

SWL MAR 13

PROJECT ID: 5096-00-71

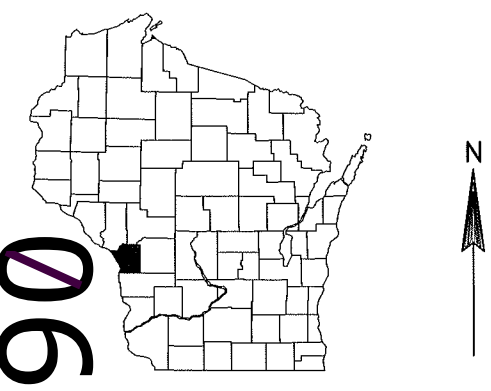
WITH: N/A

COUNTY: LA CROSSE

ORDER OF SHEETS

Section No. 1	Title
Section No. 2	Typical Sections and Details (Includes Erosion Control Plan)
Section No. 3	Estimate of Quantities
Section No. 3	Miscellaneous Quantities
Section No. 4	Right of Way Plat
Section No. 5	Plan and Profile
Section No. 6	Standard Detail Drawings
Section No. 7	Sign Plates
Section No. 8	Structure Plans
Section No. 9	Computer Earthwork Data
Section No. 9	Cross Sections

TOTAL SHEETS = 112



DESIGN DESIGNATION

CTH FO - DRECTRAH RD.		
A.A.D.T. 2013	=	1,950
A.A.D.T. 2033	=	2,550
D.H.V. 2033	=	280
D.D.	=	60/40
T.	=	5.8
DESIGN SPEED	=	55 MPH
ESALS	=	240,900

CONVENTIONAL SYMBOLS	
PLAN	PROFILE
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	UTILITIES
REFERENCE LINE	ELECTRIC
EXISTING CULVERT	FIBER OPTIC
PROPOSED CULVERT (Box or Pipe)	GAS
COMBUSTIBLE FLUIDS	SANITARY SEWER
	STORM SEWER
	TELEPHONE
MARSH AREA	WATER
	UTILITY PEDESTAL
	POWER POLE
WOODED OR SHRUB AREA	TELEPHONE POLE

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STH 33 - BARRE MILLS

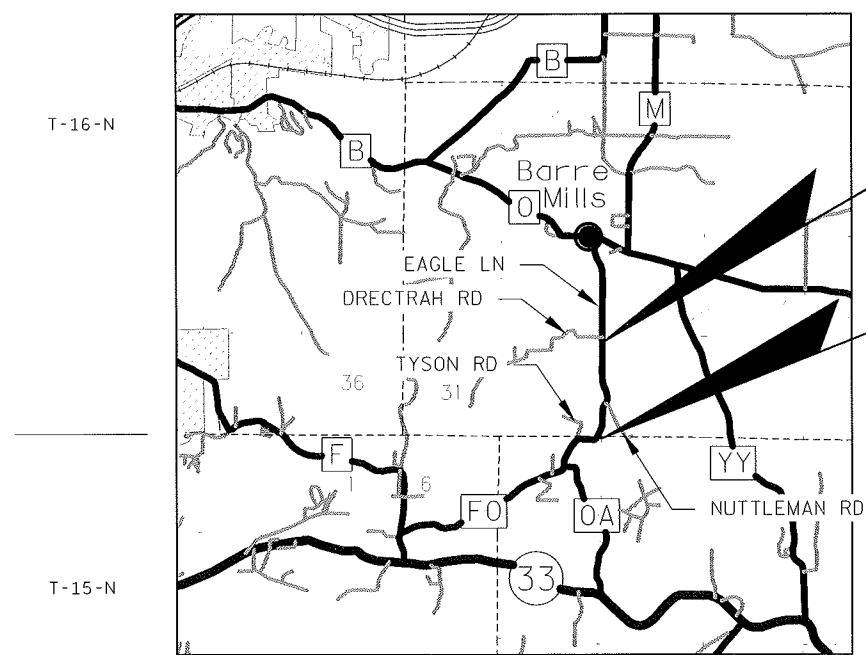
(TYSON ROAD - DRECTRAH ROAD)

CTH OA

LA CROSSE COUNTY

STATE PROJECT NUMBER

5096-00-71



END PROJECT 5096-00-71
STA. 185+00.00
Y = 136,596.514
X = 482,298.406

BEGIN PROJECT 5096-00-71
STA. 134+00.00
Y = 131,755.639
X = 481,875.873

LAYOUT

SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.966 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), LA CROSSE COUNTY.

ELEVATIONS ON THIS PLAN ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1988 (NGVD 88)

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5096-00-71	WISC 2013074	1

ACCEPTED FOR

COUNTY. of LA CROSSE.

DATE: 10/17/12 *[Signature]*
(Signature & Title of Official)

ORIGINAL PLANS PREPARED BY

Mead & Hunt

WISCONSIN PROFESSIONAL ENGINEER

WILLIAM A. KRATT
E-40457
LA CROSSE WI

DATE: 10/18/12 *William A. Kratt*
(Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor MEAD & HUNT, INC.

Designer MEAD & HUNT, INC.

Management Consultant KJOHNSON ENGINEERS, INC.

C.O. Examiner JE

APPROVED FOR THE DEPARTMENT

DATE: 10/30/12 *Kimberly A. Johnson*
(Management Consultant Signature)

E

GENERAL NOTES

LOCATION OF THE UNDERGROUND UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE.
THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

RADII ARE MEASURED TO EDGE OF PAVEMENT UNLESS OTHERWISE SHOWN OR NOTED ON THE PLAN.

PAVEMENT REMOVAL TO THE NEAREST JOINT OR A SAWED OR MILLED EDGE WILL BE REQUIRED AS DIRECTED BY THE ENGINEER.

WHEN PORTION OF EXISTING ASPHALTIC SURFACES ARE TO BE REMOVED TO ACCOMMODATE NEW CONSTRUCTION, THE LINE OF SUCH REMOVAL SHALL BE NEATLY DELINEATED WITH A SAW CUT JOINT THROUGH THE ASPHALTIC SURFACE SO THAT REMOVAL OF THE ASPHALT SHALL BE ACCOMPLISHED WITHOUT DAMAGE TO REMAINING PORTIONS. THE LOCATION OF SAW JOINTS AND THE AMOUNT REMOVED AT SIDE ROADS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO KEEP EXISTING DRAINAGE STRUCTURES FUNCTIONAL DURING EXCAVATION OPERATIONS TO PROVIDE TEMPORARY DRAINAGE.

NO TREES OR SHRUBS SHALL BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE BEEN DESIGNATED FOR REMOVAL BY THE ENGINEER.

SHRINKAGE VARIABLE, COMMON ESTIMATED AT 30%.

THE EROSION CONTROL FEATURES AS SHOWN ON THE PLAN DETAILS ARE AT SUGGESTED LOCATIONS, THEIR EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

AFTER PLACING CURB AND GUTTER, ANY EXCESS CONCRETE PROTRUDING BEYOND THE BACK OF CURB SHALL BE REMOVED BY THE CONTRACTOR PRIOR TO BACKFILLING.

THE LOCATION OF DRIVEWAYS WILL BE DETERMINED BY THE ENGINEER.

CROSS SLOPES AS SHOWN ON THE TYPICAL SECTION WILL VARY AT THE INTERSECTIONS. SEE DETAIL SHEETS AND CROSS SECTIONS FOR SLOPES AND GRADES.

4-INCH HMA PAVEMENT E-1 SHALL BE CONSTRUCTED WITH A 2 1/4-INCH LOWER LAYER AND 1 3/4-INCH UPPER LAYER. (BY OTHERS)

ASPHALTIC FLUMES TO BE CONSTRUCTED BY OTHERS.

THE RATE OF APPLICATION FOR TACK COAT IS COMPUTED AT 0.025 GAL/SY. (BY OTHERS)

THERE ARE EXISTING WETLANDS WITHIN THE PROJECT AREA. CONTRACTOR SHALL NOT DISTURB AREAS OUTSIDE THE SLOPE INTERCEPTS.

UTILITIES

CHARTER COMMUNICATIONS 1228 12TH AVENUE SOUTH ONALASKA, WI 54650 ATTN: PERRY MCCLELLAN PHONE: (715) 370-7140 EMAIL: PERRY.MCCLELLAN@CHARTERCOM.COM	MIDWEST NATURAL GAS INCORPORATED 3600 STH 157 LA CROSSE, WI 54601 ATTN: ERIC LOEDING PHONE (608) 781-1011 EMAIL: ERICL@MIDWESTNATURALGAS.COM	XCEL ENERGY - GAS 3215 COMMERCE STREET LA CROSSE, WI 54603 ATTN: DAN MARTI PHONE: (608) 789-3629 EMAIL: DANIEL.R.MARTI@XCELENERGY.COM
CENTURYLINK 333 N FRONT STREET LA CROSSE, WI 54601 ATTN: BRIAN STELPLUGH PHONE: (608) 796-5142 EMAIL: BRIAN.STELPLUGH@CENTURYLINK.COM	XCEL ENERGY - ELECTRIC 1003 SOUTH BLACK RIVER STREET SPARTA, WI 54656 ATTN: JAYMIE HOLTE PHONE: (608) 789-3677 EXT 11 EMAIL: JAYMIE.L.HOLTE@XCELENERGY.COM	

DNR

WISCONSIN DEPARTMENT OF
NATURAL RESOURCES
3550 MORMON COULEE ROAD
LA CROSSE, WI 54601
ATTN: KAREN KALVELAGE
PHONE: (608) 785-9115
EMAIL: KAREN.KALVELAGE@WISCONSIN.GOV

LA CROSSE COUNTY

LA CROSSE COUNTY HIGHWAY DEPARTMENT
301 CARLSON ROAD
WEST SALEM, WI 54669
ATTN: RON CHAMBERLAIN, HIGHWAY COMMISSIONER
PHONE: (608) 786-3813
EMAIL: RCHAMBERLAIN@LACROSSECOUNTY.ORG



Call 811 3 Work Days Before You Dig
or Toll Free (800) 242-8511
Milwaukee Area (414) 259-1181
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com

** DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS.

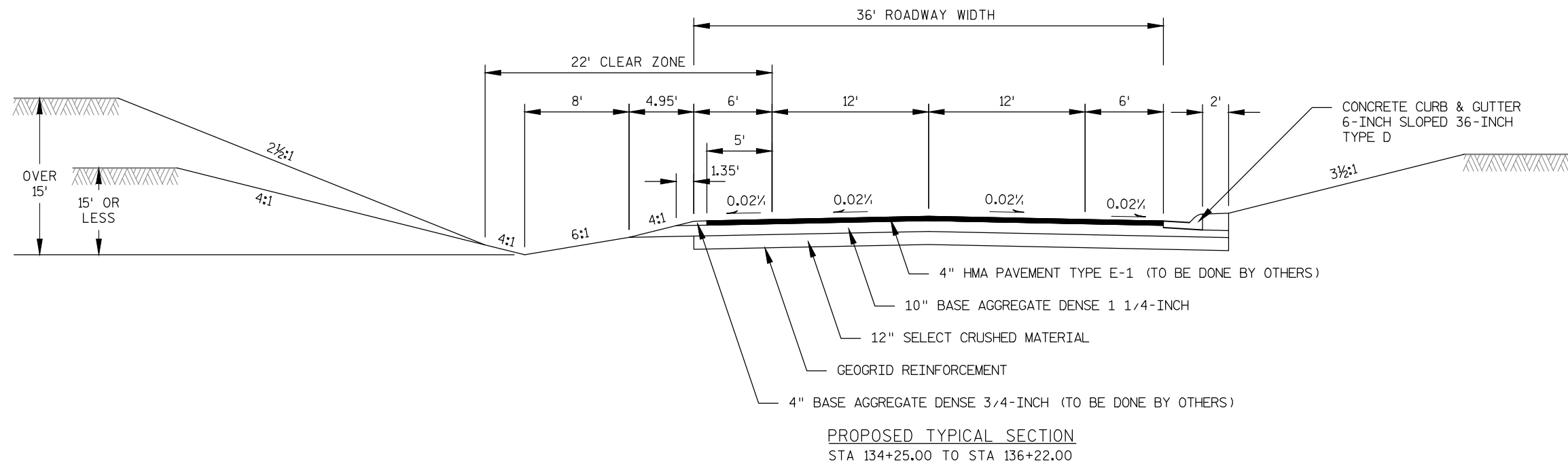
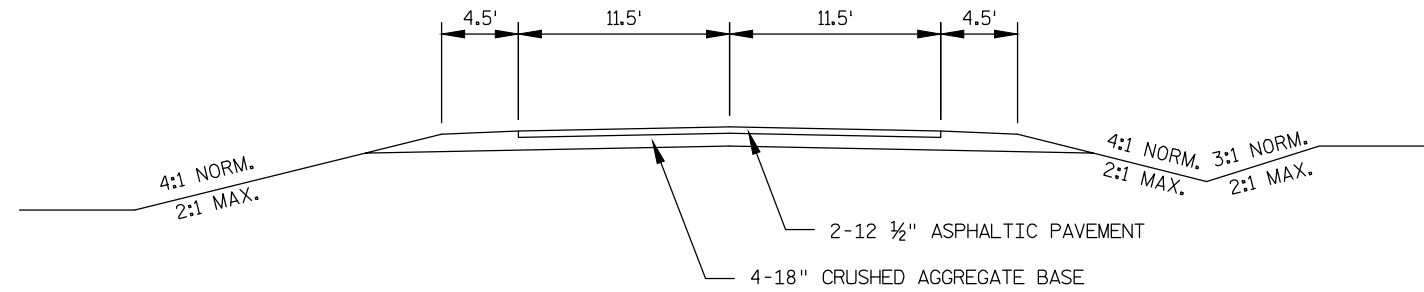
DESIGN CONSULTANT

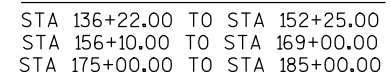


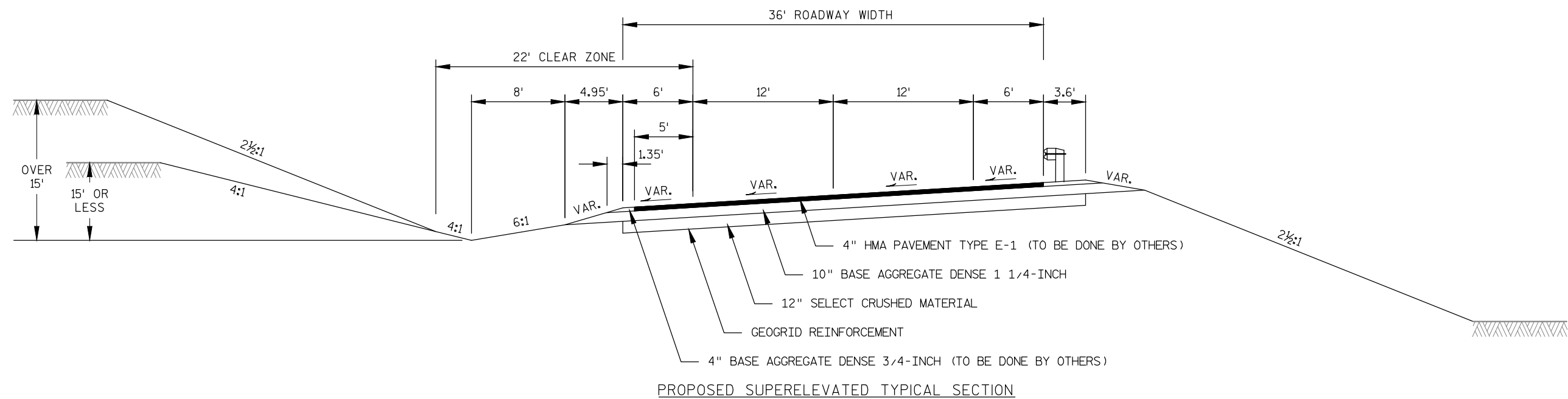
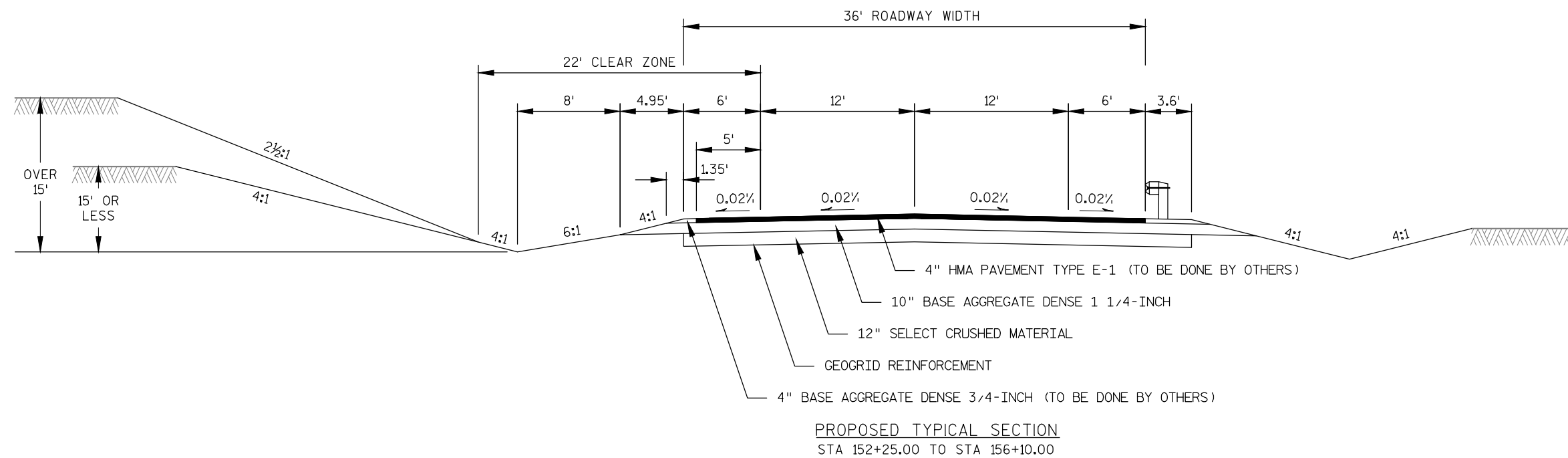
MEAD & HUNT, INC.
750 NORTH THIRD STREET
LA CROSSE, WI 54601
ATTN: JAY WHEATON, P.E.
PHONE: (608) 784-6040
EMAIL: JAY.WHEATON@MEADHUNT.COM

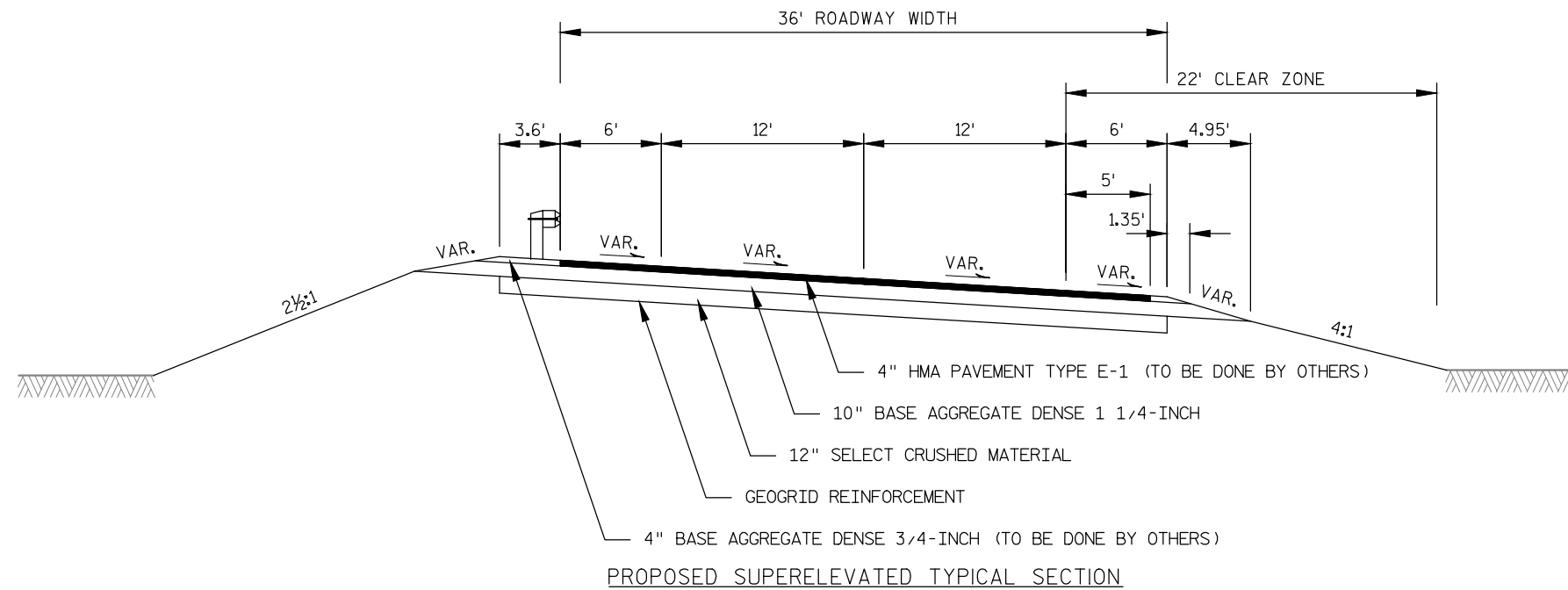
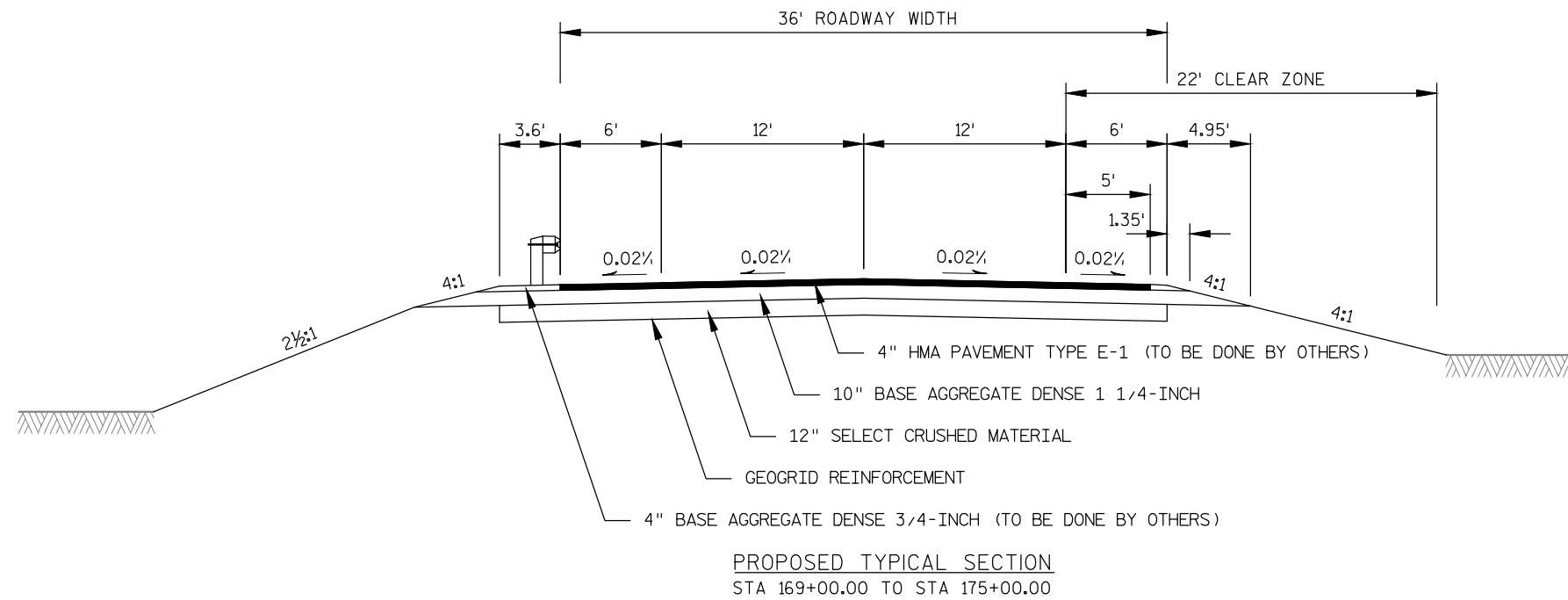


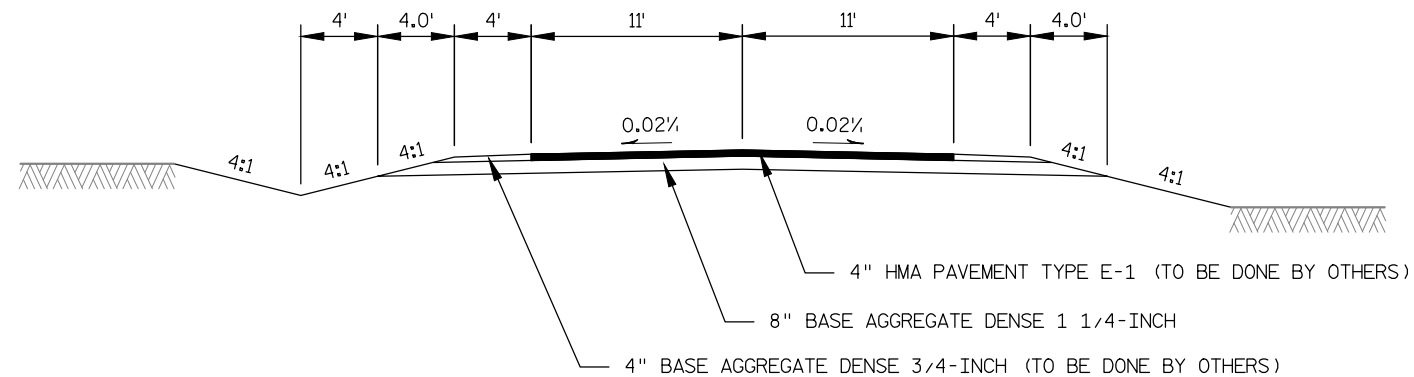
EXISTING PAVEMENT DEPTH			
STATION	OFFSET	ASPHALTIC SURFACE	CABC
141+75	25' LT.	4.5"	4.5"
154+95	2' RT.	2"	2.5"
181+15	5' LT.	4"	4.5"



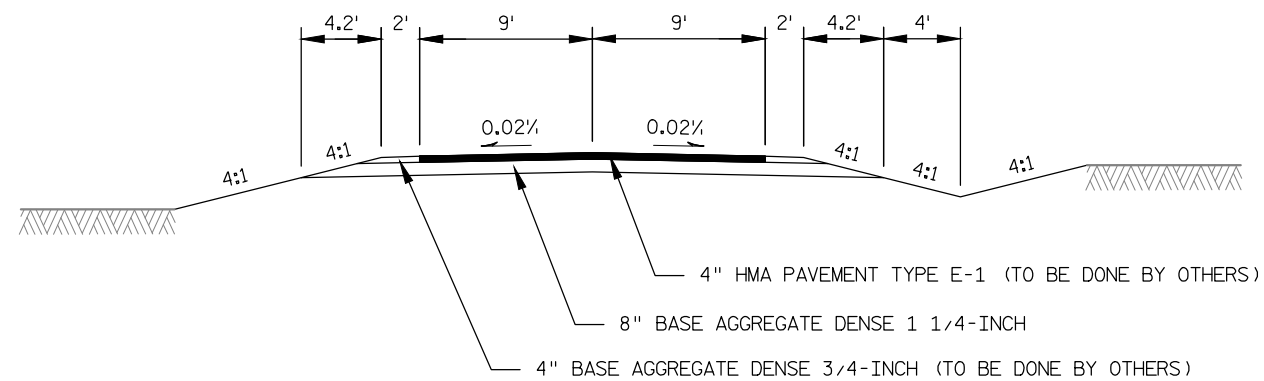






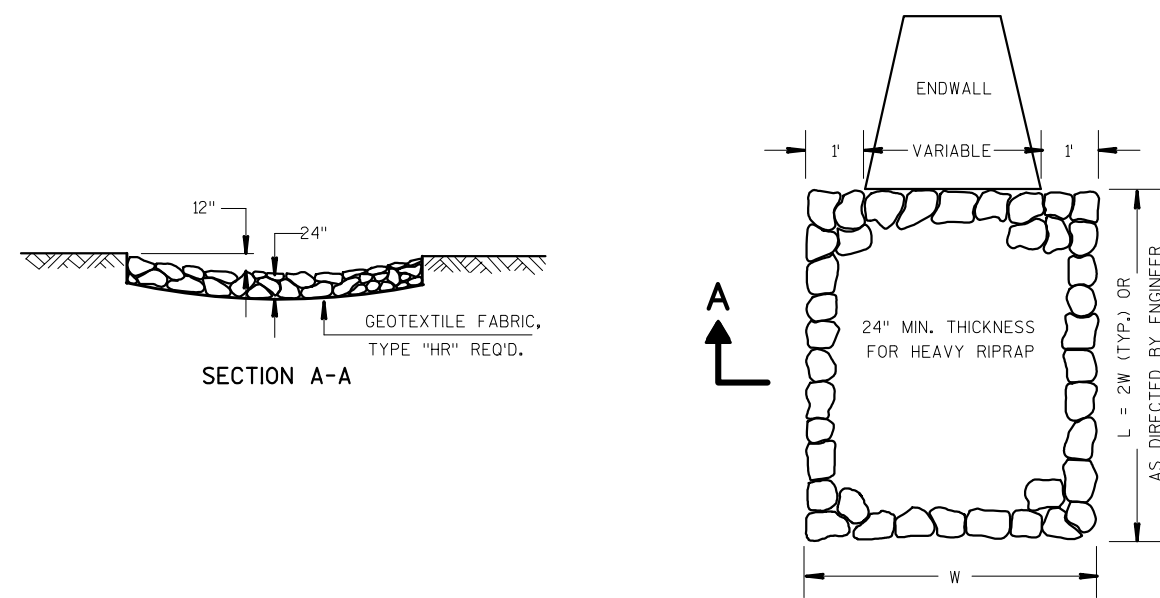


PROPOSED TYPICAL SECTION OLD CTH OA
STA 504+00.00 TO STA 506+79.64

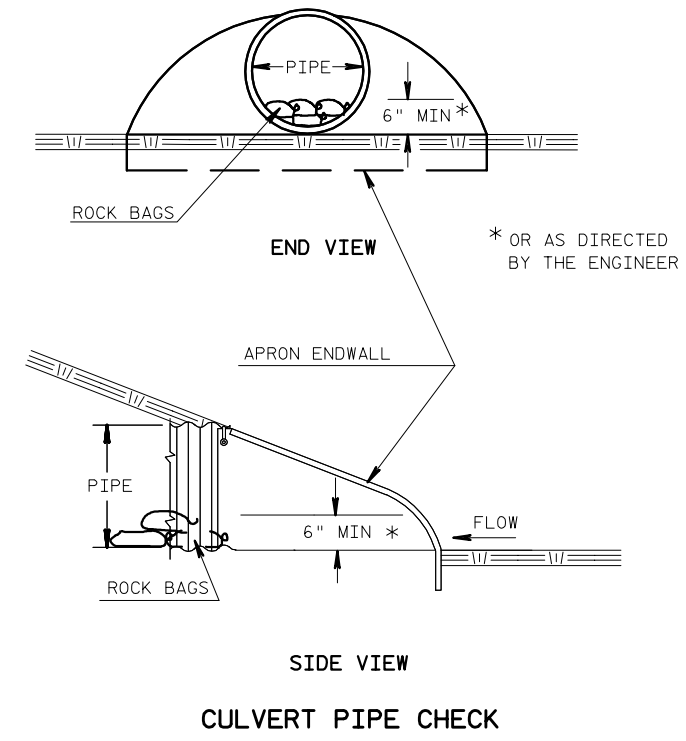


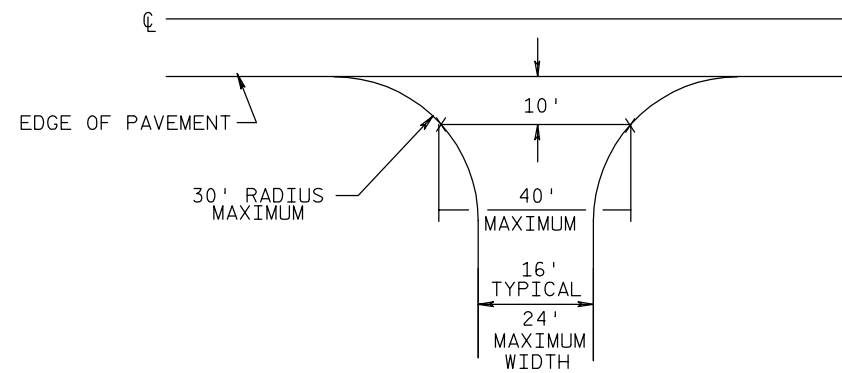
PROPOSED TYPICAL SECTION NUTTLEMAN ROAD
STA 600+18.00 TO STA 604+50.00

PROJECT NO:5096-00-71	HWY:CTH 0A	COUNTY:LA CROSSE	TYPICAL SECTIONS	SHEET	-----	E
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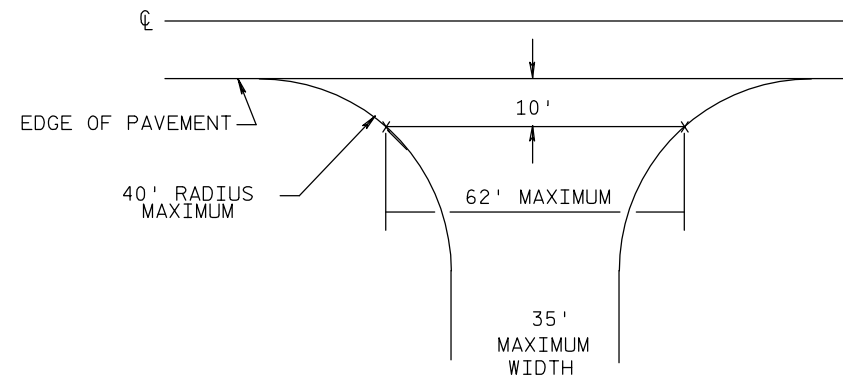


HEAVY RIPRAP TREATMENT AT CULVERTS



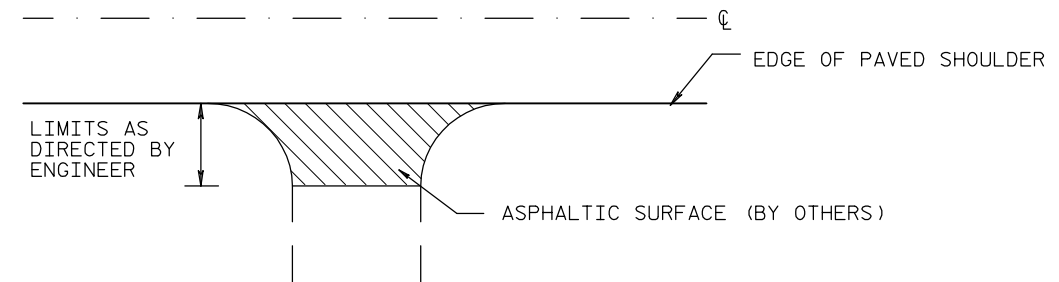


TYPICAL DRIVEWAY DETAIL
(NON-COMMERCIAL RURAL)

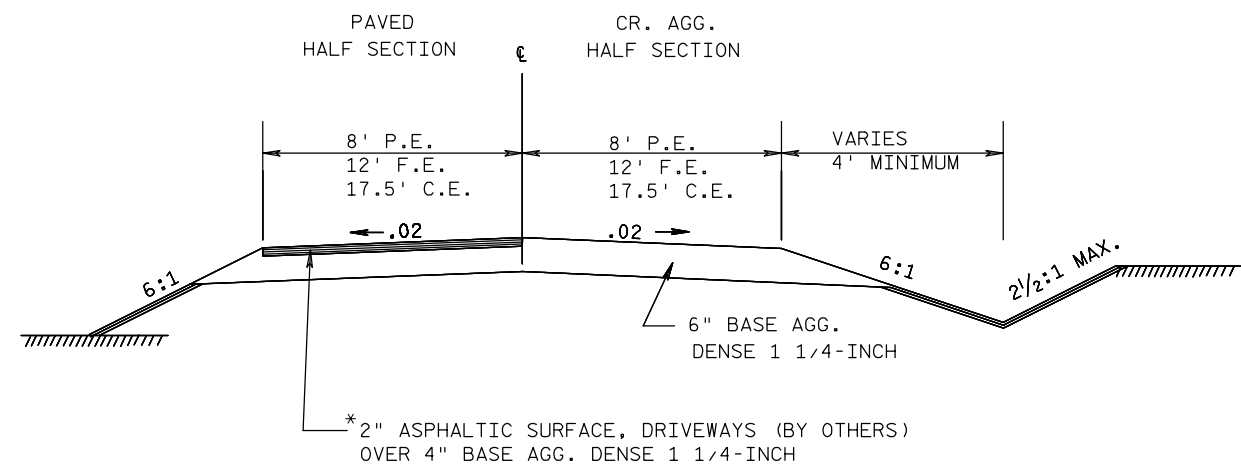


TYPICAL DRIVEWAY DETAIL
(COMMERCIAL RURAL)

RURAL DRIVEWAY DETAIL - ASPHALT



ANY ADDITIONAL BASE AGG. DENSE REQ'D. SHALL BE PAID
UNDER ITEM - "BASE AGGREGATE DENSE 1 1/4-INCH"

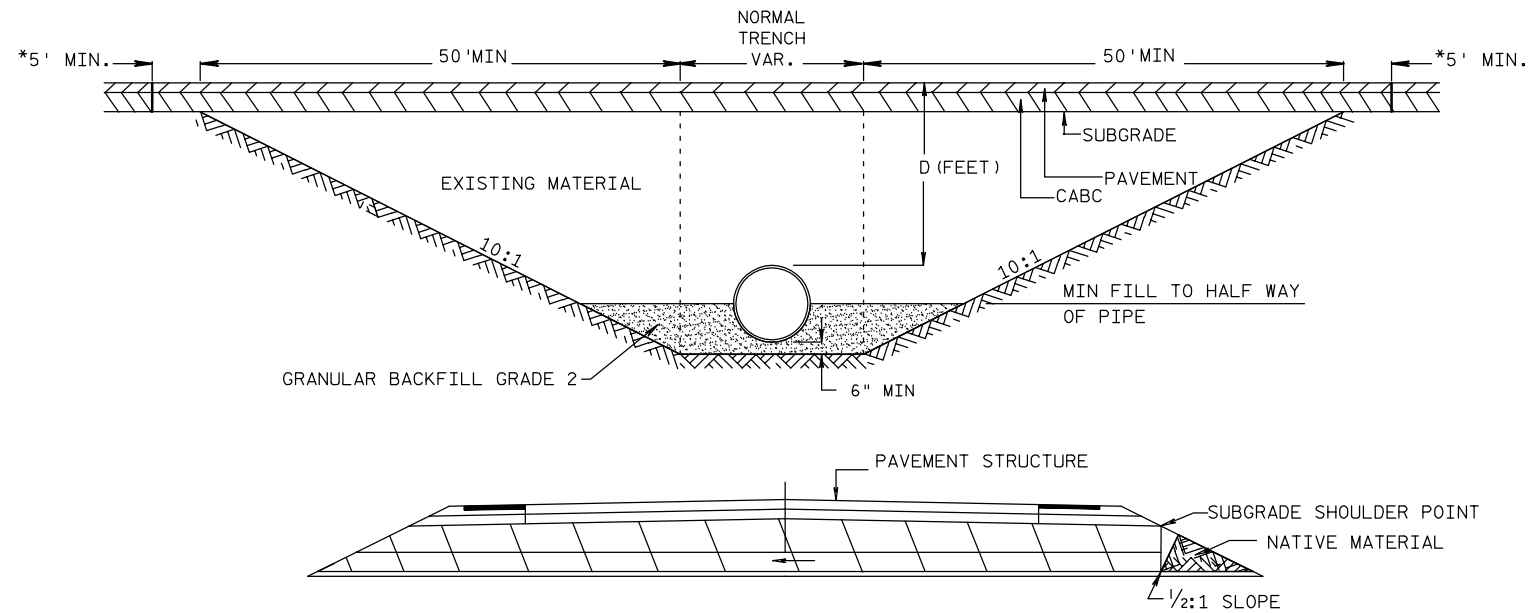


* OR MATCH EXIST.
ASPH. DEPTH

TYPICAL SECTION
FOR PRIVATE ENTRANCES

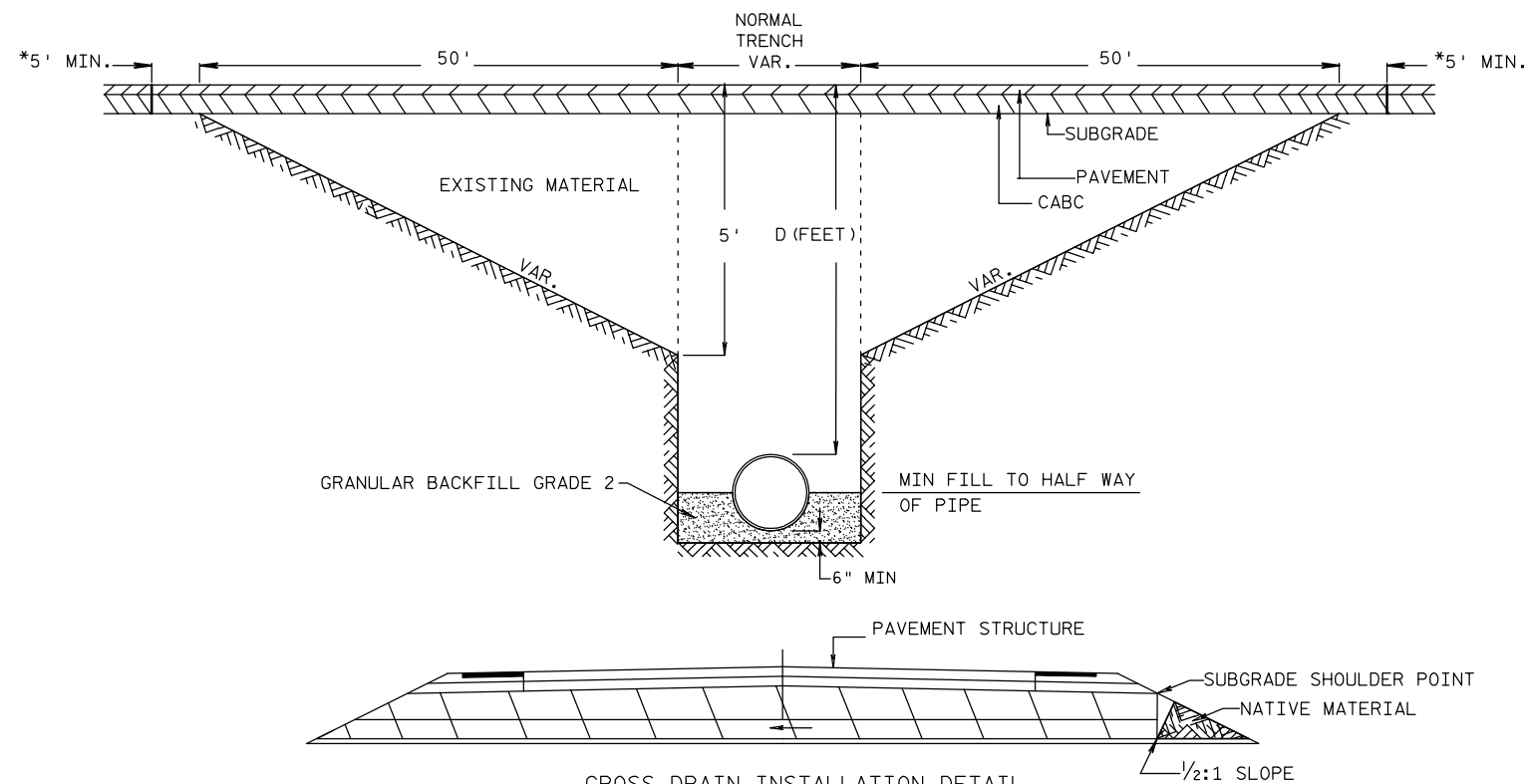
NOTE:
DRIVEWAY PROFILES NOT EXPECTED TO EXCEED
10%. PLACE LOW POINT OF DRIVEWAY PROFILE
OVER DITCH FLOW LINE.

2



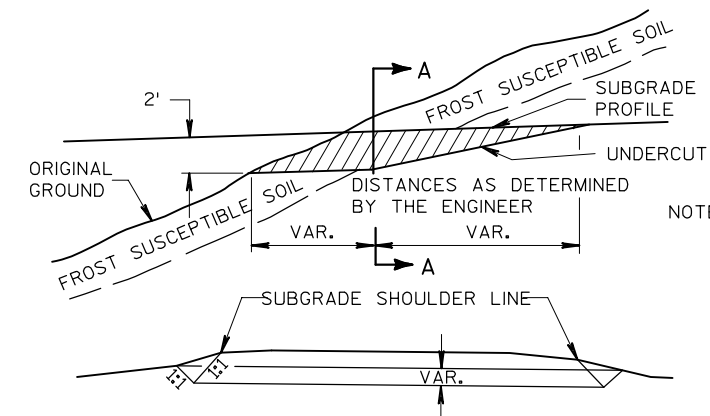
CROSS DRAIN INSTALLATION DETAIL
FOR D ≤ 5'

* PAVEMENT REMOVAL LIMITS (TYPICAL)



CROSS DRAIN INSTALLATION DETAIL

FOR $D \geq 5'$



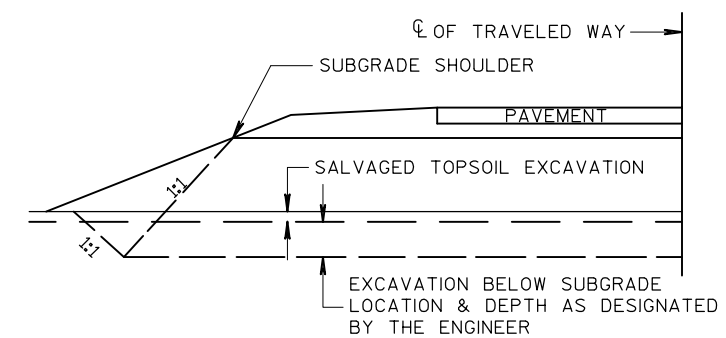
SECTION A-A
CROSS SECTION SHOWING UNDERCUT
DETAIL FOR EXCAVATION BELOW
SUBGRADE AT CUTS

NOTE: EXACT LOCATIONS AND EXTENT OF E.B.S. SECTIONS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

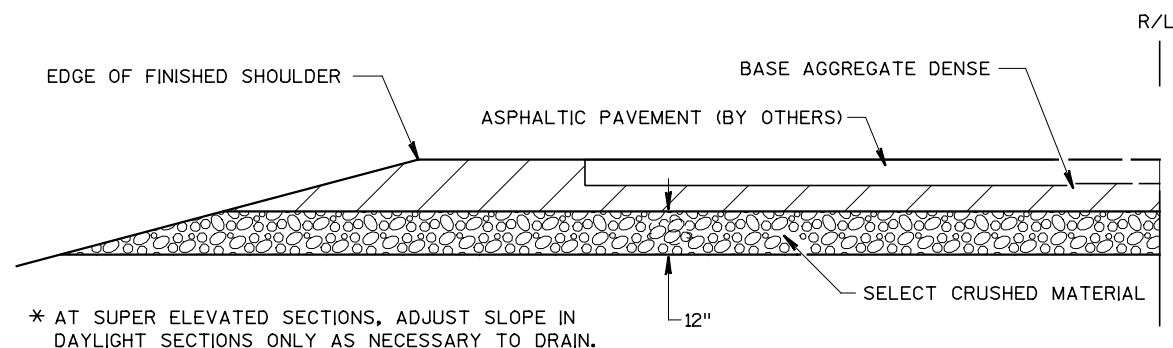
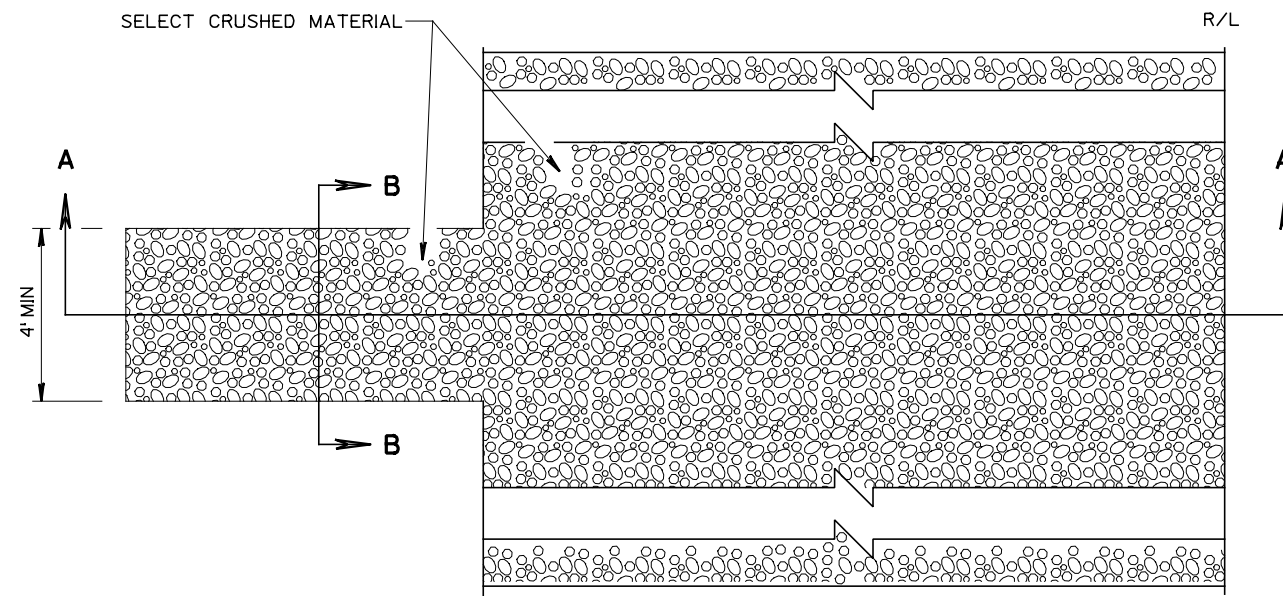
E.B.S. AREA TO BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE ENGINEER

BACKFILL MUST BE HOMOGENEOUS WITH ADJOINING FILL MATERIAL.

THE FILL SECTION WITHIN 100' OF THE MOUTH OF THE CUT MUST BE KEPT 2' BELOW SUBGRADE UNTIL E.B.S. IS COMPLETED.

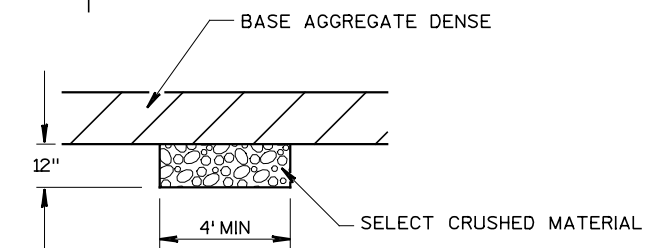


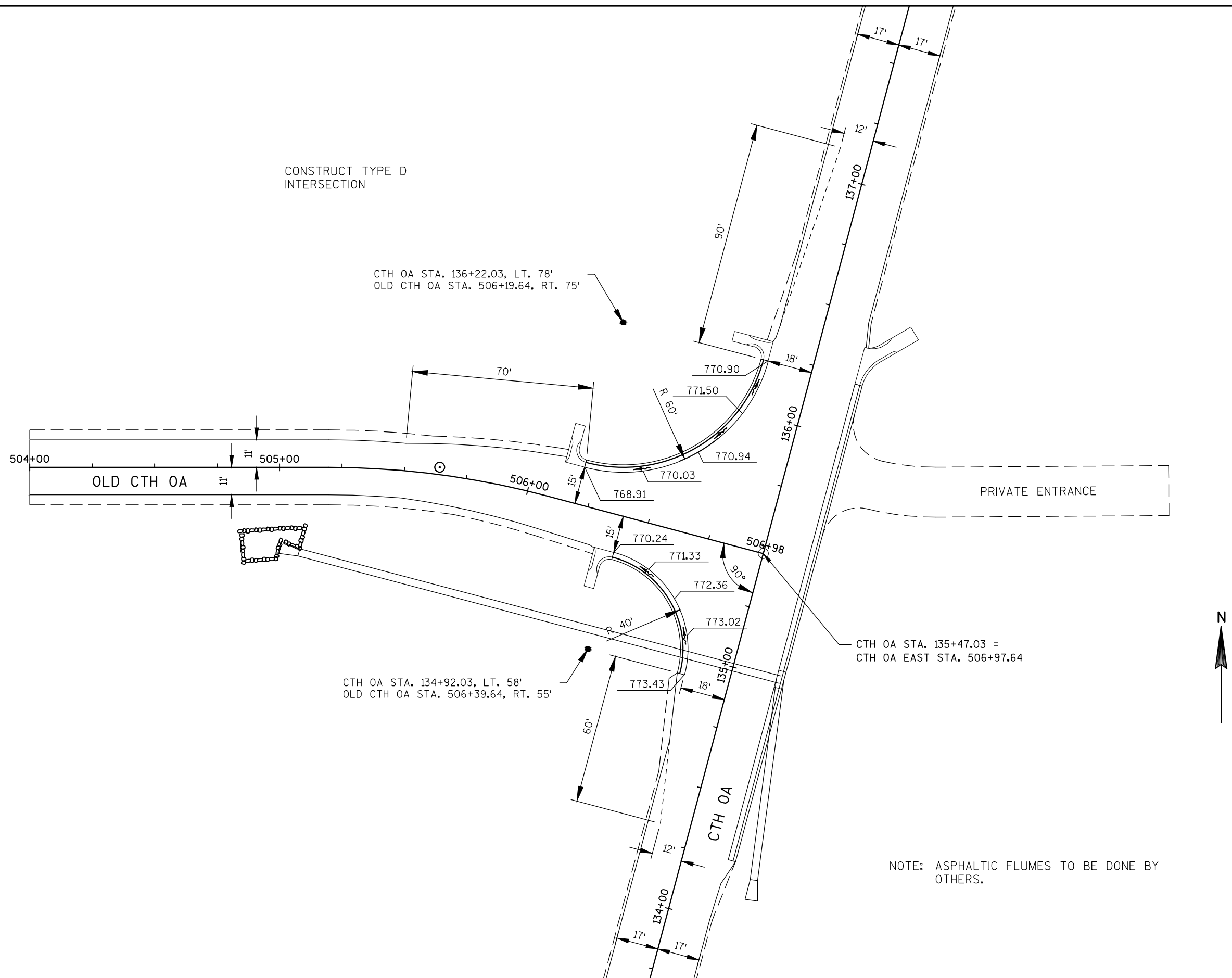
DETAIL FOR EXCAVATION BELOW SUBGRADE

**SECTION A-A****DETAIL FOR SELECT CRUSHED MATERIAL FRENCH DRAINS**

(LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER, 300' NORMAL)

EXCAVATION REQUIRED TO CONSTRUCT FRENCH DRAINS SHALL BE CONSIDERED INCIDENTAL TO THE ITEM SELECT CRUSHED MATERIAL.

**SECTION B-B**



CONSTRUCT TYPE D
INTERSECTION

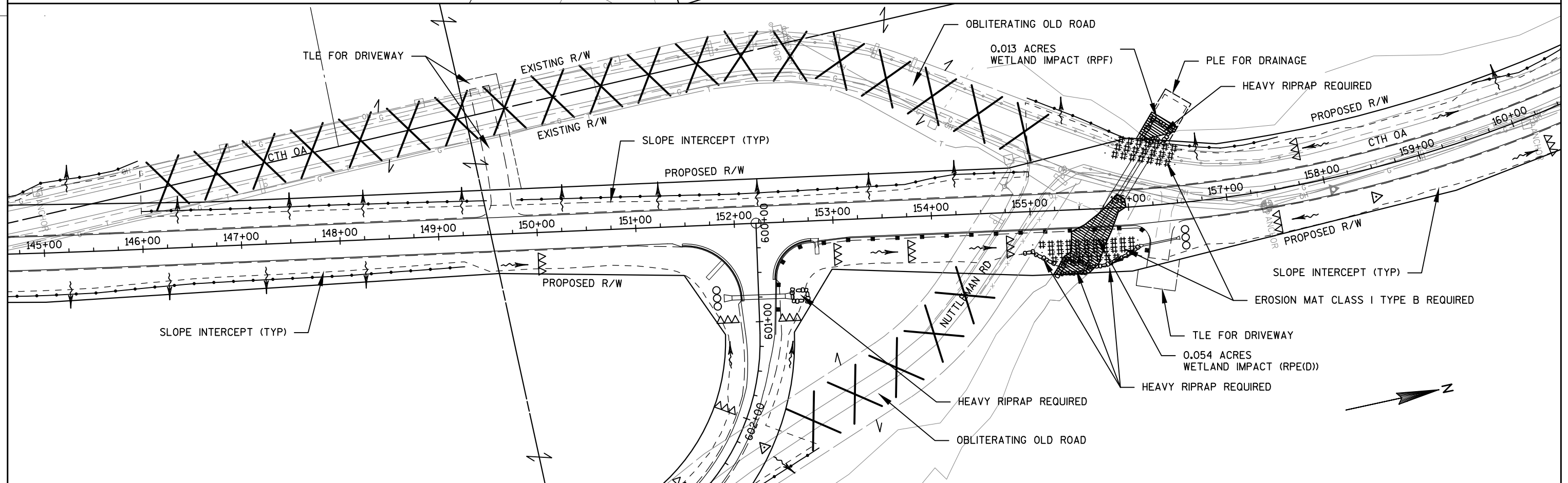
NOTE: ASPHALTIC FLUMES TO BE DONE BY
OTHERS.

CTH OA STA. 152+22.03 =
NUTTLEMAN RD. STA. 600+00.00

CTH OA STA. 152+76.66, RT. 58'
NUTTLEMAN RD. STA. 600+57.65, LT. 55'

CTH OA STA. 151+46.53, RT. 78'
NUTTLEMAN RD. STA. 600+78.48, RT. 75'





- LEGEND**
- SILT FENCE
 - ##### EROSION MAT CLASS I TYPE B
 - △△△ TEMPORARY DITCH CHECKS
 - CULVERT PIPE CHECKS
 - ☒ INLET PROTECTION
 - ~> SURFACE WATER FLOW
 - HEAVY RIPRAP

OBLITERATING OLD ROAD

BEGIN CONSTRUCTION
STA 600+00.00

OBLITERATING OLD ROAD

HEAVY RIPRAP REQUIRED

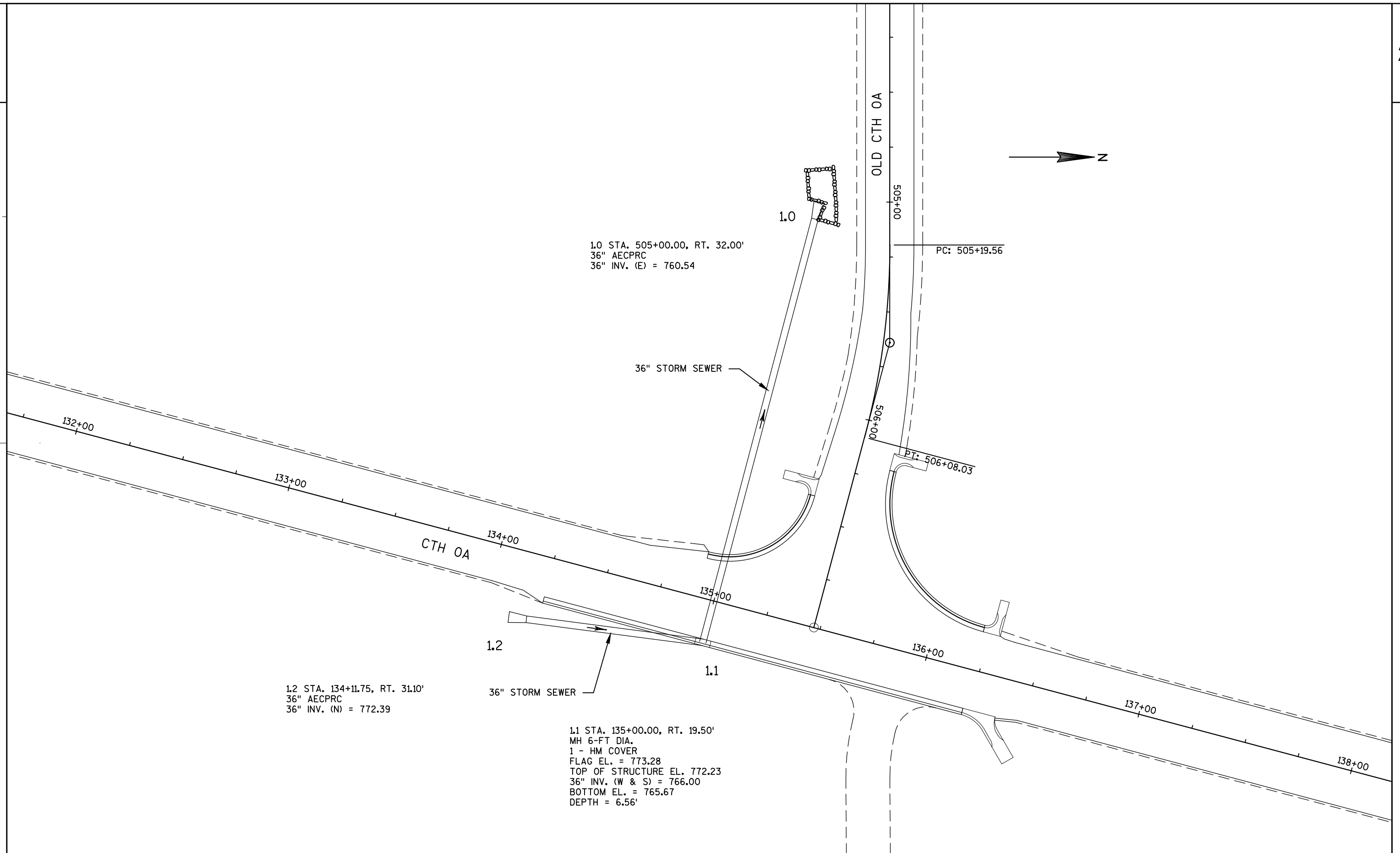
SLOPE INTERCEPT (TYP.)

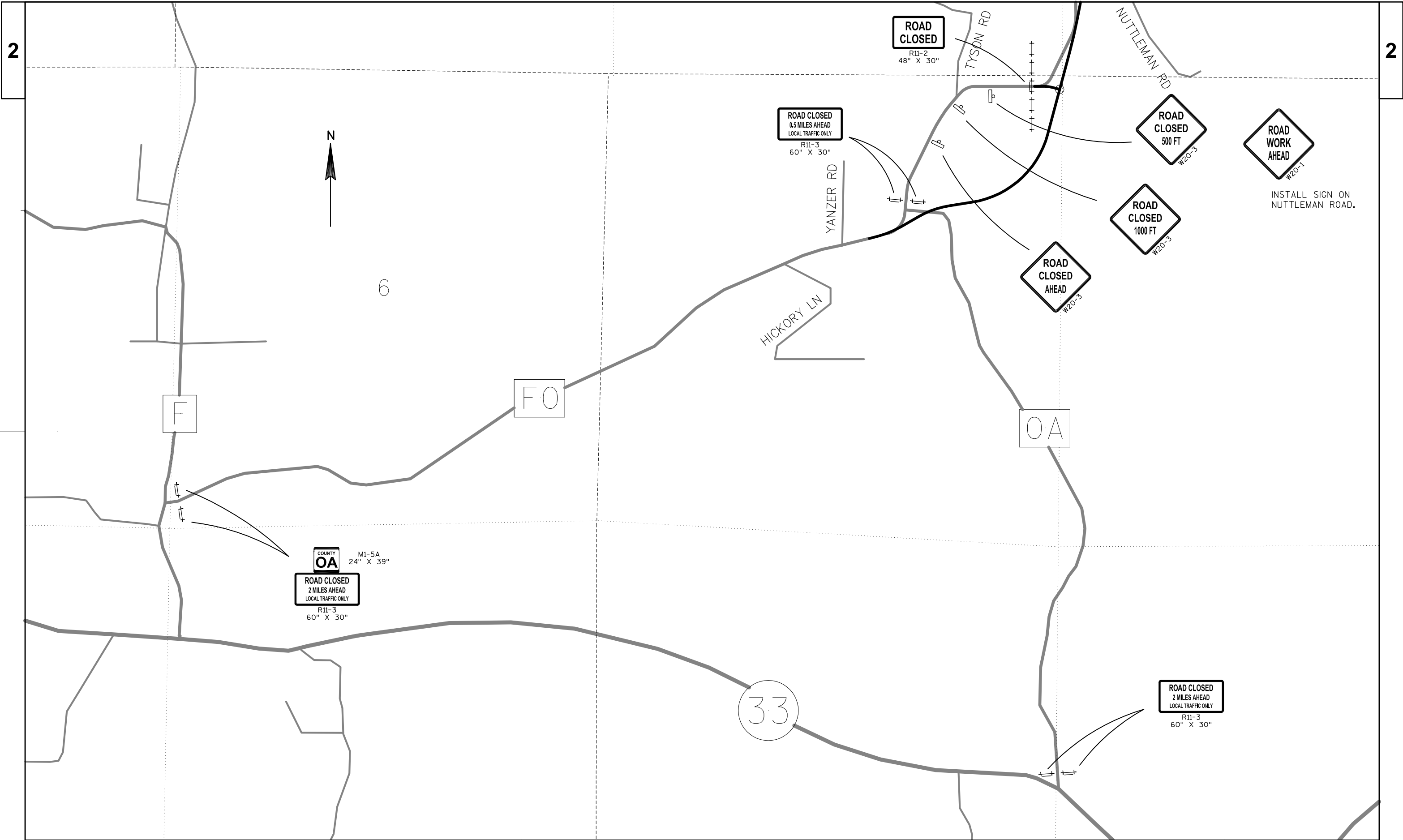
SLOPE INTERCEPT (TYP.)

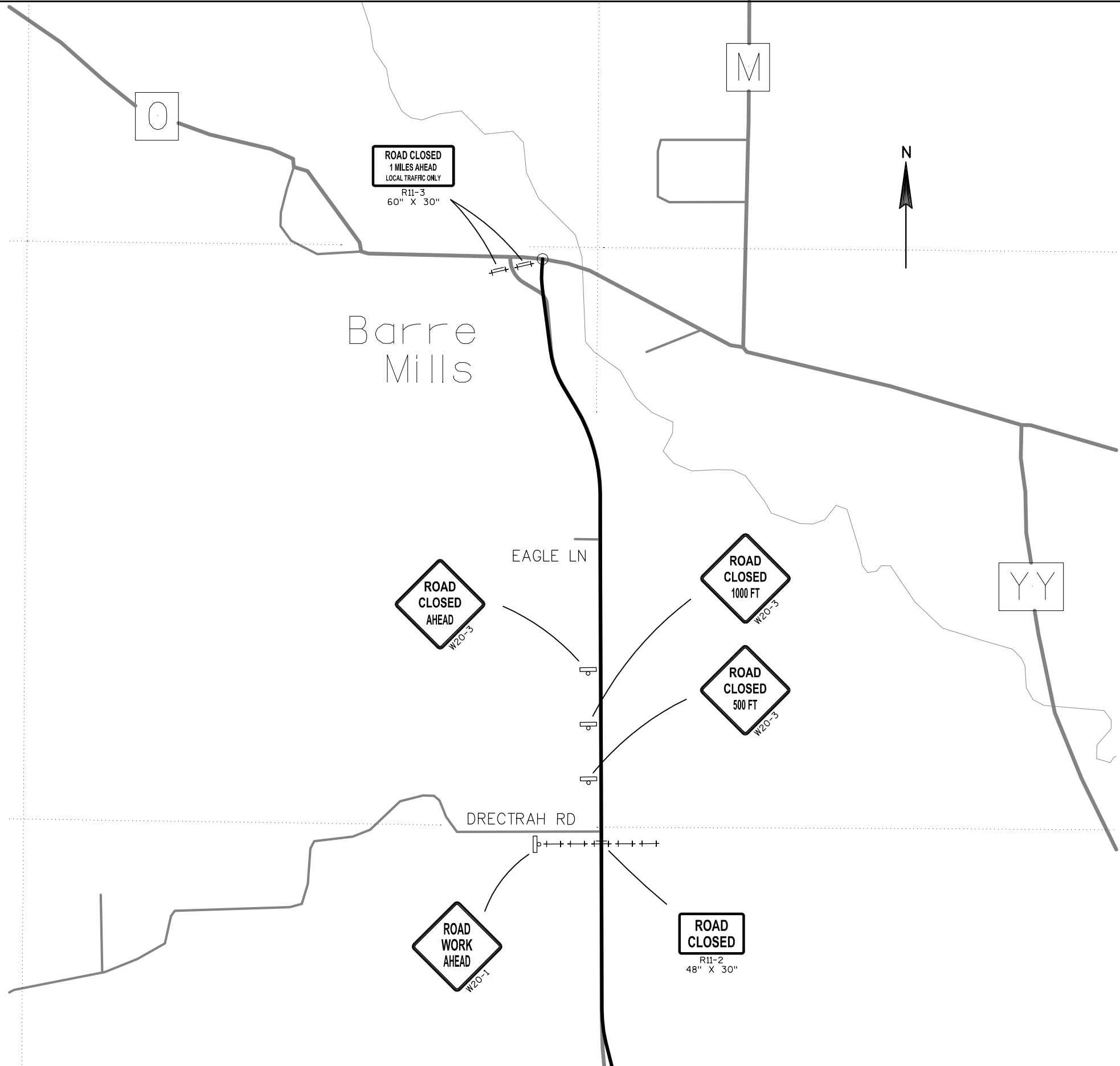
EXISTING R/W

NUTTLEMAN ROAD

END CONSTRUCTION
STA 604+50.00
MATCH EXISTING
SAWCUT REQUIRED







NUMBER	Y (NORTHING)	X (EASTING)	ELEVATION	DESCRIPTION
4	131,286.38	480,709.31	800.48	3/4" ROD
5	131,797.88	481,087.90	780.37	3/4" ROD
6	131,734.15	481,991.73	765.27	3/4" ROD
7	132,527.09	482,376.86	757.92	3/4" ROD
8	133,937.03	482,610.49	752.06	3/4" ROD
9	134,418.47	482,416.92	752.03	3/4" ROD
10	135,524.12	482,278.06	747.39	3/4" ROD
11	137,084.93	482,318.94	740.71	3/4" ROD

AREA PRIOR TO STA. 134+00.00 TO
BE DONE BY OTHERS. COORDINATE AS
NOTED IN THE SPECIAL PROVISIONS.

