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SEE SHEET 1B FOR CONVENTIONAL PLAN SHEET SYMBOLS

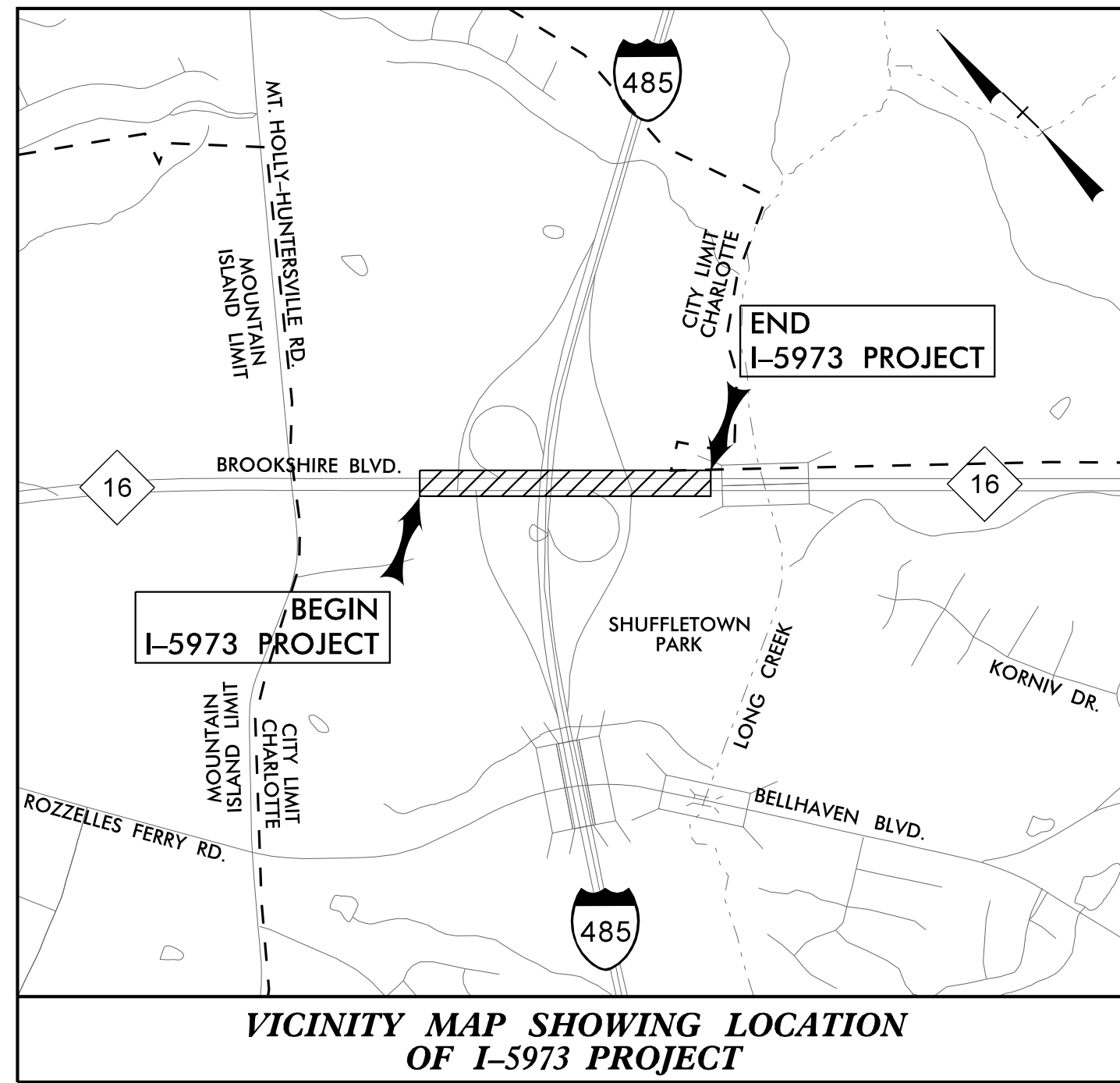
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**MECKLENBURG COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5973	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
44990.1.1		PE	
44990.2.1	NHP-0485(052)	R/W & UTIL	
44990.3.1		CONST.	

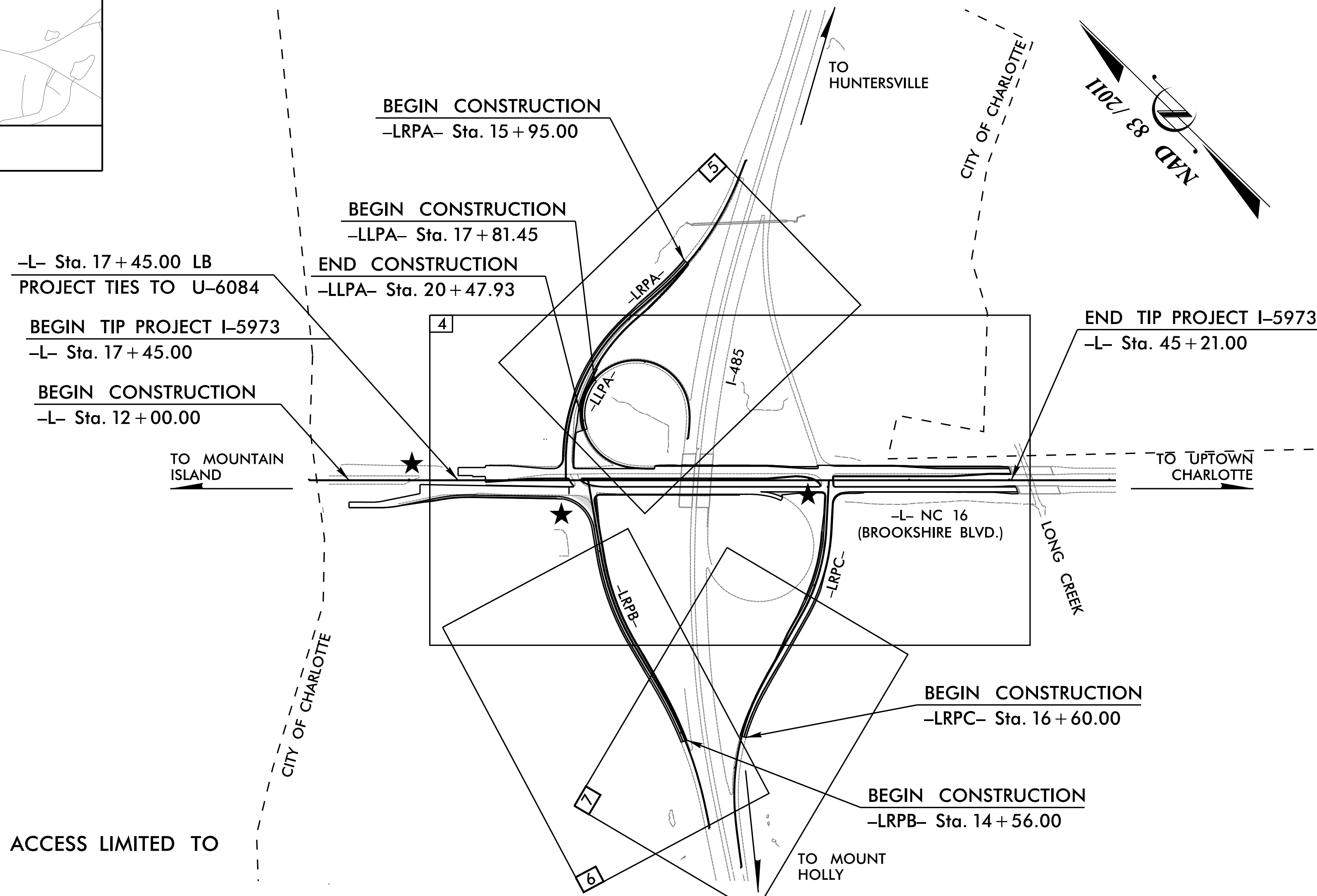
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TIP PROJECT: I-5973

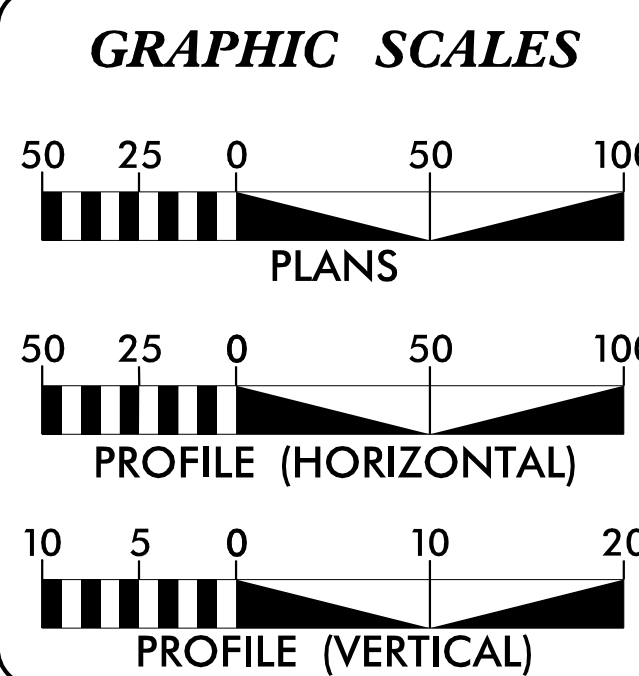


LOCATION: I-485 AT NC 16 (BROOKSHIRE BLVD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND SIGNALS



CONTRACT: C204658



**DESIGN DATA**

ADT 2022 =	53,570
ADT 2042 =	71,270
DHV =	8 %
D =	60 %
T =	10 % *
V =	60 MPH
* (TTST 4% + DUAL 6%)	
FUNC. CLASS = ARTERIAL REGIONAL TIER	

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT I-5973	=	0.526 MILES
TOTAL LENGTH OF TIP PROJECT I-5973	=	0.526 MILES

PLANS PREPARED FOR THE NCDOT BY:  
2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
JUNE 4, 2021

LETTING DATE:  
SEPTEMBER 20, 2022

**Kimley Horn**  
NC LICENSE #K-0102  
200 SOUTH TRYON STREET, SUITE 200  
CHARLOTTE, NORTH CAROLINA 28202  
PHONE: (704) 333-5131

GREGORY BREW, PE  
PROJECT ENGINEER

TONY SPACEK, PE  
PROJECT DESIGN ENGINEER

DONALD GRIFFITH  
DM-STIP PROJECT MANAGER  
NCDOT HIGHWAY DIVISION 10

**HYDRAULICS ENGINEER**

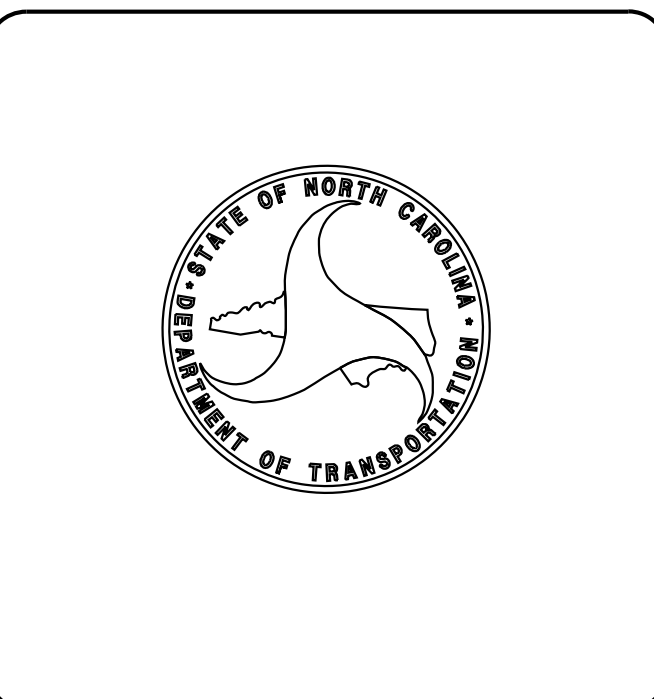
6/9/2022

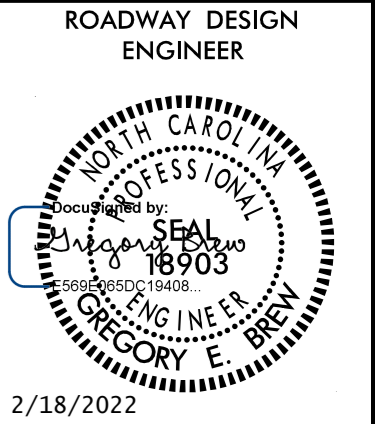
DocuSigned by:  
Jason Lawing  
SIGNATURE:

**ROADWAY DESIGN ENGINEER**

6/6/2022

DocuSigned by:  
Gregory Brew  
SIGNATURE:





# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## GENERAL NOTES

I-5973  
MECKLENBURG COUNTY

INDEX OF SHEETS

SHEET NUMBER	SHEET
I	TITLE SHEET
IA	INDEX OF SHEETS, GENERAL NOTES, LIST OF ROADWAY STANDARD DRAWINGS
IB	CONVENTIONAL SYMBOLS SHEET
2A-1 THRU 2A-4	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND MISCELLANEOUS DETAILS
2C-1	CONCRETE GRATED DROP INLET TYPE 1/2 A 1/2, MINIMUM DEPTH DETAIL
2C-2	MODIFIED DOUBLE FACED CONCRETE BARRIER DETAIL
2C-3	DETAIL FOR W-BEAM GUARDRAIL
3B-1	SUMMARY OF EARTHWORK, REMOVAL OF EXISTING ASPHALT PAVEMENT
3B-2	SUMMARIES OF GUARDRAIL, SHOULDER BERM GUTTER, CONCRETE BARRIER
3D-1 THRU 3D-2	SUMMARY OF DRAINAGE QUANTITIES
3G-1	SUMMARY OF GEOTEXTILE, AGGREGATE STABILIZATION
4 THRU 7	PLAN SHEETS
8 THRU 11	PROFILE SHEETS
RW01	RIGHT OF WAY TITLE SHEET
RW02C-2 THRU RW02C-4	SURVEY CONTROL SHEETS
TMP-1 THRU TMP-12	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-7	PAVEMENT MARKING PLANS
E-1 THRU E-3	LIGHTING PLANS
EC-1 THRU EC-11	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-9	SIGNING PLANS
SIG. 1,0 THRU SIG. M8	SIGNAL PLANS
SCPI THRU SCP9	SIGNAL COMMUNICATION PLANS
UC-1 THRU UC-8	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-5	UTILITIES BY OTHERS PLANS
X-0	CROSS-SECTION INDEX
X-1A	CROSS-SECTION SUMMARY SHEETS
X-1 THRU X-39	CROSS-SECTIONS

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

EFF. 01-16-2018 REV.

**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 AND 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 AND 560.02

**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.

**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 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:**

UTILITY OWNERS ON THIS PROJECT ARE Duke Energy Progress  
Charlotte Water

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

2018 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
<b>DIVISION 2 - EARTHWORK</b>	
200.03	Method of Clearing - Method III
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.05	Method of Obtaining Superelevation - Divided Highways
<b>DIVISION 3 - PIPE CULVERTS</b>	
300.01	Method of Pipe Installation
<b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b>	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II
<b>DIVISION 6 - ASPHALT BASES AND PAVEMENTS</b>	
610.03	Guide for Paving Shoulders Under Bridges - Method III
654.01	654.01 Pavement Repairs
<b>DIVISION 8 - INCIDENTALS</b>	
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
840.05	Brick Open Throat Catch Basin - 12' thru 48" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12' thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide Slot Sag Grates
840.27	Brick Grated Drop Inlet Type 'B' - 12' thru 36" Pipe
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
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Drop Inlet Installation in Expressway Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
852.01	Concrete Islands
854.02	Double Faced Concrete Barrier - Types 'T', 'T1' and 'T2'
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

REVISIONS

# 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	--- WLB ---
Proposed Wetland Boundary	--- WLB ---
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	▬ FLOW
False Sump	▽

### RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	◻ SWITCH
RR Abandoned	-----
RR Dismantled	-----

### 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	○ R W
New Right of Way Line with Pin and Cap	○ R W ▲
New Right of Way Line with Concrete or Granite R/W Marker	▲ R W
New Control of Access Line with Concrete C/A Marker	▲ C/A
Existing Control of Access	○ C/A
New Control of Access	○ C/A
Existing Easement Line	--- E ---
New Temporary Construction Easement	--- E ---
New Temporary Drainage Easement	--- TDE ---
New Permanent Drainage Easement	--- PDE ---
New Permanent Drainage / Utility Easement	--- DUE ---
New Permanent Utility Easement	--- PUE ---
New Temporary Utility Easement	--- TUE ---
New 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	☼

Note: Not to Scale

\*S.U.E. = Subsurface Utility Engineering

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:

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

### TELEPHONE:

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

### WATER:

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

### TV:

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

### GAS:

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

### SANITARY SEWER:

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

### MISCELLANEOUS:

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

### PAVEMENT SCHEDULE

C1	PROPOSED APPROX 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E1	PROPOSED APPROX. 4" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R3	PROPOSED EXPRESSWAY GUTTER	V2	INCIDENTAL MILLING
C2	PROPOSED APPROX 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E2	PROPOSED APPROX. 4.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	R4	PROPOSED SINGLE FACED CONCRETE BARRIER	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)
C3	PROPOSED VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. TO BE PLACED IN LAYERS NOT GREATER THAN 2" IN DEPTH.	E3	PROPOSED APPROX. 7.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 855 LBS. PER SQ. YD. IN EACH OF TWO LAYERS	R5	PROPOSED CONCRETE MEDIAN BARRIER		
D1	PROPOSED APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	E4	PROPOSED 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" OR GREATER THAN 5.5" IN DEPTH.	T	EARTH MATERIAL		
D2	PROPOSED APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R1	PROPOSED 2'-6" CONCRETE CURB & GUTTER	U	EXISTING PAVEMENT		
D3	PROPOSED 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 2.5" OR GREATER THAN 4" IN DEPTH.	R2	PROPOSED SHOULDER BERM GUTTER	V1	MILLING ASPHALT PAVEMENT, 3" DEPTH		

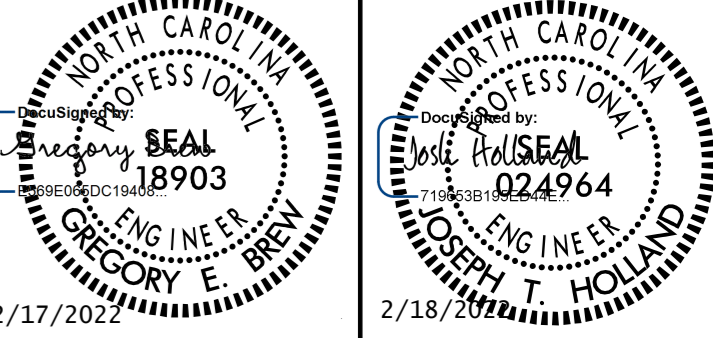
# Kimley Horn

200 S. TRYON ST. • CHARLOTTE, NC 28202

RIGHT-OF-WAY REV.  
CONST. REV.

