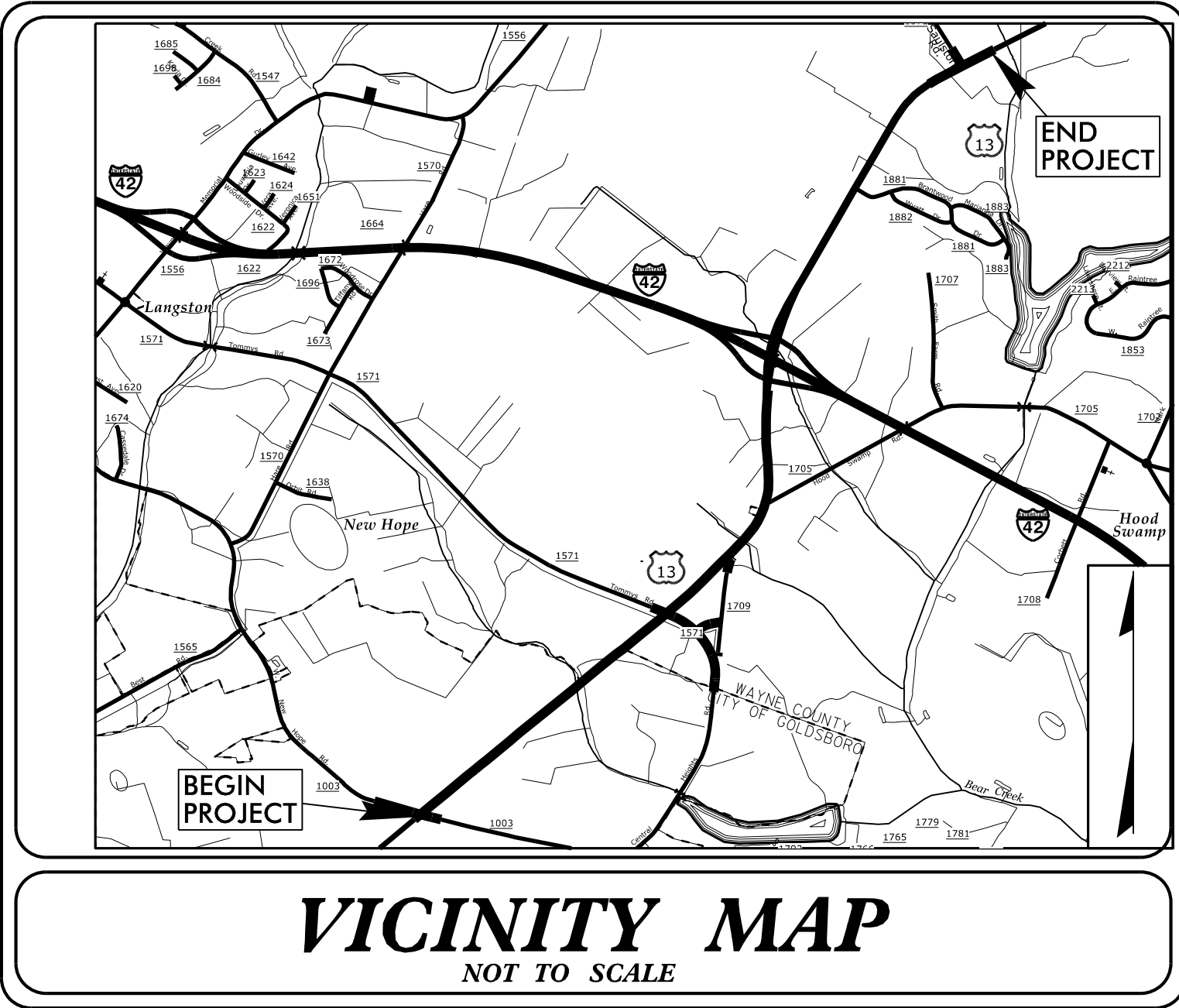


10/31/2025
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MI ENGINEERING, RALEIGH, NC

TIP PROJECT: U-3609B



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

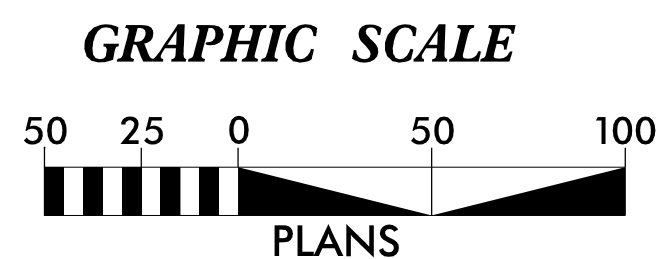
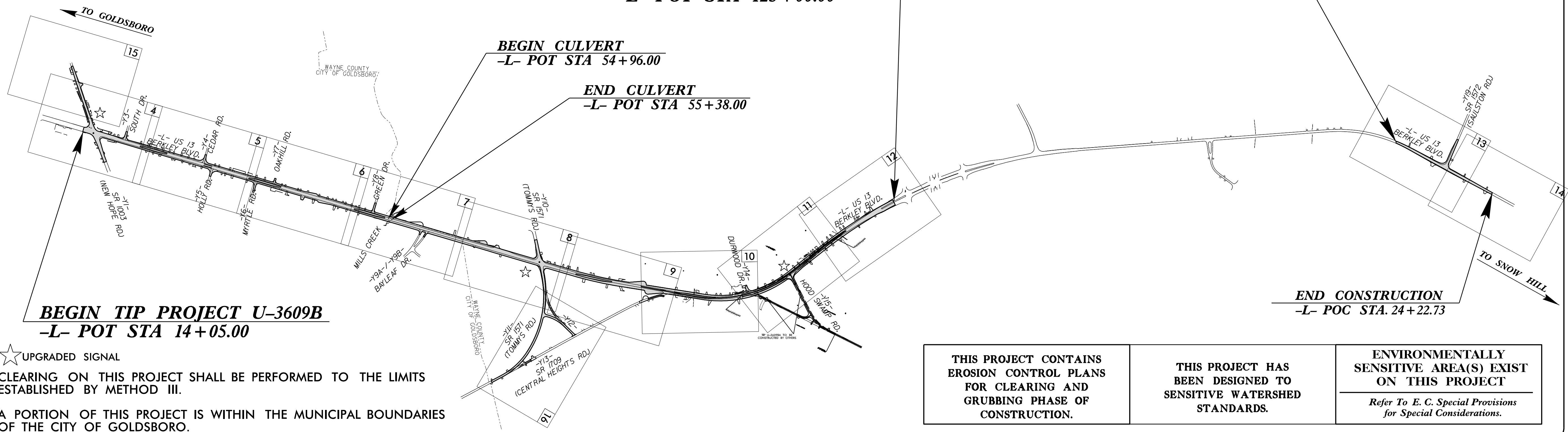
WAYNE COUNTY

**LOCATION: U.S. 13 (BERKELEY BOULEVARD) FROM
SR 1003 (NEW HOPE ROAD) TO
SR 1572 (SAULSTON ROAD)**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE
CULVERT & SIGNALS**

**END TIP PROJECT U-3609B
-L- POT STA 125+00.00**

**BEGIN CONSTRUCTION
-L- POC STA. 10+25.00**



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG 010000 GENERAL STORMWATER CONSTRUCTION PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF ENERGY, MINERAL, AND LAND RESOURCES.



Prepared in the Office of:
MI ENGINEERING, PLLC
1011 SCHAUB DR, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671

Designed by:
KAREN HEFNER, PE 3824
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

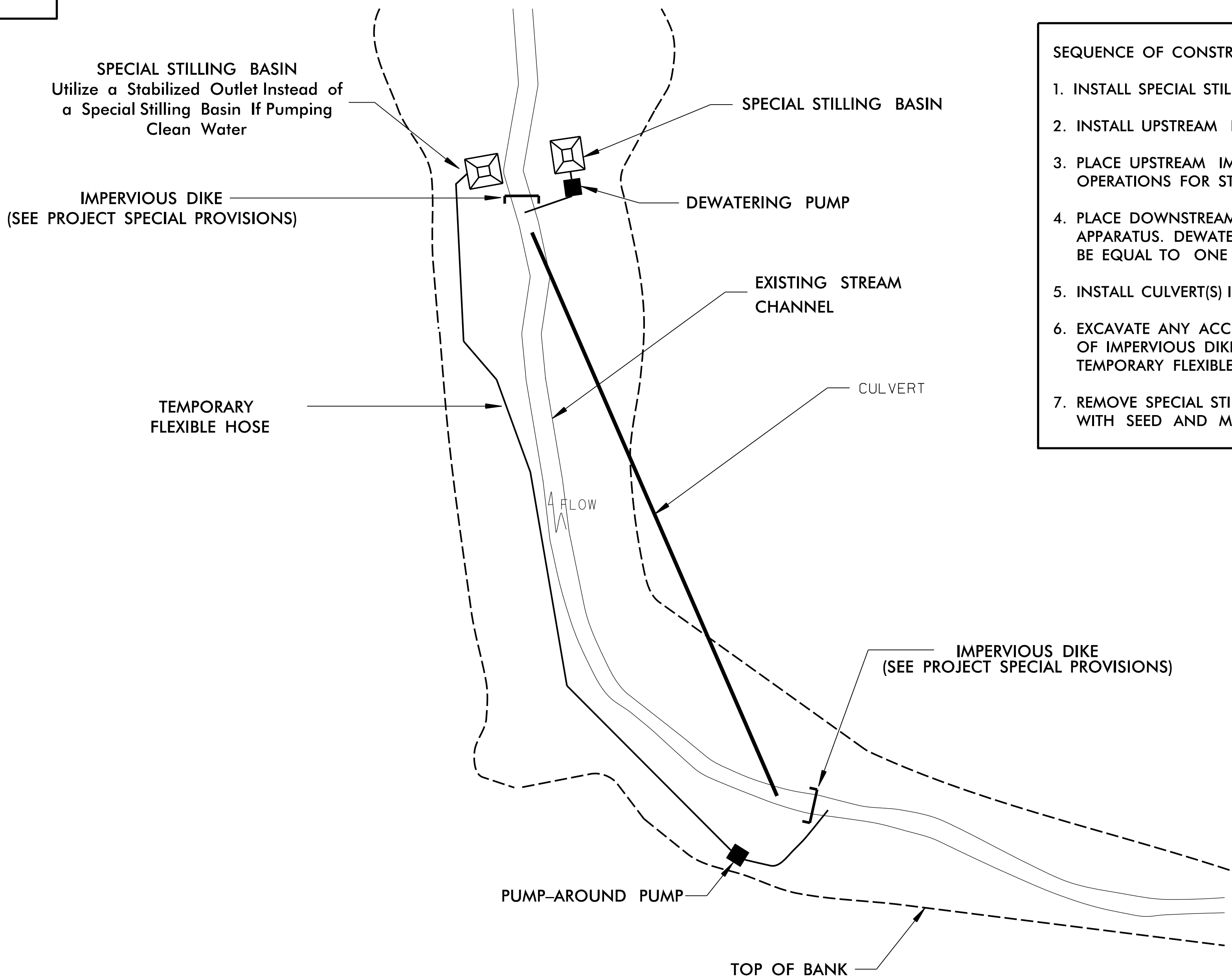
PROJECT REFERENCE NO.	SHEET NO.
U-3609B	EC-02

EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol	Std. #	Description	Symbol
1605.01	Temporary Silt Fence		1633.01	Temporary Rock Silt Check Type A	
1606.01	Special Sediment Control Fence		1633.02	Temporary Rock Silt Check Type B	
1622.01	Temporary Berms and Slope Drains		1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1630.02	Silt Basin Type B		1634.01	Temporary Rock Sediment Dam Type A	
1630.03	Temporary Silt Ditch		1634.02	Temporary Rock Sediment Dam Type B	
1630.04	Stilling Basin		1635.01	Rock Pipe Inlet Sediment Trap Type A	
1630.05	Temporary Diversion		1635.02	Rock Pipe Inlet Sediment Trap Type B	
1630.06	Special Stilling Basin		1636.01	Excelsior Wattle Check	
1630.07	Skimmer Basin		1636.01	Excelsior Wattle Check with Flocculant	
1630.08	Tiered Skimmer Basin		1636.01	Coir Fiber Wattle Check	
1630.09	Earthen Dam with Skimmer		1636.01	Coir Fiber Wattle Check with Flocculant	
	Infiltration Basin		1636.02	Silt Fence Excelsior Wattle Break	
	Rock Inlet Sediment Trap:			Silt Fence Coir Fiber Wattle Break	
1632.01	Type A		1636.03	Excelsior Wattle Barrier	
1632.02	Type B		1636.03	Coir Fiber Wattle Barrier	
1632.03	Type C				

EXAMPLE OF PUMP-AROUND OPERATION

- NOTES:
- 1) All excavation shall be performed in only dry or isolated areas of the work zone.
 - 2) Impervious dikes are to be used to isolate work from stream flow when necessary.
 - 3) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
 - 4) Pumps and hoses shall be of sufficient size to dewater the work area.



- SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA
1. INSTALL SPECIAL STILLING BASIN(S).
 2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
 3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
 4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
 5. INSTALL CULVERT(S) IN ACCORDANCE WITH THE PLANS.
 6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
 7. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

BORROW PIT DEWATERING BASIN DETAIL

PROJECT REFERENCE NO.	SHEET NO.
U-3609B	EC-2B
RW SHEET NO.	

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.

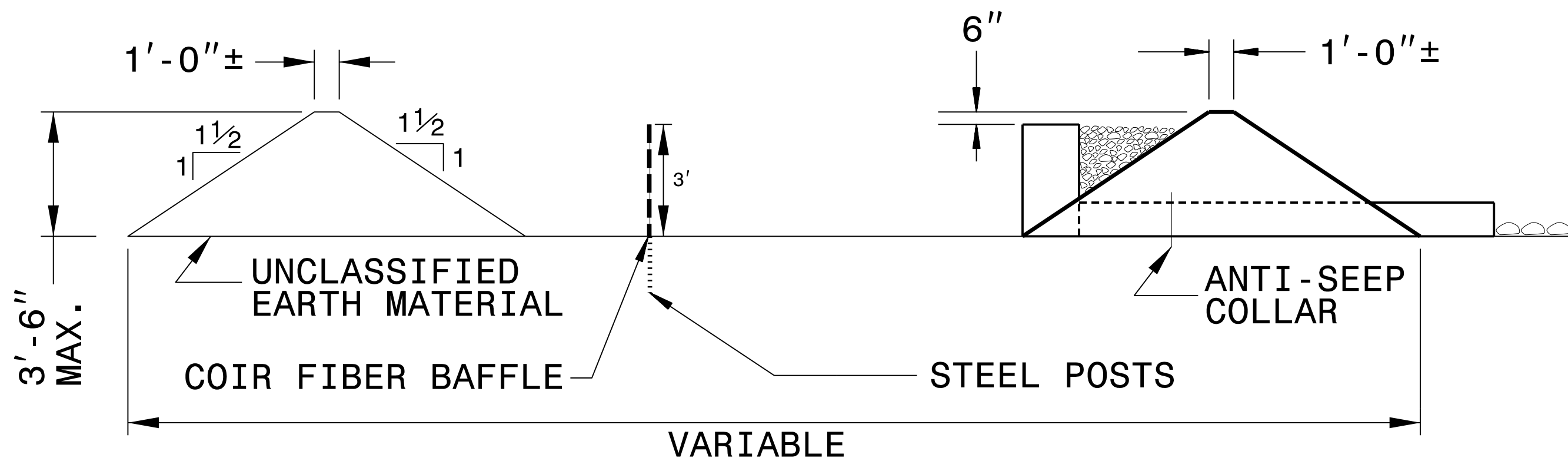
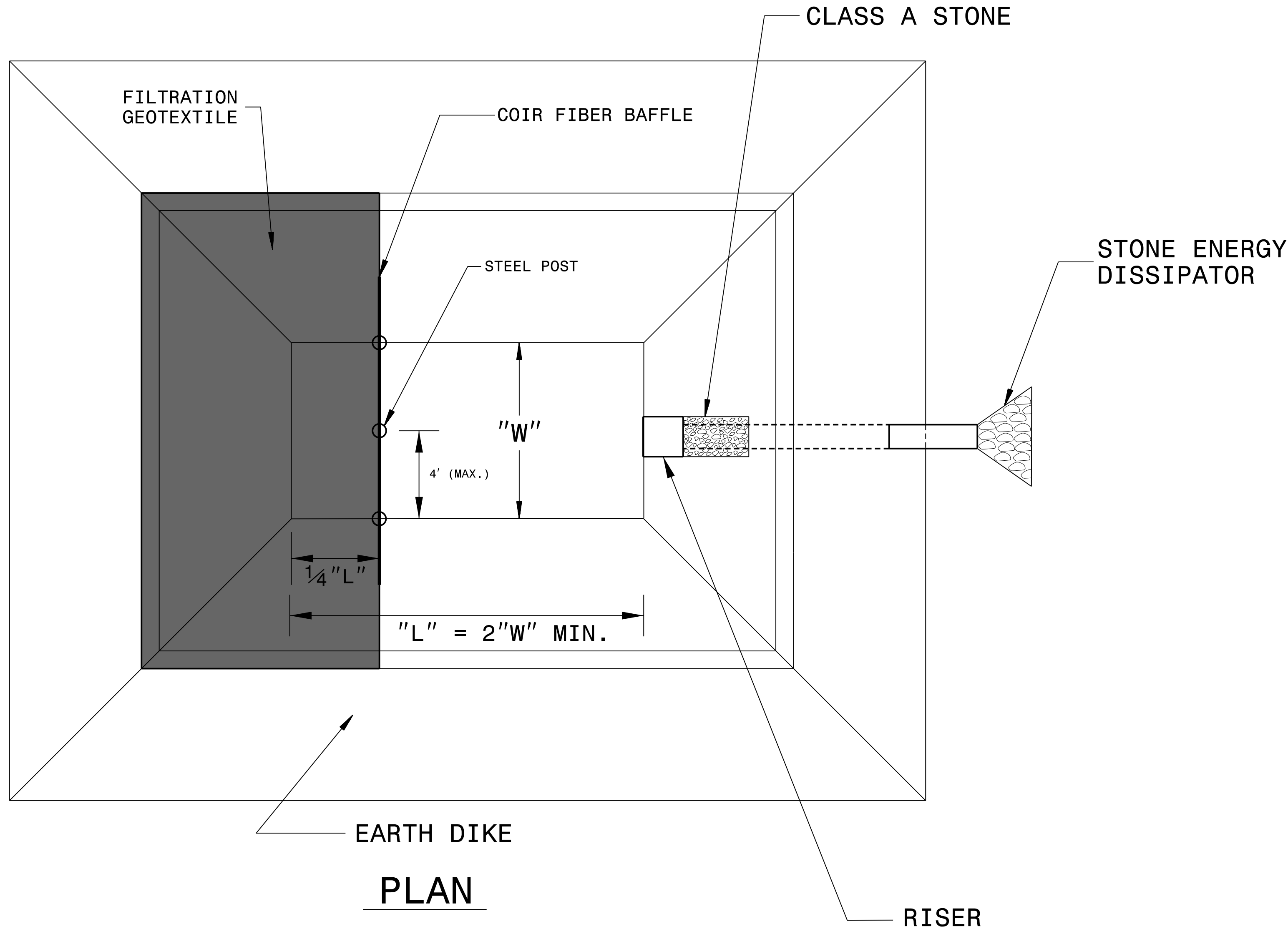
DO NOT EXCEED 3½ FT. IN HEIGHT FOR THE EARTH DIKES REQUIRED FOR BORROW PIT DEWATERING BASIN.

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.

