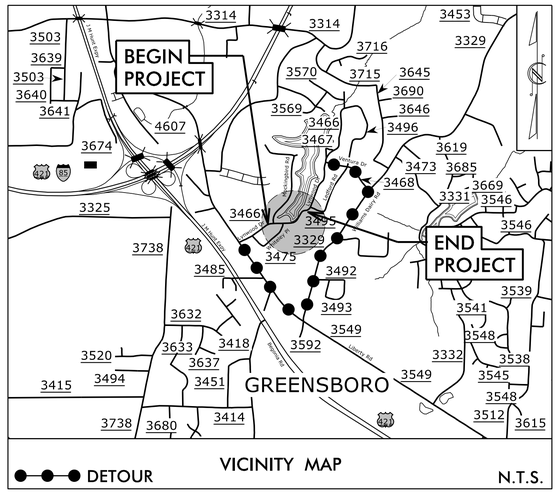
DocuSign Envelope ID: 4254CE34-26E3-40A6-983B-3F4BB20AA3D5

09/08/99

WBS PROJECT: 17BP.7.C.16

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Standard Symbology Sheet



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

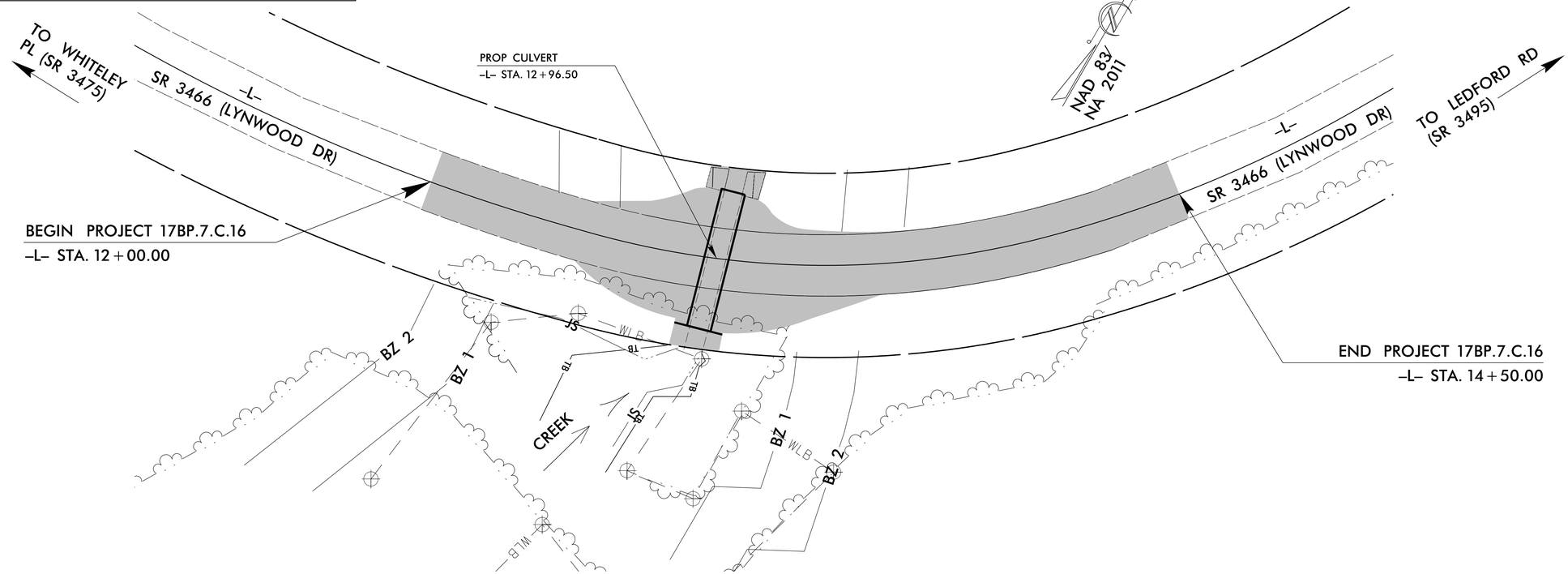
GUILFORD COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17.BP.7.C.16	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

LOCATION: REPLACE PIPE #40 2224 ON SR 3466 (LYNWOOD DR) – 0.3 MI. E. JCT. SR 3549 (LIBERTY RD)

TYPE OF WORK: GRADING, PAVING, SHOULDER CONSTRUCTION, & CULVERT



CLEARING LIMITS ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

GRAPHIC SCALES

50 25 0 20 40
PLANS

50 25 0 20 40
PROFILE (HORIZONTAL)

10 5 0 4 8
PROFILE (VERTICAL)

DESIGN DATA

ADT 2016 = 500
V = 30 MPH
FUNC CLASS = LOCAL

PROJECT LENGTH

TOTAL LENGTH WBS PROJECT 17BP.7.C.16 = 0.047 MI

Prepared in the Office of:
USI INFRASTRUCTURE OF CAROLINA, INC.
9140 ARROWPOINT BLVD, SUITE 200
CHARLOTTE, NORTH CAROLINA 28273
N.C. LICENSE # C-1950

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

SANDRA P. HAYES, PE
PROJECT ENGINEER

KEITH A. SCHELL, EI
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022000 ENGINEER W. GALEN CAIL

W. Galen Cail 8/11/2017 *P.E.*
SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 32110 ENGINEER SANDRA P. HAYES

Sandra P. Hayes 8/11/2017 *P.E.*
SIGNATURE:

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

USI INFRASTRUCTURE OF CAROLINA, INC.
9140 ARROWPOINT BLVD, SUITE 200
CHARLOTTE, NORTH CAROLINA 28273
N.C. LICENSE # C-1950

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 32110 ENGINEER
SIGNATURE:
DATE: 8/11/2017

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2A	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND IMPROVEMENT DETAILS
3	SUMMARY OF EARTHWORK, GUARDRAIL SUMMARY, RIGHT OF WAY AREA DATA, AND QUANTITIES
4	PLAN SHEET AND PROFILE SHEET
TMP-1 THRU TMP-4	TRANSPORTATION MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
X-1 THRU X-5	CROSS-SECTIONS

STANDARD DRAWINGS

EFF. 01-17-2012
REV. 10-30-2012
2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method for Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 5 - SUBGRADE, BASES, AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method 1
DIVISION 8 - INCIDENTALS	
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
DIVISION 12 - PAVEMENT MARKINGS, MARKERS, AND DELINEATION	
1205.01	Pavement Markings - Line Types and Offsets

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 07-30-2012

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

SUPEREVELATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY (POWER), AT&T DISTRIBUTION (TELEPHONE), CITY OF GREENSBORO (WATER AND SEWER), PNG (GAS), AND TWC/CHARTER/SPECTRUM (CATV).

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

PIEDMONT NATURAL GAS: CONTRACTOR TO NOTIFY & COORDINATE WITH ANDY RUMLEY (336-516-4751/336-222-7108) TO SCHEDULE RELOCATION OF THE EX. 4"HDPE GAS LINE DURING CONSTRUCTION PRIOR TO STARTING WORK.

TWC/CHARTER: CONTRACTOR TO NOTIFY ROGER STANFIELD (336-215-3742/336-217-3460) PRIOR TO STARTING WORK.

8/17/99
$$$$$$SYSTIME$$$$$
$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.CJ6	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.C.16	1-C
R/W SHEET NO.	____