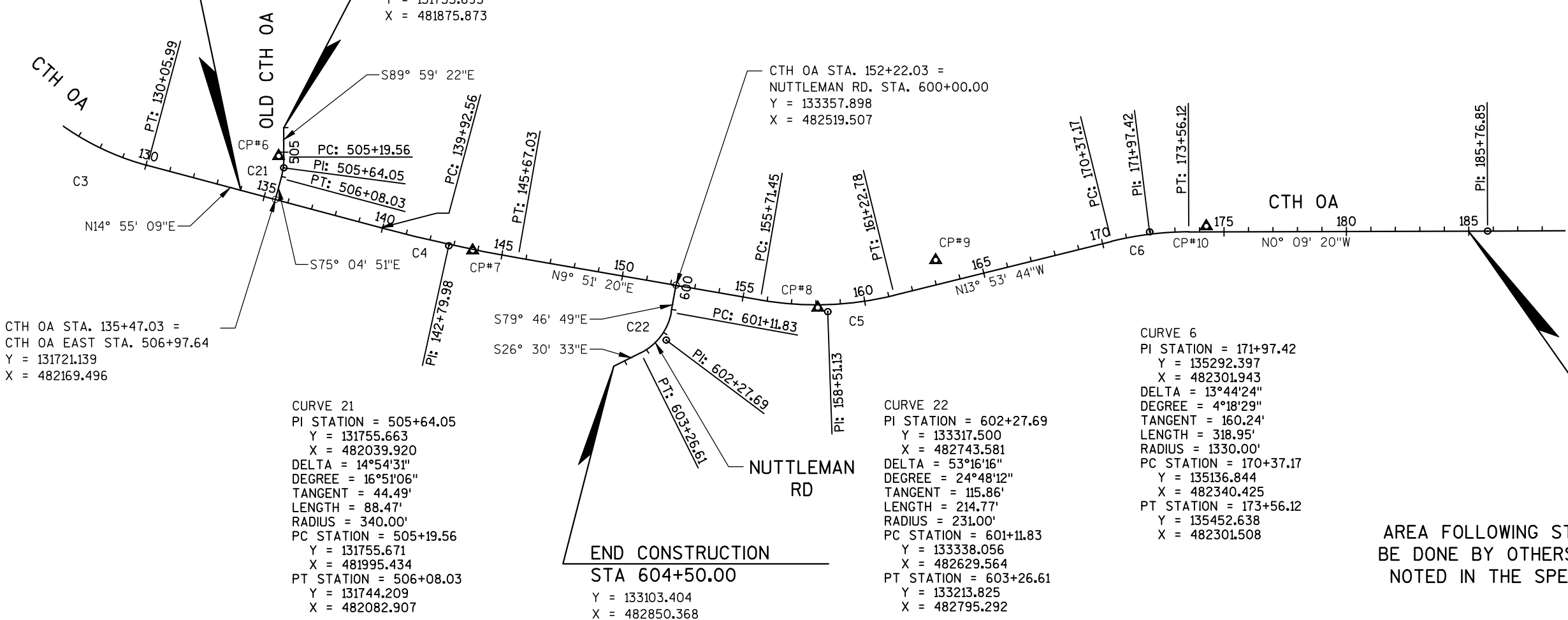
CURVE 3
PI STATION = 124+62.18
Y = 130517.992
X = 481848.932
DELTA = 66°12'09"
DEGREE = 5°18'19"
TANGENT = 704.08'
LENGTH = 1247.89'
RADIUS = 1080.00'
PC STATION = 117+58.10
Y = 130409.328
X = 481153.291
PT STATION = 130+05.99
Y = 131198.334
X = 482030.201

CURVE 4
PI STATION = 142+79.98
Y = 132429.383
X = 482358.199
DELTA = 5°03'50"
DEGREE = 0°52'53"
TANGENT = 287.42'
LENGTH = 574.46'
RADIUS = 6500.00'
PC STATION = 139+92.56
Y = 132151.652
X = 482284.201
PT STATION = 145+67.03
Y = 132712.561
X = 482407.395

CURVE 5
PI STATION = 158+51.13
Y = 133977.712
X = 482627.185
DELTA = 23°45'03"
DEGREE = 4°18'29"
TANGENT = 279.68'
LENGTH = 551.33'
RADIUS = 1330.00'
PC STATION = 155+71.45
Y = 133702.159
X = 482579.314
PT STATION = 161+22.78
Y = 134249.207
X = 482560.019

BEGIN PROJECT
STA 134+00.00

Y = 131579.063
X = 482131.642



BEGIN CONSTRUCTION

STA 504+00

Y = 131755.693
X = 481875.873

CTH OA STA. 152+22.03 =
NUTTLEMAN RD. STA. 600+00.00
Y = 133357.898
X = 482519.507

CTH OA

END PROJECT
STA 185+00.00

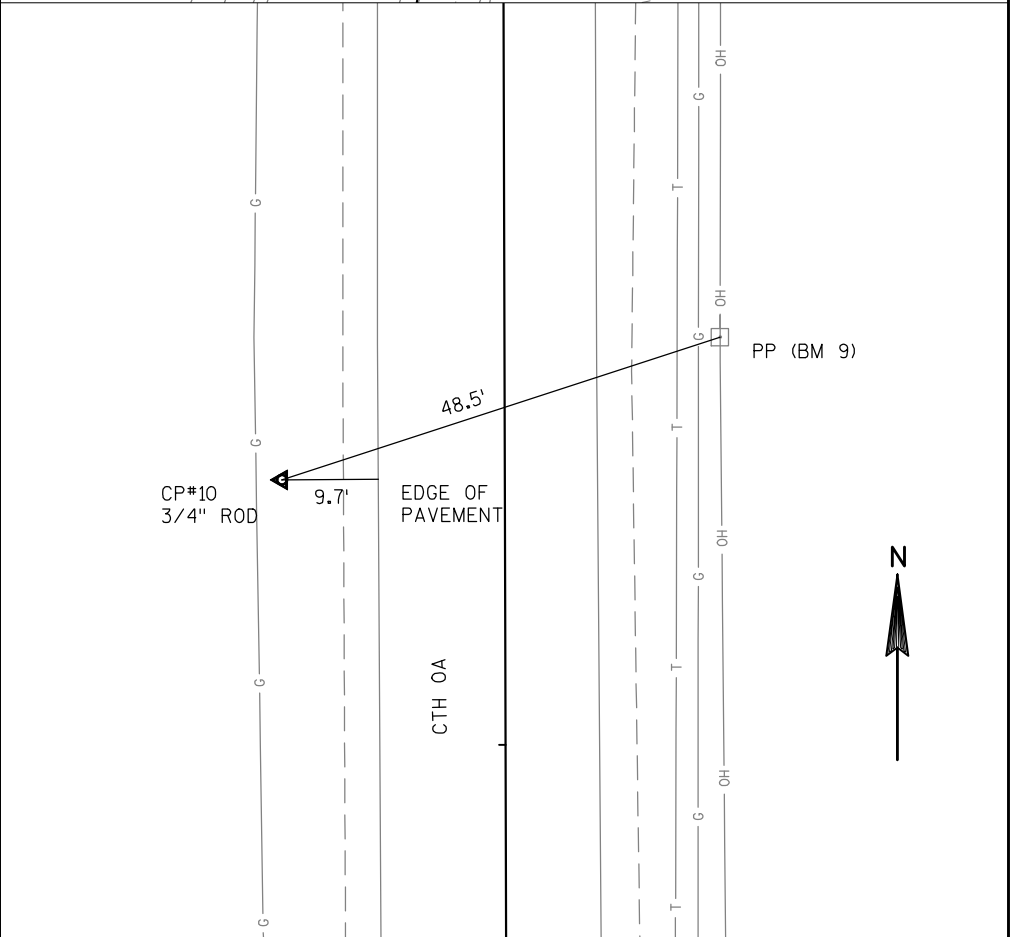
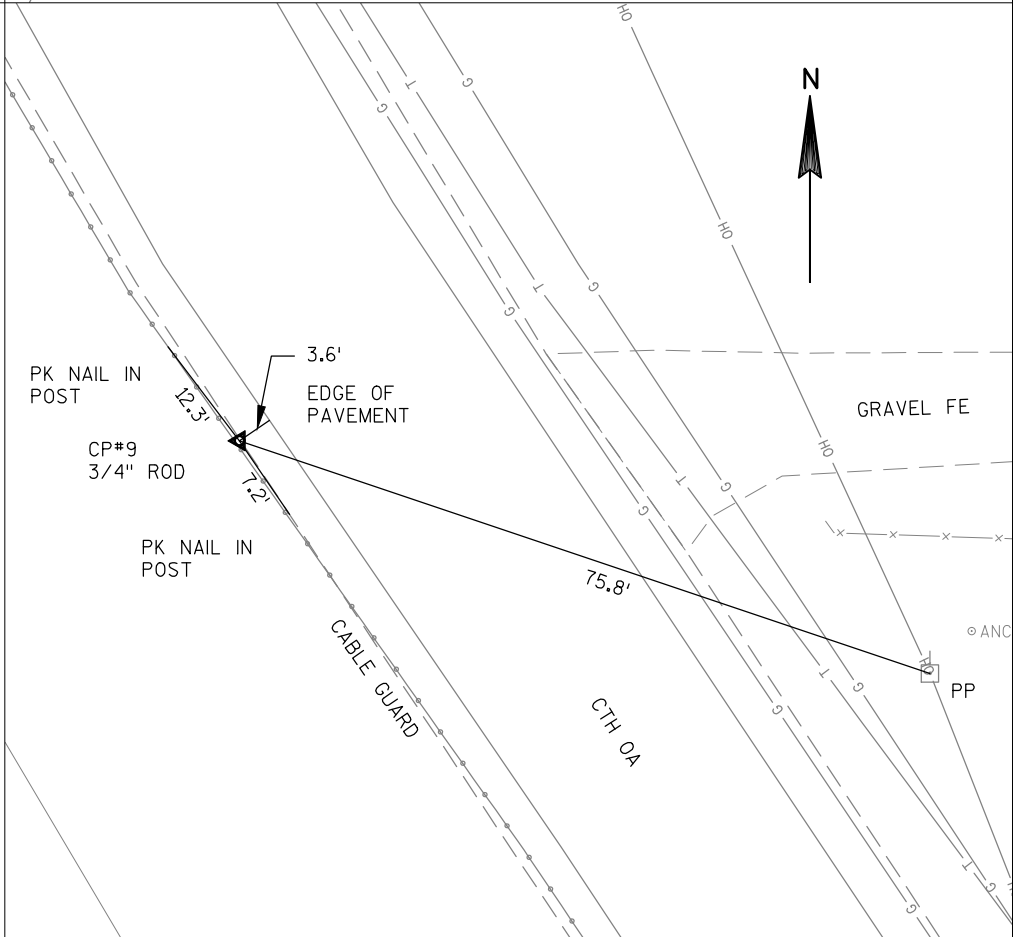
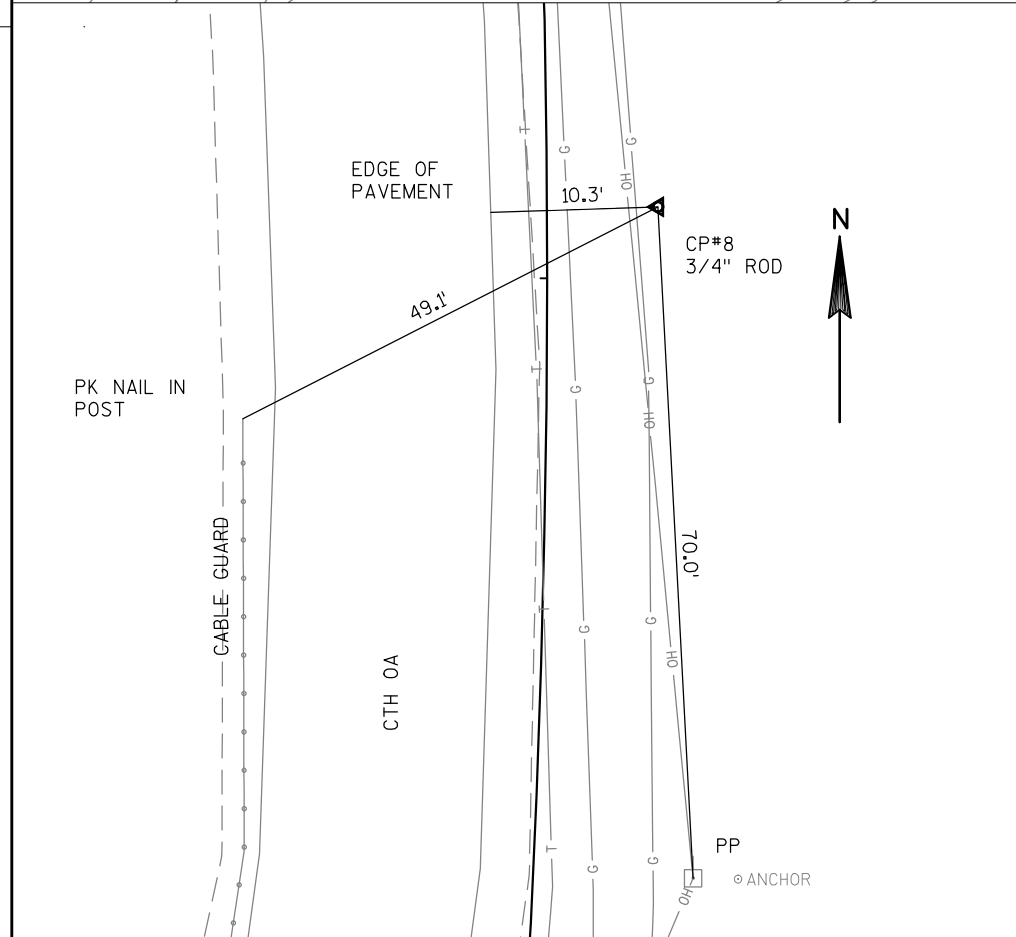
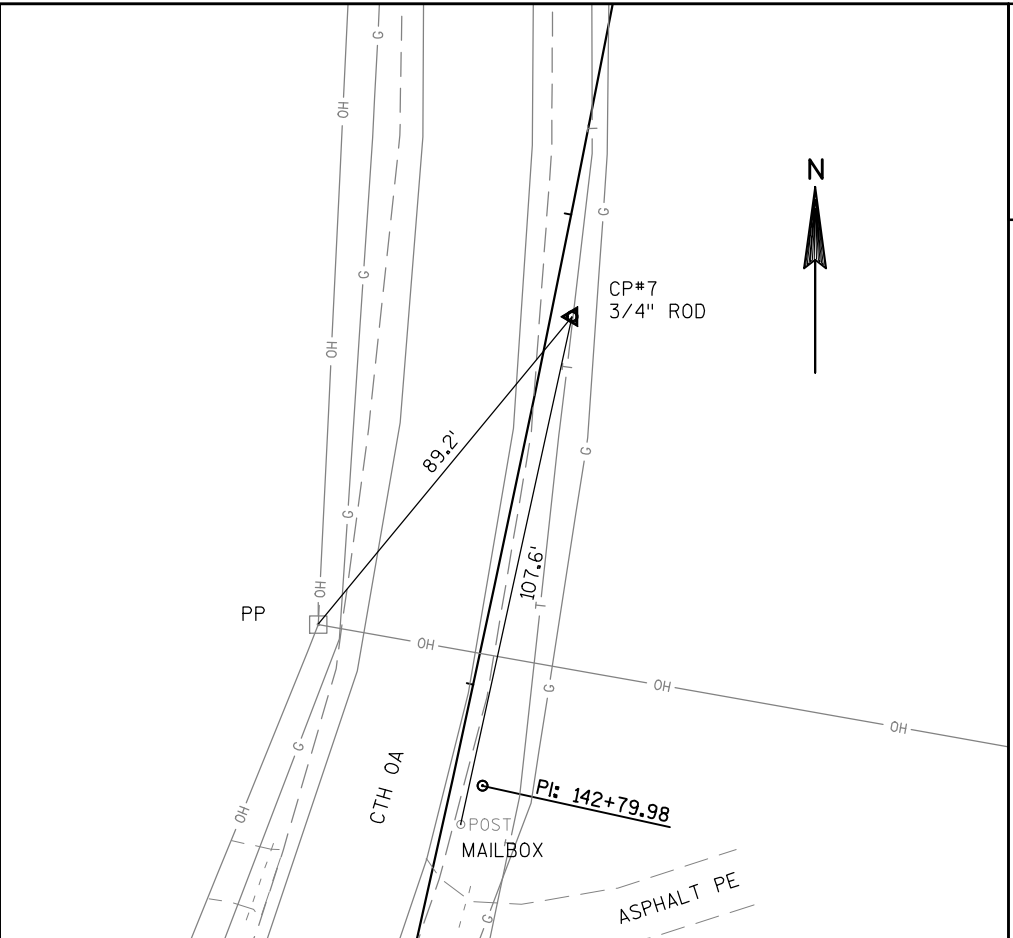
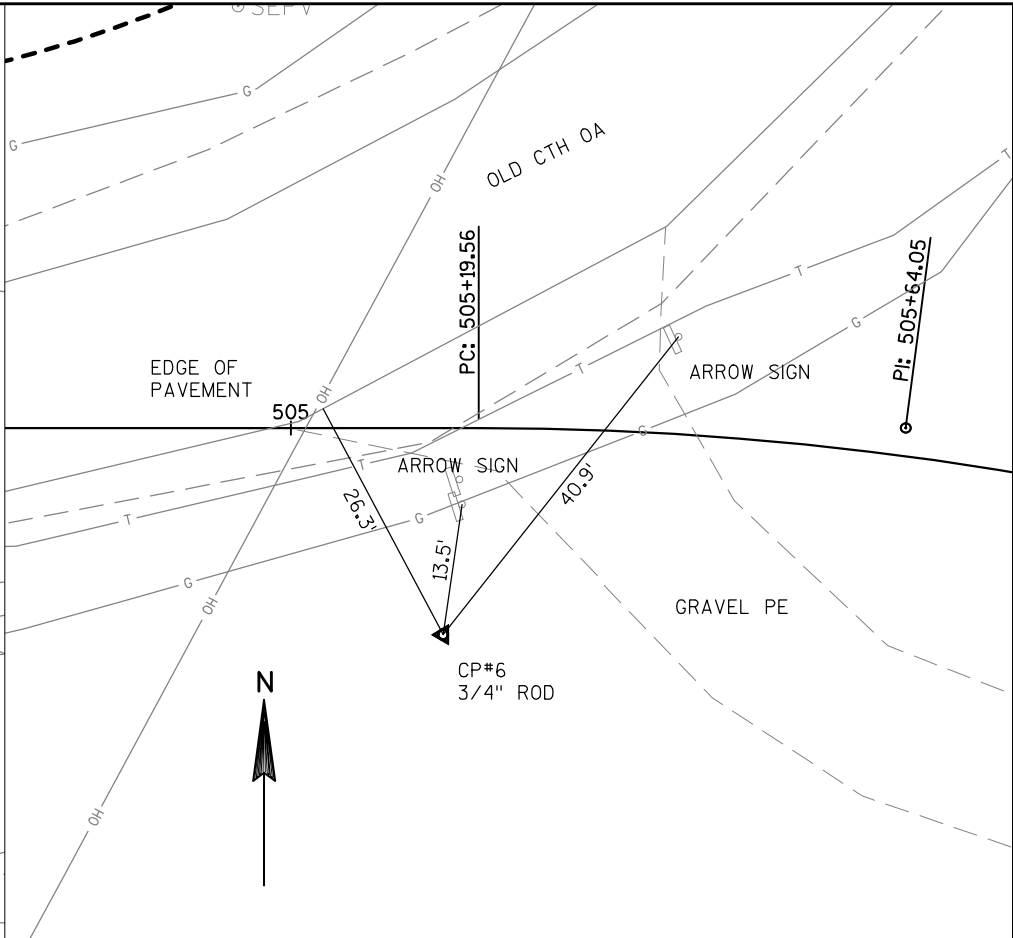
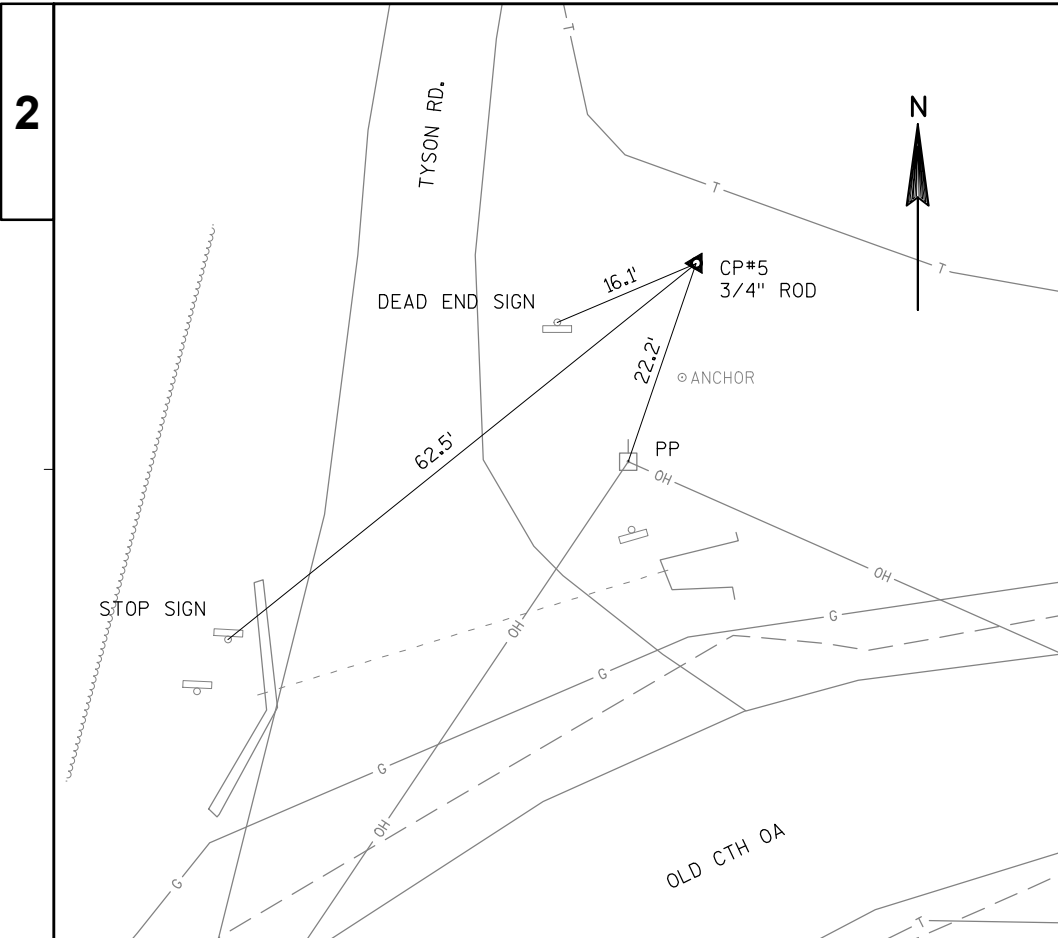
Y = 136596.514
X = 482298.406

AREA FOLLOWING STA. 185+00.00 TO
BE DONE BY OTHERS. COORDINATE AS
NOTED IN THE SPECIAL PROVISIONS.

END CONSTRUCTION

STA 604+50.00

Y = 133103.404
X = 482850.368



PROJECT NO:5096-00-71	HWY:CTH OA	COUNTY:LA CROSSE	CONTROL POINT TIES	SHEET	E
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DATE 16JAN13		E S T I M A T E O F Q U A N T I T I E S			
LINE		5096-00-71			
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	201.0105	CLEARING	STA	3.000	3.000
0020	201.0205	GRUBBING	STA	3.000	3.000
0030	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	7.000	7.000
0040	203.0200	REMOVING OLD STRUCTURE (STATION) 01. 155+82	LS	1.000	1.000
0050	203.0200	REMOVING OLD STRUCTURE (STATION) 02. 167+00	LS	1.000	1.000
0060	204.0165	REMOVING GUARDRAIL	LF	1,990.000	1,990.000
0070	204.0180	REMOVING DELINEATORS AND MARKERS	EACH	9.000	9.000
0080	204.0185	REMOVING MASONRY	CY	8.000	8.000
0090	205.0100	EXCAVATION COMMON	CY	16,100.000	16,100.000
0100	208.0100	BORROW	CY	6,400.000	6,400.000
0110	209.0100	BACKFILL GRANULAR	CY	375.000	375.000
0120	213.0100	FINISHING ROADWAY (PROJECT) 01. 5096-00-71	EACH	1.000	1.000
0130	214.0100	OBLITERATING OLD ROAD	STA	22.000	22.000
0140	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	15,150.000	15,150.000
0150	312.0110	SELECT CRUSHED MATERIAL	TON	16,000.000	16,000.000
0160	521.0118	CULVERT PIPE CORRUGATED STEEL 18-INCH	LF	92.000	92.000
0170	521.0124	CULVERT PIPE CORRUGATED STEEL 24-INCH	LF	58.000	58.000
0180	521.1018	APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH	EACH	6.000	6.000
0190	521.1024	APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH	EACH	4.000	4.000
0200	522.0136	CULVERT PIPE REINFORCED CONCRETE CLASS III 36-INCH	LF	407.000	407.000
0210	522.0172	CULVERT PIPE REINFORCED CONCRETE CLASS III 72-INCH	LF	256.000	256.000
0220	522.1036	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 36-INCH	EACH	6.000	6.000
0230	522.1072	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 72-INCH	EACH	4.000	4.000
0240	523.0134	CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 34X53-INCH	LF	54.000	54.000
0250	523.0534	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 34X53-INCH	EACH	2.000	2.000
0260	601.0553	CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE D	LF	60.000	60.000
0270	601.0557	CONCRETE CURB AND GUTTER 6-INCH SLOPED 36-INCH TYPE D	LF	437.000	437.000
0280	606.0300	RIPRAP HEAVY	CY	175.000	175.000
0290	611.0627	INLET COVERS TYPE HM	EACH	1.000	1.000
0300	611.2006	MANHOLES 6-FT DIAMETER	EACH	1.000	1.000
0310	614.0305	STEEL PLATE BEAM GUARD CLASS A	LF	387.500	387.500
0320	614.0345	STEEL PLATE BEAM GUARD SHORT RADIUS	LF	37.500	37.500
0330	614.0370	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL	EACH	1.000	1.000
0340	614.0390	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL	EACH	1.000	1.000
0350	614.2300	MGS GUARDRAIL 3	LF	500.000	500.000
0360	614.2610	MGS GUARDRAIL TERMINAL EAT	EACH	2.000	2.000
0370	619.1000	MOBILIZATION	EACH	1.000	1.000
0380	624.0100	WATER	MGAL	130.000	130.000
0390	625.0500	SALVAGED TOPSOIL	SY	38,500.000	38,500.000
0400	627.0200	MULCHING	SY	38,500.000	38,500.000

DATE 16JAN13		E S T I M A T E O F Q U A N T I T I E S			
LINE				5096-00-71	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0410	628.1504	SILT FENCE	LF	8,300.000	8,300.000
0420	628.1520	SILT FENCE MAINTENANCE	LF	16,600.000	16,600.000
0430	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	2.000	2.000
0440	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	2.000	2.000
0450	628.2004	EROSION MAT CLASS I TYPE B	SY	1,800.000	1,800.000
0460	628.7005	INLET PROTECTION TYPE A	EACH	1.000	1.000
0470	628.7504	TEMPORARY DITCH CHECKS	LF	500.000	500.000
0480	628.7555	CULVERT PIPE CHECKS	EACH	50.000	50.000
0490	629.0210	FERTILIZER TYPE B	CWT	31.000	31.000
0500	630.0110	SEEDING MIXTURE NO. 10	LB	700.000	700.000
0510	630.0200	SEEDING TEMPORARY	LB	15.000	15.000
0520	633.5100	MARKERS ROW	EACH	44.000	44.000
0530	633.5200	MARKERS CULVERT END	EACH	6.000	6.000
0540	642.5201	FIELD OFFICE TYPE C	EACH	1.000	1.000
0550	643.0100	TRAFFIC CONTROL (PROJECT) 01. 5096-00-71	EACH	1.000	1.000
0560	643.0300	TRAFFIC CONTROL DRUMS	DAY	4,000.000	4,000.000
0570	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	2,240.000	2,240.000
0580	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	7,840.000	7,840.000
0590	643.0900	TRAFFIC CONTROL SIGNS	DAY	1,600.000	1,600.000
0600	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	255.000	255.000
0610	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	14,165.000	14,165.000
0620	648.0100	LOCATING NO-PASSING ZONES	MI	0.970	0.970
0630	650.4000	CONSTRUCTION STAKING STORM SEWER	EACH	3.000	3.000
0640	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	5,850.000	5,850.000
0650	650.5000	CONSTRUCTION STAKING BASE	LF	5,850.000	5,850.000
0660	650.5500	CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	LF	497.000	497.000
0670	650.6000	CONSTRUCTION STAKING PIPE CULVERTS	EACH	5.000	5.000
0680	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 5096-00-71	LS	1.000	1.000
0690	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	5,850.000	5,850.000
0700	690.0150	SAWING ASPHALT	LF	75.000	75.000
0710	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT \$5.00/HR	HRS	1,200.000	1,200.000
0720	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT \$5.00/HR	HRS	600.000	600.000
0730	SPV.0180	SPECIAL 01. GEOGRID REINFORCEMENT	SY	20,800.000	20,800.000

CLEARING AND GRUBBING

STATION TO STATION		201.0105 CLEARING STA	201.0205 GRUBBING STA
135+00	- 136+00	1	1
155+00	- 157+00	2	2
TOTAL		3	3

REMOVING SMALL PIPE CULVERTS

203.0100 REMOVING SMALL PIPE CULVERTS			
STATION	LOCATION	EACH	COMMENTS
136+50	LT.	1	18" CPCS
139+55	LT.	1	24" CPCS
142+55	RT.	1	24" CPCS
149+65	LT.	1	12" CPCS
154+25	LT.	1	24" CPCS
170+90	LT.	1	24" CPCS
180+65	LT.	1	18" CPCS
TOTAL		7	

REMOVING OLD STRUCTURES

203.0200 REMOVING OLD STRUCTURES		
STATION	LOCATION	LS
155+82	MAINLINE	1
167+00	LT.	1

REMOVING GUARDRAIL

STATION TO STATION		204.0165 REMOVING GUARDRAIL LF
151+25	- 157+85	685
159+50	- 171+75	1,240
155+55	- 156+20	65
TOTAL		1,990

REMOVING DELINEATORS AND MARKERS

204.0180 REMOVING DELINEATORS AND MARKERS		
STATION	LOCATION	EACH
136+40	LT.	1
139+35	LT.	1
180+55	RT.	1
180+60	RT.	1
504+05	LT. & RT.	2
504+50	LT. & RT.	2
505+00	RT.	1
TOTAL		9

REMOVING MASONRY

204.0185 REMOVING MASONRY		
STATION	LOCATION	CY
154+00	LT	8
TOTAL		8

OBLITERATING OLD ROAD

214.0100 OBLITERATING OLD ROAD				
STATION	TO	STATION	STATION	LOCATION
135+00	-	140+00	5	MAINLINE
146+00	-	155+00	9	MAINLINE
163+00	-	169+00	6	MAINLINE
600+00	-	602+00	2	NUTTLEMAN ROAD
TOTAL			22	

BASE AGGREGATE DENSE

305.0120 BASE AGGREGATE DENSE 1 1/4-INCH				
STATION	TO	STATION	TON	LOCATION
134+00	-	185+00	13,600	CTH OA
504+00	-	506+75	570	OLD CTH OA
600+18	-	604+50	730	NUTTLEMAN ROAD
VARIOUS			250	DRIVEWAYS
TOTAL			15,150	

EARTHWORK SUMMARY

(1) (2)						
205.0100 EXCAVATION COMMON CY						
LOCATION	205.0100 EXCAVATION COMMON CY	REMOVED ASPHALT CY	USUABLE MATERIAL CY	FILL CY	ADJUSTED FILL CY	208.0100 BORROW CY
134+00 - 185+00	13,850	1,200	12,650	14,600	19,700	7,050
504+00 - 506+00	800	50	750	35	50	-700
600+00 - 605+00	450	100	350	300	400	50
UNDISTRIBUTED (EBS)	1,000					
16,100						6,400

- 1) ADJUSTED FILL = FILL * 1.35
2) BORROW = ADJUSTED FILL - USABLE MATERIAL

SELECT CRUSHED MATERIAL

312.0110 SELECT CRUSHED MATERIAL			
STATION	TO	STATION	TON
134+00	-	185+00	14,000
UNDISTRIBUTED			2,000
TOTAL			16,000

CULVERT PIPES

		523.0534 APRON ENDWALLS FOR CULVERT PIPE															
		209.0100 BACKFILL GRANULAR	521.0118 CULVERT PIPE CORRUGATED STEEL 18-INCH	521.0124 CULVERT PIPE CORRUGATED STEEL 24-INCH	521.1018 APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH	521.1024 APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH	522.0136 CULVERT PIPE REINFORCED CONCRETE CLASS III 36-INCH	522.0172 CULVERT PIPE REINFORCED CONCRETE CLASS III 72-INCH	522.1036 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 36-INCH EACH	522.1072 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 72-INCH EACH	523.0134 CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 34X53-INCH	523.0134 CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 34X53-INCH	606.0300 RIPRAP HEAVY CY	645.0120 GEOTEXTILE FABRIC TYPE HR SY	633.5200 MARKERS CULVERT END EACH	REMARKS	
STATION	LOCATION	CY	LF	LF	LF	LF	LF	LF	EACH	EACH	LF	EACH	CY	SY	EACH		
134+12 - 135+00	MAINLINE RT	-	-	-	-	-	81	-	1	-	-	-	-	-	1	STRUCTURE 1.2 TO 1.1	
135+00	MAINLINE	90	-	-	-	-	210	-	1	-	-	-	20	30	1	STRUCTURE 1.1 TO 1.0	
155+82	MAINLINE	210	-	-	-	-	-	256	-	4	-	-	120	175	2	30 DEGREE LHF SKEW	
156+35	RT	-	34	-	2	-	-	-	-	-	-	-	-	-	-		
162+20	RT	-	-	28	-	2	-	-	-	-	-	-	-	-	-		
163+00	RT	-	-	30	-	2	-	-	-	-	-	-	-	-	-		
165+00	MAINLINE	50	-	-	-	-	116	-	4	-	-	-	20	35	2		
169+80	RT	-	28	-	2	-	-	-	-	-	-	-	-	-	-		
177+40	RT	-	30	-	2	-	-	-	-	-	-	-	-	-	-		
600+75	NUTTLEMAN ROAD	25	-	-	-	-	-	-	-	-	54	2	15	15	-		
TOTAL		375	92	58	6	4	407	256	6	4	54	2	175	255	6		

MINIMUM THICKNESS OF 18-INCH CULVERT PIPE CORRUGATED STEEL IS 0.064 INCHES.
MINIMUM THICKNESS OF 24-INCH CULVERT PIPE CORRUGATED STEEL IS 0.064 INCHES.

CONCRETE CURB & GUTTER

		601.0553 CONCRETE CURB & GUTTER 4-INCH SLOPE 36-INCH TYPE D LF	601.0557 CONCRETE CURB & GUTTER 6-INCH SLOPE 36-INCH TYPE D LF	LOCATION
134+25	- 136+22	-	197	MAINLINE RT
134+92	- 506+40	-	60	OLD CTH OA SW QUADRANT
506+20	- 136+22	-	90	OLD CTH OA NW QUADRANT
151+46	- 600+78	-	90	NUTTLEMAN ROAD SE QUADRANT
600+57	- 152+77	60	-	NUTTLEMAN ROAD NE QUADRANT
TOTAL		60	437	

STORM SEWER STRUCTURE SUMMARY

STRUCTURE NUMBER	STATION	OFFSET	LOCATION	611.2006 MANHOLE 6-FT DIA. EACH	611.0627 INLET COVERS TYPE HM EACH	FLAG EL.	TOP OF STRUCTURE EL.	BOTTOM OF STRUCTURE EL.	DEPTH FT	REMARKS
1.1	135+00	19.5 RT.	CTH OA	1	1	773.28	772.23	765.67	6.56	
				1	1					

BEAMGUARD

STATION TO STATION			LOCATION	614.0305 STEEL PLATE BEAM GUARD CLASS 'A' LF	614.0345 STEEL PLATE BEAM GUARD SHORT RADIUS LF	614.0370 STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL EACH	614.0390 STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL EACH	614.2300 MGS GUARDRAIL 3 LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
600+64	-	601+14	LT. NUTTLEMAN RD	-	-	1	-	-	-
600+64	-	155+93	LT. NUTTLEMAN RD TO RT. CTH OA	387.5	-	-	-	-	-
155+93	-	156+21	RT.	-	37.5	-	-	-	-
		156+21	RT.	-	-	-	1	-	-
169+00	-	169+53	LT.	-	-	-	-	-	1
169+53	-	174+47	LT.	-	-	-	-	500	-
174+47	-	175+00	LT.	-	-	-	-	-	1
TOTAL				387.5	37.5	1	1	500	2

WATER

STATION TO STATION			LOCATION	624.0100 WATER MGAL
134+00	-	185+00	CTH OA	80
504+00	-	507+00	OLD CTH OA	4
600+00	-	604+50	NUTTLEMAN ROAD	6
UNDISTRIBUTED				40
TOTAL				130

LANDSCAPING ITEMS

STATION TO STATION			LOCATION	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	629.0210 FERTILIZER TYPE B CWT	630.0110 SEEDING NO. 10 LB	630.0200 SEEDING TEMPORARY LB
134+00	-	185+00	LT & RT	21,500	21,500	20.6	450	15
504+00	-	506+50	LT & RT	1,000	1,000	0.9	20	-
600+50	-	604+50	LT & RT	1,000	1,000	1.1	25	-
OBLITERATE OLD ROAD				11,300	11,300	7.1	155	-
UNDISTRIBUTED				3,700	3,700	1.3	50	-
TOTAL				38,500	38,500	31	700	15

EROSION CONTROL ITEMS

STATION TO STATION			LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EROSION CONTROL EACH	628.2004 EROSION MAT CLASS I TYPE B SY	628.7005 INLET PROTECTION TYPE A EACH	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH
134+00	-	185+00	LT & RT	6,600	13,200	-	-	1600	1	400	40
UNDISTRIBUTED				1,700	3,400	2	2	200	-	100	10
TOTAL				8,300	16,600	2	2	1,800	1	500	50

MARKERS ROW

NO.	STATION	LOCATION	633.5100 EACH
616	134+03.23	80.00' RT.	1
633	134+25.00	65.00' RT.	1
601	134+89.72	55.79' LT.	1
602	134+87.27	164.22' LT.	1
603	134+56.51	279.76' LT.	1
604	134+84.56	287.23' LT.	1
606	135+32.39	299.96' LT.	1
632	135+50.00	65.00' RT.	1
607	135+83.05	114.80' LT.	1
615	136+10.68	80.00' RT.	1
608	136+45.69	92.79' LT.	1
609	138+00.00	62.50' LT.	1
614	141+14.80	50.00' RT.	1
630	141+14.44	40.57' LT.	1
611	144+31.79	50.00' LT.	1
613	145+00.00	50.00' RT.	1
612	146+66.76	45.00' LT.	1
720	149+59.93	40.00' RT.	1
715	150+28.49	328.14' RT.	1
714	150+67.62	381.29' RT.	1
716	151+06.54	268.19' RT.	1
713	151+73.07	303.65' RT.	1
719	151+47.03	50.00' RT.	1
717	151+86.32	111.61' RT.	1
711	152+55.94	111.57' RT.	1
709	152+97.03	50.00' RT.	1
700	154+80.39	45.00' LT.	1
706	155+00.00	65.00' RT.	1
705	156+00.00	65.00' RT.	1
702	156+03.33	70.00' LT.	1
703	156+97.03	55.00' LT.	1
704	159+25.00	45.00' RT.	1
800	161+22.78	55.00' LT.	1
801	162+15.02	69.73' LT.	1
809	162+76.43	60.93' RT.	1
802	163+13.84	105.50' LT.	1
803	166+02.05	132.30' LT.	1
808	166+50.00	40.00' RT.	1
804	169+59.25	74.00' LT.	1
807	170+50.00	40.00' RT.	1
805	171+25.00	60.00' LT.	1
806	173+56.12	45.00' RT.	1
900	176+38.99	45.00' LT.	1
904	176+39.43	45.00' RT.	1
TOTAL			44

CONSTRUCTION STAKING

			650.4000 CONSTRUCTION STAKING STORM SEWER	650.4500 CONSTRUCTION STAKING SUBGRADE	650.5000 CONSTRUCTION STAKING BASE	650.5500 CONSTRUCTION STAKING CURB & GUTTER	650.6000 CONSTRUCTION STAKING PIPE CULVERTS	650.9920 CONSTRUCTION STAKING SLOPE STAKES	LOCATION
STATION	TO	STATION	EACH	LF	LF	LF	EACH	LF	
134+00	-	185+00	-	5,100	5,100	-	-	5,100	CTH OA
504+00	-	506+98	-	300	300	-	-	300	OLD CTH OA
600+00	-	604+50	-	450	450	-	-	450	NUTTLEMAN
134+25	-	136+22	-	-	-	197	-	-	CTH OA RT
134+90	-	506+40	-	-	-	60	-	-	OLD CTH OA SW QUADRANT
506+20	-	136+20	-	-	-	90	-	-	OLD CTH OA NW QUADRANT
151+45	-	600+80	-	-	-	90	-	-	NUTTLEMAN ROAD SE QUADRANT
600+60	-	152+80	-	-	-	60	-	-	NUTTLEMAN ROAD NE QUADRANT
135+00			3	-	-	-	-	-	STRUCTURES 1.0, 1.1 AND 1.2
155+82			-	-	-	-	2	-	CTH OA
165+00			-	-	-	-	2	-	CTH OA
600+75			-	-	-	-	1	-	NUTTLEMAN ROAD
TOTAL			3	5,850	5,850	497	5	5,850	

TRAFFIC CONTROL ITEMS

LOCATION	643.0300 TRAFFIC CONTROL DRUMS DAYS	643.0420 TRAFFIC CONTROL BARRIADAES TYPE III DAYS	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAYS	643.0900 TRAFFIC CONTROL SIGNS DAYS
OLD CTH OA	-	880	1,440	960
185+00	-	560	800	480
NUTTLEMAN ROAD	-	-	-	80
DRECTRAH ROAD	-	-	-	80
UNDISTRIBUTED	4,000	800	5,600	-
TOTAL	4,000	2,240	7,840	1,600

PAVEMENT MARKING EPOXY 4-INCH

			646.0106 LF	LOCATION
STATION	TO	STATION		
134+00	-	148+50	360	YELLOW DASH
148+50	-	159+50	1,375	YELLOW DASH SB, YELLOW SOLID NB
159+50	-	185+00	2,550	YELLOW DOUBLE SOLID
134+00	-	185+00	4,920	WHITE EDGE LINE
134+00	-	185+00	4,960	WHITE EDGE LINE
TOTAL			14,165	

SAWING ASPHALT

		690.0150 LF	LOCATION
STATION	LOCATION		
185+00	MAINLINE	23	CTH OA
142+55	RT.	14	PE
504+00	MAINLINE	22	OLD CTH OA
604+50	MAINLINE	16	NUTTLEMAN ROAD
TOTAL		75	

GEOGRID REINFORCEMENT

			SPV.0180.01 SY
STATION	TO	STATION	
134+00	-	185+00	20,800
TOTAL			20,800

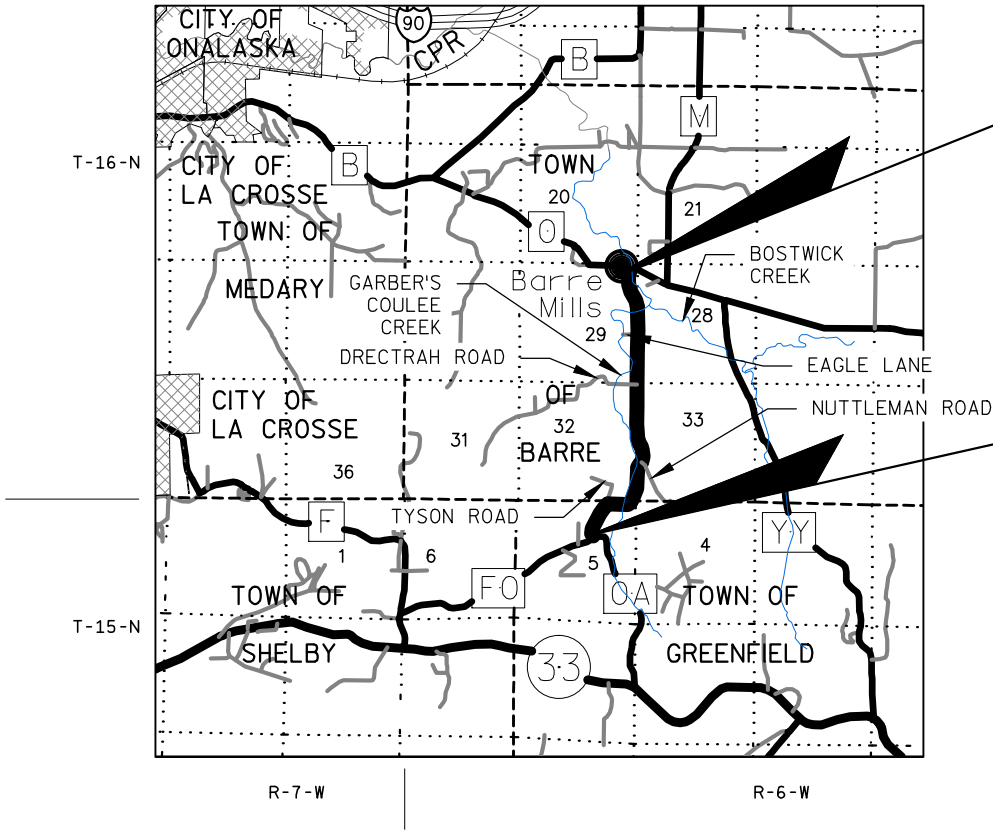
LOCATING NO-PASSING ZONES

			648.0100 MI
STATION	TO	STATION	
134+00	-	185+00	0.97
TOTAL			0.97

PROJECT ID: 5096-00-71
WITH: N/A

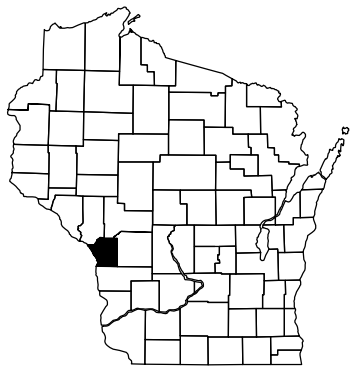
COUNTY: LA CROSSE

CONVENTIONAL ABBREVIATIONS	
ACCESS POINT/ DRIVEWAY CONNECTION	AP
ACCESS RIGHTS	AR
ACRES	AC.
AND OTHERS	ET.AL.
CENTERLINE	C/L
CERTIFIED SURVEY MAP	CSM
CORNER	COR.
DOCUMENT	DOC.
EASEMENT	EASE.
HIGHWAY EASEMENT	H.E.
LAND CONTRACT	LC
MONUMENT	MON.
PAGE	P.
PERMANENT LIMITED EASEMENT	PLE
PROPERTY LINE	PL
RECORDED AS	(100')
REFERENCE LINE	R/L
RELEASE OF RIGHTS	ROR
REMAINING	REM.
RIGHT-OF-WAY	R/W
SECTION	SEC.
STATION	STA.
TEMPORARY LIMITED EASEMENT	TLE
VOLUME	V.
CURVE DATA	
LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE OR DELTA	DELTA
LENGTH OF CURVE	L
TANGENT	TAN
CONVENTIONAL SYMBOLS	
FOUND IRON PIPE/PIN	IP
PROPOSED R/W LINE	(SET)
EXISTING H.E. LINE	(SET)
PROPERTY LINE	(SET)
LOT & TIE LINES	(SET)
SLOPE INTERCEPTS	(SET)
CORPORATE LIMITS	(SET)
NO ACCESS (BY PREVIOUS ACQUISITION/CONTROL)	(SET)
NO ACCESS (BY ACQUISITION)	(SET)
NO ACCESS (BY STATUTORY AUTHORITY)	(SET)
SECTION LINE	(SET)
QUARTER LINE	(SET)
SIXTEENTH LINE	(SET)
EXISTING CENTERLINE	(SET)
PROPOSED REFERENCE LINE	(SET)
PARALLEL OFFSET	(SET)
CONVENTIONAL UTILITY SYMBOLS	
WATER	W
GAS	G
TELEPHONE	T
OVERHEAD TRANSMISSION LINES	OH
ELECTRIC	E
CABLE TELEVISION	TV
FIBER OPTIC	FO
SANITARY SEWER	SAN
STORM SEWER	SS
NON COMPENSABLE	COMPENSABLE
POWER POLE	POLE
TELEPHONE POLE	POLE
TELEPHONE PEDESTAL	PEDESTAL
ELECTRIC TOWER	TOWER



END RELOCATION ORDER
PROJECT 5096-00-01
STA 243+12.53
40.38' S AND 500.24' W FROM
NE COR SEC 29, T-16-N, R-6-W
Y = 142,309.120
X = 481,759.867

BEGIN RELOCATION ORDER
PROJECT 5096-00-01
STA 104+75.00
1,775.51' S AND 2,415.44' W FROM
NE COR SEC 5, T-15-N, R-6-W
Y = 129,987.242
X = 479,954.499



NOTES

COORDINATES AND BEARINGS ON THIS PLAT ARE ORIENTED TO THE WISCONSIN COUNTY COORDINATE SYSTEM, LA CROSSE COUNTY ZONE, NAD 83 (1991) ADJUSTMENT. THE COORDINATES SHOWN ARE GRID COORDINATES AND ARE TO BE USED AS GRID OR GROUND VALUES ON THIS PLAT.

RIGHT-OF-WAY MONUMENTS ARE 3/4" X 24" REBAR AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER SURVEYS OF PUBLIC RECORD.

R/W PROJECT NUMBER 5096-00-01	SHEET NUMBER 4.01	TOTAL SHEETS 14
PLAT OF RIGHT-OF-WAY REQUIRED FOR STH 33 - BARRE MILLS (CTH FO - CTH O) CTH OA LA CROSSE COUNTY		
CONSTRUCTION PROJECT NUMBER 5096-00-71		



Mead
& Hunt



SEAN M. WALSH
S-2016

STATE OF WISCONSIN
LA CROSSE COUNTY

APPROVED FOR LA CROSSE COUNTY

DATE: _____ (Signature)

E

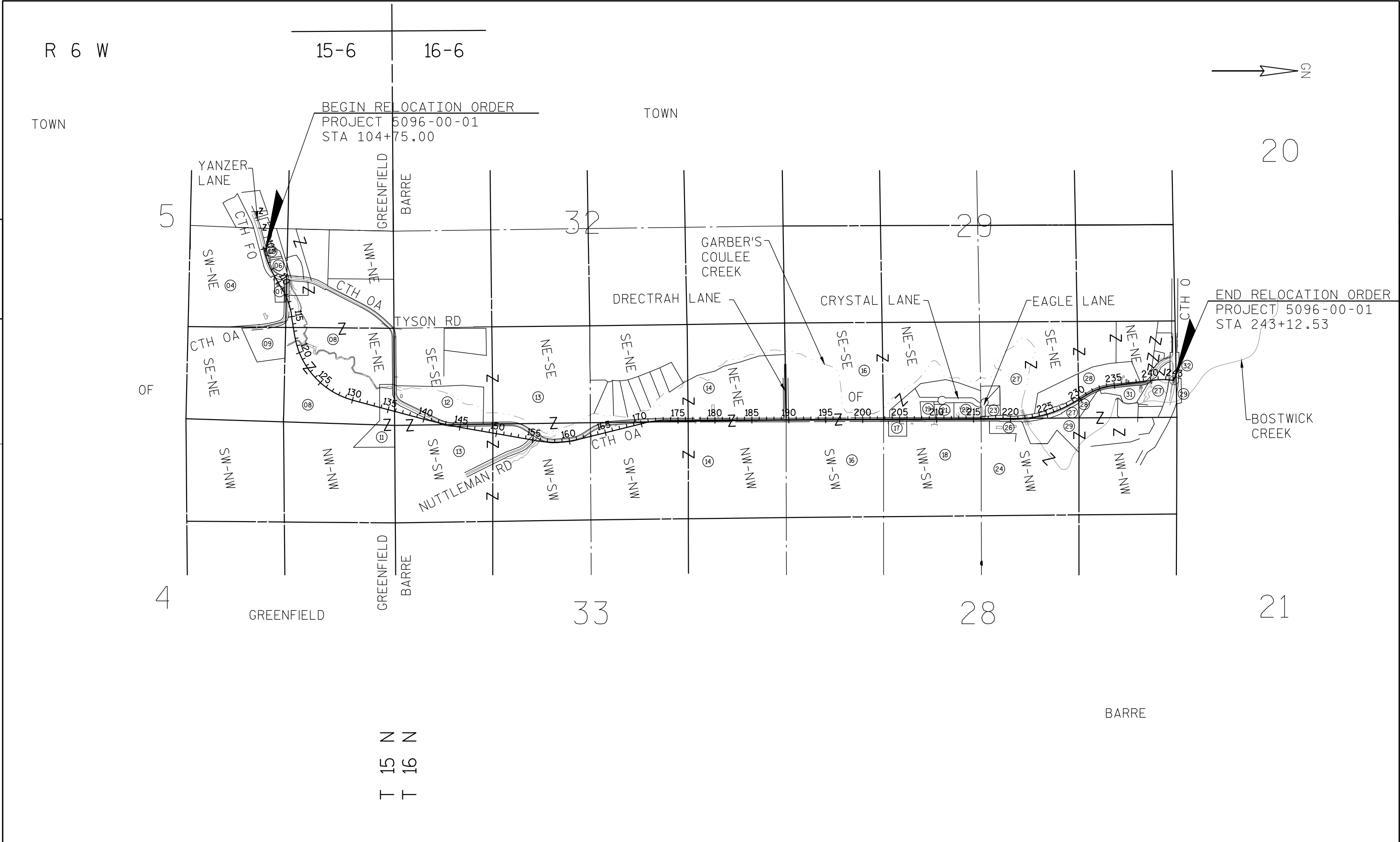
SCHEDULE OF LANDS & INTERESTS REQUIRED

AREAS SHOWN IN THE TOTAL ACRES COLUMN MAY BE APPROXIMATE AND ARE DERIVED FROM TAX ROLLS OR OTHER AVAILABLE SOURCES AND MAY NOT INCLUDE LANDS OF THE OWNER WHICH ARE NOT CONTIGUOUS TO THE AREA TO BE ACQUIRED.

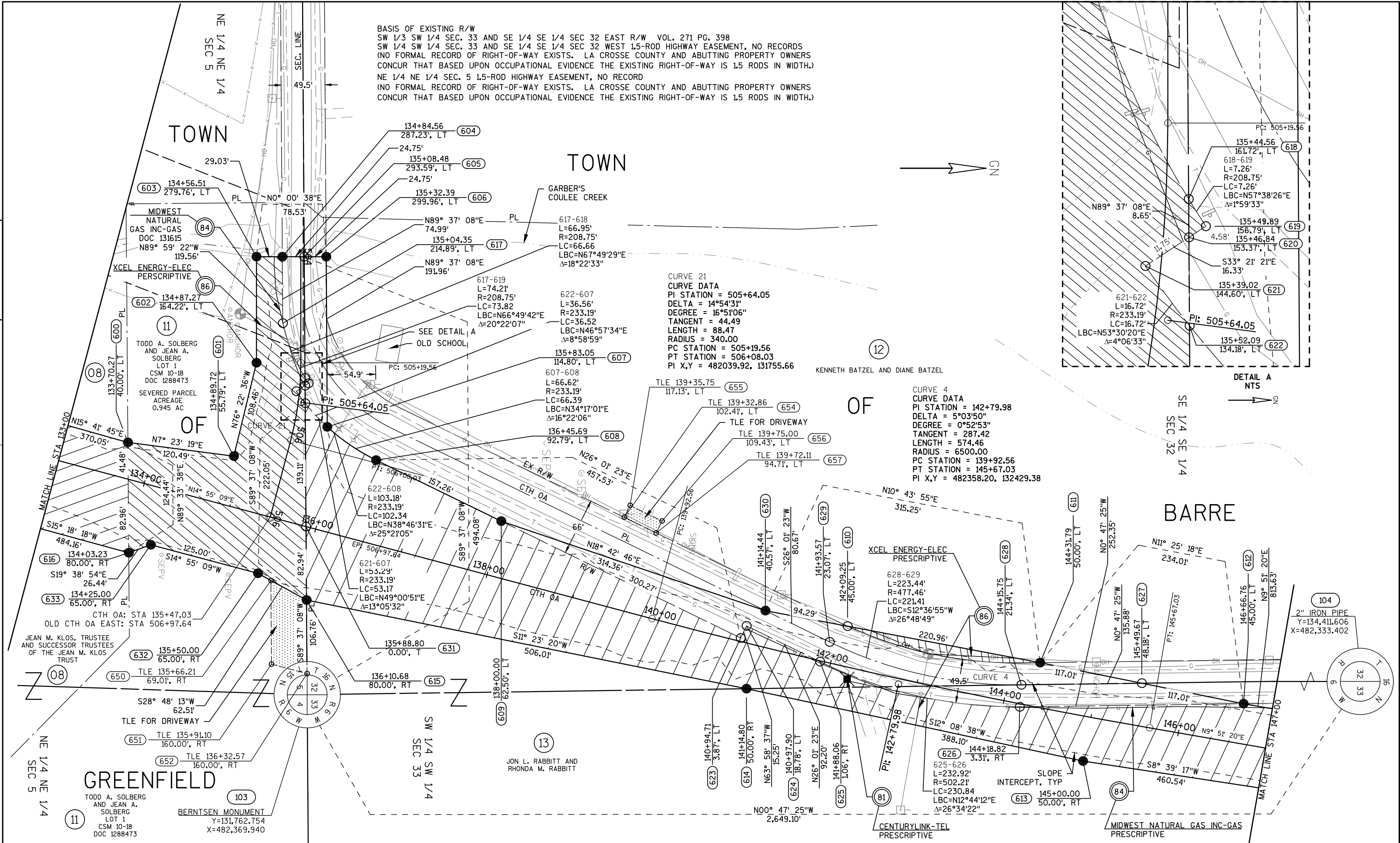
OWNERS NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO LA CROSSE COUNTY.

PARCEL NUMBER	SHEET NUMBER	OWNER(S)	INTEREST REQUIRED	TOTAL ACRES	EX R/W ACRES REQUIRED			TOTAL ACRES REM.	T.L.E.	P.L.E.
					NEW	EXISTING	TOTAL			
03	4.04	PAUL A. GERKE AND SALLY M. GERKE	FEE	0.86	0.05	--	0.05	0.81		
04	4.04	ROGER ALLEN PETERSON AND DIANNE LEE PETERSON	FEE	25.67	0.21	0.44	0.65	25.02		
06	4.04	SHELLY R. DAVIS	FEE/TLE	0.55	0.07	--	0.07	0.48	0.01	
07	4.04	DAVID VOLLMAR	FEE	0.95	0.65	0.04	0.69	0.26		
08	4.04, 4.05, 4.06	JEAN M. KLOS, TRUSTEE AND SUCCESSOR TRUSTEES OF THE JEAN M. KLOS TRUST	FEE/PLE	75.16	6.34	0.30	6.64	68.52		0.07
09	4.04, 4.05	MARK P. MALIN AND LORRAINE M. MALIN	FEE	5.23	0.13	0.28	0.41	4.82		
11	4.05, 4.06	TODD A. SOLBERG AND JEAN A. SOLBERG	FEE/TLE	5.39	0.84	--	0.84	4.55	0.08	
12	4.06, 4.07	KENNETH BATZEL AND DIANE BATZEL	FEE/TLE	11.67	0.05	0.19	0.24	11.43	0.01	
13	4.06, 4.07, 4.08	JON L. RABBITT AND RHONDA M. RABBITT	FEE/PLE/TLE	125.64	5.22	--	5.22	120.42	0.08	0.04
14	4.08, 4.09, 4.10	FRED W. SCHOMBERG AND ELIZABETH SCHOMBERG	FEE/PLE/TLE	103.35	3.62	3.11	6.73	96.62	0.09	0.04
16	4.10, 4.11	JAMES A. SCHWIER AND BARBARA SCHWIER	FEE	95.57	2.23	2.08	4.31	91.26		
17	4.11	ARLYSS M. SCHOMBERG FAMILY TRUST	FEE	1.12	0.11	--	0.11	1.01		
18	4.10 4.11	MARK K. SCHOMBERG AND JILL B. SCHOMBERG	FEE/TLE	38.88	0.56	0.92	1.48	37.40	0.05	
19	4.11	TOWN OF BARRE	--	--	--	--	--	-		
21	4.11	WILLIAM J. BROWNE, JR. AND AMY E. BROWNE	FEE	1.12	0.14	--	0.14	0.98		
22	4.11	JAMES B. SELCK AND CATHY A. SELCK	FEE	1.55	0.18	--	0.18	1.37		
23	4.11, 4.12	DAVID T. CORNELL AND TAMMY L. CORNELL	FEE	0.65	0.15	--	0.15	0.50		
24	4.11, 4.12	RICHARD NUTTLEMAN	FEE	22.80	0.09	--	0.09	22.71		
26	4.12	ROBERT J. STREMCHA AND JOANN J. STREMCHA	FEE	4.18	0.36	--	0.36	3.82		
27	4.12, 4.13	DALE CLEMENTS, CLEMENTS FAMILY, INC.	FEE/TLE	52.60	1.54	0.85	2.39	50.21	0.23	
28	4.12, 4.13	DOVENBERG INVESTMENTS, LLC	FEE/TLE	9.71	1.02	--	1.02	8.69	0.11	
29	4.12, 4.13	ANNE KOHLMEIER, THOMAS TRAMAIN, KATHRYN REEDICH, JULIE MEIER AND MARY PEREZ	FEE	22.04	0.42	0.01	0.43	21.61		
31	4.13	DEAN C. ASCHER AND DEBRA J. ASCHER	FEE/TLE	2.40	0.66	0.33	0.99	1.41	0.05	
32	4.13	CHRISTY WALTERS	FEE	4.75	0.04	--	0.04	4.71		
81	4.04, 4.06, 4.08, 4.10, 4.11, 4.12	CENTURYLINK	RELEASE OF RIGHTS							
82	4.09, 4.10, 4.11, 4.12, 4.13	CHARTER COMMUNICATIONS	RELEASE OF RIGHTS							
84	4.04, 4.06, 4.07, 4.09, 4.10, 4.13	MIDWEST NATURAL GAS INCORPORATED - GAS	RELEASE OF RIGHTS							
86	4.04, 4.06, 4.07, 4.08, 4.09, 4.10, 4.11, 4.12, 4.13	XCEL ENERGY - ELECTRIC	RELEASE OF RIGHTS							
87	4.07, 4.11, 4.13	XCEL ENERGY - GAS	RELEASE OF RIGHTS							

REVISION DATE	10-15-2012	-----	-----	DATE 7-13-2012		HWY: CTH 0A	STATE R/W PROJECT NUMBER 5096-00-01	PLAT SHEET 4.02	
-----	-----	-----	-----			COUNTY: LA CROSSE	CONSTRUCTION PROJECT NUMBER 5096-00-71	PS&E SHEET	E
-----	-----	-----	-----						



REVISION DATE 10-15-2012 N/A	DATE 7-13-2012	NOT TO SCALE	HWY: CTH OA	STATE R/W PROJECT NUMBER 5096-00-01	PLAT SHEET 4.03	E
			COUNTY: LA CROSSE	CONSTRUCTION PROJECT NUMBER 5096-00-71	PS&E SHEET	



REVISION	DATE	10-15-2012		

DATE	7-13-2012
GRID FACTOR	1.000

SCALE, FEET
0 50 100

HWY:	CTH OA
COUNTY:	LA CROSSE

STATE R/W PROJECT NUMBER	5096-00-01
CONSTRUCTION PROJECT NUMBER	5096-00-71

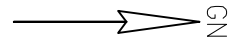
PLAT SHEET	4.06
PS&E SHEET	

E

BASIS OF EXISTING R/W
SE 1/4 SE 1/4 SEC 32 1.5-ROD HIGHWAY EASEMENT, NO RECORD
(NO FORMAL RECORD OF RIGHT-OF-WAY EXISTS. LA CROSSE COUNTY AND ABUTTING PROPERTY OWNERS
CONCUR THAT BASED UPON OCCUPATIONAL EVIDENCE THE EXISTING RIGHT-OF-WAY IS 1.5 RODS IN WIDTH.)
SW 1/4 SW 1/4 SEC 33 1.5-ROD VOL. 271 PG. 398
NUTTLEMAN RD 4-ROD ROAD CHAPTER 82.3(1) WISCONSIN STATUTES
NE 1/4 SE 1/4 SEC 32 AND NW 1/4 SW 1/4 3-ROD VOL. 271 PG. 398

TOWN

NE 1/4 SE 1/4
SEC 32



104
2" IRON PIPE
Y=134,411.606
X=482,333.402

103
BERNTSEN MONUMENT
Y=131,762.754
X=482,369.940

12
KENNETH BATZEL
AND
DIANE BATZEL

13
JON L. RABBITT AND
RHONDA M. RABBITT

801-721
L=211.91'
R=425.25'
LC=209.72
LBC=S19°31'04"E
Δ=28°33'06"

703-800
L=408.14'
R=1275.44'
LC=406.40
LBC=N4°43'30"W
Δ=18°20'04"

BARRE

CURVE 5
CURVE DATA
PI STATION = 158+51.13
DELTA = 23°45'03"
DEGREE = 4°18'29"
TANGENT = 279.68
LENGTH = 551.33
RADIUS = 1330.00
PC STATION = 155+71.45
PT STATION = 161+22.78
PI X,Y = 482627.18, 133977.71

723-724
L=269.97'
R=404.75'
LC=264.99
LBC=N13°51'58"E
Δ=38°12'57"

XCEL ENERGY-GAS
PRESCRIPTIVE

XCEL ENERGY-ELEC
PRESCRIPTIVE

MIDWEST NATURAL GAS INC-GAS
PRESCRIPTIVE

13
JON L. RABBITT AND
RHONDA M. RABBITT

711-712
L=68.65'
R=266.00'
LC=68.46
LBC=S72°23'13"E
Δ=14°47'11"

711-713
L=214.68'
R=266.00'
LC=208.90
LBC=S56°39'36"E
Δ=46°14'27"

712-713
L=146.03'
R=266.00'
LC=144.20
LBC=S49°16'00"E
Δ=31°27'16"

716-717
L=182.23'
R=196.00'
LC=175.74
LBC=N53°08'41"W
Δ=53°16'16"

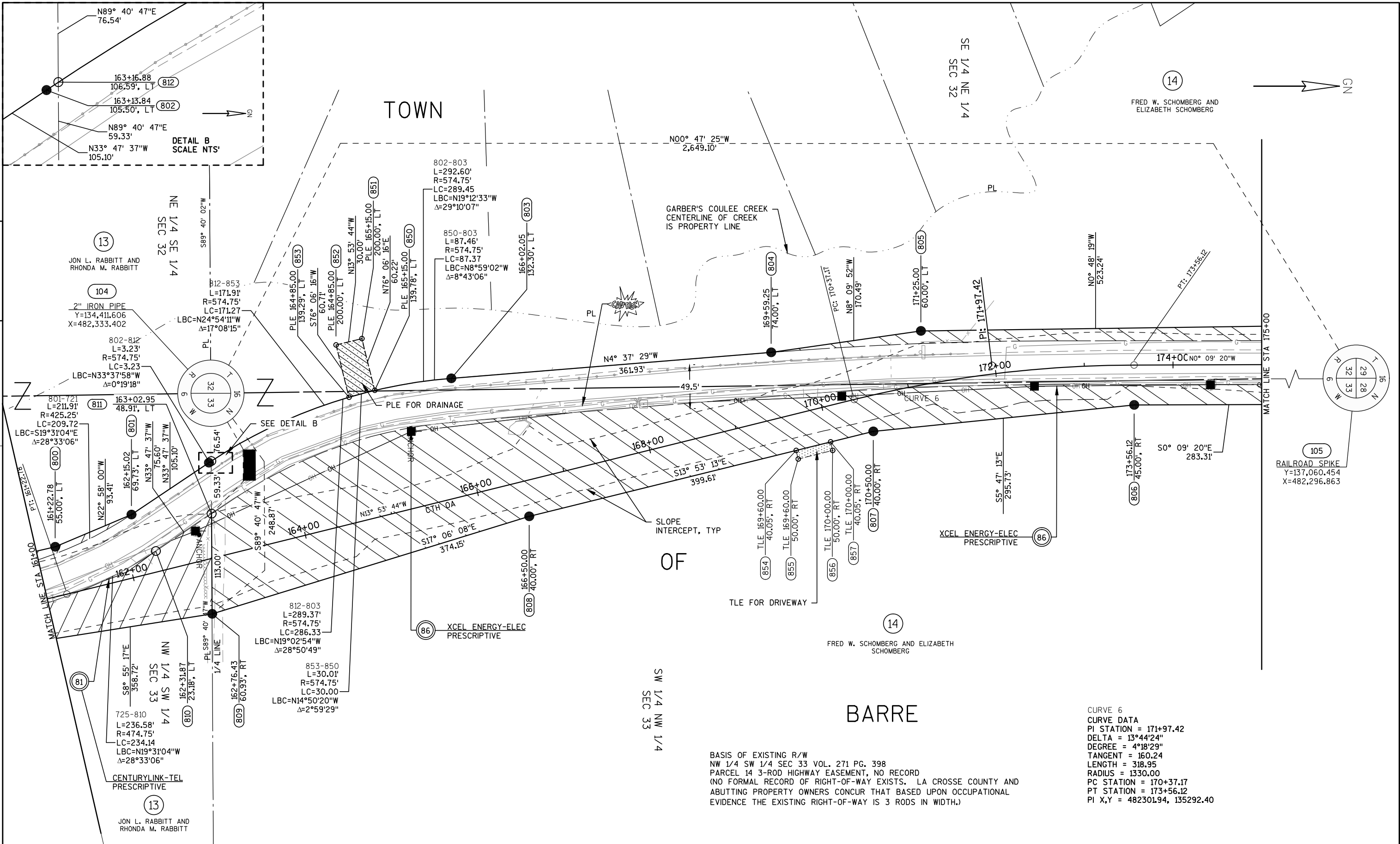
726
151+59.83
231.43', RT
S26° 30' 33"E
163.11'

716
151+06.54
268.19', RT
N27° 40' 25"W
98.42'

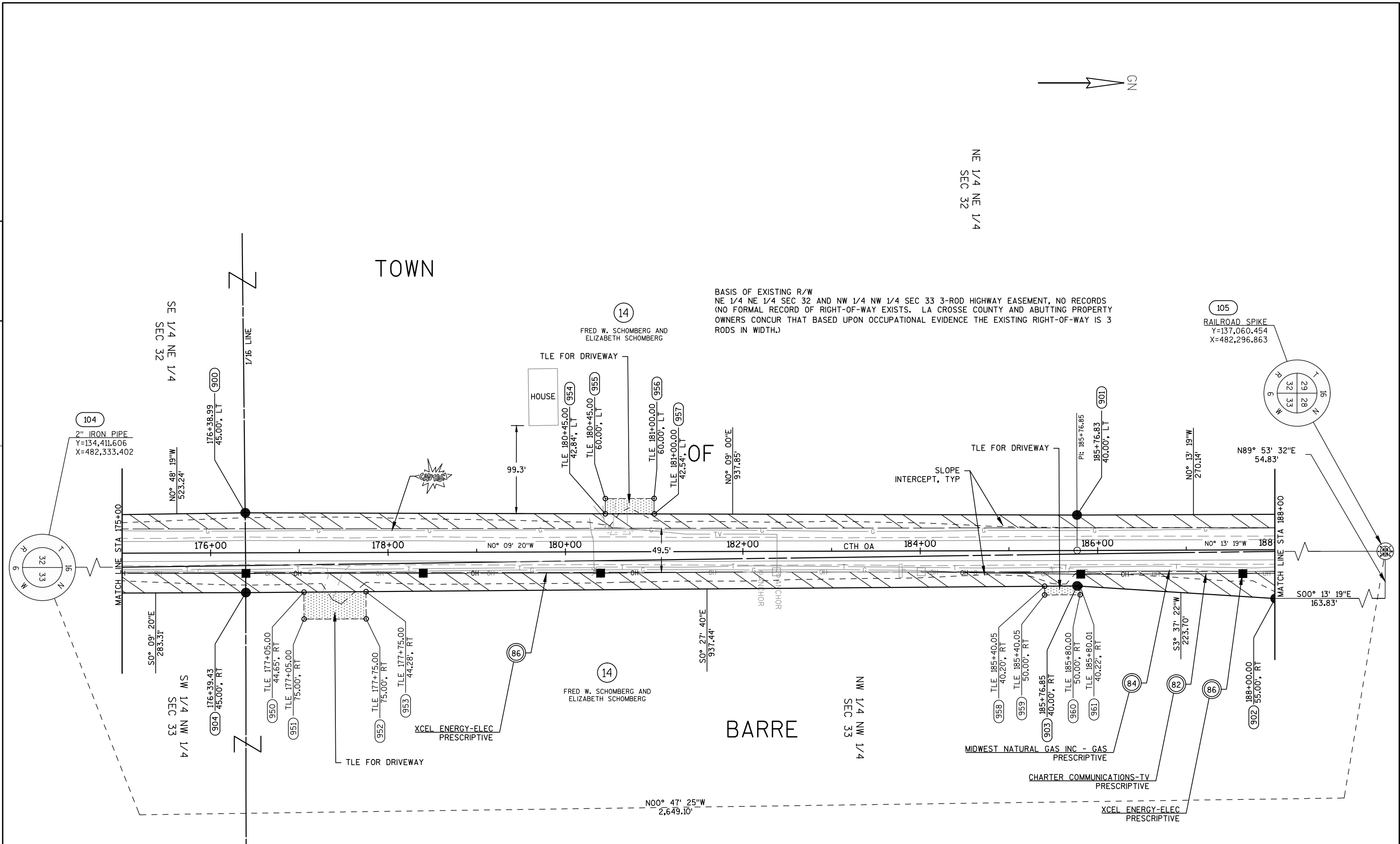
715
150+28.49
328.14', RT

CURVE 22
CURVE DATA
PI STATION = 602+27.69
DELTA = 53°16'16"
DEGREE = 24°48'12"
TANGENT = 115.86
LENGTH = 214.77
RADIUS = 231.00
PC STATION = 601+11.83
PT STATION = 603+26.61
PI X,Y = 482743.58, 133317.50

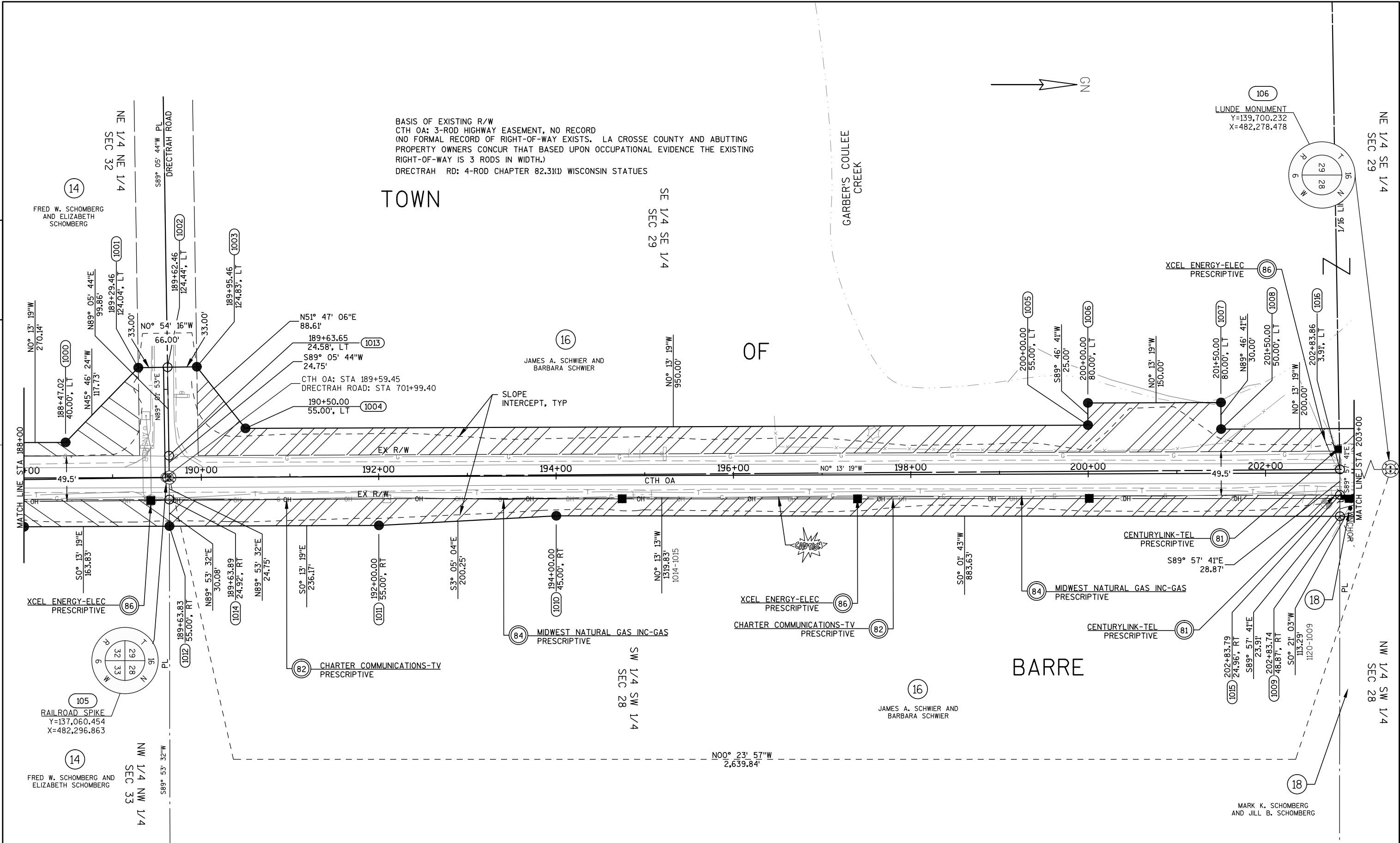
REVISION DATE	10-15-2012 N/A	DATE	7-13-2012	SCALE, FEET	HWY: CTH OA	STATE R/W PROJECT NUMBER	5096-00-01	PLAT SHEET	4.07
		GRID FACTOR	1.000		COUNTY: LA CROSSE	CONSTRUCTION PROJECT NUMBER	5096-00-71	PS&E SHEET	E



REVISION DATE	10-15-2012	-----	-----	DATE 7-13-2012	SCALE, FEET 	HWY: CTH OA	STATE R/W PROJECT NUMBER 5096-00-01	PLAT SHEET 4.08	
	-----	-----	-----	GRID FACTOR 1.000		COUNTY: LA CROSSE	CONSTRUCTION PROJECT NUMBER 5096-00-71	PS&E SHEET	



REVISION DATE	10-15-2012	-----	-----	DATE 7-13-2012	SCALE, FEET 	HWY: CTH OA	STATE R/W PROJECT NUMBER 5096-00-01	PLAT SHEET 4.09	
-----	-----	-----	-----	GRID FACTOR 1.000		COUNTY: LA CROSSE	CONSTRUCTION PROJECT NUMBER 5096-00-71	PS&E SHEET	E



