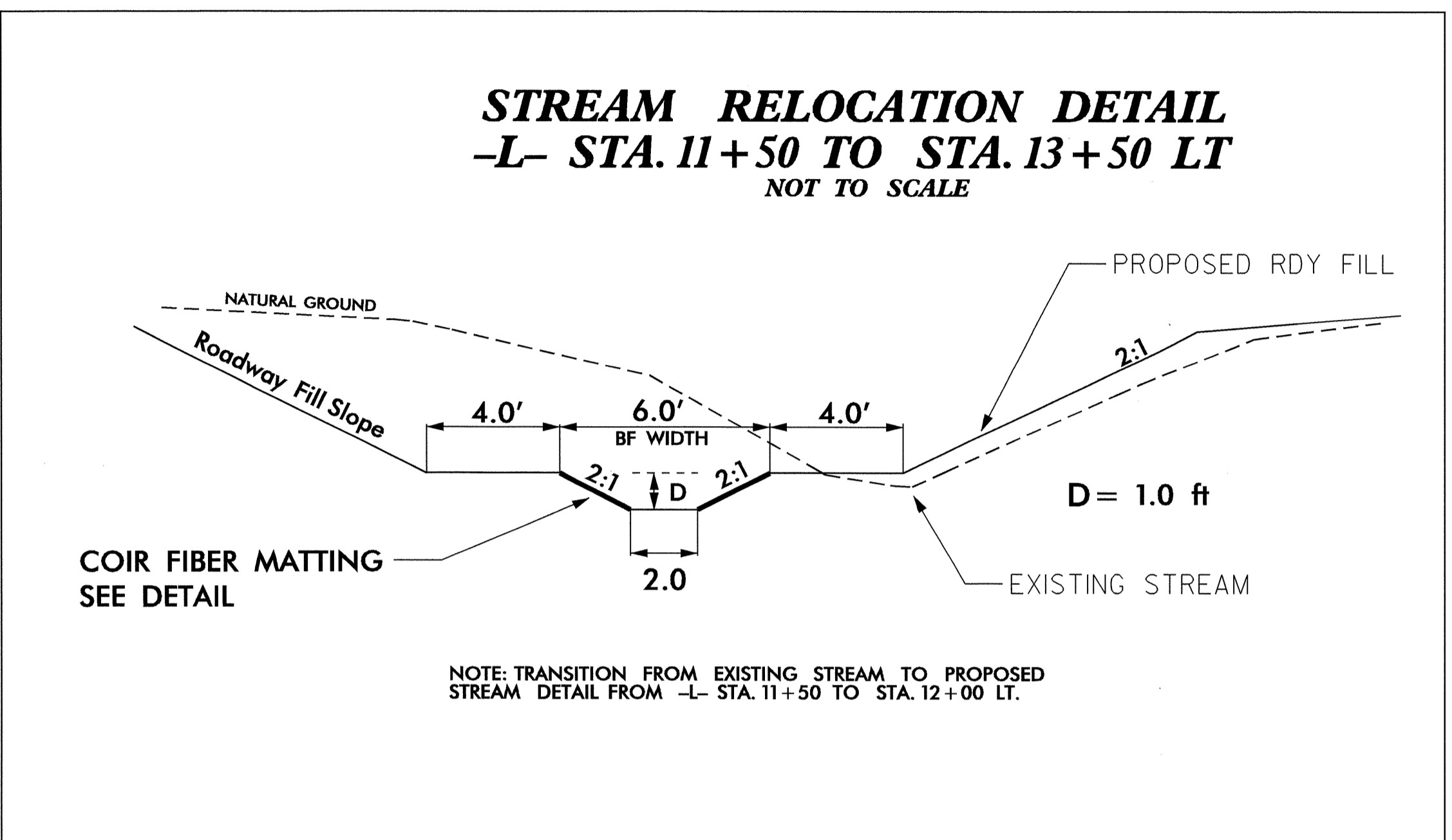
STANDARD DRAWING NO. 1801.02

TERRATREL
TEMPORARY WALL

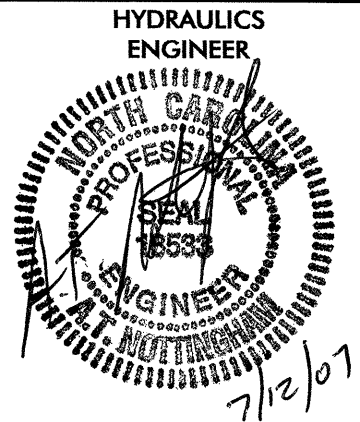


8/17/99

REVISIONS

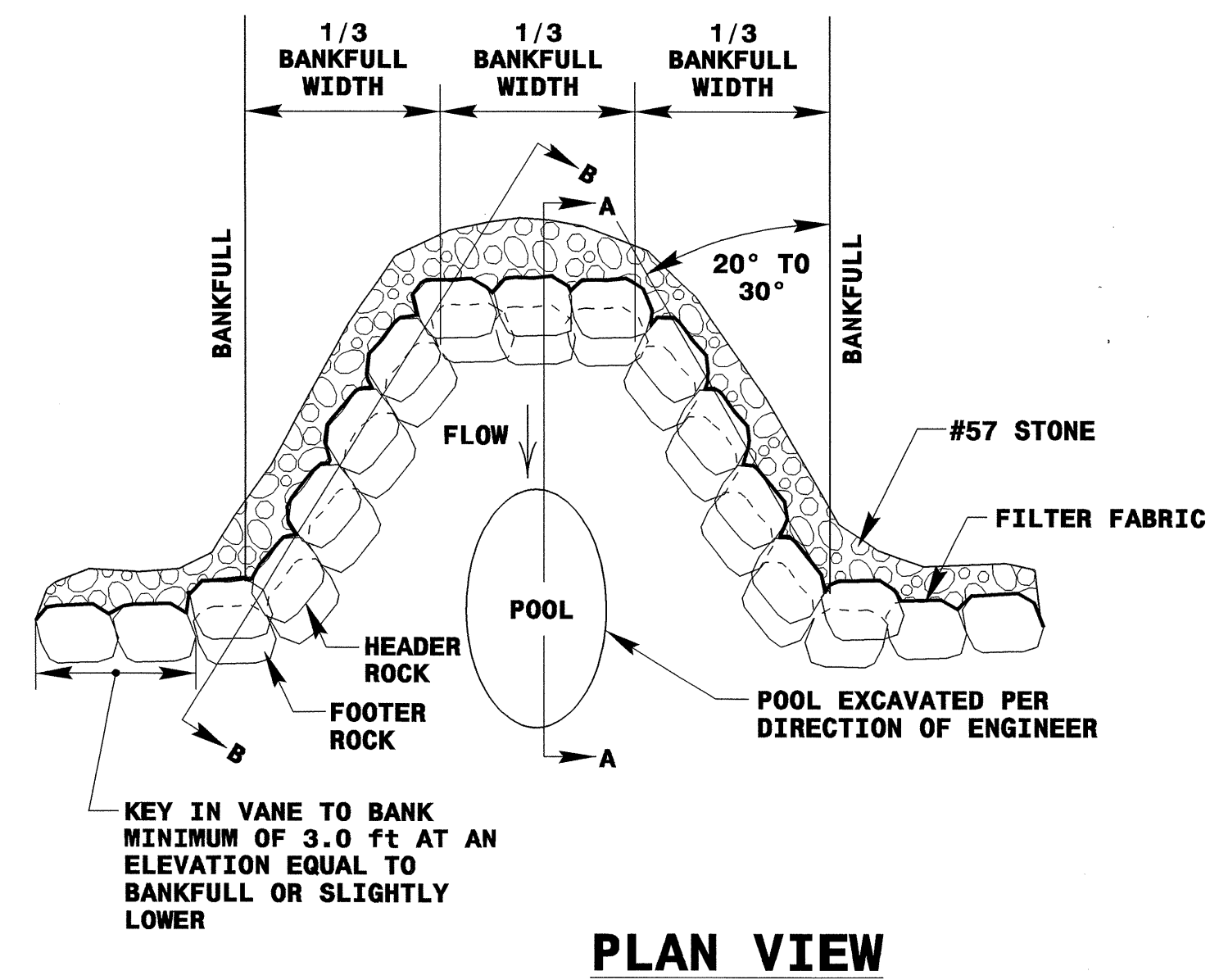


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ROCK CROSS VANE DETAIL

NOT TO SCALE

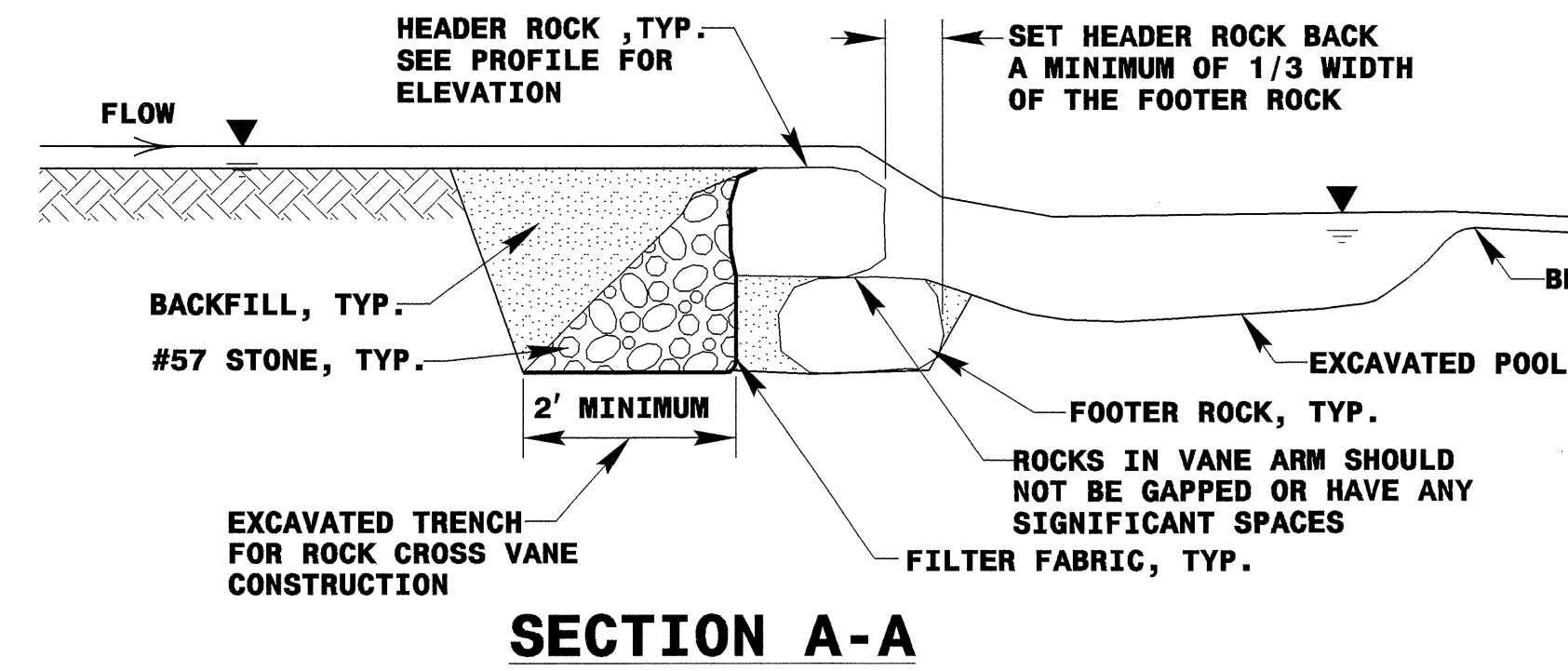


PLAN VIEW

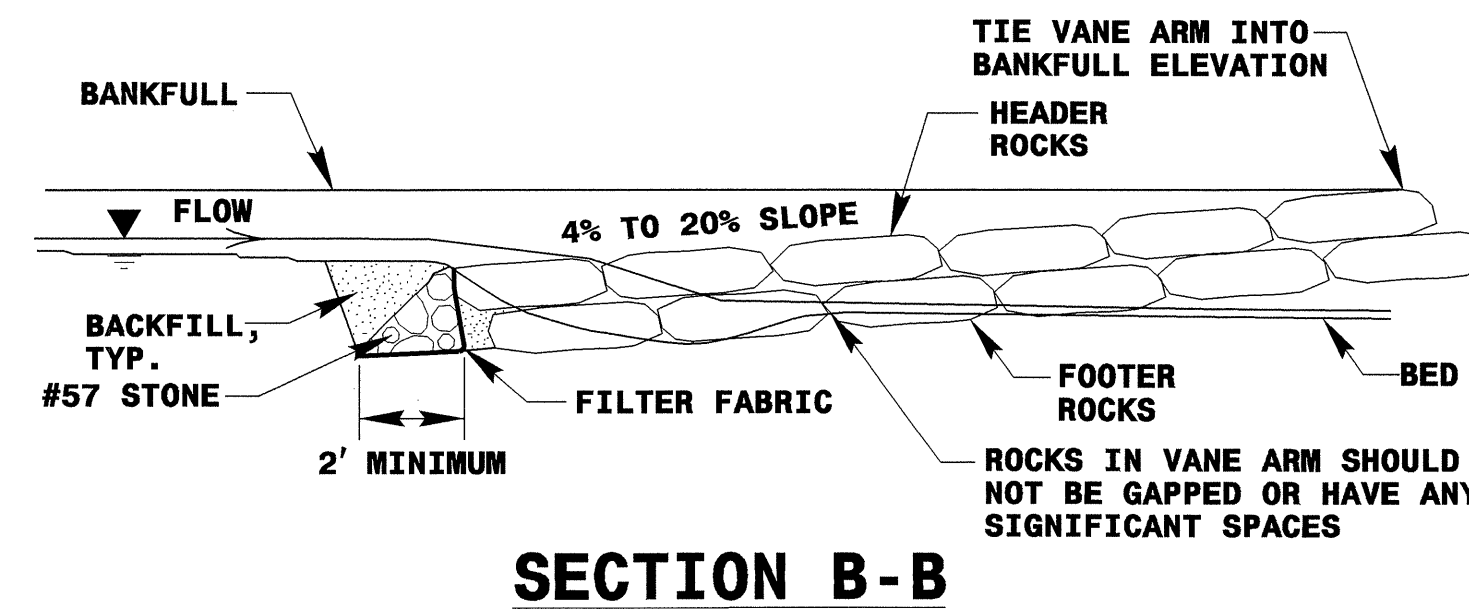
BOULDER DIMENSIONS ARE 3x2x1 (LxWxH, ft.)

NOTES:

1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
2. DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
3. CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
4. COMPACT BANKFULL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.
5. POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.



SECTION A-A



SECTION B-B

LOCATIONS AND HEADER ROCK ELEVATIONS

Left of -L-	
Station	Elevation
11+50	2181.2
12+00	2180.1
12+50	2178.9
12+75	2177.9
13+00	2176.9
13+25	2175.9

Right of -L-	
Station	Elevation
13+88	2175.2
14+50	2176.4
15+00	2177.4
15+50	2178.4

REVISIONS

8/17/99

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SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201618

