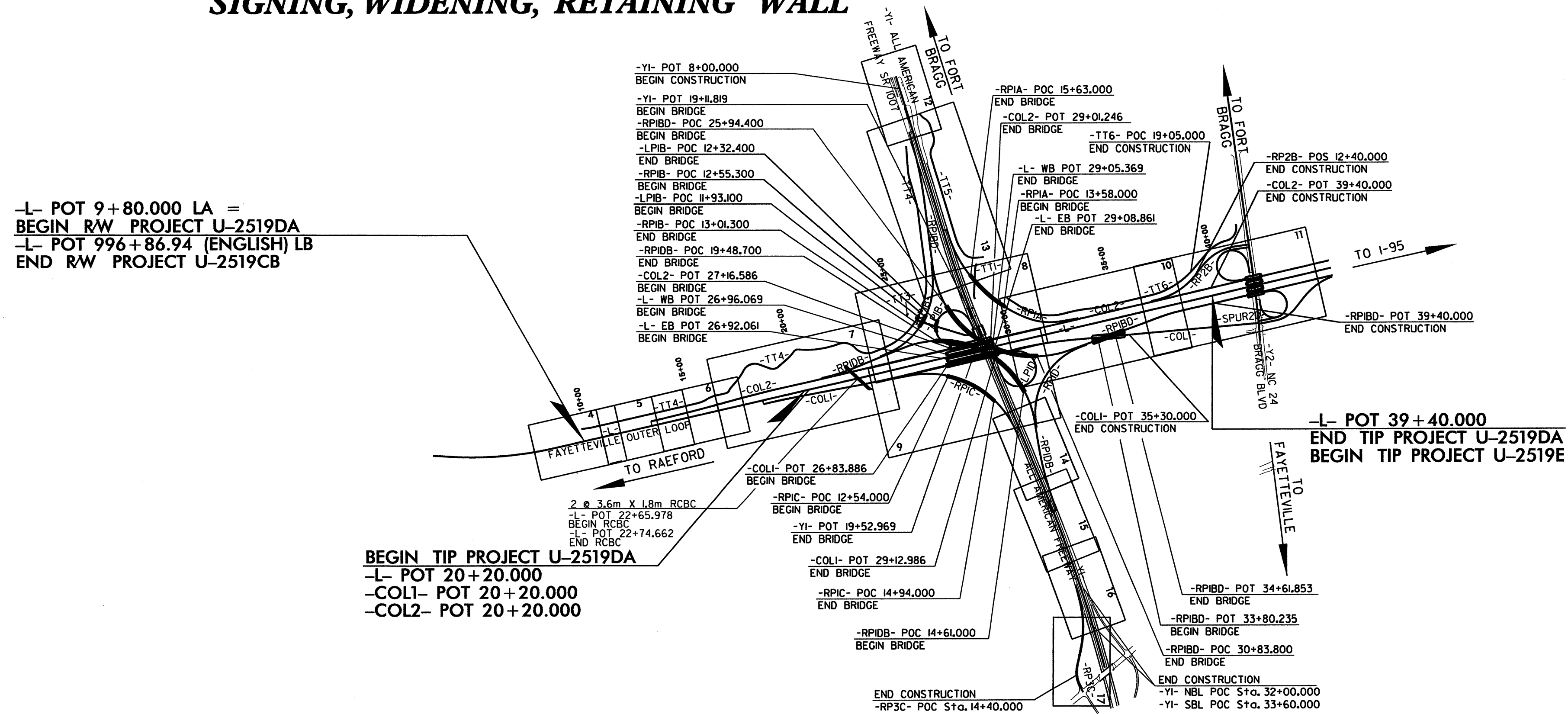


TIP PROJECT: U-2519DA

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
 PLAN FOR PROPOSED
 HIGHWAY EROSION CONTROL
CUMBERLAND COUNTY

LOCATION: FAYETTEVILLE OUTER LOOP FROM EAST OF SR 1415 TO WEST OF NC 24 (BRAGG BOULEVARD)
TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERTS, SIGNING, WIDENING, RETAINING WALL



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2519DA	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

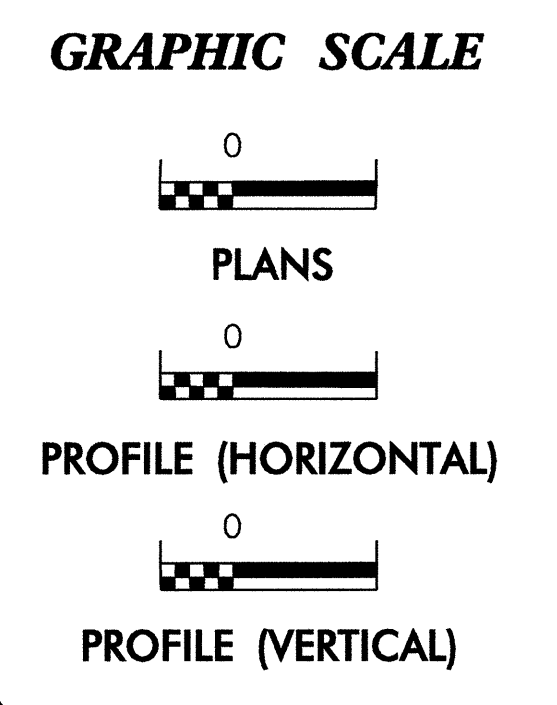
ALL DIMENSIONS IN THESE PLANS ARE IN METERS UNLESS OTHERWISE SHOWN

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
	Temporary Silt Fence	
	Special Sediment Control Fence	~ ~ ~ ~ ~
1622.01	Temporary Berms and Slope Drains	TBD
1630.01	Riser Basin	⊙
1630.02	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	⊗
1633.02	Temporary Rock Silt Check Type-B	⊗
	Wattle	~ ~ ~ ~ ~
1654.01	Temporary Rock Sediment Dam Type-A	⊗
1654.02	Temporary Rock Sediment Dam Type-B	⊗
1635.01	Rock Pipe Inlet Sediment Trap Type-A	⊗
1635.02	Rock Pipe Inlet Sediment Trap Type-B	⊗
	Stilling Basin	⊗
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
	Type C	C
	Skimmer Basin	⊗
	Tiered Skimmer Basin	⊗
	Infiltration Basin	⊗

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS



ROADSIDE ENVIRONMENTAL UNIT
 DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

Prepared In the Office of:
ROADSIDE ENVIRONMENTAL UNIT
 1 South Wilmington St.
 Raleigh, NC 27611
2006 STANDARD SPECIFICATIONS

Roadway Standard Drawings

The following roadway metric standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated July 2006 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1622.01 Temporary Berms and Slope Drains	1633.01 Temporary Rock Silt Check Type A
1630.03 Temporary Silt Ditch	1633.02 Temporary Rock Silt Check Type B
1630.05 Temporary Diversion	1634.02 Temporary Rock Sediment Dam Type B
1632.01 Rock Inlet Sediment Trap Type A	1635.01 Rock Pipe Inlet Sediment Trap Type A
1632.02 Rock Inlet Sediment Trap Type B	1635.02 Rock Pipe Inlet Sediment Trap Type B

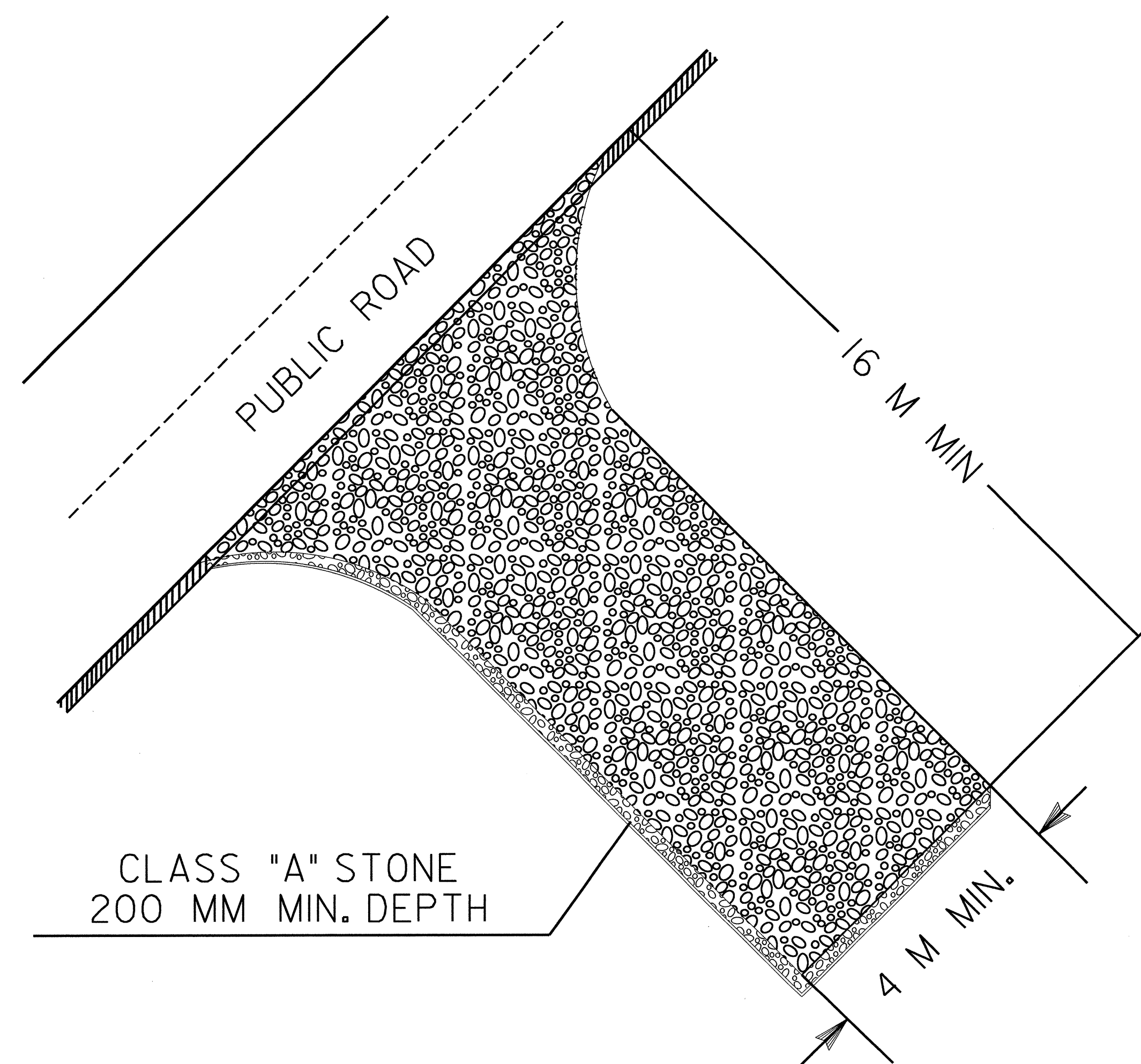


PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

NOTES:

1. TURNING RADIUS SUFFICIENT TO ACCOMODATE LARGE TRUCKS SHALL BE PROVIDED.
2. ENTRANCE(S) SHOULD BE LOCATED TO PROVIDE FOR UTILIZATION BY ALL CONSTRUCTION VEHICLES.
3. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOPDRESSING WITH STONE WILL BE NECESSARY.
4. ANY MATERIAL TRACKED ONTO THE ROADWAY MUST BE CLEANED UP IMMEDIATELY.
5. GRAVEL CONSTRUCTION ENTRANCE SHALL BE LOCATED AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED. FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE MUST BE PROVIDED.
6. NUMBER AND LOCATION OF CONSTRUCTION ENTRANCES TO BE DETERMINED BY THE ENGINEER

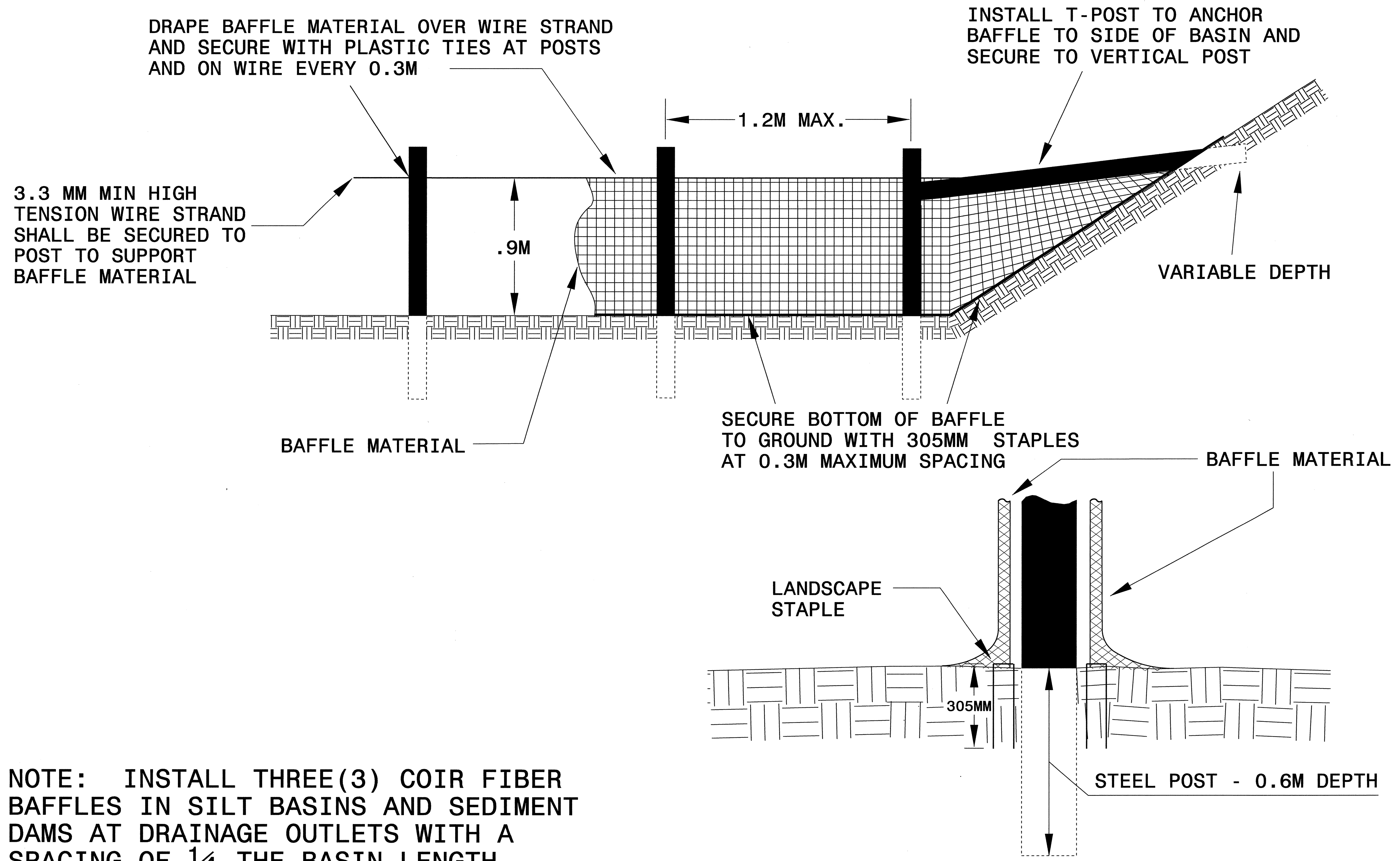


NOTE: FILTER FABRIC TO BE PLACED BENEATH STONE

COIR FIBER BAFFLE DETAIL



PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



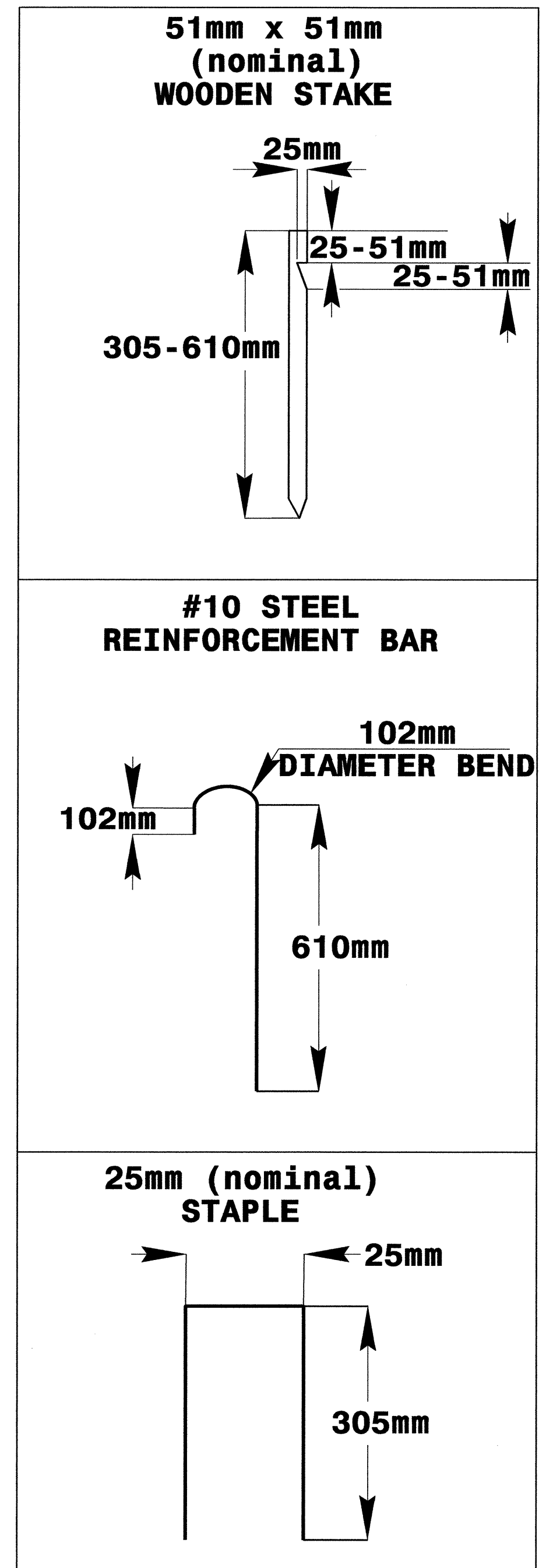
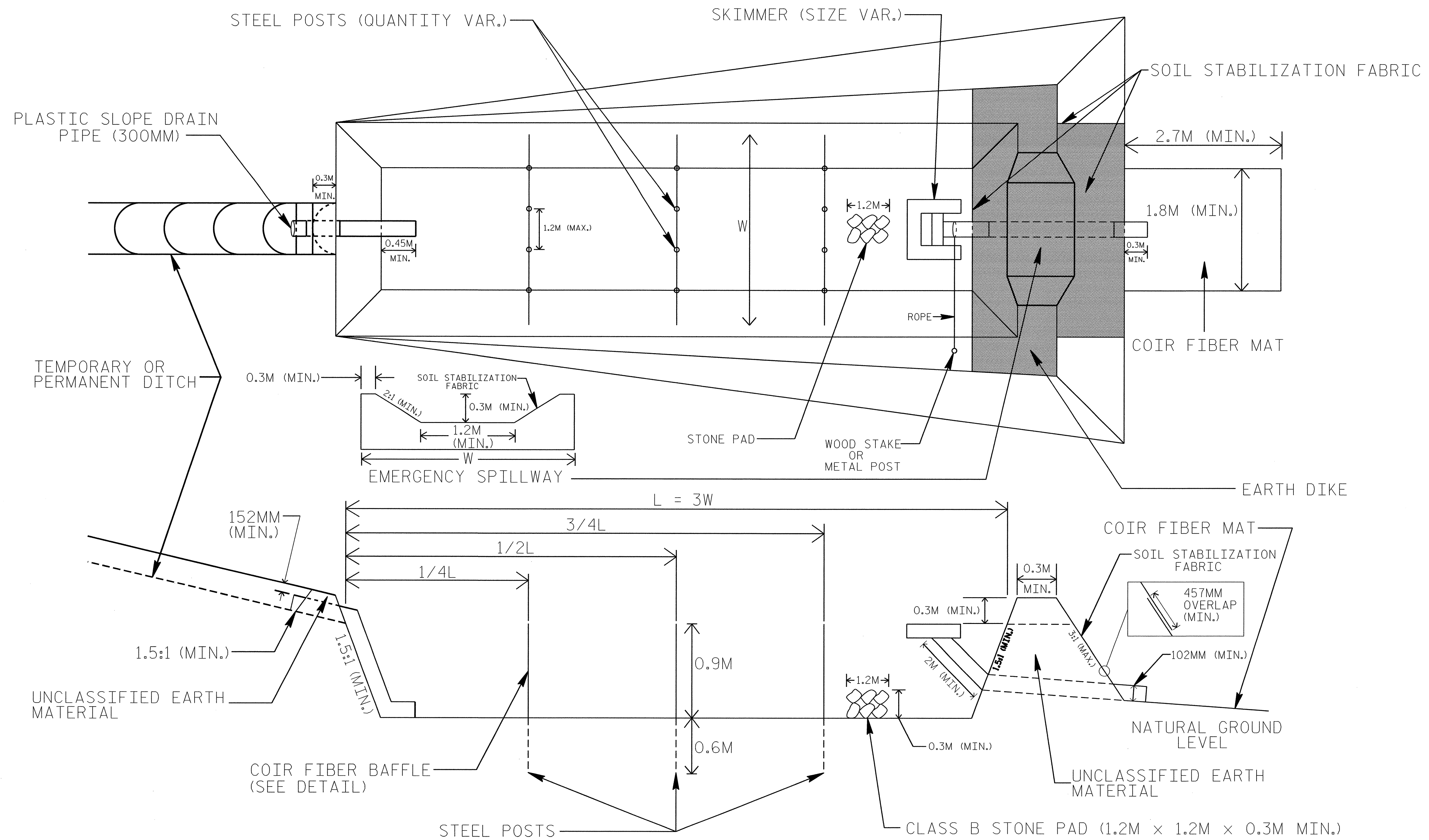
NOTE: INSTALL THREE(3) COIR FIBER BAFFLES IN SILT BASINS AND SEDIMENT DAMS AT DRAINAGE OUTLETS WITH A SPACING OF $\frac{1}{4}$ THE BASIN LENGTH. TWO(2) COIR FIBER BAFFLES CAN BE INSTALLED IN SILT BASINS AND DAMS LESS THAN 6 M IN LENGTH WITH A SPACING OF $\frac{1}{3}$ THE BASIN LENGTH.

BAFFLE MATERIAL SHALL BE SECURED TO THE BOTTOM AND SIDES OF BASIN USING 305MM LANDSCAPE STAPLES



PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL



NOTES

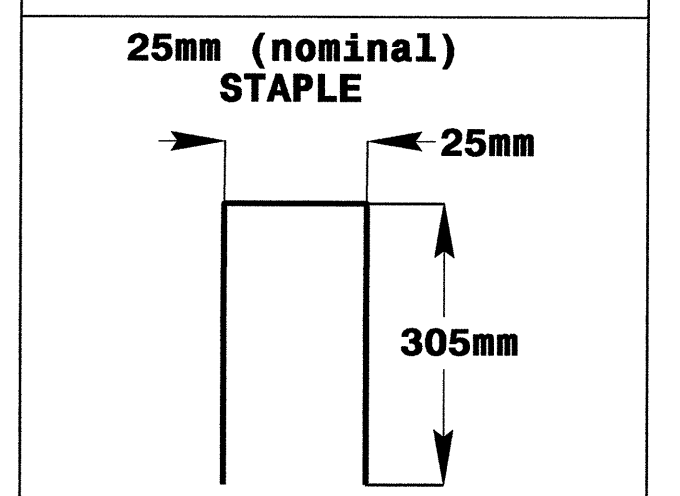
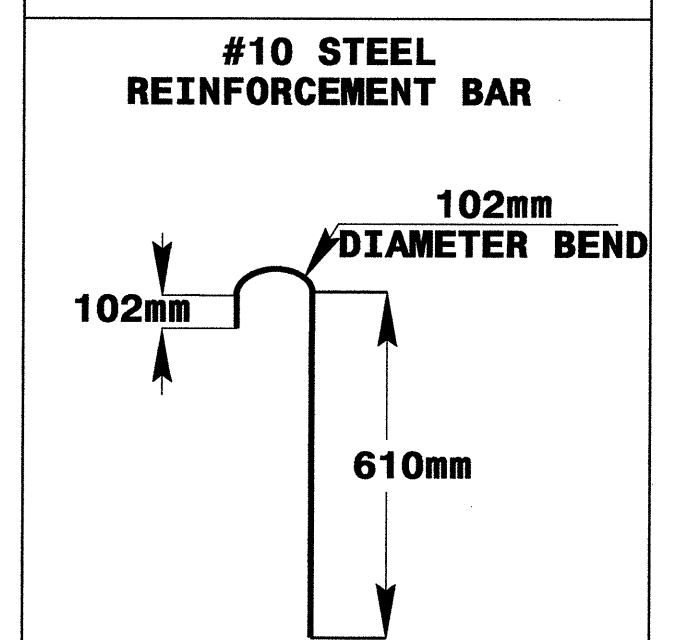
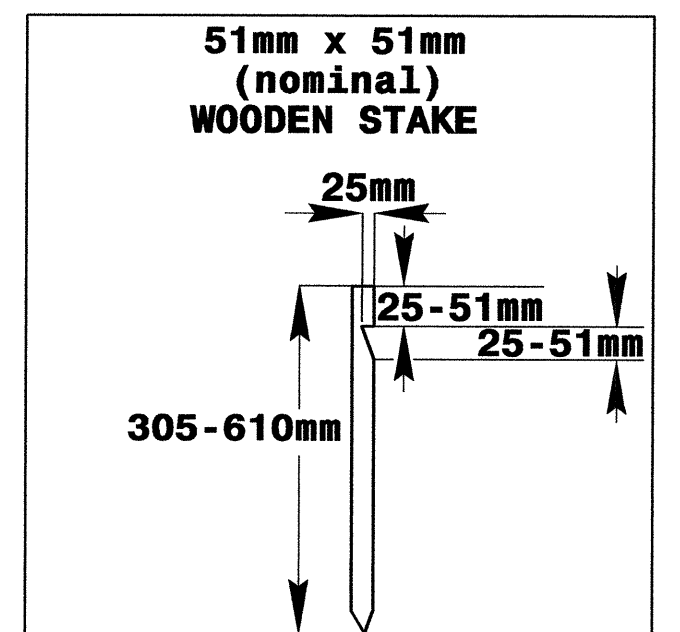
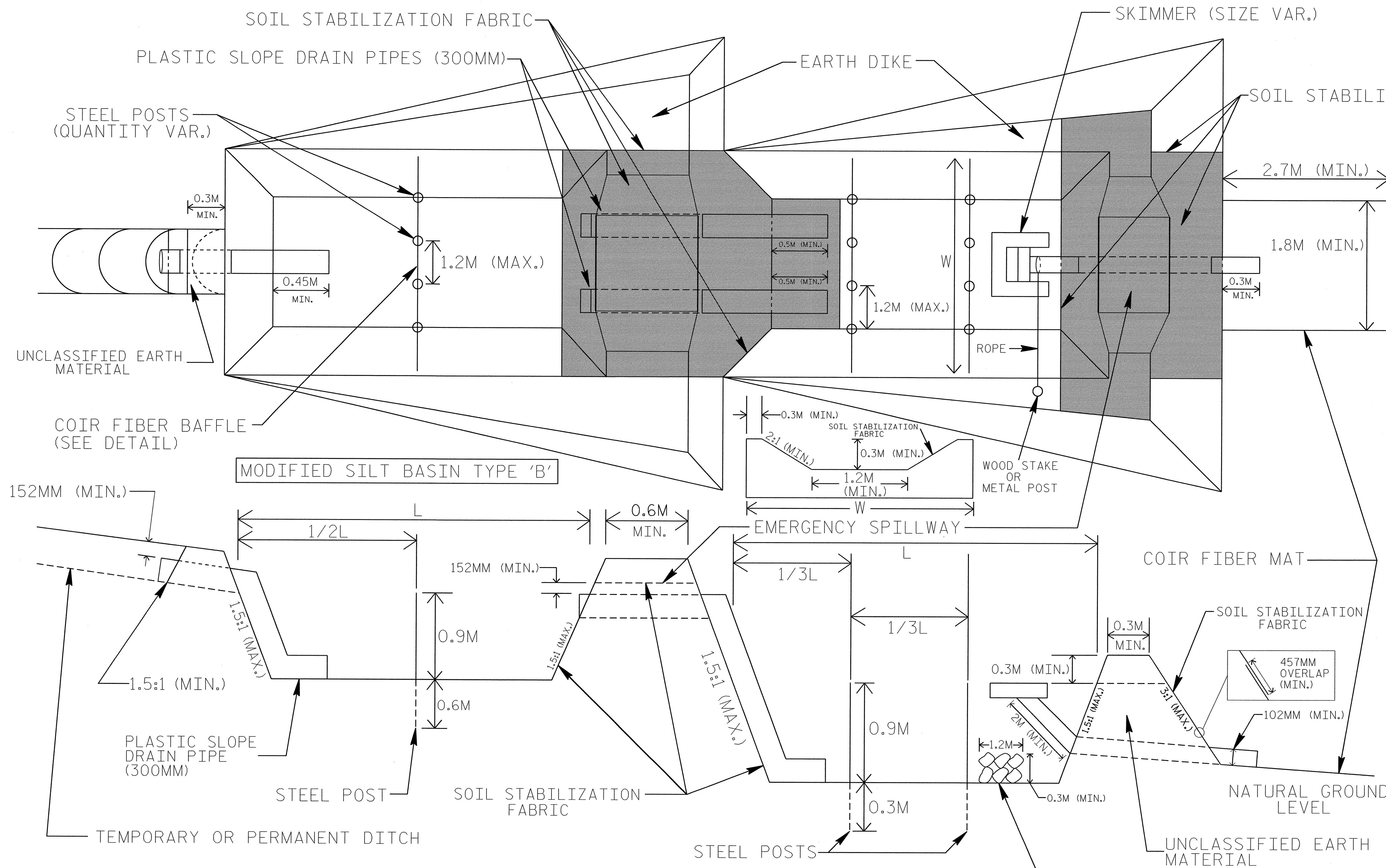
1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 1.5M.
3. FOR BASIN DEPTH OF 1M, MINIMUM BASIN WIDTH SHALL BE 3M.
4. DETERMINE EMERGENCY SPILLWAY LENGTH (M) USING $Q/0.074$, WHERE Q IS FLOW RATE (CMS) INTO BASIN.
5. PLASTIC SLOPE DRAIN PIPE AT INLET OF BASIN MAY BE REPLACED BY FILTER FABRIC AS DIRECTED.
6. SOIL STABILIZATION FABRIC FOR EMERGENCY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 457MM (MIN.).