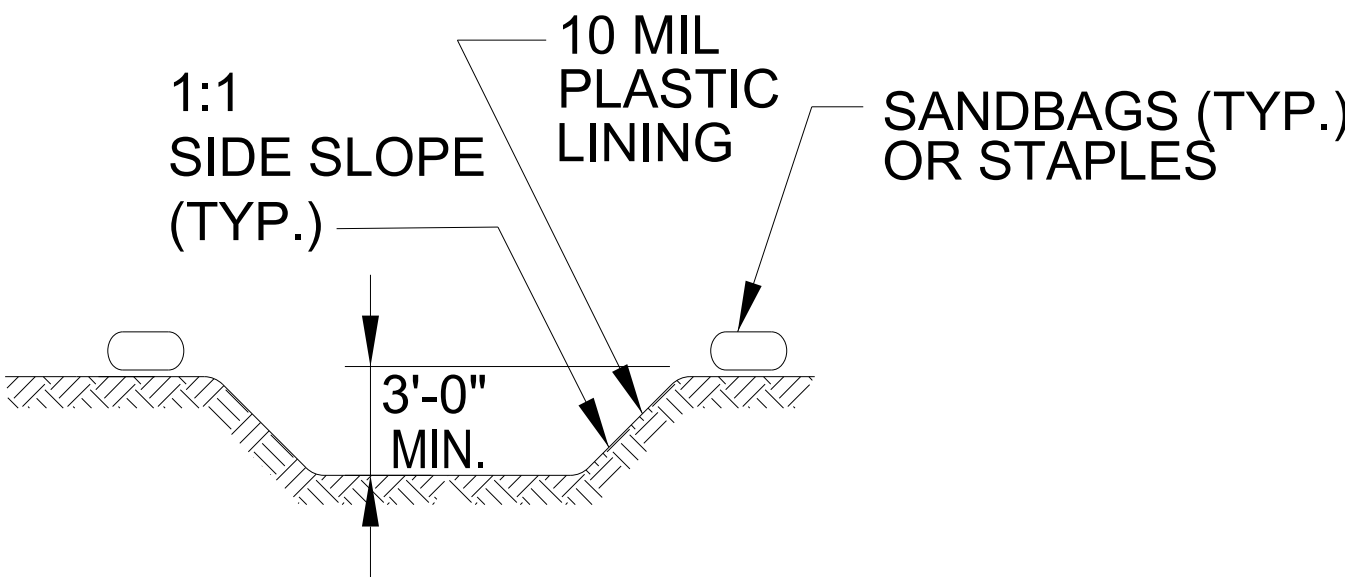
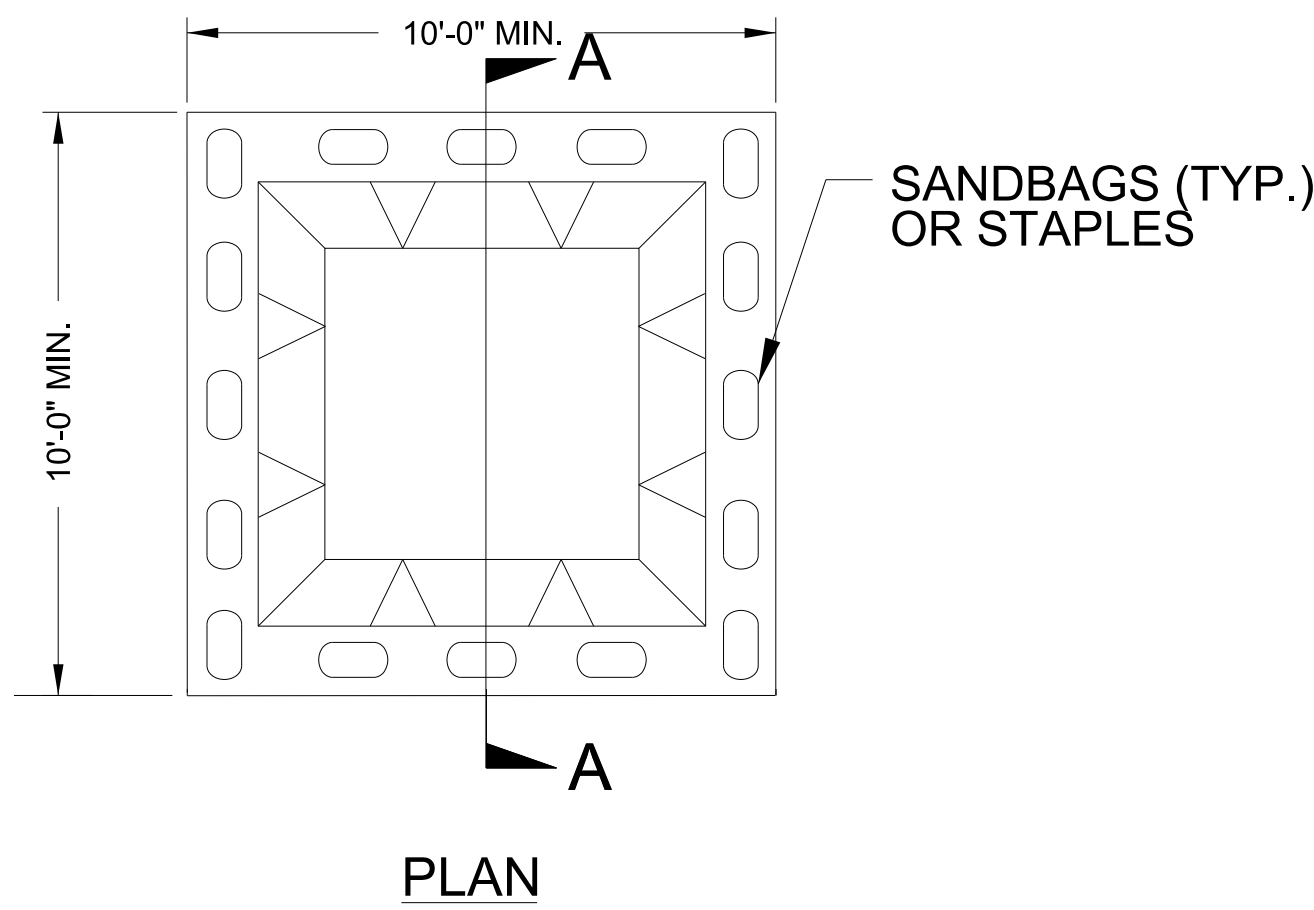
PROVIDE A STONE ENERGY DISSIPATOR PAD AT THE OUTLET OF THE PUMP DISCHARGE HOSE AND OUTLET OF THE RISER BARREL IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 876.02 FOR OUTLET W/O DITCH.



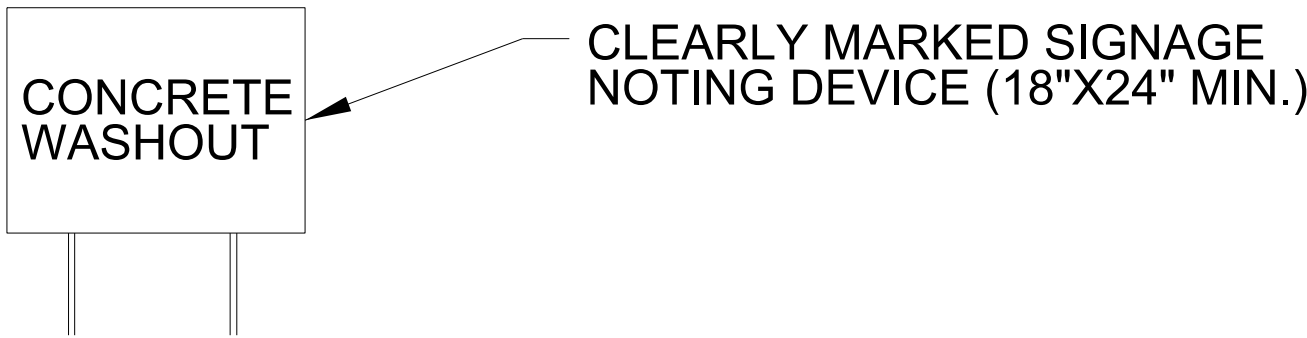
TYPICAL SECTION VIEW

NOT TO SCALE

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER

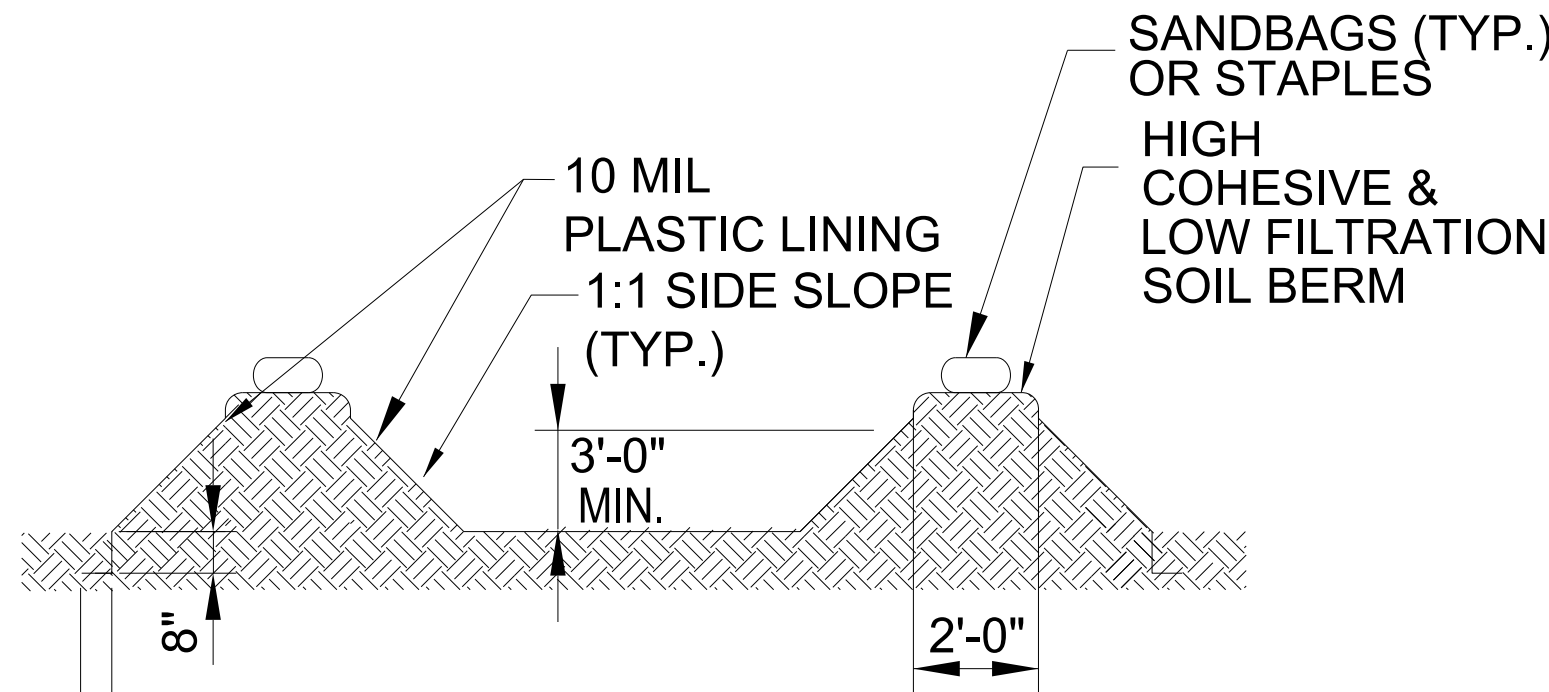
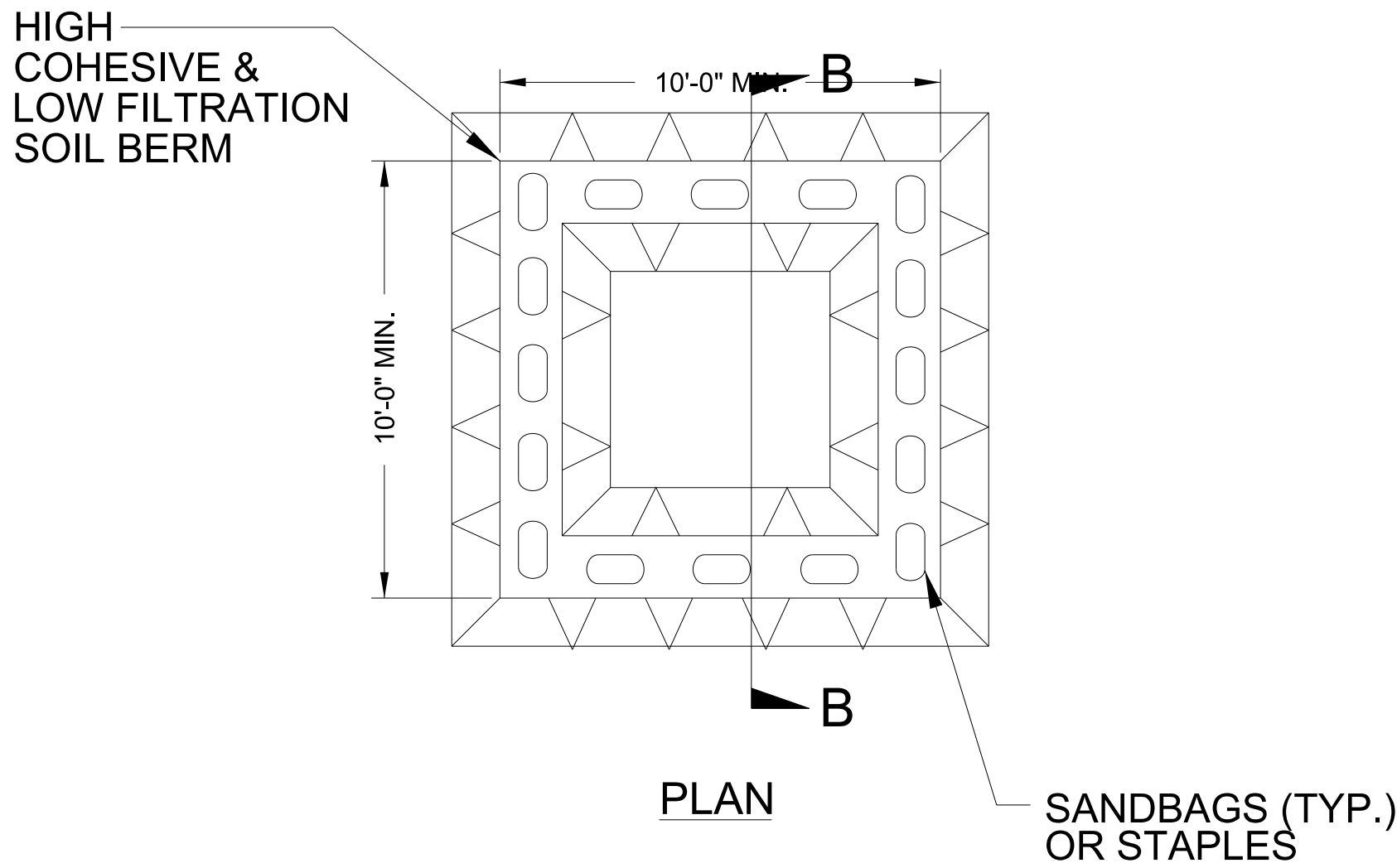


SECTION A-A

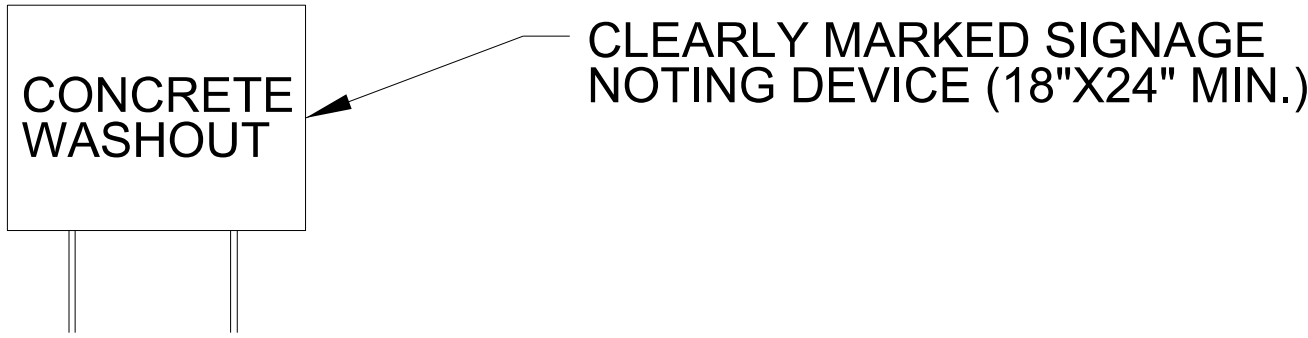


BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE

- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.



SECTION B-B



ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

DITCH MATTING FOR EROSION CONTROL – STRAW

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-Y1-	20+50	21+00	RT	50
4	-Y1-	21+50	23+75	RT	200
5	-Y4-	12+00	12+25	LT	30
7	-L-	57+00	64+40	LT	2,585
8	-L-	65+50	66+00	RT	75
8	-Y10-	10+90	12+50	RT	370
8	-Y10-	10+90	12+50	LT	355
13	-Y19-	10+25	13+50	LT	805
13	-DRW3-	10+70	11+00	LT	30
13	-DRW3-	10+45	10+70	RT	25
14	-Y20-	10+50	16+50	LT	560
14	-Y20-	13+50	14+90	RT	125
16	-Y11-	15+35	15+54	LT	60
16	-Y11-	15+78	16+09	RT	145
16	-Y11-	17+50	21+00	RT	520
16	-Y11-	21+00	21+25	RT	25
16	-Y11-	23+50	24+50	RT	90
16	-Y11-	28+01	28+18	RT	95
16	-Y11-	26+00	27+00	LT	90
16	-Y11-	27+50	28+00	LT	45
16	-Y12-	10+75	14+75	RT	310
16	-Y12-	13+25	14+75	LT	115
			SUBTOTAL		6,705

DITCH MATTING FOR EROSION CONTROL – EXCELSIOR

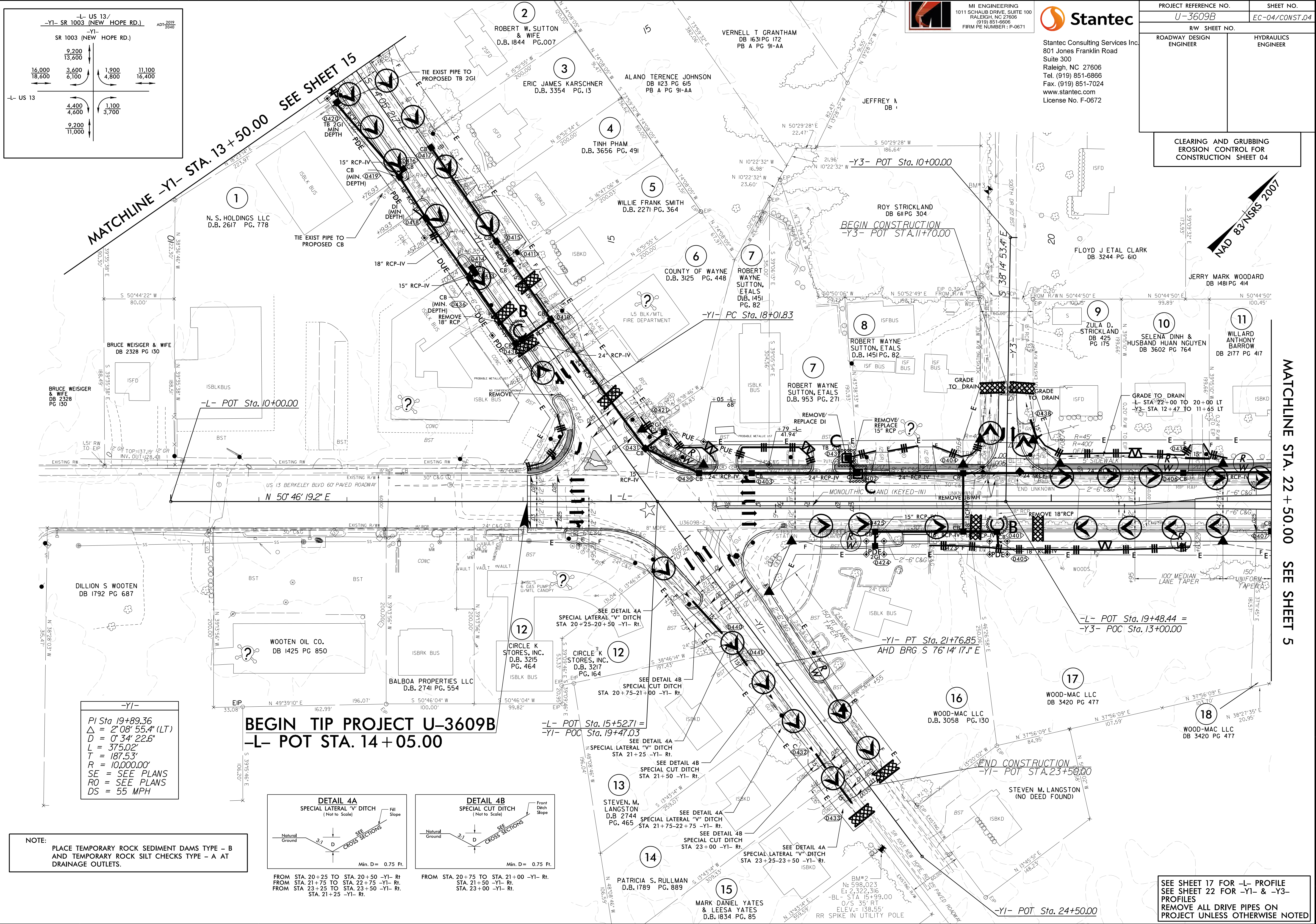
[illegible]

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
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 TO 4:1	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50’ IN LENGTH WITH SLOPES STEEPER THAN 4:1. 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES

10/31/2025
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MI ENGINEERING - Turner



8/17/99

10/31/2025
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MI ENGINEERING - Turner

MATCHLINE STA. 22 + 50.00 SEE SHEET 4

MATCHLINE STA. 36 + 50.00 SEE SHEET 6



MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6866
FIRM PE NUMBER: P-0671

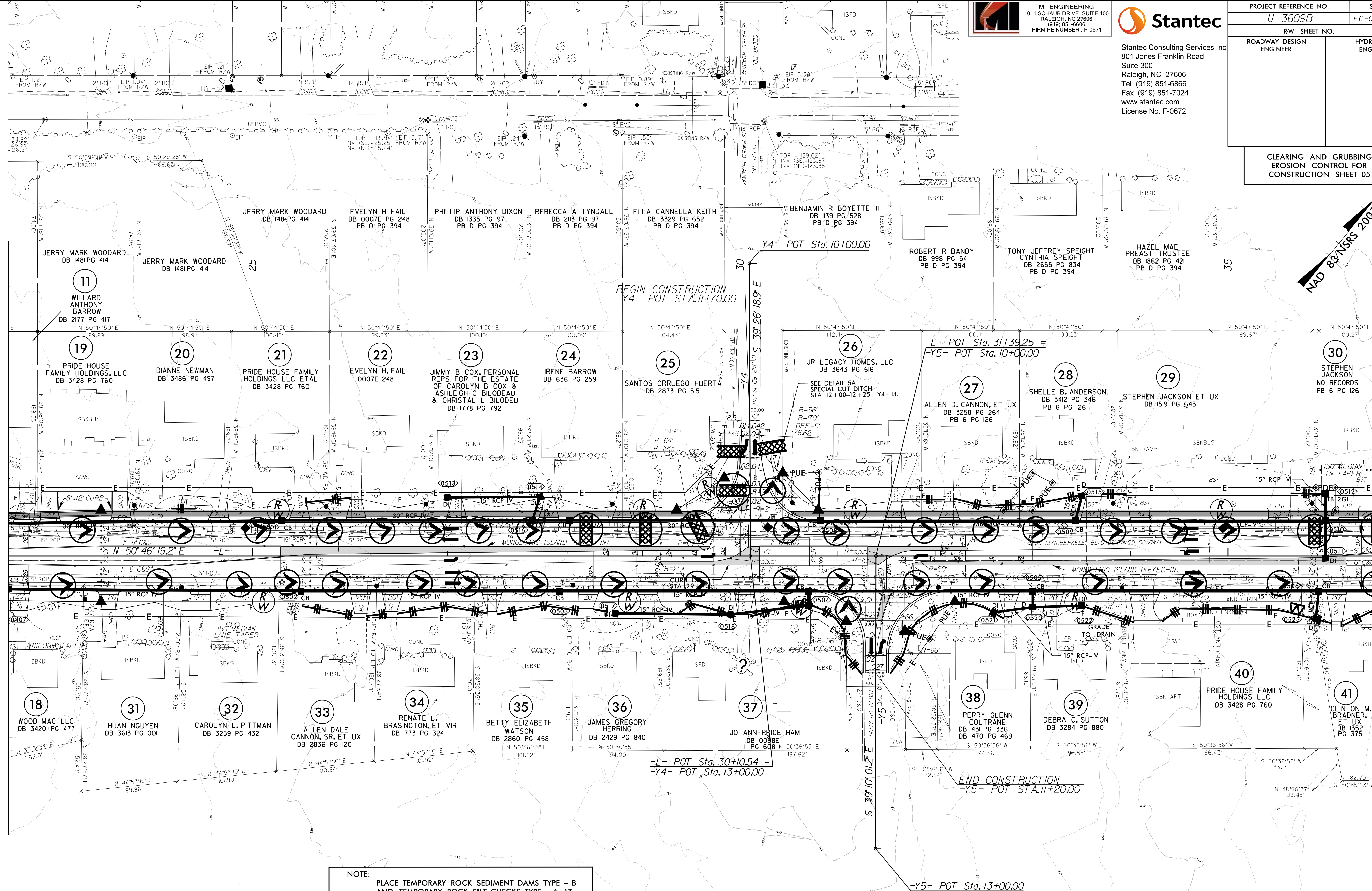


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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

