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**TIP PROJECT: SB.209214.5**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

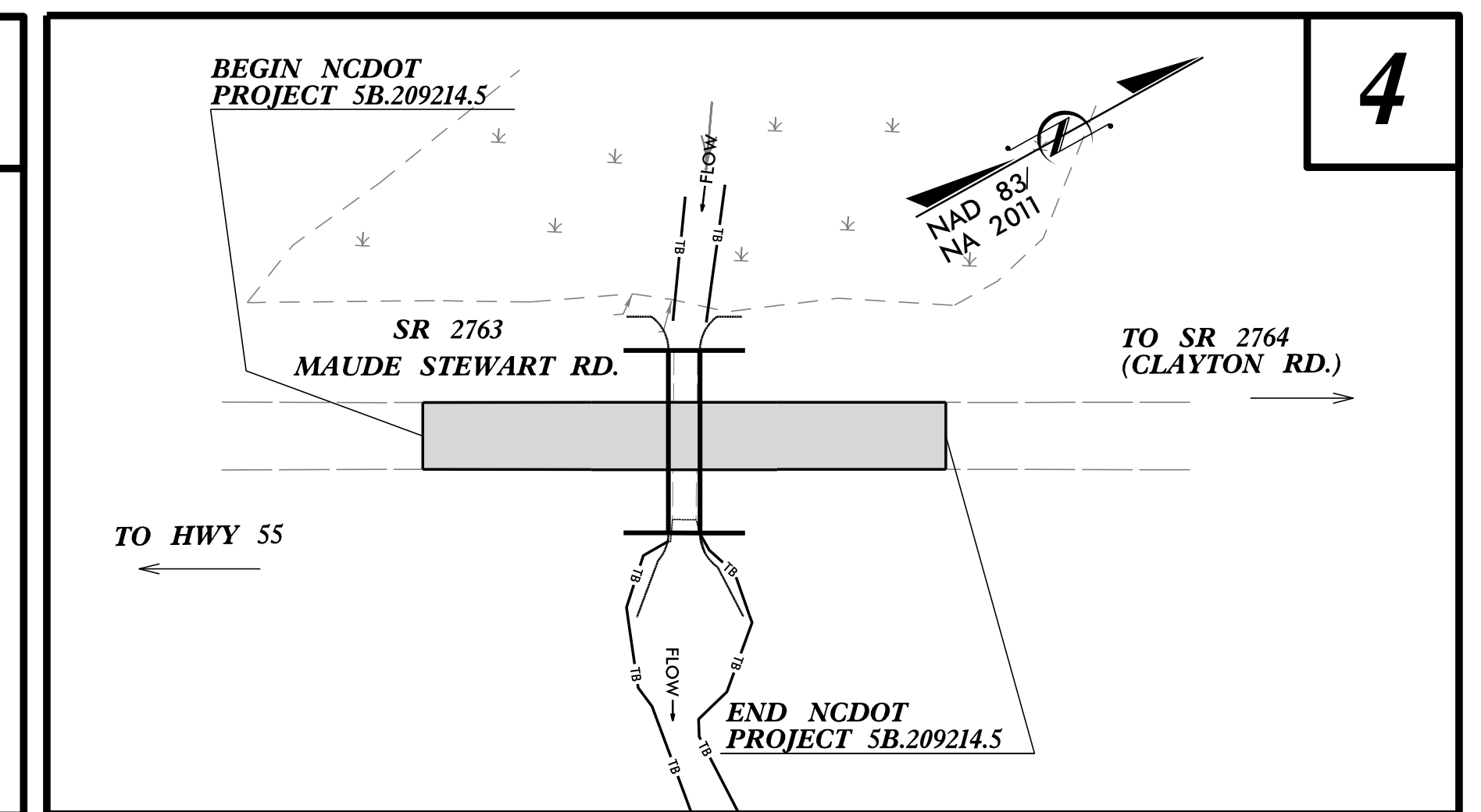
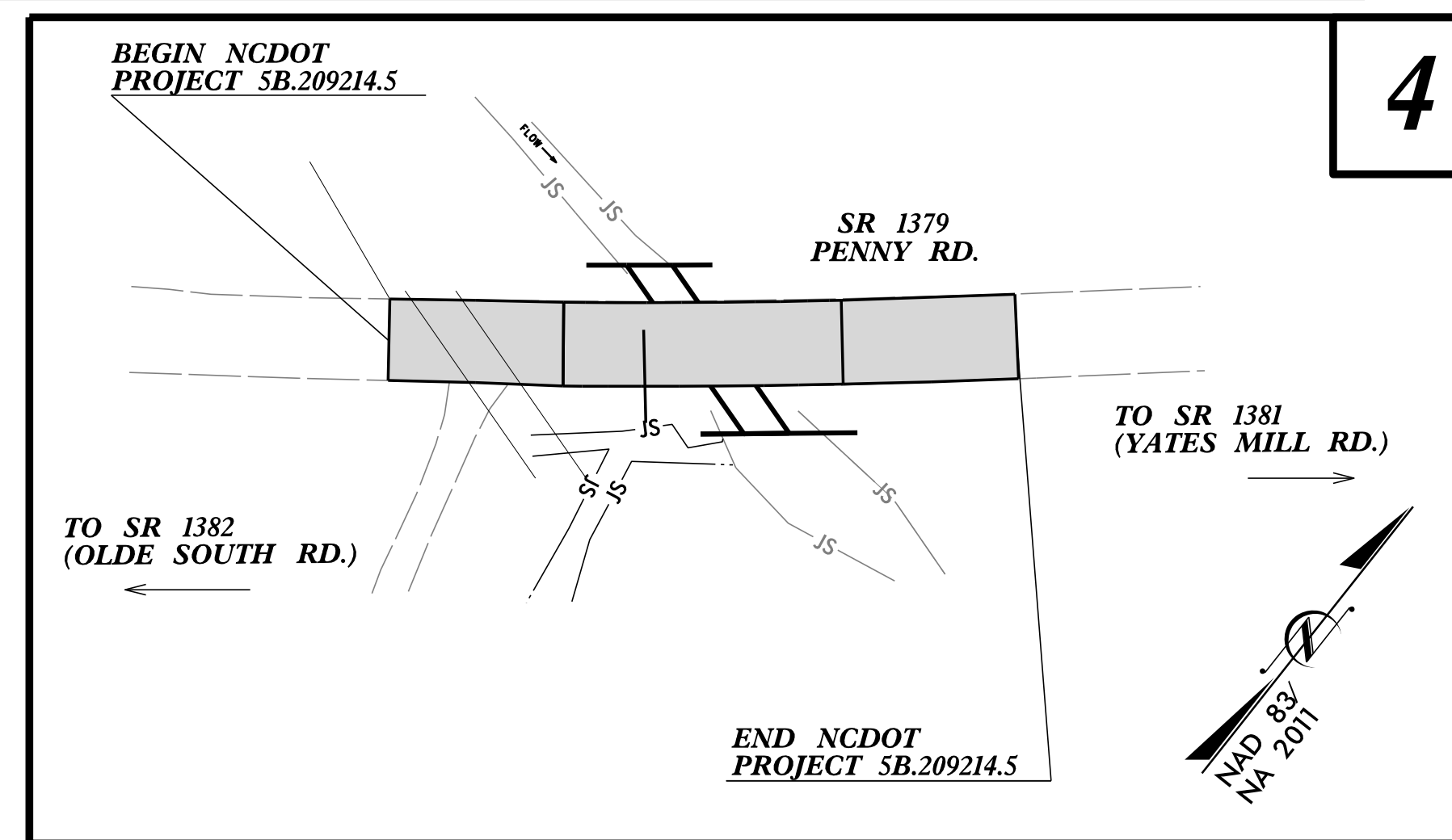