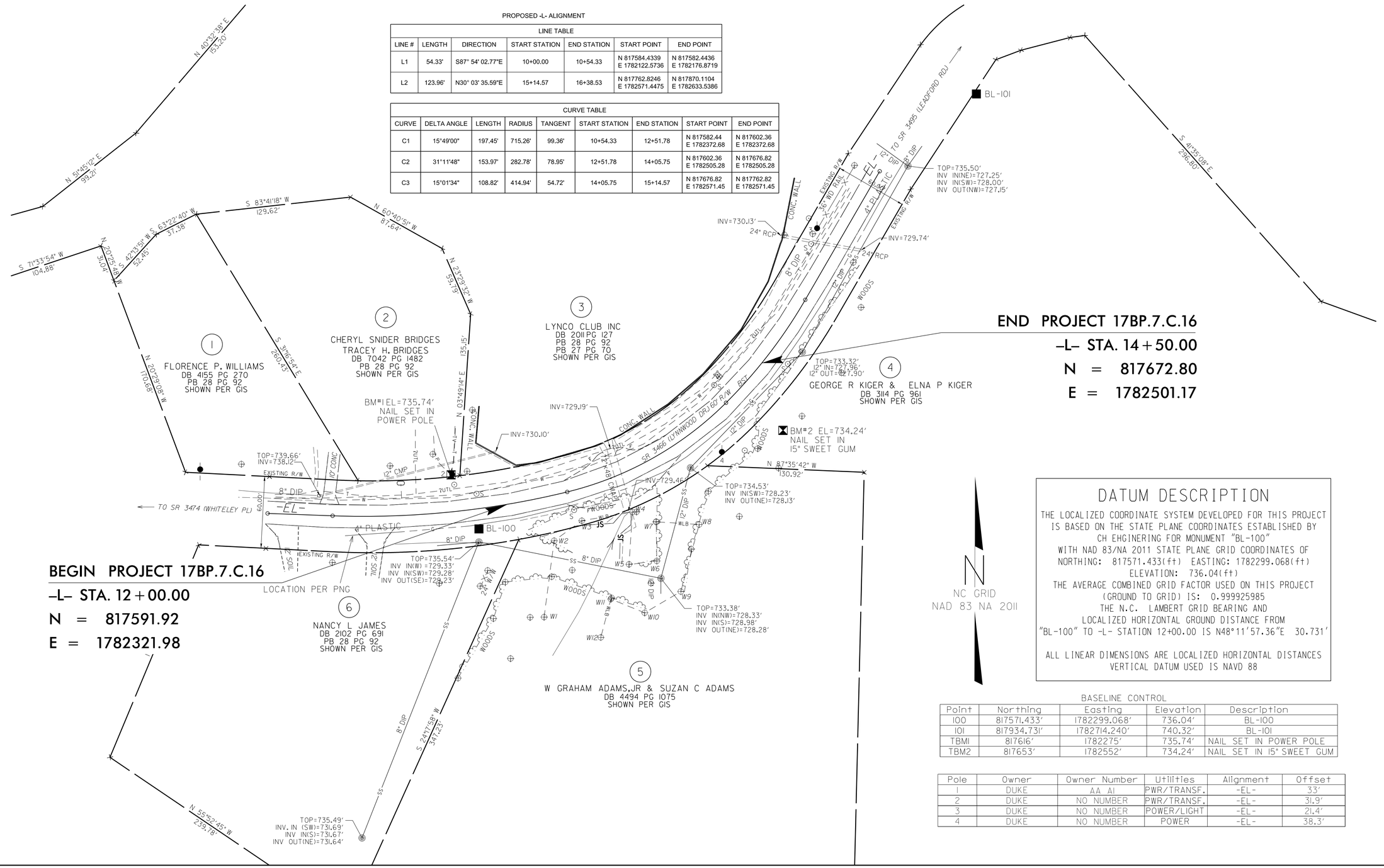
17BP.7.C.16 SURVEY CONTROL SHEET

◆ *INDICATES CONTROL REBAR WITH CAP USED OR SET FOR HORIZONTAL PROJECT BY CH ENGINEERING.*

PROPOSED -L- ALIGNMENT

LINE TABLE						
LINE #	LENGTH	DIRECTION	START STATION	END STATION	START POINT	END POINT
L1	54.33'	S87° 54' 02.77"E	10+00.00	10+54.33	N 817584.4339 E 1782122.5736	N 817582.4436 E 1782176.8719
L2	123.96'	N30° 03' 35.59"E	15+14.57	16+38.53	N 817762.8246 E 1782571.4475	N 817870.1104 E 1782633.5386

CURVE TABLE								
CURVE	DELTA ANGLE	LENGTH	RADIUS	TANGENT	START STATION	END STATION	START POINT	END POINT
C1	15°49'00"	197.45'	715.26'	99.36'	10+54.33	12+51.78	N 817582.44 E 1782372.68	N 817602.36 E 1782372.68
C2	31°11'48"	153.97'	282.78'	78.95'	12+51.78	14+05.75	N 817602.36 E 1782505.28	N 817676.82 E 1782505.28
C3	15°01'34"	108.82'	414.94'	54.72'	14+05.75	15+14.57	N 817676.82 E 1782571.45	N 817762.82 E 1782571.45



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY CH EHGINERING FOR MONUMENT "BL-100"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 817571.433(ft) EASTING: 1782299.068(ft)
ELEVATION: 736.04(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999925985
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-100" TO -L- STATION 12+00.00 IS N48°11'57.36"E 30.731'

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

BASELINE CONTROL

Point	Northing	Easting	Elevation	Description
100	817571.433'	1782299.068'	736.04'	BL-100
101	817934.731'	1782714.240'	740.32'	BL-101
TBM1	817616'	1782275'	735.74'	NAIL SET IN POWER POLE
TBM2	817653'	1782552'	734.24'	NAIL SET IN 15" SWEET GUM

Pole	Owner	Owner Number	Utilities	Alignment	Offset
1	DUKE	AA AI	PWR/TRANSF.	-EL-	33'
2	DUKE	NO NUMBER	PWR/TRANSF.	-EL-	31.9'
3	DUKE	NO NUMBER	POWER/LIGHT	-EL-	21.4'
4	DUKE	NO NUMBER	POWER	-EL-	38.3'

REVISIONS

8/17/99

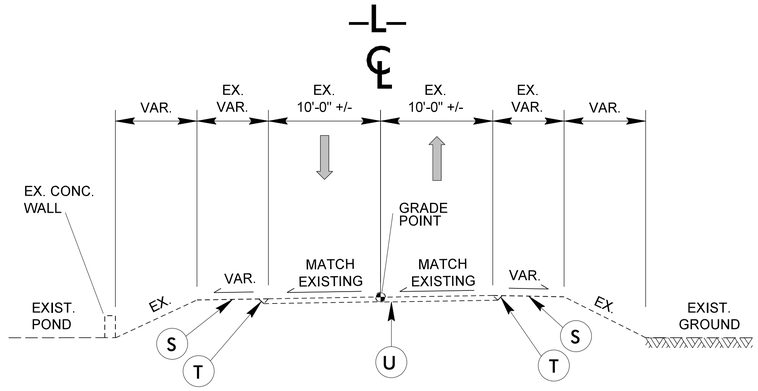
$$$$$SYSTIME$$$$
$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
$$$$$$FILENAME$$$$$$

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.C16	2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

NORTH CAROLINA PROFESSIONAL SEAL 32110 ENGINEER SANDRA P. HAYES

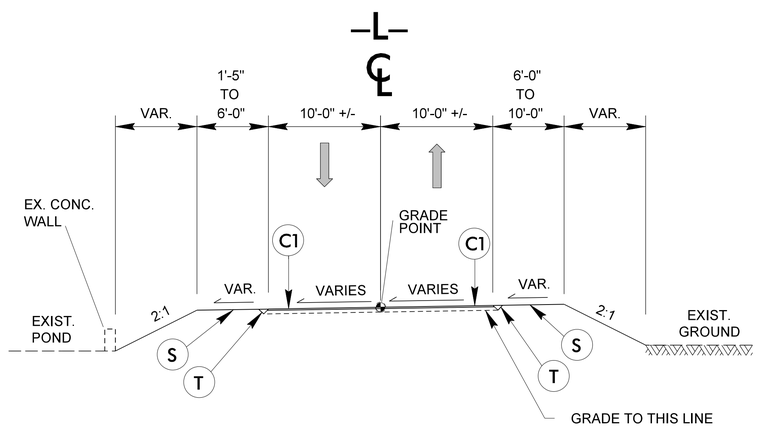
SIGNATURE: Sandra P. Hayes

DATE: 8/11/2017



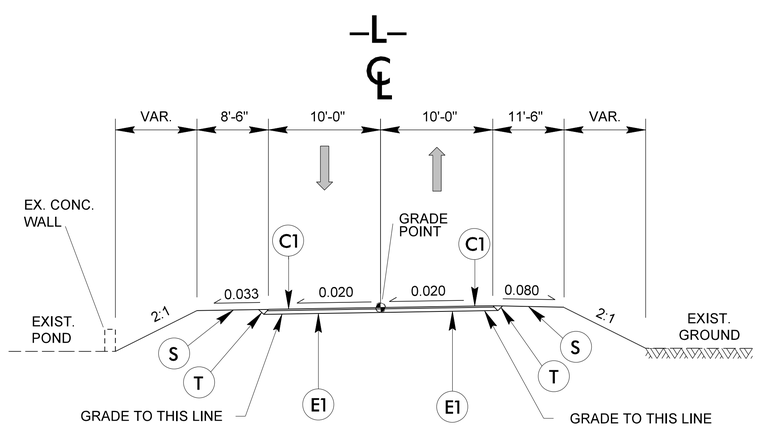
TYPICAL SECTION NO. 1

-L- STA. 12+00.00 TO 12+71.00
-L- STA. 14+24.00 TO 14+50.00



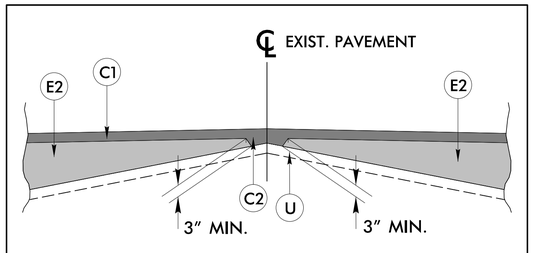
TYPICAL SECTION NO. 2

-L- STA. 12+71.00 TO 12+83.00
-L- STA. 13+10.00 TO 14+24.00



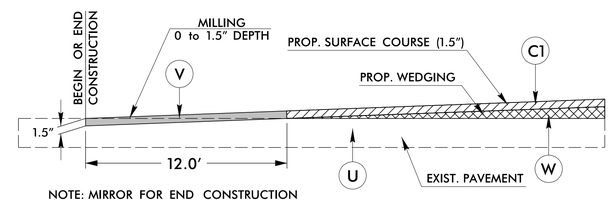
TYPICAL SECTION NO. 3

-L- STA. 12+83.00 TO 13+10.00



–L–

WEDGING DETAIL



NOTE: MIRROR FOR END CONSTRUCTION

MILLING DETAIL

LINE	FROM	TO
–L–	12 + 00	12 + 83
–L–	13 + 10	14 + 50

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
E1	PROP. APPROX. 11" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ.YD IN EACH OF TWO LAYERS.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
S	SHOULDER RECONSTRUCTION
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING BITUMINOUS PAVEMENT 0" TO 1.5" DEPTH
W	PAVEMENT WEDGING (SEE WEDGING DETAIL)

NOTES:
1. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
2. EXISTING DITCHES NOT TO BE DISTURBED UNLESS OTHERWISE NOTED.

