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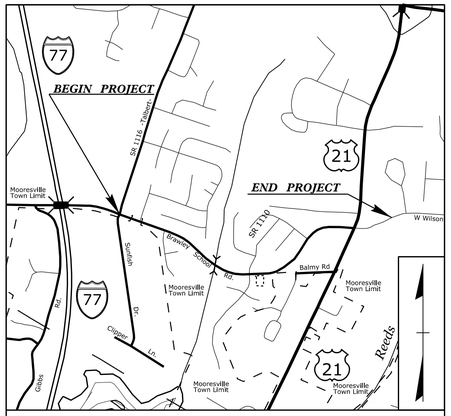
09/08/09

TIP PROJECT: R-3833C

CONTRACT: C204852

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

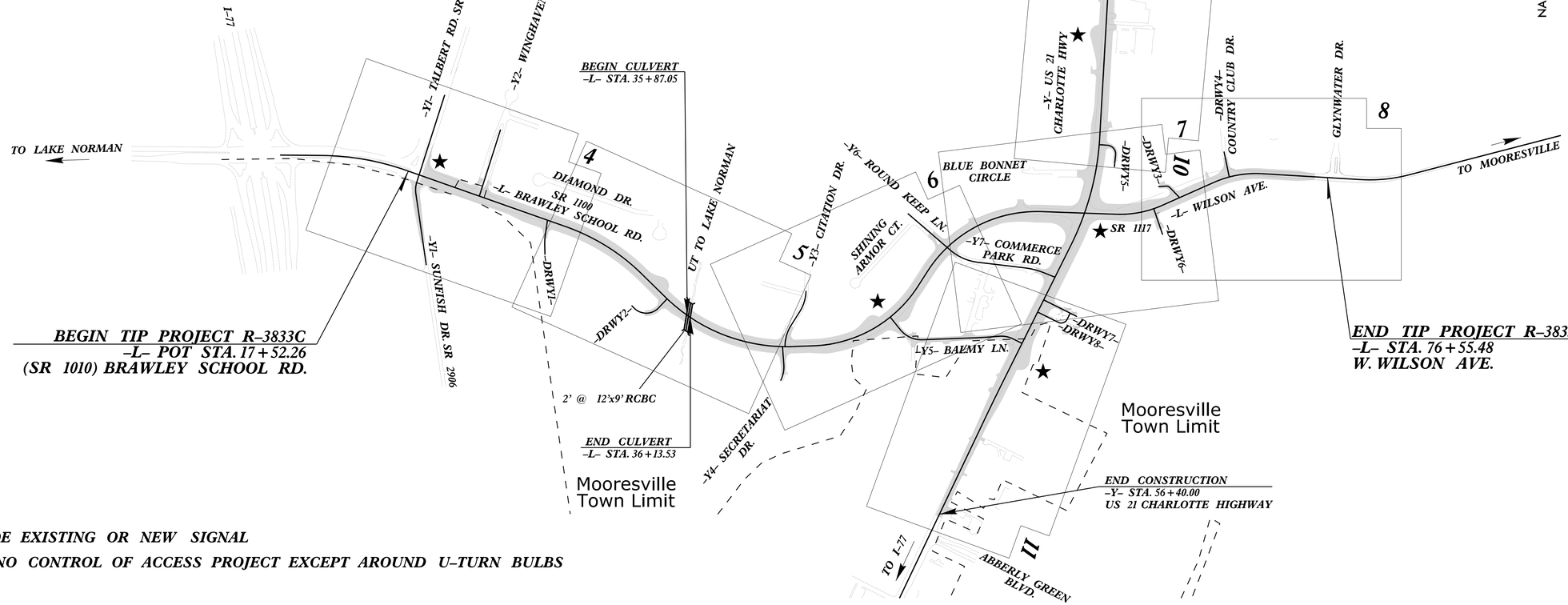
IREDELL COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3833C	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34554.1.3		P.E
34554.2.4		R/W
34554.2.5		UTIL
34554.3.3		CONSTRUCTION

LOCATION: SR 1100 BRAWLEY SCHOOL ROAD FROM SR 1116 TALBERT ROAD TO 1000' EAST OF US 21

TYPE OF WORK: GRADING, PAVING, WIDENING, DRAINAGE, CULVERT, WALLS, SIGNALS



★ *UPGRADE EXISTING OR NEW SIGNAL*

THIS IS A NO CONTROL OF ACCESS PROJECT EXCEPT AROUND U-TURN BULBS

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2023 = 21172
ADT 2040 = 28200
K = 10 %
D = 55 %
T = 4 % *
V = 45 MPH
* TTST = 1% DUAL = 3%
FUNCTIONAL CLASSIFICATION = MAJOR RURAL COLLECTOR

PROJECT LENGTH

ROADWAY LENGTH TIP PROJECT R-3833C = 1.113 miles
STRUCTURE LENGTH TIP PROJECT R-3833C = 0.005 miles
TOTAL LENGTH TIP PROJECT R-3833C = 1.118 miles

Prepared In The Offices of:

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for the North Carolina Department of Transportation

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 30, 2018

LETTING DATE:
NOVEMBER 21, 2023

STANTEC CONTACT:
A. DEAN SARVIS, P.E.
PROJECT ENGINEER

NCDOT DIVISION 12 CONTACT:
BRYAN SOWELL, PE
PROJECT MANAGER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN J. HENEGAR

DocuSigned by: Benjamin J. Henegar
P.E.
SIGNATURE: 10/17/2023

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS

DocuSigned by: A. Dean Sarvis
P.E.
SIGNATURE: 10/17/2023

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

10/17/2023
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PROJECT REFERENCE NO.	SHEET NO.
R-3833C	1A

ROADWAY DESIGN ENGINEER

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INDEX OF SHEETS

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED 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 III.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 & STD. NO. 225.05 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

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.

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

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 MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

Windstream Communications Inc.-Phone/Fiber

AT&T Distribution-Fiber

Conterra (formerly Broadplex LLC)-Fiber

Duke Energy-Electric

Level 3 Comunication (Century link)-Fiber

Level 3 Comunication (Century link)-Fiber

Dominion Energy (SCANA (PSNC Energy)-Gas

Time Warner Cable/Charter-CATV

Town of Mooresville-Water/Sewer

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED 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

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 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.05	Method of Obtaining Superelevation - Divided Highways
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.04	Concrete Open Throat Catch Basin - 12" thru 48" Pipe
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.30	Driveway Drop Inlet
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.51	Brick Manhole - 12" thru 36" Pipe
840.52	Precast Manhole - 4', 5' and 6' Diameter
840.53	Precast Manhole with Masonry Base - 12" thru 42" Pipe
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
848.06	Curb Ramp - Existing Curb & Gutter
850.01	Concrete Paved Ditches
852.01	Concrete Islands
852.04	Method for Placement of Drop Inlets in Grassed Median - Using 1'-6" Curb and Gutter
852.06	Method for Placement of Drop Inlets in Concrete Islands
852.10	Median Construction - with Curb and Gutter
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation
866.01	Chain Link Fence - 4', 5' and 6' High Fence
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Existing Concrete Monument (ECM)
- Parcel/Sequence Number
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary
- Proposed Wetland Boundary
- Existing Endangered Animal Boundary
- Existing Endangered Plant Boundary
- Existing Historic Property Boundary
- 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
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream
- Buffer Zone 1
- Buffer Zone 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

RIGHT OF WAY & PROJECT CONTROL:

- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Secondary Horiz and Vert Control Point
- Vertical Benchmark
- Existing Right of Way Monument
- Proposed Right of Way Monument (Rebar and Cap)
- Proposed Right of Way Monument (Concrete)
- Existing Permanent Easement Monument
- Proposed Permanent Easement Monument (Rebar and Cap)
- Existing C/A Monument
- Proposed C/A Monument (Rebar and Cap)
- Proposed C/A Monument (Concrete)
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Control of Access Line
- Proposed Control of Access Line
- Proposed ROW and CA Line
- Existing Easement Line
- Proposed Temporary Construction Easement
- 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

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 — S

UTILITIES:

** SUE – Subsurface Utility Engineering*
LOS – Level of Service – A,B,C or D (Accuracy)

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 Test Hole (SUE – LOS A)*
- U/G Power Line (SUE – LOS B)* — P
- U/G Power Line (SUE – LOS C)* — P
- U/G Power Line (SUE – LOS D)* — P

TELEPHONE:

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

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line Test Hole (SUE – LOS A)*
- U/G Water Line (SUE – LOS B)* — W
- U/G Water Line (SUE – LOS C)* — W
- U/G Water Line (SUE – LOS D)* — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — TV HH
- U/G TV Test Hole (SUE – LOS A)*
- U/G TV Cable (SUE – LOS B)* — TV
- U/G TV Cable (SUE – LOS C)* — TV
- U/G TV Cable (SUE – LOS D)* — TV
- U/G Fiber Optic Cable (SUE – LOS B)* — TV FO
- U/G Fiber Optic Cable (SUE – LOS C)* — TV FO
- U/G Fiber Optic Cable (SUE – LOS D)* — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line Test Hole (SUE – LOS A)*
- U/G Gas Line (SUE – LOS B)* — G
- U/G Gas Line (SUE – LOS C)* — G
- U/G Gas Line (SUE – LOS D)* — 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 Force Main Line Test Hole (SUE – LOS A)*
- SS Force Main Line (SUE – LOS B)* — FSS
- SS Force Main Line (SUE – LOS C)* — FSS
- SS Force Main Line (SUE – LOS D)* — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line (SUE – LOS B)* — 2UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

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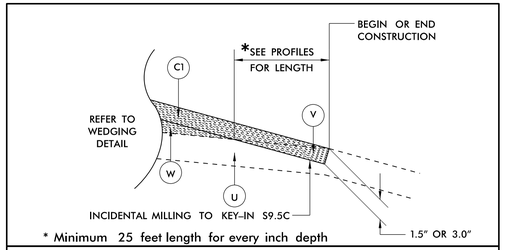
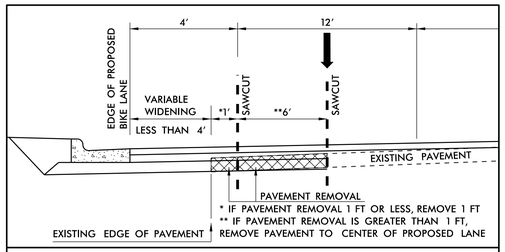


* Minimum 25 feet length for every inch depth

DETAIL 1 – INCIDENTAL MILLING

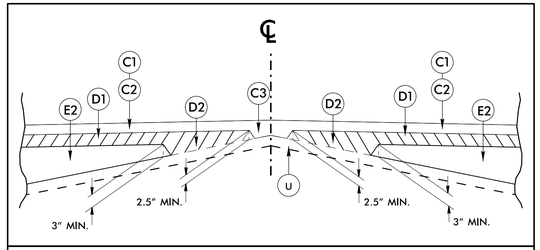


* IF PAVEMENT REMOVAL 1 FT OR LESS, REMOVE 1 FT
** IF PAVEMENT REMOVAL IS GREATER THAN 1 FT, REMOVE PAVEMENT TO CENTER OF PROPOSED LANE

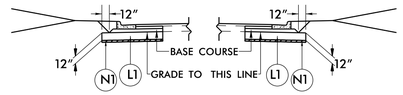
DETAIL 2 –
NARROW WIDENING LESS THAN 4'

NOTE: ASSUMING MINIMAL WIDTH TO OBTAIN COMPACTION IS 5' AND THE DESIRE TO KEEP THE SAWCUT OUT OF THE PROPOSED WHEELPATH

–L– LT 54+20.26 TO 55+34.27
–L– LT 56+02.69 TO 57+18.12
–Y– LT 14+21.03 TO 15+79.39
–Y– RT 14+62.20 TO 14+62.20
–Y– LT 52+39.33 TO 53+70.14
–Y– RT 51+86.43 TO 53+56.60
–Y1– LT 17+79.28 TO 18+84.36
–Y3– ENTRANCE RADII
–Y5– LT & RT 12+03.17 TO 16+69.62
–Y6– ENTRANCE RADII



DETAIL 3 – METHOD OF WEDGING



DETAIL 4 – AGGREGATE SUBGRADE DETAIL

–L– 21+00.00 to 23+50.00
–L– 71+25.00 to 72+25.00
–L– 74+00.00 to 75+50.00
–Y– 19+25.00 to 25+00.00
–Y5– 15+00.00 to 17+50.00

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	L1	PROPOSED 12" CLASS IV SUBGRADE STABILIZATION	S	4" CONCRETE SIDEWALK & MULTI-USE PATH
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	N1	GEOTEXTILE FOR SUBGRADE STABILIZATION	T	EARTH MATERIAL
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	R1	2'-9" CONCRETE CURB AND GUTTER	U	EXISTING PAVEMENT
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R2	2'-6" CONCRETE CURB AND GUTTER	V	INCIDENTAL MILLING
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	R3	1'-6" CONCRETE CURB AND GUTTER	W	WEDGING (SEE DETAIL SHEET 2A-1)
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R4	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)		
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, 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 5½" IN DEPTH.	R5	8"X18" CONCRETE CURB AND GUTTER		

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

-L- TEMPORARY PAVEMENT SCHEDULE AT CULVERT EXTENSION

C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER A. DEAN SARTIS 19828

A Dean Sartis

5/18/2023

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER JEREMY R. HAMM 39779

Jeremy R Hamm

5/18/2023

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5/18/2023
Roadway

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PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2A-2

ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS	NORTH CAROLINA PROFESSIONAL SEAL 39779 ENGINEER JEREMY R HAMM
DocuSigned by: A. Dean Sarvis	DocuSigned by: [illegible]
5/18/2023	5/18/2023

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CARY, NC 27513
PHONE: 919.871.0800
www.falconengineers.com
Corporate License Number C-3193

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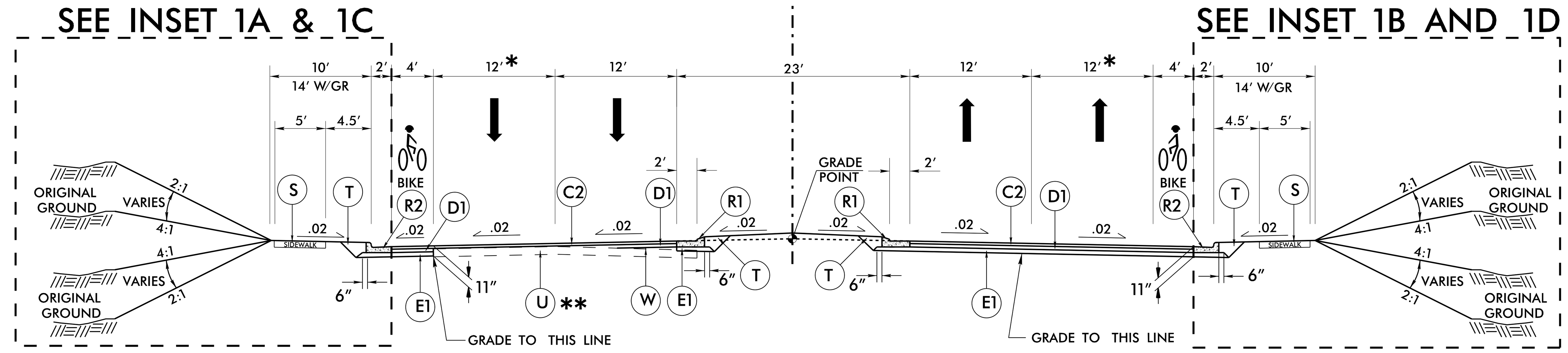
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