NOT TO SCALE

TIERED SKIMMER BASIN DETAIL



PROJECT REFERENCE NO. U-25/9DA	SHEET NO. EC-2C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



COIR FIBER MAT ANCHOR OPTIONS

NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES OF BASINS.
2. LIMIT HEIGHT OF EARTH DIKES TO 1.5M.
3. ADDITIONAL MODIFIED SILT BASINS TYPE 'B' MAY BE NEEDED DEPENDING ON SLOPE.
4. FOR BASIN DEPTHS OF 1M, THE MINIMUM BASIN WIDTHS SHALL BE 3M.
5. DETERMINE EMERGENCY SPILLWAY LENGTHS (M) USING $Q/0.074$, WHERE Q IS FLOW RATE (CMS) INTO UPPER BASIN.
6. SOIL STABILIZATION FABRIC FOR EMERGENCY SPILLWAYS SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 457MM (MIN.).

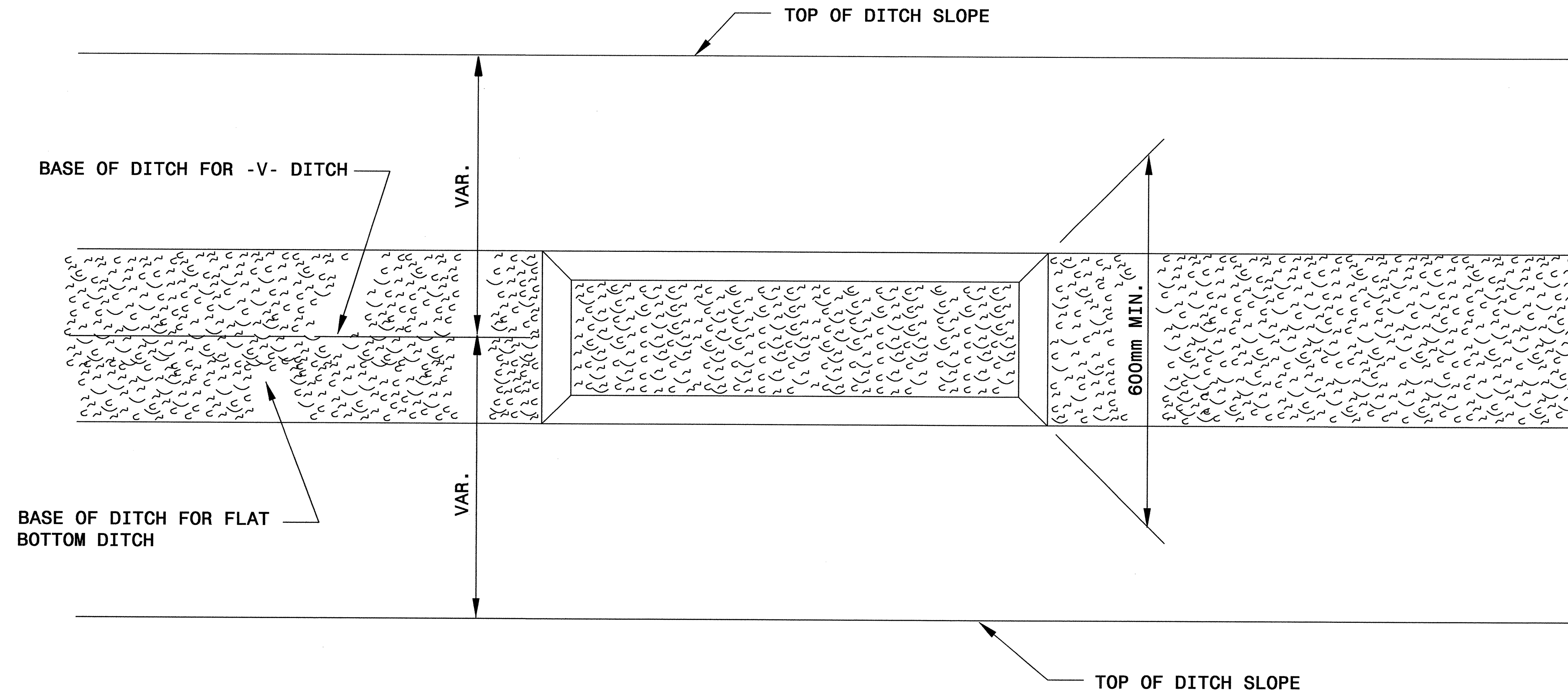
CLASS B STONE PAD (1.2M x 1.2M x 0.3M MIN.)

NOT TO SCALE

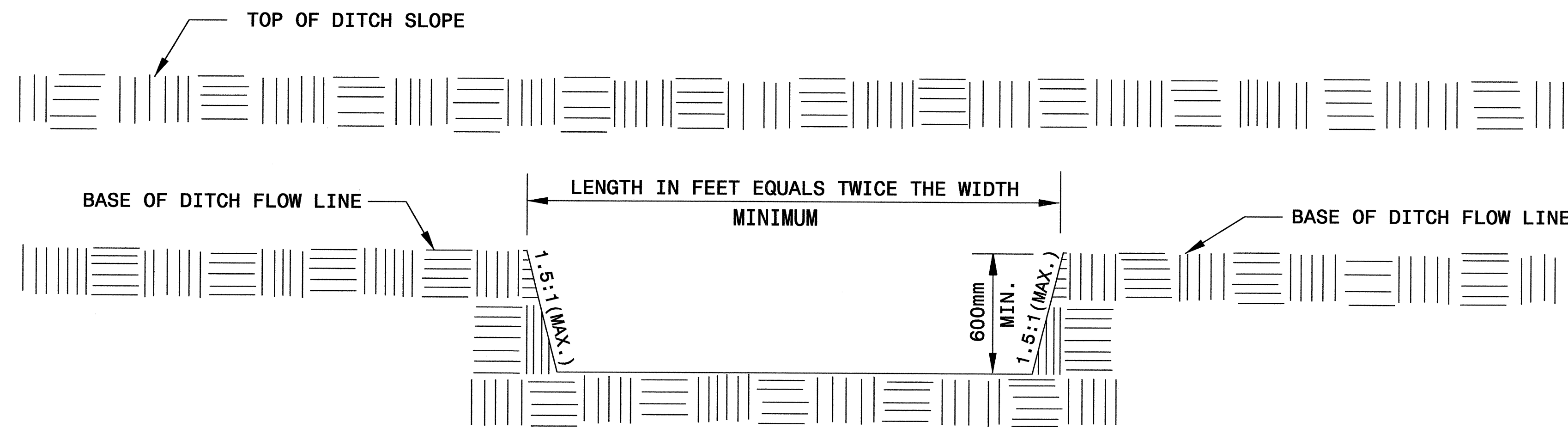


PROJECT REFERENCE NO.	SHEET NO.
U-2519DA	EC-2D
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SILT BASIN 'B' DETAIL



PLAN

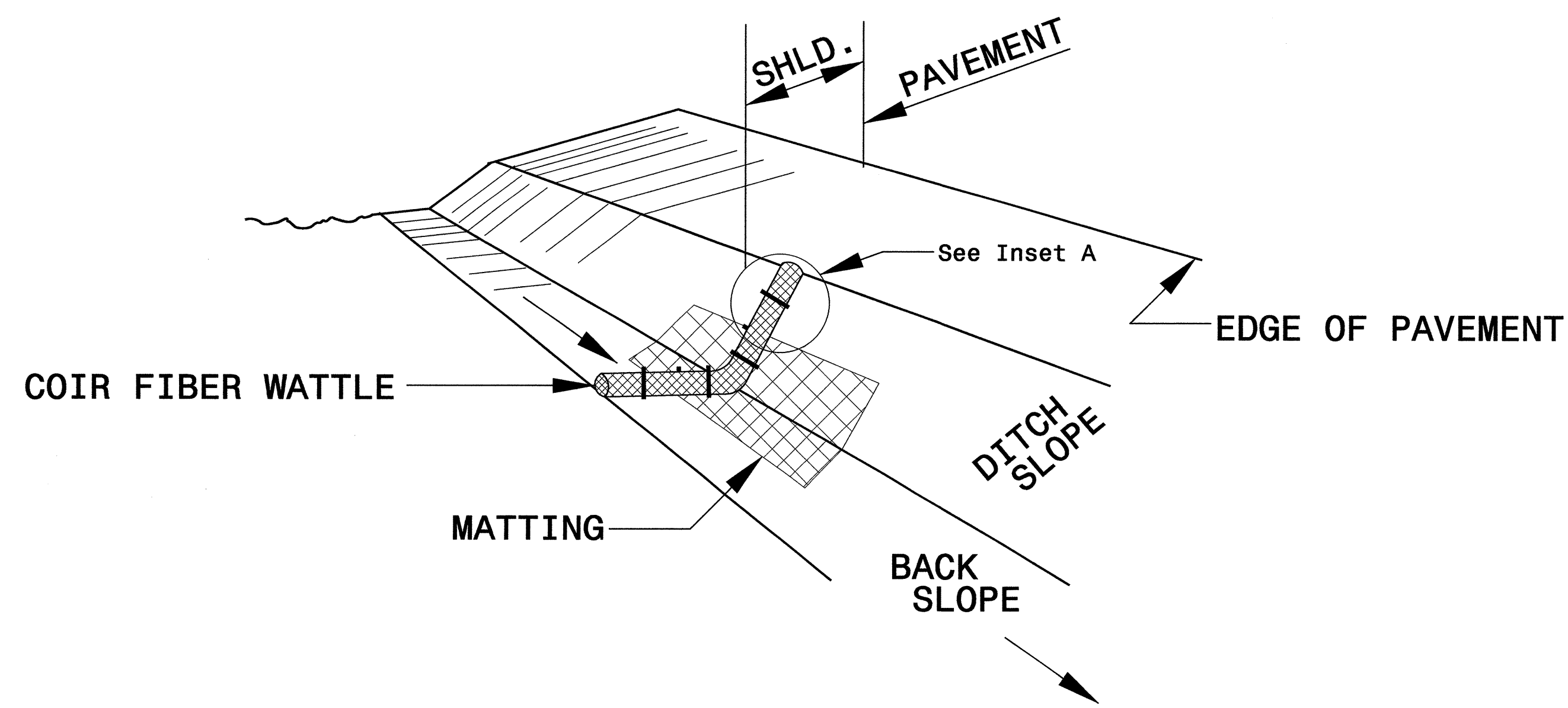


ELEVATION

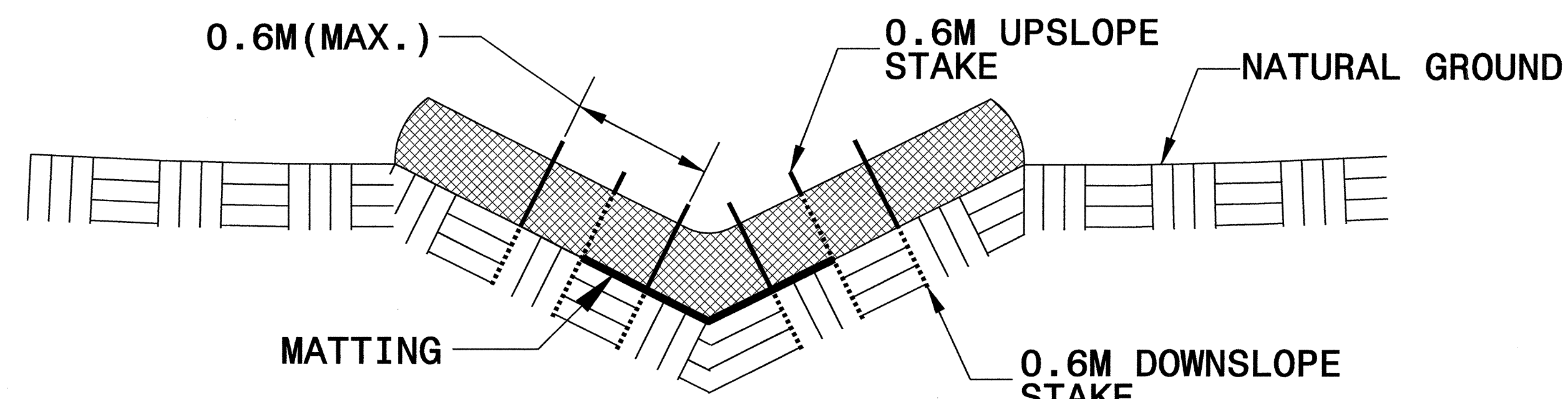


PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-2E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

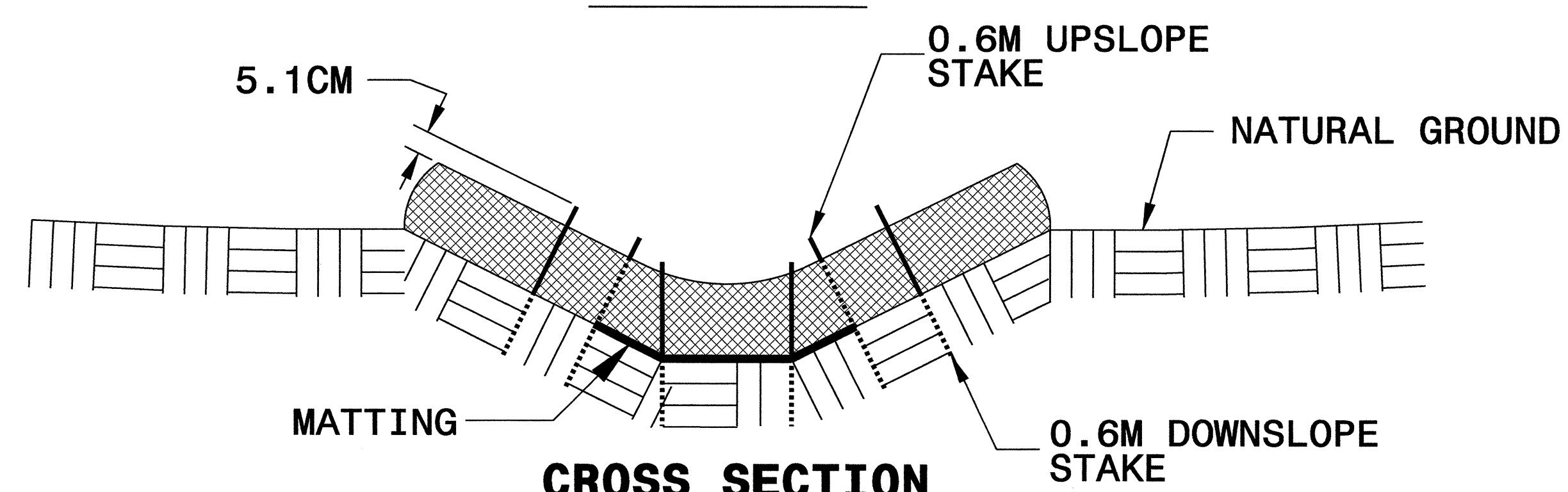
COIR FIBER WATTLE DETAIL



ISOMETRIC VIEW



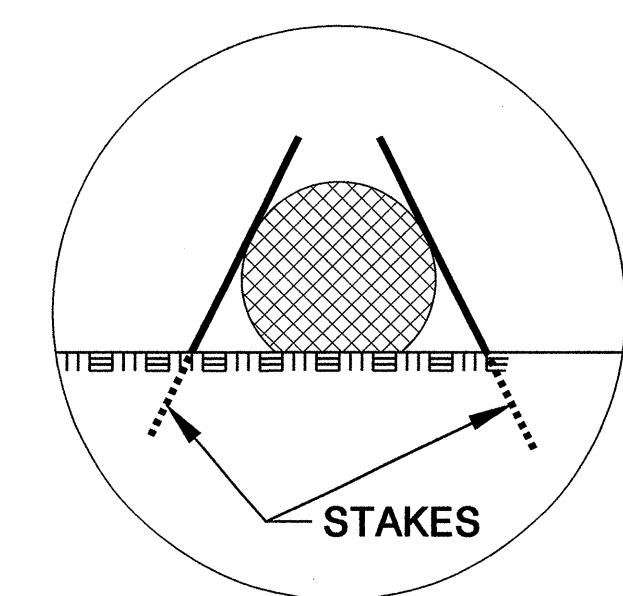
CROSS SECTION VEE DITCH



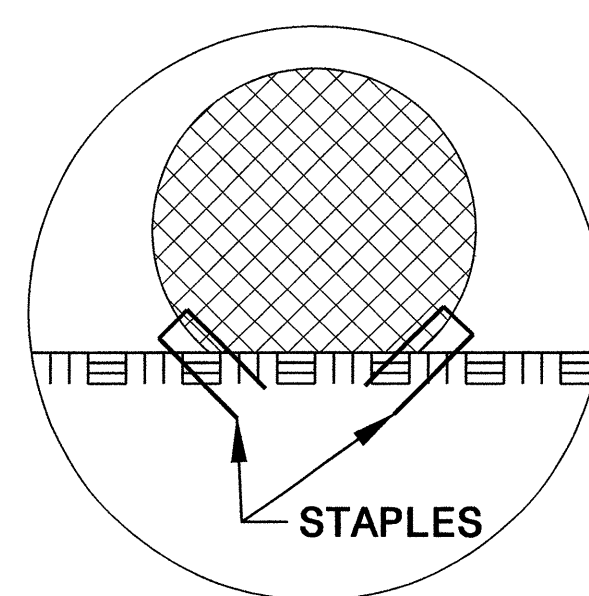
CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

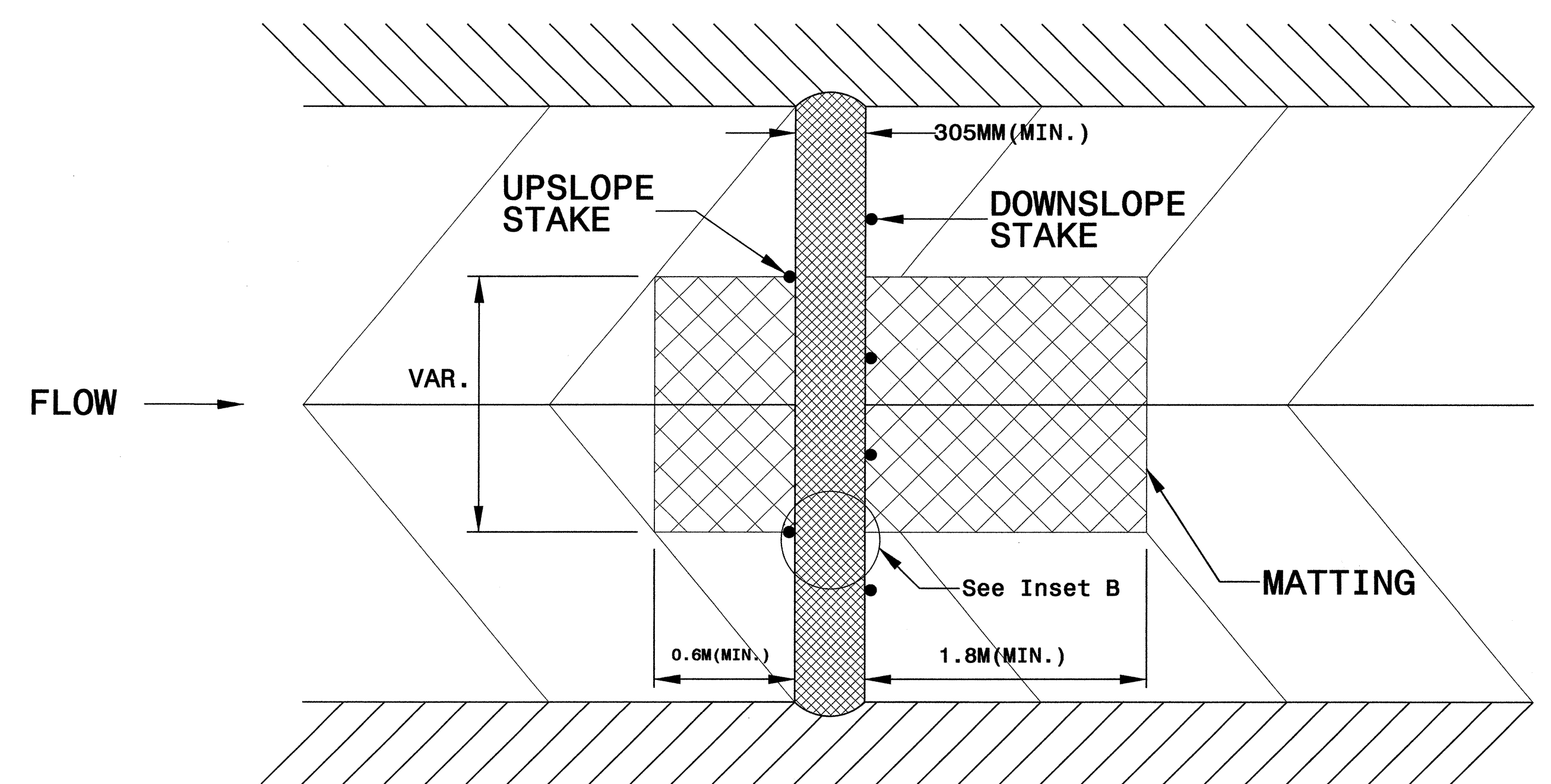
- USE MINIMUM 305 MM DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.
- USE 0.6 M WOODEN STAKES WITH A 5.1 CM BY 5.1 CM NOMINAL CROSS SECTION.
- ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
- PROVIDE STAPLES MADE OF 3 MM DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 305 MM IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 0.3 LINEAR METER ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A



INSET B

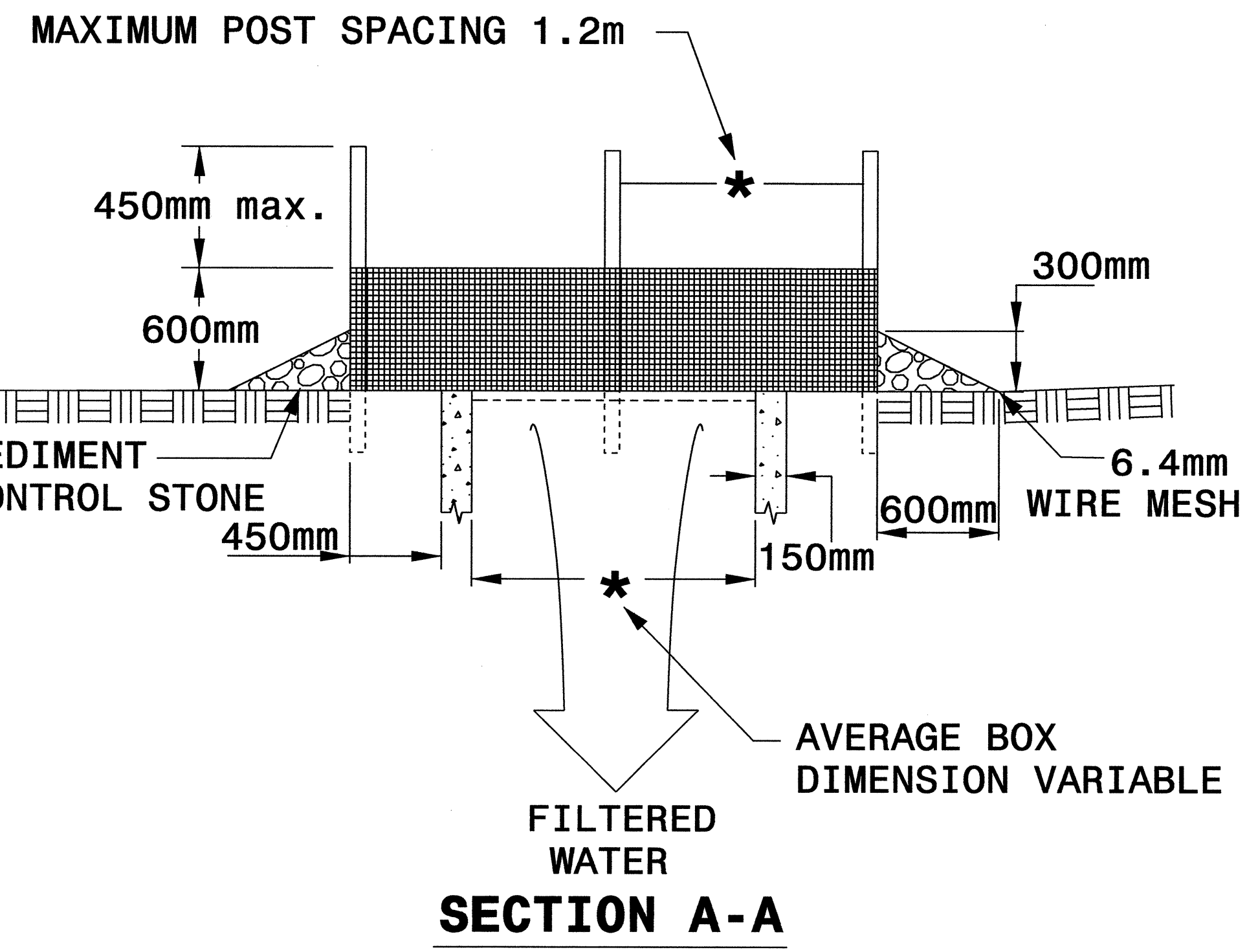
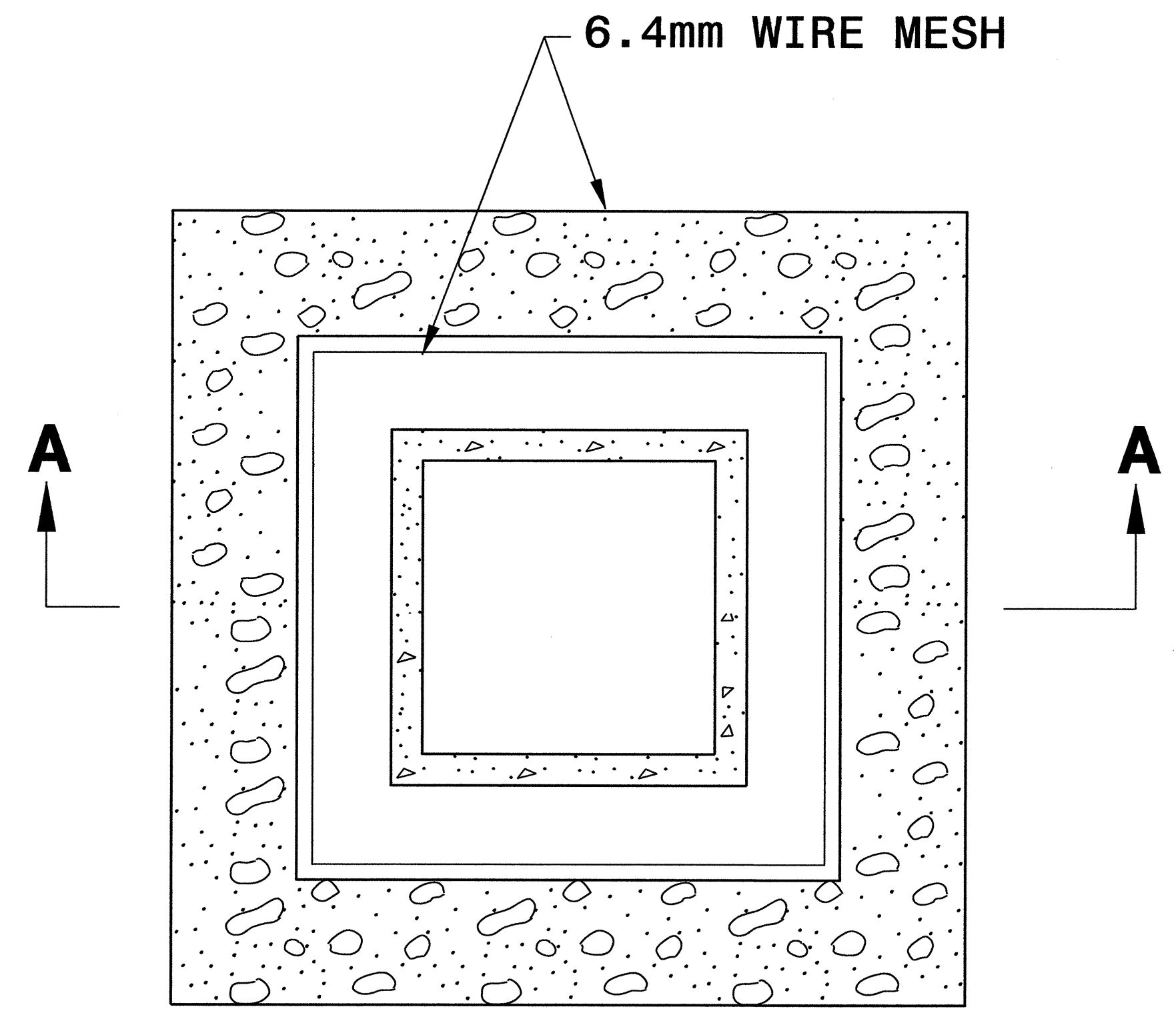


