

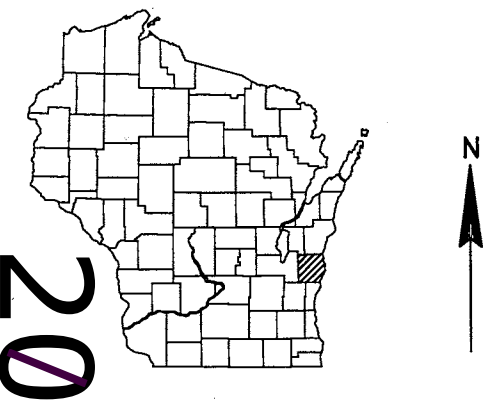
NEL
PROJECT ID: 4996-01-22
WITH: N/A
COUNTY: SHEBOYGAN

APR 13

ORDER OF SHEETS

Section No. 1	Title
Section No. 2	Typical Sections and Details
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 = 144



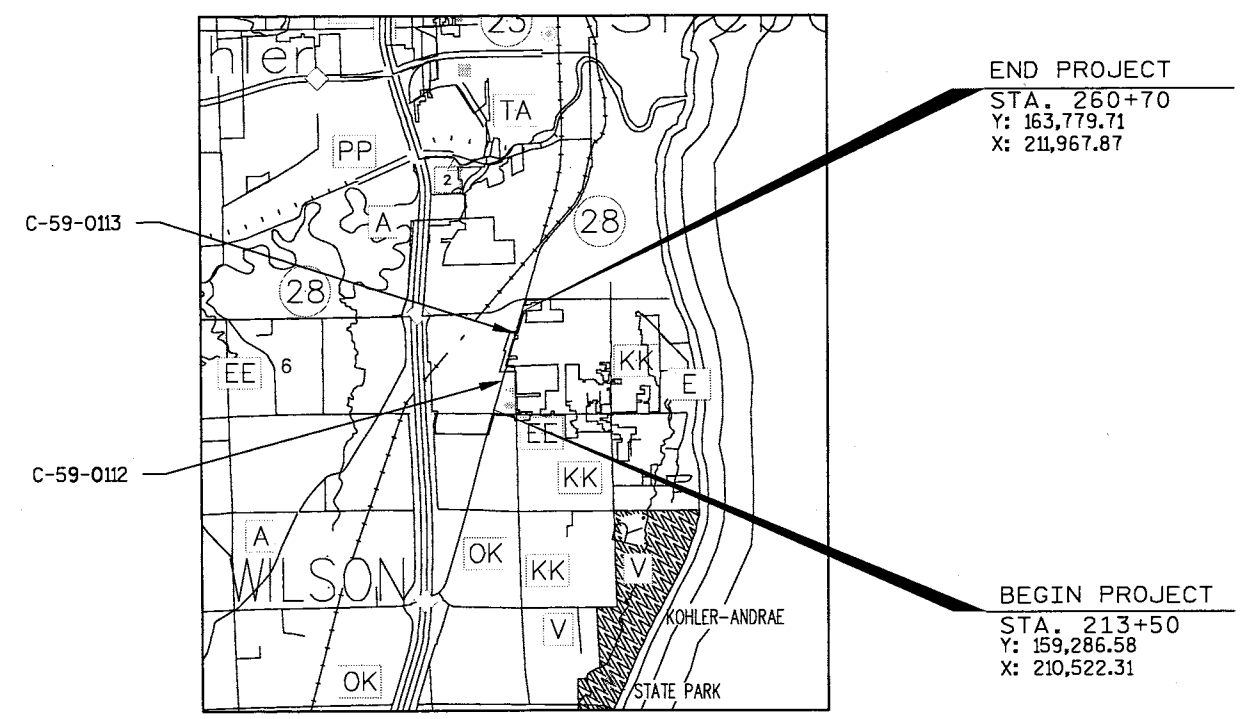
DESIGN DESIGNATION

A.A.D.T. 2013	=	7854
A.A.D.T. 2033	=	14185
D.H.V. 2033	=	1418
D.D.	=	50/50
T.	=	5%
DESIGN SPEED	=	35 mph
ESALS	=	1,102,300

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
CTH OK
CTH EE - CAMELOT BLVD
CTH OK
SHEBOYGAN COUNTY

STATE PROJECT NUMBER
4996-01-22



END PROJECT
STA. 260+70
Y: 163,779.71
X: 211,967.87

BEGIN PROJECT
STA. 213+50
Y: 159,286.58
X: 210,522.31

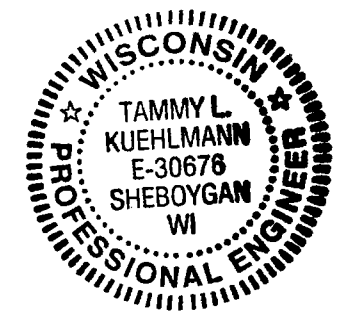
LAYOUT
SCALE 0 1.0 MI.
TOTAL NET LENGTH OF CENTERLINE = 0.894 MI.

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

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4996-01-22	WISC 2013220	1

ACCEPTED FOR
County of Sheboygan
10/25/2012 Highway Commissioner
(Date) (Signature & Title of Official)

ORIGINAL PLANS PREPARED BY
DONOHUE



10.24.12 Tammy Kuehlmann
(Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	SHEBOYGAN COUNTY
Surveyor	DONOHUE & ASSOCIATES
Designer	SHORT ELLIOT HENDRICKSON
Management Consultant	XXX
C.O. Examiner	XXX

APPROVED FOR THE DEPARTMENT
DATE: 11/6/2012 (Management Consultant Signature)

E

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GENERAL NOTES

CROSS DRAIN PIPE ELEVATIONS, LENGTHS AND LOCATIONS AS SHOWN ON THE PLANS MAY BE ADJUSTED TO FIT EXISTING FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

THE EXACT LENGTHS OF CULVERT PIPES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

ALL CONCRETE PIPE SHALL HAVE THE APRON ENDWALL AND THE FIRST TWO PIPE JOINTS TIED AT THE JOINTS. (THREE JOINTS TOTAL)

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS ARE TO BE SEEDED, FERTILIZED AND MULCHED AS DIRECTED BY THE ENGINEER. ALL OTHER DISTURBED AREAS ARE TO BE

SEED MIXTURE 20 OR SEED MIXTURE NO 40 SHALL BE USED ON ALL DISTURBED AREAS. DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR MORE THAN 30 DAYS SHALL BE SEEDDED WITH TEMPORARY SEED WITHOUT MULCH OR FERTILIZER. TEMPORARY SEED MAY BE USED ON AREAS THAT DO NOT HAVE TOPSOIL PLACED. TEMPORARY SEED SHALL BE DISKED OR TILLED PRIOR TO PERMANENT SEEDING; UNLESS TEMPORARY SEED WAS USED WITH PERMANENT SEED DURING LATE SEEDING OPERATIONS. TEMPORARY SEED SHALL BE PLACED AT HALF THE NORMAL RATE ON ALL PERMANENT SLOPES.

THE EXACT LOCATION AND WIDTHS OF PRIVATE AND COMMERCIAL DRIVEWAYS ARE TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

ALL DISTANCES ARE GROUND DISTANCES. TIES ARE HORIZONTAL UNLESS SHOWN OTHERWISE.

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

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT APPROVAL OF THE
ENGINEER, UNLESS DESIGNATED ON PLAN.

THE CONTROL SURVEY CONDUCTED FOR THIS PROJECT MET THIRD ORDER
CONTROL SURVEY SPECIFICATIONS.

SILT FENCE TO BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.

EXCAVATION BELOW SUBGRADE (EBS) LOCATIONS ARE NOT SHOWN ON THE CROSS SECTIONS. EXCAVATION BELOW SUBGRADE (EBS) IS NOT USED TO BALANCE YARDAGE. IF EBS IS REQUIRED, IT SHALL BE MEASURED AND PAID FOR AS EXCAVATION COMMON. EXACT LOCATIONS OF EBS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ALL ASPHALTIC SIDE ROADS AND PRIVATE AND COMMERCIAL ENTRANCES
SHALL BE MATCHED WITH A SAWED JOINT.

EROSION CONTROL IS SHOWN ON THE EROSION CONTROL SHEETS AND IN THE SUMMARY OF MISCELLANEOUS QUANTITIES.

ALL CURB AND GUTTER RADII SHOWN ON THE PLANS ARE MEASURED TO THE FLANGE UNLESS OTHERWISE NOTED.

THE PROJECT WAS SURVEYED BY SHEBOYGAN COUNTY BASED ON TWO CONTINUOUS OPERATING BASE STATIONS IN SHEBOYGAN COUNT. ONE BASE STATION IS LOCATED ON THE HIGHWAY DEPARTMENT OFFICE BUILDING ON 23RD STREET IN SHEBOYGAN, WI. THE SECOND IS LOCATED ON THE CASCADE DISTRICT SHED. FOR INFORMATION ON THE SURVEY CONTROL CONTACT:
ED HARVEY, SHEBOYGAN COUNTY SURVEYOR
1211 N 23RD STREET
SHEBOYGAN, WI 53081
(920) 459-3823

TYPICAL SECTION AND DETAIL ORDER OF SHEETS

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
PAVING DETAILS
EROSION CONTROL
STORM SEWER PLANS
PAVEMENT MARKING AND SIGNING
ALIGNMENT DIAGRAM

STANDARD ABBREVIATIONS

C.E.	COMMERCIAL ENTRANCE
D.G.	DITCH GRADE
HYD.	HYDRANT
N.C.	NORMAL CROWN

UTILITIES

UTILITY: TELEPHONE
AT&T
LISA SUPRENAND
70 E DIVISION STREET
FOND DU LAC, WI 54935
920-929-8459 (OFFICE)
920-202-0652 (CELL)

UTILITY: SANITARY SEWER
CITY OF SHEBOYGAN
RYAN SAZAMA
2026 NEW JERSEY AVE
SHEBOYGAN, WI 53081
920-459-3485

UTILITY: SANITARY SEWER
TOWN OF WILSON
DAVE GARTMAN
5935 S. BUSINESS DRIVE
SHEBOYGAN, WI 53081

UTILITY: NATURAL GAS
WISCONSIN PUBLIC SERVICE
MICHAEL LOWTHER (FIELD CONTACT)
933 S WILDWOOD AVE
PO BOX 329
SHEBOYGAN, WI 53082
920-451-3743 (OFFICE)
920-946-3198 (CELL)
LORI BUTRY (OFFICE CONTACT)
700 N ADAMS ST
PO BOX 19001
GREEN BAY, WI 54307-9001
920-433-1703

UTILITY: WATER
RICH DALE
SHEBOYGAN WATER UTILITY
72 PARK ST.
SHEBOYGAN, WI 53081
920-459-3839

UTILITY: CABLE TV
CHARTER COMMUNICATIONS
TOM HARYCKI
2312 CONTINENTAL DRIVE
WEST BEND, WI 53095
920-375-6194

UTILITY: ELECTRIC
ALLIANT ENERGY
JOE KOCHAN (FIELD CONTACT)
824 SOUTH 8TH STREET
SHEBOYGAN, WI 53081
920-946-2129 (CELL)
920-459-6331 (OFFICE)
JASON HOGAN (OFFICE CONTACT)
4902 N BILTMORE LN
MADISON, WI 53718
608-458-4871

UTILITY: ELECTRIC
CITY OF SHEBOYGAN
MARK PAWASARAT
2026 NEW JERSEY AVE
SHEBOYGAN, WI 53081
920-459-3444

UTILITY: TELECOMMUNICATIONS
WINDSTREAM
SERVICES LLC d/b/a
PAETEC BUSINESS SERVICES
JOHN LOUIS
13935 BISHOPS DRIVE
BROOKFIELD, WI 53005
262-792-7218 (OFFICE)
414-305-0332 (CELL)

DNR CONTACT
JULIE WIDHOLM
ENVIRONMENTAL ANALYSIS & REVIEW SPECIALIST
WDNR SOUTHEAST REGION
141 NW BARSTOW STREET
WAUKESHA, WI 53188
(262) 424-2834 (CELL)
E-MAIL: JULIE.WIDHOLM@WISCONSIN.GOV

DESIGNER CONTACT
TAMMY KUEHLMANN
DONOHUE & ASSOCIATES
3311 WEEDEN CREEK ROAD
SHEBOYGAN, WI 53081
(920) 803-7364
E-MAIL: TKUEHLMANN@DONOHUE-ASSOCIATES.COM

2

PROJECT NO: 4996-01-22

HWY: CTH OK

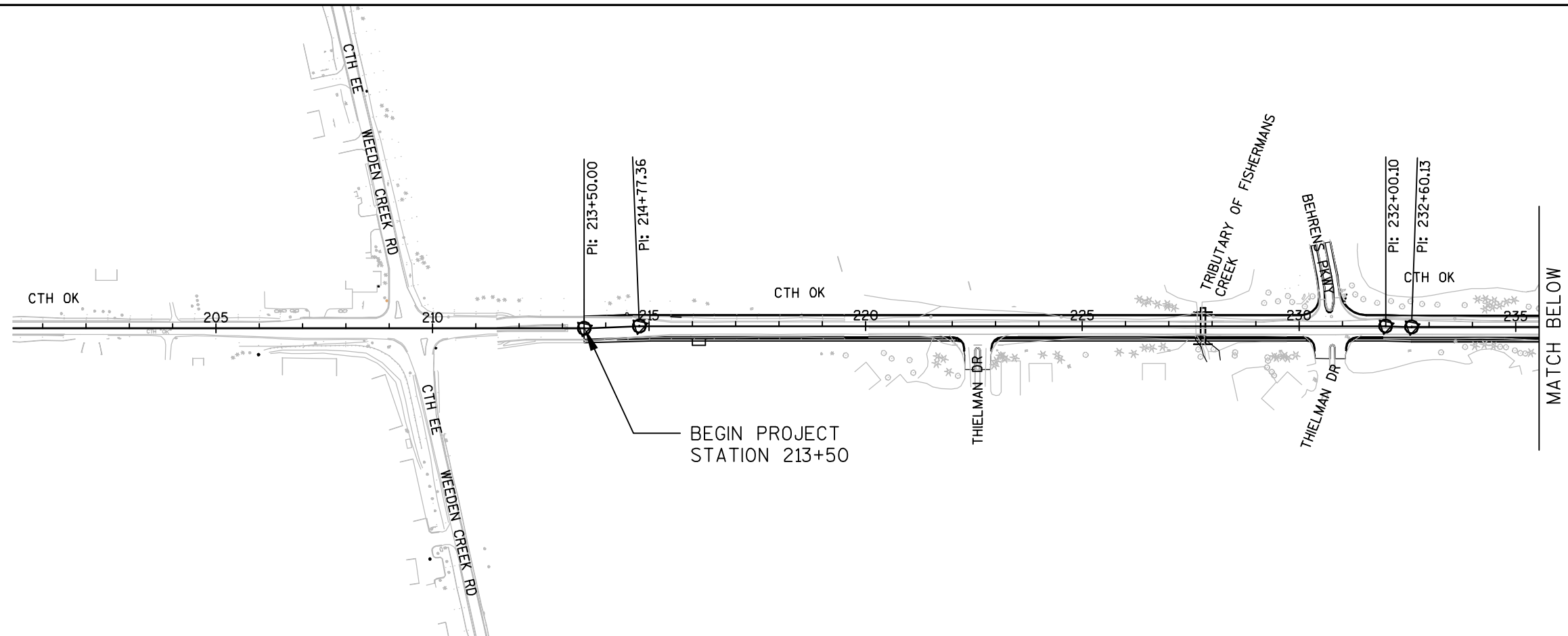
COUNTY: SHEBOYGAN

GENERAL NOTES

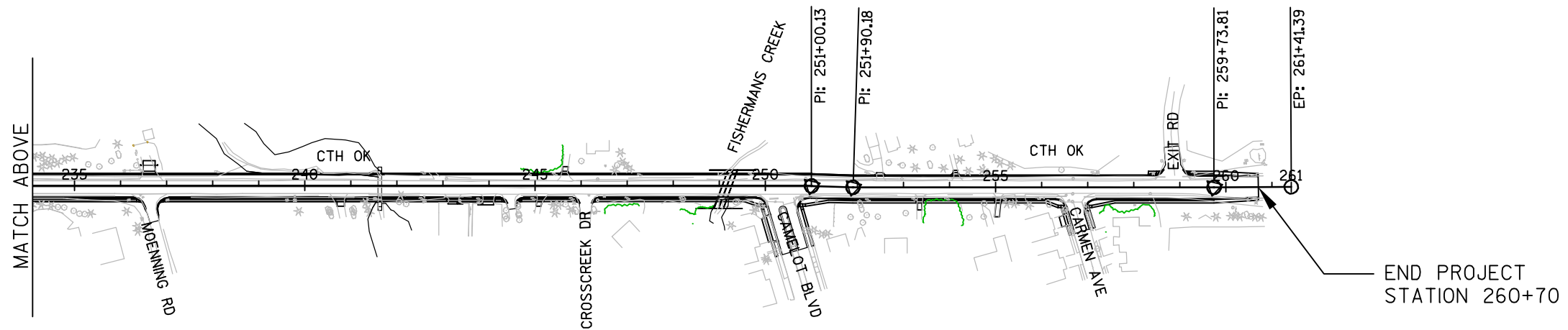
SHEET - 2

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2



PROJECT NO: 4996-01-22

HWY: CTH OK

COUNTY: SHEBOYGAN

PROJECT OVERVIEW

SHEET

-3

E

FILE NAME : L:\PROJECTS\11552\DWG\020201_P0.DWG

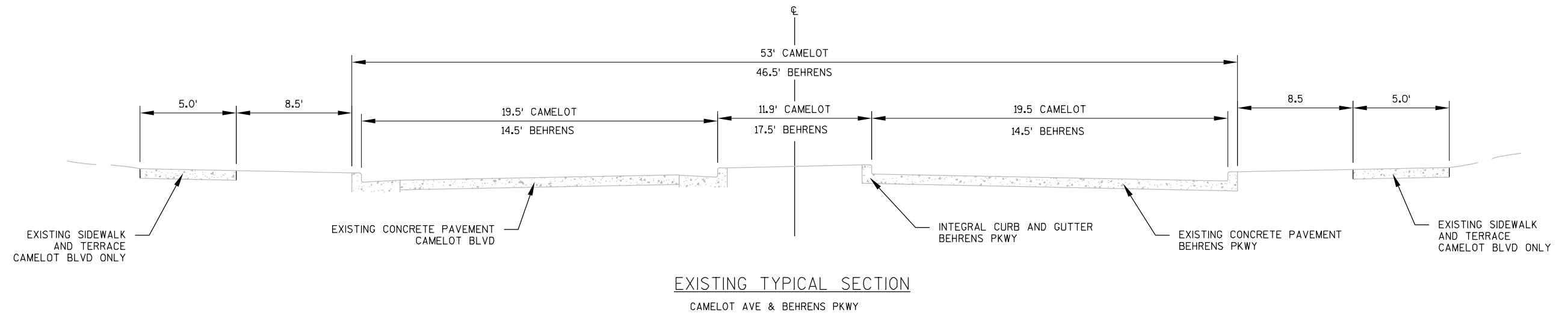
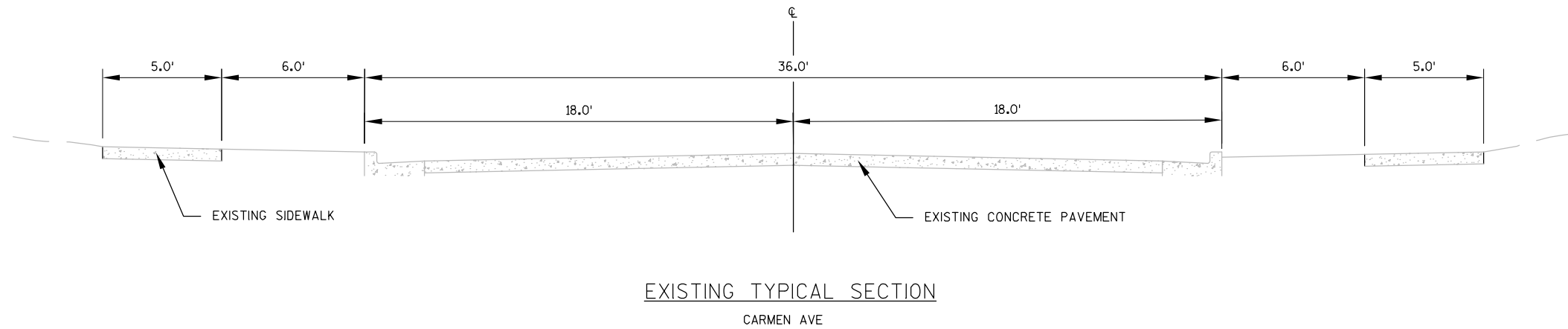
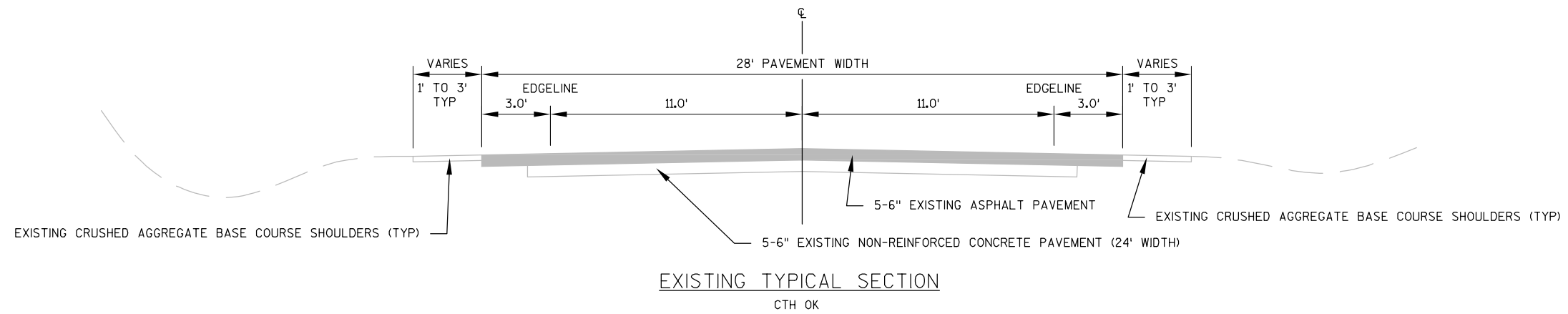
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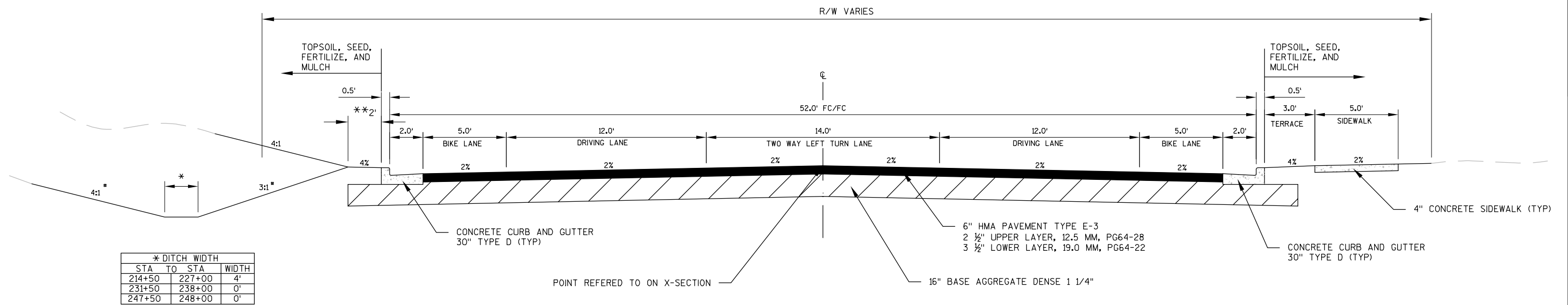
PLOT BY : BANTER, JOHN

PLOT NAME :

PLOT SCALE : 1:300

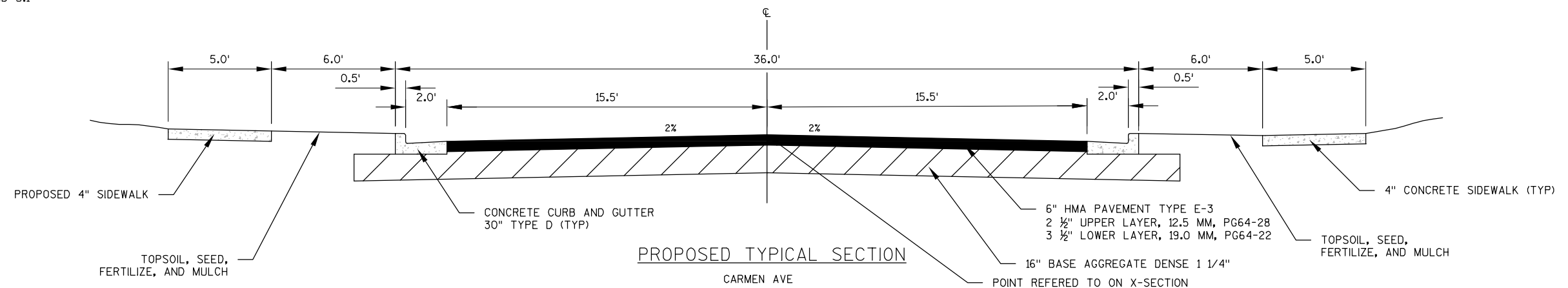
WISDOT/CADDs SHEET 42





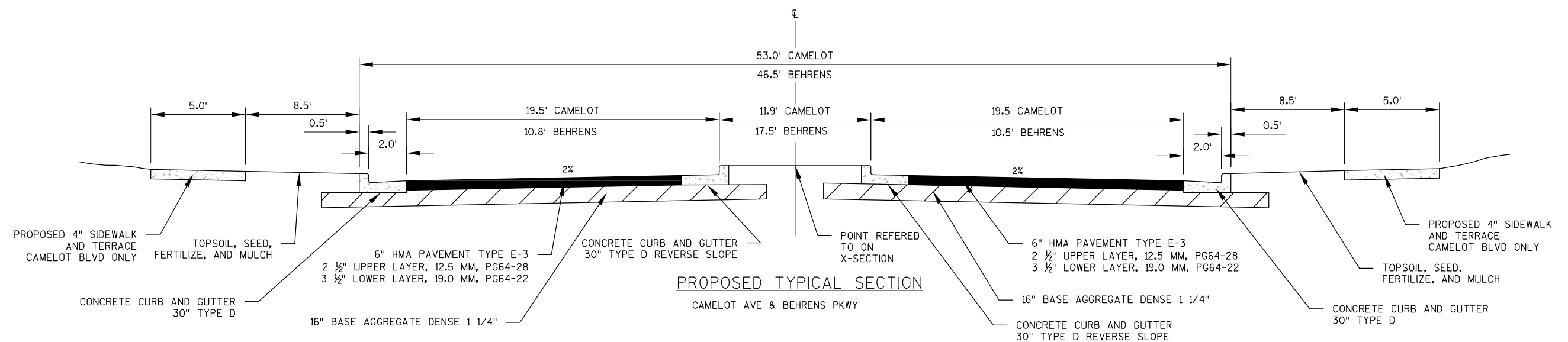
PROPOSED TYPICAL SECTION

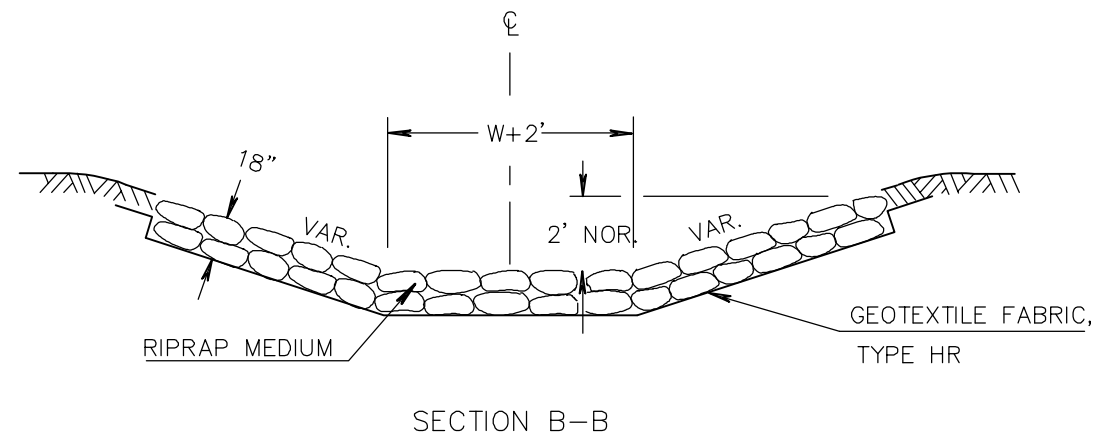
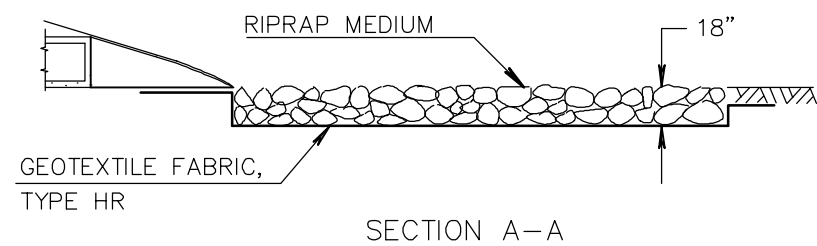
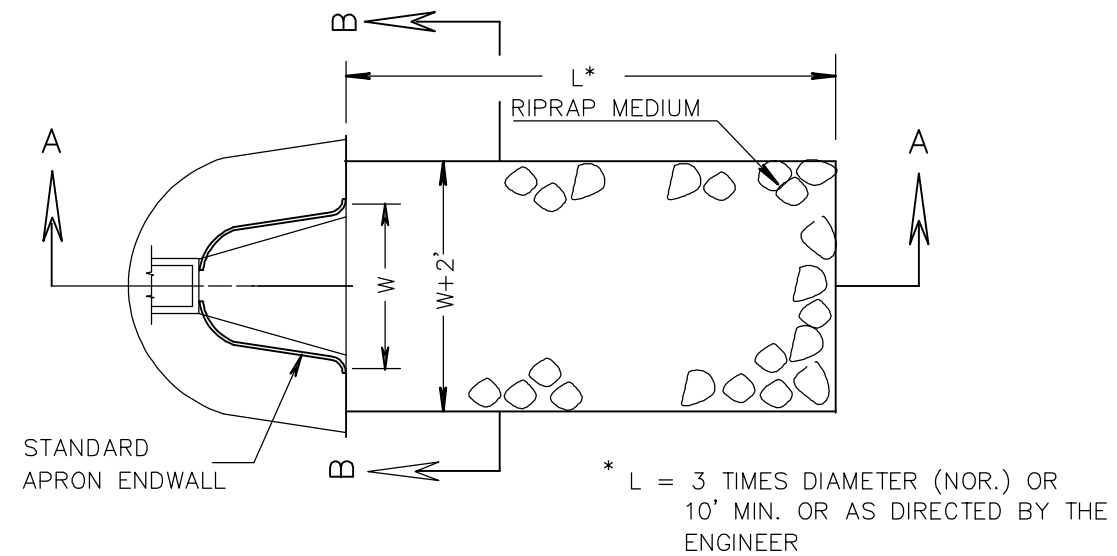
CTH OK
STA 213+50 - STA 260+70



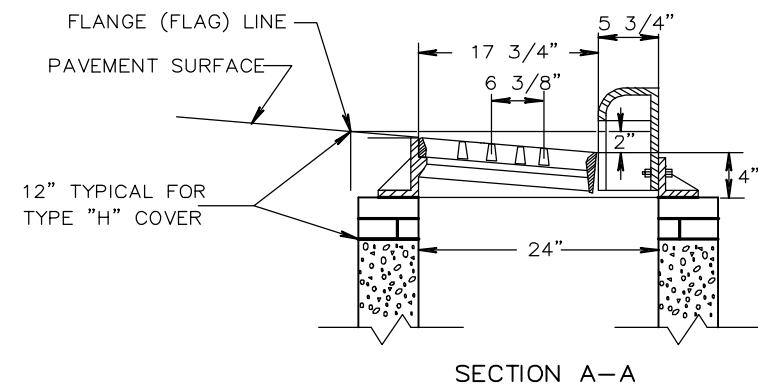
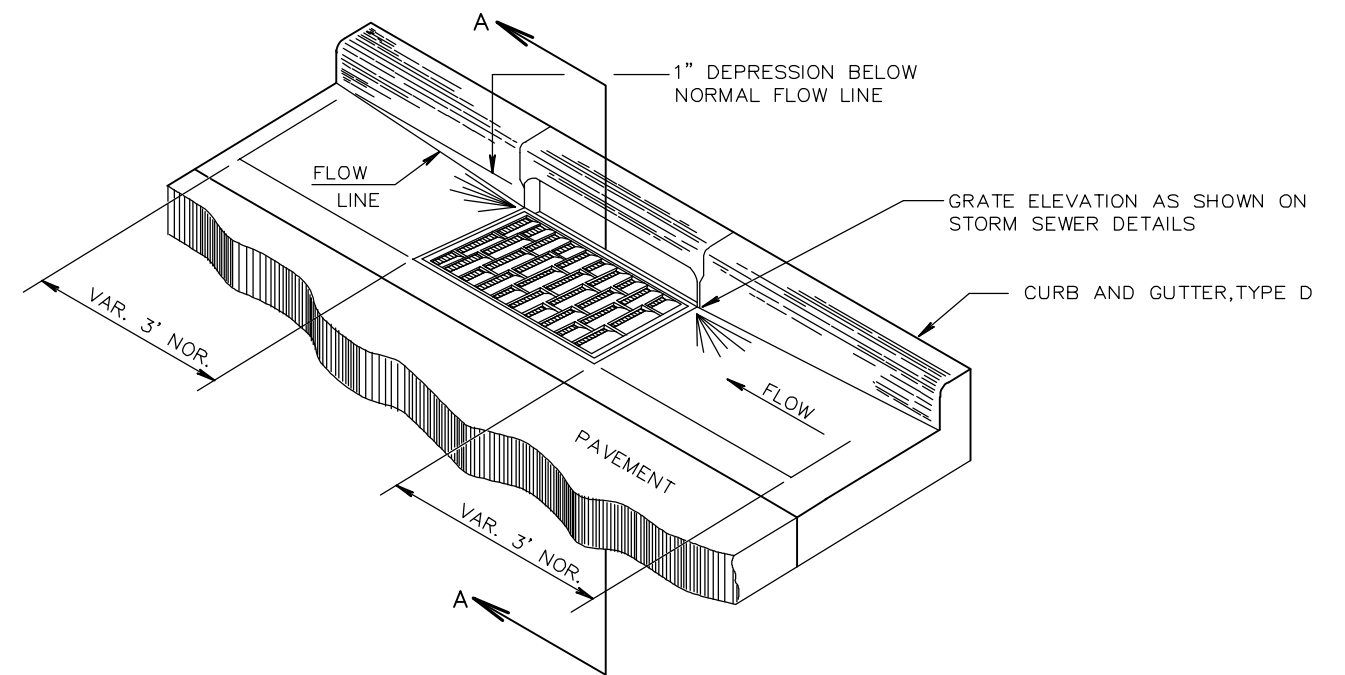
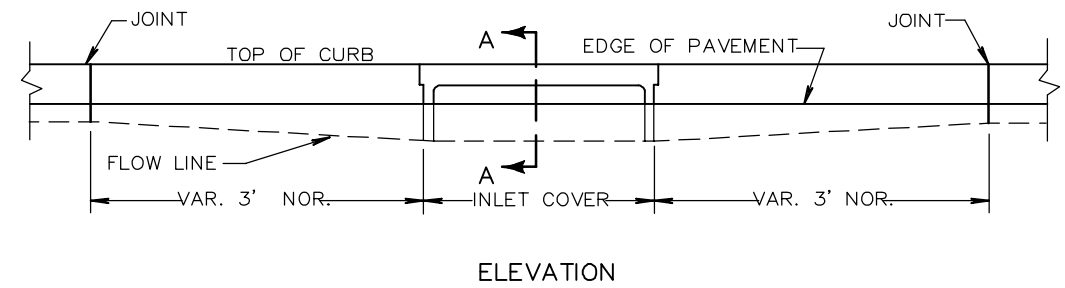
PROPOSED TYPICAL SECTION

CARMEN AVE



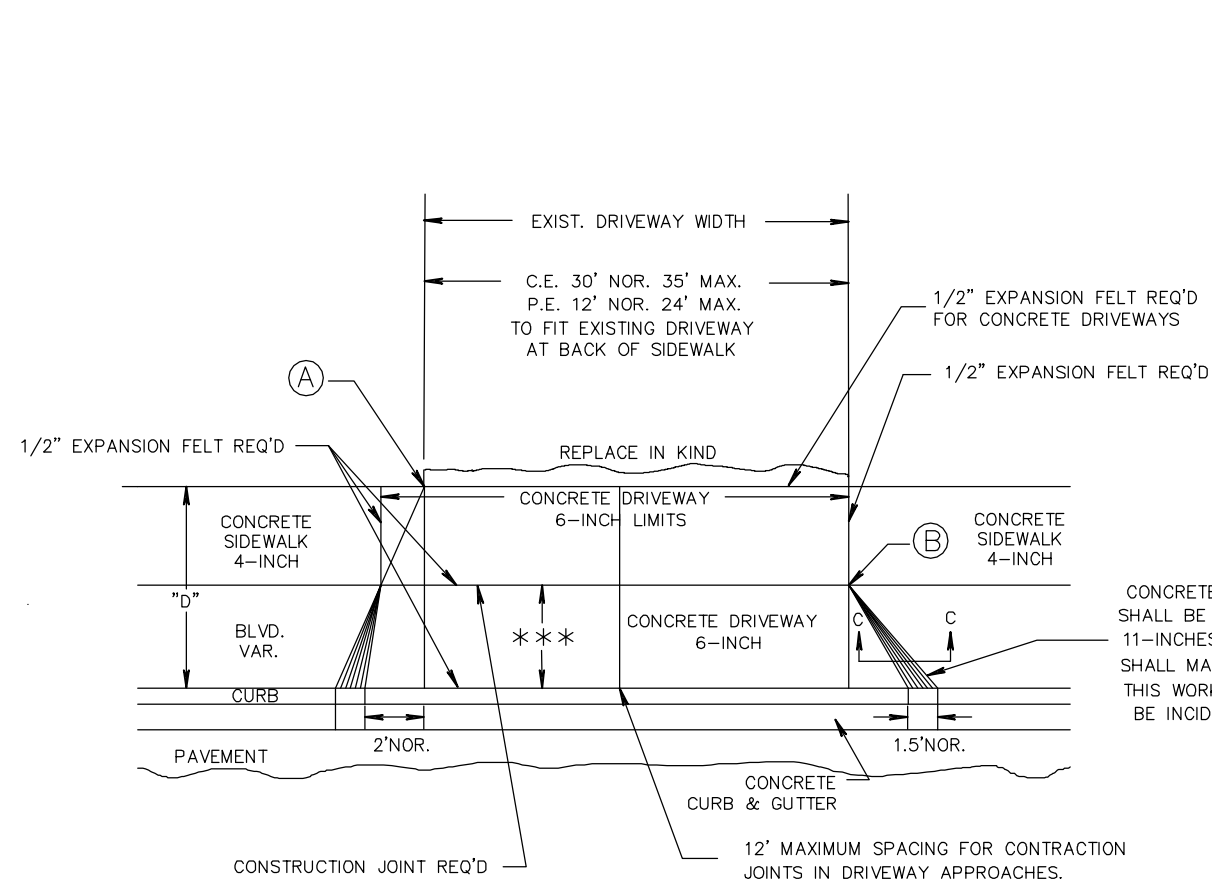


RIPRAP MEDIUM AND GEOTEXTILE FABRIC
DETAIL AT APRON ENDWALLS



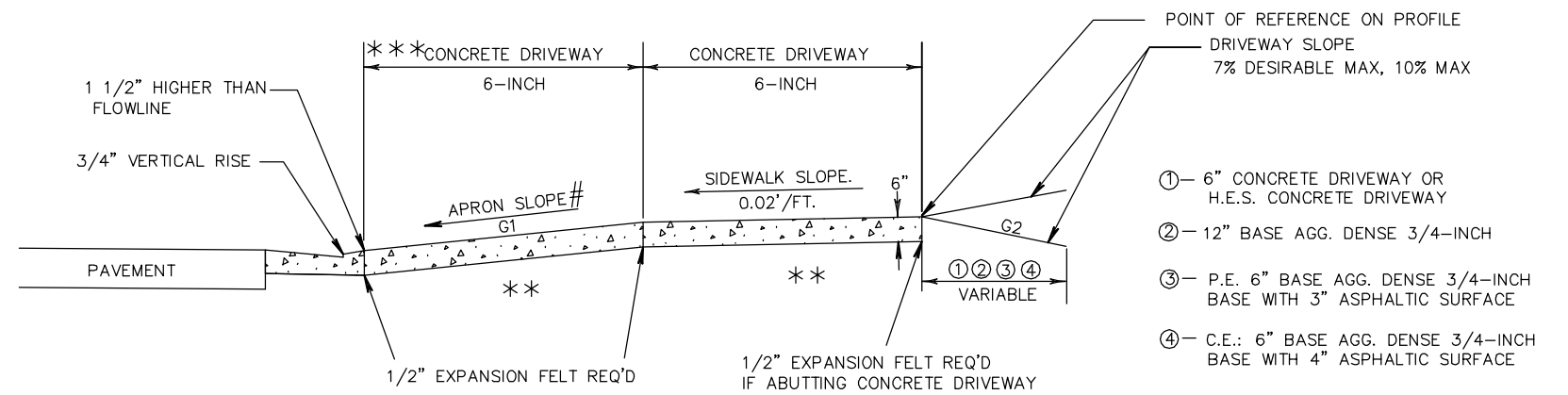
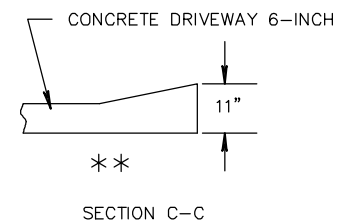
DETAIL OF CURB AND GUTTER AT INLETS

DRIVEWAY ENTRANCE DETAIL WITH SIDEWALK, CURB & GUTTER



PLAN VIEW

- (A) WHEN "D" IS 13' OR LESS, ALIGN TAPER WITH BACK OF SIDEWALK
- (B) WHEN "D" IS GREATER THAN 13', ALIGN TAPER WITH FRONT OF SIDEWALK



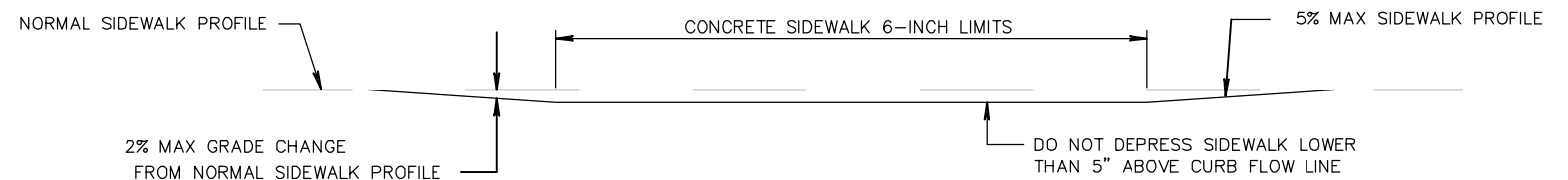
TYPICAL SIDEWALK SECTION

#	TERRACE WIDTH	APRON SLOPE (G1)		
		MIN %	DESIRABLE %	MAX %
	3 FT	7.0	8.5	9.0
	4 FT	5.0	7.0	9.0
	5 FT	4.0	7.0	9.0
	6 FT	4.0	7.0	9.0
	7 FT	3.5	7.0	9.0
	8 FT	3.0	7.0	9.0

NOTE: ALGEBRAIC DIFFERENCE BETWEEN TANGENT GRADES G1 & G2 TO NOT EXCEED 15%

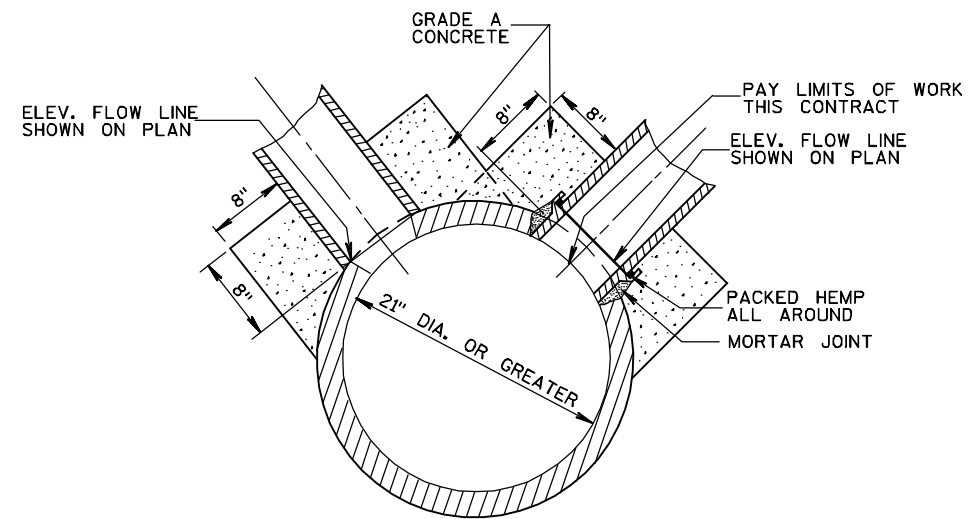
DEPRESS SIDEWALK PROFILE IF DRIVEWAY APRON EXCEEDS MAX SLOPE

** 5' CONCRETE APRON REQ'D AT ALL DRIVEWAYS WITH ASPHALT OR GRAVEL. MATCH TERRACE WIDTH AT SIDEWALK AREAS



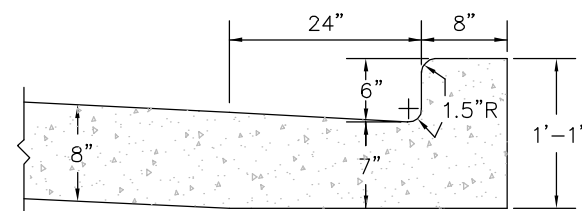
DEPRESSED SIDEWALK PROFILE DETAIL

2



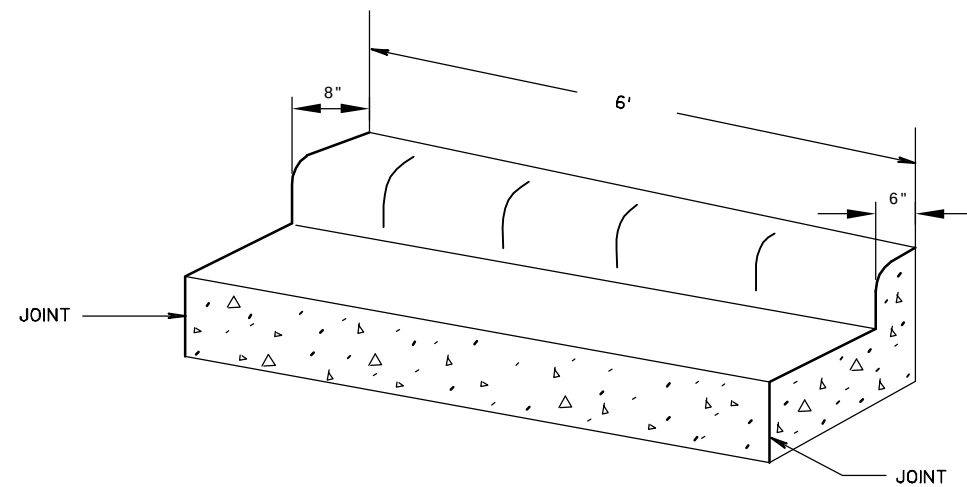
DETAIL OF CONNECTION TO STORM SEWER

NOTE: CONTRACT UNIT PRICE FOR PIPE SHALL INCLUDE COST OF CONNECTION TO EXISTING STORM SEWER OR M.H.



CURB INTEGRAL WITH PAVEMENT

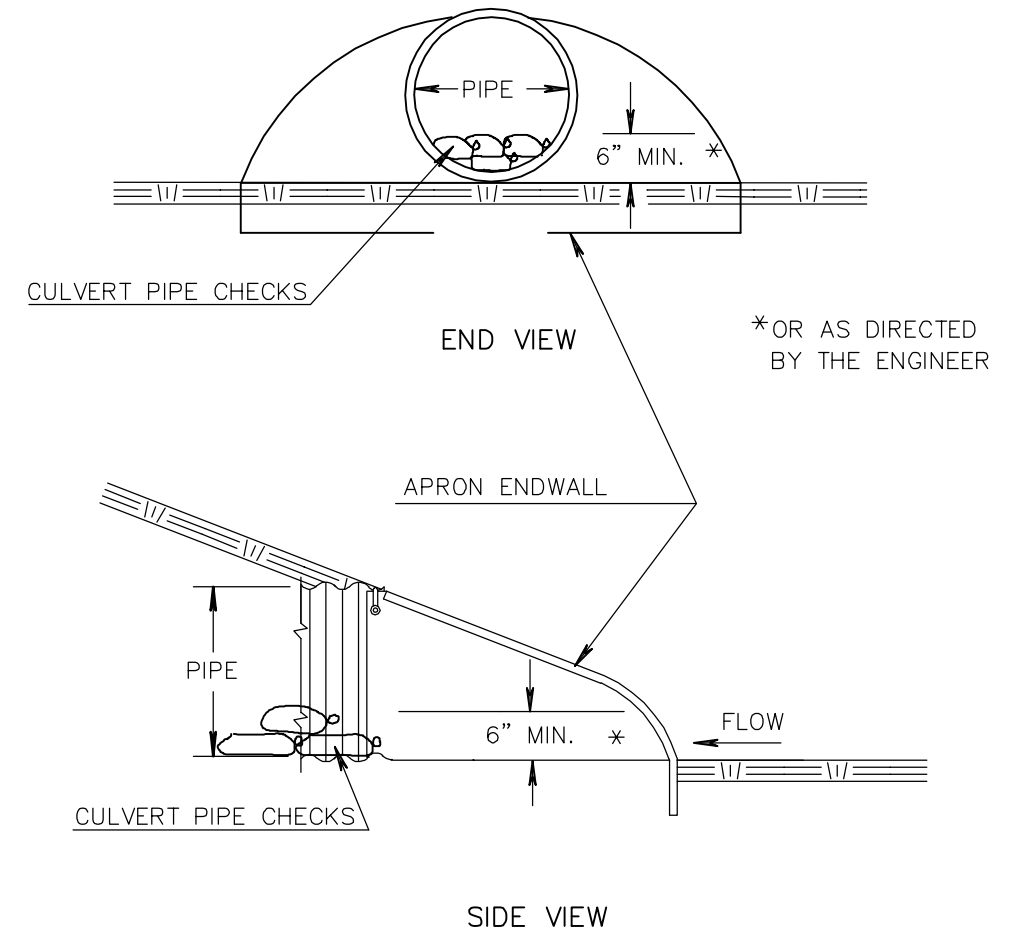
EXISTING CONCRETE CURB AND GUTTER 32-INCH
AT CITY OF SHEBOYGAN SIDE ROADS
(BEHRENS PARKWAY, CAMELOT BLVD, AND CARMEN AVE)



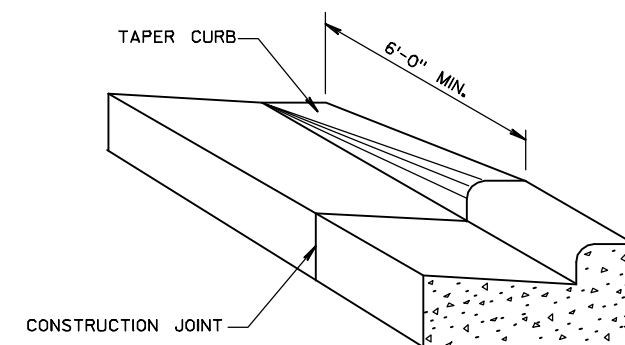
CURB AND GUTTER TRANSITION DETAIL

32" INTEGRAL SPECIAL CURB & GUTTER TO 30" TYPE "D" CURB & GUTTER
(TO BE MEASURED & PAID FOR AS 30" CONC. C&G)

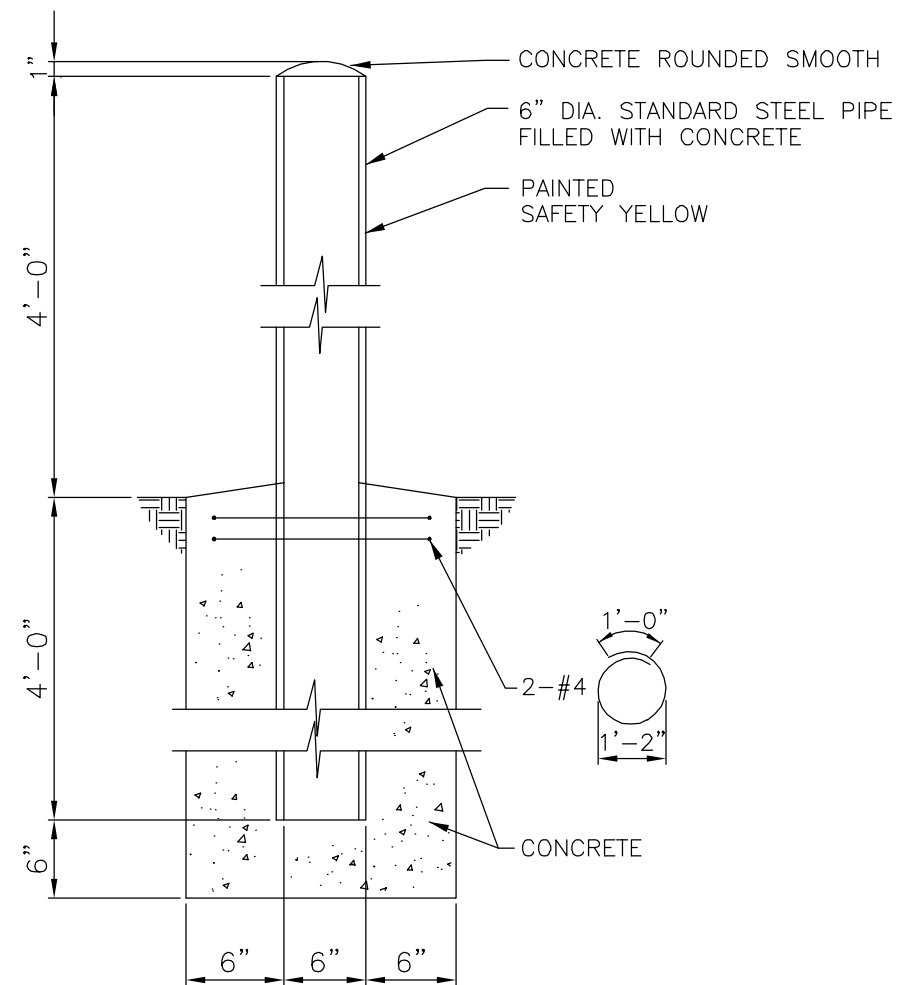
2



CULVERT PIPE CHECKS

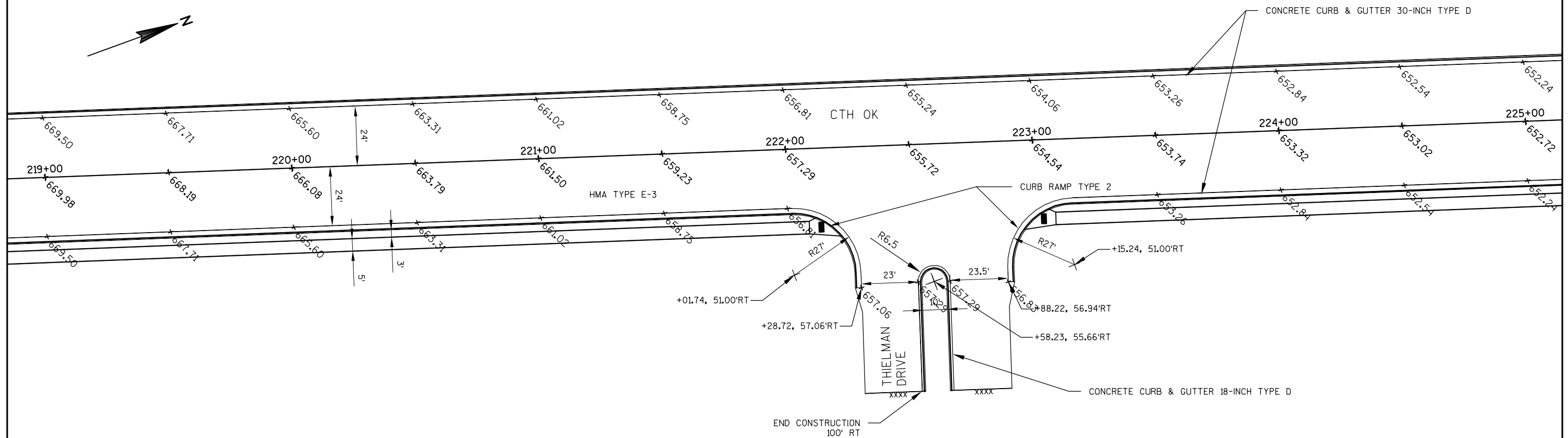
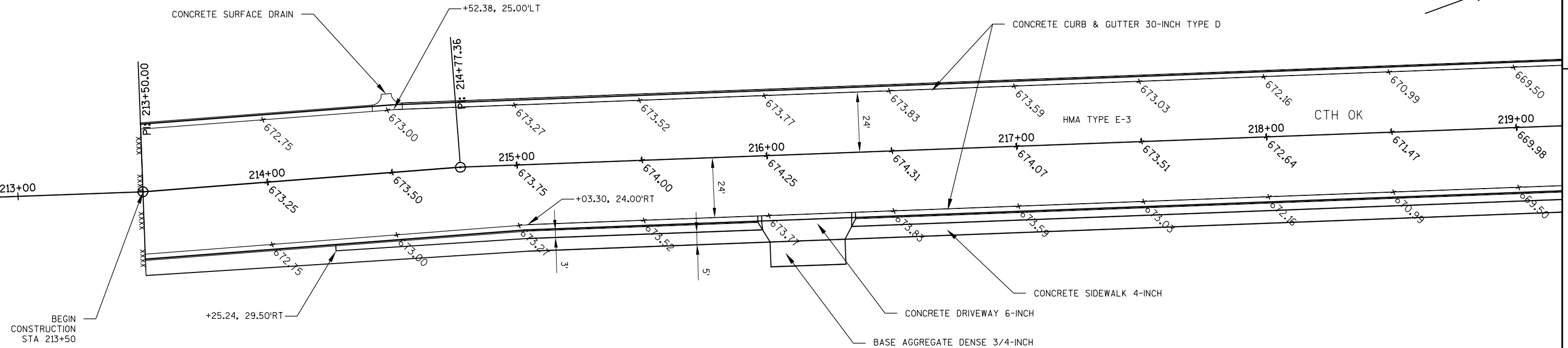


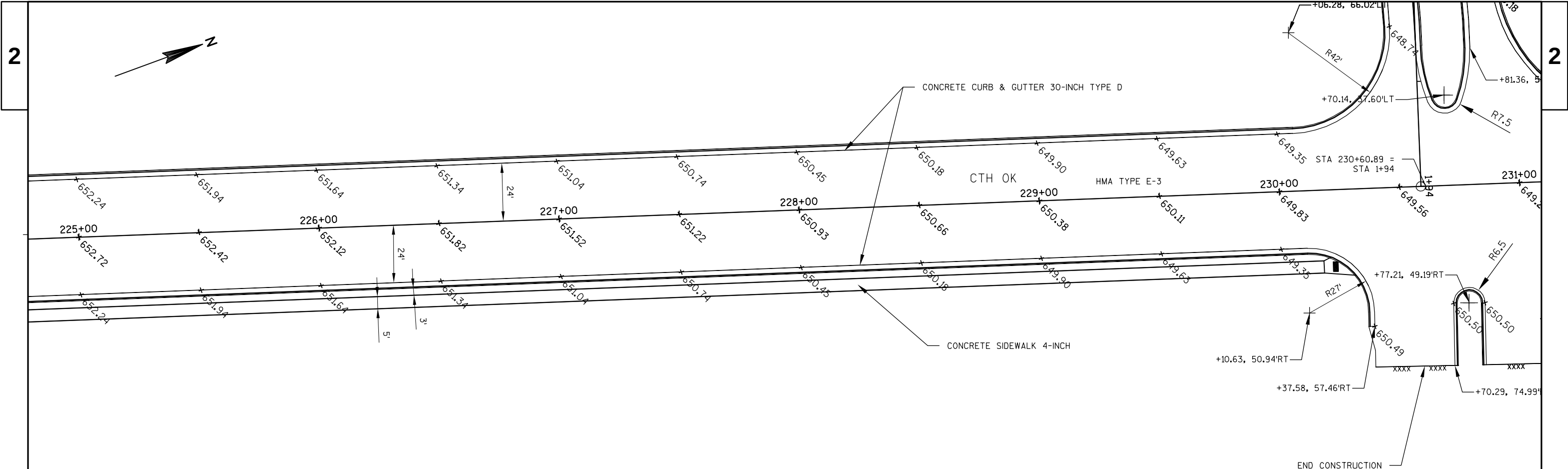
DETAIL OF CURB & GUTTER TERMINI

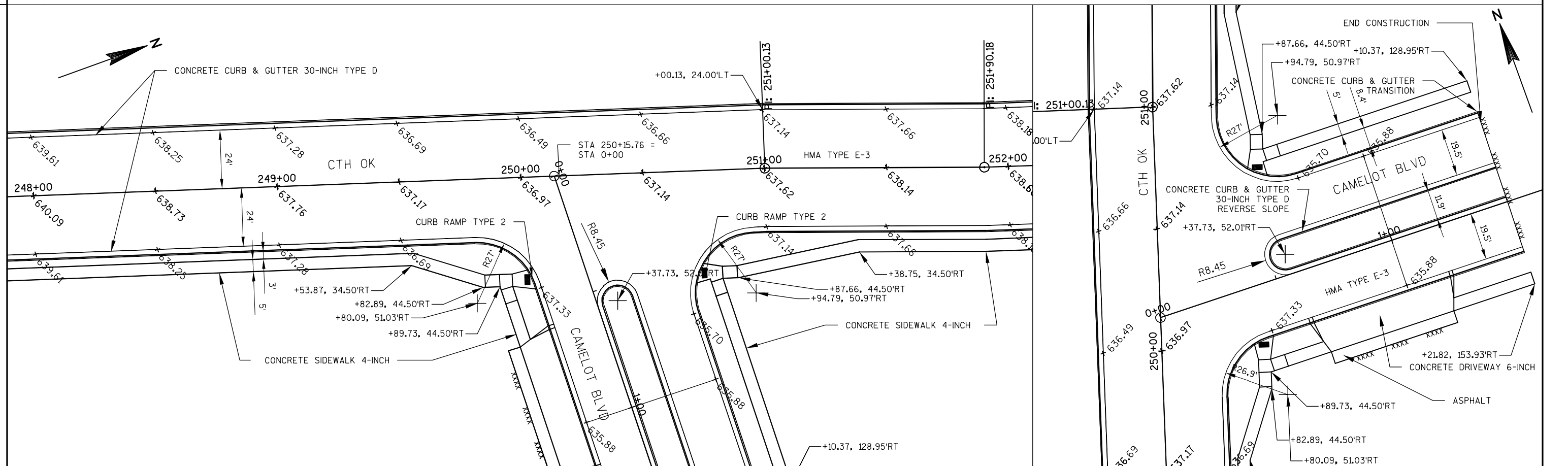


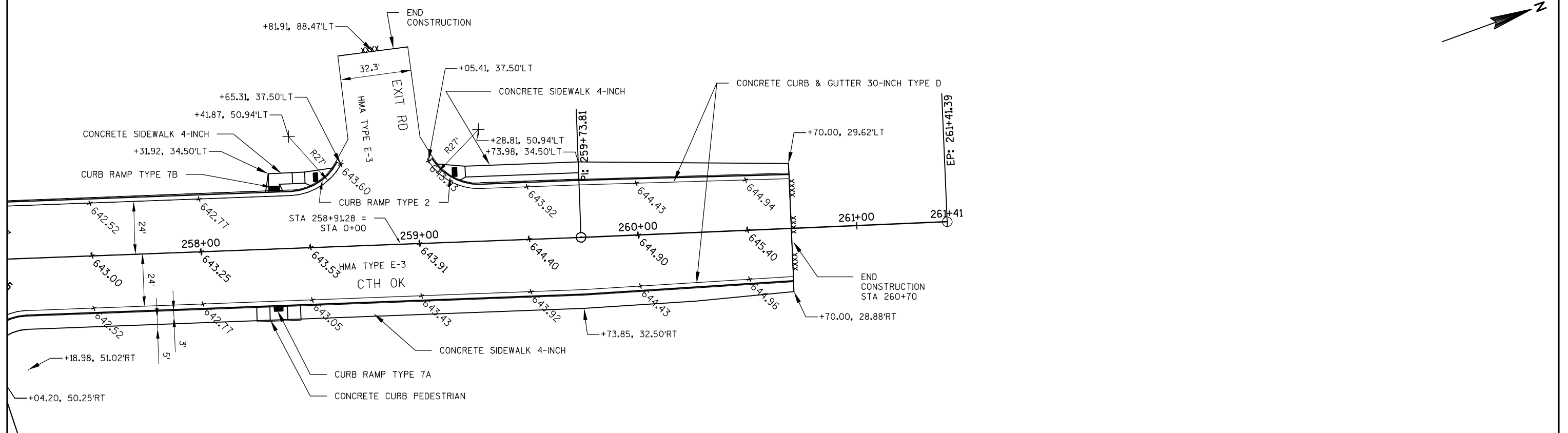
SECTION

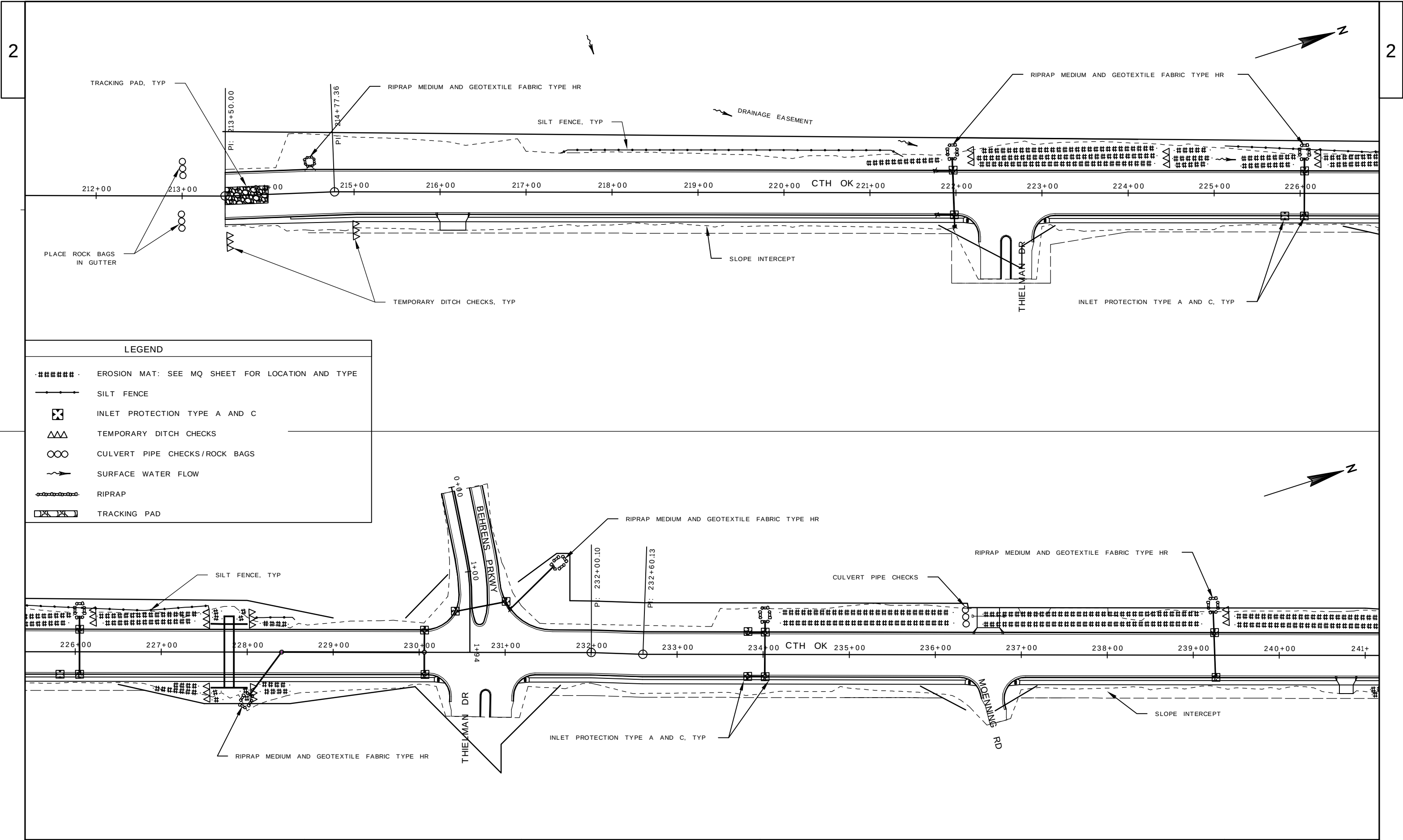
BOLLARD
NTS

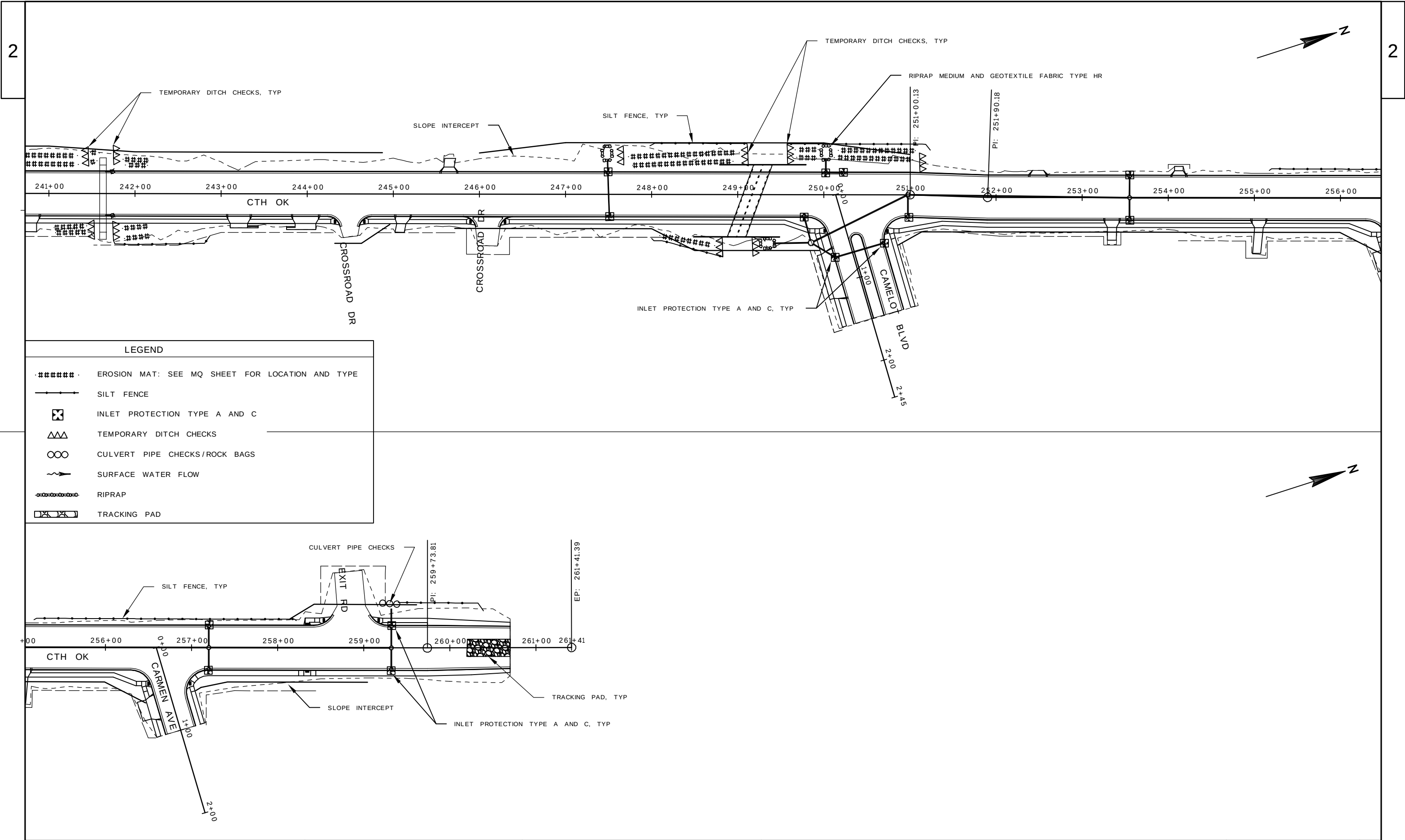


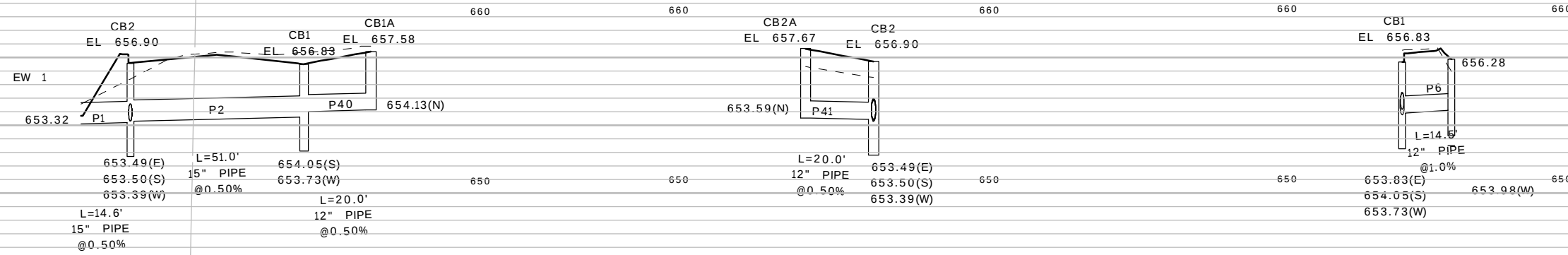
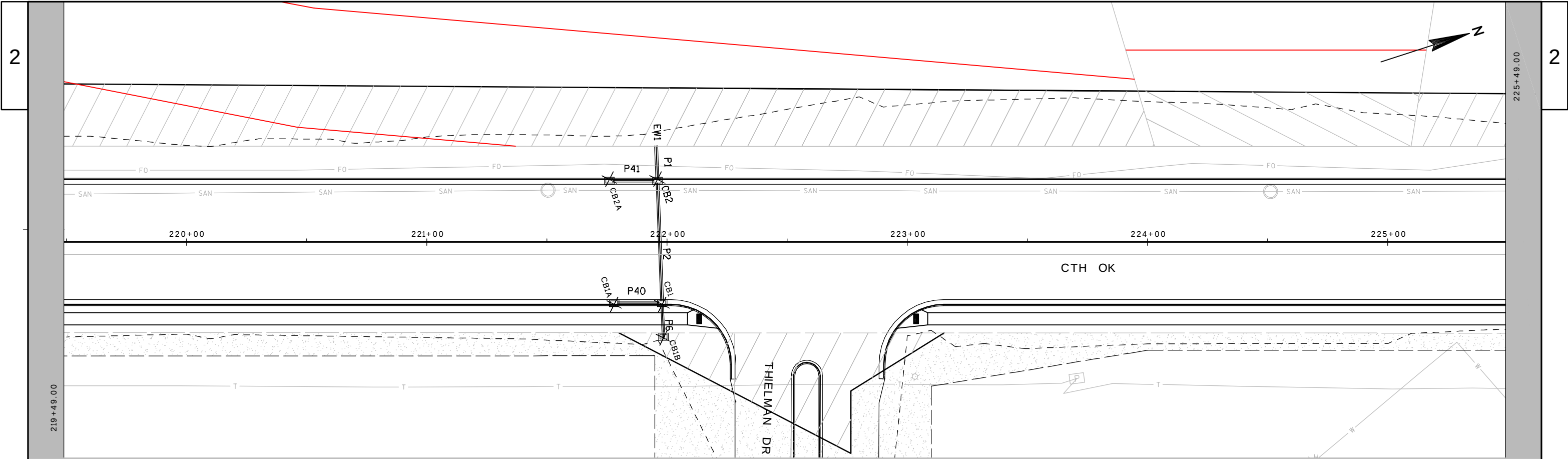


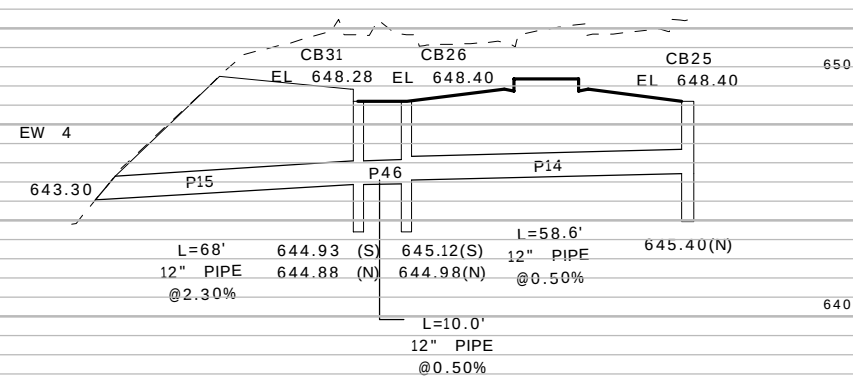
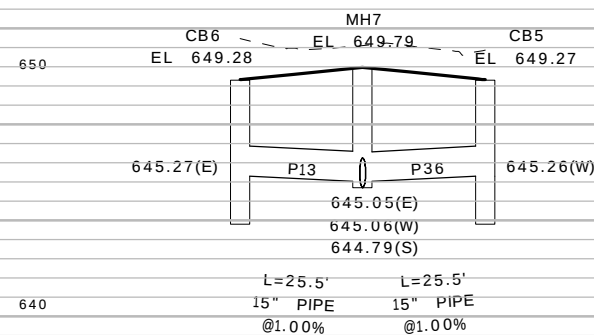
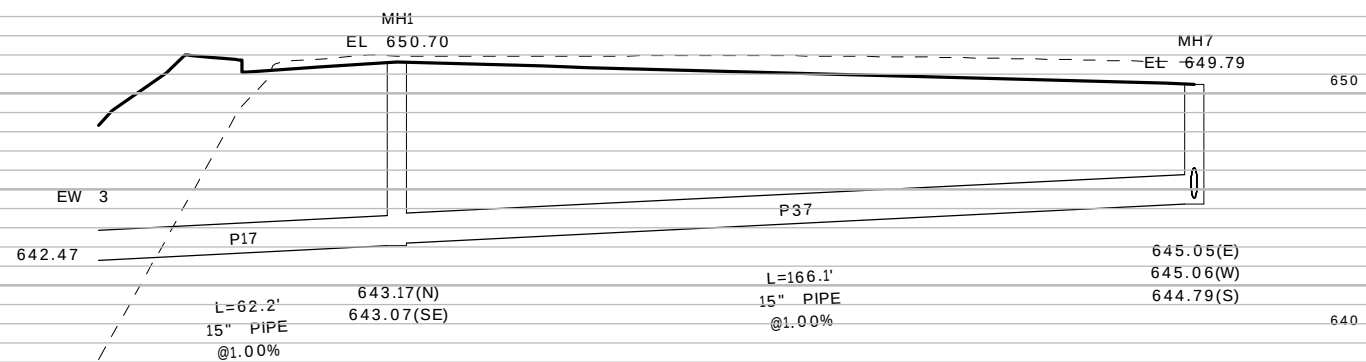
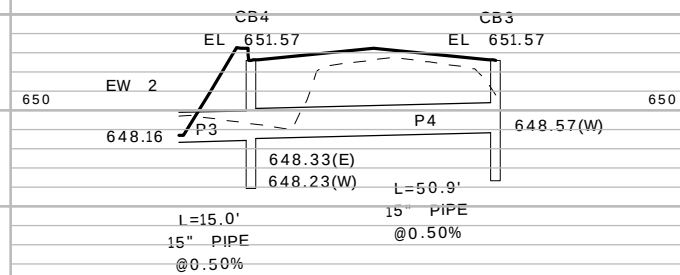
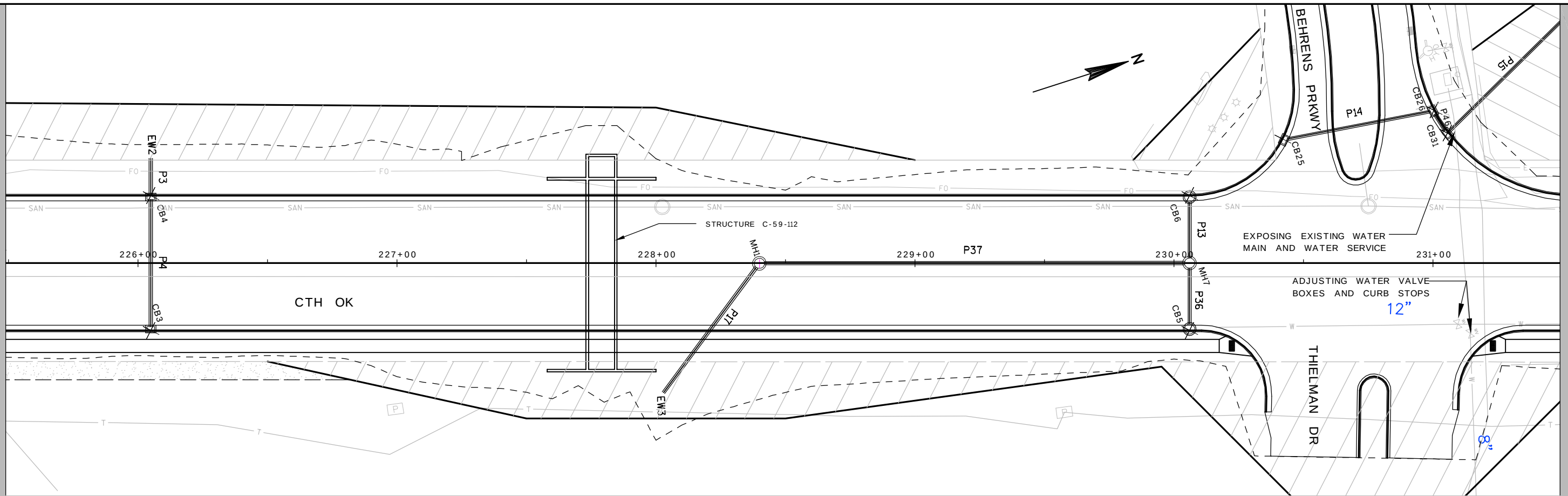


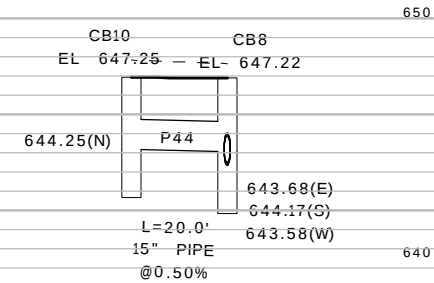
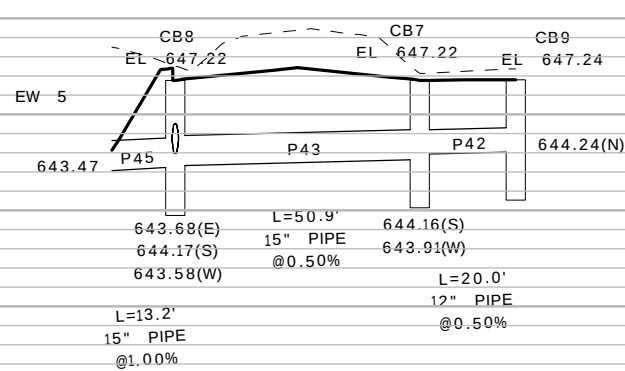
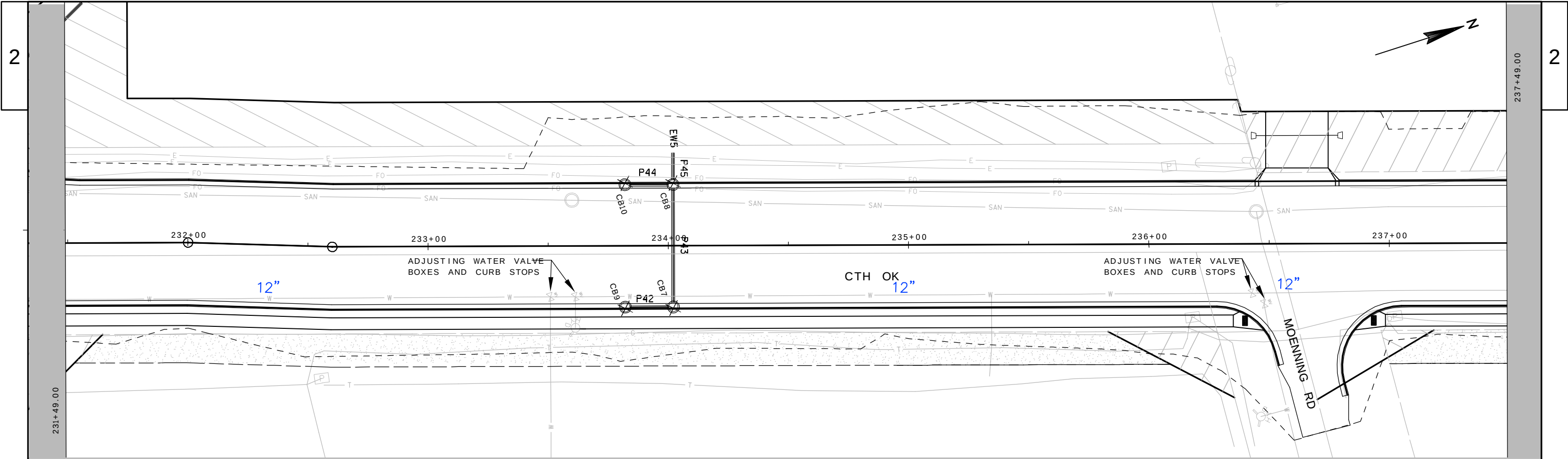


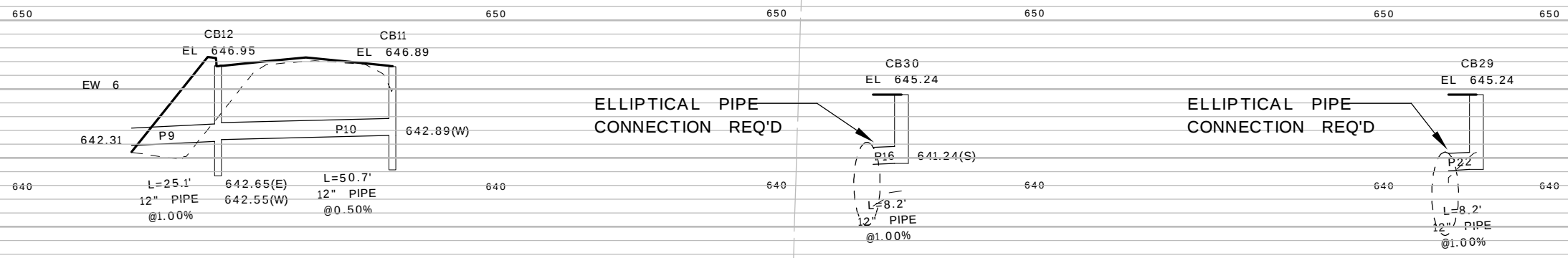
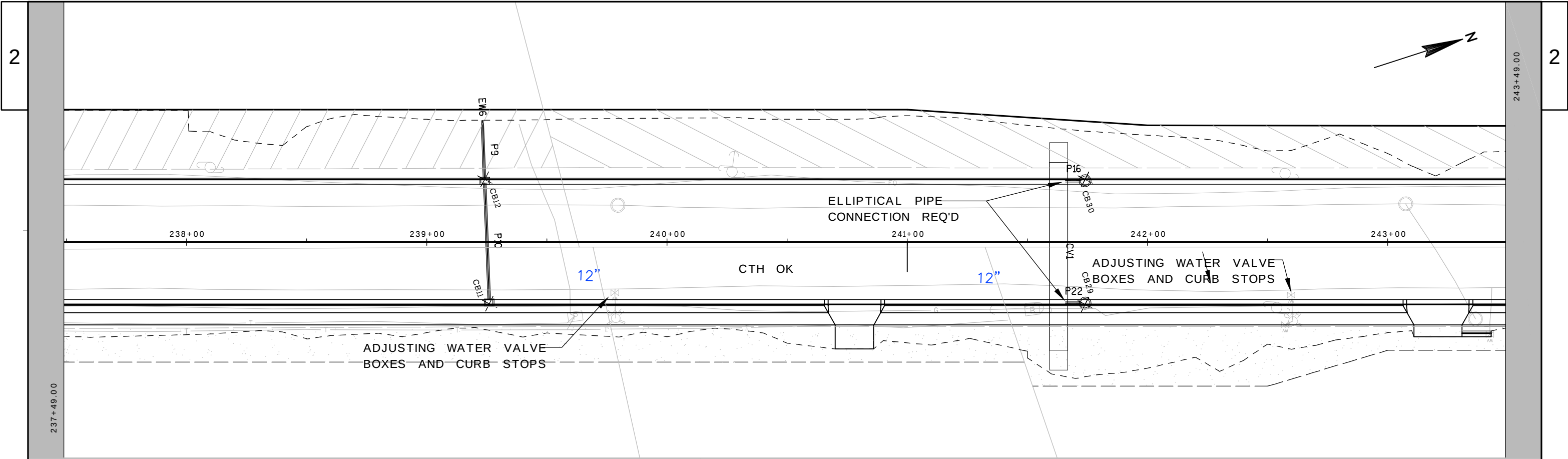


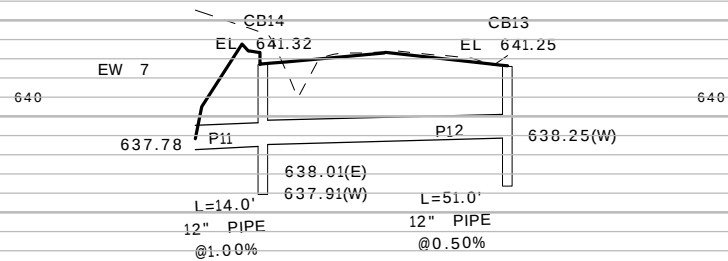
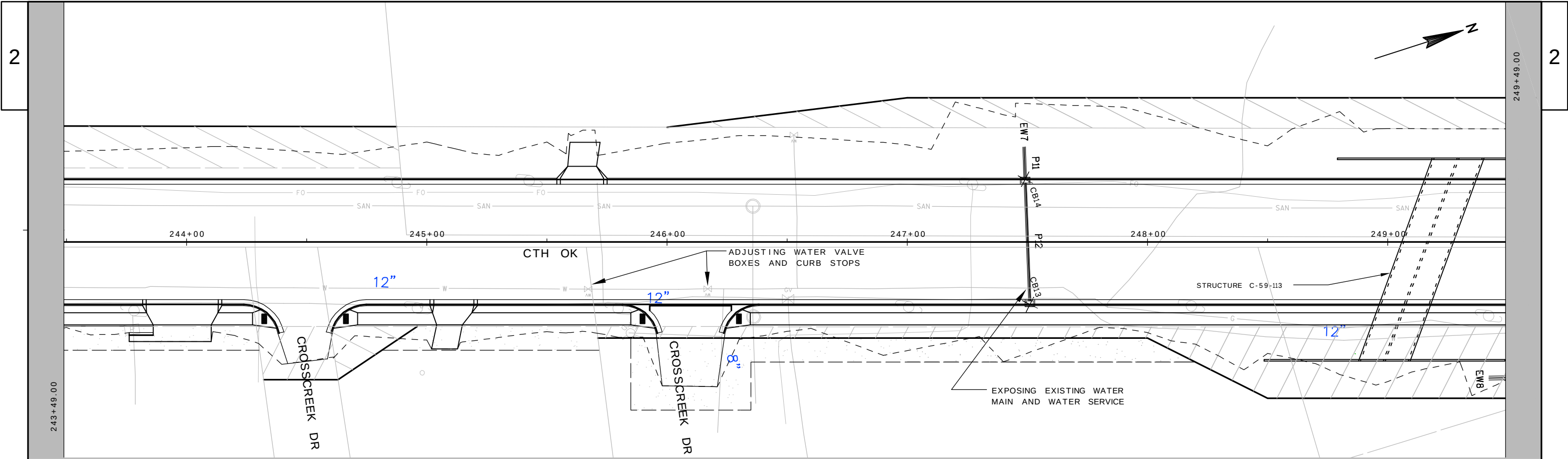


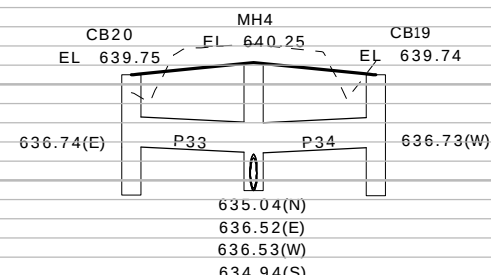
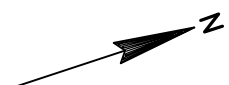