REVISION	DATE	10-15-2012		

DATE 7-13-2012

GRID FACTOR 1.000

SCALE, FEET

0 50 100

HWY: CTH OA

COUNTY: LA CROSSE

STATE R/W PROJECT NUMBER 5096-00-01

CONSTRUCTION PROJECT NUMBER 5096-00-71

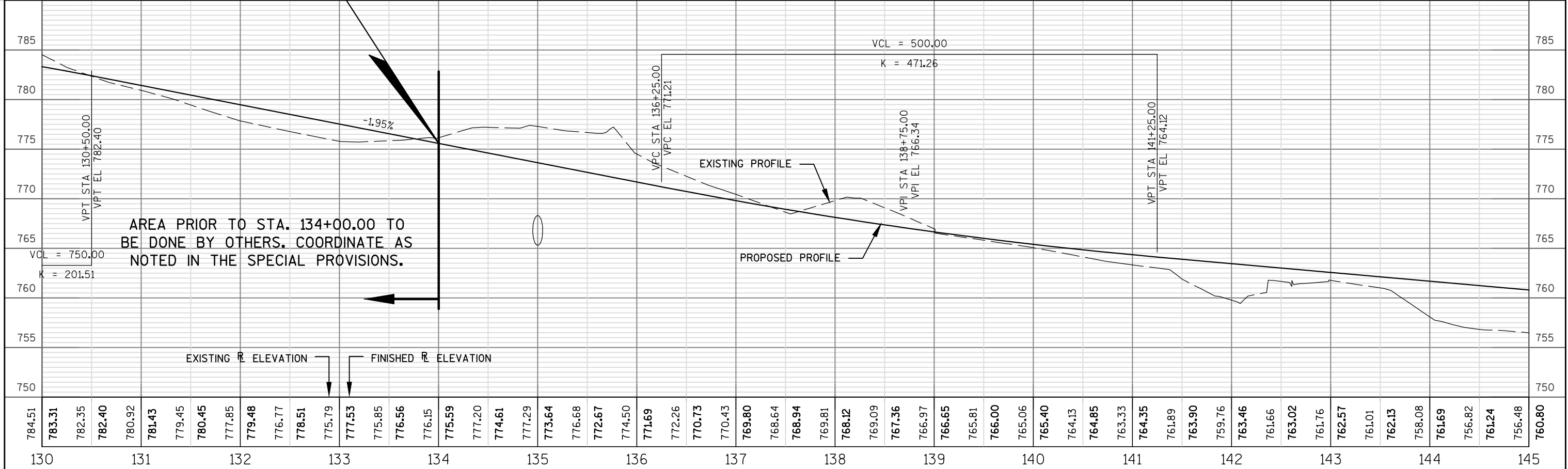
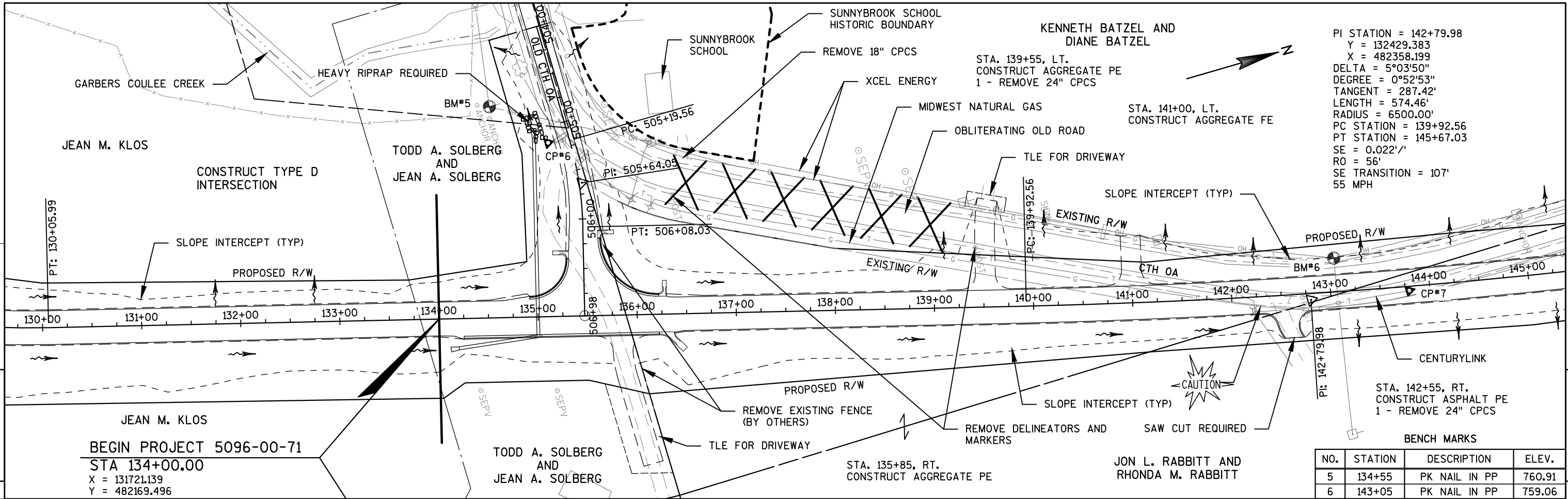
PLAT SHEET 4.10

PS&E SHEET

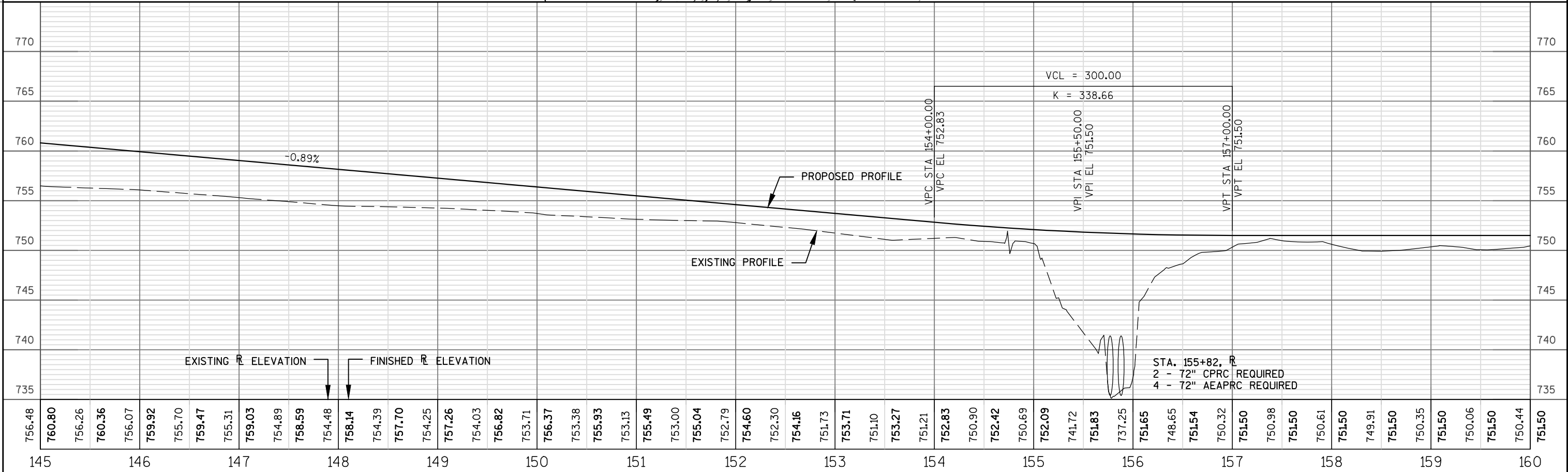
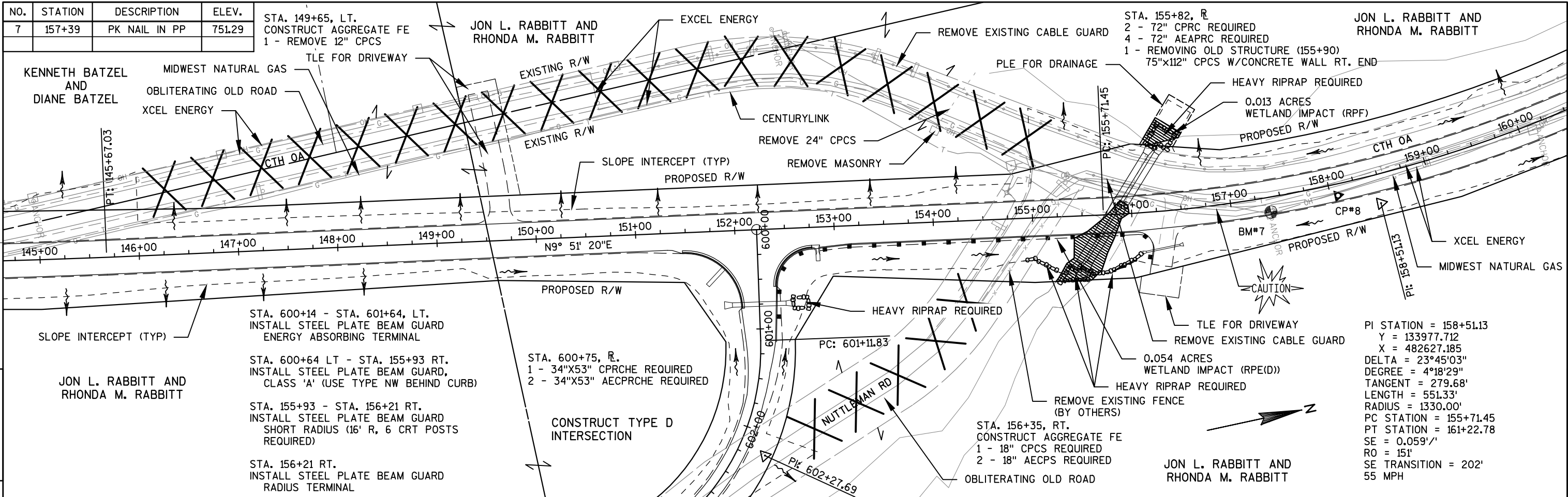
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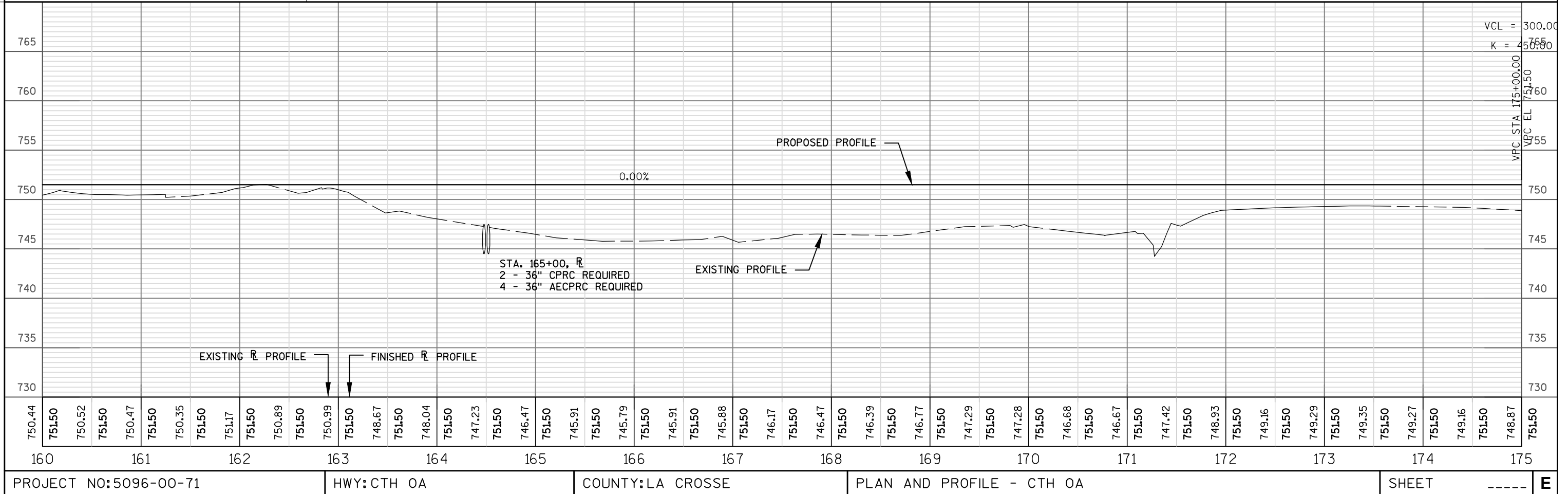
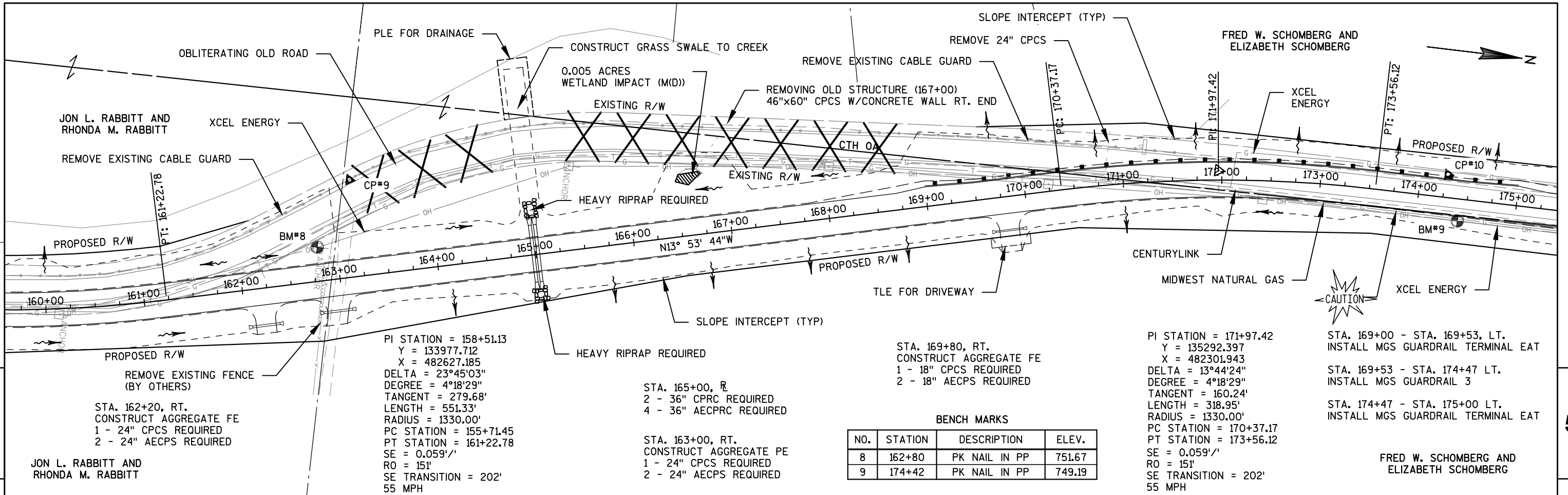
4

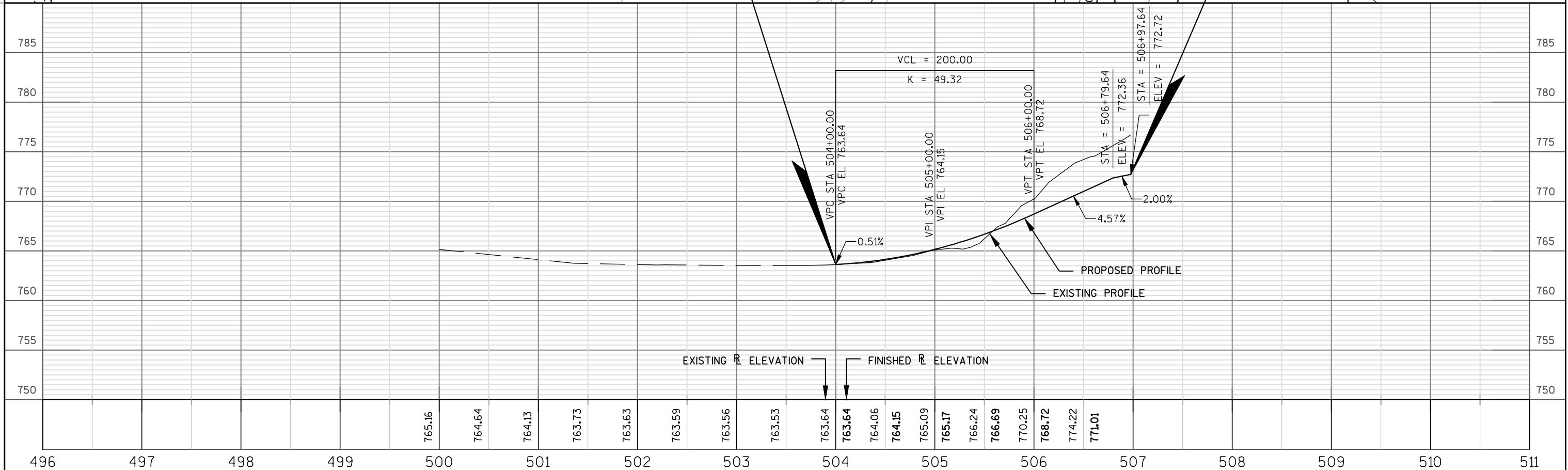
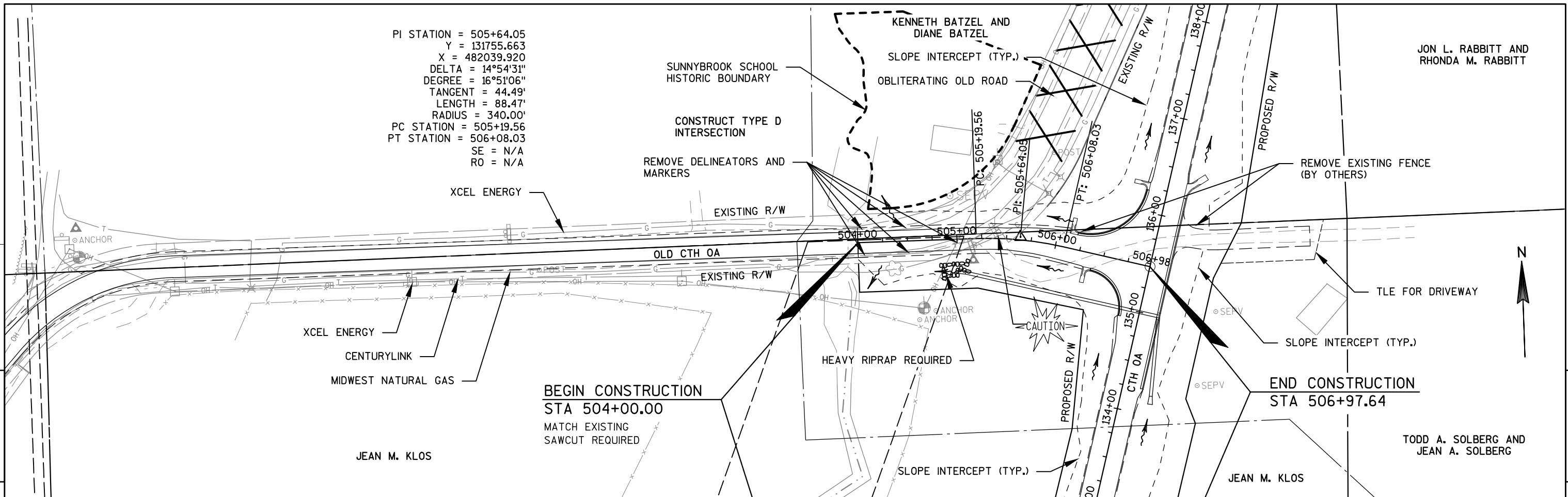
Point Number	Y (Northing)	X (Easting)	Point Number	Y (Northing)	X (Easting)	Point Number	Y (Northing)	X (Easting)	Point Number	Y (Northing)	X (Easting)	Point Number	Y (Northing)	X (Easting)
400	129,987.242	479,954.489	601	131,680.125	482,100.831	753	133,132.900	482,434.745	1100	138,446.306	482,241.329	1235	140,245.034	482,325.885
401	130,018.721	479,946.216	602	131,705.671	481,995.425	754	133,726.666	482,647.979	1101	138,446.229	482,221.329	1236	140,255.422	482,325.239
402	130,049.846	480,015.579	603	131,705.693	481,875.864	755	133,720.989	482,663.393	1102	138,867.512	482,219.619	1237	140,569.576	482,272.451
403	130,081.171	480,132.619	604	131,734.720	481,875.869	756	133,758.525	482,677.216	1103	138,891.420	482,264.402	1238	140,624.367	482,272.071
404	130,100.051	480,203.162	605	131,759.471	481,875.874	757	133,769.774	482,646.669	1104	139,079.261	482,263.396	1239	140,794.997	482,208.230
405	130,264.260	480,338.028	606	131,784.221	481,875.878	758	133,752.790	482,517.692	1105	139,077.094	482,239.027	1240	140,790.963	482,199.080
406	130,355.299	480,343.008	607	131,785.498	482,067.839	759	133,785.067	482,526.944	1106	139,332.148	482,238.356	1241	140,836.373	482,178.198
407	130,483.746	480,354.695	608	131,840.355	482,105.237	760	133,814.469	482,495.062	1107	139,429.933	482,248.098	1242	140,834.212	482,173.689
408	130,484.187	480,421.084	609	131,981.670	482,174.231	761	133,792.416	482,474.724	1108	139,641.391	482,247.542	1243	140,891.353	482,144.873
409	130,484.854	480,521.264	610	132,372.052	482,292.643	762	133,093.015	482,326.838	1109	139,688.842	482,192.028	1244	141,021.115	482,069.249
410	130,334.857	480,522.262	611	132,589.148	482,333.789	763	133,093.028	482,315.146	1110	139,687.794	482,142.039	1245	141,020.812	482,053.097
411	130,335.421	480,621.119	612	132,818.525	482,380.129	764	133,133.028	482,315.189	1111	139,697.755	482,141.830	1246	141,019.737	481,995.798
412	130,384.855	480,737.708	613	132,637.515	482,444.753	765	133,133.016	482,326.287	1112	139,757.738	482,140.583	1250	140,094.336	482,233.864
413	130,326.732	481,024.550	614	132,258.097	482,363.108	794	130,355.256	480,342.993	1113	139,767.776	482,140.361	1251	140,207.005	482,174.680
414	130,288.010	481,030.138	615	131,762.047	482,263.186	800	134,235.999	482,506.629	1114	139,775.476	482,215.995	1252	140,331.974	482,164.154
415	129,926.078	481,082.371	616	131,561.588	482,209.776	801	134,322.008	482,470.179	1115	139,700.317	482,337.387	1253	140,531.957	482,161.432
416	129,926.161	481,072.105	617	131,735.219	481,950.859	802	134,409.347	482,411.725	1116	139,346.640	482,343.318	1254	140,519.263	482,117.100
417	129,926.367	481,046.531	618	131,760.381	482,012.592	803	134,682.682	482,316.491	1117	139,093.633	482,328.984	1255	140,567.331	482,103.336
418	129,926.693	481,005.896	619	131,764.266	482,018.724	804	138,691.638	482,287.308	1118	138,691.638	482,330.411	1256	140,579.595	482,146.165
419	129,936.401	481,005.199	620	131,760.438	482,021.244	805	135,212.200	482,263.095	1119	138,593.686	482,330.758	1300	141,194.993	481,869.771
420	130,060.588	480,987.567	621	131,750.626	482,027.703	806	135,452.781	482,346.508	1120	138,493.726	482,341.146	1301	141,393.593	481,800.609
421	130,106.279	480,978.292	622	131,760.571	482,041.145	807	135,158.541	482,376.326	1121	138,446.737	482,340.858	1302	141,768.051	481,743.326
422	130,203.051	480,952.728	623	132,251.499	482,305.970	808	134,770.607	482,472.235	1122	139,699.912	482,260.840	1303	141,838.772	481,744.642
423	130,266.316	480,856.563	624	132,258.189	482,292.266	809	134,412.997	482,582.265	1123	139,332.293	482,262.040	1304	141,869.152	481,745.208
424	130,266.621	480,844.368	625	132,341.043	482,332.718	810	134,349.540	482,511.316	1124	139,080.986	482,262.791	1305	141,988.546	481,694.266
425	130,201.081	480,769.698	626	132,566.198	482,383.610	811	134,412.366	482,469.268	1125	138,893.138	482,284.099	1306	141,995.307	481,693.243
426	130,201.583	480,700.937	627	132,703.837	482,356.959	812	134,412.034	482,409.938	1126	138,446.549	482,316.287	1307	142,086.635	481,679.422
427	130,210.043	480,630.450	628	132,567.965	482,358.833	850	134,596.383	482,330.134	1127	138,691.570	482,314.974	1308	142,146.289	481,670.394
428	130,161.682	480,480.428	629	132,351.902	482,310.477	851	134,581.921	482,271.679	1128	139,700.280	482,311.478	1309	142,245.976	481,640.057
429	130,137.059	480,440.320	630	132,279.411	482,275.084	852	134,552.799	482,278.884	1129	139,759.670	482,247.122	1310	142,227.787	481,853.669
430	130,091.467	480,366.056	631	131,761.496	482,180.249	853	134,567.379	482,337.819	1150	139,436.637	482,341.824	1311	141,957.806	481,844.533
431	129,993.873	480,215.049	632	131,707.272	482,233.069	854	135,071.542	482,397.834	1151	139,436.759	482,388.081	1312	141,930.417	481,848.631
432	129,928.782	479,969.882	633	131,586.486	482,200.887	855	135,073.933	482,407.497	1152	139,486.759	482,387.949	1313	141,376.710	481,931.483
433	130,083.755	480,191.168	650	131,721.900	482,241.112	856	135,112.762	482,397.891	1153	139,486.635	482,340.986	1314	141,186.193	482,034.224
434	130,068.819	480,134.910	651	131,722.527	482,335.448	857	135,110.373	482,388.233	1200	139,693.328	482,211.878	1317	142,399.475	481,667.991
435	130,108.506	480,345.112	652	131,762.599	482,346.124	900	135,735.389	482,255.741	1201	139,958.908	482,214.662	1318	142,396.506	481,732.370
436	130,134.191	480,363.566	654	132,120.324	482,169.871	901	136,673.234	482,258.197	1202	140,020.714	482,232.052	1319	142,355.864	481,998.610
437	130,260.655	480,403.829	655	132,126.905	482,156.392	902	136,896.725	482,352.332	1203	140,054.094	482,231.820	1320	142,344.190	481,997.991
438	130,268.183	480,404.341	656	132,162.849	482,173.941	903	136,673.475	482,338.197	1204	140,054.161	482,241.455	1321	142,343.083	481,943.360
439	130,280.814	480,699.993	657	132,156.268	482,187.420	904	135,736.069	482,345.740	1205	140,163.508	482,220.795	1322	142,372.565	481,732.855
440	130,269.871	480,700.123	700	133,620.150	482,519.393	950	135,801.634	482,345.212	1206	140,424.898	482,194.978	1323	142,375.975	481,640.720
441	130,269.940	480,712.199	701	133,655.644	482,518.179	951	135,801.716	482,375.562	1207	140,568.993	482,149.828	1324	141,957.114	481,804.467
442	130,146.823	480,701.590	702	133,743.955	482,515.159	952	135,871.716	482,375.372	1208	140,840.189	482,056.144	1325	142,024.458	481,743.057
443	129,949.714	481,045.759	703	133,830.981	482,540.106	953	135,871.633	482,344.649	1209	140,976.792	481,992.384	1326	142,071.940	481,710.058
444	130,289.569	480,962.101	704	134,058.615	482,637.895	954	136,141.398	482,256.804	1210	141,022.055	482,119.338	1327	141,994.773	481,697.185
445	130,295.578	480,699.817	705	133,720.590	482,648.163	955	136,141.351	482,239.640	1211	140,785.219	482,242.150	1328	141,982.500	481,716.794
446	130,297.402	480,620.248	706	133,620.638	482,631.125	956	136,196.351	482,239.491	1212	140,656.347	482,271.849	1329	141,890.998	481,772.692
447	130,334.204	480,407.953	707	133,606.208	482,627.505	957	136,196.716	482,256.909	1213	140,298.567	482,338.868	1330	141,852.193	481,776.008
448	130,146.042	480,969.462	708	133,531.890	482,608.863	958	136,636.677	482,338.493	1214	140,261.934	482,342.203	1331	141,722.809	481,787.063
449	130,289.326	480,972.723	709	133,423.233	482,581.606	959	136,636.704	482,348.293	1215	139,993.709	482,356.615	1332	141,467.997	481,811.902
450	130,201.255	480,314.866	711	133,372.205	482,635.229	960	136,676.704	482,348.184	1216	139,813.729	482,354.021	1333	141,144.471	481,919.850
451	130,205.259	480,305.702	712	133,351.787	482,701.021	961	136,676.677	482,338.400	1217	140,989.808	482,014.021	1334	141,170.214	481,962.129
452	130,241.913	480,321.717	713	133,257.689	482,810.291	1000	136,943.375	482,257.151	1218	140,927.400	482,022.096	1335	141,271.512	481,910.989
453	130,237.909	480,330.881	714	133,140.505	482,868.740	1001	137,025.491	482,172.788	1219	140,807.622	482,086.932	1336	141,266.123	481,917.756
454	130,358.514	480,675.583	715	133,111.046	482,809.679	1002	137,058.487	482,172.267	1220	140,803.266	482,077.931	1337	141,301.296	481,873.595
455	130,370.249	480,703.260	716	133,198.204	482,763.972	1003	137,091.483	482,171.746	1221	140,715.440	482,116.990	1338	141,324.803	481,940.591
456	130,458.540	480,672.353	717	133,303.316	482,622.810	1004	137,146.297	482,241.365	1222	140,713.557	482,112.359	1339	141,442.867	481,842.249
457	130,448.628	480,644.038	719	133,275.446	482,555.932	1005	138,096.290	482,237.685	1223	140,578.026	482,159.969	1340	141,965.345	481,790.851
500	130,476.123	481,158.931	720	133,092.816	482,514.054	1006	138,096.193	482,212.685	1224	140,582.307	482,174.345	1341	141,309.414	481,896.732
501	130,581.058	481,443.128</												



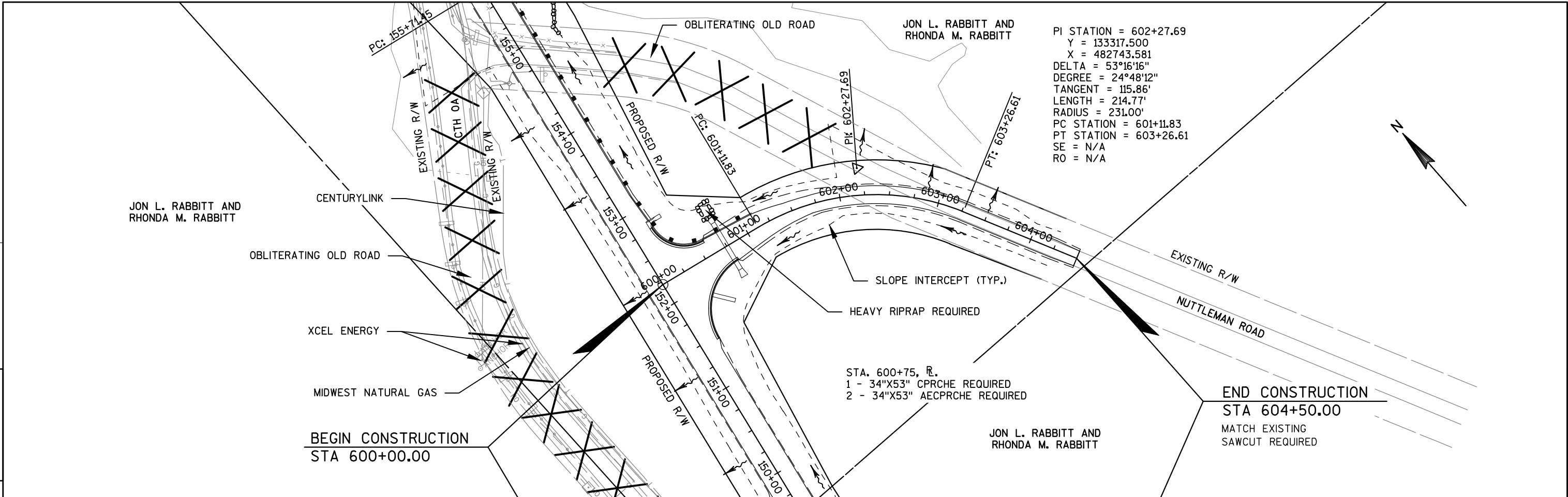
PROJECT NO: 5096-00-71					HWY: CTH OA					COUNTY: LA CROSSE					PLAN AND PROFILE - CTH OA					SHEET					E				
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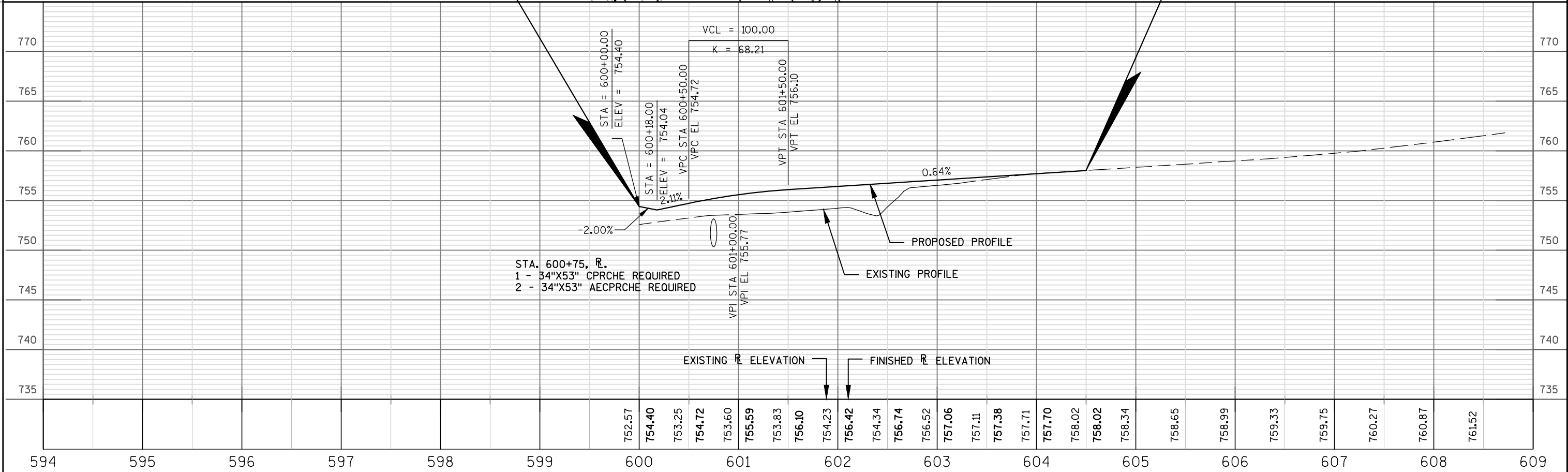




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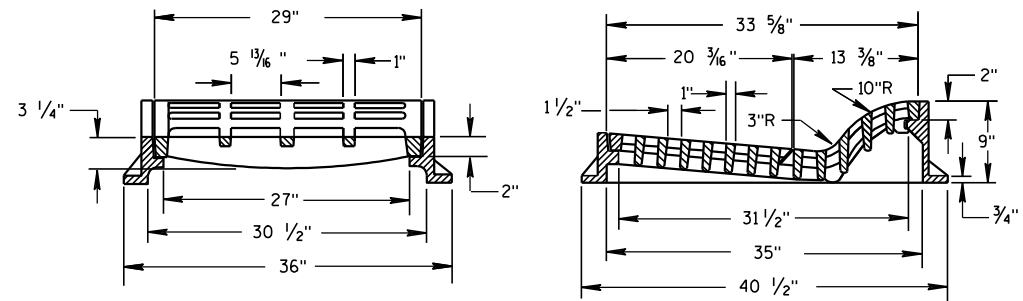
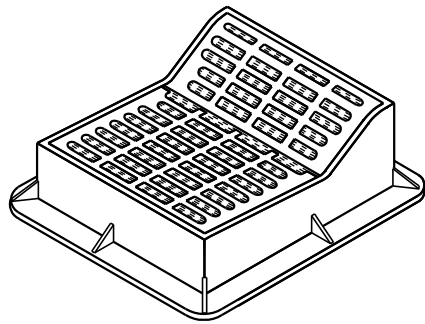


5



Standard Detail Drawing List

08A05-18C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08B09-01	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08D01-17	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09A01-12A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
14B15-07A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDERoads/DRIVEWAYS)
14B24-07A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-07B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-07C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B25-01	STEEL PLATE BEAM GUARD, CLASS "A", OVER LOW FILL CULVERTS
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B42-02A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-01A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
15A01-11	MARKER POST FOR RIGHT-OF-WAY
15A03-01	MARKER POSTS, FLEXIBLE, FOR CULVERT END
15C02-04A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-04B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C08-15A	PAVEMENT MARKING (MAINLINE)
15C08-15B	PAVEMENT MARKING (INTERSECTIONS)

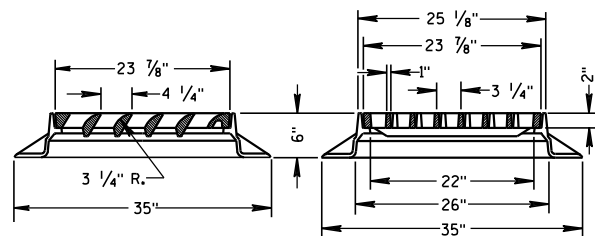
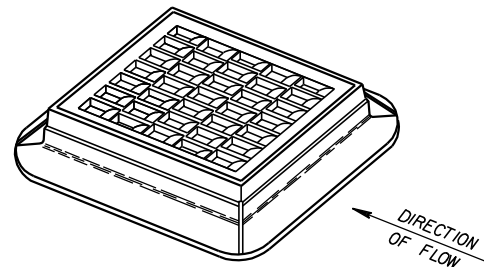


TYPE "F"

(APPROXIMATE WEIGHT 644 LBS.)

FRAME.....302 LBS.
GRATE.....160 LBS.
GRATE.....182 LBS.

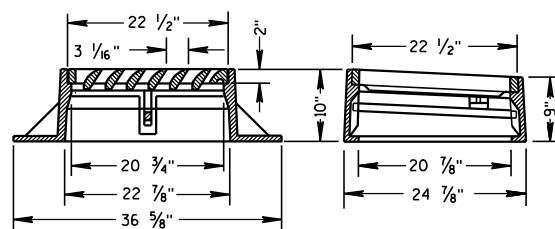
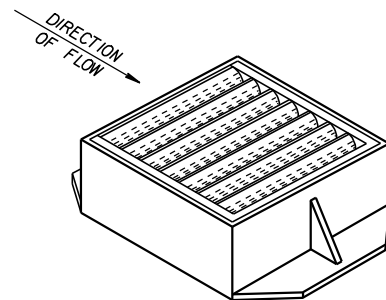
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



TYPE "S"

(APPROXIMATE WEIGHT 333 LBS.)

FRAME.....164 LBS.
GRATE.....169 LBS.



TYPE "V"

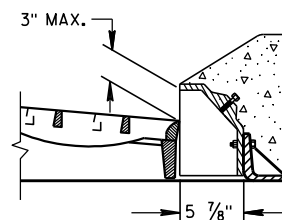
(APPROXIMATE WEIGHT 410 LBS.)

FRAME.....269 LBS.
GRATE.....136 LBS.
SAFETY BAR.....5 LBS.

**ALTERNATIVE CURB BOX
FOR TYPE "HM" COVER**

(APPROXIMATE WEIGHT CURB BOX 68 LBS.)

USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLE



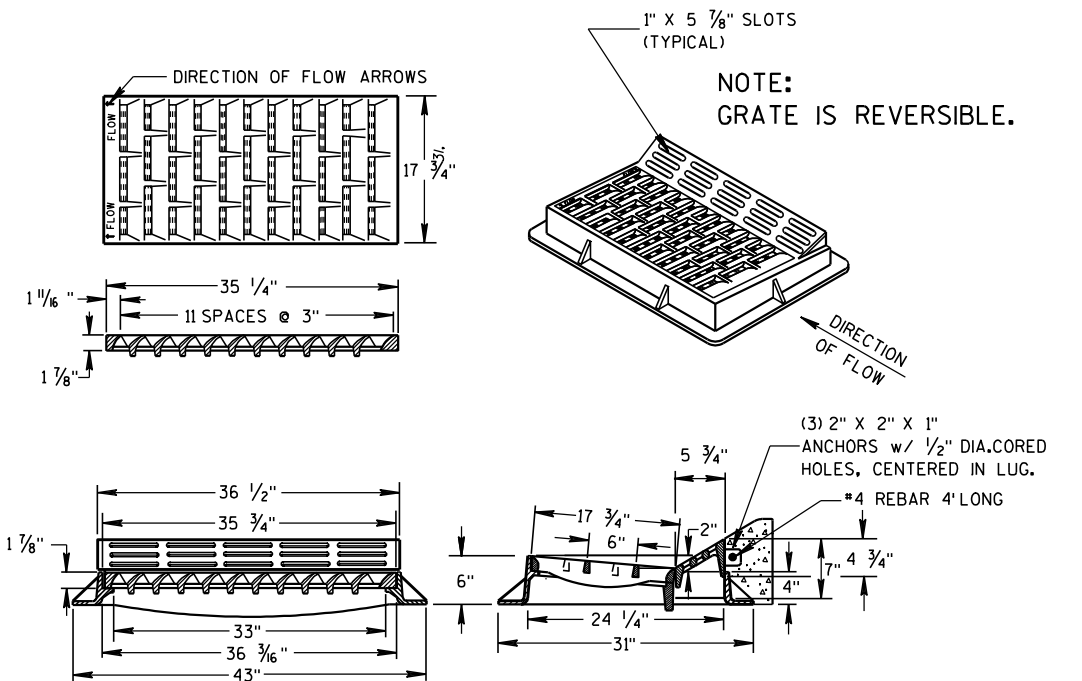
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.



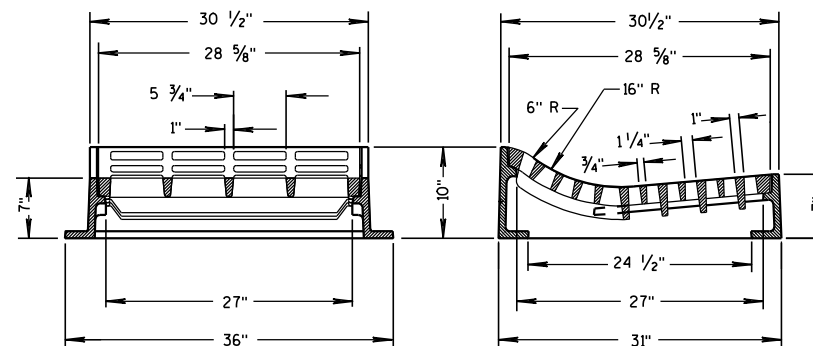
TYPE "HM"

(APPROXIMATE WEIGHT 414 LBS.)

FRAME.....181 LBS.
GRATE.....159 LBS.
CURB BOX.....74 LBS.

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE

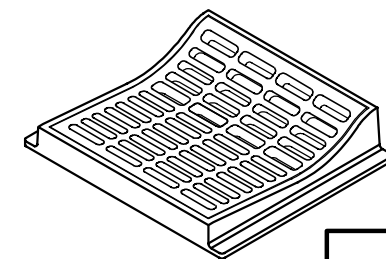


TYPE "T"

(APPROXIMATE WEIGHT 530 LBS.)

FRAME.....270 LBS.
GRATE.....260 LBS.

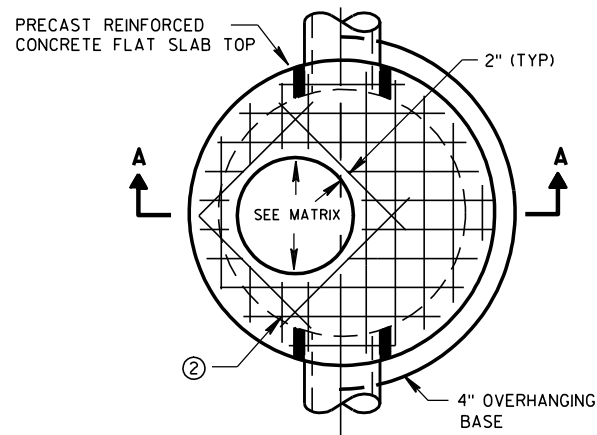
USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.



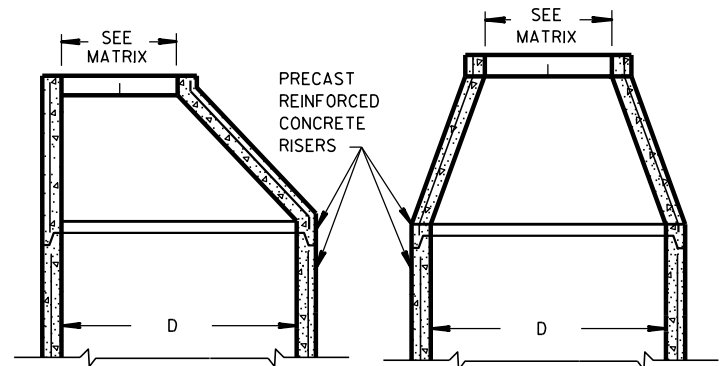
INLET COVERS
TYPE F, HM, HM-S, S, T, V,
HM-GJ, & HM-GJ-S

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

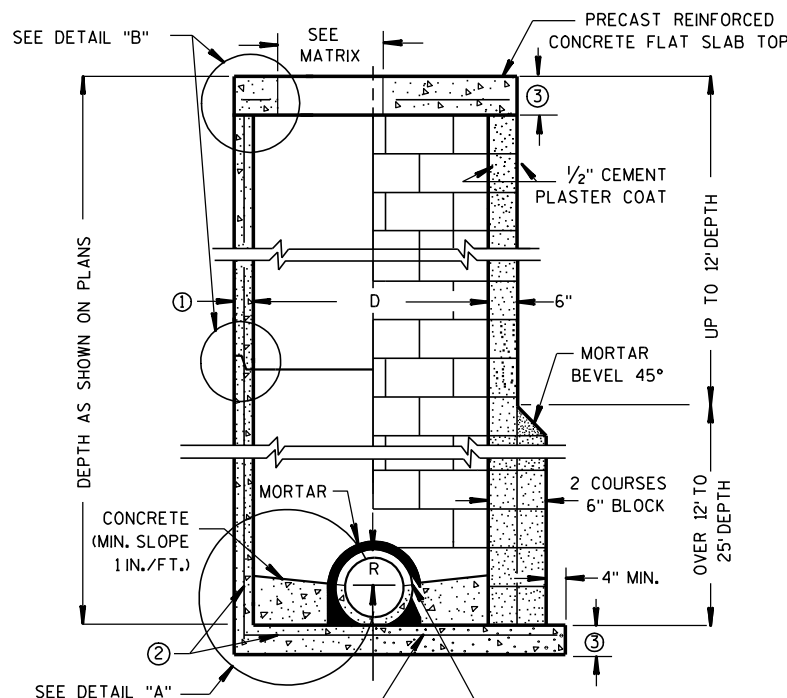


PLAN VIEW CIRCULAR OPENING



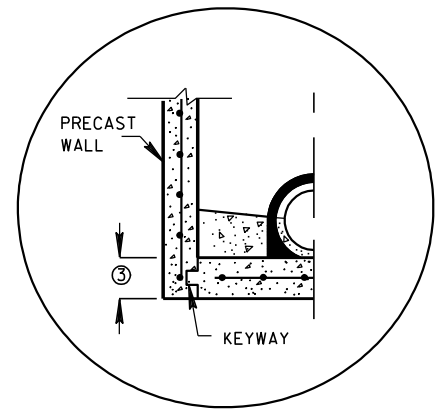
OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

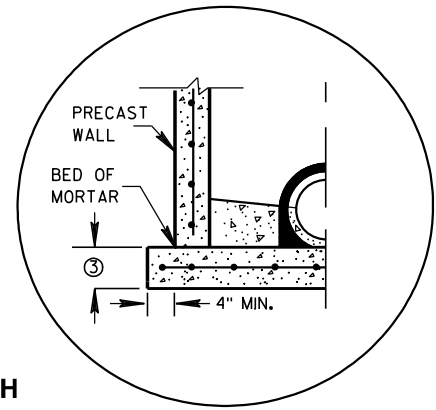


CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES

PRECAST REINFORCED CONCRETE BLOCK WITH CONCRETE WITH MONOLITHIC BASE CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②



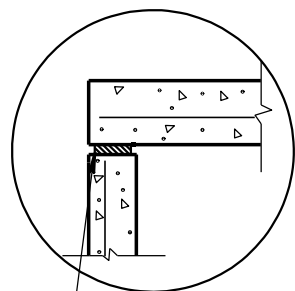
PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



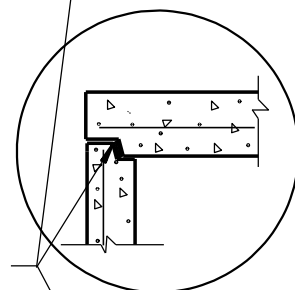
SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"

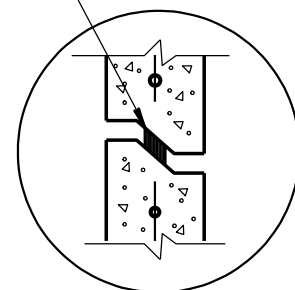
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)



TOP WITH PLAIN END JOINT

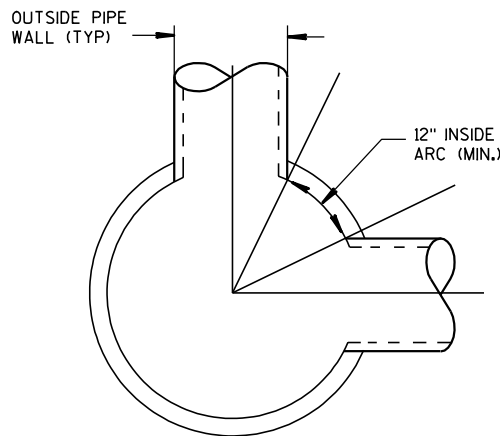


TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"



DETAIL "C"

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS. UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES. THE CONE TOPS SHALL BE INSTALLED ON A BED OF MORTAR.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2" AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED. CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPERATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

- ① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES FOR 6-FT, 8 INCHES FOR 7-FT AND 9 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.
- ② FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE	C	ALL J'S	K	L	M
OPENING SIZE (FT)					
2 DIA.	X	X		X	
3 DIA.			X		X

PIPE MATRIX

MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	36
7-FT	48	36
8-FT	60	42

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/5/2012

DATE

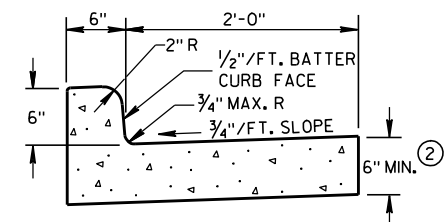
FHWA

/S/ Jerry H. Zogg

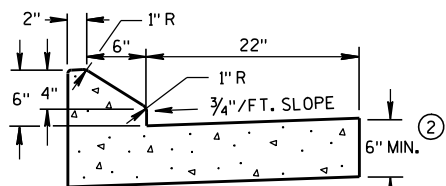
ROADWAY STANDARDS DEVELOPMENT

ENGINEER

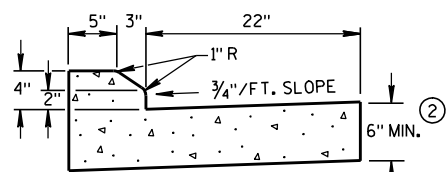
MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER



TYPES A & D ①



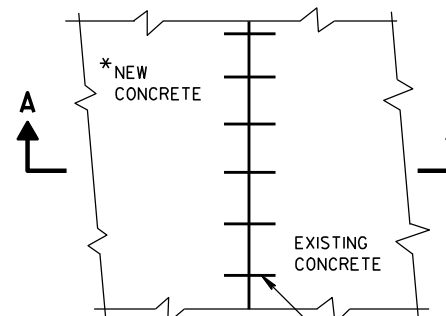
6" SLOPED CURB TYPES G & J ①



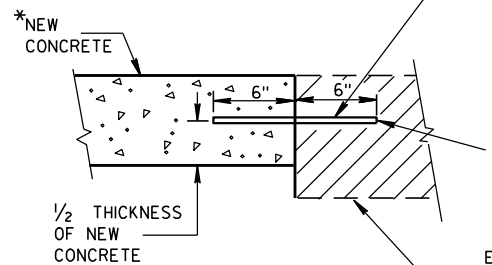
4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

* NEW CURB & GUTTER,
SURFACE DRAINS,
CONCRETE PAVEMENT
OR OTHER NEW CONCRETE.



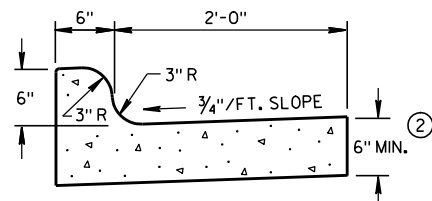
PLAN VIEW

SECTION A-A
TIE BARS DRILLED
INTO EXISTING PAVEMENT

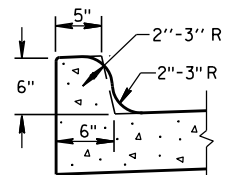
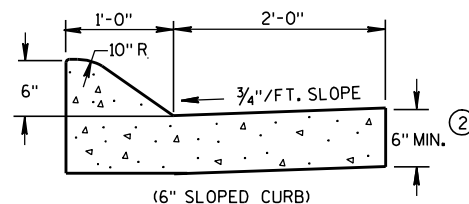
NO. 6 TIE BARS SPACED 2'-6" C-C,
INSTALLED PERPENDICULAR
TO THE LONGITUDINAL JOINT.

MAXIMUM DRILL HOLE
SIZE IS 1/8" GREATER
THAN TIE BAR DIAMETER

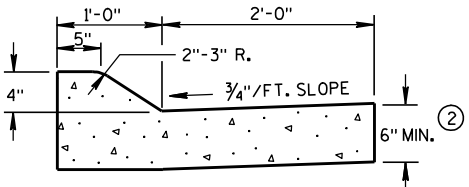
EXISTING
CONCRETE



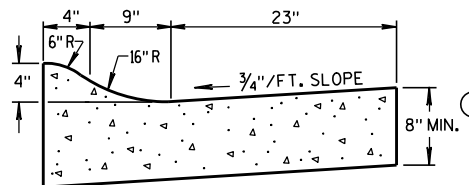
TYPES K & L ①

OPTIONAL CURB SHAPE
FOR TYPES K & L ①

(6" SLOPED CURB)

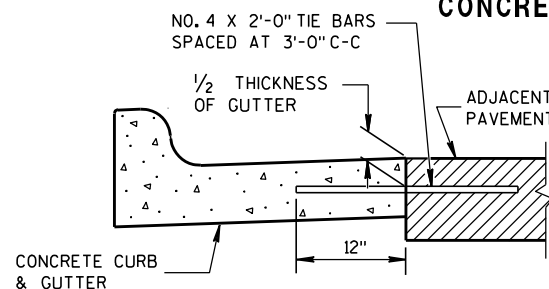


TYPES A & D ①

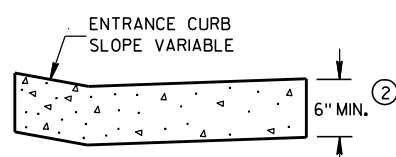


4" SLOPED CURB TYPES R & T ① ④

CONCRETE CURB & GUTTER 36"

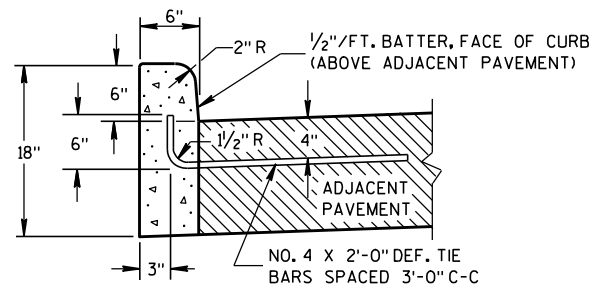


TYPICAL TIE BAR LOCATION ①



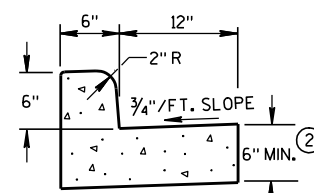
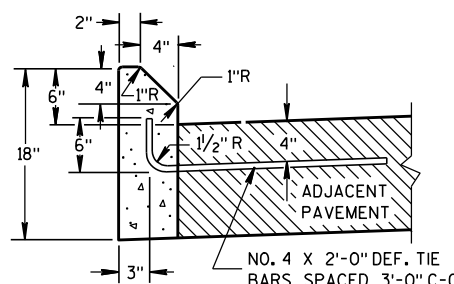
DRIVEWAY ENTRANCE CURB

(WHEN DIRECTED BY THE ENGINEER)



TYPES A & D ①

CONCRETE CURB

TYPES A & D
CONCRETE CURB & GUTTER 18"

TYPES G & J ①

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

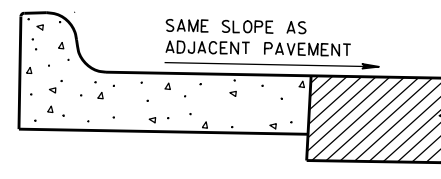
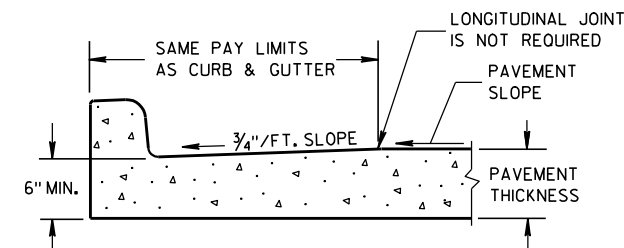
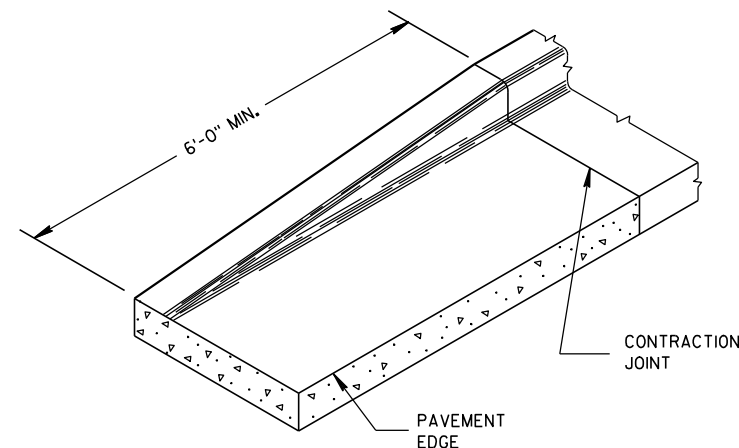
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K AND R.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ④ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑤ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.

REVERSE SLOPE GUTTER ⑤
(TYPICAL FOR ALL CURB & GUTTER TYPES)PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER

END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE
CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/4/08

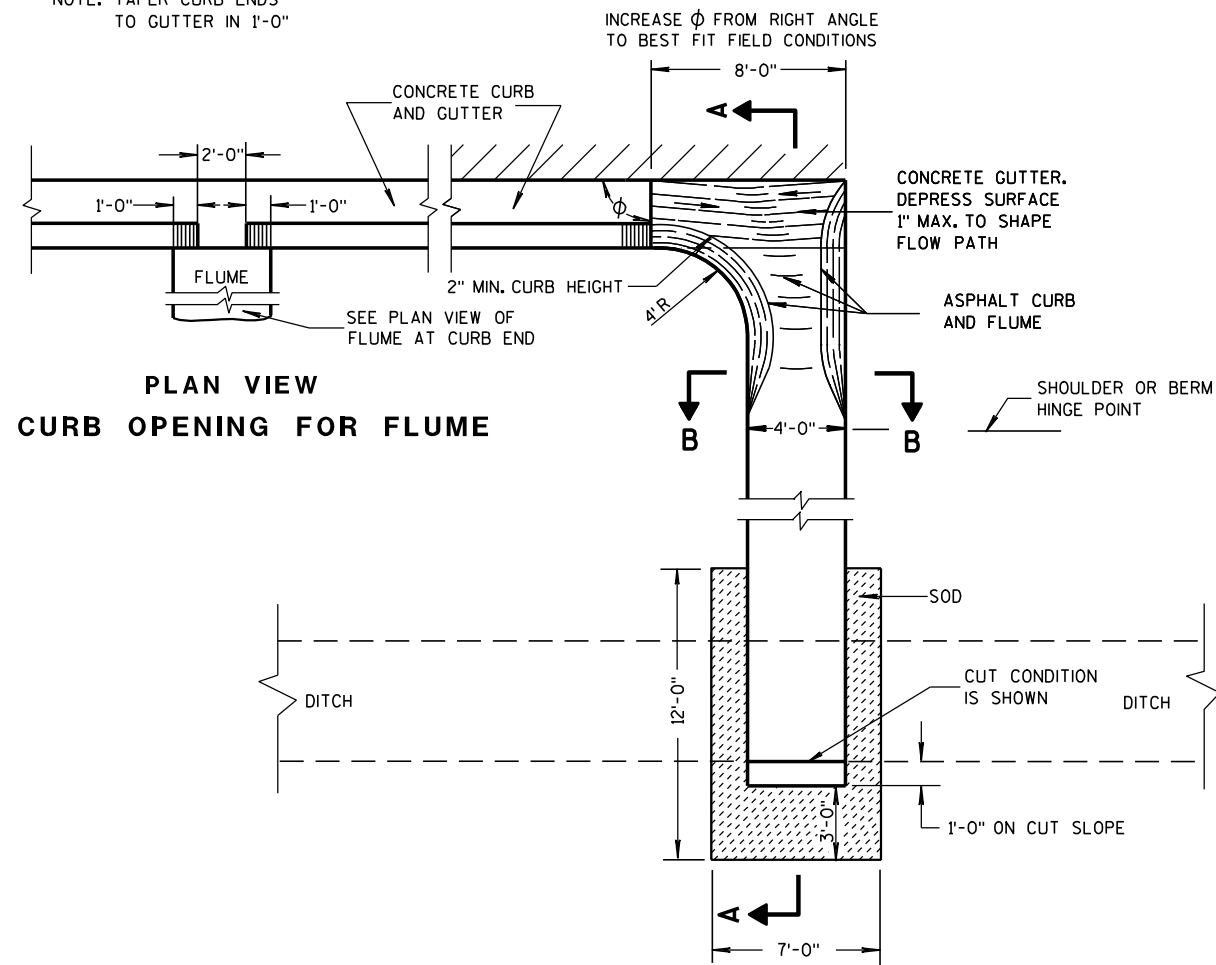
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

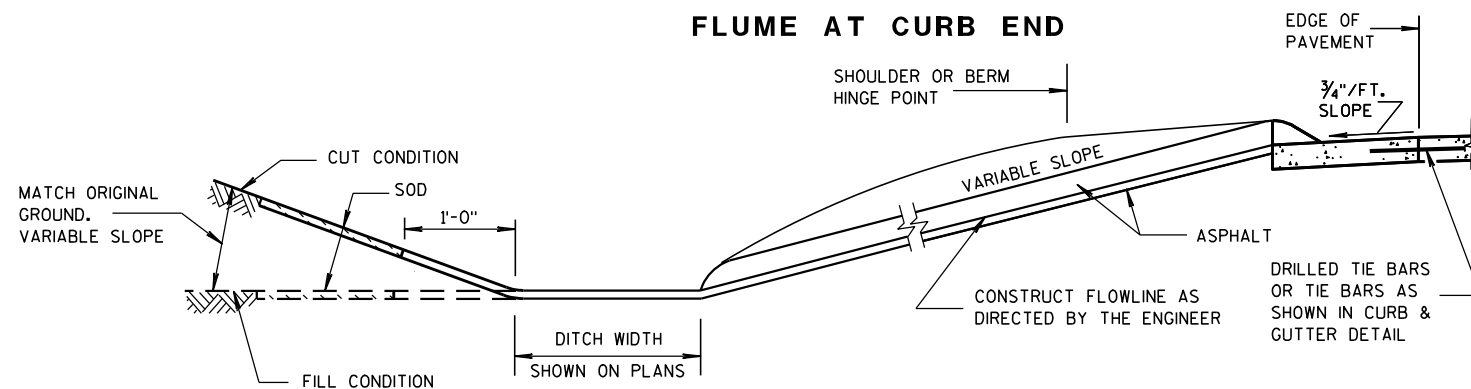
ASPHALTIC FLUME

NOTE: TAPER CURB ENDS
TO GUTTER IN 1'-0"

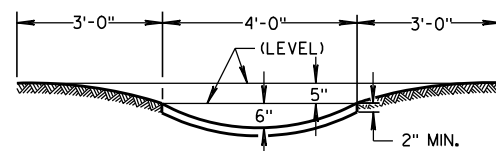


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

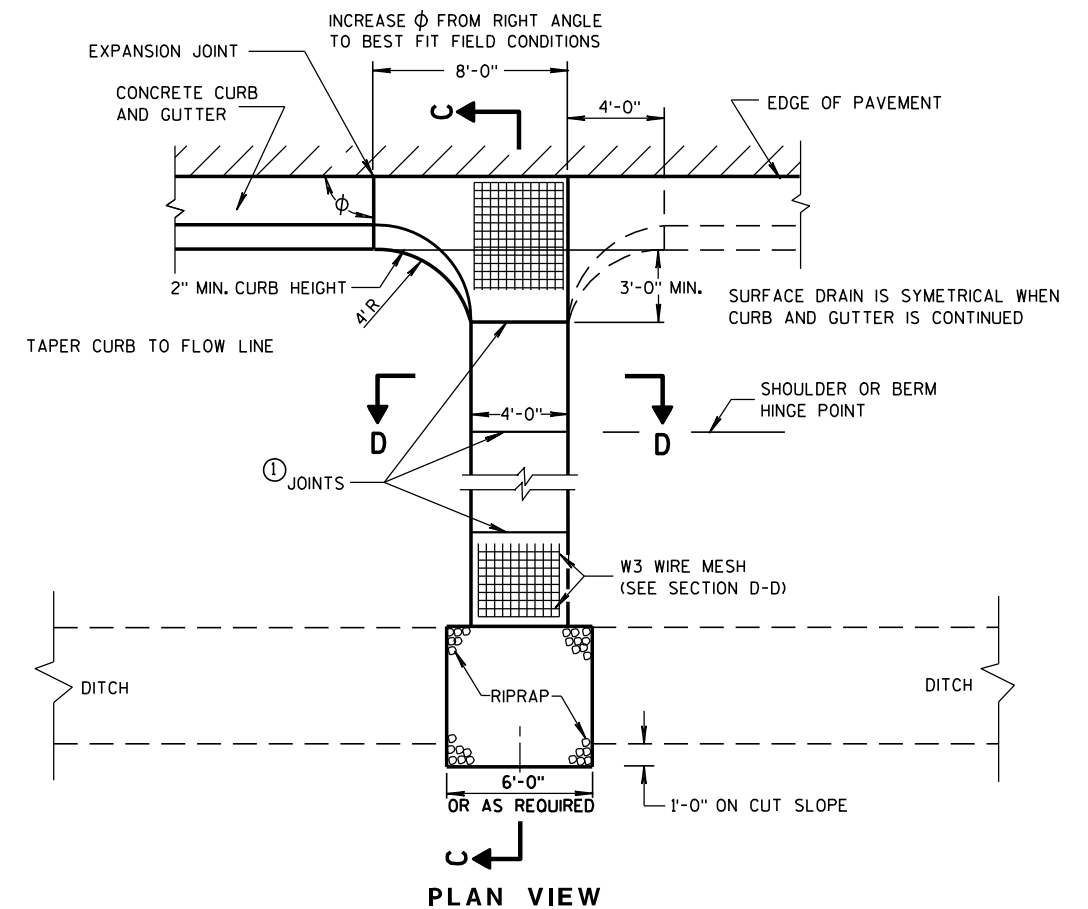
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

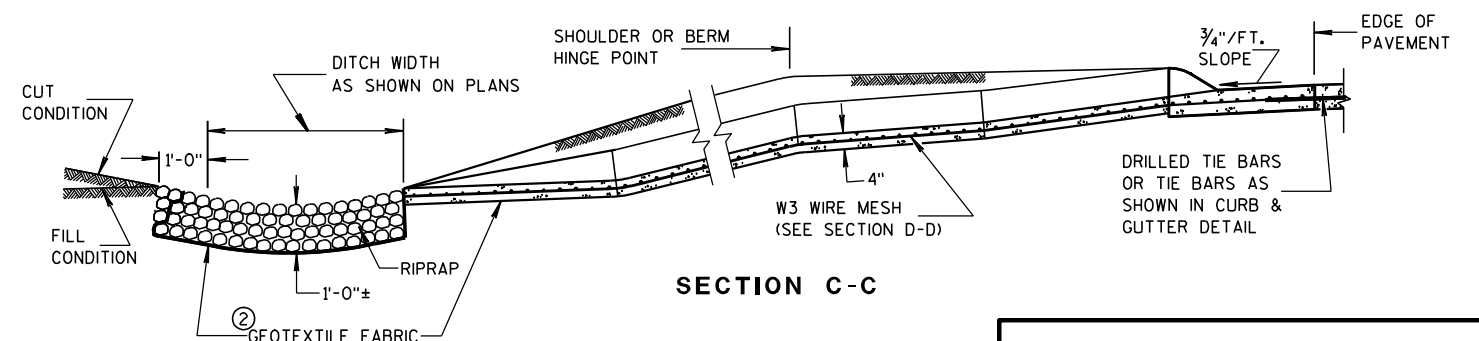
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

- ① JOINTS SHALL BE 1/8 TO 1/4 INCH WIDE BY 1 1/2 INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

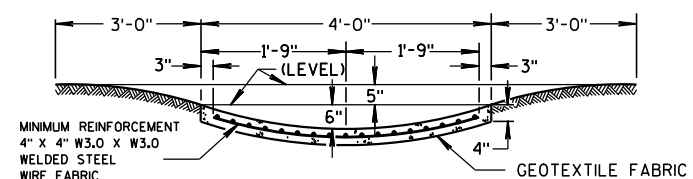
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

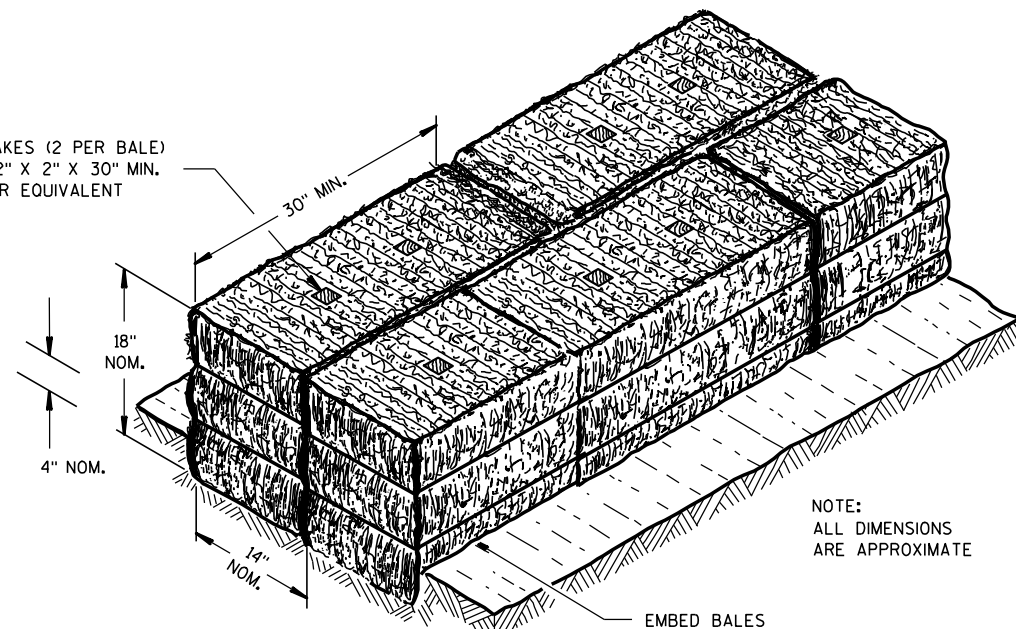
9-4-08

DATE

FHWA

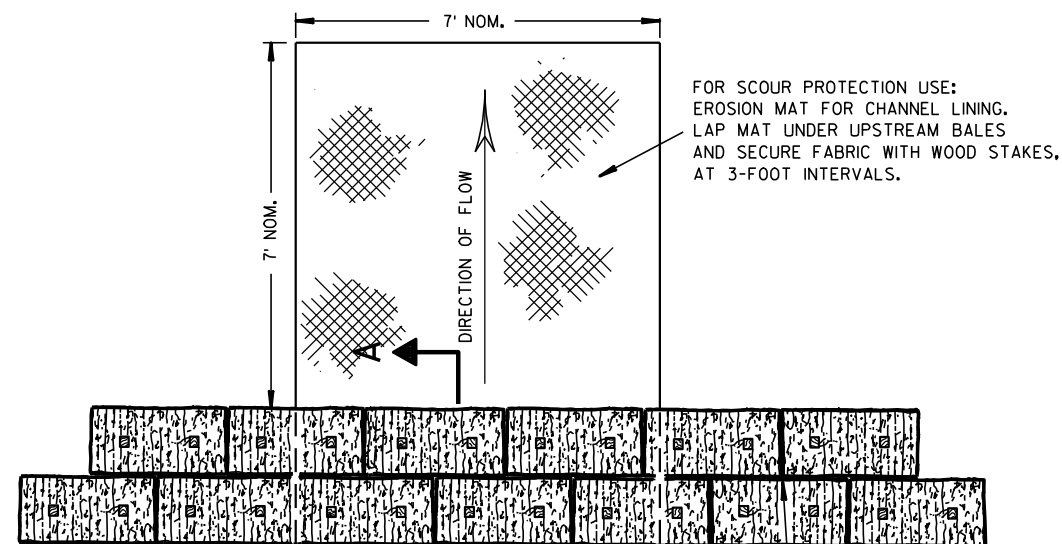
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



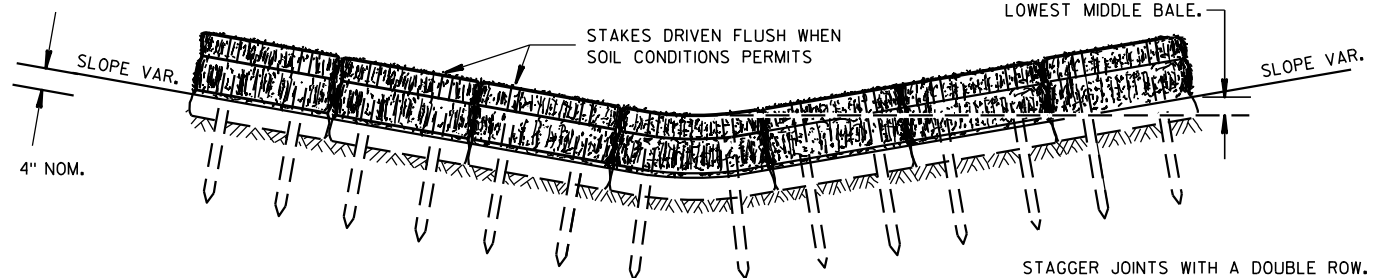
NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

SECTION A-A



FOR SCOUR PROTECTION USE:
EROSION MAT FOR CHANNEL LINING.
LAP MAT UNDER UPSTREAM BALES
AND SECURE FABRIC WITH WOOD STAKES,
AT 3-FOOT INTERVALS.