REVISIONS

8/17/99

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

USI INFRASTRUCTURE OF CAROLINA, INC.
9140 ARROWPOINT BLVD, SUITE 200
CHARLOTTE, NORTH CAROLINA 28273
N.C. LICENSE # C-1950

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.C.16	3

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 32110 ENGINEER SANDRA P. HAYES

SIGNATURE: Sandra P. Hayes
DATE: 8/11/2017

SUMMARY OF QUANTITIES

SURVEY LINE	LENGTH (MI)	WIDTH (FT)	EARTHWORK		ASPHALT						GUARDRAIL			THERMOPLASTIC PAVEMENT MARKINGS		TRAFFIC CONTROL					
			UNDERCUT EXCAVATION (CY)	BORROW (CY)	REMOVAL OF EX. ASPHALT PAVEMENT (SY)	INCIDENTAL STONE BASE (TONS)	0" - 1.5" MILLING (SY)	BASE COURSE, B25.0B (TONS)	SURFACE COURSE, S9.5B (TONS)	ASPHALT PLANT MIX PG 64-22 (TONS)	STRAIGHT (LF)	ANCHOR UNIT GRAU 350 (EA)	ANCHOR UNIT GRAU 350 (LF)	4" X 90 M WHITE THERMO (LF)	4" X 90 M YELLOW THERMO (LF)	WORK ZONE SIGNS - STATIONARY (SF)	WORK ZONE SIGNS - BARRICADE MOUNTED (SF)	BARRICADES - TYPE III (LF)			
-L-	0.047	20	0	110	-	50	30	40	30	4	0	0	0	310	310	442	94	80			

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, SHOULDER BORROW, FINE GRADING, CLEARING AND GRUBBING, BREAKING OF EXISTING PAVEMENT, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

SURVEY LINE	DRAINAGE & EROSION CONTROL																				
	95" X 67" CORRUGATED ALUMINUM PIPE ARCH CULVERT (LF)	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES (TON)	FOUNDATION CONDITIONING GEOTEXTILE (SY)	GEOTEXTILE FOR DRAINAGE (SY)	RIP RAP, CLASS I (TONS)	RIP RAP, CLASS II (TONS)	RIP RAP, CLASS A (TONS)	RIP RAP, CLASS B (TONS)	EROSION CONTROL STONE, CLASS A (TONS)	EROSION CONTROL STONE, CLASS B (TONS)	SEDIMENT CONTROL STONE (TON)	SAFETY FENCE (LF)	TEMP. SILT FENCE (LF)	1/4" HARDWARE CLOTH (LF)	SPECIAL STILLING BASINS (EA)	IMPERVIOUS DIKE (LF)	COIR FIBER WATTLE BARRIER (LF)	MATTING FOR EROSION CONTROL (SY)	PERMANENT SOIL REINFORCE-MENT MAT (SY)	SEED & MULCHING (AC)	RESPONSE FOR EROSION CONTROL (EA)
-L-	45	35	135	220	10	-	-	-	55	5	55	400	435	190	1	85	100	1300	0	0.5	3

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT +%	BORROW	WASTE
-L- STA. 12+00.00 TO 14+00.00	0	0	103	103	0
SUBTOTAL	0	0	103	103	0
WASTE IN LIEU OF BORROW					
SUBTOTAL	0	0		103	0
5% TO REPLACE BORROW		0		6	0
PROJECT TOTAL	0	0		109	0
SAY	0	0		110	0

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, SHOULDER BORROW, FINE GRADING, CLEARING AND GRUBBING, BREAKING OF EXISTING PAVEMENT, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

8/17/99
$$$$$$$$SYSTIME$$$$
$$$$$$$$JOB$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$

DocuSign Envelope ID: 4254CE34-26E3-40A6-983B-3F4BB20AA3D5

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.C.16	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 32110 ENGINEER SANDRA P. HAYES
SIGNATURE: Sandra P. Hayes
DATE: 8/11/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022000 ENGINEER W. GALEN COIL
SIGNATURE: W. Galen Coil
DATE: 8/11/2017

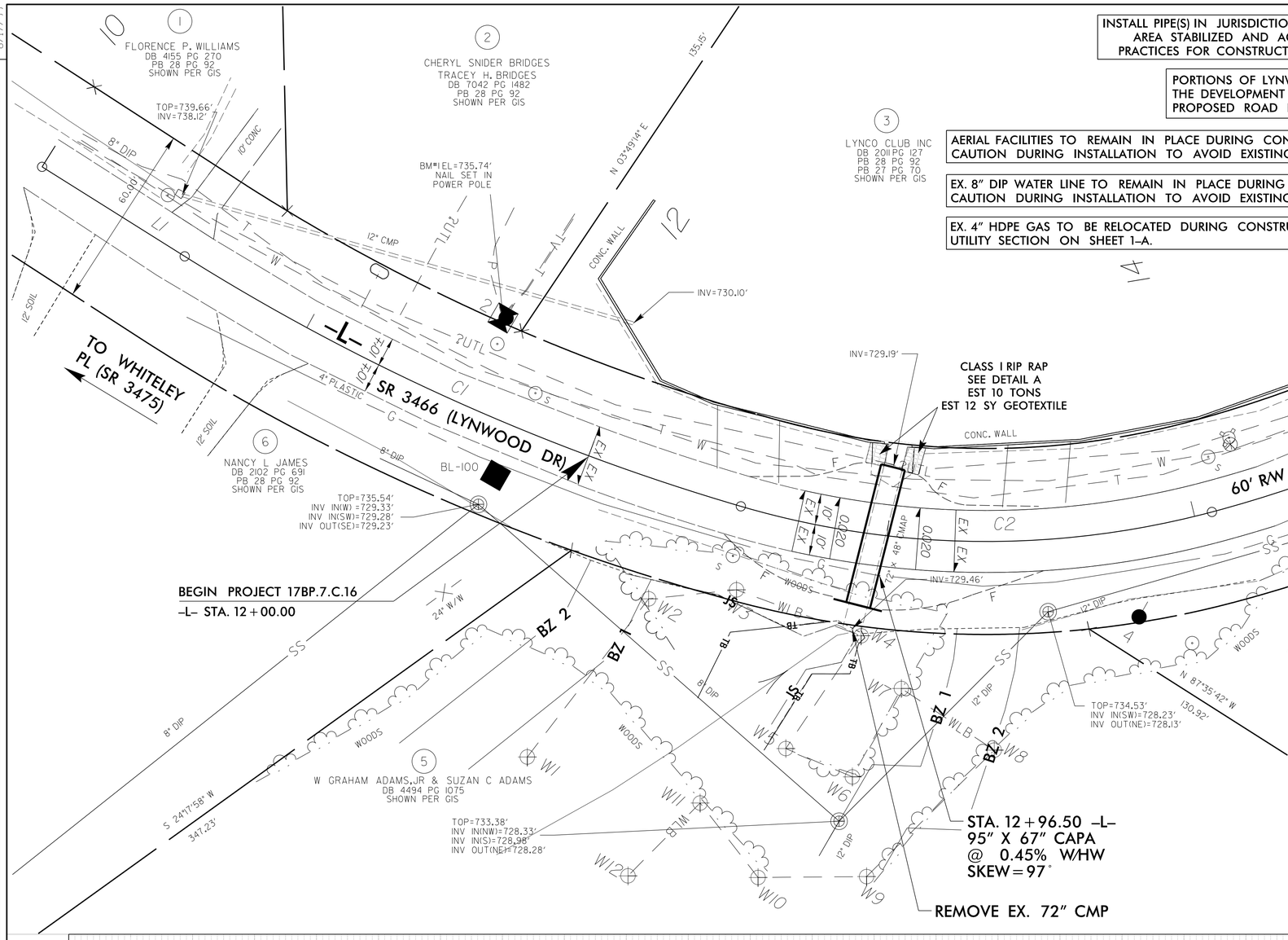
INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

PORTIONS OF LYNWOOD DR (SR 3466) WERE RESURFACED DURING THE DEVELOPMENT OF THESE PLANS. FIELD ADJUSTMENTS FOR PROPOSED ROAD ELEVATIONS AND STATIONS MAY BE REQUIRED.

AERIAL FACILITIES TO REMAIN IN PLACE DURING CONSTRUCTION. USE CAUTION DURING INSTALLATION TO AVOID EXISTING AERIAL FACILITIES.

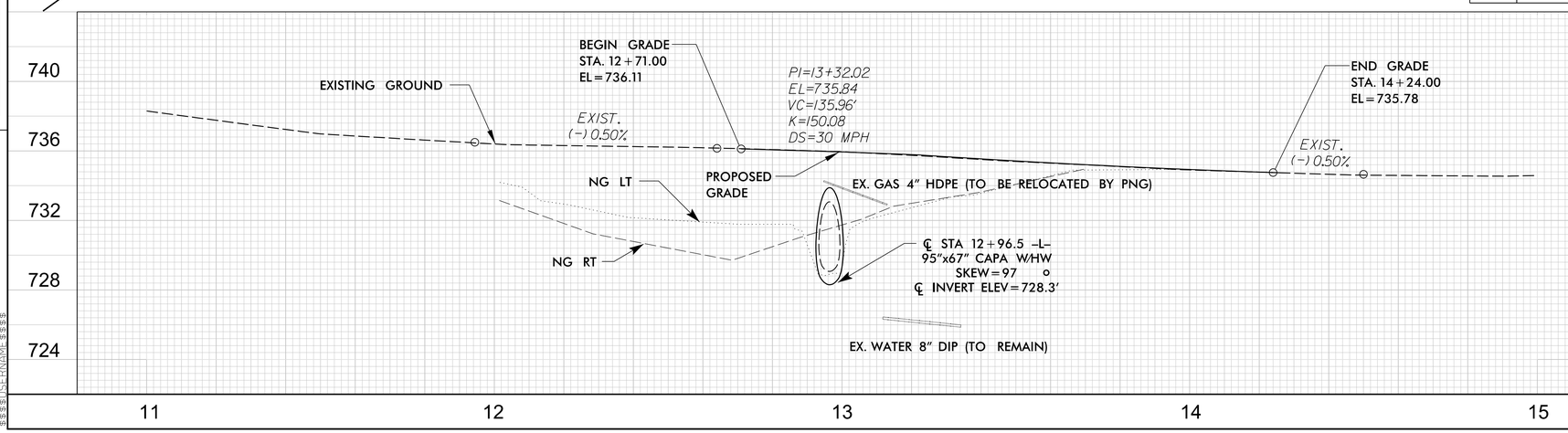
EX. 8" DIP WATER LINE TO REMAIN IN PLACE DURING CONSTRUCTION. USE CAUTION DURING INSTALLATION TO AVOID EXISTING WATER LINE.