TOP VIEW



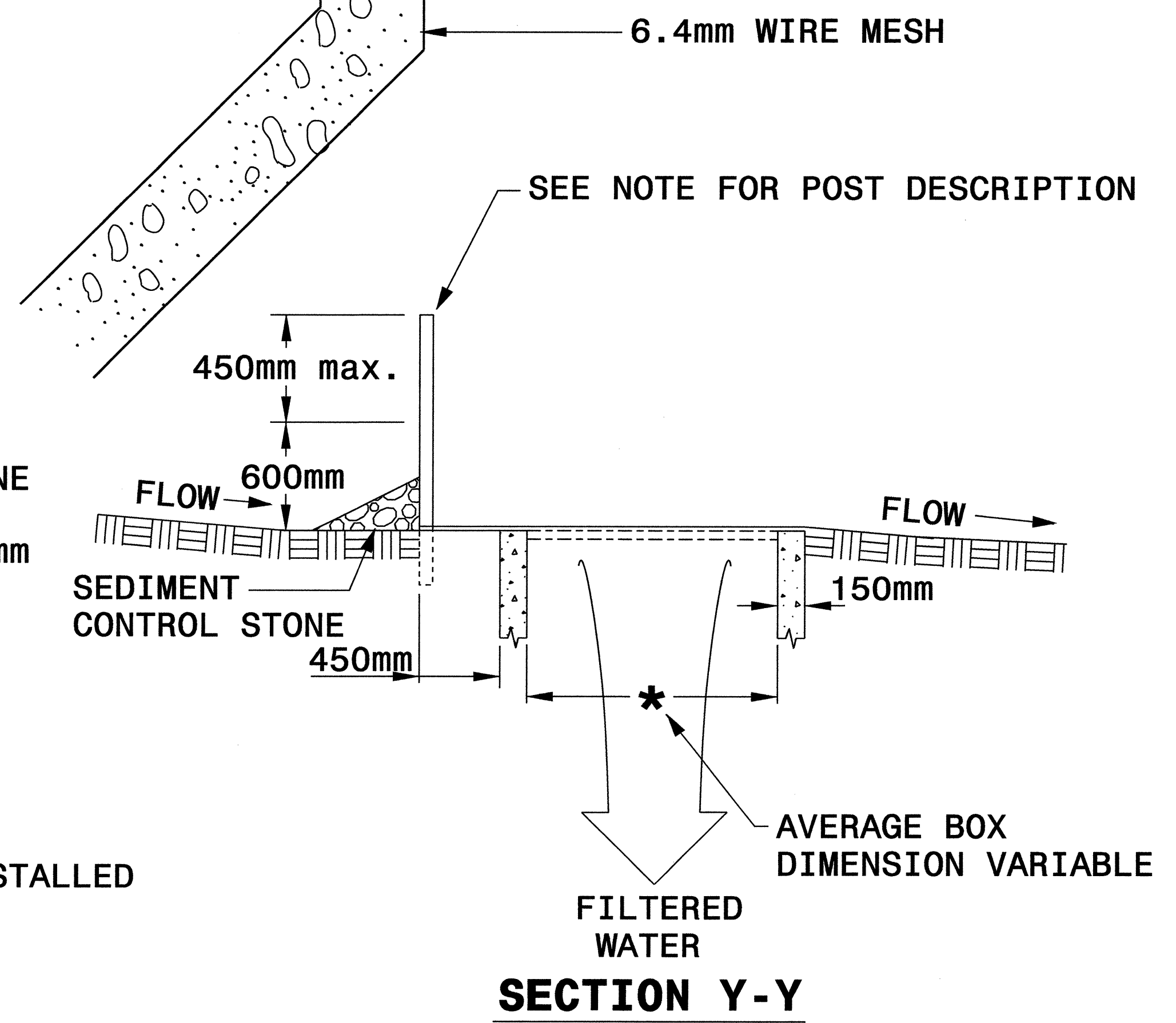
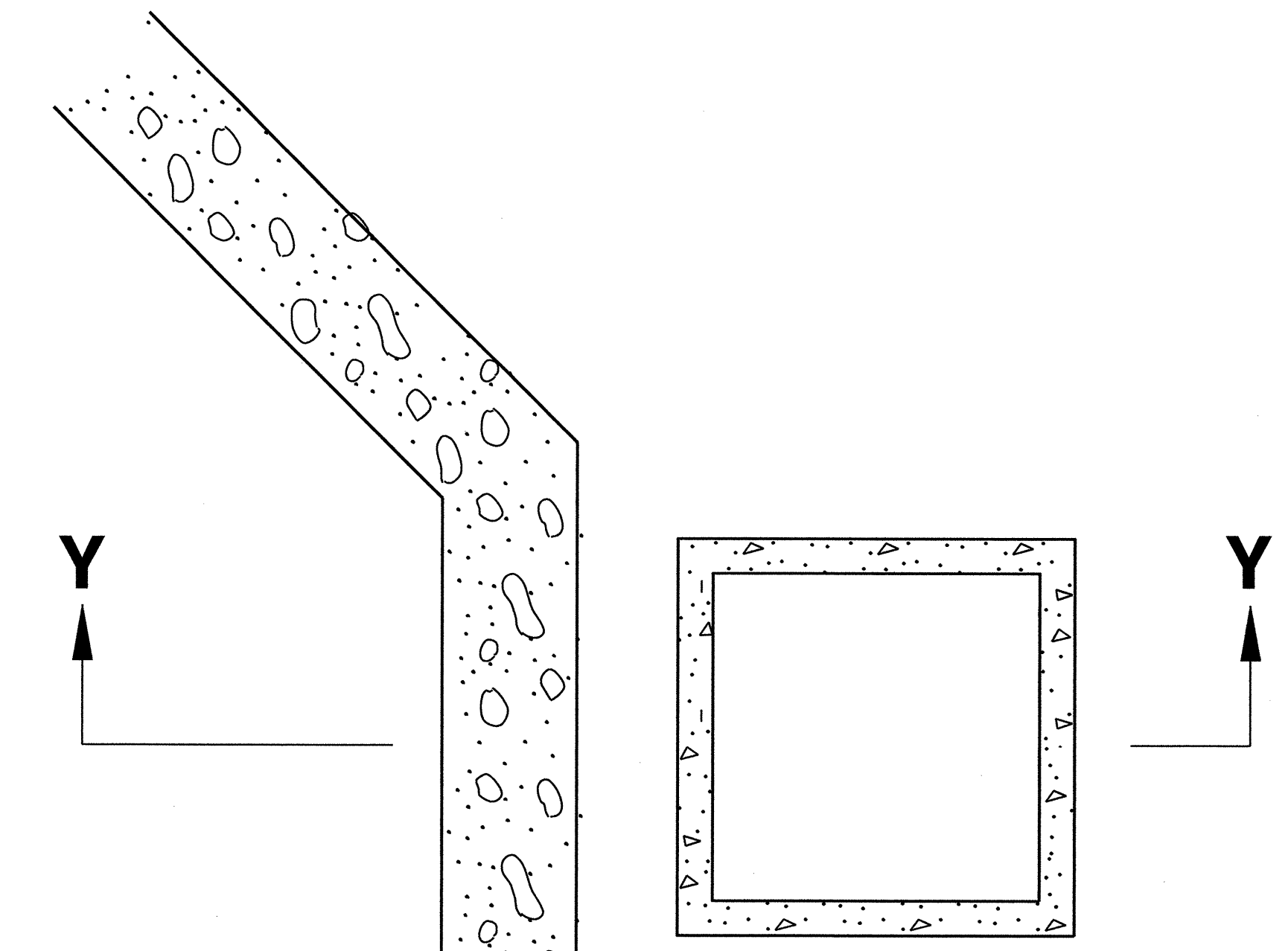
PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-2F
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ROCK INLET SEDIMENT TRAP TYPE 'C' DETAIL



MULTI-DIRECTIONAL FLOW

NOTE
 USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL.
 USE HARDWARE CLOTH 0.65mm WIRE MESH WITH 6.4mm MESH OPENINGS.
 PLACE TOP OF WIRE MESH A MINIMUM OF 300mm BELOW THE SHOULDER OR ANY DIVERSION POINT.
 INSTALL WIRE MESH UNDER SEDIMENT CONTROL STONE.
 USE 1.5m STEEL POST, INSTALLED 450mm DEEP MINIMUM, AND OF THE SELF-FASTENER ANGLE STEEL TYPE.
 SPACE POST A MAXIMUM OF 1.2m.



SINGLE-DIRECTIONAL FLOW



PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SPECIAL SEDIMENT CONTROL FENCE DETAIL

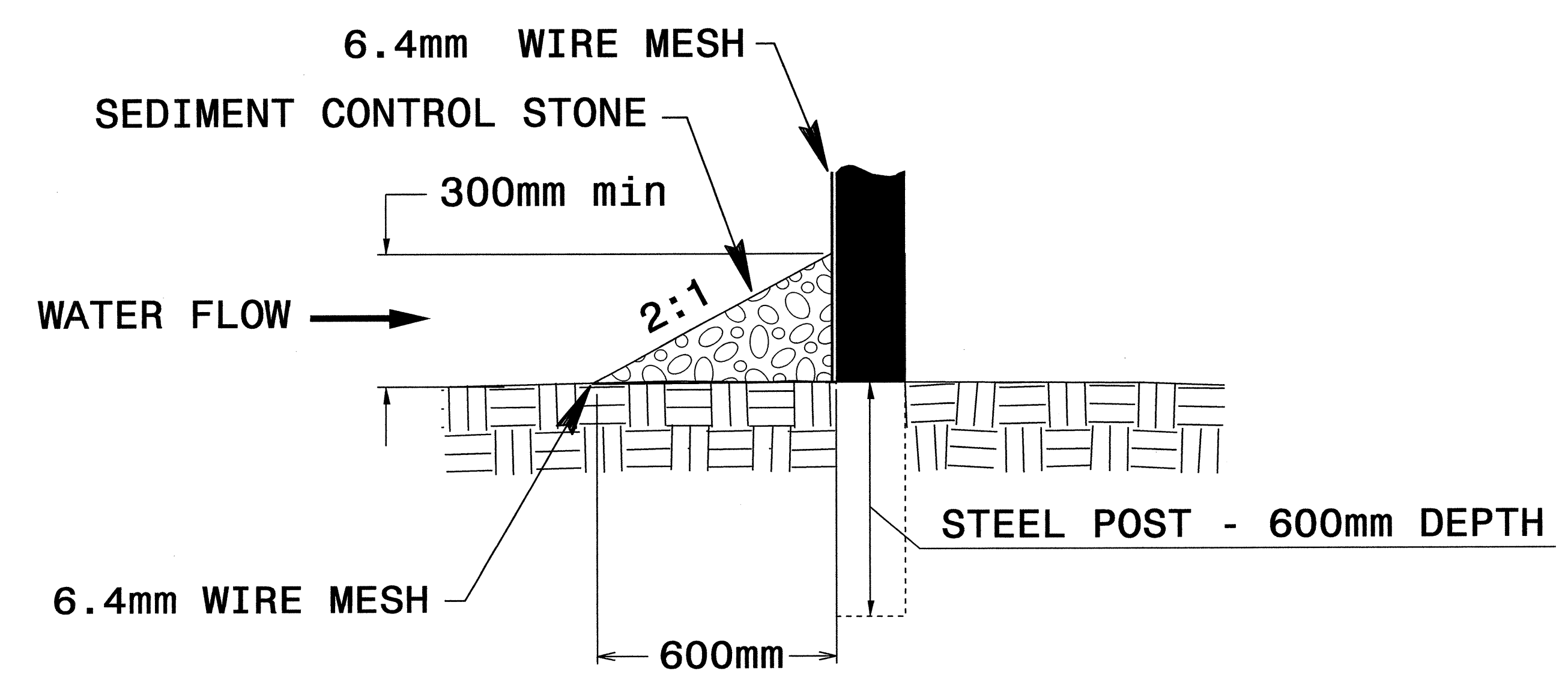
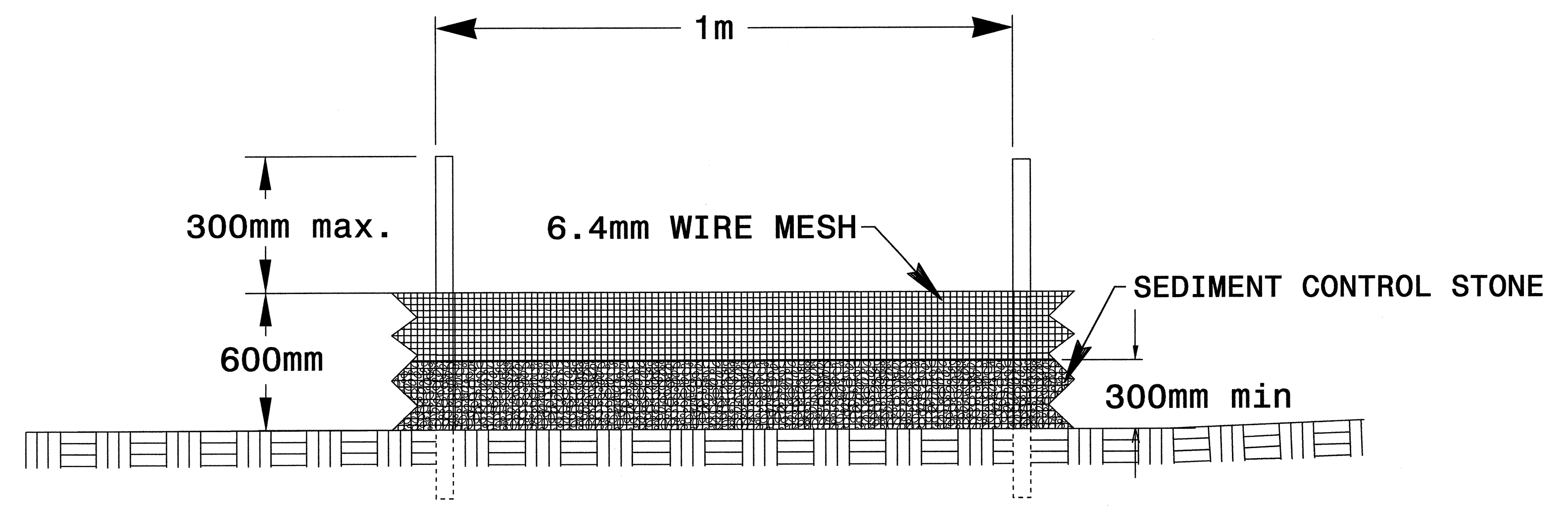
GENERAL NOTES:

USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL.

USE 0.65mm HARDWARE CLOTH WIRE MESH WITH 6.4 mm MESH OPENINGS.

INSTALL 1.5m SELF FASTENER ANGLE STEEL POST 600mm DEEP MINIMUM.

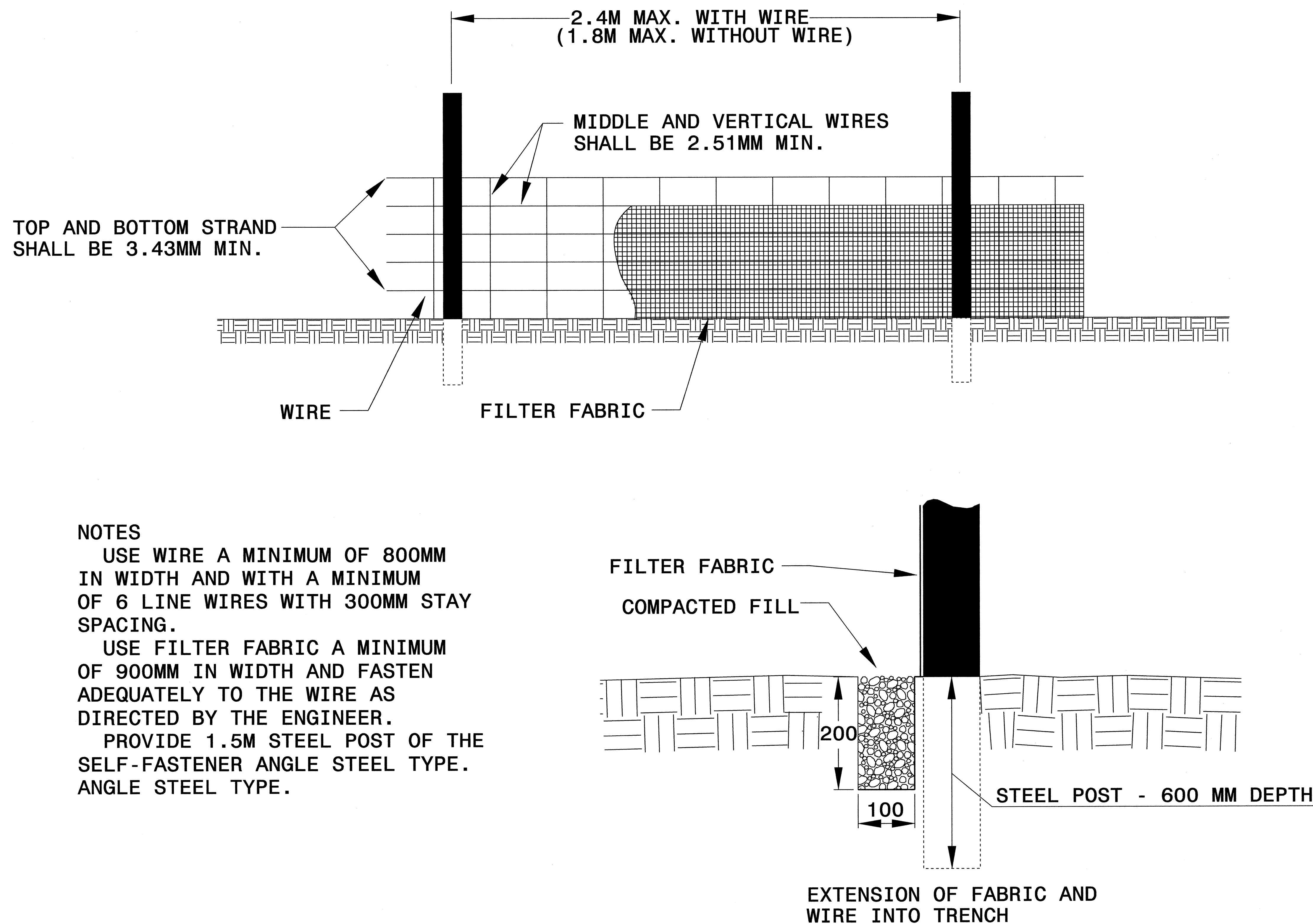
SPACE POST A MAXIMUM OF 1m.





PROJECT REFERENCE NO.	SHEET NO.
U-2519DA	EC-2H
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY SILT FENCE DETAIL





PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-21
R / W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

STILLING BASIN

GENERAL NOTES:
 CONSTRUCT THE COIR FIBER BAFFLES WITH A MATERIAL THAT MEETS THE SPECIFICATIONS OF THE COIR FIBER MAT SPECIAL PROVISION PROVIDED IN THE CONTRACT.

PROVIDE 1.5M STEEL POSTS OF THE SELF-FASTENER ANGLE STEEL TYPE. INSTALL STEEL POSTS WITH NO MORE THAN 0.9M OF THE POST APPEARING ABOVE THE GROUND.

ATTACH THE COIR FIBER MAT TO THE STEEL POSTS WITH WIRE OR OTHER ACCEPTABLE MEANS AND STAPLED INTO THE BOTTOM AND SIDE SLOPES OF THE STILLING BASIN WITH 12" STAPLES.

INSTALL THE TOP OF THE COIR FIBER BAFFLE A MINIMUM OF 300MM LOWER THAN THE TOP OF THE STILLING BASIN BERMS.

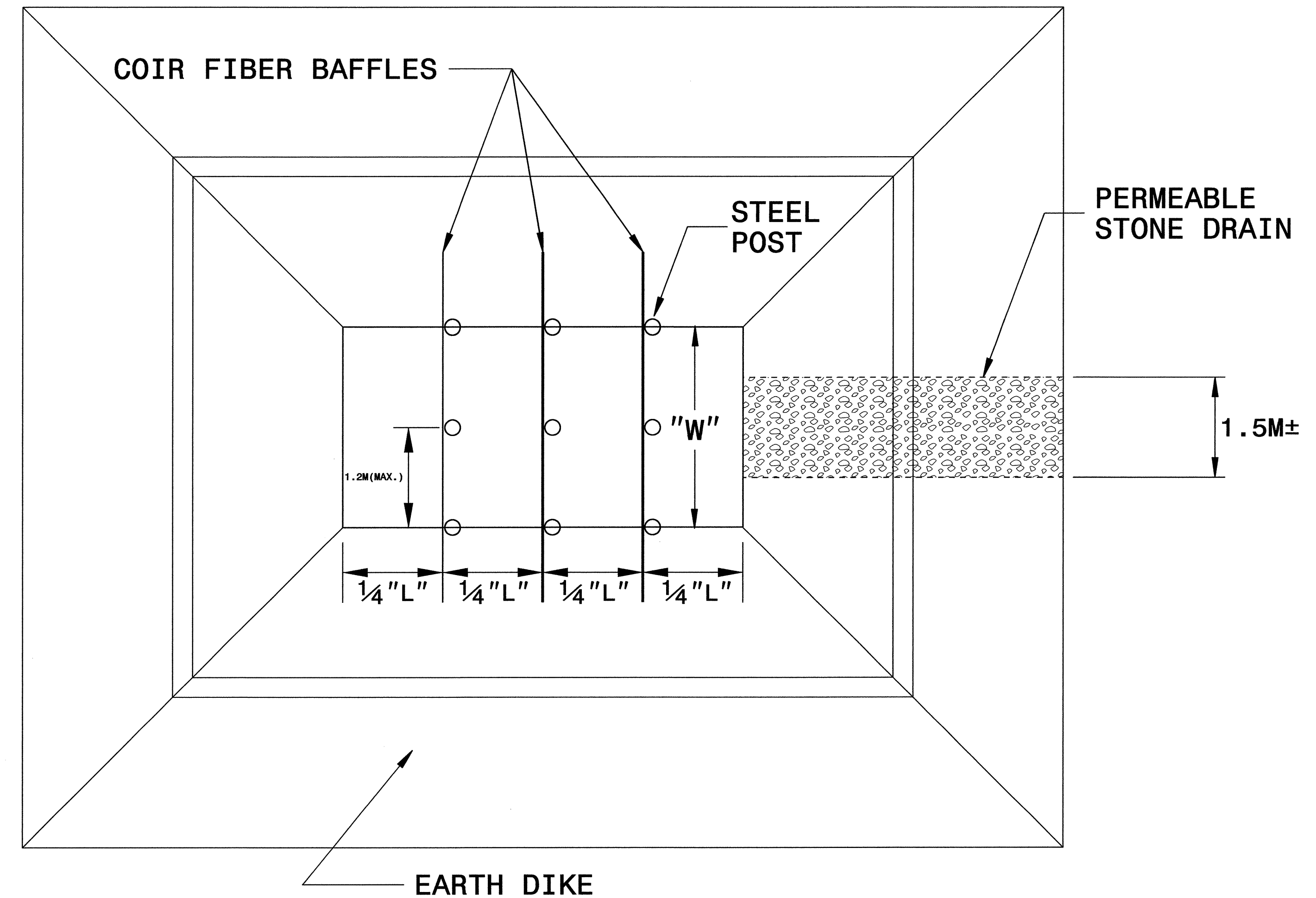
USE THE TYPICAL SECTION SHOWN FOR THE STILLING BASIN AS A GUIDE. THE BASIN MAY HAVE ANY TYPE CONFIGURATION AS LONG AS SUFFICIENT VOLUME IS PROVIDED AND PROVISIONS ARE MADE FOR A PERMEABLE STONE DRAIN.

DO NOT EXCEED 1.5M IN HEIGHT FOR THE EARTH DIKES REQUIRED FOR STILLING BASINS. ADDITIONAL DEPTHS MAY BE ATTAINED BY EXCAVATING BELOW THE NATURAL GROUND LEVEL.

THE STILLING BASIN SIZE IS VARIABLE AND DEPENDENT ON SPECIFIC SITE REQUIREMENTS AS WELL AS PROPOSED CONSTRUCTION OPERATIONS.

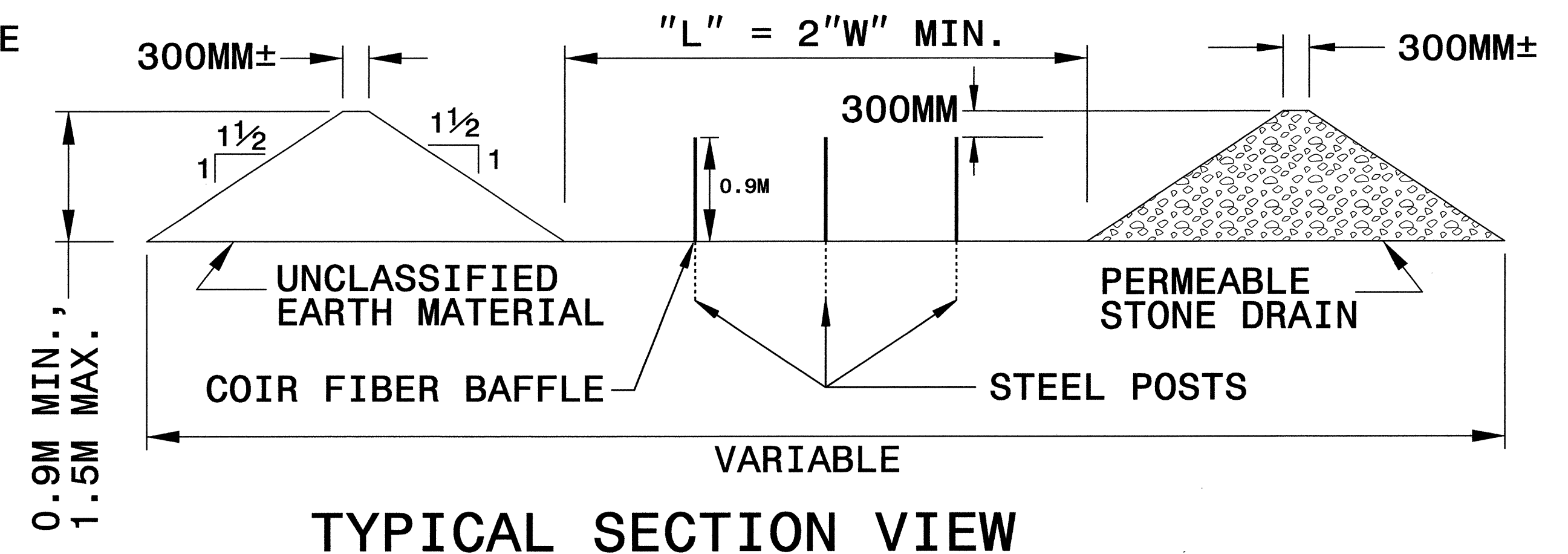
SUBMIT THE SIZE, LOCATION AND PERMEABLE STONE DRAIN MATERIAL FOR APPROVAL PRIOR TO CONSTRUCTION.

PUMP THE EFFLUENT INTO THE STILLING BASIN TO A MAXIMUM DEPTH OF 0.9 METERS.



