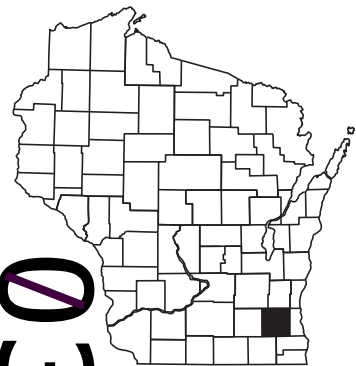


ORDER OF SHEETS		
Section No. 1	Title	
Section No. 2	Typical Sections and Details	
Section No. 3	Estimate of Quantities	
Section No. 3	Miscellaneous Quantities	
Section No. 4	Right of Way Plat	
Section No. 5	Plan and Profile	
Section No. 6	Standard Detail Drawings	
Section No. 7	Sign Plates	
Section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

TOTAL SHEETS = 148



DESIGN DESIGNATION

A.A.D.T.	=	N/A
A.A.D.T.	=	N/A
D.H.V.	=	N/A
D.D.	=	N/A
T.	=	N/A
DESIGN SPEED	=	N/A
ESALS	=	N/A

CONVENTIONAL SYMBOLS

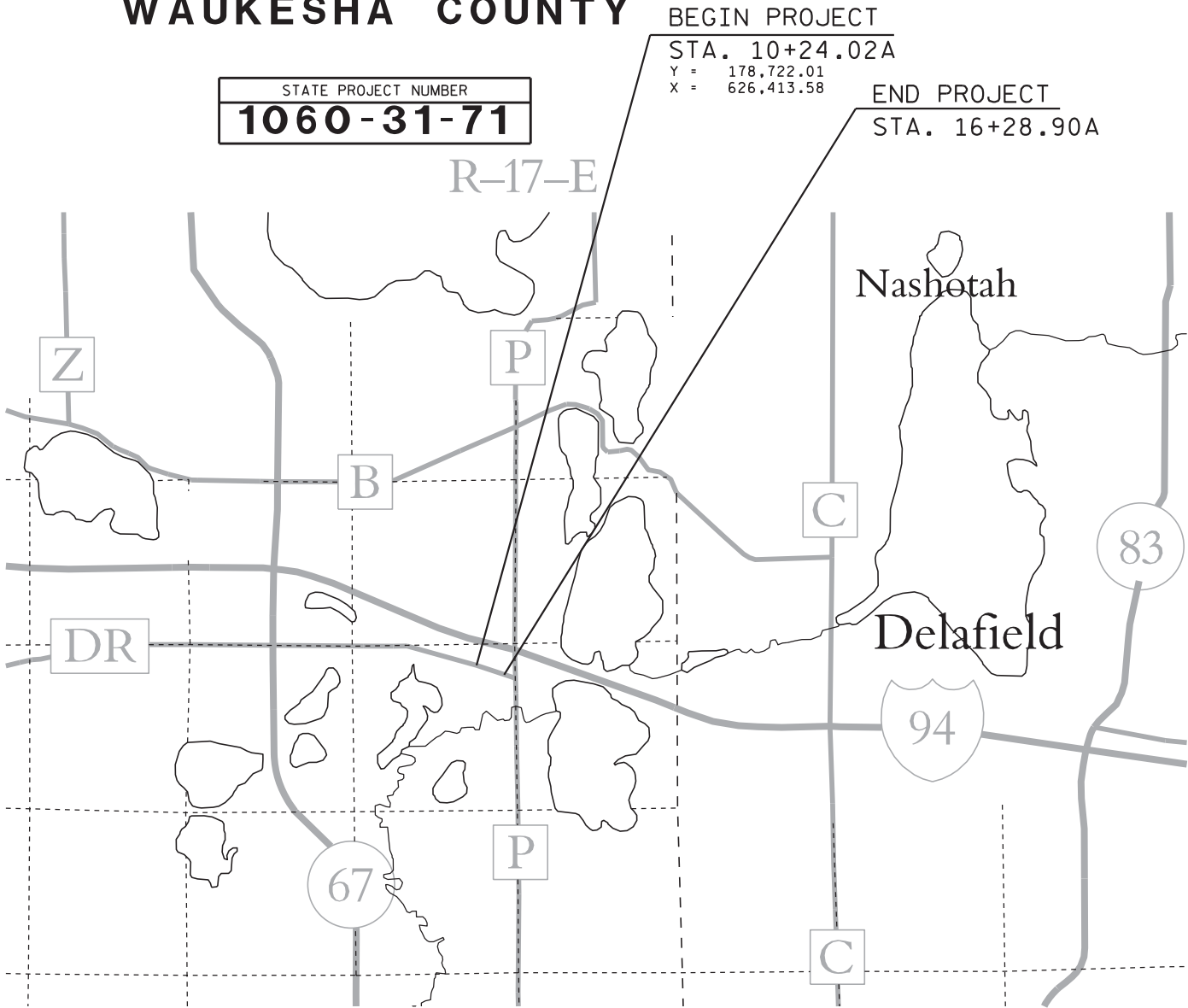
PLAN	
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

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	

	ROCK
	LABEL
	95.36
	E
	FO
	G
	SAN
	SS
	T
	W

T-7-N

R-17-E



LAYOUT  
SCALE 0 0.5 MI.  
TOTAL NET LENGTH OF CENTERLINE = 0.00 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), WAUKESHA COUNTY, HORIZONTAL DATUM NAD83 (91)  
ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO NGVD29

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1060-31-71		

ORIGINAL PLANS PREPARED BY

**KL Engineering**  
*[A] Better Experience*

WISCONSIN  
★ PROFESSIONAL ENGINEER ★

BRIAN W. VEIT  
41689-006  
MADISON, WI

(Signature)

DATE: 2/1/2012

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	KL ENGINEERING, INC.
Designer	KL ENGINEERING, INC.
Project Manager	DOUGLAS CAIN
Regional Examiner	
Regional Supervisor	BENEDICT ERUCHALU
C.O. Examiner	

APPROVED FOR THE DEPARTMENT

DATE: 07/17/16   
(Signature)

E

ABBREVIATIONS

AC	ALTERNATING CURRENT
ASPH	ASPHALT PAVEMENT
BAD	BASE AGGREGATE DENSE
BL	BASELINE
BLDG	BUILDING
BOC	BACK OF CURB
B&B	BALLED AND BURLAPPED
CAL	CALIPER
CONC	CONCRETE
COR	CORNER
CP	CULVERT PIPE
CPRC	CULVERT PIPE REINFORCED CONCRETE
CMCP	CORRUGATED METAL CULVERT PIPE
C.E.	COMMERCIAL ENTRANCE
CSW	CONCRETE SIDEWALK
CTR	CENTER
Cu	COPPER
DC	DIRECT CURRENT
DHV	DESIGN HOURLY VOLUME
V	DESIGN SPEED
DIA	DIAMETER
DIM	DIMENSION
E	EAST
ECIP	EROSION CONTROL IMPLEMENTATION PLAN
EL OR ELEV	ELEVATION
ESAL	EQUIVALENT SINGLE AXLE LOAD
EOP	EDGE OF PAVEMENT
EW	EDGE OF WATER
FT	FOOT
FE	FIELD ENTRANCE
FL	FLOW LINE
FO	FIBER OPTIC
FOC	FACE OF CURB
G	GARAGE
H	HIGH POINT
HP	HOUSE
HMA	HOT MIX ASPHALT
I.E.	INVERT ELEVATION
D	LANE DISTRIBUTION
L	LENGTH (OF CURVE)
LBS	POUNDS
LHF	LEFT HAND FORWARD
LC	LONG CHORD
LP	LOW POINT
LT	LEFT
MAR	WETLAND BOUNDARY
MAX	MAXIMUM
MIN	MINIMUM
NOR	NORMAL
N	NORTH
NB	NORTHBOUND
NC	NORMAL CROWN
N.E.C.	NATIONAL ELECTRIC CODE
OH	OVERHEAD ELECTRIC
T	PERCENT OF TRUCKS
P.E.	PRIVATE ENTRANCE
PL	PROPERTY LINE
PVC	PVC PIPE
RAD	RADIUS
RC	REVERSE CROWN
REQ'D	REQUIRED
RHF	RIGHT HAND FORWARD
RD	ROAD
RL	REFERENCE LINE
RT	RIGHT
S	SHED
SB	SOUTHBOUND
SD	SPECIAL DITCH
SDD	STANDARD DETAIL DRAWING
SE	SUPERELEVATION
SHLD	SHOULDER
SS	STORM SEWER
SSPRC	STORM SEWER PIPE REINFORCED

ORDER OF SECTION 2 SHEETS

PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
PLAN DETAILS
CROSS SECTION MATCHLINES
EROSION CONTROL
STORM SEWER
PERMANENT SIGNING
MARKING AND FENCING
STREET LIGHTING
TRAFFIC CONTROL
ALIGNMENT & CONTROL POINT

DESIGN CONTACT

GERRY SCHMITT, P.E.  
KL ENGINEERING, INC.  
5950 SEMINOLE CENTRE COURT  
SUITE 200  
MADISON, WI 53711  
(608) 663-1218

DNR LIAISON

CRAIG WEBSTER  
DEPARTMENT OF NATURAL RESOURCES  
141NW BARSTOW ST, RM 180  
WAUKESHA, WI 53187  
(262) 574-2141  
CRAIG.WEBSTER@WISCONSIN.GOV

ABBREVIATIONS CONT'D.

TEL	TELEPHONE
T.L.E.	TEMPORARY LIMITED EASEMENT
TYP	TYPICAL
ULO	UTILITY LINE OPENING
VAR	VARIES
VOL	VOLUME
W	WEST

GENERAL NOTES

ALL HIGHWAY CURVES ARE BASED ON THE ARC DEFINITION.

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

THE LOCATION OF EXISTING OR PROPOSED UTILITIES AS NOTED ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS AND SERVICES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY ARE TO BE RESTORED AS DIRECTED BY THE ENGINEER AND AS SHOWN ON THE PLANS.

TOPSOIL GRADED AREAS IMMEDIATELY AFTER GRADING HAS BEEN COMPLETED AND PERFORM FINAL LANDSCAPING OF ALL TOPSOILED AREAS WITHIN 3 CALENDER DAY AFTER PLACEMENT OF TOPSOIL.

3.5" TOTAL DEPTH	ASPHALT BID/MIX
1¾" LOWER	4 LT 58-28 S
1¾" UPPER	4 LT 58-28 S

SEE TYPICAL SECTIONS, PARK AND RIDE LOT FOR ADDITIONAL DETAIL.

DOT CONTACT

DOUGLAS CAIN, P.E.  
DEPARTMENT OF TRANSPORTATION.  
141NW BARSTOW ST  
WAUKESHA, WI 53718  
(262) 548-5603

DOT ELECTRICAL CONTACT

ERIC PEREA  
DEPARTMENT OF TRANSPORTATION.  
141NW BARSTOW ST  
WAUKESHA, WI 53718  
(262) 574-5422

WAUKESHA COUNTY CONTACT

ALLISON BUSSLER  
DIRECTOR OF PUBLIC WORKS.  
515 W. MORELAND BLVD.  
WAUKESHA, WI 53188  
(262) 548-7740

VILLAGE CONTACT

HENRY ELLING  
VILLAGE OF SUMMIT  
2911 N DOUSMAN ROAD  
OCONOMOWOC, WI 53066  
(262) 567-2757

CONTRACTOR IS RESPONSIBLE FOR RESHAPING AND FINISHING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTRUBED BY THEIR OPERATION OUTSIDE THE NORMAL CONSTRUCTION LIMITS.

LOCATIONS SHOWN ON THE STORM SEWER SHEETS FOR CATCH BASINS AND MANHOLES ARE BY STATION AND OFFSET TO THE CENTER OF THE STRUCTURE.

STORM SEWER PIPE ELEVATIONS, LENGTHS, AND LOCATIONS AS SHOWN ON THE PLANS, MAY BE ADJUSTED TO FIT EXISTING FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

SEE EXCAVATION SUMMARY FOR EARTHWORK ADJUSTMENT FACTORS.

THE LIMITS OF PAVEMENT REMOVAL ON SIDE ROADS IS APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.

INLET PROTECTION TYPE A (OR B) & C IS REQUIRED AT ALL INLETS DURING CONSTRUCTION. SEE CONSTRUCTION DETAILS & STANDARD DETAIL DRAWINGS.

EXPANSION JOINTS ARE TO BE CONSTRUCTED AT ALL RADIUS POINTS IN CURB AND GUTTER OR AT LOCATIONS SHOWN ON THE PLAN.

WHEN THE QUANTITY OF THE ITEMS OF HMA PAVEMENT AND BASE AGGREGATE DENSE ARE MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE COURSE IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON DISTRIBUTION OF MATERIAL AS DIRECTED BY THE ENGINEER.

MISCELLANEOUS REMOVAL ITEMS SHALL BE REMOVED TO AN EXISTING JOINT OR SAWCUT WHERE SHOWN ON THE PLANS.

THE CONTRACTOR'S PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, PASSING OR PARKING LANE. ALL LONGITUDINAL JOINTS SHALL RUN PARALLEL TO THE REFERENCE LINE.

MINIMIZE THE NUMBER OF LONGITUDINAL CONSTRUCTION JOINTS. TANDEM PAVING OR HOT JOINTS ARE THE PREFERRED METHODS.

ALL RADII DIMENSIONS WITH CURB AND GUTTER ARE MEASURED TO THE FACE OF CURB UNLESS OTHERWISE NOTED.

UTILITY REFERENCE LINES ON THE CROSS SECTIONS ARE APPROXIMATE AND FOR HORIZONTAL REFERENCE ONLY.

EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT SUGGESTED LOCATIONS. THE ENGINEER SHALL DETERMINE THE EXACT LOCATION.

ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

UTILITY CONTACTS

GAS & ELECTRIC

WE ENERGIES  
LATROY BRUMFIELD  
333 W. EVERETT ST. A299  
MILWAUKEE, WI 53203  
(414) 221-5617  
latroy.brumfield@we-energies.com

FIELD CONTACT

WE ENERGIES (ELECTRIC)  
TERRY CONNELLY  
513W3380 HWY 18  
DALAFIELD, WI 53018  
(262)-968-5771

FIELD CONTACT

WE ENERGIES (GAS)  
JOE DABLE  
500 S 116TH ST  
WEST ALLIS, WI 53214  
(414)-944-5543

COMMUNICATIONS

CENTURY LINK  
KEVIN SICKERT  
244 INDUSTRIAL DR.  
NORTH PRAIRE, WI 53153  
(262) 392-5200  
kevin.zickert@centurylink.com

COMMUNICATIONS

TIME WARNER CABLE  
STEVE CRAMER  
1320 N. MARTIN LUTHER KING JR. DR.  
MILWAUKEE, WI 53212  
(414) 277-4045  
steve.cramer@twcable.com

COMMUNICATIONS

AT&T CORP.  
WILLIAM KOEING, JMC ENGINEERS  
PO BOX 244  
LAKE MILLS, WISCONSIN 53551  
(608) 628-0575

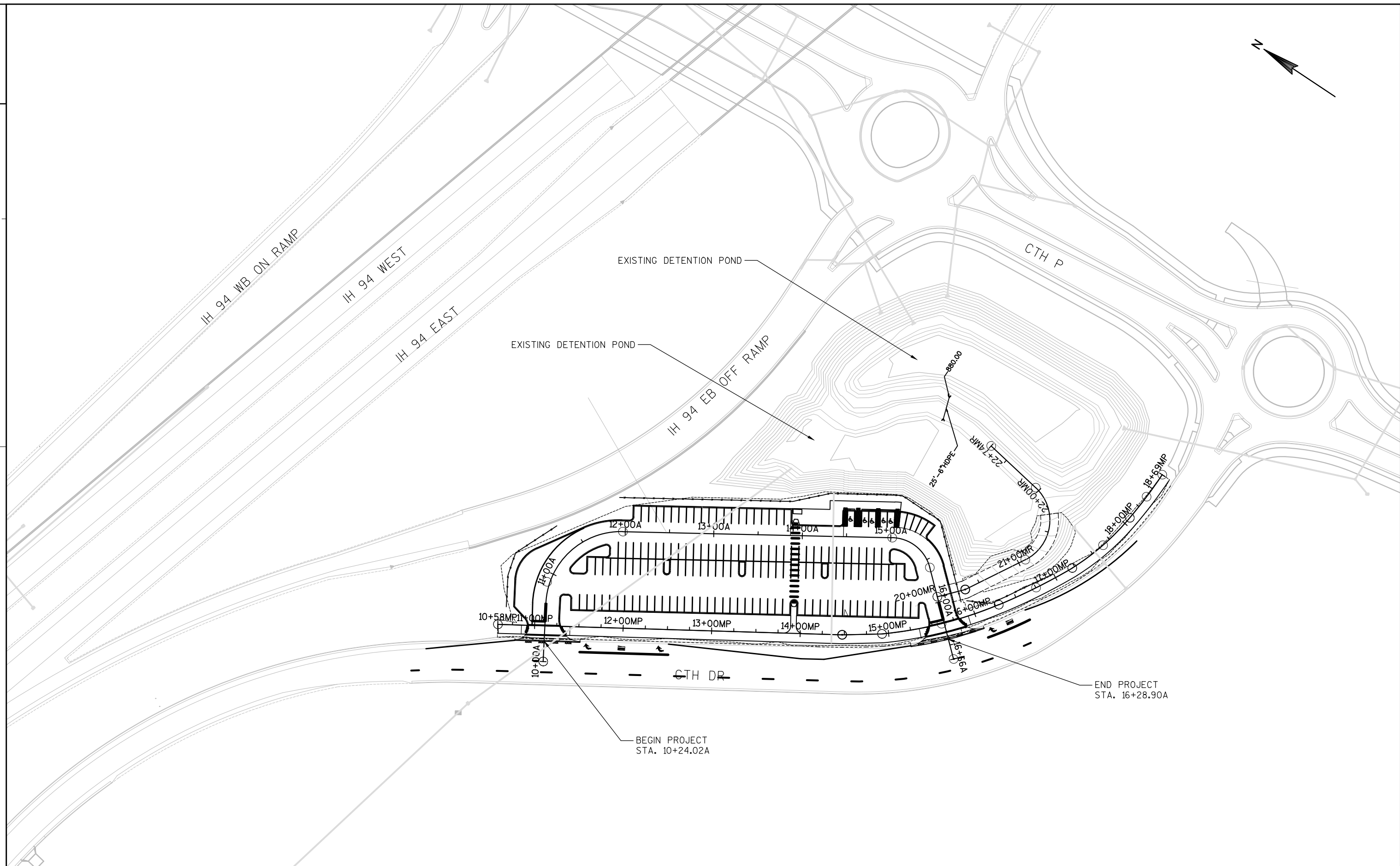
COMMUNICATIONS

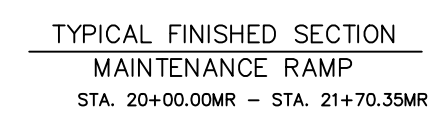
AT&T WISCONSIN  
RICK PODOLAK  
304 S DEWEY ST, 4TH FLOOR  
EAU CLAIRE, WI 54701  
(715) 839-5565  
rick.t.podolak@att.com



Dial 811 or (800) 242-8511

www.DiggersHotline.com

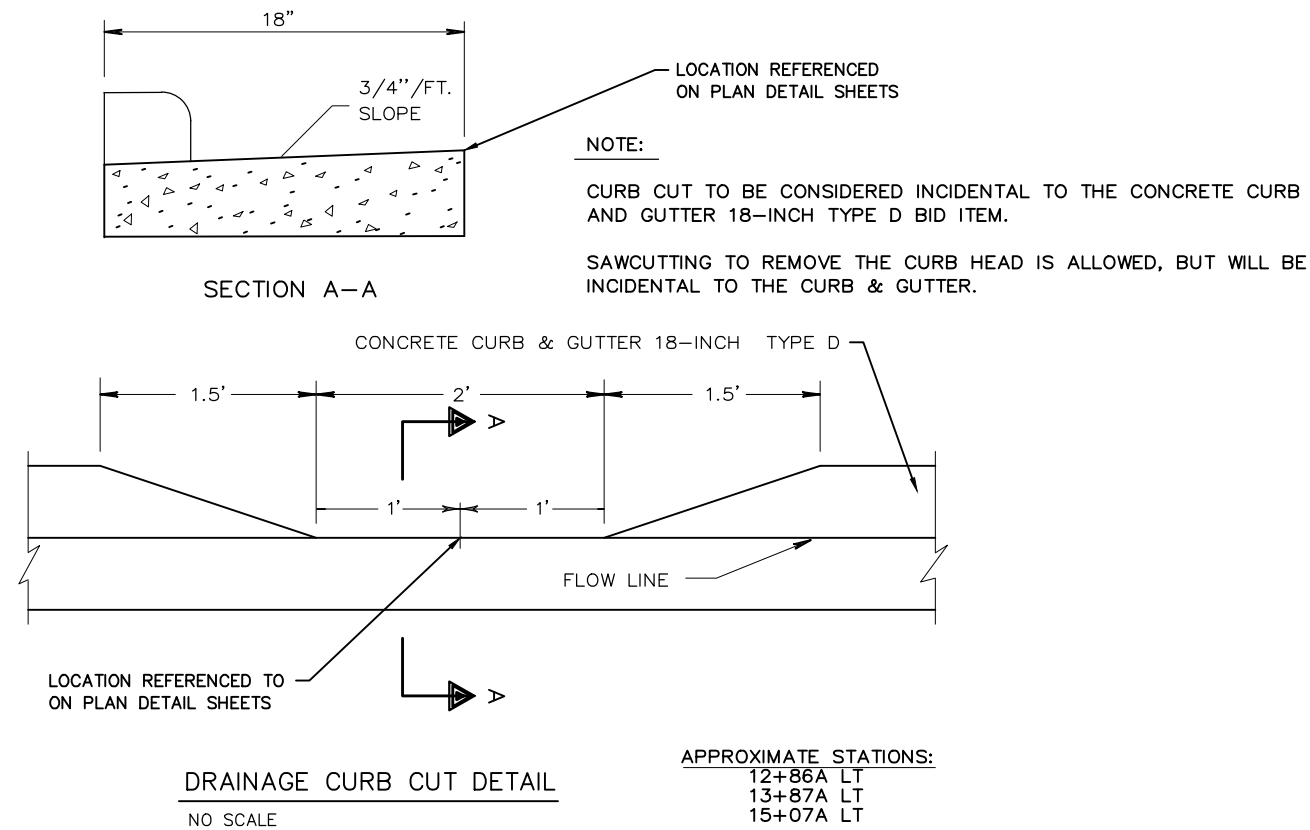






## 2



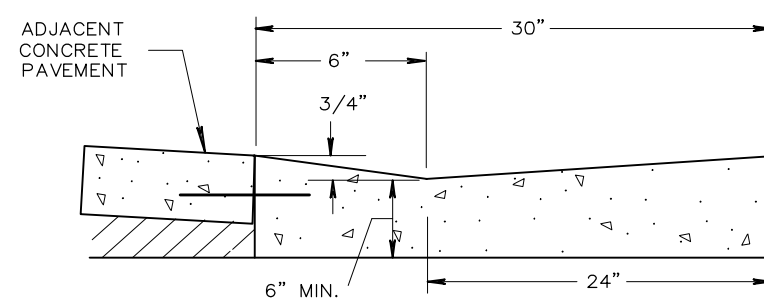


## NOTES:

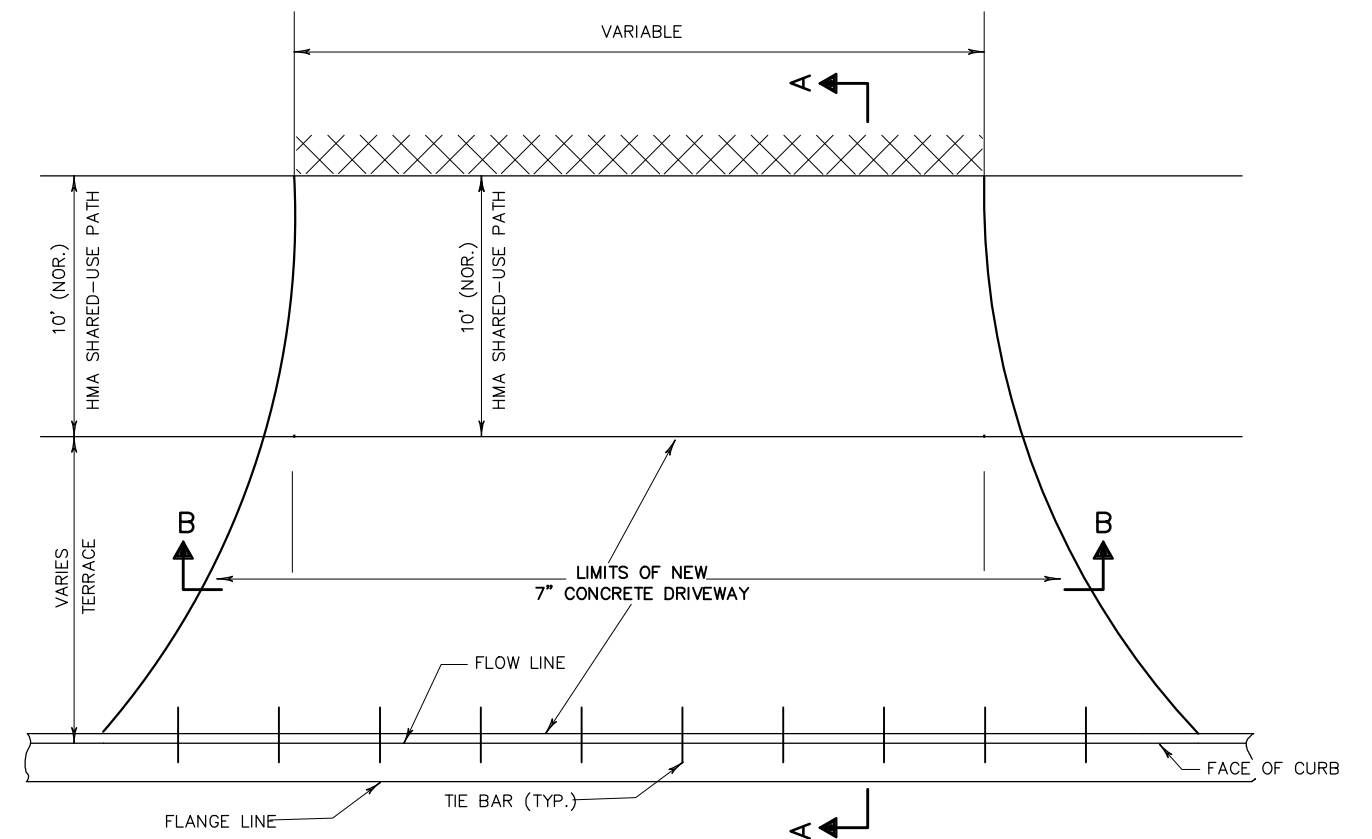
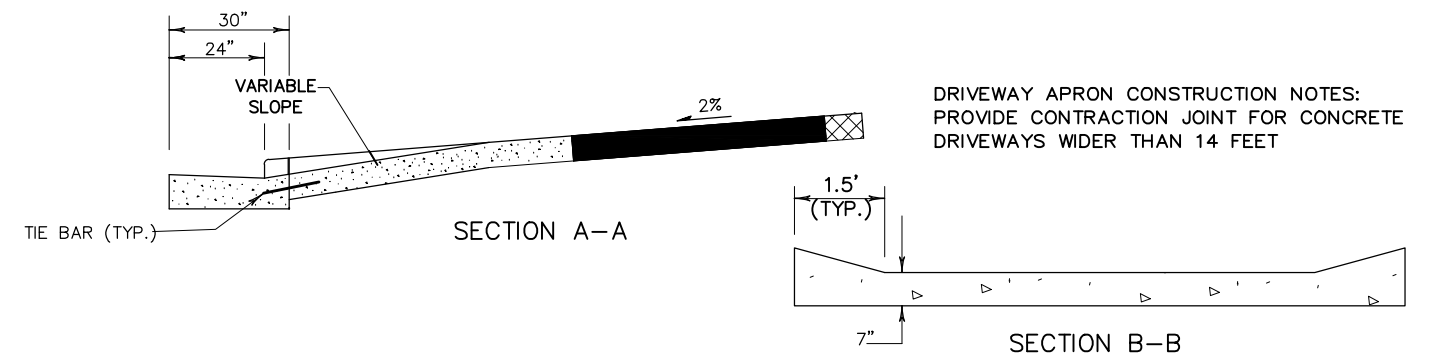
LATERAL CONTRACTION JOINTS SHALL BE PLACED AT INTERVALS OF NOT MORE THAN 15' NOR LESS THAN 6' IN LENGTH. THE JOINTS SHALL BE A MINIMUM OF 3" IN DEPTH

EXPANSION JOINTS SHALL BE PLACED TRANSVERSLY AT RADIUS POINTS ON CURVES OF RADIUS 200' OR LESS, AND AT ANGLE POINTS, OR AS DIRECTED BY THE ENGINEER. THE EXPANSION JOINT SHALL BE A ONE PIECE ASPHALTIC MATERIAL HAVING THE SAME DIMENSIONS AS CURB & GUTTER AT THAT STATION AND BE 1/2" THICK.

IN ALL CASES, CONCRETE CURB & GUTTER SHALL BE PLACED ON THOROUGHLY COMPACTED CRUSHED STONE

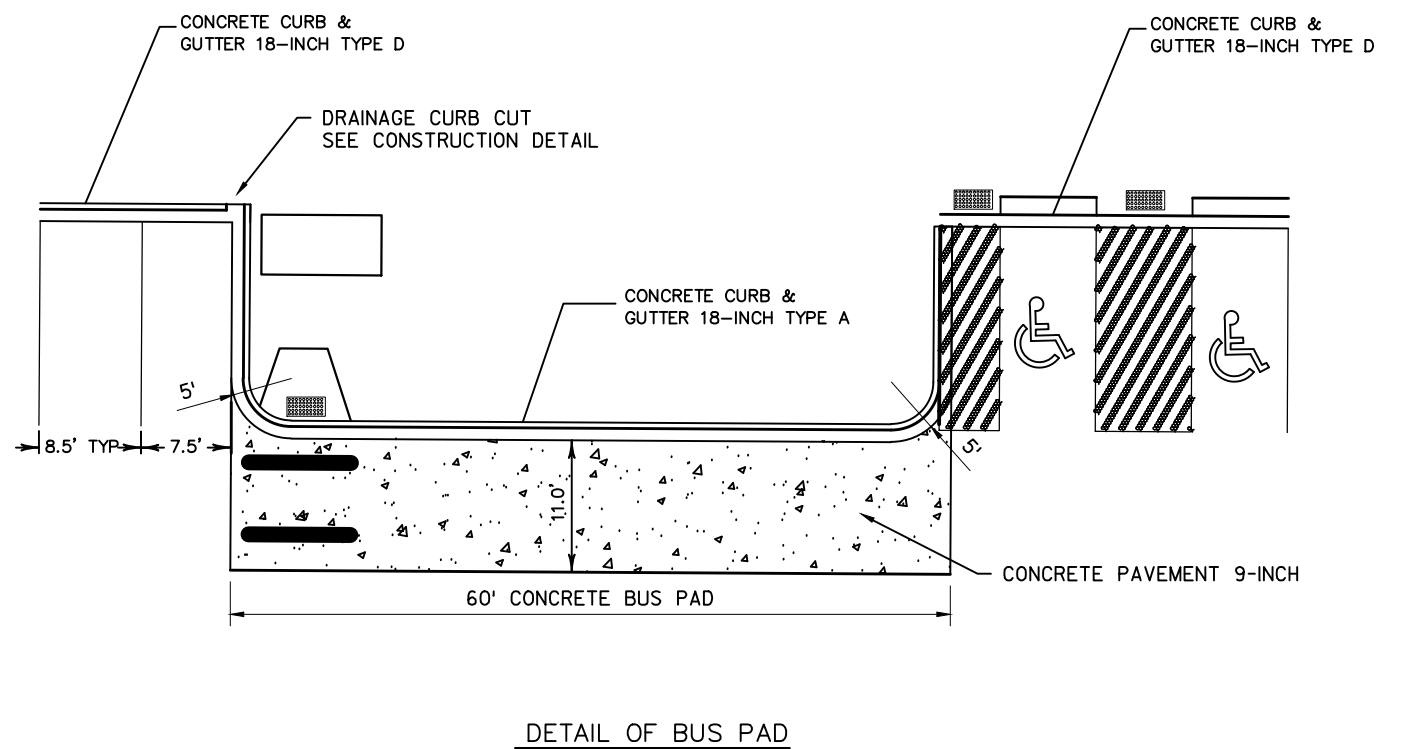
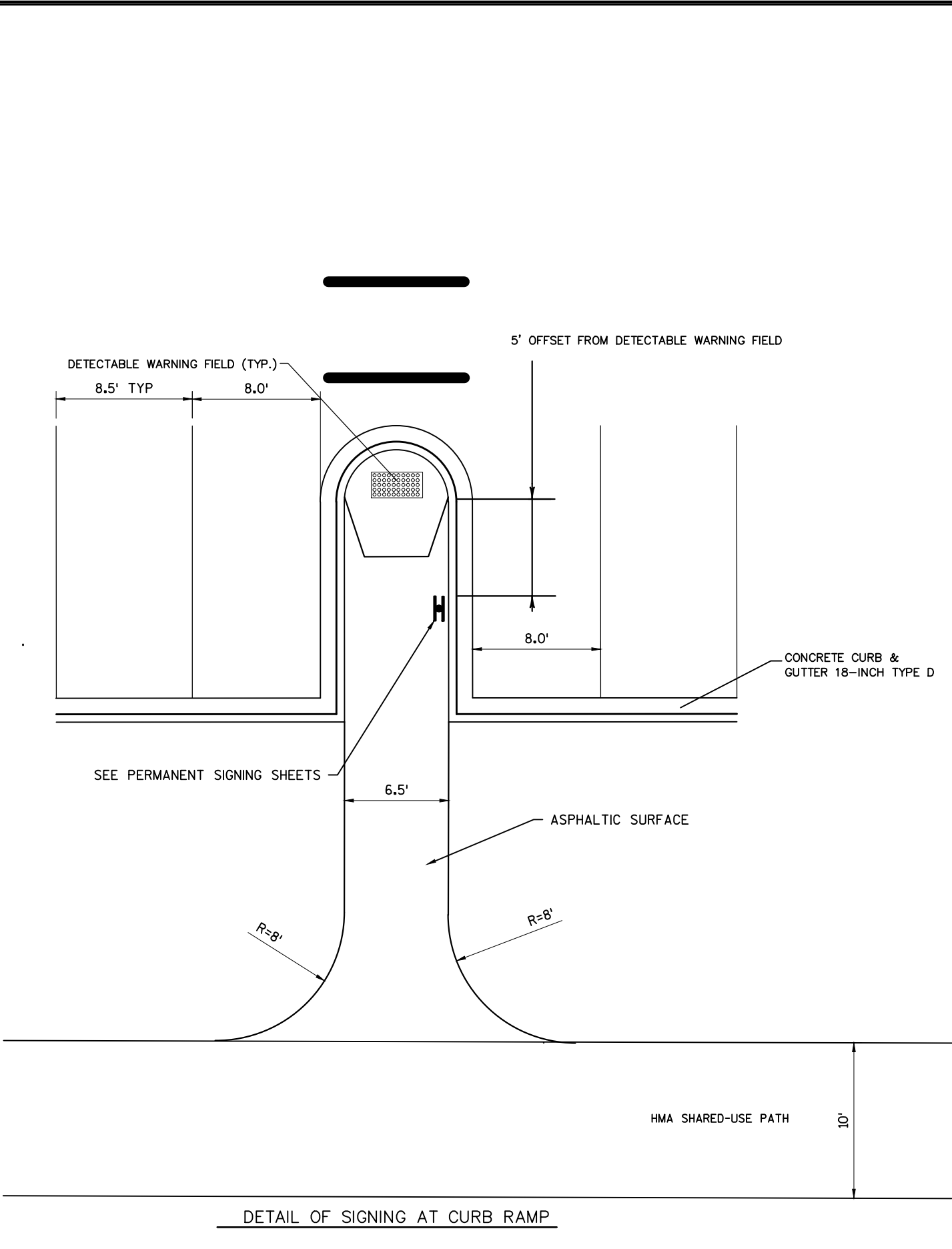


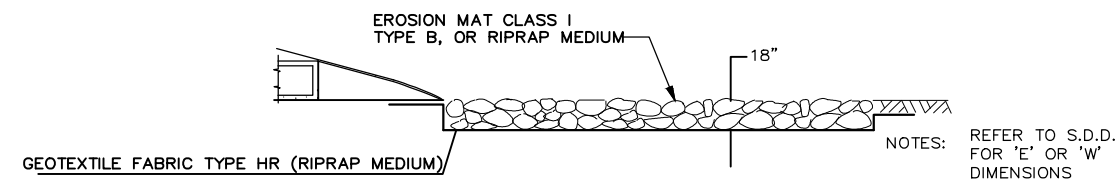
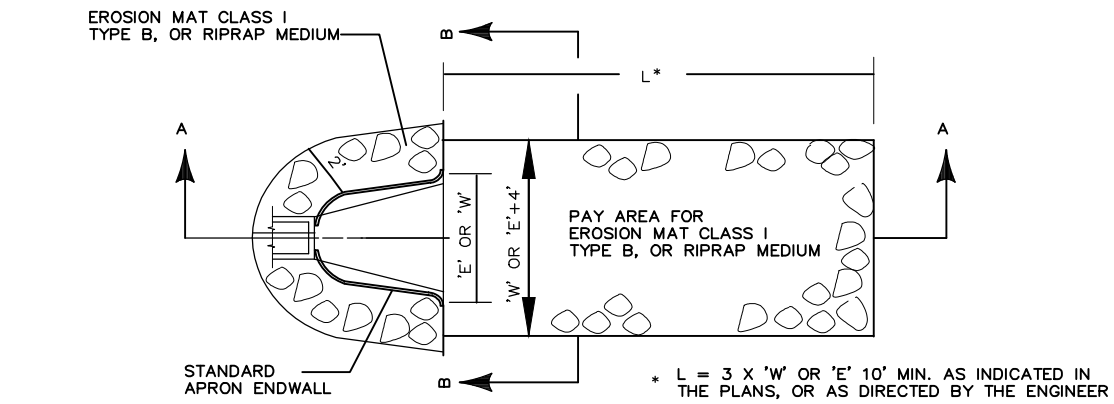
CONCRETE CURB & GUTTER 30-INCH TYPE D DETAIL  
(AT DRIVEWAY ENTRANCE)



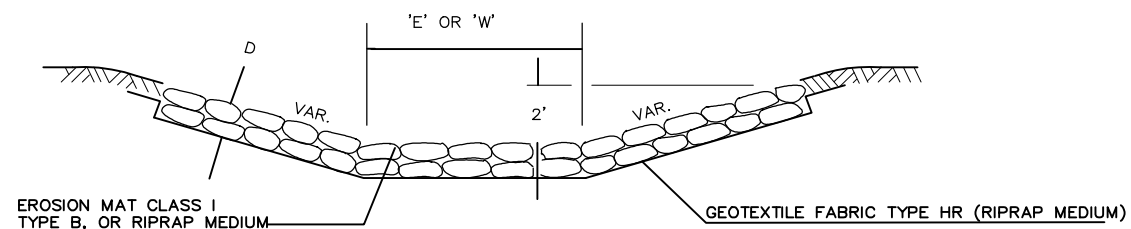
CONCRETE DRIVEWAY DETAIL  
(ADJACENT TO SHARED-USE PATH)







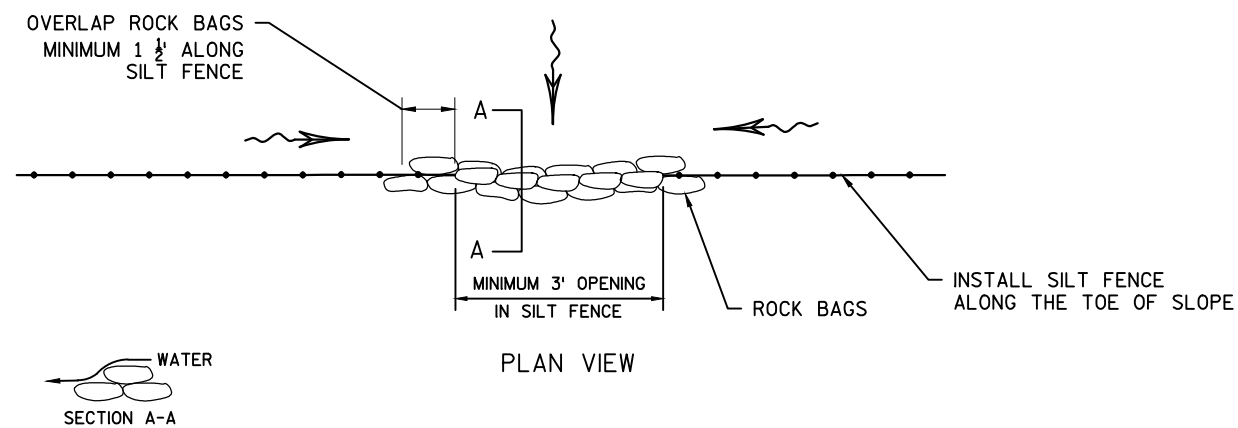
SECTION A-A



SECTION B-B

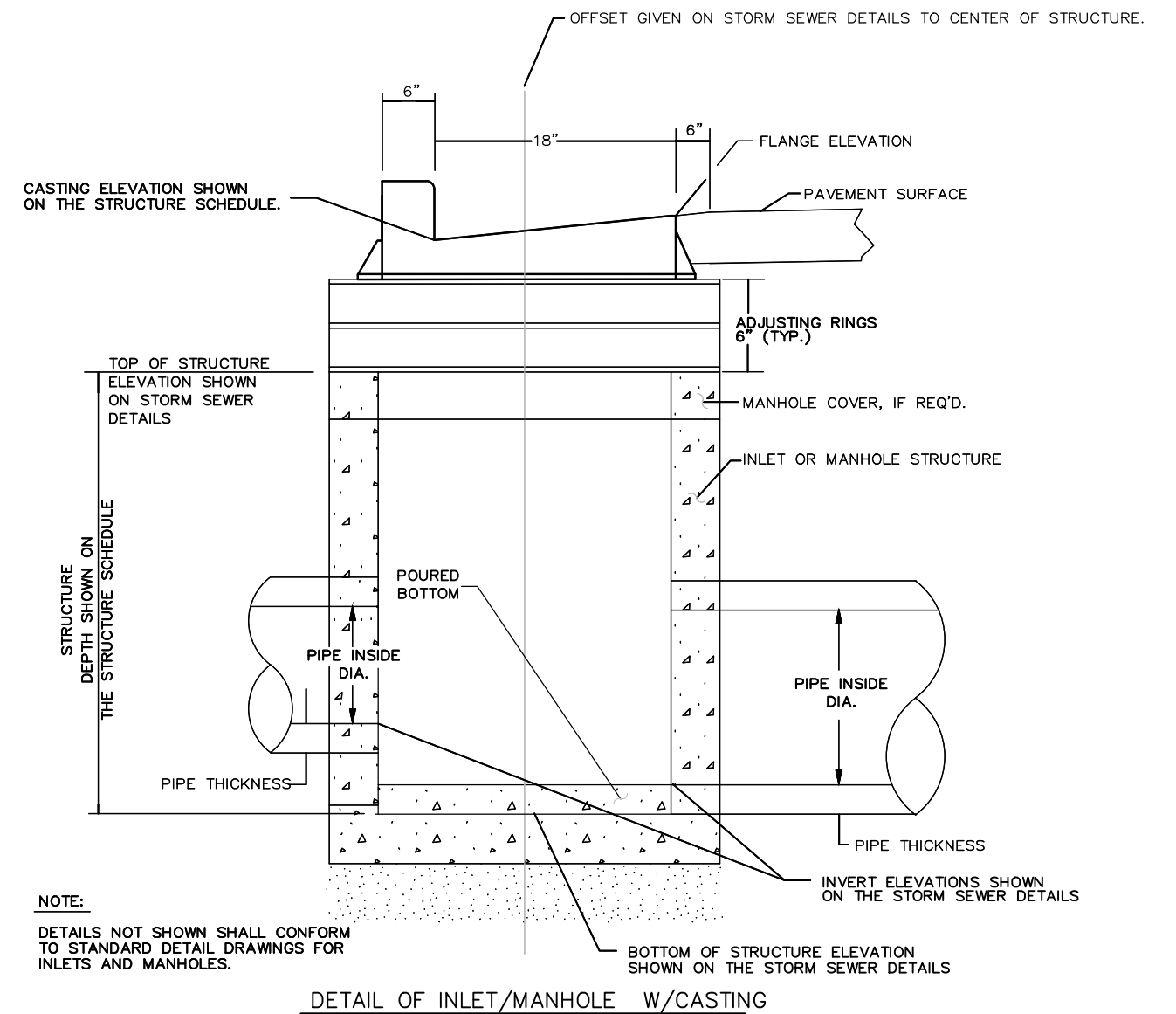
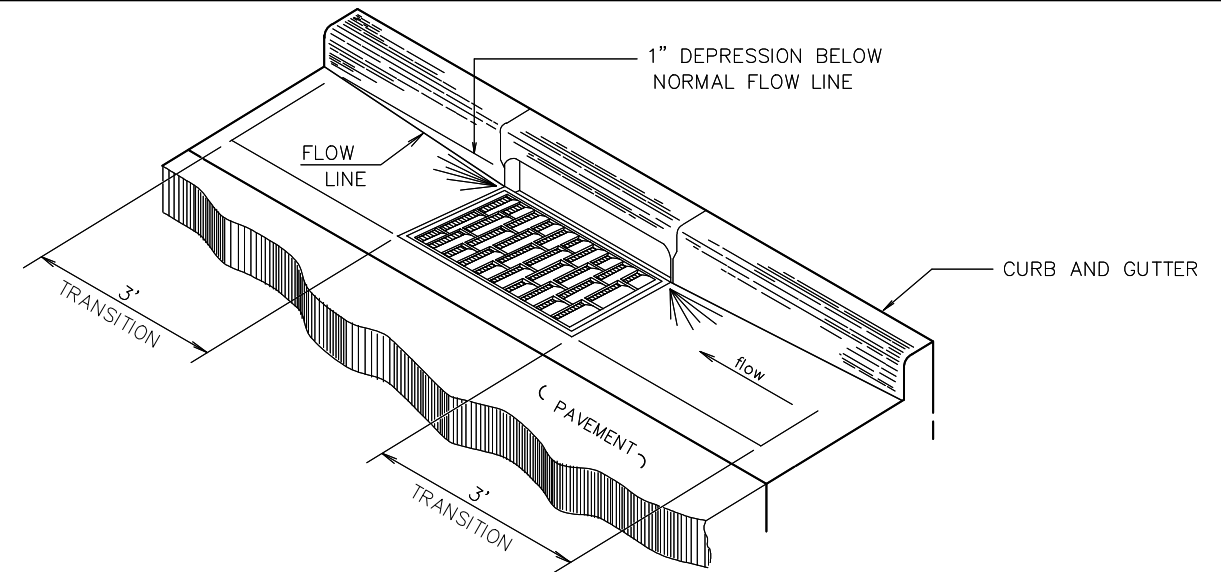
### EROSION CONTROL TREATMENT AT PIPE ENDWALLS & CURB OPENINGS

(SEE EROSION CONTROL PLAN FOR LOCATIONS)  
NO SCALE

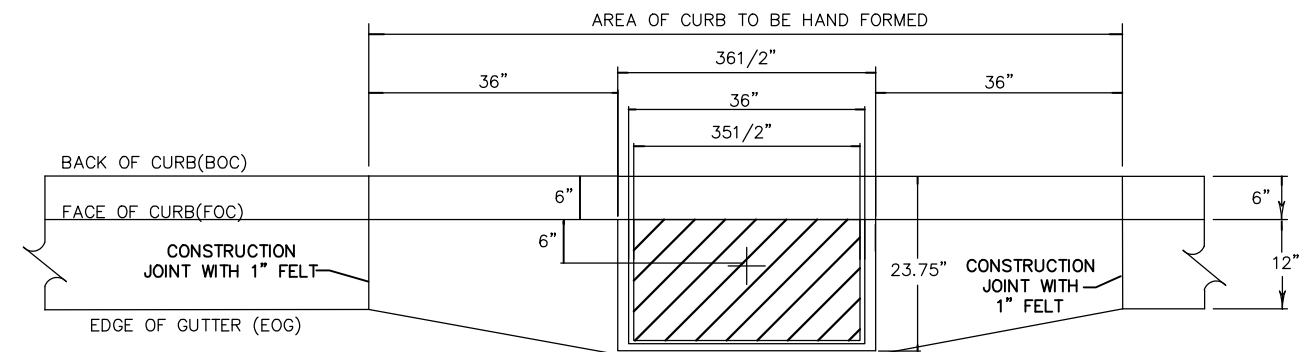


PLAN VIEW

SILT FENCE DRAINAGE OUTLET, ROCK BAGS

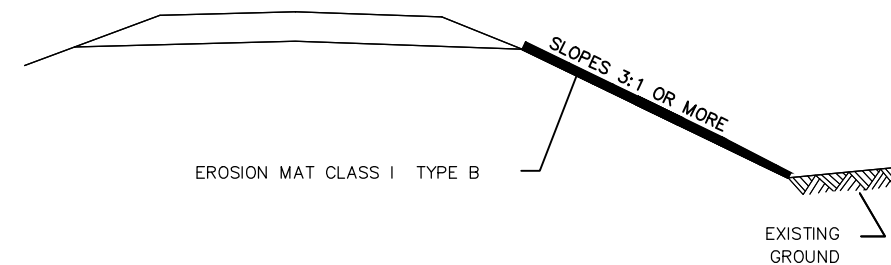






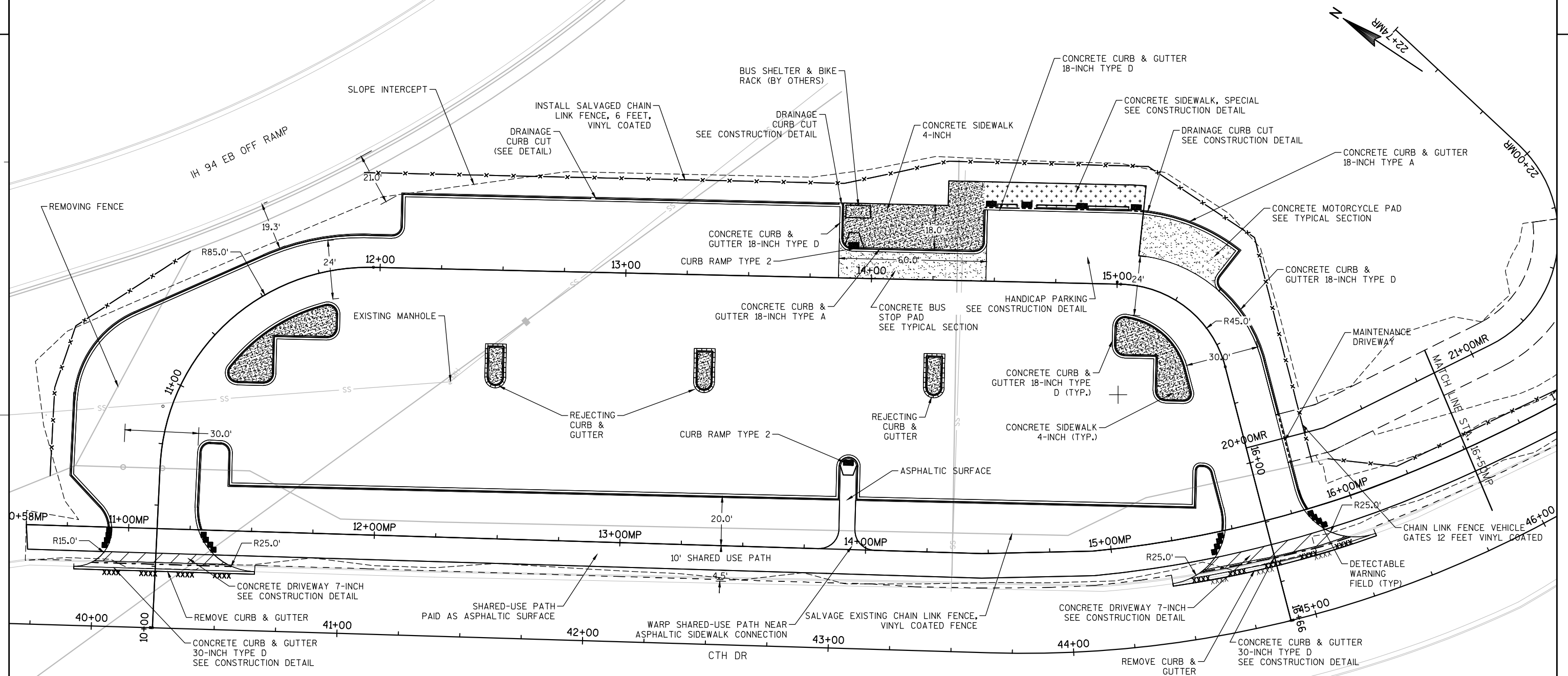
FLANGE BUMPOUT DETAIL  
(AT STORM SEWER INLET STRUCTURES)

