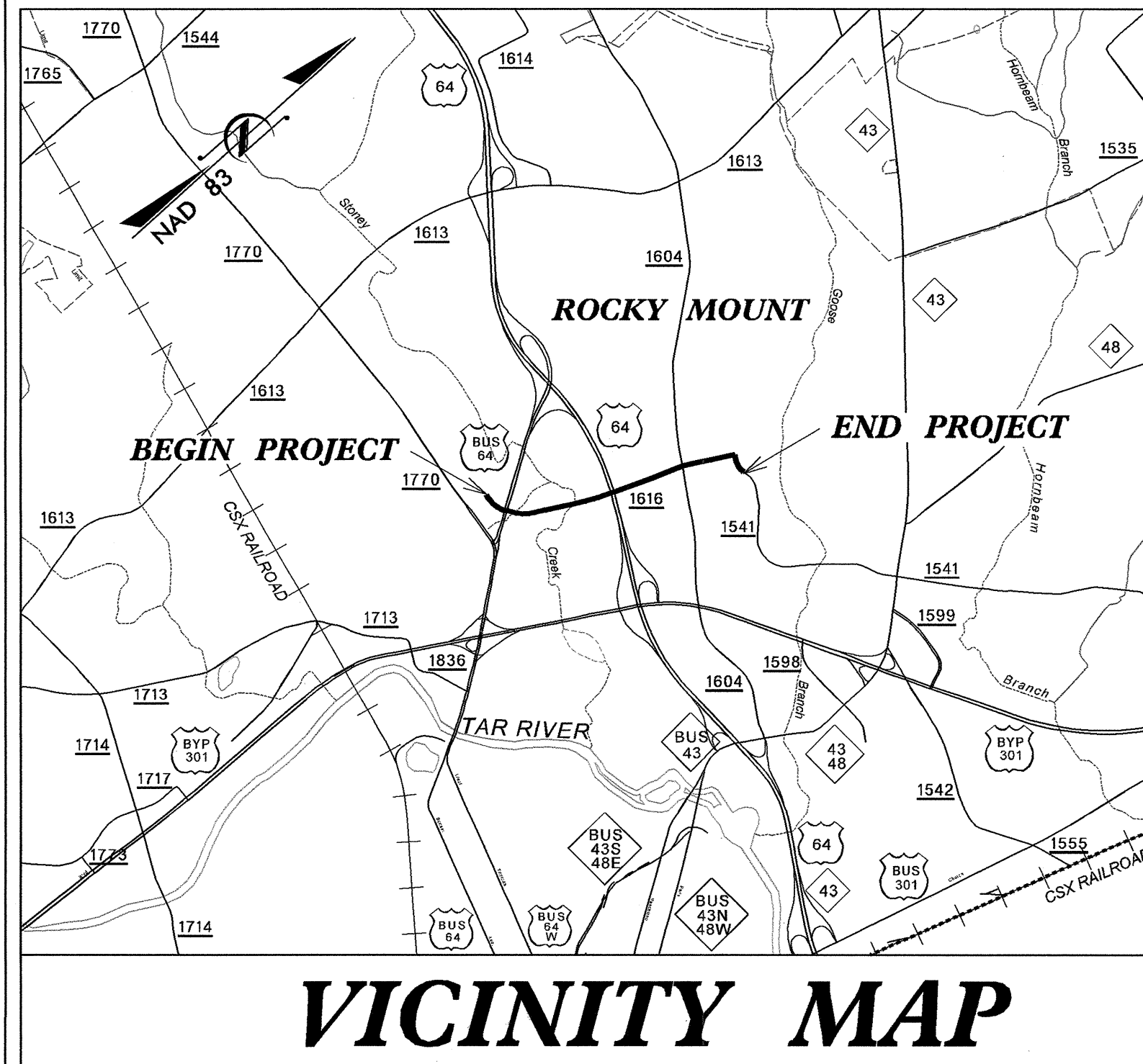


TIP PROJECT: U-3331

CONTRACT:



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NASH COUNTY

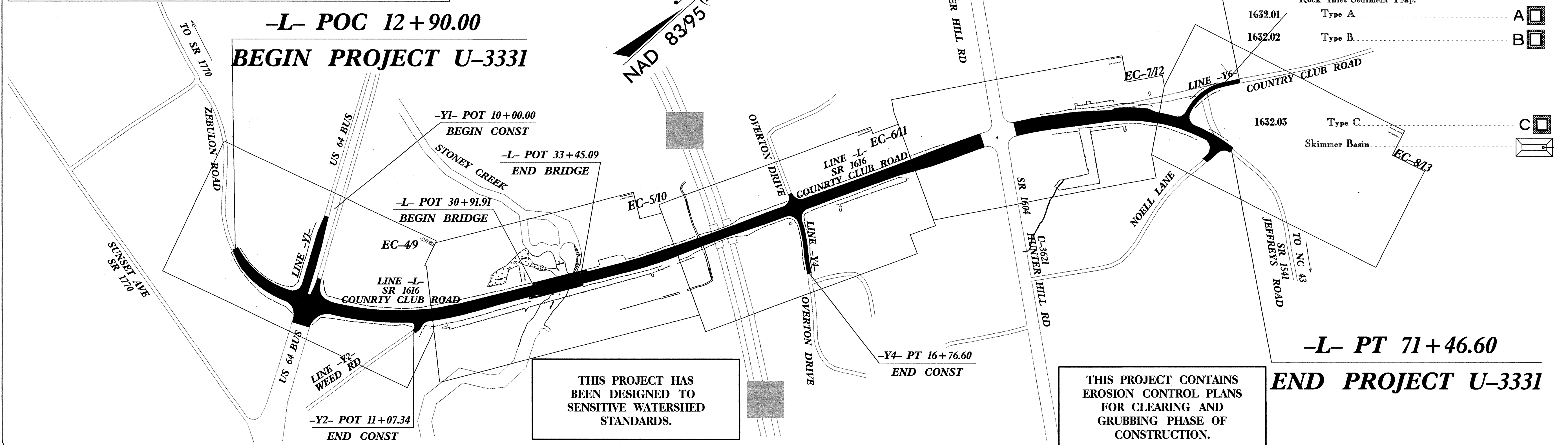
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

- Clearing and Grubbing Phase
- Final Phase
- Both Phases

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3331	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34927.1.1	STP-1616(4)	PE	

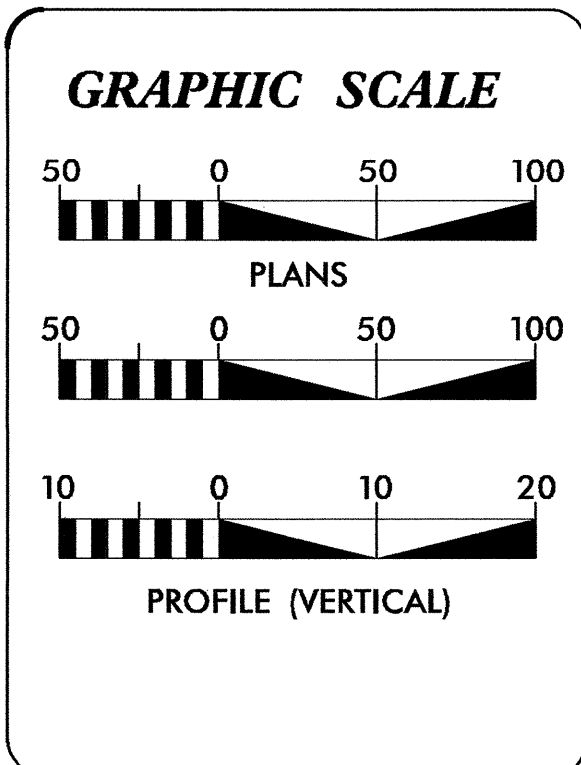
EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.05	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	---
1622.01	Temporary Berms and Slope Drains	---
1630.02	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	⊗
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	⊗
1633.02	Temporary Rock Silt Check Type-B	▶
	Wattle/Coir Fiber Wattle	⌒
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	⌒
1634.01	Temporary Rock Sediment Dam Type-A	▩
1634.02	Temporary Rock Sediment Dam Type-B	▩
1635.01	Rock Pipe Inlet Sediment Trap Type-A	⊕
1635.02	Rock Pipe Inlet Sediment Trap Type-B	⊕
1630.04	Stilling Basin	▭
1630.06	Special Stilling Basin	▭
Rock Inlet Sediment Trap:		
1632.01	Type A	A
1632.02	Type B	B
	Type C	C
	Skimmer Basin	▭



THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

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



ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Audrey B. Burnette, P.E.
EROSION CONTROL DESIGN ENGINEER
LEVEL IIIA CERTIFICATION NO. 431

Length Roadway TIP Project U-3331 = 1.062 Miles
Length Structure TIP Project U-3331 = 0.047 Mile
Total Length TIP Project U3331 = 1.109 Miles

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

2012 STANDARD SPECIFICATIONS

PLANS PREPARED BY :

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112
1-888-521-4455 OR 919-878-9560

FOR
DIVISION OF HIGHWAYS

Roadway Standard Drawings

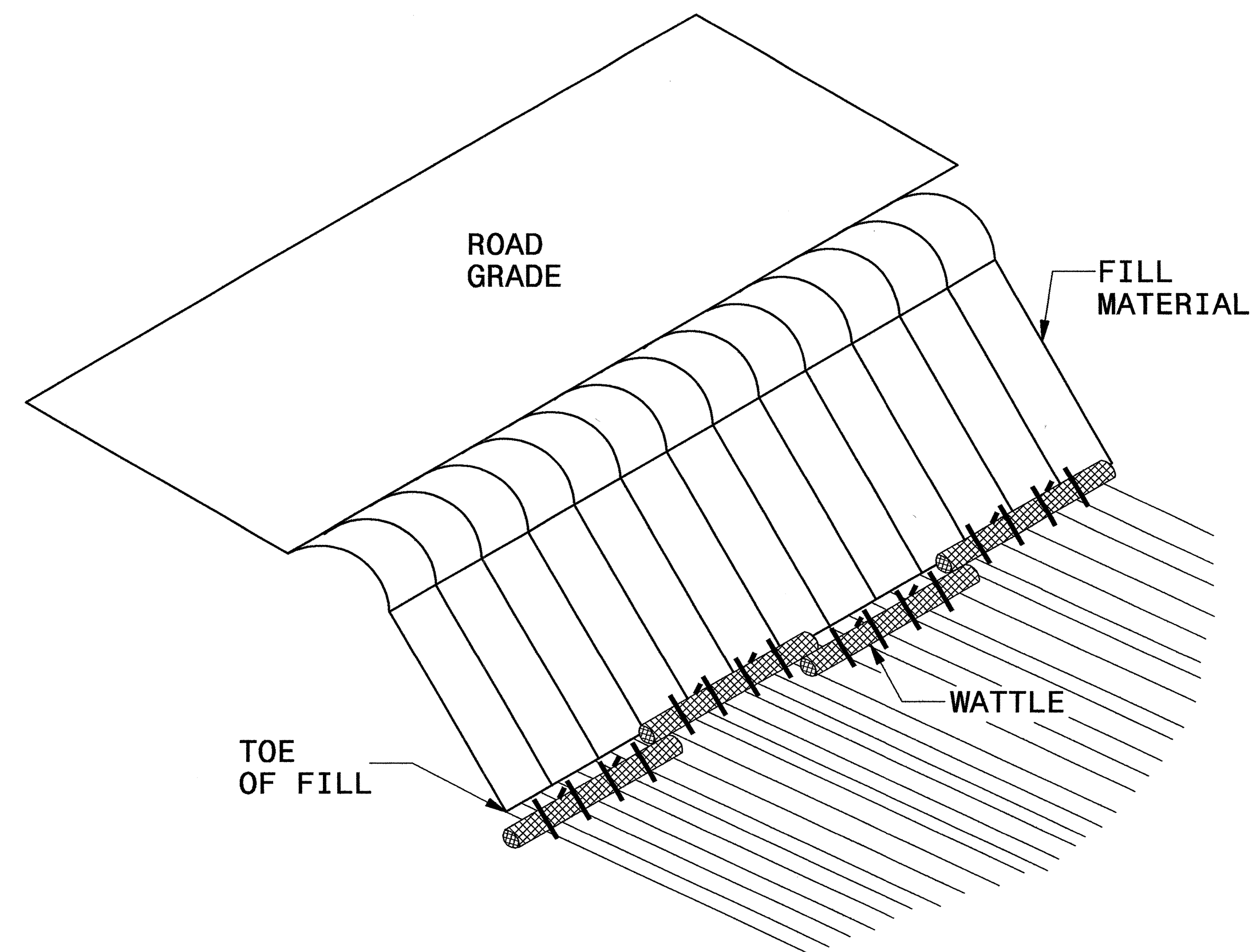
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Baffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

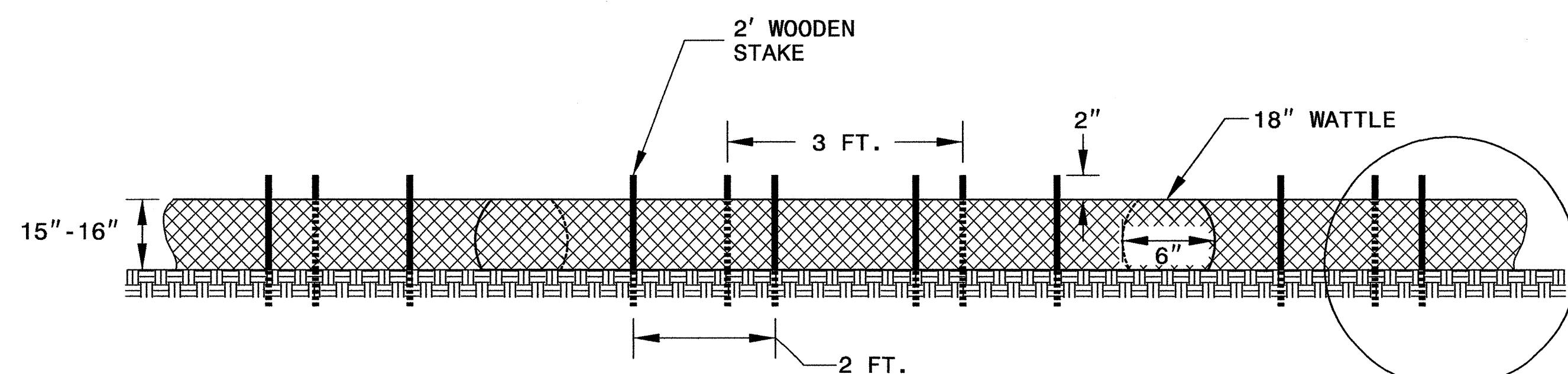
3/7/014 R:\Hydraulics\CADD\Erosion Control\U3331_hyd.ec.tsh.dgn Files

PROJECT REFERENCE NO. U-3331	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER WATTLE BARRIER DETAIL



ISOMETRIC VIEW



FRONT VIEW

NOTES:

USE MINIMUM 18 IN. NOMINAL DIAMETER COIR FIBER (COCONUT) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 2 TO 3 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLES ON TOE OF SLOPE.