EX. 4" HDPE GAS TO BE RELOCATED DURING CONSTRUCTION. SEE NOTES UNDER UTILITY SECTION ON SHEET 1-A.

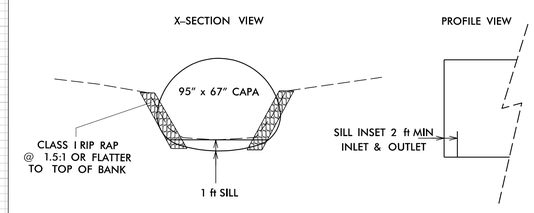


LINE TABLE						
LINE #	LENGTH	DIRECTION	START STATION	END STATION	START POINT	END POINT
L1	54.33'	S87° 54' 02.77"E	10+00.00	10+54.33	N 817584.4339 E 1782122.5736	N 817582.4436 E 1782176.8719
L2	123.96'	N30° 03' 35.59"E	15+14.57	16+38.53	N 817762.8246 E 1782571.4475	N 817870.1104 E 1782633.5386

CURVE TABLE								
CURVE	DELTA ANGLE	LENGTH	RADIUS	TANGENT	START STATION	END STATION	START POINT	END POINT
C1	15°49'00"	197.45'	715.26'	99.36'	10+54.33	12+51.78	N 817582.44 E 1782372.68	N 817602.36 E 1782372.68
C2	31°11'48"	153.97'	282.78'	78.95'	12+51.78	14+05.75	N 817602.36 E 1782505.28	N 817676.82 E 1782505.28
C3	15°01'34"	108.82'	414.94'	54.72'	14+05.75	15+14.57	N 817676.82 E 1782571.45	N 817762.82 E 1782571.45



DETAIL A
INLET/OUTLET SILL & CHANNEL
NOT TO SCALE



NOTES:
-SILL DIMENSIONS THE SAME @ INLET AND OUTLET

REVISIONS

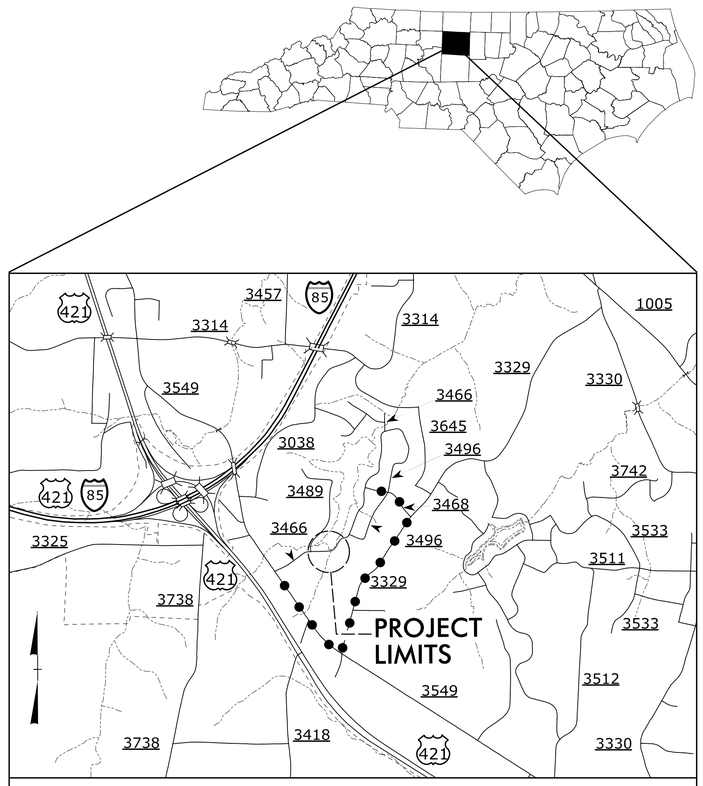
8/17/99

$$$$SYSTIME$$$$
$$$$ICON$$$$
$$$$USERNAME$$$$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

GUILFORD COUNTY



VICINITY MAP

LOCATION: SR 3466 (LYNWOOD RD.) – 0.3 MILES EAST OF SR 3549 (LIBERTY RD.)

TYPE OF WORK: GRADING, PAVING, AND DRAINAGE

DETOUR ROUTE

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, INDEX OF SHEETS, AND LEGEND
TMP-2	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND TRANSPORTATION OPERATIONS PLAN: MANAGEMENT STRATEGY, GENERAL NOTES AND PHASING
TMP-3	DETOUR PLAN LYNWOOD DRIVE (SR 3466) ROAD CLOSURE
TMP-4	ROAD CLOSURE SIGNS, DETOUR SIGNS AND SIGN DESIGN

LEGEND

GENERAL

NORTH ARROW

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

TEMPORARY SIGNING

STATIONARY SIGN

SHEET NO.
TMP-1

17BP.7.C.16

WBS PROJECT:

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

PREPARED FOR N.C.D.O.T.– DIVISION 7 BY: HDR | ICA

M. T. RZEPKA, P.E. — TRAFFIC CONTROL PROJECT ENGINEER
M. ULA, P.E. — TRAFFIC CONTROL PROJECT DESIGN ENGINEER
Y. MARIOTTE — TRAFFIC CONTROL DESIGN ENGINEER

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

APPROVED: DocuSigned by: Michael T. Rzepka 01BC3480C2E049D...
DATE: 8/8/2017
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

8/8/2017
P:\LIBRprojects\Div07\div07_culverts_with_usl\Group2\17BP.7.C.16\6.0_CAD_BIM\6.2_Work_in_Progress\Traffic Control\C16_tmp_title.dgn
ICA Engineering

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

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.

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

B) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

C) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

D) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

MISCELLANEOUS

E) MAINTAIN ACCESS TO RESIDENCES AND BUSINESSES AT ALL TIMES DURING CONSTRUCTION.

MANAGEMENT STRATEGY

THIS PROJECT CONSISTS OF REPLACING A CULVERT UNDER SR 3466 (LYNWOOD DR). DURING CONSTRUCITON, SR 3466 (LYNWOOD DR) WILL BE CLOSED AT THE CONSTRUCTION LIMITS AND TRAFFIC WILL BE PLACED ON AN OFF-SITE DETOUR ALONG SR 3459 (LIBERTY RD), SR 3329 (WILLIAMS DAIRY RD) AND SR 3468 (VENTURA DR).

SR 3466 (LYNWOOD DR) WILL BE REOPENED TO 2-LANE/2-WAY TRAFFIC UPON COMPLETION OF CONSTRUCTION.

PHASING

STEP 1

USING ROADWAY STANDARD DRAWING 1101.03 (SHEET 1 OF 9), INSTALL ROAD CLOSURE AND DETOUR SIGNS. CLOSE SR 3466 (LYNWOOD DR) AND DETOUR TRAFFIC (SEE SHEETS TMP-3 & 4).

STEP 2

AWAY FROM TRAFFIC, REMOVE EXISTING CULVERT.

STEP 3

AWAY FROM TRAFFIC, CONSTRUCT PROPOSED CULVERT AND ROADWAY.

STEP 4

AWAY FROM TRAFFIC, PLACE FINAL PAVEMENT MARKINGS AND MARKERS ON SR 3466 (LYNWOOD DR) AND OPEN ROAD TO TRAFFIC.

STEP 5

REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

APPROVED: DocuSigned by: Michael T. Rzepka 01BC3480C26049D...

DATE: 7/7/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

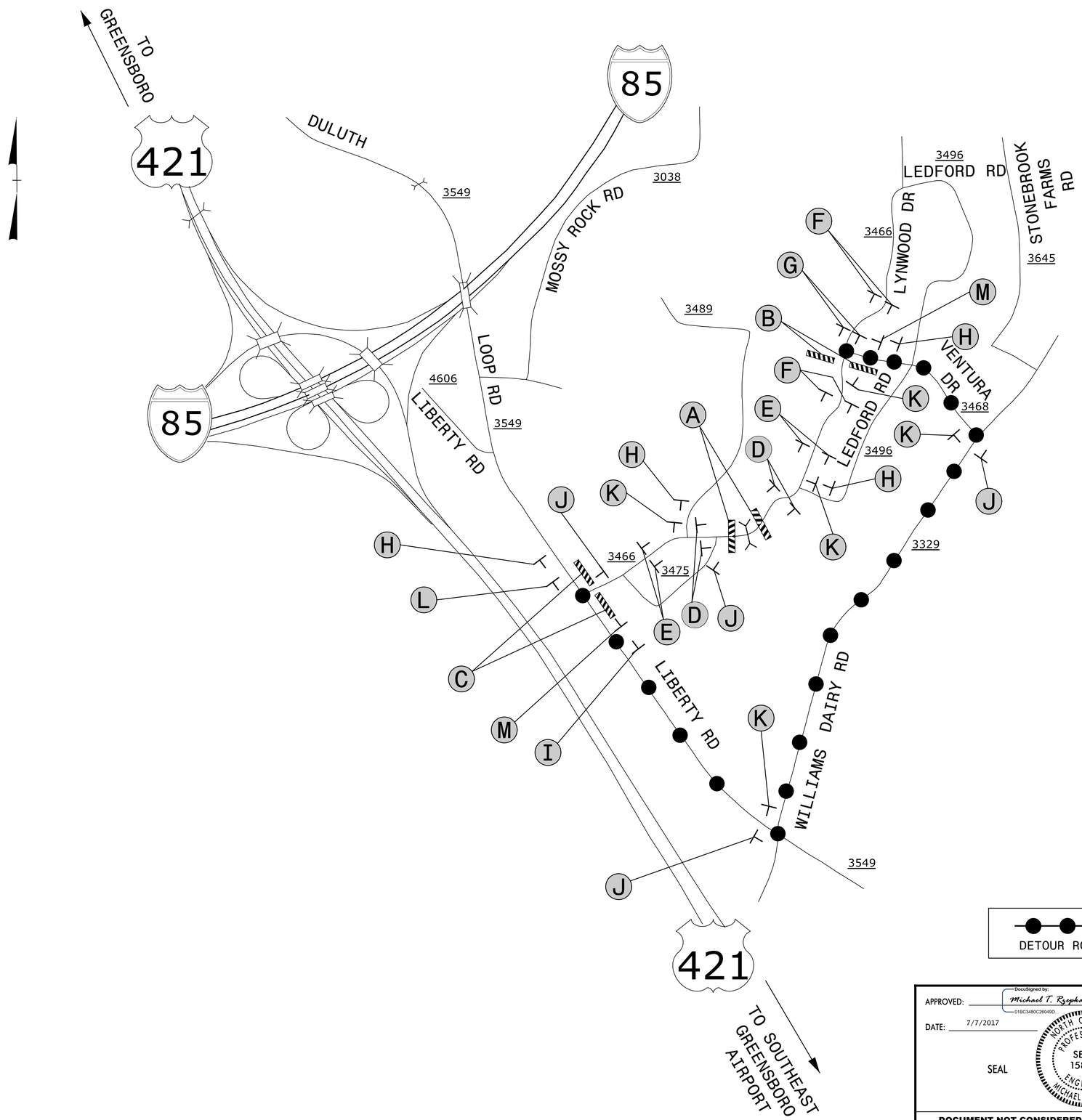
DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS & TRANSPORTATION OPERATIONS PLAN