PLAN VIEW



EROSION MAT DETAIL FOR SLOPES

(SEE EROSION CONTROL PLAN FOR LOCATIONS)  
NOT TO SCALE



## LEGEND

	CONCRETE SIDEWALK 4-INCH
	CONCRETE SIDEWALK 4-INCH, SPECIAL
	CONCRETE PAVEMENT 9-INCH
	CONCRETE DRIVEWAY 7-INCH
	REJECTING CURB & GUTTER

PROJECT NO:1060-31-71

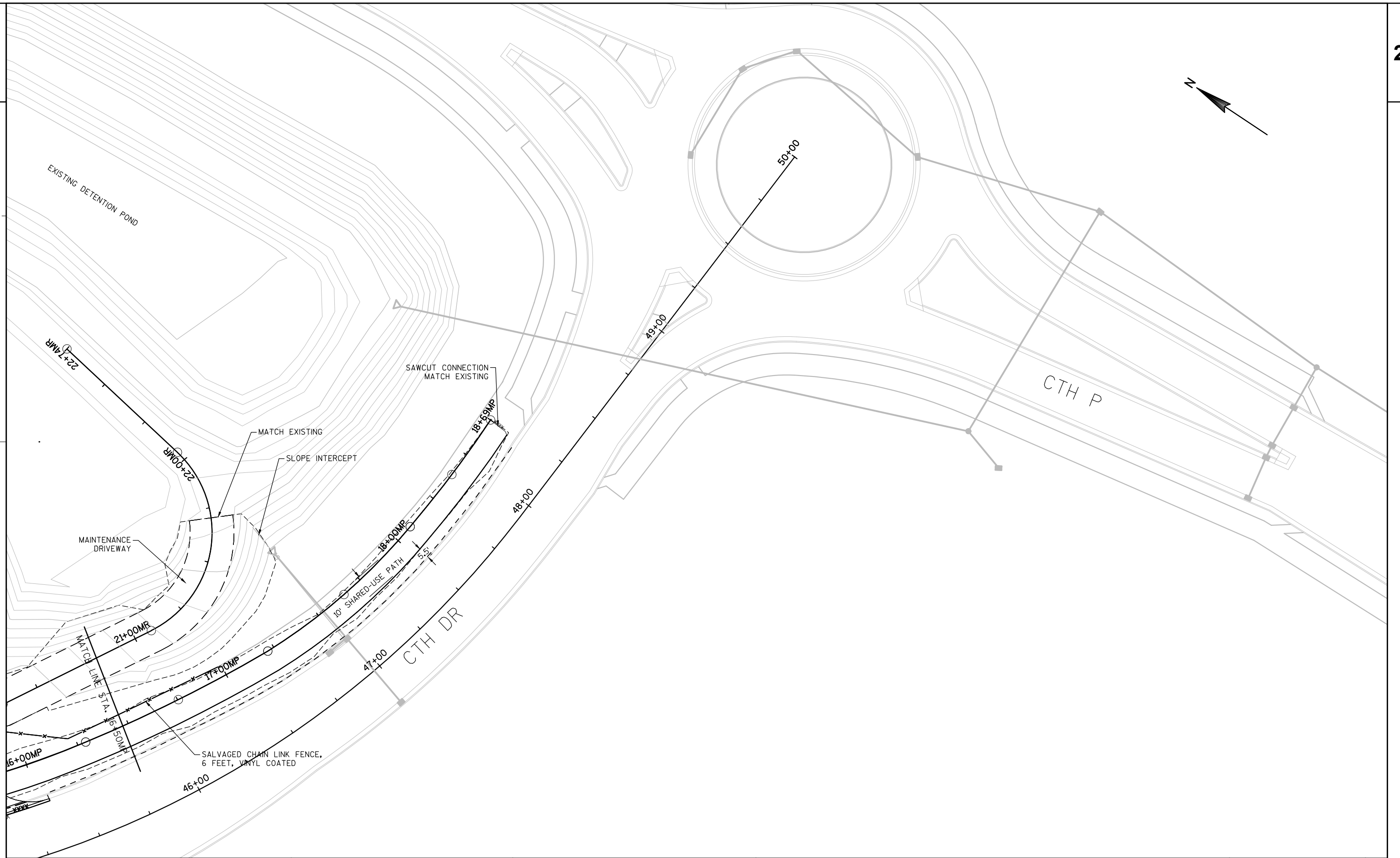
HWY: IH 94

COUNTY: WAUKESHA

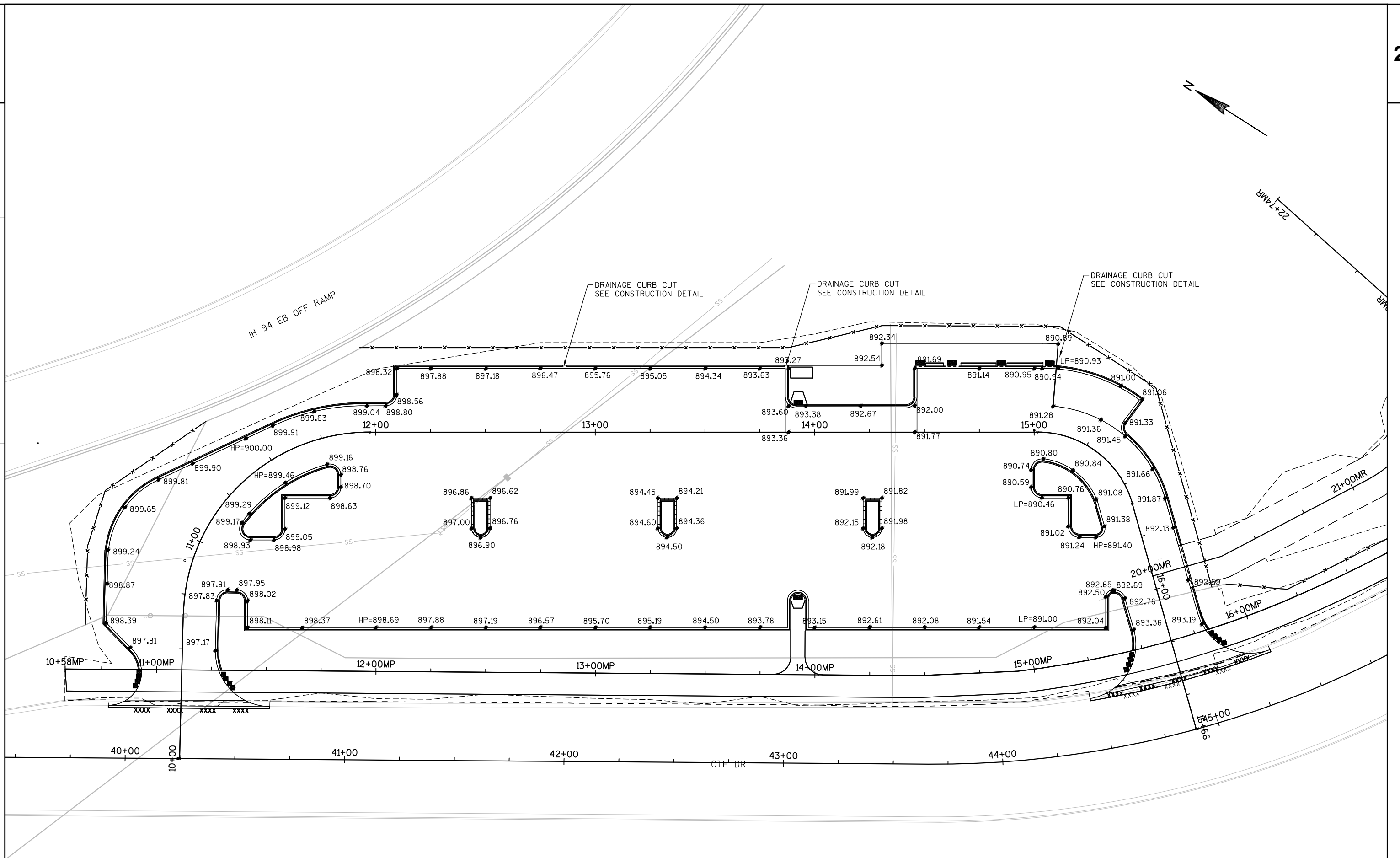
PLAN DETAIL

SHEET

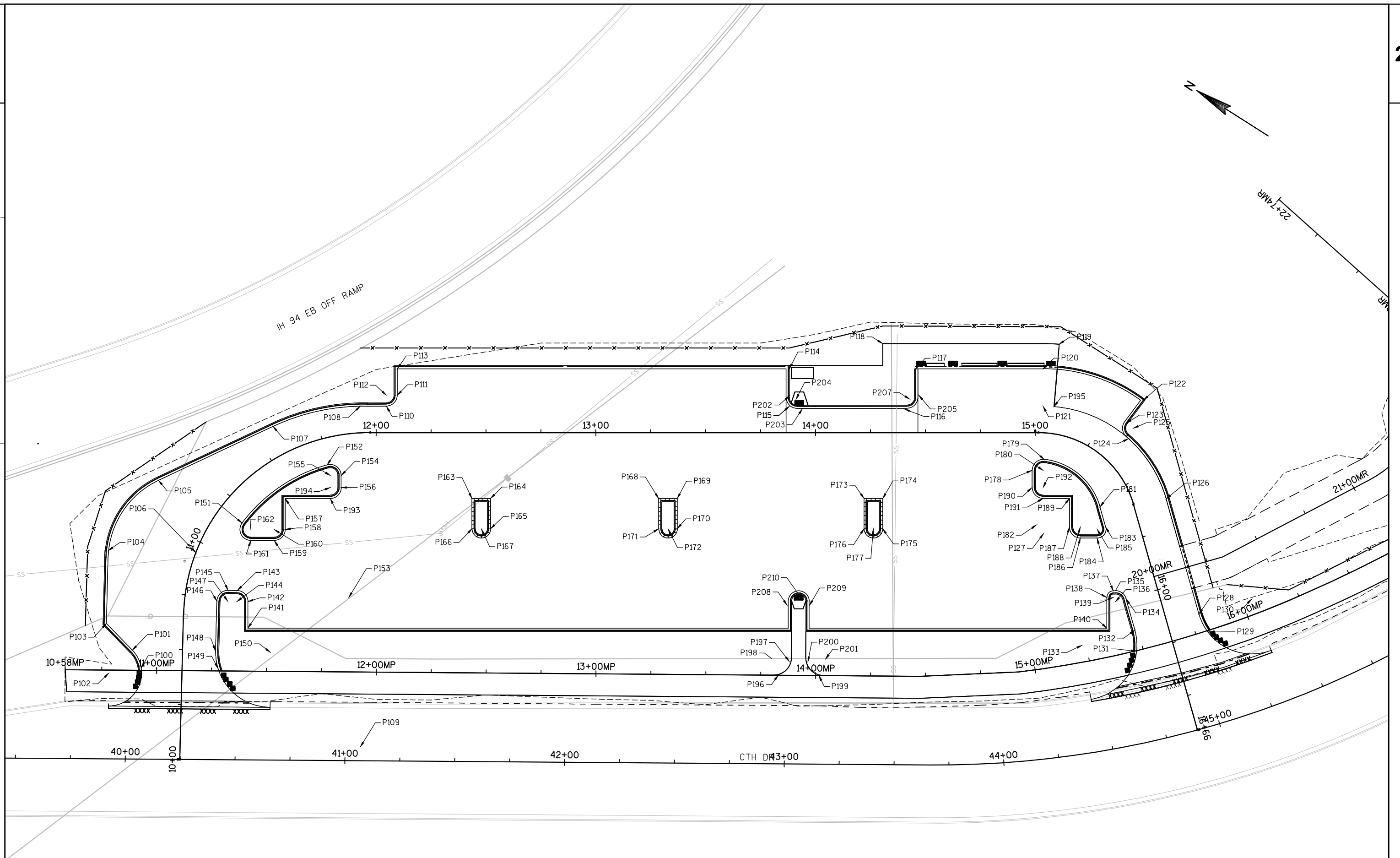
E



PROJECT NO:1060-31-71	HWY: IH 94	COUNTY: WAUKESHA	PLAN DETAIL	SHEET	E
-----------------------	------------	------------------	-------------	-------	---



PROJECT NO:1060-31-71	HWY: IH 94	COUNTY: WAUKESHA	PLAN DETAIL - CURB GRADES	SHEET	E
-----------------------	------------	------------------	---------------------------	-------	---



PROJECT NO:1060-31-71	HWY:IH 94	COUNTY:WAUKESHA	PLAN DETAIL - RADIUS/STAKING POINTS	SHEET	E
-----------------------	-----------	-----------------	-------------------------------------	-------	---



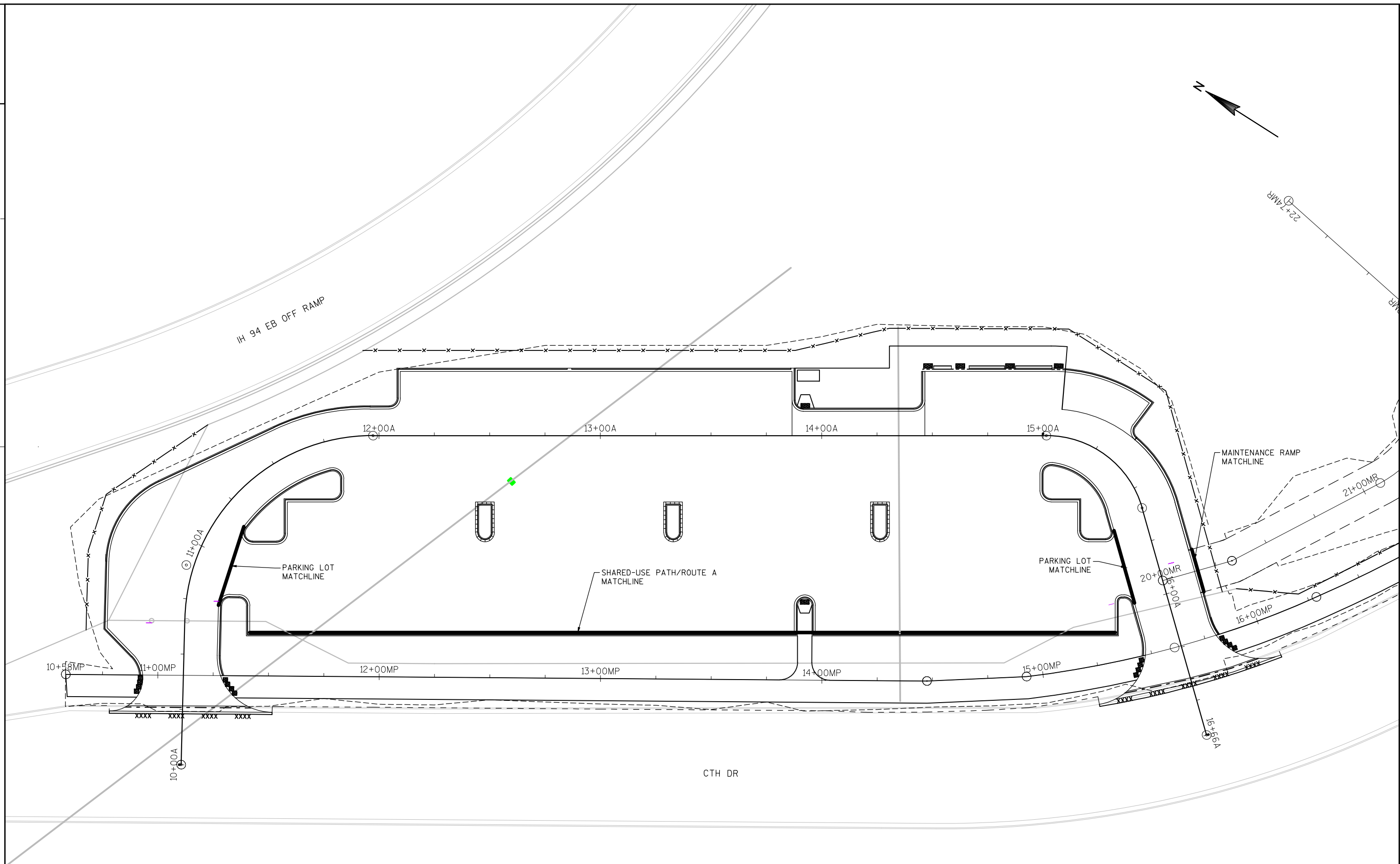
POINTS	STATION	OFFSET	COMMENT
P100	10+40.10A	18.46' LT	PC
P101	10+49.16A	22.89' LT	PT
P102	10+38.43A	33.37' LT	CTR 15' RAD
P103	10+60.99A	35.00' LT	-
P104	10+83.41A	37.61' LT	PC
P105	11+13.16A	30.30' LT	PT
P106	10+91.73A	1.15' RT	40' RAD
P107	11+57.59A	13.31' LT	PC
P108	11+96.14A	12.00' LT	PT
P109	10+65.80A	82.00' RT	155' RAD
P110	12+04.57A	12.00' LT	PC
P111	12+09.57A	17.00' LT	PT
P112	12+04.57A	17.00' LT	CTR 5' RAD
P113	12+09.57A	29.00' LT	-
P114	13+86.57A	29.00' LT	-
P115	13+86.57A	16.00' LT	PC
P116	14+41.57A	11.00' LT	PT
P117	14+46.57A	29.00' LT	-
P118	14+30.57A	40.50' LT	-
P119	15+06.42A	40.73' LT	-
P120	15+03.01A	29.04' LT	PC
P121	15+61.28A	43.00' RT	58.00' R
P122	15+31.24A	30.62' LT	PT
P123*	15+31.41A	18.51' LT	PC
P124	15+35.09A	13.82' LT	PT
P125*	15+34.94A	18.82' LT	5' RAD FLANGE
P126	15+61.28A	15.00' LT	PT
P127	15+61.28A	43.00'RT	58' RAD
P128	16+15.78A	15.00' LT	PC
P129	16+24.11A	16.26' LT	PT
P130	16+15.78A	40.00' LT	25' RAD
P131	16+24.05A	16.74' RT	PC
P132	16+14.89A	15.00' RT	PT
P133	16+14.89A	40.00' RT	25' RAD
P134	16+00.04A	15.00' RT	PC
P135	15+95.23A	18.63' RT	PT
-OFFSET IS TO FLANGE			
* RADIUS TO THE FLANGE OF CURB			

POINTS	STATION	OFFSET	COMMENT
P136	16+00.04A	20.00' RT	5' RAD
P137	15+94.97A	19.55' RT	PC
P138	15+97.04A	23.25' RT	PT
P139	15+97.86A	20.36' RT	3' RAD
P140	16+10.50A	27.08' RT	-
P141	10+60.47A	29.44' RT	-
P142	10+76.05A	28.73' RT	PC
P143	10+81.87A	23.04' RT	PT
P144	10+75.04A	23.78' RT	5' RAD
P145	10+80.87A	18.97' RT	PC
P146	10+74.85A	14.69' RT	PT
P147	10+74.47A	19.66' RT	5' RAD
P148	10+49.73A	15.00' RT	PC
P149	10+40.71A	16.69' RT	PT
P150	10+49.73A	40.00' RT	25' RAD
P151	11+18.56A	12.00' RT	PCC
P152	11+74.25A	12.00' RT	PCC
P153	10+65.87A	85.00' RT	63' RAD
P154	11+80.38A	18.61' RT	PT
P155	11+74.25A	17.00' RT	5' RAD
P156	11+78.87A	23.57' RT	PC
P157	11+45.15A	17.76' RT	-
P158	11+32.85A	28.72' RT	PC
P159	11+22.19A	28.47' RT	PT
P160	11+27.68A	25.17' RT	5' RAD
P161	11+13.34A	19.88' RT	PT
P162	11+18.56A	17.00' RT	5' RAD
P163	12+43.57A	30.00' RT	-
P164	12+52.07A	30.00' RT	-
P165	12+52.07A	43.75' RT	PC
P166	12+43.57A	43.75' RT	PT
P167	12+47.82A	43.75' RT	4.25' RAD
P168	13+28.57A	30.00' RT	-
P169	13+37.07A	30.00' RT	-
P170	13+37.07A	43.75' RT	PC
P171	13+28.57A	43.75' RT	PT
P172	13+32.82A	43.75' RT	4.25' RAD
-OFFSET IS TO FLANGE			

POINTS	STATION	OFFSET	COMMENT
P173	14+22.07A	30.00' RT	-
P174	14+30.57A	30.00' RT	-
P175	14+30.57A	43.75' RT	PC
P176	14+22.07A	43.75' RT	PT
P177	14+26.32A	43.75' RT	4.25' RAD
P178	14+98.57A	17.18' RT	PC
P179	15+05.18A	12.10' RT	PCC
P180	15+04.88A	17.10' RT	5' RAD
P181	15+55.01A	14.84' RT	PT
P182	15+00.59A	42.00' RT	30' RAD
P183	15+66.02A	15.00' RT	PC
P184	15+68.89A	20.09' RT	PT
P185	15+66.02A	19.00' RT	4' RAD
P186	15+67.69A	27.42' RT	PC
P187	15+61.61A	30.86' RT	PT
P188	15+62.98A	26.05' RT	5' RAD
P189	15+35.44A	24.39' RT	-
P190	14+98.57A	25.00' RT	-
P191	15+07.79A	29.85' RT	-
P192	15+06.22A	24.89' RT	5' RAD
P193	11+70.12A	27.07' RT	PT
P194	11+72.24A	22.31' RT	5' RAD
P195	15+07.06A	12.25' LT	-
P196	13+80.99A	110.38' RT	PC
P197	13+89.05A	102.40' RT	PT
P198	13+81.05A	102.38' RT	8.00' RAD
P199	14+03.49A	110.56' RT	PC
P200	13+95.55A	102.50' RT	PT
P201	14+03.55A	102.56' RT	8.00' RAD
P202	13+86+56A	16.00' LT	PT
P203	13+91.57A	11.00' LT	PI
P204	13+91.57A	16.00' LT	5.00' RAD
P205	14+46.57A	16.00' LT	PT
P206	14+41.57A	11.00'LT	PI
P207	14+41.57A	16.00' LT	5.00' RAD
P208	13+87.57A	76.75' RT	PI
P209	13+97.07A	76.75' RT	PT
P210	13+92.32A	76.75' RT	4.75' RAD
-OFFSET IS TO FLANGE			

2

2



PROJECT NO:1060-31-71

HWY: IH 94
------------

COUNTY: WAUKESHA

PLAN: CROSS SECTION MATCHLINES

SHEET

**E**

FILE NAME : N:\PDS\PROJECTS\10603101\PSE\SE&E\_5\_1\_2016\CIVIL 3D\SHEETSP\PLAN\021701\_XM.DWG PLOT DATE : 4/29/2016 PLOT BY : KL ENGINEERING PLOT NAME : ----- PLOT SCALE : 1:40\_XREF

PLOT DATE : 4/29/2016

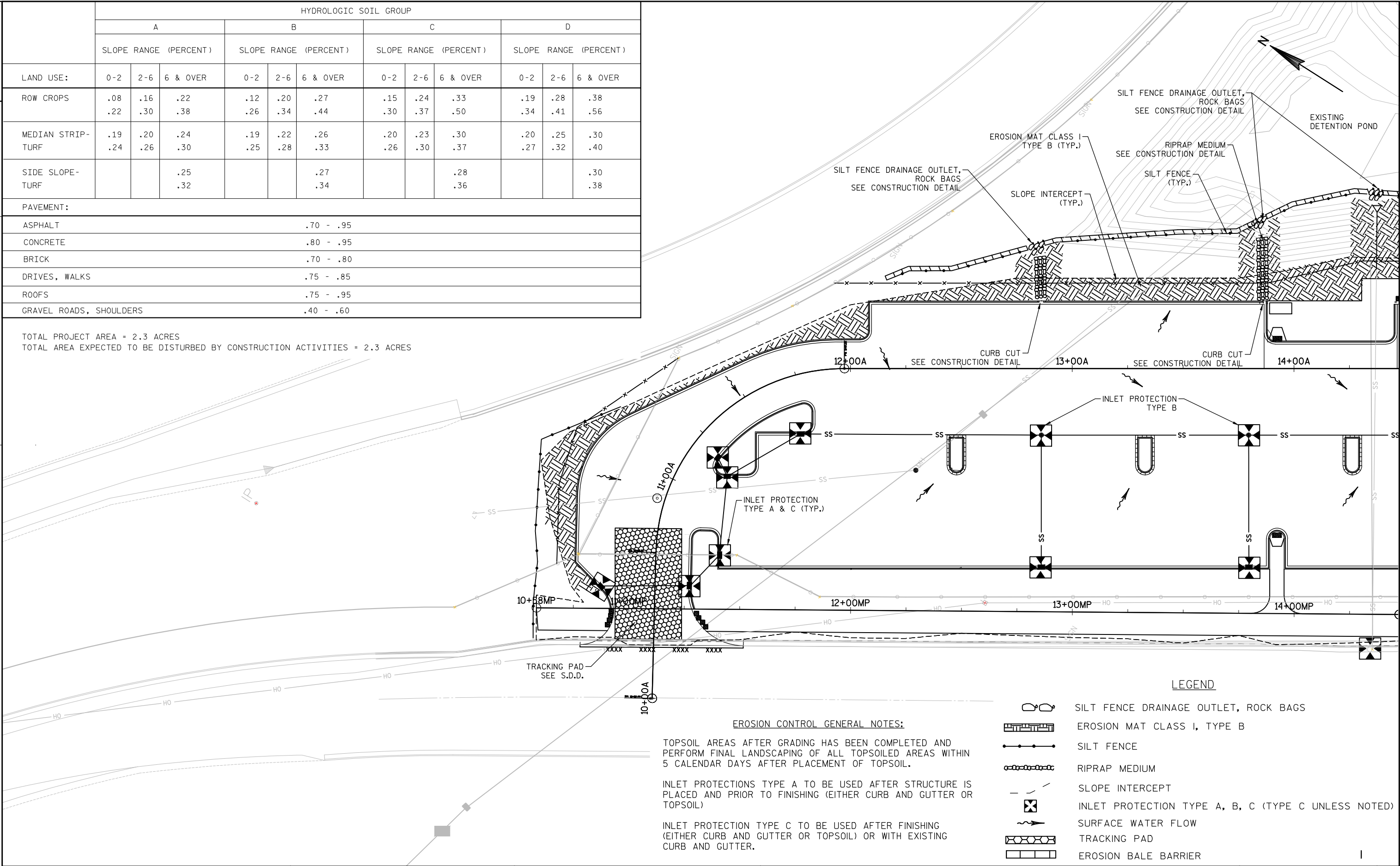
PLOT BY : KL ENGINEERING

PLOT NAME : \_\_\_\_\_ PLOT SCALE : 1:40\_XREF

WISDOT/CADDS SHEET 42

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE-TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = 2.3 ACRES  
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 2.3 ACRES



EROSION CONTROL GENERAL NOTES:

TOPSOIL AREAS AFTER GRADING HAS BEEN COMPLETED AND PERFORM FINAL LANDSCAPING OF ALL TOPSOILED AREAS WITHIN 5 CALENDAR DAYS AFTER PLACEMENT OF TOPSOIL.

INLET PROTECTIONS TYPE A TO BE USED AFTER STRUCTURE IS PLACED AND PRIOR TO FINISHING (EITHER CURB AND GUTTER OR TOPSOIL)

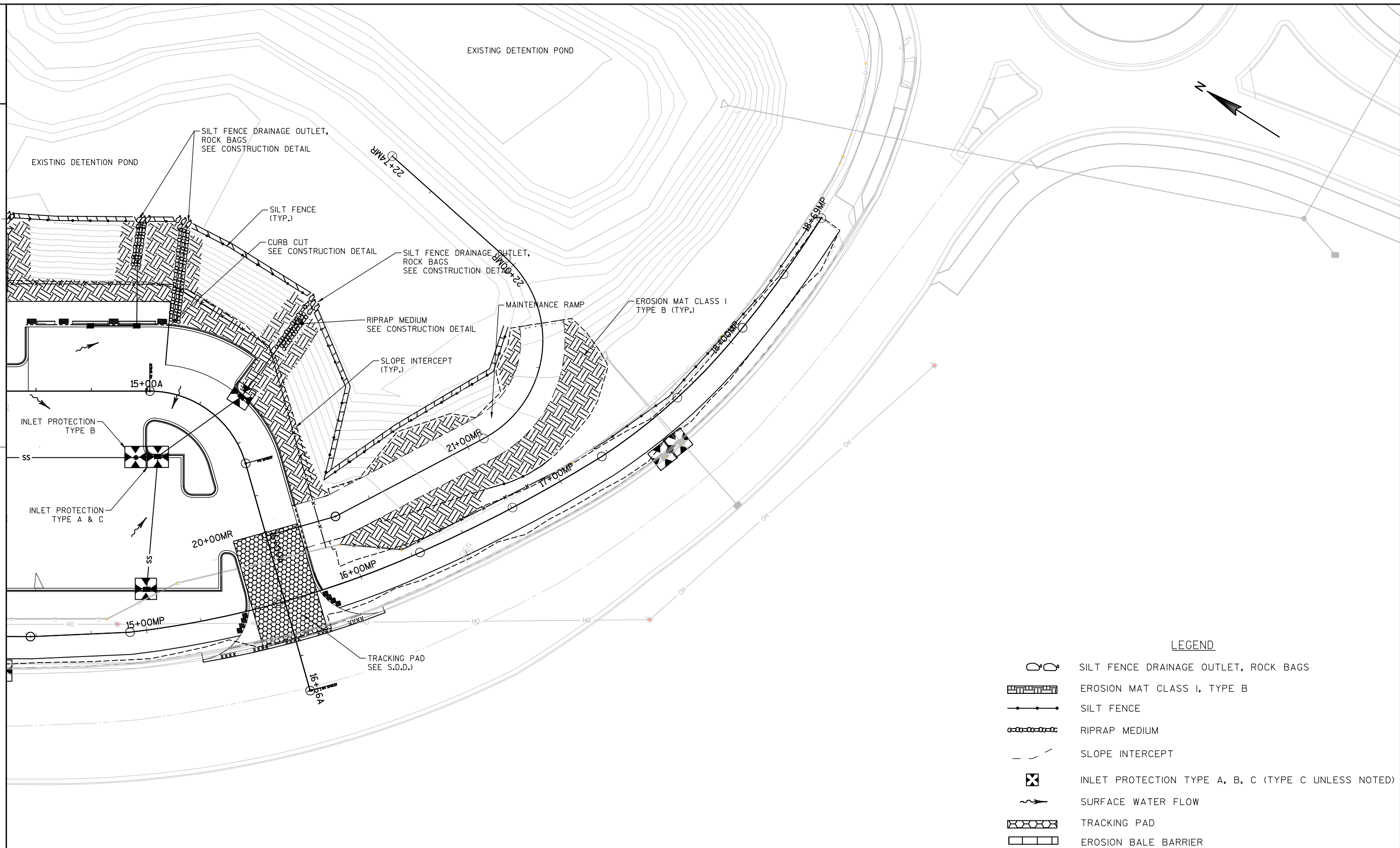
INLET PROTECTION TYPE C TO BE USED AFTER FINISHING (EITHER CURB AND GUTTER OR TOPSOIL) OR WITH EXISTING CURB AND GUTTER.

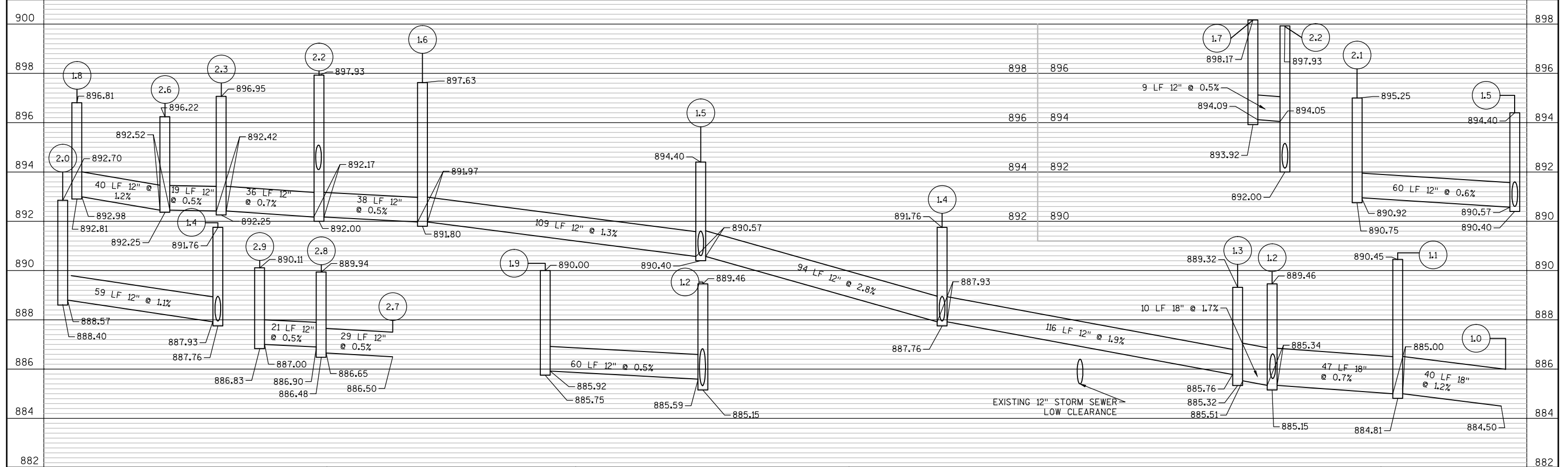
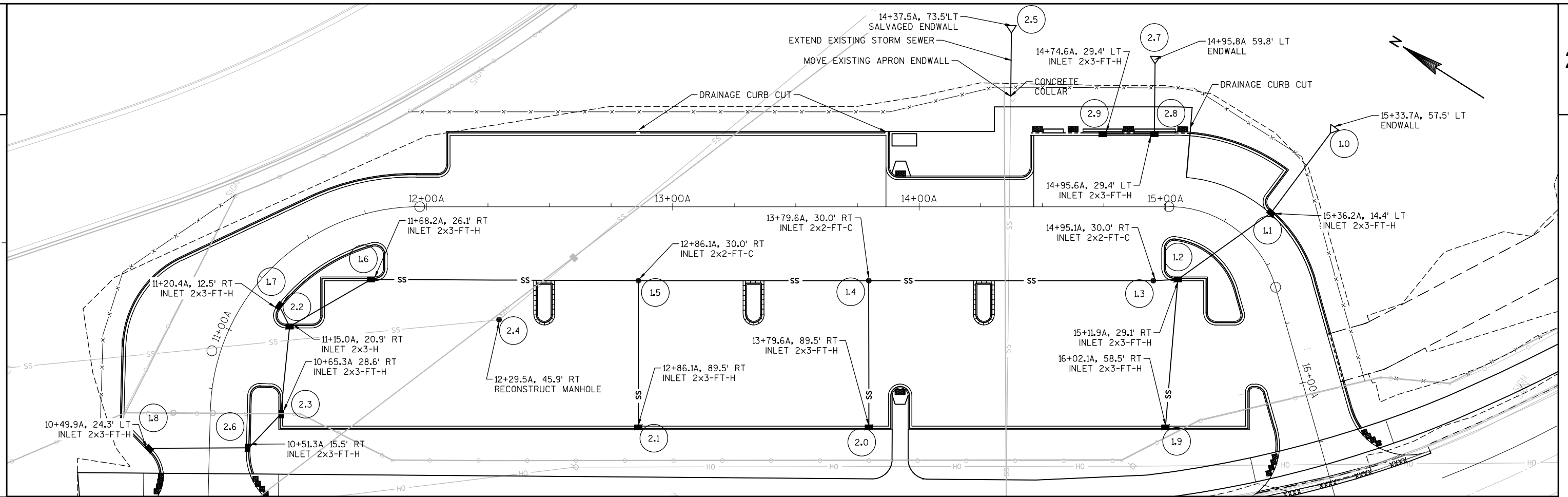
LEGEND

- SILT FENCE DRAINAGE OUTLET, ROCK BAGS
- EROSION MAT CLASS I, TYPE B
- SILT FENCE
- RIPRAP MEDIUM
- SLOPE INTERCEPT
- INLET PROTECTION TYPE A, B, C (TYPE C UNLESS NOTED)
- SURFACE WATER FLOW
- TRACKING PAD
- EROSION BALE BARRIER

2

2





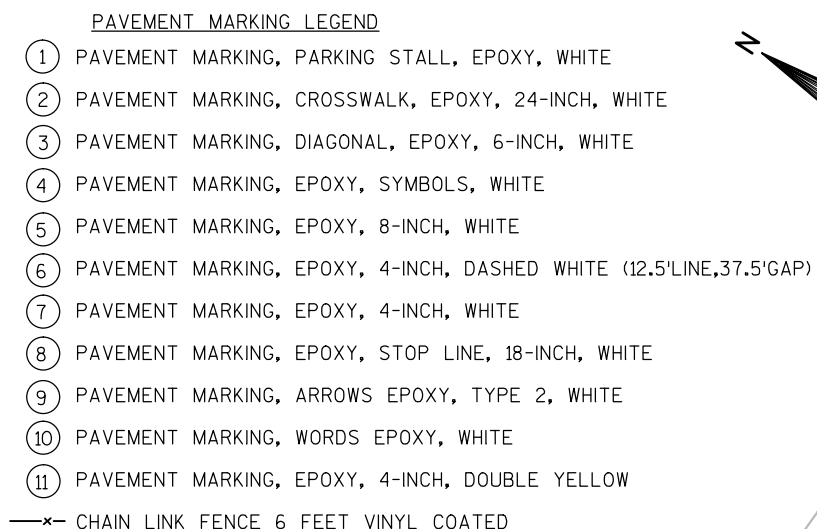


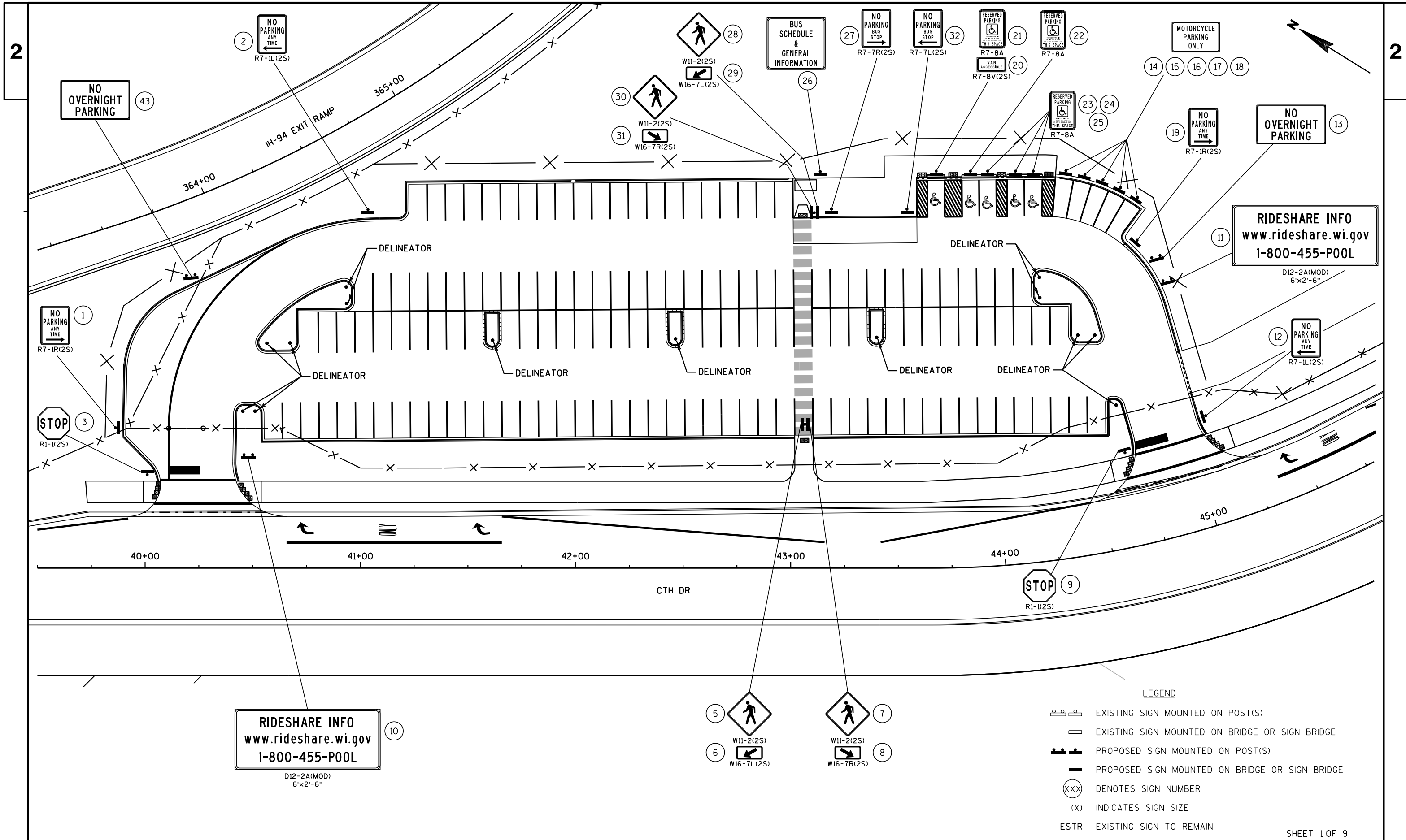
2

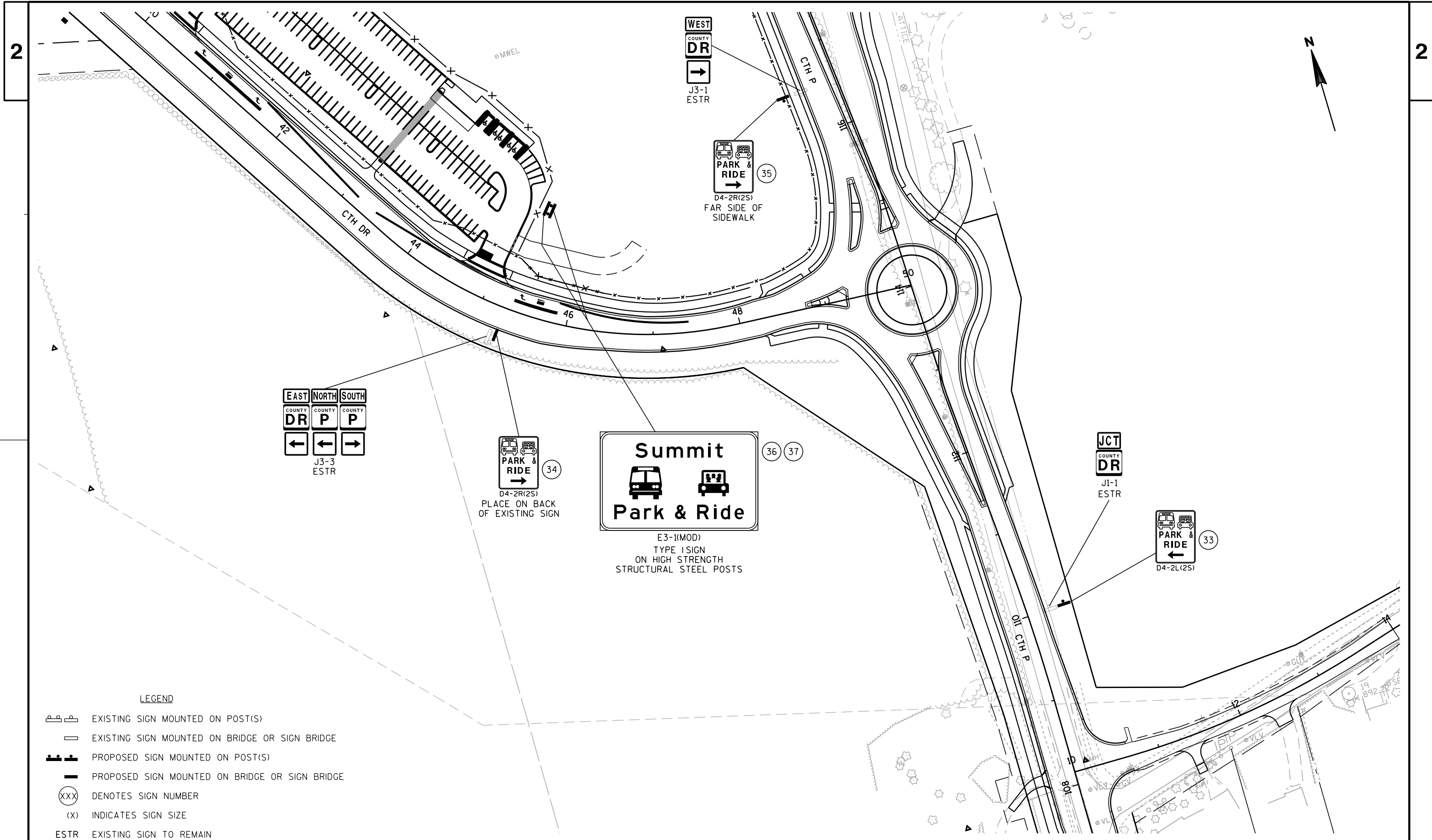
- ① PAVEMENT MARKING, PARKING STALL, EPOXY, WHITE
- ② PAVEMENT MARKING, CROSSWALK, EPOXY, 24-INCH, WHITE
- ③ PAVEMENT MARKING, DIAGONAL, EPOXY, 6-INCH, WHITE
- ④ PAVEMENT MARKING, EPOXY, SYMBOLS, WHITE
- ⑤ PAVEMENT MARKING, EPOXY, 8-INCH, WHITE
- ⑥ PAVEMENT MARKING, EPOXY, 4-INCH, DASHED WHITE (12.5'LINE,37.5'GAP)
- ⑦ PAVEMENT MARKING, EPOXY, 4-INCH, WHITE
- ⑧ PAVEMENT MARKING, EPOXY, STOP LINE, 18-INCH, WHITE
- ⑨ PAVEMENT MARKING, ARROWS EPOXY, TYPE 2, WHITE
- ⑩ PAVEMENT MARKING, WORDS EPOXY, WHITE
- ⑪ PAVEMENT MARKING, EPOXY, 4-INCH, DOUBLE YELLOW