℄ -L- BRAWLEY SCHOOL ROAD

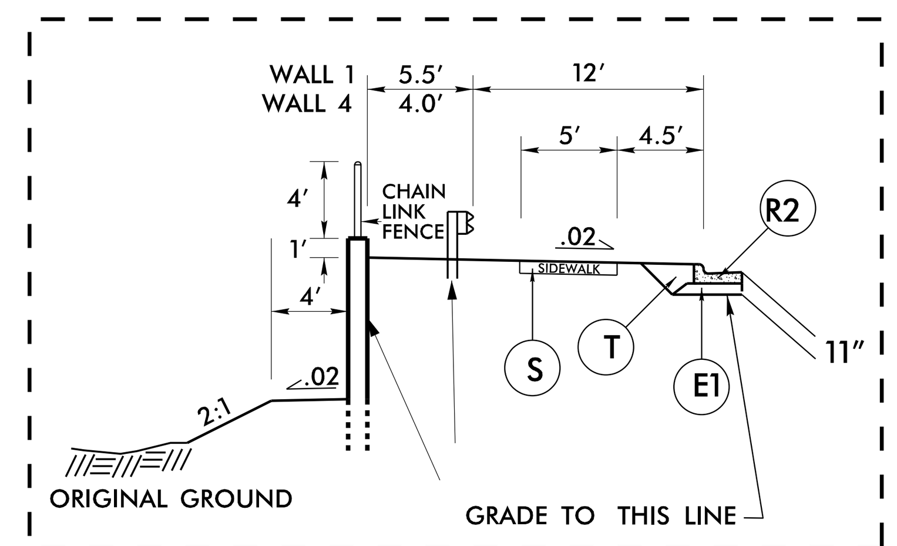


TYPICAL SECTION NO. 1

-L- STA. 18+42.13 TO 18+79.13
(3" MILL AND FILL, NO GRADE POINT)
STA. 18+79.13 TO 20+40.00
(3" RESURFACING, NO GRADE POINT)
-L- STA. 20+40.00 TO STA. 62+08.78
(PROFILE WITH GRADE POINT)

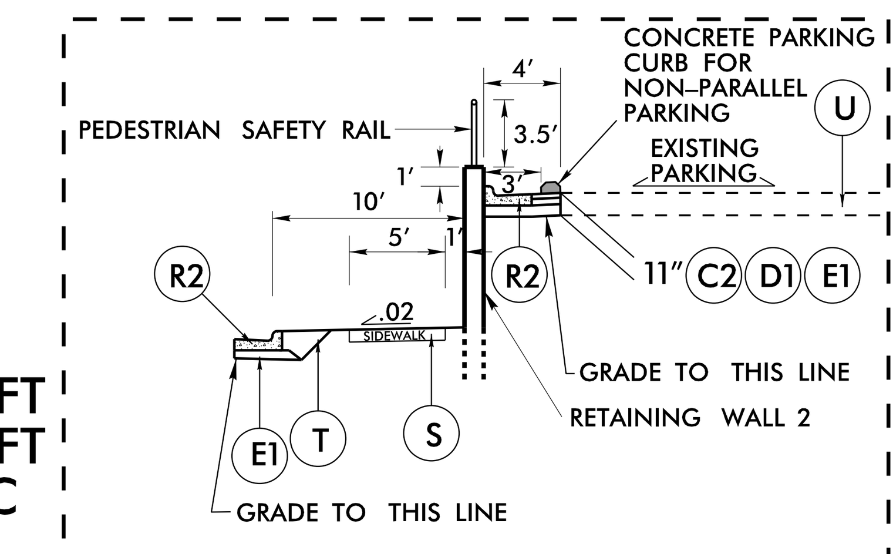
-L- STA. 32+00+/- TO STA. 40+50 +/- LEFT
-L- STA. 34+06+/- TO STA. 38+00 +/- LEFT
TEMPORARY PAVEMENT 3" S9.5C, 4" B25.0C
SEE TMP-5

* VARIES AT BULB LOCATIONS
** LOCATION VARIES LEFT TO RIGHT



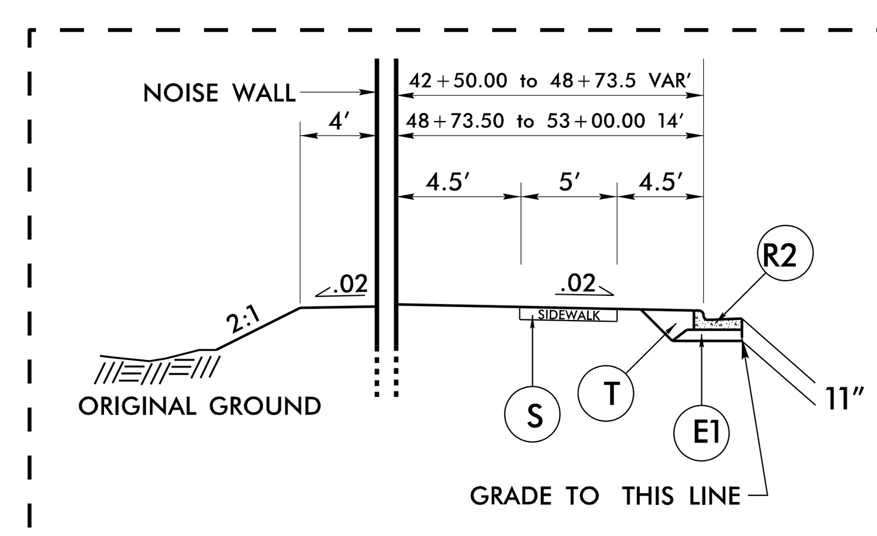
INSET 1A

USE TOGETHER WITH TYPICAL SECTION 1 AT:
-L- STA. 25+20.00 TO STA. 32+41.17 LEFT RETAINING WALL 1
-L- STA. 61+17.78 LEFT TO -Y- STA. 36+40.48 RIGHT RETAINING WALL 4



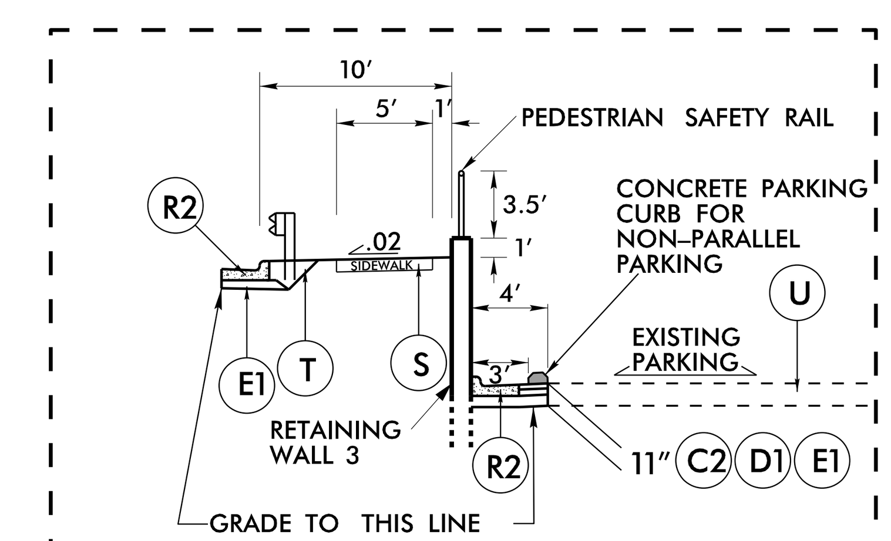
INSET 1B

USE TOGETHER WITH TYPICAL SECTION 1 AT:
-L- STA. 56+00.00 TO STA. 57+10.00 RIGHT RETAINING WALL 2



INSET 1C

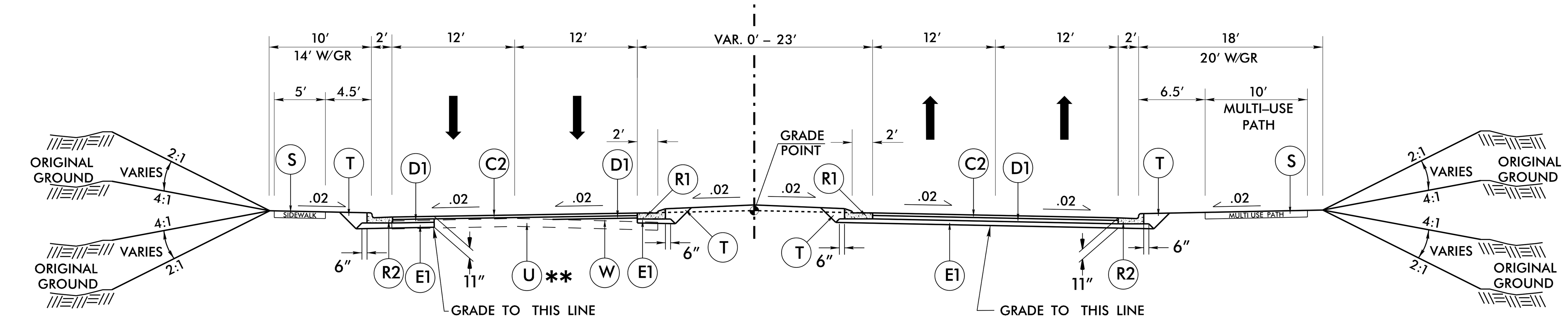
USE TOGETHER WITH TYPICAL SECTION 1 AT:
-L- STA. 42+50.00 TO STA. 53+00.00 LEFT NOISE WALL 2



INSET 1D

USE TOGETHER WITH TYPICAL SECTION 1 AT:
-L- STA. 57+10.00 TO STA. 59+80.00 RIGHT RETAINING WALL 3

℄ -L- WEST WILSON AVE



TYPICAL SECTION NO. 2

-L- STA. 62+08.78 TO STA. 75+82.64
-L- LEFT SIDEWALK TO STA. 76+55.48
** LOCATION VARIES LEFT TO RIGHT

C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR S9.5C
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	VAR. B25.0C
L1	12" CLASS IV SUB-GRADE STABILIZATION
N1	GEOTEXTILE FOR SUB-GRADE STABILIZATION
R1	2'-9" C&G
R2	2'-6" C&G
R3	1'-6" C&G
R4	5" ISLAND (KEYED)
R5	8" x 18" CURB
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	INCIDENTAL MILLING
W	WEDGING (SH 2A-1)

NOTE: PAVEMENT EDGE SLOPES 1:1 UNLESS SHOWN OTHERWISE

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DSarvis

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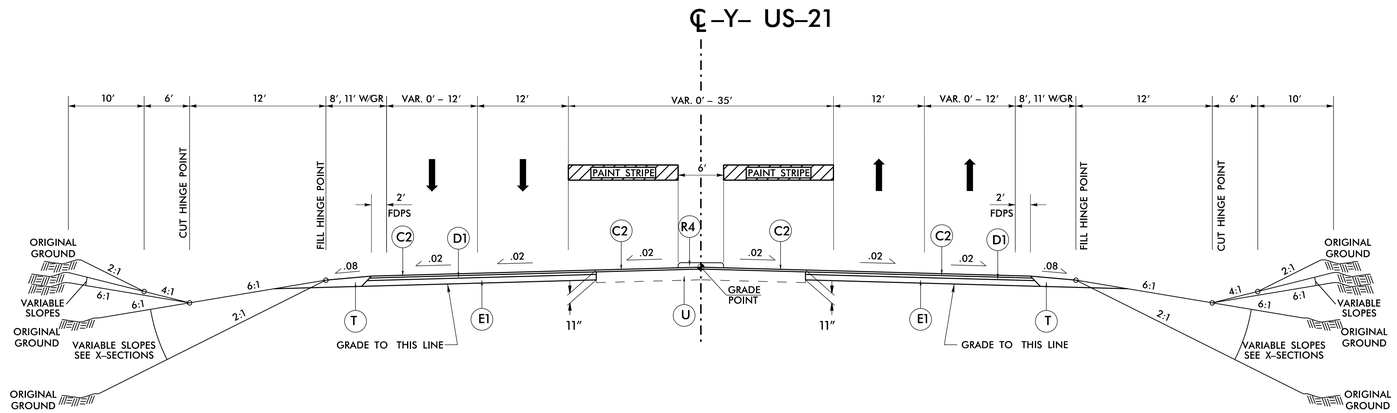
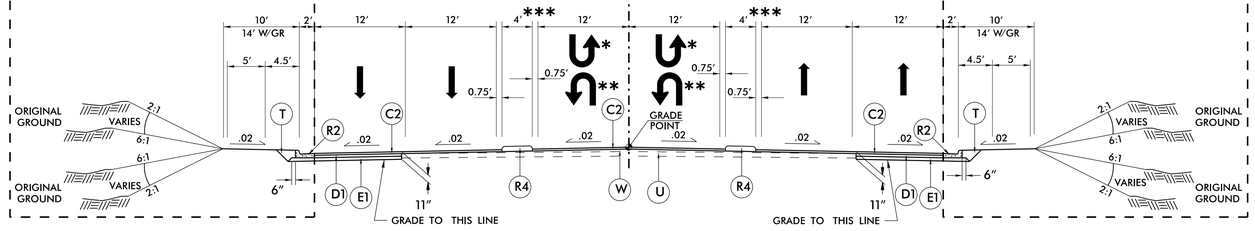


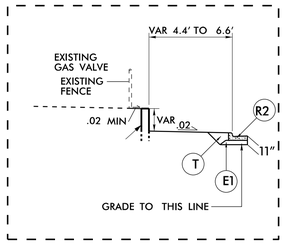
TYPICAL SECTION NO. 3

–Y– STA. 13+75.00 TO STA. 25+88.00
–Y– STA. 46+89.00 TO STA. 56+40.00



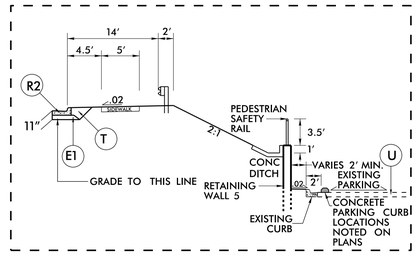
TYPICAL SECTION NO. 4

* –Y– STA. 25+88.00 TO STA. 30+66.00
** –Y– STA. 42+11.00 TO STA. 46+89.00
*** CONCRETE ISLAND VARIES IN WIDTH, SEE INTERSECTION DETAIL SHEETS 2B–1 THRU 2B–3 AND PLAN SHEETS 7,9,10,11 FOR DIMENSIONS



INSET 4A

USE TOGETHER WITH TYPICAL SECTION 4 AT:
–Y– STA. 42+90.76 TO STA. 43+16.00 LEFT
RETAINING WALL 6



INSET 4B

USE TOGETHER WITH TYPICAL SECTION 4 AT:
–Y– STA. 42+20.35 TO STA. 43+60.00 RIGHT
RETAINING WALL 5

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2A-3

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER A. DEAN SARTIS
A. Dean Sartis 19828
5/18/2023

PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER JEREMY R. HAMM
Jeremy R. Hamm 39779
5/18/2023

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W	WEDGING (SH 2A-1)

NOTE: PAVEMENT EDGE SLOPES 1:1 UNLESS SHOWN OTHERWISE

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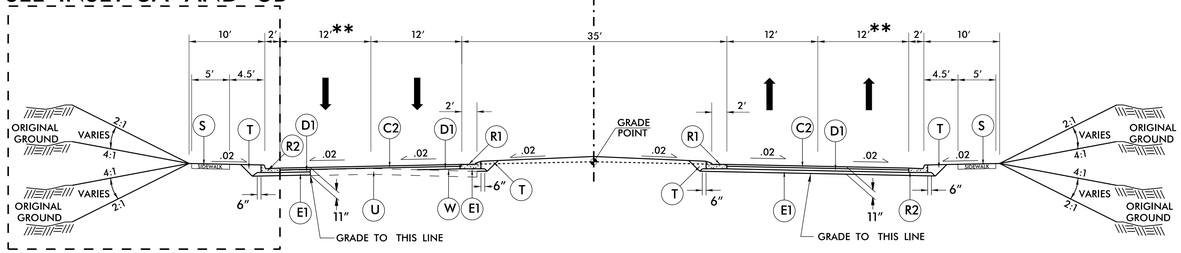
℄ –Y– US–21