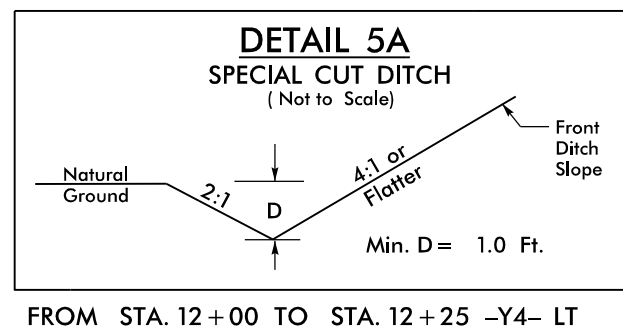
PROJECT REFERENCE NO.		SHEET NO.
U-3609B		EC-05/CONST.05
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 05

NAD 83/NGS 2007



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



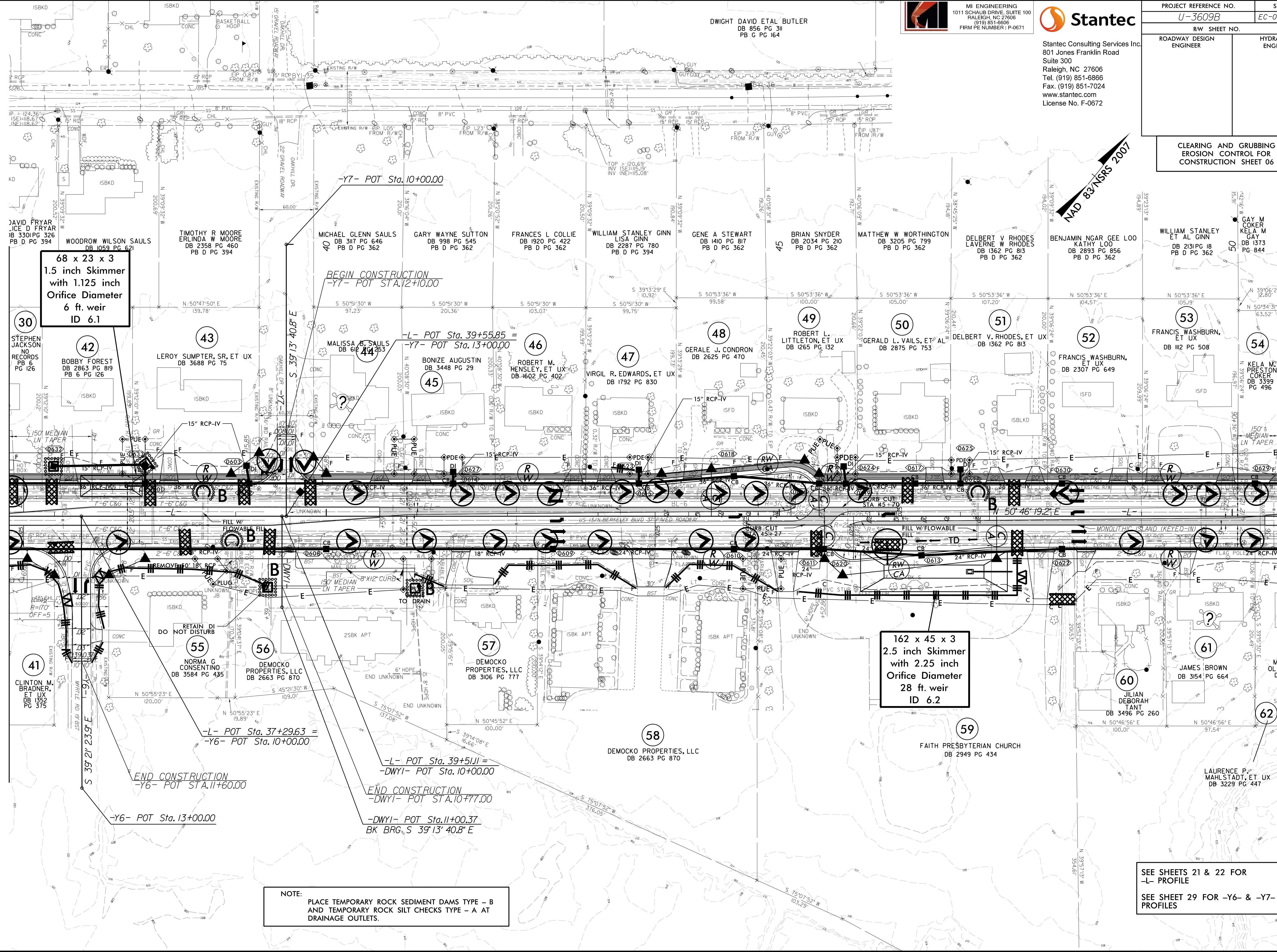
FROM STA. 12+00 TO STA. 12+25 -Y4- LT

SEE SHEET 21 FOR -L- PROFILE
SEE SHEET 28 FOR -Y4- PROFILE
SEE SHEET 29 FOR -Y5- PROFILE

8/17/99

10/31/2025
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MI ENGINEERING - Turner

MATCHLINE STA. 36 + 50.00 SEE SHEET 5



MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
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PROJECT REFERENCE NO.		SHEET NO.
U-3609B		EC-06/CONST.06
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 06		

MATCHLINE STA. 50 + 50.00 SEE SHEET 7

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.

 ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

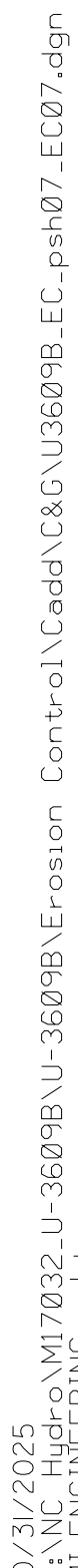
U-TURN DESIGNED FOR BUS VEHICLE

STA 55+17 -L- (CULVERT MILLS CREEK)
FOR CONSTRUCTION SEQUENCE,
SEE EC-07A & 07B

MATCHLINE STA. 50+50.00 SEE SHEET 6

MATCHLINE STA. 64+50.00 SEE SHEET 8

SEE SHEET 22 FOR -L- PROFILE
SEE SHEET 29 FOR -Y8- PROFILE
SEE SHEET 30 FOR -Y9A- &
-Y9B- PROFILES



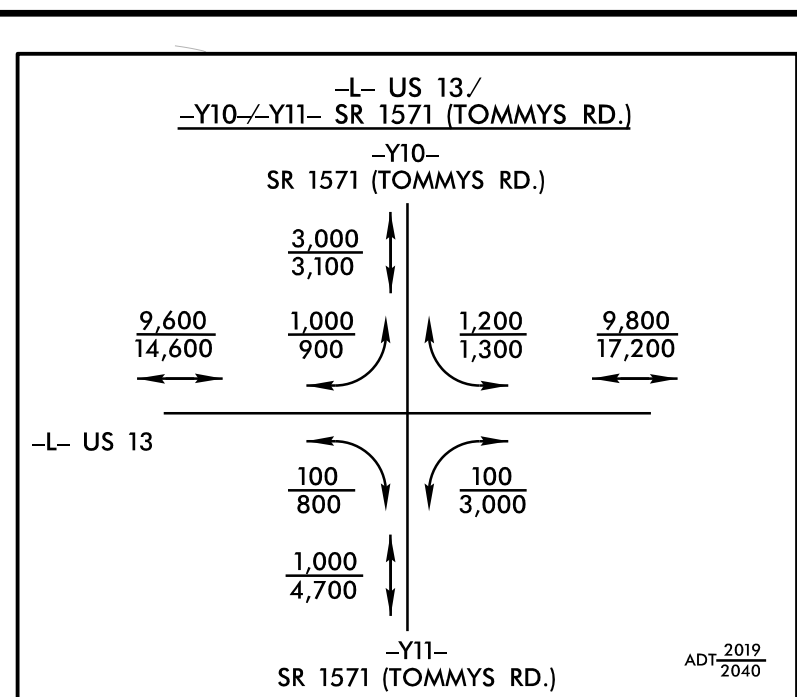
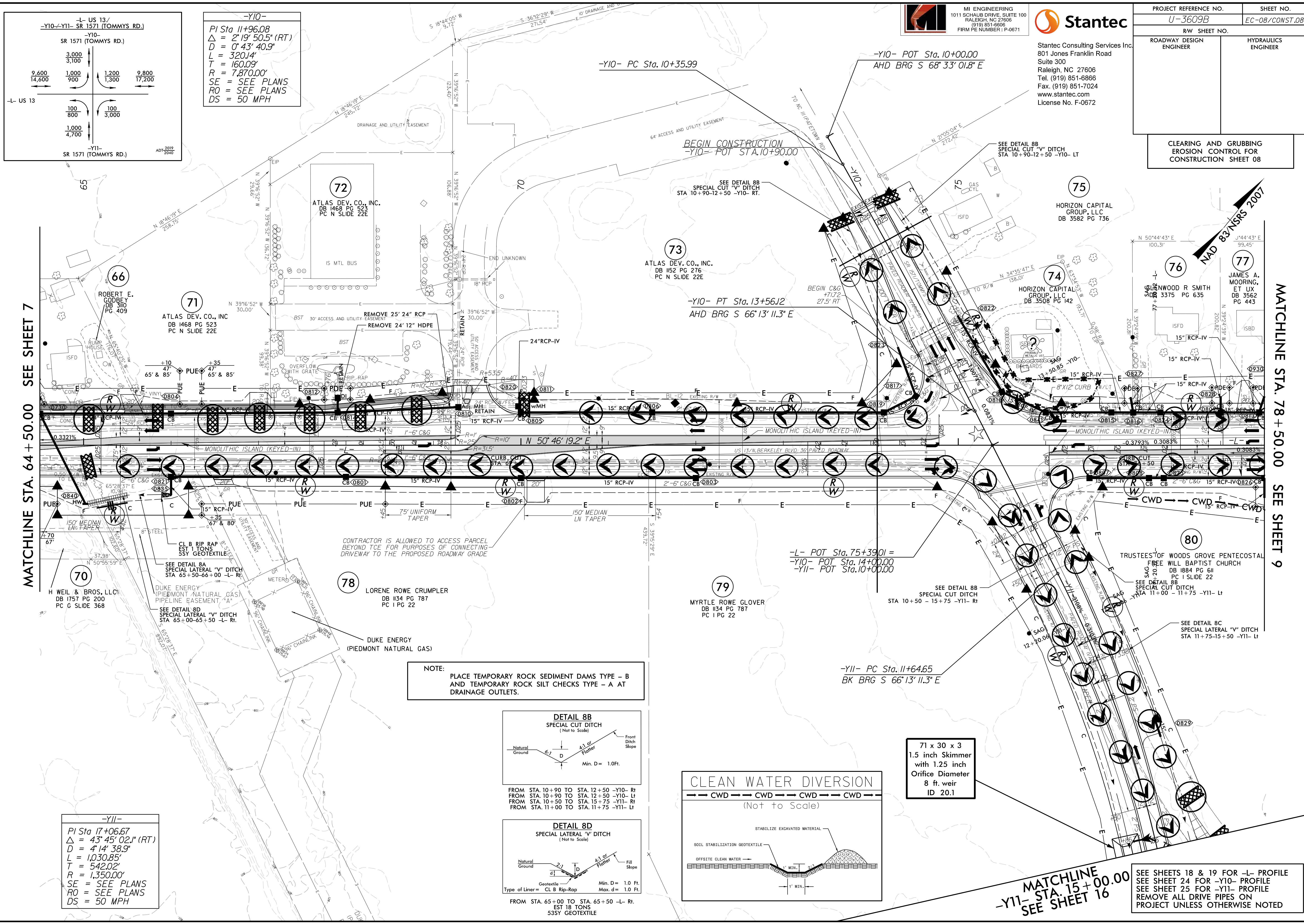
PROJECT REFERENCE NO.	SHEET NO.
<i>U-3609B</i>	<i>EC-07A</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-

PROJECT REFERENCE NO.	SHEET NO.
<i>U-3609B</i>	<i>EC-07B</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-

8/17/99
10/31/2025
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MI ENGINEERING - Turner



-Y10-
PI Sta 11+96.08
 $\Delta = 2^\circ 19' 50.5''$ (RT)
 $D = 0^\circ 43' 40.9''$
 $L = 320.14'$
 $T = 160.09'$
 $R = 7,870.00'$
SE = SEE PLANS
RO = SEE PLANS
DS = 50 MPH

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER: P-0671

Stantec

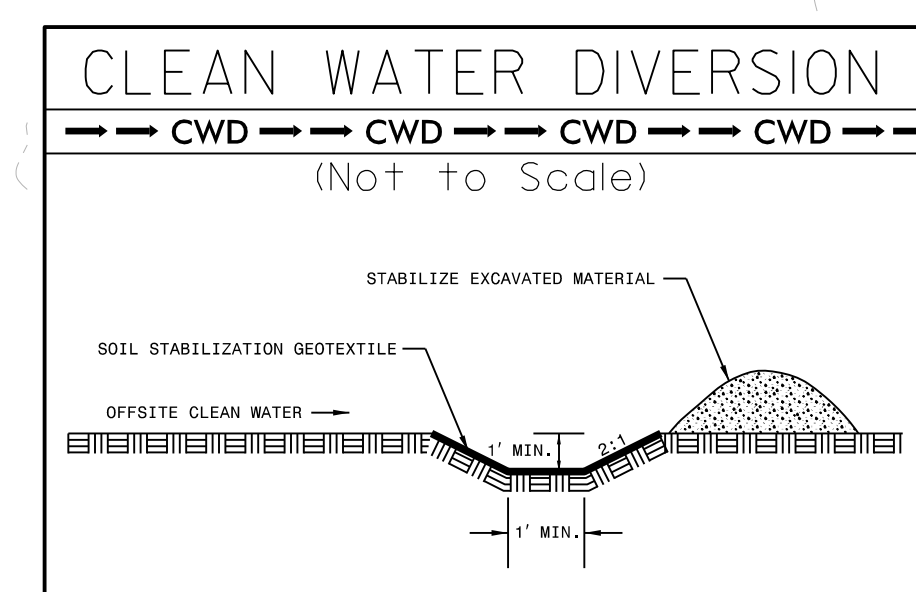
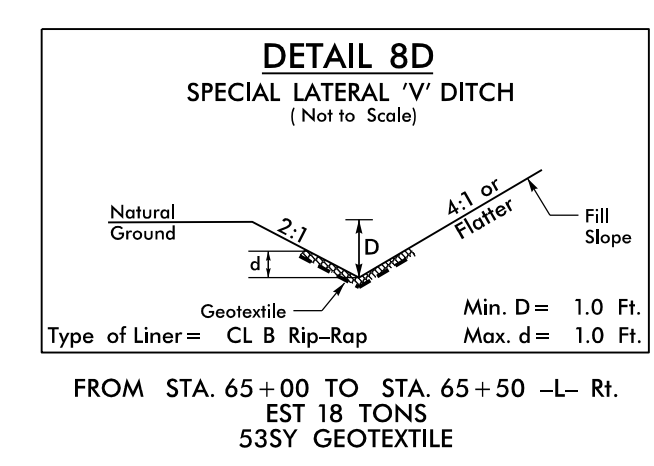
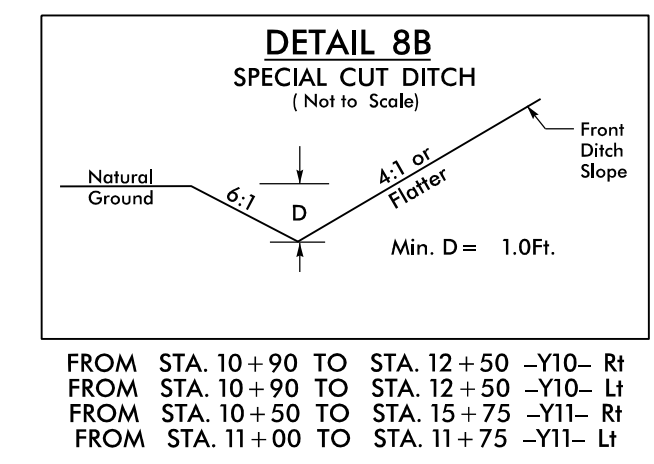
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Fax. (919) 851-7024
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PROJECT REFERENCE NO.		SHEET NO.
U-3609B		EC-08/CONST.08
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 08		

MATCHLINE STA. 64 + 50.00 SEE SHEET 7

MATCHLINE STA. 78 + 50.00 SEE SHEET 9

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



71 x 30 x 3
1.5 inch Skimmer
with 1.25 inch
Orifice Diameter
8 ft. weir
ID 20.1

MATCHLINE
-Y11- STA. 15 + 00.00
SEE SHEET 16

SEE SHEETS 18 & 19 FOR -L- PROFILE
SEE SHEET 24 FOR -Y10- PROFILE
SEE SHEET 25 FOR -Y11- PROFILE
REMOVE ALL DRIVE PIPES ON PROJECT UNLESS OTHERWISE NOTED

8/17/99

10/31/2025
N:\NC_Hydro\MI7032_U-3609BU-3609B\Erosion Control\Cadd\C&G\U3609B_EC_psh09_EC09.dgn
MI ENGINEERING - Turner

 MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM # NUMBER : P-0671

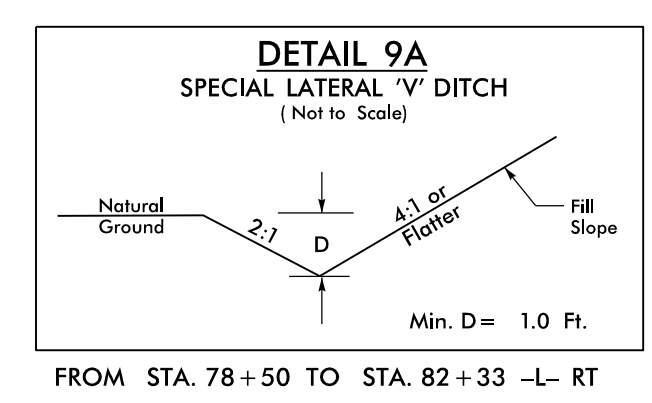
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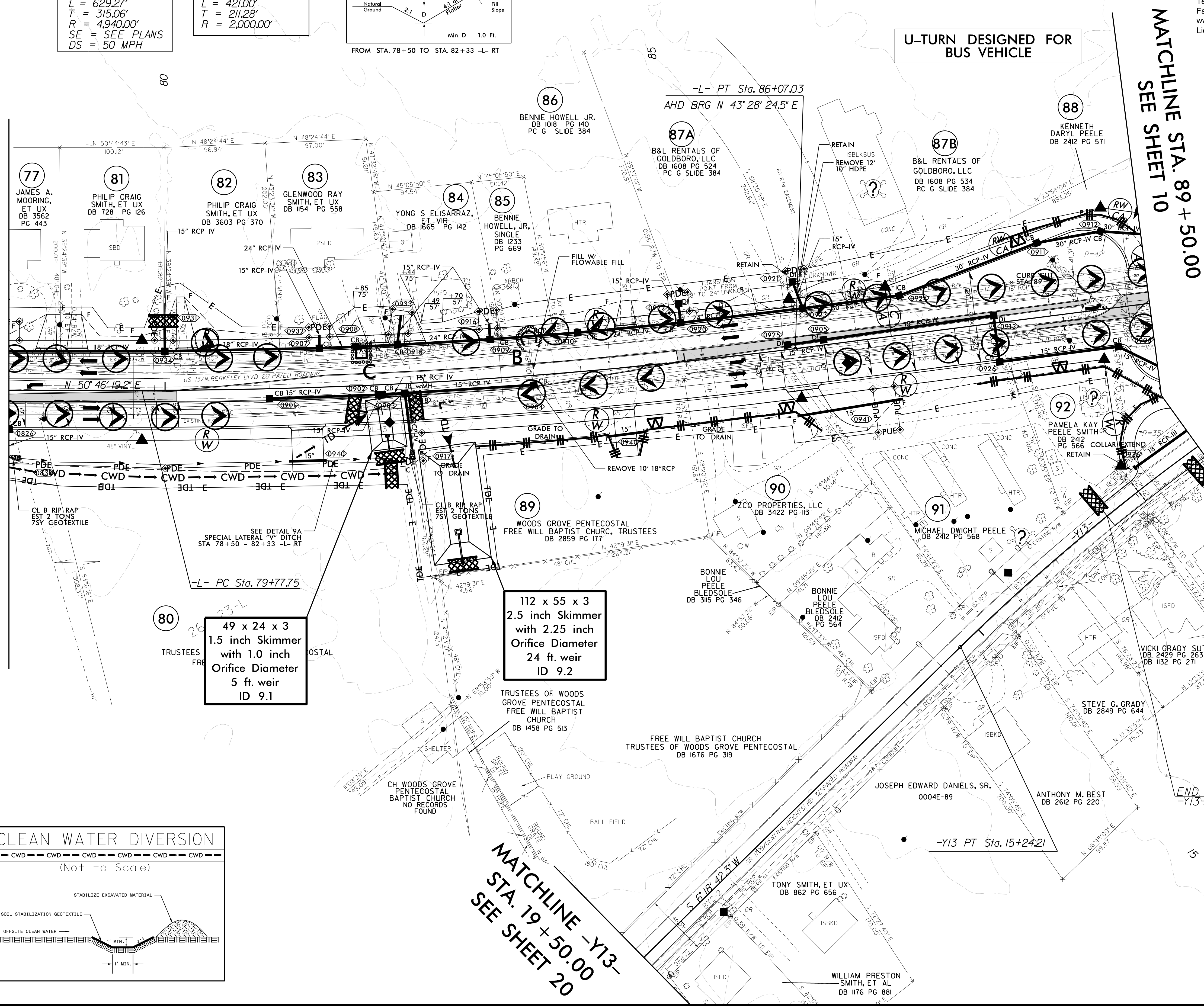
PROJECT REFERENCE NO.		SHEET NO.
U-3609B		EC-09/CONST.09
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 09		