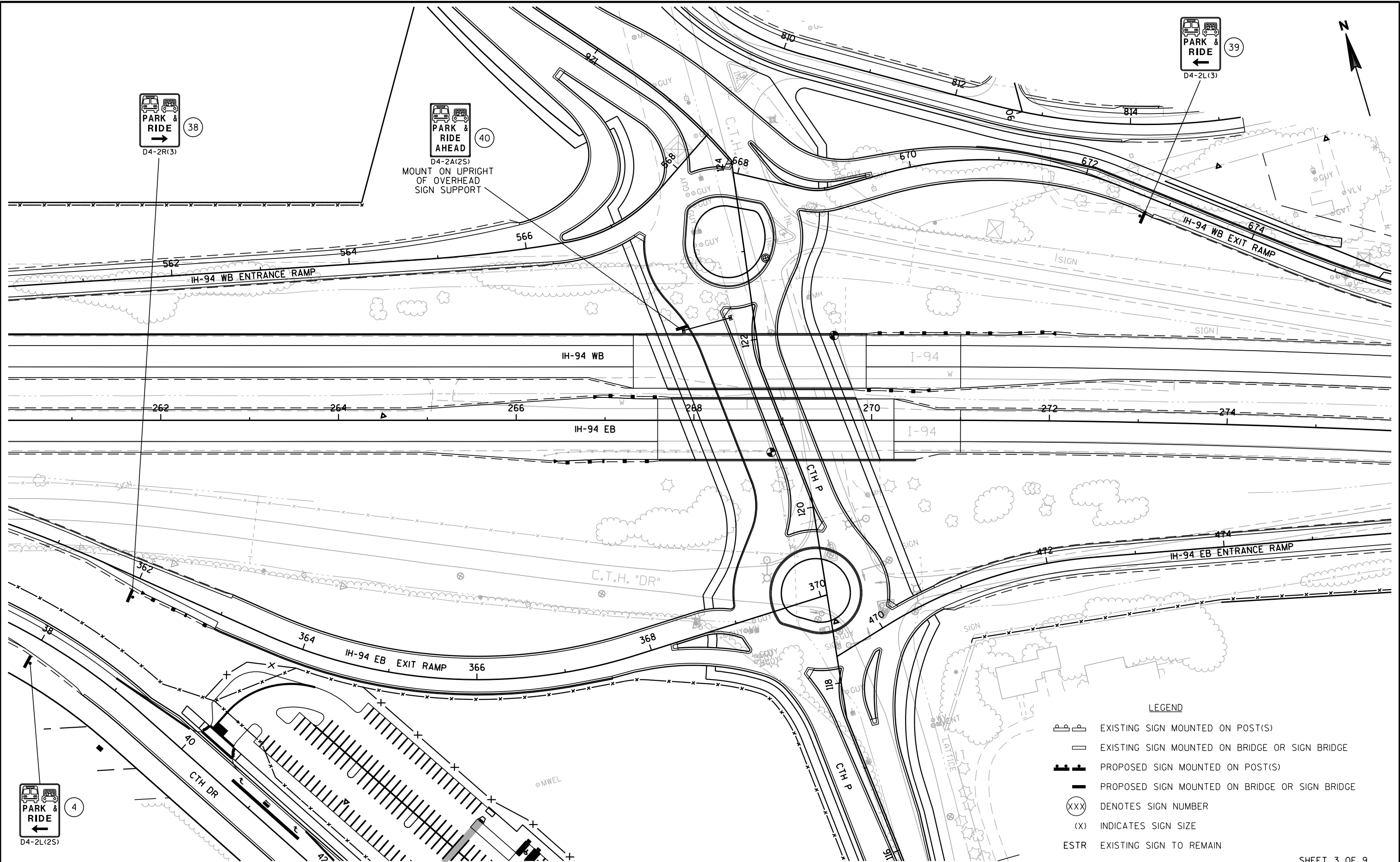
—x REMOVE PAVEMENT MARKING



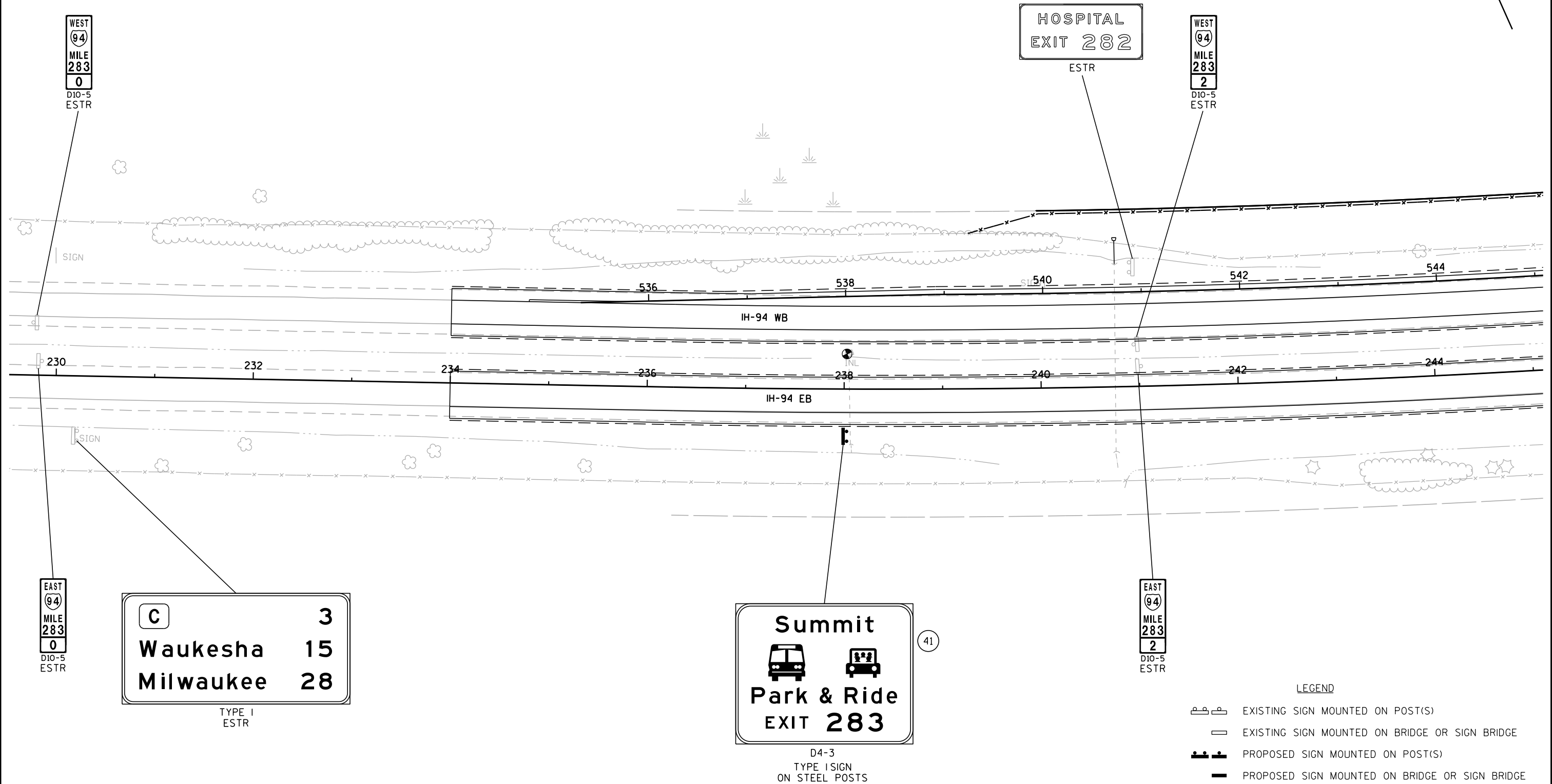


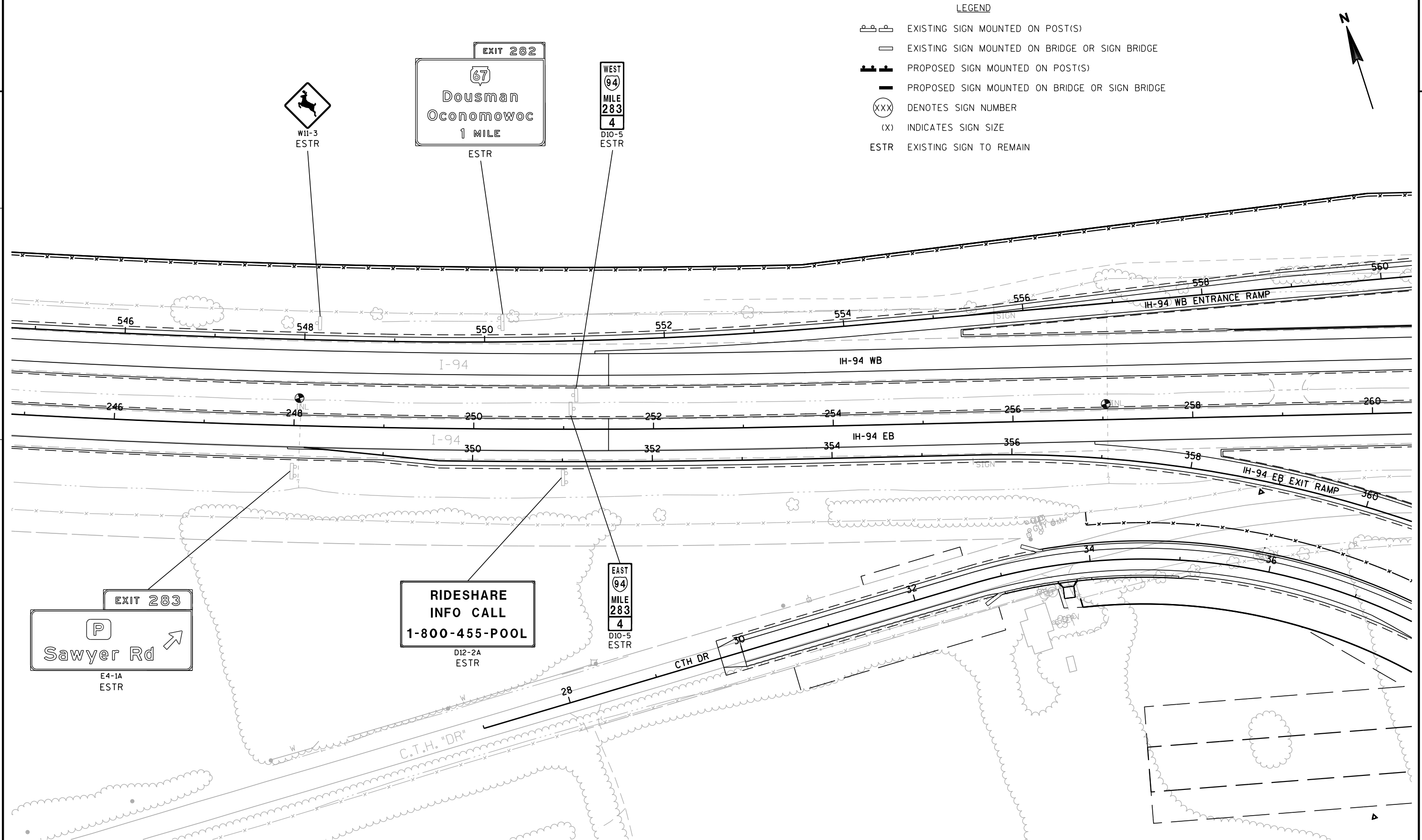


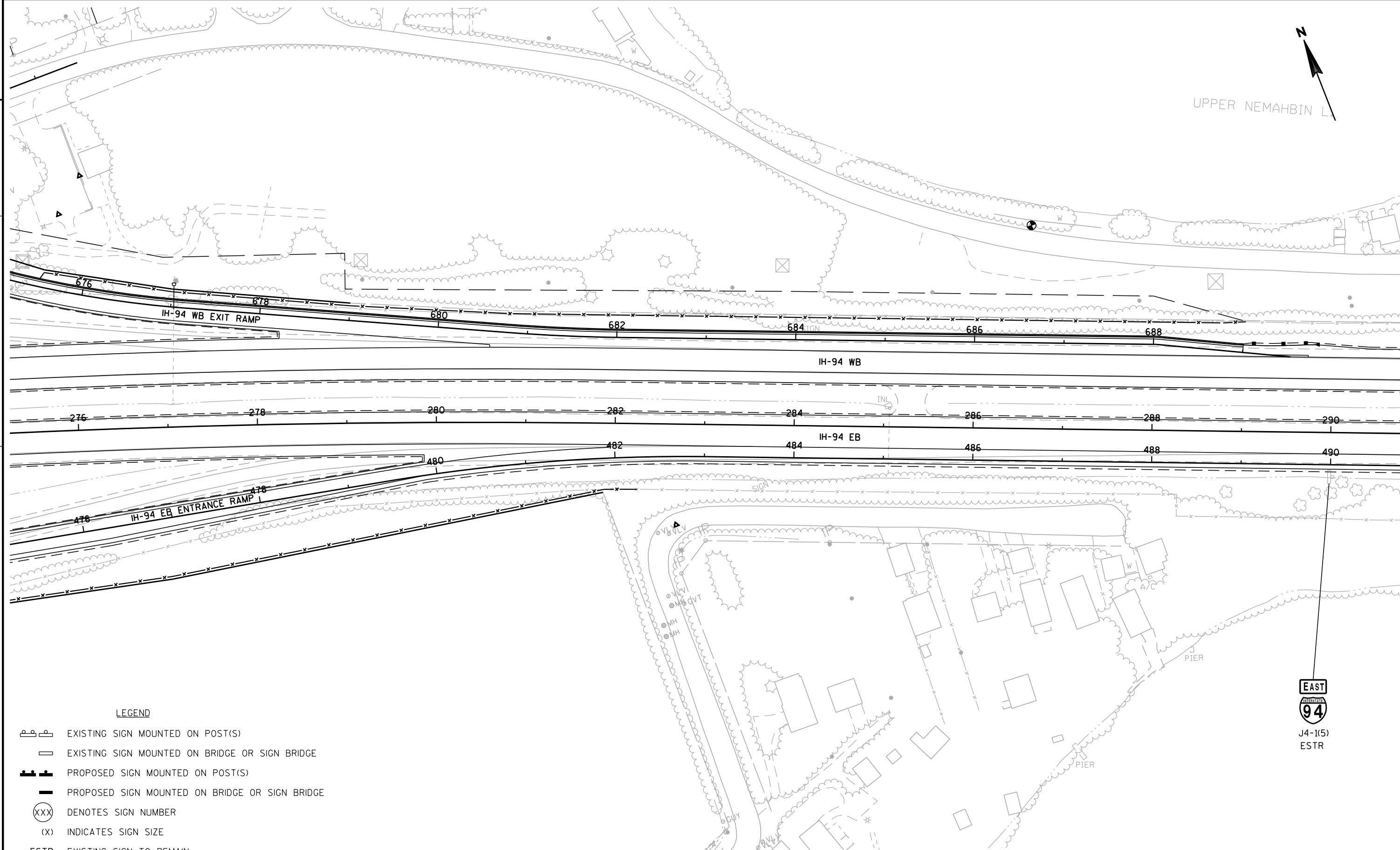












SHEET 6 OF 9

PROJECT NO:1060-31-71

HWY: IH-94

COUNTY: WAUKESHA

PERMANENT SIGNING - MAINLINE

SHEET

E

FILE NAME : J:\projects\d2\_10603194\71\023206\_ps.dgn

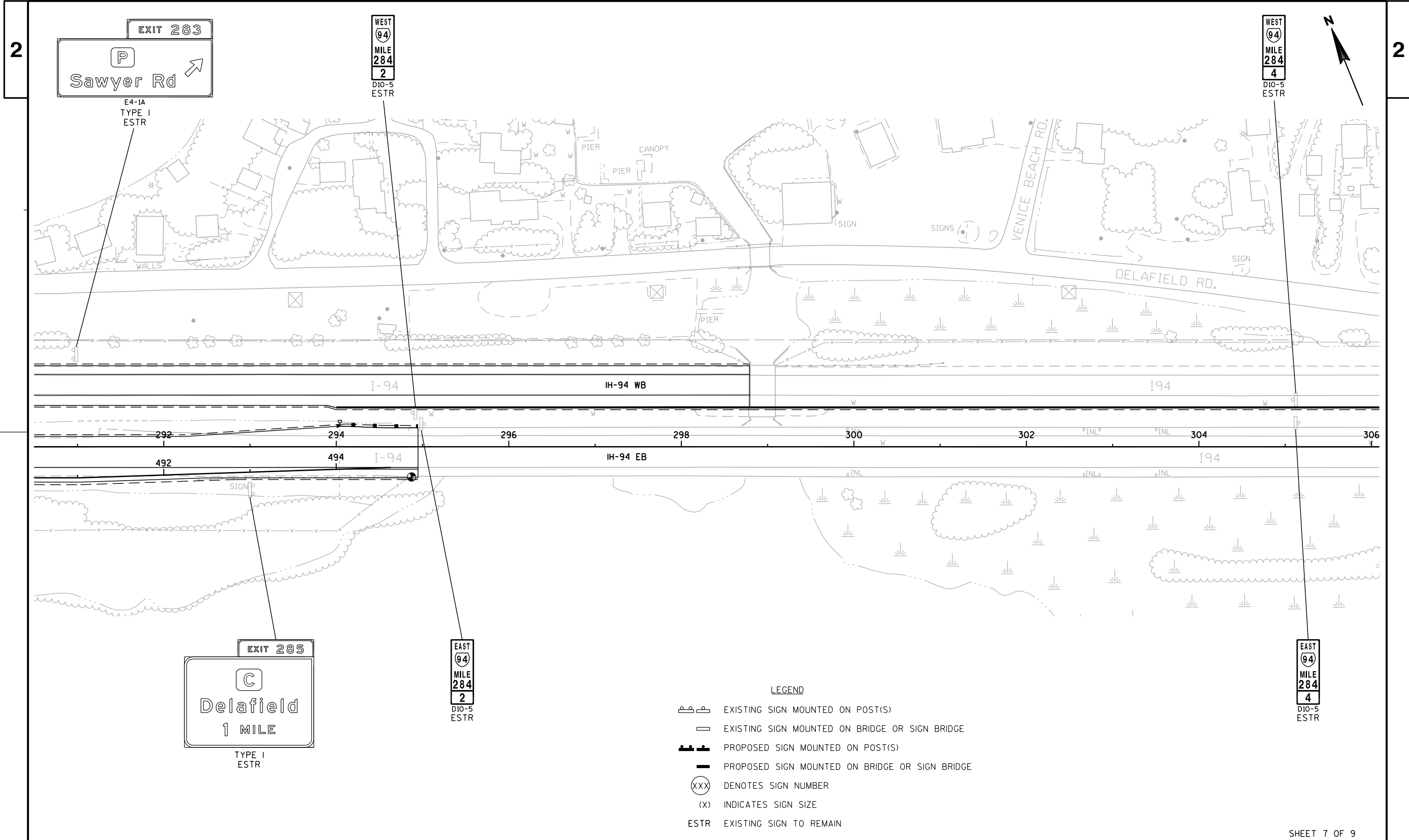
PLOT DATE : 05-APR-2016 10:41

PLOT BY : dotcmv

PLOT NAME :

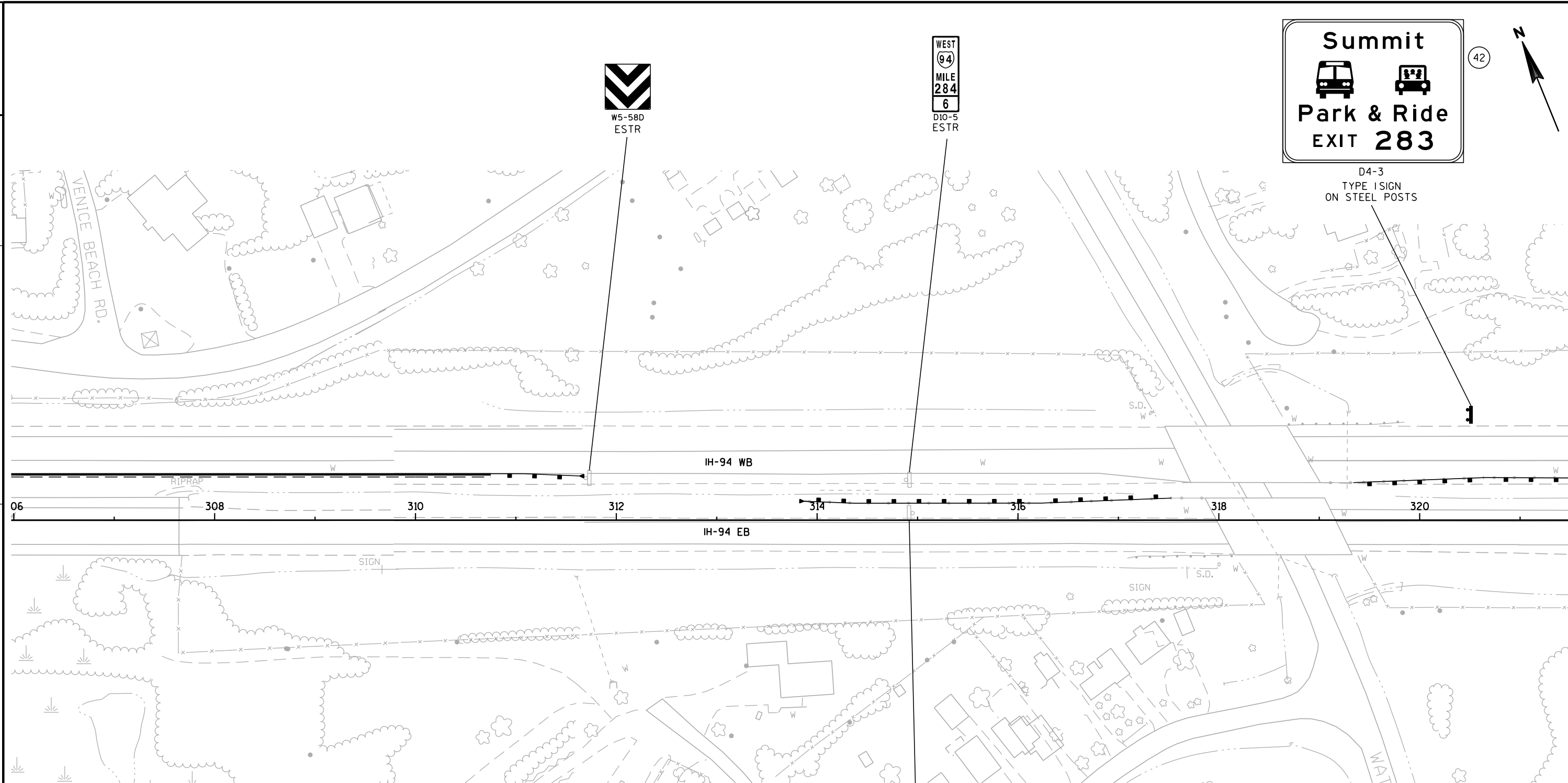
PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42








2

2



LEGEND

- |   |  |
|---|--|
|  | EXISTING SIGN MOUNTED ON POST(S)               |
|  | EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE |
|  | PROPOSED SIGN MOUNTED ON POST(S)               |
|  | PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE |
|  | DENOTES SIGN NUMBER                            |
| (X)   | INDICATES SIGN SIZE                            |
| ESTR  | EXISTING SIGN TO REMAIN                        |

SHEET 8 OF 9

PROJECT NO: 1060-31-71

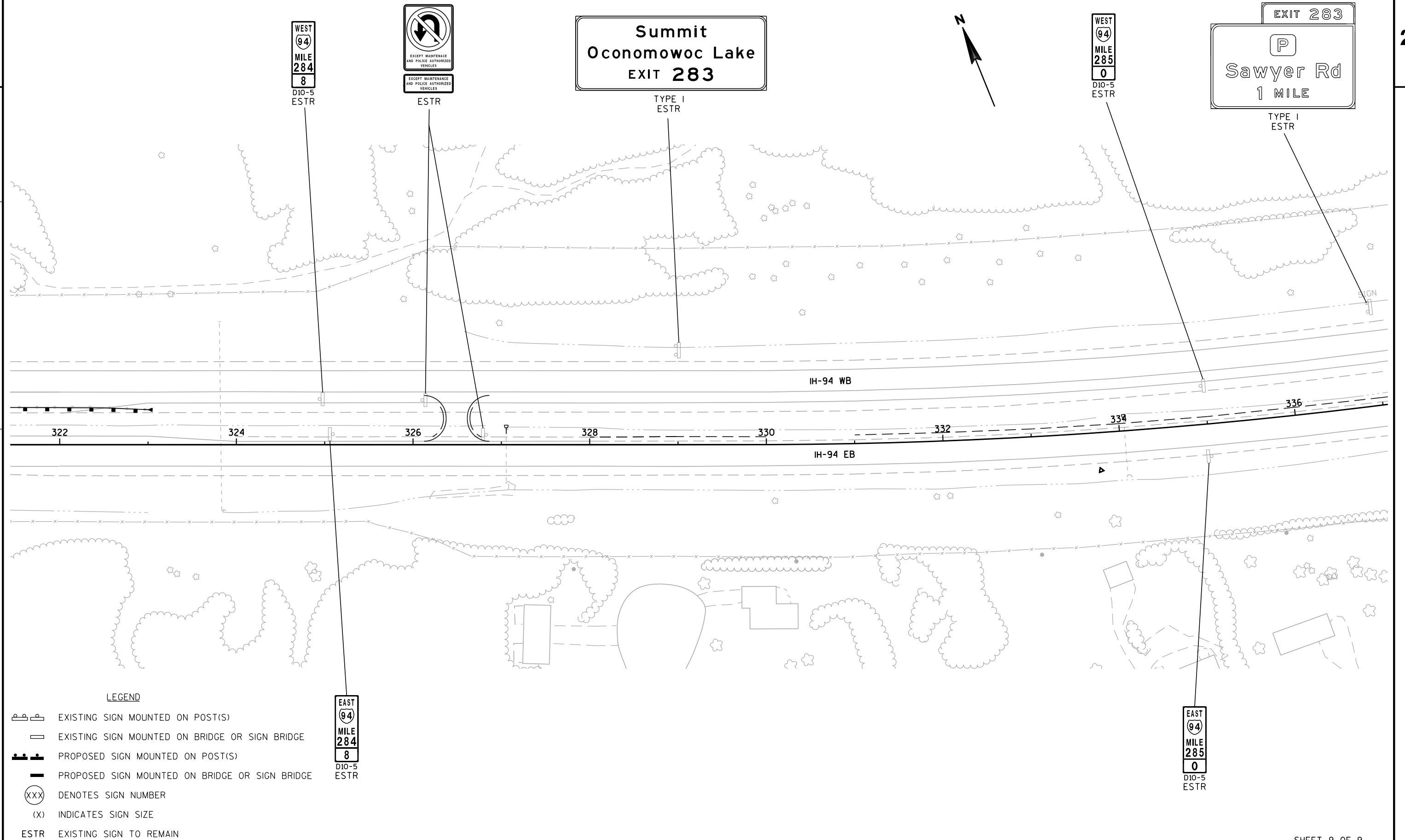
HWY: IH-94

COUNTY: WAUKESHA

PERMANENT SIGNING - MAINLINE

SHEET

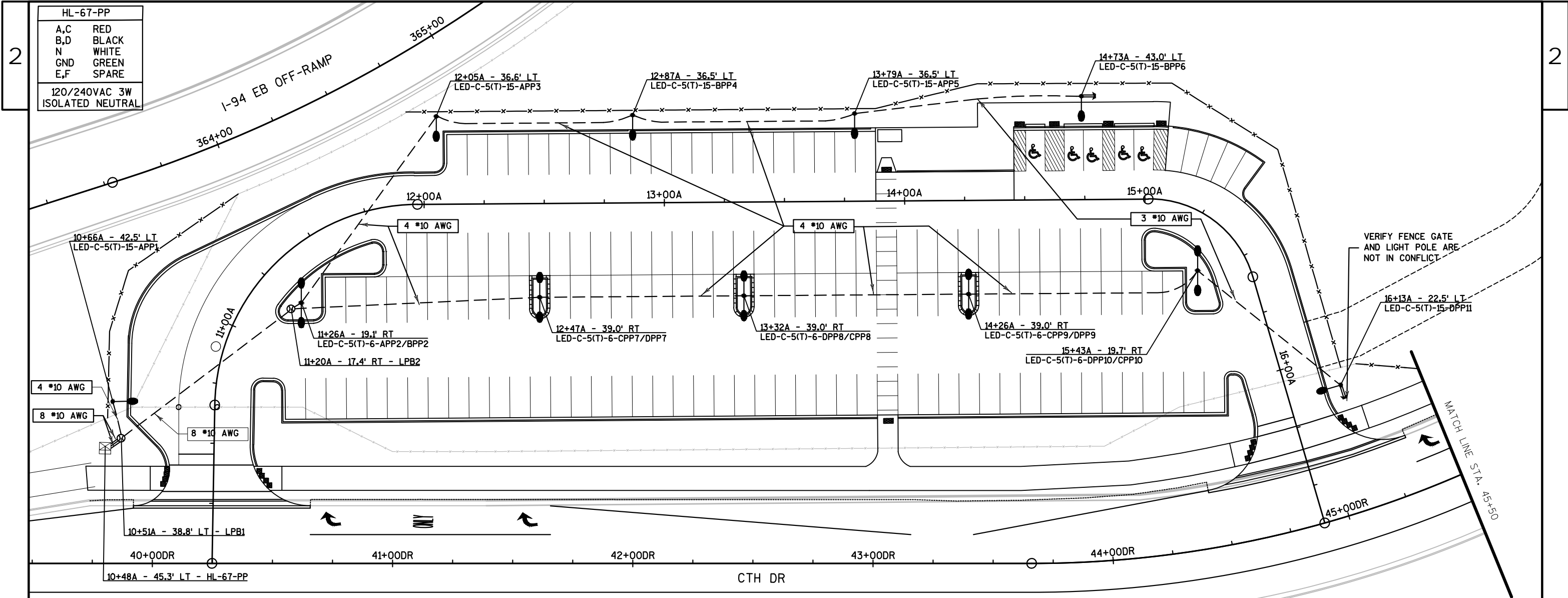
--	--



GENERAL NOTES:

FREEWAY LIGHTING SHALL BE INSTALLED IN COMPLIANCE WITH WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS SECTION 652 TO 657 AND 659 EXCEPT:

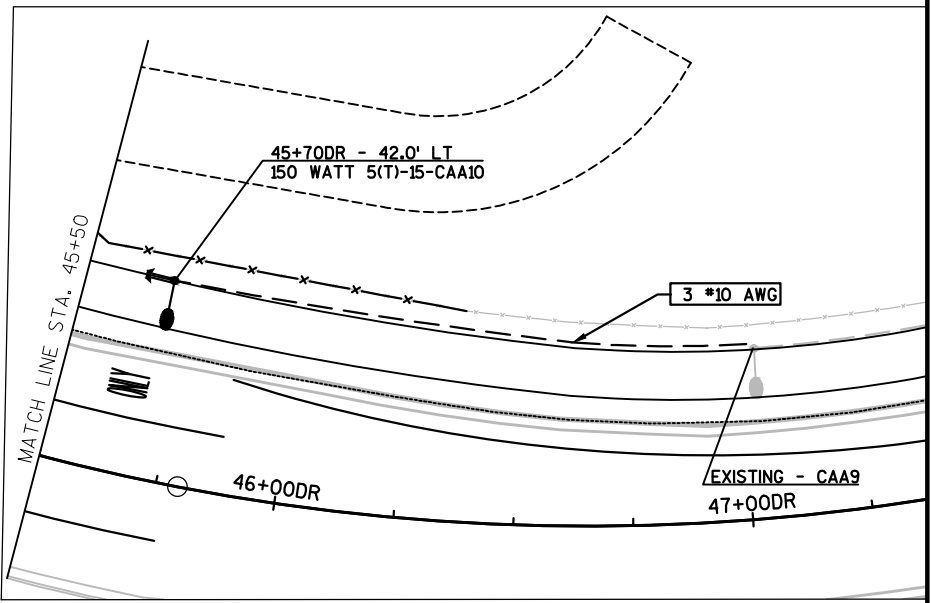
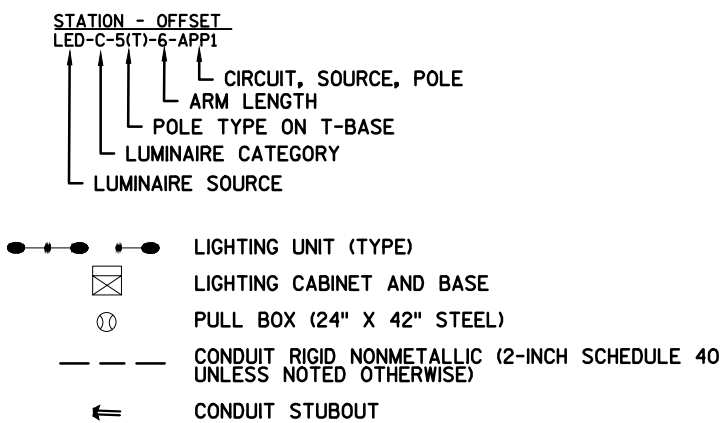
1. DETAILS OF CONSTRUCTION MATERIALS AND WORKMANSHIP NOT SHOWN ON THESE DRAWINGS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
2. LOCATIONS OF THE PVC CONDUITS ARE IDENTIFIED IN THE PLANS WHERE THEY ARE REQUIRED. HOWEVER, INSTALLATION WILL REQUIRE INTEGRATION WITH EXISTING FIELD CONDITIONS. UNDER THE APPROVAL OF THE ENGINEER, APPROPRIATE ADJUSTMENT OF CONDUIT LOCATIONS MAY BE MADE IF THE FIELD CONDITIONS ARE SUCH THAT THE CONDUIT CANNOT BE INSTALLED AT THE SPECIFIED LOCATIONS. FIELD MARK EACH CONDUIT LOCATION IN RED TO ILLUSTRATE AS BUILT CONDITIONS.
3. THE TRENCH SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.
4. ALL OPEN AND UNTERMINATED CONDUITS SHALL BE CAPPED OR PLUGGED WITH ENGINEER APPROVED FITTINGS IMMEDIATELY AFTER INSTALLATION.
5. BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR IMMERSION TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.
6. ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON ALL CONDUITS.
7. PRIOR TO CONDUIT ACCEPTANCE, ALL CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND BE CAPPED WITH THE APPROPRIATE CAST PLASTIC CAP WHICH FITS SNUGGLY ON THE CONDUIT THAT CAN BE EASILY REMOVED. DUCT TAPE OR ANY OTHER CAPPING METHOD IS NOT ACCEPTABLE.
8. CONDUIT RUNS SHALL BE THE SAME SIZE PIPE FROM ONE END TO THE OTHER (FROM PULL BOX-TO-PULL BOX, JUNCTION BOX OR BASE-TO-BASE, ETC.) UNLESS OTHERWISE NOTED ON PLANS.
9. PULL ROPE (3/8-INCH NYLON) SHALL BE INSTALLED IN ALL NEW CONDUITS.
10. CONTRACTOR SHALL SUPPLY AS-BUILT DRAWINGS (PDF FORMAT) FOR ALL THE WORK BEING DONE.
11. CONDUIT LATERALS SHALL BE TRENCHED UNDER PAVEMENT BEFORE PAVEMENT CONSTRUCTION. CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH ROADWAY CONSTRUCTION FOR CONDUIT LATERALS INSTALLATION.
12. PITCH ALL CONDUITS TOWARD PULL BOXES. INSTALL A 2" DRAIN DUCT TO STORM SEWER OR DRAIN SUMP AS REQUIRED FOR DRAINAGE. THE 2" DRAIN DUCT OR SUMP IS INCIDENTAL TO THE PULL BOX BID ITEM AND IS NOT SHOWN.
13. EXISTING CONDUIT AND C/D NO LONGER BEING USED IS ABANDONED IN PLACE. THE CONTRACTOR MAY REMOVE ABANDONED WIRING AT THE CONTRACT'S EXPENSE.
14. UNDERGROUND WIRE & CONDUIT SHOWN ON REMOVAL PLANS FOR REMOVAL SHALL BE ABANDONED IN PLACE UNLESS DIRECTED BY THE ENGINEER. CONTRACTOR MAY CHOOSE TO REMOVE CONDUCTOR AT THEIR OWN EXPENSE.
15. THE LOCATION OF EXISTING AND PROPOSED UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. IN ADDITION, THERE MAYBE OTHER UTILITIES WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION.
16. HAND DIGGING MAYBE REQUIRED FOR LOCATIONS ADJACENT TO EXISTING GAS AND POWER LINES. HAND EXCAVATION SHOULD BE ANTICIPATED & WILL BE CONSIDERED INCIDENTAL TO THE CONCRETE BASE BID ITEM. COORDINATE ALL WORK NEAR GAS LINE WITH WE ENERGIES.
17. PROVIDE MINIMUM CABLE SLACK AS MENTIONED BELOW:  
PULL BOXES: 10-FT  
EMBEDDED JUNCTION BOXES: 3-FT  
DISTRIBUTION CENTER/LOAD CENTER: 10-FT  
POLES: 5-FT IN AND 5-FT OUT



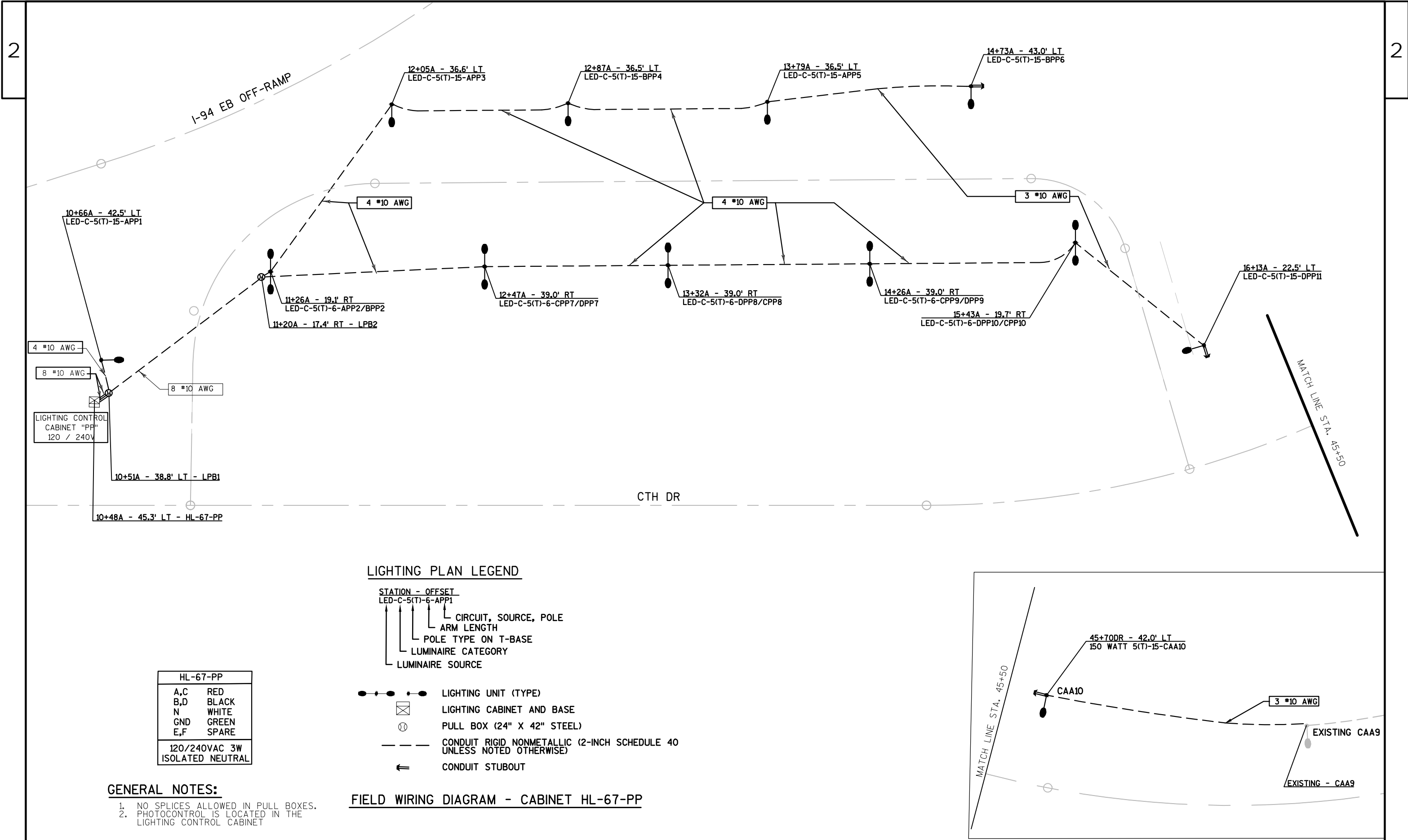
NOTES:

- 1) WISCONSIN DOT SOUTHEAST REGION ELECTRICAL UNIT SHALL APPROVE THE FINAL LOCATION FOR ALL CONCRETE BASES IN THE FIELD PRIOR TO CONSTRUCTION. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
- 2) PITCH ALL CONDUITS TOWARD PULLBOXES. INSTALL A 2" DRAIN DUCT TO DITCH OR STORM SEWER AS REQUIRED FOR DRAINAGE. THIS 2" DRAIN DUCT IS INCIDENTAL TO THE PULL BOX BID ITEM. DRAIN DUCT IS NOT SHOWN.
- 3) THE LOCATION OF EXISTING AND PROPOSED UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. IN ADDITION, THERE MAY BE OTHER UTILITIES WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION.
- 4) ALL LUMINAIRES ARE LED CATEGORY C UNLESS OTHERWISE NOTED.

LIGHTING PLAN LEGEND





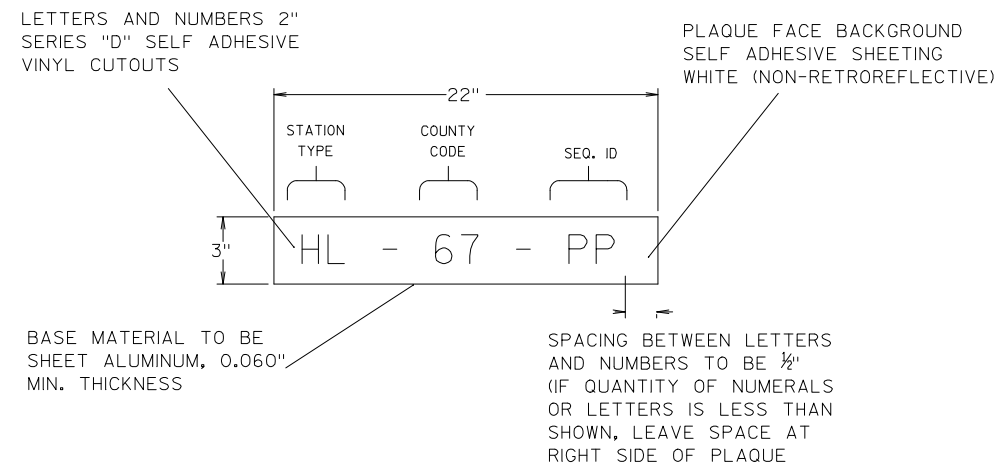




**GENERAL NOTES:**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS.  
WISDOT WILL PROVIDE DATA FOR IDENTIFICATION PLAQUES.

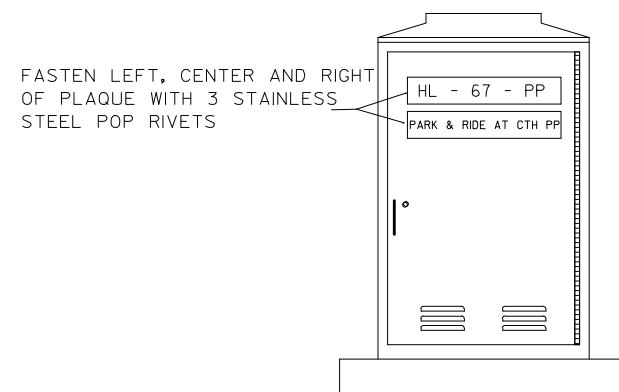
TWO REQUIRED CABINET AND METER PEDESTALS  
(PAID AS PLAQUES SEQUENCE IDENTIFICATIONS)



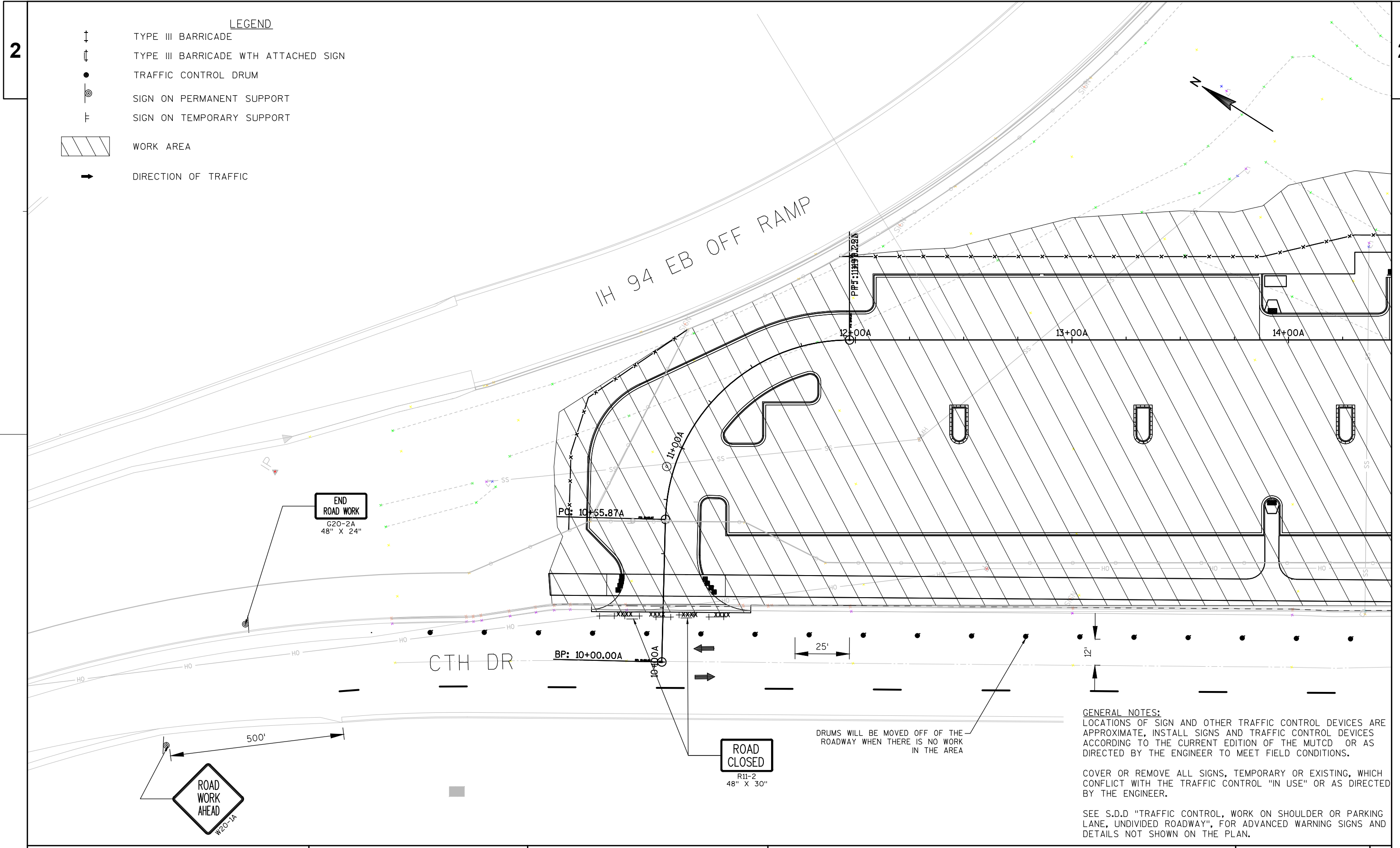
DISTRIBUTION CENTER  
IDENTIFICATION PLAQUE

PARK & RIDE AT CTH P

MNEMONIC  
(SEE MISC. QTYS.)  
(NO. OF CHARACTERS VARIES  
THIRD PLAQUE MAY BE  
NECESSARY)

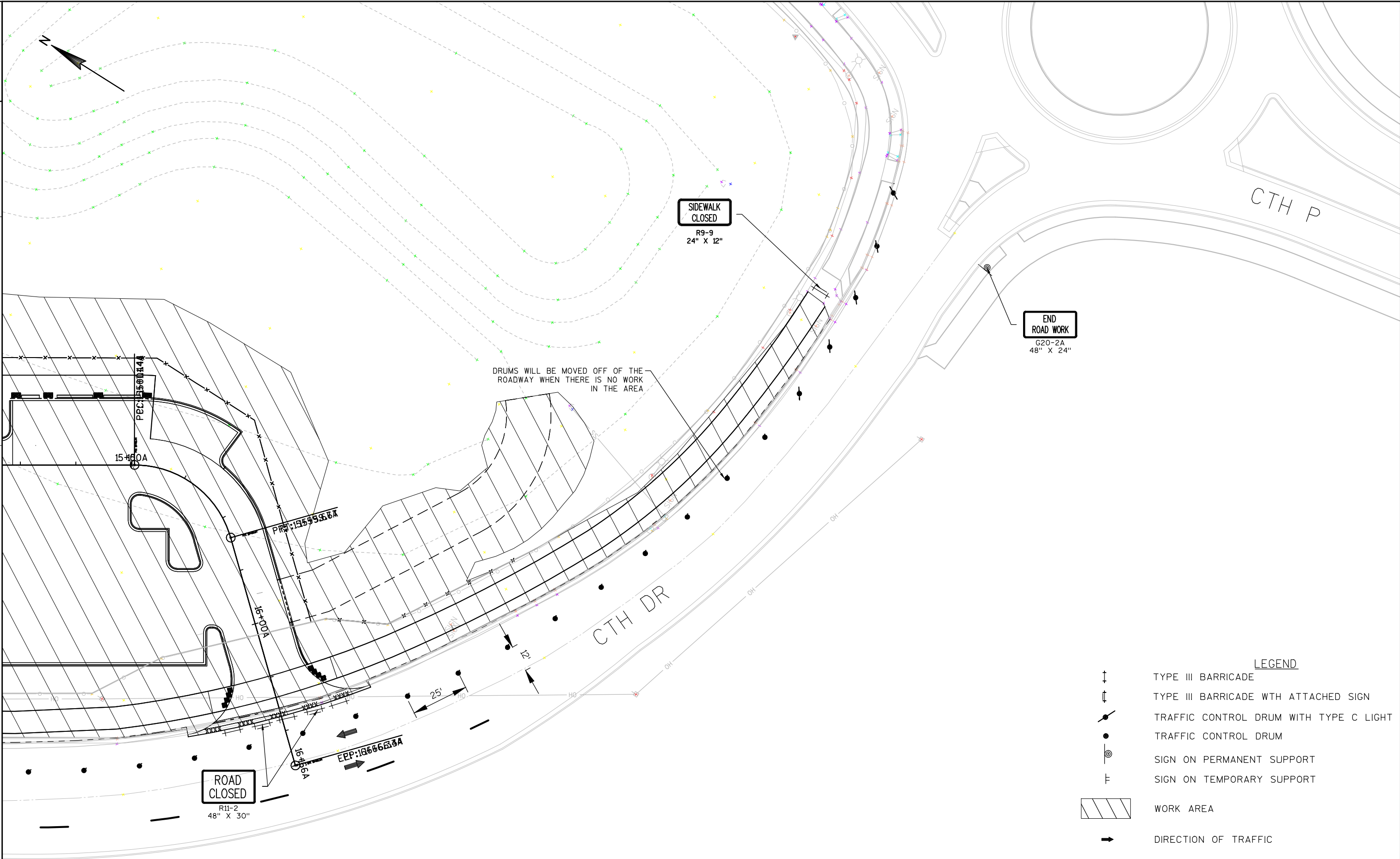


DISTRIBUTION CENTER IDENTIFICATION PLAQUE  
REQUIREMENTS AND PLACEMENTS  
(TYPICAL ALL CONTROL CABINETS)



2

2



PROJECT NO:1060-31-71

HWY: IH 94

COUNTY: WAUKESHA

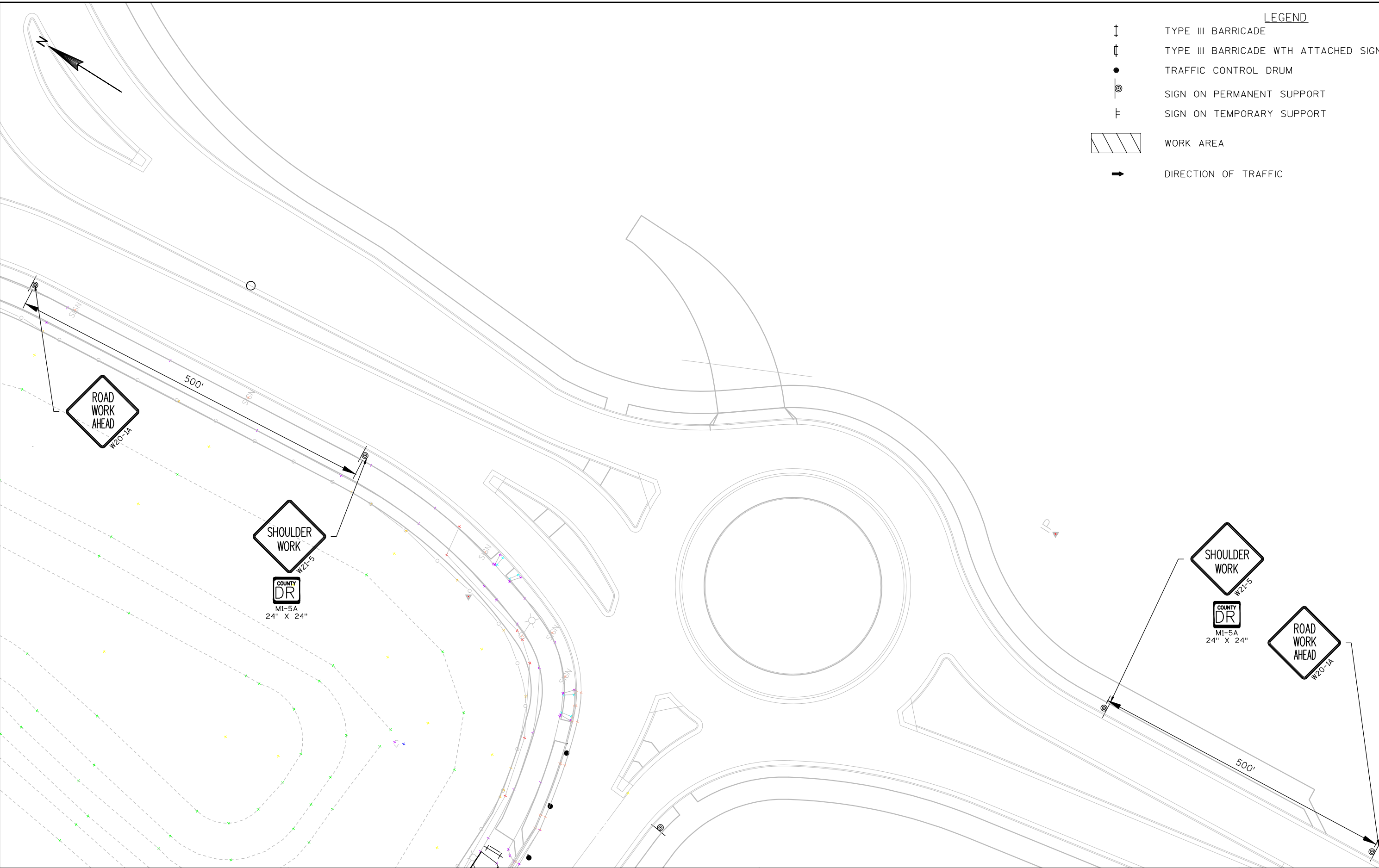
PLAN: TRAFFIC CONTROL
-----------------------

SHEET

**E**

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WTH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- WORK AREA
- DIRECTION OF TRAFFIC



2

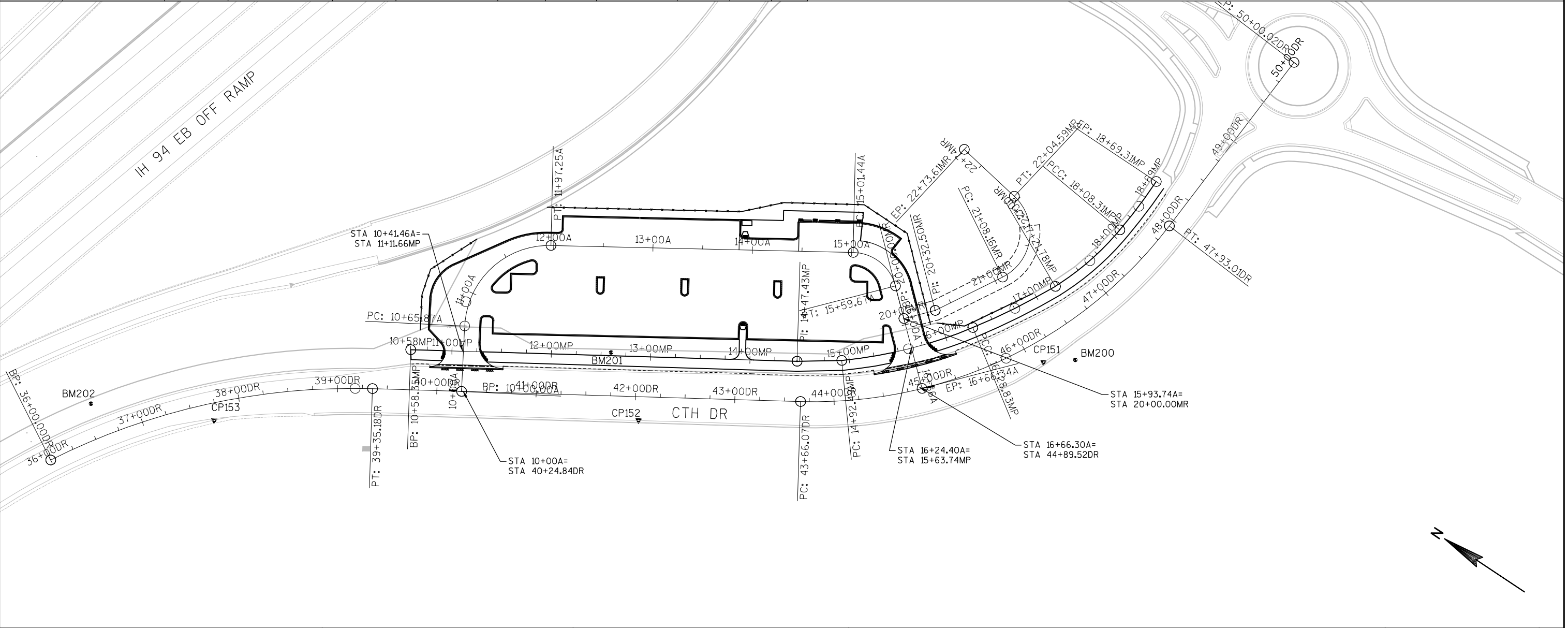
ROUTE A R/L											
PC Sta	START X,Y	END Sta	END X,Y	PI Sta	PI POINT	LENGTH	R	DIRECTION	DELTA	L	T
10+00.00A	626157.00',179104.21'	10+65.87A	626213.54',179138.00'			65.87'		N59° 07' 53.88"E			
10+65.87A	626213.54',179138.00'	11+97.25A	626328.99',179110.48'	11+48.76A	626284.68',179180.53'	131.38'	85.00'		88.56 (d)	118.69'	82.89'
11+97.25A	626328.99',179110.48'	15+01.44A	626491.59',178853.39'			304.19'		S32° 18' 41.34"E			
15+01.44A	626491.59',178853.39'	15+59.67A	626487.08',178799.32'	15+39.49A	626509.76',178824.65'	58.23'	45.00'		74.14 (d)	54.25'	34.00'
15+59.67A	626487.08',178799.32'	16+66.34A	626415.94',178719.84'			106.67'		S41° 49' 55.50"W			