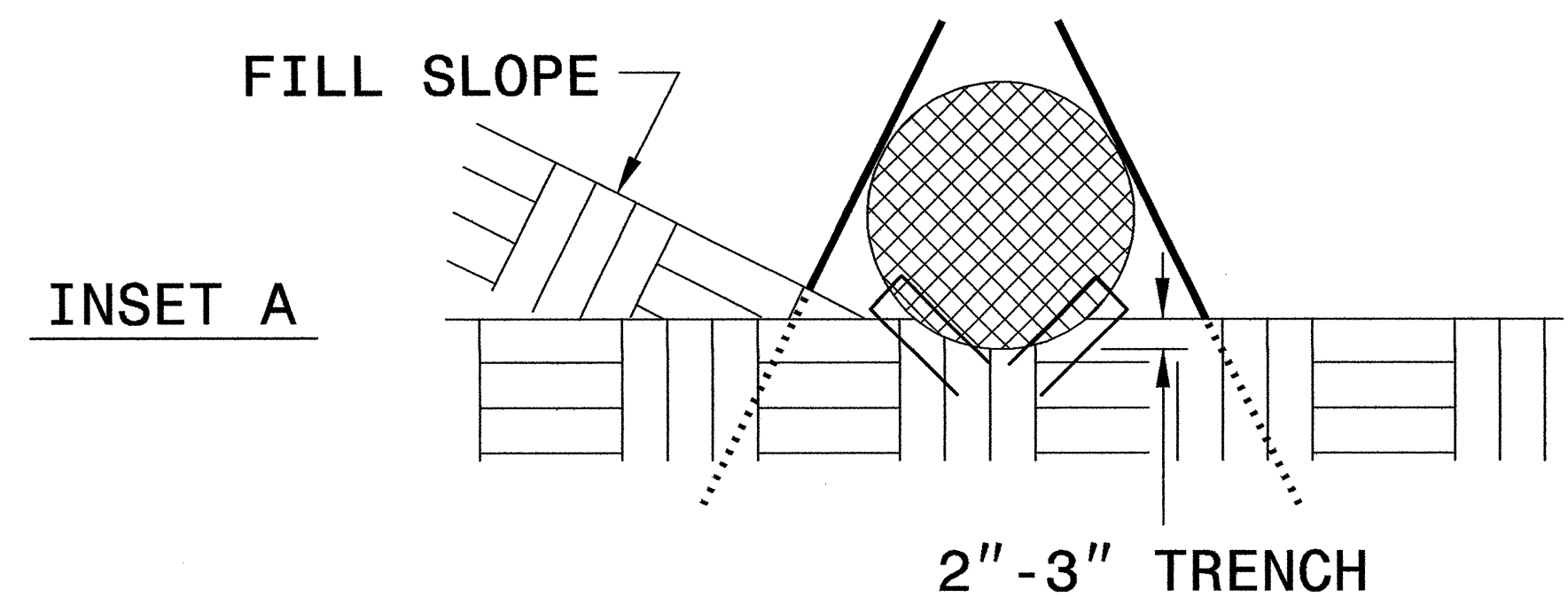
USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

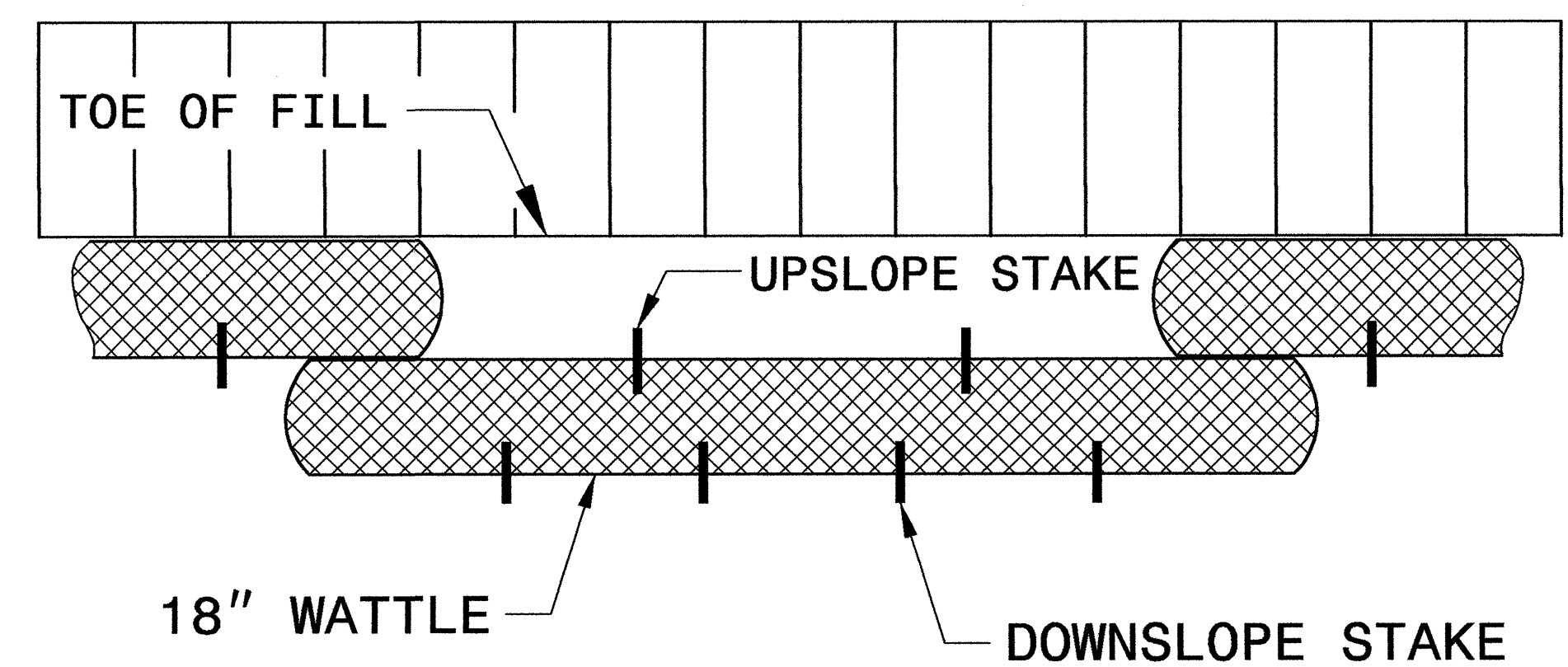
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 20 FT.



INSET A



TOP VIEW

PROJECT REFERENCE NO. U-3331	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. 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.

