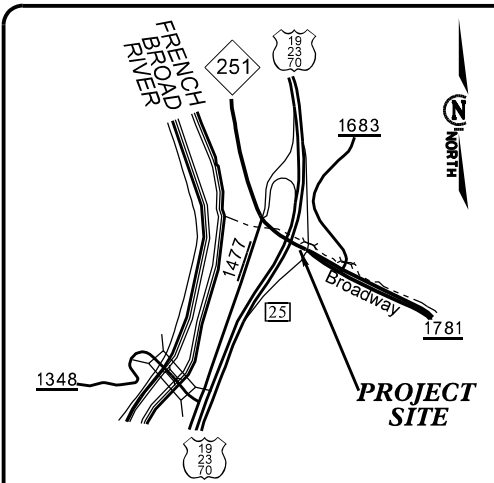


09/08/99

TIP PROJECT: BL-0005

CONTRACT: DM00379



See Sheet 1A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

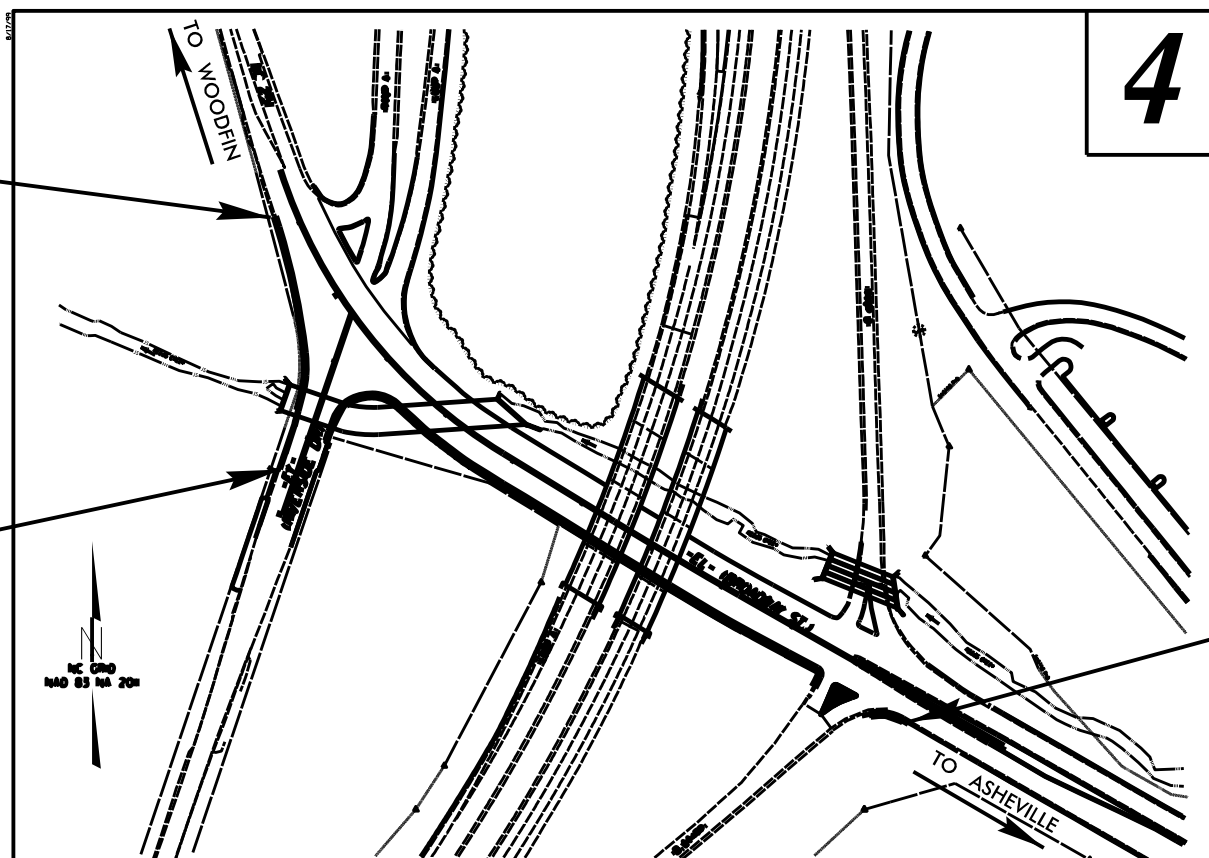
LOCATION: ALONG SR 1781 BROADWAY AND ALONG NC 251 AND
SR 1477 RIVERSIDE DRIVE

TYPE OF WORK: INSTALL SIDEWALK, CURB RAMPS, CONCRETE ISLAND,
SIGNALS AND RETAINING WALL

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BL-0005	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
49460.1.1	0251040	DESIGN	
49460.3.1	0251040	CONST	

END TIP PROJECT BL-0005
-EL- STA 21+18.27

BEGIN CONSTRUCTION
-EY- STA 10+49.97



BEGIN TIP PROJECT BL-0005
-EL- STA 11+16.03

GRAPHIC SCALES



DESIGN DATA

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT W-5713X = 0.20 MILES

Prepared in the Office of:
DIVISION 13 DDC UNIT
55 Orange St., Asheville NC, 28801

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:
JUNE 15, 2022

PROJECT ENGINEER

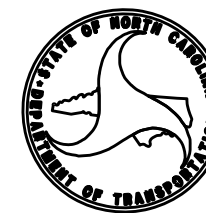
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



ROADWAY DESIGN
ENGINEER

8/17/99

SHEET NUMBER	INDEX OF SHEETS SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2A THRU 2E	ROADWAY DETAILS
3	SURVEY CONTROL SHEET
4	PLAN SHEETS
TMP-1 THRU TMP-5	TRANSPORTATION MANAGEMENT PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
SIG-1 THRU SIG-1.1	SIGNAL PLANS
W-1	RETAINING WALL PLANS

GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

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

TEMPORARY SHORING:
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

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

UTILITIES:
UTILITIES OWNERS ON THIS PROJECT ARE: DUKE ENERGY, AT&T
DOMINION GAS, & MSD
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

CURB RAMPS:
CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS.
CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-16-2018
REV.

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 8 - INCIDENTALS	
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.05	Curb Ramp - Proposed Curb & Gutter
852.01	Concrete Islands
DIVISION 11 - WORK ZONE TRAFFIC CONTROL	
1101.01	Work Zone Advance Warning Signs
1101.02	Temporary Lane Closures
1101.04	Temporary Shoulder Closures
1101.11	Traffic Control Design Tables
1110.02	Portable Work Zone Signs
1115.01	Flashing Arrow Boards
1130.01	Drum
1165.01	Truck Mounted Attenuator - Delineation
DIVISION 12 - Pavement Markings, Markers and Delineation	
1205.01	Pavement Marking - Line Types and Offsets
1205.04	Pavement Markings - Intersections
1205.07	Pavement Markings - Pedestrian Crosswalks

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	----- MLB
Proposed Wetland Boundary	----- MLB
Existing Endangered Animal Boundary	----- EAB
Existing Endangered Plant Boundary	----- EPB
Existing Historic Property Boundary	----- HPB
Known Contamination Area: Soil	----- S
Potential Contamination Area: Soil	----- S
Known Contamination Area: Water	----- W
Potential Contamination Area: Water	----- W
Contaminated Site: Known or Potential	☠ ?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
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	-----
False Sump	-----

RAILROADS:

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

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	◆
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	⊠
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	-----
New Right of Way Line with Pin and Cap	-----
New Right of Way Line with Concrete or Granite RW Marker	-----
New Control of Access Line with Concrete CA Marker	-----
Existing Control of Access	-----
New Control of Access	-----
Existing Easement Line	-----
New Temporary Construction Easement	-----
New Temporary Drainage Easement	-----
New Permanent Drainage Easement	-----
New Permanent Drainage / Utility Easement	-----
New Permanent Utility Easement	-----
New Temporary Utility Easement	-----
New Aerial Utility Easement	-----

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	⊙
Storm Sewer	-----

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊙
Power Line Tower	⊠
Power Transformer	⊠
U/G Power Cable Hand Hole	-----
H-Frame Pole	-----
U/G Power Line LOS B (S.U.E.*)	-----
U/G Power Line LOS C (S.U.E.*)	-----
U/G Power Line LOS D (S.U.E.*)	-----

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊙
Telephone Pedestal	□
Telephone Cell Tower	⊙
U/G Telephone Cable Hand Hole	-----
U/G Telephone Cable LOS B (S.U.E.*)	-----
U/G Telephone Cable LOS C (S.U.E.*)	-----
U/G Telephone Cable LOS D (S.U.E.*)	-----
U/G Telephone Conduit LOS B (S.U.E.*)	-----
U/G Telephone Conduit LOS C (S.U.E.*)	-----
U/G Telephone Conduit LOS D (S.U.E.*)	-----
U/G Fiber Optics Cable LOS B (S.U.E.*)	-----
U/G Fiber Optics Cable LOS C (S.U.E.*)	-----
U/G Fiber Optics Cable LOS D (S.U.E.*)	-----

WATER:

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

TV:

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

GAS:

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

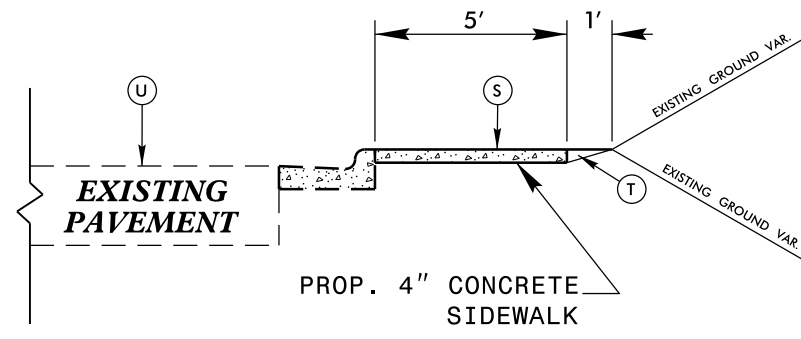
SANITARY SEWER:

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

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	-----
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.

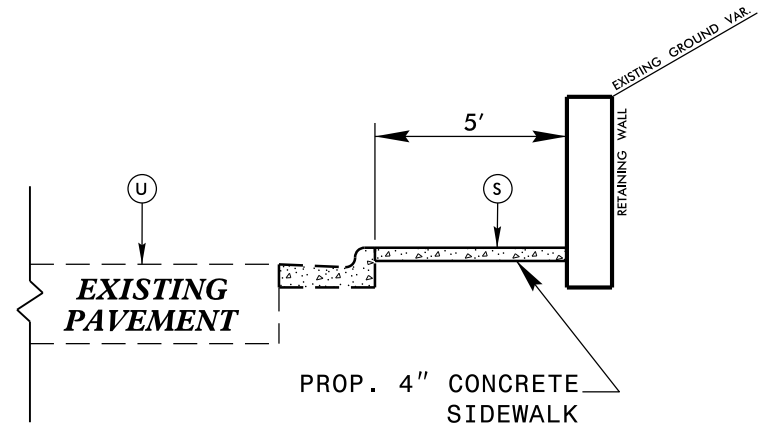
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BL-0005	2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

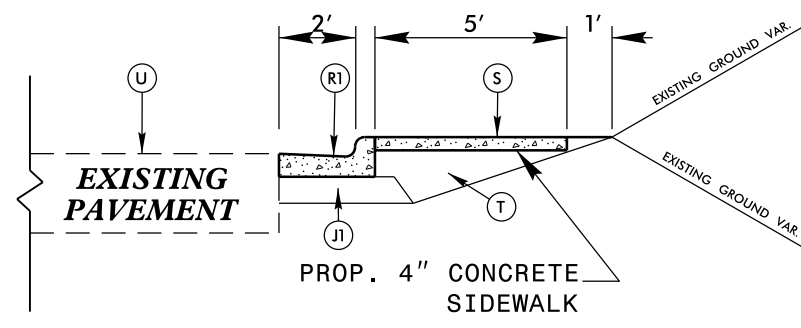
- EL- STA. 11+16.00 TO -EL- STA. 11+61.15
- EL- STA. 12+44.26 TO -EL- STA. 13+50
- EL- STA. 16+07.00 TO -EY- STA. 11+03.58



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

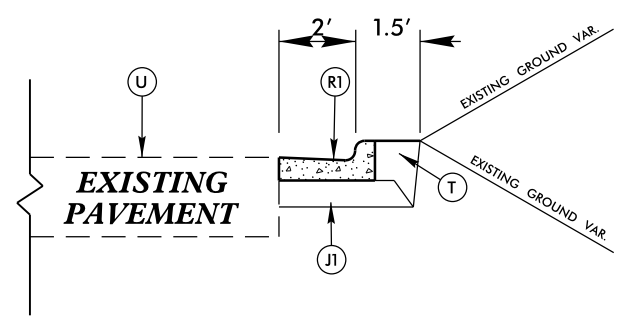
- EL- STA. 13+50 TO -EL- STA. 16+07



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

- EL- STA. 21+18.27 TO -EY- STA. 11+43.74



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

- EL- STA. 10+49.97 TO -EY- STA. 11+43.74

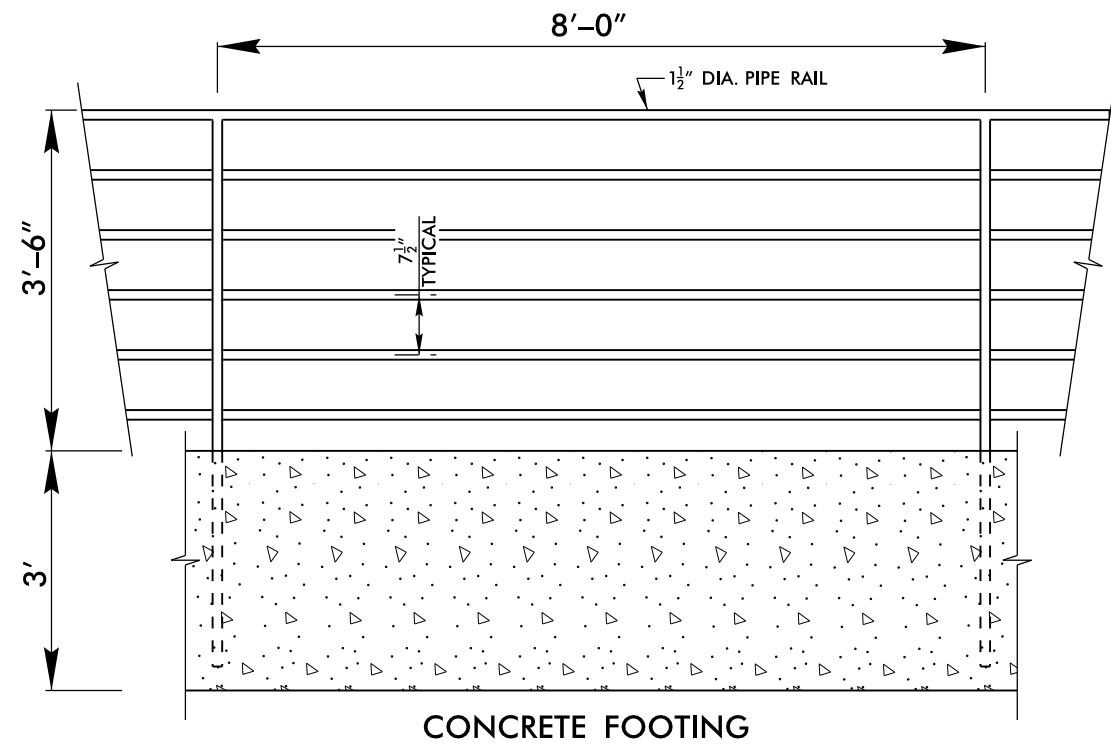
J1	4" INCIDENTAL STONE
R1	2'6" CURB AND GUTTER
S	4" SIDEWALK
T	SHOULDER RECONSTRUCTION
U	EXISTING ASPHALT

