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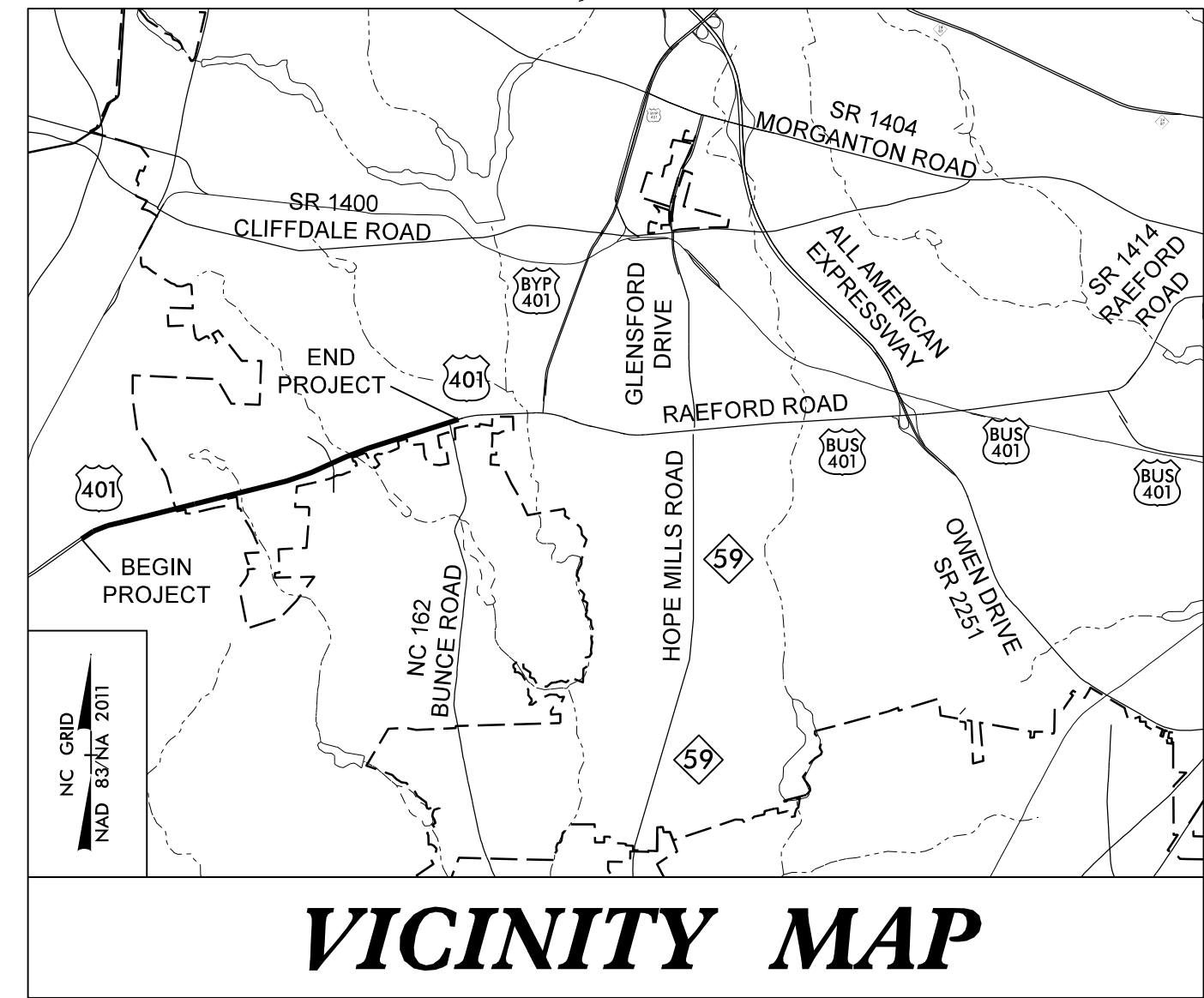
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See Sheet 1A For Index of Sheets  
See Sheet 1B For Conventional Symbols

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4405A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
39049.1.FR2	STPDA-0401(300)	PE	
39049.2.2	STPDA-0401(300)	RW	
39049.2.4	STPDA-0401(300)	UTIL	
39049.3.2	STPDA-0401(300)	CONST	

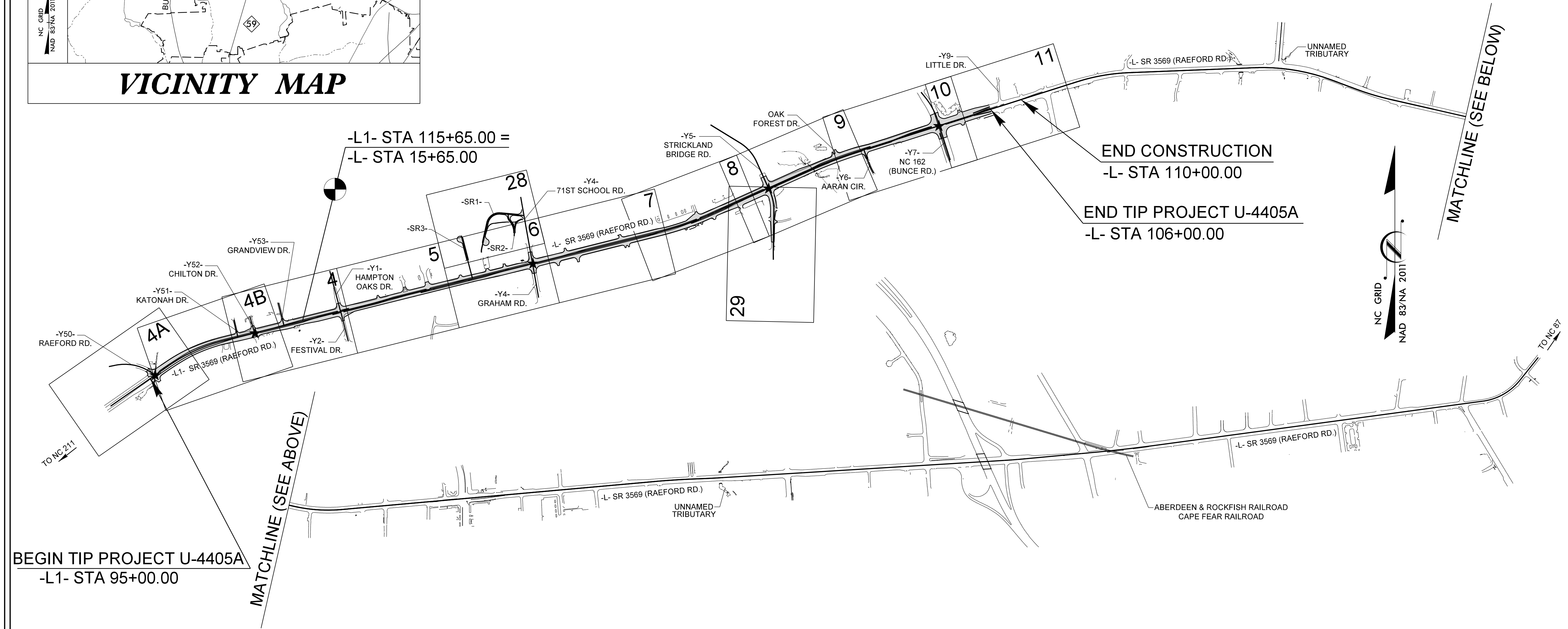
TIP PROJECT: U-4405A



# CUMBERLAND COUNTY

**LOCATION: US 401 FROM OLD RAEFORD ROAD TO EAST OF NC 162 (BUNCE RD) IN FAYETTEVILLE**

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



BEGIN TIP PROJECT U-4405A  
-L1- STA 95+00.00

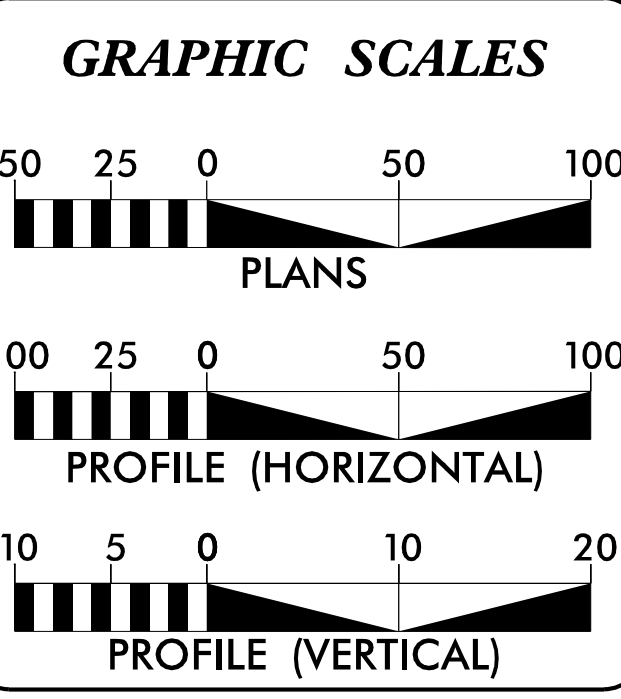
END CONSTRUCTION  
-L- STA 110+00.00

END TIP PROJECT U-4405A  
-L- STA 106+00.00

★ PROPOSED SIGNAL

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UNLESS ALL SIGNATURES COMPLETED

CONTRACT: C204404



**DESIGN DATA**

ADT 2021 =	64,325
ADT 2041 =	72,150
K =	10 %
D =	60 %
T =	3 %*
V =	50 MPH
*(TTST = 1% & DUAL = 2%)	
FUNC CLASS =	URBAN ARTERIAL REGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT U-4405A =	2.102 MILES
TOTAL LENGTH TIP PROJECT U-4405A =	2.102 MILES
NCDOT CONTACT: KHALED ALAKHDAR	

Prepared In the Office of:

**ATKINS** 1616 EAST MILLBROOK ROAD, SUITE 160  
RALEIGH, NORTH CAROLINA 27609  
(919) 876-6888 NCBEES #F-0326

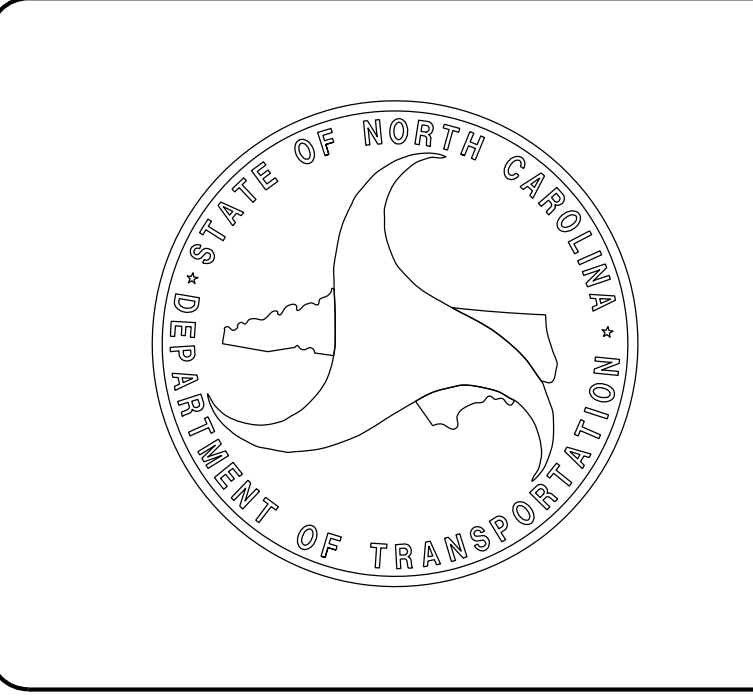
2018 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE:	CLINTON J. MORGAN, PE PROJECT ENGINEER
JULY 29, 2016	
LETTING DATE:	VIRGINIA T. SCHAAR, PE PROJECT DESIGN ENGINEER
NOVEMBER 16, 2021	

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ 10/18/2021 P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ 10/18/2021 P.E.





B:17/99



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SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-6	PAVEMENT SCHEDULE, TYPICAL SECTIONS, WEDGING DETAIL, AND MILLING DETAIL
2B-1	INTERSECTION DETAILS
2C-1 THRU 2C-5 2C-7 THRU 2C-9 2C-11 THRU 2C-14 2C-16 THRU 2C-19	DETAIL OF 8"x12" CURB TO 2'-6" CURB & GUTTER TRANSITION SECTION, SPECIAL DI 840D14, CONCRETE GRATED DROP INLET TYPE 'A' MINIMUM DEPTH, EXTRA DEPTH CONCRETE CATCH BASIN, MINIMUM DEPTH CONCRETE CATCH BASIN, DETAIL TO CONVERT EXISTING DI, CB, DTGB OR GI TO JUNCTION BOX (MANHOLE OPTIONAL), CONCRETE ENDWALL FOR (60" RCP, 66" RCP, 72" WSP, W/ PIPE IN WINGWALL), CONCRETE ENDWALL FOR (60" RCP, 66" RCP, 72" WSP, W/ PIPE IN WINGWALL), DETAIL OF CURB RAMPS: DIRECTIONAL RAMPS, DETAIL OF CURB RAMPS: MEDIAN OR TURN ISLANDS, DETAIL OF CURB RAMPS: PARALLEL RAMPS, DETAIL OF CURB RAMPS: SHARED LANDING, SPECIAL JUNCTION BOX WITH SLAB LID, DETAIL OF 1'-6" CURB & GUTTER TRANSITION SECTION, DETAIL OF PIPE COLLARS, DETAIL OF GUARDRAIL INSTALLATION
2H-1	STOCKPILE CONTAINMENT DETAIL
3B-1	SUMMARY OF GUARDRAIL, PAVEMENT REMOVAL SUMMARY, AND EARTHWORK SUMMARY
3D-1 THRU 3D-12	DRAINAGE SUMMARY
3G-1	GEOTECHNICAL SUMMARY
3P-1	PARCEL INDEX SHEET
4A THRU 11, 28 THRU 29	PLAN SHEETS
33 THRU 39	PROFILE SHEETS
RW-01 THRU RW-29	SURVEY CONTROL, ALIGNMENT CONTROL, R/W & EASEMENT CONTROL, R/W SHEETS
TMP-1 THRU TMP-12	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-12	PAVEMENT MARKING PLANS
EC-1 THRU EC-28	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-14	SIGNING PLANS
SIG-1 THRU SIG-M8	SIGNAL PLANS
SCP-1 THRU SCP-19	SIGNAL COMMUNICATION PLANS
UC-1 THRU UC-11 UC-19, UC-20A, UC-28, & UC-29	UTILITY CONSTRUCTION SHEETS
UC-34 THRU UC-39, UC-56	UTILITY PROFILE SHEETS
UD-1 THRU UD-11	UTILITIES BY OTHERS PLANS
X-0A THRU X-0D	CROSS-SECTION INDEX SHEET AND SUMMARY
X-1 THRU X-54	CROSS-SECTIONS
C2-1 THRU C2-4	CULVERT 2 PLANS

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

**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 11.

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

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

**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.

**UTILITIES:** UTILITY OWNERS ON THIS PROJECT ARE Fayetteville PWC (Power) Aqua NC (Water), Fayetteville PWC (Water and Sewer) Piedmont Natural Gas (Gas) CenturyLink (Communication), Spectrum (Communication), Level 3 (Communication) 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 REV.

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

STD. NO.	TITLE
<b>DIVISION 2 - EARTHWORK</b>	
200.02	Method of Clearing - Method 11
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Super-elevation - Two Lane Pavement
<b>DIVISION 3 - PIPE CULVERTS</b>	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
<b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b>	
560.01	Method of Shoulder Construction - High Side of Super-elevated Curve - Method 1
560.02	Method of Shoulder Construction - High Side of Super-elevated Curve - Method 11
<b>DIVISION 6 - ASPHALT BASES AND PAVEMENTS</b>	
654.01	Pavement Repairs
<b>DIVISION 8 - INCIDENTALS</b>	
815.02	Subsurface Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.33	Reinforced Concrete Endwall - for Single 66" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall - Std. Dwg 838.21 thru 838.40
838.63	Reinforced Brick Endwall - for Single 66" Pipe 90 Skew
838.75	Notes for Reinforced Brick Endwall - Std. Dwg 838.51 thru 838.70
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
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
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" 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
840.31	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
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
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
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
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units (Special Detail for Type III Anchor Units Sheets 1 of 7 and 2 of 7)
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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 \$\$\$\$DISPATCH\$\$\$\$

# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

## CONVENTIONAL PLAN SHEET SYMBOLS

12/2/2016

### 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	-----
Potential Contamination Area: Soil	-----
Known Contamination Area: Water	-----
Potential Contamination Area: Water	-----
Contaminated Site: Known or Potential	☠ ?

### BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	□
Building	□
School	□
Church	□
Dam	▬

### HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	□
Jurisdictional Stream	--- JS ---
Buffer Zone 1	--- BZ 1 ---
Buffer Zone 2	--- BZ 2 ---
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	▽
Proposed Lateral, Tail, Head Ditch	▬
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	--- T ---
Proposed Guardrail	--- T ---
Existing Cable Guiderail	--- T ---
Proposed Cable Guiderail	--- T ---
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	○ S
Storm Sewer	--- S ---

### UTILITIES:

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

### TELEPHONE:

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

### WATER:

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

### TV:

TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	○ TV
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:

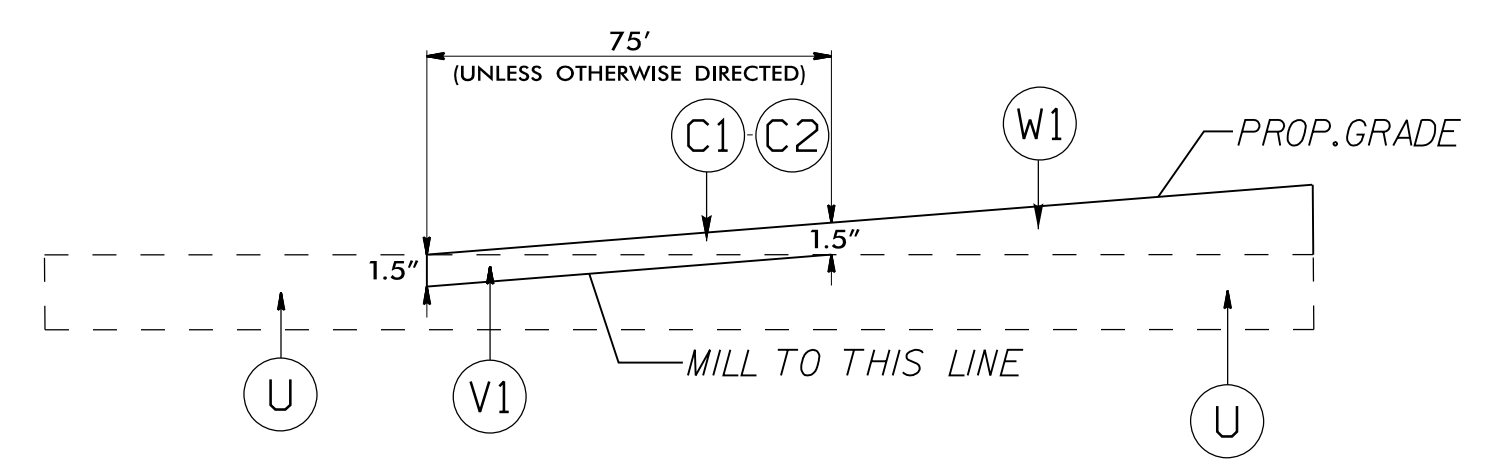
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line LOS B (S.U.E.*)	--- 7UTL ---
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	□ UST
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	○
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.