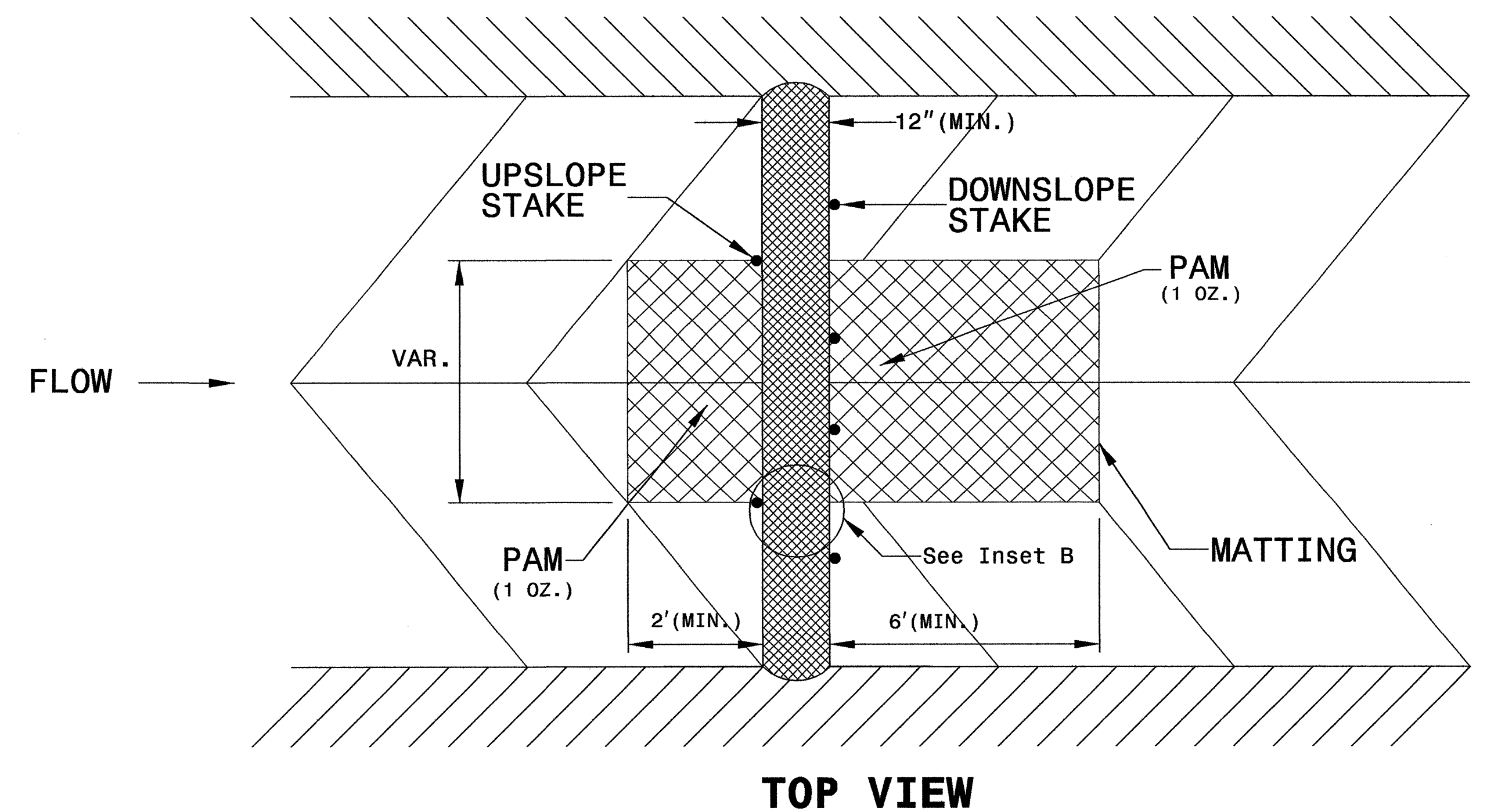
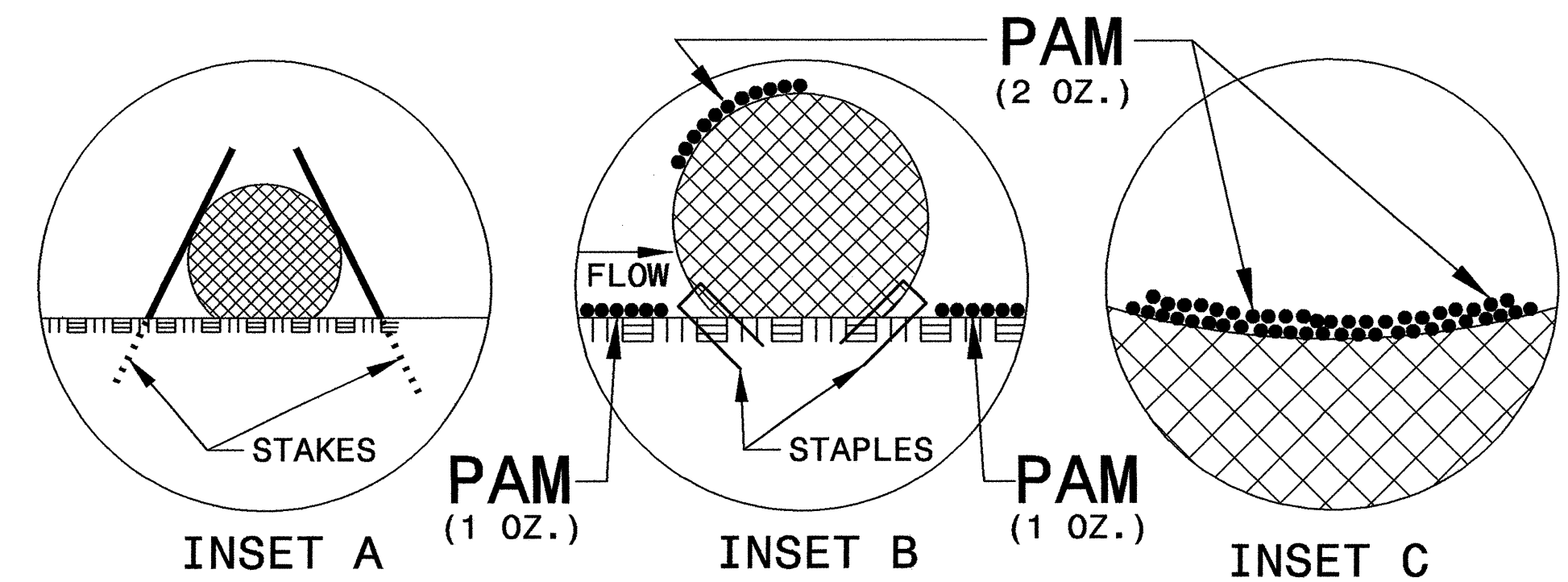
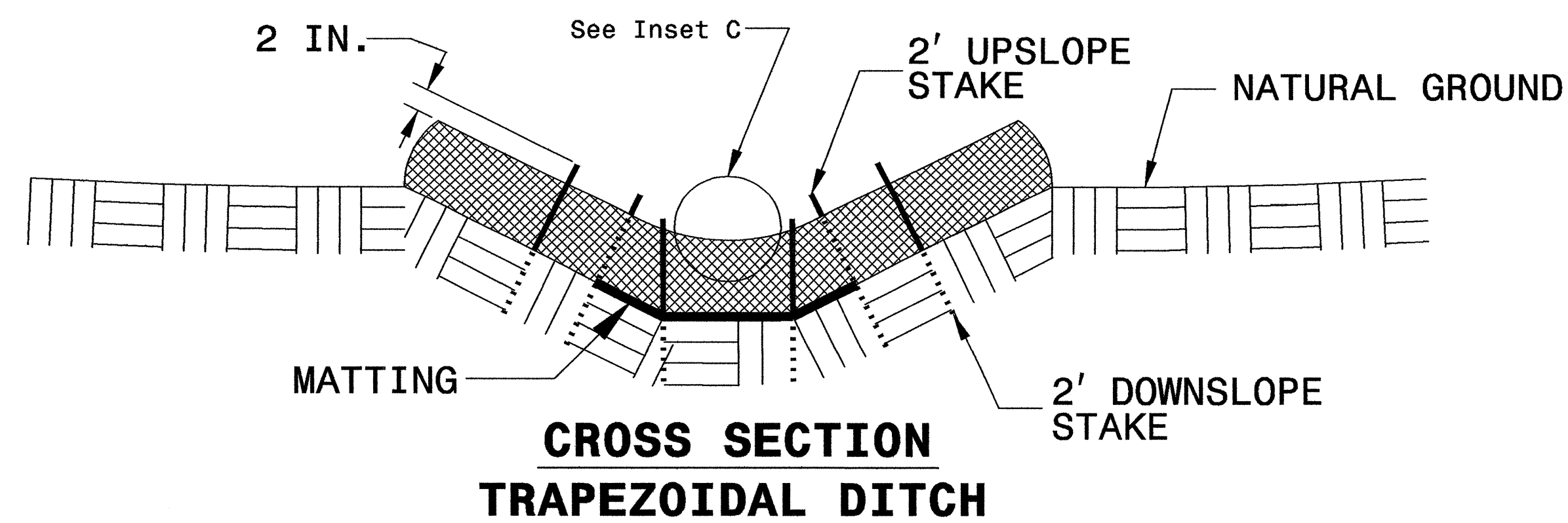
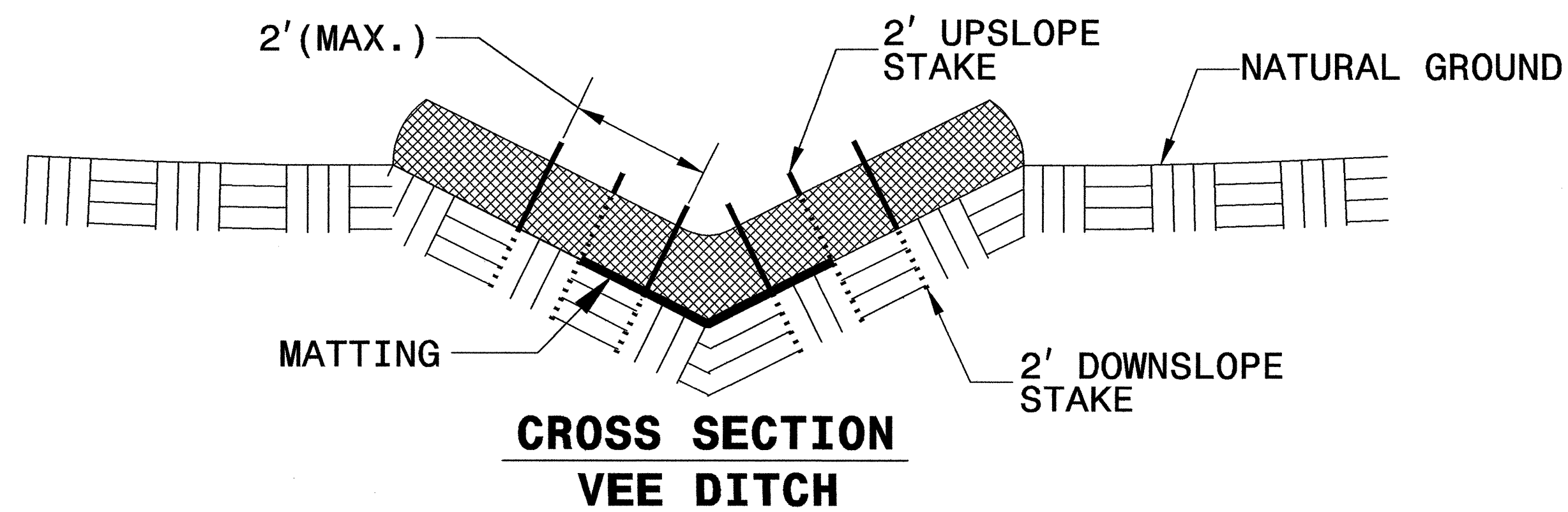
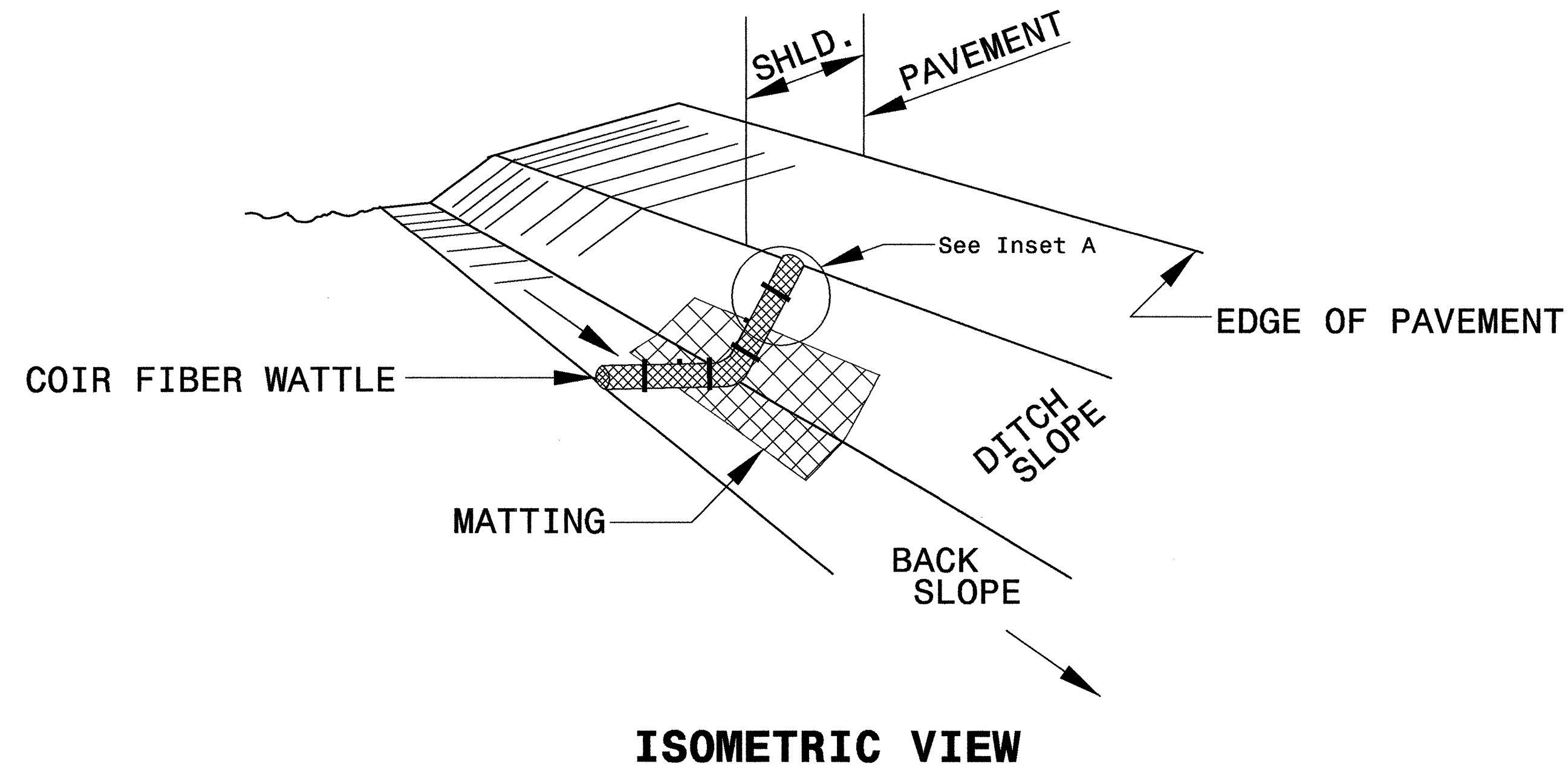
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT 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.

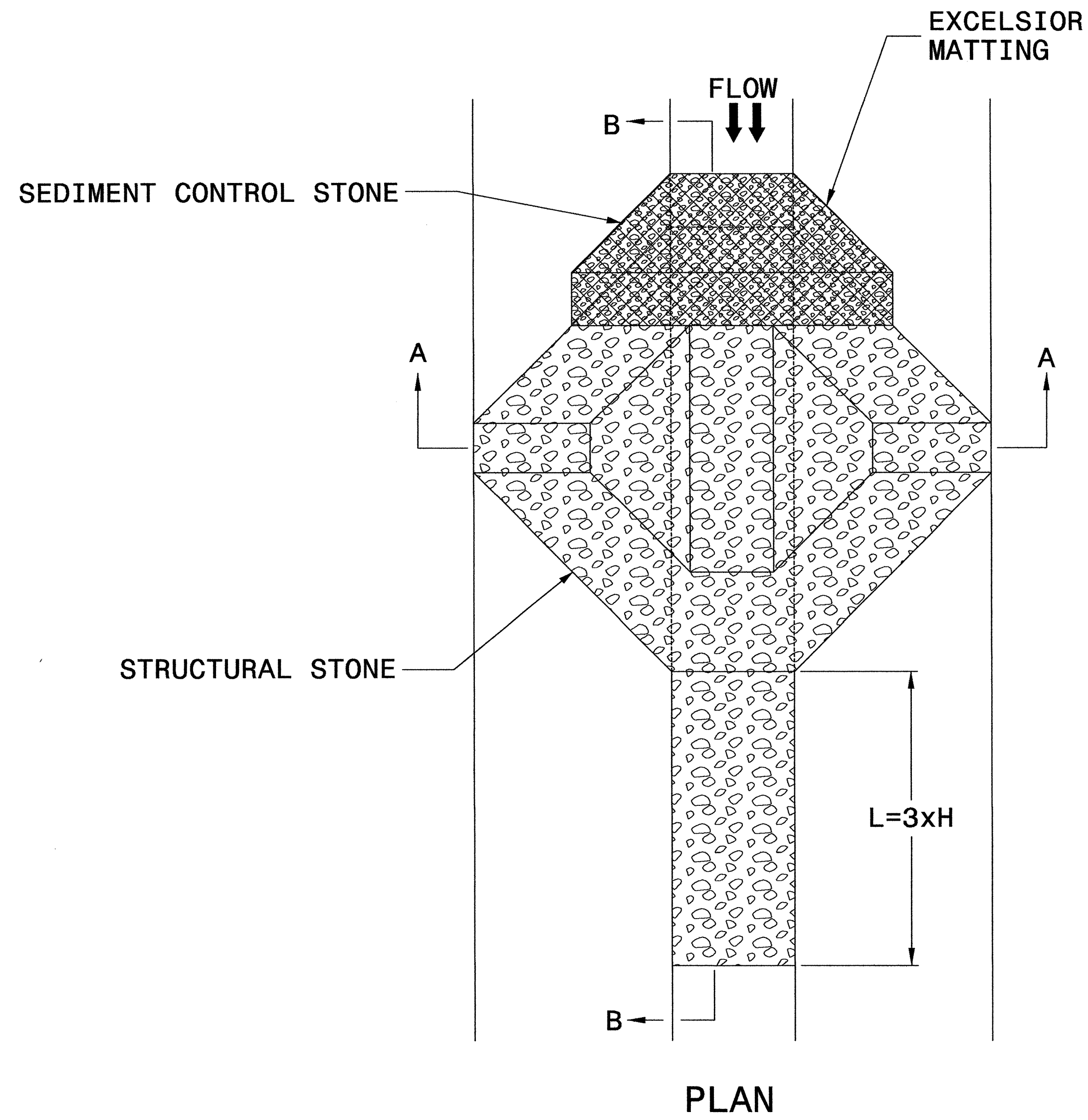
PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



PROJECT REFERENCE NO. U-3331	SHEET NO. EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