PROJECT REFERENCE NO. 1-5973 SHEET NO. 2A-1

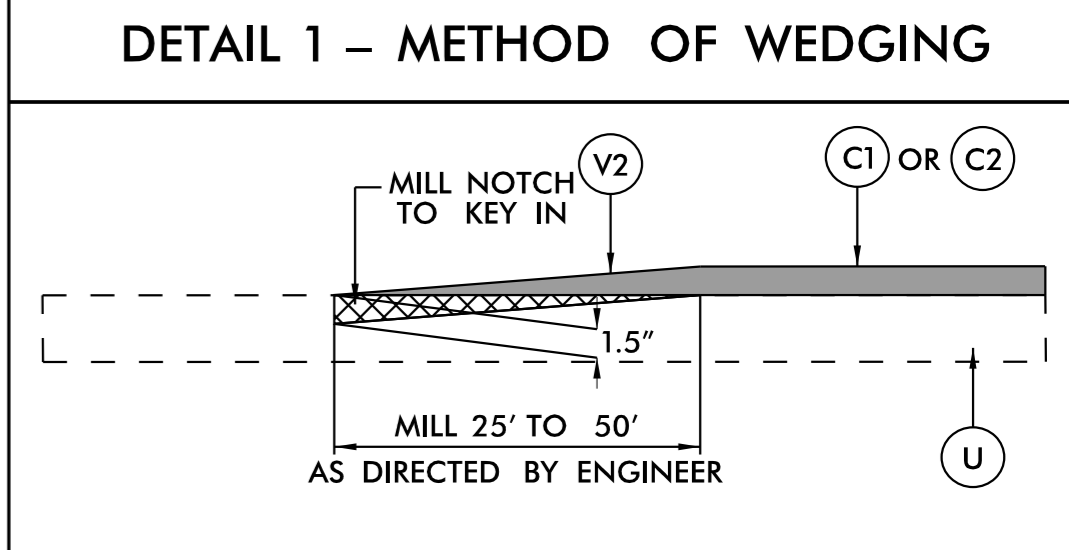
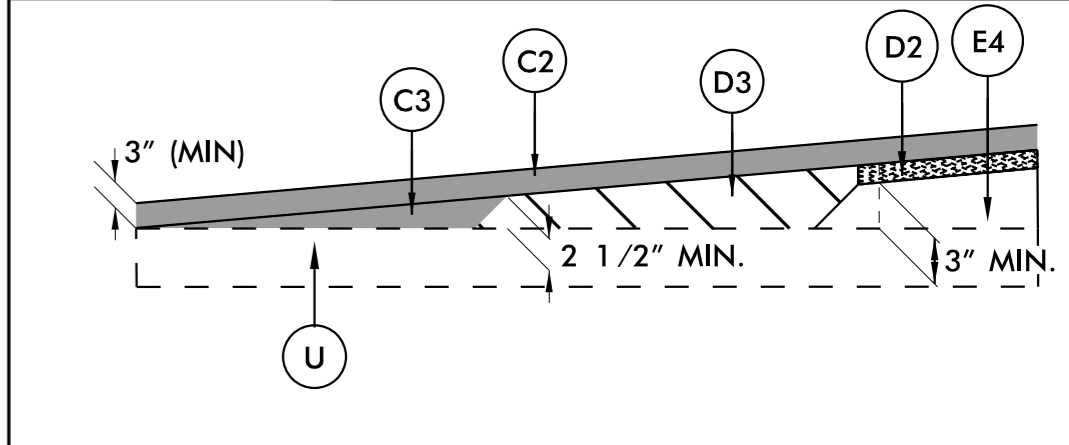
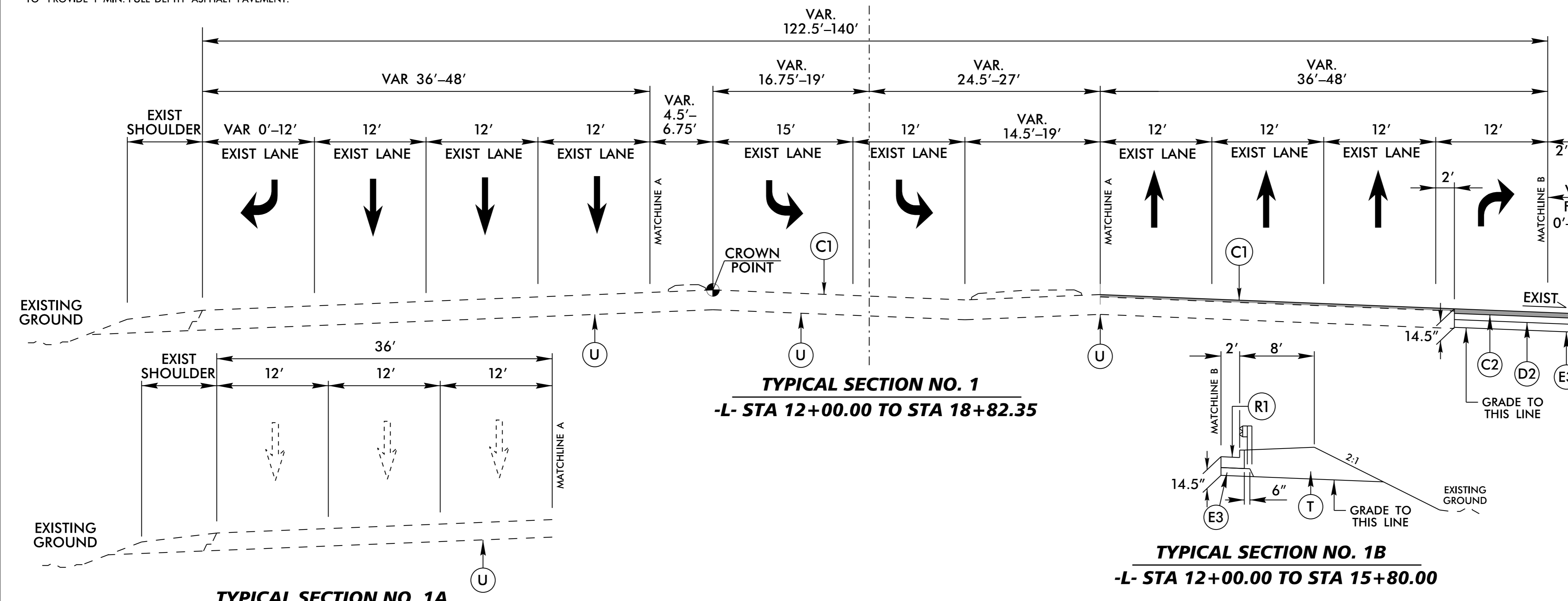
ROADWAY DESIGN ENGINEER PAVEMENT DESIGN ENGINEER



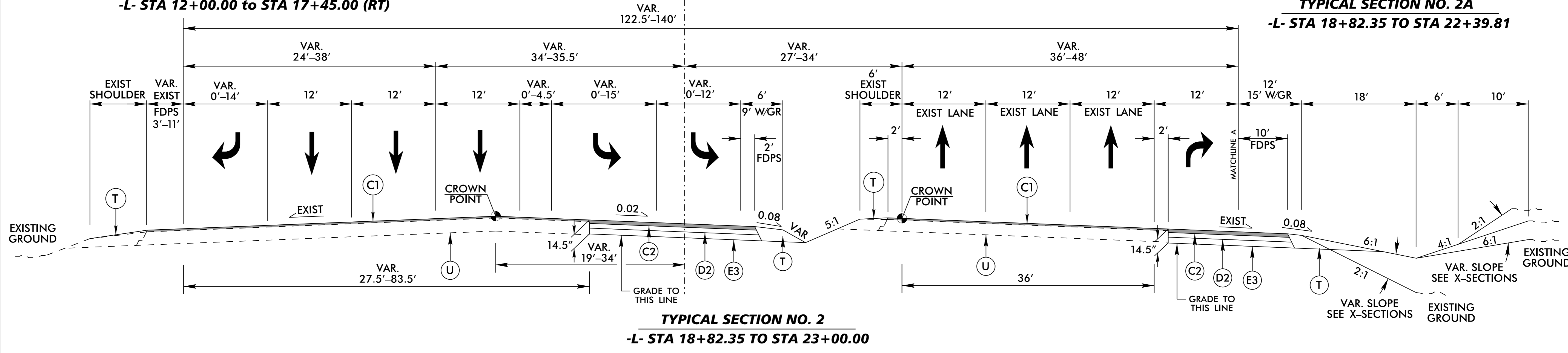
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- NOTES:  
 1. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE INDICATED.  
 2. REFER TO PLAN SHEETS FOR VARIABLE WIDTHS.  
 3. SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT TO PROVIDE 1' MIN. FULL DEPTH ASPHALT PAVEMENT.

### CL- NC 16 (BROOKSHIRE BLVD)



### CL- NC 16 (BROOKSHIRE BLVD)



REVISIONS

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2/17/2022

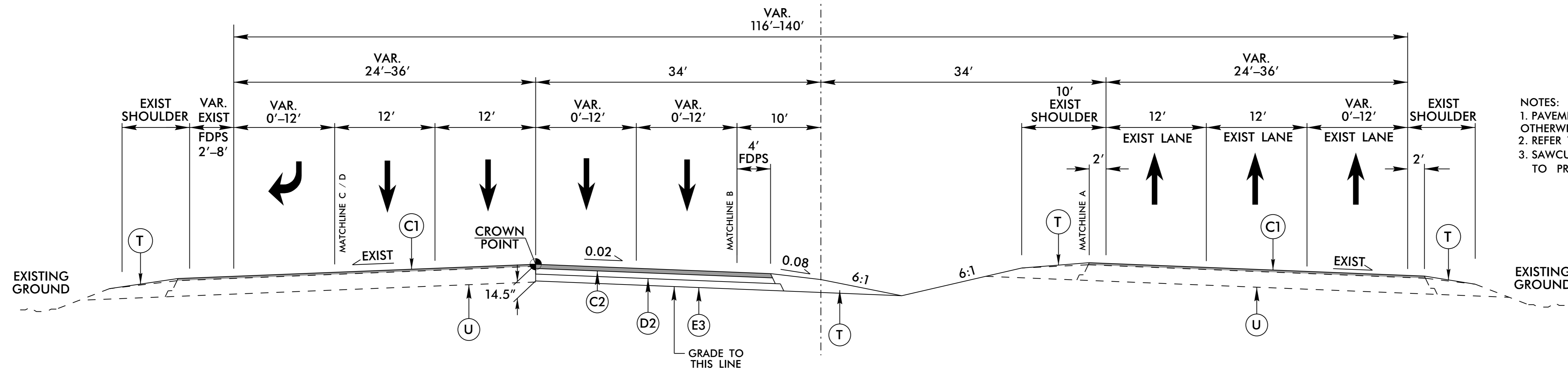
PROJECT REFERENCE NO. 1-5973	SHEET NO. 2A-2
ROADWAY DESIGN ENGINEER <i>Gregory E. Brew</i>	PAVEMENT DESIGN ENGINEER <i>Joseph T. Holland</i>

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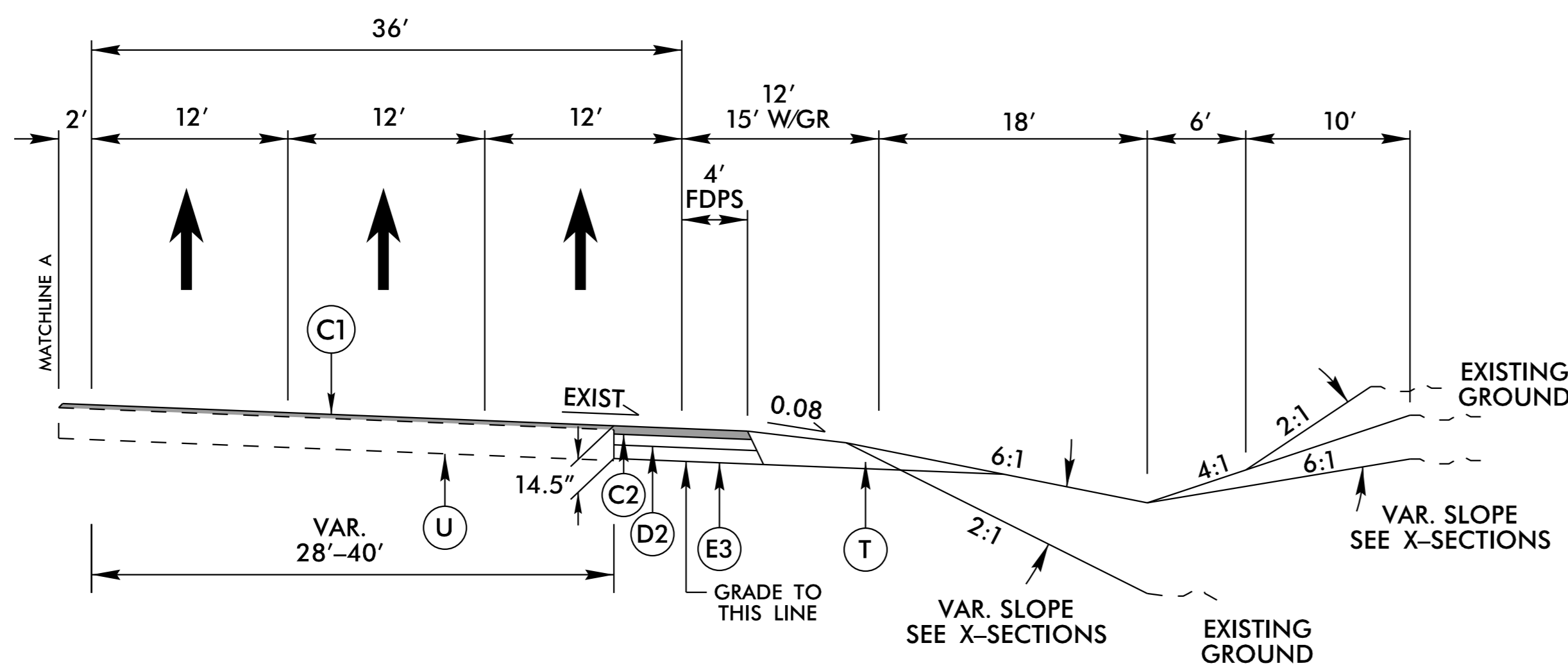
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REVISIONS

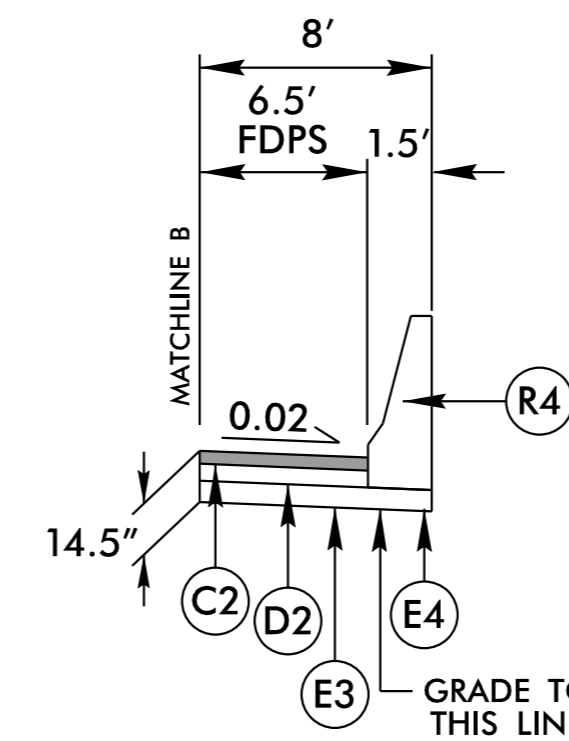
**NC 16 (BROOKSHIRE BLVD)**



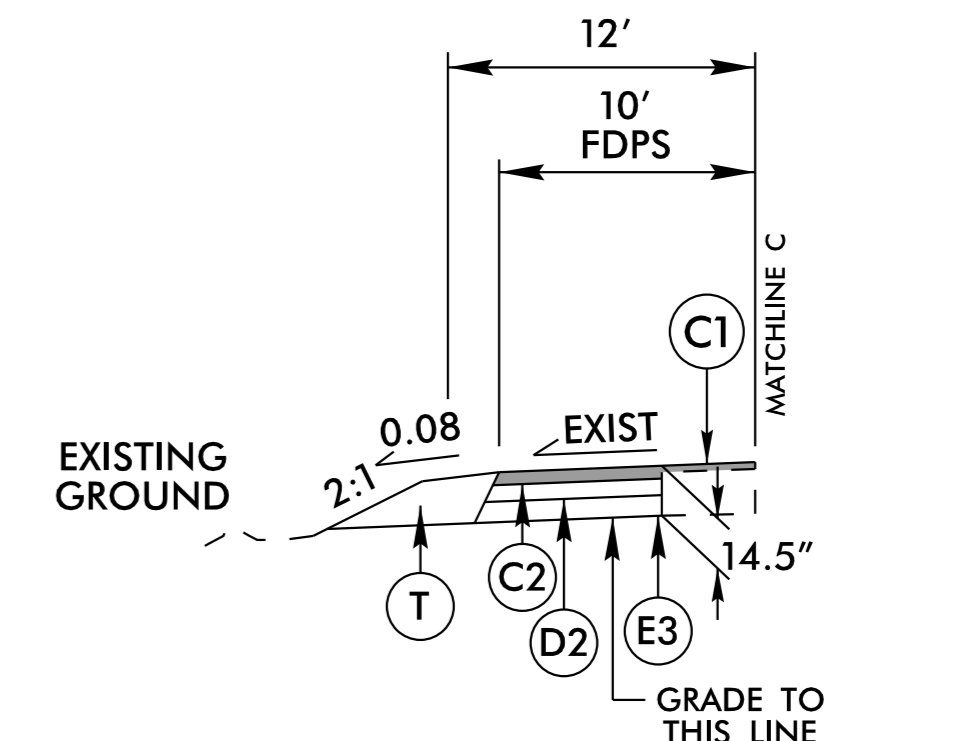
**TYPICAL SECTION NO. 3**  
**-L- STA 23+00.0 TO STA 45+21.00**



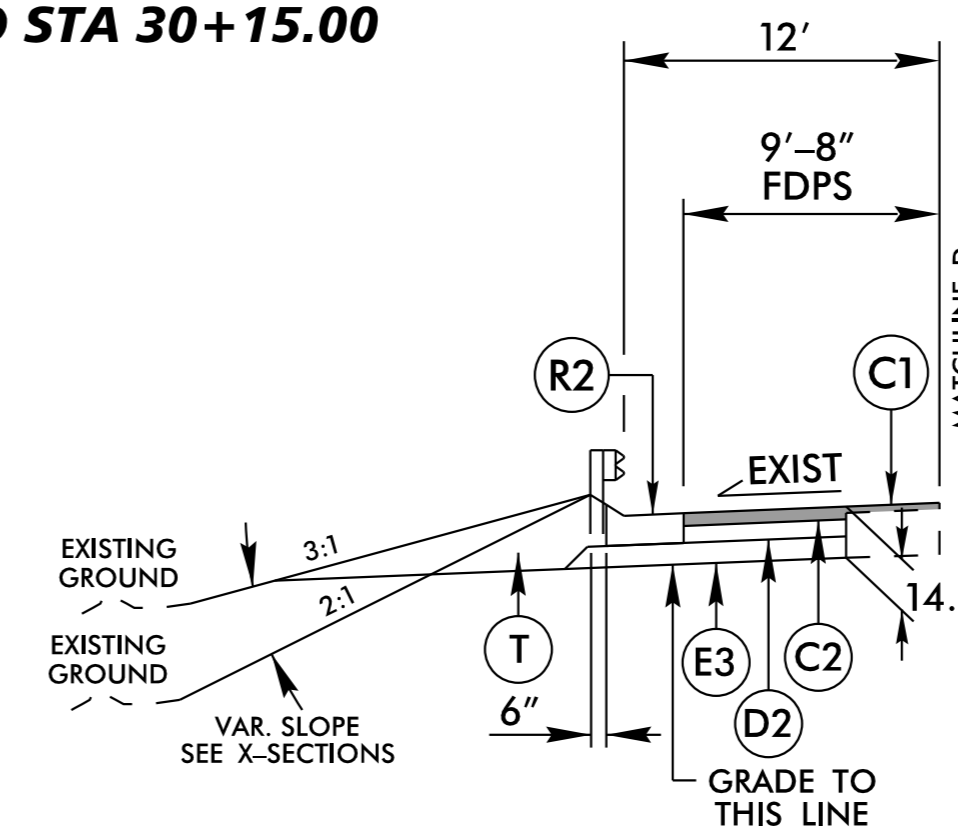
**TYPICAL SECTION NO. 3A**  
**-L- STA 23+00.00 TO 26+85.00**



**TYPICAL SECTION NO. 3B**  
**-L- STA 28+52.00 TO STA 30+15.00**



**TYPICAL SECTION NO. 3C**  
**-L- STA 34+10.00 TO STA 35+40.00**



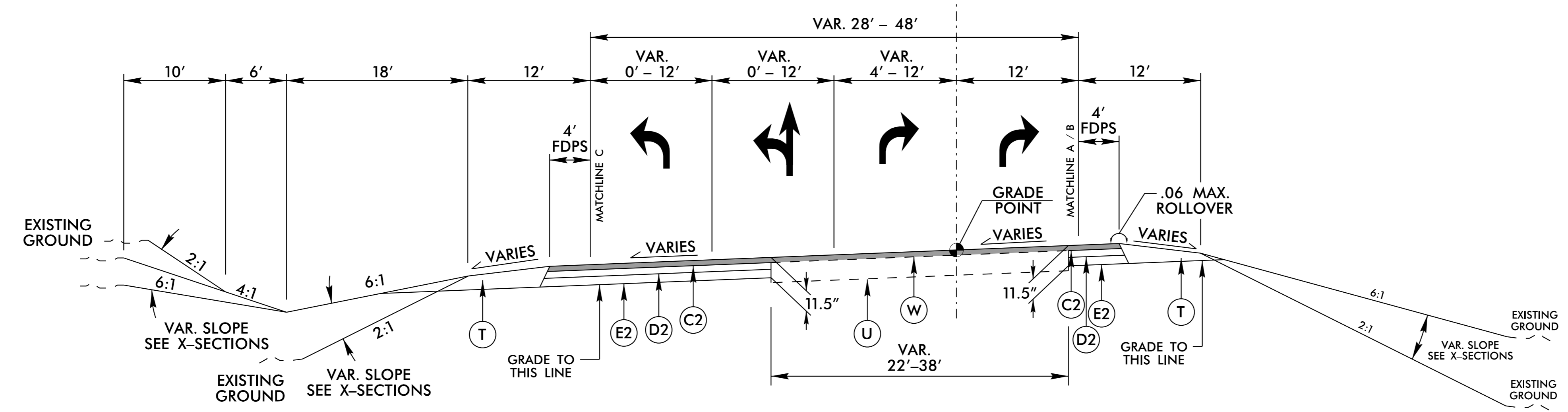
**TYPICAL SECTION NO. 3D**  
**-L- STA 40+82.60 TO STA 44+97.09**

PRELIMINARY PAVEMENT SCHEDULE	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
D1	2.5" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	4.5" B25.0C
E3	7.5" B25.0C
E4	VAR. B25.0C
R1	2'-6" CURB AND GUTTER
R2	SHOULDER BERM GUTTER
R3	EXPRESSWAY GUTTER
R4	SINGLE FACED CONC. BARRIER
R5	CONCRETE MEDIAN BARRIER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	3" MILLING
V2	INCIDENTAL MILLING
W	VAR. WEDGING