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	2066000000-N	815	2	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET	6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING
0043000000-N	226	Lump Sum		GRADING	2077000000-E	815	12	LF	6" OUTLET PIPE (SUBDRAINS)	6029000000-E	SP	1,200	LF	SAFETY FENCE
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING	3030000000-E	862	575	LF	STEEL BM GUARDRAIL	6030000000-E	1630	600	CY	SILT EXCAVATION
0057000000-E	226	1,500	CY	UNDERCUT EXCAVATION	3045000000-E	862	50	LF	STEEL BM GUARDRAIL, SHOP CURVED	6036000000-E	1631	1,000	SY	MATTING FOR EROSION CONTROL
0080000000-E	SP	500	TON	CLASS IV SUBGRADE STABILIZATION	3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS	6037000000-E	SP	25	SY	COIR FIBER MAT
0134000000-E	240	1,625	CY	DRAINAGE DITCH EXCAVATION	3195000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1	6038000000-E	SP	185	SY	PERMANENT SOIL REINFORCEMENT MAT
0195000000-E	265	500	CY	SELECT GRANULAR MATERIAL	3270000000-N	SP	3	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	6042000000-E	1632	330	LF	1/4" HARDWARE CLOTH
0196000000-E	270	500	SY	FABRIC FOR SOIL STABILIZATION	3380000000-E	862	375	LF	TEMPORARY STEEL BM GUARDRAIL	6069000000-E	1638	35	CY	STILLING BASINS
0199000000-E	SP	200	SF	TEMPORARY SHORING	3389100000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY	6071030000-E	SP	180	LF	COIR FIBER BAFFLES
0318000000-E	300	30	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	3649000000-E	876	11	TON	RIP RAP, CLASS B	6071050000-E	SP	4	EA	*** SKIMMER (1-1/2")
0344000000-E	310	40	LF	18" SIDE DRAIN PIPE	3651000000-E	SP	85	TON	BOULDERS	6084000000-E	1660	1.5	ACR	SEEDING & MULCHING
0576000000-E	310	184	LF	*** CS PIPE CULVERTS, ***** THICK (36", 0.079")	3656000000-E	876	222	SY	FILTER FABRIC FOR DRAINAGE	6087000000-E	1660	1	ACR	MOWING
0576000000-E	310	48	LF	*** CS PIPE CULVERTS, ***** THICK (90", 0.109")	4400000000-E	1110	104	SF	WORK ZONE SIGNS (STATIONARY)	6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
0995000000-E	340	232	LF	PIPE REMOVAL	4405000000-E	1110	144	SF	WORK ZONE SIGNS (PORTABLE)	6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
1077000000-E	SP	30	TON	#57 STONE	4410000000-E	1110	56	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
1121000000-E	520	416	TON	AGGREGATE BASE COURSE	4430000000-N	1130	41	EA	DRUMS	6108000000-E	1665	1.25	TON	FERTILIZER TOPDRESSING
1220000000-E	545	75	TON	INCIDENTAL STONE BASE	4445000000-E	1145	96	LF	BARRICADES (TYPE III)	6111000000-E	SP	145	LF	IMPERVIOUS DIKE
1489000000-E	610	215	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	4450000000-N	1150	480	HR	FLAGGER	6114000000-N	SP	2.5	HR	SPECIALIZED HAND MOWING
1525000000-E	610	225	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	4810000000-E	1205	5,736	LF	PAINT PAVEMENT MARKING LINES (4")	6117000000-N	SP	8	EA	RESPONSE FOR EROSION CONTROL
1560000000-E	620	24	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	6000000000-E	1605	1,050	LF	TEMPORARY SILT FENCE	6126000000-E	SP	0.3	ACR	STREAMBANK REFORESTATION
2022000000-E	815	168	CY	SUBDRAIN EXCAVATION	6006000000-E	1610	40	TON	STONE FOR EROSION CONTROL, CLASS A					
2033000000-E	815	126	CY	SUBDRAIN FINE AGGREGATE	6009000000-E	1610	170	TON	STONE FOR EROSION CONTROL, CLASS B					
2044000000-E	815	750	LF	6" PERFORATED SUBDRAIN PIPE	6012000000-E	1610	140	TON	SEDIMENT CONTROL STONE					
2055000000-E	815	24	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS	6015000000-E	1615	1.5	ACR	TEMPORARY MULCHING					
					6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING					

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6/21/00

COMPUTED BY: RCB DATE: 052507
CHECKED BY: JLT DATE: 060507

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. **B-3856**
SHEET NO. **3-A**

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

Table with columns for STATION, LOCATION, STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, SLOPE CRITICAL, CLASS III R.C. PIPE, PLAIN C.S. PIPE, CLASS III R.C. PIPE OR ALUMINIZED C.S. PIPE, ENDWALLS, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME GRATES AND HOOD STANDARD 840.03, TYPE OF GRATE, CORR. STEEL ELBOWS NO. & SIZE, CONC. COLLARS, CONC. & BRICK PIPE PLUG, PIPE REMOVAL LIN.F.T., and REMARKS. Includes rows for -DRI- 10+30, -DETOUR- 11+64, and TOTALS.

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)

Table with columns for STATION, LOCATION, STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, SLOPE CRITICAL, CLASS III R.C. PIPE, PLAIN C.S. PIPE, STRUCTURAL PLATE PIPE, SANDBAG ENDWALL, MASONRY DRAINAGE STRUCTURES, REINF. CONC. FLARED END SECTIONS, CORR. STEEL FLARED END SECTIONS, REINF. CONC. ELBOWS NO. & SIZE, CORR. STEEL ELBOWS NO. & SIZE, CONC. COLLARS, PIPE REMOVAL LIN.F.T., and REMARKS. Includes rows for -DETOUR- 12+91 and TOTALS.

"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 BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

Summary table with columns for SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH (STRAIGHT, TEMPORARY STRAIGHT, SHOP CURVED), WARRANT POINT (APPROACH END, TRAILING END), "N" DIST. FROM E.O.L., TOTAL SHOULDER WIDTH, FLARE LENGTH (APPROACH END, TRAILING END), W (APPROACH END, TRAILING END), ANCHORS (TYPE 350, TEMPORARY TYPE 350, AT-1), REMOVE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, and REMARKS. Includes subtotals and totals for permanent and temporary guardrail.