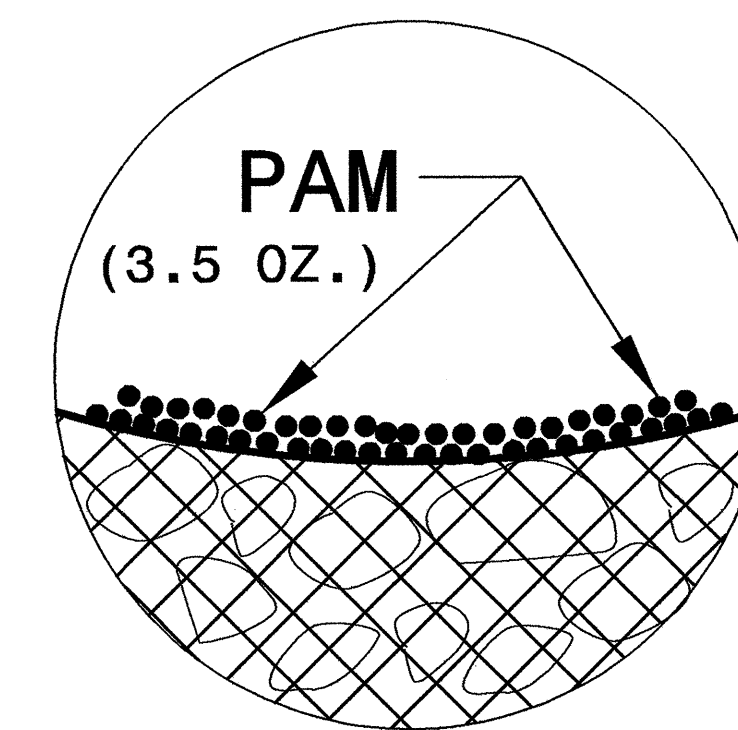


NOTES

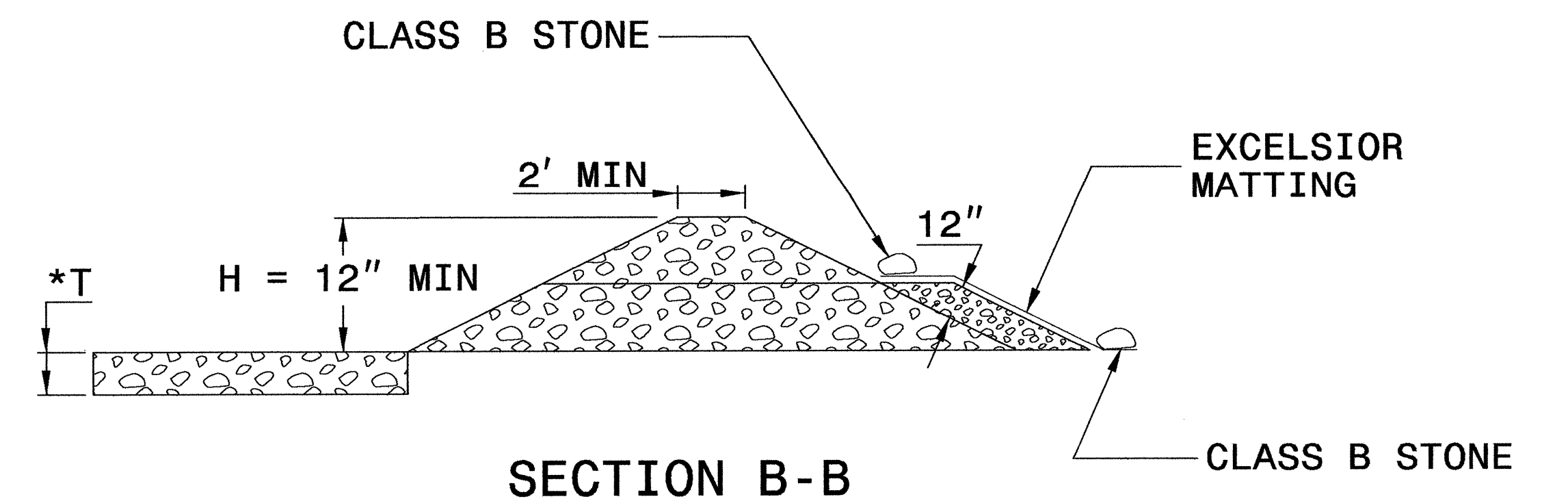
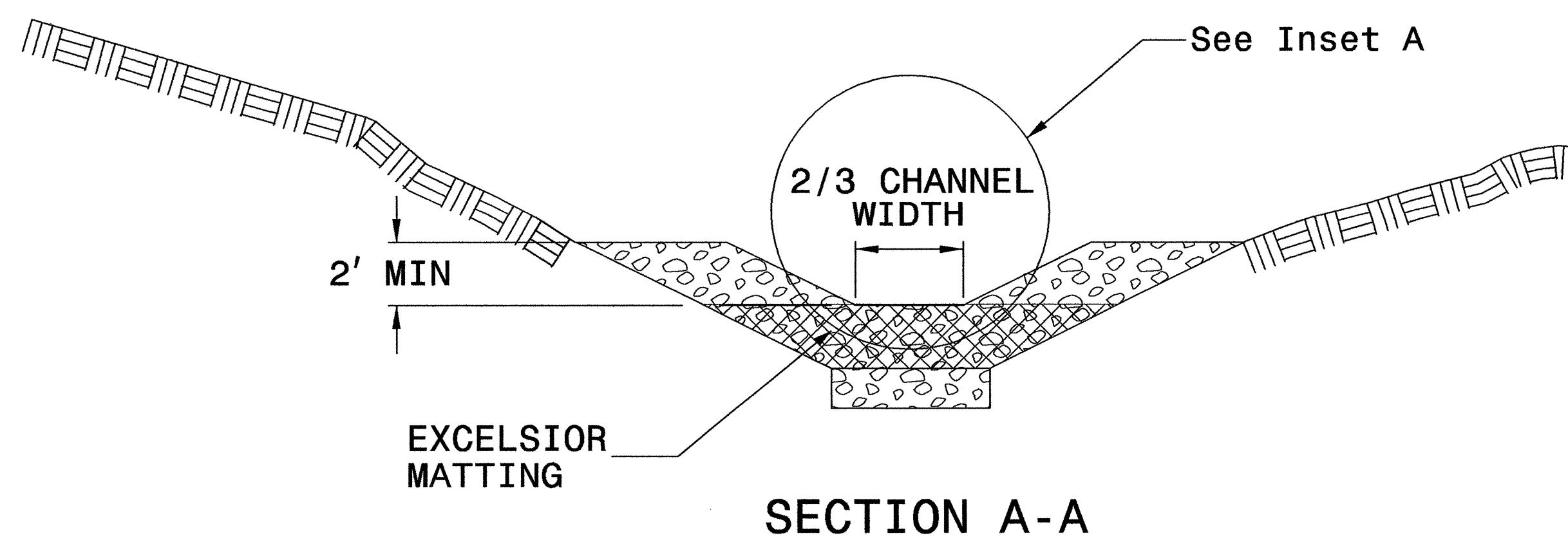
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A

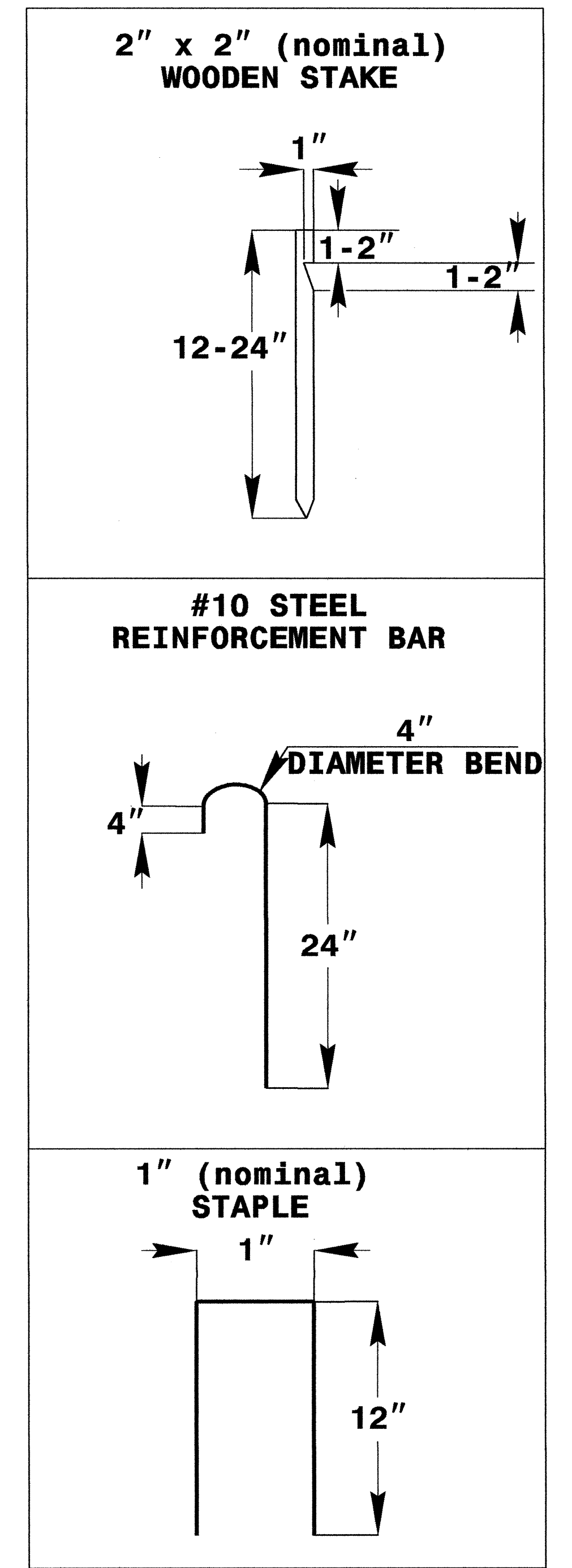
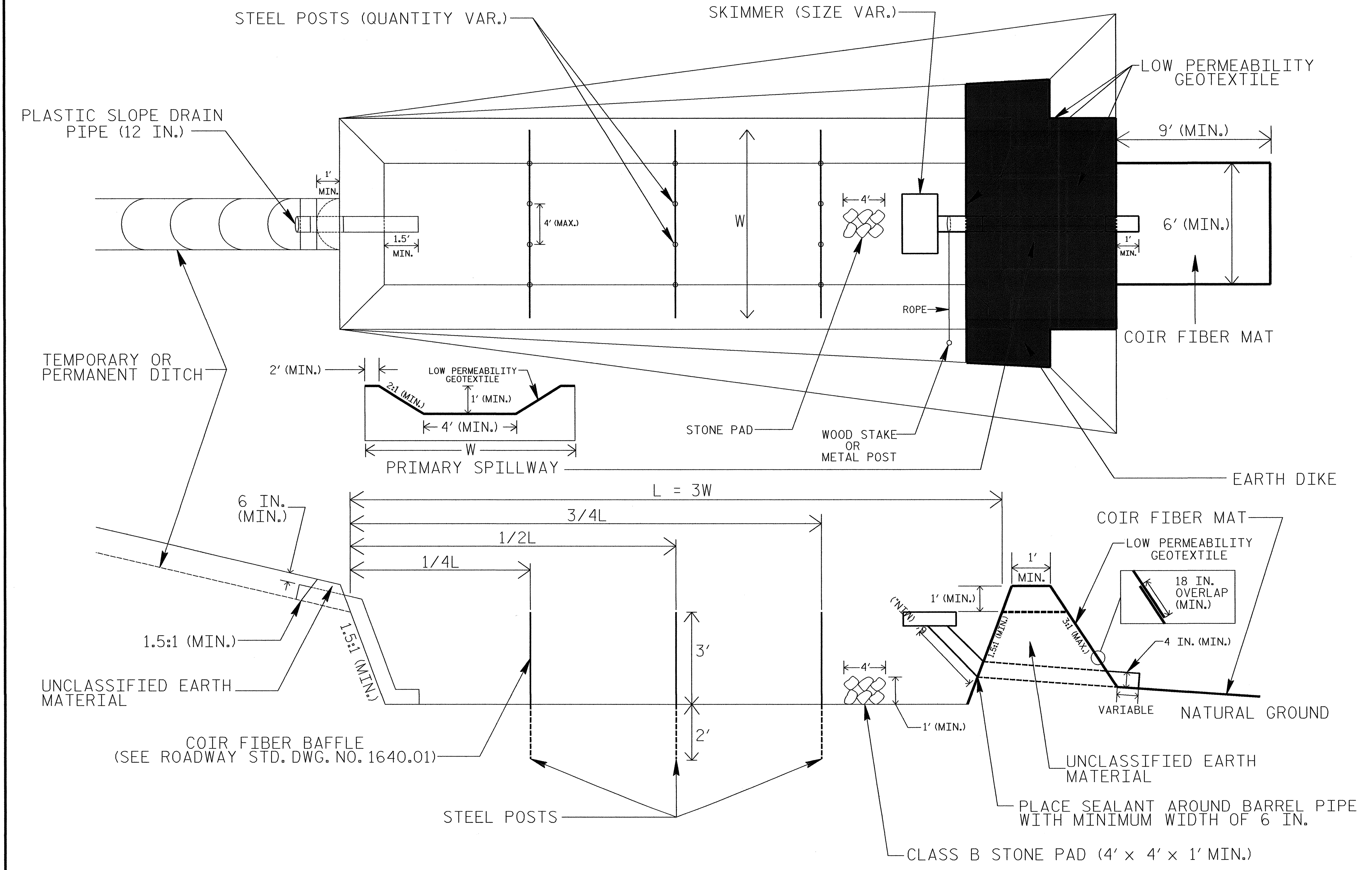


*T = 12" MIN., 18" MAX.

NOT TO SCALE

PROJECT REFERENCE NO. U-3331	SHEET NO. EC-2C
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL (EAST)



NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE PRIMARY SPILLWAY WEIR LENGTH (FT.) USING $Q/0.4$, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
5. PLASTIC SLOPE DRAIN PIPE AT INLET OF BASIN MAY BE REPLACED BY FILTRATION GEOTEXTILE OR TARP AS DIRECTED.
6. LOW PERMEABILITY GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>U-3331</i>	SHEET NO. <i>EC-3</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PLANS PREPARED BY :

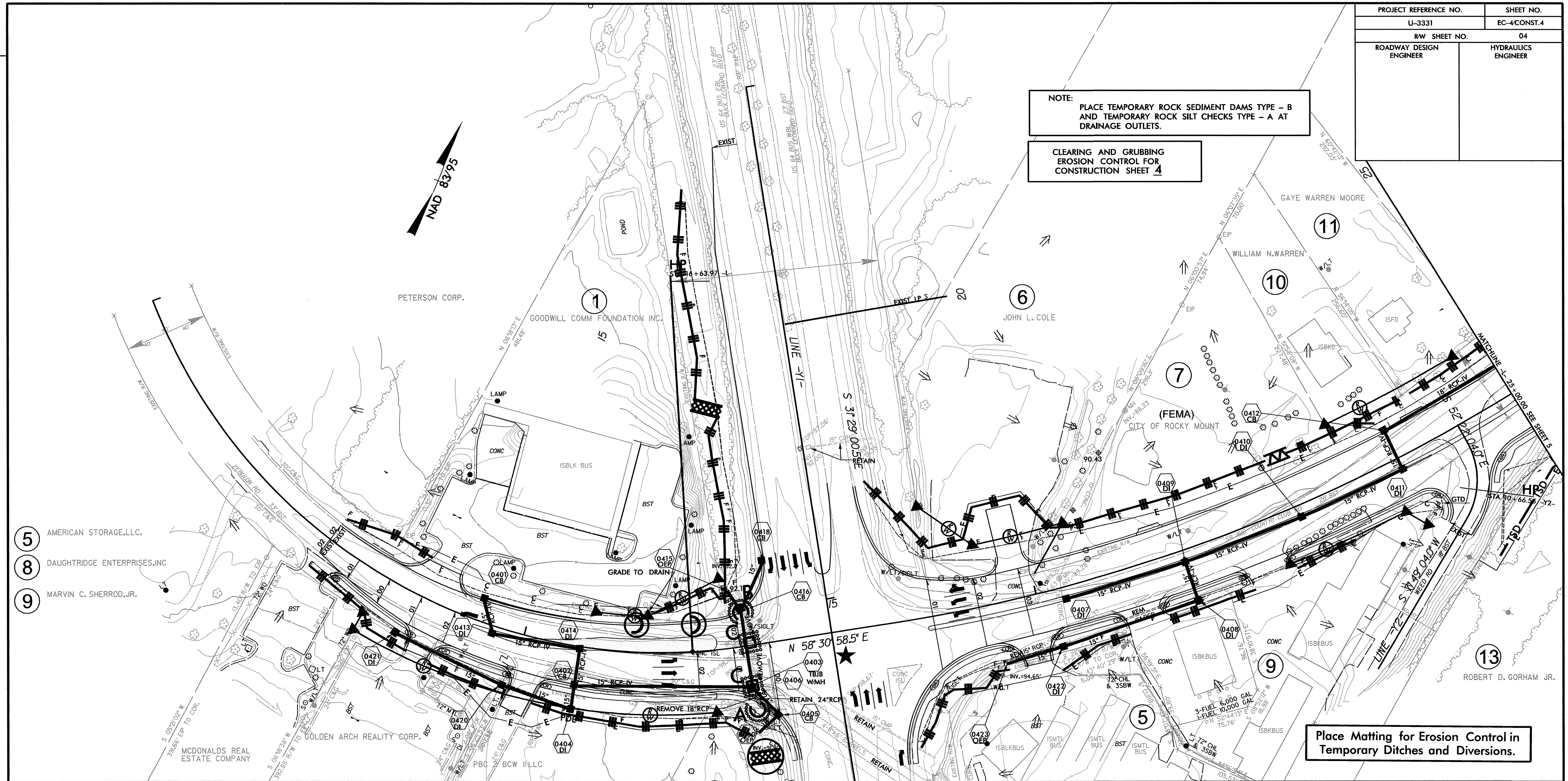
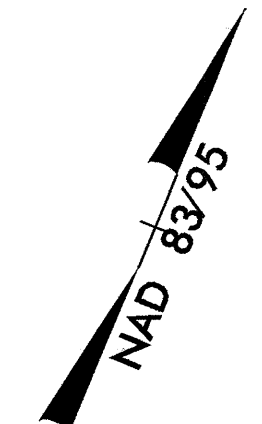
RUMMEL, KLEPPER & KAHL, LLP
 900 RIDGEFIELD DRIVE, SUITE 350
 RALEIGH, NORTH CAROLINA 27609
 NC LICENSE NO. F-0112
 1-888-521-4455 OR 919-878-9560