MAINTENANCE RAMP R/L											
PC Sta	START X,Y	END Sta	END X,Y	PI Sta	PI POINT	LENGTH	R	DIRECTION	DELTA	L	T
20+00.00MR	626464.36',178773.94'	20+32.50MR	626488.58',178752.26'			32.50'		S48° 10' 04.50"E			
20+32.50MR	626488.58',178752.26'	21+08.16MR	626554.11',178714.45'			75.66'		S60° 00' 53.11"E			
21+08.16MR	626554.11',178714.45'	22+04.59MR	626628.42',178749.51'	21+80.23MR	626616.53',178678.43'	96.42'	50.00'		110.494 (d)	82.16'	72.07'
22+04.59MR	626628.42',178749.51'	22+73.61MR	626639.8',178817.59'			69.03'		N9° 29' 28.49"E			

CTH DR R/L											
PC Sta	START X,Y	END Sta	END X,Y	PI Sta	PI POINT	LENGTH	R	DIRECTION	DELTA	L	T
36+00.00DR	625870.56',179410.33'	39+35.16DR	626109.63',179180.35'	37+71.15DR	626019.34',179325.75'	335.18'	672.83'	S60° 22' 49.16"E	28.5431 (d)	331.73'	171.15'
39+35.16DR	626109.63',179180.35'	43+66.05DR	626337.25',178814.49'			430.89'					
43+66.05DR	626337.25',178814.49'	47+92.99DR	626689.88',178603.15'	45+97.11DR	626459.31',178618.30'	426.94'	450.05'	S59° 03' 49.97"E	54.353 (d)	411.11'	231.06'
47+92.99DR	626689.88',178603.15'	49+99.99DR	626896.44',178589.60'			207.01'					

MULTIUSE PATH R/L											
PC Sta	START X,Y	END Sta	END X,Y	PI Sta	PI POINT	LENGTH	R	DIRECTION	DELTA	L	T
10+58.35MP	626163.60',179170.14'	14+47.43MP	626369.02',178839.70'			389.08'					
14+47.43MP	626369.02',178839.70'	14+92.49MP	626394.77',1788002.72'			45.06'					
14+92.49MP	626394.77',178802.72'	16+28.83MP	626495.20',178711.27'	15+61.17MP	626438.11',178749.44'	136.34'	456.63'	S47° 40' 45.24"E	18.108 (d)	135.84'	68.68'
16+28.83MP	626495.20',178711.27'	17+21.78MP	626575.75',178665.01'	16+75.38MP	626533.88',178685.37'	92.95'	675.40'	S60° 07' 53.21"E	7.885 (d)	92.88'	46.55'
17+21.78MP	626575.75',178665.01'	18+08.31MP	626658.88',178642.35'	17+65.41MP	626615.50',178647.02'	86.53'	272.44'	S74° 44' 59.40"E	18.198 (d)	86.17'	43.63'
18+08.31MP	626658.88',178642.35'	18+69.31MP	626719.74',178638.72'	18+38.85MP	626689.20',178638.76'	61.00'	523.93'	S86° 35' 06.66"E	6.671 (d)	60.97'	30.54'

CONTROL POINTS & BENCHMARKS				
PT #	N	E	ELEVATION	DESCRIPTION
BM200	-	-	894.36	RR SPIKE PP#11-01864, SOUTH SIDE CTH DR
BM201	-	-	896.10	RR SPIKE PP#11-01866, NORTH SIDE CTH DR
BM202	-	-	895.92	RR SPIKE PP#11-01719, NORTH SIDE CTH DR
CP151	178632.687	626505.566	-	PK NAIL
CP152	178939.696	626231.317	-	PK NAIL
CP153	179295.481	625994.801	-	PK NAIL





DATE 18JUL16		E S T I M A T E O F Q U A N T I T I E S			
LINE					1060-31-71
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTI TY
0010	204.0150	Removing Curb & Gutter	LF	160.000	160.000
0020	204.0170	Removing Fence	LF	150.000	150.000
0030	205.0100	Excavation Common	CY	969.000	969.000
0040	213.0100	Finishing Roadway (project) 01. 1060-31-71	EACH	1.000	1.000
0050	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	2,700.000	2,700.000
0060	415.0090	Concrete Pavement 9-Inch	SY	156.000	156.000
0070	416.0170	Concrete Driveway 7-Inch	SY	55.000	55.000
0080	455.0605	Tack Coat	GAL	350.000	350.000
0090	460.2000	Incentive Density HMA Pavement	DOL	770.000	770.000
0100	460.5224	HMA Pavement 4 LT 58-28 S	TON	1,200.000	1,200.000
0110	465.0105	Asphaltic Surface	TON	150.000	150.000
0120	520.8000	Concrete Collars for Pipe	EACH	1.000	1.000
0130	522.1012	Apron Endwalls for Culvert Pipe Reinforced Concrete 12-Inch	EACH	1.000	1.000
0140	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	1.000	1.000
0150	524.0612	Apron Endwalls for Culvert Pipe Salvaged 12-Inch	EACH	1.000	1.000
0160	601.0405	Concrete Curb & Gutter 18-Inch Type A	LF	125.000	125.000
0170	601.0407	Concrete Curb & Gutter 18-Inch Type D	LF	1,630.000	1,630.000
0180	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	170.000	170.000
0190	602.0405	Concrete Sidewalk 4-Inch	SF	2,360.000	2,360.000
0200	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	112.000	112.000
0210	606.0200	Riprap Medium	CY	32.000	32.000
0220	608.0312	Storm Sewer Pipe Reinforced Concrete Class III 12-Inch	LF	714.000	714.000
0230	608.0318	Storm Sewer Pipe Reinforced Concrete Class III 18-Inch	LF	97.000	97.000
0240	611.0420	Reconstructing Manholes	EACH	1.000	1.000
0250	611.0612	Inlet Covers Type C	EACH	3.000	3.000
0260	611.0624	Inlet Covers Type H	EACH	13.000	13.000
0270	611.3220	Inlets 2x2-FT	EACH	3.000	3.000
0280	611.3230	Inlets 2x3-FT	EACH	13.000	13.000
0290	612.0206	Pipe Underdrain Unperforated 6-Inch	LF	25.000	25.000
0300	616.0406	Fence Chain Link Salvaged 6-FT 01. Vinyl Coated	LF	600.000	600.000
0310	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1060-31-71	EACH	1.000	1.000
0320	619.1000	Mobilization	EACH	1.000	1.000
0330	624.0100	Water	MGAL	60.000	60.000
0340	625.0500	Salvaged Topsoil	SY	2,100.000	2,100.000
0350	627.0200	Mulching	SY	900.000	900.000
0360	628.1104	Erosion Bales	EACH	160.000	160.000
0370	628.1504	Silt Fence	LF	1,000.000	1,000.000
0380	628.1520	Silt Fence Maintenance	LF	500.000	500.000
0390	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0400	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0410	628.2004	Erosion Mat Class I Type B	SY	1,250.000	1,250.000
0420	628.7005	Inlet Protection Type A	EACH	2.000	2.000
0430	628.7010	Inlet Protection Type B	EACH	3.000	3.000
0440	628.7015	Inlet Protection Type C	EACH	16.000	16.000
0450	628.7560	Tracking Pads	EACH	2.000	2.000
0460	628.7570	Rock Bags	EACH	140.000	140.000



DATE 18JUL16		E S T I M A T E O F Q U A N T I T I E S			
LINE					1060-31-71
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTI TY
0470	629.0210	Fertilizer Type B	CWT	1.300	1.300
0480	630.0120	Seeding Mixture No. 20	LB	57.000	57.000
0490	633.0200	Delineators Flexible	EACH	14.000	14.000
0500	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	11.000	11.000
0510	634.0816	Posts Tubular Steel 2x2-Inch X 16-FT	EACH	22.000	22.000
0520	635.0200	Sign Supports Structural Steel HS	LB	1,800.000	1,800.000
0530	636.0100	Sign Supports Concrete Masonry	CY	3.600	3.600
0540	636.0500	Sign Supports Steel Reinforcement	LB	204.000	204.000
0550	637.1220	Signs Type I Reflective SH	SF	408.000	408.000
0560	637.2210	Signs Type II Reflective H	SF	177.110	177.110
0570	637.2230	Signs Type II Reflective F	SF	33.000	33.000
0580	642.5001	Field Office Type B	EACH	1.000	1.000
0590	643.0100	Traffic Control (project) 01. 1060-31-71	EACH	1.000	1.000
0600	643.0300	Traffic Control Drums	DAY	1,700.000	1,700.000
0610	643.0420	Traffic Control Barricades Type III	DAY	430.000	430.000
0620	643.0705	Traffic Control Warning Lights Type A	DAY	860.000	860.000
0630	643.0715	Traffic Control Warning Lights Type C	DAY	260.000	260.000
0640	643.0900	Traffic Control Signs	DAY	440.000	440.000
0650	645.0120	Geotextile Type HR	SY	58.000	58.000
0660	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,709.000	1,709.000
0670	646.0126	Pavement Marking Epoxy 8-Inch	LF	150.000	150.000
0680	646.0600	Removing Pavement Markings	LF	1,650.000	1,650.000
0690	647.0166	Pavement Marking Arrows Epoxy Type 2	EACH	3.000	3.000
0700	647.0256	Pavement Marking Symbols Epoxy	EACH	5.000	5.000
0710	647.0356	Pavement Marking Words Epoxy	EACH	2.000	2.000
0720	647.0566	Pavement Marking Stop Line Epoxy 18-Inch	LF	30.000	30.000
0730	647.0656	Pavement Marking Parking Stall Epoxy	LF	2,984.000	2,984.000
0740	647.0706	Pavement Marking Diagonal Epoxy 6-Inch	LF	942.000	942.000
0750	647.0796	Pavement Marking Crosswalk Epoxy 24-Inch	LF	202.000	202.000
0760	650.4000	Construction Staking Storm Sewer	EACH	14.000	14.000
0770	650.4500	Construction Staking Subgrade	LF	1,415.000	1,415.000
0780	650.5000	Construction Staking Base	LF	1,415.000	1,415.000
0790	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	1,925.000	1,925.000
0800	650.7000	Construction Staking Concrete Pavement	LF	100.000	100.000
0810	650.8500	Construction Staking Electrical Installations (project) 01. 1060-31-71	LS	1.000	1.000
0820	650.9910	Construction Staking Supplemental Control (project) 01. 1060-31-71	LS	1.000	1.000
0830	650.9920	Construction Staking Slope Stakes	LF	1,415.000	1,415.000
0840	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	1,140.000	1,140.000
0850	653.0140	Pull Boxes Steel 24x42-Inch	EACH	2.000	2.000
0860	654.0105	Concrete Bases Type 5	EACH	3.000	3.000
0870	654.0224	Concrete Control Cabinet Bases Type L24	EACH	1.000	1.000
0880	655.0610	Electrical Wire Lighting 12 AWG	LF	2,229.000	2,229.000
0890	655.0615	Electrical Wire Lighting 10 AWG	LF	5,144.000	5,144.000
0900	655.0640	Electrical Wire Lighting 1 AWG	LF	18.000	18.000
0910	656.0200	Electrical Service Meter Breaker Pedestal (location) 01. Sta. 10+47.9a	LS	1.000	1.000
0920	657.0255	Transformer Bases Breakaway 11 1/2-Inch Bolt Circle	EACH	12.000	12.000
0930	657.0322	Poles Type 5-Aluminum	EACH	12.000	12.000
0940	657.0610	Luminaire Arms Single Member 4 1/2-Inch Clamp 6-FT	EACH	10.000	10.000

DATE 18JUL16		E S T I M A T E O F Q U A N T I T I E S			
LINE					1060-31-71
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0950	657.0715	Luminaire Arms Truss Type 4 1/2-Inch Clamp 15-FT	EACH	7.000	7.000
0960	659.0115	Luminaires Utility HPS 150 Watts	EACH	1.000	1.000
0970	659.1125	Luminaires Utility LED C	EACH	16.000	16.000
0980	659.2124	Lighting Control Cabinets 120/240 24-Inch	EACH	1.000	1.000
0990	690.0150	Sawing Asphalt	LF	150.000	150.000
1000	690.0250	Sawing Concrete	LF	10.000	10.000
1010	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
1020	SPV.0060	Special 01. Chain Link Fence Vehicle Gates 12 Feet Vinyl Coated	EACH	1.000	1.000
1030	SPV.0060	Special 02. Concrete Bases Type 5, Special	EACH	9.000	9.000
1040	SPV.0090	Special 01. Chain Link Fence 6 Feet Vinyl Coated	LF	100.000	100.000
1050	SPV.0105	Special 01. Lighting System Survey	LS	1.000	1.000
1060	SPV.0105	Special 02. Lighting System Integrator	LS	1.000	1.000
1070	SPV.0165	Special 01. Concrete Sidewalk 4-Inch, Special	SF	685.000	685.000

3

3

<div>REMOVING CURB &amp; GUTTER</div>				<div>CONCRETE PAVEMENT</div>				<div>CONCRETE CURB &amp; GUTTER</div>					
204.0150				415.0090				601.0405601.0407601.0411					
STATION TO STATIONLOCATION(LF)				CONCRETE PAVEMENT 9-INCH (SY)				CONCRETE CURB & GUTTERCONCRETE CURB & GUTTERCONCRETE CURB & GUTTER					
10+78MP - 11+52MP NORTH PARK AND RIDE ENTRANCE75				15+05A - 15+37A MOTORCYCLE PAD76				18-INCH TYPE A (LF)18-INCH TYPE D (LF)30-INCH TYPE D (LF)					
15+23MP - 16+04MP SOUTH PARK AND RIDE ENTRANCE85				13+93A - 14+50A BUS PAD80									
TOTAL160				TOTAL156				STATION TO STATIONLOCATION(LF)(LF)(LF)					
								10+24A - 16+28A PARK AND RIDE1251,630--					
								NORTH DRIVEWAY--80					
								SOUTH DRIVEWAY--90					
								TOTAL1251,630170					

<div>REMOVING FENCE</div>				<div>CONCRETE DRIVEWAY</div>				<div>CONCRETE SIDEWALK</div>					
204.0170				416.0170				602.0405SPV.0165.01602.0505					
STATION TO STATION O/SLOCATION(LF)				CONCRETE DRIVEWAY 7-INCH (SY)				CONCRETE SIDEWALKCONCRETE SIDEWALKCONCRETE SIDEWALK					
10+24A - 16+28A RT PARK AND RIDE150				10+24A NORTH DRIVEWAY26				4-INCH4-INCH4-INCH					
TOTAL150				16+28A SOUTH DRIVEWAY29				SPECIALSPECIALSPECIAL					
				TOTAL55				STATION TO STATIONLOCATION(SF)(SF)(SF)					
								10+58MP - 18+69MP SHARED-USE PATH--72					
								14+40A - 15+05A PARK AND RIDE2,36068540					
								TOTAL2,360685112					

<div>BASE AGGREGATE DENSE</div>													
305.0120													
1 1/4-INCH (TON)													
STATION - STATIONLOCATION(TON)													
10+24A - 16+28A PARK AND RIDE2,580													
UNDISTRIBUTED120													
TOTAL2,700													

EARTHWORK

Stage	From/To Station	Location	205.0100 Common Excavation	Available Material	Unexpanded Fill	Expanded Fill	Mass Ordinate +/- (11)	Waste	208.0100 Borrow
			Cut						
			(CY)						(CY)
1	10+40 TO 16+24	CTH P PARK AND RIDE LOT	473	473	198	248	225	225	0
1	20+18 TO 21+70	MAINTENANCE RAMP	283	283	24	30	253	253	0
1	10+58 TO 18+69	SHARED-USE PATH	213	213	289	362	-149	0	149
Grand Totals			969	969	511	639	329	478	0
Total Common Excavation			969						

- 10) Expanded Fill. Factor = 1.25
- 11) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material w ithin the Division. Minus indicates a shortage of material w ithin the Division.

<u>WATER</u>	
624.0100	
<u>LOCATION (MGAL)</u>	
PROJECT	60
TOTAL	60

<u>HMA PAVEMENT ITEMS</u>				
		460.5224	455.0605	465.0105
		HMA	TACK	ASPHALTIC
		PAVEMENT	COAT	SURFACE
		4 LT 58-28 S	(GAL)	(TON)
STATION - STATION	LOCATION	(TON)		
10+24A - 16+28A	PARK AND RIDE	1,100	323	-
10+58MP - 18+69MP	SHARED-USE PATH	-	-	139
		UNDISTRIBUTED	100	27
			11	
TOTAL		1,200	350	150

<u>PIPE UNDERDRAIN AT EXISTING DETENTION PONDS</u>					
				612.0206	
				PIPE UNDERDRAIN	
INLET	INLET	OUTLET	OUTLET	SLOPE	UNPERFORATED 6-INCH
LOCATION	INVERT	LOCATION	INVERT	%	(LF)
STA OFFSET	ELEVATION	STA OFFSET	ELEVATIONS		
367+85, 200' RT	880.0	367+60, 210' RT	880.00	0.000	25
TOTAL					25

STORM SEWER STRUCTURES															
		611.0612		611.0624		522.1012		522.1018		524.0612		611.3220 611.3230		611.0420	
						APRON ENDWALLS		APRON ENDWALLS		APRON ENDWALLS					
						FOR CULVERT		FOR CULVERT		FOR CULVERT					
						PIPE REINFORCED		PIPE REINFORCED		PIPE SALVAGED				RECONSTRUCTING	
						CONCRETE 12-INCH		CONCRETE 18-INCH		12-INCH				MANHOLES	
STRUC. NO.	STATION	OFFSET TO CENTER OF STRUCTURE	CASTING ELEV.	TOP OF STR. ELEV.	BOTTOM OF STR. ELEV.	DEPTH	INLET COVERS TYPE C (EACH)	INLET COVERS TYPE H (EACH)	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 12-INCH (EACH)	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH (EACH)	APRON ENDWALLS FOR CULVERT PIPE SALVAGED 12-INCH (EACH)	INLET 2x2-FT (EACH)	INLET 2X3-FT (EACH)	RECONSTRUCTING MANHOLES (EACH)	
1.0	15+33.7A	57.5' LT	-	-	884.50	-	-	-	-	1	-	-	-	-	
1.1	15+36.2A	14.4' LT	891.45	890.45	884.81	5.64	-	1	-	-	-	-	1	-	
1.2	15+11.9A	29.1' RT	890.46	889.46	885.15	4.31	-	1	-	-	-	-	1	-	
1.3	14+56.1A	30.0' RT	890.57	889.32	885.32	4.00	1	-	-	-	-	1	-	-	
1.4	13+79.6A	30.0' RT	893.01	891.76	887.76	4.00	1	-	-	-	-	1	-	-	
1.5	12+86.1A	30.0' RT	895.65	894.40	890.40	4.00	1	-	-	-	-	1	-	-	
1.6	11+68.2A	26.1' RT	898.63	897.63	891.80	5.83	-	1	-	-	-	-	1	-	
1.7	11+20.4A	12.5' RT	899.17	898.17	893.92	4.25	-	1	-	-	-	-	1	-	
1.8	10+49.9A	24.3' LT	897.81	896.81	892.81	4.00	-	1	-	-	-	-	1	-	
1.9	16+02.1A	58.5' RT	891.00	890.00	885.75	4.25	-	1	-	-	-	-	1	-	
2.0	13+79.6A	89.5' RT	893.70	892.70	888.40	4.30	-	1	-	-	-	-	1	-	
2.1	12+86.1A	89.5' RT	896.25	895.25	890.75	4.50	-	1	-	-	-	-	1	-	
2.2	11+15.0A	20.9' RT	898.93	897.93	892.00	5.93	-	1	-	-	-	-	1	-	
2.3	10+65.3A	28.6' RT	898.09	897.09	892.25	4.84	-	1	-	-	-	-	1	-	
2.4	12+29.5A	45.9' RT	897.42	-	-	-	-	-	-	-	-	-	-	1	
2.5	14+37.5A	73.5' LT	-	-	881.79	-	-	-	-	-	1	-	-	-	
2.6	10+51.3A	15.5' RT	897.22	896.22	892.35	3.87	-	1	-	-	-	-	1	-	
2.7	14+95.9A	61.0' LT	-	-	886.50	-	-	-	1	-	-	-	-	-	
2.8	14+95.6A	29.5' LT	890.94	889.94	886.48	3.46	-	1	-	-	-	-	1	-	
2.9	14+74.6A	29.5' LT	891.11	890.11	886.83	3.28	-	1	-	-	-	-	1	-	
TOTAL						3	13	1	1	1	1	3	13	1	

STRUCTURE DEPTH= CASTING ELEVATION (FINISHED GRADE) - CASTING HEIGHT - 0.5' OF ADJUSTMENT - BOTTOM OF STRUTURE ELEV  
RIM ELEVATIONS ARE GIVEN TO THE FLANGE OF A CURB INLET OR CENTER OF THE MANHOLE STRUCTURE  
STATIONS AND OFFSETS ARE TO THE CENTER OF THE STRUCTURES  
CASTING HEIGHT FOR INLET COVER TYPE C = 9", TYPE H = 6"

FILE NAME : \_\_\_\_\_ PLOT DATE : \_\_\_\_\_ PLOT BY : \_\_\_\_\_ PLOT NAME : \_\_\_\_\_ PLOT SCALE : 1:1

STORM SEWER PIPE REINFORCED CONCRETE CLASS III

		520.8000 608.0312 608.0318					
		CONCRETE					
		COLLAR					
FROM	TO	INLET ELEVATION	DISCHARGE ELEVATION	SLOPE FT/FT	EACH	12-INCH (LF)	18-INCH (LF)
1.1	1.0	885.00	884.50	0.012	-	-	40
1.2	1.1	885.34	885.00	0.007	-	-	47
1.3	1.2	885.51	885.34	0.017	-	-	10
1.4	1.3	887.93	885.76	0.019	-	116	-
1.5	1.4	890.57	887.93	0.028	-	94	-
1.6	1.5	891.97	890.57	0.013	-	109	-
1.7	2.2	894.09	894.04	0.005	-	9	-
1.8	2.6	892.98	892.52	0.012	-	40	-
1.9	1.2	885.92	885.59	0.005	-	60	-
2.0	1.4	888.57	887.93	0.011	-	59	-
2.1	1.5	890.92	890.57	0.006	-	60	-
2.2	1.6	892.17	891.97	0.005	-	38	-
2.3	2.2	892.42	892.17	0.007	-	36	-
2.6	2.3	892.52	892.42	0.005	-	19	-
2.9	2.8	887.00	886.90	0.005	-	21	-
2.8	2.7	886.65	886.50	0.005	-	29	-
EXISTING	2.5	881.94	880.75	0.046	1	26	-
TOTAL					1	714	97

LENGTH MEASURED FROM CENTER OF STRUCTURE OR APRON END WALL TO CENTER OF STRUCTURE

FENCE CHAIN LINK, VINYL COATED

		616.0406 616.0406 616.0406					
		FENCE CHAIN LINK					
		SALVAGED 6-FT					
		VINYL COATED					
STATION TO	STATION O/S	LOCATION	(LF)	(EACH)	(LF)	(LF)	(LF)
10+24A	- 16+28A	LT PARK AND RIDE	495	1	100		
16+00MP	- 18+28MP	LT PARK AND RIDE	105	--	--		
TOTAL			600	1	100		

DELINEATORS FLEXIBLE

		633.0200 633.0200 633.0200					
		DELINEATORS					
		FLEXIBLE					
STATION TO	STATION	LOCATION	(EACH)	(EACH)	(EACH)	(EACH)	(EACH)
10+24A	- 16+28A	PARK AND RIDE	14				
TOTAL			14				

3

TYPE I&II PERMANENT SIGNING -

1060-31-71 IH94 @ CTH P

SIGN NO.	SIGN CODE & SIZE	SIGN MESSAGE	SIGN SIZE W x H [IN.] x [IN.]			637.2210	637.2230	634.0816	634.0618	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION	TYPE I SIGN SIZE W x H [FT.] x [FT.]			637.1220	STEEL POST TYPE	636.0100	636.0500	635.0200	INFO ONLY-POST LENGTHS TO BE VERIFIED BY CONTRACTOR			
						SIGNS TYPE II REFLC H [SF]	SIGNS TYPE II REFLC F [SF]	TUBULAR STEEL POSTS 2x2x16' [EA]	WOOD POSTS 4"X 6"x18' [EA]								SIGN NO. SUPPORTS CONCRETE MASONRY [CY]	SIGN SUPPORTS STEEL REINF. [LBS]	SIGN SUPPORTS STRUCTURAL STEEL HS [EST.LBS]	POST NO 1 LENGTH [FT]	POST NO 2 LENGTH [FT]	OFF SET DISTANCE [FT]	DIST BTWN POSTS "S" [FT]
1	R7-1R(2S)	NO PARKING	18	x	24	3.000	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
2	R7-1L(2S)	NO PARKING	18	x	24	3.000	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
3	R1-1(2S)	STOP	30	x	30	5.180	--	--	1	--	--	x			0.00	--	--	--	--	--	--	--	--
4	D4-2L(2S)	PARK & RIDE [ARROW]	30	x	36	7.500	--	--	1	--	--	x			0.00	--	--	--	--	--	--	--	--
5	W11-2(2S)	PEDESTRIAN CROSSING	30	x	30	--	6.250	--	1	--	--	x			0.00	--	--	--	--	--	--	--	--
6	W16-7L(2S)	LEFT ARROW	24	x	12	--	2.000	--	--	#5	--	x			0.00	--	--	--	--	--	--	--	--
7	W11-2(2S)	PEDESTRIAN CROSSING	30	x	30	--	6.250	--	--	--	MOUNT ON BACK OF SIGN POST OF SIGN #5	x			0.00	--	--	--	--	--	--	--	--
8	W16-7R(2S)	RIGHT ARROW	24	x	12	--	2.000	--	--	#7	--	x			0.00	--	--	--	--	--	--	--	--
9	R1-1(2S)	STOP	30	x	30	5.180	--	--	1	--	--	x			0.00	--	--	--	--	--	--	--	--
10	D12-2A(MOD)	RIDESHARE	72	x	30	15.000	--	--	2	--	--	x			0.00	--	--	--	--	--	--	--	--
11	D12-2A(MOD)	RIDESHARE	72	x	30	15.000	--	--	2	--	--	x			0.00	--	--	--	--	--	--	--	--
12	R7-1L(2S)	NO PARKING	18	x	24	3.000	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
13	--	NO OVERNIGHT PARKING	48	x	27	9.000	--	2	--	--	--	x			0.00	--	--	--	--	--	--	--	--
14	--	MOTORCYCLE PARKING ONLY	36	x	21	5.250	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
15	--	MOTORCYCLE PARKING ONLY	36	x	21	5.250	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
16	--	MOTORCYCLE PARKING ONLY	36	x	21	5.250	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
17	--	MOTORCYCLE PARKING ONLY	36	x	21	5.250	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
18	--	MOTORCYCLE PARKING ONLY	36	x	21	5.250	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
19	R7-1R(2S)	NO PARKING	18	x	24	3.000	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
20	R7-8V(2S)	VAN ACCESSIBLE	12	x	6	0.500	--	--	--	#21	--	x			0.00	--	--	--	--	--	--	--	--
21	R7-8A	HANDICAPED PARKING	12	x	18	1.500	--	1	--	#20	--	x			0.00	--	--	--	--	--	--	--	--
22	R7-8A	HANDICAPED PARKING	12	x	18	1.500	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
23	R7-8A	HANDICAPED PARKING	12	x	18	1.500	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
24	R7-8A	HANDICAPED PARKING	12	x	18	1.500	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
25	R7-8A	HANDICAPED PARKING	12	x	18	1.500	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
26	--	BUS SCHEDULE & INFO	30	x	24	5.000	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
27	R7-7R(2S)	NO PARKING - BUS STOP	18	x	24	3.000	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
28	W11-2(2S)	PEDESTRIAN CROSSING	30	x	30	--	6.250	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
29	W16-7L(2S)	LEFT ARROW	24	x	12	--	2.000	--	--	#28	--	x			0.00	--	--	--	--	--	--	--	--
30	W11-2(2S)	PEDESTRIAN CROSSING	30	x	30	--	6.250	--	--	#28	--	x			0.00	--	--	--	--	--	--	--	--
31	W16-7R(2S)	RIGHT ARROW	24	x	12	--	2.000	--	--	#28	--	x			0.00	--	--	--	--	--	--	--	--
32	R7-7L(2S)	NO PARKING - BUS STOP	18	x	24	3.000	--	1	--	--	--	x			0.00	--	--	--	--	--	--	--	--
33	D4-2L(2S)	PARK & RIDE [ARROW]	30	x	36	7.500	--	--	1	--	--	x			0.00	--	--	--	--	--	--	--	--
34	D4-2R(2S)	PARK & RIDE [ARROW]	30	x	36	7.500	--	--	--	--	MOUNT ON BACK OF EXISTING J3-3	x			0.00	--	--	--	--	--	--	--	--
35	D4-2R(2S)	PARK & RIDE [ARROW]	30	x	36	7.500	--	--	--	--	MOUNT ON FAR SIDE OF SIDEWALK	x			0.00	--	--	--	--	--	--	--	--
36	D4-3(MOD)	SUMMIT [BUS] [CAR] PARK & RIDE	--	x	--	--	--	--	--	--	--	12	x	7.5	90.00	A	1.2	68	600 EST	--	--	--	9
37	D4-3(MOD)	SUMMIT [BUS] [CAR] PARK & RIDE	--	x	--	--	--	--	--	--	MOUNT ON BACK OF SIGN #36	12	x	7.5	90.00	--	--	--	--	--	--	--	--
38	D4-2R(3)	PARK & RIDE [ARROW]	36	x	48	12.000	--	--	1	--	--	x			0.00	--	--	--	--	--	--	--	--
39	D4-2L(3)	PARK & RIDE [ARROW]	36	x	48	12.000	--	--	1	--	--	x			0.00	--	--	--	--	--	--	--	--
40	D4-2A(2S)	PARK & RIDE AHEAD	30	x	36	7.500	--	--	--	--	MOUNT ON UPRIGHT POLE OF OVERHEAD SIGN SUPPORT	x			0.00	--	--	--	--	--	--	--	--
41	D4-3(MOD)	SUMMIT [BUS] [CAR] PARK & RIDE EXT 283	--	x	--	--	--	--	--	--	--	12	x	9.5	114.00	A	1.2	68	600 EST	--	--	--	9
42	D4-3(MOD)	SUMMIT [BUS] [CAR] PARK & RIDE EXT 283	--	x	--	--	--	--	--	--	--	12	x	9.5	114.00	A	1.2	68	600 EST	--	--	--	9
43	--	NO OVERNIGHT PARKING	48	x	27	9.000	--	2	--	--	--	x			0.00	--	--	--	--	--	--	--	--
TOTALS						177.110	33.000	22	11	--	--				408.000	--	3.6	204	1,800 EST				

3

LIGHTING PULLBOXES

653.0140  
PULL BOXES  
STEEL  
24X42-INCH

PULL BOX NUMBER	STATION	OFFSET	R/L	EACH
LPB1	10+51A	38.8	L	1
LPB2	11+21A	17.4	R	1
TOTALS				2

LIGHTING CONDUIT AND WIRE

652.0225  
CONDUIT  
RIGID  
NONMETALLIC  
SCHEDULE 40  
2-INCH

655.0615  
ELECTRICAL  
WIRE  
LIGHTING  
10 AWG

FROM	TO	LF	LF
HL-67-PP	- LPB1	10	--
HL-67-PP	- LPB1	10	88
HL-67-PP	- LPB1	10	88
LPB1	- APP1	17	168
LPB1	- LPB2	89	808
LPB2	- BPP2 / APP2	5	64
BPP2 / APP2	- APP3	107	468
APP3	- BPP4	84	376
BPP4	- APP5	95	420
APP5	- BPP6	98	324
BPP6	- STUB	10	--
LPB2	- CPP7 / DPP7	105	440
CPP7 / DPP7	- DPP8 / CPP8	86	384
DPP8 / CPP8	- C PP9 / DPP9	94	416
CPP9 / DPP9	- DPP10 / CPP1	100	440
DPP10 / CPP10	- DPP11	75	255
DPP11	- STUB	10	--
EXIST CAA9	- CAA10	125	405
CAA10	- STUB	10	--
TOTALS		1,140	5,144



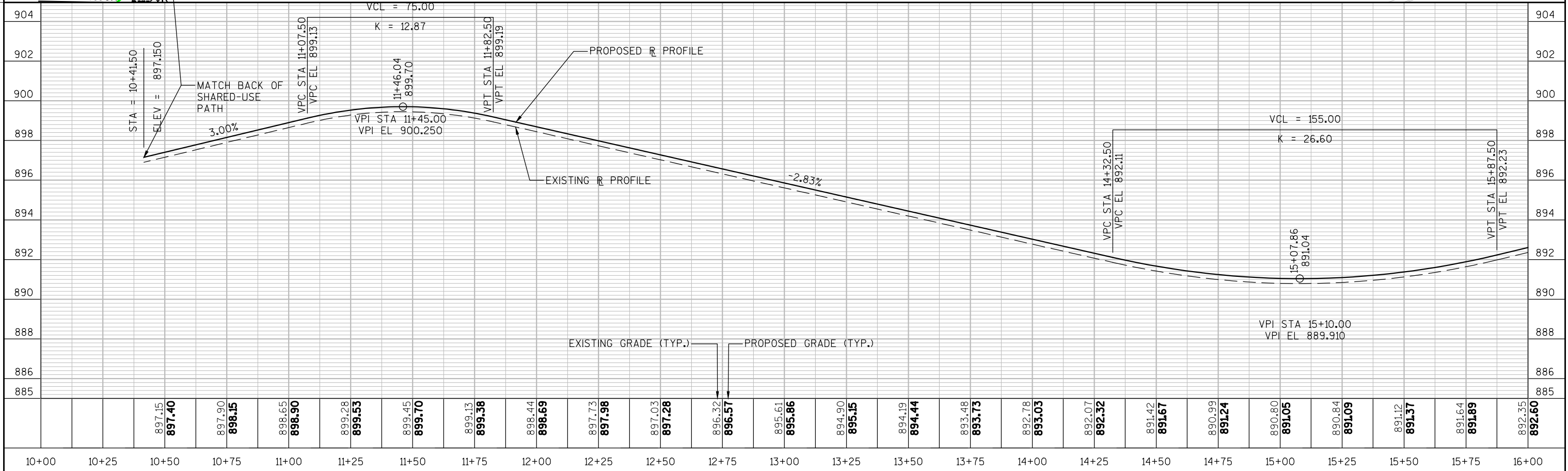
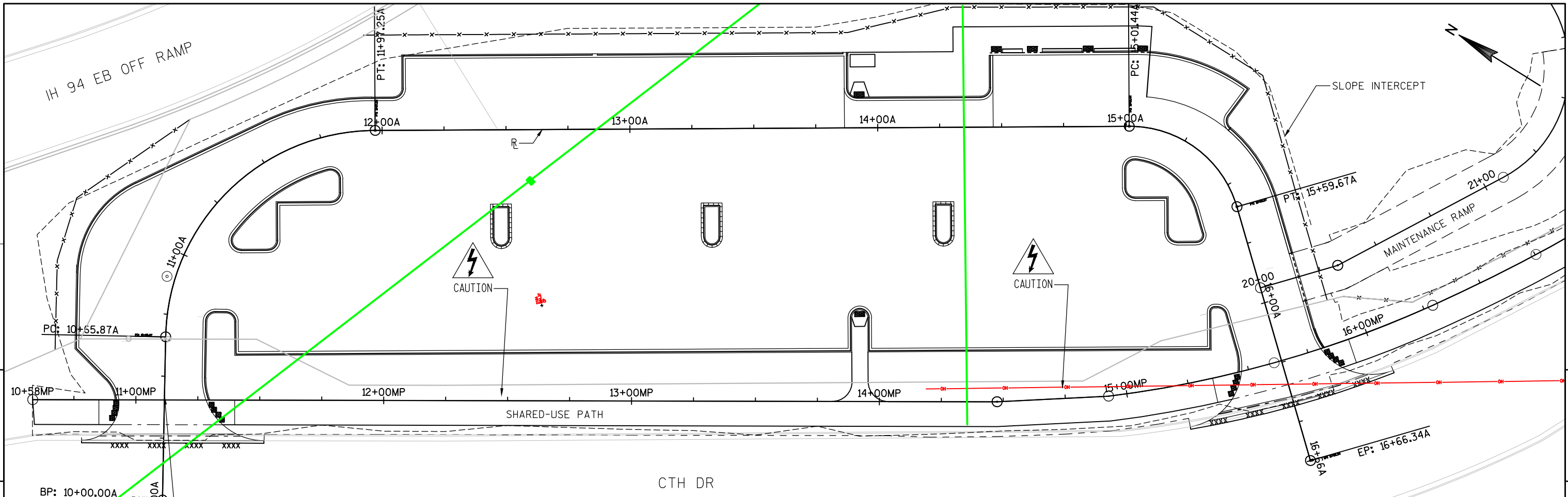
STREET LIGHTS

				654.0105 CONCRETE BASES TYPE 5	655.0610 ELECTRICAL WIRE LIGHTING 12 AWG	657.0255 TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE	657.0322 POLES TYPE 5-ALUMINUM	657.0610 LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 6-FT	657.0715 LUMINAIRE ARMS TRUSS TYPE 4 1/2-INCH CLAMP 15-FT	659.0115 LUMINAIRES UTILITY HPS 150 WATT	659.1125 LUMINAIRE UTILITY LED C	SPV.0060.02 CONCRETE BASES TYPE 5 SPECIAL
LIGHT NUMBER	STATION	OFFSET	R/L	EACH	LF	EACH	EACH	EACH	EACH	EACH	EACH	EACH
APP1	10+66A	42.5'	L	1	147	1	1	--	1	--	1	--
BPP2 / APP2	11+26A	19.1'	R	--	240	1	1	2	--	--	2	1
APP3	12+05A	36.6'	L	--	147	1	1	--	1	--	1	1
BPP4	12+87A	36.5'	L	--	147	1	1	--	1	--	1	1
APP5	13+79A	36.5'	L	--	147	1	1	--	1	--	1	1
BPP6	14+73A	43.0'	L	--	147	1	1	--	1	--	1	1
CPP7 / DPP7	12+47A	39.0'	R	--	240	1	1	2	--	--	2	1
DPP8 / CPP8	13+32A	39.0'	R	--	240	1	1	2	--	--	2	1
CPP9 / DPP9	14+26A	39.0'	R	--	240	1	1	2	--	--	2	1
DPP10 / CPP10	15+43A	19.7'	R	--	240	1	1	2	--	--	2	1
DPP11	16+13A	22.5'	L	1	147	1	1	--	1	--	1	--
CAA10	45+70DR	42.0'	L	1	147	1	1	--	1	1	--	--
TOTALS				3	2,229	12	12	10	7	1	16	9

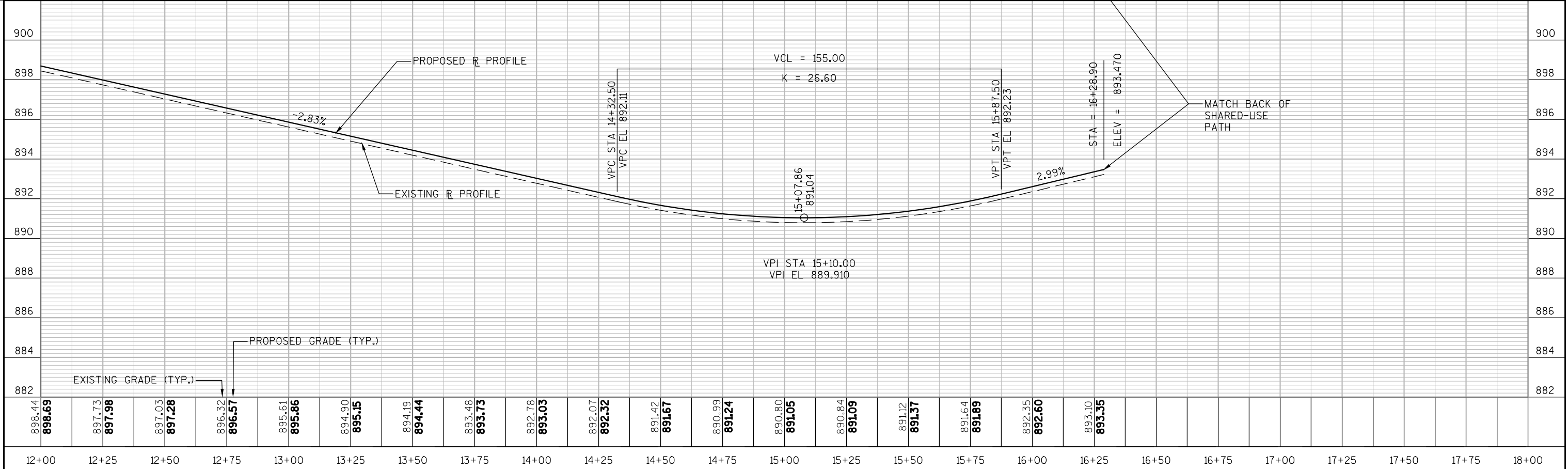
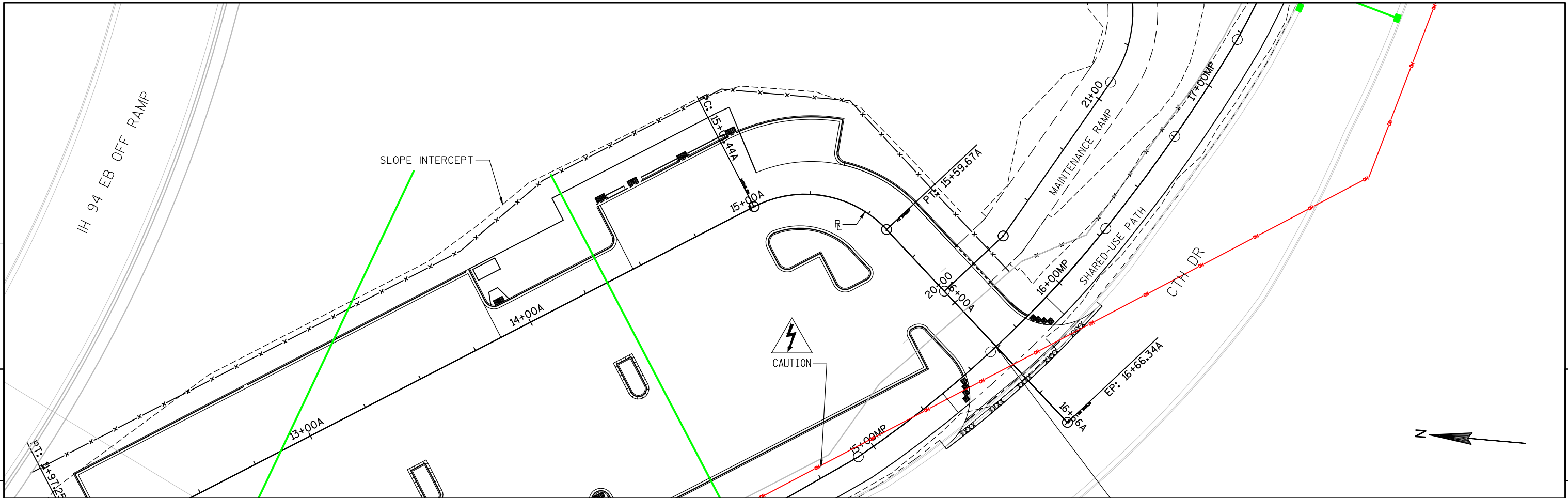
LIGHTING CONTROL & MISCELLANEOUS ITEMS

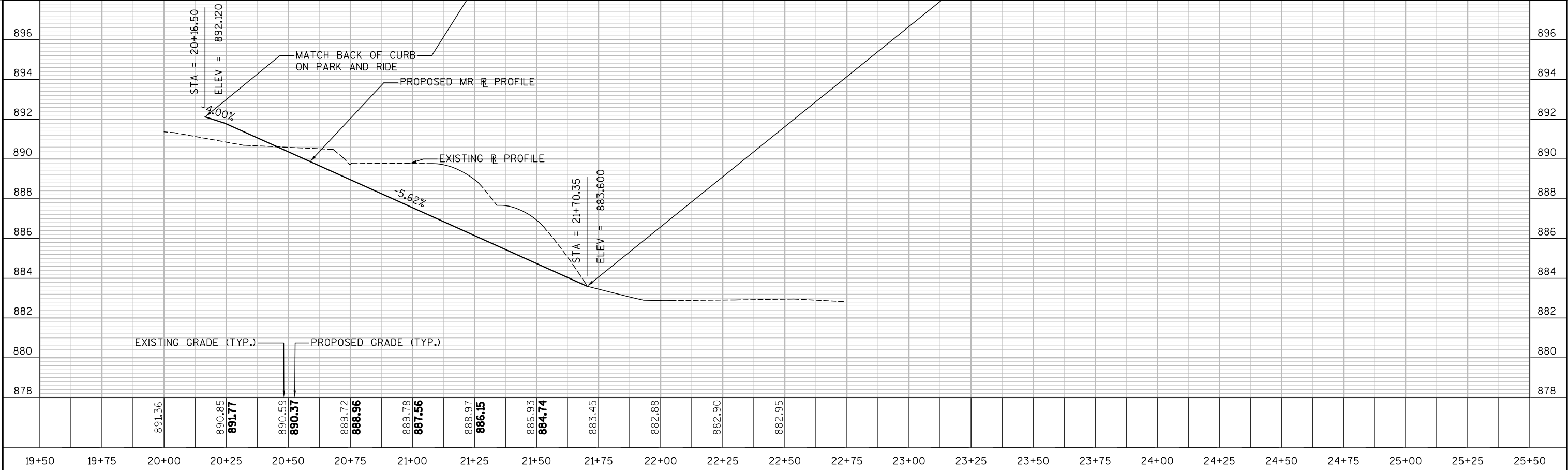
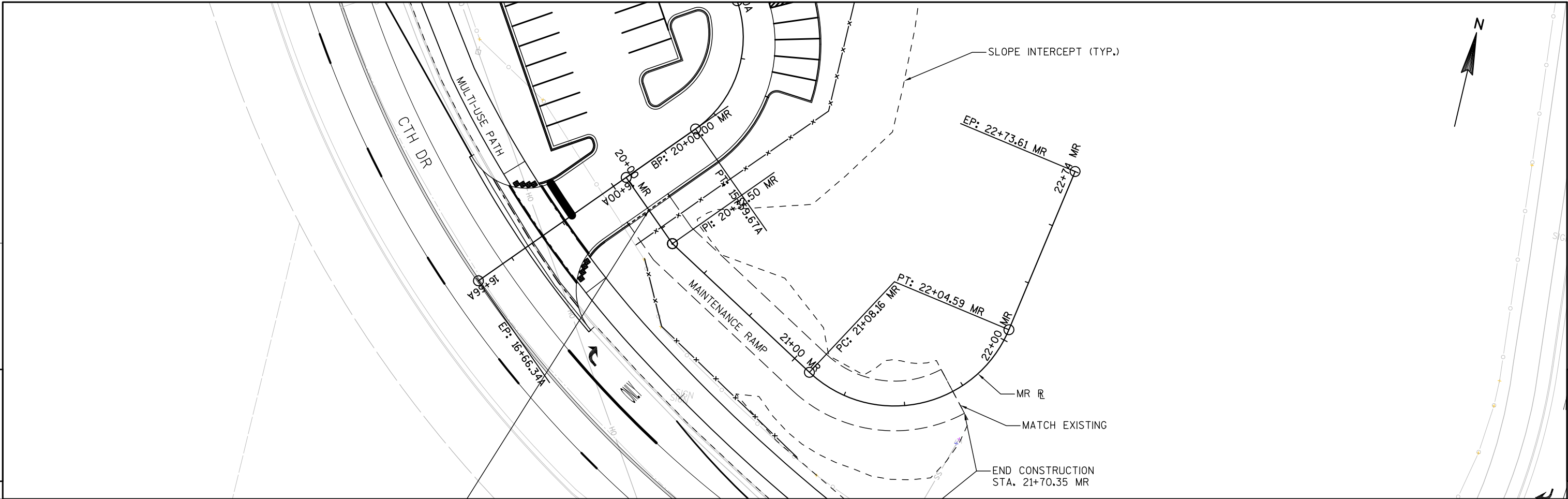
				650.8500 CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS (I.D. 1060-31-71)	654.0224 CONCRETE CONTROL CABINET BASES TYPE L24	655.0640 ELECTRICAL WIRE LIGHTING 1 AWG	656.0200 ELECTRICAL SERVICE METER BREAKER PEDESTAL (I.D. 1060-31-71)	659.2124 LIGHTING CONTROL CABINETS 120/240 24-INCH	SPV.0105.01 LIGHTING SYSTEM SURVEY	SPV.0105.02 LIGHTING SYSTEM INTEGRATOR
CABINET NUMBER	STATION	OFFSET	R/L	LS	EACH	LF	LS	EACH	LS	LS
HL-67-PP	10+48A	45.3'	L	1	1	18	1	1	1	1
TOTALS				1	1	18	1	1	1	1

PLAQUE TEXT  
HL-67-PP  
PARK & RIDE AT CTH P  
240 VAC WARNING DECAL (METER PEDESTAL AND CABINET DOOR)



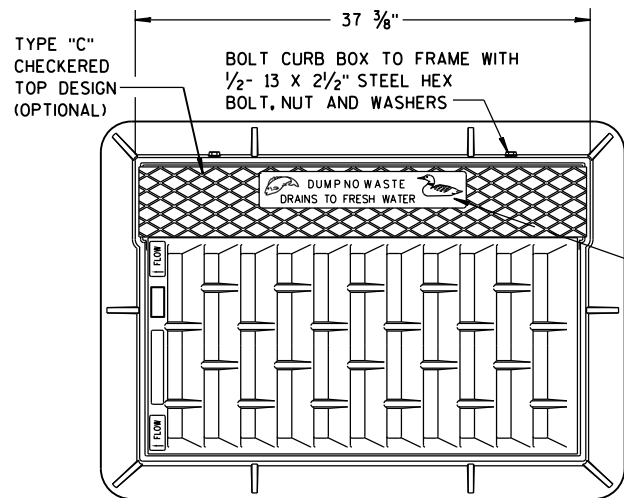
PROJECT NO:1060-31-71					HWY: IH 94					COUNTY: WAUKESHA					PLAN AND PROFILE: ROUTE A					SHEET					E
-----------------------	--	--	--	--	------------	--	--	--	--	------------------	--	--	--	--	---------------------------	--	--	--	--	-------	--	--	--	--	---



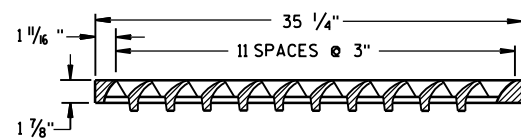
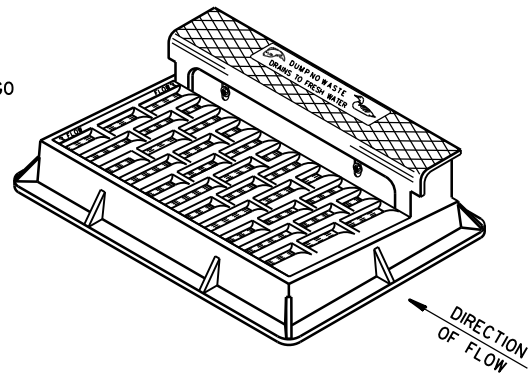