EARTH DIKE

PLAN

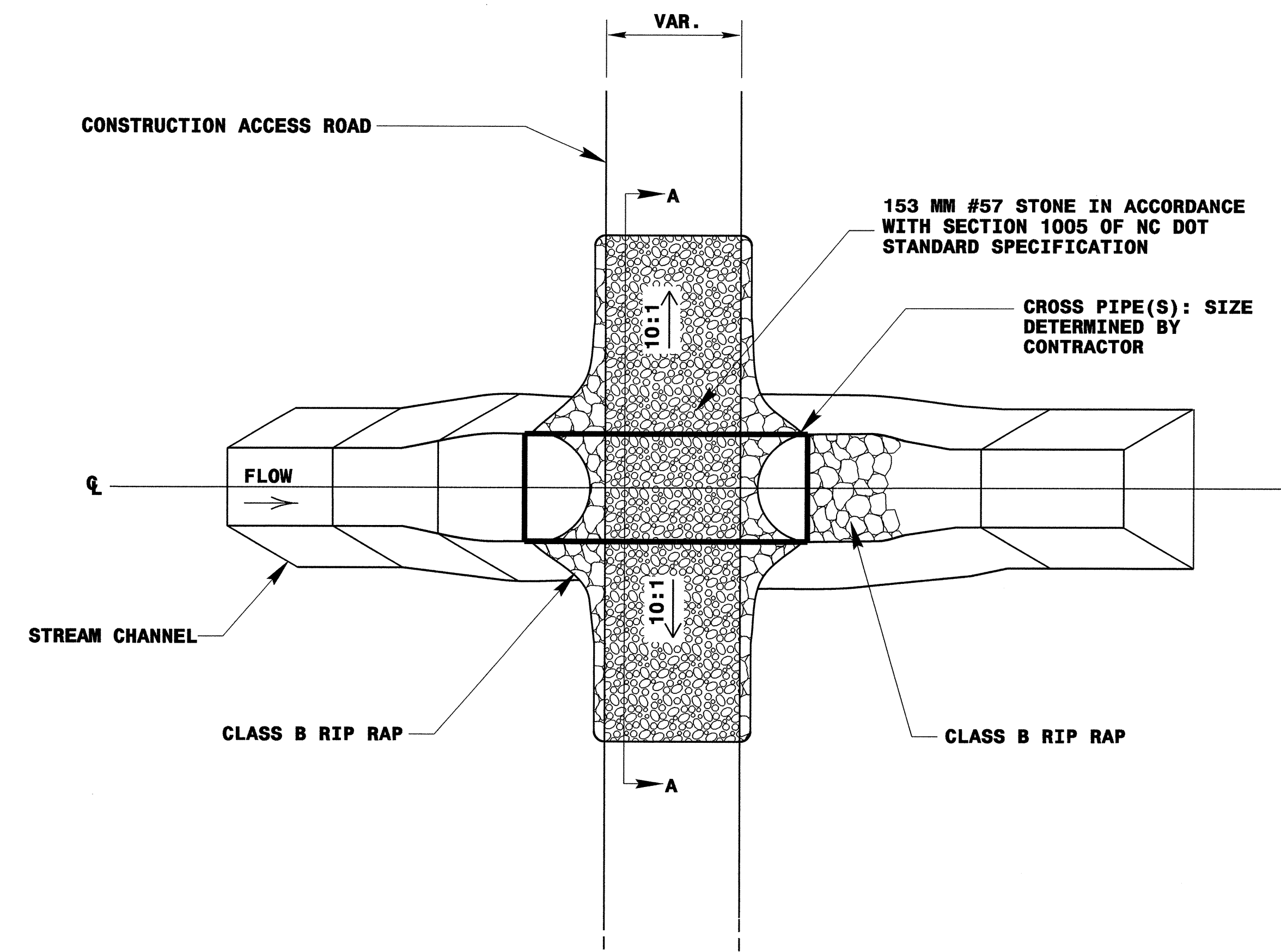


TYPICAL SECTION VIEW

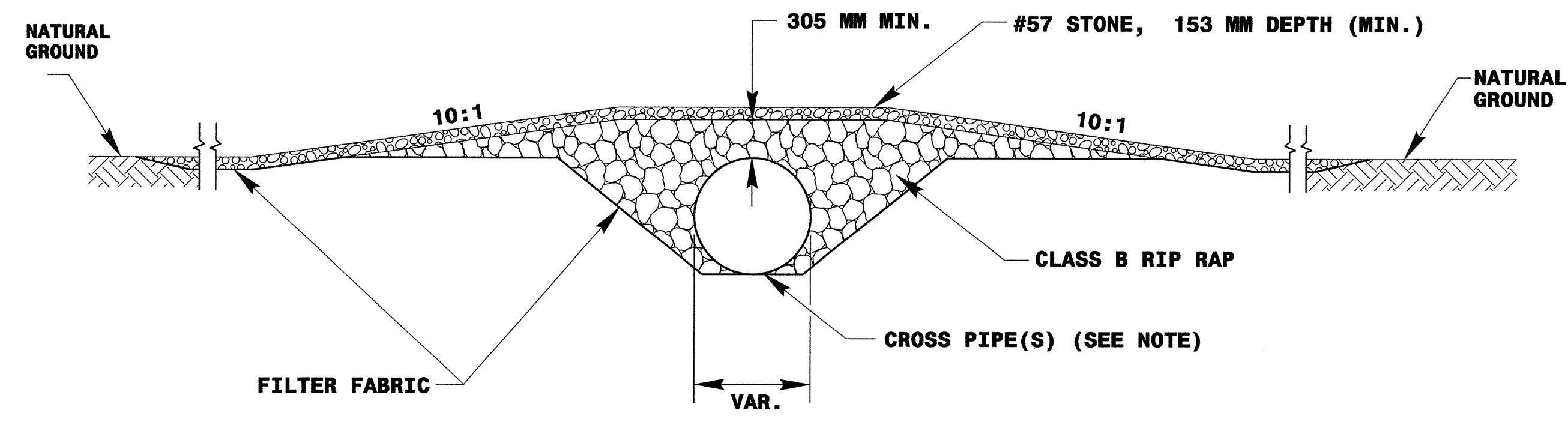


PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-2J
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY STREAM CROSSING



PLAN VIEW



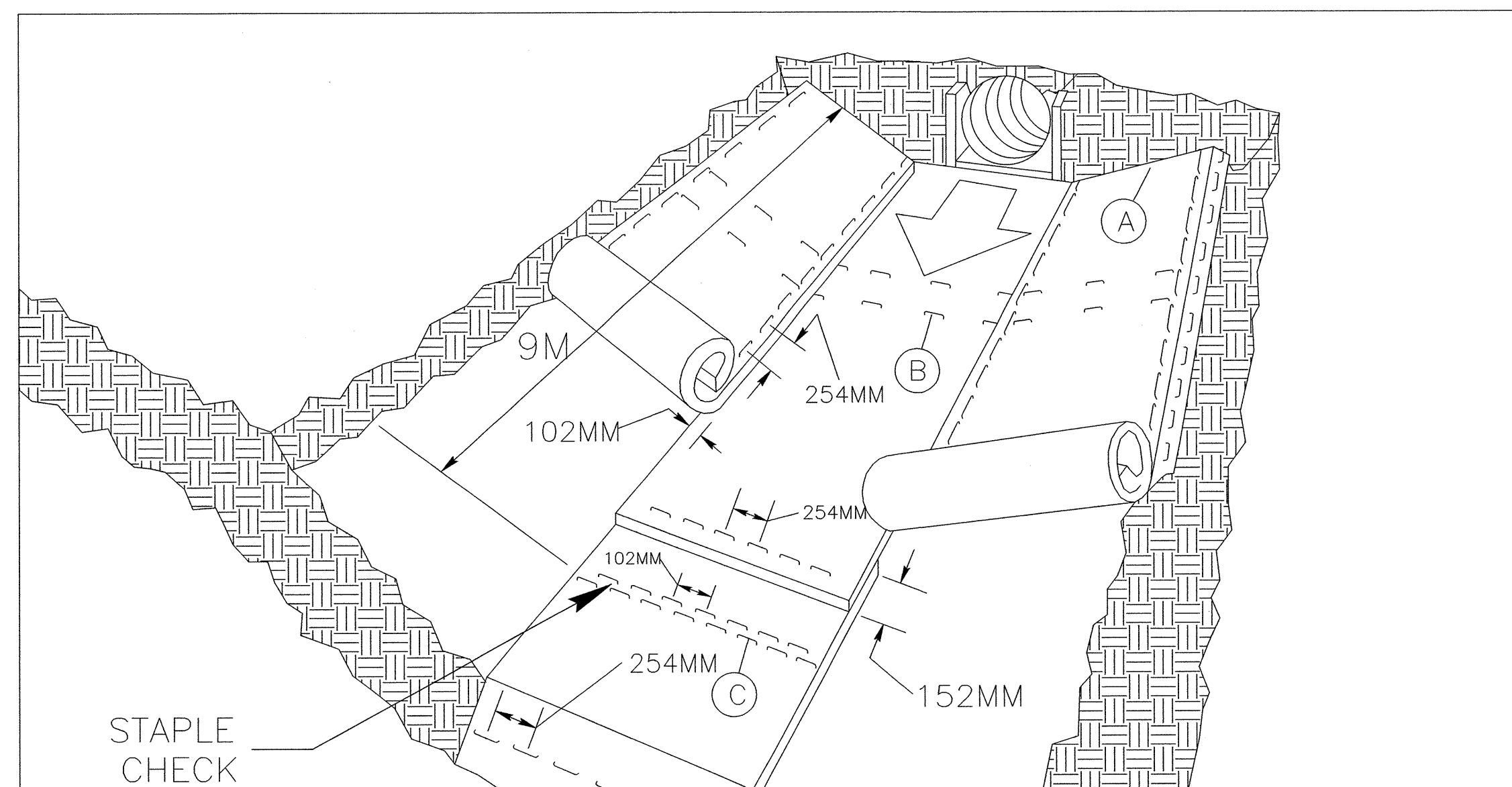
SECTION A-A
NOT TO SCALE

NOTE: PIPE(S) FOR TEMPORARY STREAM CROSSING SHALL BE DESIGNED TO PASS THE PEAK OR BANKFULL FLOW, WHICHEVER IS LESS, FROM A 2-YEAR PEAK STORM, WITHOUT OVER TOPPING.



PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-2K
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATTING INSTALLATION DETAIL



MATTING IN DITCHES

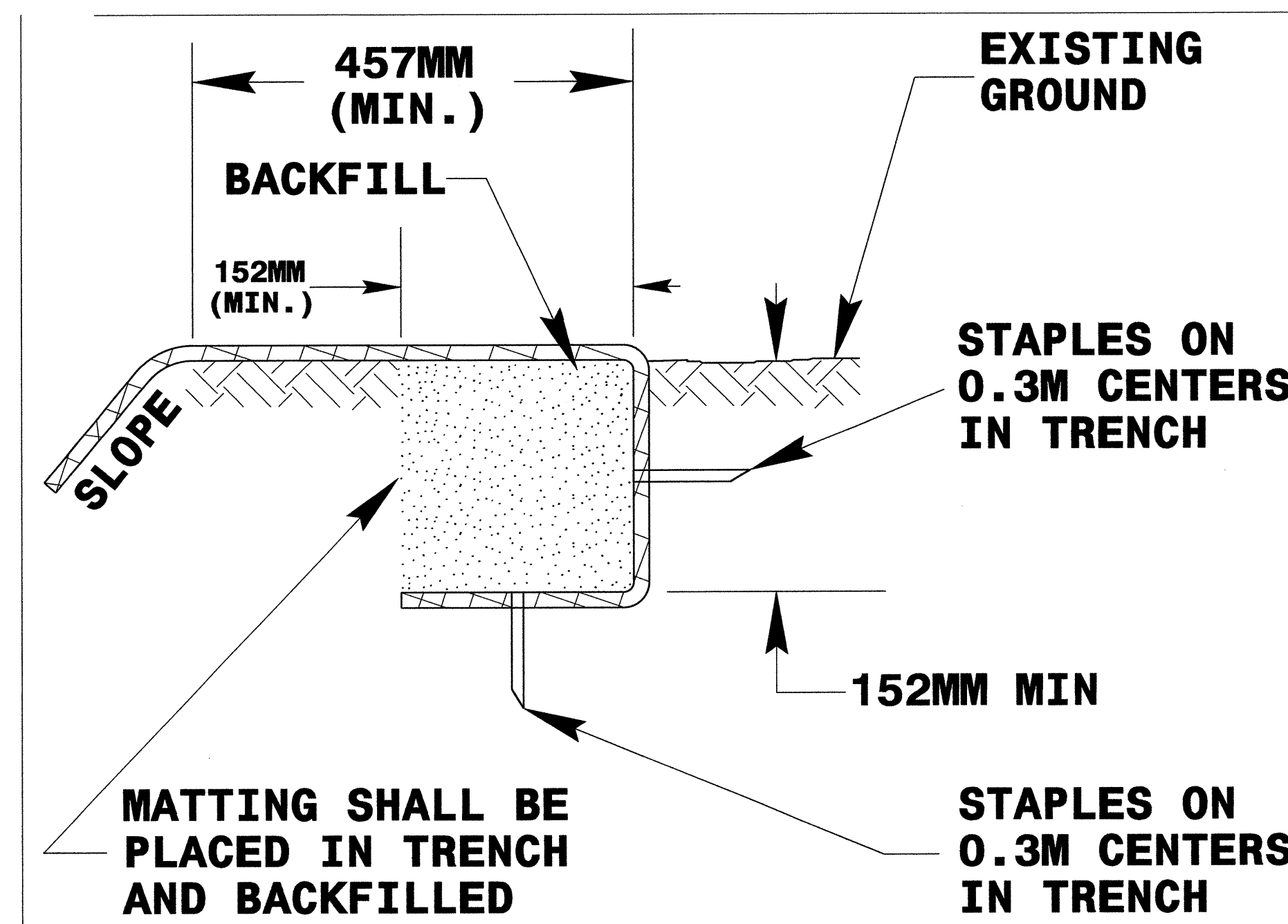
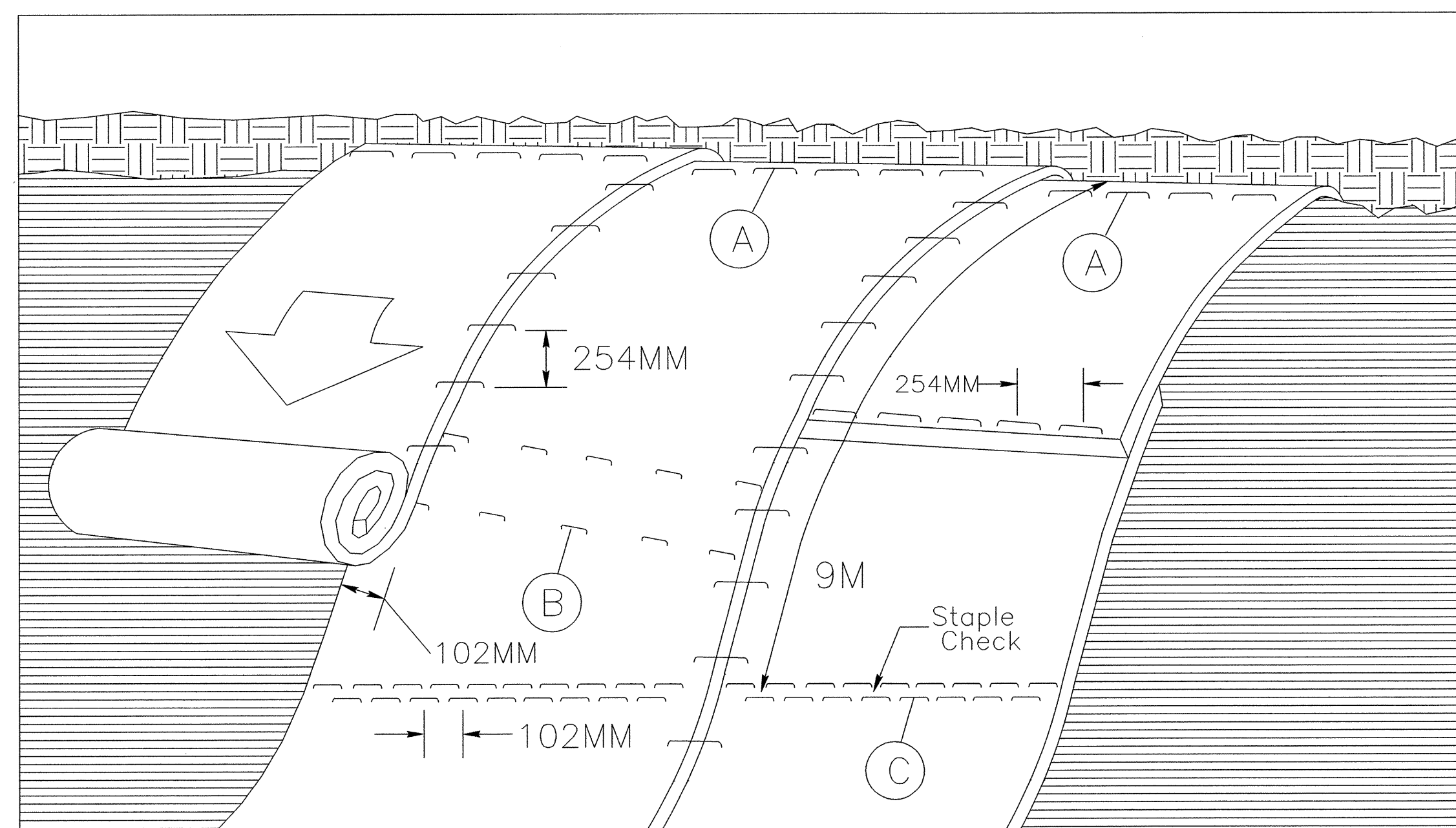


DIAGRAM (A)



MATTING ON SLOPES

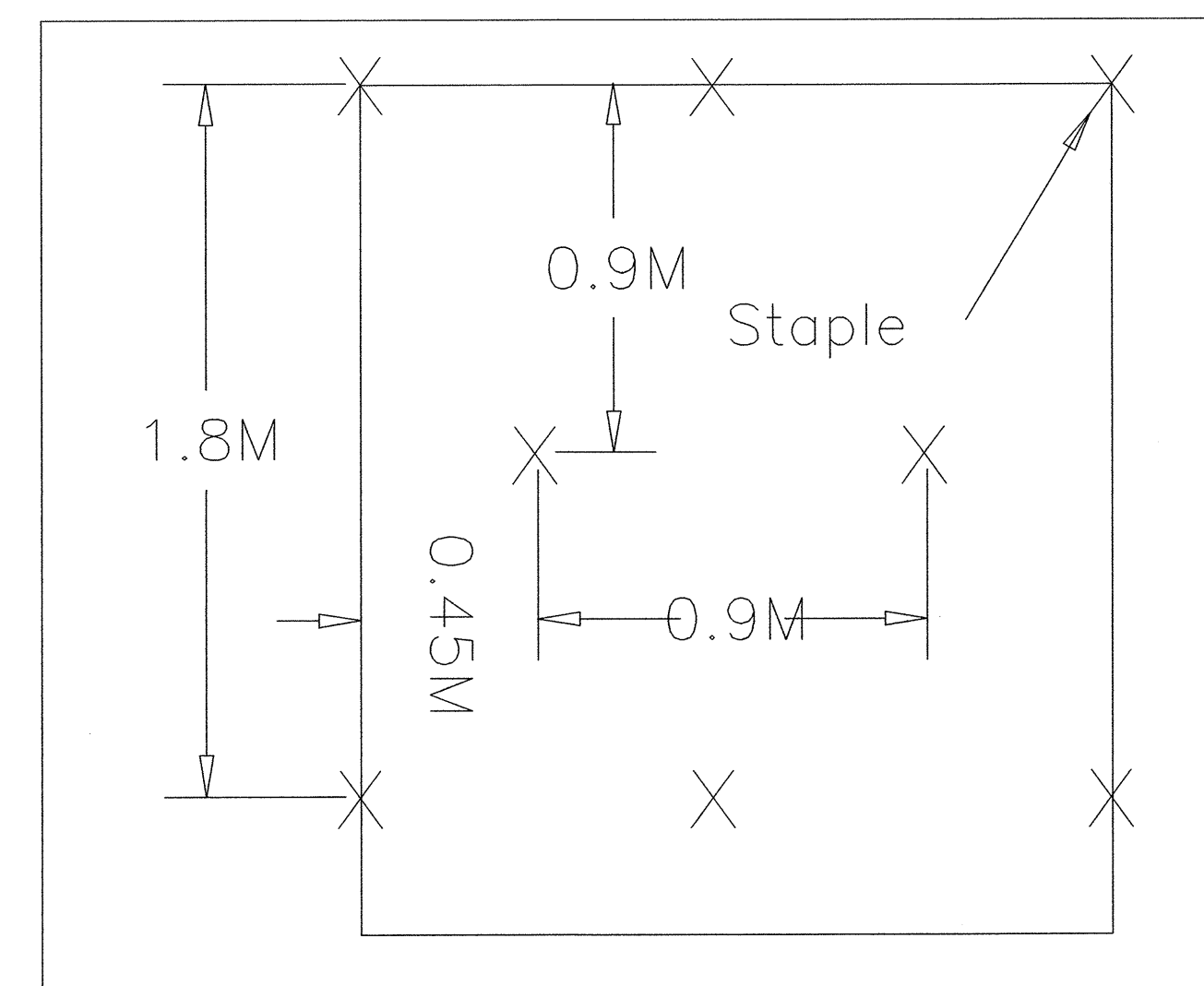


DIAGRAM (B)

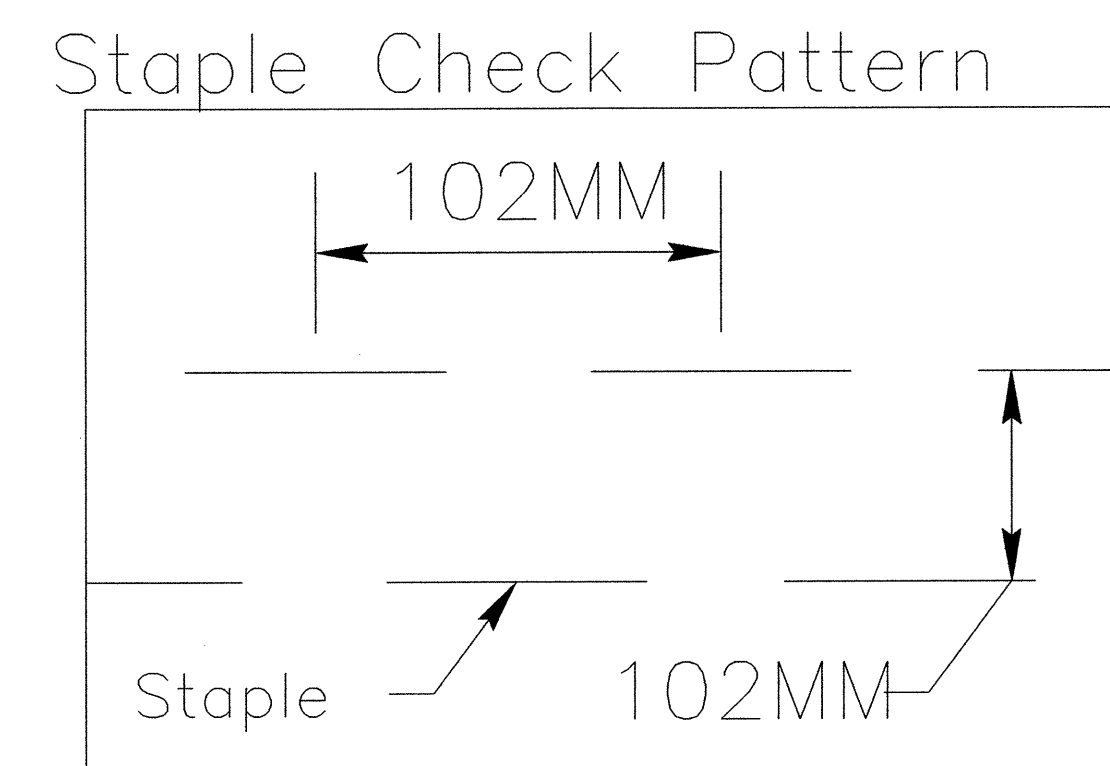


DIAGRAM (C)

NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.

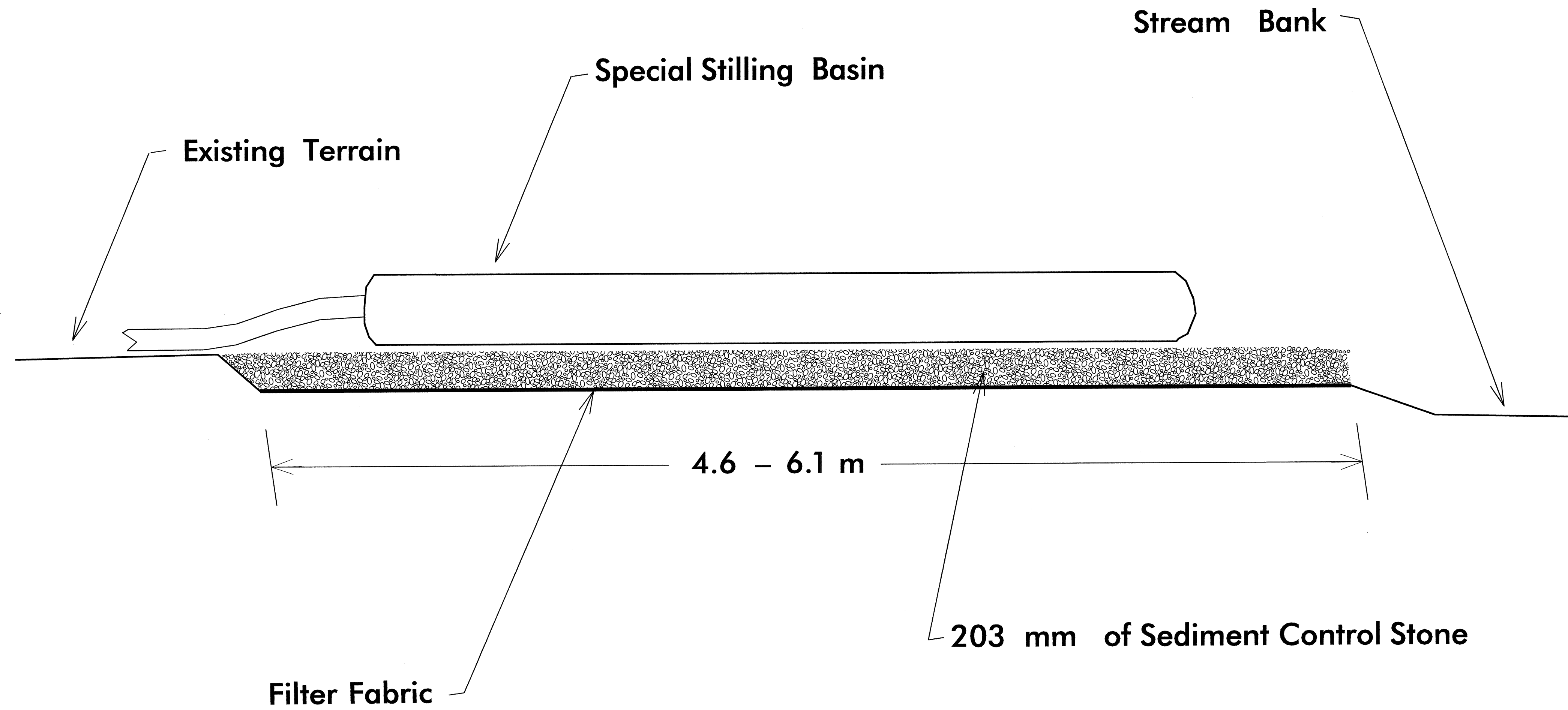
STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 25MM AND NOT LESS THAN 152MM IN LENGTH.