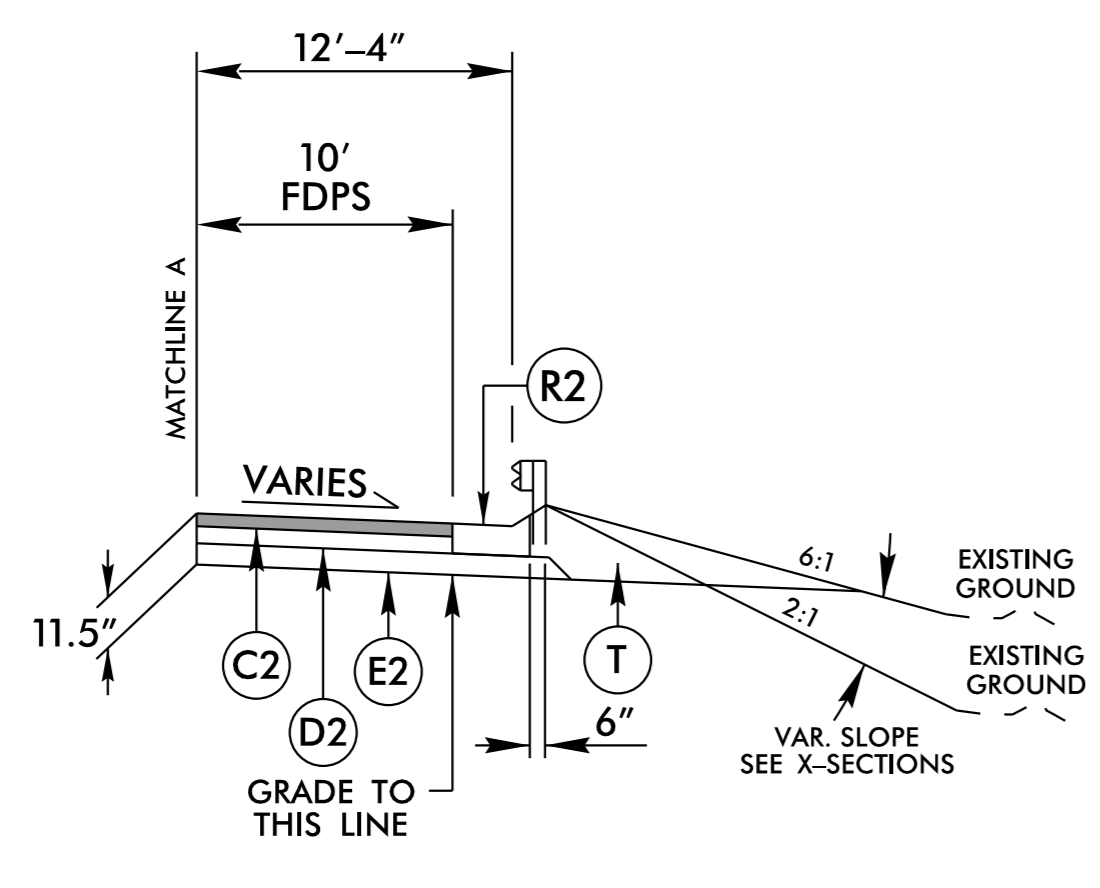
PROJECT REFERENCE NO. 1-5973	SHEET NO. 2A-3
ROADWAY DESIGN ENGINEER GREGORY E. BREW	PAVEMENT DESIGN ENGINEER JOSEPH T. HOLLAND

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

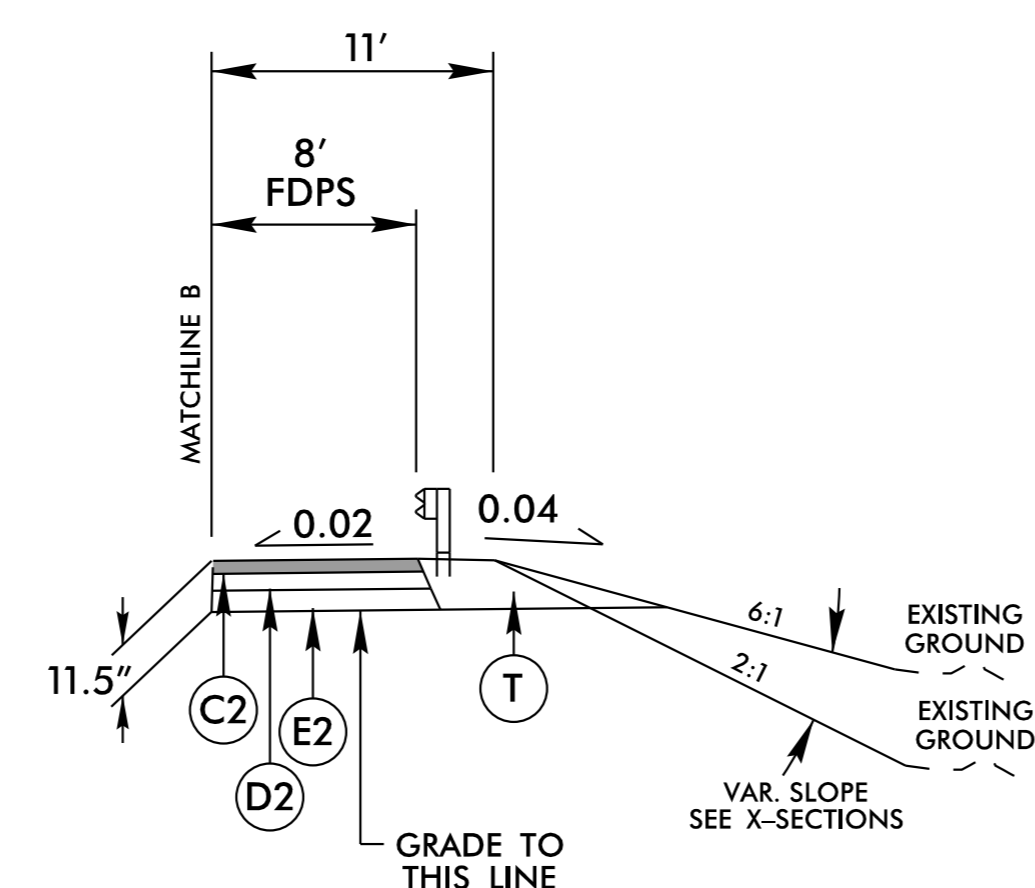
☒ -LRPA- I-485 SOUTHBOUND OFF RAMP



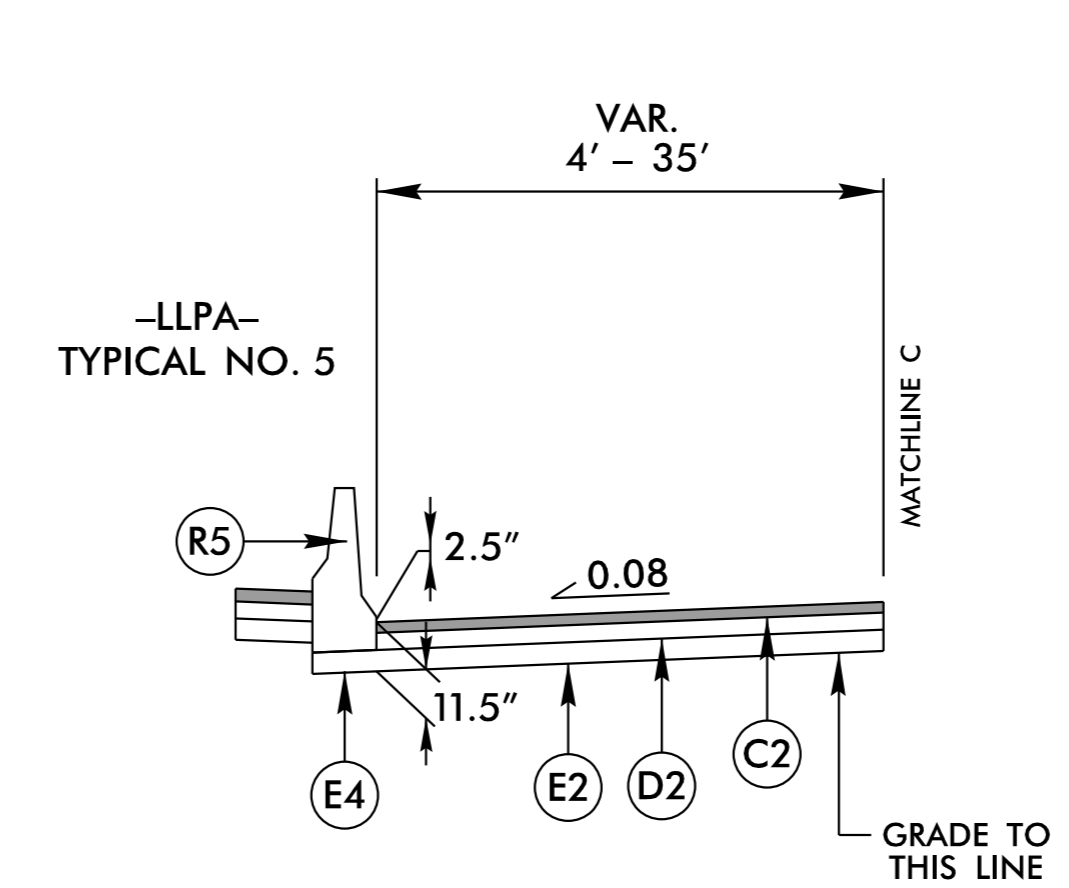
**TYPICAL SECTION NO. 4**  
-LRPA- STA 15+95.00 TO STA 28+38.74



**TYPICAL SECTION NO. 4A**  
-LRPA- STA 15+95.00 TO STA 19+08.00



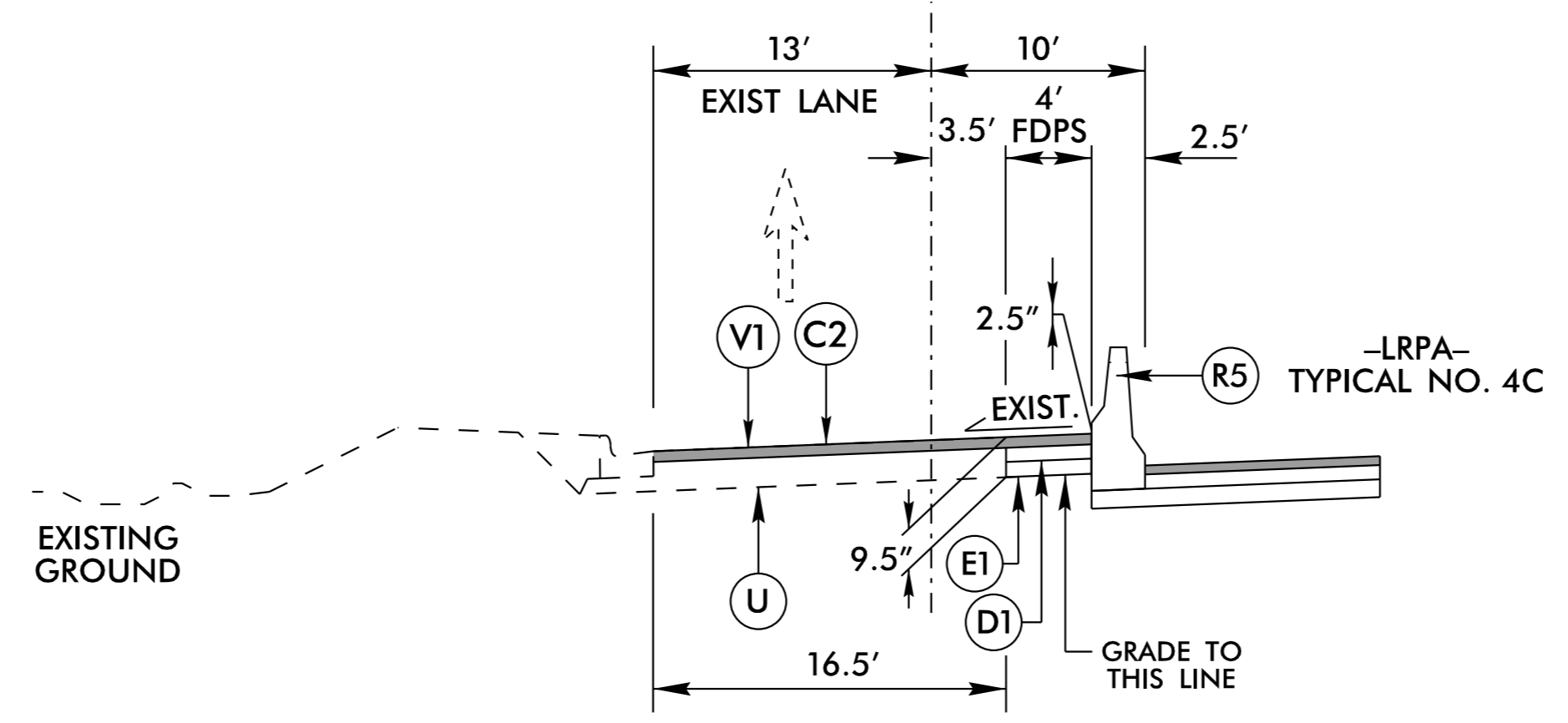
**TYPICAL SECTION NO. 4B**  
-LRPA- STA 19+08.00 TO STA 24+35.00



**TYPICAL SECTION NO. 4C**  
-LRPA- STA 23+00.00 TO STA 26+35.00

PRELIMINARY PAVEMENT SCHEDULE	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
D1	2.5" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	4.5" B25.0C
E3	7.5" B25.0C
E4	VAR. B25.0C
R1	2'-6" CURB AND GUTTER
R2	SHOULDER BERM GUTTER
R3	EXPRESSWAY GUTTER
R4	SINGLE FACED CONC. BARRIER
R5	CONCRETE MEDIAN BARRIER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	3" MILLING
V2	INCIDENTAL MILLING
W	VAR. WEDGING

☒ -LLPA- I-485 SOUTHBOUND LOOP



**TYPICAL SECTION NO. 5**  
-LLPA- STA 17+81.45 TO STA 20+47.93

- NOTES:
1. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE INDICATED.
  2. REFER TO PLAN SHEETS FOR VARIABLE WIDTHS.
  3. SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT TO PROVIDE 1' MIN. FULL DEPTH ASPHALT PAVEMENT.

REVISIONS

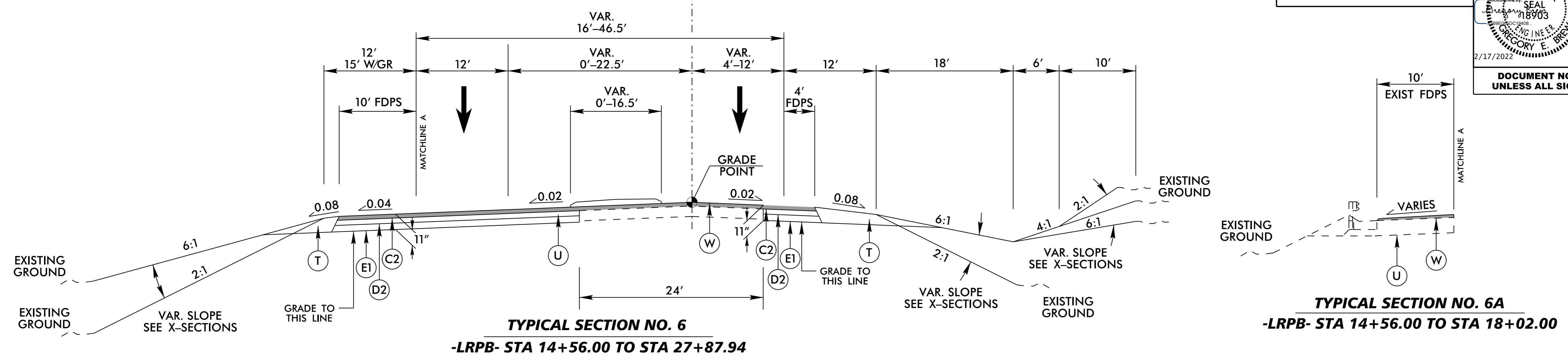
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2/17/2022

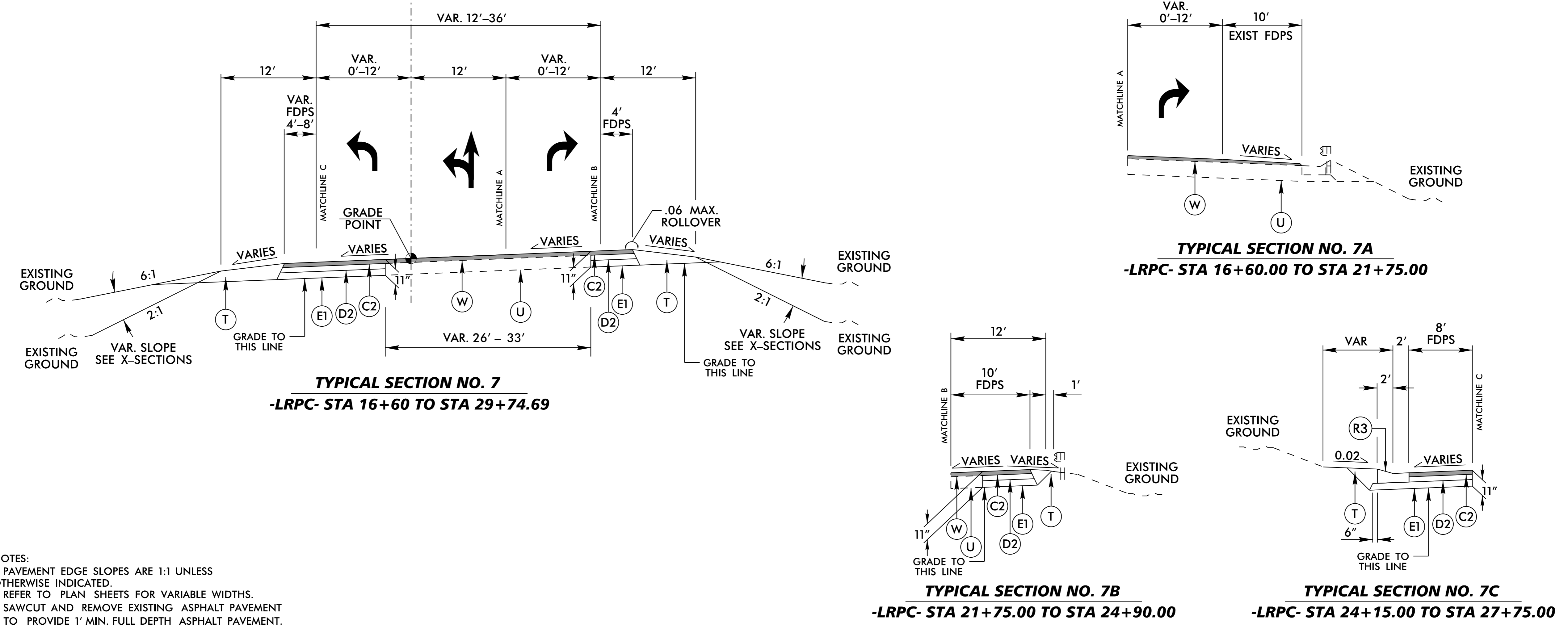
**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

REVISIONS

**-LRPB- I-485 SOUTHBOUND ON RAMP**



**-LRPC- I-485 NORTHBOUND OFF RAMP**



PRELIMINARY PAVEMENT SCHEDULE	
C1	1.5" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
D1	2.5" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	4.5" B25.0C
E3	7.5" B25.0C
E4	VAR. B25.0C
R1	2'-6" CURB AND GUTTER
R2	SHOULDER BERM GUTTER
R3	EXPRESSWAY GUTTER
R4	SINGLE FACED CONC. BARRIER
R5	CONCRETE MEDIAN BARRIER
T	EARTH MATERIAL
U	EXIST. PAVEMENT
V1	3" MILLING
V2	INCIDENTAL MILLING
W	VAR. WEDGING

NOTES:  
 1. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE INDICATED.  
 2. REFER TO PLAN SHEETS FOR VARIABLE WIDTHS.  
 3. SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT TO PROVIDE 1' MIN. FULL DEPTH ASPHALT PAVEMENT.