8/17/99
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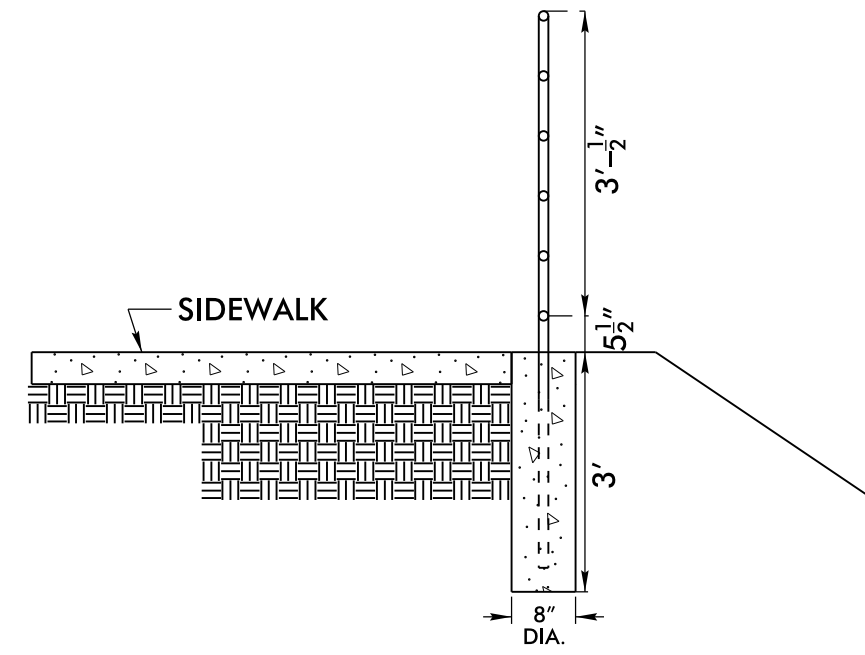
REVISIONS

8/17/99

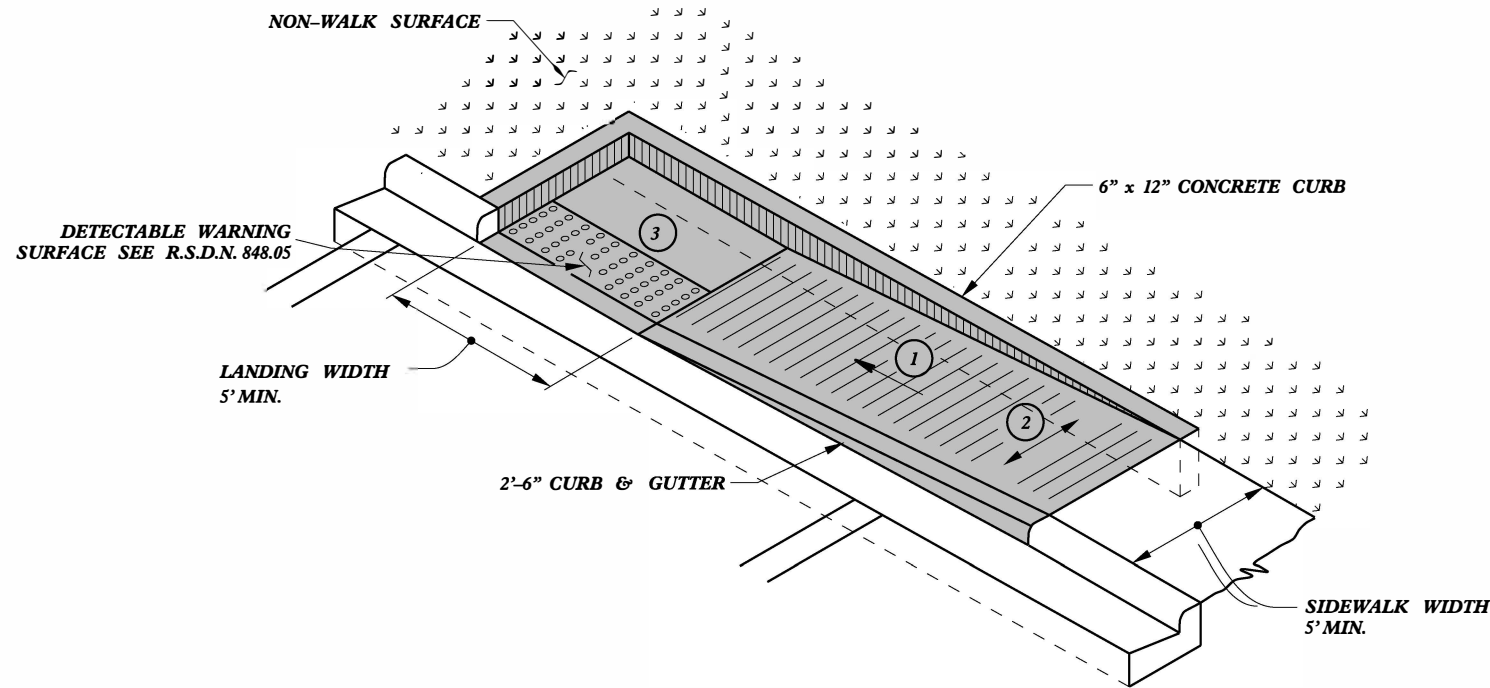
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ELEVATION OF HANDRAIL

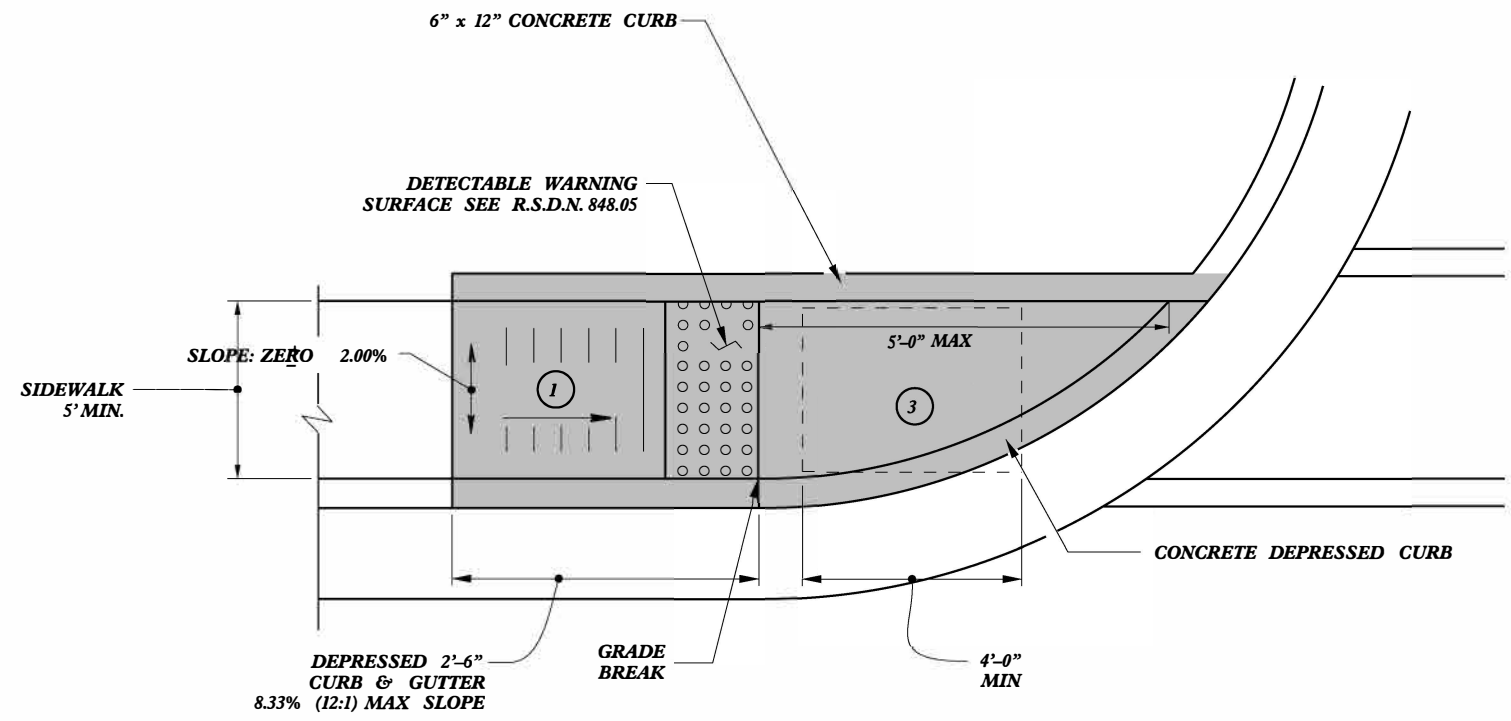


NOTES:



TYPE 1A

 PAY LIMITS FOR CURB RAMP



TYPE 1

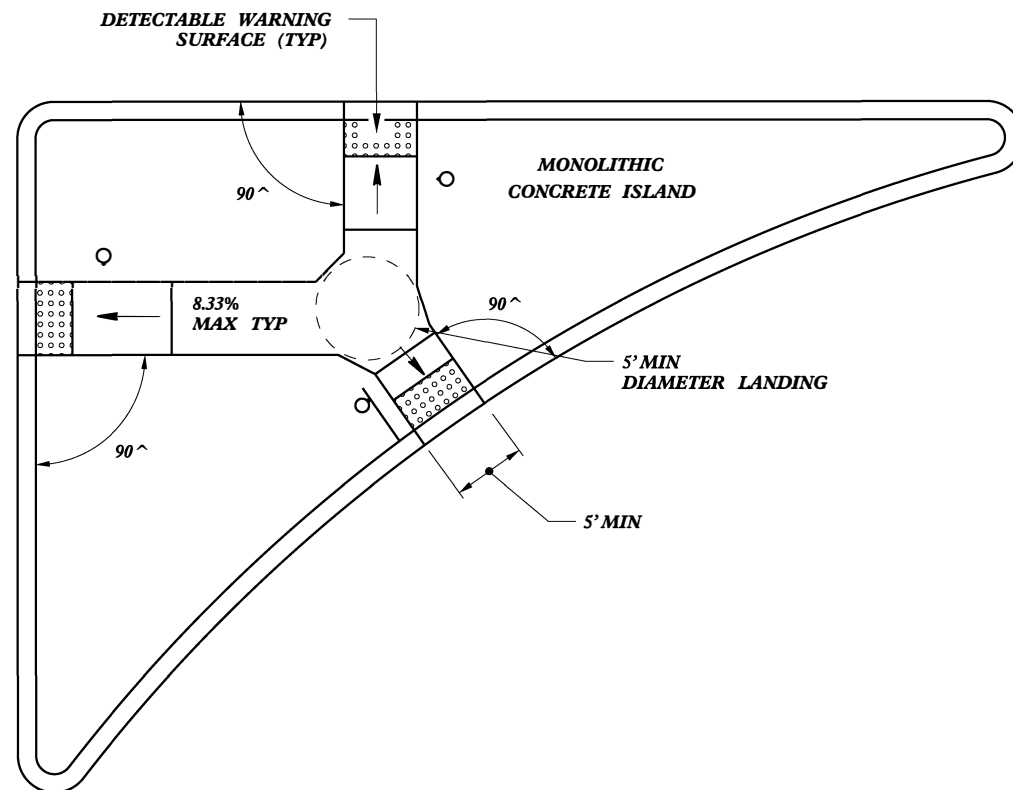
- ① 8.33% (12:1) MAX RAMP SLOPE
- ② CROSS SLOPE: 2.00%
- ③ CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

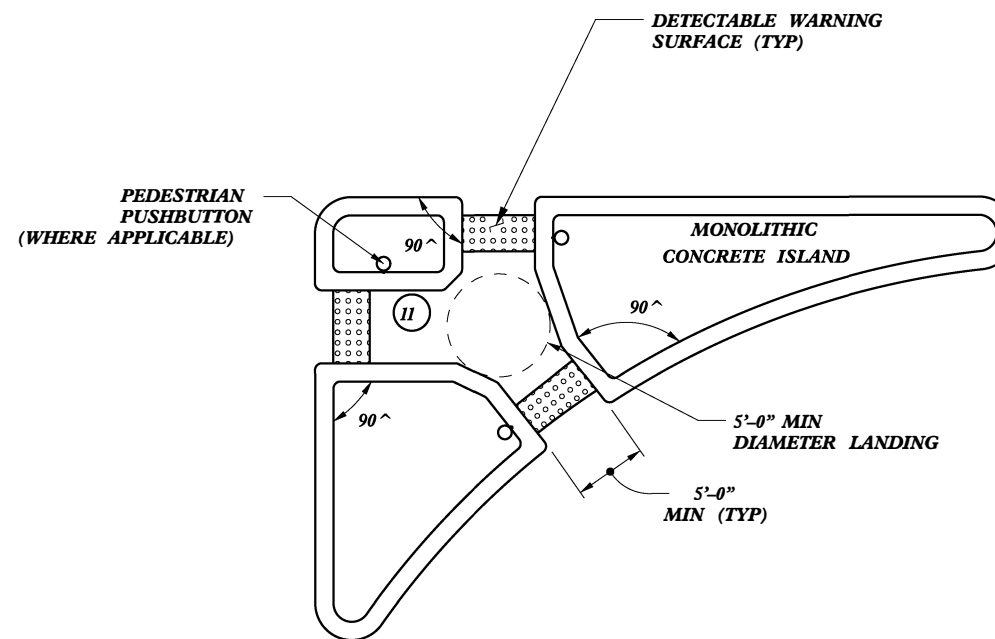
CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
CURB RAMPS	
Directional Ramps	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC. :stds/2012CurbRamp/CurbRampDetails.dgn	

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 Jhowerton AT C50237501

5/14/99



**LARGE ISLAND
CURB RAMPS**



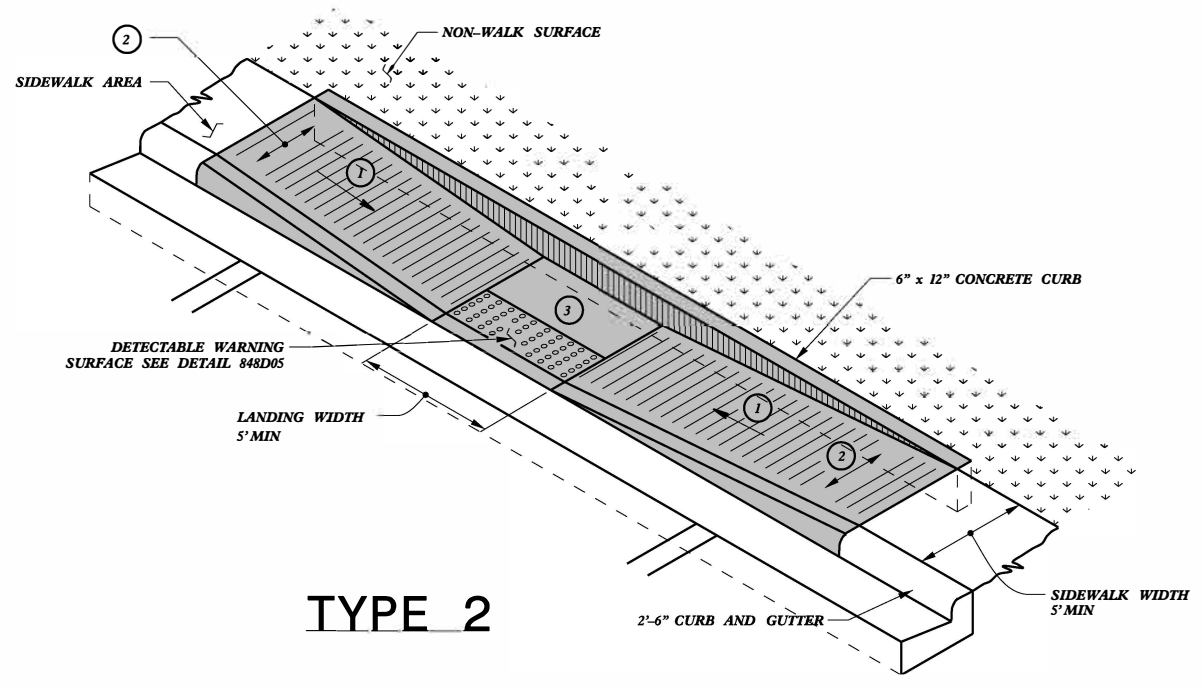
**SMALL ISLAND
WITH CUT THROUGH**

-SEE ROADWAY DETAIL DRAWING 848D05 FOR DETECTABLE WARNING SURFACE AND FOR RAMP NOTES.

-SEE ROADWAY STANDARD DRAWING 852.01 FOR CONCRETE ISLAND DIMENSIONS.