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DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

★SUMMARY OF EARTHWORK
 IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT +%	BORROW	WASTE
-DETOUR-					
10+00.00 TO 15+37.59	61	0	1,027	966	0
-DRI-					
10+11.00 TO 12+20.00	6	0	63	57	0
-L-					
10+00.00 TO 15+50.00	291	0	1,076	785	0
SUBTOTAL:	358	0	2,166	1,808	0
DETOUR REMOVAL					
10+00.00 TO 15+37.59	867	0	86	0	781
SUBTOTAL:	867	0	86	0	781
TOTAL:	1,225	0	2,252	1,808	781
EST. SHOULDER MATERIAL			247	247	
PROJECT TOTALS:	1,225		2,499	2,055	781
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT				103	
GRAND TOTALS:	1,225			2,158	
SAY:	1,250			2,200	

EST. DDE = 1,625 CU. YDS.
 EST. UNDERCUT = 1,500 CU. YDS.

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.

★ASPHALT PAVEMENT REMOVAL AND BREAKING SUMMARY
 IN SQUARE YARDS

LINE	STATION TO STATION	LOCATION	REMOVAL	BREAK-UP
-L-	11+00.00 TO 13+45.00	EXISTING ROADBED	472	
-L-	13+90.00 TO 14+50.00	EXISTING ROADBED	109	
		TOTAL	582	
		SAY	590	

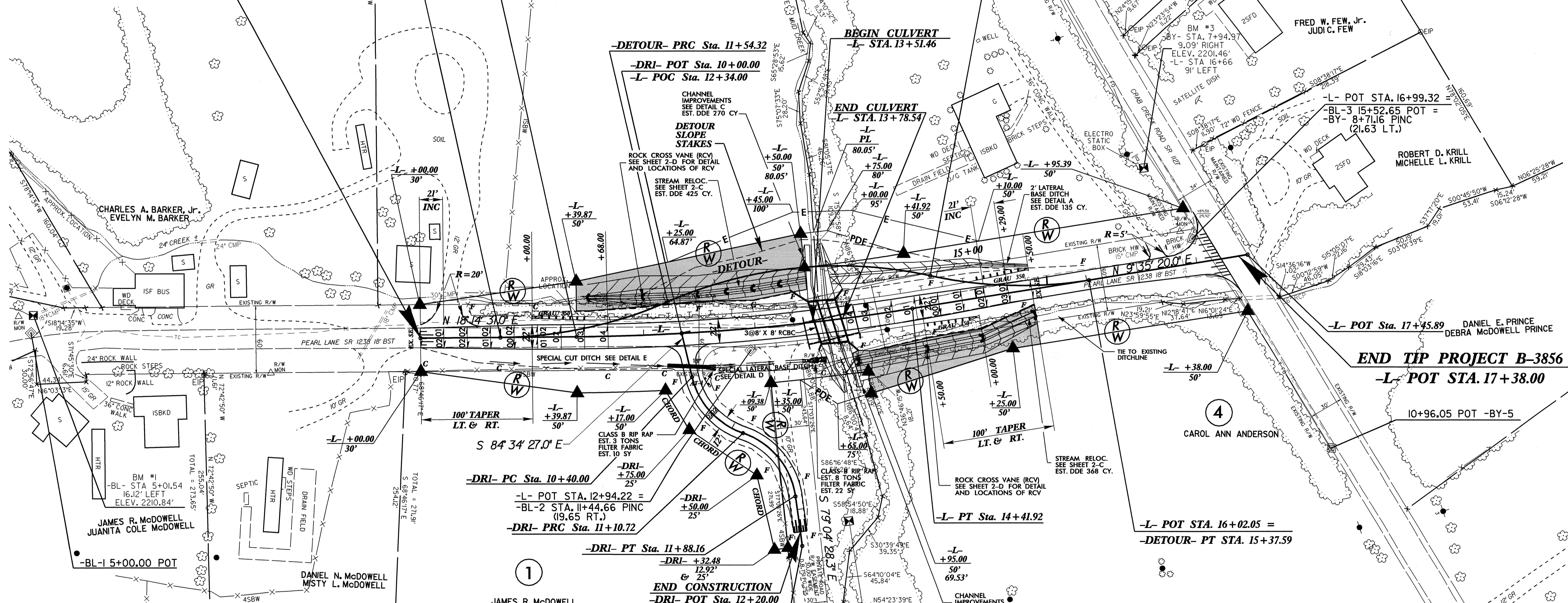
★ APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, SHOULDER BORROW, FINE GRADING, CLEARING AND GRUBBING, BREAKING OF EXISTING PAVEMENT, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

DESIGN EXCEPTIONS FOR VERTICAL ALIGNMENT AND VERTICAL STOPPING SIGHT DISTANCE ARE REQUIRED.