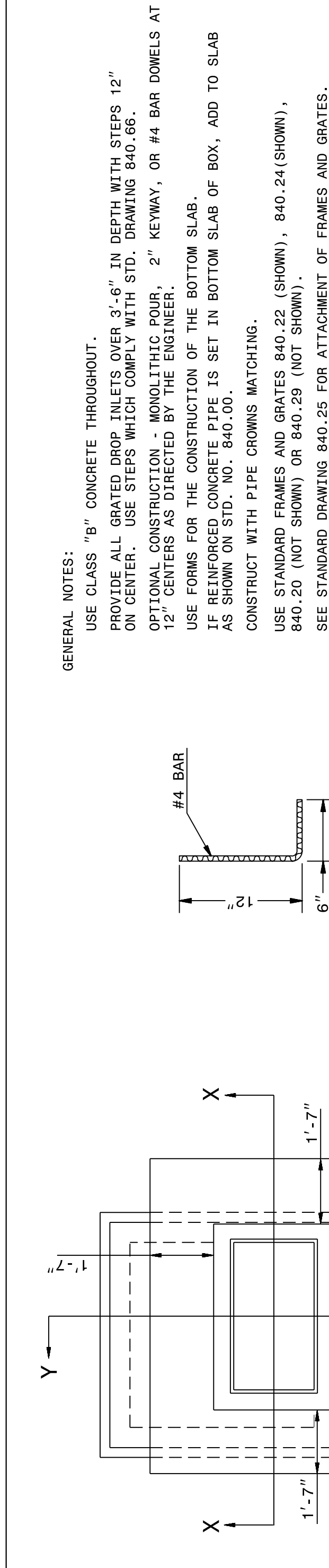
K:\CHL\PROJECTS\I-485 Brookshire\Roadway\Pro\1-5973\_rdy\_ttyp.dgn 2/17/2022



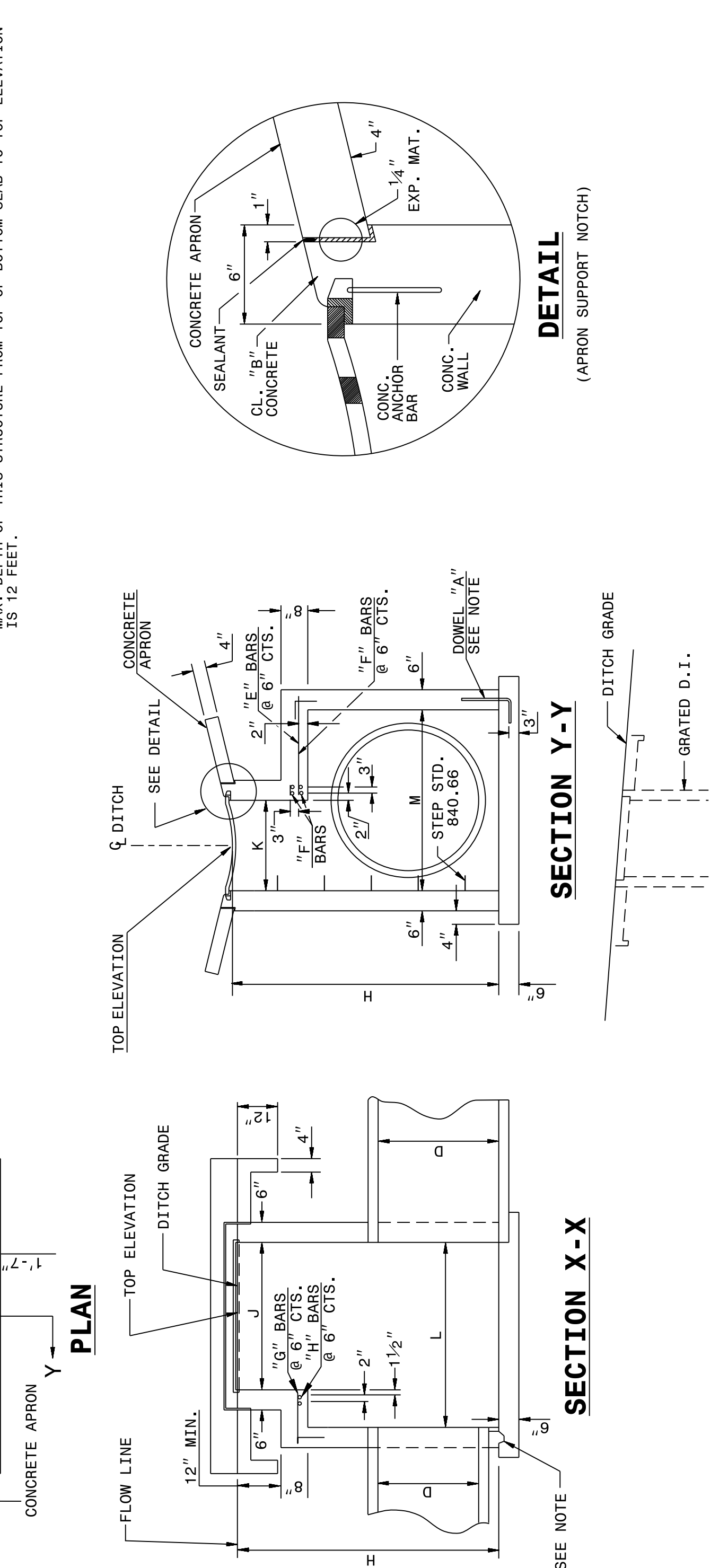
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR CONCRETE GRATED DROP INLET TYPE 'A' MINIMUM DEPTH 12" THRU 72" PIPE

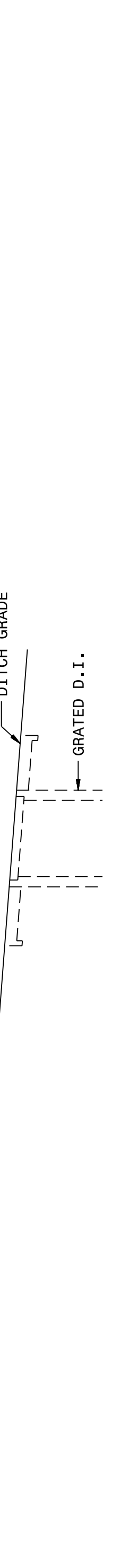
SHEET 1 OF 2 840d17



SECTION X-X



SECTION Y-Y



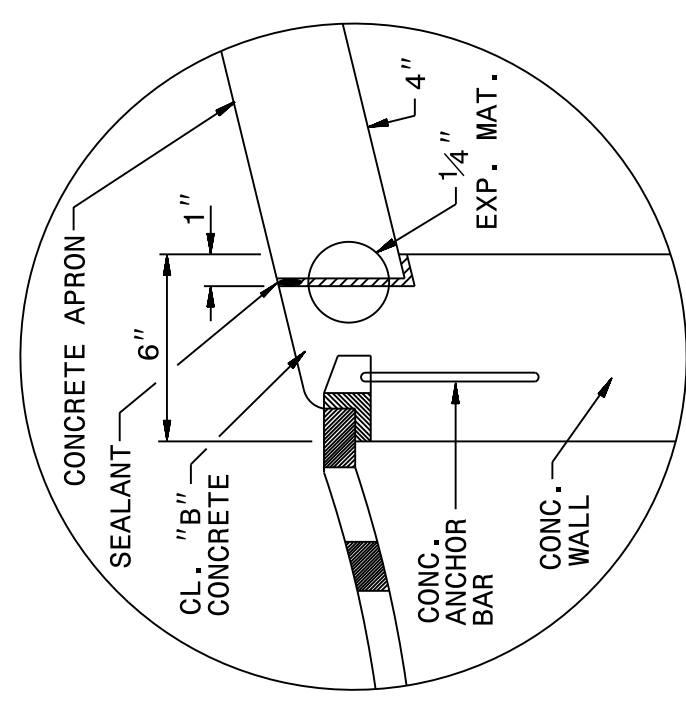
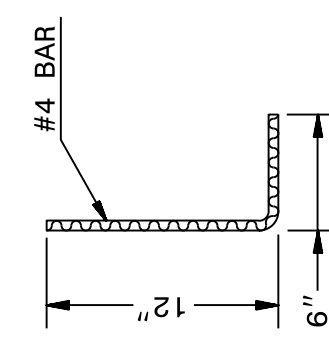
SHEET 1 OF 2 840d17

ENGLISH DETAIL DRAWING FOR CONCRETE GRATED DROP INLET TYPE 'A' MINIMUM DEPTH 12" THRU 72" PIPE

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

GENERAL NOTES:  
 USE CLASS "B" CONCRETE THROUGHOUT.  
 PROVIDE ALL GRATED DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.  
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.  
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.  
 REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.  
 CONSTRUCT WITH PIPE CROWNS MATCHING.  
 USE STANDARD FRAMES AND GRATES 840.22 (SHOWN), 840.24 (SHOWN), 840.20 (NOT SHOWN) OR 840.29 (NOT SHOWN).  
 SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES.  
 CHAMFER ALL EXPOSED CORNERS 1".  
 DRAWING NOT TO SCALE.  
 MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

DOWEL - A



DETAIL (APRON SUPPORT NOTCH)

SHEET 1 OF 2 840d17

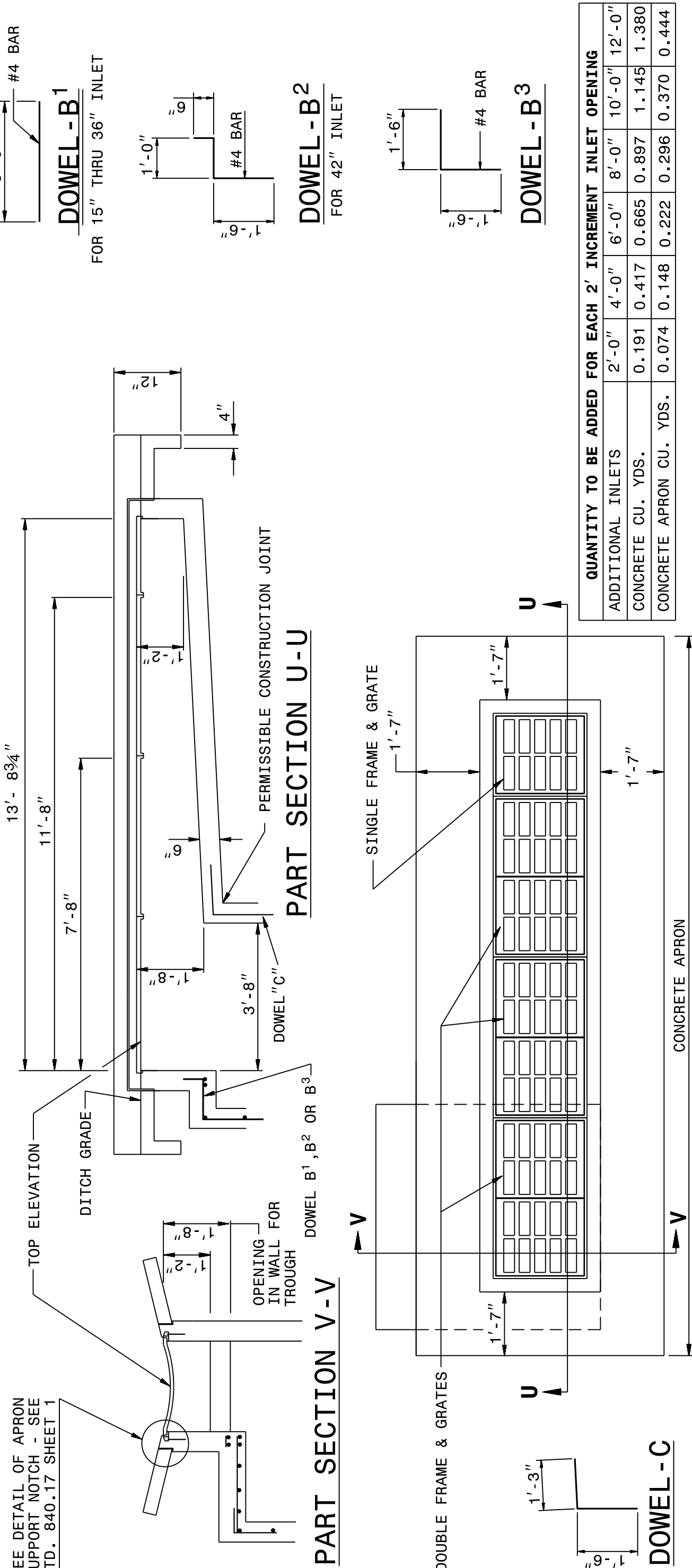
ENGLISH DETAIL DRAWING FOR CONCRETE GRATED DROP INLET TYPE 'A' MINIMUM DEPTH 12" THRU 72" PIPE

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

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

ENGLISH DETAIL DRAWING FOR CONCRETE GRATED DROP INLET TYPE 'A' MINIMUM DEPTH 12" THRU 72" PIPE

SHEET 2 OF 2 840d17



QUANTITY TO BE ADDED FOR EACH 2' INCREMENT INLET OPENING

ADDITIONAL INLETS	2'-0"	4'-0"	6'-0"	8'-0"	10'-0"	12'-0"
CONCRETE CU. YDS.	0.191	0.417	0.665	0.897	1.145	1.380
CONCRETE APRON CU. YDS.	0.074	0.148	0.222	0.296	0.370	0.444

MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE GRATED DROP INLET (BASED ON MIN. HEIGHT, H)

PIPE	DIMENSIONS OF BOX AND PIPE		REINFORCING STEEL - NO. 4 BARS				CU YDS CONC. IN BOX		DEDUCTIONS FOR ONE PIPE			
	SPAN	WIDTH	NO.	LENGTH	NO.	LENGTH	APRON	TOTAL	C.S.	R.C.		
12"	3'-8"	2'-0"	2	2'-3"	—	—	0.362	0.926	0.247	1.683	0.015	0.024
15"	3'-8"	2'-0"	2	2'-5"	—	—	0.362	0.988	0.247	1.745	0.023	0.036
18"	3'-8"	2'-0"	2	2'-8"	—	—	0.362	1.050	0.247	1.807	0.033	0.049
24"	3'-8"	2'-0"	3	3'-3"	8	1'-5"	27	0.444	1.362	2.201	0.059	0.085
30"	3'-8"	3'-5"	3	3'-10"	8	2'-0"	33	0.502	1.644	2.541	0.082	0.127
36"	4'-0"	4'-0"	4	4'-4"	8	2'-5"	47	0.560	1.931	2.920	0.132	0.178
42"	4'-0"	4'-10"	5	5'-0"	10	3'-1"	67	0.704	2.500	3.677	0.180	0.243
48"	5'-4"	5'-4"	5	5'-6"	11	3'-7"	87	0.823	3.013	4.315	0.235	0.317
54"	6'-0"	6'-0"	6	6'-7"	12	4'-1"	107	0.951	3.589	5.072	0.287	0.401
60"	6'-6"	6'-6"	7	7'-3"	13	4'-9"	135	1.311	4.539	6.170	0.367	0.495
66"	7'-2"	7'-2"	7	7'-10"	14	5'-4"	168	1.136	5.061	6.901	0.444	0.599
72"	3'-8"	2'-0"	7	7'-8"	15	8'-5"	199	1.500	5.860	8.395	0.580	0.713

SHEET 2 OF 2 840d17

ENGLISH DETAIL DRAWING FOR CONCRETE GRATED DROP INLET TYPE 'A' MINIMUM DEPTH 12" THRU 72" PIPE

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

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

SEE TITLE BLOCK

ORIGINAL BY: J. Howerton DATE: 1/22/14  
 MODIFIED BY: DATE:  
 CHECKED BY: DATE:  
 FILE SPEC.: jhowerton\minimum\_depth\_type A.dgn



6/24/2022

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PROJECT REFERENCE NO. 1-5973	SHEET NO. 2C-2
STRUCTURAL DESIGN ENGINEER Andrew L. Phillips SEAL 040769 2/22/2022	

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

**REINFORCING NOTES:**

- EVENLY SPACE HORIZONTAL REBER 8"± 1" UNLESS OTHERWISE NOTED.
  - USE #5 BAR FOR HORIZONTAL STEEL AND #5 BAR FOR THE VERTICAL CAGE.
  - SUBMIT CHANGES IN STEEL PLACEMENT OR SIZE TO THE ENGINEER.
  - ALL SPLICE LENGTHS SHALL BE 2'-9" MINIMUM.
- \* REFER TO PLAN TYPICAL SECTIONS AND PAVEMENT SCHEDULE TO DETERMINE KEY-IN DEPTH. DIMENSIONS SHOWN ARE BASED ON A MIN. KEY-IN DEPTH.

**NOTES:**

REFER TO PLAN SHEET AND/OR TYPICAL SECTIONS FOR PROPER BARRIER ORIENTATION.  
 SEE NCDOT ROADWAY STANDARD DRAWING 854.02 SHEET 2 OF 4 FOR INSET "A", INSET "B", LOCATION OF SECTION X-X, AND ADDITIONAL DETAILS.

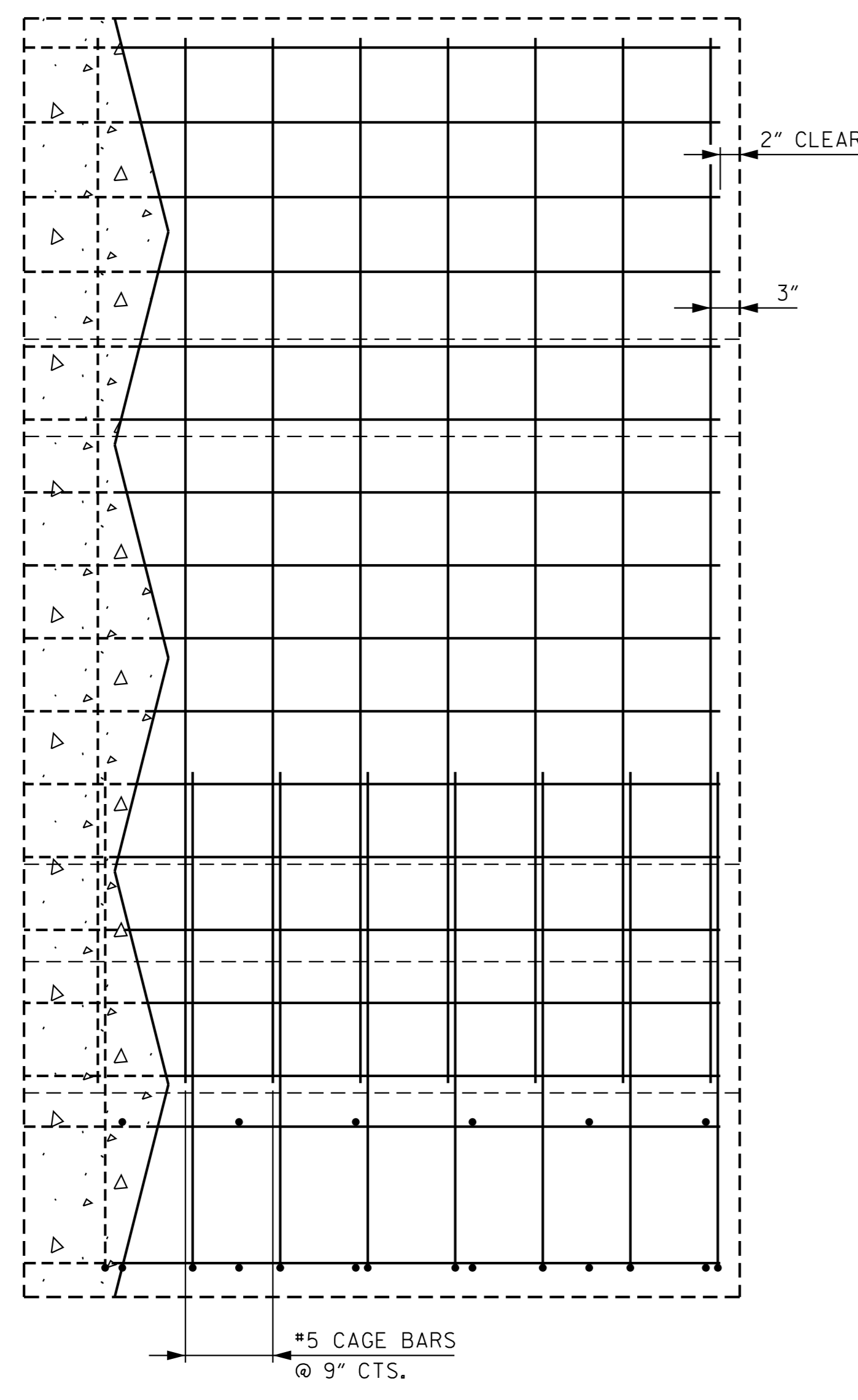
**GENERAL NOTES:**

CONSTRUCT CONCRETE BARRIER OF CLASS 'AA' CONCRETE. (SEE SECTION 854 OF SPECIFICATIONS). CONSTRUCT EXPANSION AND CONTRACTION JOINTS AS SHOWN ON NCDOT ROADWAY STANDARD DRAWING 854.02 SHEET 2 OF 4.  
 SEAL ALL EXPANSION JOINTS WITH JOINT FILLER. (SEE SECTION 1028 OF THE SPECIFICATIONS). SUBMIT ALTERNATIVE METHODS FOR STEEL FABRICATION TO THE ENGINEER.  
 THIS SHEET IS NOT INTENDED TO REPLACE, IN ENTIRETY OR IN PART, NCDOT ROADWAY STANDARD DRAWINGS 854.02 SHEETS 1-4; BUT RATHER TO SUPPLEMENT IT FOR THE APPLICABLE STATION RANGES AS NOTED BELOW.