PROJECT REFERENCE NO.	SHEET NO.
U-3331	EC-4/CONST.4
R/W SHEET NO.	04
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

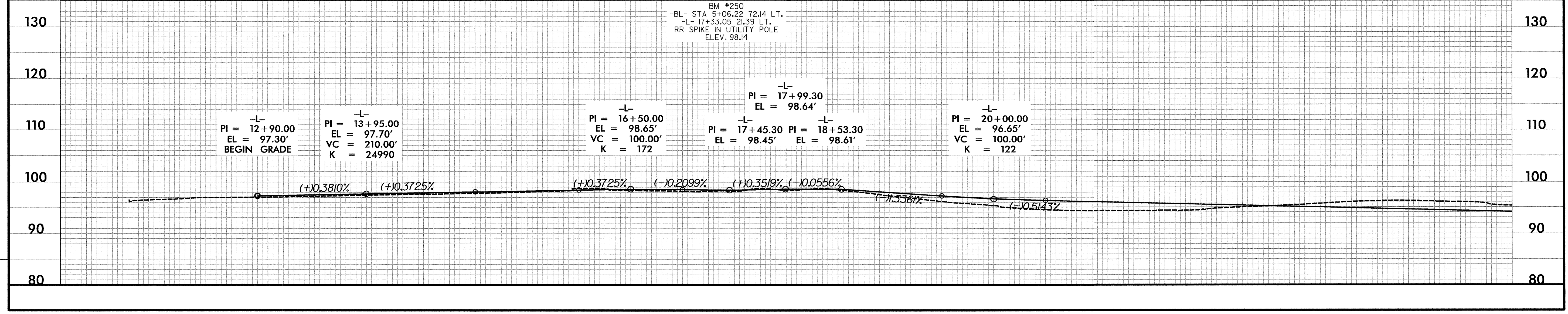
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

Place Matting for Erosion Control in
Temporary Ditches and Diversions.



- 5 AMERICAN STORAGE, LLC.
- 8 DAUGHTRIDGE ENTERPRISES, INC.
- 9 MARVIN C. SHERROD, JR.

REVISIONS



2/2/04
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NOTE: UTILIZE TEMPORARY ROCK SEDIMENT DAM TYPE - B AS STILLING BASIN WHERE APPLICABLE.

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

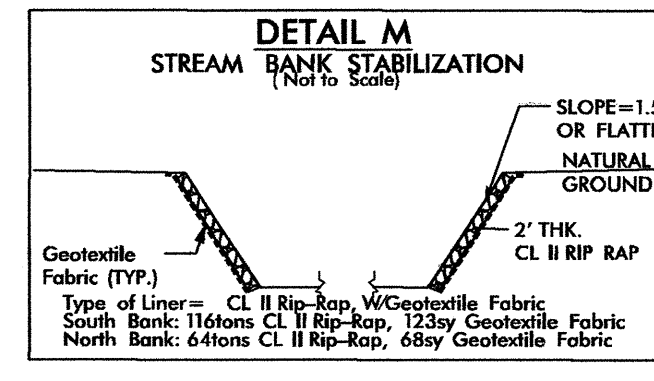
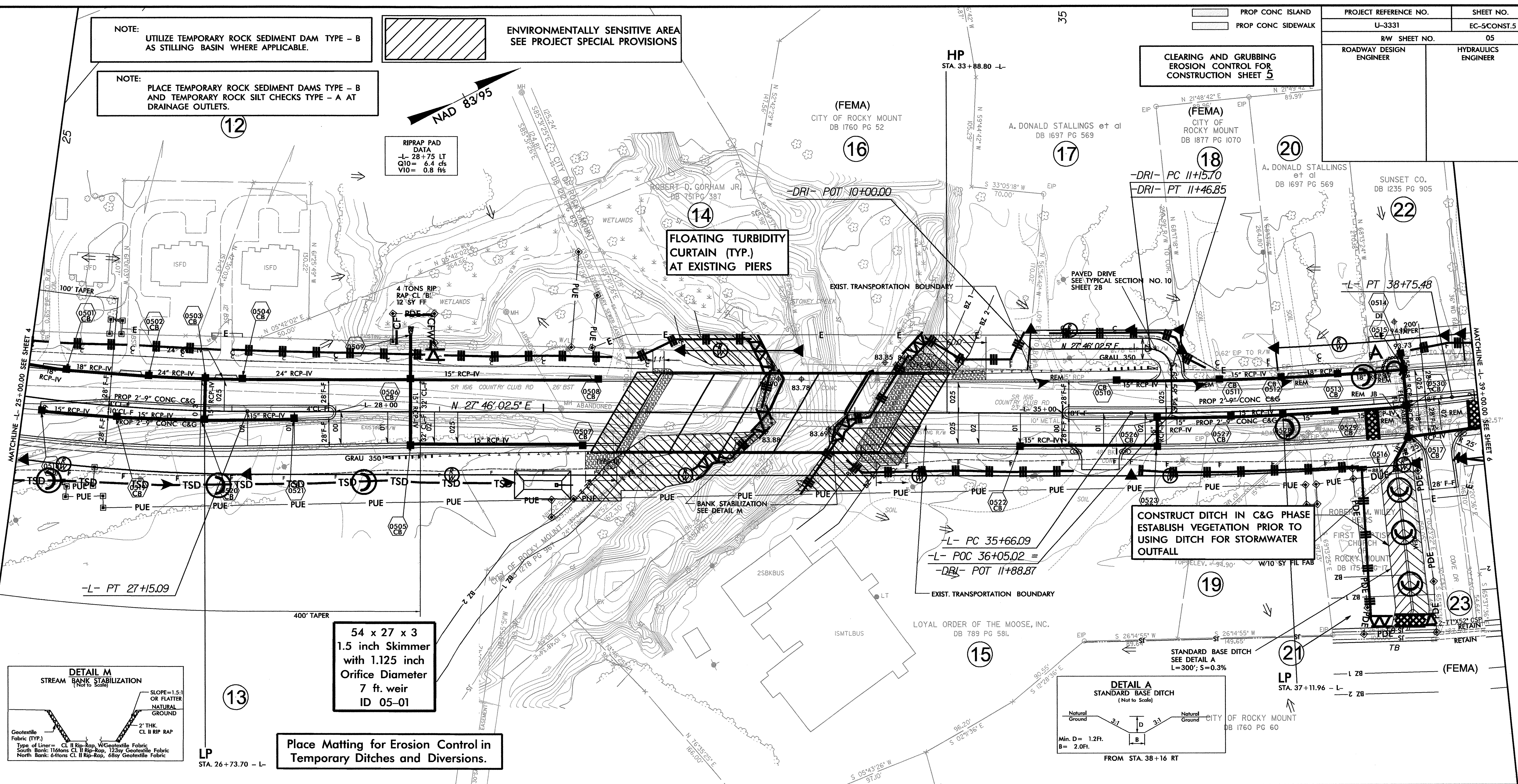
ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

RIPRAP PAD DATA
L- 28+75 LT
Q10 = 6.4 cfs
V10 = 0.8 f/s

FLOATING TURBIDITY CURTAIN (TYP.) AT EXISTING PIERS

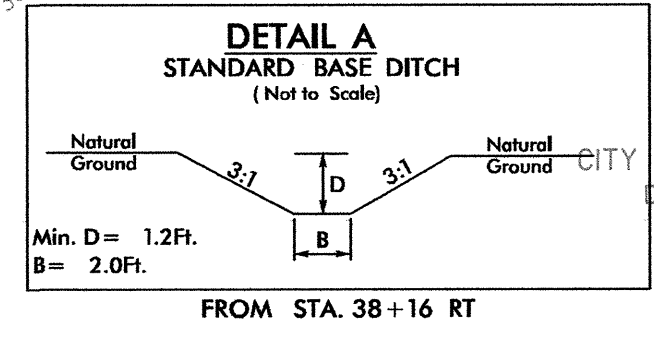
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 5

CONSTRUCT DITCH IN C&G PHASE ESTABLISH VEGETATION PRIOR TO USING DITCH FOR STORMWATER OUTFALL



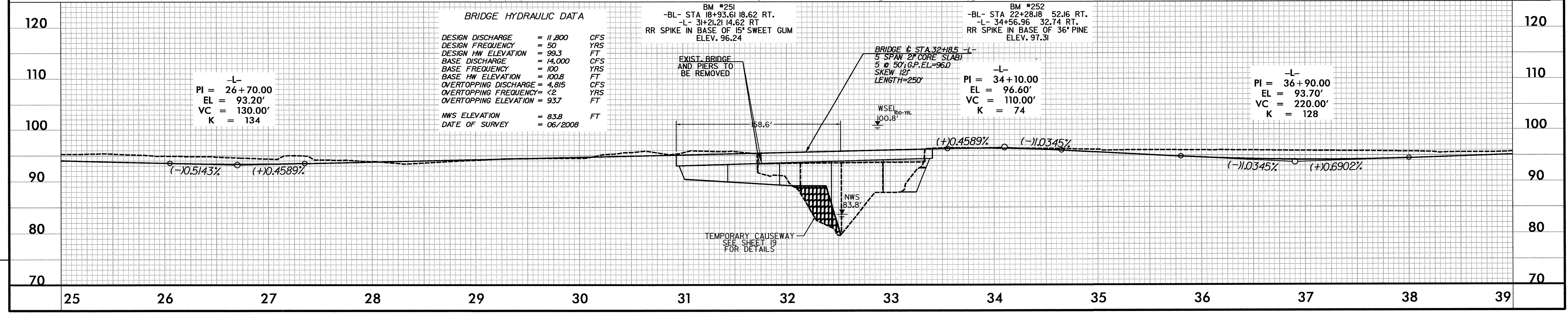
54 x 27 x 3
1.5 inch Skimmer
with 1.125 inch
Orifice Diameter
7 ft. weir
ID 05-01

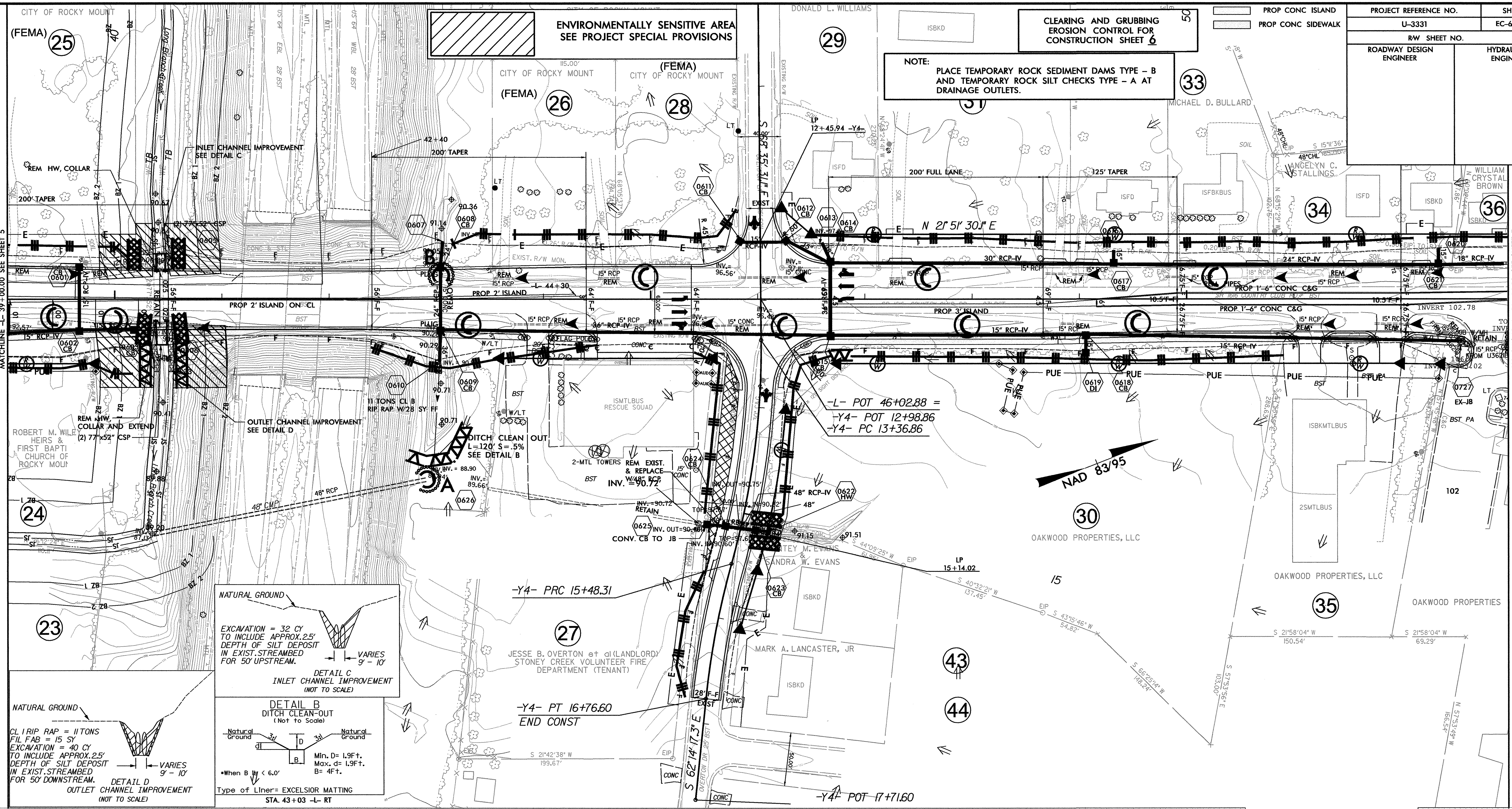
Place Matting for Erosion Control in Temporary Ditches and Diversions.