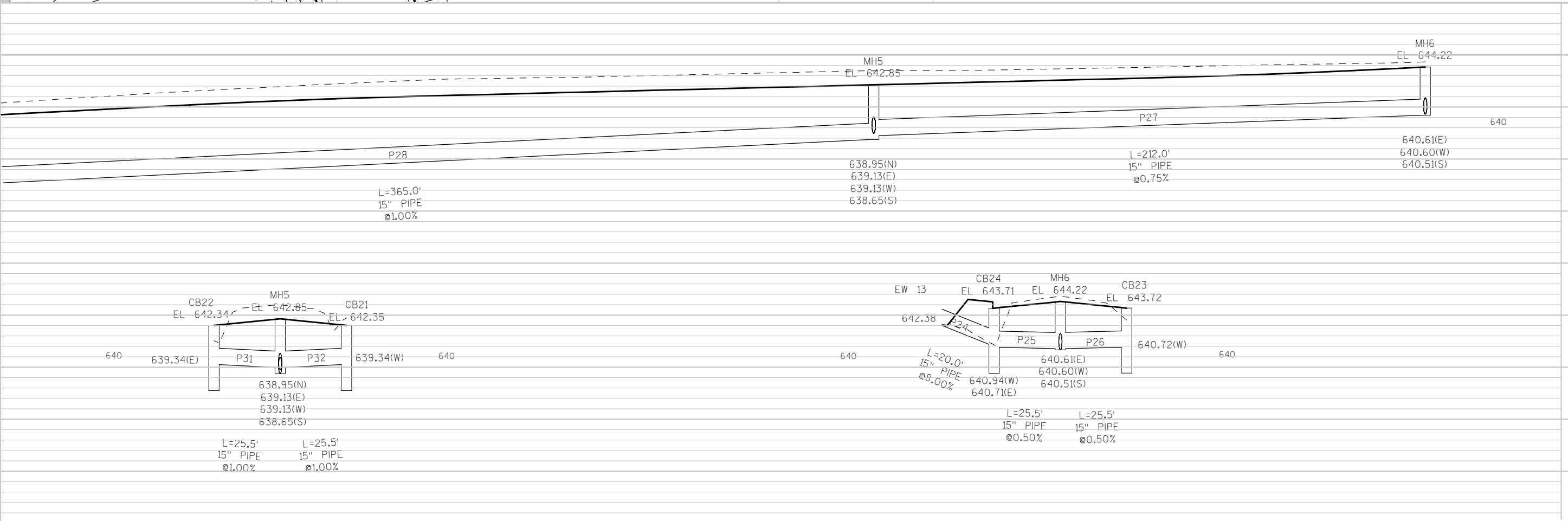


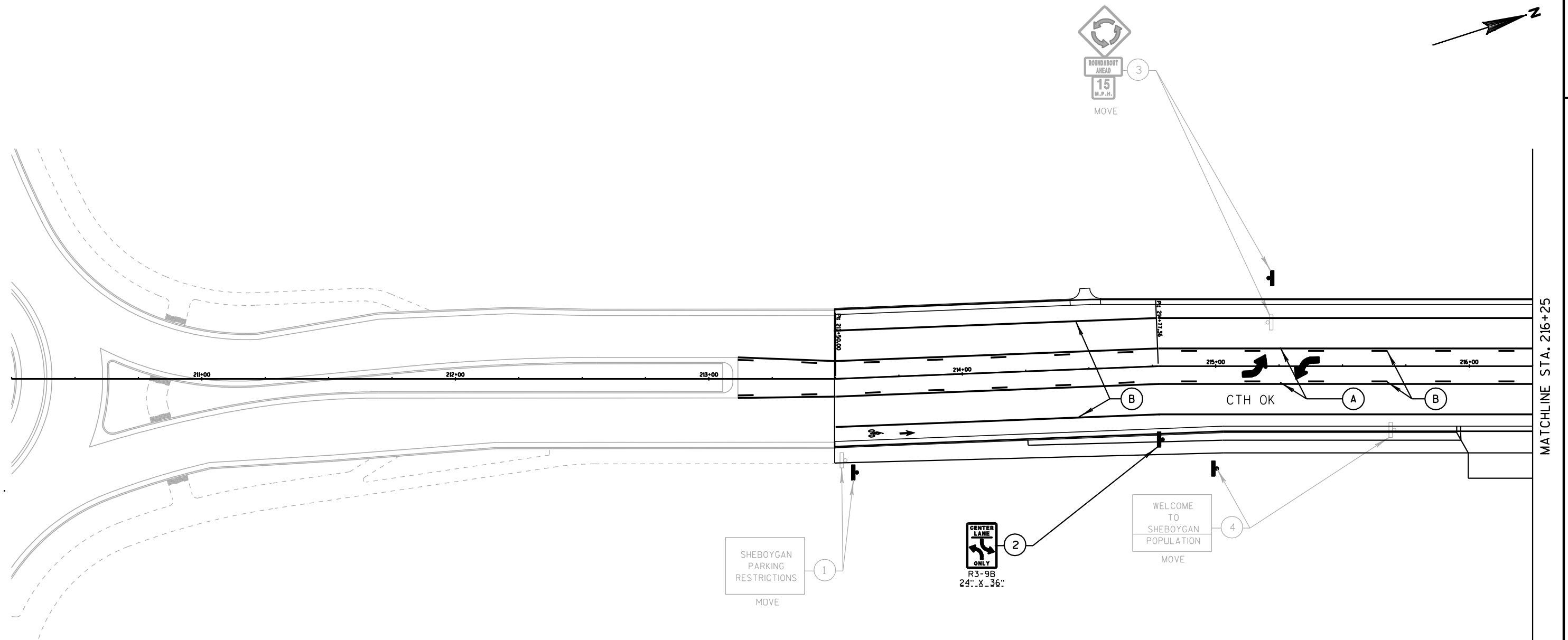






2

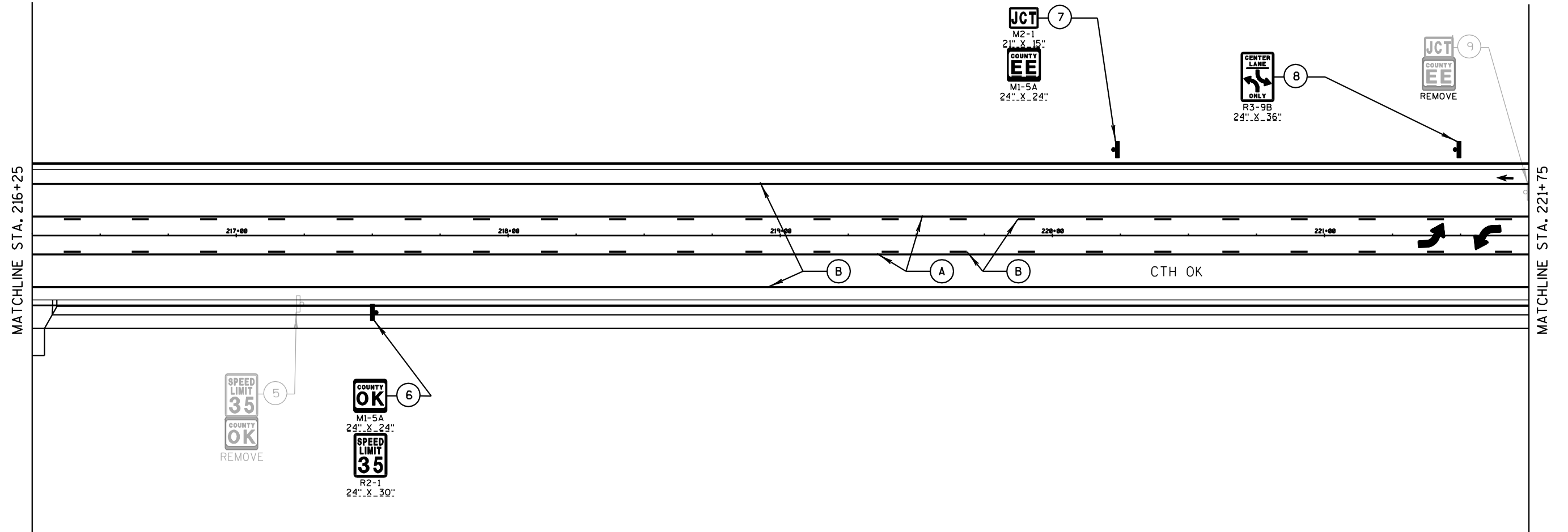


**PAVEMENT MARKING LEGEND**

- (A) PAVEMENT MARKING EPOXY, 4-INCH (YELLOW)
- (B) PAVEMENT MARKING EPOXY 4-INCH (WHITE)
- (C) PAVEMENT MARKING CROSSWALK EPOXY 6-INCH
- (D) PAVEMENT MARKING DIAGONAL EPOXY 12-INCH
- (E) PAVEMENT MARKING STOP LINE 18-INCH
- PAVEMENT MARKING SYMBOLS BIKE LANE EPOXY
- ➔ PAVEMENT MARKING ARROWS BIKE LANE EPOXY
- PAVEMENT MARKING ARROWS EPOXY TYPE 2

SIGNING LEGEND

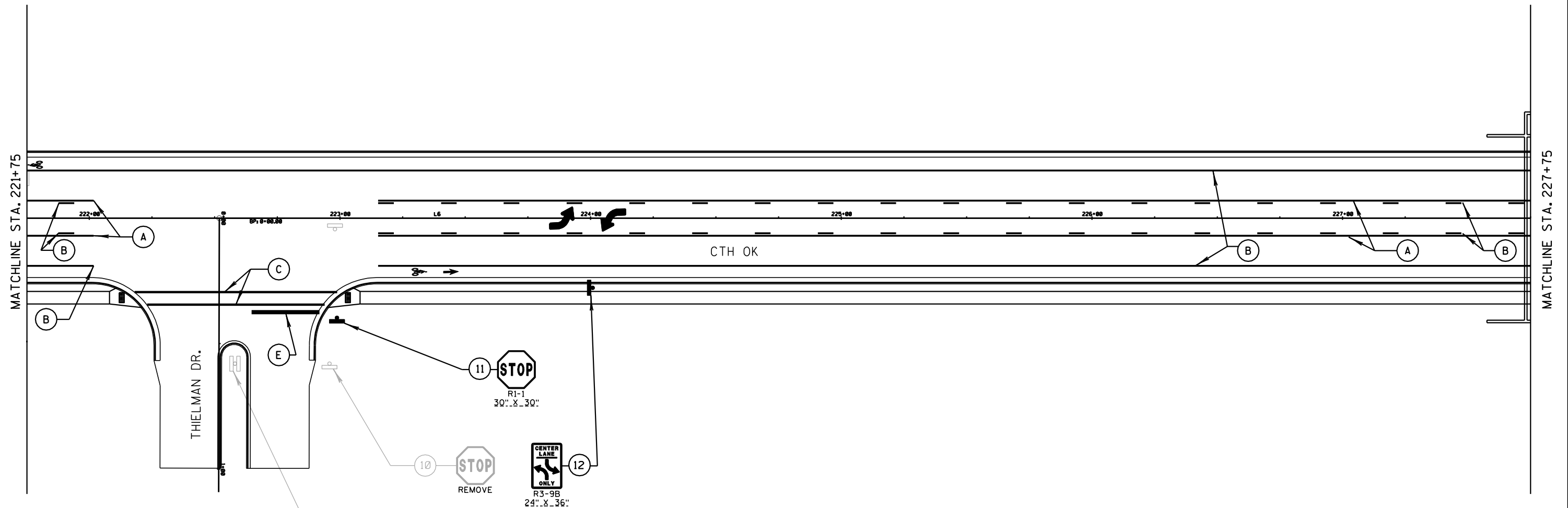
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- PROPOSED SIGN AND POST(S)
- REMOVAL SIGN NUMBER
- PROPOSED SIGN NUMBER

**PAVEMENT MARKING LEGEND**

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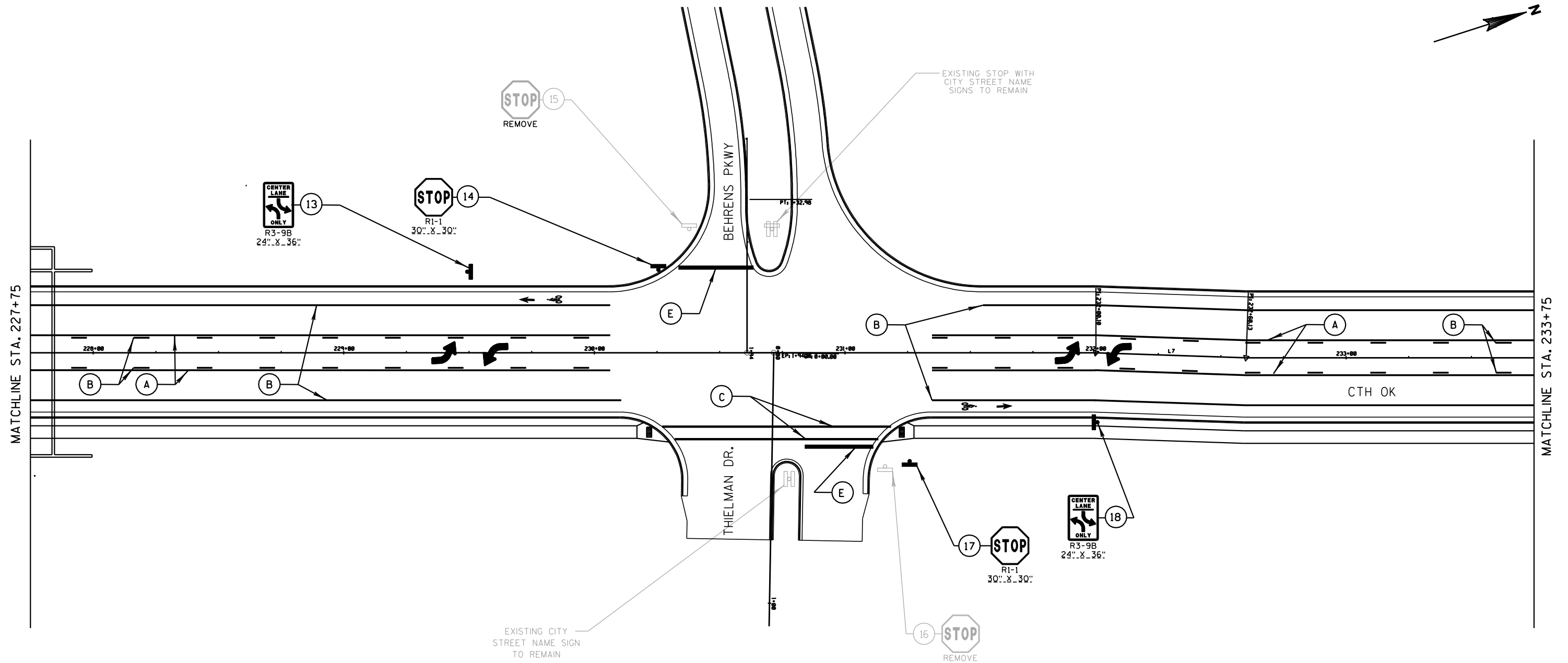
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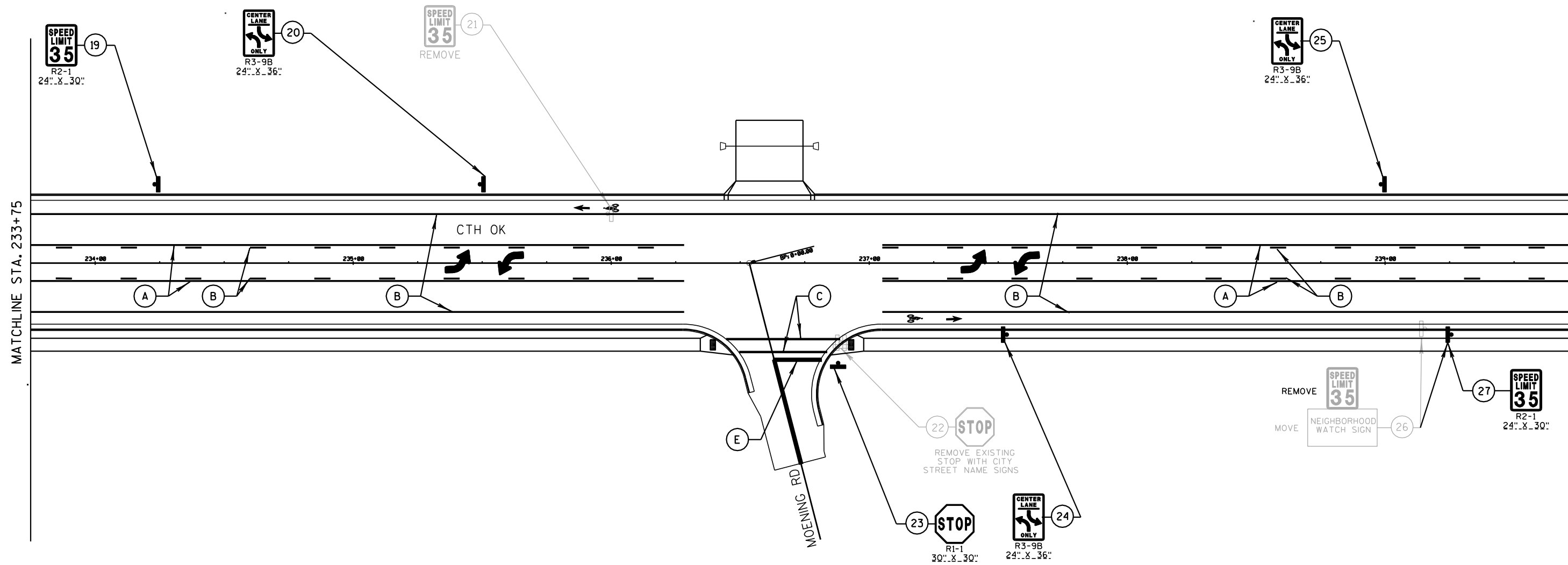


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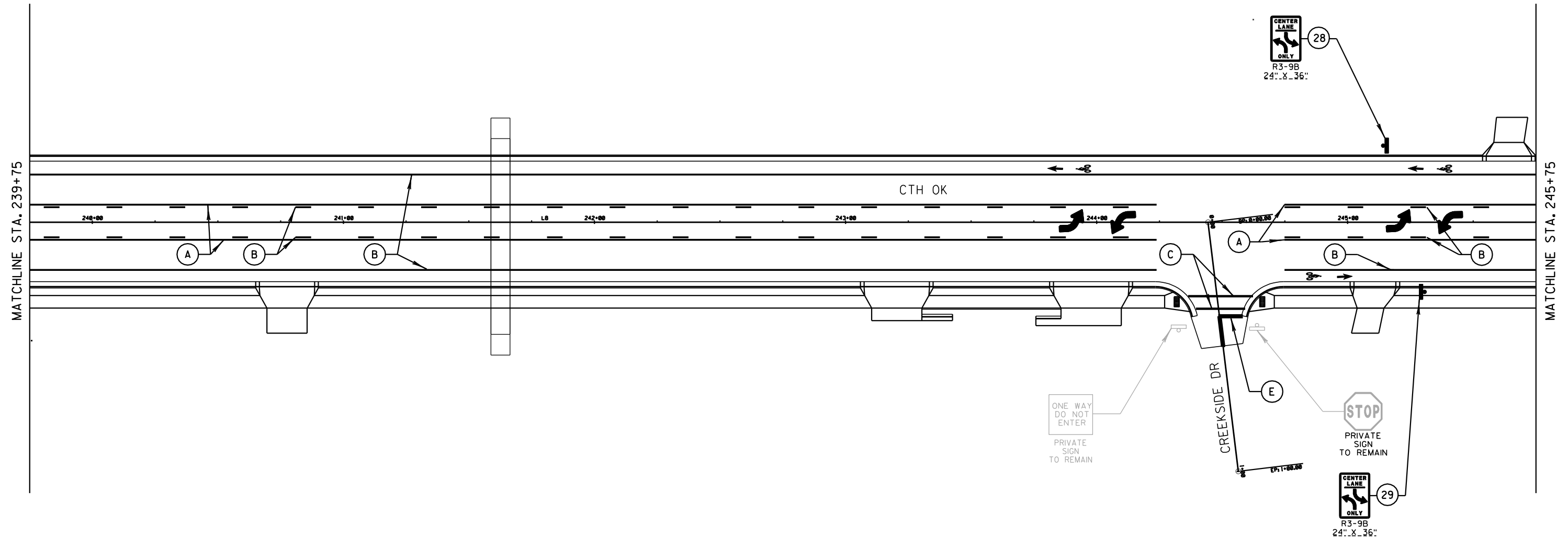


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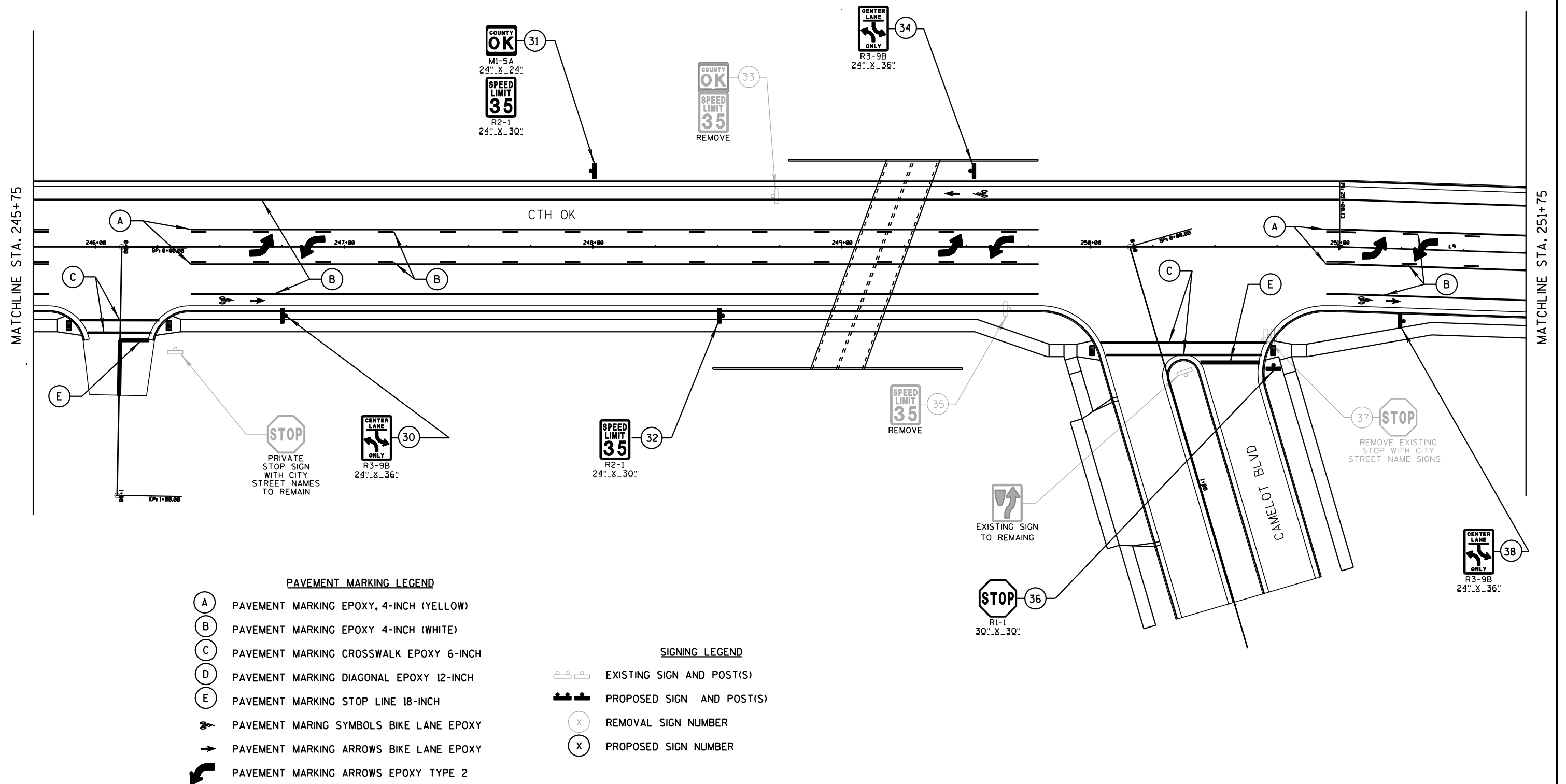


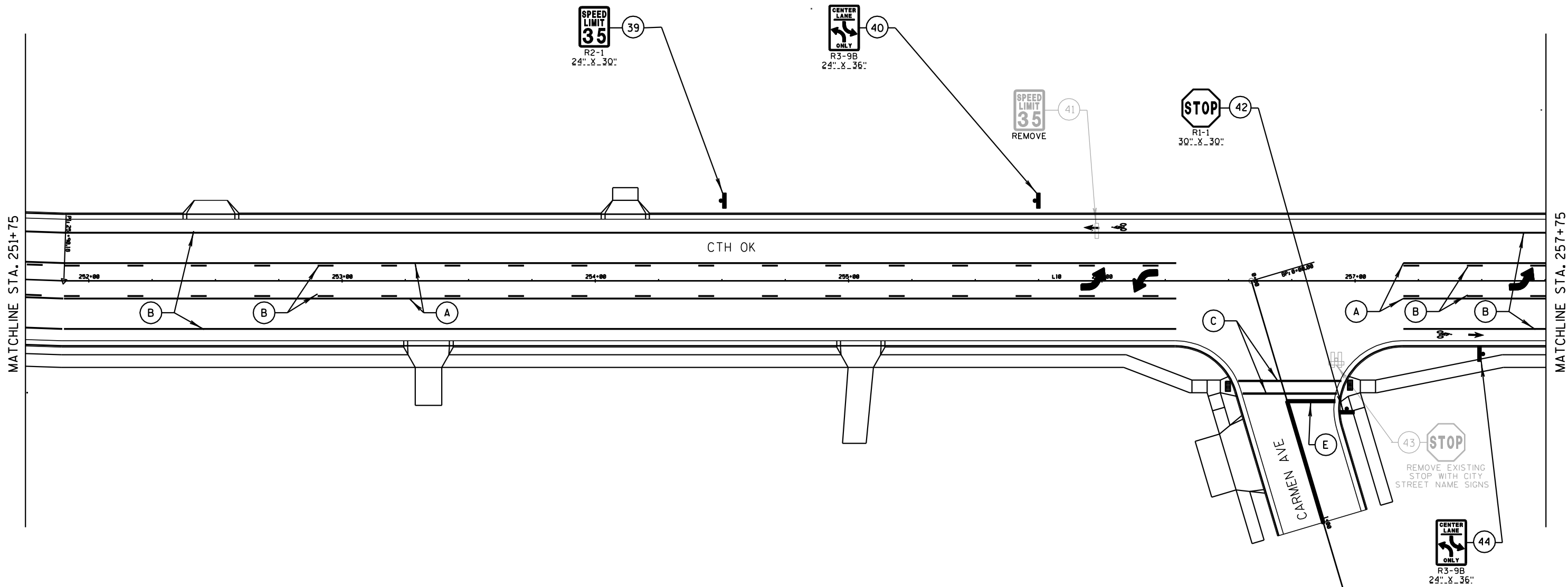
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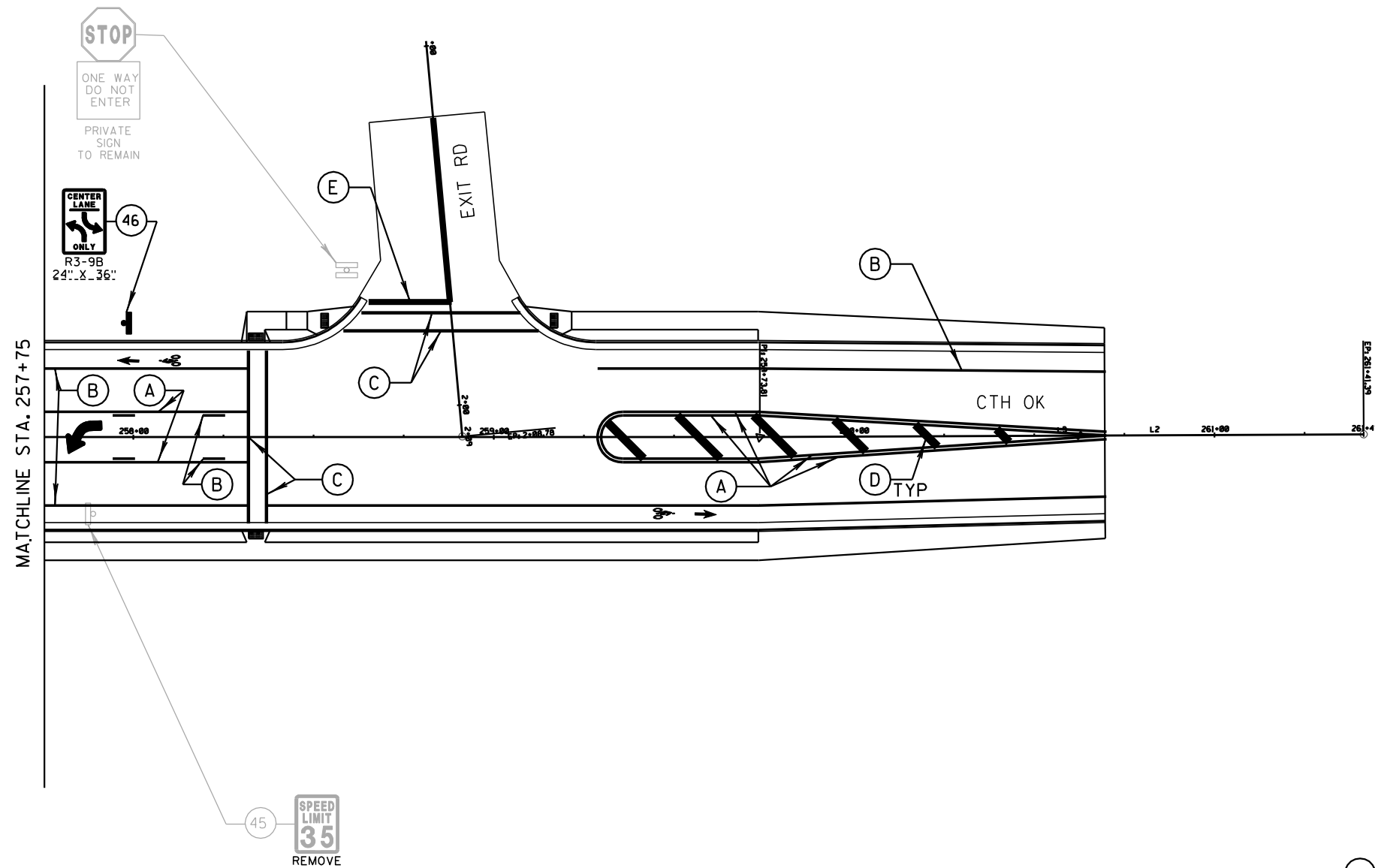


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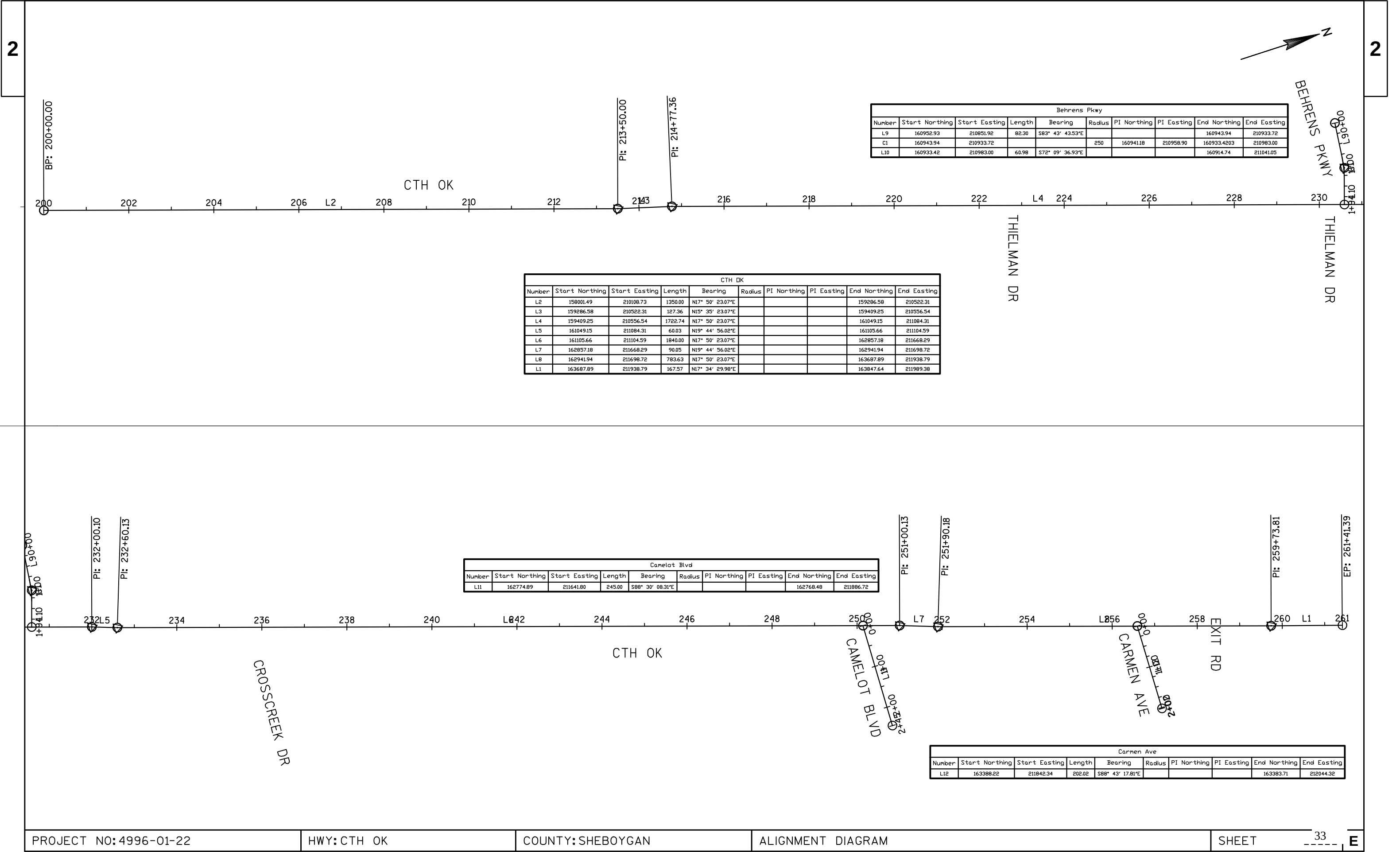
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3

DATE 20FEB13		E S T I M A T E O F Q U A N T I T I E S			
LINE		4996-01-22			
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	201.0105	CLEARING	STA	7.000	7.000
0020	201.0205	GRUBBING	STA	7.000	7.000
0030	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	8.000	8.000
0040	203.0200	REMOVING OLD STRUCTURE (STATION) 01. 241+63	LS	1.000	1.000
0050	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STATION) 01. 227+79	LS	1.000	1.000
0060	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STATION) 02. 249+16	LS	1.000	1.000
0070	204.0100	REMOVING PAVEMENT	SY	13,530.000	13,530.000
0080	204.0130	REMOVING CURB	LF	20.000	20.000
0090	204.0150	REMOVING CURB & GUTTER	LF	544.000	544.000
0100	204.0155	REMOVING CONCRETE SIDEWALK	SY	165.000	165.000
0110	204.0165	REMOVING GUARDRAIL	LF	378.000	378.000
0120	204.0220	REMOVING INLETS	EACH	6.000	6.000
0130	204.0245	REMOVING STORM SEWER (SIZE) 01. 12-INCH	LF	58.000	58.000
0140	204.0245	REMOVING STORM SEWER (SIZE) 02. 24-INCH	LF	130.000	130.000
0150	205.0100	EXCAVATION COMMON	CY	23,185.000	23,185.000
0160	206.2000	EXCAVATION FOR STRUCTURES CULVERTS (STRUCTURE) 01. C-59-112	LS	1.000	1.000
0170	206.2000	EXCAVATION FOR STRUCTURES CULVERTS (STRUCTURE) 02. C-59-113	LS	1.000	1.000
0180	209.0100	BACKFILL GRANULAR	CY	31.000	31.000
0190	210.0100	BACKFILL STRUCTURE	CY	2,622.000	2,622.000
0200	213.0100	FINISHING ROADWAY (PROJECT) 01. 4996-01-22	EACH	1.000	1.000
0210	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	182.000	182.000
0220	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	30,600.000	30,600.000
0230	311.0110	BREAKER RUN	TON	350.000	350.000
0240	311.0115	BREAKER RUN	CY	177.000	177.000
0250	416.0160	CONCRETE DRIVEWAY 6-INCH	SY	347.000	347.000
0260	416.1010	CONCRETE SURFACE DRAINS	CY	0.650	0.650
0270	455.0115	ASPHALTIC MATERIAL PG64-22	TON	287.000	287.000
0280	455.0120	ASPHALTIC MATERIAL PG64-28	TON	207.000	207.000
0290	455.0605	TACK COAT	GAL	707.000	707.000
0300	460.1103	HMA PAVEMENT TYPE E-3	TON	9,340.000	9,340.000
0310	465.0120	ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES	TON	17.000	17.000
0320	504.0100	CONCRETE MASONRY CULVERTS	CY	600.000	600.000
0330	505.0410	BAR STEEL REINFORCEMENT HS CULVERTS	LB	71,660.000	71,660.000
0340	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	40.000	40.000
0350	521.0118	CULVERT PIPE CORRUGATED STEEL 18-INCH	LF	34.000	34.000
0360	521.1018	APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH	EACH	2.000	2.000
0370	522.1012	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 12-INCH	EACH	3.000	3.000
0380	522.1015	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 15-INCH	EACH	6.000	6.000
0390	522.1018	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH	EACH	1.000	1.000
0400	523.0158	CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 58X91-INCH	LF	78.000	78.000
0410	523.0558	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 58X91-INCH	EACH	2.000	2.000

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DATE 20FEB13		E S T I M A T E O F Q U A N T I T I E S			
LINE				4996-01-22	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0420	601.0110	CONCRETE CURB TYPE D	LF	75.000	75.000
0430	601.0407	CONCRETE CURB & GUTTER 18-INCH TYPE D	LF	175.000	175.000
0440	601.0411	CONCRETE CURB & GUTTER 30-INCH TYPE D	LF	10,345.000	10,345.000
0450	601.0600	CONCRETE CURB PEDESTRIAN	LF	36.000	36.000
0460	602.0405	CONCRETE SIDEWALK 4-INCH	SF	23,126.000	23,126.000
0470	602.0505	CURB RAMP DETECTABLE WARNING FIELD YELLOW	SF	144.000	144.000
0480	606.0100	RIPRAP LIGHT	CY	2.000	2.000
0490	606.0200	RIPRAP MEDIUM	CY	24.000	24.000
0500	608.0312	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH	LF	369.000	369.000
0510	608.0315	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 15-INCH	LF	1,433.000	1,433.000
0520	608.0318	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 18-INCH	LF	426.000	426.000
0530	611.0420	RECONSTRUCTING MANHOLES	EACH	12.000	12.000
0540	611.0530	MANHOLE COVERS TYPE J	EACH	7.000	7.000
0550	611.0612	INLET COVERS TYPE C	EACH	1.000	1.000
0560	611.0624	INLET COVERS TYPE H	EACH	33.000	33.000
0570	611.1003	CATCH BASINS 3-FT DIAMETER	EACH	1.000	1.000
0580	611.1004	CATCH BASINS 4-FT DIAMETER	EACH	18.000	18.000
0590	611.1230	CATCH BASINS 2X3-FT	EACH	15.000	15.000
0600	611.2004	MANHOLES 4-FT DIAMETER	EACH	7.000	7.000
0610	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	220.000	220.000
0620	618.0100	MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 01. 4996-01-22	EACH	1.000	1.000
0630	619.1000	MOBILIZATION	EACH	1.000	1.000
0640	625.0100	TOPSOIL	SY	16,815.000	16,815.000
0650	627.0200	MULCHING	SY	4,855.000	4,855.000
0660	628.1504	SILT FENCE	LF	1,610.000	1,610.000
0670	628.1520	SILT FENCE MAINTENANCE	LF	1,610.000	1,610.000
0680	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	7.000	7.000
0690	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	3.000	3.000
0700	628.2004	EROSION MAT CLASS I TYPE B	SY	4,231.000	4,231.000
0710	628.2006	EROSION MAT URBAN CLASS I TYPE A	SY	7,729.000	7,729.000
0720	628.7005	INLET PROTECTION TYPE A	EACH	30.000	30.000
0730	628.7015	INLET PROTECTION TYPE C	EACH	30.000	30.000
0740	628.7504	TEMPORARY DITCH CHECKS	LF	348.000	348.000
0750	628.7555	CULVERT PIPE CHECKS	EACH	6.000	6.000
0760	628.7560	TRACKING PADS	EACH	2.000	2.000
0770	628.7570	ROCK BAGS	EACH	4.000	4.000
0780	629.0210	FERTILIZER TYPE B	CWT	11.100	11.100
0790	630.0120	SEEDING MIXTURE NO. 20	LB	180.000	180.000
0800	630.0140	SEEDING MIXTURE NO. 40	LB	189.000	189.000
0810	630.0200	SEEDING TEMPORARY	LB	234.000	234.000
0820	633.5200	MARKERS CULVERT END	EACH	12.000	12.000
0830	634.0810	POSTS TUBULAR STEEL 2X2-INCH X 10-FT	EACH	1.000	1.000
0840	634.0812	POSTS TUBULAR STEEL 2X2-INCH X 12-FT	EACH	22.000	22.000
0850	634.0814	POSTS TUBULAR STEEL 2X2-INCH X 14-FT	EACH	10.000	10.000
0860	637.0202	SIGNS REFLECTIVE TYPE II	SF	170.580	170.580
0870	638.2102	MOVING SIGNS TYPE II	EACH	7.000	7.000
0880	638.2602	REMOVING SIGNS TYPE II	EACH	17.000	17.000
0890	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	17.000	17.000
0900	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000

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DATE 20FEB13		E S T I M A T E O F Q U A N T I T I E S			
LINE				4996-01-22	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0910	643.0200	TRAFFIC CONTROL SURVEILLANCE AND MAINTENANCE (PROJECT) 01. 4996-01-22	DAY	175.000	175.000
0920	643.0300	TRAFFIC CONTROL DRUMS	DAY	3,150.000	3,150.000
0930	643.0410	TRAFFIC CONTROL BARRICADES TYPE II	DAY	1,225.000	1,225.000
0940	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	2,100.000	2,100.000
0950	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	4,200.000	4,200.000
0960	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	3,150.000	3,150.000
0970	643.0900	TRAFFIC CONTROL SIGNS	DAY	6,125.000	6,125.000
0980	645.0105	GEOTEXTILE FABRIC TYPE C	SY	445.000	445.000
0990	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	89.000	89.000
1000	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	17,875.000	17,875.000
1010	647.0166	PAVEMENT MARKING ARROWS EPOXY TYPE 2	EACH	28.000	28.000
1020	647.0206	PAVEMENT MARKING ARROWS BIKE LANE EPOXY	EACH	17.000	17.000
1030	647.0306	PAVEMENT MARKING SYMBOLS BIKE LANE EPOXY	EACH	17.000	17.000
1040	647.0566	PAVEMENT MARKING STOP LINE EPOXY 18-INCH	LF	185.000	185.000
1050	647.0726	PAVEMENT MARKING DIAGONAL EPOXY 12-INCH	LF	80.000	80.000
1060	647.0766	PAVEMENT MARKING CROSSWALK EPOXY 6-INCH	LF	915.000	915.000
1070	650.4000	CONSTRUCTION STAKING STORM SEWER	EACH	51.000	51.000
1080	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	5,400.000	5,400.000
1090	650.5000	CONSTRUCTION STAKING BASE	LF	5,400.000	5,400.000
1100	650.5500	CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	LF	10,520.000	10,520.000
1110	650.6000	CONSTRUCTION STAKING PIPE CULVERTS	EACH	2.000	2.000
1120	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. C-59-112	LS	1.000	1.000
1130	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 02. C-59-113	LS	1.000	1.000
1140	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 4996-01-22	LS	1.000	1.000
1150	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	5,400.000	5,400.000
1160	690.0150	SAWING ASPHALT	LF	491.000	491.000
1170	690.0250	SAWING CONCRETE	LF	123.000	123.000
1180	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	3,600.000	3,600.000
1190	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT \$5.00/HR	HRS	2,000.000	2,000.000
1200	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT \$5.00/HR	HRS	1,320.000	1,320.000
1210	SPV.0060	SPECIAL 01. ADJUSTING MANHOLE COVERS	EACH	10.000	10.000
1220	SPV.0060	SPECIAL 02. EXPOSING EXISTING WATER MAIN AND WATER SERVICE	EACH	4.000	4.000
1230	SPV.0060	SPECIAL 03. ADJUSTING WATER VALVE BOXES AND CURB STOPS	EACH	35.000	35.000
1240	SPV.0060	SPECIAL 04. BOLLARDS	EACH	3.000	3.000
1250	SPV.0060	SPECIAL 05. ELLIPTICAL PIPE CONNECTION	EACH	2.000	2.000
1260	SPV.0060	SPECIAL 06. CHIMNEY SEALS	EACH	21.000	21.000
1270	SPV.0105	SPECIAL 01. RAILING STEEL TYPE C2 GALVANIZED C-59-112	LS	1.000	1.000
1280	SPV.0105	SPECIAL 02. RAILING STEEL TYPE C2 GALVANIZED C-59-113	LS	1.000	1.000
1290	SPV.0195	SPECIAL 01. SELECT CRUSHED MATERIAL SPECIAL	TON	2.000	2.000

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CLEARING AND GRUBBING		
	CLEARING ITEM NO. 201.0105 STA	GRUBBING ITEM NO. 201.0205 STA
STATION		
226+00 - 227+00 LT	1	1
231+00 - 232+00 LT	1	1
236+00 - 237+00 LT	1	1
241+00 - 242+00 RT	2	2
248+00 - 250+00 RT	2	2
TOTALS	7	7

REMOVING SMALL CULVERT PIPES			
ITEM NO. 203.0100			
LOCATION	DESCRIPTION	SIZE	EACH
222+58 RT	CMCP	18-INCH	1
236+64 LT	CMCP	15-INCH	1
240+79 RT	CMCP	15-INCH	1
243+24 RT	CMCP	15-INCH	1
253+37 RT	CMCP	15-INCH	1
255+08 RT	CMCP	18-INCH	1
256+73 RT	CMCP	12-INCH	1
258+86 LT	CMCP	15-INCH	1
TOTAL			8

REMOVING OLD STRUCTURE (STATION)		
ITEM NO. 203.0200.01		
STATION	DESCRIPTION	L.S.
241+63	5' X 6' CONCRETE BOX	1
TOTAL		1

REMOVING PAVEMENT		
ITEM NO. 204.0100		
STATION	LOCATION	S.Y.
215+50 - 260+70	CTH OK	12054
230+61 LT	BEHRENS PRKWY	450
250+00 RT	DRIVEWAY CAMELOT BLVD	52
250+16 RT	CAMELOT BLVD	625
255+03 RT	DRIVEWAY	38
256+51 RT	DRIVEWAY CARMEN AVE	41
256+59 RT	CARMEN AVE	270
TOTALS		13530

REMOVING CURB		
ITEM NO. 204.0130		
STATION	LOCATION	L.F.
243+35 - 243+87	PARKING LOT	20
TOTALS		20

REMOVING CURB & GUTTER		
ITEM NO. 204.0150		
STATION	LOCATION	L.F.
213+50 - 214+60, LT	CTH OK	110
213+45 - 213+50, RT	CTH OK	6
222+58 RT	THIELMAN DR	106
230+07 - 231+55 LT	BEHRENS PRKWY	210
230+77 RT	THIELMAN DR	69
260+49 - 260+70	CTH OK	43
TOTALS		544

REMOVING CONCRETE SIDEWALK		
ITEM NO. 204.0155		
STATION	LOCATION	S.Y.
213+44 - 213+50 RT	CTH OK	4
249+85 RT	CAMELOT BLVD, RT	69
250+92 RT	CAMELOT BLVD, LT	23
256+45 RT	CARMEN AVE, RT	33
256+99 RT	CARMEN AVE, LT	30
260+66 - 260+71, RT & LT	CTH OK	6
TOTAL		165

REMOVING GUARDRAIL		
ITEM NO. 204.0165		
STATION	LOCATION	L.F.
227+08 - 227+61 RT	CTH OK	53
227+27 - 227+61 LT	CTH OK	34
227+81 - 228+27 LT	CTH OK	46
227+81 - 228+20 RT	CTH OK	39
248+58 - 249+61 RT	CTH OK	103
248+58 - 249+61 LT	CTH OK	103
TOTAL		378

EARTHWORK SUMMARY

FROM/TO STATION	LOCATION	EXCAVATION COMMON (NOTE 1) ITEM NO. 205.0100	SALVAGED / UNUSEABLE PAVEMENT MATERIAL (NOTE 3)	AVAILABLE MATERIAL (NOTE 4)	UNEXPANDED FILL (NOTE 5)	EXPANDED FILL (NOTE 6)	MASS ORDINATE +/- (NOTE 7)	WASTE (NOTE 8)
		CUT (NOTE 2)				FACTOR 1.25		
213+50 - 260+70	CTH OK	21,769	4,961	16,808	5,578	6,973	9,835	9,835
0+05 - 1+50	BEHRENS PARKWAY	741	153	588	1	1	586	586
0+45 - 1+00	CARMEN	313	194	119	0	0	118	118
0+55 - 1+50	CAMELOT	363	101	262	42	53	209	209
227+79	C-59-112	0	0	0	0	0	0	980
249+00	C-59-113	0	0	0	0	0	0	2,300
		23,185	5,409	17,776	5,622	7,027	10,749	14,029

REMOVING STORM SEWER				
STATION	LOCATION	ITEM NO. 204.0220 REMOVING INLETS EACH	ITEM NO. 204.0245 REMOVING STORM SEWER (12-INCH) L.F.	ITEM NO. 204.0245 REMOVING STORM SEWER (24-INCH) L.F.
230+47 - 230+92 LT	BEHRENS PRKWY	2	45	---
249+54 - 250+83 RT	CAMELOT BLVD	4	13	130
TOTALS		6	58	130

1) NO EBS IS ANTICIPATED. IF EBS IS REQUIRED IT WILL BE PAID AS COMMON EXCAVATION. ITEM NUMBER 205.0100
2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT
3) SALVAGED/UNUSABLE PAVEMENT MATERIAL EQUALS AREA OF PROJECT PAVEMENT REMOVAL * TYPICAL EXISTING PAVEMENT DEPTH
4) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL
5) UNEXPANDED FILL IS A SUM OF CROSS SECTION AREAS FROM EACH DIVISIONAL SHEET
6) EXPANDED FILL FACTOR = 1.25, EXPANDED FILL = (UNEXPANDED FILL) * FILL FACTOR
7) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.
8) MATERIAL EXCAVATED FROM STRUCTURES IS CONSIDERED WASTE, BUT CAN BE INCORPORATED INTO PROJECT IF MATERIAL IS ACCEPTABLE AND REQUIRED AS DIRECTED BY ENGINEER.

ALL ITEMS CATEGORY 0010 UNLESS NOTED OTHERWISE

3

BASE AGGREGATE DENSE 3/4 - INCH ITEM NO. 305.0110		
STATION	LOCATION	TON
216+15 RT	DRIVEWAY	29
240+78 RT	DRIVEWAY	17
243+23 RT	DRIVEWAY	12
244+00 RT	DRIVEWAY	14
245+10 RT	DRIVEWAY	12
245+65 LT	DRIVEWAY	13
250+17 RT	DRIVEWAY	34
252+49 LT	DRIVEWAY	3
253+35 RT	DRIVEWAY	10
254+12 LT	DRIVEWAY	5
255+02 RT	DRIVEWAY	15
256+60 RT	DRIVEWAY	18
TOTAL		182

BASE AGGREGATE DENSE 1 1/4 - INCH ITEM NO. 305.0120		
STATION	LOCATION	TON
213+50 - 260+70	CTH OK	26600
230+61 LT	BEHRENS PRKWY	580
236+53 RT	MOENNING RD	170
250+16 RT	CAMELOT BLVD	720
256+59 RT	CARMEN AVE	320
PROJECT	PRIVATE SIDEROADS	1550
UNDISTRIBUTED	PROJECT	660
TOTALS		30600

BREAKER RUN ITEM NO. 311.0110		
STATION	LOCATION	TON
UNDISTRIBUTED	EBS	350
TOTAL		350

CONCRETE SURFACE DRAINS ITEM NO. 416.1010		
STATION	LOCATION	C.Y.
214+50 LT	CTH OK	0.65
TOTAL		0.65

CONCRETE DRIVEWAY 6-INCH ITEM NO. 416.0160		
STATION	LOCATION	S.Y.
216+15 RT	DRIVEWAY	29
240+78 RT	DRIVEWAY	20
243+23 RT	DRIVEWAY	27
244+00 RT	DRIVEWAY	27
245+10 RT	DRIVEWAY	15
245+65 LT	DRIVEWAY	8
250+17 RT	DRIVEWAY	85
252+49 LT	DRIVEWAY	9
253+35 RT	DRIVEWAY	15
254+12 LT	DRIVEWAY	7
255+02 RT	DRIVEWAY	47
256+60 RT	DRIVEWAY	58
TOTAL		347

3

GEOTEXTILE FABRIC TYPE HR, ITEM NO. 645.0120 AND RIPRAP MEDIUM, ITEM NO. 606.0200		
STATION	ITEM NO. 606.0200 RIPRAP MEDIUM C.Y.	ITEM NO. 645.0120 GEOTEXTILE FABRIC TYPE HR S.Y.
214+50 LT	2	9
221+95, LT	3	11
226+05, LT	3	11
228+00, RT	4	13
231+56, LT	3	11
239+23, LT	3	11
247+49, LT	3	11
249+42, RT	3	12
TOTALS		89

CULVERTS AND ENDWALLS											
CULVERT NUMBER	STATION	OFFSET FT	LOCATION	ITEM NO. 521.0118 CULVERT PIPE CORRUGATED STEEL 18-INCH L.F.	ITEM NO. 521.1018 ENDWALLS FOR CULVERT PIPE STEEL 18-INCH EACH	ITEM NO. 523.0158 CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 58X91-INCH L.F.	ITEM NO. 523.0558 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 58X91-INCH EACH	*ITEM NO. 633.5200 MARKERS CULVERT END EACH	INVERT ELEVATION	DISCHARGE ELEVATION	PIPE SLOPE %
CV1	236+62	45' LT	DRIVEWAY	34	2	---	---	---	643.05	642.93	0.35
CV2	241+63	---	CTH OK	---	---	78	2	2	637.62	637.03	0.76
TOTALS				34	2	78	2	2			
*SEE ADDITIONAL QUANTITY ELSEWHERE											

ASPHALT QUANTITIES						
STATION	LOCATION	ITEM NO. 455.0115 ASPHALTIC MATERIAL PG64-22 TONS	ITEM NO. 455.0120 ASPHALTIC MATERIAL PG64-28 TONS	ITEM NO. 455.0600 TACK COAT GAL	ITEM NO. 460.1103 HMA PAVEMENT TYPE E-3 TONS	ITEM NO. 465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES TONS
213+50 - 260+70	CTH OK	253	181	630	8320	---
230+61 LT	BEHRENS PRKWY	5	4	12	150	---
236+53 RT	MOENNING RD	2	3	8	80	---
250+16 RT	CAMELOT BLVD	7	5	16	210	---
256+59 RT	CARMEN AVE	4	2	5	90	---
---	PRIVATE SIDEROADS	16	12	36	490	---
243+23 RT	DRIVEWAY	---	---	---	---	4
244+00 RT	DRIVEWAY	---	---	---	---	4
250+17 RT	DRIVEWAY	---	---	---	---	5
253+35 RT	DRIVEWAY	---	---	---	---	3
254+12 LT	DRIVEWAY	---	---	---	---	1
TOTALS		287	207	707	9340	17

MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 01. 4996-01-22 ITEM NO. 618.0100		
STATION	LOCATION	EACH
PROJECT	PROJECT	1
TOTAL		1

ALL ITEMS CATEGORY 0010 UNLESS NOTED OTHERWISE

PERMANENT SIGNING AND TUBULAR POSTS, MOVING SIGNS AND REMOVING SIGNS AND SMALL SIGN SUPPORTS														
SIGN NO.	STATION	LOCATION	CODE	ITEM NO. 638.2102 MOVING SIGNS TYPE II EACH	ITEM NO. 638.2602 REMOVING SIGNS TYPE II EACH	ITEM NO. 638.3000 REMOVING SMALL SIGN SUPPORTS EACH	SIZE			ITEM NO. 637.0202 SIGNS REFLECTIVE TYPE II S.F.	ITEM NO. 634.0810 634.0812 634.0814 POSTS TUBULAR STEEL 2X2-INCH			REMARKS
							WIDTH IN	X	HEIGHT IN		10-FT EACH	12-FT EACH	14-FT EACH	
1	213+55	RT	EXISTING	1	---	1	---	X	---	---	---	2	---	CITY PARKING SIGN - MOVE FROM 213+00 TO 213+55
2	214+75	RT	R3-9B	---	---	---	24	X	36	6.00	---	---	1	6.7' CLEAR BETWEEN SIDEWALK AND SIGN BOTTOM
3	215+50	LT	EXISTING	3	---	1	---	X	---	---	---	---	1	MOVE EXISTING SIGNS FROM 215+45
4	215+68	RT	EXISTING	2	---	1	---	X	---	---	---	1	---	MOVE EXISTING WELCOME AND POPULATION SIGN
5	217+20	RT	EXISTING	---	2	1	---	X	---	---	---	---	---	
6	217+50	RT	M1-5A R2-1	---	---	---	24	X	54	9.00	---	---	1	6.7' CLEAR BETWEEN SIDEWALK AND SIGN BOTTOM
7	220+25	LT	M2-1 M1-5A	---	---	---	24	X	39	6.50	1	---	---	
8	221+50	LT	R3-9B	---	---	---	24	X	36	6.00	---	1	---	
9	221+75	LT	EXISTING	---	2	1	---	X	---	---	---	---	---	
10	223+95	RT	EXISTING	---	1	1	---	X	---	---	---	---	---	
11	223+95	RT	R1-1	---	---	---	30	X	30	5.18	---	1	---	
12	224+00	RT	R3-9B	---	---	---	24	X	36	6.00	---	---	1	6.7' CLEAR BETWEEN SIDEWALK AND SIGN BOTTOM
13	229+00	LT	R3-9B	---	---	---	24	X	36	6.00	---	1	---	
14	230+25	LT	R1-1	---	---	---	30	X	30	5.18	---	1	---	
15	230+35	LT	EXISTING	---	1	1	---	X	---	---	---	---	---	
16	231+18	RT	EXISTING	---	1	1	---	X	---	---	---	---	---	
17	231+18	RT	R1-1	---	---	---	30	X	30	5.18	---	1	---	
18	232+00	RT	R3-9B	---	---	---	24	X	36	6.00	---	---	1	6.7' CLEAR BETWEEN SIDEWALK AND SIGN BOTTOM
19	234+25	LT	R2-1	---	---	---	24	X	30	5.00	---	1	---	
20	235+50	LT	R3-9B	---	---	---	24	X	30	5.00	---	1	---	
21	236+00	LT	EXISTING	---	1	1	---	X	---	---	---	---	---	
22	236+85	RT	EXISTING	---	1	1	---	X	---	---	---	---	---	
23	236+88	RT	R1-1	---	---	---	30	X	30	5.18	---	1	---	
24	237+75	RT	R3-9B	---	---	---	24	X	36	6.00	---	---	1	6.7' CLEAR BETWEEN SIDEWALK AND SIGN BOTTOM
25	239+00	LT	R3-9B	---	---	---	24	X	36	6.00	---	1	---	
26	239+10	RT	EXISTING	1	1	1	---	X	---	---	---	---	---	MOVE NEIGHBORHOOD WATCH SIGN TO SIGN POST 27
27	239+25	RT	R2-1	---	---	---	24	X	30	5.00	---	---	1	MOUNT NEIGHBORHOOD WATCH SIGN FROM 26 BELOW R2-1
28	245+15	LT	R3-9B	---	---	---	24	X	36	6.00	---	1	---	
29	245+25	RT	R3-9B	---	---	---	24	X	36	6.00	---	---	1	6.7' CLEAR BETWEEN SIDEWALK AND SIGN BOTTOM
30	246+75	RT	R3-9B	---	---	---	24	X	36	6.00	---	---	1	6.7' CLEAR BETWEEN SIDEWALK AND SIGN BOTTOM
31	248+00	LT	M1-5A R2-1	---	---	---	24	X	54	9.00	---	1	---	
32	248+50	RT	R2-1	---	---	---	24	X	30	5.00	---	---	1	6.7' CLEAR BETWEEN SIDEWALK AND SIGN BOTTOM
33	248+70	LT	EXISTING	---	2	1	---	X	---	---	---	---	---	
34	249+55	LT	R3-9B	---	---	---	24	X	36	6.00	---	1	---	
35	249+70	RT	EXISTING	---	1	1	---	X	---	---	---	---	---	
36	250+73	RT	R1-1	---	---	---	30	X	30	5.18	---	1	---	
37	250+75	RT	EXISTING	---	1	1	---	X	---	---	---	---	---	
38	251+25	RT	R3-9B	---	---	---	24	X	36	6.00	---	1	---	
39	254+50	LT	R2-1	---	---	---	24	X	30	5.00	---	1	---	
40	250+75	LT	R3-9B	---	---	---	24	X	36	6.00	---	1	---	
41	253+95	LT	EXISTING	---	1	1	---	X	---	---	---	---	---	
42	256+95	RT	R1-1	---	---	---	30	X	30	5.18	---	1	---	
43	256+90	RT	EXISTING	---	1	1	---	X	---	---	---	---	---	
44	257+50	RT	R3-9B	---	---	---	24	X	36	6.00	---	1	---	
45	257+85	RT	EXISTING	---	1	1	---	X	---	---	---	---	---	
46	258+00	LT	R3-9B	---	---	---	24	X	36	6.00	---	1	---	
TOTALS				7	17	17				170.58	1	22	10	

ALL ITEMS CATEGORY 0010 UNLESS NOTED OTHERWISE

DRAINAGE STRUCTURES									
STRUCTURE NUMBER	STATION	LOCATION	STRUCTURE	TYPE	COVER TYPE, DIRECTION	RIM OR GRATE ELEVATION	STRUCTURE INVERT ELEVATION	DEPTH	REMARKS
MH1	228+40	0.1' RT	MANHOLE	4-FT DIA	J	650.70	643.07	6.24	CONCRETE FLAT SLAB TOP
MH2	249+85	55.9' RT	MANHOLE	4-FT DIA	J	636.41	631.00	4.02	CONCRETE FLAT SLAB TOP
MH3	250+98	0.00	MANHOLE	4-FT DIA	J	637.60	632.31	3.90	CONCRETE FLAT SLAB TOP
MH4	253+55	0.00	MANHOLE	4-FT DIA	J	640.25	634.94	3.92	CONCRETE FLAT SLAB TOP
MH5	257+20	0.00	MANHOLE	4-FT DIA	J	642.85	638.65	2.81	CONCRETE FLAT SLAB TOP
MH6	259+32	0.00	MANHOLE	4-FT DIA	J	644.22	640.51	2.32	CONCRETE FLAT SLAB TOP
MH7	230+06	0.00	MANHOLE	4-FT DIA	J	649.79	644.79	3.61	CONCRETE FLAT SLAB TOP
CB1B	221+78	40.0' RT	CATCH BASIN	3-FT DIA	C	656.28	653.98	0.91	
CB1A	221+78	26.0' RT	CATCH BASIN	2X3-FT	H	657.58	654.13	4.28	
CB1	221+98	26.0' RT	CATCH BASIN	2X3-FT	H	656.83	653.73	3.93	
CB2A	221+76	26.0' LT	CATCH BASIN	2X3-FT	H	657.67	653.59	4.91	
CB2	221+96	26.0' LT	CATCH BASIN	2X3-FT	H	656.90	653.39	4.34	
CB3	226+05	26.0' RT	CATCH BASIN	2X3-FT	H	651.57	648.57	3.83	
CB4	226+05	26.0' LT	CATCH BASIN	2X3-FT	H	651.57	648.23	4.17	
CB5	230+06	26.0' RT	CATCH BASIN	4-FT DIA	H	649.27	645.26	4.84	
CB6	230+06	26.0' LT	CATCH BASIN	4-FT DIA	H	649.28	645.27	4.84	
CB7	234+02	26.0' RT	CATCH BASIN	4-FT DIA	H	647.22	643.91	4.14	
CB8	234+02	26.0' LT	CATCH BASIN	4-FT DIA	H	647.22	643.58	4.47	
CB9	233+82	26.0' RT	CATCH BASIN	4-FT DIA	H	647.24	644.24	3.83	
CB10	233+82	26.0' LT	CATCH BASIN	4-FT DIA	H	647.25	644.25	3.83	
CB11	239+26	25.7' RT	CATCH BASIN	2X3-FT	H	646.89	642.89	4.83	
CB12	239+24	26.0' LT	CATCH BASIN	2X3-FT	H	646.95	642.55	5.23	
CB13	247+51	26.0' RT	CATCH BASIN	2X3-FT	H	641.25	638.25	3.83	
CB14	247+49	26.0' LT	CATCH BASIN	2X3-FT	H	641.32	637.91	4.24	
CB15	249+77	26.0' RT	CATCH BASIN	4-FT DIA	H	636.50	632.50	4.83	
CB16	250+13	72.9' RT	CATCH BASIN	2X3-FT	H	635.75	632.37	4.21	
CB17	250+02	25.0' LT	CATCH BASIN	4-FT DIA	H	636.47	632.29	5.01	
CB18	250+22	26.0' LT	CATCH BASIN	2X3-FT	H	636.48	632.48	4.83	
CB19	253+55	26.0' RT	CATCH BASIN	4-FT DIA	H	639.74	636.73	3.84	
CB20	253+55	26.0' LT	CATCH BASIN	4-FT DIA	H	639.75	636.74	3.84	
CB21	257+20	26.0' RT	CATCH BASIN	4-FT DIA	H	642.35	639.34	3.84	
CB22	257+20	26.0' LT	CATCH BASIN	4-FT DIA	H	642.34	639.34	3.83	
CB23	259+32	26.0' RT	CATCH BASIN	4-FT DIA	H	643.72	640.72	3.83	
CB24	259+32	26.0' LT	CATCH BASIN	4-FT DIA	H	643.71	640.71	3.83	
CB25	230+42	47.8' LT	CATCH BASIN	2X3-FT	H	648.40	645.40	3.83	
CB26	231+00	58.9' LT	CATCH BASIN	2X3-FT	H	648.40	644.98	4.25	
CB27	250+70	56.0' RT	CATCH BASIN	2X3-FT	H	635.75	632.75	3.83	
CB28	250+98	26.0' RT	CATCH BASIN	4-FT DIA	H	637.09	634.09	3.83	
CB29	241+74	26.0' RT	CATCH BASIN	4-FT DIA	H	645.24	640.90	5.17	
CB30	241+74	26.0' LT	CATCH BASIN	4-FT DIA	H	645.24	641.24	4.83	
CB31	231+05	50.1' LT	CATCH BASIN	4-FT DIA	H	648.28	644.88	4.23	
DEPTH OF STRUCTURE IS GUTTER FLANGE OR RIM ELEVATION MINUS THE DEPTH OF FRAME AND RINGS MINUS THE FLOWLINE ELEVATION. DEPTH OF STRUCTURE FOR ALL CATCH BASINS INCLUDES 2' FOR SUMP.									
DEPTH FOR FRAME AND RINGS FOR: TYPE J AND C = 1.39' (INCLUDES 0.64' FOR ADJUSTING RINGS.) INLET COVERS TYPE H = 1.17' (INCLUDES 0.64' FOR ADJUSTING RINGS.)									
DRAINAGE STRUCTURE SUMMARY TABLE									
ITEM NO.	DESCRIPTION					LOCATION	EACH		
611.1003	CATCH BASINS 3-FT DIAMETER						1		
611.1004	CATCH BASINS 4-FT DIAMETER						18		
611.1230	CATCH BASINS 2x3-FT						15		
611.2004	MANHOLES 4-FT DIAMETER						7		
611.0530	MANHOLES COVER TYPE J						7		
611.0612	INLET COVERS TYPE C						1		
611.0624	INLET COVERS TYPE H						33		
SPV.0060.05	ELLIPICAL PIPE CONNECTION					241+63 RT	1		
SPV.0060.05	ELLIPICAL PIPE CONNECTION					241+63 LT	1		

ALL ITEMS CATEGORY 0010 UNLESS NOTED OTHERWISE

STORM SEWER PIPE SUMMARY													
PIPE NUMBER	FROM	TO	ITEM NO. 608.0312	ITEM NO. 608.0315	ITEM NO. 608.0318	ITEM NO. 522.1012	ITEM NO. 522.1015	ITEM NO. 522.1018	ITEM NO. 633.5200*	INVERT ELEVATION	DISCHARGE ELEVATION	PIPE SLOPE %	COMMENTS
			STORM SEWER PIPE REINFORCED CONCRETE CLASS III			APRON ENDWALLS FOR CULVERT PIPE			MARKERS CULVERT END EACH				
			12-INCH L.F.	15-INCH L.F.	18-INCH L.F.	12-INCH EACH	15-INCH EACH	18-INCH EACH					
P1	CB2	EW1	---	15	---	---	1	---	1	653.39	653.32	0.50	
P2	CB1	CB2	---	51	---	---	---	---	---	653.73	653.49	0.50	
P3	CB4	EW2	---	15	---	---	1	---	1	648.23	648.16	0.50	
P4	CB3	CB4	---	51	---	---	---	---	---	648.57	648.33	0.50	
P5	MH2	EW8	---	---	43	---	---	1	1	631.00	630.20	2.00	
P6	CB1B	CB1	15	---	---	---	---	---	---	653.98	653.83	1.00	
P9	CB12	EW6	25	---	---	1	---	---	1	642.55	642.31	1.00	
P10	CB11	CB12	51	---	---	---	---	---	---	642.89	642.65	0.50	
P11	CB14	EW7	14	---	---	1	---	---	1	637.91	637.78	1.00	
P12	CB13	CB14	51	---	---	---	---	---	---	638.25	638.01	0.50	
P13	CB6	MH7	---	26	---	---	---	---	---	645.27	645.06	1.00	
P14	CB25	CB26	59	---	---	---	---	---	---	645.40	645.12	0.50	
P15	CB31	EW4	68	---	---	1	---	---	1	644.88	643.30	2.30	
P16	CB30	---	8	---	---	---	---	---	---	641.24	641.17	1.00	
P17	MH1	EW3	---	62	---	---	1	---	1	643.07	642.47	1.00	
P18	CB15	MH2	---	31	---	---	---	---	---	632.50	632.37	0.50	
P19	CB16	MH2	---	33	---	---	---	---	---	632.37	632.09	1.00	
P20	CB27	CB16	---	59	---	---	---	---	---	632.75	632.47	0.50	
P21	CB18	CB17	---	20	---	---	---	---	---	632.48	632.40	0.50	
P22	CB29	--	8	---	---	---	---	---	---	640.90	640.83	1.00	
P23	CB17	EW9	---	15	---	---	1	---	1	632.29	632.03	2.00	
P24	EW13	CB24	---	20	---	---	1	---	1	642.38	640.94	8.00	
P25	CB24	MH6	---	26	---	---	---	---	---	640.71	640.60	0.50	
P26	CB23	MH6	---	26	---	---	---	---	---	640.72	640.61	0.50	
P27	MH6	MH5	---	212	---	---	---	---	---	640.51	638.95	0.75	
P28	MH5	MH4	---	365	---	---	---	---	---	638.65	635.04	1.00	
P29	MH4	MH3	---	---	257	---	---	---	---	634.94	632.41	1.00	
P30	MH3	MH2	---	---	126	---	---	---	---	632.31	631.10	1.00	
P31	CB22	MH5	---	26	---	---	---	---	---	639.34	639.13	1.00	
P32	CB21	MH5	---	26	---	---	---	---	---	639.34	639.13	1.00	
P33	CB20	MH4	---	26	---	---	---	---	---	636.74	636.53	1.00	
P34	CB19	MH4	---	26	---	---	---	---	---	636.73	636.52	1.00	
P35	CB28	MH3	---	26	---	---	---	---	---	634.09	633.98	0.50	
P36	CB5	MH7	---	26	---	---	---	---	---	645.26	645.05	1.00	
P37	MH7	MH1	---	166	---	---	---	---	---	644.79	643.17	1.00	
P40	CB1A	CB1	20	---	---	---	---	---	---	654.13	654.05	0.50	
P41	CB2A	CB2	20	---	---	---	---	---	---	653.59	653.50	0.50	
P42	CB9	CB7	20	---	---	---	---	---	---	644.24	644.16	0.50	
P43	CB7	CB8	---	51	---	---	---	---	---	643.91	643.68	0.50	
P44	CB10	CB8	---	20	---	---	---	---	---	644.25	644.17	0.50	
P45	CB8	EW5	---	13	---	---	1	---	1	643.58	643.47	1.00	
P46	CB26	CB31	10	---	---	---	---	---	---	644.98	644.93	0.50	
TOTALS			369	1433	426	3	6	1	10				
*SEE ADDITIONAL QUANTITY ELSEWHERE													

FINISHING ITEMS										
	ITEM NO. 625.0100	ITEM NO. 627.0200	ITEM NO. 628.2004	ITEM NO. 628.2006	ITEM NO. 629.0210	ITEM NO. 630.0140	ITEM NO. 630.0120	ITEM NO. 630.0200		
LOCATION	TOPSOIL S.Y.	MULCH S.Y.	EROSION MAT CLASS I, TYPE B S.Y.	EROSION MAT URBAN CLASS, I, TYPE A S.Y.	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 40 LBS	SEEDING MIXTURE NO. 20 LBS	**SEEDING TEMPORARY LBS	REMARKS	
213+50 - 228+00 LT	3926	2142	1784	---	2.5	---	106	53	TYPE B E-MAT PLACED IN DITCH SECTION	
213+50 - 228+00 RT	2323	1238	312	773	1.5	42	---	32	URBAN E-MAT AT 3' TERRACE & LAWN AREAS; TYPE B AT SLOPE TO CREEK	
228+00 - 236+66	3443	---	274	3169	2.2	62	---	47	URBAN E-MAT AT 3' TERRACE & LAWN AREAS; TYPE B AT SLOPE TO CREEK	
236+66 - 245+00 LT	2004	1226	778	---	1.3	---	55	28	TYPE B E-MAT PLACED IN DITCH SECTION	
236+66 - 245+00 RT	906	249	229	428	0.6	17	---	13	URBAN E-MAT AT 3' TERRACE & LAWN AREAS	
245+00 - 250+35 LT	1078	---	674	404	0.7	8	19	15	TYPE B E-MAT PLACED AT SLOPE TO CREEK	
245+00 - 250+35 RT	1041	---	180	861	0.7	19	---	15	TYPE B E-MAT PLACED AT SLOPE TO CREEK	
250+35 - 256+74 LT	395	---	---	395	0.3	8	---	6	URBAN E-MAT AT LAWN AREAS	
250+35 - 256+74 RT	841	---	---	841	0.6	16	---	12	URBAN E-MAT AT 3' TERRACE & LAWN AREAS	
256+74 - 258+87 LT	179	---	---	179	0.2	4	---	3	URBAN E-MAT AT LAWN AREAS	
256+74 - 260+70 RT	421	---	---	421	0.3	8	---	6	URBAN E-MAT AT 3' TERRACE & LAWN AREAS	
258+87 - 260+70 LT	258	---	---	258	0.2	5	---	4	URBAN E-MAT AT LAWN AREAS	
TOTALS	16815	4855	4231	7729	11.1	189	180	234	**Temporary seeding not intended to used with final permanent seed. Temporary seed may be used with permanent seed and mulch if late seeding occurs.	

ALL ITEMS CATEGORY 0010 UNLESS NOTED OTHERWISE

3

EROSION CONTROL ITEMS								
	ITEM NO. 628.1504 SILT FENCE	ITEM NO. 628.1520 SILT FENCE MAINTENANCE	ITEM NO. 628.7005 INLET PROTECTION TYPE A	ITEM NO. 628.7015 INLET PROTECTION TYPE C	ITEM NO. 628.7504 TEMPORARY DITCH CHECKS	ITEM NO. 628.7555 CULVERT PIPE CHECKS	ITEM NO. 628.7560 TRACKING PADS	ITEM NO. 628.7570 ROCK BAGS
LOCATION	L.F.	L.F.	EACH	EACH	L.F.	EACH	EACH	EACH
CTH OK	1610	1610	30	30	348	6	2	4
TOTALS	1610	1610	30	30	348	6	2	4

SAWING			
		ITEM NO. 690.0150 SAWING ASPHALT L.F.	ITEM NO. 690.0250 SAWING CONCRETE L.F.
STATION	LOCATION		
213+44 RT	CTH OK	---	8.5
213+50	CTH OK	50	2.5
222+58 RT	THIELMAN DR	46	3
230+75 LT	BEHRENS PRKWY	---	32
230+77 RT	THIELMAN DR	56	3
236+48 RT	MOENNING ROAD	20	---
243+09 RT	DRIVEWAY	37	---
244+00 RT	DRIVEWAY	41	---
244+40 RT	CROSSROAD DR	17	---
246+10 RT	CROSSROAD DR	23	---
250+16 RT	CAMELOT BLVD	50	---
250+00 RT	CAMELOT BLVD DRIVEWAY	53	---
253+35 RT	DRIVEWAY	11	---
254+12 LT	DRIVEWAY	10	---
255+03 RT	DRIVEWAY	---	9
256+51 RT	CARMEN AVE DRIVEWAY	---	23
256+70 RT	CARMEN AVE	---	37
258+89 LT	ENTRY RD	32	---
260+70	CTH OK	45	5
TOTALS		491	123

CONSTRUCTION STAKING							
		ITEM NO. 650.4000 STORM SEWER EACH	ITEM NO. 650.4500 SUBGRADE L.F.	ITEM NO. 650.5000 BASE L.F.	ITEM NO. 650.5500 CURB GUTTER AND CURB AND GUTTER L.F.	ITEM NO. 650.6000 PIPE CULVERTS EACH	ITEM NO. 650.9920 SLOPE STAKES L.F.
STATION	LOCATION						
213+50 - 222+52	CTH OK	6	902	902	1799	---	902
222+52 - 230+61	CTH OK	8	809	809	1724	---	809
222+58 RT	THIELMAN DR	---	---	---	106	---	---
230+61 - 236+66	CTH OK	6	605	605	1293	1	605
230+61 LT	BEHRENS PRKWY	3	493	493	325	---	493
230+72 RT	THIELMAN DR	---	---	---	69	---	---
236+66 - 244+44	CTH OK	5	778	778	1569	1	778
244+44 - 246+10	CTH OK	---	166	166	313	---	166
246+10 - 250+35	CTH OK	8	425	425	931	---	425
250+35 RT	CAMELOT BLVD	3	120	120	208	---	120
250+35 - 256+74	CTH OK	5	639	639	1390	---	639
256+60 RT	CARMEN AVE	---	67	67	---	---	67
256+74 - 258+87	CTH OK	3	213	213	443	---	213
258+87 - 260+70	CTH OK	4	183	183	350	---	183
TOTALS		51	5400	5400	10520	2	5400

TRAFFIC CONTROL													
STATION	DAYS IN SERVICE	ITEM NO. 643.0410 TRAFFIC CONTROL BARRICADES TYPE II		ITEM NO. 643.0420 TRAFFIC CONTROL BARRICADES TYPE III		ITEM NO. 643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A		ITEM NO. 643.0300 TRAFFIC CONTROL DRUMS		ITEM NO. 643.0900 TRAFFIC CONTROL SIGNS		ITEM NO. 643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C	
		NO	DAYS	NO	DAYS	NO	DAYS	NO	DAYS	NO	DAYS	NO	DAYS
CTH OK	175	7	1225	12	2100	24	4200.00	18	3150.00	35	6125.00	18	3150.00
TOTALS		1225		2100		4200		3150		6125		3150	

BOLLARD ITEM NO. SPV.0060.04	
STATION	EACH
230+95 LT	1
231+00 LT	1
231+05 LT	1
TOTAL CAT 0010	3

ALL ITEMS CATEGORY 0010 UNLESS NOTED OTHERWISE

3

ADJUSTING MANHOLE COVERS SPECIAL SPV.0060.01	
STATION	EACH
214+73, LT	1
231+15 RT (WATER UTILITY MH)	1
236+48, LT	1
239+80, LT	1
246+08, RT	1
250+55 RT, CAMELOT BLVD	1
254+98, LT	1
256+67, RT	1
256+68, RT	1
256+69, LT	1
TOTAL CAT 0030	10

EXPOSING EXISTING WATER MAIN AND WATER SERVICE ITEM NO. SPV.0060.02	
STATION	EACH
231+05 LT, BEHRENS PRKWY	1
247+50 RT	1
249+75 RT	1
257+20 RT	1
TOTAL CAT 0030	4

RECONSTRUCTING MANHOLES 611.0420		
STATION	EACH	REMARKS
215+50, LT	1	ADD 2.0' BARREL SECTION AND RINGS
218+48, LT	1	ADD 1.5' BARREL SECTION
221+49, LT	1	ADD 1.0' BARREL SECTION AND RINGS
224+50, LT	1	ADD 2.0' BARREL SECTION AND RINGS
228+02, LT	1	ADD 2.0' BARREL SECTION
230+75, LT	1	ADD 1.0' BARREL SECTION AND RINGS
233+60, LT	1	LOWER 1.5'
243+09, LT	1	ADD 1.0' BARREL SECTION AND RINGS
246+38, LT	1	LOWER
250+89, LT	1	ADD 1.5' BARREL SECTION AND RINGS
252+97, LT	1	ADD 1.5' BARREL SECTION
258+35, RT	1	LOWER
TOTAL CAT 0030	12	

ADJUSTING WATER VALVE BOXES AND CURB STOPS ITEM NO. SPV.0060.03	
STATION	EACH
226+55 RT	1
231+10 RT	1
231+15 RT, THIELMAN DR	1
233+50 RT	1
233+60 RT	1
236+45 RT	1
236+50 RT, MOENNING RD	1
239+80 RT	1
242+60 RT	1
243+42 RT	1
245+65 RT	1
245+67 RT	1
246+15 RT	1
246+25 RT	1
246+53 LT	1
250+20 RT, CAMELOT BLVD	1
254+88 RT	1
256+55 RT	1
256+60 RT, CARMEN AVE	1
NEW WATER MAIN LOCATIONS TO BE PROVIDED	16
TOTAL CAT 0030	35

CHIMNEY SEALS SPV.0060.06	
STATION	EACH
214+73, LT	1
215+50, LT	1
218+48, LT	1
221+49, LT	1
224+50, LT	1
228+02, LT	1
230+75, LT	1
233+60, LT	1
236+48, LT	1
239+80, LT	1
243+09, LT	1
246+08, RT	1
246+38, LT	1
250+55 RT, CAMELOT BLVD	1
250+89, LT	1
252+97, LT	1
254+98, LT	1
256+67, RT	1
256+68, RT	1
256+69, LT	1
258+35, RT	1
TOTAL CAT 0030	21

ALL ITEMS CATEGORY 0030 UNLESS NOTED OTHERWISE

CONVENTIONAL SIGNS AND ABBREVIATIONS

SECTION LINE	---	CULVERT (BOX, PIPE OR CATTLE PASS)	(TYPE)
QUARTER LINE	---	RAIL LINE (SMALL SCALE)	---
SIXTEENTH LINE	---	BUILDING	(TYPE)
PROPERTY LINE	---	IRON PIN OF RECORD	O P
LOT, TIE & OTHER MINOR LINES	---	R/W MONUMENT	o
EXISTING R/W LINE	---	R/W MARKER	▼
NEW R/W LINE	---	BUSHES	o
REFERENCE LINE	---	DECIDUOUS TREES	o
SLOPE INTERCEPT	---	CONIFEROUS TREES	o
CORPORATE LIMITS	---	WOODS	o
UNDERGROUND FACILITY (GAS, TEL., ELEC. ETC.)	---		
FENCE	---		
TEMPORARY LIMITED EASEMENT	---		
TRANSMISSION TOWER & LINE	---		
SECTION CORNER	---		

AC.	ACRE
SEC.	SECTION
S.F. OR SQ.FT.	SQUARE FEET
STA.	STATION
STH	STATE TRUNK HIGHWAY
N.	NORTH GRID COORDINATE
CL. OR C/L	CENTERLINE
R/W	RIGHT-OF-WAY
CO.	COUNTY
CTH	COUNTY TRUNK HIGHWAY
T.L.E.	TEMPORARY LIMITED EASEMENT
E.	EAST GRID COORDINATE
EXIST.	EXISTING
W.	WEST
PE	PRIVATE ENTRANCE
PL	PROPERTY LINE
RT.	RIGHT
G.N.	GRID NORTH
REL	RELEASE OF RIGHTS
RD.	ROAD
RL, R/L	REFERENCE LINE
LT.	LEFT
TN.	TOWN

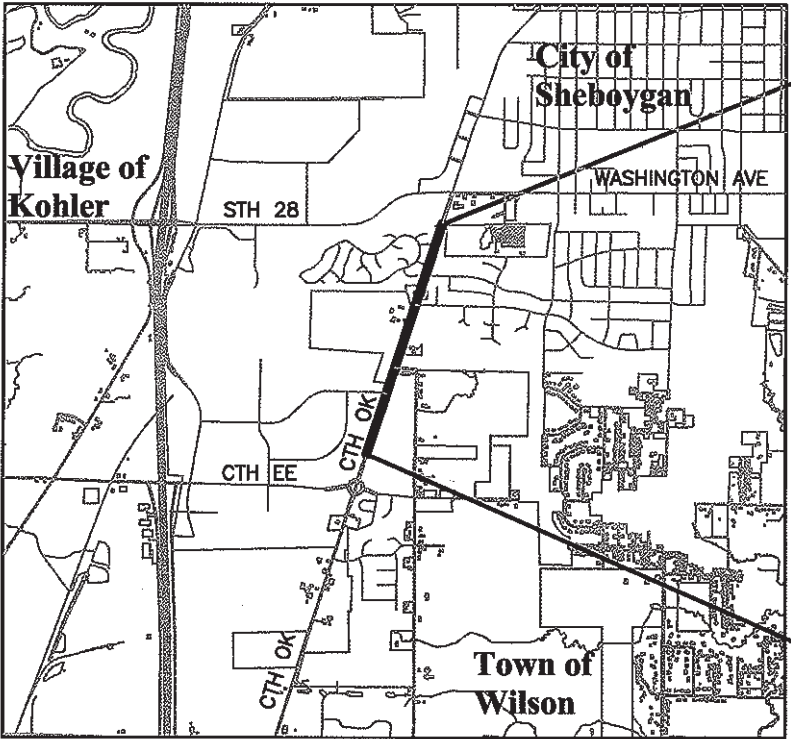
NOTES

DIMENSIONING FOR THE NEW R/W IS MEASURED ALONG AND PERPENDICULAR TO THE REFERENCE LINES.

POINTS OF REFERENCE AS SPECIFIED ON EACH PLAT DETAIL SHEET: COORDINATES AND BEARINGS ON THIS PLAT ARE ORIENTED TO SHEBOYGAN COUNTY COORDINATE GRID.

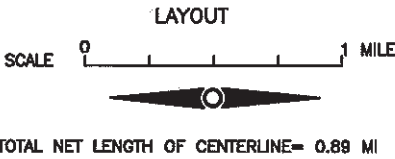
RIGHT OF WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY OR OTHER SURVEYS OF PUBLIC RECORD.