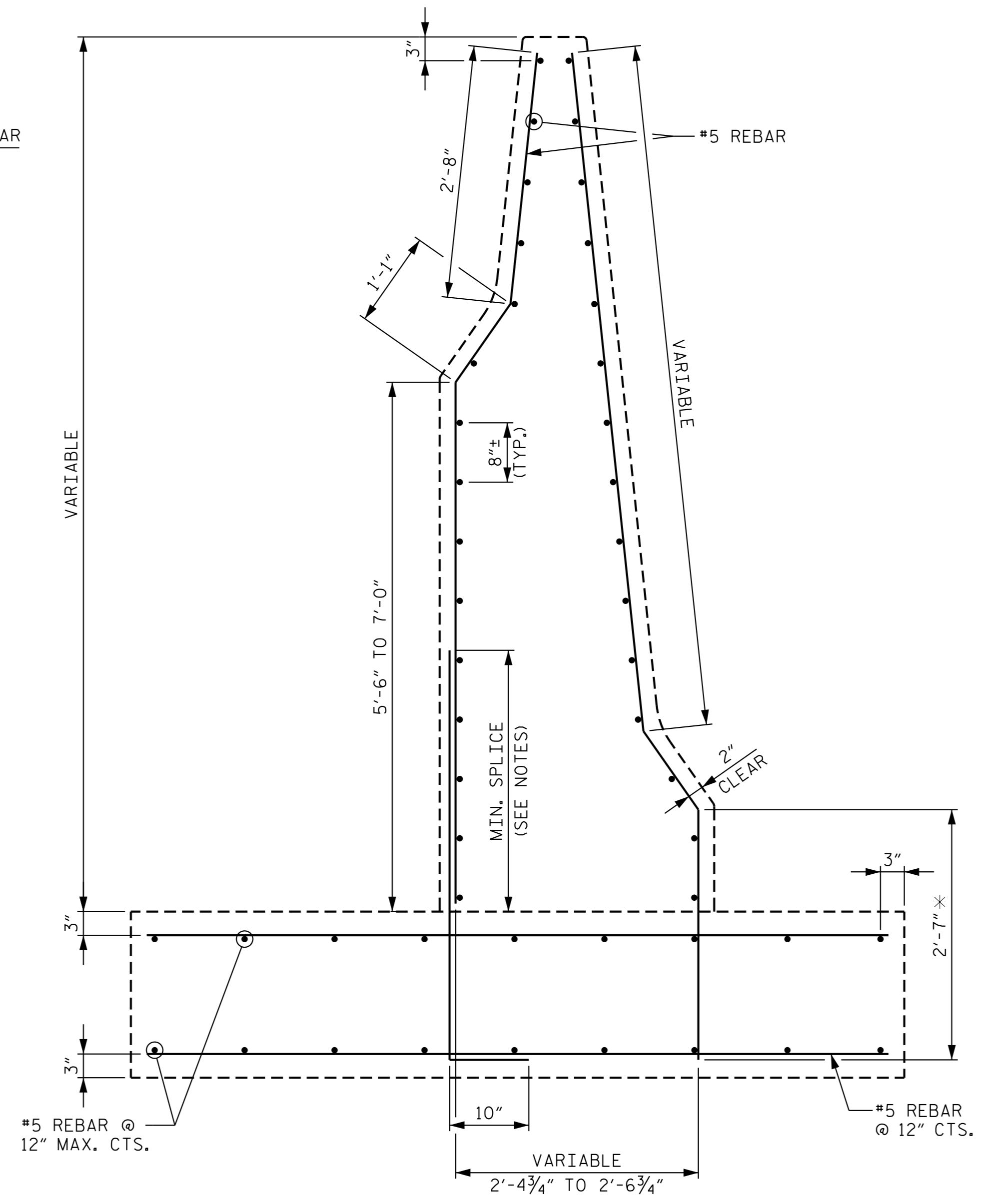
**STEEL PLACEMENT FOR CAST-IN-PLACE OR SLIP-FORM CONCRETE BARRIER**

REVISIONS

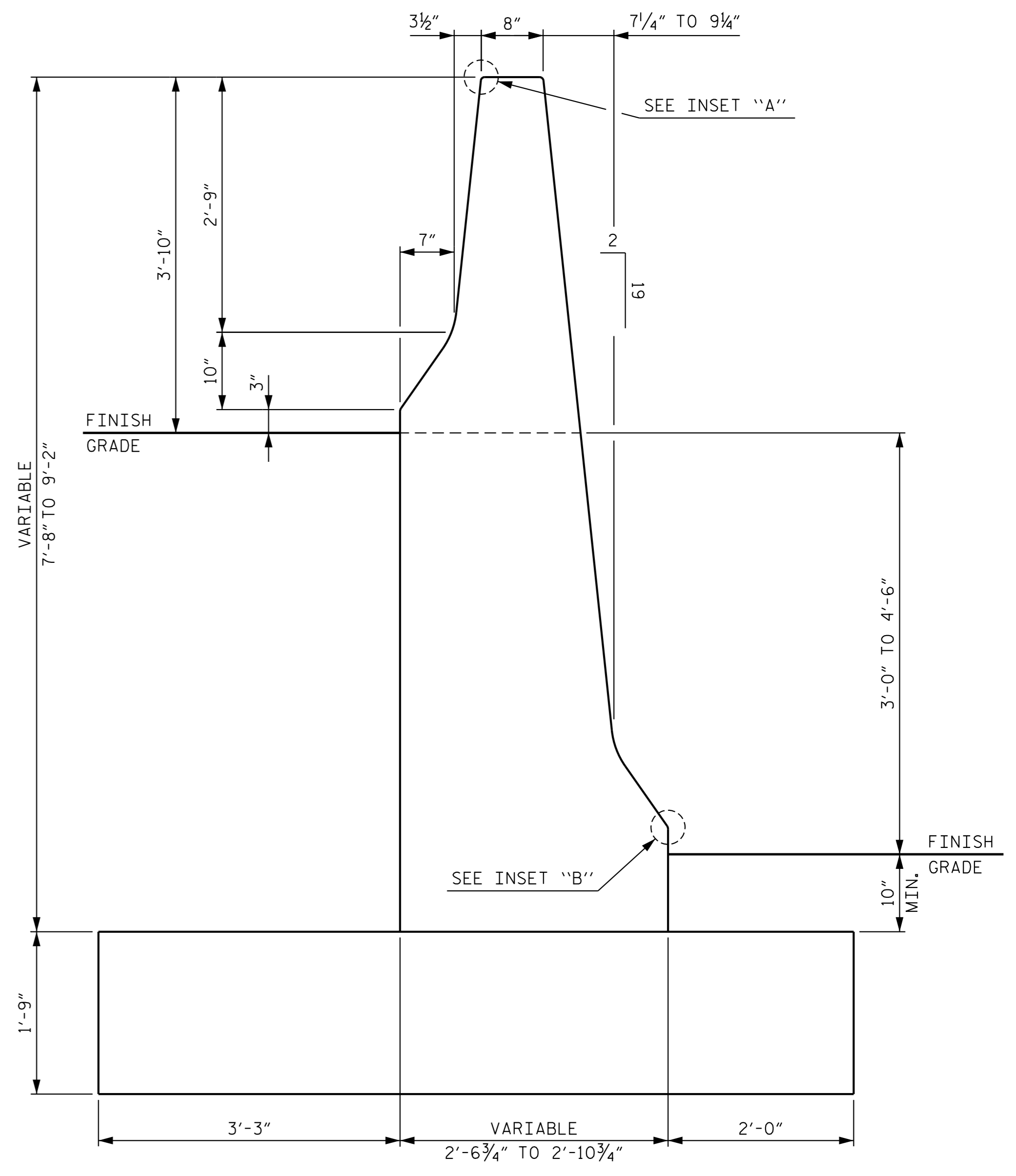
K:\CHL\_P\PR\01036453 - 1-5973 (1-485\_Brookshire)\Structures\CAD\CONV-5973\_rdy\_W-1.dgn  
 2/22/2022



**ELEVATION VIEW**



**SECTION VIEW  
TYPE-T2 MOD.**



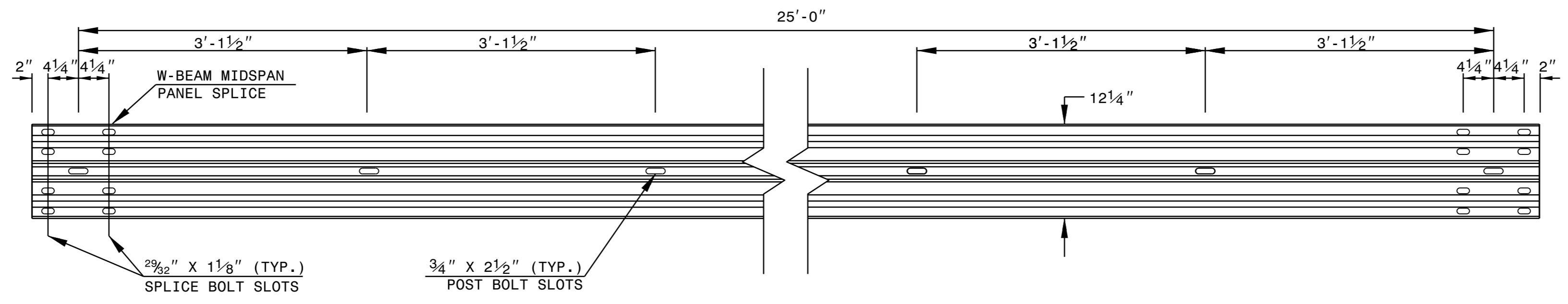
**SECTION X-X  
TYPE-T2 MOD.**

**MODIFIED CONCRETE BARRIER WALL DETAIL**  
 TO BE UTILIZED BETWEEN STA. 23+35 -LRPA- TO STA. 24+00 -LRPA- (BETWEEN -LRPA- AND -LLPA-)

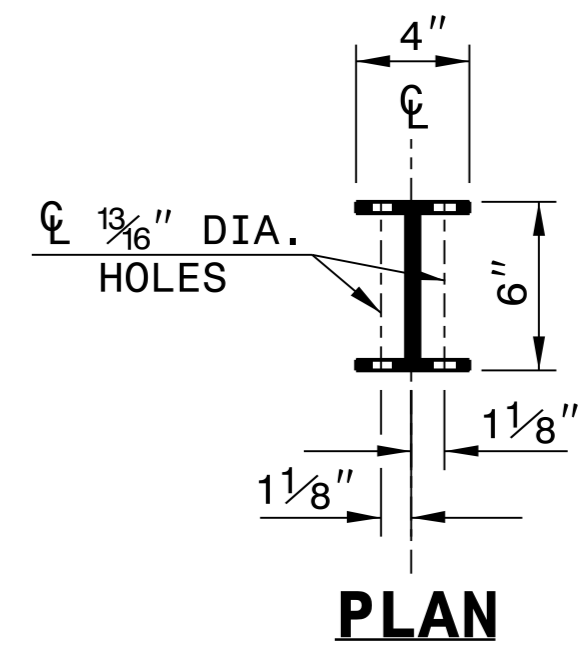
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

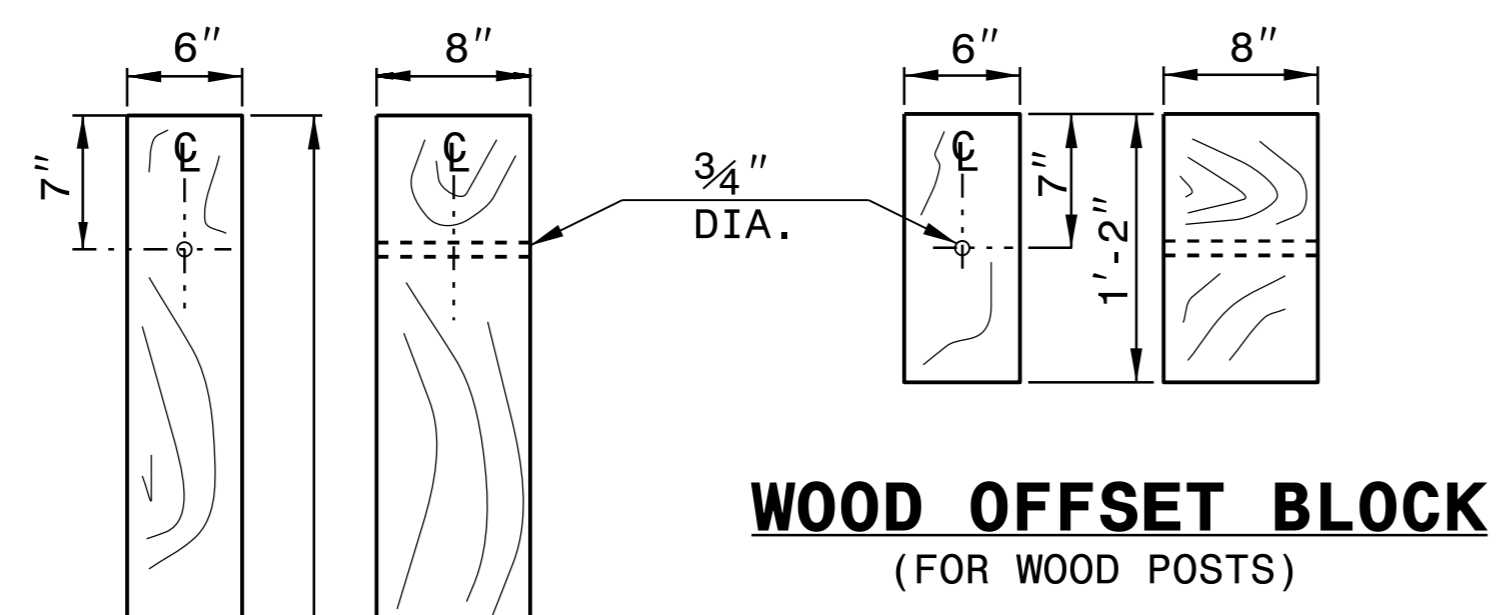
SHEET 6 OF 8  
**862D02**



**STANDARD W-BEAM GUARDRAIL**



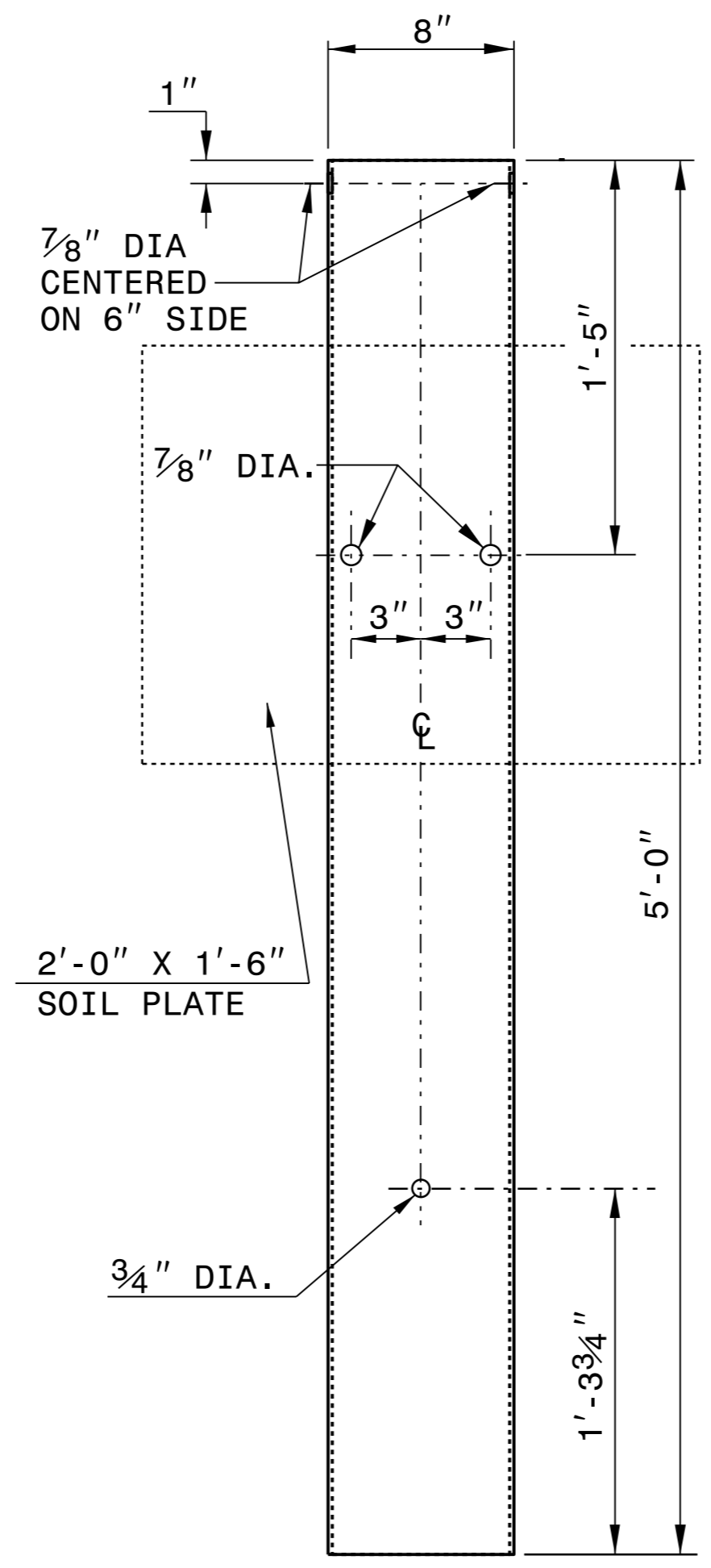
**PLAN**



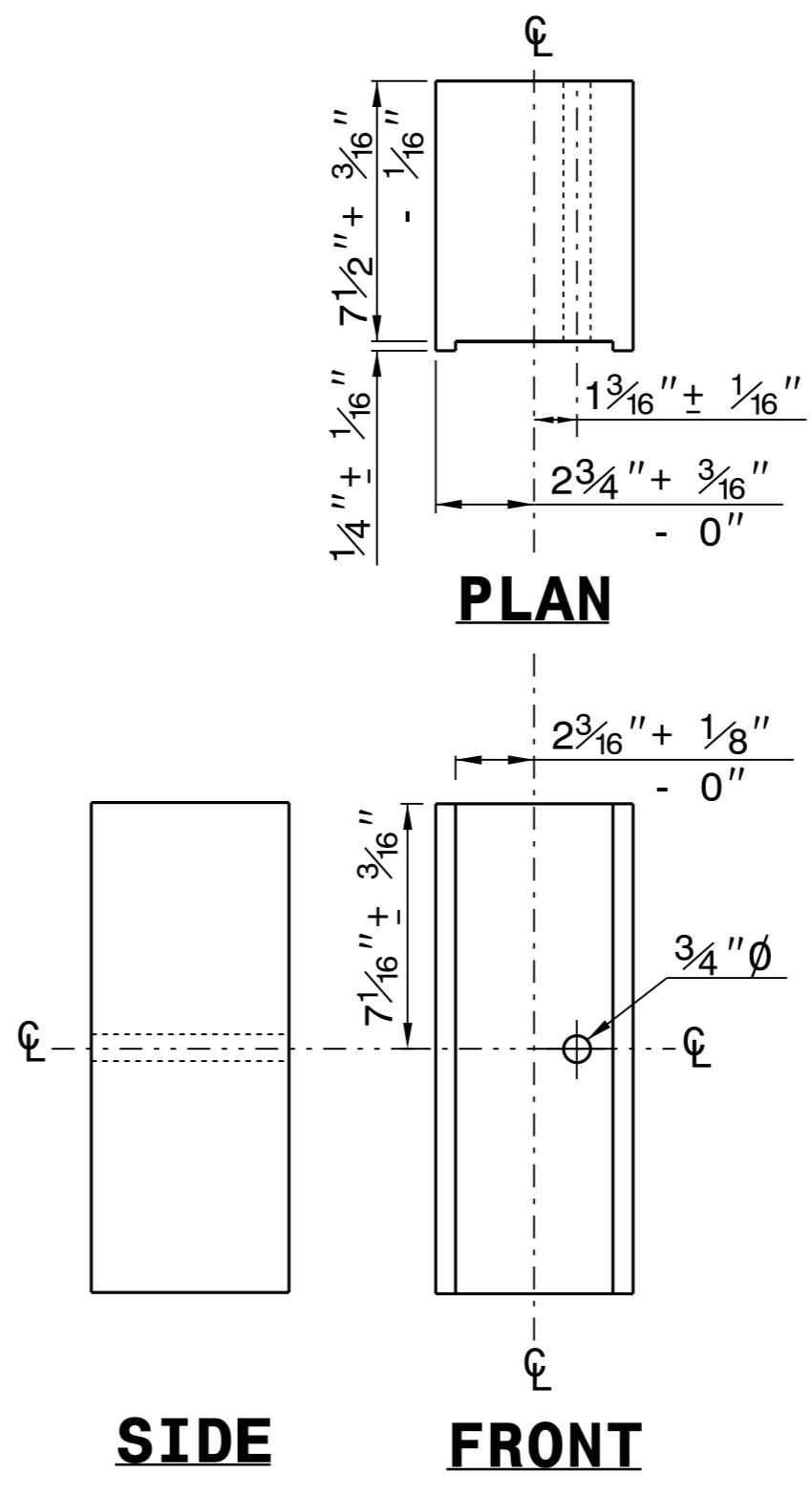
**WOOD OFFSET BLOCK  
(FOR WOOD POSTS)**