PLAN VIEW



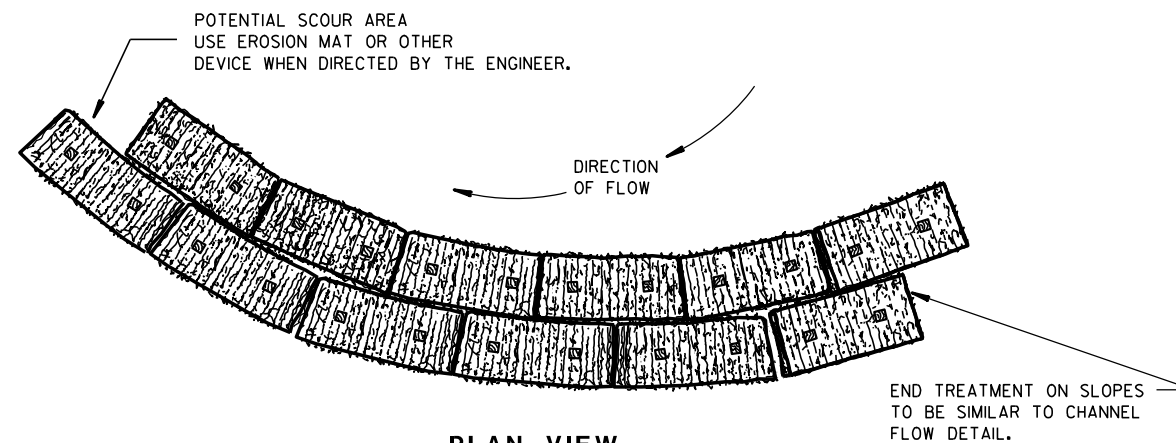
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

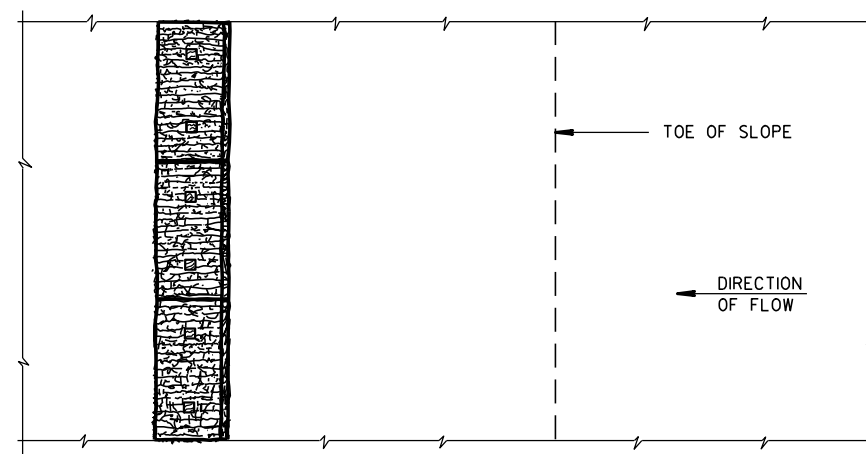
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

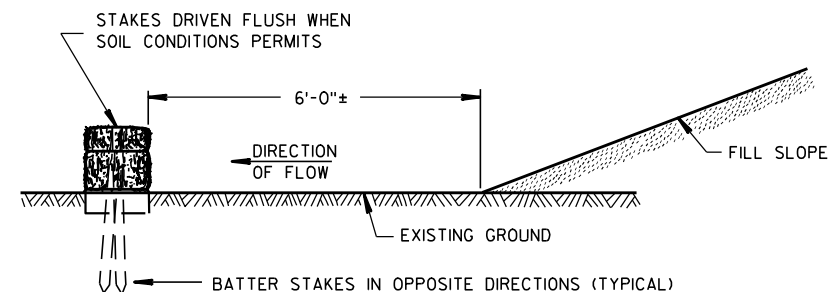


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

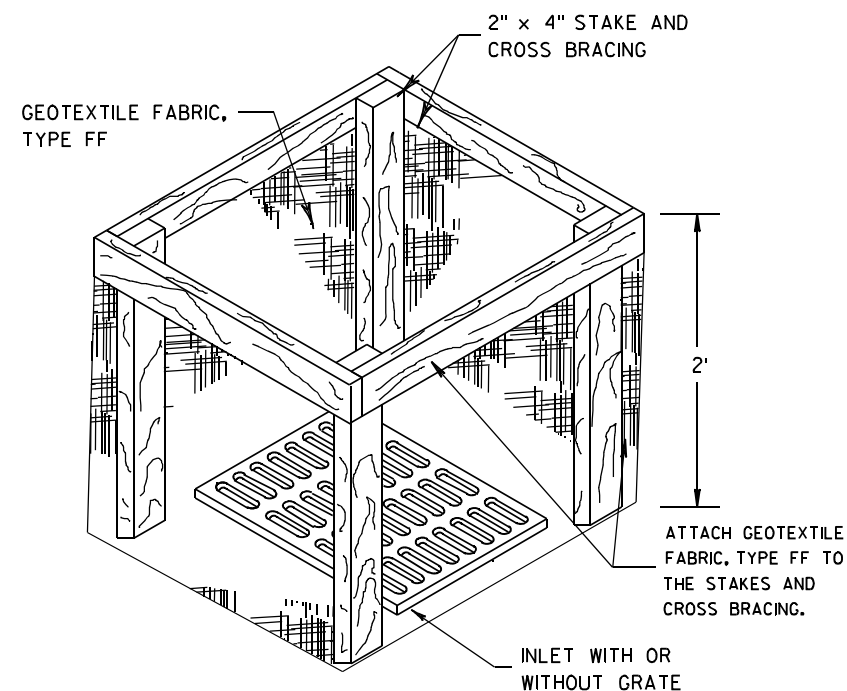
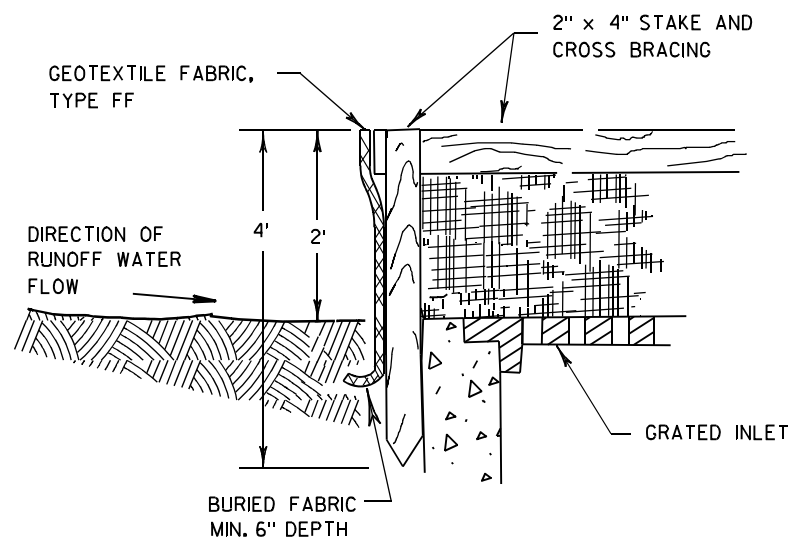
FHWA



- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED <u>4-29-05</u> DATE	<u>/S/ Beth Canestra</u> CHIEF ROADWAY DEVELOPMENT ENGINEER



INLET PROTECTION, TYPE A

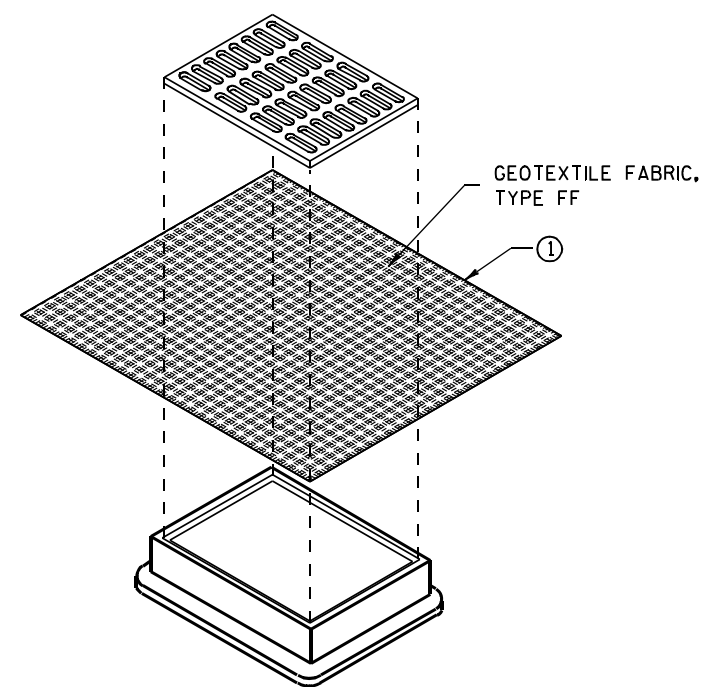
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

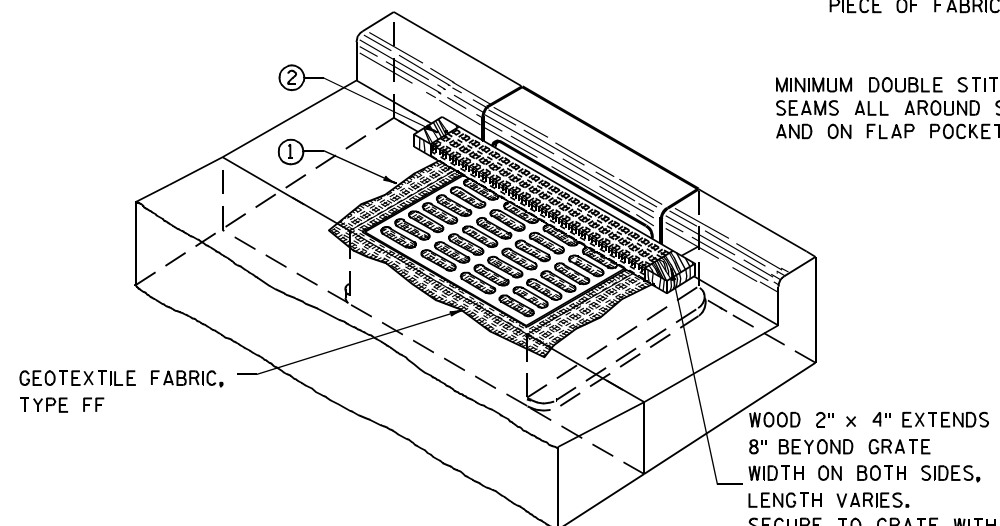
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

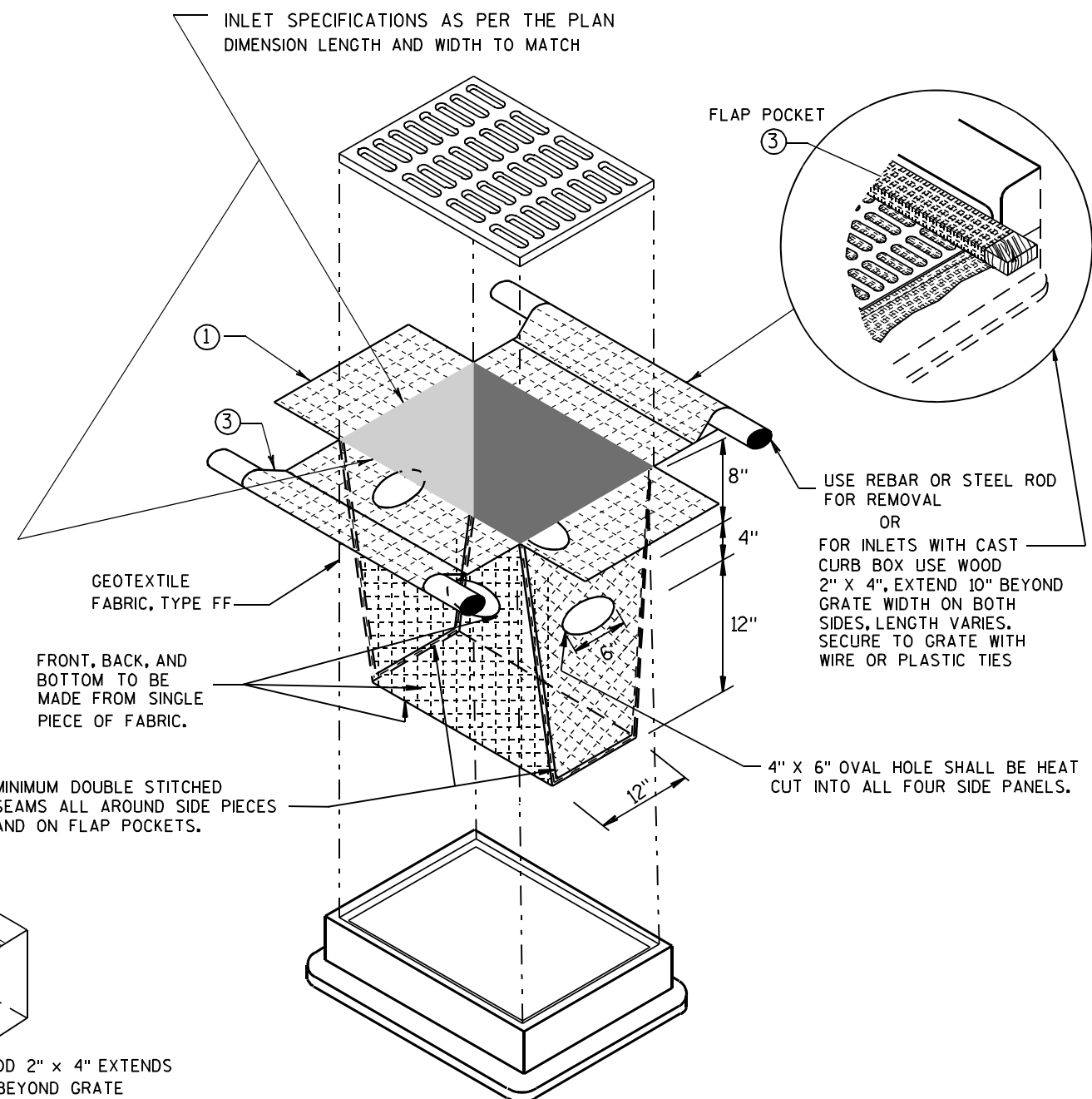
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

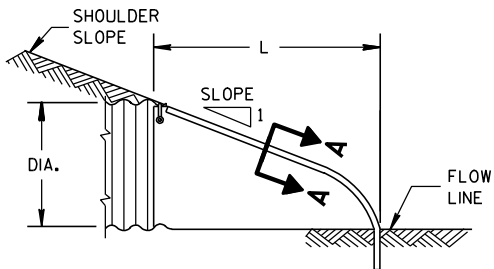
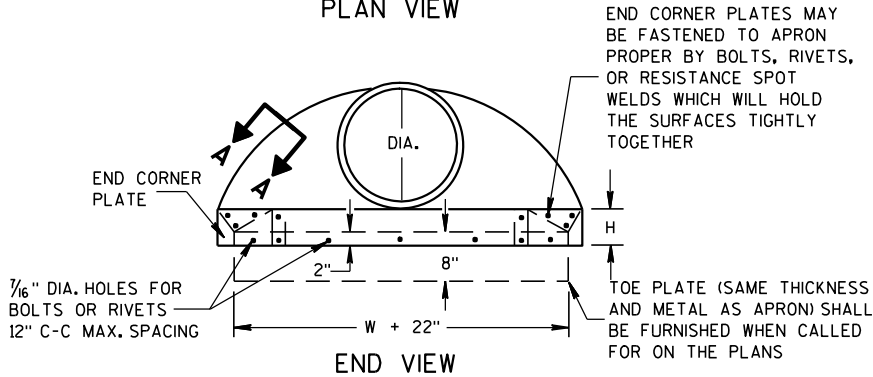
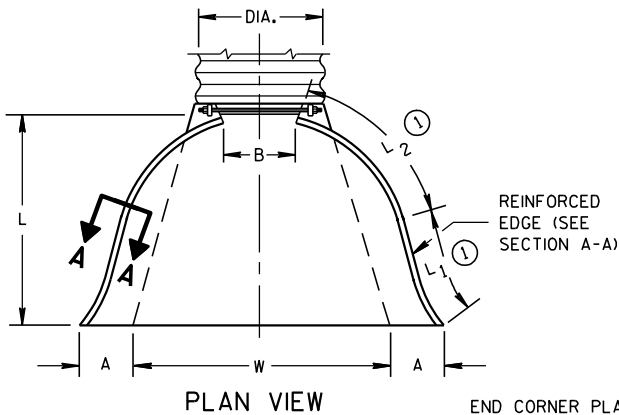
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Cannestra
DATE
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER

METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

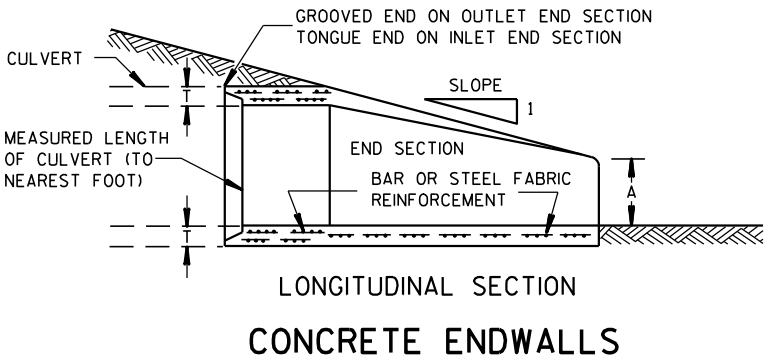
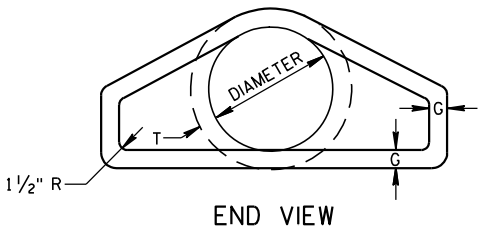
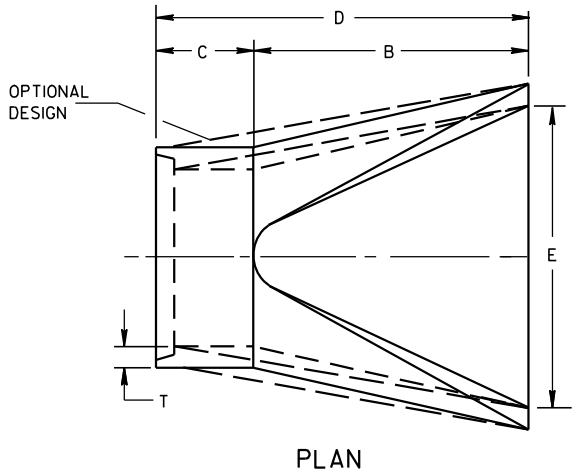
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



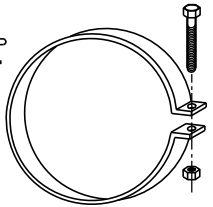
SIDE ELEVATION
METAL ENDWALLS

REINFORCED CONCRETE APRON ENDWALLS											
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE			
	T	A	B	C	D	E	G				
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1			
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1			
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1			
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1			
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1			
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1			
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1			
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1			
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1			
48	5	24	72	26	98	84	5	3 to 1			
54	5 1/2	27	65	33 1/4-35	98 1/4-100	90	5 1/2	2 1/2 to 1			
60	6	30-35	60	39	99	96	5	2 to 1			
66	6 1/2	24-30	72-78	21-27	99	102	5 1/2	2 to 1			
72	7	24-36	78	21	99	108	6	2 to 1			
78	7 1/2	24-36	78	21	99	114	6 1/2	2 to 1			
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1			
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1			

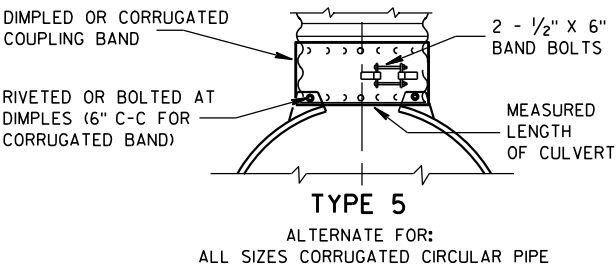
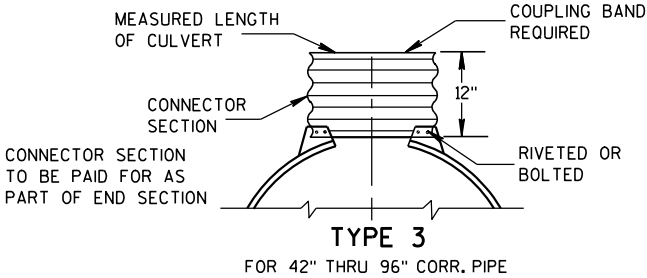
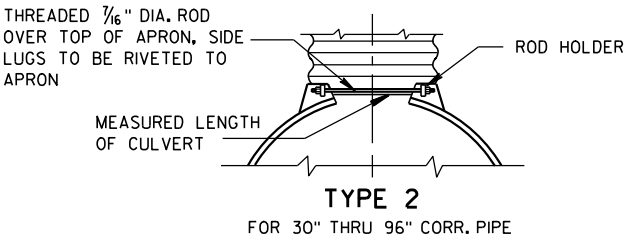
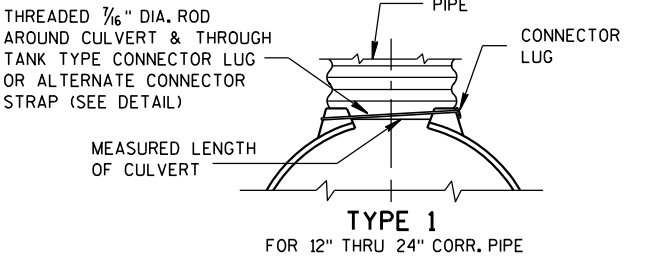
* MINIMUM
** MAXIMUM



1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



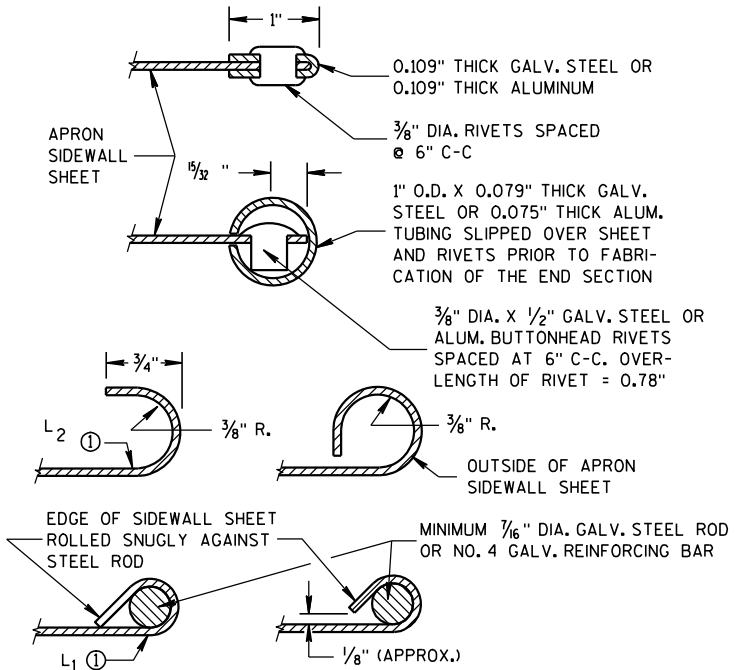
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

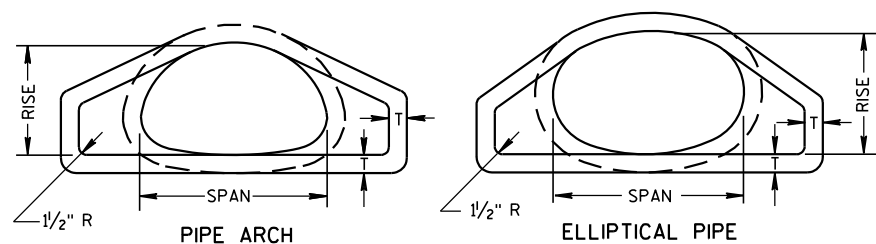
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

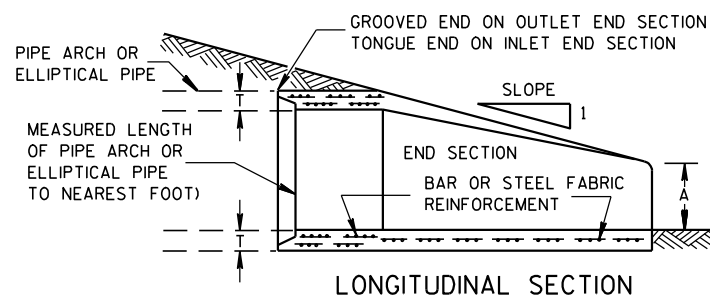
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 11/30/94 DATE	/S/ Rory L. Rhinesmith CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

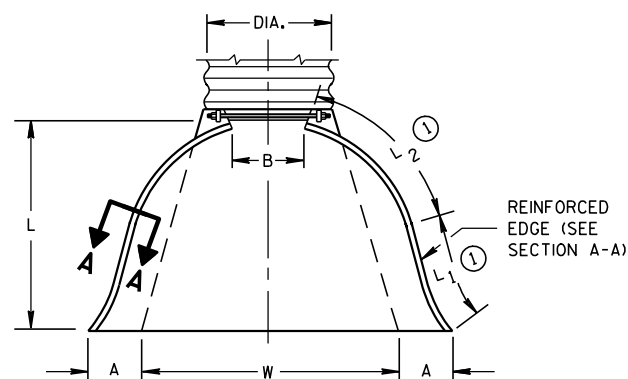


END VIEW



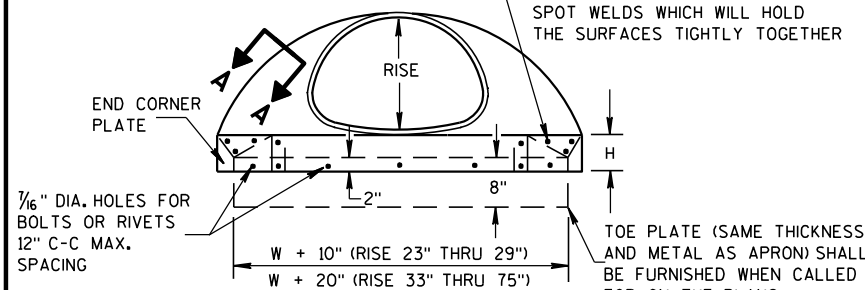
LONGITUDINAL SECTION

CONCRETE ENDWALLS

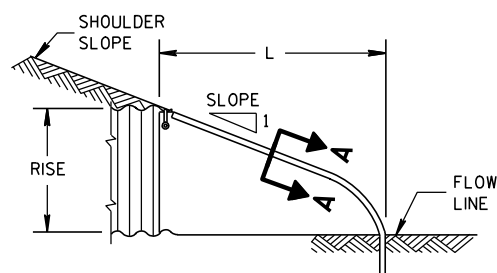
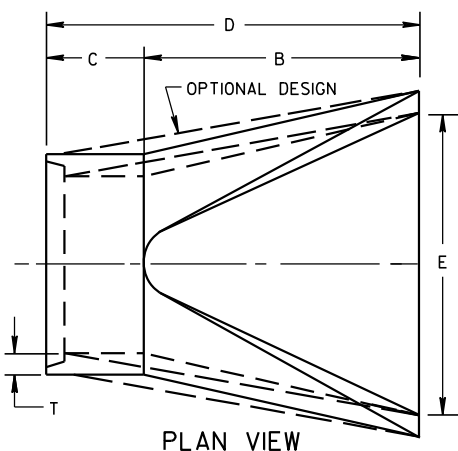


PLAN VIEW

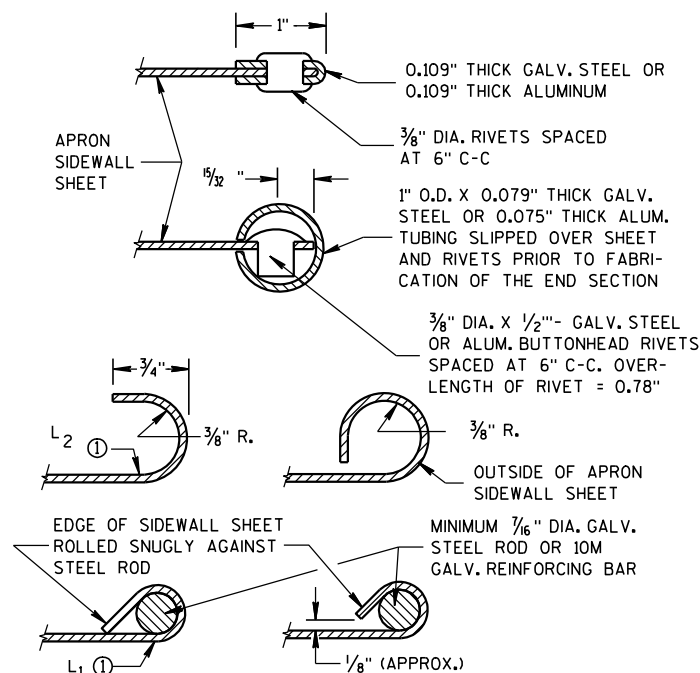
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



END VIEW

SIDE ELEVATION
METAL ENDWALLS

PLAN VIEW



SECTION A-A

2- 2 ² / ₃ " x 1 ¹ / ₂ " CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 ¹ / ₂ ")	L ₁ ①	L ₂ ①	W (±2")		
15	17	13	.064	.060	7	9	6	19	14	16	30	2 ¹ / ₂ to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19 ³ / ₈	36	2 ¹ / ₂ to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21 ³ / ₄	42	2 ¹ / ₂ to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27 ¹ / ₂	48	2 ¹ / ₂ to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37 ⁵ / ₈	60	2 ¹ / ₂ to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45 ³ / ₈	75	2 ¹ / ₂ to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54 ³ / ₄	85	2 ¹ / ₂ to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2 ¹ / ₂ to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72 ³ / ₄	102	2 ¹ / ₄ to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82 ¹ / ₄	114	2 ¹ / ₄ to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

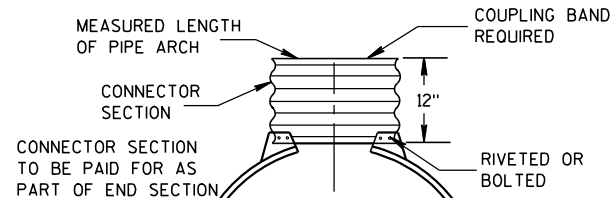
3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L ₁ ⓪	L ₂ ⓪	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72¾	90	2½ to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82¼	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1½ to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1½ to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1½ to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1½ to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1½ to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1½ to 1	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES

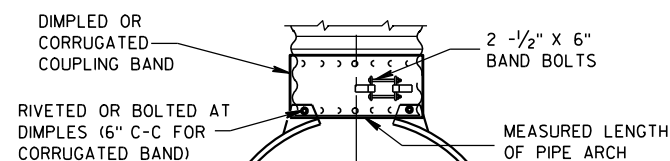
TYPE 2

FOR 17" X 13" THRU 112" X 75" PIPE ARCH



TYPE 3

FOR 64" X 43" THRU 112" X 75" PIPE ARCH



TYPE 5

ALTERNATE FOR:

ALL SIZES CORRUGATED PIPE ARCHES

NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

REINFORCED CONCRETE PIPE ARCH

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	29	18	3	8 1/2	39	33	72	48	3 to 1
30	36	22	3 1/2	9 1/2	50	46	96	60	3 to 1
36	44	27	4	11 1/8	60	36	96	72	3 to 1
42	51	31	4 1/2	15 1/16	60	36	96	78	3 to 1
48	58	36	5	21	60	36	96	84	3 to 1
54	65	40	5 1/2	25 1/2	60	36	96	90	3 to 1
60	73	45	6	31	60	36	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28 1/2	83	19	102	144	2 to 1

REINFORCED CONCRETE ELLIPTICAL PIPE

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	30	19	3 1/4	8 1/2	39	33	72	48	3 to 1
30	38	24	3 3/4	9 1/2	54	18	72	60	3 to 1
36	45	29	4 1/2	11 1/8	60	24	84	72	2 1/2 to 1
42	53	34	5	15 1/4	60	36	96	78	2 1/2 to 1
48	60	38	5 1/2	21	60	36	96	84	2 1/2 to 1
54	68	43	6	25 1/2	60	36	96	90	2 1/2 to 1
60	76	48	6 1/2	30	60	36	96	96	2 1/2 to 1

**NOMINAL SIZE

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE APRON ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM APRON ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE ARCH PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 77" X 52" THROUGH 112" X 75" APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR
PIPE ARCH AND
ELLIPTICAL PIPESTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

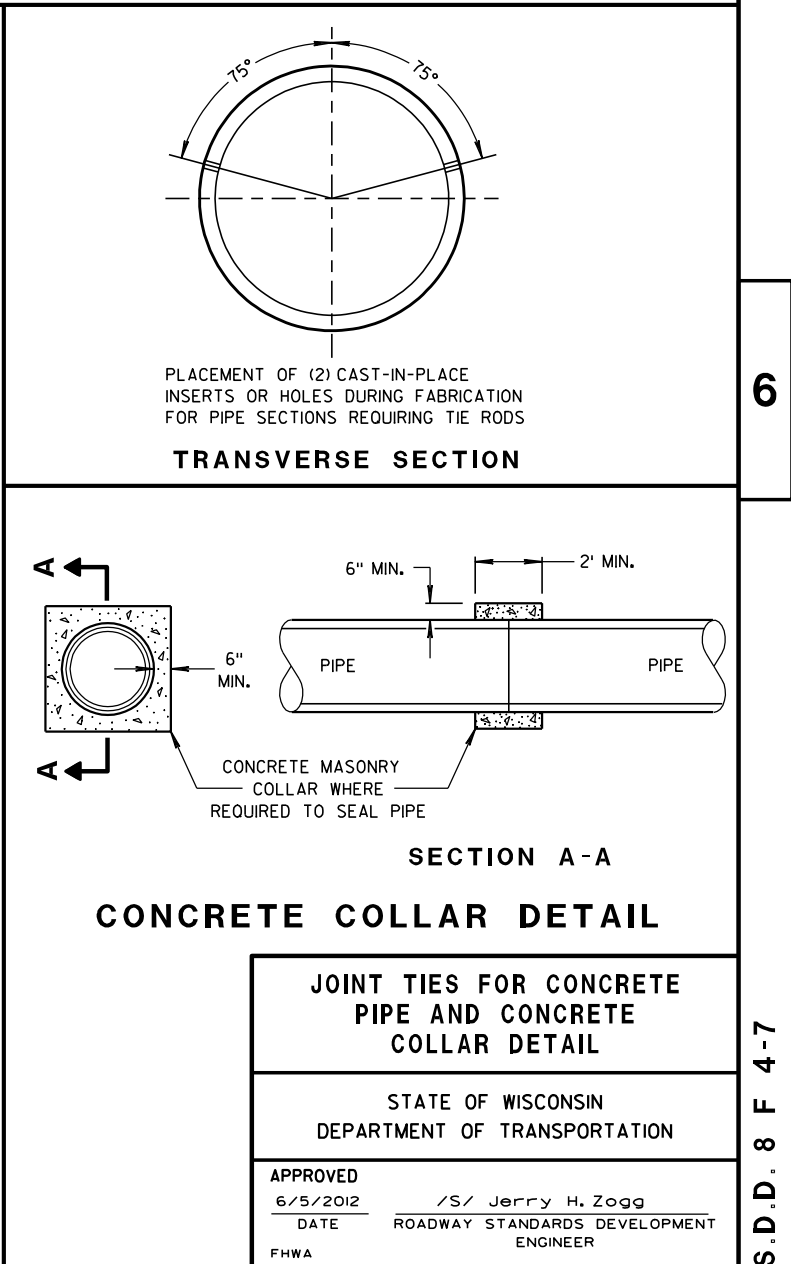
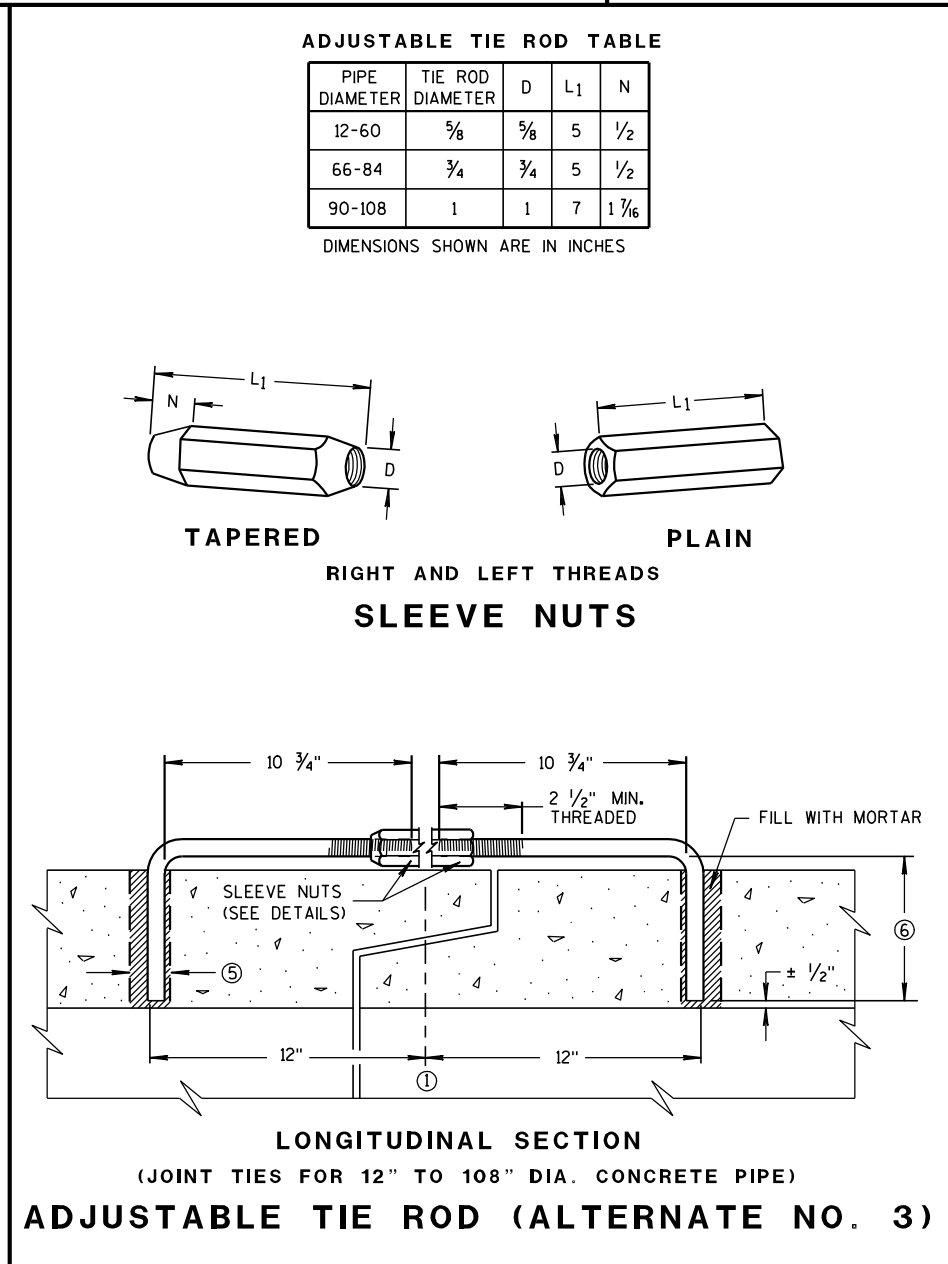
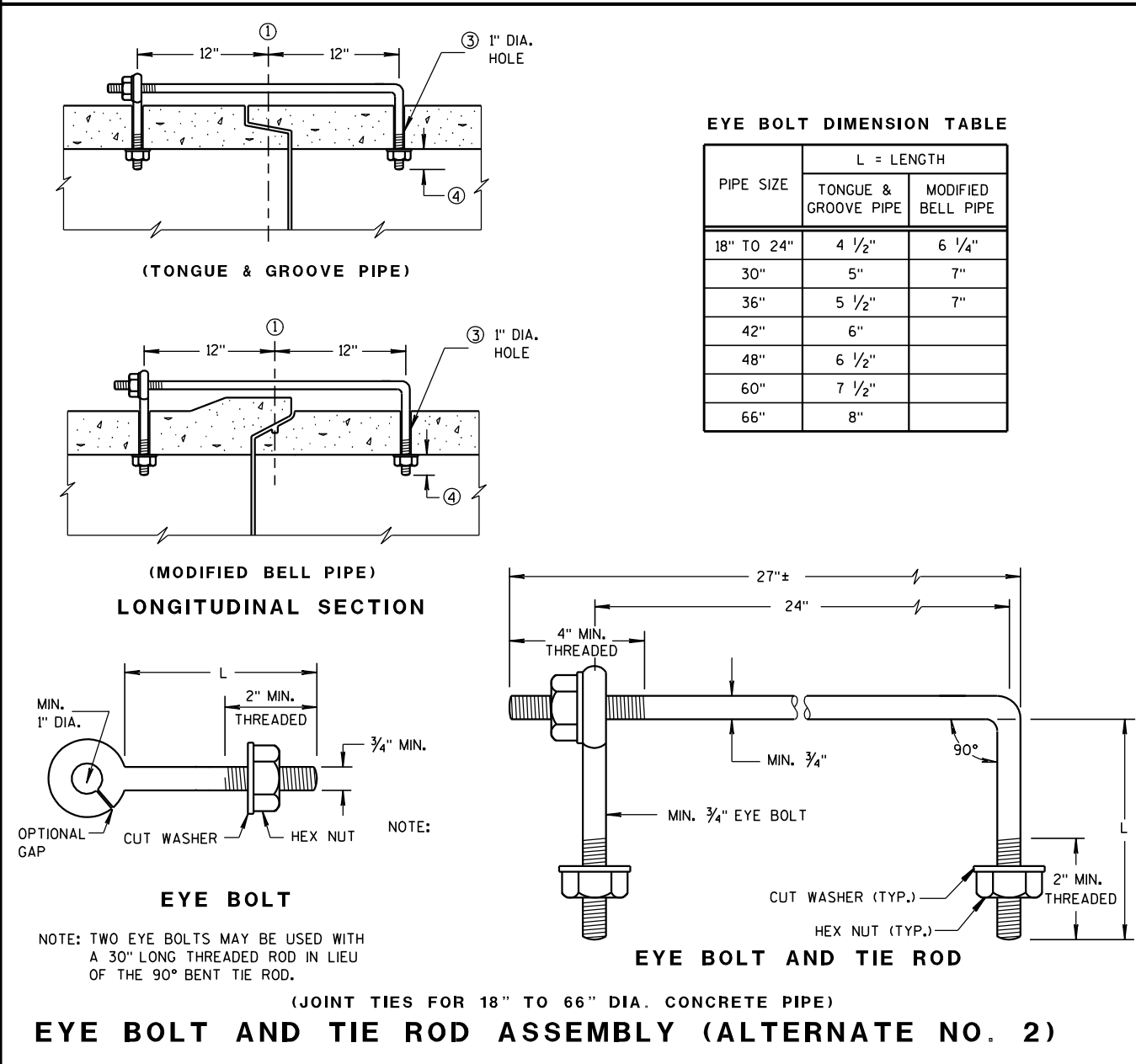
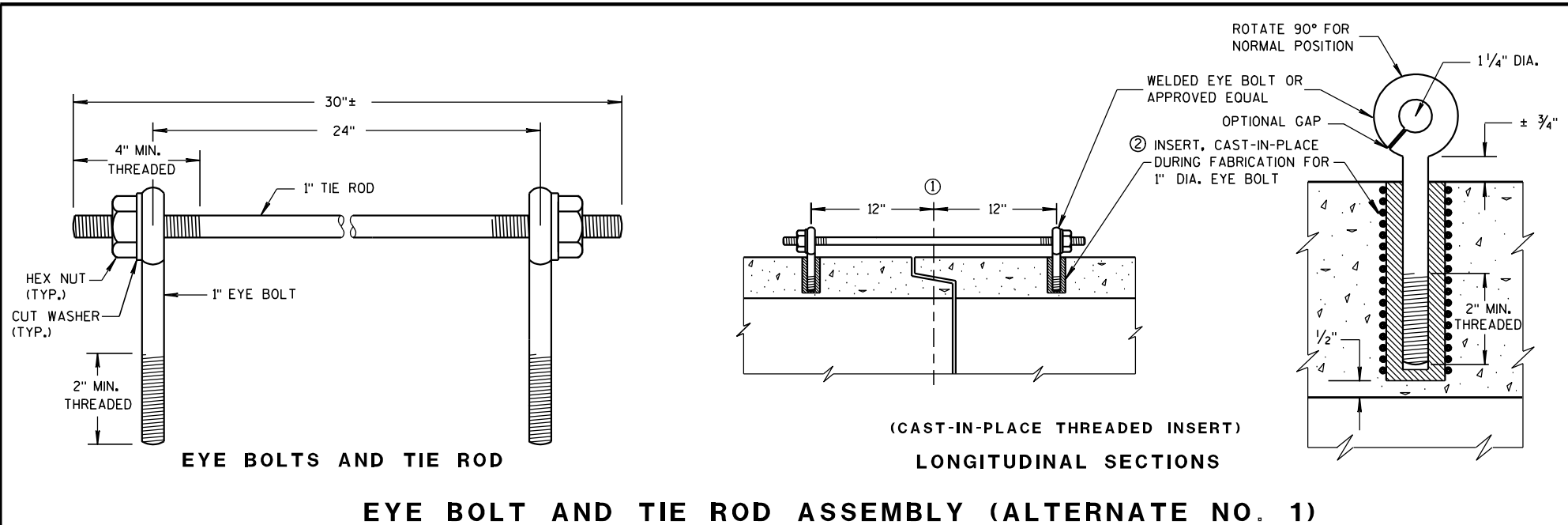
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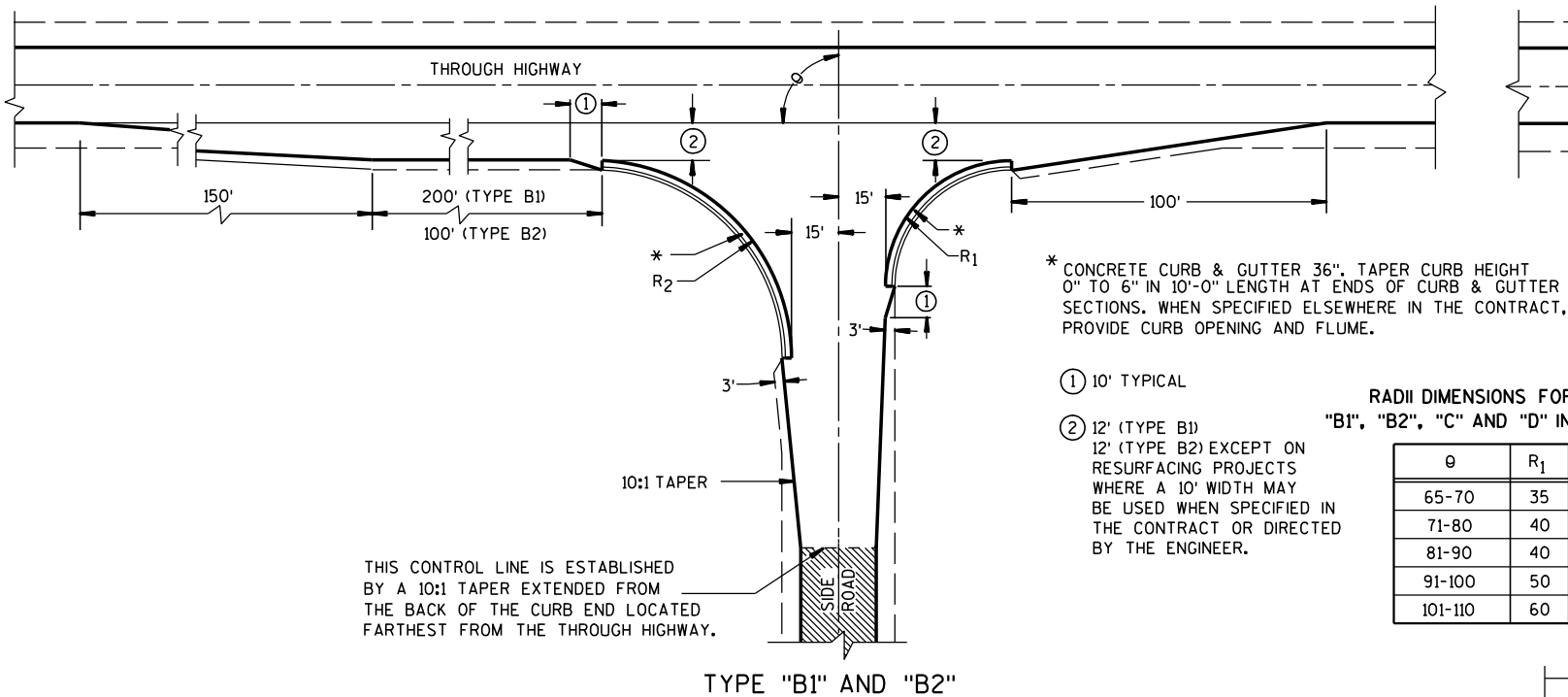
11/30/94

DATE

FHWA

/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER





GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

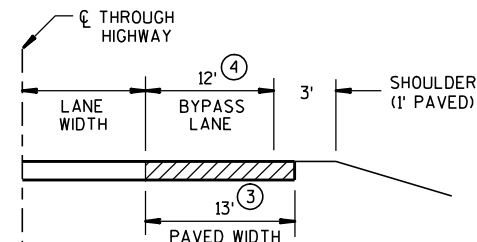
SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN UNLESS OTHERWISE PROVIDED IN THE CONTRACT. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

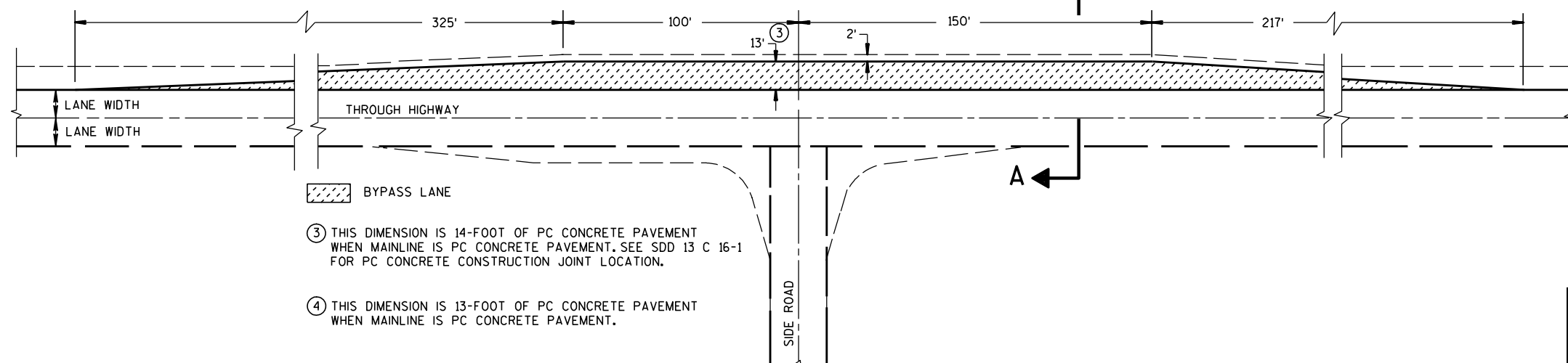
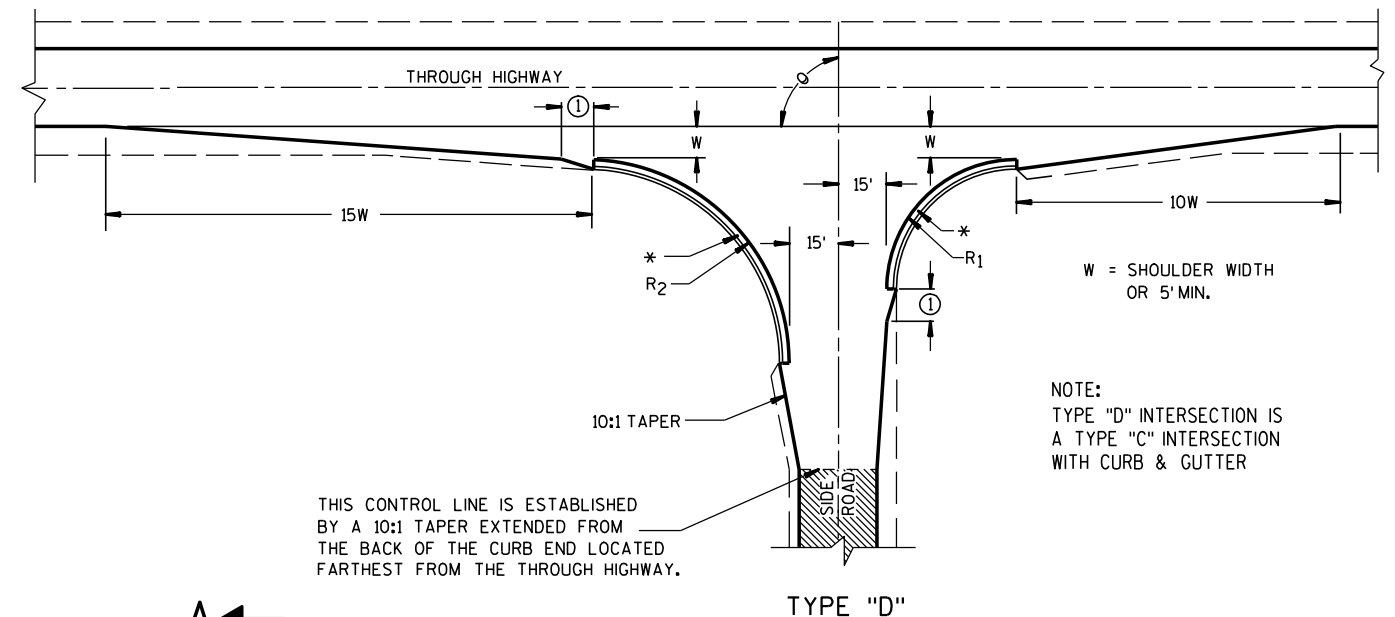
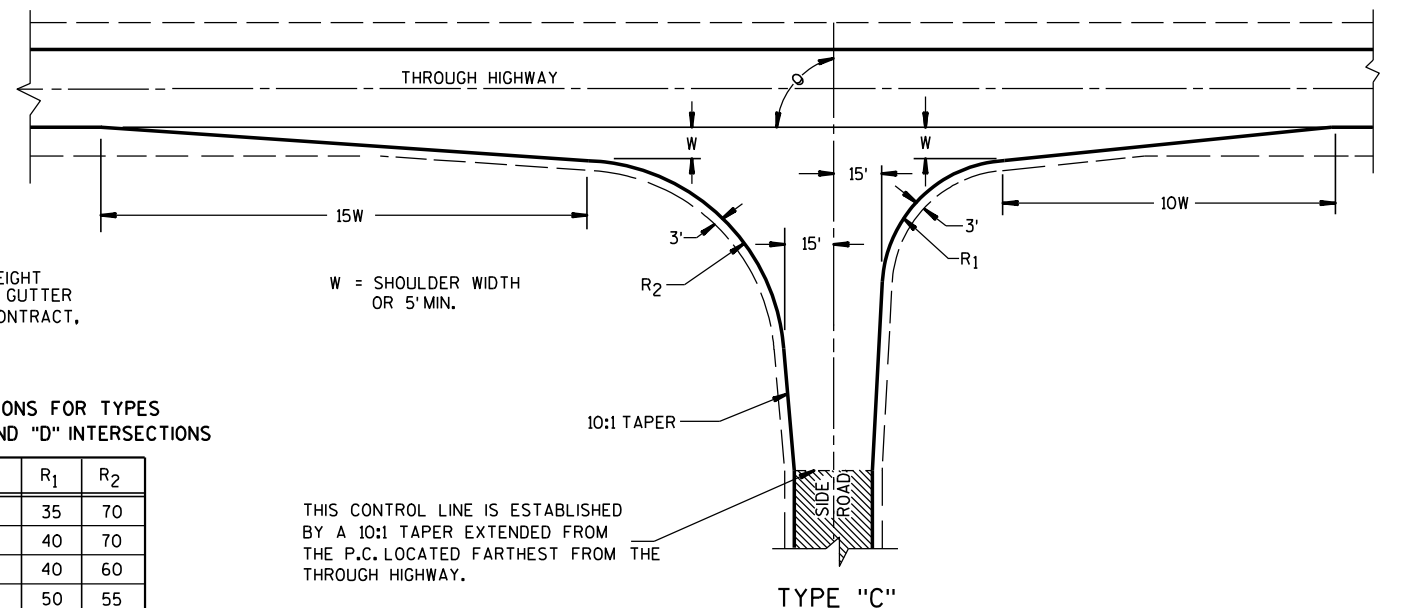
WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

EXISTING SURFACE



SECTION A-A
(SHOWING BYPASS LANE AND SHOULDER)



TEE INTERSECTION BYPASS LANE DETAIL

AT-GRADE SIDE ROAD
INTERSECTION, TYPES "B1", "B2",
"C" AND "D" AND TEE
INTERSECTION BYPASS LANE

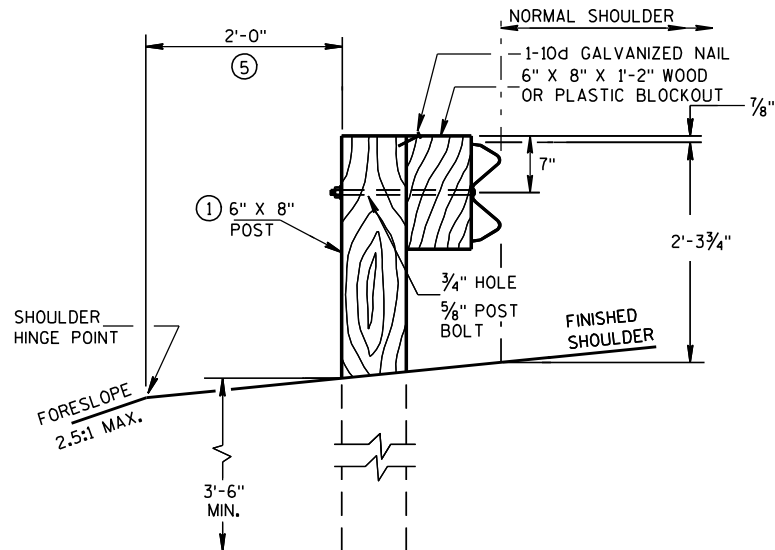
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

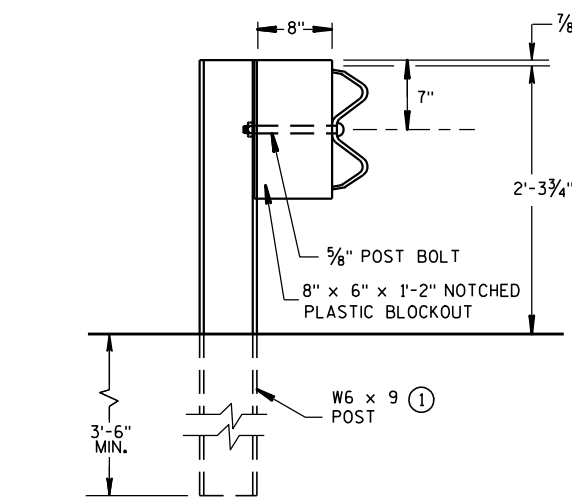
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, AND THE APPLICABLE SPECIAL PROVISIONS.

- ① W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS. DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
- ② USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111 EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPALTER COATING ON GALVANIZED POSTS.
- ③ INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ④ USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
- ⑤ IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).
- ⑥ IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.

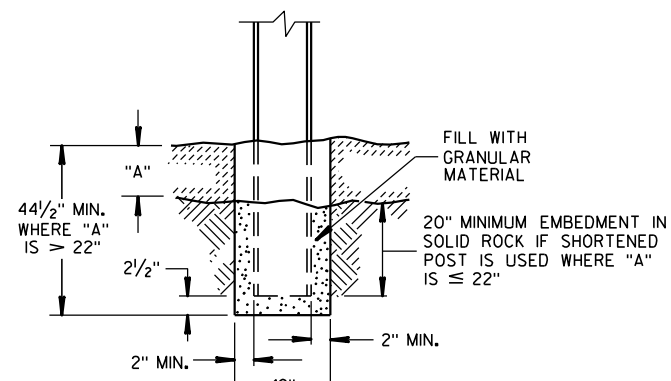
INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



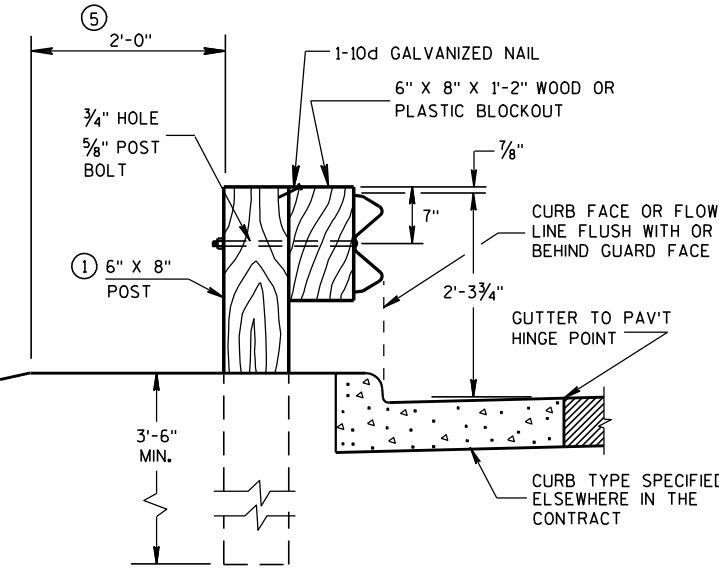
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



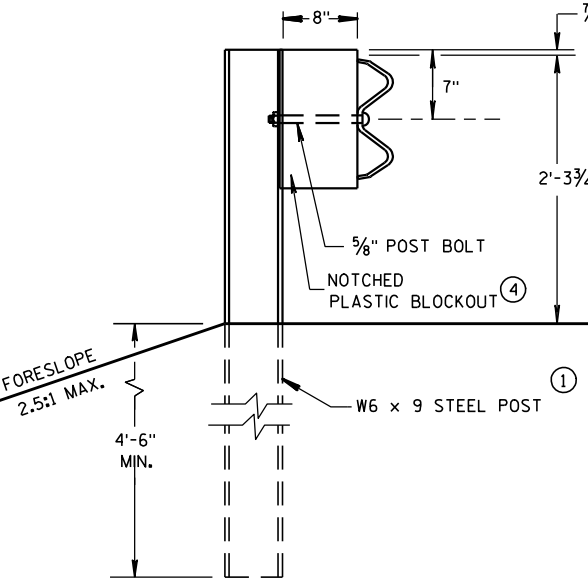
END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION



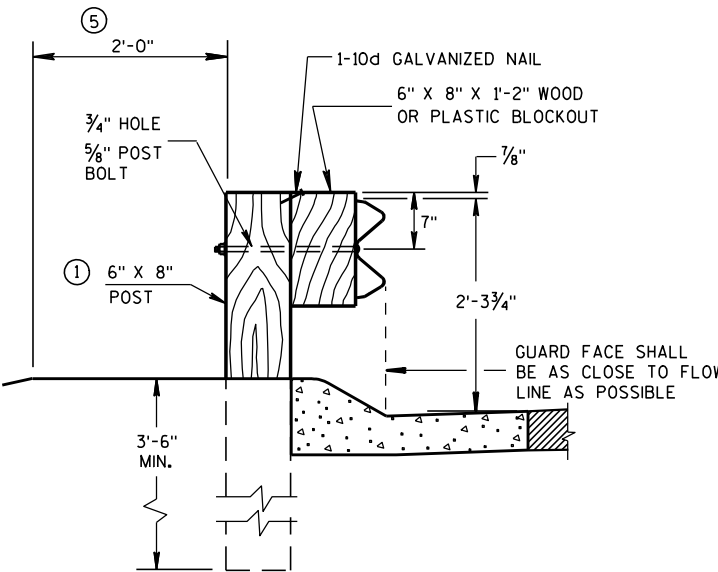
END VIEW
SETTING STEEL OR WOOD POST IN ROCK ⑥



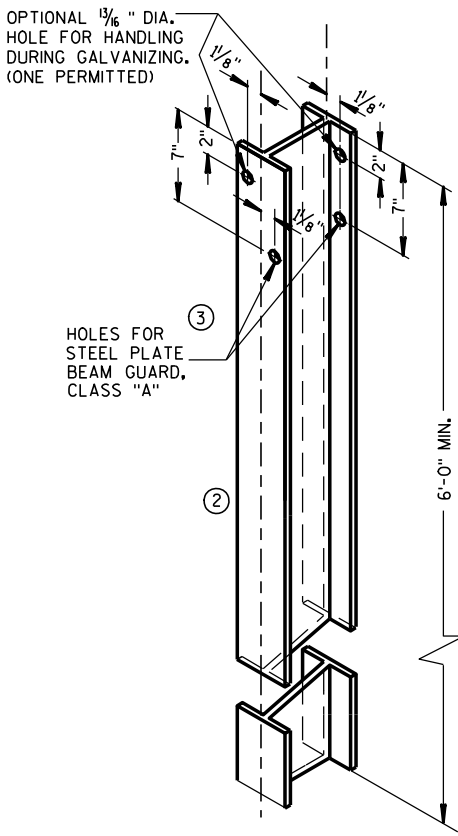
END VIEW
LOCATED ALONG A CURBED ROADWAY



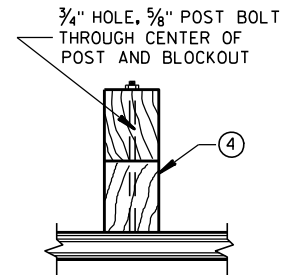
END VIEW
LONGER POST AT HALF
POST SPACING W BEAM
(LHW)



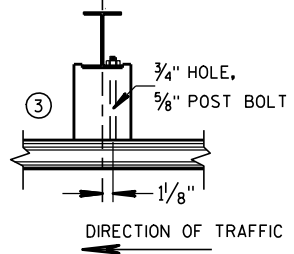
END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY



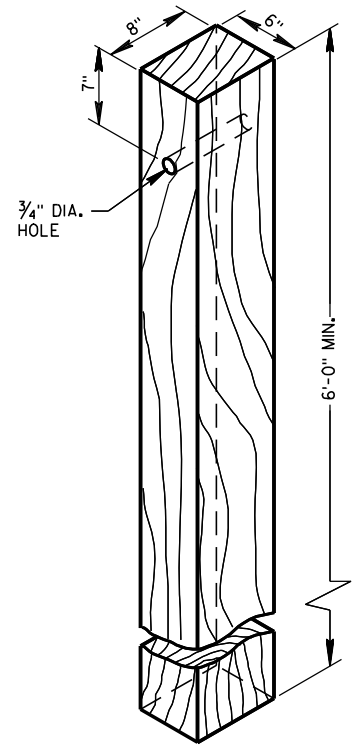
STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) ①
ALL HOLES 1 3/8" DIAMETER EXCEPT AS NOTED



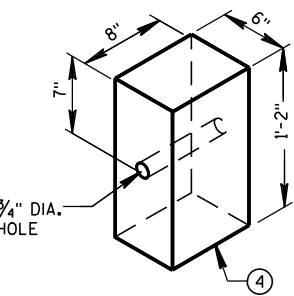
PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



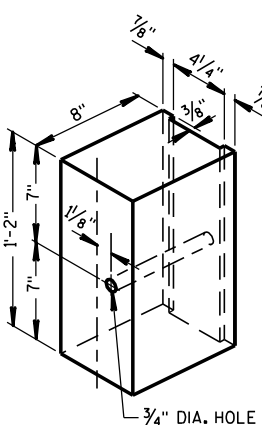
PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM



WOOD POST
(6"X8") NOMINAL



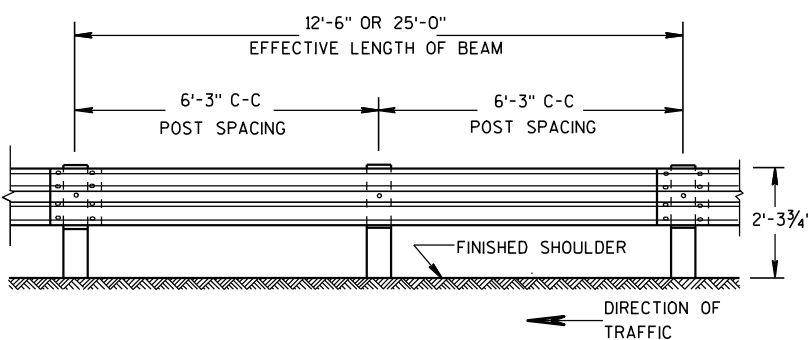
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



TYPICAL NOTCHED
PLASTIC BLOCKOUT
FOR STEEL POSTS ①

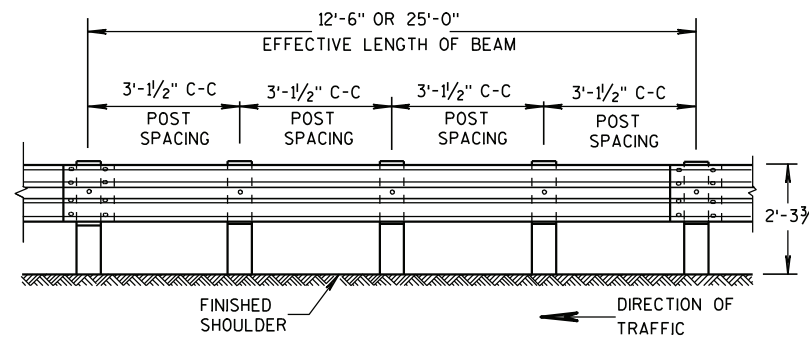
STEEL PLATE BEAM GUARD,
CLASS "A"
INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FRONT VIEW

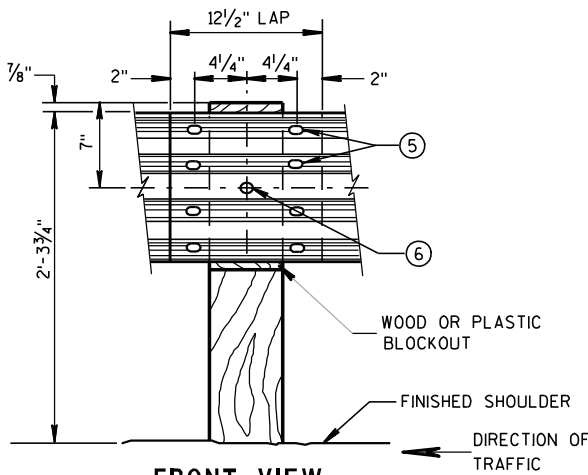
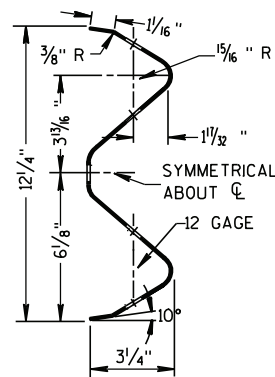
POST SPACING STANDARD INSTALLATION



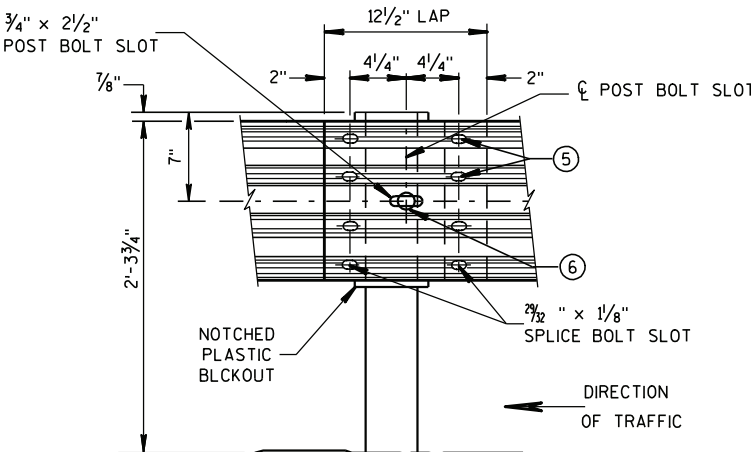
FRONT VIEW

POST SPACING FOR LONGER POST
AT HALF POST SPACING W BEAM (LHW)

SECTION THRU W BEAM



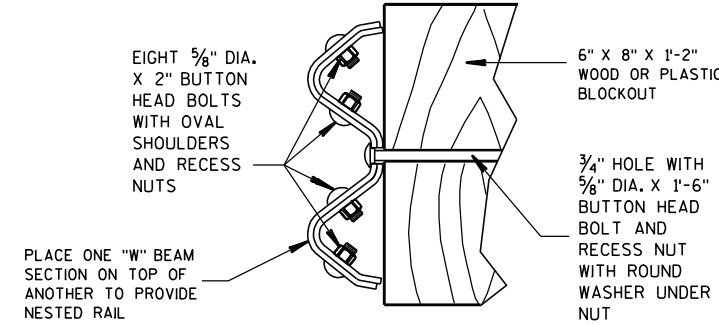
FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAIL



FRONT VIEW
BEAM SPLICE AT STEEL POST
TYPICAL SPLICING DETAILS
OF STEEL PLATE BEAM GUARD

GENERAL NOTES

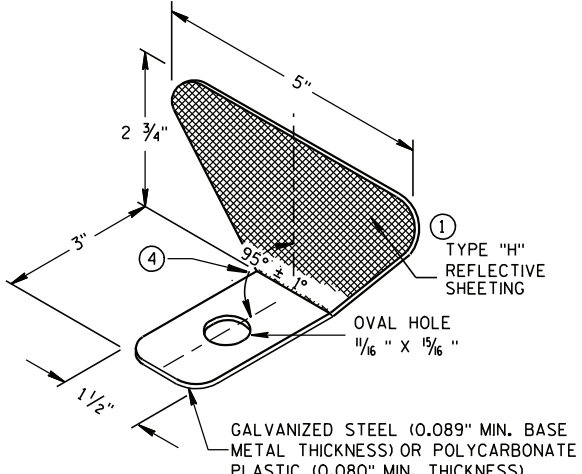
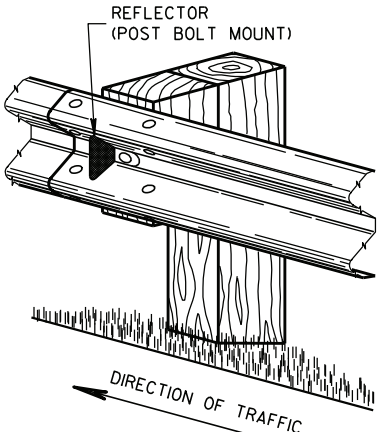
- ① PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
- ② DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- ③ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ④ PROVIDE AN ANGLE OF BEND OF $90^\circ \pm 1^\circ$ FOR TWO-SIDED REFLECTORS.
- ⑤ 8 - 5/8" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑥ 5/8" ϕ X 1'-6" BUTTON HEAD BOLT AND AND RECESS NUT WITH ROUND WASHER UNDER NUT.