R/W PROJECT NUMBER	4996-01-21	SHEET NUMBER	4.1	TOTAL SHEETS	
FEDERAL PROJECT NUMBER	4996-01-21				
PLAT OF RIGHT OF WAY REQUIRED FOR					
CTH "OK"					
CTH EE TO CARMEN AVENUE					
C.T.H. "OK" SHEBOYGAN COUNTY					

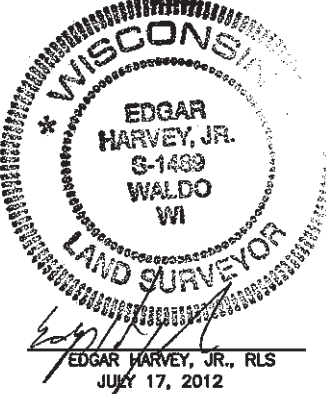


END RELOCATION ORDER
STA. 260+70

BEGIN RELOCATION ORDER
STA. 213+50

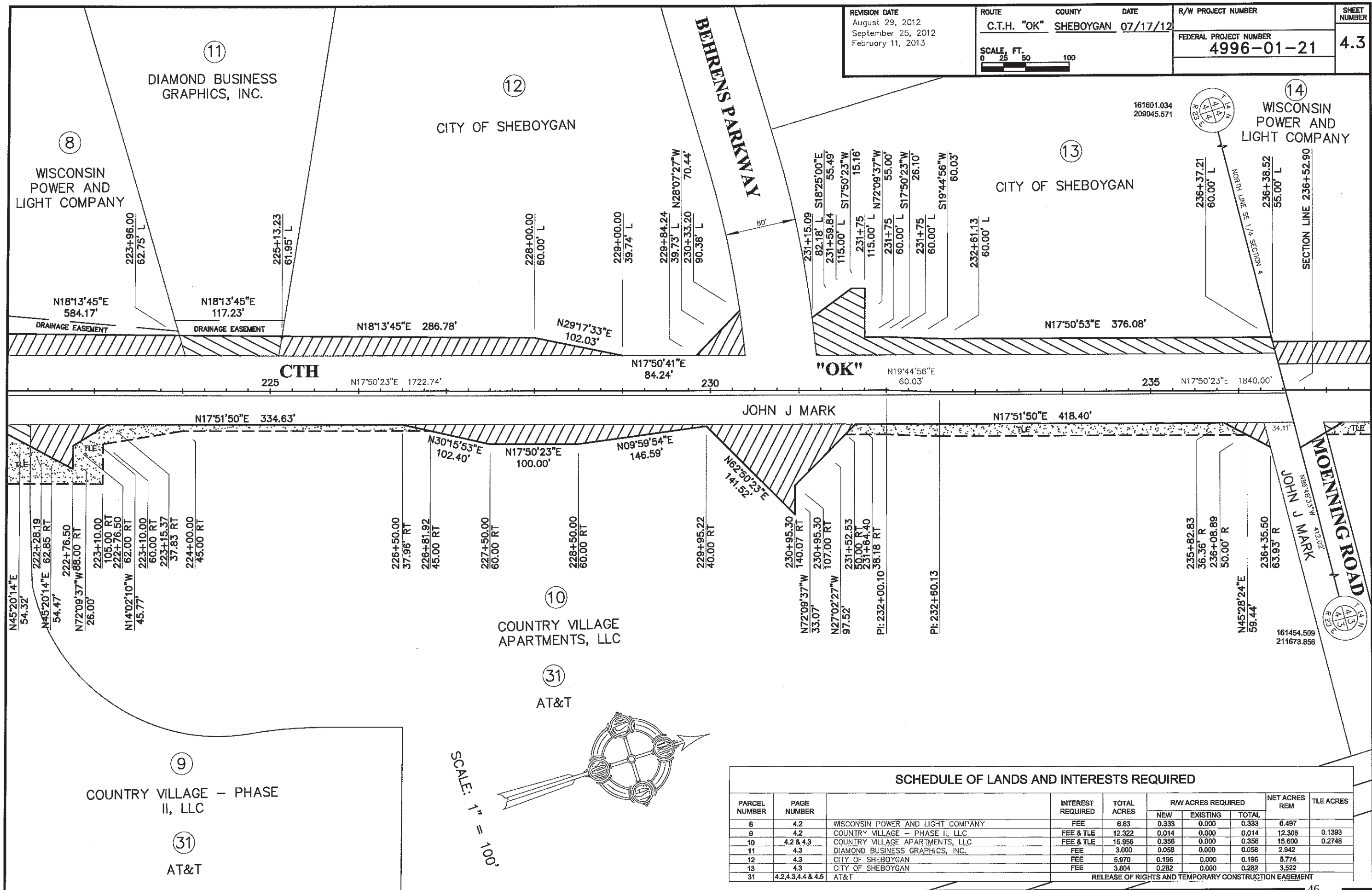


ORIGINAL PLAT PREPARED
BY
SHEBOYGAN COUNTY HIGHWAY DEPARTMENT
1211 NORTH 23 STREET
SHEBOYGAN, WISCONSIN

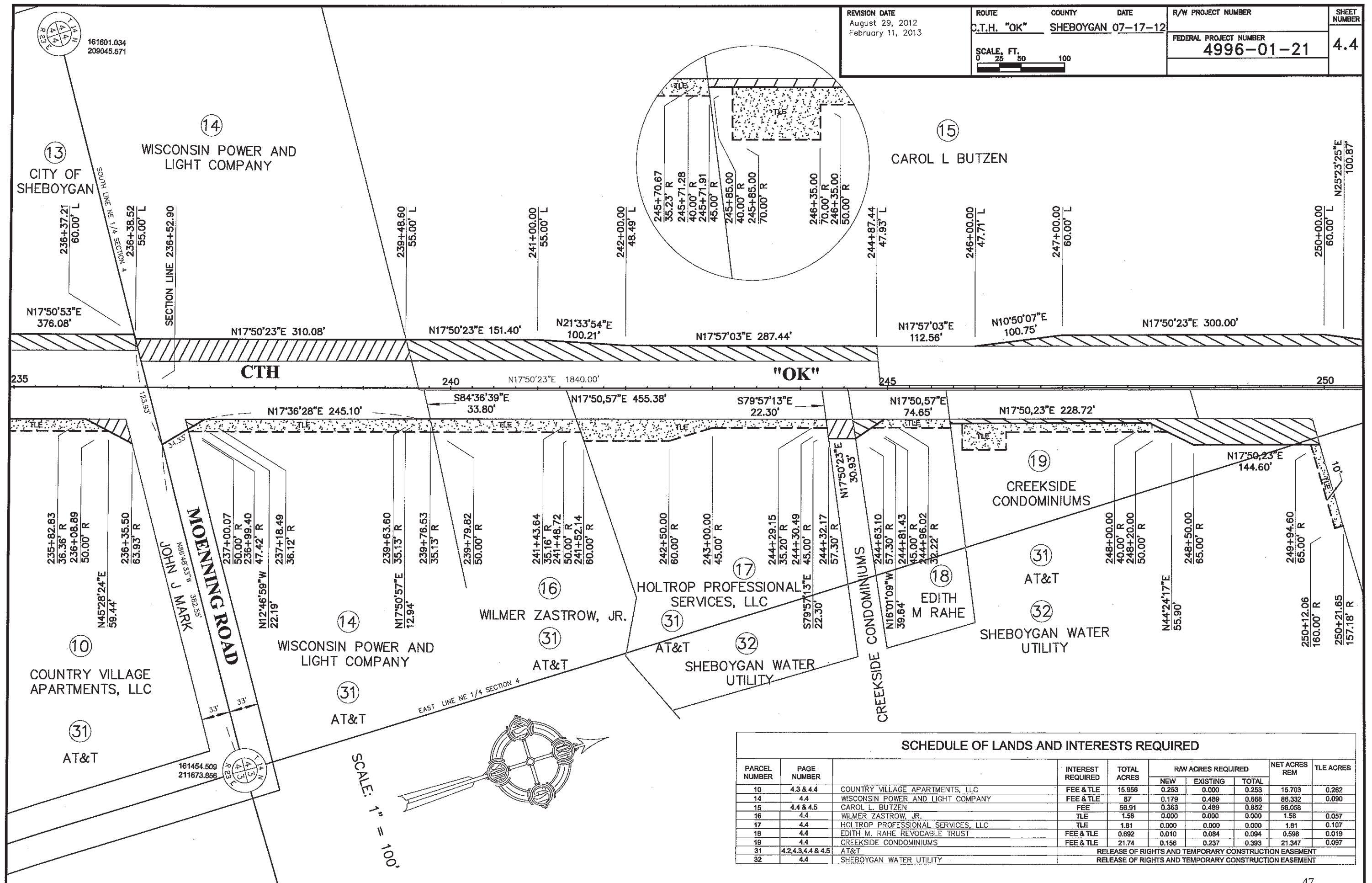


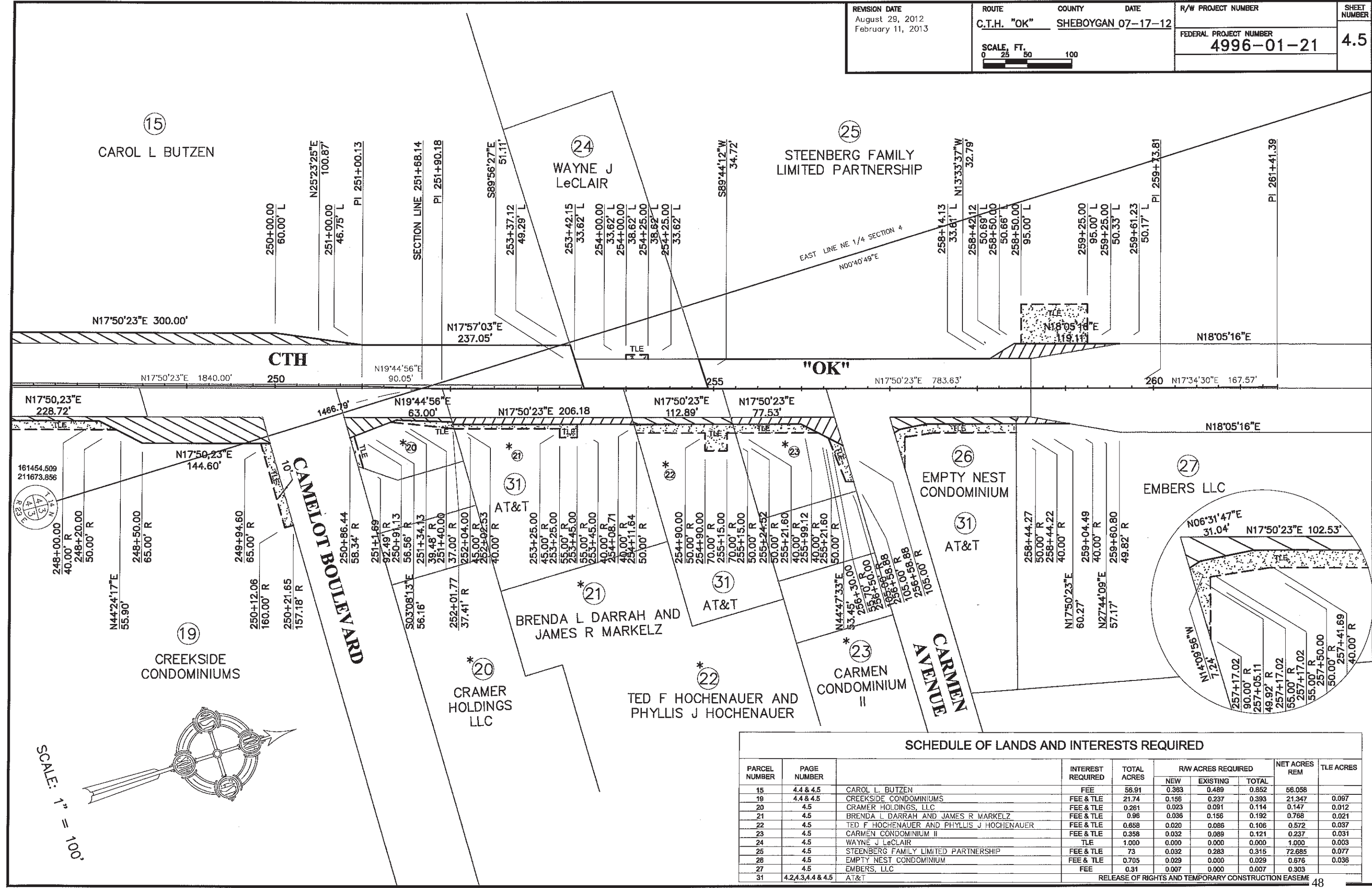
REVISION DATE	SHEBOYGAN COUNTY HIGHWAY DEPARTMENT
08-29-2012 09-25-2012	APPROVED: DATE: 07-17-12 HIGHWAY COMMISSIONER

REVISION DATE August 29, 2012 September 25, 2012 February 11, 2013	ROUTE C.T.H. "OK"	COUNTY SHEBOYGAN	DATE 07/17/12	R/W PROJECT NUMBER 4996-01-21	SHEET NUMBER 4.3
SCALE, FT. 0 25 50 100				FEDERAL PROJECT NUMBER 161601.034 209045.571	

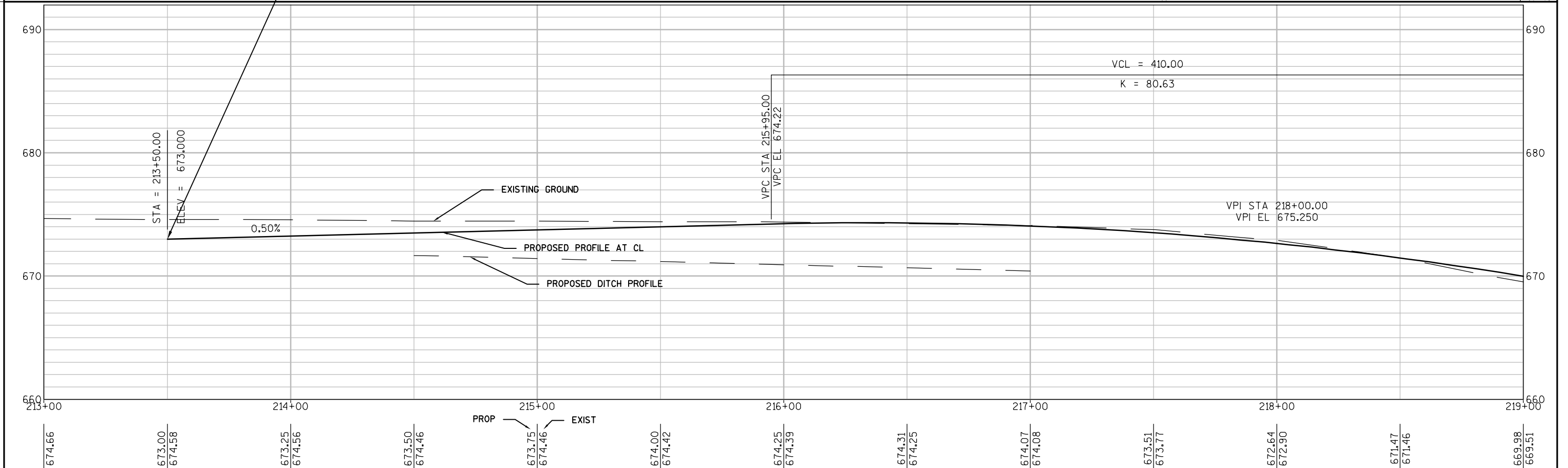
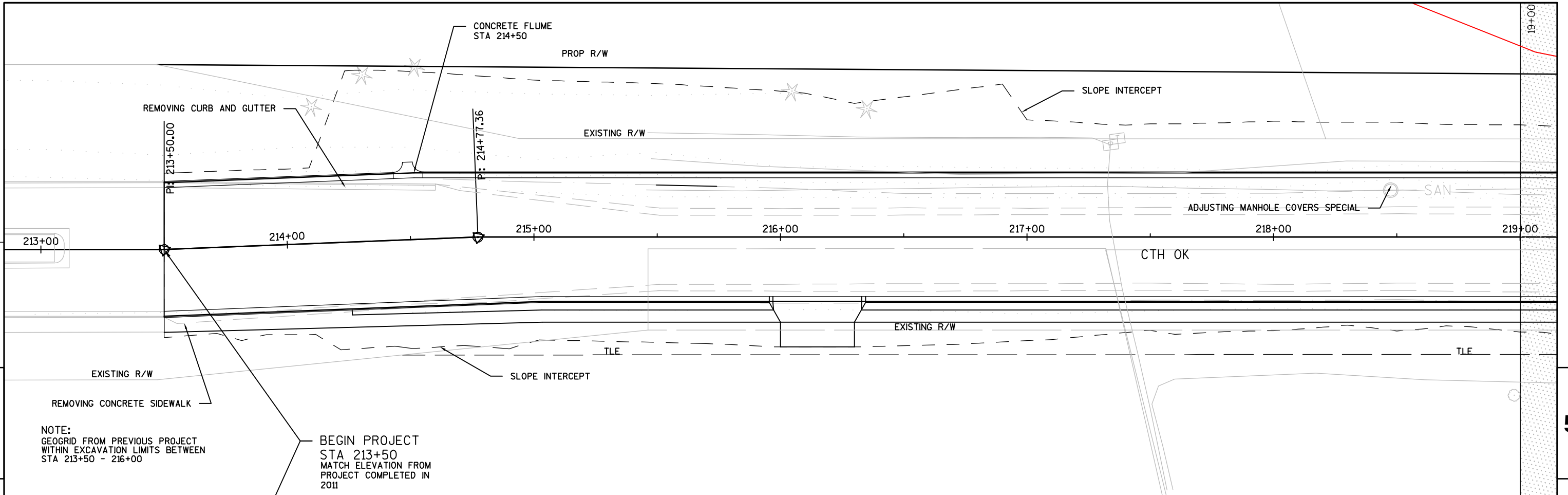


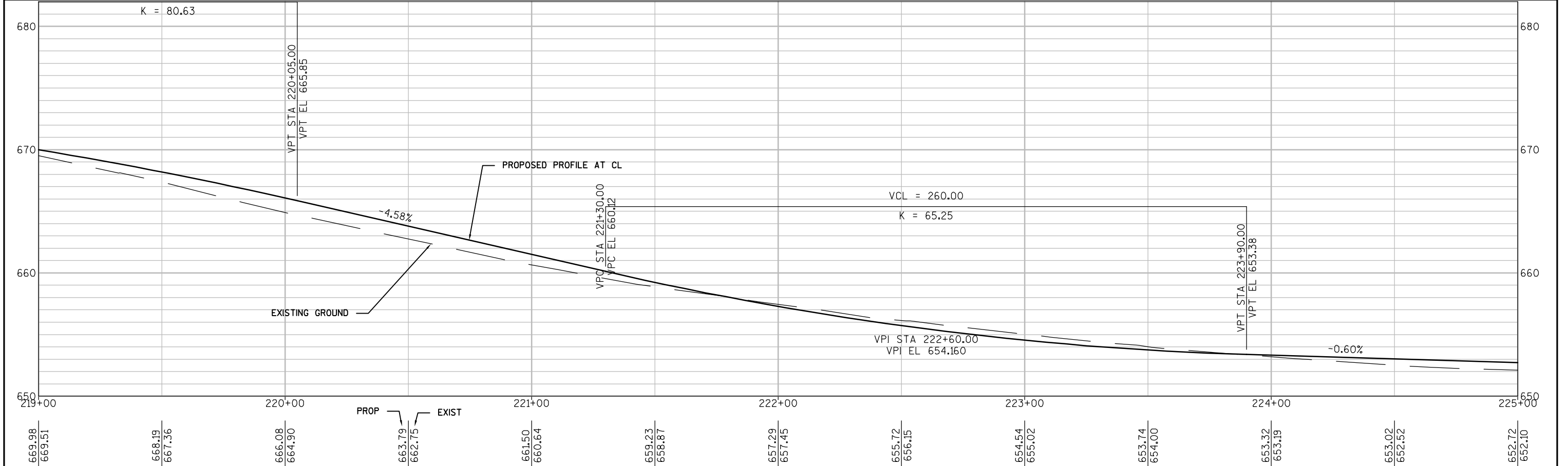
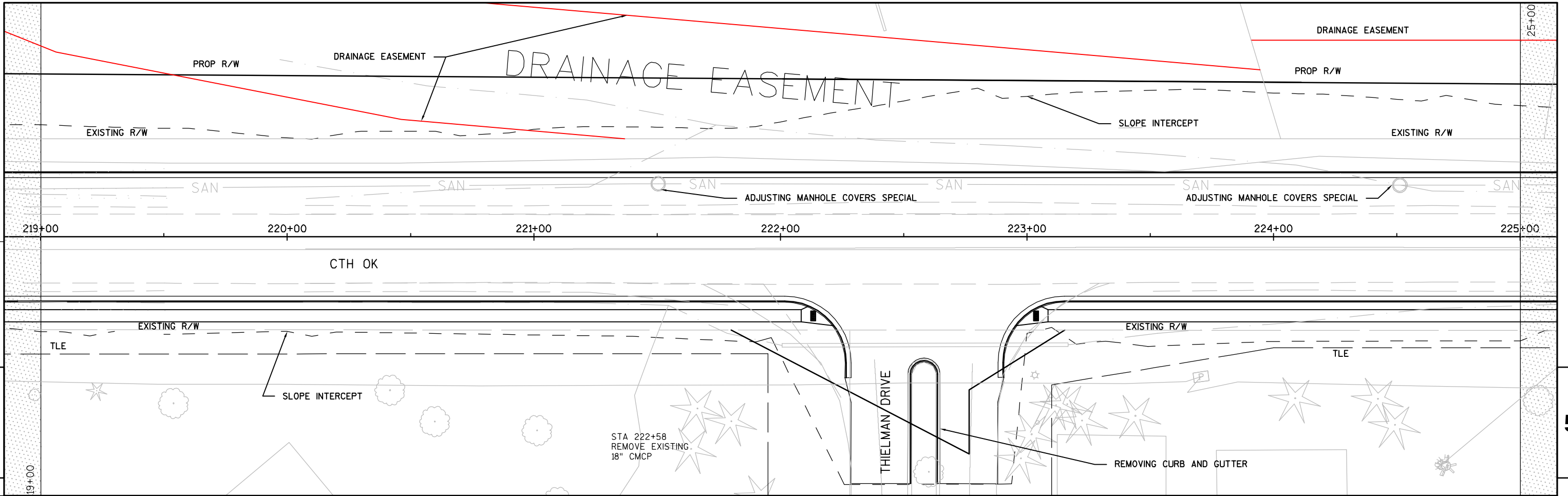
SCHEDULE OF LANDS AND INTERESTS REQUIRED								
PARCEL NUMBER	PAGE NUMBER	INTEREST REQUIRED	TOTAL ACRES	RW ACRES REQUIRED			NET ACRES REM	TLE ACRES
				NEW	EXISTING	TOTAL		
8	4.2	WISCONSIN POWER AND LIGHT COMPANY	FEE	6.83	0.333	0.000	0.333	6.497
9	4.2	COUNTRY VILLAGE - PHASE II, LLC	FEE & TLE	12.322	0.014	0.000	0.014	12.308
10	4.2 & 4.3	COUNTRY VILLAGE APARTMENTS, LLC	FEE & TLE	15.958	0.356	0.000	0.356	15.600
11	4.3	DIAMOND BUSINESS GRAPHICS, INC.	FEE	3.000	0.058	0.000	0.058	2.942
12	4.3	CITY OF SHEBOYGAN	FEE	5.870	0.196	0.000	0.196	5.774
13	4.3	CITY OF SHEBOYGAN	FEE	3.804	0.282	0.000	0.282	3.522
31	4.2, 4.3, 4.4 & 4.5	AT&T	RELEASE OF RIGHTS AND TEMPORARY CONSTRUCTION EASEMENT					

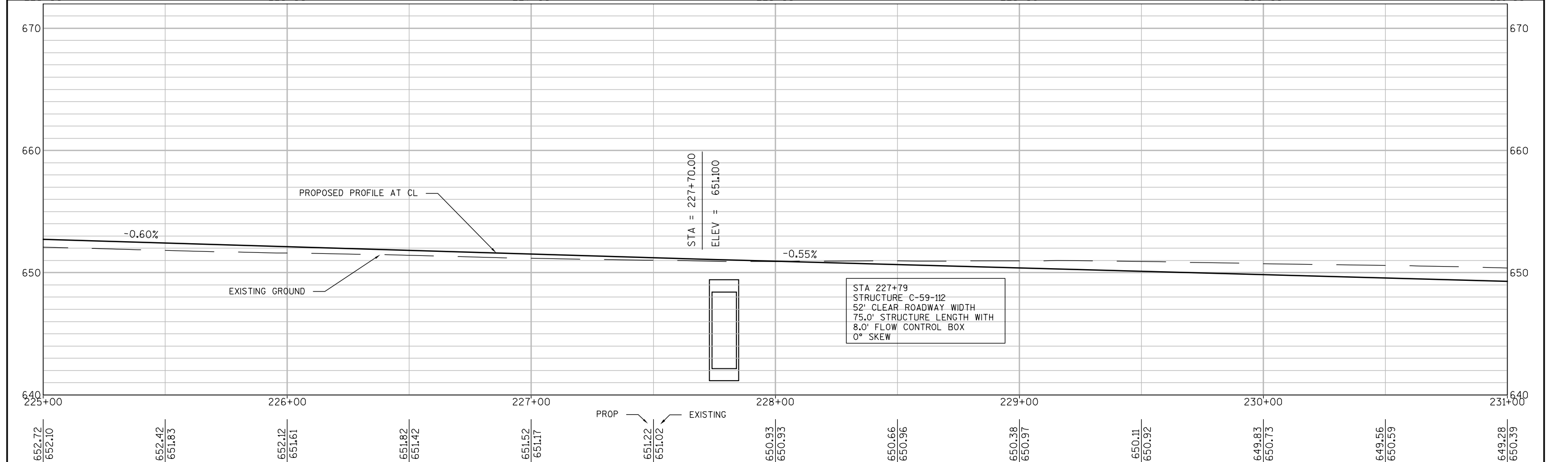
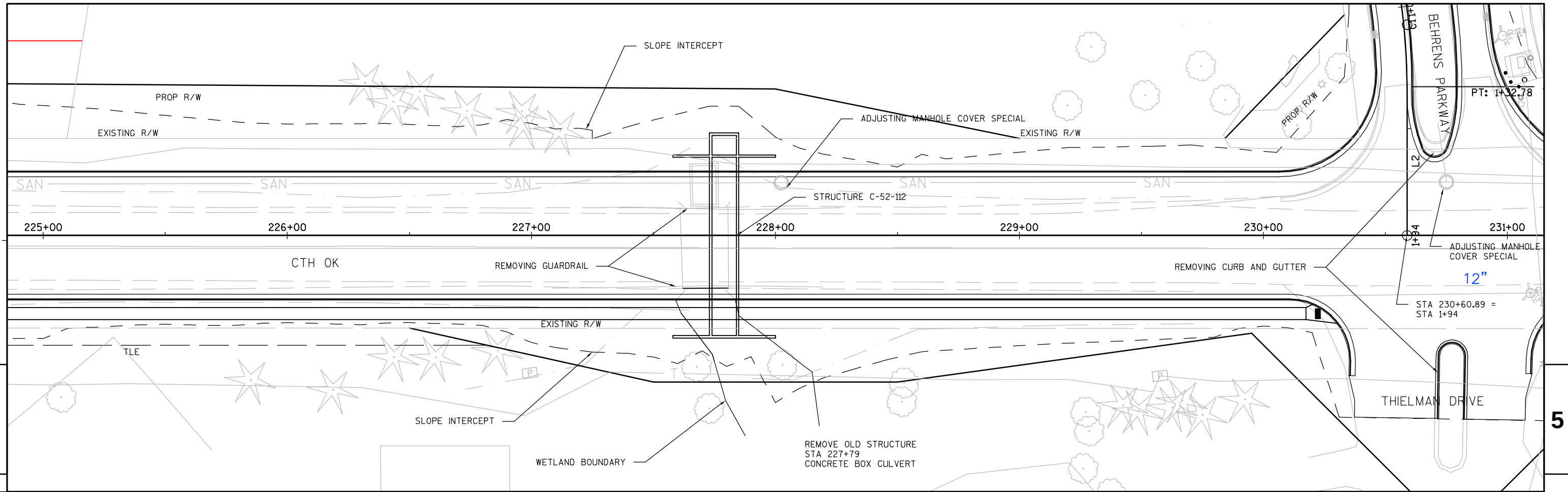


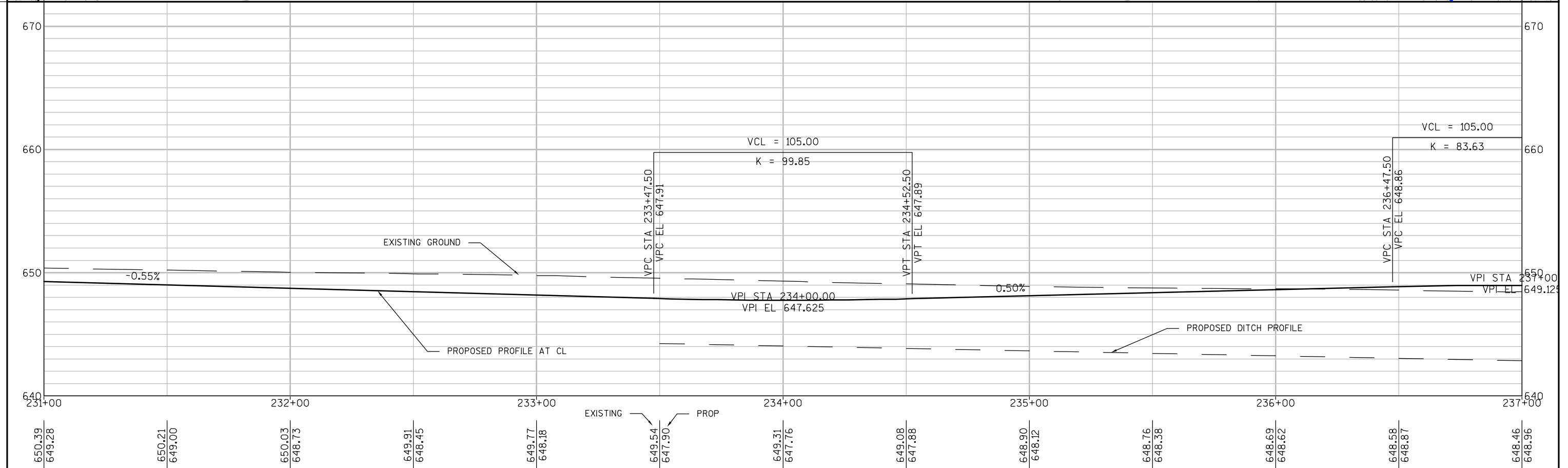
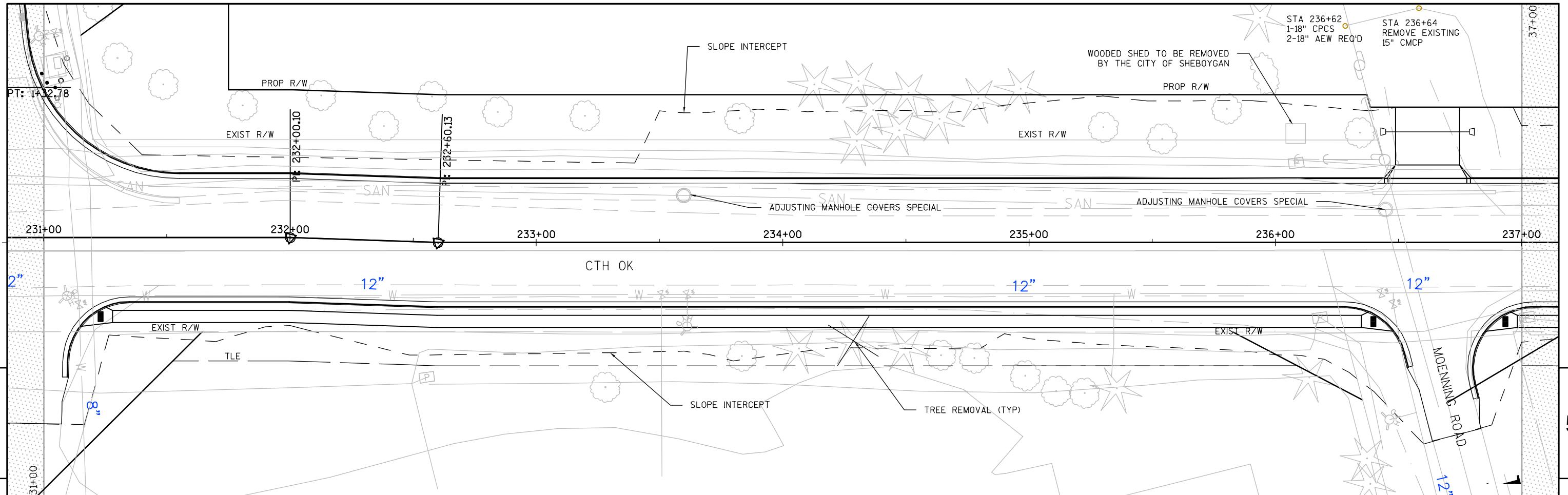


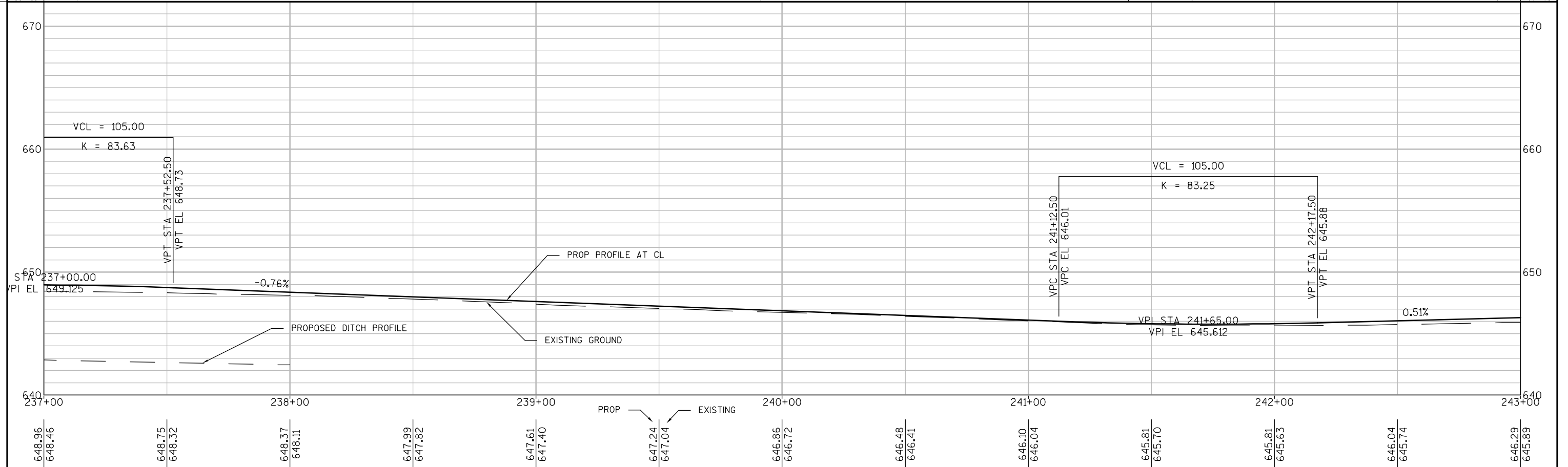
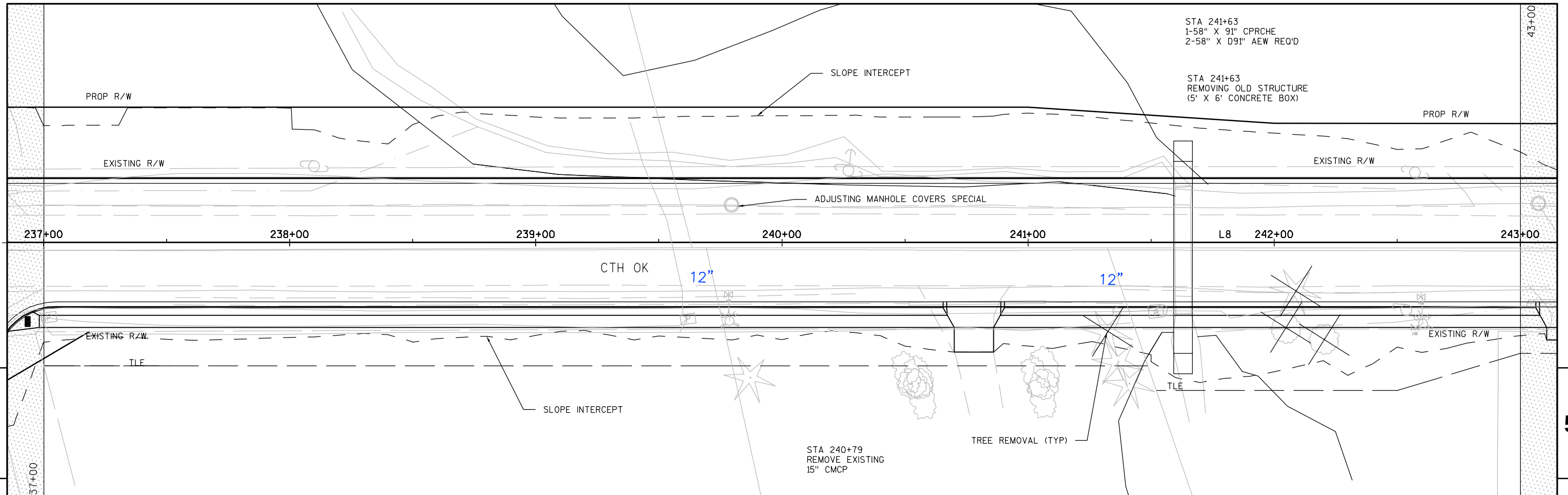
SCHEDULE OF LANDS AND INTERESTS REQUIRED									
PARCEL NUMBER	PAGE NUMBER		INTEREST REQUIRED	TOTAL ACRES	RW ACRES REQUIRED			NET ACRES REM	TLE ACRES
					NEW	EXISTING	TOTAL		
15	4.4 & 4.5	CAROL L. BUTZEN	FEE	56.91	0.393	0.489	0.882	56.058	
19	4.4 & 4.5	CREEKSIDE CONDOMINIUMS	FEE & TLE	21.74	0.156	0.237	0.393	21.347	0.097
20	4.5	CRAMER HOLDINGS, LLC	FEE & TLE	0.261	0.023	0.091	0.114	0.147	0.012
21	4.5	BRENDA L DARRAH AND JAMES R MARKELZ	FEE & TLE	0.96	0.036	0.156	0.192	0.768	0.021
22	4.5	TED F HOCHENAUER AND PHYLLIS J HOCHENAUER	FEE & TLE	0.858	0.020	0.086	0.106	0.572	0.037
23	4.5	CARMEN CONDOMINIUM II	FEE & TLE	0.358	0.032	0.089	0.121	0.237	0.031
24	4.5	WAYNE J LeCLAIR	TLE	1.000	0.000	0.000	0.000	1.000	0.003
25	4.5	STEEBERG FAMILY LIMITED PARTNERSHIP	FEE & TLE	73	0.032	0.283	0.315	72.685	0.077
26	4.5	EMPTY NEST CONDOMINIUM	FEE & TLE	0.705	0.029	0.000	0.029	0.676	0.036
27	4.5	EMBERS, LLC	FEE	0.31	0.007	0.000	0.007	0.303	
31	4.2, 4.3, 4.4 & 4.5	AT&T							
RELEASE OF RIGHTS AND TEMPORARY CONSTRUCTION EASEMENT									

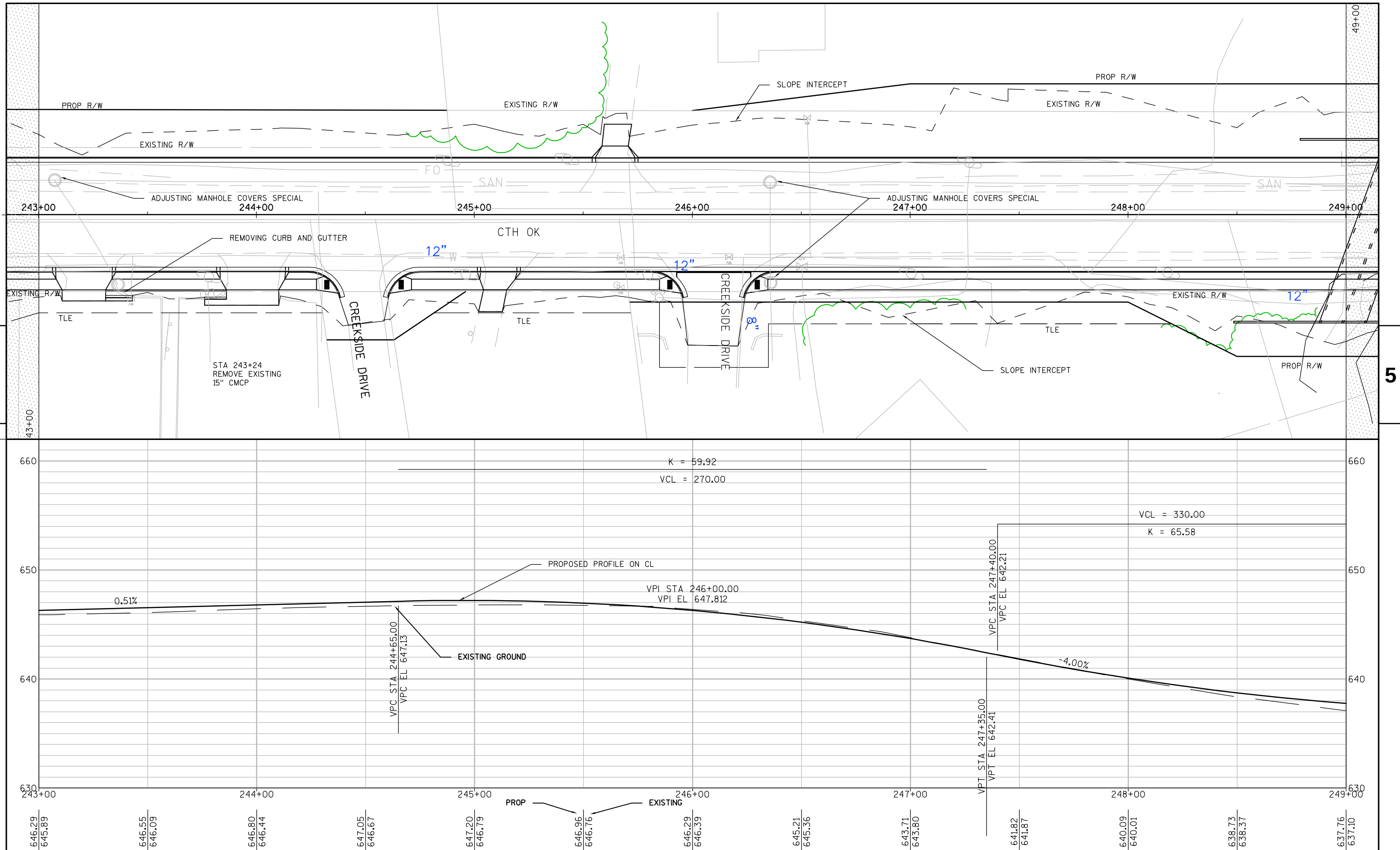


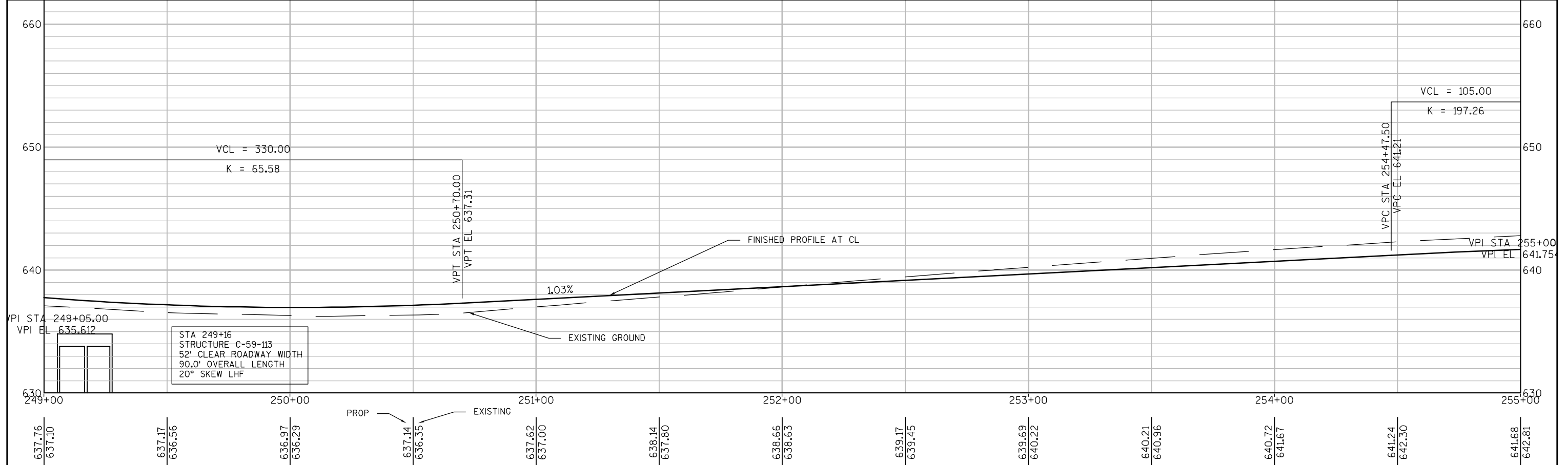
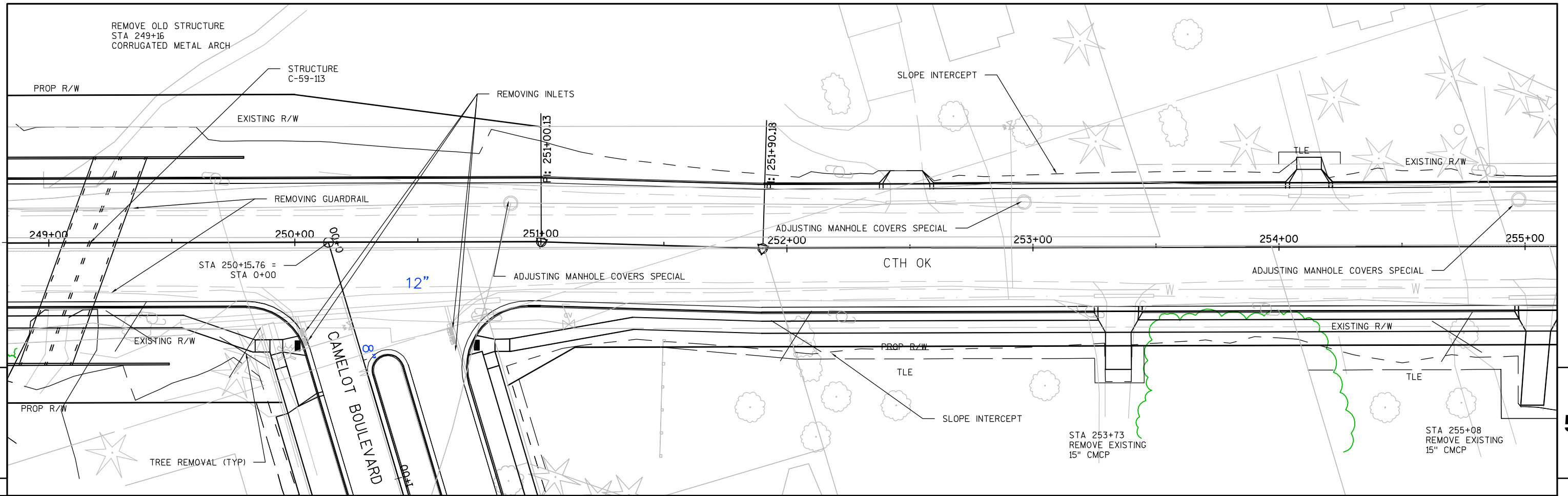


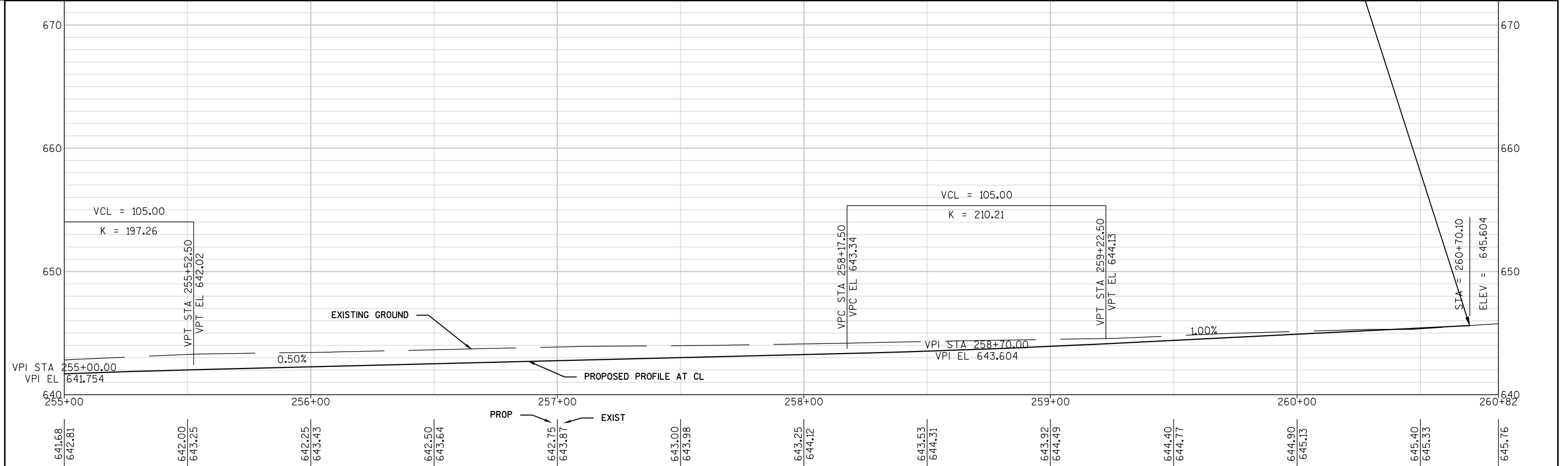
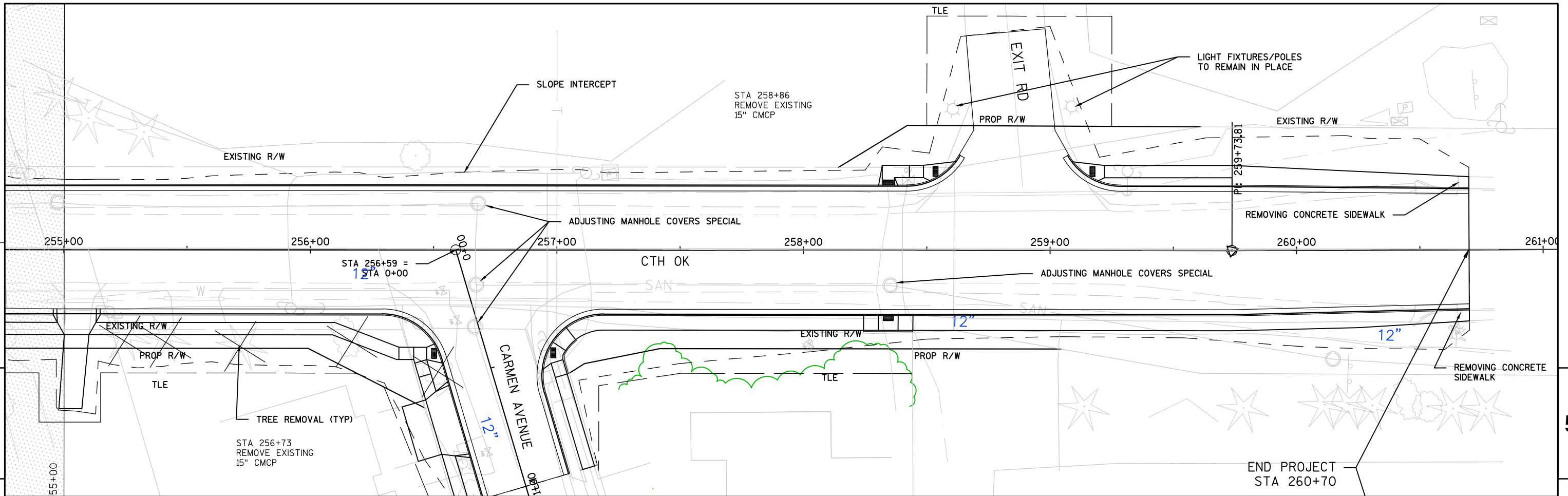


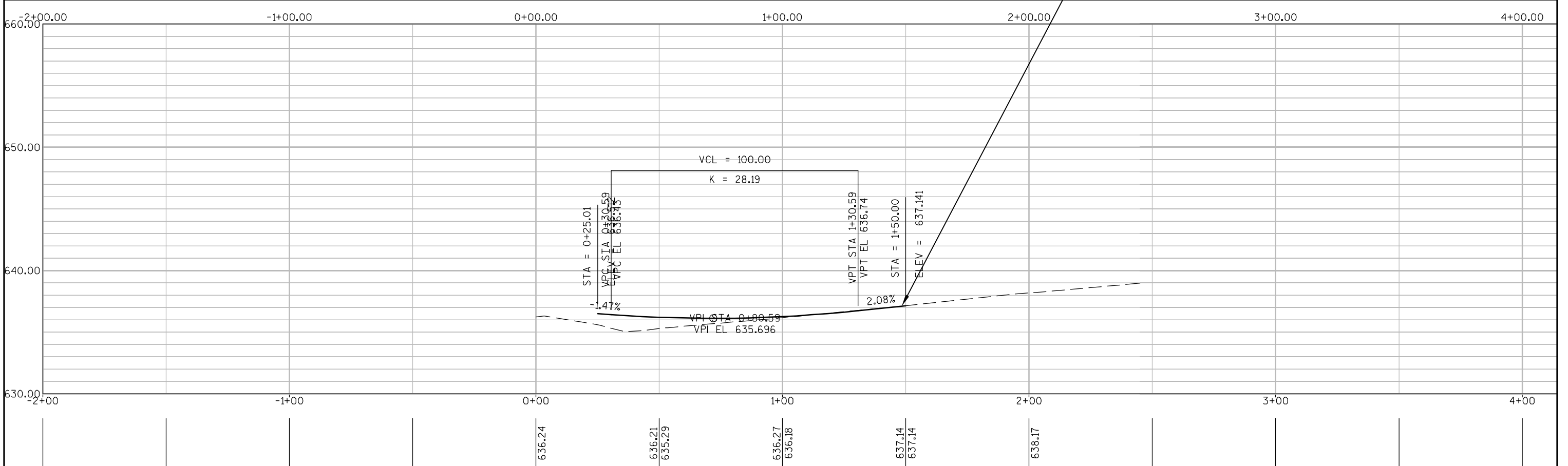
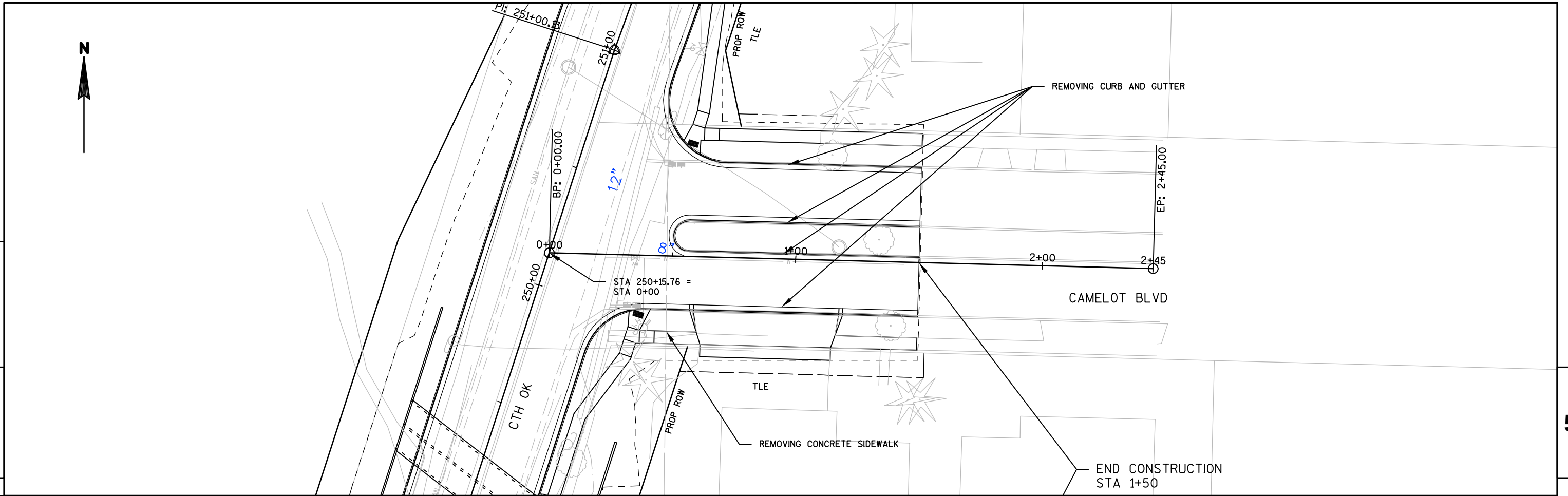






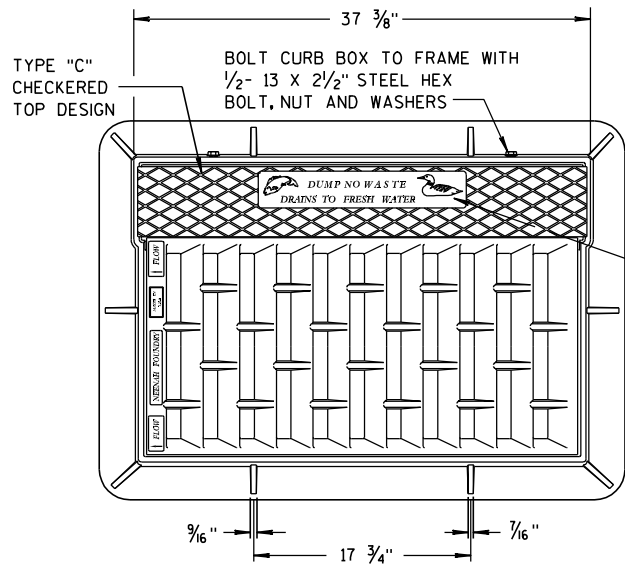




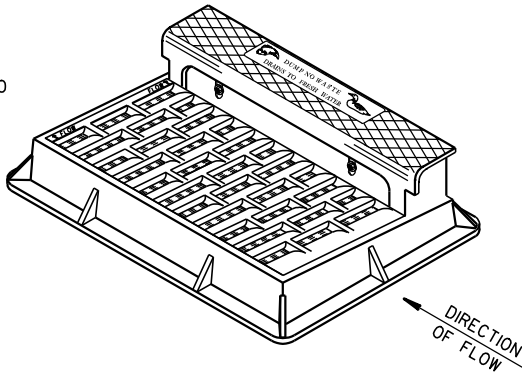


Standard Detail Drawing List

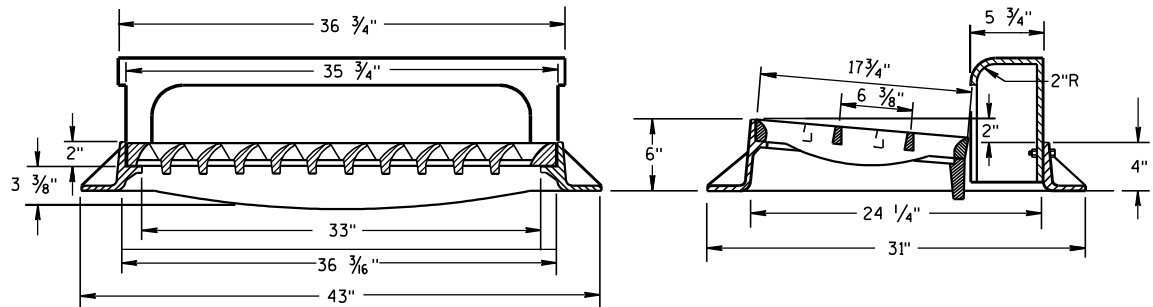
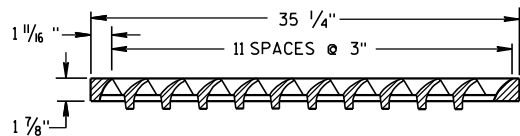
08A05-18A	INLET COVERS TYPE A, H, A-S, & H-S
08A05-18B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A05-18D	INLET COVER, TYPE BW, Z MANHOLE COVERS, TYPE K, J, J-S, L & M
08A08-01	CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER
08A09-01	CATCH BASINS 2X3-FT AND 2.5X3-FT
08B09-01	MANHOLES 3-FT, 4-FT, 5-FT, 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
08D05-14A	CURB RAMPS TYPES 1 AND 1-A
08D05-14B	CURB RAMPS TYPES 2 AND 3
08D05-14C	CURB RAMPS TYPE 4A
08D05-14D	CURB RAMPS TYPE 4B
08D05-14E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E14-01	TRACKING PAD
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
15A03-01	MARKER POSTS, FLEXIBLE, FOR CULVERT END
15C02-04A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-04B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C07-12C	PAVEMENT MARKING ARROWS
15C08-15A	PAVEMENT MARKING (MAINLINE)
15C08-15B	PAVEMENT MARKING (INTERSECTIONS)
15C08-15F	PAVEMENT MARKING (ISLANDS, STOP LINE & CROSS WALK)
15C29-02C	URBAN BICYCLE LANE MARKING
15C29-02E	PAVEMENT MARKING FOR BIKE LANES
15D30-01	TRAFFIC CONTROL, SIDEWALK CLOSURE



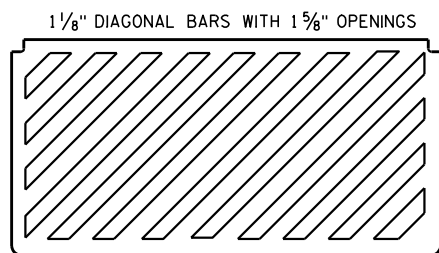
NOTE:
GRATE IS REVERSIBLE.



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

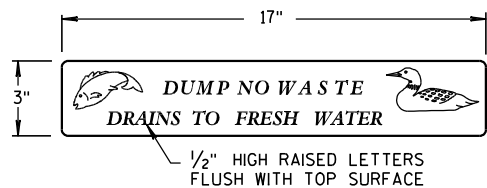


TYPE "H"
(APPROXIMATE WEIGHT 441 LBS.)
FRAME..... 181 LBS.
GRATE..... 146 LBS.
CURB BOX..... 114 LBS.

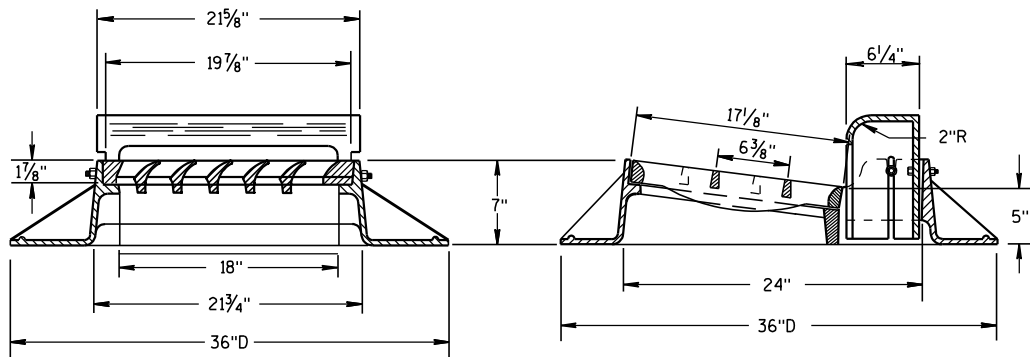
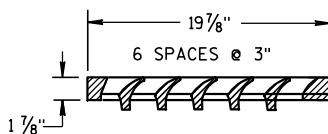
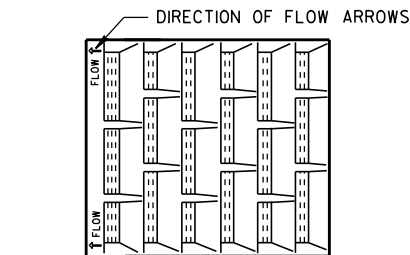


SPECIAL GRATE FOR TYPE "H" COVER

(MEASURES 35 1/4" X 17 3/4" X 2")
(APPROXIMATE WEIGHT 159 LBS.)
GRATE..... 159 LBS.
(NOTED AS TYPE H-S ON DRAINAGE TABLE)



LOGO DETAIL



TYPE "A"

(APPROXIMATE WEIGHT 340 LBS.)
FRAME..... 185 LBS.
GRATE..... 71 LBS.
CURB BOX..... 84 LBS.

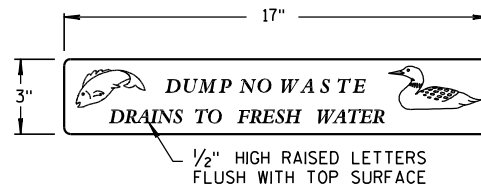
GENERAL NOTES

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 CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

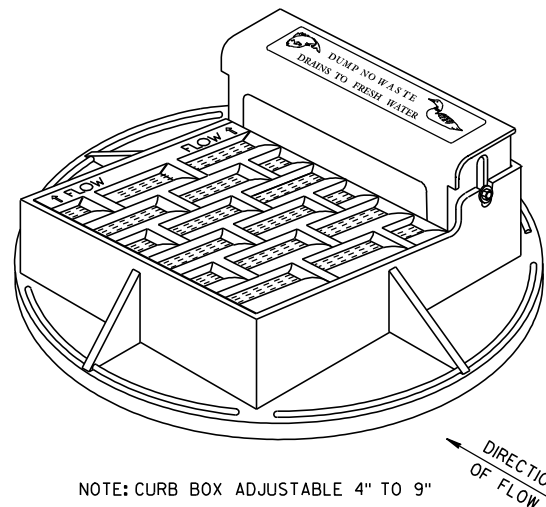
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

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

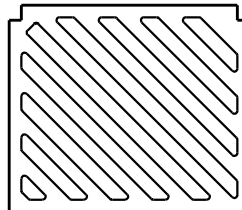


LOGO DETAIL

NOTE:
GRATE IS REVERSIBLE.



1" DIAGONAL BARS WITH 1 1/2" OPENINGS



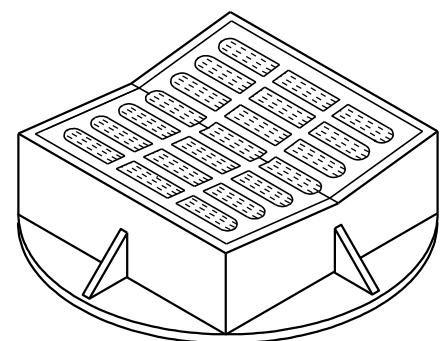
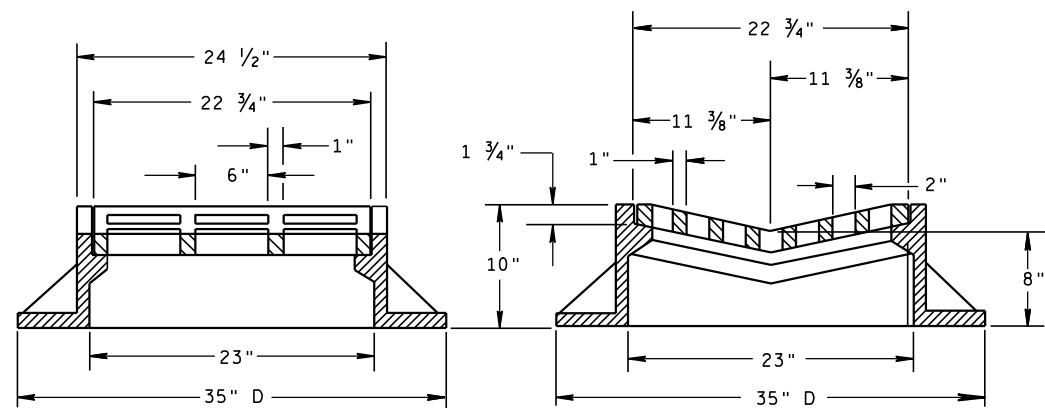
SPECIAL GRATE FOR TYPE "A" COVER

(MEASURES 19 3/4" X 17" X 1 7/8")
GRATE..... 84 LBS.
(NOTED AS TYPE A-S ON DRAINAGE TABLE)

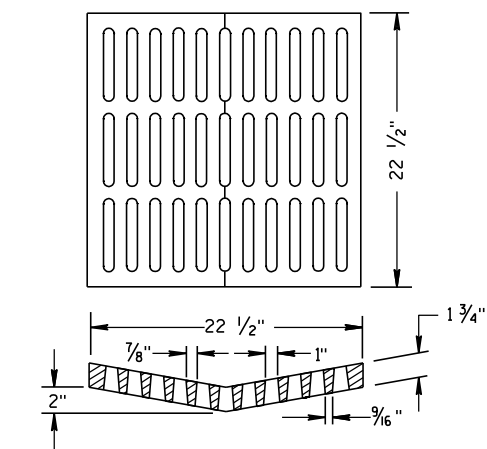
**INLET COVERS
TYPE A, H, A-S, & H-S**

STATE OF WISCONSIN
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FHWA ENGINEER



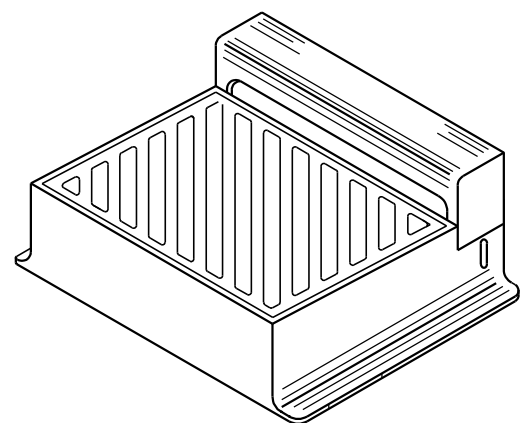
TYPE "B"
(APPROXIMATE WEIGHT 405 LBS.)
FRAME..... 294 LBS.
GRATE..... 111 LBS.



**ALTERNATIVE GRATE FOR
TYPE "B" COVER**

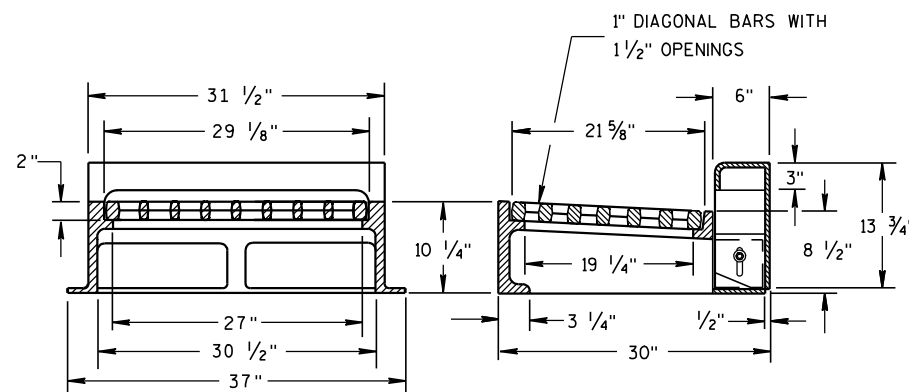
(APPROXIMATE GRATE WEIGHT 134 LBS.)

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.
NOTED AS TYPE B-A ON THE DRAINAGE TABLE



DIRECTION
OF FLOW

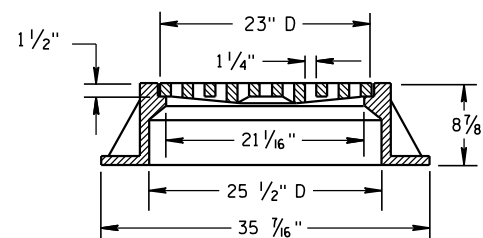
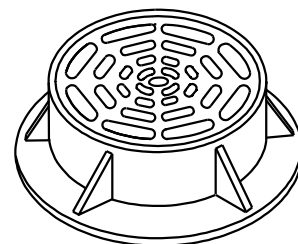
DIAGONAL SLOTS, SHALL BE ORIENTED
TO THE DIRECTION OF FLOW AS ILLUSTRATED.
GRATES ARE MANUFACTURED TO BE REVERSIBLE.



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"
(APPROXIMATE WEIGHT 648 LBS.)

FRAME..... 355 LBS.
GRATE..... 156 LBS.
CURB BOX..... 137 LBS.



TYPE "C"
(APPROXIMATE WEIGHT 259 LBS.)

FRAME..... 152 LBS.
GRATE..... 107 LBS.

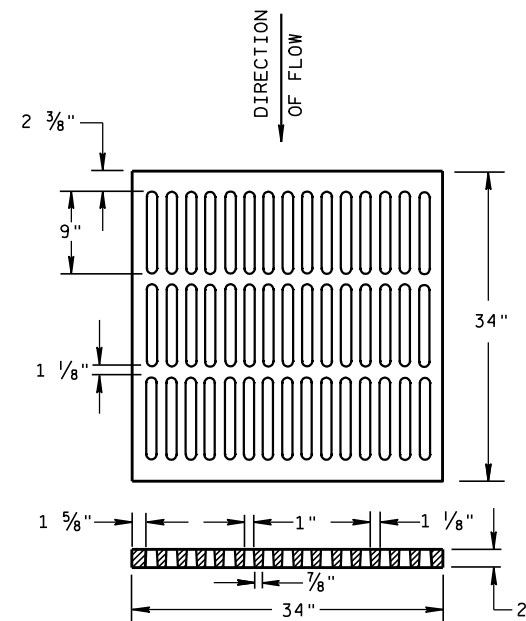
GENERAL NOTES

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 CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

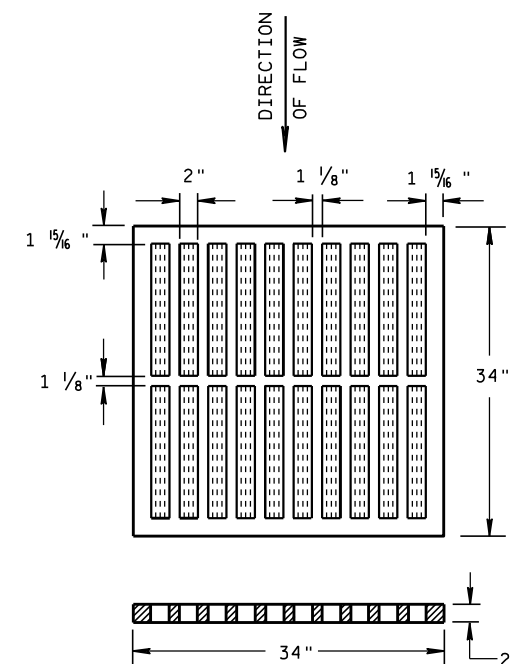
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

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



ALTERNATIVE TYPE "MS"
(APPROXIMATE GRATE WEIGHT 329 LBS.)

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED
NOTED AS TYPE MS-A ON THE DRAINAGE TABLE



TYPE "MS"
(APPROXIMATE GRATE WEIGHT 268 LBS.)

USE ON FREEWAYS AND EXPRESSWAYS
NOTED AS TYPE MS ON DRAINAGE TABLE

INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

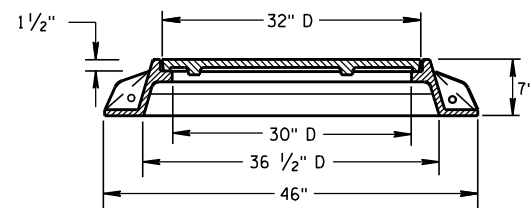
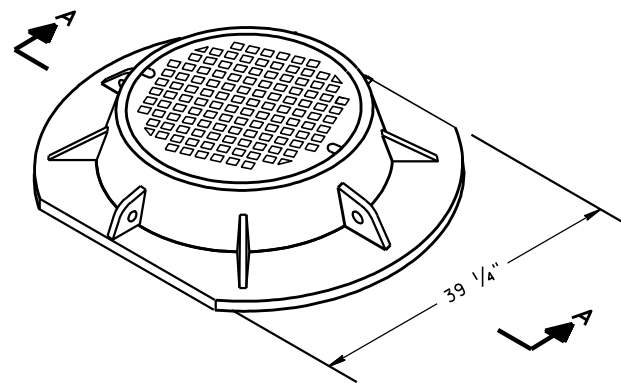
APPROVED

6/5/2012
DATE

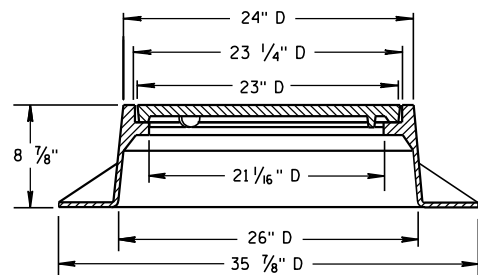
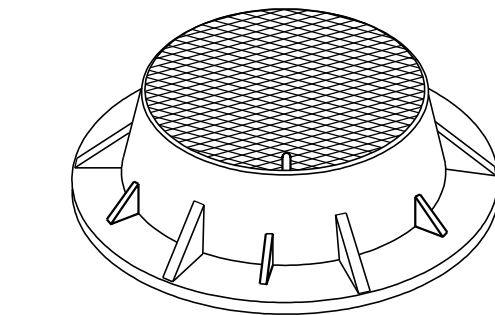
FHWA

/S/ Jerry H. Zapp
ROADWAY STANDARDS 62 ENT

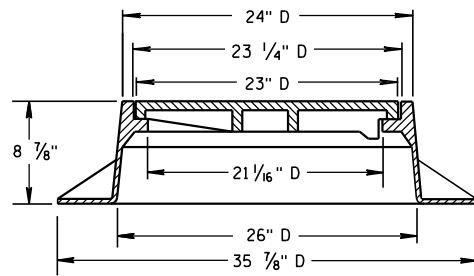
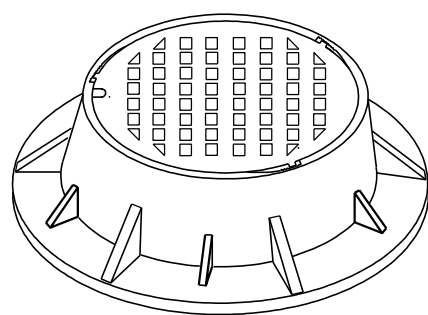
ENGINEER



SECTION A-A
TYPE "K"
(APPROXIMATE WEIGHT 439 LBS.)
FRAME.....216 LBS.
LID.....223 LBS.



TYPE "J"
(APPROXIMATE WEIGHT 267 LBS.)
FRAME.....152 LBS.
LID.....115 LBS.



TYPE "J" SPECIAL
TYPE "B" NON-ROCKING SELF-SEAL LID
(APPROXIMATE WEIGHT 267 LBS.)
FRAME.....158 LBS.
LID.....109 LBS.
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

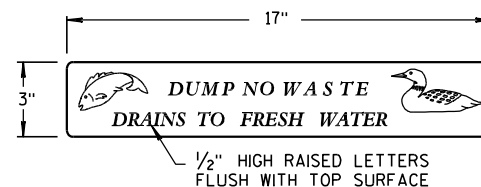
GENERAL NOTES

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.

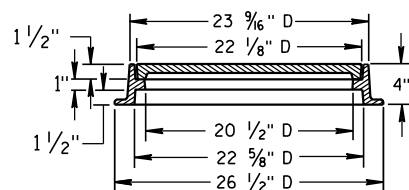
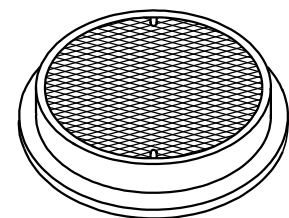
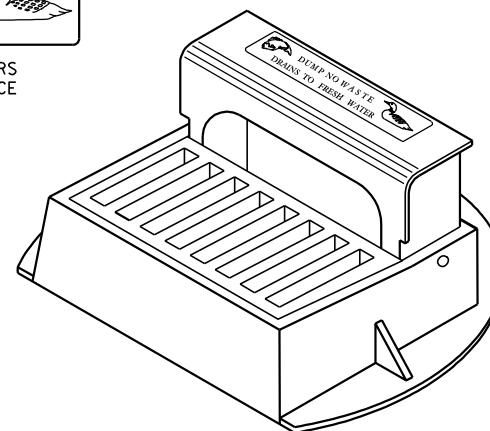
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

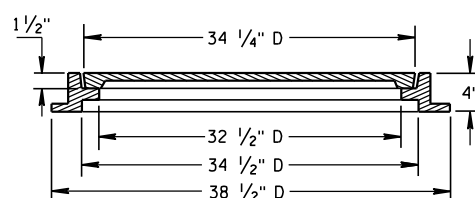
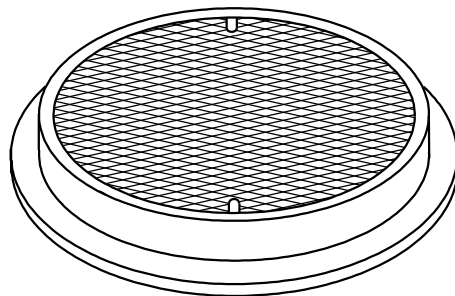
THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.



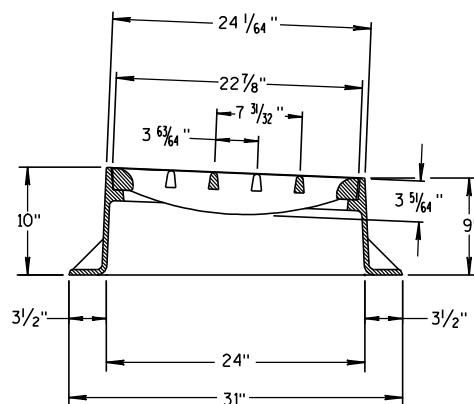
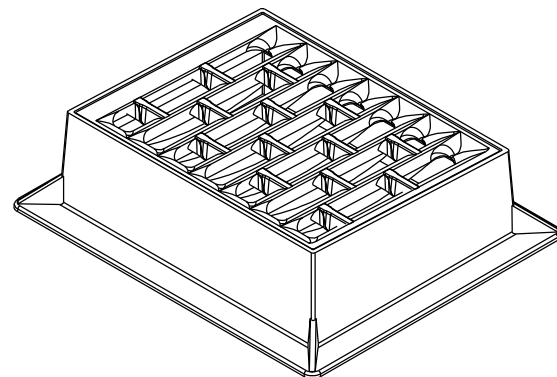
LOGO DETAIL



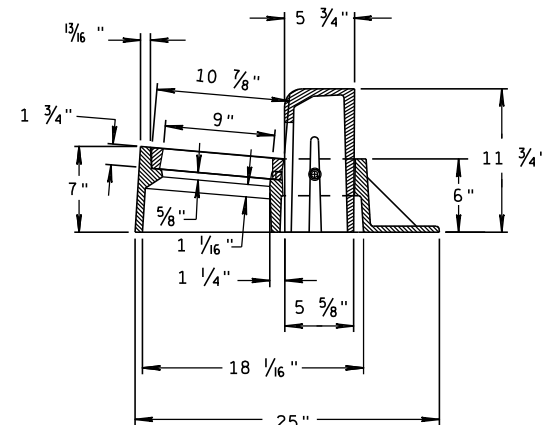
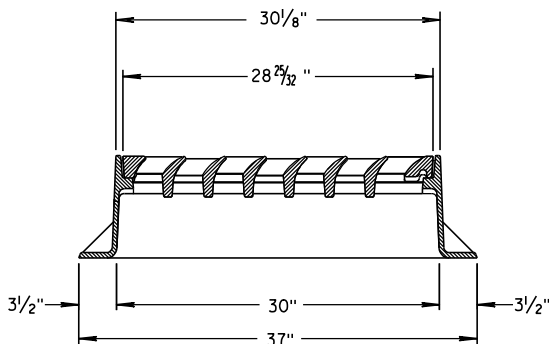
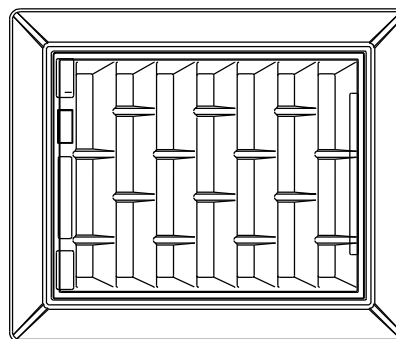
TYPE "L"
(APPROXIMATE WEIGHT 158 LBS.)
FRAME.....81 LBS.
LID.....77 LBS.



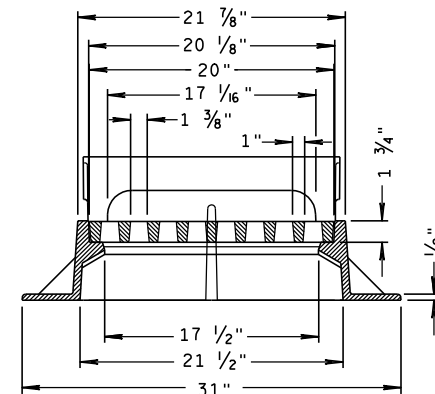
TYPE "M"
(APPROXIMATE WEIGHT 377 LBS.)
FRAME.....125 LBS.
LID.....252 LBS.



INLET COVER TYPE "BW"



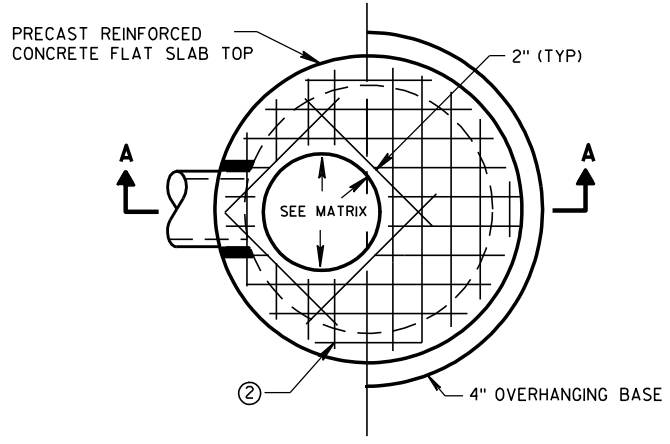
INLET COVER TYPE "Z"
(APPROXIMATE WEIGHT 344 LBS.)
FRAME.....206 LBS.
GRATE.....46 LBS.
CURB BOX.....92 LBS.



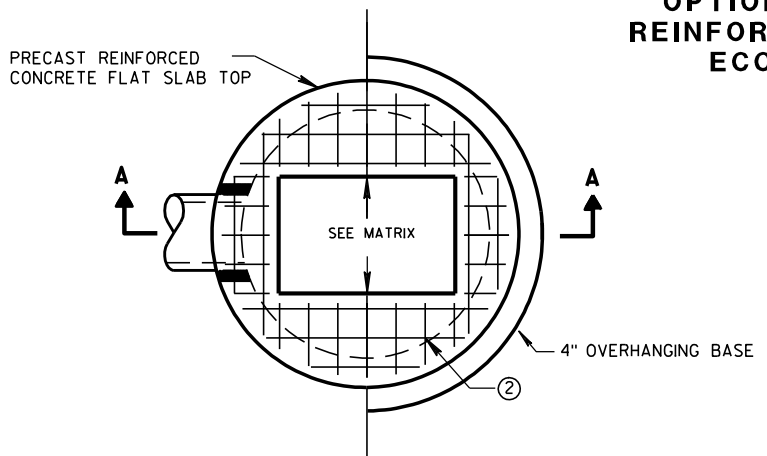
INLET COVERS, TYPE BW, Z
MANHOLE COVERS, TYPE
K, J, J-S, L & M

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

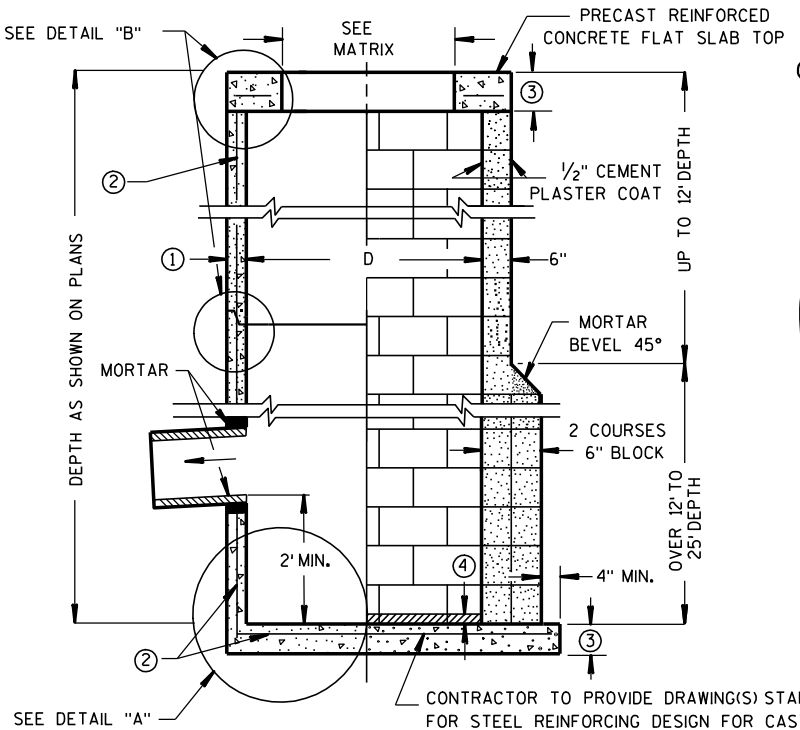
APPROVED
6/5/2012 /S/ Jerry H. Zopp
DATE ROADWAY STANDARDS 163 NT
FHWA ENGINEER



PLAN VIEW CIRCULAR OPENING

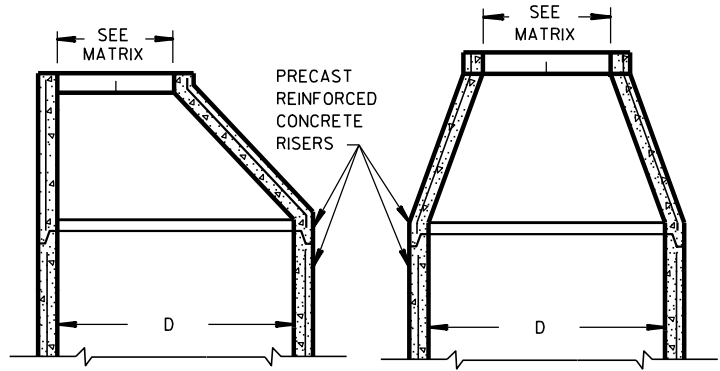


PLAN VIEW RECTANGULAR OPENING



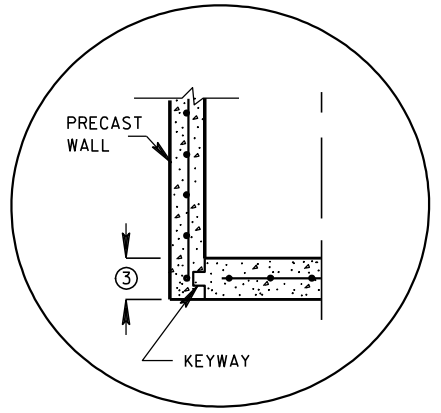
SECTION A-A

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

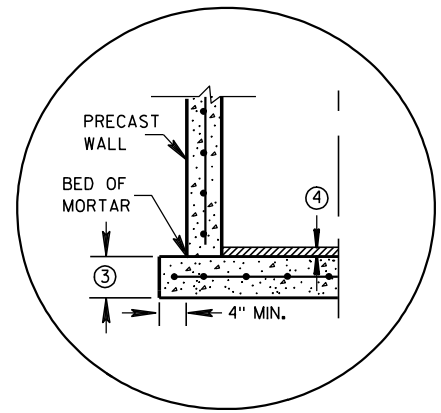


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

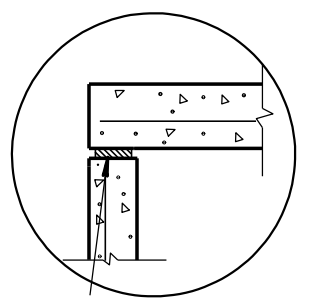


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

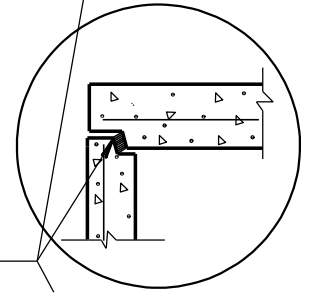


SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION

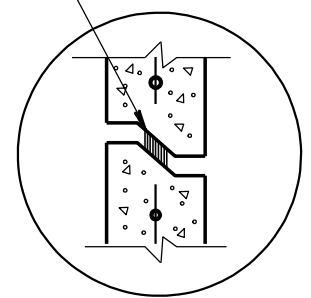
DETAIL "A"



TOP WITH PLAIN END JOINT

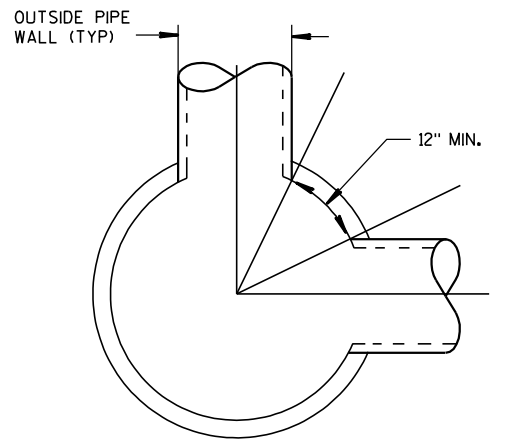


TOP WITH TONGUE AND GROOVE JOINT



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 CATCH BASIN 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 CONCRETE CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES. THE 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 INCH 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.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

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

CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

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 AND 7 INCHES FOR 6-FT DIAMETER PRECAST CATCH BASINS.
- ② FOR PRECAST CATCH BASINS 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".
- ④ 1" CONCRETE KEY POURED AFTER INSTALLATION. 2" SUMP MEASURED FROM TOP OF KEY.

CATCH BASIN COVER OPENING MATRIX

CATCH BASIN SIZE	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
3-FT	2X2	X	X					X		X		
	2 DIA.				X							X
	2X2	X	X					X		X		
4-FT-6-FT	2X2.5			X				X	X	X	X	
	2 DIA.				X							X
	2X3						X					
	2.5X3					X						

PIPE MATRIX

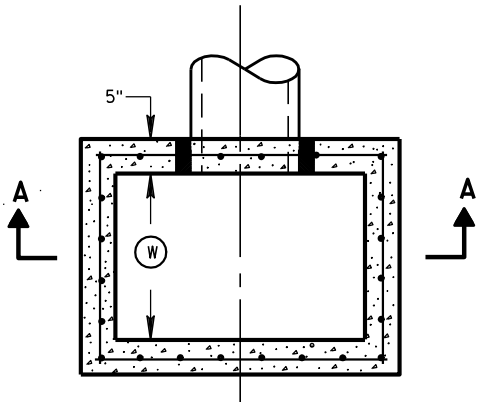
CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	30

CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER

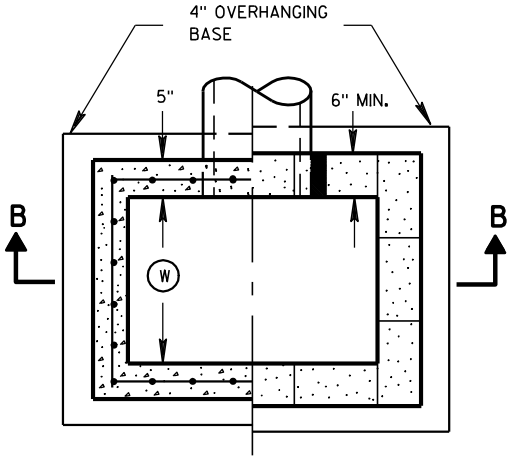
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 DATE
/S/ Jerry H. Zopp ENGINEER
ROADWAY STANDARDS 64
FHWA

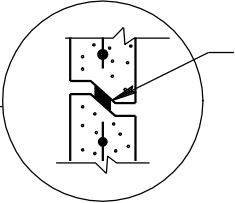
CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER



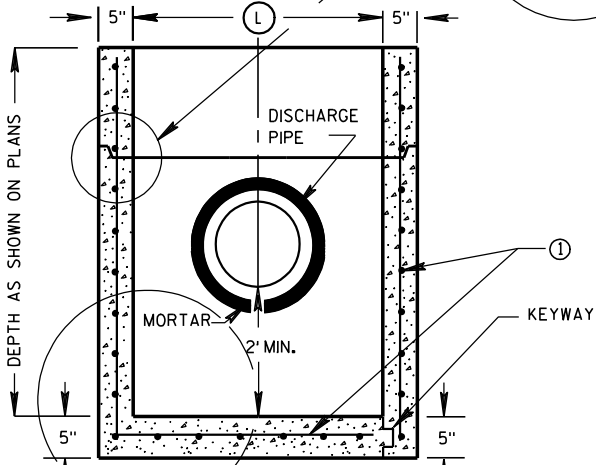
PLAN VIEW



PLAN VIEW



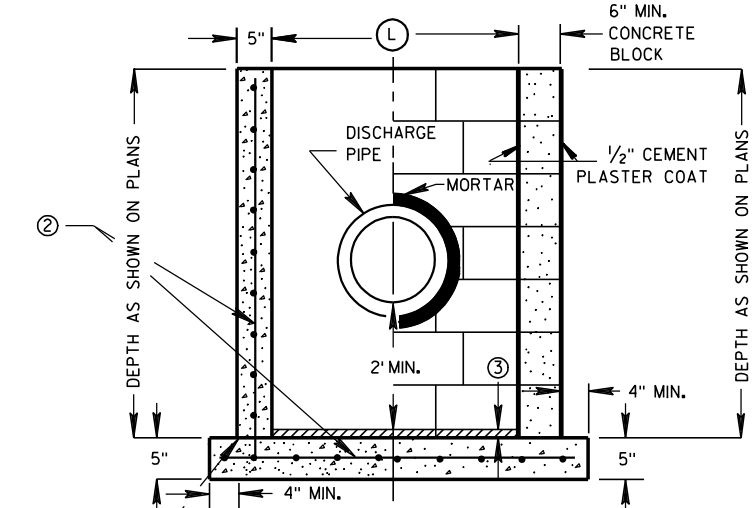
RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE

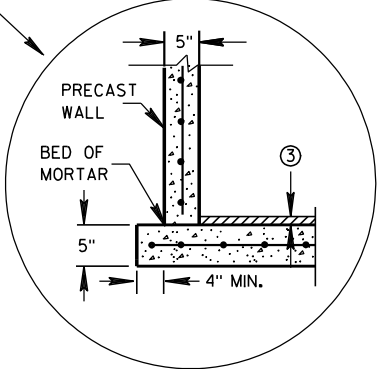
SECTION A-A



CAST-IN-PLACE REINFORCED CONCRETE

CONCRETE BLOCK ON CAST-IN-PLACE WITH PRECAST REINFORCED CONCRETE BASE ①

SECTION B-B



SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION

CATCH BASINS 2X3-FT AND 2.5X3-FT

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 CATCH BASIN 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 PRECAST CATCH BASIN UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES 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.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

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

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND 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.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3" CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

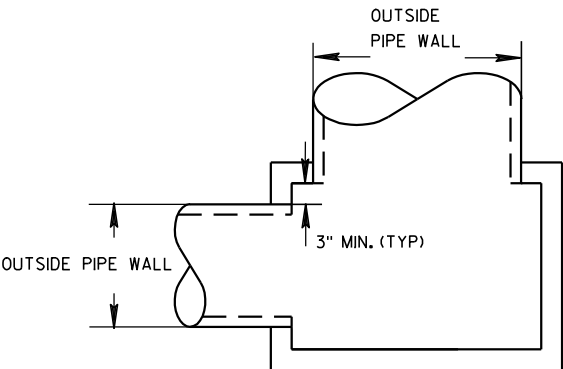
- ① FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.
- ③ 1" CONCRETE KEY POURED AFTER INSTALLATION. 2' SUMP MEASURED FROM TOP OF KEY.

CATCH BASIN COVER MATRIX

CATCH BASIN SIZE	WIDTH ① (FT)	LENGTH ② (FT)	F	ALL H'S
2X3-FT	2	3		X
2.5X3-FT	2.5	3	X	

PIPE MATRIX

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	WIDTH (IN)	LENGTH (IN)
2X3-FT	12	24
2.5X3-FT	18	24

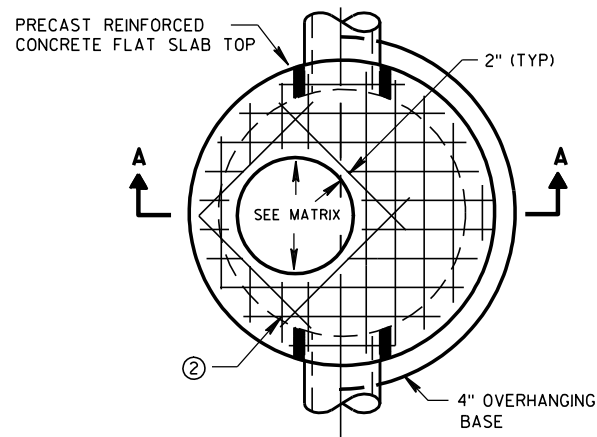


DETAIL "A"

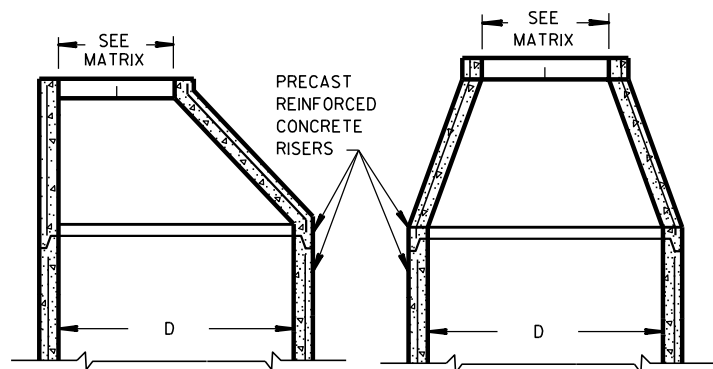
CATCH BASINS 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 DATE /S/ Jerry H. Zoon
FHWA ROADWAY STANDARDS E 65 ENGINEER

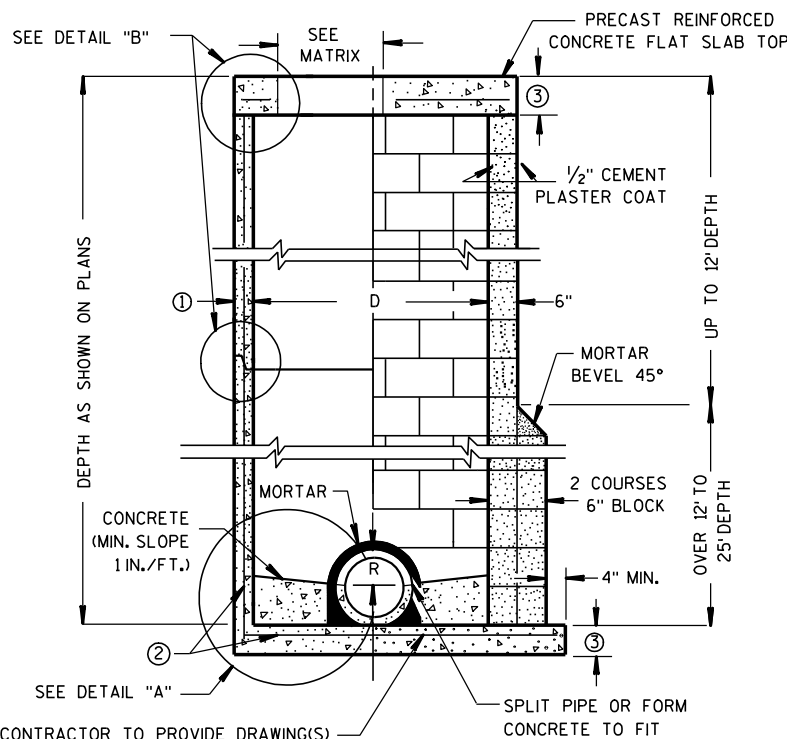


PLAN VIEW CIRCULAR OPENING



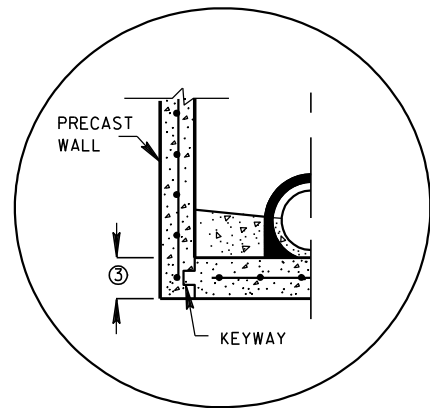
OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

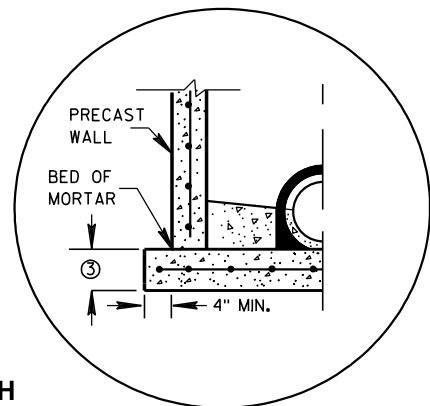


CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES

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



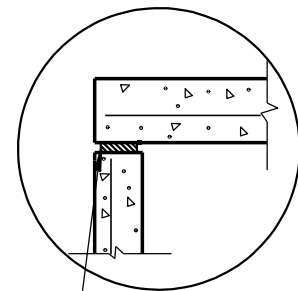
PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



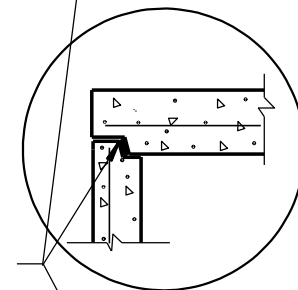
SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"

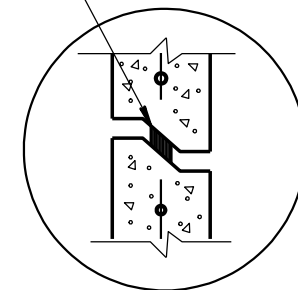
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)



TOP WITH PLAIN END JOINT

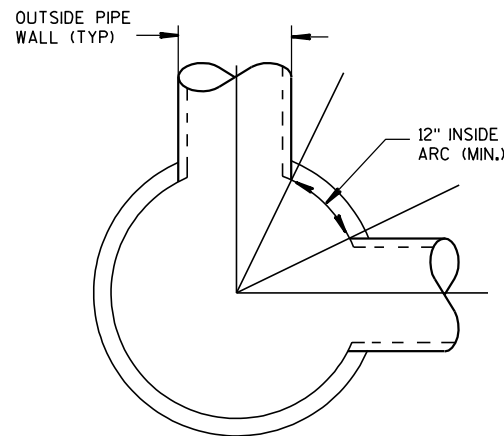


TOP WITH TONGUE AND GROOVE JOINT



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

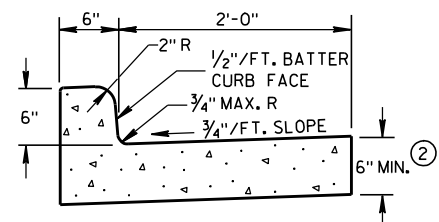
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FHWA

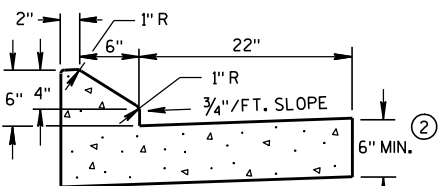
/S/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT

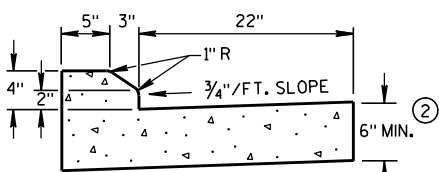
ENGINEER 66



TYPES A & D ①



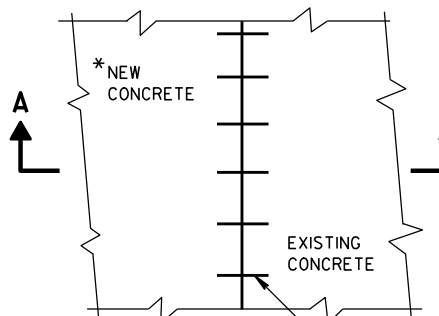
6" SLOPED CURB TYPES G & J ①



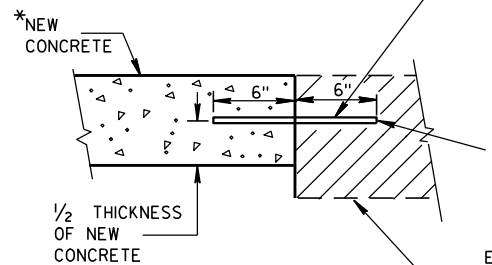
4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

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



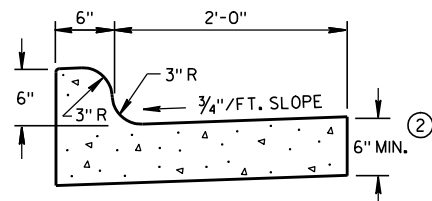
PLAN VIEW

SECTION A-A
TIE BARS DRILLED
INTO EXISTING PAVEMENT

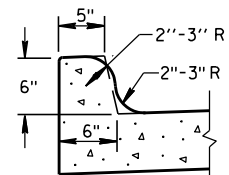
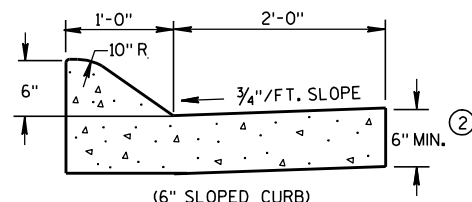
NO. 6 TIE BARS SPACED 2'-6" C-C,
INSTALLED PERPENDICULAR
TO THE LONGITUDINAL JOINT.