NOT TO SCALE



PROJECT REFERENCE NO.	SHEET NO.
U-2519DA	EC-2L
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SPECIAL STILLING BASIN WITH ROCK PAD



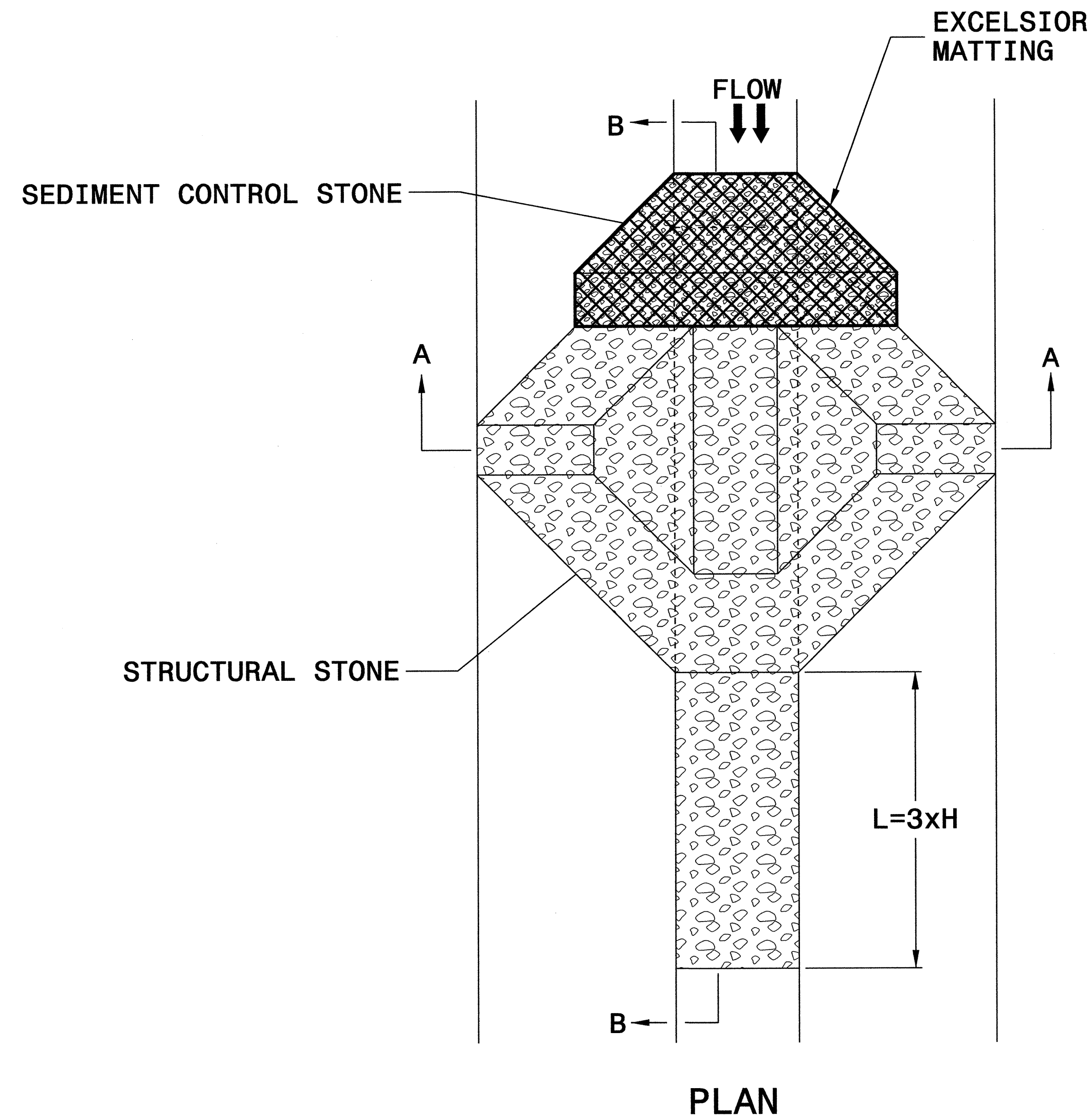
Not To Scale

Note: Provide Stabilized Outlet to Streambank



PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-2M
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)

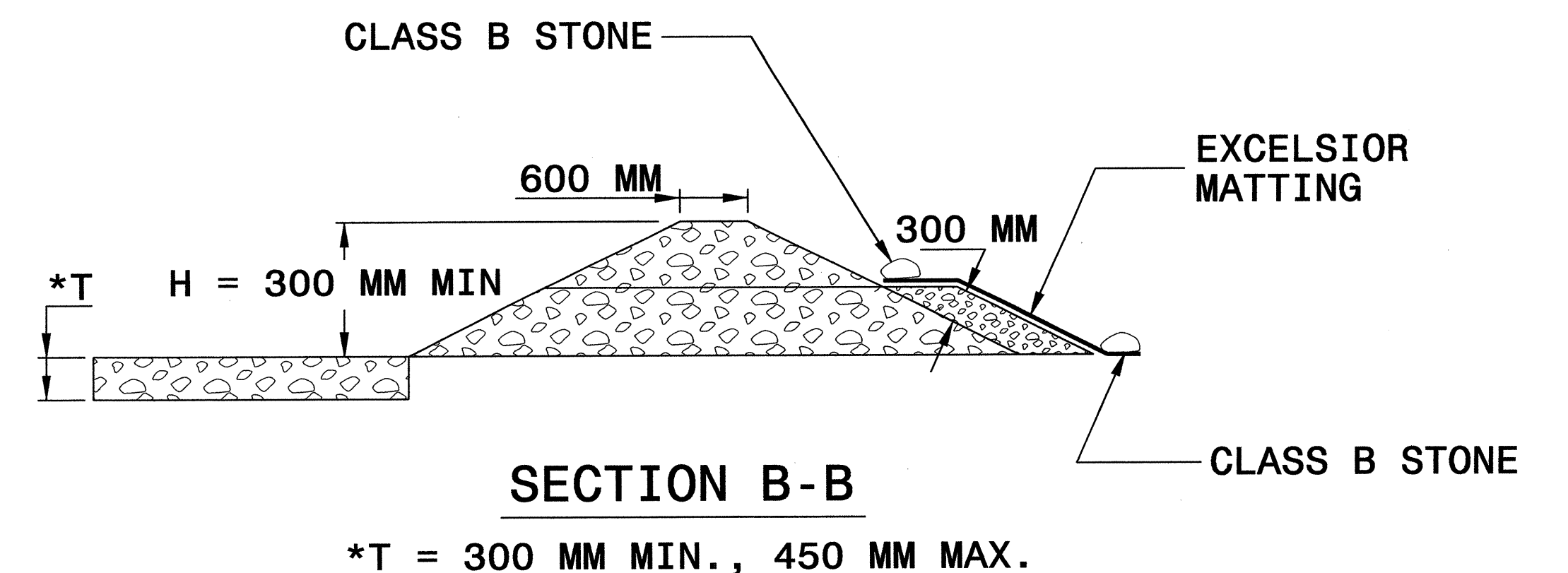
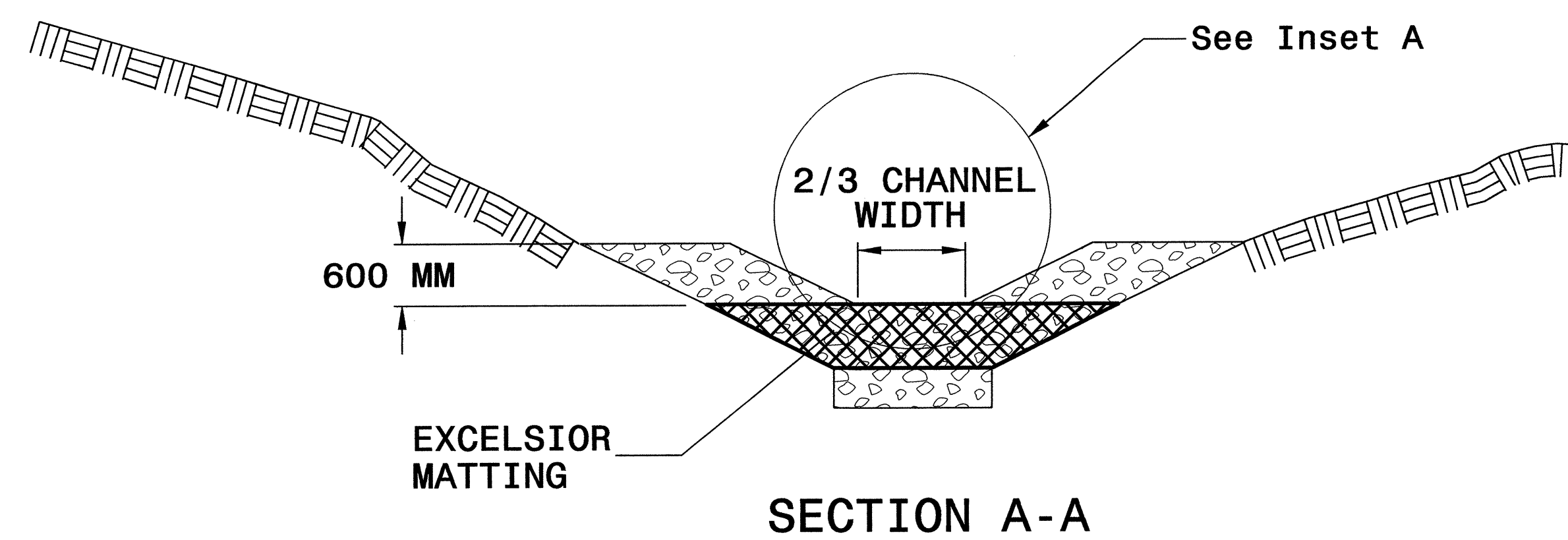
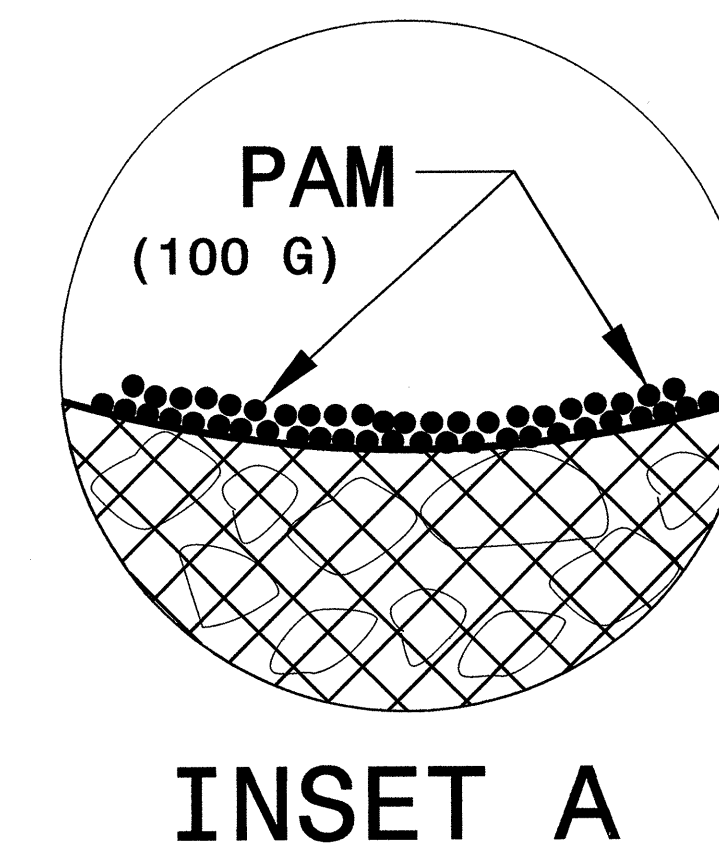


NOTES

USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 100 GRAMS OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 12 MM.



NOT TO SCALE



PROJECT REFERENCE NO. U-25/9DA	SHEET NO. EC-2N
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

BORROW PIT DEWATERING BASIN DETAIL

GENERAL NOTES:

DETERMINE BORROW PIT DEWATERING BASIN SIZE USING $V = 8.0203 * Q * T$, WHERE V IS VOLUME (FT³), Q IS PUMP FLOW RATE (GPM), AND T IS DEWATERING TIME (HR). USE MAXIMUM FLOW RATE OF 1000 GPM AND A MINIMUM DEWATERING TIME OF 2 HOURS.

RISER SHALL BE A NON-PERFORATED, SMOOTH OR CORRUGATED MATERIAL WITH A FLASHBOARD OPTION.

CONSTRUCT THE COIR FIBER BAFFLE WITH A MATERIAL THAT MEETS THE SPECIFICATIONS OF THE COIR FIBER MAT SPECIAL PROVISION PROVIDED IN THE CONTRACT.

PROVIDE 1.5M STEEL POSTS OF THE SELF-FASTENER ANGLE STEEL TYPE. INSTALL STEEL POSTS WITH NO MORE THAN 0.9M OF THE POST APPEARING ABOVE THE GROUND.

ATTACH THE COIR FIBER MAT TO THE STEEL POSTS WITH WIRE OR OTHER ACCEPTABLE MEANS AND STAPLED INTO THE BOTTOM AND SIDE SLOPES OF THE BASIN WITH 300mm STAPLES.

INSTALL TYPE 2 FILTER FABRIC ON SIDESLOPES AND BOTTOM OF BASIN AT INLET AS SHOWN IN THE DETAIL.

USE THE TYPICAL SECTION SHOWN FOR THE BORROW PIT DEWATERING BASIN AS A GUIDE. THE BASIN MAY HAVE ANY TYPE CONFIGURATION AS LONG AS SUFFICIENT VOLUME IS PROVIDED AND PROVISIONS ARE MADE FOR A NON-PERFORATED RISER.

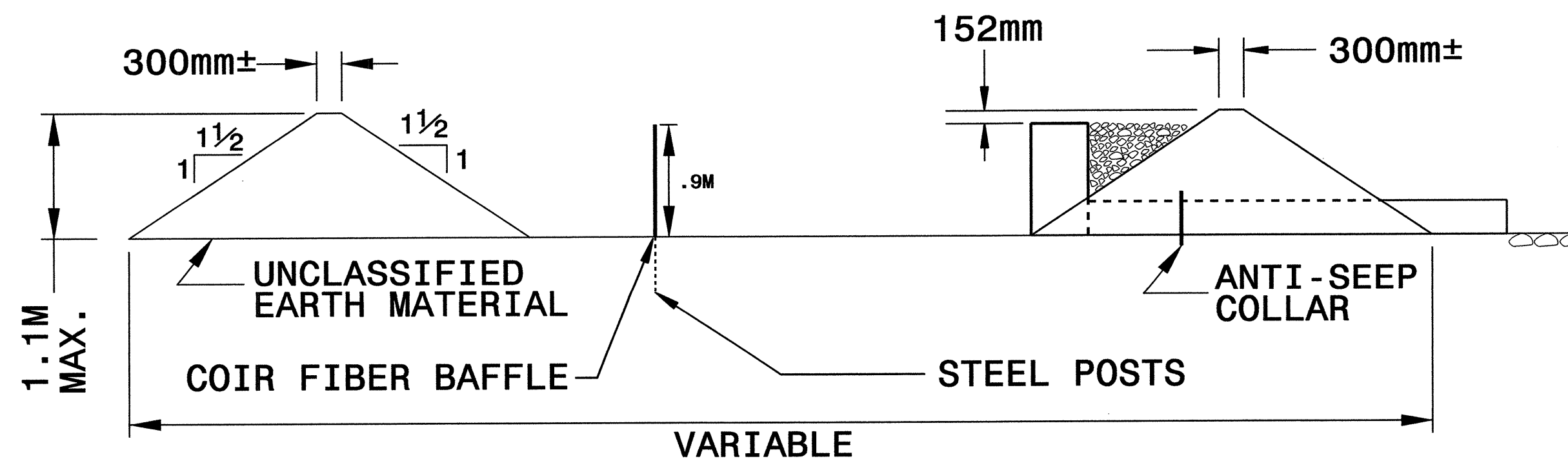
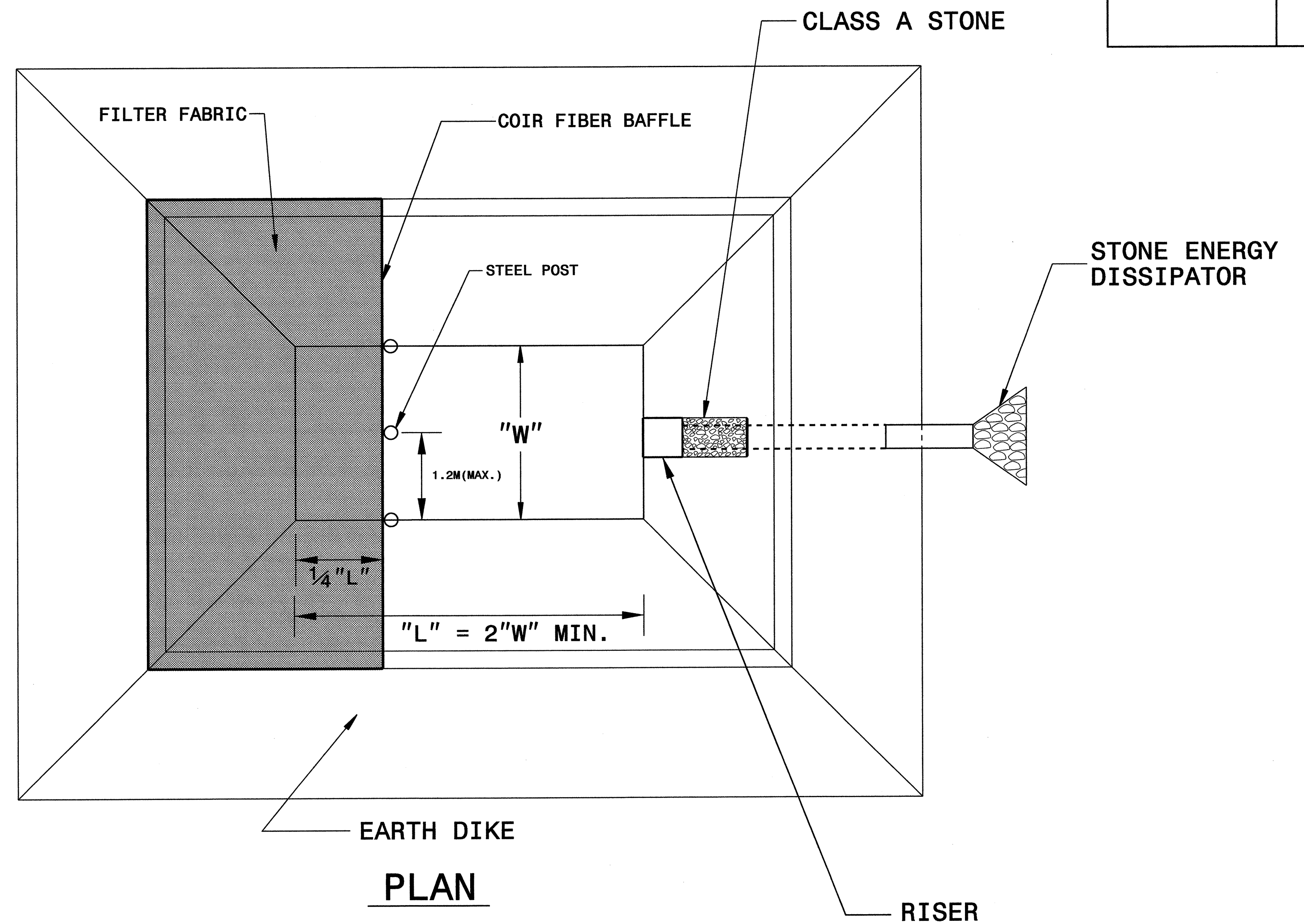
DO NOT EXCEED 1.1M IN HEIGHT FOR THE EARTH DIKES REQUIRED FOR BORROW PIT DEWATERING BASIN.

THE BORROW PIT DEWATERING BASIN SIZE IS VARIABLE AND DEPENDENT ON SPECIFIC SITE REQUIREMENTS AS WELL AS PROPOSED CONSTRUCTION OPERATIONS.

SUBMIT THE SIZE, LOCATION AND RISER PIPE MATERIAL FOR APPROVAL PRIOR TO CONSTRUCTION.

PUMP THE EFFLUENT INTO THE BORROW PIT DEWATERING BASIN TO A MAXIMUM DEPTH OF 152mm BELOW TOP OF EARTH DIKE.

PROVIDE A STONE ENERGY DISSIPATOR PAD AT THE OUTLET OF THE PUMP DISCHARGE HOSE AND OUTLET OF THE RISER BARREL IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 876.02 FOR OUTLET W/O DITCH.



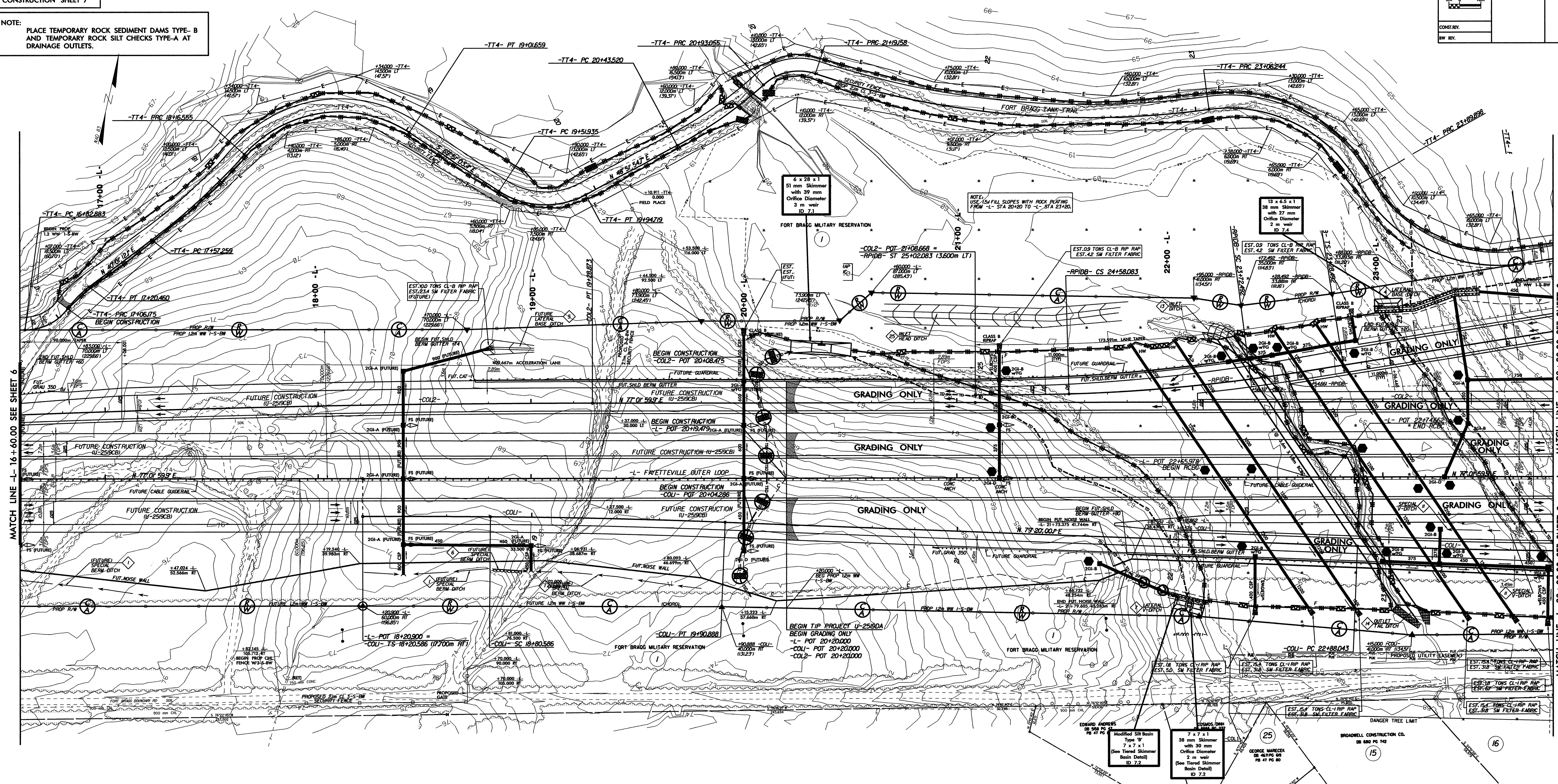
TYPICAL SECTION VIEW

NOT TO SCALE

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 7

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE- B
AND TEMPORARY ROCK SILT CHECKS TYPE-A AT
DRAINAGE OUTLETS.

PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-4/CONSTR.7
CONTRACT NO.	DATE
REV. NO.	DATE



03/008 - ADDED PARCELS #13, 14, 15 & 16
04/0908 - PARCELS #1, 13, 14, 15 & 16 ADDED
PROPOSED PUE AND DANGER TREE LIMIT
04/1708 - REVISED GORGE MARECK PARCEL FROM
PARCEL #14 TO PARCEL #25

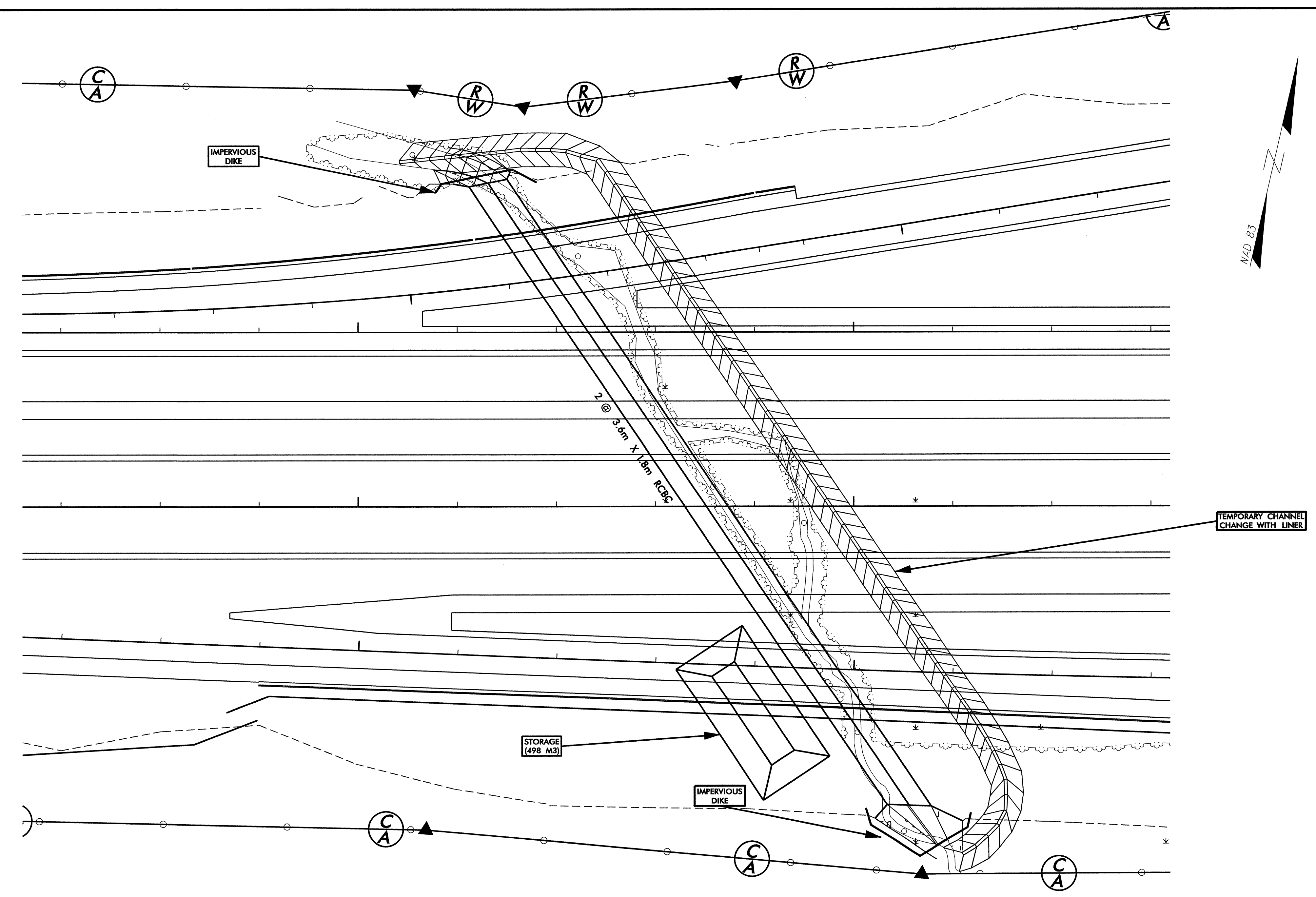
LOCATION: FAYETTEVILLE OUTER LOOP FROM
EAST OF SR 1415 TO WEST OF
NC 24 (BRAGG BLVD.)
PROJECT NO.: U-2519DA COUNTY: CUMBERLAND
DESIGNED BY: DATE:
CHECKED BY: DATE:



PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-5/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 22+66 -L-

1. CONSTRUCT STILLING BASIN (498 M3).
2. CONSTRUCT IMPERVIOUS DIKES AND TEMPORARY CHANNEL CHANGE WITH LINER (0.6M BASE, 0.6M DEEP, 3:1 SIDE SLOPES). DIVERT FLOW.
3. CONSTRUCT PROPOSED CULVERT AND INLET/OUTLET CHANNEL IMPROVEMENTS.
4. REMOVE IMPERVIOUS DIKES AND TEMPORARY CHANNEL CHANGE.
5. COMPLETE INLET/OUTLET IMPROVEMENTS.
6. REMOVE STILLING BASIN AND COMPLETE ROADWAY.



NOTE: UTILIZE SKIMMER BASIN AS STILLING BASIN WHERE APPLICABLE.

NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE-B AND TEMPORARY ROCK SILT CHECKS TYPE-A AT DRAINAGE OUTLETS.

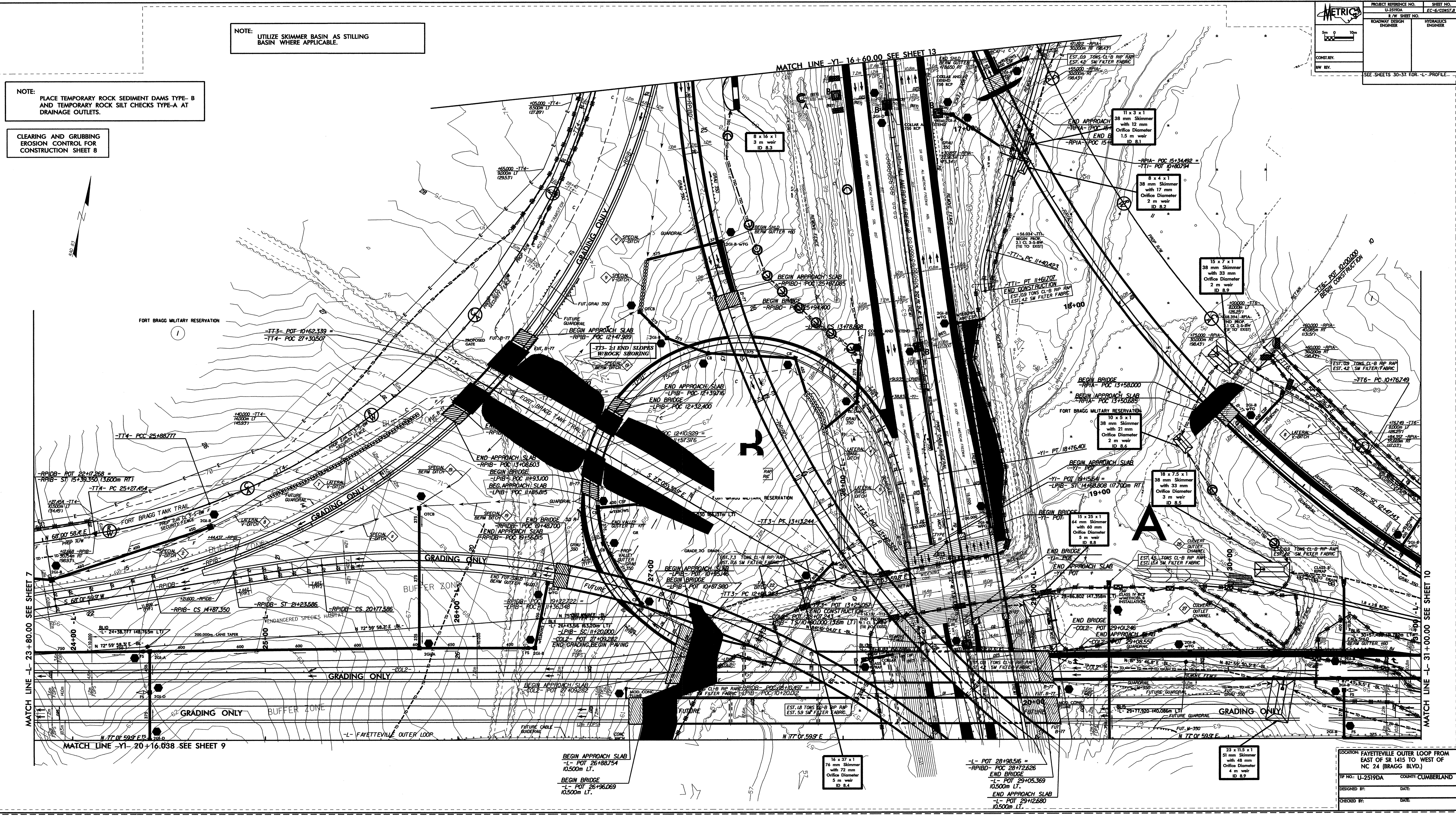
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 8

MATCH LINE -L- 23+80.00 SEE SHEET 7

MATCH LINE -YI- 20+16.038 SEE SHEET 9

MATCH LINE -YI- 16+60.00 SEE SHEET 13

MATCH LINE -L- 31+00.00 SEE SHEET 10



BEGIN APPROACH SLAB
-L- POT 26+88.754
10.500m LT.
BEGIN BRIDGE
-L- POT 26+96.069
10.500m LT.