04-AUG-2011 09:03
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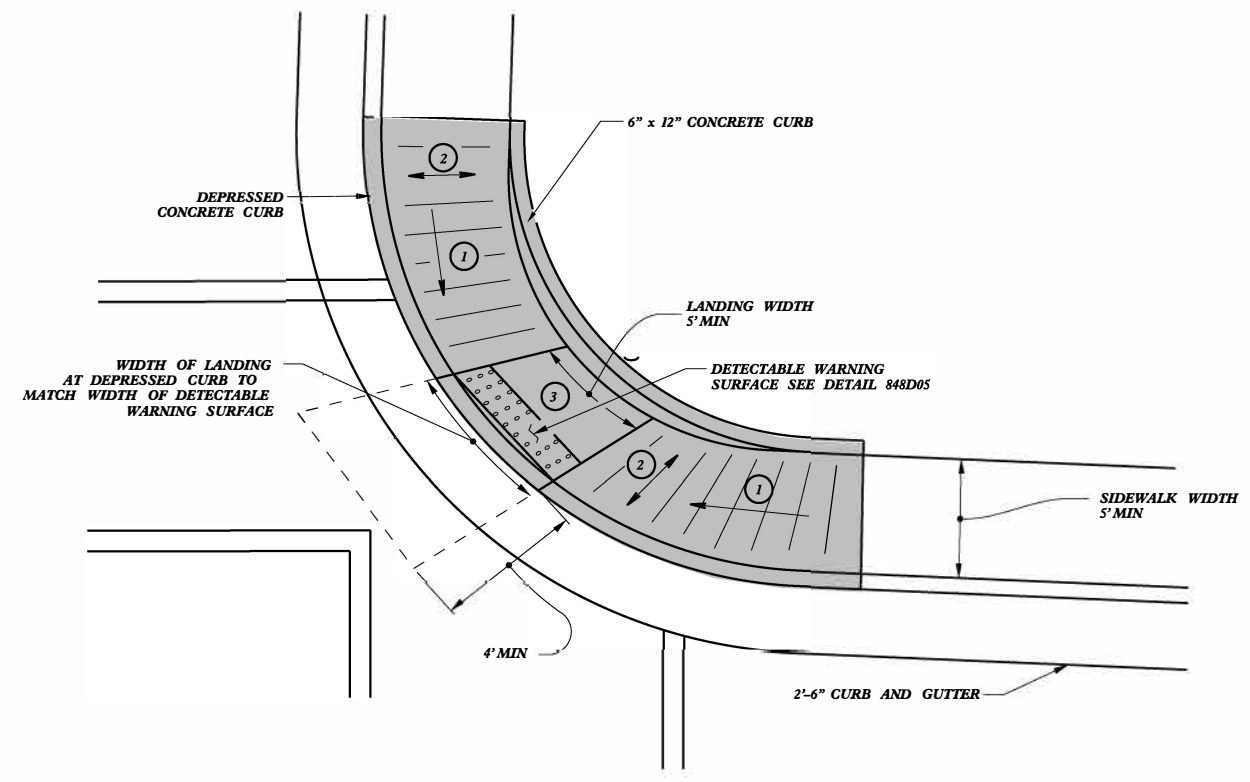
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Office 919-707-6950 FAX 919-250-4119	
CURB RAMPS	
Median or Turn Lane Islands	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC: :stds\2012CurbRamp\CurbRampDetails.dgn	



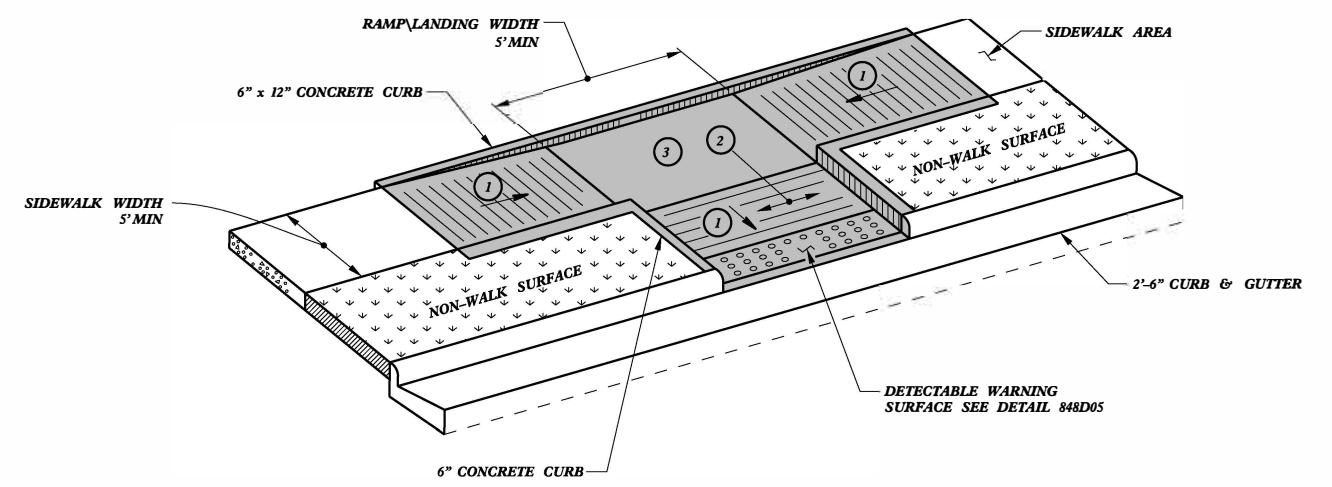
TYPE 2

PAY LIMITS FOR CURB RAMP

- ① 8.33% (12:1) MAX RAMP SLOPE
- ② CROSS SLOPE: 2.00%
- ③ CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



TYPE 2A

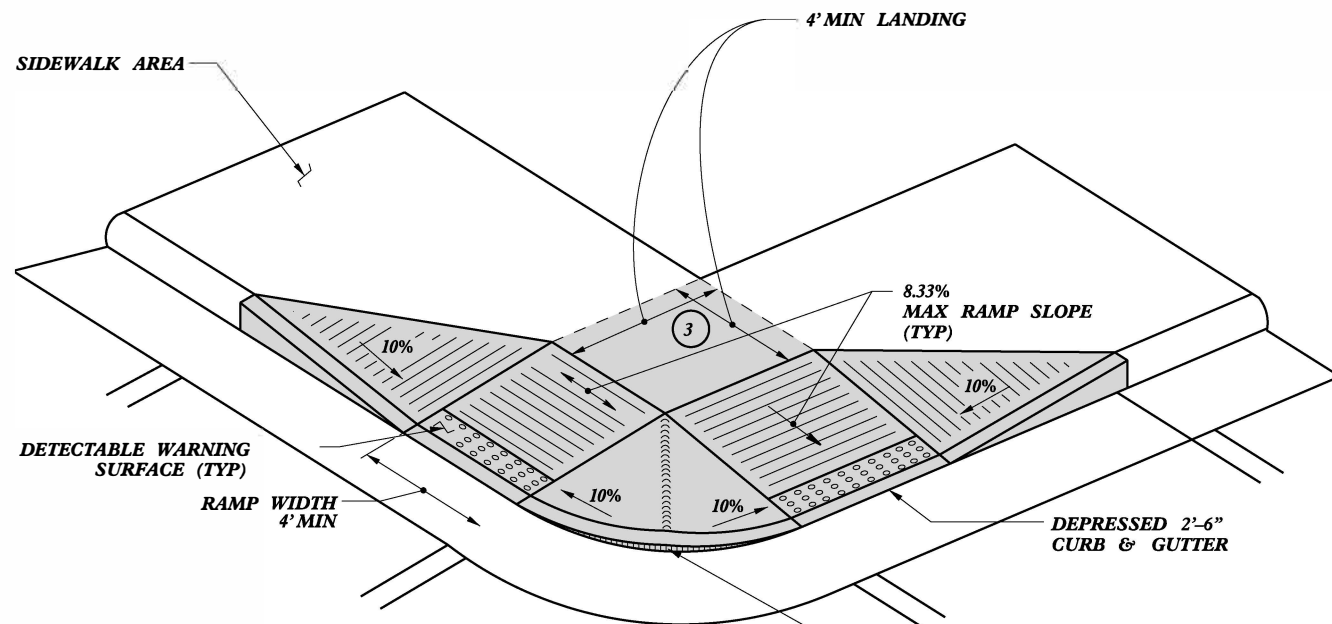


TYPE 3

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
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CURB RAMPS	
Parallel Ramps	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
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REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

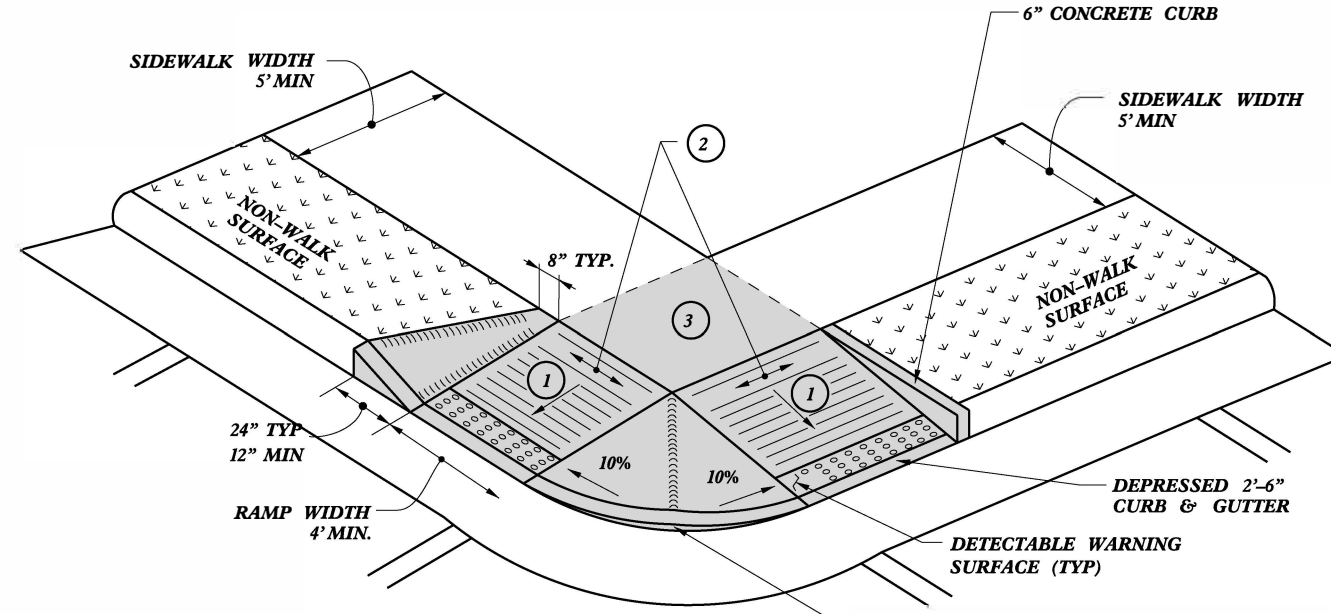
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 J.Howerton AT CS0237501



TYPE 4



TYPE 5



TYPE 4A

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

PAY LIMITS FOR CURB RAMP

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REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
CURB RAMPS	
Shared Landing	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
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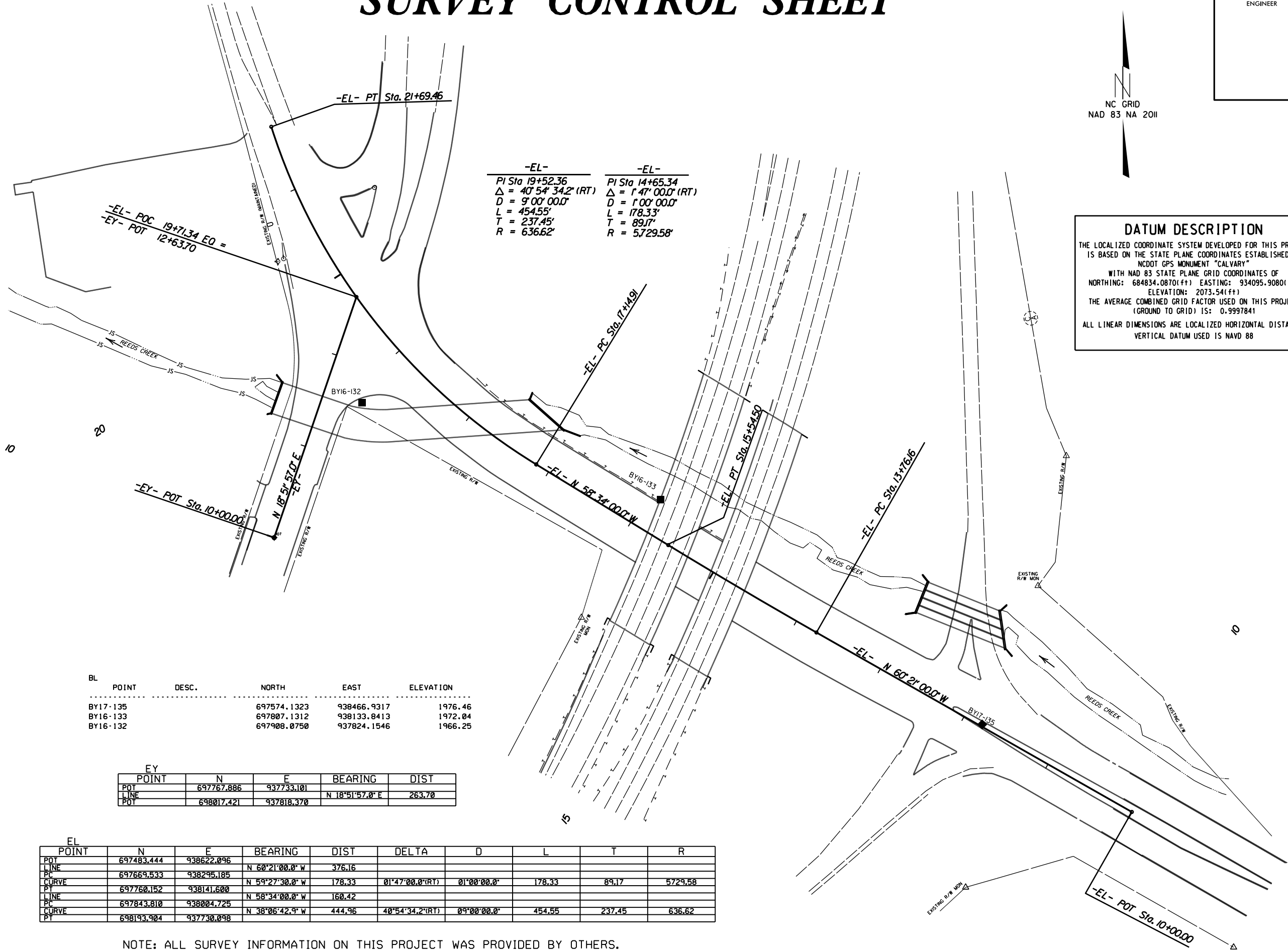
8/17/99

SURVEY CONTROL SHEET

PROJECT REFERENCE NO. BL-0005	SHEET NO. 3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NC GRID
NAD 83 NA 2011

DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT GPS MONUMENT "CALVARY" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 684834.0870(ft) EASTING: 934095.9080(ft) ELEVATION: 2073.54(ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9997841
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88



-EL-	-EL-
PI Sta 19+52.36	PI Sta 14+65.34
$\Delta = 40^\circ 54' 34.2''$ (RT)	$\Delta = 1^\circ 47' 00.0''$ (RT)
D = 9'00'00.0"	D = 1'00'00.0"
L = 454.55'	L = 178.33'
T = 237.45'	T = 89.17'
R = 636.62'	R = 5729.58'

BL POINT	DESC.	NORTH	EAST	ELEVATION
BY17-135		697574.1323	938466.9317	1976.46
BY16-133		697807.1312	938133.8413	1972.04
BY16-132		697908.0750	937824.1546	1966.25

EY POINT	N	E	BEARING	DIST
POT	697767.886	937733.101		
LINE			N 18°51'57.0" E	263.70
POT	698017.421	937818.370		

EL POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	697483.444	938622.096							
LINE			N 60°21'00.0" W	376.16					
PC	697669.533	938295.185	N 59°27'30.0" W	178.33	01°47'00.0" (RT)	01°00'00.0"	178.33	89.17	5729.58
PT	697760.152	938141.600							
LINE	697843.810	938004.725	N 58°34'00.0" W	160.42					
PC	697843.810	938004.725							
CURVE			N 38°06'42.9" W	444.96	40°54'34.2" (RT)	09°00'00.0"	454.55	237.45	636.62
PT	698193.904	937730.098							