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

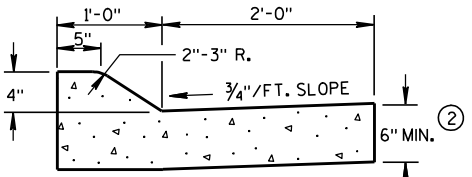
EXISTING
CONCRETE



TYPES K & L ①

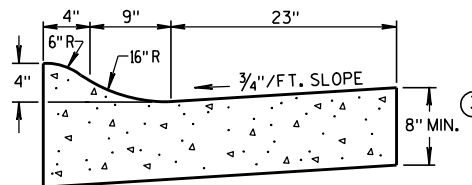
OPTIONAL CURB SHAPE
FOR TYPES K & L ①

(6" SLOPED CURB)



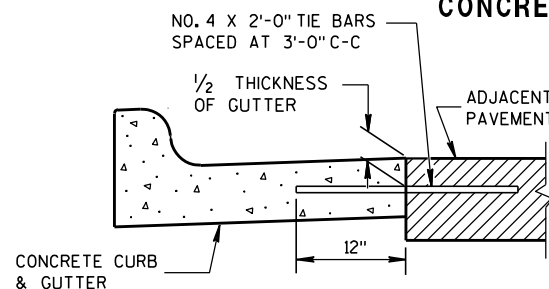
(4" SLOPED CURB)

TYPES A & D ①

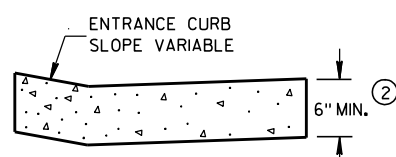


4" SLOPED CURB TYPES R & T ① ④

CONCRETE CURB & GUTTER 36"

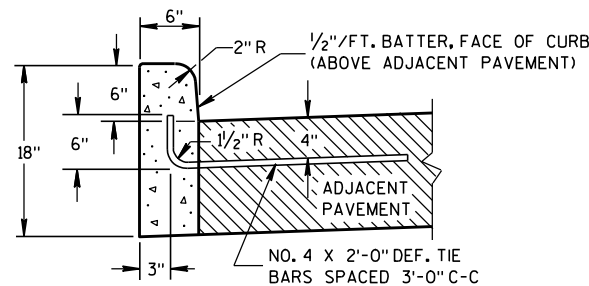


TYPICAL TIE BAR LOCATION ①



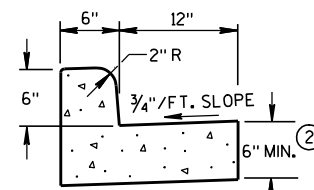
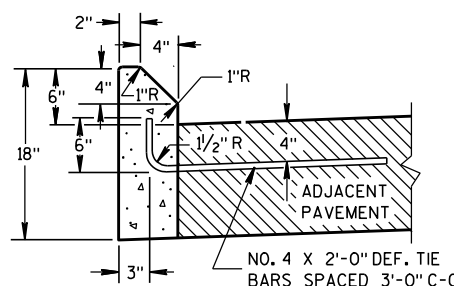
DRIVEWAY ENTRANCE CURB

(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.

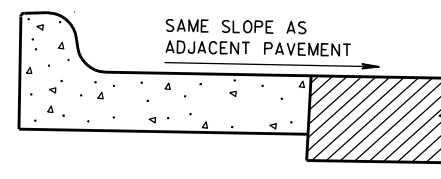
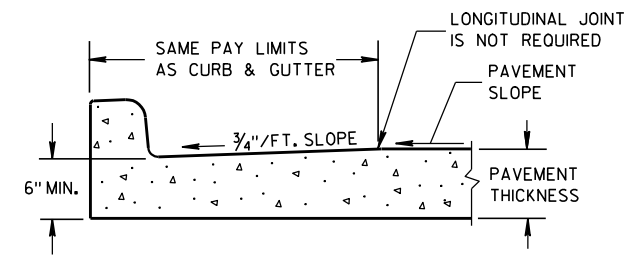
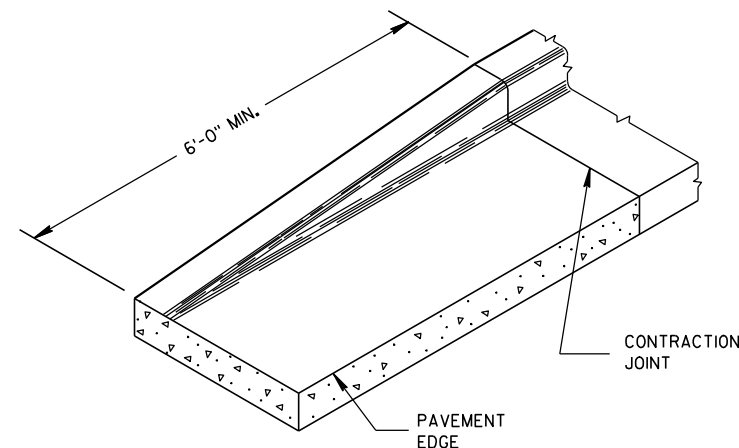
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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. 7

ROADWAY STANDARDS 67

ENGINEER

ENT

6



PLAN VIEW
FLUME AT CURB END

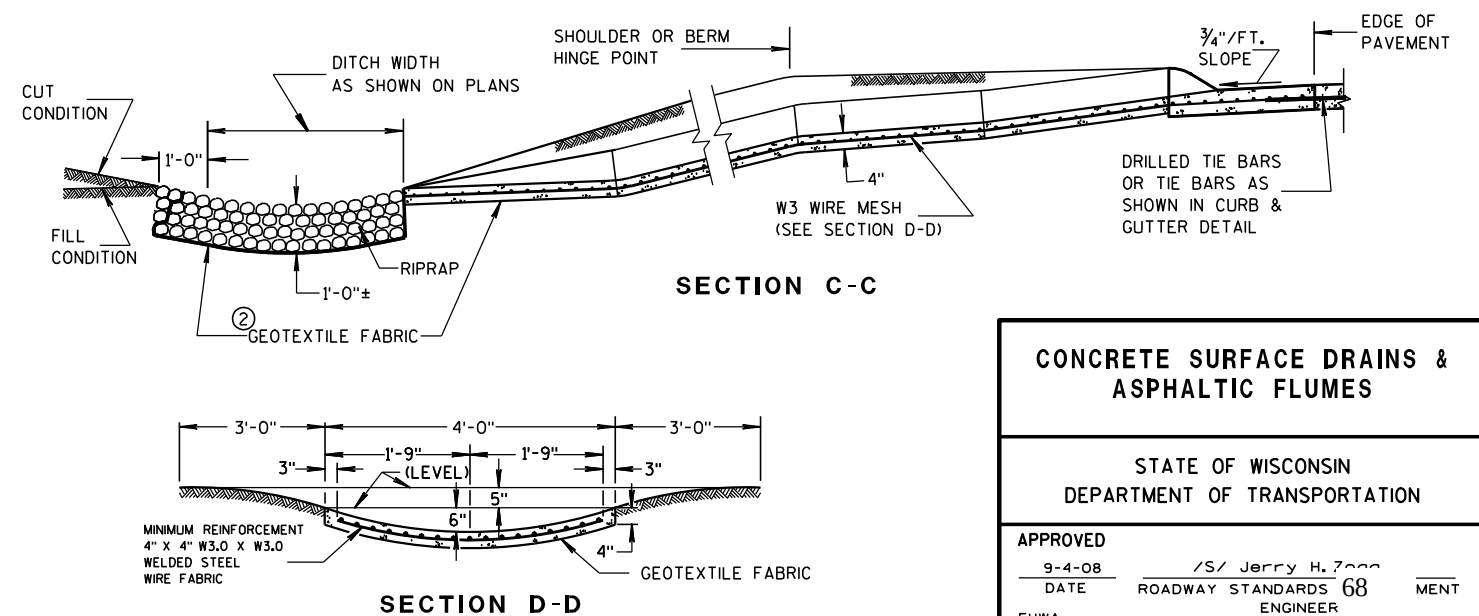


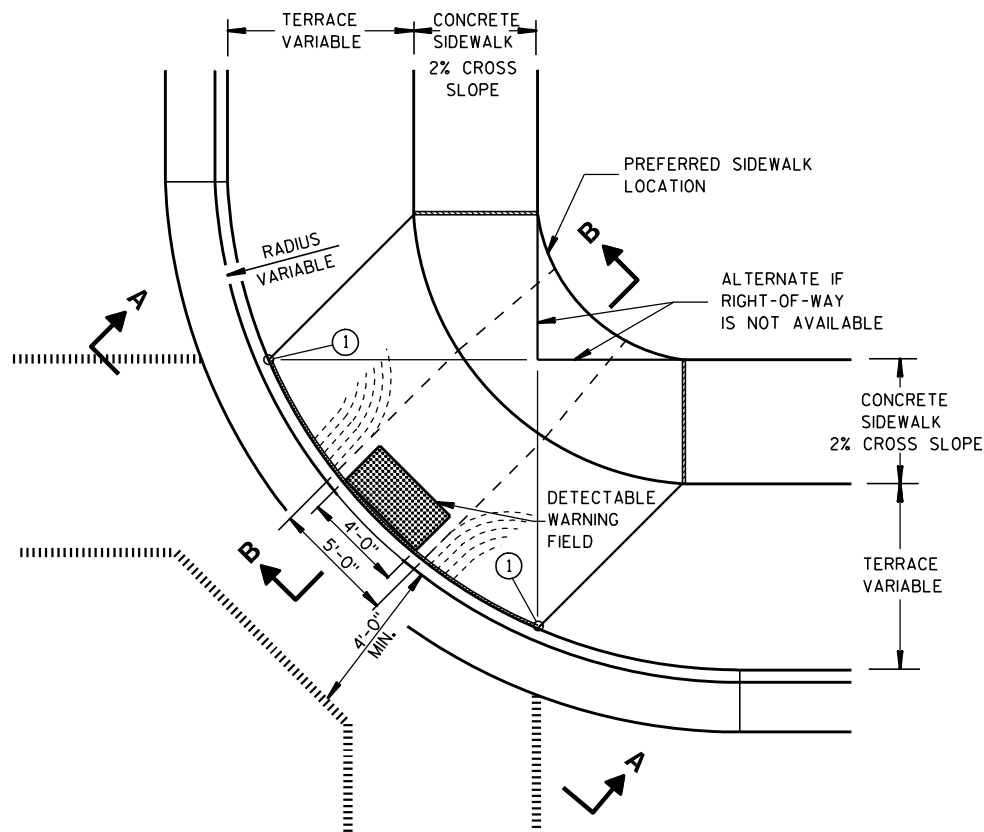
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S.D.D. 8 D 4-5

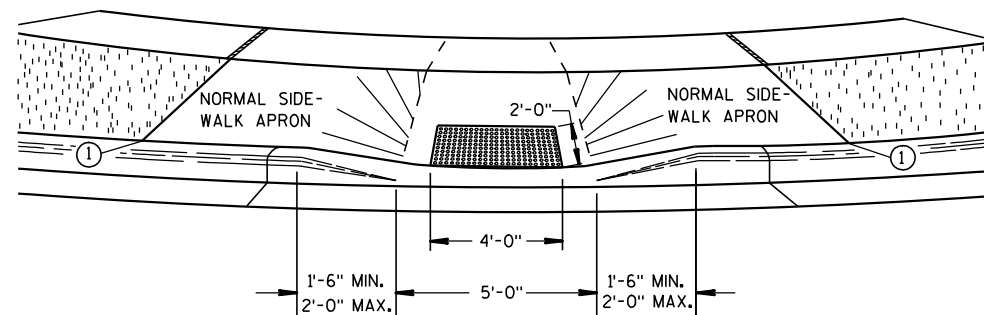
③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

SECTION C-C

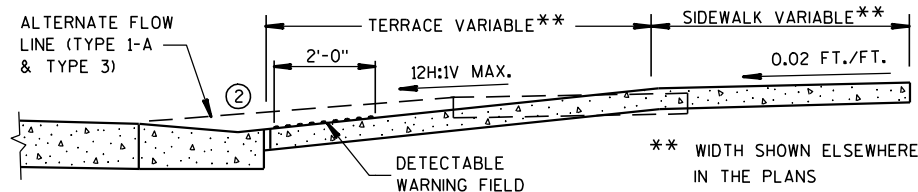




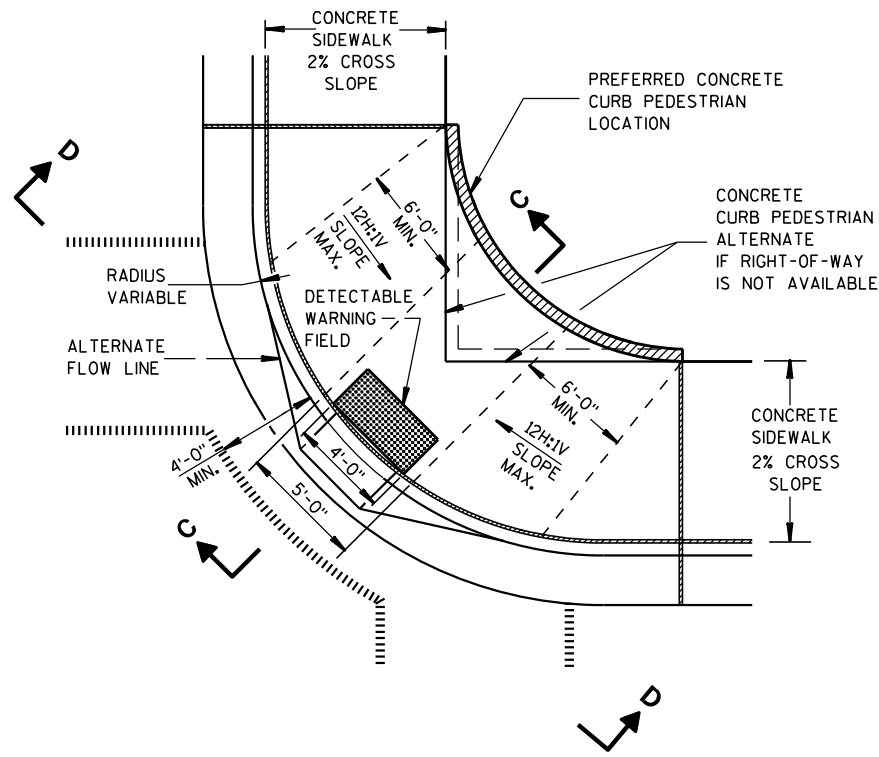
PLAN VIEW
TYPE 1 RAMP
(CENTER OF CORNER RADIUS)



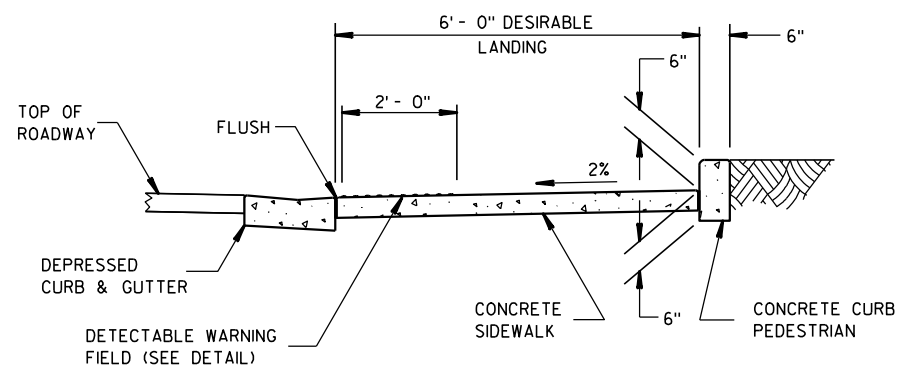
VIEW A-A



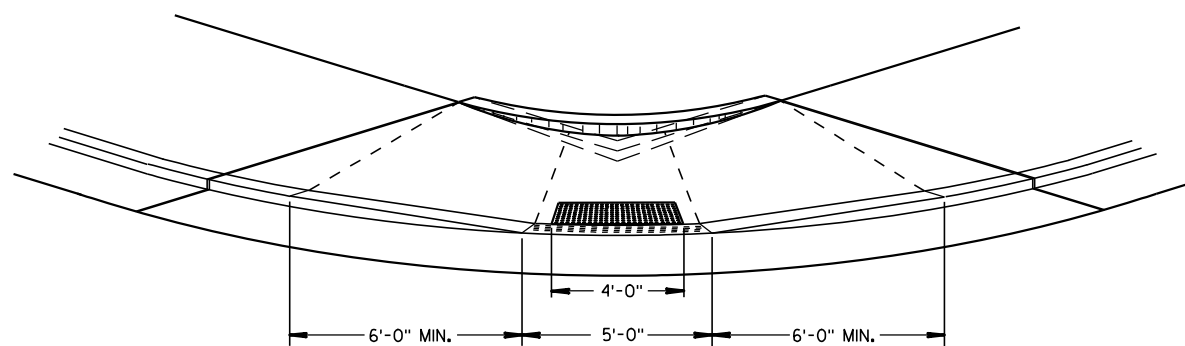
SECTION B-B



PLAN VIEW
TYPE 1-A RAMP
(NO TERRACE)



SECTION C-C



VIEW D-D

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.

RAMPS SHALL BE BUILT AT 12H:1V OR FLATTER. WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAL FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD".

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

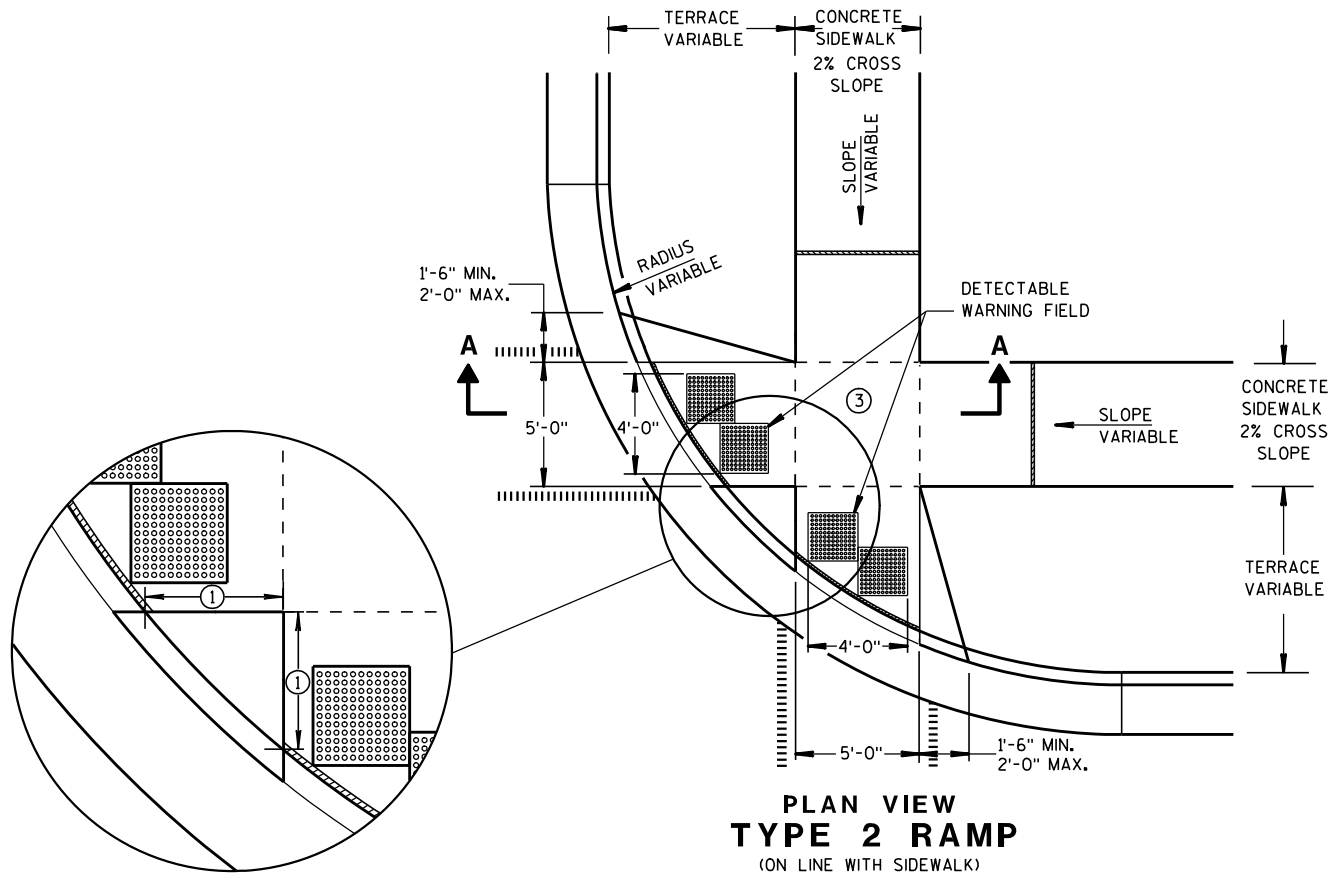
- THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.
- GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.

LEGEND

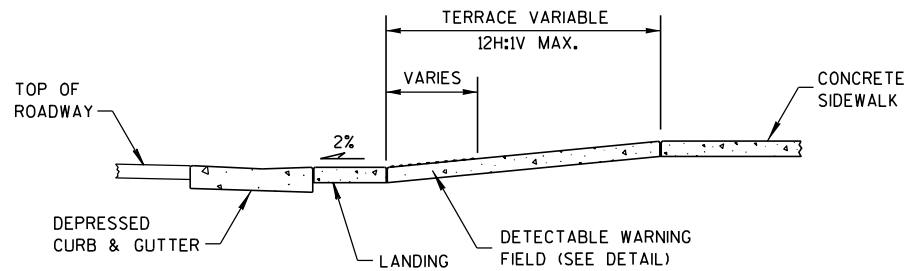
- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT

CURB RAMPS
TYPES 1 AND 1-A

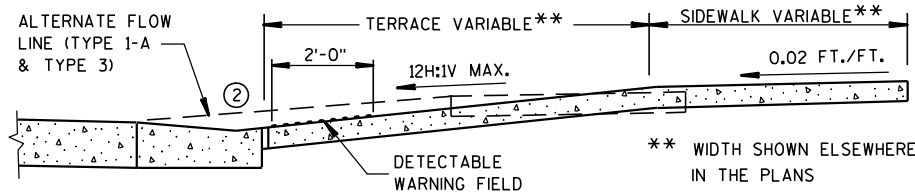
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PLAN VIEW
TYPE 2 RAMP
(ON LINE WITH SIDEWALK)



SECTION A-A



SECTION B-B

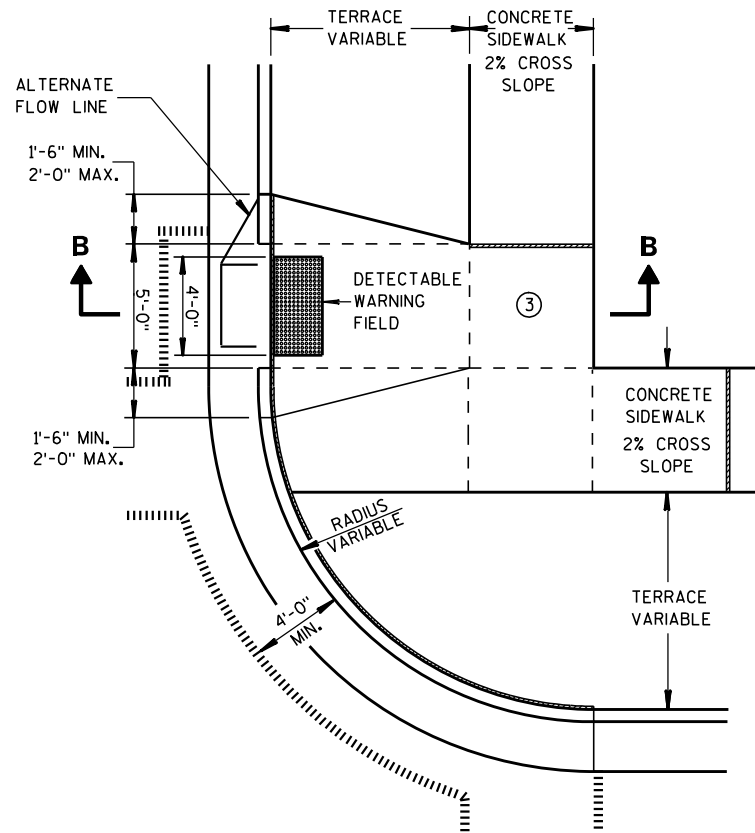
GENERAL NOTES

USE THE TYPE 3 RAMP ONLY WHEN A TYPE 1 OR TYPE 2 CANNOT BE ACHIEVED BECAUSE OF FIELD CONDITIONS.

- ① WHEN THIS DISTANCE IS LESS THAN 6'-0" IT MAY BE DIFFICULT TO ACHIEVE A 12H:1V SLOPE, OR FLATTER, ON THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 12H:1V SLOPE, OR FLATTER, ON RAMP. 2" MINIMUM CURB HEIGHT.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.
- ③ PROVIDE LANDING AT TOP OF RAMP WITH NO MORE THAN 2% SLOPE IN ANY DIRECTION.

LEGEND

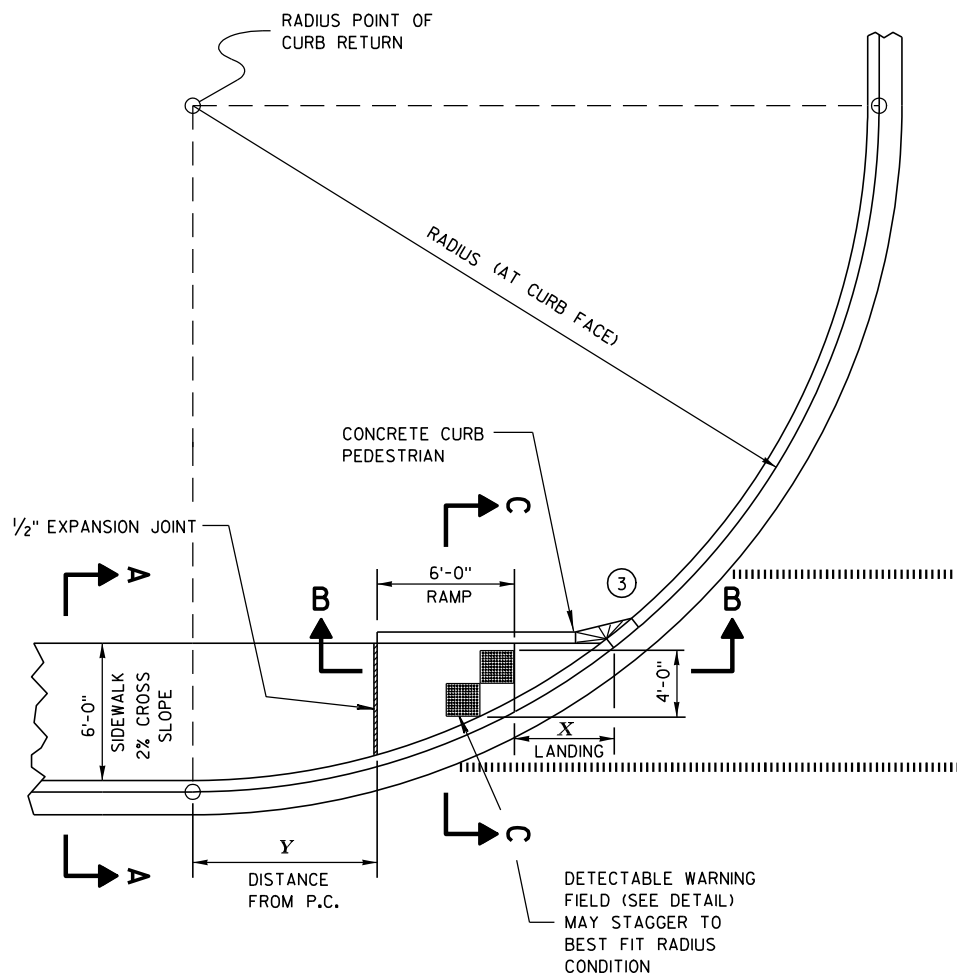
- ===== 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



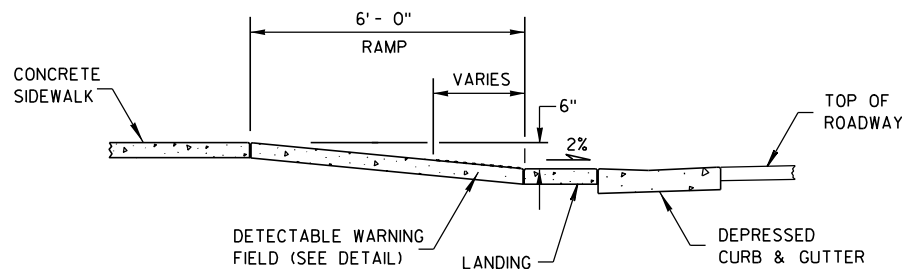
PLAN VIEW
TYPE 3 RAMP
(OUTSIDE OF CROSSWALK AREA)

CURB RAMPS TYPES 2 AND 3

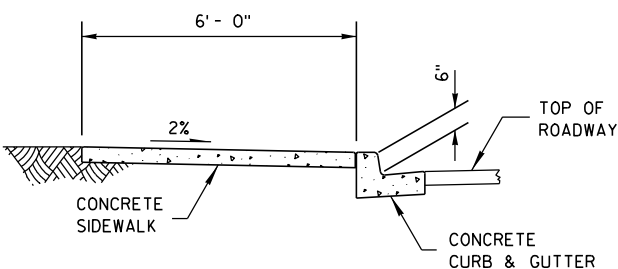
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



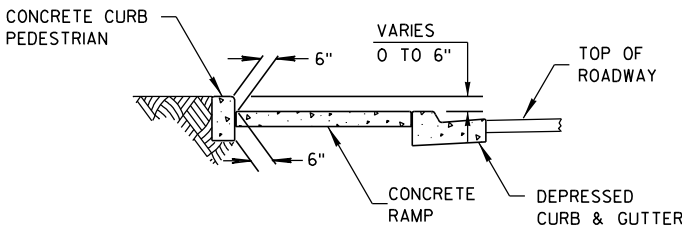
CURB RAMP TYPE 4A
PLAN VIEW



SECTION B-B



SECTION A-A



SECTION C-C

RADIUS (AT CURB FACE)	X	Y
20 FEET	6'-1 $\frac{3}{4}$ "	2'-7 $\frac{1}{4}$ "
30 FEET	7'-11 $\frac{3}{4}$ "	4'-8 $\frac{1}{4}$ "
40 FEET	9'-5 $\frac{1}{4}$ "	6'-5"
50 FEET	10'-8 $\frac{3}{4}$ "	7'-11 $\frac{1}{4}$ "
60 FEET	11'-10 $\frac{1}{4}$ "	9'-3 $\frac{1}{2}$ "

INTERMEDIATE RADII CAN BE INTERPOLATED

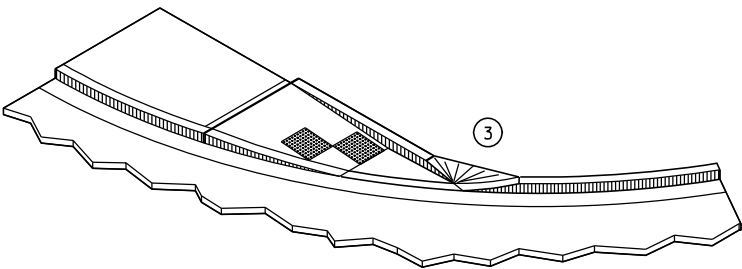
GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

- ③ INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.)
DO NOT MARK TRANSITION NOSE.



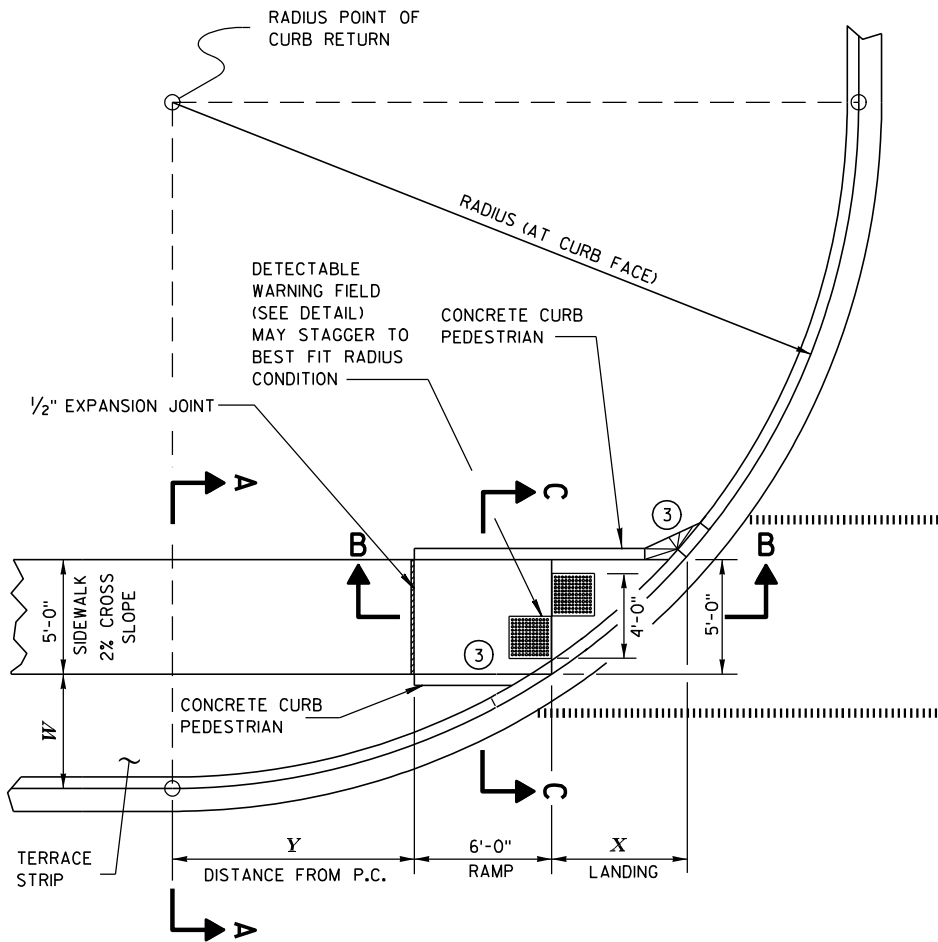
ISOMETRIC VIEW

LEGEND

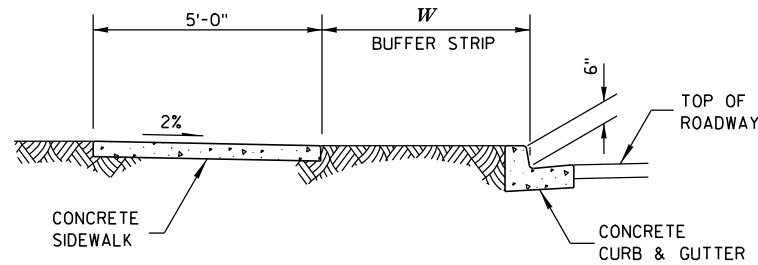
- 1/2" EXPANSION JOINT-SIDEWALK
- - - CONTRACTION JOINT FIELD LOCATED
..... PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS
TYPE 4A

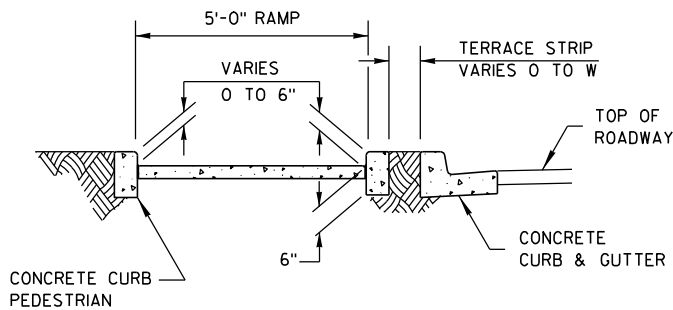
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



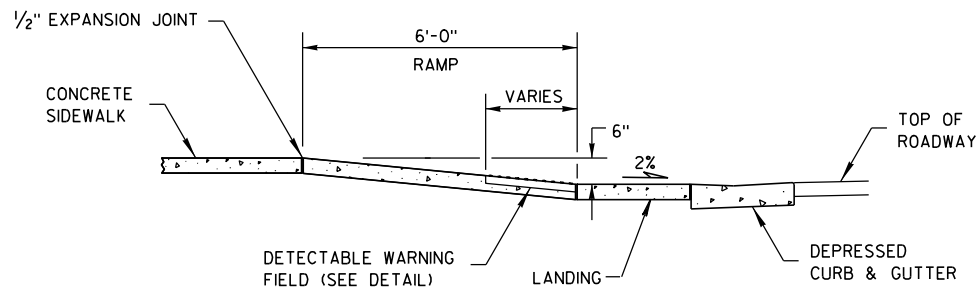
**CURB RAMP TYPE 4B
PLAN VIEW**



SECTION A-A



SECTION C-C



SECTION B-B

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

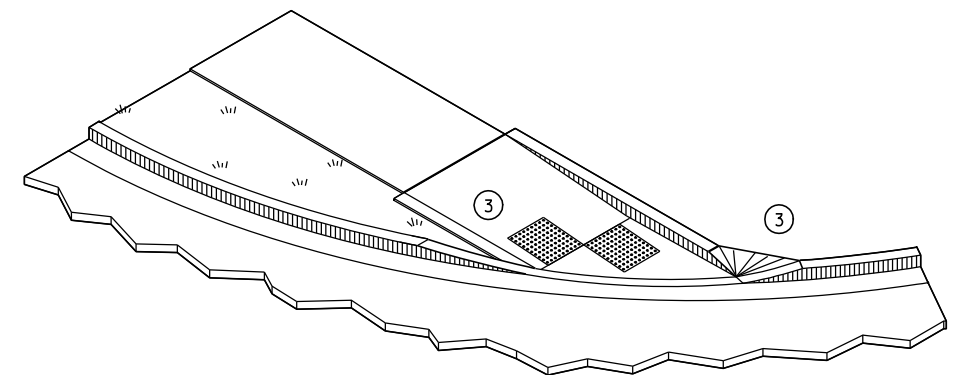
RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

- ③ INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS).
DO NOT MARK TRANSITION NOSE.

RADIUS (AT CURB FACE)	W = 3'- 0"		W = 4'- 0"		W = 5'- 0"		W = 6'- 0"		W = 7'- 0"	
	X	Y	X	Y	X	Y	X	Y	X	Y
20 FEET	5'-5 1/2"	4'-6 1/2"	4'-8 1/2"	6'-0"	4'-1"	7'-2 3/4"	3'-7"	8'-3 1/2"	3'-1 1/2"	9'-2 1/2"
30 FEET	7'-3 3/4"	7'-1"	6'-5 1/2"	8'-11 1/2"	5'-9 1/4"	10'-7"	5'-2 1/2"	12'-0"	4'-8 3/4"	13'-3 1/4"
40 FEET	8'-9 1/2"	9'-2 1/2"	7'-10"	11'-5 1/4"	7'-1"	13'-4 1/2"	6'-5 3/4"	15'-3 1/4"	5'-11 1/2"	16'-7 1/4"
50 FEET	10'-3 1/4"	11'-3 1/4"	9'-1 1/4"	13'-7 1/4"	8'-2 1/2"	15'-9 1/2"	7'-6 1/2"	17'-9"	6'-11 3/4"	19'-6 1/4"
60 FEET	11'-2 1/2"	12'-8 3/4"	10'-3 1/4"	15'-6 1/2"	9'-2 1/4"	17'-11 3/4"	8'-5 3/4"	20'-1 3/4"	7'-10 1/2"	22'-1 1/2"
70 FEET	12'-2 3/4"	14'-3 1/4"	11'-1 1/4"	17'-4"	10'-1"	19'-11 3/4"	9'-3 3/4"	22'-4 1/4"	8'-8 1/4"	24'-6 1/4"
80 FEET	13'-2"	15'-8 1/2"	11'-10 1/2"	18'-11 3/4"	10'-10 3/4"	21'-10"	10'-1"	24'-4 3/4"	9'-5"	26'-8 3/4"
90 FEET	14'-1 1/2"	17'-1 1/2"	12'-8 1/4"	20'-6 1/2"	11'-7 3/4"	23'-7"	10'-9 3/4"	26'-3 3/4"	10'-1 1/4"	28'-9 1/2"
100 FEET	14'-10 1/2"	18'-3 3/4"	13'-5 1/2"	22'-0"	12'-4 1/4"	25'-2 3/4"	11'-5 3/4"	28'-1 1/2"	10'-9"	30'-9"

INTERMEDIATE RADII CAN BE INTERPOLATED



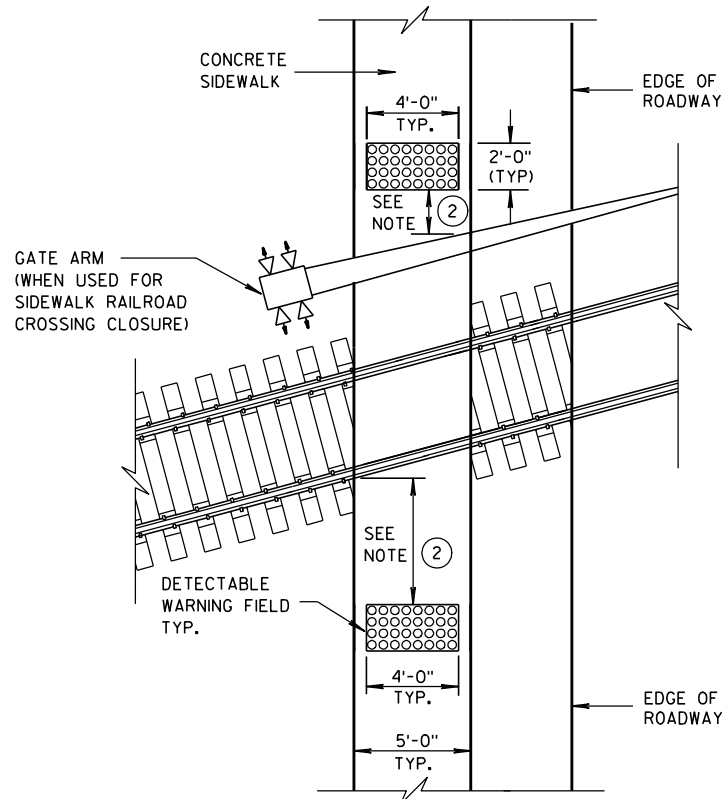
ISOMETRIC VIEW

LEGEND

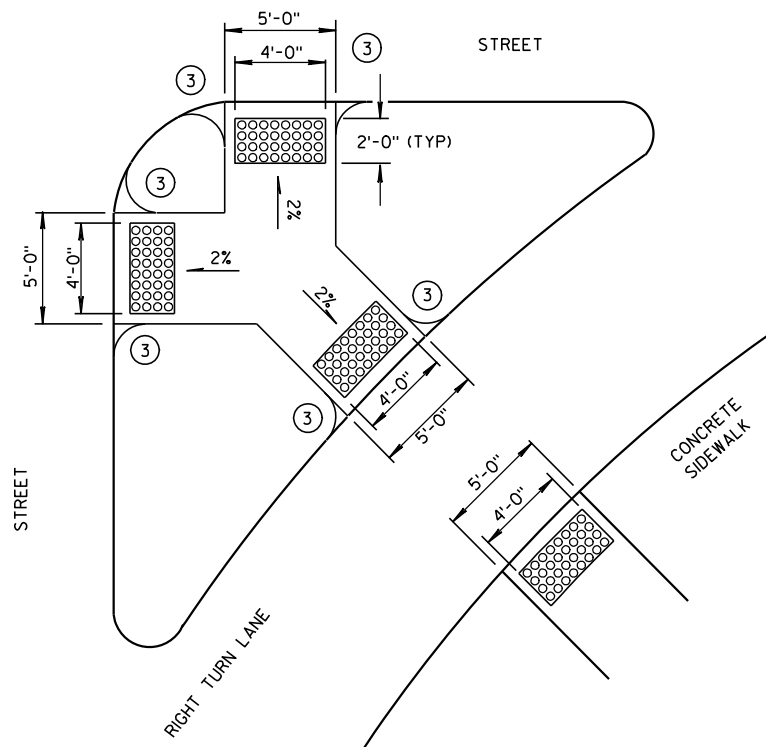
- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

**CURB RAMPS
TYPE 4B**

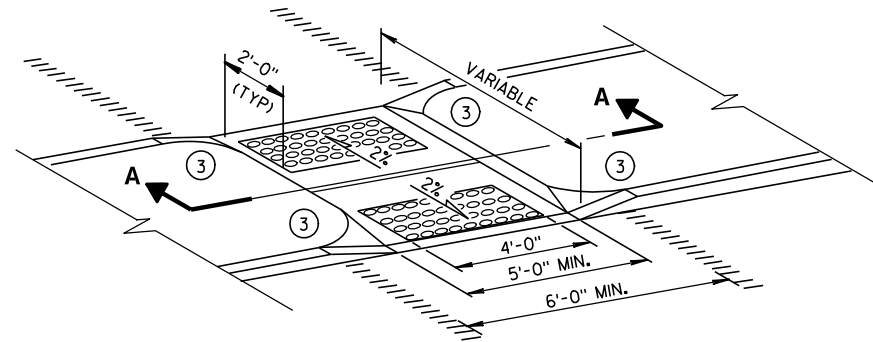
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



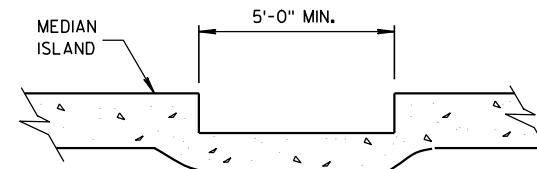
TYPE 8
DETECTABLE WARNINGS
AT RAILROAD CROSSING



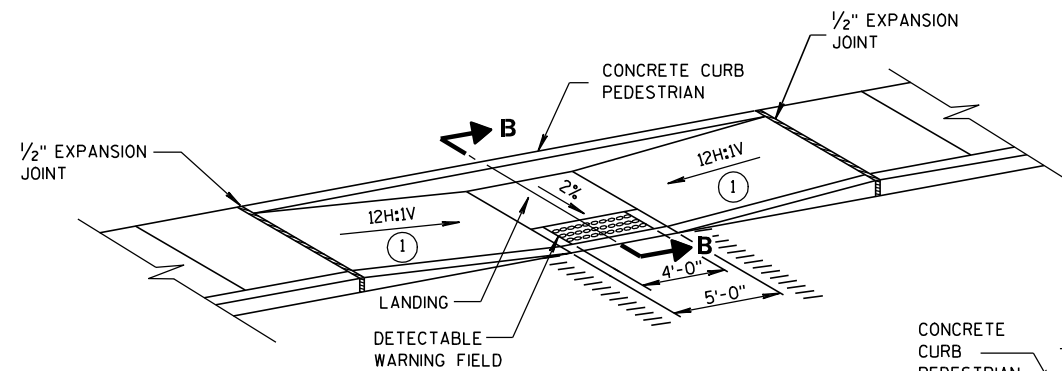
TYPE 6
DETECTABLE WARNING AT ISLANDS



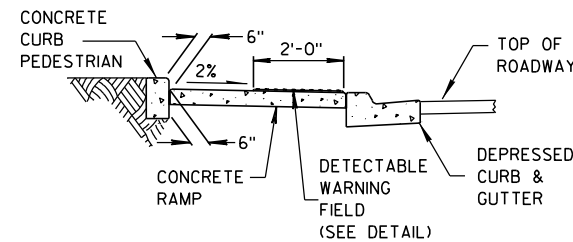
MEDIAN ISLAND
NON-ELEVATED CROSSING
TYPE 5



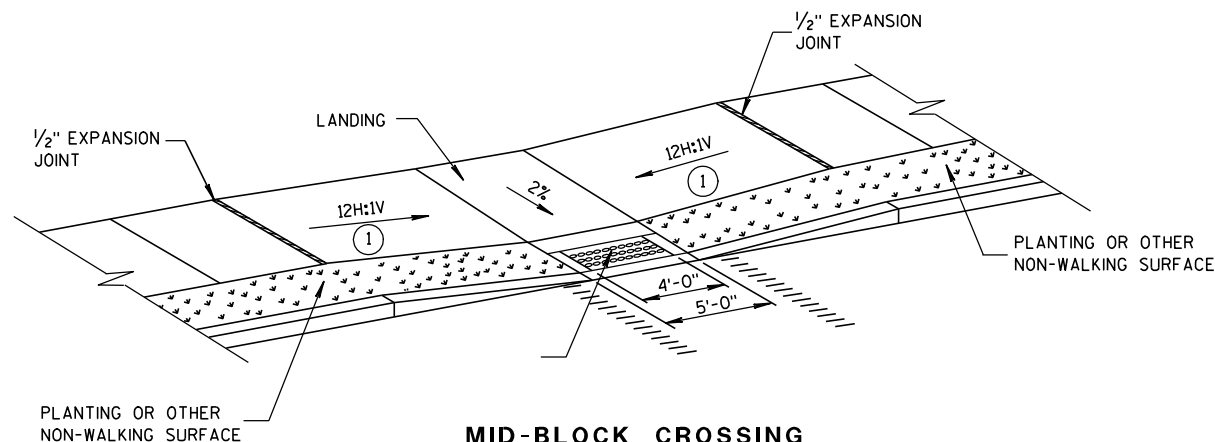
SECTION A-A



MID-BLOCK CROSSING
TYPE 7A



SECTION B-B



MID-BLOCK CROSSING
TYPE 7B

NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMPS
MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS.

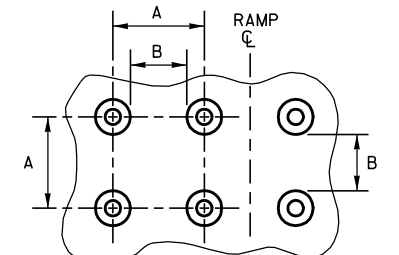
GENERAL NOTES

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

- 1 SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.
- 2 THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET ± 0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.
- 3 INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.

LEGEND

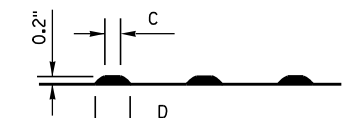
- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)



PLAN VIEW

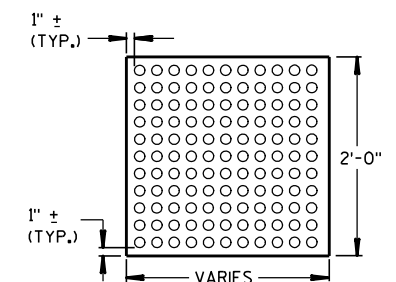
	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.



ELEVATION VIEW

TRUNCATED DOMES
DETECTABLE WARNING
PATTERN DETAIL



PLAN VIEW

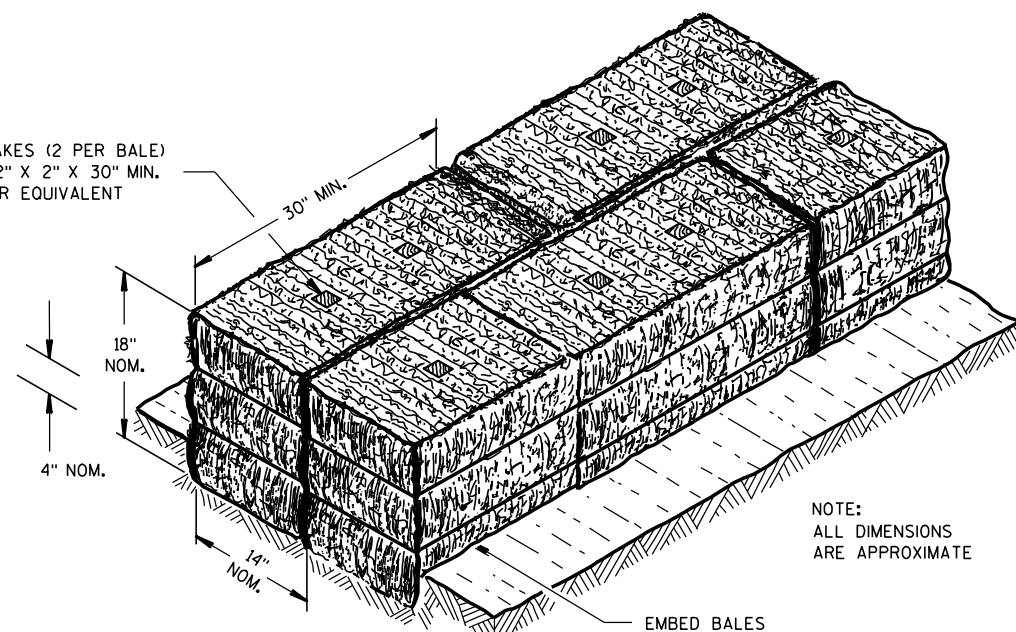
DETECTABLE WARNING
FIELD (TYPICAL)

CURB RAMPS
TYPES 5, 6, 7A, 7B & 8

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

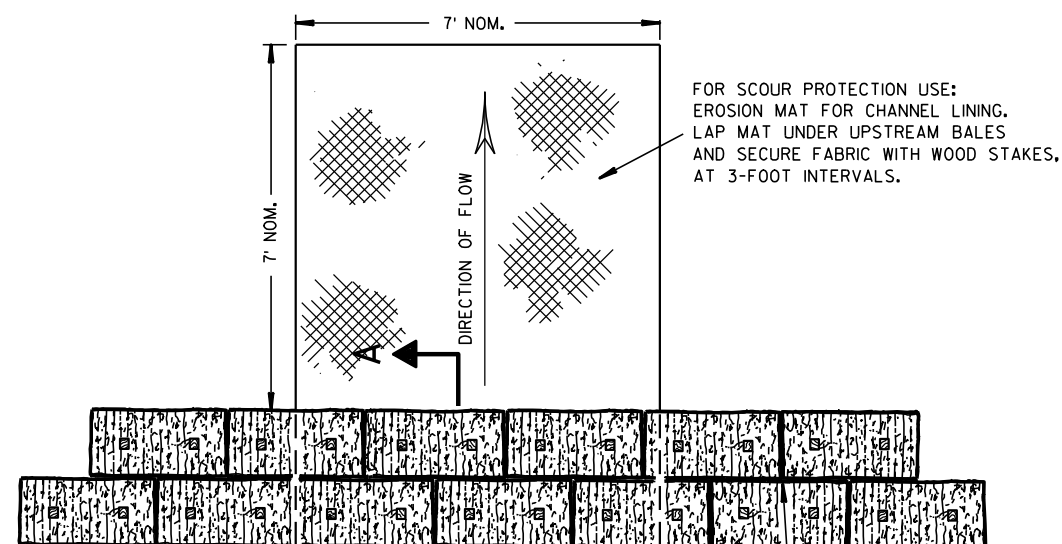
APPROVED
DATE 2-9-10
/S/ Jerry H. Zogg
ROADWAY STANDARDS 73 ENT
ENGINEER
FHWA

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

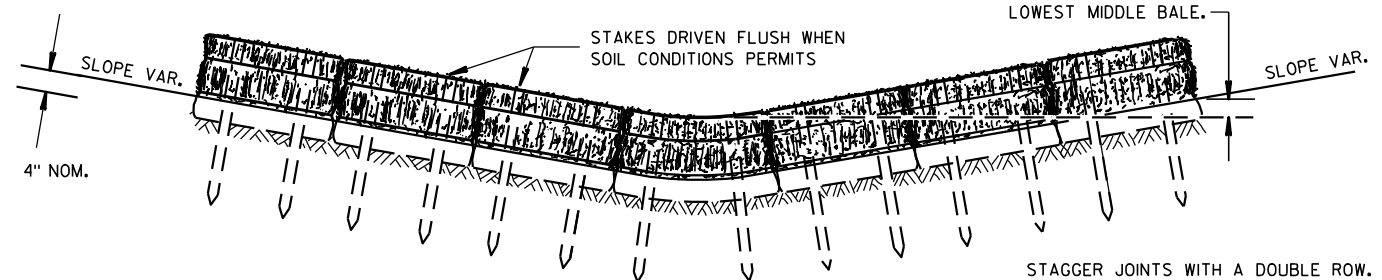


NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

SECTION A-A



PLAN VIEW



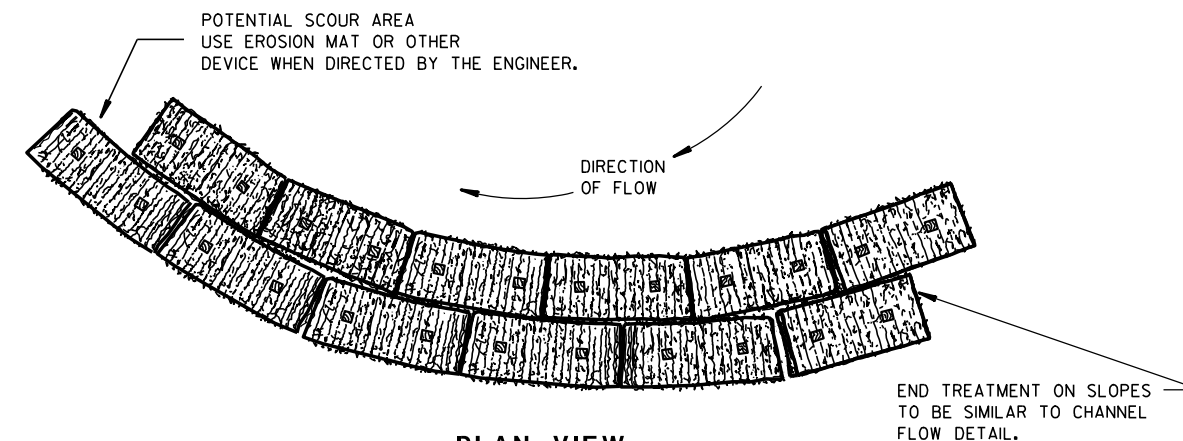
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

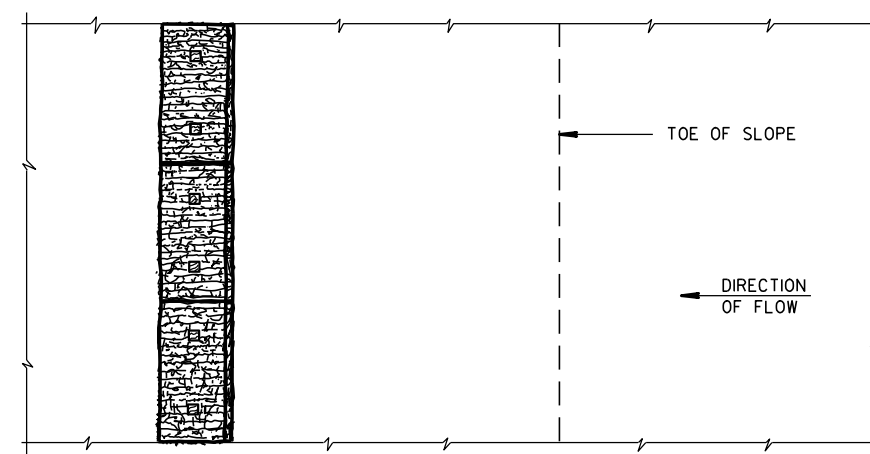
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- 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.

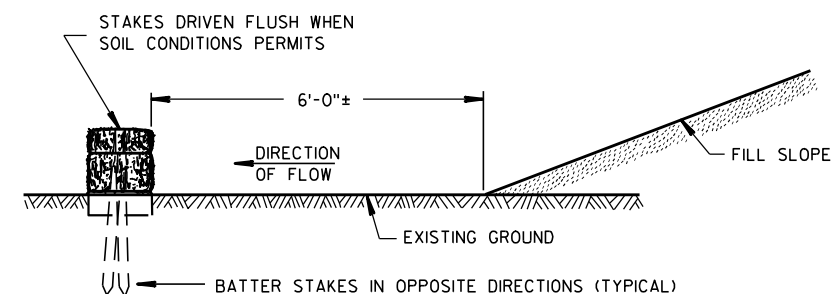


PLAN VIEW

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

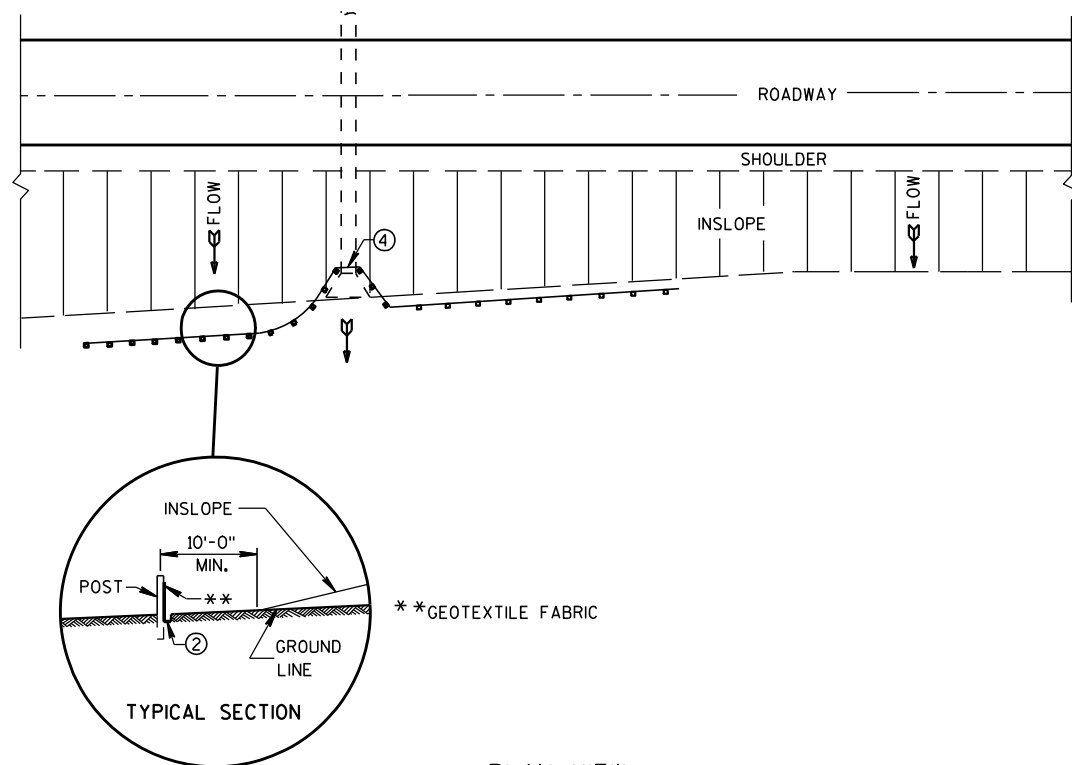
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

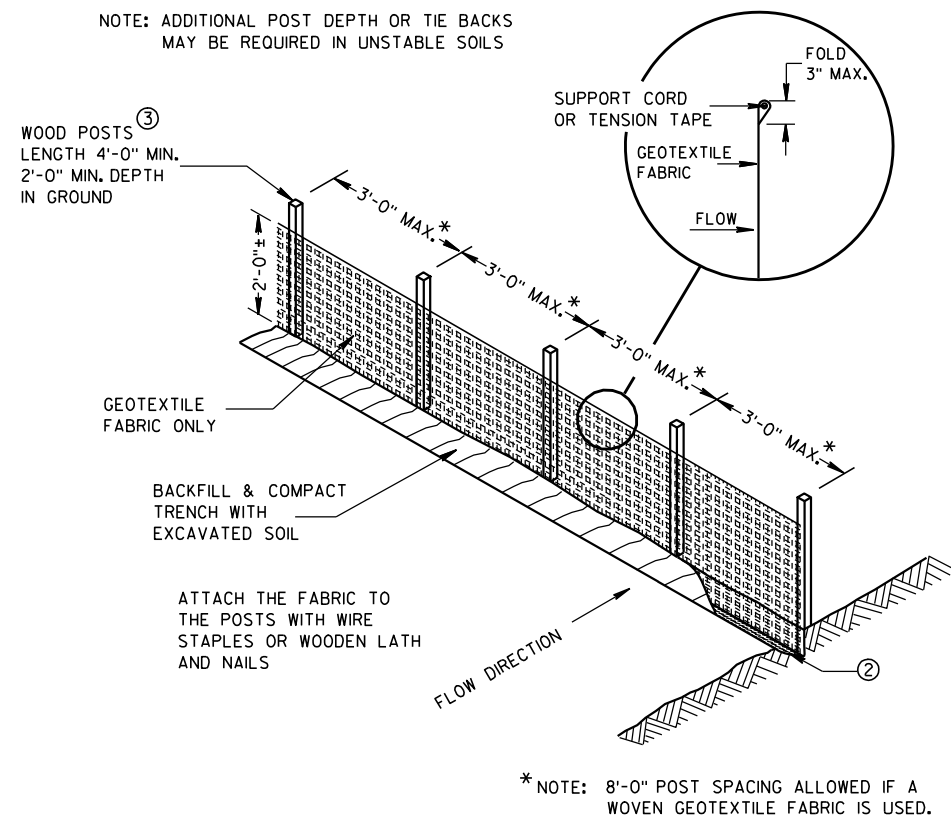
FHWA

/S/ Beth Conn-----
CHIEF ROADWAY DEVELOPER 74 ENGINEER

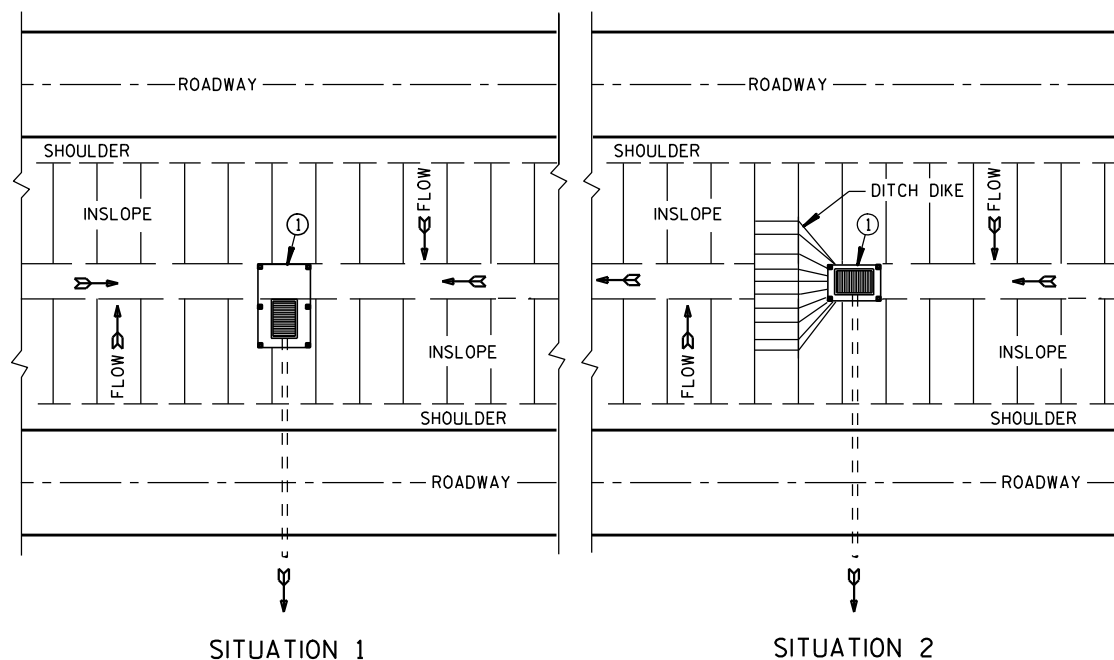


TYPICAL APPLICATION OF SILT FENCE

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

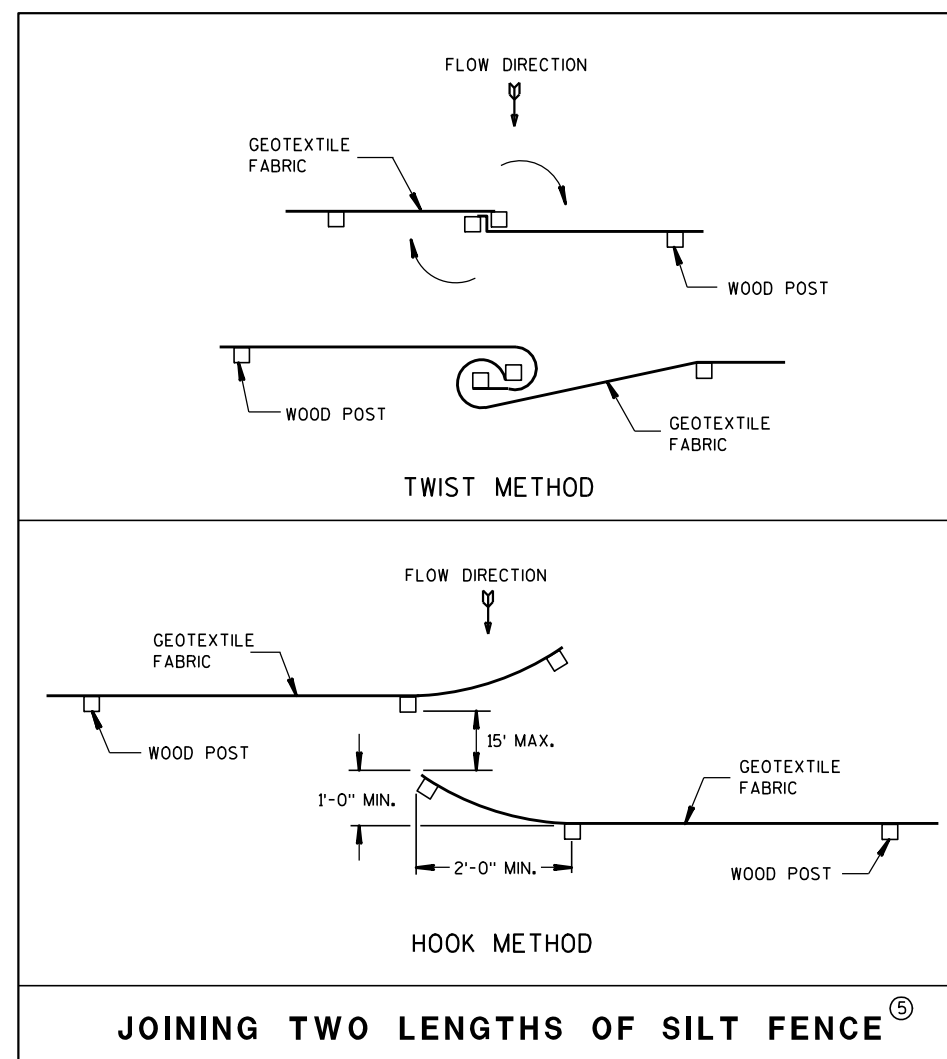


SILT FENCE



PLAN VIEW

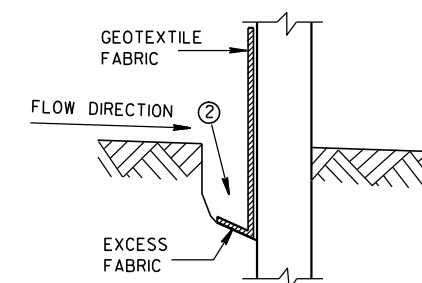
SILT FENCE AT MEDIAN SURFACE DRAINS



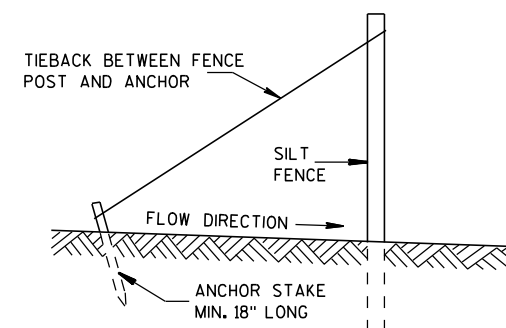
GENERAL NOTES

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

- 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.



TRENCH DETAIL



SILT FENCE TIE BACK (WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4-29-05

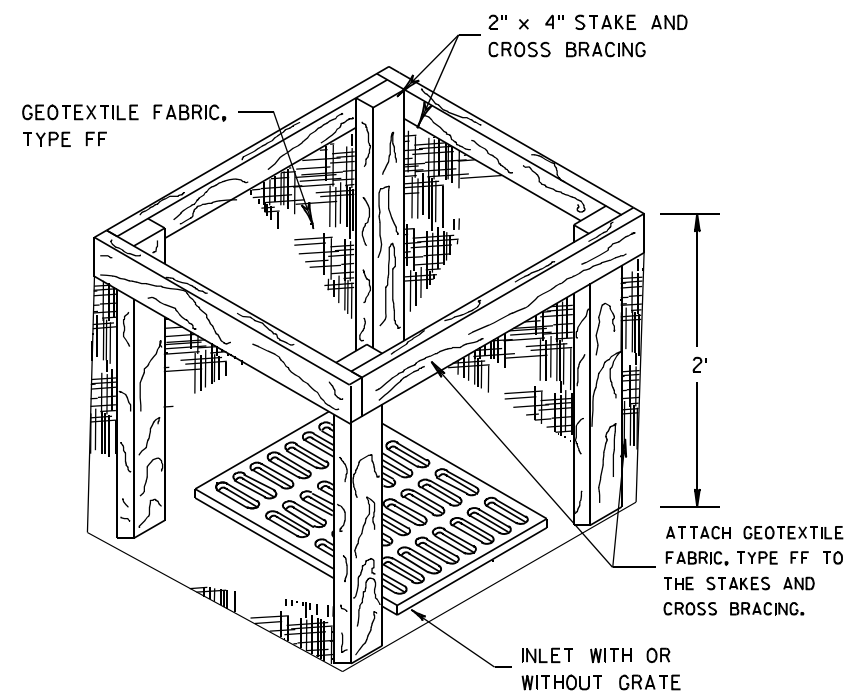
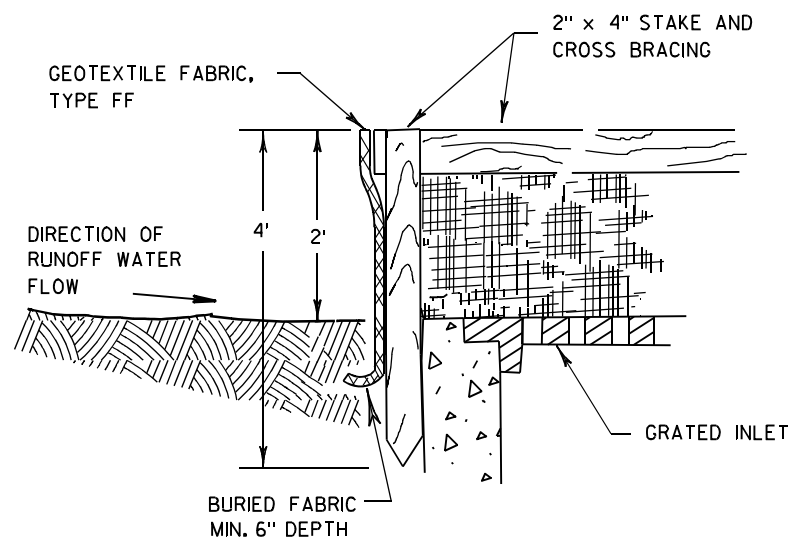
DATE

/S/ Beth Conn

CHIEF ROADWAY DEVELOPER

FHWA

ENGINEER



INLET PROTECTION, TYPE A

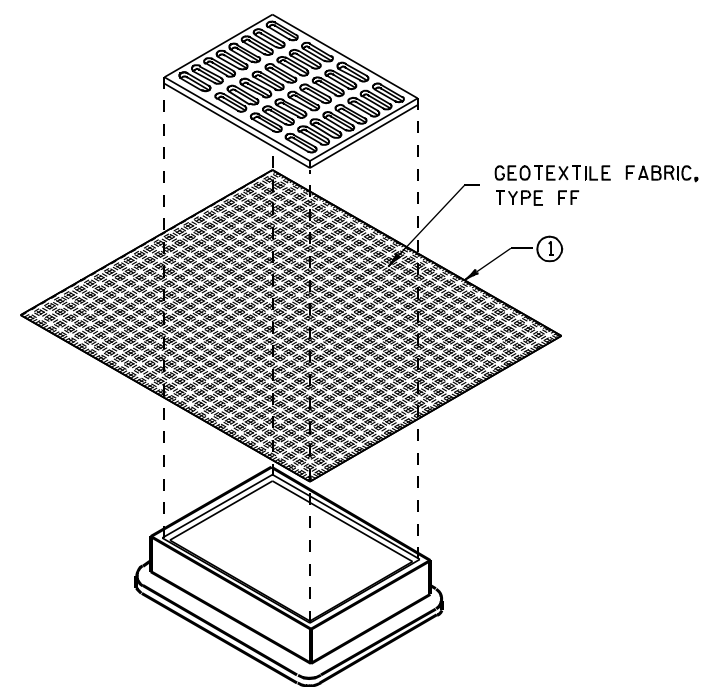
GENERAL NOTES

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.

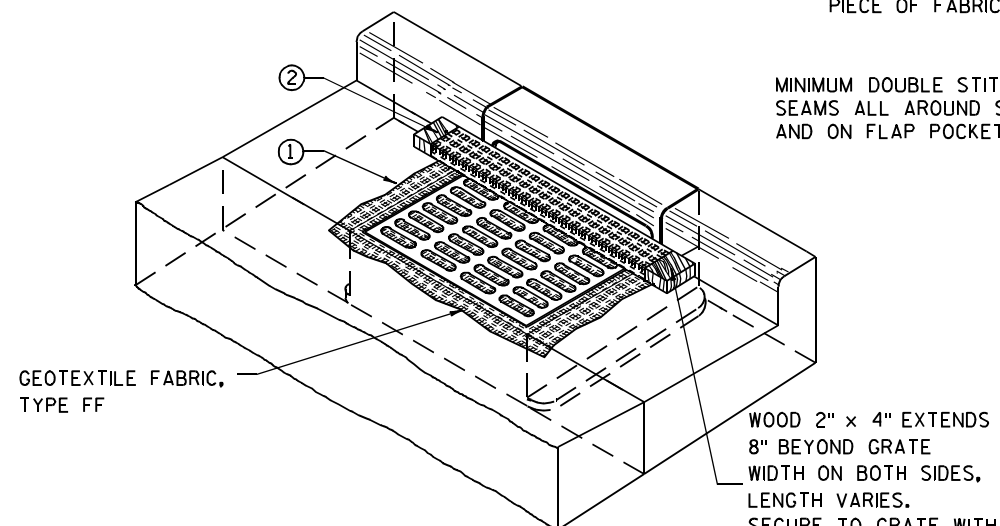
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- 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.

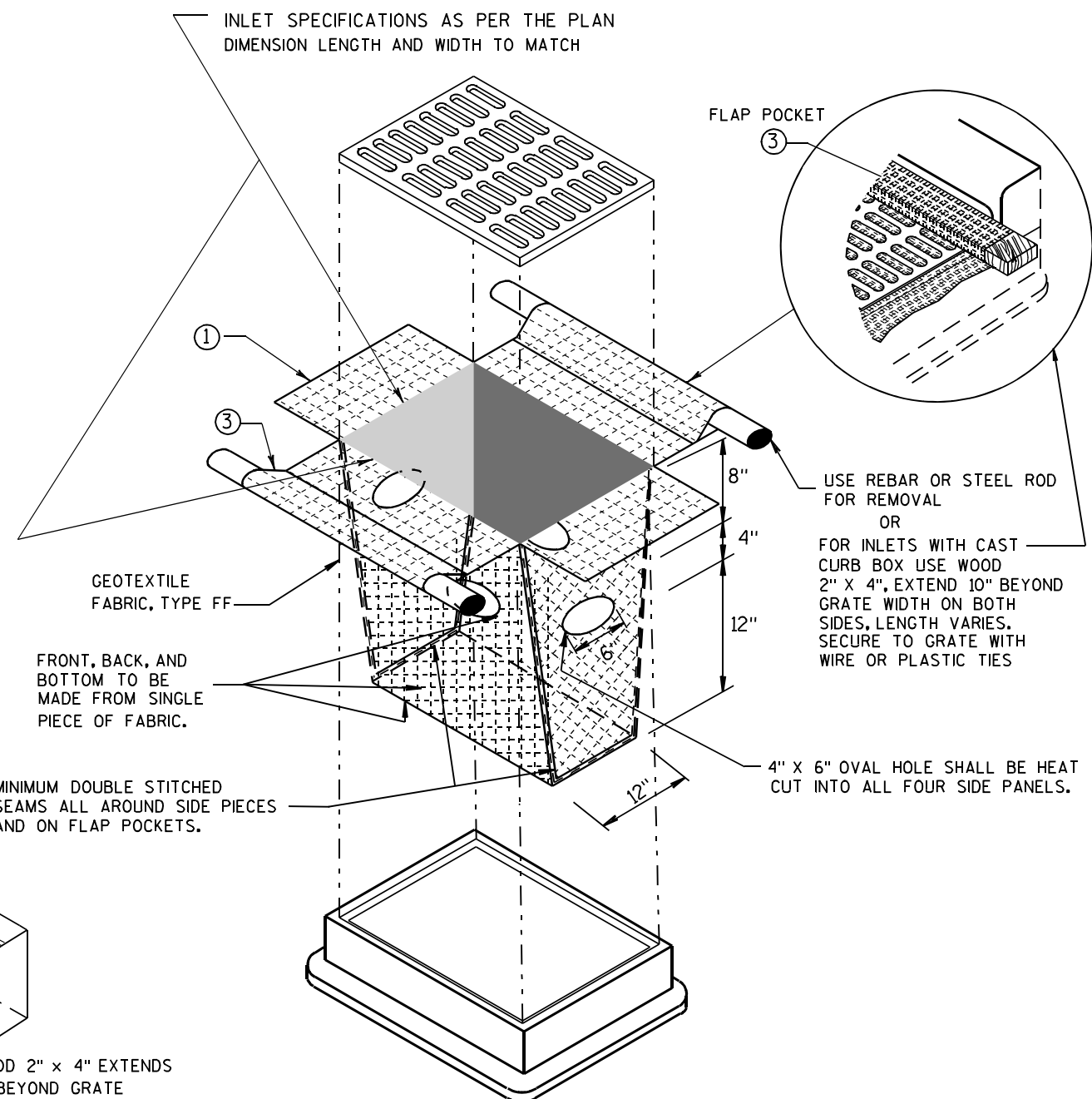
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

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.



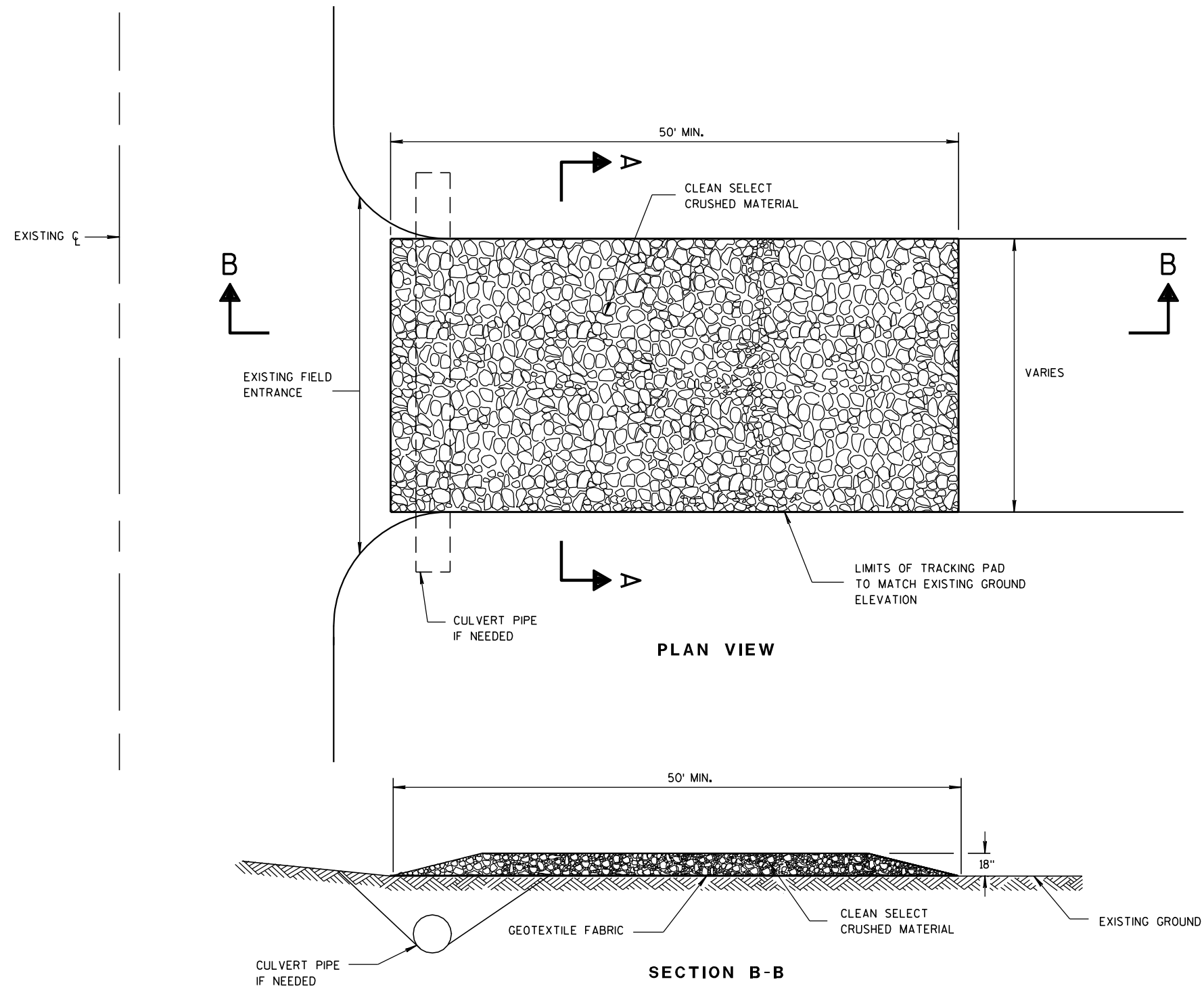
INLET PROTECTION, TYPE D

(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 Connolly
DATE 76
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER



TRACKING PAD

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.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

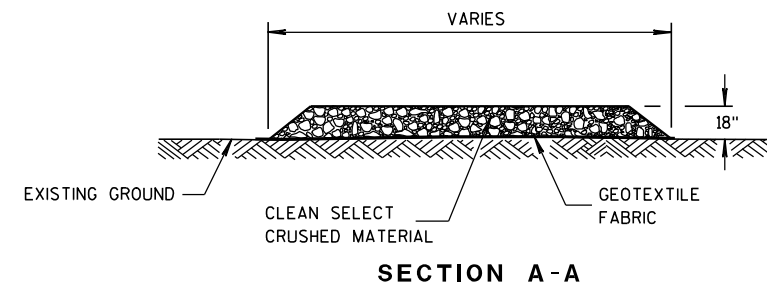
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.

**TRACKING PAD**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/24/2011

DATE

FHWA

/S/ Jerry H. Zonn

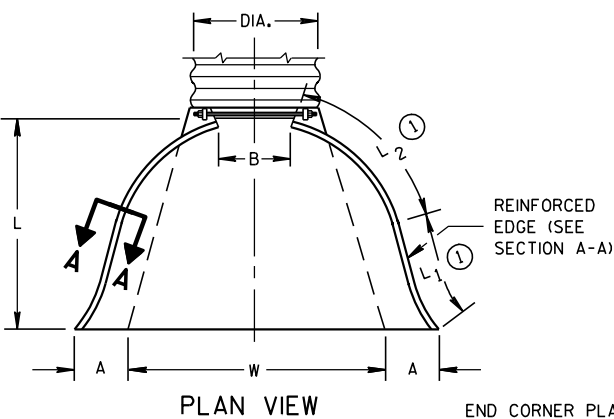
ROADWAY STANDARDS 77

ENGINEER

ENT

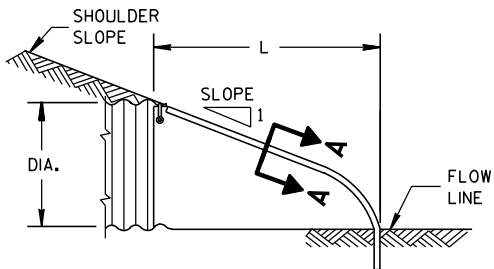
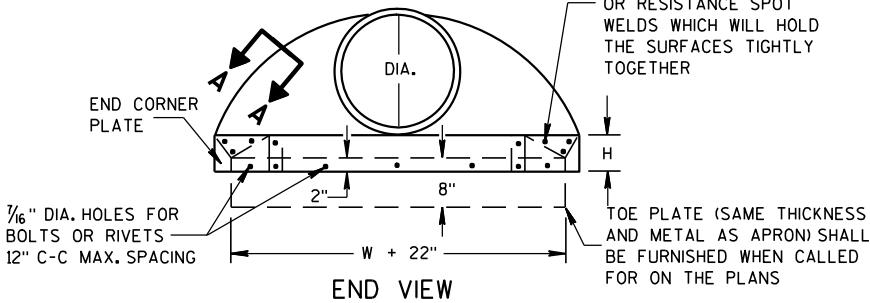
METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE		BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")			
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1	1 Pc.
18	.064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

* EXCEPT CENTER PANEL
SEE GENERAL NOTES



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

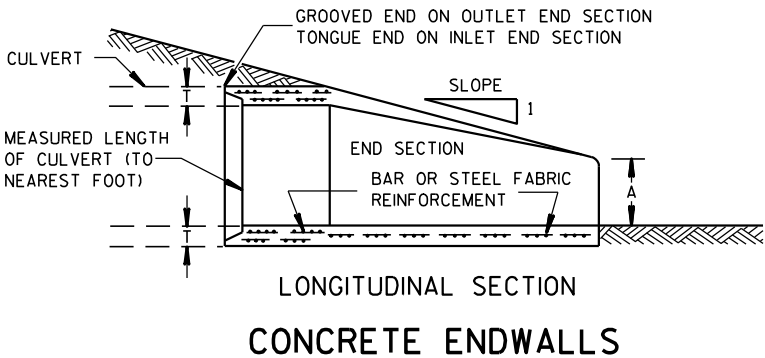
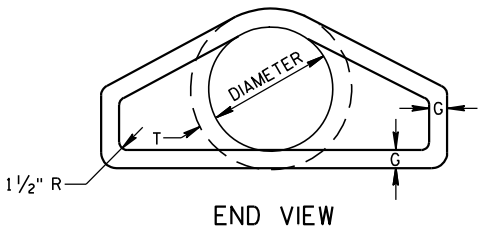
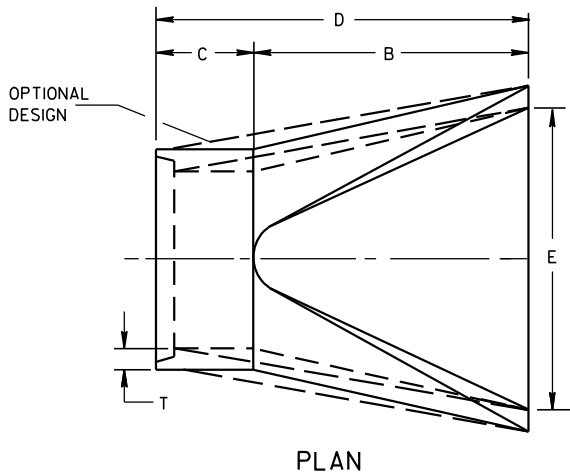
TOE PLATE (SAME THICKNESS
AND METAL AS APRON) SHALL
BE FURNISHED WHEN CALLED
FOR ON THE PLANS



SIDE ELEVATION
METAL ENDWALLS

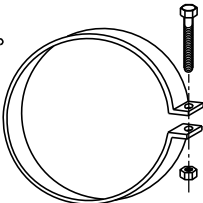
REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 7/8	72 7/8	24	2	3 to 1	1	1	1	1 Pc.
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1	1	1	1	1 Pc.
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1	1	1	1	1 Pc.
21	2 3/4	9	36	37 1/2	73 1/2	42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

* MINIMUM
** MAXIMUM

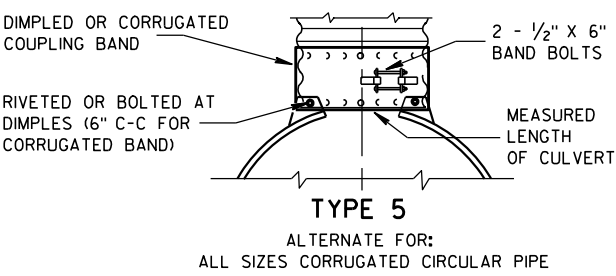
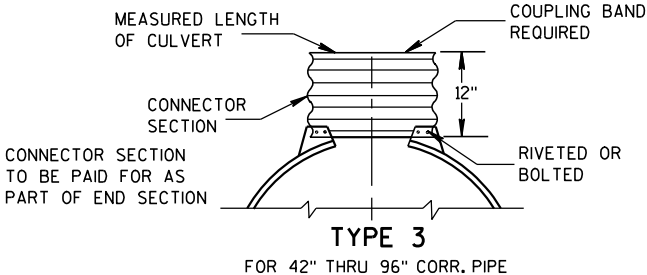
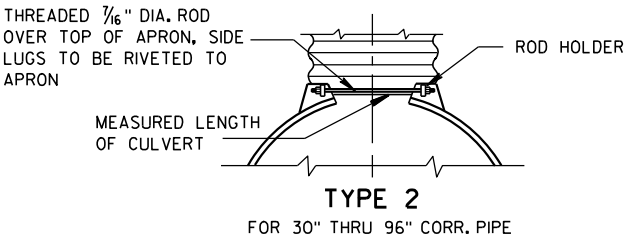
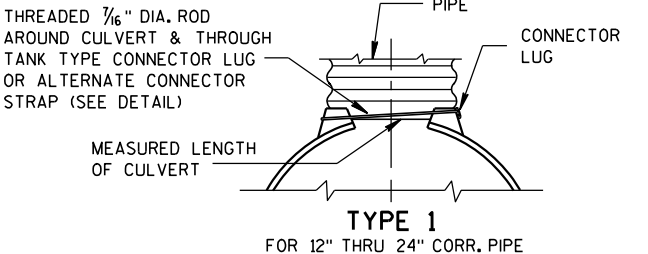


LONGITUDINAL SECTION
CONCRETE ENDWALLS

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



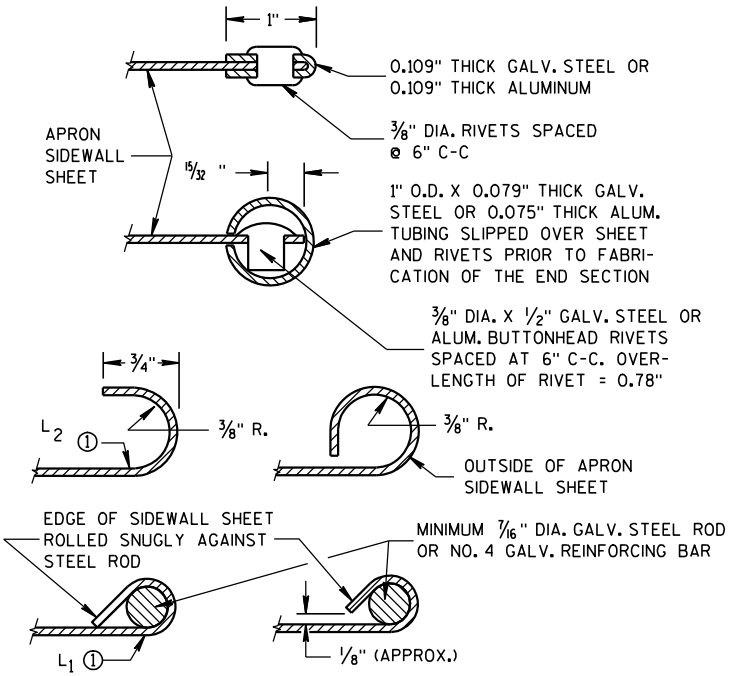
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.
DIMPLED BAND MAY BE USED WITH HELICALLY
CORRUGATED PIPE.

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.