**STANDARD  
LINE POST**

**SHORT WOOD  
BREAKAWAY POST**



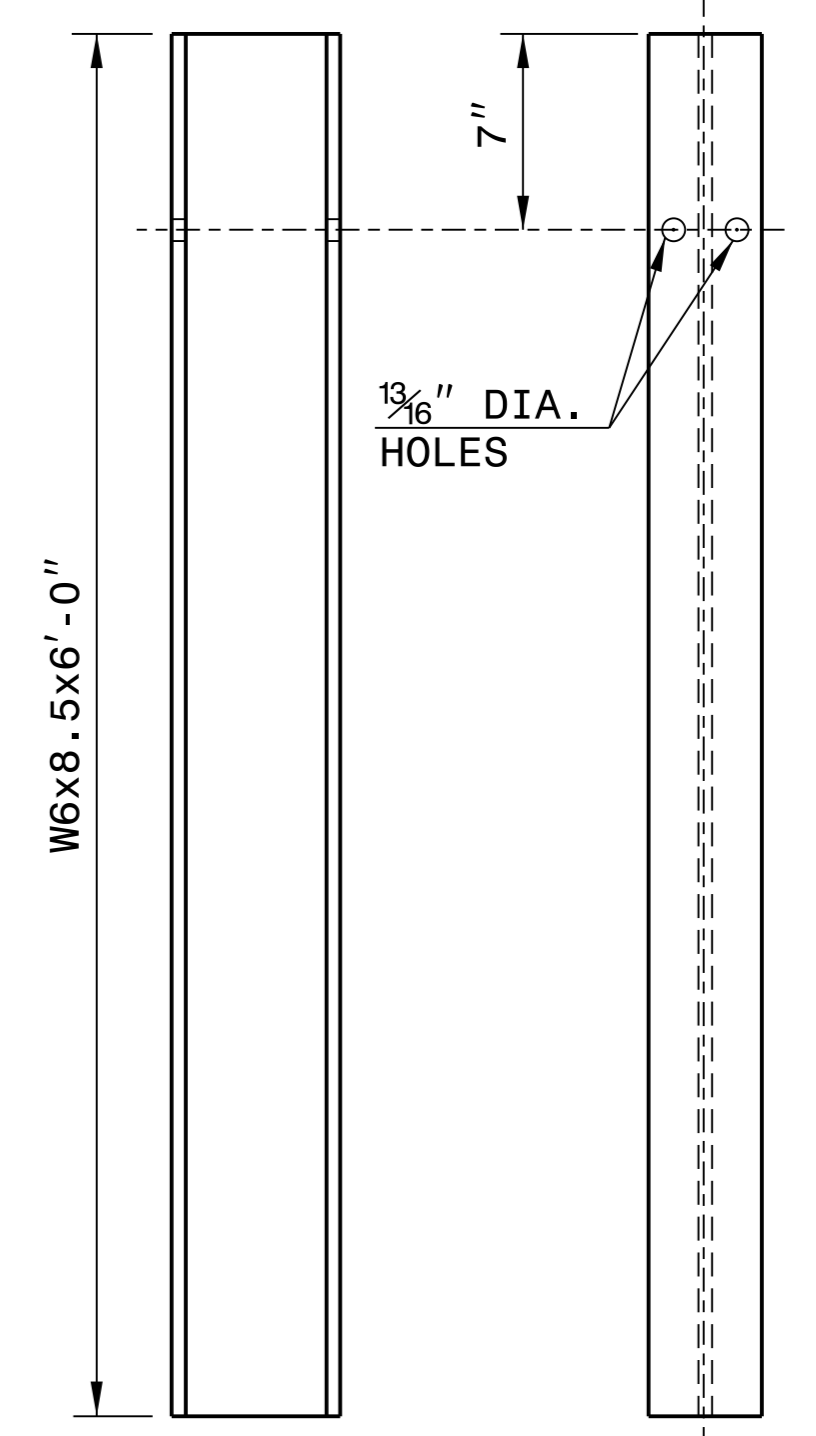
**STEEL TUBE  
TS 6"x8"x0.1875"**



**SIDE**

**FRONT**

**ROUTED  
OFFSET BLOCK**



**SIDE**

**FRONT**

**"W6" STEEL POST**

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

ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

SHEET 6 OF 8  
**862D02**

**SYSTEM PARTS**



6/24/2022

**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.: \_\_\_\_\_

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**SUMMARY OF EARTHWORK**  
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT EXCAVATION	EMBT + %	BORROW	WASTE
-L- 12+00.00 (RT) TO 26+85.00 (RT)	1167		1742	575	0
-LRPB- 14+56.00 TO 27+87.94	2780		795	0	1985
-LRPC- 16+60.00 TO 29+74.69	432		967	535	0
SUBTOTAL 1	4379		3504	1110	1985
-L- 18+82.35 (LT) TO 45+00.00 (LT)	2851		370	0	2481
-LRPA- 15+95.00 TO 28+38.74	1085		3062	1977	0
-LLPA- 17+28.37 TO 20+47.93	32		0	0	32
SUBTOTAL 2	3968		3432	1977	2513
TOTALS	8347		6936	3087	4498
MATERIAL FOR SHOULDER CONSTRUCTION			3396	3396	
WASTE IN LIEU OF BORROW				-4498	-4498
PROJECT TOTALS	8347		10332	1985	0
EST 5% TO REPLACE BORROW PIT TOPSOIL				100	
GRAND TOTALS	8347			2085	
SAY	8400			2100	

Approximate quantities only. Clearing and grubbing, unclassified excavation, borrow excavation, fine grading, and removal of existing asphalt pavement will be paid for at the lump sum price for "Grading"

REMOVAL OF EXISTING ASPHALT PAVEMENT			
LINE	STATION TO STATION	LOCATION	SQ. YDS.
-L-	12+00 TO 14+46	RT	28
-L-	40+86 TO 44+97	LT	3
-LRPA-	15+95 TO 19+08	RT	32
-LLPA-	17+81 TO 20+48	RT	110
-LRPB-	26+07 TO 27+73	RT	117
TOTAL			290
SAY			300

Note. Earthwork quantities are calculated by Kimley-Horn. Subsurface data was not available.

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.  
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.  
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.  
 W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.  
 G = GATING IMPACT ATTENUATOR TYPE TL-3  
 NG = NON-GATING IMPACT ATTENUATOR TYPE TL-3

**GUARDRAIL SUMMARY**

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR TYPE TL-3			TERMINAL SECTIONS	REMOVE EXISTING GUARDRAIL	REMOVE AND RESET EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	CAT-1	B-77	GREU TL-2	GREU TL-3	EA	G	NG				
-L-	13+25	22+50	RT	925'			14+50	22+50	2'-12'	15'	50'		1'		1									200'	
-L-	19+62.25	21+12.25	MED(RT)	150'			21+07		6'	9'					1										
-L-	19+00	20+25	MED(LT)				21+07	19+00	6'	9'	50'													125'	
-L-	20+25	22+75	MED(LT)	250'			21+07		6'	9'	50'		1'												TIE TO RESET GUARDRAIL
-L-	30+15	32+65	MED(LT)	250'			30+15		6'	9'	50'		1'												
-L-	30+35	33+35	LT	300'			30+40		5'	8'	50'		1'												
-L-	40+80	45+05	LT	425'			45+05	41+00	12'	15'					1	1								425'	
-L-	42+05	45+55	RT	350'			43+30	45+55	12'	15'	50'		1'											350'	
-L-	42+90	45+40	MED(RT)	250'			45+40		VAR	VAR	227.12'		12.8'											162.5'	
-L-	43+07.50	45+20	MED(LT)	212.5'			45+20		6.5'	9.5'		50'	1'											175'	
-LRPA-	15+95	24+45	RT	850'			15+95	24+45	12'	15'					1									850'	
-LRPA-	21+75	23+00	LT	125'			23+00	23+00	8'	12'	50'		1'												
-LLPA-	17+05	17+80	RT	75'			17+35	17+05	4'	7'					1										
-LLPA-	20+48	21+48	RT	100'			20+48		4'	7'	50'		1'												
-LRPA-	18+05	21+05	LT	300'			20+05	18+05	12'	15'	50'		1'											300'	
			SUBTOTAL	4562.5'											6	7	1	9						2462.5'	
			LESS ANCHOR DEDUCTIONS																						
			CAT-1 6 @ 6.25'	=																					
			B-77 7 @ 22.875'	=																					
			GREU TL-2 1 @ 25'	=																					
			GREU TL-3 9 @ 50'	=																					
			PROJ. TOTAL	3890'																					
			SAY	3900'											6	7	1	9						2475'	125'
			ADDITIONAL GUARDRAIL POSTS SAY 5 EA																						

SHOULDER BERM GUTTER			
LINE	STATION TO STATION	LOCATION	LF
-L-	15+80.00 TO 22+39.81	RT	661.2
-L-	40+82.60 TO 44+97.09	LT	414.6
-LRPA-	15+95.00 TO 19+08.00	RT	310.0
TOTAL			1385.8
SAY			1390

VARIABLE HEIGHT CONCRETE BARRIER, TYPE T2			
LINE	STATION TO STATION	LOCATION	LF
-LRPA-	23+00.00 TO 23+35.00	LT	35.0
-LRPA- /-LLPA-	24+00.00 TO 20+48.00	LT/RT	230.0
TOTAL			265

PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED			
LINE	STATION TO STATION	LOCATION	LF
-L-	28+52.00 TO 30+15.00	MED(LT)	163.0
TOTAL			163.0
SAY			165

MODIFIED DOUBLE FACED CONCRETE BARRIER, TYPE T2			
LINE	STATION TO STATION	LOCATION	LF
-LRPA-	23+35.00 TO 24+00.00	LT	65.0
TOTAL			65

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2/21/2022

LD2004

COMPUTED BY: SRG DATE: 4-23-2021
CHECKED BY: JDL DATE: 4-23-2021

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. I-5973 SHEET NO. 3D-1

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

Table with columns for Line & Station, Offset, Structure Number, Drainage Pipe, C.S. Pipe, R.C. Pipe Class III, R.C. Pipe Class IV, R.C. Pipe Class V, Quantities for Drainage Structures, Frame, Grates, and Hood, Concrete Transitional Section, and Abbreviations. Includes a SHEET TOTALS row at the bottom.



STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

SUMMARY OF GEOTEXTILE  
 FOR PAVEMENT STABILIZATION

LINE	Station	Station	Geotextile for Pavement Stabilization SY	Class IV Subgrade Stabilization TONS
LRPA	21+25	24+00	1528	668
	CONTINGENCY		350	150
	<b>TOTAL SY/TONS:</b>		1878	818*
	SAY		1900	

\*Total tons of "Class IV Subgrade Stabilization" is only the estimated quantity for pavement stabilization and may only represent a portion of the subgrade stabilization quantity shown in the Item Sheets of the Proposal.

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

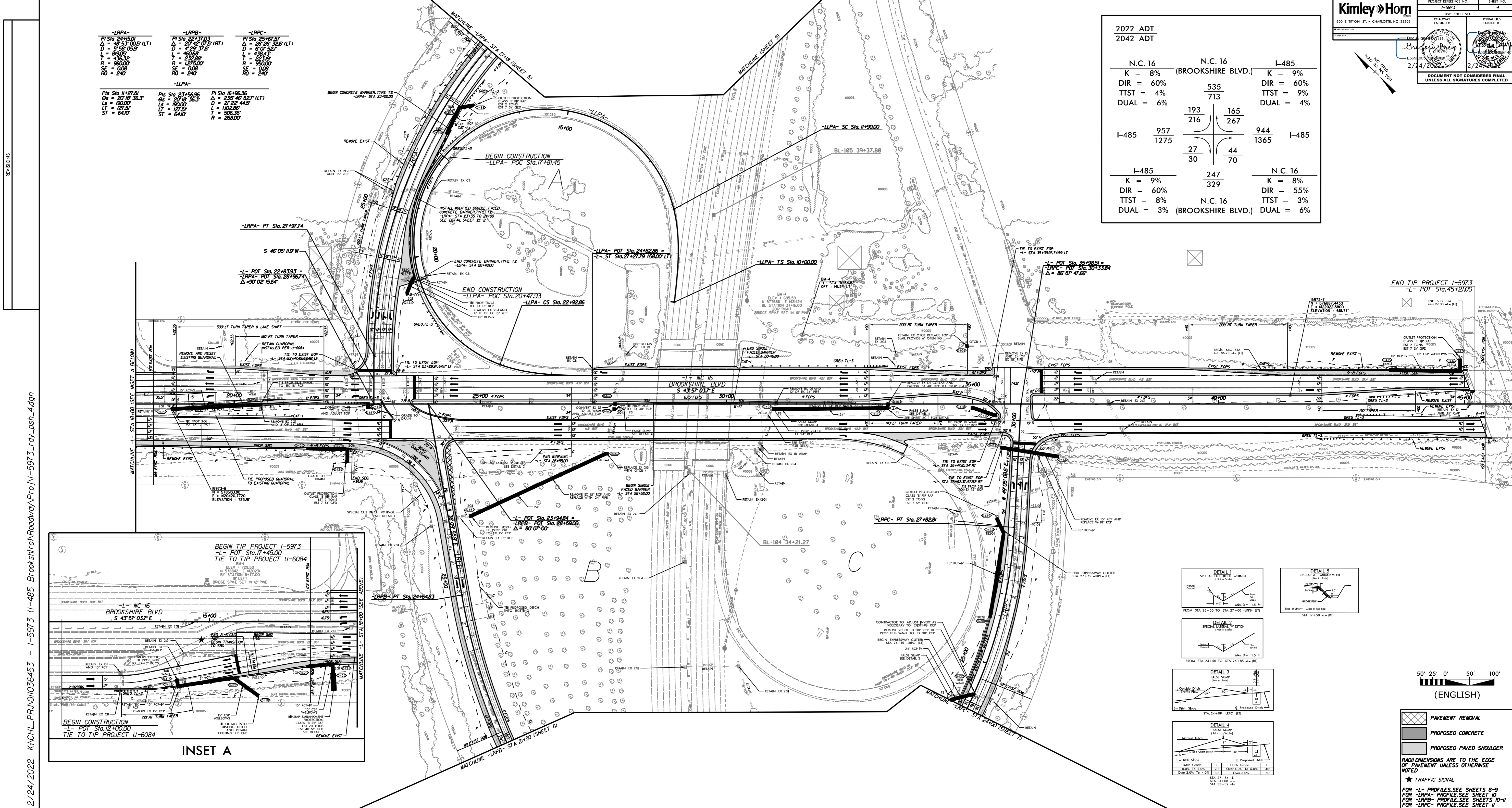
LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
	CONTINGENCY		AST	3				250	
	CONTINGENCY		ASU (1)	12	4883	8913	14653		
	<b>TOTAL CY/TONS/SY:</b>				4883	8913**	14653**	250	0
	SAY				4900	9750	14700	250	

\*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)

\*AST = Aggregate Stabilization

\*\*Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Soil Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.





<b>-LRPA-</b> PI Sta 24+15.0 Δ = 49° 51' 00.5" (LT) D = 5° 58' 05.5" L = 89.025 T = 436.32 R = 960.07 SE = 0.02 RO = 240	<b>-LRPB-</b> PI Sta 22+37.03 Δ = 27° 42' 01.5" (RT) D = 2° 32' 37.6" L = 460.68 T = 232.88 R = 1275.07 SE = 0.02 RO = 240	<b>-LRPC-</b> PI Sta 25+48.15 Δ = 25° 26' 32.8" (LT) D = 6° 07' 52.7" L = 330.43 T = 223.19 R = 990.07 SE = 0.02 RO = 240
<b>-LRPA-</b> PI Sta 11+27.51 Δ = 207° 18' 36.3" L = 180.07 T = 27.51 ST = 64.07	<b>-LRPA-</b> PI Sta 23+56.96 Δ = 235° 49' 50.7" (LT) D = 27° 22' 44.5" L = 1002.86 T = 506.36 R = 268.07	<b>-LRPC-</b> PI Sta 15+96.36 Δ = 235° 49' 50.7" (LT) D = 27° 22' 44.5" L = 1002.86 T = 506.36 R = 268.07

2022 ADT			2042 ADT		
N.C. 16	N.C. 16 (BROOKSHIRE BLVD.)	I-485	N.C. 16	N.C. 16 (BROOKSHIRE BLVD.)	I-485
K = 8%	K = 8%	K = 9%	K = 9%	K = 8%	K = 8%
DIR = 60%	DIR = 60%	DIR = 60%	DIR = 60%	DIR = 55%	DIR = 55%
TTST = 4%	TTST = 4%	TTST = 9%	TTST = 8%	TTST = 3%	TTST = 3%
DUAL = 6%	DUAL = 6%	DUAL = 4%	DUAL = 3%	DUAL = 3%	DUAL = 6%
	193 216	165 267		247 329	
I-485	957 1275		I-485	944 1365	
	27 30	44 70			

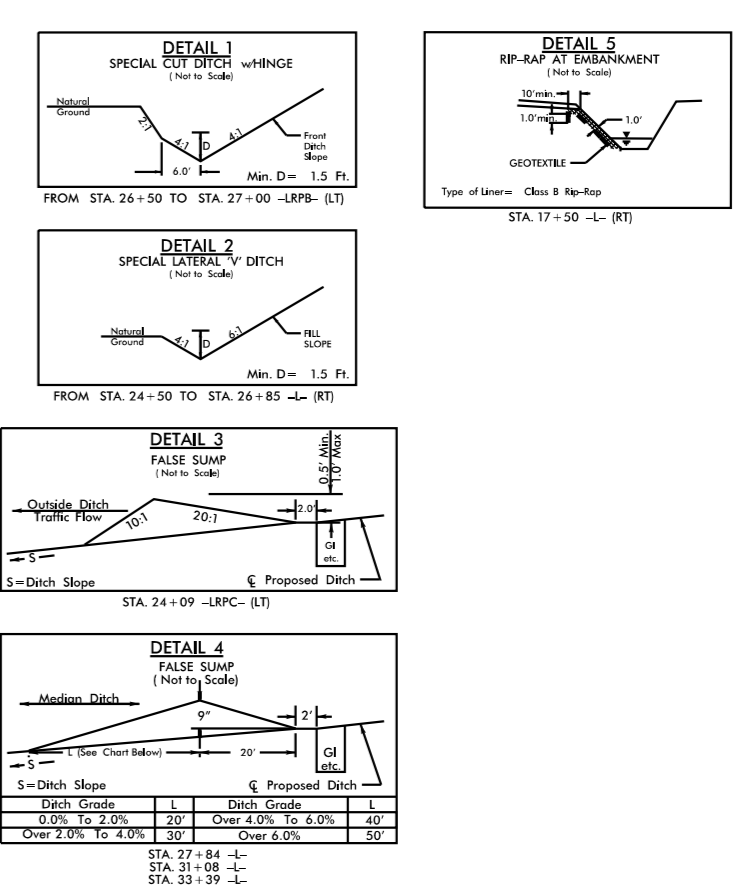
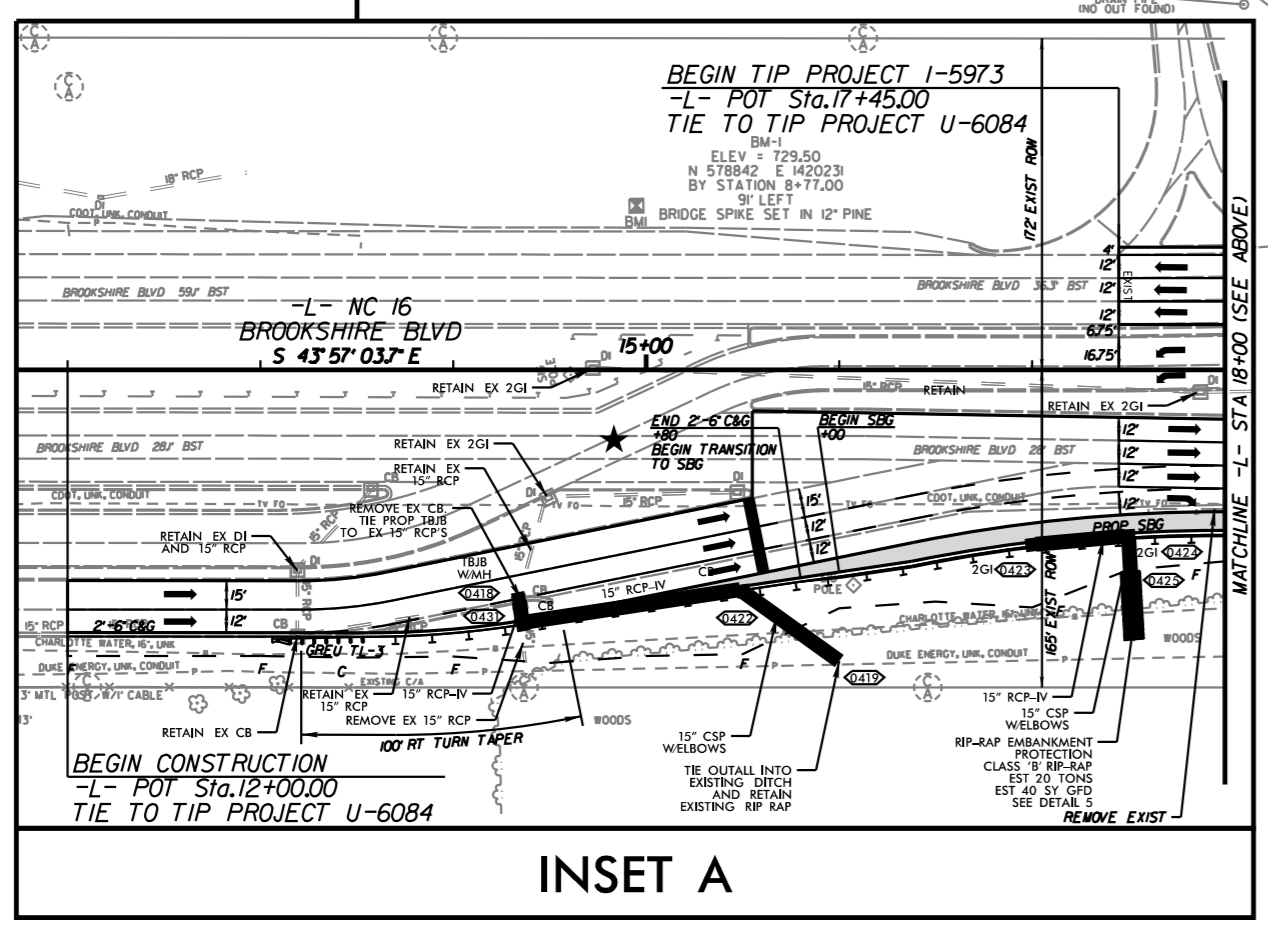
**Kimley Horn**  
300 S. TRYON ST. • CHARLOTTE, NC 28202

PROJECT REFERENCE NO. I-5973  
SHEET NO. 4

DATE: 2/24/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

2/24/2022 K:\CHL\_PRA\101036453 - I-5973 (I-485 Brookshire)Roadway\Proj\N-5973\_rdy\_psh\_4.dgn



50' 25' 0' 100'  
(ENGLISH)

PAVEMENT REMOVAL  
PROPOSED CONCRETE  
PROPOSED PAVED SHOULDER

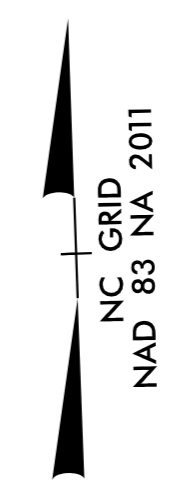
RADII DIMENSIONS ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED

★ TRAFFIC SIGNAL

FOR -L- PROFILES SEE SHEETS B-9  
FOR -LRPA- PROFILE SEE SHEET D  
FOR -LRPB- PROFILE SEE SHEETS I0-II  
FOR -LRPC- PROFILE SEE SHEET H

-LRPA-

Pls Sta 11+20.02 θs = 3° 33' 22.6" Ls = 180.00' LT = 120.02' ST = 60.02'	PI Sta 14+47.21 Δ = 20° 53' 00.0" (RT) D = 3° 57' 05.2" L = 528.50' T = 267.21' R = 1,450.00' SE = 0.08 RO = 240'	Pls Sta 17+68.52 θs = 3° 33' 22.6" Ls = 180.00' LT = 120.02' ST = 60.02'
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**Kimley Horn**

200 S. TRYON ST. • CHARLOTTE, NC 28202

RIGHT-OF-WAY REV.  
CONST. REV.

