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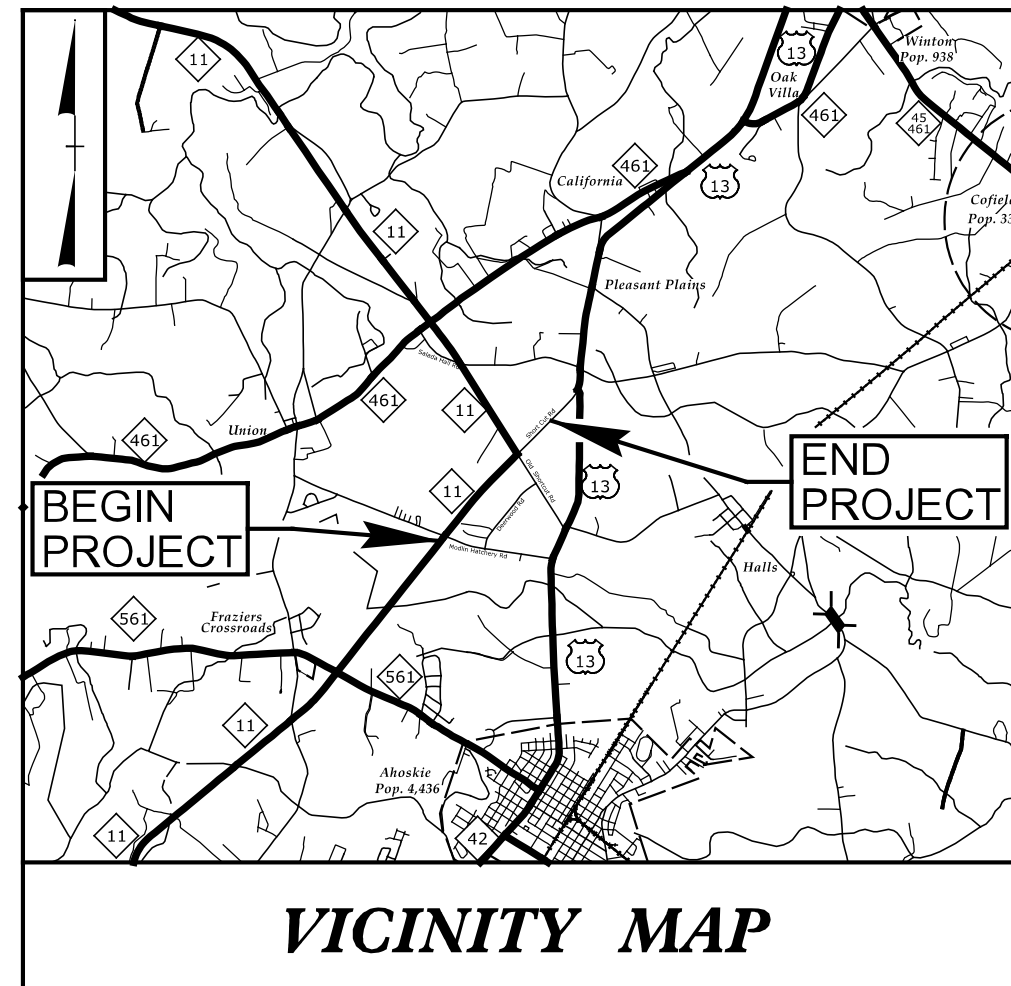
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TIP PROJECT: R-5311A

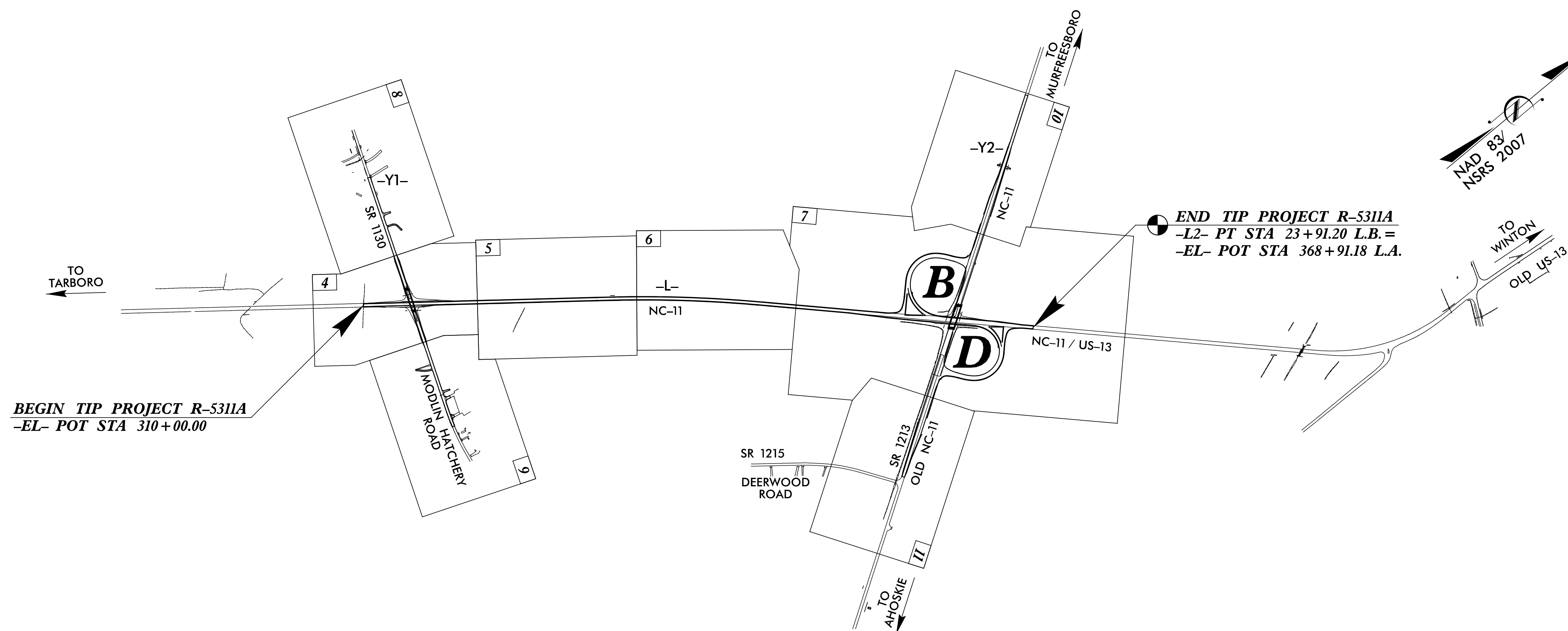
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
HERTFORD COUNTY

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



VICINITY MAP

**LOCATION: WEST OF MODLIN ROAD TO EAST OF
NC 11/SR 1213 (OLD NC 11 ROAD). CONSTRUCT GRADE
SEPARATION AT SR 1130 (MODLIN ROAD) AND
INTERCHANGE AT OLD NC 11/SR 1213 (OLD NC 11 ROAD).
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURES**



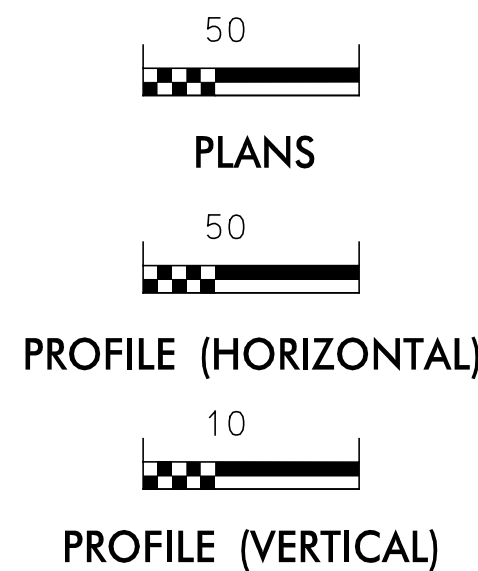
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5311A	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	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
1632.03	Type C	C
	Skimmer Basin	▭
	Tiered Skimmer Basin	▭
	Infiltration Basin	▭

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

GRAPHIC SCALE



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared in the Office of:
ICA ENGINEERING, INC.
5121 KINGDOM WAY, SUITE 100
RALEIGH NC, 27607
NC License No. F-0258
2012 STANDARD SPECIFICATIONS

Designed by:
STACEY H. BAILEY, P.E. 3074
NAME LEVEL III CERTIFICATION NO.

Reviewed in the Office of:
ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611
2012 STANDARD SPECIFICATIONS

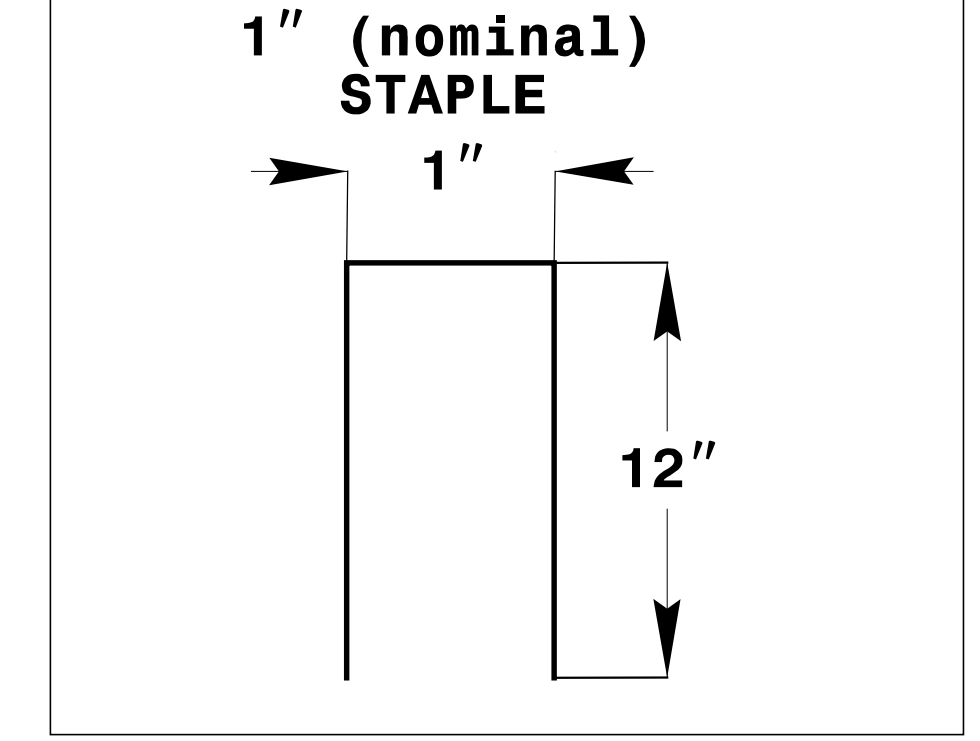
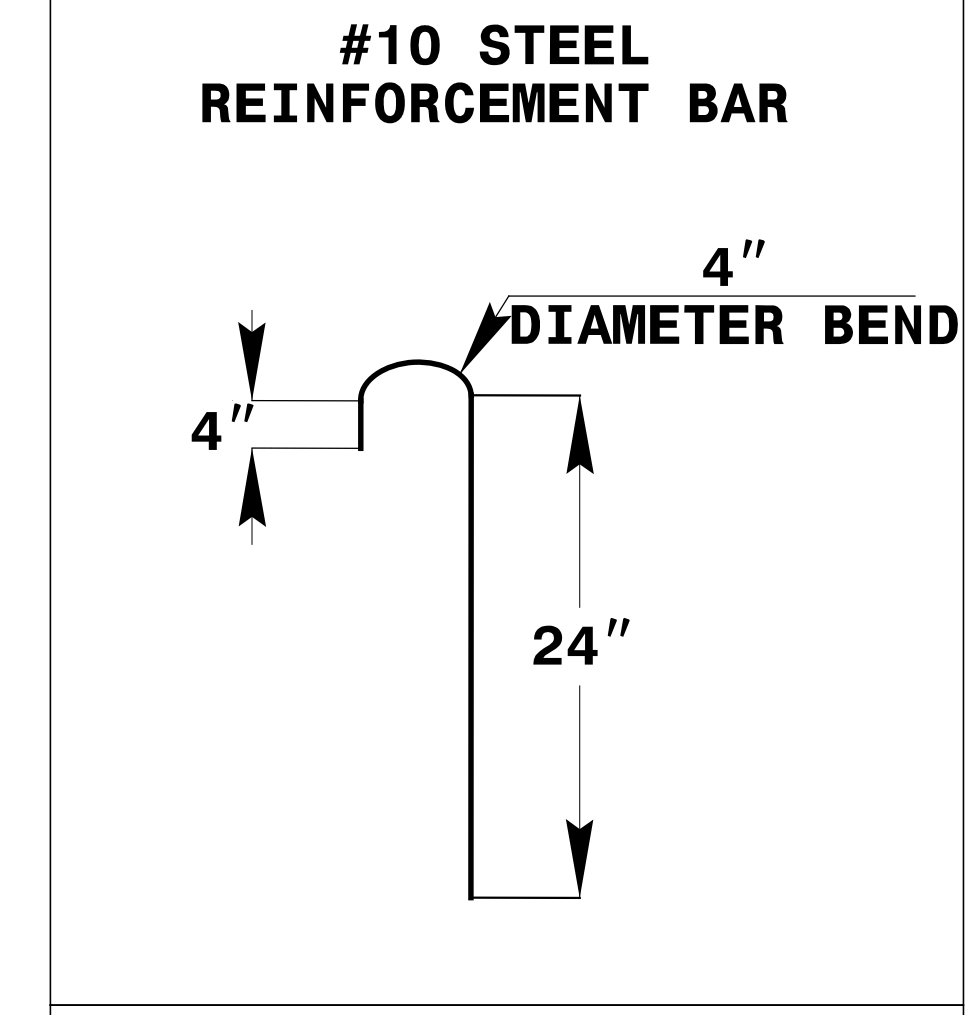
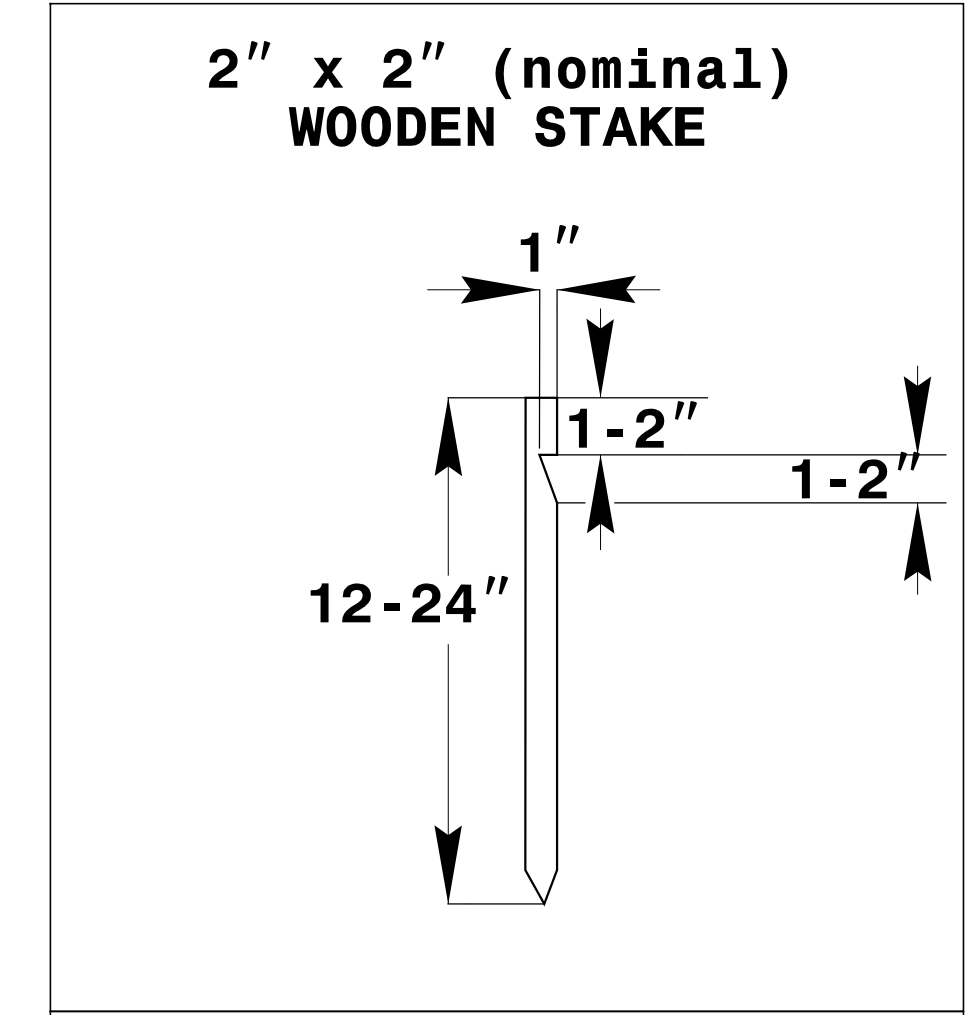
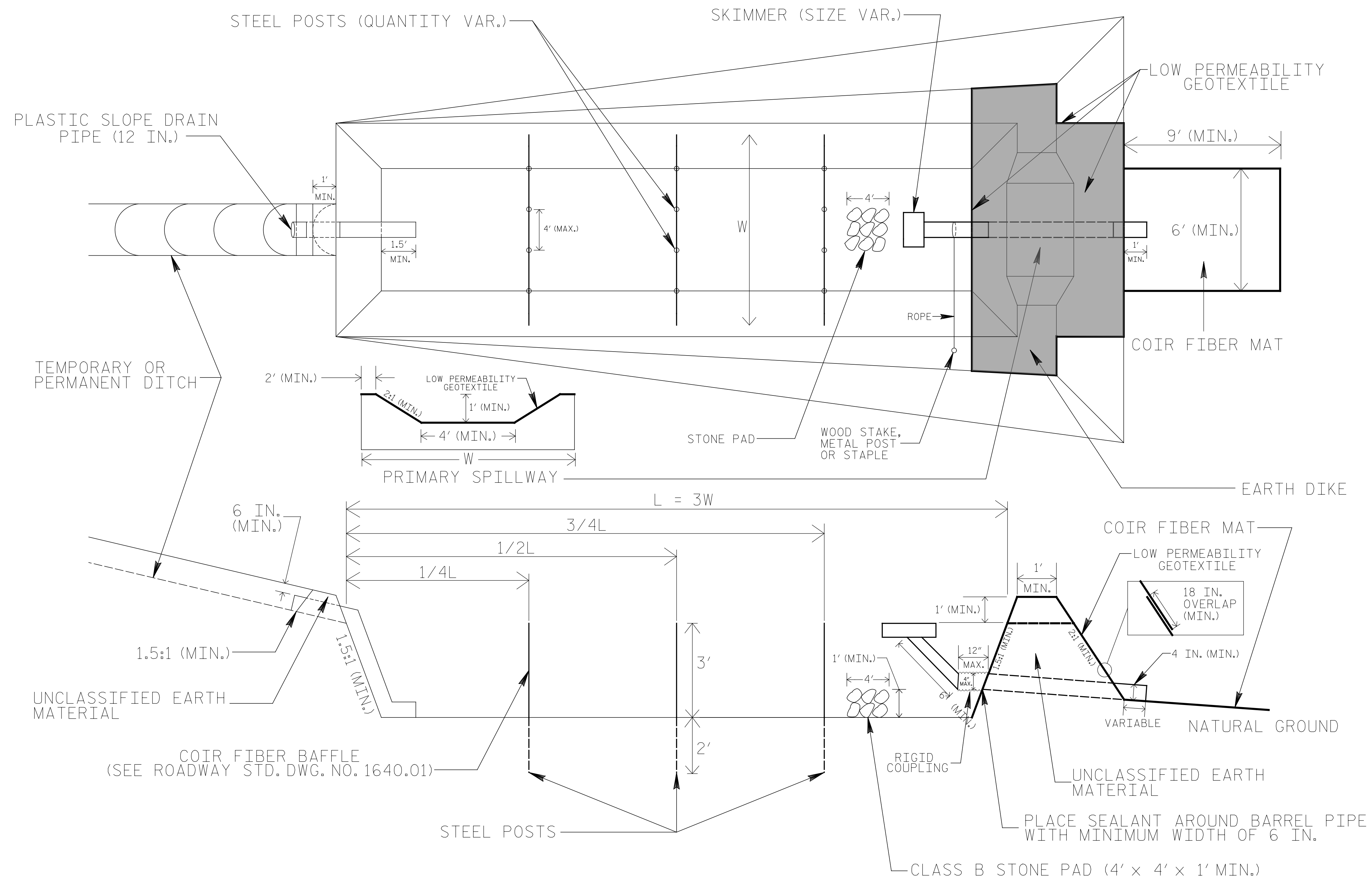
Reviewed by:
JEFF WALSTON, PE

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	

SKIMMER BASIN WITH BAFFLES DETAIL (EAST)