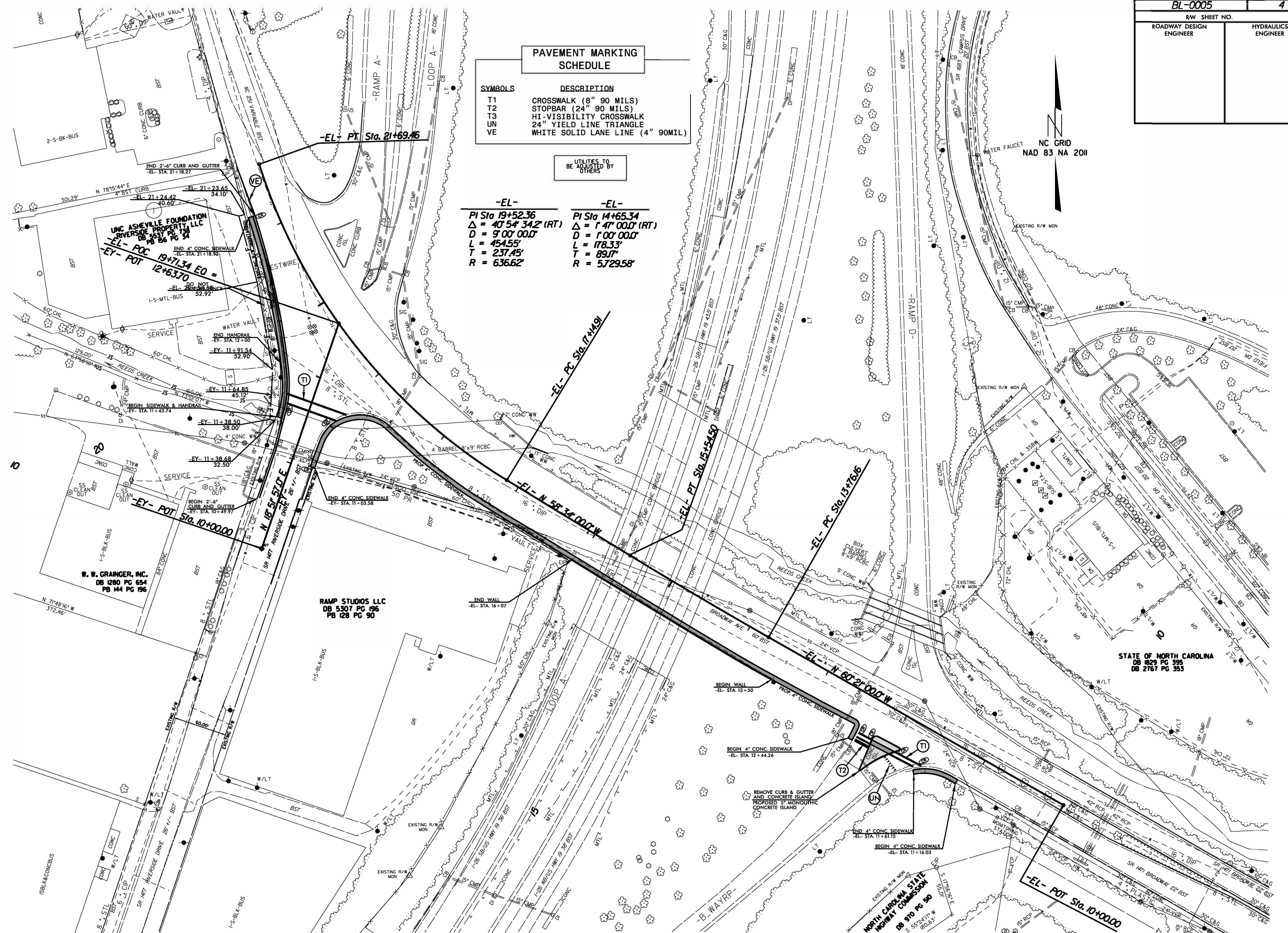
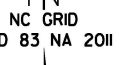
NOTE: ALL SURVEY INFORMATION ON THIS PROJECT WAS PROVIDED BY OTHERS.

I3-061-20218145
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 8/17/99 11:58:58 AM

PAVEMENT MARKING SCHEDULE	
SYMBOLS	DESCRIPTION
T1	CROSSWALK (8" 90 MILS)
T2	STOPBAR (24" 90 MILS)
T3	HI-VISIBILITY CROSSWALK
UN	24" YIELD LINE TRIANGLE
VE	WHITE SOLID LANE LINE (4" 90MIL)

UTILITIES TO BE ADJUSTED BY OTHERS

-EL-	-EL-
PI Sta 19+52.36	PI Sta 14+65.34
$\Delta = 40^{\circ} 54' 34.2" (RT)$	$\Delta = 1^{\circ} 47' 00.0" (RT)$
$D = 9^{\circ} 00' 00.0"$	$D = 1^{\circ} 00' 00.0"$
$L = 454.55'$	$L = 178.33'$
$T = 237.45'$	$T = 89.7'$
$R = 636.62'$	$R = 572958'$



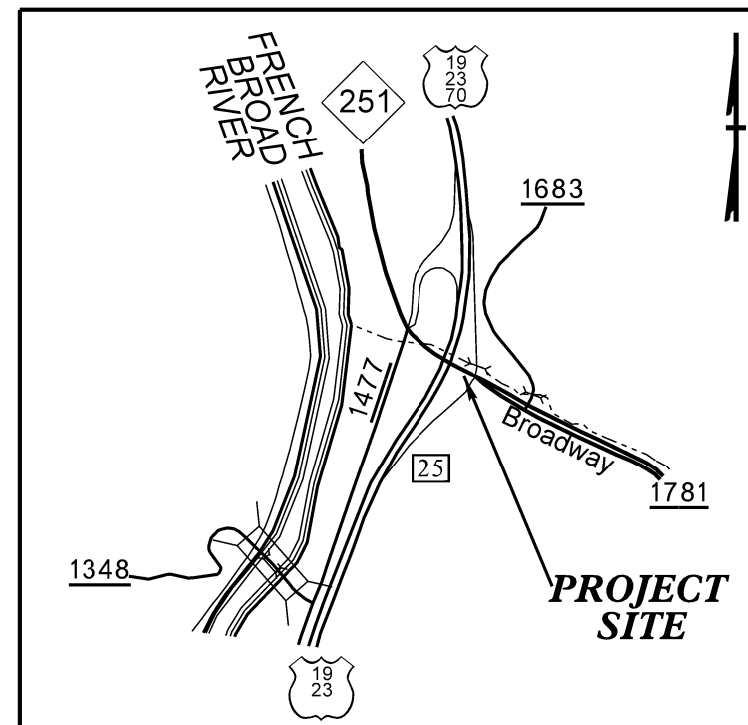
8/17/99

13-001-2021852
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 13-001-2021852
 S:\000\1781\1781\Roadway\Proj\DWG0296 RDY PSH 04.dgn

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

BUNCOMBE COUNTY



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, GENERAL NOTES, AND MANAGEMENT STRATEGIES
TMP-2	TEMPORARY TRAFFIC CONTROL PHASING
TMP-3	TEMPORARY TRAFFIC CONTROL PHASE I
TMP-4	TEMPORARY TRAFFIC CONTROL PHASE II
TMP-5	TEMPORARY TRAFFIC CONTROL PHASE III

SHEET NO.
TMP-1

BL-005

TIP PROJECT:

\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DGN\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

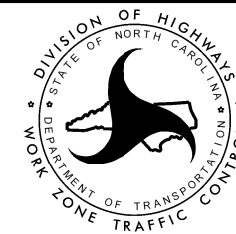


PLANS PREPARED BY:

NCDOT CONTACTS:

PROJECT ENGINEER

PROJECT DESIGN ENGINEER



APPROVED: _____
DATE: _____

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 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1150.01	FLAGGERS
1165.01	TRUCK MOUNTED ATTENUATOR

MANAGEMENT STRATEGIES

-MAINTAIN DRIVEWAY ACCESS TO ALL RESIDENCES/BUSINESSES AT ALL TIMES WITHIN THE PROJECT LIMITS

-THE BIKE LANE WILL BE CLOSED AT TIMES AS NEEDED OR AS DIRECTED THE ENGINEER.

-NC 251 SHALL REMAIN OPEN DURING THE PROJECT DURATION USING NCDOT STANDARD DRAWINGS AND FLAGGERS AS NEEDED

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.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.
- F) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- G) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

 BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

 BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

 BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.
- H) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 200' IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- J) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- K) 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.
- L) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE 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.
- M) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

- N) WHEN LANE CLOSURES ARE NOT IN EFFECT, SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- O) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

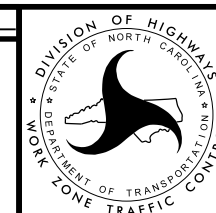
PAVEMENT MARKINGS AND MARKERS

- P) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
N/A	NONE	NONE
- Q) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- R) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- S) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

LOCAL NOTES:
 1) EMERGENCY VEHICLE ACCESS MUST BE MAINTAINED AT ALL TIMES.
 2) NOTIFY BUNCOMBE COUNTY SCHOOL BOARD 30 DAYS BEFORE ANY LANE CLOSURES.

APPROVED: _____ DATE: _____



**ROADWAY STANDARD
DRAWINGS & LEGEND**

PROJECT PHASING

PHASE I

STEP 1

ERECT WORK ZONE ADVANCE WARNING SIGNS ON FUTURE I-26 RAMP/LOOP A & B, -EL- SR 1781 (BROADWAY AVE), NC 251, AND -EY- SR 1477 (RIVERSIDE DR). SEE RDWY STD DWG 1101.01.

STEP 2

USING RDWY STD DWG 1101.02 (SHEET 1 OF 14), CONSTRUCT CONCRETE SIDEWALK, CURB RAMPS AND CURB & GUTTER ON -EL- NC 251 AND -EY- SR 1477 (RIVERSIDE DR) SEE TMP-3.

-EY- STA. 11+28 +/- TO -EL- STA. 21+19 +/- (LEFT SIDE ONLY)

STEP 3

ONCE WORK IS COMPLETED, REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN -EL- NC 251, SR 1781(BROADWAY AVE.) AND -EY- SR 1477 (RIVERSIDE DR) TO TRAFFIC.

WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK REQUIRED IN PHASE I, STEP 2, FROM 7:00PM TO 6:00AM (11 CONSECUTIVE HOURS) AS DIRECTED BY THE ENGINEER. SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES. HOLIDAY AND SPECIAL EVENTS LANE CLOSURE TIME RESTRICTIONS APPLY DURING THE ICT.

PHASE II

STEP 1

INSTALL CMS BOARD ON -EY- SR 1477 (RIVERSIDE DR).

STEP 2

USING RDWY STD DWG 1101.02 (SHEET 3 OF 14) AND FLAGGERS AS NECESSARY, CONSTRUCT RETAINING WALL, CONCRETE SIDEWALK, CURB RAMP AND CURB & GUTTER ON -EL- SR 1871 (BROADWAY AVE) AND SR 1477 (RIVERSIDE DR) SEE TMP-4.

-EY- STA. 11+04 +/- RT TO -EL- STA. 12+45 +/- LT

STEP 3

ONCE WORK IS COMPLETED, DEACTIVATE PORTABLE CMS, REMOVE ALL TRAFFIC CONTROL DEVICES, AND OPEN -EL- SR 1871 (BROADWAY AVE) AND -EY- SR 1477 (RIVERSIDE DR.) TO TRAFFIC.

PHASE III

STEP 1

INSTALL CMS BOARDS ON I-40 RAMP B, -EL- NC 251, AND SR 1871 (BROADWAY AVE)

STEP 2

USING RDWY STD DWG 1101.02 (SHEET 3 OF 14) AND FLAGGERS AS NECESSARY, REMOVE EXISTING MEDIAN RAISED ISLANDS ON -EL- SR 1871 (BROADWAY AVE) AND DELINEATE REMOVED ISLANDS. SEE SHEET TMP-5.

STEP 3

USING RDWY STD DWG 1101.02 (SHEET 3 OF 14) AND FLAGGERS AS NECESSARY, CONSTRUCT CONCRETE MEDIAN ISLAND, SIDEWALK, CURB RAMP AND CURB & GUTTER ON -EL- SR 1871 (BROADWAY AVE) SEE TMP-5.

-EL- STA. 11+16 +/- TO -EL- STA. 12+20 +/- (LEFT SIDE ONLY)

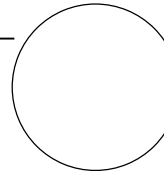

STEP 4

USING RDWY STD DWG 1101.02 (SHEET 3 OF 14) AND FLAGGERS AS NECESSARY, REMOVE ALL TRAFFIC CONTROL DEVICES.

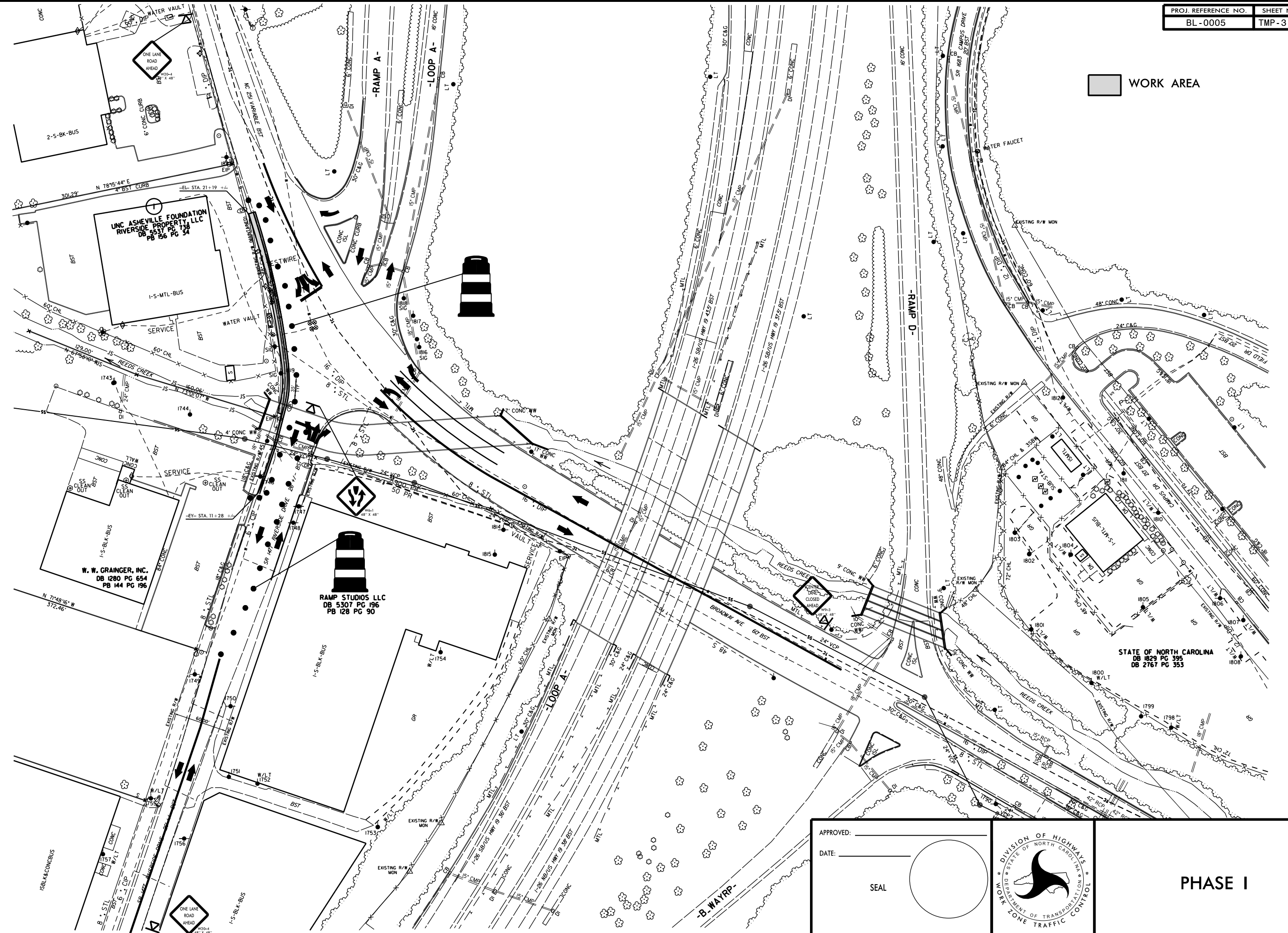
OPEN ALL ROADS AND SIDEWALKS.

WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK REQUIRED IN PHASE III STEP 2 AND STEP 3 FROM 7:00PM TO 6:00AM (11 CONSECUTIVE HOURS) AS DIRECTED BY THE ENGINEER. SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES. HOLIDAY AND SPECIAL EVENTS LANE CLOSURE TIME RESTRICTIONS APPLY DURING THE ICT.