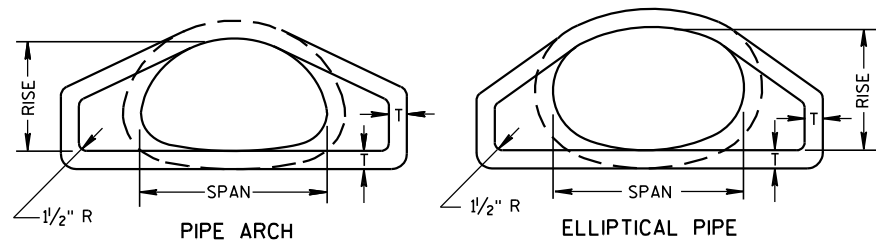
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL
THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH
OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

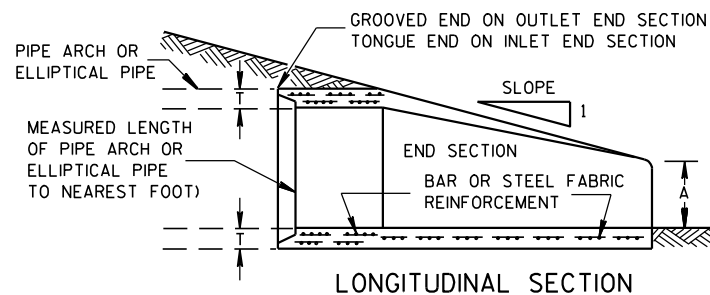
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT
TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT
TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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. Rhinehart CHIEF ROADWAY DEVELOP	78	NEER
FHWA			

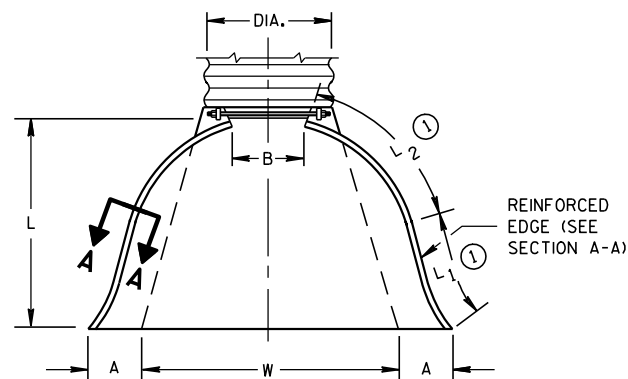


END VIEW

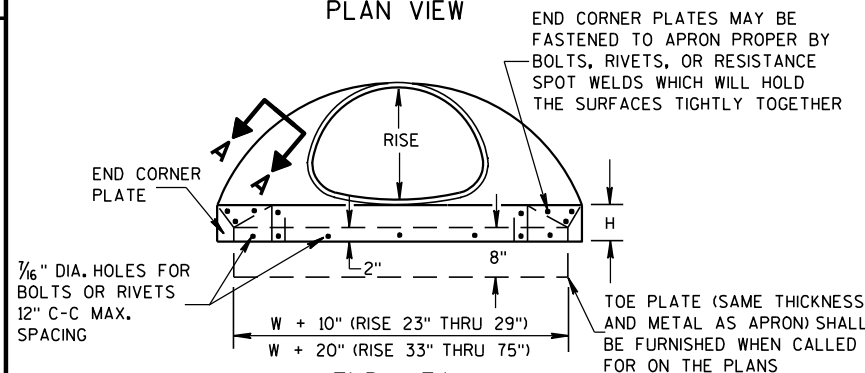


LONGITUDINAL SECTION

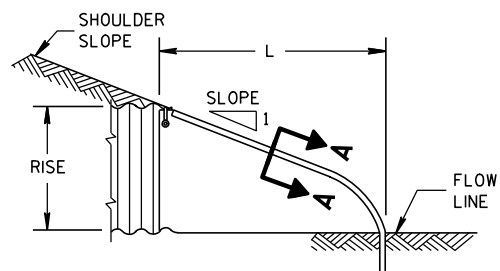
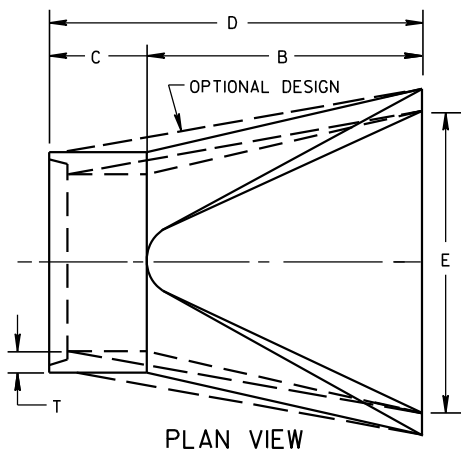
CONCRETE ENDWALLS



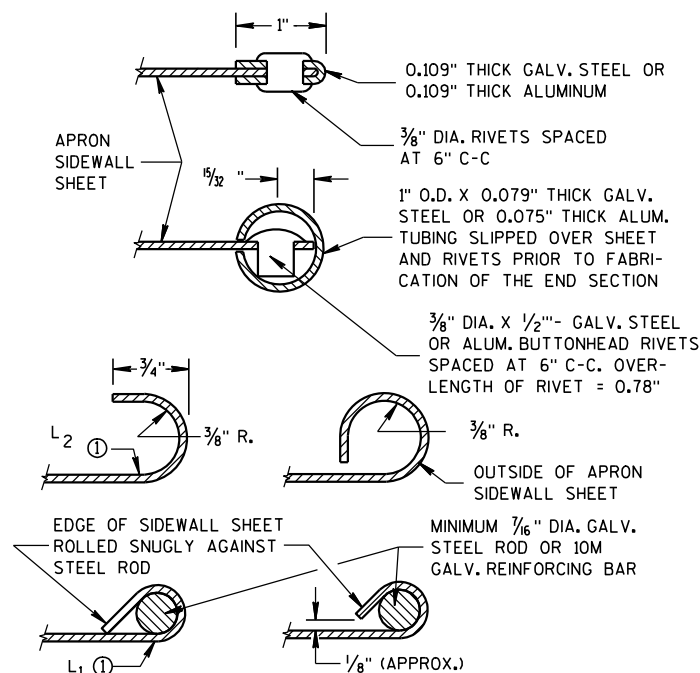
PLAN VIEW



END VIEW

SIDE ELEVATION
METAL ENDWALLS

PLAN VIEW



SECTION A-A

2- 2 3/8" X 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")	L1 ①	L2 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.

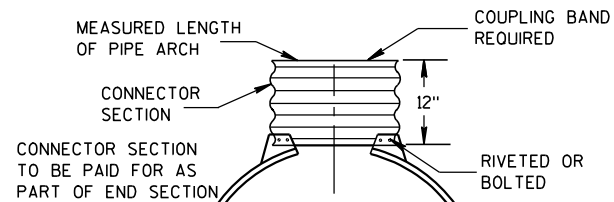
3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82 1/4	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1 1/2 to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1 1/2 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	1 1/2 to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1 1/2 to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1 1/2 to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1 1/2 to 1	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES

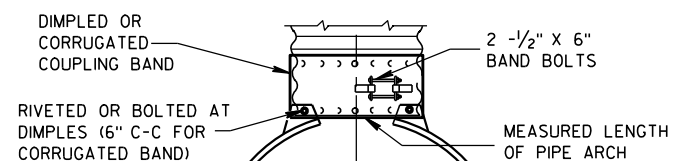
TYPE 2

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 ARCHESNOTE: 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

APPROVED

11/30/94

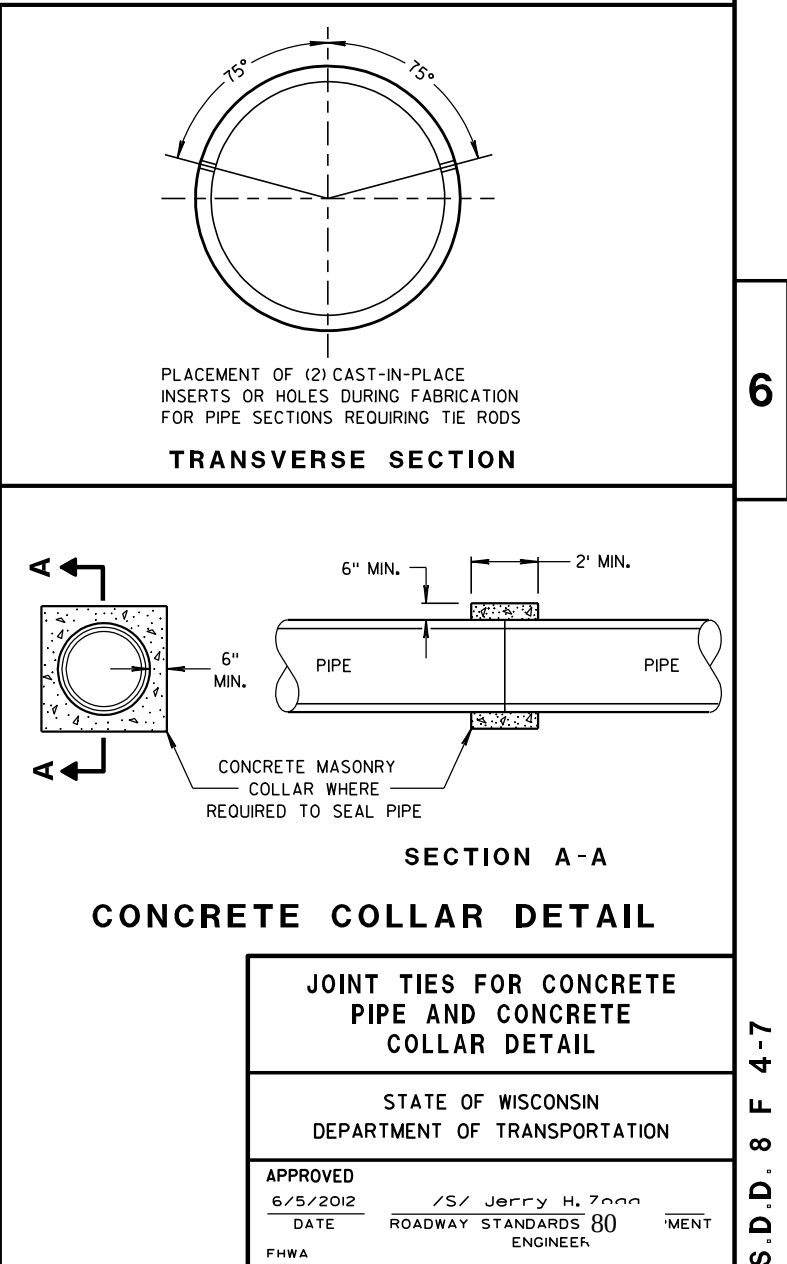
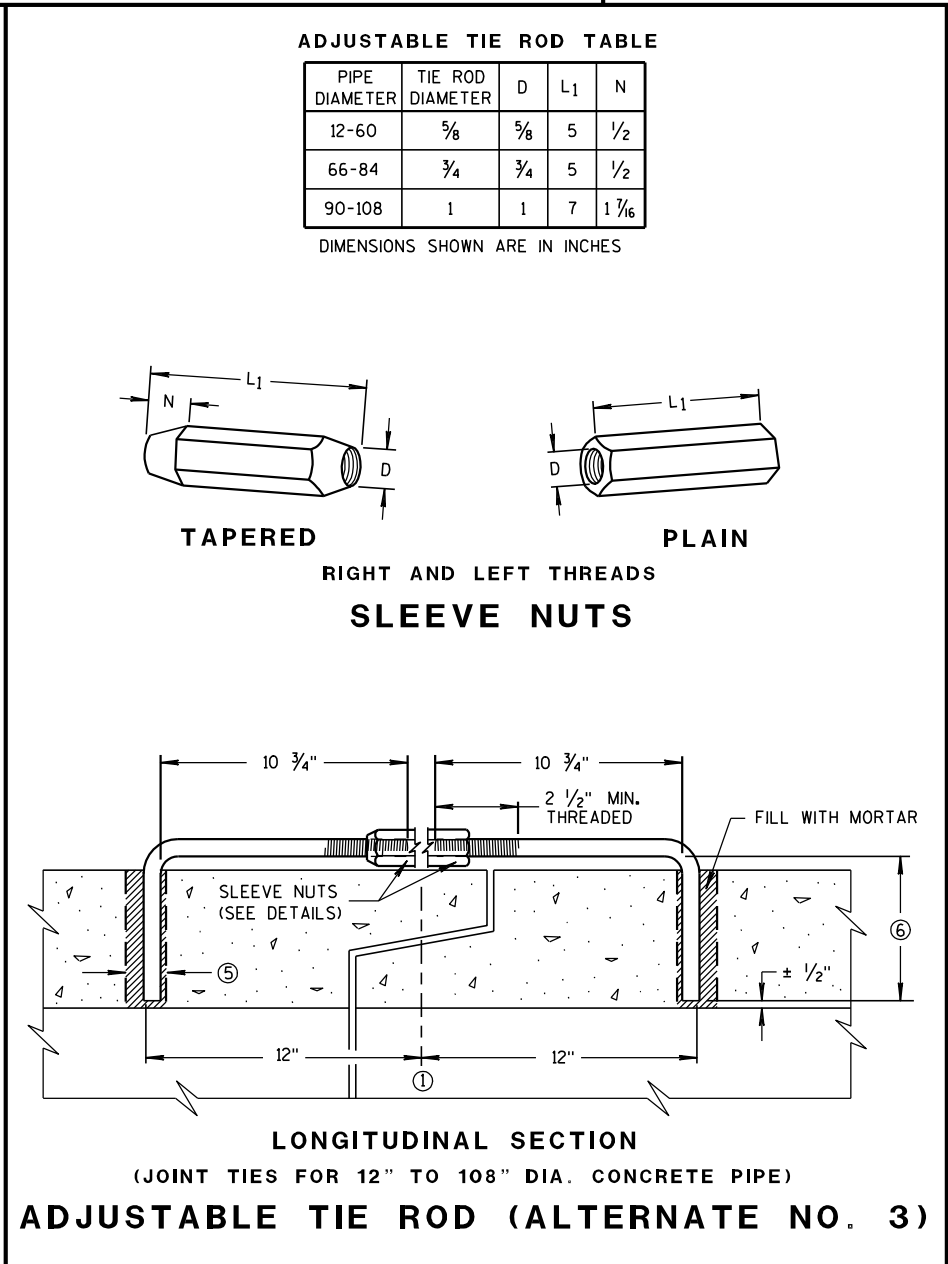
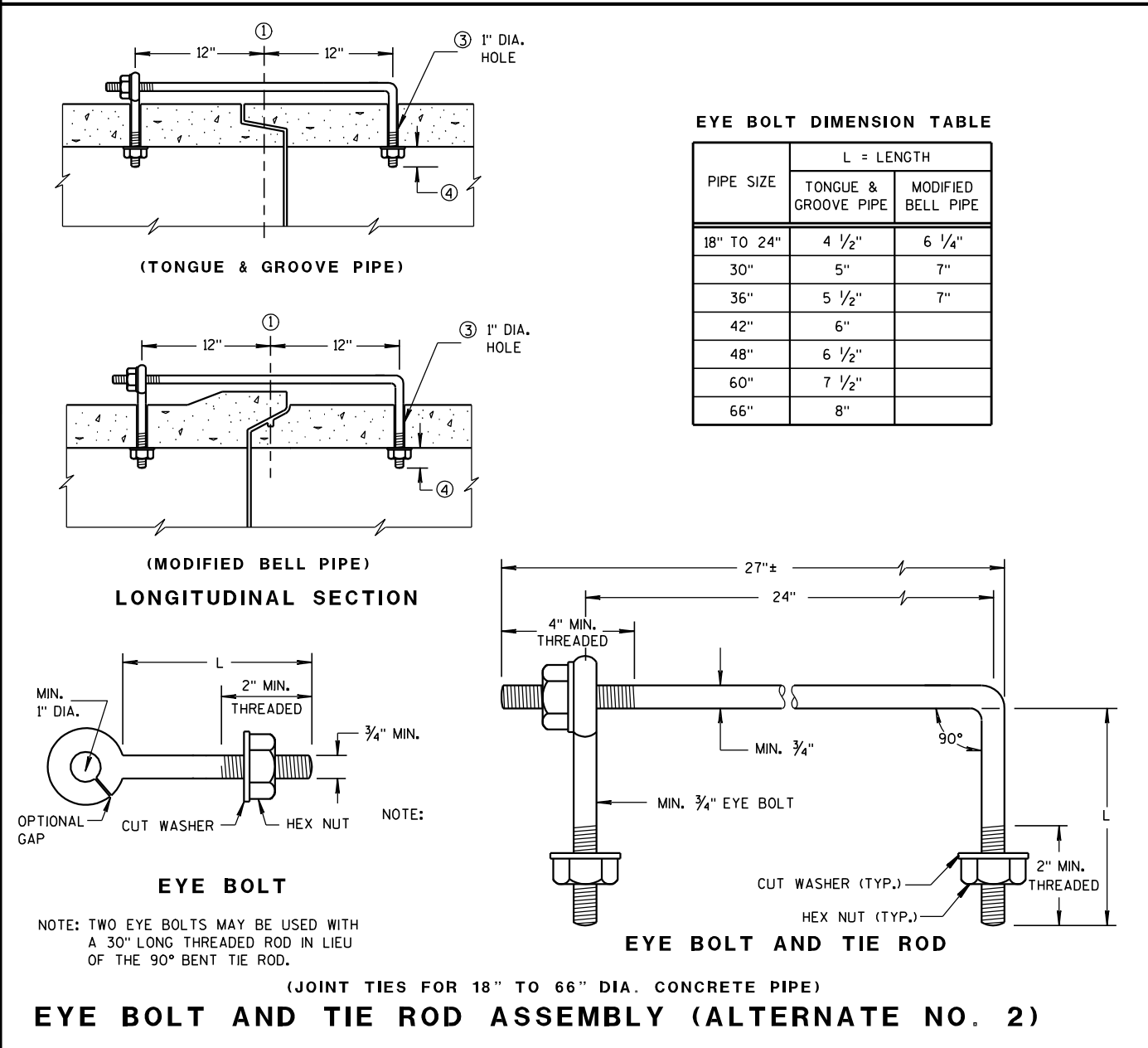
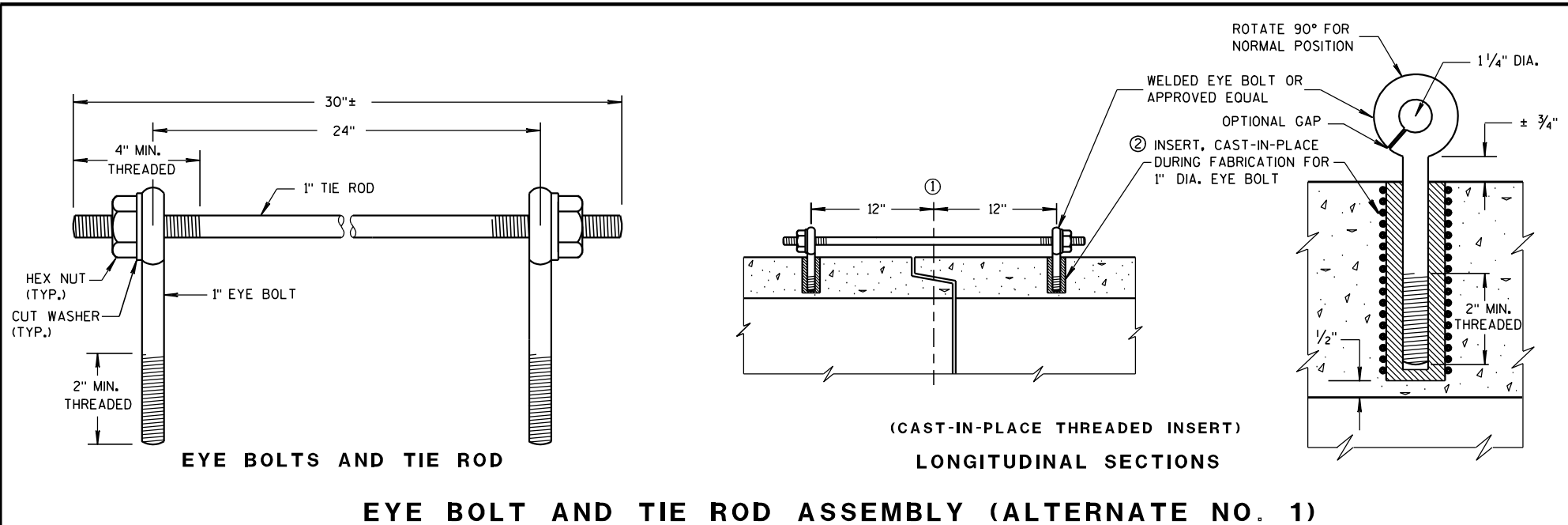
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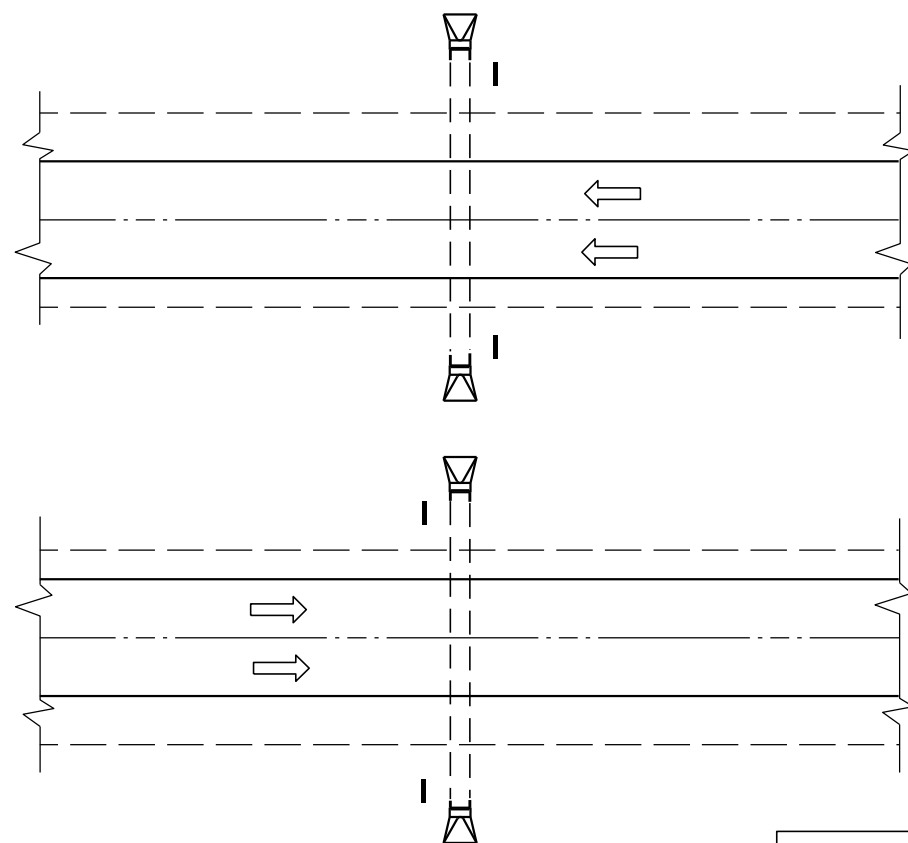
FHWA

/S/ Rory L. Rhinehart

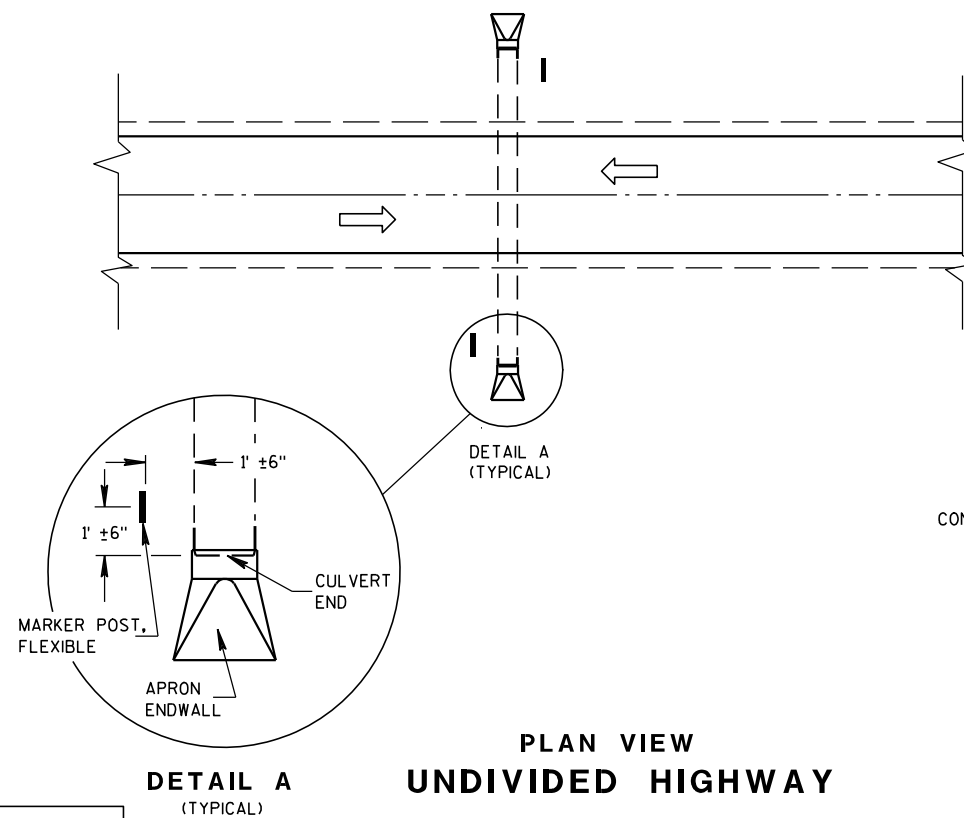
CHIEF ROADWAY DEVELOPER

ENGINEER



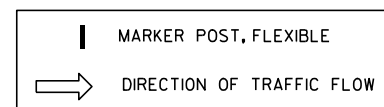


PLAN VIEW
DIVIDED HIGHWAY

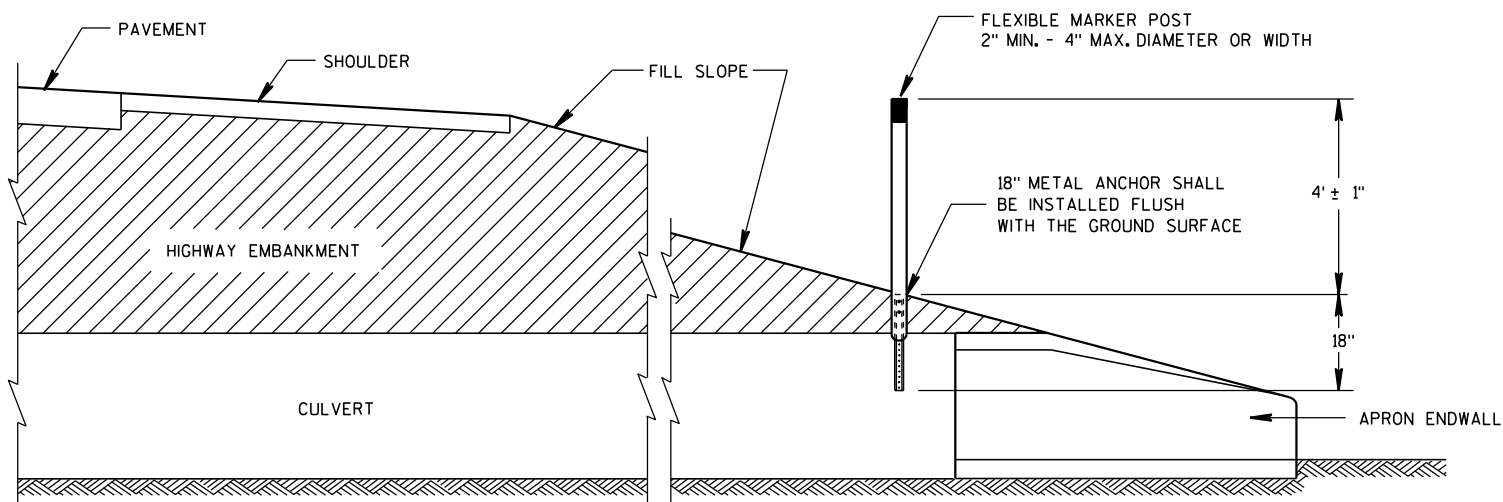


PLAN VIEW
UNDIVIDED HIGHWAY

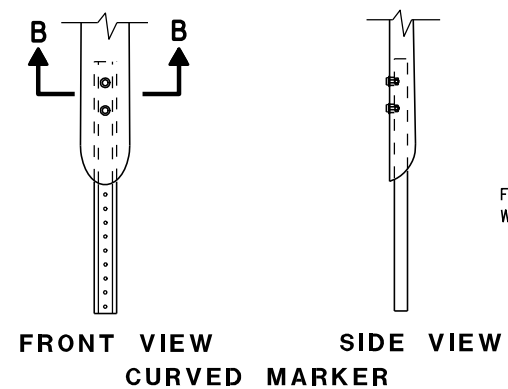
DETAIL A
(TYPICAL)



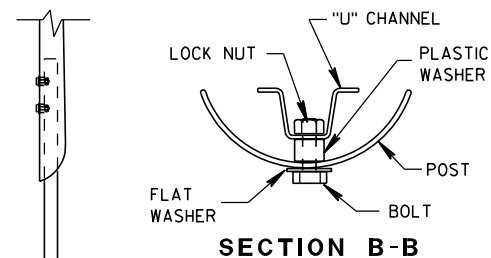
FLEXIBLE MARKER POST LOCATION



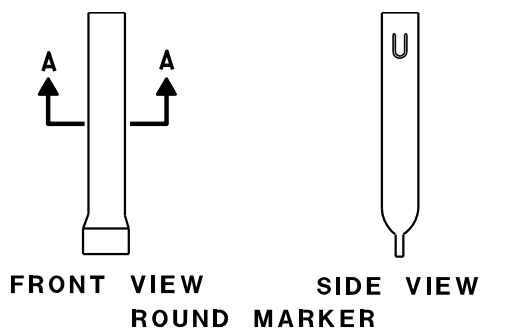
CROSS SECTION
FLEXIBLE MARKER POST



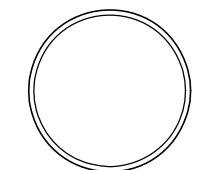
FRONT VIEW
CURVED MARKER



SECTION B-B



FRONT VIEW
ROUND MARKER

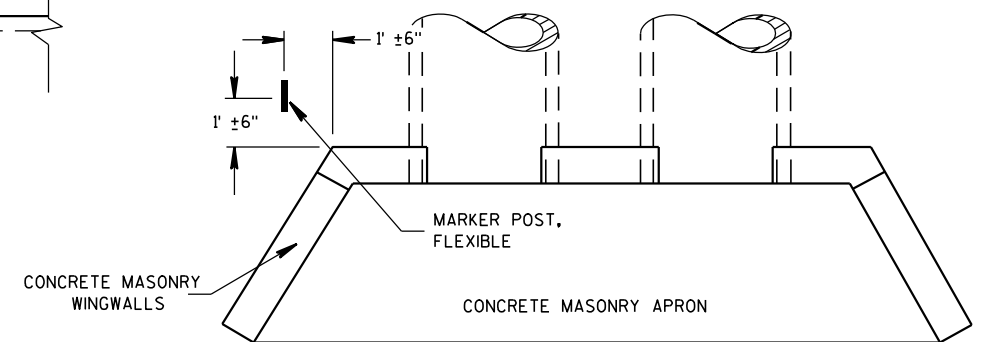


SECTION A-A

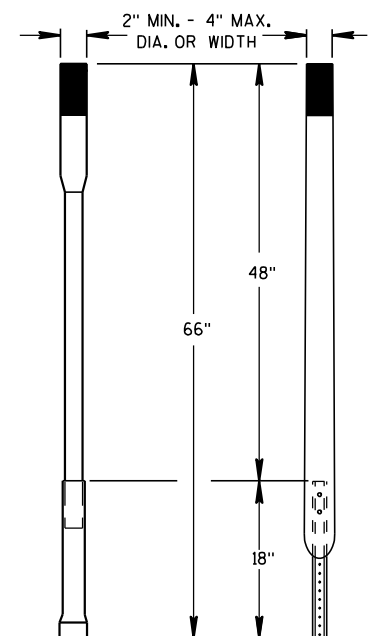
FLEXIBLE MARKER POST ANCHORS

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

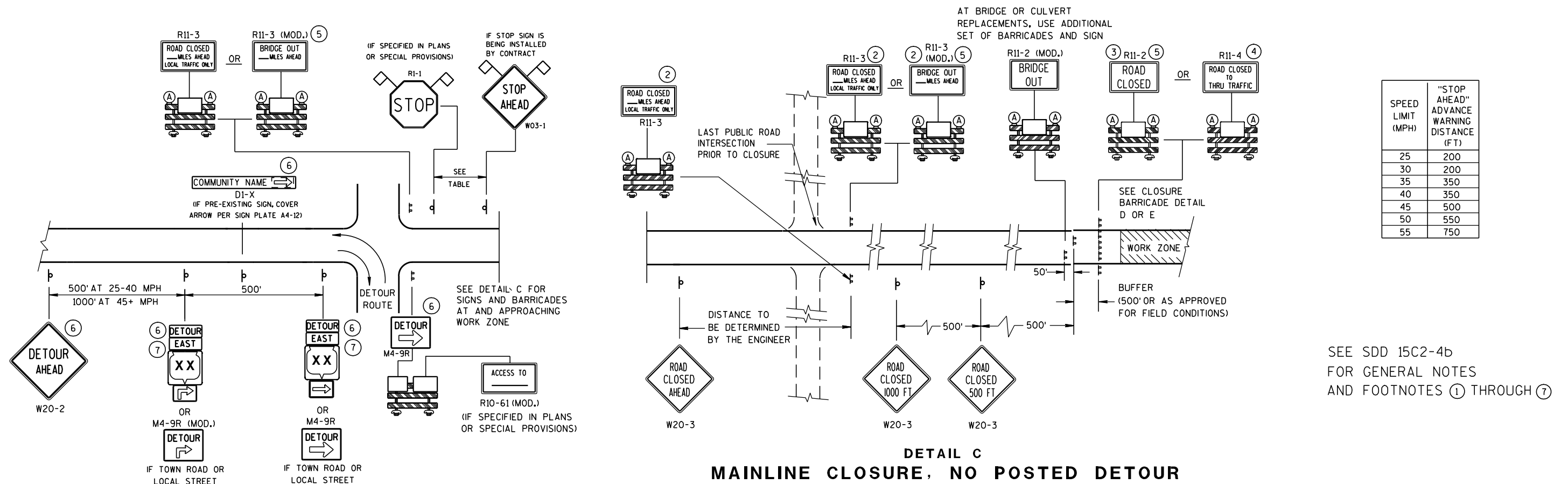
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

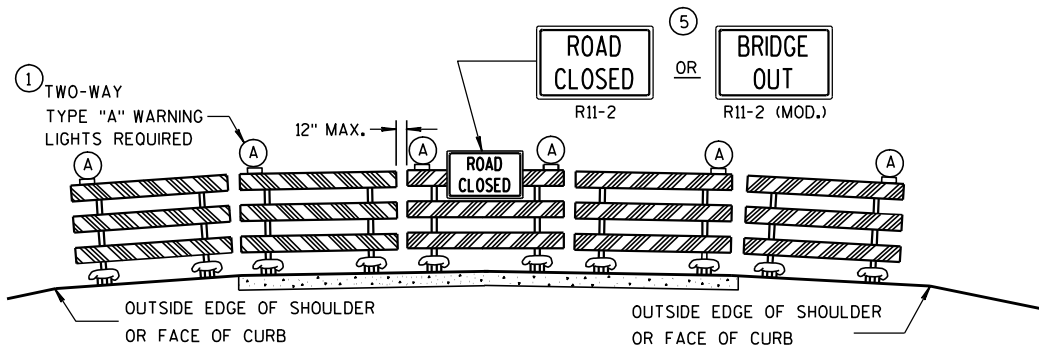
APPROVED

10/1/98
DATE

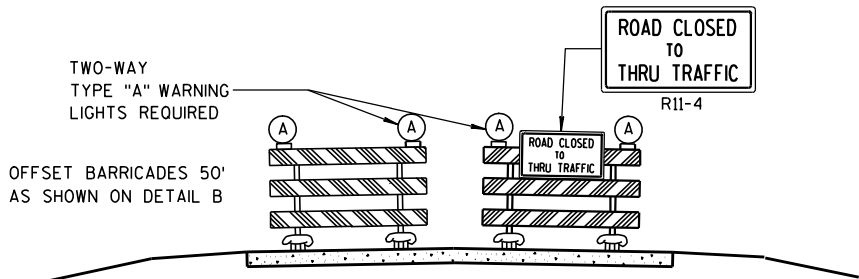
FHWA

/S/ Rory L. Rhinehart
CHIEF ROADWAY DEVELOPER
ENGINEER





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.

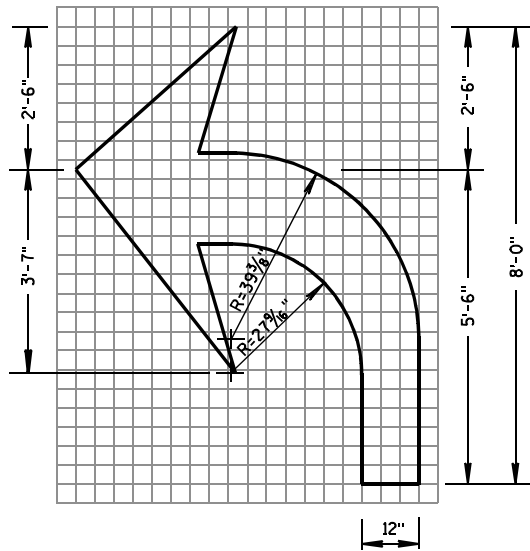
"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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

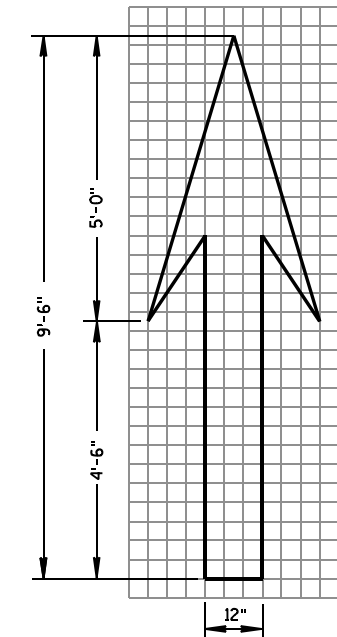
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X AND M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 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.

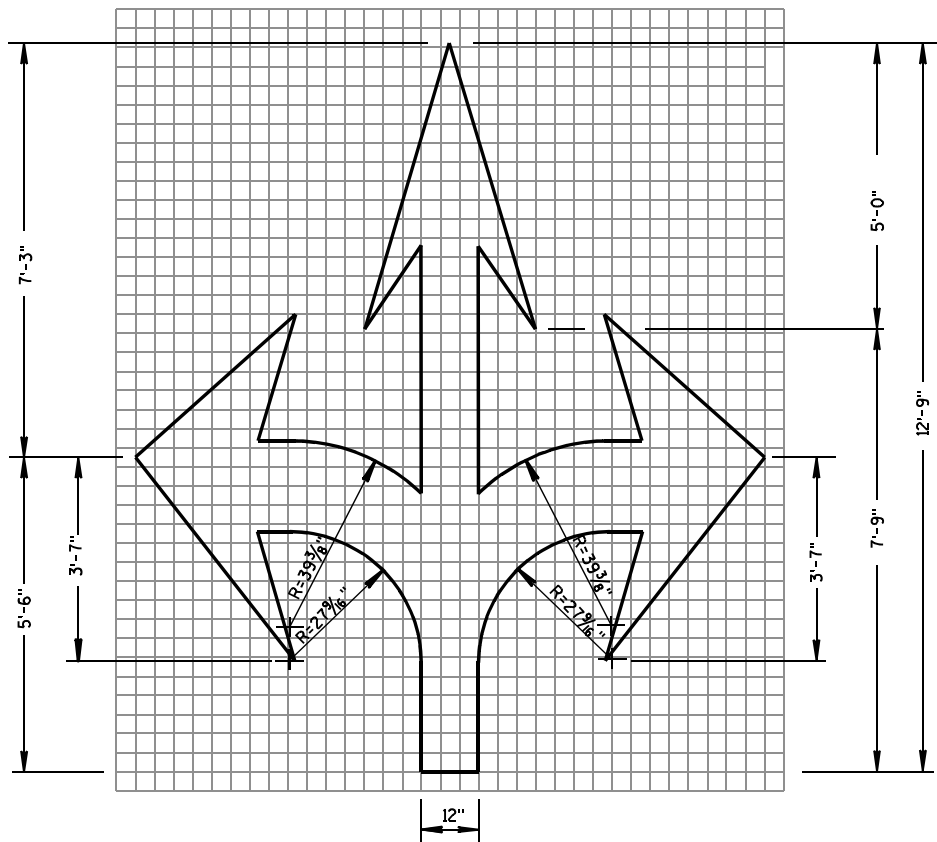
BARRICADES AND SIGNS FOR MAINLINE CLOSURES		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED		
9/16/03 DATE	/S/ Thomas N. N CHIEF SIGNS AND MAR 83	INEER
FHWA		



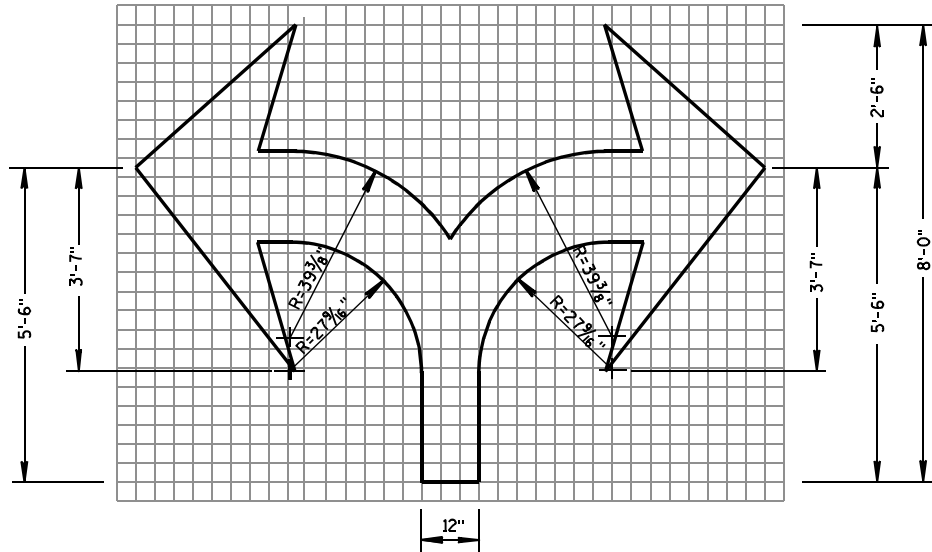
TYPE 2



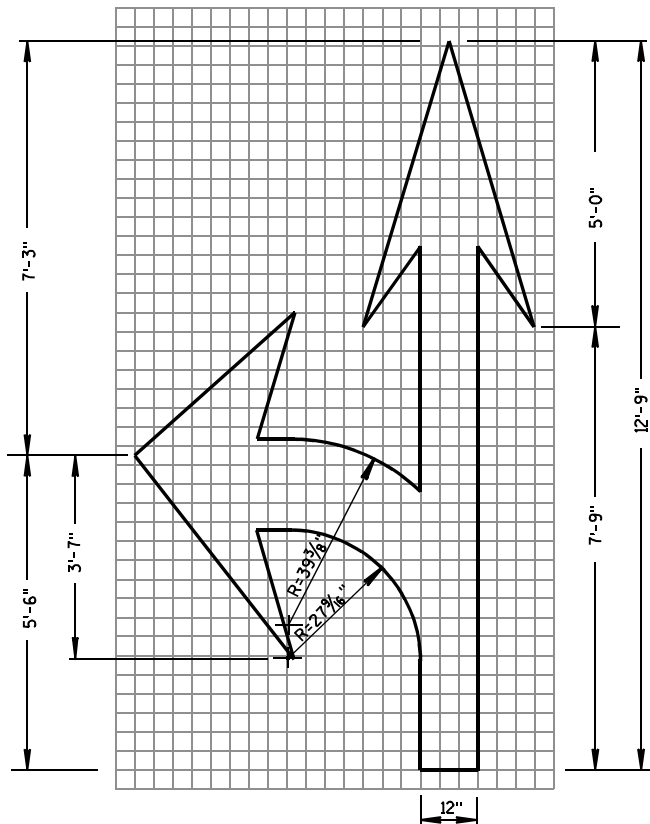
TYPE 1



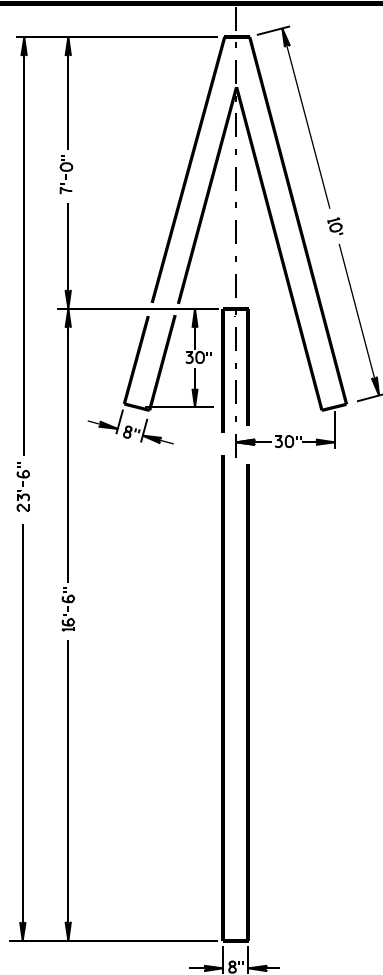
TYPE 6



TYPE 7



TYPE 3

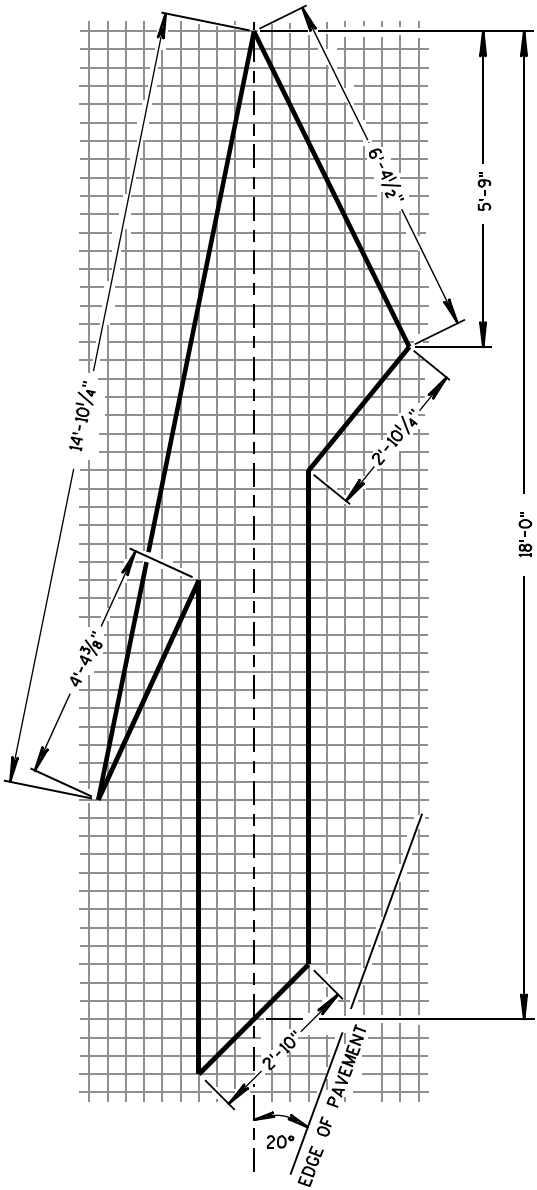


TYPE 4

GENERAL NOTES

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

ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.

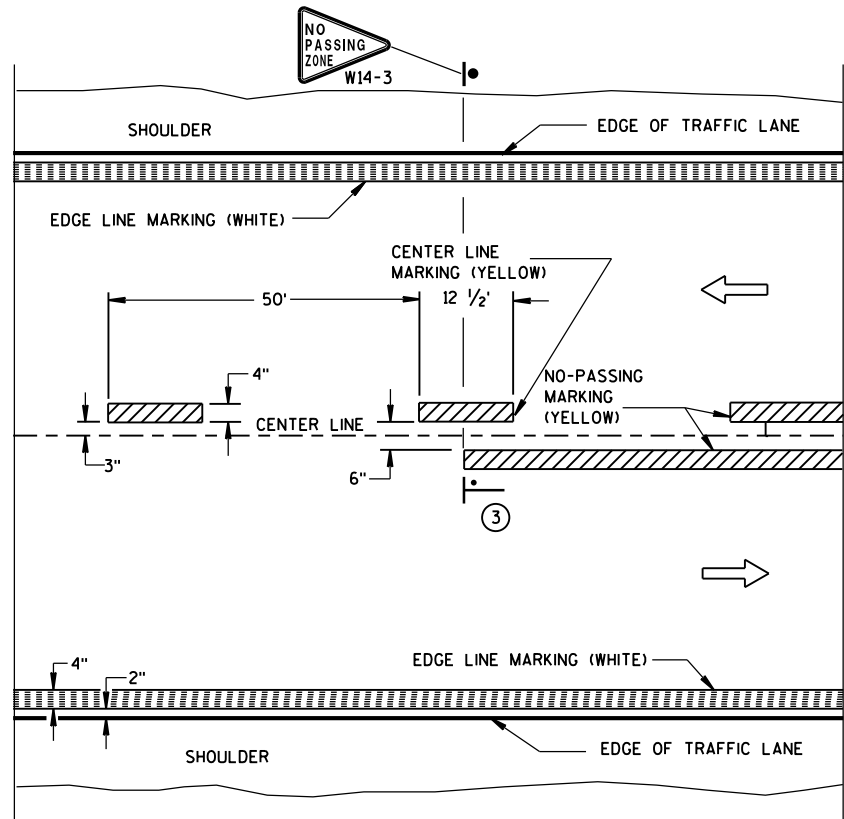


TYPE 5 LANE DROP ARROW

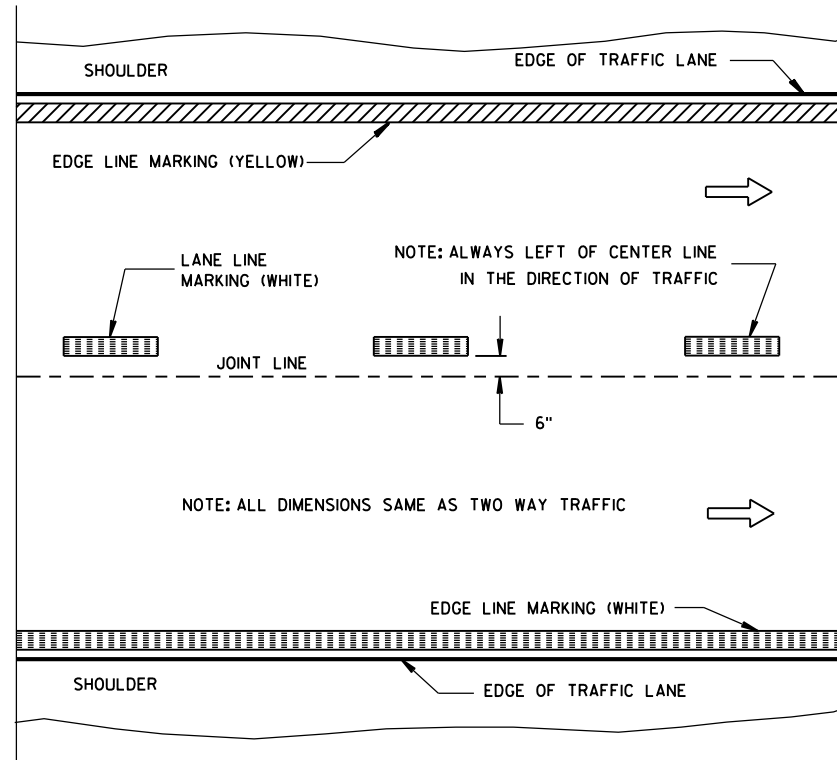
PAVEMENT MARKING ARROWS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/1/11 DATE /S/ Thomas N. Nathahn
STATE TRAFFIC ENGINE 84 SIGN
FHWA

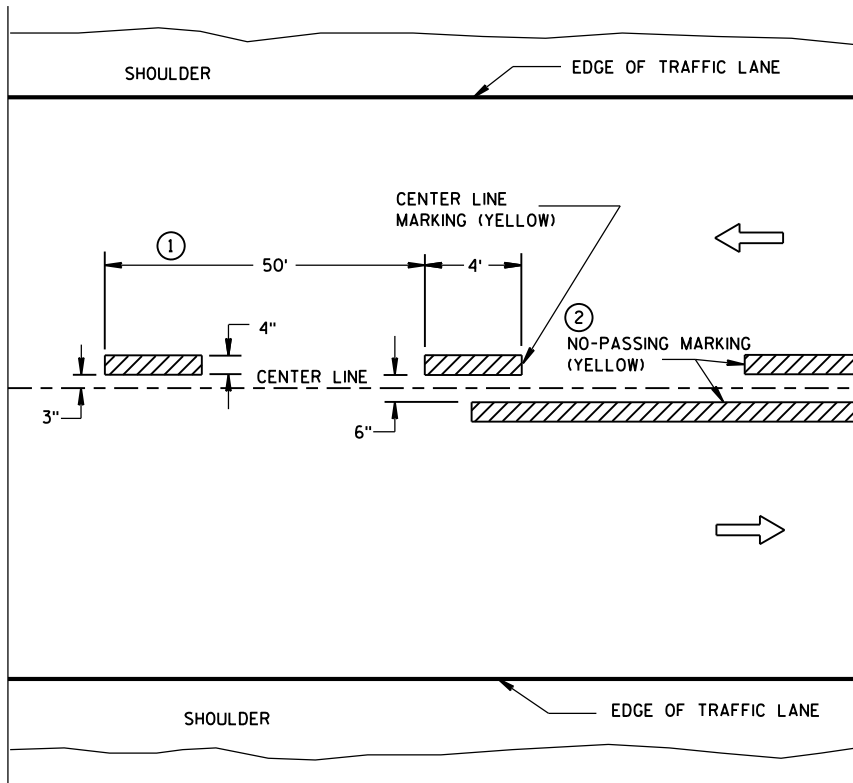


TWO WAY TRAFFIC

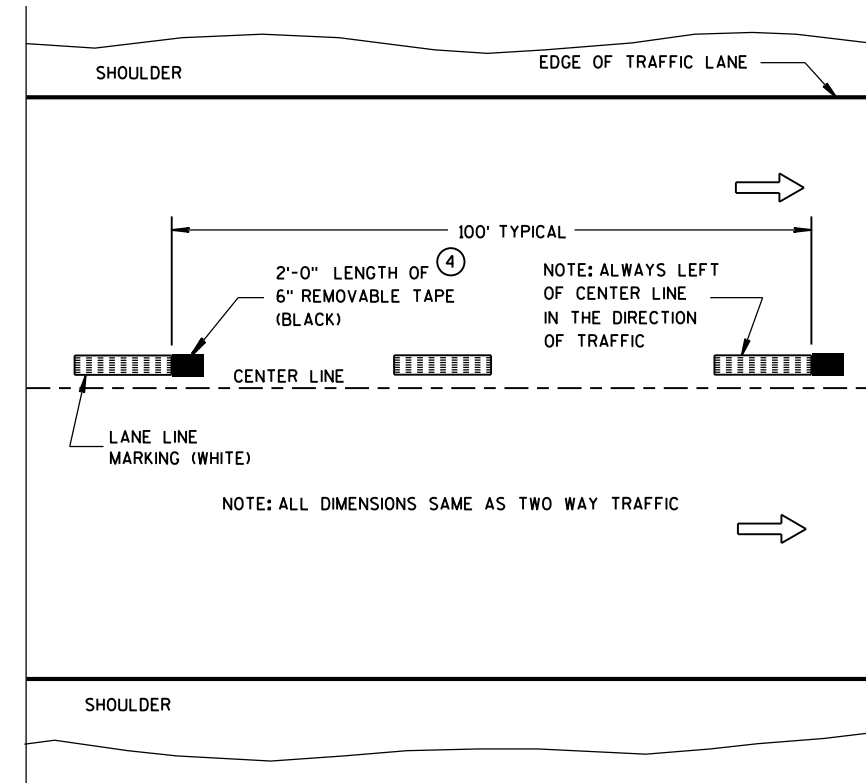


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

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

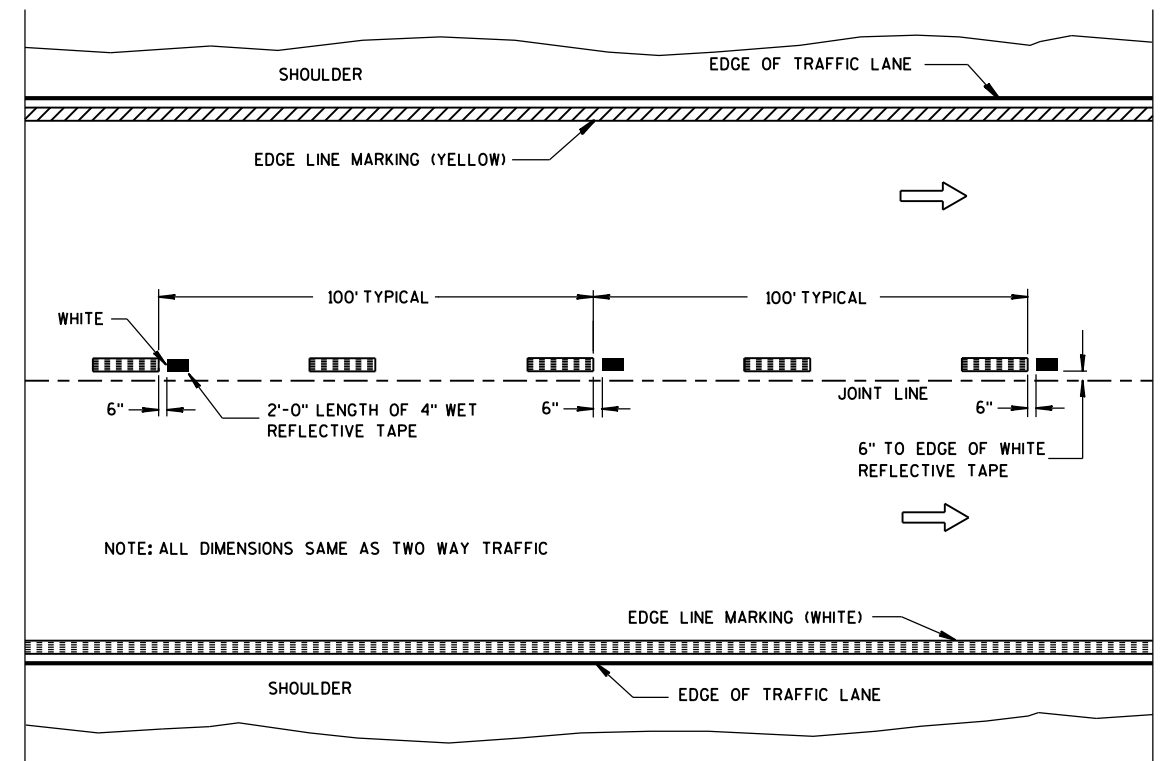
GENERAL NOTES

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

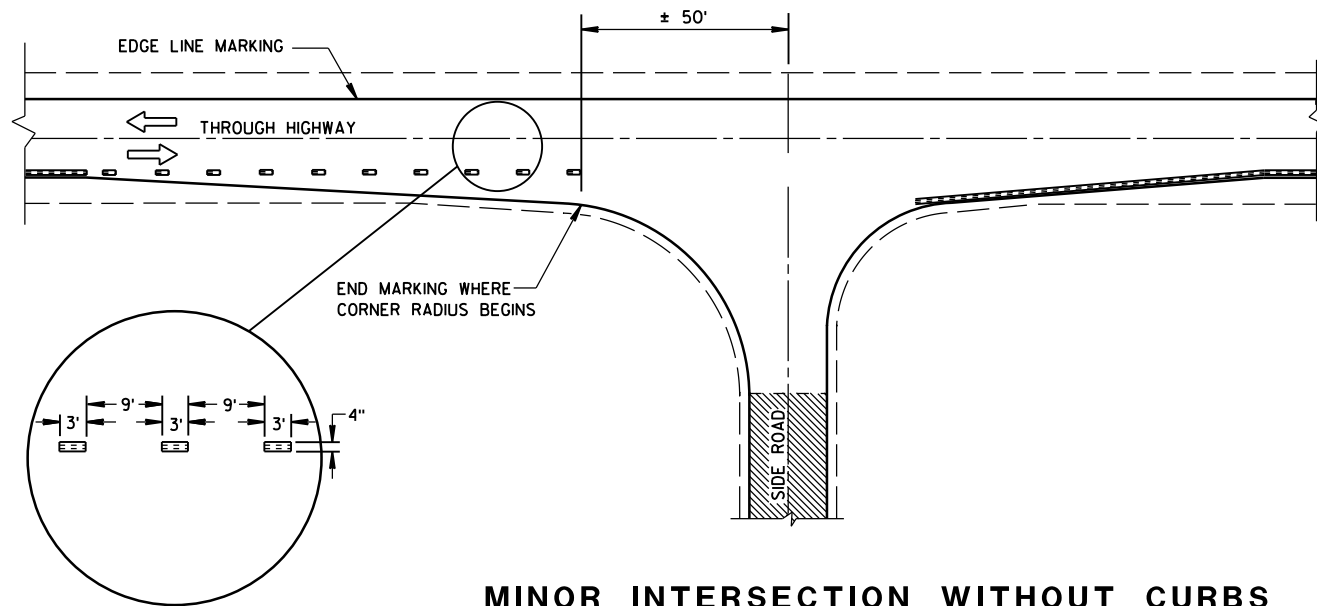
LEGEND

- "T" MARKING
- POST MOUNTED SIGN

PAVEMENT MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

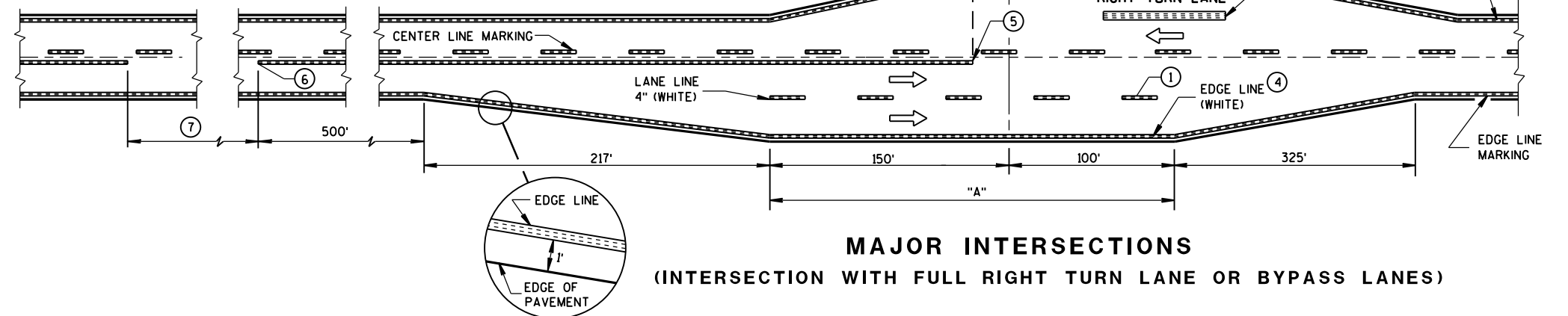
APPROVED
10-1-2012 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER 85 :SIGN
FHWA



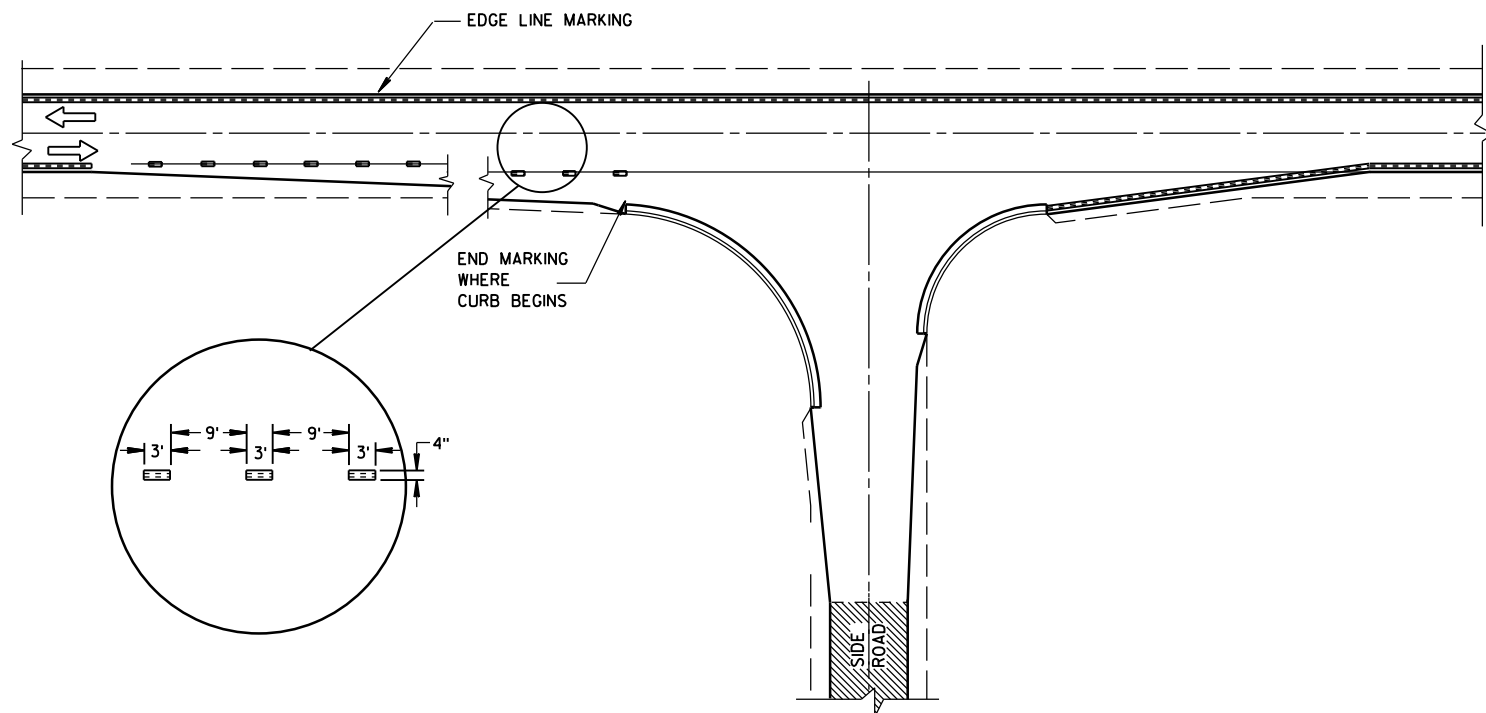
MINOR INTERSECTION WITHOUT CURBS

⑦

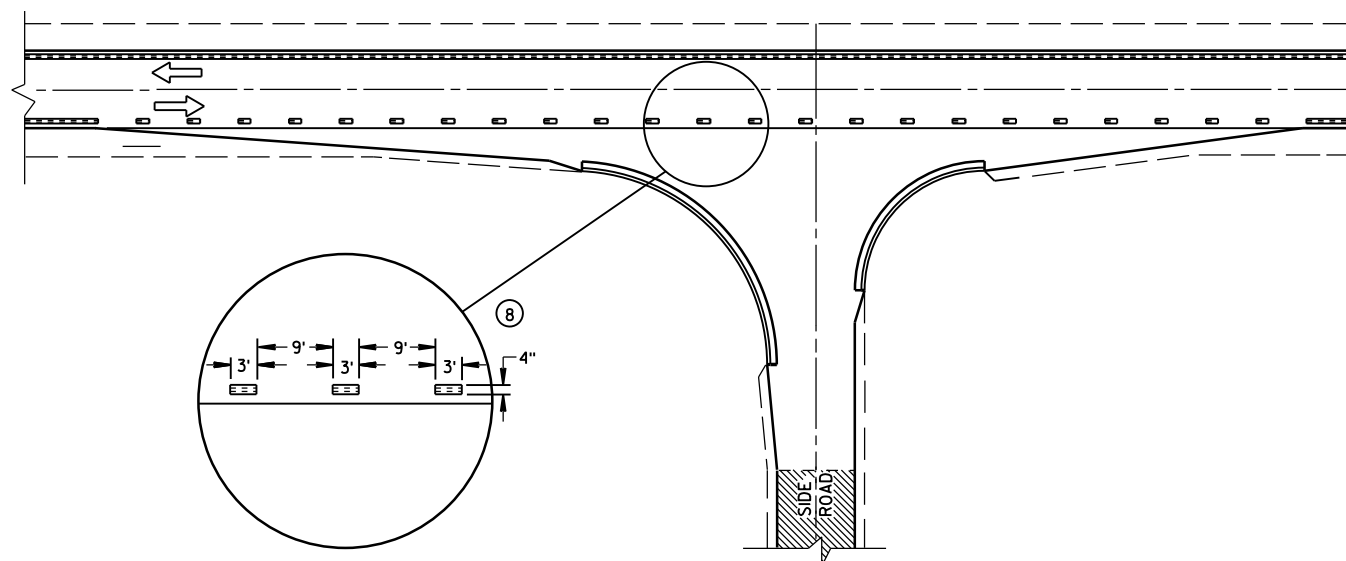
POSTED SPEED (MPH)	MINIMUM DISTANCE BETWEEN ZONES (FEET)
25 - 30	528
35 - 40	528
45 - 50	686
55	792



MAJOR INTERSECTIONS
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)



MINOR INTERSECTION WITH CURBS
(TYPICAL MARKING)



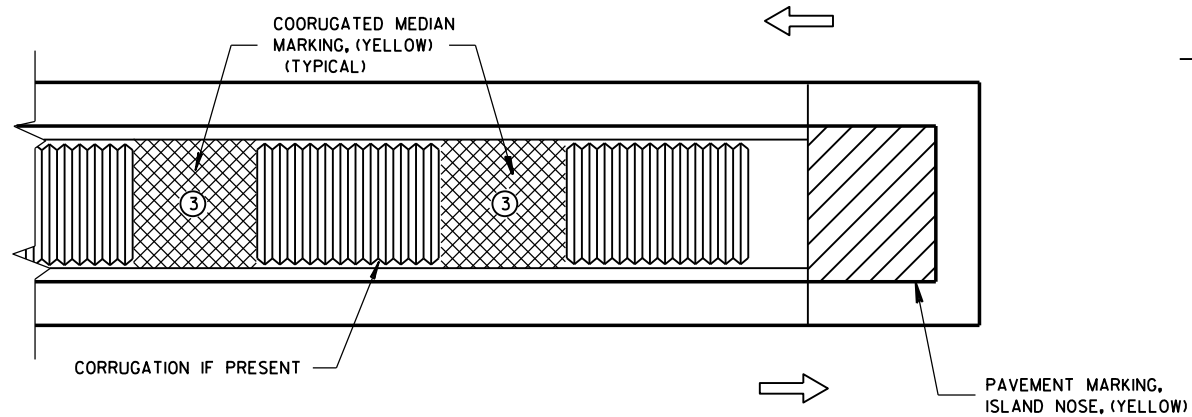
MINOR INTERSECTION WITH CURBS
③ (FOR SPECIAL CONDITIONS AS SPECIFIED)

GENERAL NOTES

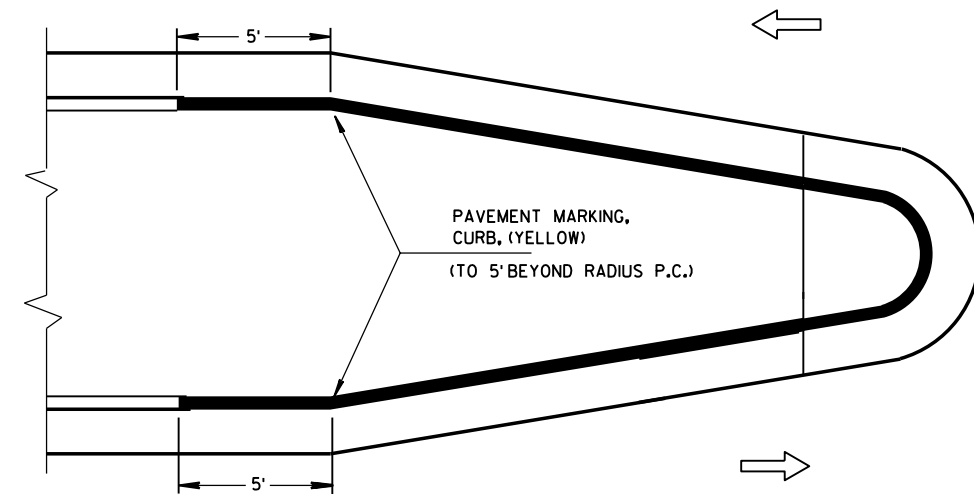
- EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.
- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
 - ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
 - ③ ALTERNATIVE MARKING SHALL BE PROVIDED WHEN SPECIFIED IN THE 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

PAVEMENT MARKING
(INTERSECTIONS)

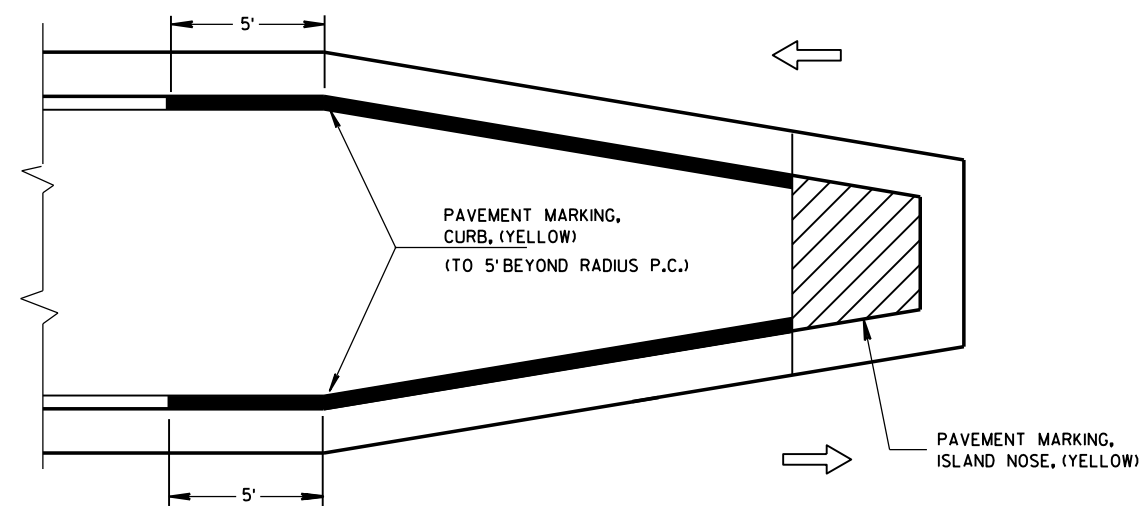
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



MEDIAN ISLAND WITH SQUARE BLUNT NOSE

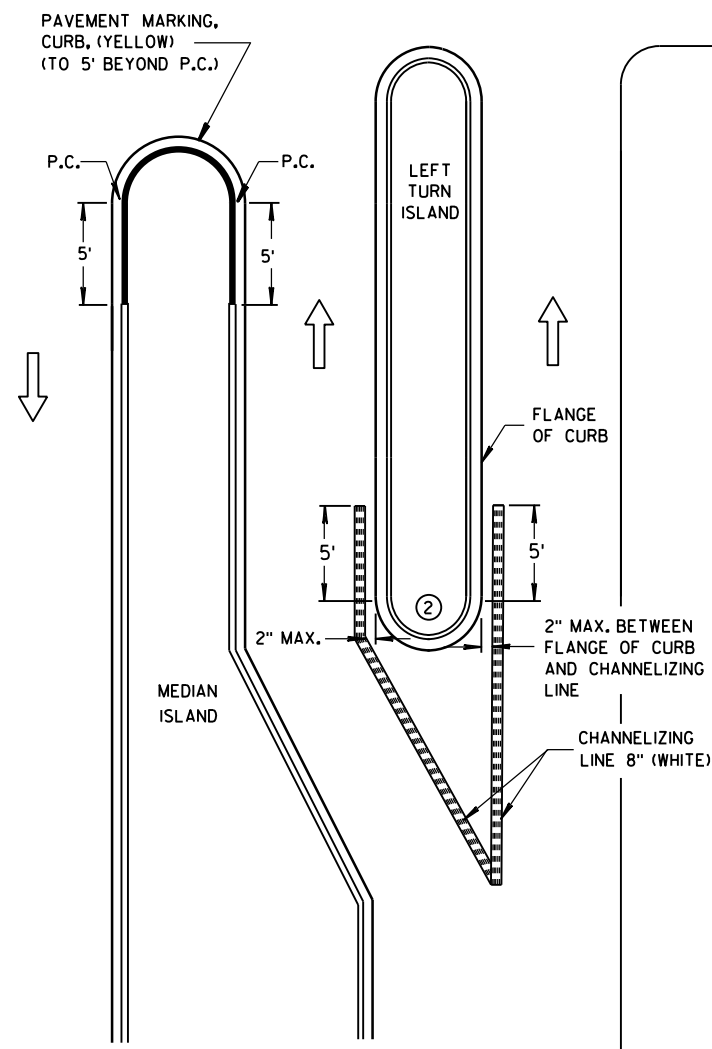


MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

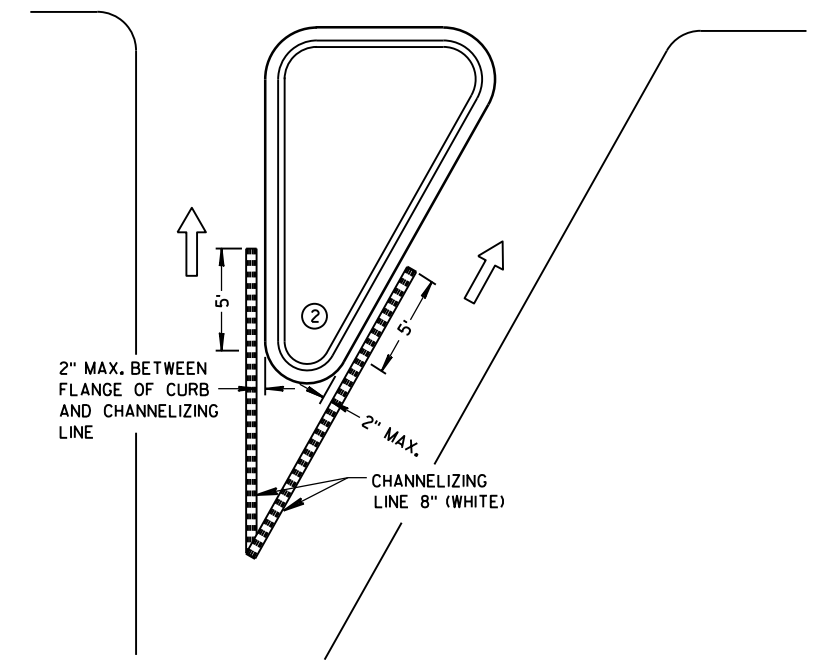
TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS



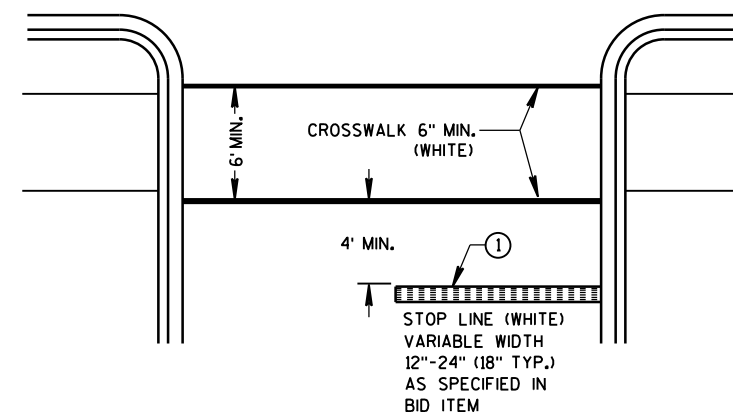
LEFT TURN & MEDIAN ISLAND

GENERAL NOTES

- ① STOP LINE IS REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.
- ② DO NOT MARK CURB NOSES THAT SEPARATE LANES OF TRAFFIC TRAVELING IN THE SAME DIRECTION.
- ③ WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.



RIGHT TURN ISLAND



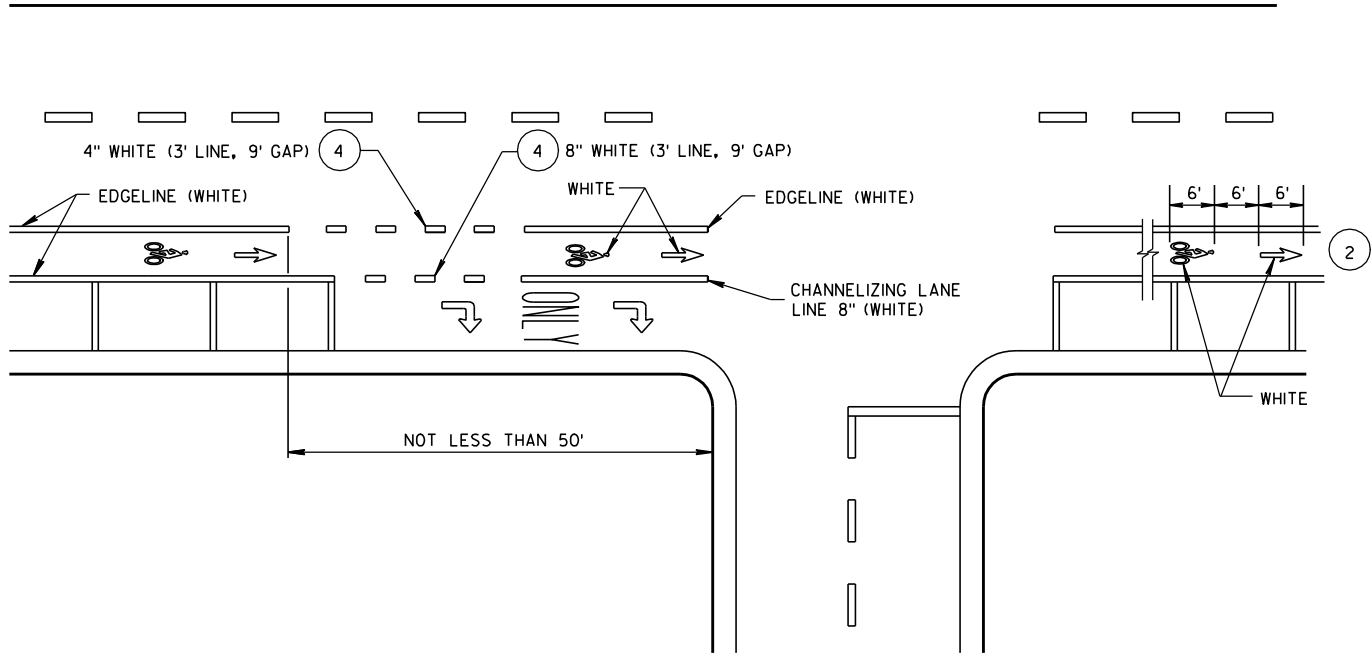
STOP LINE AND CROSSWALK

LEGEND

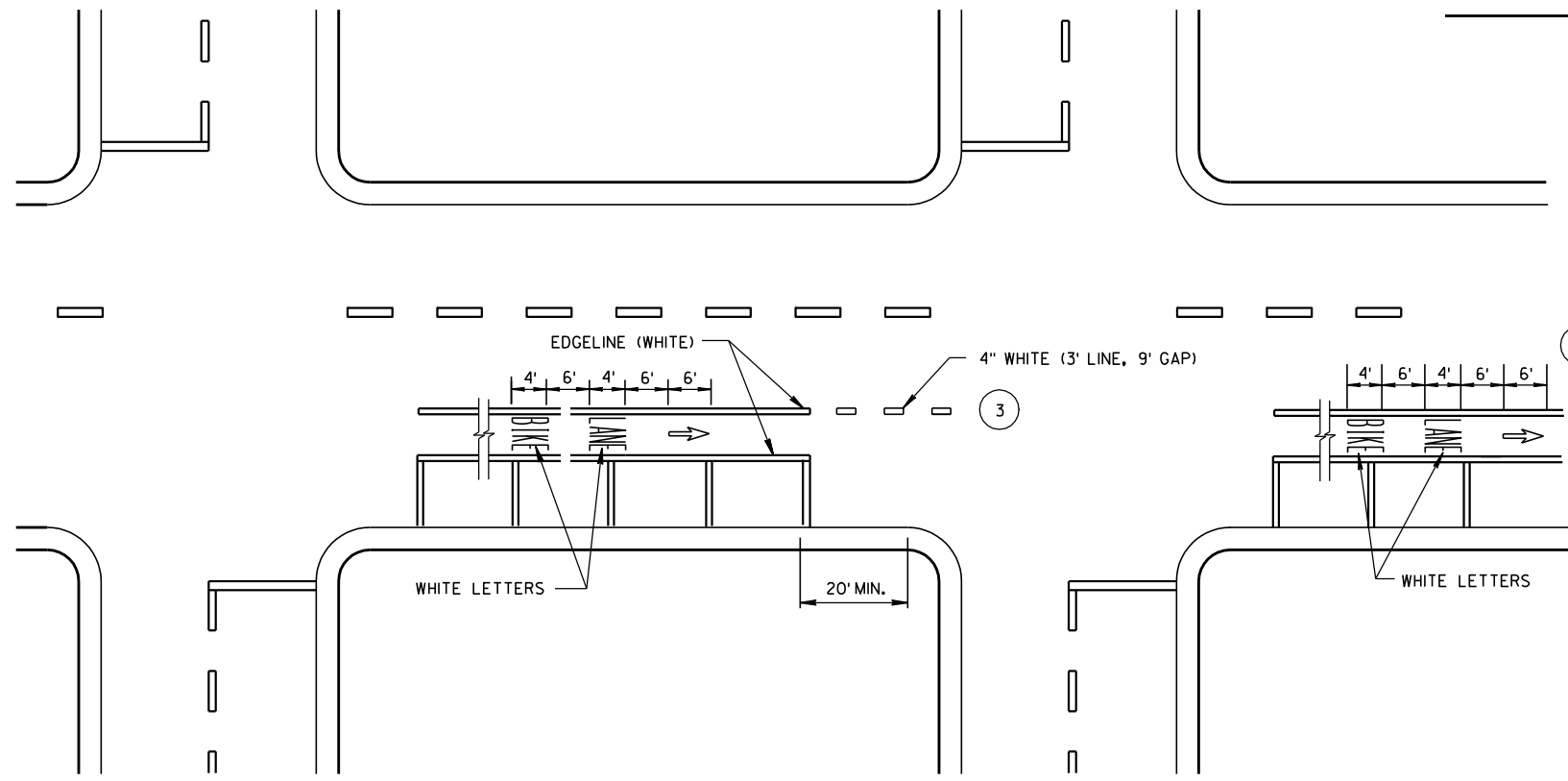
- ISLAND NOSE MARKING
- CURB MARKING
- CORRUGATED MEDIAN MARKING
- DIRECTION OF TRAVEL

PAVEMENT MARKING (ISLANDS, STOP LINE & CROSS WALK)

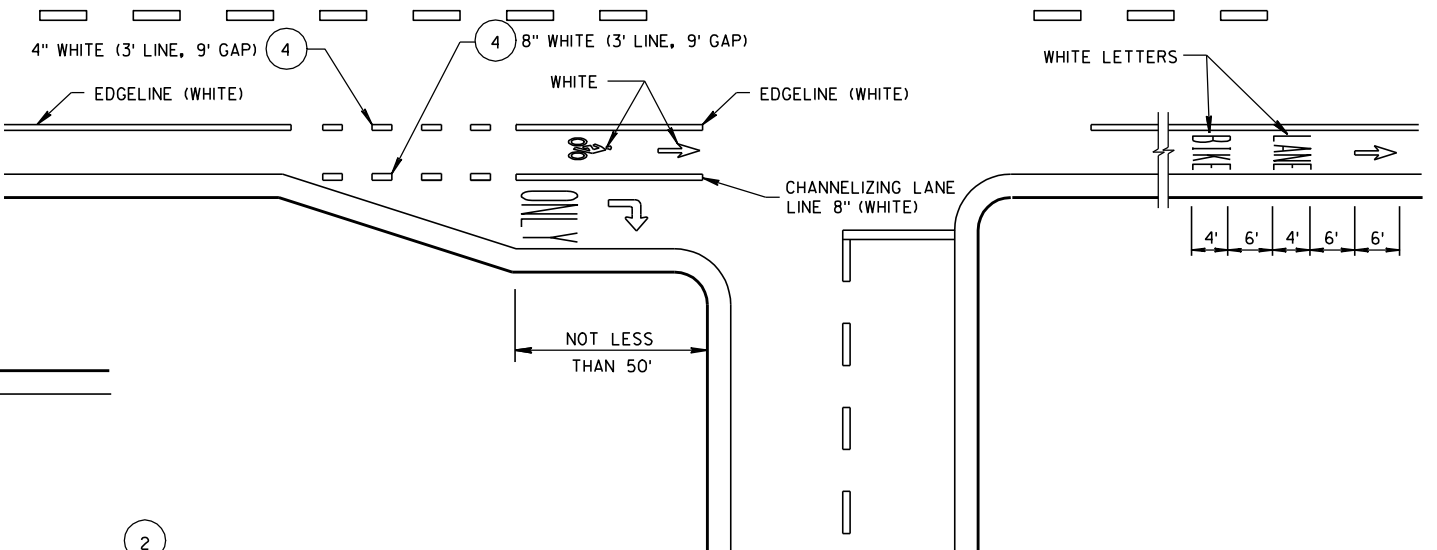
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DESIGNATED BICYCLE LANE



**DESIGNATED BICYCLE LANE
WITH PARKING, NO RIGHT TURN LANE**



**DESIGNATED BICYCLE LANE
NO PARKING, RIGHT TURN LANE**

GENERAL NOTES

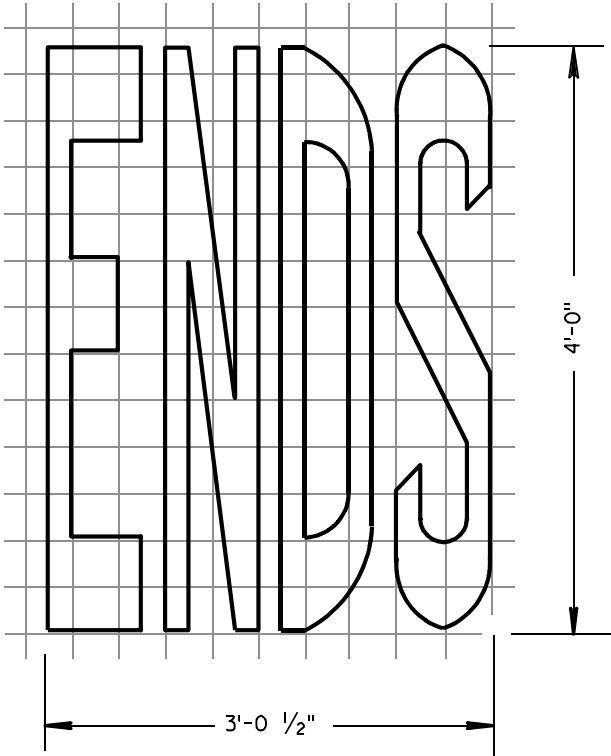
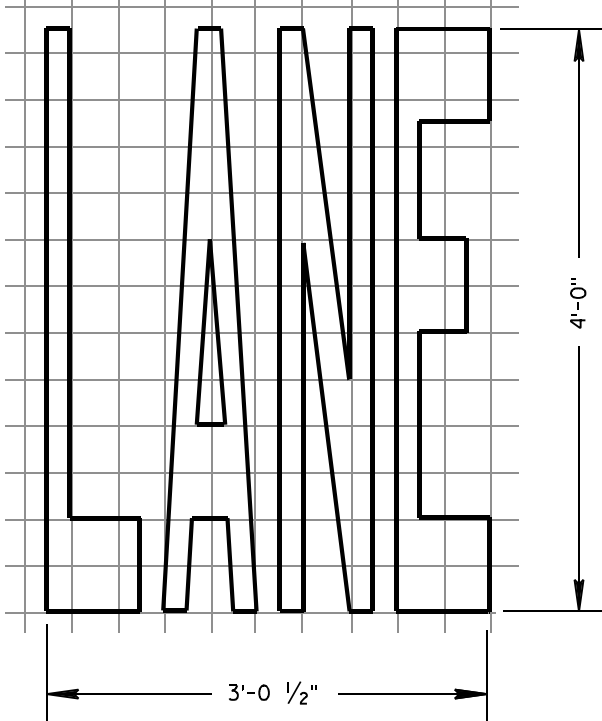
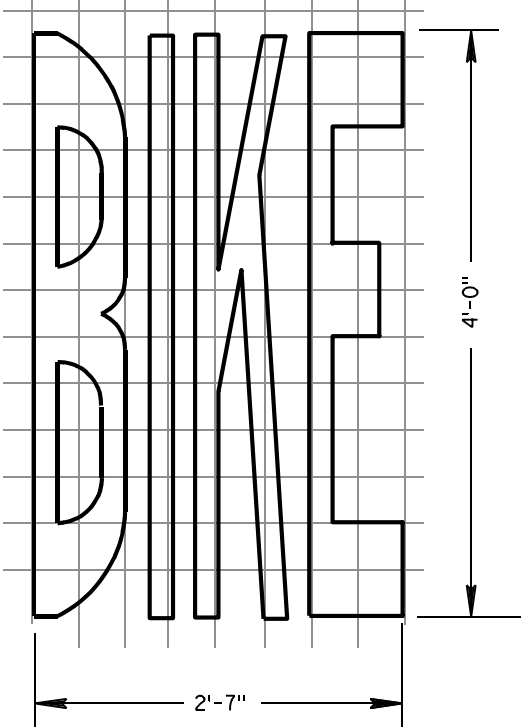
- ① DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
- ② THE SERIES OF PAVEMENT MARKING SYMBOLS SHALL BE REPEATED AFTER INTERSECTIONS AND SPACED A MAXIMUM OF 250'. NO PAVEMENT MARKING WILL TAKE PLACE IN THE CROSSWALK.
- ③ DOTTED LINES SHOULD BE USED 50' TO 200' IN ADVANCE OF AN INTERSECTION WHERE THERE IS NO RIGHT TURN ONLY LANE AND THERE IS HEAVY RIGHT TURN TRAFFIC OR THERE IS A NEAR-SIDE BUS STOP. AT OTHER INTERSECTIONS WHERE RIGHT TURN TRAFFIC IS LIGHT TO MODERATE, A SOLID LINE CAN BE USED UP TO THE INTERSECTION.
- ④ WHEN SPECIFIED IN THE CONTRACT.

URBAN BICYCLE LANE MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 2/6/2012 DATE	/S/ Thomas N. Neumann STATE TRAFFIC ENGINEER 88 SIGN
FHWA	

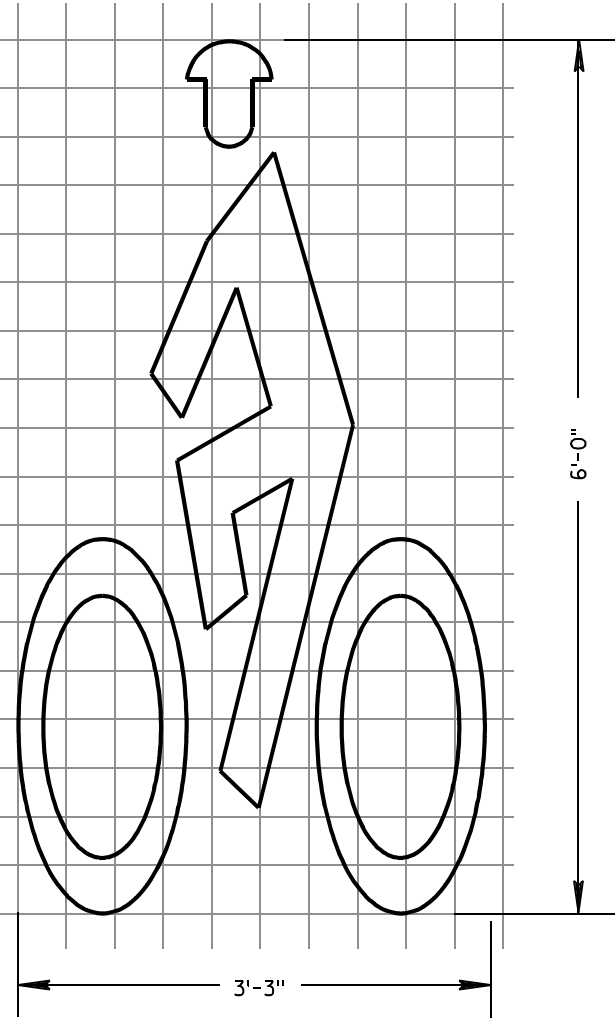
GENERAL NOTES

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

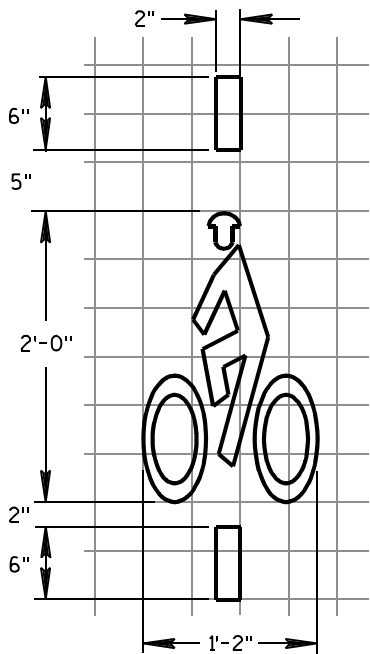
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.