16 x 37 x 1
74 mm Skimmer
with 72 mm
Orifice Diameter
5 m weir
ID 8.4

-L- POT 28+98.516 =
-RP/BD- PC 28+72.626
END BRIDGE
-L- POT 29+05.369
10.500m LT.
END APPROACH SLAB
-L- POT 29+12.680
10.500m LT.

23 x 11.5 x 1
51 mm Skimmer
with 48 mm
Orifice Diameter
4 m weir
ID 8.9

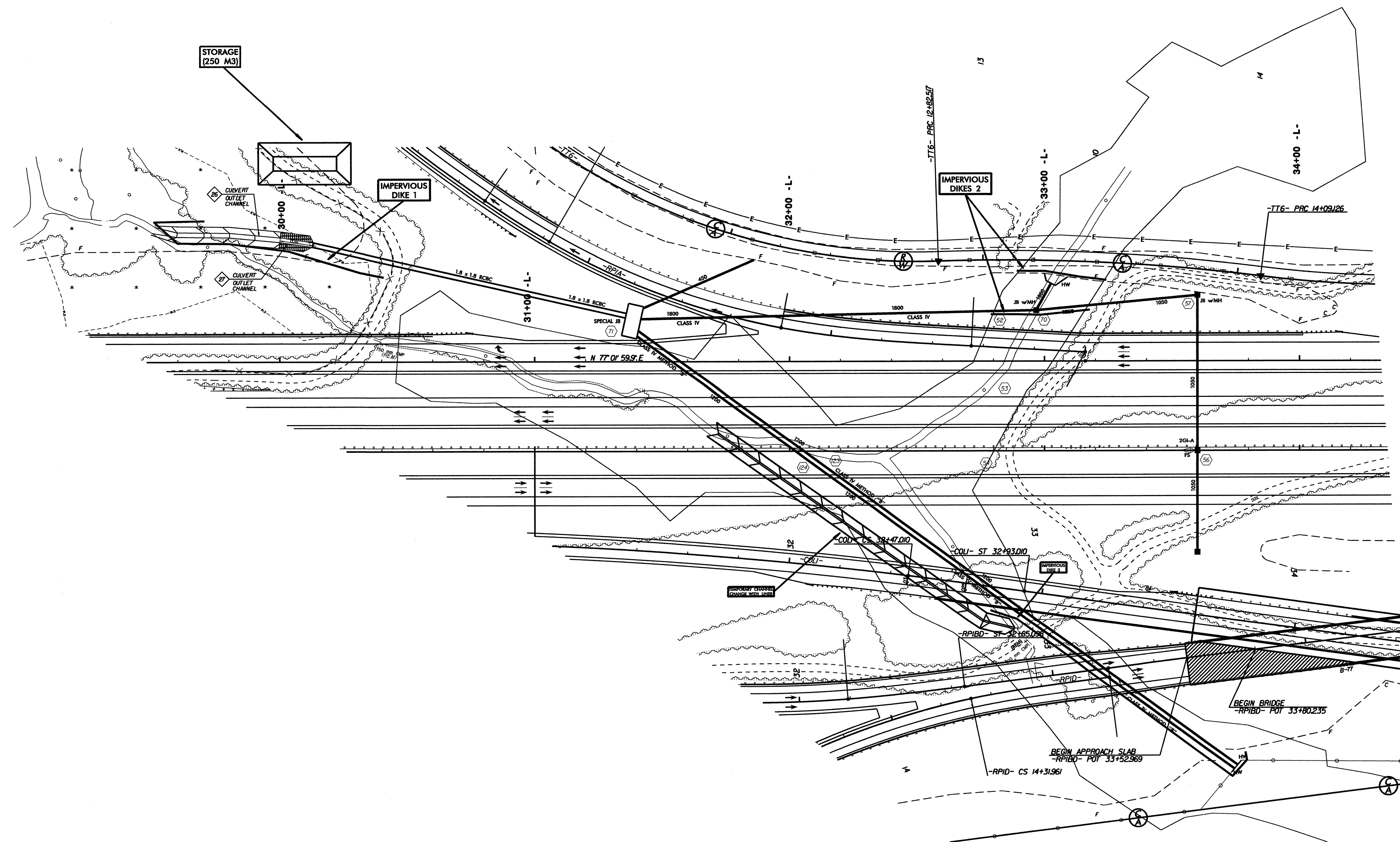
LOCATION: FAYETTEVILLE OUTER LOOP FROM EAST OF SR 1415 TO WEST OF NC 24 (BRAGG BLVD.)
PROJECT NO: U-2519DA COUNTY: CUMBERLAND
DESIGNED BY: DATE:
CHECKED BY: DATE:



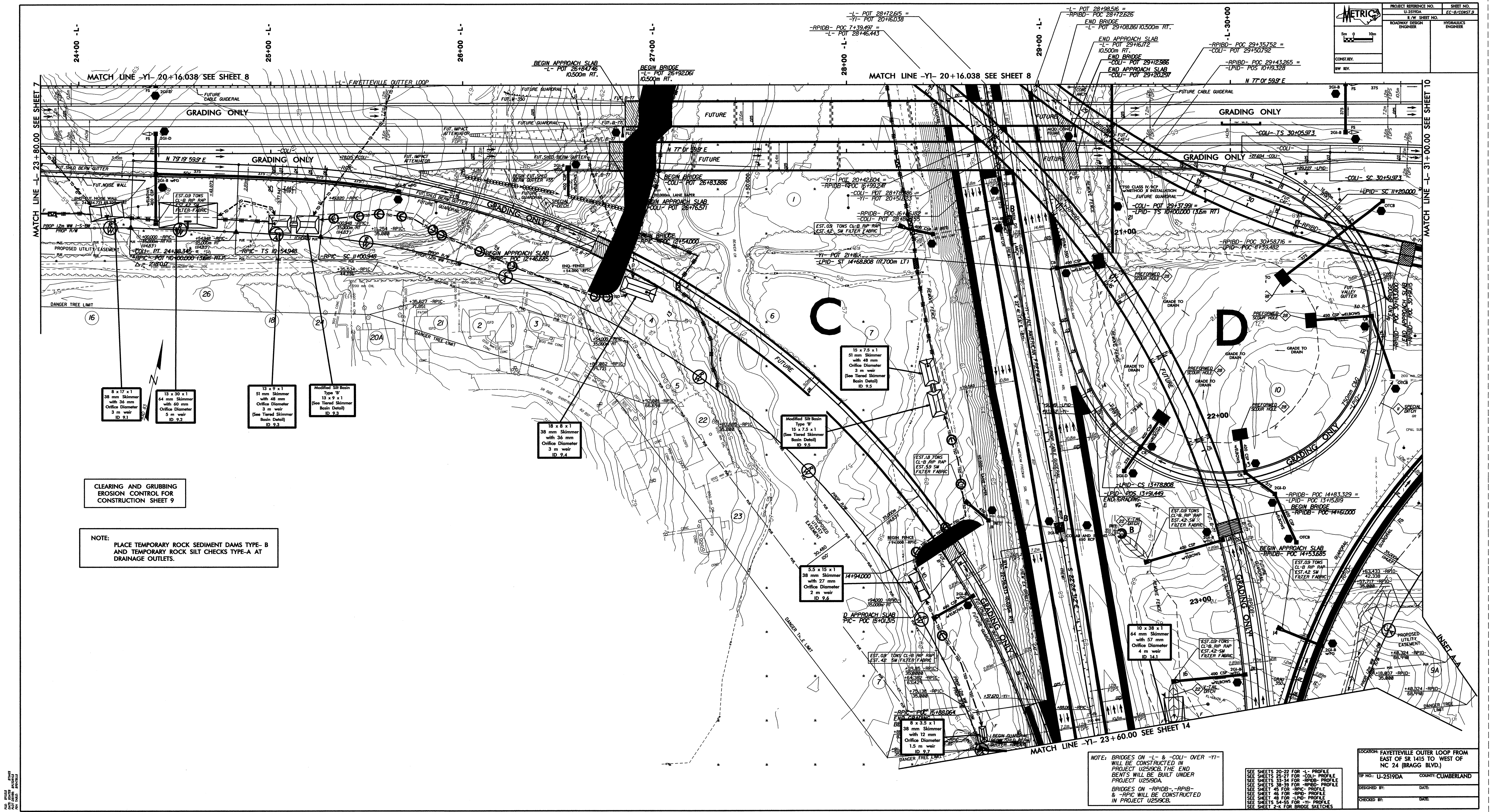
PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-07/CONST.08
R / W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 30+80 -L-

1. CONSTRUCT STILLING BASIN (250 M3).
2. CONSTRUCT IMPERVIOUS DIKE 1.
3. CONSTRUCT 1.8M X 1.8M RCBC, SPECIAL JUNCTION BOX, AND AS MUCH OF OUTLET CHANNEL AS POSSIBLE.
4. INSTALL 1800MM PIPE BETWEEN JUNCTION BOXES.
5. CONSTRUCT IMPERVIOUS DIKES 2 AND COMPLETE INSTALLATION OF 1800MM PIPE, HEADWALL, AND JUNCTION BOX, UTILIZING "BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES".
6. REMOVE IMPERVIOUS DIKES 1 AND 2, COMPLETE OUTLET CHANNEL, AND ALLOW FLOW THROUGH 1800MM PIPE AND RCBC.
7. CONSTRUCT TEMPORARY CHANNEL CHANGE WITH LINER (0.6M BASE, 1.0M DEEP, 3:1 SIDE SLOPES) AND IMPERVIOUS DIKE 3, DIVERTING FLOW.
8. INSTALL 1200MM PIPES AND HEADWALL.
9. REMOVE TEMPORARY CHANNEL CHANGE AND IMPERVIOUS DIKE 3, ALLOWING FLOW THROUGH 1200MM PIPES.
10. REMOVE STILLING BASIN, AND COMPLETE ROADWAY.



03/0008 - ADDED PARCELS #16, 17, 18, 19, 20, 21, 22, & 23
 04/09/08 - PARCELS #1, 2, 3, 4, 5, 6, 7, 9A, 10, 16, 17, 18, 19, 20, 21, 22 & 23
 ADDED PROPOSED PUE AND DANGER TREE LIMIT
 04/7/08 - REVISED KENNETH STEINHOFF PARCEL #17 TO PARCEL #26 AND
 REVISED ARLENE WINDERMILLER PARCEL FROM PARCEL #19 TO PARCEL #24



CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 9

NOTE:
 PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE- B
 AND TEMPORARY ROCK SILT CHECKS TYPE-A AT
 DRAINAGE OUTLETS.

NOTE: BRIDGES ON -L- & -COL- OVER -YI-
 WILL BE CONSTRUCTED IN
 PROJECT U2530CB. THE END
 BENTS WILL BE BUILT UNDER
 PROJECT U2530A.
 BRIDGES ON -RPIDB-, -RPID-
 & -RPIC- WILL BE CONSTRUCTED
 IN PROJECT U2530CB.

SEE SHEETS 20-22 FOR -L- PROFILE
 SEE SHEETS 20-22 FOR -COL- PROFILE
 SEE SHEETS 23-24 FOR -RPIDB- PROFILE
 SEE SHEETS 23-24 FOR -RPID- PROFILE
 SEE SHEETS 23-24 FOR -RPIC- PROFILE
 SEE SHEETS 23-24 FOR -YI- PROFILE
 SEE SHEETS 23-24 FOR -YI- PROFILE
 SEE SHEETS 23-24 FOR -YI- PROFILE

LOCATION: FAYETTEVILLE OUTER LOOP FROM
 EAST OF SR 1415 TO WEST OF
 NC 24 (BRAGG BLVD.)

TP NO: U-2519DA COUNTY: CUMBERLAND

DESIGNED BY: DATE: DATE: DATE:

CHECKED BY: DATE: DATE: DATE:

METRICS

PROJECT REFERENCE NO. U-2519DA
 & TYP. SHEET NO. EC-C-CONST-2

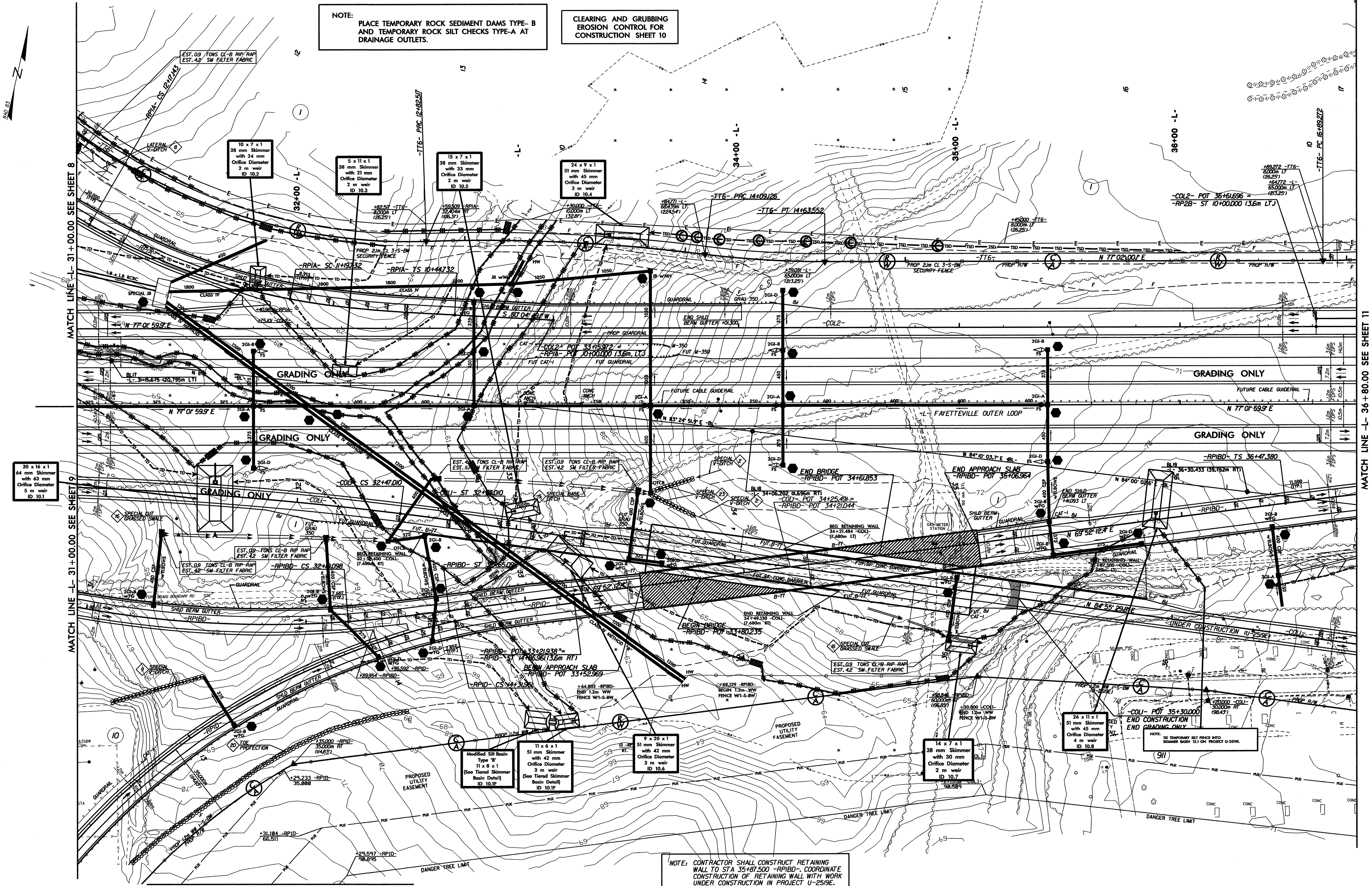
CONTRACTOR: DATE: DATE: DATE:

DESIGNED BY: DATE: DATE: DATE:

CHECKED BY: DATE: DATE: DATE:

SCALE: 1" = 40'

DATE: DATE: DATE: DATE:



NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE-B AND TEMPORARY ROCK SILT CHECKS TYPE-A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 10

NOTE: CONTRACTOR SHALL CONSTRUCT RETAINING WALL TO STA 35+87.500 -RPIBD-. COORDINATE CONSTRUCTION OF RETAINING WALL WITH WORK UNDER CONSTRUCTION IN PROJECT U-2519E.

30 x 14 x 1
64 mm Skimmer
with 63 mm
Office Diameter
5 m weir
ID 10.1

INSET A-A - SEE SHEET NO. 9

082306 - ADDED PARCEL #911 AND EDITED PROPERTY NAME
082306 - EXISTING HOUSE TRAILERS ON PARCEL #911 REMOVED
040908 - PARCELS #9A, 10 & 911 ADDED PROPOSED PUE AND DANGER TREE LIMIT

MATCH LINE -L- 36+80.00 SEE SHEET 11

MATCH LINE -L- 31+00.00 SEE SHEET 8

MATCH LINE -L- 31+00.00 SEE SHEET 9

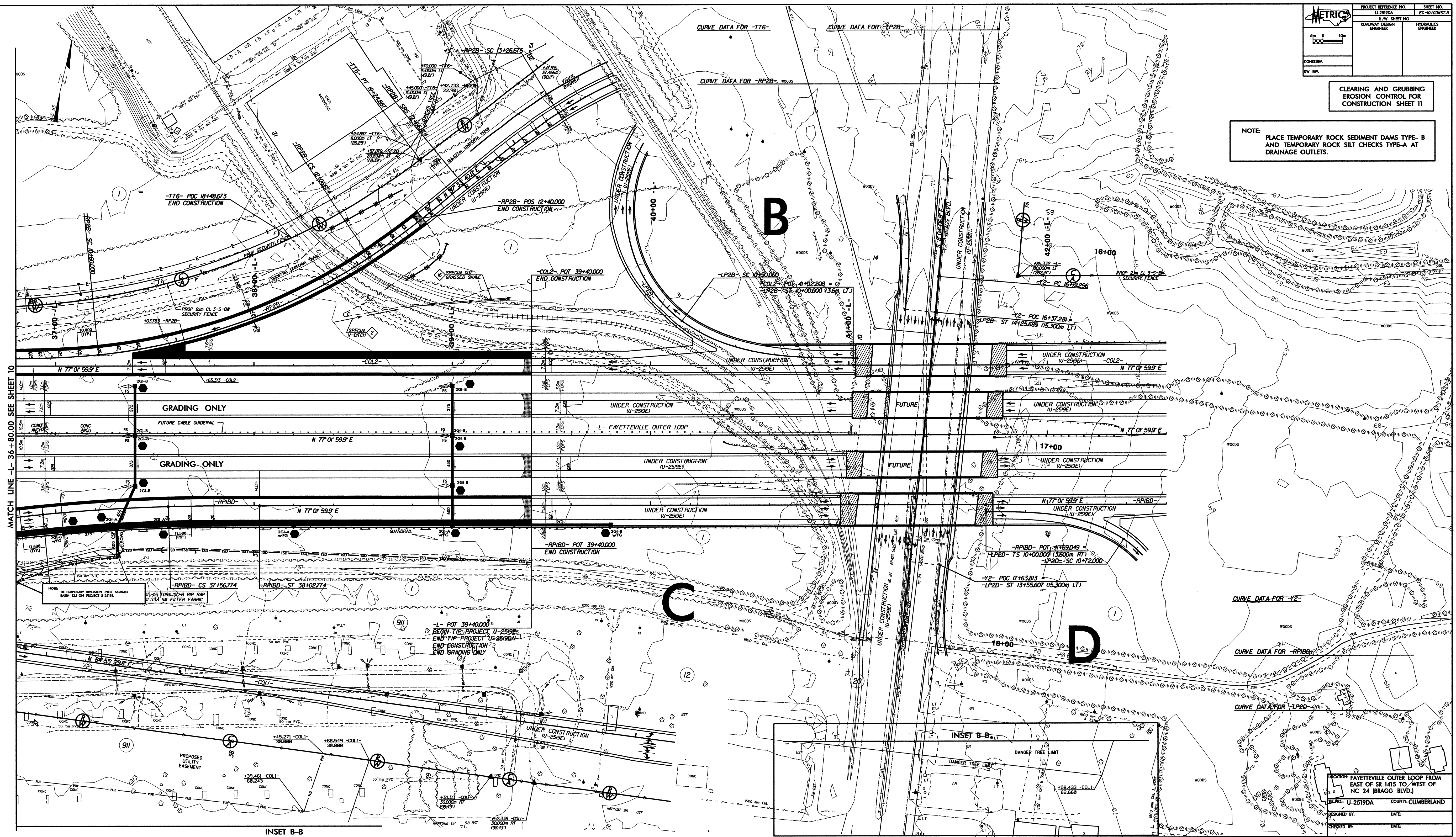
03/008 - PARCELS #1 & #11 ADDED PROPOSED PUE AND TREE LIMIT
 082306 - ADDED PARCEL #911 AND EDITED PROPERTY NAME
 082306 - EXISTING HOUSE TRAILERS ON PARCEL #911 REMOVED
 082306 - ADDED PROPOSED DRAINAGE EASEMENT TO PARCELS #911, #9B AND #12
 080708 - CHANGED PARCEL #12 TO WACHOVIA BANK ET AL

DATE: 08/20/2014
 TIME: 10:00 AM
 USER: JMM

	PROJECT REFERENCE NO.	SHEET NO.
	U-2519DA	EC-10/CONST/1
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 11

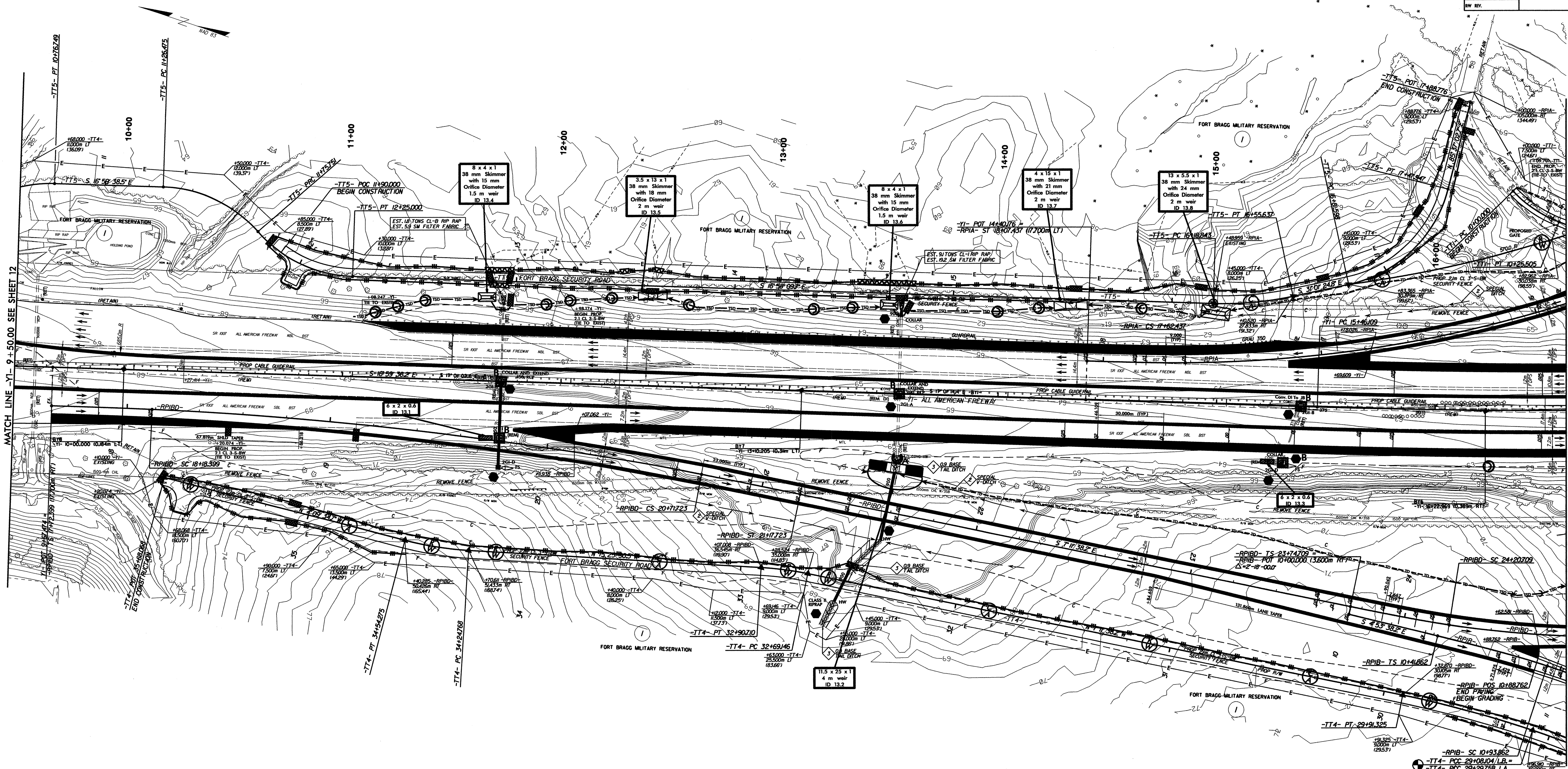
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE-B AND TEMPORARY ROCK SILT CHECKS TYPE-A AT DRAINAGE OUTLETS.



LOCATION: FAYETTEVILLE OUTER LOOP FROM EAST OF SR 1415 TO WEST OF NC 24 (BRAGG BLVD.)
 DRAWING: U-2519DA COUNTY: CUMBERLAND
 DESIGNED BY: DATE:
 CHECKED BY: DATE:

NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE-B AND TEMPORARY ROCK SILT CHECKS TYPE-A AT DRAINAGE OUTLETS.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 13



MATCH LINE -YI- 9+50.00 SEE SHEET 12

MATCH LINE -YI- 16+60.00 SEE SHEET 8

DATE: 08/14/13
DRAWN BY: JMM
CHECKED BY: JMM

LOCATION: FAYETTEVILLE OUTER LOOP FROM EAST OF SR 1415 TO WEST OF NC 24 (BRAGG BLVD.)

PROJECT NO: U-2519DA COUNTY: CLUMBERLAND

DESIGNED BY: DATE:

CHECKED BY: DATE:

04908 - PARCEL #9A ADDED PROPOSED PUE AND DANGER TREE LIMIT

FILE: S:\FILES
STATUS: STAGES
PLOT DRIVER: HYDRAULICS
PLOT TABLE: HYDRAULICS

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 14

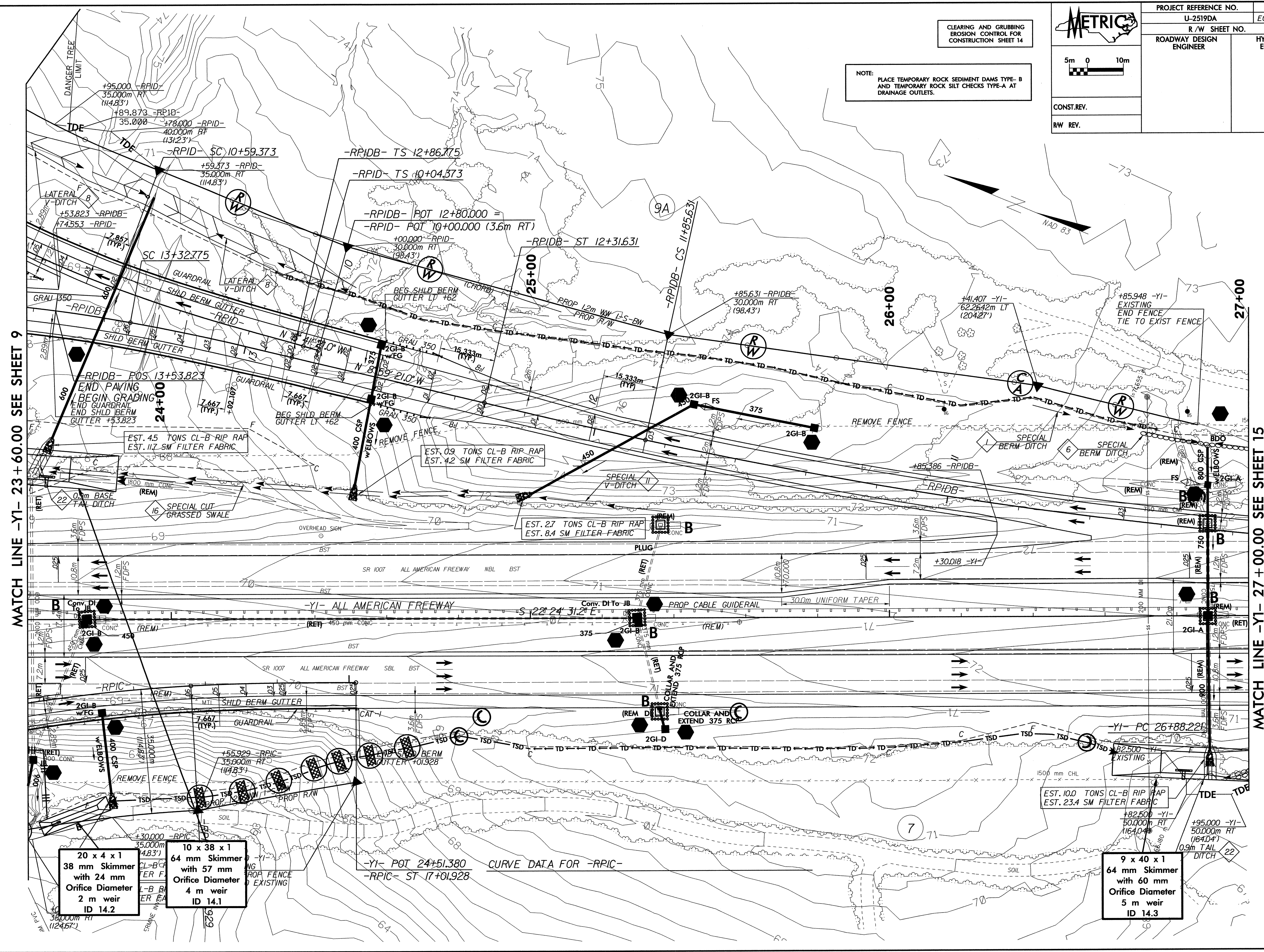
METRIC

5m 0 10m

CONST.REV.
RW REV.

PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-12/CONST.14
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE-B AND TEMPORARY ROCK SILT CHECKS TYPE-A AT DRAINAGE OUTLETS.



MATCH LINE -YI- 23 + 60.00 SEE SHEET 9

MATCH LINE -YI- 27 + 00.00 SEE SHEET 15

20 x 4 x 1
38 mm Skimmer
with 24 mm
Orifice Diameter
2 m weir
ID 14.2

10 x 38 x 1
64 mm Skimmer
with 57 mm
Orifice Diameter
4 m weir
ID 14.1

-YI- POT 24+51.380
-RPIC- ST 17+01.928

CURVE DATA FOR -RPIC-

9 x 40 x 1
64 mm Skimmer
with 60 mm
Orifice Diameter
5 m weir
ID 14.3

EST. 10.0 TONS CL-B RIP RAP
EST. 2.34 SM FILTER FABRIC

EST. 2.7 TONS CL-B RIP RAP
EST. 8.4 SM FILTER FABRIC

EST. 0.9 TONS CL-B RIP RAP
EST. 4.2 SM FILTER FABRIC

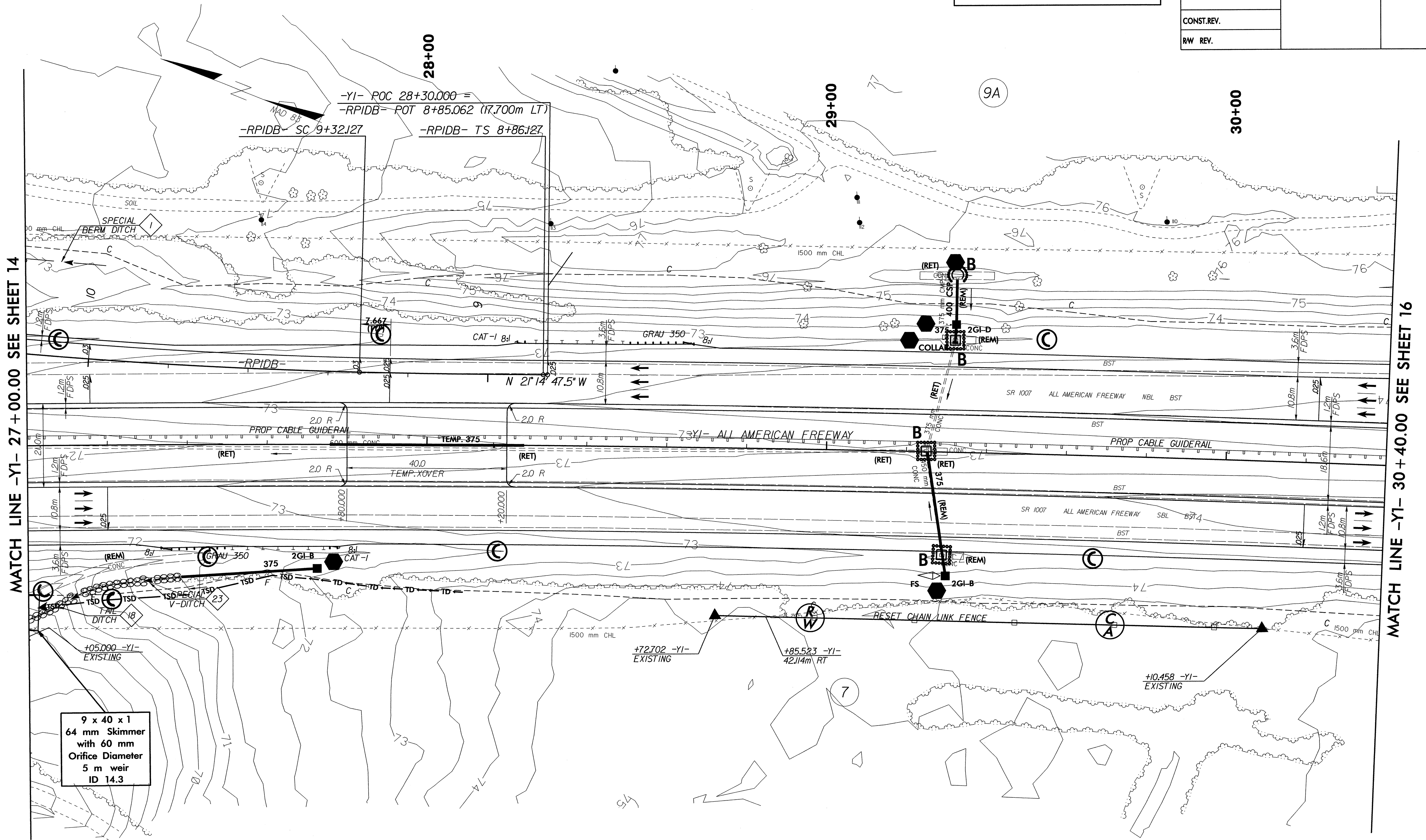
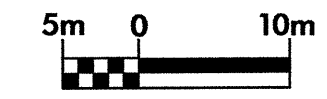
EST. 4.5 TONS CL-B RIP RAP
EST. 11.7 SM FILTER FABRIC

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 15

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE- B
AND TEMPORARY ROCK SILT CHECKS TYPE-A AT
DRAINAGE OUTLETS.



PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-13/CONST.15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST.REV.	
RW REV.	



MATCH LINE -Y1- 27 + 00.00 SEE SHEET 14

MATCH LINE -Y1- 30 + 40.00 SEE SHEET 16

9 x 40 x 1
64 mm Skimmer
with 60 mm
Orifice Diameter
5 m weir
ID 14.3

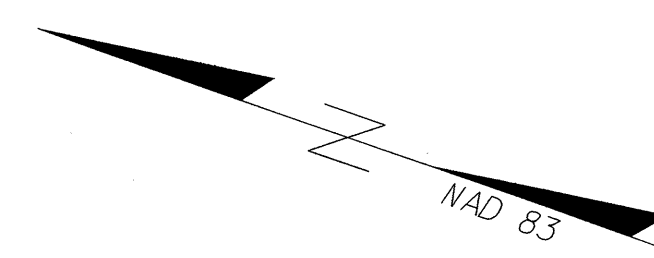
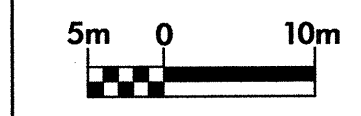
FILE: 8185
DATE: 8/24/05
DRAWN: J. BROWN
CHECKED: J. BROWN
SCALE: AS SHOWN

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 16



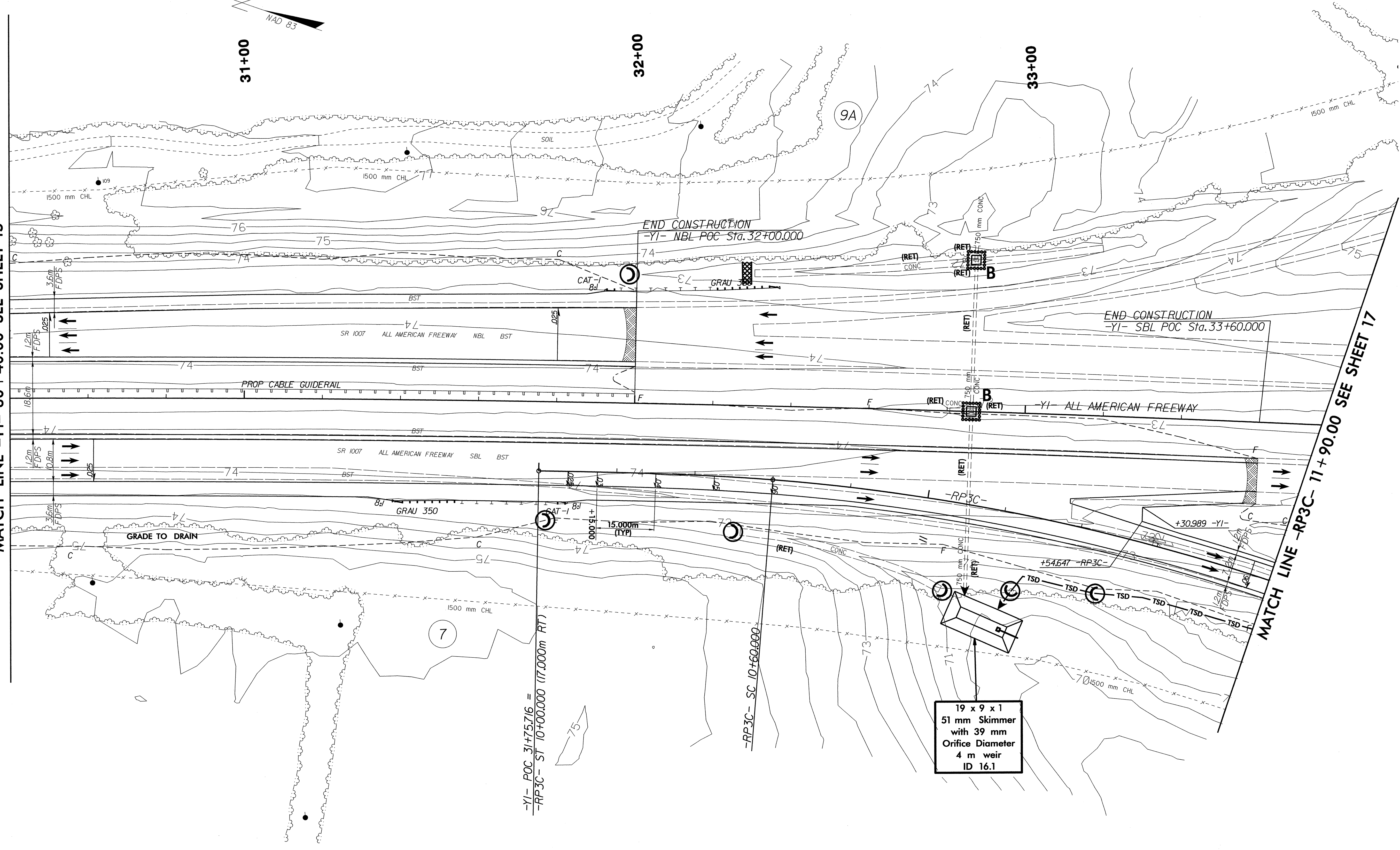
PROJECT REFERENCE NO. U-2519DA	SHEET NO. EC-14/CONST.16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST. REV.	
R/W REV.	

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE-B
AND TEMPORARY ROCK SILT CHECKS TYPE-A AT
DRAINAGE OUTLETS.

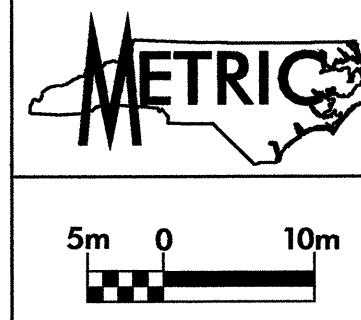


MATCH LINE -Y1- 30 + 40.00 SEE SHEET 15

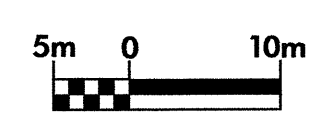
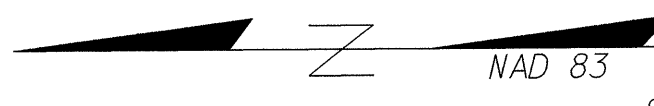
MATCH LINE -RP3C- 11 + 90.00 SEE SHEET 17



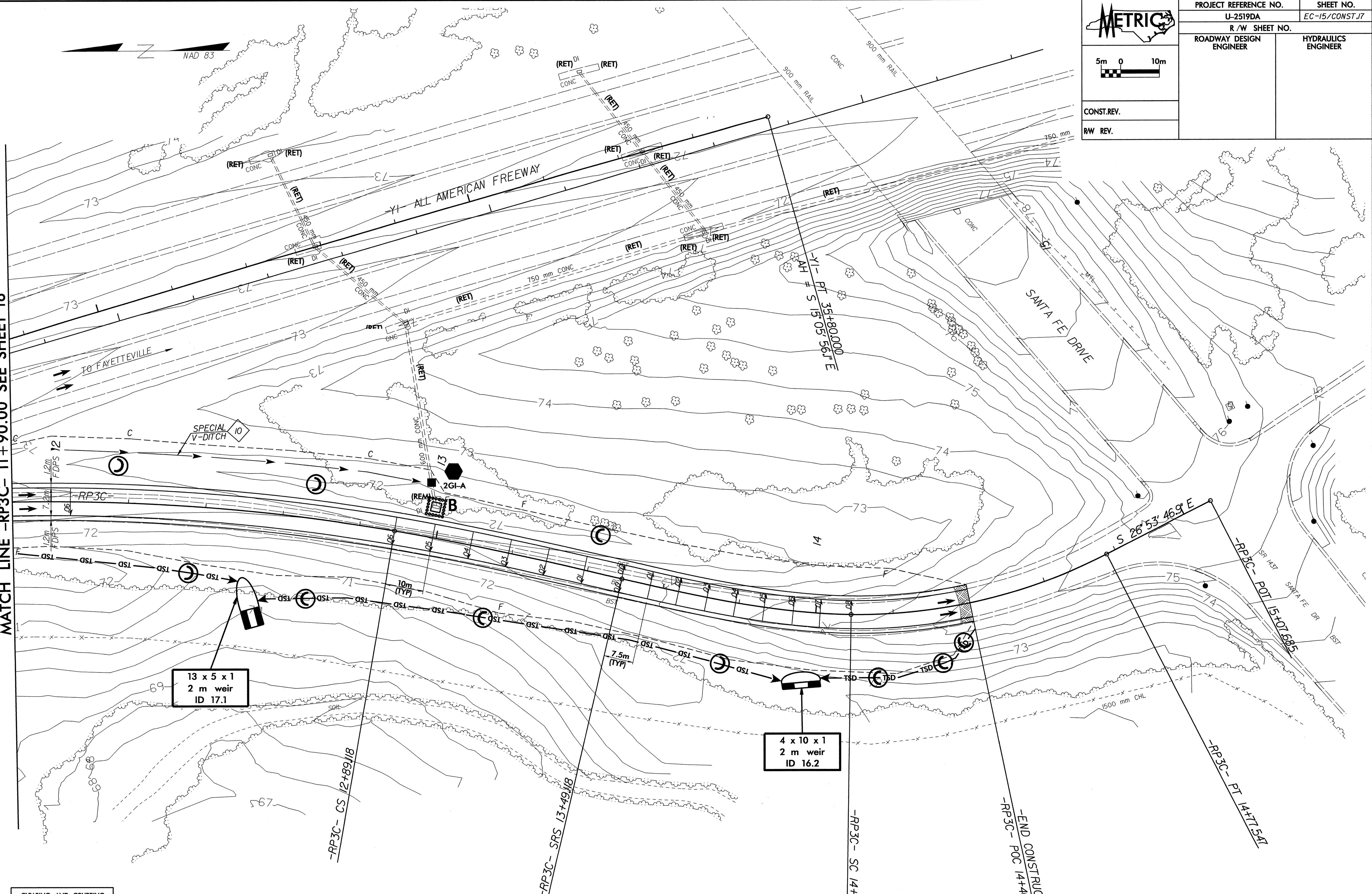
FILE: S:\1615... STIMES
DATE: 04/05/2010 8:10:00 AM
PLOT DRIVER: PLOTDRIVER
PLOT TABLE: PLOTTABLE



PROJECT REFERENCE NO.	SHEET NO.
U-2519DA	EC-15/CONST.17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST. REV.	
R/W REV.	



MATCH LINE -RP3C- 11+90.00 SEE SHEET 16

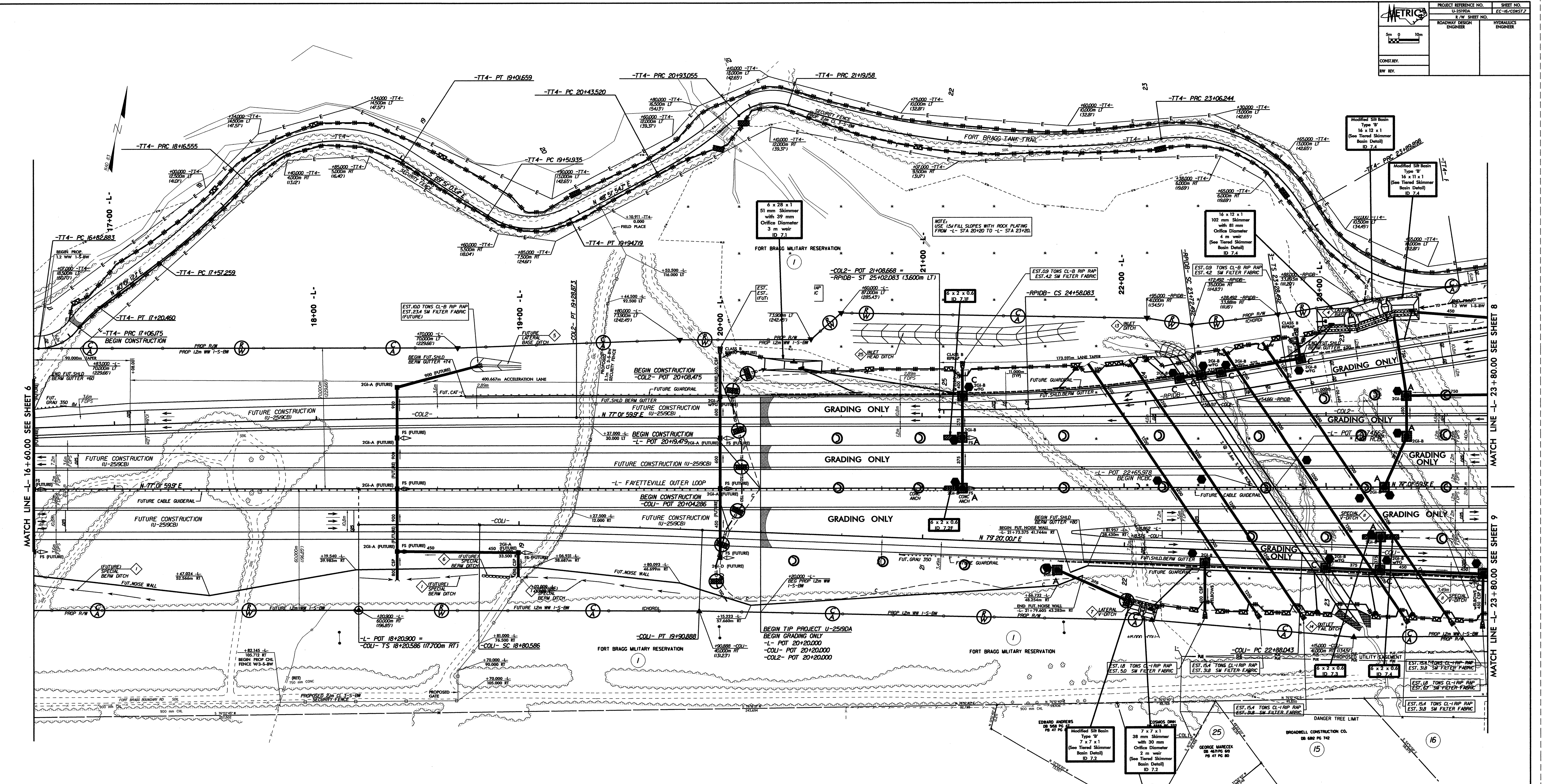


CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 17

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE- B
AND TEMPORARY ROCK SILT CHECKS TYPE-A AT
DRAINAGE OUTLETS.

FILE: SHEETS
DATE: 04/18/08
DATE: 04/18/08
DATE: 04/18/08
DATE: 04/18/08
DATE: 04/18/08

SEE SHEET 50 FOR -RP3C- PROFILE
SEE SHEET 58 FOR -YI- PROFILE



03/008 - ADDED PARCELS #13, 14, 15 & 16
 04/09/08 - PARCELS #1, 13, 14, 15 & 16 ADDED
 PROPOSED RUE AND DANGER TREE LIMIT
 04/17/08 - REVISED GOERGE MARCEK PARCEL FROM
 PARCEL #14 TO PARCEL #25

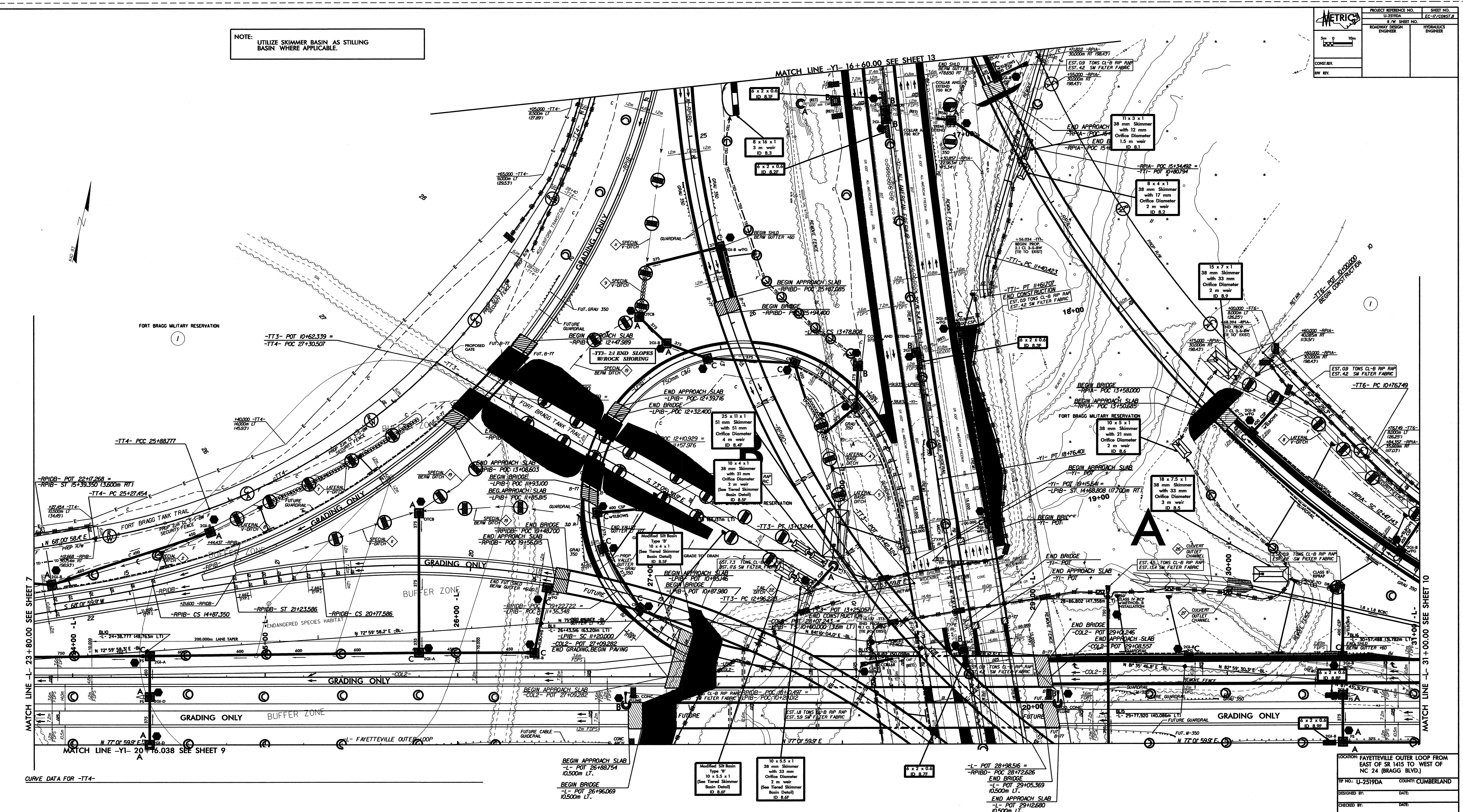
LOCATION: FAYETTEVILLE OUTER LOOP FROM
 EAST OF SR 1415 TO WEST OF
 NC 24 (BRAGG BLVD.)

TP NO: U-2519DA COUNTY: CUMBERLAND

DESIGNED BY: DATE:

CHECKED BY: DATE:

NOTE: UTILIZE SKIMMER BASIN AS STILLING BASIN WHERE APPLICABLE.



CURVE DATA FOR -TT4-

BEGIN APPROACH SLAB
-L- POT 26+887.54
10.500m LT.
BEGIN BRIDGE
-L- POT 26+96.069
10.500m LT.

Modified Skimmer
Type "B"
10 x 5.5 x 1
(See Tinned Skimmer
Basin Detail)
ID: 8.6F

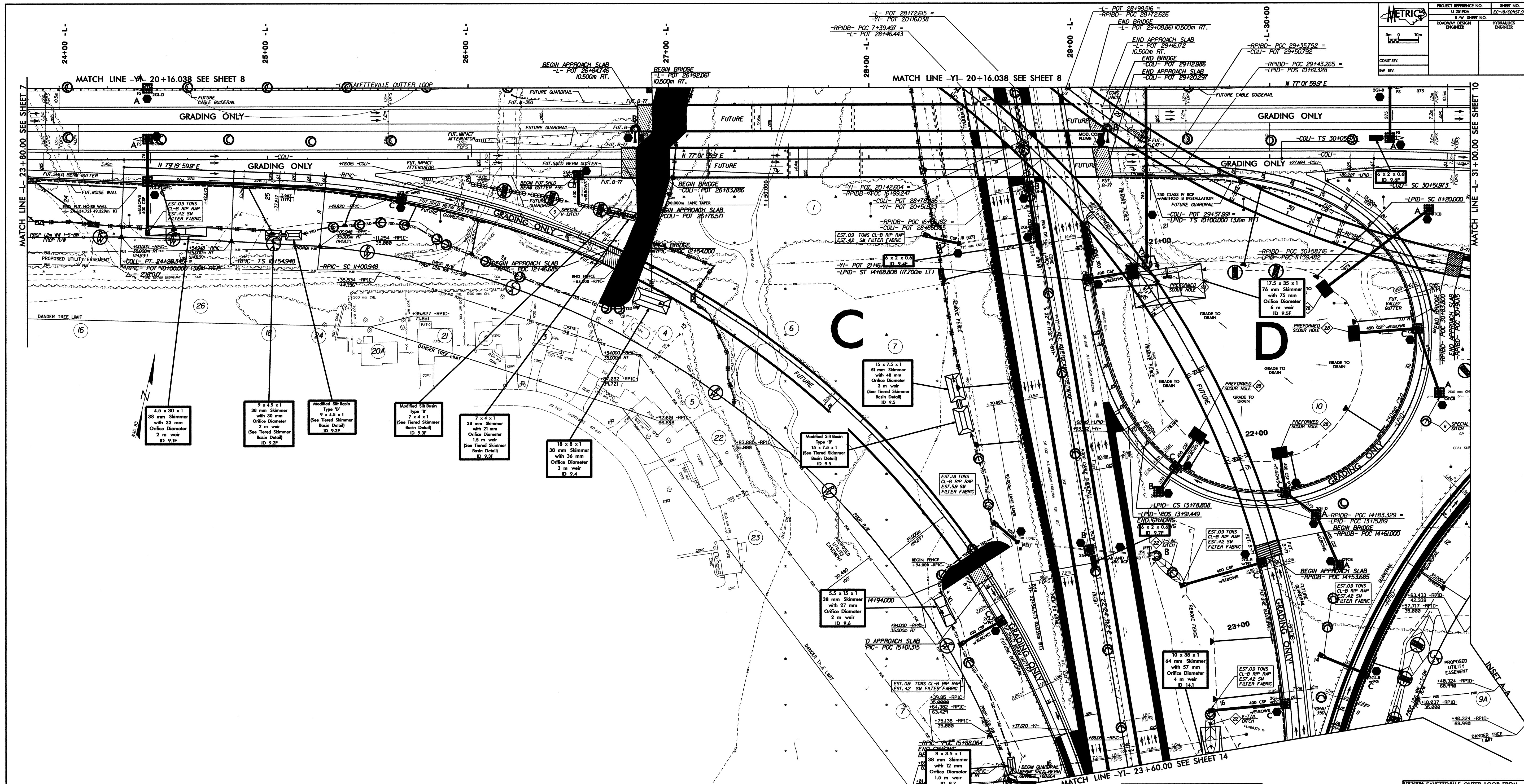
-L- POT 28+98.516 =
-RPIDB- POT 28+72.626
END BRIDGE
-L- POT 29+05.369
10.500m LT.
END APPROACH SLAB
-L- POT 29+12.680
10.500m LT.