I3-OCT-2021 20:08 S:\DDC\JPF\SR 1781 Broadway at NC 251 Riverside Dr\Traffic\TrafficControl\TCP\DM00296 RDY TMP 02.dgn \$\$\$USERNAME\$\$\$

APPROVED: _____ DATE: _____ <div style="text-align: center; margin-top: 20px;">  <p>SEAL</p> </div>		<h1 style="margin: 0;">PHASING</h1>
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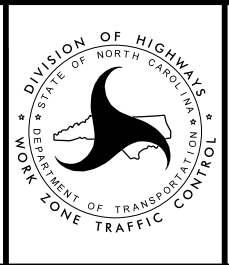
WORK AREA



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APPROVED: _____
 DATE: _____

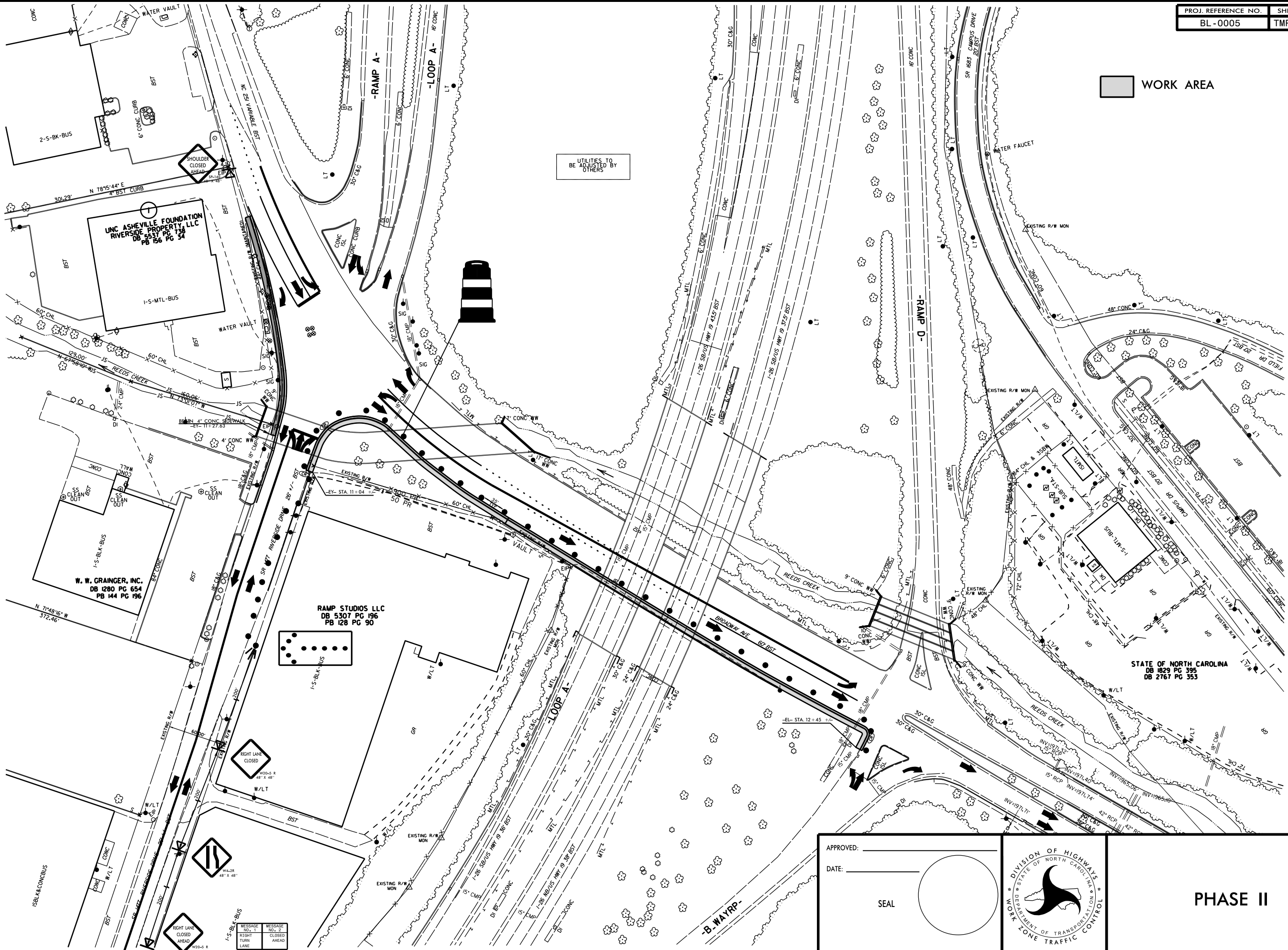
SEAL



PHASE I

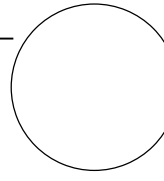
WORK AREA

UTILITIES TO BE ADJUSTED BY OTHERS



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 DATE: _____

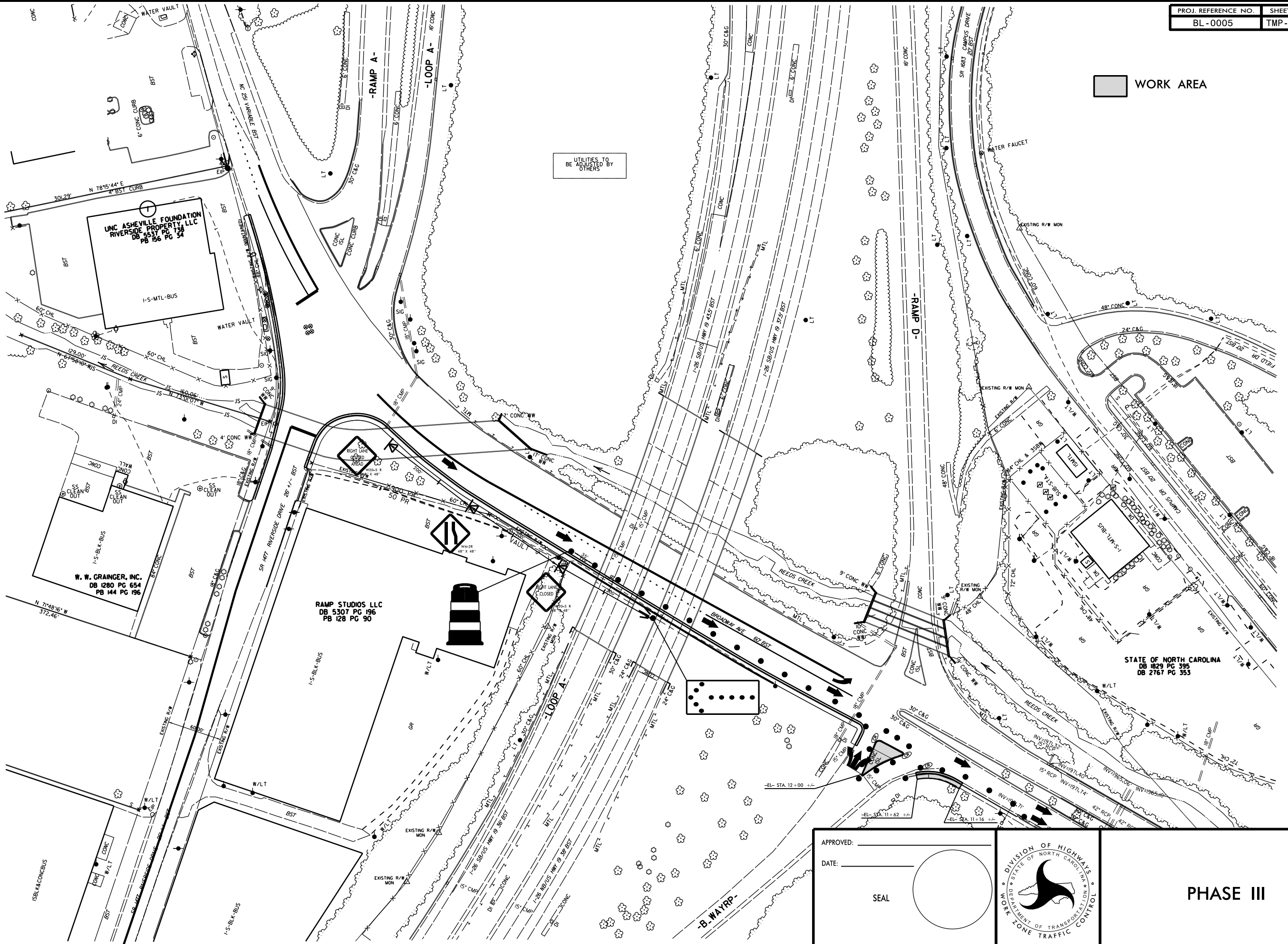


PHASE II

MESSAGE NO. 1	MESSAGE NO. 2
RIGHT LANE CLOSED AHEAD	CLOSED AHEAD
CHANGEABLE MESSAGE SIGN	

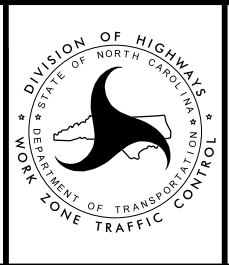
WORK AREA

UTILITIES TO BE ADJUSTED BY OTHERS



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APPROVED: _____
 DATE: _____



PHASE III

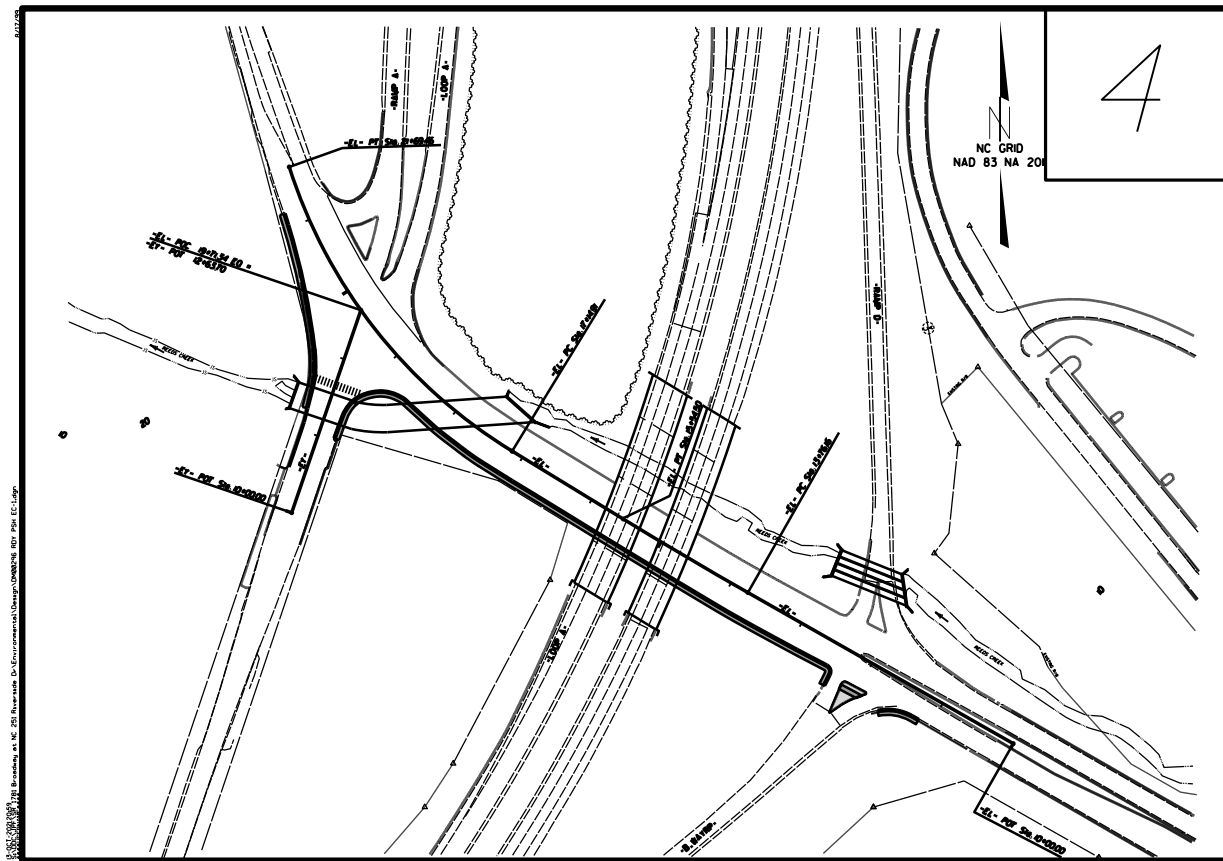
TIP PROJECT: BL-0005

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BL-0005	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

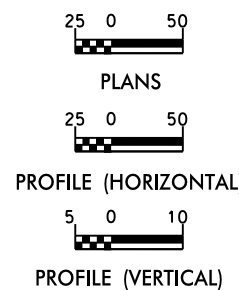
EROSION AND SEDIMENT CONTROL MEASURES

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	SB
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	WCFW
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	WCFW/PAM
1634.01	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
1630.04	Stilling Basin	SB
1630.06	Special Stilling Basin	SSB
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	SB
	Tiered Skimmer Basin	TSSB
	Infiltration Basin	IB



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

GRAPHIC SCALE



ROADSIDE ENVIRONMENTAL UNIT
 DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY
 WITH THE REGULATIONS SET FORTH BY THE
 NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011
 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND
 NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:
DIVISION 13 DDC UNIT
 55 ORANGE STREET
 ASHEVILLE, NC 28801
2018 STANDARD SPECIFICATIONS

Designed by:
Hampton Fletcher 3382
 NAME LEVEL III CERTIFICATION NO.

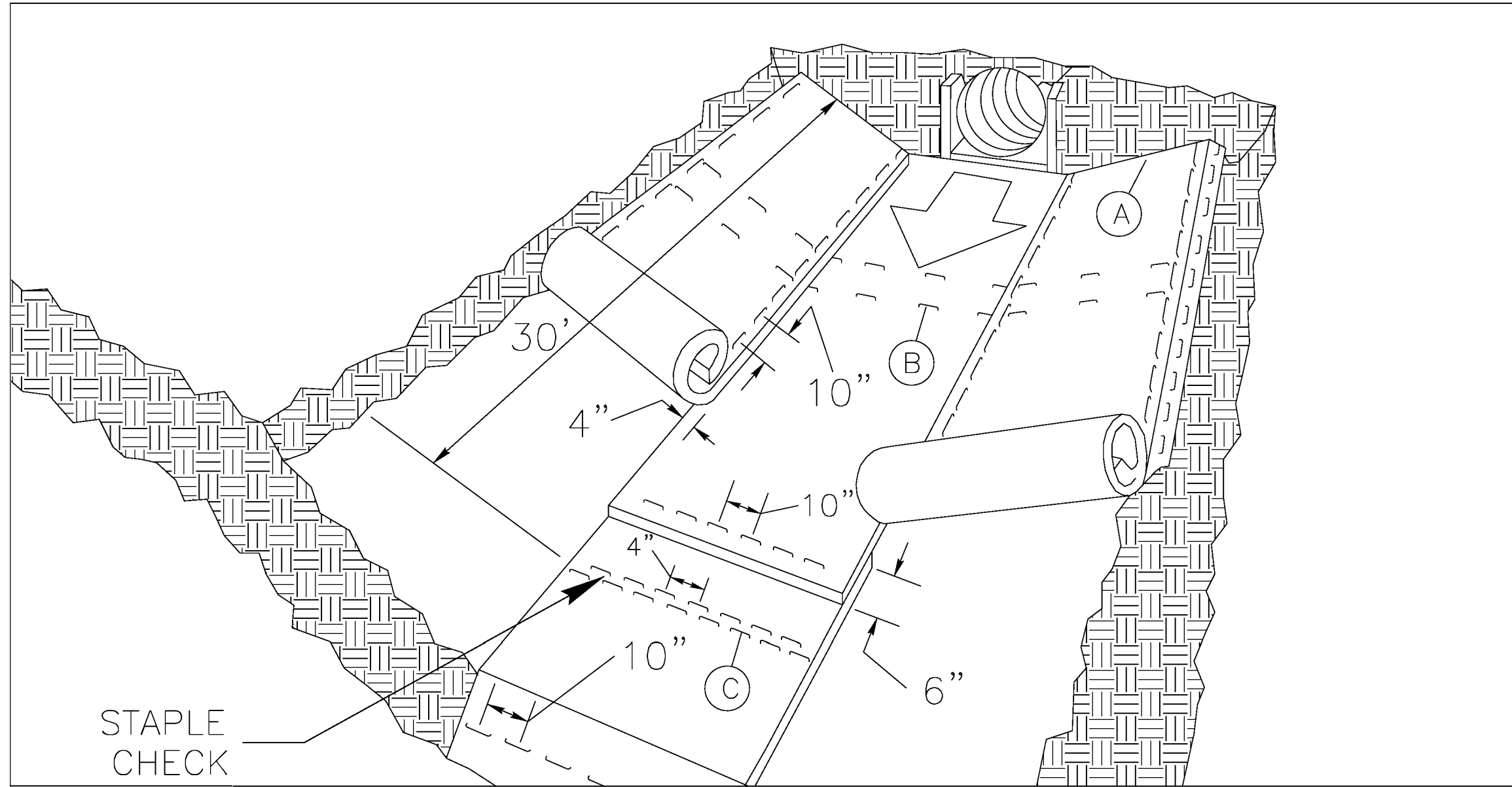
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1633.03 Temporary Rock Silt Check Type C
1630.02 Silt Basin Type A	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	1640.01 Coir Fiber Jaffle
1631.01 Matting Installation	1645.01 Temporary Stream Crossing