Standard Detail Drawing List

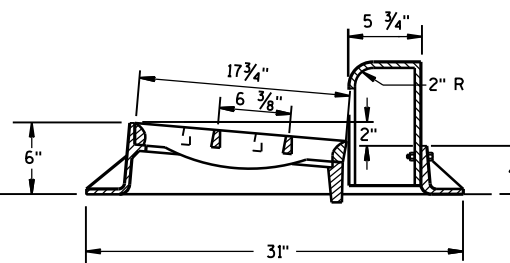
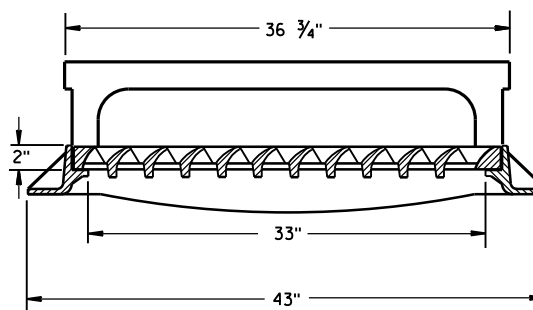
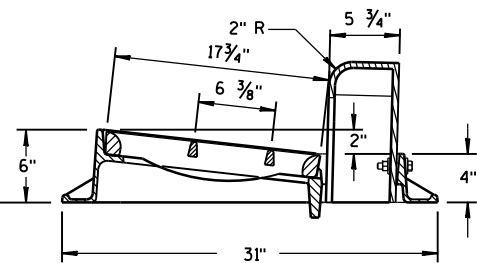
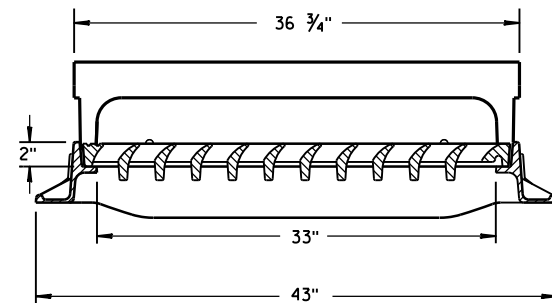
08A05-19A	INLET COVERS TYPE A, H, A-S, H-S & Z
08A05-19B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08C07-01	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D01-18	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D05-16A	CURB RAMPS TYPES 1 AND 1-A
08D05-16B	CURB RAMPS TYPES 2 AND 3
08D05-16C	CURB RAMPS TYPES 4A AND 4A1
08D05-16D	CURB RAMPS TYPE 4B AND 4B1
08D05-16E	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
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09B02-09	CONDUIT
09B04-11	PULL BOX
09C02-07	CONCRETE BASES, TYPES 1, 2, 5, & 6
09C03-04	TRANSFORMER/PEDESTAL BASES
09C14-02	CONCRETE CONTROL CABINET BASE, TYPE L
09D01-05	CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)
09D04-02	LIGHTING CONTROL CABINET 120/240 VOLT
09E01-14D	POLE MOUNTINGS FOR LIGHTING UNITS, TYPE 5 (30 FEET)
09E01-14G	HARDWARE DETAILS FOR POLE MOUNTINGS
09E03-05	NON-FREEWAY LIGHTING UNIT POLE WIRING
13C01-18	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C18-03A	CONCRETE PAVEMENT JOINTING
13C18-03B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-03C	CONCRETE PAVEMENT JOINT TIES
13C18-03D	CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES
15B03-15A	FENCE CHAIN LINK
15B03-15B	FENCE CHAIN LINK
15C03-03	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C05-03	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS
15C07-12A	PAVEMENT MARKING SYMBOLS
15C07-12B	PAVEMENT MARKING WORDS
15C07-12C	PAVEMENT MARKING ARROWS
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C12-04	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15D28-03	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY



**NOTE:  
GRATE IS REVERSIBLE.**

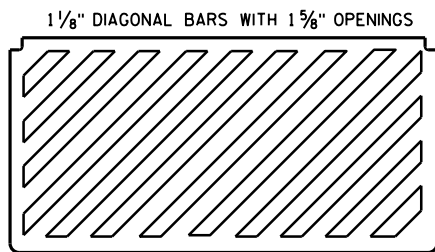


**NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"**

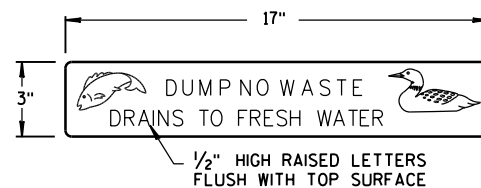


**TYPE "H"**

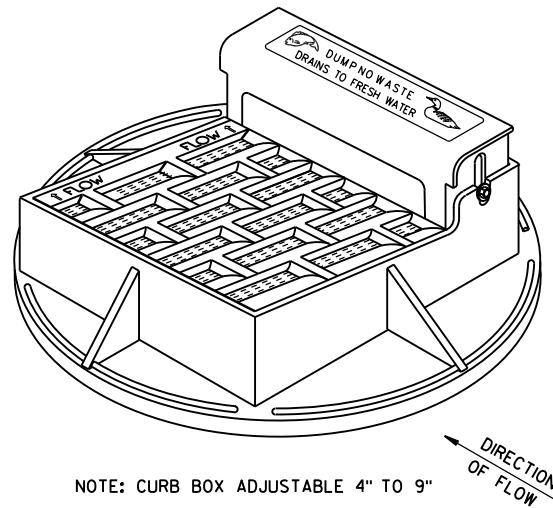
**NOTE: EITHER CASTING IS ACCEPTABLE**



**SPECIAL GRATE FOR  
TYPE "H" COVER**  
(MEASURES 35 1/4" X 17 3/4" X 2")  
(NOTED AS TYPE H-S ON DRAINAGE TABLE)

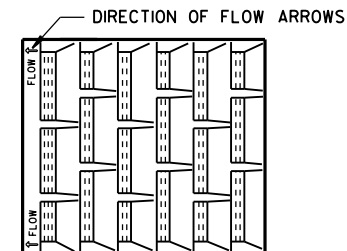


**LOGO DETAIL**

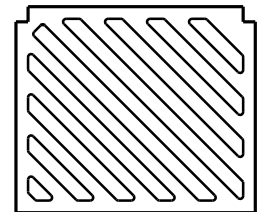


**NOTE: CURB BOX ADJUSTABLE 4" TO 9"**

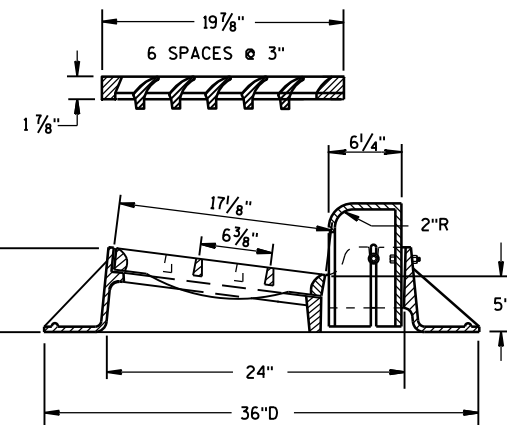
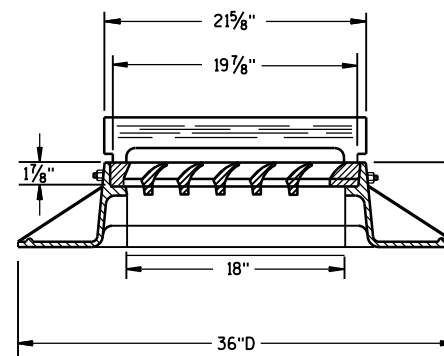
**NOTE:  
GRATE IS REVERSIBLE.**



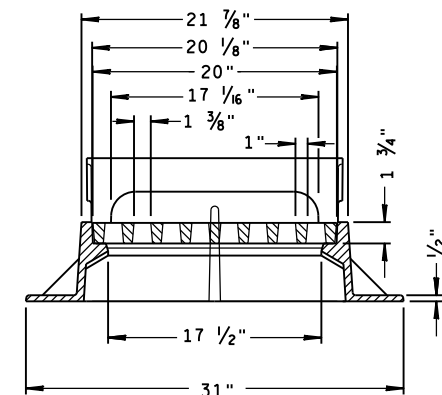
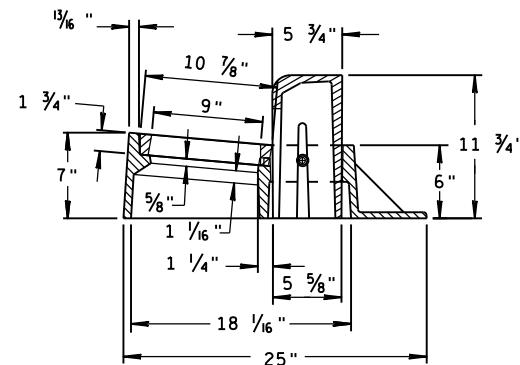
1" DIAGONAL BARS  
WITH 1 1/2" OPENINGS



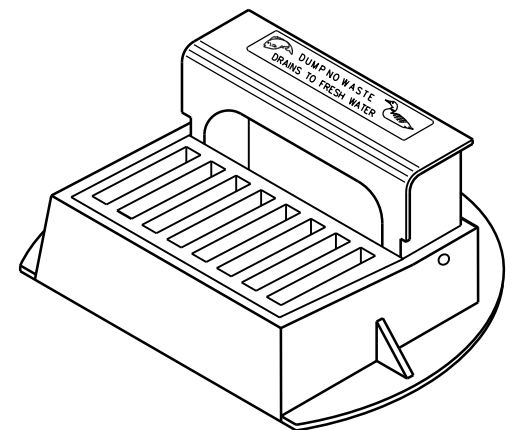
**SPECIAL GRATE FOR  
TYPE "A" COVER**  
(MEASURES 19 3/4" X 17" X 1 1/8")  
(NOTED AS TYPE A-S ON DRAINAGE TABLE)



**TYPE "A"**



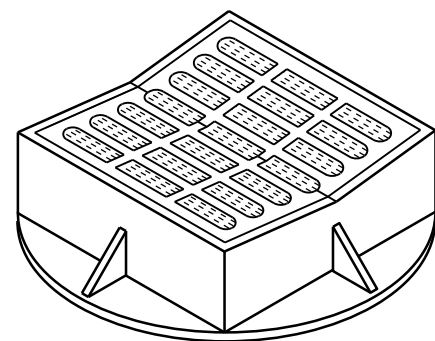
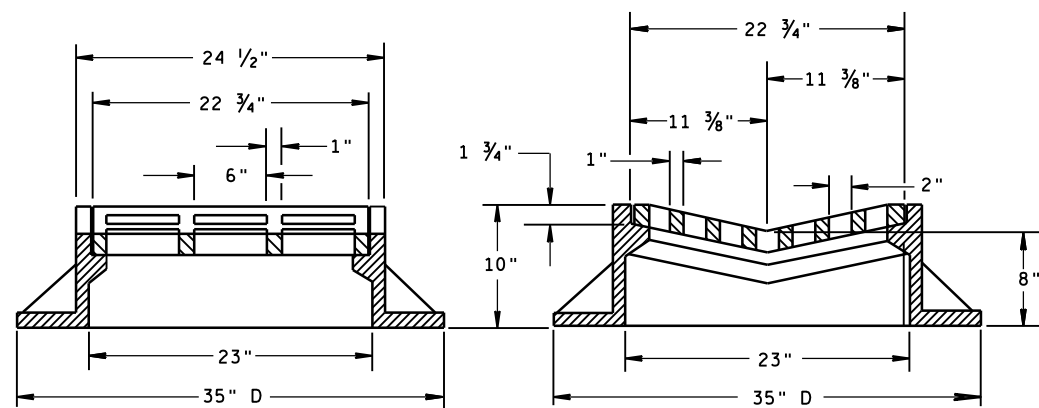
**TYPE "Z"**



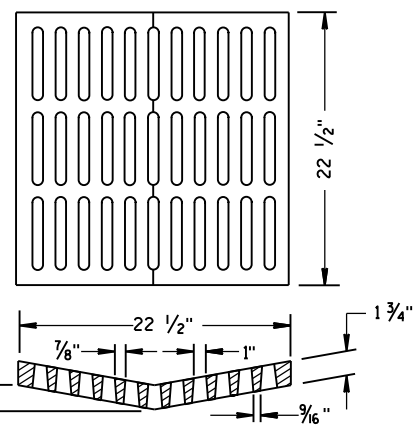
**INLET COVERS  
TYPE A, H, A-S, H-S & Z**

**STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION**

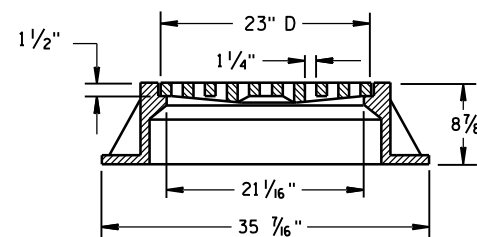
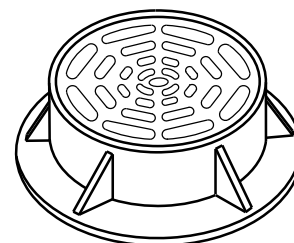
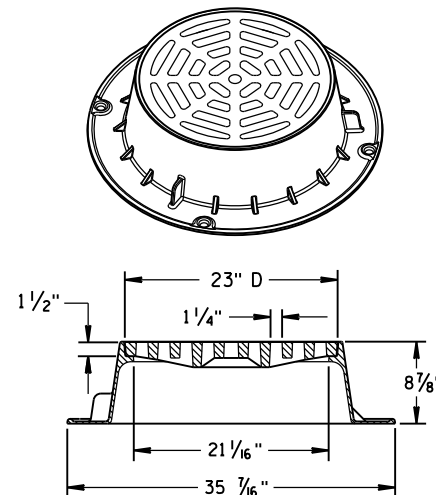
**APPROVED**  
11-27-13  
DATE  
/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA



TYPE "B"

ALTERNATIVE GRATE FOR  
TYPE "B" COVER

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



TYPE "C"

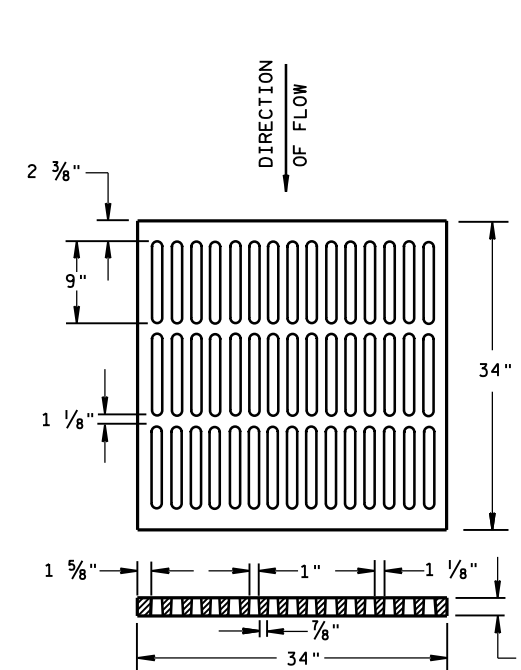
NOTE: EITHER CASTING IS ACCEPTABLE

## 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.

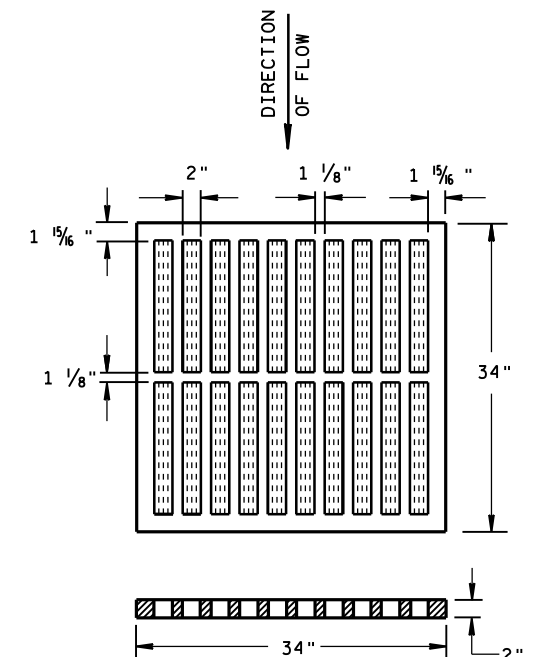
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



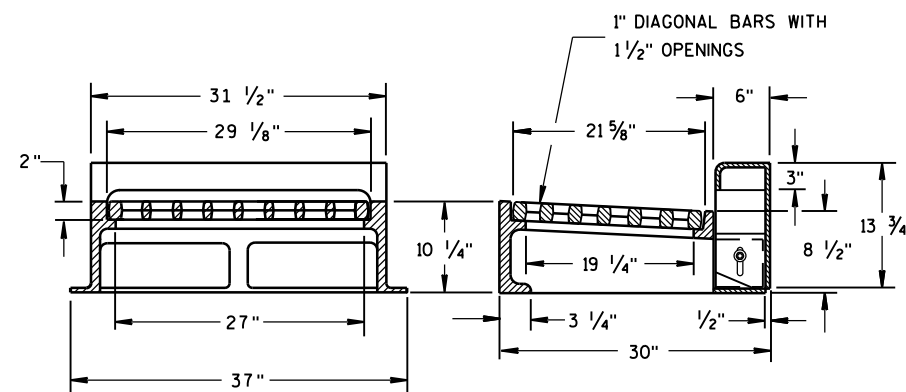
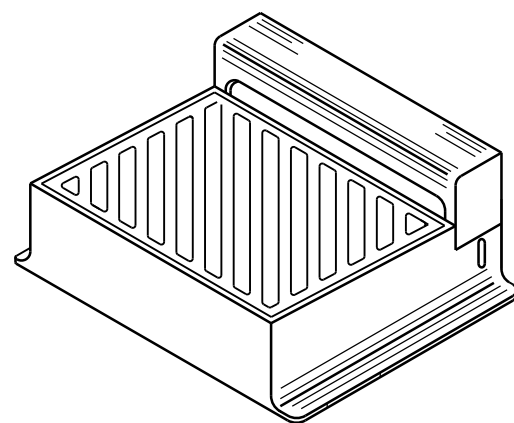
ALTERNATIVE TYPE "MS"

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



TYPE "MS"

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



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

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

DIRECTION  
OF FLOW

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

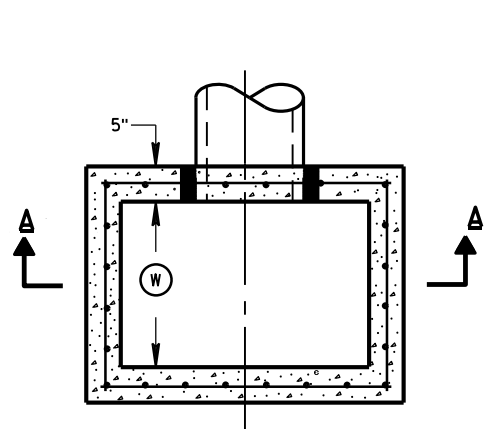
STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

APPROVED  
 DATE

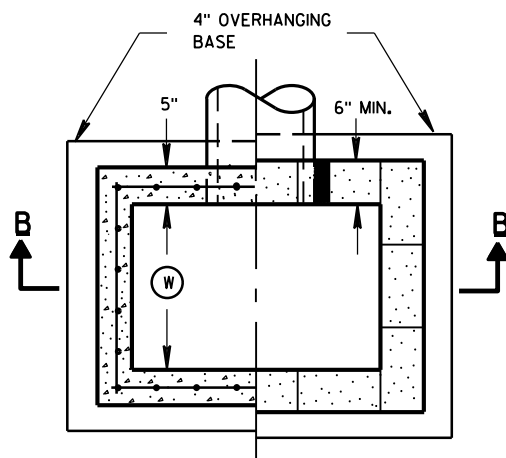
11/27/2013

FHWA

/S/ Jerry H. Zogg  
 ROADWAY STANDARDS DEVELOPMENT  
 ENGINEER

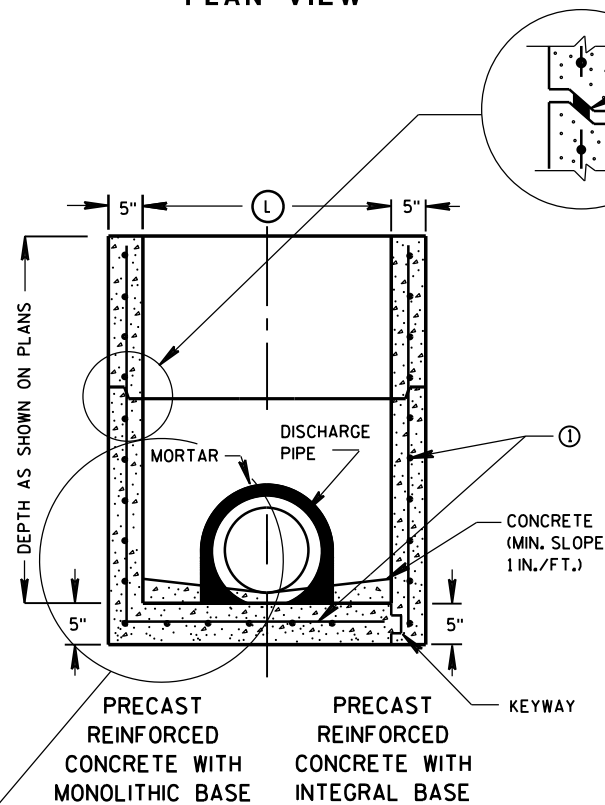


PLAN VIEW

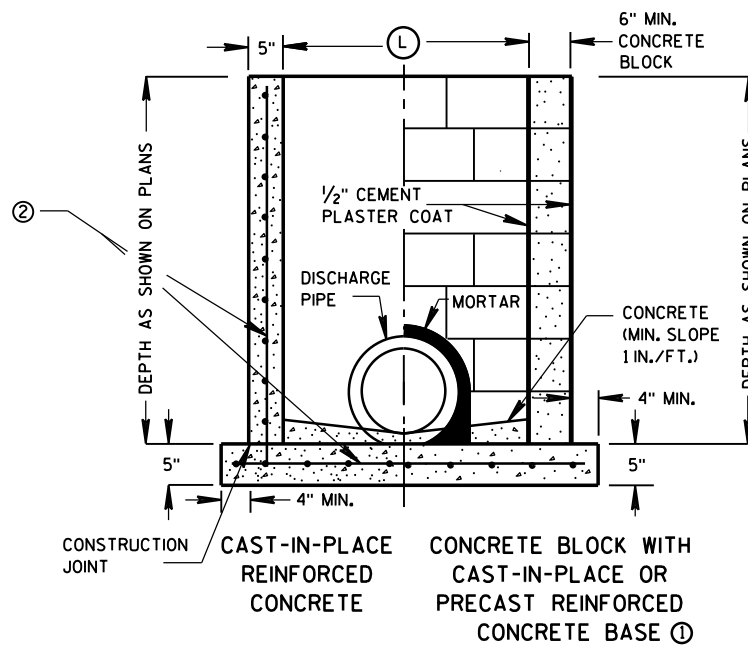


PLAN VIEW

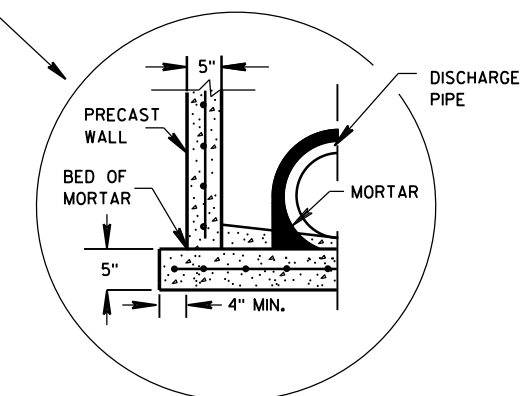
RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



SECTION A-A



SECTION B-B



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

INLETS 2X2-FT, 2X2.5-FT, 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 INLET 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 INLET 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 SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

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

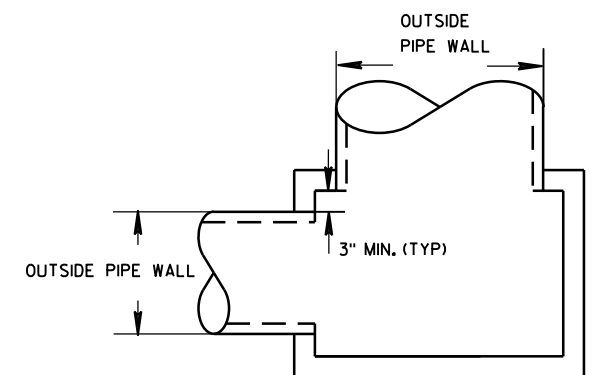
- FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

INLET SIZE		INLET COVER TYPE	ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM
	WIDTH (1) (FT)	LENGTH (1) (FT)									
2X2-FT	2	2	X	X				X		X	
2X2.5-FT	2	2.5			X			X	X	X	X
2X3-FT	2	3					X				
2.5X3-FT	2.5	3				X					

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
2X2-FT	12	12
2X2.5-FT	12	18
2X3-FT	12	24
2.5X3-FT	18	24



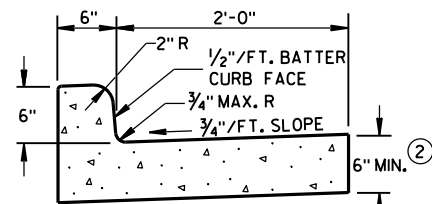
DETAIL "A"

INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

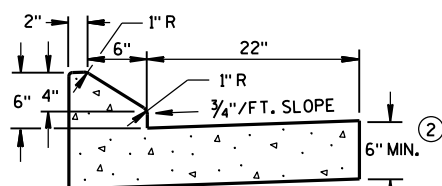
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

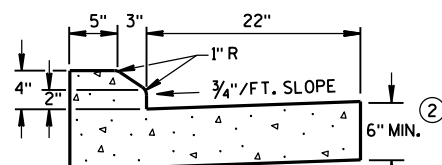




TYPES A & D ①

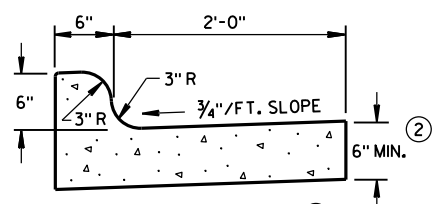


6" SLOPED CURB TYPES G & J ①



4" SLOPED CURB TYPES G & J ①

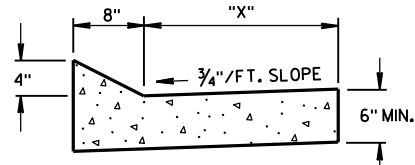
CONCRETE CURB & GUTTER 30"



TYPES K & L ①

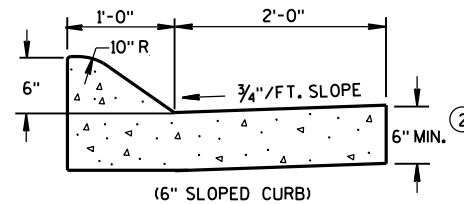
OPTIONAL CURB SHAPE  
FOR TYPES K & L ①

CONCRETE CURB & GUTTER 30"

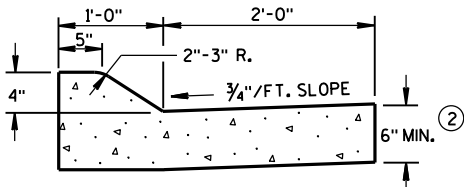


TYPES TBT & TBT ①  
CONCRETE CURB & GUTTER

TBT & TBT	"X"
30"	22"
36"	28"

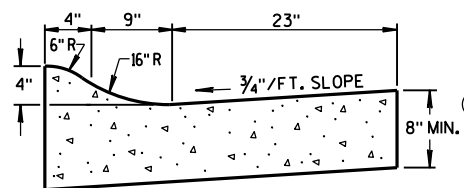


(6" SLOPED CURB)



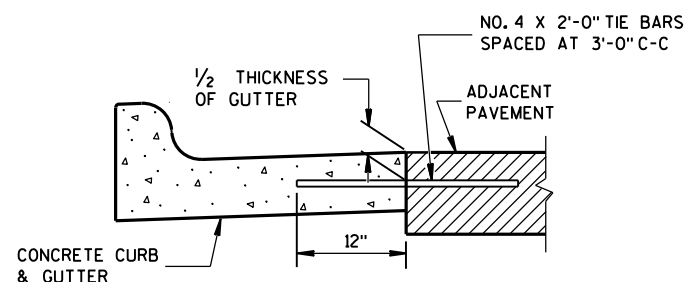
(4" SLOPED CURB)

TYPES A & D ①

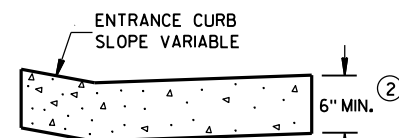


4" SLOPED CURB TYPES R & T ① ④

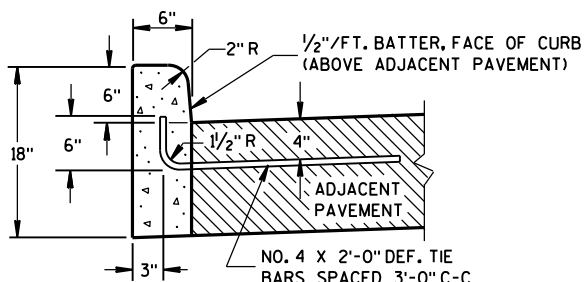
CONCRETE CURB & GUTTER 36"



TYPICAL TIE BAR LOCATION ①

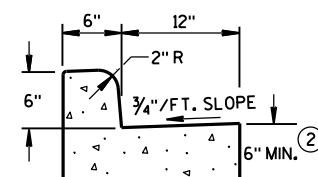


DRIVEWAY ENTRANCE CURB  
(WHEN DIRECTED BY THE ENGINEER)

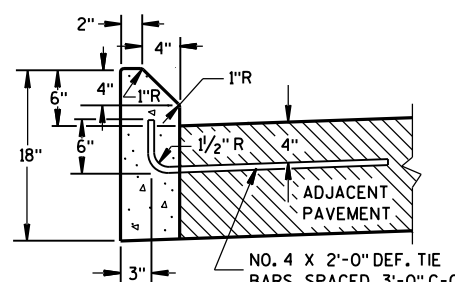


TYPES A & D ①

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.

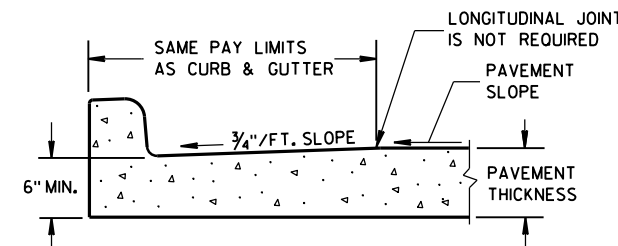
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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.

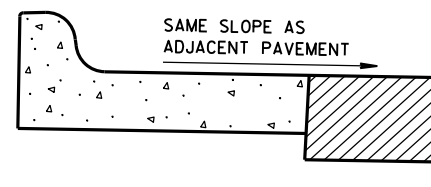
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

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

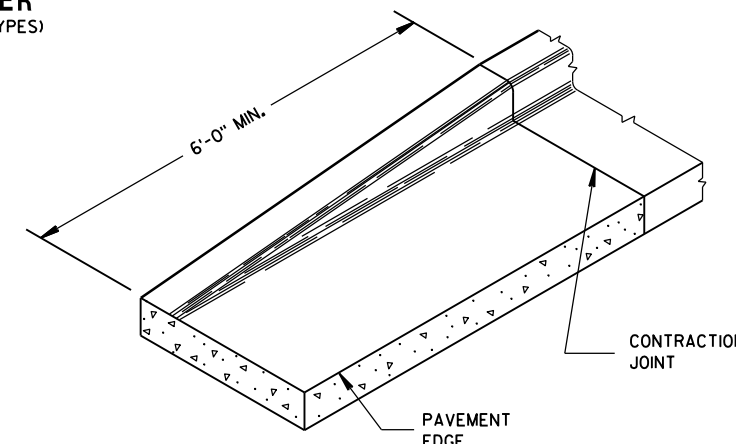
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED 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.



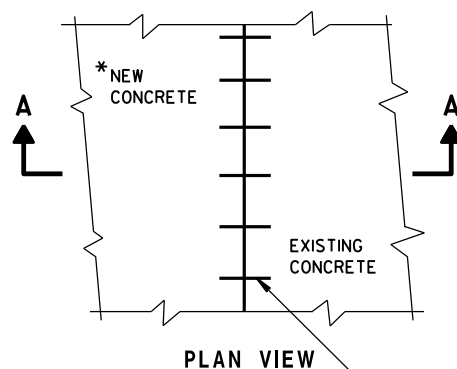
PARTIAL SECTION OF PAVEMENT  
WITH INTEGRAL CURB & GUTTER



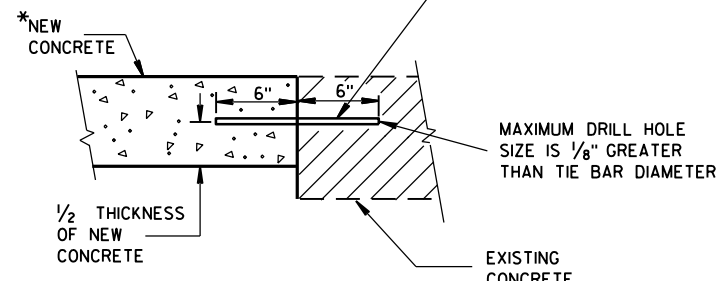
REVERSE SLOPE GUTTER  
(TYPICAL FOR ALL CURB & GUTTER TYPES)



END SECTION CURB & GUTTER



PLAN VIEW

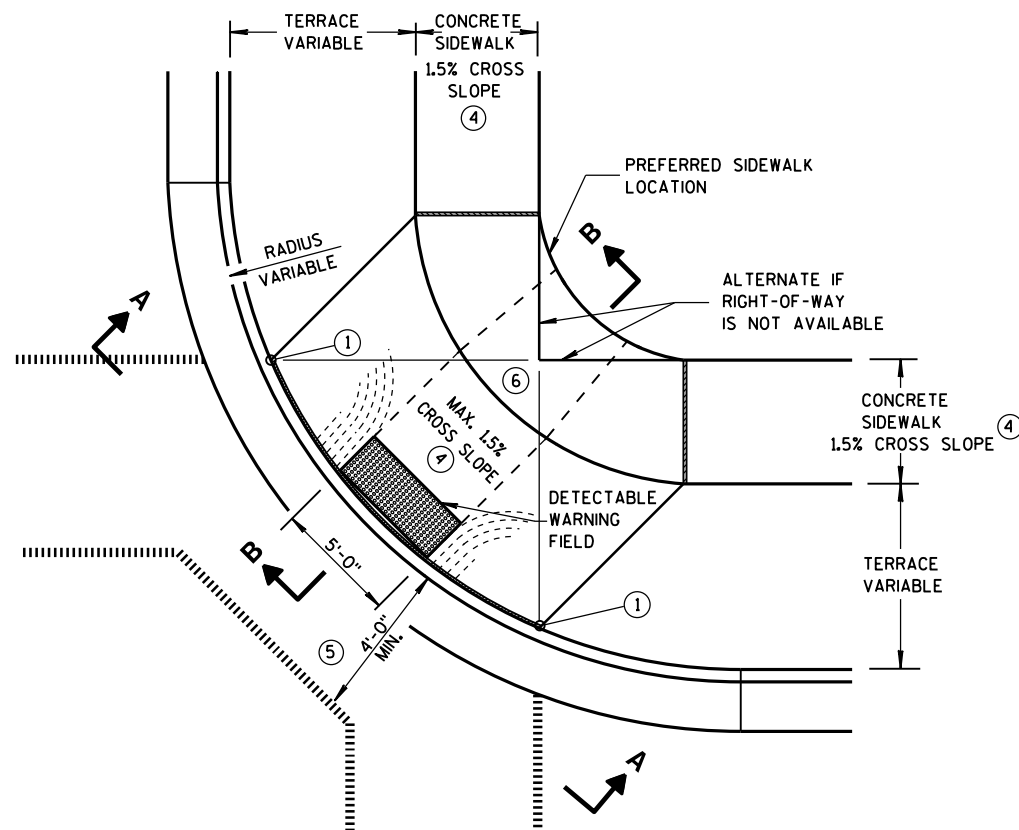


SECTION A-A  
TIE BARS DRILLED  
INTO EXISTING PAVEMENT

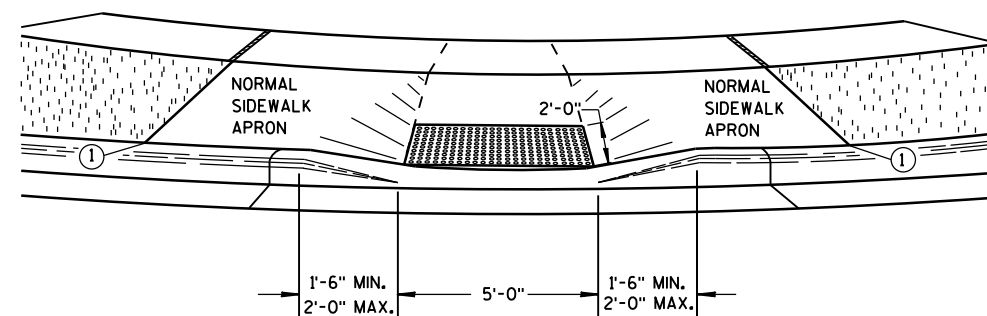
CONCRETE CURB, CONCRETE  
CURB & GUTTER AND TIES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June, 2015 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

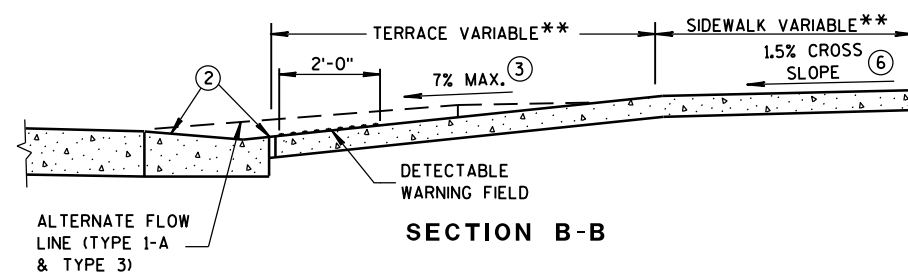


PLAN VIEW  
TYPE 1 RAMP  
(CENTER OF CORNER RADIUS)

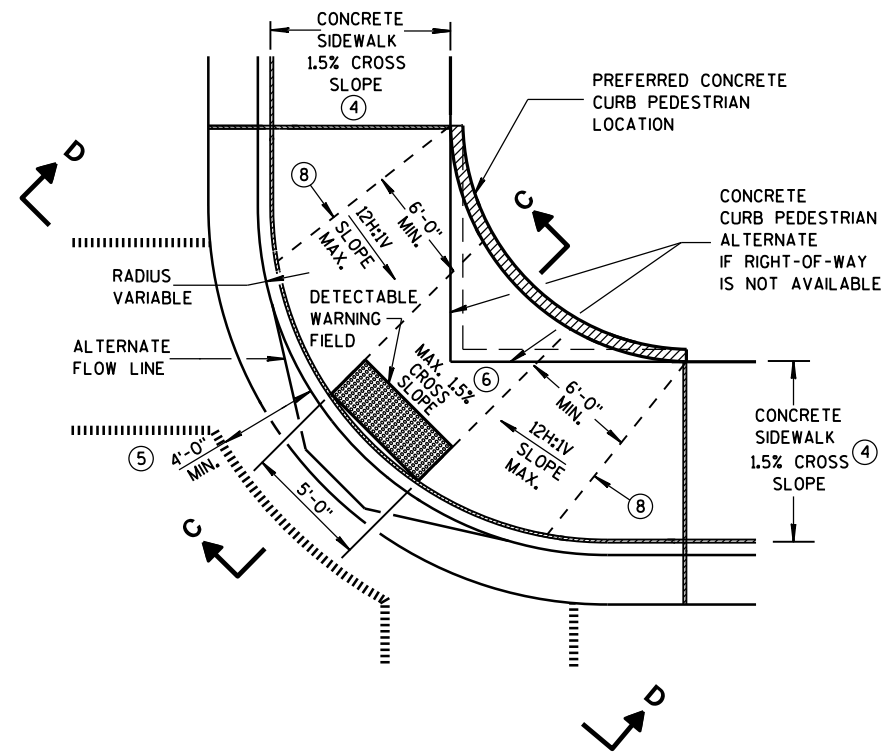


**VIEW A-A**

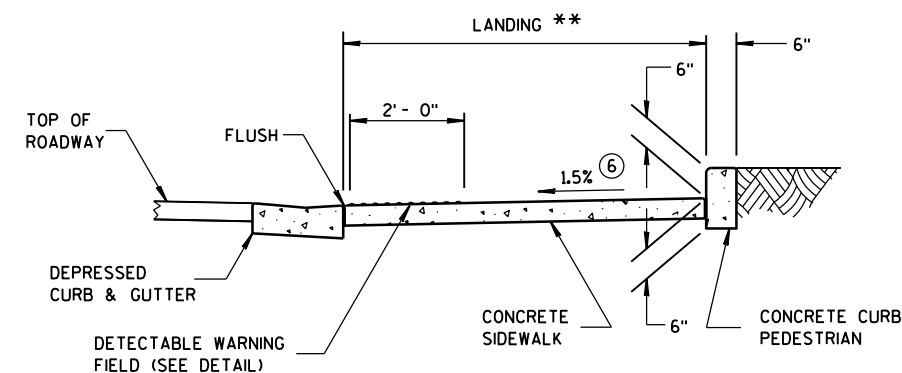
\*\* WIDTH SHOWN ELSEWHERE  
IN THE PLANS



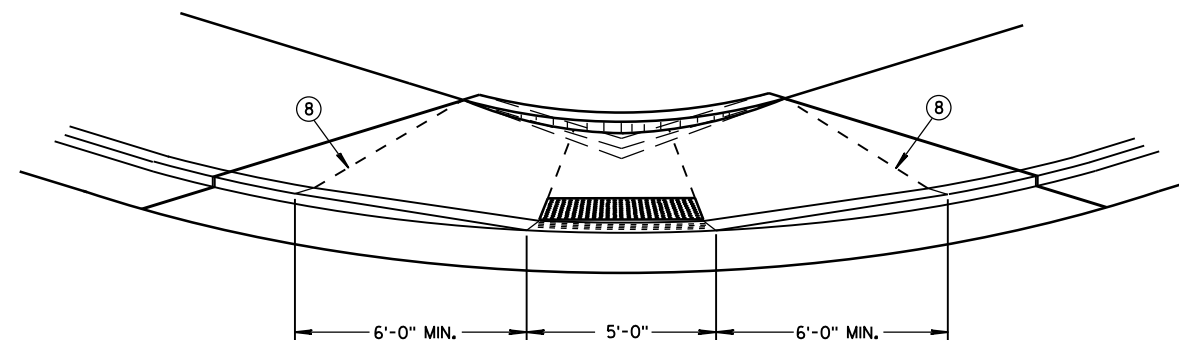
**SECTION B-B**



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.

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".

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

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

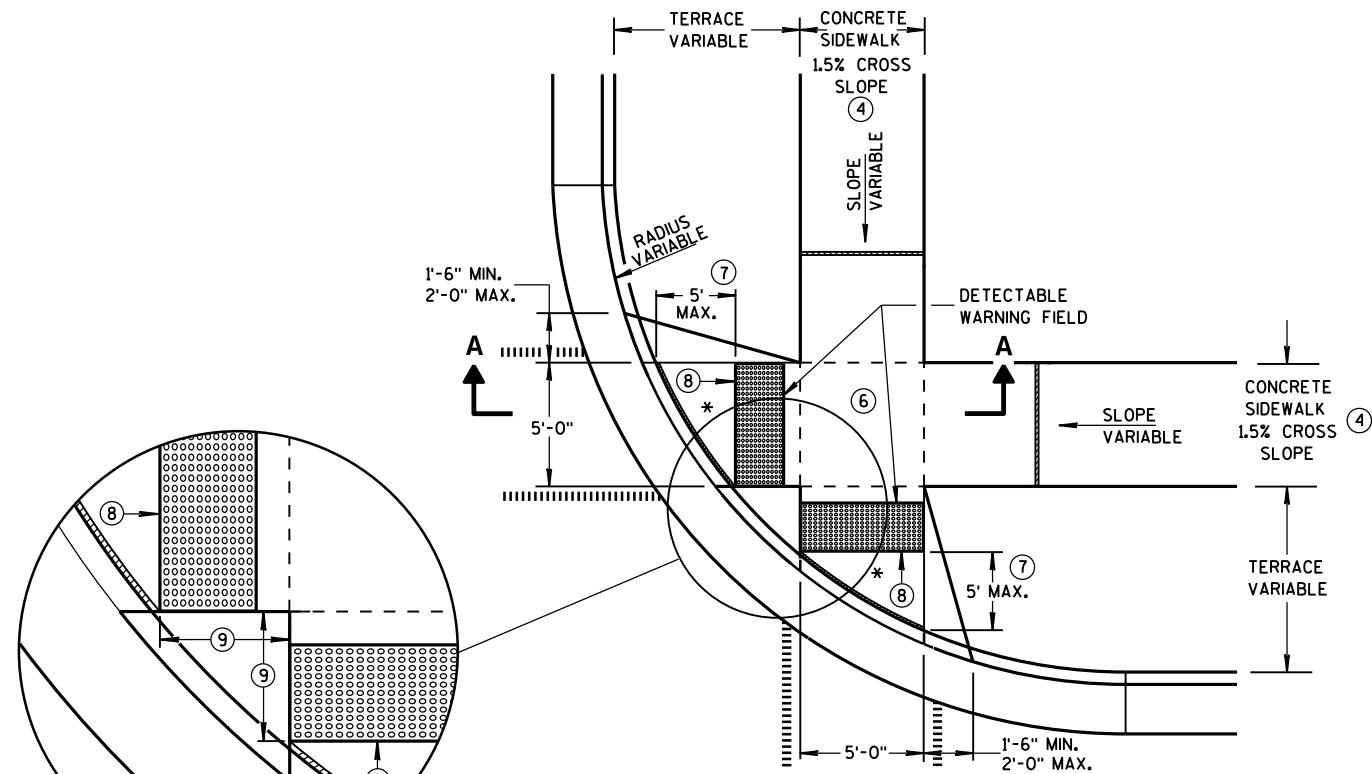
- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.
- ③ ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④  $\pm 0.5\%$  CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑤ PROVIDE A LEVEL LANDING IN THE STREET AND GUTTER AREA. (2% MAXIMUM SLOPE IN ANY DIRECTION). WHEN THE GUTTER SLOPE EXCEEDS 2%, CONSTRUCT THE LEVEL LANDING IN THE STREET AREA.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

### LEGEND

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

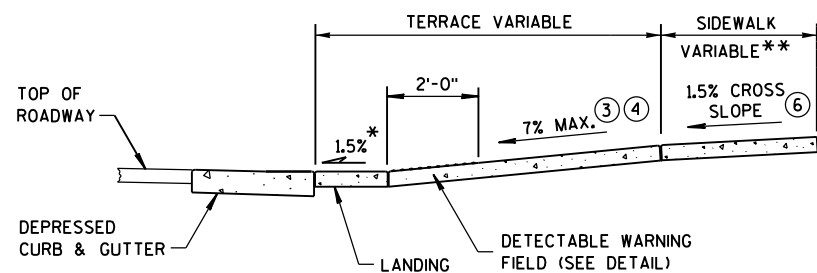
### CURB RAMPS TYPES 1 AND 1-A

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



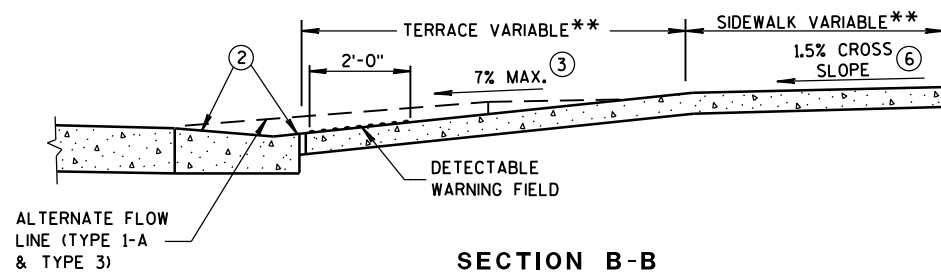
**PLAN VIEW  
TYPE 2 RAMP**  
(ON LINE WITH SIDEWALK)

\* MAXIMUM 2.0% SLOPE  
IN ALL DIRECTIONS IN  
FRONT OF GRADE BREAK



**SECTION A-A**

\*\* WIDTH SHOWN ELSEWHERE  
IN THE PLANS



**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.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.

③ ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).

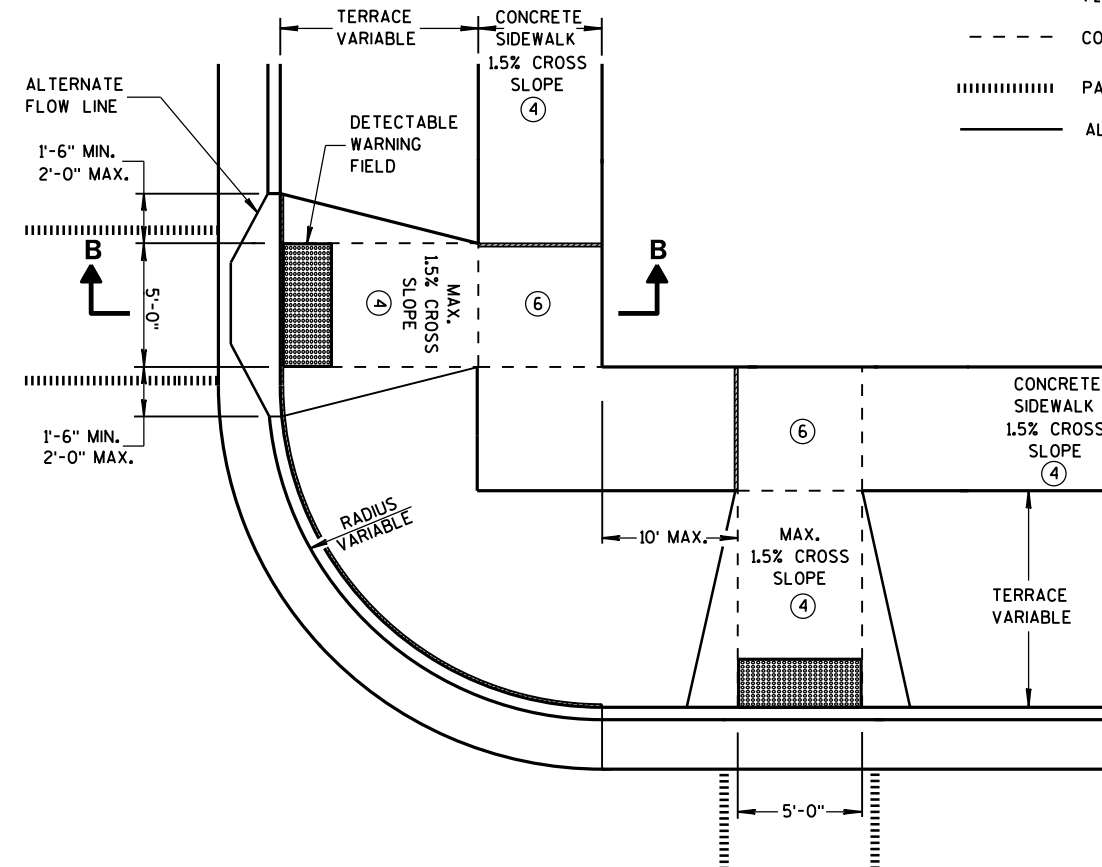
⑦ WHEN THIS DISTANCE EXCEEDS 5 FEET, USE MULTIPLE DETECTABLE WARNING PANELS ACROSS THE RAMP AND STAGGER ADDITIONAL DETECTABLE WARNING PANEL(S) FORWARD TO REDUCE THIS DISTANCE.

⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

⑨ WHEN THIS DISTANCE IS LESS THAN 6'-0", IT MAY BE DIFFICULT TO ACHIEVE A 7% SLOPE OR FLATTER ALONG THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 7% SLOPE OR FLATTER ON RAMP. 2" MINIMUM CURB HEIGHT.