REVISIONS

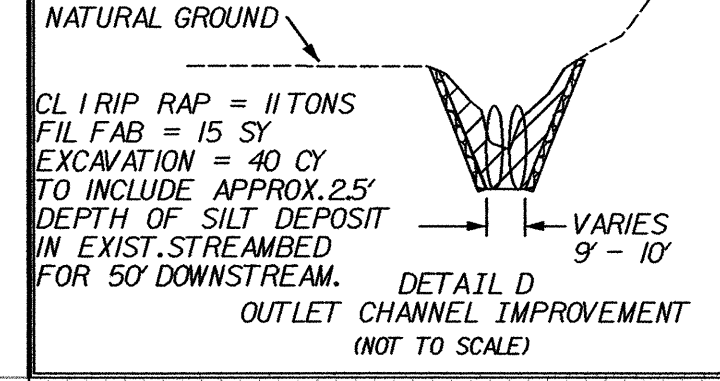
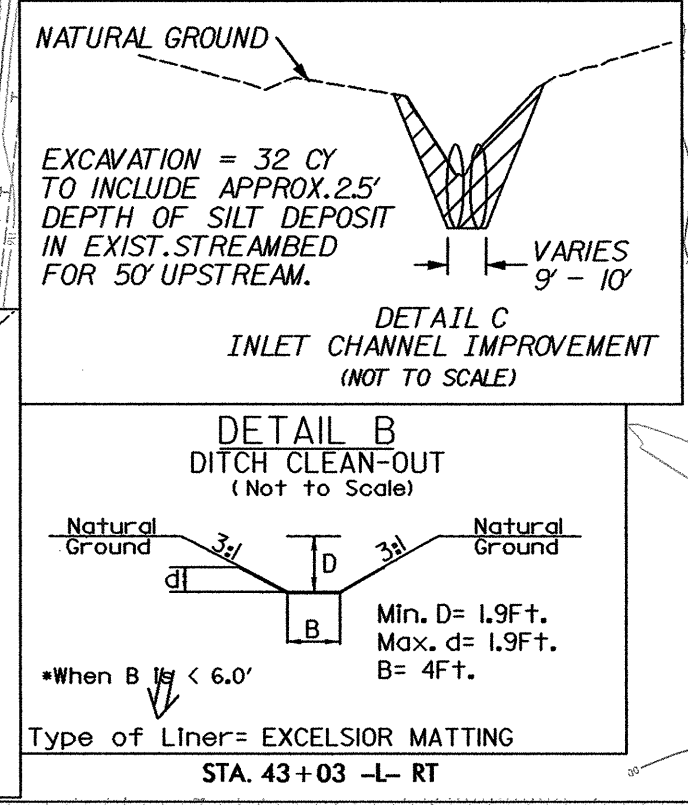
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Flayp





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

PROJECT REFERENCE NO.	U-3331	SHEET NO.	EC-6/CONST.6
R/W SHEET NO.	06		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	



PIPE HYDRAULIC DATA

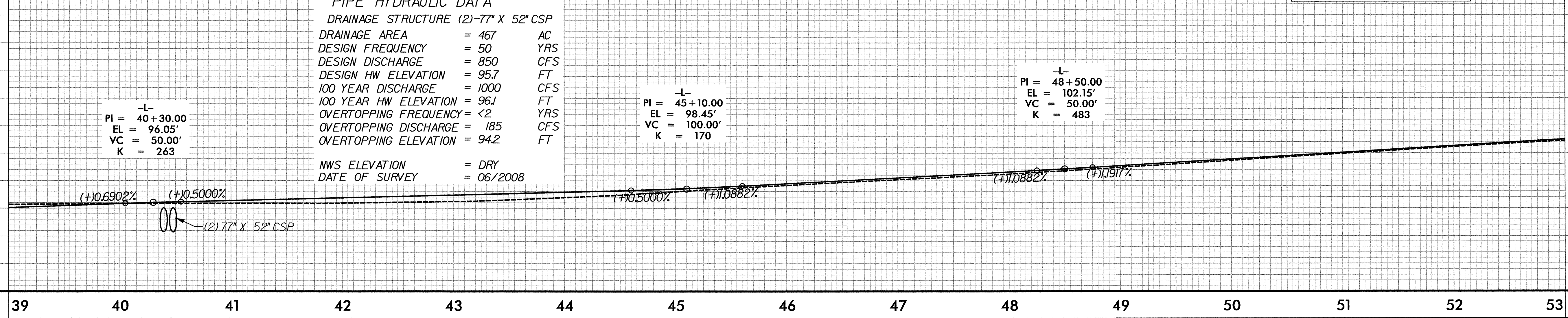
DRAINAGE STRUCTURE (2)-77" X 52" CSP

DRAINAGE AREA	= 467	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 850	CFS
DESIGN HW ELEVATION	= 95.7	FT
100 YEAR DISCHARGE	= 1000	CFS
100 YEAR HW ELEVATION	= 96J	FT
OVERTOPPING FREQUENCY	= <2	YRS
OVERTOPPING DISCHARGE	= 185	CFS
OVERTOPPING ELEVATION	= 94.2	FT

NWS ELEVATION = DRY
DATE OF SURVEY = 06/2008

-L-
PI = 45+10.00
EL = 98.45'
VC = 100.00'
K = 170

-L-
PI = 48+50.00
EL = 102.15'
VC = 50.00'
K = 483



REVISIONS

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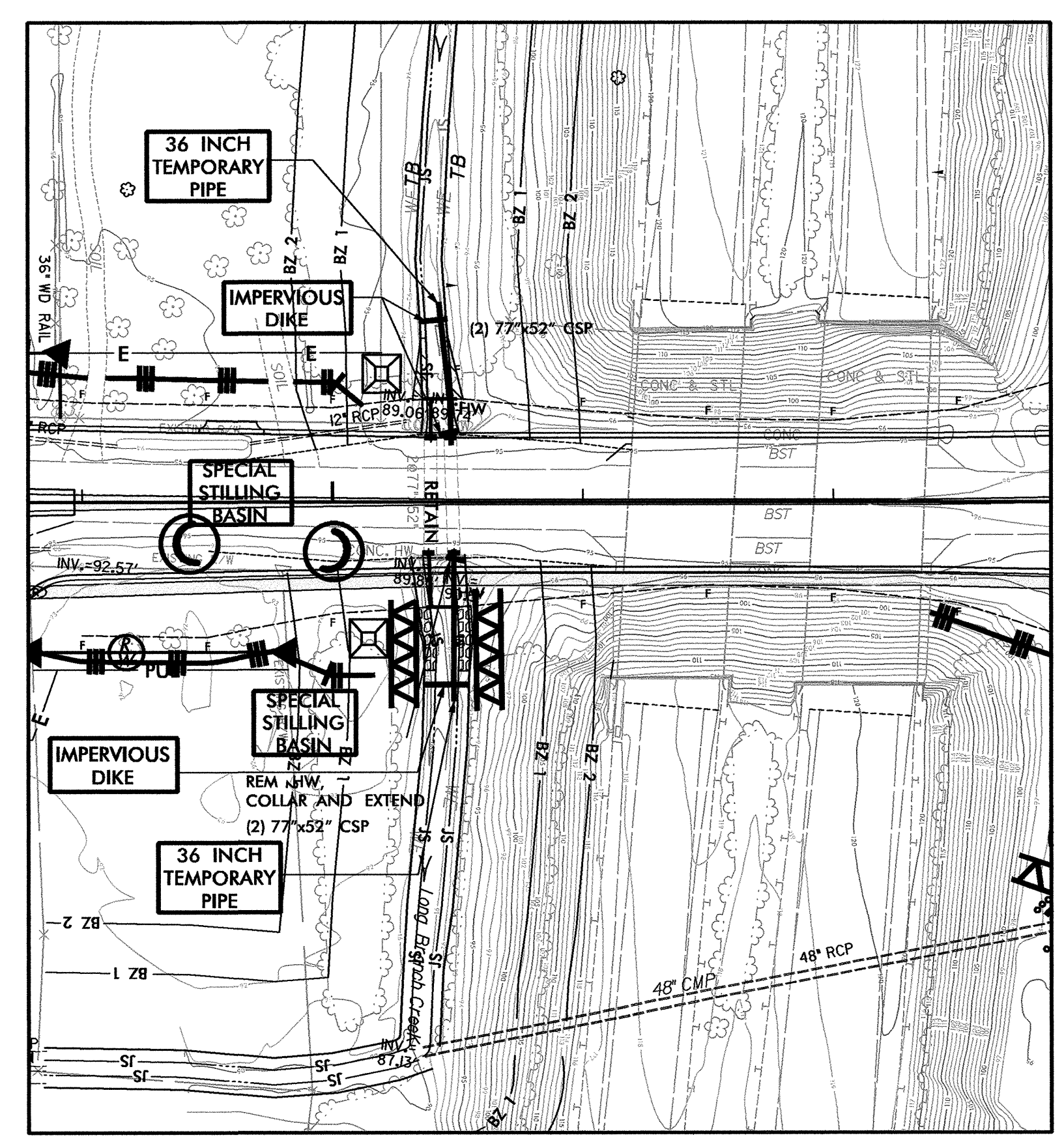
PROJECT REFERENCE NO.	SHEET NO.
U-3331	EC-6A
RW SHEET NO. 06	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INSTALL PIPE(S) IN JURISDICTIONAL AREAS ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

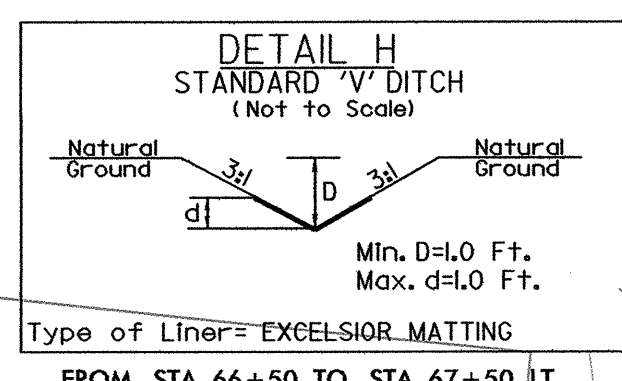
CULVERT CONSTRUCTION SEQUENCE STA. 40+44 -L-

PHASE I

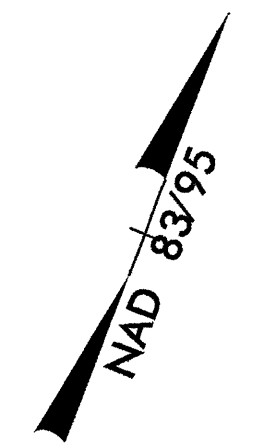
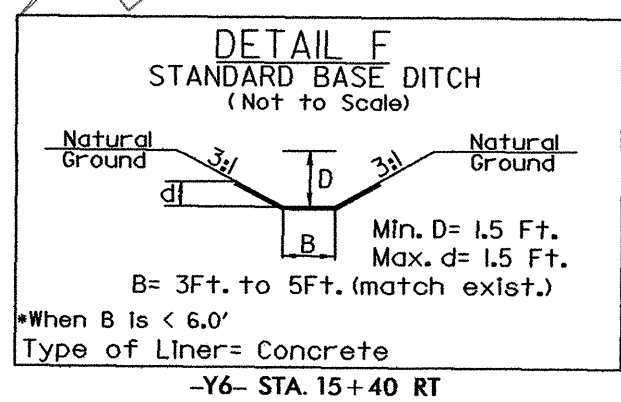
1. INSTALL 36" TEMPORARY PIPE AT BOTH THE UPSTREAM AND DOWNSTREAM END OF THE EXISTING CULVERTS. INSTALL IMPERVIOUS DIKES AS SHOWN. DIVERT STREAM THROUGH THE EASTERN BOX.
2. UTILIZE A SPECIAL STILLING BASIN OR CONSTRUCT A 35'x20' TEMPORARY STILLING BASIN WITH A MINIMUM VOLUME OF 3700 CY AT APPROX. STA. 40+18 LT & STA. 40+22 RT.
3. CONSTRUCT BOTH CULVERT EXTENSIONS WHILE STREAM FLOW IS CONTAINED IN THE TEMPORARY PIPE.
4. CONSTRUCT INLET AND OUTLET CHANNEL IMPROVEMENTS.
5. REMOVE ALL TEMPORARY PIPING AND IMPERVIOUS DIKES. DIVERT STREAM THROUGH NEW CULVERT EXTENSIONS AND CHANNEL IMPROVEMENTS.