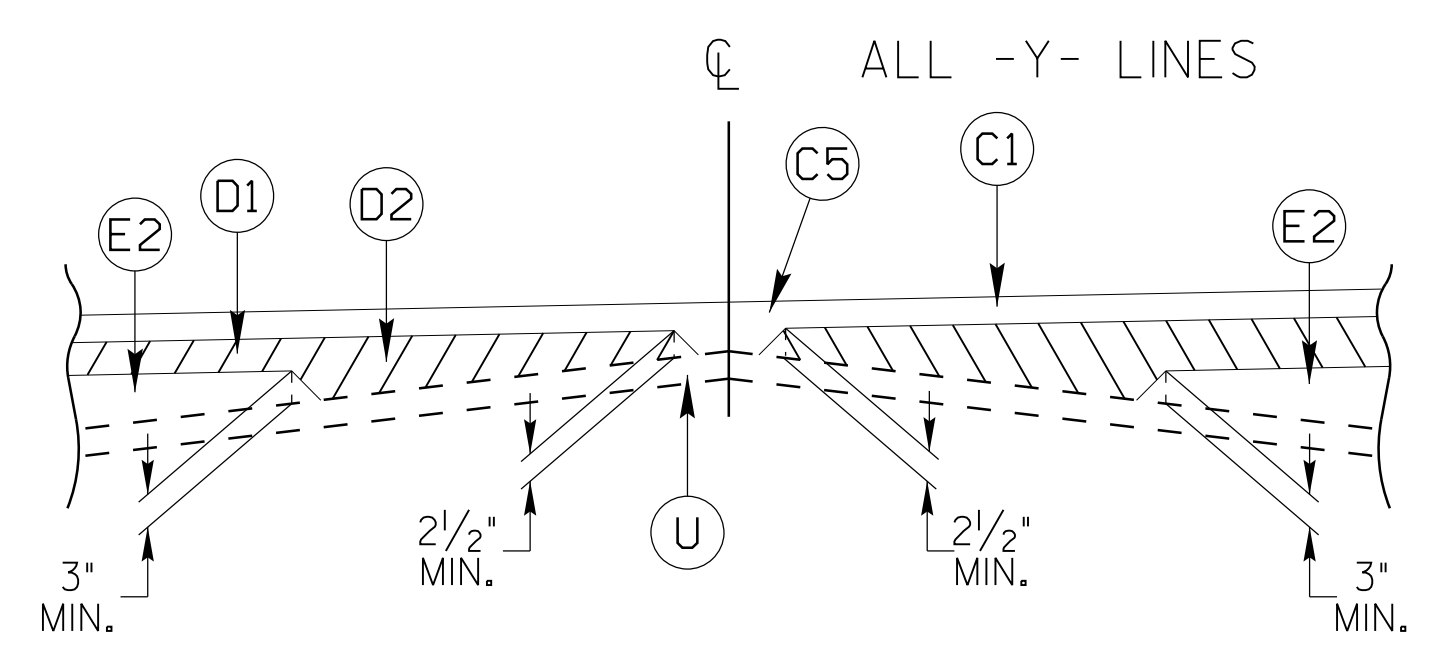
PROJECT REFERENCE NO. U-4405A	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

FINAL PAVEMENT SCHEDULE			
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	N1	GEOTEXTILE FOR SOIL STABILIZATION
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R1	2'-6" CONCRETE CURB AND GUTTER
C3	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R2	1'-6" CONCRETE CURB AND GUTTER
C4	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.	R3	8" X 12" CONCRETE CURB
C5	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 1 1/2" IN DEPTH.	R4	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
C6	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 LESS THAN 1 1/2" OR GREATER THAN 2" IN DEPTH.	S	4" CONCRETE SIDEWALK
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	T	EARTH MATERIAL
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 2 1/2" OR GREATER THAN 4" IN DEPTH.	U	EXISTING PAVEMENT
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	V1	INCIDENTAL MILLING
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" OR GREATER THAN 5 1/2" IN DEPTH.	V2	1.5" MILLING
L1	CLASS IV SUBGRADE STABILIZATION	W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAILS)
		W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAILS)
		W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAILS)

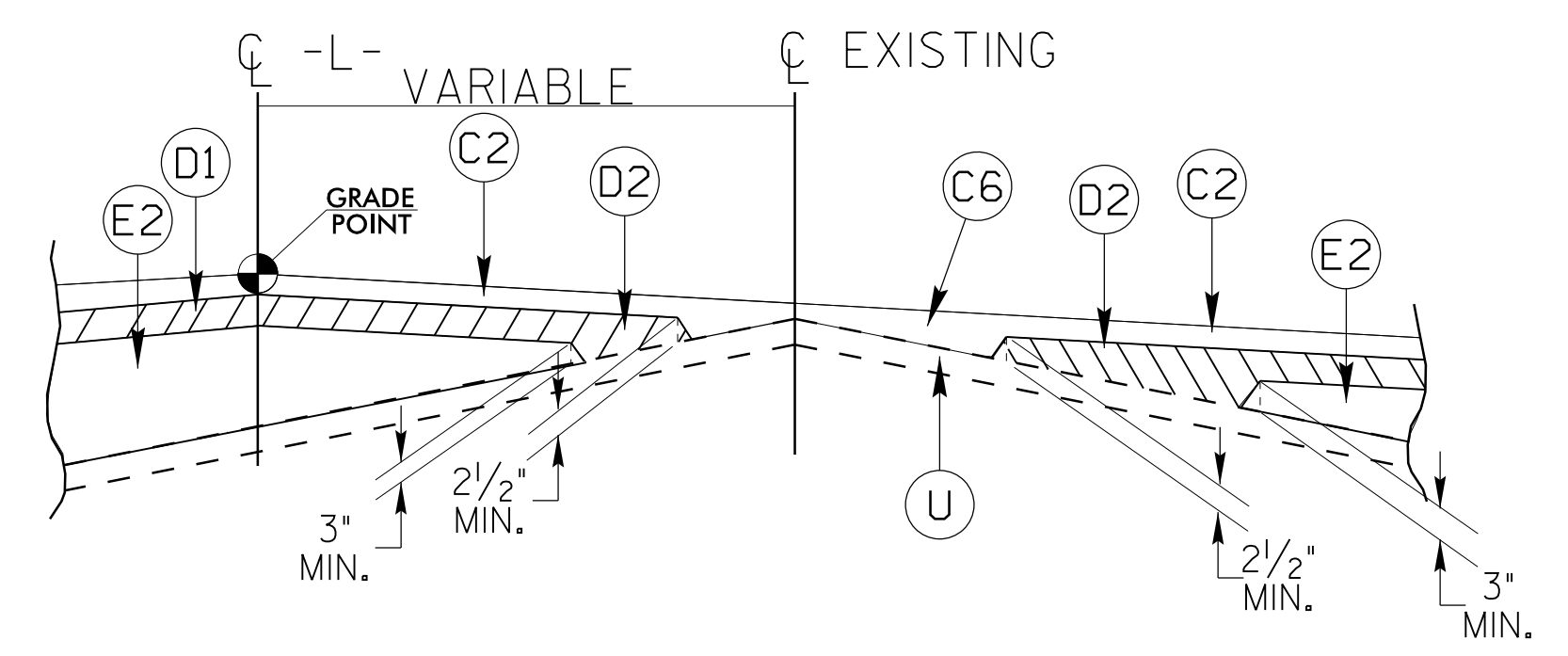
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



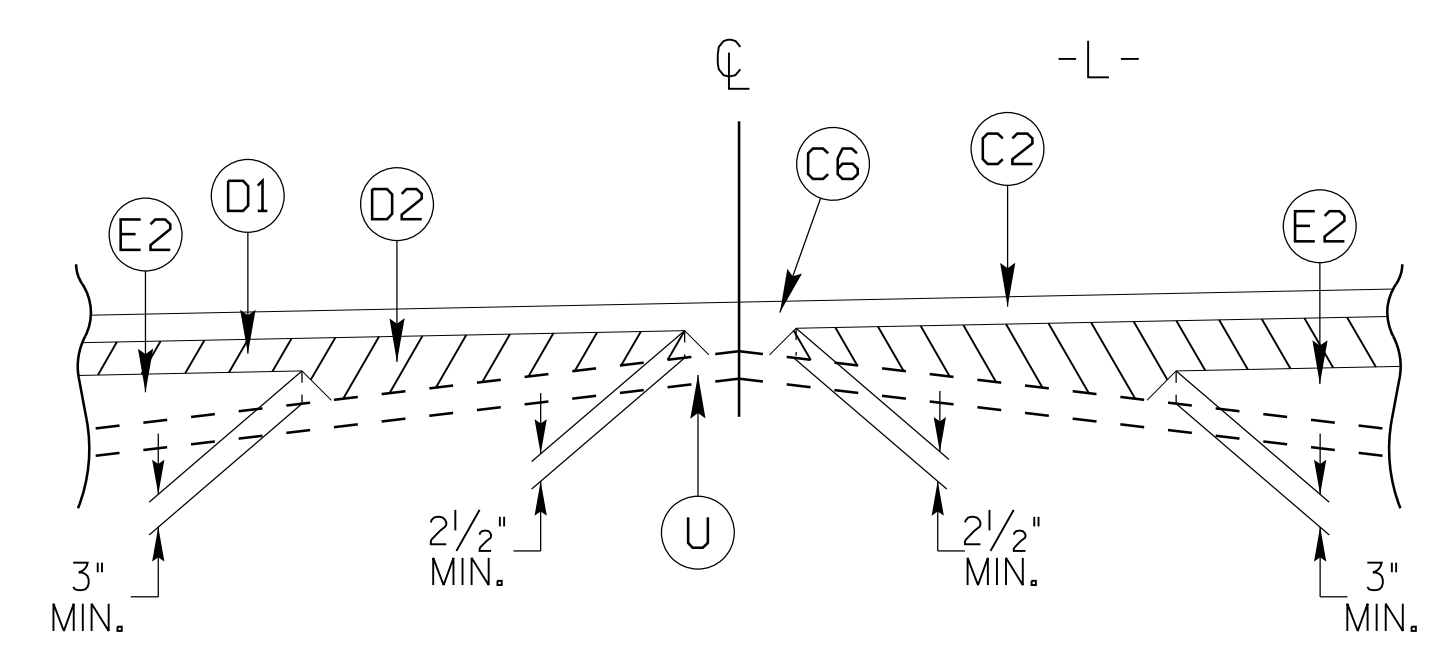
DETAIL FOR INCIDENTAL MILLING  
-L- USE C2  
ALL OTHER ALIGNMENTS USE C1



W3 DETAIL #2 SHOWING METHOD OF WEDGING

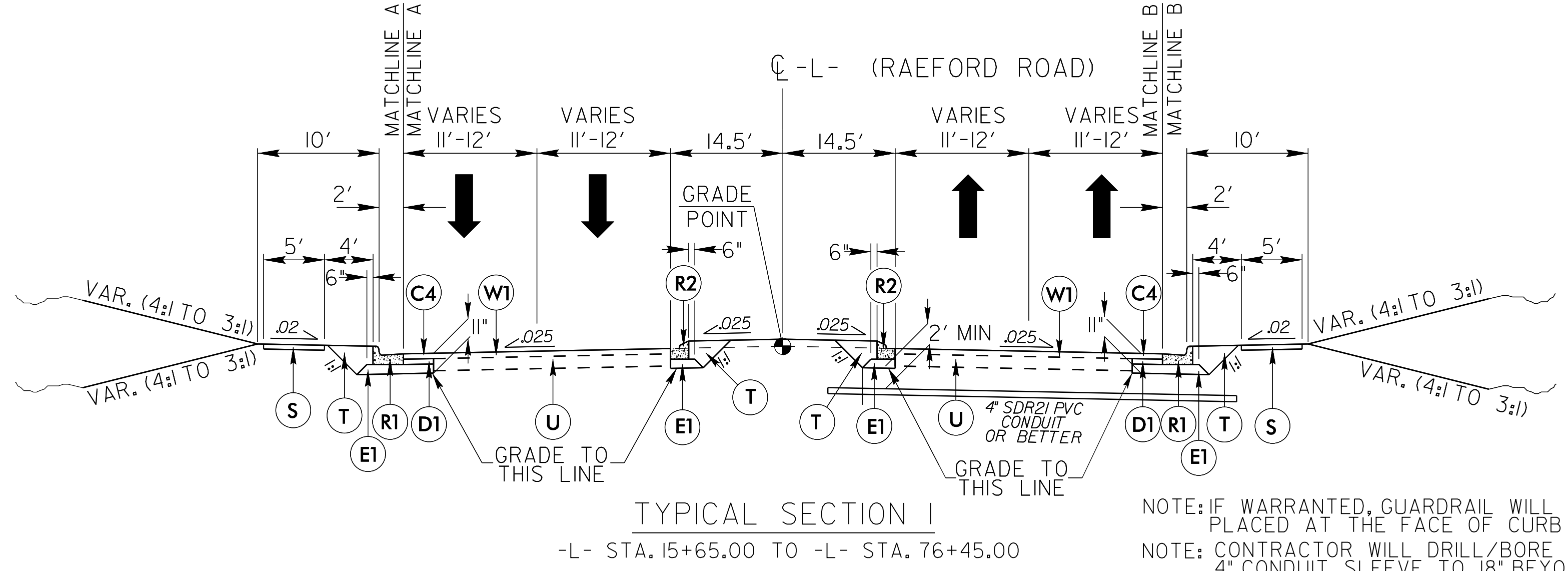
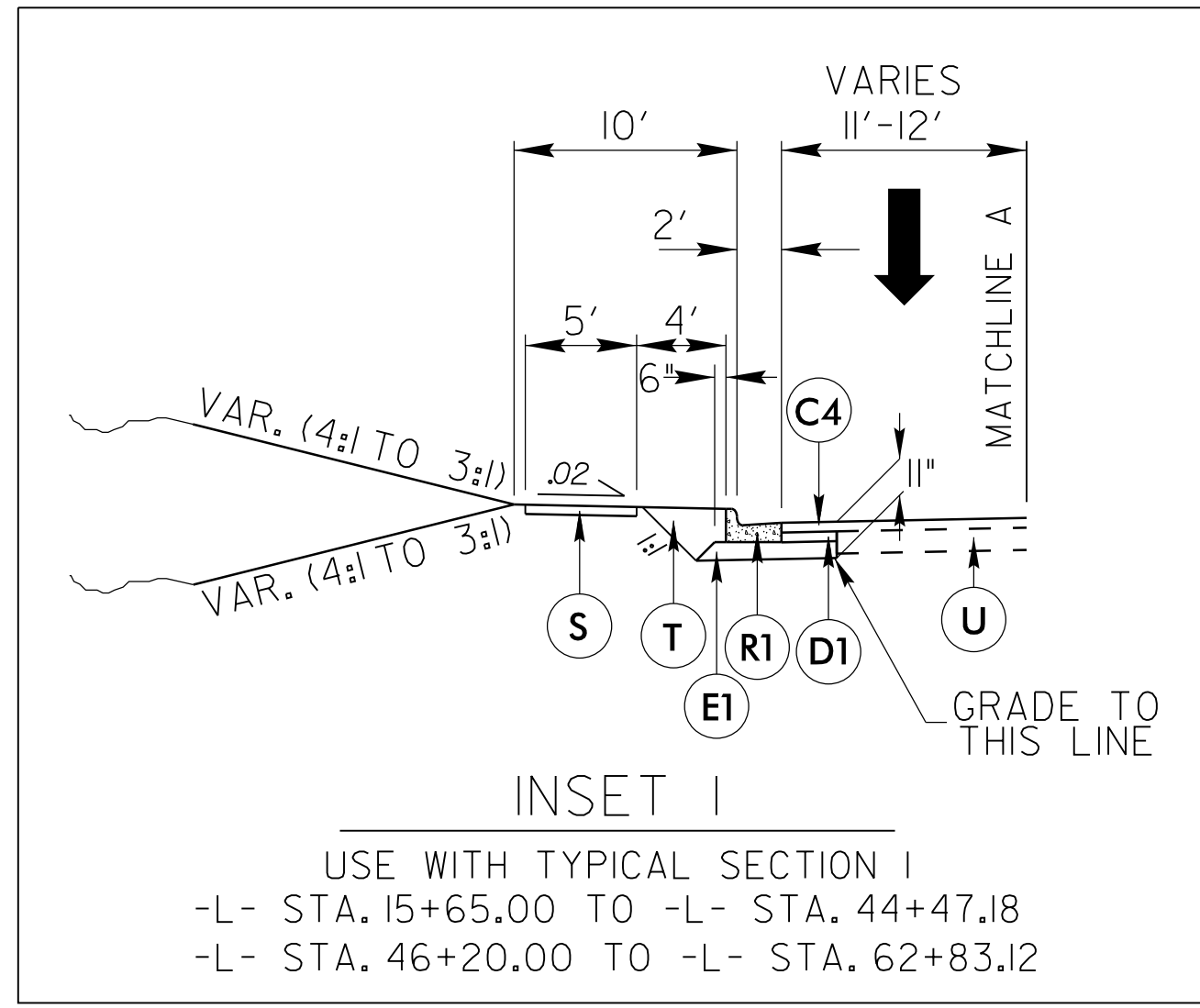