PROJECT REFERENCE NO. <i>BL- 0005</i>	SHEET NO. <i>EC-2</i>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATTING INSTALLATION DETAIL



MATTING IN DITCHES

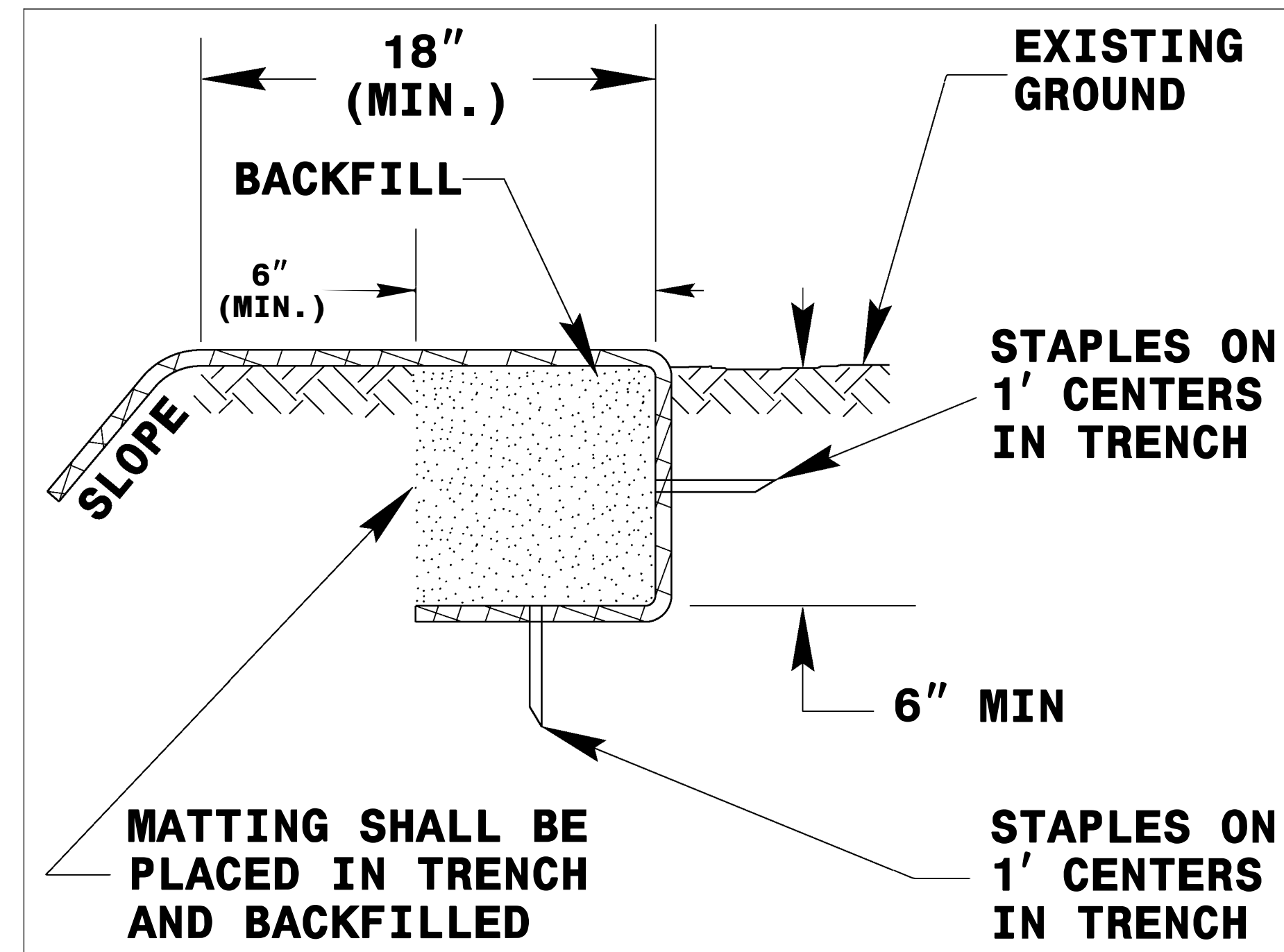
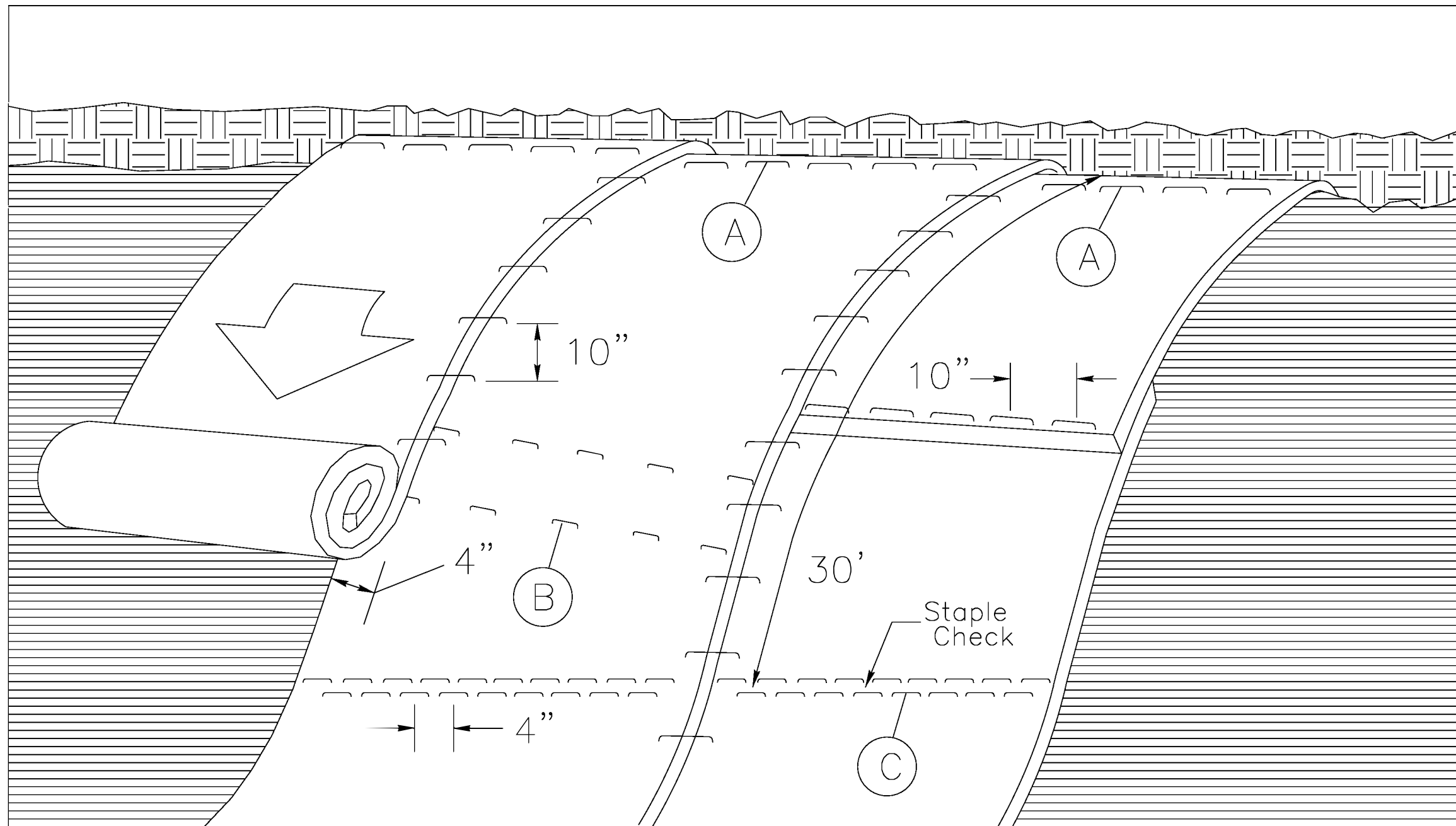


DIAGRAM (A)



MATTING ON SLOPES

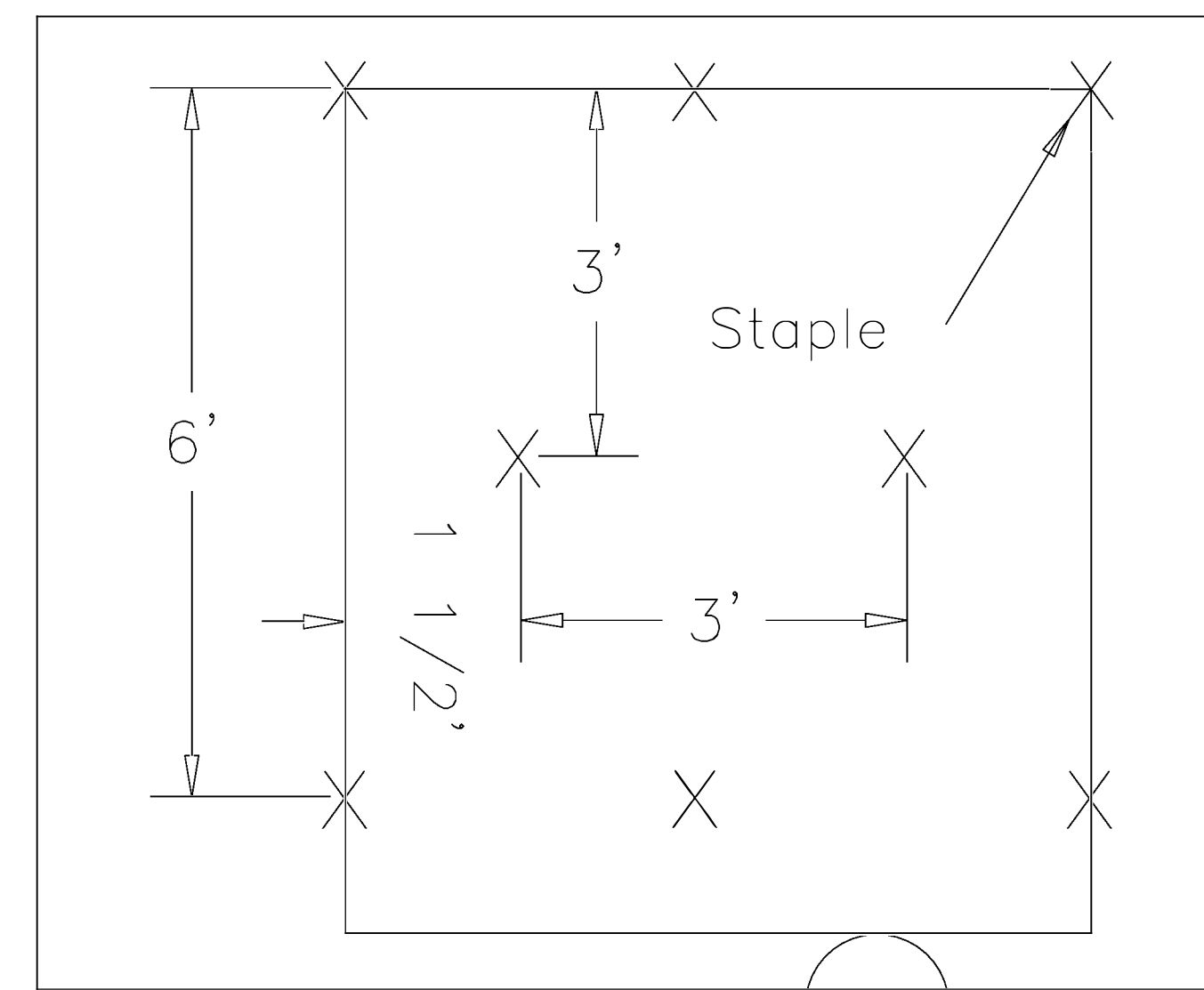


DIAGRAM B

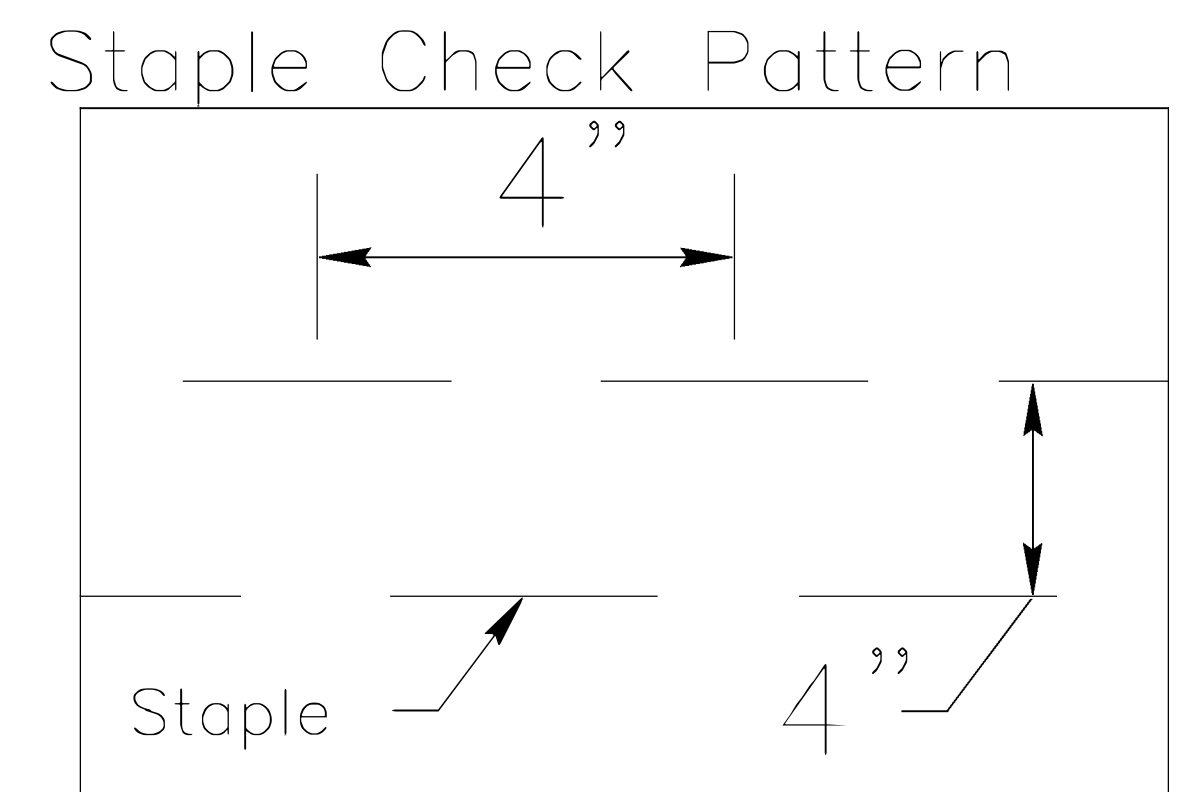


DIAGRAM (C)

NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.
 STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
BL-0005	EC-4/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