7/5/2017
P:\LBRprojects\Div07\div07_culverts_with_usi\Group2\17BP.7.C.16\6.0_CAD_BIM\6.2_Work_In_Progress\Traffic Control\G16_tmp_title_2.dgn
ICA Engineering

PROJ. REFERENCE NO.	SHEET NO.
17BP.7.C.16	TMP-3

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



DETOUR ROUTE

NOTES: SEE SHEET TMP-4 FOR ROAD CLOSURE SIGNS, DETOUR SIGNS AND SIGN DESIGN

REFER TO RSD 1101.03, (SHEET 1 OF 9) FOR APPLICABLE NOTES

APPROVED: DocuSigned by: Michael T. Rzepka 018C3480C26049D...

DATE: 7/7/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

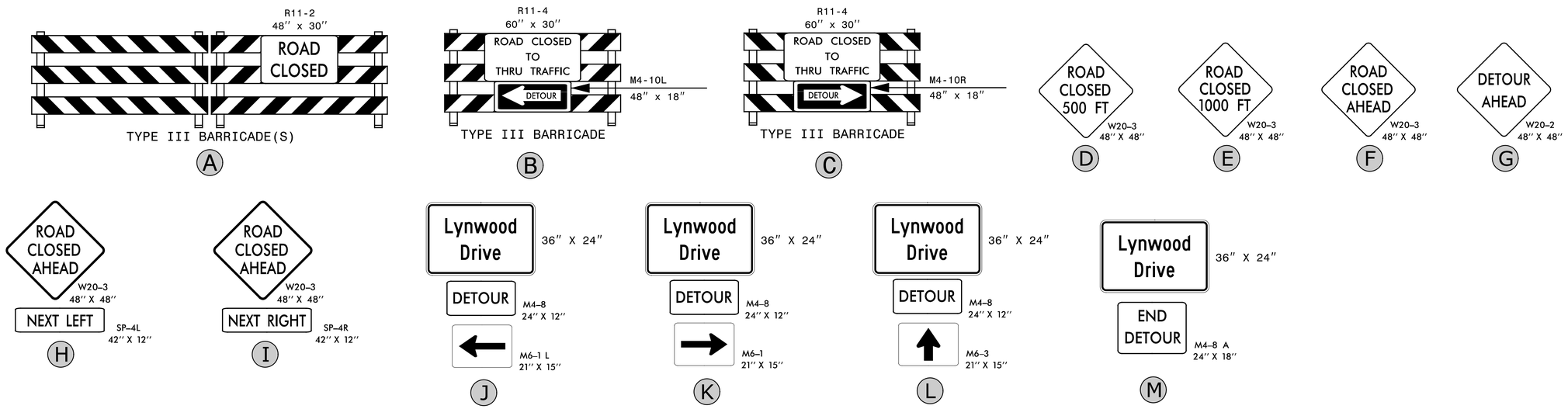
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

DETOUR PLAN LYNWOOD DRIVE (SR 3466) CLOSURE

7/5/2017
P:\LIBRprojects\Div07\div07_culverts_with_us1\Group2\17BP.7.C.16\6.0_CAD_BIM\6.2_Work_In_Progress\Traffic Control\C16_tmp_detour_3.dgn
ICA Engineering

PROJ. REFERENCE NO.	SHEET NO.
17BP.7.C.16	TMP-4

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



SIGN NUMBER: Lynwood Drive BACKG COLOR: Fluorescent Orange
TYPE: STATIONARY COPY COLOR: Black
QUANTITY: SEE PLANS

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 3'-0"
HEIGHT: 2'-0"
TOTAL AREA: 6.0 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.47"
WIDTH: 0.63"
RADII: 1.5"

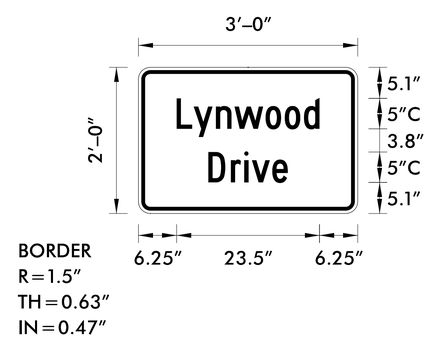
NO. Z BARS:
LENGTH:

MAT'L: 0.080" (2.0 mm) ALUMINUM

USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluoresent orange retroreflective sheeting.

DESIGN BY: mtr
PROJECT ID: 17BP.7.C.16
CHECKED BY:
DIV: 7
DATE: Feb 21, 2017



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																											Series/Size Text Length
	L	y	n	w	o	o	d																				C 2000
6.3	2.8	3.7	3	5.1	3.1	3.2	2.6	6.3																			23.5
	D	r	i	v	e																						C 2000
11.5	3.7	2.2	1.3	3.3	2.6	11.5																					13.1

FILENAME: C16_tmp_detour_4

NORTH CAROLINA D.O.T. SIGN DETAIL

APPROVED: DocuSigned by: Michael T. Rzepka 01BC3480C26049D...
DATE: 7/7/2017
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15876 ENGINEER MICHAEL T. RZEPKA

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROAD CLOSURE SIGNS, DETOUR SIGNS AND LYNWOOD DRIVE SIGN DESIGN

7/5/2017
P:\LIBRprojects\Div07\div07_culverts_with_usi\Group2\17BP.7.C.16\6.0_CAD_BIM\6.2_Work_in_Progress\Traffic Control\C16_tmp_detour_4.dgn
ICA Engineering

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.C.16	PMP-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 32110 ENGINEER SANDRA P. HAYES

SIGNATURE: 8/11/2017

DATE:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
GUILFORD COUNTY

WBS: 17BP.7.C.16

CONTRACT:

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 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS

PAVEMENT MARKING SCHEDULE

PAY ITEM	TOTAL QUANTITY		SYMBOL	DESCRIPTION	QUANTITY BREAKDOWN	
PAVEMENT MARKING LINES THERMOPLASTIC (4", 90 MILS)						
	620	LF	TA	WHITE	310	LF
			TB	YELLOW	310	LF

GENERAL NOTES

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	MARKER
ALL ROADS	THERMOPLASTIC	PERMANENT RAISED

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

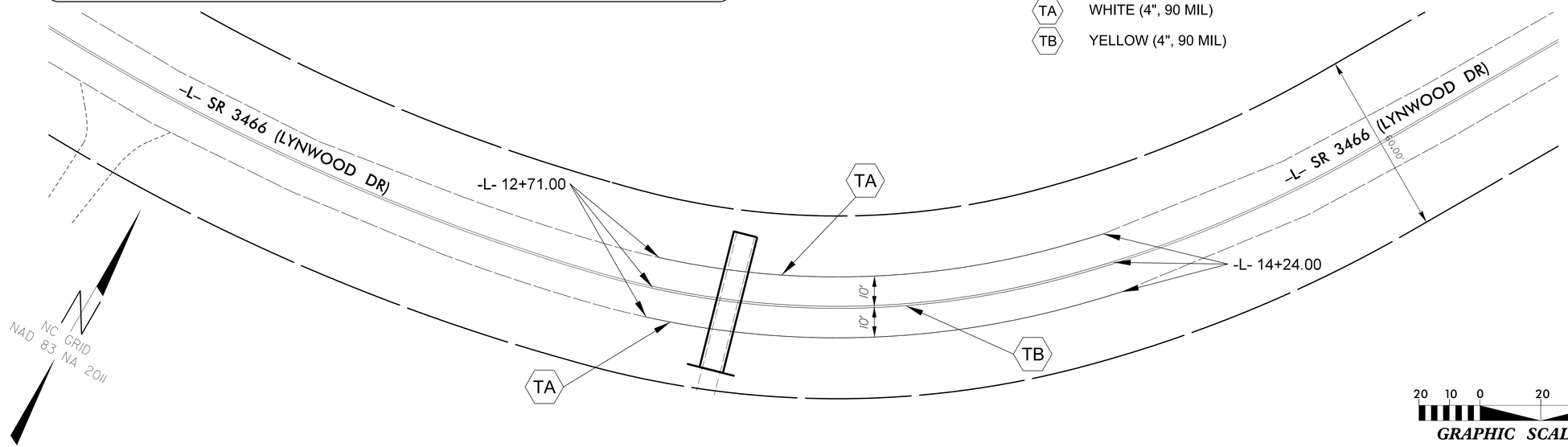
D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

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.