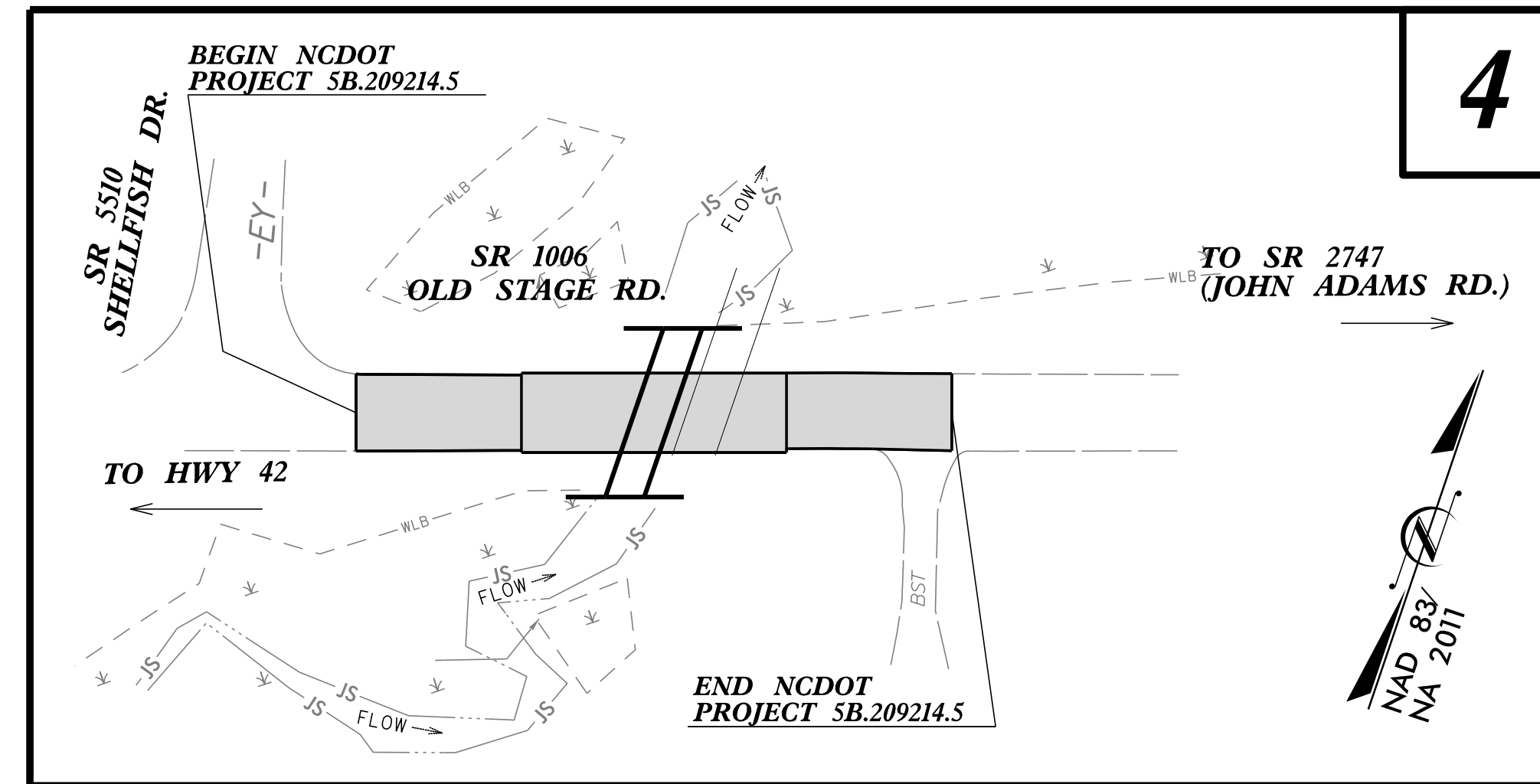
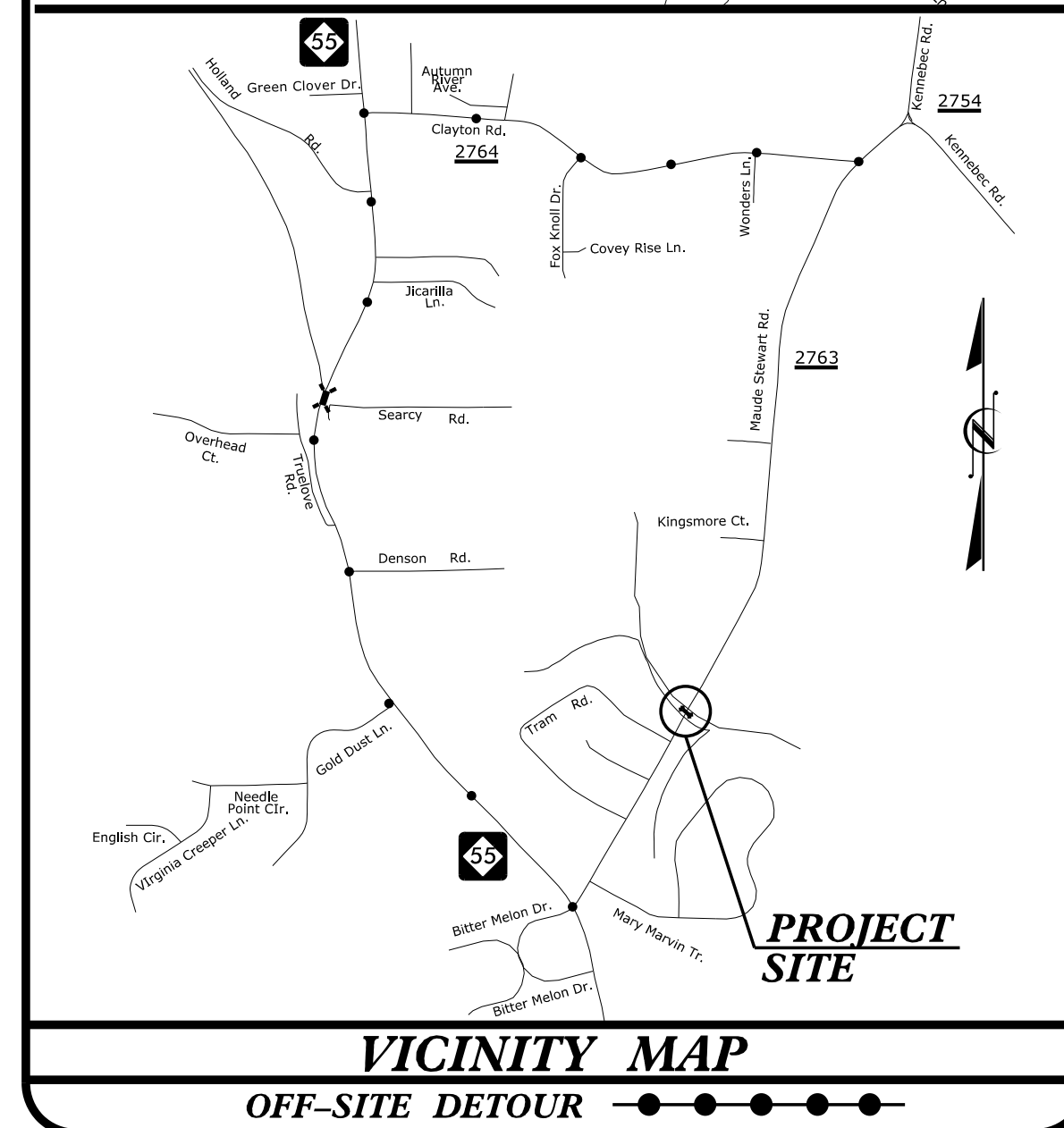
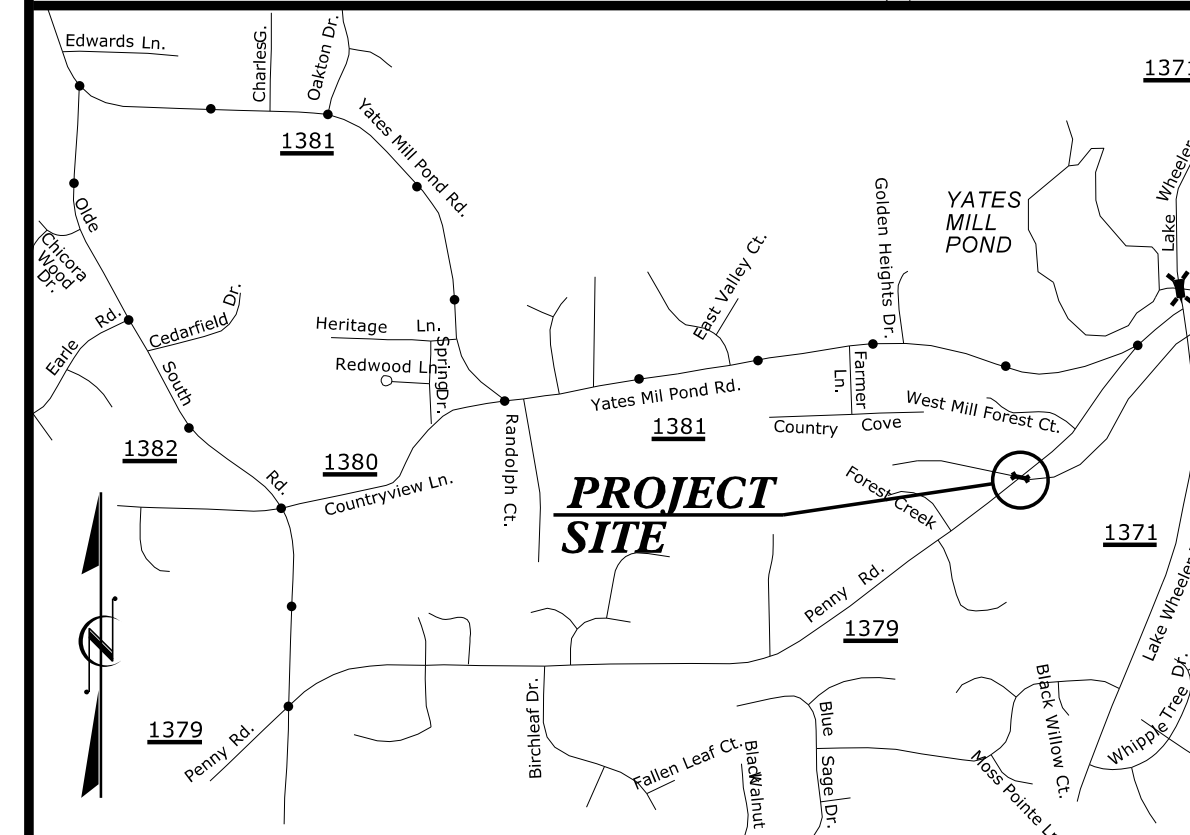
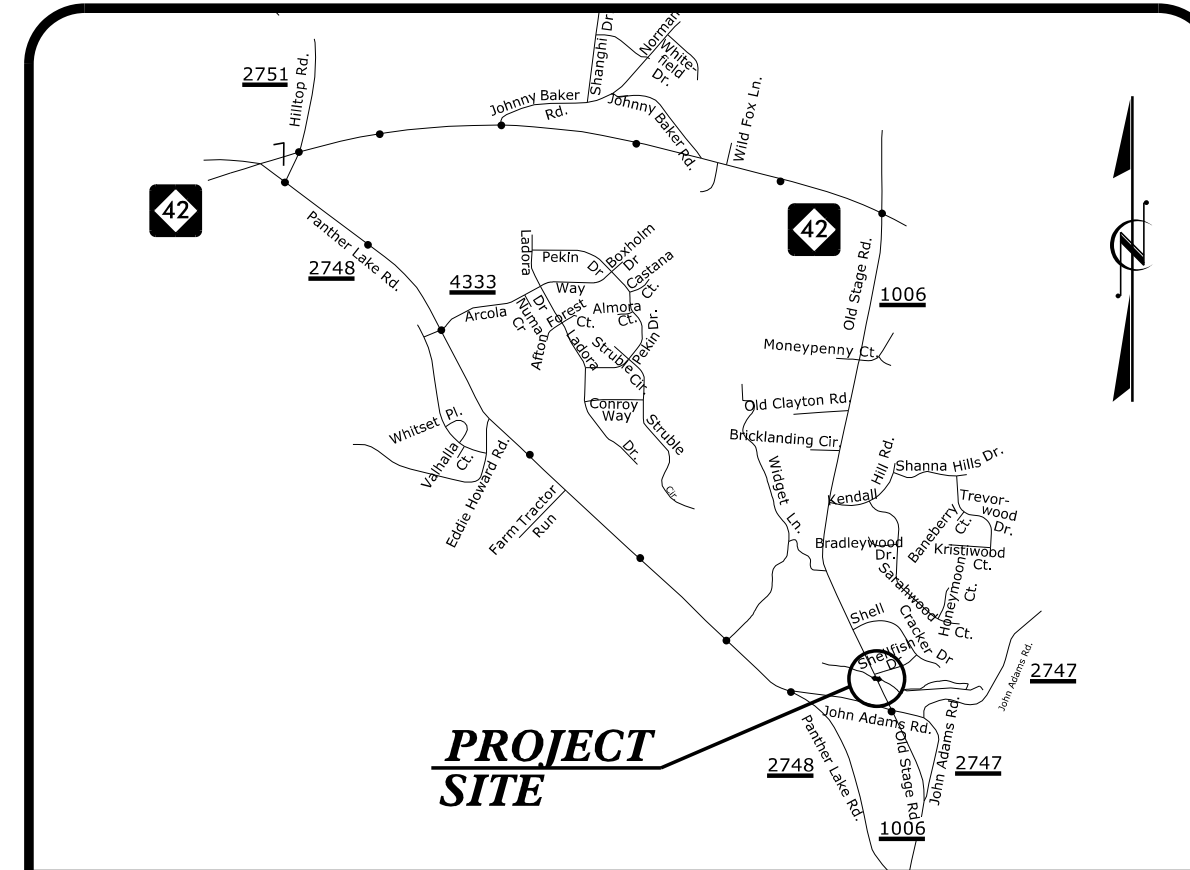
**WAKE COUNTY**  
PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL

**LOCATION: PIPE CROSSING ON SR 2763 (MAUDE STEWART ROAD)  
PIPE CROSSING ON SR 1006 (OLD STAGE ROAD)  
PIPE CROSSING ON SR 1379 (PENNY ROAD)**  
**TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE**

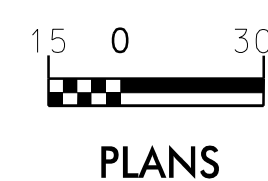
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SB.209214.5	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

**EROSION AND SEDIMENT CONTROL MEASURES**

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	TSF
1606.01	Special Sediment Control Fence	SSCF
1622.01	Temporary Berms and Slope Drains	TBSD
1630.02	Silt Basin Type B	SBS
1633.01	Temporary Rock Silt Check Type-A	TRSCA
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	TRSCA-PAM
1633.02	Temporary Rock Silt Check Type-B	TRSCB
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	WCPAM
1654.01	Temporary Rock Sediment Dam Type-A	TRSDA
1634.02	Temporary Rock Sediment Dam Type-B	TRSDB
1635.01	Rock Pipe Inlet Sediment Trap Type-A	RPISTRA
1635.02	Rock Pipe Inlet Sediment Trap Type-B	RPISTRB
1650.04	Stilling Basin	SB
1650.06	Special Stilling Basin	SSB
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.05	Type C	C
	Skimmer Basin	SKB
	Tiered Skimmer Basin	TSKB
	Infiltration Basin	IB



**GRAPHIC SCALE**



PLANS

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:  
**WETHERILL ENGINEERING, INC.**  
1223 JONES FRANKLIN ROAD  
RALEIGH, NC 27606

Designed by:

**HARMINDER SINGH** 3519  
NAME LEVEL III CERTIFICATION NO.

Reviewed In the Office of:  
**ROADSIDE ENVIRONMENTAL FIELD OPERATIONS**  
DIVISION 4 AND 5  
1425 Rock Quarry Rd.  
Suite 106  
Raleigh, NC 27610  
**2018 STANDARD SPECIFICATIONS**

Reviewed by:

**DONALD PEARSON**

**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 2018 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 Silt 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	

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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## ***SOIL STABILIZATION TIMEFRAMES***