W1 DETAIL #1 SHOWING METHOD OF WEDGING

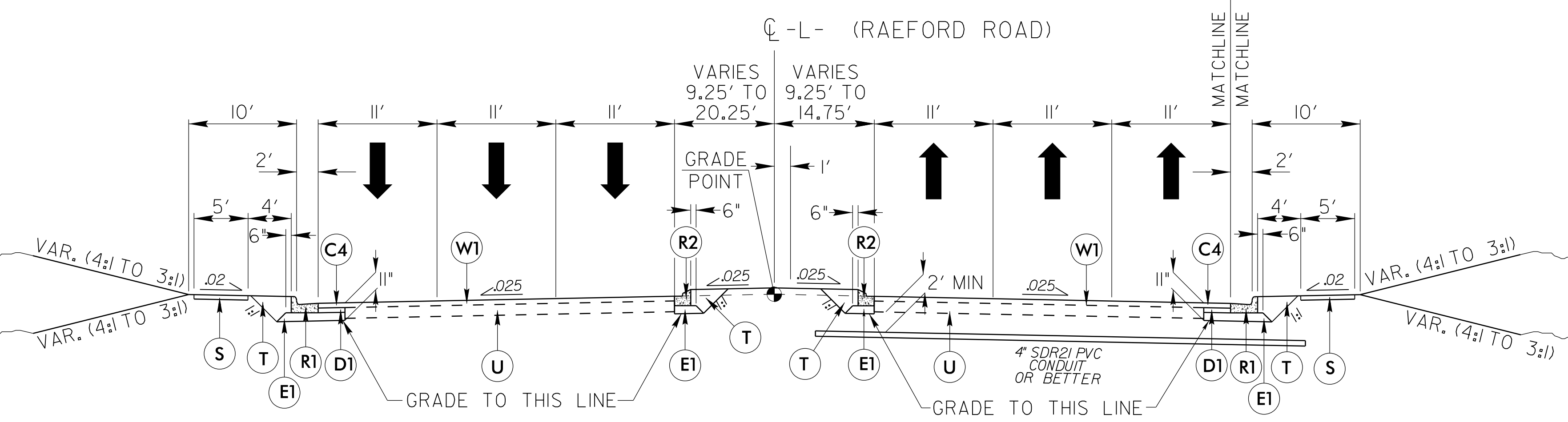


W2 DETAIL #2 SHOWING METHOD OF WEDGING

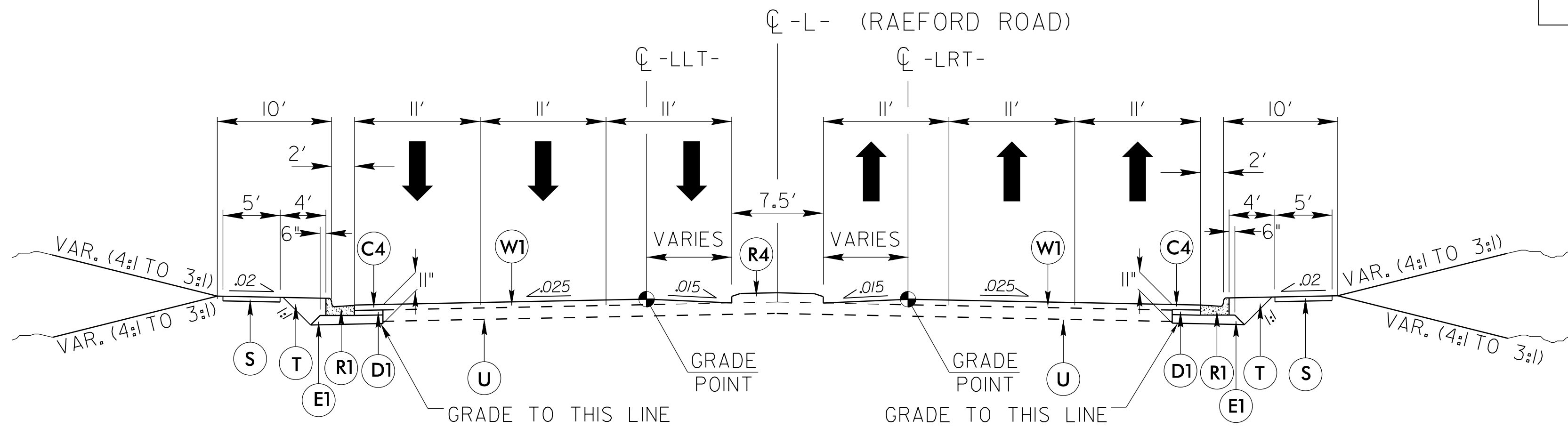
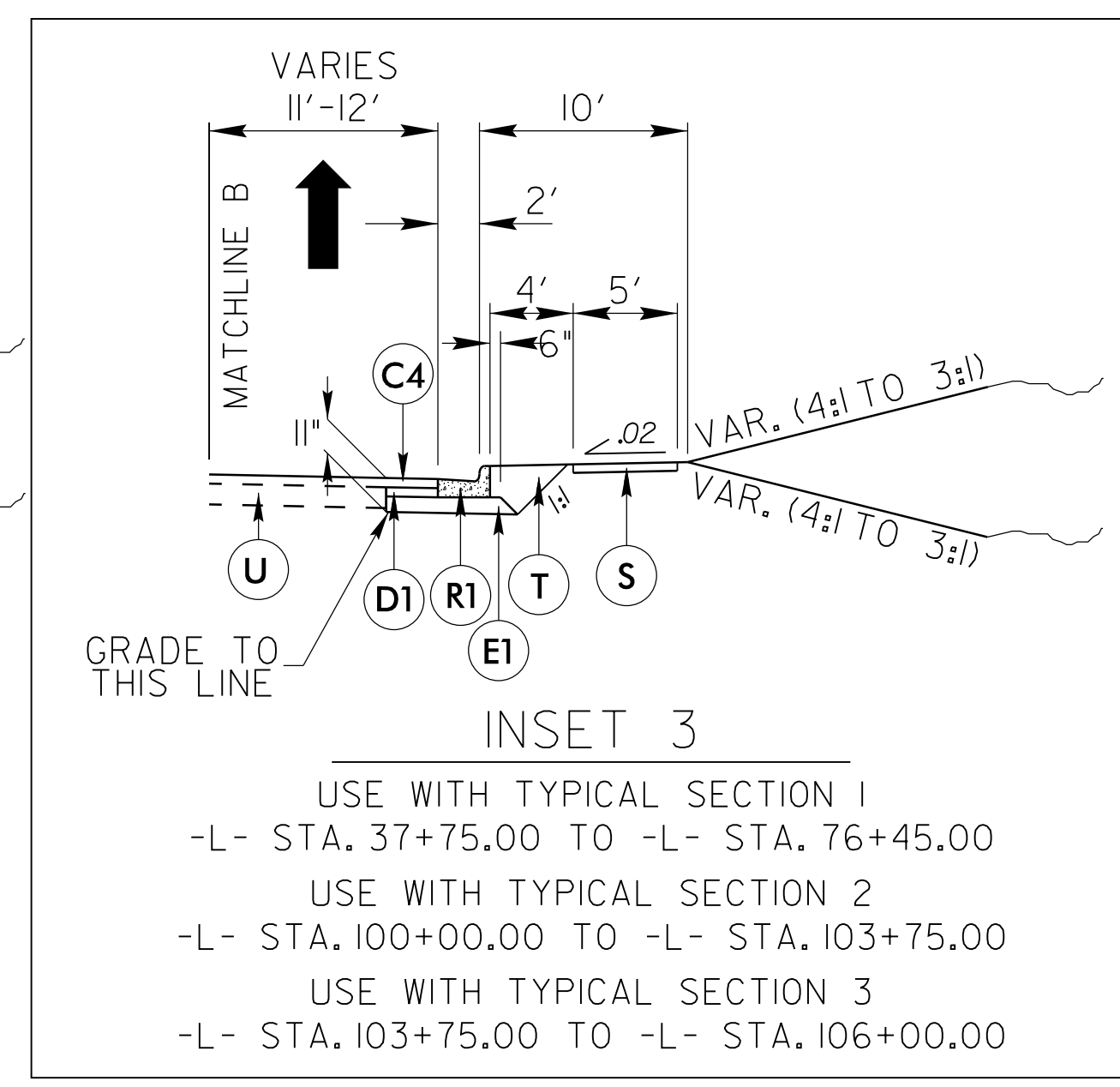
6/2/2019



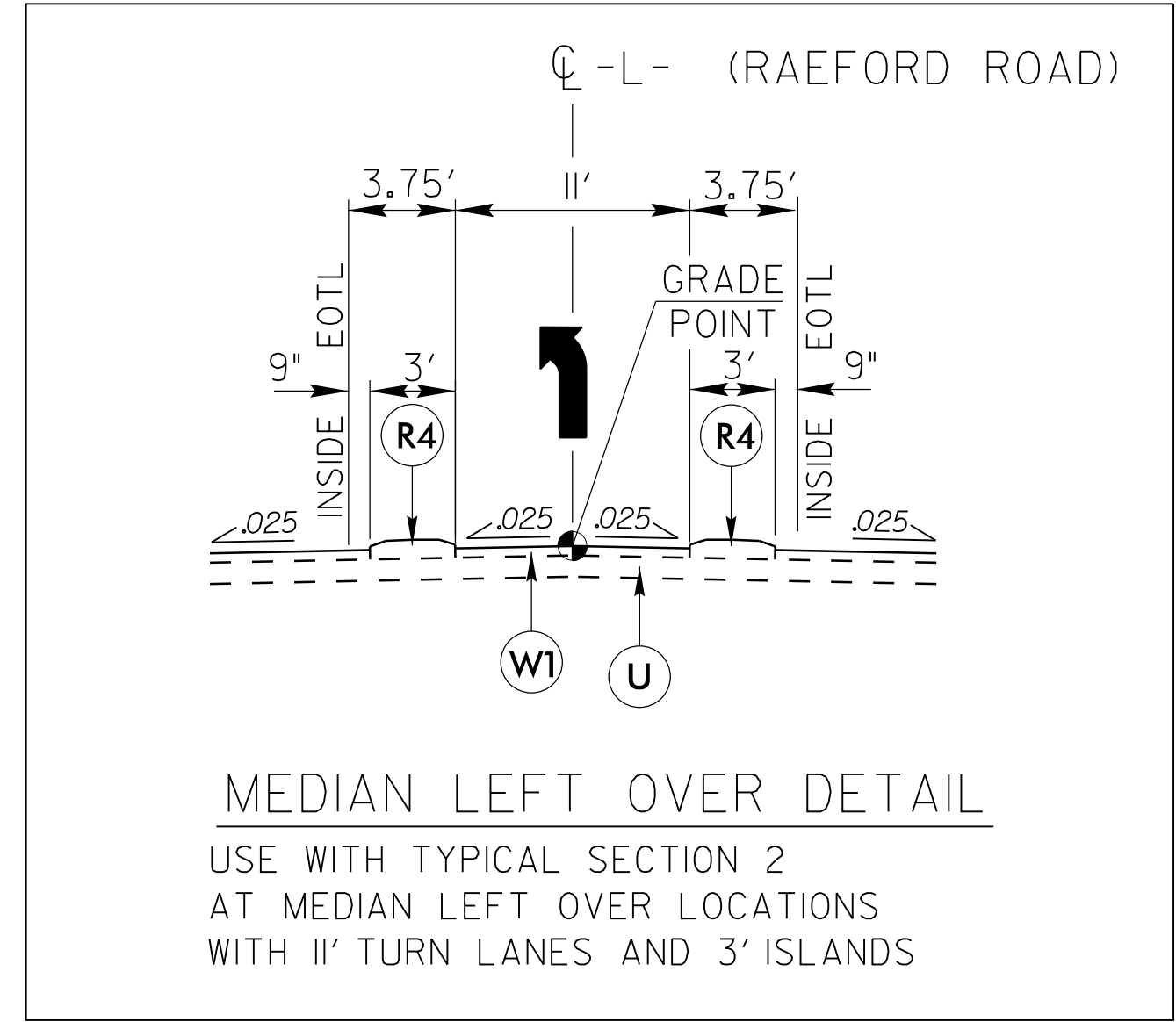
NOTE: IF WARRANTED, GUARDRAIL WILL BE PLACED AT THE FACE OF CURB  
 NOTE: CONTRACTOR WILL DRILL/BORE 4" CONDUIT SLEEVE TO 18" BEYOND PAVEMENT TO ACCOMMODATE IRRIGATION TO ISLANDS PER RESIDENT ENGINEER DIRECTION.



NOTE: IF WARRANTED, GUARDRAIL WILL BE PLACED AT THE FACE OF CURB  
 NOTE: CONTRACTOR WILL DRILL/BORE 4" CONDUIT SLEEVE TO 18" BEYOND PAVEMENT TO ACCOMMODATE IRRIGATION TO ISLANDS PER RESIDENT ENGINEER DIRECTION.



NOTE: IF WARRANTED, GUARDRAIL WILL BE PLACED AT THE FACE OF CURB  
 NOTE: GRADE POINTS FOLLOW THE -LLT- AND -LRT- ALIGNMENTS BOTH HORIZONTALLY AND VERTICALLY

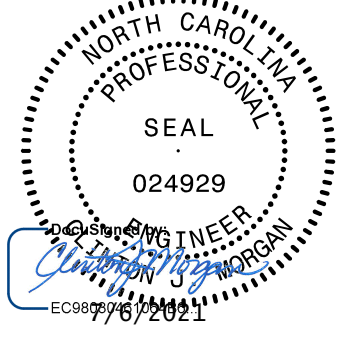
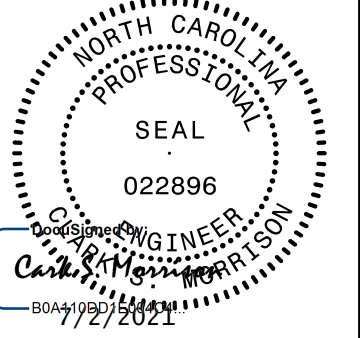


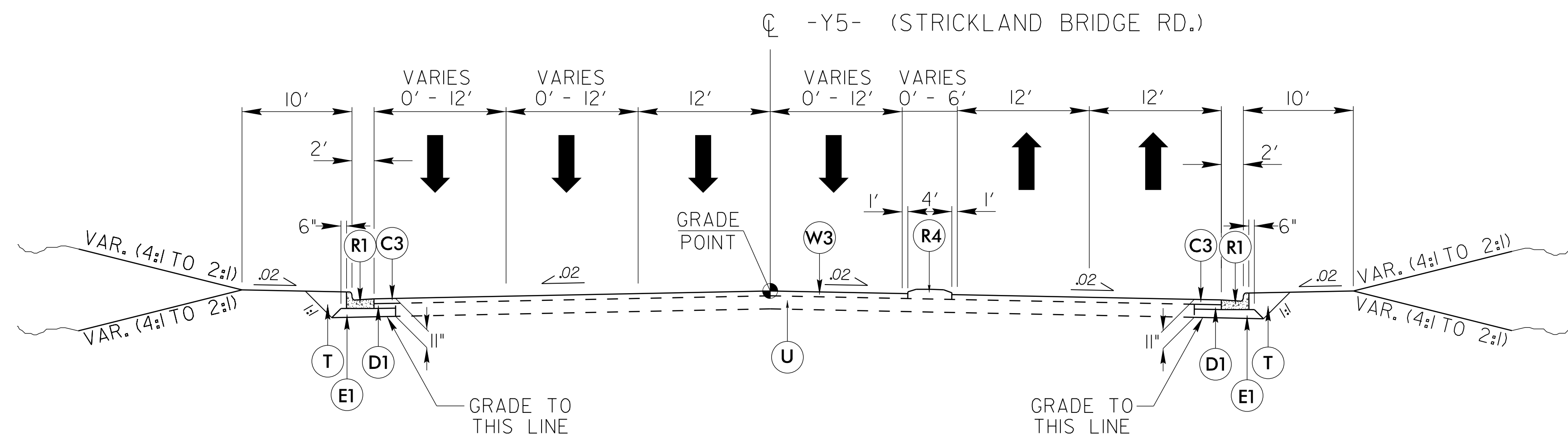
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ROADWAY DESIGN ENGINEER [Signature]	PAVEMENT DESIGN ENGINEER [Signature]
PROFESSIONAL SEAL 024929	PROFESSIONAL SEAL 022896
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

PAVEMENT SCHEDULE	
C4	3" S9.5C
D1	4" 119.0C
E1	4" B25.0C
R1	2'-6" CURB AND GUTTER
R2	1'-6" CURB AND GUTTER
R4	MONOLITHIC ISLAND (KEYED IN)
S	SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	WEDGING

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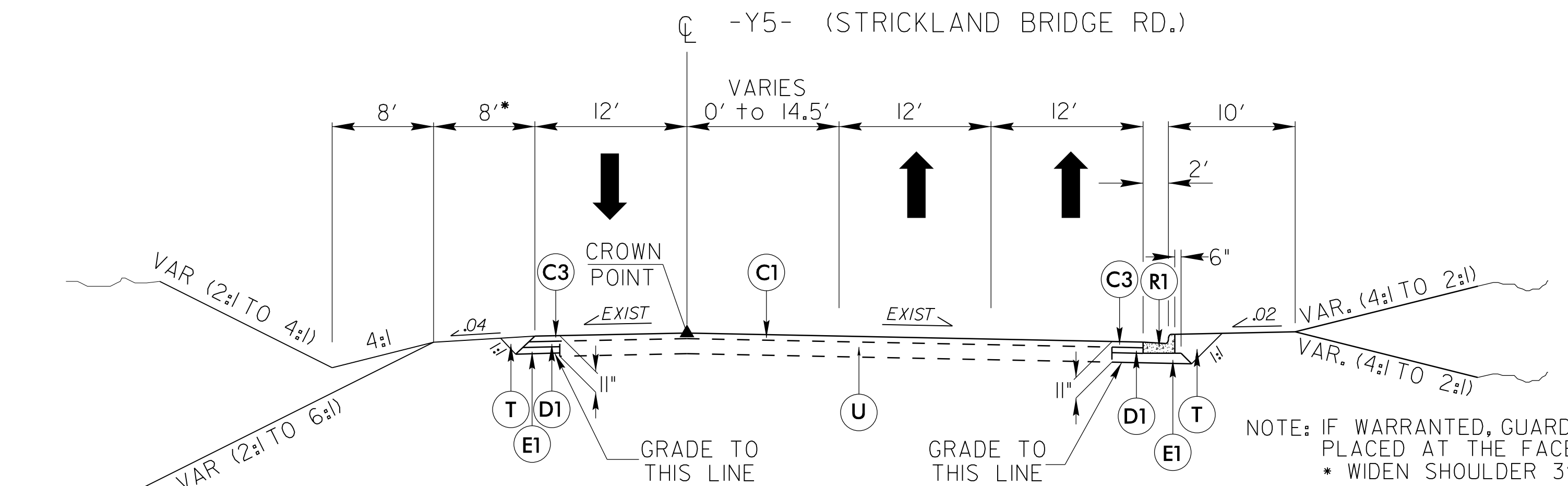


PROJECT REFERENCE NO. U-4405A	SHEET NO. 2A-3
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



**TYPICAL SECTION 4**

-Y5- STA. 19+60.00 TO -Y5- STA. 20+65.04  
 -Y5- STA. 21+71.04 TO -Y5- STA. 25+55.00



**TYPICAL SECTION 5**


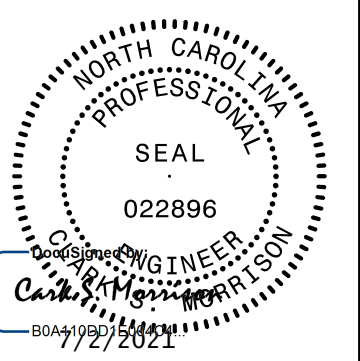
-Y5- STA. 25+55.00 TO -Y5- STA. 28+00.00

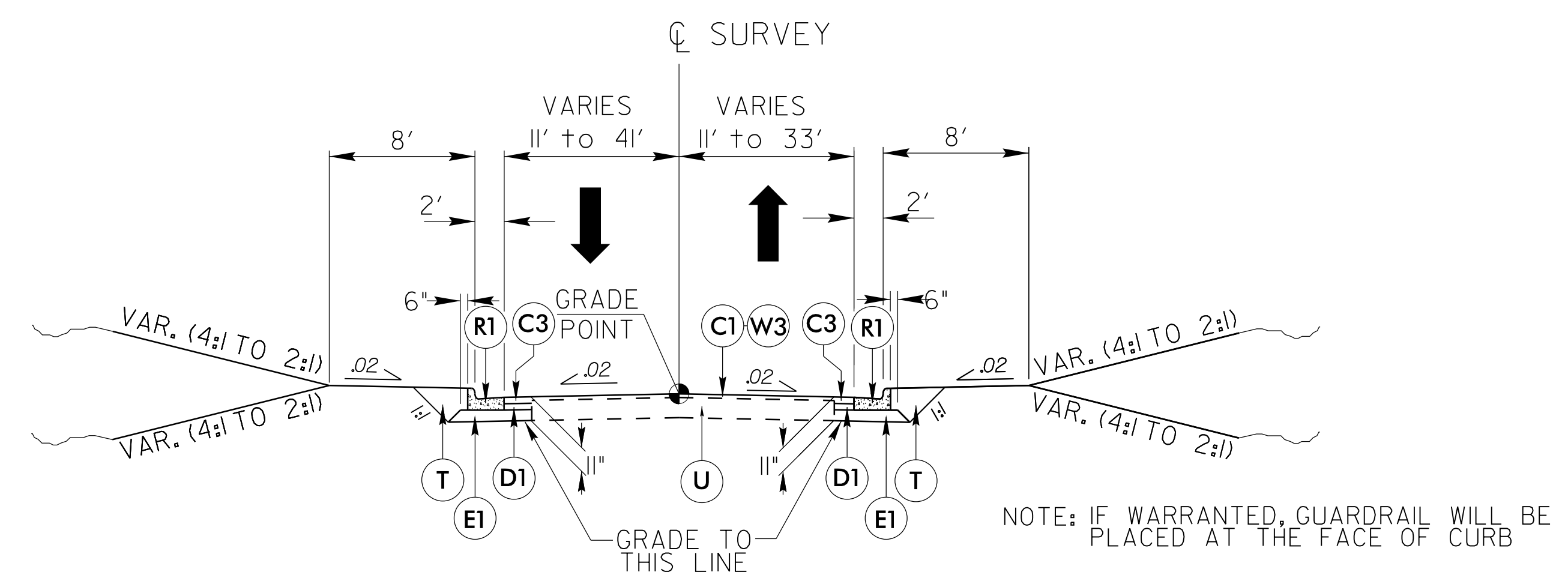
NOTE: IF WARRANTED, GUARDRAIL WILL BE PLACED AT THE FACE OF CURB  
 \* WIDEN SHOULDER 3' FOR GUARDRAIL

**PAVEMENT SCHEDULE**

C1	1.5" S9.5B
C3	3" S9.5B
D1	4" I19.0C
E1	4" B25.0C
R1	2'-6" CURB AND GUTTER
R4	MONOLITHIC ISLAND (KEYED IN)
S	SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W3	WEDGING