SYMBOL AND PAVEMENT MARKING LEGEND

TA — WHITE (4", 90 MIL)

TB — YELLOW (4", 90 MIL)



20 10 0 20 40

GRAPHIC SCALE

PLAN PREPARED BY: US Infrastructure of Carolina, INC.

Sandra P. Hayes, PE — Project Engineer

Keith A. Schell, EI — Project Design Engineer

USI INFRASTRUCTURE OF CAROLINA, INC.
9140 ARROWPOINT BLVD, SUITE 200
CHARLOTTE, NORTH CAROLINA 28273
N.C. LICENSE # C-1950

$$$$$$SYSTIME$$$$$
$$$$$$USERNAME$$$$$$DGN$$$$$$$$$$$$$$$$$$$$

WBS PROJECT: 17BP.7.C.16

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.7.C.16	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

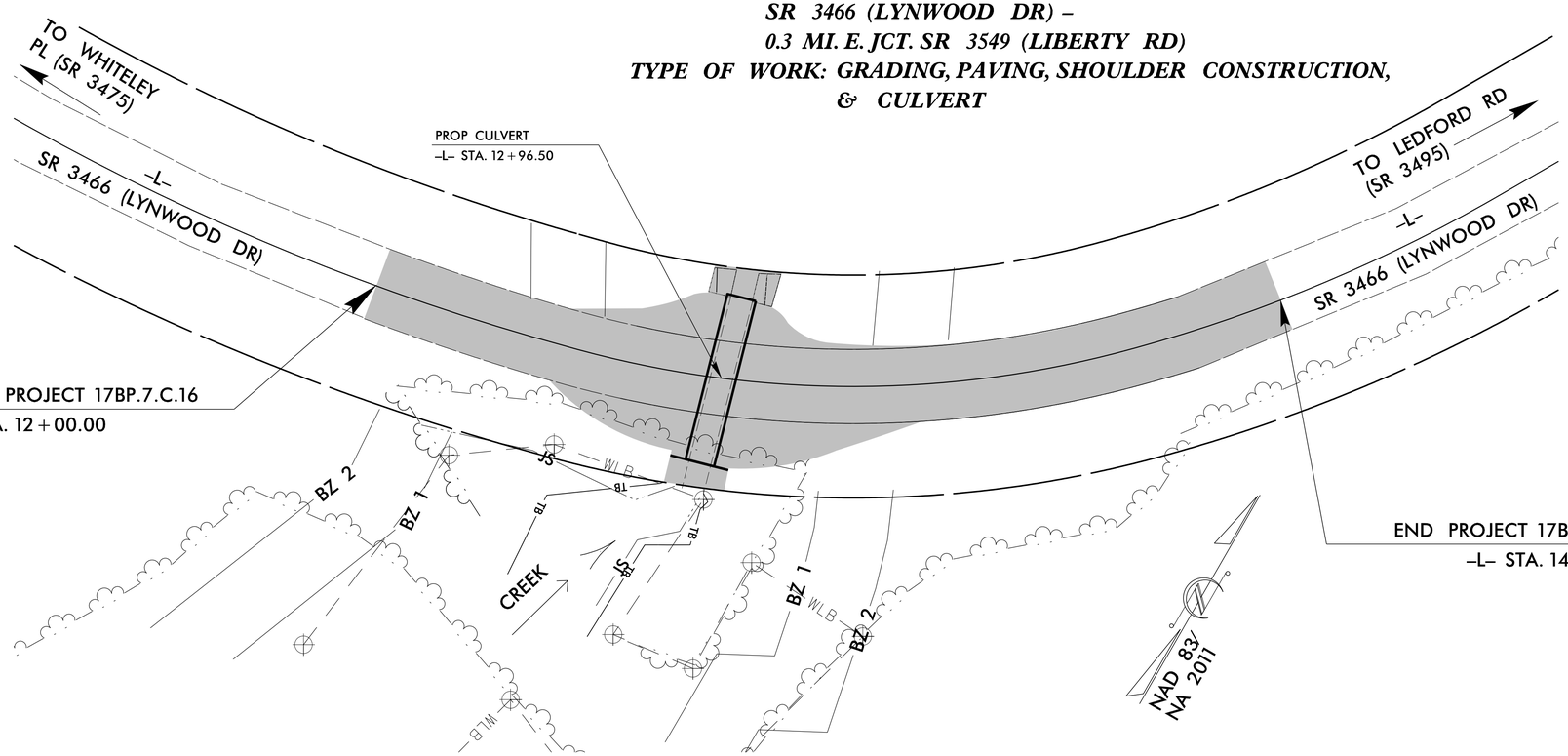
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

GUILFORD COUNTY

LOCATION: REPLACE PIPE #40 2224 ON SR 3466 (LYNWOOD DR) – 0.3 MI. E. JCT. SR 3549 (LIBERTY RD)

TYPE OF WORK: GRADING, PAVING, SHOULDER CONSTRUCTION, & CULVERT



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
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	EW CFW
	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.

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

10 0 20
PLANS

10 0 20
PROFILE (HORIZONTAL)

2 0 4
PROFILE (VERTICAL)

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:

USI INFRASTRUCTURE OF CAROLINA, INC.
9140 ARROWPOINT BLVD, SUITE 200
CHARLOTTE, NORTH CAROLINA 28273
N.C. LICENSE # C-1950

Designed by:

SANDRA P. HAYES, PE — ***3280***
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:

WES CHANDLER, PE

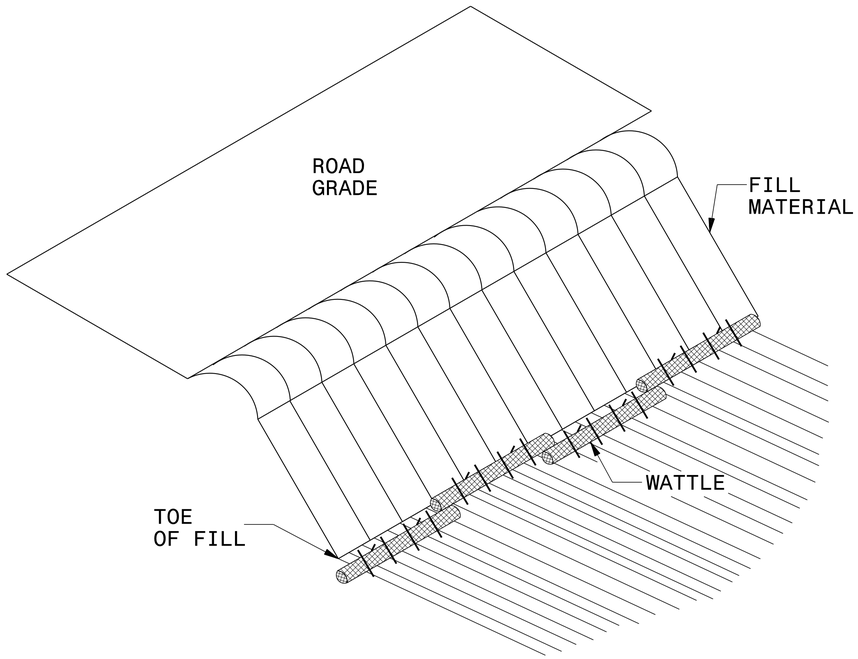
2012 STANDARD DRAWINGS
Roadway Standard Drawings

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 revison 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		

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.C.16	EC-2
R/W SHEET NO.	___

COIR FIBER WATTLE BARRIER DETAIL



ISOMETRIC 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.

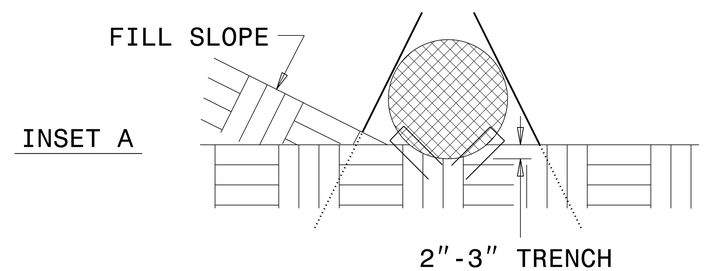
USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

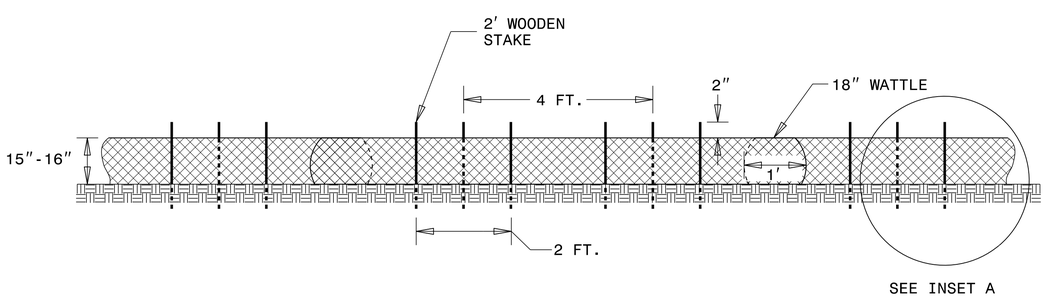
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.