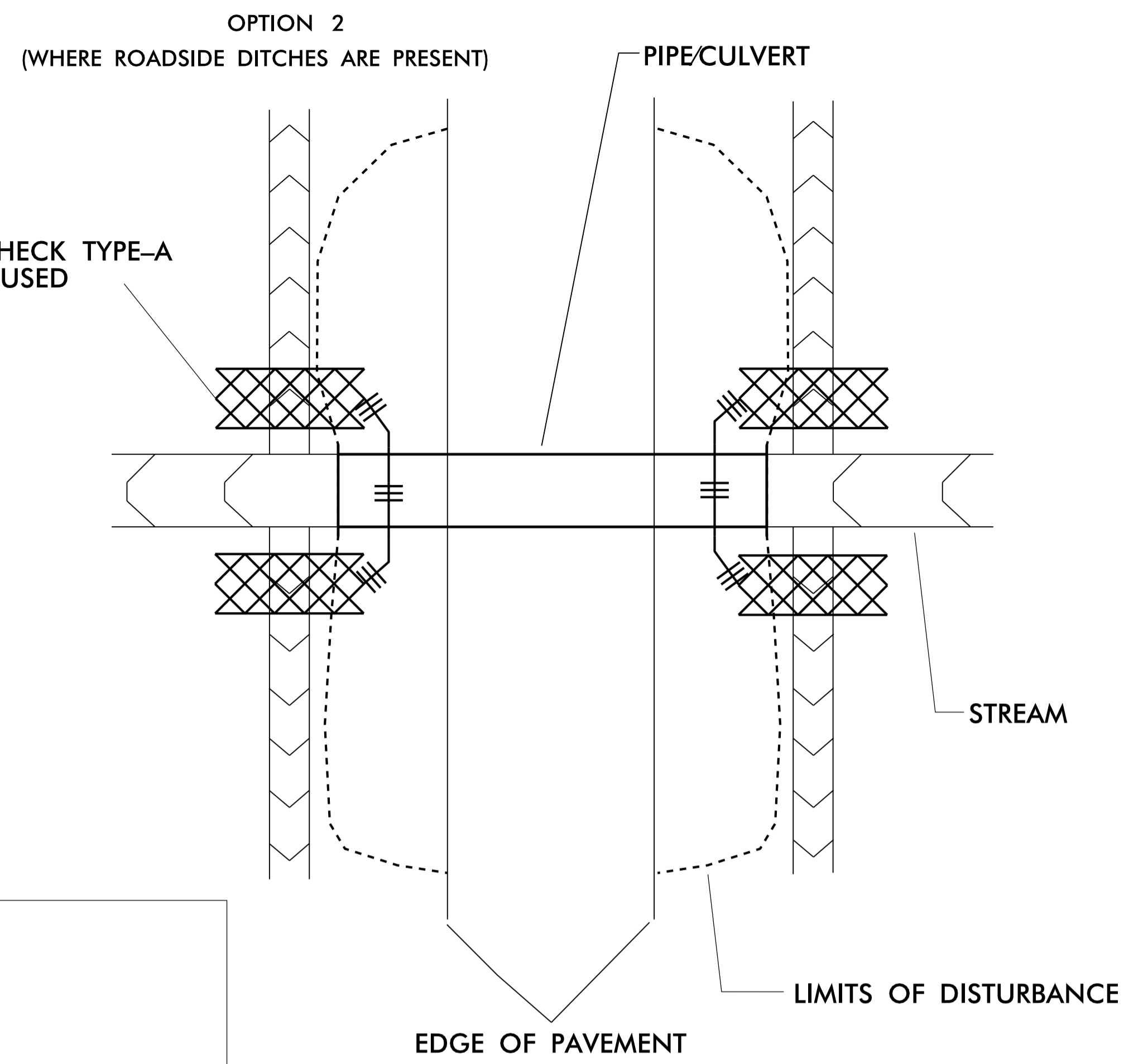
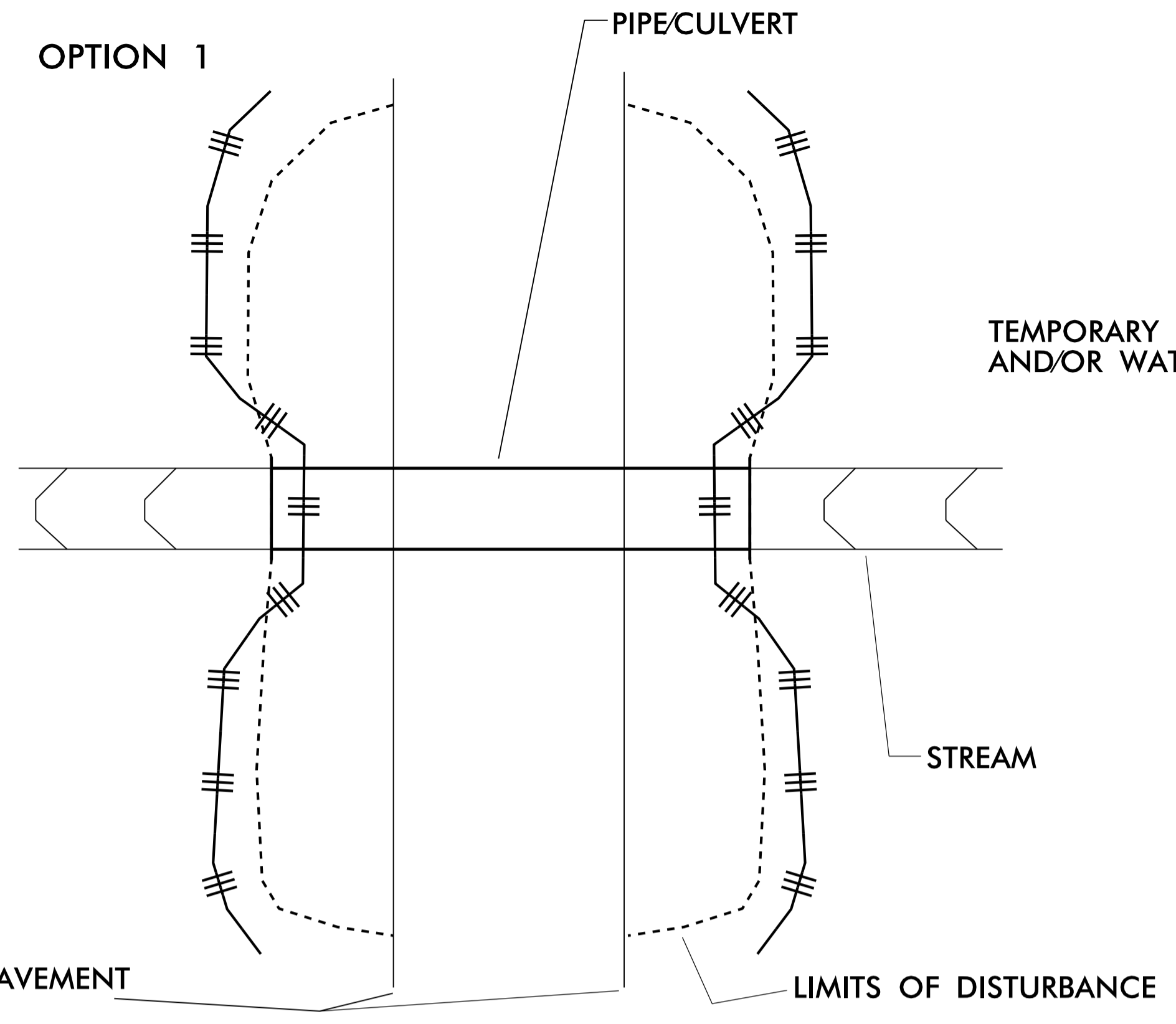
<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES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

PROJECT REFERENCE NO. 5B.209214.5	SHEET NO. <b>EC-3</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ROADSIDE ENVIRONMENTAL UNIT  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.  
2018 STANDARD SPECIFICATIONS  
DRAWINGS NOT DRAWN TO SCALE

LEGEND:

	IMPERVIOUS DIKE
	PUMP
	SPECIAL STILLING BASIN
	STABILIZED DISCHARGE PAD (GEOTEXTILE)
	EDGE OF PAVEMENT
	EXISTING TRANSPORTATION FACILITY (ROW)
	TEMPORARY ROCK SILT CHECK TYPE-A AND/OR WATTLE
	TEMPORARY SILT FENCE



**SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA:**

1. INSTALL SPECIAL STILLING BASIN.
2. INSTALL UPSTREAM PUMP, TEMPORARY FLEXIBLE HOSE, AND STABILIZED DISCHARGE PAD.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION DISCHARGING ONTO STABILIZED OUTLET PAD.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER WORK ZONE. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. INSTALL PIPE(S), STREAM BED STABILIZATION, AND SLOPE STABILIZATION AS DIRECTED.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, TEMPORARY FLEXIBLE HOSE, AND STABILIZED DISCHARGE PAD. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. REMOVE SPECIAL STILLING BASIN AND RESTORE AREA TO ORIGINAL CONDITIONS.
8. STABILIZE ALL DISTURBED AREAS THROUGHOUT PROJECT WITH SEED AND MATTING FOR EROSION CONTROL.

**NOTES:**

INSTALL EROSION CONTROL MEASURES PRIOR TO ANY EARTH DISTURBING ACTIVITIES. INSTALL SPECIAL SEDIMENT CONTROL FENCE BREAKS OR TEMPORARY ROCK SILT CHECKS TYPE-A AT LOW POINTS IN SILT FENCE.

FOR OPTION 1 INSTALL SILT FENCE SUCH THAT ALL EARTH DISTURBANCE IS CONTAINED. FOR CULVERT CONSTRUCTION SEQUENCING SEE THE PUMP AROUND DETAIL OR CONSULT "BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES".

ALL EXCAVATION IN JURISDICTIONAL STREAMS SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF THE WORK ZONE.