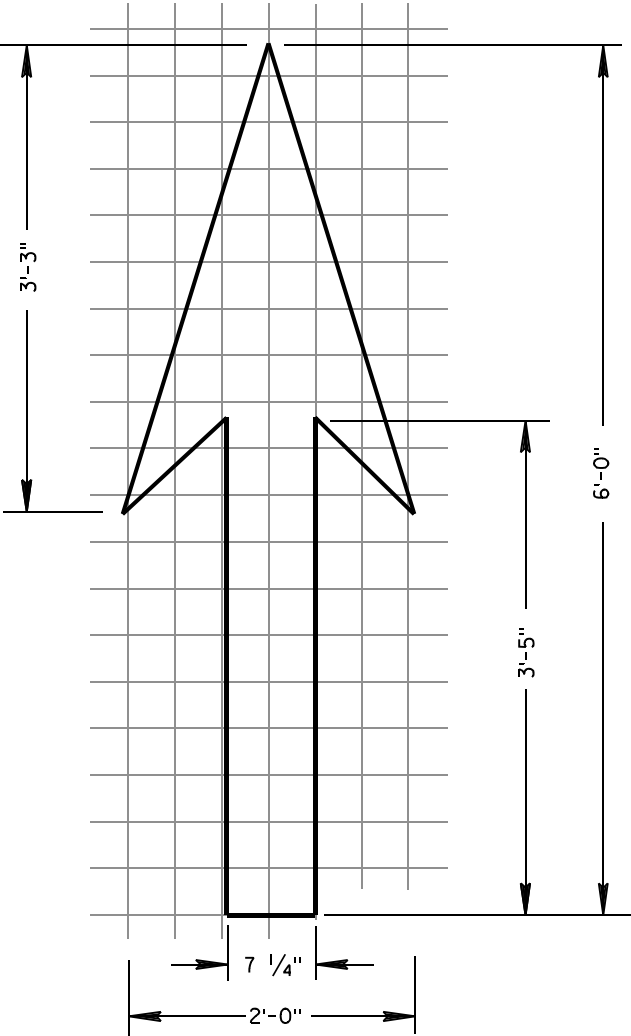
BIKE LANE WORDS



BIKE LANE SYMBOL

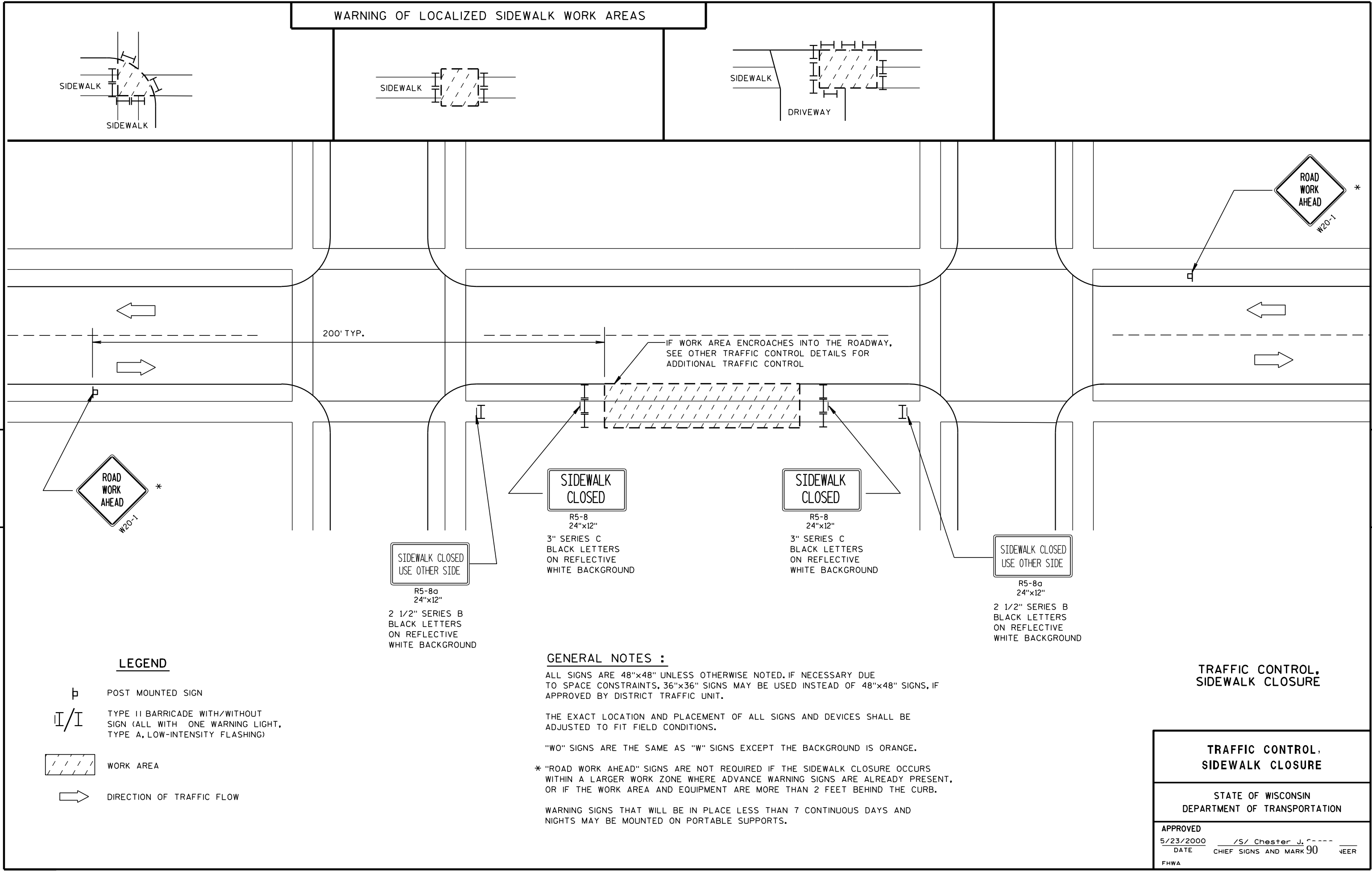


BICYCLE DETECTOR
PAVEMENT MARKING

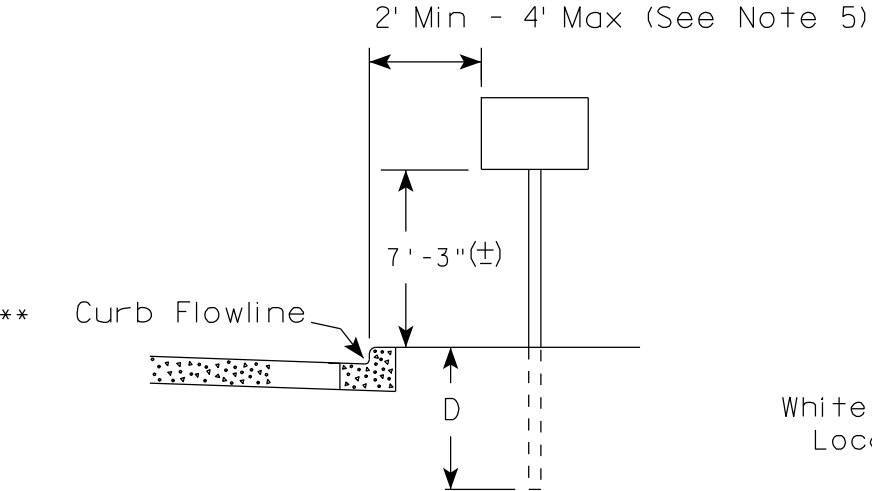


BIKE LANE ARROW

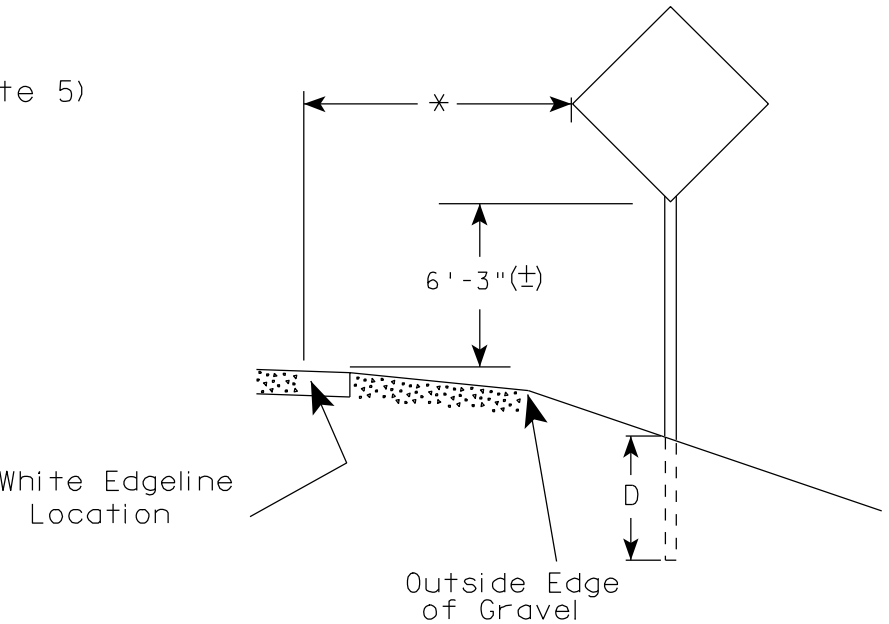
PAVEMENT MARKING FOR BIKE LANES			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED	2-6-2012	/S/ Thomas N. Neumann	
	DATE	STATE TRAFFIC ENGINEER	89 GN
FHWA			



URBAN AREA

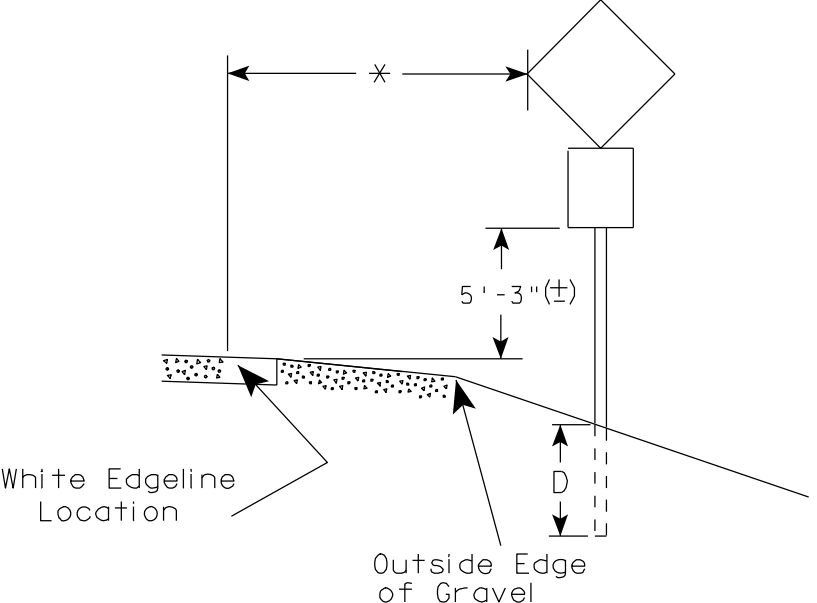
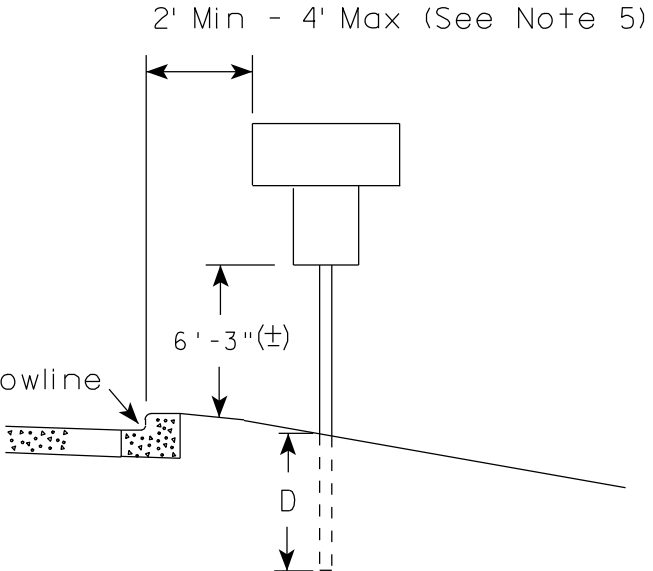


RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or larger than 20 sq. ft. shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (±).



POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

✱✱ The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/21/2011 PLATE NO. A4-3.16

GENERAL NOTES

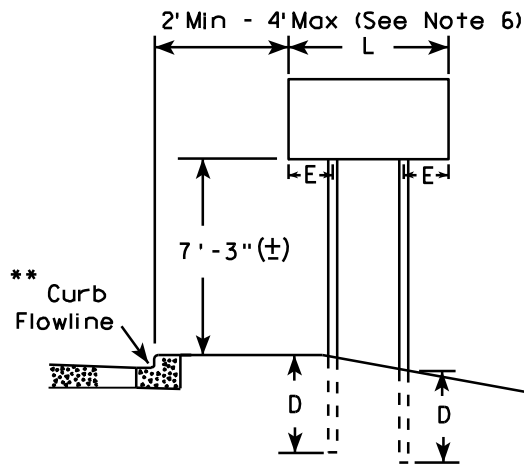
1. For multiple post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" ($\pm$) or 6'-3" ($\pm$) depending upon existence of sub-sign.
4. The ($\pm$) tolerance for mounting height is 3 inches.
5. Minimum mounting height for J assemblies (A4-5) is 7'-3" ($\pm$) or 6'-3" ($\pm$) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" ($\pm$) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" ($\pm$). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" ($\pm$).

- * 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

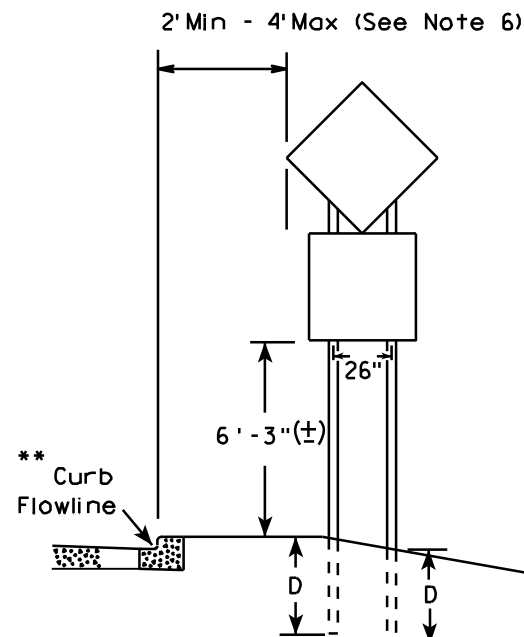
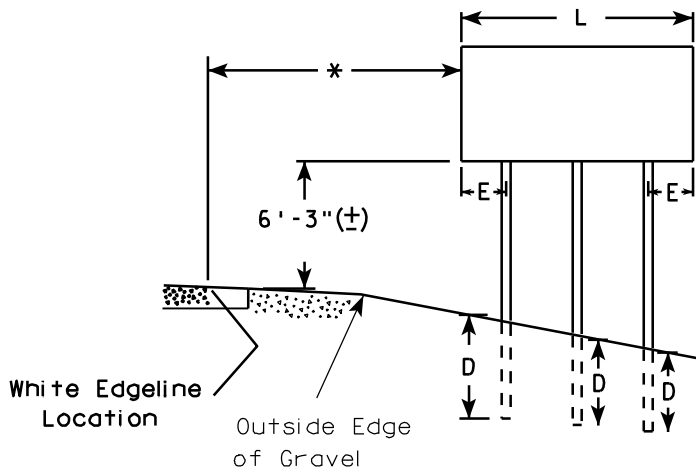
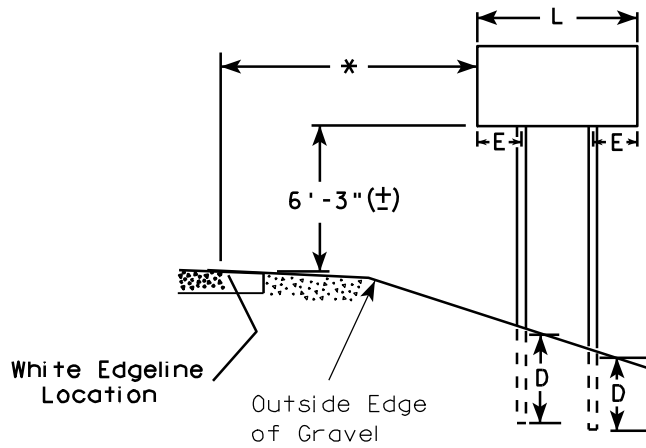
- * * The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

- *** See A4-3 sign plate for signs 4' or less in width or 20 S.F.
or less in area.

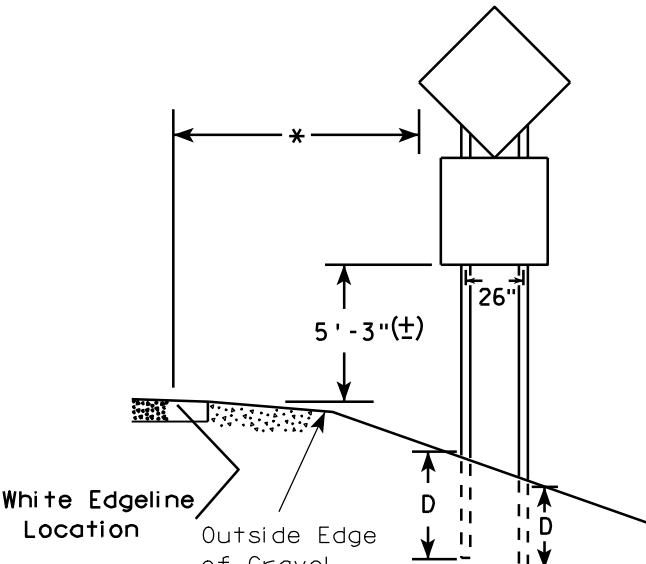
URBAN AREA



RURAL AREA (See Note 3)



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 120"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 9/21/2011 PLATE NO. A4-4.11

PROJECT NO:

HWY:

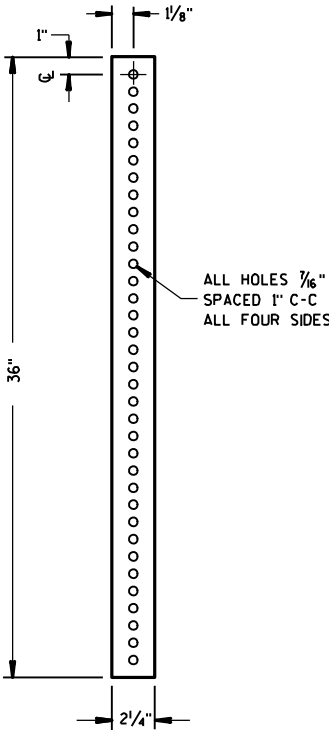
COUNTY:

SHEET NO: 92

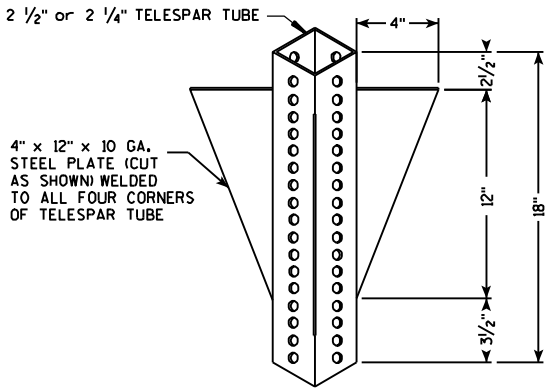
E

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

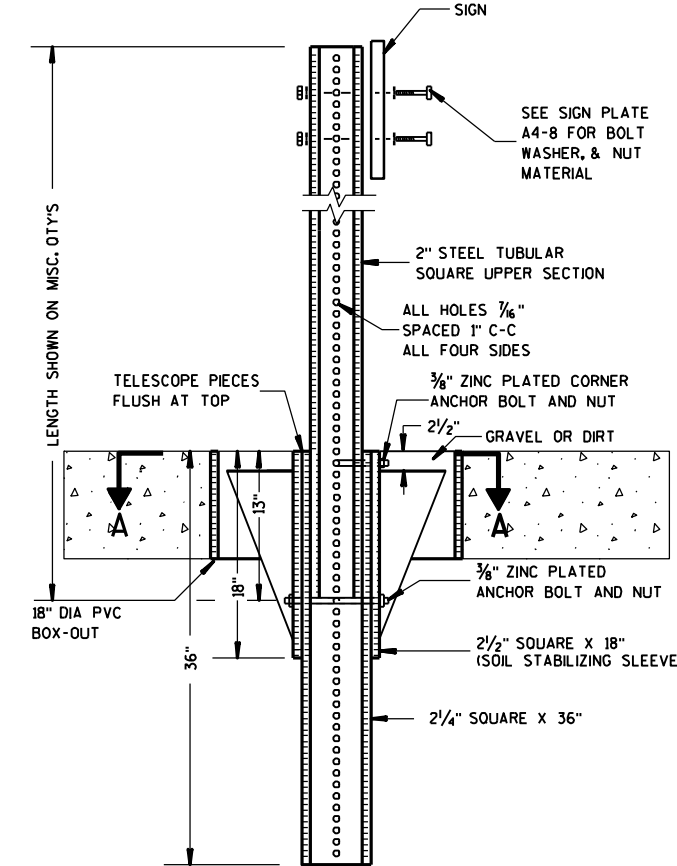
2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



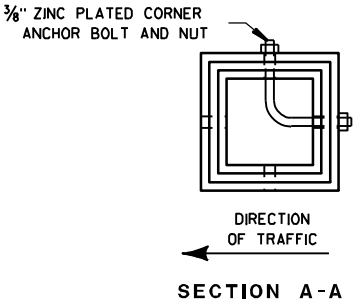
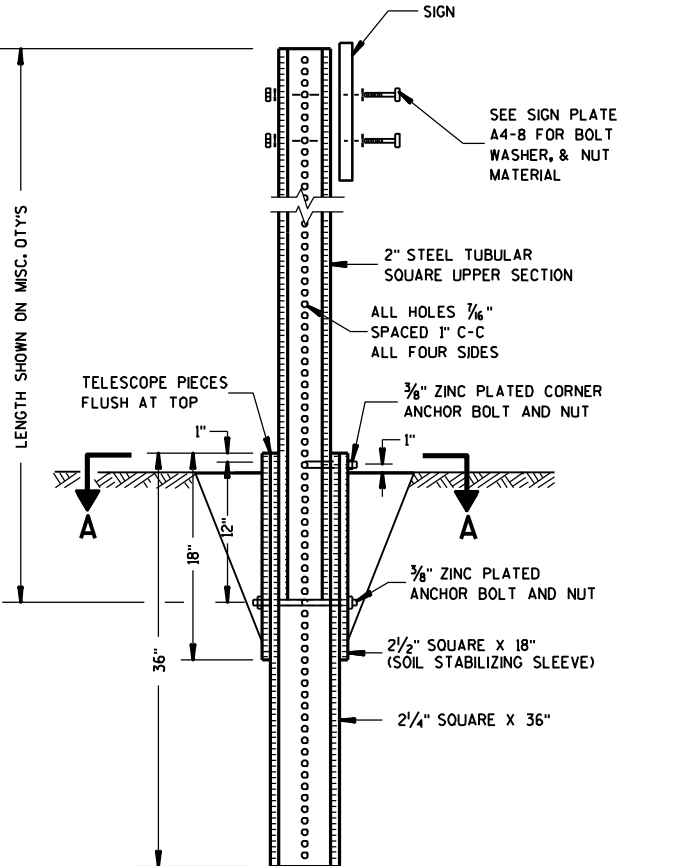
2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH



DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)



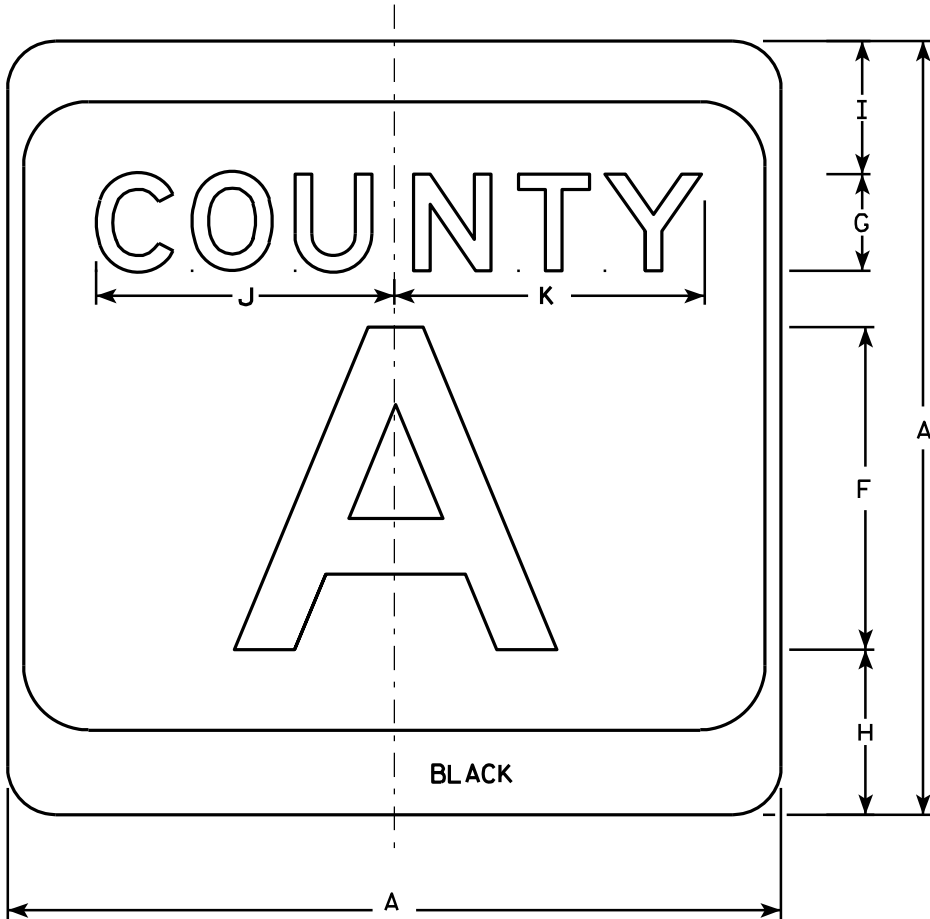
Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

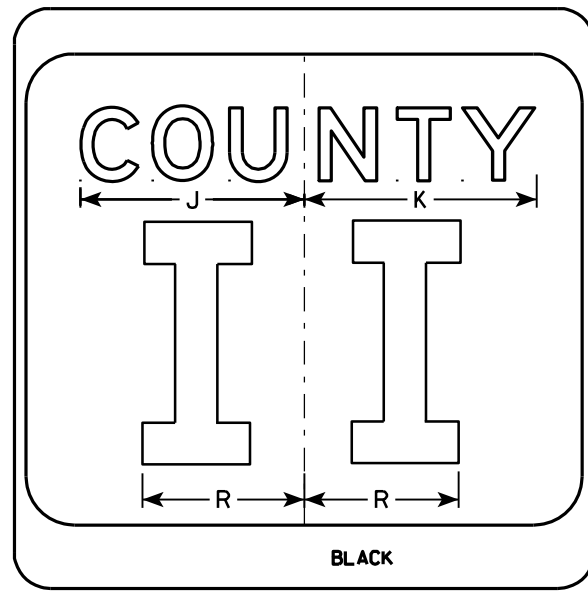
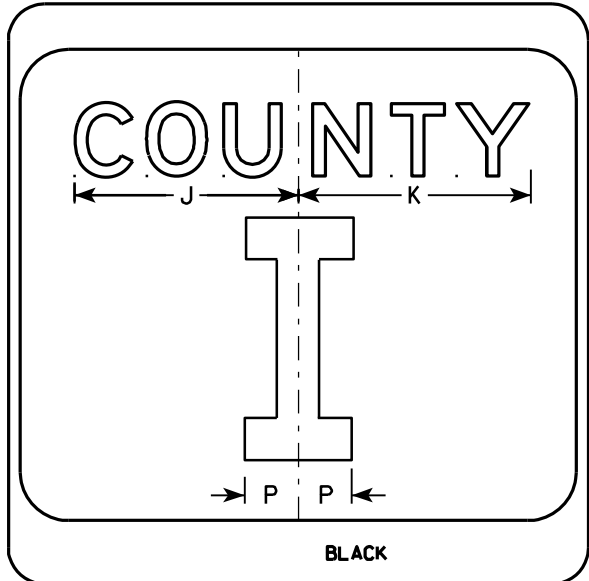
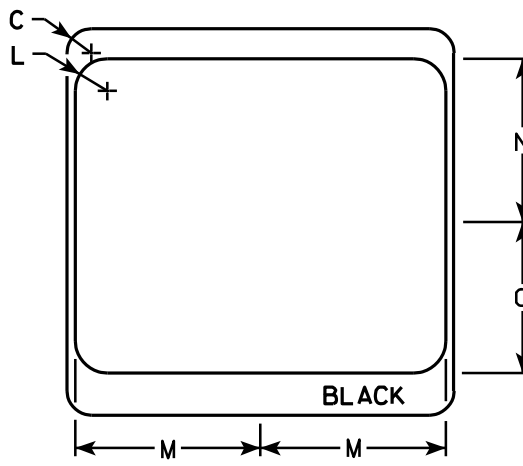
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 5/30/12 PLATE NO. A4-9.7



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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	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

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

PROJECT NO:

HWY:

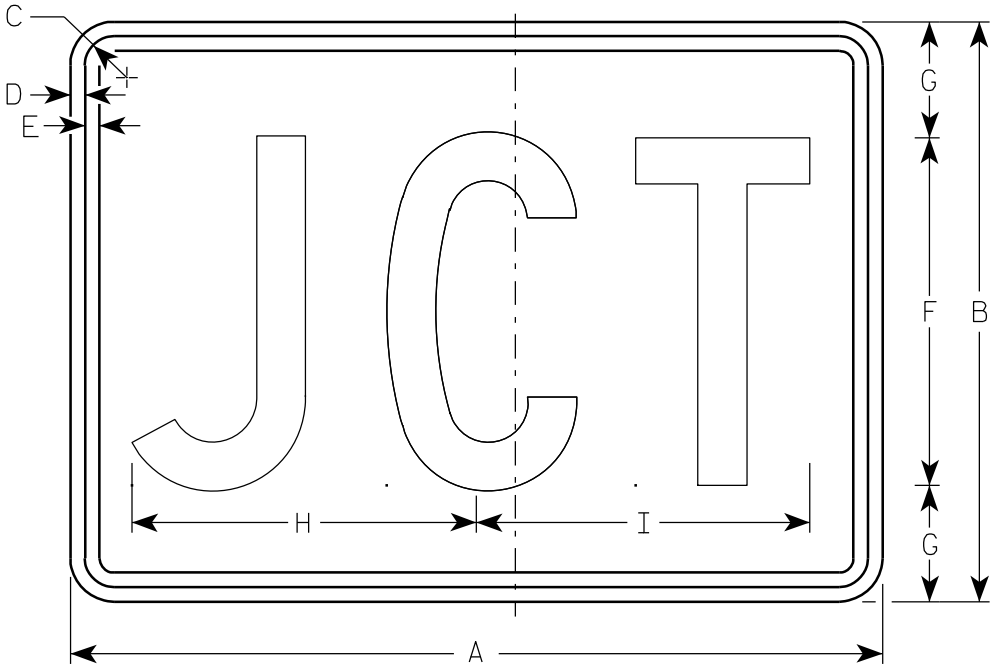
COUNTY:

SHEET NO: 94

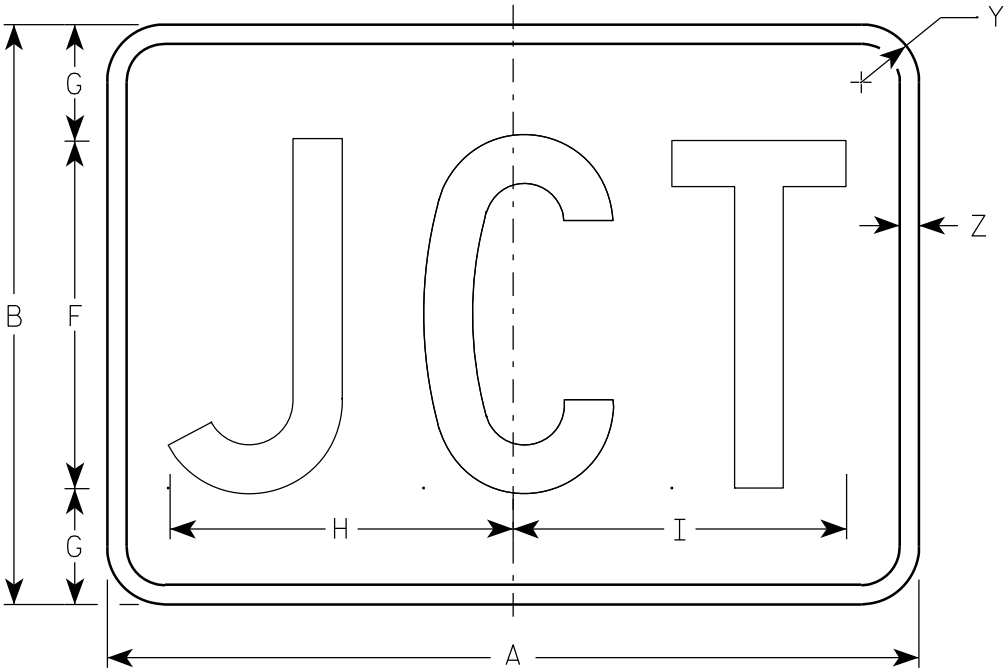
E

NOTES

1. Sign is Type II - See Note 5 - reference
WIS DOT Standard Specification for HIGHWAY
and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - See note 5
Message - See note 5
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. M2-1 Background - White - Type H Reflective
(Detour or temporary Signs - Reflective)
Message - Black
MB2-1 Background - Blue
Message - White - Type H Reflective
(Detour or temporary Signs - Reflective)
MG2-1 Background - Green
Message - White - Type H Reflective
MK2-1 Background - Green
Message - White - Type H Reflective
MM2-1 Background - White - Type H Reflective
Message - Green
MN2-1 Background - Brown
Message - White - Type H Reflective
MR2-1 Background - Brown
Message - Yellow - Type H Reflective



M2-1
MK2-1
MM2-1
MR2-1



MB2-1
MG2-1
MN2-1

Metric equivalent
for this sign is:

SIZE	
1	
2	525 mm X 375 mm
3	750 mm X 525 mm
4	750 mm X 525 mm
5	750 mm X 525 mm

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.	Area m ²
1																												
2	21	15	1 1/8	3/8	3/8	9	3	8 7/8	8 5/8																1 1/2	1/2	2.20	0.20
3	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40	0.20
4	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40	0.20
5	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40	0.20

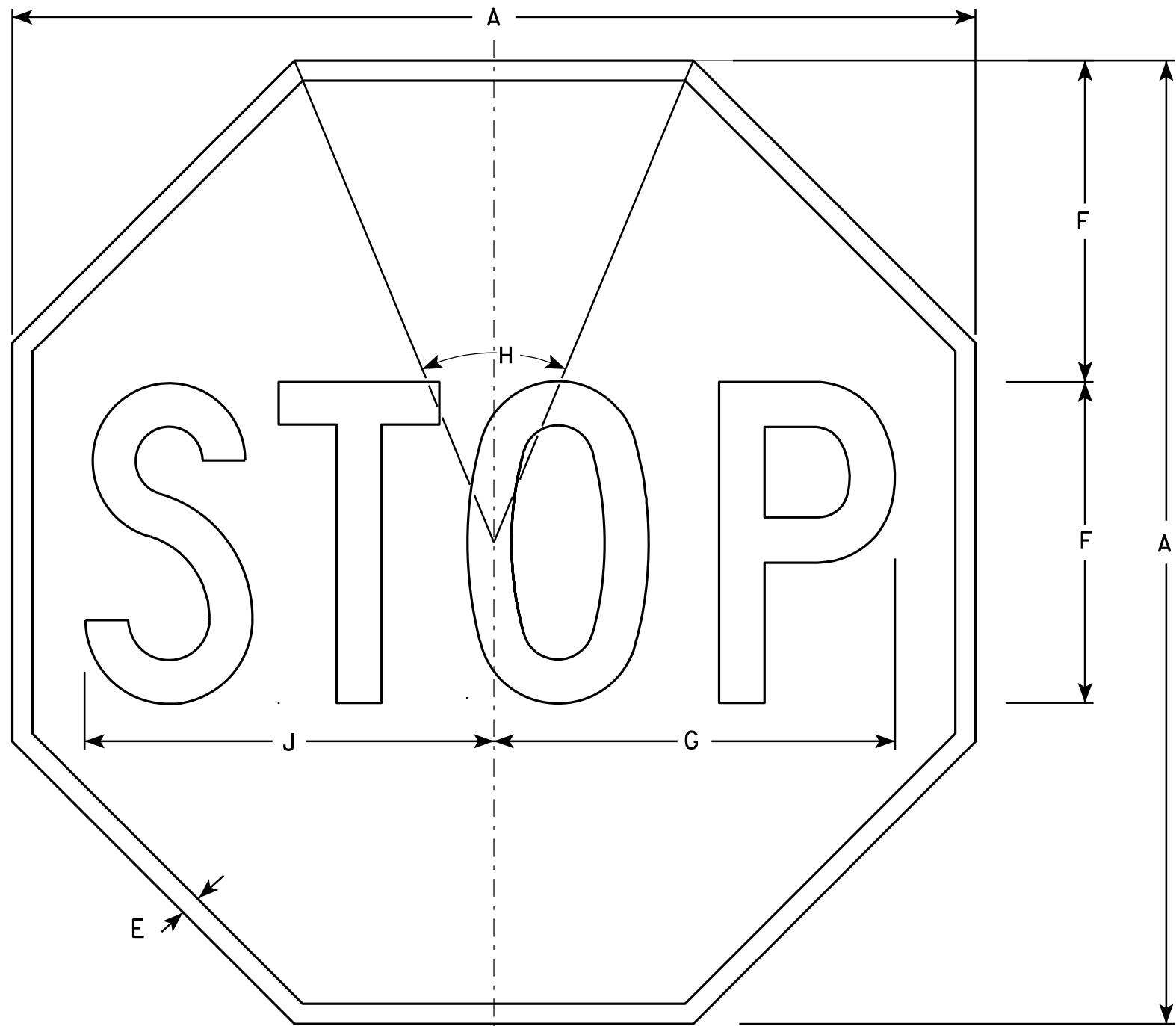
STANDARD SIGN
M2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 3/16/10 PLATE NO. M2-1.10

PROJECT NO: HWY: COUNTY: SHEET NO: 95 E



NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Red
Message - White
- 3. Message Series - C

R1-1

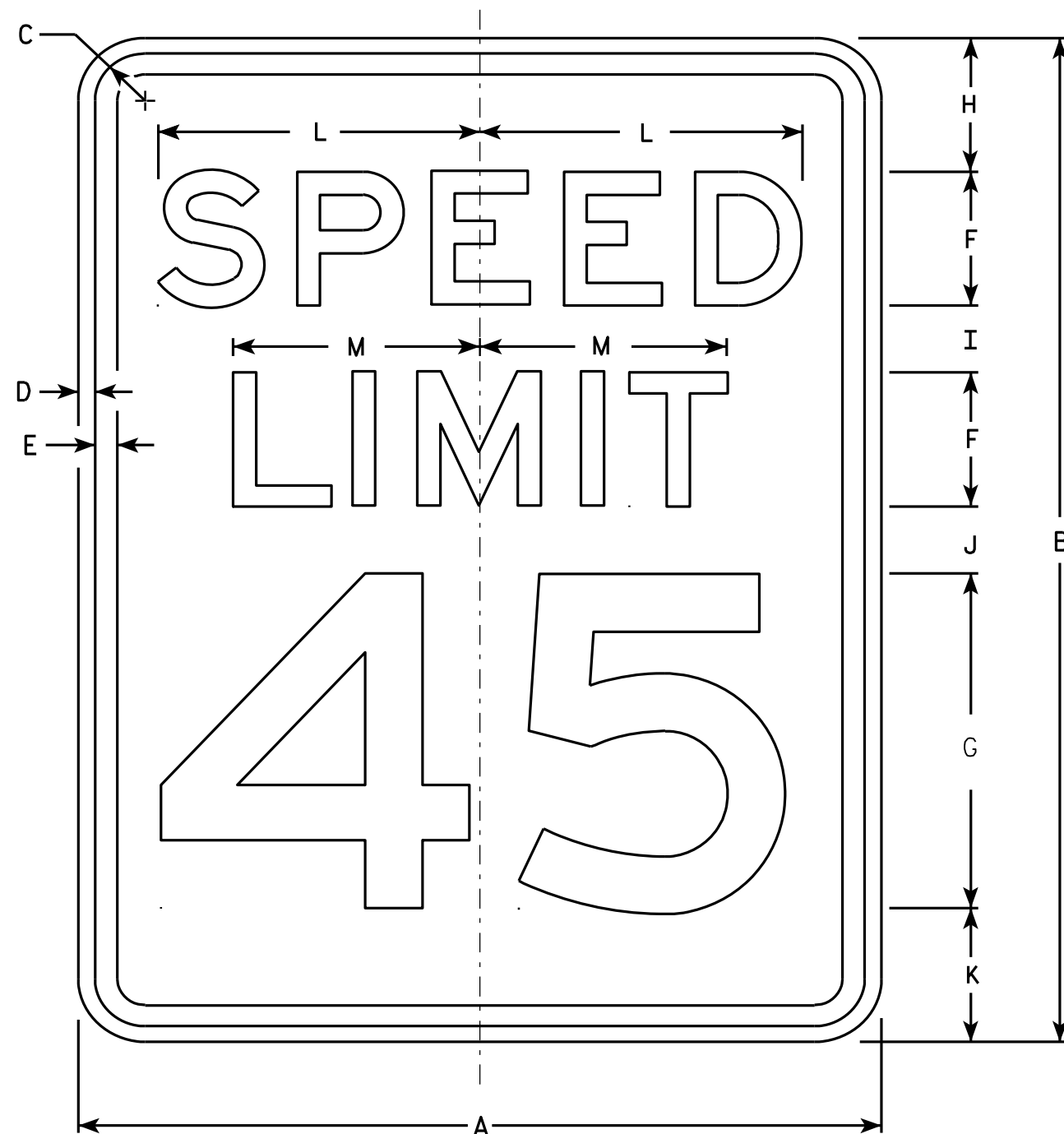
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24				3/8	8	10	45°		10 1/4																	3.31
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

STANDARD SIGN
R1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/03/10 PLATE NO. R1-1.12



R2-1

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 - E
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.

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	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

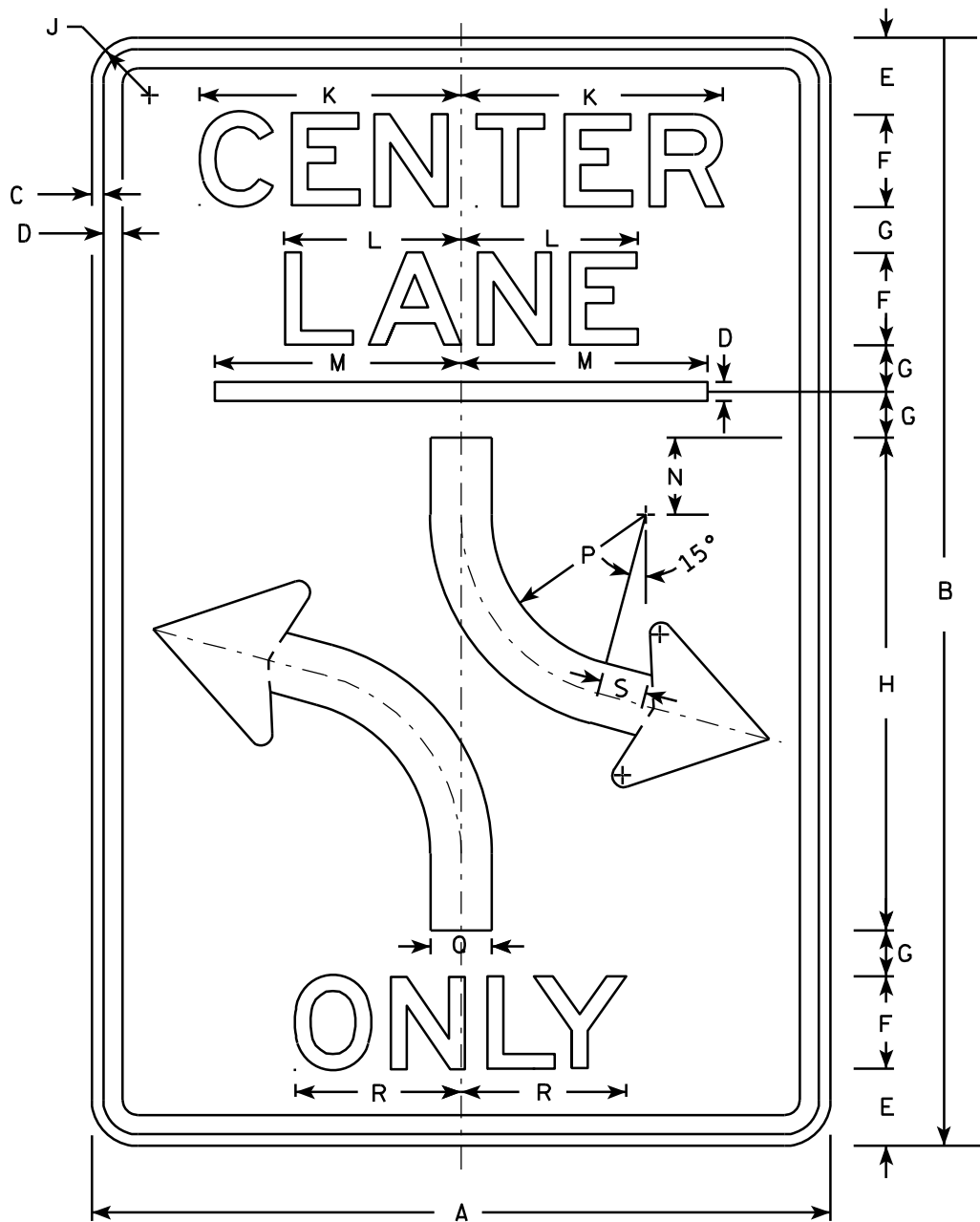
STANDARD SIGN R2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

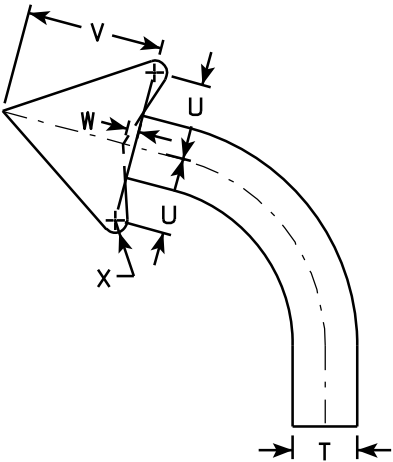
PROJECT NO: HWY: COUNTY: SHEET NO: 97 E



R3-9B

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 - E
- 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.



ARROW DETAIL

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	24	36	$\frac{3}{8}$	$\frac{1}{2}$	2 $\frac{1}{2}$	3	1 $\frac{1}{2}$	16		1 $\frac{1}{2}$	8 $\frac{1}{2}$	5 $\frac{3}{4}$	8	2 $\frac{1}{2}$		6	2	5 $\frac{1}{8}$	1 $\frac{1}{2}$		2 $\frac{3}{8}$	4 $\frac{3}{8}$	$\frac{3}{8}$				6.0
2M	24	36	$\frac{3}{8}$	$\frac{1}{2}$	2 $\frac{1}{2}$	3	1 $\frac{1}{2}$	16		1 $\frac{1}{2}$	8 $\frac{1}{2}$	5 $\frac{3}{4}$	8	2 $\frac{1}{2}$		6	2	5 $\frac{1}{8}$	1 $\frac{1}{2}$		2 $\frac{3}{8}$	4 $\frac{3}{8}$	$\frac{3}{8}$				6.0
3	36	48	$\frac{5}{8}$	$\frac{7}{8}$	3 $\frac{1}{2}$	5	1 $\frac{1}{2}$	20		2 $\frac{1}{4}$	14 $\frac{1}{8}$	9 $\frac{1}{2}$	12	3		4	3	9 $\frac{7}{8}$	2		3 $\frac{1}{2}$	6 $\frac{1}{8}$	$\frac{1}{2}$				12.0
4																											
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 98

E

STANDARD SIGN
R3-9B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/24/2011 PLATE NO. R3-9B.5

BRIDGE OFFICE CONTACT:
WILLIAM DREHER
608-266-8489

CONSULTANT CONTACT
SCOTT GINAL
920-208-0296

DESIGN DATA**LIVE LOAD:**

DESIGN RATING: HL-93
INVENTORY RATING FACTOR: 1.05
OPERATING RATING FACTOR: 1.35
MAXIMUM STANDARD PERMIT VEHICLE LOAD = 255 KIPS

SOIL LOAD:

DESIGNED FOR 1.5 FEET OF FILL

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY ALL $f'_c = 3,500$ psi
HIGH STRENGTH BAR STEEL REINFORCEMENT $f_y = 60,000$ psi

TRAFFIC VOLUME

A.A.D.T. = 7854 (2013)
A.A.D.T. = 14,185 (2033)
DESIGN SPEED = 35 MPH

HYDRAULIC DATA

DRAINAGE AREA = 0.44 SQ. MILES
WATERWAY AREA = 61 SQ. FEET
 $Q_{100} = 260$ CFS
VELOCITY = 4.25 FPS
HIGH WATER $_{100} =$ EL. 646.80
RDWY OVERTOPPING = N/A
SCOUR CODE = 8

FOUNDATION DATA

WINGWALLS WITH SPREAD FOOTINGS TO BE SUPPORTED BY UNDERLYING NATIVE SOILS WITH A REQUIRED BEARING RESISTANCE OF 2000 PSF***. A GEOTECHNICAL ENGINEER WILL DETERMINE THE BEARING RESISTANCE BY VISUAL INSPECTION PRIOR TO CONSTRUCTION OF THE WINGWALL FOOTING.

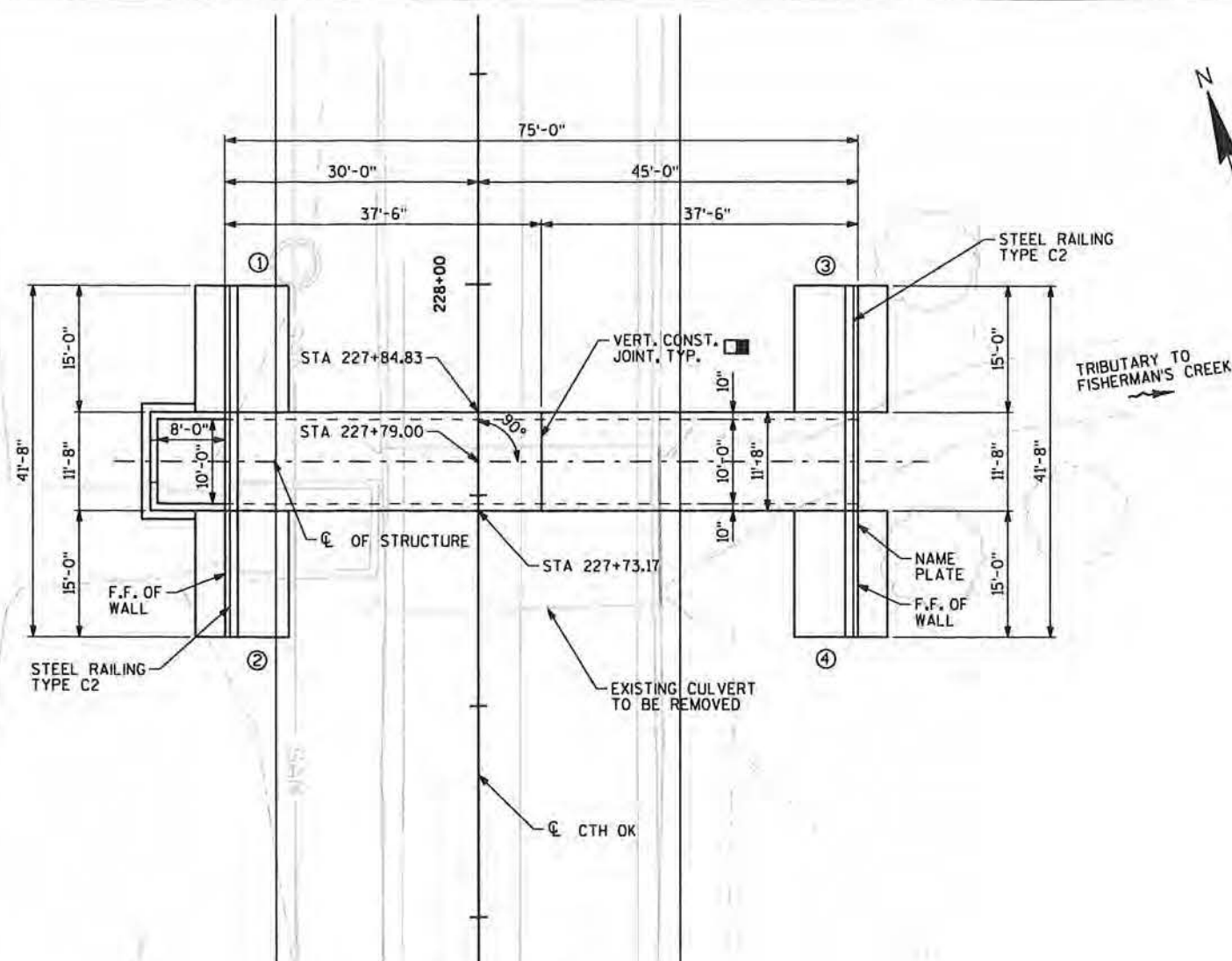
*** THE BEARING RESISTANCE IS THE VALUE USED FOR DESIGN.

LIST OF DRAWINGS

1. GENERAL PLAN
2. SECTIONS, NOTES & QUANTITIES
3. SLAB STEEL LAYOUT
4. INLET STRUCTURE DETAILS
5. BOX DETAILS & BILL OF BARS
6. WING PLAN AND ELEVATION
7. WING DETAILS & BILL OF BARS
8. RAILING TYPE C2 MODIFIED
9. SUBSURFACE EXPLORATION

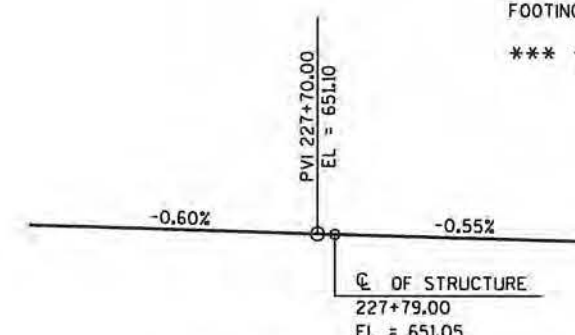
NO.	DATE	REVISION	BY
			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED		 CHIEF STRUCTURES DESIGN ENGINEER	
		DATE 10/26/12	
STRUCTURE C-59-112			
CTH OK OVER TRIBUTARY TO FISHERMAN'S CREEK			
COUNTY	SHEBOYGAN	TOWN/CITY/VILLAGE	SHEBOYGAN
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	SJG	DESIGN C'D.	PJE
DRAWN BY	SJG	PLANS C'D.	PJE
GENERAL PLAN			SHE 99 F 9

BEHRENS PARKWAY
DETENTION POND

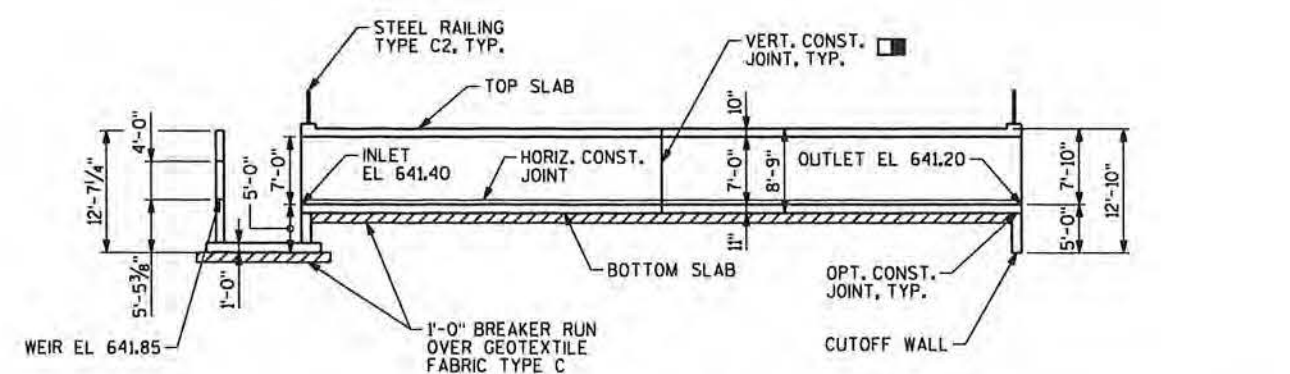
**PLAN**

(SINGLE CELL CONCRETE BOX CULVERT)

⊙-INDICATES WING WALL NUMBER

**PROFILE GRADE LINE**

(CTH OK)

**SECTION**

18" MIN. WIDTH RUBBERIZED
MEMBRANE WATERPROOFING UP
WALLS AND ACROSS TOP SLAB



DRAWINGS SHALL NOT BE SCALED.

THE FIRST DIGIT OF A THREE DIGIT BAR MARK AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TO THE TOP OF THE BOX WITHIN THE LENGTH OF THE CULVERT.

THE ALTERNATE CUTOFF WALL MAY BE USED IN LIEU OF THE CAST-IN-PLACE CONCRETE CUTOFF WALLS. PAYMENT SHALL BE BASED ON THE CONCRETE CUTOFF WALLS.

PLACE AN 18" (MIN.) WIDE SHEET OF RUBBERIZED MEMBRANE WATERPROOFING ON TOP SLAB OVER ALL CONSTRUCTION JOINTS AND EXTEND DOWN TO BOTTOM OF OUTSIDE WALLS.

THE CONTRACTOR MAY FURNISH A PRECAST CONCRETE BOX CULVERT IN LIEU OF THE CAST-IN-PLACE BOX CULVERT WITH THE ACCEPTANCE OF THE SHOP DRAWINGS BY THE STRUCTURES DESIGN SECTION. THE PRECAST CONCRETE BOX CULVERT SHALL CONFORM TO PRECAST DETAILS IN CHAPTER 36 STANDARDS OF THE CURRENT WISCONSIN DOT BRIDGE MANUAL. PAYMENT FOR THE PRECAST CULVERT SHALL BE BASED ON THE QUANTITIES AND PRICES BID FOR THE ITEMS LISTED IN THE "TOTAL ESTIMATED QUANTITIES".

CONTRACTOR MAY ELECT TO SUBSTITUTE #10R #2 CONCRETE COARSE AGGREGATE, SELECT CRUSHED MATERIAL OR OTHER GRANULAR MATERIAL AS APPROVED BY THE FIELD ENGINEER, IN LIEU OF THE BREAKER RUN, TO BE UTILIZED AS A CONSTRUCTION PLATFORM FOR THE BOX. THE CONTRACTOR IS RESPONSIBLE FOR BASE STABILITY WITH ANY SUBSTITUTED MATERIAL.

THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING TYPE AND LOCATION OF ALL UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE.

THE EXISTING STRUCTURE TO BE REMOVED IS A COMPOSITE CONCRETE CULVERT 10 FT WIDE BY 6.2 FT HIGH WITH A 10 FT WIDE BY 17 FT LONG 3-SIDED POND OUTLET STRUCTURE. THE CLEAR ROADWAY WIDTH OVER THE CULVERT IS 28 FT.

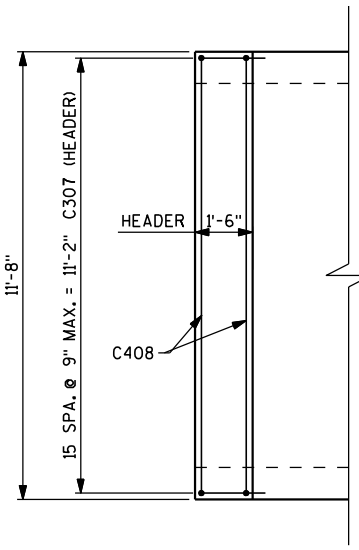


ALL ITEMS CATEGORY 0020 UNLESS NOTED OTHERWISE

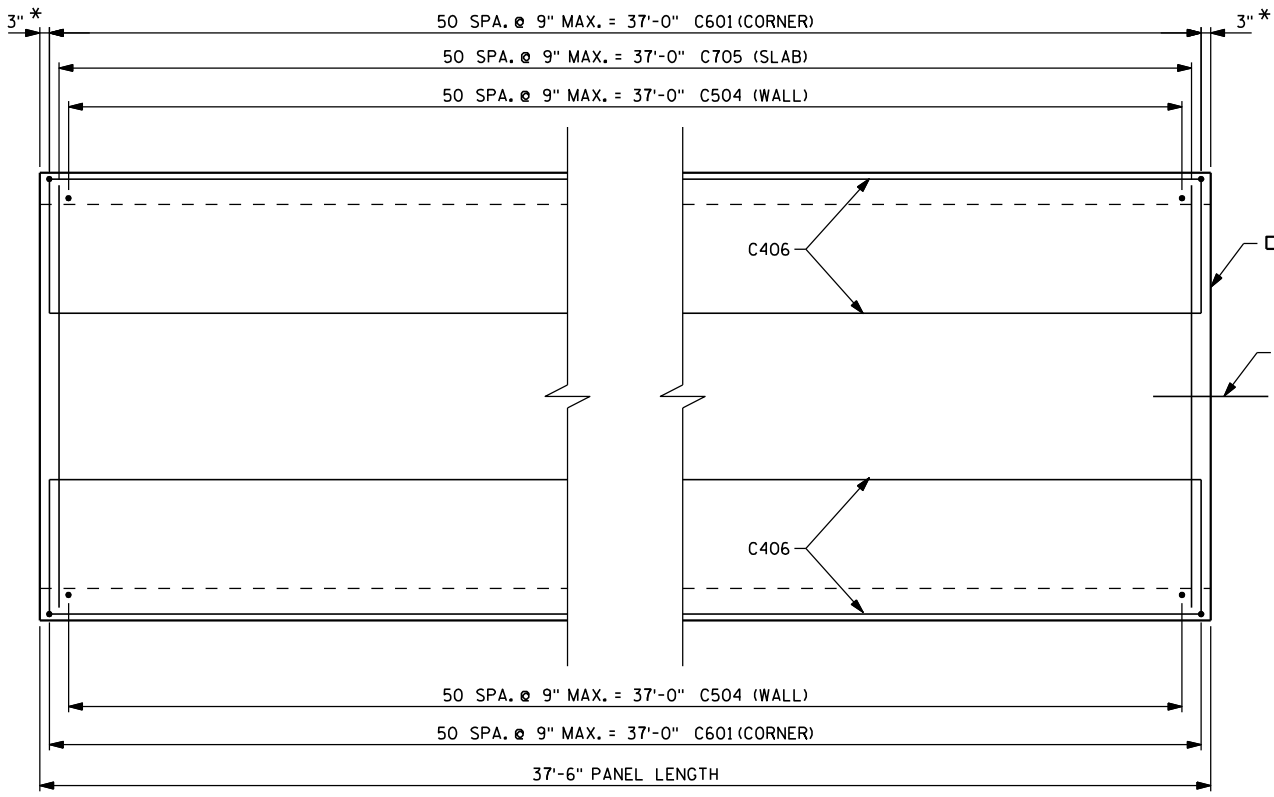
BID ITEMS	BID ITEMS	UNIT	TOTALS
203.0600.S.01	REMOVING OLD STRUCTURE OVER WATERWAY, MINIMAL DEBRIS, STA 227+79	LS	1
206.2000	EXCAVATION FOR STRUCTURES CULVERTS (C-59-112)	LS	1
209.0100	BACKFILL GRANULAR	CY	31
210.0100	BACKFILL STRUCTURE	CY	829
311.0115	BREAKER RUN	CY	72
504.0100	CONCRETE MASONRY CULVERTS	CY	195
505.0410	BAR STEEL REINFORCEMENT HS CULVERTS	LB	23,540
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	11
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	60
645.0105	GEOTEXTILE FABRIC TYPE C	SY	182
SPV.0105.01	RAILING STEEL TYPE C2 GALVANIZED C-59-112	LS	1
	NON-BID ITEMS		
	PREFORMED JOINT FILLER	SIZE	¾"



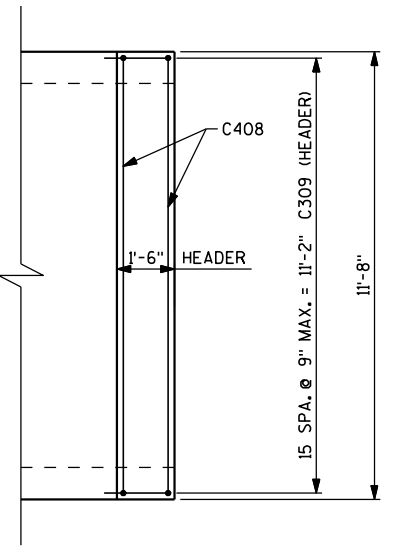
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-59-112			
		DRAWN BY SJG	PLANS CK'D. PJE
SECTIONS, NOTES, & QUANTITIES		SHEET 2 OF 9	
		100	



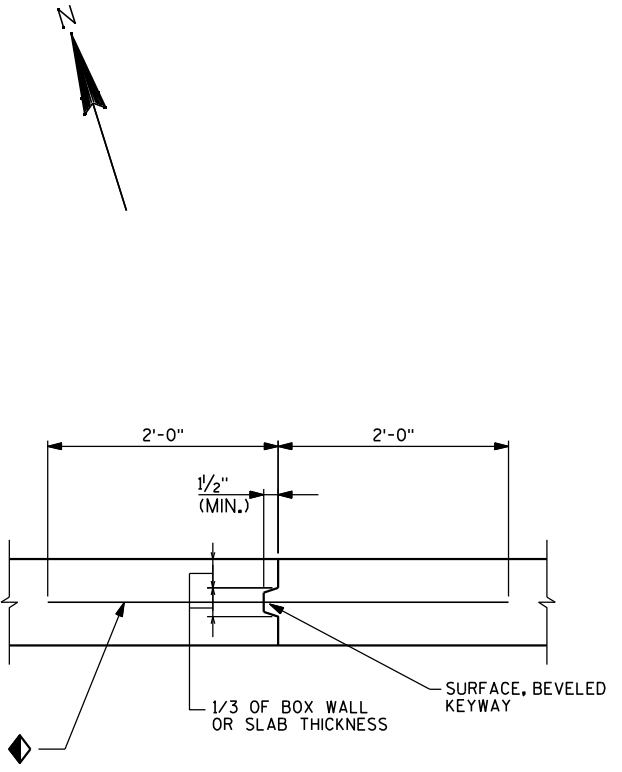
INLET
(HEADER)



TOP SLAB PLAN
(TYPICAL - 2 PANELS)



OUTLET
(HEADER)



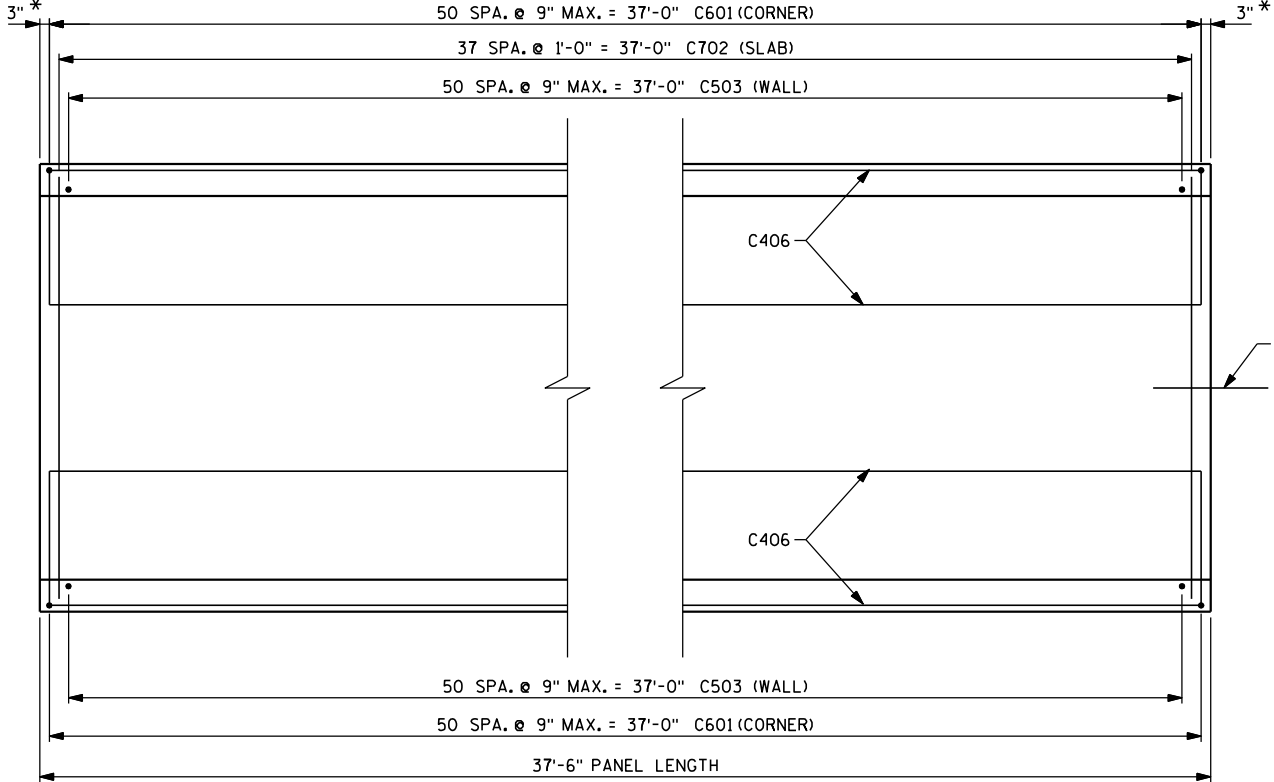
NOTE: IN LIEU OF CONSTRUCTION JOINTS IN THE BOTTOM SLAB, THE CONTRACTOR MAY USE 2" DEEP SAW CUTS WITHIN 12 HOURS AFTER POURING.

VERTICAL CONSTRUCTION JOINT

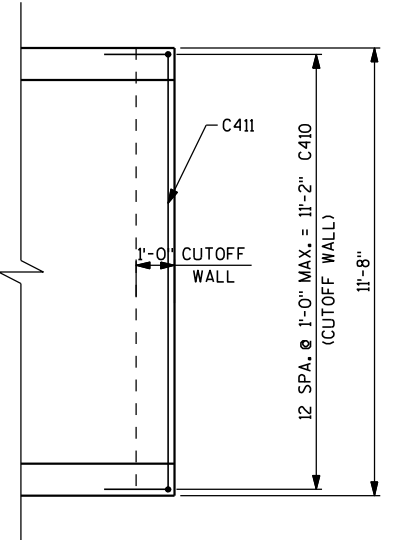
LEGEND

- * DISTANCE TO ϕ OF REINFORCING IS 3" UNLESS SHOWN OTHERWISE.
- 18" MIN. WIDTH RUBBERIZED MEMBRANE WATERPROOFING UP WALLS AND ACROSS TOP SLAB AT VERTICAL CONST. JOINT
- C512 BARS AT 1'-0" ON CENTER IN ALL FOUR SIDES OF BOX AT VERTICAL CONSTRUCTION JOINT, SEE THIS SHEET FOR VERTICAL CONSTRUCTION JOINT DETAIL.

(SEE SHEET 4 FOR INLET STRUCTURE)

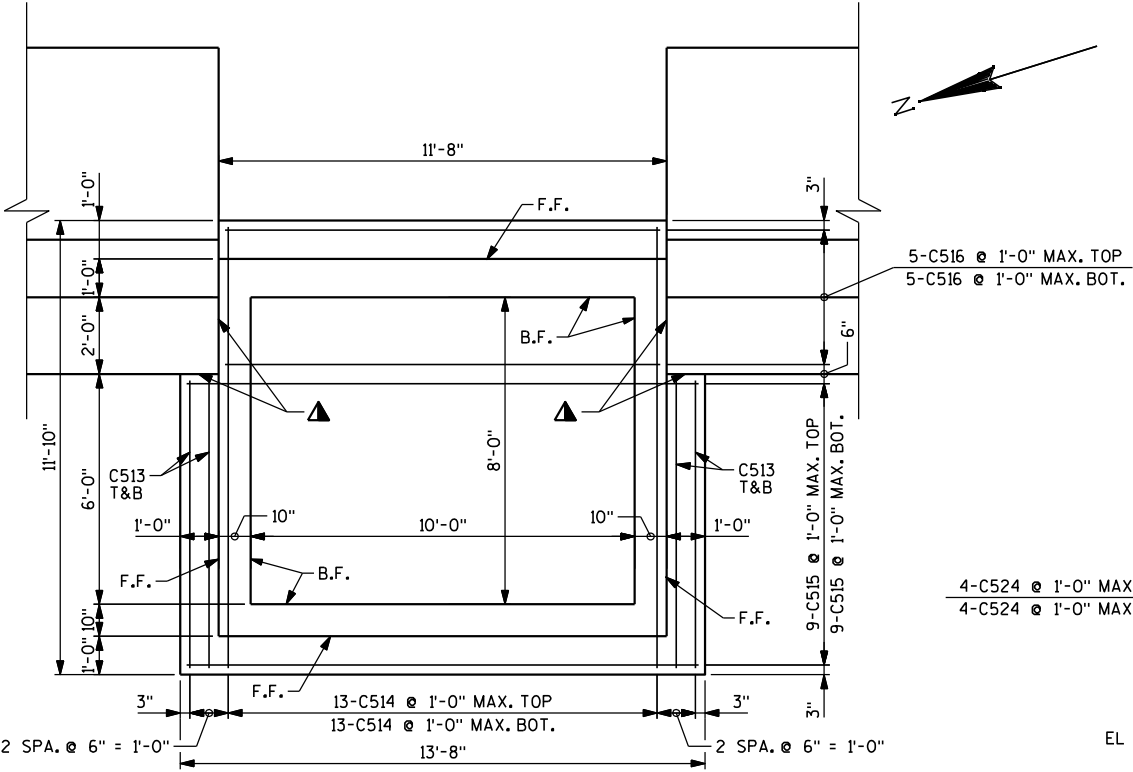


BOTTOM SLAB PLAN
(TYPICAL - 2 PANELS)

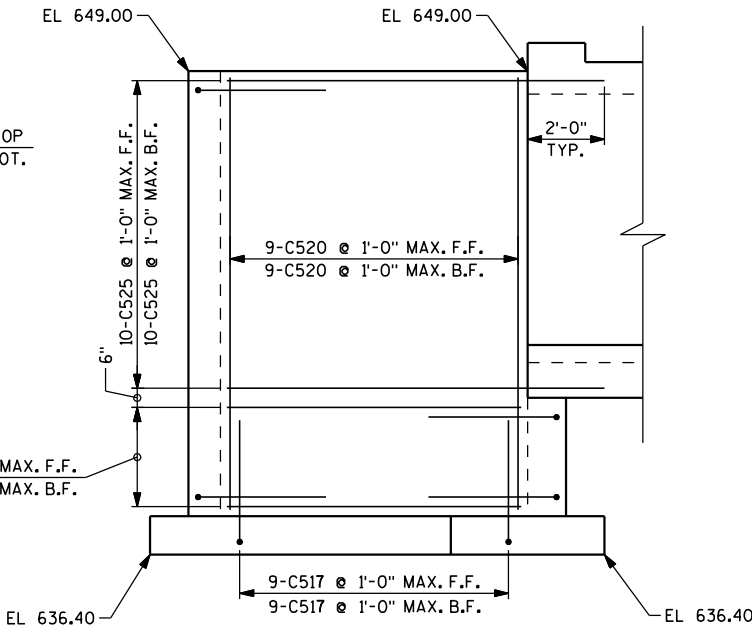


OUTLET
(CUTOFF WALL)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-59-112			
		DRAWN BY SJG	PLANS CK'D. PJE
SLAB STEEL LAYOUT		SHEET 3 OF 9	
		101	



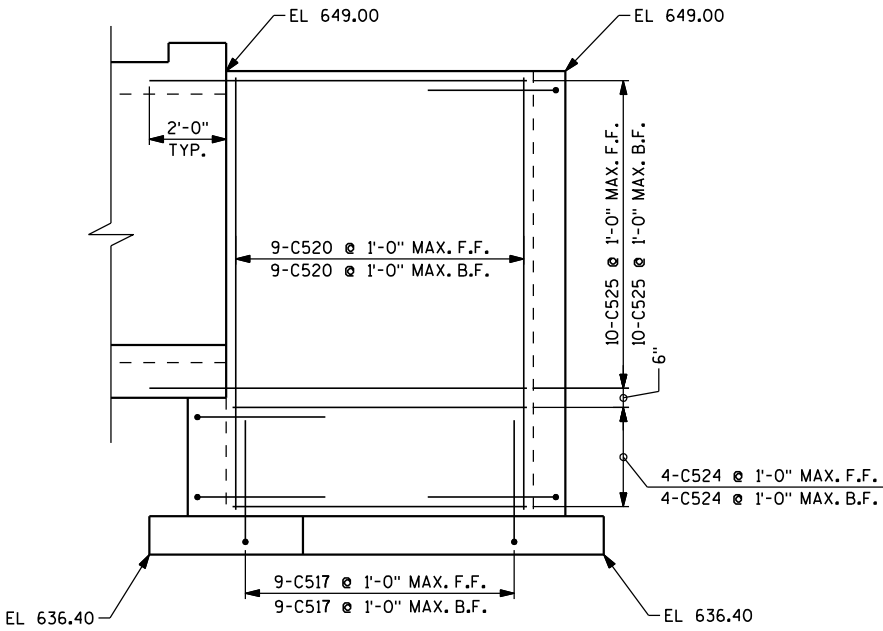
BASE SLAB PLAN



NOTE: LAP HORIZONTAL REINFORCING WITH CORNER BARS. SEE EAST AND WEST ELEVATIONS FOR CORNER REINFORCING.

SOUTH ELEVATION

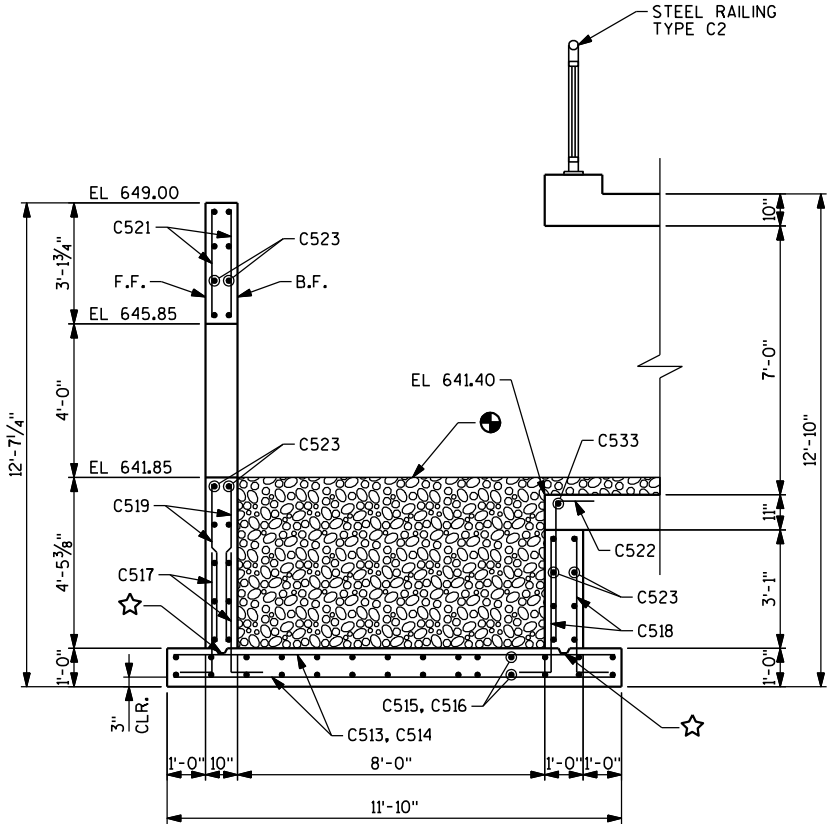
(LOOKING AT FRONT FACE)



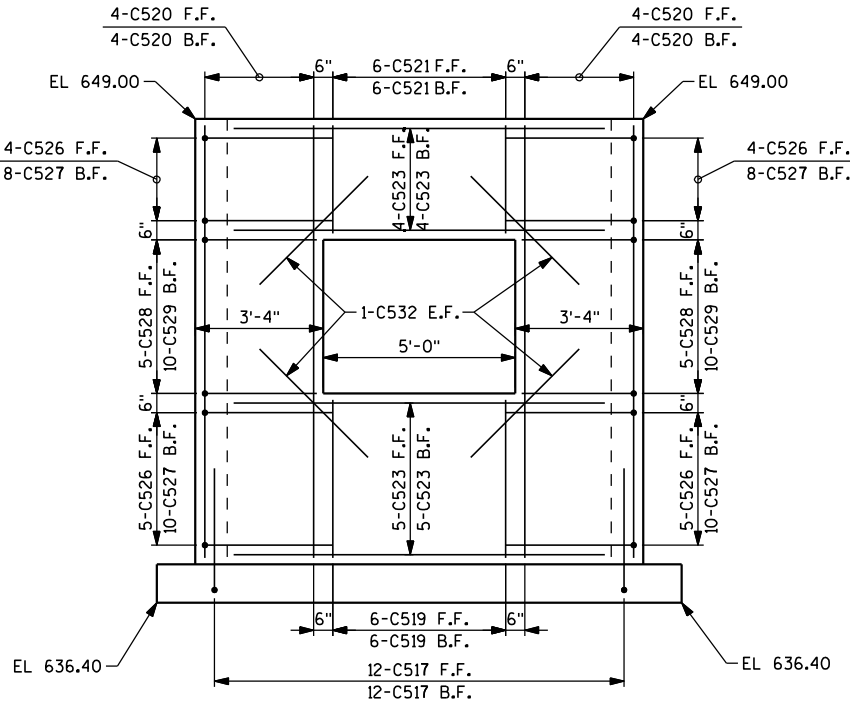
NOTE: LAP HORIZONTAL REINFORCING WITH CORNER BARS. SEE EAST AND WEST ELEVATIONS FOR CORNER REINFORCING.

NORTH ELEVATION

(LOOKING AT FRONT FACE)



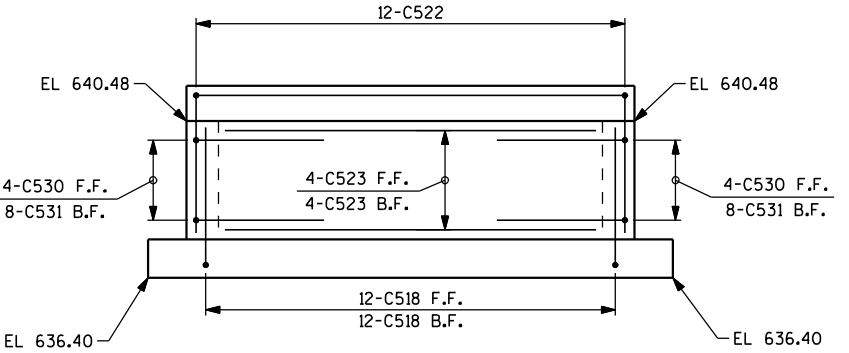
SECTION



NOTE: MAXIMUM BAR SPACING IS 1'-0".

WEST ELEVATION

(LOOKING AT FRONT FACE)



NOTE: MAXIMUM BAR SPACING IS 1'-0".

EAST ELEVATION

(LOOKING AT FRONT FACE)

LEGEND

- ▲ ¾" PREFORMED JOINT FILLER BETWEEN WING WALL FOOTING AND INLET STRUCTURE BASE SLAB.
- FILL INLET STRUCTURE WITH BACKFILL GRANULAR UP TO EL 641.85.
- ☆ KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" X 4".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-59-112			
DRAWN BY		SJG	PLANS CK'D. PJE
INLET STRUCTURE DETAILS			SHEET 4 OF 9
			102

BILL OF BARS - BOX & INLET STRUCTURE

COATED: 0 LBS
UNCOATED: 17,030 LBS

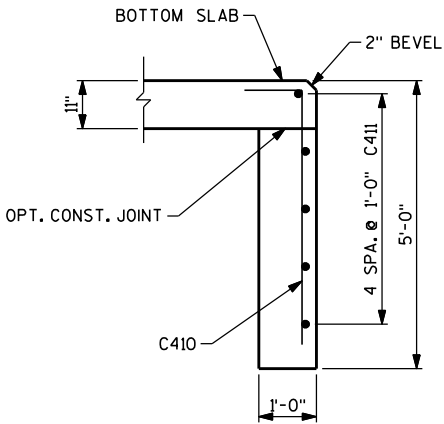
STATE PROJECT NUMBER

4996-01-22

BAR MARK	COAT	NUMBER REQUIRED	LENGTH	BAR SERIES	BENT	LOCATION
C601		408	8'-7"		X	BOX CORNERS
C702		76	11'-0"			BOX BOTTOM SLAB TRANSVERSE
C503		204	2'-6"			BOX WALL DOWEL
C504		204	7'-0"			BOX WALL VERTICAL
C705		102	11'-0"			BOX TOP SLAB TRANSVERSE
C406		88	37'-0"			BOX LONGITUDINAL
C307		16	3'-0"		X	BOX INLET HEADER STIRRUP
C408		4	11'-4"			BOX HEADER LONGITUDINAL
C309		16	3'-7"		X	BOX OUTLET HEADER STIRRUP
C410		13	5'-6"		X	BOX CUTOFF WALL VERTICAL
C411		5	11'-4"			BOX CUTOFF WALL HORIZONTAL
C512		44	4'-0"			BOX VERT. CONST. JOINT DOWEL
C513		8	7'-5"			INLET STRUCTURE BASE SLAB
C514		26	11'-6"			INLET STRUCTURE BASE SLAB
C515		18	13'-4"			INLET STRUCTURE BASE SLAB
C516		10	11'-4"			INLET STRUCTURE BASE SLAB
C517		60	3'-11"		X	INLET STRUCTURE WALL DOWEL
C518		24	4'-4"		X	INLET STRUCTURE WALL DOWEL
C519		12	4'-1"			INLET STRUCTURE WALL VERTICAL
C520		52	11'-3"			INLET STRUCTURE WALL VERTICAL
C521		12	2'-9"			INLET STRUCTURE WALL VERTICAL
C522		12	4'-5"		X	INLET STRUCTURE WALL DOWEL
C523		26	10'-0"			INLET STRUCTURE WALL HORIZONTAL
C524		16	8'-0"			INLET STRUCTURE WALL HORIZONTAL
C525		40	10'-0"			INLET STRUCTURE WALL HORIZONTAL
C526		18	6'-1"		X	INLET STRUCTURE WALL CORNER BAR
C527		36	3'-10"		X	INLET STRUCTURE WALL CORNER BAR
C528		10	6'-0"		X	INLET STRUCTURE WALL CORNER BAR
C529		20	3'-9"		X	INLET STRUCTURE WALL CORNER BAR
C530		8	6'-3"		X	INLET STRUCTURE WALL CORNER BAR
C531		16	4'-0"		X	INLET STRUCTURE WALL CORNER BAR
C532		8	4'-0"			INLET STRUCTURE OPENING DIAGONAL
C533		1	11'-4"			INLET STRUCTURE HORIZONTAL

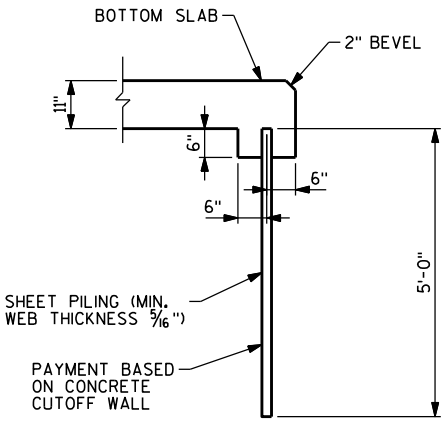
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK
SIGNIFIES THE BAR SIZE

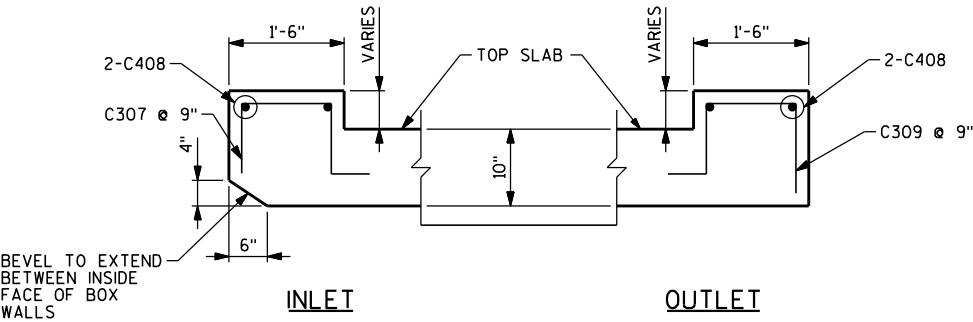


OUTLET

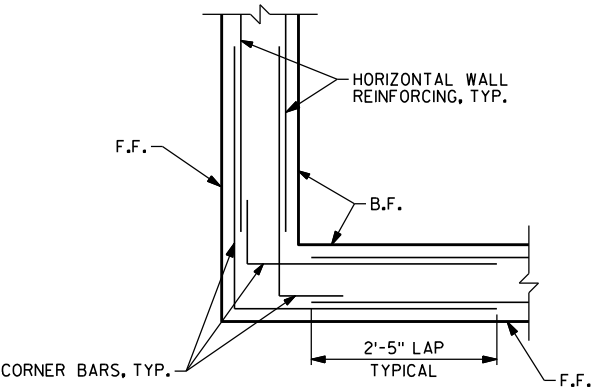
SECTION THRU CUTOFF WALL



SECTION THRU
ALTERNATE CUTOFF WALL

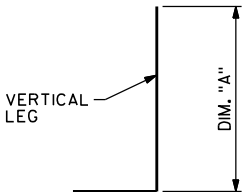


HEADER DETAILS

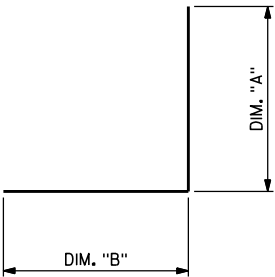


INLET CORNER DETAIL

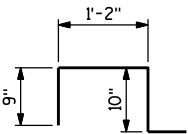
8



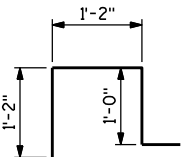
BAR MARK	DIM. "A"
C601	5'-3"
C410	4'-7"
C517	3'-2"
C518	3'-7"
C522	3'-8"



BAR MARK	DIM. "A"	DIM. "B"
C526	3'-1"	3'-1"
C527	3'-1"	10"
C528	3'-1"	3'-0"
C529	3'-0"	10"
C530	3'-3"	3'-1"
C531	3'-3"	10"



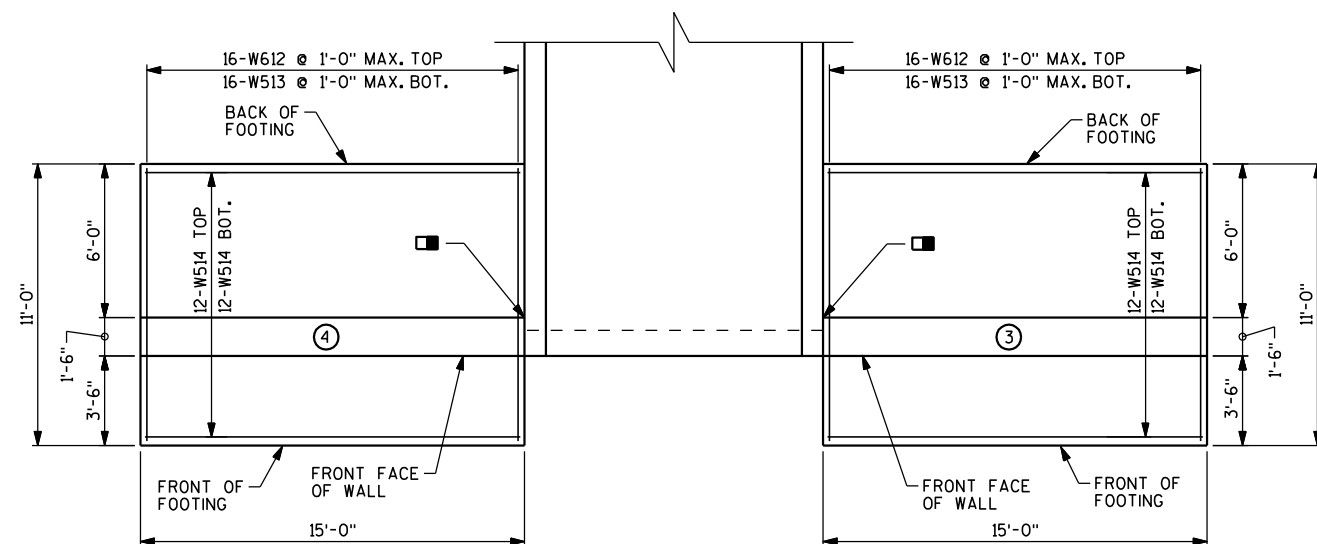
C307



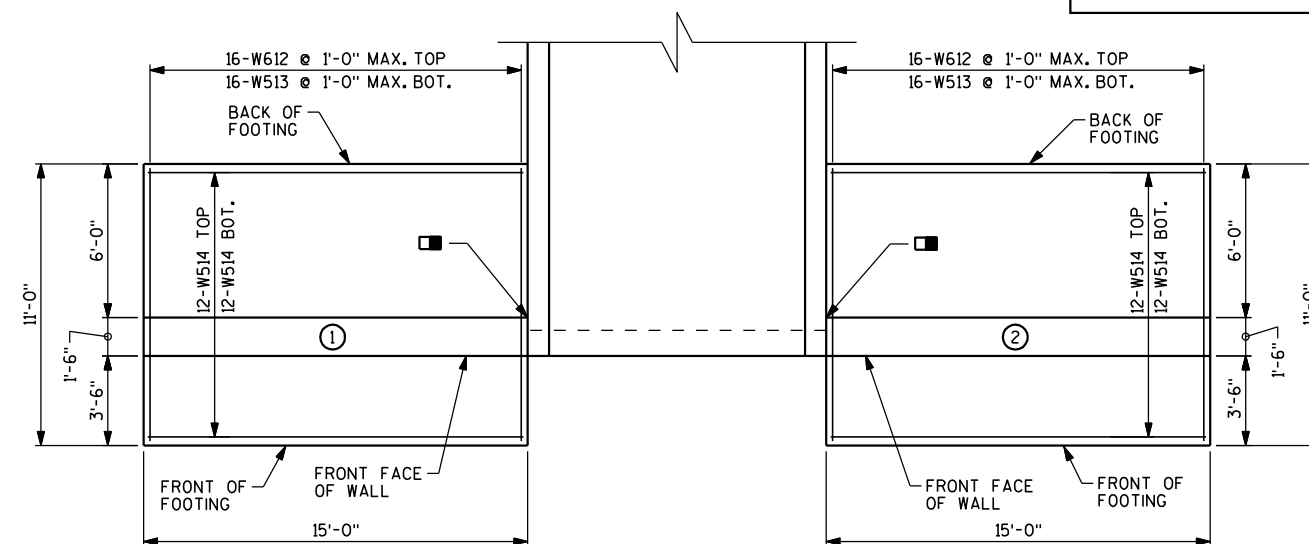
C309

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-59-112			
DRAWN BY S.J.G.		PLANS CK'D. P.J.E.	
BOX DETAILS & BILL OF BARS			SHEET 5 OF 9
			103

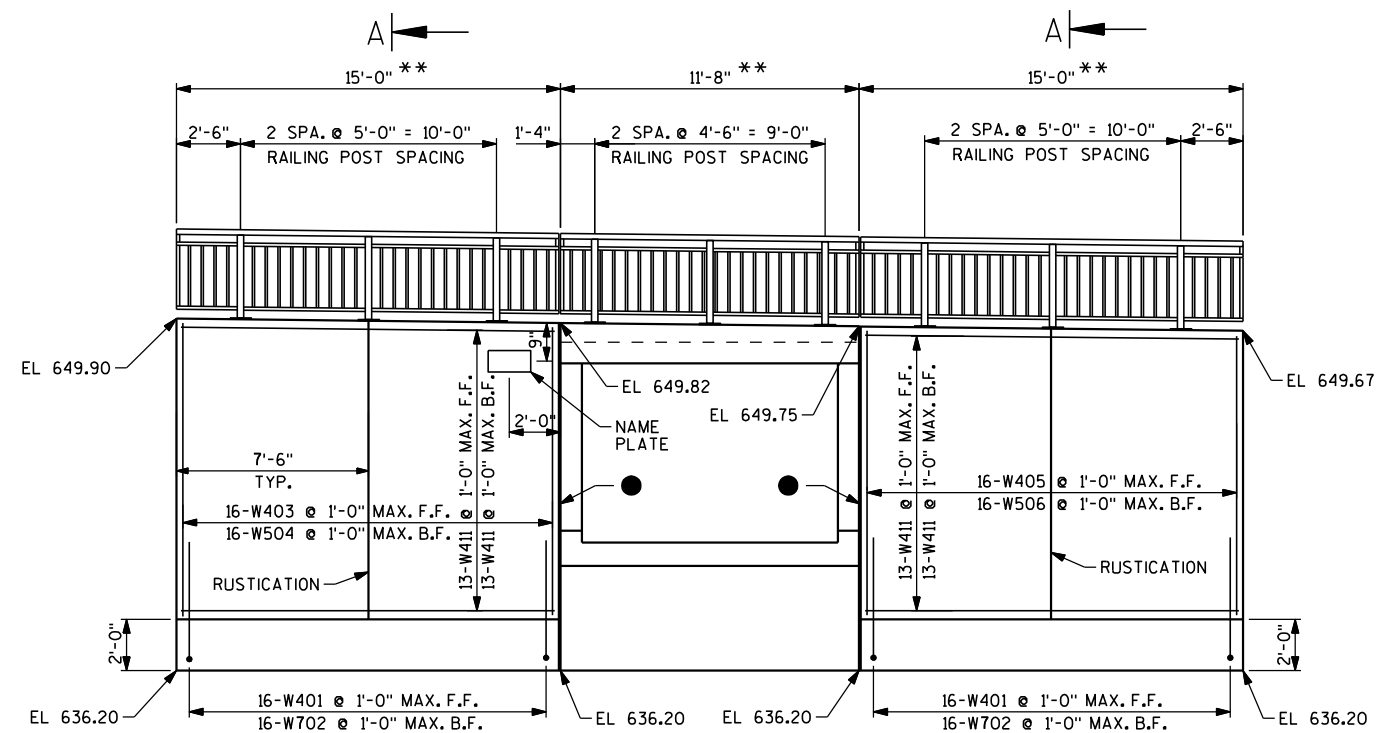


WING WALLS 3 & 4 PLAN

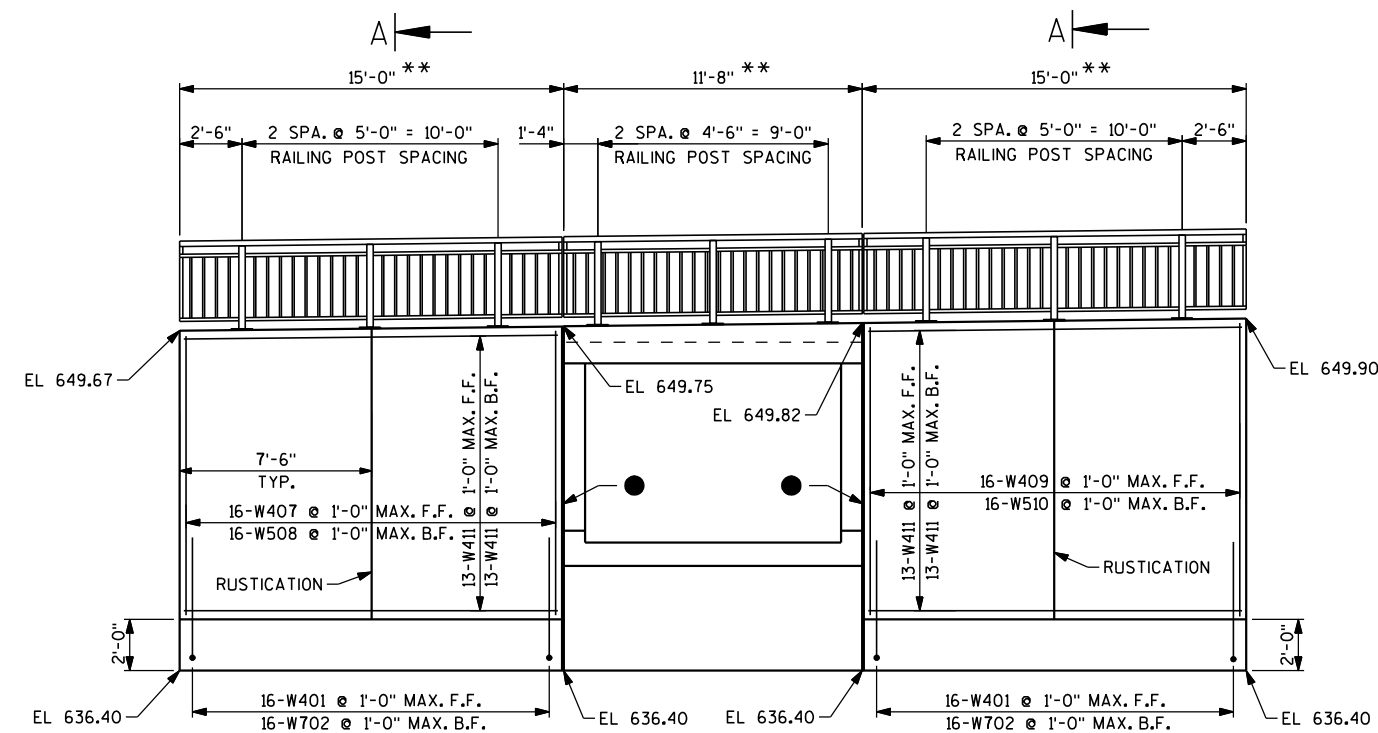


WING WALLS 1 & 2 PLAN

(INLET STRUCTURE NOT SHOWN)



WING WALLS 3 & 4 ELEVATION



WING WALLS 1 & 2 ELEVATION

(INLET STRUCTURE NOT SHOWN)

LEGEND

- ** LENGTH IS MEASURED ALONG FRONT FACE OF WING WALL AND BOX HEADER.
- 18" MIN. WIDTH RUBBERIZED MEMBRANE WATERPROOFING FROM BOT. OF CULVERT BASE SLAB TO TOP OF WALL.
- VERTICAL EXPANSION JOINT, SEE SHEET 7 FOR DETAIL.
- ⊕ DENOTES WING WALL NUMBER.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-59-112			
DRAWN BY S.J.G.		PLANS CK'D. P.J.E.	
WING PLAN & ELEVATION			SHEET 6 OF 9
			104

BILL OF BARS - WING WALLS

COATED: 0 LBS
UNCOATED: 6,510 LBS

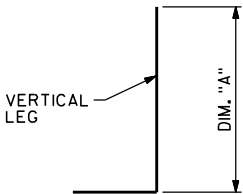
STATE PROJECT NUMBER

4996-01-22

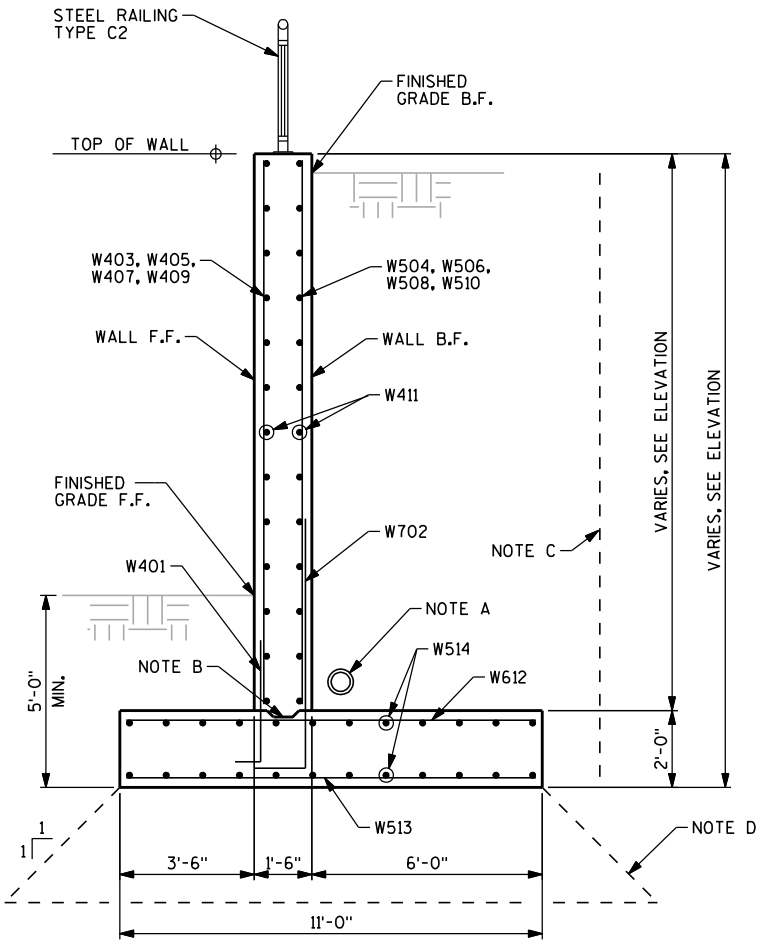
BAR MARK	COAT	NUMBER REQUIRED	LENGTH	BAR SERIES	BENT	LOCATION
W401		64	4'-1"		X	WING WALL STEM F.F. DOWEL
W702		64	7'-0"		X	WING WALL STEM B.F. DOWEL
W403		16	11'-3"			WING WALL 4 STEM F.F. VERTICAL
W504		16	11'-3"			WING WALL 4 STEM B.F. VERTICAL
W405		16	11'-1"			WING WALL 3 STEM F.F. VERTICAL
W506		16	11'-1"			WING WALL 3 STEM B.F. VERTICAL
W407		16	10'-11"			WING WALL 1 STEM F.F. VERTICAL
W508		16	10'-11"			WING WALL 1 STEM B.F. VERTICAL
W409		16	11'-1"			WING WALL 2 STEM F.F. VERTICAL
W510		16	11'-1"			WING WALL 2 STEM B.F. VERTICAL
W411		104	14'-7"			WING WALL STEM HORIZONTAL
W612		64	10'-8"			WING WALL FOOTING TRANSVERSE TOP
W513		64	10'-8"			WING WALL FOOTING TRANSVERSE BOT.
W514		96	14'-7"			WING WALL FOOTING LONGITUDINAL TOP & BOT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE



BAR MARK	DIM. "A"
W401	3'-6"
W702	6'-0"



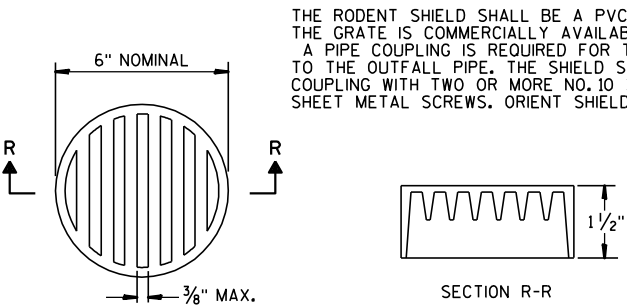
SECTION A-A

NOTE A: PIPE UNDERDRAIN WRAPPED 6-INCH SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SCREEN DETAIL TO END, SEE THIS SHEET.