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

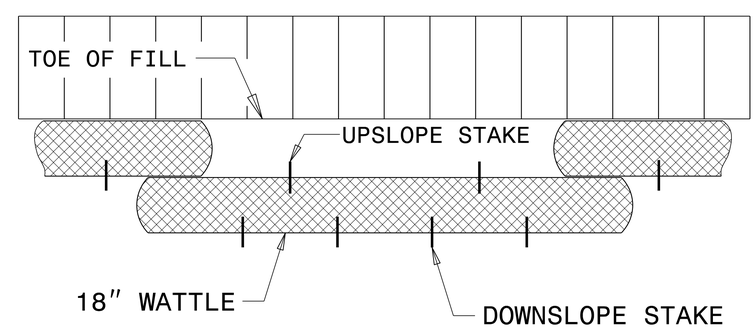
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 25 FT.





FRONT VIEW



TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.C.16	EC-3
	___

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 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.

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

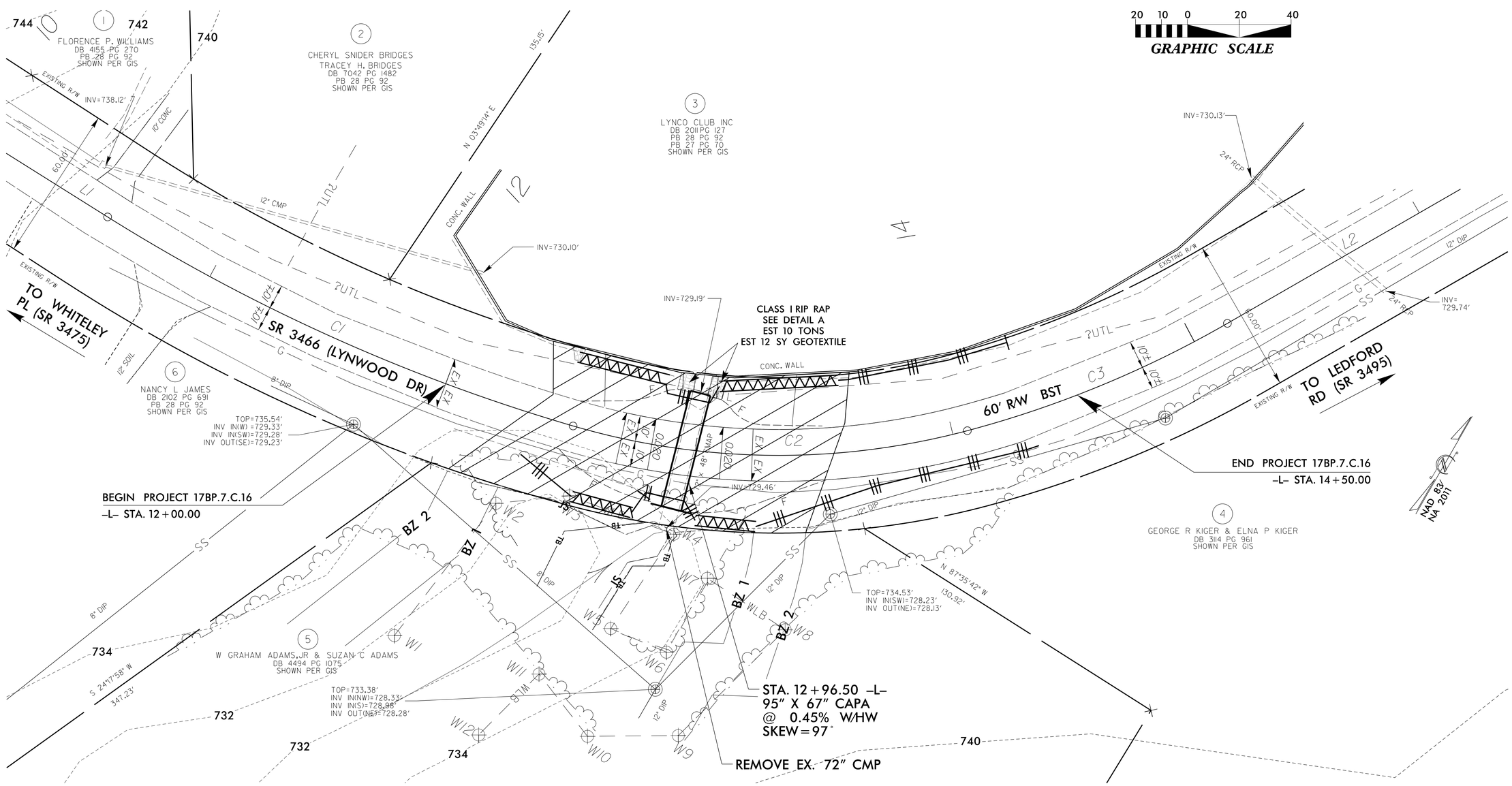
CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	12+00	14+50	LT	500
4	-L-	12+00	14+50	RT	320
				SUBTOTAL	820
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					480
				TOTAL	1300
				SAY	1300

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
				SUBTOTAL	
		ADDITIONAL PSRM TO BE INSTALLED			
				TOTAL	
				SAY	

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.C.16	EC-4/CONST.4
R/W SHEET NO.	____

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4



NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

DISTURBED AREA
7,950 SF

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

NOTE:
ALL EROSION CONTROL DEVICES SHOWN ARE LOCATED WITHIN EXISTING R/W OR EASEMENT.

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

REVISIONS

8/17/99

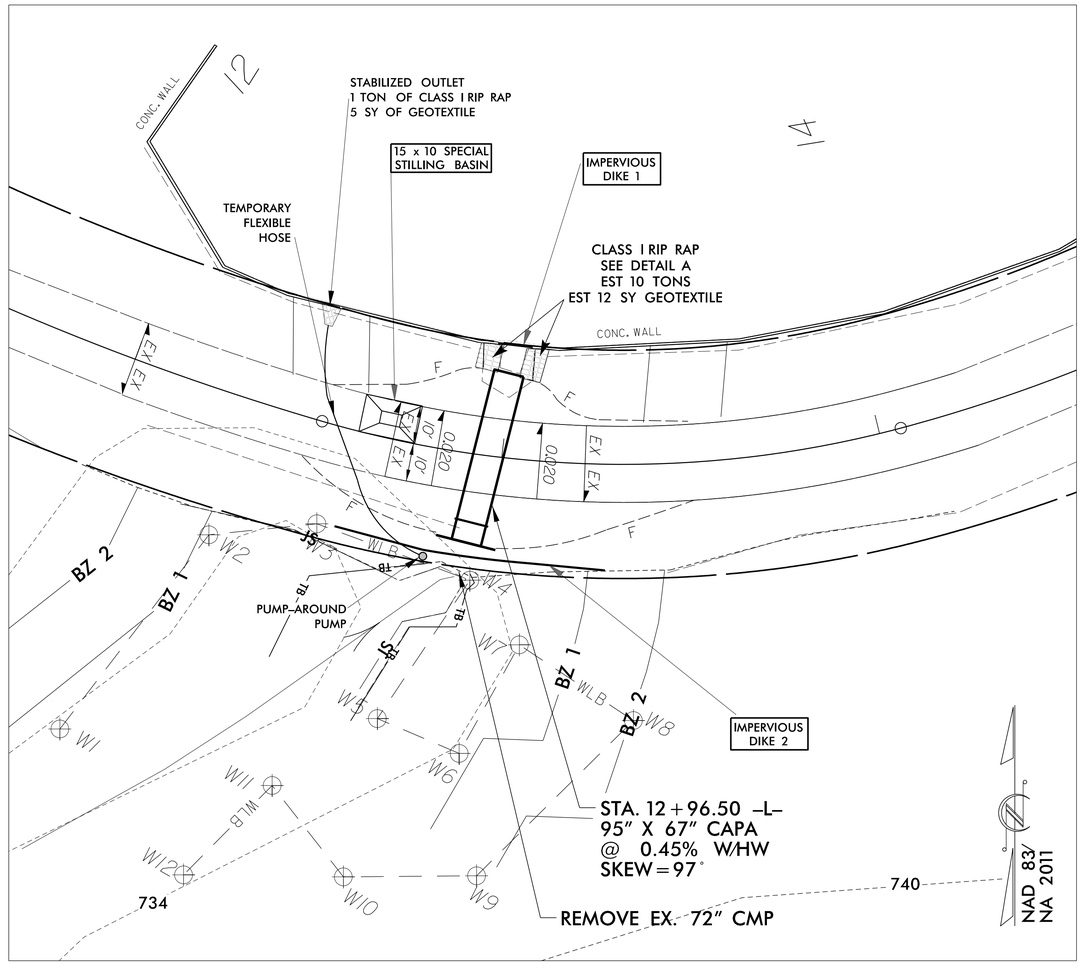
$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.C16	EC-4A/CONST.4
R/W SHEET NO.	____

20 10 0 20 40

GRAPHIC SCALE

CONSTRUCTION SEQUENCE



1. INSTALL TEMPORARY SEDIMENT CONTROL DEVICES: PERIMETER EROSION CONTROL, SAFETY FENCING, AND JURISDICTIONAL FLAGGING.
2. INSTALL SPECIAL STILLING BASIN (SILT BAG) WITHIN PROJECT RIGHT-OF-WAY. PUMP ALL EFFLUENT INTO SPECIAL STILLING BASIN.
3. INSTALL IMPERVIOUS DIKE 1 (SAND BAGS) AT DOWNSTREAM CONCRETE WEIR OPENING AND DEWATERING PUMP.
4. REMOVE 13' MIN. OF EX. 72" CMP AT UPSTREAM END.
5. INSTALL IMPERVIOUS DIKE 2 A MIN. OF 1' INSIDE EX. R/W AND FROM WETLAND BOUNDARIES.
6. INSTALL PUMP AROUND, OUTLET STABILIZATION, AND DEWATER AS REQUIRED FOR CONSTRUCTION.
7. PERFORM REQUIRED EXCAVATION FOR CULVERT INCLUDING COMPLETE REMOVAL OF EX. 72" CMP.
8. CONSTRUCT PROPOSED CULVERT, UPSTREAM HEADWALL, DOWNSTREAM CHANNEL IMPROVEMENTS, BACKFILL AND CONSTRUCT PROPOSED ROADWAY PER PLANS.
9. REMOVE TEMPORARY IMPERVIOUS DIKES, ANY ACCUMULATED SEDIMENT, AND ALLOW FLOW THROUGH NEWLY CONSTRUCTED CULVERT.
10. PREPARE AND STABILIZE SLOPES AND OTHER DISTURBED AREAS. AREAS WITHIN JURISDICTIONAL WATERS AND WETLANDS SHALL BE RESTORED TO THE PRE-PROJECT CONDITIONS.
11. UPON STABILIZATION OF ALL DISTURBED AREAS, REMOVE ALL TEMPORARY SEDIMENT CONTROL DEVICES.