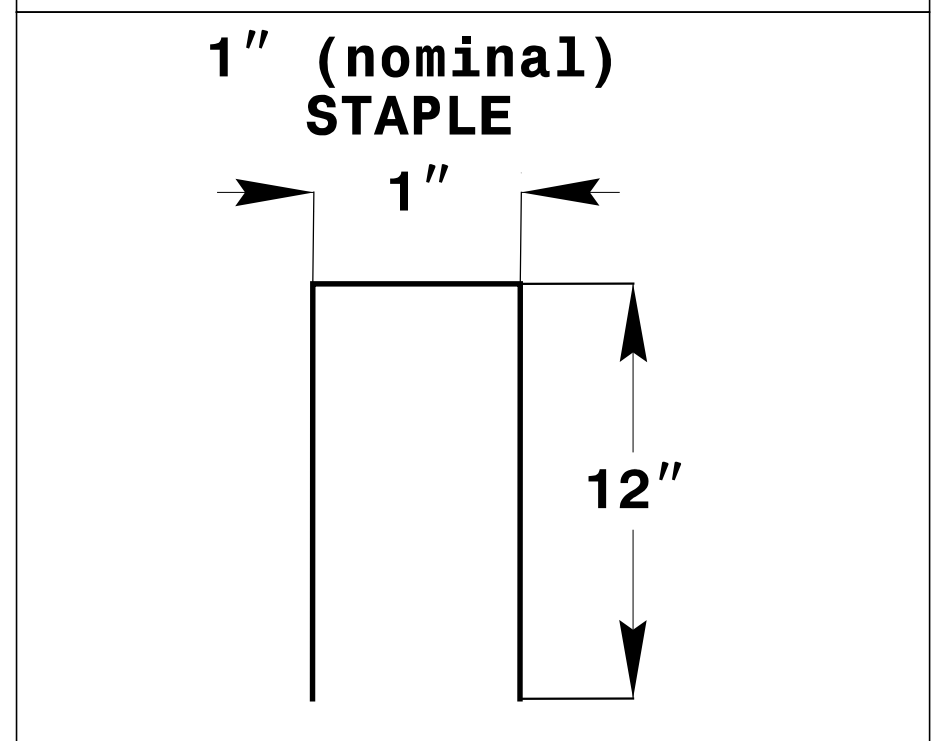
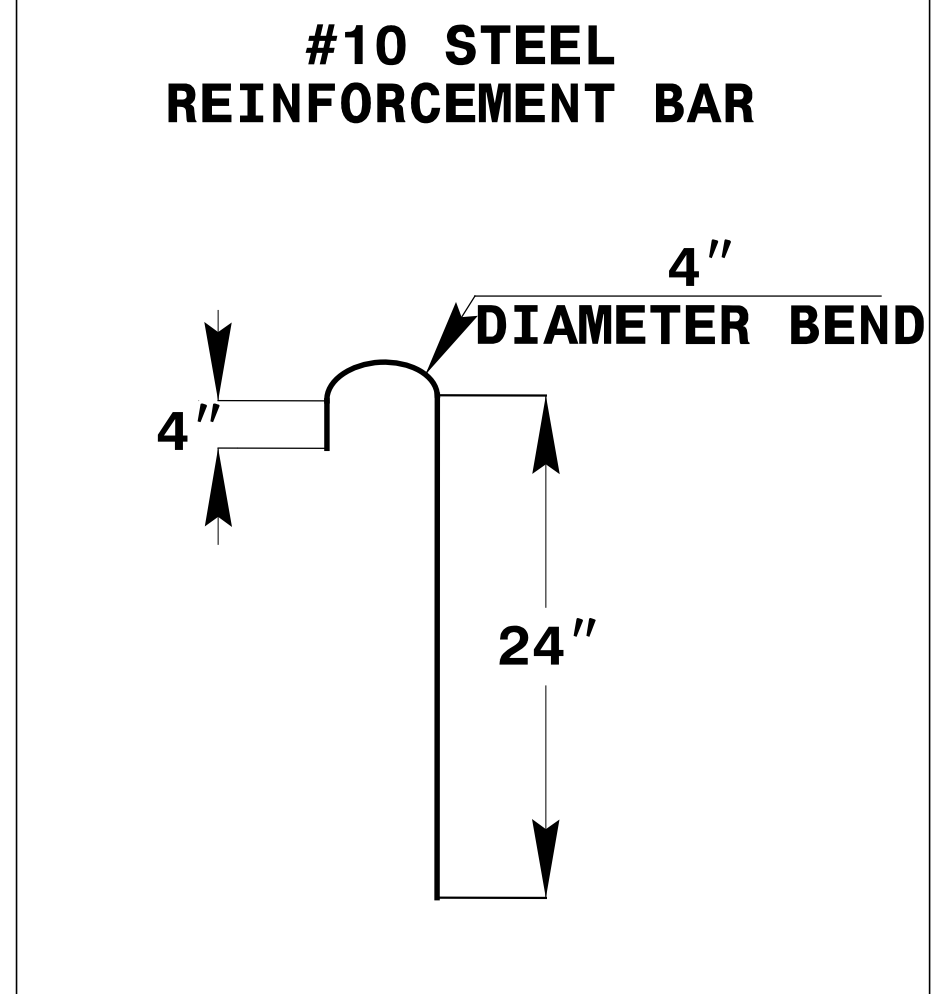
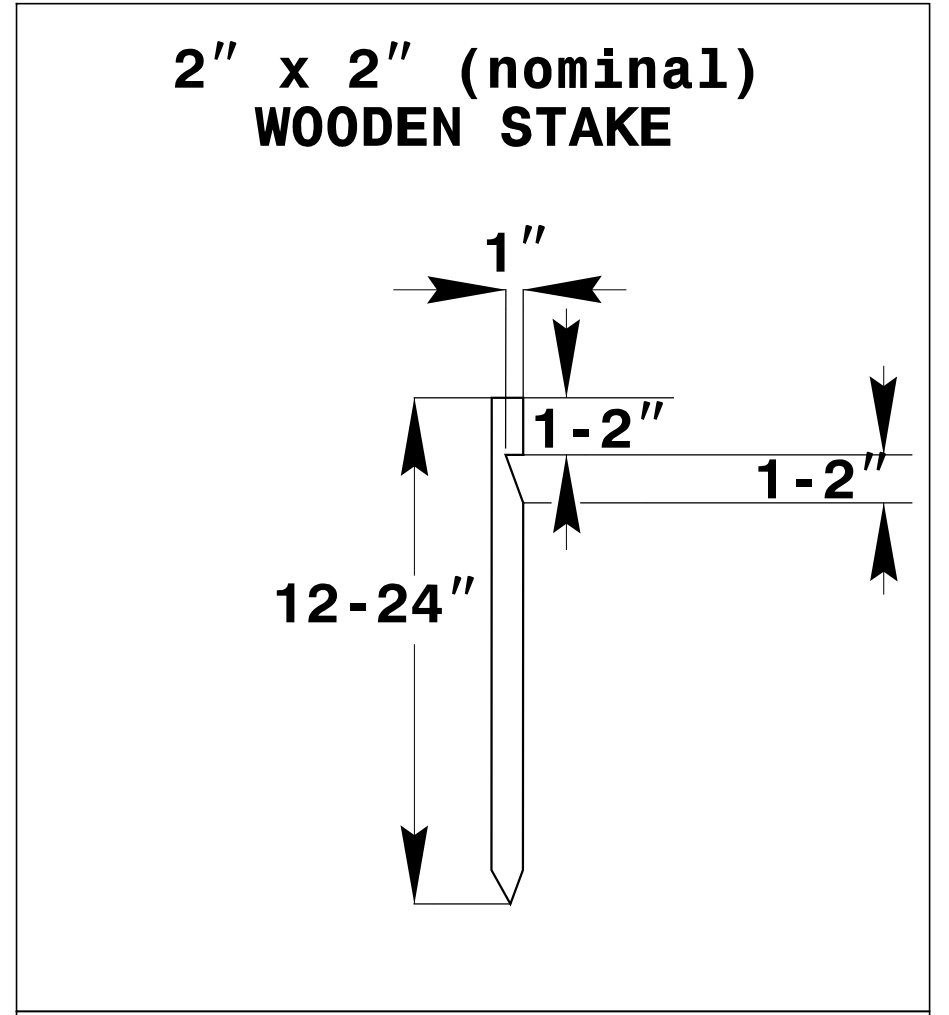
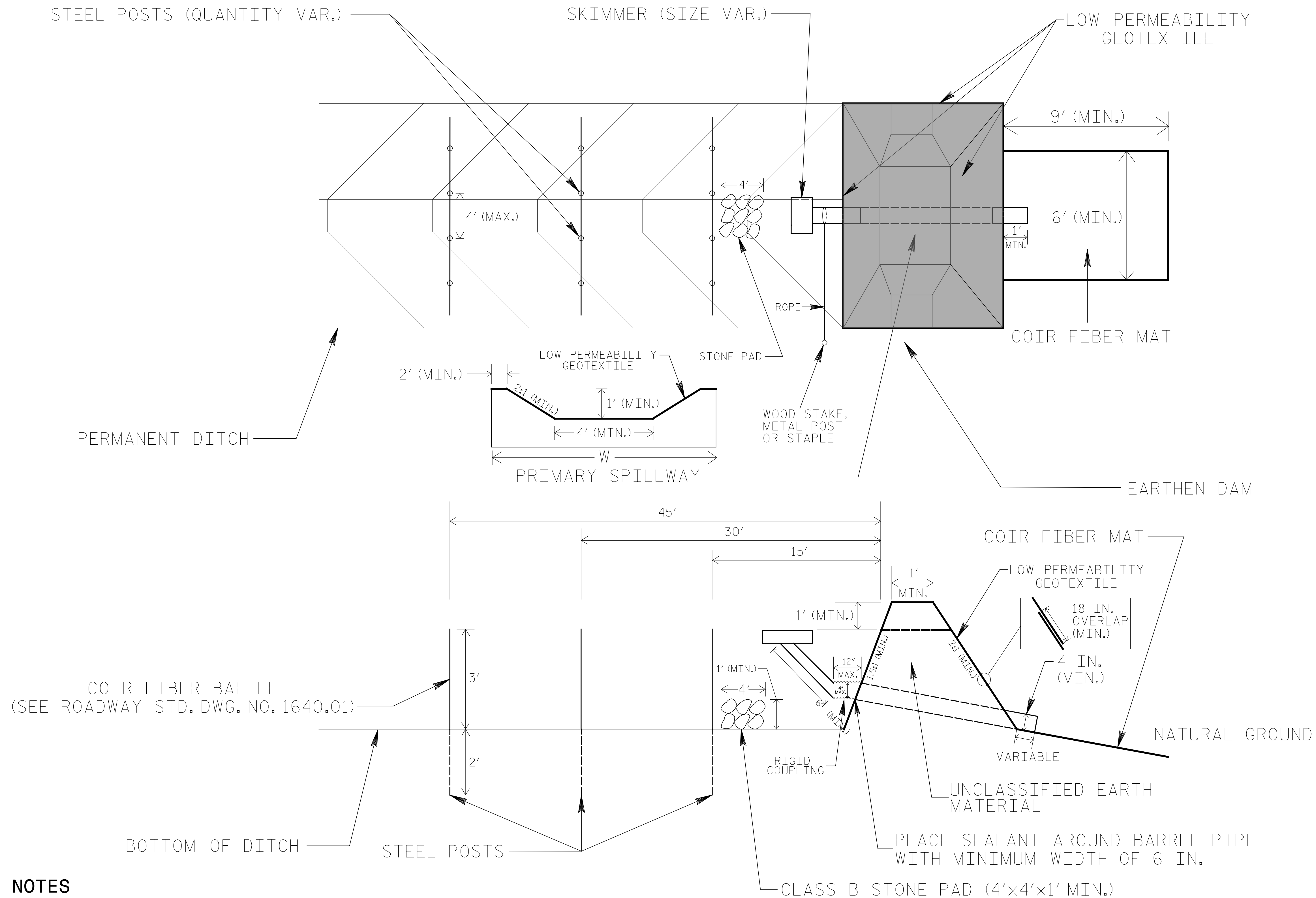
COIR FIBER MAT ANCHOR OPTIONS

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 $Q/0.8$, 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

EARTHEN DAM WITH SKIMMER DETAIL (EAST)



COIR FIBER MAT ANCHOR OPTIONS

NOTES

1. LIMIT EARTHEN DAM HEIGHT TO 5 FT.
2. DETERMINE PRIMARY SPILLWAY LENGTH (FT.) USING $Q/0.8$, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
3. LOW PERMEABILITY GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

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 IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 1640.01 AND WITH MATERIAL THAT MEETS THE SPECIFICATIONS OF ROADWAY STANDARD 1640-14.

PROVIDE 5' STEEL POSTS OF THE SELF-FASTENER ANGLE STEEL TYPE. INSTALL STEEL POSTS WITH NO MORE THAN 3' 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 12" STAPLES.

INSTALL TYPE 2 GEOTEXTILE 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.

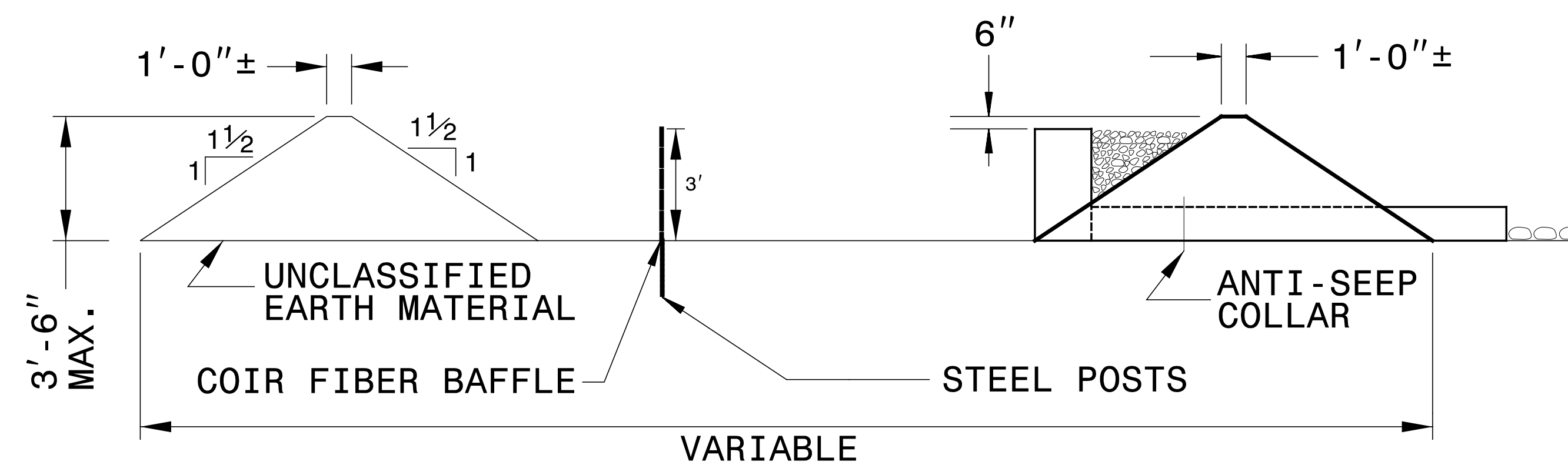
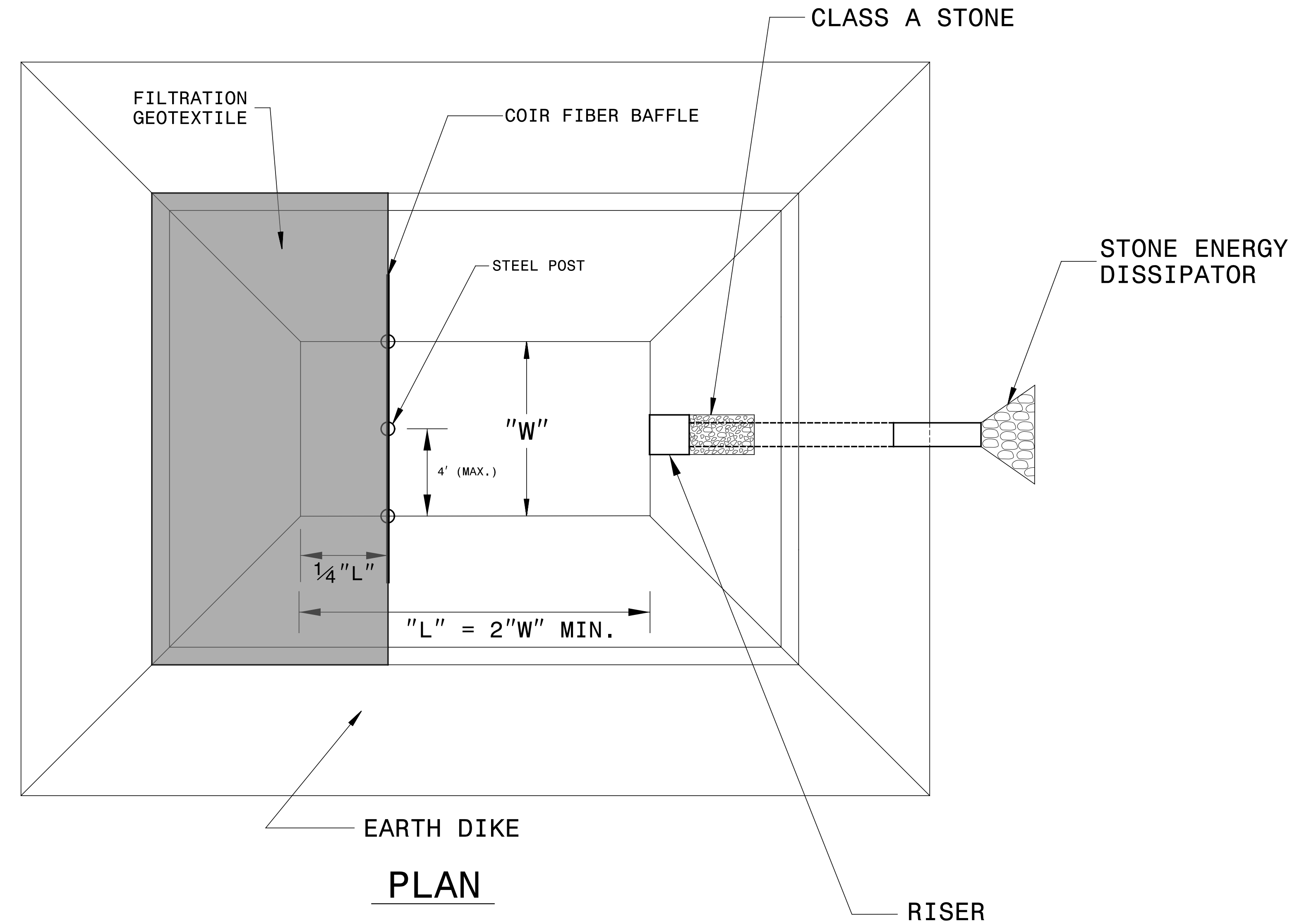
DO NOT EXCEED 3½ FT. IN HEIGHT FOR THE EARTH DIKES REQUIRED FOR BORROW PIT DEWATERING BASIN.

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.

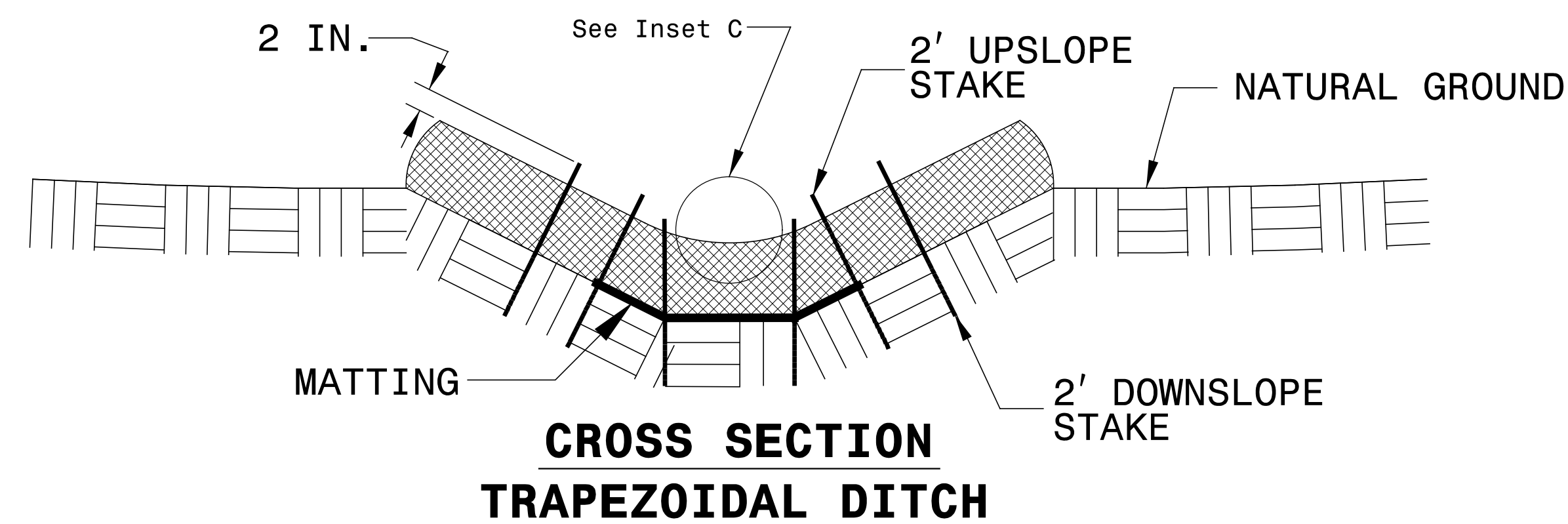
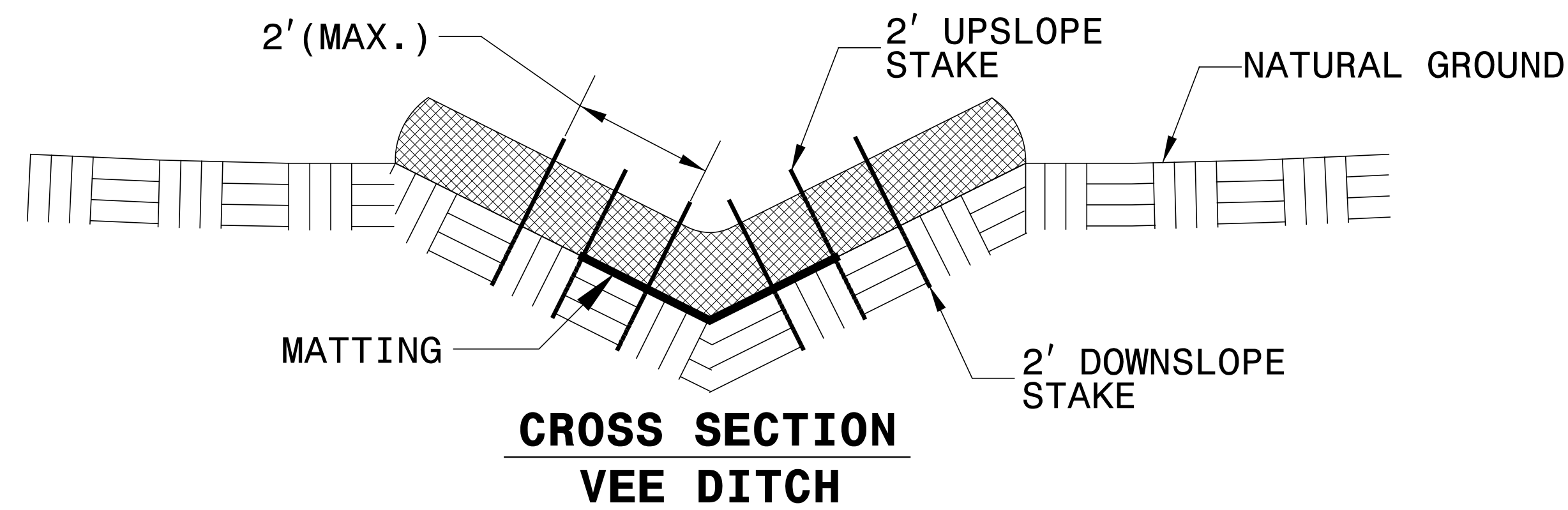
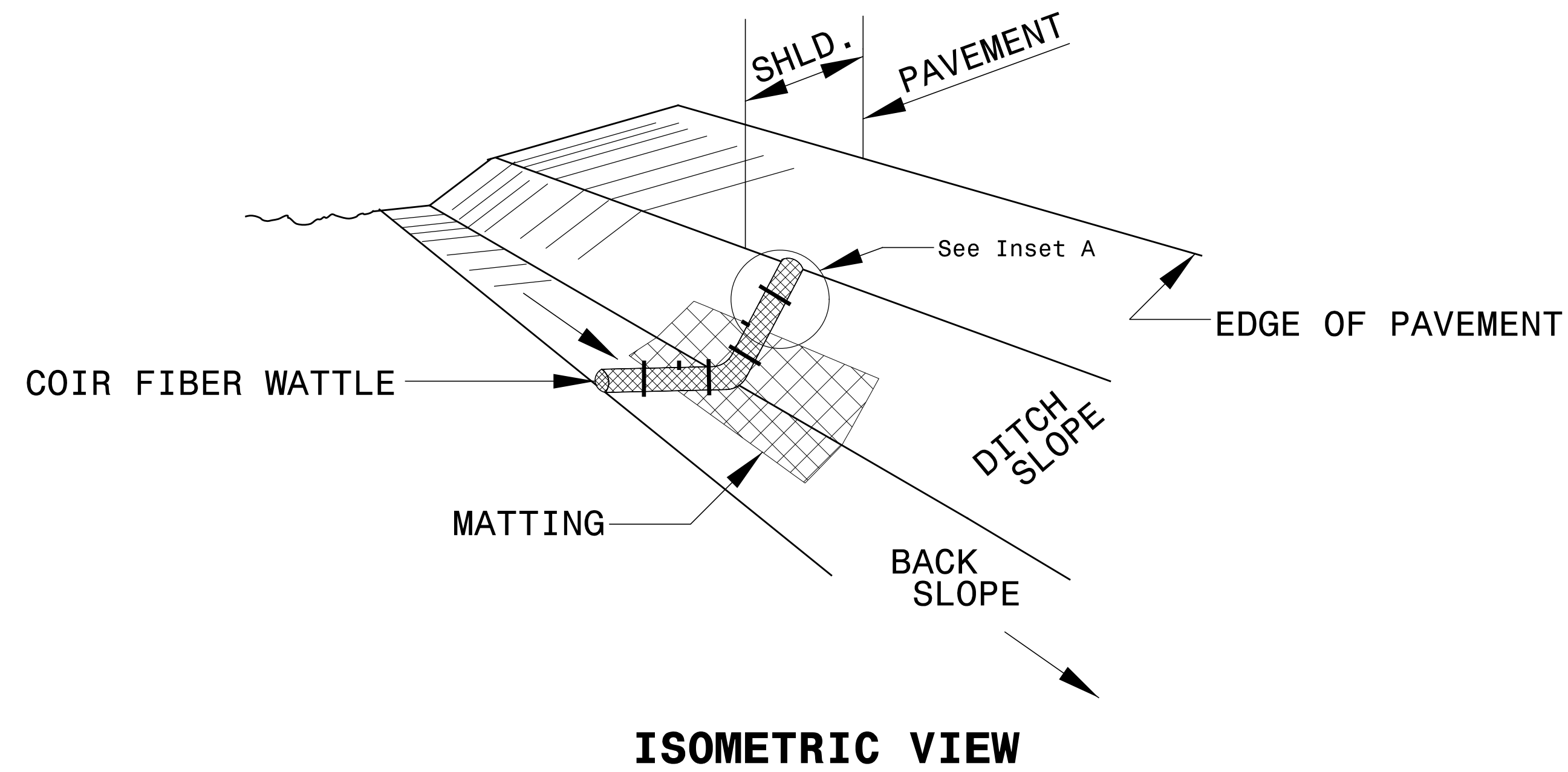
PUMP THE EFFLUENT INTO THE BORROW PIT DEWATERING BASIN TO A MAXIMUM DEPTH OF 6 IN. BELOW TOP OF EARTH DIKE.

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.



NOT TO SCALE

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.