## LEGEND

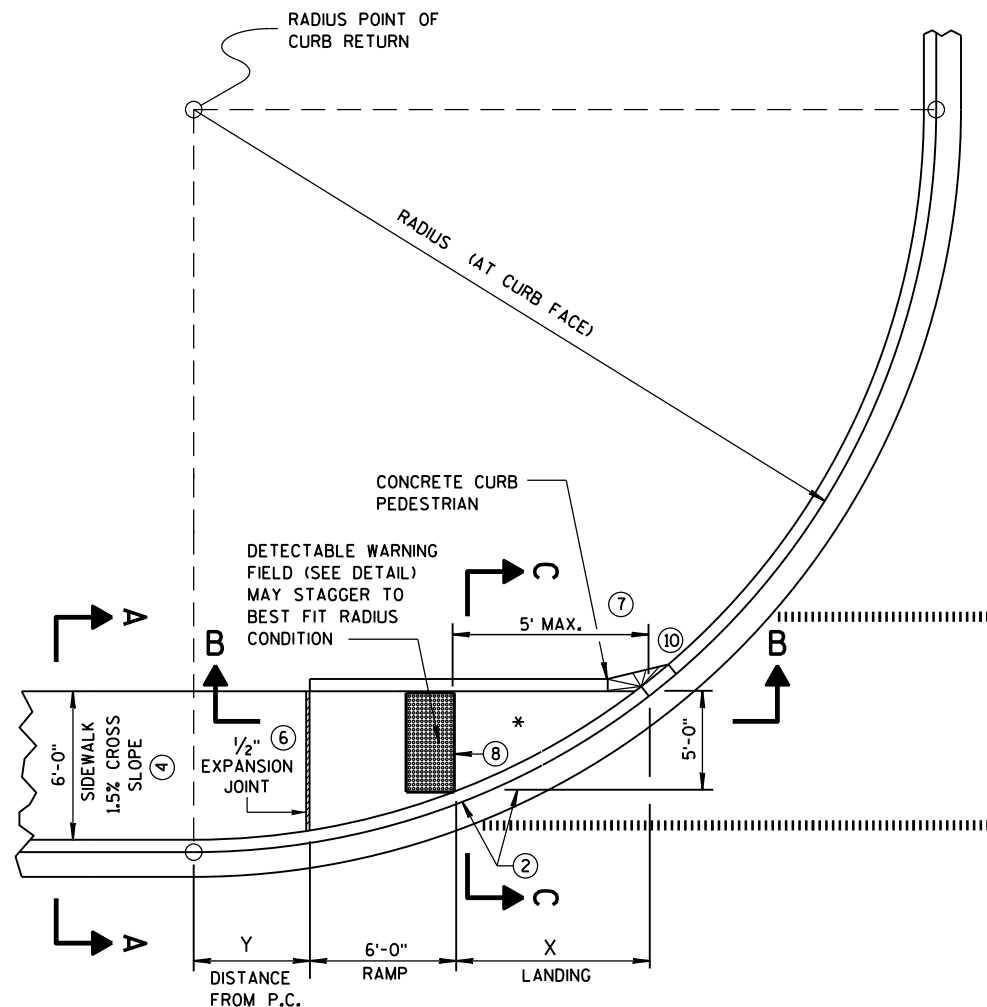
- 1/2" EXPANSION JOINT-SIDEWALK
- - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



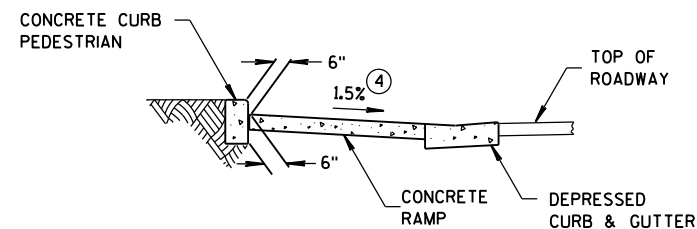
**PLAN VIEW  
TYPE 3 RAMP**  
(OUTSIDE OF CROSSWALK AREA)

**CURB RAMPS  
TYPES 2 AND 3**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

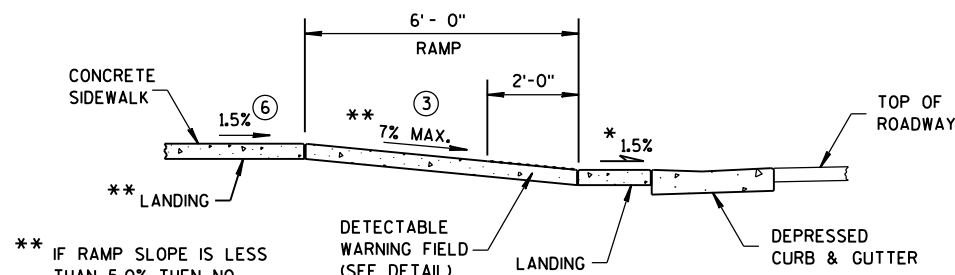


**CURB RAMP TYPE 4A**  
PLAN VIEW



**SECTION C-C FOR TYPE 4A**

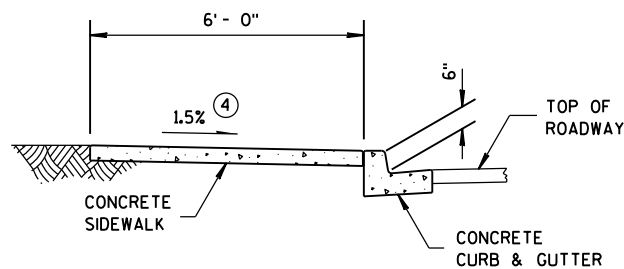
\* MAXIMUM 2.0% SLOPE  
IN ALL DIRECTIONS IN  
FRONT OF GRADE BREAK



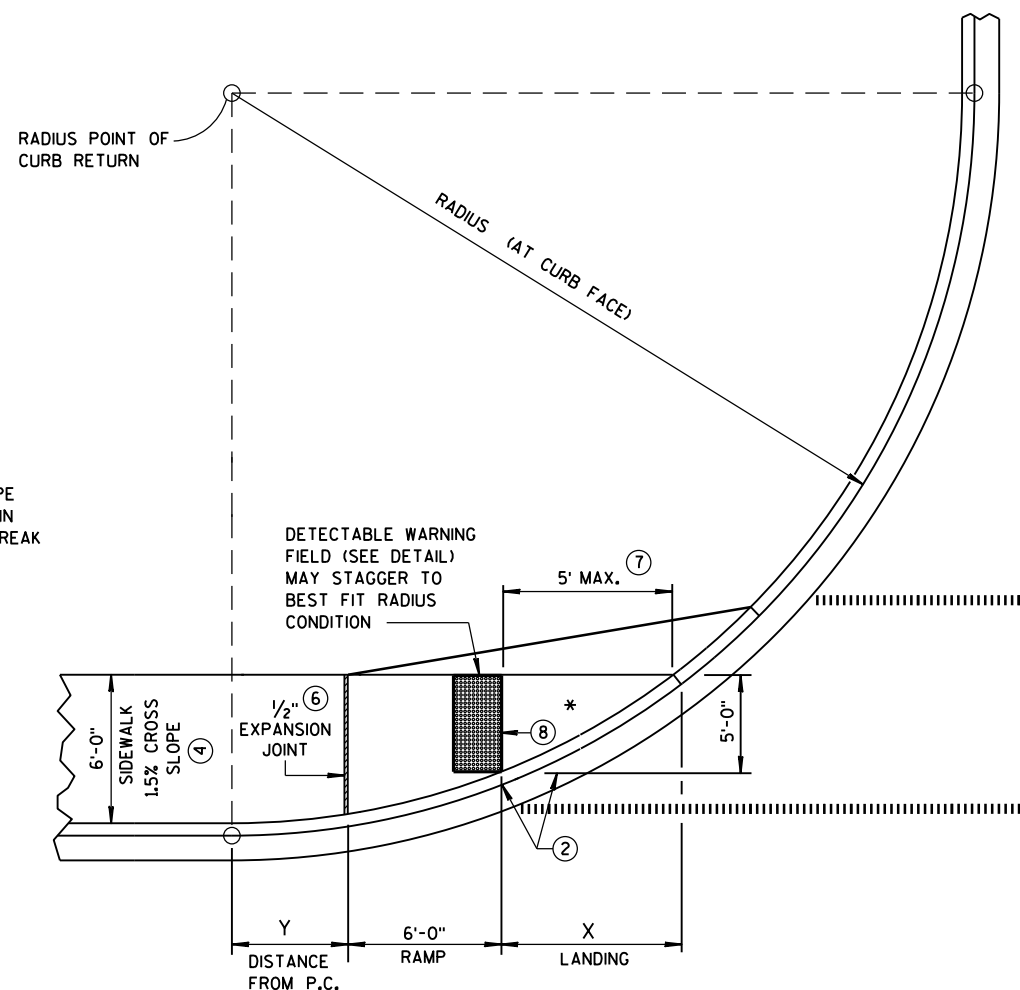
**SECTION B-B FOR TYPE 4A**

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



**SECTION A-A FOR TYPE 4A**



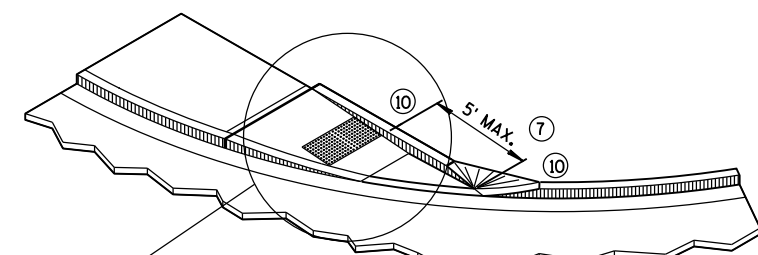
**CURB RAMP TYPE 4A1**  
PLAN VIEW

## GENERAL NOTES

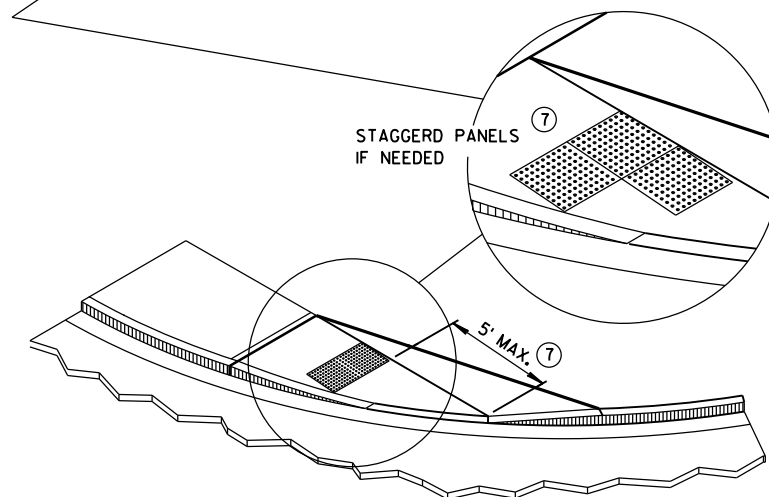
AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.
- ③ ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).
- ⑦ WHEN THIS DISTANCE EXCEEDS 5 FEET, USE MULTIPLE DETECTABLE WARNING PANELS ACROSS THE RAMP AND STAGGER ADDITIONAL DETECTABLE WARNING PANEL(S) FORWARD TO REDUCE THIS DISTANCE.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑩ INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.



**ISOMETRIC VIEW FOR TYPE 4A**



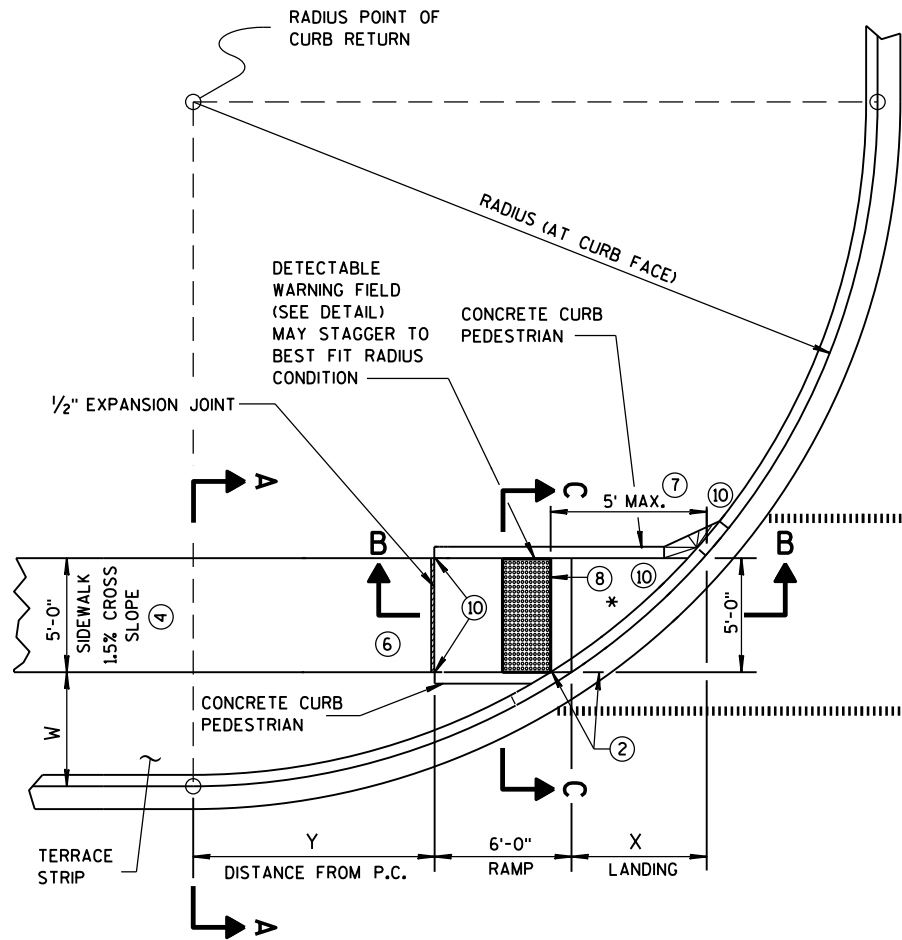
**ISOMETRIC VIEW FOR TYPE 4A1**

## LEGEND

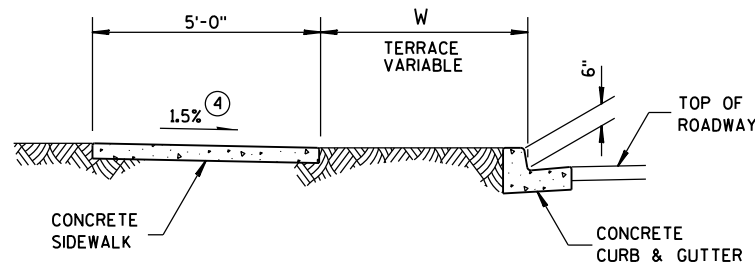
- 1/2" EXPANSION JOINT-SIDEWALK
- - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)

**CURB RAMPS**  
**TYPES 4A AND 4A1**

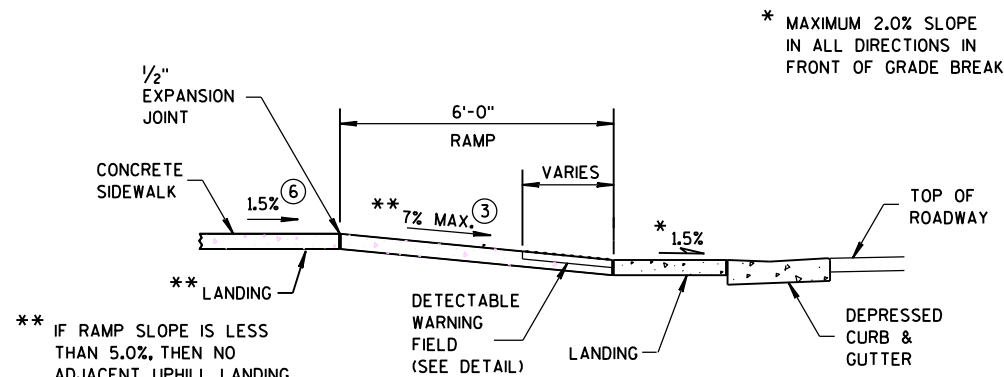
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



CURB RAMP TYPE 4B  
PLAN VIEW

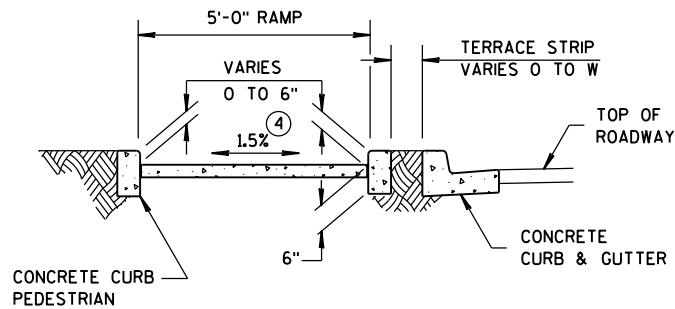


SECTION A-A FOR TYPE 4B

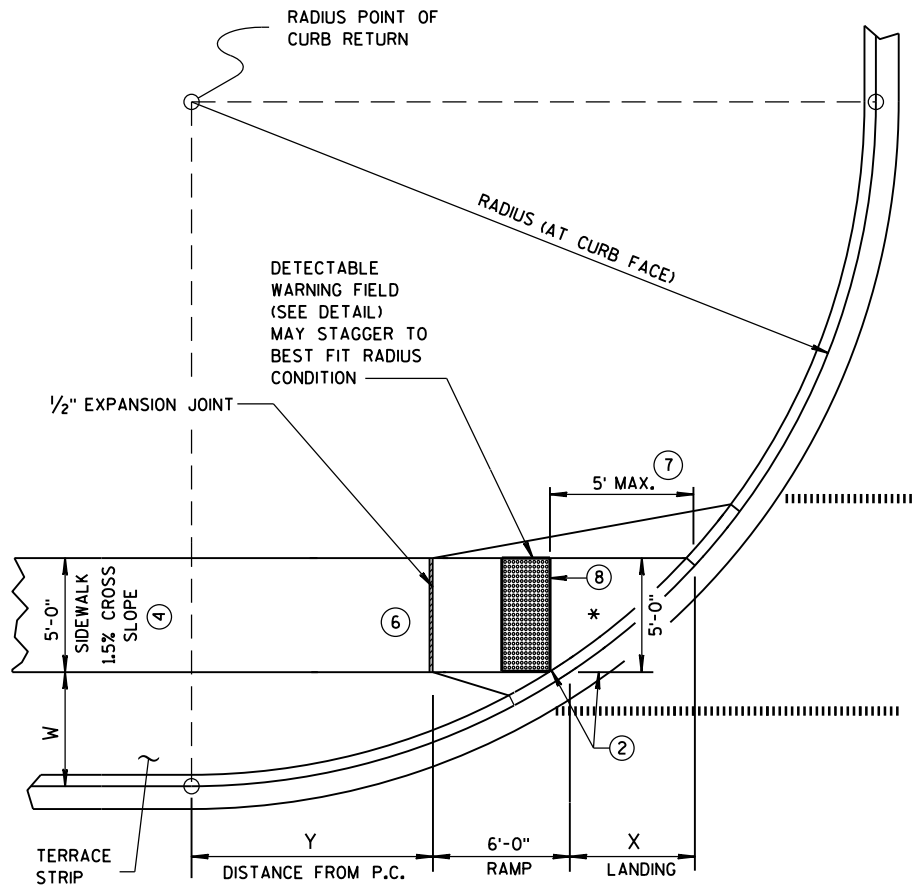


SECTION B-B FOR TYPE 4B

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



SECTION C-C FOR TYPE 4B

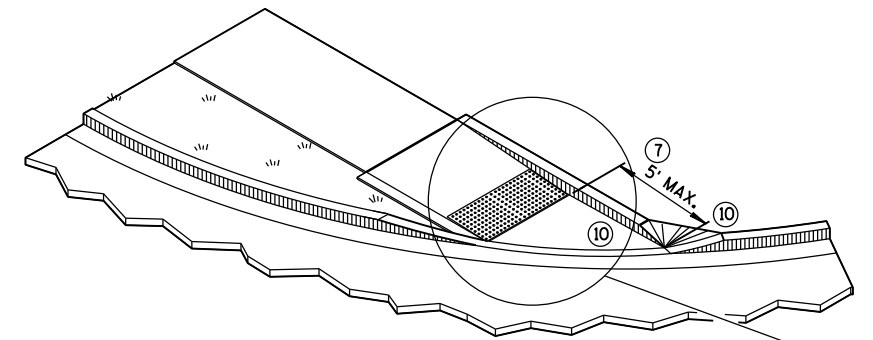


CURB RAMP TYPE 4B1  
PLAN VIEW

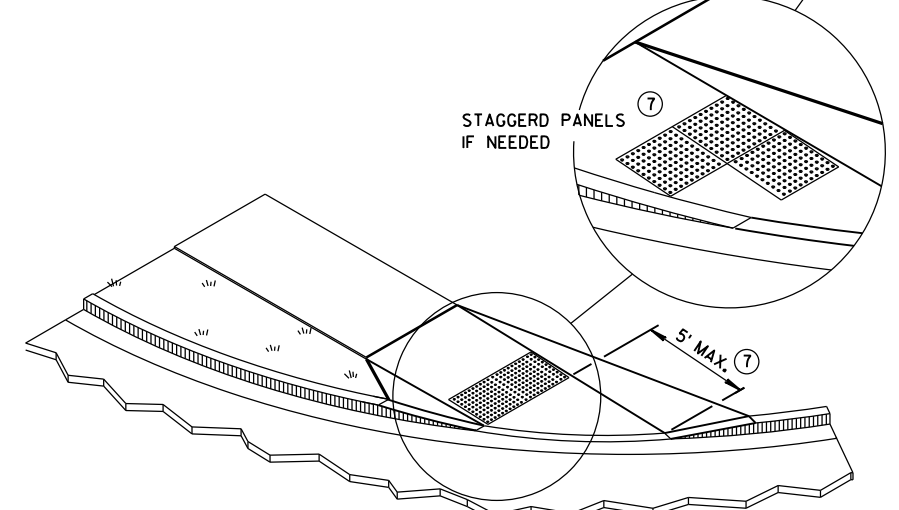
RADIUS (AT CURB FACE)	W = 3' - 0"		W = 4' - 0"		W = 5' - 0"		W = 6' - 0"		W = 7' - 0"	
	X	Y	X	Y	X	Y	X	Y	X	Y
20 FEET	5'-5 1/2"	4'-6 1/2"	4'-8 1/2"	6'-0"	4'-1"	7'-2 3/4"	3'-7"	8'-3 1/2"	3'-1 1/2"	9'-2 1/2"
30 FEET	7'-3 3/4"	7'-1"	6'-5 1/2"	8'-11 1/2"	5'-9 1/4"	10'-7"	5'-2 1/2"	12'-0"	4'-8 3/4"	13'-3 1/4"
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'-3/4"	5'-11 1/2"	16'-7 1/4"
50 FEET	10'-3/4"	11'-3/4"	9'-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'-3/4"	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"

**GENERAL NOTES**

- INTERMEDIATE RADII CAN BE INTERPOLATED
- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS. DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.
  - ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
  - ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
  - PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).
  - WHEN THIS DISTANCE EXCEEDS 5 FEET, USE MULTIPLE DETECTABLE WARNING PANELS ACROSS THE RAMP AND STAGGER ADDITIONAL DETECTABLE WARNING PANEL(S) FORWARD TO REDUCE THIS DISTANCE.
  - PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
  - INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.



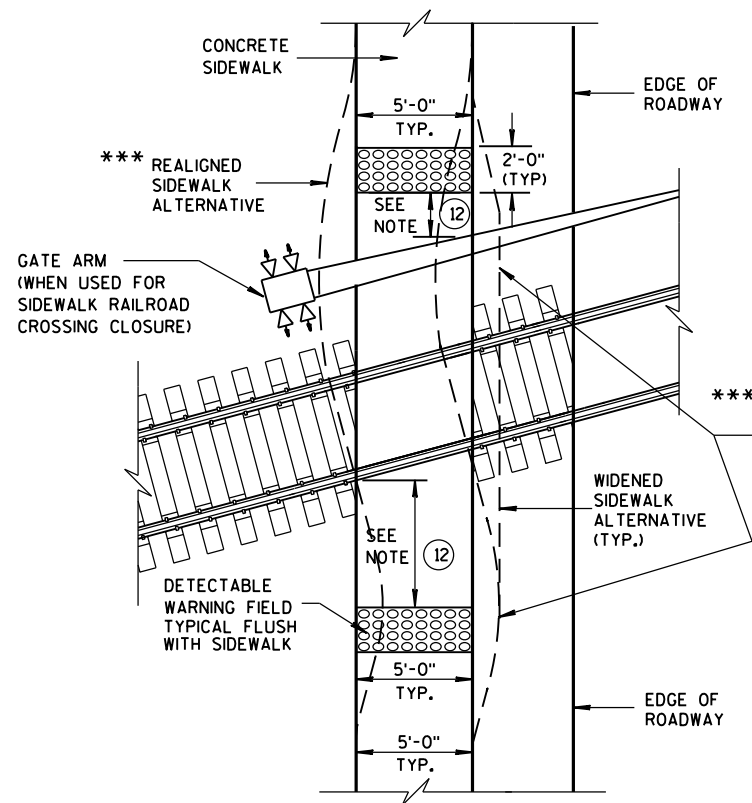
ISOMETRIC VIEW FOR TYPE 4B



ISOMETRIC VIEW FOR TYPE 4B1

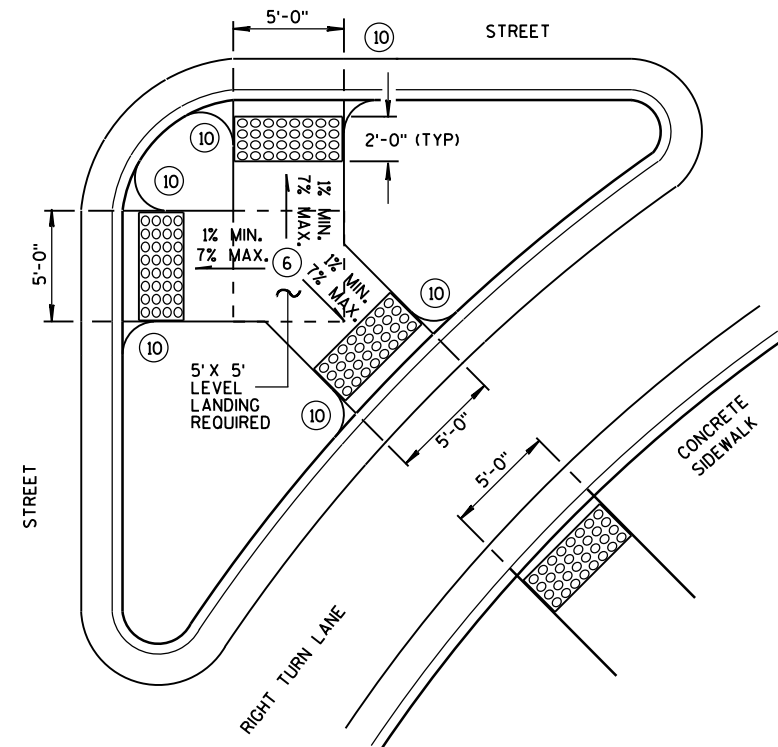
CURB RAMPS  
TYPE 4B AND 4B1

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

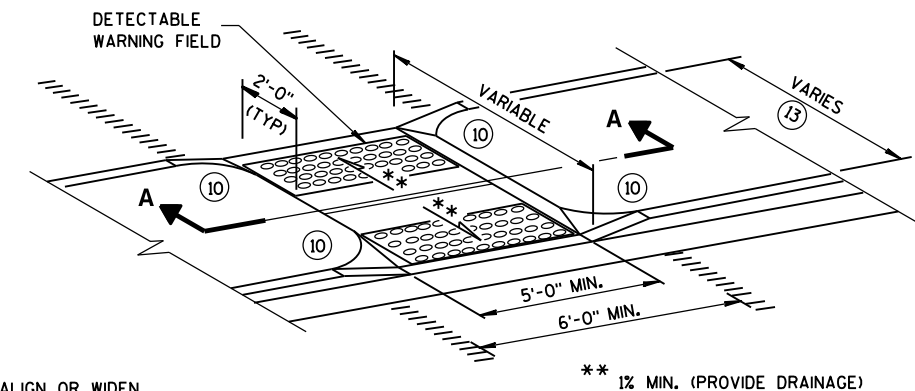


**TYPE 8**  
**DETECTABLE WARNINGS**  
**AT RAILROAD CROSSING**

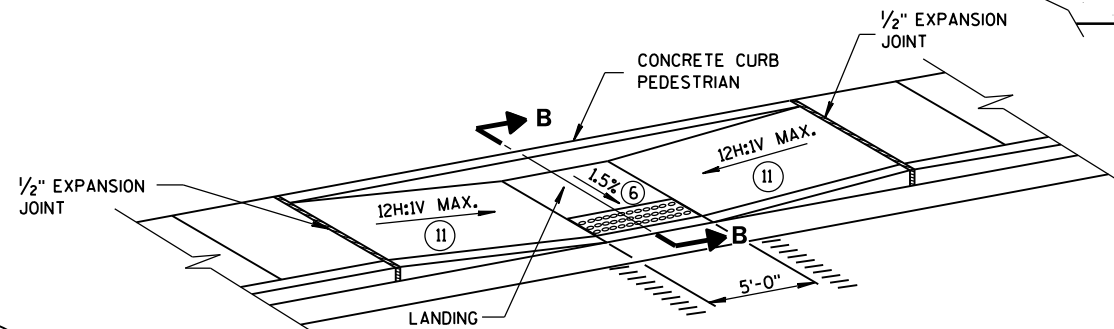
REFER TO GENERAL NOTES ② AND ③  
FOR ALL ISLAND CURB RAMPS



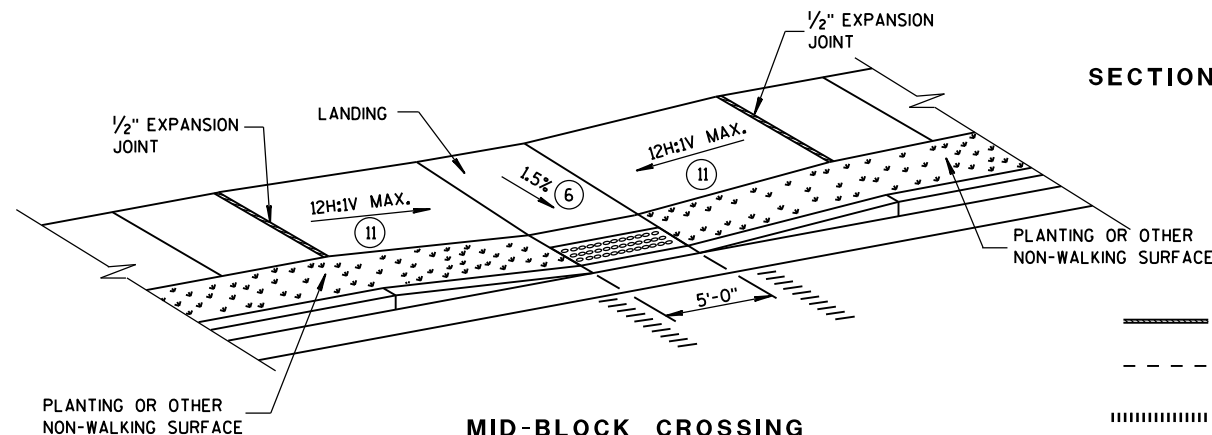
**TYPE 6**  
**DETECTABLE WARNING AT ISLANDS**



**MEDIAN ISLAND**  
**NON-ELEVATED CROSSING**  
**TYPE 5**



**MID-BLOCK CROSSING**  
**TYPE 7A**

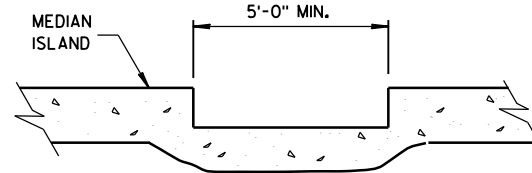


**MID-BLOCK CROSSING**  
**TYPE 7B**

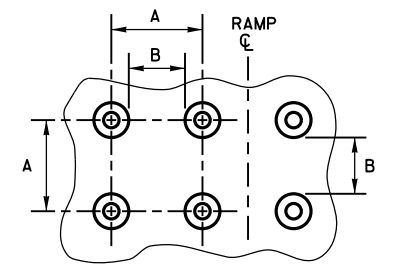
NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMPS  
MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS.

**GENERAL NOTES**

- SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.
- ③ ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).
- ⑩ INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.
- ⑪ SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.
- ⑫ 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.
- ⑬ DO NOT INSTALL DETECTABLE WARNING FIELDS IF MEDIAN WIDTH BETWEEN BACK OF CURBS IS LESS THAN 6 FEET.



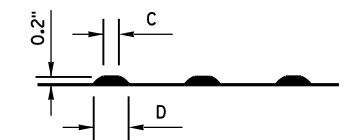
**SECTION A-A**



**PLAN VIEW**

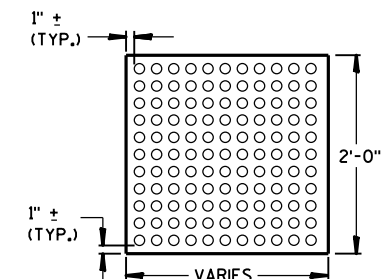
	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

\* 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)**

**SECTION B-B**

**LEGEND**

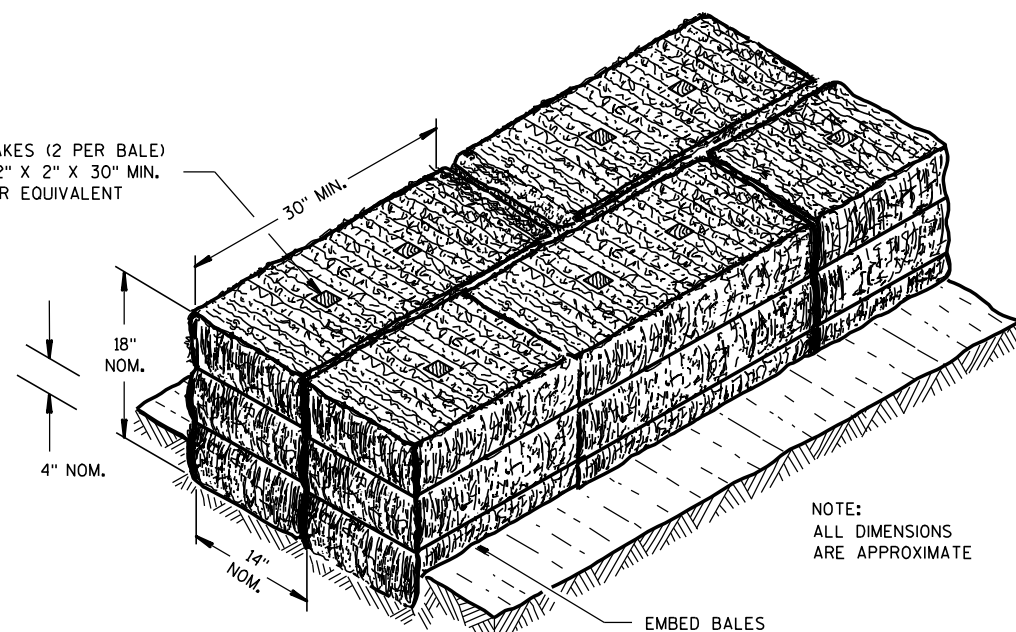
- 1/2" EXPANSION JOINT-SIDEWALK
- - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)

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

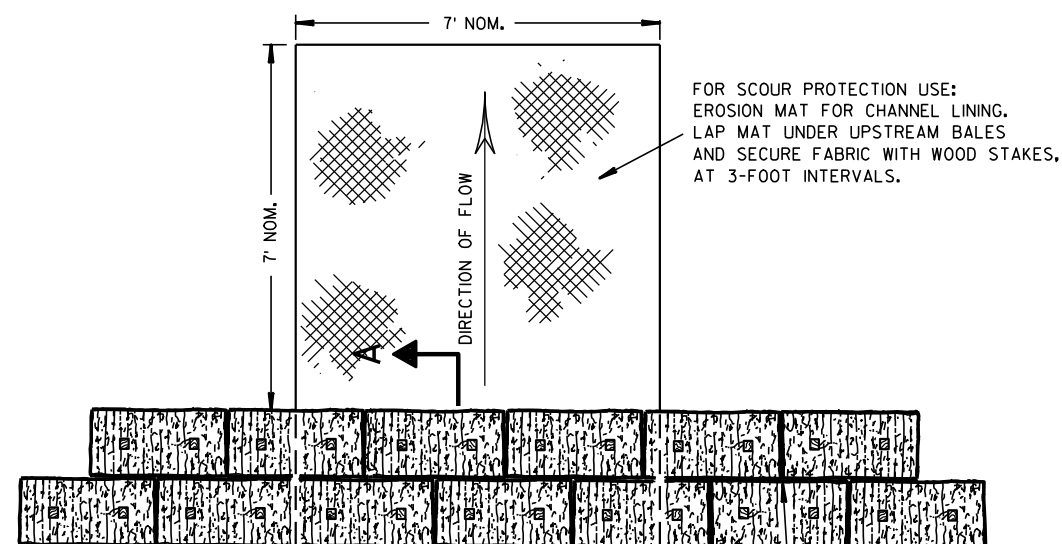
**STATE OF WISCONSIN**  
**DEPARTMENT OF TRANSPORTATION**

**APPROVED**  
June, 2015 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

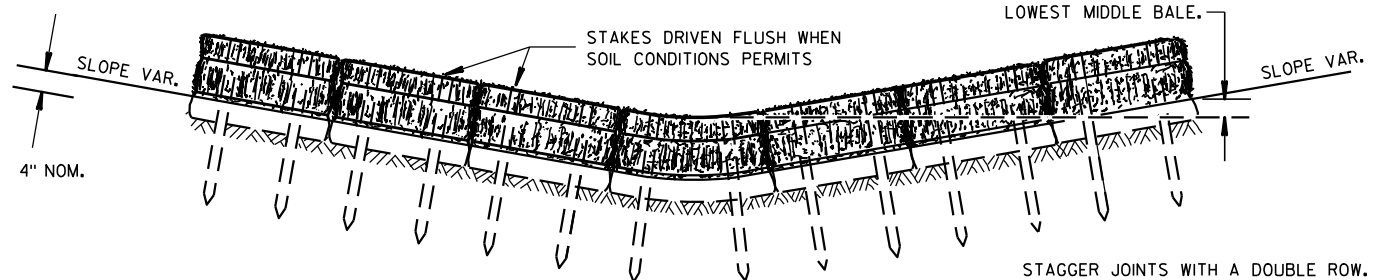
WOOD STAKES (2 PER BALE)  
NOMINAL 2" X 2" X 30" MIN.  
LENGTH OR EQUIVALENT



SECTION A-A



PLAN VIEW



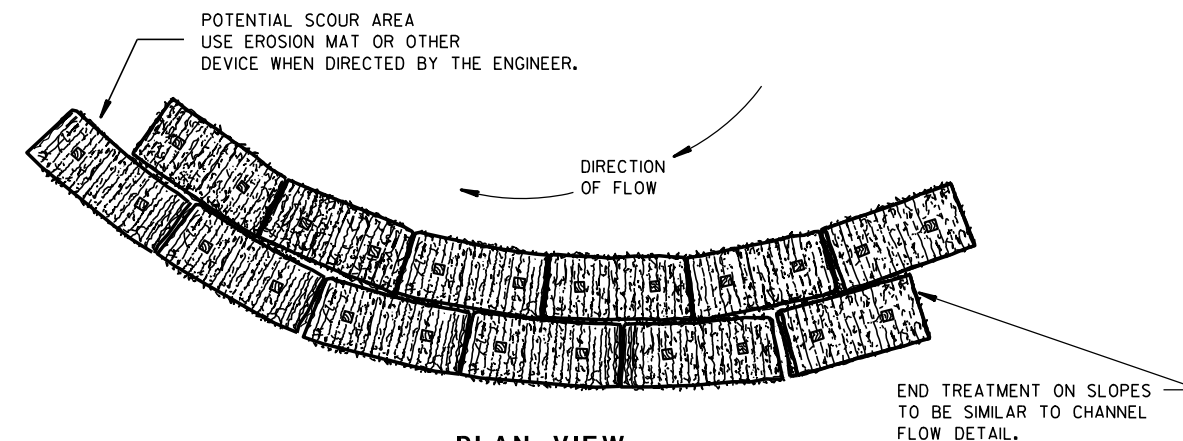
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

## GENERAL NOTES

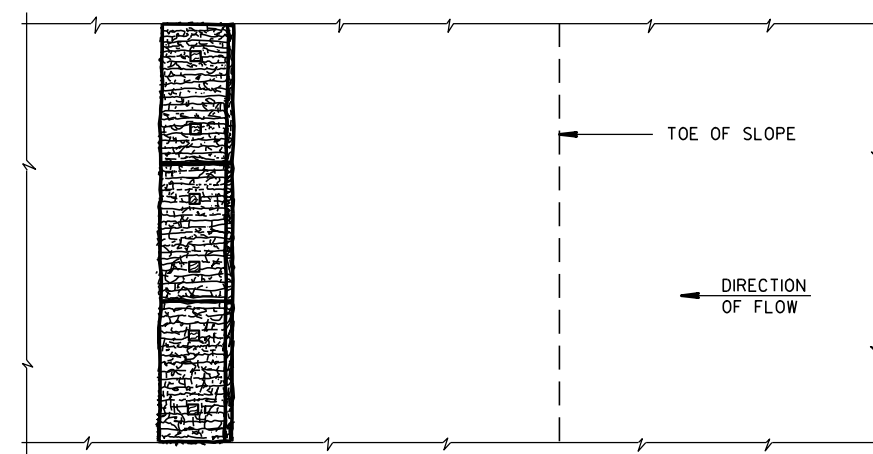
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- 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.

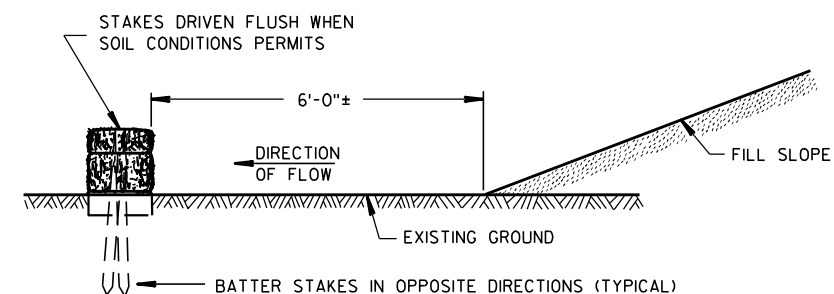


PLAN VIEW

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 Canestra  
CHIEF ROADWAY DEVELOPMENT ENGINEER





- 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 1½" X 1½" 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.



<div style="text-align: center;"><b>SILT FENCE</b></div>	
<div style="text-align: center;"><b>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</b></div>	
<div>APPROVED</div> <div><u>4-29-05</u></div> <div><u>DATE</u></div>	<div><u>/S/ Beth Cannestra</u></div> <div>CHIEF ROADWAY DEVELOPMENT ENGINEER</div>





**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.

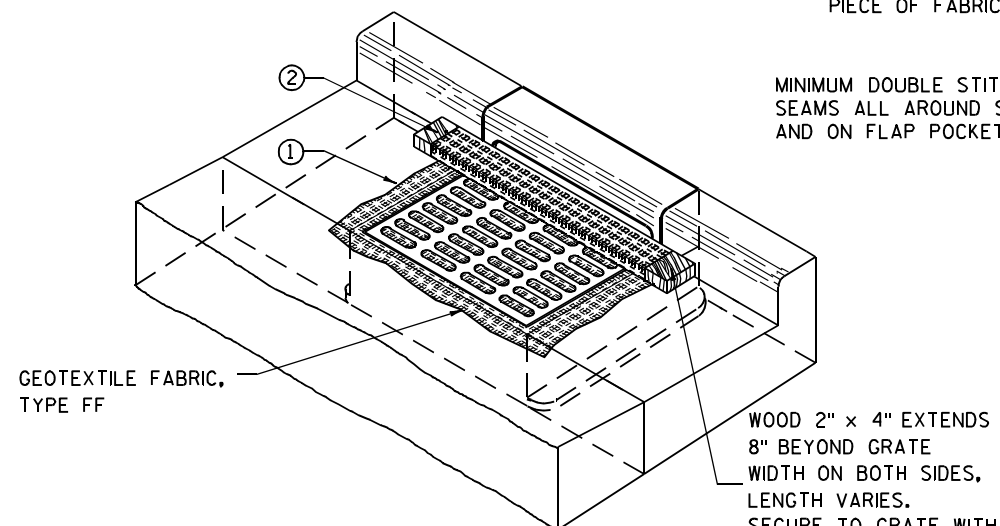
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- 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.

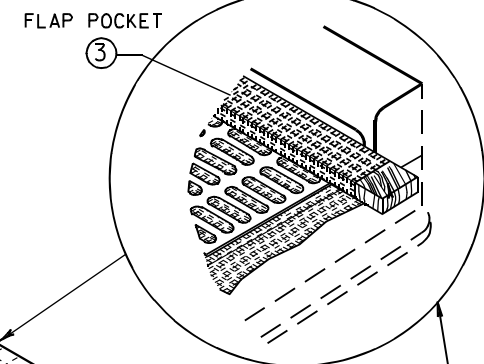
TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

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)



USE REBAR OR STEEL ROD FOR REMOVAL OR  
FOR INLETS WITH CAST CURB BOX USE WOOD 2" X 4", EXTEND 10" BEYOND GRATE WIDTH ON BOTH SIDES, LENGTH VARIES. SECURE TO GRATE WITH WIRE OR PLASTIC TIES

4" X 6" OVAL HOLE SHALL BE HEAT CUT INTO ALL FOUR SIDE PANELS.

MINIMUM DOUBLE STITCHED SEAMS ALL AROUND SIDE PIECES AND ON FLAP POCKETS.

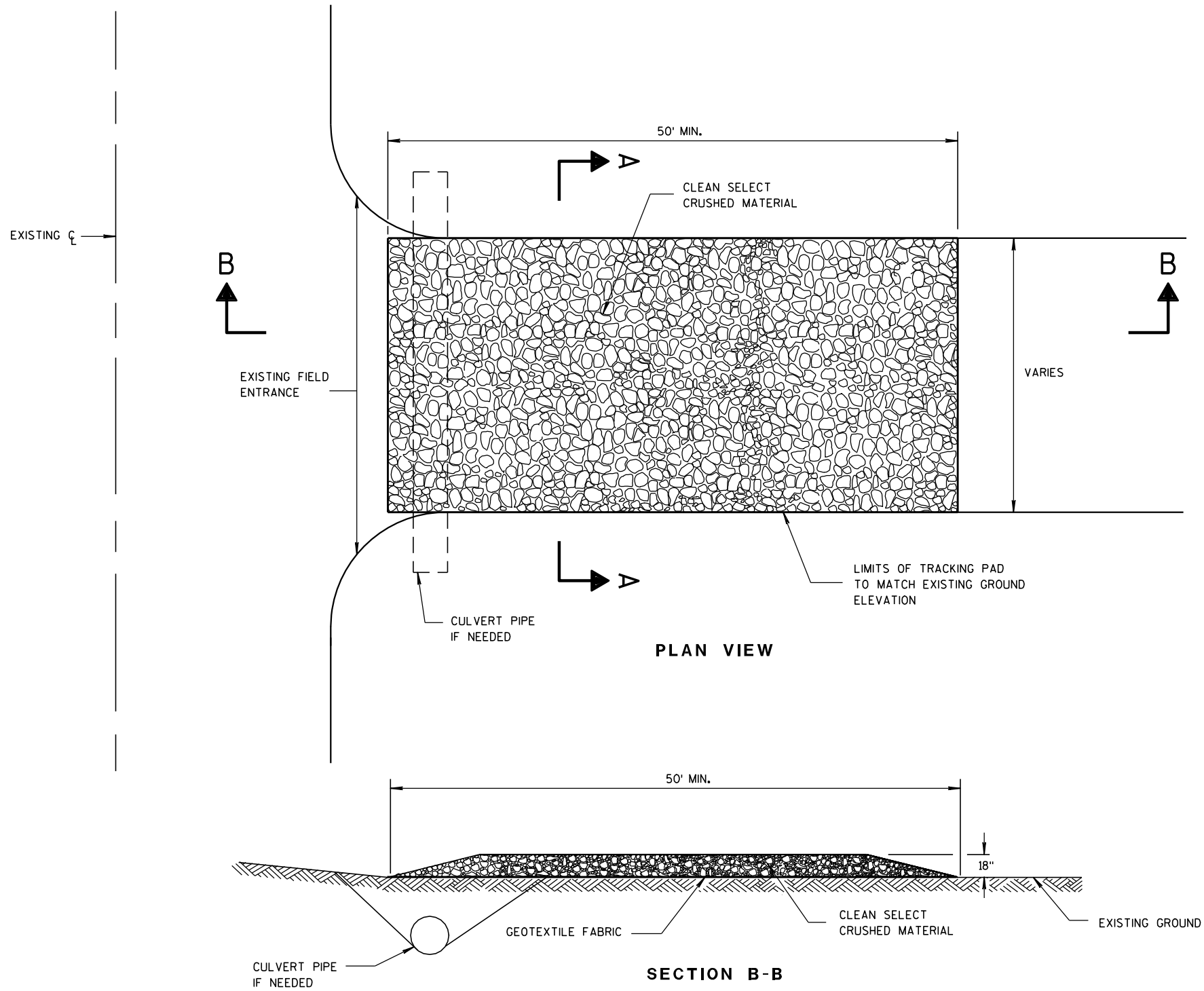
FRONT, BACK, AND BOTTOM TO BE MADE FROM SINGLE PIECE OF FABRIC.

WOOD 2" X 4" EXTENDS 8" BEYOND GRATE WIDTH ON BOTH SIDES, LENGTH VARIES. SECURE TO GRATE WITH WIRE OR PLASTIC TIES

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



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.

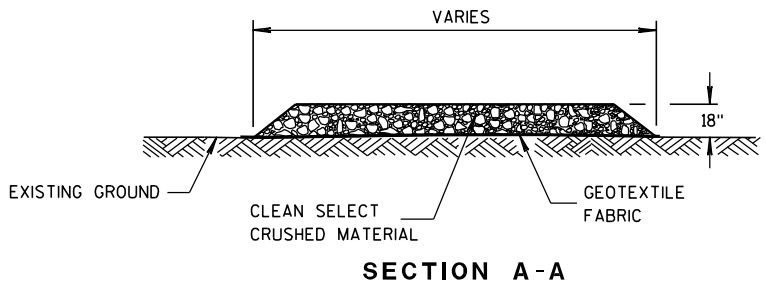
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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.



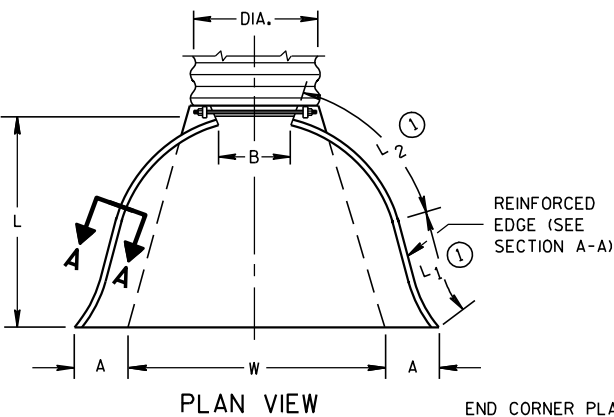
TRACKING PAD

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

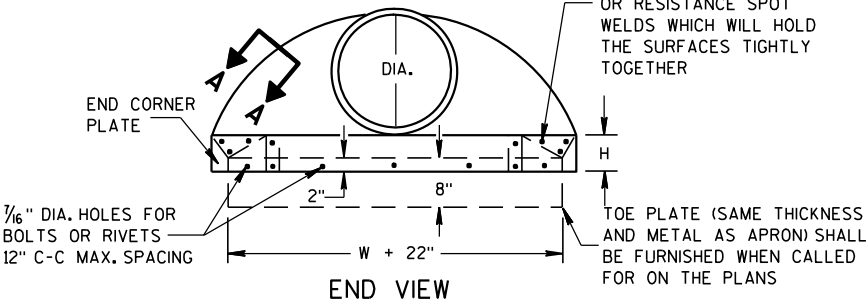
APPROVED  
3/24/2011  
DATE  
/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

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	Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2	Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3	Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3	Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3	Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3	Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3	Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3	Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3	Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3	Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3	Pc.

