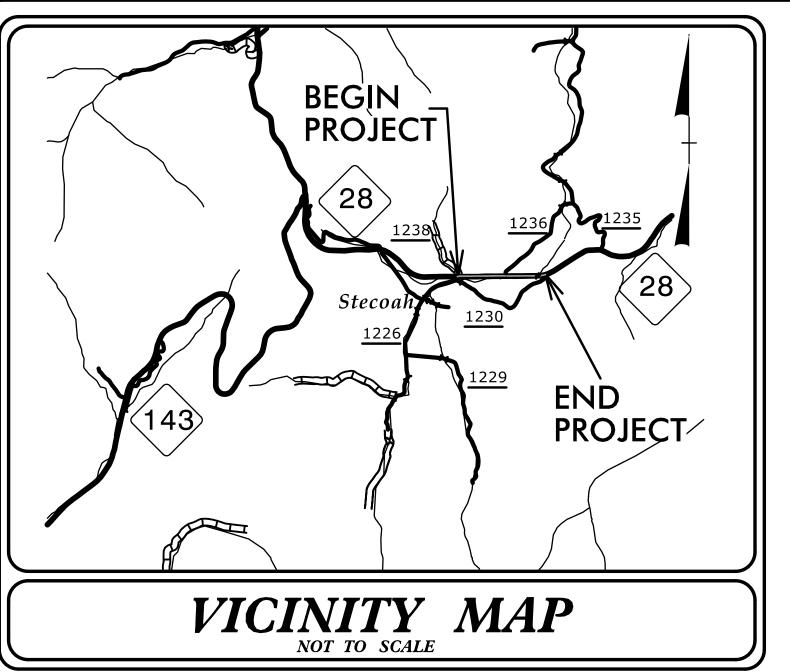
# This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document –

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This file or an individual page shall not be considered a certified document.

PROJECT: A-0009C



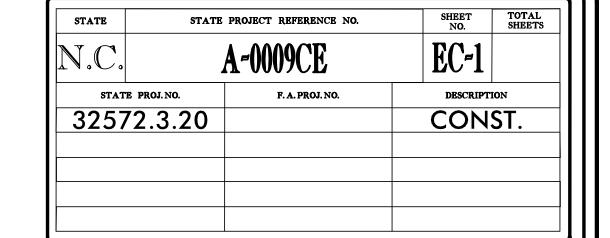
# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

#### GRAHAM COUNTY

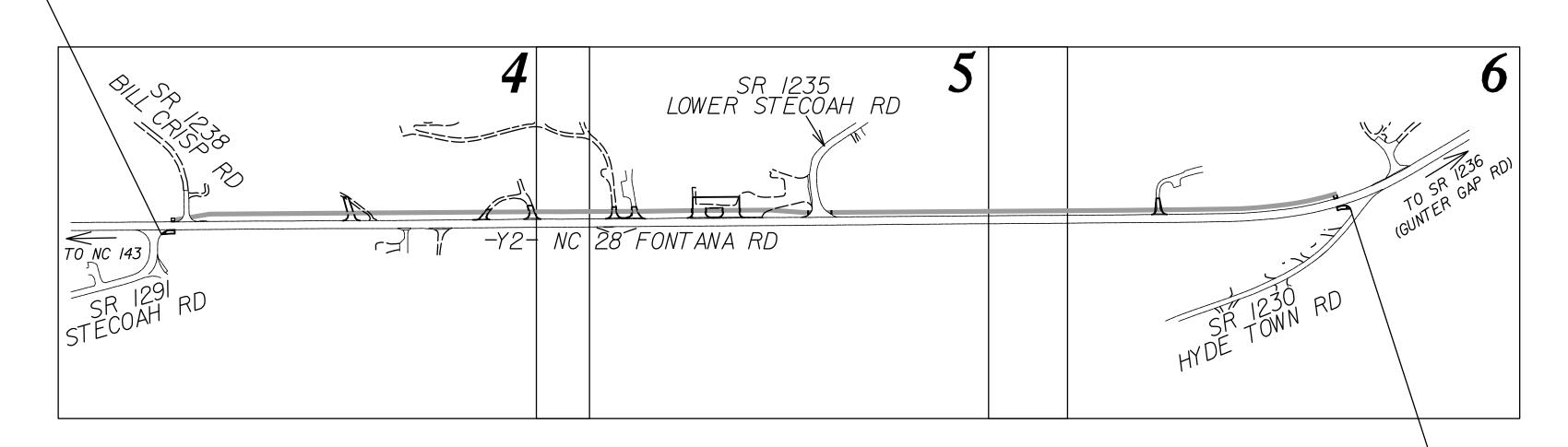
LOCATION: MULTI-USE PATH ALONG NC 28 FROM SR 1238 (BILL CRISP RD) TO SR 1230 (HYDE TOWN RD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, & MULTI-USE PATH





#### BEGIN TIP PROJECT A-0009CE -Y2- STA. 98 + 85



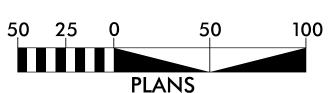
END TIP PROJECT A-0009CE -Y2- STA. 132 + 35 THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

#### GRAPHIC SCALE



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2024 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.



Prepared in the Office of:

#### TGS ENGINEERS

201 W. MARION ST-STE 200 SHELBY, NC 28150

Designed by:

Andrew H. Cochrane, PE 3015
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 revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

5/28/2024 ENDrainage\Erosion Cor User:acochrane

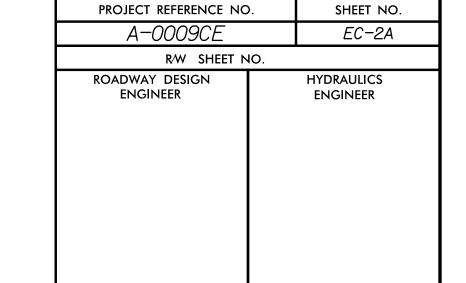
### DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

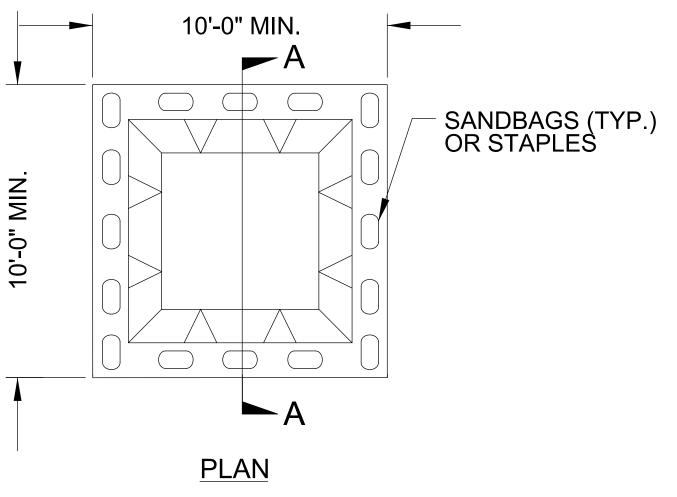
PROJECT REFERENC	E NO.	SHEET NO.
A-0009CE		EC-02
	_	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER

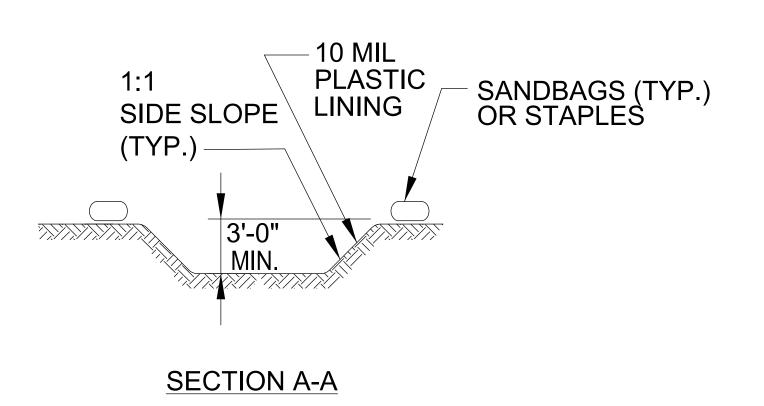
# EROSION & SEDIMENT CONTROL LEGEND

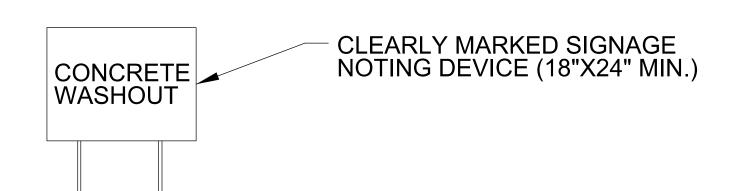
<u>Std. #</u>	<u>Description</u>	<u>Symbol</u>	Std. #	<u>Description</u>	<u>Symbol</u>
1605.01	Temporary Silt Fence	· <del>          </del>	1633.01	Temporary Rock Silt Check Type A	
1606.01	Special Sediment Control Fence		1633.02	Temporary Rock Silt Check Type B	
1622.01	Temporary Berms and Slope Drains		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	1888 008 000 000 000 000 000 000 000 000
1630.03	Temporary Silt Ditch	TSD	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	···— → TD — →	1635.02	Rock Pipe Inlet Sediment Trap Type B	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	··   EW
4000.04	Rock Inlet Sediment Trap:	<b>↑ ******</b>		Silt Fence Coir Fiber Wattle Break	··- CFW-
1632.01	Type A		1636.03	Excelsior Wattle Barrier	EW—EW—EW—
1632.02	Type B	B			
1632.03	Type C		1636.03	Coir Fiber Wattle Barrier	CFW—CFW—CFW—

# ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER









#### BELOW GRADE WASHOUT STRUCTURE

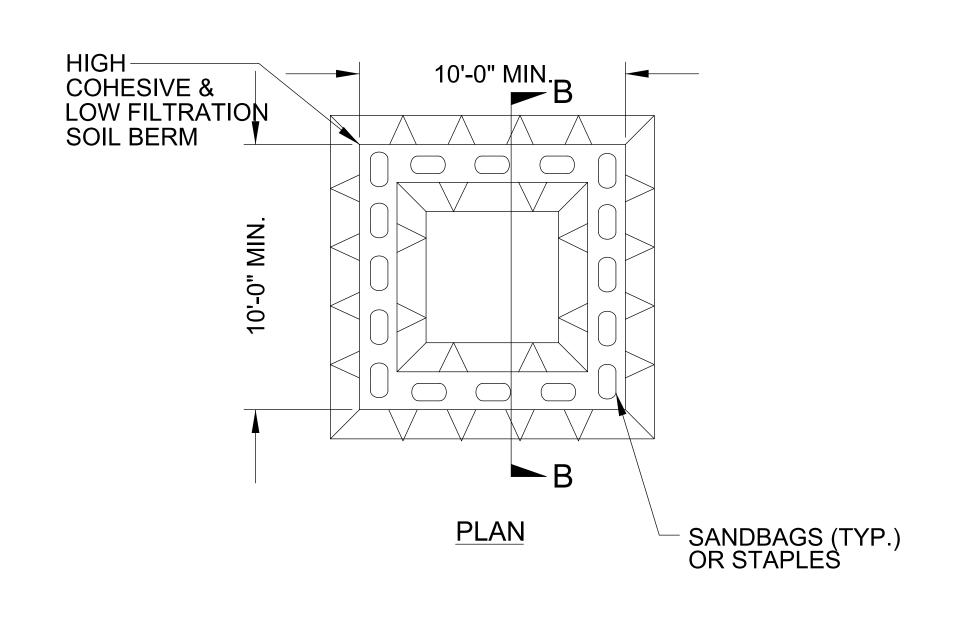
NOT TO SCALE

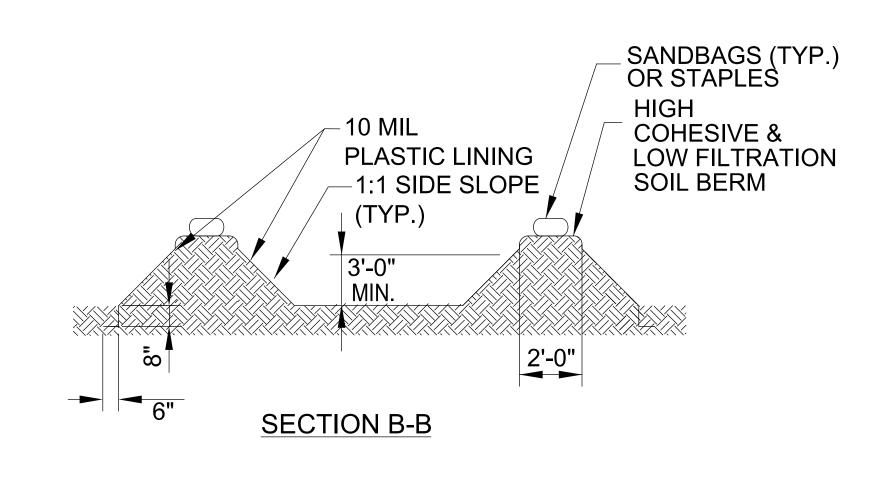
NOTES:

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 CLEARY MARKED WITH SIGNAGE NOTING DEVICE.







ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

NOTES:

1. ACTUAL LOCATION DETERMINED IN FIELD

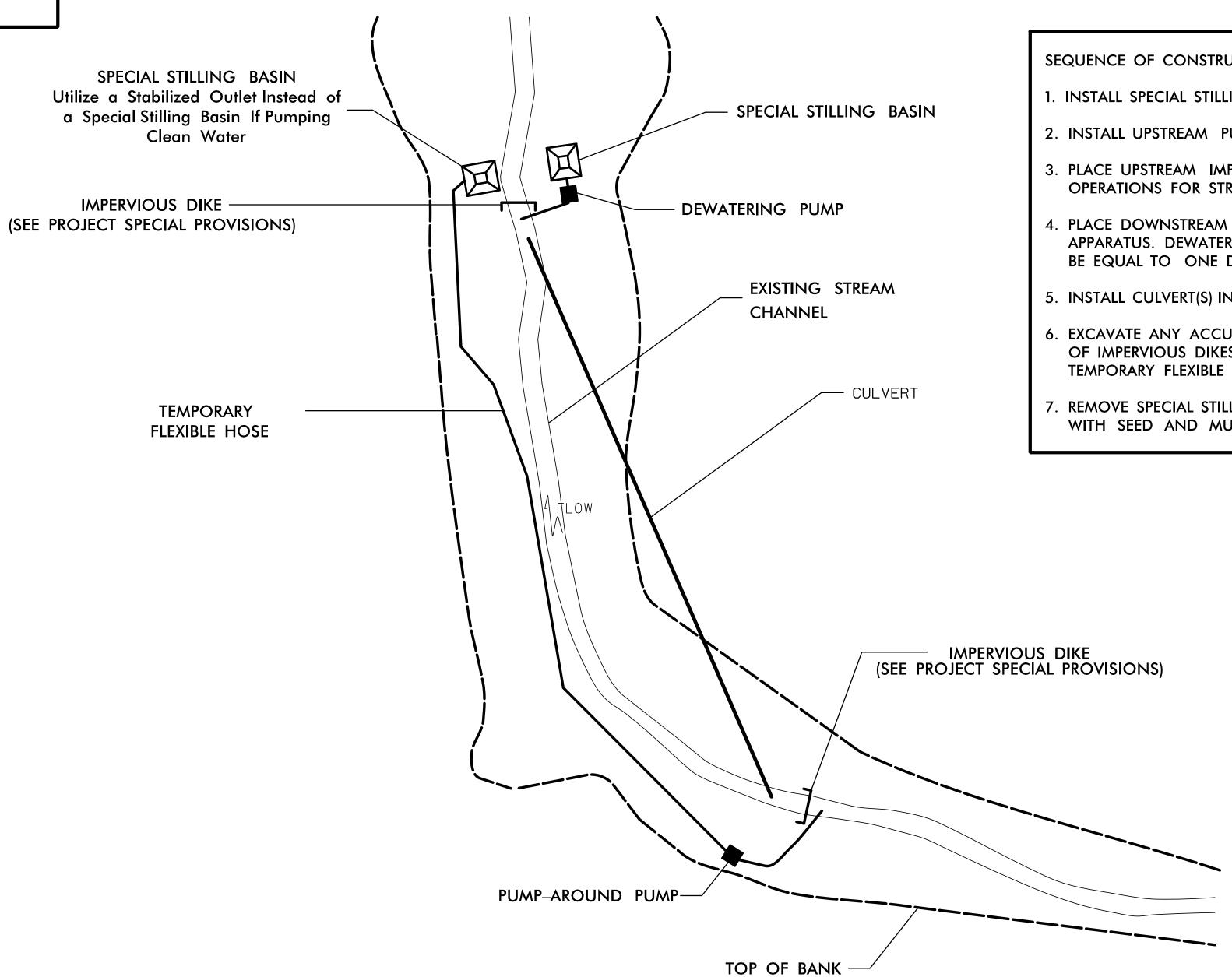
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

# EXAMPLE OF PUMP-AROUND OPERATION

PROJECT REFERENCE NO.		SHEET NO.
A-0009CE	A-0009CE	
R/W SHEET N	10.	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER

- 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

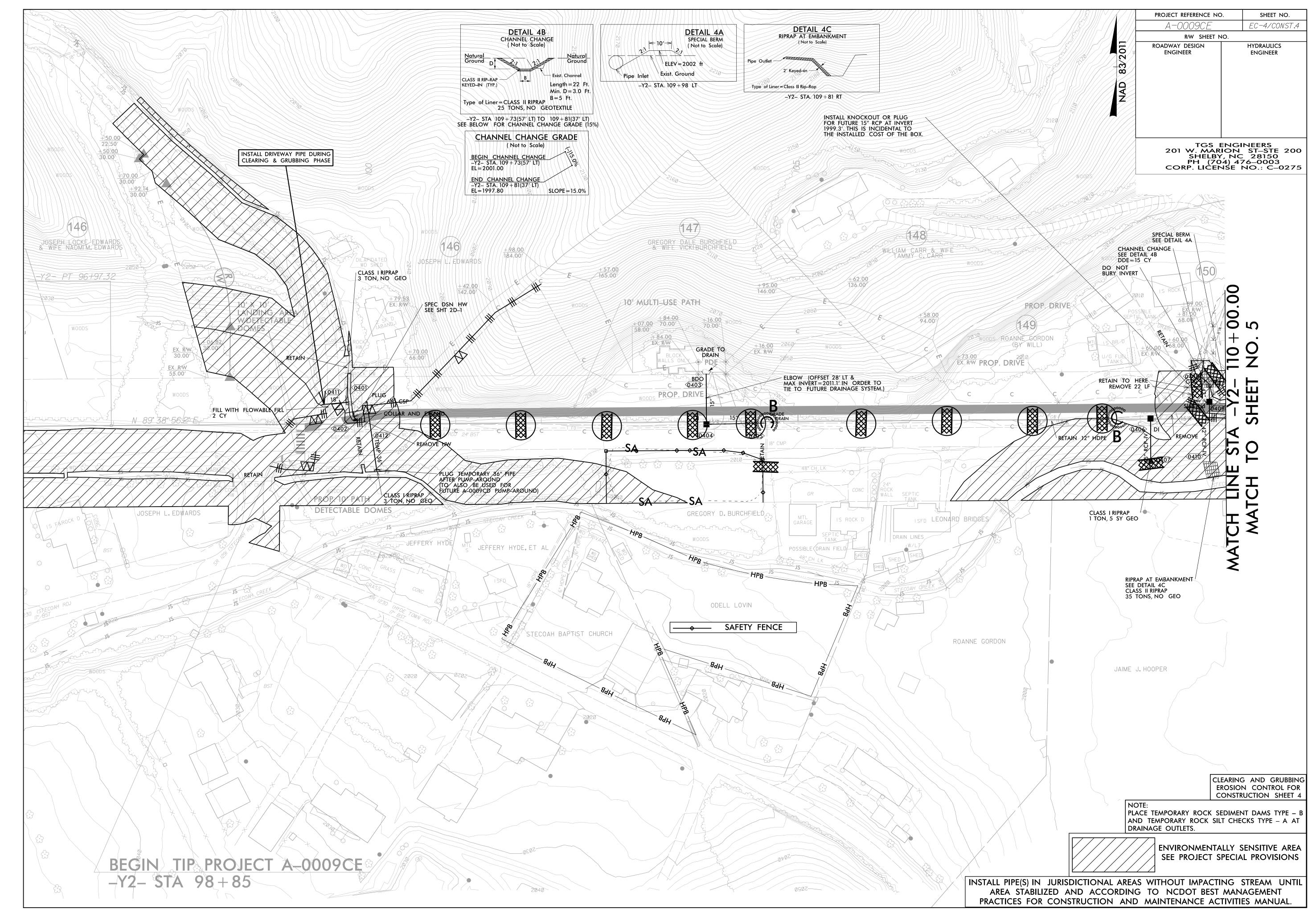
- 1. INSTALL SPECIAL STILLING BASIN(S).
- 2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
- 3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
- 4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL 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.

DIVIS	SION	OF	HIC	<b>GHWAYS</b>	5
STATE	$\mathbb{OF}$	NOR'	TH	CAROL	INA

PROJECT REFERENCE NO	).	SHEET NO.	
A-0009CE		EC−3	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
	A-0009CE ROADWAY DESIGN	ROADWAY DESIGN	A-0009CE EC-3  ROADWAY DESIGN HYDRAULICS

# 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.
		7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH WITH SLOPES STEEPER THAN 4:1.
SLOPES 3:1 TO 4:1		7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	I4 DAYS	7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES

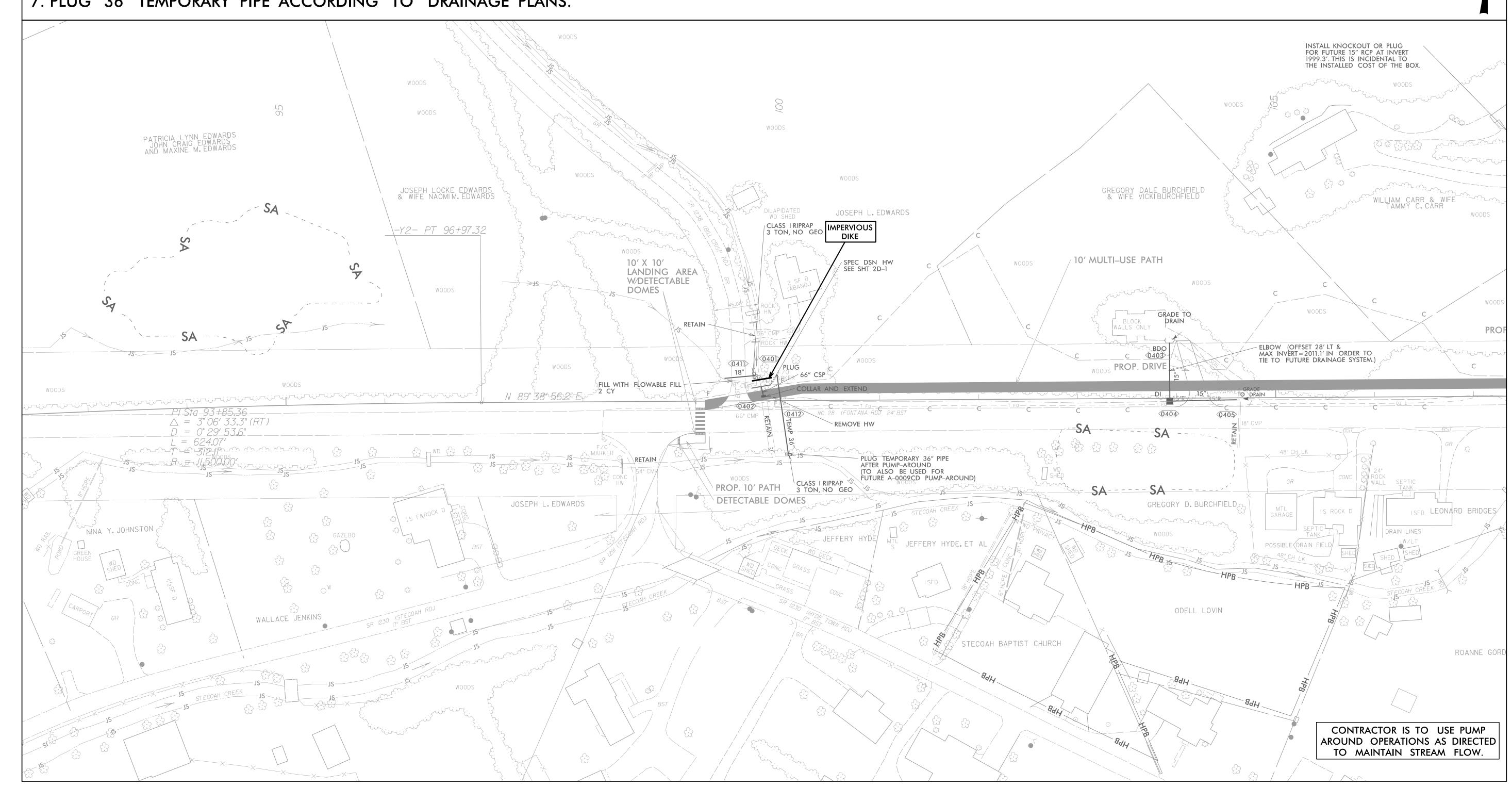


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# PIPE CONSTRUCTION SEQUENCE STA. 99 + 83 -Y2-

PROJECT REFERENCE NO.	. SHEET NO.
A-0009CE	EC-04A/CONST.
RW SHEET NO	O.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

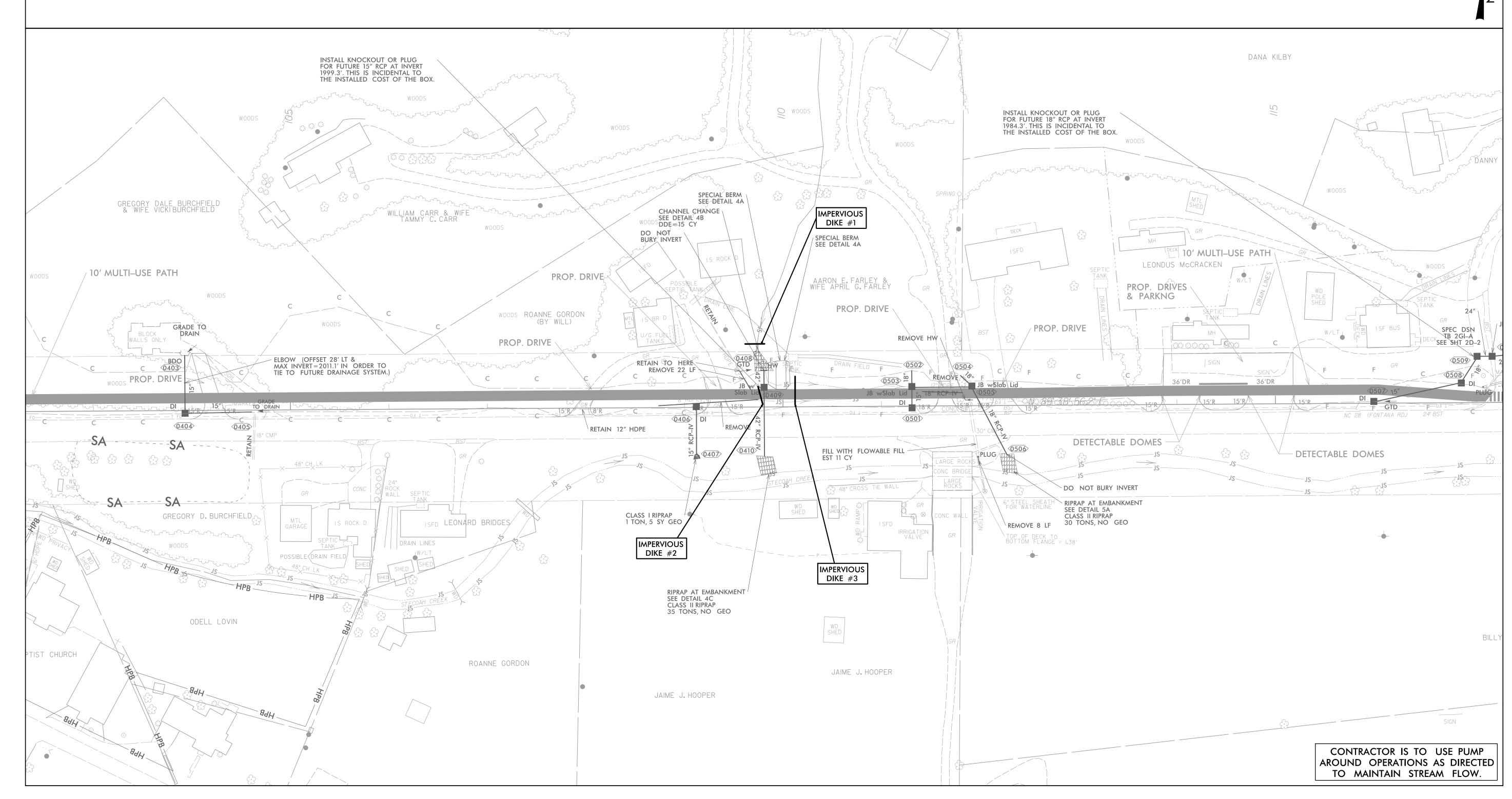
- 1. INSTALL 18" DRIVEWAY PIPE #0411 DURING CLEARING AND GRUBBING PHASE.
- 2. INSTALL APPROXIMATELY 80 LF OF 36" TEMPORARY PIPE #0412. REFER TO TRAFFIC CONTROL PLANS.
- 3. INSTALL IMPERVIOUS DIKE AND BEGIN PUMP AROUND THROUGH 36" TEMPORARY PIPE.
- 4. DEWATER WORK SITE AS NEEDED INTO SPECIAL STILLING BASIN(S).
- 5. CONSTRUCT 66" CSP PIPE EXTENSION AND HEADWALL.
- 6. REMOVE IMPERVIOUS DIKE AND REESTABLISH STREAM ACCORDING TO CONST. PLANS.
- 7. PLUG 36" TEMPORARY PIPE ACCORDING TO DRAINAGE PLANS.