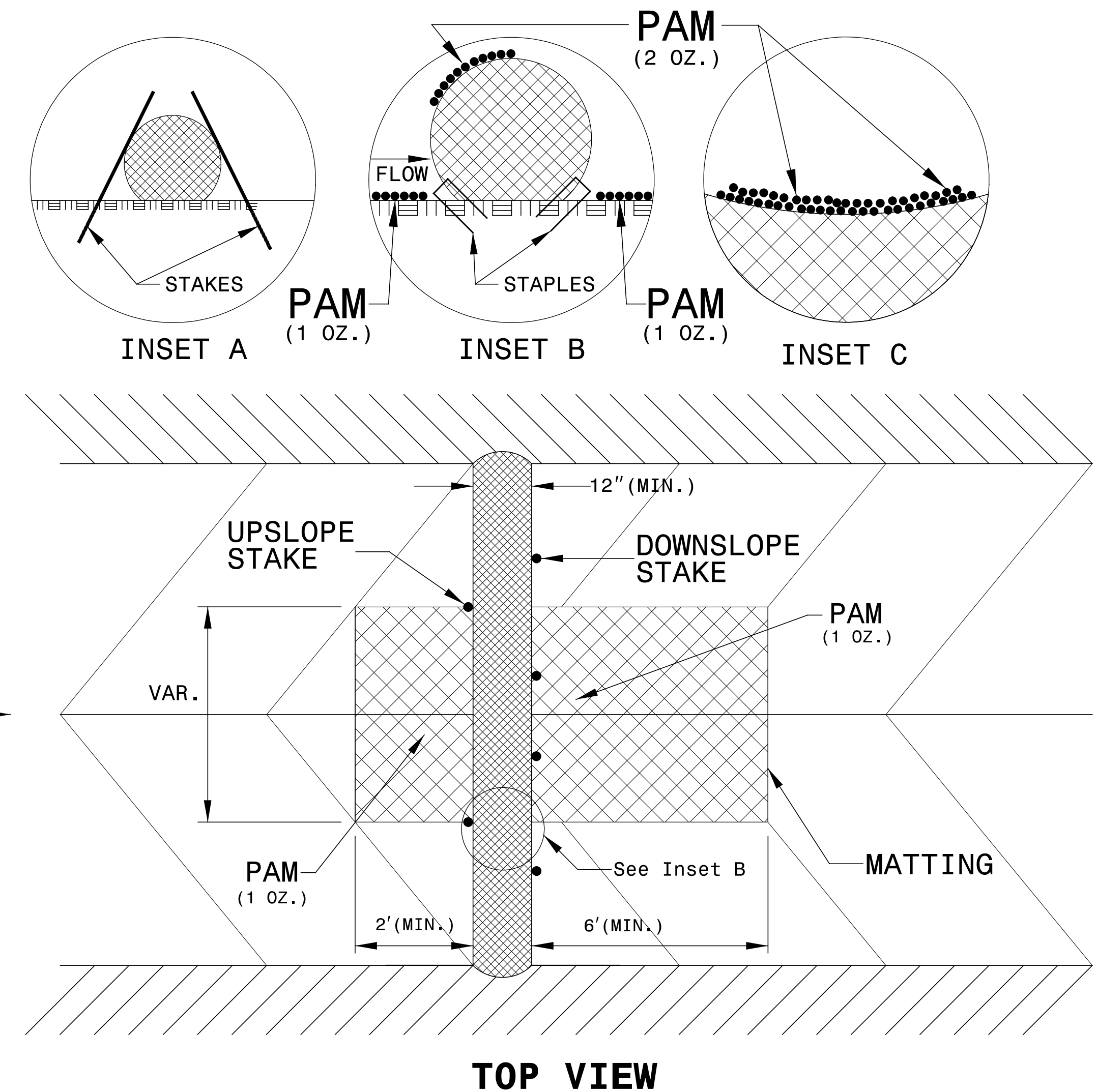
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

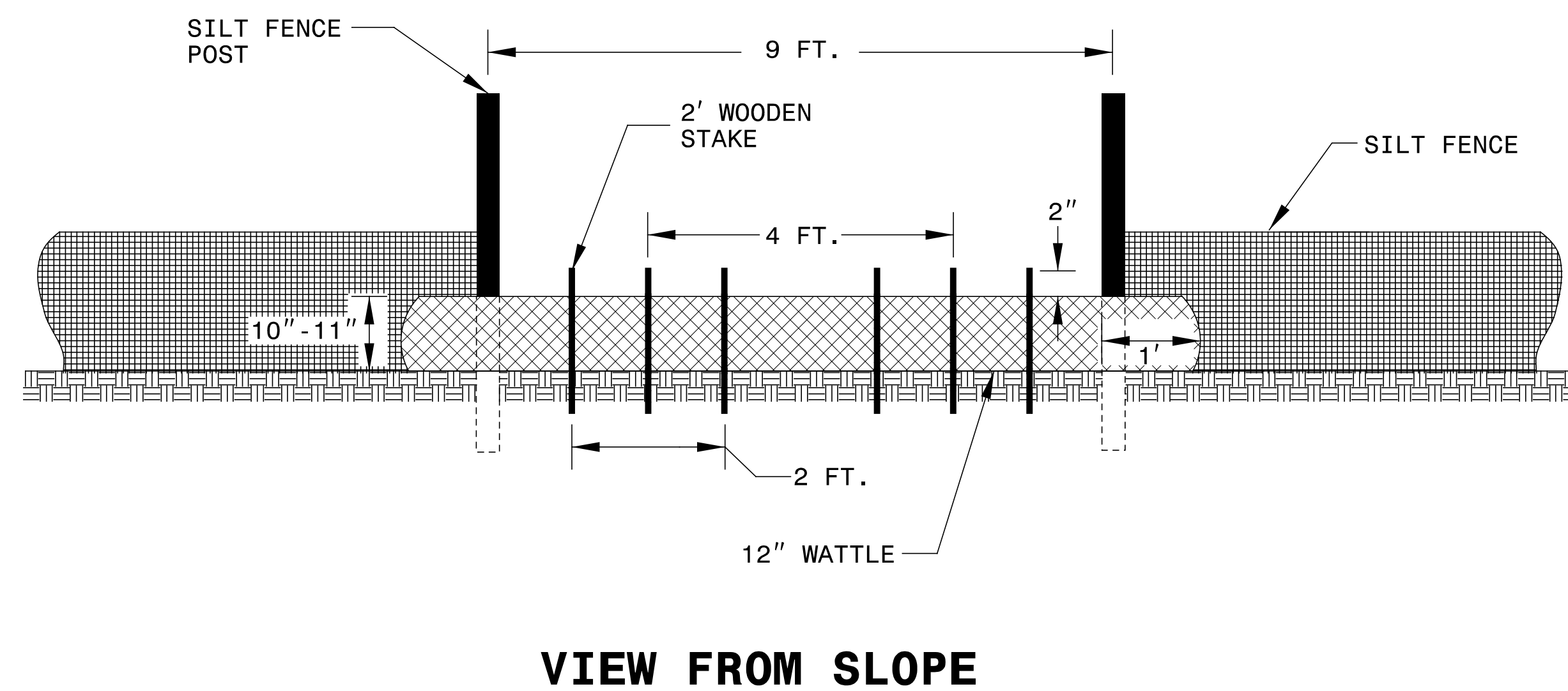
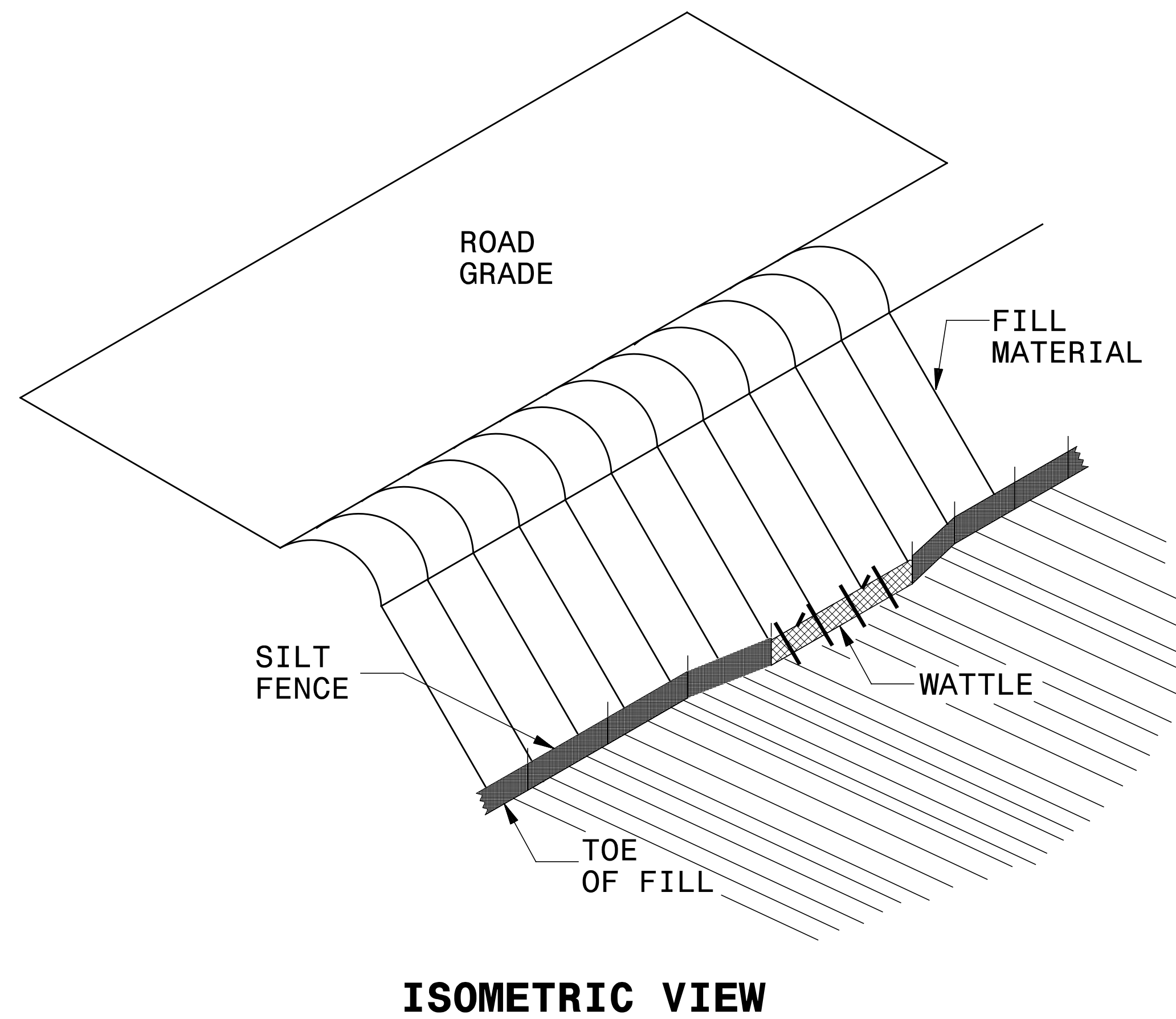
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

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.



SILT FENCE COIR FIBER WATTLE BREAK DETAIL



NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE 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.

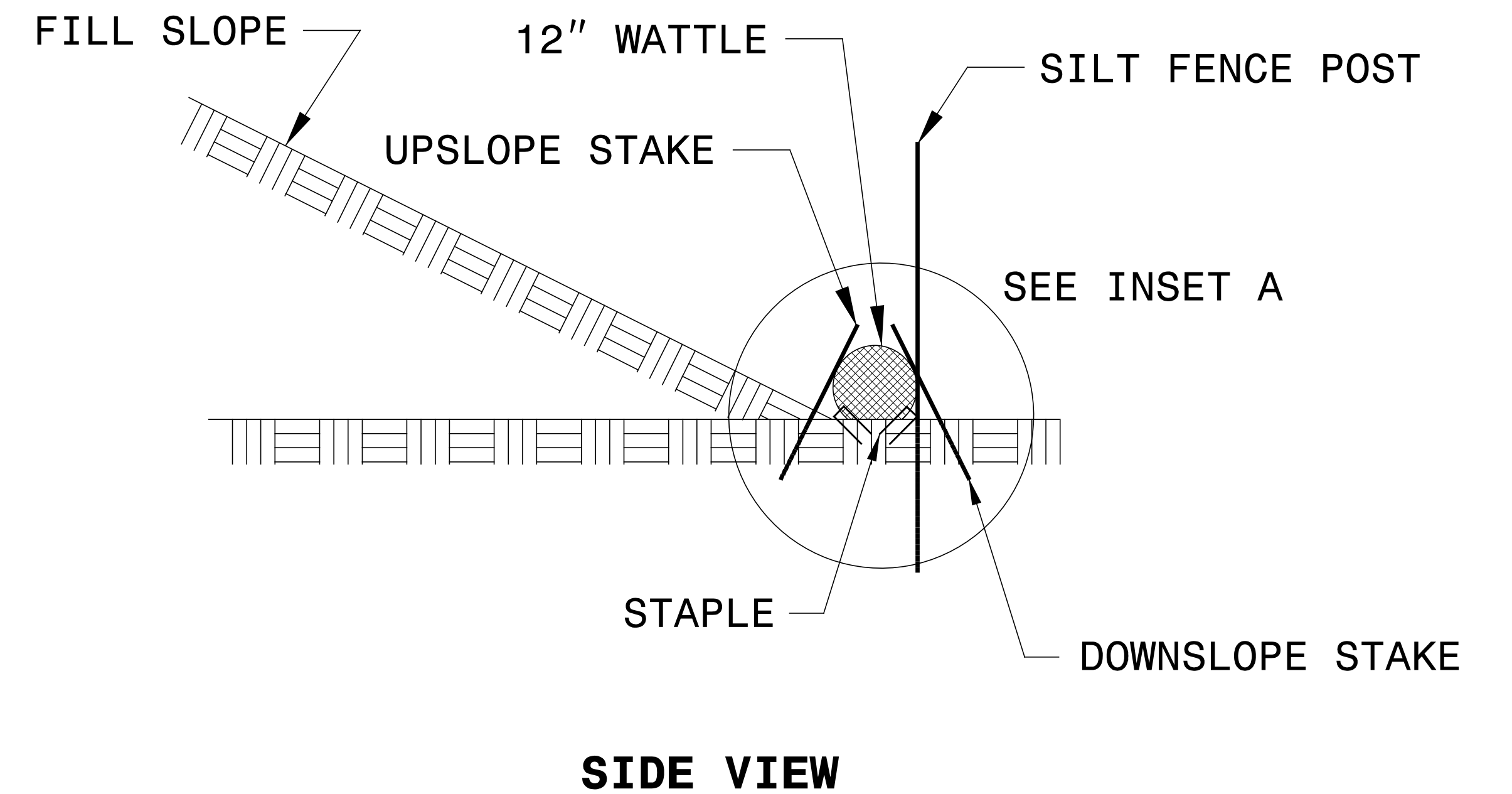
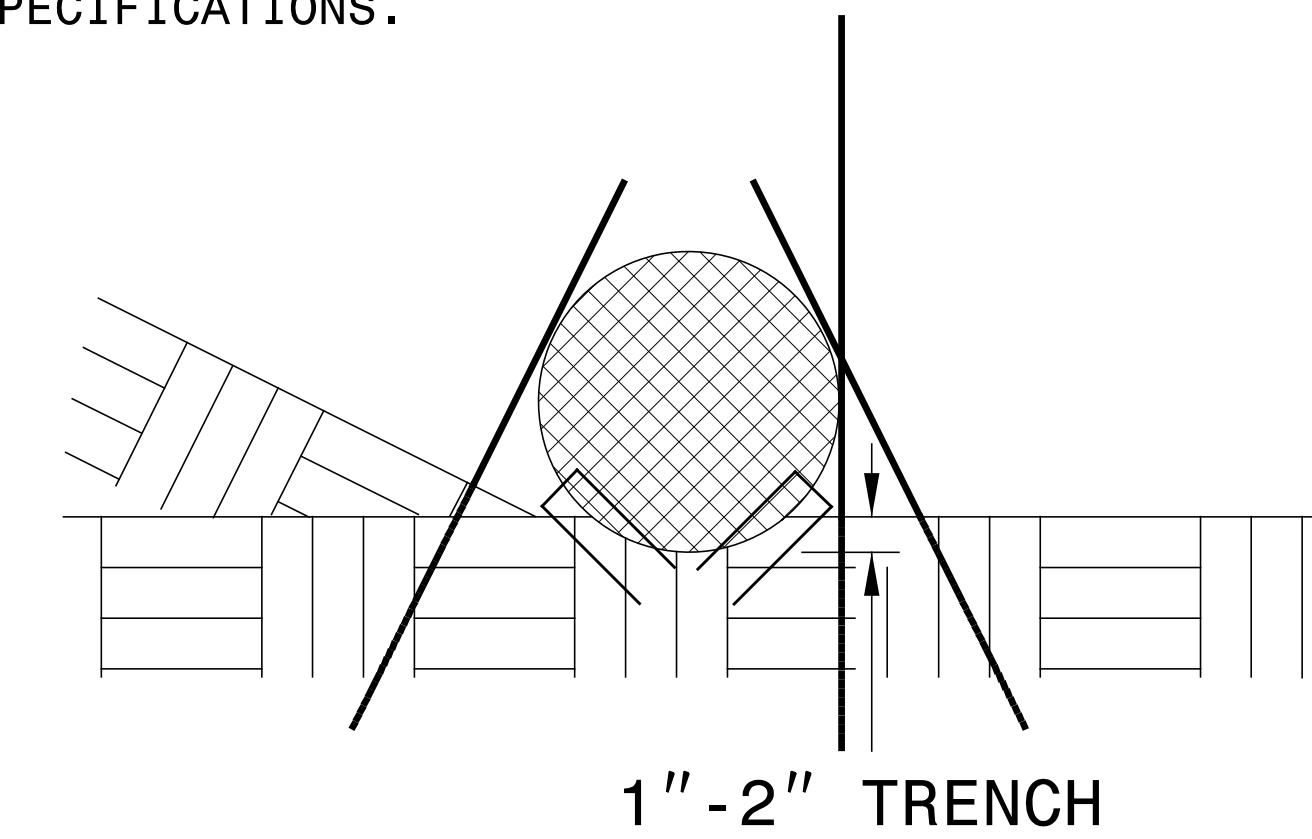
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

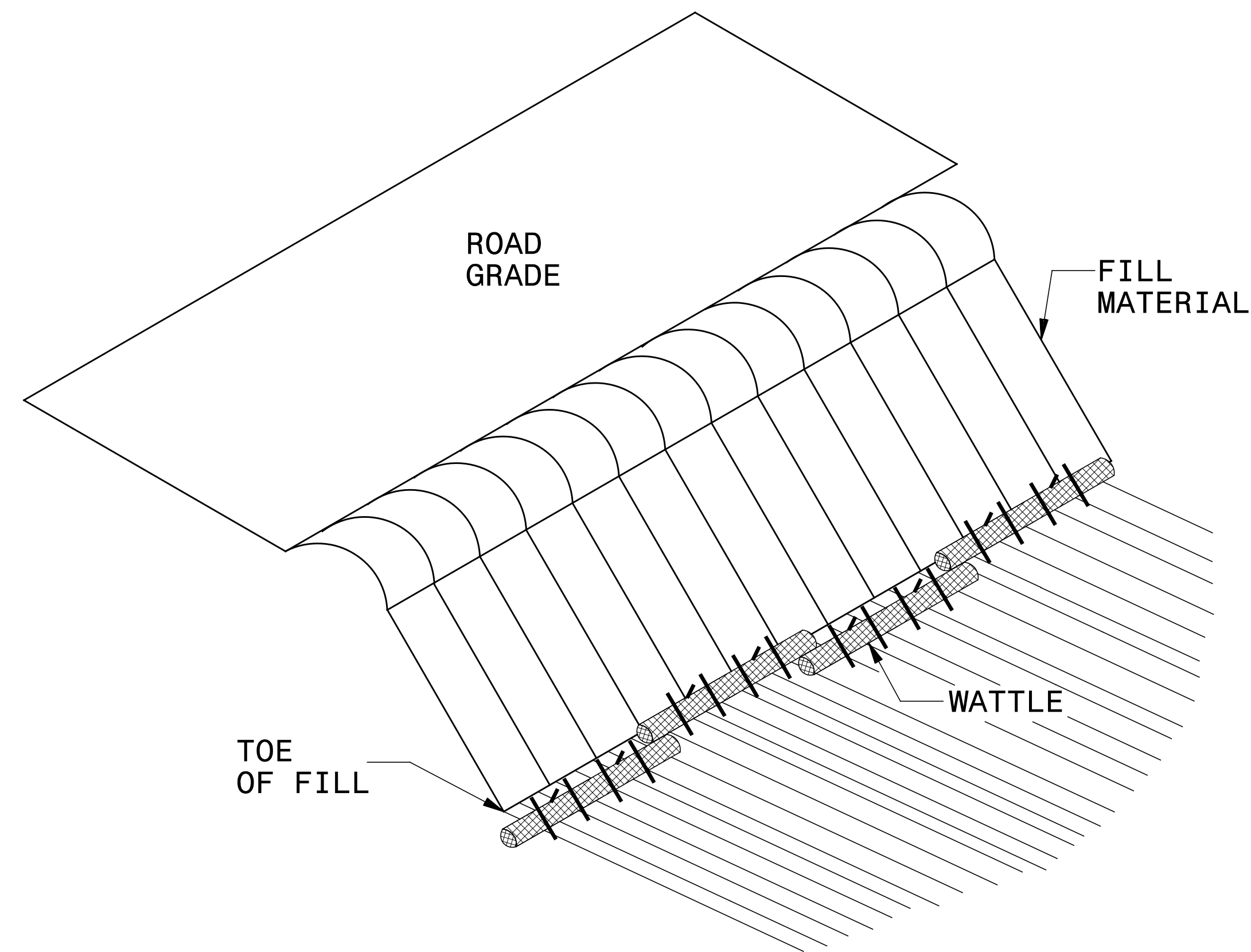
WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