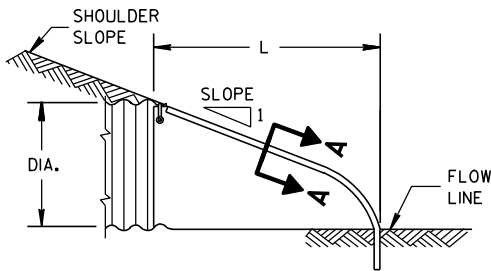
\* EXCEPT CENTER PANEL  
SEE GENERAL NOTES



REINFORCED  
EDGE (SEE  
SECTION A-A)

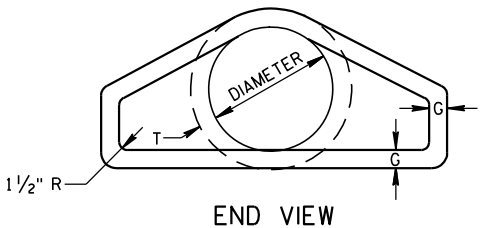
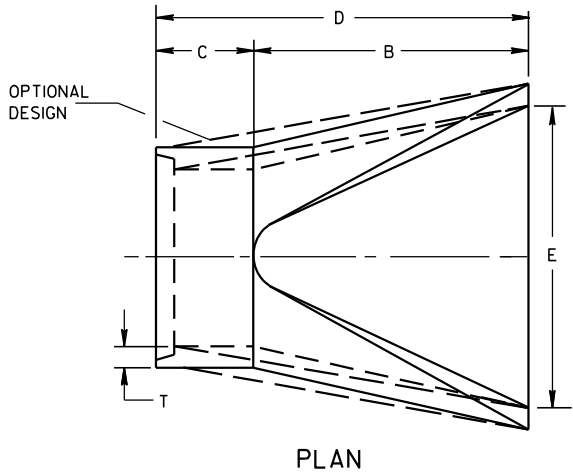


SIDE ELEVATION  
METAL ENDWALLS

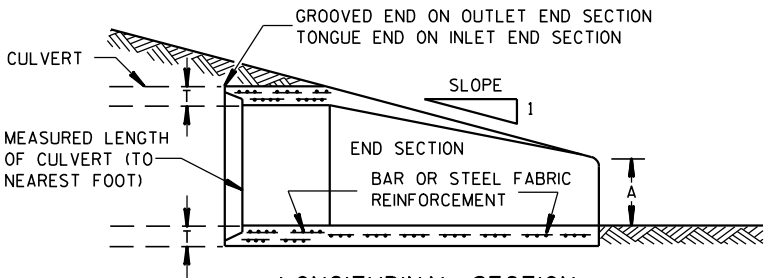


REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1				
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1				
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1				
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1				
24	3	9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

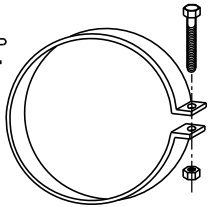
\* MINIMUM  
\*\* MAXIMUM



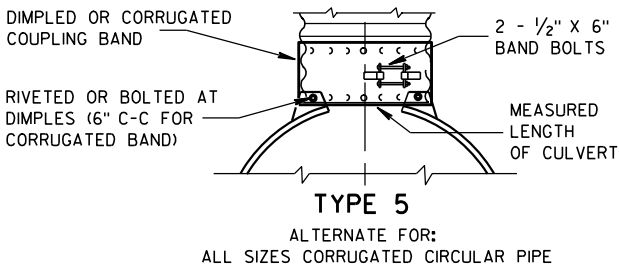
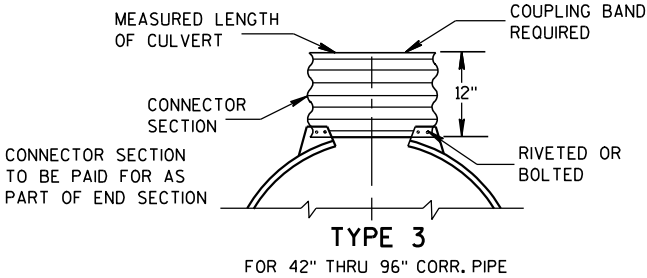
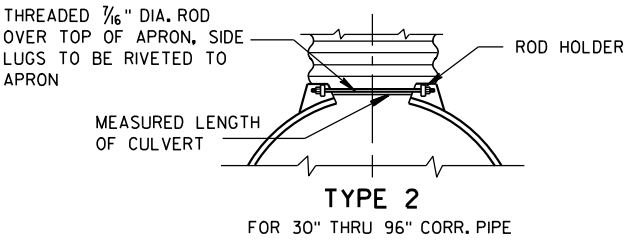
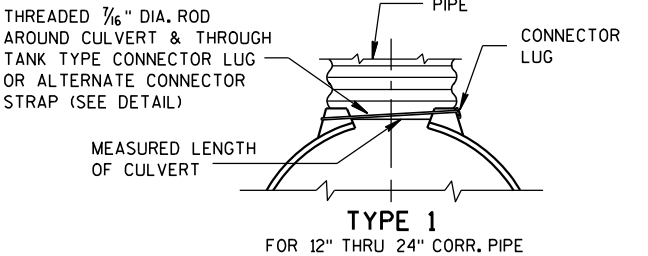
LONGITUDINAL SECTION  
CONCRETE ENDWALLS



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



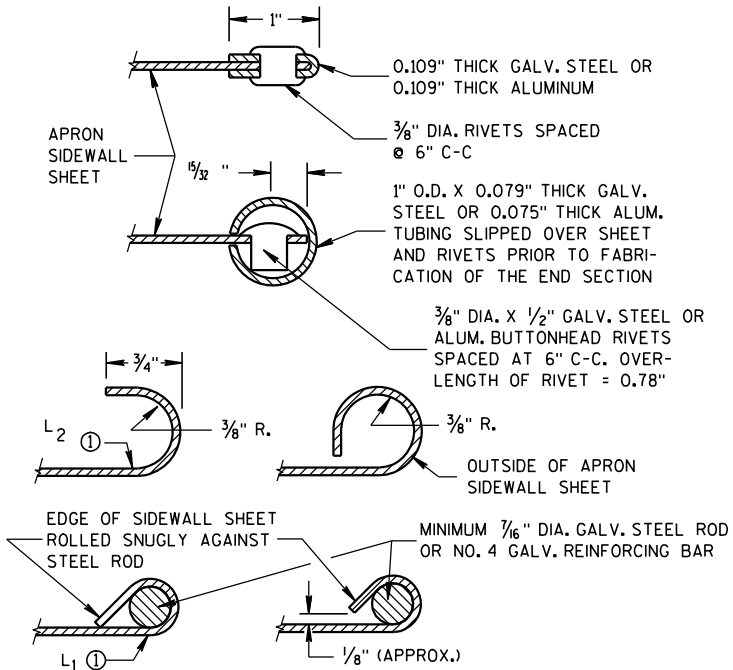
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,  
AND CORRUGATED BAND FITS INSIDE ENDWALL.  
DIMPLED BAND MAY BE USED WITH HELICALLY  
CORRUGATED PIPE.

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.

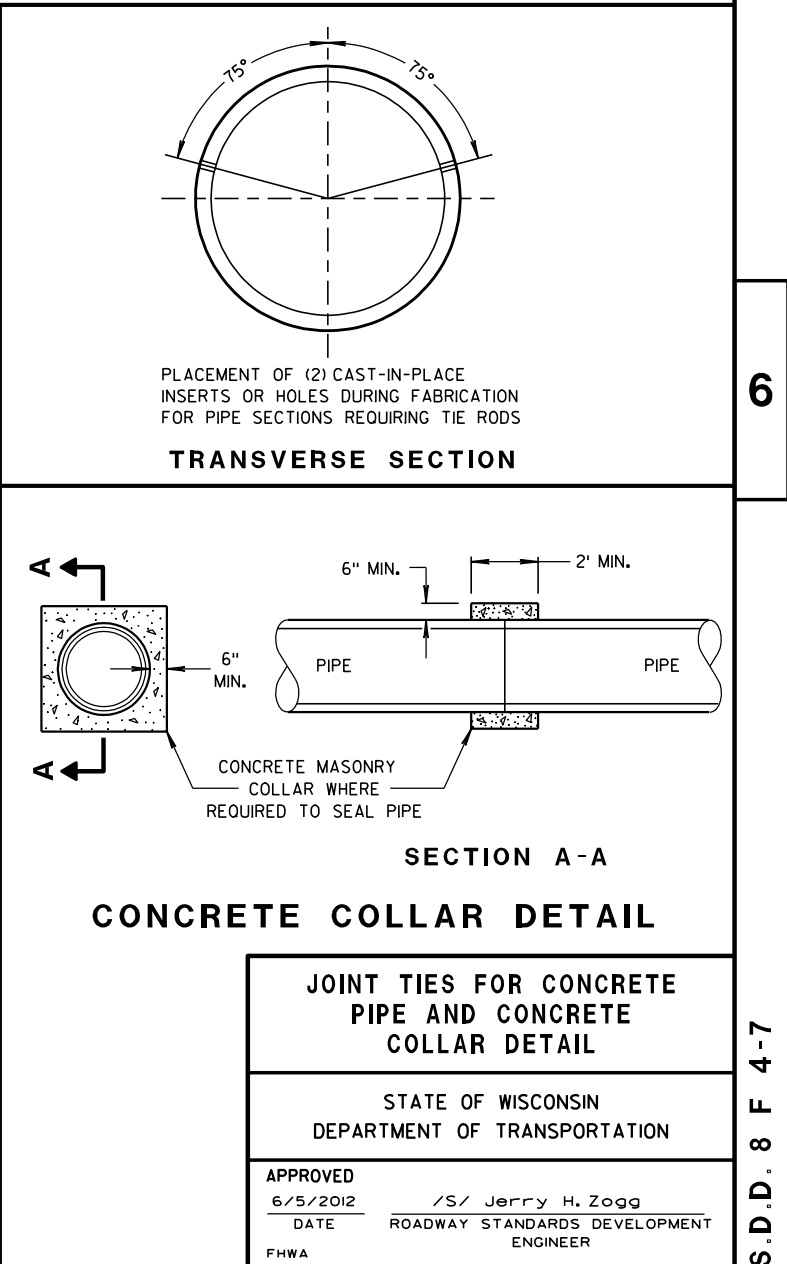
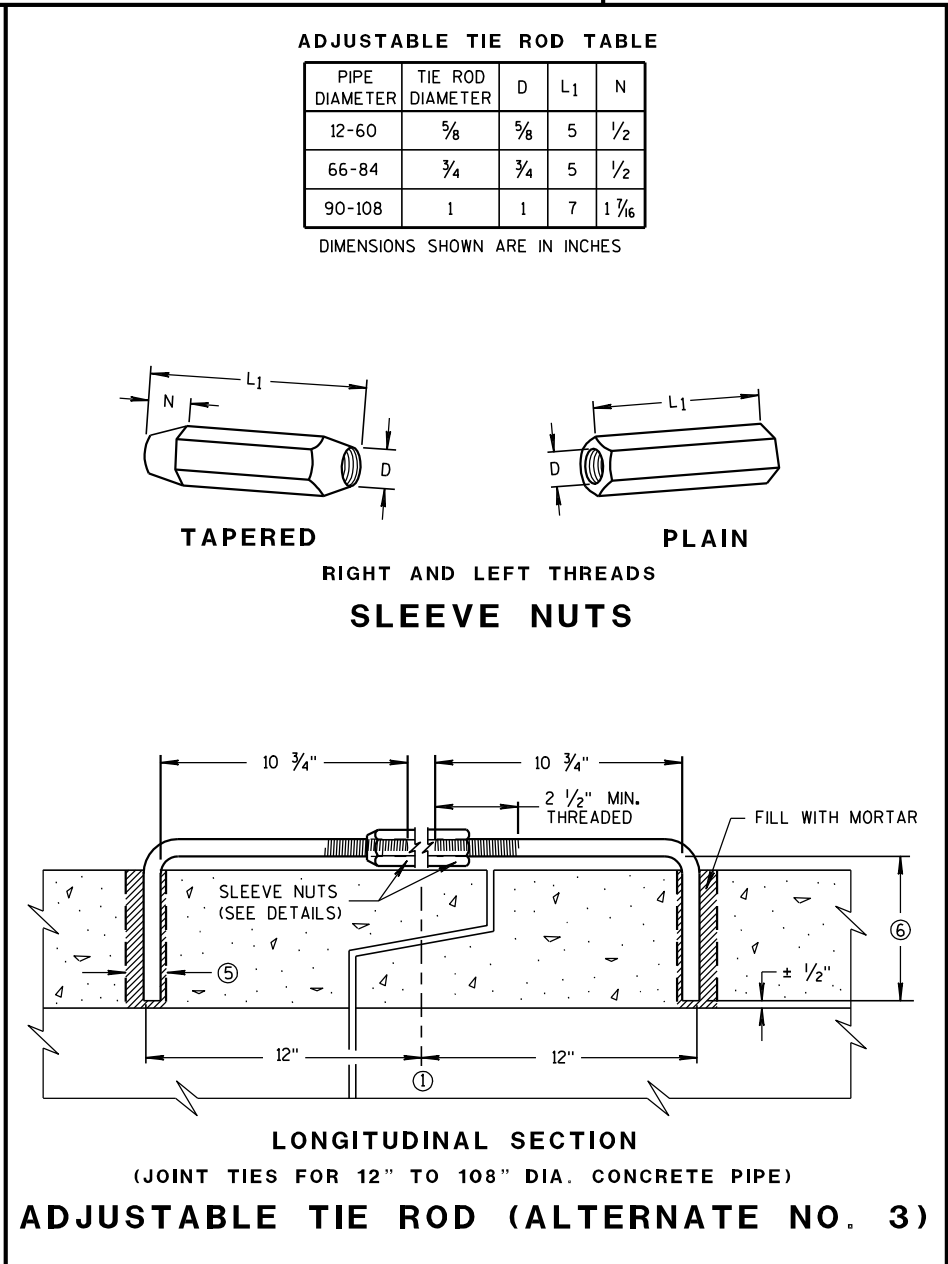
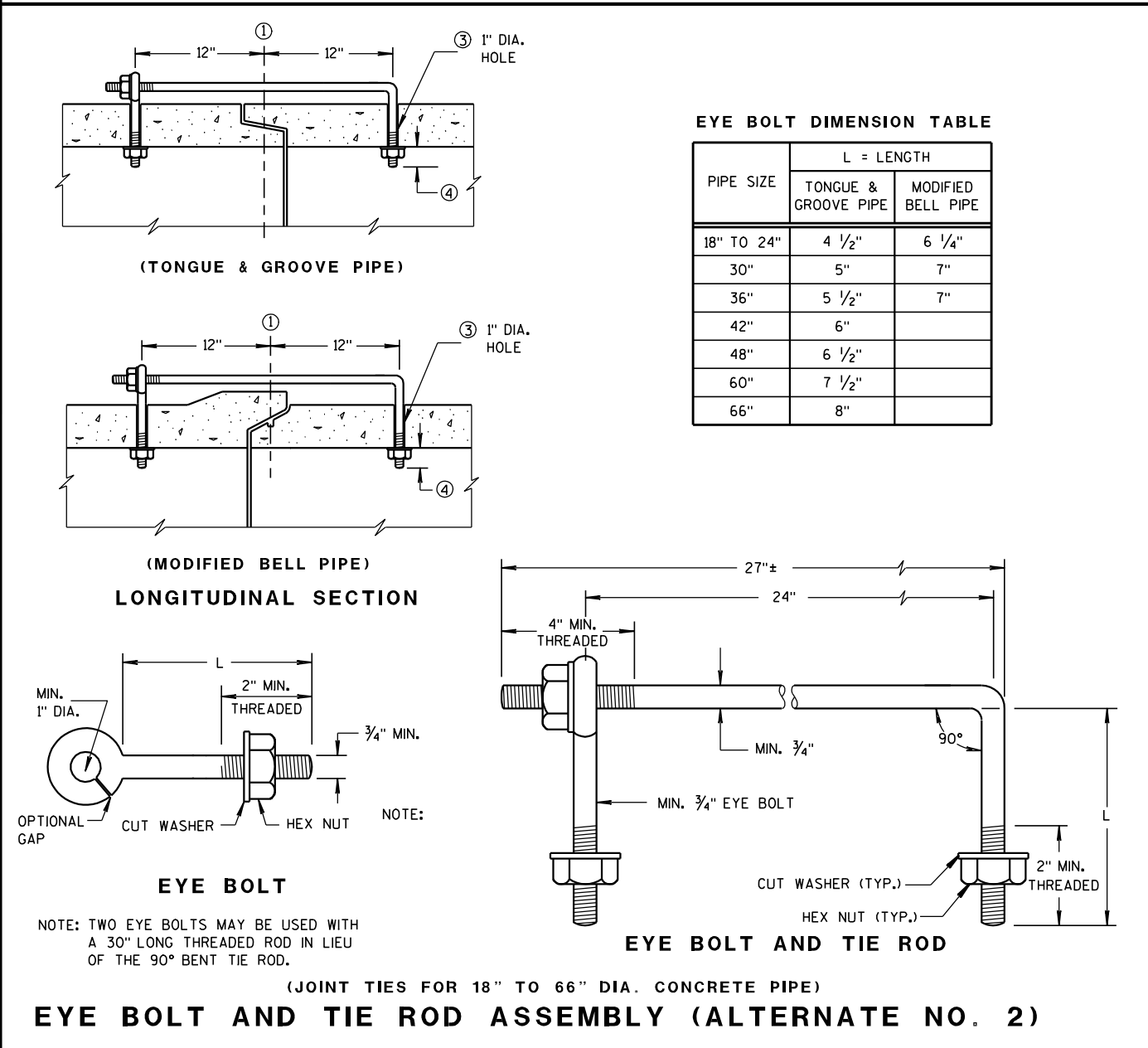
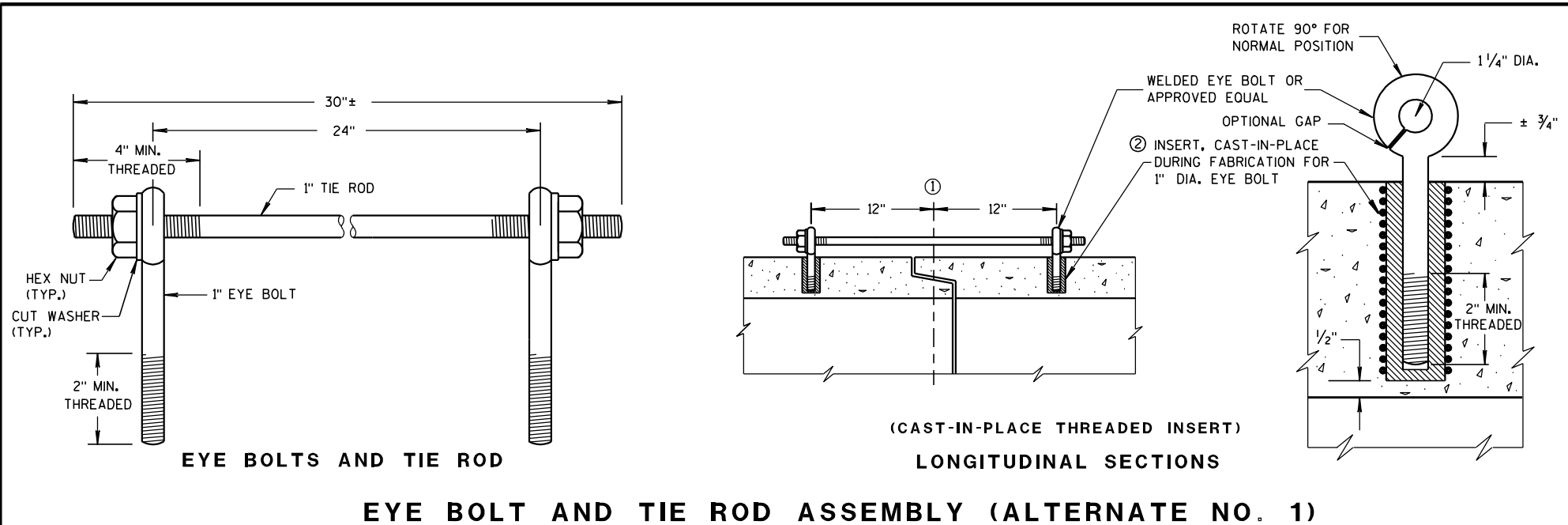
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND  
LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL  
THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND  
LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH  
OF CENTER PANELS SHALL BE GREATER THAN 20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

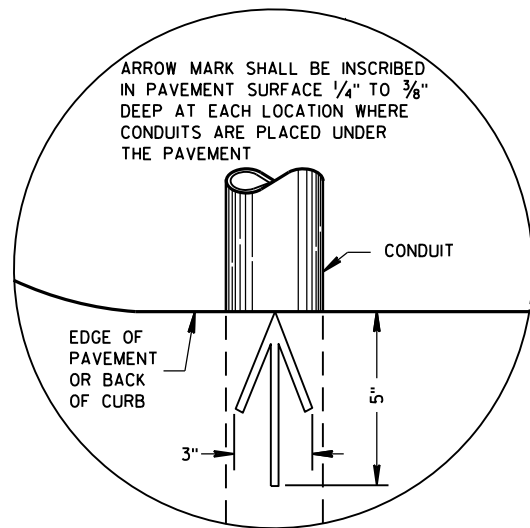
LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS  
FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS.  
FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED  
EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH  
GALVANIZED STEEL OR ALUMINUM STIFFENER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

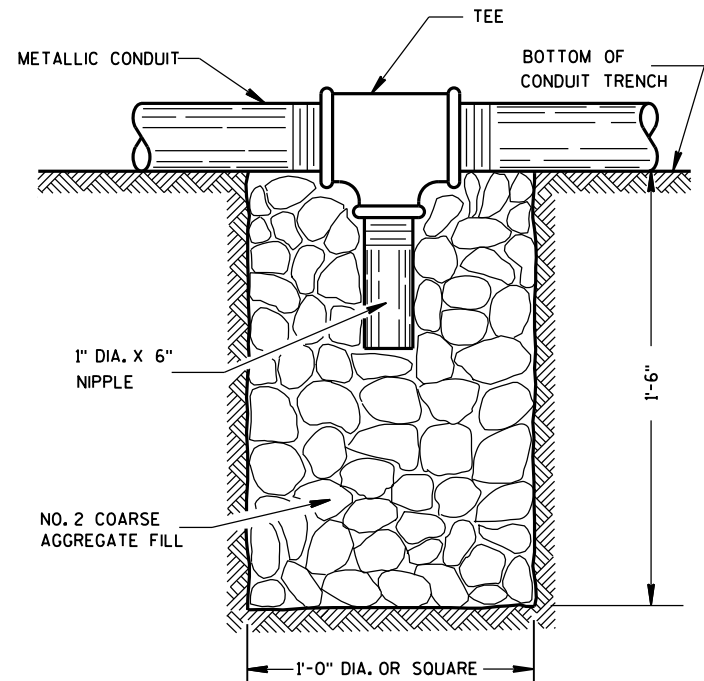
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED  
INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

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



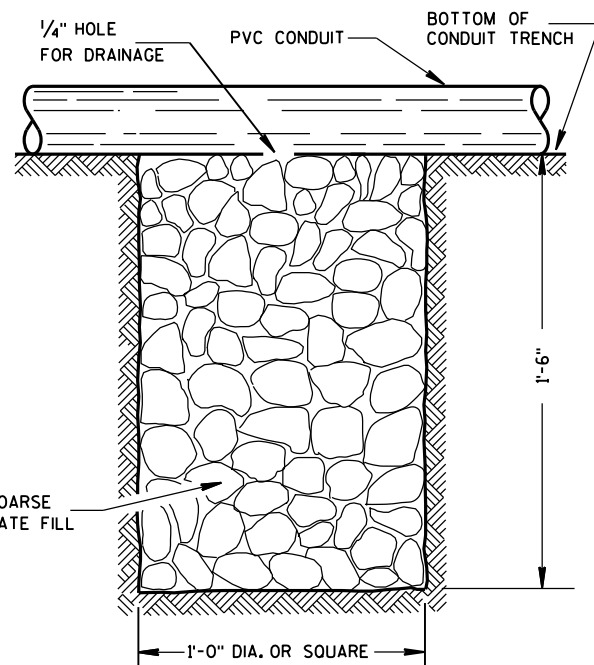


PLAN VIEW  
ARROW MARK



NOTE: INSTALL AT LOCATIONS WHERE METALLIC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR METALLIC CONDUIT



NOTE: INSTALL AT LOCATIONS WHERE PVC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR PVC CONDUIT

## GENERAL NOTES

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

METALLIC (STANDARD SPECIFICATION 652.2.2) OR NONMETALLIC (STANDARD SPECIFICATION 652.2.3) CONDUIT SHALL BE FURNISHED AND PLACED AS SHOWN.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

THE TRENCH SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

ALL METALLIC CONDUIT IN WHICH WIRE OR CABLE IS TO BE INSTALLED SHALL BE BUSHED WITH APPROVED THREADED BUSHINGS BEFORE INSTALLATION OF THE WIRE OR CABLE.

ALL METALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT TO BE INSTALLED SHALL BE CAPPED WITH THREADED PROTECTIVE CAPS, AS APPROVED BY THE ENGINEER.

ALL NONMETALLIC CONDUIT SHALL BE CAPPED OR PLUGGED IMMEDIATELY AFTER INSTALLATION AND SHALL REMAIN CAPPED OR PLUGGED UNTIL WIRE/CABLES ARE INSTALLED.

NONMETALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR EMERSION TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.

ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON NONMETALLIC CONDUIT. (SEE NEC 347.5)

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY U.L. LISTED ADAPTER FITTINGS SHALL BE USED.

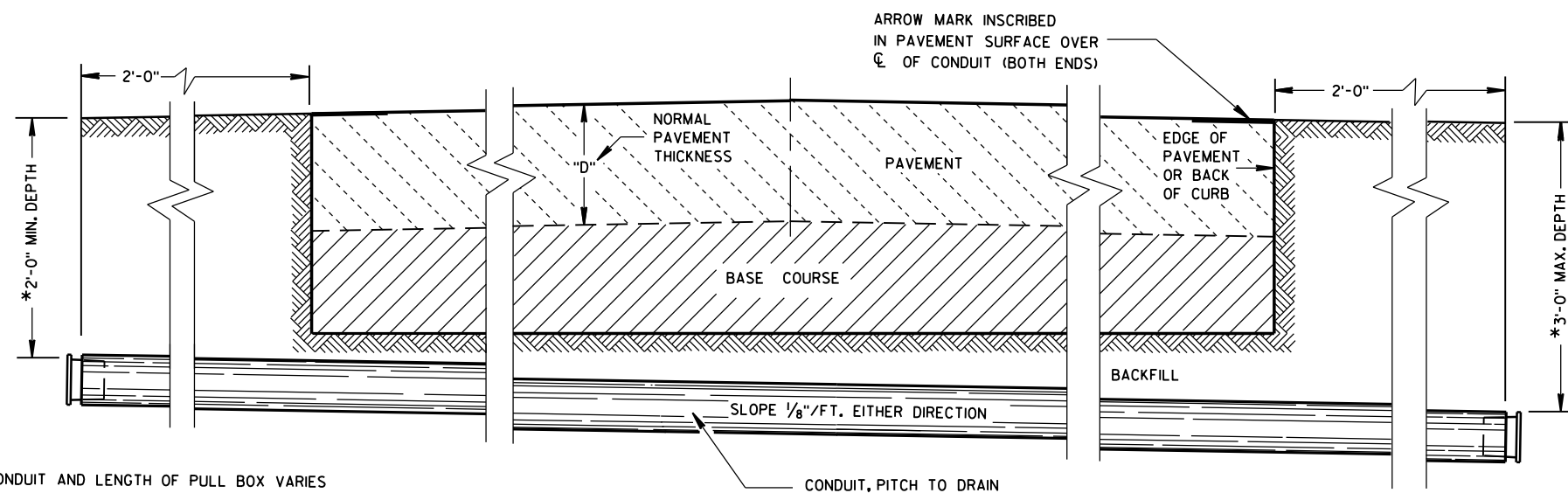
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.

CONDUIT RUNS SHALL BE THE SAME SIZE OF CONDUIT FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX-OR-JUNCTION BOX TO JUNCTION BOX-OR-BASE TO BASE, ETC.).

TRACER WIRE SHALL BE INSTALLED AS STATED IN THE STANDARD SPECIFICATION, ITEM 652.3.1.1.

ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS.



\*DEPTH OF CONDUIT AND LENGTH OF PULL BOX VARIES WITH HEIGHT OF CURB USED. ALSO SEE PULL BOX S.D.D. 9B4

SIDE ELEVATION  
DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS

## CONDUIT

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June, 2015 /S/ Ahmet Demirbilek  
DATE STATE ELECTRICAL ENGINEER  
FHWA

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

DIMENSION IN INCHES		CORRUGATED STEEL PIPE								
PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24
PIPE LENGTH **	B	24	30	36	24	30	36	36	42	48
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
COVER	D	10 1/4	10 1/4	10 1/4	16 1/4	16 1/4	16 1/4	22 1/4	22 1/4	22 1/4
FRAME	E	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2	26 1/2	26 1/2	26 1/2
FRAME	F	8 1/2	8 1/2	8 1/2	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2
FRAME	G	11 1/2	11 1/2	11 1/2	17 1/2	17 1/2	17 1/2	23 1/2	23 1/2	23 1/2
WEIGHT IN POUNDS *										
FRAME AND COVER		60	60	60	110	110	110	155	155	155

\* THE ACTUAL WEIGHT OF THE MANHOLE FRAME AND COVER MAY VARY WITHIN 5 PERCENT PLUS OR MINUS OF THE WEIGHTS SHOWN.

\*\* NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.

GENERAL NOTES

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

ALL FRAMES AND COVERS SHALL BE HEAVY DUTY TYPE, SUITABLE FOR VEHICULAR TRAFFIC LOADS.

PULL BOXES LOCATED IN THE ROADWAYS SHALL HAVE LOCKING COVERS.

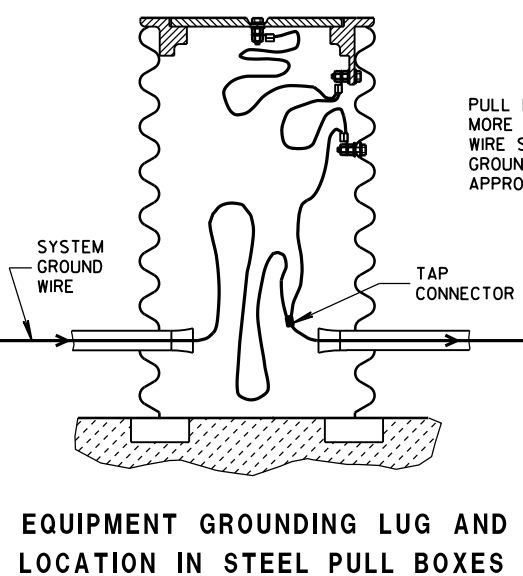
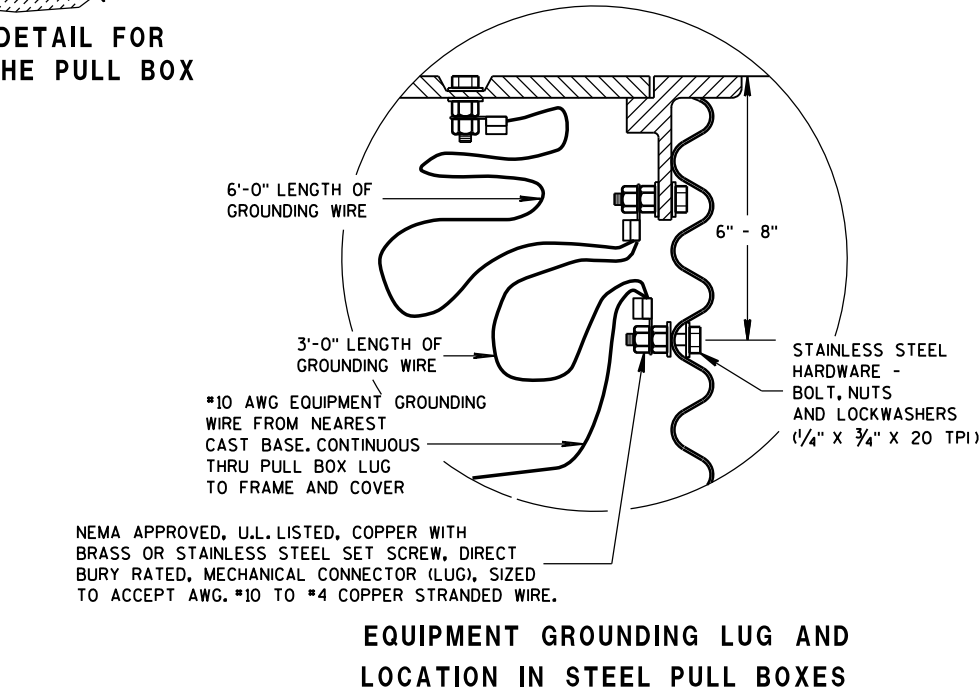
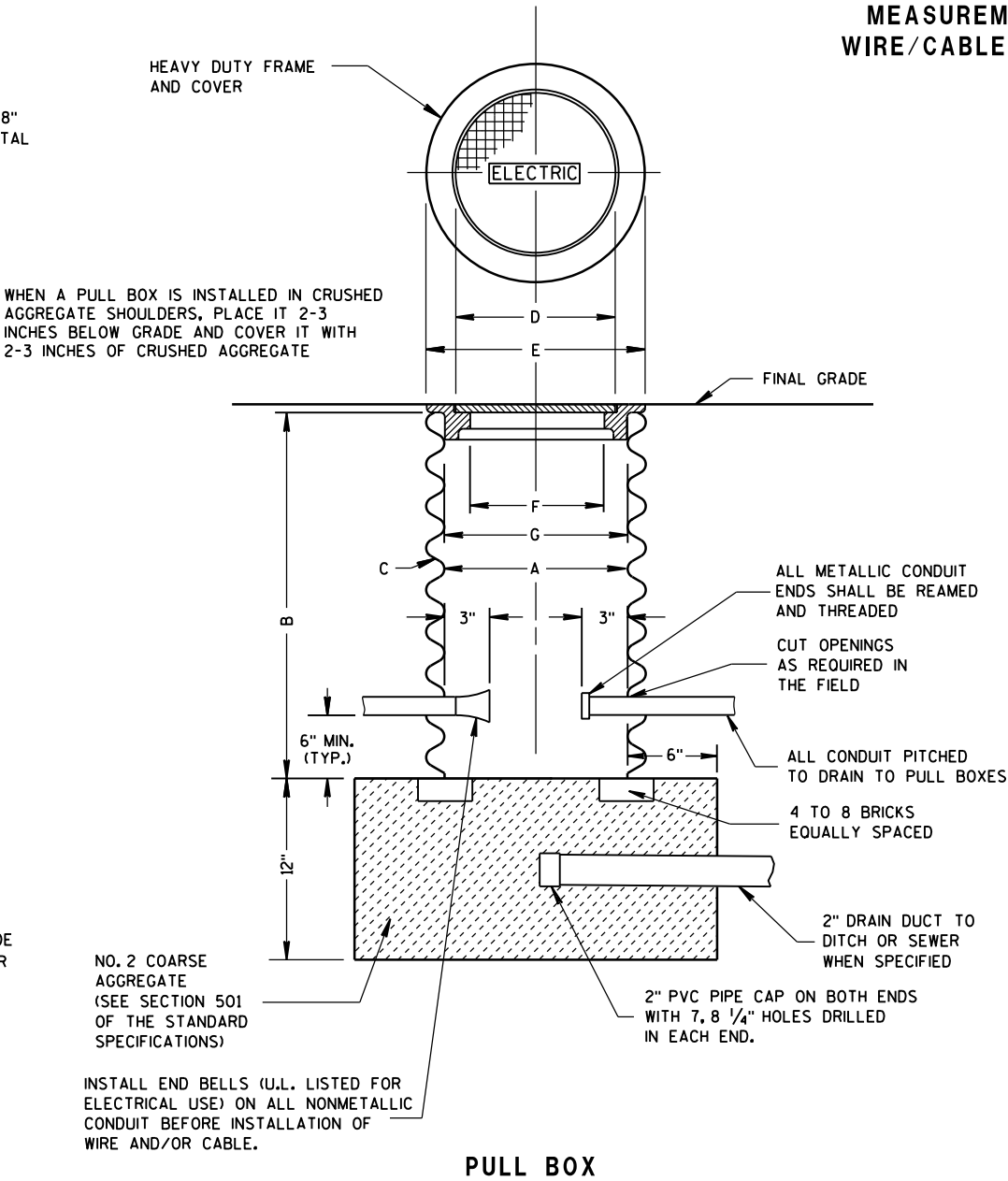
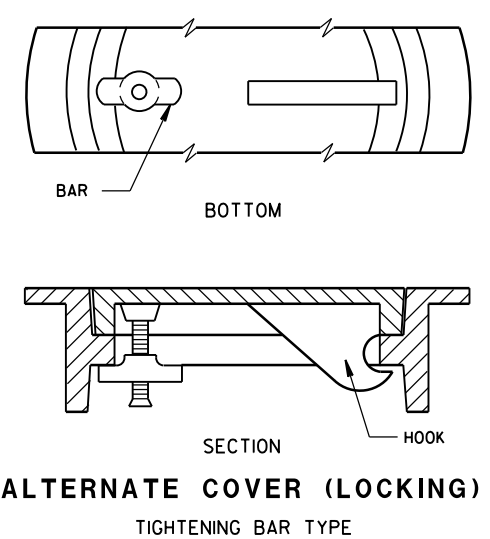
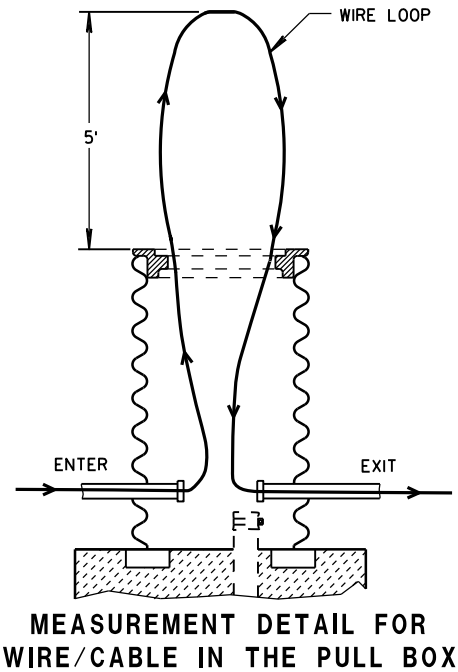
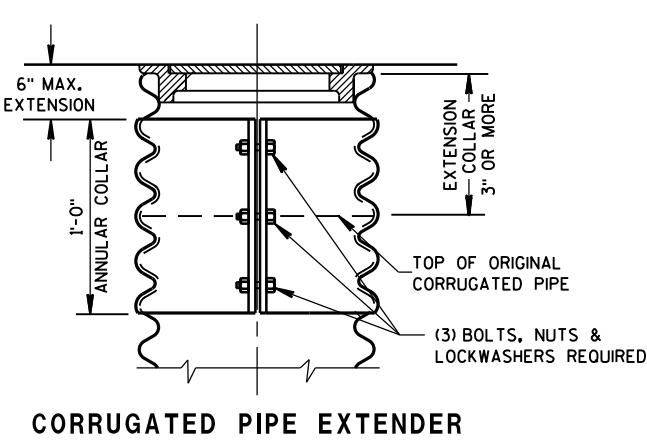
ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

GROUNDING LUGS (MECHANICAL CONNECTORS) SHALL BE U.L. LISTED AND APPROVED FOR USE WITH COPPER WIRE.

ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

WHEN PULL BOXES ARE INSTALLED FOR FUTURE USE, DO NOT INSTALL THE EQUIPMENT GROUNDING LUG. THE EQUIPMENT GROUNDING LUG, THE EQUIPMENT GROUNDING ELECTRODE AND THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE REQUIRED AND INSTALLED UNDER A FUTURE WIRING CONTRACT.



PULL BOX	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED Sept. 2014 DATE	/S/ Ahmet Demirelek STATE ELECTRICAL ENGINEER
FHWA	



4" MAX.

FORM

6" MAX.

FORMING SHALL BE REMOVED AFTER CONCRETE HAS SET

**HALF SECTION  
IN UNPAVED AREA**  
(TYPICAL FOR TYPES 1, 2, 5, & 6)

5/8" DIA. X 8'-0"  
COPPERCLAD  
EQUIPMENT  
GROUNDING  
ELECTRODE  
REQUIRED

5/8" DIA. X 8'-0"  
COPPERCLAD EQUIPMENT  
GROUNDING ELECTRODE  
REQUIRED

FORM ALL EXPOSED CONCRETE. PROVIDE 1" CHAMFER ALL AROUND

SECTION

DUCTOR

IPMENT

RODE

D

AL

OF OF OF OF

1

2

3

4

5

6" MIN.

1'-0"

2"

3" CLEAR

3" x

7'-0"

6" MIN.

## CONCRETE BASES

QUANTITY REQUIREMENTS	CONCRETE BASE TYPE		
	1	2	5 & 6
APPROX. CUBIC YARDS OF CONCRETE	0.40	0.57	0.40
LBS. OF HOOP BAR STEEL	NONE	23	16
LBS. OF VERTICAL BAR STEEL	NONE	60	18

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

TOP SURFACES OF CONCRETE BASES SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

THE FINAL OR TERMINATING CONCRETE BASE IN A CONDUIT RUN SHALL HAVE A 6" EXIT STUB INSTALLED FOR FUTURE CABLING USE. THE EXIT STUB SHALL BE SIZED AS USED THROUGHOUT THE CONDUIT RUN AS SHOWN AT THE ENTRANCE OF THE BASE.

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 1 INCH. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

1" CONDUIT FOR GROUNDING PURPOSES

1'-8"

CONDUIT

1 1/2" BOLT CIRCLE

CONDUIT WITHIN 6" DIA.

ANCHOR RODS SHALL BE ORIENTED PARALLEL TO THE ROADWAY

3

4

5

1'-2" (OUT TO OUT)

1'-5" MIN. LAP

ANCHOR RODS SHALL  
BE ORIENTED \_\_\_\_\_  
PARALLEL TO  
THE ROADWAY

\*\* FOR NONBREAKAWAY INSTALLATIONS, 4 1/2" ± ANCHOR ROD PROJECTION WITH THE USE OF LEVELING NUTS. RODENT SCREEN REQUIRED.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS (LATEST EDITION).

- ② (4) 1" DIA. X 3'-6" ANCHOR RODS.
- ③ (4) 1" DIA. X 5'-0" ANCHOR RODS.
- ④ (6) NO. 6 X 6'-8" BAR STEEL REINFORCEMENT.
- ⑤ (7) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.
- ⑥ (4) 1" DIA. X 3'-6" ANCHOR RODS.
- ⑦ (6) NO. 4 X 4'-8" BAR STEEL REINFORCEMENT.
- ⑧ (5) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

/S/ Ahmet Demirbilek  
STATE ELECTRICAL ENGINEER

GENERAL NOTES

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

FOUR (4) BOLTS SHALL BE FURNISHED WITH EACH TRANSFORMER BASE. BOLTS SHALL BE 1" DIAMETER, 4" IN LENGTH, WITH WASHERS, LOCK WASHERS AND NUTS. BOLTS, NUTS AND WASHERS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 641.2.2 OF THE STANDARD SPECIFICATIONS.

LEVELING SHIMS, IF NEEDED, SHALL BE DESIGNED FOR THE PURPOSE AND USED UNDER CAST BASES WHEN PLUMBING POLES OR STANDARDS DURING INSTALLATION. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE.

SHIM LENGTH SHALL BE LONG ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.

DOUBLE NUTTING IS NOT ACCEPTABLE FOR LEVELING OR MOUNTING PURPOSES.

A NEMA APPROVED, U.L. LISTED, COPPER WITH BRASS OR STAINLESS STEEL SET SCREW, DIRECT BURY RATED, MECHANICAL CONNECTOR (LUG), SIZED TO ACCEPT AWG. #10 TO #4 COPPER STRANDED WIRE SHALL BE FURNISHED AND INSTALLED IN THE PEDESTAL AND TRANSFORMER BASES.

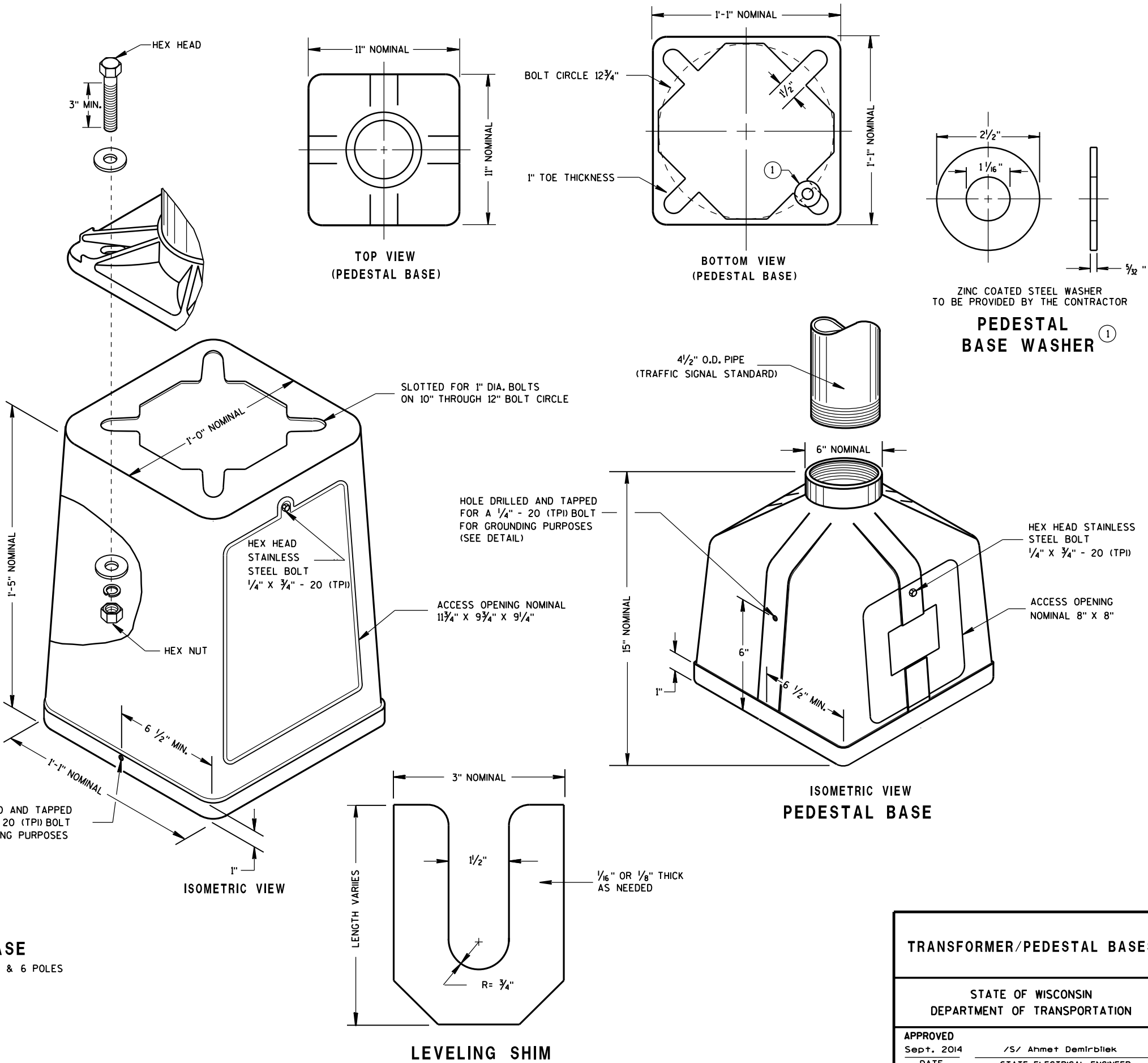
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER - THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

PEDESTAL BASE COLLAR THREADING SHALL BE TAPERED AND IN ACCORDANCE WITH NATIONAL PIPE THREADING DIMENSIONS.

BASE COLLAR THREADING SHALL EXTEND INTO THE BASE COLLAR WITH SUFFICIENT DEPTH TO ACCEPT THE INSTALLATION OF TRAFFIC SIGNAL STANDARDS TO A DEPTH OF 1/2", THEN TIGHTENING TO A POINT OF BEING IMMOVABLE.

THE ACCESS DOOR SHALL BE OF THE SAME MATERIAL AS THE BASE.



TYPICAL MECHANICAL  
CONNECTOR LUG  
TO BE FURNISHED WITH EACH BASE

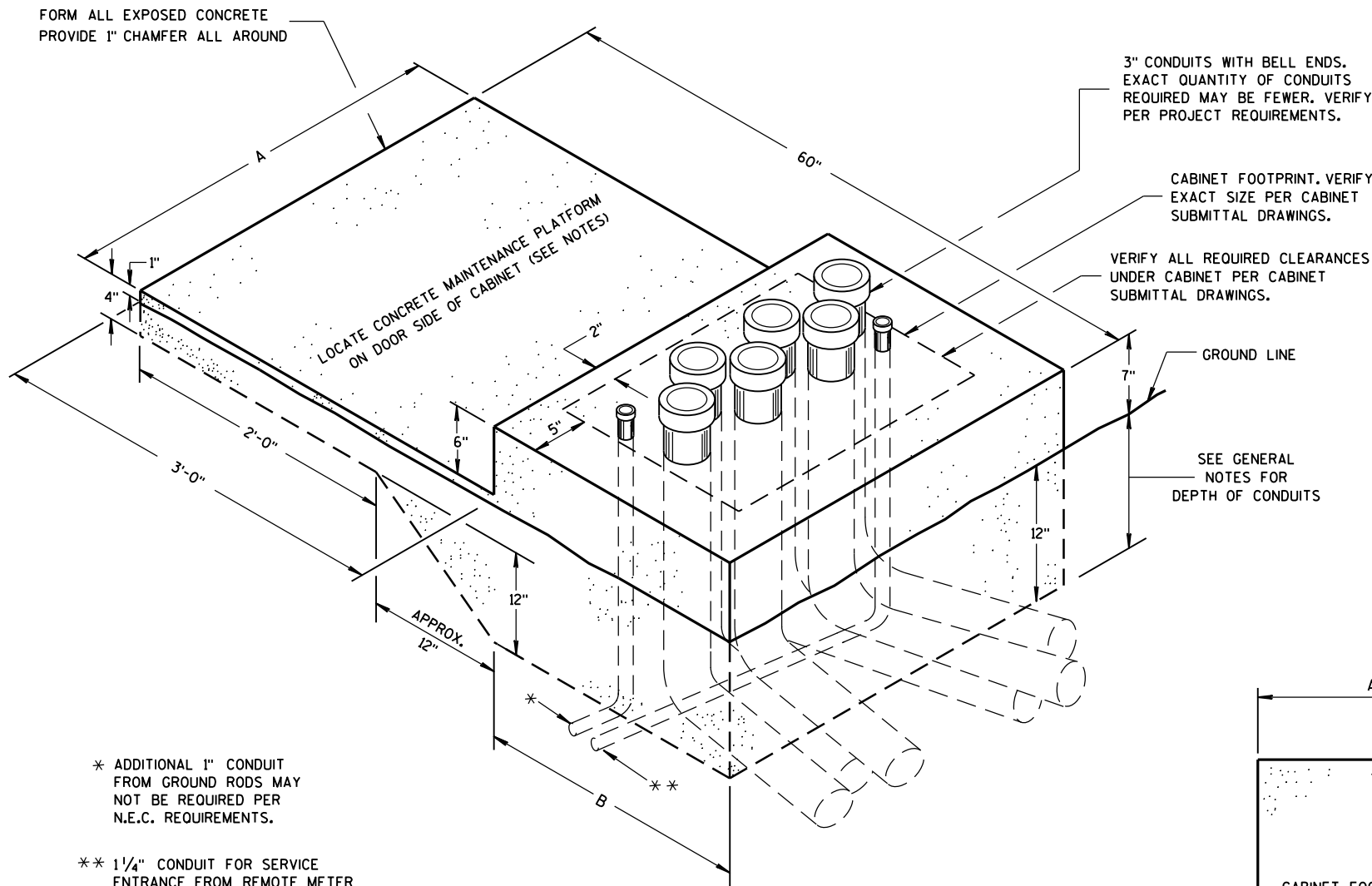
TRANSFORMER BASE  
INTENDED FOR USE WITH TYPE 2, 3, 4, 5 & 6 POLES

TRANSFORMER/PEDESTAL BASES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
Sept. 2014 /S/ Ahmet Demirbilek  
DATE STATE ELECTRICAL ENGINEER  
FHWA



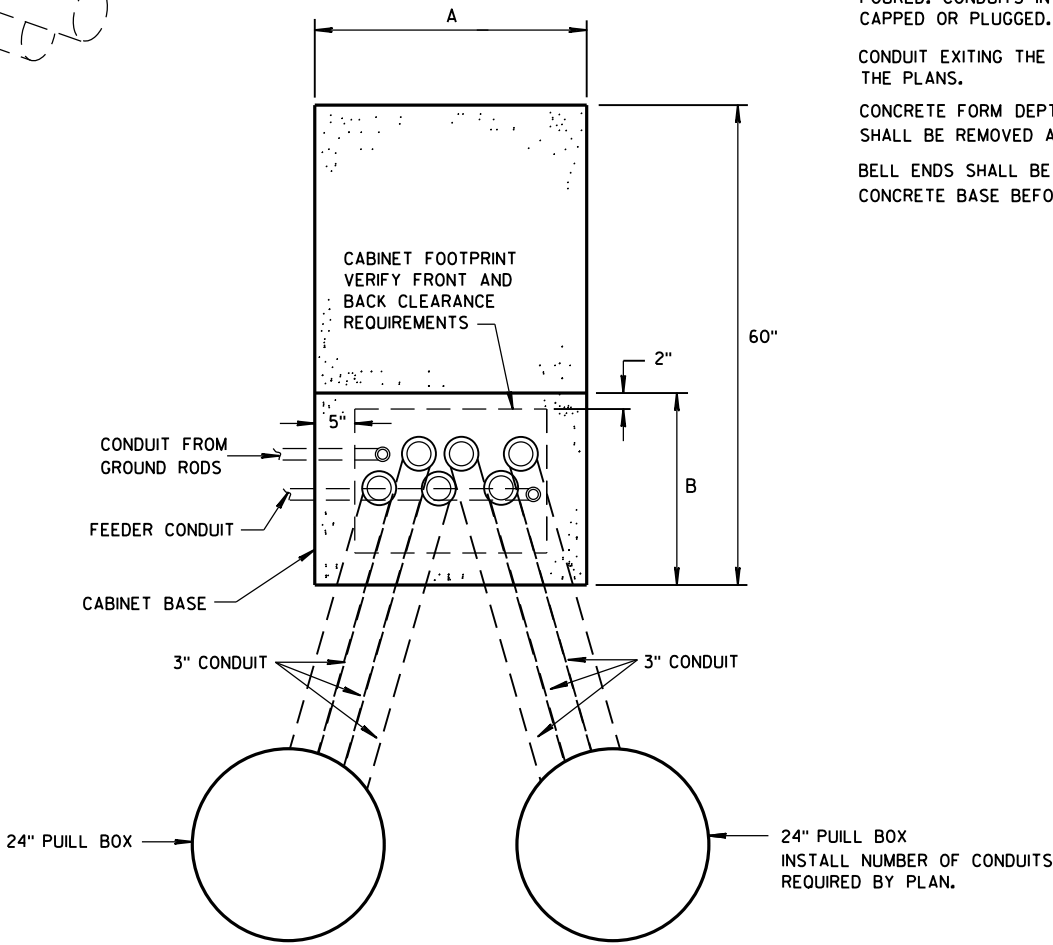


\* ADDITIONAL 1" CONDUIT FROM GROUND RODS MAY NOT BE REQUIRED PER N.E.C. REQUIREMENTS.