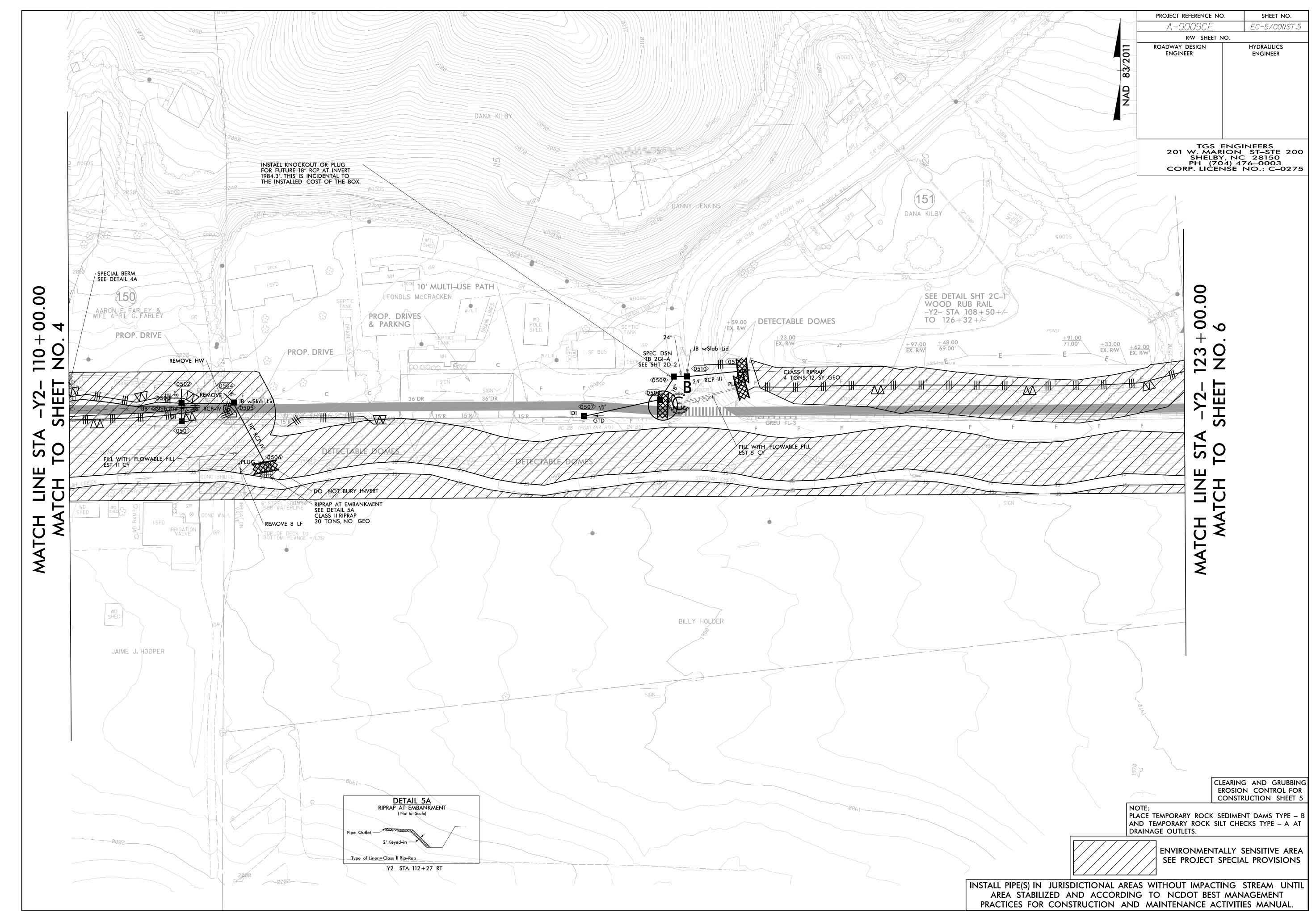


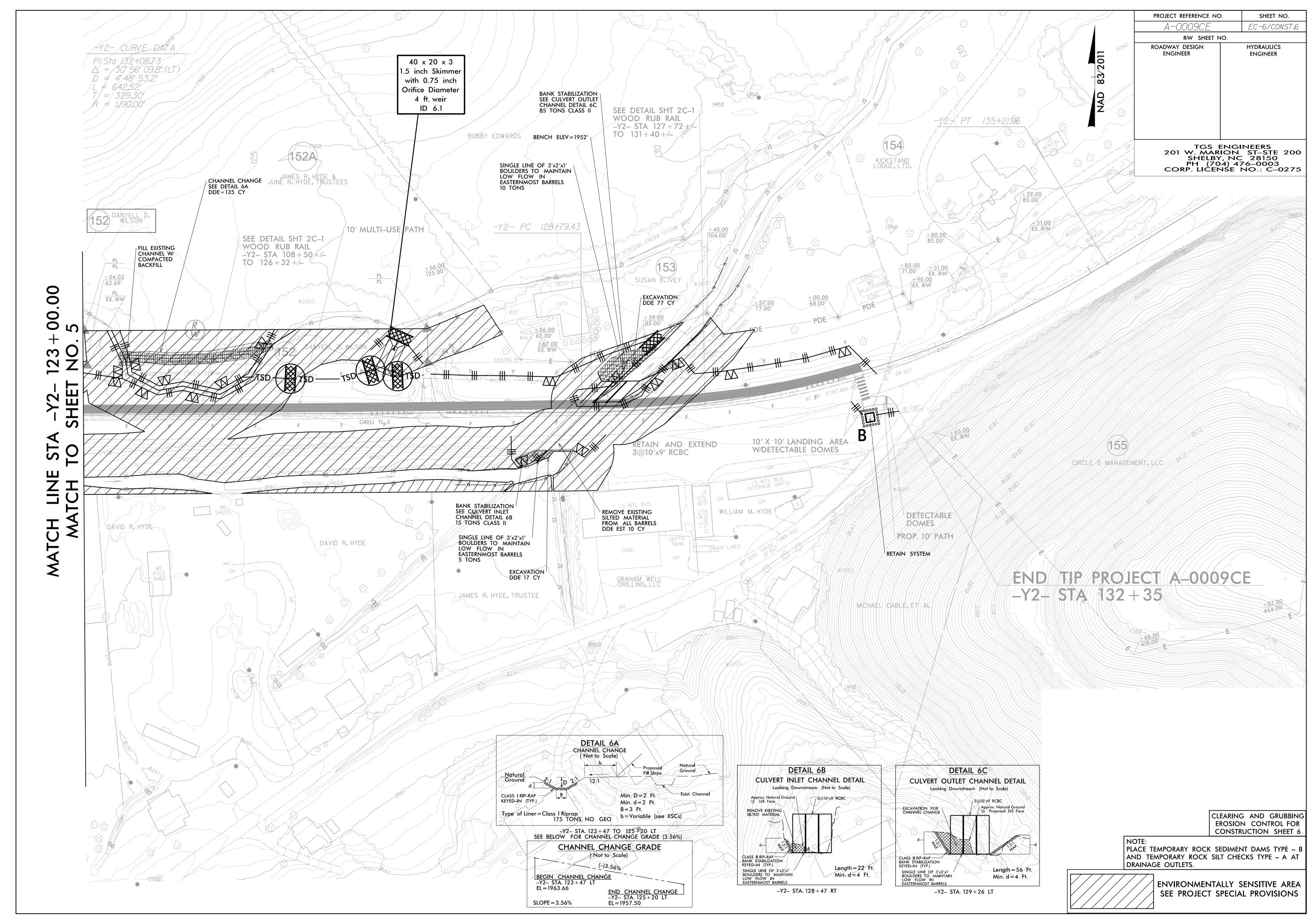
# PIPE CONSTRUCTION SEQUENCE STA. 109 + 81 -Y2-

PROJECT REFERENCE NO. C-04B/CONST R/W SHEET NO. ROADWAY DESIGN **HYDRAULICS** ENGINEER

- 1. INSTALL IMPERVIOUS DIKES #1, #2, AND #3.
- 2. BEGIN PUMP AROUND OPERÁTION BY PUMPING TOWARD 12" HDPE DRIVEWAY PIPE.
- 3. DEWATER WORK SITE AS NEEDED INTO SPECIAL STILLING BASIN(S).
  4. CONSTRUCT CHANNEL CHANGE AND 42" RCP-IV PIPE SYSTEM FROM #0408 TO #0410.
- 5. REMOVE IMPERVIOUS DIKES AND REESTABLISH STREAM ACCORDING TO CONST. PLANS.
  6. FILL IN EXISTING STREAMBED AND CONSTRUCT DRAINAGE SYSTEM FROM #0501 TO #0506.







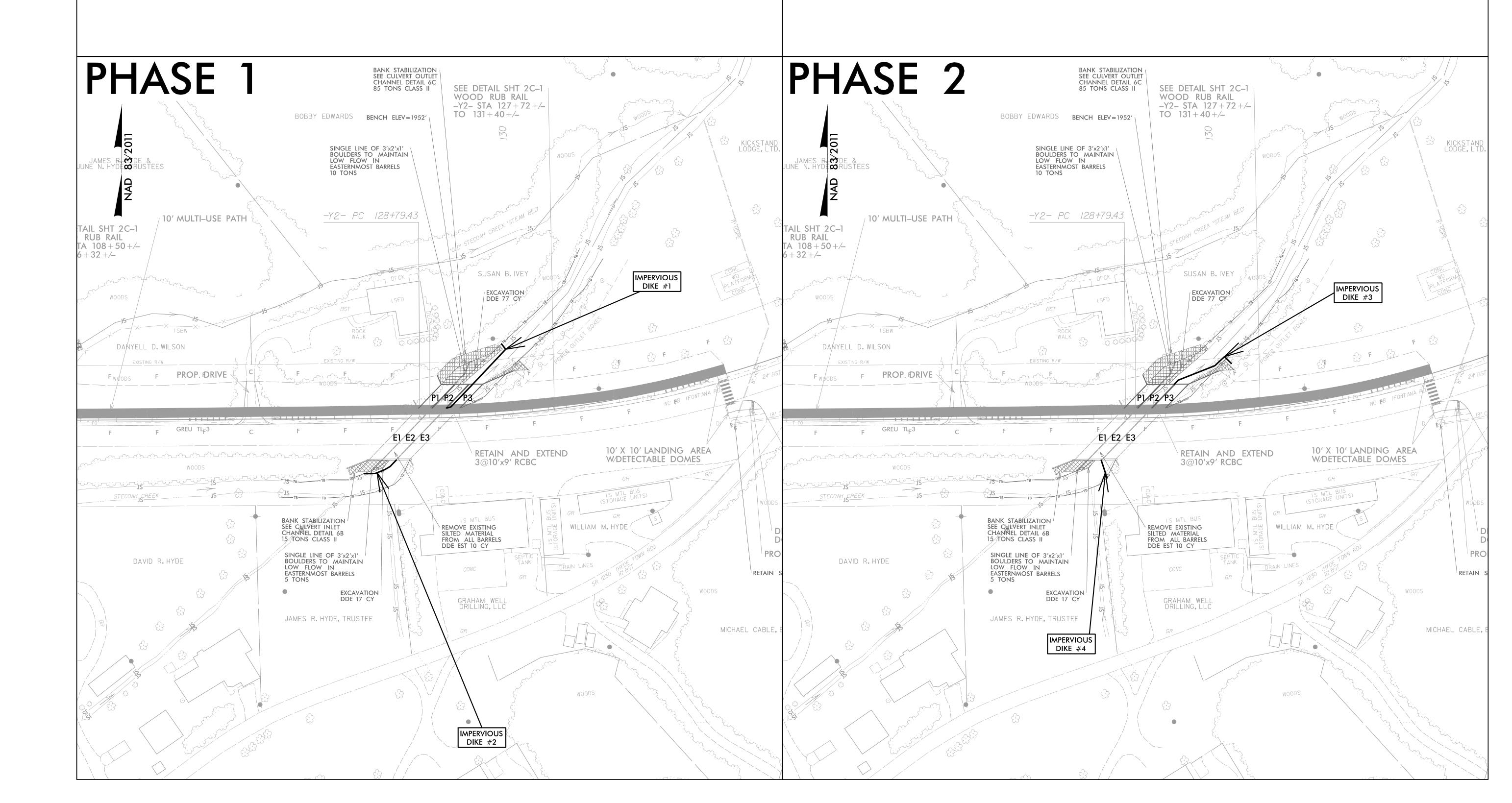
PROJECT REFERENCE NO. SHEET NO. C-06A/CONST R/W SHEET NO. ROADWAY DESIGN **HYDRAULICS ENGINEER** ENGINEER

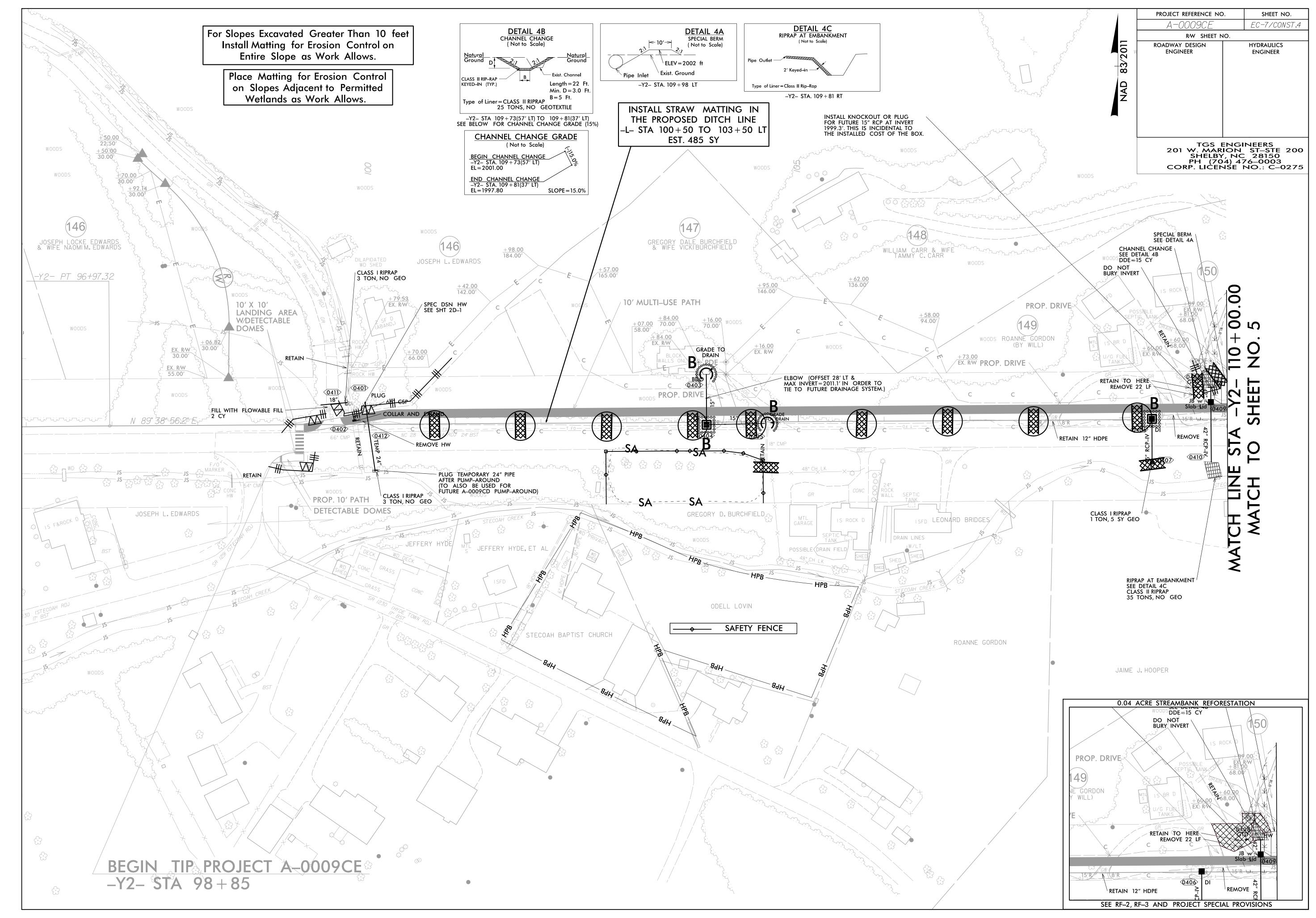
# CULVERT CONSTRUCTION SEQUENCE STA. 128 + 90 -Y2-