REVISIONS



TIE TO EXISTING CONCRETE LINED DITCH
 STANDARD BASE DITCH
 L=56'; S=0.89%
 SEE DETAIL F

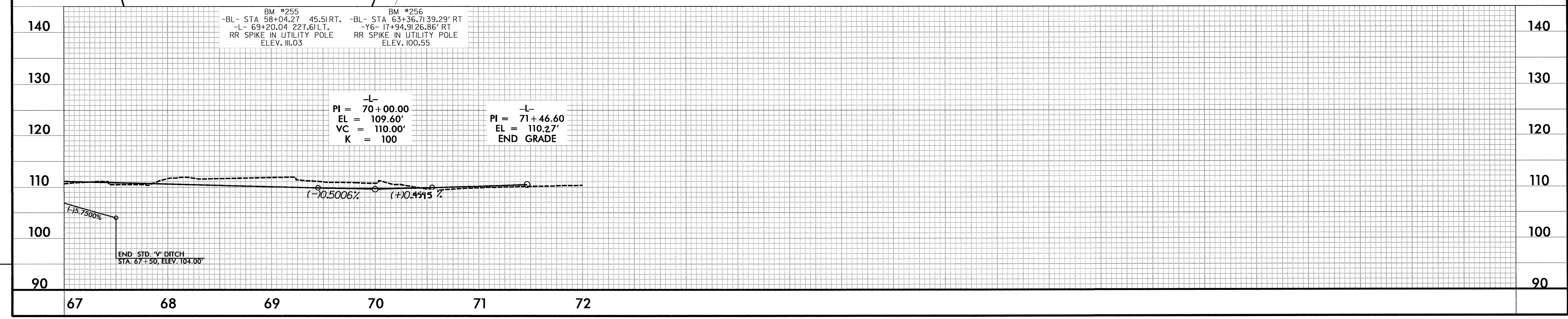
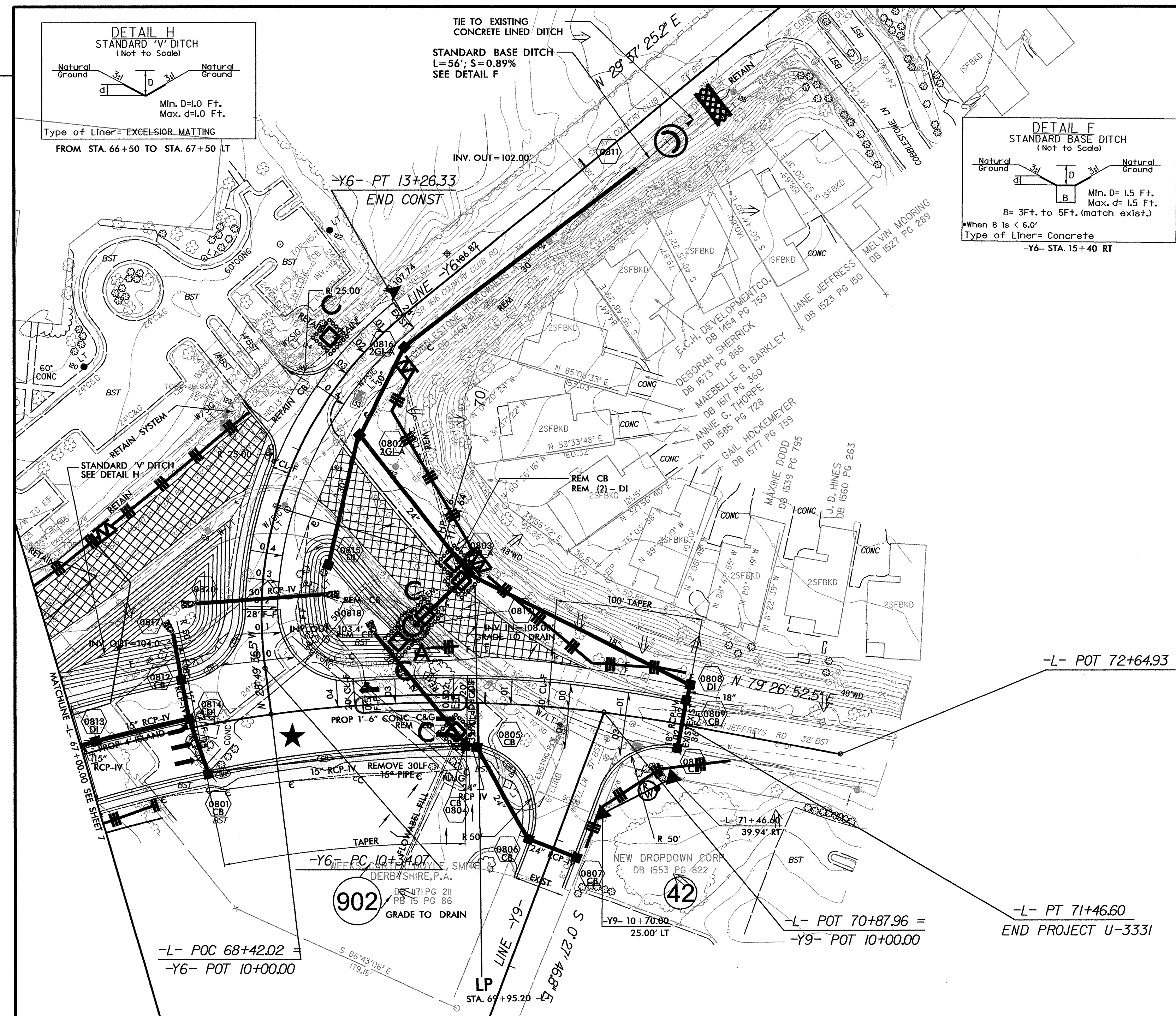


CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 8

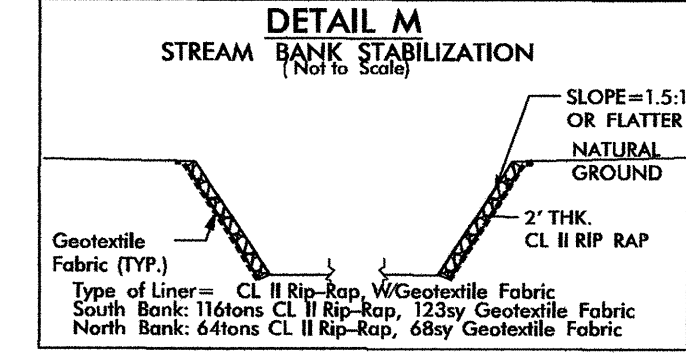
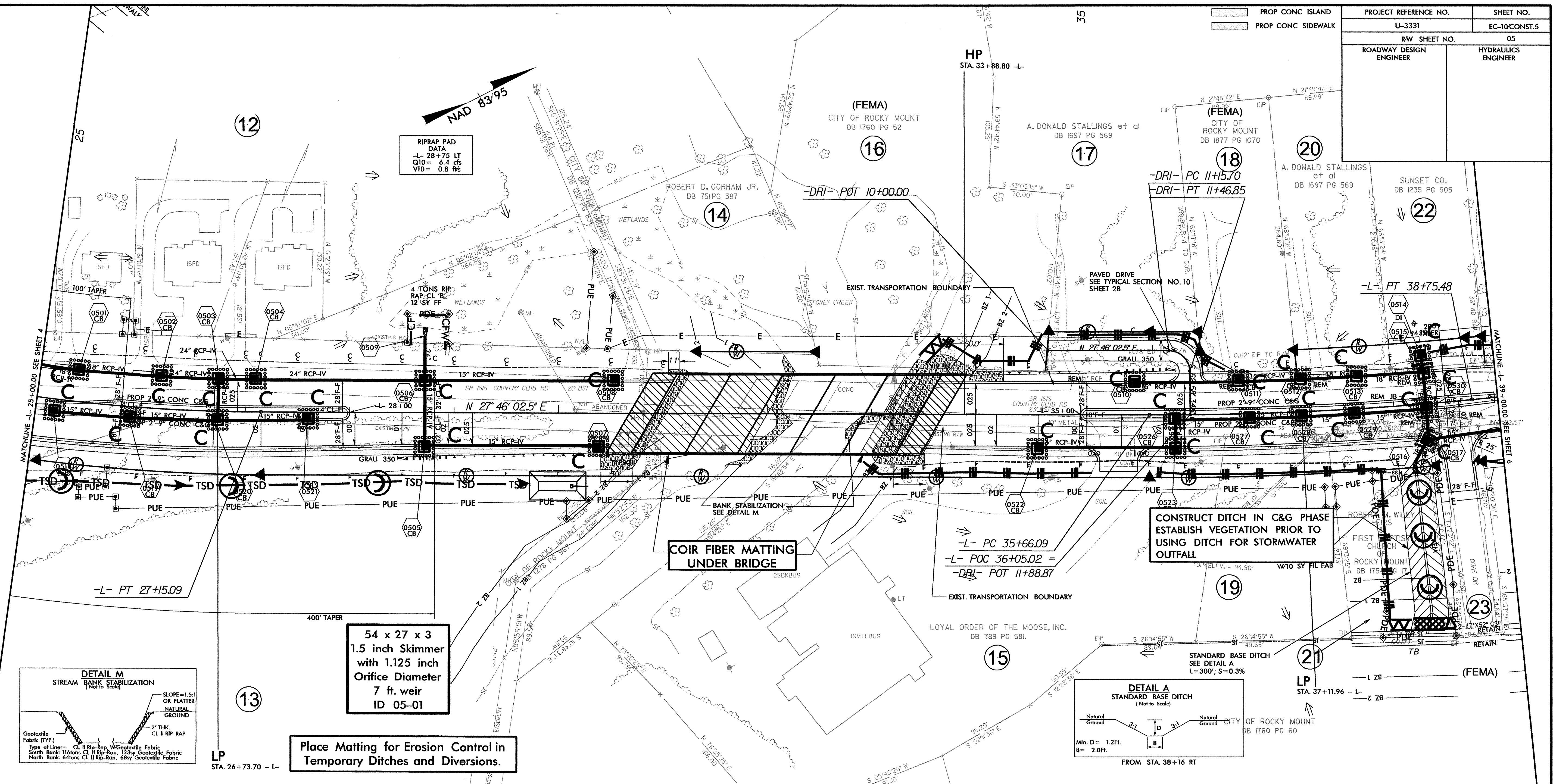
PROJECT REFERENCE NO. U-3331	SHEET NO. EC-8.CONST.8
RW SHEET NO. 08	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

REVISIONS

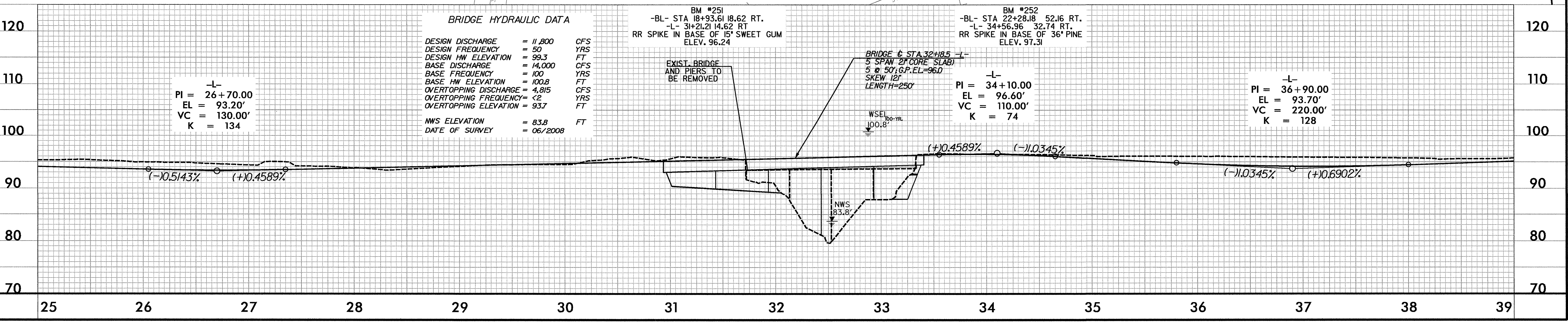
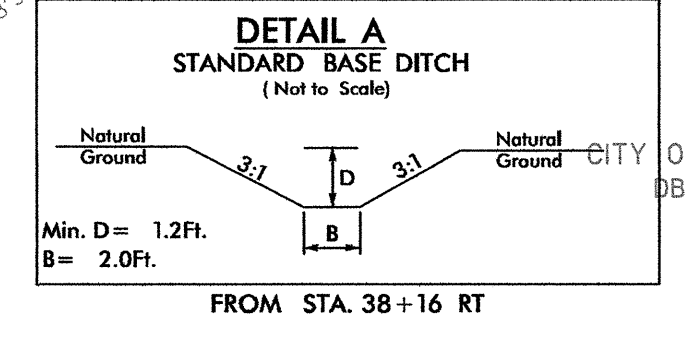


PROJECT REFERENCE NO. U-3331	SHEET NO. EC-10/CONST.5
RW SHEET NO. 05	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