NOTE:
ALL EROSION CONTROL DEVICES SHOWN ARE LOCATED WITHIN EXISTING R/W OR EASEMENT.

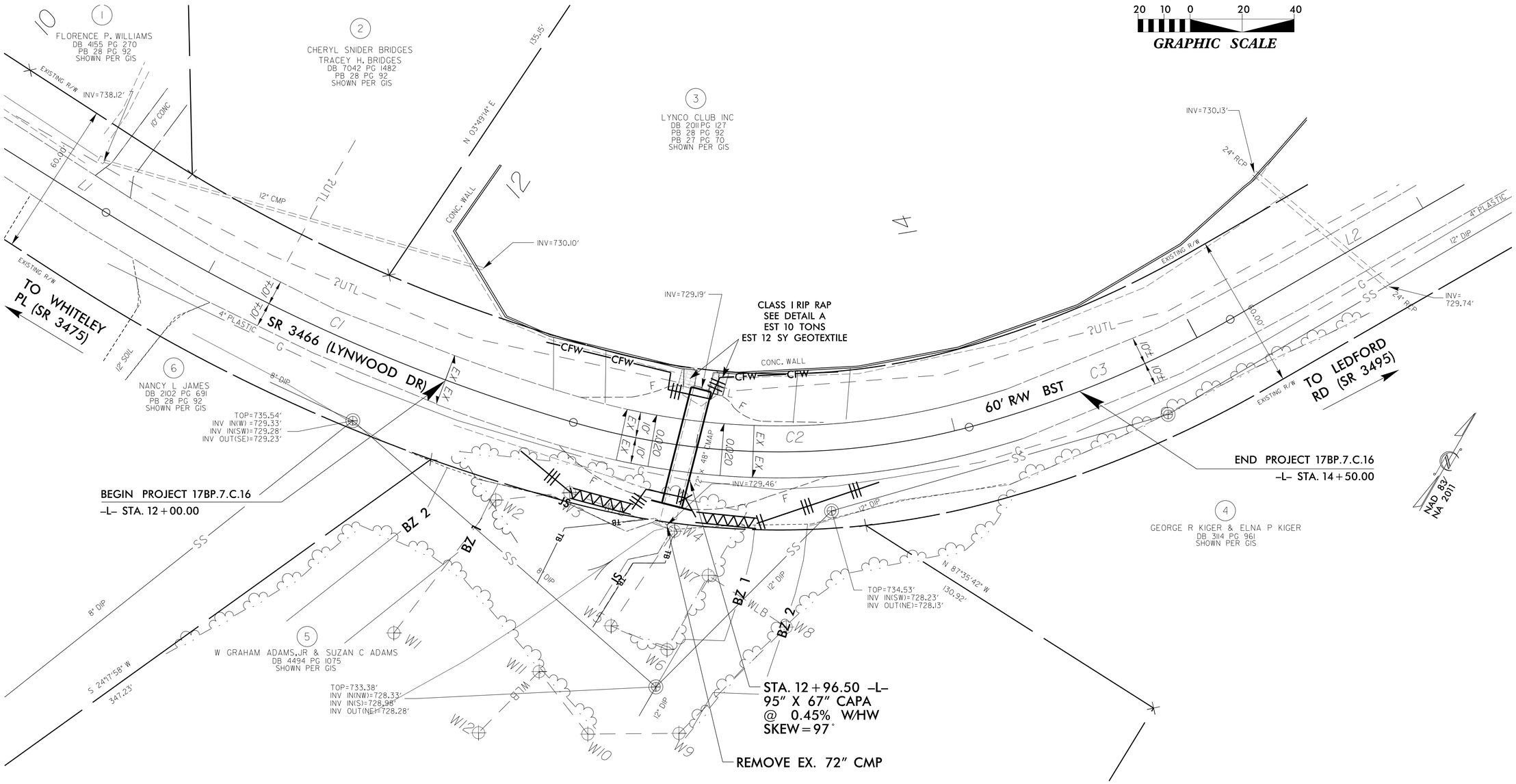
REVISIONS

8/17/99

$$$$$SYSTIME$$$$$
$$$$$DGN$$$$$
$$$$$USERNAME$$$$$

PROJECT REFERENCE NO.	SHEET NO.
17BP.7.C.16	EC-5/CONST.4
R/W SHEET NO.	____

FINAL EROSION CONTROL
FOR CONSTRUCTION
SHEET 4



NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

NOTE:
ALL EROSION CONTROL DEVICES SHOWN ARE LOCATED WITHIN EXISTING R/W OR EASEMENT.

Place Matting for Erosion Control on Slope as Work Allows.
Sta. 12+00 to Sta. 14+50

REVISIONS

8/17/99

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
17BP.7.C.16	X-1

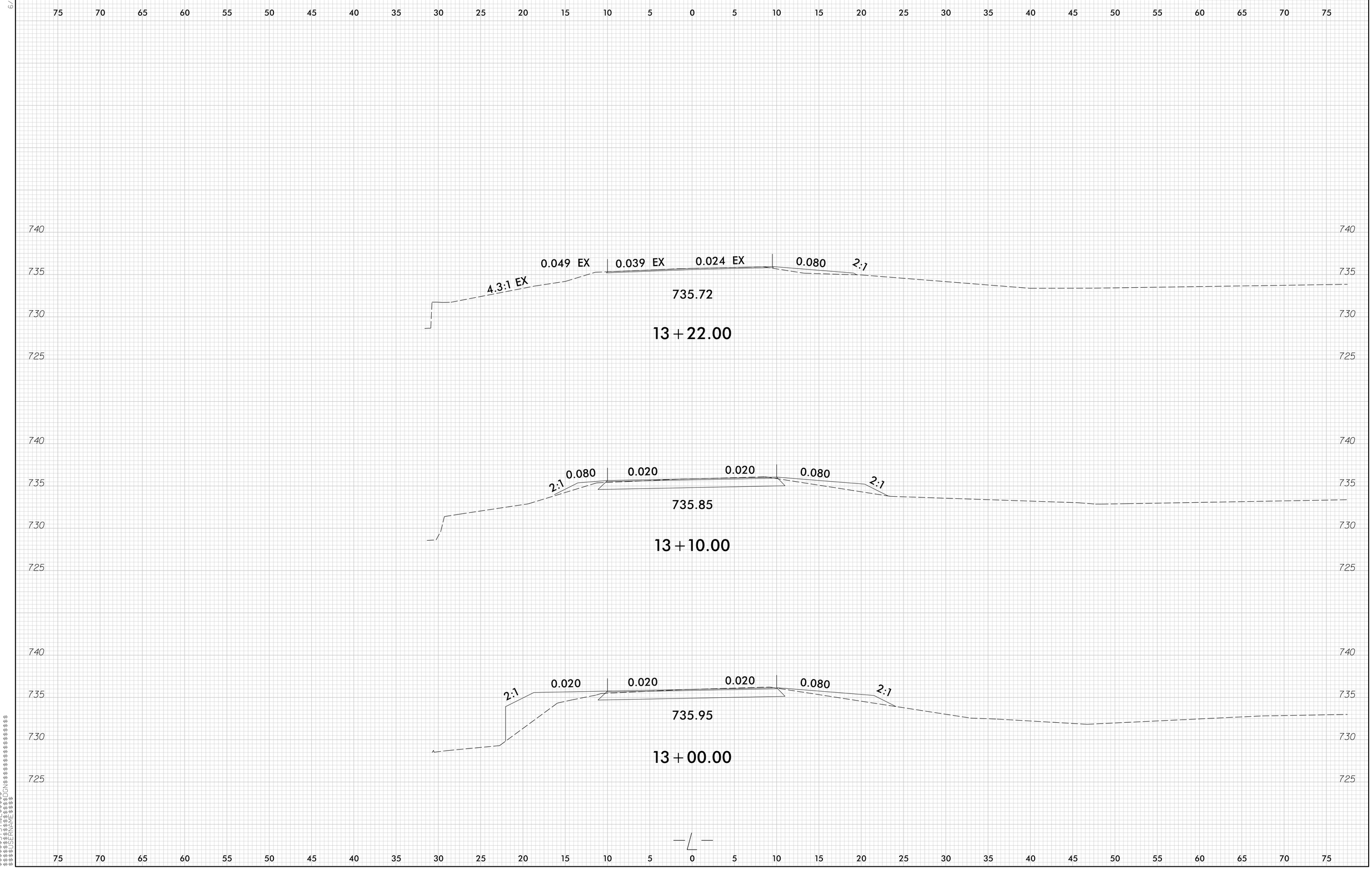
6/23/16
$$$$$SYSTIME$$$$$
$$$$$DGN$$$$$
$$$$USERNAME$$$$

PROJ. REFERENCE NO.	SHEET NO.
17BP.7.C.16	X-2

6/23/16
$$$$$SYSTIME$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.7.C.16	X-3



$$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$$$$$USERNAME$$$$DGN$$$$$$$$$$$$$$$$$$$$$

PROJ. REFERENCE NO.	SHEET NO.
17BP.7.C.16	X-4

6/23/16
$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	17BP.7.C.16	X-5