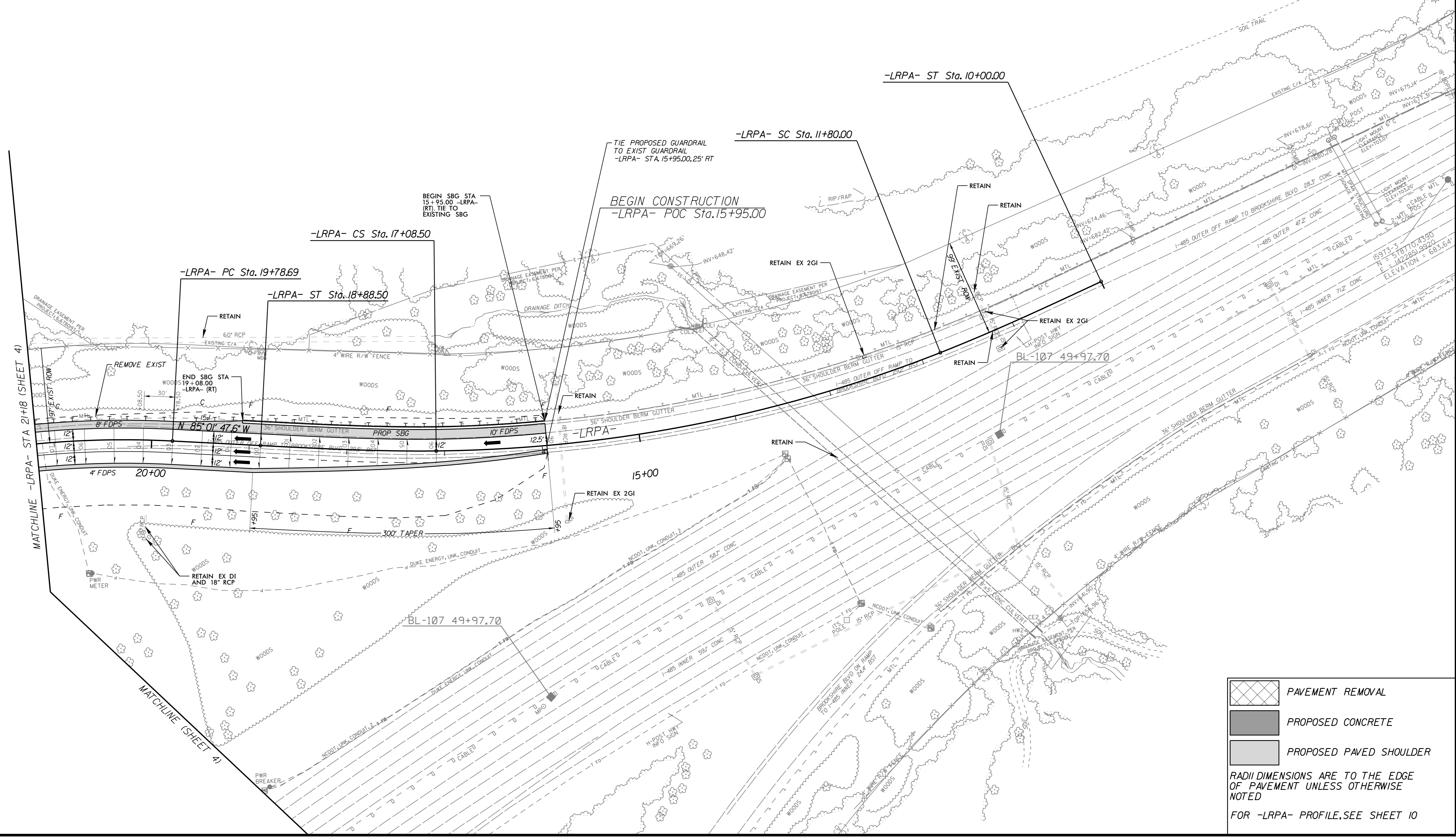
PROJECT REFERENCE NO. 1-5973	SHEET NO. 5
RW SHEET NO.	
ROADWAY ENGINEER	HYDRAULICS ENGINEER

2/24/2022

2/24/2022

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

REVISIONS

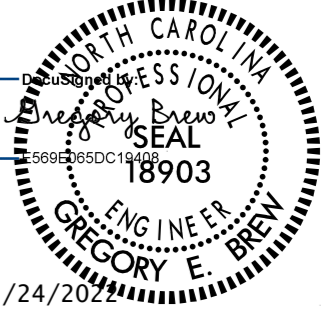
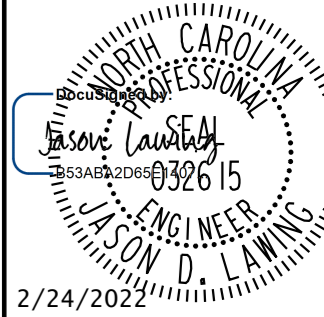


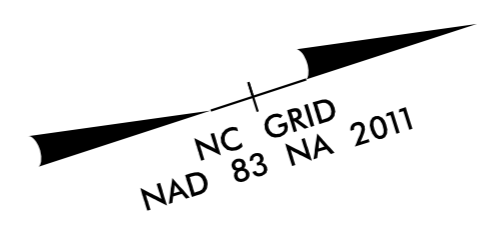
- PAVEMENT REMOVAL
- PROPOSED CONCRETE
- PROPOSED PAVED SHOULDER

RADI DIMENSIONS ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED  
FOR -LRPA- PROFILE, SEE SHEET 10

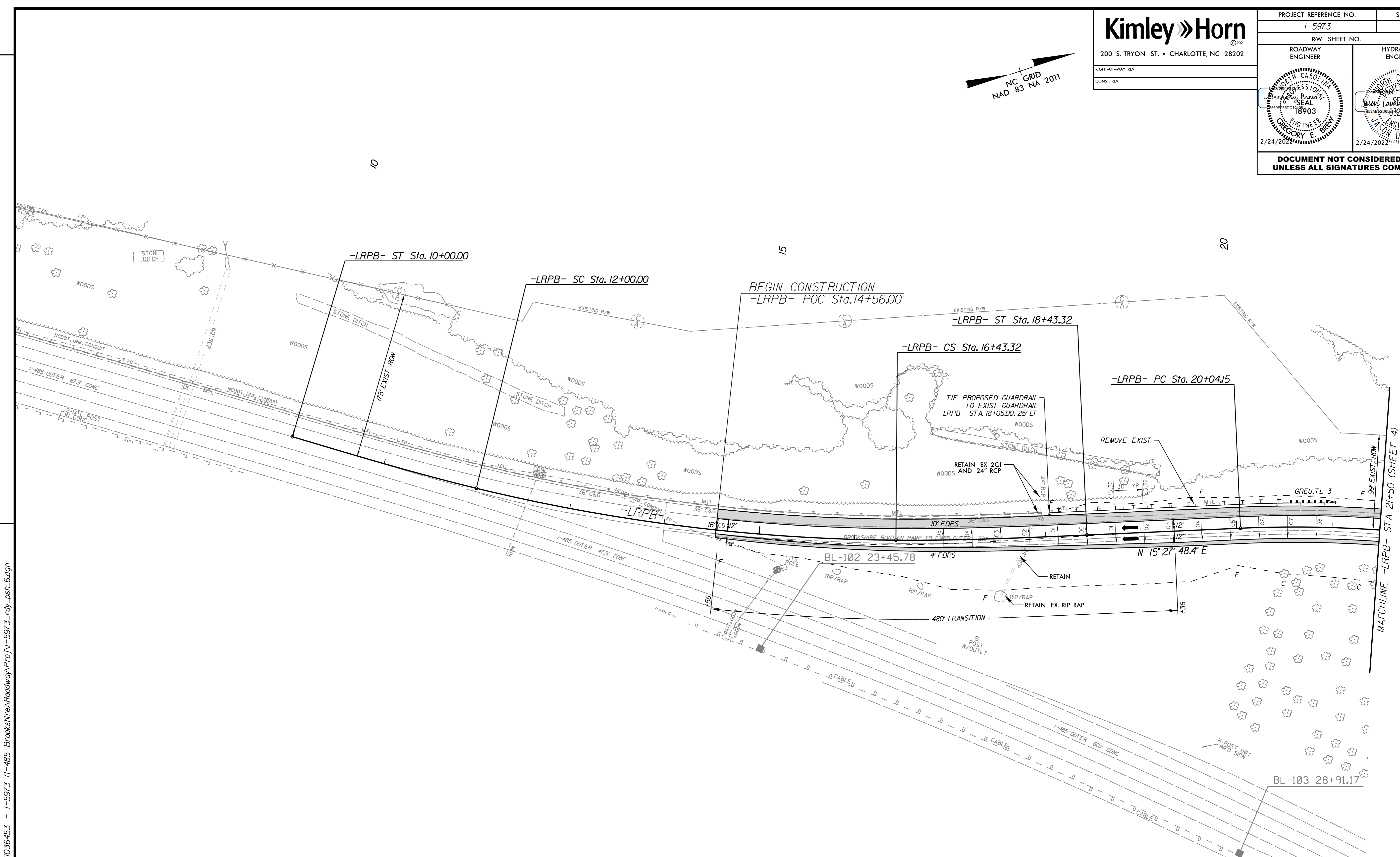
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2/23/2022

PROJECT REFERENCE NO. 1-5973	SHEET NO. 6
R/W SHEET NO.	
ROADWAY ENGINEER	HYDRAULICS ENGINEER
	
2/24/2022	2/24/2022
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	






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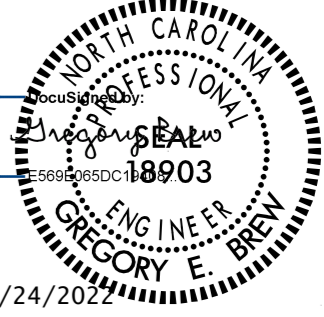

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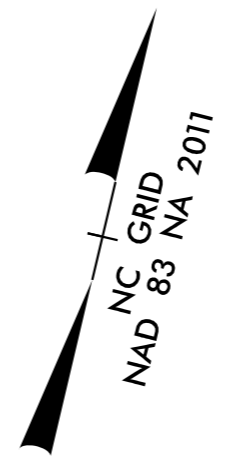
-LRPB-			
PIs Sta 11+33.35	PI Sta 14+22.65	PIs Sta 17+10.00	PI Sta 22+37.03
$\theta_s = 2^\circ 59' 03.0''$	$\Delta = 13^\circ 13' 45.7''$ (LT)	$\theta_s = 2^\circ 59' 03.0''$	$\Delta = 20^\circ 42' 07.5''$ (RT)
$L_s = 200.00'$	$D = 2^\circ 59' 03.0''$	$L_s = 200.00'$	$D = 4^\circ 29' 37.6''$
$LT = 133.35'$	$L = 443.32'$	$LT = 133.35'$	$L = 460.68'$
$ST = 66.68'$	$T = 222.65'$	$ST = 66.68'$	$T = 232.88'$
	$R = 1,920.00'$		$R = 1,275.00'$
	$SE = 0.05$		$SE = 0.08$
	$RO = 150'$		$RO = 240'$

-  PAVEMENT REMOVAL
-  PROPOSED CONCRETE
-  PROPOSED PAVED SHOULDER

RADI DIMENSIONS ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED

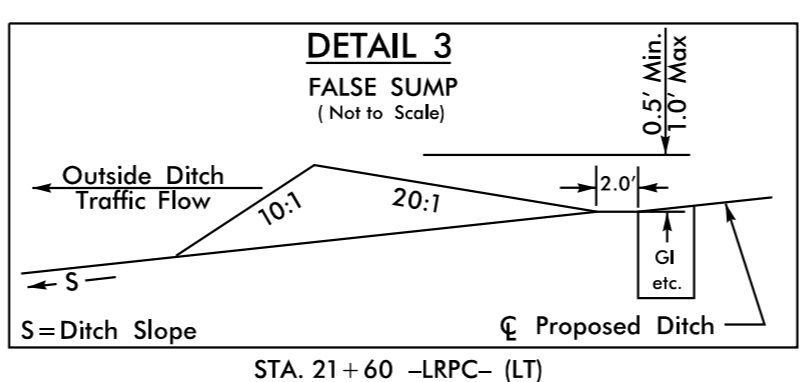
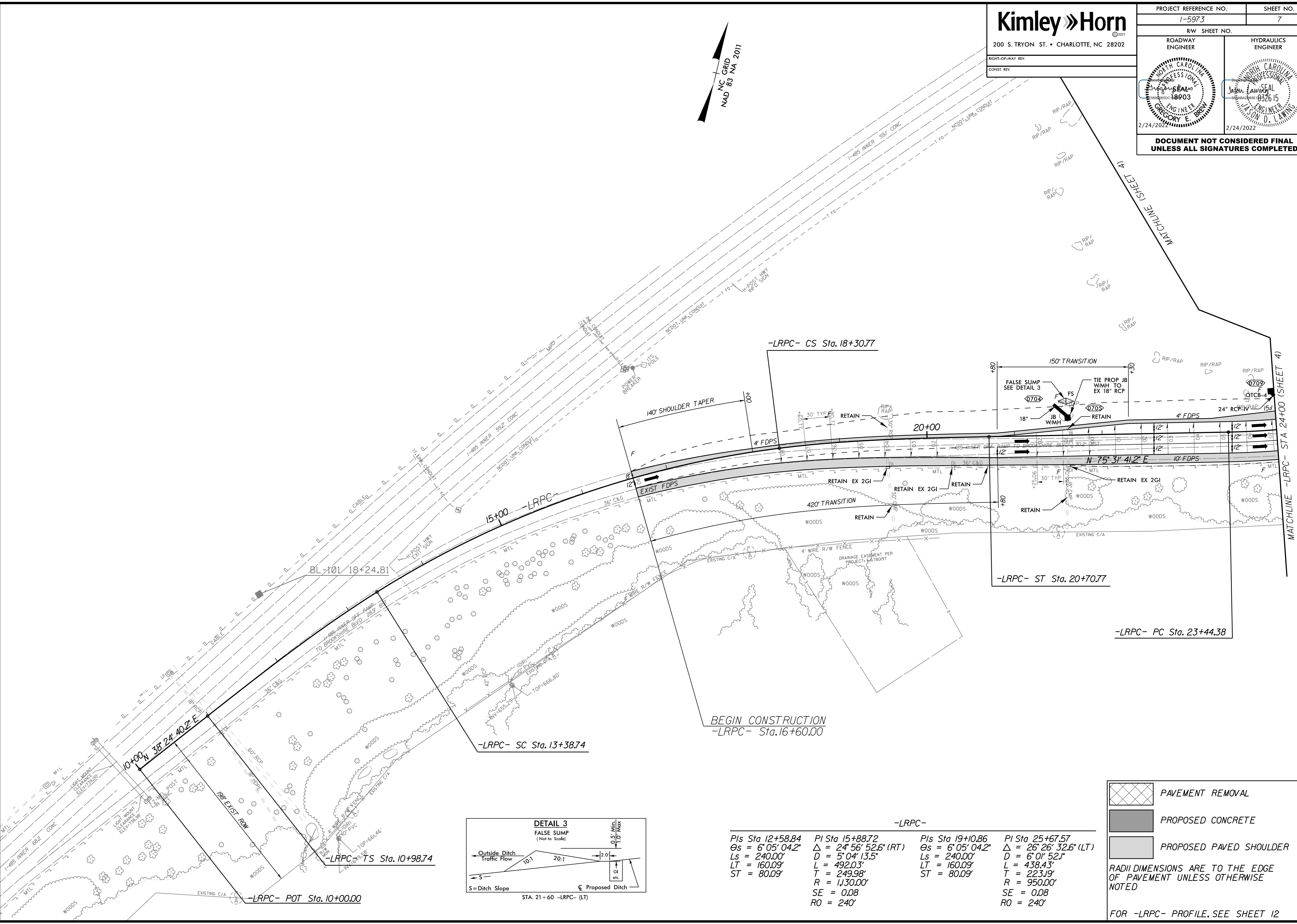
FOR -LRPB- PROFILE, SEE SHEET 10

PROJECT REFERENCE NO. 1-5973	SHEET NO. 7
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY ENGINEER	ENGINEER
	
2/24/2022	2/24/2022
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	






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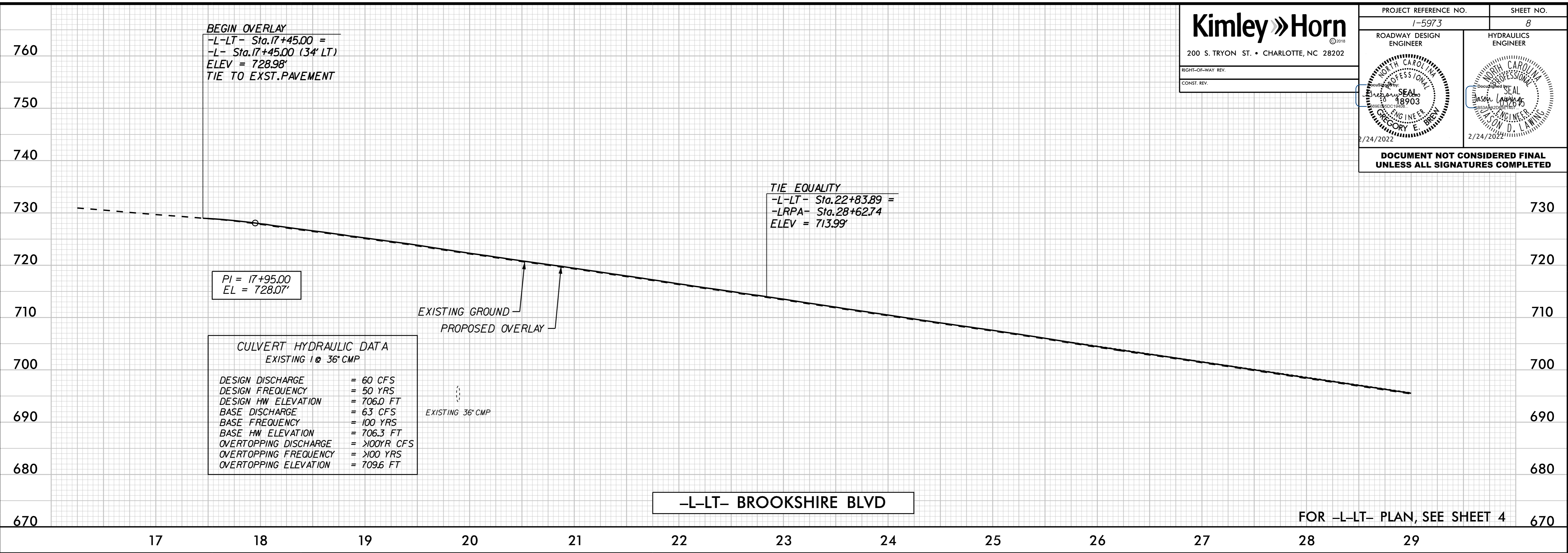
-LRPC-

PI Sta 12+58.84	PI Sta 15+88.72	PI Sta 19+10.86	PI Sta 25+67.57
$\Delta = 6' 05" 04.2"$	$\Delta = 24' 56" 52.6" (RT)$	$\Delta = 6' 05" 04.2"$	$\Delta = 26' 26' 32.6" (LT)$
Ls = 240.00'	D = 5' 04' 13.5"	Ls = 240.00'	D = 6' 01' 52.1"
LT = 160.09'	L = 492.03'	LT = 160.09'	L = 438.43'
ST = 80.09'	T = 249.98'	ST = 80.09'	T = 223.19'
	R = 1,130.00'		R = 950.00'
	SE = 0.08		SE = 0.08
	RO = 240'		RO = 240'