-L-
PI Sta 82+92.82
Δ = 7' 17" 54.7" (LT)
D = 1' 09" 35.4"
L = 629.27'
T = 315.06'
R = 4,940.00'
SE = SEE PLANS
DS = 50 MPH

-Y13-
PI Sta 13+93.31
Δ = 12' 03" 38.7" (LT)
D = 2' 51" 53.2"
L = 421.00'
T = 211.28'
R = 2,000.00'



MATCHLINE STA. 78 + 50.00 SEE SHEET 8

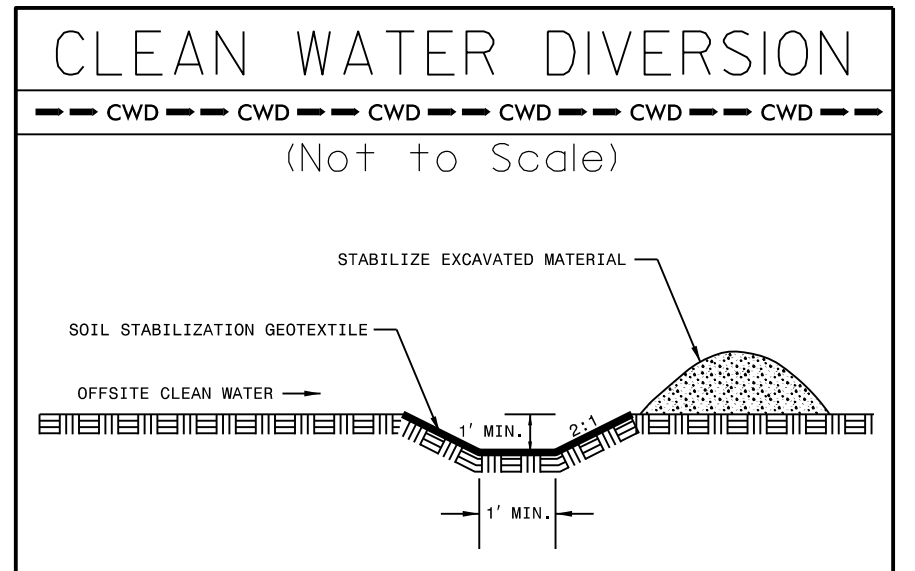


MATCHLINE STA. 89 + 50.00
SEE SHEET 10

MATCHLINE -Y13- STA. 12 + 25.00
SEE SHEET 10

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

SEE SHEET 23 FOR -L- PROFILE
SEE SHEET 32 FOR -Y13- PROFILE



MATCHLINE -Y13-
STA. 19 + 50.00
SEE SHEET 20

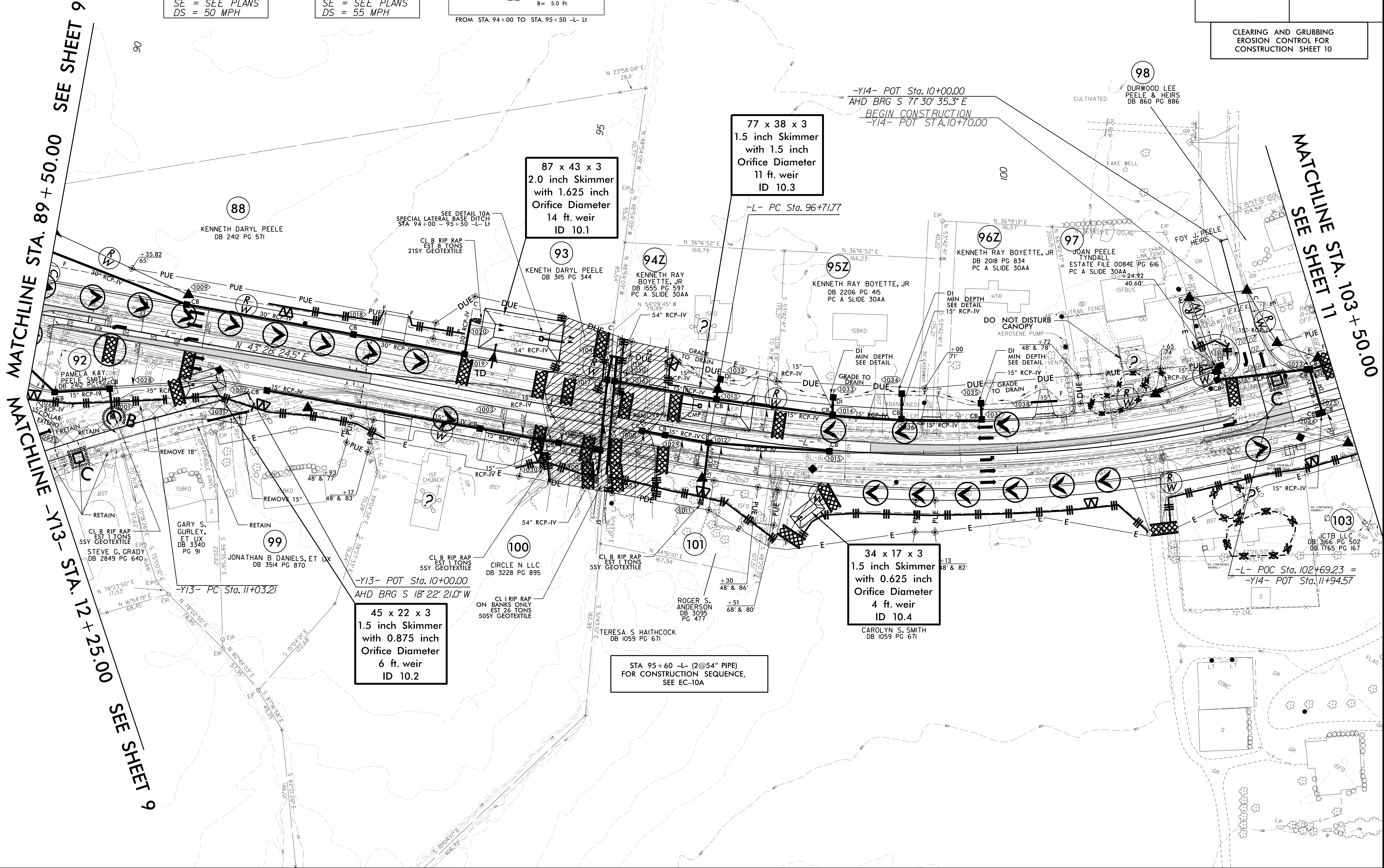


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1011 SCHAUB DRIVE, SUITE 100
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FIRM PE NUMBER : P-0671



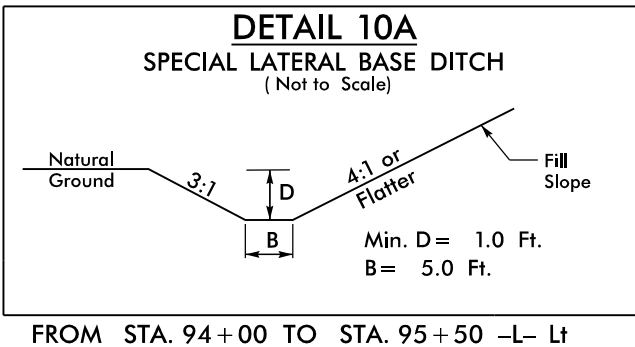
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License No. F-0672

PROJECT REFERENCE NO.		SHEET NO.
U-3609B		EC-10/CONST.10
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 10		



-L-
PI Sta 103+06.71
 $\Delta = 47' 17'' 45.9''$ (LT)
D = 3' 57' 05.2"
L = 1,196.94'
T = 634.94'
R = 1,450.00'
SE = SEE PLANS
DS = 50 MPH

-Y13-
PI Sta 13+14.49
 $\Delta = 12' 03'' 38.7''$ (LT)
D = 2' 51' 53.2"
L = 421.00'
T = 211.28'
R = 2,000.00'
SE = SEE PLANS
DS = 55 MPH



77 x 38 x 3
1.5 inch Skimmer
with 1.5 inch
Orifice Diameter
11 ft. weir
ID 10.3

87 x 43 x 3
2.0 inch Skimmer
with 1.625 inch
Orifice Diameter
14 ft. weir
ID 10.1

45 x 22 x 3
1.5 inch Skimmer
with 0.875 inch
Orifice Diameter
6 ft. weir
ID 10.2

34 x 17 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
4 ft. weir
ID 10.4

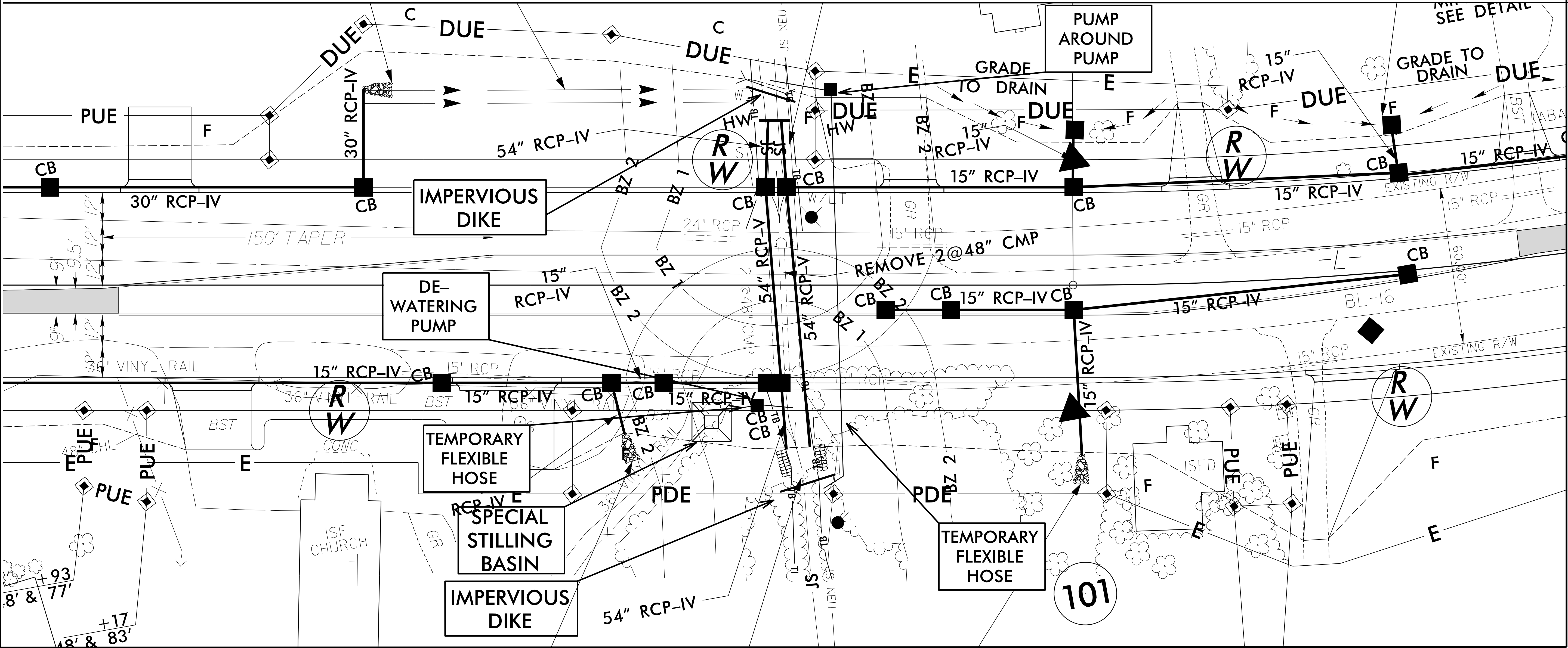
STA 95+60 -L- (2@54" PIPE)
FOR CONSTRUCTION SEQUENCE,
SEE EC-10A

STA. 95 + 60 -L- 2@54" PIPE CONSTRUCTION SEQUENCE

PROJECT REFERENCE NO.	SHEET NO.
U-3609B	EC-10A/CONST.10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

- NOTES:
1. PIPE INSTALLATION SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF CHANNEL. ALSO SEE PUMP AROUND DETAIL 2F.
 2. IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW AS NECESSARY.
 3. ALL GRADED AREAS ARE TO BE STABILIZED WITHIN 24 HOURS.
 4. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES POLYETHYLENE SHEETING, DIVERSION PIPES, PUMPS, AND HOSES.
 5. PUMPS AND HOSES SHALL BE SUFFICIENT SIZE TO DEWATER THE WORK AREA.
 6. THE CONTRACTOR SHALL NOT PUMP SEDIMENT-LADEN WATER DIRECTLY INTO THE STREAM. FOR DEWATERING OF PIPE SITE, THE CONTRACTOR SHALL FILTER SEDIMENT-LADEN WATER THROUGH A STILLING BASIN AND/OR SPECIAL STILLING BASIN.
 7. UTILIZE A STABILIZED OUTLET INSTEAD OF A SPECIAL STILLING BASIN IF PUMPING CLEAN WATER.

- SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA:
1. UTILIZE STILLING BASIN(S) AS DIRECTED TO DEWATER THE WORK SITE.
 2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
 3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS.
 4. PLACE DOWNSTREAM IMPERVIOUS DIKE & PUMPING APPARATUS AND DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
 5. REMOVE EXISTING 2@48" CMP AND INSTALL PROPOSED DRAINAGE SYSTEM IN ACCORDANCE WITH THE PLANS.
 6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE.
 7. REMOVE STILLING BASIN(S) AND BACKFILL. STABILIZE THE DISTURBED AREA WITH SEED & MULCH.
- SCALE: 1" = 20'





MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
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PROJECT REFERENCE NO.	SHEET NO.
<i>U-3609B</i>	<i>EC-II/CONST.II</i>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

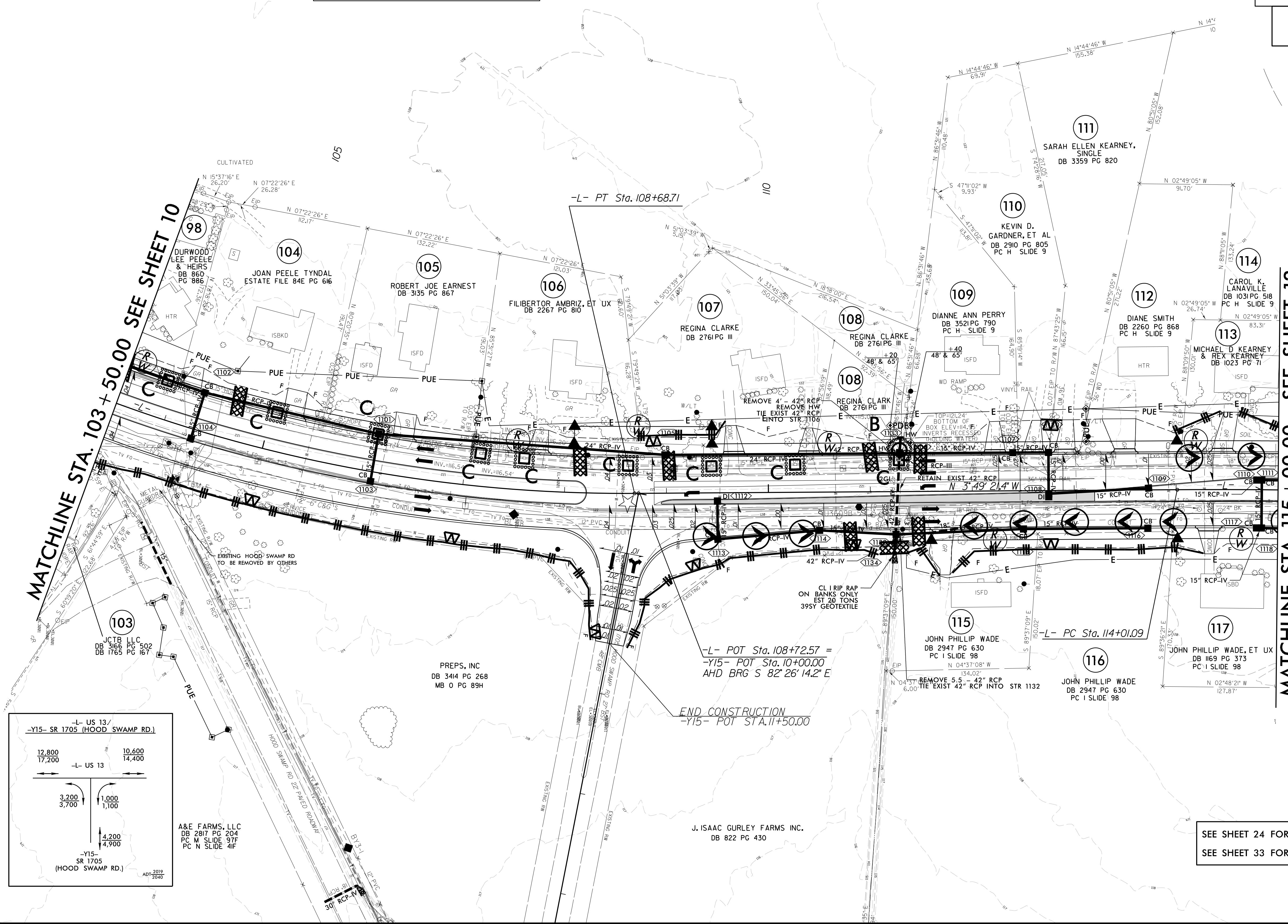
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 11

NAD 83/NSRS 2007

NOTE:

PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B
AND TEMPORARY ROCK SILT CHECKS TYPE – A AT
DRAINAGE OUTLETS.

-L-	
<i>PI Sta 102+98.12</i>	<i>PI Sta 126+67.29</i>
$\Delta = 47^{\circ} 17' 45.9" (LT)$	$\Delta = 23^{\circ} 46' 46.8" (RT)$
$D = 3^{\circ} 57' 05.2"$	$D = 0^{\circ} 57' 23.5"$
$L = 1,196.94'$	$L = 2,486.05'$
$T = 634.94'$	$T = 1,261.18'$
$R = 1,450.00'$	$R = 5,990.00'$
$SE = SEE PLANS$	$SE = SEE PLANS$
$DS = 50 MPH$	$DS = 50 MPH$

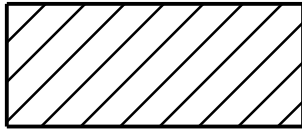


MATCHLINE STA. 115+00.00 SEE SHEET 12

SEE SHEET 24 FOR -L- PROFILE
SEE SHEET 33 FOR -Y15- PROFILE

8/17/99

10/31/2025
N:\NC_Hydro\MI7032_U-3609B\U-3609B\U-3609B\EC-psht12_EC12.dgn
MI ENGINEERING - Turner



ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS



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801 Jones Franklin Road
Suite 300
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Tel. (919) 851-6866
Fax. (919) 851-7024
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PROJECT REFERENCE NO.

U-3609B

SHEET NO.

EC-12/CONST-12

R/W SHEET NO.

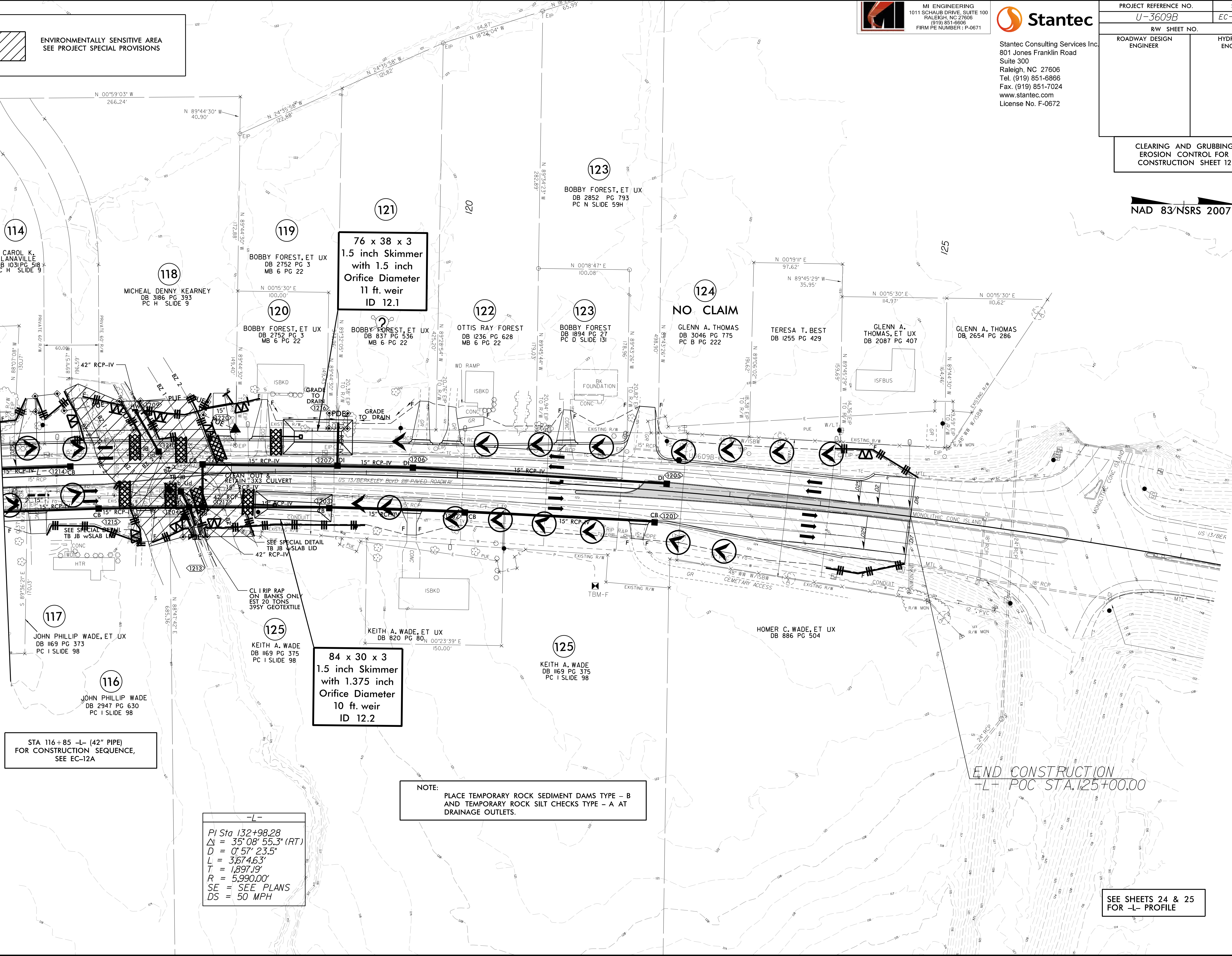
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 12

NAD 83/NSRS 2007

MATCHLINE STA. 115 + 00.00 SEE SHEET 11



STA 116+85 -L- (42" PIPE)
FOR CONSTRUCTION SEQUENCE,
SEE EC-12A

-L-
PI Sta 132+98.28
Δ = 35°08'55.3" (RT)
D = 0°57'23.5"
L = 3,674.63'
T = 1,897.19'
R = 5,990.00'
SE = SEE PLANS
DS = 50 MPH

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

SEE SHEETS 24 & 25
FOR -L- PROFILE

STA. 116 + 85 -L- 42" PIPE CONSTRUCTION SEQUENCE

PROJECT REFERENCE NO.	SHEET NO.
U-3609B	EC-12A/CONST.12
RW SHEET NO.	