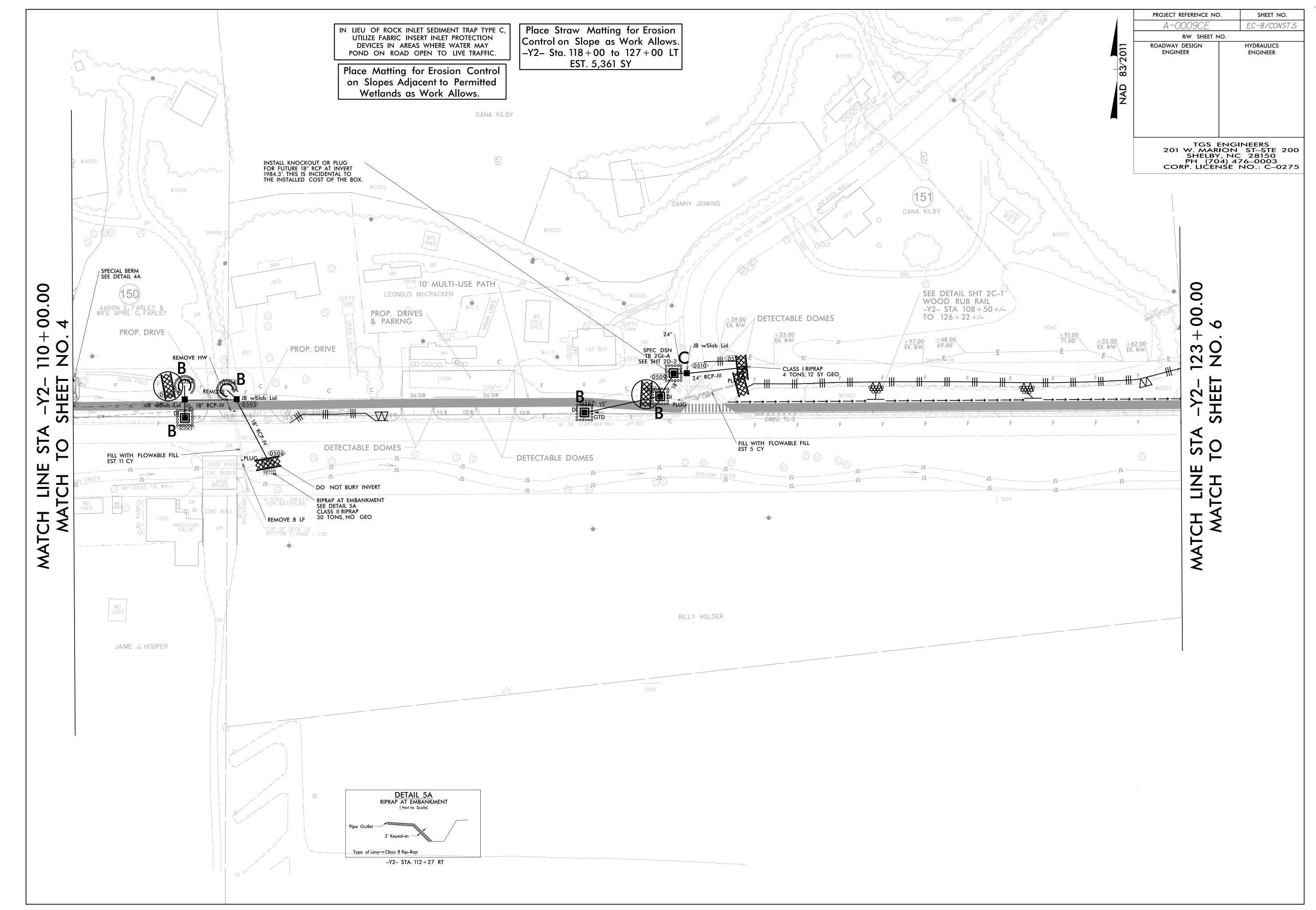
- 1. INSTALL IMPERVIOUS DIKES #1 & #2 AND DIRECT FLOW THROUGH EXISTING RCBC E3.
  2. DEWATER WORK SITE AS NEEDED INTO SPECIAL STILLING BASIN(S).
  3. CONSTRUCT 10'X9' RCBC EXTENSIONS P1 & P2.

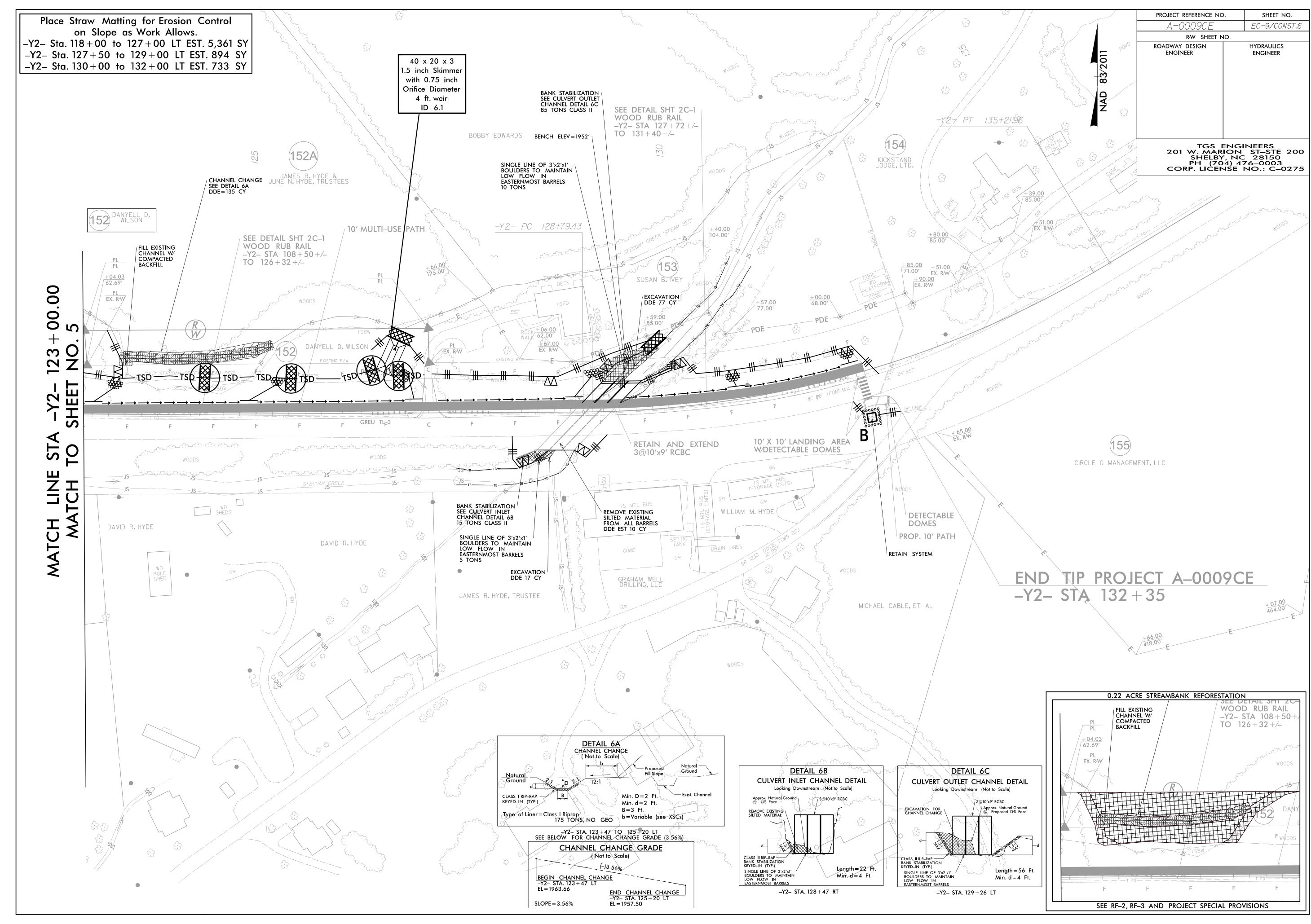
- 4. REMOVE IMPERVIOUS DIKES #1 & #2.

- 1. INSTALL IMPERVIOUS DIKES #3 & #4 AND DIRECT FLOW THROUGH E2 & NEW P2 EXTENSION.
- 2. CONSTRUCT 10'X9' RCBC EXTENSION P3.
  3. UPON COMPLETION OF P3 CULVERT EXTENSION, REMOVE IMPERVIOUS DIKES #3 & #4.
- 4. COMPLETE CHANNEL IMPROVEMENTS AND REESTÁBLISH STREAM ACCORDING TO CONST. PLANS.









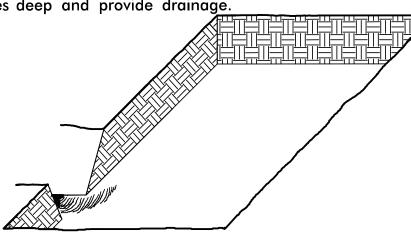
#### PLANTING DETAILS

SEEDLING / LINER BAREROOT PLANTING DETAIL

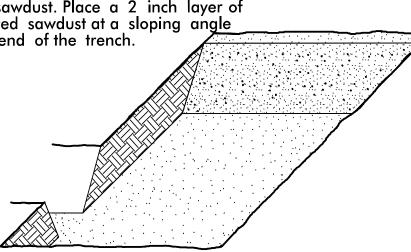
#### HEALING IN

Locate a healing-in site in a shady, well protected area.

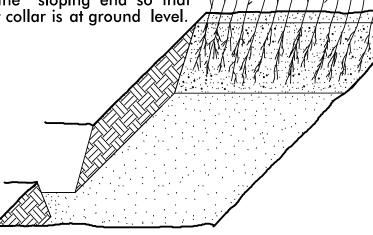
Excavate a flat bottom trench
 inches deep and provide drainage.

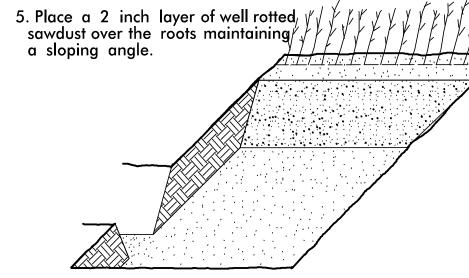


3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



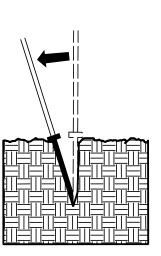
4. Place a single layer of plants against the sloping end so that the root collar is at ground level.