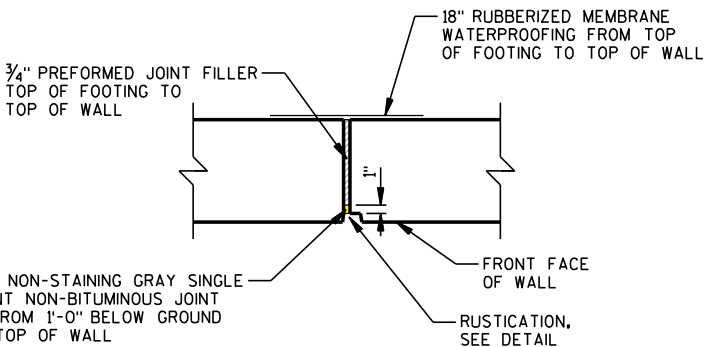
NOTE B: CONSTRUCTION JOINT FORMED BY SURFACED, BEVELED 2"x6".

NOTE C: LIMIT OF BACKFILL STRUCTURE BEHIND WALL IS A VERTICAL PLANE LOCATED 1'-6" BEYOND THE BACK OF FOOTING.

NOTE D: WINGWALL TO BEAR ON NATIVE SOIL IF REQUIRED BEARING CAPACITY IS VERIFIED THROUGH VISUAL INSPECTION BY A GEOTECHNICAL ENGINEER. OTHERWISE OVER-EXCAVATE UNSUITABLE MATERIAL AS REQUIRED AND BACKFILL WITH "BACKFILL STRUCTURE". COST OF OVER-EXCAVATION AND BACKFILL INCIDENTAL TO "EXCAVATION FOR STRUCTURES CULVERTS (C-59-112)".

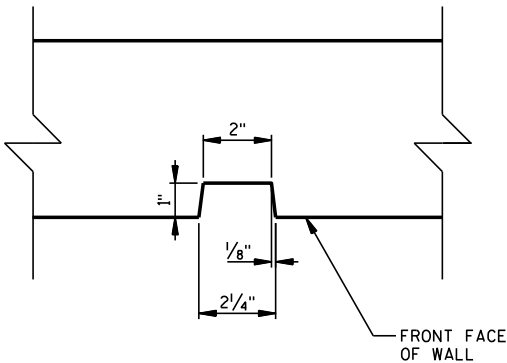


RODENT SCREEN DETAIL



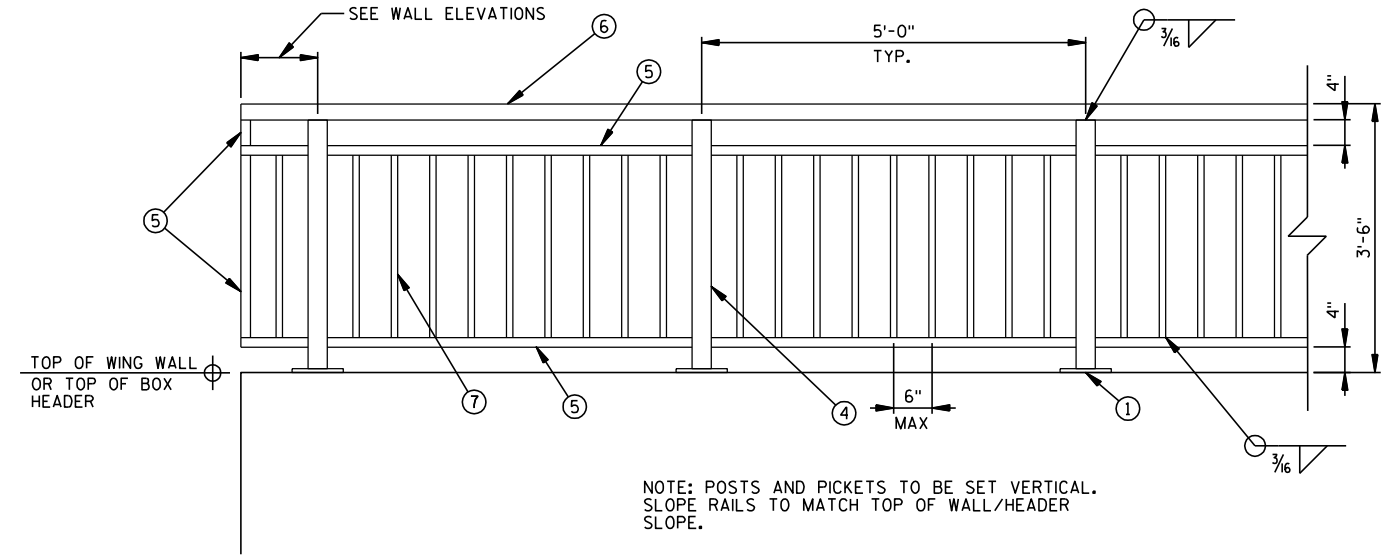
VERTICAL EXPANSION JOINT

DO NOT RUN BAR STEEL THROUGH JOINT

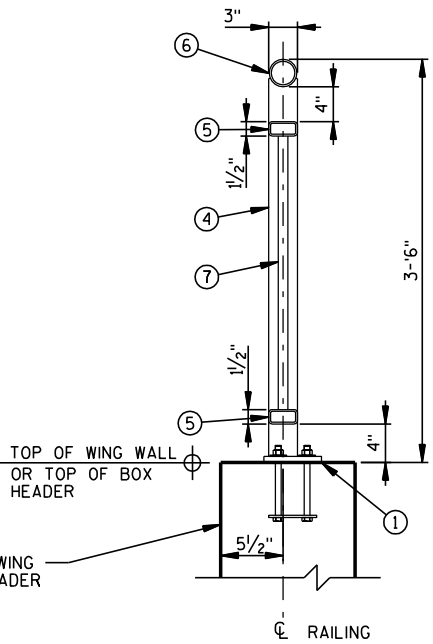


RUSTICATION

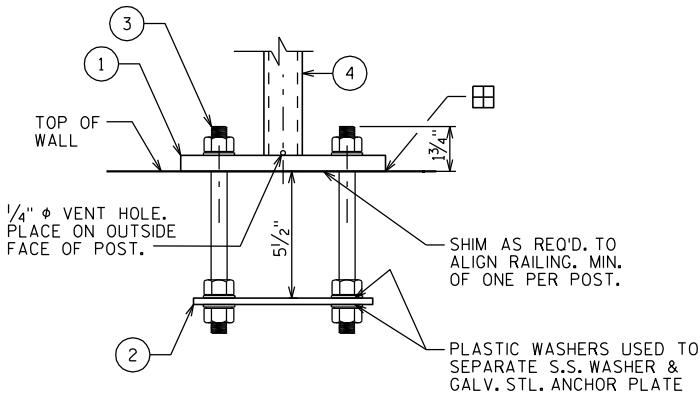
NO.	DATE	REVISION	BY
		STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION	
		STRUCTURE C-59-112	
		DRAWN BY: SJG	PLANS CK'D: PJE
		WING DETAILS & BILL OF BARS	SHEET 7 OF 9
			105



ELEVATION

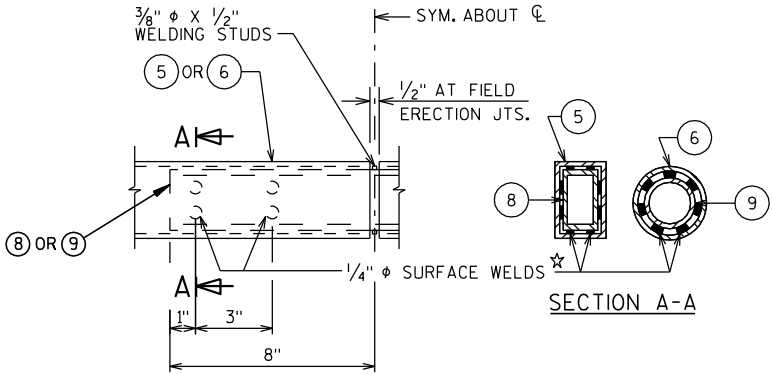


SECTION THRU RAILING



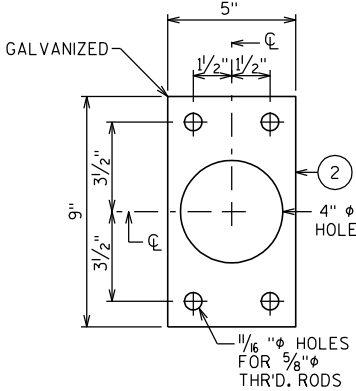
ANCHOR BOLTS FOR RAIL POSTS

NOTE: ANCHOR PLATE NOT REQUIRED WHEN TYPE S ANCHORS ARE USED.



FIELD ERECTION JOINT DETAIL

★ MIN. 5/8" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.



ANCHOR PLATE

LEGEND

- ① PLATE 5/8" X 6" X 10" WITH 3/4" X 1/2" SLOTTED HOLES
- ② 1/4" X 5" X 9" ANCHOR PLATE WITH 1/16" Ø HOLES FOR THR'D. RODS NO. 3.
- ③ 5/8" DIA. X 9" LONG TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 KSI) WITH NUT AND WASHERS OF SAME ALLOY GROUP. (ALTERNATE RAIL POST ANCHORAGE - 4 EQUIV. STAINLESS STEEL CONCRETE MASONRY ANCHORS, TYPE S (EPOXY), 5/8" Ø, MINIMUM PULLOUT CAPACITY OF 13 KIPS. EMBED A MIN. OF 7" FOR RAIL POSTS AND 5" FOR END RAILS.)
- ④ STRUCTURAL TUBING 3" X 3" X 3/16". PLACE VERTICAL. WELD TO NO. 1, 5 & 6.
- ⑤ STRUCTURAL TUBING 3" X 1 1/2" X 3/16" RAILS. WELD TO NO. 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION JOINTS.
- ⑥ 2 1/2" Ø STANDARD PIPE RAIL (2.875" O.D.). WELD TO NO. 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION JOINTS.
- ⑦ BAR 1" X 1" PICKETS. WELD TO NO. 5. (SPACE AT 6" MAX. Ø TO Ø SPACING). PLACE VERTICAL.
- ⑧ RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. (1'-4" @ FIELD ERECTION JTS.)
- ⑨ CIRCULAR SLEEVE FABRICATED FROM 2" Ø STANDARD PIPE. (1'-4" @ FIELD ERECTION JTS.)

NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE C2 GALVANIZED C-59-112", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

NO. 1, 2, 7, 8, AND NO. 9 SHALL CONFORM TO ASTM A709 GRADE 36. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B (NO. 4 AND NO. 5).

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

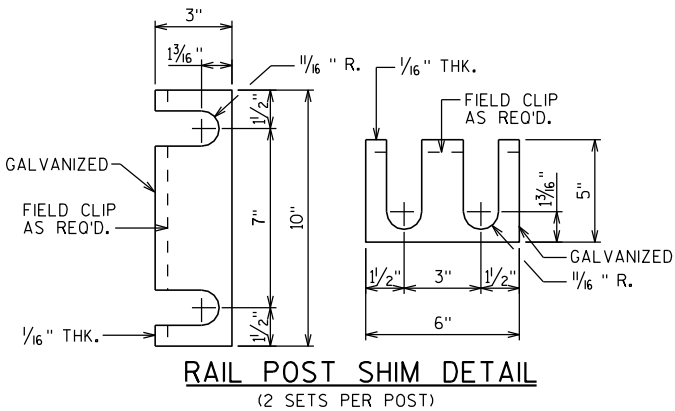
☐ CAULK AROUND PERIMETER OF BASE PLATES, NO. 1, AND FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ALL MATERIAL (EXCEPT NO. 3) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS. PAINT OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE "BRIDGE SPECIAL PROVISIONS". THE RAILING SHALL BE PAINTED FEDERAL COLOR NO. 27038, BLACK.

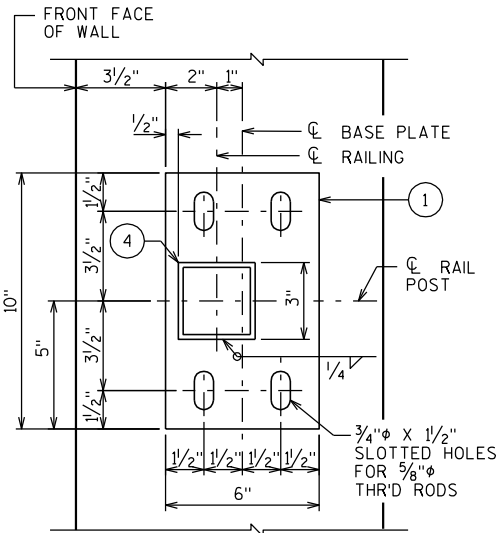
RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.

VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.

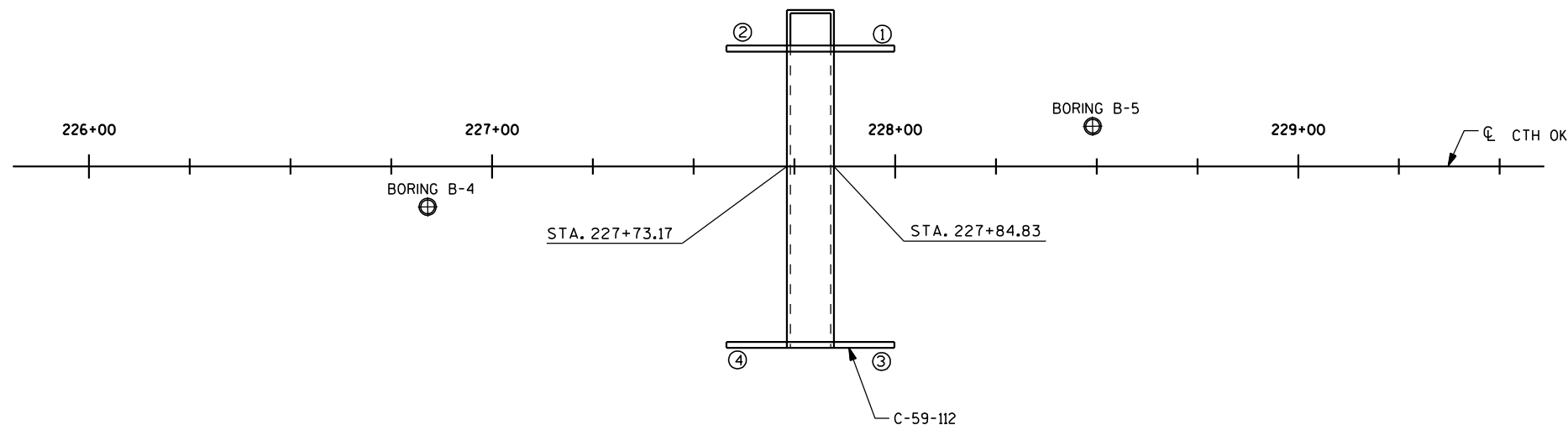


RAIL POST SHIM DETAIL
(2 SETS PER POST)



TYPICAL RAIL POST BASE PLATE

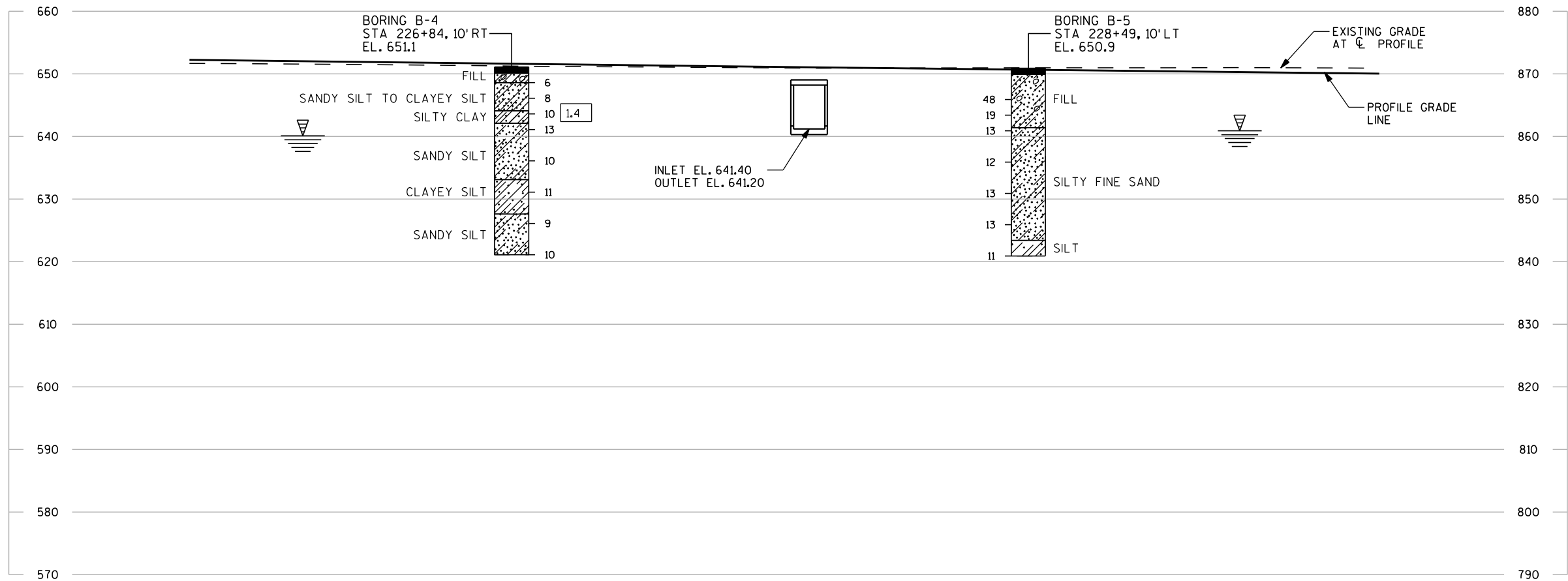
NO. DATE			REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION				
STRUCTURE C-59-112				
DRAWN BY			SJG	PLANS CK'D. PJE
RAILING TYPE C2 MODIFIED			SHEET 8 OF 9	
			106	



BORINGS PERFORMED BY:
MIDWEST ENGINEERING SERVICES, INC.
MENASHA, WISCONSIN

BORINGS COMPLETED ON MARCH 11, 2010

PLANS PREPARED BY DONOHUE & ASSOCIATES, INC.



STATE PROJECT NUMBER

4996-01-22

ABBREVIATIONS

F — FINE M — MEDIUM C — COARSE
WS — WEATHERED SO — SOUND

MATERIAL SYMBOLS

TOPSOIL SILT SANDSTONE
SAND PEAT LIMESTONE
GRAVEL CLAY IGNEOUS ROCK

LEGEND OF PROBING

PROBING NO.
STA.
ELEVATION
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

95/6=95 BLOWS FOR 6"
PENETRATION
PROBING TAKEN WITH
A 350# WT.
FALLING 18" ON A 2"
O.D. POINT.

LEGEND OF BORING

BORING NO.
STA.
ELEV.

UNCONFINED STRENGTH → 7.7
BLOWS PER FT. USING 140# WT. FALLING 30"

WASH SAMPLE

SHELBY TUBE — S.T.

GROUND WATER ELEVATION

NO GROUND WATER OBSERVED ABOVE THIS ELEVATION

SANDY GRAVEL
F. BOULDERS OR COBBLES
SAND
SILTY CLAY
SO
LIMESTONE

UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-59-112			
DRAWN BY S.J.G.		PLANS CK'D. P.J.E.	
SUBSURFACE EXPLORATION			SHEET 9 OF 9
			107

CONSULTANT CONTACT
SCOTT GINAL
920-208-0296

LIVE LOAD:

DESIGN RATING: HL-93
INVENTORY RATING FACTOR: 1.05
OPERATING RATING FACTOR: 1.35
MAXIMUM STANDARD PERMIT VEHICLE LOAD = 255 KIPS

SOIL LOAD:

DESIGNED FOR 2.5 FEET OF FILL

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY ALL _____ $f'_c = 3,500$ psi
HIGH STRENGTH BAR STEEL REINFORCEMENT _____ $f_y = 60,000$ psi

TRAFFIC VOLUME

A.A.D.T. = 7854 (2013)
A.A.D.T. = 14,185 (2033)
DESIGN SPEED = 35 MPH

HYDRAULIC DATA

DRAINAGE AREA = 0.87 SQ. MILES
 WATERWAY AREA = 114 SQ. FEET
 Q₁₀₀ = 950 CFS
 VELOCITY = 8.62 FPS
 HIGH WATER₁₀₀ = EL. 634.27
 RDWY OVERTOPPING = N/A
 SCOUR CODE = 8

FOUNDATION DATA

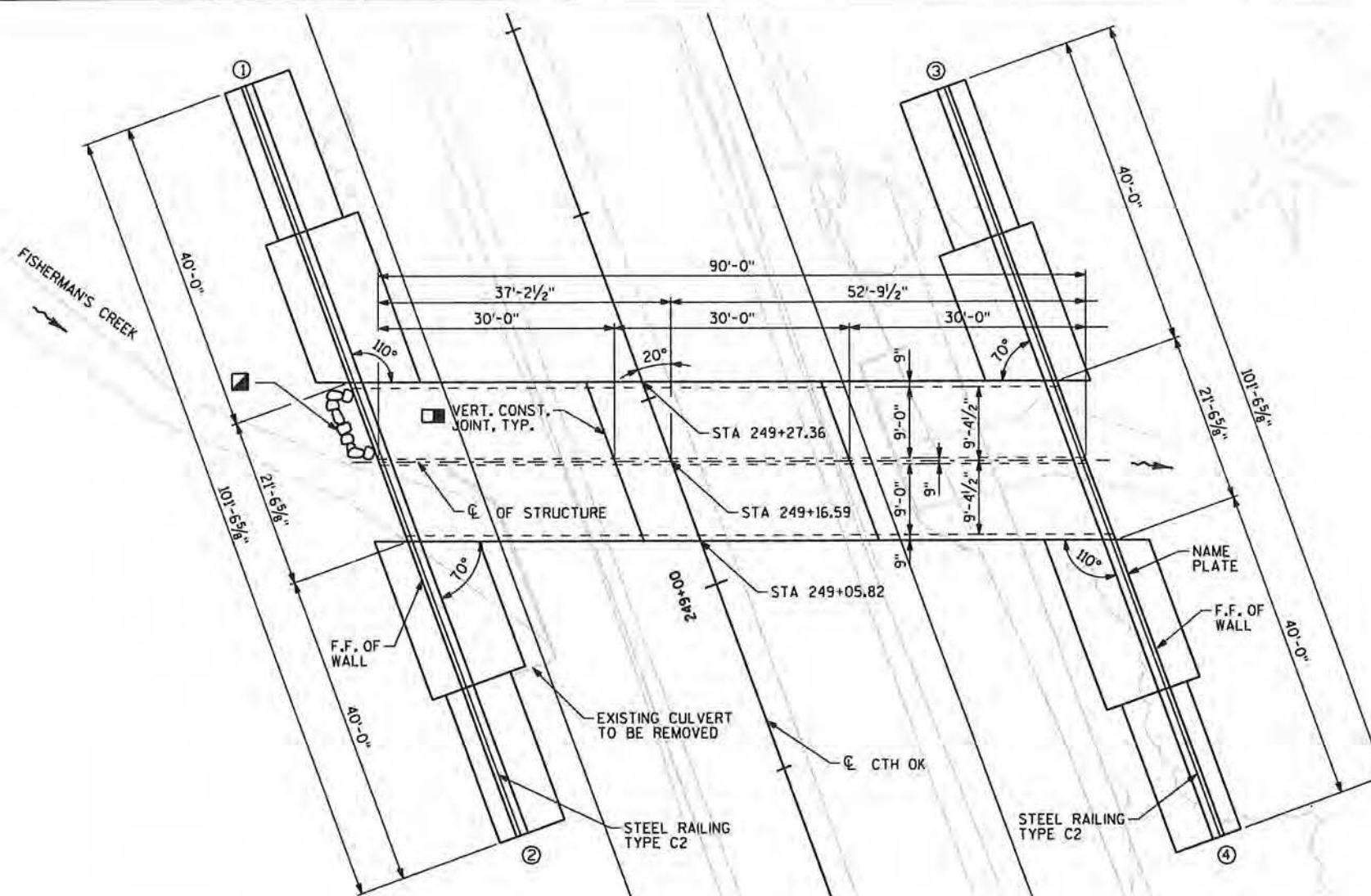
WINGWALLS WITH SPREAD FOOTINGS TO BE SUPPORTED BY UNDERLYING NATIVE SOILS WITH A REQUIRED BEARING RESISTANCE OF 2000 PSF***. A GEOTECHNICAL ENGINEER WILL DETERMINE THE BEARING RESISTANCE BY VISUAL INSPECTION PRIOR TO CONSTRUCTION OF THE WINGWALL FOOTING.

*** THE BEARING RESISTANCE IS THE VALUE USED FOR DESIGN.

LIST OF DRAWINGS

1. GENERAL PLAN
2. SECTIONS, NOTES & QUANTITIES
3. SLAB STEEL LAYOUT
4. BOX DETAILS & BILL OF BARS
5. WING PLAN AND ELEVATION
6. WING DETAILS & BILL OF BARS
7. RAILING TYPE C2 MODIFIED
8. SUBSURFACE EXPLORATION

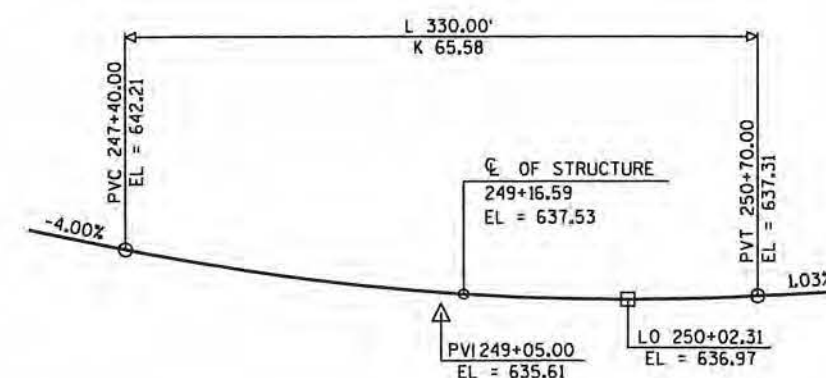
NO.	DATE	REVISION	BY
 DONOHUE[®] & ASSOCIATES			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	<i>William C. Dreher</i> KAR CHIEF STRUCTURES DESIGN ENGINEER		02/06/13 DATE
STRUCTURE C-59-113			
CTH OK OVER FISHERMAN'S CREEK			
COUNTY	SHEBOYGAN	TOWN/CITY/VILLAGE	SHEBOYGAN
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	SJG	DESIGN CK'D.	PJE
DRAWN BY	SJG	PLANS CK'D.	PJE
GENERAL PLAN			SHEET NO. 108 OF 8



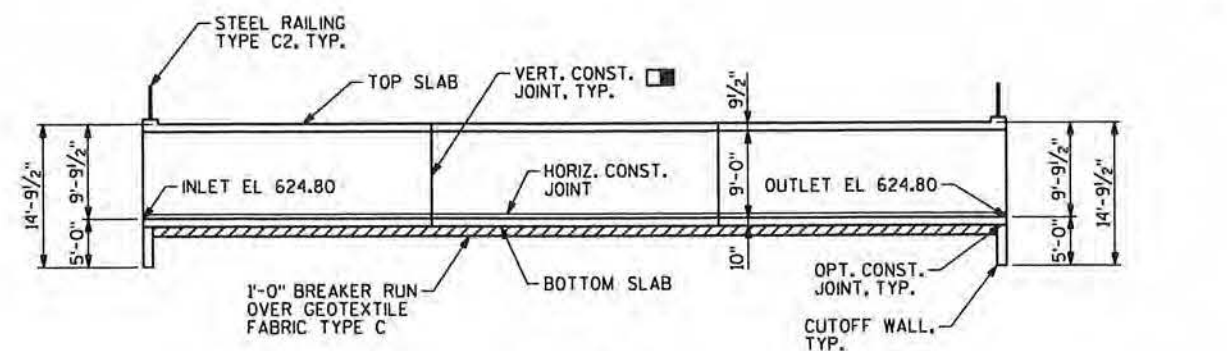
PLAN
(TWIN CELL CONCRETE BOX CULVERT)

Ⓜ-INDICATES WING WALL NUMBER

■ LIGHT RIPRAP IN NORTH CELL ONLY.
REFER TO DETAIL ON SHEET 4.



PROFILE GRADE LINE
(CTH OK)



SECTION

☐ 18" MIN. WIDTH RUBBERIZED
MEMBRANE WATERPROOFING UP
WALLS AND ACROSS TOP SLAB



GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST DIGIT OF A THREE DIGIT BAR MARK AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS (C-59-113)" SHALL BE THE EXISTING GROUNDLINE.

ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TO THE TOP OF THE BOX WITHIN THE LENGTH OF THE CULVERT.

THE CONCRETE IN THE CUTOFF WALL MAY BE PLACED UNDERWATER IF THE EXCAVATION CANNOT BE DEWATERED.

THE ALTERNATE CUTOFF WALL MAY BE USED IN LIEU OF THE CAST-IN-PLACE CONCRETE CUTOFF WALLS. PAYMENT SHALL BE BASED ON THE CONCRETE CUTOFF WALLS.

ALL VOIDS BETWEEN LIGHT RIPRAP SHALL BE "FILLED" USING "SELECT CRUSHED MATERIAL SPECIAL".

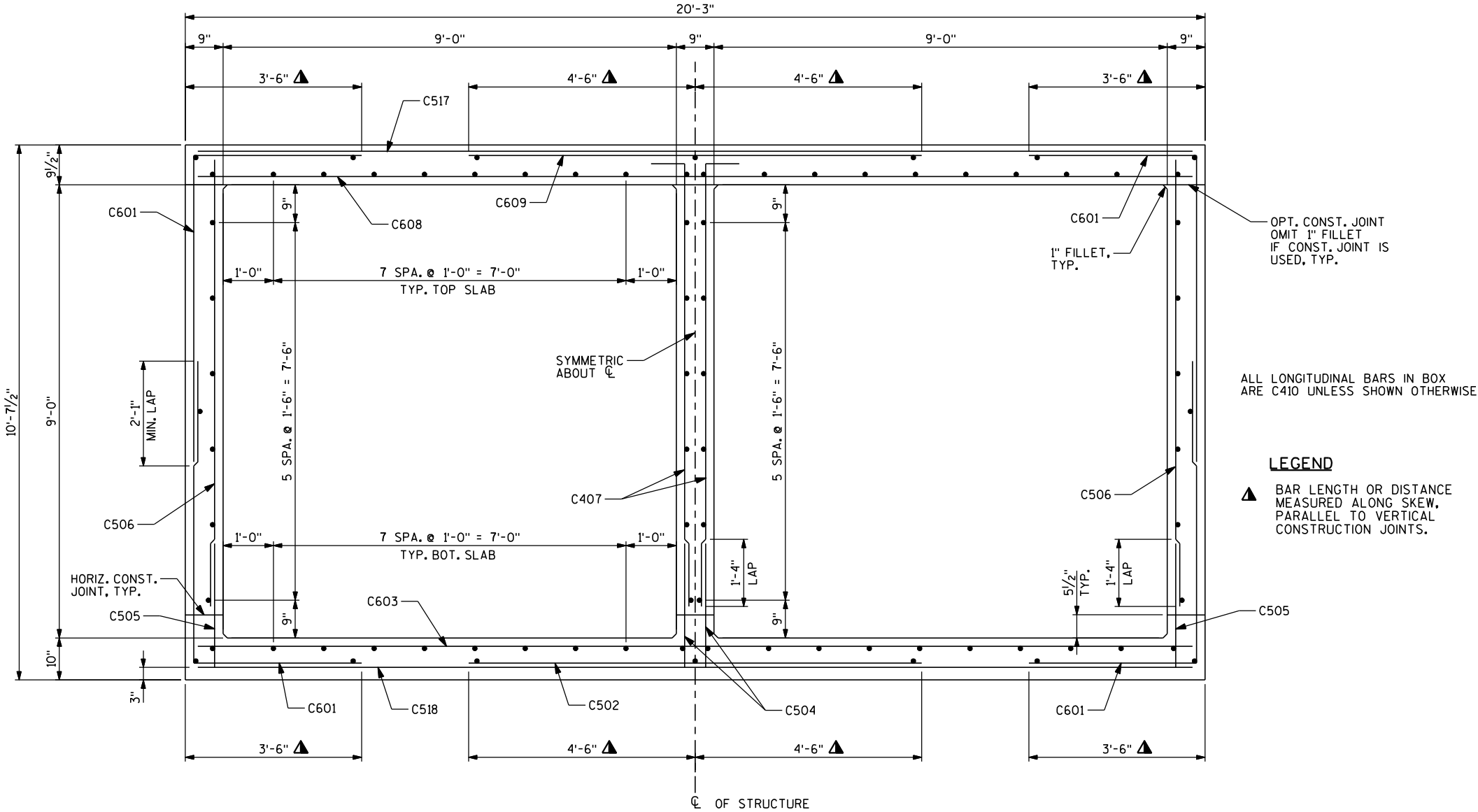
PLACE AN 18" (MIN.) WIDE SHEET OF RUBBERIZED MEMBRANE WATERPROOFING ON TOP SLAB OVER ALL CONSTRUCTION JOINTS AND EXTEND DOWN TO BOTTOM OF OUTSIDE WALLS.

THE CONTRACTOR MAY FURNISH A PRECAST CONCRETE BOX CULVERT IN LIEU OF THE CAST-IN-PLACE BOX CULVERT WITH THE ACCEPTANCE OF THE SHOP DRAWINGS BY THE STRUCTURES DESIGN SECTION. THE PRECAST CONCRETE BOX CULVERT SHALL CONFORM TO PRECAST DETAILS IN CHAPTER 36 STANDARDS OF THE CURRENT WISCONSIN DOT BRIDGE MANUAL. PAYMENT FOR THE PRECAST CULVERT SHALL BE BASED ON THE QUANTITIES AND PRICES BID FOR THE ITEMS LISTED IN THE "TOTAL ESTIMATED QUANTITIES".

CONTRACTOR MAY ELECT TO SUBSTITUTE #10R #2 CONCRETE COARSE AGGREGATE, SELECT CRUSHED MATERIAL OR OTHER GRANULAR MATERIAL AS APPROVED BY THE FIELD ENGINEER, IN LIEU OF THE BREAKER RUN, TO BE UTILIZED AS A CONSTRUCTION PLATFORM FOR THE BOX. THE CONTRACTOR IS RESPONSIBLE FOR BASE STABILITY WITH ANY SUBSTITUTED MATERIAL.

THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING TYPE AND LOCATION OF ALL UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE.

THE EXISTING STRUCTURE, B-59-176, TO BE REMOVED, IS A CORRUGATED METAL ARCH CULVERT PIPE, 21.5 FT WIDE AT THE BOTTOM WITH A 28.0 FT CLEAR ROADWAY WIDTH.

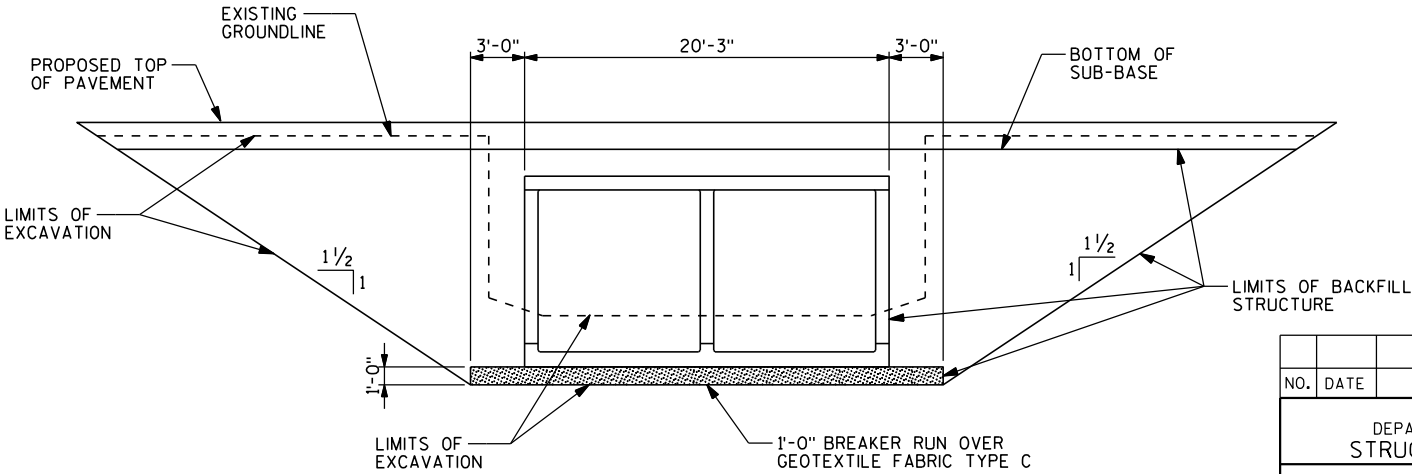


TYPICAL SECTION THRU BOX
(LOOKING EAST)

ALL ITEMS CATEGORY 0020 UNLESS NOTED OTHERWISE

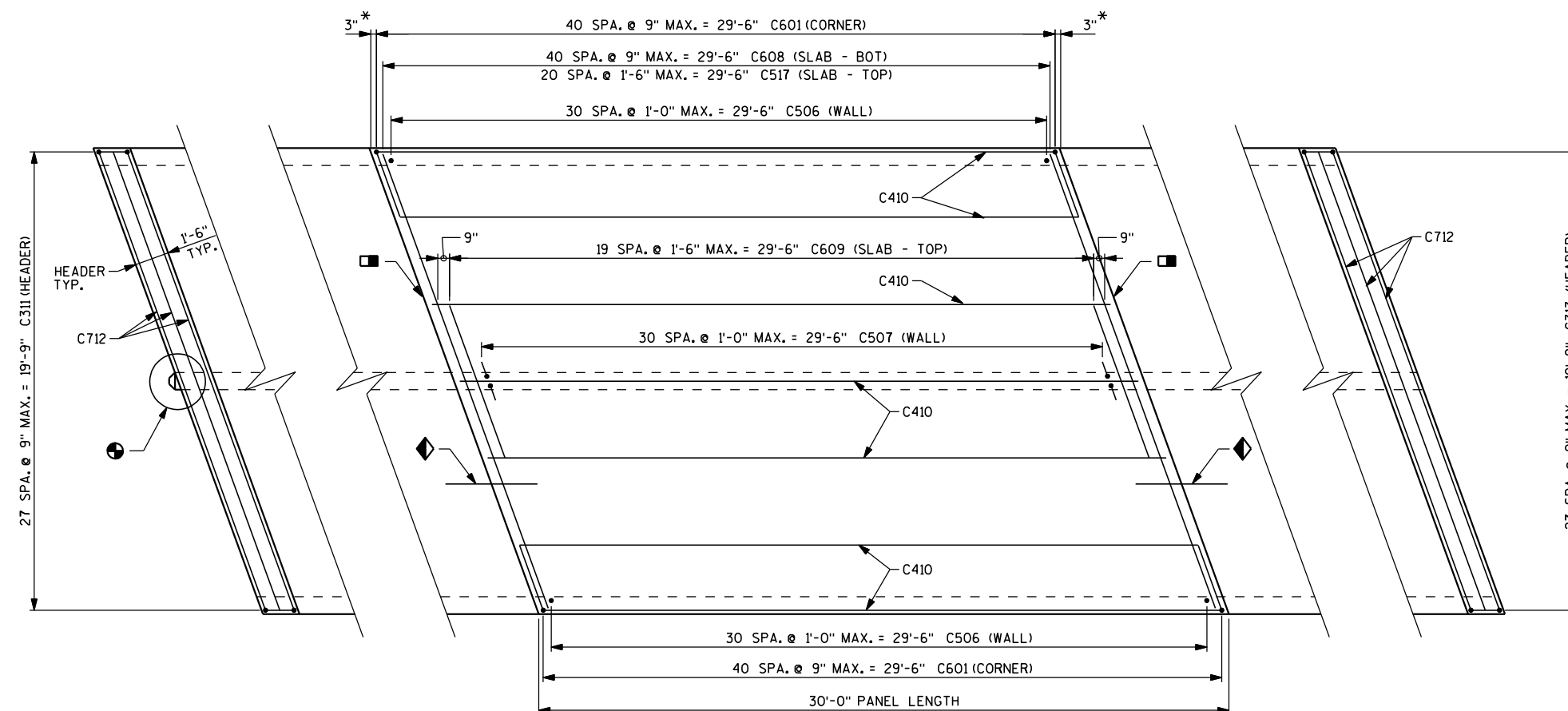
TOTAL ESTIMATED QUANTITIES

BID ITEMS	BID ITEMS	UNIT	TOTALS
203.0600.S.02	REMOVING OLD STRUCTURE OVER WATERWAY, MINIMAL DEBRIS, STA 249+16	LS	1
206.2000	EXCAVATION FOR STRUCTURES CULVERTS (C-59-113)	LS	1
210.0100	BACKFILL STRUCTURE	CY	1793
311.0115	BREAKER RUN	CY	105
504.0100	CONCRETE MASONRY CULVERTS	CY	405
505.0410	BAR STEEL REINFORCEMENT HS CULVERTS	LB	48,120
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	29
606.0100	RIPRAP LIGHT	CY	2
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	160
645.0105	GEOTEXTILE FABRIC TYPE C	SY	263
SPV.0105.02	RAILING STEEL TYPE C2 GALVANIZED C-59-113	LS	1
SPV.0195.01	SELECT CRUSHED MATERIAL SPECIAL	TON	2
	NON-BID ITEMS		
	PREFORMED JOINT FILLER	SIZE	3/4"



CROSS SECTION THRU CULVERT

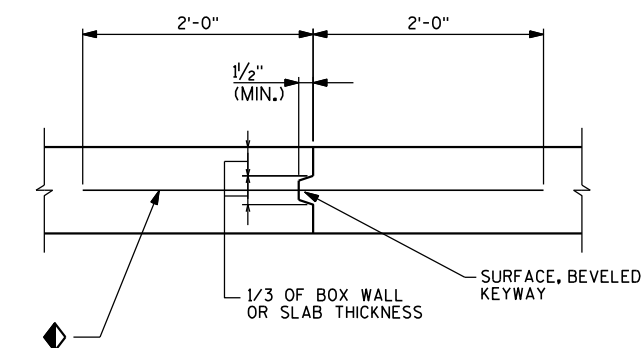
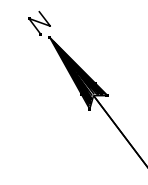
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-59-113			
DRAWN BY S.J.G.		PLANS CK'D. P.J.E.	
SECTIONS, NOTES, & QUANTITIES			SHEET 2 OF 8
			109



INLET

TOP SLAB PLAN
(TYPICAL - 3 PANELS)

OUTLET

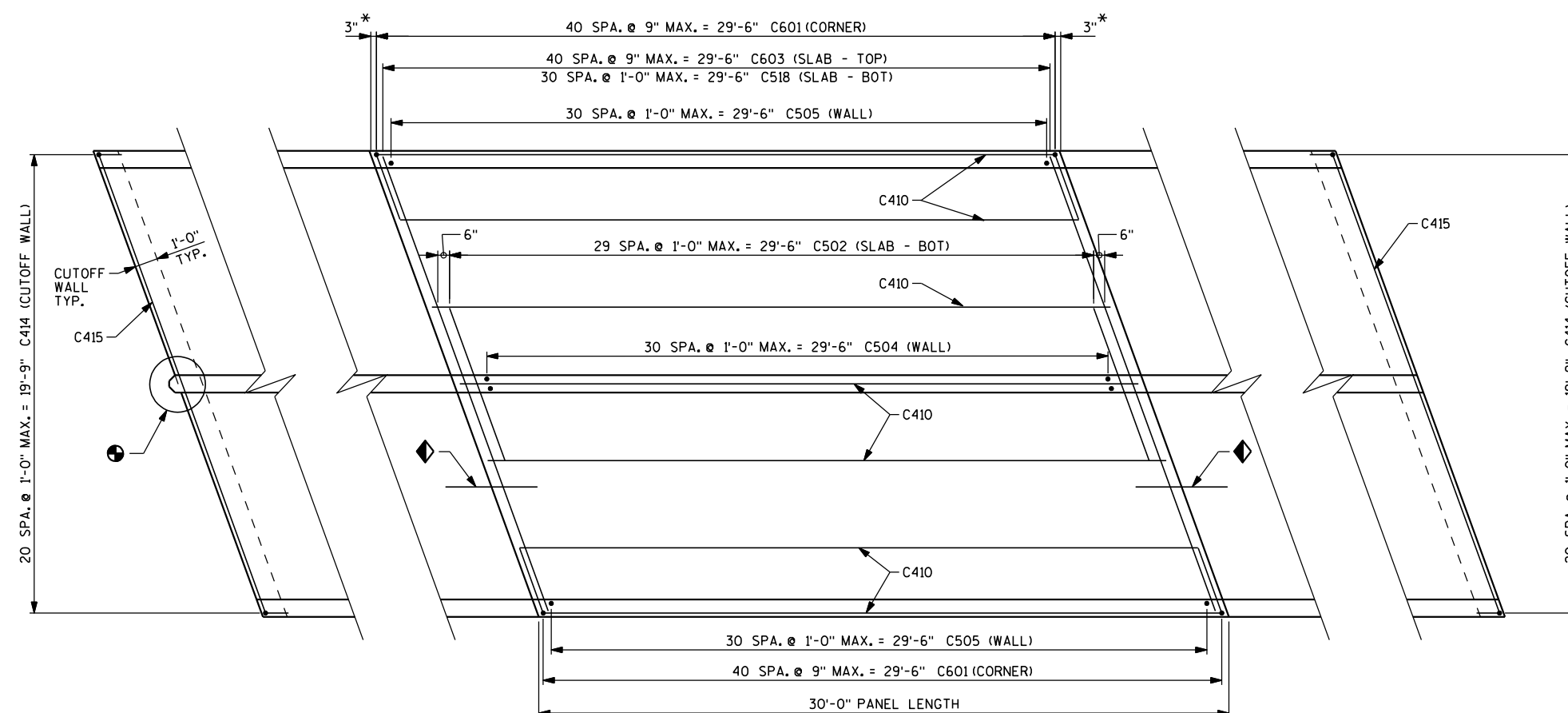


NOTE: IN LIEU OF CONSTRUCTION JOINTS IN THE BOTTOM SLAB, THE CONTRACTOR MAY USE 2" DEEP SAW CUTS WITHIN 12 HOURS AFTER POURING.

VERTICAL CONSTRUCTION JOINT

LEGEND

- * DISTANCE TO $\mathcal{C}$ OF REINFORCING IS 3" UNLESS SHOWN OTHERWISE.
- 18" MIN. WIDTH RUBBERIZED MEMBRANE WATERPROOFING UP WALLS AND ACROSS TOP SLAB.
- ⊕ FOR DETAIL OF END OF INTERIOR WALL AT INLET ONLY, SEE SHEET 4.
- ◆ C516 BARS AT 1'-0" ON CENTER IN ALL FOUR SIDES AND CENTER WALL OF BOX AT EACH VERTICAL CONSTRUCTION JOINT, SEE THIS SHEET FOR VERTICAL CONSTRUCTION JOINT DETAIL.



INLET

BOTTOM SLAB PLAN
(TYPICAL - 3 PANELS)

OUTLET

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-59-113			
DRAWN BY S.J.G.		PLANS CK'D. P.J.E.	
SLAB STEEL LAYOUT			SHEET 3 OF 8
			110

BILL OF BARS - BOX

COATED: 0 LBS
UNCOATED: 30,550 LBS

STATE PROJECT NUMBER

4996-01-22

BAR MARK	COAT	NUMBER REQUIRED	LENGTH	BAR SERIES	BENT	LOCATION
C601		492	9'-4"		X	BOX CORNERS
C502		90	9'-0"			BOX BOTTOM SLAB TRANSVERSE
C603		123	21'-0"			BOX BOTTOM SLAB TRANSVERSE
C504		186	2'-5"			BOX INTERIOR WALL DOWEL
C505		186	2'-5"			BOX EXTERIOR WALL DOWEL
C506		186	9'-0"			BOX EXTERIOR WALL VERTICAL
C507		186	9'-9"		X	BOX INTERIOR WALL VERTICAL
C608		123	21'-0"			BOX TOP SLAB TRANSVERSE
C609		60	9'-0"			BOX TOP SLAB TRANSVERSE
C410		240	29'-6"			BOX LONGITUDINAL
C311		28	5'-8"	(X)	X	BOX INLET HEADER STIRRUP
C712		12	21'-0"			BOX HEADER LONGITUDINAL
C313		28	4'-10"	(X)	X	BOX OUTLET HEADER STIRRUP
C414		42	5'-6"		X	BOX CUTOFF WALL VERTICAL
C415		10	21'-0"			BOX CUTOFF WALL HORIZONTAL
C516		144	4'-0"			BOX VERT. CONST. JOINT DOWEL
C517		63	21'-0"			BOX TOP SLAB TRANSVERSE
C518		93	21'-0"			BOX BOTTOM SLAB TRANSVERSE

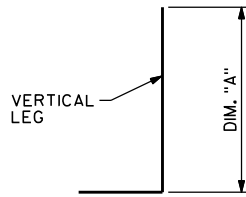
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

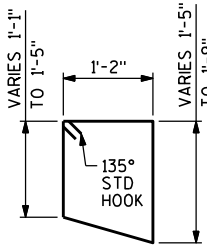
(X) LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

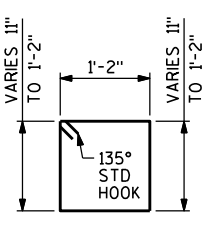
BAR MARK	NO. REQ'D.	LENGTH
C311	1 SERIES OF 28	5'-4" TO 6'-0"
C313	1 SERIES OF 28	4'-7" TO 5'-1"



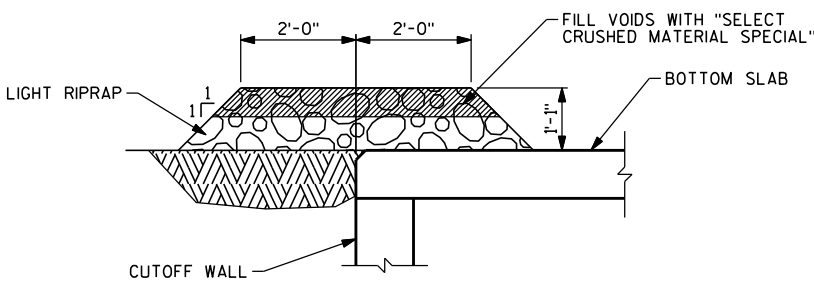
BAR MARK	DIM. "A"
C601	6'-2"
C507	9'-0"
C414	4'-7"



C311

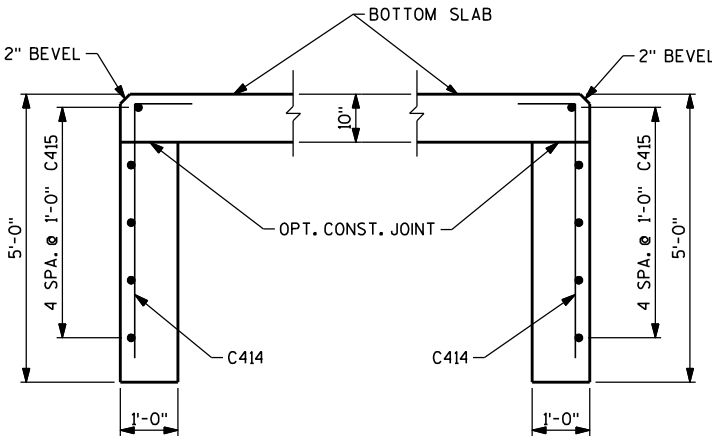


C313

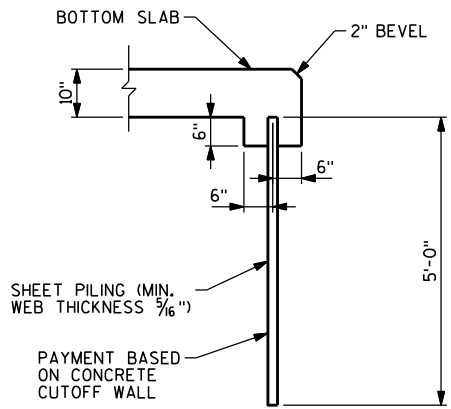


NOTE: RIPRAP TO EXTEND FULL WIDTH OF CELL

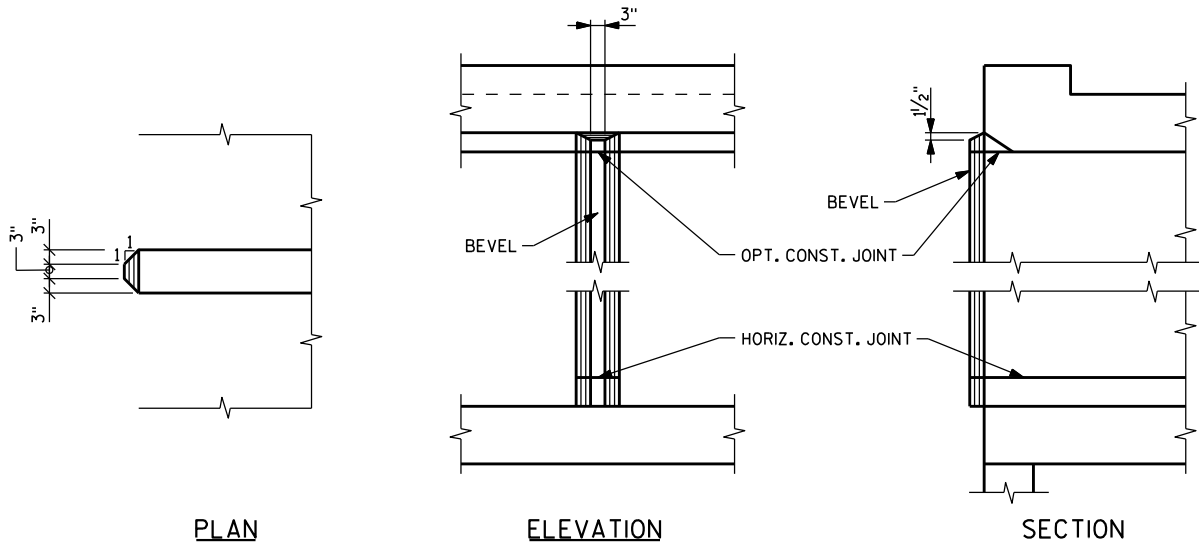
NORTH CELL INLET RIPRAP DETAIL



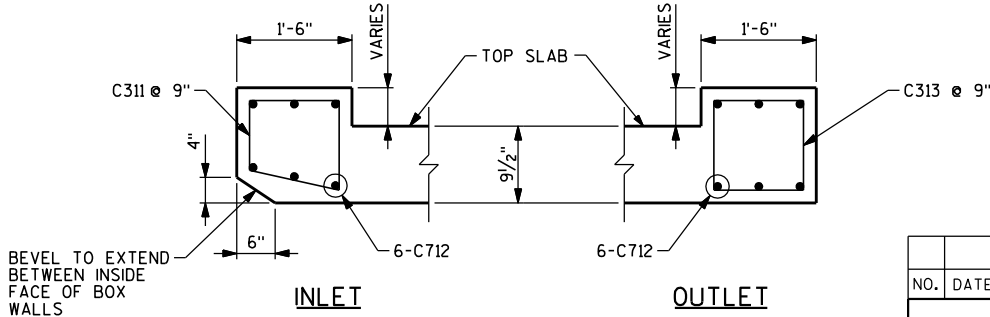
SECTION THRU CUTOFF WALL



SECTION THRU ALTERNATE CUTOFF WALL

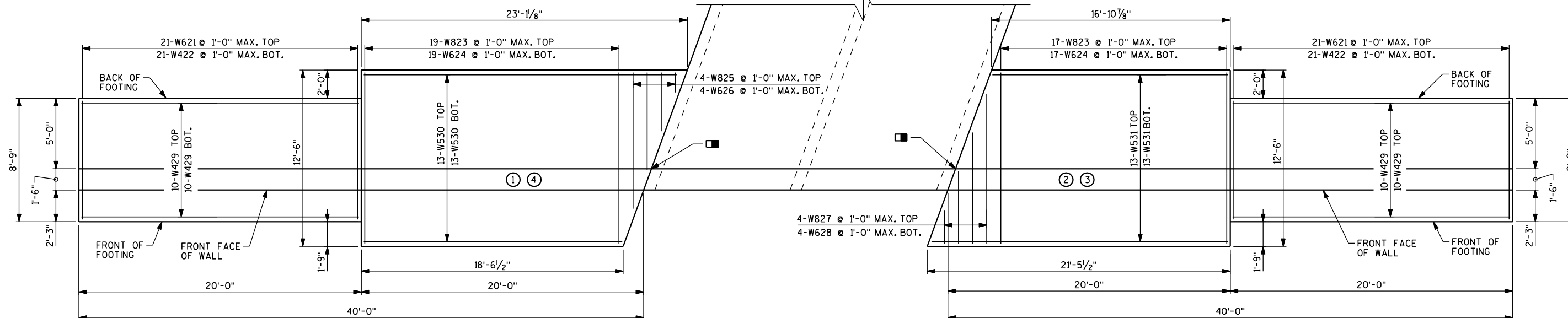


INLET NOSE DETAIL



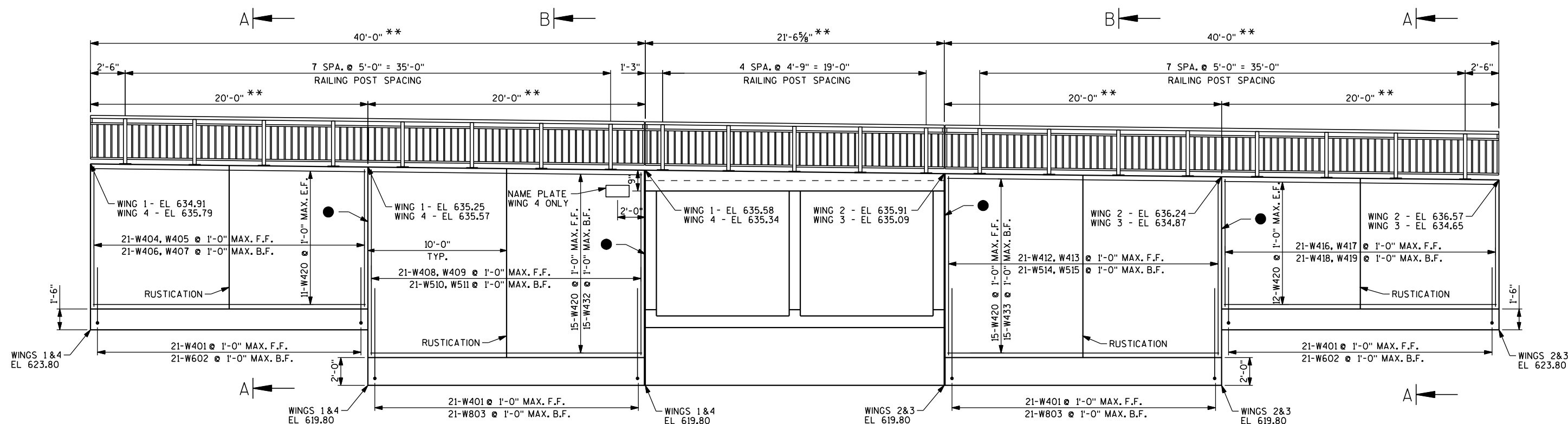
HEADER DETAILS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-59-113			
DRAWN BY S.J.G.		PLANS CK'D. P.J.E.	
BOX DETAILS & BILL OF BARS			SHEET 4 OF 8
			111



WING WALLS 3 & 4 PLAN

(WING WALLS 1 & 2 SIMILAR)



WING WALLS 3 & 4 ELEVATION

(WING WALLS 1 & 2 SIMILAR)

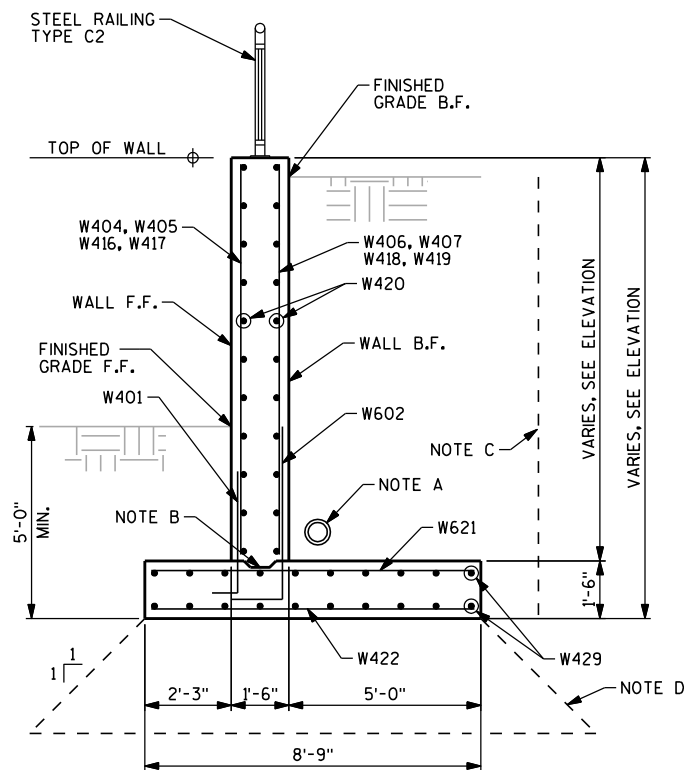
LEGEND

- ** LENGTH IS MEASURED ALONG FRONT FACE OF WING WALL AND BOX HEADER.
- 18" MIN. WIDTH RUBBERIZED MEMBRANE WATERPROOFING FROM BOT. OF CULVERT BASE SLAB TO TOP OF WALL.
- VERTICAL EXPANSION JOINT, SEE SHEET 6 FOR DETAIL.
- ⊕ DENOTES WING WALL NUMBER.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-59-113			
DRAWN BY S.J.G.		PLANS CK'D. P.J.E.	
WING PLAN & ELEVATION			SHEET 5 OF 8
			112

BAR MARK	COAT	NUMBER REQUIRED	LENGTH	BAR SERIES	BENT	LOCATION
W401		168	4'-1"		X	WING WALL STEM F.F. DOWEL
W602		84	5'-10"		X	WING WALL STEM B.F. DOWEL
W803		84	8'-2"		X	WING WALL STEM B.F. DOWEL
W404		21	9'-3"			WING WALL 1 STEM F.F. VERTICAL
W405		21	9'-11"			WING WALL 4 STEM F.F. VERTICAL
W406		21	9'-3"			WING WALL 1 STEM B.F. VERTICAL
W407		21	9'-11"			WING WALL 4 STEM B.F. VERTICAL
W408		21	13'-1"			WING WALL 1 STEM F.F. VERTICAL
W409		21	13'-2"			WING WALL 4 STEM F.F. VERTICAL
W510		21	13'-1"			WING WALL 1 STEM B.F. VERTICAL
W511		21	13'-2"			WING WALL 4 STEM B.F. VERTICAL
W412		21	13'-9"			WING WALL 2 STEM F.F. VERTICAL
W413		21	12'-8"			WING WALL 3 STEM F.F. VERTICAL
W514		21	13'-9"			WING WALL 2 STEM B.F. VERTICAL
W515		21	12'-8"			WING WALL 3 STEM B.F. VERTICAL
W416		21	10'-7"			WING WALL 2 STEM F.F. VERTICAL
W417		21	9'-0"			WING WALL 3 STEM F.F. VERTICAL
W418		21	10'-7"			WING WALL 2 STEM B.F. VERTICAL
W419		21	9'-0"			WING WALL 3 STEM B.F. VERTICAL
W420		152	19'-8"			WING WALL STEM HORIZONTAL
W621		84	8'-5"			WING WALL FOOTING TRANSVERSE TOP
W422		84	8'-5"			WING WALL FOOTING TRANSVERSE BOT.
W823		72	12'-2"			WING WALL FOOTING TRANSVERSE TOP
W624		72	12'-2"			WING WALL FOOTING TRANSVERSE BOT.
W825		8	5'-7"	(X)		WING WALL 1& 4 FOOTING TRANSVERSE TOP
W626		8	5'-7"	(X)		WING WALL 1& 4 FOOTING TRANSVERSE BOT.
W827		8	6'-7"	(X)		WING WALL 2 & 3 FOOTING TRANSVERSE TOP
W628		8	6'-7"	(X)		WING WALL 2 & 3 FOOTING TRANSVERSE BOT.
W429		80	19'-8"			WING WALL FOOTING LONGITUDINAL TOP & BOT.
W530		52	20'-5"	(X)		WING WALL 1& 4 FOOTING LONGITUDINAL TOP & BOT.
W531		52	18'-10"	(X)		WING WALL 2 & 3 FOOTING LONGITUDINAL TOP & BOT.
W432		30	20'-2"			WING WALL 1& 4 STEM B.F. HORIZONTAL
W433		30	19'-2"			WING WALL 2 & 3 STEM B.F. HORIZONTAL

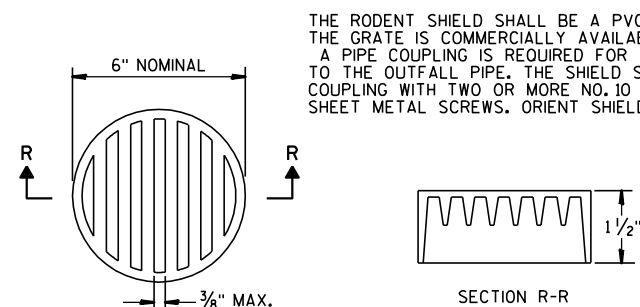
BAR MARK	NO. REQ'D.	LENGTH
W825	2 SERIES OF 4	1'-5" TO 9'-8"
W626	2 SERIES OF 4	1'-5" TO 9'-8"
W827	2 SERIES OF 4	2'-5" TO 10'-8"
W628	2 SERIES OF 4	2'-5" TO 10'-8"
W530	4 SERIES OF 13	18'-3" TO 22'-7"
W531	4 SERIES OF 13	16'-8" TO 20'-11"

[illegible]

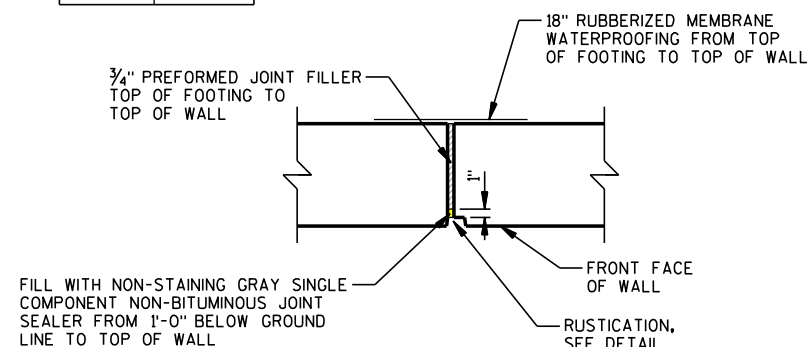
SECTION B-B

Diagram showing a vertical leg with a dimension line labeled "DIM. 'A'" and an arrow pointing to the leg.

BAR MARK	DIM. "A"
W401	3'-6"
W602	5'-0"
W803	7'-0"



RODENT SCREEN DETAIL



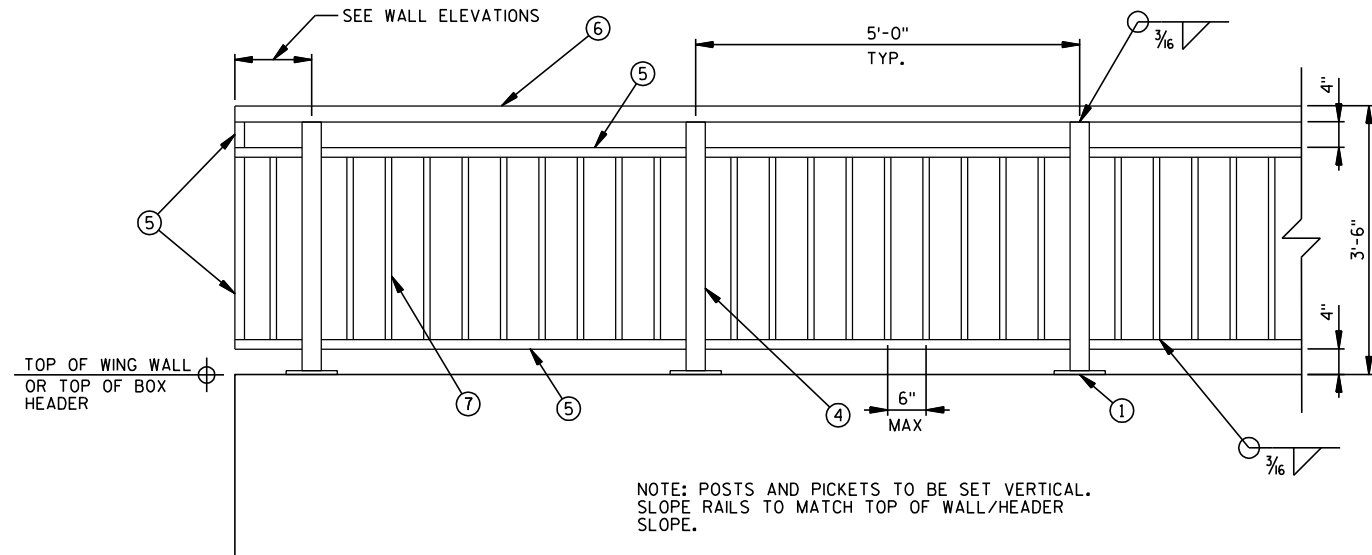
VERTICAL EXPANSION JOINT

Diagram illustrating the cross-section of a wall with a rectangular opening. The opening has a width of 2", a height of $\frac{1}{8}"$, and a depth of $2\frac{1}{4}"$. The opening is centered between two horizontal lines representing the wall. A label "FRONT FACE OF WALL" points to the right side of the opening.

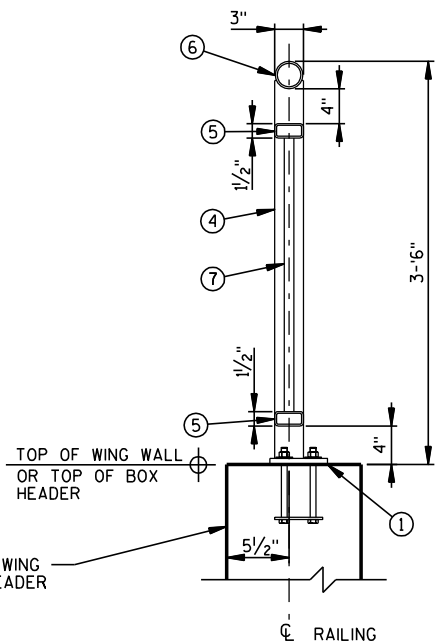
RUSTICATION

NOTE D: WINGWALL TO BEAR ON NATIVE SOIL IF REQUIRED BEARING CAPACITY IS VERIFIED THROUGH VISUAL INSPECTION BY A GEOTECHNICAL ENGINEER. OTHERWISE OVER-EXCAVATE UNSUITABLE MATERIAL AS REQUIRED AND BACKFILL WITH "BACKFILL STRUCTURE". COST OF OVER-EXCAVATION AND BACKFILL INCIDENTAL TO "EXCAVATION FOR STRUCTURES CULVERTS (C-59-113)".

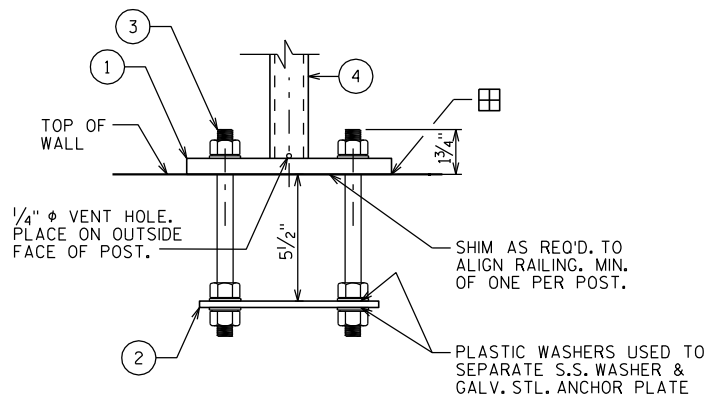
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-59-113			
DRAWN BY		SJG	PLANS CK'D. PJE
WING DETAILS & BILL OF BARS		SHEET 6 OF 8	
		113	



ELEVATION

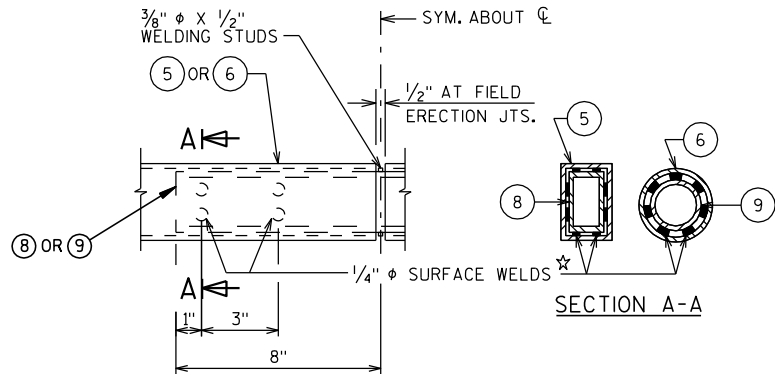


SECTION THRU RAILING



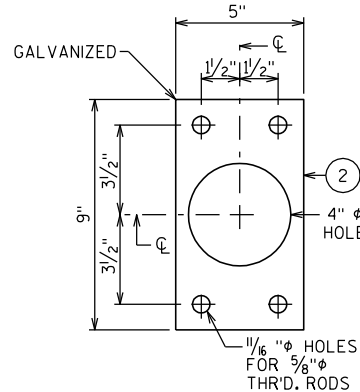
ANCHOR BOLTS FOR RAIL POSTS

NOTE: ANCHOR PLATE NOT REQUIRED WHEN TYPE S ANCHORS ARE USED.



FIELD ERECTION JOINT DETAIL

★ MIN. 5/8" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.



ANCHOR PLATE

NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE C2 GALVANIZED C-59-113", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

NO. 1, 2, 7, 8, AND NO. 9 SHALL CONFORM TO ASTM A709 GRADE 36. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B (NO. 4 AND NO. 5).

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

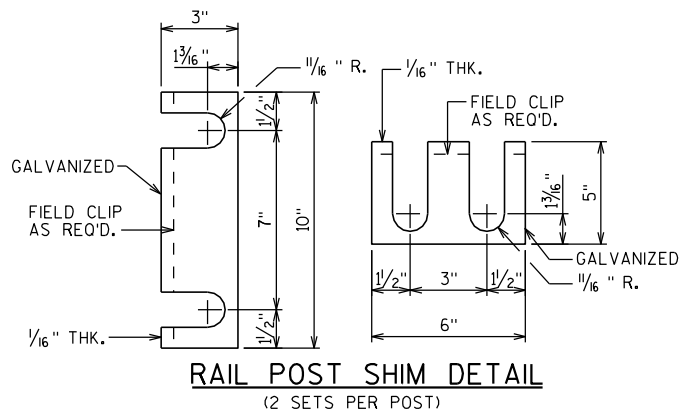
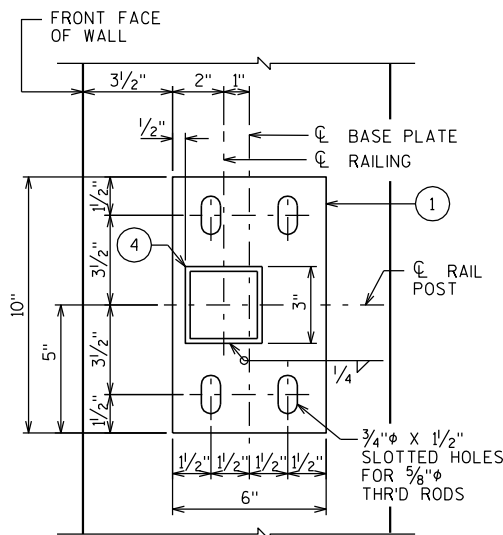
CAULK AROUND PERIMETER OF BASE PLATES, NO. 1, AND FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ALL MATERIAL (EXCEPT NO. 3) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS. PAINT OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE "BRIDGE SPECIAL PROVISIONS". THE RAILING SHALL BE PAINTED FEDERAL COLOR NO. 27038, BLACK.

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.

VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.

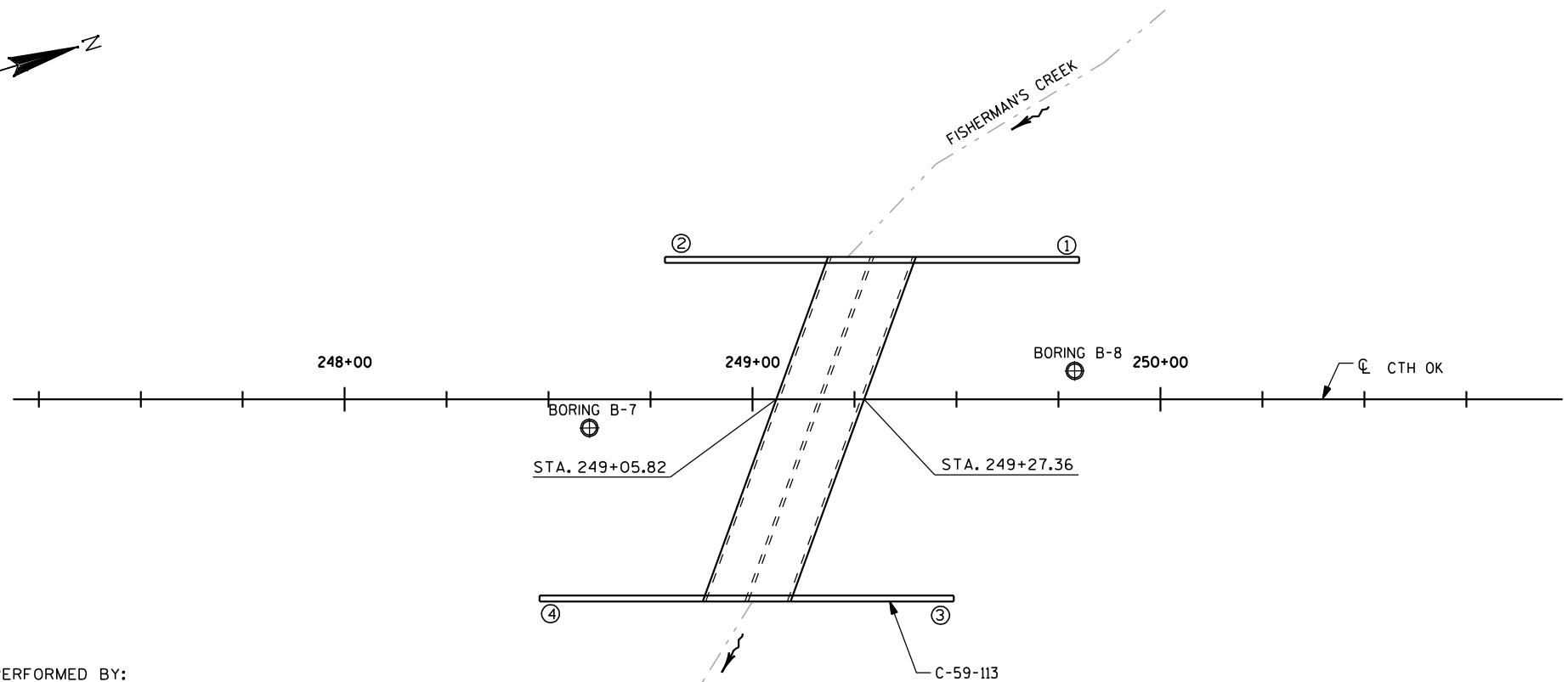
RAIL POST SHIM DETAIL
(2 SETS PER POST)

TYPICAL RAIL POST BASE PLATE

LEGEND

- 1 PLATE 5/8" X 6" X 10" WITH 3/4" X 1/2" SLOTTED HOLES
- 2 1/4" X 5" X 9" ANCHOR PLATE WITH 1/16" HOLE FOR THR'D. RODS NO. 3.
- 3 5/8" DIA. X 9" LONG TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 KSI) WITH NUT AND WASHERS OF SAME ALLOY GROUP. (ALTERNATE RAIL POST ANCHORAGE - 4 EQUIV. STAINLESS STEEL CONCRETE MASONRY ANCHORS, TYPE S (EPOXY), 5/8" DIA. MINIMUM PULLOUT CAPACITY OF 13 KIPS. EMBED A MIN. OF 7" FOR RAIL POSTS AND 5" FOR END RAILS.)
- 4 STRUCTURAL TUBING 3" X 3" X 3/16". PLACE VERTICAL. WELD TO NO. 1, 5 & 6.
- 5 STRUCTURAL TUBING 3" X 1 1/2" X 3/16" RAILS. WELD TO NO. 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION JOINTS.
- 6 2 1/2" DIA. STANDARD PIPE RAIL (2.875" O.D.). WELD TO NO. 4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION JOINTS.
- 7 BAR 1" X 1" PICKETS. WELD TO NO. 5. (SPACE AT 6" MAX. C. TO C. SPACING). PLACE VERTICAL.
- 8 RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. (1'-4" @ FIELD ERECTION JTS.)
- 9 CIRCULAR SLEEVE FABRICATED FROM 2" DIA. STANDARD PIPE. (1'-4" @ FIELD ERECTION JTS.)

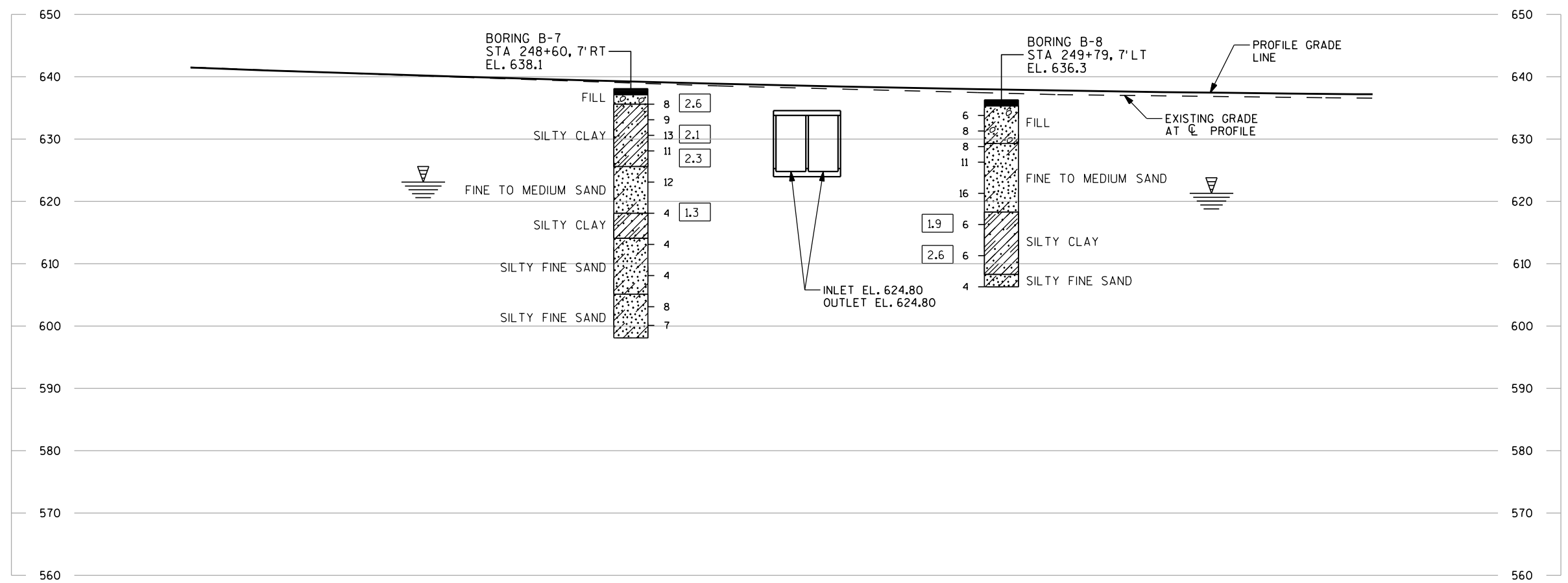
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-59-113			
DRAWN BY		SJG	PLANS CK'D. PJE
RAILING TYPE C2 MODIFIED			SHEET 7 OF 8
			114



BORINGS PERFORMED BY:
MIDWEST ENGINEERING SERVICES, INC.
MENASHA, WISCONSIN

BORINGS COMPLETED ON MARCH 11, 2010

PLANS PREPARED BY DONOHUE & ASSOCIATES, INC.



STATE PROJECT NUMBER

4996-01-22

ABBREVIATIONS

F — FINE M — MEDIUM C — COARSE
WS — WEATHERED SO — SOUND

MATERIAL SYMBOLS

TOPSOIL SILT SANDSTONE
SAND PEAT LIMESTONE
GRAVEL CLAY IGNEOUS ROCK

LEGEND OF PROBING

PROBING NO.
STA.
ELEVATION
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

95/6=95 BLOWS FOR 6" PENETRATION PROBING TAKEN WITH A 350# WT. FALLING 18" ON A 2" O.D. POINT.

LEGEND OF BORING

ELEV. BORING NO.
STA.

UNCONFINED STRENGTH 7.7
BLOWS PER FT. USING 140# WT. FALLING 30"
WASH SAMPLE
SHELBY TUBE — S.T.
GROUND WATER ELEVATION
NO GROUND WATER OBSERVED ABOVE THIS ELEVATION

SANDY GRAVEL
F. BOULDERS OR COBBLES
SAND
SILTY CLAY
SO
LIMESTONE

UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE C-59-113			
DRAWN BY S.J.G.		PLANS CK'D. P.J.E.	
SUBSURFACE EXPLORATION			SHEET 8 OF 8
			115

DIVISION 1 - CTH OK

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		MASS ORDNATE
			CUT	FILL	CUT	FILL	CUT	EXPANDED FILL	
					NOTE 1	NOTE 2	NOTE 1	1.25	NOTE 3
213+50	21350		196	0	0	0	0	0	0
214+00	21400	50	170	0	339	0	339	1	338
214+50	21450	50	184	15	328	14	667	18	649
215+00	21500	50	169	19	327	31	993	56	937
215+50	21550	50	144	23	290	39	1283	104	1179
216+00	21600	50	129	23	253	43	157	157	1379
216+15	21615	15	117	26	68	14	1605	175	1430
216+50	21650	35	91	39	135	42	1740	228	1512
217+00	21700	50	84	36	162	69	1902	314	1588
217+50	21750	50	93	15	164	46	2066	372	1694
218+00	21800	50	110	6	188	19	2254	395	1859
218+50	21850	50	105	2	199	7	2453	404	2049
219+00	21900	50	83	6	174	7	2627	413	2214
219+50	21950	50	59	13	131	18	2759	435	2324
220+00	22000	50	36	21	87	32	2846	475	2371
220+50	22050	50	37	26	87	44	2913	529	2384
221+00	22100	50	47	24	78	47	2990	588	2402
221+50	22150	50	80	25	117	46	3108	645	2462
222+00	22200	50	116	7	182	30	3289	682	2607
222+50	22250	50	187	7	280	13	3570	698	2872
223+00	22300	50	169	8	329	13	3899	715	3184
223+50	22350	50	120	17	267	23	4166	743	3423
224+00	22400	50	124	21	226	35	4392	787	3605
224+50	22450	50	104	18	211	37	4603	833	3771
225+00	22500	50	86	21	176	36	4779	878	3902
225+50	22550	50	66	22	141	40	4920	927	3993
226+00	22600	50	57	34	114	52	5034	992	4042
226+50	22650	50	57	42	105	70	5139	1080	4059
227+00	22700	50	70	65	118	99	5257	1204	4053
227+50	22750	50	59	122	119	174	5376	1421	3955
227+79	22779	29	62	205	65	176	5441	1640	3800
228+00	22800	21	70	231	51	169	5492	1852	3640
228+50	22850	50	106	62	163	271	5655	2191	3465
228+80	22880	30	130	42	131	58	5787	2263	3523
229+00	22900	20	145	37	102	29	5889	2300	3589
229+50	22950	50	168	23	280	56	6178	2369	3609
230+00	23000	50	174	0	317	22	6495	2396	4098
230+50	23050	50	180	0	328	0	6823	2396	4427
230+60	23060	10	185	0	69	0	6891	2396	4494
230+70	23070	10	188	0	208	0	6960	2396	4563
231+00	23100	30	186	0	7168	0	7168	2396	4772
231+50	23150	50	201	0	358	0	7526	2396	5130
232+00	23200	50	179	1	352	1	7878	2397	5481
232+50	23250	50	202	0	353	1	8231	2398	5833
233+00	23300	50	203	0	375	0	8606	2398	6208
233+50	23350	50	264	0	432	0	9038	2398	6640
234+00	23400	50	247	0	473	1	9510	2398	7112
234+50	23450	50	227	1	438	1	9949	2400	7549
235+00	23500	50	170	11	368	11	10316	2414	7903

DIVISION 1 - CTH OK - CONT.