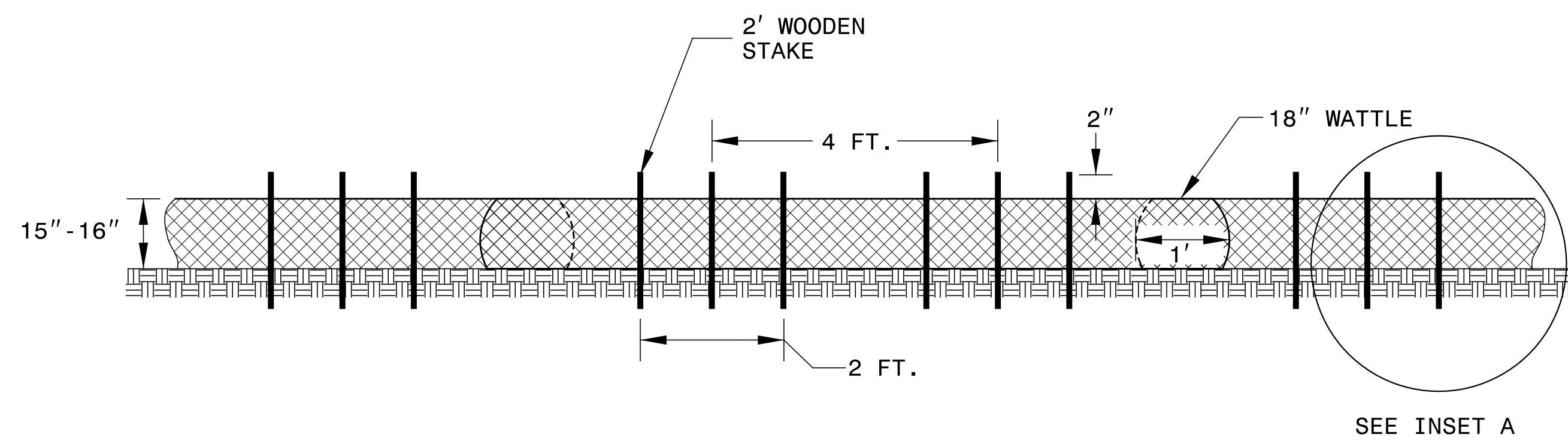
INSET A



COIR FIBER WATTLE BARRIER DETAIL



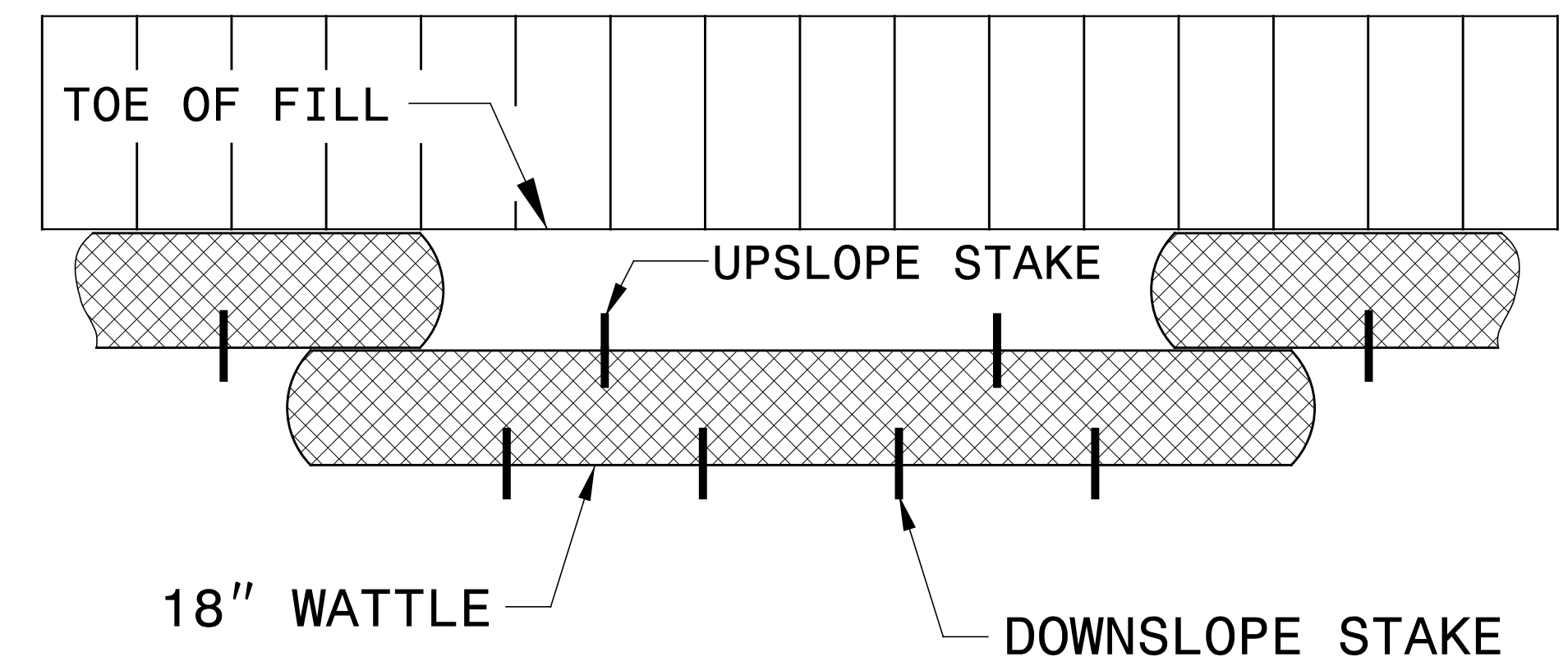
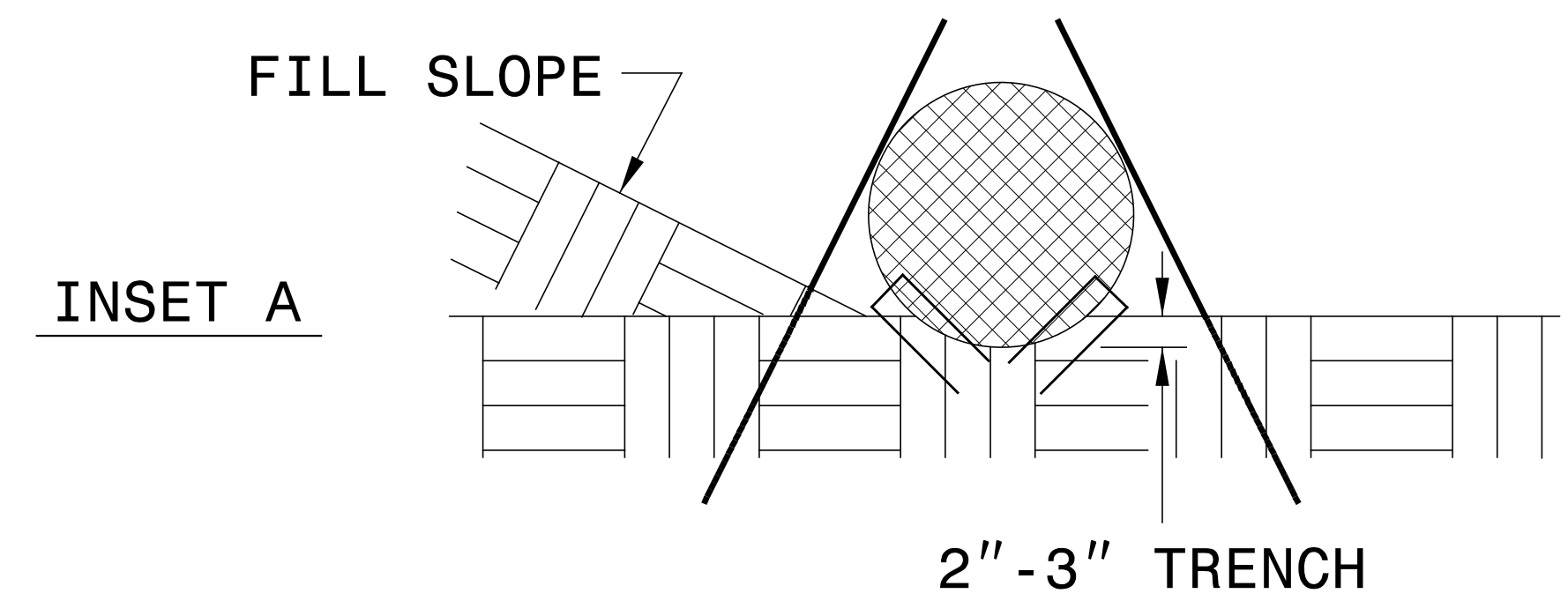
ISOMETRIC VIEW



FRONT VIEW

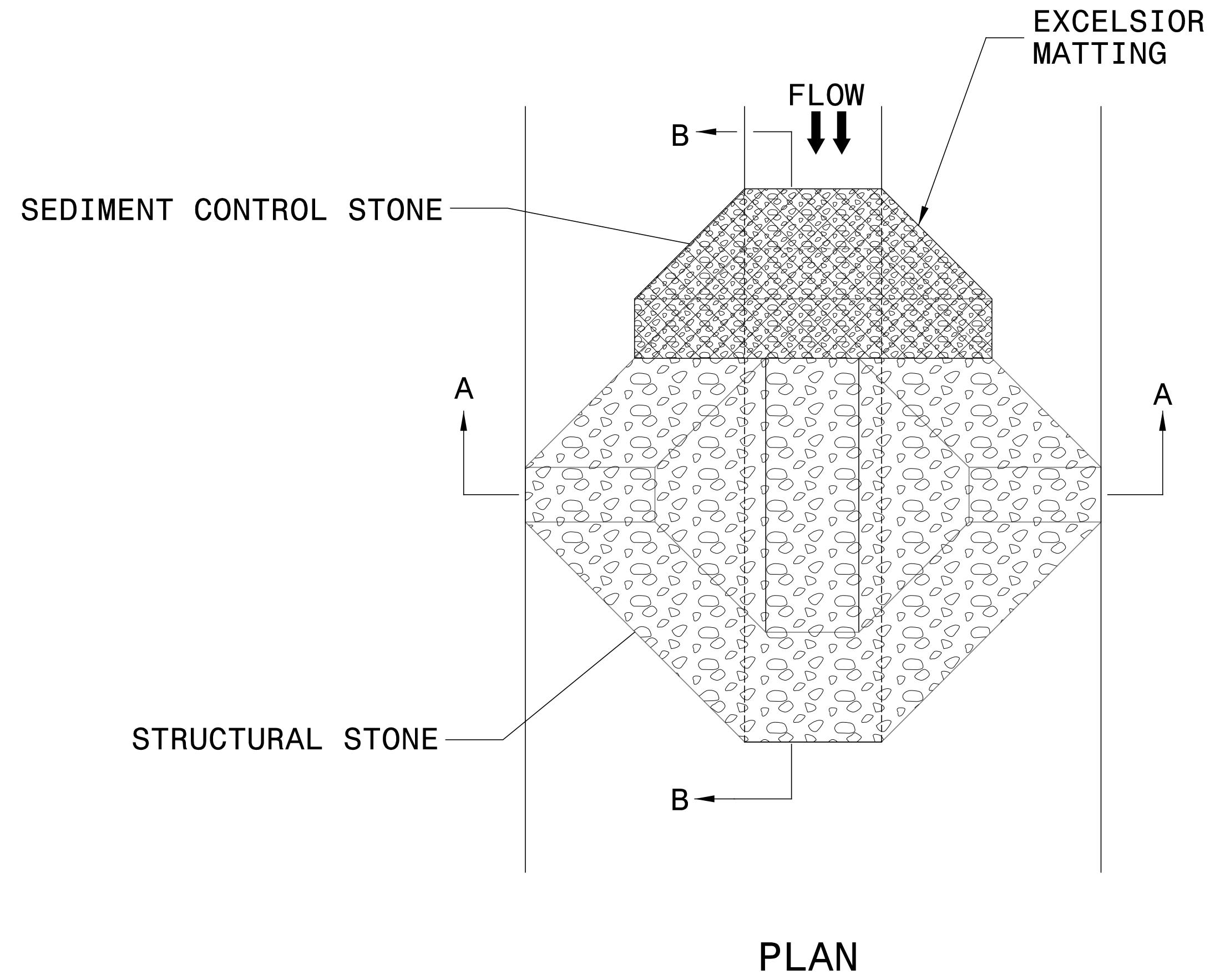
NOTES:

- 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 25 FT.



TOP VIEW

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



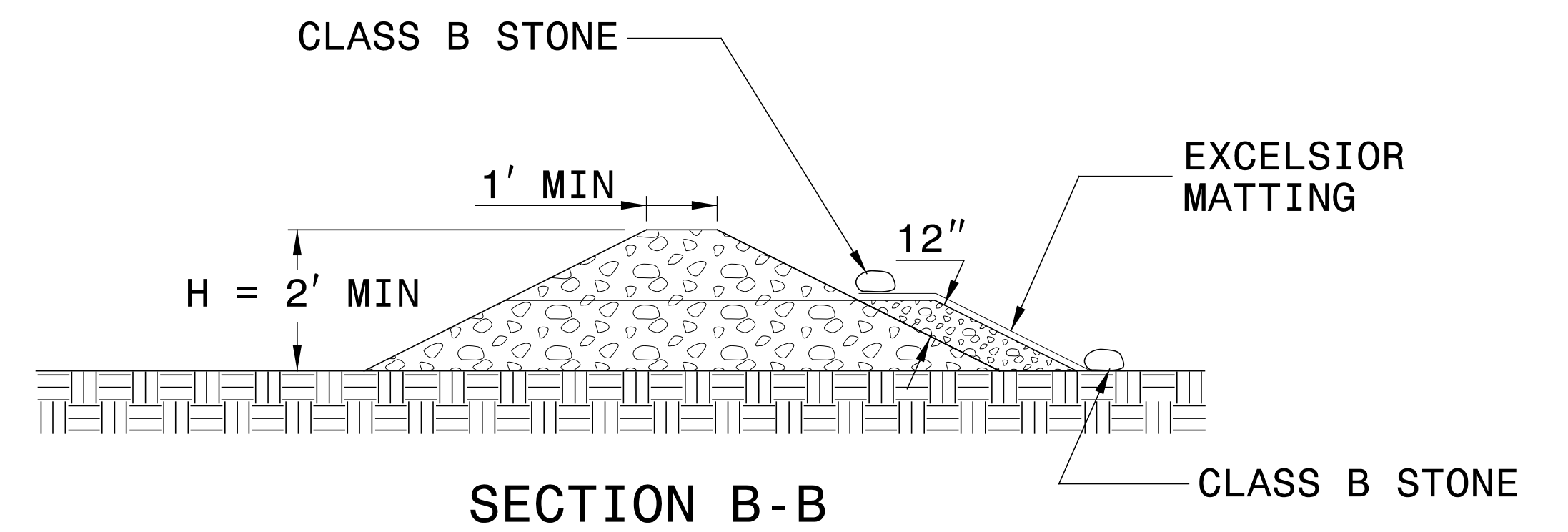
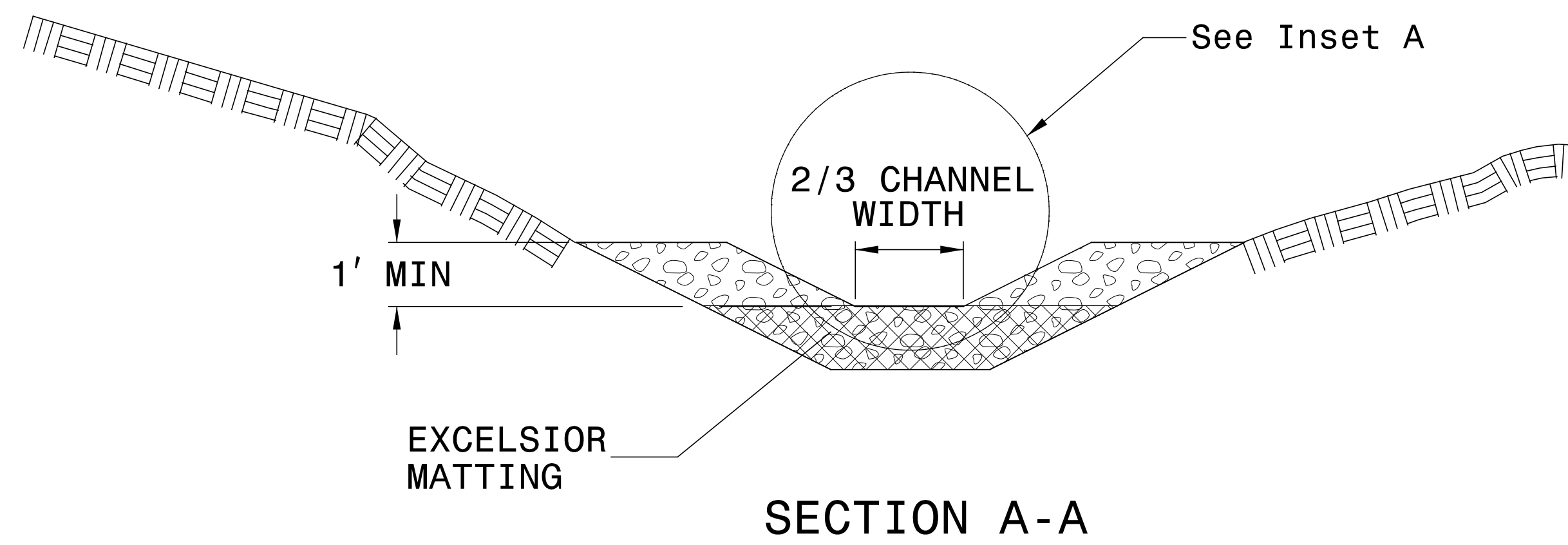
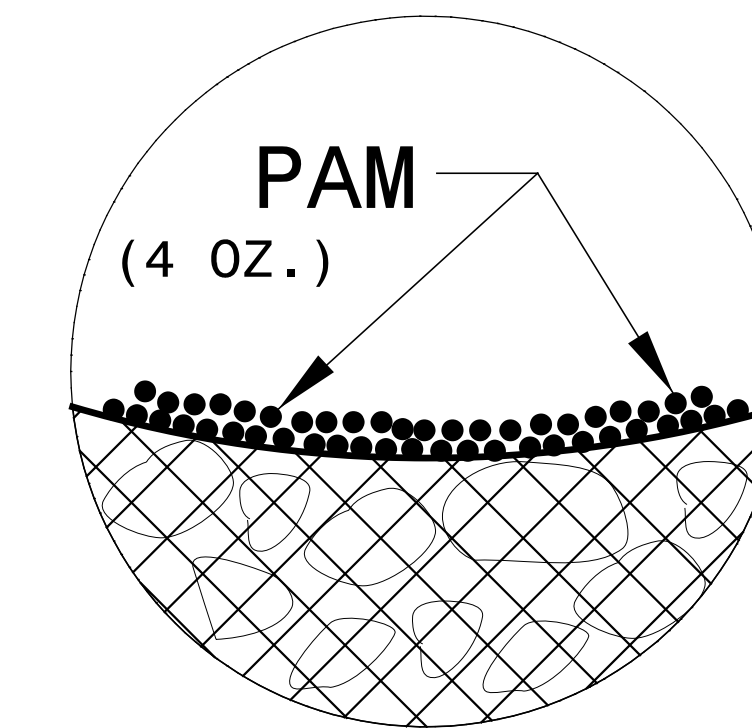
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

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



NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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.

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

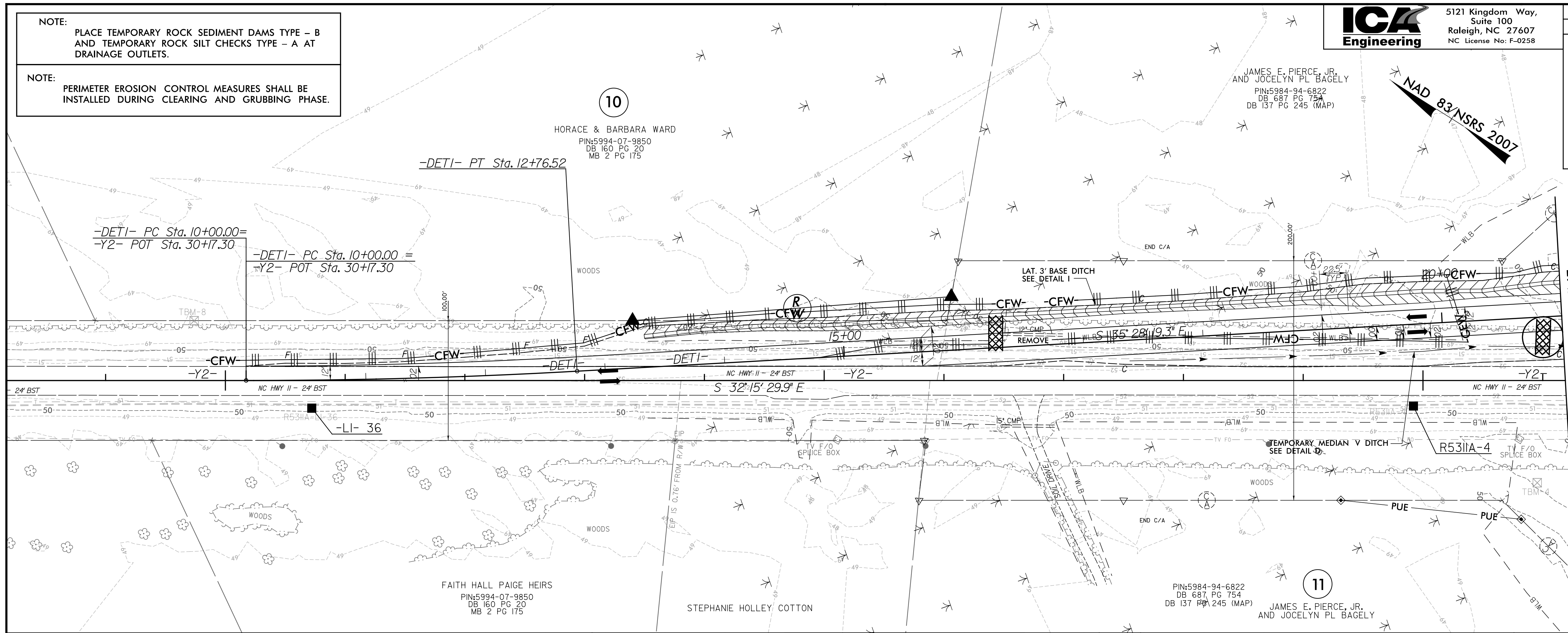
NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

ICA
Engineering

5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

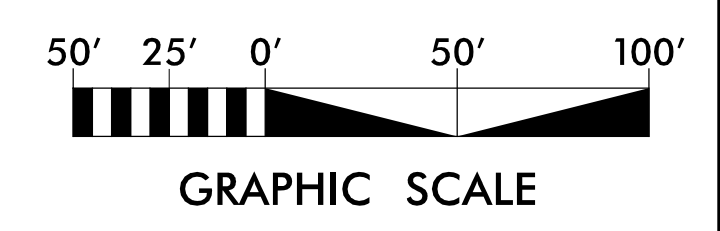
PROJECT REFERENCE NO.	SHEET NO.
R-5311A	EC-4/CONST.2B-6
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

LEVEL III CERTIFIED BY:
STACEY H. BAILEY, PE
CERTIFICATION NUMBER: 3074
ISSUED: JANUARY 13, 2017

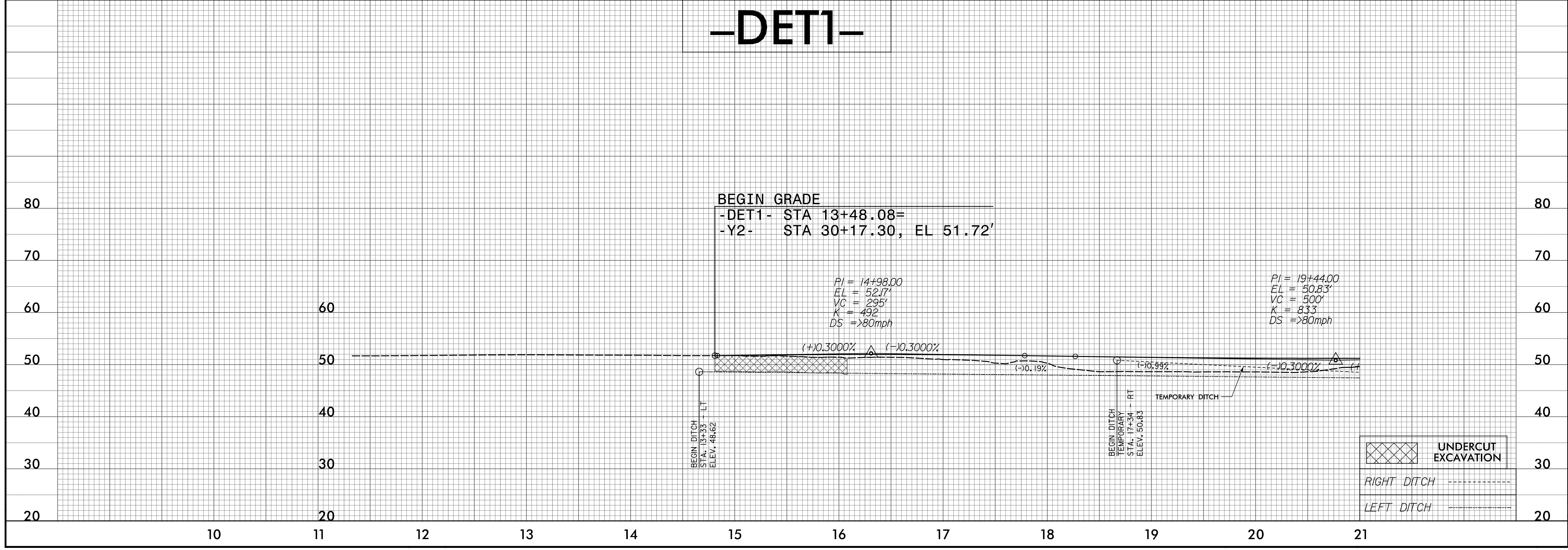


MATCHLINE
-DET1- STA 21+00
SEE SHEET 2B-7

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 2B-6



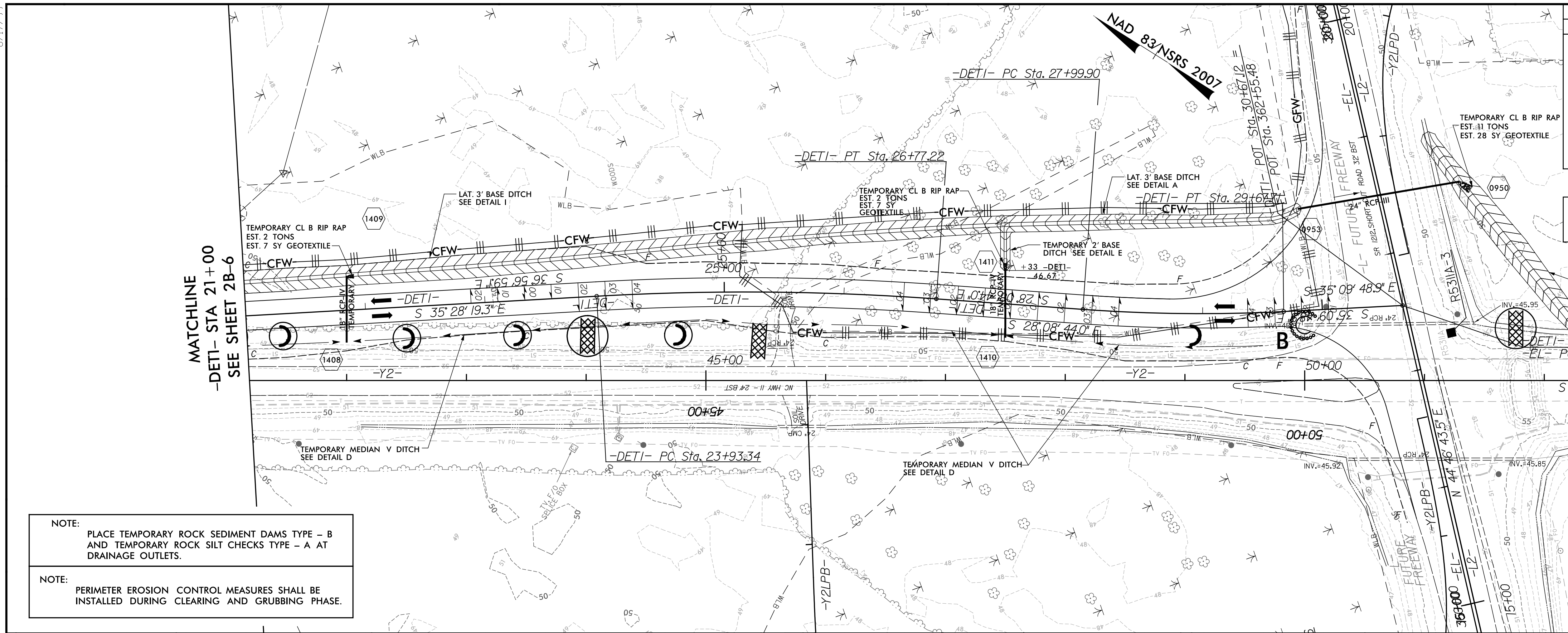
-DET1-



8.17.99

PROJECT REFERENCE NO. R-5311A SHEET NO. EC-5/CONST.2B-7
 ROADSIDE ENVIRONMENTAL PROJECT ENGINEER
 LEVEL III CERTIFIED BY: STACEY H. BAILEY, PE
 CERTIFICATION NUMBER: 3074
 ISSUED: JANUARY 13, 2017