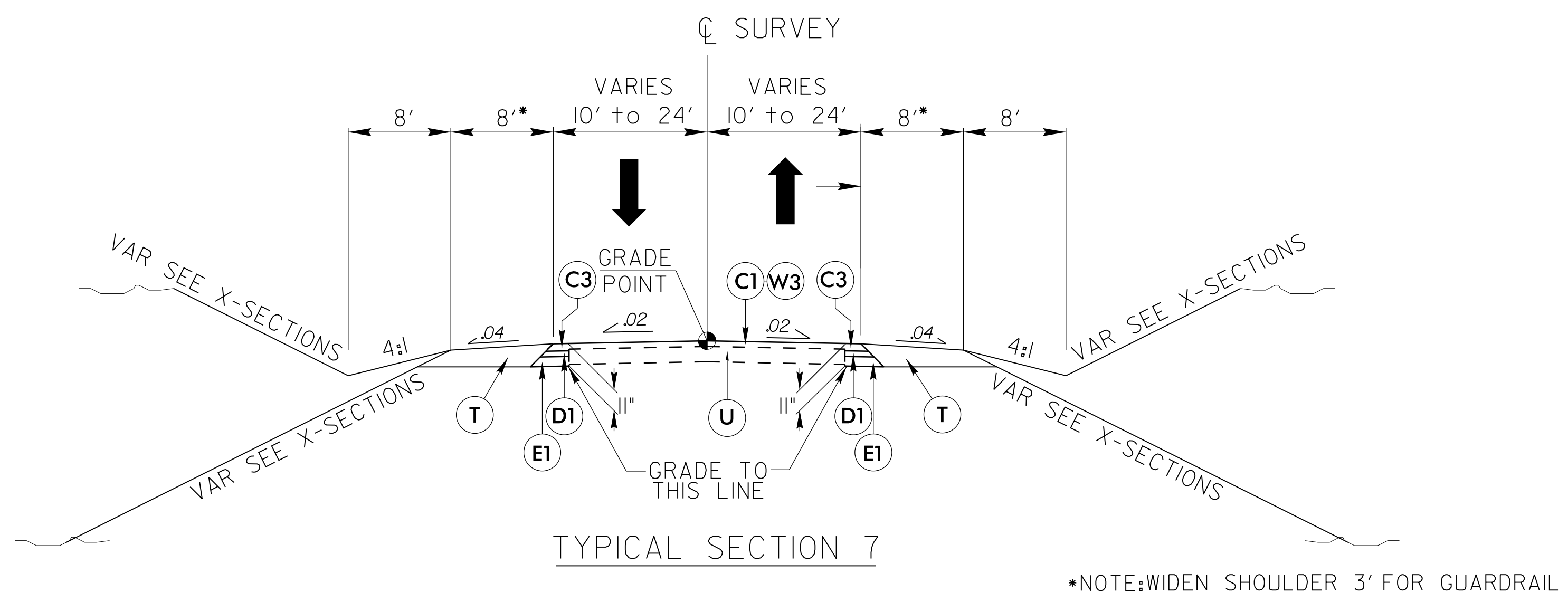
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PROJECT REFERENCE NO. U-4405A	SHEET NO. 2A-4
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



**TYPICAL SECTION 6**

- Y1- STA. 14+20.00 TO -Y1- STA. 14+75.76
- Y2- STA. 10+50.50 TO -Y2- STA. 11+20.00
- Y7- STA. 13+20.00 TO -Y7- STA. 14+18.26
- Y7- STA. 15+35.76 TO -Y7- STA. 16+45.00



**TYPICAL SECTION 7**

- Y4- STA. 17+00.00 TO -Y4- STA. 18+12.03
- Y4- STA. 18+96.22 TO -Y4- STA. 19+70.00
- Y6- STA. 10+42.30 TO -Y6- STA. 11+20.00

**PAVEMENT SCHEDULE**

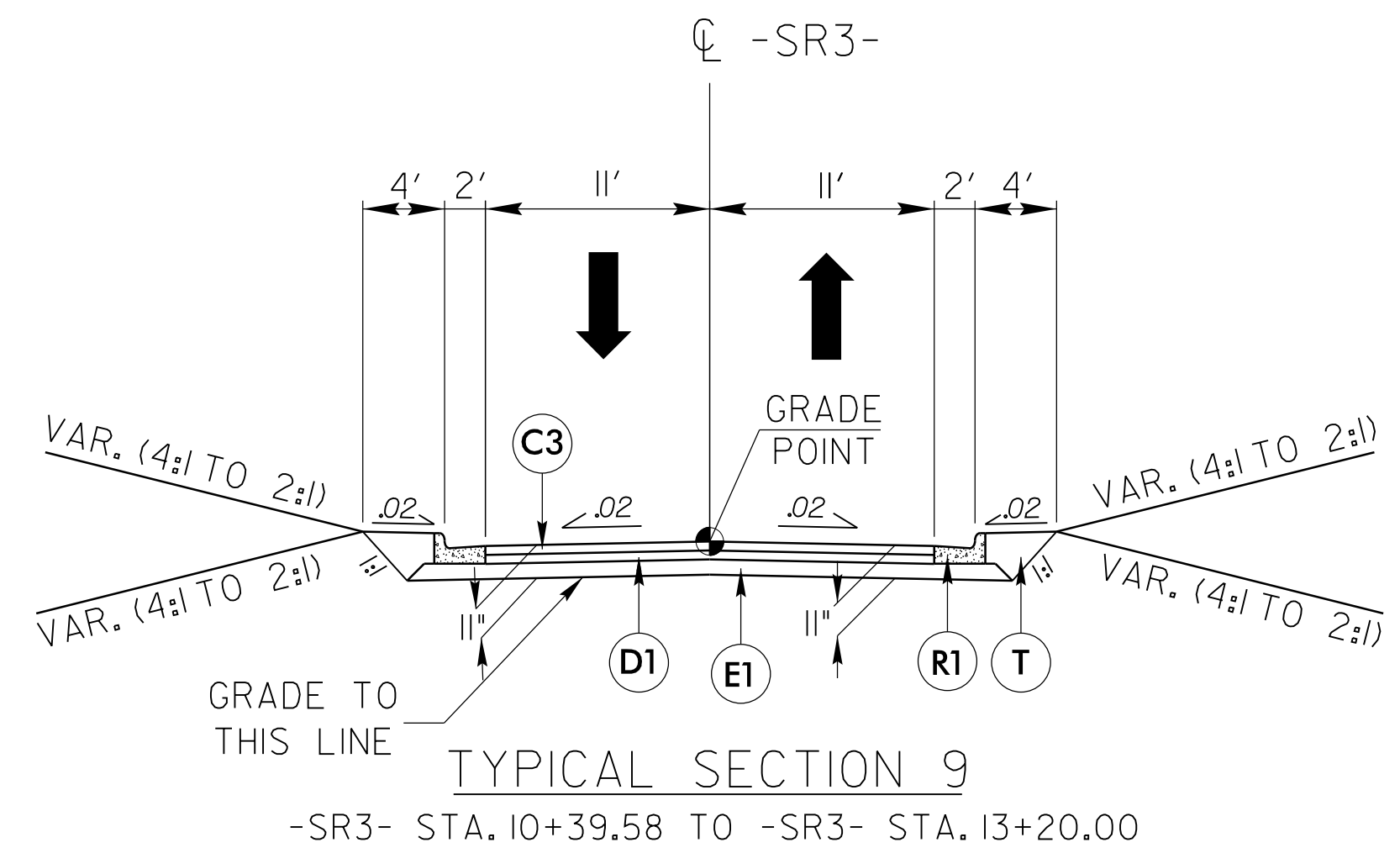
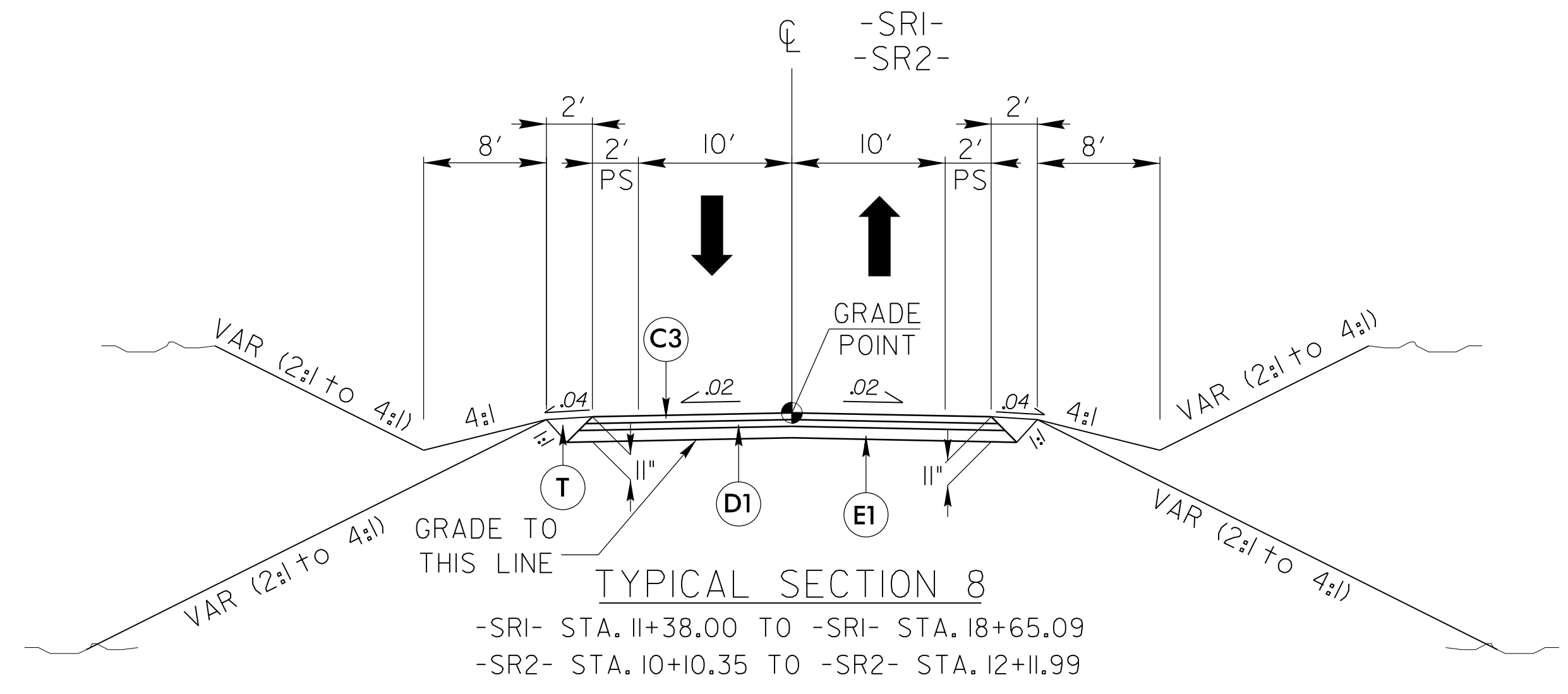
C1	1.5" S9.5B
C3	3" S9.5B
D1	4" I19.0C
E1	4" B25.0C
R1	2'-6" CURB AND GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W3	WEDGING

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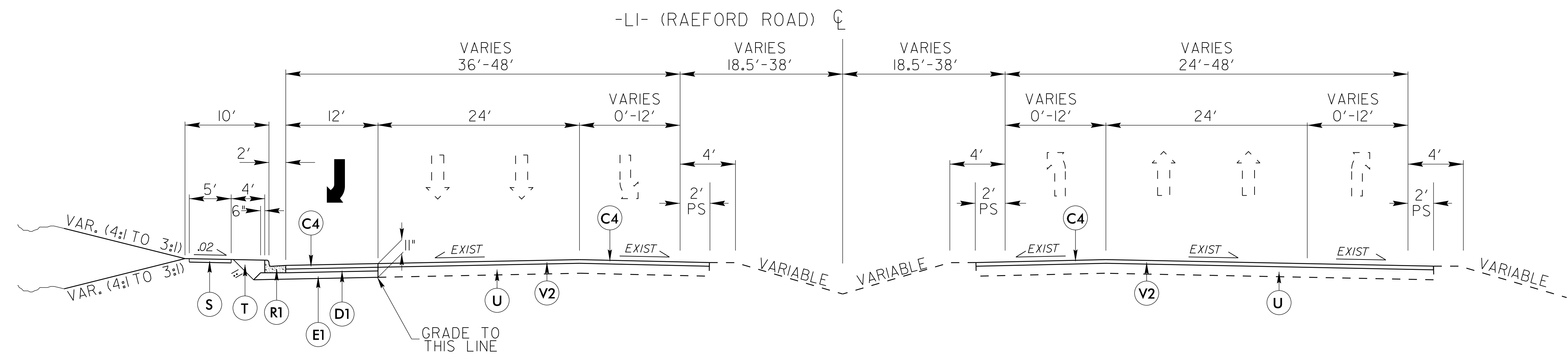
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ROADWAY DESIGN ENGINEER SEAL 024929 <i>[Signature]</i>	PAVEMENT DESIGN ENGINEER SEAL 022896 <i>[Signature]</i>

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

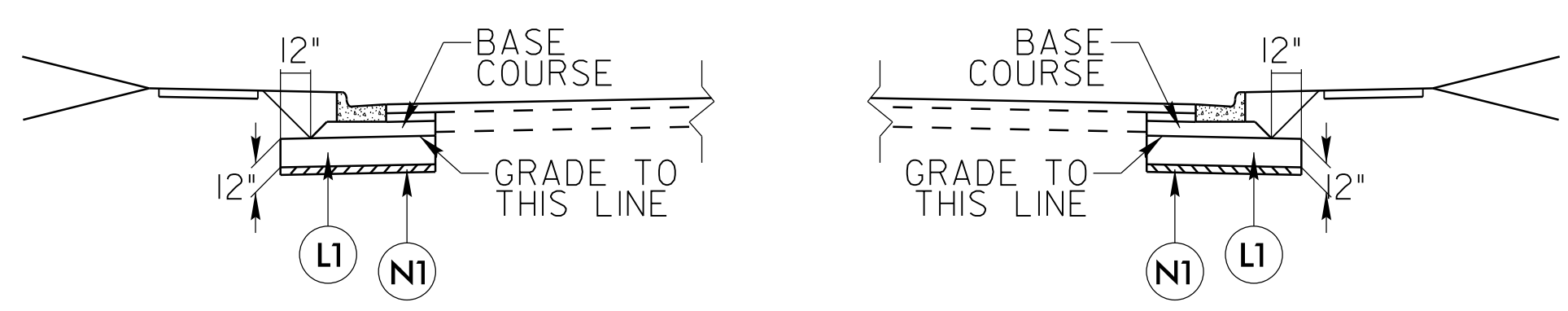


PAVEMENT SCHEDULE	
C1	1.5" S9.5B
C3	3" S9.5B
D1	4" 119.0C
E1	4" B25.0C
R1	2'-6" CURB AND GUTTER
T	EARTH MATERIAL
W3	WEDGING

PROJECT REFERENCE NO. U-4405A	SHEET NO. 2A-6
ROADWAY DESIGN ENGINEER SEAL 024929	PAVEMENT DESIGN ENGINEER SEAL 022896
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



TYPICAL SECTION 19  
-LI- STA. 95+00.00 TO -LI- STA. 115+65.00



AGGREGATE SUBGRADE DETAIL  
USE IN CONJUNCTION WITH TYPICAL SECTIONS AS DIRECTED BY THE RESIDENT ENGINEER AND AT STATIONS:

- L- STA. 19+00.00 TO -L- STA. 25+00.00
- L- STA. 70+00.00 TO -L- STA. 74+00.00
- L- STA. 102+00.00 TO -L- STA. 106+00.00


PAVEMENT SCHEDULE	
C4	3" S9.5C
D1	4" 119.0C
E1	4" B25.0C
L1	CLASS IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SOIL STABILIZATION
R1	2'-6" CURB AND GUTTER
S	SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V2	1.5" MILLING

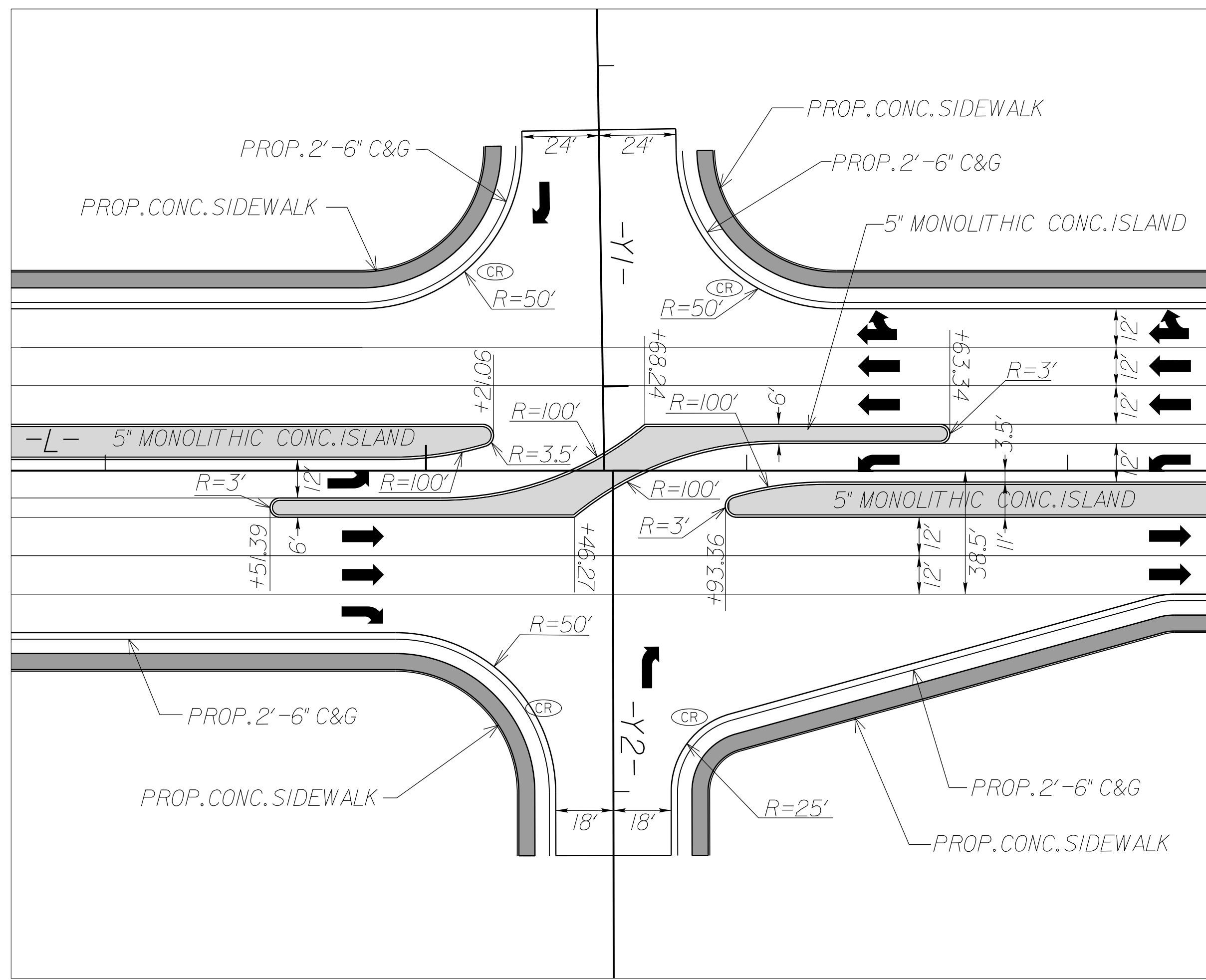


8/17/99

# INTERSECTION DETAILS

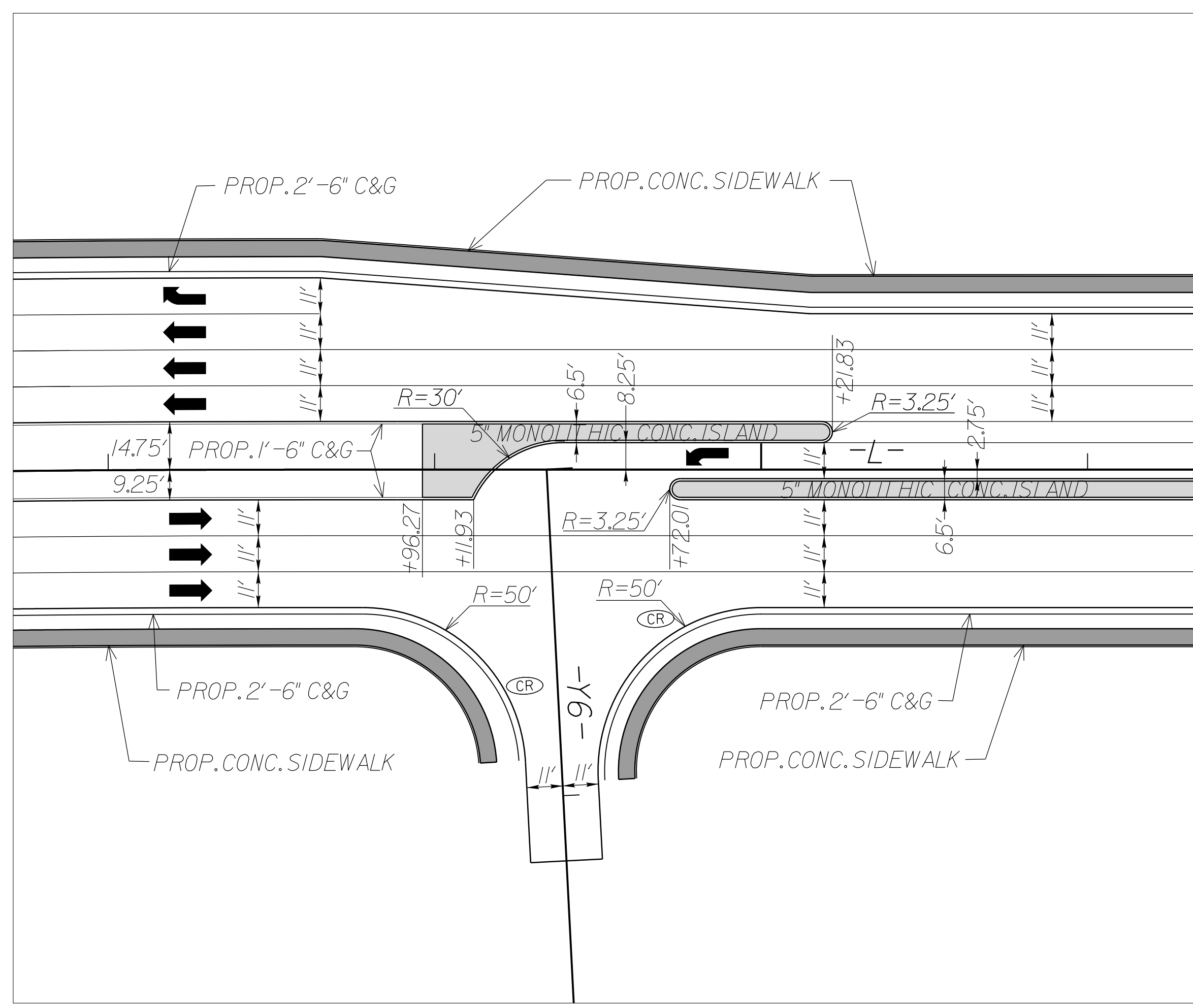
NOT TO SCALE

PROJECT REFERENCE NO. U-4405A	SHEET NO. 2B-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