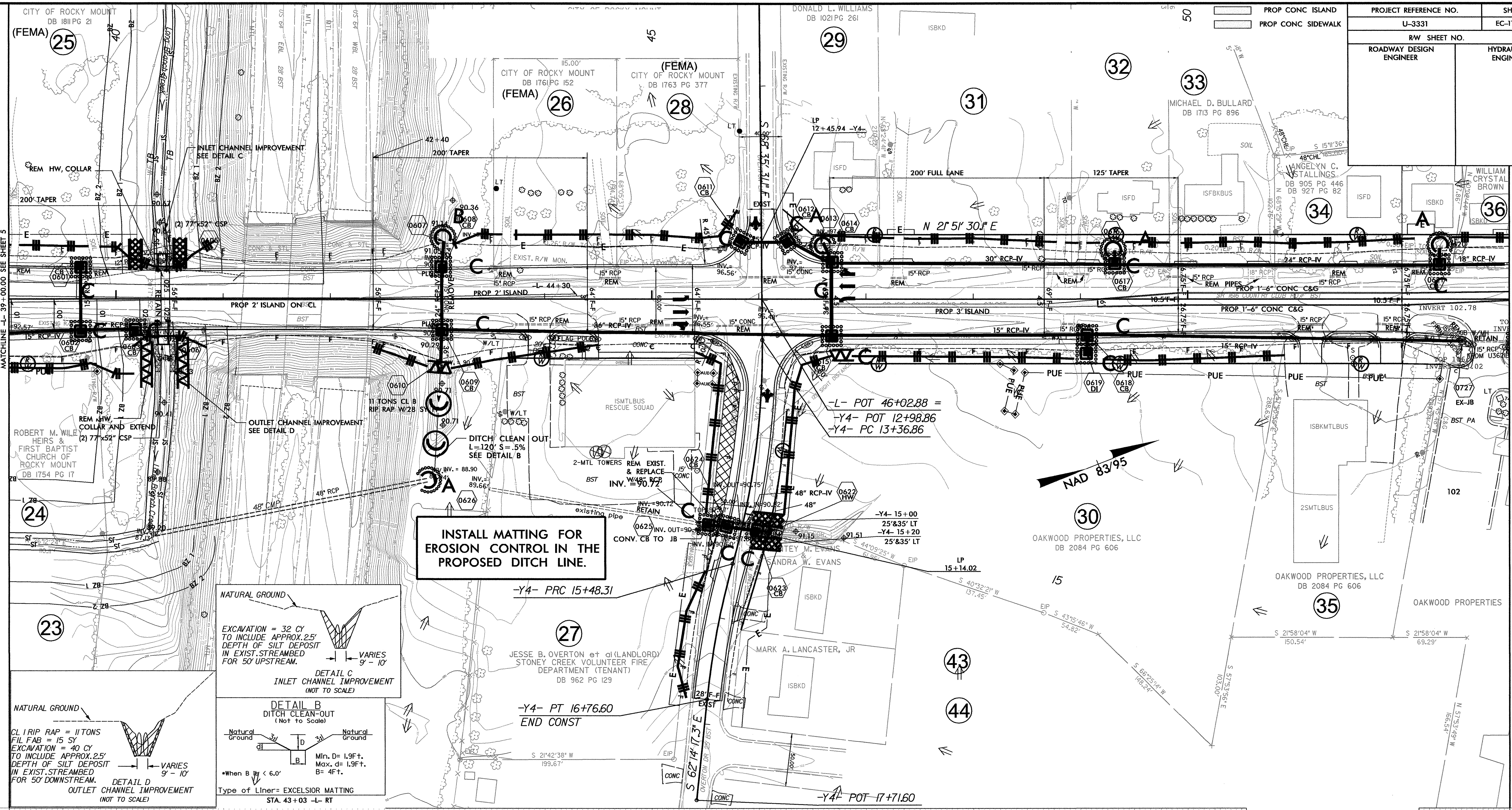


**54 x 27 x 3
1.5 inch Skimmer
with 1.125 inch
Orifice Diameter
7 ft. weir
ID 05-01**

**Place Matting for Erosion Control in
Temporary Ditches and Diversions.**



11-43000

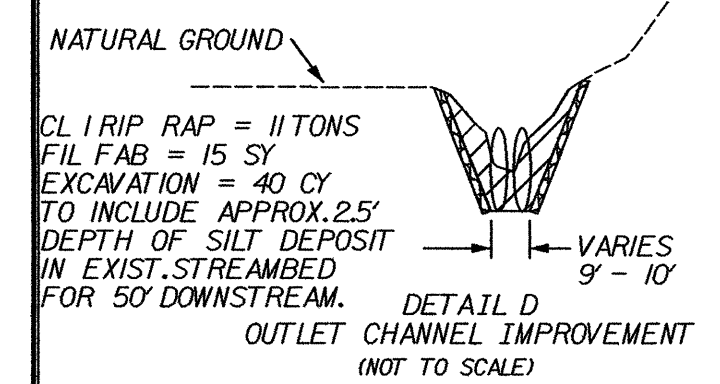
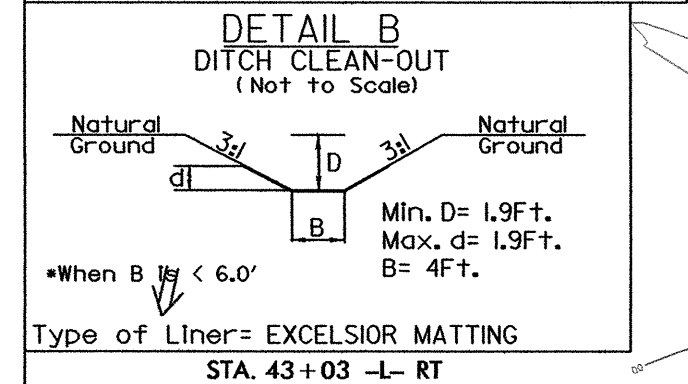
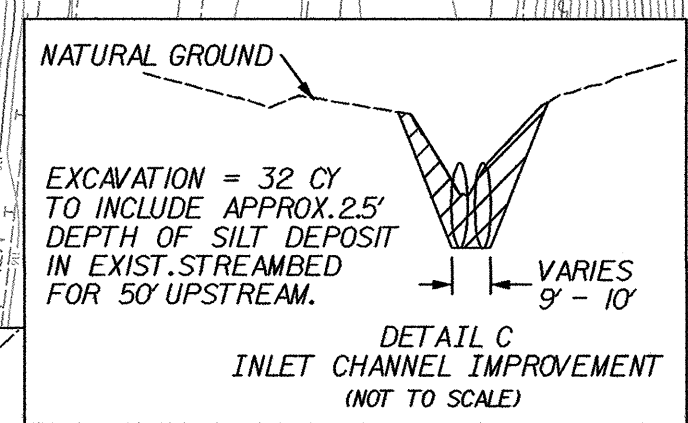


PROJECT REFERENCE NO.	SHEET NO.
U-3331	EC-1VCONST.6
RAW SHEET NO.	06
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATCHLINE -L- 39+00.00 SEE SHEET 5

MATCHLINE -L- 53+00.00 SEE SHEET 7

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.



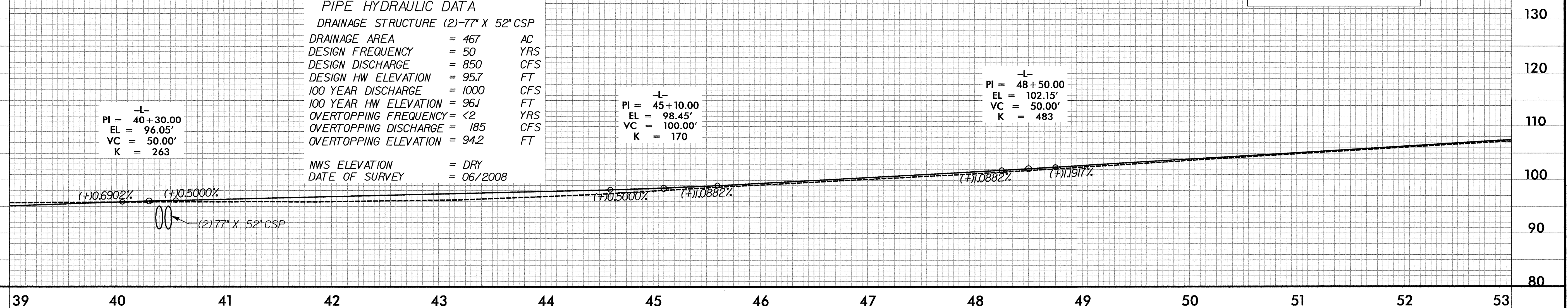
PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE (2)-77" X 52" CSP	
DRAINAGE AREA	= 467 AC
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 850 CFS
DESIGN HW ELEVATION	= 95.7 FT
100 YEAR DISCHARGE	= 1000 CFS
100 YEAR HW ELEVATION	= 96.1 FT
OVERTOPPING FREQUENCY	= <2 YRS
OVERTOPPING DISCHARGE	= 185 CFS
OVERTOPPING ELEVATION	= 94.2 FT
NWS ELEVATION	= DRY
DATE OF SURVEY	= 06/2008

-L-
PI = 40+30.00
EL = 96.05'
VC = 50.00'
K = 263

-L-
PI = 45+10.00
EL = 98.45'
VC = 100.00'
K = 170

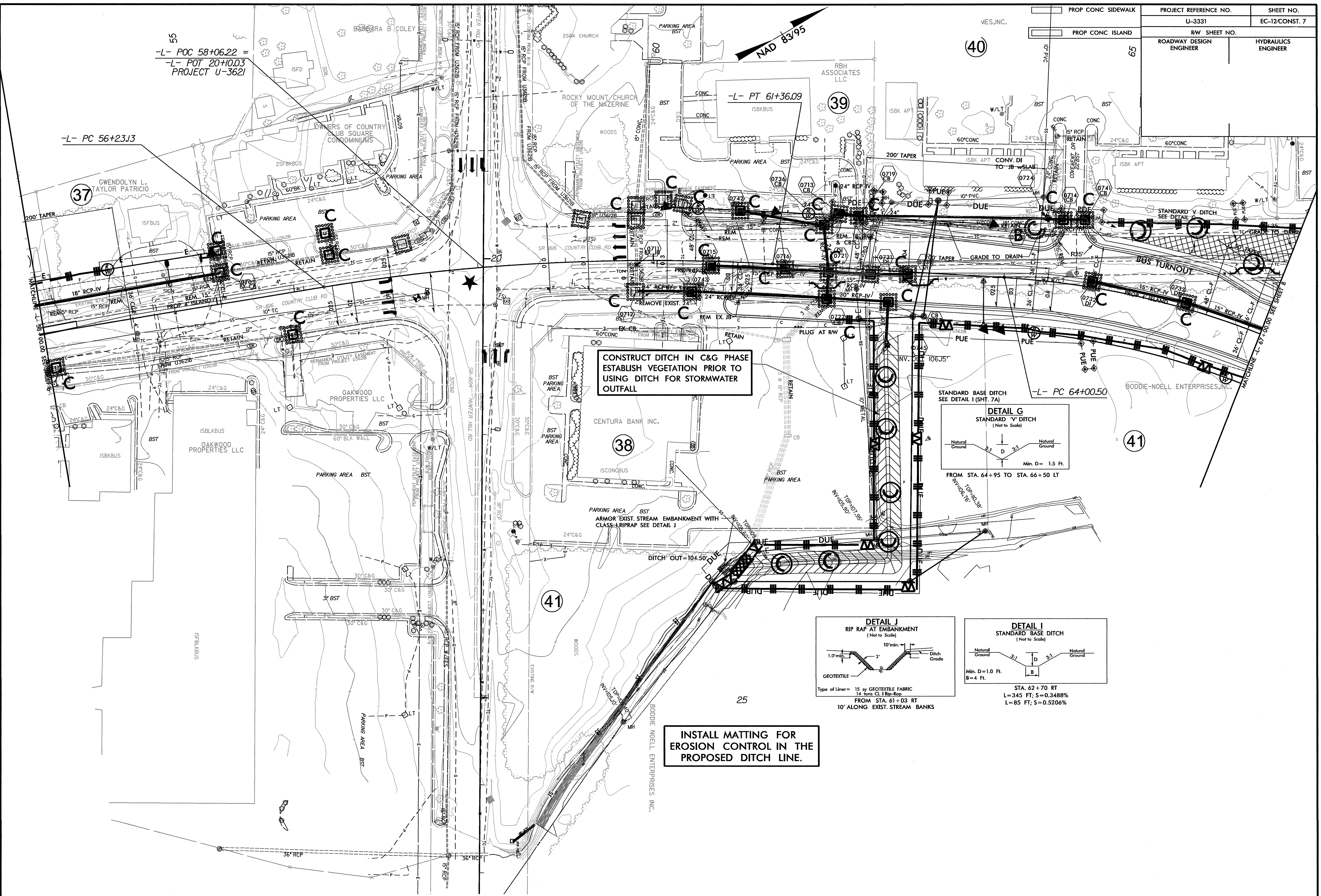
-L-
PI = 48+50.00
EL = 102.15'
VC = 50.00'
K = 483



REVISIONS

3/7/2014 Hydraulics CADD\Erosion Control\0331_hyd.ec.11.dgn
R102

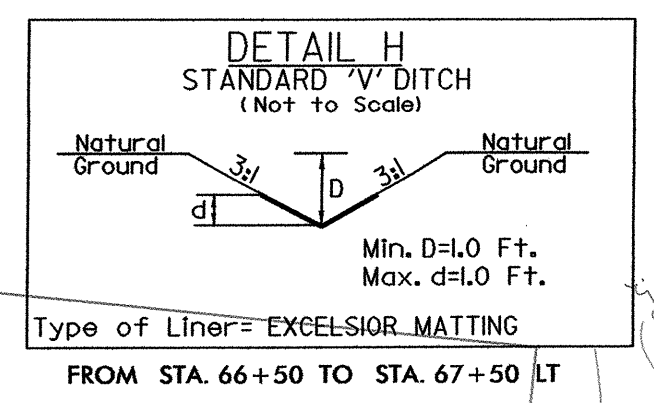
PROJECT REFERENCE NO.	SHEET NO.
U-3331	EC-12.CONST. 7
RDW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	



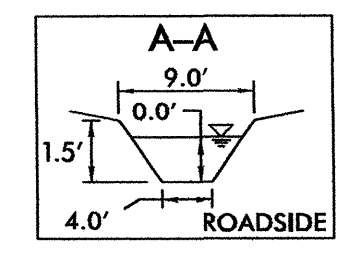
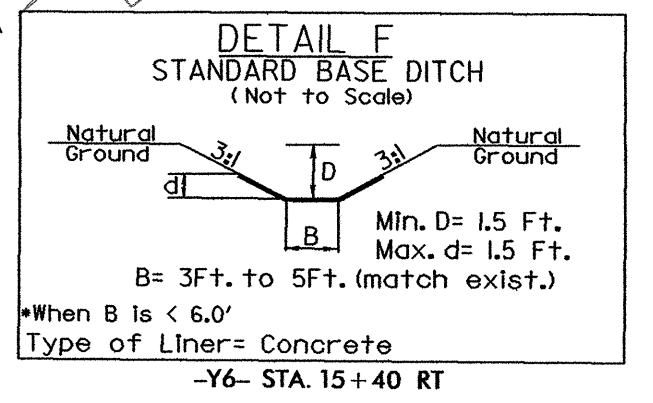
REVISIONS

3/7/2014 R:\Hydraulics\CADD\Erosion Control\U3331_hyd_ec_12.dgn Files

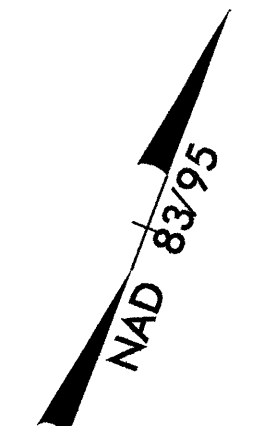
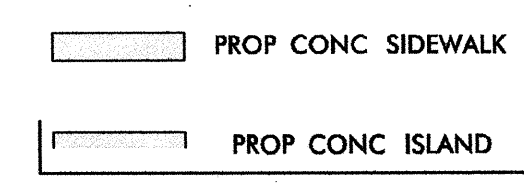
PROJECT REFERENCE NO.	SHEET NO.
U-3331	EC-13/CONST.8
RAW SHEET NO.	08
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



TIE TO EXISTING CONCRETE LINED DITCH
STANDARD BASE DITCH
L=56'; S=0.89%
SEE DETAIL F



INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.



REVISIONS