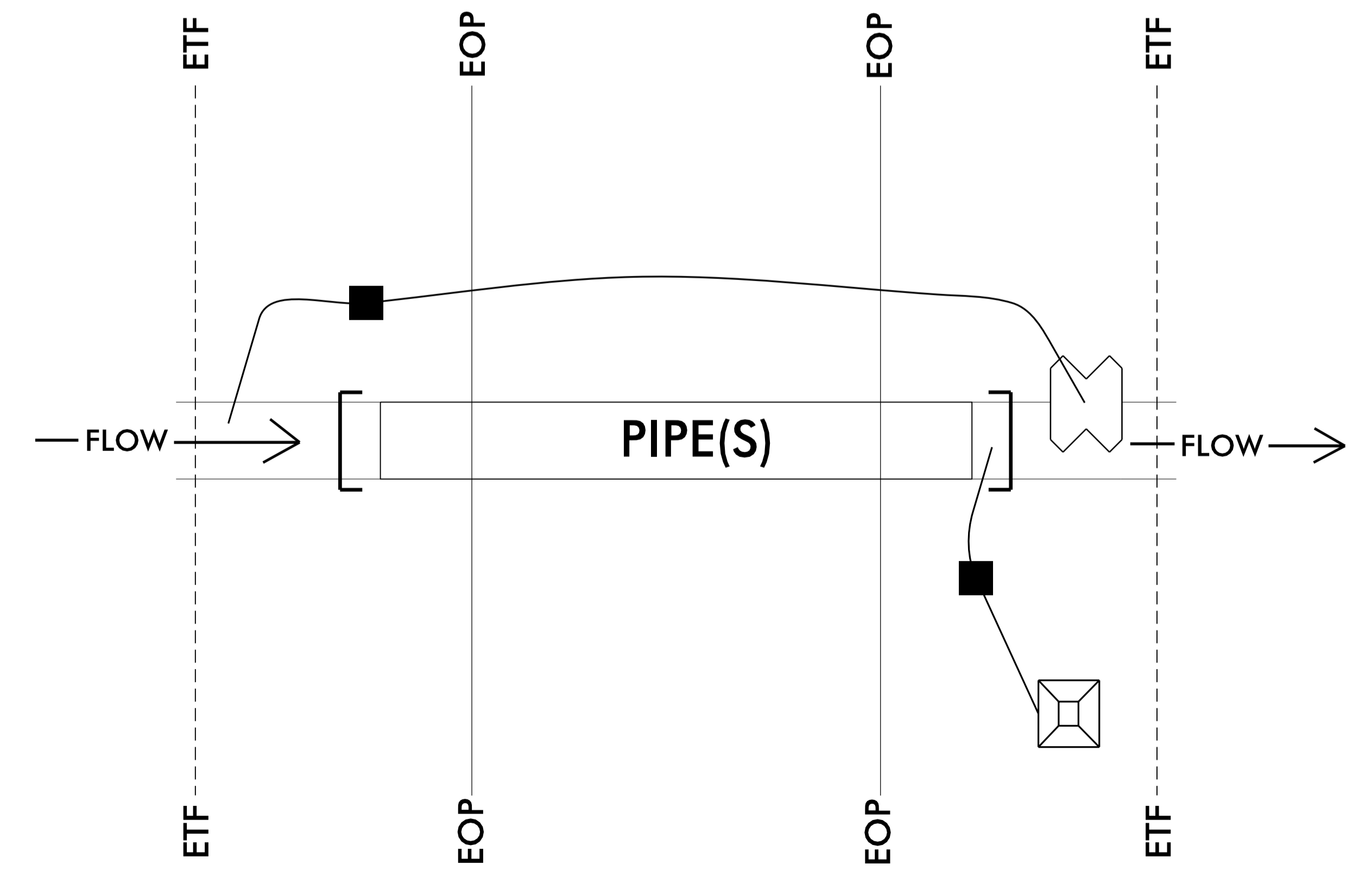
IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW WHEN NECESSARY. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES THE DISCHARGE PAD, DIVERSION PIPES, PUMPS, AND HOSES.

PUMPS AND HOSES SHALL BE OF SUFFICIENT SIZE TO MAINTAIN STREAM FLOW AND TO DEWATER THE WORK AREA.

INSTALL SPECIAL STILLING BASIN IN VEGETATED AREA WITHIN RIGHT OF WAY. DISCHARGE SHOULD BE DIRECTED THROUGH VEGETATED BUFFER AWAY FROM WORK SITE.

INSTALL SILT FENCE AS DIRECTED TO CONTAIN DISTURBED AREAS AND/OR EXCAVATED STOCKPILES. BORROW MATERIAL FROM OR DISPOSAL OF MATERIAL TO ANY UNPERMITTED SITE WILL REQUIRE A RECLAMATION PLAN.

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



**PUMP-AROUND OPERATION FOR PIPE REPLACEMENT IN JURISDICTIONAL STREAMS EROSION CONTROL DETAIL**



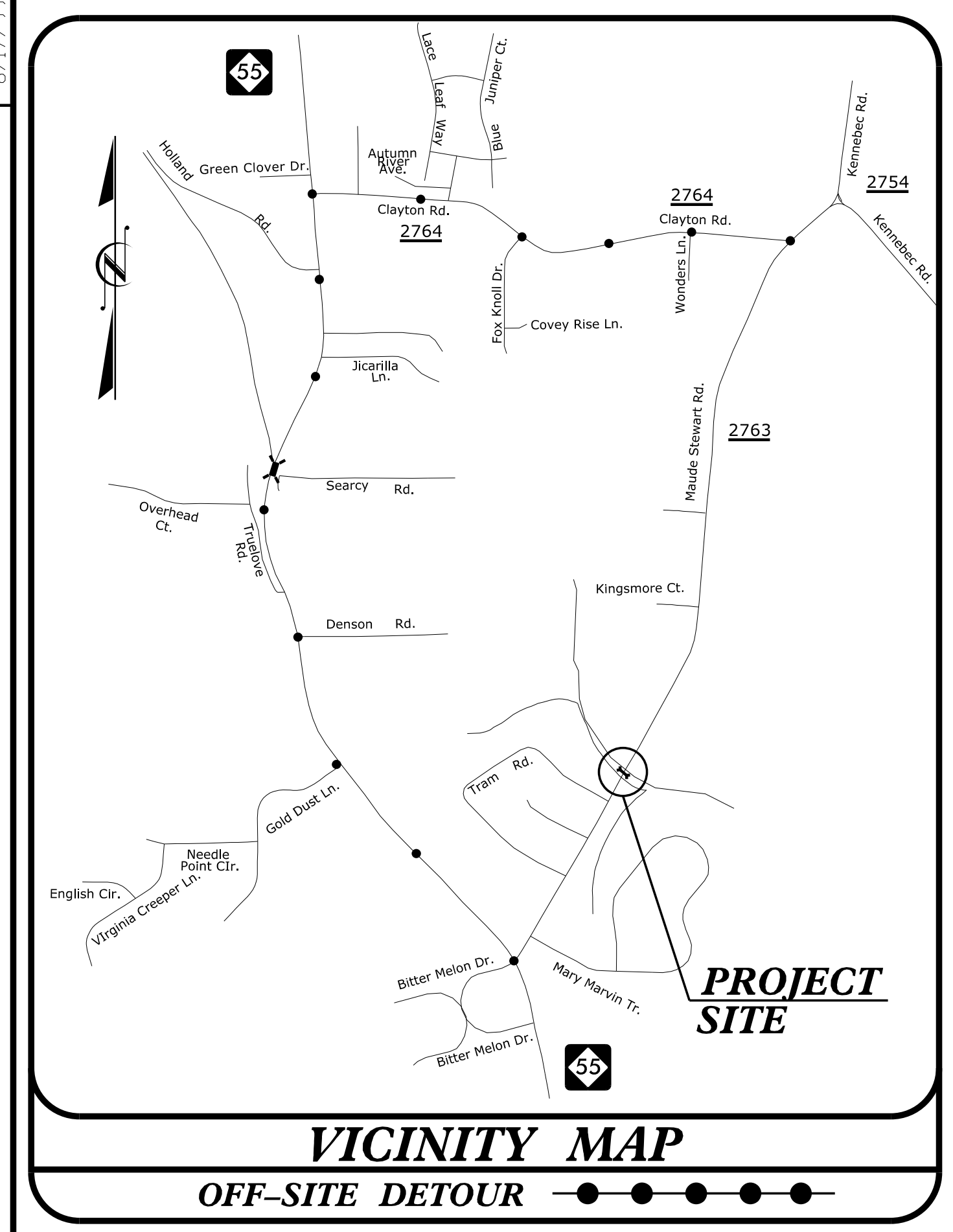
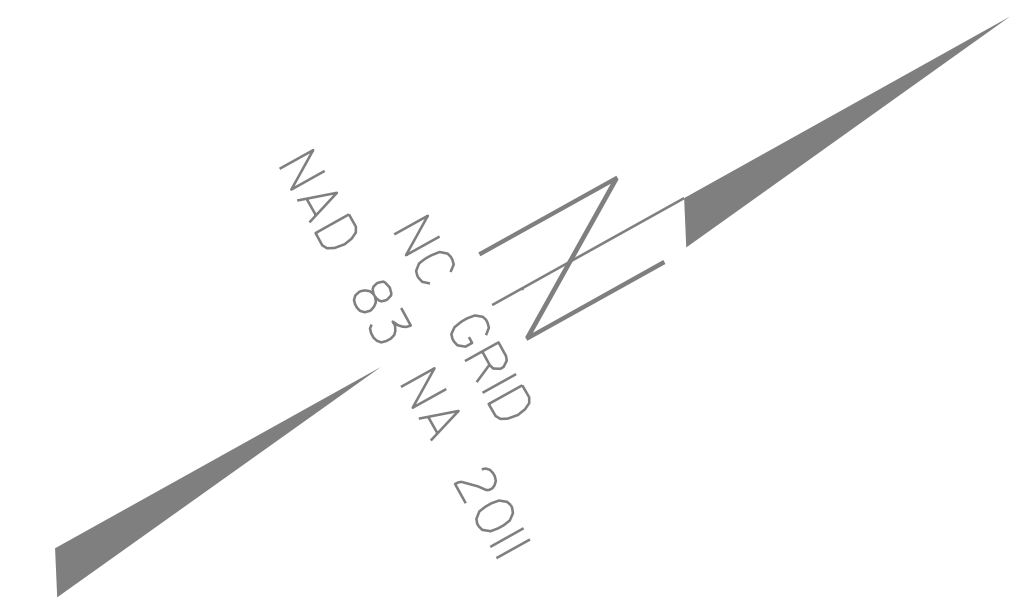
1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