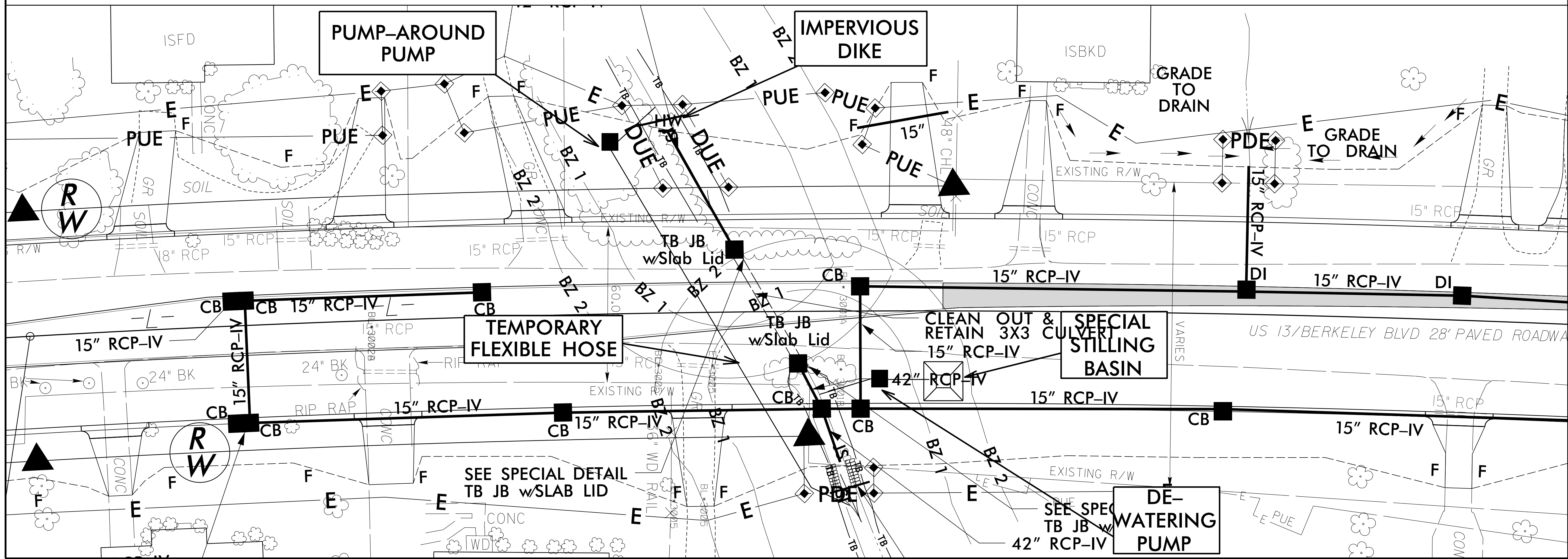
NOTES:

- 1. PIPE INSTALLATION SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF CHANNEL. ALSO SEE PUMP DETAIL 2F.
- 2. IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW AS NECESSARY.
- 3. ALL GRADED AREAS ARE TO BE STABILIZED WITHIN 24 HOURS.
- 4. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES POLYETHYLENE SHEETING, DIVERSION PIPES, PUMPS, AND HOSES.
- 5. PUMPS AND HOSES SHALL BE SUFFICIENT SIZE TO DEWATER THE WORK AREA.
- 6. THE CONTRACTOR SHALL NOT PUMP SEDIMENT-LADEN WATER DIRECTLY INTO THE STREAM. FOR DEWATERING OF PIPE SITE, THE CONTRACTOR SHALL FILTER SEDIMENT-LADEN WATER THROUGH A STILLING BASIN AND/OR SPECIAL STILLING BASIN.
- 7. UTILIZE A STABILIZED OUTLET INSTEAD OF A SPECIAL STILLING BASIN IF PUMPING CLEAN WATER.

SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA:

- 1. UTILIZE STILLING BASIN(S) AS DIRECTED TO DEWATER THE WORK SITE.
- 2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
- 3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS.
- 4. PLACE DOWNSTREAM IMPERVIOUS DIKE & PUMPING APPARATUS AND DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
- 5. CLEAN OUT EXISTING 3'X3' CULVERT AND INSTALL PROPOSED DRAINAGE SYSTEM IN ACCORDANCE WITH THE PLANS.
- 6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE.
- 7. REMOVE STILLING BASIN(S) AND BACKFILL. STABILIZE THE DISTURBED AREA WITH SEED & MULCH.

NAD 83/NSRS 2007
SCALE: 1" = 20'



8/17/99
10/31/2025
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MI ENGINEERING - hturner

 MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-8608
FIRM PE NUMBER : P-0671

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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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PROJECT REFERENCE NO.		SHEET NO.	
U-3609B		EC-13/CONST.13	
RW SHEET NO. 17			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

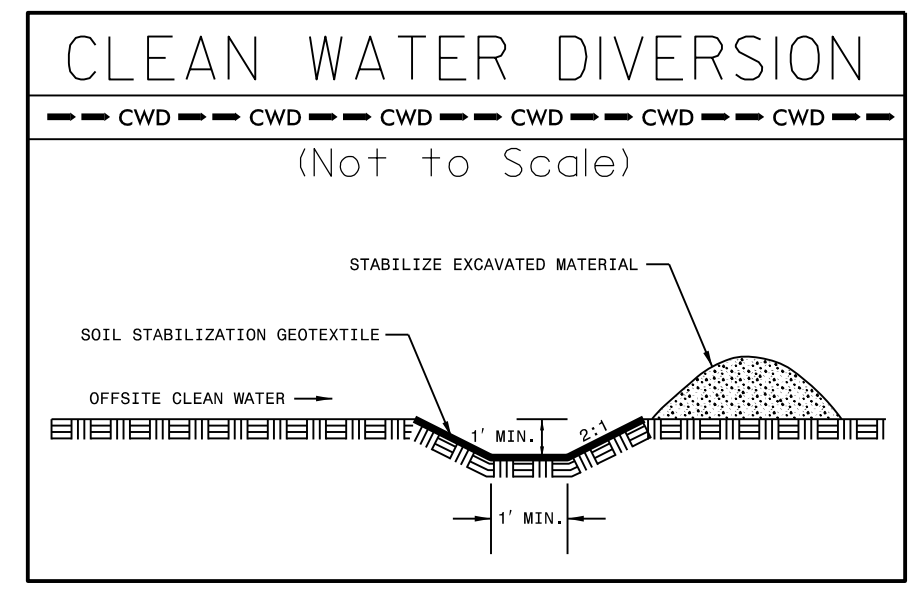
BEGIN CONSTRUCTION
-Y20- POT STA. 10+25.00

BEGIN CONSTRUCTION
-Y19- POT STA. 10+00.00

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

90 x 35 x 3
2.0 inch Skimmer
with 1.625 inch
Orifice Diameter
12 ft. weir
ID 13.1

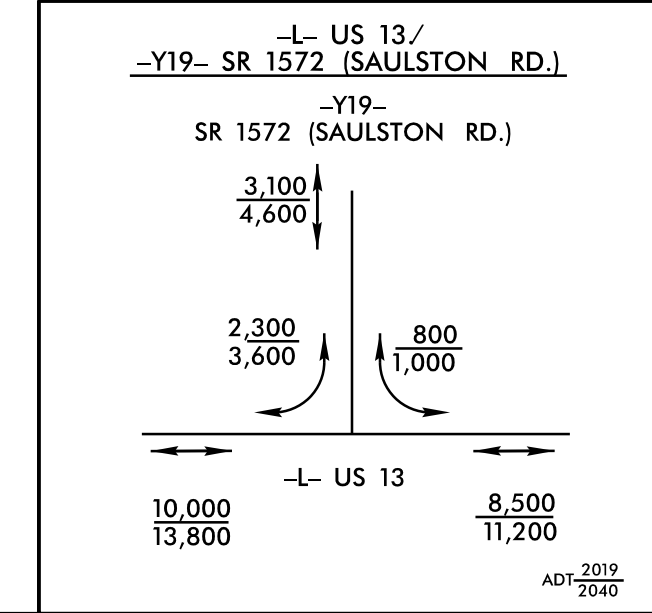
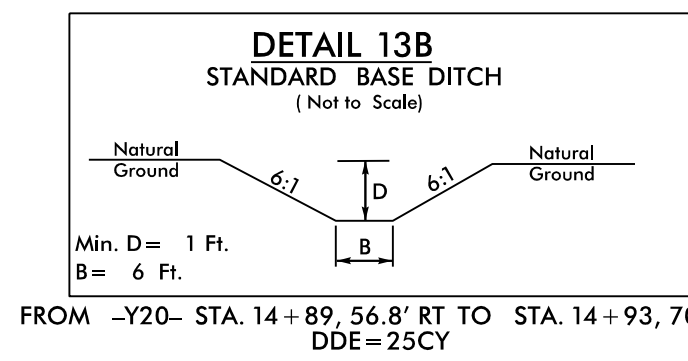
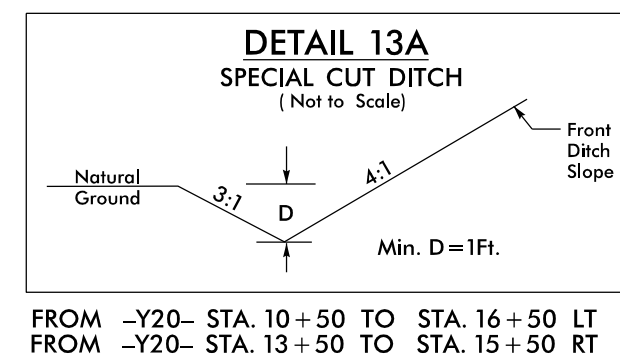
89 x 26 x 3
1.5 inch Skimmer
with 1.25 inch
Orifice Diameter
9 ft. weir
ID 13.2



-Y20-
PI Sta 9+05.05
Δ = 4' 43" 59.3" (RT)
D = 2' 29" 28.0"
L = 190.00'
T = 95.05'
R = 2,300.00'

-Y20-
PI Sta 10+50.02
Δ = 3' 57" 05.2" (RT)
D = 3' 57" 05.2"
L = 100.00'
T = 50.02'
R = 1,450.00'
SE = SEE PLANS

-Y20-
PI Sta 11+80.43
Δ = 3' 00" 55.6" (RT)
D = 1' 52" 30.1"
L = 160.82'
T = 80.43'
R = 3,055.71'
SE = SEE PLANS



SEE SHEET 27 FOR -Y20- PROFILE
SEE SHEET 27 FOR -Y19- PROFILE
REMOVE ALL DRIVE PIPES ON
PROJECT UNLESS OTHERWISE NOTED

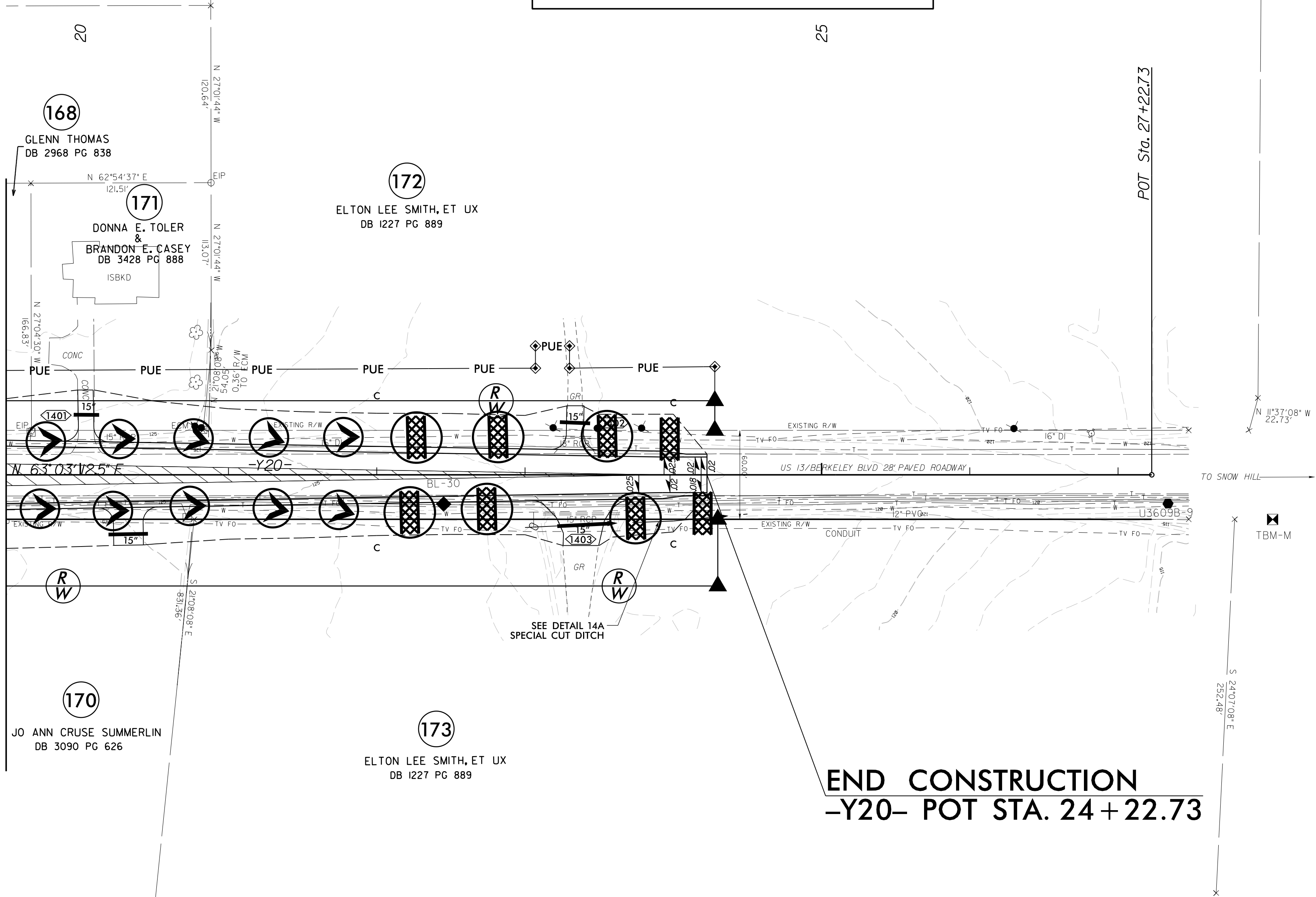
MATCHLINE STA. 19 + 50.00 SEE SHEET 14

NAD 83 NSRS 2007

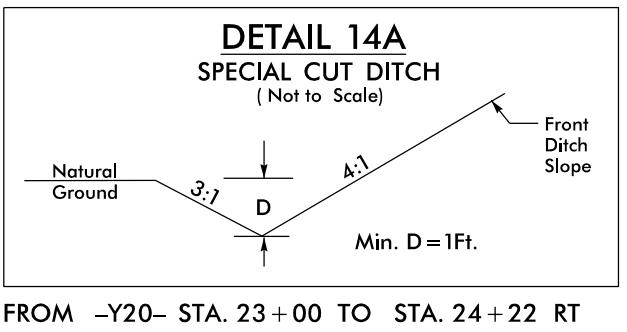
8/17/99

10/31/2025
N:\NC_Hydro\MI7032_U-3609B\U-3609B\Erosion Control\U-3609B_EC_psh14_EC14.dgn
MI ENGINEERING - Turner

MATCHLINE STA. 19 + 50.00 SEE SHEET 13



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



FROM -Y20- STA. 23 + 00 TO STA. 24 + 22 RT

END CONSTRUCTION
-Y20- POT STA. 24 + 22.73



MI ENGINEERING
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(919) 851-6606
FIRM PE NUMBER : P-0671



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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PROJECT REFERENCE NO.		SHEET NO.	
U-3609B		EC-14/CONST.14	
RW SHEET NO. 18			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
</			

NAD 83 NRS 2007

SEE SHEET 27 FOR -Y20- PROFILE
REMOVE ALL DRIVE PIPES ON
PROJECT UNLESS OTHERWISE NOTED



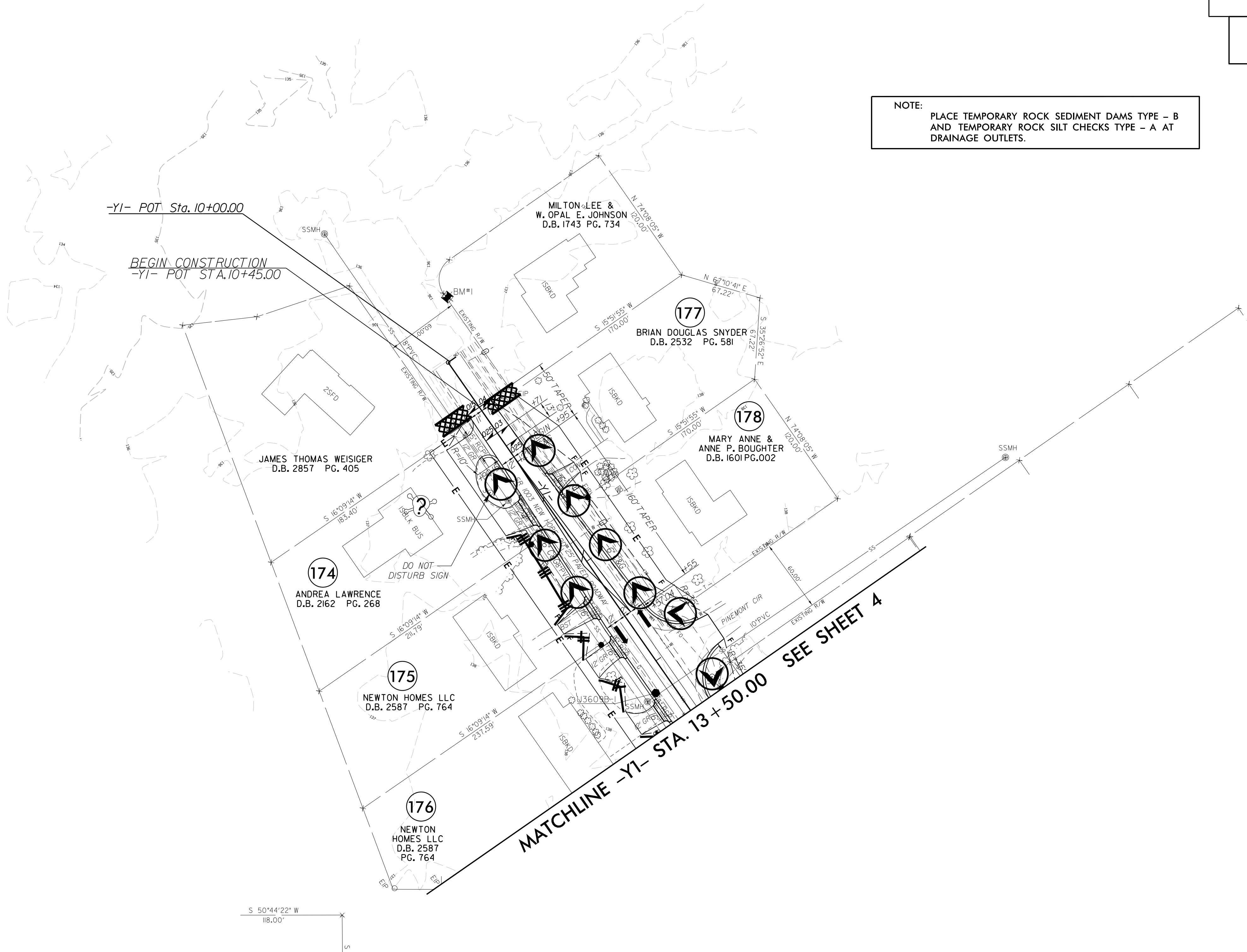
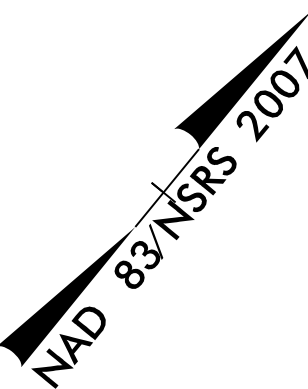
MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-8608
FIRM PE NUMBER : P-0671



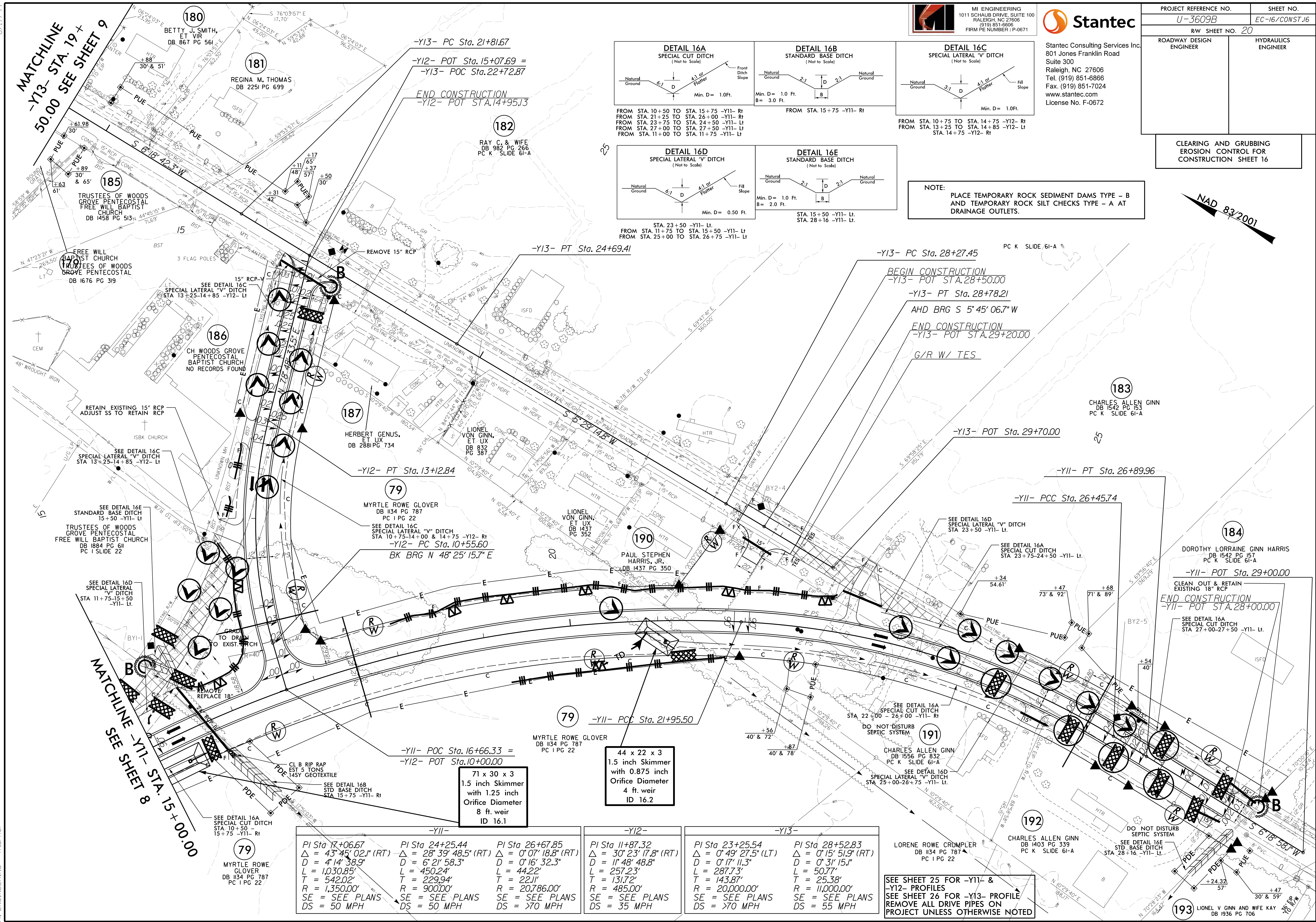
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801 Jones Franklin Road
Suite 300
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Fax. (919) 851-7024
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PROJECT REFERENCE NO.		SHEET NO.
U-3609B		EC-15/CONST.15
RW SHEET NO. 19		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
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.