**INTERSECTION OF  
RAEFORD ROAD (-L-)  
AND FESTIVAL DRIVE (-Y2-)  
(SEE PLAN SHEET 4)**

**INTERSECTION OF  
RAEFORD ROAD (-L-)  
AND ARRAN CIRCLE (-Y6-)  
(SEE PLAN SHEET 10)**

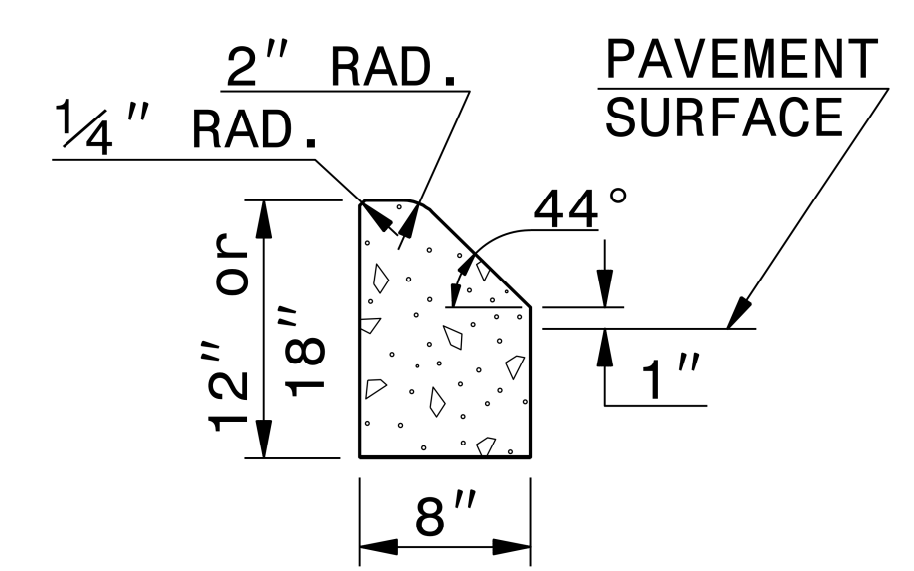


**NOTE: SEE PMP PLANS FOR WHEEL CHAIR RAMP AND PAVEMENT MARKING LOCATIONS**

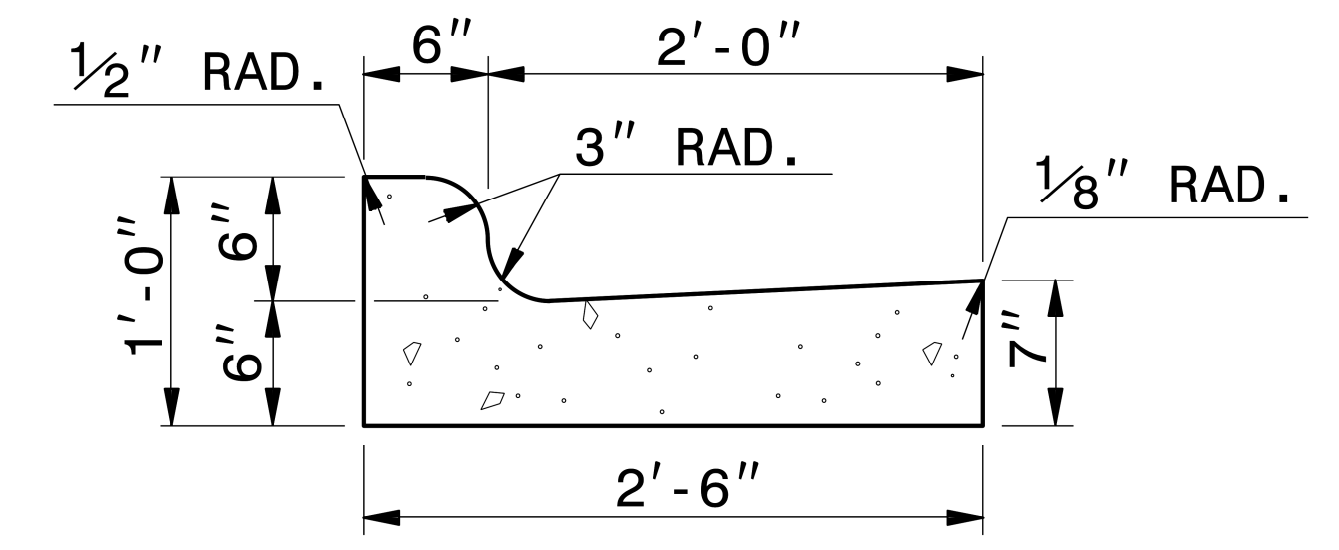
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5/14/99

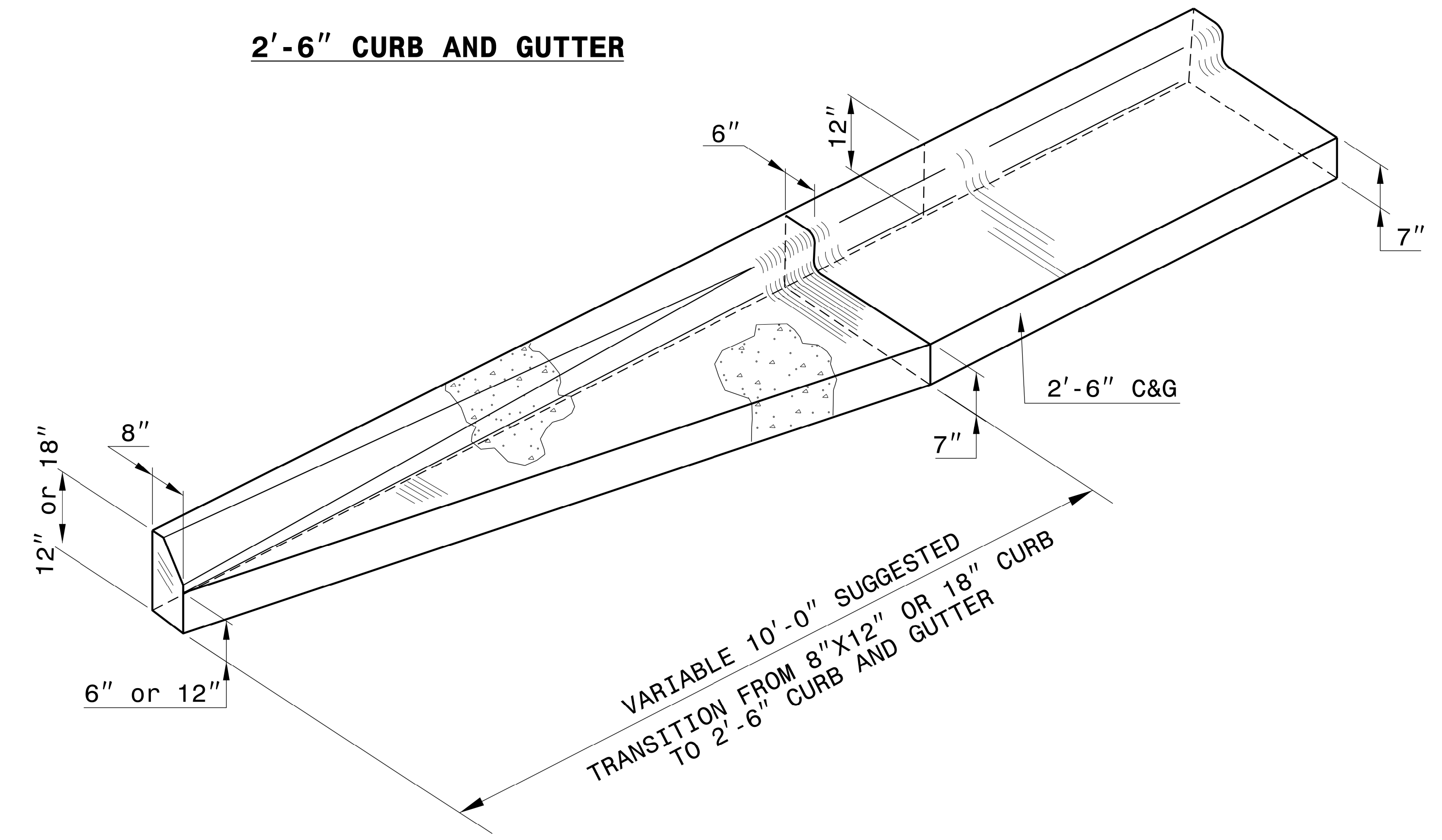
\*NOTE: SEE STD. DWG. 846.01 FOR GENERAL NOTES



**8" X 12" or 18" CONCRETE CURB**



**2'-6" CURB AND GUTTER**



**ISOMETRIC VIEW OF TRANSITION**

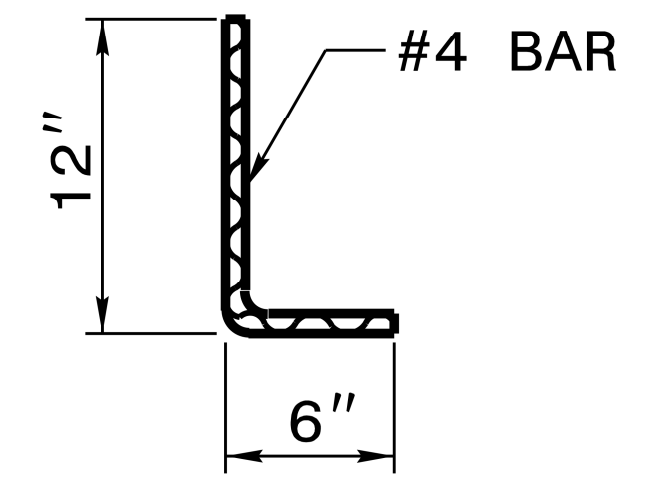
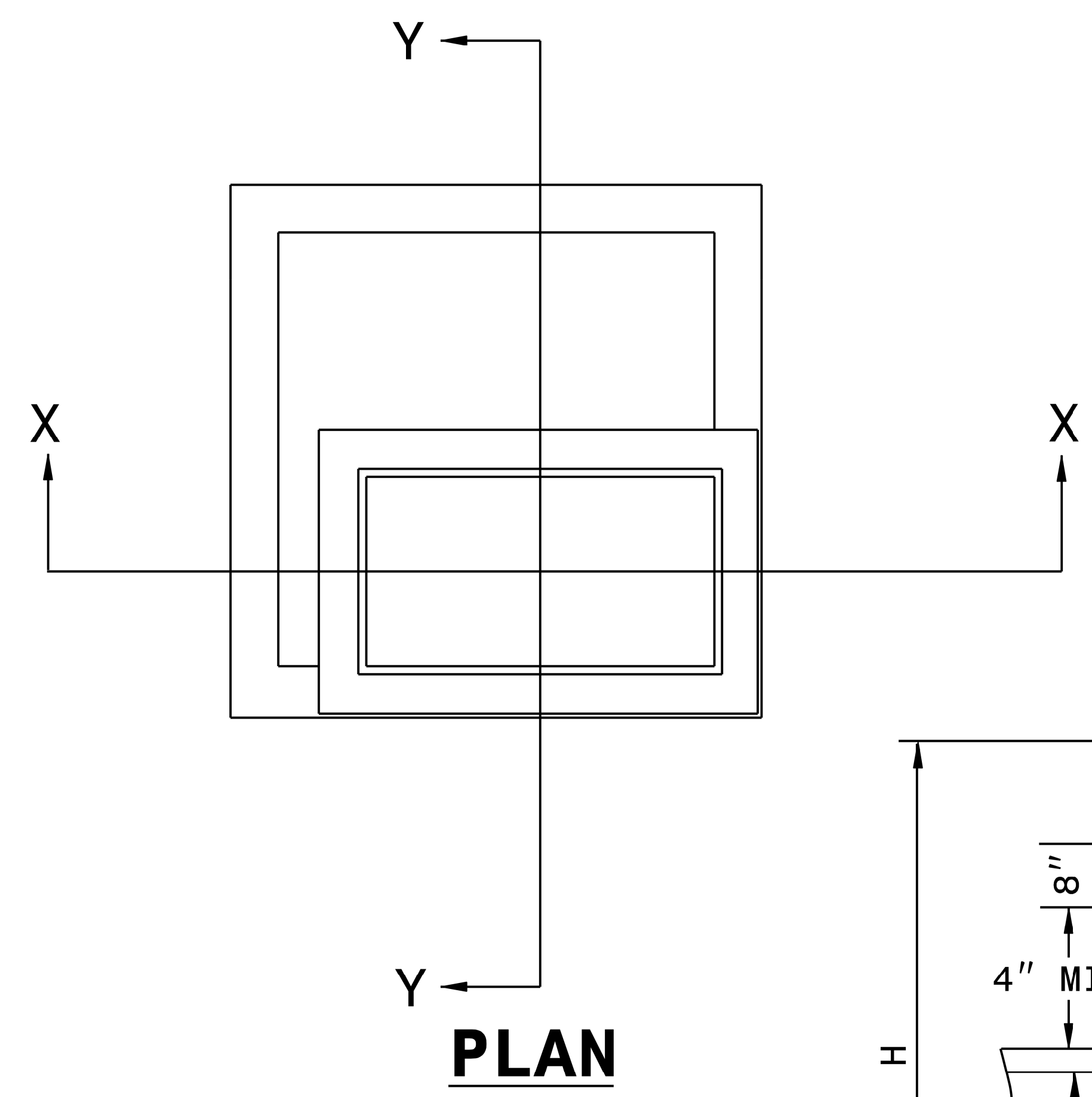


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<b>CONTRACT STANDARDS AND DEVELOPMENT UNIT</b>	
Office 919-707-6950 FAX 919-250-4119	
<b>DETAIL OF 8" x 12" or 18" CURB TO 2'-6" CURB &amp; GUTTER TRANSITION SECTION</b>	
ORIGINAL BY: _____	DATE: _____
MODIFIED BY: K. KEMPF	DATE: 4-05-18
CHECKED BY: _____	DATE: _____
FILE SPEC.: details/ericward/usr/details/stand/cgtransit.dgn	

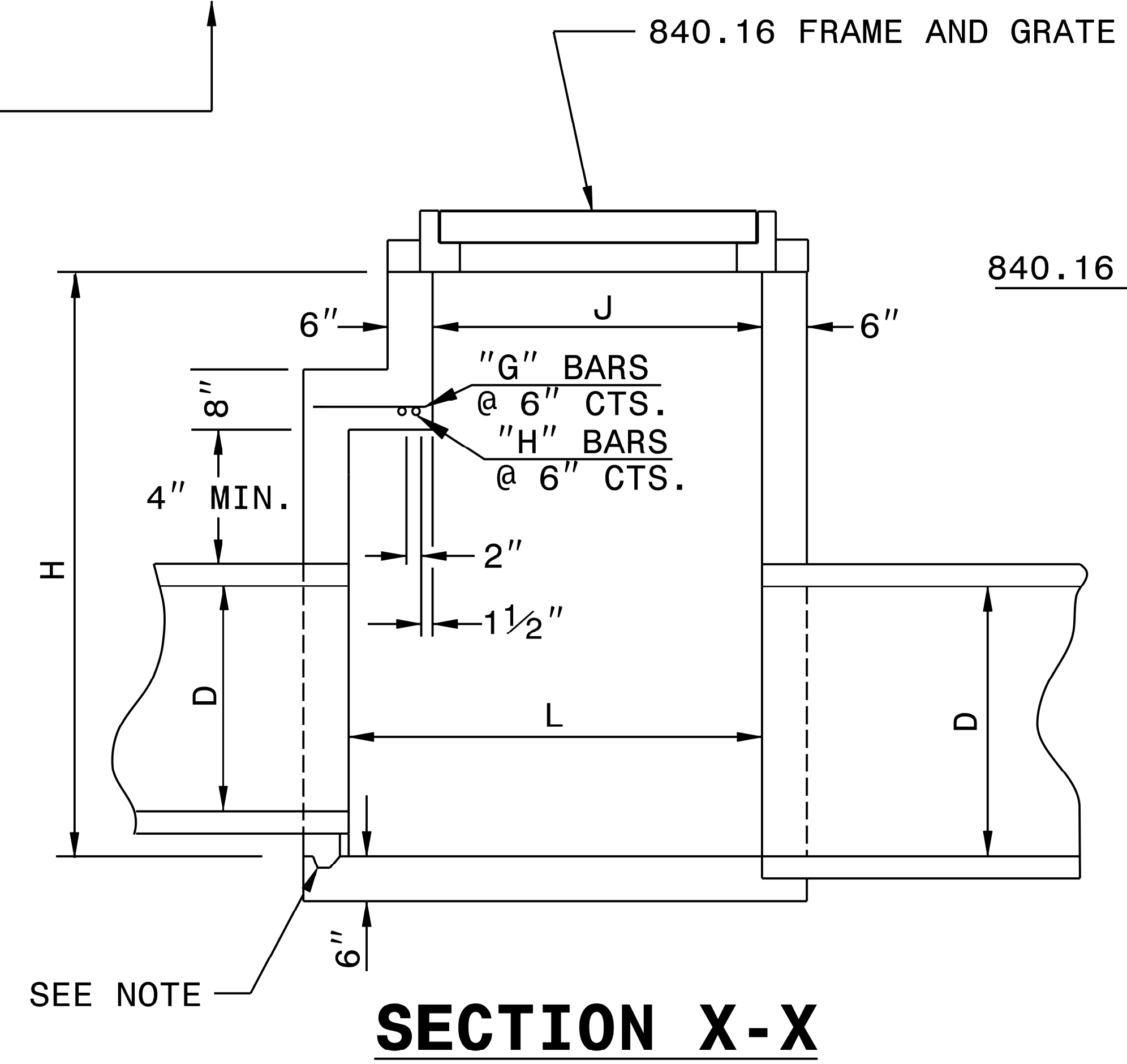
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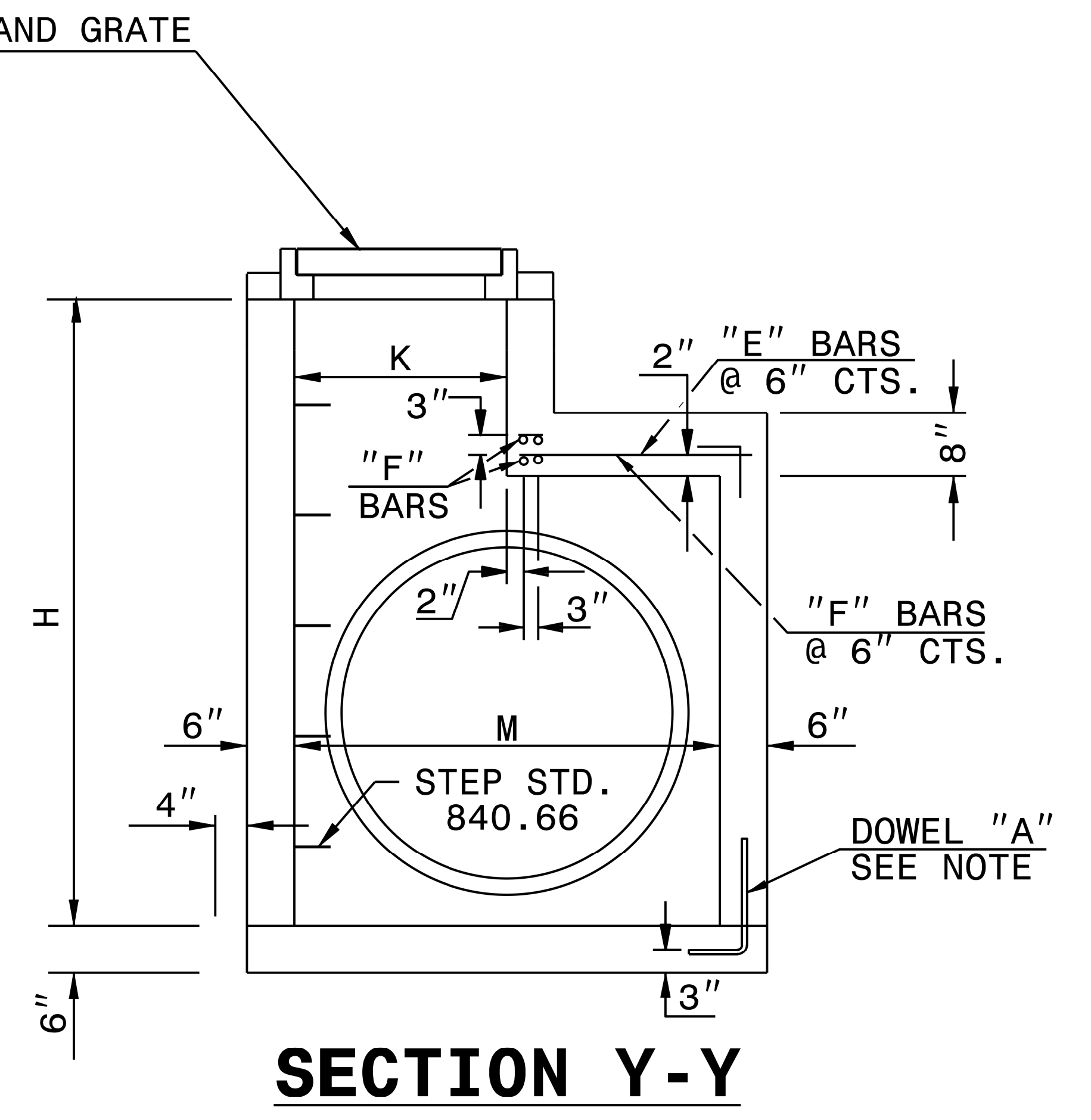