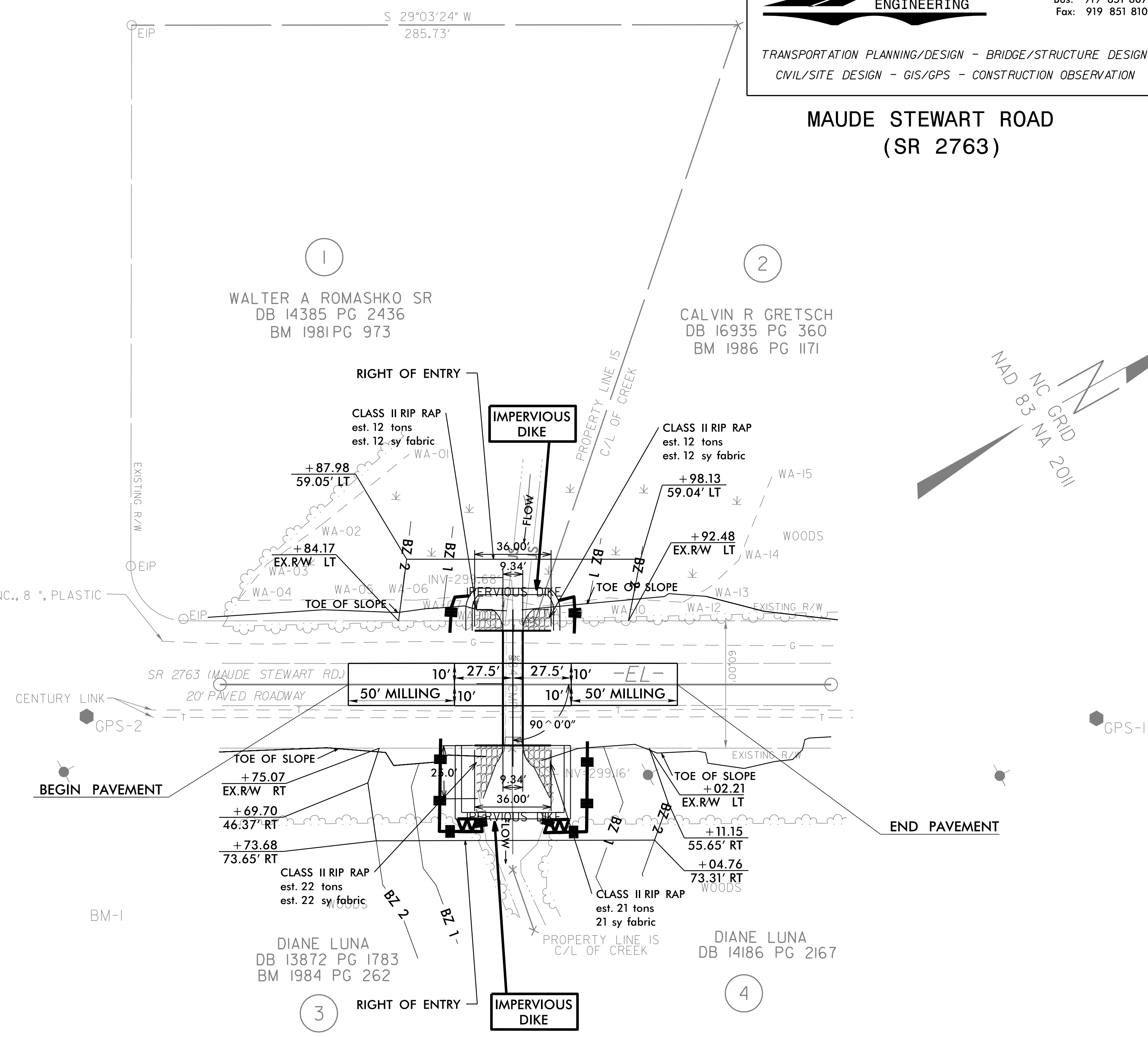
**MAUDE STEWART ROAD  
 (SR 2763)**

PROJECT REFERENCE NO.	SHEET NO.
5B.209214.5	EC-4
RW SHEET NO.	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

SCALE 1" = 30'



**VICINITY MAP**  
 OFF-SITE DETOUR



**PLAN VIEW 112" X 75" CORRUGATED  
 ALUMINUM PIPE-ARCH W/HEADWALLS**

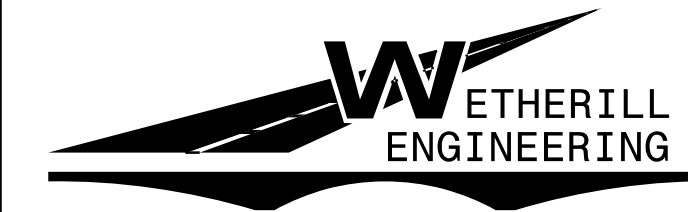
\*\*\*\*\*  
 BM1 ELEVATION = 301.09  
 N 653255 E 2076135  
 BM SET IN 28" PINE  
 \*\*\*\*\*

**DATUM DESCRIPTION**  
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 653307.43(++) EASTING: 2076057.46(++) ELEVATION: 309.07(++) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998761256 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "" TO -L- STATION IS ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Point	North	East	Elevation
GPS-1	653722.6800	2076289.6600	307.5100
GPS-2	653307.4300	2076057.4600	309.0700

REVISIONS

8/17/09  
 11/30/2018  
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 JES:SKN:DDY



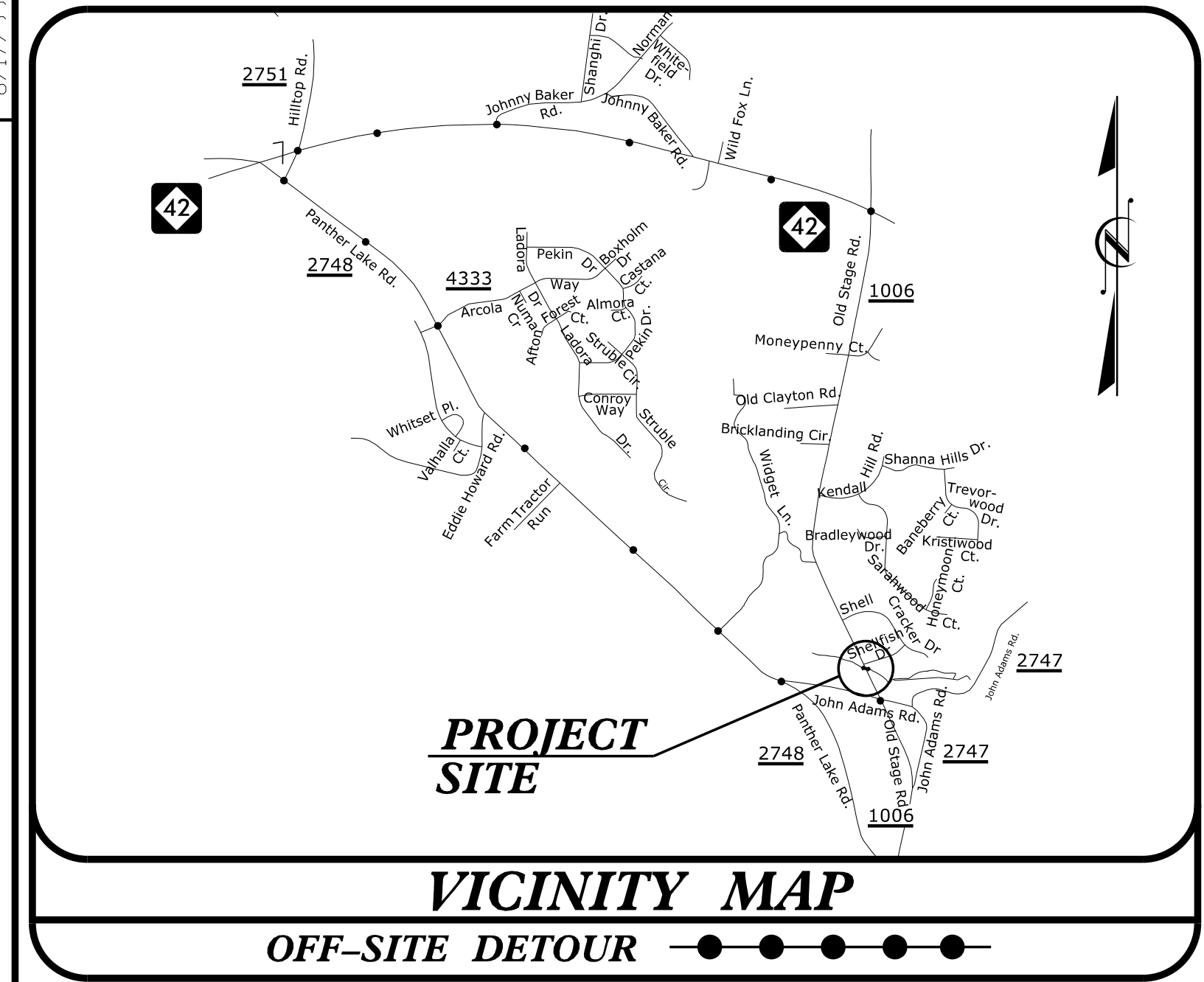
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Raleigh, N.C. 27606  
License No. F-0377  
Bus: 919 851 8077  
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO. 5B.209214.5	SHEET NO. EC-5
RW SHEET NO.	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