LOCATION: FAYETTEVILLE OUTER LOOP FROM
EAST OF SR 1415 TO WEST OF
NC 24 (BRAGG BLVD.)
TP NO: U-2519DA COUNTY: CUMBERLAND
DESIGNED BY: DATE:
CHECKED BY: DATE:

DATE PLOTTED: 08/27/2018 10:00 AM
DRAWN BY: JMM
CHECKED BY: JMM

03/008 - ADDED PARCELS #16, 17, 18, 19, 20, 21, 22 & 23
 04/0908 - PARCELS #1, 2, 3, 4, 5, 6, 7, 9A, 10, 16, 17, 18, 19, 20, 21, 22 & 23
 ADDED PROPOSED PIPE AND DANGER TREE LIMIT
 04/1708 - REVISED KENNETH STEINHOFF PARCEL #17 TO PARCEL #26 AND
 REVISED ARLENE WINDERMILLER PARCEL FROM PARCEL #19 TO PARCEL #24

DATE: 04/17/08
 DRAWN BY: J. W. WILSON
 CHECKED BY: J. W. WILSON
 PROJECT NO: U-2519DA

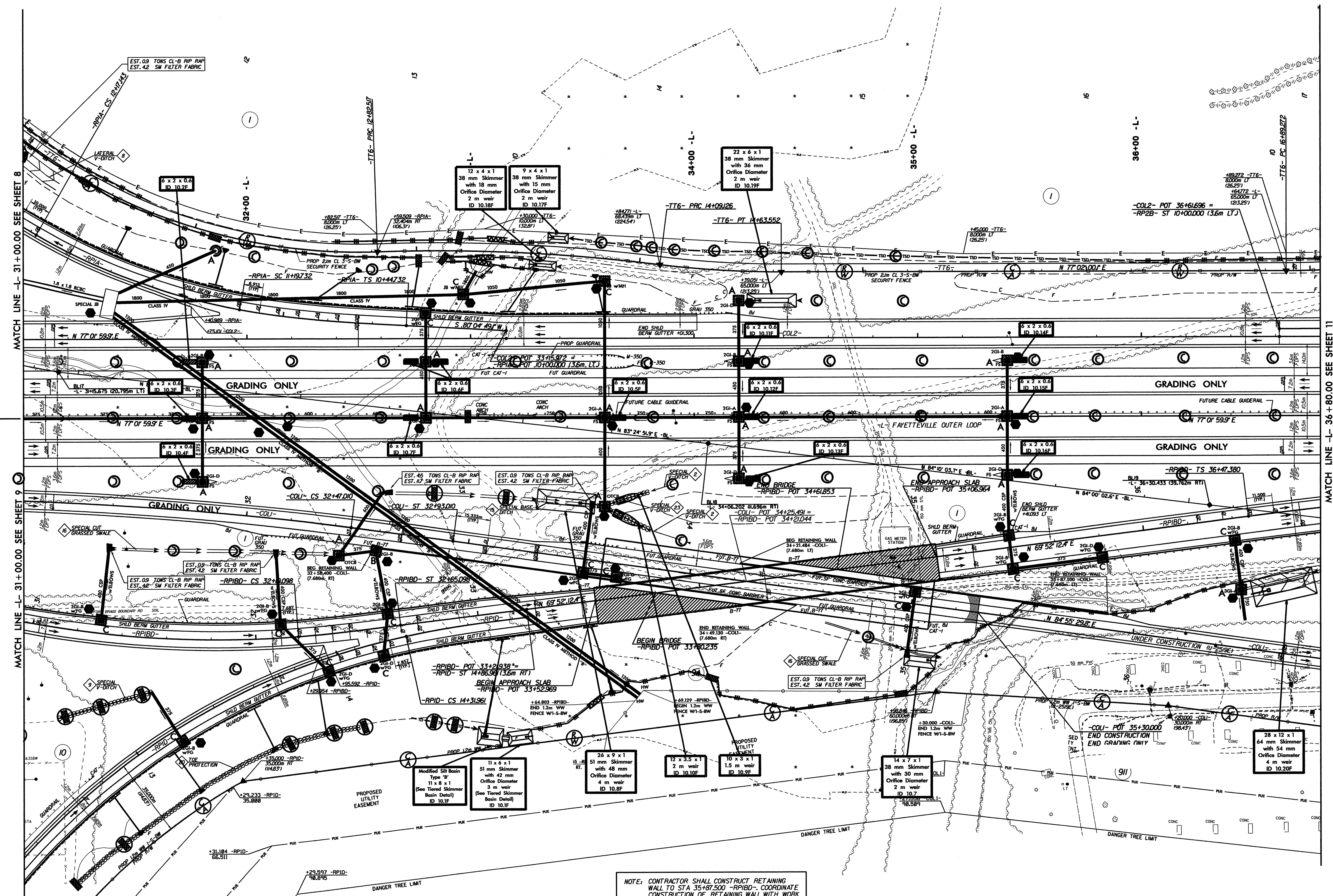


NOTE: BRIDGES ON -L- & -COU- OVER -YI- WILL BE CONSTRUCTED IN PROJECT U259CB. THE END BENTS WILL BE BUILT UNDER PROJECT U259DA.
 BRIDGES ON -RPIDB-, -RPIB- & -RPIC- WILL BE CONSTRUCTED IN PROJECT U259CB.

SEE SHEETS 20-22 FOR -L- PROFILE
 SEE SHEETS 23-24 FOR -COU- PROFILE
 SEE SHEETS 25-26 FOR -RPIDB- PROFILE
 SEE SHEETS 27-28 FOR -RPIB- PROFILE
 SEE SHEETS 29-30 FOR -RPIC- PROFILE
 SEE SHEETS 31-32 FOR -YI- PROFILE
 SEE SHEETS 33-34 FOR -YI- PROFILE

LOCATION: FAYETTEVILLE OUTER LOOP FROM EAST OF SR 1415 TO WEST OF NC 24 (BRAGG BLVD.)
 PROJECT NO: U-2519DA COUNTY: CUMBERLAND
 DESIGNED BY: DATE:
 CHECKED BY: DATE:

METRIC PROJECT REFERENCE NO. U-2519DA SHEET NO. EC-25/CONST-9
 ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER
 CONTRACT NO. DATE:
 REV. DATE:



MATCH LINE -L- 31+00.00 SEE SHEET 8

MATCH LINE -L- 31+00.00 SEE SHEET 9

MATCH LINE -L- 36+80.00 SEE SHEET 11

INSET A-A - SEE SHEET NO. 9

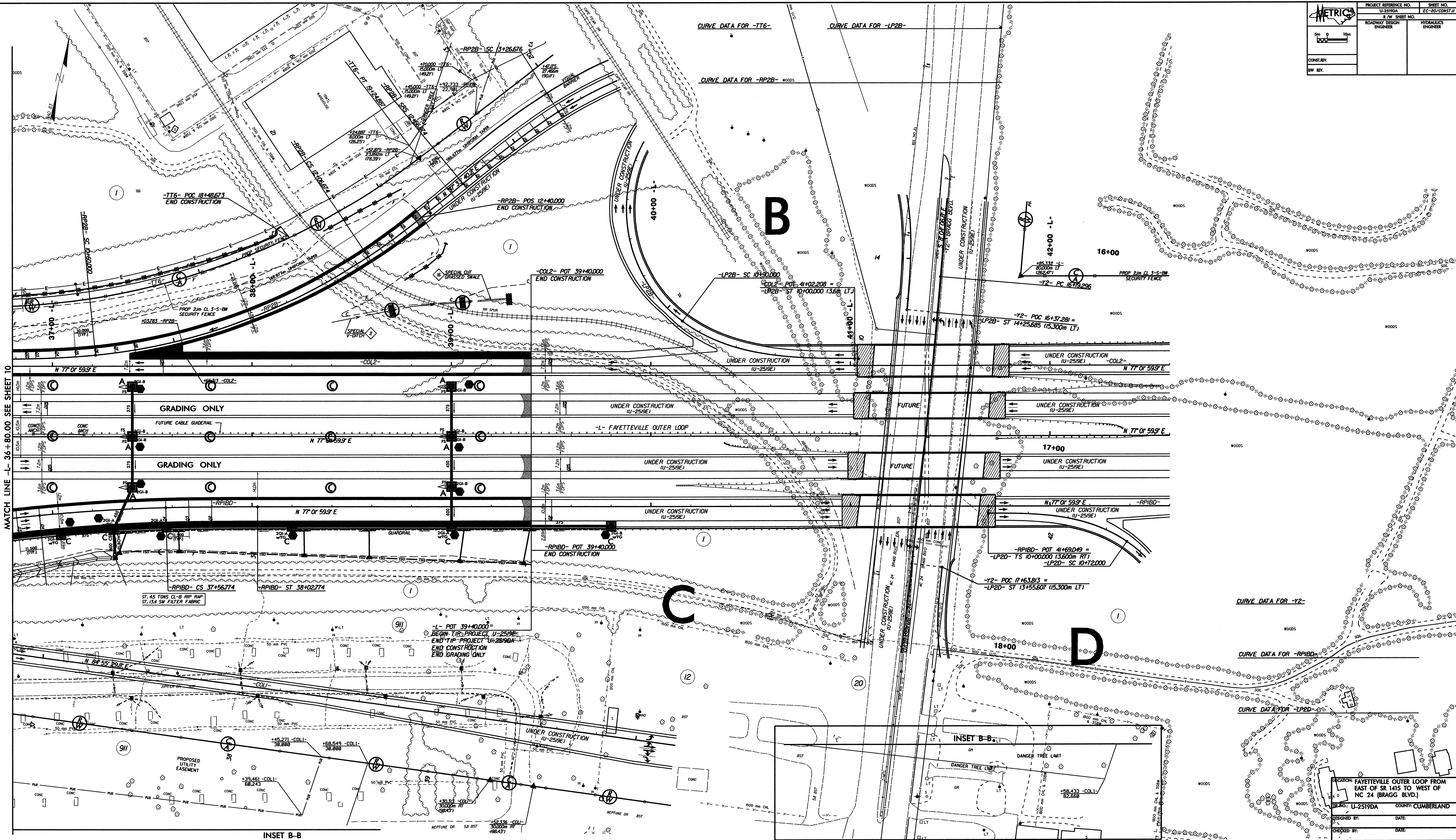
NOTE: CONTRACTOR SHALL CONSTRUCT RETAINING WALL TO STA. 35+87.500 -RPID-. COORDINATE CONSTRUCTION OF RETAINING WALL WITH WORK UNDER CONSTRUCTION IN PROJECT U-2519E.

082306 - ADDED PARCEL #911 AND EDITED PROPERTY NAME
 082306 - EXISTING HOUSE TRAILERS ON PARCEL #911 REMOVED
 040908 - PARCELS #9A, 10 & 911 ADDED PROPOSED PUE AND DANGER TREE LIMIT

LOCATION: FAYETTEVILLE OUTER LOOP FROM EAST OF SR 1415 TO WEST OF NC 24 (BRAGG BLVD.)
 TYP NO: U-2519DA COUNTY: CUMBERLAND
 DESIGNED BY: DATE:
 CHECKED BY: DATE:

03/008 - PARCELS #1 & 911 ADDED PROPOSED PUE AND TREE LIMIT
 082306 - ADDED PARCEL #911 AND EDITED PROPERTY NAME
 082306 - EXISTING HOUSE TRAILERS ON PARCEL #911 REMOVED
 082306 - ADDED PROPOSED DRAINAGE EASEMENT TO PARCELS #911, #98 AND #12
 080708 - CHANGED PARCEL #12 TO WACHOVIA BANK ET AL

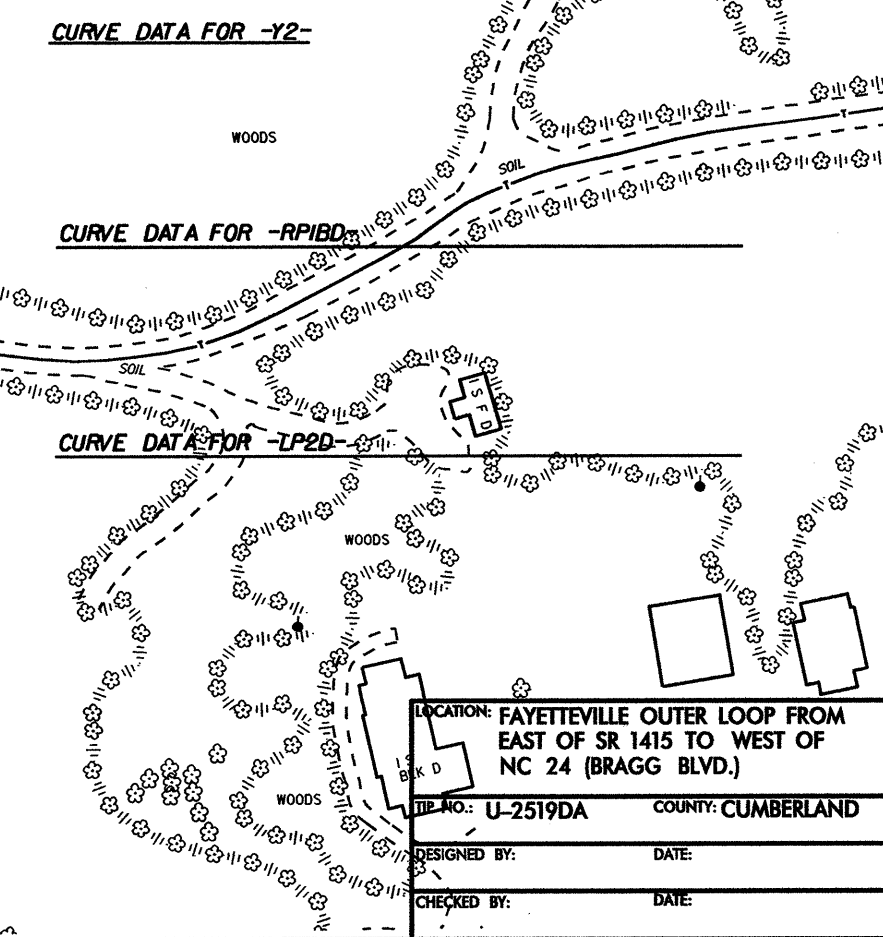
	PROJECT REFERENCE NO.	SHEET NO.
	U-2519DA	EC-20/CONST.J
	Roadway Design Engineer	Hydraulics Engineer
	CONST. BY:	DATE:
REV.		



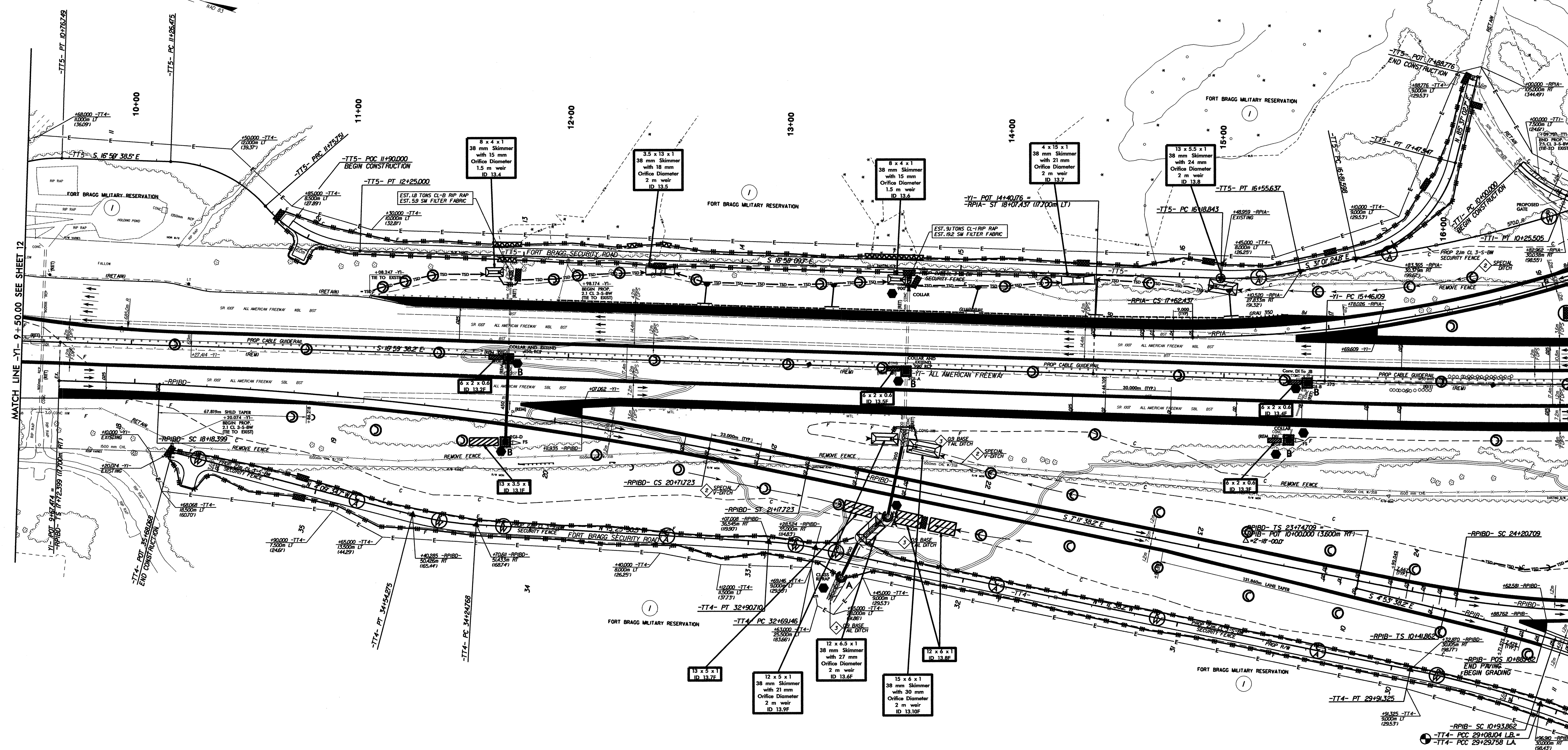
MATCH LINE -L- 36+80.00 SEE SHEET 10

INSET B-B

INSET B-B



LOCATION: FAYETTEVILLE OUTER LOOP FROM EAST OF SR 1415 TO WEST OF NC 24 (BRAGG BLVD.)
 PROJECT NO.: U-2519DA COUNTY: CUMBERLAND
 DESIGNED BY: DATE:
 CHECKED BY: DATE:



MATCH LINE -Y1- 9+50.00 SEE SHEET 12

MATCH LINE -Y1- 16+40.00 SEE SHEET 8

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED

LOCATION: FAYETTEVILLE OUTER LOOP FROM EAST OF SR 1415 TO WEST OF NC 24 (BRAGG BLVD.)

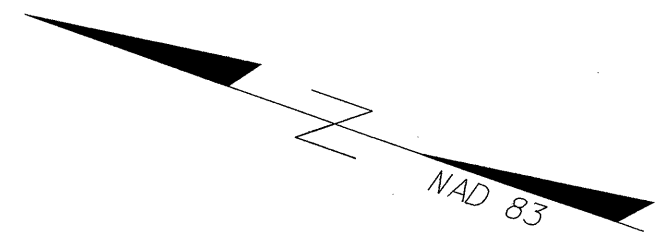
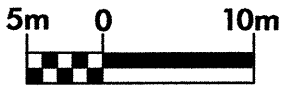
REF NO.: U-2519DA COUNTY: CUMBERLAND

DESIGNED BY: DATE:

CHECKED BY: DATE:

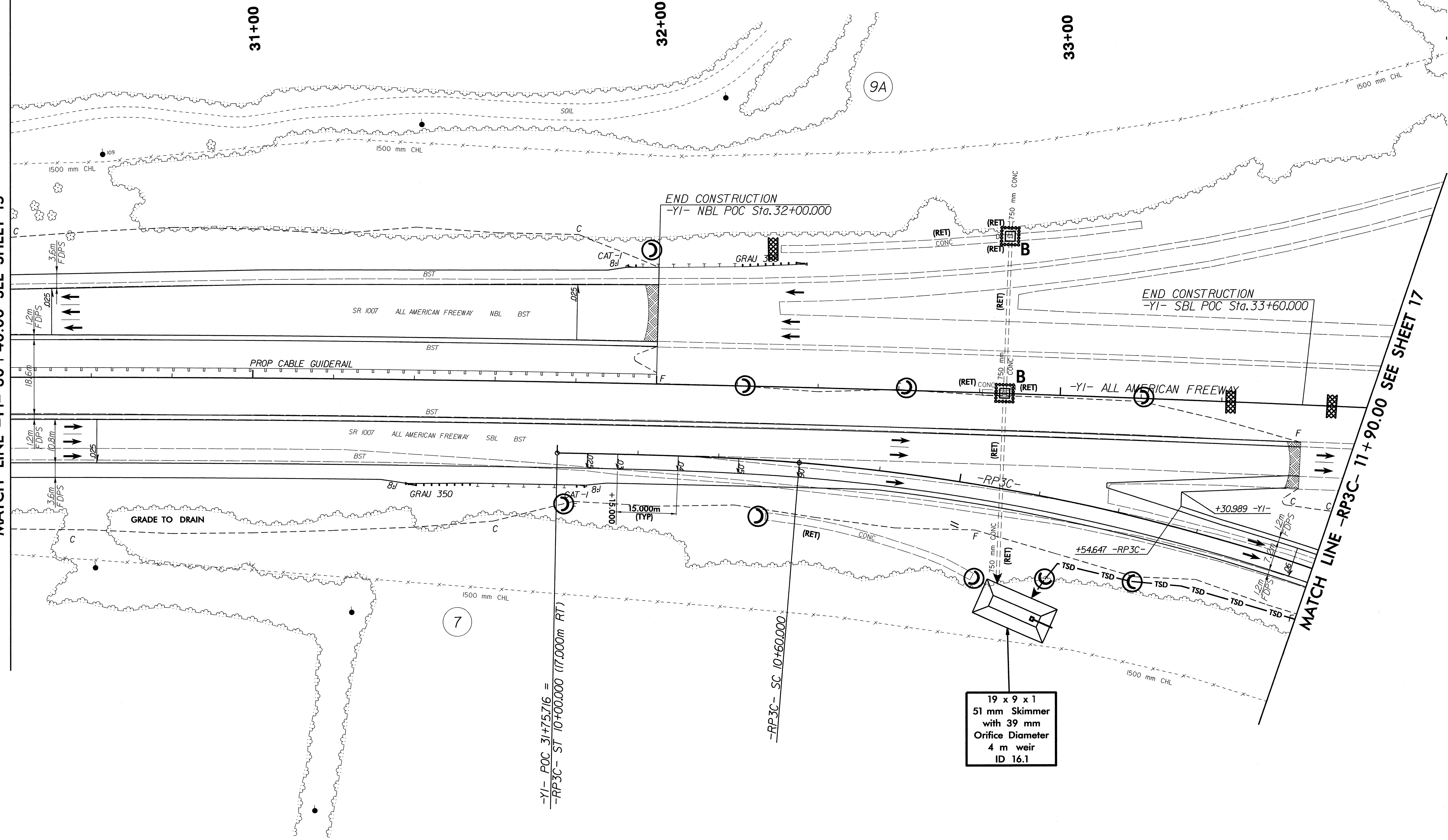


PROJECT REFERENCE NO.		SHEET NO.
U-2519DA		EC-24/CONST.16
R/W SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
CONST. REV.		
RW REV.		

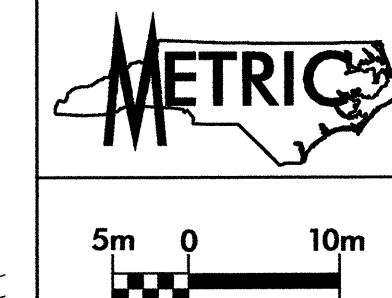


MATCH LINE -Y1- 30+40.00 SEE SHEET 15

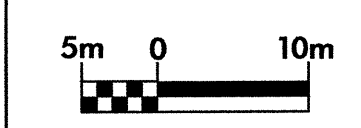
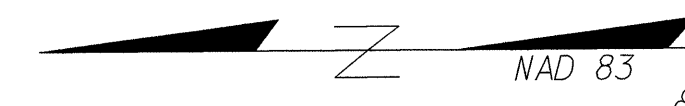
MATCH LINE -RP3C- 11+90.00 SEE SHEET 17



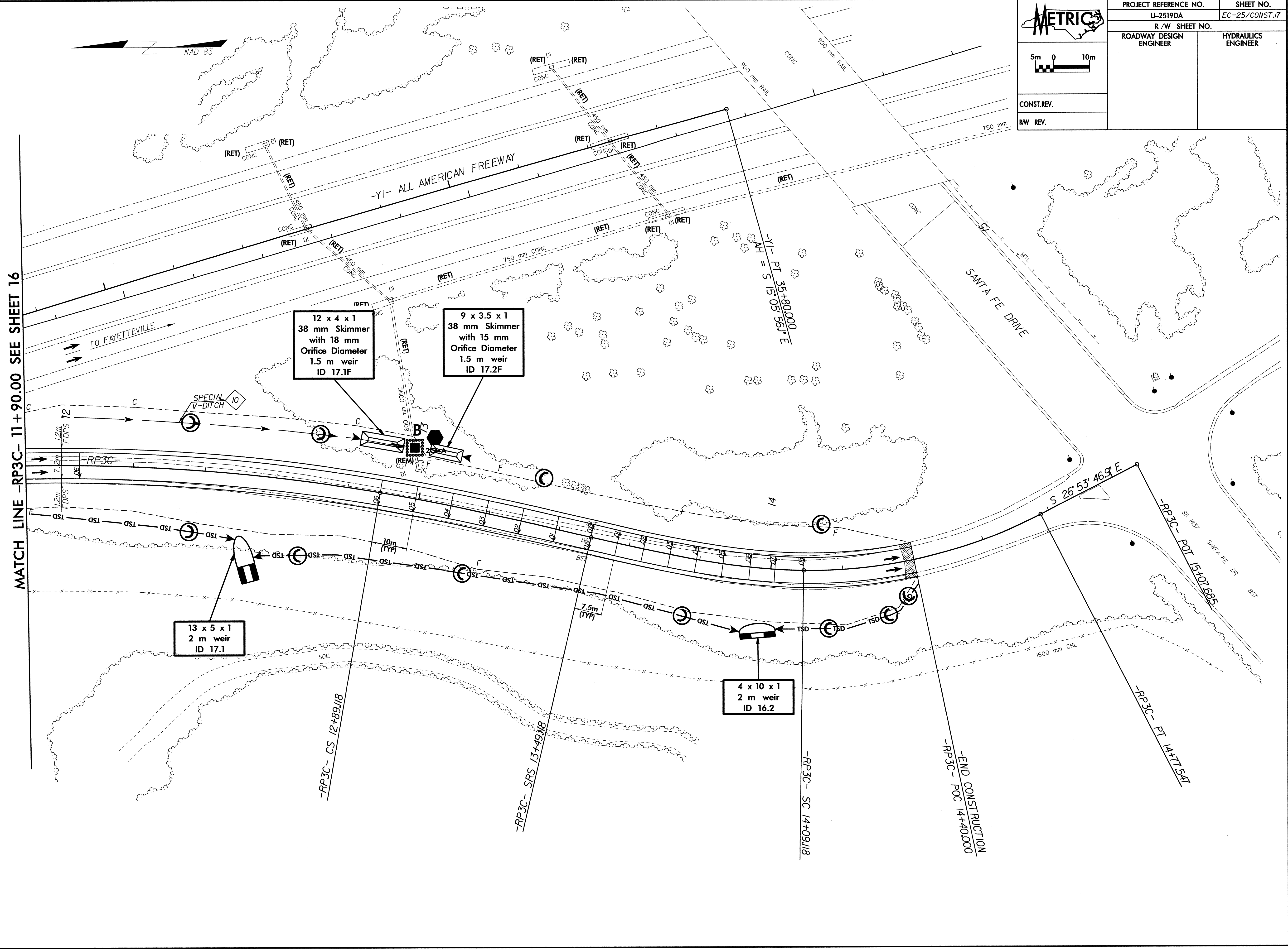
$-Y1- POC \frac{31+75.716}{-RP3C- ST 10+00.000 (17.000m RT)}$
 $-RP3C- SC 10+60.000$



PROJECT REFERENCE NO.		SHEET NO.	
U-2519DA		EC-25/CONST.17	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
CONST.REV.			
RW REV.			



MATCH LINE -RP3C- 11+90.00 SEE SHEET 16



FILE, SHEETS, STIMERS
DATE, STATES, STIMERS
NOT DATE, STIMERS
FOR, PANEL, STIMERS