NESTED W BEAM (NW)
USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR
CONSTRUCTING NESTED W BEAM (NW)

REFLECTOR SPACING^②

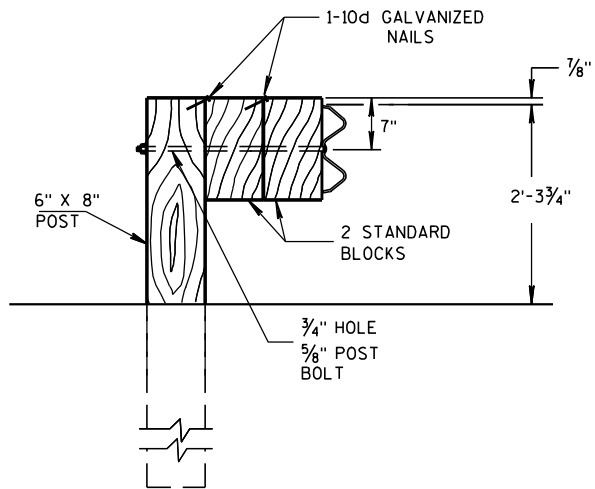
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ③	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ④	3
	> 200'	100' C-C	2	



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

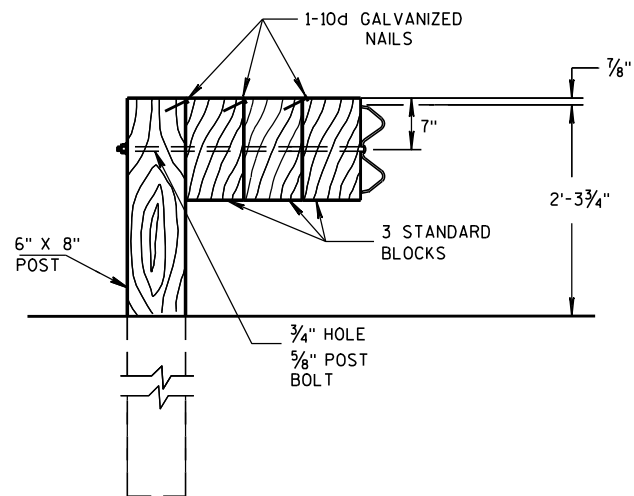
STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR DOUBLE BLOCKS

THE NUMBER OF DOUBLE BLOCK POSTS
WITHIN A BARRIER RUN IS UNLIMITED

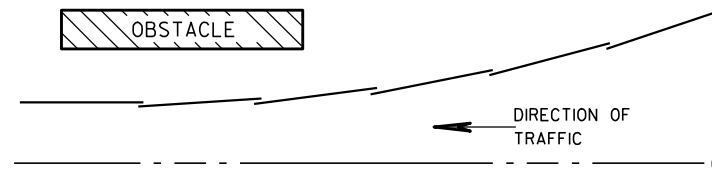


DETAIL FOR TRIPLE BLOCKS

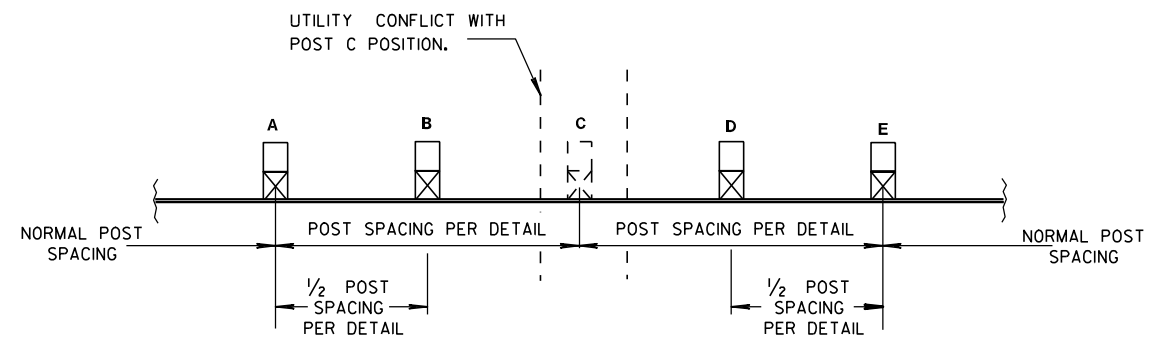
TRIPLE BLOCK DETAIL IS LIMITED TO ONE
LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES
PREVENT THE POST FROM BEING INSTALLED.

DO NOT USE EXTRA BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND
SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION
DISTANCE OF THE BARRIER.



PLAN VIEW BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

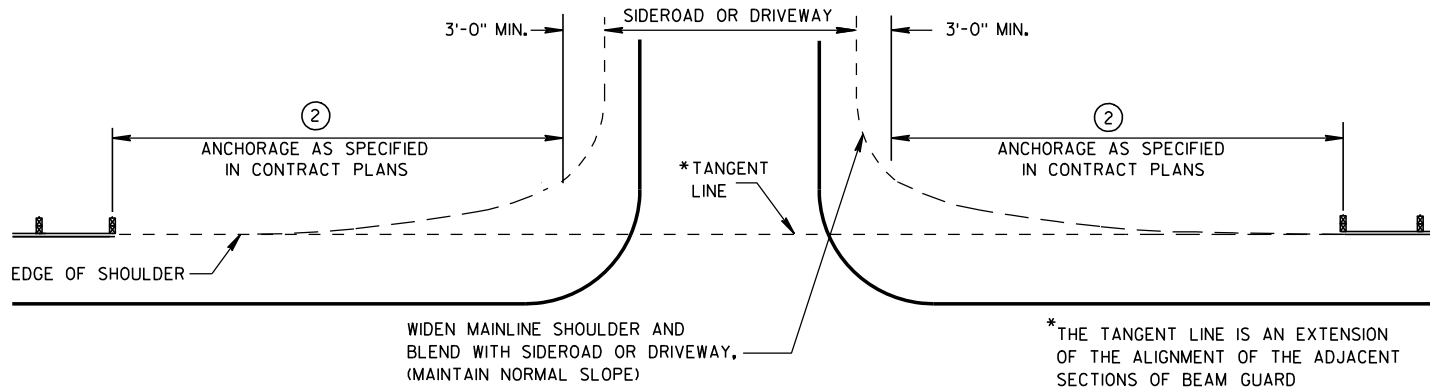
APPROVED

5/23/11

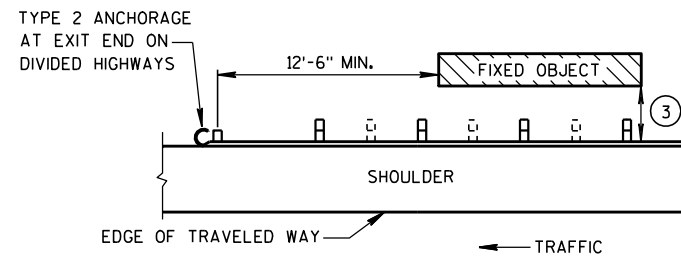
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC

GENERAL NOTES

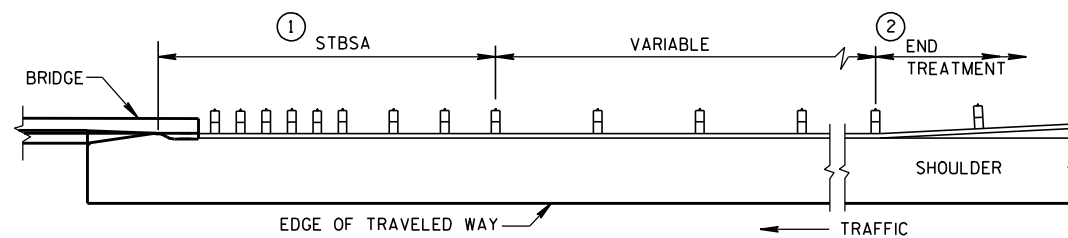
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

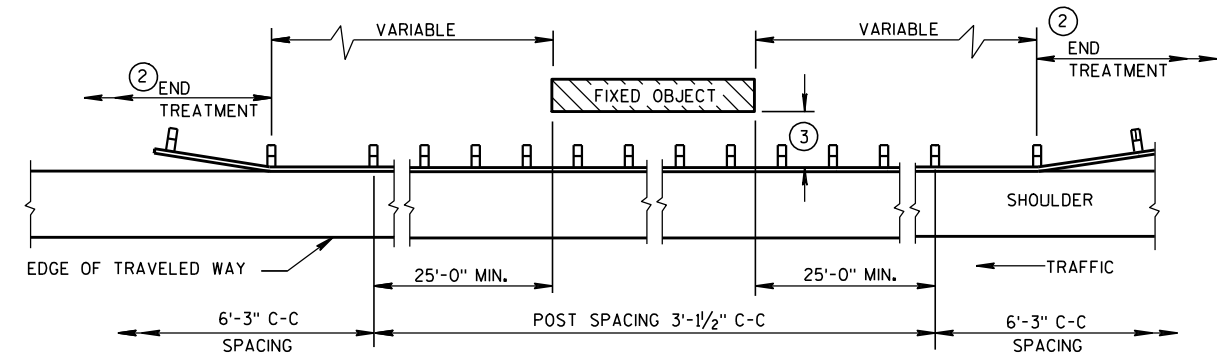
THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

- ① STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- ② USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1½"
4'-6"	6' - 3"



BEAM GUARD AT FULL WIDTH BRIDGES

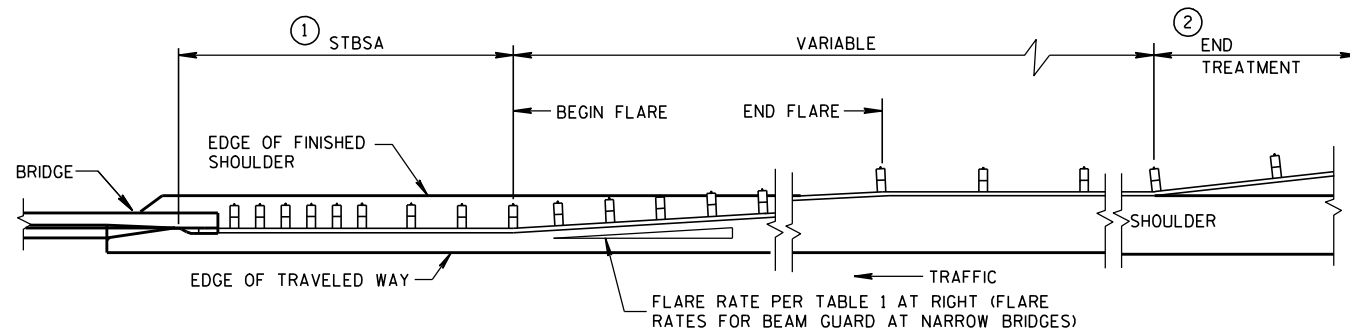


BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")

TABLE 1
FLARE RATES FOR BEAM
GUARD AT NARROW BRIDGES

POSTED SPEED (MPH)	FLARE RATE
25	13:1
30	15:1
35	16:1
40	18:1
45	21:1
50	24:1
55	26:1
65	30:1



BEAM GUARD AT NARROW BRIDGES (FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

STEEL PLATE BEAM GUARD
CLASS "A"
AT BRIDGES, OBSTACLES
AND SIDEROADS/DRIVEWAYS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8-21-07
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

BILL OF MATERIALS

NOTE NO.	QTY.	DESCRIPTION
①	4	WOOD BREAKAWAY TERMINAL POST: 5 1/2" X 7 1/2" X 3'-9"
②	**	STEEL TUBE: OPTION 1 - QUANTITY OF 4 TS 8" X 6" X 0.188", 4'-6" LONG OR OPTION 2 - QUANTITY OF 2 TS 8" X 6" X 0.188", 6'-0" AND 2 TS 8" X 6" X 0.188", 4'-6" LONG
③	2	SOIL PLATE: 2'-0" X 1'-6" X 1/4" **
④	4	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	6	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	1	PIPE SLEEVE: 2" X 5 1/2" STANDARD PIPE
⑦	1	BEARING PLATE
⑧	1	BCT CABLE ASSEMBLY
⑨	1	CABLE ANCHOR BOX
⑩	1	STRUT & YOKE
⑪	1	STEEL PLATE BEAM, END PANEL 12 GA, 13'-6 1/2" LONG FOR SKT-350, ET-2000 AND ET-2000 PLUS
⑫	3	STEEL PLATE BEAM: 12 GA, 13'-6 1/2"
⑬	1	ET-2000/ET-2000 PLUS GUARDRAIL EXTRUDER OR SKT-350 IMPACT HEAD: AS FURNISHED BY MANUFACTURER
⑭	1	REFLECTIVE SHEETING TYPE H: 18" X 18"
⑮	1	E.A.T. MARKER POST

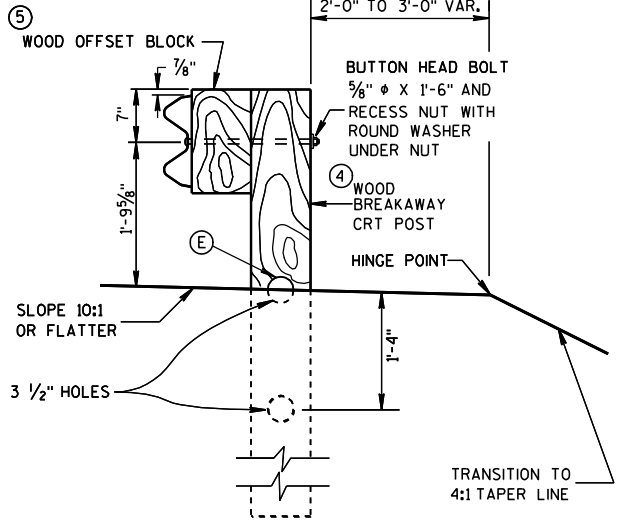
GENERAL NOTES

FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS. IF NONE ARE AVAILABLE, INSTALL 5/8" ϕ X 1'-6" BUTTON HEAD BOLTS AT ALL POSTS EXCEPT FOR POST 1.

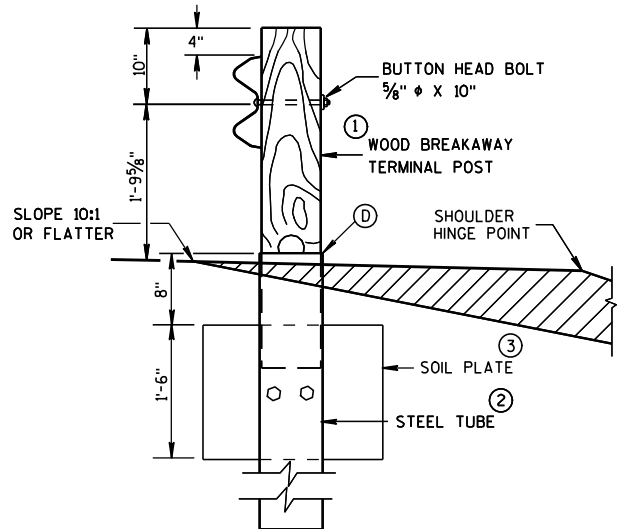
- (A) THE SLOPE IN THE AREA BOUNDED BY THE EXTENDED VEHICLE RUNOUT PATH (EVRP), THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (C) THE 13 SLOT FIRST RAIL PANEL MAY BE USED IN LIEU OF THE 3 SLOT RAIL PANEL ON SKT-350 ONLY.
- (D) THE TOP OF THE STEEL TUBE ON POSTS 1 THROUGH 4 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST 5 THROUGH 8 SHALL BE 3/4" ABOVE THE FINISHED GROUND LINE.
- (F) SHEETING IS ATTACHED TO 0.040 ALUMINUM SHEET AND ATTACHED TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER OF E.A.T. STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.
- DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

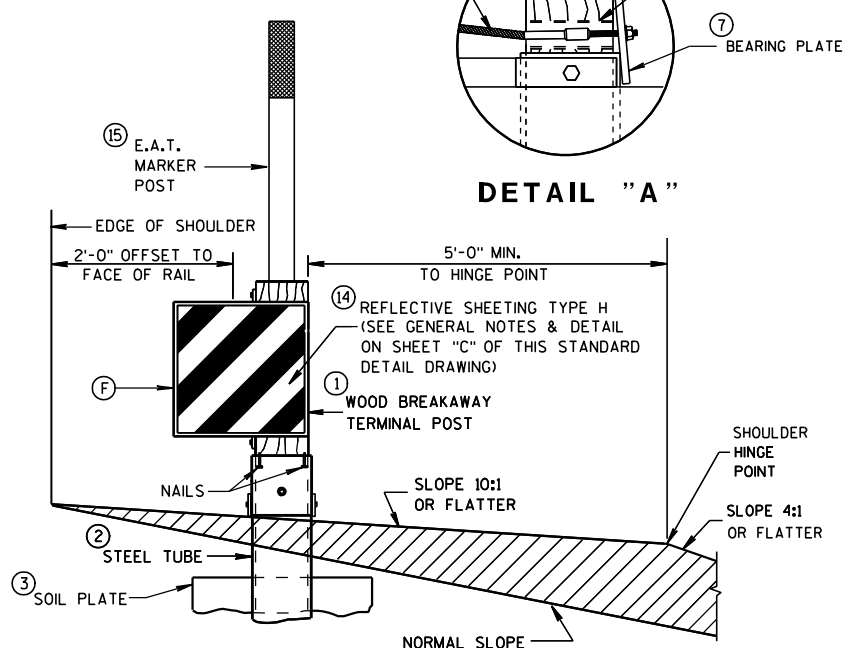
** SDD SHOWS 4 - 54 INCH STEEL TUBES WITH SOIL PLATES INSTALLED ON POST 1 AND POST 2. POST 3 AND 4 DO NOT NEED SOIL PLATES. AN ALTERNATIVE INSTALLATION WOULD CONSIST OF 2 - 72 INCH STEEL TUBES ON POST 1 AND POST 2 AND 54 INCH TUBES ON POSTS 3 AND 4. THE ALTERNATIVE INSTALLATION DOES NOT REQUIRE SOIL PLATES.



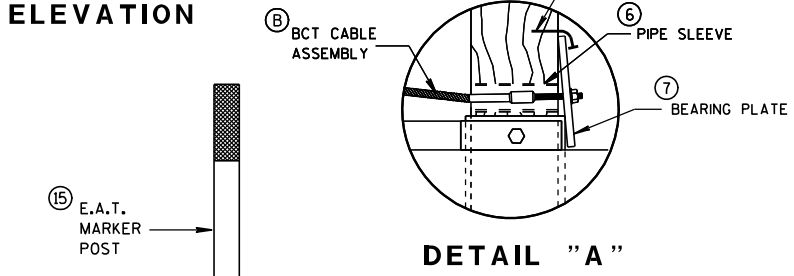
SECTION C-C
TYPICAL AT POST NOS. 6, 8



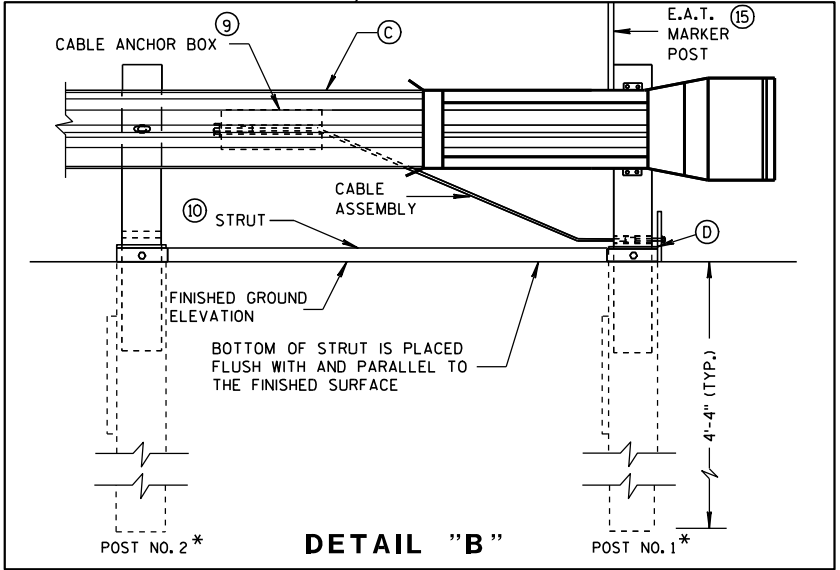
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



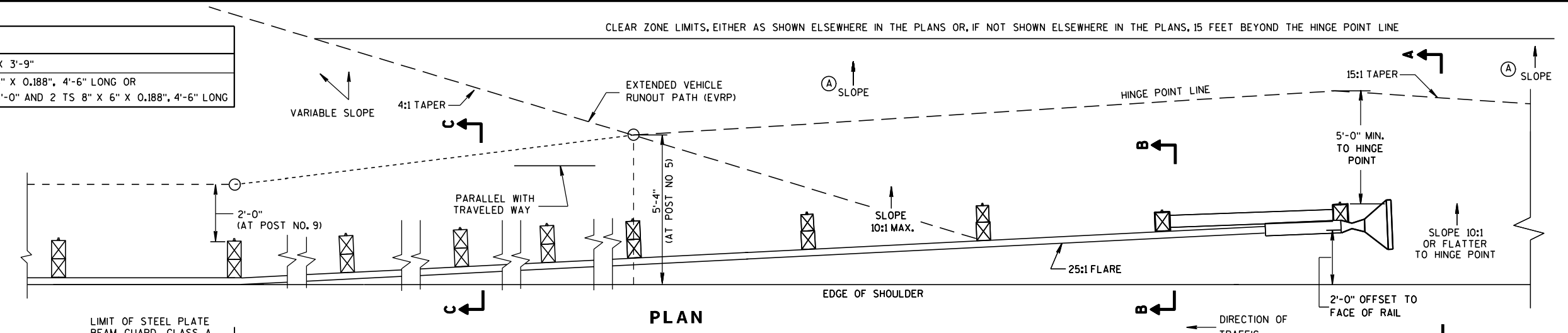
DETAIL "A"



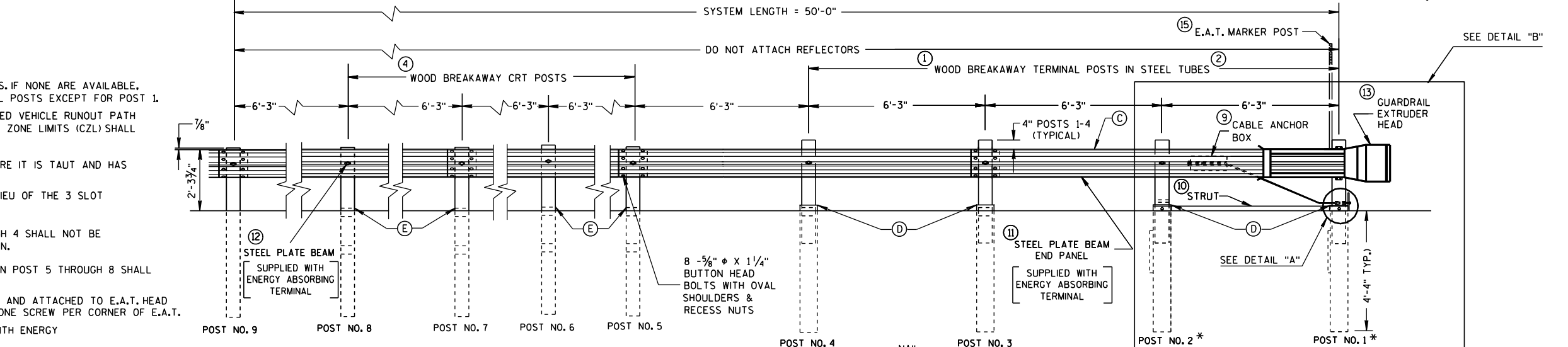
DETAIL "B"

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

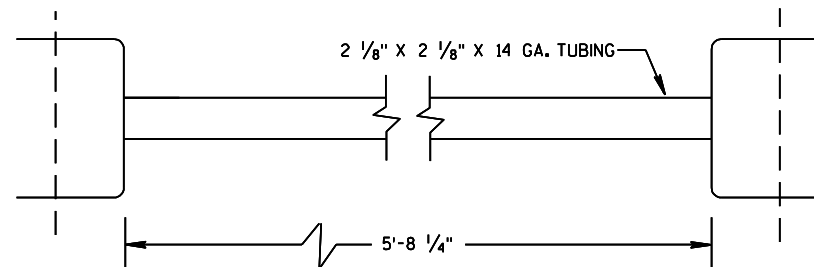
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



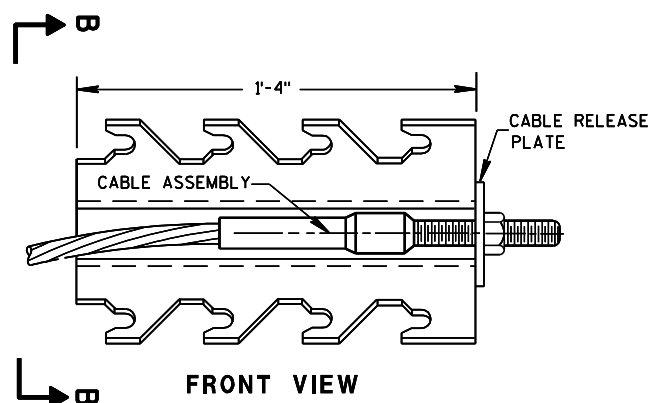
PLAN



ELEVATION

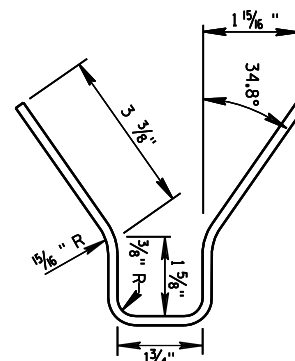


⑩ STRUT DETAIL (SKT-350)

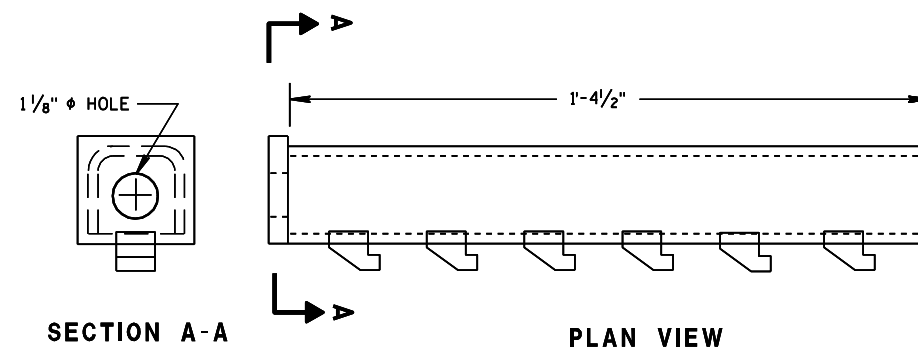


⑨ CABLE ANCHOR BOX (SKT-350)

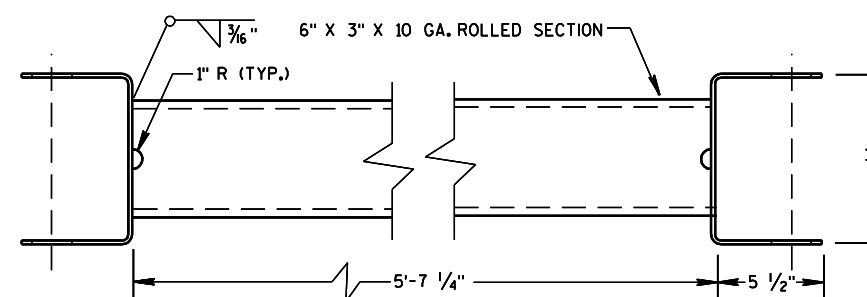
(SKT-350)



SECTION B-B

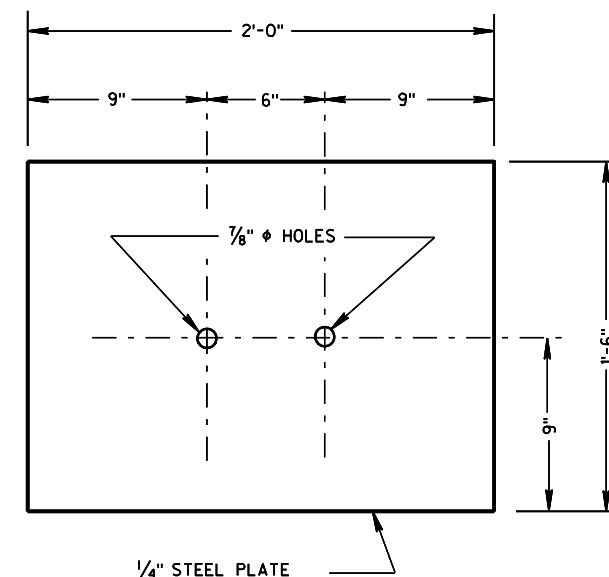


⑨ CABLE ANCHOR BOX (ET-2000/ET-2000 PLUS)

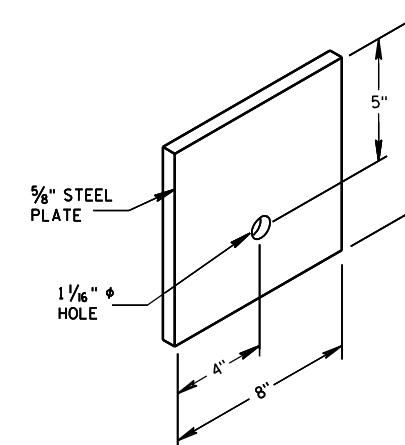


⑩ STRUT DETAIL (ET-2000/ET-2000 PLUS)

(ET-2000/ET-2000 PLUS)



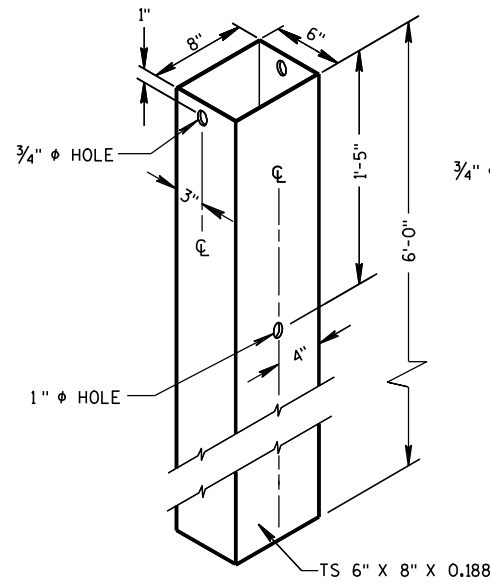
③ SOIL PLATE
(SKT-350, ET-2000/ET-2000 PLUS)



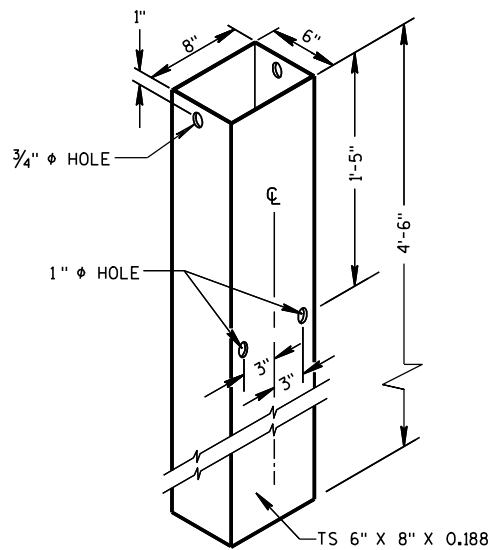
⑦ STEEL BEARING PLATE
(SKT-350, ET-2000/ET-2000 PLUS)

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

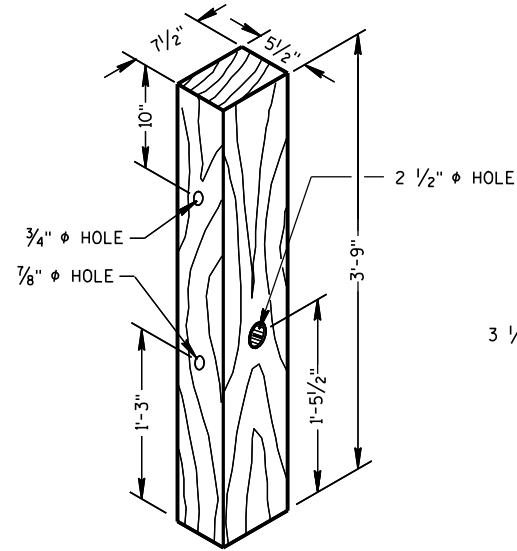
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



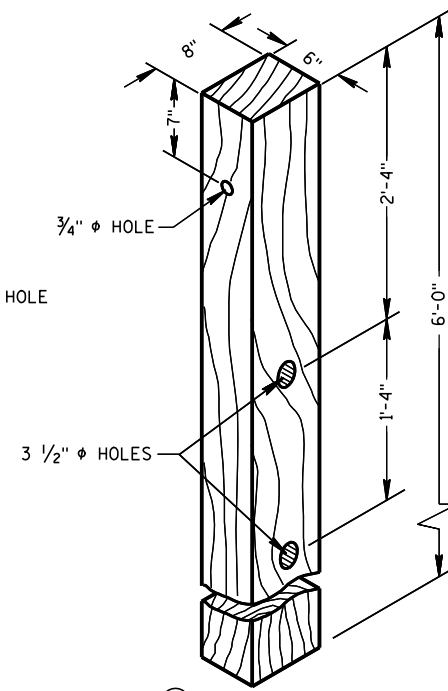
② **72" STEEL TUBE**
(POSTS NO. 1-4)



② **54" STEEL TUBE**
(POSTS NO. 1-4)

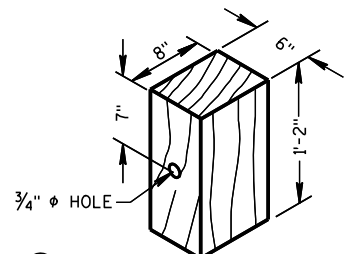


① **TERMINAL POST**
(POSTS NO. 1-4)

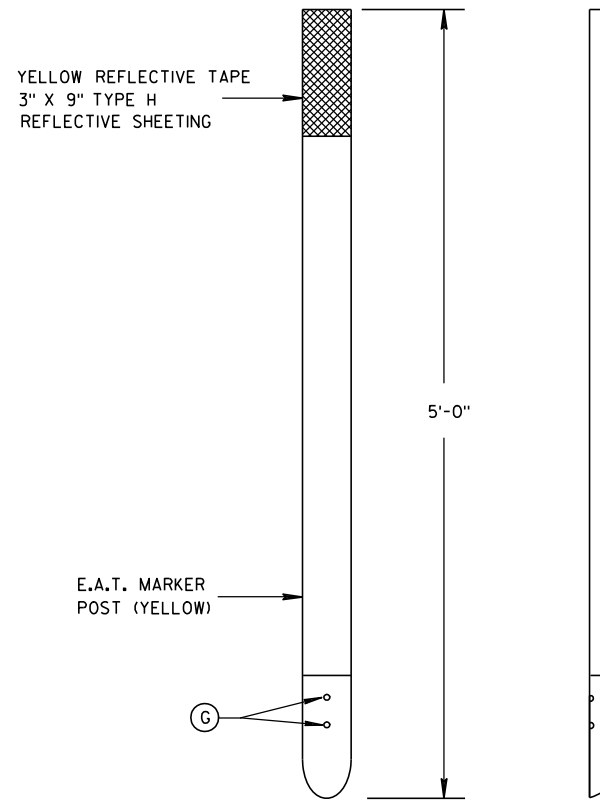


④ **CRT POST**
(POSTS NO'S 5-8)

WOOD BREAKAWAY POSTS



⑤ **WOOD OFFSET BLOCK**
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



⑮ **E.A.T. MARKER POST**

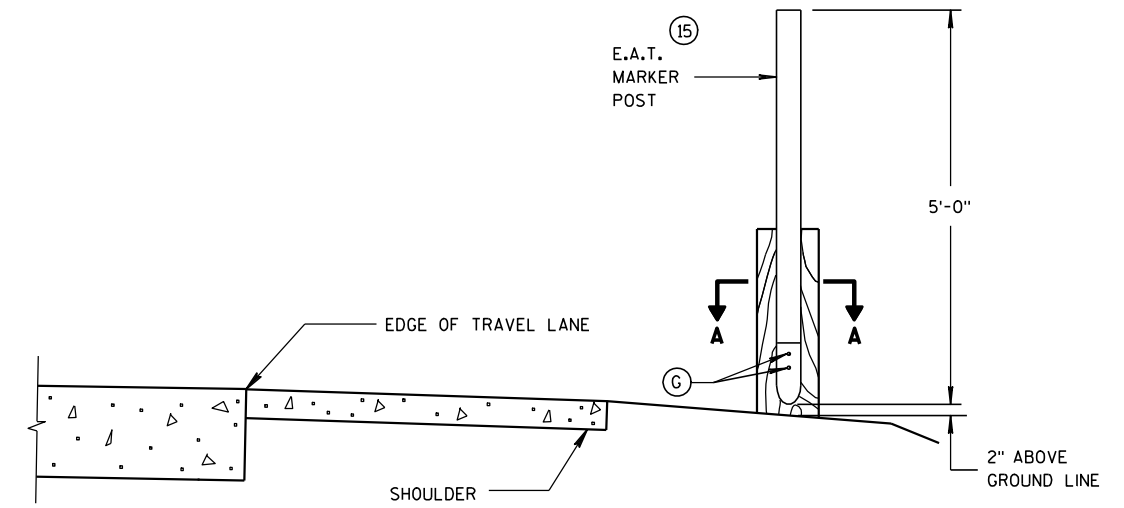
GENERAL NOTES

STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH, WHICH SHALL INCLUDE HARDWARE, STEEL PLATE BEAM GUARD, POSTS, REFLECTIVE SHEETING AND INSTALLATION AS SHOWN.

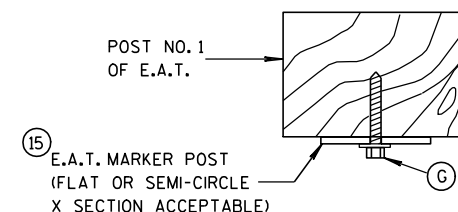
WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.

SEE APPROVED PRODUCTS LIST FOR ACCEPTABLE E. A. T. MARKER POST.

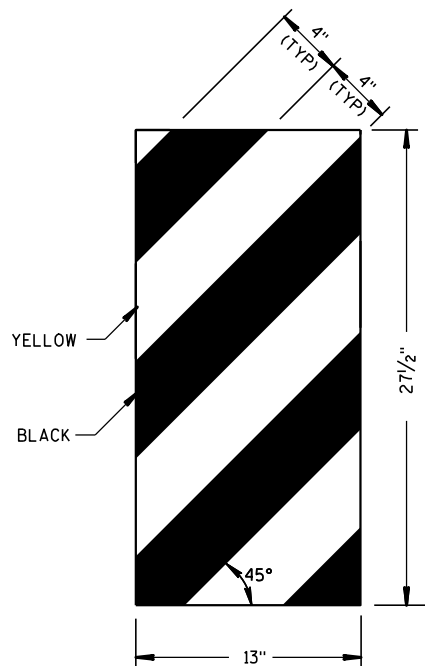
⑮ 1/2" DIA. X 3" LAG BOLT WITH WASHER.



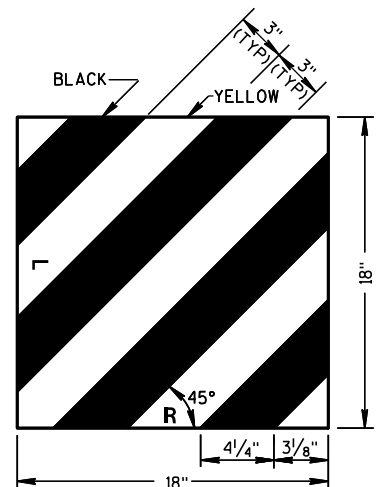
TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1
(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A



ET-2000 PLUS ONLY



ET-2000 AND SKT-350

⑭ **REFLECTIVE SHEETING DETAILS**

**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

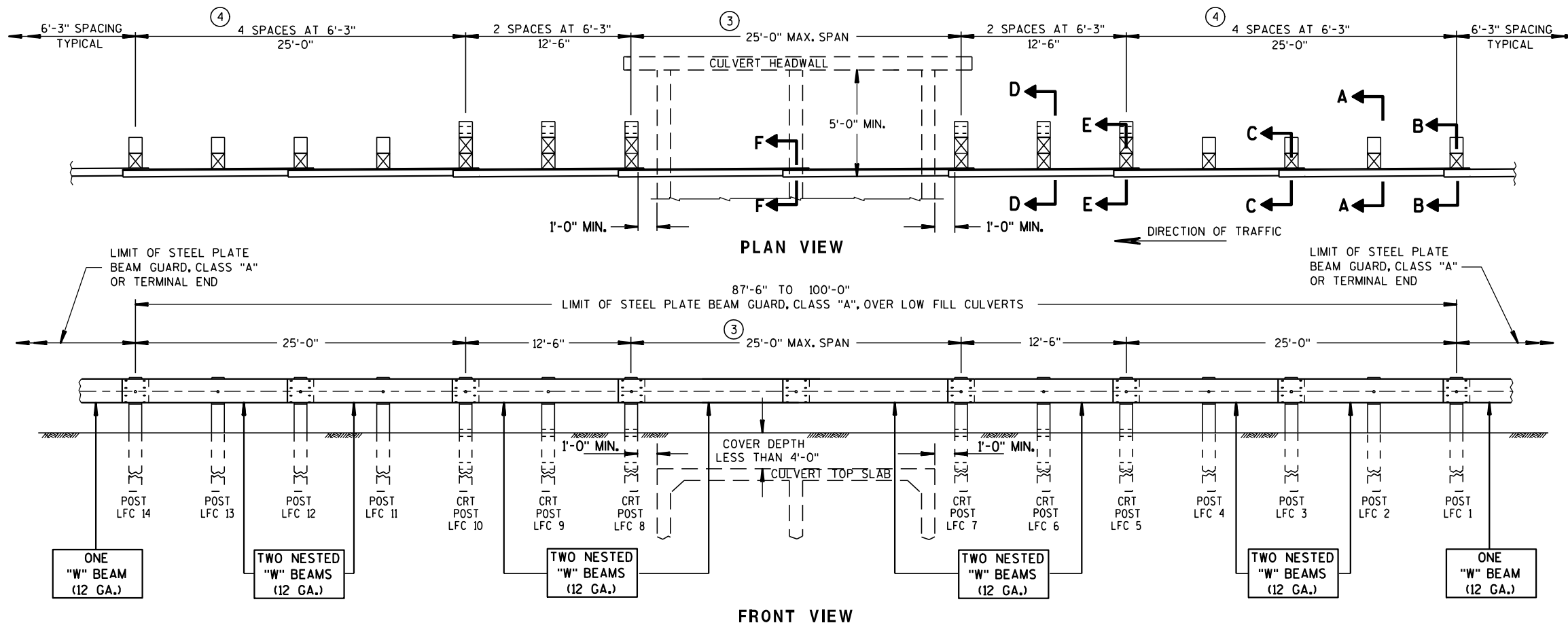
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

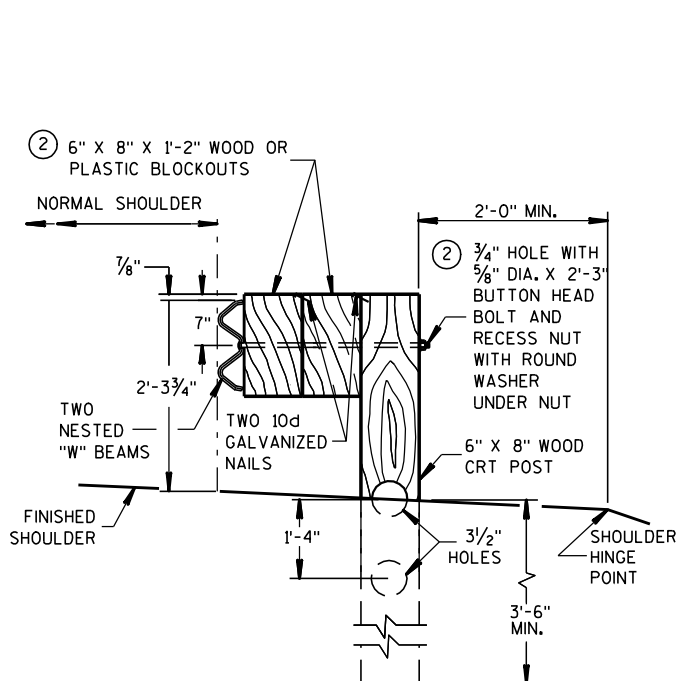
4-12-10
DATE

FHWA

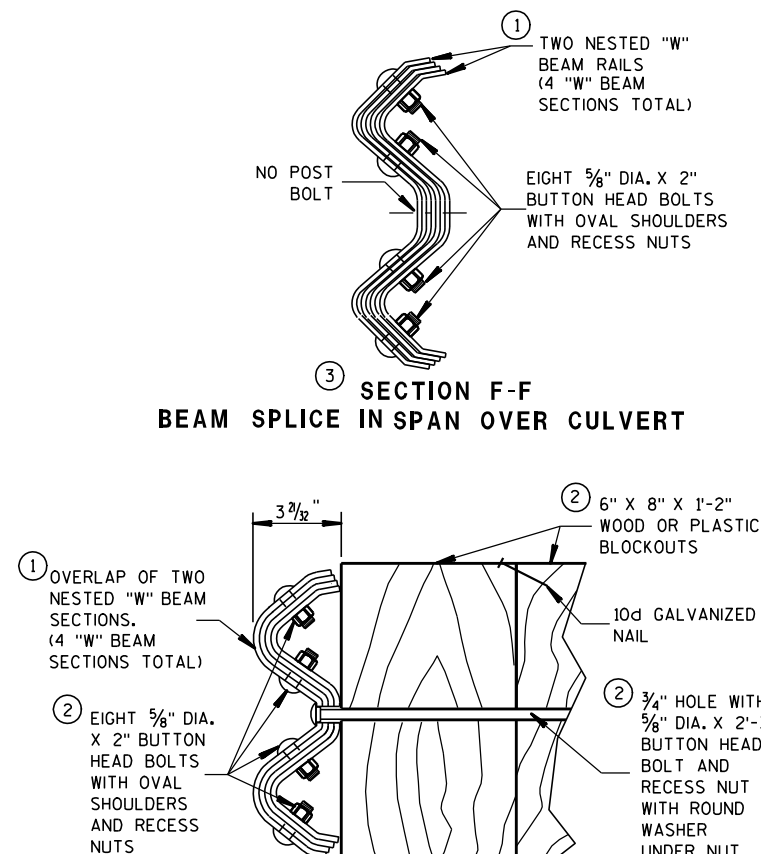
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



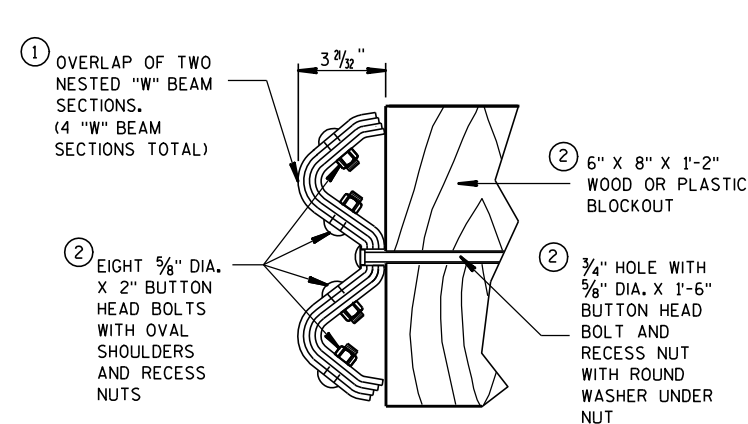
TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD OVER LOW FILL CULVERTS



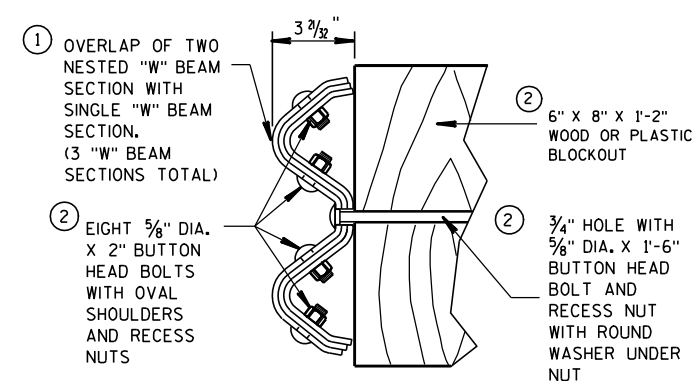
SECTION D-D
TYPICAL CRT POST LFC 6 AND 9



SECTION E-E
TYPICAL CRT POST LFC 5, 7, 8 AND 10



SECTION C-C
TYPICAL AT POSTS LFC 3 AND 12

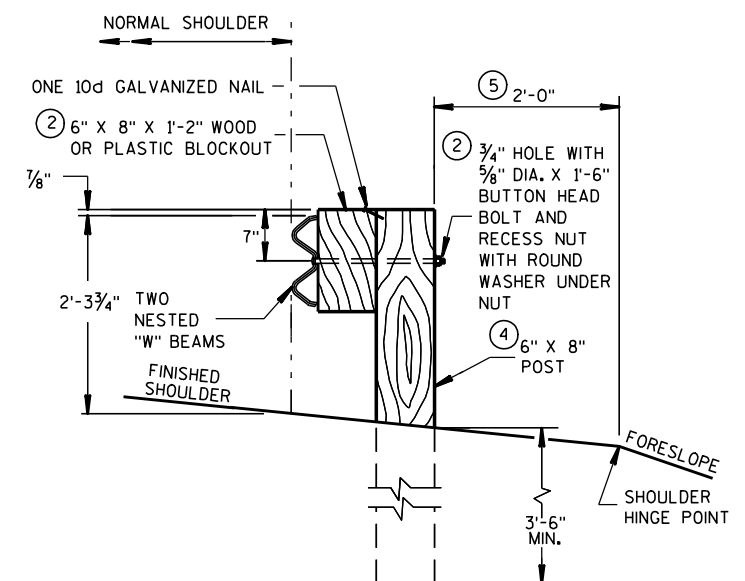


SECTION B-B
TYPICAL AT POSTS LFC 1 AND 14

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① MAINTAIN THE NESTING OF EACH NESTED PAIR OF "W" BEAM SECTIONS THROUGH SPLICES. ORIENTATE NESTED "W" BEAM SPLICES IN THE DIRECTION OF TRAFFIC AS THE PLAN VIEW SHOWS. SEE S.D.D. 14 B 15 FOR SPLICE INSTALLATION.
- ② THE CONTRACTOR MAY USE APPROVED PLASTIC BLOCKOUTS IN LIEU OF WOOD BLOCKOUTS. SEE S.D.D. 14 B 15 FOR TYPICAL BLOCKOUT, SPLICE AND REFLECTOR INSTALLATIONS. USE BOLT SIZES AND LENGTHS AS SHOWN ON THIS DETAIL.
- ③ PROVIDE 12'-6", 18'-9" AND 25'-0" SPANS ONLY. USE A MAXIMUM OF ONE SPLICE LOCATED ANYWHERE WITHIN THE SPAN SECTION. LOCATE ALL OTHER SPLICES AT BEAM GUARD POSTS.
- ④ IN THE FIRST AND LAST 25 FOOT SECTIONS (POSTS LFC 1-4 & LFC 11-14), THE CONTRACTOR MAY USE W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS OR 6" X 8" WOOD POSTS WITH EITHER WOOD OR PLASTIC BLOCKOUTS. DO NOT MIX STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS AND WOOD POSTS WITH EITHER WOOD OR PLASTIC BLOCKOUTS IN THE SAME INSTALLATION.
- ⑤ WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK, THE PLAN TYPICAL SECTIONS OR DETAILS MAY SHOW, OR THE ENGINEER MAY ALLOW, THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. BUILD AS THE PLAN SHOWS OR ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST SOIL DEPTH TO 4'-6" OR MORE.

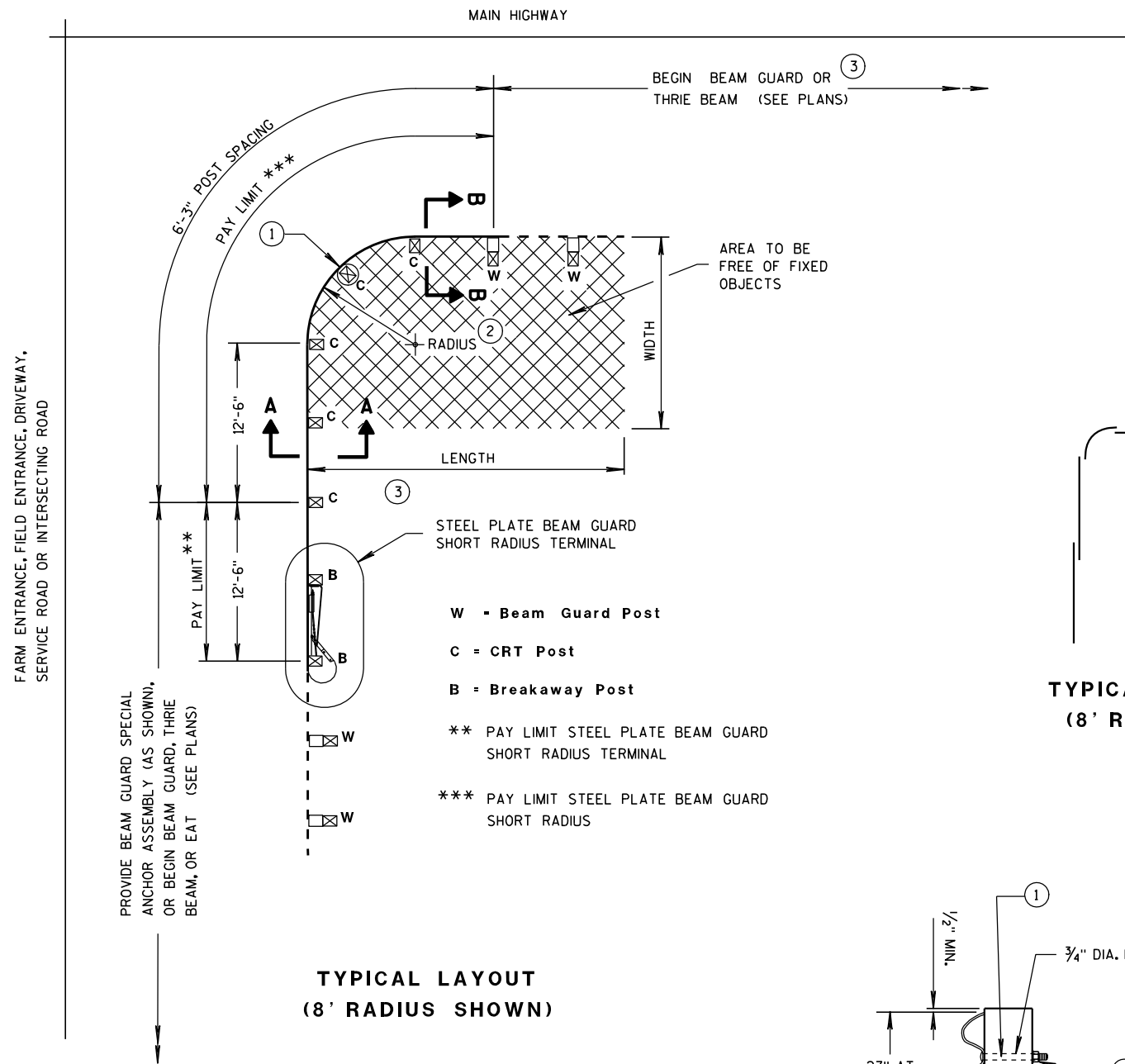


SECTION A-A
TYPICAL AT POST LFC 2, 4, 11, 13

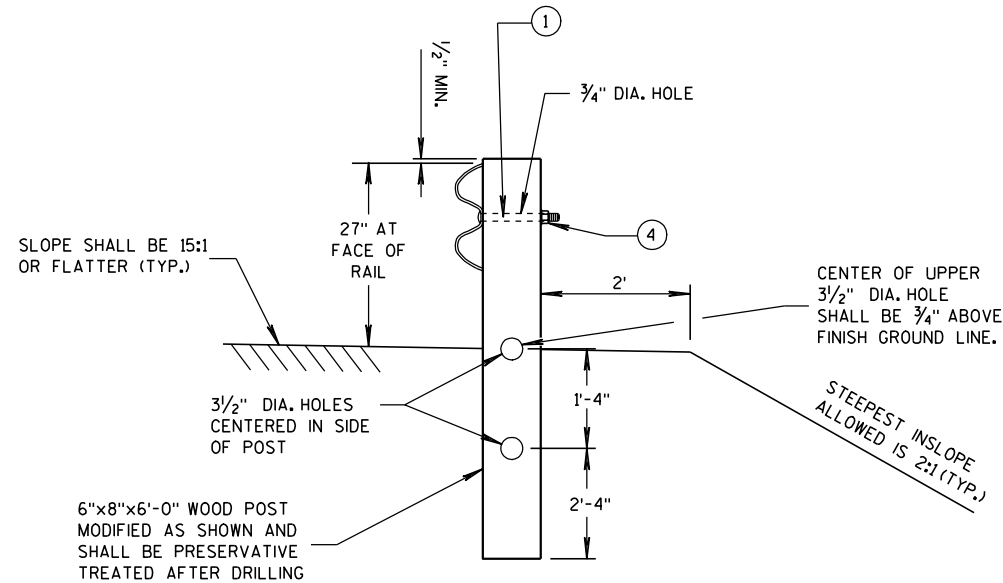
**STEEL PLATE BEAM GUARD,
CLASS "A", OVER LOW
FILL CULVERTS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/8/00 /S/ John Haverberg
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



TYPICAL LAYOUT
(8' RADIUS SHOWN)



SECTION A-A
(CRT POST)

TYPICAL LAP SPLICES
(8' RADIUS SHOWN)

GENERAL NOTES

ALL ANGLES, CHANNELS, AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 AND THE STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123. PUNCHING, DRILLING, CUTTING, OR WELDING WILL NOT BE PERMITTED AFTER GALVANIZING. FURNISH AND INSTALL HARDWARE PER STANDARD SPECIFICATION 614.2, UNLESS NOTED OTHERWISE.

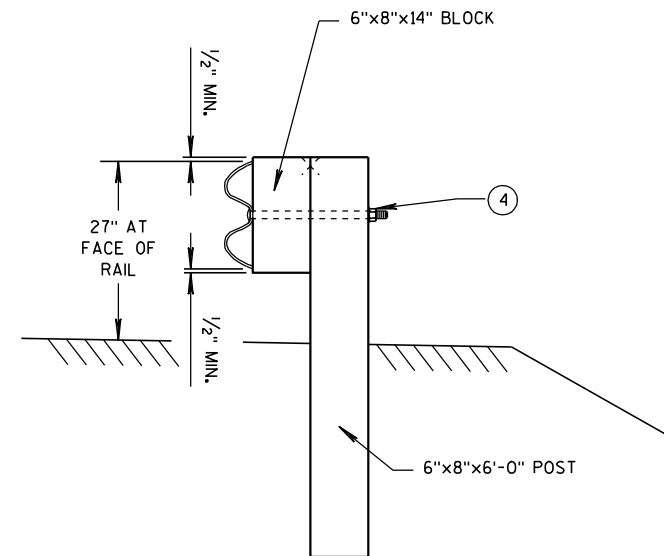
SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

- 1 ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.
- 2 RADIUS FROM 8' - 36'. SEE PLAN.
- 3 HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.
- 4 5/8" Ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

RADIUS	NUMBER OF CRT POSTS	*NUMBER AND LENGTH OF CURVED RAILS	REQUIRED AREA FREE OF FIXED OBJECTS (LENGTH x WIDTH)
8'	5	1 at 12.5'	25' x 15'
16'	7	1 at 25'	30' x 15'
24'	9	1 at 25' and 1 at 12.5'	40' x 20'
32'	11	2 at 25'	50' x 20'

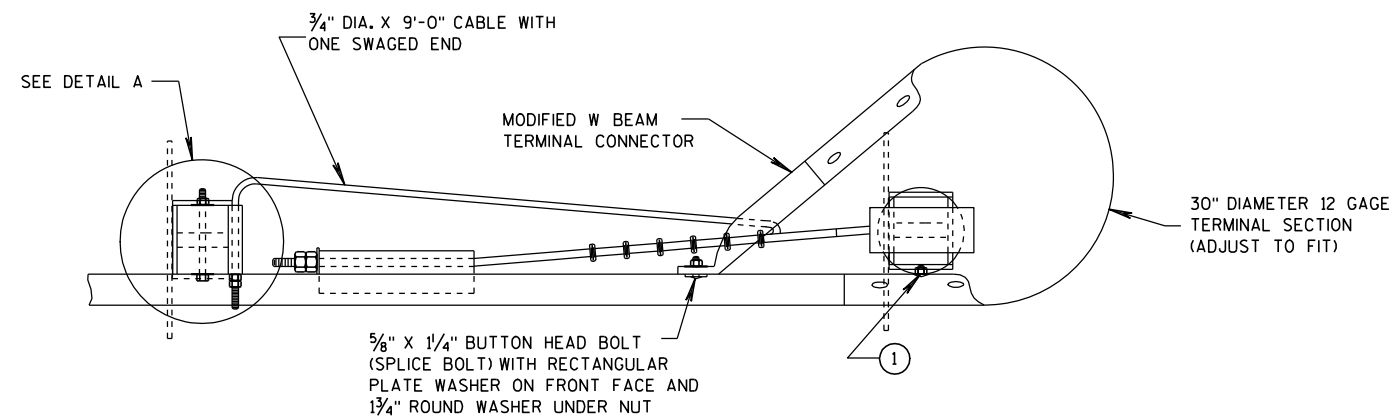
* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



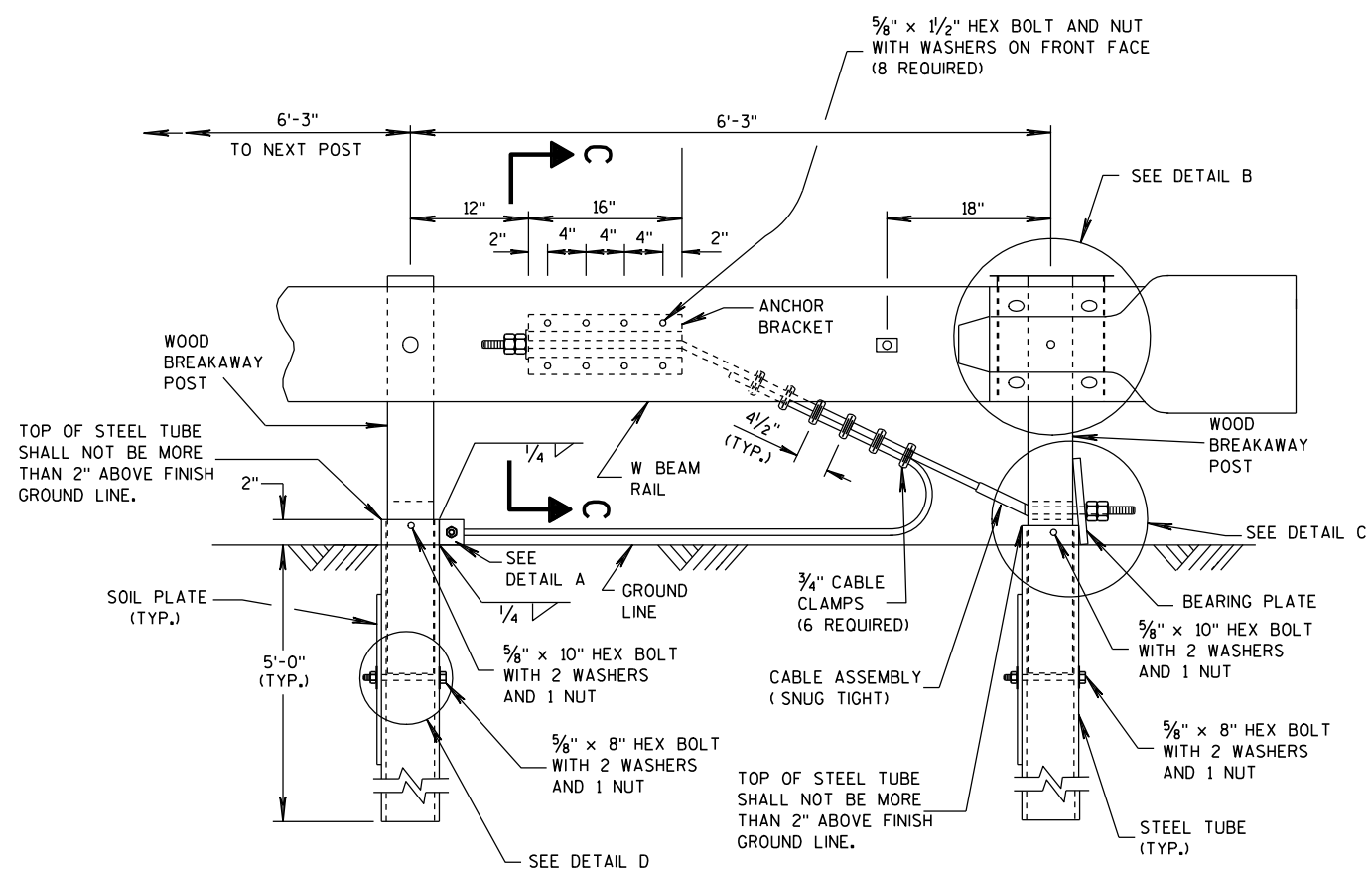
SECTION B-B
(BEAM GUARD POST)

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PLAN VIEW

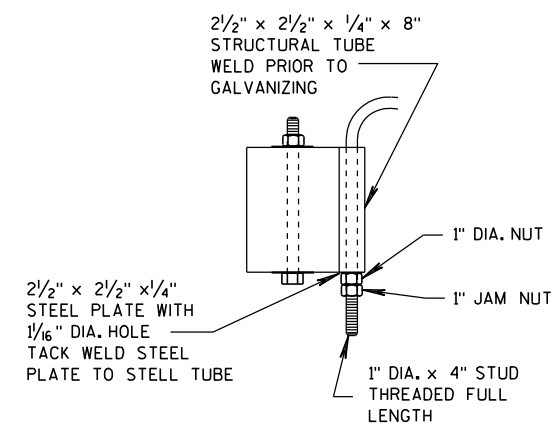


ELEVATION VIEW

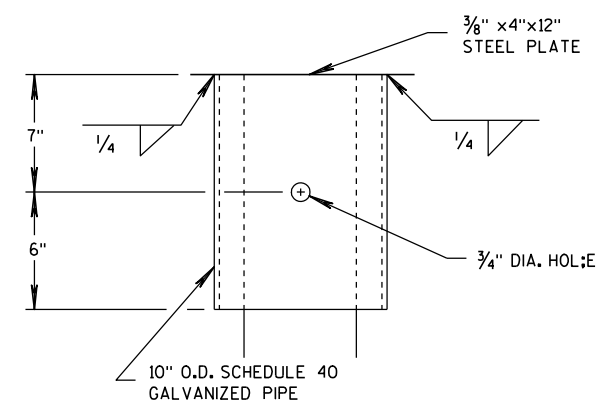
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

GENERAL NOTES

- 1 ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A 5/8" X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.
- INSTALL GALVANIZED 3/4" (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED FLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



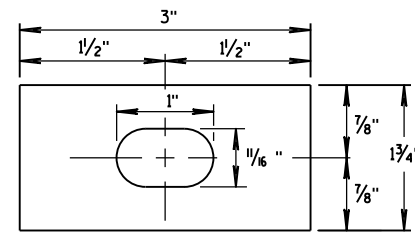
DETAIL A



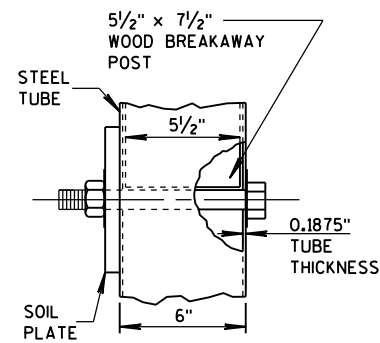
DETAIL B

(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

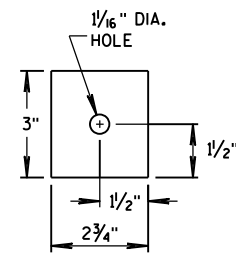
STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINALSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



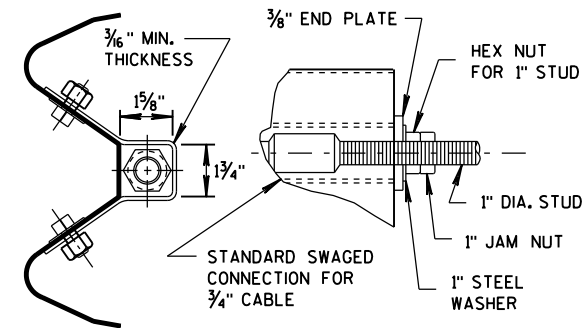
RECTANGULAR PLATE WASHER



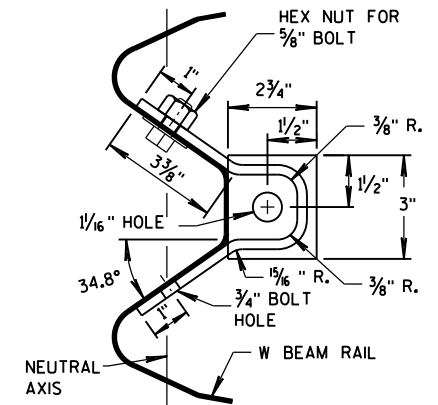
DETAIL D



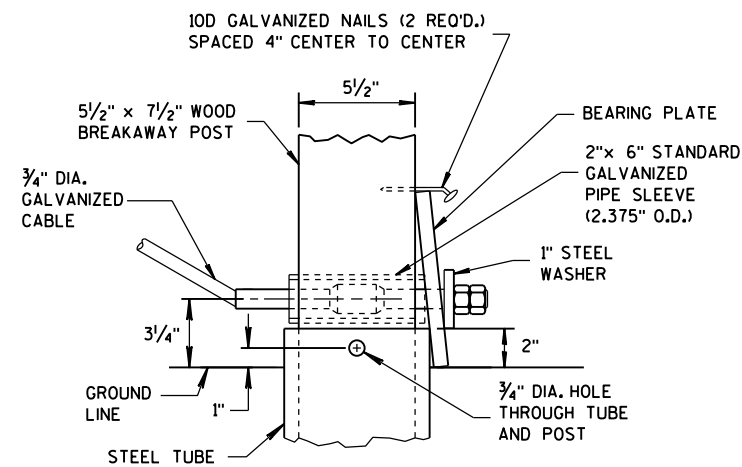
END PLATE



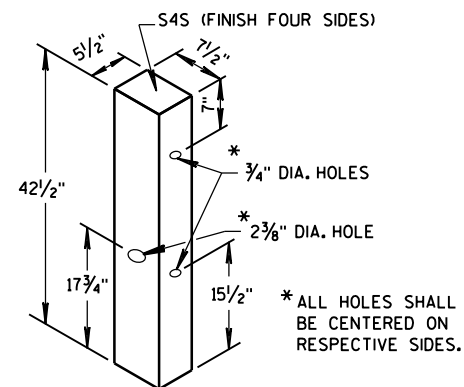
SECTION C-C
(END PLATE REMOVED)