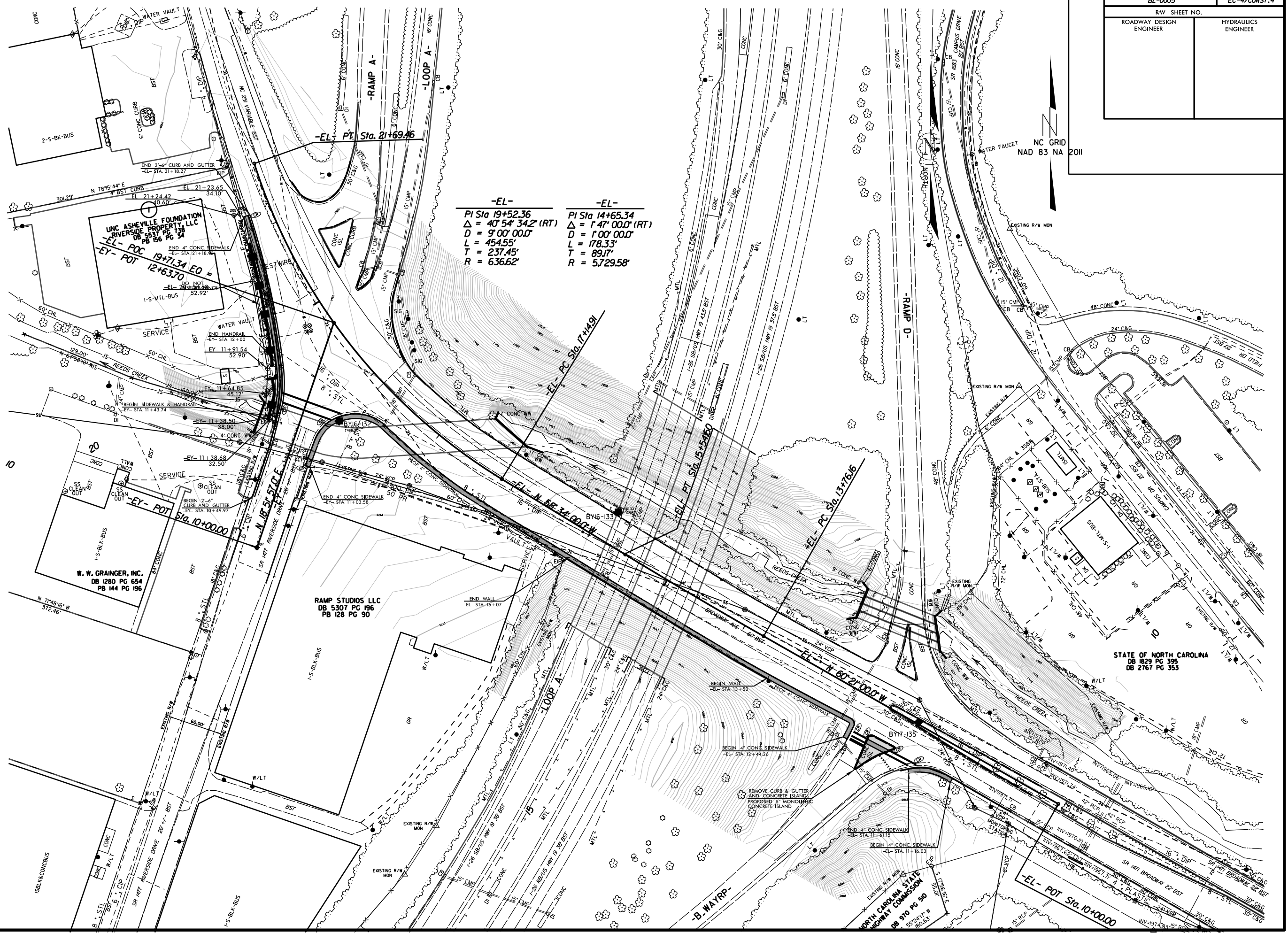
NC GRID
NAD 83 NA 2011

-EL-
 PI Sta 19+52.36
 $\Delta = 40^{\circ} 54' 34.2''$ (RT)
 D = 9' 00" 00.0"
 L = 454.55'
 T = 237.45'
 R = 636.62'

-EL-
 PI Sta 14+65.34
 $\Delta = 1^{\circ} 47' 00.0''$ (RT)
 D = 1' 00" 00.0"
 L = 178.33'
 T = 89.17'
 R = 5729.58'

REVISIONS

13-OCT-2021 11:17:18 AM S:\DCC\JPH\SR 1781 Broadway at NC 251 Riverside Dr\Environmental\Design\DM00296 R0Y PSH EC-4.dgn

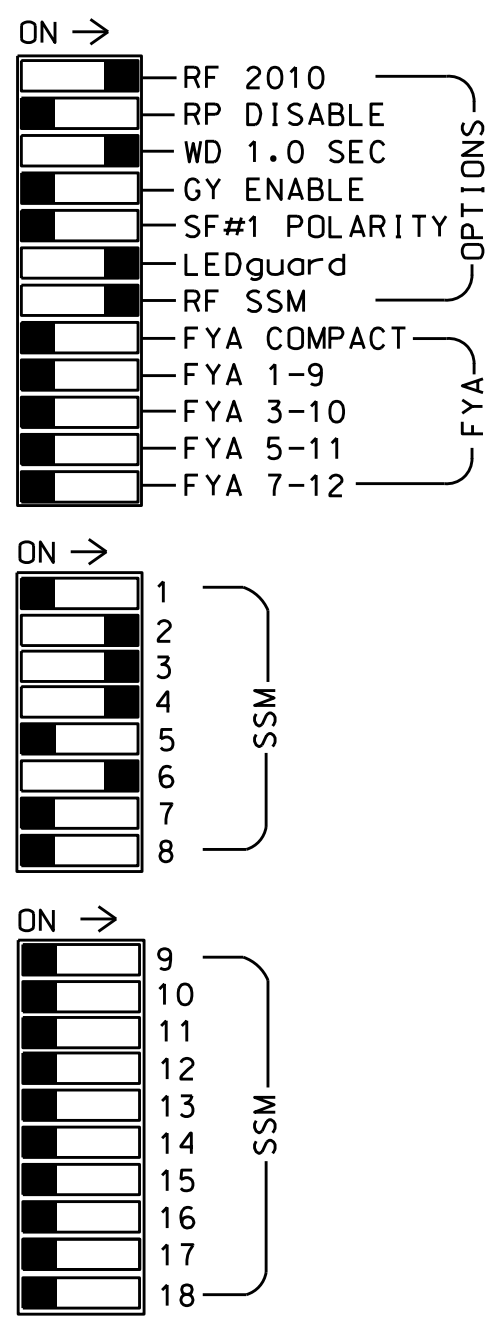
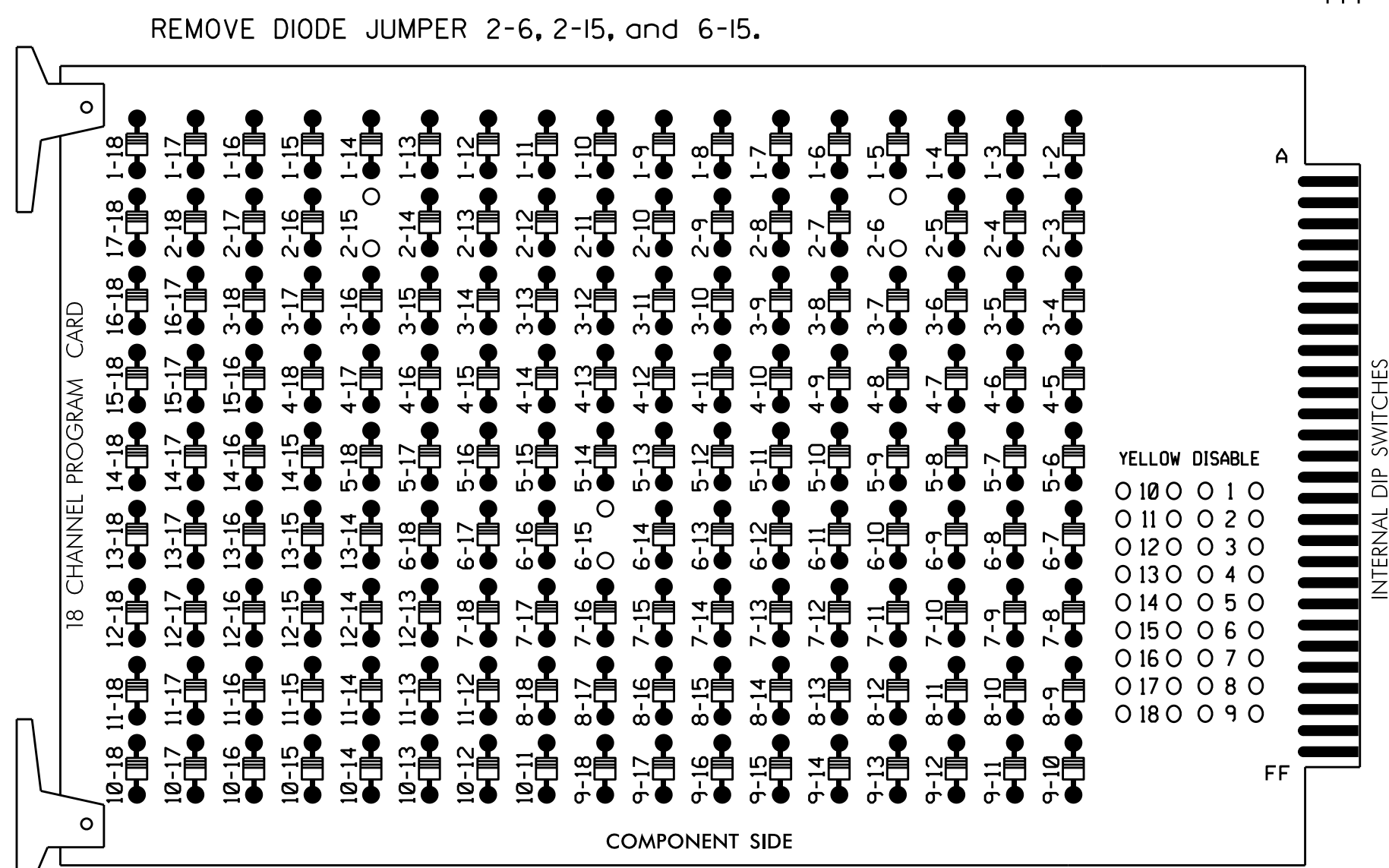


STATE OF NORTH CAROLINA
 DB 1829 PG 395
 DB 2767 PG 353

EDI MODEL 2018ECLip-NC CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumper and set switches as shown)



NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Integrate monitor with Ethernet network in cabinet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Start Up In Green.
4. Program phase 6 for Startup Ped Call.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Asheville Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
 CABINET.....336
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....POLE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S2,S4,S5,S8,S9
 PHASES USED.....2,3,4,6,6PED
 OVERLAPS.....NONE

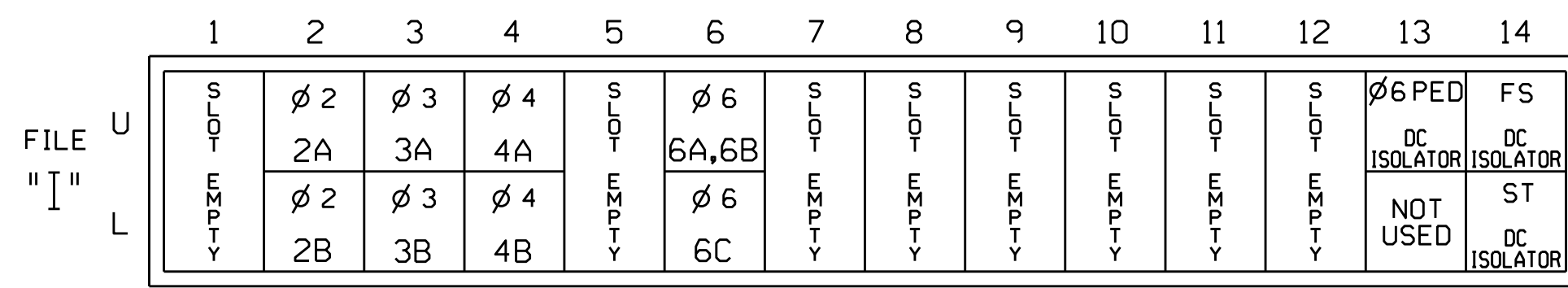
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	NU	22	31	32	41	42	63	NU	NU	61,62 63
RED		128		116	116	101	101					134
YELLOW		129		117	117	102	102					135
GREEN		130		118	118	103	103					136
RED ARROW												
YELLOW ARROW				117				102				
GREEN ARROW				118	118		103	103				
Hand icon												119
Walker icon												121

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)



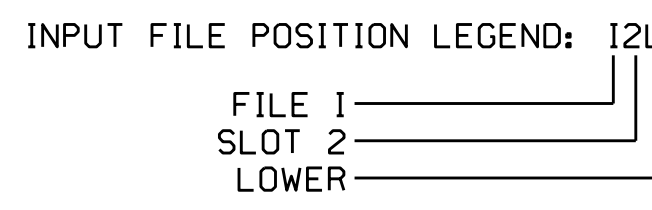
EX. : 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	TB21-3,4	I2U	39	1	2	2	Y	Y			
2B	TB23-3,4	I2L	43	5	12	2	Y	Y			
3A	TB21-5,6	I3U	58	20	3	3	Y	Y			
3B	TB23-5,6	I3L	49	11	24	3	Y	Y			
4A	TB21-7,8	I4U	41	3	4	4	Y	Y			3
4B	TB23-7,8	I4L	45	7	14	4	Y	Y			10
6A,6B	TB21-11,12	I6U	40	2	6	6	Y	Y			
6C	TB23-11,12	I6L	44	6	16	6	Y	Y			
PED PUSH BUTTONS											
P61,P62	TB22-11,12	I13U	68	30	PED 6	6 PED					

NOTE:
 INSTALL DC ISOLATOR IN INPUT FILE SLOT I13.



COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 13-0278
 DESIGNED: March 2021
 SEALED: 3/18/2021
 REVISED: N/A

Electrical Detail

ELECTRICAL AND PROGRAMMING DETAILS FOR:
 Prepared In the Offices of:

 750 N. Greenfield Pkwy, Garner, NC 27529

NC 251 (Riverside Drive) / SR 1781 (Broadway Avenue) at SR 1477 (Riverside Drive) / US 19-23-70 SB Ramps

Division 13	Buncombe County	Asheville
PLAN DATE: March 2021	REVIEWED BY:	
PREPARED BY: S. Armstrong	REVIEWED BY:	
REVISIONS	INIT.	DATE

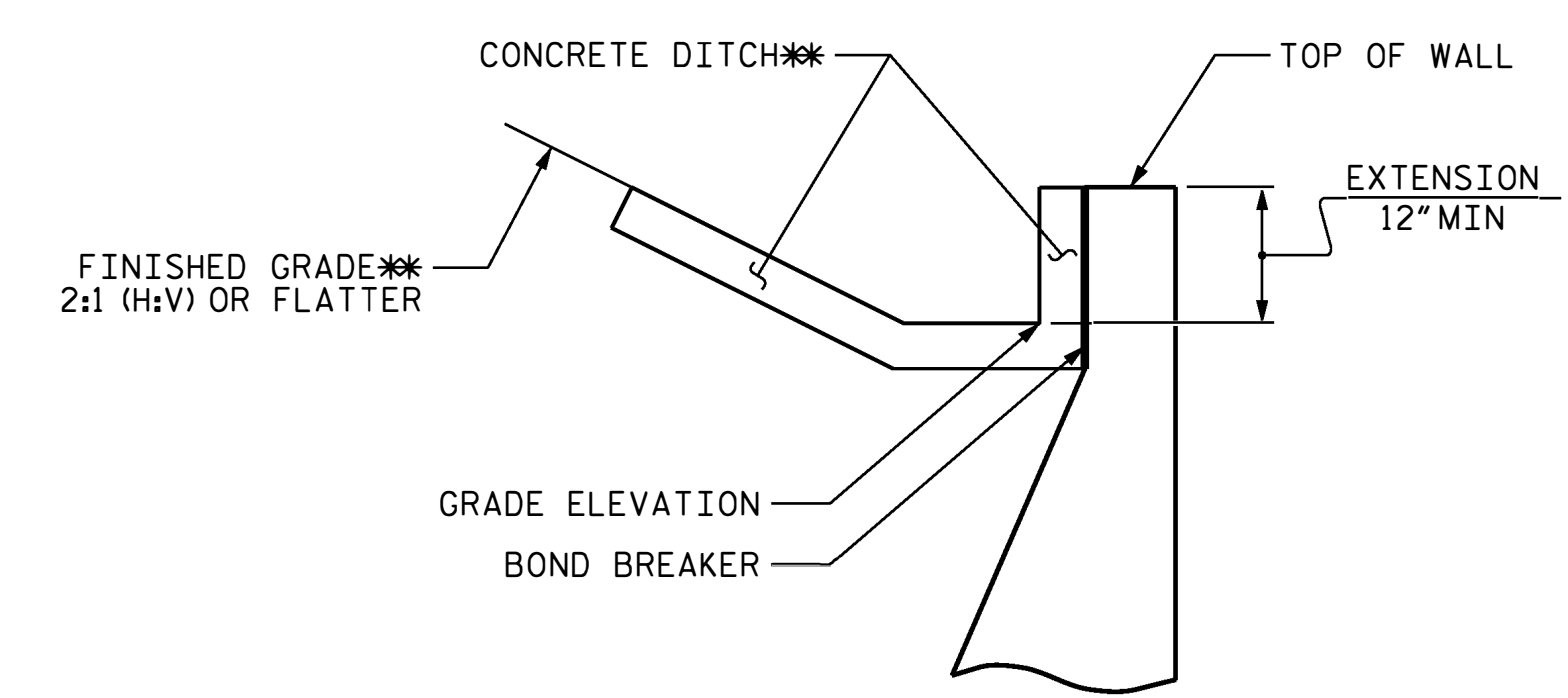
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 036833
 RYAN W. HOUGH