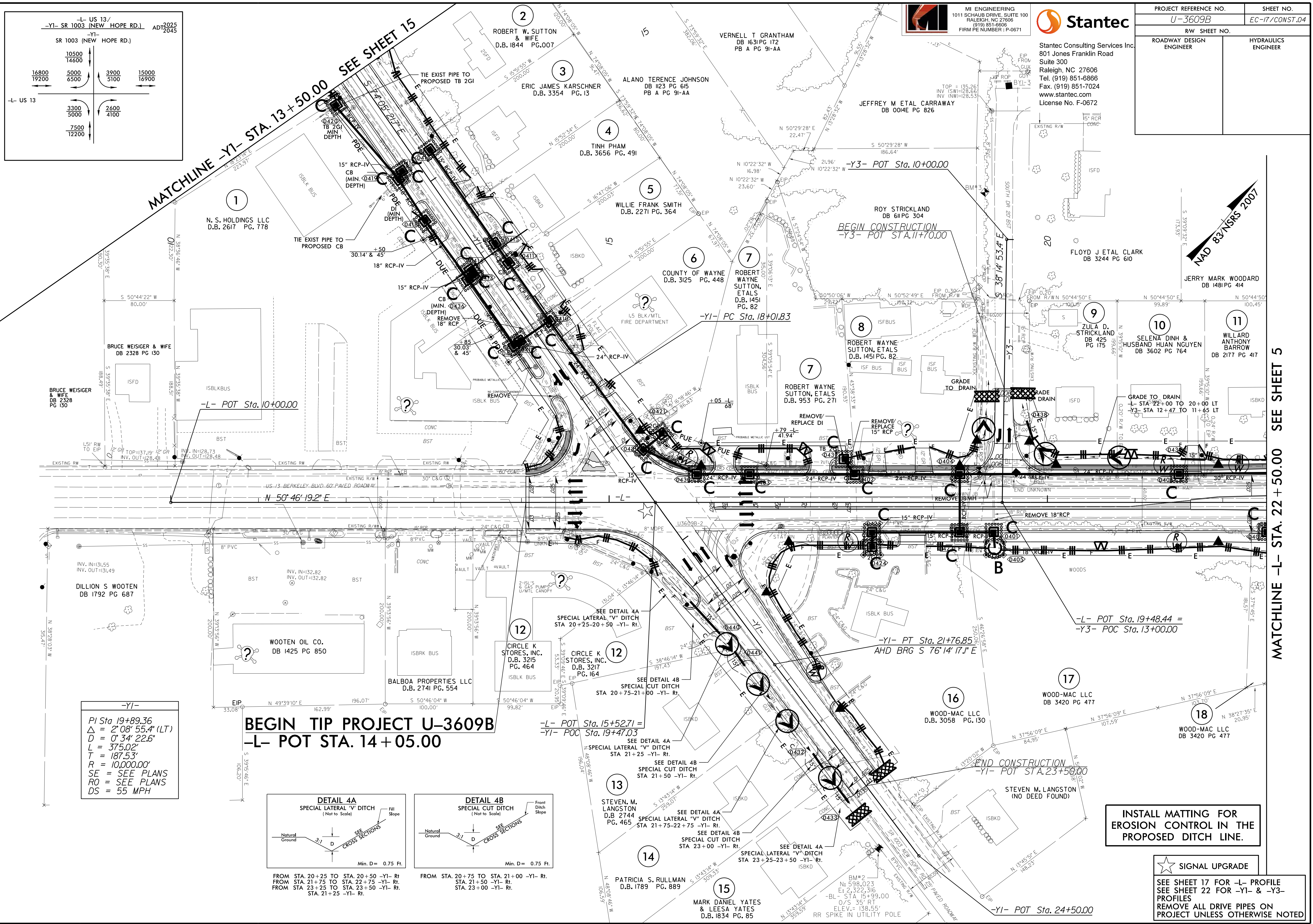


SEE SHEET 22 FOR -Y1- PROFILE
REMOVE ALL DRIVE PIPES ON
PROJECT UNLESS OTHERWISE NOTED



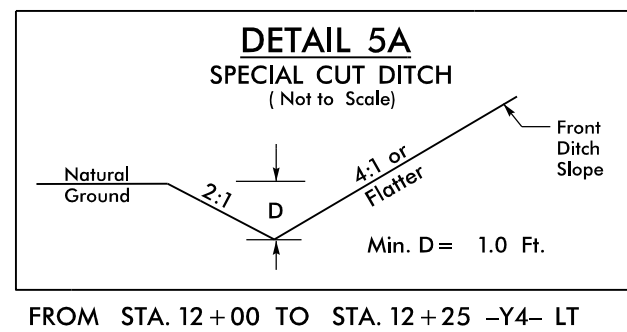
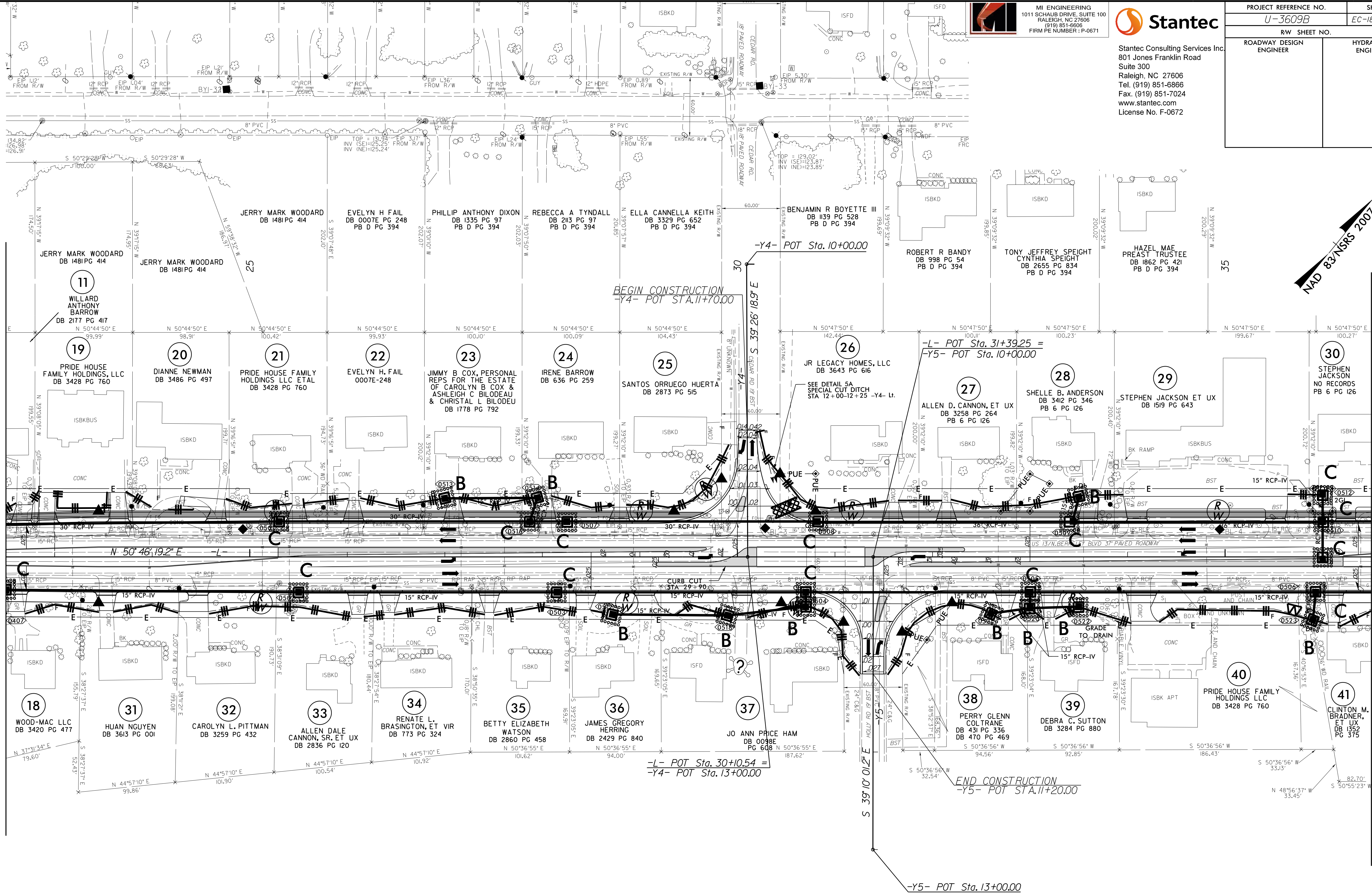
ROW REVISION #12:

10/31/2025
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M1 ENGINEERING - hturner



10/31/2025
N:\NC_Hydro\MI7032_U-3609B\U-3609B\Erosion Control\Cadd\Final\U3609B-EC_psh05-EC18.dgn
MI ENGINEERING - Turner

MATCHLINE STA. 22 + 50.00 SEE SHEET 4



SEE SHEET 21 FOR -L- PROFILE
SEE SHEET 28 FOR -Y4- PROFILE
SEE SHEET 29 FOR -Y5- PROFILE



MI ENGINEERING
1011 SCHAUSS DRIVE, SUITE 100
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(919) 851-6808
FIRM PE NUMBER : P-0671

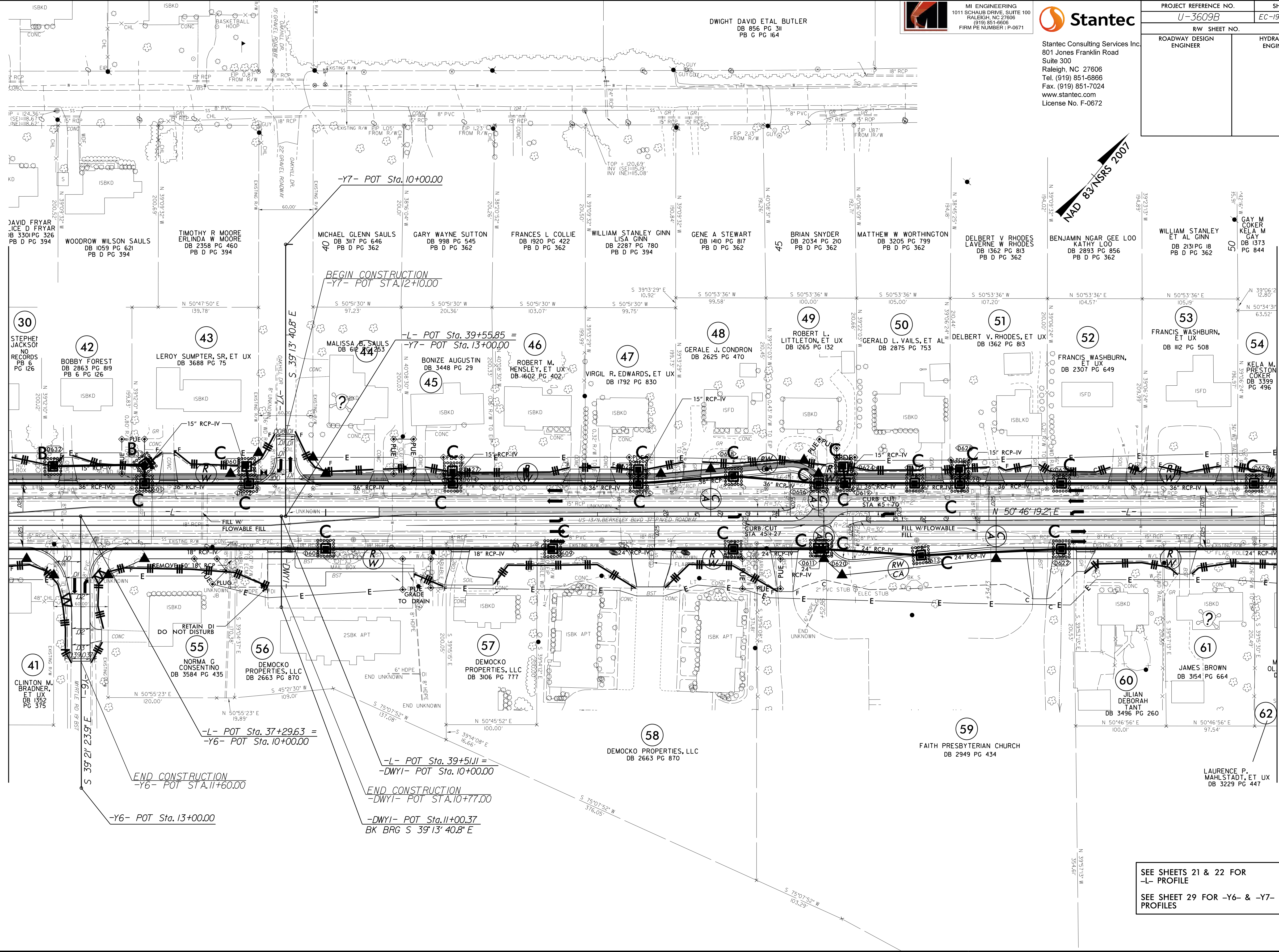


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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
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PROJECT REFERENCE NO.		SHEET NO.	
U-3609B		EC-18/CONST.05	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

MATCHLINE STA. 36 + 50.00 SEE SHEET 6

MATCHLINE STA. 36+50.00 SEE SHEET 5



SEE SHEETS 21 & 22 FOR
-L- PROFILE
SEE SHEET 29 FOR -Y6- & -Y7-
PROFILES

8/17/99



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1011 SCHAUB DRIVE, SUITE 100
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(919) 851-6608
FIRM PE NUMBER : P-0671

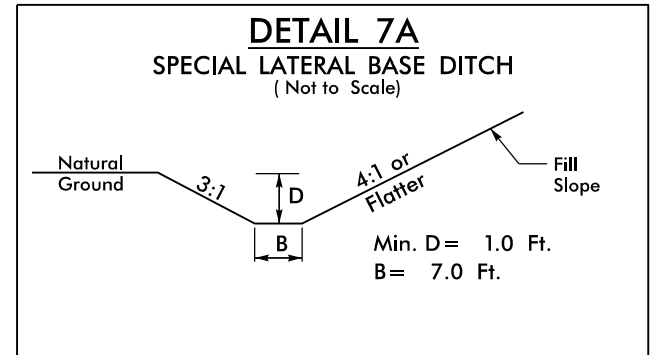
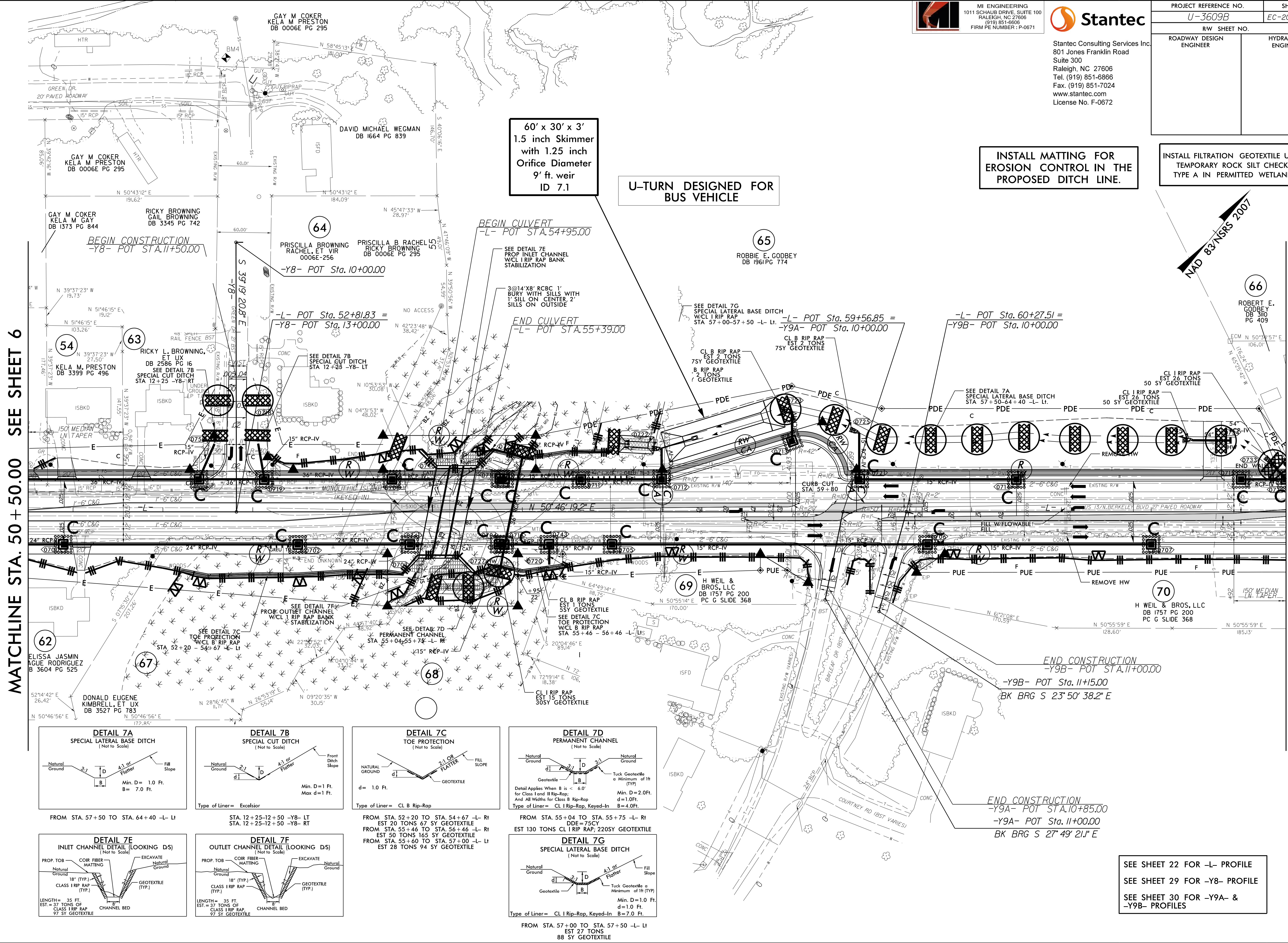


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801 Jones Franklin Road
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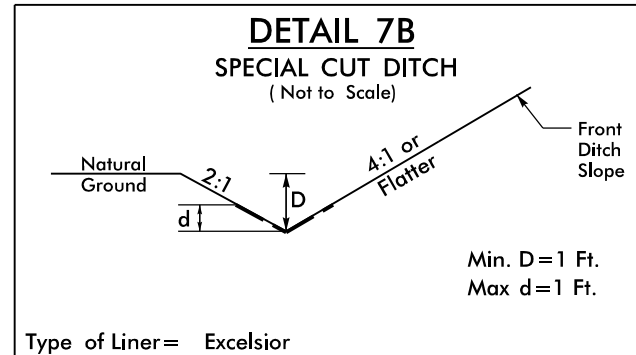
PROJECT REFERENCE NO.		SHEET NO.	
U-3609B		EC-20/CONST.07	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER			