ICA Engineering
 5121 Kingdom Way, Suite 100
 Raleigh, NC 27607
 NC License No. F-0258



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

NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 2B-7

50' 25' 0' 50' 100'

GRAPHIC SCALE

-DET1-

PIPE HYDRAULIC DATA

TEMPORARY 18" RCP STA 21+84 -DET1-

DRAINAGE AREA	= 1	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 6	CFS
DESIGN HW ELEVATION	= 49.0	FT
100 YEAR DISCHARGE	= 6	CFS
100 YEAR HW ELEVATION	= 49.0	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 27	CFS
OVERTOPPING ELEVATION	= 50.3	FT

INV IN = 47.60 INV OUT = 47.08

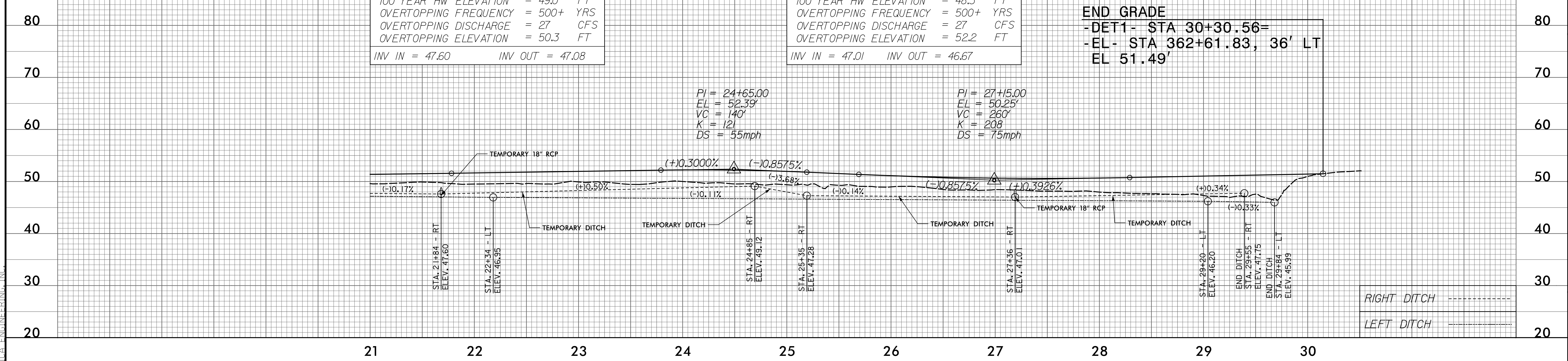
PIPE HYDRAULIC DATA

TEMPORARY 18" RCP STA 27+35 -DET1-

DRAINAGE AREA	= 1	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 5	CFS
DESIGN HW ELEVATION	= 48.3	FT
100 YEAR DISCHARGE	= 5	CFS
100 YEAR HW ELEVATION	= 48.3	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 27	CFS
OVERTOPPING ELEVATION	= 52.2	FT

INV IN = 47.01 INV OUT = 46.67

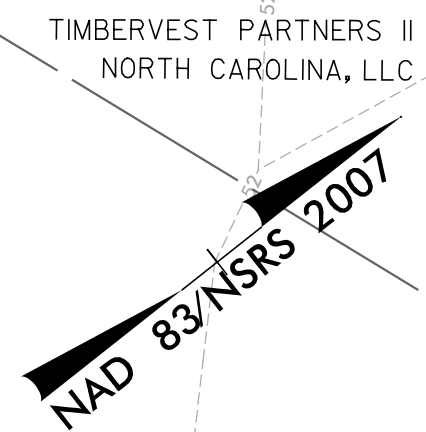
END GRADE
 -DET1- STA 30+30.56=
 -EL- STA 362+61.83, 36' LT
 EL 51.49'



RIGHT DITCH -----

LEFT DITCH -----

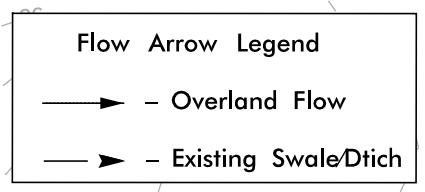
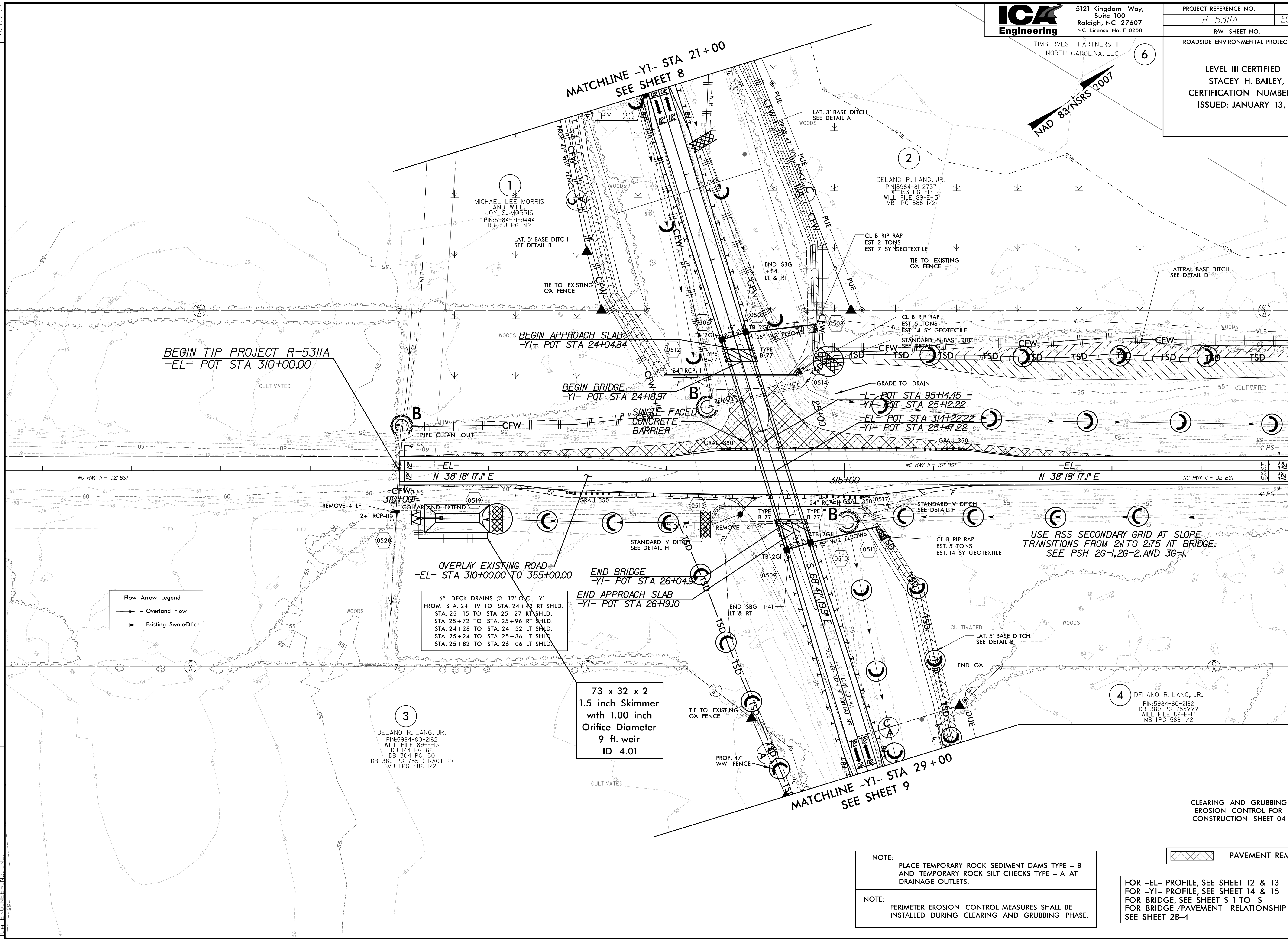
1/3/2017
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 ICA ENGINEERING, INC.



LEVEL III CERTIFIED BY:
STACEY H. BAILEY, PE
CERTIFICATION NUMBER: 3074
ISSUED: JANUARY 13, 2017

REVISIONS

8/17/99
1/13/2017
C:\Users\jbailey\Documents\Projects\ICA\Projects\5311A\Drawings\EC-6\CONST.04.dgn
Control\Road\proj_future_freeway\5311A_hyd_erosion_c&g_psh_04.dgn



6" DECK DRAINS @ 12' O.C., -YI-
FROM STA. 24+19 TO STA. 24+43 RT SHLD.
STA. 25+15 TO STA. 25+27 RT SHLD.
STA. 25+72 TO STA. 25+96 RT SHLD.
STA. 24+28 TO STA. 24+52 LT SHLD.
STA. 25+24 TO STA. 25+36 LT SHLD.
STA. 25+82 TO STA. 26+06 LT SHLD.

73 x 32 x 2
1.5 inch Skimmer
with 1.00 inch
Orifice Diameter
9 ft. weir
ID 4.01

USE RSS SECONDARY GRID AT SLOPE
TRANSITIONS FROM 2:1 TO 2:7.5 AT BRIDGE.
SEE PSH 2G-1, 2G-2, AND 3G-1.

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

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 04



FOR -EL- PROFILE, SEE SHEET 12 & 13
FOR -YI- PROFILE, SEE SHEET 14 & 15
FOR BRIDGE, SEE SHEET S-1 TO S-
FOR BRIDGE /PAVEMENT RELATIONSHIP SKETCH,
SEE SHEET 2B-4

MATCHLINE -EL- STA 320 +00
SEE SHEET 5

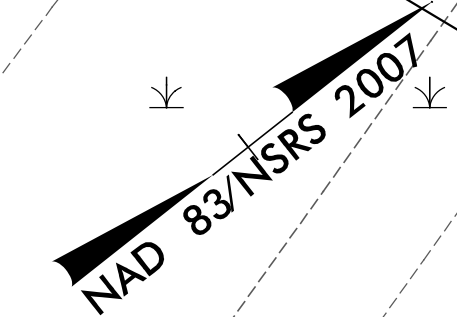


5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	EC-7/CONST.05

RW SHEET NO.
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
STACEY H. BAILEY, PE
CERTIFICATION NUMBER: 3074
ISSUED: JANUARY 13, 2017

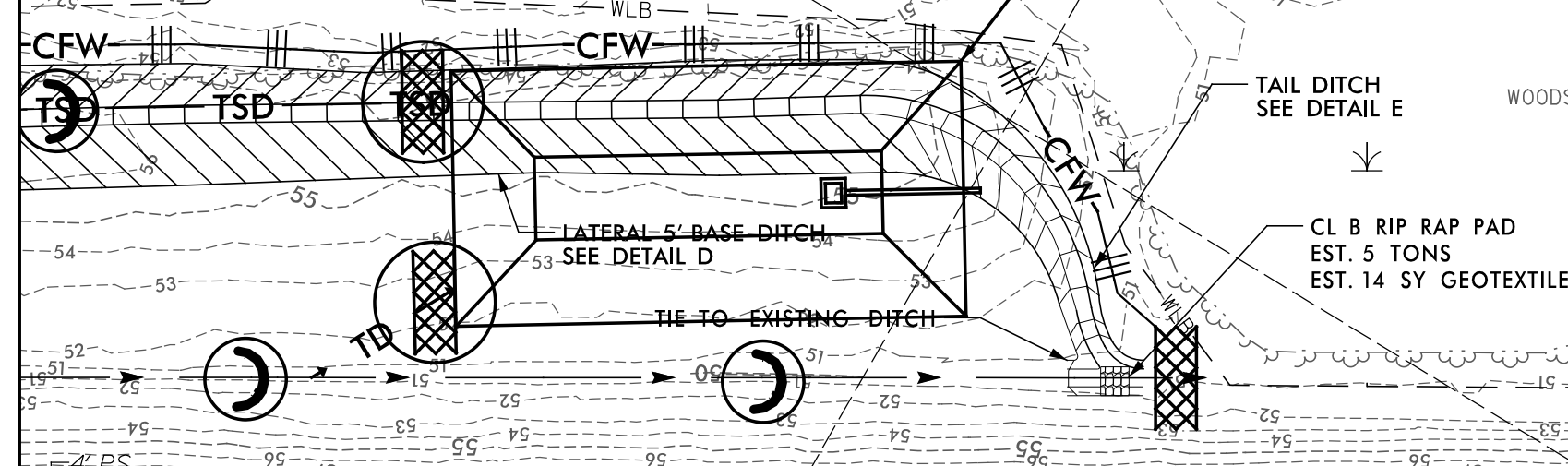


6
TIMBERVEST PARTNERS II
NORTH CAROLINA, LLC
PIN:5984-72-4841
DB:688 PG:459
MB:4 PG:125

RACHAEL MODLIN
PIN:5984-21-6506
DB:400 PG:599

2
DELANO R. LANG, JR.

144 x 72 x 2
2.0 inch Skimmer
with 2.0 inch
Orifice Diameter
40 ft. weir
ID 5.01



REVISIONS

MATCHLINE -EL- STA 320+00
SEE SHEET 4

-EL- N 38°18'17.1" E NC HWY 11 - 32' BST

325+00 330+00

OVERLAY EXISTING ROAD
-EL- STA 310+00.00 TO 355+00.00

-EL- TS Sta. 330+54.08

-EL- SC Sta. 332+54.08

4
DELANO R. LANG, JR.

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

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 05

FOR -EL- PROFILE, SEE SHEET 12 & 13

MATCHLINE -EL- STA 334+00
SEE SHEET 6

8/17/99

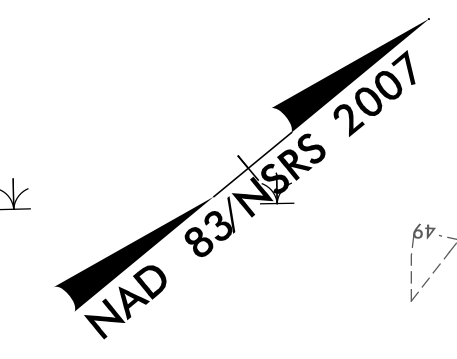
1/3/2017
R-5311A_hud_erosion_e&g_pah_05.dgn
ICA ENGINEERING, INC.



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NC License No: F-0258

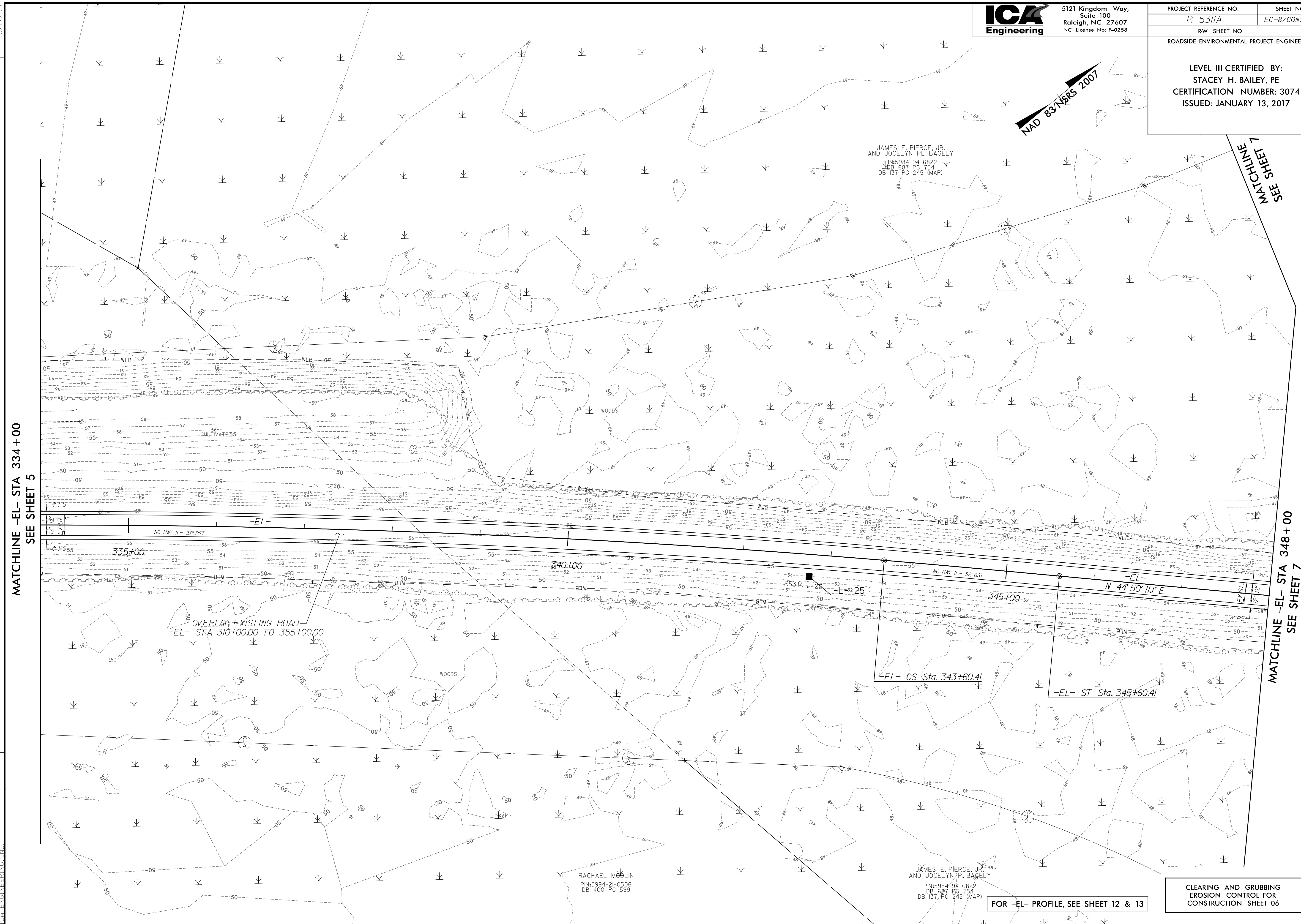
PROJECT REFERENCE NO.	SHEET NO.
R-5311A	EC-8/CONST.06
RW SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

LEVEL III CERTIFIED BY:
STACEY H. BAILEY, PE
CERTIFICATION NUMBER: 3074
ISSUED: JANUARY 13, 2017



JAMES E. PIERCE, JR.
AND JOCELYN P. BAGELY
PIN: 5984-94-6822
DB 687 PG 754
DB 137 PG 245 (MAP)

SEE SHEET 7
MATCHLINE



REVISIONS

MATCHLINE -EL- STA 334+00
SEE SHEET 5

MATCHLINE -EL- STA 348+00
SEE SHEET 7

RACHAEL MOULIN
PIN: 5994-21-0506
DB 400 PG 599

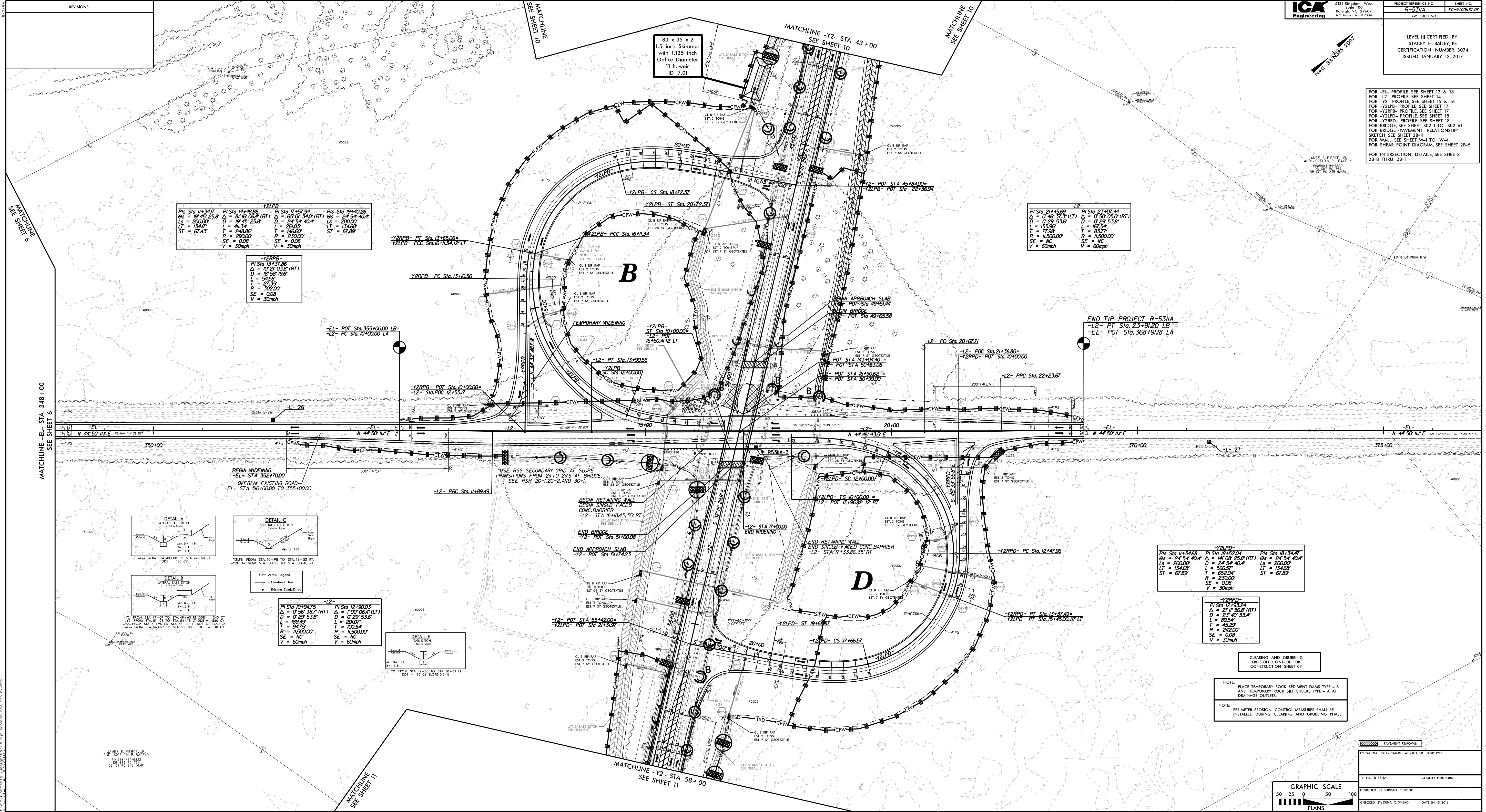
JAMES E. PIERCE, JR.
AND JOCELYN P. BAGELY
PIN: 5984-94-6822
DB 687 PG 754
DB 137 PG 245 (MAP)