**DOWEL**

**GENERAL NOTES:**  
 USE CLASS "B" CONCRETE THROUGHOUT.  
 PROVIDE ALL 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.  
 IF 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.  
 INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.  
 INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.  
 CHAMFER ALL EXPOSED CORNERS 1".  
 DRAWING NOT TO SCALE.  
 DIMENSIONS MAY BE FIELD ADJUSTED AS DIRECTED BY THE ENGINEER.



**SECTION X-X**



**SECTION Y-Y**

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

DIMENSIONS OF BOX AND PIPE						REINFORCING STEEL - NO. 4 BARS								CU YDS CONC. IN BOX				DEDUCTIONS FOR ONE PIPE		
PIPE	SPAN	WIDTH	SPAN	WIDTH	HEIGHT	BARS E		BARS F		BARS G		BARS H		TOTAL	BOTTOM SLAB	H	H PER FT HT	TOTAL	C.S.	R.C.
D	J	K	L	M	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	LBS.						
12"	3'-0"	2'-0"	3'-8"	2'-0"	3'-9"	—	—	—	—	—	—	—	—	—	0.362	0.926	0.247	1.288	0.015	0.024
15"	3'-0"	2'-0"	3'-8"	2'-0"	4'-0"	—	—	—	—	—	—	—	—	—	0.362	0.988	0.247	1.350	0.023	0.036
18"				2'-0"	4'-3"	—	—	—	—	—	—	—	—	—	0.362	1.050	0.247	1.412	0.033	0.049
24"				2'-10"	4'-9"	8	1'-5"	6	4'-9"	—	—	—	—	27	0.444	1.362	0.278	1.806	0.059	0.085
30"			3'-8"	3'-5"	5'-3"	8	2'-0"	7	4'-9"	—	—	—	—	33	0.502	1.644	0.288	2.146	0.092	0.127
36"			4'-0"	4'-0"	5'-9"	8	2'-5"	8	4'-11"	4	0'-9"	2	4'-11"	47	0.560	1.931	0.321	2.525	0.132	0.178
42"			4'-10"	4'-10"	6'-3"	10	3'-1"	9	5'-7"		1'-5"	3	5'-7"	67	0.704	2.500	0.370	3.282	0.180	0.243
48"			5'-4"	5'-4"	6'-9"	11	3'-7"	10	6'-1"		1'-11"	4	6'-1"	87	0.823	3.013	0.407	3.920	0.235	0.317
54"			6'-0"	6'-0"	7'-3"	12	4'-1"	11	6'-7"		2'-5"	5	6'-7"	107	0.951	3.589	0.444	4.677	0.297	0.401
60"			6'-6"	6'-6"	7'-9"	13	4'-9"	12	7'-3"		3'-1"	6	7'-3"	135	1.311	4.539	0.494	5.775	0.367	0.495
66"			7'-2"	7'-2"	8'-3"	14	5'-4"	14	7'-10"		3'-7"	7	7'-10"	168	1.136	5.061	0.537	6.506	0.444	0.599
72"	3'-0"	2'-0"	7'-8"	7'-8"	8'-9"	15	5'-11"	15	8'-5"	4	4'-3"	8	8'-5"	199	1.500	5.860	0.580	7.473	0.528	0.713

\$\$\$\$\$SYTIME\$\$\$\$\$\$  
 \$\$\$\$\$PLANS\$\$\$\$\$\$  
 \$\$\$\$\$PUSLNAME\$\$\$\$\$



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**SPECIAL DI 840D14**

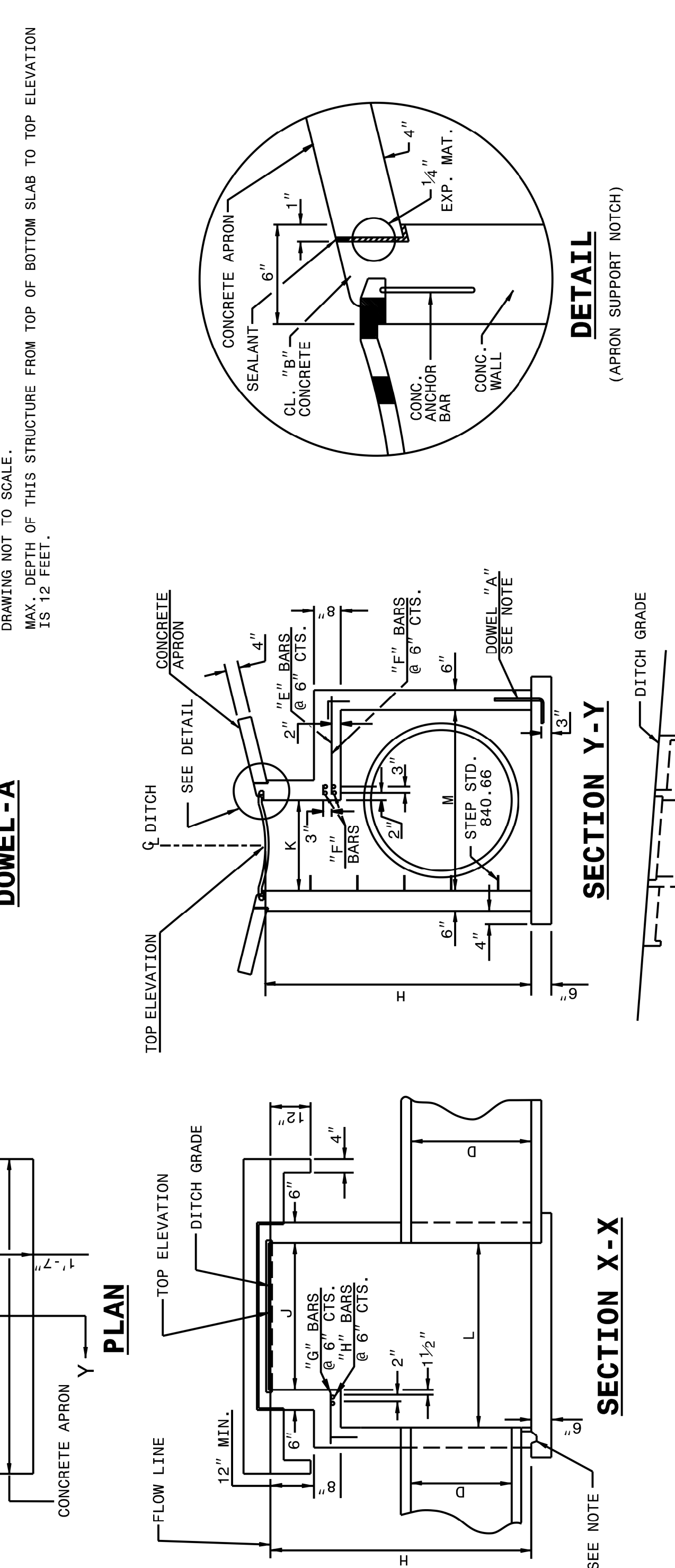
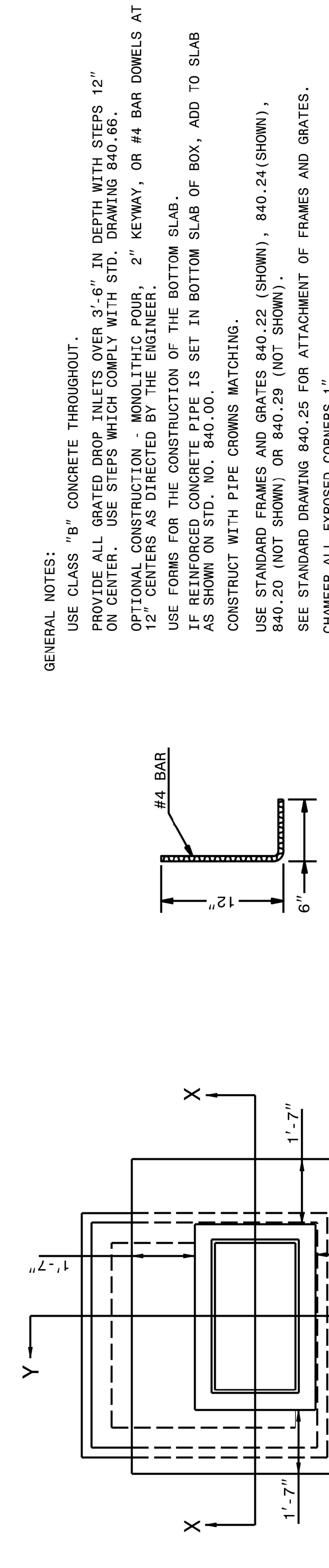
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STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

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 1 OF 2  
**840d17**

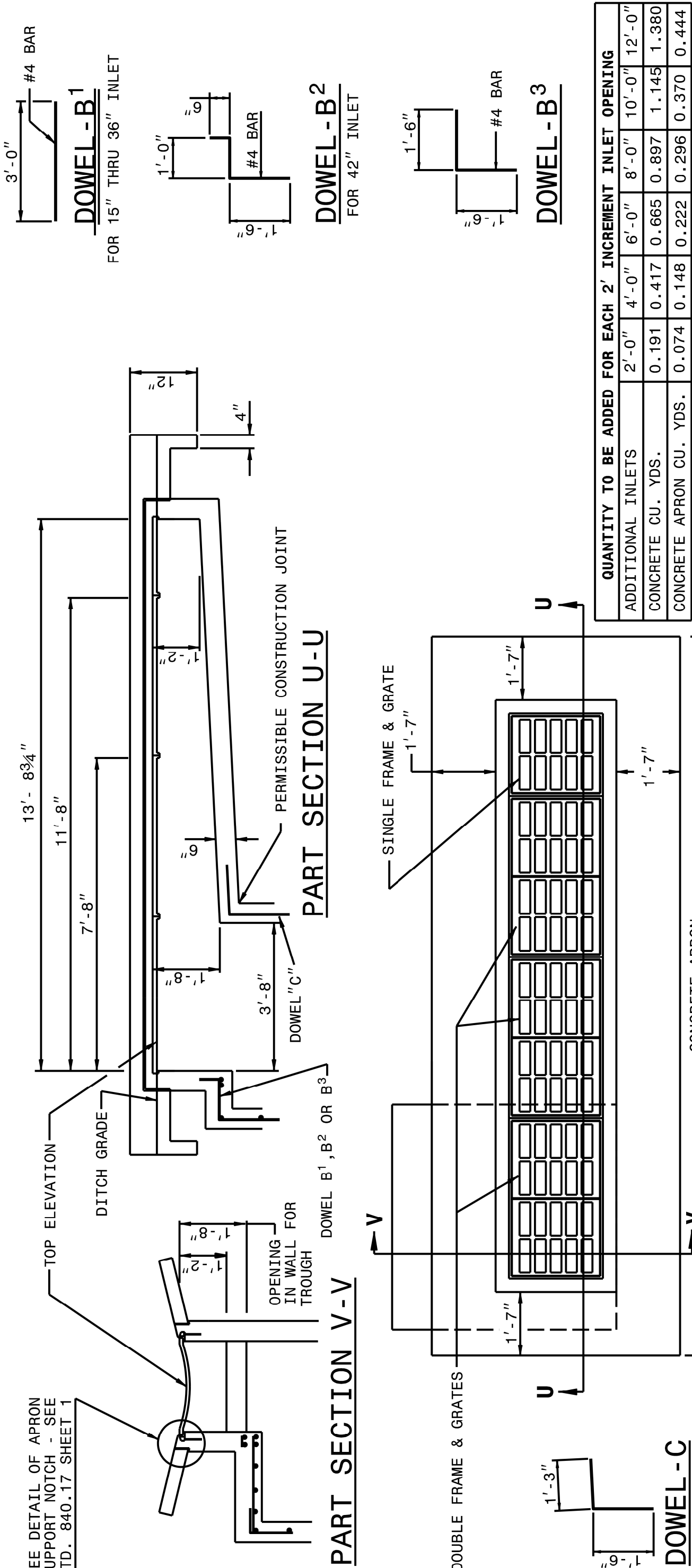


STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

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**



DIMENSIONS OF BOX AND PIPE		REINFORCING STEEL - NO. 4 BARS								MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE GRATED DROP INLET (BASED ON MIN. HEIGHT, H)		
PIPE	SPAN	WIDTH	SPAN	WIDTH	HEIGHT	BARS E	BARS F	BARS G	BARS H	BOTTOM SLAB	APRON	DEDUCTIONS
D	J	K	L	M	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	ONE PIPE
										FT	HT	TOTAL
12"	3'-8"	2'-0"	3'-8"	2'-0"	2'-3"	—	—	—	—	0.362	0.926	0.247
15"	3'-8"	2'-0"	3'-8"	2'-0"	2'-5"	—	—	—	—	0.362	0.988	0.247
18"	3'-8"	2'-0"	3'-8"	2'-0"	2'-8"	—	—	—	—	0.362	1.050	0.247
24"	3'-8"	2'-0"	3'-8"	2'-0"	3'-3"	8	4'-9"	—	—	0.444	1.362	0.278
30"	3'-8"	2'-0"	3'-8"	2'-0"	3'-10"	8	4'-9"	—	—	0.502	1.644	0.288
36"	3'-8"	2'-0"	3'-8"	2'-0"	4'-4"	8	4'-11"	4	0'-9"	0.560	1.931	0.321
42"	3'-8"	2'-0"	3'-8"	2'-0"	5'-0"	10	3'-1"	9	5'-7"	0.704	2.500	0.370
48"	3'-8"	2'-0"	3'-8"	2'-0"	5'-6"	11	3'-7"	10	6'-1"	0.823	3.013	0.407
54"	3'-8"	2'-0"	3'-8"	2'-0"	6'-0"	12	4'-1"	11	6'-7"	0.951	3.589	0.444
60"	3'-8"	2'-0"	3'-8"	2'-0"	6'-6"	13	4'-9"	12	7'-3"	1.111	4.172	0.481
66"	3'-8"	2'-0"	3'-8"	2'-0"	7'-1"	14	5'-4"	14	7'-10"	1.268	4.837	0.519
72"	3'-8"	2'-0"	3'-8"	2'-0"	7'-8"	15	5'-11"	15	8'-5"	1.437	5.587	0.559
						15	8'-5"	4	4'-3"	1.500	5.850	0.580
						8	8'-5"	8	8'-5"	0.395	7.868	0.528

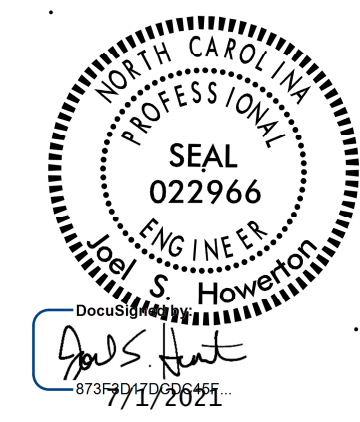
QUANTITY TO BE ADDED FOR EACH 2' INCREMENT INLET OPENING	
ADDITIONAL INLETS	2'-0" 4'-0" 6'-0" 8'-0" 10'-0" 12'-0"
CONCRETE CU. YDS.	0.191 0.417 0.665 0.897 1.145 1.380
CONCRETE APRON CU. YDS.	0.074 0.148 0.222 0.296 0.370 0.444