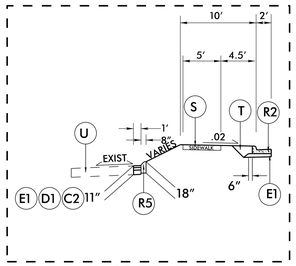
SEE INSET 5A AND 5B



TYPICAL SECTION NO. 5

–Y– STA. 30+66.00 TO STA. 42+11.00

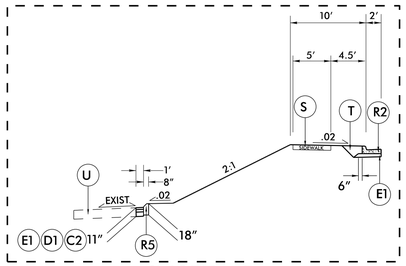
** VARIES AT BULB LOCATIONS



INSET 5A

USE TOGETHER WITH TYPICAL SECTION 5 AT:

–Y– STA. 24+33.67 TO STA. 25+28.79 LEFT



INSET 5B

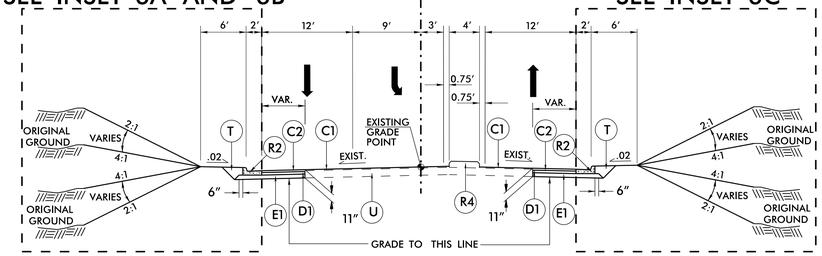
USE TOGETHER WITH TYPICAL SECTION 5 AT:

–Y– STA. 33+91.65 TO STA. 35+61.25 LEFT

℄ –Y1– TALBERT ROAD, SUNFISH DRIVE

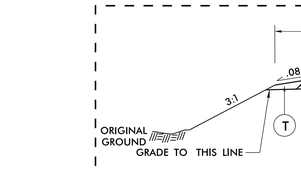
SEE INSET 6A AND 6B

SEE INSET 6C



TYPICAL SECTION NO. 6

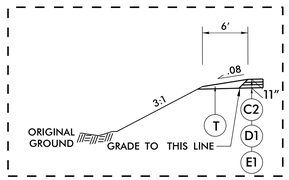
–Y1– STA. 15+23.71 TO STA. 18+84.36 (Widening Only)



INSET 6A

USE TOGETHER WITH TYPICAL SECTION 6 AT:

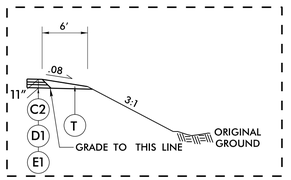
–Y1– STA. 13+00.00 TO STA. 14+47.82 LEFT



INSET 6B

USE TOGETHER WITH TYPICAL SECTION 6 AT:

–Y1– STA. 16+59.36 TO STA. 18+84.36 LEFT



INSET 6C

USE TOGETHER WITH TYPICAL SECTION 6 AT:

–Y1– STA. 16+59.36 TO STA. 18+84.36 RIGHT

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2A-4

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER A. DEAN SARTIS 17828

A Dean Sartis

5/18/2023

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER JEREMY R. HAMM 39779

5/18/2023

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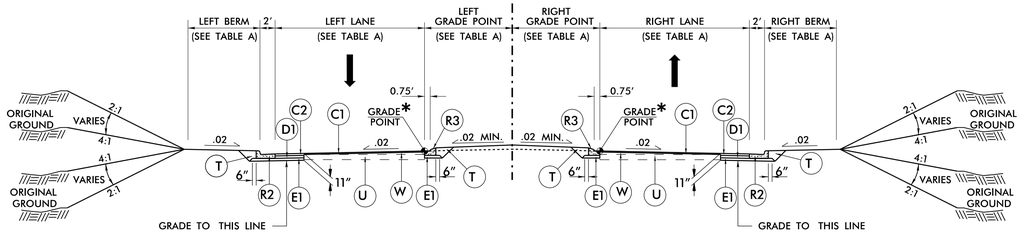
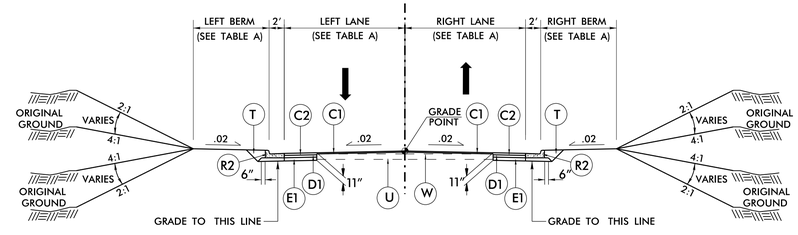
℄ –Y2– , –Y3– , –Y6–



TYPICAL SECTION NO. 7

–Y2– STA. 13+00.00 TO STA. 13+60.48
–Y3– STA. 12+22.00 TO STA. 13+10.45
–Y6– STA. 11+70.00 TO STA. 12+60.32
* Separate Grade Points

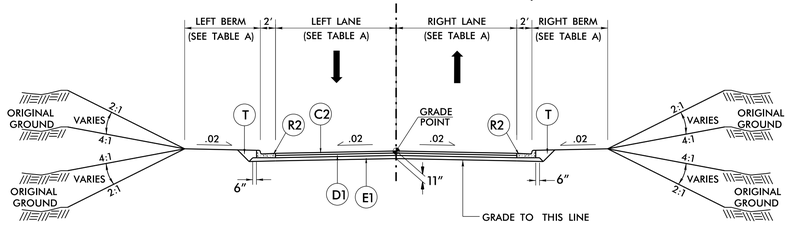
℄ –Y4– , –Y7– , –DRWY1– –DRWY2– , –DRWY4–



TYPICAL SECTION NO. 8

–Y4– STA. 11+25.00 TO STA. 11+65.00
–Y7– STA. 15+35.00 TO STA. 16+14.73
–DRWY1– STA. 10+75.00 TO STA. 11+05.00
–DRWY2– STA. 11+30.00 TO STA. 11+60.00
–DRWY4– STA. 10+35.00 TO STA. 10+75.00

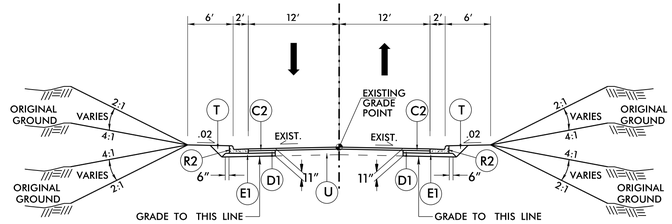
℄ –Y4– , –Y5– , –DRWY1–, –DRWY2– , –DRWY4–, –DRWY6–, –DRWY7–



TYPICAL SECTION NO. 9

–Y4– STA. 10+39.68 TO STA. 11+25.00
–Y5– STA. 10+39.50 TO STA. 13+04.00
–Y5– STA. 16+88.00 TO STA. 17+81.27
–DRWY1– STA. 10+43.61 TO STA. 10+75.00
–DRWY2– STA. 10+39.50 TO STA. 11+30.00
–DRWY4– STA. 10+75.00 TO STA. 11+16.30
–DRWY6– STA. 10+35.50 TO STA. 11+24.06
–DRWY7– STA. 10+84.67 TO STA. 11+61.36

℄ –Y5–



TYPICAL SECTION NO. 10

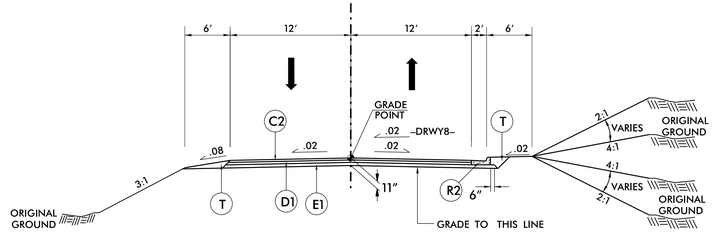
–Y5– STA. 13+04.00 TO STA. 16+88.00

NOTE: TRANSITION ALL PROPOSED CURB & GUTTER TO EXISTING CURB & GUTTER AT ALL ROAD AND DRIVE TURNOUTS

TABLE A

	LEFT BERM	LEFT LANE	LEFT GRADE POINT	RIGHT GRADE POINT	RIGHT LANE	RIGHT BERM
–Y2–	6'	12'	19'	7'	SEE PLANS	6'
–Y3–	6'	SEE PLANS	6.8'	6.4'	18'	6'
–Y4–	6'	14'	6.3'	6.5'	19'	6'
–Y5–	6'	12'	–	–	12'	6'
–Y6–	6'	14'	6.3'	6.5'	17'	6'
–Y7–	8'	15'	–	–	15'	6'
–DRWY1–	6'	12'–15'	–	–	12'–15'	6'
–DRWY2–	6'	17'	–	–	17'	6'
–DRWY4–	6'	10'–12'	–	–	10'–12'	6'
–DRWY6–	6'	11'–22'	–	–	11'–21'	6'
–DRWY7–	12'	21.5'–11'	–	–	11'	6'–14'
–DRWY8–	4'	12'	–	–	12'	4'

℄ –DRWY3– , –DRWY5–, –DRWY8–



TYPICAL SECTION NO. 11

–DRWY3– STA. 10+05.00 TO STA. 11+12.22
–DRWY5– STA. 10+14.00 TO STA. 11+58.50 (MIRROR)
–DRWY8– STA. 10+24.00 TO STA. 11+74.35 (ALL SHOULDER)

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2A-5

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER A. DEAN SARVIS

Docusigned by: A. Dean Sarvis 17828

5/18/2023

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER JEREMY R. HAM

Docusigned by: Jeremy R. Ham 39779

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PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2B-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS

A. Dean Sarvis

4/27/2023

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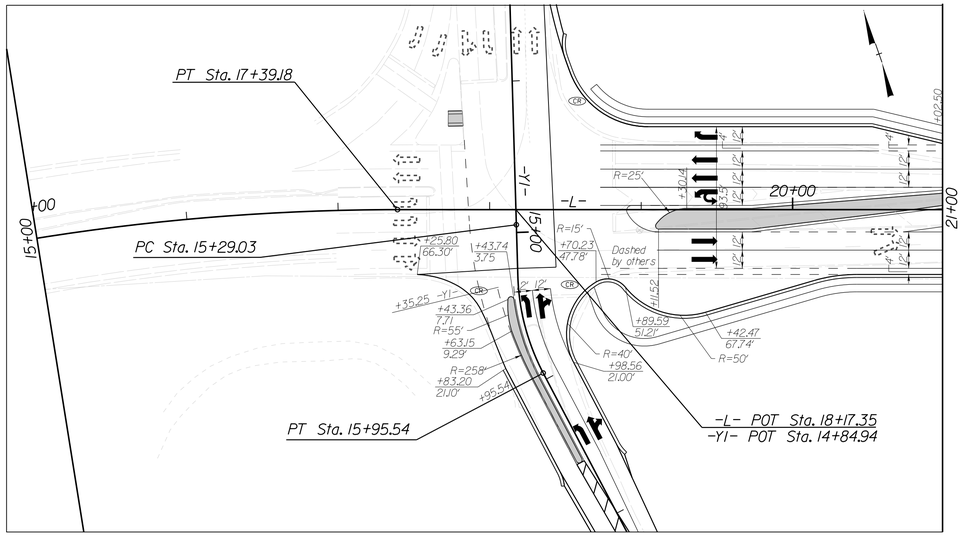
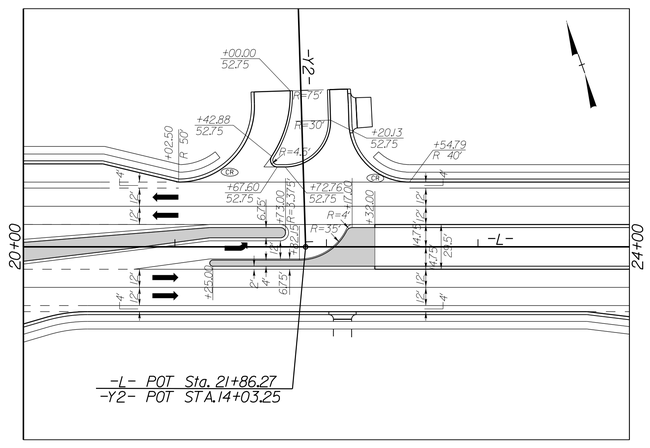
INTERSECTION DETAIL @
–L– (SR 1100–BRAWLEY SCHOOL RD.) &
–Y1– (TALBERT /SUNFISH)



–L– STA. 15+00 TO STA. 21+00

INTERSECTION DETAIL SHOWN FROM PLAN SHEET 4

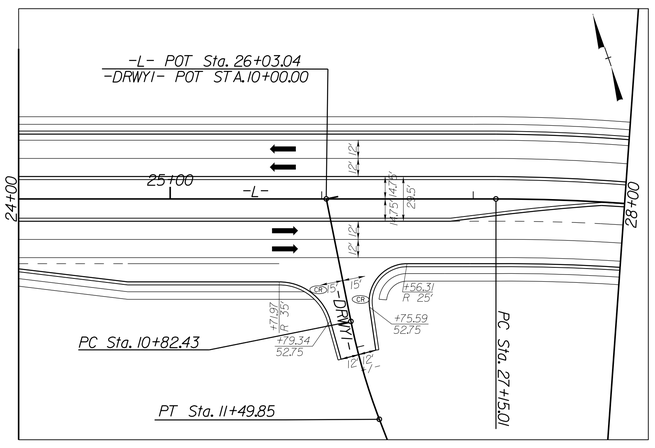
INTERSECTION DETAIL @
–L– (SR 1100–BRAWLEY SCHOOL RD.) &
–Y2– (WINGHAVEN CT.)