FOR -EL- PROFILE, SEE SHEET 12 & 13

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 06

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1/3/2017
R-5311A - hvd_erosion_e&g_psh_06.dgn
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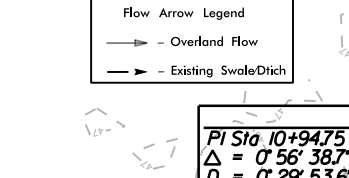
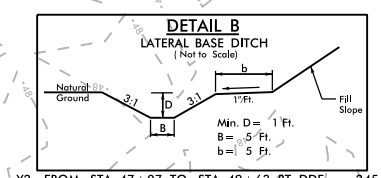
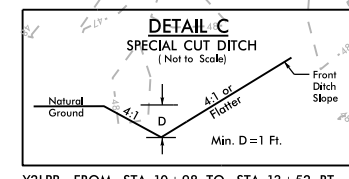
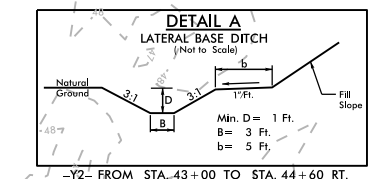
FOR -EL- PROFILE, SEE SHEET 12 & 13
 FOR -L2- PROFILE, SEE SHEET 14
 FOR -Y2LPB- PROFILE, SEE SHEET 15 & 16
 FOR -Y2RPB- PROFILE, SEE SHEET 17
 FOR -Y2LPD- PROFILE, SEE SHEET 18
 FOR -Y2RPD- PROFILE, SEE SHEET 18
 FOR BRIDGE, SEE SHEET S02-1 TO S02-61
 FOR BRIDGE /PAVEMENT RELATIONSHIP SKETCH, SEE SHEET 2B-4
 FOR WALL, SEE SHEET W-1 TO W-4
 FOR SHEAR POINT DIAGRAM, SEE SHEET 2B-5
 FOR INTERSECTION DETAILS, SEE SHEETS 2B-8 THRU 2B-11



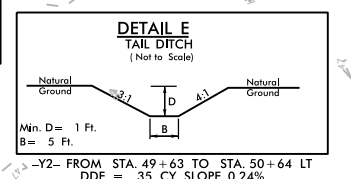
PI Sta 11+341.7	PI Sta 14+48.86	PI Sta 17+57.94	PI Sta 19+40.26
Os = 19'45" 25.8'	Δ = 81'16" 06.4' (RT)	Δ = 65'0" 34.0' (RT)	Os = 24'54" 40.4'
Ls = 200.00'	D = 12'45" 25.8'	D = 24'54" 40.4'	Ls = 200.00'
LT = 134.07'	L = 411.34'	L = 261.03'	LT = 134.68'
ST = 67.43'	T = 248.86'	T = 146.60'	ST = 67.89'
R = 230.00'	R = 230.00'	R = 11500.00'	R = 11500.00'
SE = 0.08	SE = 0.08	SE = NC	SE = NC
V = 30mph	V = 30mph	V = 60mph	V = 60mph

PI Sta 13+137.86
Δ = 10'2" 03.8' (RT)
D = 19'58" 18.6'
L = 54.52'
T = 27.35'
R = 302.00'
SE = 0.08
V = 30mph

PI Sta 21+45.69	PI Sta 23+07.44
Δ = 0'46" 37.3' (LT)	Δ = 0'50" 05.0' (RT)
D = 0'29" 53.6'	D = 0'29" 53.6'
L = 155.36'	L = 167.54'
T = 77.98'	T = 83.77'
R = 11500.00'	R = 11500.00'
SE = NC	SE = NC
V = 60mph	V = 60mph



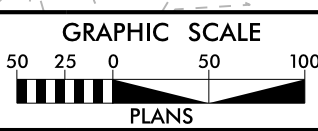
PI Sta 10+94.75	PI Sta 12+93.03
Δ = 0'56" 36.7' (RT)	Δ = 1'01" 06.4' (LT)
D = 0'29" 53.6'	D = 0'29" 53.6'
L = 184.49'	L = 200.00'
T = 94.75'	T = 100.54'
R = 11500.00'	R = 11500.00'
SE = NC	SE = NC
V = 60mph	V = 60mph



CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 07

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

NOTE:
 PERIMETER EROSION CONTROL MEASURES SHALL BE
 INSTALLED DURING CLEARING AND GRUBBING PHASE.



JAMES E. PIERCE, JR. AND JACQUELYN P. BAILEY
 PROFESSIONAL ENGINEERS
 DB 13 PG 2/5 (MAP)



5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	EC-10/CONST.08
RW SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	
LEVEL III CERTIFIED BY: STACEY H. BAILEY, PE CERTIFICATION NUMBER: 3074 ISSUED: JANUARY 13, 2017	

-DRI-
PI Sta 10+77.66
 $\Delta = 63' 11.175" (RT)$
 $D = 127' 19.262"$
 $L = 49.63'$
 $T = 27.68'$
 $R = 45.00'$
SE = NC

Flow Arrow Legend
 - Overland Flow
 - Existing Swale/Ditch

END CONSTRUCTION
-DRI- POT Sta. 11+50.00
-DRI- PT Sta. 10+99.61
N 84° 23' 57.5" E LB
-DRI- PC Sta. 10+49.98

BEGIN CONSTRUCTION
-YI- POT Sta 13+75.00

END CONSTRUCTION
-DRIA- POT Sta. 10+80.00

REVISIONS

MATCHLINE -YI- STA 21+00
SEE SHEET 4

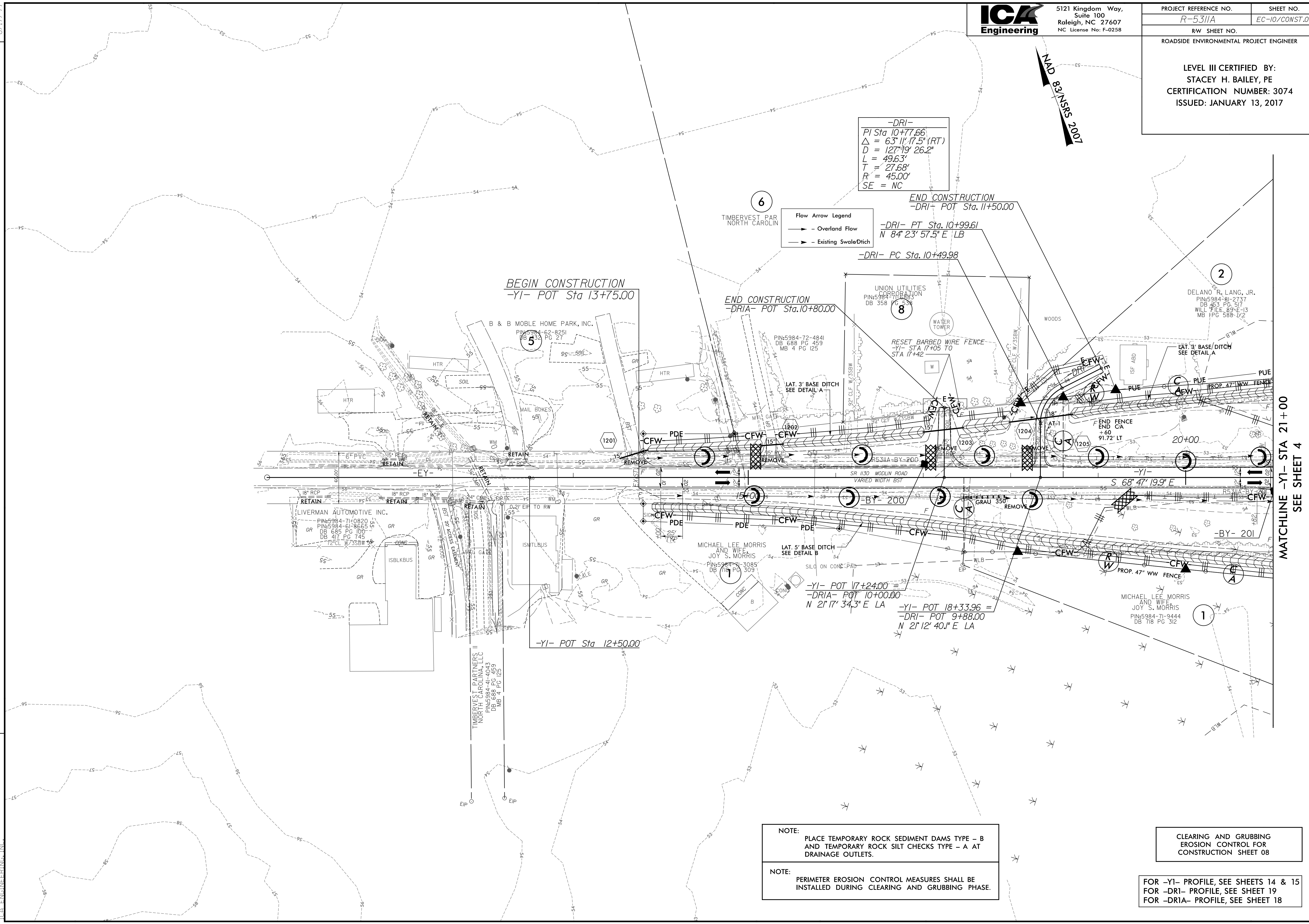
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 08

FOR -YI- PROFILE, SEE SHEETS 14 & 15
FOR -DRI- PROFILE, SEE SHEET 19
FOR -DRIA- PROFILE, SEE SHEET 18

8/17/99
1/3/2017
R-5311A - hyd_erosion_e&g_pah_08.dgn
ICA ENGINEERING, INC.





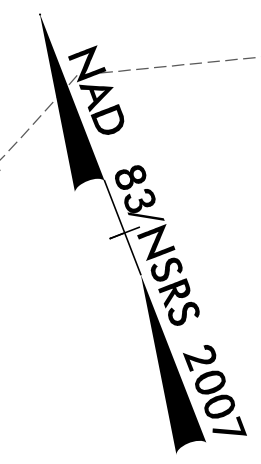
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PROJECT REFERENCE NO.	SHEET NO.
R-5311A	EC-11/CONST.09

RW SHEET NO.
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

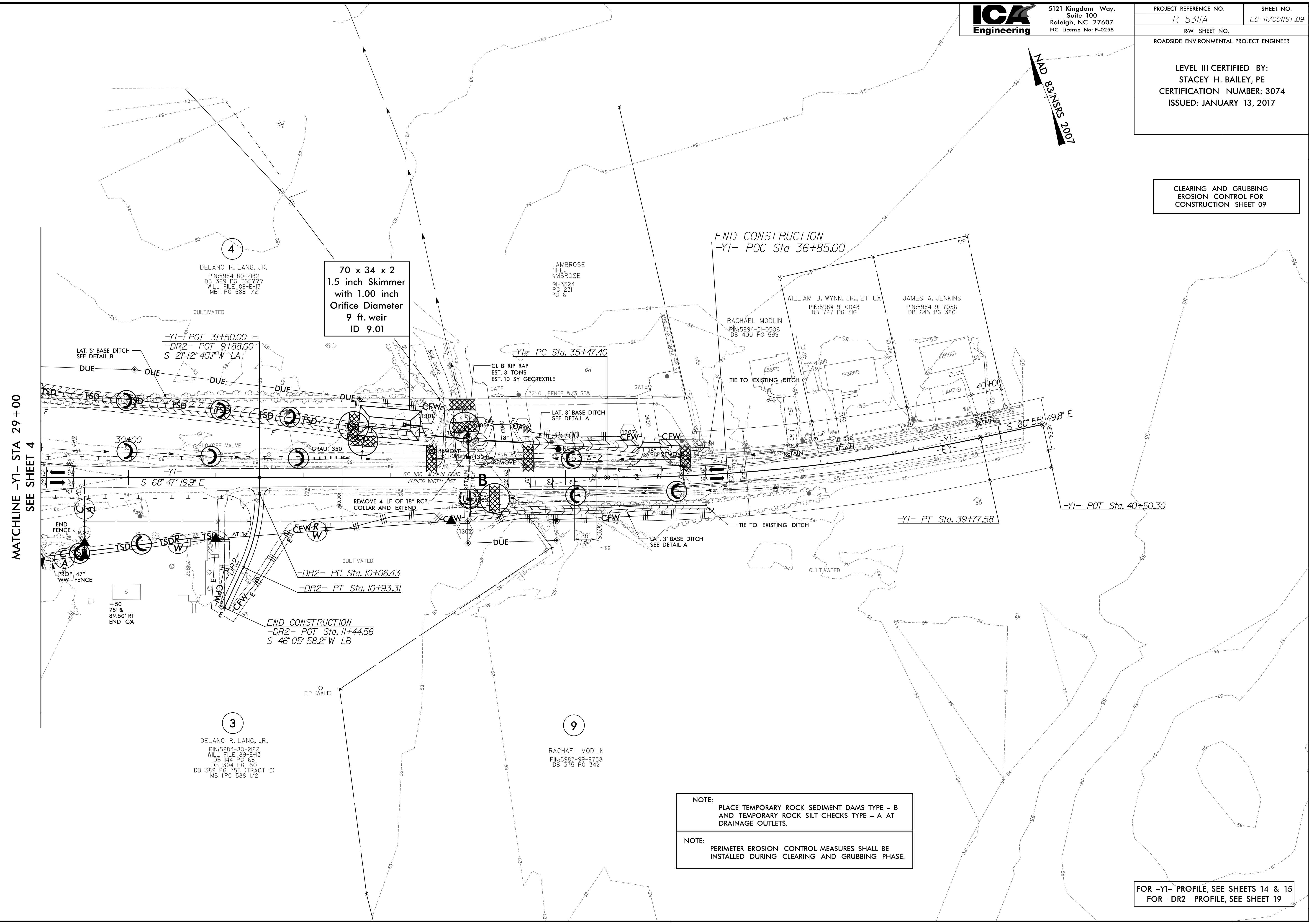
LEVEL III CERTIFIED BY:
STACEY H. BAILEY, PE
CERTIFICATION NUMBER: 3074
ISSUED: JANUARY 13, 2017

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 09



8/17/99

REVISIONS



MATCHLINE -Y1- STA 29+00
SEE SHEET 4

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

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

FOR -Y1- PROFILE, SEE SHEETS 14 & 15
FOR -DR2- PROFILE, SEE SHEET 19

1/3/2017
145311A_hurd_erosion_e&g_psh_09.dgn
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Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	EC-12/CONST.10

RW SHEET NO.
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
STACEY H. BAILEY, PE
CERTIFICATION NUMBER: 3074
ISSUED: JANUARY 13, 2017

NAD 83/NSRS 2007

MATCHLINE -Y2- STA 43+00
SEE SHEET 7

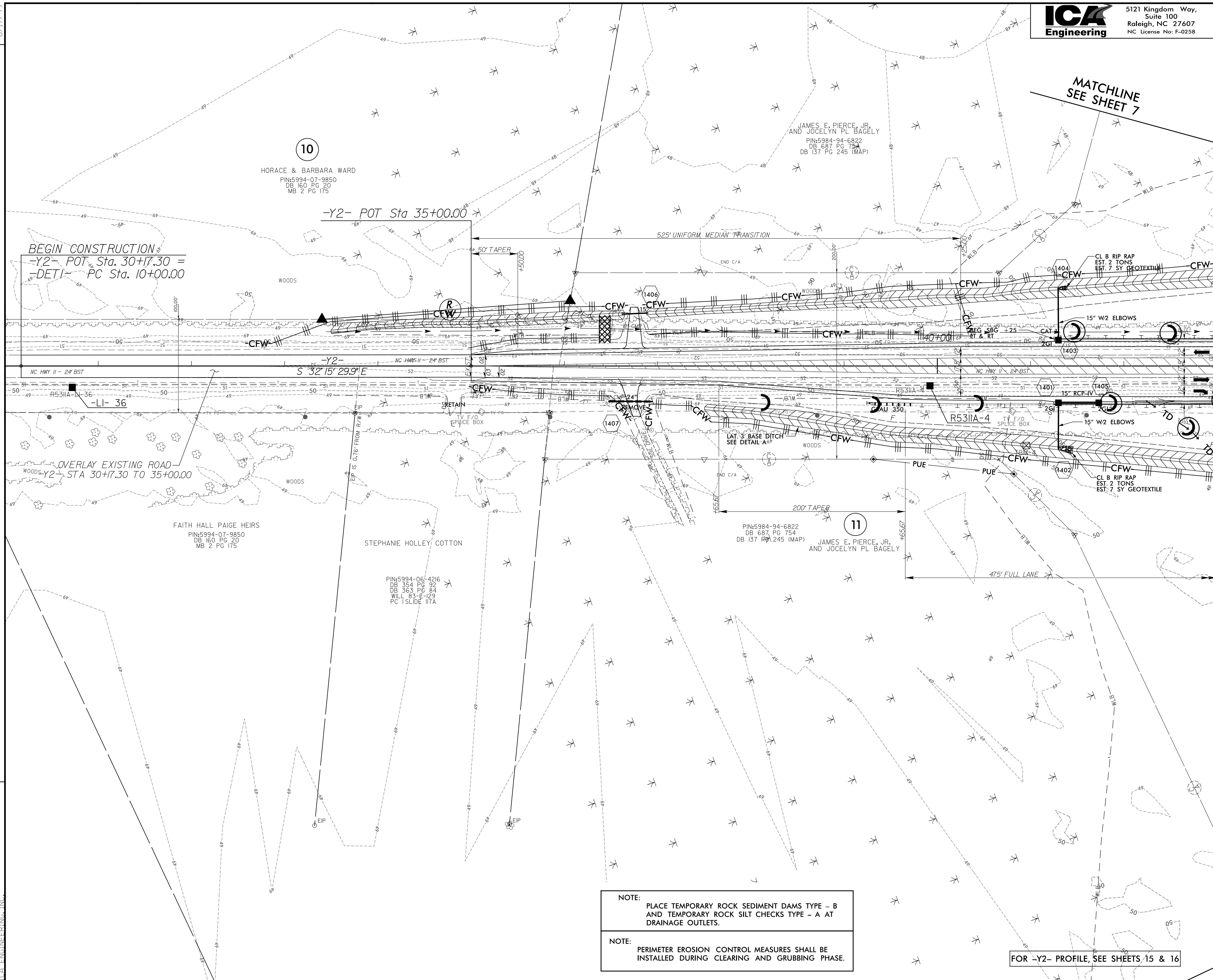
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 10

MATCHLINE
SEE SHEET 7

FOR -Y2- PROFILE, SEE SHEETS 15 & 16

8/17/99

1/3/2017
R5311A_hud_erosion_e&g_pah_10.dgn
ICA ENGINEERING, INC.



10

HORACE & BARBARA WARD
PIN:5994-07-9850
DB 160 PG 20
MB 2 PG 175

JAMES E. PIERCE, JR.
AND JOCELYN PL BAGELY
PIN:5984-94-6822
DB 687 PG 754
DB 137 PG 245 (MAP)

FAITH HALL PAIGE HEIRS
PIN:5994-07-9850
DB 160 PG 20
MB 2 PG 175

STEPHANIE HOLLEY COTTON

PIN:5994-06-4216
DB 354 PG 92
DB 363 PG 94
WILL 83-E-129
PC TSLIDE IITA

11

PIN:5984-94-6822
DB 687 PG 754
DB 137 PG 245 (MAP)

JAMES E. PIERCE, JR.
AND JOCELYN PL BAGELY

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

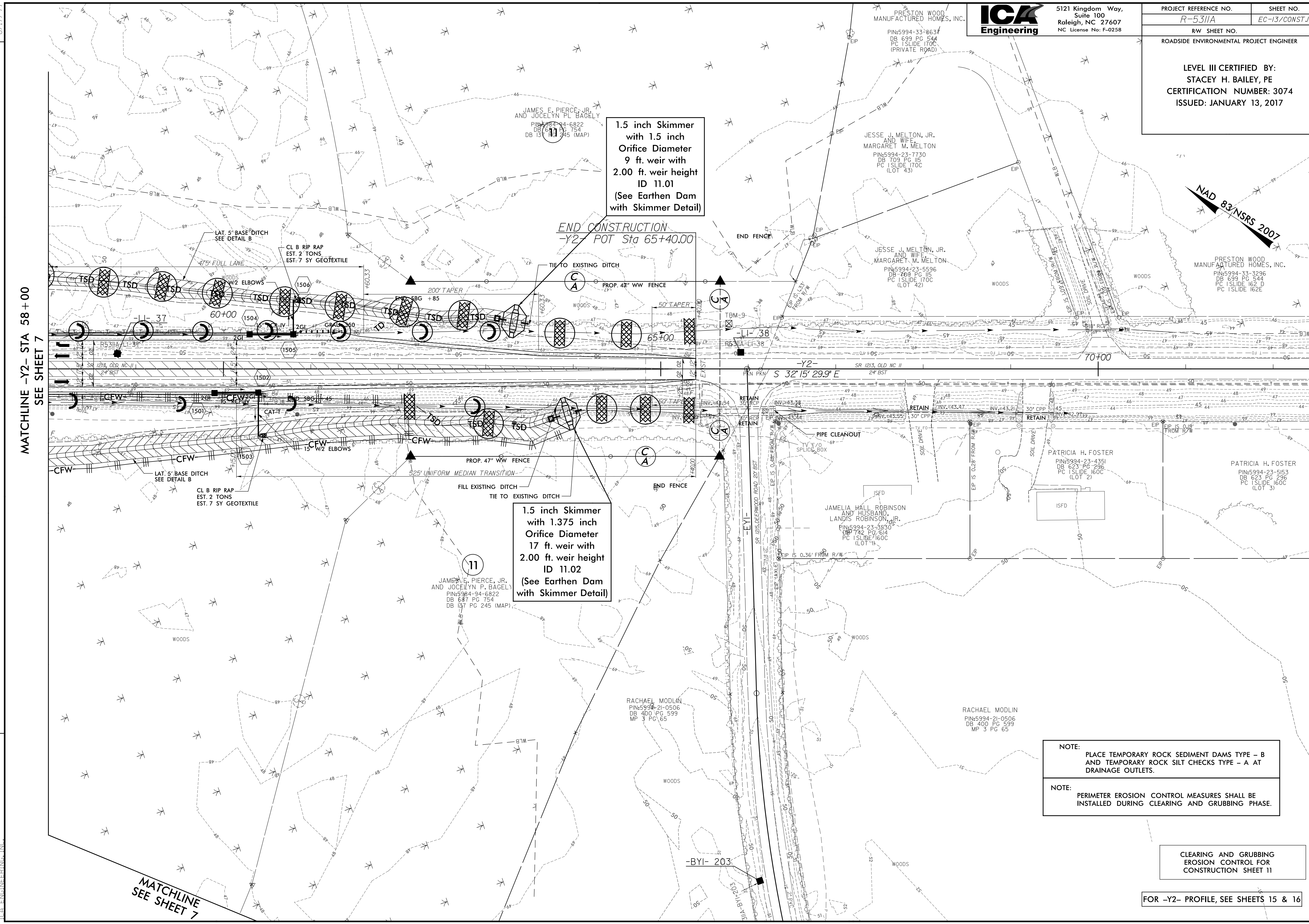
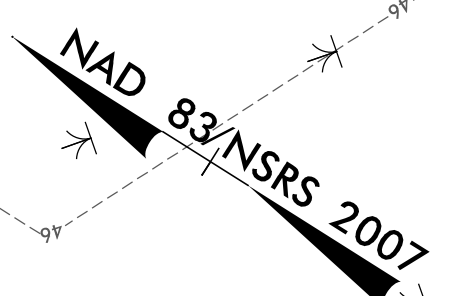
NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.