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

**SEE TITLE BLOCK**

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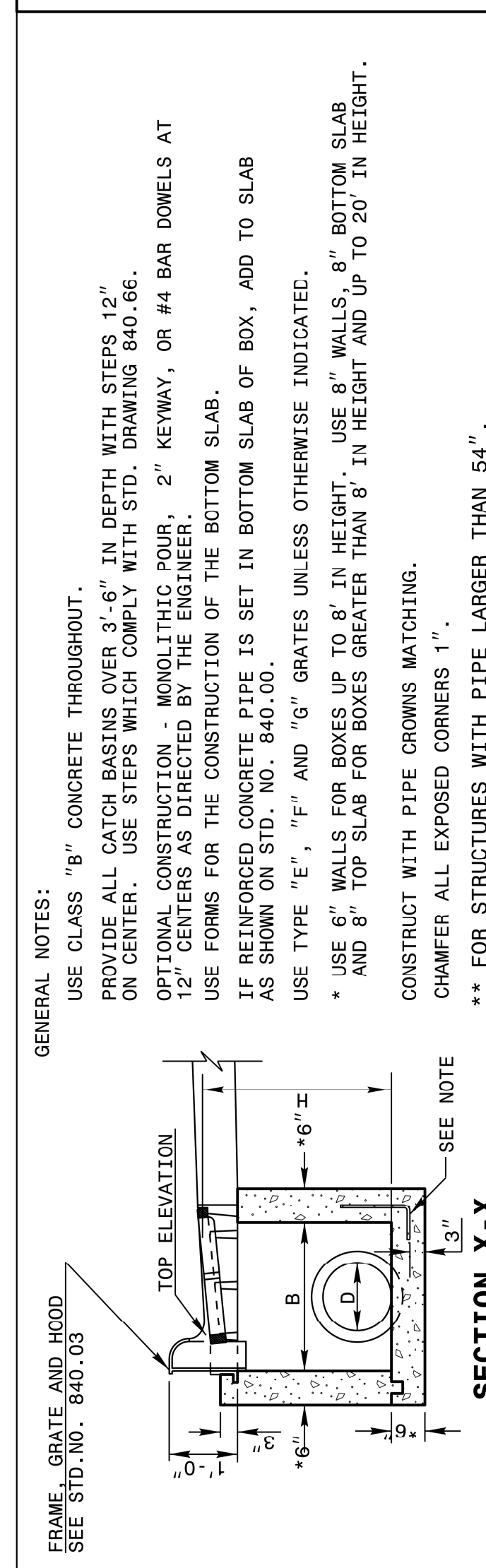
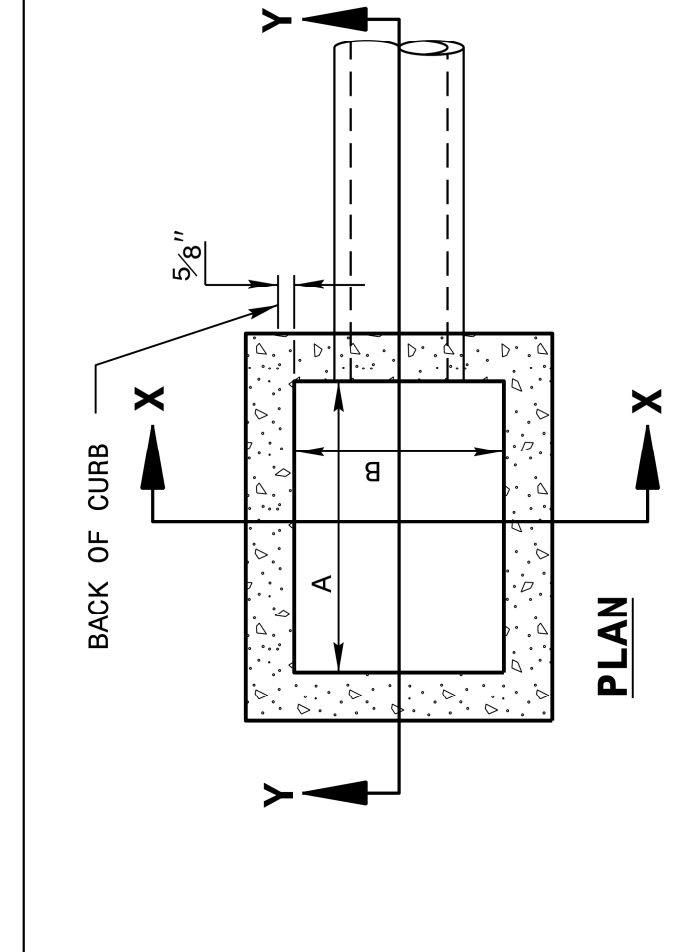




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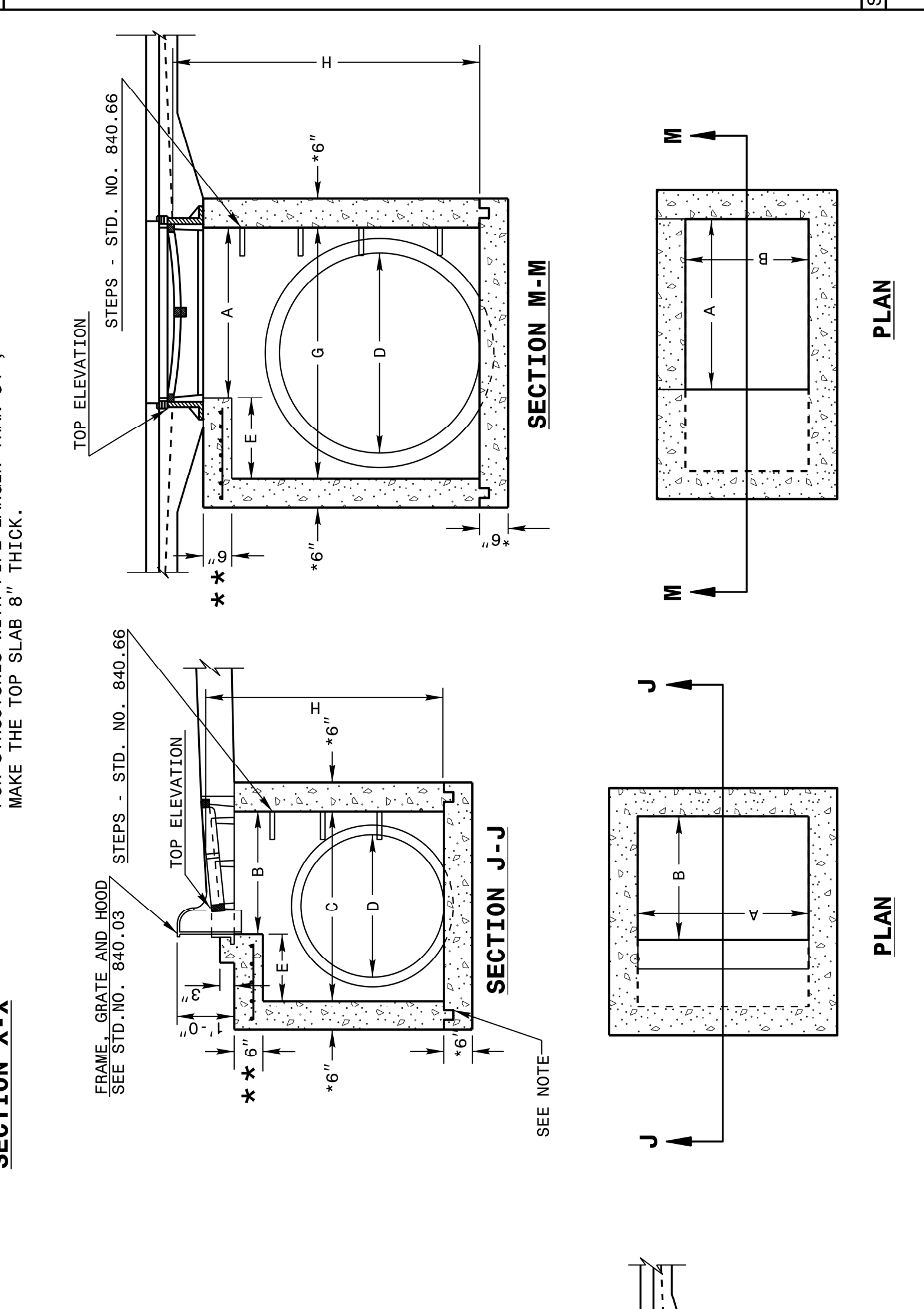
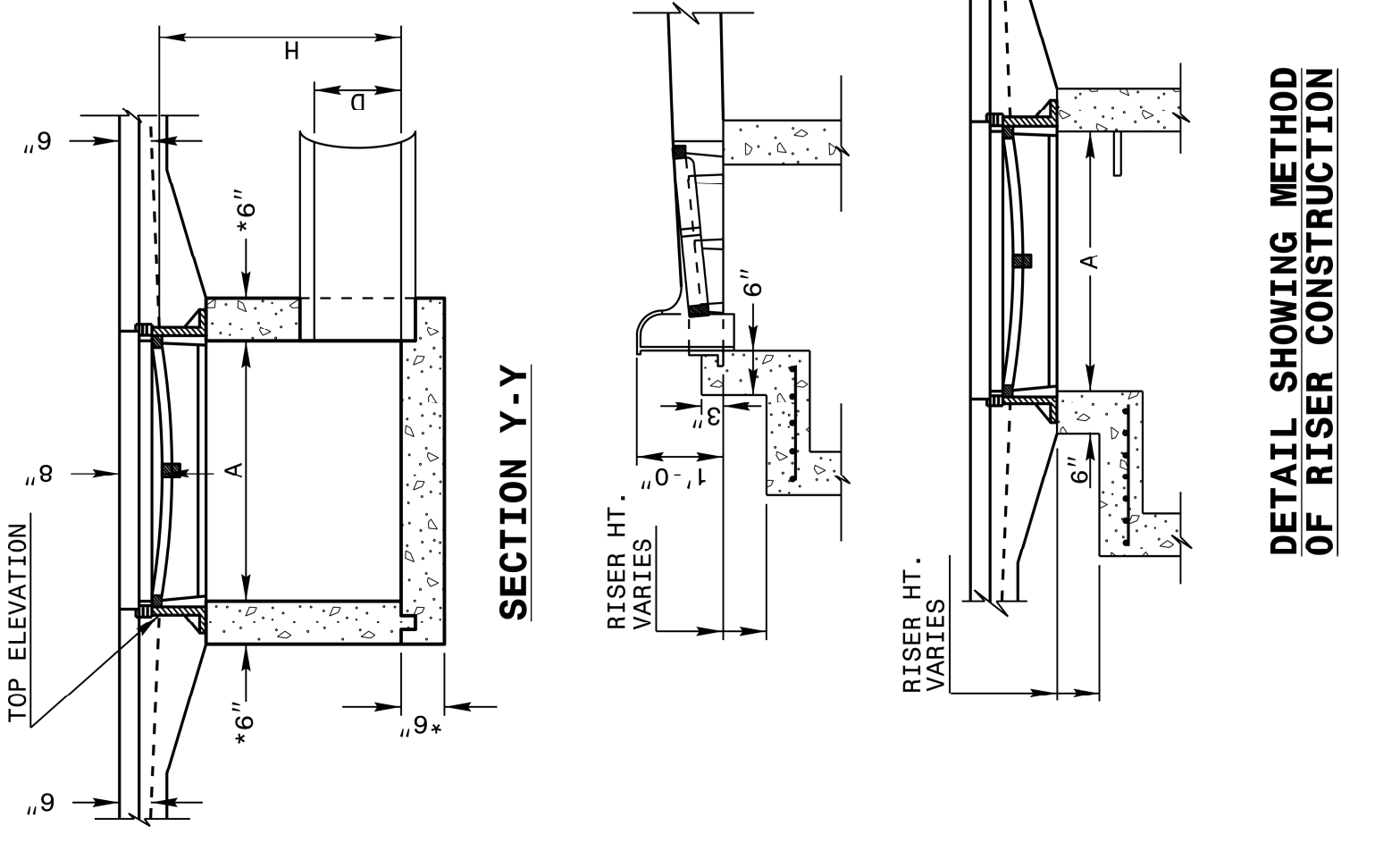
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ENGLISH DETAIL DRAWING FOR  
**EXTRA DEPTH  
 CONCRETE CATCH BASIN**  
 12" THRU 84" PIPE

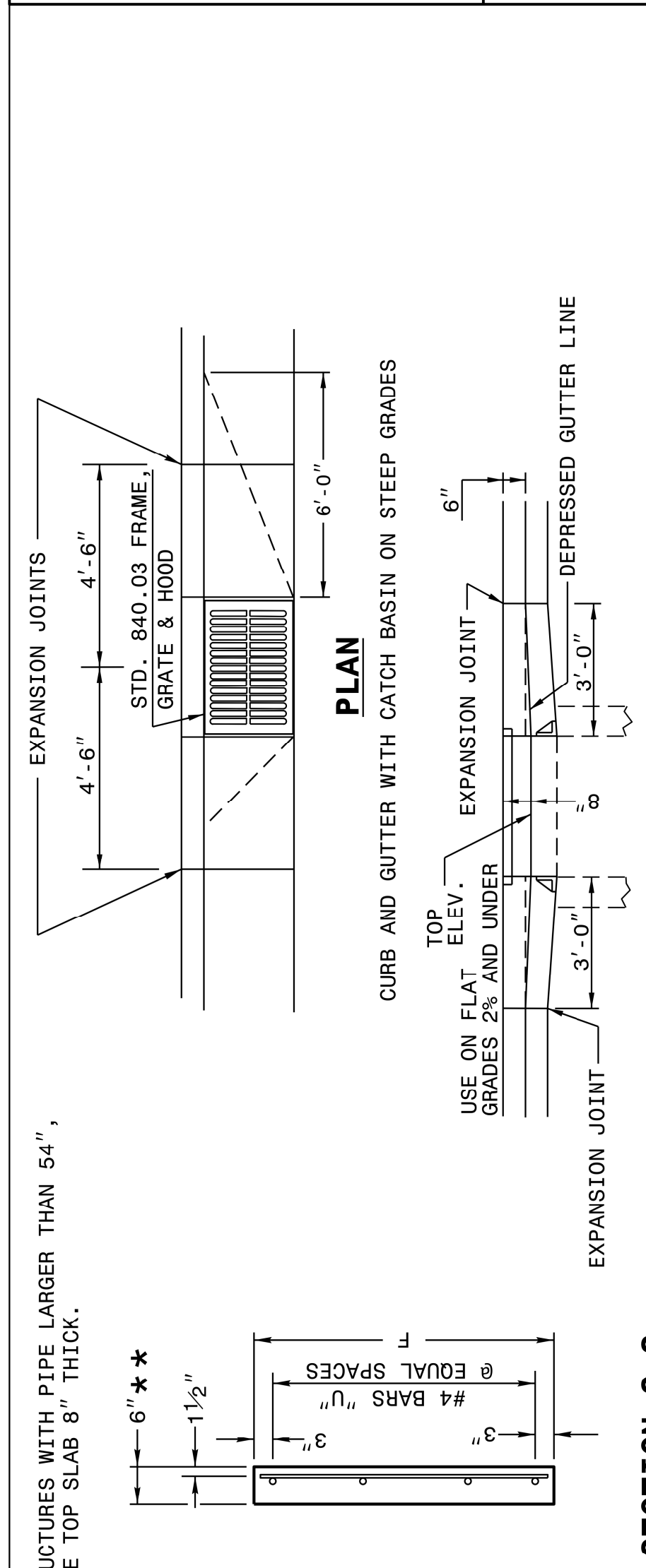
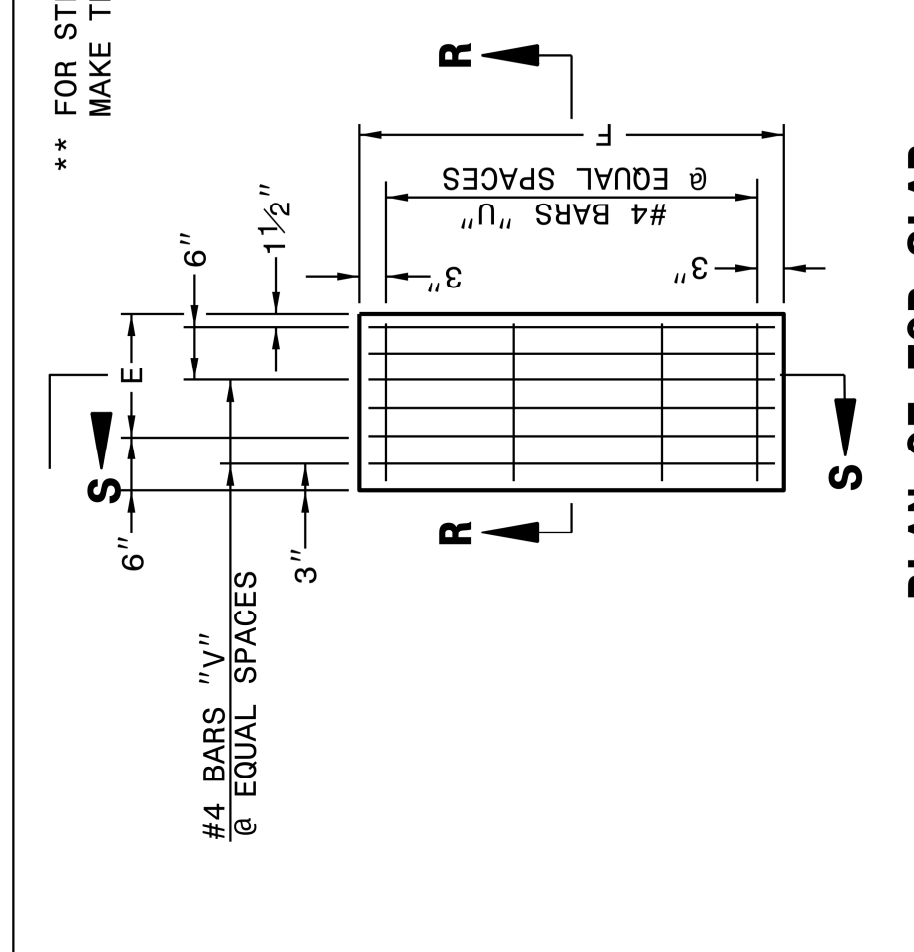


ENGLISH DETAIL DRAWING FOR  
**EXTRA DEPTH  
 CONCRETE CATCH BASIN**  
 12" THRU 84" PIPE

SHEET 1 OF 2  
**840D02**

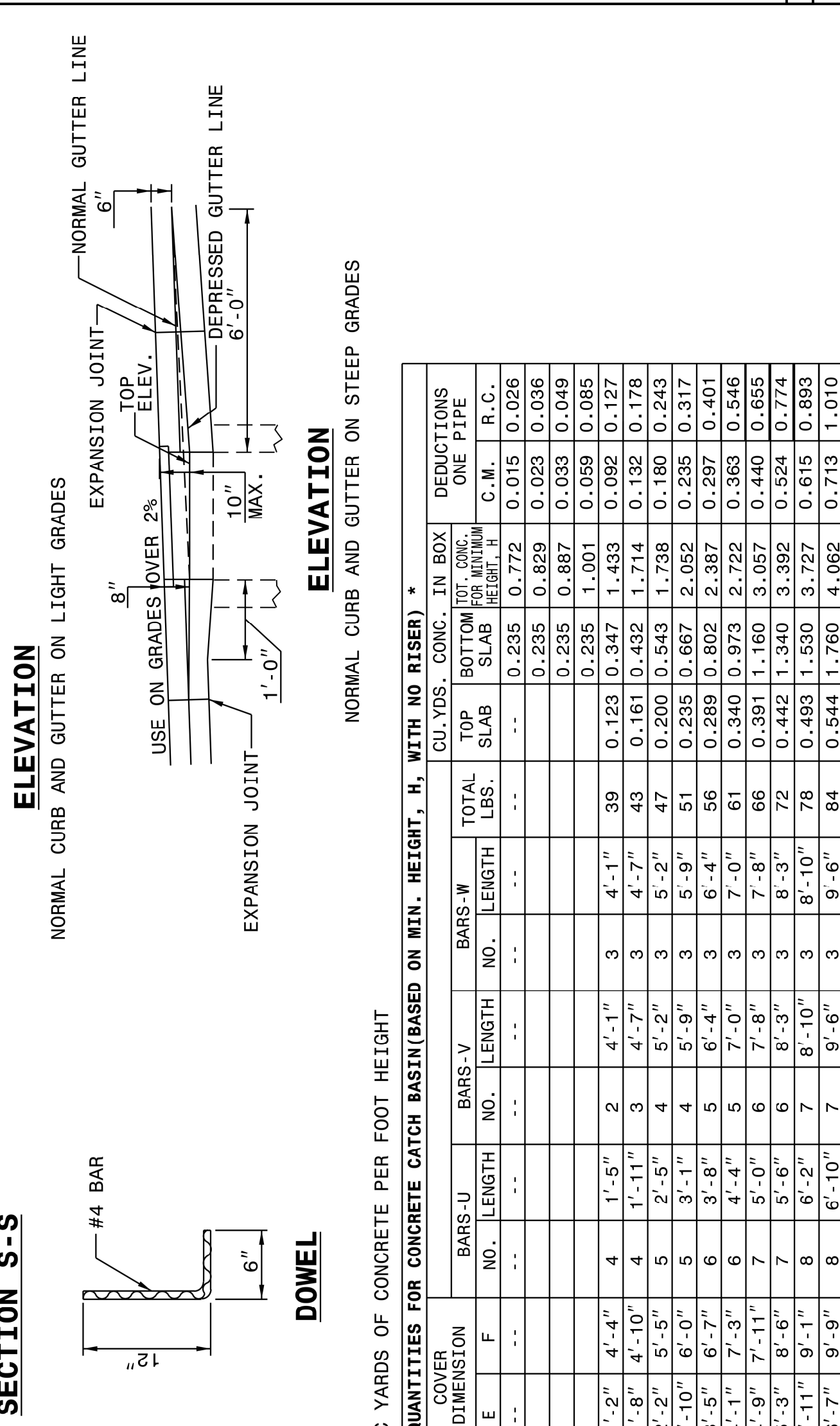
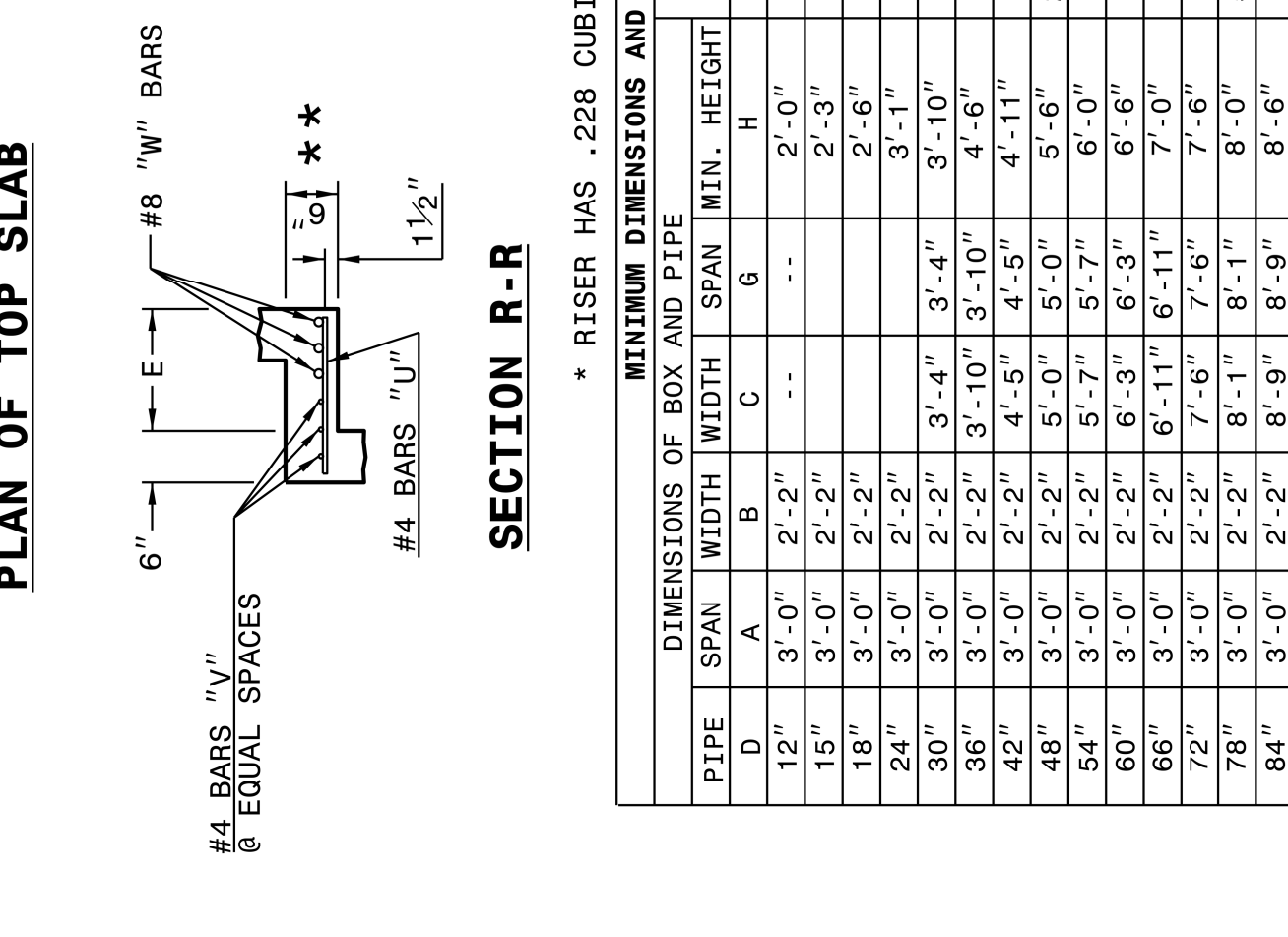
SHEET 1 OF 2  
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 12" THRU 84" PIPE