MATCHLINE STA. 50 + 50.00 SEE SHEET 6

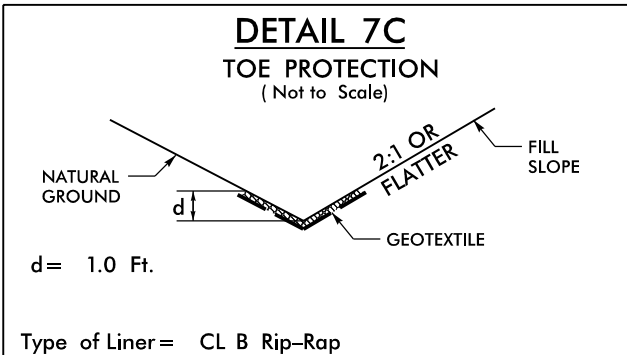
MATCHLINE STA. 64 + 50.00 SEE SHEET 8



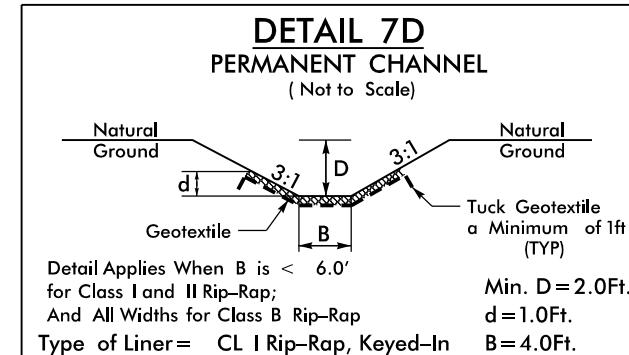
FROM STA. 57+50 TO STA. 64+40 -L- LT



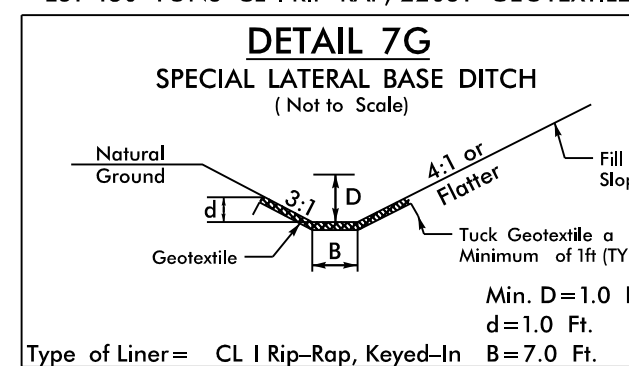
STA. 12+25-12+50 -YB- LT
STA. 12+25-12+50 -YB- RT



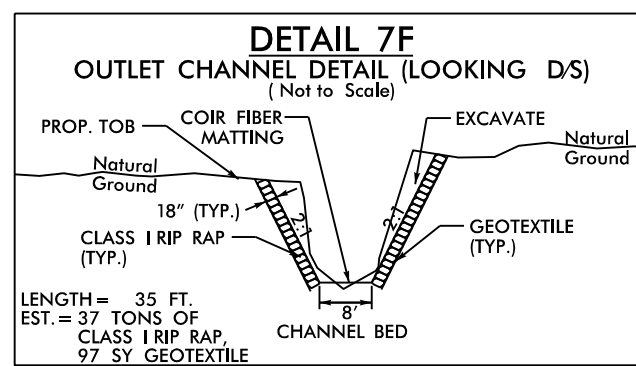
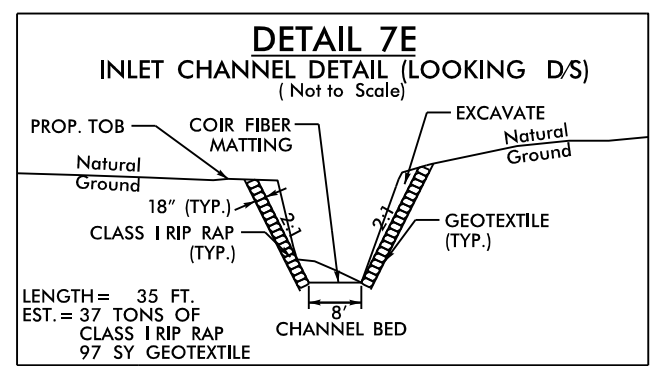
FROM STA. 52+20 TO STA. 54+47 -L- RT
EST 20 TONS 67 SY GEOTEXTILE
FROM STA. 55+46 TO STA. 56+46 -L- RT
EST 50 TONS 165 SY GEOTEXTILE
FROM STA. 55+60 TO STA. 57+00 -L- LT
EST 28 TONS 94 SY GEOTEXTILE



FROM STA. 55+04 TO STA. 55+75 -L- RT
DDE = 75CY
EST 130 TONS CL I RIP RAP; 220SY GEOTEXTILE



FROM STA. 57+00 TO STA. 57+50 -L- LT
EST 27 TONS
88 SY GEOTEXTILE



INSTALL MATTING FOR
EROSION CONTROL IN THE
PROPOSED DITCH LINE.

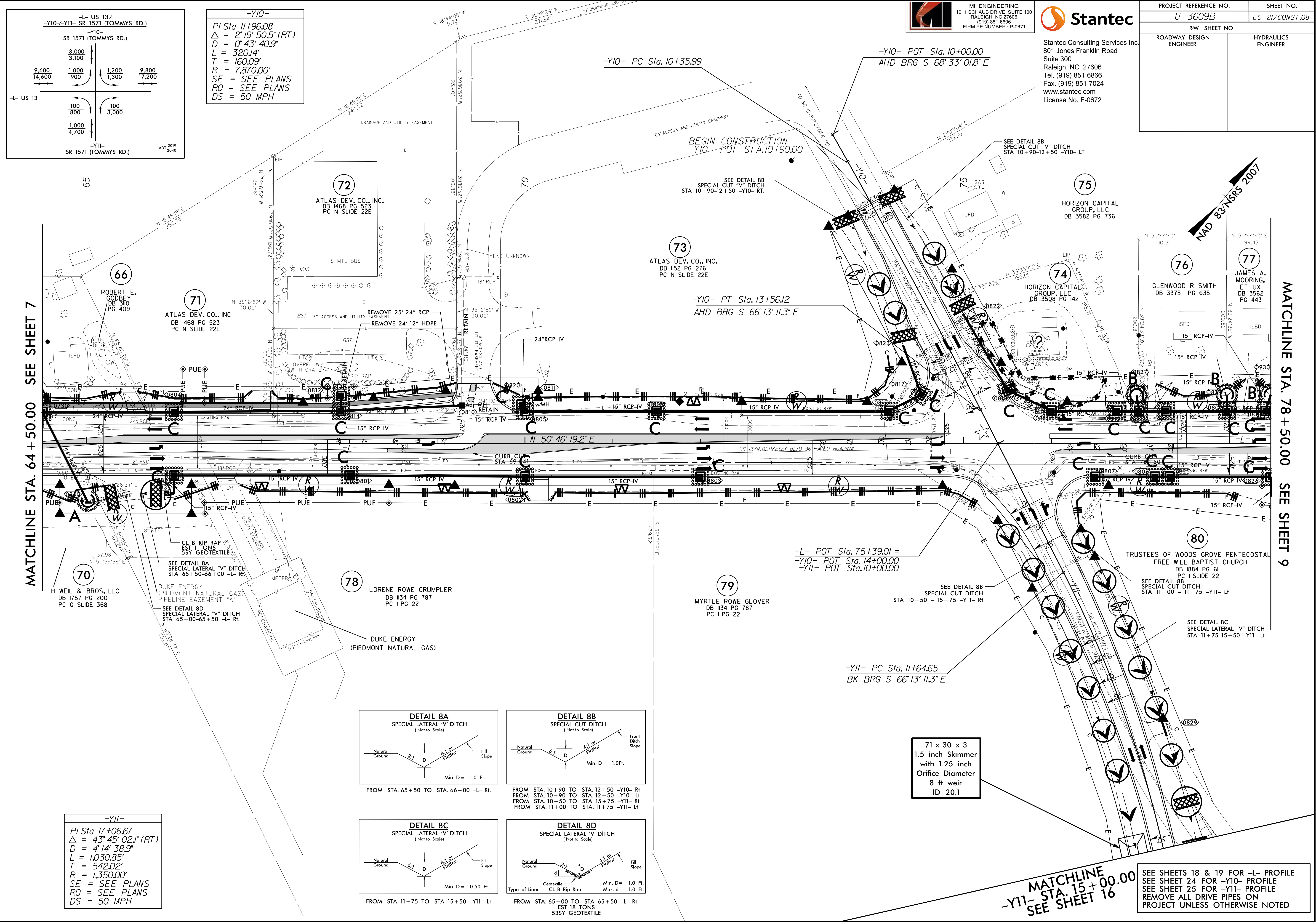
INSTALL FILTRATION GEOTEXTILE UNDER
TEMPORARY ROCK SILT CHECK(S)
TYPE A IN PERMITTED WETLANDS.

SEE SHEET 22 FOR -L- PROFILE
SEE SHEET 29 FOR -YB- PROFILE
SEE SHEET 30 FOR -Y9A- &
-Y9B- PROFILES

10/31/2025
N:\NC_Highway\17032-U-3609B\U-3609B-Erosion Control\Cadd\Final\U3609B-EC.psd07-EC20.dgn
MI ENGINEERING - hturner

8/17/99

10/31/2025
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MI ENGINEERING - Turner

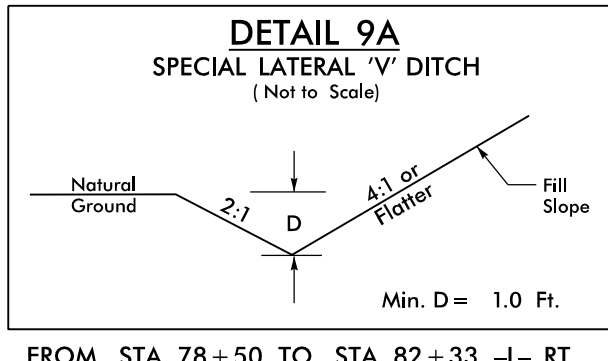


10/31/2025
N:\NC_Hydro\MI7032_U-3609B\U-3609B\Erosion Control\Cadd\Final\U3609B_EC.psd09_EC22.dgn
MI ENGINEERING - hturner

MATCHLINE STA. 78 + 50.00 SEE SHEET 8

-L-
PI Sta 82+92.82
 $\Delta = 7' 17" 54.7" (LT)$
 $D = 1' 09' 35.4"$
 $L = 629.27'$
 $T = 315.06'$
 $R = 4,940.00'$
SE = SEE PLANS
DS = 50 MPH

-Y13-
PI Sta 13+93.31
 $\Delta = 12' 03' 38.7" (LT)$
 $D = 2' 51' 53.2"$
 $L = 421.00'$
 $T = 211.28'$
 $R = 2,000.00'$

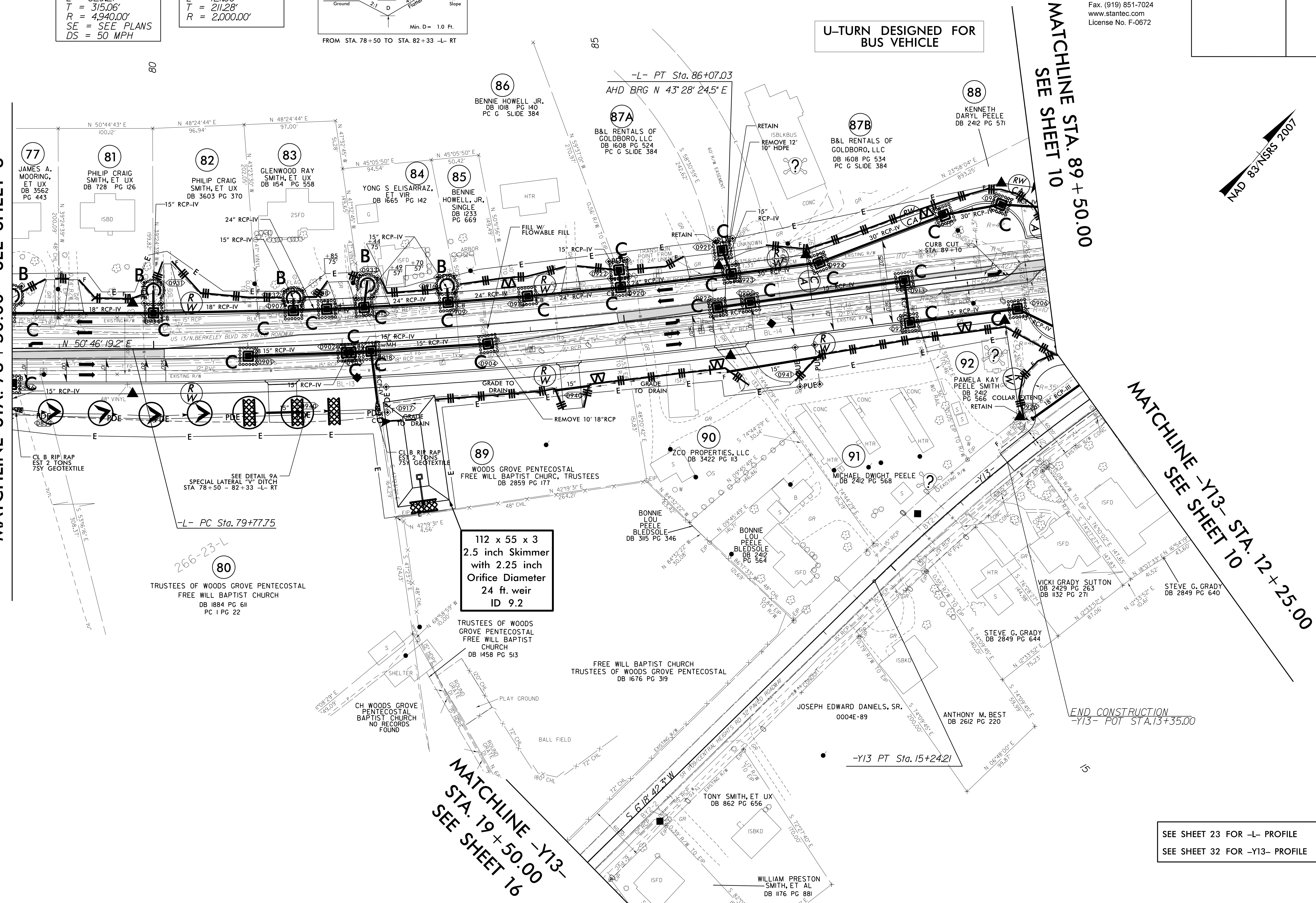


MI ENGINEERING
1011 SCHUB DRIVE, SUITE 100
RALEIGH, NC 27608
(919) 851-8608
FIRM PE NUMBER : P-0671



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801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
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PROJECT REFERENCE NO.		SHEET NO.
U-3609B		EC-22/CONST.09
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER



MATCHLINE -Y13-
STA. 19 + 50.00
SEE SHEET 16

SEE SHEET 23 FOR -L- PROFILE
SEE SHEET 32 FOR -Y13- PROFILE



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(919) 851-6606
FIRM PE NUMBER : P-0671



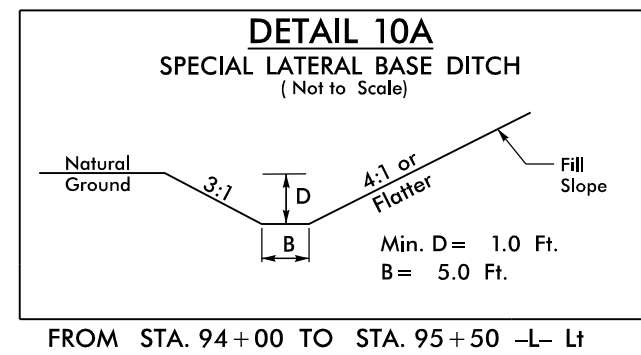
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.		SHEET NO.	
U-3609B		EC-23/CONST.10	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

MATCHLINE STA. 89 + 50.00 SEE SHEET 9
-L- STA. 12 + 25.00 SEE SHEET 9

-L-
PI Sta 103+06.71
 $\Delta = 47' 17" 45.9" (LT)$
 $D = 3' 57" 05.2"$
 $L = 1,196.94'$
 $T = 634.94'$
 $R = 1,450.00'$
SE = SEE PLANS
DS = 50 MPH

-Y13-
PI Sta 13+14.49
 $\Delta = 12' 03' 38.7" (LT)$
 $D = 2' 51' 53.2"$
 $L = 421.00'$
 $T = 211.28'$
 $R = 2,000.00'$
SE = SEE PLANS
DS = 55 MPH



87 x 43 x 3
2.0 inch Skimmer
with 1.625 inch
Orifice Diameter
14 ft. weir
ID 10.1

-Y14- POT Sta. 10+00.00
AHD BRG S 71° 30' 35.3" E
BEGIN CONSTRUCTION
-Y14- POT STA. 10+70.00

DURWOOD LEE
PEELE & HEIRS
DB 860 PG 886

MATCHLINE STA. 103 + 50.00
SEE SHEET 11
NAD 83/NRS 2007

SEE SHEETS 23 & 24 FOR
-L- PROFILE
SEE SHEET 32 FOR -Y13- &
-Y14- PROFILE

-L- POC Sta. 102+69.23 =
-Y14- POT Sta. 11+94.57

8/17/99

10/31/2025
N:\NC_Hydro\MI7032_U-3609B\U-3609B\Erosion Control\Cadd\Final\U3609B_EC_psh11_EC24.dgn
MI ENGINEERING - hturner



MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-8608
FIRM PE NUMBER : P-0671

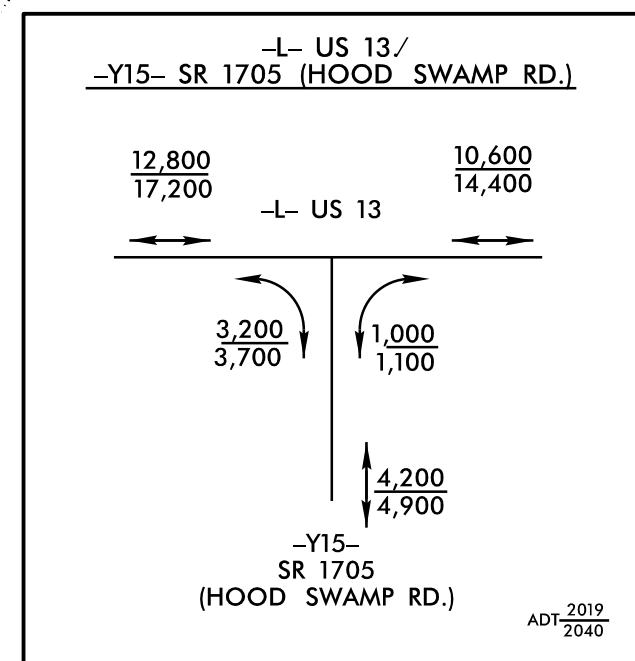
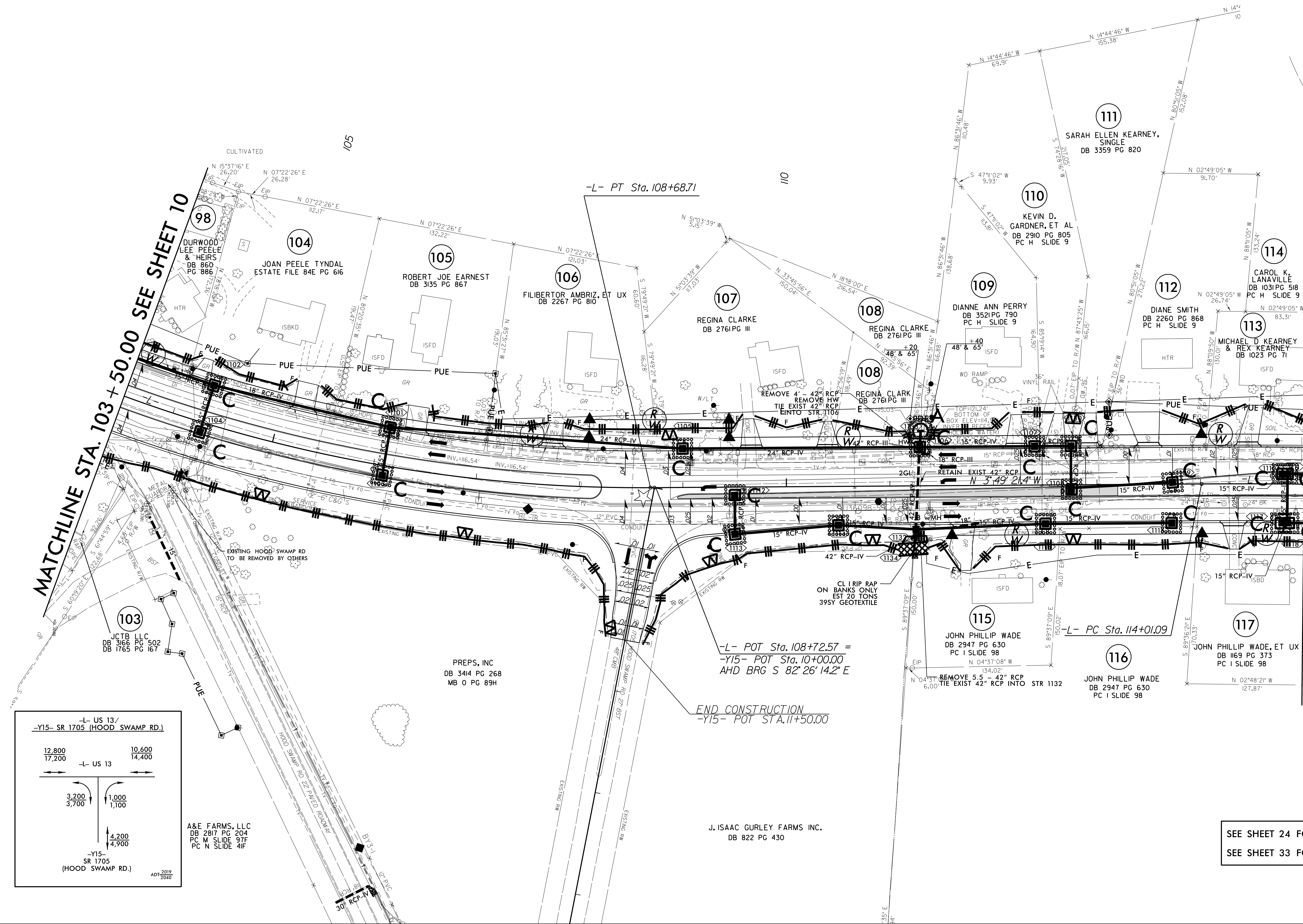