–L– STA. 20+00 TO STA. 24+00

INTERSECTION DETAIL SHOWN FROM PLAN SHEET 4

INTERSECTION DETAIL @
–L– (SR 1100–BRAWLEY SCHOOL RD.) &
–DRWY1–



–L– STA. 24+00 TO STA. 28+00

INTERSECTION DETAIL SHOWN FROM PLAN SHEET 4

MONOLITHIC ISLANDS

ALL MONOLITHIC ISLAND RADII ARE 2' UNLESS OTHERWISE LABELED

3/30/2023
J:\3833C_Brawley\Proj\R3833C_rdy_2B-1.dgn
ASarvis

DocuSign Envelope ID: B437460B-F00D-4A40-A154-D71A4FEB37FC

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2B-2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS

A. Dean Sarvis

4/27/2023

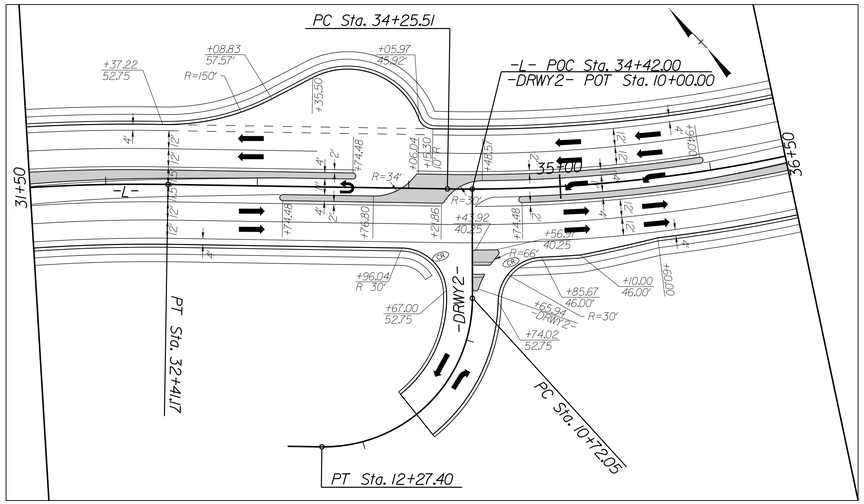
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

Stantec

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

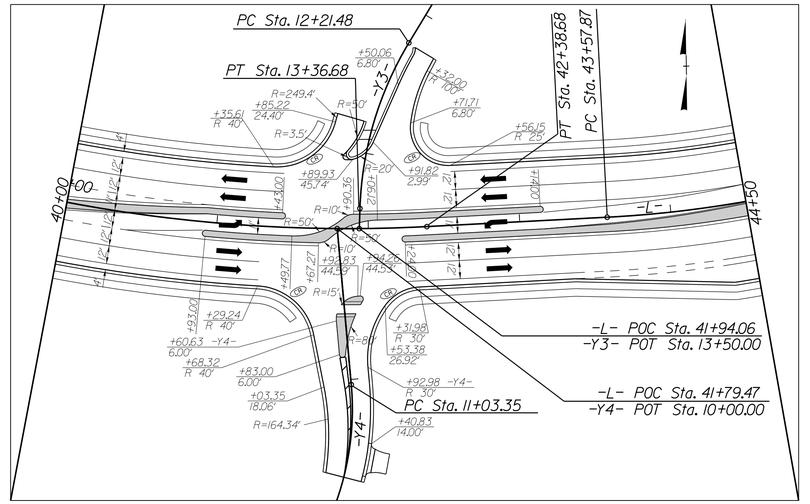
INTERSECTION DETAIL @
–L– (SR 1100–BRAWLEY SCHOOL RD.) &
–DRWY2–



–L– STA. 31+50 TO STA. 36+50

DRIVEWAY /U–TURN DETAIL SHOWN FROM PLAN SHEET 5

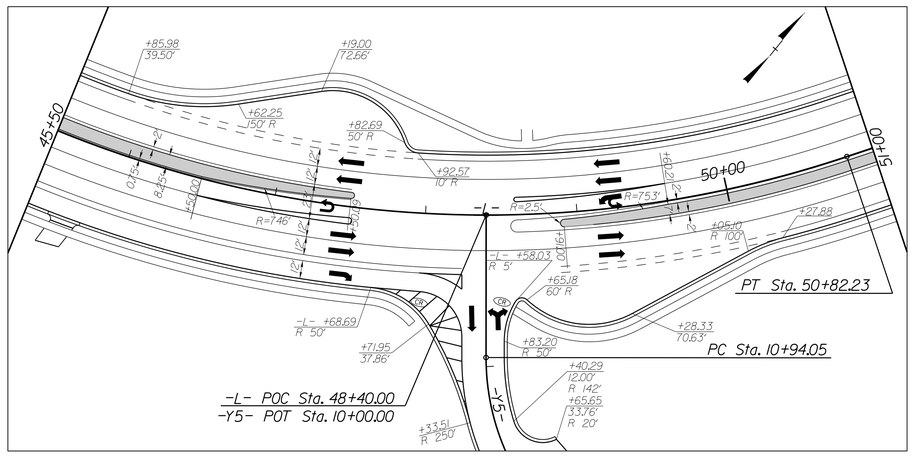
INTERSECTION DETAIL @
–L– (SR 1100–BRAWLEY SCHOOL RD.),
–Y3– (CITATION DR.) &
–Y4– (SECRETARIAT DR.)



–L– STA. 40+00 TO STA. 44+50

INTERSECTION DETAIL SHOWN FROM PLAN SHEETS 5 & 6

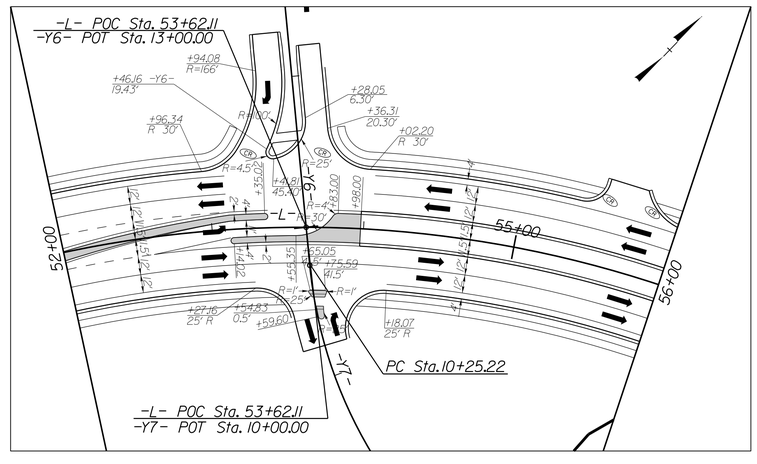
INTERSECTION DETAIL @
–L– (SR 1100–BRAWLEY SCHOOL RD.) &
–Y5– (SR 2993–BALMY LN)



–L– STA. 45+50 TO STA. 51+00

U–TURN /INTERSECTION DETAIL SHOWN FROM PLAN SHEET 6

INTERSECTION DETAIL @
–L– (SR 1100–BRAWLEY SCHOOL RD.),
–Y6– (ROUND KEEP LN), &
–Y7– (COMMERCE PARK RD.)



–L– STA. 52+00 TO STA. 56+00

INTERSECTION DETAIL SHOWN FROM PLAN SHEETS 6 & 7

MONOLITHIC ISLANDS

ALL MONOLITHIC ISLAND RADII ARE 2' UNLESS OTHERWISE LABELED

3/30/2023
D:\R-3833C Proj\Proj\R3833C_rdy_2B-2.dgn
dsarvis

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8/17/99

50 25 0 50 100

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2B-3

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS

A. Dean Sarvis

4/27/2023

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TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
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CORP. LICENSE NO.: C-0275

Stantec

Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
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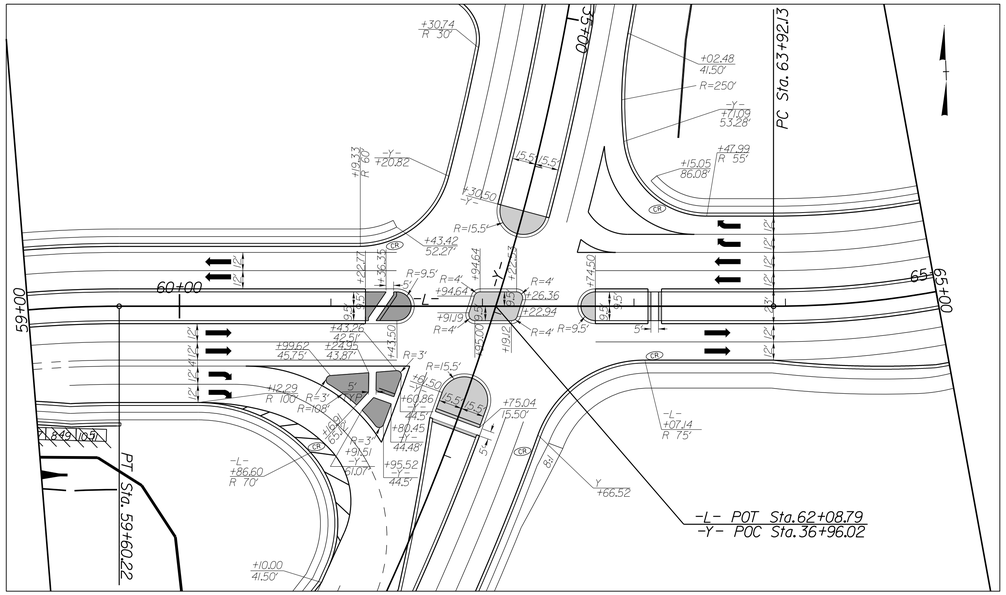
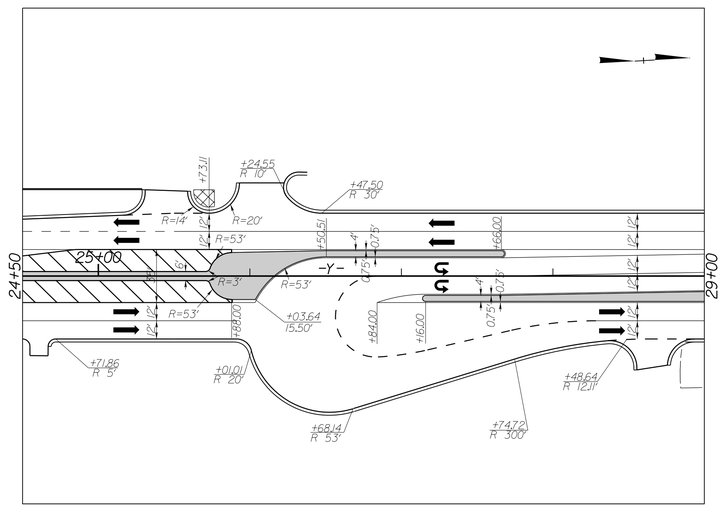
INTERSECTION DETAIL @ –L– (SR 1100–BRAWLEY SCHOOL RD) & –Y– (US 21–CHARLOTTE HWY)



–L– STA. 59+00 TO STA. 65+00

INTERSECTION DETAIL SHOWN FROM PLAN SHEET 7

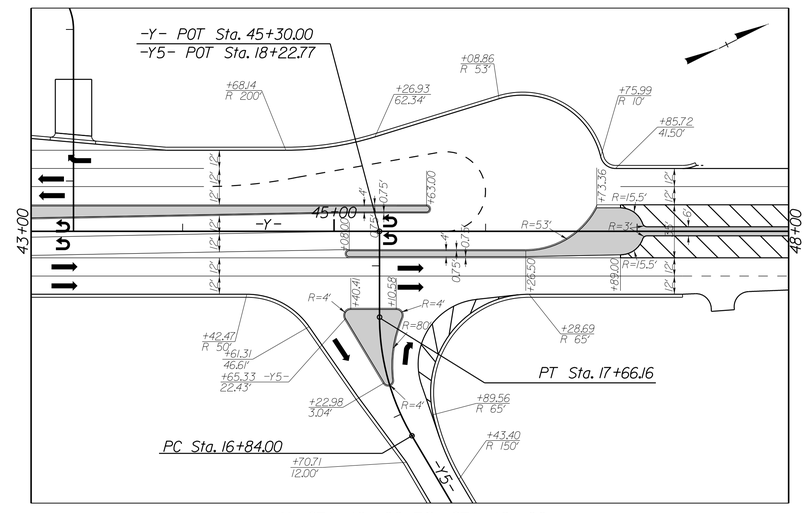
U–TURN BULB ON –Y– (US 21–CHARLOTTE HWY)



–Y– STA. 24+50 TO STA. 29+00

U–TURN DETAIL SHOWN FROM PLAN SHEET 10

INTERSECTION DETAIL @ –Y– (US 21–CHARLOTTE HWY) & –Y5– (SR 2993–BALMY LN)



–Y– STA. 43+00 TO STA. 48+00

U–TURN /INTERSECTION DETAIL SHOWN FROM PLAN SHEET 11

MONOLITHIC ISLANDS

ALL MONOLITHIC ISLAND RADII ARE 2' UNLESS OTHERWISE LABELED

3/30/2023
D:\3833C Proj\Proj\R3833C_rdy_2B-3.dgn
ASarvis

DocuSign Envelope ID: CCAACE9E-86A0-4D9D-9F40-5B42B89BF19A

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PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2B-4

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 29828 DEAN SARVIS

Docusigned by: A. Dean Sarvis 1D0F53E23443...

5/15/2023

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TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
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Stantec
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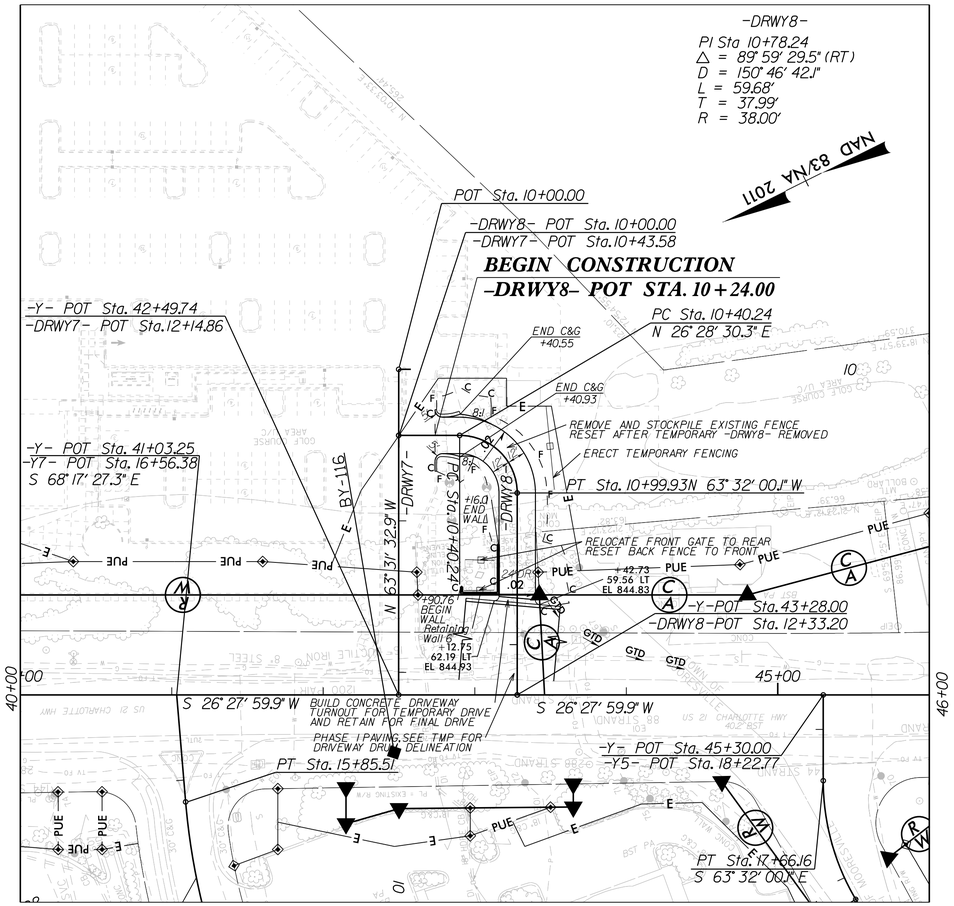
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

TEMPORARY –DRWY8– DESIGN

DETAIL @ TEMPORARY –DRWY8– & –Y– (US 21–CHARLOTTE HWY)
FOR PERMANENT –DRWY8– DESIGN
SEE SHEET 11



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PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2C-1