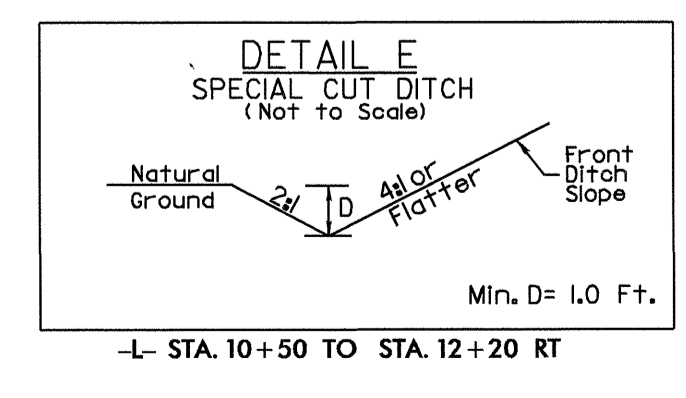
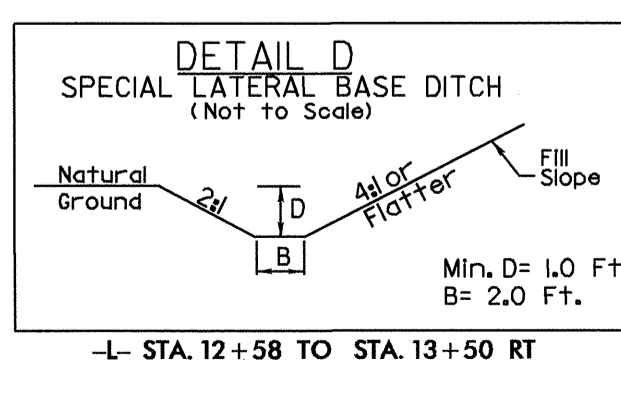
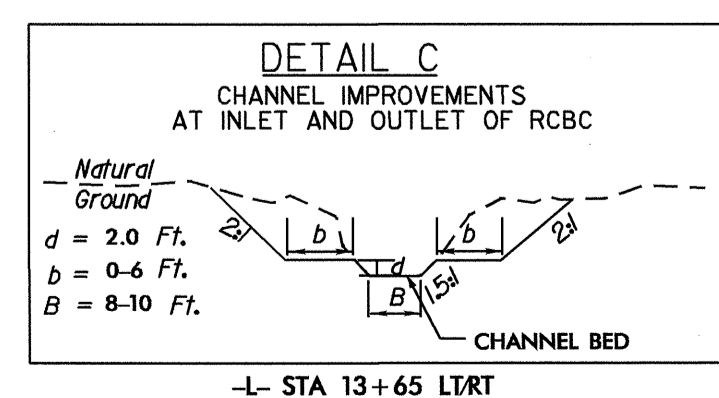
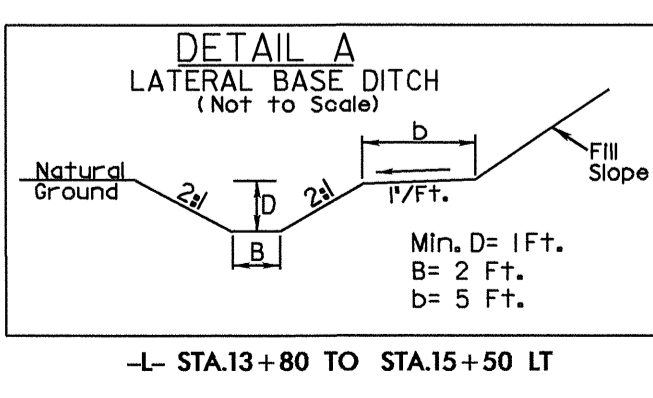
DETOUR		
PI Sta 10+78.24	PI Sta 12+78.53	PI Sta 14+66.86
$\Delta = 23^{\circ}16'05.4"$ (LT)	$\Delta = 36^{\circ}12'07.1"$ (RT)	$\Delta = 21^{\circ}35'12.7"$ (LT)
D = 15'04'40.2"	D = 15'04'40.2"	D = 15'04'40.2"
L = 154.32'	L = 240.10'	L = 143.17'
T = 78.24'	T = 124.21'	T = 72.44'
R = 380.00'	R = 380.00'	R = 380.00'
SE = SEE PLANS	SE = NC	SE = SEE PLANS
RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS

-L-
PI Sta 12+91.18
$\Delta = 8^{\circ}39'11.0"$ (LT)
D = 2'51'53.2"
L = 302.05'
T = 151.31'
R = 2,000.00'
SE = 04
RO = 84'

BEGIN TIP PROJECT B-3856
-L- POT STA. 10+00.00



-DRI-	
PI Sta 10+78.71	PI Sta 11+53.94
$\Delta = 57^{\circ}53'05.3"$ (LT)	$\Delta = 63^{\circ}23'04.0"$ (RT)
D = 81'51'04.0"	D = 81'51'04.0"
L = 70.72'	L = 77.44'
T = 38.71'	T = 43.22'
R = 70.00'	R = 70.00'
SE = NC	SE = NC



STREAM MITIGATION AREA
REFER TO 401 PERMIT PROJECT CONDITIONS

- NOTES:**
- 1) FOR -L- PROFILE SEE SHEET 5.
 - 2) FOR -DRI- PROFILE SEE SHEET 5.
 - 3) FOR -DETOUR- PLAN VIEW SEE SHEET 2-A.
 - 4) FOR -DETOUR- PROFILE SEE SHEET 5.
 - 5) ALL DRIVEWAY RADII ARE 15' UNLESS OTHERWISE NOTED.
 - 6) FOR CULVERT PLANS SEE SHEETS C-1 THRU C-6.