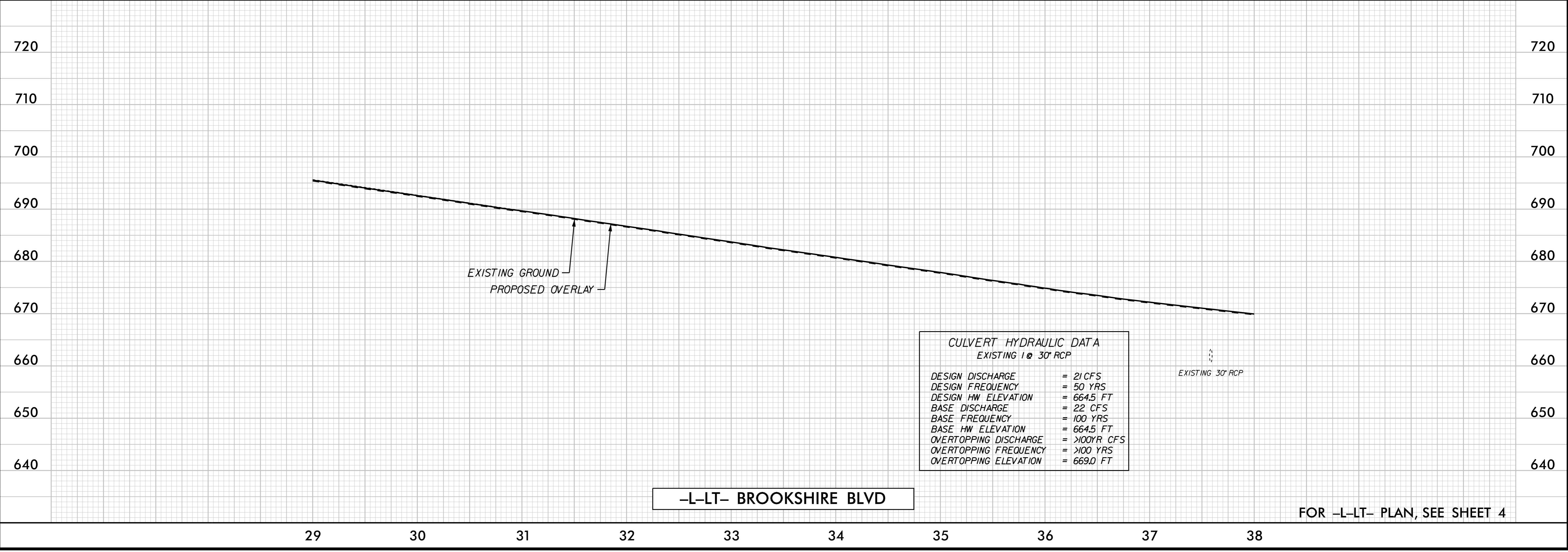
-  PAVEMENT REMOVAL
  -  PROPOSED CONCRETE
  -  PROPOSED PAVED SHOULDER
- RADI DIMENSIONS ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED
- FOR -LRPC- PROFILE, SEE SHEET 12

PROJECT REFERENCE NO. 1-5973	SHEET NO. 8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	


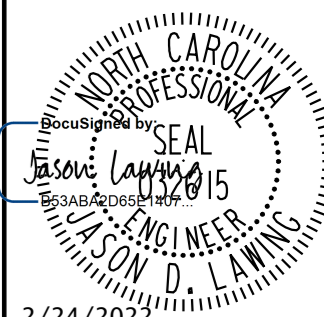
REVISIONS



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2/23/2022

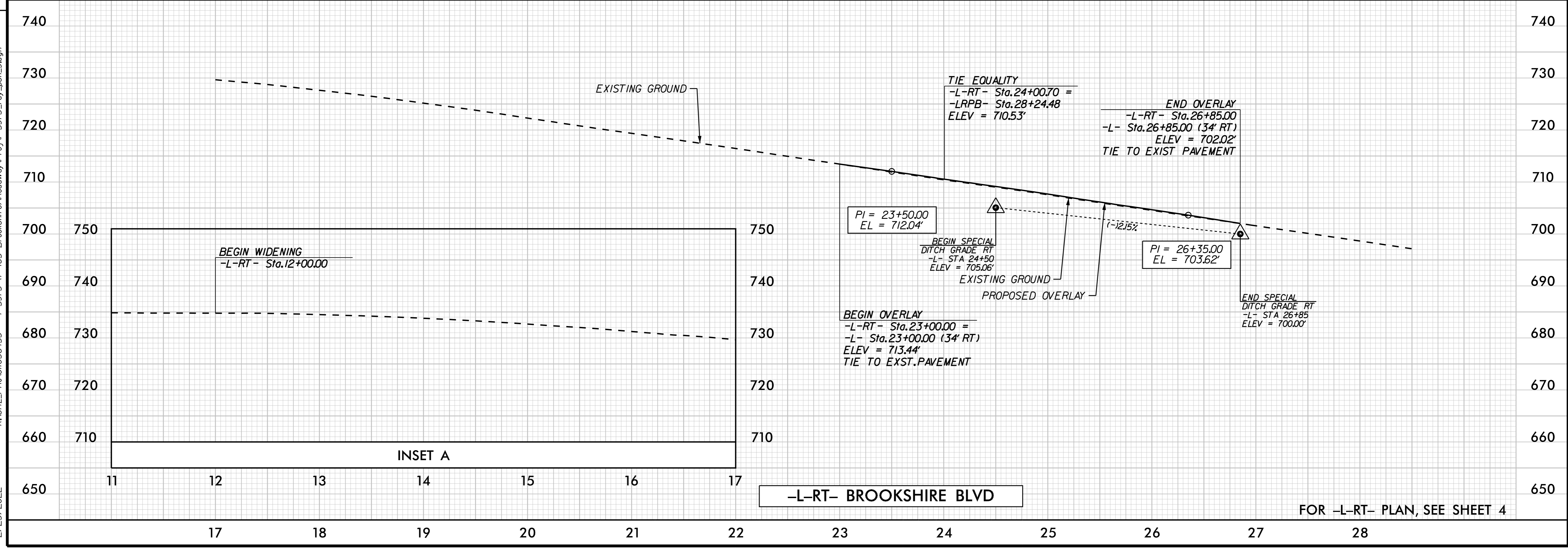
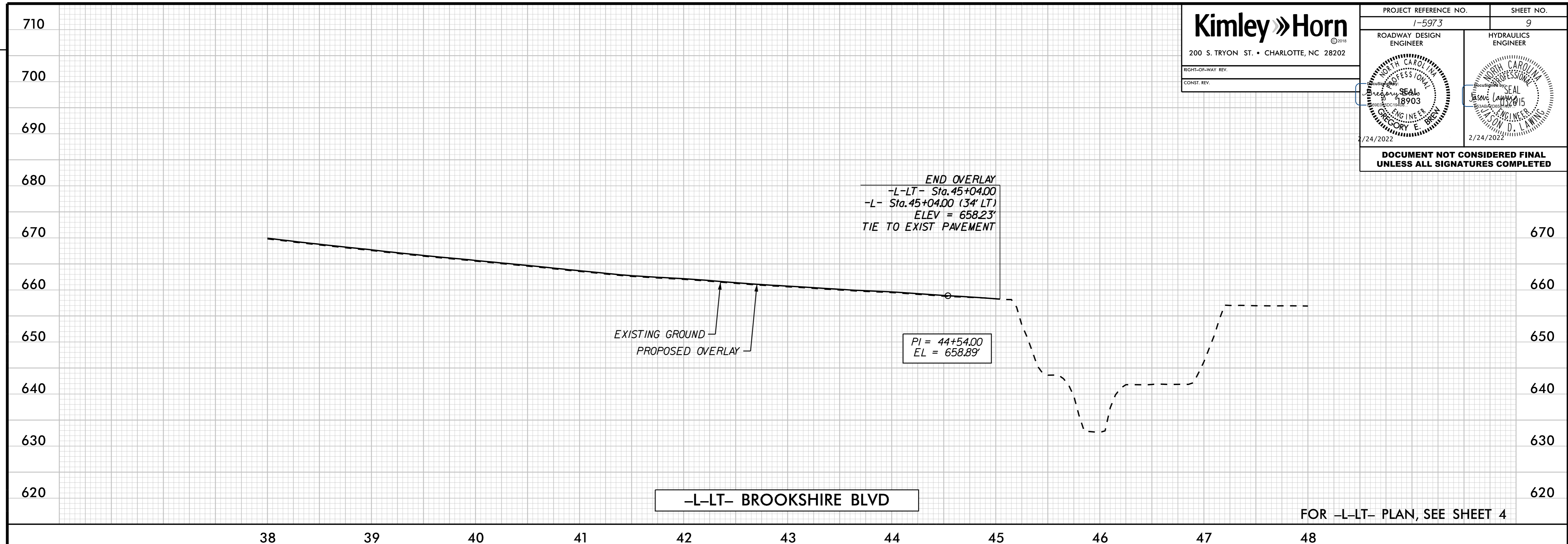


**Kimley»Horn**  
 200 S. TRYON ST. • CHARLOTTE, NC 28202


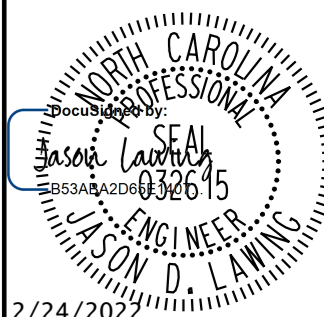
PROJECT REFERENCE NO. 1-5973	SHEET NO. 9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
2/24/2022	2/24/2022

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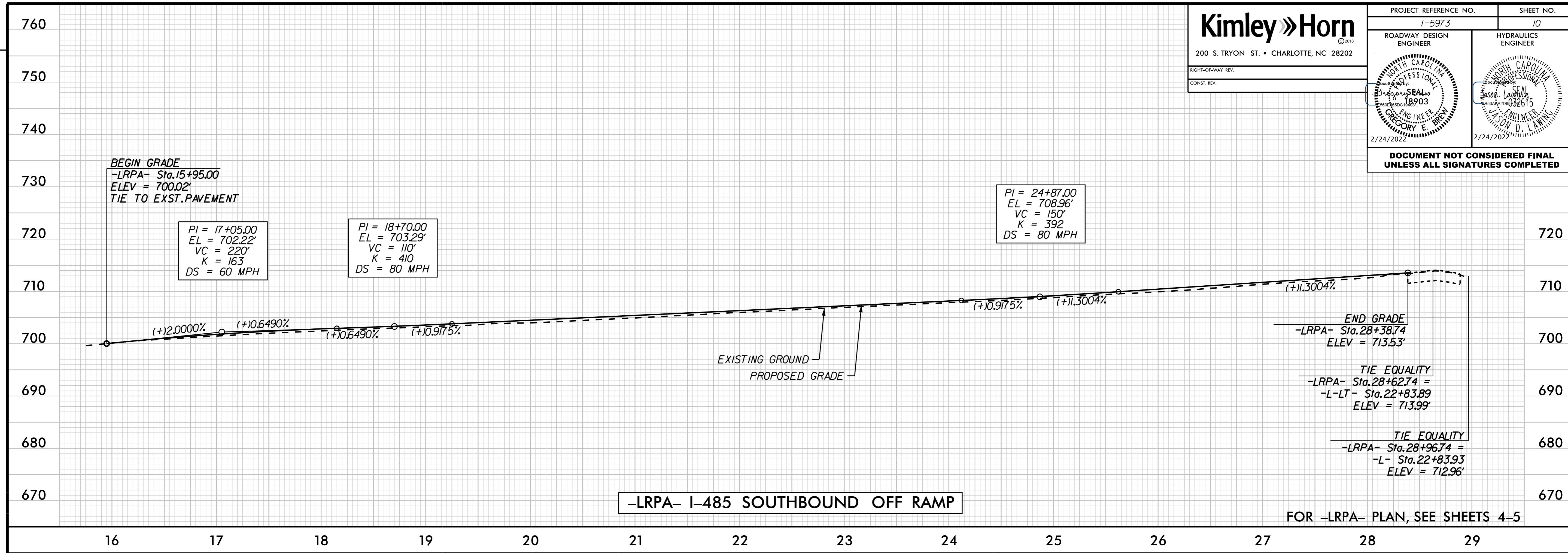


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2/23/2022

PROJECT REFERENCE NO. I-5973	SHEET NO. 10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 GREGORY E. BRIEN 2/24/2022	 JASON D. LAVING 2/24/2022

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

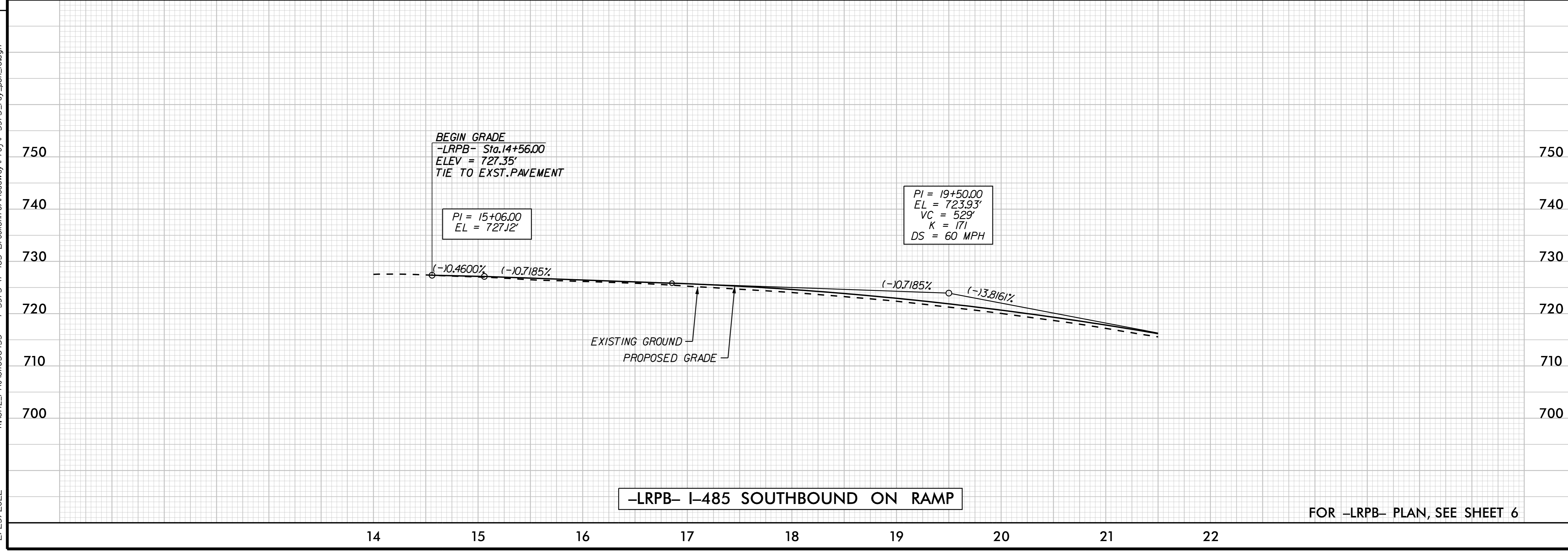
REVISIONS



**-LRPA- I-485 SOUTHBOUND OFF RAMP**

FOR -LRPA- PLAN, SEE SHEETS 4-5

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**-LRPB- I-485 SOUTHBOUND ON RAMP**

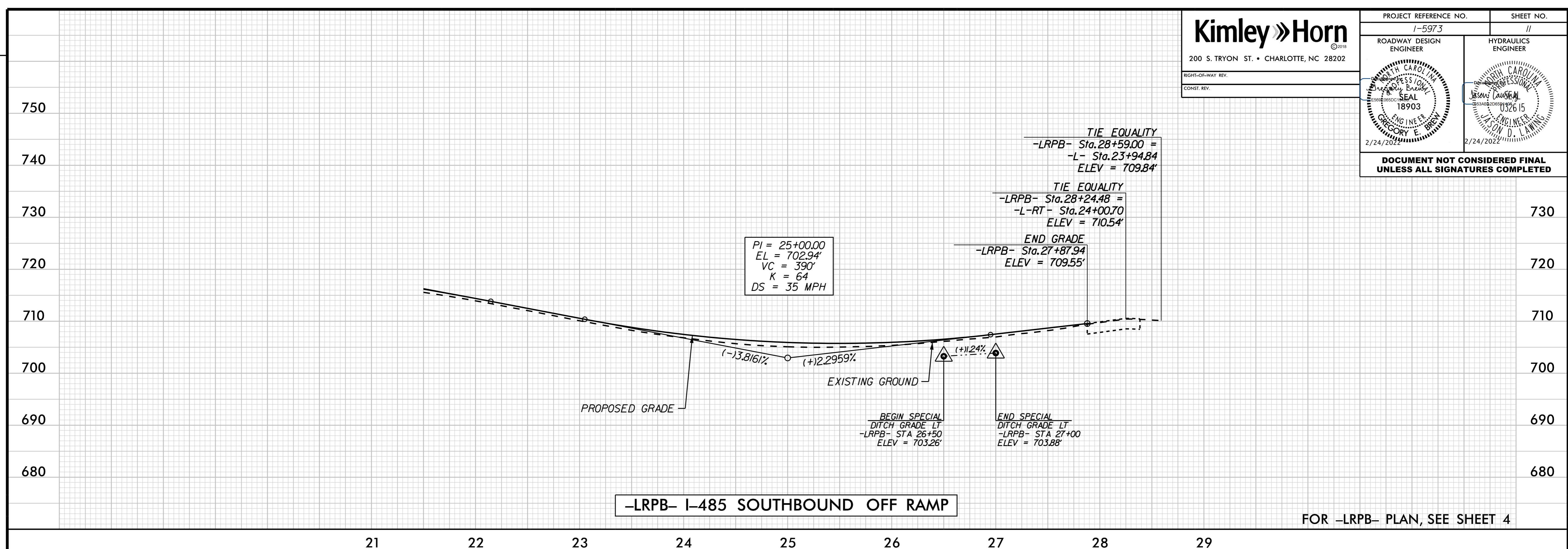
FOR -LRPB- PLAN, SEE SHEET 6

2/23/2022

**Kimley Horn**  
 200 S. TRYON ST. • CHARLOTTE, NC 28202  
 RIGHT-OF-WAY REV.  
 CONST. REV.

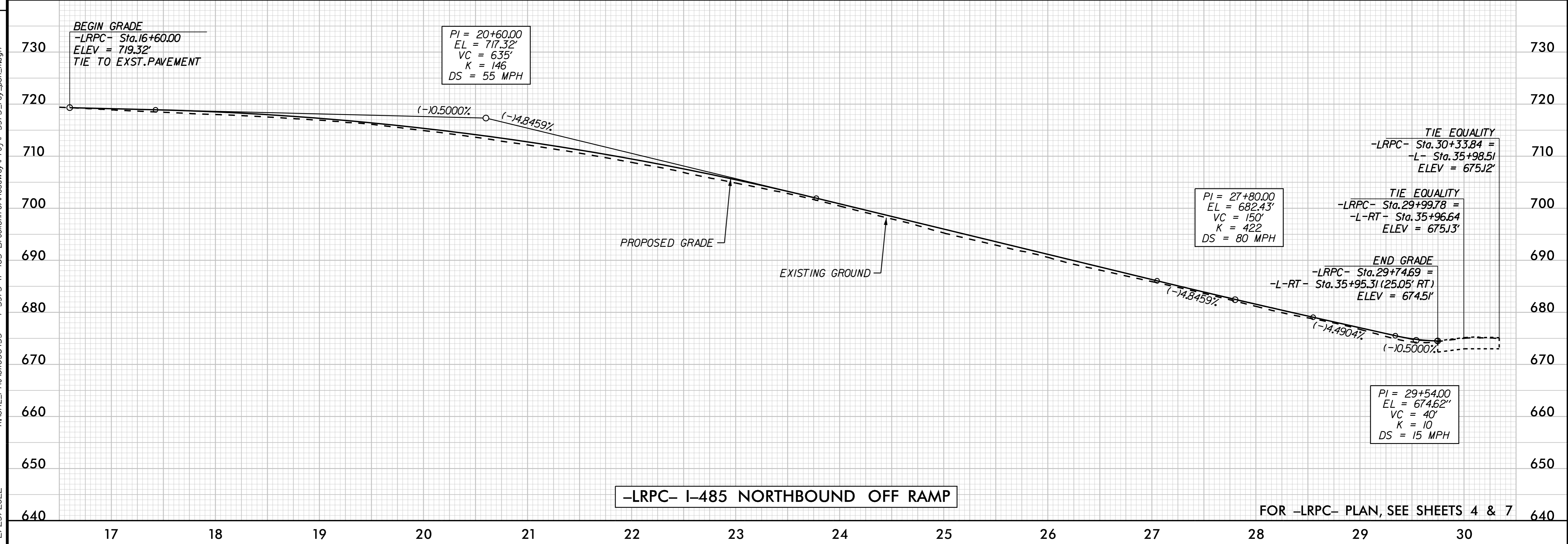
PROJECT REFERENCE NO. I-5973	SHEET NO. II
ROADWAY DESIGN ENGINEER GREGORY E. BREW 2/24/2022	HYDRAULICS ENGINEER JASON D. LAYING 2/24/2022
<b>DOCUMENT NOT CONSIDERED FINAL          UNLESS ALL SIGNATURES COMPLETED</b>	

REVISIONS



**-LRPB- I-485 SOUTHBOUND OFF RAMP**

FOR -LRPB- PLAN, SEE SHEET 4



**-LRPC- I-485 NORTHBOUND OFF RAMP**

FOR -LRPC- PLAN, SEE SHEETS 4 & 7

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2/23/2022