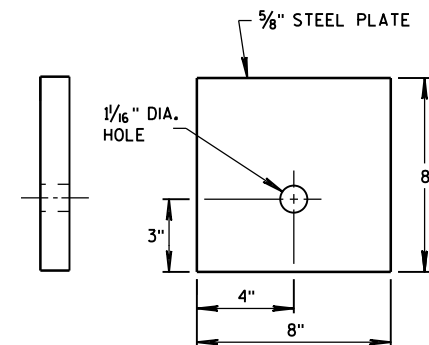
ANCHOR BRACKET



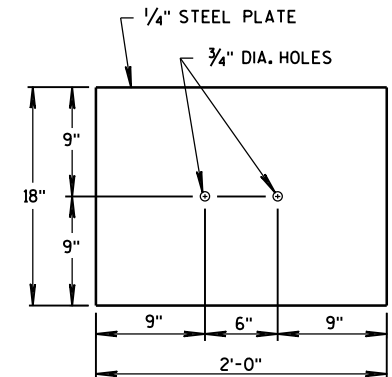
DETAIL C



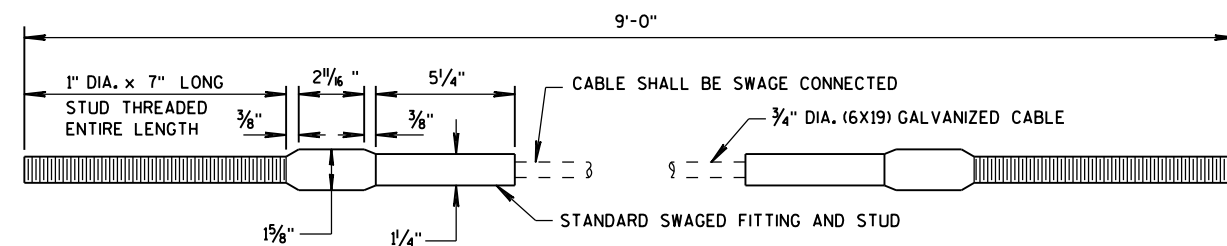
WOOD BREAKAWAY POST



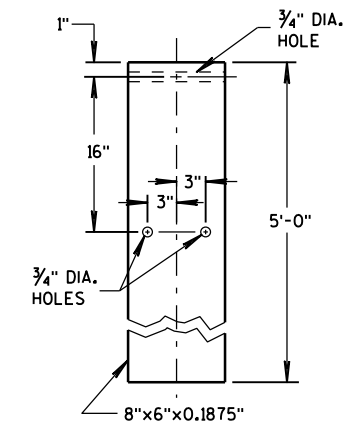
BEARING PLATE



SOIL PLATE



CABLE ASSEMBLY

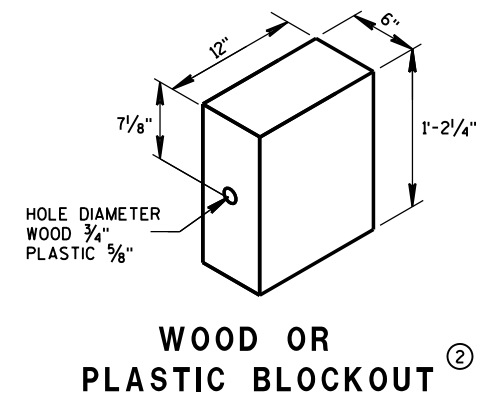
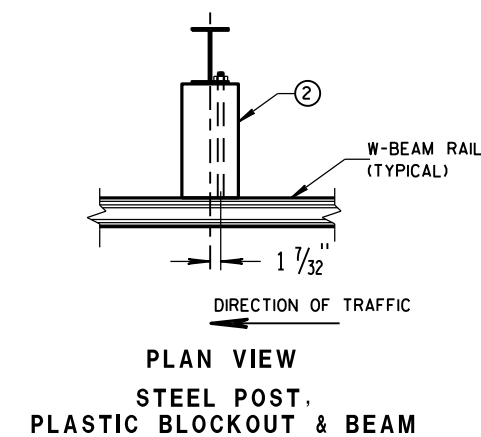
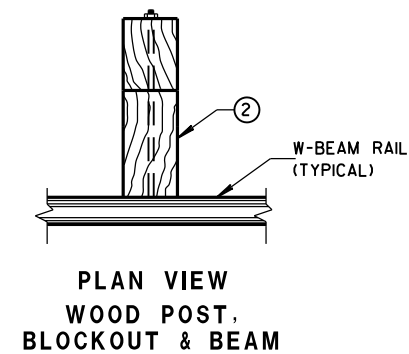
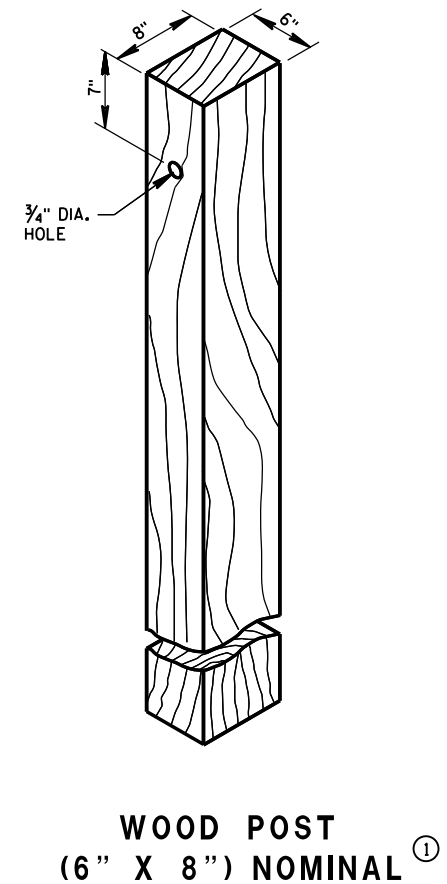
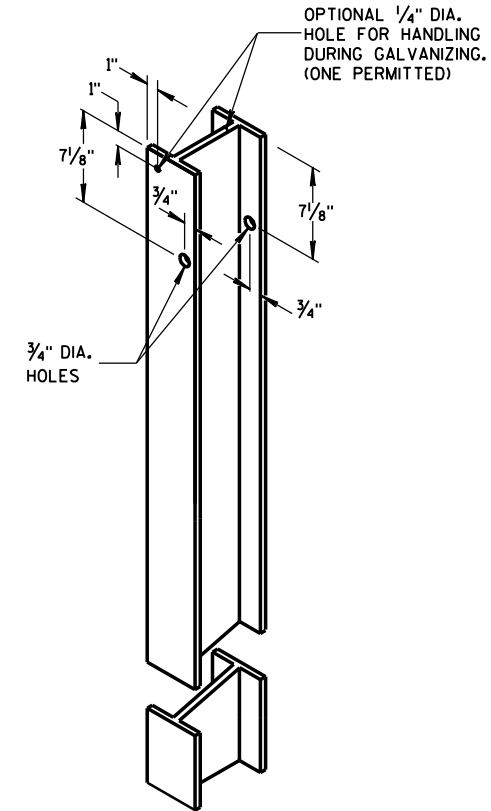
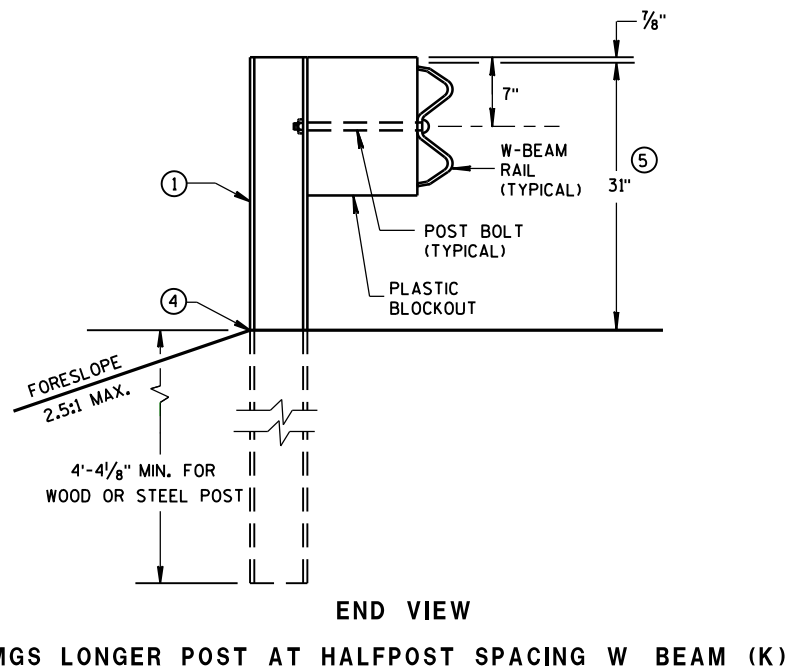
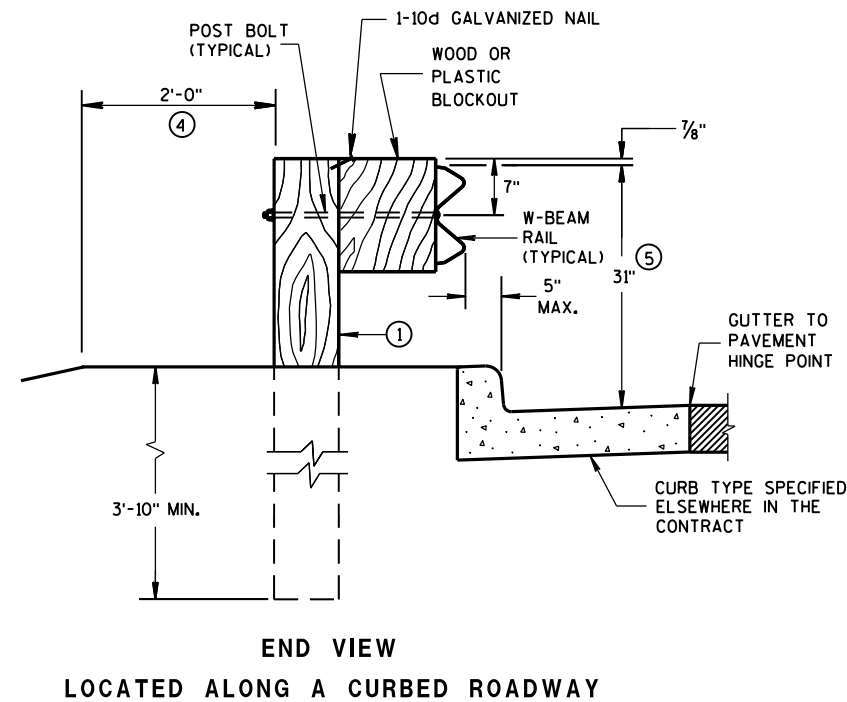
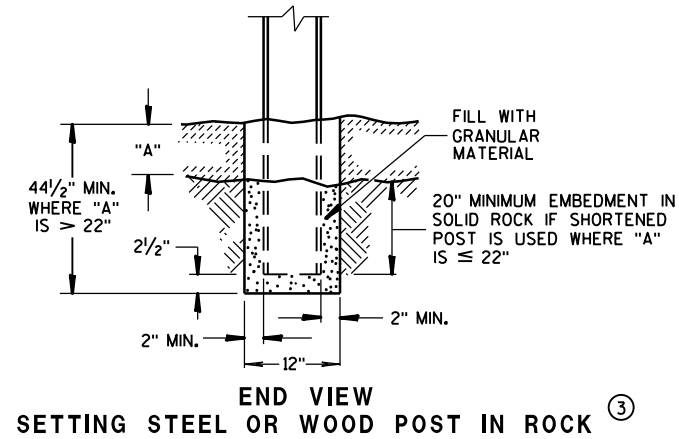


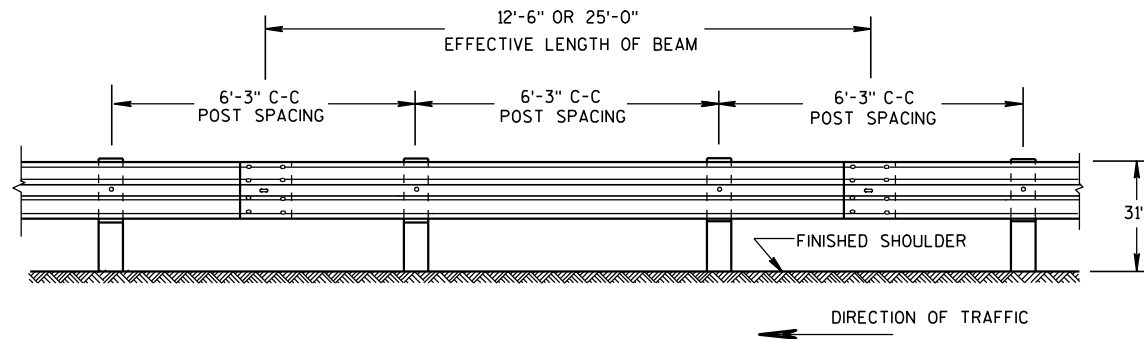
STEEL TUBE

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 12/18/08 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

6

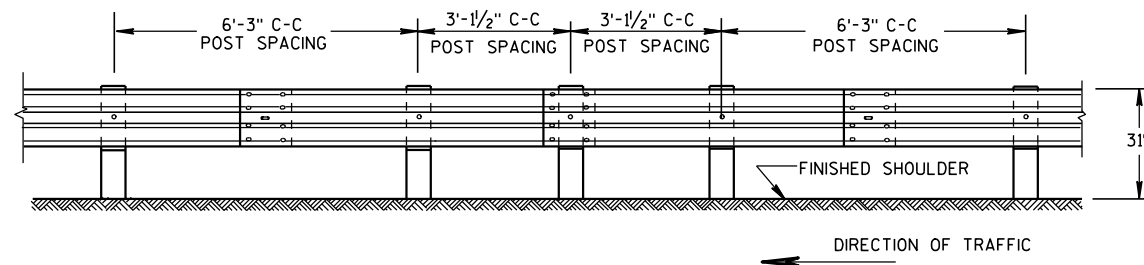
- S.D.D. 14 B 42-2a**





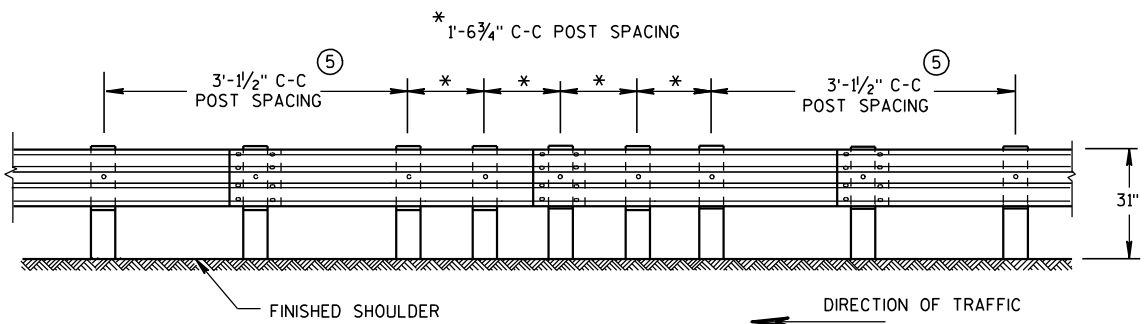
FRONT VIEW

POST SPACING STANDARD INSTALLATION



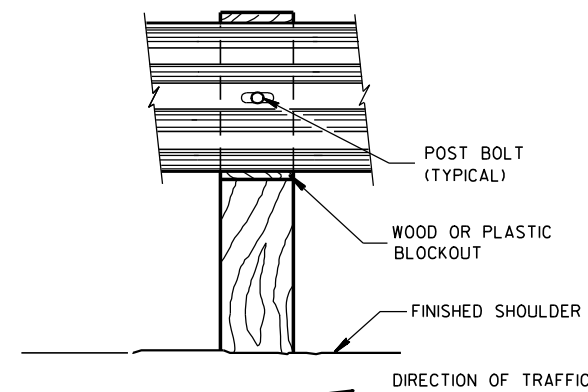
FRONT VIEW

HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)

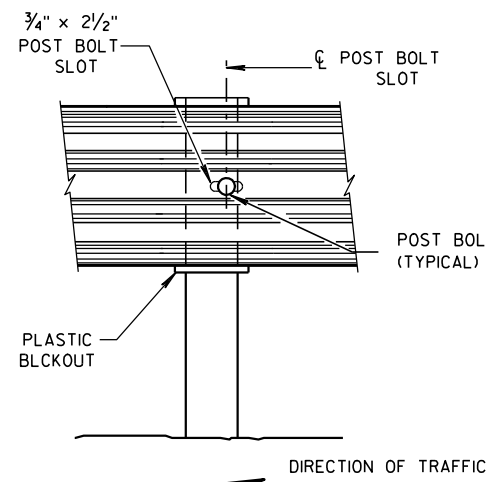


FRONT VIEW

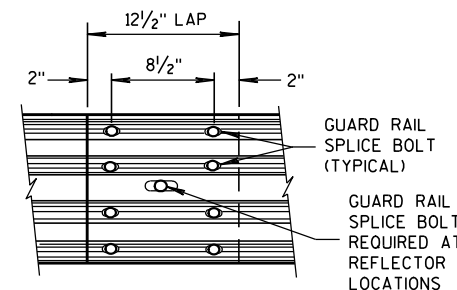
QUARTER POST SPACING (QS)



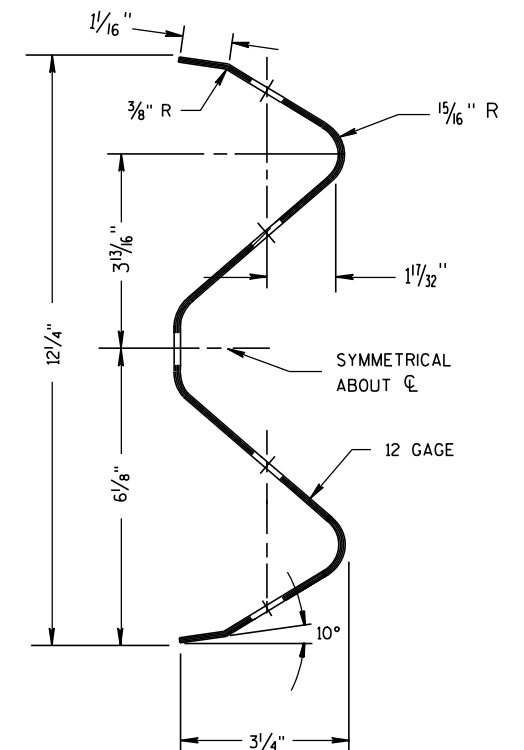
FRONT VIEW AT WOOD POST



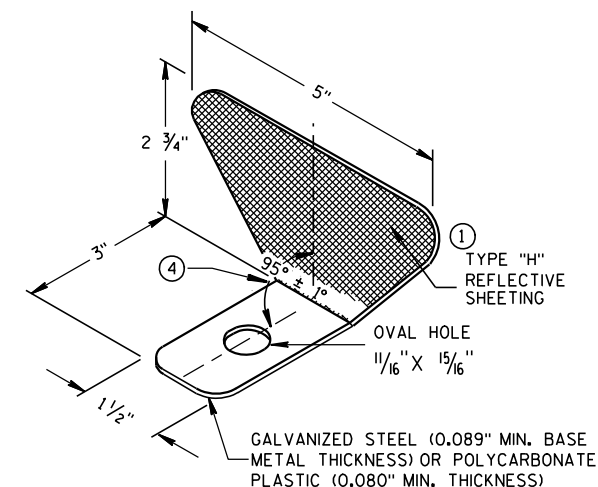
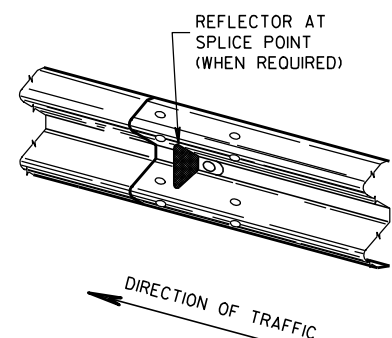
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

GENERAL NOTES

- ① PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
- ② DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
- ③ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ④ PROVIDE AN ANGLE OF BEND OF $90^\circ \pm 1^\circ$ FOR TWO-SIDED REFLECTORS.
- ⑤ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND $\frac{5}{8}$ " DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

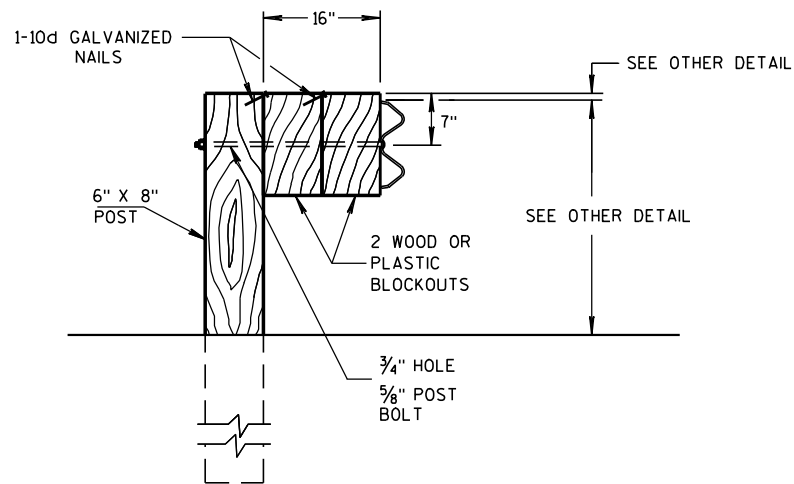
GUARD RAIL SPLICE BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ③	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ④	3
	> 200'	100' C-C	2	

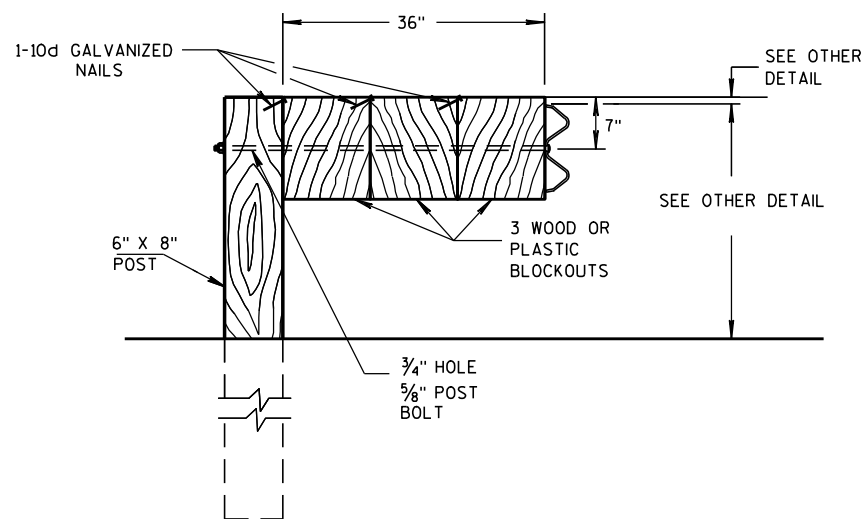
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

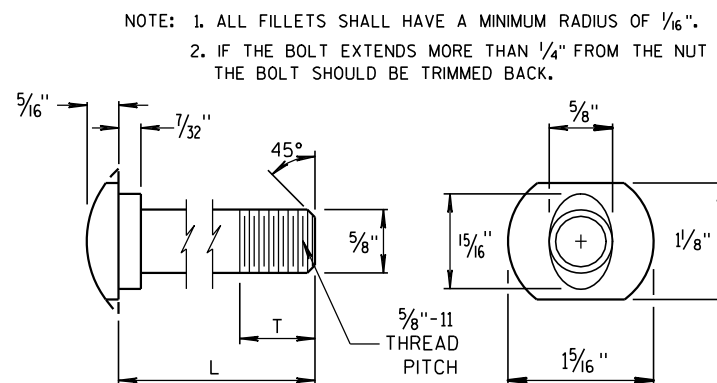
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



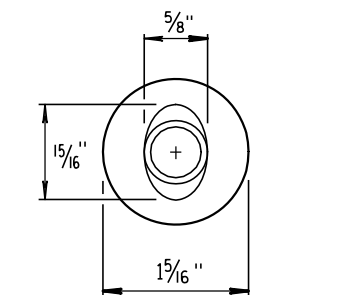
DETAIL FOR 36" BLOCKOUT DEPTH

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

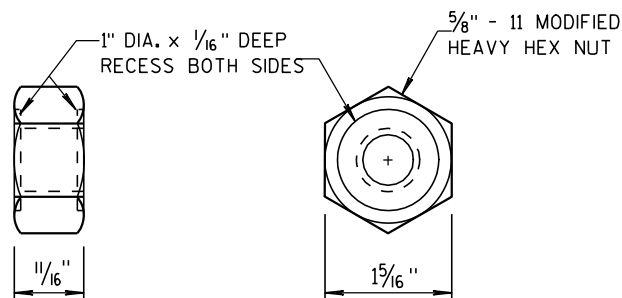
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



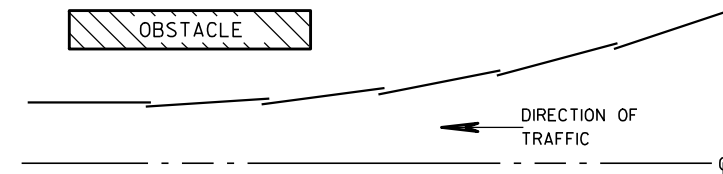
POST BOLT TABLE



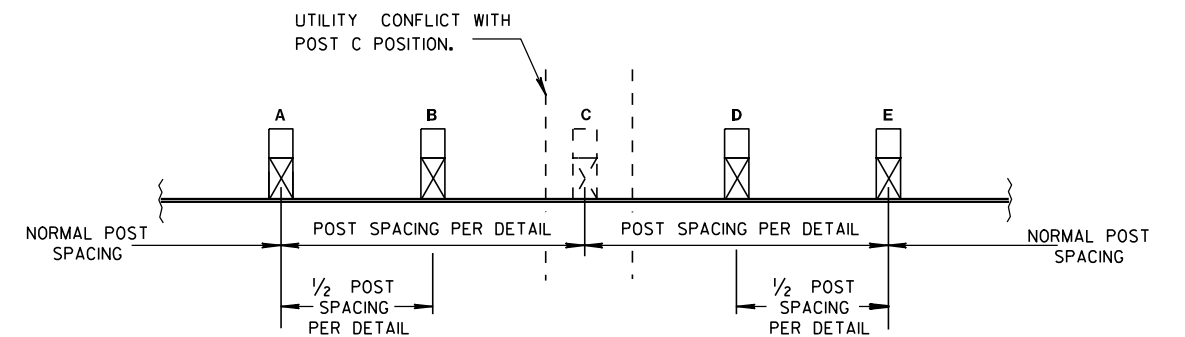
ALTERNATE BOLT HEAD



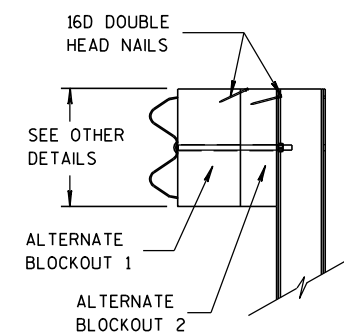
POST BOLT AND RECESS NUT



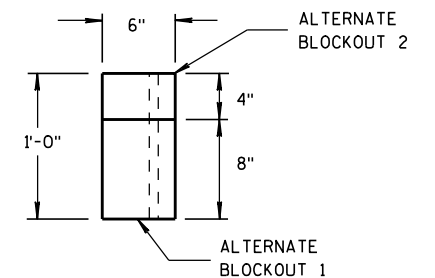
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/15/2011
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE EXTENDED VEHICLE RUNOUT PATH (EVRP), THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.
- (D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) SHEETING IS ATTACHED TO 0.040 ALUMINUM SHEET AND ATTACHED TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER OF E.A.T.
- (F) 1/2" DIAMETER X 3" LONG LAG BOLT AND WASHER.
- (H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.
- (I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

SEE SDD 14B42 FOR MORE INFORMATION.

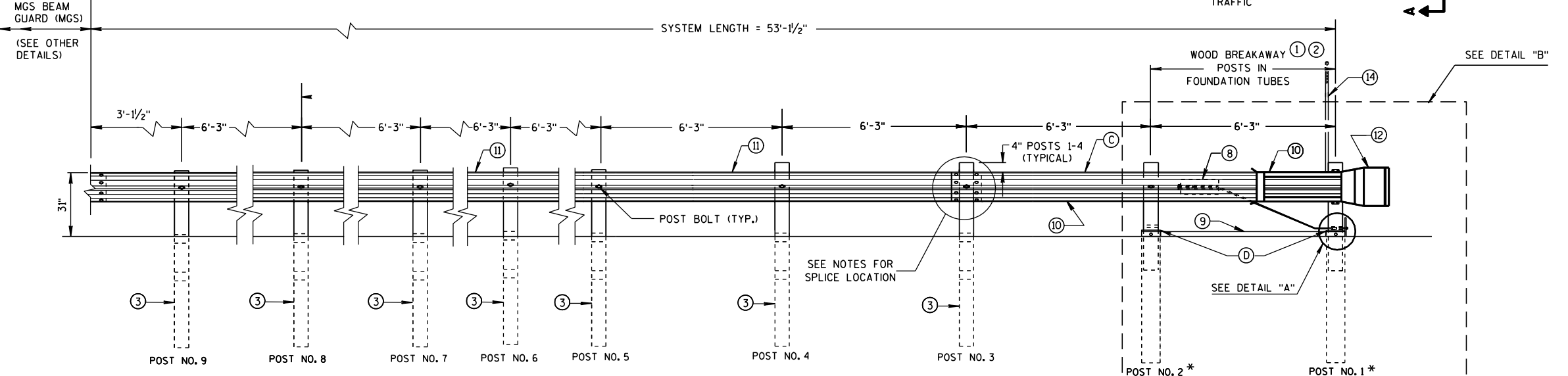
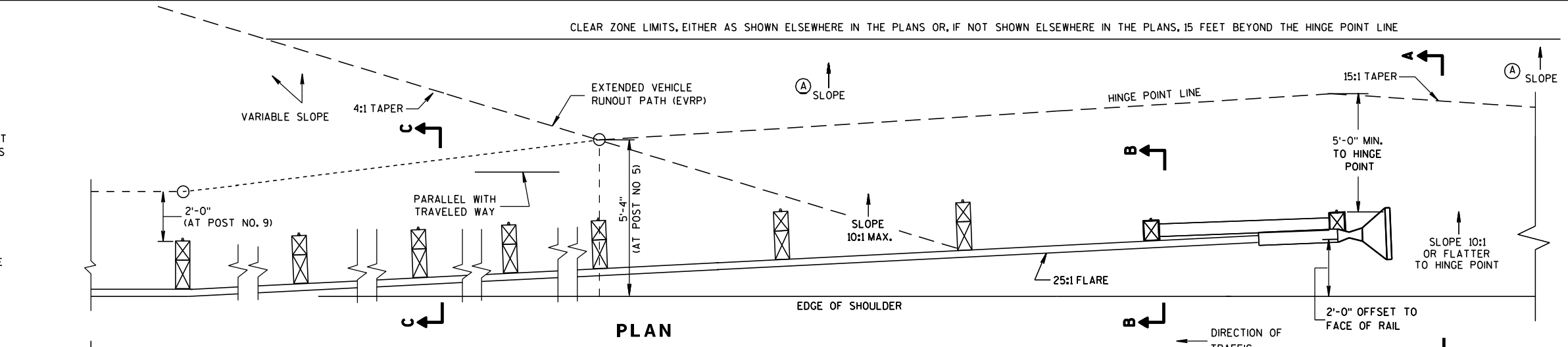
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

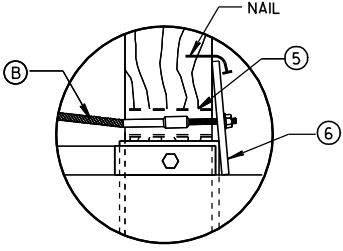
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

PATTERN AND COLORS ON REFLECTIVE SHEETING TYPE H ARE TO CONFORM TO OM3-L OR OM3-R OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

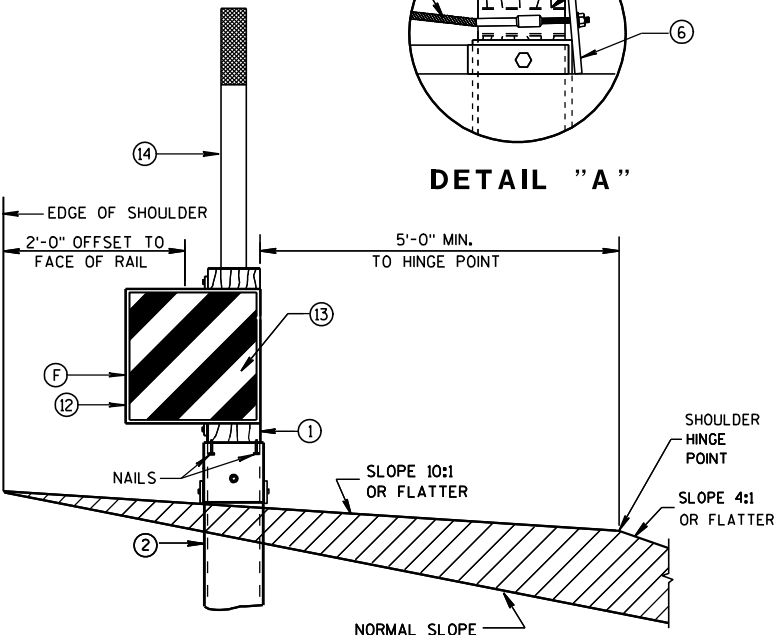
THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE ($\pm \frac{3}{4}$ ")



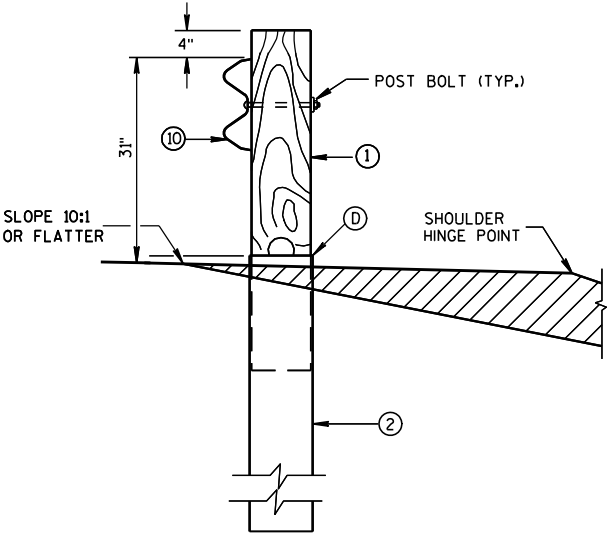
ELEVATION



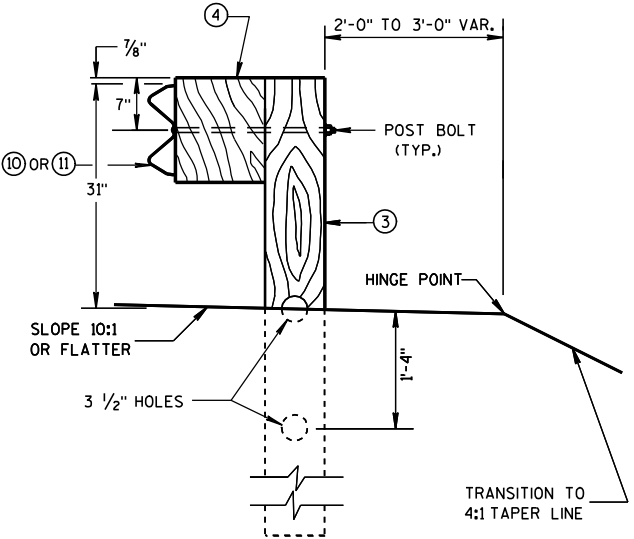
DETAIL "A"



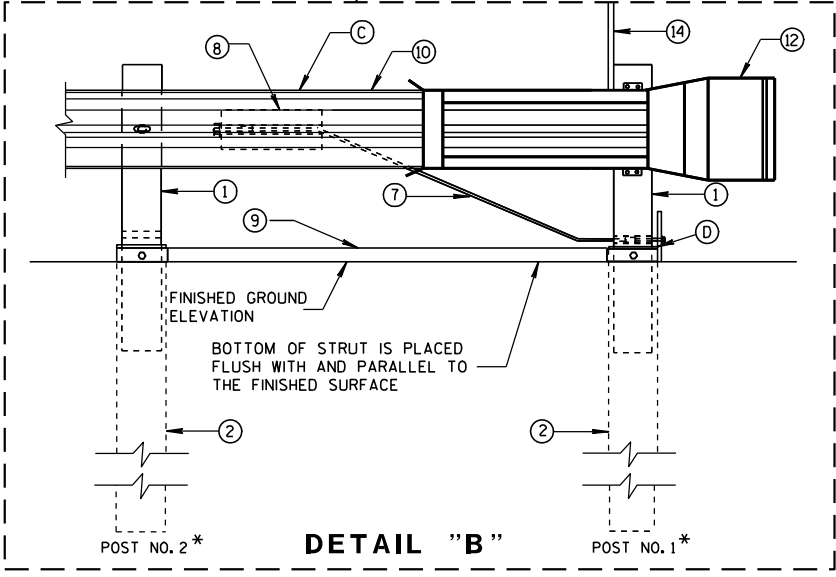
SECTION A-A
TYPICAL AT POST NO. 1*



SECTION B-B
TYPICAL AT POST NO. 2*



SECTION C-C
TYPICAL AT POST NOS. 3-9

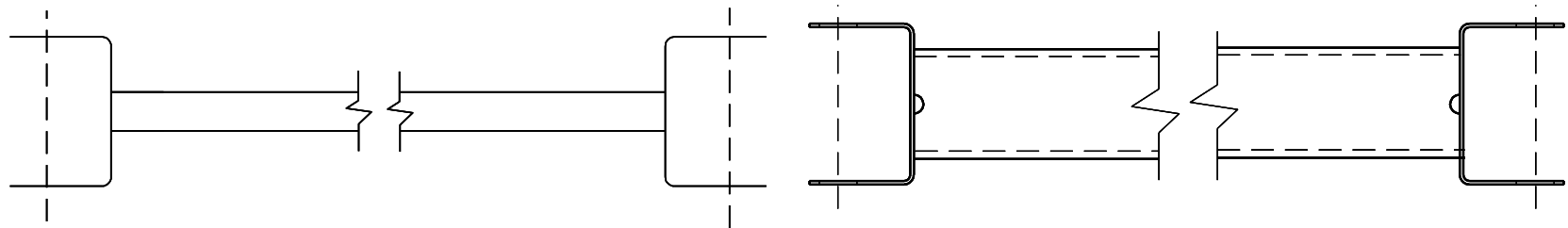


DETAIL "B"

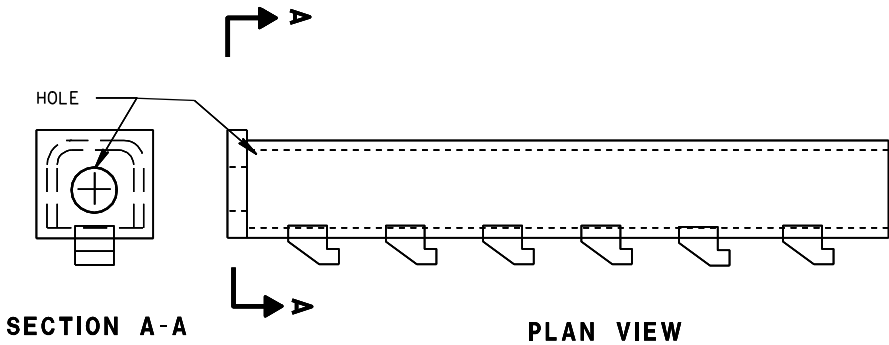
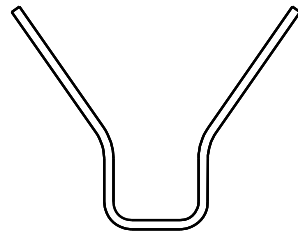
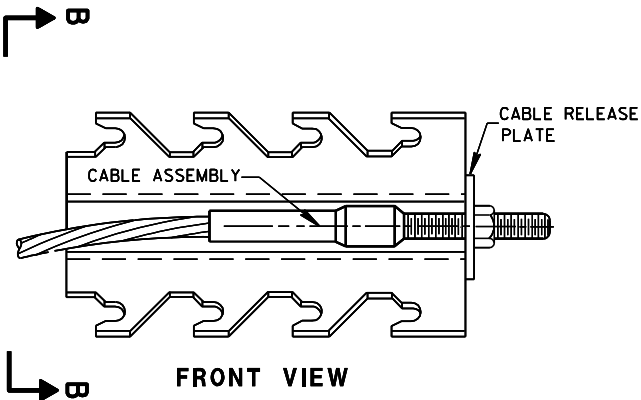
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

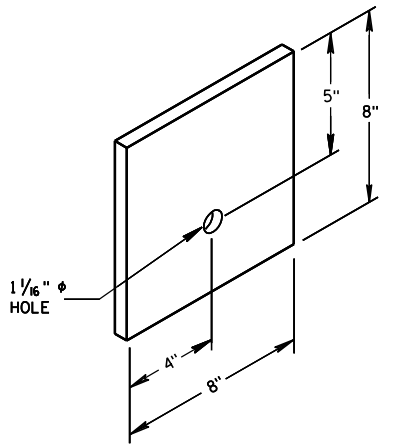
BILL OF MATERIALS	
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	WOOD BREAKAWAY POST
②	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL, MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	END SECTION EAT
⑬	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE H (ONLY THE SHEETING IS SUPPLIED BY THE MANUFACTURER)
⑭	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



⑨ H
GENERIC GROUND STRUT



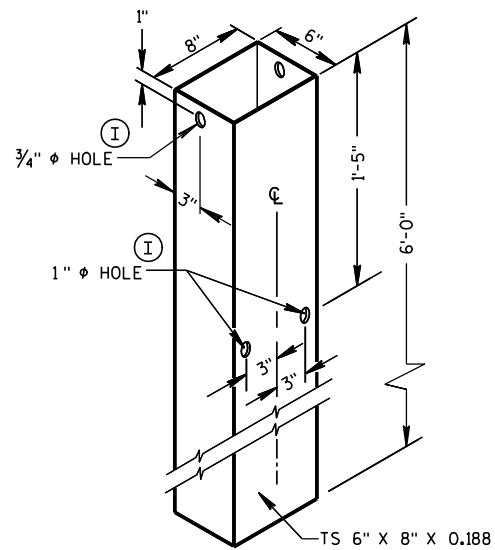
⑧ H
GENERIC ANCHOR CABLE BOX



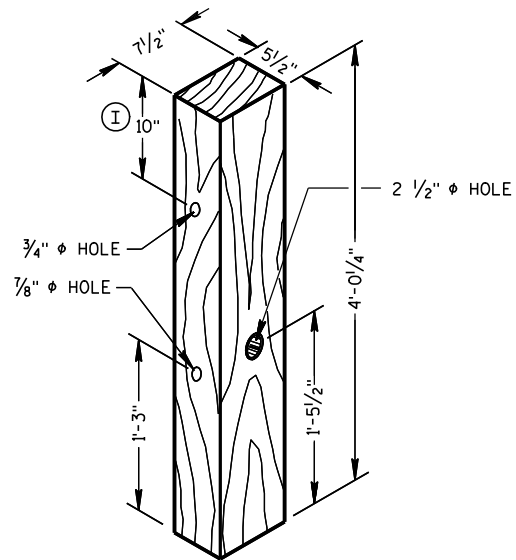
⑥
BEARING PLATE

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

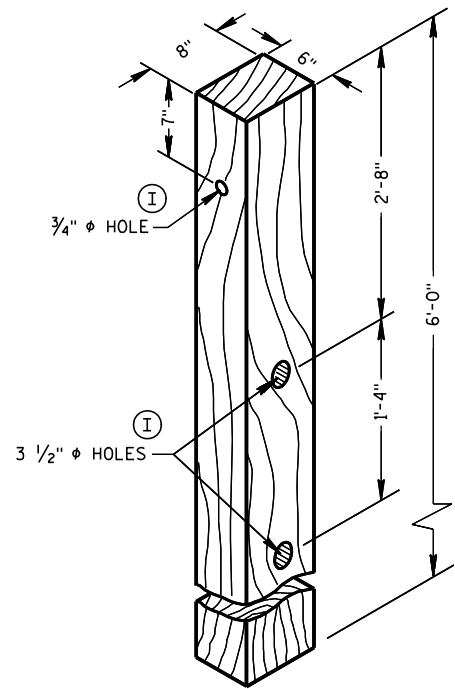
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



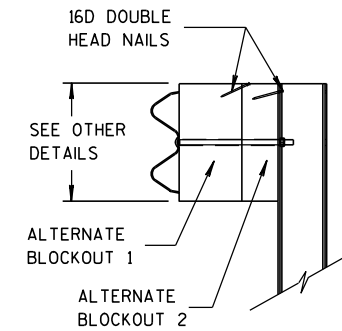
FOUNDATION TUBE ②



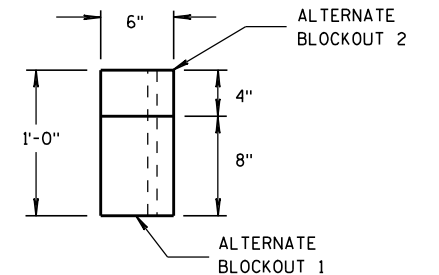
WOOD BREAKAWAY POST ①



WOOD CRT POST ③

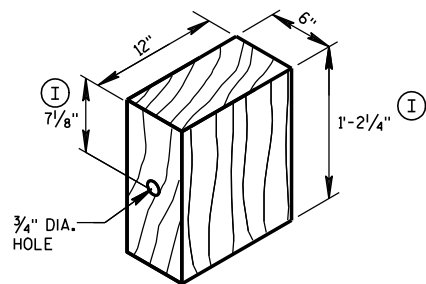


SIDE VIEW



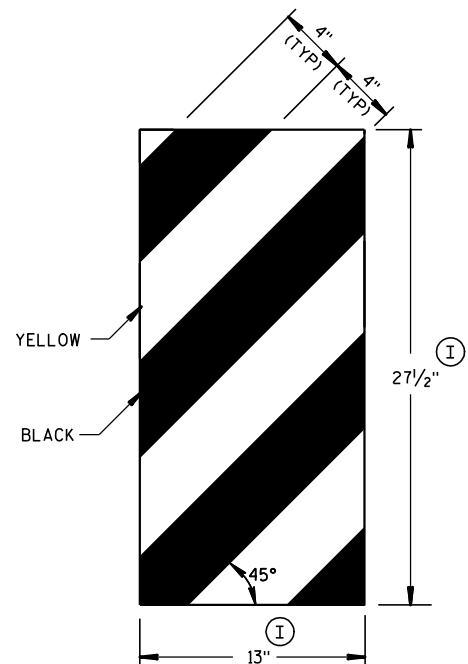
TOP VIEW

**ALTERNATE WOOD
BLOCKOUT DETAIL**

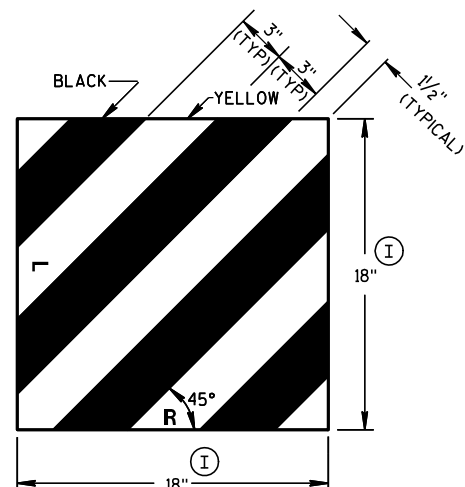


WOOD BLOCKOUT ④
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

YELLOW REFLECTIVE TAPE
3" X 9" TYPE H
REFLECTIVE SHEETING



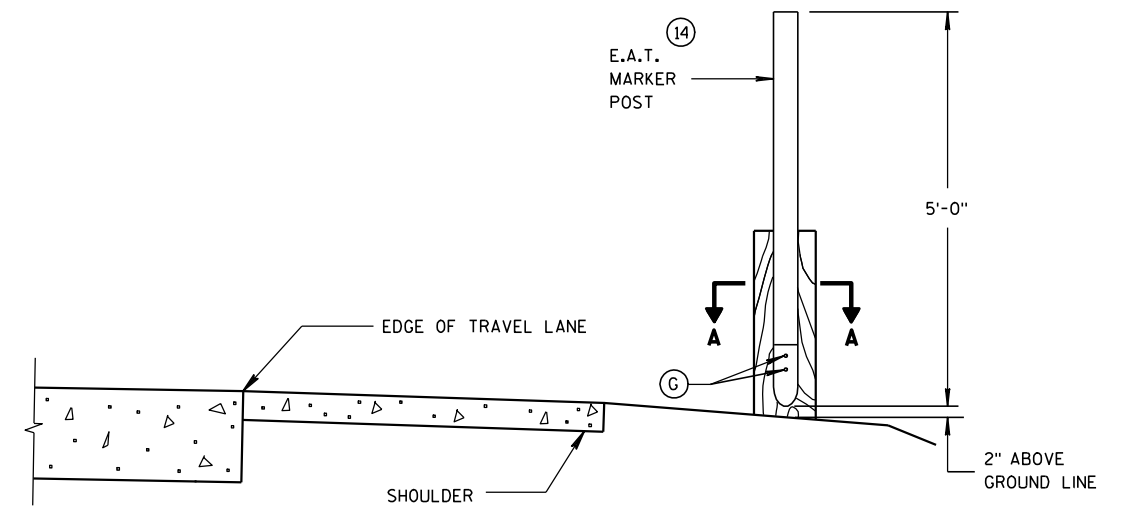
GENERIC REFLECTIVE SHEETING ⑬ ④



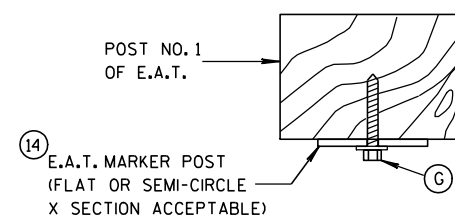
FRONT VIEW

SIDE VIEW

E.A.T. MARKER POST ⑭



**TYPICAL INSTALLATION OF E.A.T.
MARKER POST BACKSIDE OF POST NO. 1**
(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

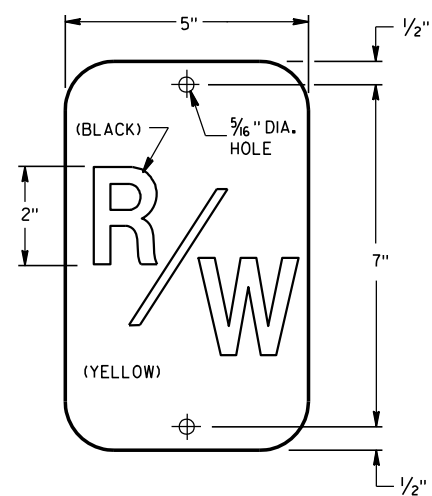
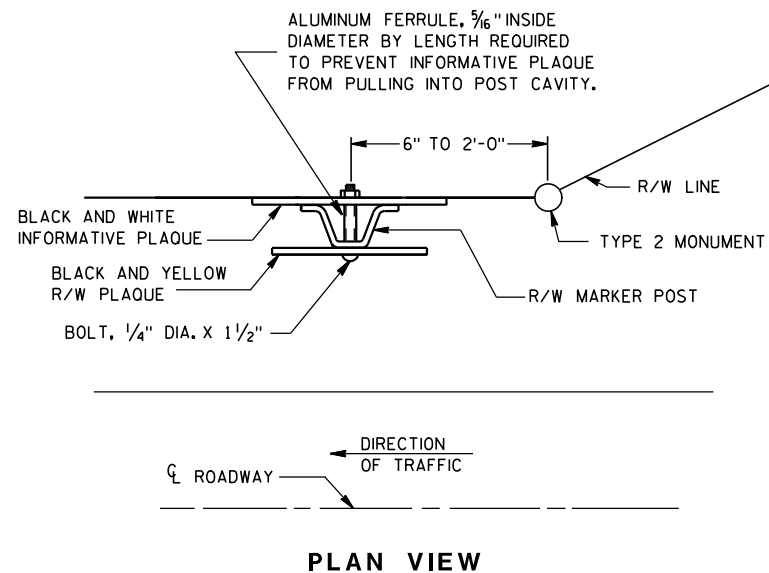
APPROVED

5/23/2011

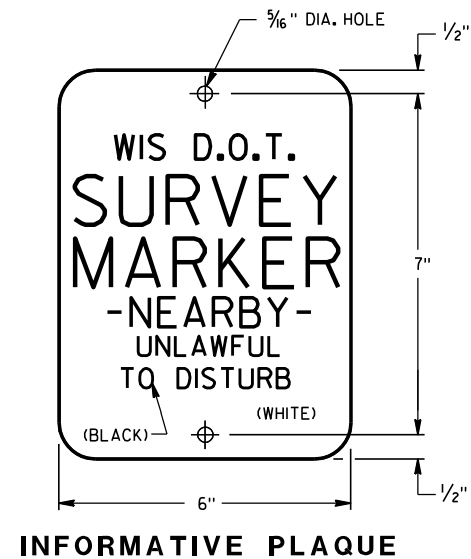
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



THE RIGHT-OF-WAY PLAQUE AND INFORMATIVE PLAQUE WILL BE FURNISHED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.



GENERAL NOTES

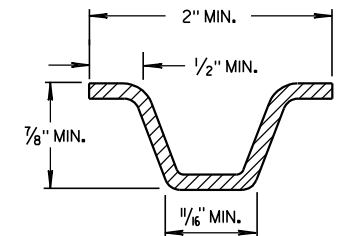
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

A STEEL MARKER POST FOR RIGHT-OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY, WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

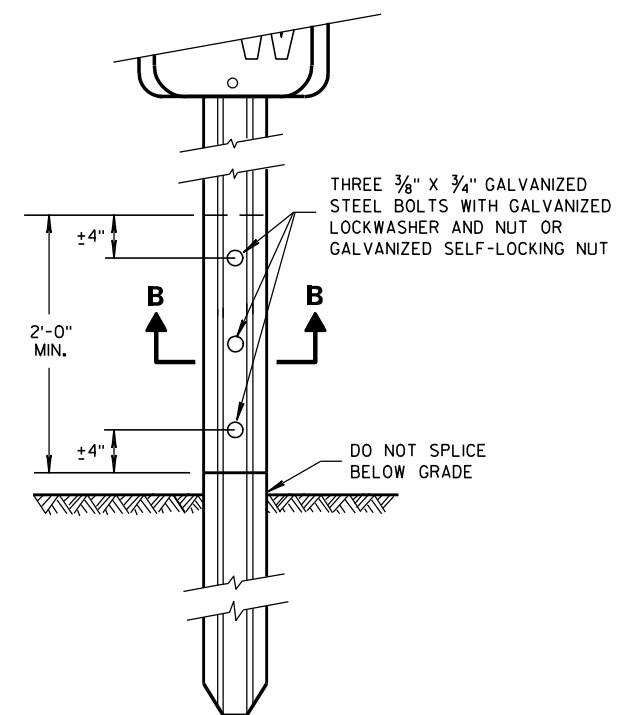
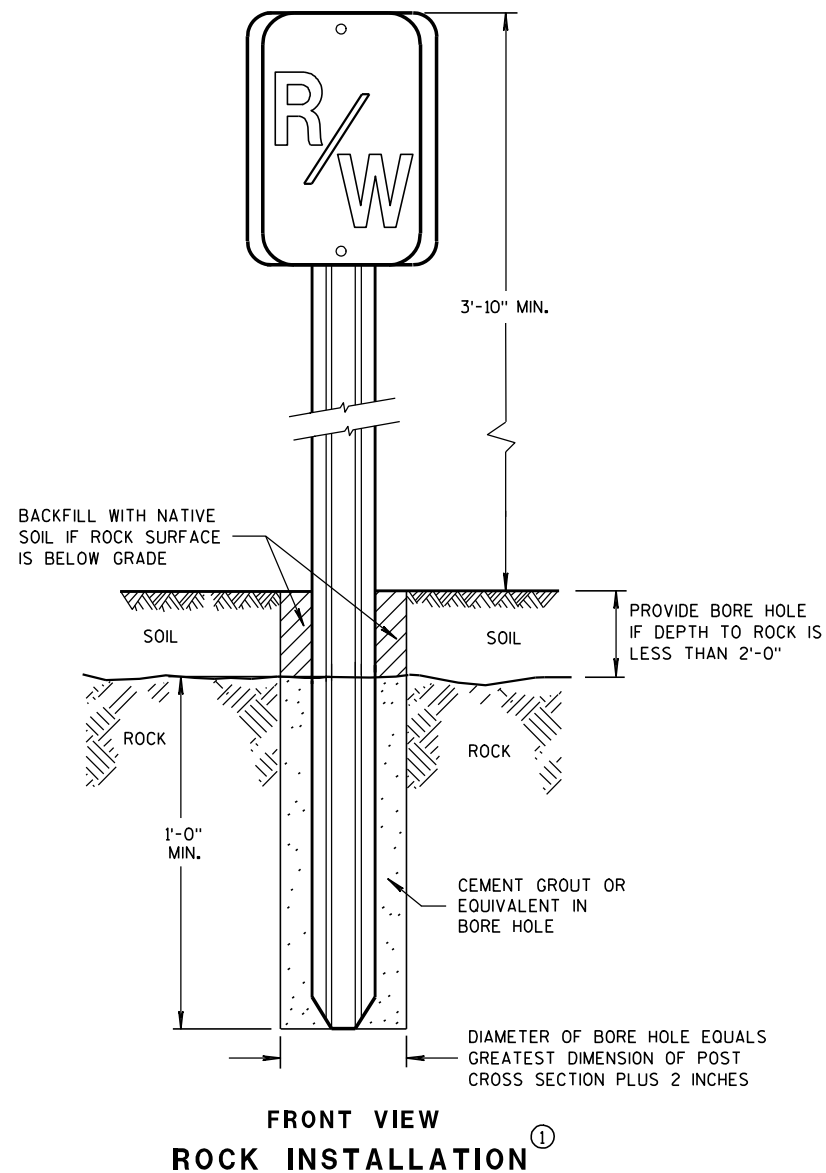
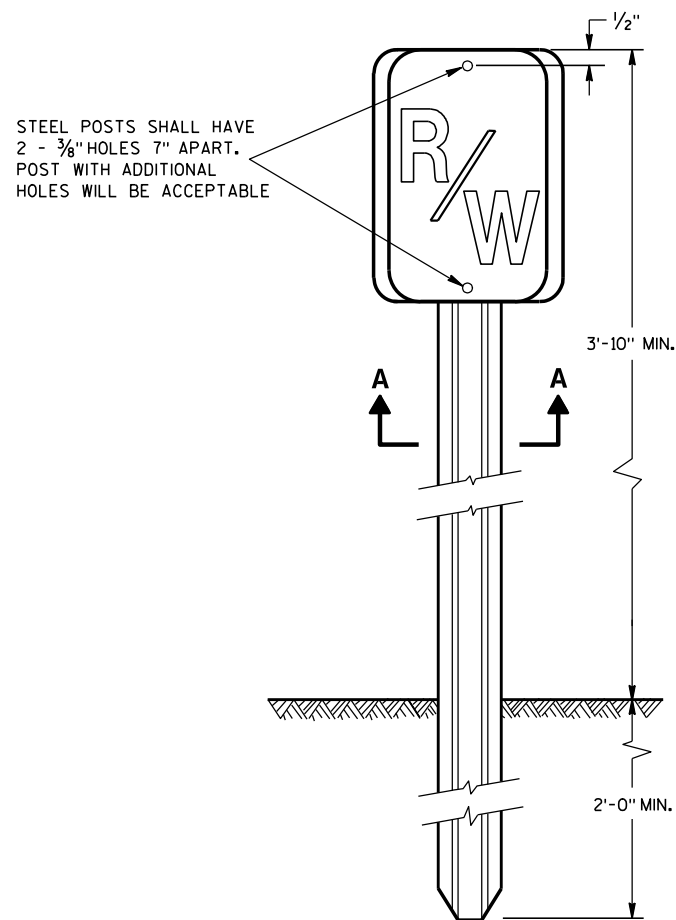
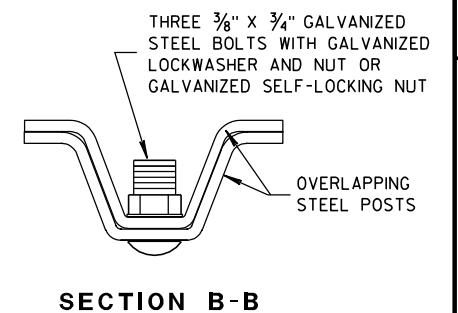
THE "R/W" PLAQUE SHALL FACE THE ROADWAY AND THE INFORMATIVE PLAQUE SHALL FACE AWAY FROM THE ROADWAY. R/W AND INFORMATIVE PLAQUES WILL BE FURNISHED BY THE DEPARTMENT OF TRANSPORTATION.

STEEL MARKER POSTS SHALL MEET THE MINIMUM MATERIAL REQUIREMENTS FOR STEEL DELINEATOR POSTS; EXCEPT POSTS PAINTED WITH FEDERAL YELLOW ENAMEL NEED NOT BE ZINC COATED.

- ① IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK TO A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 3'-10" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR. FILL THE BORE HOLE WITH CEMENT GROUT, OR EQUIVALENT, DEPENDING ON THE STABILITY OF THE ROCK.



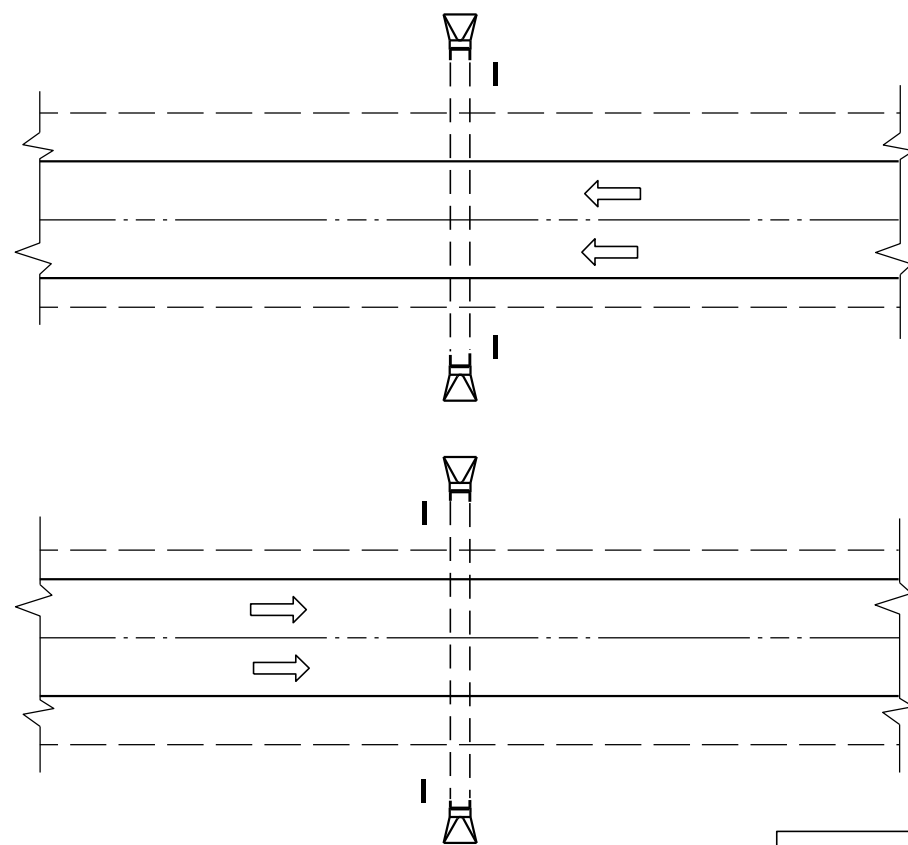
MIN. WEIGHT 1.12 LB./FT.
SECTION A-A



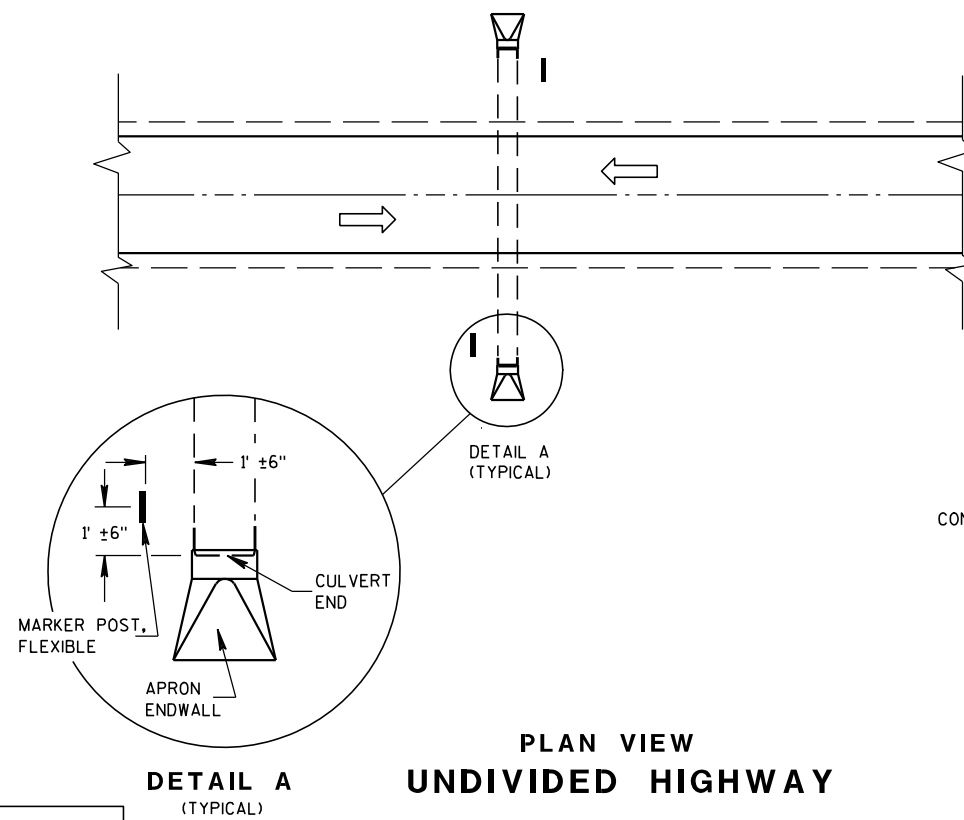
MARKER POST FOR RIGHT-OF-WAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4/27/09 /S/ Ray Kumapayi
DATE CHIEF SURVEYING AND MAPPING ENGINEER
FHWA

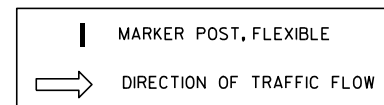


PLAN VIEW
DIVIDED HIGHWAY

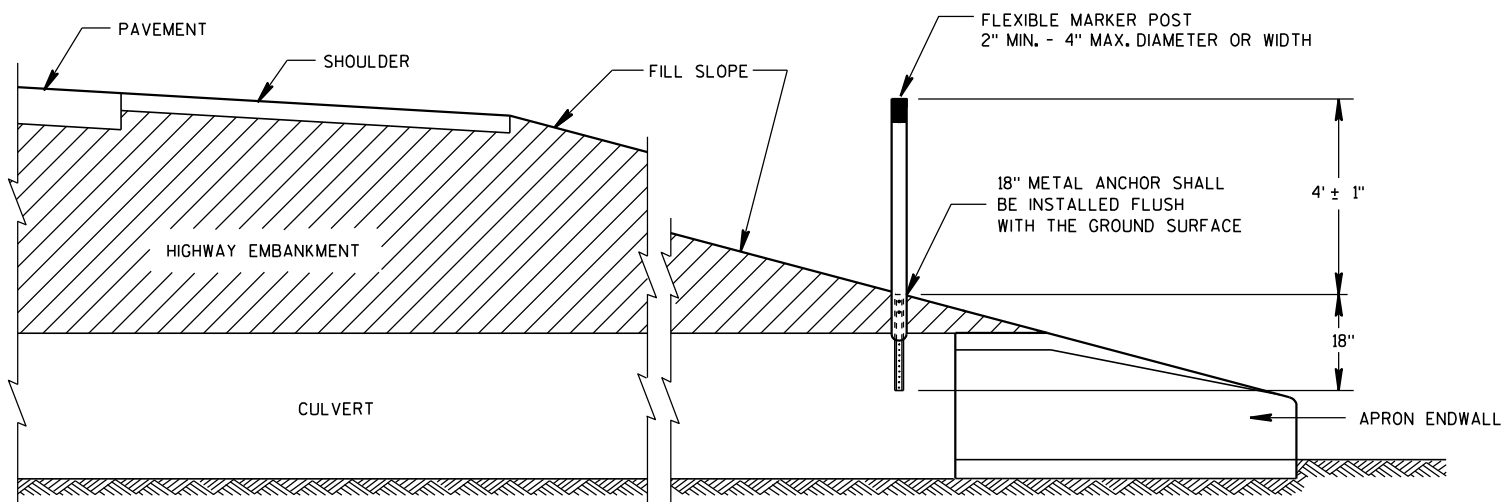


PLAN VIEW
UNDIVIDED HIGHWAY

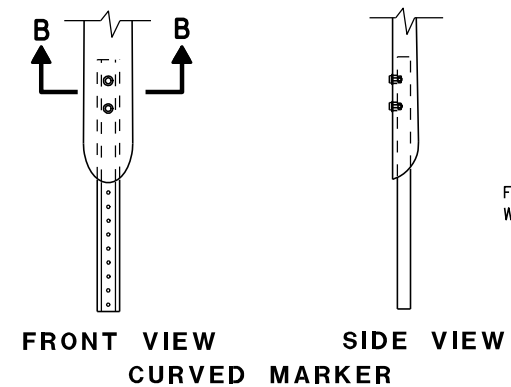
DETAIL A
(TYPICAL)



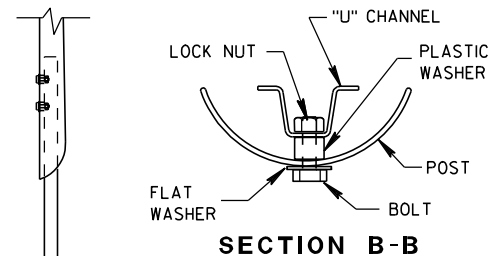
FLEXIBLE MARKER POST LOCATION



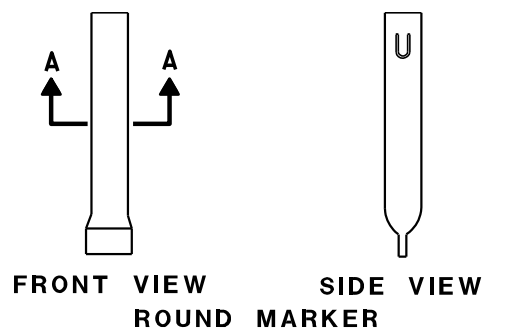
CROSS SECTION
FLEXIBLE MARKER POST



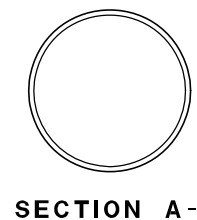
FRONT VIEW
CURVED MARKER



SECTION B-B



FRONT VIEW
ROUND MARKER

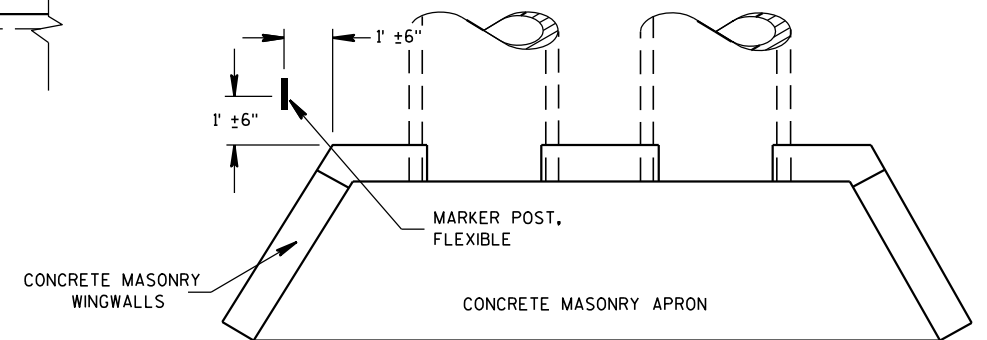


SECTION A-A

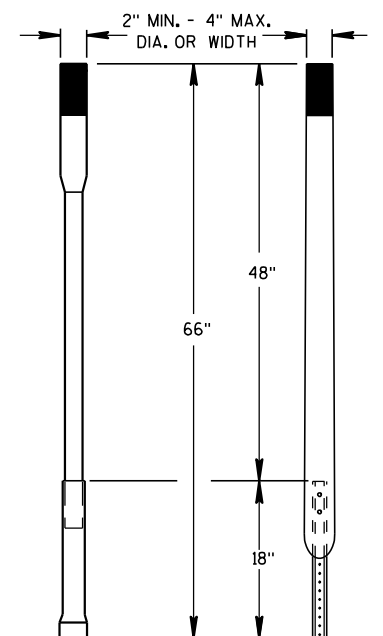
FLEXIBLE MARKER POST ANCHORS

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



ALTERNATE 1 ALTERNATE 2
FLEXIBLE MARKER POST

MARKER POST, FLEXIBLE,
FOR CULVERT END

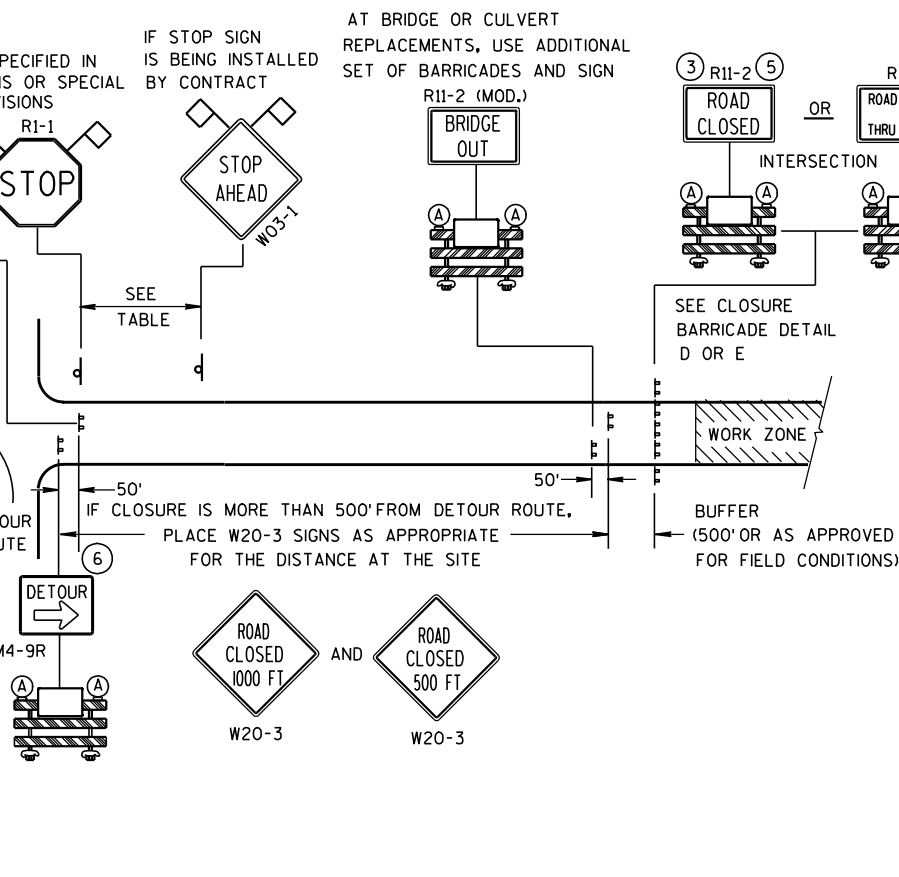
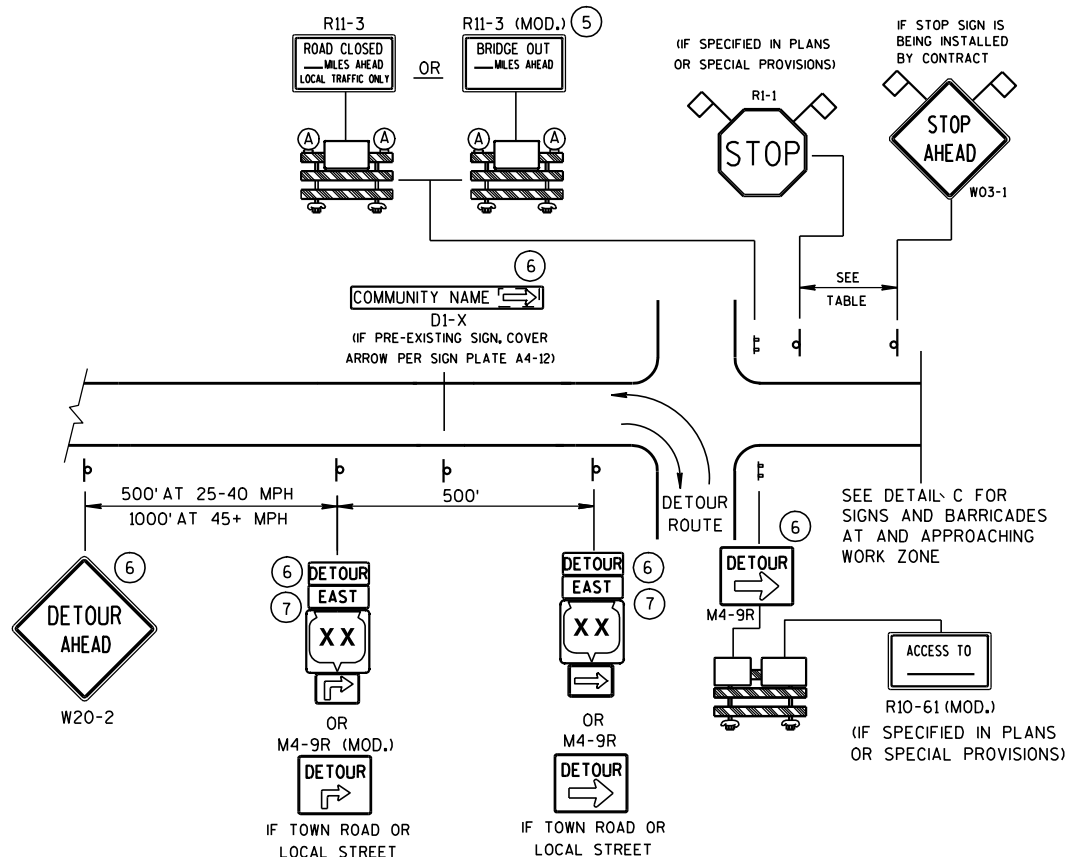
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