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		MASS ORDNATE
			CUT	FILL	CUT	FILL	CUT	EXPANDED FILL	
					NOTE 1	NOTE 2	NOTE 1	1.25	NOTE 3
235+50	23550	50	156	34	302	42	10618	2466	8152
236+00	23600	50	153	22	286	52	10904	2531	8374
236+50	23650	50	182	8	310	27	11215	2565	8650
237+00	23700	40	82	16	49	4	11264	2571	8693
237+50	23750	50	124	1	153	13	11416	2586	8830
238+00	23800	50	162	6	285	6	11681	2595	9087
238+50	23850	50	141	20	281	24	11962	2624	9338
239+00	23900	50	71	41	197	57	12159	2695	9464
239+50	23950	50	66	67	133	101	12292	2821	9471
240+00	24000	50	78	74	138	131	12430	2985	9445
240+50	24050	50	78	78	144	141	12574	3162	9412
240+80	24080	30	64	104	131	169	12705	3373	9332
241+00	24100	20	77	92	109	109	12783	3509	9275
241+50	24150	50	61	145	51	88	12834	3618	9216
242+00	24200	50	59	181	111	302	12945	3995	8950
242+50	24250	50	61	96	110	257	13056	4316	8740
243+00	24300	50	62	50	114	135	13170	4485	8684
243+20	24320	20	83	0	35	2	13344	4553	8791
243+50	24350	30	90	1	96	1	13440	4553	8886
244+00	24400	50	129	0	203	1	13642	4555	9087
244+50	24450	50	121	7	231	6	13873	4562	9311
245+00	24500	50	117	7	221	12	14094	4578	9516
245+50	24550	50	108	2	209	8	14303	4588	9715
246+00	24600	50	106	3	198	4	14501	4593	9908
246+50	24650	50	112	1	202	3	14704	4597	10106
246+80	24680	30	118	2	384	4	14320	4592	9728
247+00	24700	40	156	2	203	2	14523	4595	9928
247+50	24750	50	159	3	58	1	14582	4596	9985
248+00	24800	40	165	0	240	3	14821	4599	10222
248+50	24850	50	155	0	297	0	15118	4600	10518
249+00	24900	50	218	0	345	0	15463	4600	10864
249+50	24950	50	149	5	339	5	15803	4606	11197
249+80	24980	30	58	106	192	103	15995	4734	11260
249+90	24990	10	46	379	97	448	16091	5295	10796
250+00	25000	50	52	166	54	303	16146	5673	10472
250+30	25030	30	45	184	36	130	16182	5835	10346
250+50	25050	20	47	168	85	326	16267	6242	10024
250+15	25015	15	85	117	37	79	16303	6341	9962
250+50	25050	35	88	77	113	125	16416	6498	9918
251+00	25100	50	48	34	126	102	16542	6625	9917
251+50	25150	50	77	3	116	34	16638	6668	9990
252+00	25200	50	108	0	171	2	16829	6671	10159
252+50	25250	50	128	0	219	0	17048	6671	10377
253+00	25300	50	131	0	240	0	17288	6671	10617
253+30	25330	30	146	1	154	1	17442	6672	10770
253+50	25350	20	131	1	103	1	17544	6672	10872
254+00	25400	50	151	0	243	1	17787	6674	11113
254+10	25410	10	150	1	52	0	17839	6674	11165
254+50	25450	40	166	0	234	1	18073	6675	11398
255+00	25500	50	213	0	351	0	18424	6676	11748
255+50	25550	50	199	0	382	0	18806	6676	12130
256+00	25600	50	175	0	347	0	19153	6676	12477
256+50	25650	50	213	0	359	1	19512	6677	12836
256+80	25680	30	259	1	87	0	19600	6677	12923
257+00	25700	40	252	2	379	2	19979	6680	13299
257+50	25750	50	154	2	377	4	20355	6685	13670
258+00	25800	50	139	3	271	5	20626	6691	13936
258+50	25850	50	122	9	241	11	20868	6705	14163
258+80	25880	40	127	5	185	10	21053	6718	14335
259+00	25900	10	121	4	46	2	21099	6720	14379
259+50	25950	50	103	45	207	46	21306	6777	14529
260+00	26000	50	111	49	198	87	21504	6885	14618
260+50	26050	50	97	19	192	63	21696	6863	14733
260+70	26070	20	101	2	73	8	21769	6973	14796
					COLUMN TOTALS		21769	5578	

NOTES:

1 - CUT CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL. SALVAGED/UNUSABLE PAVEMENT MATERIAL IS CALCULATED ON THE SUMMARY SHEET.

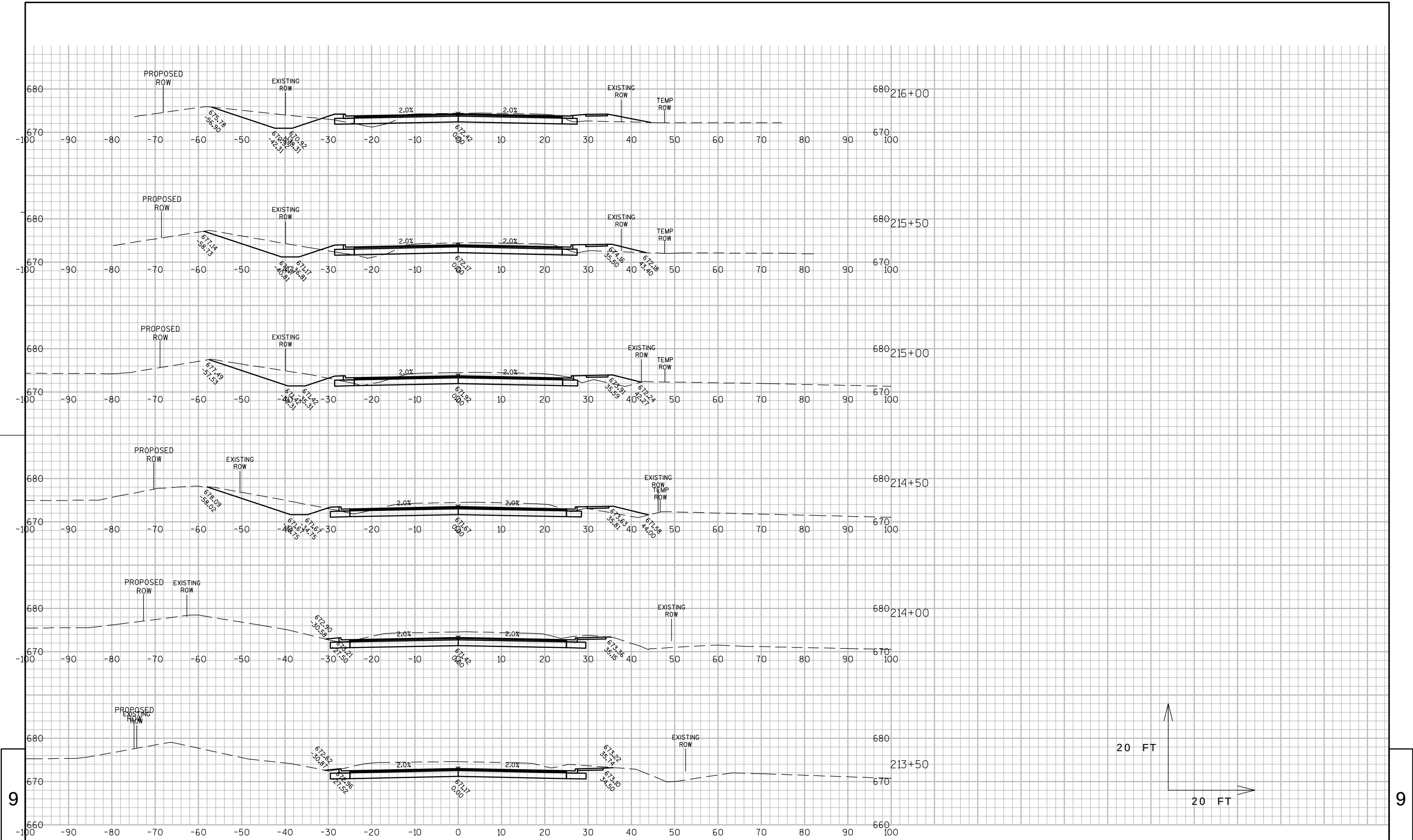
2 - FILL DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME. SALVAGED/UNUSABLE PAVEMENT MATERIAL IS CALCULATED ON THE SUMMARY SHEET.

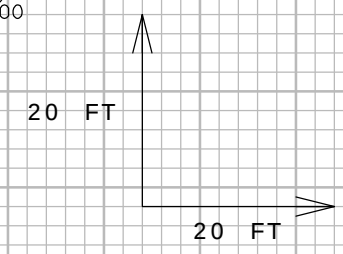
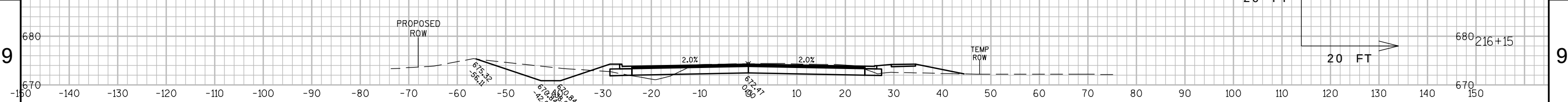
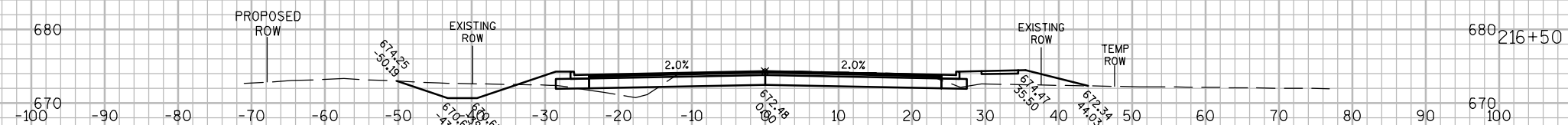
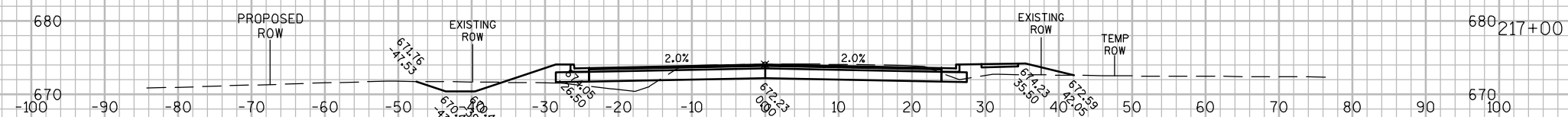
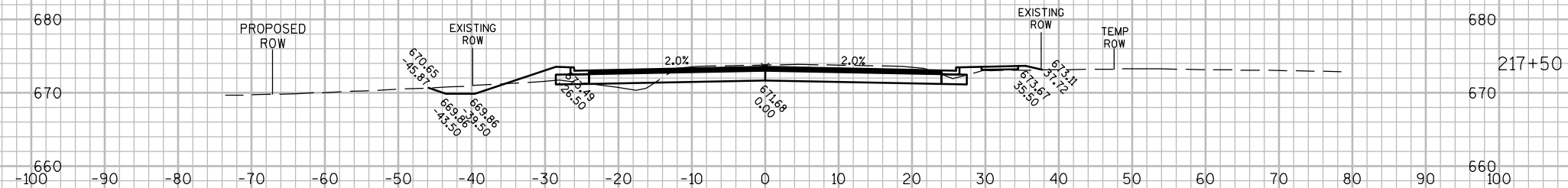
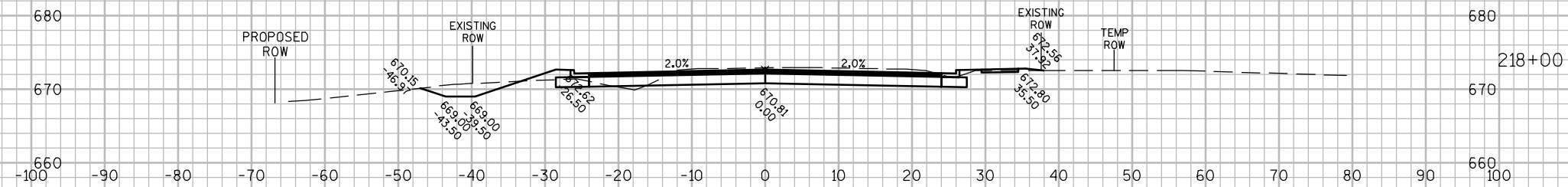
3 - MASS ORDNATE ((CUT) - ((FILL) * FILL FACTOR))

DIVISION 2 - BEHRENS BLVD									
STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	FILL	CUT	FILL		CUT	EXPANDED FILL	MASS ORDNATE
				NOTE 1	NOTE 2		NOTE 1	1.25	NOTE 3
+5		70	1	0	0		0	0	0
+50	45	94	0	136	1		136	1	135
1+00	50	196	0	268	0		404	1	403
1+50	50	168	0	337	0		741	1	739
COLUMN TOTALS				741	1				

DIVISION 3 - CARMEN DR									
STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	FILL	CUT	FILL		CUT	EXPANDED FILL	MASS ORDNATE
				NOTE 1	NOTE 2		NOTE 1	1.25	NOTE 3
+45		245	0	0	0		0	0	0
+50	5	226	0	44	0		44	0	44
+66	16	163	0	115	0		159	0	159
1+00	34	82	0	154	0		313	0	312
COLUMN TOTALS				313	0				

DIVISION 4 - CAMELOT DRIVE									
STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	FILL	CUT	FILL		CUT	EXPANDED FILL	MASS ORDNATE
				NOTE 1	NOTE 2		NOTE 1	1.25	NOTE 3
+55		80	63	0	0		0	0	0
+88	33	74	3	94	40		94	50	43
1+00	12	116	1	42	1		136	52	85
1+50	50	129	0	227	1		363	53	310
COLUMN TOTALS				363	42				







PROJECT NO: 4996-01-22

HWY: CTH OK

COUNTY: SHEBOYGAN

CROSS SECTIONS: CTH OK

SHEET 120

E

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PLOT BY : BAINTEK, JOHN

PLOT NAME : PLOT SCALE : 1:20_XREF

WISDOT/CADD SHEET 49



PROJECT NO: 4996-01-22

HWY: CTH OK

COUNTY: SHEBOYGAN

CROSS SECTIONS: CTH OK

SHEET

121

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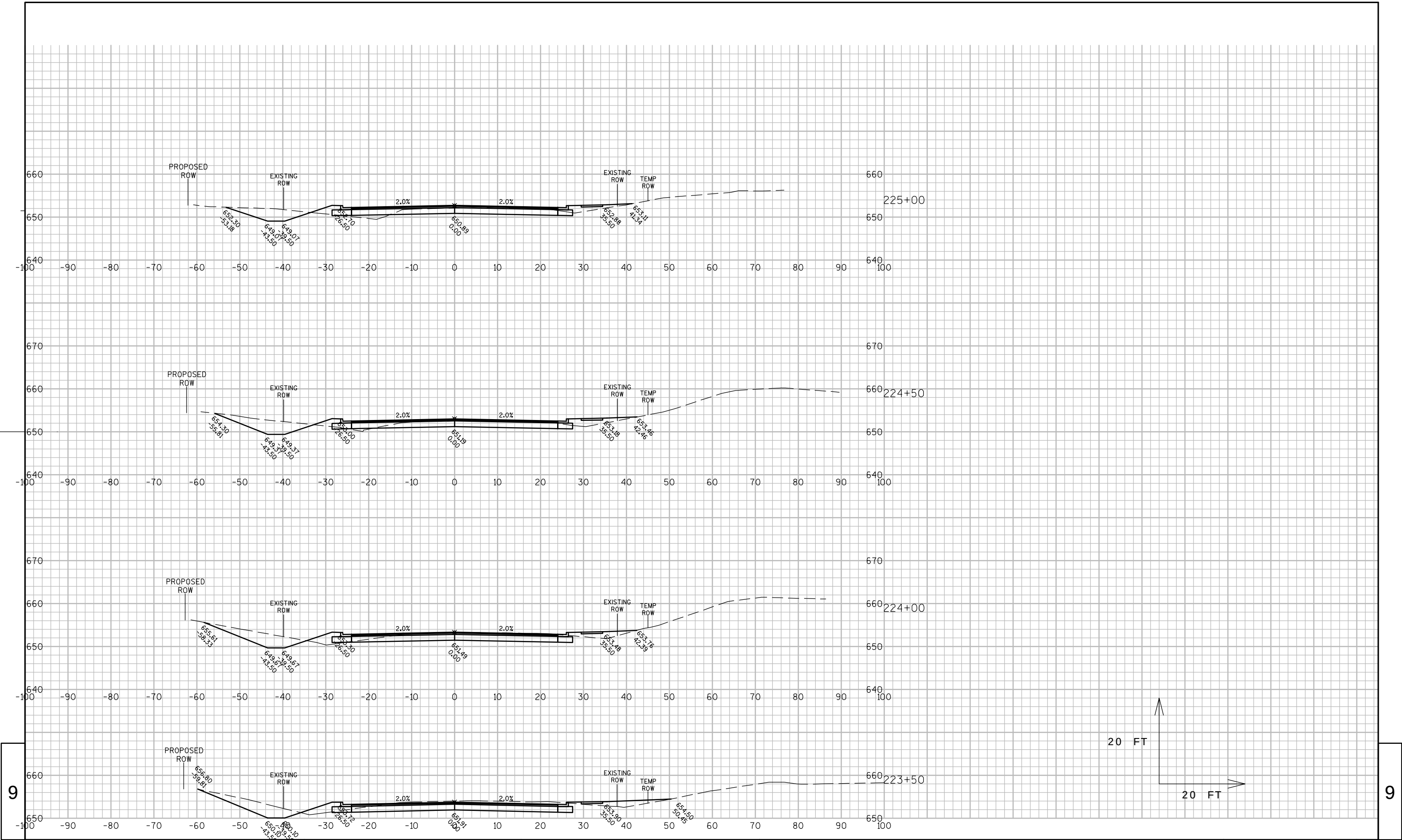
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PLOT NAME : PLOT SCALE : 1:20_XREF

WISDOT/CADDs SHEET 49



PROJECT NO: 4996-01-22

HWY: CTH OK

COUNTY: SHEBOYGAN

CROSS SECTIONS: CTH OK

SHEET

122

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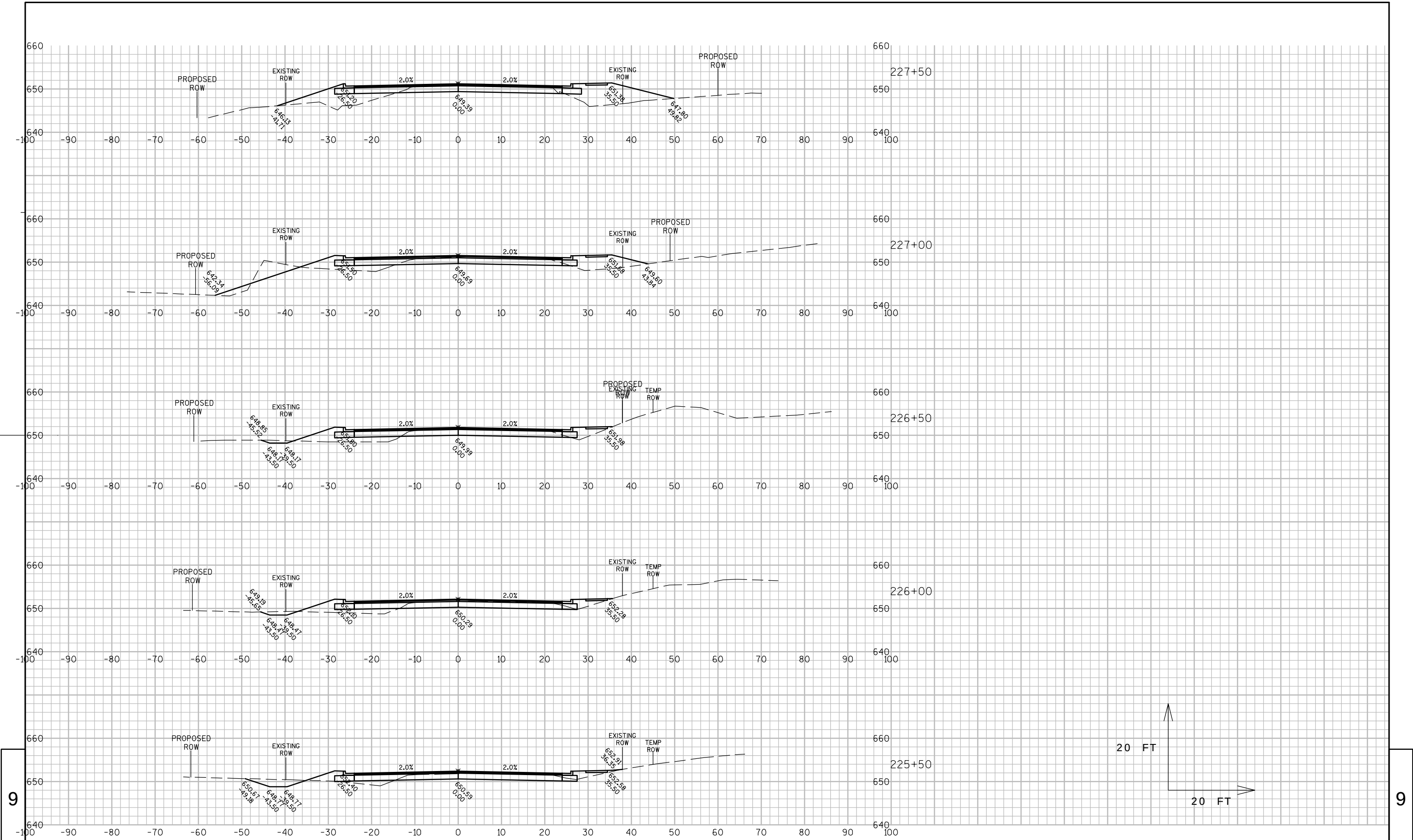
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WISDOT/CADDs SHEET 49



PROJECT NO: 4996-01-22

HWY: CTH OK

COUNTY: SHEBOYGAN

CROSS SECTIONS: CTH OK

SHEET

123

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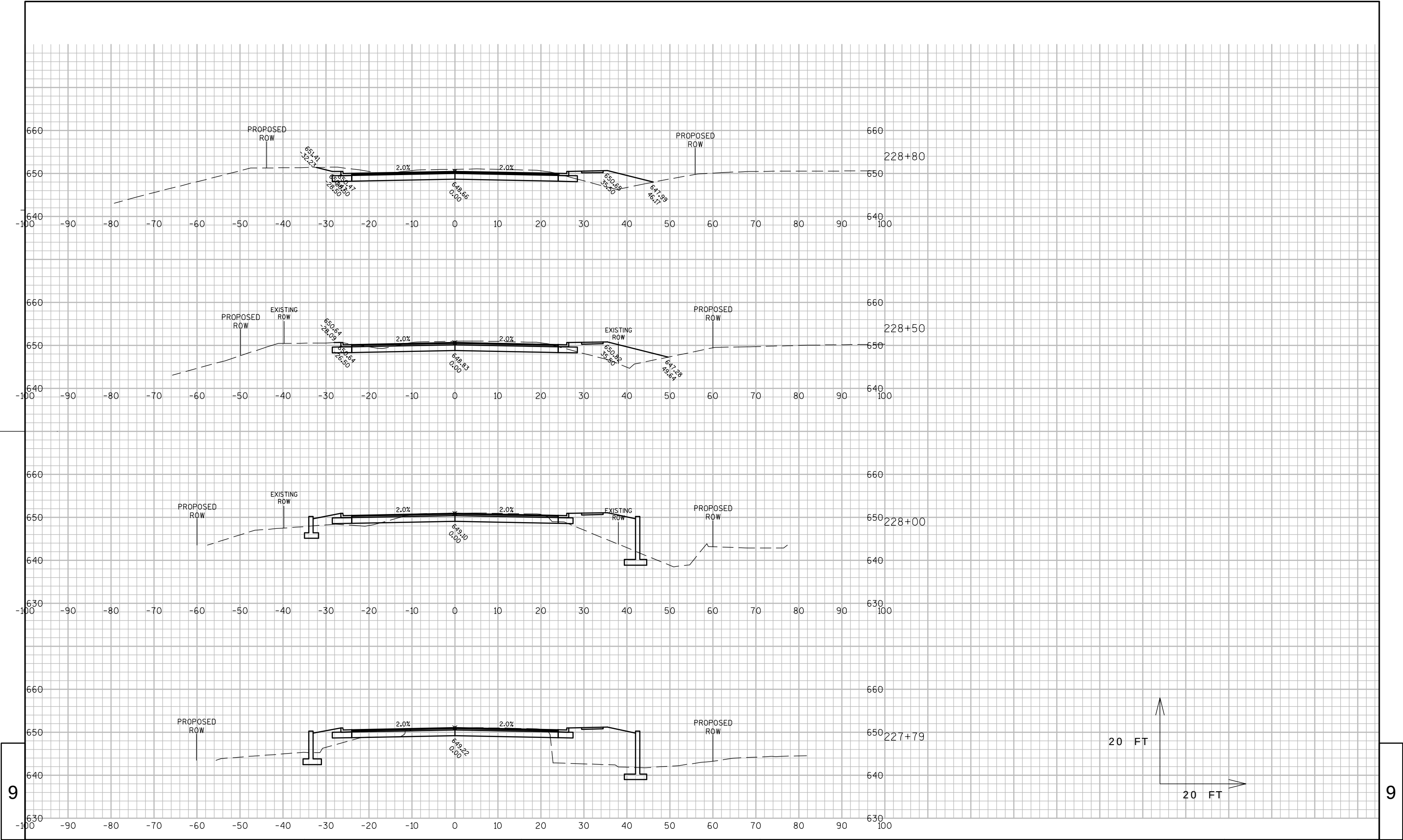
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WISDOT/CADDs SHEET 49



PROJECT NO: 4996-01-22

HWY: CTH OK

COUNTY: SHEBOYGAN

CROSS SECTIONS: CTH OK

SHEET

124

E

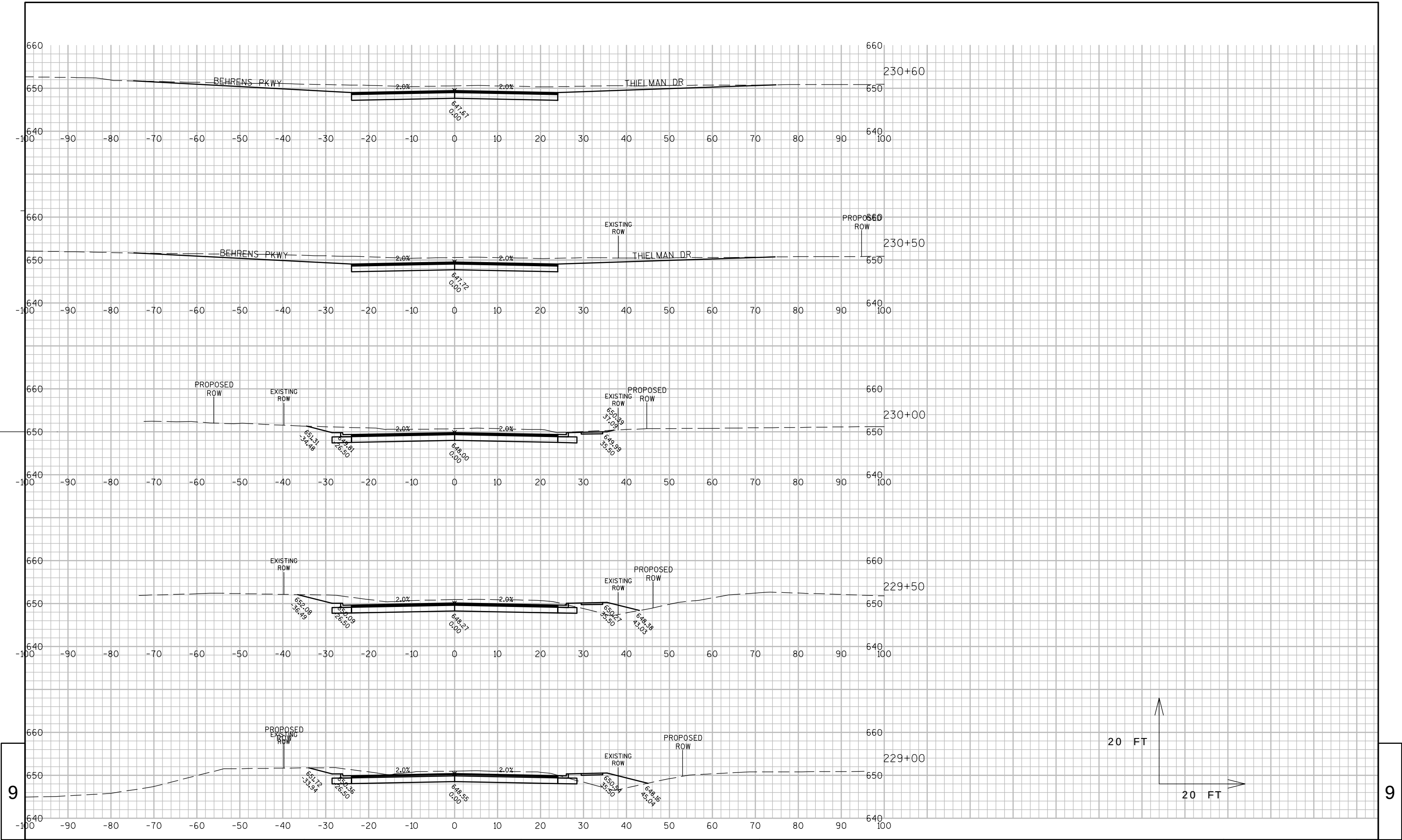
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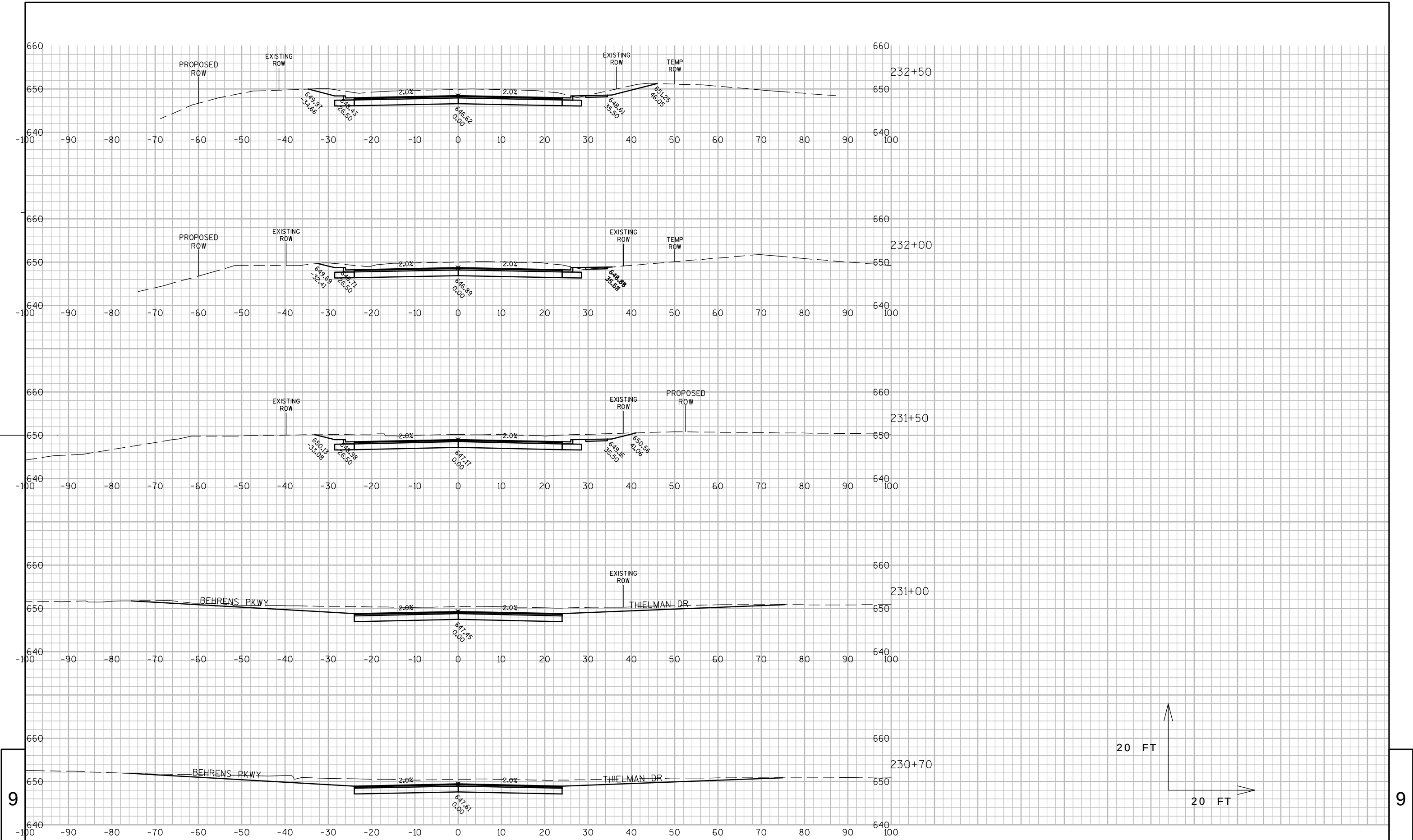
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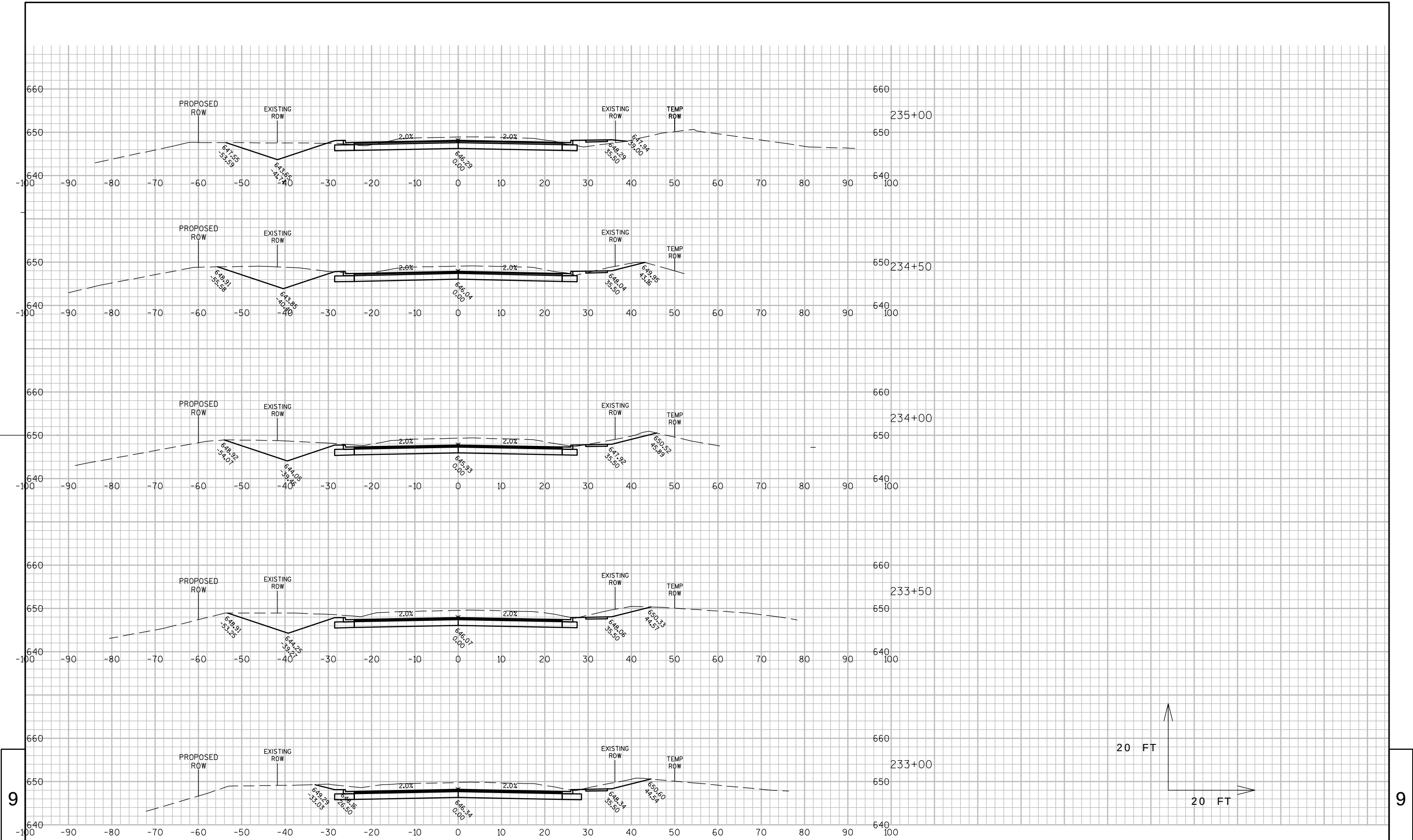
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PLOT NAME : PLOT SCALE : 1:20_XREF

WISDOT/CADDs SHEET 49







PROJECT NO: 4996-01-22

HWY: CTH OK

COUNTY: SHEBOYGAN

CROSS SECTIONS: CTH OK

SHEET

127

E

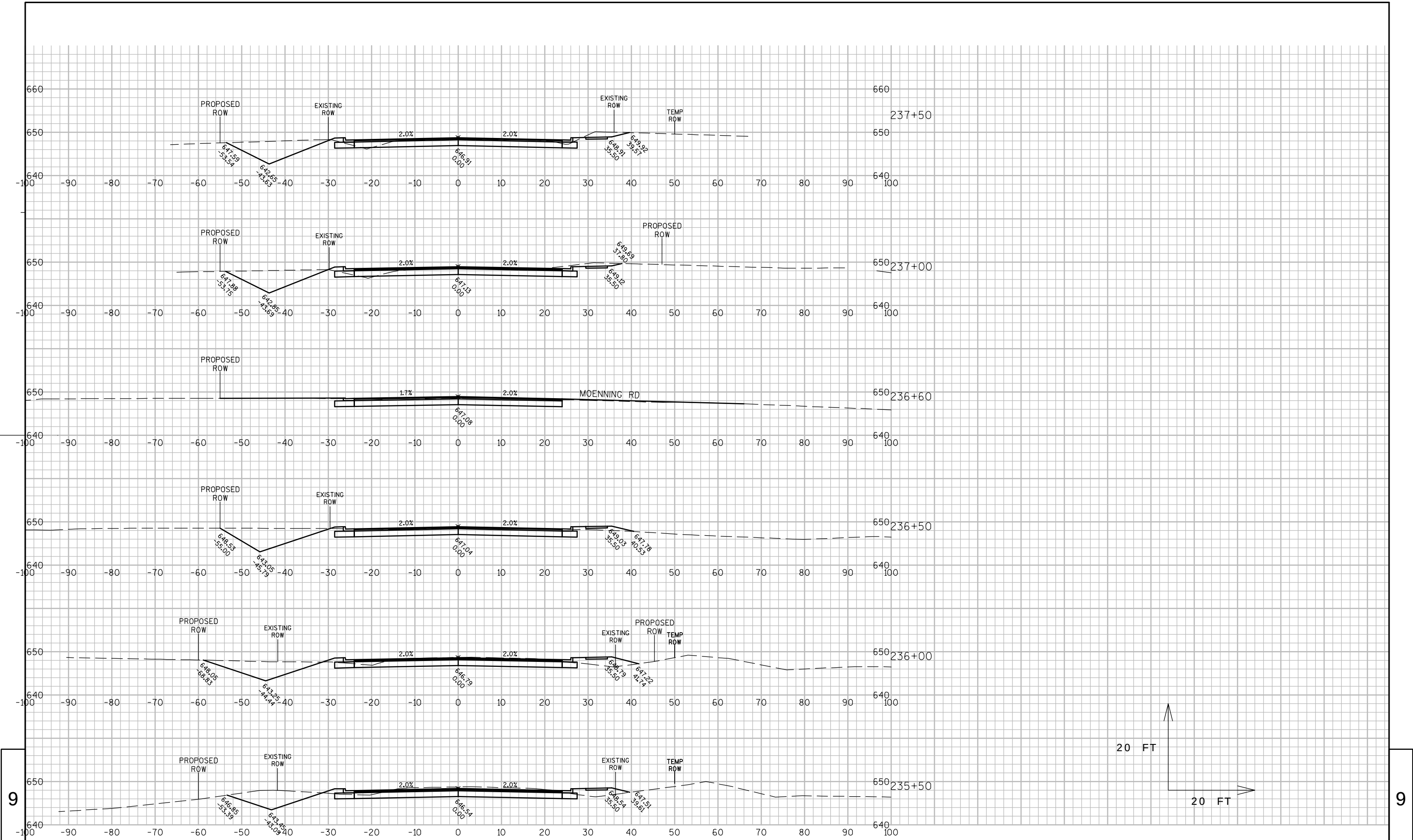
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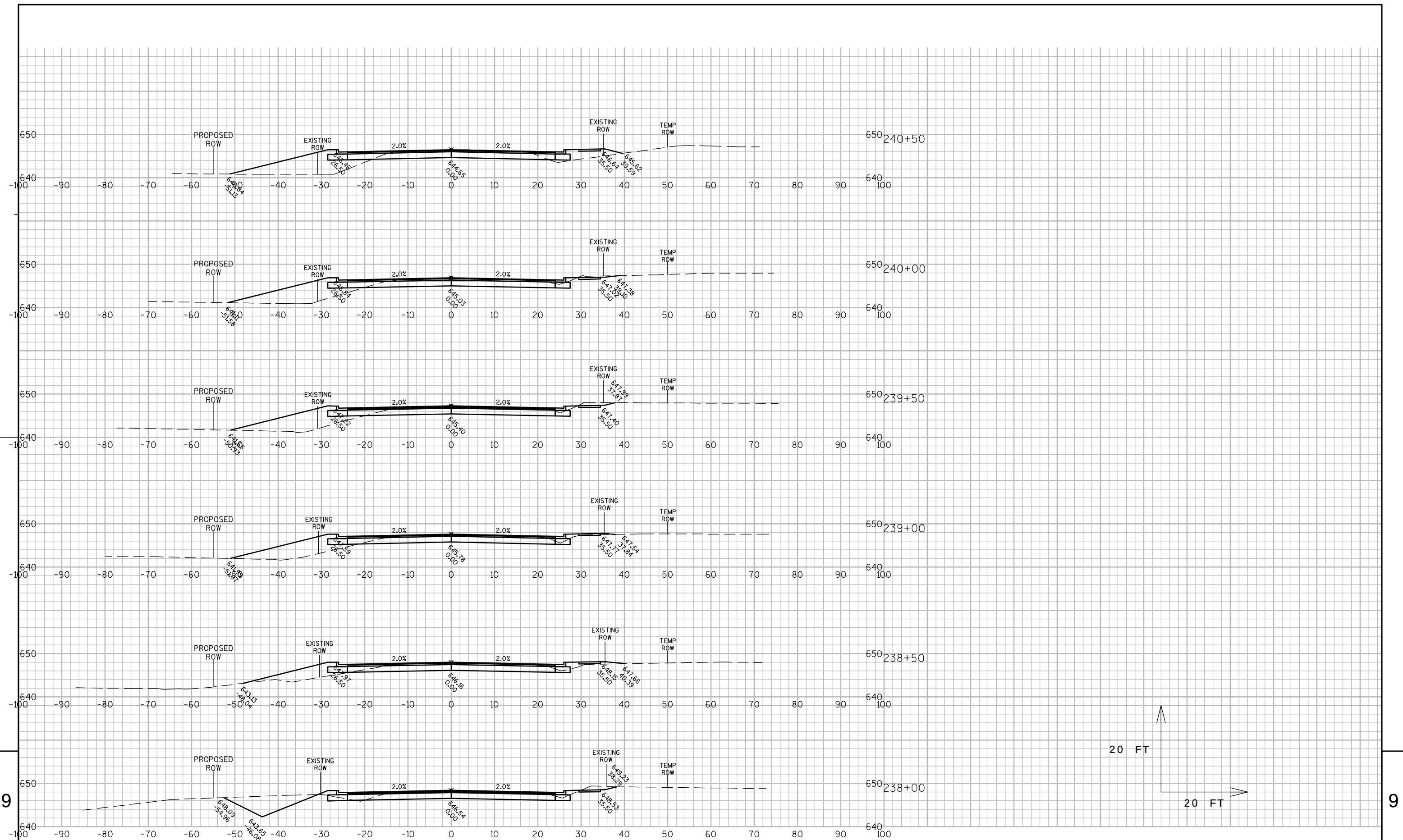
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PLOT NAME : PLOT SCALE : 1:20_XREF

WISDOT/CADDs SHEET 49





PROJECT NO: 4996-01-22

HWY: CTH OK

COUNTY: SHEBOYGAN

CROSS SECTIONS: CTH OK

SHEET	129
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E

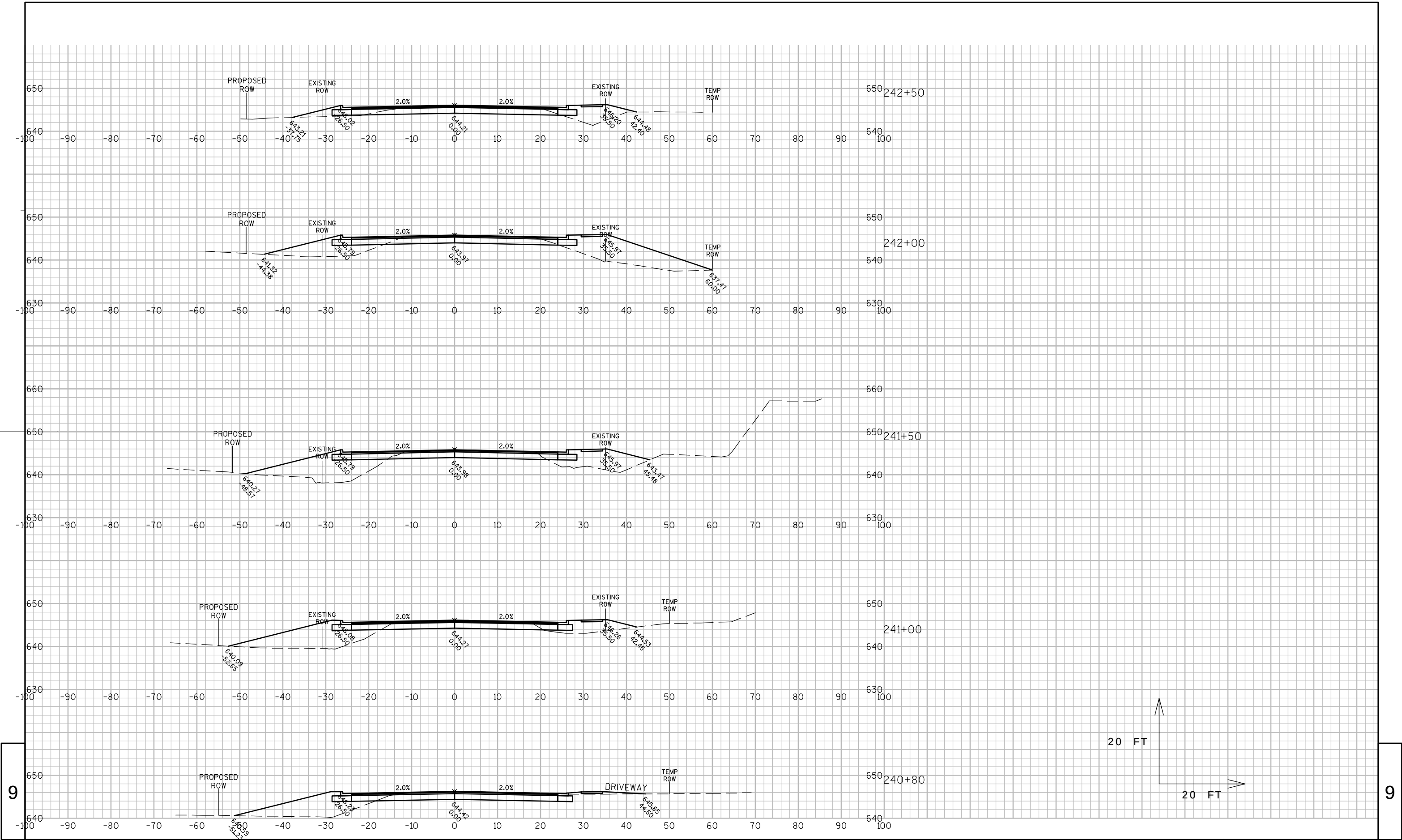
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PLOT BY : BAINTEK, JOHN

PLOT NAME : _____ PLOT SCALE : 1:20_XREF

WISDOT/CADDS SHEET 49



PROJECT NO: 4996-01-22

HWY: CTH OK

COUNTY: SHEBOYGAN

CROSS SECTIONS: CTH OK

SHEET

130

E

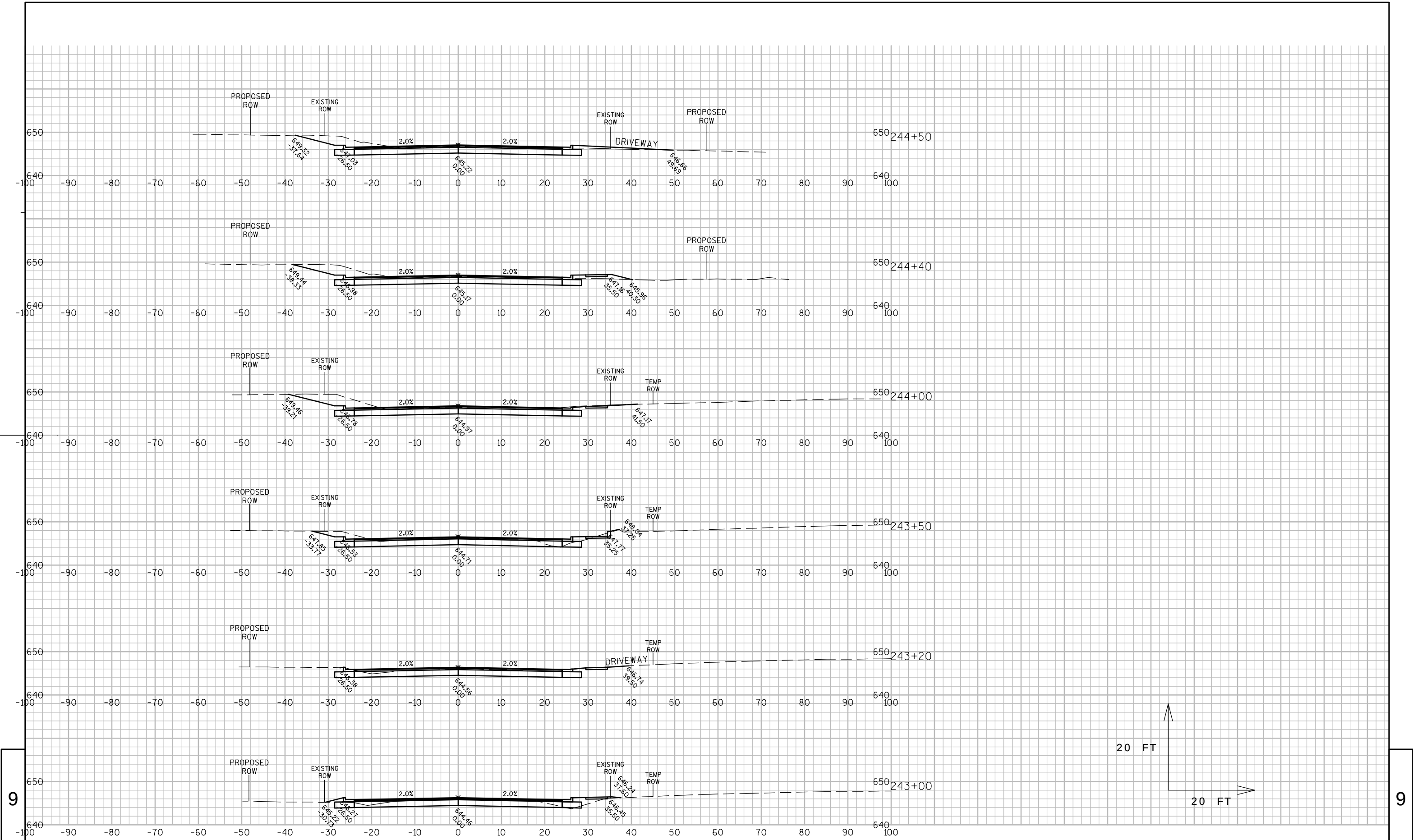
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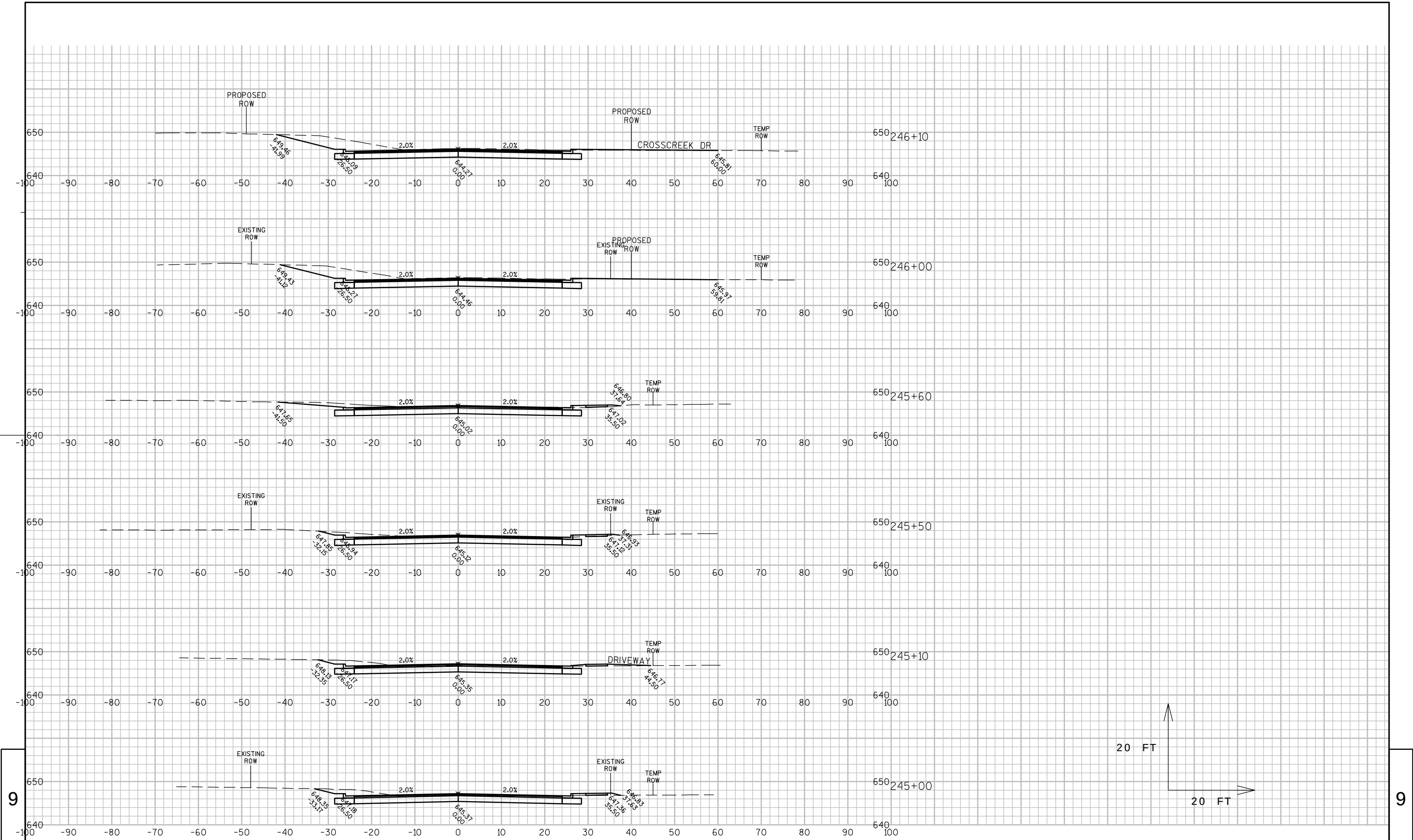
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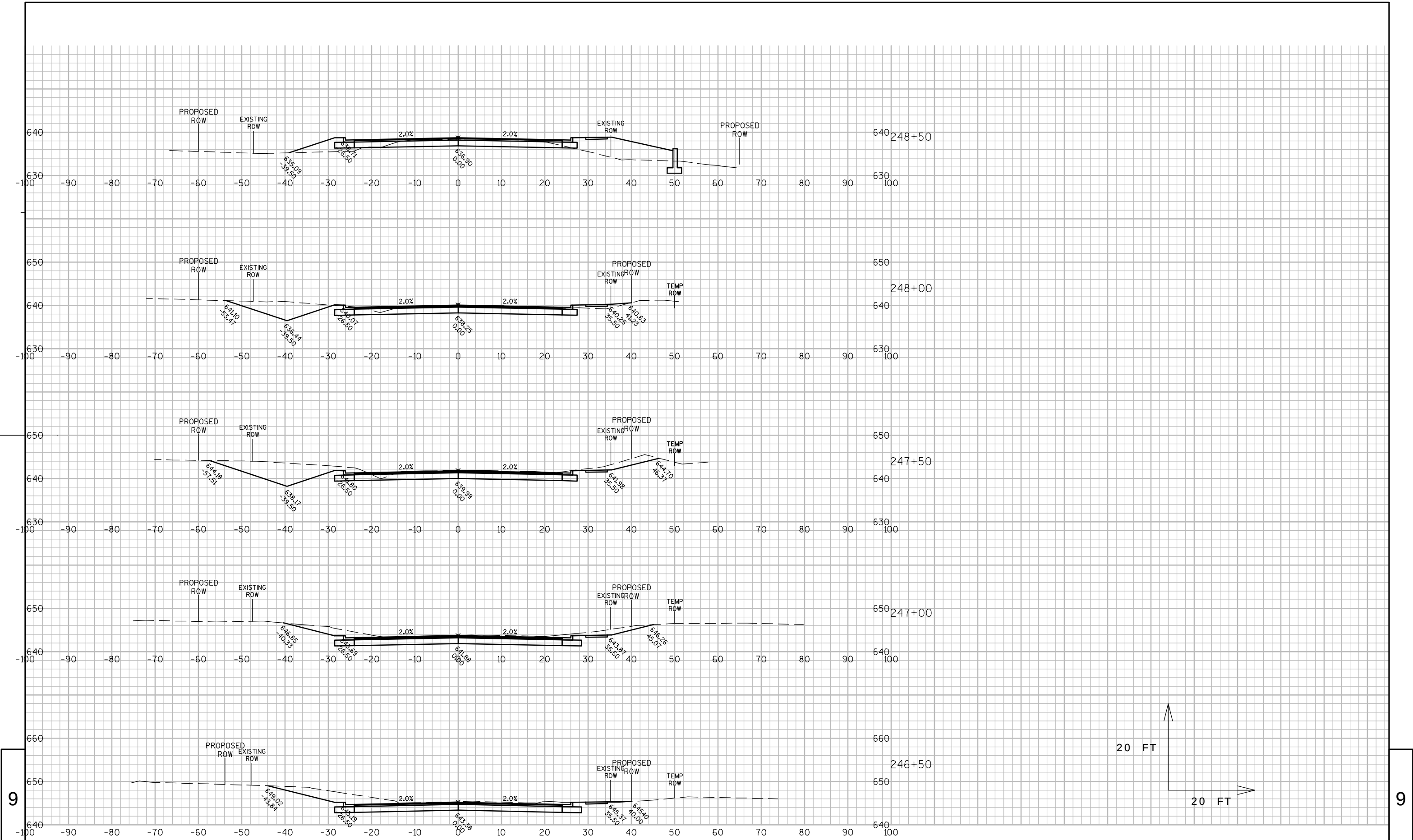
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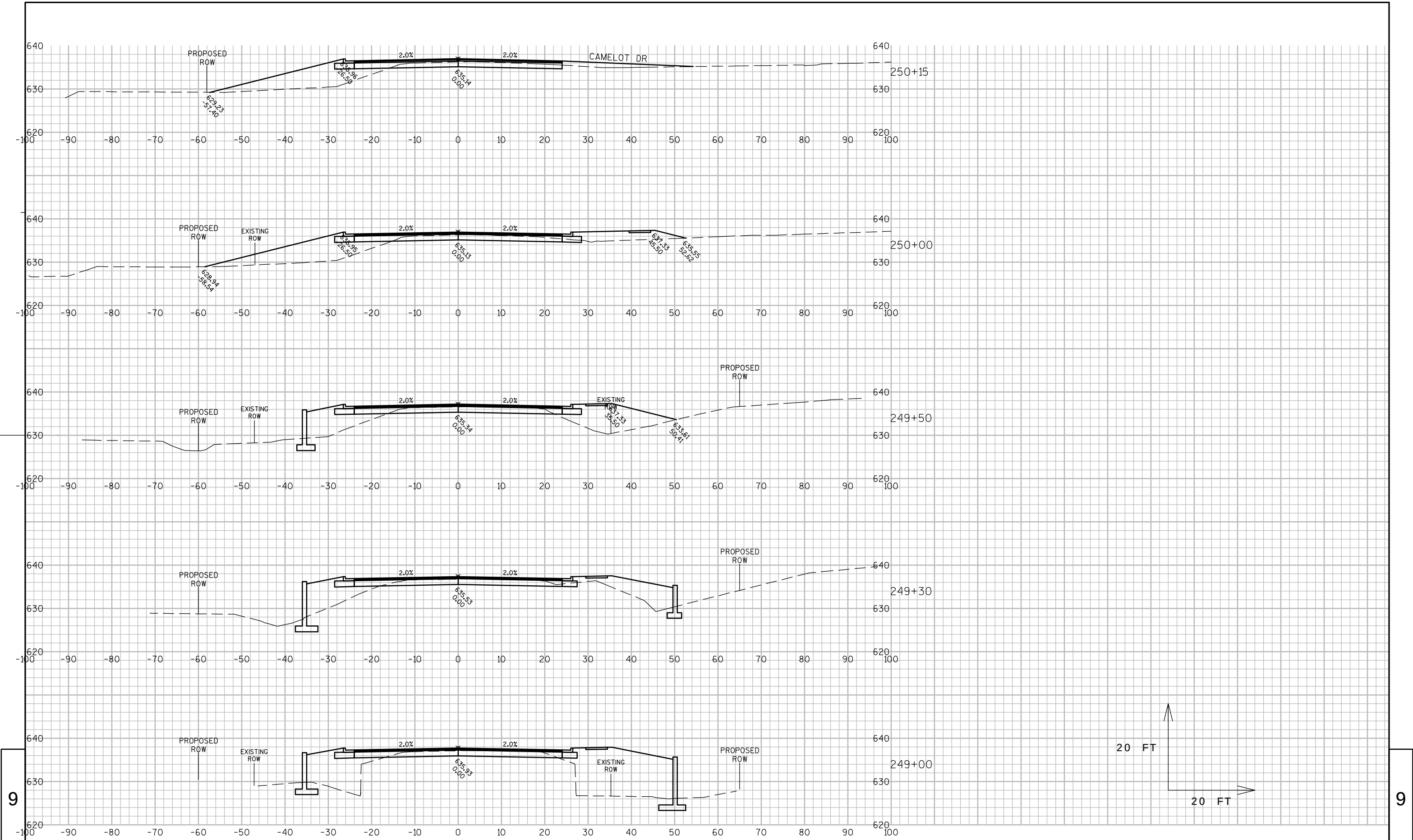
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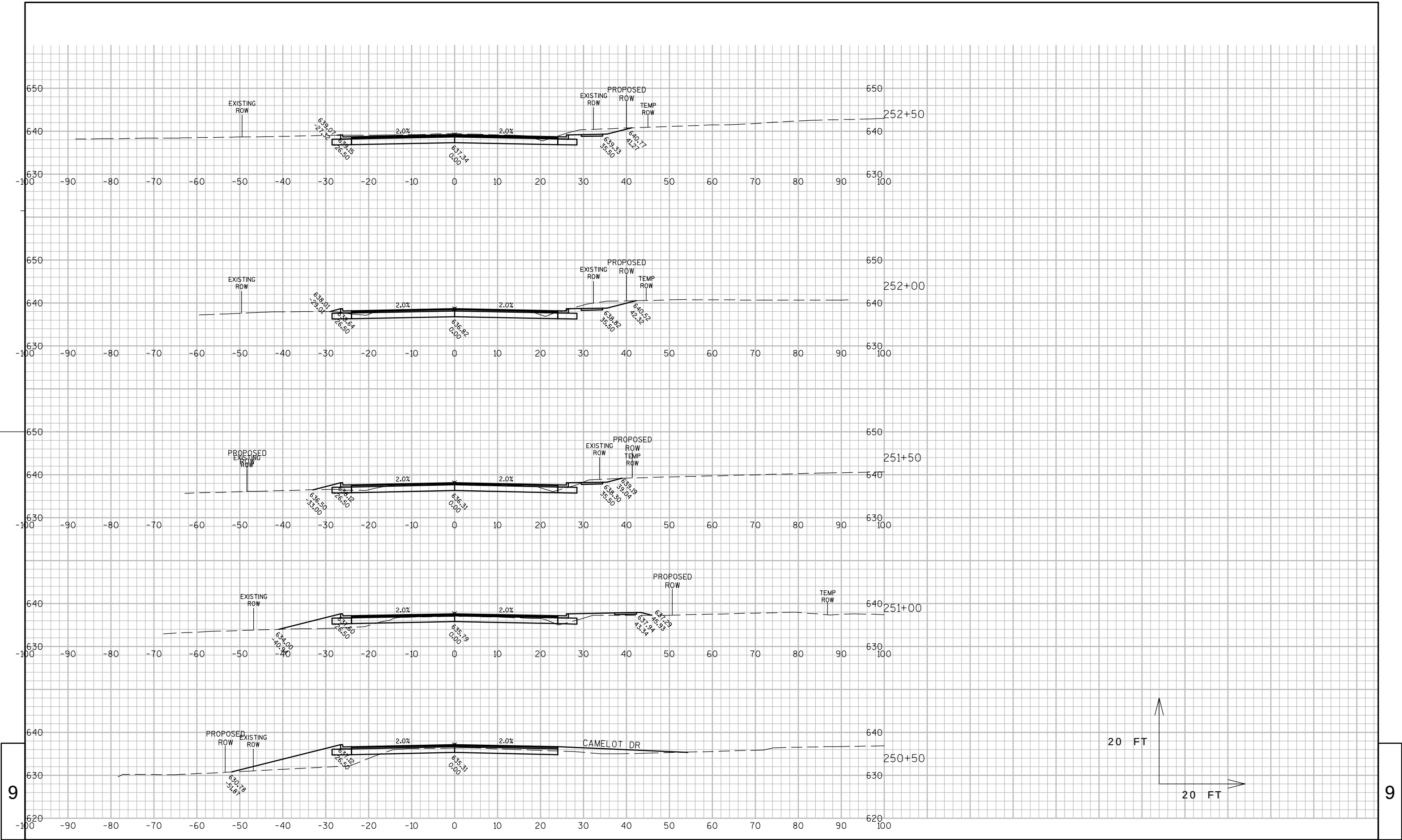
WISDOT/CADDs SHEET 49

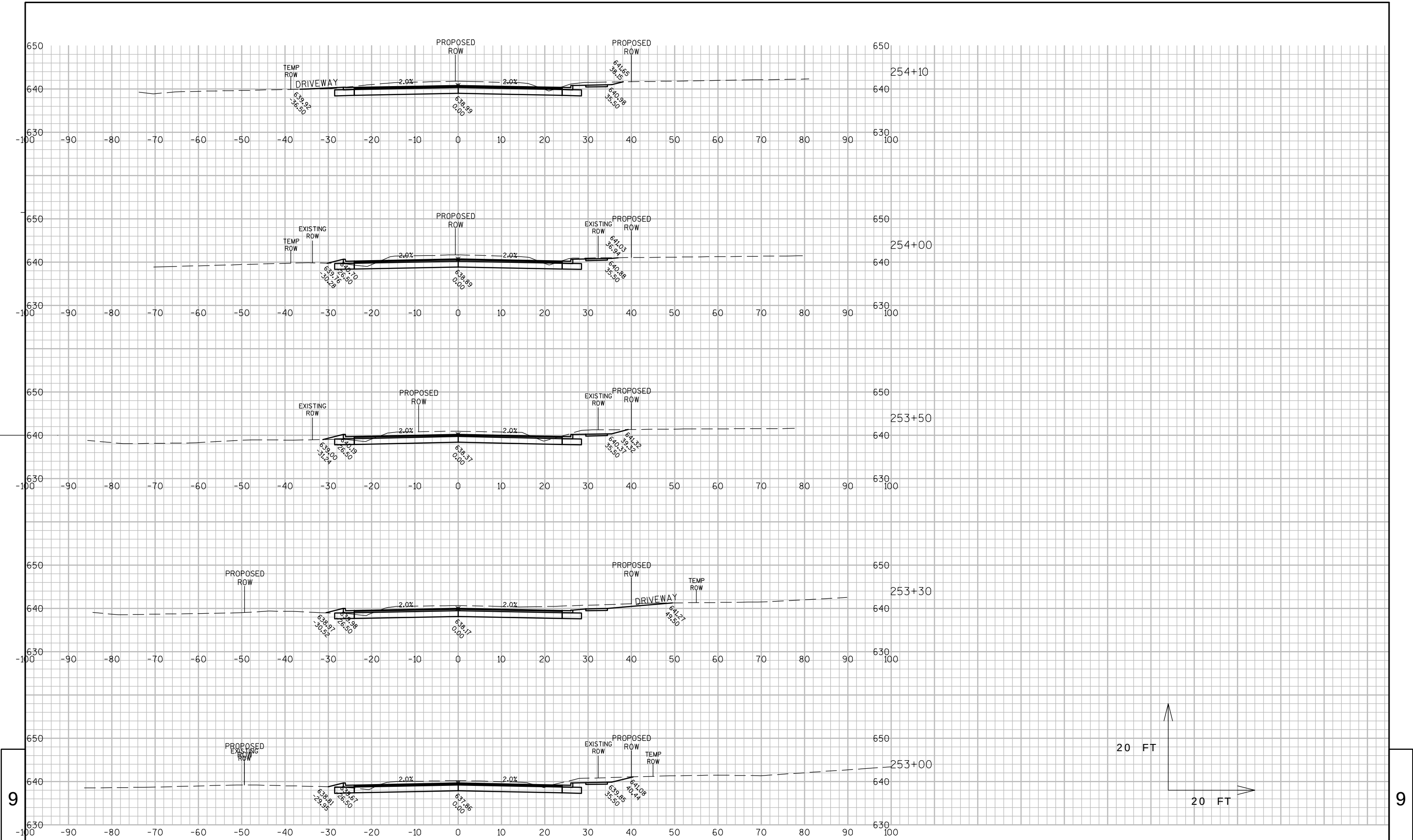


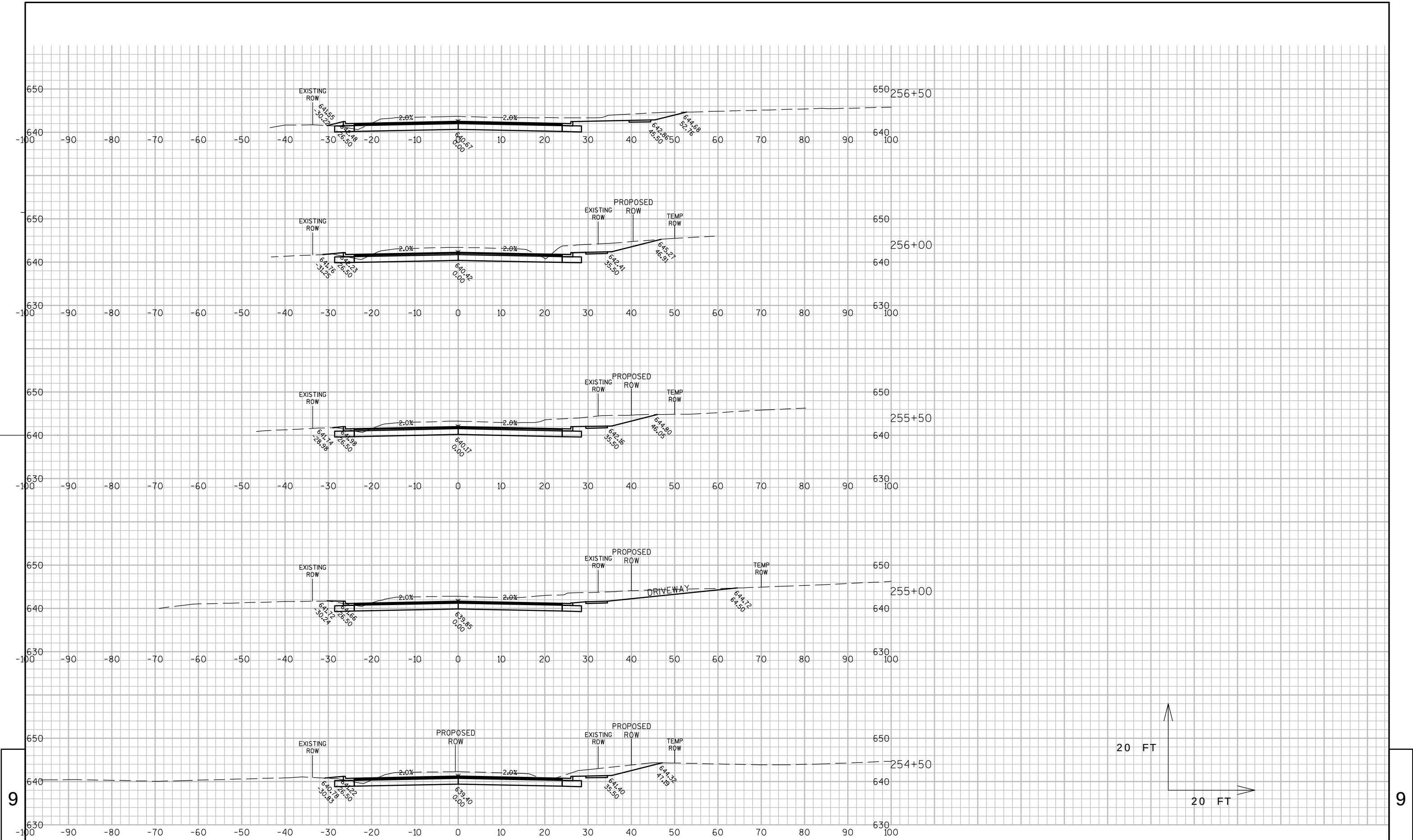


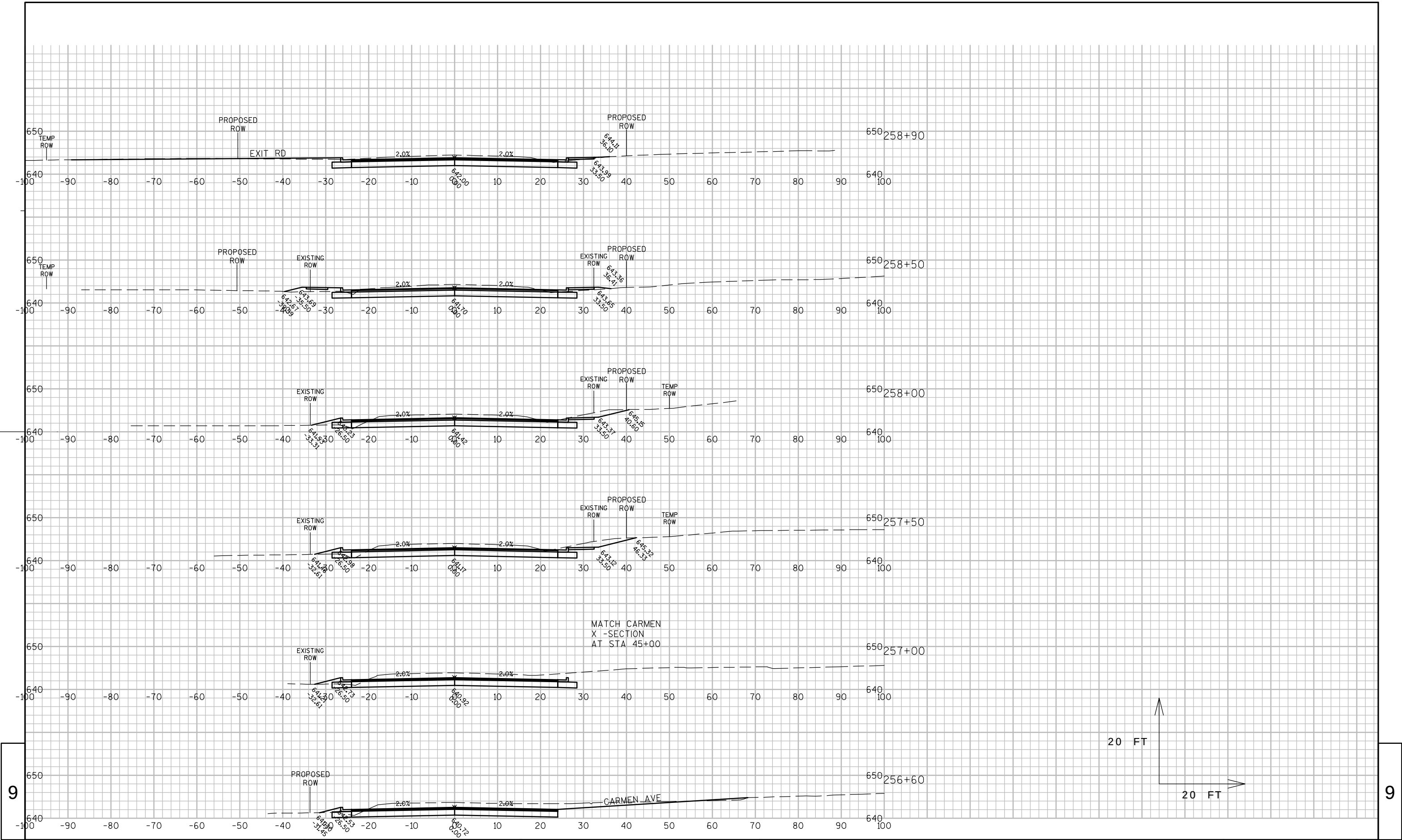


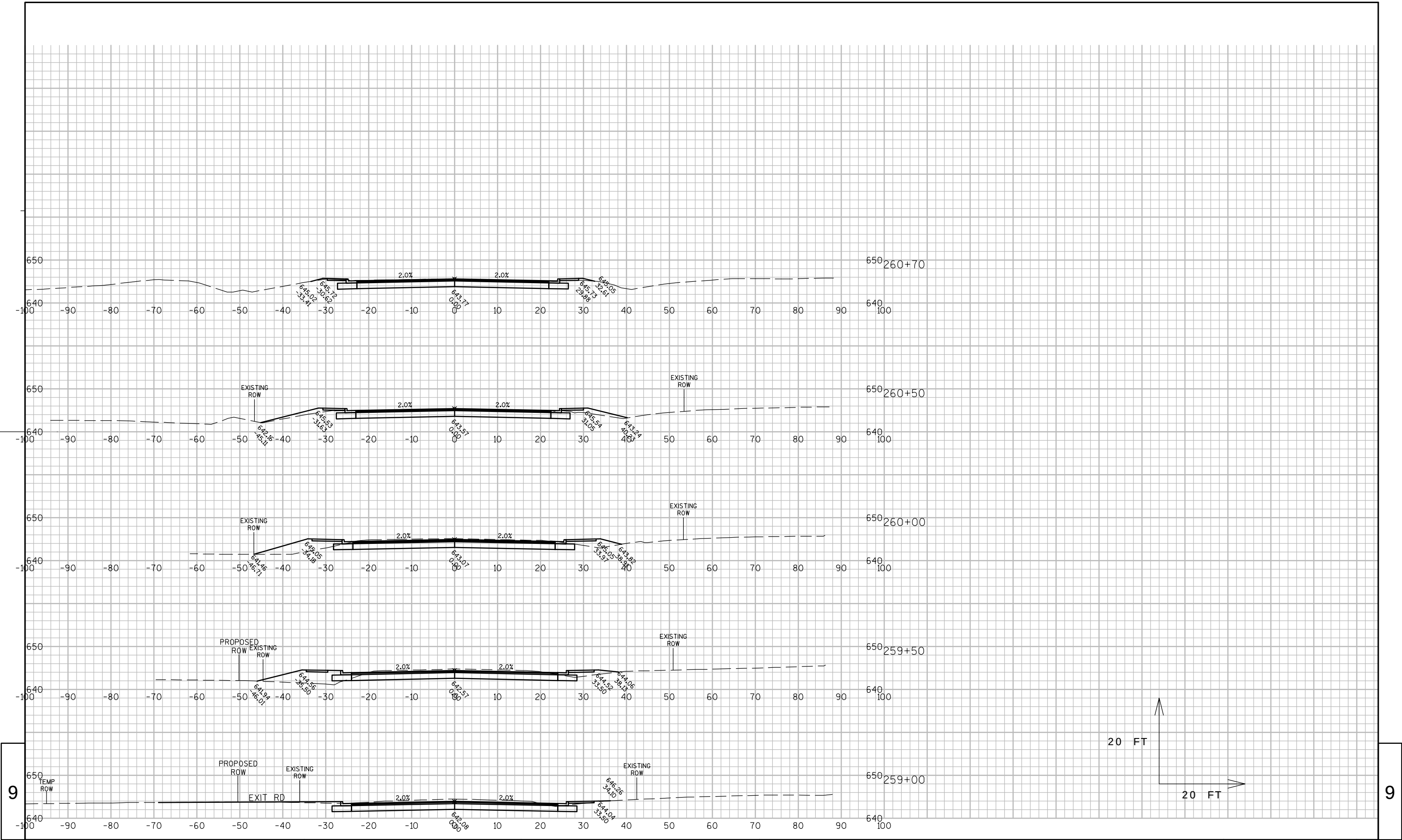


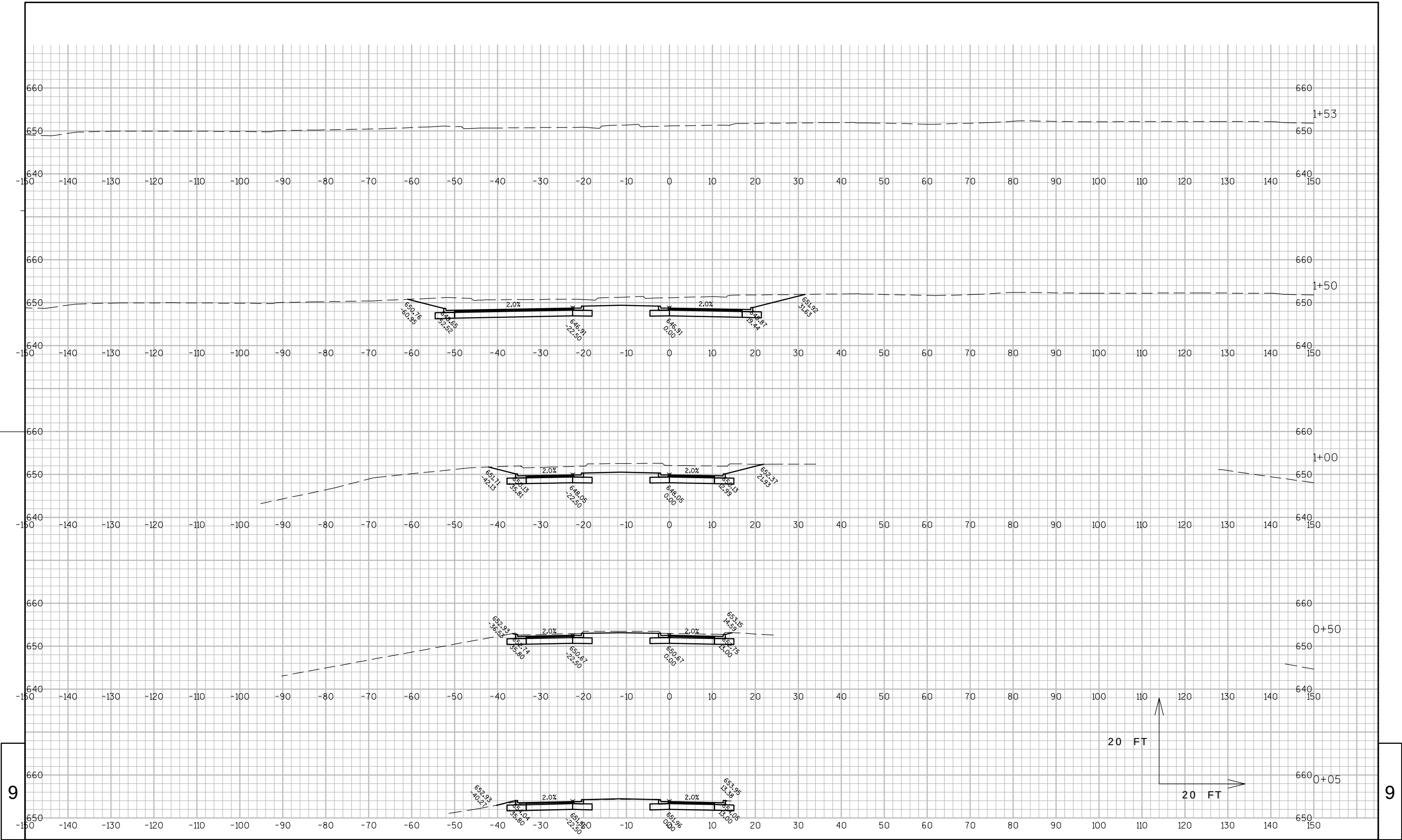


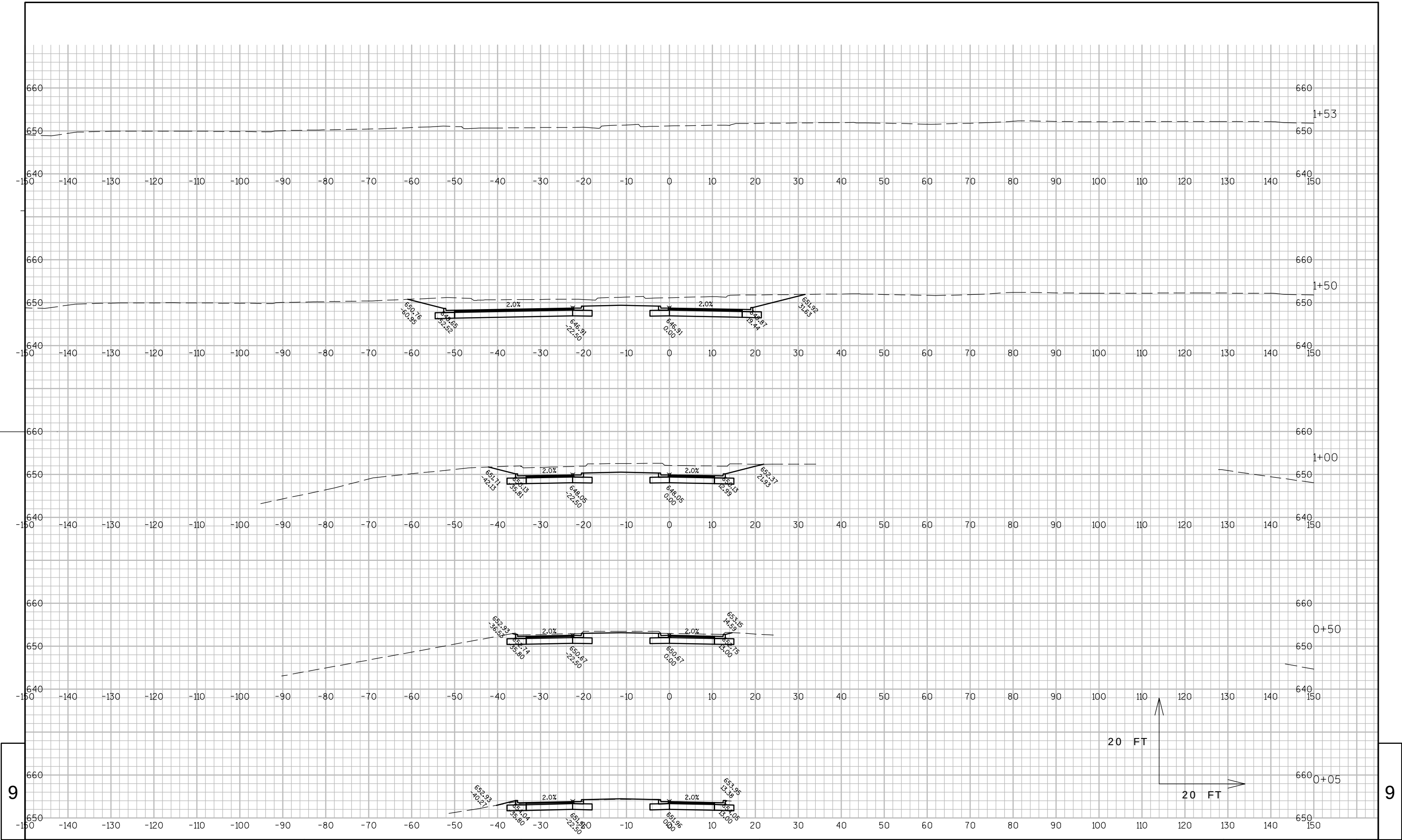


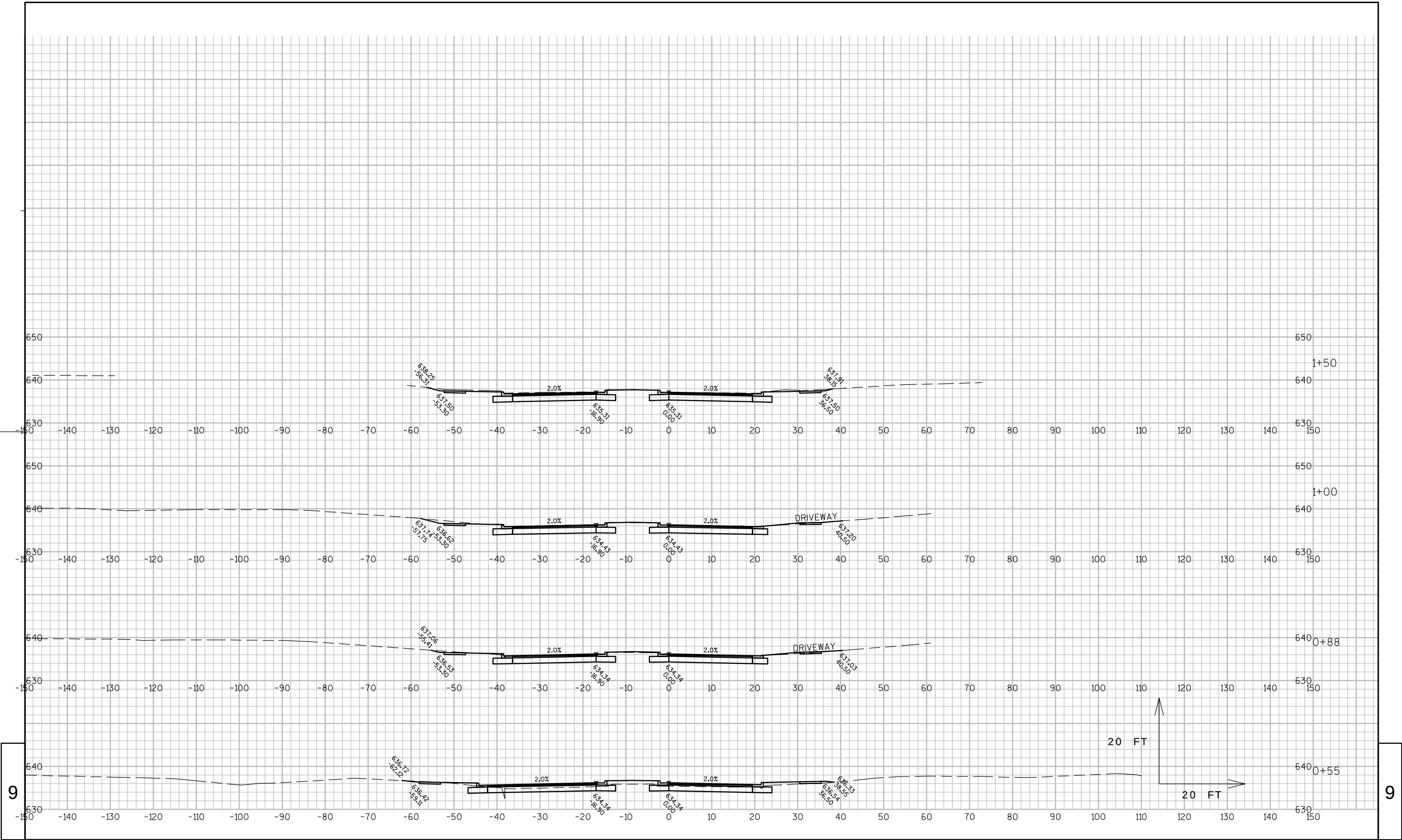












PROJECT NO: 4996-01-22

HWY: CTH OK

COUNTY: SHEBOYGAN

CROSS SECTIONS: CTH OK - CAMELOT BLVD

SHEET

142

E

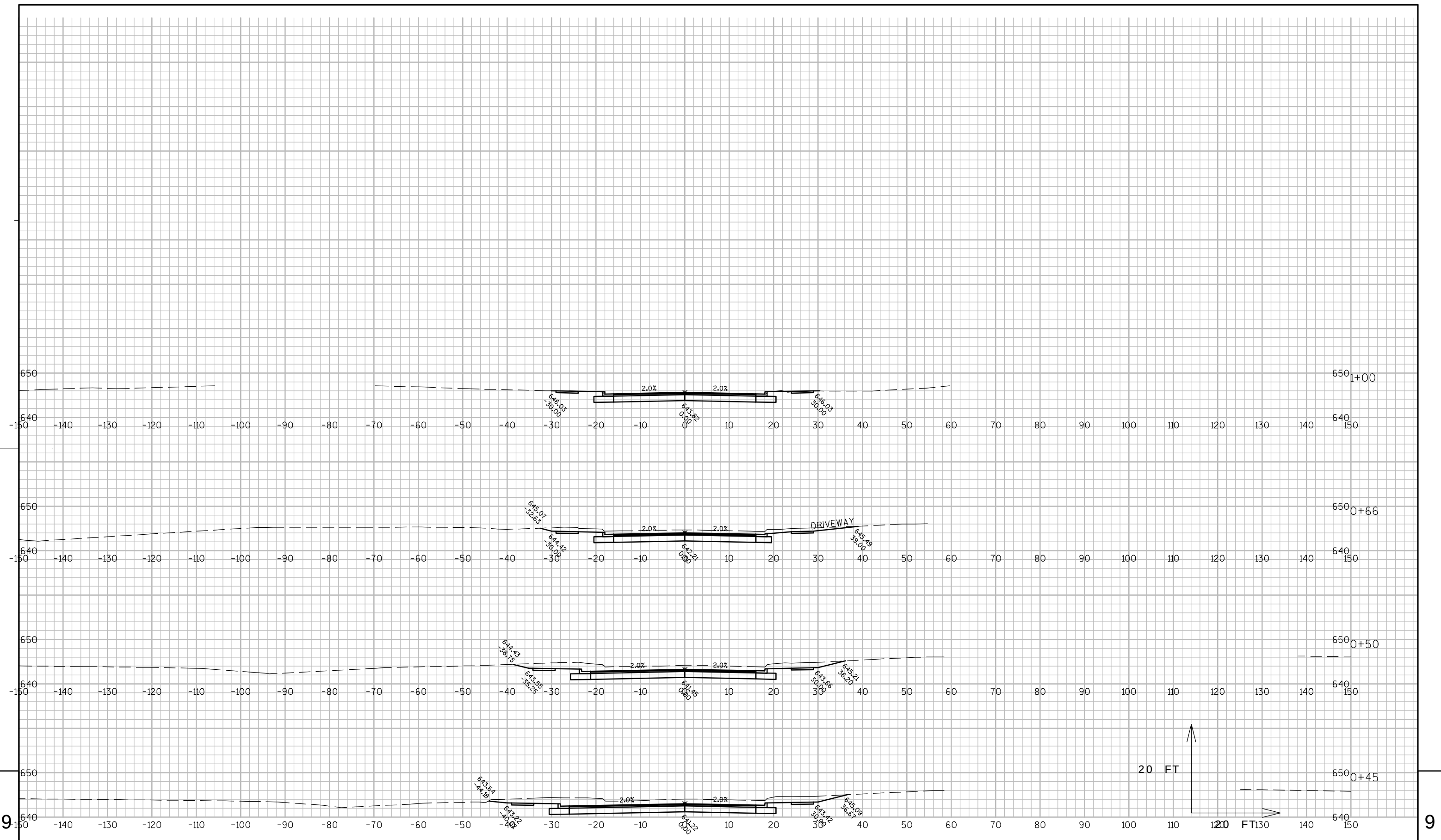
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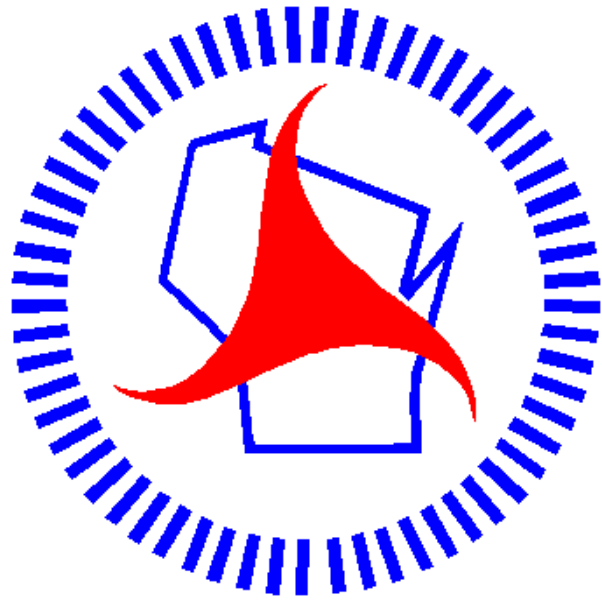
PLOT DATE : 2/7/2013 11:08 AM

PLOT BY : BAINTE, JOHN

PLOT NAME : PLOT SCALE : 1:20_XREF

WISDOT/CADD SHEET 49





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