DocuSigned by:
 Ryan W. Hough
 3/22/2021
 DATE

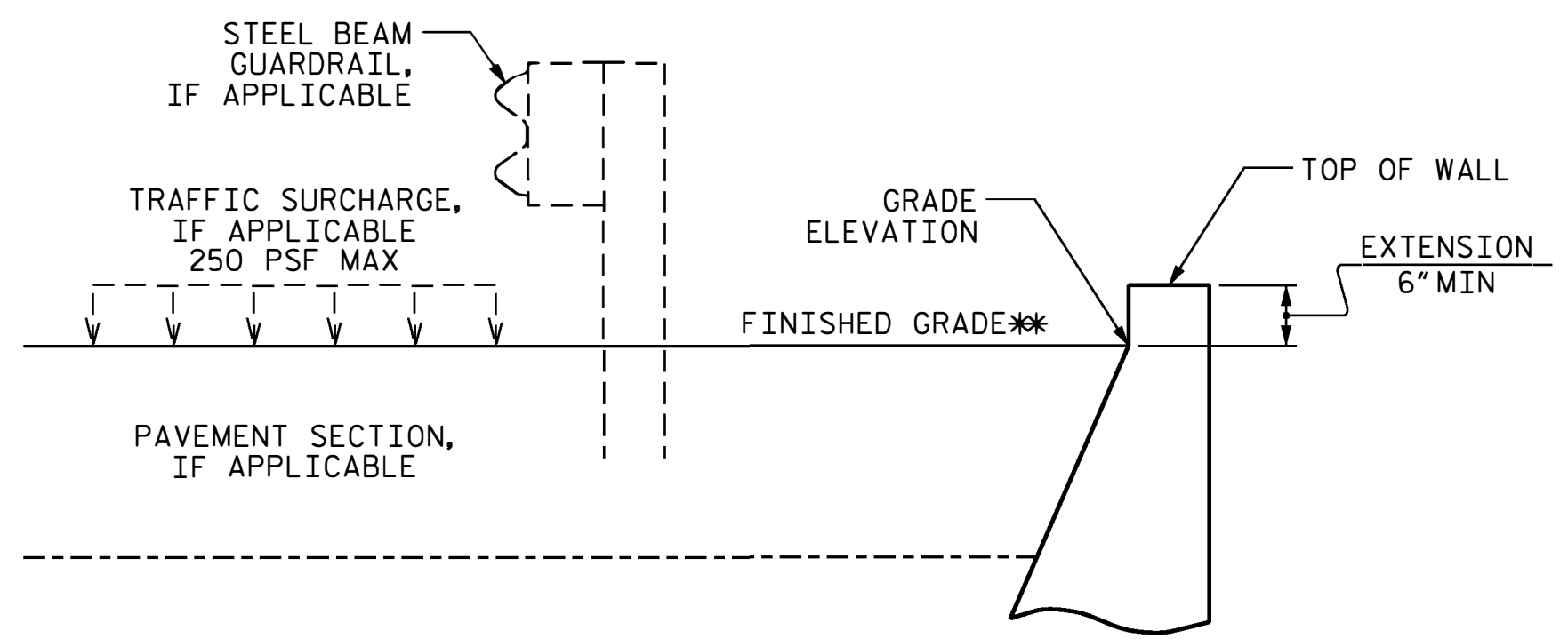
SIG. INVENTORY NO. 13-0278

13-0278-2021 1449 S:\MIS\ASIS\SIG\Signal\work\hough\sig\MonPrj\Projects\3-0278.dwg Project:3-0278.dwg MonPrj\Projects\3-0278.dwg MonPrj\Projects\3-0278.dwg MonPrj\Projects\3-0278.dwg



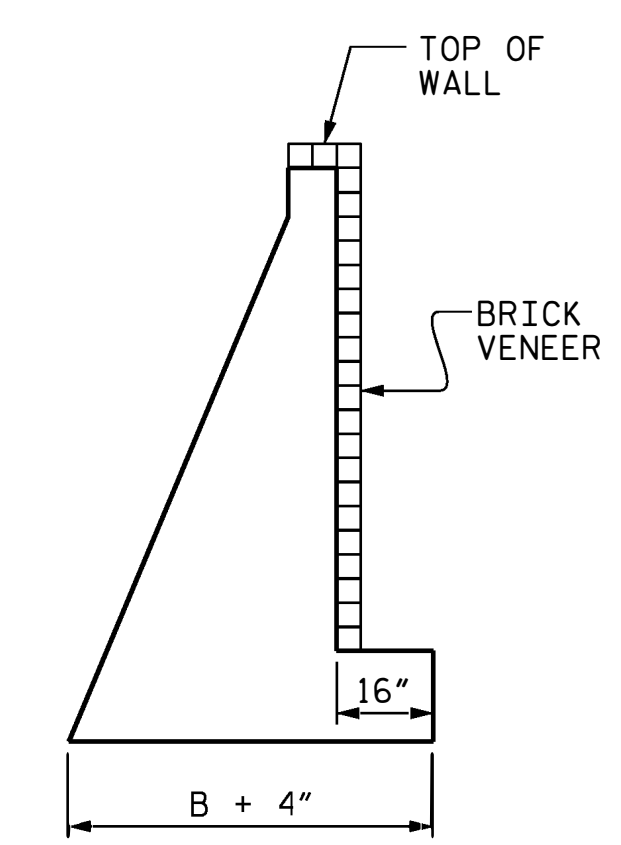
SLOPE CASE

**SEE ROADWAY PLANS FOR CONCRETE DITCH AND FINISHED GRADE DETAILS.



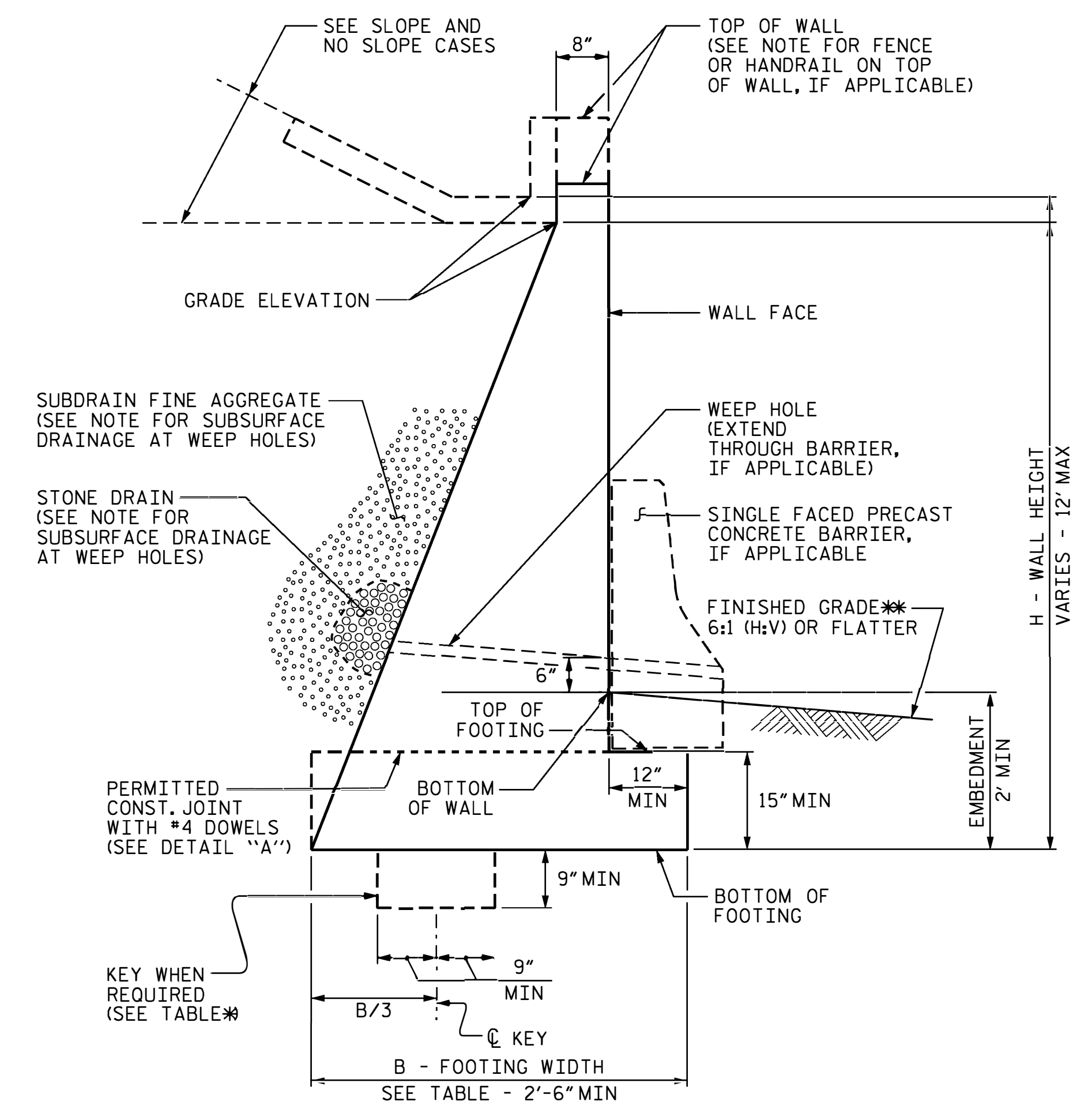
NO SLOPE CASE

**SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



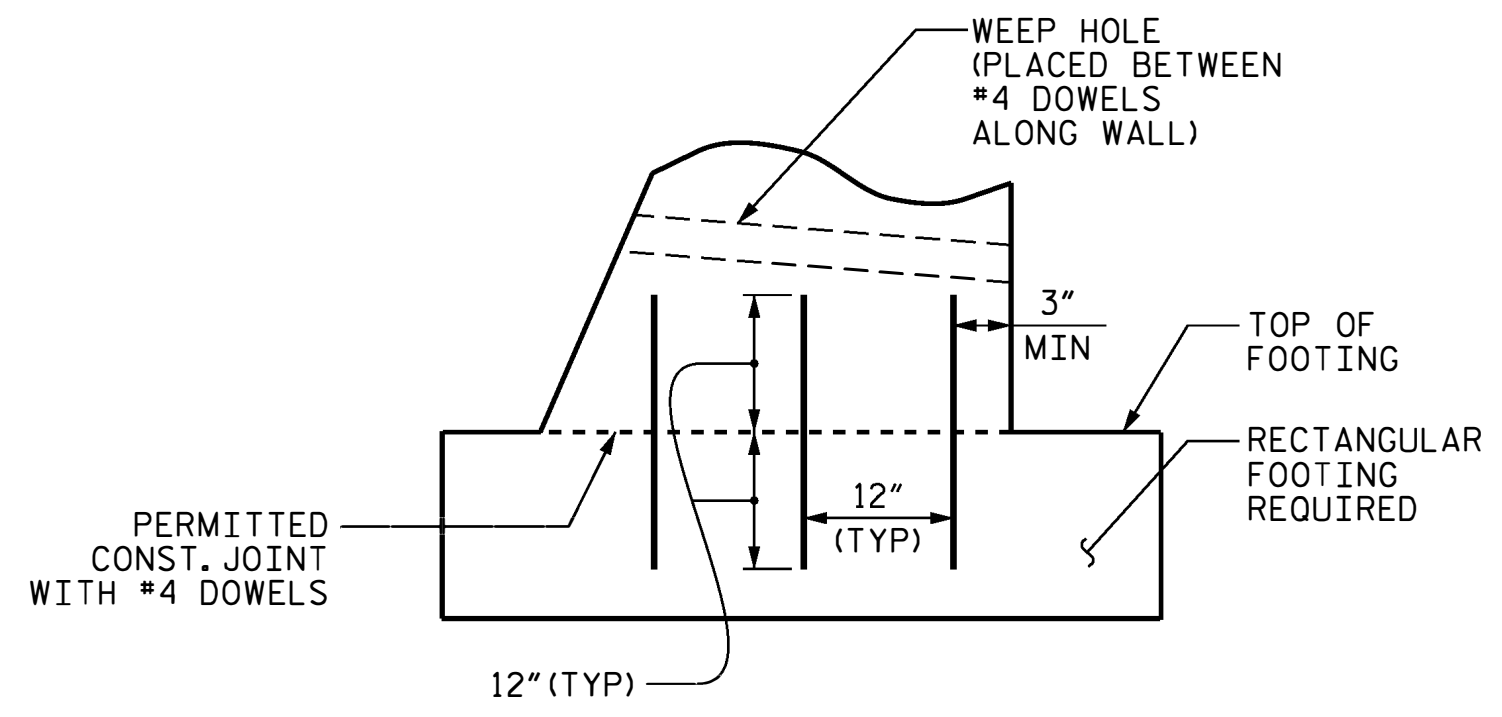
BRICK VENEER DETAIL

(WHEN APPLICABLE)



STANDARD CIP GRAVITY WALL

**SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



DETAIL "A"

H (FT)	3 - < 6	6 - 9	> 9 - 12
SLOPE CASE	.66	.70*	.75*
NO SLOPE CASE WITH TRAFFIC SURCHARGE	.80	.75*	.70*
NO SLOPE CASE WITHOUT TRAFFIC SURCHARGE	.60	.60	.60

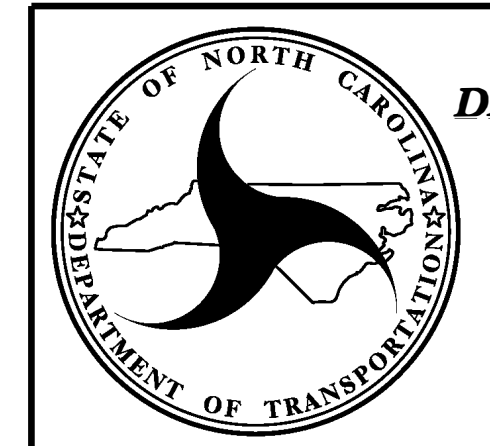
B/H RATIO (B = 2'-6" MIN)

*KEY IS REQUIRED FOR "SLOPE CASE" OR "NO SLOPE CASE WITH TRAFFIC SURCHARGE" WHEN H IS 6' OR GREATER.

NOTES:

- FOR STANDARD CIP GRAVITY RETAINING WALLS, SEE SECTION 453 OF THE STANDARD SPECIFICATIONS.
- FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.
- FOR SINGLE FACED PRECAST CONCRETE BARRIER, SEE ROADWAY PLANS AND SECTION 857 OF THE STANDARD SPECIFICATIONS.
- FOR FENCES OR HANDRAILS ON TOP OF WALLS, SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.
- FOR SUBSURFACE DRAINAGE AT WEEP HOLES, SEE ARTICLE 414-8 OF THE STANDARD SPECIFICATIONS.
- STANDARD CIP GRAVITY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
 UNIT WEIGHT, $\gamma = 120$ PCF
 FRICTION ANGLE, $\phi = 35$ DEGREES (GROUNDWATER WITHIN 7' OF BOTTOM OF FOOTING)
 FRICTION ANGLE, $\phi = 30$ DEGREES (GROUNDWATER MORE THAN 7' BELOW BOTTOM OF FOOTING)
 COHESION, $c = 0$ PSF
- DO NOT USE STANDARD CIP GRAVITY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE BOTTOM OF FOOTING.
- DO NOT USE STANDARD CIP GRAVITY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW WALLS.
- BEFORE BEGINNING STANDARD CIP GRAVITY WALL CONSTRUCTION, SURVEY WALL LOCATIONS AND SUBMIT WALL PROFILE VIEWS (WALL ENVELOPES) FOR REVIEW. FOR WALL ENVELOPES, INCLUDE BOTTOM OF WALL, EXISTING GROUND AND GRADE ELEVATIONS AND OTHER ELEVATIONS AS NEEDED AT INTERVALS OF 25' OR LESS ALONG WALLS. DO NOT START WALL CONSTRUCTION UNTIL WALL ENVELOPES ARE ACCEPTED.
- FOR BRICK VENEERS, SUBMIT BRICK SAMPLES FOR APPROVAL BEFORE BEGINNING STANDARD CIP GRAVITY WALL CONSTRUCTION.
- DO NOT PLACE CONCRETE FOR FOOTINGS UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
- WHEN CONSTRUCTING STANDARD CIP GRAVITY WALLS WITH A CONSTRUCTION JOINT AS SHOWN IN DETAIL "A", PROVIDE A MINIMUM OF 3 EQUALLY SPACED #4 DOWELS AT INTERVALS OF 1'-6" ALONG WALLS.

PROJECT NO.: BL-0005
 BUNCOMBE COUNTY
 STATION: STA 13+50 to 16+07 +/- -EL-
 SHEET 1 OF 1



**NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS**

**GEOTECHNICAL
 ENGINEERING UNIT**

STANDARD DETAIL NO. 453.01

**STANDARD
 CAST-IN-PLACE (CIP)
 GRAVITY RETAINING WALL**

DATE: 1-16-18