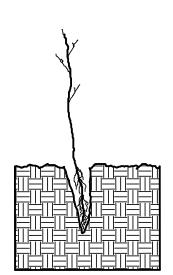


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

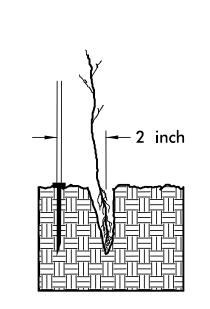
#### DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



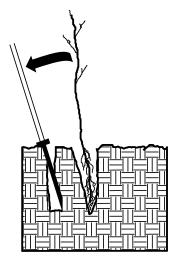
Insert planting bar as shown and pull handle toward planter.



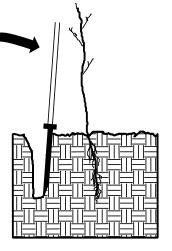
Remove planting bar and place seedling at correct depth.



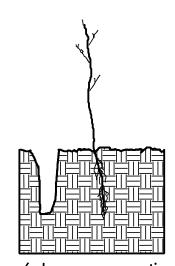
Insert planting bar
 inches toward planter
 from seedling.



Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



Leave compaction hole open. Water thoroughly.

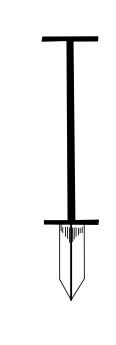
#### PLANTING NOTES:

PLANTING BAG During planting, seedlings shall be kept in a moist canvas bagʻ or similar container to prevent the root systems from drying.



KBC PLANTING BAR
Planting bar shall have a
blade with a triangular
cross section, and shall
be 12 inches long,
4 inches wide and
1 inch thick at center.

ROOT PRUNING
All seedlings shall be root
pruned, if necessary, so that
no roots extend more than
10 inches below the
root collar.



STATE	STATE PROJECT REFERENCE NO.		SHEET NO.	TOTAL SHEETS
N.C.	A-0009CE		RF-	1
STATE	PROJ. NO.	F. A. PROJ. NO.	DESC	CRIPTION

#### REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

#### **REFORESTATION**

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

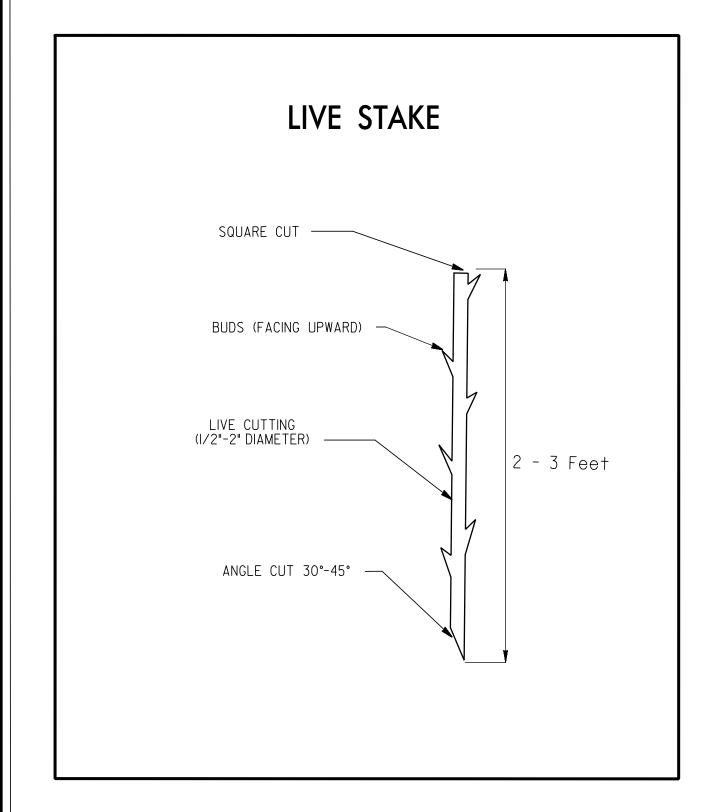
25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR
25% NYSSA SYLVATICA	BLACK GUM	12 in – 18 in BR

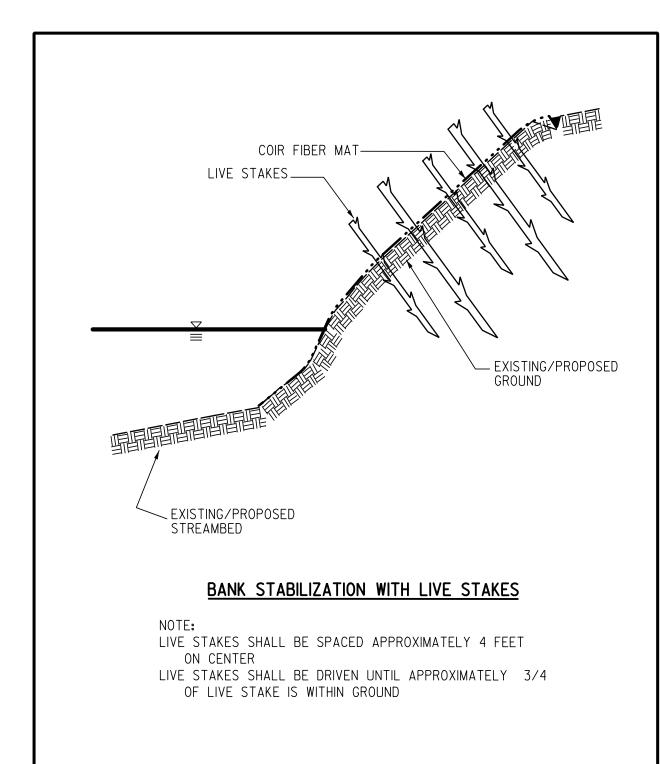
#### REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

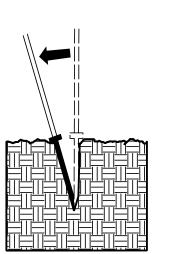
#### PLANTING DETAILS

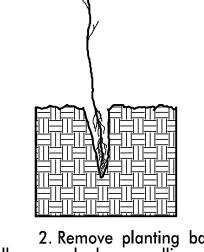
#### LIVE STAKES PLANTING DETAIL

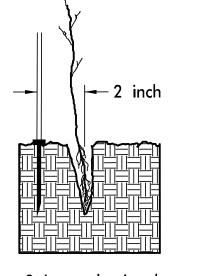




#### BAREROOT PLANTING DETAIL DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



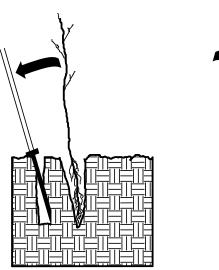


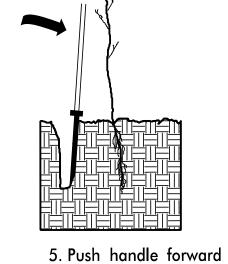


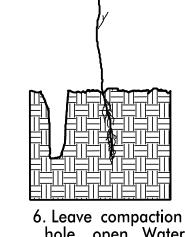
Insert planting bar as shown and pull handle toward planter.

Remove planting bar and place seedling at correct depth.

Insert planting bar
 inches toward planter
 from seedling.







4. Pull handle of bar toward planter, firming soil at bottom.

firming soil at top.

hole open. Water thoroughly.

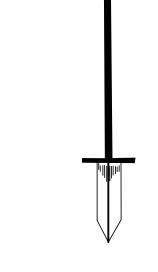
#### PLANTING NOTES:

PLANTING BAG During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.



TYPE 1 STREAMBANK REFORESTATION SHALL BE PLANTED 3 FT. TO 5 FT. ON CENTER, RANDOM SPACING, AVERAGING 4 FT. ON CENTER, APPROXIMATELY 2724 PLANTS PER ACRE.

TYPE 2 STREAMBANK REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

NOTE: TYPE 1 AND TYPE 2 STREAMBANK REFORESTATION SHALL BE PAID FOR AS "STREAMBANK REFORESTATION"

PROJECT REFERENCE INC	<b>'</b> ·	SHEEL NO.
A-0009CE		RF-2
R/W SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER

STREAMBANK REFORESTATION TYPICAL
TYPE II  TYPE I  8 FT.  STREAM

STREAMBANK REFORESTATION		
MIXTURE, TYPE, SIZE, AND FURNISH SHALL CON	FORM TO THE FOLLOWING:	
TYPE 1		
50% SALIX NIGRA	BLACK WILLOW	2 ft – 3 ft LIVE STAKES
50% CORNUS AMOMUM	SILKY DOGWOOD	2 ft – 3 ft LIVE STAKES
TYPE 2		
25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR
25% NYSSA SYLVATICA	BLACK GUM	12 in - 18 in BR

SEE PLAN SHEETS FOR AREAS TO BE PLANTED

#### STREAMBANK REFORESTATION DETAIL SHEET 1 OF 2

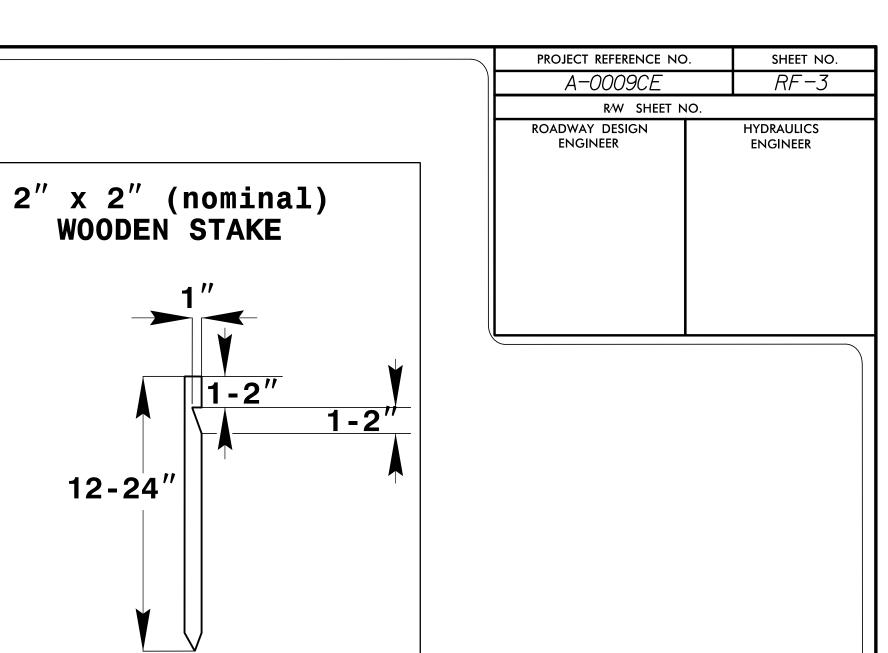
N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