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

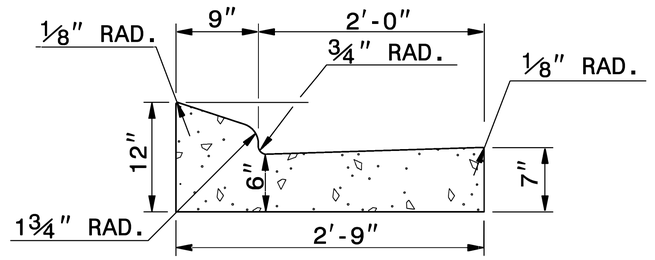
ENGLISH DETAIL DRAWING FOR

2′-9″ CONCRETE CURB & GUTTER

SHEET 1 OF 1

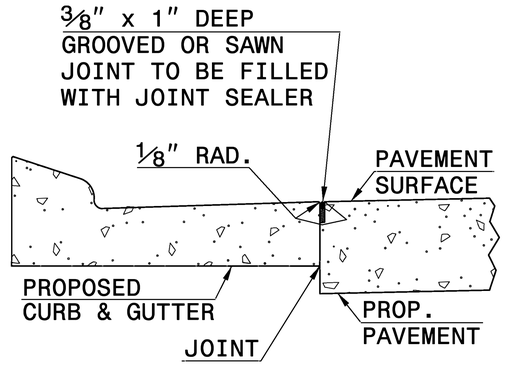
846D01

GENERAL NOTES:
- -PLACE CONTRACTION JOINTS AT 10′ INTERVALS, EXCEPT THAT A 15′ SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10′ INTERVALS.
- -JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
- -CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. MAKE NON-TEMPLATE FORMED JOINTS A MIN. OF 1½″ DEEP.
- -FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
- -SPACE EXPANSION JOINTS AT 90′ INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.
- -SEE RDWY. STD. DWG. NO. 846.01, SHEET 2 OF 3 FOR PLACEMENT IN SUPERELEVATIONS. (USE 2′-6″ CURB AND GUTTER RATES)

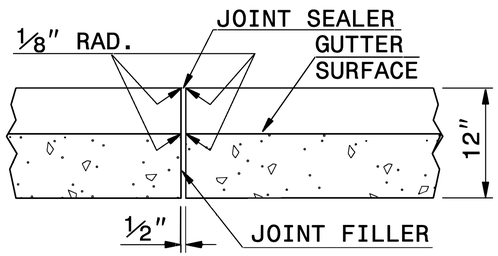


2′-9″ CURB AND GUTTER

SECTION VIEW OF CURB AND GUTTER



LONGITUDINAL JOINT



TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER

SECTION VIEW OF JOINTS

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

2′-9″ CONCRETE CURB & GUTTER

SHEET 1 OF 1

846D01

10-AUG-2017 11:46
S:\Contracts\Contracts\Special Details\erieward\usr\details\stand\c&g2'-9.dgn
jhowerton AT CSD-2925

DocuSigned by: Nicole M. Hall 588432305...
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33144 NICOLE M. HALL
4/27/2023

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CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: STD. 846.01 DATE:
MODIFIED BY: E.E. WARD DATE: 8-15-00
CHECKED BY: DATE:
FILE SPEC.: /usr/details/stand/c&g2'-9".dgn

DocuSign Envelope ID: B437460B-F00D-4A40-A154-D71A4FEB37FC

5/14/99

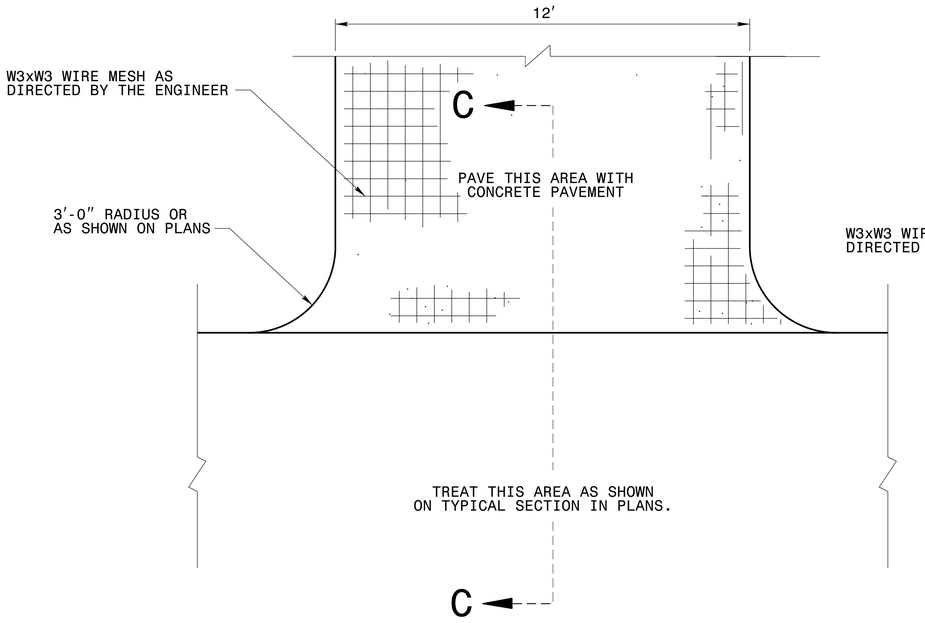
PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2C-2

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

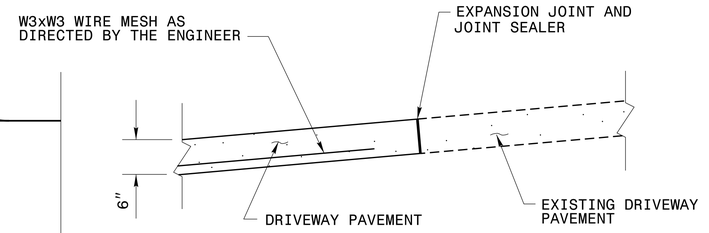
ENGLISH DETAIL DRAWING FOR
DRIVEWAY TURNOUT
RADIUS TYPE

SHEET 1 OF 1

848D02



PARTIAL PLAN OF PAVED DRIVEWAY TURNOUT



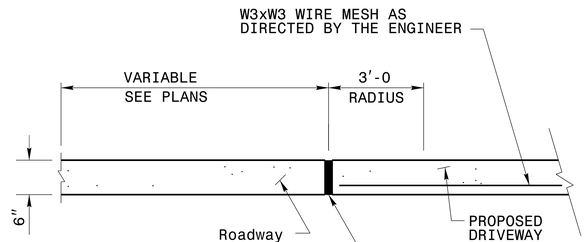
METHOD OF TIE IN

WHEN EXISTING DRIVEWAY PAVEMENT IS CONCRETE, SAW CUT A 2″ DEEP JOINT AT THE POINT OF TIE IN WITH EXISTING DRIVEWAY GRADE.

SAW JOINT PERPENDICULAR TO EDGE OF EXISTING DRIVEWAY PAVEMENT.

NOTES:

- CONSTRUCT STANDARD DRIVEWAY THE WIDTH OF EXISTING DRIVE. CONSTRUCT DRIVE 6″ THICK UNLESS OTHERWISE NOTED ON PLANS.
- PLACE ½″ EXPANSION JOINT BETWEEN DRIVEWAY AND ROADWAY AND AT LOCATIONS AS DIRECTED BY THE ENGINEER. SEAL JOINT WITH JOINT SEALER (SEE STD.SECTION 1028)
- PLACE WIRE MESH IN BOTTOM THIRD OF CONCRETE DRIVEWAY.
- SAW CUT OR FORM CONTRACTION JOINTS IN DRIVEWAY @ 10′ INTERVALS. AT EVERY THIRD JOINT, PLACE EXPANSION MATERIAL AS SHOWN IN SECTION C-C.



SECTION C-C

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
DRIVEWAY TURNOUT
RADIUS TYPE

SHEET 1 OF 1

848D02

DocuSigned by:
Nicole M. Hackler
5884320E...

4/27/2023

NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M. HACKLER

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CONTRACT STANDARDS & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-707-6950 FAX 919-250-4119

REINFORCED CONCRETE DRIVEWAY

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: rnbritt DATE: 03-20-08
CHECKED BY: _____ DATE: _____
FILE SPEC.: details/english/misc/concdrive.dgn

30-JAN-2018 12:40
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jhowerton AT CSD-292595

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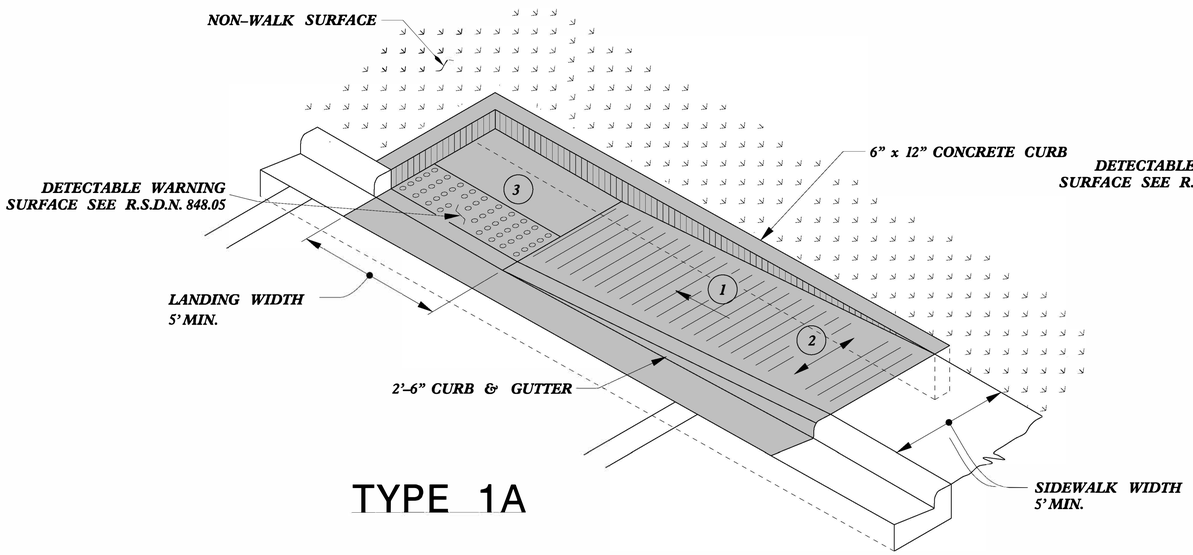
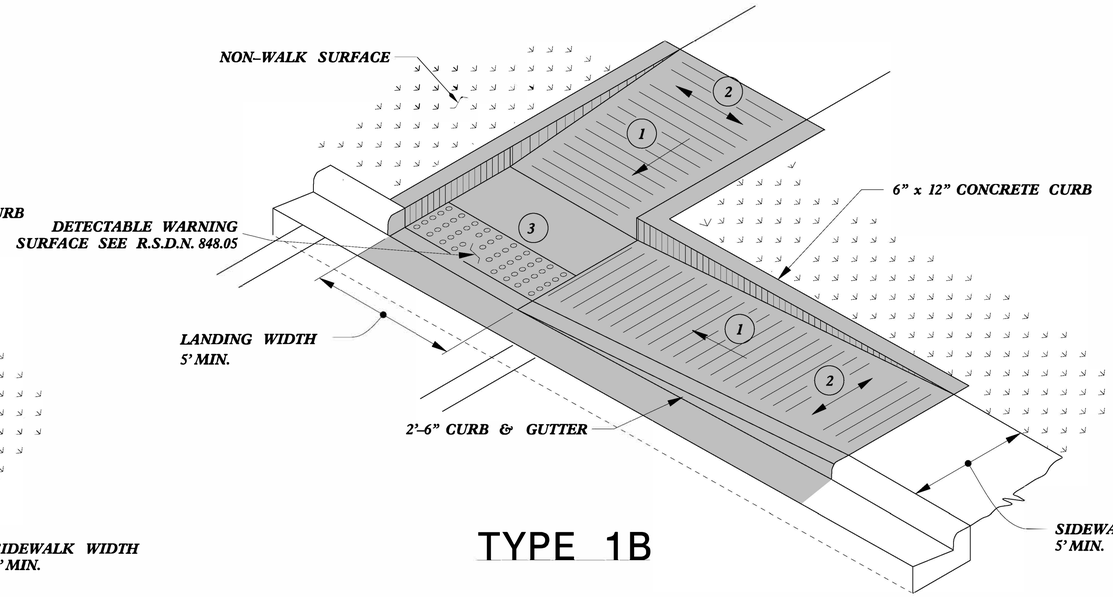
5/14/99

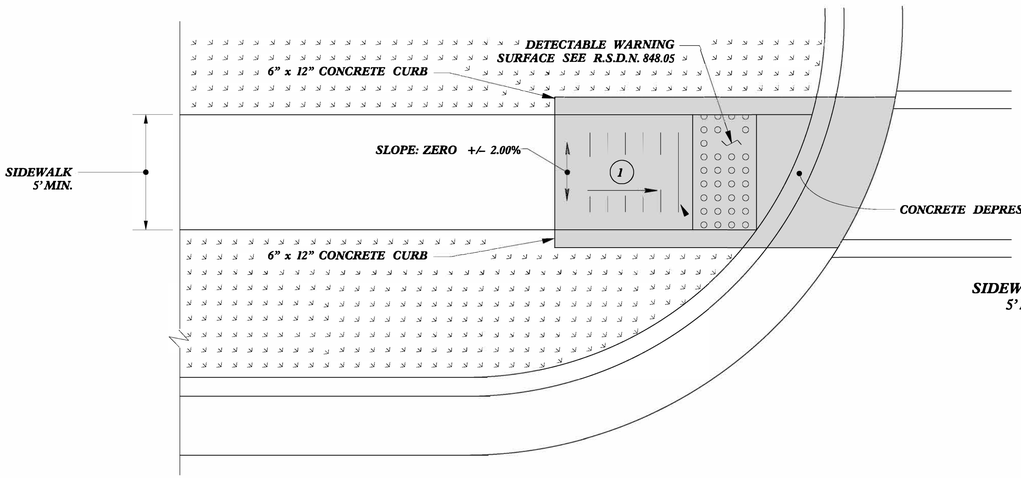
PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2C-3



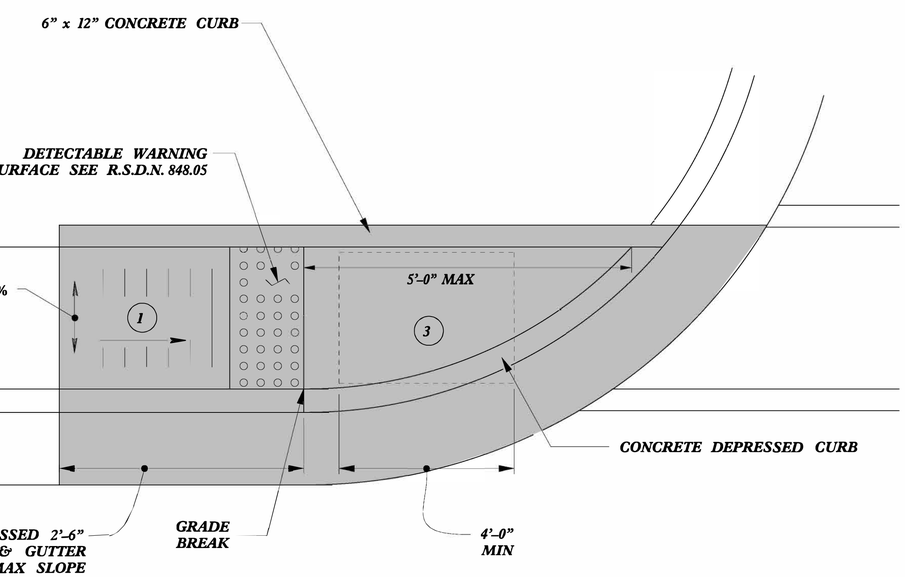
TYPE 1A



TYPE 1B



TYPE 1 Modified



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.*

PAY LIMITS FOR 1 CURB RAMP

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

DocuSigned by: Nicole Hawker 58843230...

NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M HAWKER

4/27/2023

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CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

Directional Ramps

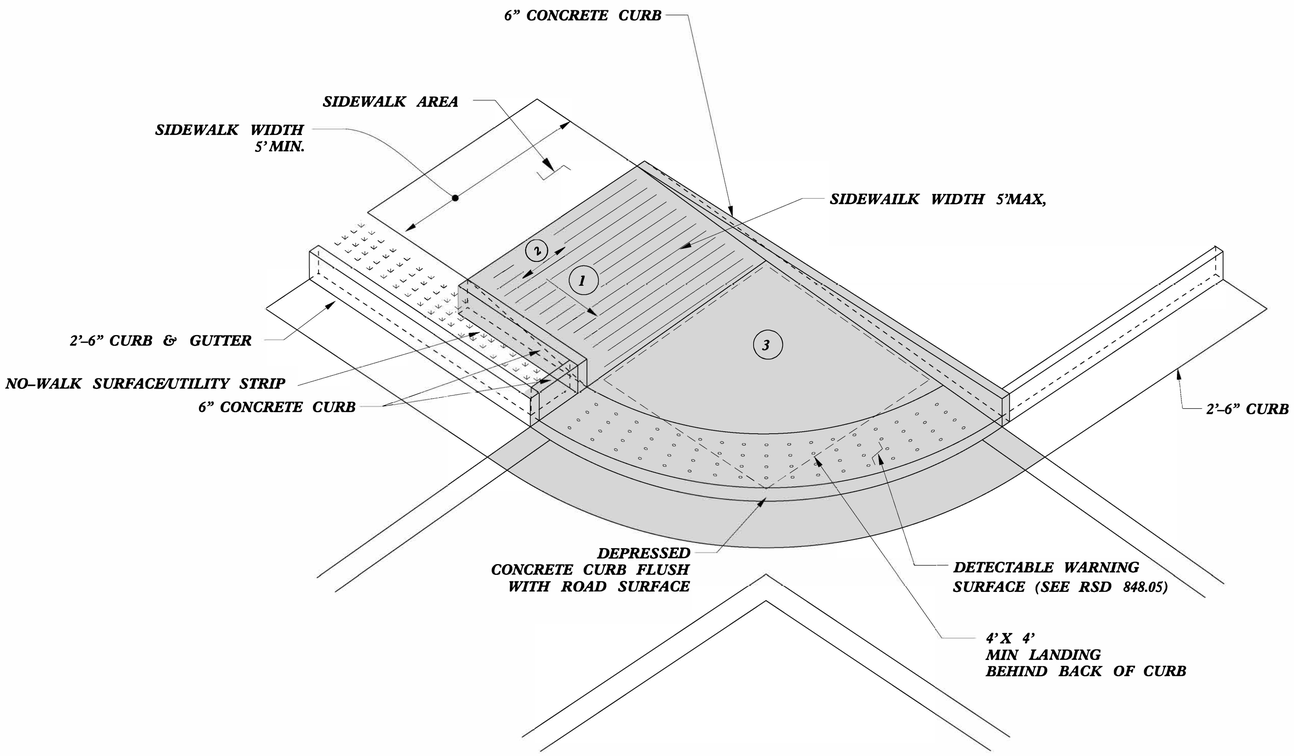
ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC. :stds/2012CurbRamp/CurbRampDetails.dgn

USER NAME = $$USERNAME$$
DESIGN = $$DESIGN$$
SYSTEM = $$SYSTEM$$

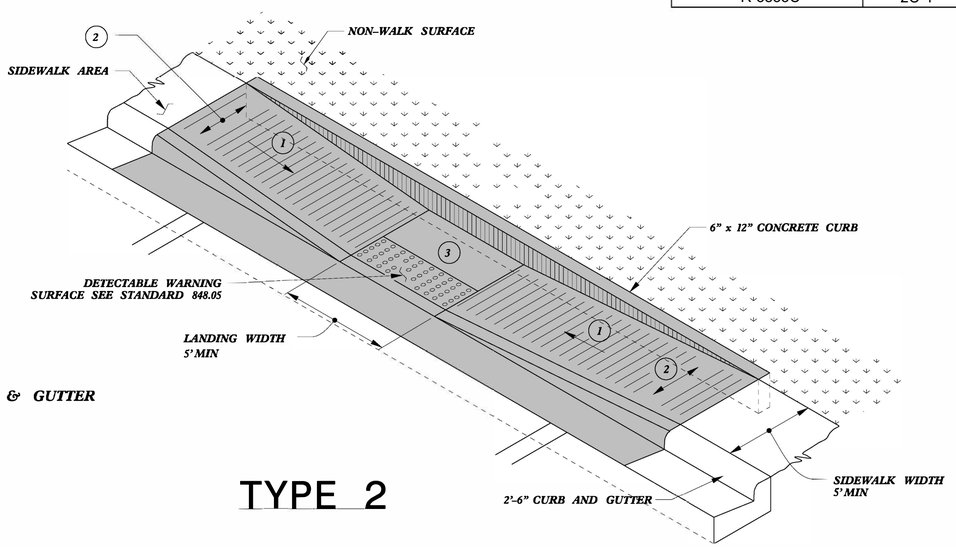
DocuSign Envelope ID: B437460B-F00D-4A40-A154-D71A4FEB37FC

5/14/99

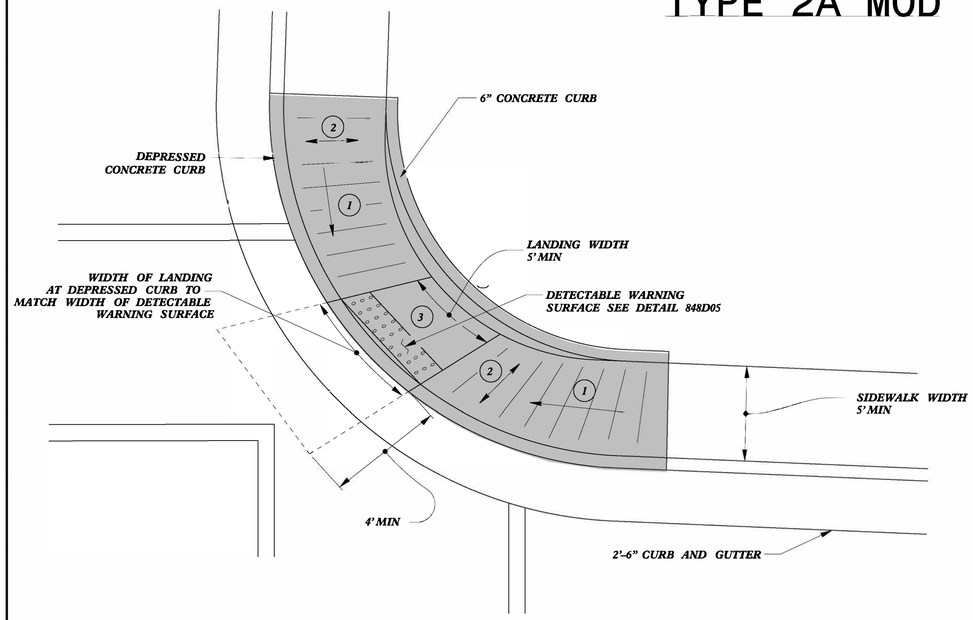
PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2C-4



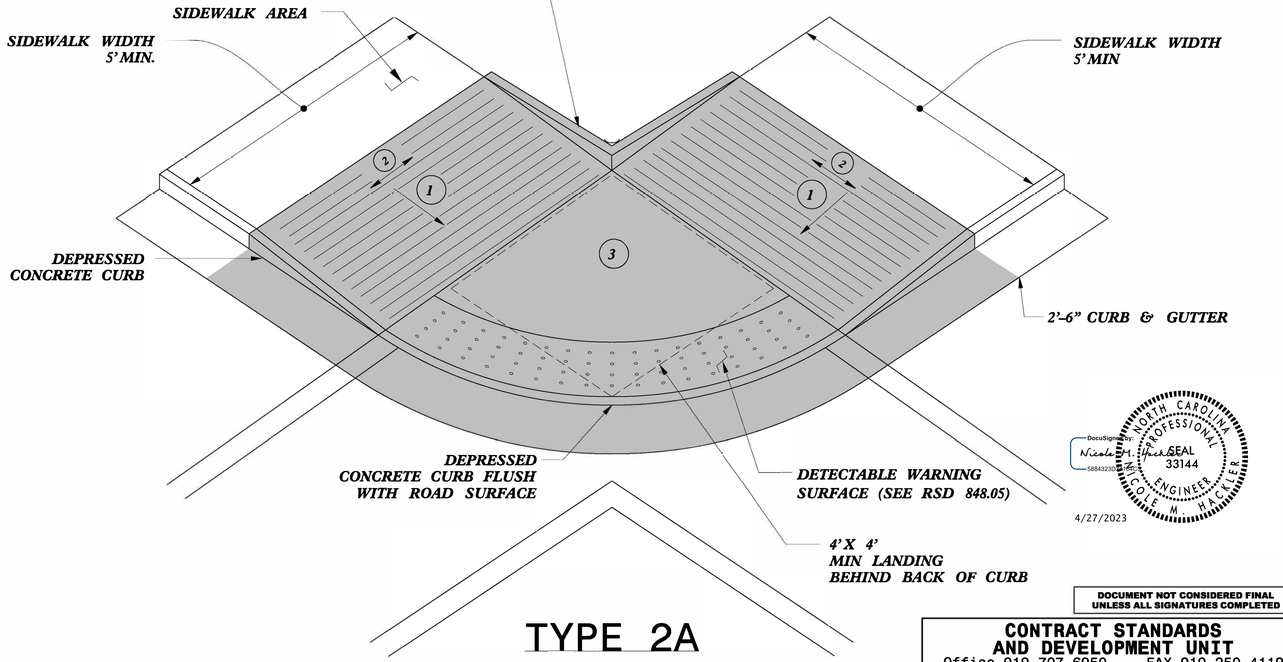
TYPE 2A MOD



TYPE 2



TYPE 2B



TYPE 2A

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 1 CURB RAMP

DocuSigned by: Nicole M. Hackley 5884329D...
NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M. HACKLEY
4/27/2023

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CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC. stds/2012CurbRamp/CurbRampDetails.dgn

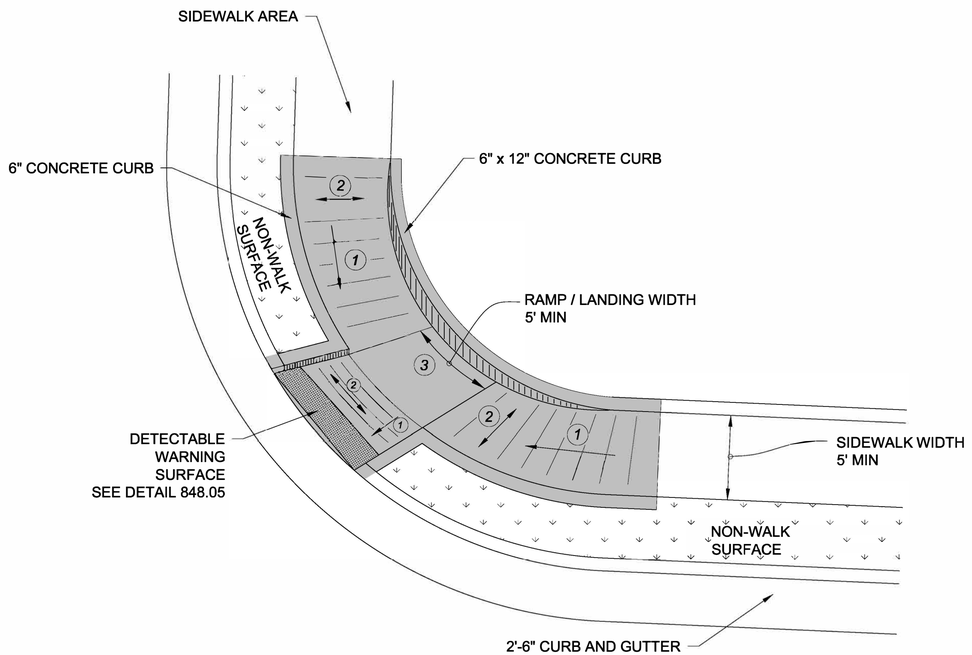
USER NAME = $$$$USERNAME$$$$
PLOT SCALE = $$$$SCALE$$$$
PLOT DATE = $$$$DATE$$$$
$$$$TIME$$$$
$$$$SYSTEM$$$$

DocuSign Envelope ID: B437460B-F00D-4A40-A154-D71A4FEB37FC

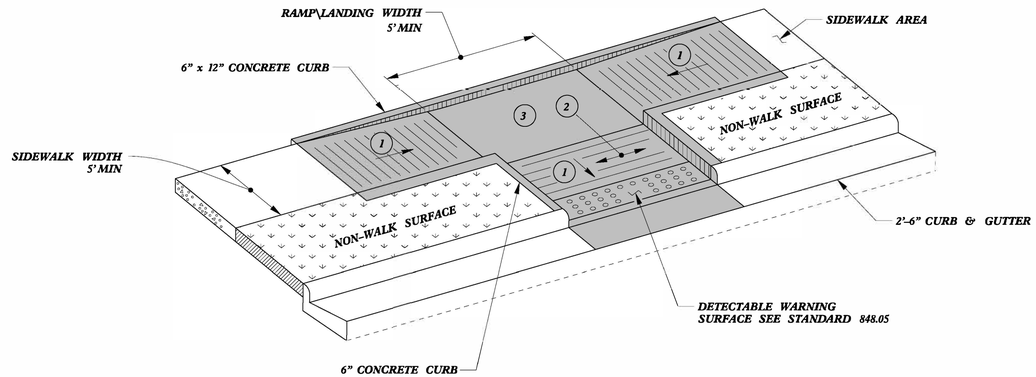
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2C-5

PAY LIMITS FOR 1 CURB RAMP



TYPE 3 MODIFIED
INSTALLATION IN A RADIUS



TYPE 3

(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.*

DocuSigned by: Nicole Tucker 58843230...
NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER COLE M. HACKER
4/27/2023

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CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