8/17/99

04-DEC-2007 09:07
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\$\$\$\$\$USFRAM\$\$\$\$\$

5/28/09

DITCH LEGEND

LEFT DITCH - - - - -

RIGHT DITCH - - - - -

PROJECT REFERENCE NO. **B-3856**

SHEET NO. **5**

ROADWAY DESIGN ENGINEER

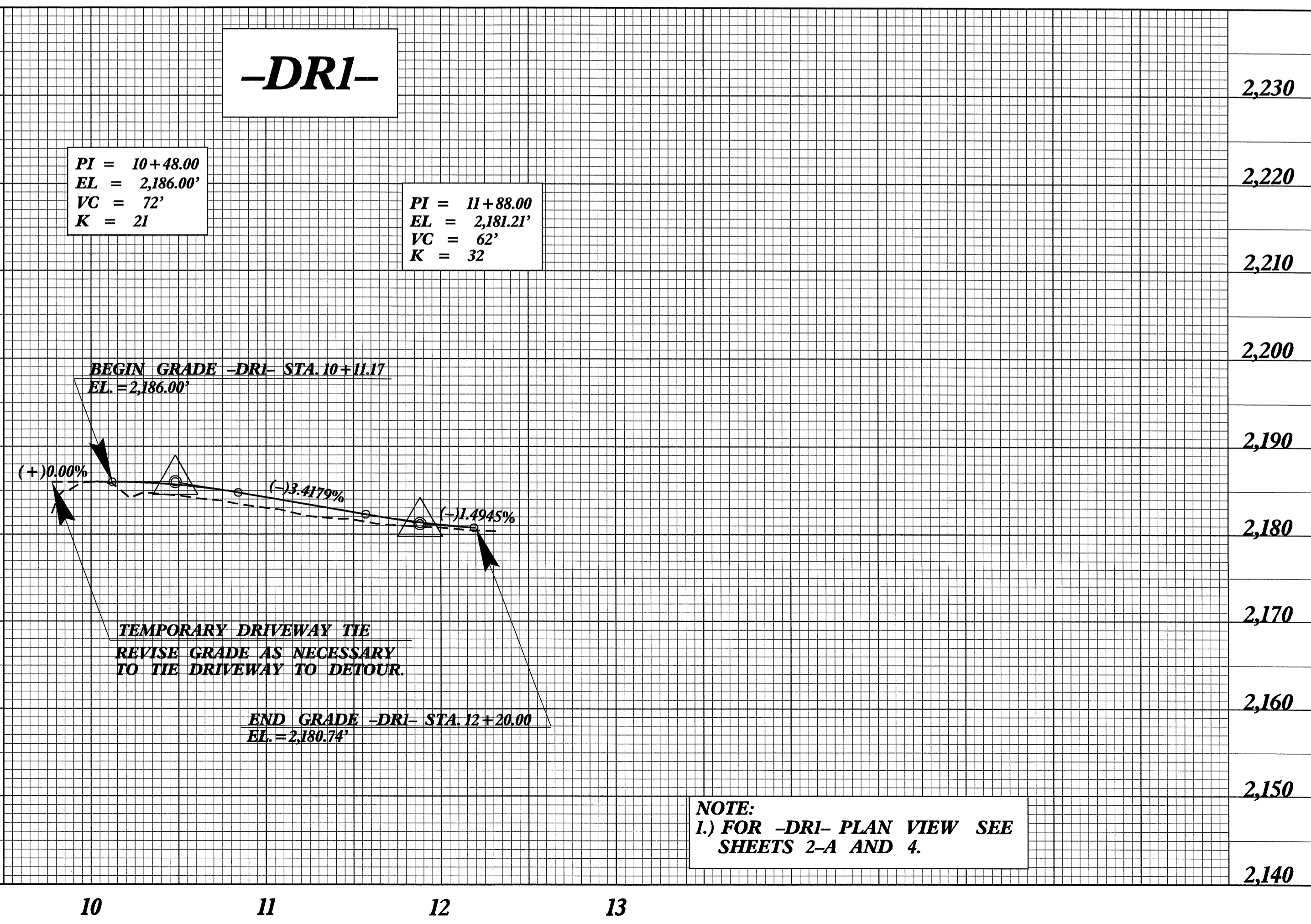