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PROJECT REFERENCE NO.		SHEET NO.	
U-3609B		EC-24/CONST.II	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

-L-	
PI Sta 102+98.12	PI Sta 126+67.29
$\Delta = 47^{\circ}17'45.9"$ (LT)	$\Delta = 23^{\circ}46'46.8"$ (RT)
D = 3'57'05.2"	D = 0'57'23.5"
L = 1,196.94'	L = 2,486.05'
T = 634.94'	T = 1,261.18'
R = 1,450.00'	R = 5,990.00'
SE = SEE PLANS	SE = SEE PLANS
DS = 50 MPH	DS = 50 MPH

NAD 83/NSRS 2007



A&E FARMS, LLC
DB 281 PG 204
PC M SLIDE 97F
PC N SLIDE 41F

J. ISAAC GURLEY FARMS INC.
DB 822 PG 430

SEE SHEET 24 FOR -L- PROFILE
SEE SHEET 33 FOR -Y15- PROFILE

8/17/99
10/31/2025
N:\NC_Hydro\MI7032_U-3609B\U-3609B\Erosion Control\Cadd\Final\U3609B_EC_psh12_EC25.dgn
MI ENGINEERING - hturner



MI ENGINEERING
1011 SCHAUß DRIVE, SUITE 100
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FIRM PE NUMBER : P-0671

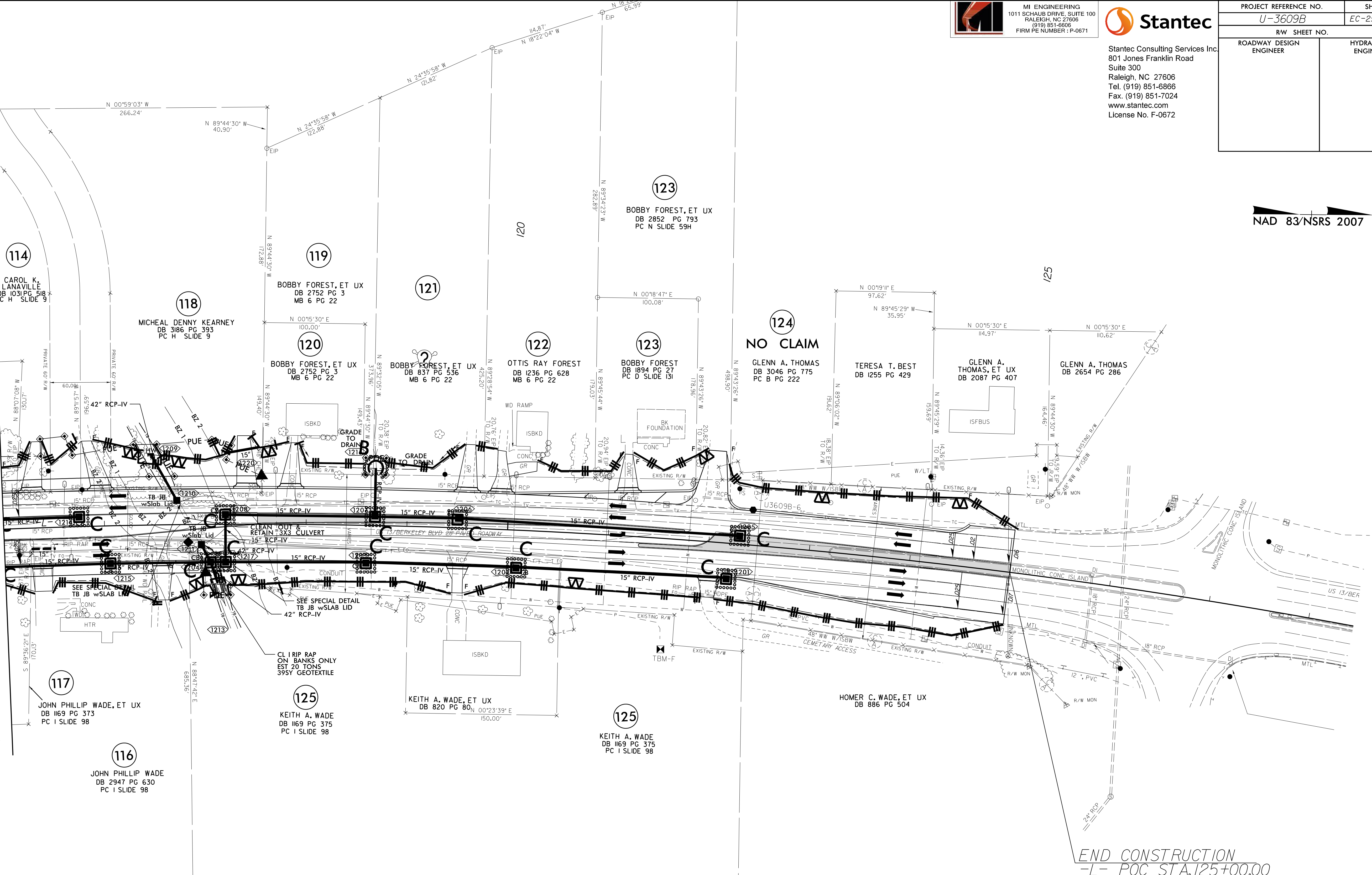


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PROJECT REFERENCE NO.		SHEET NO.
U-3609B		EC-25/CONST.12
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER

NAD 83/NSRS 2007

MATCHLINE STA. 115 + 00.00 SEE SHEET 11



-L-
PI Sta 132+98.28
 $\Delta = 35^{\circ}08'55.3''$ (RT)
D = 0'57'23.5"
L = 3,674.63'
T = 1,897.19'
R = 5,990.00'
SE = SEE PLANS
DS = 50 MPH

SEE SHEETS 24 & 25
FOR -L- PROFILE

8/17/99
10/31/2025
N:\NC_Hdr\o\MI7032_U-3609B\U-3609B\Erosion Control\Cadd\Final\U3609B_EC_psh13_EC26.dgn
MI ENGINEERING - hturner

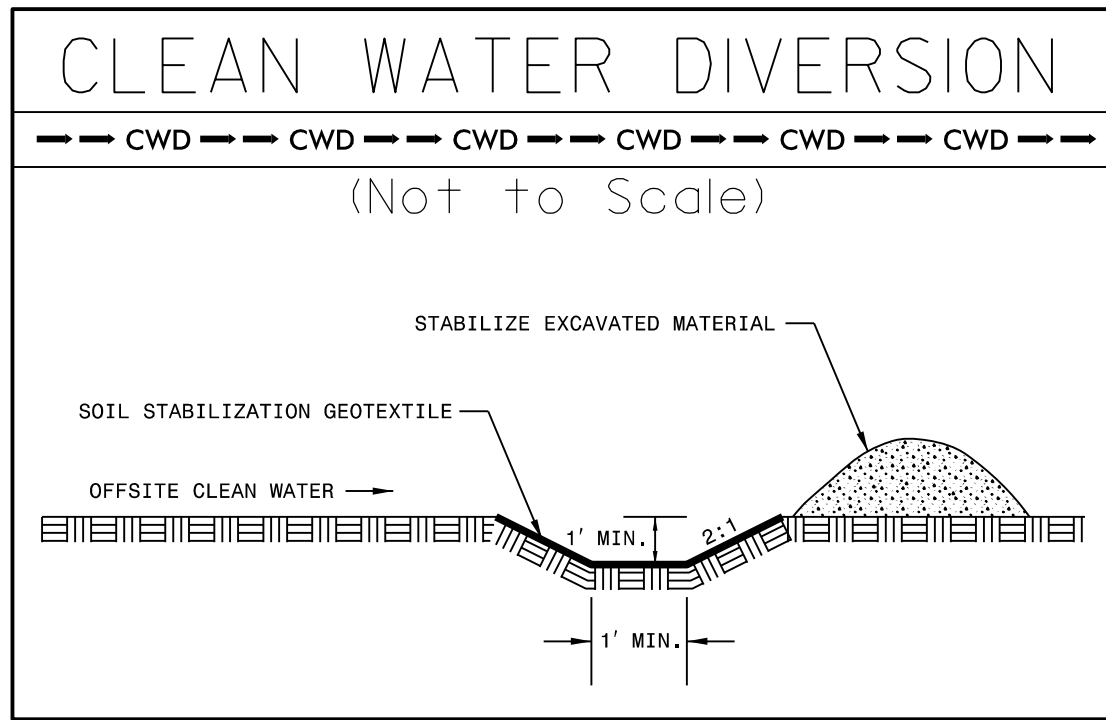


MI ENGINEERING
1011 SCHAUß DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6608
FIRM PE NUMBER : P-0671

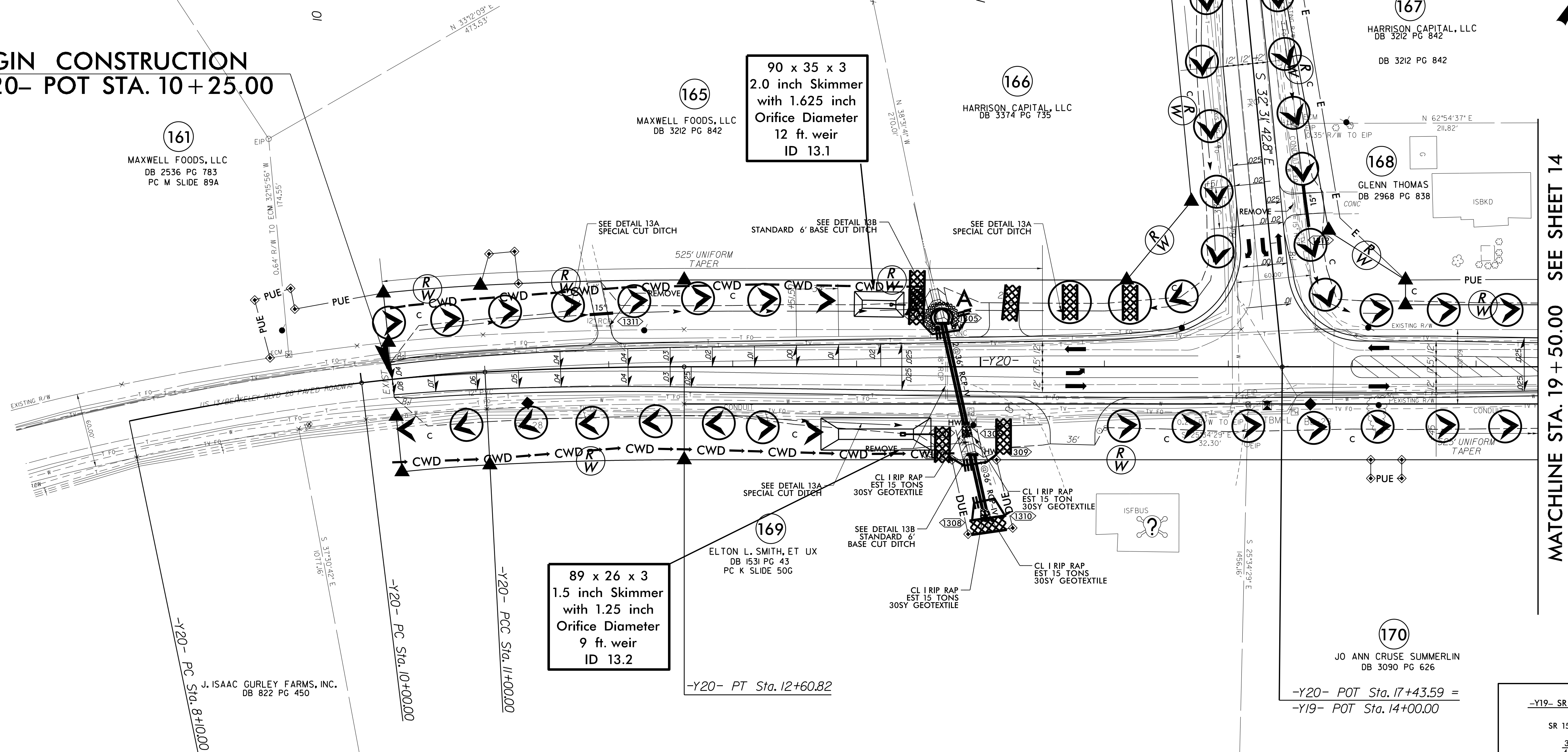


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PROJECT REFERENCE NO.		SHEET NO.
U-3609B		EC-26/CONST.13
RW SHEET NO. 17		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	



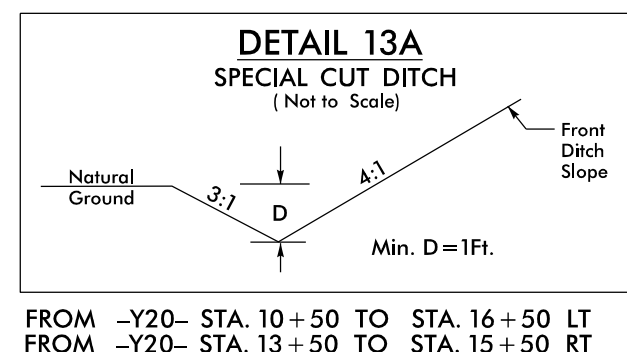
BEGIN CONSTRUCTION
-Y20- POT STA. 10+25.00



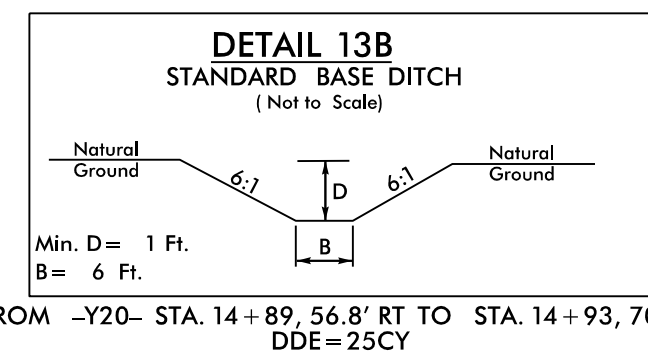
-Y20-
PI Sta 9+05.05
 $\Delta = 4' 43'' 59.3''$ (RT)
 $D = 2' 29'' 28.0''$
 $L = 190.00'$
 $T = 95.05'$
 $R = 2,300.00'$

-Y20-
PI Sta 10+50.02
 $\Delta = 3' 57'' 05.2''$ (RT)
 $D = 3' 57'' 05.2''$
 $L = 100.00'$
 $T = 50.02'$
 $R = 1,450.00'$
SE = SEE PLANS

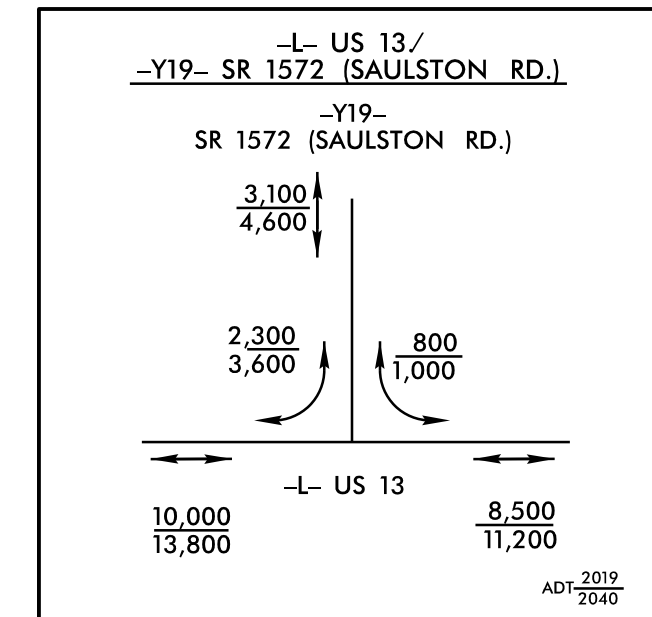
-Y20-
PI Sta 11+80.43
 $\Delta = 3' 00'' 55.6''$ (RT)
 $D = 1' 52'' 30.1''$
 $L = 160.82'$
 $T = 80.43'$
 $R = 3,055.71'$
SE = SEE PLANS



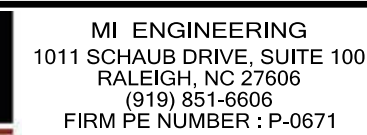
FROM -Y20- STA. 10+50 TO STA. 16+50 LT
FROM -Y20- STA. 13+50 TO STA. 15+50 RT



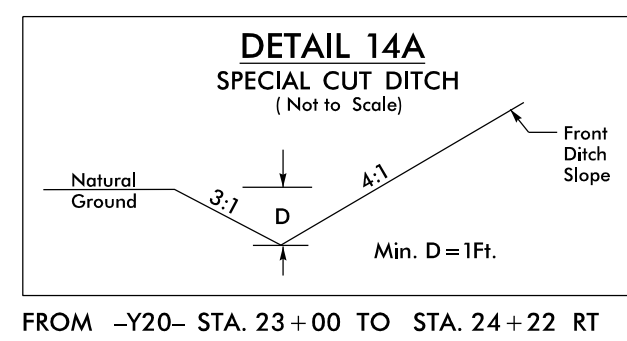
FROM -Y20- STA. 14+89.56.8' RT TO STA. 14+93.70' RT
DDE=25CY



SEE SHEET 27 FOR -Y20- PROFILE
SEE SHEET 27 FOR -Y19- PROFILE
REMOVE ALL DRIVE PIPES ON
PROJECT UNLESS OTHERWISE NOTED



SEE SHEET 27 FOR -Y20- PROFILE
REMOVE ALL DRIVE PIPES ON
PROJECT UNLESS OTHERWISE NOTED



NAD 83/NSRS 2007

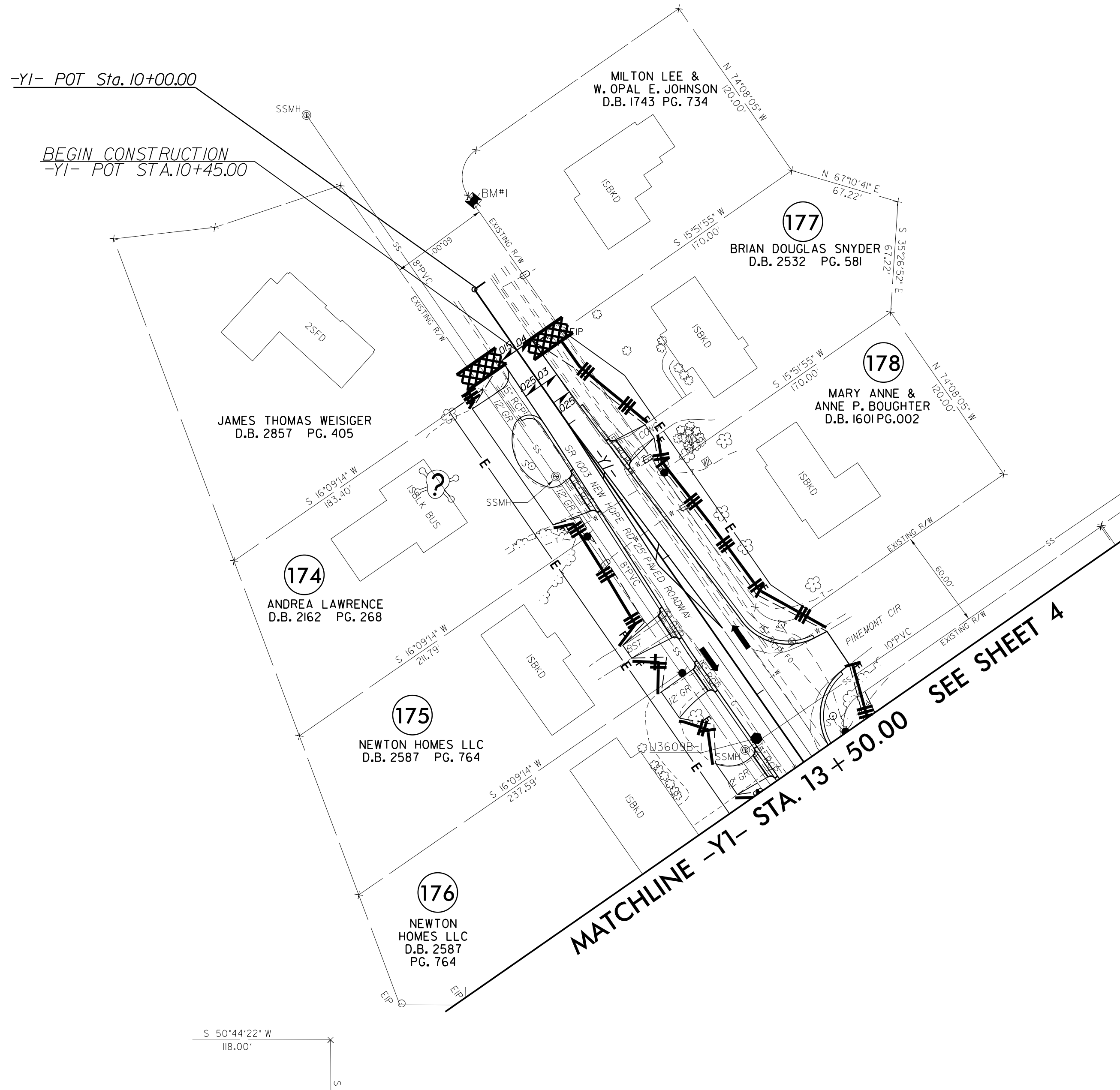
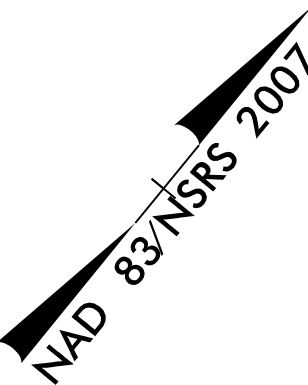


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FIRM PE NUMBER : P-0671



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PROJECT REFERENCE NO.		SHEET NO.
U-3609B		EC-28/CONST.15
RW SHEET NO. 19		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	



SEE SHEET 22 FOR -Y1- PROFILE
REMOVE ALL DRIVE PIPES ON
PROJECT UNLESS OTHERWISE NOTED