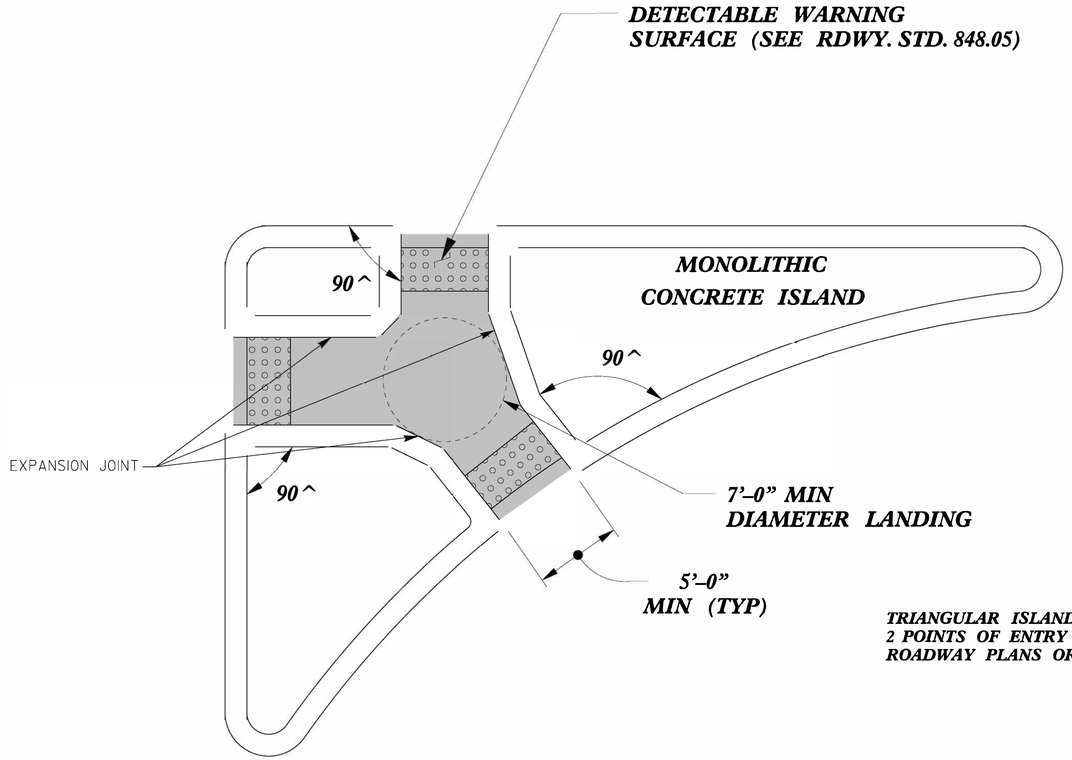
ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC. stds/2012CurbRamp/CurbRampDetails.dgn

$$$$SYSTEM$$$$
$$$$USERNAME$$$$

DocuSign Envelope ID: B437460B-F00D-4A40-A154-D71A4FEB37FC

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2C-6

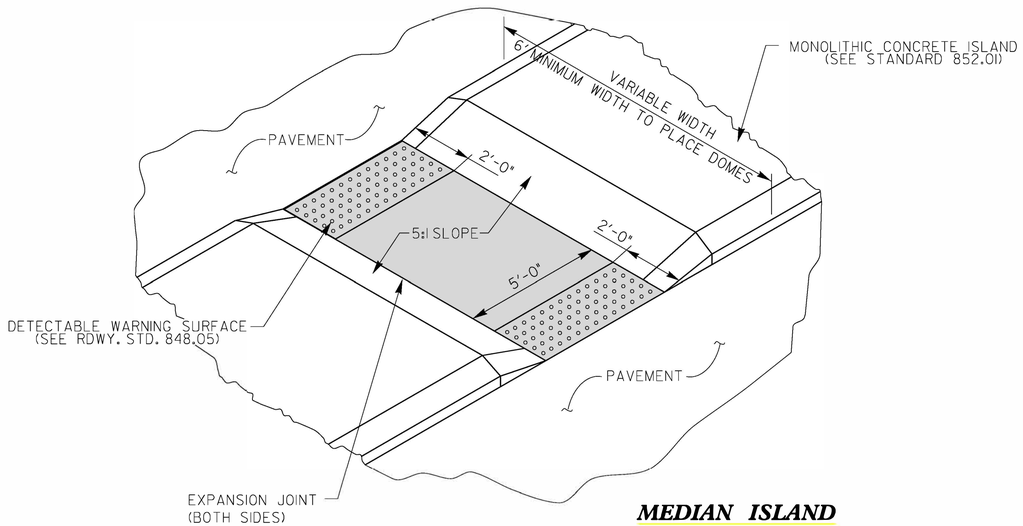


PAY LIMITS FOR 2 OR 3 CURB RAMPS (CALCULATE BASED ON NUMBER OF SETS OF TRUNCATED DOMES)

TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

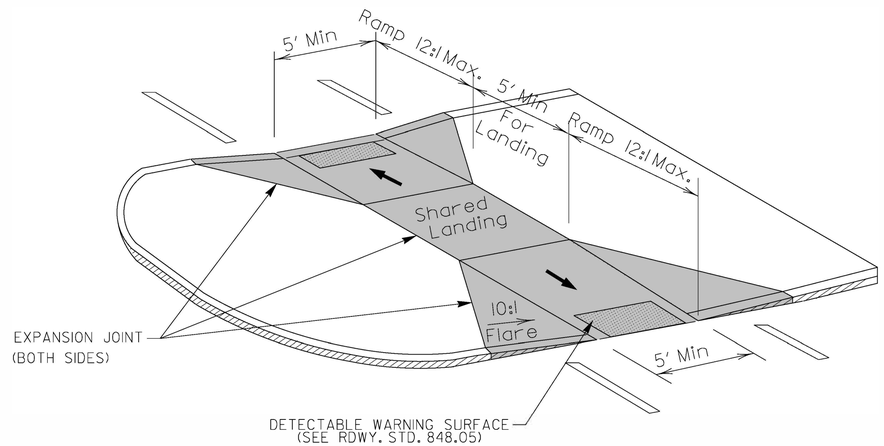
TRIANGULAR ISLAND WITH CUT THROUGH

TYPE 6



MEDIAN ISLAND WITH CUT THROUGH

TYPE 7



MEDIAN ISLAND CURB RAMPS

TYPE 8

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DocuSigned by: Nicole M. Hackler 5884323D...

NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M. HACKLER

4/27/2023

CONTRACT STANDARDS AND DEVELOPMENT UNIT
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

$$$$SYSTIME$$$$
$$$$USERNAME$$$$

DocuSign Envelope ID: B437460B-F00D-4A40-A154-D71A4FEB37FC

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2C-7

STATE OF
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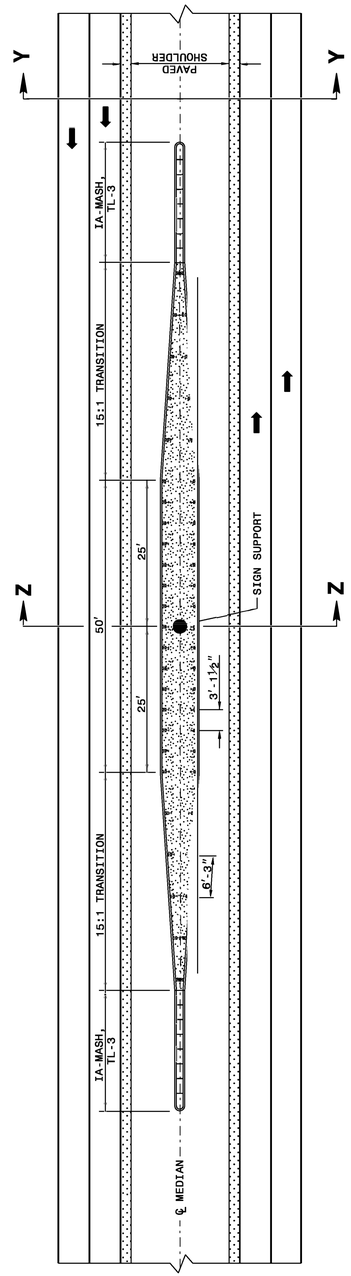
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

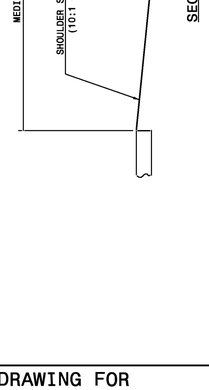
ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

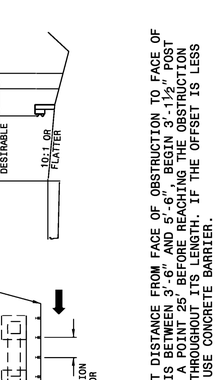
SHEET 2 OF 11
862D01



NOTE SPECIAL LAYER OF PAVEMENT .....

USE 3'-1½" POST SPACING ON THE 50' OF GUARDRAIL PARALLEL TO LANES AND 6'-3" POST SPACING ON 15:1 TRANSITION SECTIONS.
GRADE MEDIAN IN THE VICINITY OF THE SIGN SUPPORT AS ILLUSTRATED IN THE ROADWAY STANDARD DRAWINGS (STARDARD 862.01 SHEET 1 OF 12).





DETAIL OF GUARDRAIL AT MEDIAN SIGN SUPPORT

DocuSigned by:
Nicole M. Hickle
58843235...
SEAL
33144
NORTH CAROLINA PROFESSIONAL ENGINEER
NICOLE M. HICKLE
4/27/2023

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MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

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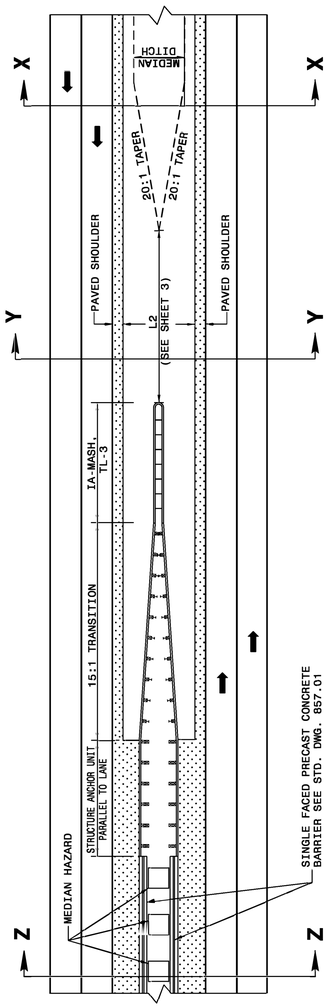
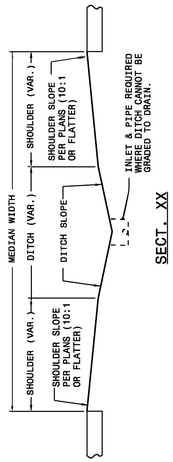
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

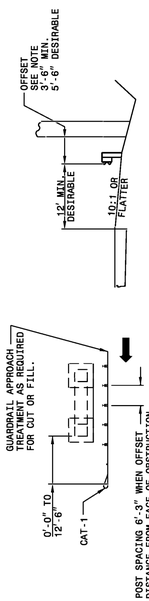
ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 1 OF 11
862D01





DETAIL OF MEDIAN TREATMENT AT UNDERPASS



NOTE: WHEN OFFSET DISTANCE FROM FACE OF OBSTRUCTION TO FACE OF GUARDRAIL IS BETWEEN 3'-6" AND 5'-6", BEGIN 3'-1½" POST SPACING AT A POINT 25' BEFORE REACHING THE OBSTRUCTION AND CARRY THROUGHOUT ITS LENGTH. IF THE OFFSET IS LESS THAN 3'-6" USE CONCRETE BARRIER.

DETAIL OF RIGHT SIDE GUARDRAIL AT UNDERPASS

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RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 1 OF 11
862D01

04-SEP-2018 08:31
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jhowerton AT CSD-292595

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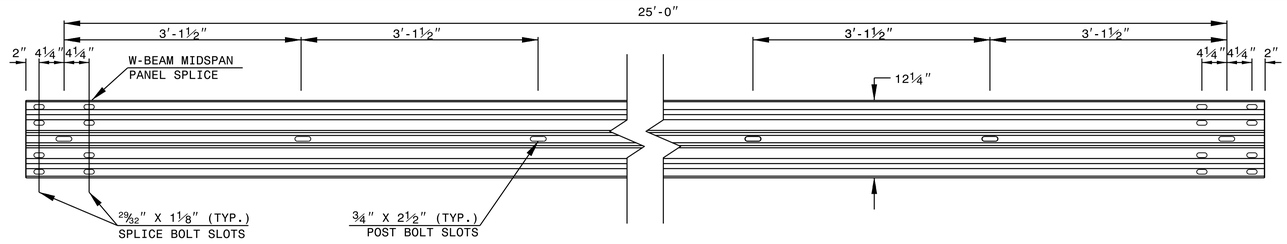
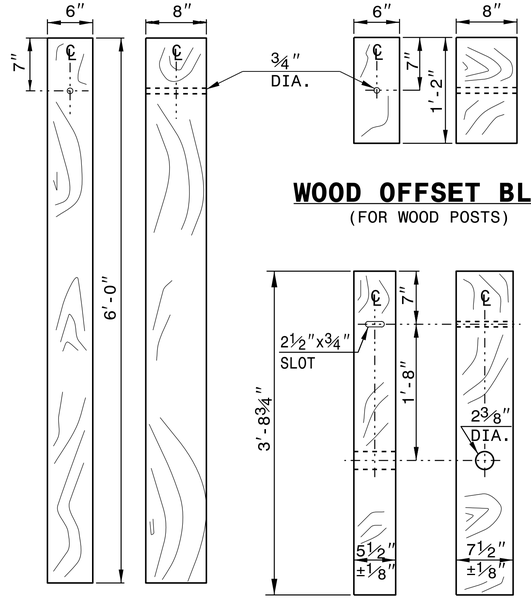
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



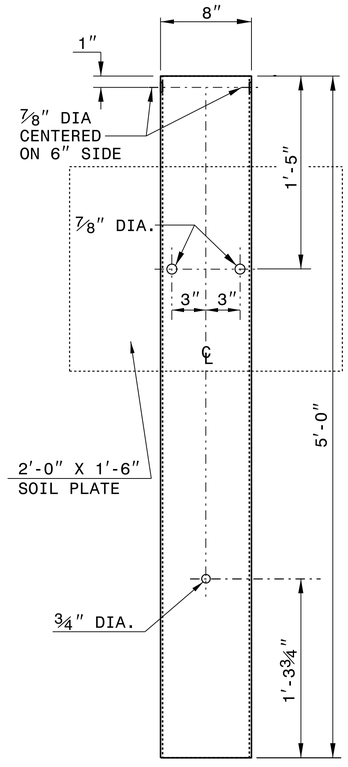
STANDARD W-BEAM GUARDRAIL



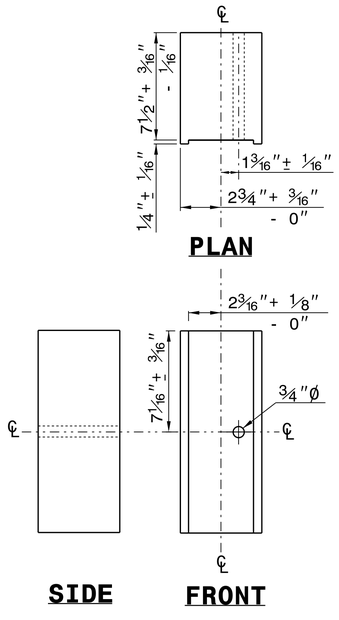
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

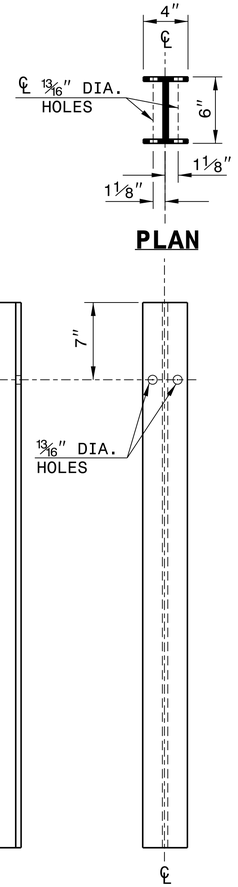
SHORT WOOD BREAKAWAY POST



STEEL TUBE
TS 6"x8"x0.1875"



ROUTED OFFSET BLOCK



"W6" STEEL POST

SYSTEM PARTS

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

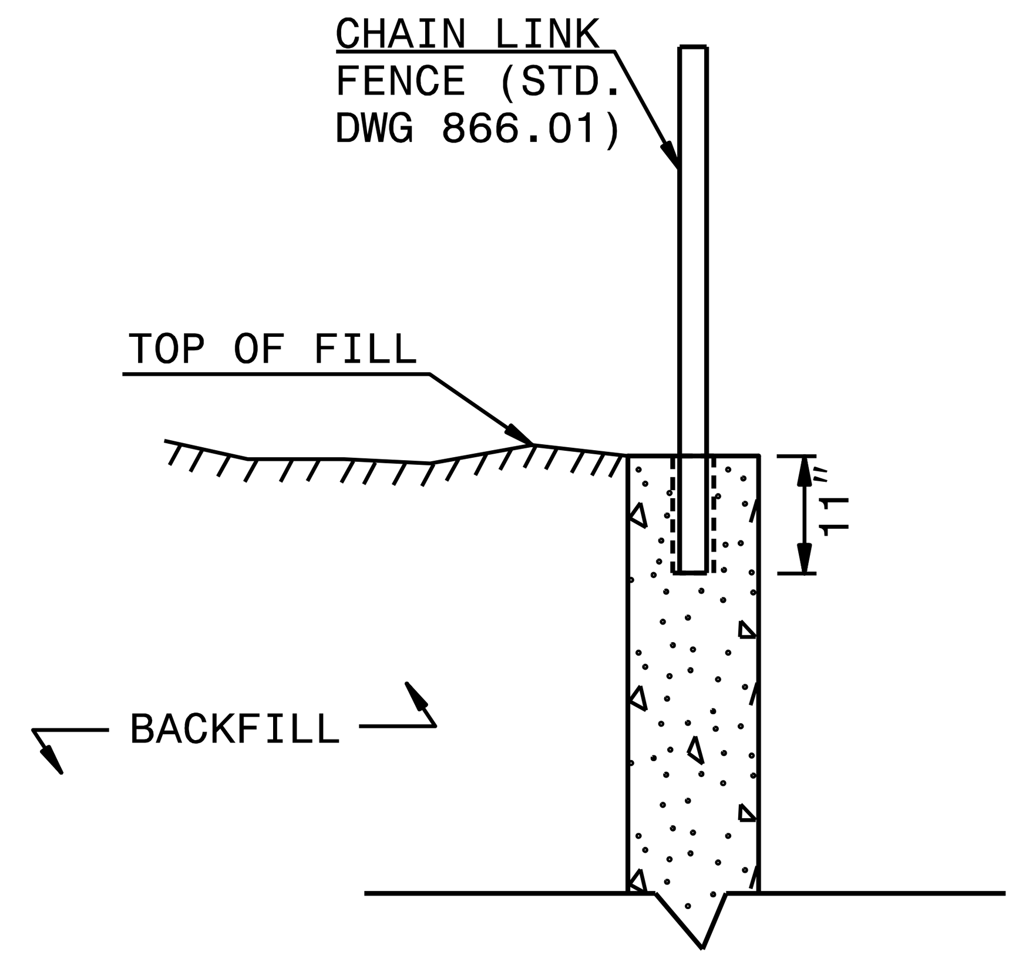
DocuSigned by: Nicole M. Hansel 58843230...
NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M. HANSEL
4/27/2023

CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

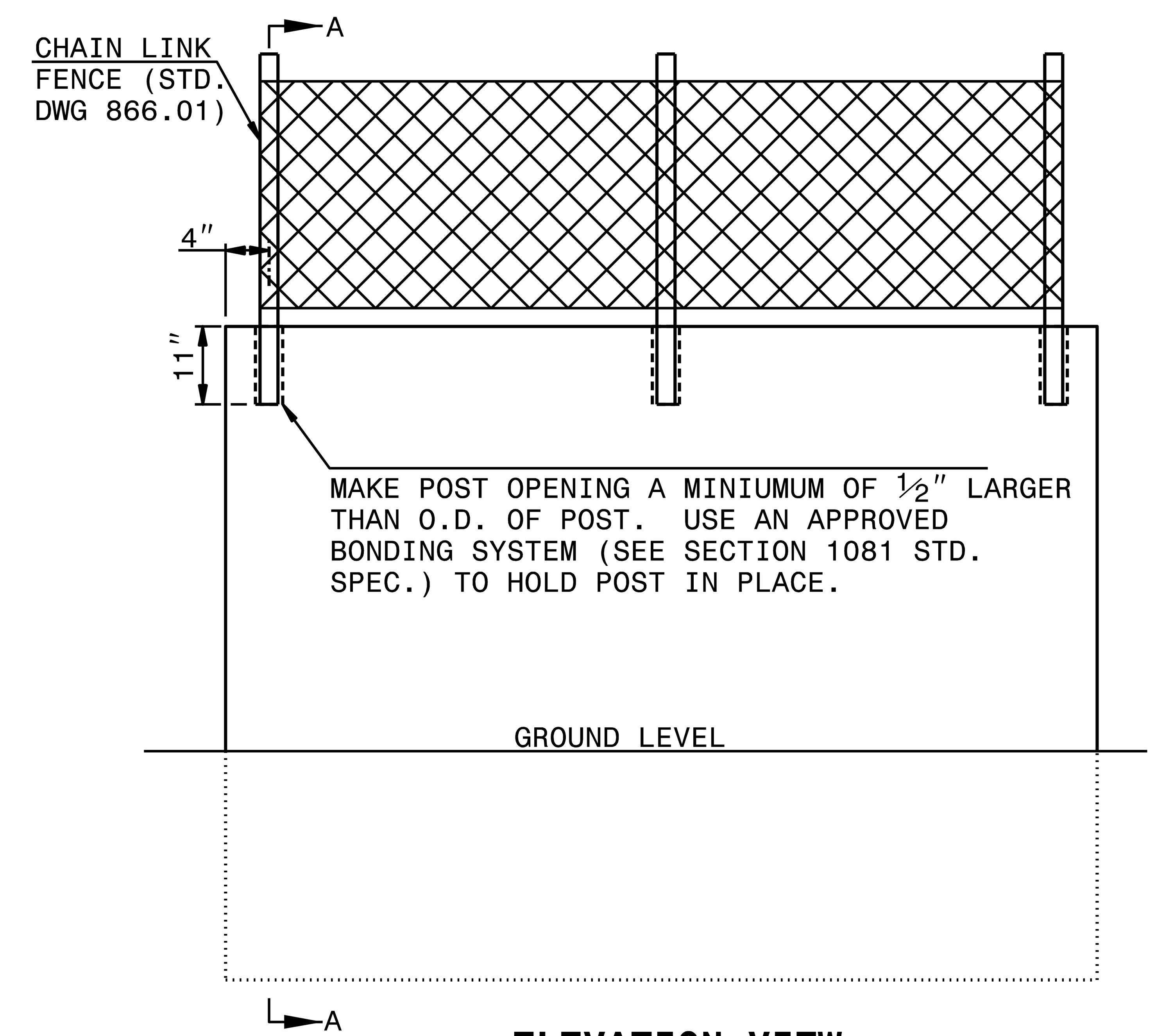
SEE TITLE BLOCK

ORIGINAL BY: J.HOWERTON DATE: 3-7-2018
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

DocuSign Envelope ID: B437460B-F00D-4A40-A154-D71A4FEB37FC

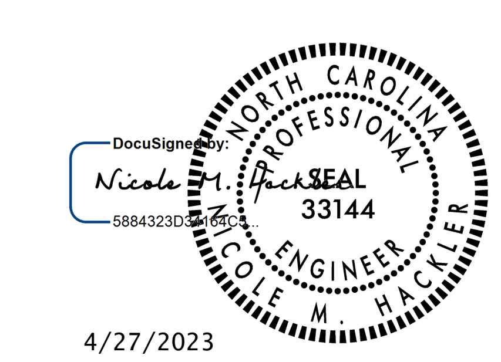


SECTION A-A
RETAINING WALL



ELEVATION VIEW
OF RETAINING WALL

EMBED CHAIN LINK FENCE 11" INTO PROPOSED WALL IN A SLEEVE OR BLOCKOUT WITH EPOXY OR CONCRETE GROUT ANCHORING SYSTEM. PRE-MEASURE AND CENTER THE PROPOSED FENCE ON TOP OF WALL FOR POST SPACINGS. IFF DRILLING THE HOLES FOR POSTS, USE A ROTARY DRILL TO DRILL HOLES IN THE CONCRETE. NO IMPACT DRILLS WILL BE ALLOWED, TO ELIMINATE ANY POSSIBILITY OF STRUCTURAL DAMAGES TO THE PROPOSED WALL.



4/27/2023

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AND DEVELOPMENT UNIT
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CHAIN LINK FENCE ON RETAINING WALL

ORIGINAL BY: DATE:
MODIFIED BY: K.A. KEMPF DATE: SEP. 2017
CHECKED BY: DATE:
FILE SPEC.: usr/detials/jhowerton/chain link on retaining wall.dgn

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

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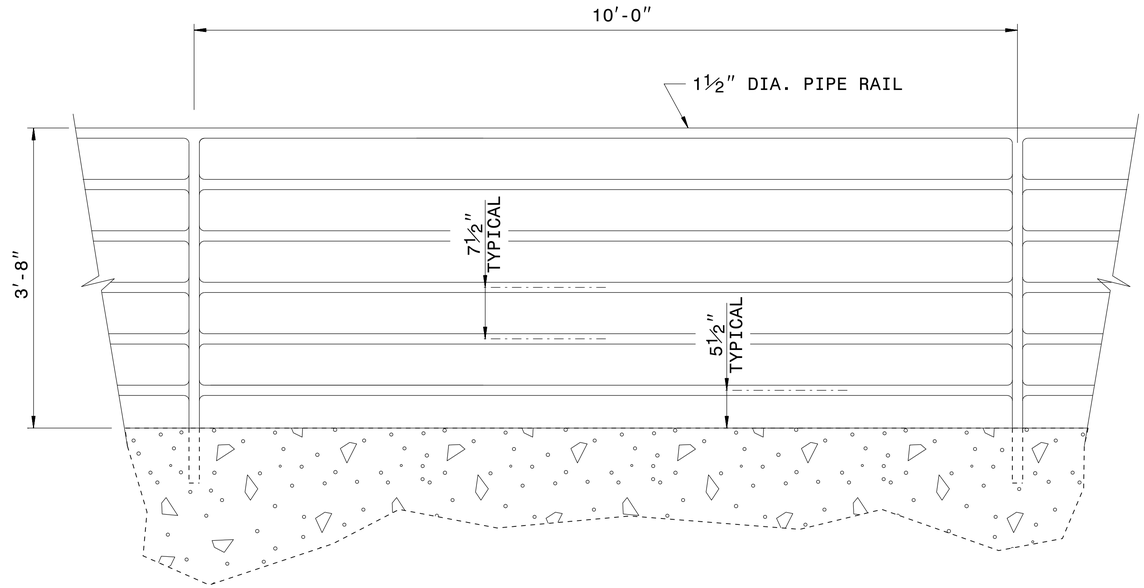
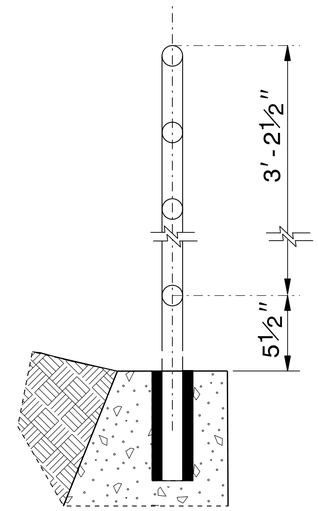
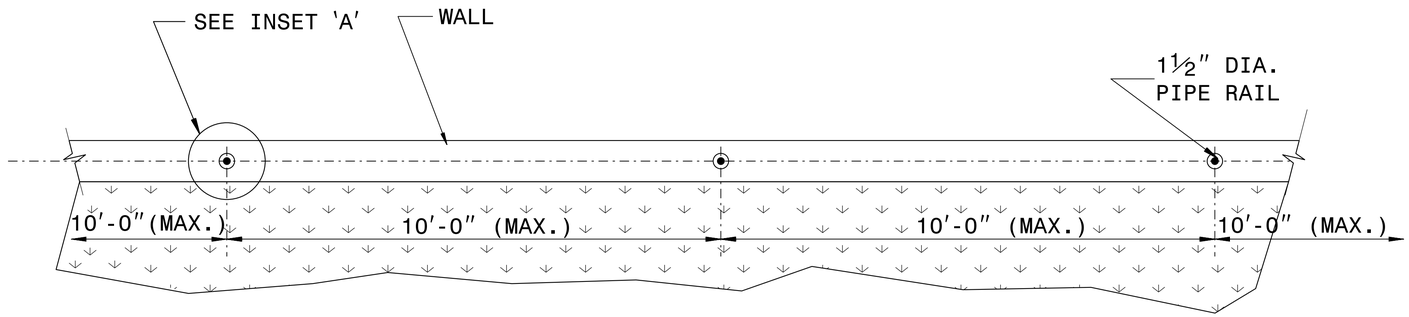
PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2C-10



ELEVATION OF HANDRAIL



INSET 'A'



PLAN VIEW

NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL 1½″ DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

EMBED PIPE RAIL INTO PROPOSED WALL WITH CHEMICAL OR CONCRETE GROUT ANCHORING SYSTEM PER THE WALL MANUFACTURER'S RECOMMENDATIONS.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

PAINT, IF REQUIRED BY THE ENGINEER, IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.

CENTER THE PROPOSED RAILING ON TOP OF THE WALL WITH POST SPACING SYMMETRICAL ABOUT THE CENTER-LINE OF THE WALL.

WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

SUBMIT THE ATTACHMENT OF THE HANDRAIL TO THE RETAINING WALL TO THE CONTRACTS AND STANDARDS OFFICE FOR APPROVAL.

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DocuSigned by: Nicole M. Hacker 58843230...

NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M. HACKER

4/27/2023

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

DETAIL OF PIPE HANDRAIL MOUNTED ON A WALL

ORIGINAL BY: E.E. WARD DATE: 12-99
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: jhowerton/handrail on retaining wall.dgn

24-MAY-2018 14:10
S:\Contracts\Contracts\Special Details\jhowerton\Handrail on Retaining Wall.dgn
jhowerton AT CSD-292595

DocuSign Envelope ID: B437460B-F00D-4A40-A154-D71A4FEB37FC

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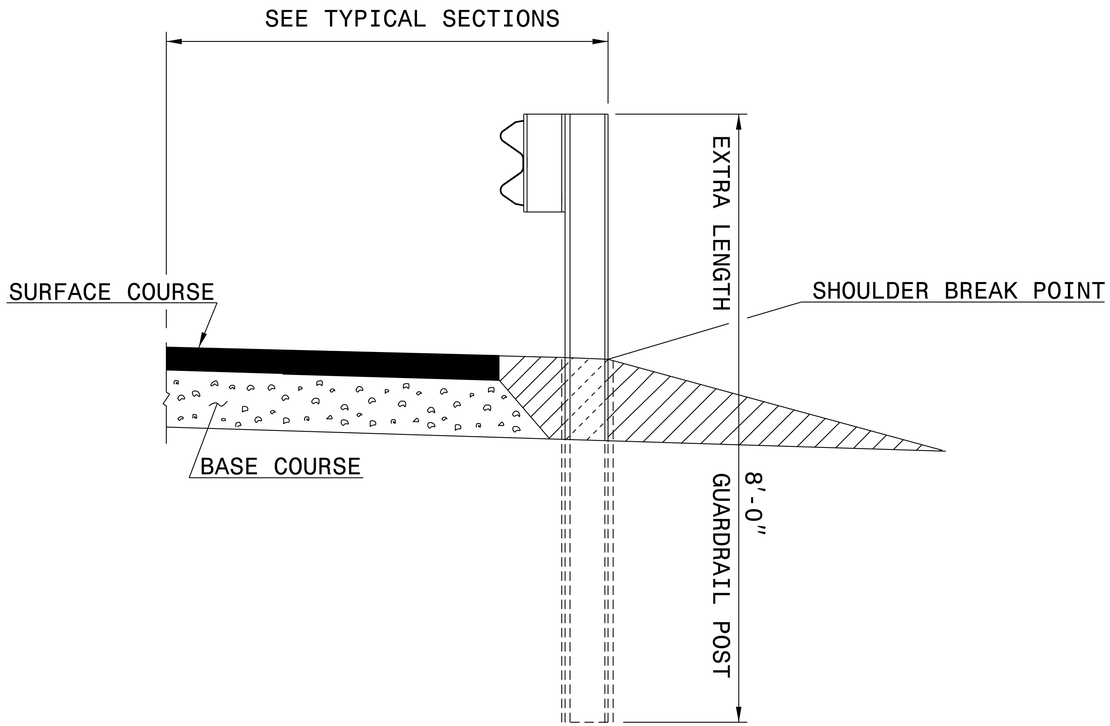
R-3833C	2C-11



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8′ GUARDRAIL POST

ORIGINAL BY: L. Robinson DATE: 1995
MODIFIED BY: L. Robinson DATE: Feb, 1996
CHECKED BY: DATE:
FILE SPEC.: s:7'postguardrail.dgn

09-MAY-2018 14:21
S:\Contracts\Contracts\Special Details\jhowerton\7'postguardrail.dgn
jhowerton AT CSD-242595