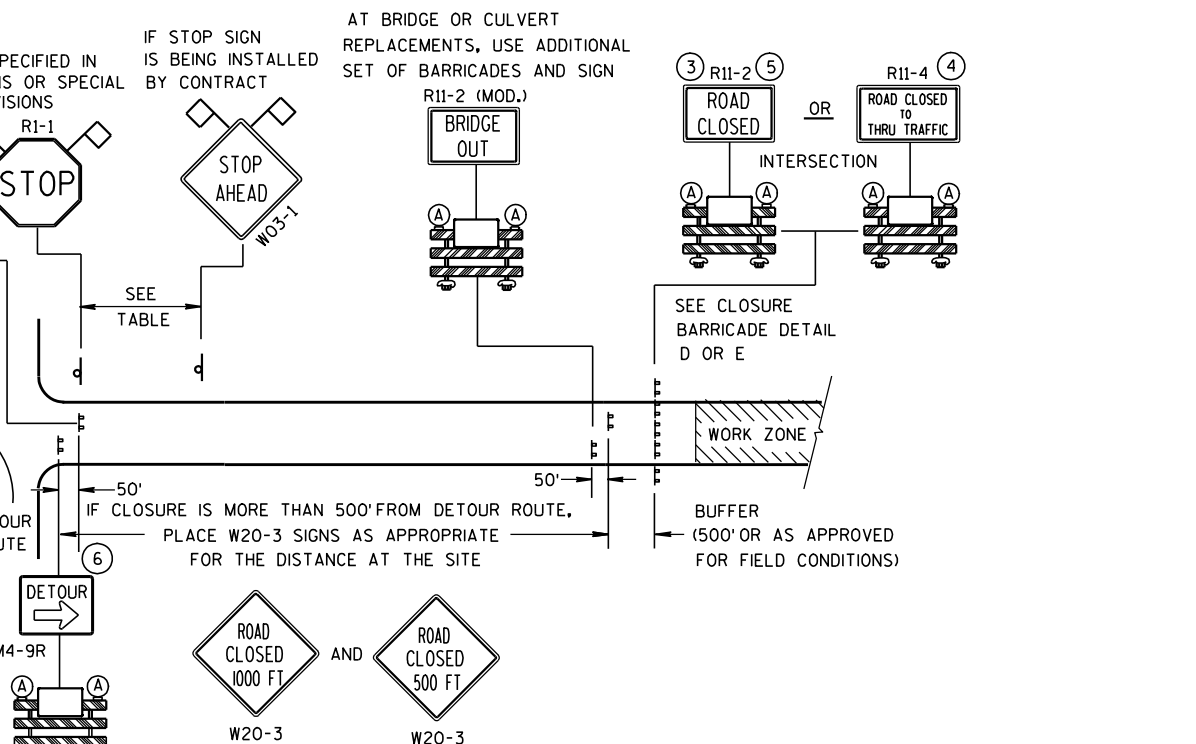
10/1/98
DATE

FHWA

/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR



SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

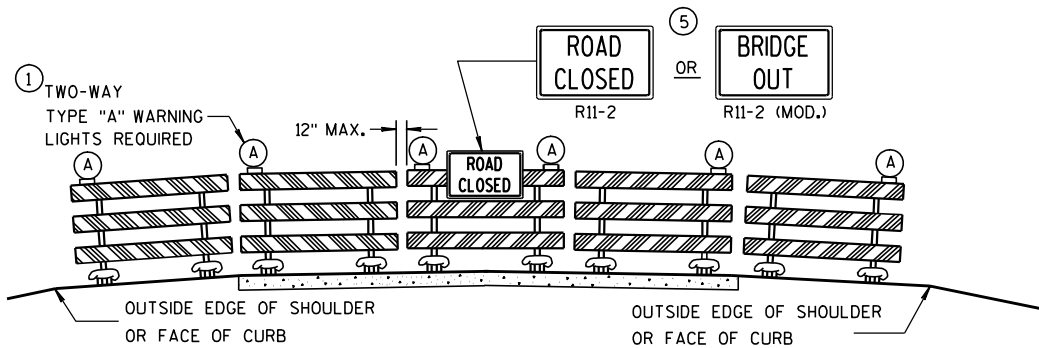
SEE SDD 15C2-4b
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

LEGEND

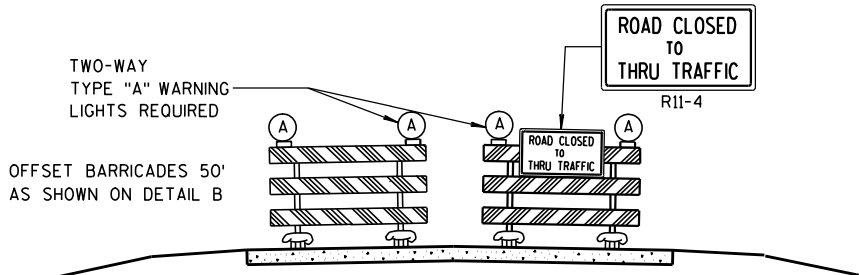
- POST MOUNTED SIGN
- TYPE III BARRICADES
- TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
- WORK ZONE
- DETOUR EAST M4-8 M3-X
- MI-4 OR MI-5A OR MI-6
- MO5-1 OR MO6-1
- FLAGS, 16" X 16" MIN., (ORANGE)

**BARRICADES AND SIGNS
FOR
MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2-4a FOR LEGEND

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, M4-9, R11-4 AND R10-61 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

THE REFLECTIVE SHEETING USED ON R11-2, R11-3, R11-4, R10-61 AND R1-1 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

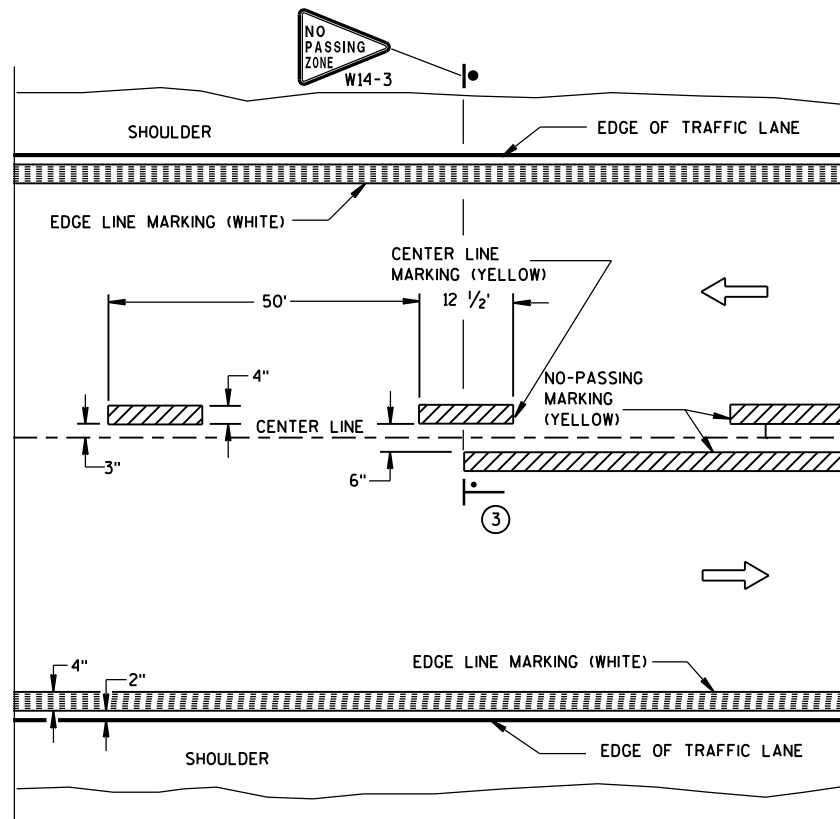
"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

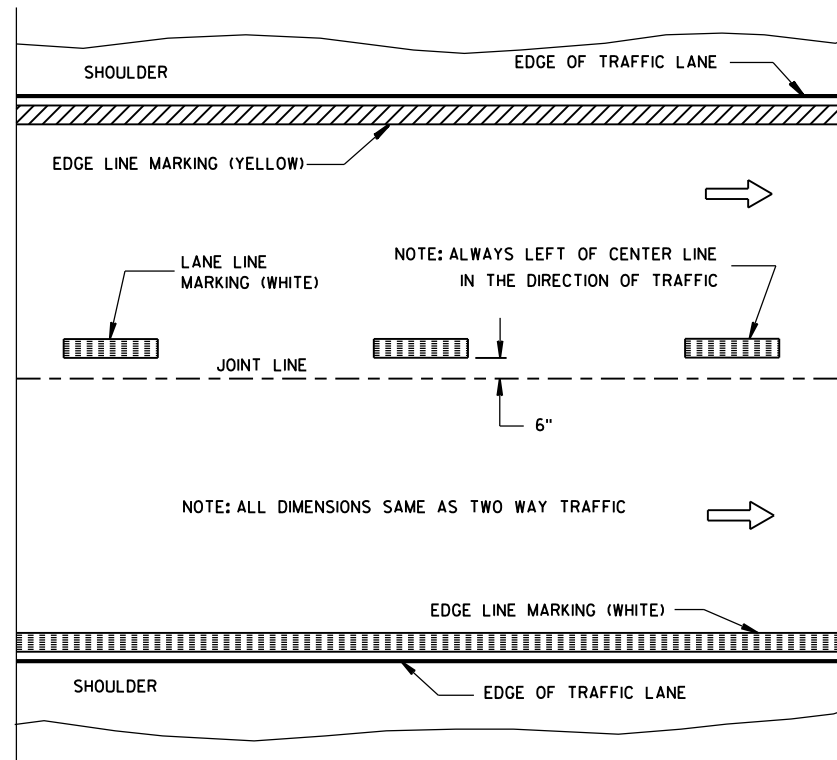
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X AND M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).
- 2 THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.
- 3 FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.
- 4 FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.
- 5 FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.
- 6 INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- 7 "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
9/16/03 DATE	/S/ Thomas N. Notbohm CHIEF SIGNS AND MARKING ENGINEER
FHWA	

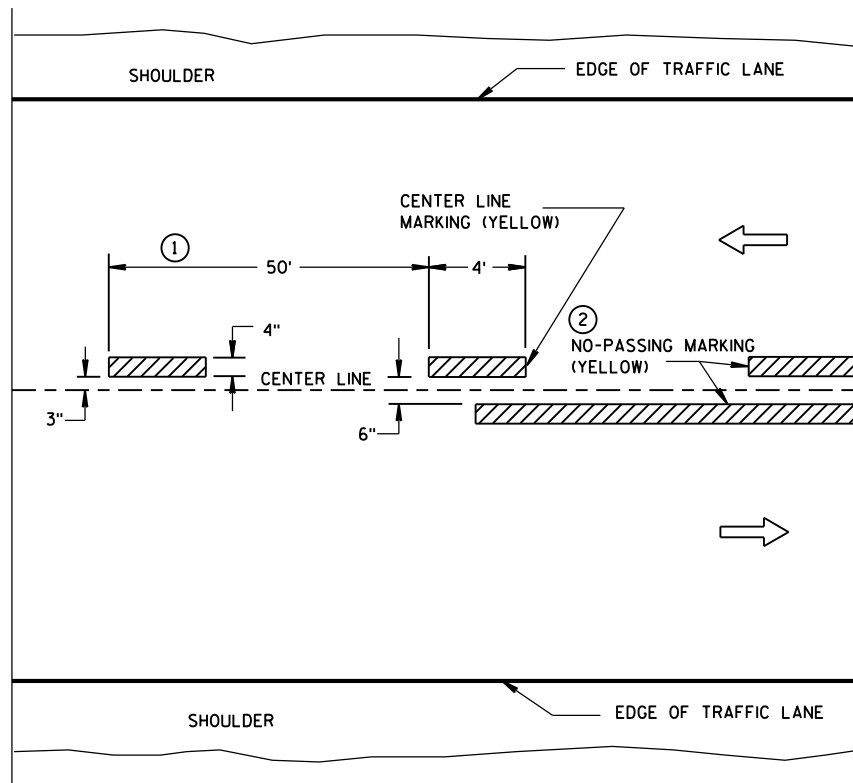


TWO WAY TRAFFIC

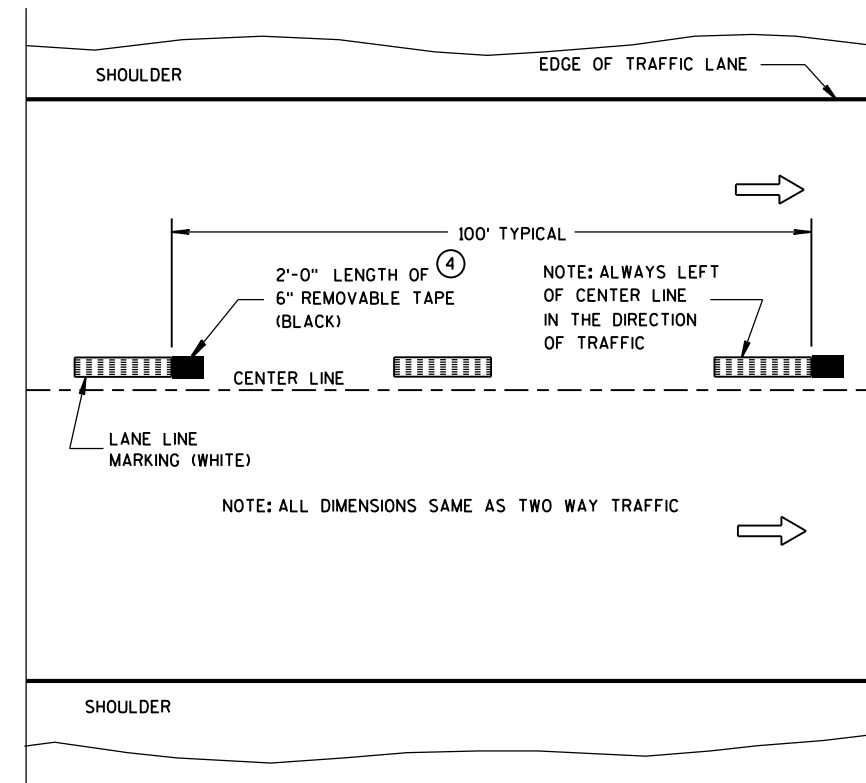


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING
(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

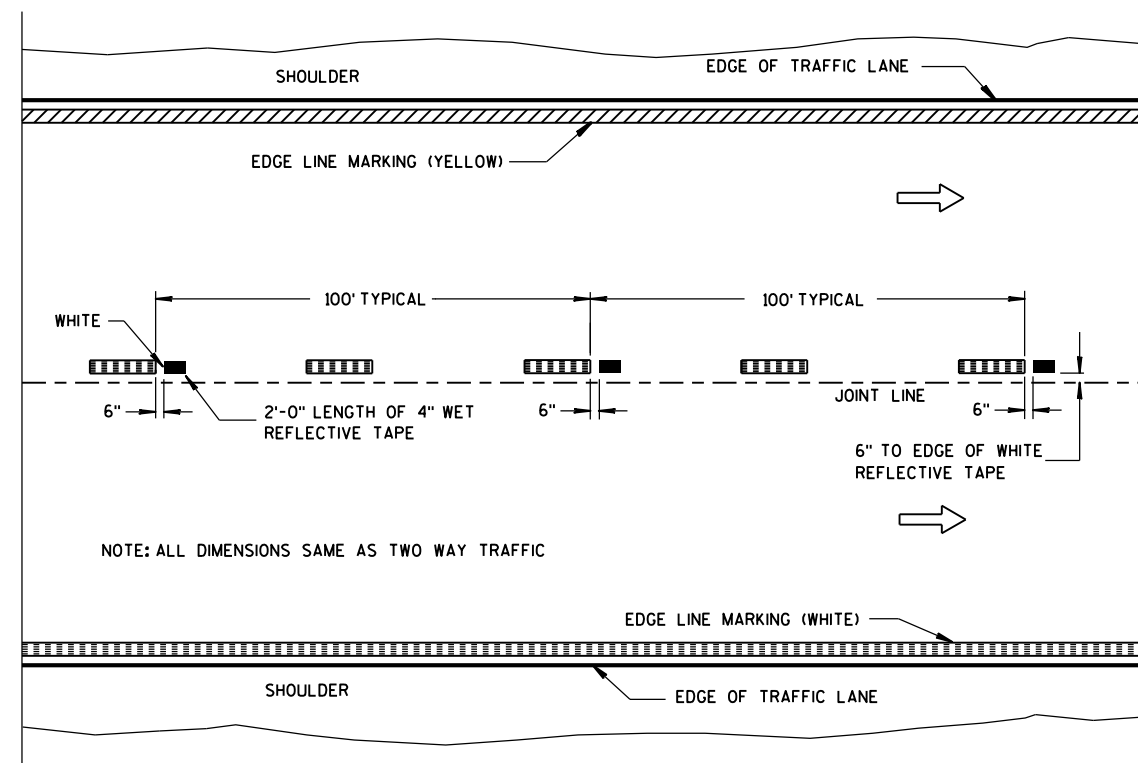
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- ① HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
- ② NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
- ③ NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
- ④ CONCRETE ONLY.

NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL



**WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE**

LEGEND

- "T" MARKING
- POST MOUNTED SIGN

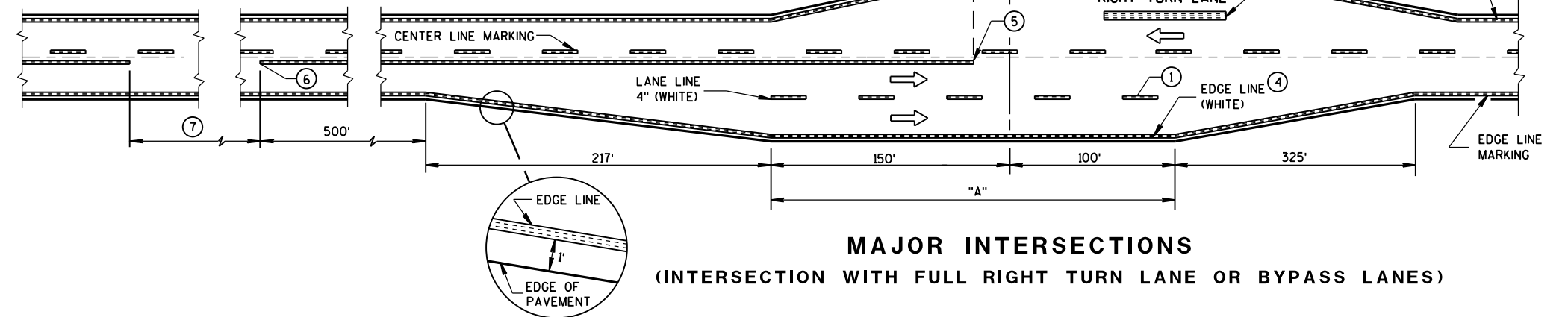
PAVEMENT MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10-1-2012 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA

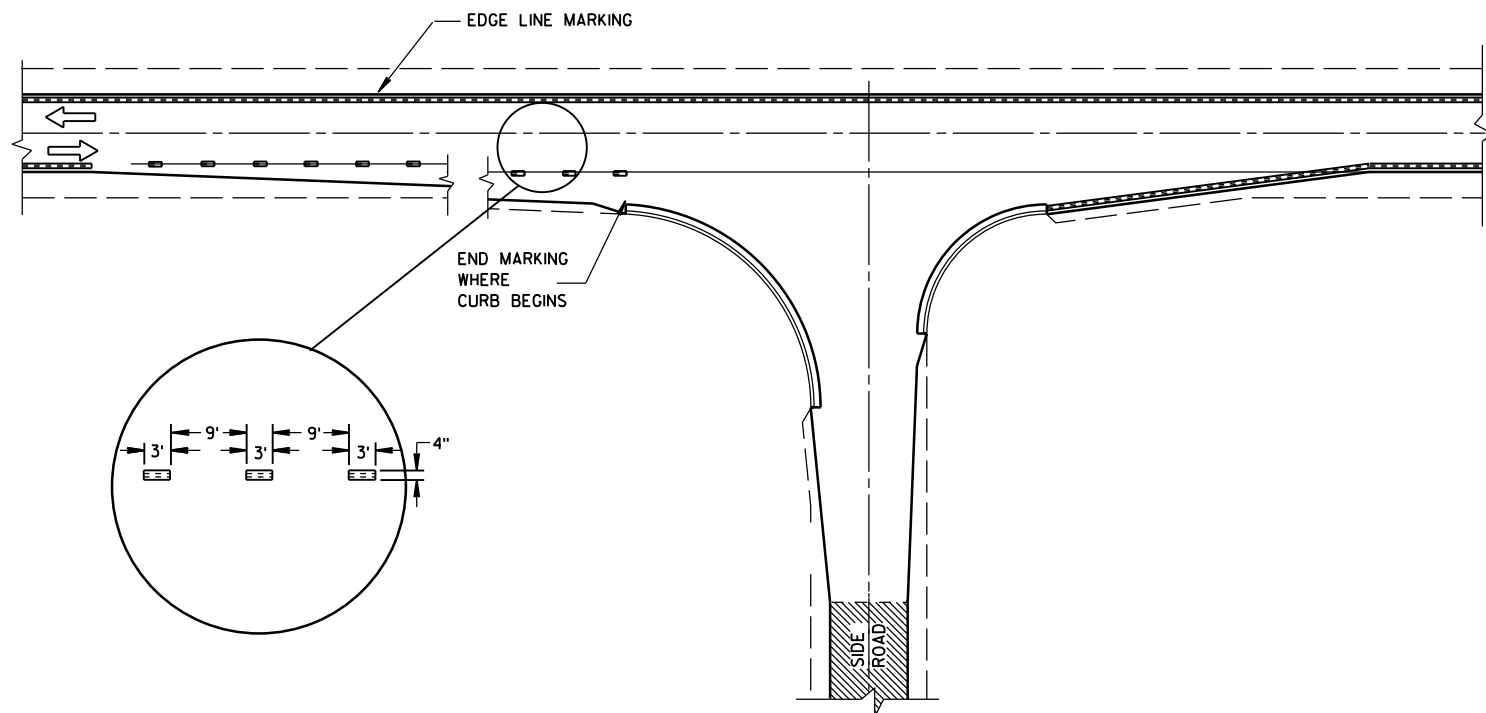


7	
POSTED SPEED (MPH)	MINIMUM DISTANCE BETWEEN ZONES (FEET)
25 - 30	528
35 - 40	528
45 - 50	686
55	792

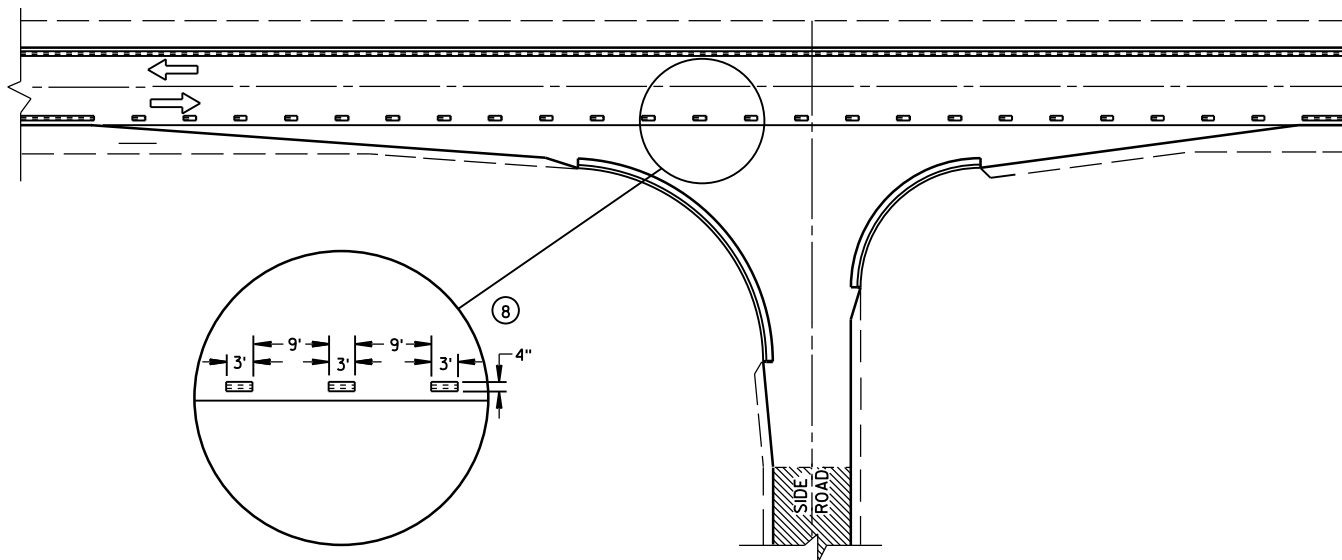


MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)



MINOR INTERSECTION WITH CURBS (TYPICAL MARKING)



MINOR INTERSECTION WITH CURBS

⁽³⁾ (FOR SPECIAL CONDITIONS AS SPECIFIED)

PAVEMENT MARKING (INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

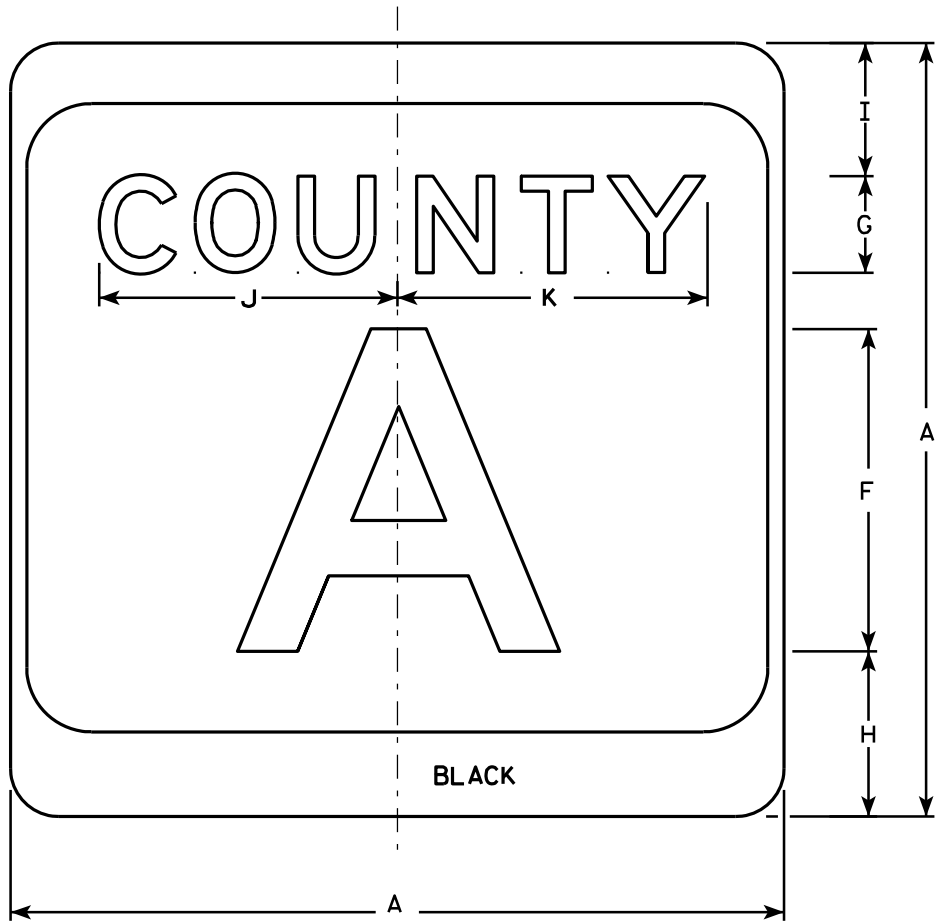
EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.

- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
- ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
- ③ ALTERNATIVE MARKING SHALL BE PROVIDED WHEN SPECIFIED IN THE CONTRACT. TYPICAL SITUATIONS WHERE THIS MARKING MAY BE REQUIRED ARE WHERE THE INTERSECTION IS ON A SHARP HORIZONTAL CURVE OR CREST VERTICAL CURVE IN AN UNLIGHTED AREA SUCH THAT THE EDGE LINE MAY BE MISLEADING TO THE MOTORIST OR DISAPPEAR FROM SIGHT.
- ④ THE EDGE LINE IN THE TAPER AREAS OF THE BYPASS LANE AND THE BYPASS LANE SHALL BE LOCATED 1-FOOT FROM EDGE OF PAVEMENT TO THE OUTSIDE EDGE OF EDGE LINE.

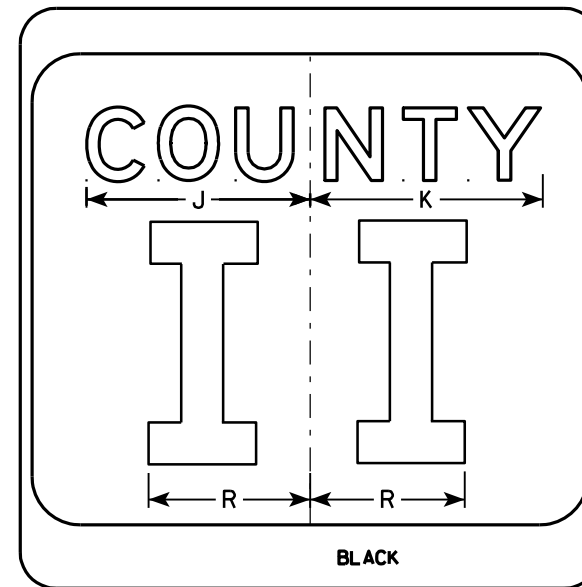
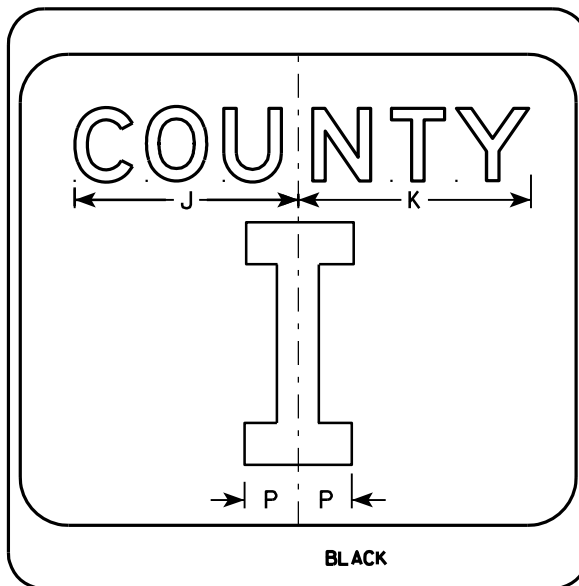
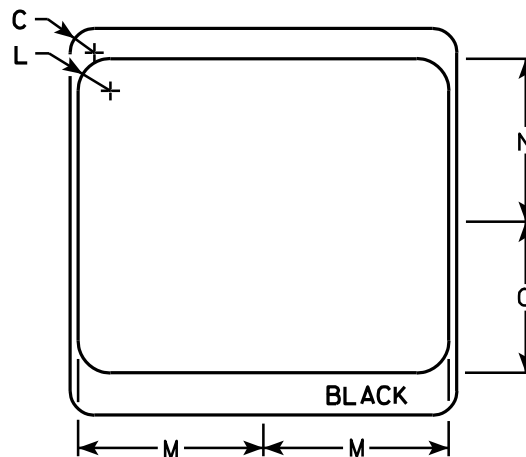
- ⑤ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.
- ⑥ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.
- ⑦ IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.
- ⑧ 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.

ARROW SYMBOL () SHOWS DIRECTION OF TRAVEL

7



M1-5A



NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White & Black - See Note 7
Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Message Series E for 1 letter.
Message Series D for 2 letters unless message is too big then Series C.
Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

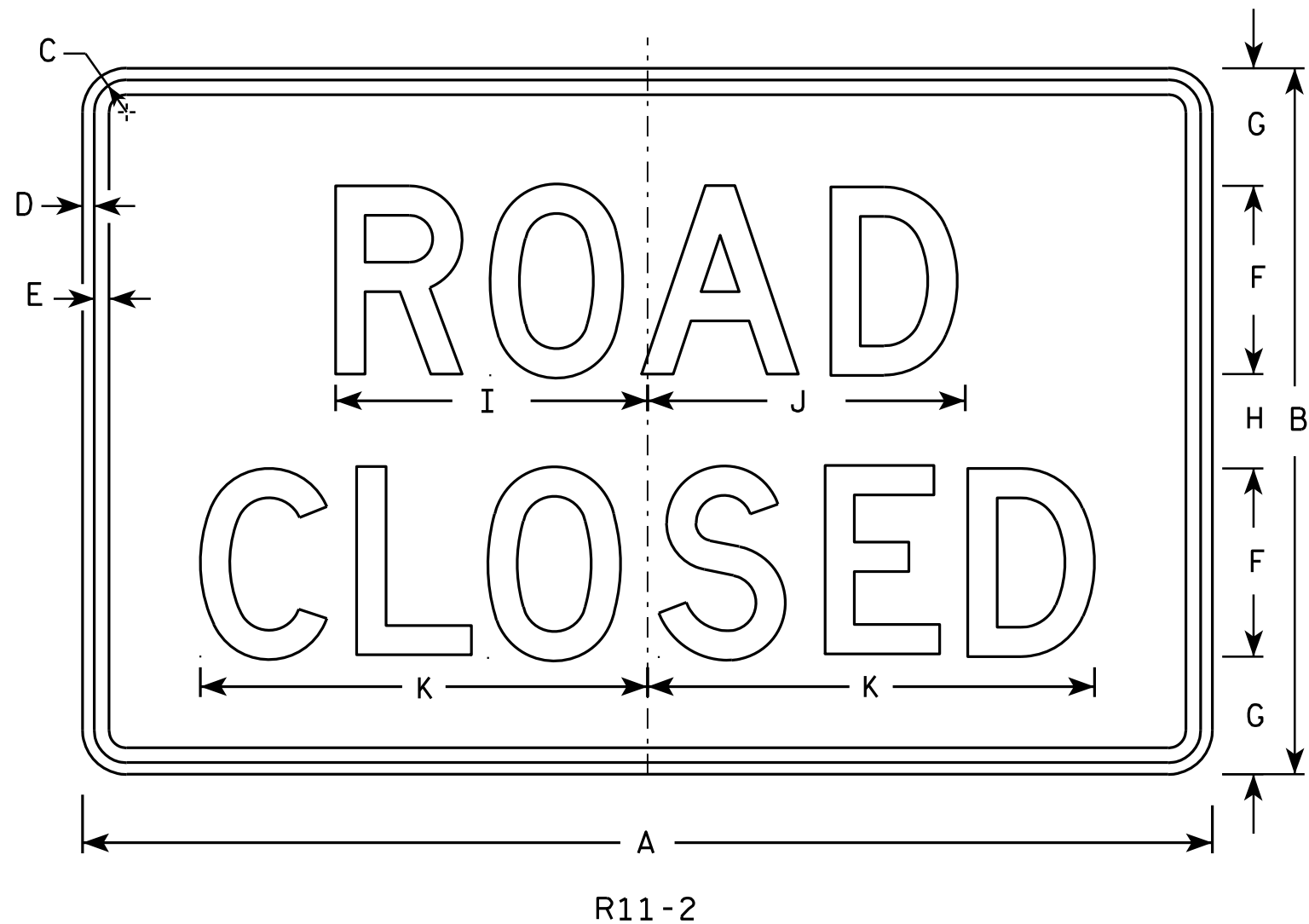
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

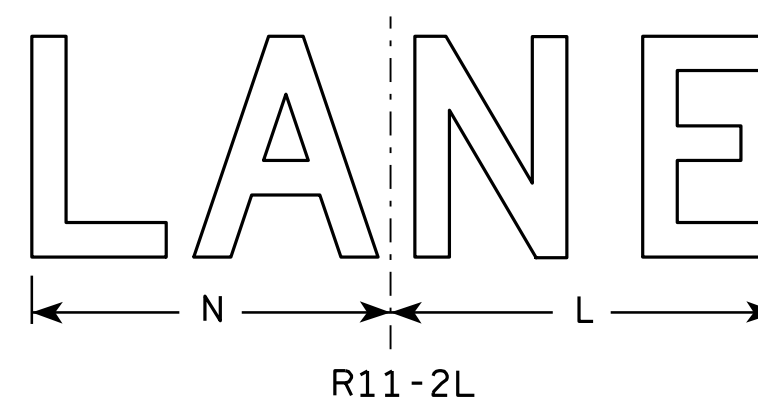
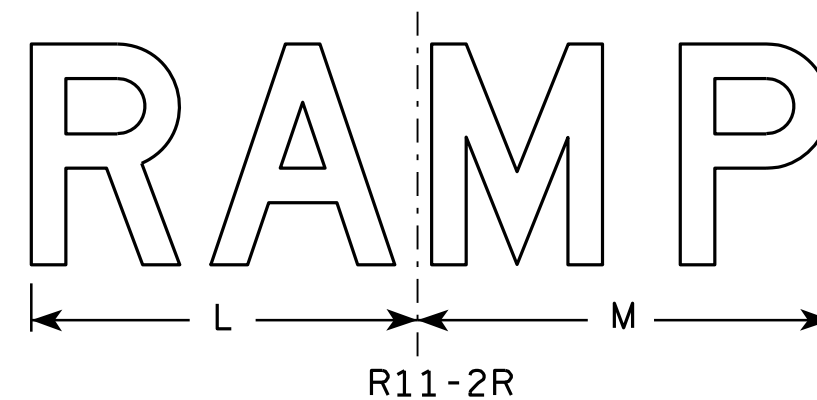
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/27/11 PLATE NO. M1-5A.8



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Modify the message as required.

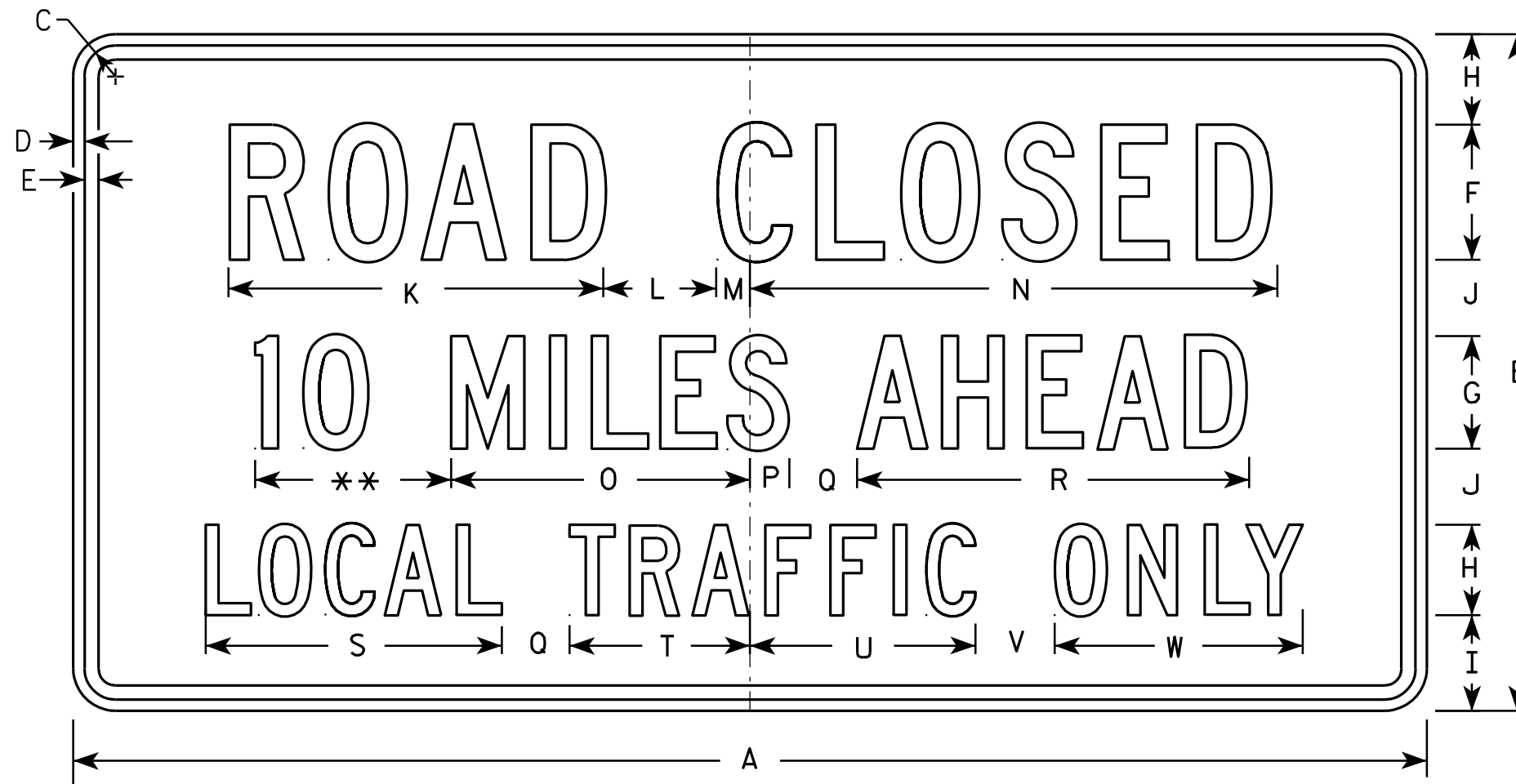


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0
2M	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0
3	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0
4	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0
5	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0

STANDARD SIGN
R11-2

WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 4/1/11 PLATE NO. R11-2.10

PROJECT NO: HWY: COUNTY: SHEET NO: E



R11-3

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

** See Note 5

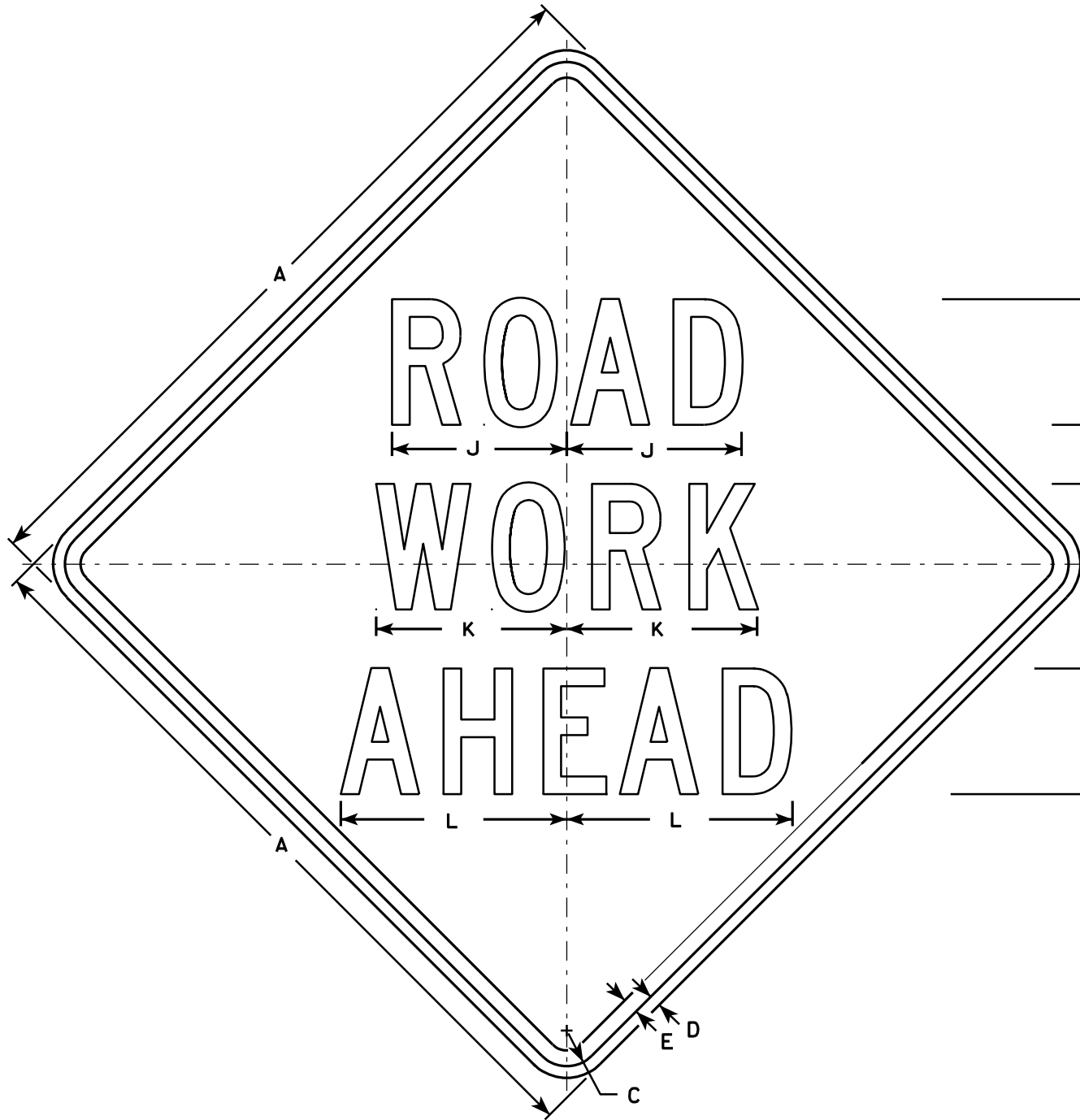
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 3/8	1/2	5/8	4	3	2 1/2	2	2	11 1/8	3	1 1/8	15 1/4	8	1 1/2	2	10 3/4	8 3/8	4 3/4	6 1/2	2	6 3/4				4.5
2S	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	16 5/8	5	1 1/2	23	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
2M	60	30	1 3/8	1/2	5/8	6	5	4	4 1/4	3 3/8	16 5/8	5	1 1/2	23	13 1/4	1 3/4	3	17 3/8	13 1/8	8	10	3 1/2	11				12.5
3																											
4																											
5																											

STANDARD SIGN R11-3

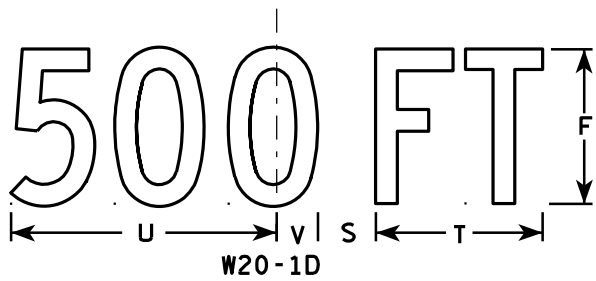
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer
DATE 4/1/11 PLATE NO. R11-3.6

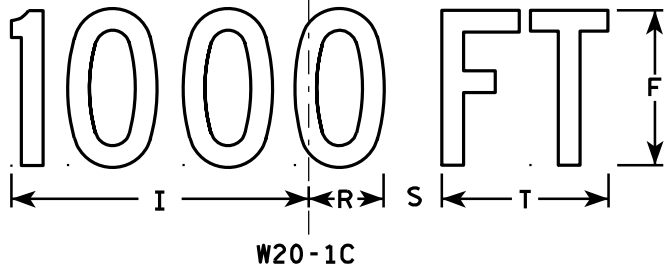
PROJECT NO: HWY: COUNTY: SHEET NO: E



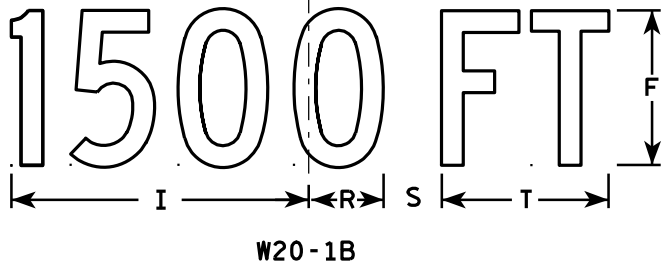
W20-1A



W20-1D



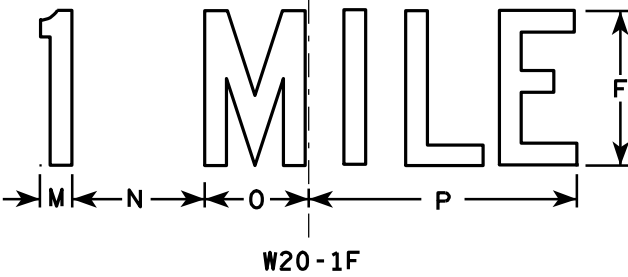
W20-1C



W20-1B



W20-1G



W20-1F

NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	1/2	5/8	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9		2 1/2	1 7/8	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8		3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

PROJECT NO:

SHEET NO:

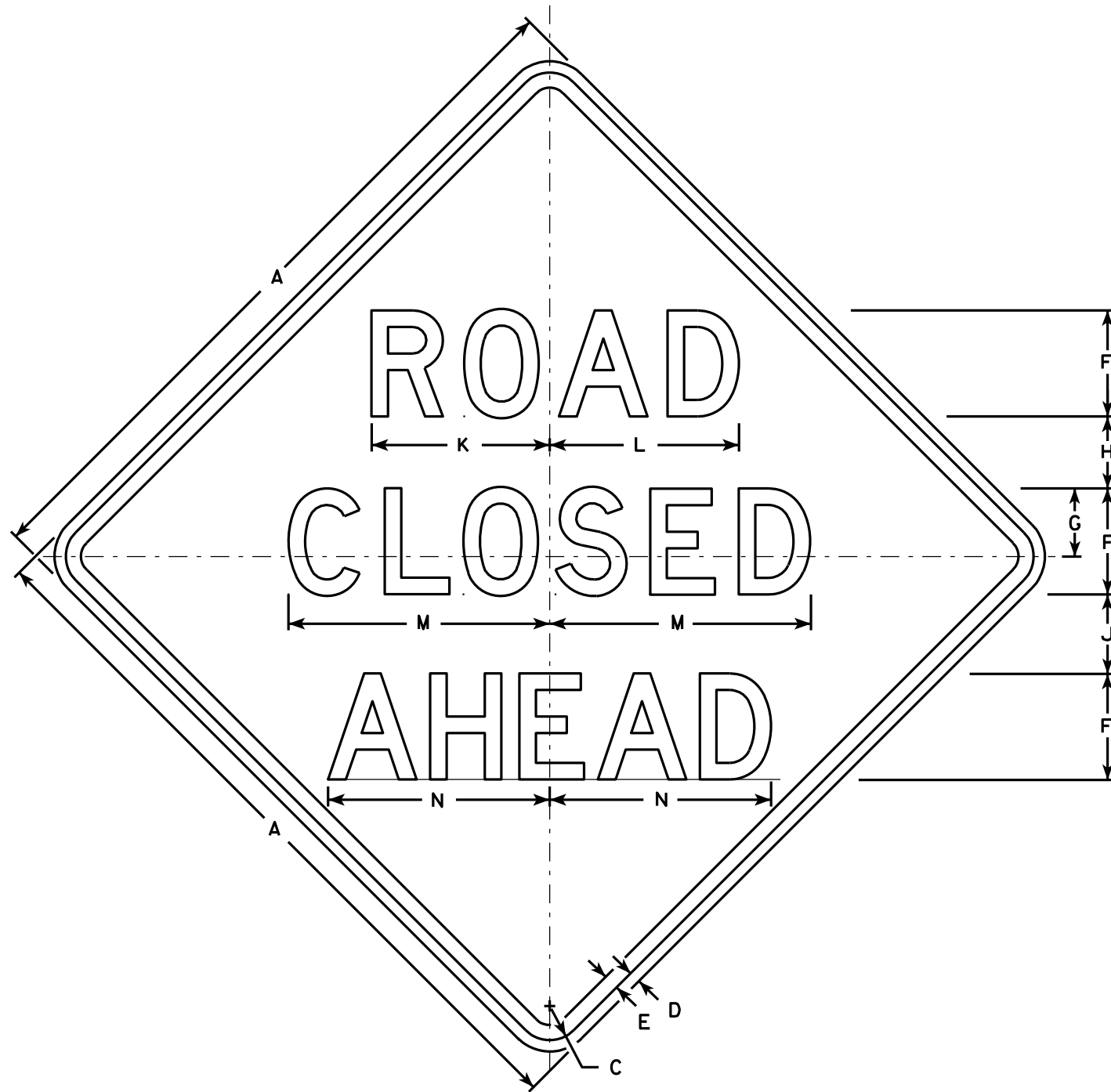
E

STANDARD SIGN
W20-1A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
For State Traffic Engineer

DATE 3/18/11
PLATE NO. W20-1.9



W20-3A

500 FT

W20-3D

1000 FT

W20-3C

1500 FT

W20-3B

1/2 MILE

W20-3G

1 MILE

W20-3F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1 and 2 are Series D.
Line 3 is Series D for AHEAD and Series C for all other distances.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-3.7

PROJECT NO:

HWY:

COUNTY:

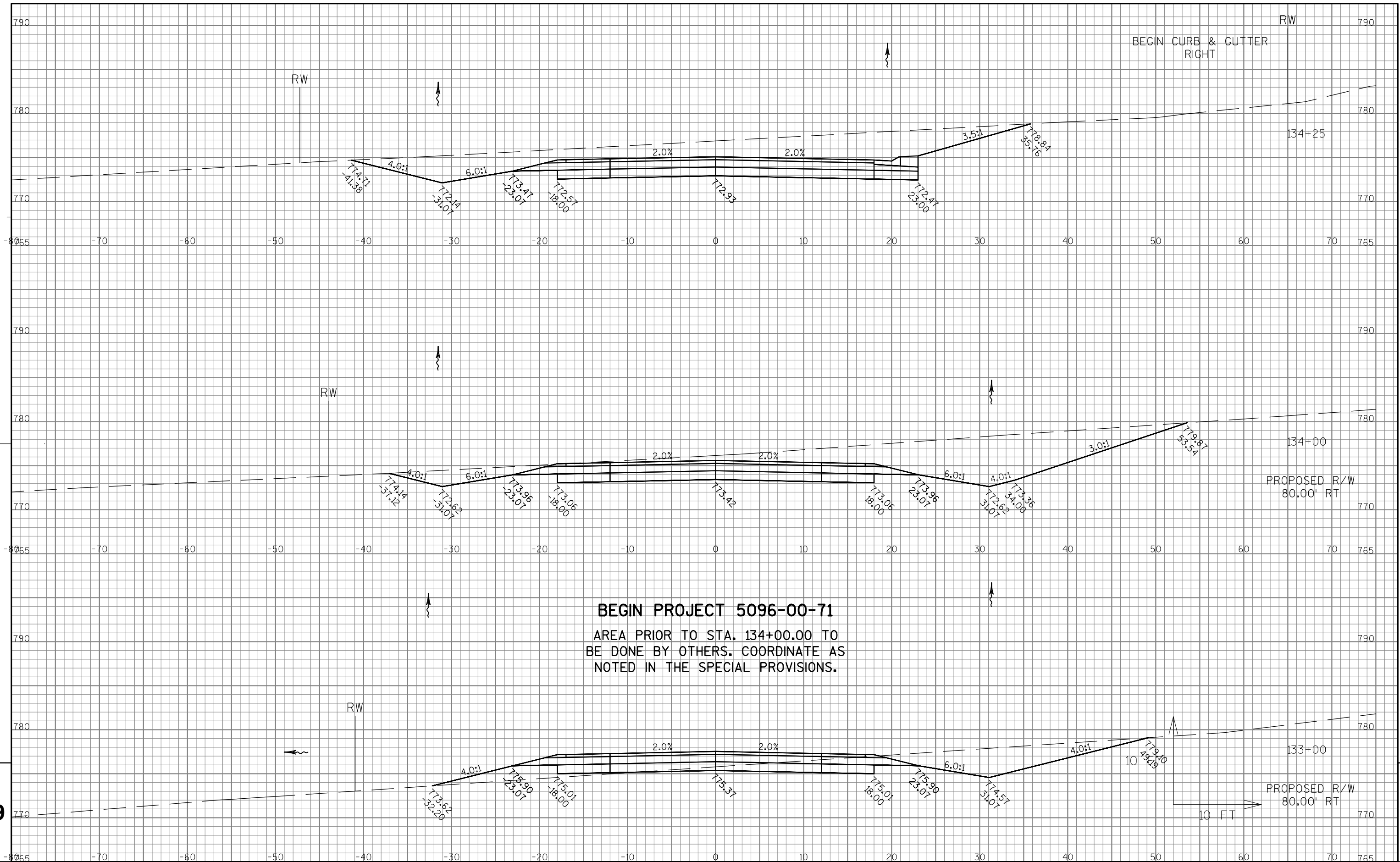
SHEET NO:

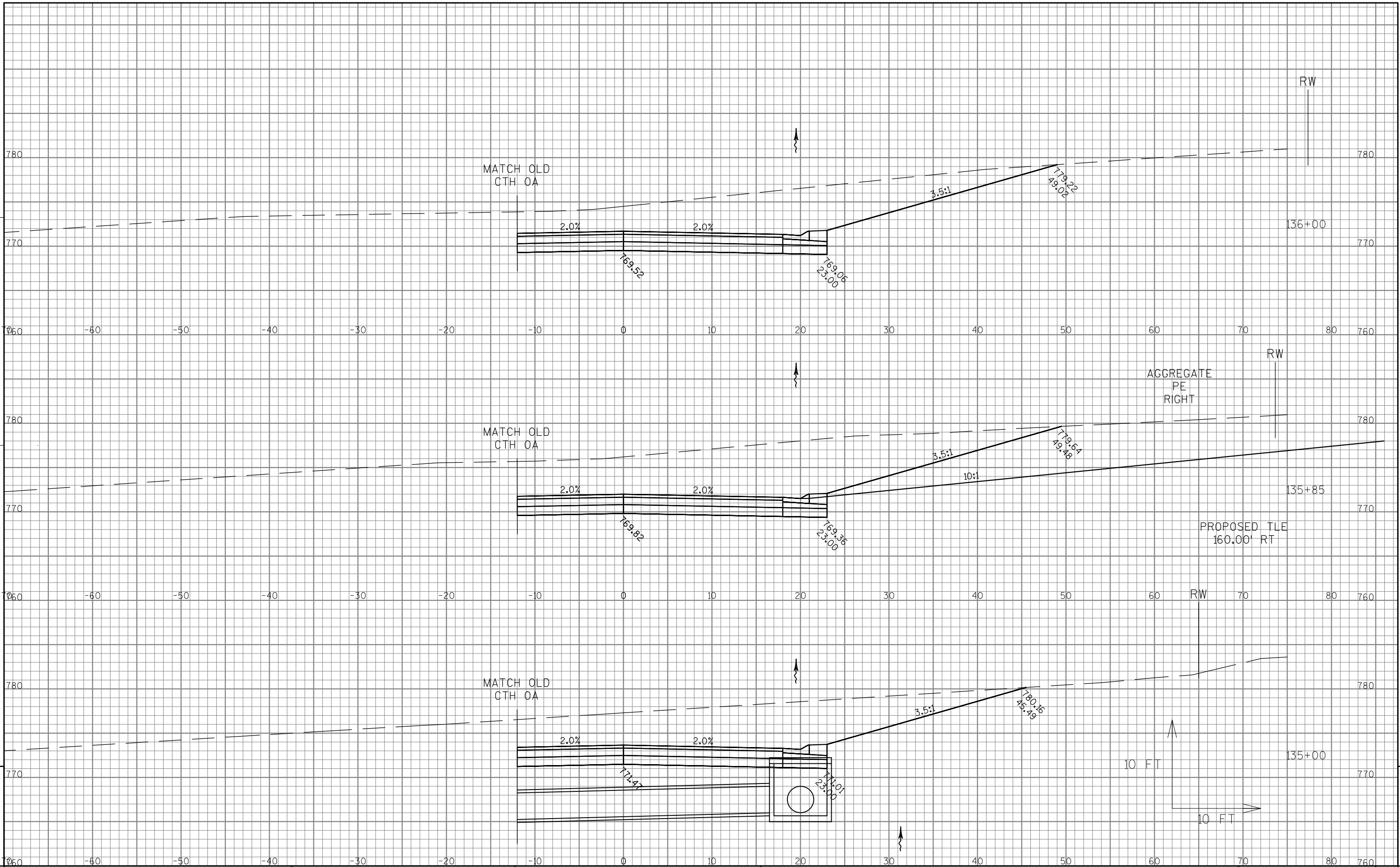
E

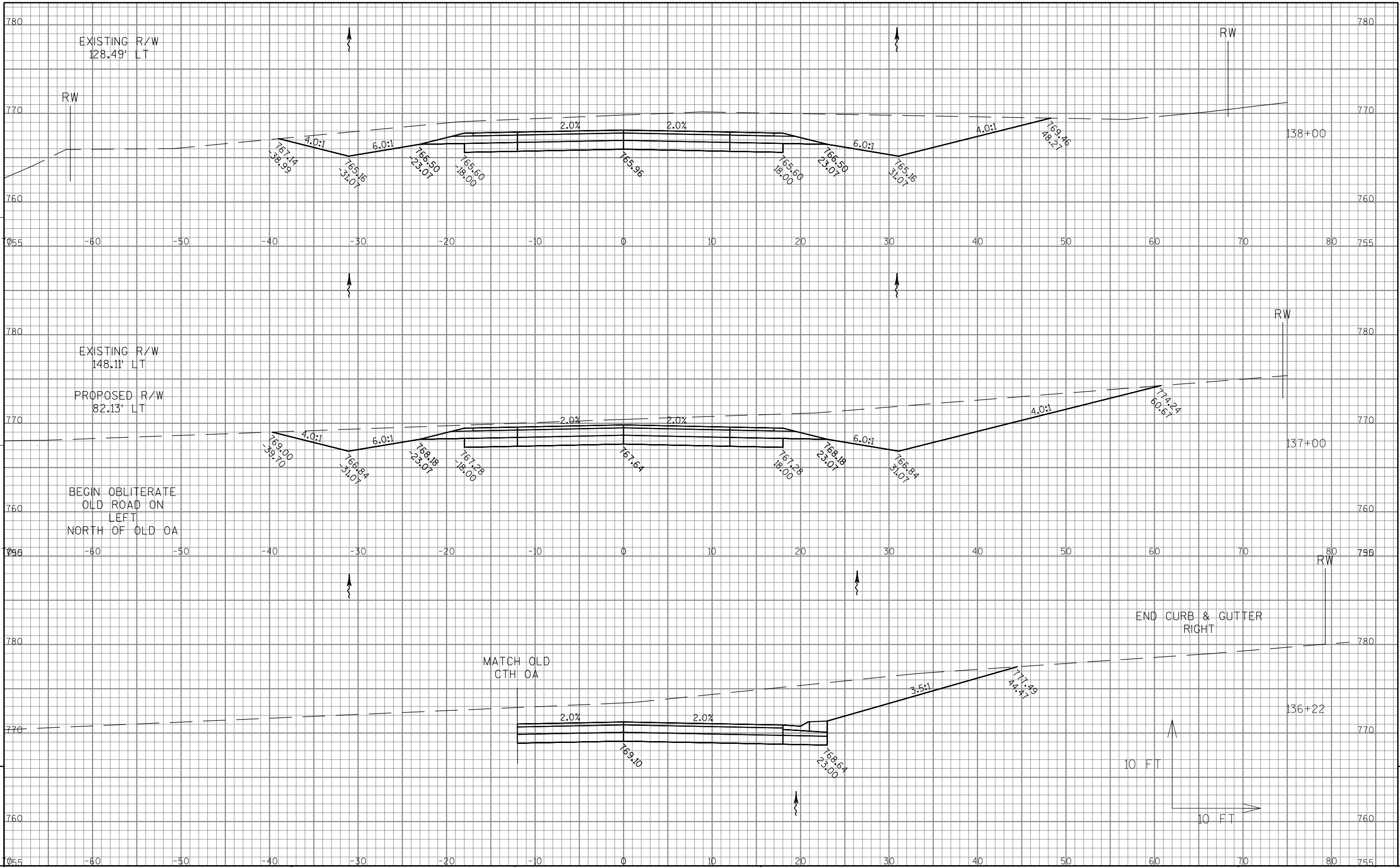
STATION	AREA (SF)			Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)			Mass Ordinate
	Cut	Salvaged/Unusable Pavement Material	Fill	Cut	Salvaged/Unusable Pavement Material	Usable Material	Fill	Cut 1.00	Usable Material 1.00	Expanded Fill 1.35	
134+00	251	11	0	0	0	0	0	0	0	0	0
135+00	279	11	0	982	39	943	0	982	943	0	943
135+85	233	11	0	806	33	773	0	1,788	1,716	0	1,716
136+00	272	11	0	140	6	134	0	1,928	1,850	0	1,850
137+00	263	11	0	990	39	951	0	2,918	2,801	0	2,801
138+00	274	11	0	993	39	954	0	3,911	3,755	0	3,755
139+00	207	11	3	891	39	852	5	4,802	4,607	7	4,600
139+55	149	11	4	363	21	341	7	5,165	4,948	16	4,932
140+00	107	11	13	213	18	195	14	5,378	5,144	35	5,109
140+00	171	11	13	0	0	0	0	5,378	5,144	35	5,109
141+00	104	11	27	509	39	470	74	5,887	5,614	135	5,479
142+00	32	9	15	251	35	215	79	6,138	5,829	242	5,587
142+55	24	9	27	57	18	39	43	6,195	5,868	300	5,568
143+00	26	9	72	42	14	28	83	6,237	5,896	412	5,483
144+00	41	9	94	124	32	92	308	6,361	5,988	828	5,160
145+00	89	9	134	240	32	208	422	6,601	6,196	1,397	4,799
146+00	93	9	115	338	32	306	461	6,938	6,502	2,020	4,481
146+00	0	9	115	0	0	0	0	6,938	6,502	2,020	4,481
147+00	0	9	91	32	32	0	381	6,970	6,502	2,534	3,968
148+00	0	9	85	32	32	0	325	7,002	6,502	2,973	3,529
149+00	0	9	48	32	32	0	246	7,034	6,502	3,304	3,198
149+65	5	9	32	21	21	0	96	7,055	6,502	3,433	3,069
150+00	5	9	28	11	11	0	38	7,066	6,502	3,485	3,017
151+00	9	9	13	32	32	0	75	7,098	6,502	3,587	2,916
152+00	14	9	4	42	32	10	30	7,140	6,512	3,628	2,884
153+00	45	9	6	108	32	76	17	7,249	6,588	3,650	2,938
154+00	63	9	5	200	32	168	19	7,448	6,756	3,676	3,081
155+00	19	9	43	152	32	120	87	7,601	6,877	3,793	3,083
155+00	146	4	43	0	0	0	0	7,601	6,877	3,793	3,083
155+50	99	4	702	227	7	220	689	7,828	7,097	4,724	2,373
156+00	89	4	462	175	7	168	1,077	8,002	7,264	6,178	1,086
156+35	87	4	84	114	5	109	353	8,117	7,373	6,655	718
157+00	140	4	23	273	9	264	128	8,389	7,637	6,828	809
158+00	155	4	0	546	14	532	42	8,935	8,168	6,885	1,283
159+00	173	4	0	608	14	593	0	9,543	8,762	6,885	1,877
160+00	180	4	0	654	14	640	0	10,196	9,401	6,886	2,516
161+00	194	4	1	692	14	678	1	10,888	10,079	6,887	3,192
162+00	213	4	0	753	14	739	1	11,642	10,818	6,889	3,929
162+20	249	4	0	171	3	168	0	11,813	10,986	6,889	4,098
163+00	247	4	0	735	11	723	0	12,547	11,710	6,889	4,821
163+00	247	4	0	0	0	0	0	12,547	11,710	6,889	4,821
164+00	0	4	74	458	14	443	136	13,005	12,153	7,073	5,080
165+00	0	4	174	14	14	0	458	13,019	12,153	7,692	4,461
166+00	0	4	247	14	14	0	778	13,033	12,153	8,742	3,410
167+00	0	4	358	14	14	0	1,119	13,047	12,153	10,254	1,899
168+00	0	4	182	14	14	0	1,000	13,061	12,152	11,604	548
169+00	36	4	182	67	14	53	675	13,128	12,205	12,515	-310
169+00	63	4	182	0	0	0	0	13,128	12,205	12,515	-310
169+80	54	4	137	173	11	162	472	13,301	12,367	13,152	-785
170+00	30	4	137	31	3	28	101	13,332	12,395	13,289	-894
171+00	0	4	183	56	14	42	592	13,388	12,437	14,089	-1,651
172+00	6	4	78	14	14	0	483	13,402	12,437	14,741	-2,304
173+00	3	4	76	16	14	2	284	13,419	12,439	15,125	-2,685
174+00	0	4	67	14	14	0	264	13,433	12,439	15,481	-3,042
175+00	0	4	100	14	14	0	310	13,447	12,439	15,899	-3,460
176+00	0	4	131	14	14	0	428	13,461	12,439	16,478	-4,039
177+00	0	4	135	14	14	0	492	13,475	12,439	17,142	-4,703
177+40	0	4	106	6	6	0	178	13,481	12,439	17,382	-4,943
178+00	0	4	110	9	9	0	240	13,490	12,439	17,706	-5,267
179+00	0	4	89	14	14	0	369	13,504	12,439	18,205	-5,766
180+00	0	4	66	14	14	0	288	13,518	12,439	18,594	-6,155
180+65	6	4	41	9	9	0	130	13,527	12,439	18,769	-6,330
181+00	10	4	62	10	5	5	67	13,537	12,444	18,859	-6,415
182+00	12	4	53	41	14	26	212	13,578	12,470	19,146	-6,675
183+00	16	8	46	51	21	30	184	13,629	12,501	19,393	-6,893
184+00	30	8	34	84	28	55	149	13,713	12,556	19,595	-7,039
185+00	47	8	15	141	28	113	91	13,854	12,668	19,717	-7,049
Total				13,854	1,185	12,668	14,605				

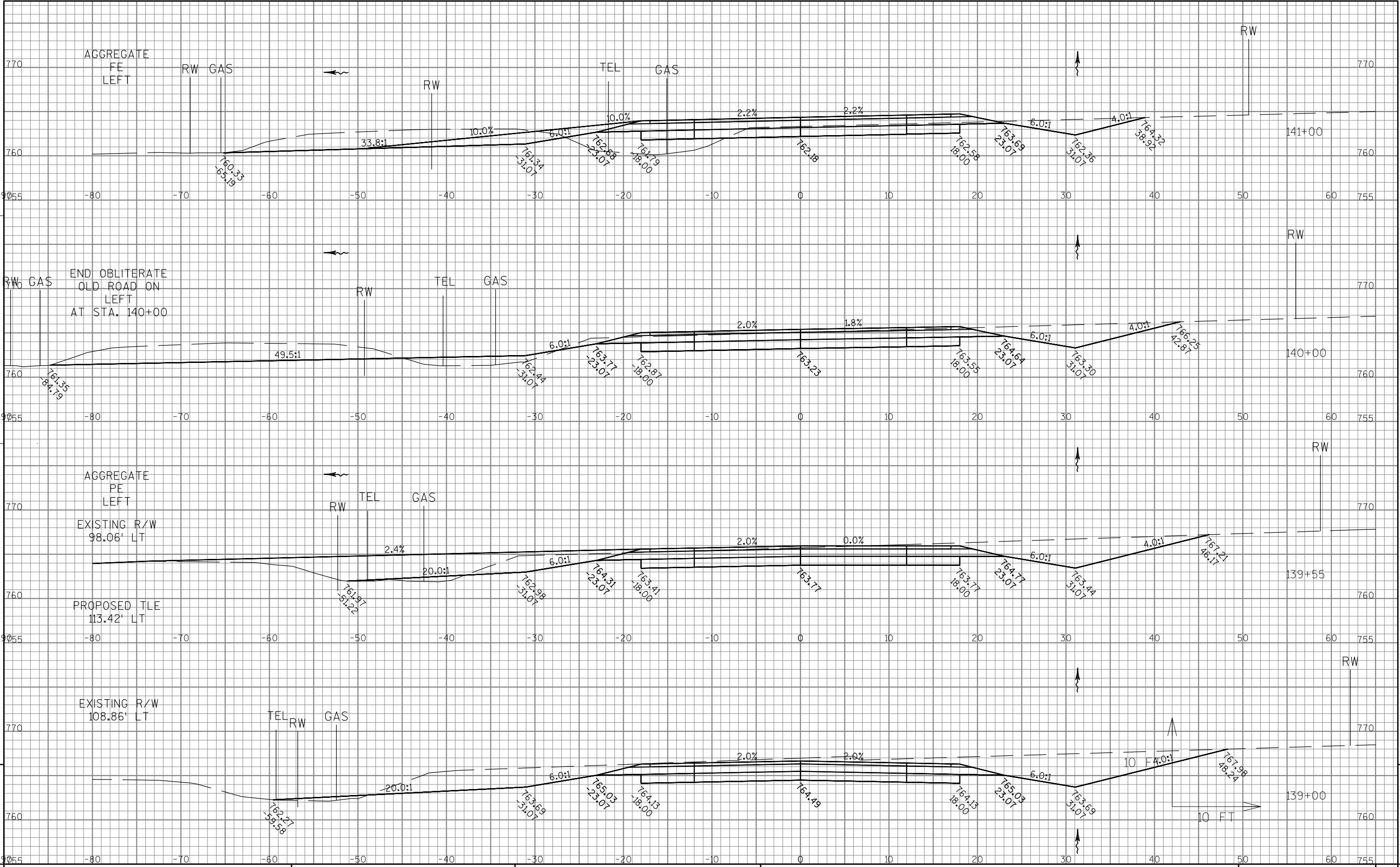
STATION	AREA (SF)			Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)			Mass Ordinate
	Cut	Salvaged/Unusable Pavement Material	Fill	Cut	Salvaged/Unusable Pavement Material	Usable Material	Fill	Cut 1.00	Usable Material 1.00	Expanded Fill 1.35	
504+00	27	7	0	0	0	0	0	0	0	0	0
505+00	66	7	7	173	27	146	13	173	146	18	128
506+00	263	7	0	609	27	582	13	783	728	35	693
			Total	783	54	728	26				