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Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	EC-13/CONST.II
RW SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

LEVEL III CERTIFIED BY:
STACEY H. BAILEY, PE
CERTIFICATION NUMBER: 3074
ISSUED: JANUARY 13, 2017



R/W REV. (10/31/16) - ADDED PARCEL #11 LABEL AND CHANGED EXISTING C/A TO PROPOSED C/A ON PARCEL #11. DCS

REVISIONS

MATCHLINE -Y2- STA 58+00
SEE SHEET 7

MATCHLINE
SEE SHEET 7

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

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 11

FOR -Y2- PROFILE, SEE SHEETS 15 & 16

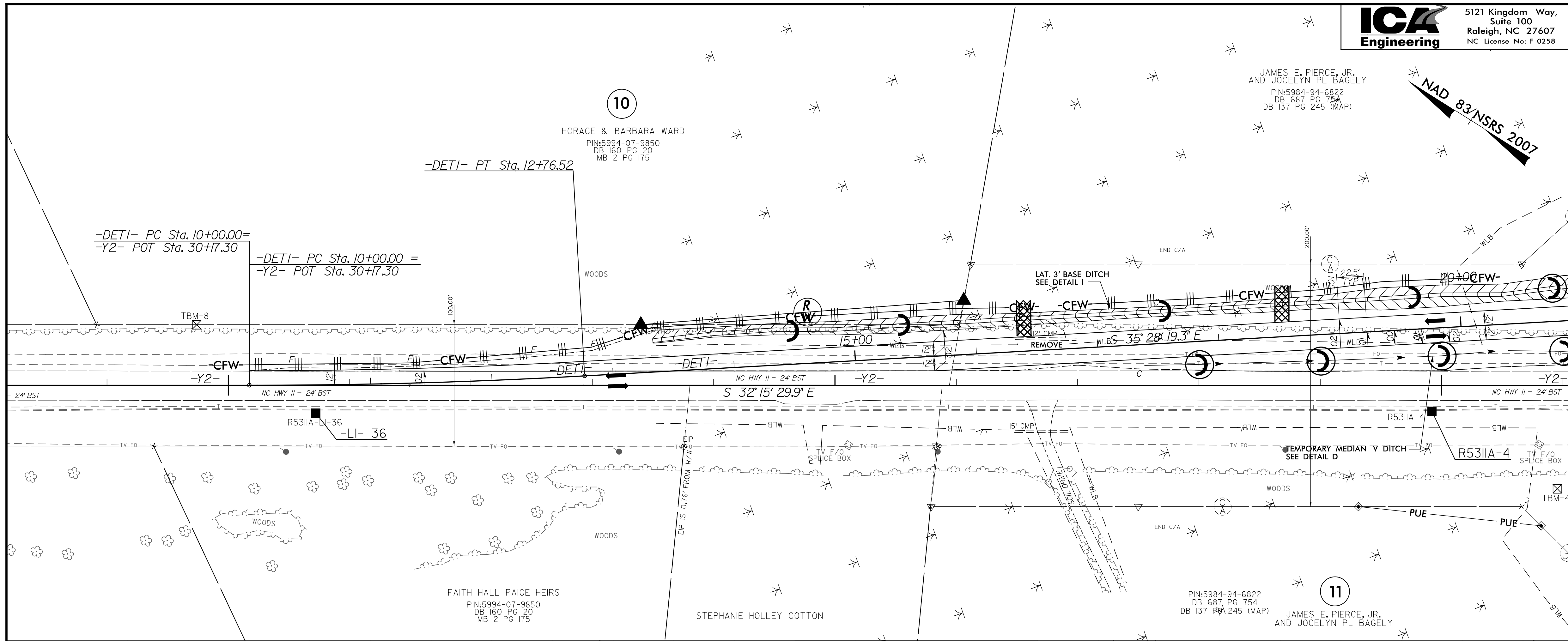
1/3/2017
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ICA ENGINEERING, INC.



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Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	EC-14/CONST.2B-6
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

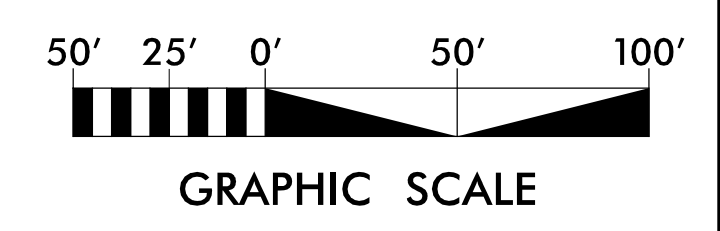
LEVEL III CERTIFIED BY:
STACEY H. BAILEY, PE
CERTIFICATION NUMBER: 3074
ISSUED: JANUARY 13, 2017



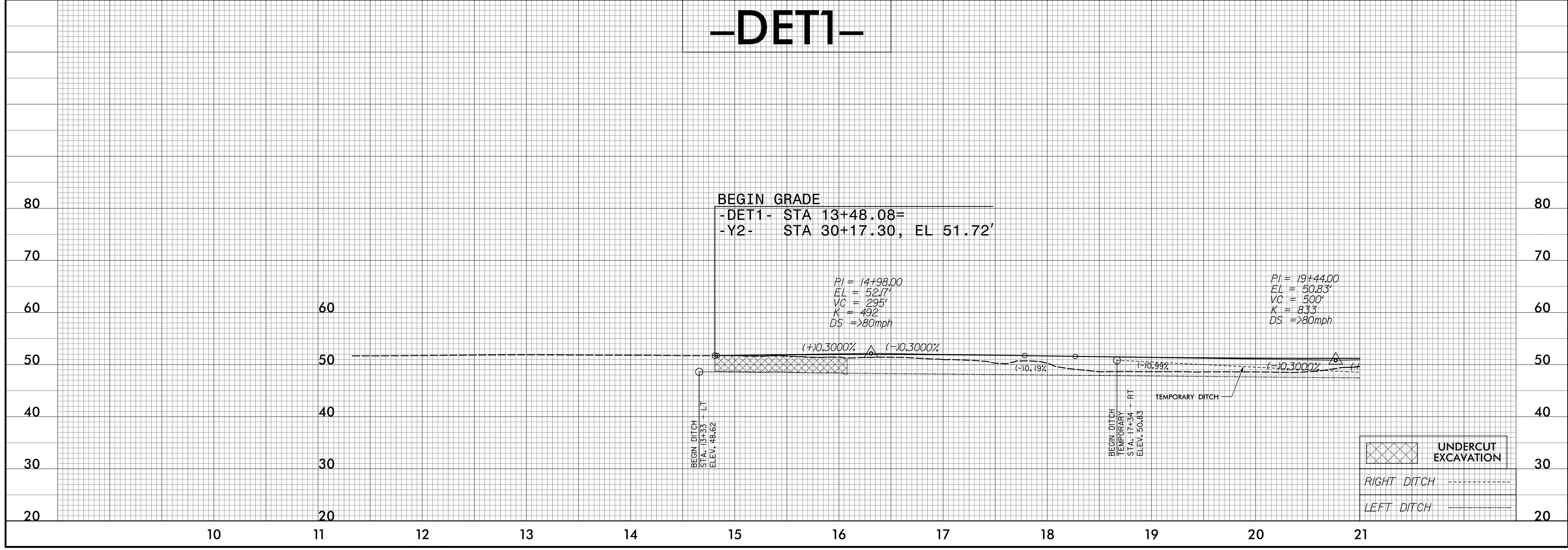
NAD 83/NSRS 2007

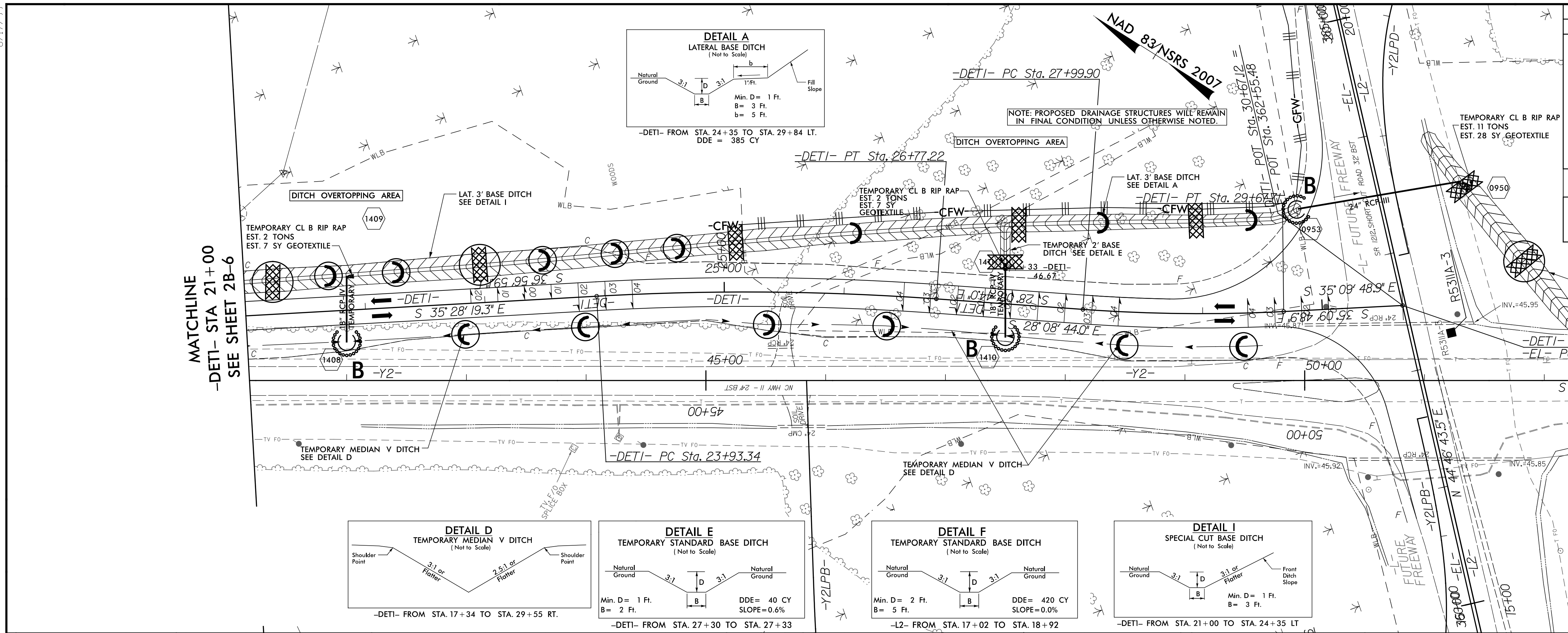
MATCHLINE
-DET1- STA 21+00
SEE SHEET 2B-7

FINAL EROSION CONTROL FOR
CONSTRUCTION SHEET 2B-6

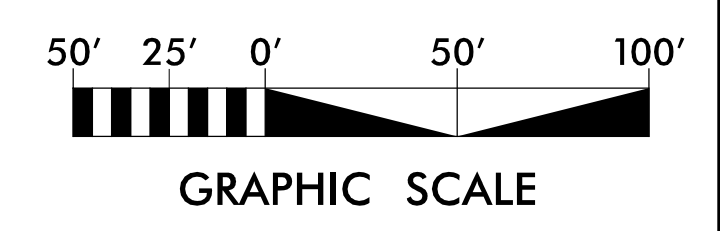


-DET1-





FINAL EROSION CONTROL FOR CONSTRUCTION SHEET 2B-7



-DET1-

PIPE HYDRAULIC DATA
 TEMPORARY 18" RCP STA 21+84 -DET1-

DRAINAGE AREA	= 1	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 6	CFS
DESIGN HW ELEVATION	= 49.0	FT
100 YEAR DISCHARGE	= 6	CFS
100 YEAR HW ELEVATION	= 49.0	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 27	CFS
OVERTOPPING ELEVATION	= 50.3	FT

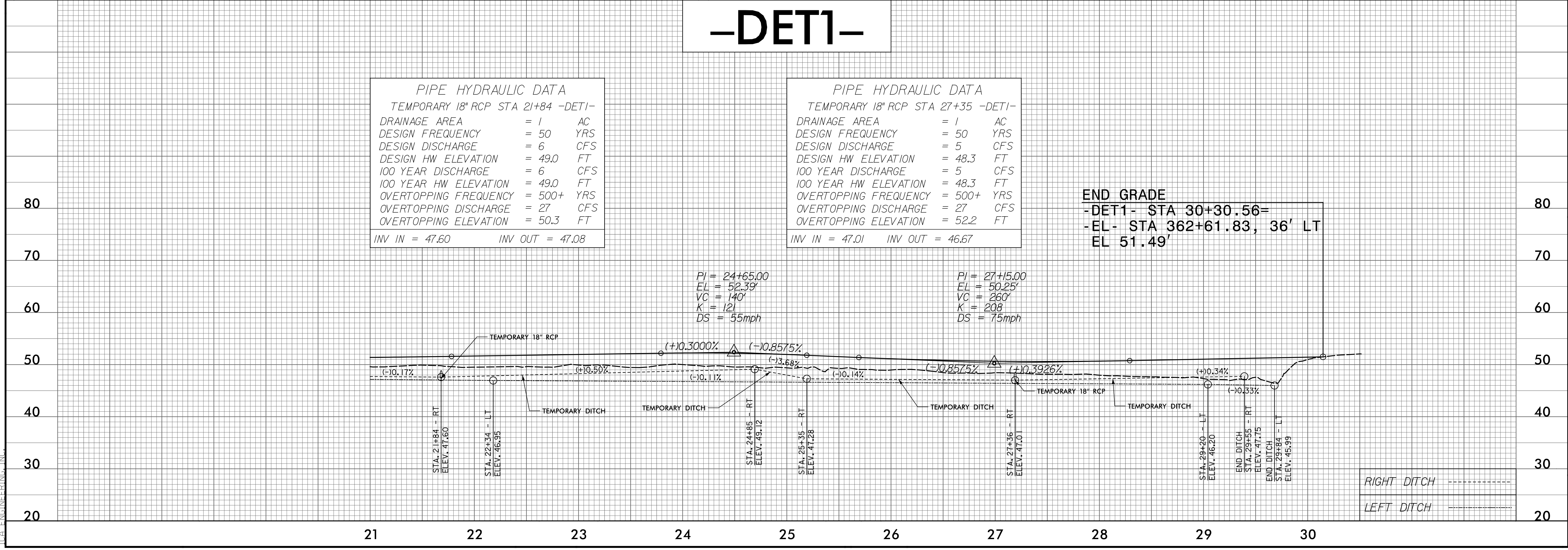
INV IN = 47.60 INV OUT = 47.08

PIPE HYDRAULIC DATA
 TEMPORARY 18" RCP STA 27+35 -DET1-

DRAINAGE AREA	= 1	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 5	CFS
DESIGN HW ELEVATION	= 48.3	FT
100 YEAR DISCHARGE	= 5	CFS
100 YEAR HW ELEVATION	= 48.3	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 27	CFS
OVERTOPPING ELEVATION	= 52.2	FT

INV IN = 47.01 INV OUT = 46.67

END GRADE
 -DET1- STA 30+30.56=
 -EL- STA 362+61.83, 36' LT
 EL 51.49'



RIGHT DITCH -----
 LEFT DITCH -----

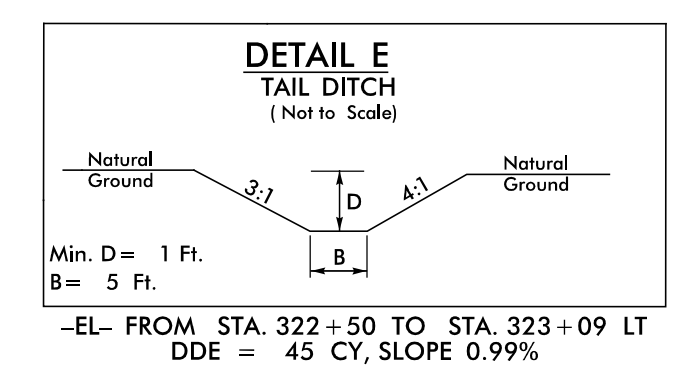
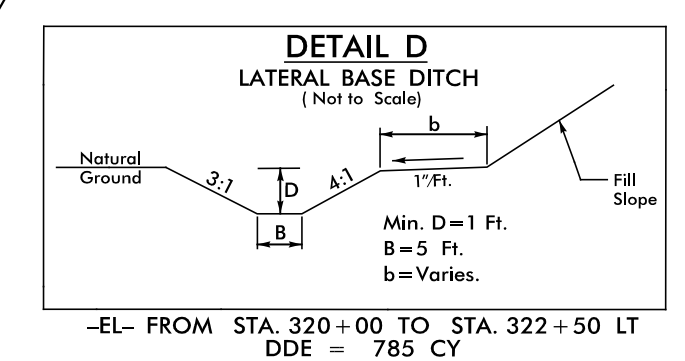
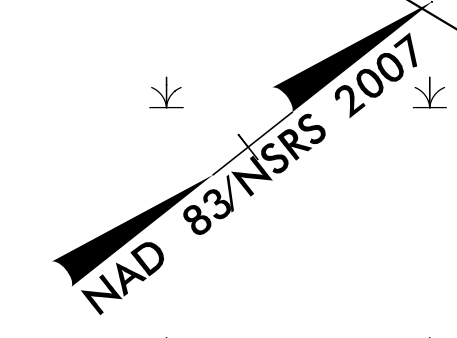
8/17/99
 1/13/2017
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 ICA ENGINEERING, INC.



5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	EC-17/CONST.05
RW SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

LEVEL III CERTIFIED BY:
STACEY H. BAILEY, PE
CERTIFICATION NUMBER: 3074
ISSUED: JANUARY 13, 2017

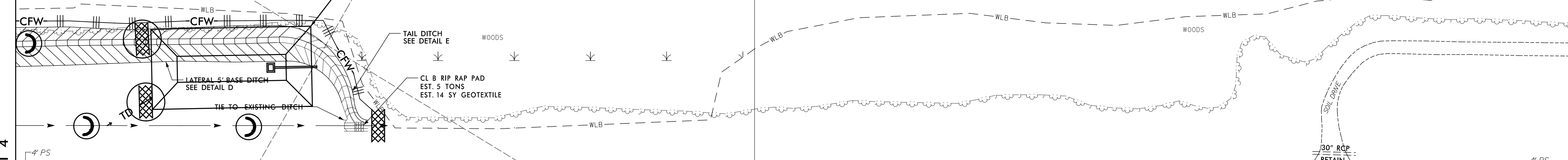


RACHAEL MODLIN
PIN:5984-21-0506
DB 400 PG 599

6
TIMBERVEST PARTNERS II
NORTH CAROLINA, LLC
PIN:5984-72-4841
DB 688 PG 459
MB 4 PG 125

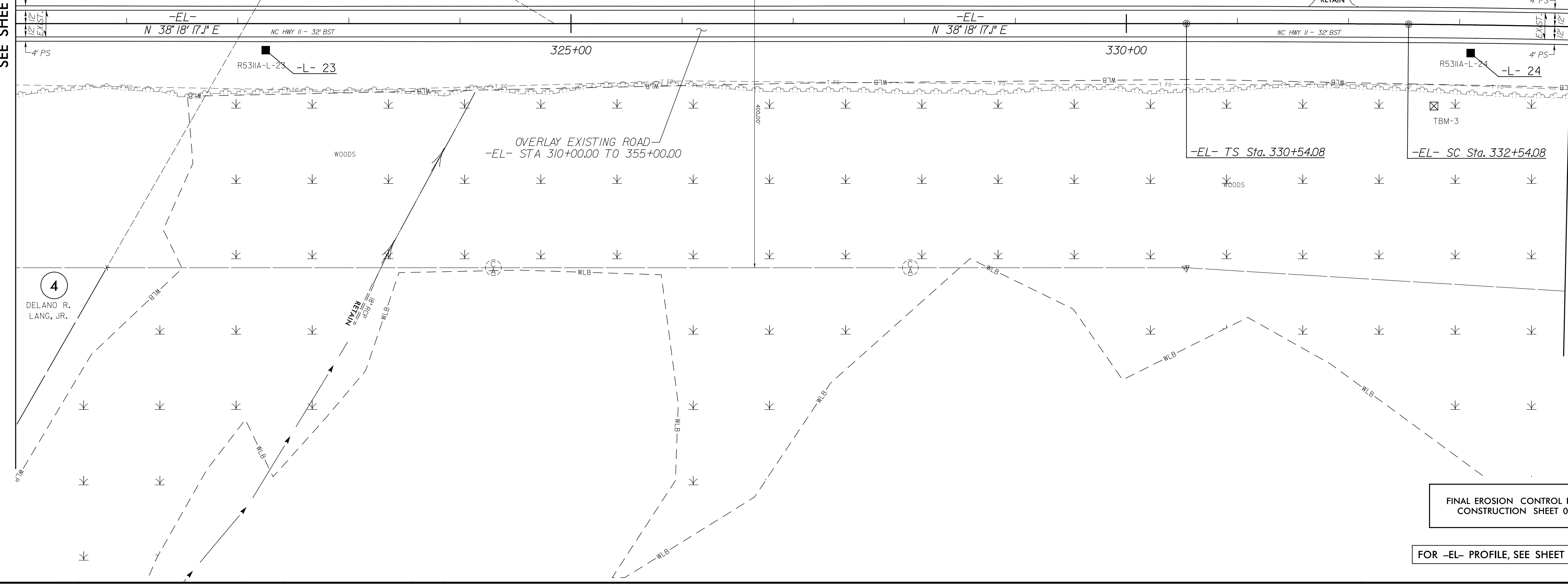
2
DELANO R. LANG, JR.

144 x 72 x 2
2.0 inch Skimmer
with 2.0 inch
Orifice Diameter
40 ft. weir
ID 5.01



MATCHLINE -EL- STA 320+00
SEE SHEET 4

MATCHLINE -EL- STA 334+00
SEE SHEET 6



FINAL EROSION CONTROL FOR
CONSTRUCTION SHEET 05

FOR -EL- PROFILE, SEE SHEET 12 & 13

REVISIONS

8/17/99

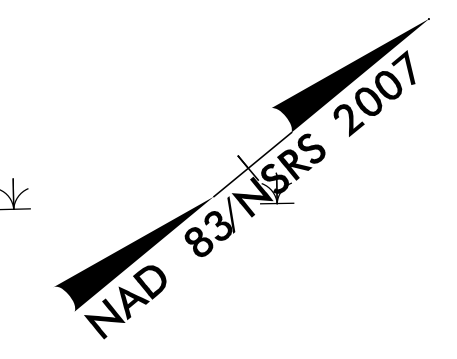
1/3/2017
R5311A_hurd_erosion_f.mpl.psh.05.dgn
ICA ENGINEERING, INC.