### OLD STAGE ROAD (SR 1006)

SCALE 1" = 30'



### DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 662830.43(±) EASTING: 2092301.84(±) ELEVATION: 292.07(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999879786

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-2" TO -L- STATION IS

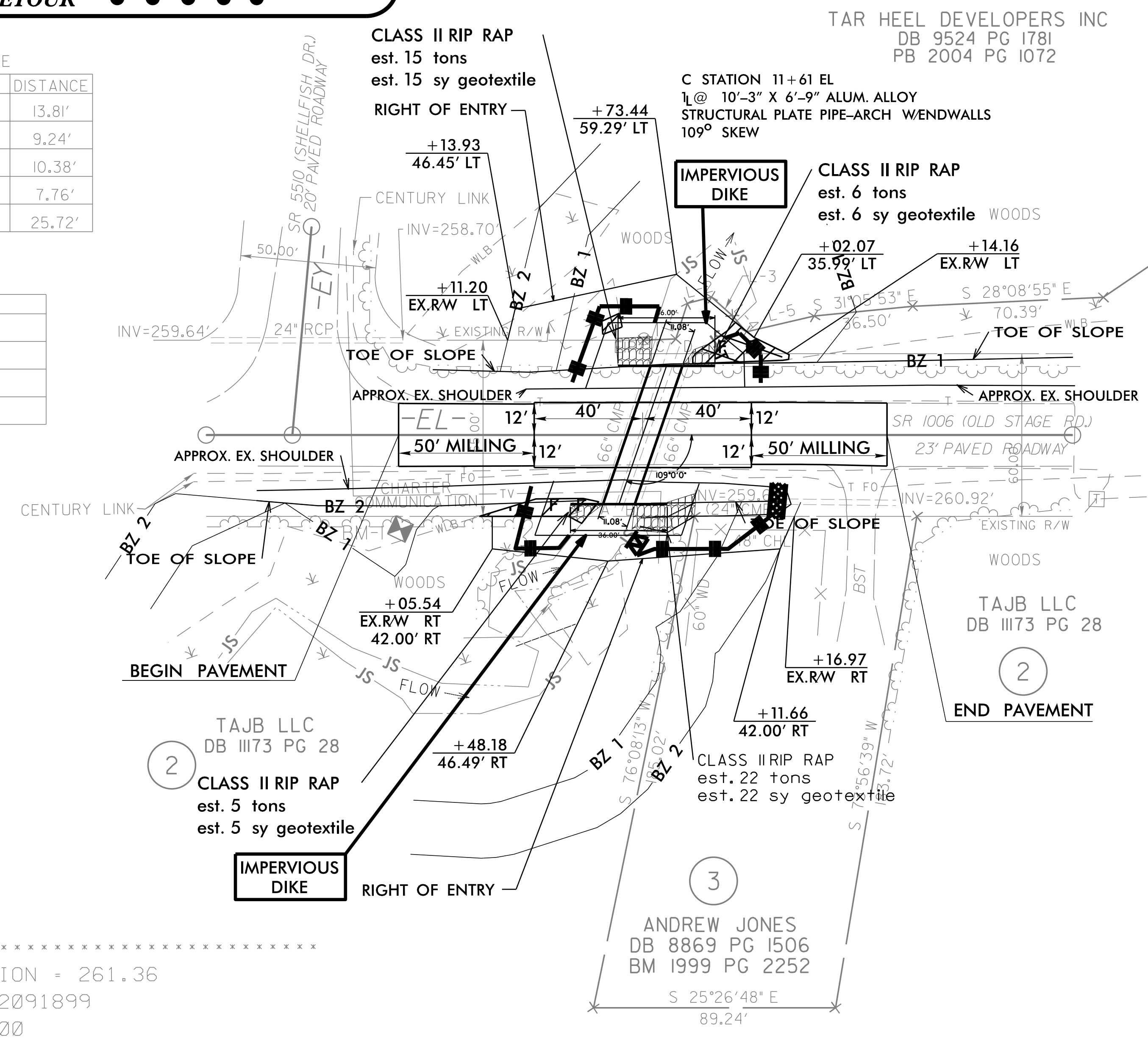
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
VERTICAL DATUM USED IS NAVD 88

PROPERTY LINE TABLE

LINE	BEARING	DISTANCE
L-1	N 82°27'41" E	13.81'
L-2	S 39°55'55" E	9.24'
L-3	S 16°24'01" W	10.38'
L-4	S 23°53'39" W	7.76'
L-5	S 38°31'30" E	25.72'

HYDRO STRUCTURES

NAME	INVERT
A	INV=254.06'
B	INV=254.25'
C	INV=253.54'
D	INV=253.69'



PROJECT PRIMARY CONTROL

Point	North	East	Elevation
GPS1	663267.8900	2092091.9000	273.65
GPS2	662830.4300	2092301.8400	292.07

\*\*\*\*\*  
 BM1 ELEVATION = 261.36  
 N 663554 E 2091899  
 BL STATION 5+00.00  
 N 33°58'34.9" W DIST 344.97  
 BM SET IN 24" PINE  
 \*\*\*\*\*

### EROSION CONTROL PLAN

REVISIONS

12/18/2008 2:14:53 Wake SR 1006.rdwj\_EC4.dgn  
IT:ERSKENDY



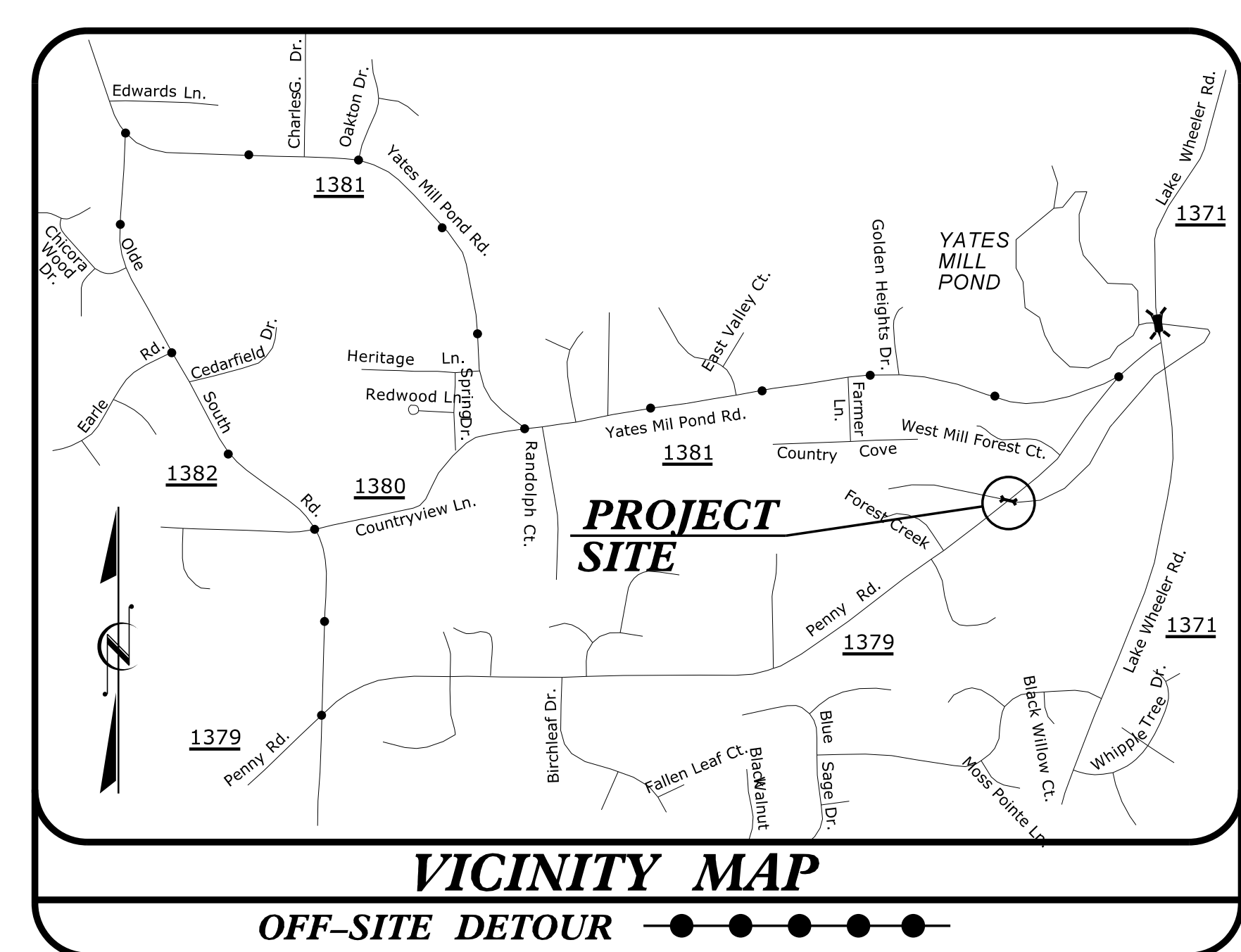
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Raleigh, N.C. 27606  
License No. F-0377  
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Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