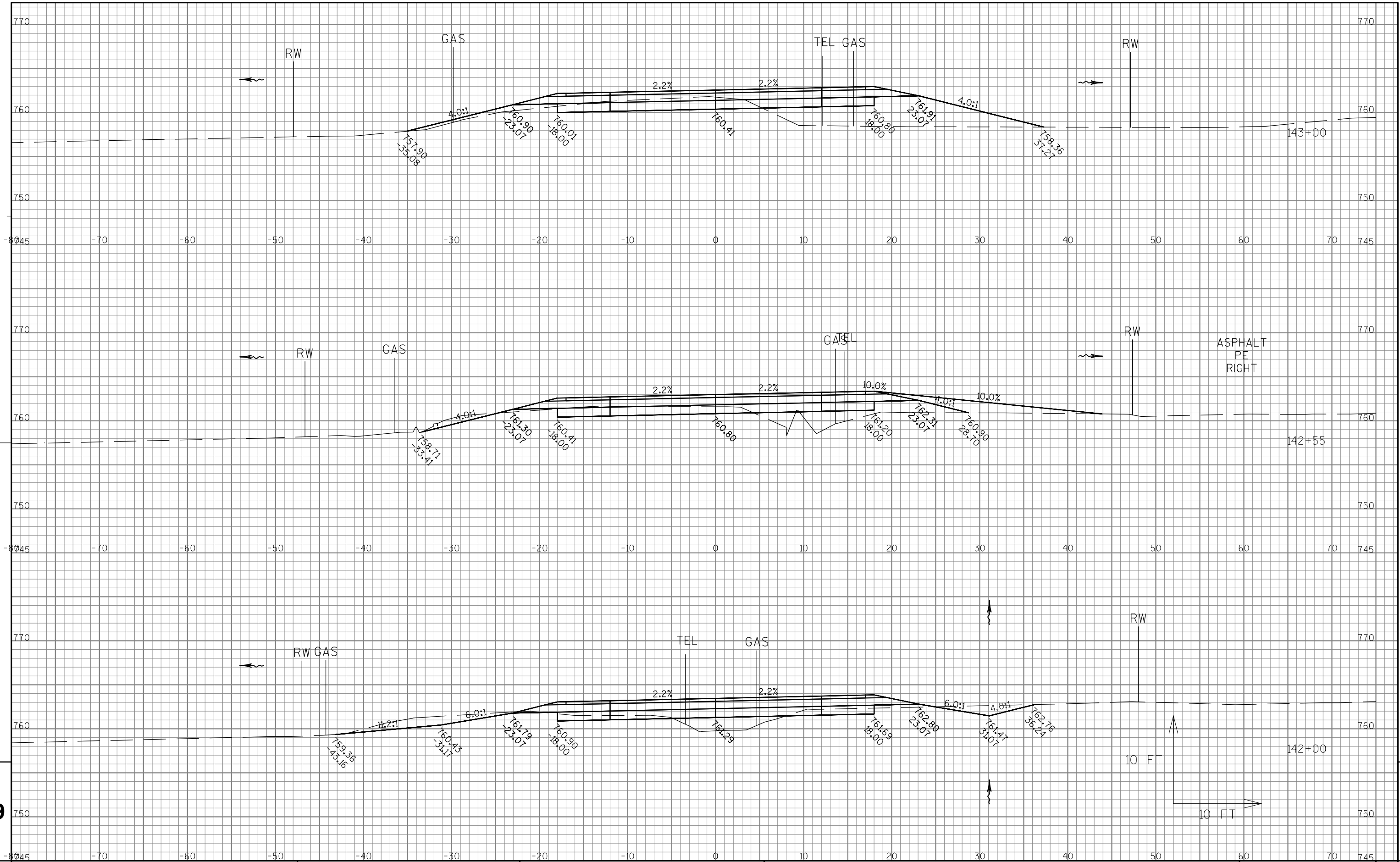
STATION	AREA (SF)			Incremental Vol (CY) (Unadjusted)				Cumulative Vol (CY)			Mass Ordinate
	Cut	Salvaged/Unusable Pavement Material	Fill	Cut	Salvaged/Unusable Pavement Material	Usable Material	Fill	Cut 1.00	Usable Material 1.00	Expanded Fill 1.35	
601+00	14	7	39	0	0	0	0	0	0	0	0
602+00	70	7	45	156	27	129	155	156	129	209	-80
603+00	11	7	13	149	27	122	106	305	251	352	-101
604+00	23	7	4	63	27	36	31	368	287	394	-108
605+00	22	7	0	84	27	57	8	453	344	405	-61
			Total	453	109	344	300				

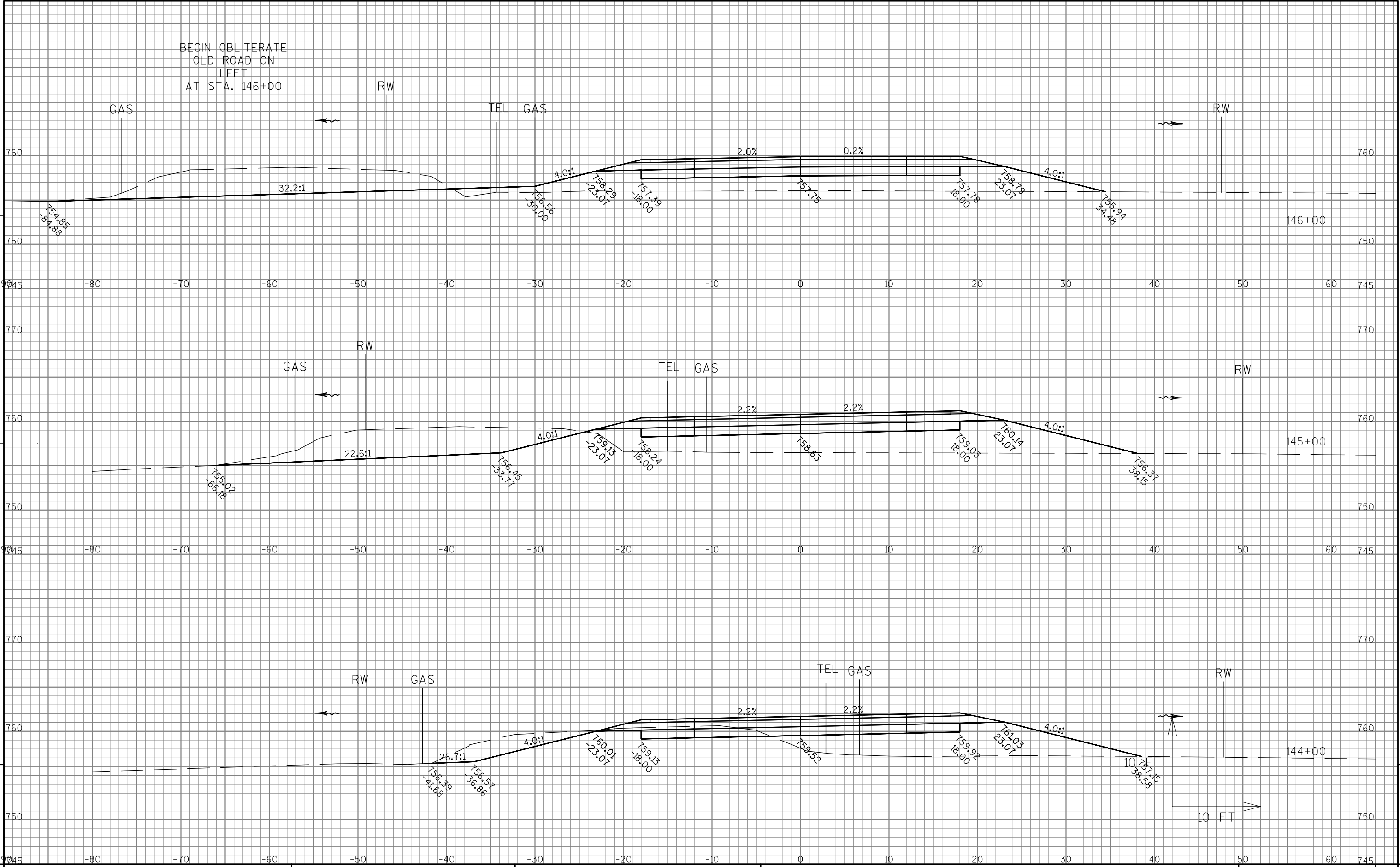


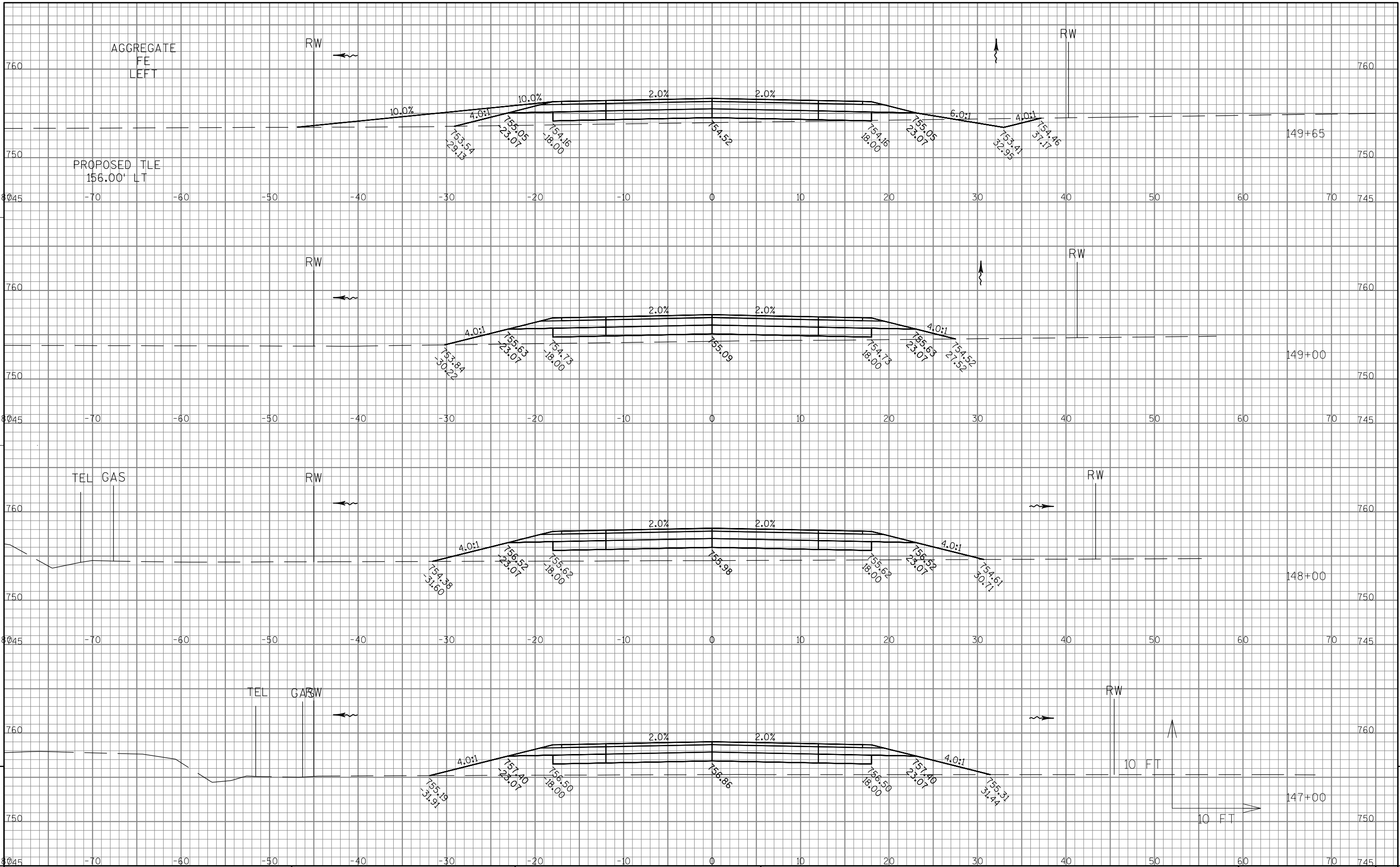


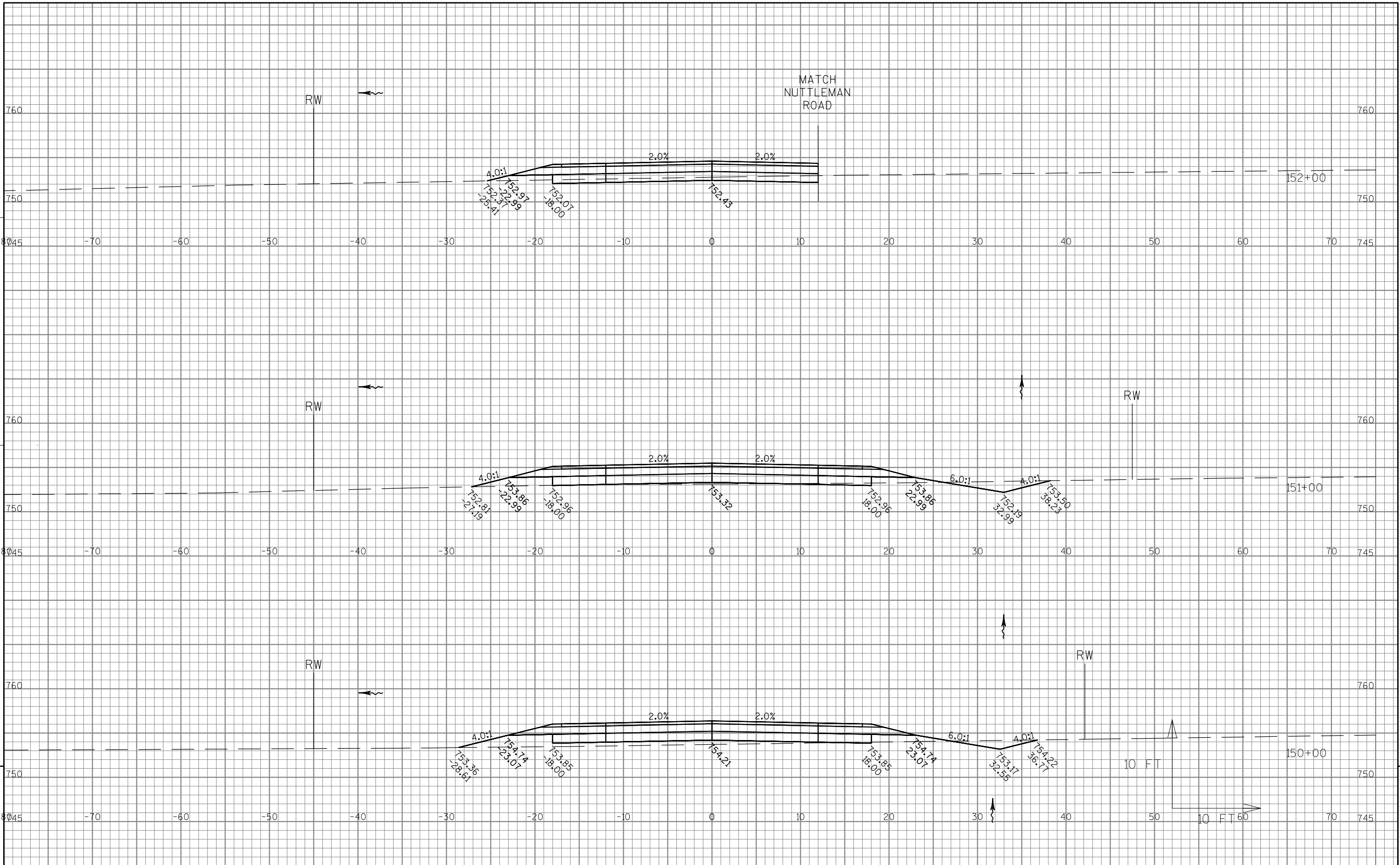


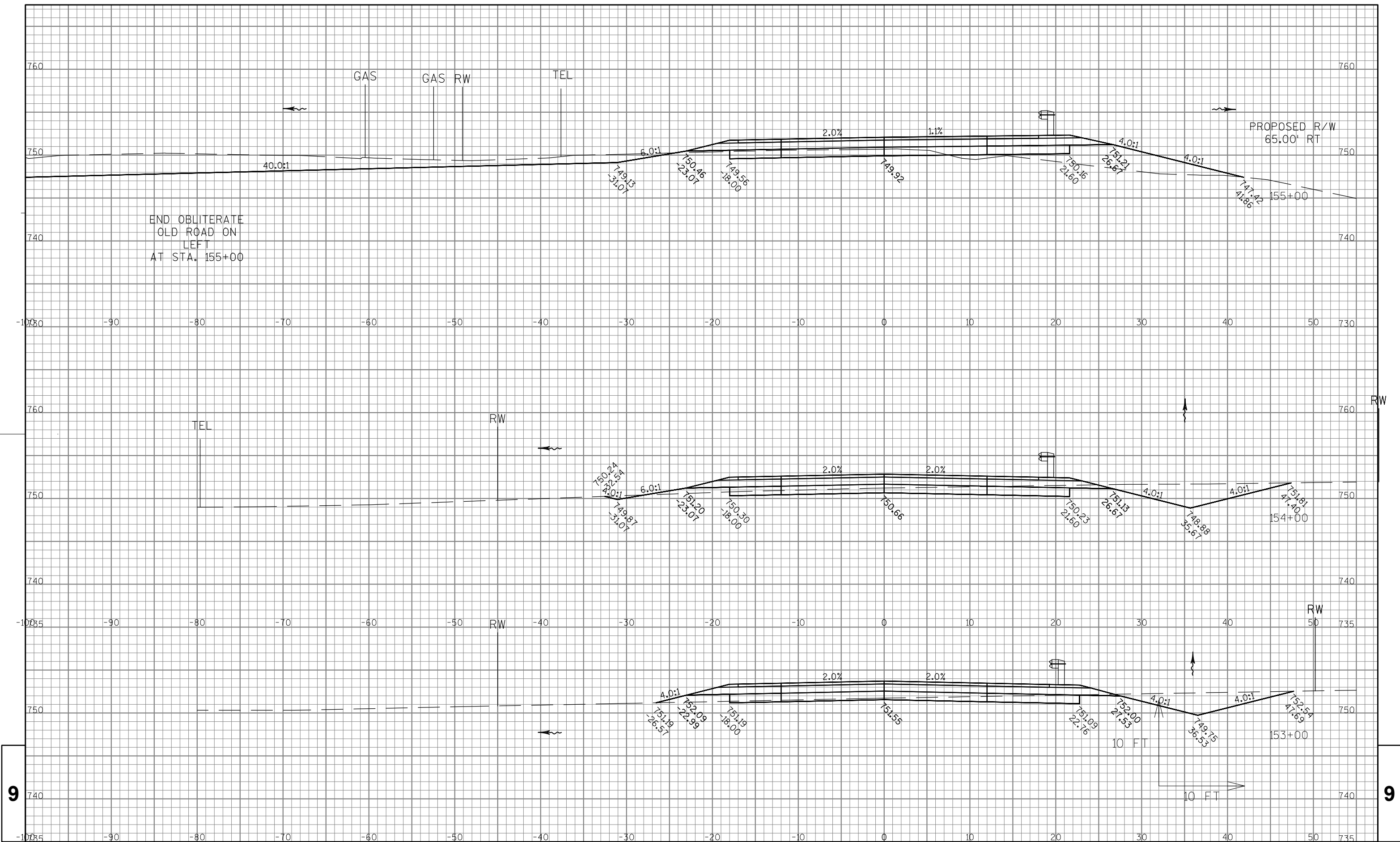


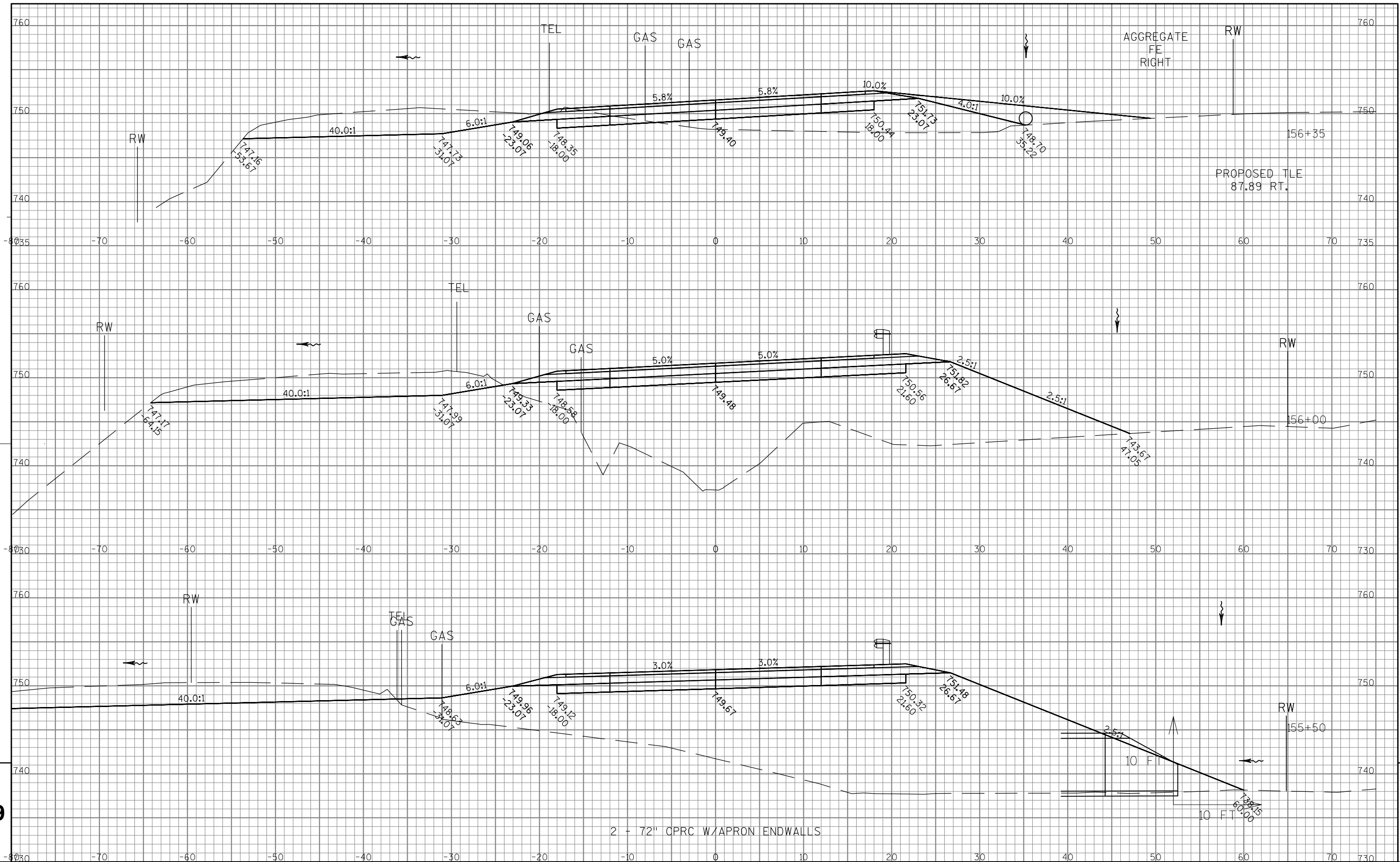


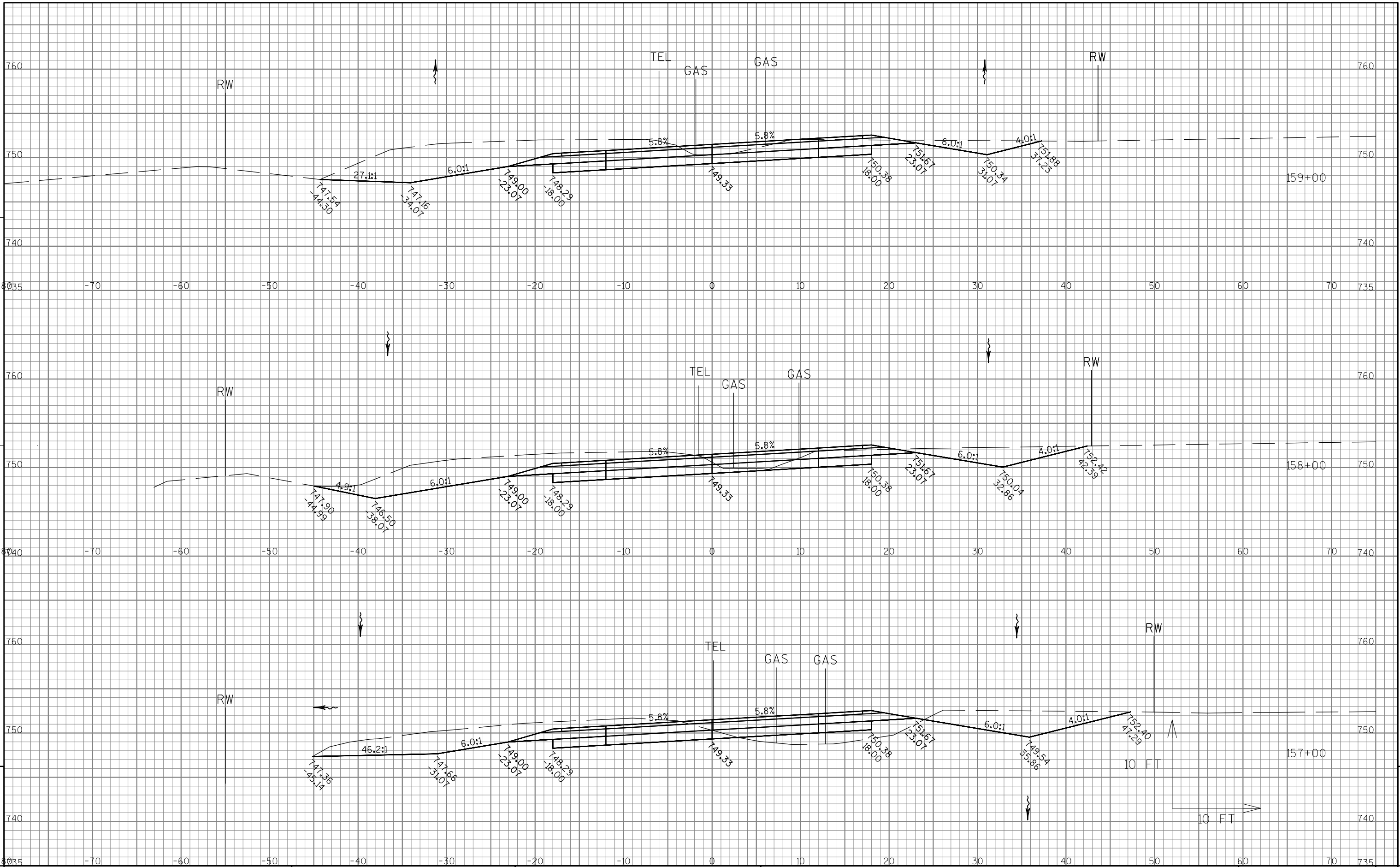






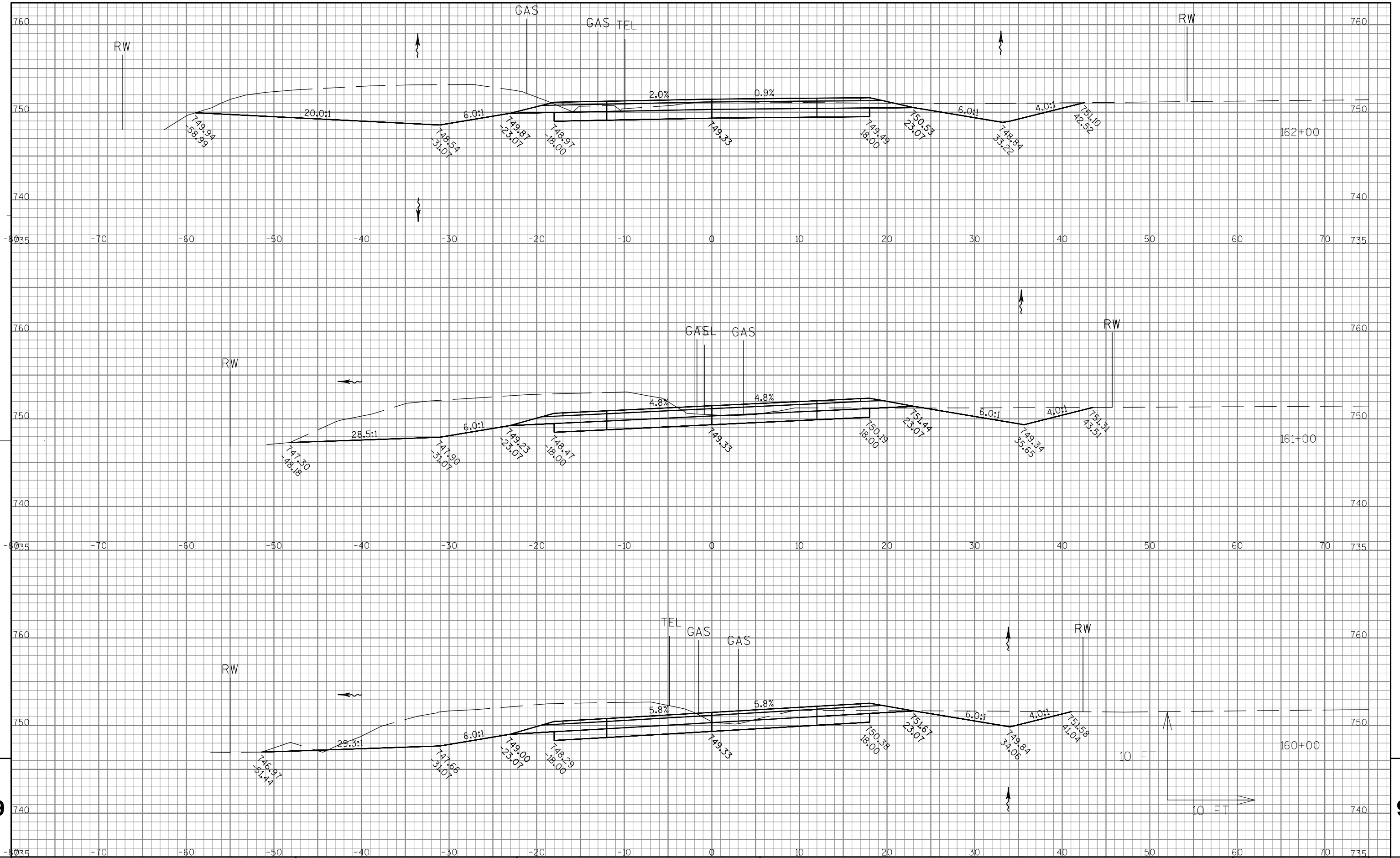


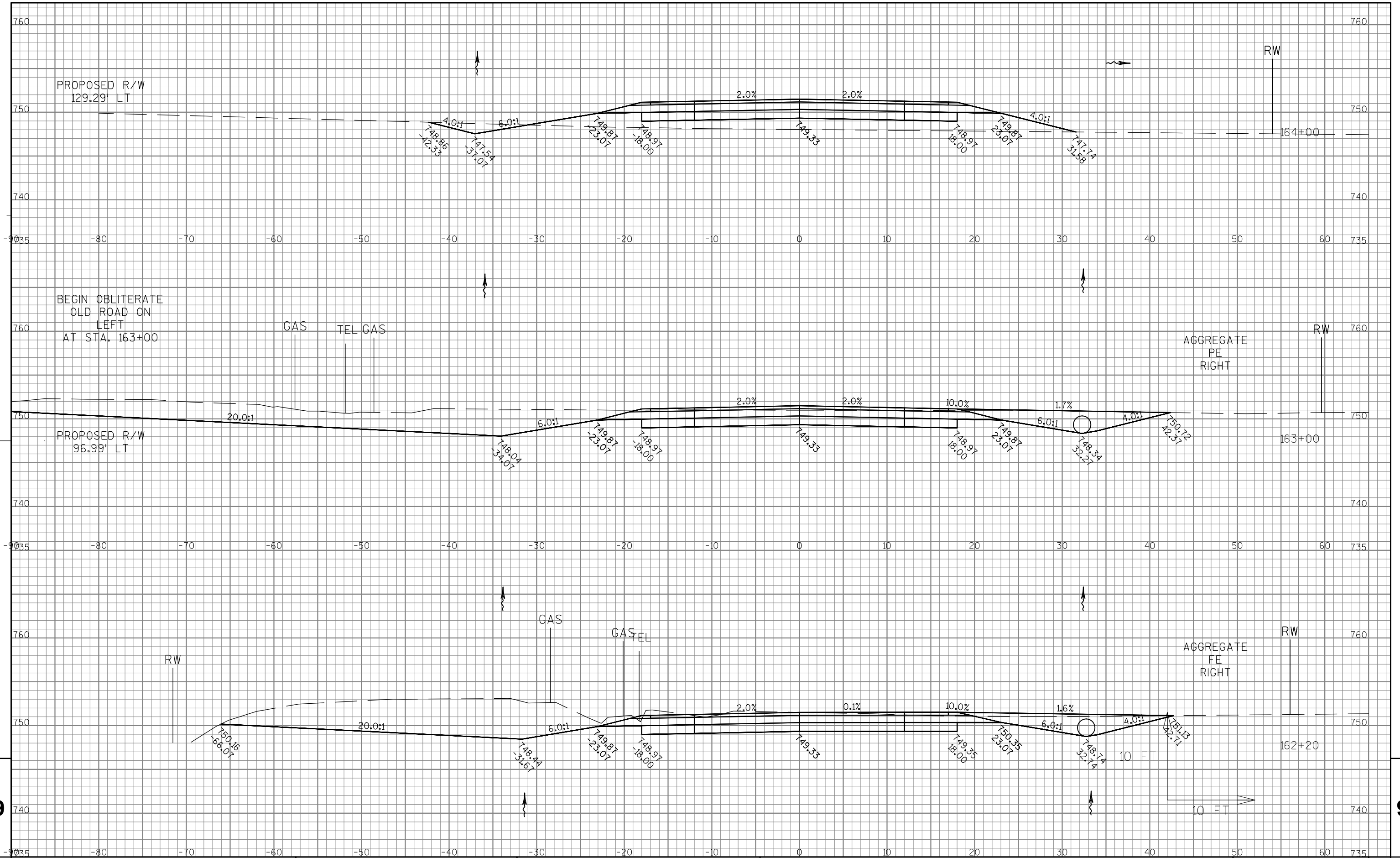


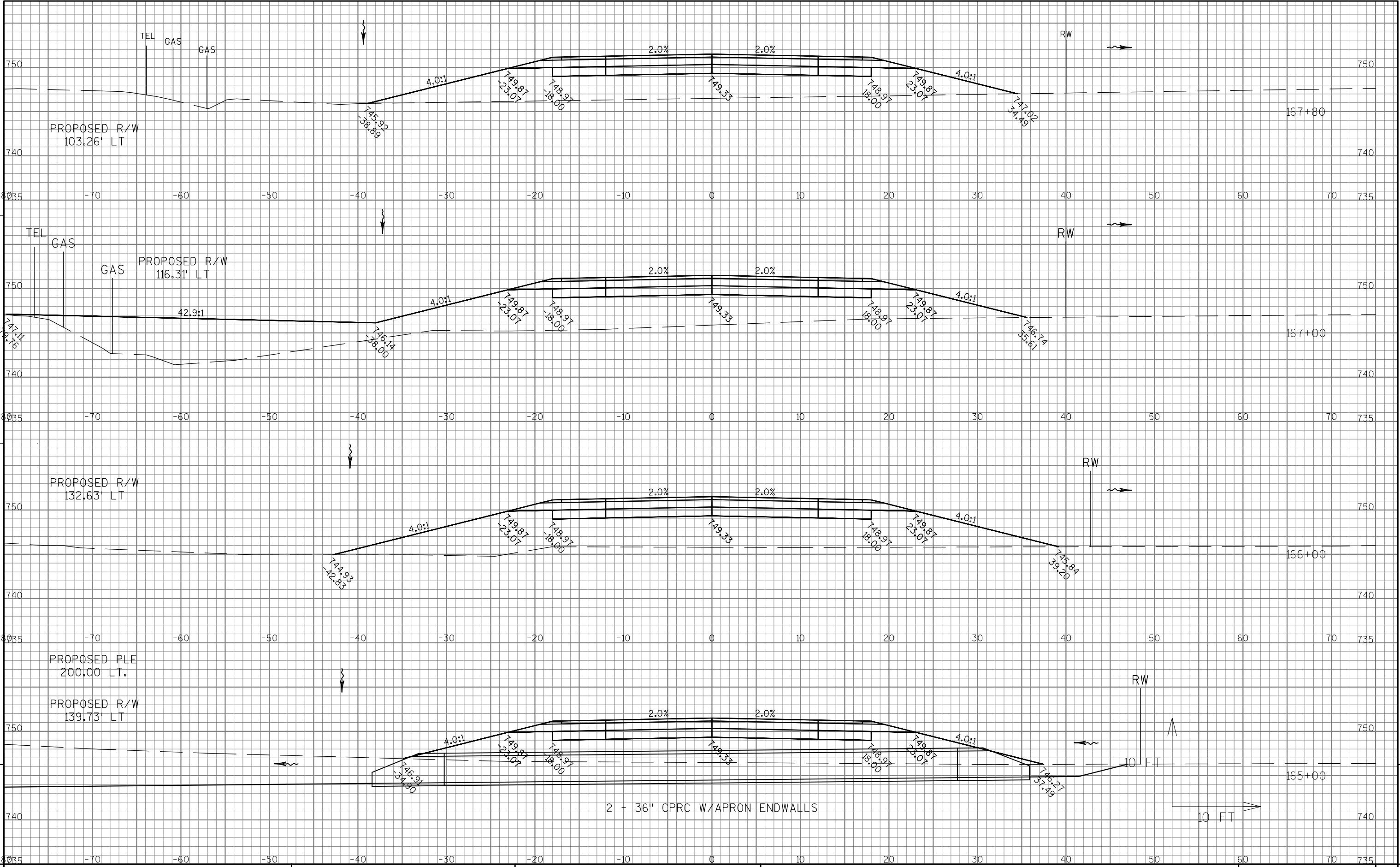


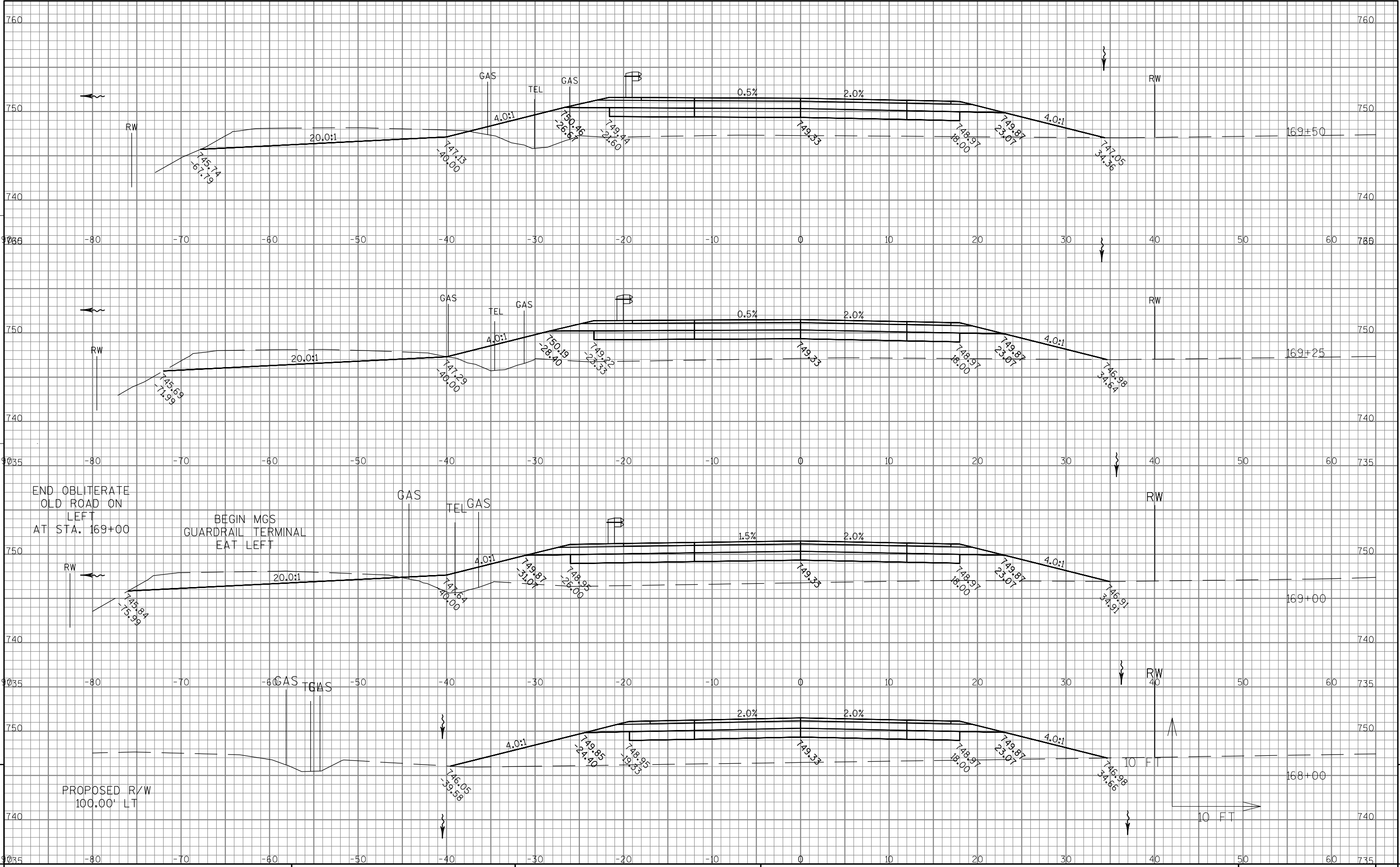
9

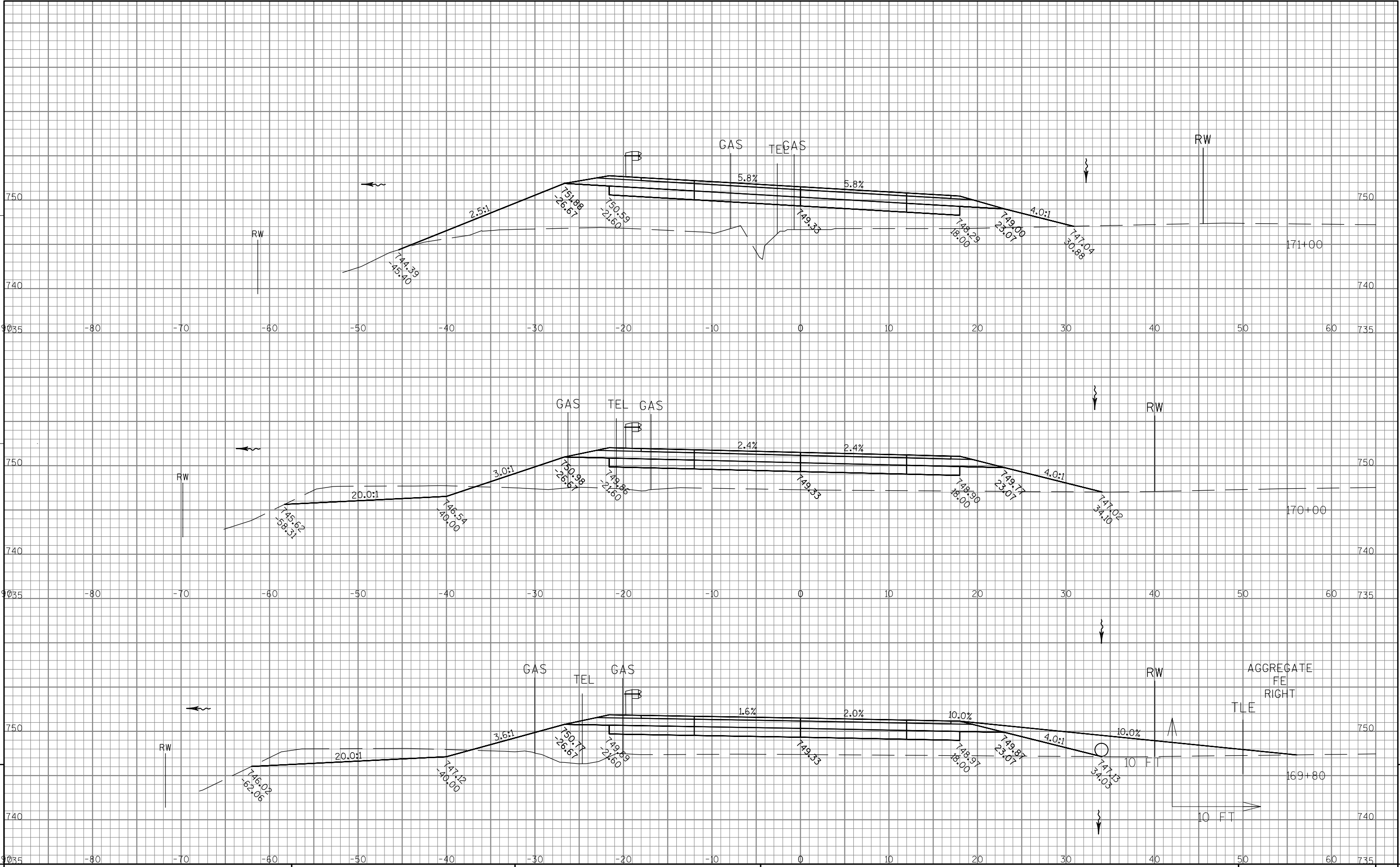
9

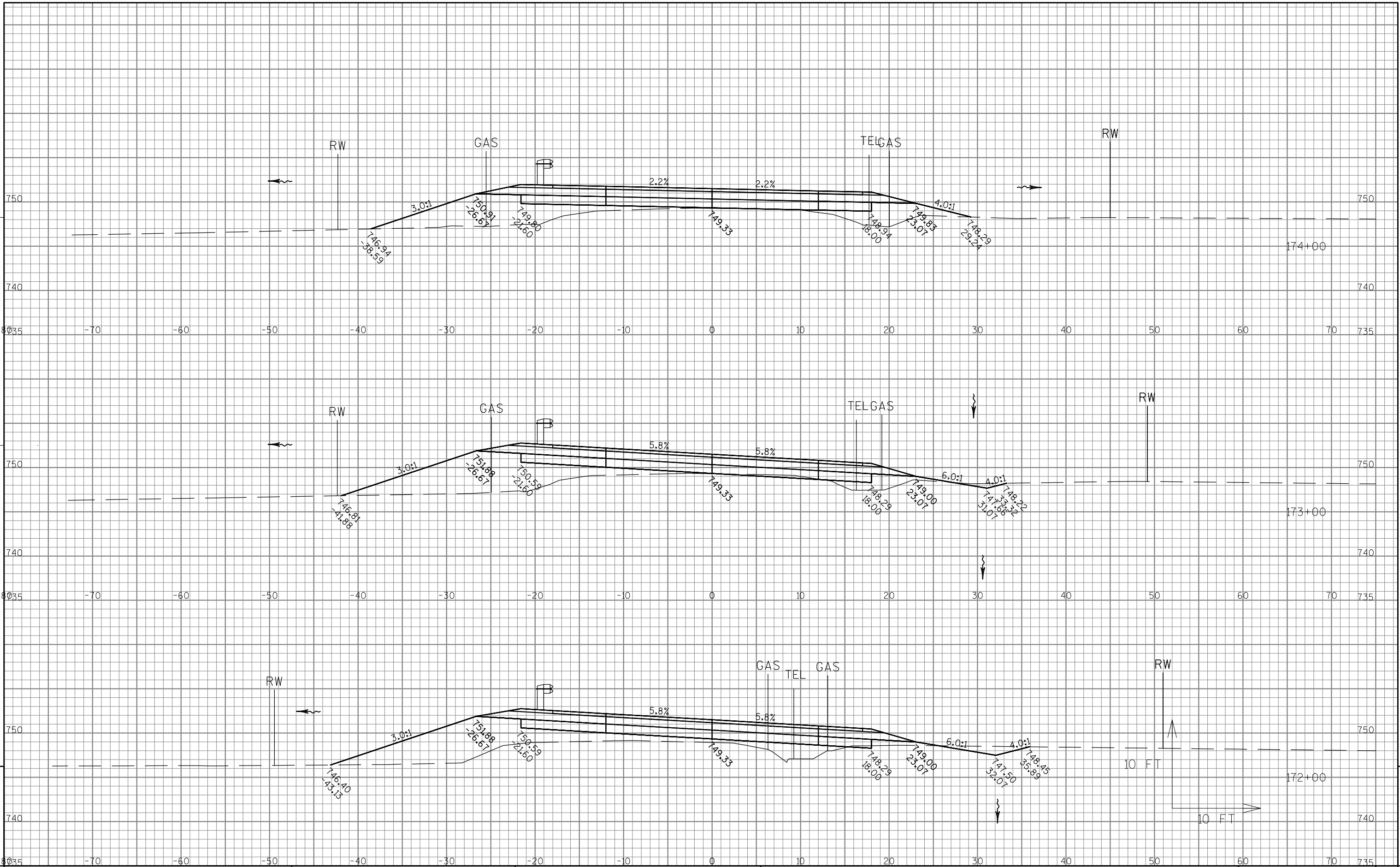


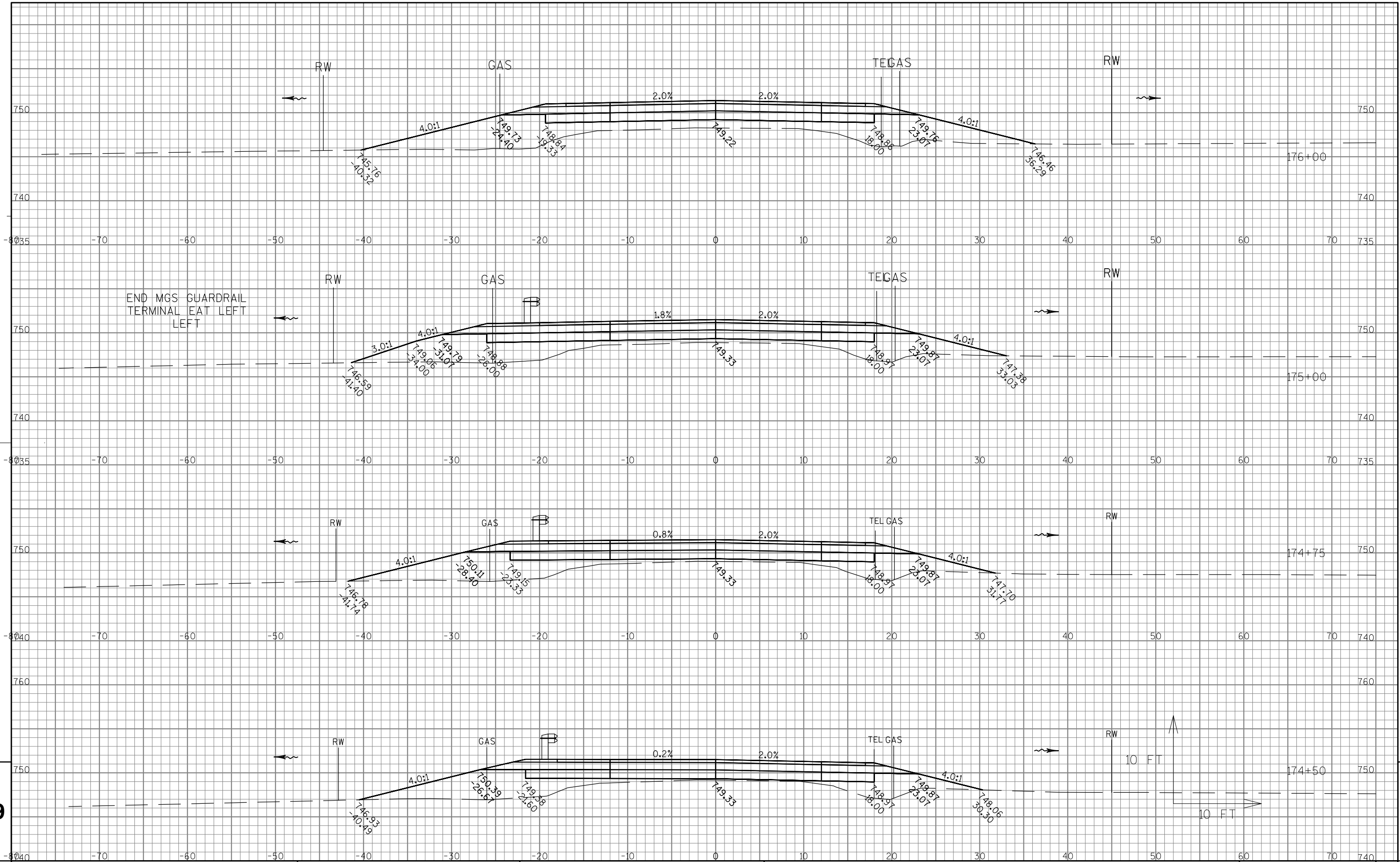


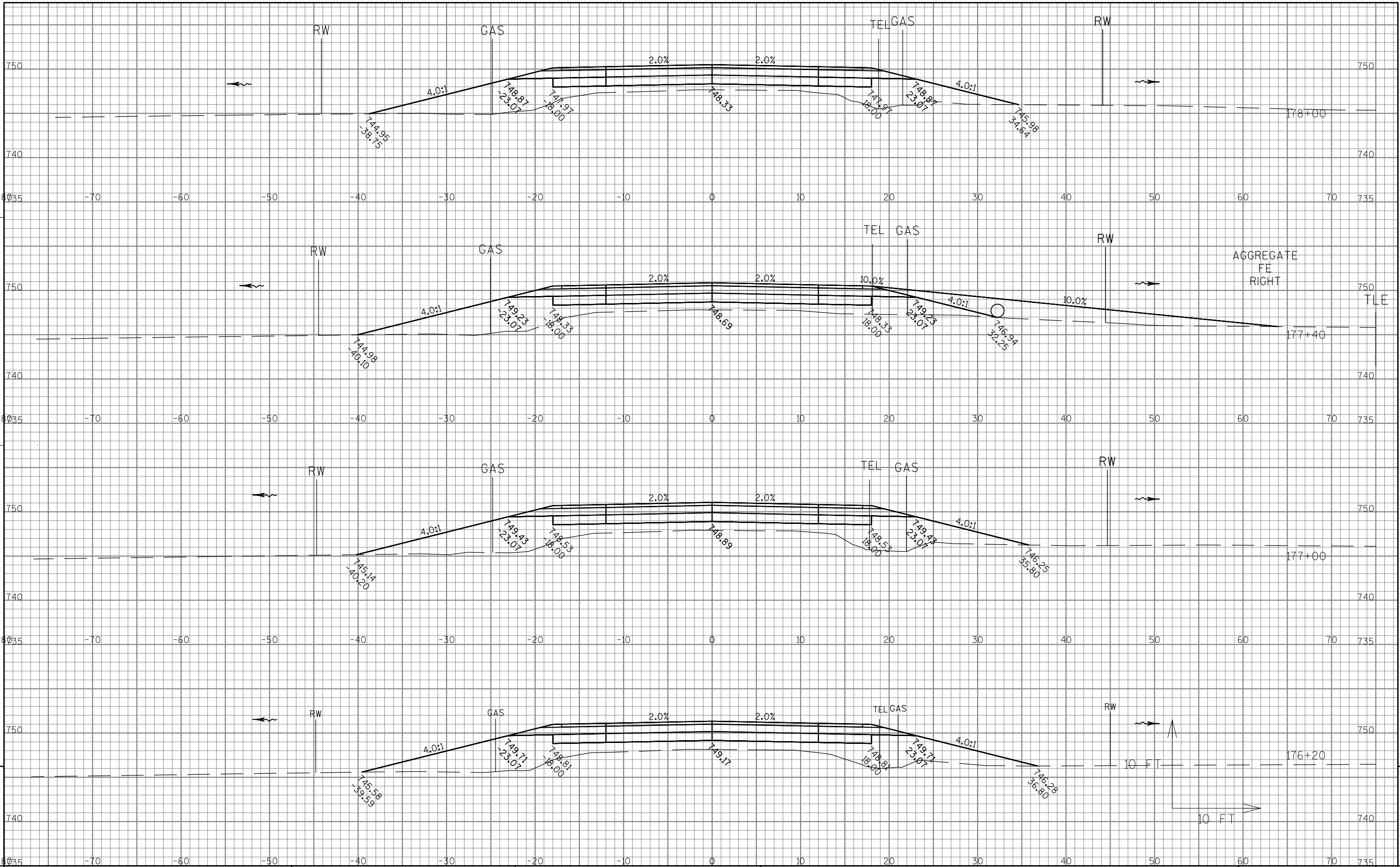


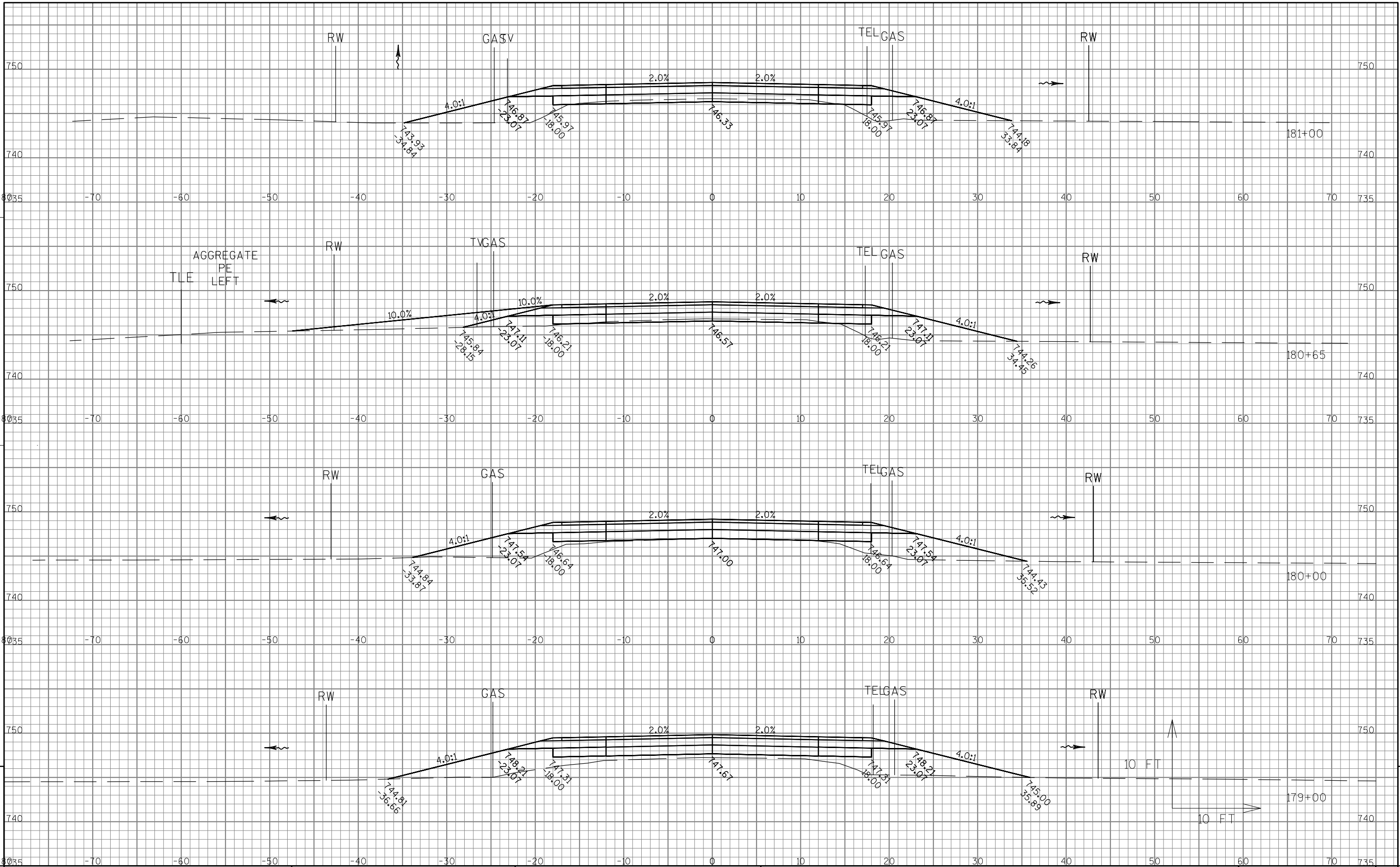


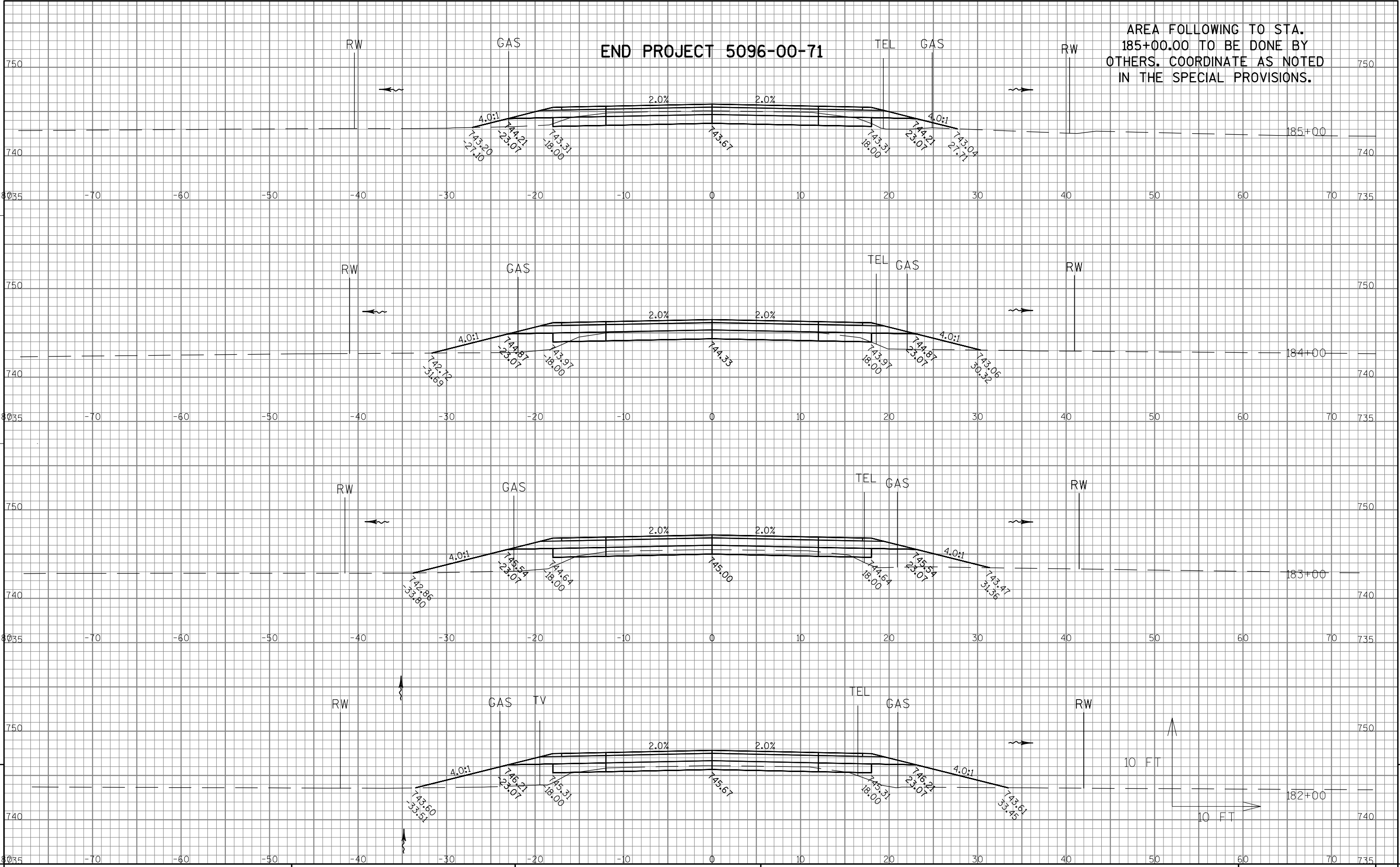


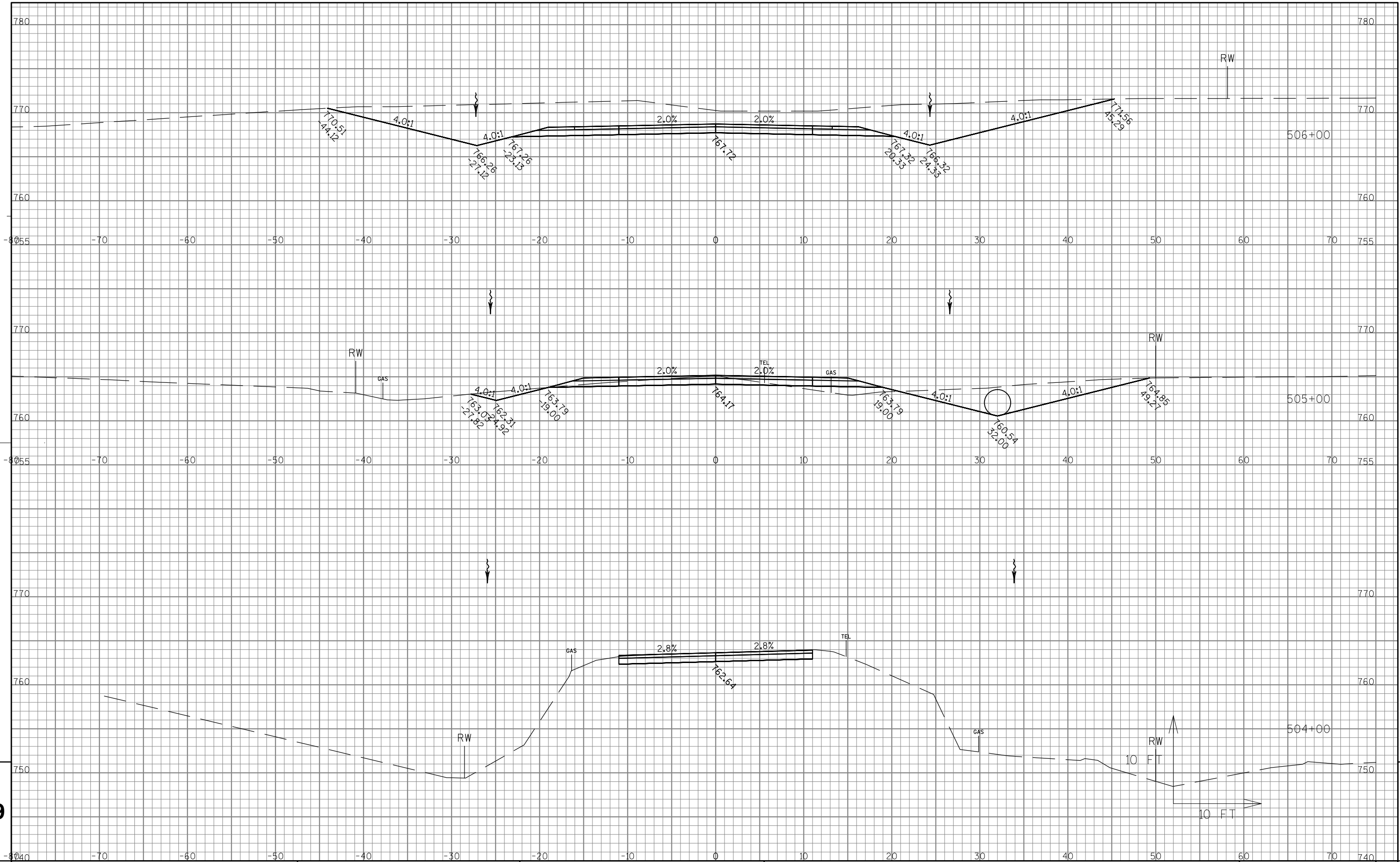


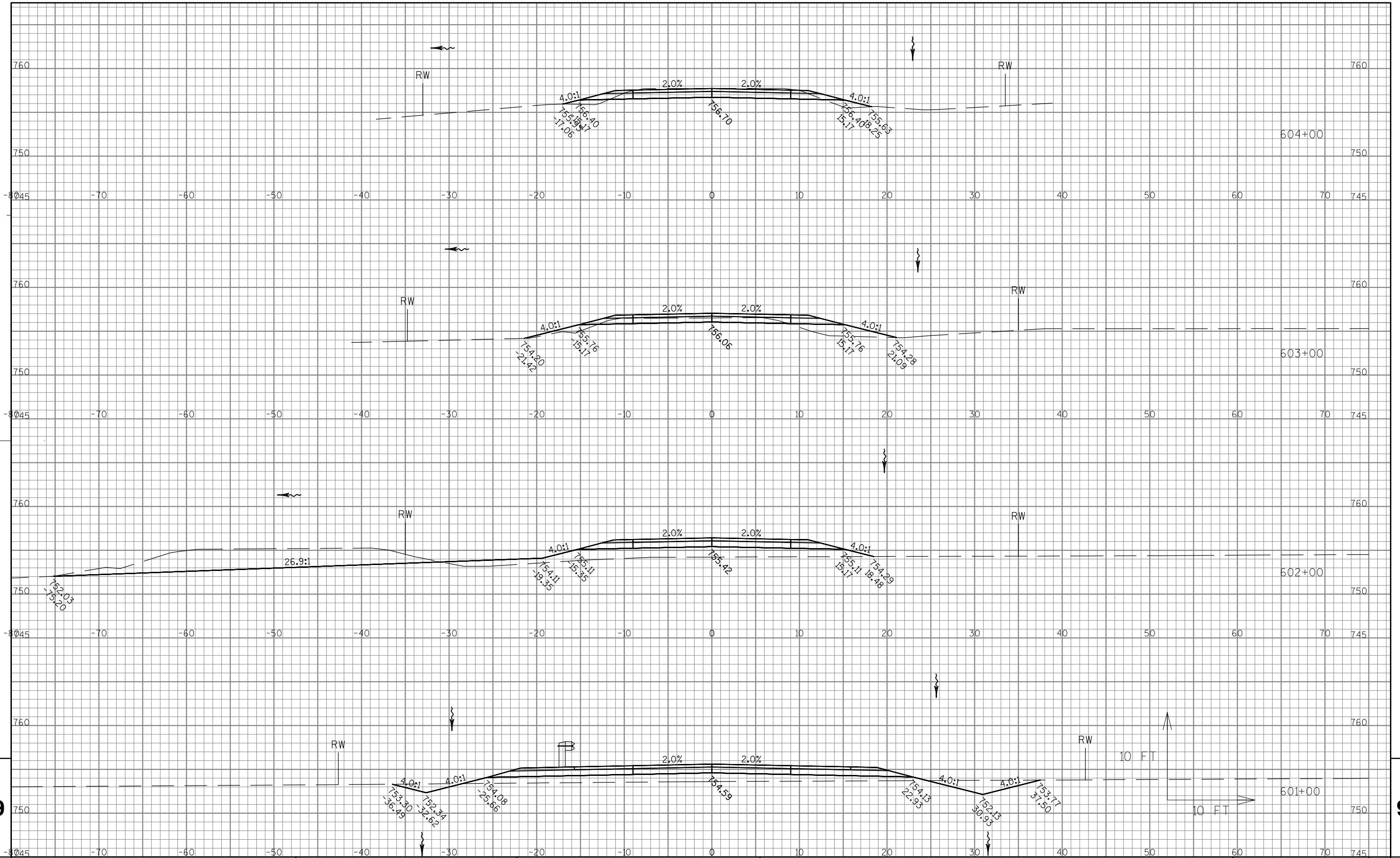


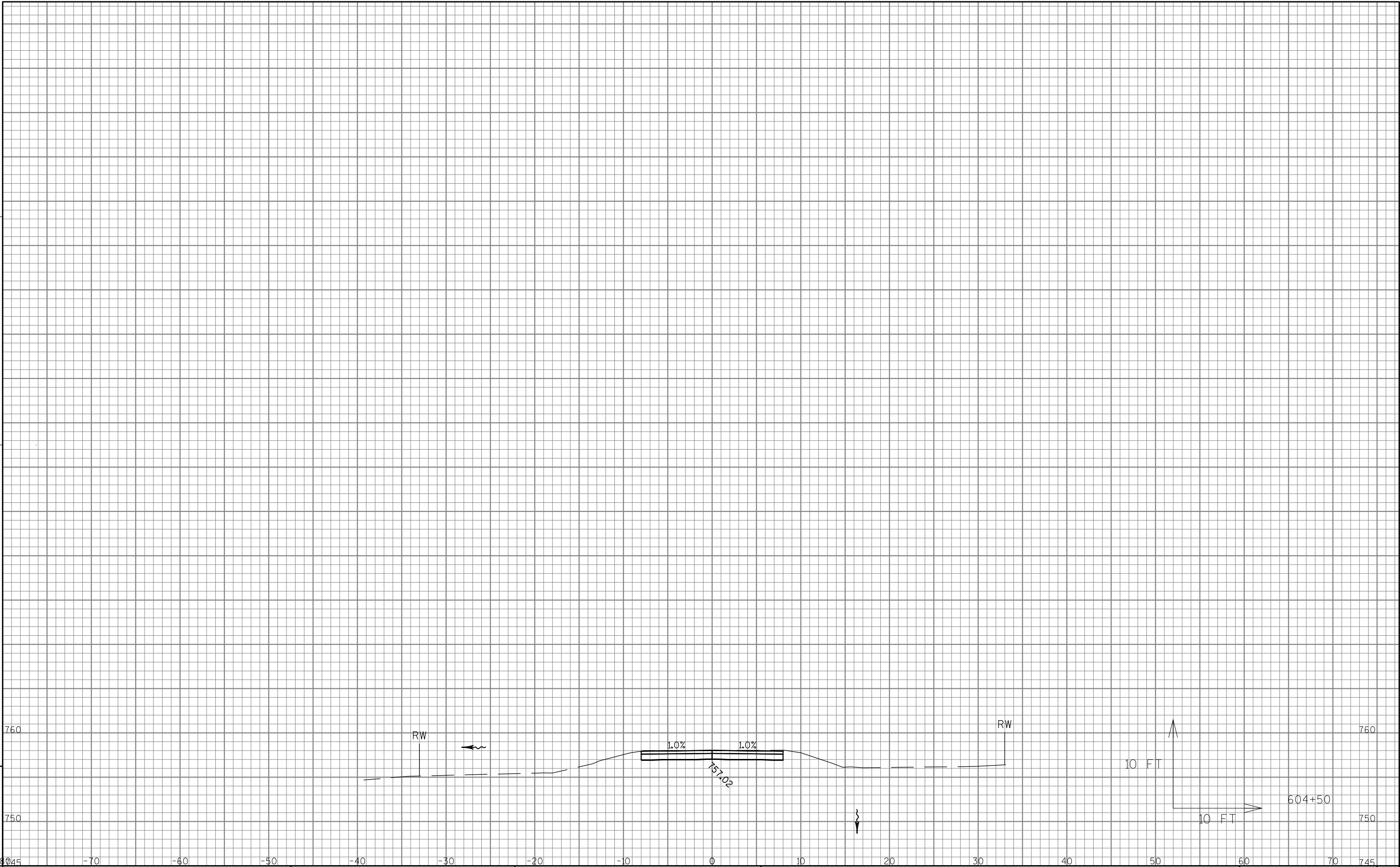








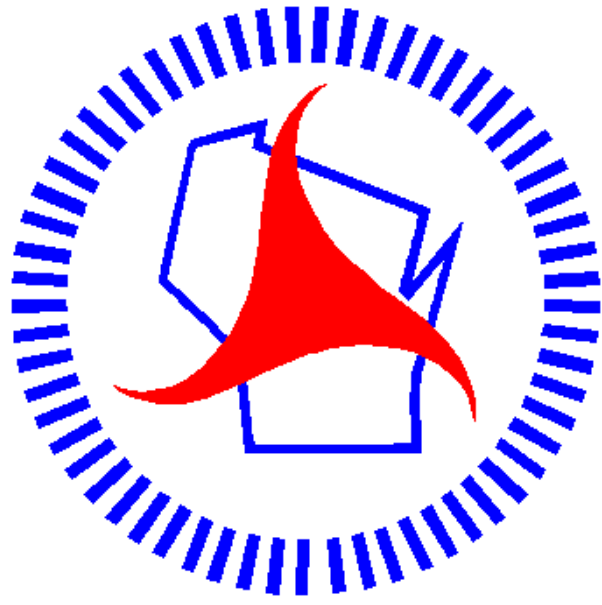




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Notes



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