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Suite 100
Raleigh, NC 27607
NC License No: F-0258

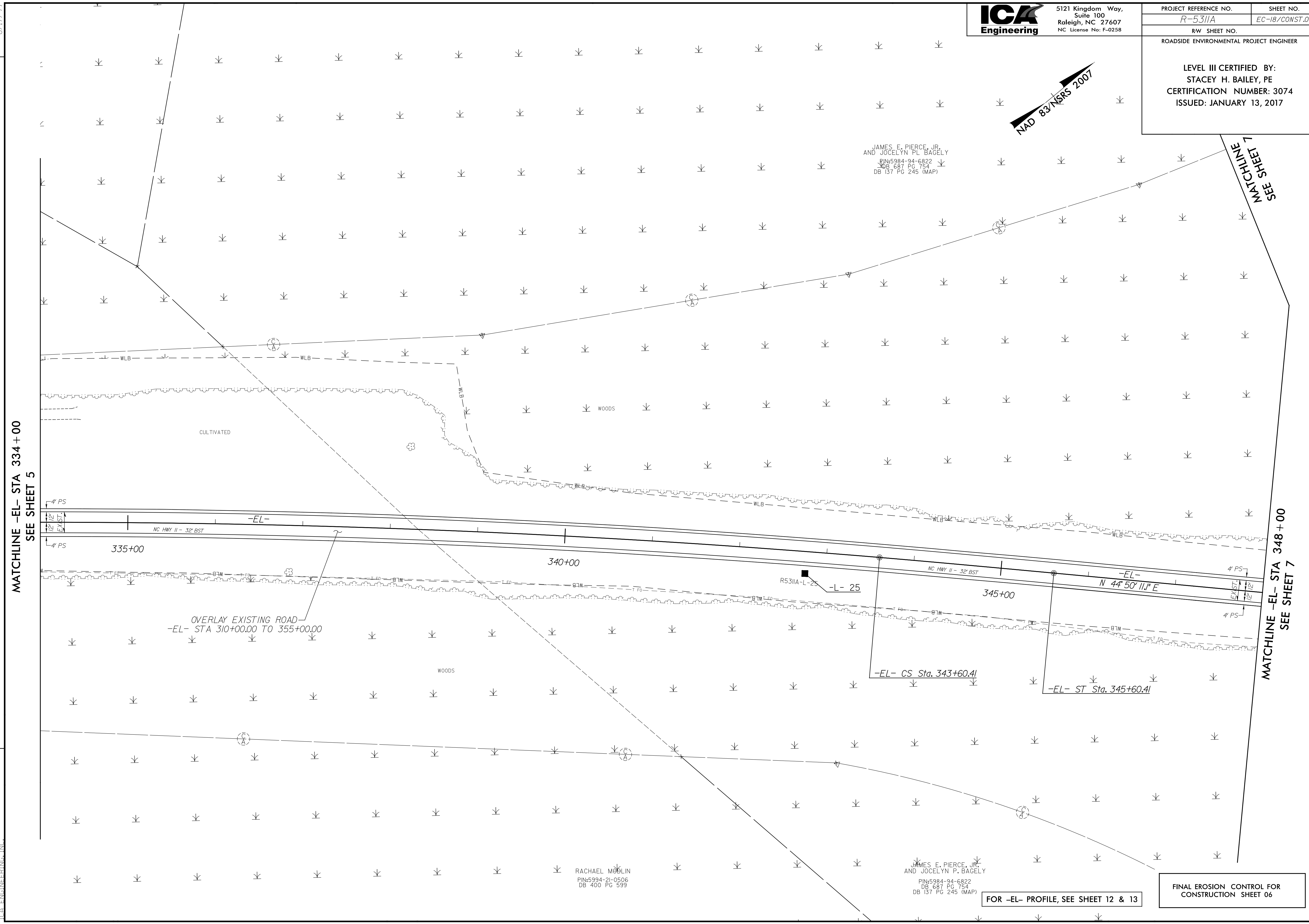
PROJECT REFERENCE NO.	SHEET NO.
R-5311A	EC-18/CONST.06
RW SHEET NO.	
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER	

LEVEL III CERTIFIED BY:
STACEY H. BAILEY, PE
CERTIFICATION NUMBER: 3074
ISSUED: JANUARY 13, 2017



JAMES E. PIERCE, JR.
AND JOCELYN PL BAGELY
PIN: 5984-94-6822
DB 687 PG 754
DB 137 PG 245 (MAP)

SEE SHEET 7
MATCHLINE



REVISIONS

MATCHLINE -EL- STA 334+00
SEE SHEET 5

MATCHLINE -EL- STA 348+00
SEE SHEET 7

OVERLAY EXISTING ROAD
-EL- STA 310+00.00 TO 355+00.00

-EL- CS Sta. 343+60.41

-EL- ST Sta. 345+60.41

RACHAEL MOULIN
PIN: 5994-21-0506
DB 400 PG 599

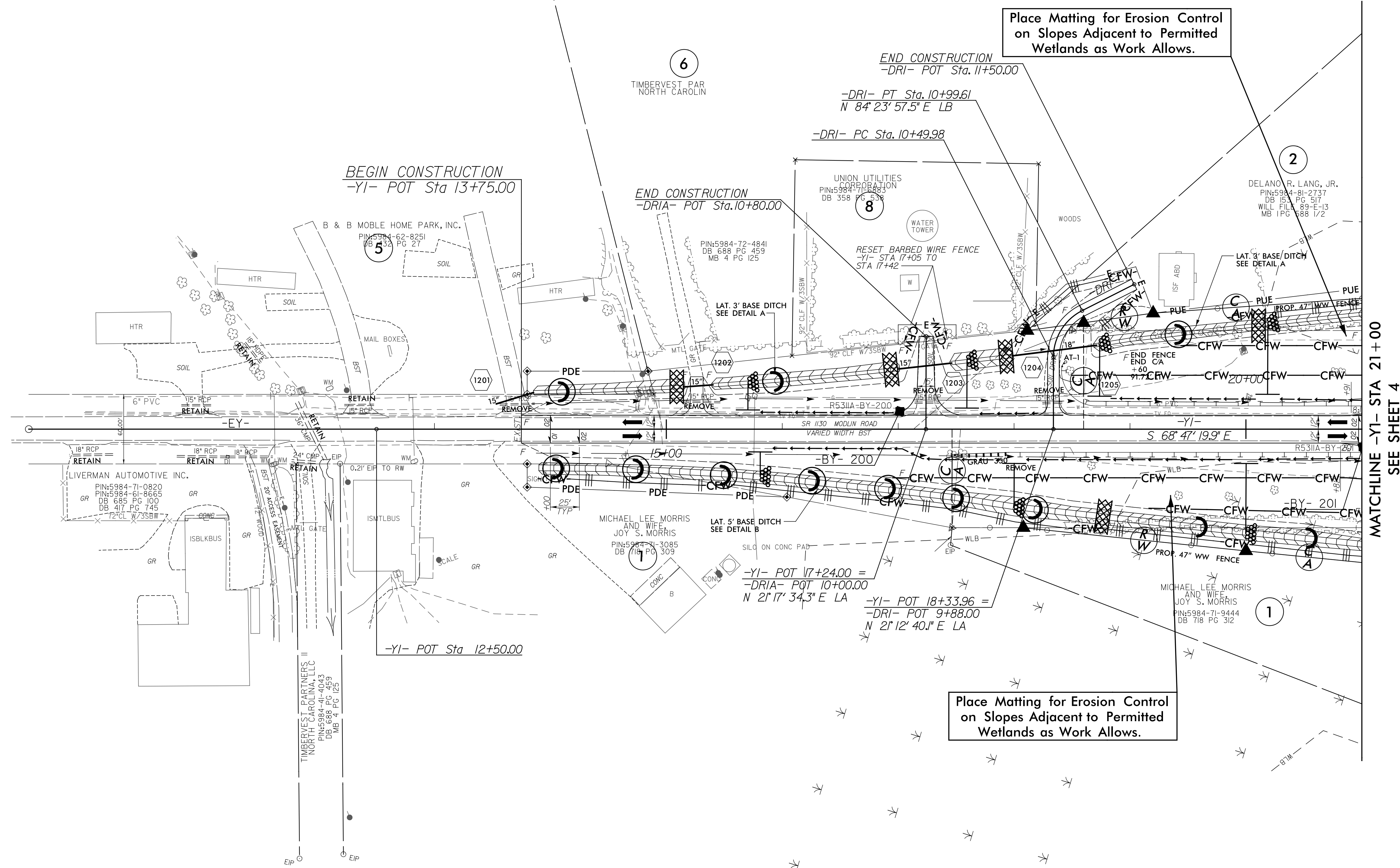
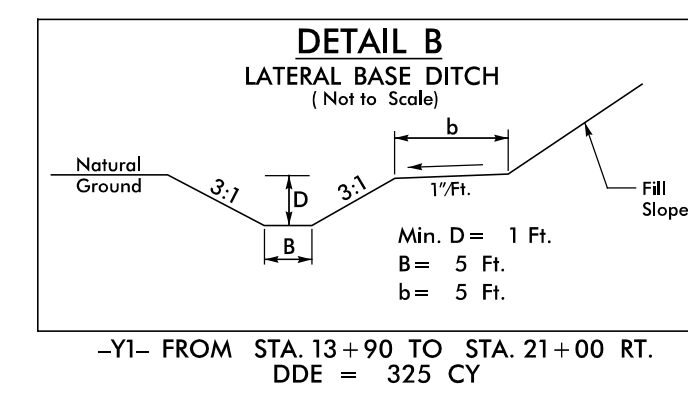
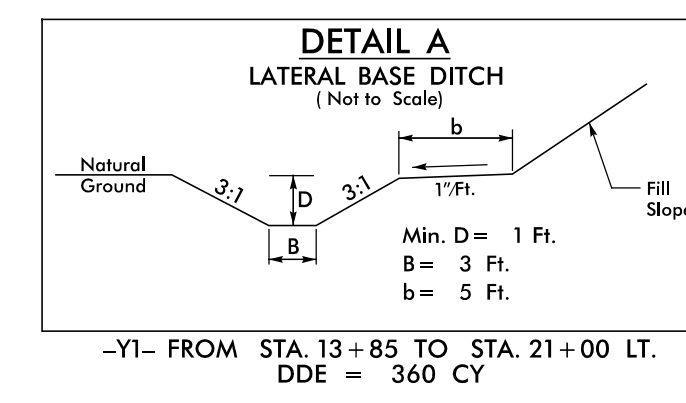
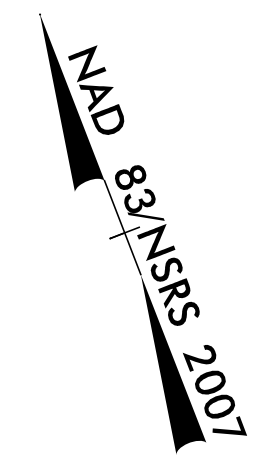
JAMES E. PIERCE, JR.
AND JOCELYN P. BAGELY
PIN: 5984-94-6822
DB 687 PG 754
DB 137 PG 245 (MAP)

FOR -EL- PROFILE, SEE SHEET 12 & 13

FINAL EROSION CONTROL FOR
CONSTRUCTION SHEET 06

1/13/2017
R-5311A_hud_erosion_fm.e1.psh.06.dgn
ICA ENGINEERING, INC.

LEVEL III CERTIFIED BY:
STACEY H. BAILEY, PE
CERTIFICATION NUMBER: 3074
ISSUED: JANUARY 13, 2017



REVISIONS

MATCHLINE -Y1- STA 21+00
SEE SHEET 4

Place Matting for Erosion Control
on Slopes Adjacent to Permitted
Wetlands as Work Allows.

FINAL EROSION CONTROL FOR
CONSTRUCTION SHEET 08

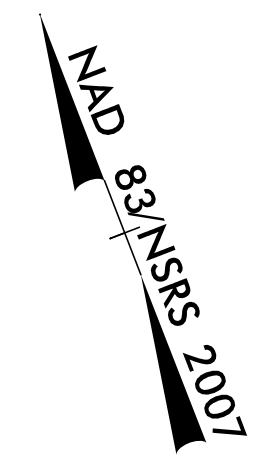
FOR -Y1- PROFILE, SEE SHEETS 14 & 15
FOR -DRI- PROFILE, SEE SHEET 19
FOR -DRIA- PROFILE, SEE SHEET 18

8/17/99

1/13/2017
R-5311A final_erosion_control.psh_08.dgn
ICA ENGINEERING, INC.

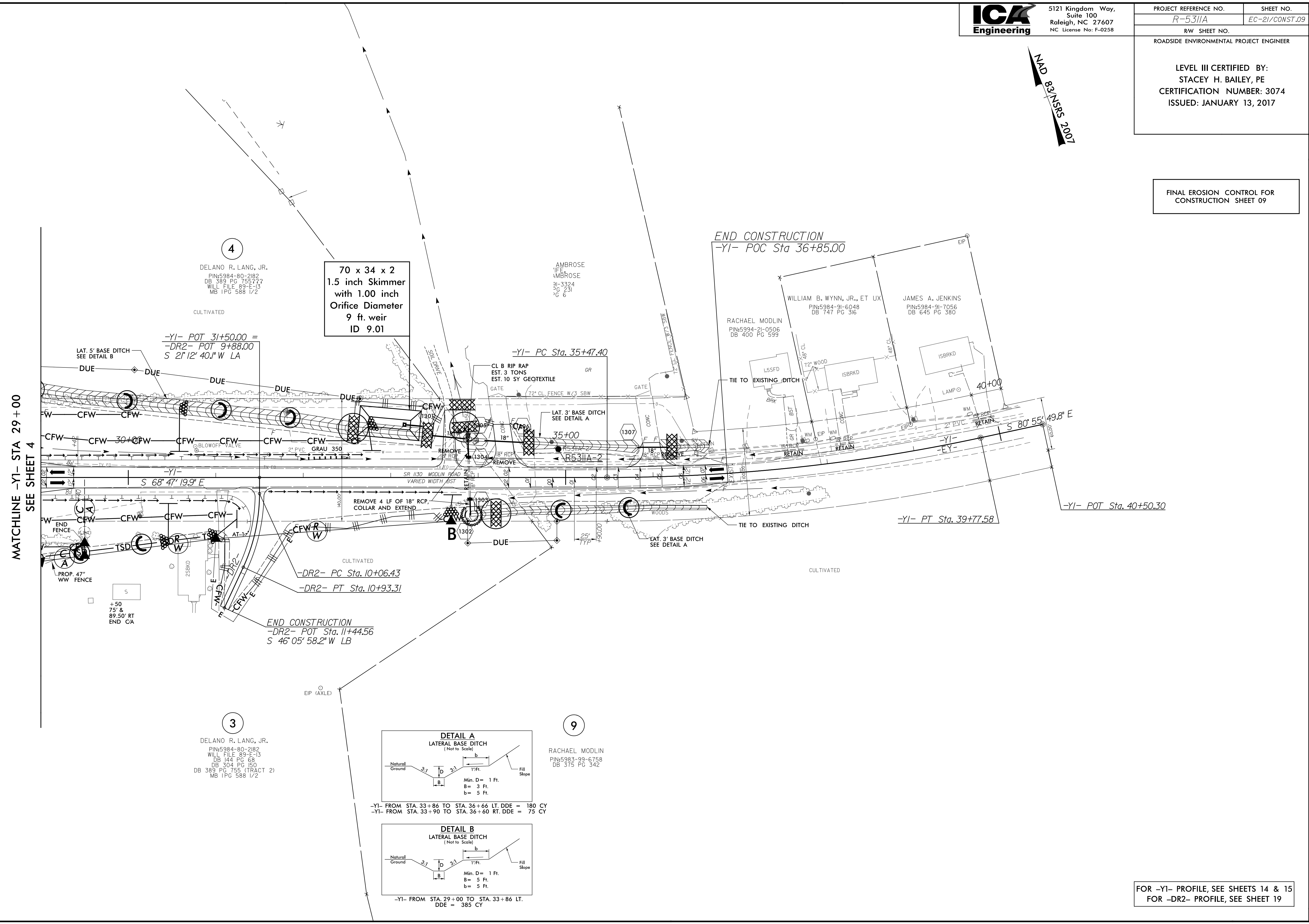
LEVEL III CERTIFIED BY:
STACEY H. BAILEY, PE
CERTIFICATION NUMBER: 3074
ISSUED: JANUARY 13, 2017

FINAL EROSION CONTROL FOR
CONSTRUCTION SHEET 09



8/17/99

REVISIONS



MATCHLINE -Y1- STA 29+00
SEE SHEET 4

SEE SHEET 4

4
DELANO R. LANG, JR.
PIN:5984-80-2182
DB 389 PG 755/277
WILL FILE 89-E-13
MB 1PG 588 1/2

70 x 34 x 2
1.5 inch Skimmer
with 1.00 inch
Orifice Diameter
9 ft weir
ID 9.01

AMBROSE
1/16
1/16
31-3324
56 231
26 6

WILLIAM B. WYNN, JR., ET UX
PIN:5984-91-6048
DB 747 PG 316

JAMES A. JENKINS
PIN:5984-91-7056
DB 645 PG 380

END CONSTRUCTION
-Y1- POC Sta 36+85.00

-Y1- PC Sta. 35+47.40

-Y1- POT 31+50.00 =
-DR2- POT 9+88.00
S 21° 12' 40.1" W LA

LAT. 5' BASE DITCH
SEE DETAIL B

LAT. 3' BASE DITCH
SEE DETAIL A

S 68° 47' 19.9" E

SR 1130 MODLIN ROAD
VARIED WIDTH EST

-Y1- PT Sta. 39+77.58

-Y1- POT Sta. 40+50.30

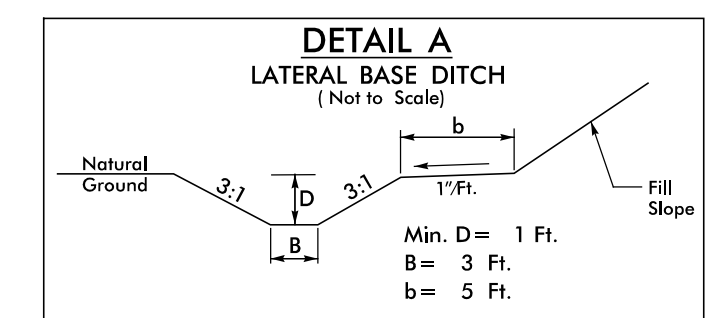
-DR2- PC Sta. 10+06.43
-DR2- PT Sta. 10+93.31

END CONSTRUCTION
-DR2- POT Sta. 11+44.56
S 46° 05' 58.2" W LB

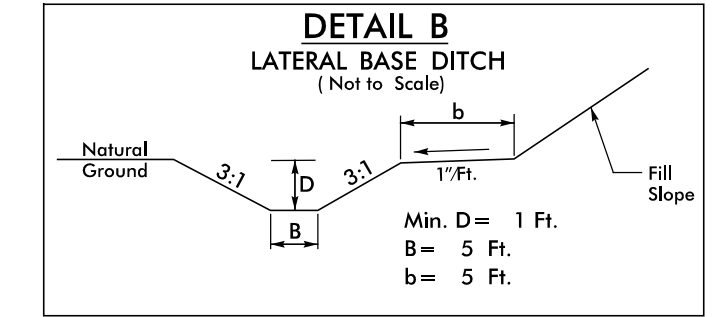
+50
75' &
89.50' RT
END CA

3
DELANO R. LANG, JR.
PIN:5984-80-2182
WILL FILE 89-E-13
DB 144 PG 68
DB 304 PG 150
DB 389 PG 755 (TRACT 2)
MB 1PG 588 1/2

9
RACHAEL MODLIN
PIN:5983-99-6758
DB 375 PG 342



-Y1- FROM STA. 33+86 TO STA. 36+66 LT. DDE = 180 CY
-Y1- FROM STA. 33+90 TO STA. 36+60 RT. DDE = 75 CY



-Y1- FROM STA. 29+00 TO STA. 33+86 LT.
DDE = 385 CY

FOR -Y1- PROFILE, SEE SHEETS 14 & 15
FOR -DR2- PROFILE, SEE SHEET 19

1/3/2017
14531A final erosion control sheet.dgn
ICA ENGINEERING, INC.

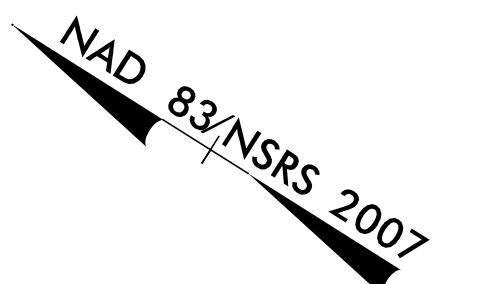


5121 Kingdom Way,
Suite 100
Raleigh, NC 27607
NC License No: F-0258

PROJECT REFERENCE NO.	SHEET NO.
R-5311A	EC-22/CONST.10

RW SHEET NO.
ROADSIDE ENVIRONMENTAL PROJECT ENGINEER

LEVEL III CERTIFIED BY:
STACEY H. BAILEY, PE
CERTIFICATION NUMBER: 3074
ISSUED: JANUARY 13, 2017



MATCHLINE -Y2- STA 43+00
SEE SHEET 7

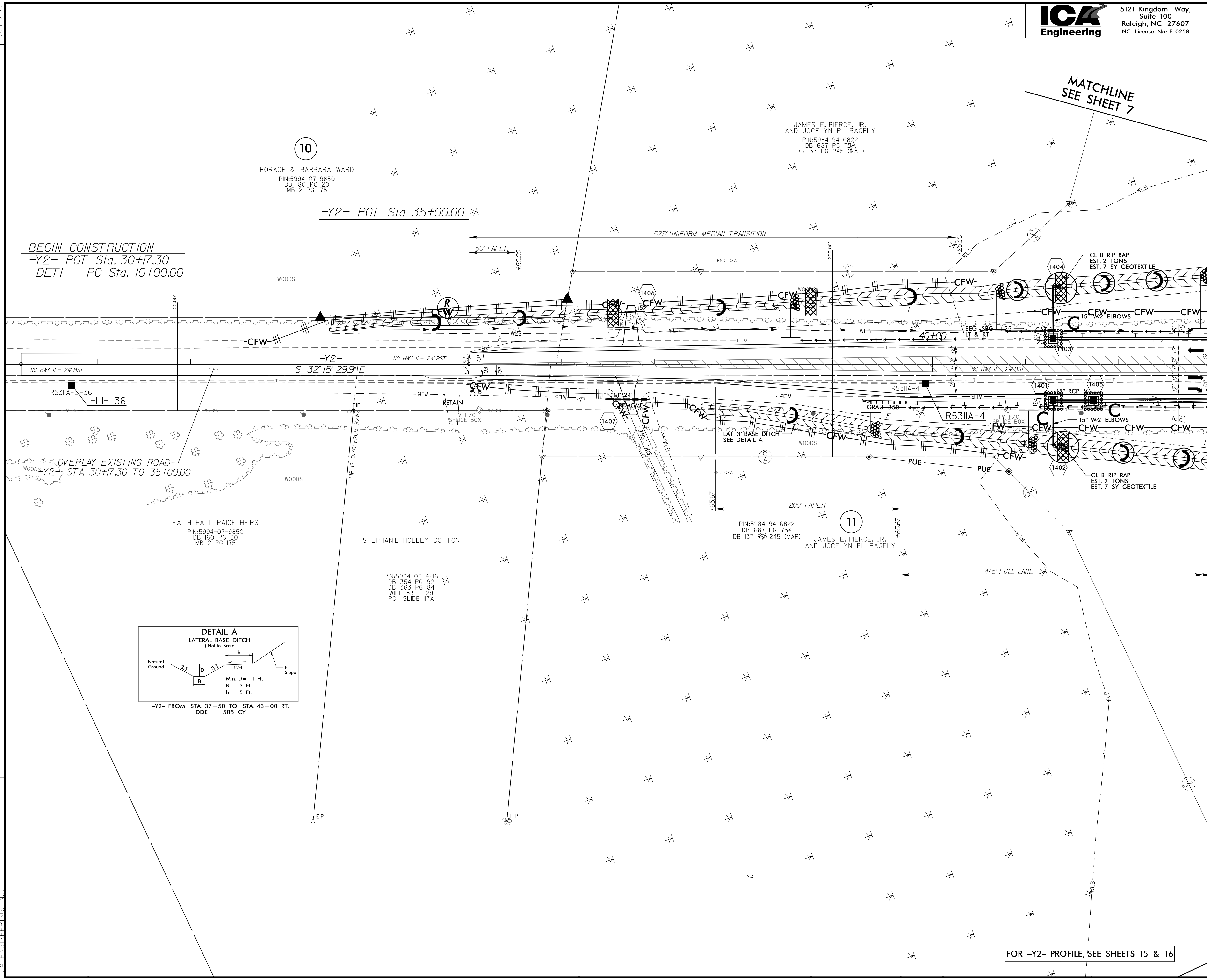
FINAL EROSION CONTROL FOR
CONSTRUCTION SHEET 10

MATCHLINE
SEE SHEET 7

FOR -Y2- PROFILE, SEE SHEETS 15 & 16

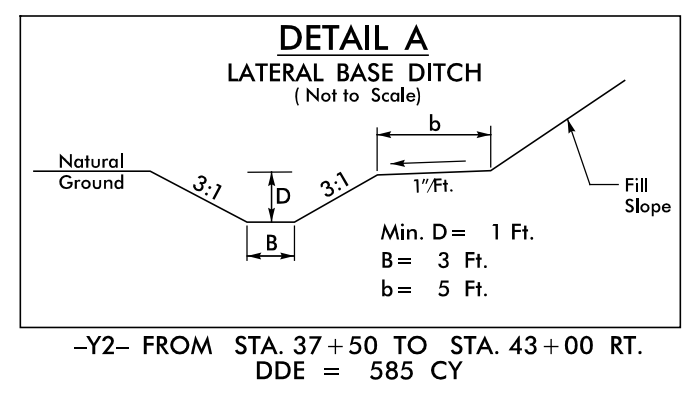
8/17/99

1/3/2017
R5311A final erosion final.psh.10.dgn
ICA ENGINEERING, INC.



BEGIN CONSTRUCTION
-Y2- POT Sta. 30+17.30 =
-DET1- PC Sta. 10+00.00

OVERLAY EXISTING ROAD
WOODS -Y2- STA 30+17.30 TO 35+00.00



10
HORACE & BARBARA WARD
PIN:5994-07-9850
DB 160 PG 20
MB 2 PG 175

FAITH HALL PAIGE HEIRS
PIN:5994-07-9850
DB 160 PG 20
MB 2 PG 175

STEPHANIE HOLLEY COTTON

PIN:5994-06-4216
DB 354 PG 82
DB 363 PG 84
WILL 83-E-129
PC TSLIDE 117A

JAMES E. PIERCE, JR.
AND JOCELYN PL. BAGELY
PIN:5984-94-6822
DB 687 PG 754
DB 137 PG 245 (MAP)

PIN:5984-94-6822
DB 687 PG 754
DB 137 PG 245 (MAP)

11
JAMES E. PIERCE, JR.
AND JOCELYN PL. BAGELY