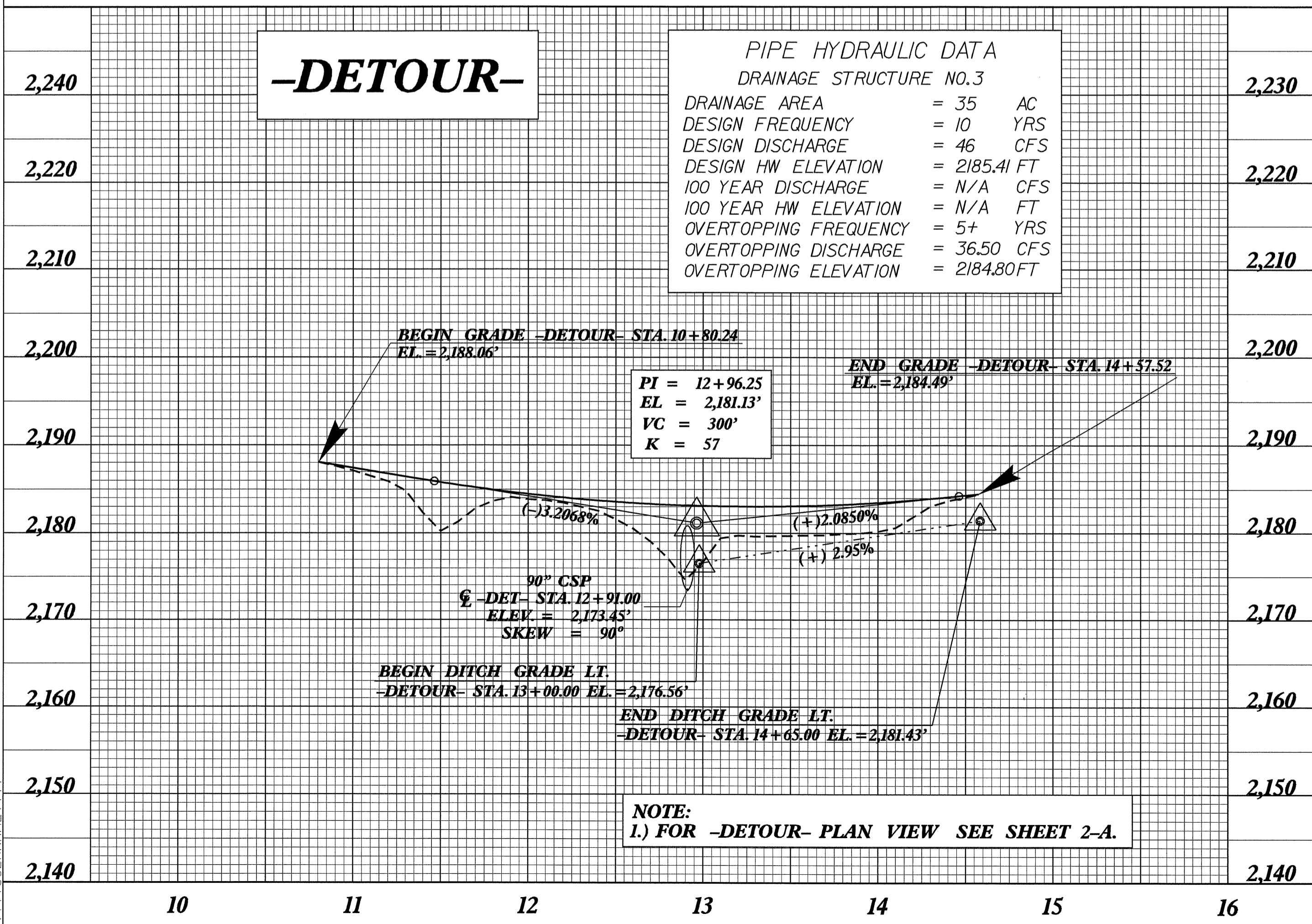
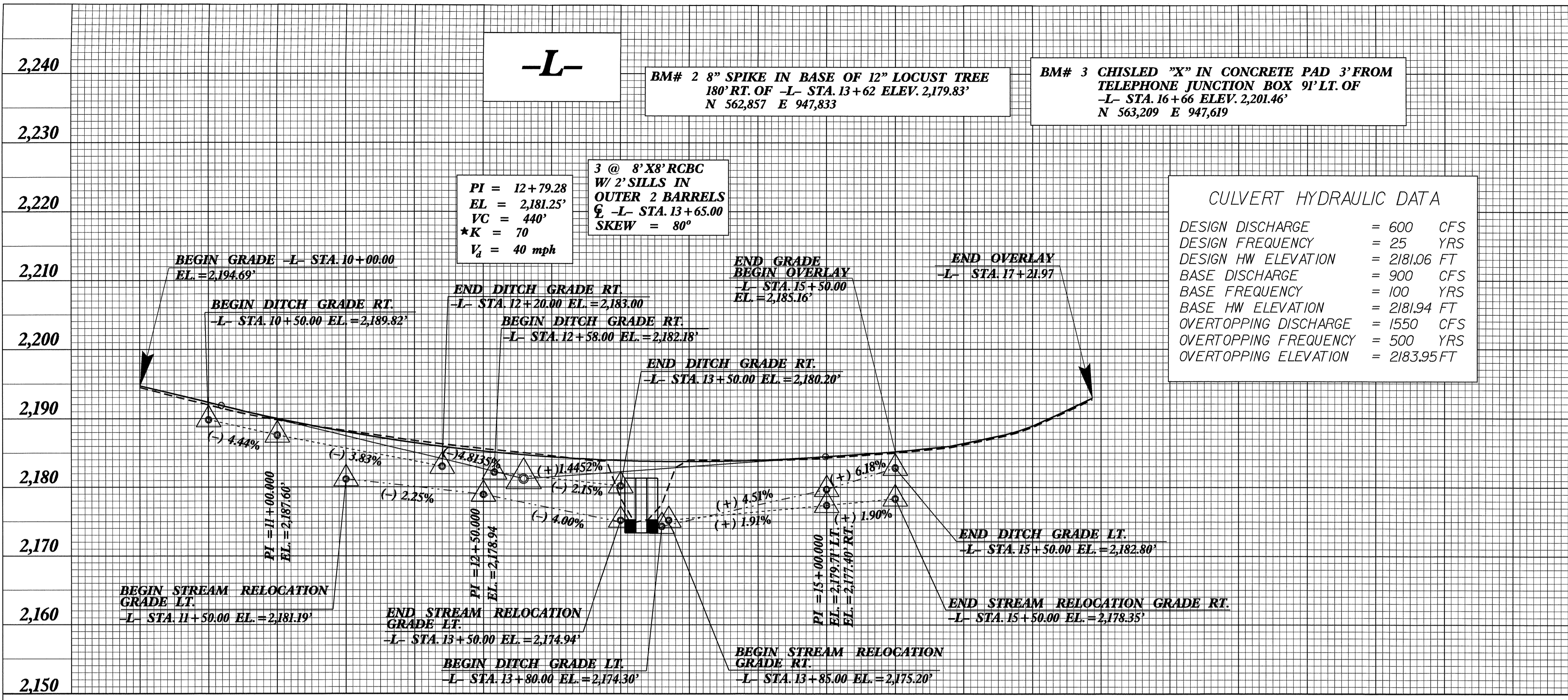
HYDRAULICS ENGINEER

SEAL 033298

SEAL 18883

JEFFREY L. TEAGUE

7/12/07



12-1111-2007 14:31
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\$\$\$\$\$USERNAME\$\$\$\$\$