SHEET 2 OF 2  
**840D02**

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**840D02**

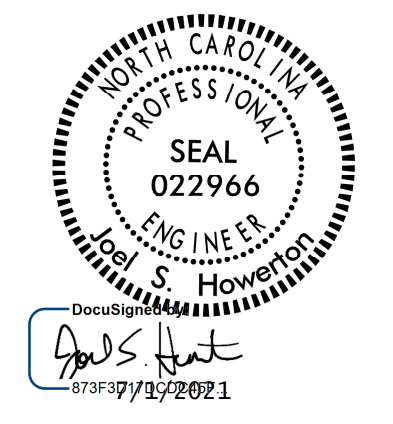
\* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

PIPE D.	MINIMUM DIMENSIONS OF BOX AND PIPE		COVER DIMENSION		BARS-U		BARS-V		BARS-W		TOTAL		DEDUCTIONS			
	SPAN	WIDTH	MIN.	HEIGHT	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	LBS.	CUL.YDS. CONC. IN BOX	TOP SLAB	CONC. FOR MINIMUM HEIGHT, H	ONE PIPE	R.C.
12"	3'-0"	2'-2"	2'-0"	2'-3"	..	..	..	..	..	..	..	0.235	0.772	0.015	0.026	
15"	3'-0"	2'-2"	2'-0"	2'-3"	..	..	..	..	..	..	..	0.235	0.829	0.023	0.036	
18"	3'-0"	2'-2"	2'-0"	2'-3"	..	..	..	..	..	..	..	0.235	0.887	0.033	0.049	
24"	3'-0"	2'-2"	2'-0"	2'-3"	..	..	..	..	..	..	..	0.235	1.001	0.059	0.085	
30"	3'-0"	2'-2"	2'-0"	2'-3"	..	..	..	..	..	..	..	0.123	0.347	1.433	0.092	0.127
36"	3'-0"	2'-2"	2'-0"	2'-3"	..	..	..	..	..	..	..	0.161	0.432	1.714	0.132	0.178
42"	3'-0"	2'-2"	2'-0"	2'-3"	..	..	..	..	..	..	..	0.200	0.543	1.738	0.180	0.243
48"	3'-0"	2'-2"	2'-0"	2'-3"	..	..	..	..	..	..	..	0.235	0.667	2.052	0.235	0.317
54"	3'-0"	2'-2"	2'-0"	2'-3"	..	..	..	..	..	..	..	0.289	0.802	2.387	0.297	0.401
60"	3'-0"	2'-2"	2'-0"	2'-3"	..	..	..	..	..	..	..	0.340	0.973	2.722	0.363	0.546
66"	3'-0"	2'-2"	2'-0"	2'-3"	..	..	..	..	..	..	..	0.391	1.160	3.057	0.440	0.655
72"	3'-0"	2'-2"	2'-0"	2'-3"	..	..	..	..	..	..	..	0.442	1.340	3.392	0.524	0.774
78"	3'-0"	2'-2"	2'-0"	2'-3"	..	..	..	..	..	..	..	0.493	1.530	3.727	0.615	0.893
84"	3'-0"	2'-2"	2'-0"	2'-3"	..	..	..	..	..	..	..	0.544	1.760	4.062	0.713	1.010

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 MODIFIED BY: E.E. WARD DATE: 3-1-02  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
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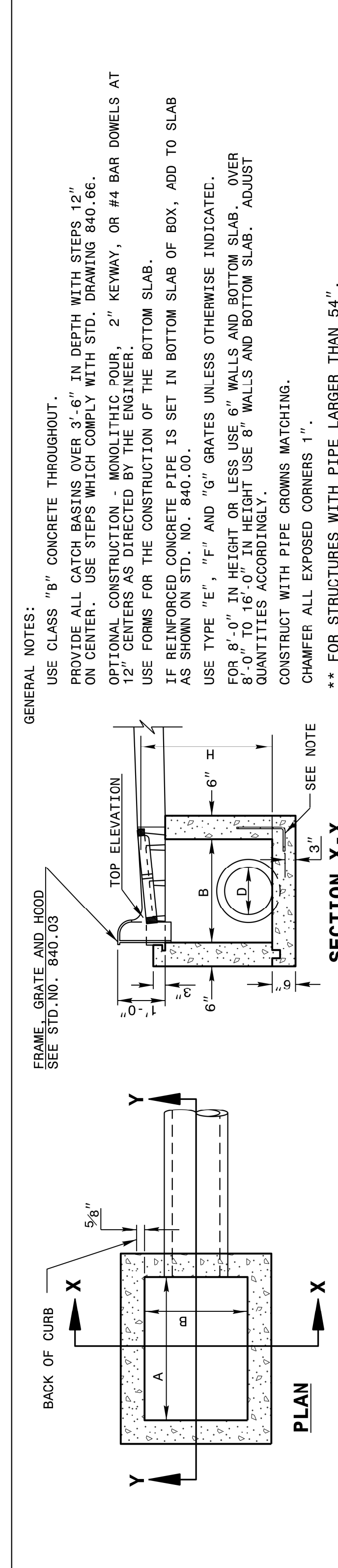


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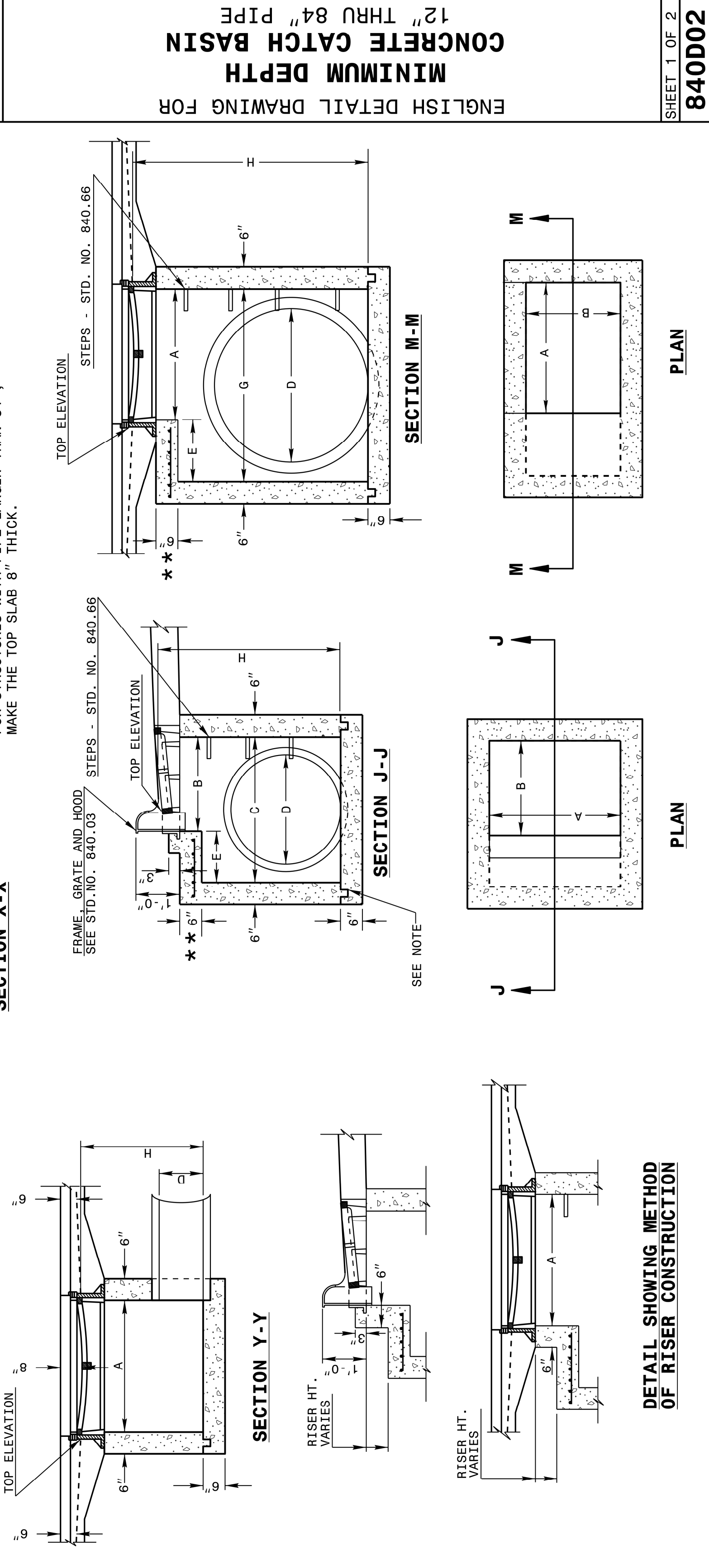
**GENERAL NOTES:**  
 USE CLASS "B" CONCRETE THROUGHOUT.  
 PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.  
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12 CENTERS AS DIRECTED BY THE ENGINEER.  
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.  
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.  
 USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.  
 FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.  
 CONSTRUCT WITH PIPE CROWNS MATCHING.  
 CHAMFER ALL EXPOSED CORNERS 1".  
 \*\* FOR STRUCTURES WITH PIPE LARGER THAN 54", MAKE THE TOP SLAB 8" THICK.

ENGLISH DETAIL DRAWING FOR  
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 12" THRU 84" PIPE

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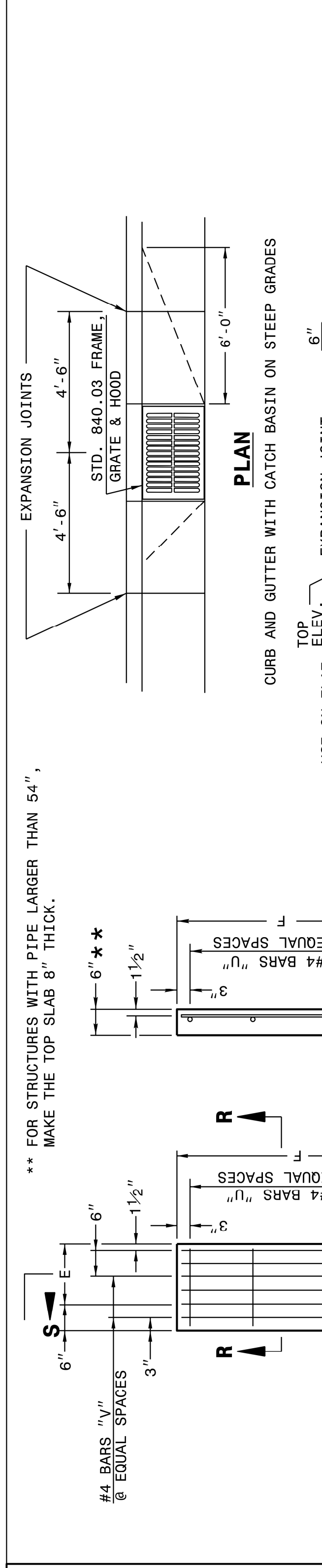
SHEET 1 OF 2  
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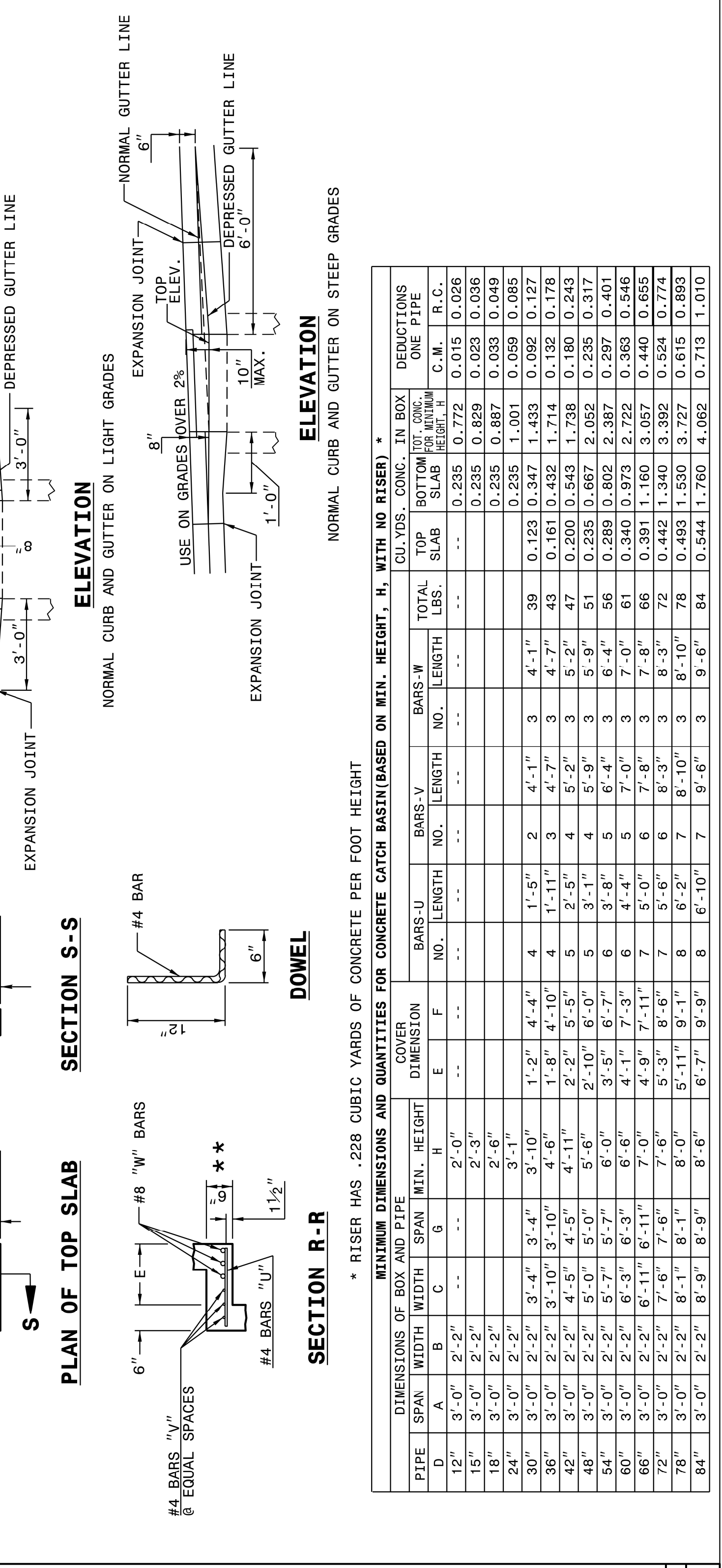


SHEET 2 OF 2  
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\* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

MINIMUM DIMENSIONS OF BOX AND PIPE		COVER DIMENSION		BARS-V		BARS-W		TOTAL LBS.		DEDUCTIONS					
PIPE D.	SPAN	WIDTH	MIN. HEIGHT	E	F	NO.	LENGTH	NO.	LENGTH	CUL.YDS. CONC. IN BOX	TOP SLAB	BOTTOM SLAB	TOT. CONC. FOR MINIMUM HEIGHT, H.	C. M.	R. C.
12"	3'-0"	2'-2"	2'-0"	--	2'-0"	--	--	--	--	--	0.235	0.772	0.015	0.026	0.026
15"	3'-0"	2'-2"	2'-3"	--	2'-3"	--	--	--	--	--	0.235	0.829	0.023	0.036	0.049
18"	3'-0"	2'-2"	3'-1"	--	3'-1"	--	--	--	--	--	0.235	0.887	0.033	0.049	0.049
24"	3'-0"	2'-2"	3'-4"	--	3'-4"	--	--	--	--	--	0.235	1.001	0.059	0.085	0.085
30"	3'-0"	2'-2"	3'-10"	1'-2"	4'-4"	4	1'-5"	2	4'-1"	39	0.123	0.347	1.433	0.092	0.127
36"	3'-0"	2'-2"	4'-6"	1'-8"	4'-10"	4	1'-11"	3	4'-7"	43	0.161	0.432	1.714	0.132	0.178
42"	3'-0"	2'-2"	5'-5"	2'-2"	5'-5"	5	2'-5"	4	5'-2"	47	0.200	0.543	1.738	0.180	0.243
48"	3'-0"	2'-2"	6'-0"	2'-10"	6'-0"	5	3'-1"	4	5'-9"	51	0.235	0.667	2.052	0.235	0.317
54"	3'-0"	2'-2"	5'-7"	3'-5"	6'-7"	6	3'-8"	5	6'-4"	56	0.289	0.802	2.387	0.297	0.401
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66"	3'-0"	2'-2"	6'-11"	4'-9"	7'-11"	7	5'-0"	6	7'-8"	66	0.391	1.160	3.057	0.440	0.655
72"	3'-0"	2'-2"	7'-6"	5'-3"	8'-6"	7	5'-6"	6	8'-3"	72	0.442	1.340	3.392	0.524	0.774
78"	3'-0"	2'-2"	8'-1"	5'-11"	9'-1"	8	6'-2"	7	8'-10"	78	0.493	1.530	3.727	0.615	0.893
84"	3'-0"	2'-2"	8'-9"	6'-7"	9'-9"	8	6'-10"	7	9'-6"	84	0.544	1.760	4.062	0.713	1.010

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