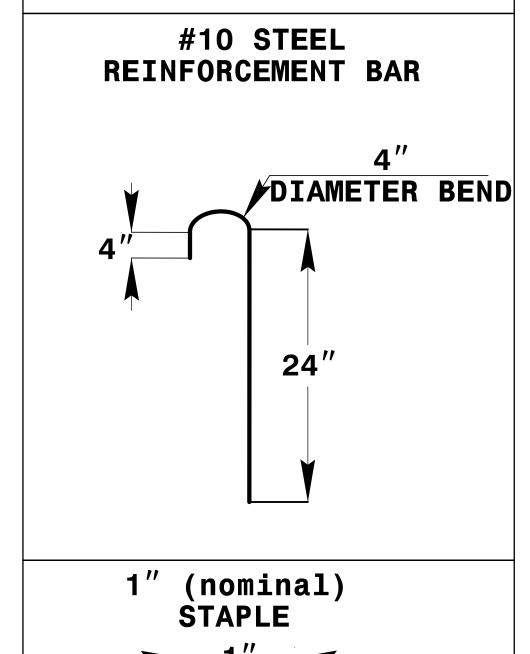
DocuSign Envelope ID: 35DA5478-38BA-4923-89E7-C411A62CC132 **MATTING ANCHOR TRENCH** IN TRENCH ON 1' CENTERS ANCHOR OVERLAP ON 1' CENTERS ANCHORS ON 3' CENTERS **DIRECTION** OF FLOW ANCHORS ON  $\rightarrow$ 1' CENTERS ── 6" OVERLAY(MIN) ANCHORS ON-1' CENTERS PLAN VIEW FLOODPLAIN/ **EXISTING** COIR FIBER GROUND **BACKFILL**— **MATTING** ANCHORS ON -3' CENTERS EXTEND MATTING TO NWSEL 6" MIN ANCHORS ON 1' CENTERS IN TRENCH MATTING SHALL BE PLACED IN TRENCH AND BACKFILLED

ANCHORS ON 1' CENTERS

TYPICAL CROSS SECTION

STREAM BED





ANCHOR OPTIONS

12"

COIR FIBER MATTING DETAIL

NOT TO SCALE

STREAMBANK REFORESTATION
DETAIL SHEET 2 OF 2

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

# T. I. P. - A - 0009 C. F.

#### STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

# SIGNING AND PAVEMENT MARKING PLAN GRAHAM COUNTY

LOCATION: MULTI-USE PATH ALONG NC 28

TIP NO. SHEET NO.

A - 0009CE SIGN - 1

APPROVED: Jimmy Turri

FD39F38882E94D0

5/29/2024

SEAL

SEAL 35018

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

#### ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	<u>TITLE</u>
903.10	GROUND MOUNTED SIGN SUPPORTS
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS
910.50	SIGNING FOR SPEED REDUCTION ZONE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

#### GENERAL NOTES SIGNING

- SIGNS FURNISHED BY STATE
- IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET(NON-STATE/CITY MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER.THE WORK WILL BE COMPLETED BY OTHERS.
- . WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- . ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON THE PLANS,
- . WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- . THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.

		SUMMAKI OF QUANTITIES		
ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	200	L.F.
4102000000	904	SIGN ERECTION, TYPE E	18	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	4	EA.

CHAMADY OF CHANTITIES

#### GENERAL NOTES PAVEMENT MARKINGS

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME MARKING MARKE

NC 28 (FONTANA RD) THERMOPLASTIC NON SR 1238 (BILL CRISP RD)

SR 1235 (LOWER STECOAH RD)

- D) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- E) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
- G) STOP BAR LOCATION AT NON-SIGNALIZED INTERSECTIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.
- I) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF EXTRUDED THERMOPLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE EXTRUDED THERMOPLASTIC PAY ITEM.

## FINAL PAVEMENT MARKING SCHEDULE

SYMBOL DESCRIPTION

PAVEMENT MARKINGS

THERMOPLASTIC (8", 90 MILS)

T46 WHITE CROSSWALK LINE (8", 90 MILS)

THERMOPLASTIC (24", 90 MILS)

61 WHITE STOPBAR (24", 90 MILS) 62 WHITE CROSSWALK LINE (24", 90 MILS)

THERMOPLASTIC HEATED-IN-PLACE (120 MILS)

Г93 BICYCLE CHAR.

THERMOPLASTIC PAVEMENT MARKING CHARACTER (90 MILS)

T100 ALPHANUMERIC CHAR. (90 MIL)

*INDEX* 

SHEET NO.

DESCRIPTION

TITLE SHEET

SIGN-1

SIGN-2 E SHEETS

SIGN-3-4

SIGN & PAVEMENT MARKING DETAIL

PLAN SUBMITTED TO:

WANDA H. AUSTIN, PE DIVISION ENGINEER, NCDOT DIVISION 14



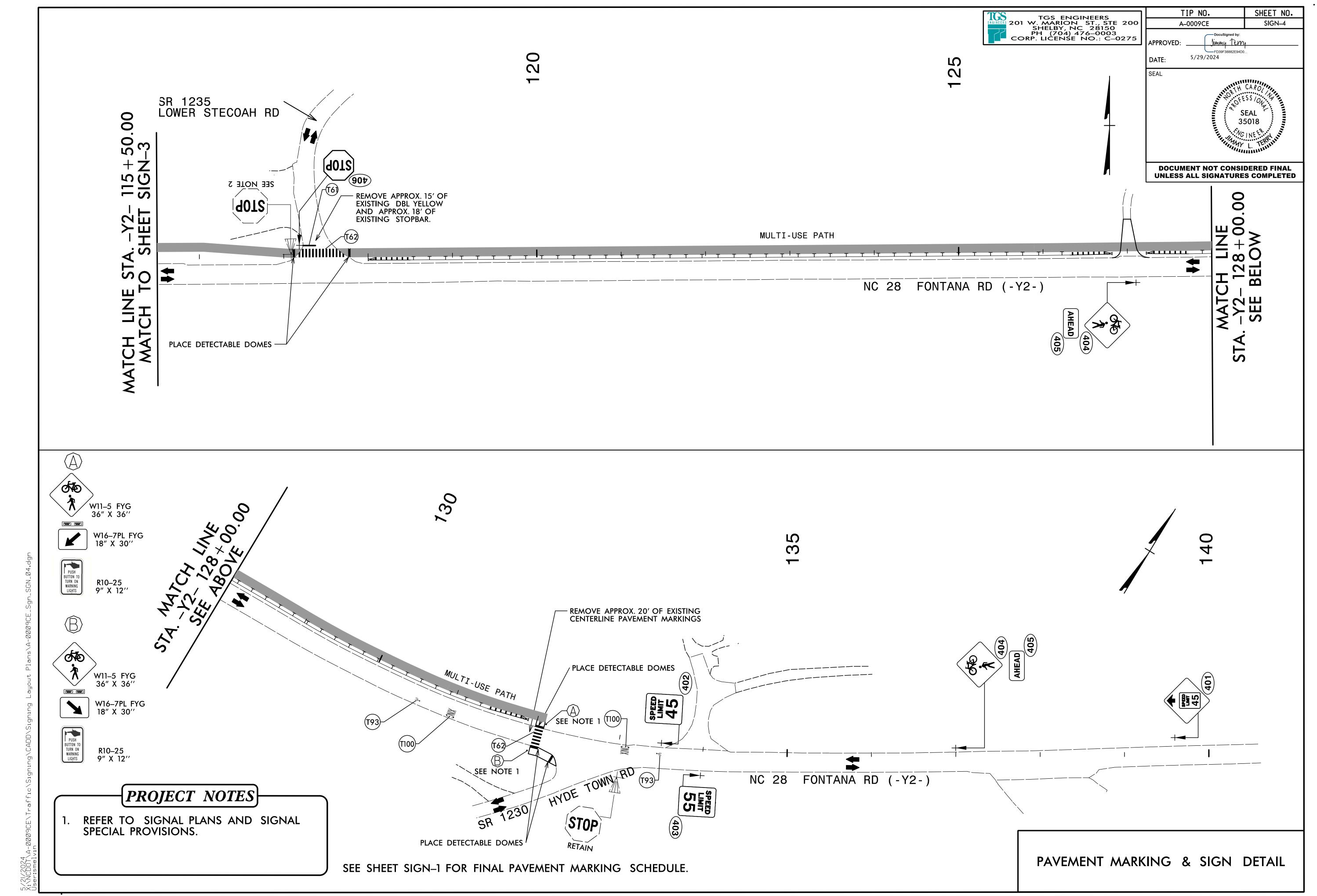
PLAN PREPARED BY: TGS ENGINEERS

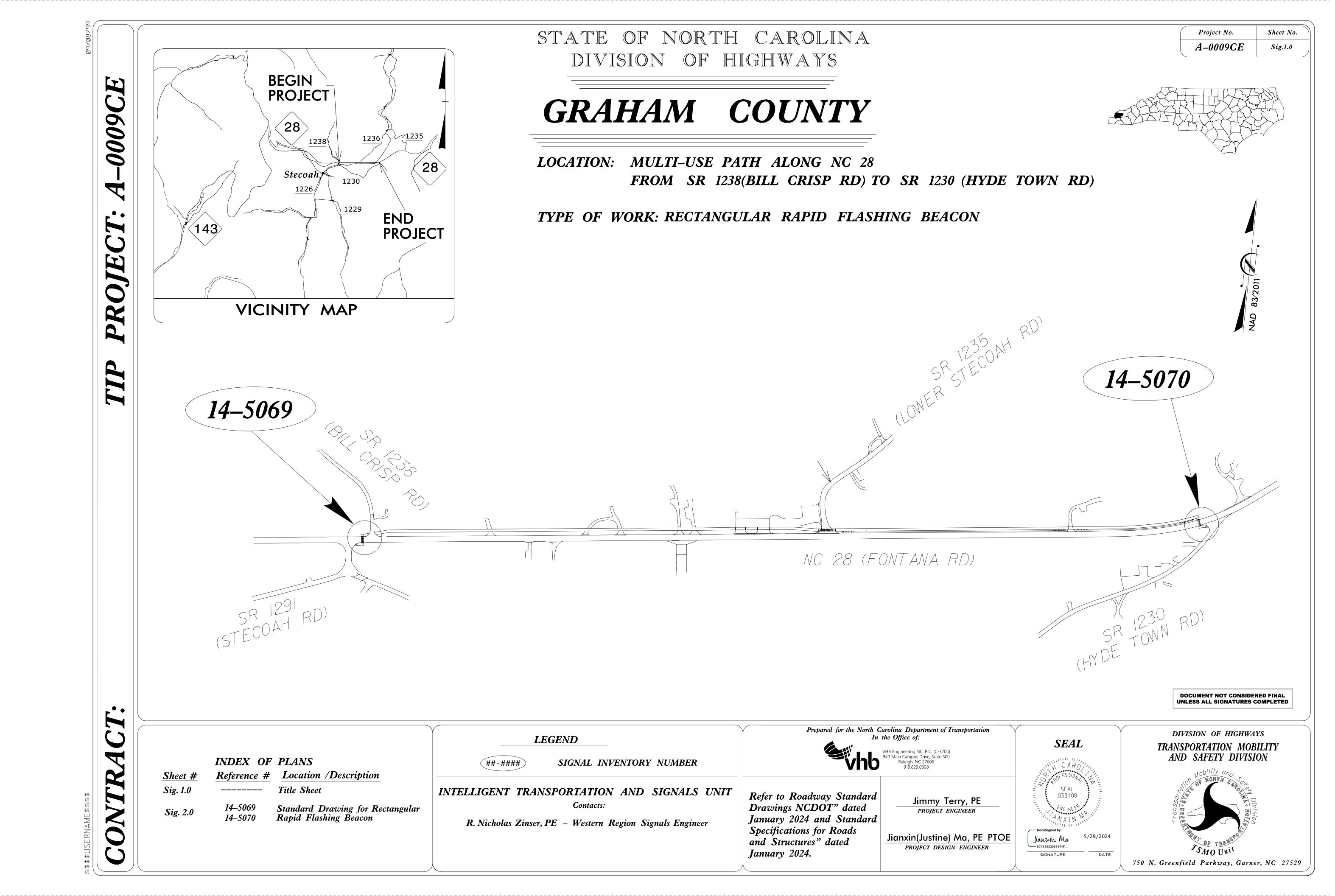
JIMMY TERRY, PE PROJECT ENGINEER

SANDRA MELVIN DESIGN TECHNICIAN

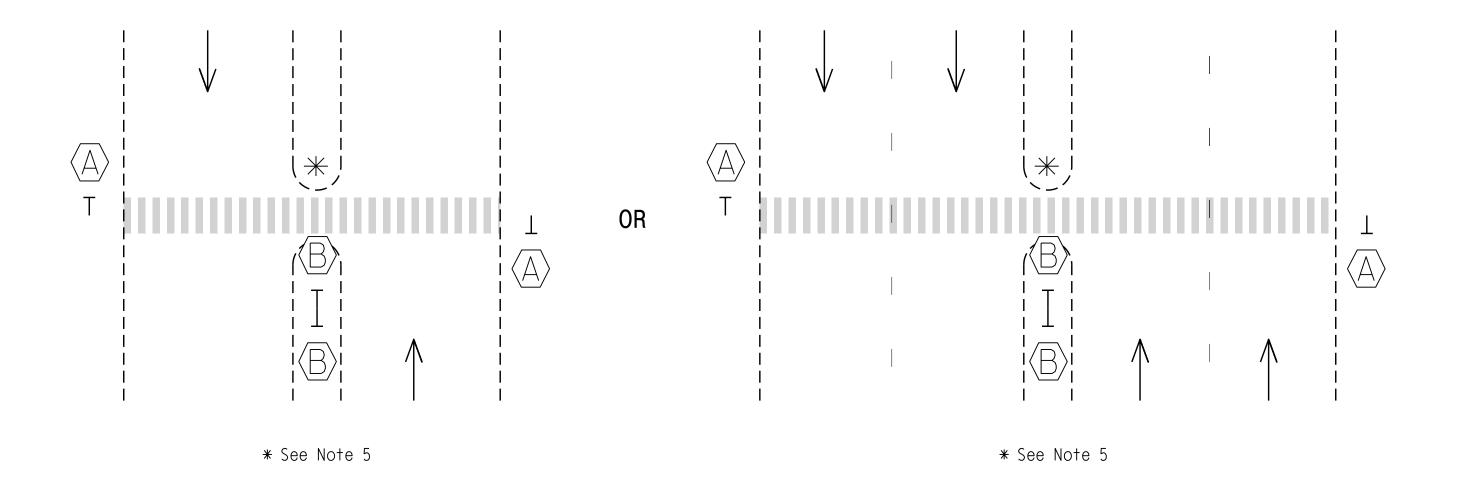


	(401) QUANTITY REQ'D 2	402) QUANTITY REQ'D _2_	403 QUANTITY REQ'D _2_	404) QUANTITY REQ'D 4	405) QUANTITY REQ'D 4	403 QUANTITY REQ'D 3	TIP NO. SHEET NO.  A-0009CE SIGN-2  APPROVED: Jimmy Tury  FD39F38882E94D0
	SPEED 36 X 36 W3-5	SPEED LIMIT 24 X 30 R2-1	SPEED LIMIT 24 X 30 R2-1	36 X 36 W11-5	AHEAD  24 X 12 W16-9p  MOUNT BELOW SIGN 404 IN 4 INSTALLATIONS		SEAL  SEAL  SEAL  SEAL  SEAL  SEAL  35018
	ONE "U" POST PER SIGN	ONE "U" POST PER SIGN	ONE "U" POST PER SIGN	YELLOW/GREEN REFLECTIVE SHEETING  ONE "U" POST PER SIGN		ONE "U" POST PER SIGN	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED  TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH (704) 476-0003 CORP. LICENSE NO.: C-0275
	QUANTITY REQ'D 1  30 X 30 W11-8						
	ONE "U" POST PER SIGN						
пдр							
Plans\A-0009CE_Sgn_SGN_02.							
 gning\CADD\Signing Layout							
21/2024 .NCDOT\A-ØØØ9CE\Traffıc\Sıger:smelvın						TYPE	"E" SIGNS





#### Two or Multi-Lanes, Divided



#### <u>Notes</u>

- 1. Design the RRFB in accordance with the 2009 MUTCD Interim Approval 21 -- Rectangular Rapid-Flashing Beacons at Crosswalks. The RRFB unit associated with a post-mounted sign and plaque should be located between the pedestrian crossing warning (W11-2) sign and the supplemental downward diagonal arrow plaque (W16-7p).
- 2. If sight distance approaching the crosswalk is deemed insufficient, a supplemental RRFB with an "AHEAD" (W16-9P) plaque may be installed on that approach in advance of the crosswalk.
- 3. When practical, the RRFB and mounting post on the right side of the road shall be mounted on the approach side of the crosswalk closest to approaching traffic.
- 4. When practical, the RRFB and mounting post on the left side of the road may be mounted on the back of the post for the opposing approach.
- 5. A RRFB on the left side of the roadway or in the median may be individually mounted on the approach side of the crosswalk closest to approaching traffic, or, when practical, may be mounted back to back on the same post and mounted on either side of the crosswalk in the median.
- 6. Locate push button sign (R10-25) and push button to face crosswalk, even if it is mounted on the back side of the sign.
- 7. All RRFB units associated with a given crosswalk (including those with an advance crossing sign) shall, when actuated, simultaneously commence operation of their rapid-flashing indications and shall cease operation simultaneously.

#### Timing of RRFBs

When actuated, the two yellow indications in each RRFB unit shall flash in a rapidly flashing sequence.

The RRFB shall flashing sequence shall provide enough time for pedestrians to cross from curb to curb. It is recommened to be a minimum of 7 seconds plus the crossing distance (D) divided by 3.5 feet/per sec., rounded up to the next whole second:

Flash Time (sec.) = 7 + D/3.5

RRFBs shall provide 75 flashing sequences per minute. During each 800-millisecond flashing sequence, the left and right RRFB indications shall operate using the following sequence:

- The RRFB indication on the left-hand side shall be illuminated for approximately 50 milliseconds. Both RRFB indications shall be dark for approximately 50 milliseconds.
- The RRFB indication on the right-hand side shall be illuminated for approximately 50 milliseconds. Both RRFB indications shall be dark for approximately 50 milliseconds.
- The RRFB indication on the left-hand side shall be illuminated for approximately 50 milliseconds. Both RRFB indications shall be dark for approximately 50 milliseconds.
- The RRFB indication on the right-hand side shall be illuminated for approximately 50 milliseconds. Both RRFB indications shall be dark for approximately 50 milliseconds.
- Both RRFB indications shall be illuminated for approximately 50 milliseconds. Both RRFB indications shall be dark for approximately 50 milliseconds.
- Both RRFB indications shall be illuminated for approximately 50 milliseconds. Both RRFB indications shall be dark for approximately 250 milliseconds.

Prepared in the Offices of:

Nobility one

North Division

Sono Design

Section

750 N. Greenfield Parkway

Garner, NC 27529

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

SEAL

SEAL

O26486

Docusigned by:

Docusigned by:

12/19/2022

Standard Drawing for Rectangular Rapid Flashing Beacon DocuSign Envelope ID: 364AF881-9093-4A5F-A5B5-A9D849C762BE

BEGIN **PROJECT END** PROJECT VICINITY MAP

STATE OF NORTH CAROLINA

# UTILITIES BY OTHERS PLANS GRAHAM COUNTY

T.I.P. NO. A-0009CE UO-1

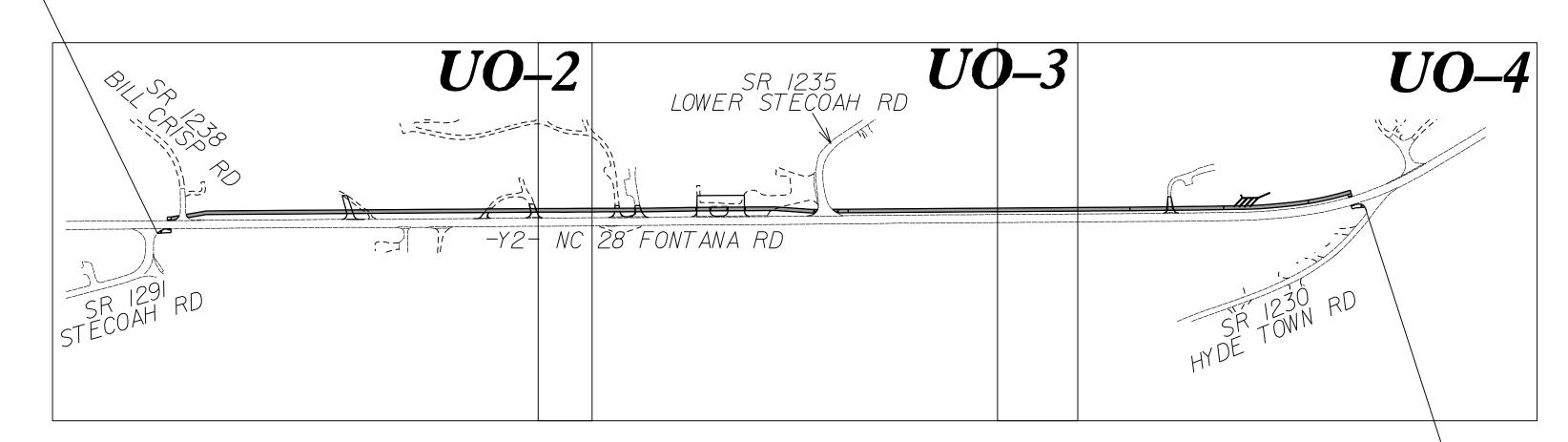
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

LOCATION: MULTI-USE PATH ALONG NC 28

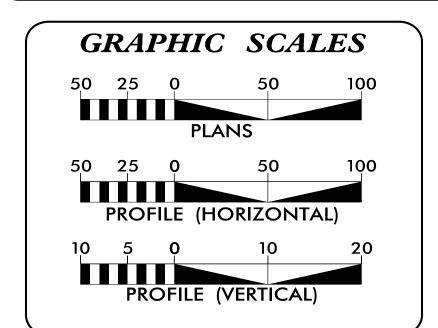
FROM SR 1238 (BILL CRISP RD) TO SR 1230 (HYDE TOWN RD)

TYPE OF WORK: DISTRIBUTION POWER, COMMUNICATIONS, CATV

BEGIN TIP PROJECT A-0009CE -Y2-STA.98+85



END TIP PROJECT A-0009CE -Y2-STA. 132 + 35



INDEX OF SHEETS

SHEET NO.:

*UO-1* 

UO-2 THRU UO-4

**DESCRIPTION:** TITLE SHEET

UBO PLAN SHEETS

#### UTILITY OWNERS WITH CONFLICTS

(A) POWER - DUKE ENERGY (B) COMMUNICATIONS - FRONTIER (C) COMMUNICATIONS/CATV – ZITO MEDIA



PREPARED IN THE OFFICE OF:

**DIVISION OF HIGHWAYS DIVISION** 14 252 WEBSTER ROAD SYLVA, NC 28779

WANDA AUSTIN, PE DIVISION ENGINEER BOB GOLDING **DIVISION UTILITY ENGINEER** 

CORY WOOD CORY WOOD

PROJECT UTILITY COORDINATOR