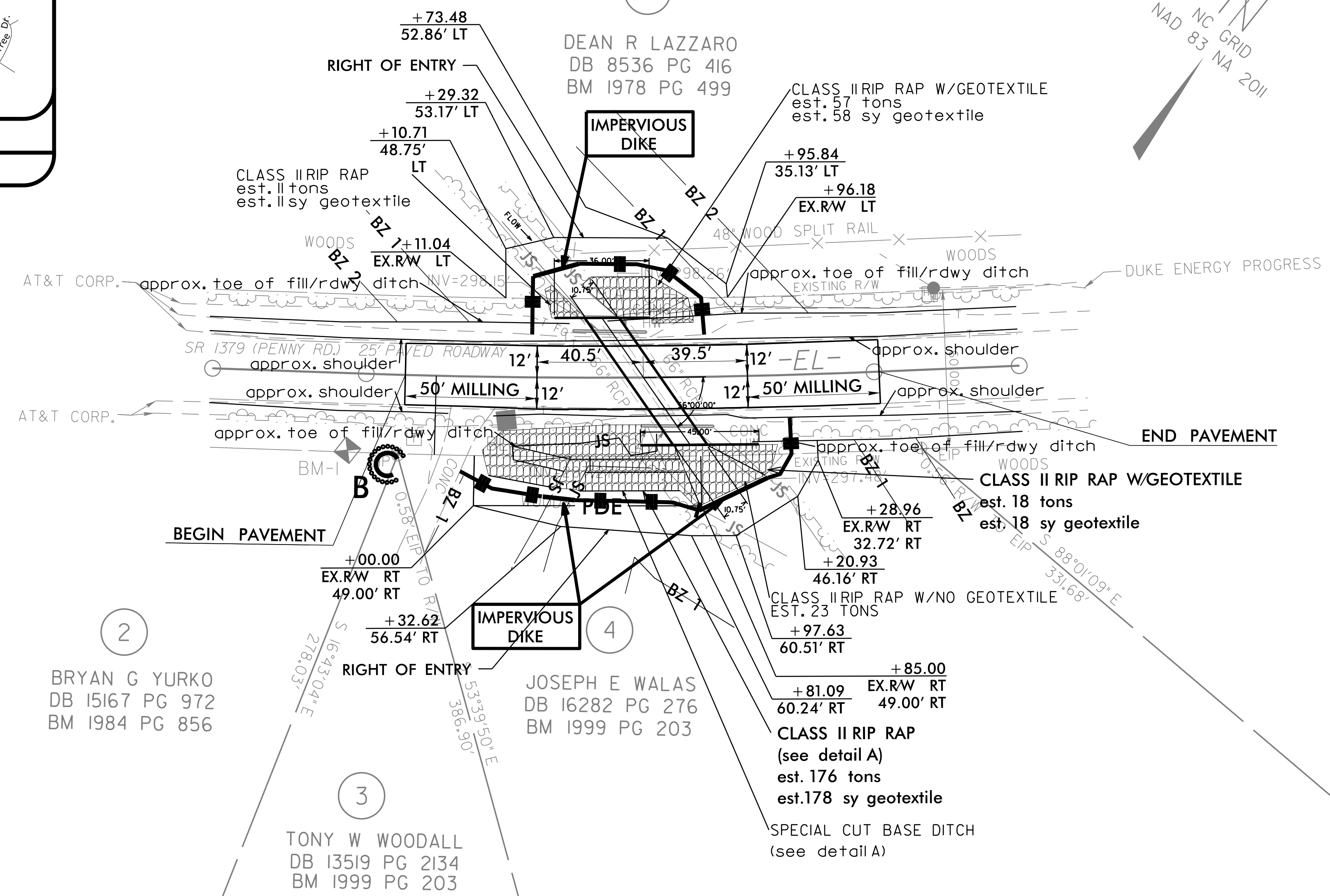
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RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**PENNY ROAD  
(SR 1379)**

SCALE 1" = 30'



10'-9" x 6'-10" ALUM. ALLOY  
STRUCTURAL PLATE PIPE-ARCH  
WITH ENDWALLS



\*\*\*\*\*  
BM1 ELEVATION = 307.36  
N 714838 E 2091908  
BL STATION 15+62.00 22 RIGHT  
BM SET IN 24" OAK  
\*\*\*\*\*

**DATUM DESCRIPTION**

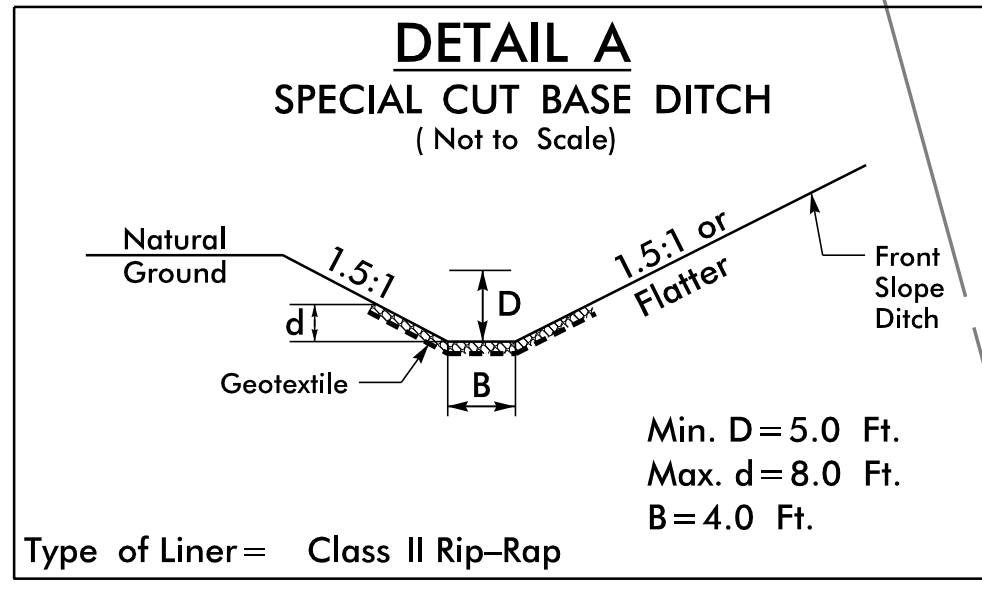
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS-2" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 714251.11(±) EASTING: 2091028.27(±) ELEVATION: 374.34 (±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999892693

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-2" TO -L- STATION IS

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
VERTICAL DATUM USED IS NAVD 88

Point	North	East	Elevation
GPS-1	714496.1300	2091351.7000	349.8200
GPS-2	714251.1100	2091028.2700	374.3400
BL-3	714764.5000	2091719.5450	314.5500
BL-4	714884.3010	2091948.1000	307.8500



**EROSION CONTROL PLAN**

REVISIONS

8/17/09  
11/30/2008  
I:\Projects\2008\11\30\Roadway\Penney\_rdy\_EC6.dgn  
11/30/2008