\*\* 1 1/4" CONDUIT FOR SERVICE ENTRANCE FROM REMOTE METER BREAKER PEDESTAL PER PROJECT REQUIREMENTS. VERIFY LOCATION OF CONDUIT DEPENDENT UPON LOCATION OF INCOMING FEEDER AND FOR EASE OF CONNECTION TO LOAD CENTER.

ISOMETRIC VIEW  
CONCRETE CONTROL  
CABINET BASE, TYPE L  
( C.Y. CONCRETE = APPROX. 0.4 )

CONCRETE BASE TYPE	CABINET WIDTH	DIMENSIONS		MAXIMUM 3" CONDUITS
		A	B	
L24	24"	34"	24"	4
L30	30"	40"	24"	6



PLAN VIEW  
CONCRETE CONTROL CABINET BASE, TYPE L

GENERAL NOTES

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

INSTALL FOUR STAINLESS STEEL APPROVED CONCRETE MASONRY ANCHORS TO ANCHOR THE CABINET BASES. THE ANCHORS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO PROPERLY ANCHOR THE CONTROL CABINET TO THE BASE.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 1 INCH.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

CONTROL CABINET BASE TOP SURFACE SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

MAINTENANCE PLATFORM SHALL BE FLOAT OR BROOM FINISHED AND BE LEVEL.

MAINTENANCE PLATFORMS ARE NOT REQUIRED WHEN THE SURROUNDING AREA IS PAVED.

MINIMUM BENDING RADIUS OF CONDUIT = 6 X THE DIAMETER.

ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

CAP ALL BELOW GRADE METALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.

PLUG ALL BELOW GRADE NONMETALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

CONDUIT EXITING THE CONCRETE BASE SHALL TERMINATE IN PULL BOXES AS SHOWN ON THE PLANS.

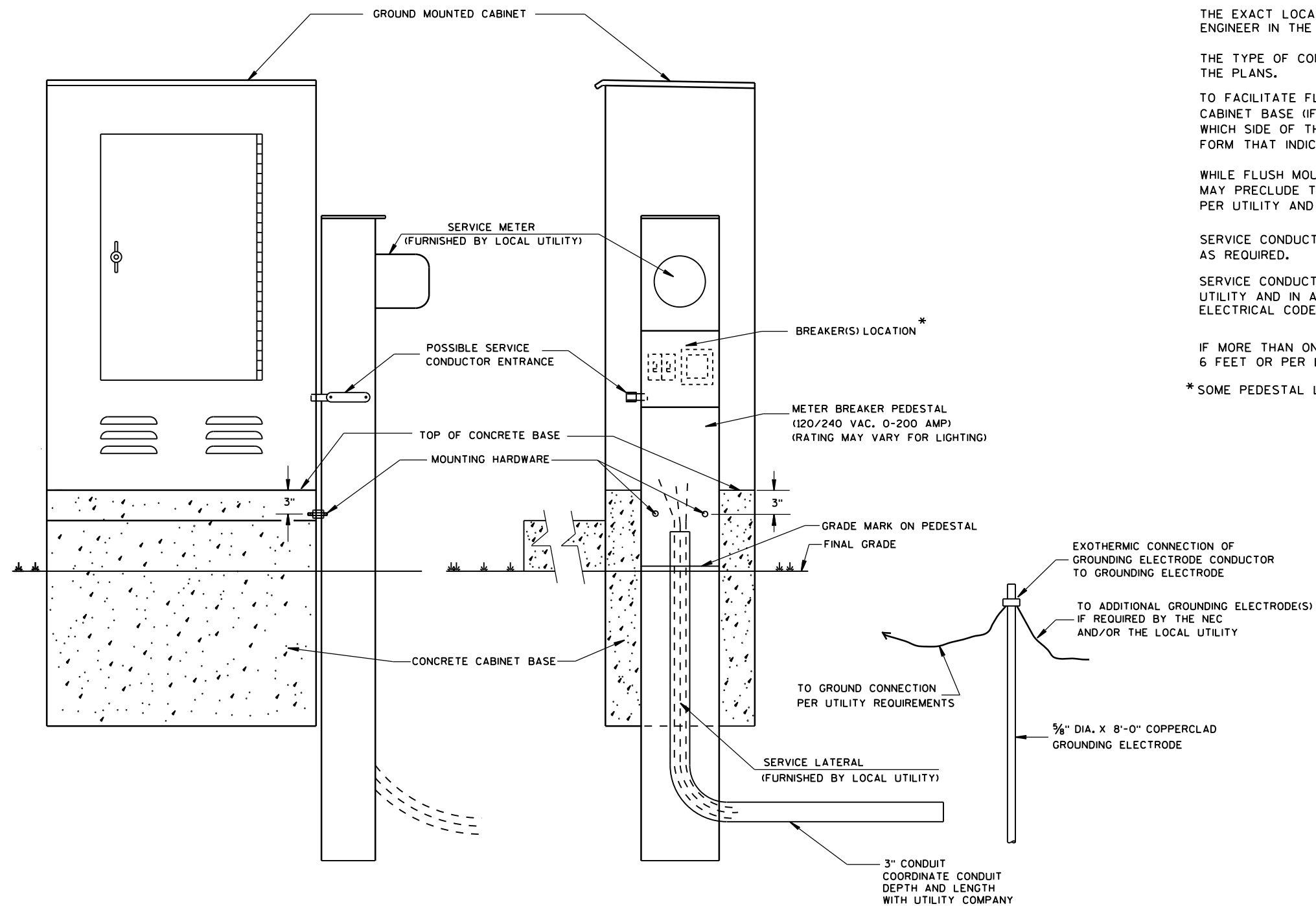
CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6" MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF THE CONCRETE BASE BEFORE INSTALLATION OF CABLE OR WIRE.

CONCRETE CONTROL  
CABINET BASE, TYPE L

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
Nov. 2014 /S/ Thomas Gorrng  
DATE STATE LIGHTING ENGINEER FOR HWYS  
FHWA



TYPICAL CABINET SERVICE INSTALLATION

## GENERAL NOTES

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

THE EXACT LOCATION OF THE METER BREAKER PEDESTAL SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE TYPE OF CONCRETE CABINET BASE TO BE INSTALLED SHALL BE AS CALLED FOR IN THE PLANS.

TO FACILITATE FLUSH MOUNTING OF THE METER BREAKER PEDESTAL AGAINST THE SIDE OF THE CABINET BASE (IF FLUSH MOUNTING POSSIBLE, CONFER WITH THE LOCAL UTILITY TO DETERMINE WHICH SIDE OF THE CONCRETE BASE THE ELECTRICAL SERVICE LATERAL WILL APPROACH, THEN FORM THAT INDICATED SIDE FOR FULL SIDE DEPTH.

WHILE FLUSH MOUNTING IS THE MOST DESIRABLE MOUNTING CONFIGURATION UTILITY REQUIREMENTS MAY PRECLUDE THIS OPTION. CONTRACTOR MUST PROVIDE UTILITY APPROVED PEDESTAL AND INSTALL PER UTILITY AND MANUFACTURERS REQUIREMENTS.

SERVICE CONDUCTOR ENTRANCES SHALL BE RIGID METALLIC CONDUIT, NIPPLES AND/OR CONDULETS AS REQUIRED.

SERVICE CONDUCTOR ENTRANCES SHALL BE SIZED AND LOCATED AS REQUIRED BY THE LOCAL UTILITY AND IN ACCORDANCE WITH APPROPRIATE ARTICLES OF THE LATEST ACCEPTED NATIONAL ELECTRICAL CODE.

IF MORE THAN ONE GROUNDING ELECTRODE IS REQUIRED, THE DISTANCE APART SHALL BE 6 FEET OR PER LOCAL UTILITY REGULATIONS.

\* SOME PEDESTAL LIGHTING PLANS SHOW MAIN LUGS ONLY.

CABINET SERVICE INSTALLATION  
(METER BREAKER PEDESTAL)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
Sept. 2014  
DATE

/S/ Ahmet Demirbilek  
STATE ELECTRICAL ENGINEER

FHWA

FRONT INTERIOR  
ELEVATION

SIDE VIEW

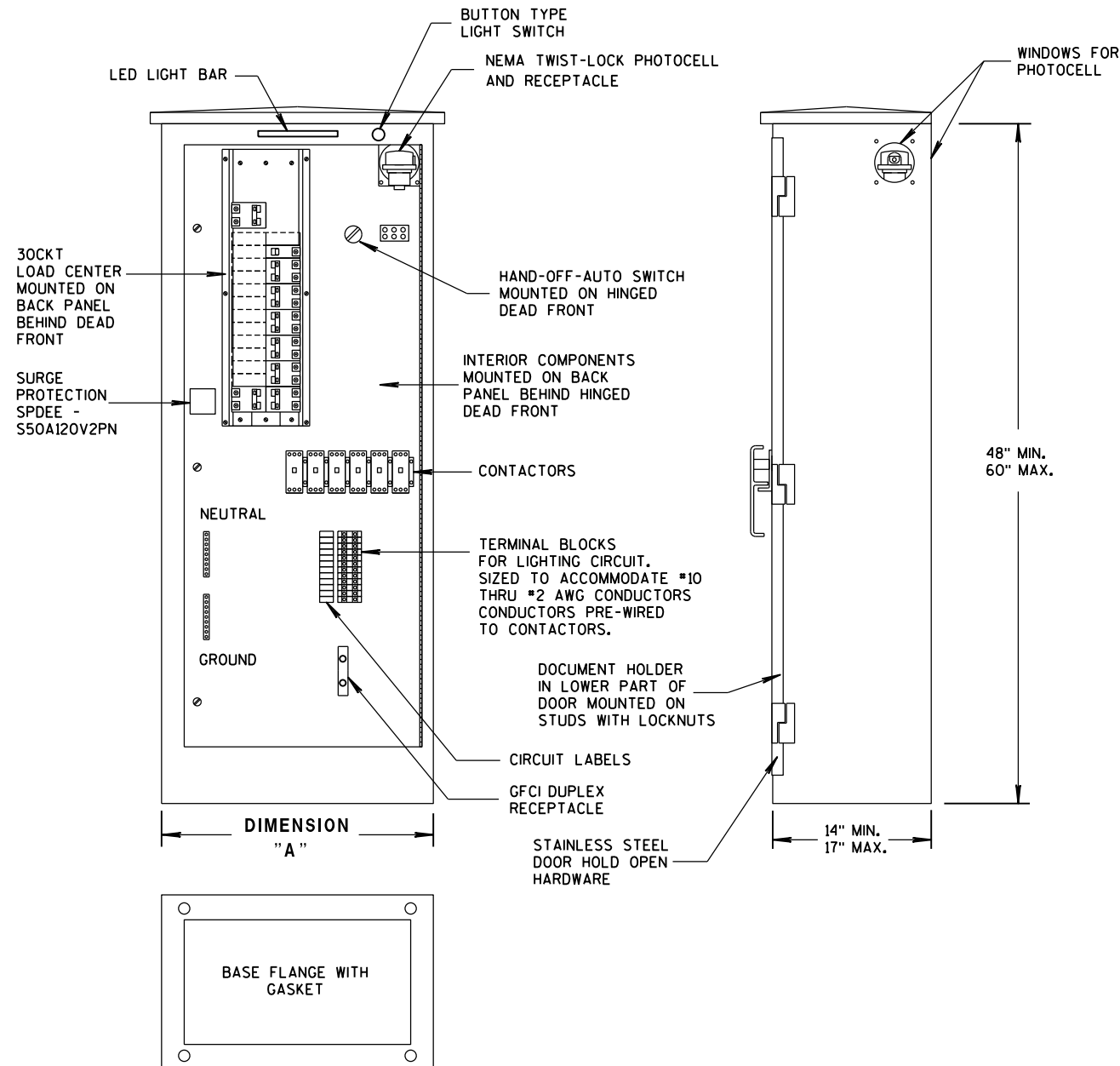
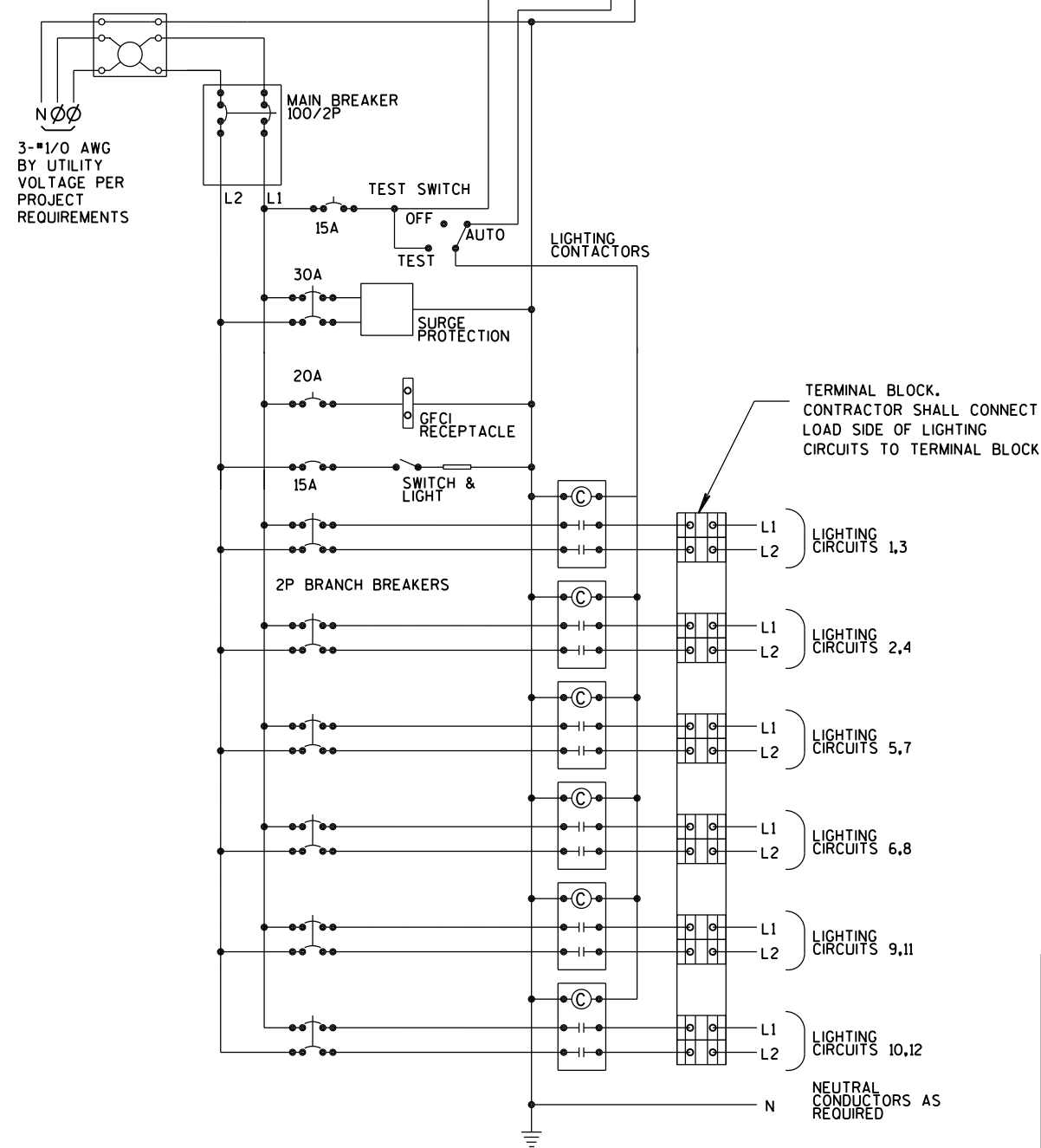


TABLE OF DIMENSIONS (INCHES)		
CONCRETE BASE TYPE	CABINET WIDTH	DIMENSION "A"
L24	24"	24"
L30	30"	30"

LIGHTING CONTROL CABINET

UTILITY METER PEDESTAL PROVIDED BY CONTRACTOR UNDER SEPARATE BID ITEM. MAY, OR MAY NOT BE ATTACHED TO OUTSIDE OF CONTROL CABINET PER PROJECT REQUIREMENTS



CONTROL CABINET SCHEMATIC

GENERAL NOTES

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

ALL INTERNAL ELECTRICAL COMPONENTS WILL BE PRE-WIRED BY THE CABINET FABRICATOR.

ALL CONDUIT ENTRIES SHALL BE SEALED WITH AN APPROPRIATE DUCT SEALING COMPOUND.

ORIENT PHOTOCELL AWAY FROM AMBIENT LIGHT SOURCES AND ONCOMING TRAFFIC HEADLIGHTS.

THE CONTRACTOR SHALL TOUCH UP ANY DAMAGE TO THE ANODIZED FINISH CAUSED BY THE INSTALLATION PROCESS. COLOR MATCH PAINT SHALL BE USED.

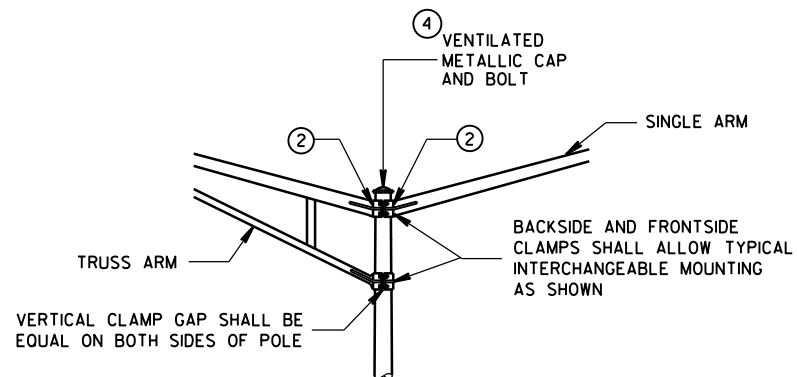
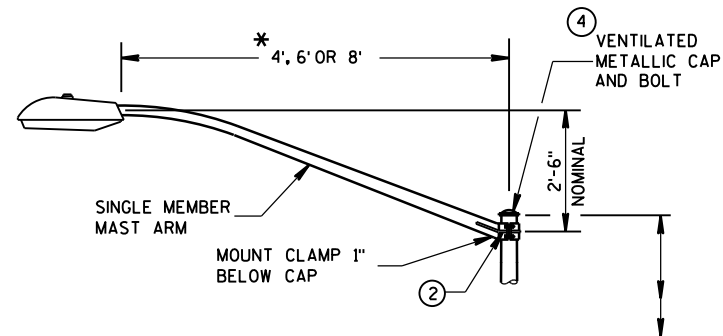
A COMPLETE LIGHTING OR ELECTRICAL PLAN SHALL BE SECURELY PLACED IN THE DOCUMENT HOLDER ATTACHED TO THE DOOR.

LIGHTING CONTROL CABINET  
120/240 VOLT

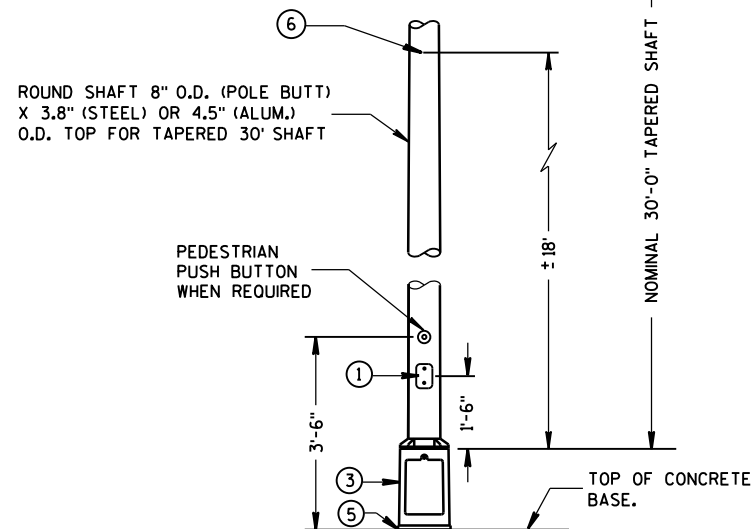
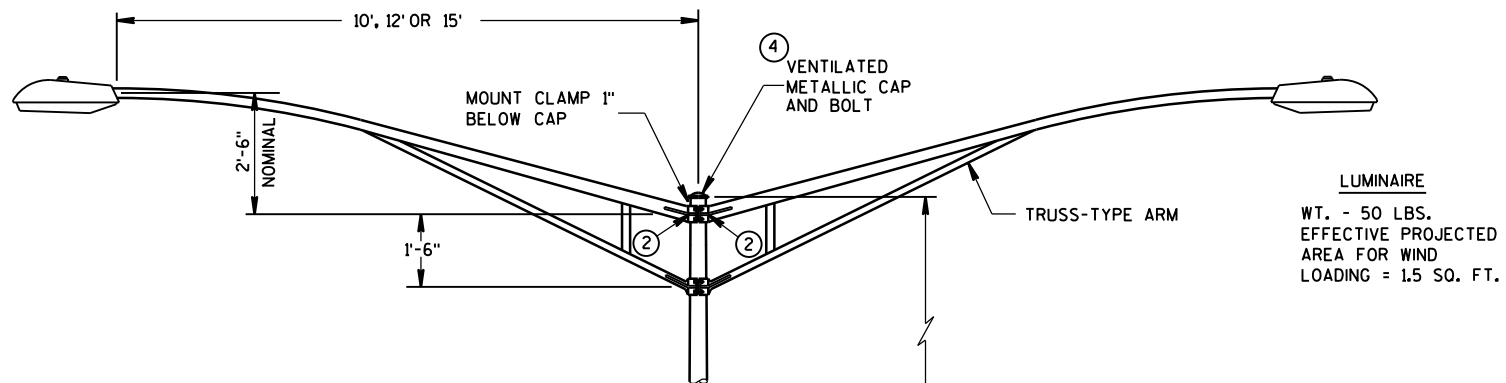
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE: Sept. 2014  
FHW  
/S/ Thomas Goring  
STATE LIGHTING ENGINEER FOR HWYS.

\* RISE FOR 4' ARM SHALL BE 2'-0".



INTERCHANGEABLE MOUNTING DETAIL



TYPE 5 POLE MOUNTING CONFIGURATION  
(MAXIMUM LOAD)  
LIGHTING ONLY

## GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.  
ALL TYPE 5 POLE MOUNTINGS SHALL BE DESIGNED TO INCLUDE TWIN 15' ARMS WITH LUMINAIRES.

POLES SHALL BE GALVANIZED STEEL OR ALUMINUM, AS CALLED FOR IN THE CONTRACT.

TYPE 5 ALUMINUM POLES SHALL BE CONSTRUCTED OF 6063-T6 ALUMINUM ALLOY. SLEEVING INSIDE THE POLE IS NOT ACCEPTABLE.

THE TYPE 5 ALUMINUM POLES SHALL HAVE A MINIMUM WALL THICKNESS OF 0.188".

TYPE 5 STEEL POLES SHALL HAVE A MINIMUM WALL THICKNESS OF U.S. STANDARD 11 GAGE (.1196").

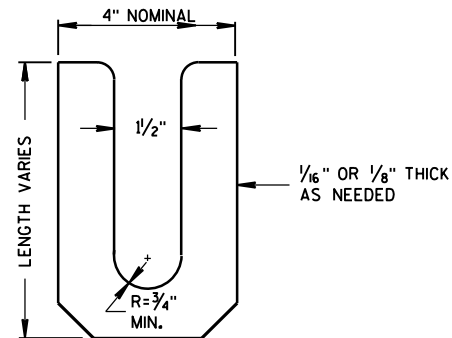
THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL  $2\frac{3}{8}$  INCHES IN OUTSIDE DIAMETER. THE STRAIGHT PORTION OF THE SLIPFITTER END OF THE LUMINAIRE ARM SHALL BE A NOMINAL 12 INCHES IN LENGTH.

WHEN TRANSFORMER BASES ARE USED, WIRE CONECTIONS SHALL BE MADE IN THE TRANSFORMER BASE.

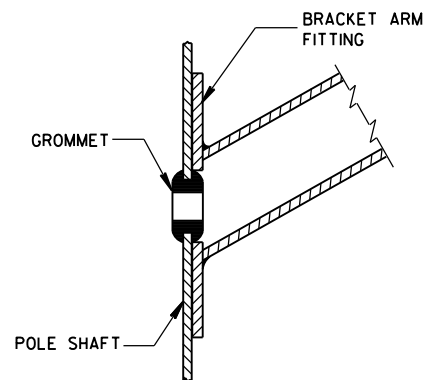
- ① 4" x 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO)  $\frac{1}{4}$ " x  $\frac{3}{4}$ " - 20 TPI HEX HEAD STAINLESS STEEL BOLTS.
- ② GROMMETS, 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR  $1\frac{1}{8}$ " HOLE IN POLE SHAFT FOR WIRING.
- ③ CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED.
- ④ FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1)  $\frac{1}{4}$ " x  $\frac{3}{4}$ " - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.
- ⑤ SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND THE TRANSFORMER BASE.
- ⑥ INTERNAL DUMBBELL-TYPE VIBRATION DAMPER.

POLE MONTINGS FOR  
LIGHTING UNITS, TYPE 5  
(30 FEET)

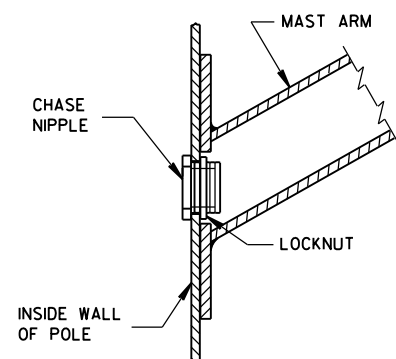
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**LEVELING SHIM**  
SHALL BE ALUMINUM



**TYPICAL APPLICATION OF GROMMET IN POLE SHAFT**



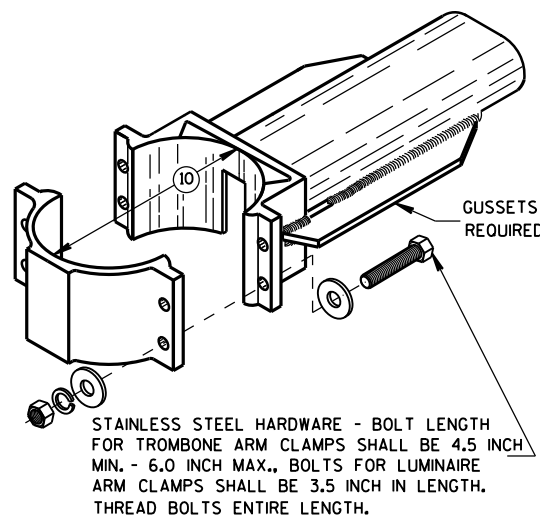
**TYPICAL APPLICATION OF CHASE NIPPLE IN POLE SHAFT**

# **GENERAL NOTES**

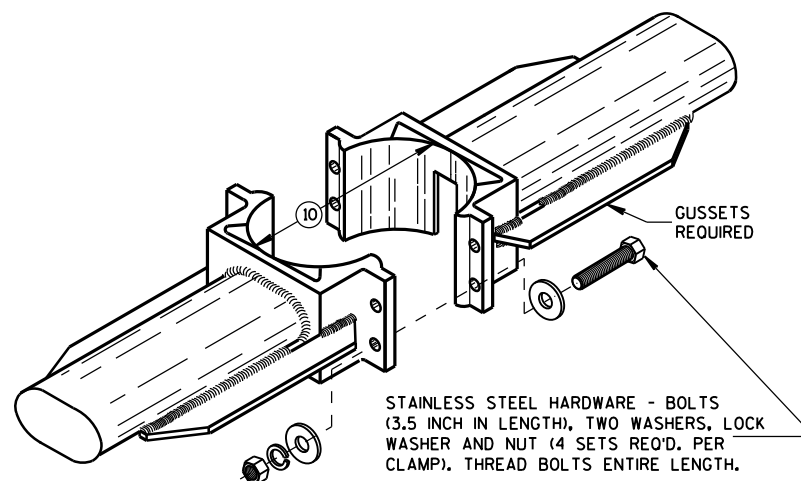
CLAMP BOLT-NUT TIGHTENING TORQUE SHALL BE INDICATED BY INDENT STAMPING (1/2 INCH NUMERALS AND LETTERS) OR WEATHERPROOF PRINTING ON THE INSIDE OF THE CLAMP THAT IS WELDED TO THE ARM MEMBER.

- ⑩ 4.5" I.D. FOR LUMINAIRE MAST ARM CLAMP.  
6.625" I.D. FOR TROMBONE MAST ARM CLAMP.
- ⑪ INDIVIDUAL BASE PLATE ANCHOR ROD COVERS. (4 REQUIRED)
- ⑫ BASE PLATE SLOTTED TO ACCEPT 11" THROUGH 12" BOLT  
CIRCLE USING 1" DIAMETER ANCHOR RODS.
- ⑬ LEVELING SHIMS, DESIGNED FOR THE PURPOSE, SHALL BE USED WHEN PLUMBING  
POLES. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT  
ACCEPTABLE. LEVELING SHIMS SHALL BE USED ONLY BETWEEN THE TOP OF THE  
CONCRETE BASE AND A METALLIC BASE PLATE.

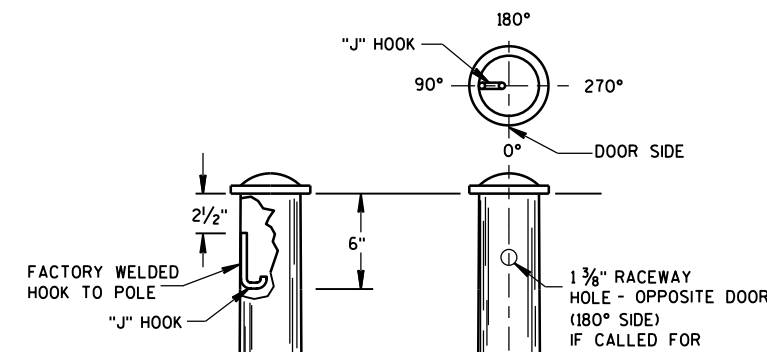
SHIMS SHALL BE LONG ENOUGH AND WIDE ENOUGH TO COMPLETELY COVER THE  
AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.



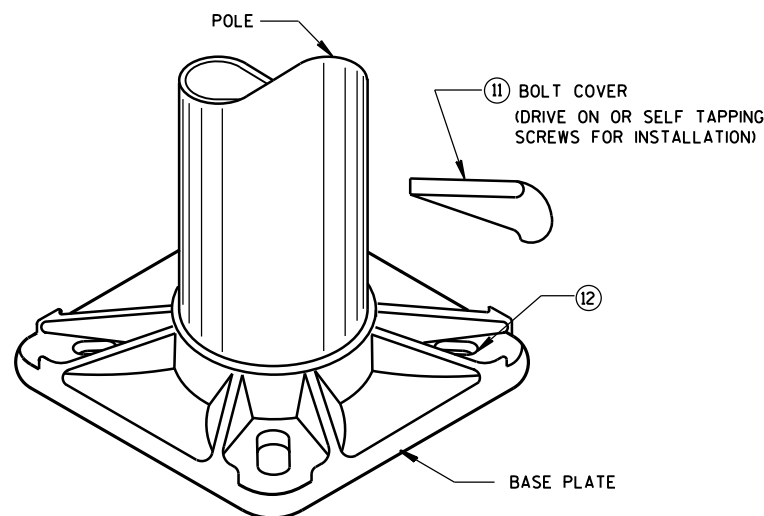
**TYPICAL TROMBONE MAST ARM AND SINGLE LUMINAIRE MAST ARM MOUNTING CLAMP**



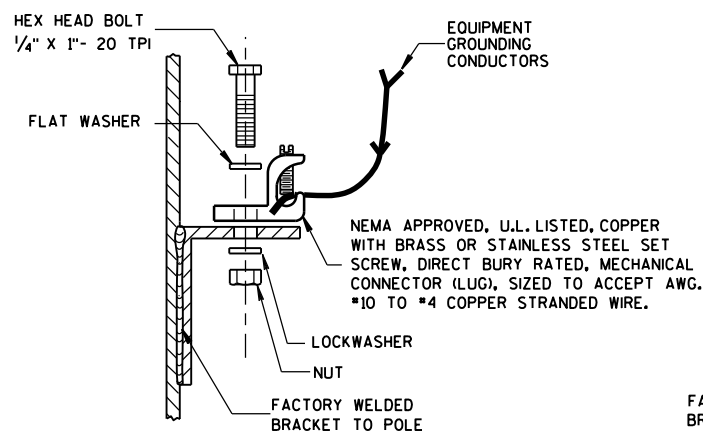
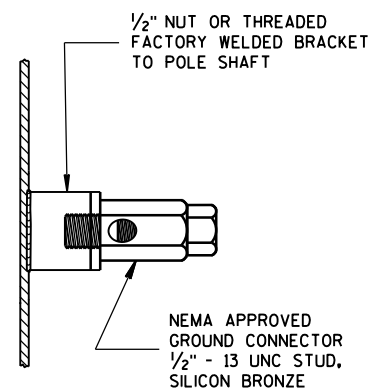
**TYPICAL LUMINAIRE MAST ARM (DOUBLE) MOUNTING BRACKETS**



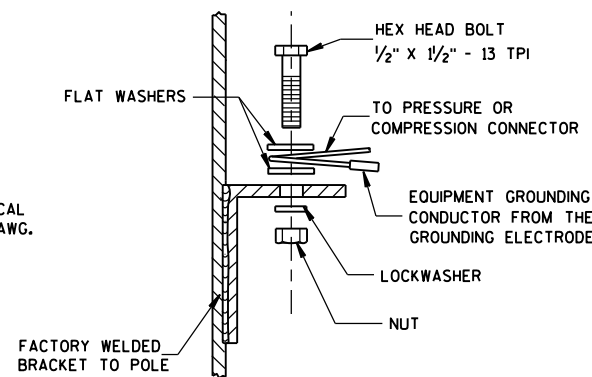
**TYPICAL "J" HOOK LOCATION**



**BASE PLATE**



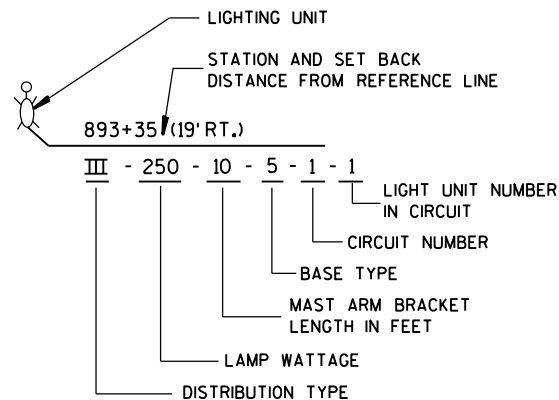
**TYPICAL GROUNDING CONNECTIONS**  
NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



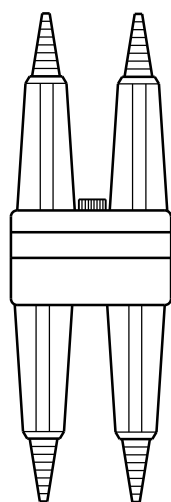
## **HARDWARE DETAILS FOR POLE MOUNTINGS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

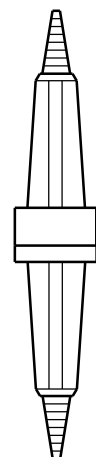
APPROVED  
Feb. 2015  
DATE /S/ Ahmet Demirbilek  
STATE ELECTRICAL ENGINEER  
FHWA



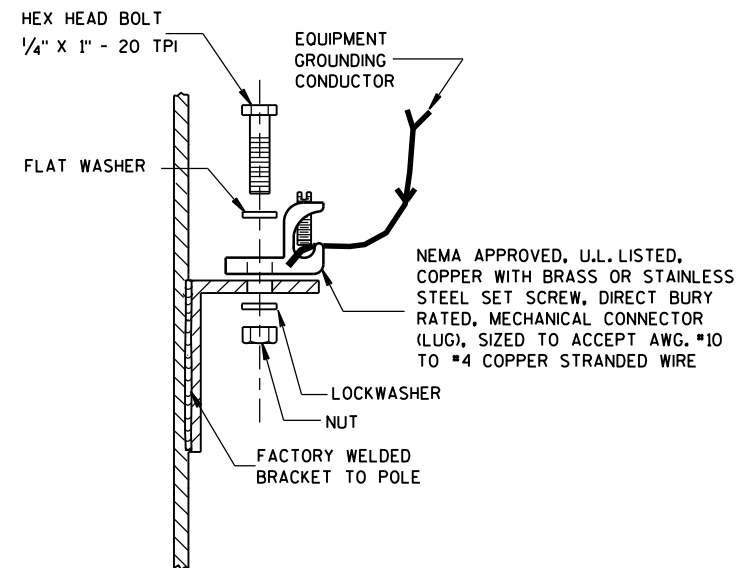
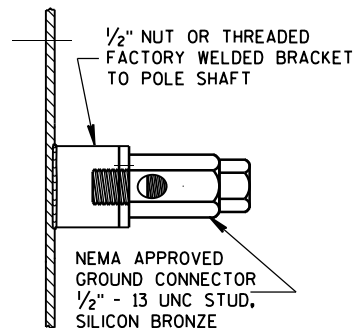
**LIGHTING UNIT CODE  
(TYPICAL)**



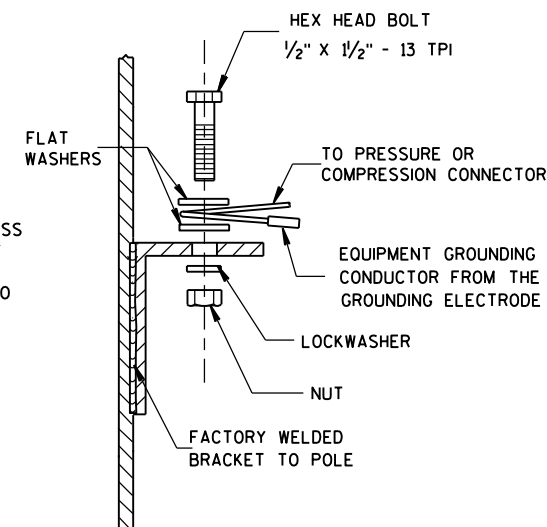
**DETAIL "A"  
BREAKAWY  
DOUBLE POLE WITH  
WATERPROOF  
INSULATING BOOT**



**DETAIL "B"  
BREAKAWY  
SINGLE POLE WITH  
WATERPROOF  
INSULATING BOOT**

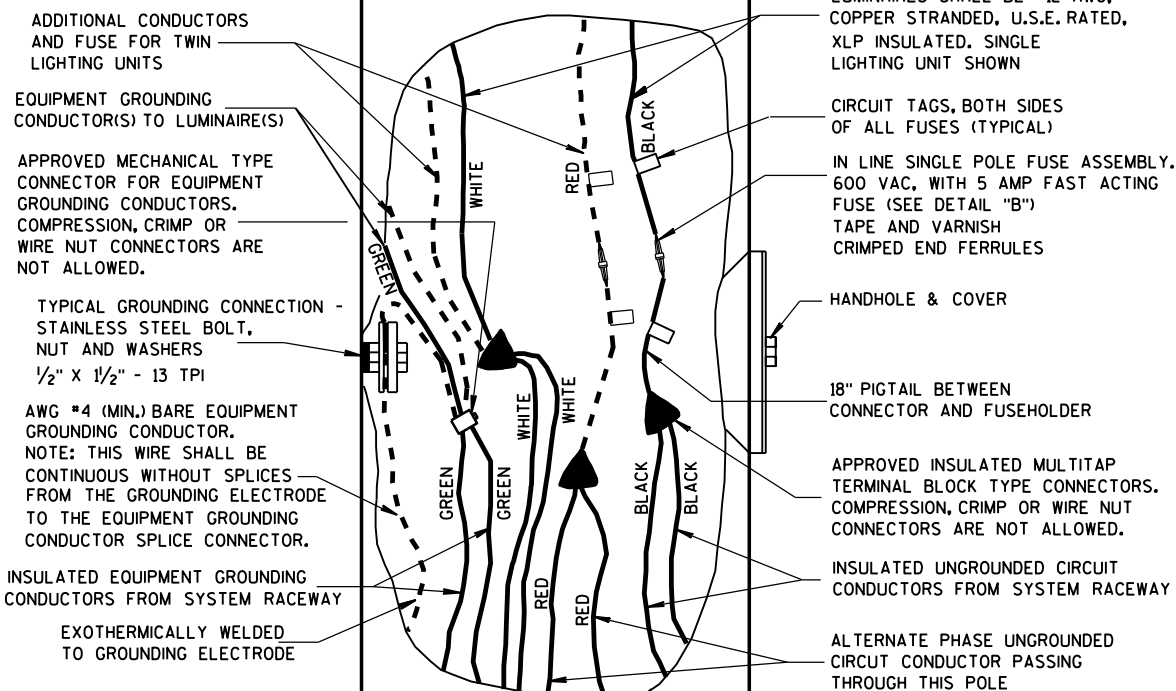


**TYPICAL GROUNDING CONNECTIONS**  
NUT, BOLT, WASHERS AND LOCKWASHERS SHALL BE STAINLESS STEEL

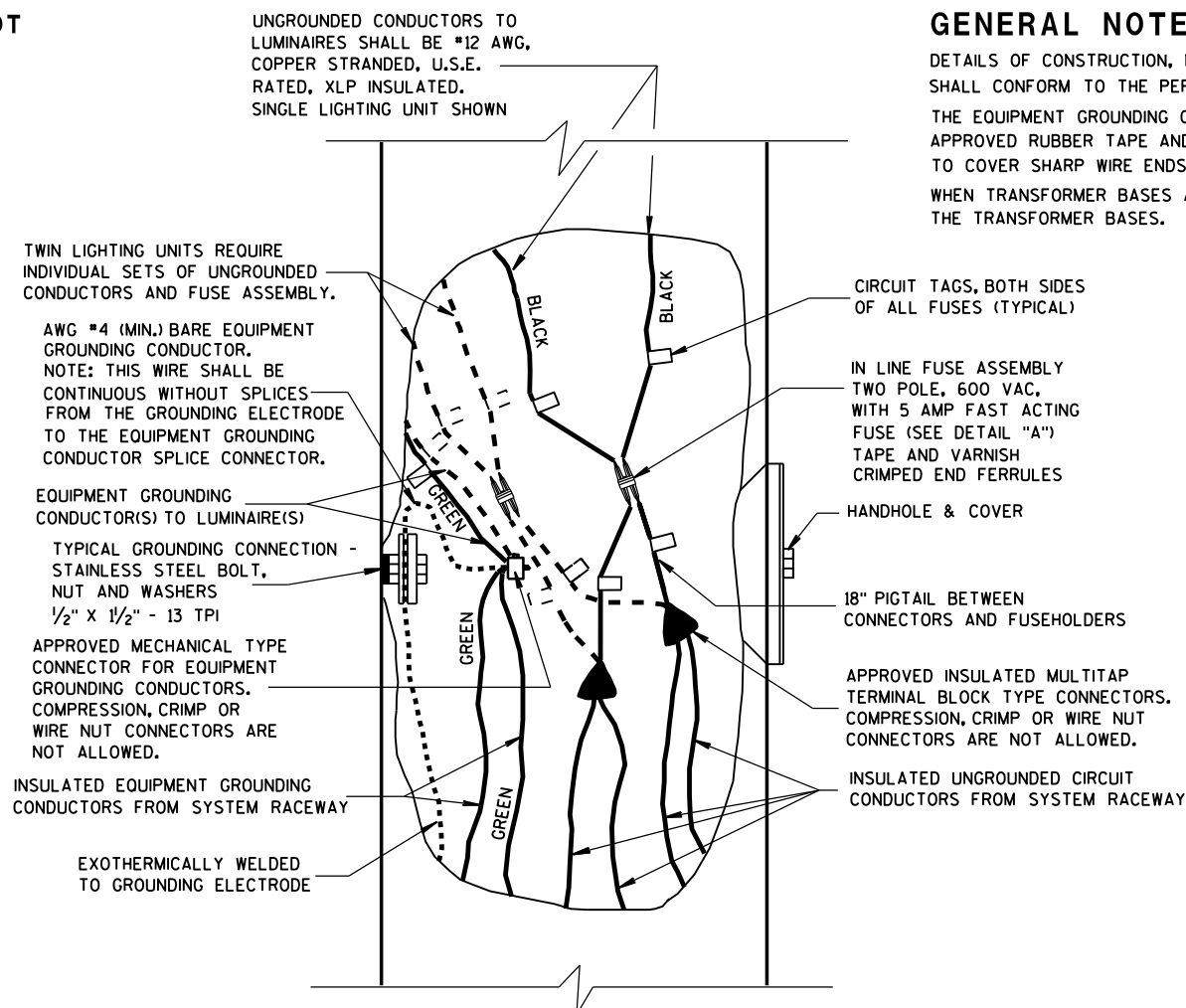


**GENERAL NOTES**

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.  
THE EQUIPMENT GROUNDING CONNECTOR SHALL BE TAPED WITH 3 WRAPS (MINIMUM) OF APPROVED RUBBER TAPE AND THEN 3 WRAPS (MINIMUM) OF APPROVED VINYL TAPE TO COVER SHARP WIRE ENDS AFTER THE CONNECTION IS COMPLETED.  
WHEN TRANSFORMER BASES ARE USED, ALL WIRING CONNECTIONS SHALL OCCUR WITHIN THE TRANSFORMER BASES.



**3 WIRE - 120, 240 OR 480 VAC (UNGROUNDING CONDUCTOR)  
WITH GROUNDED CONDUCTOR AND  
WITH EQUIPMENT GROUNDING CONDUCTOR**

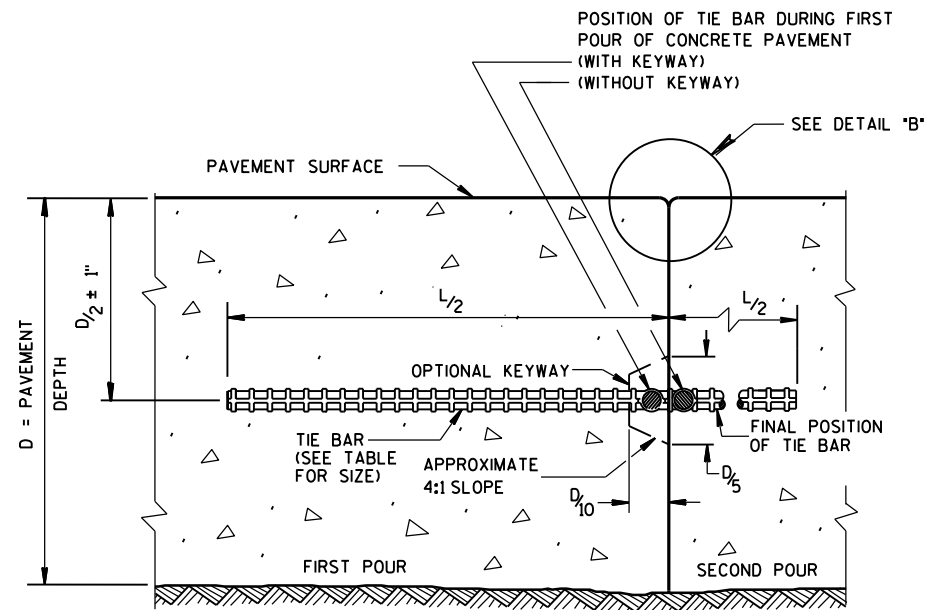


**2 WIRE - 240 OR 480 VAC (UNGROUNDING CONDUCTORS)  
WITH EQUIPMENT GROUNDING CONDUCTOR**

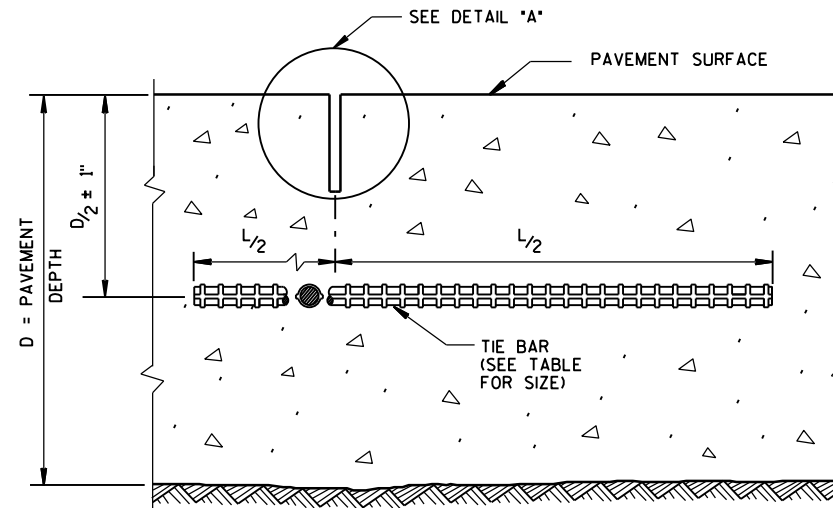
**NON-FREEWAY LIGHTING UNIT  
POLE WIRING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
Sept. 2014 /S/ Ahmet Demirbilek  
DATE STATE ELECTRICAL ENGINEER  
FHWA



CONSTRUCTION JOINT



SAWED JOINT

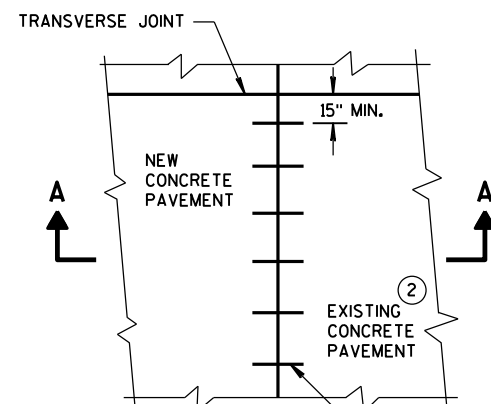
## GENERAL NOTES

DO NOT SEAL OR FILL LONGITUDINAL JOINTS.

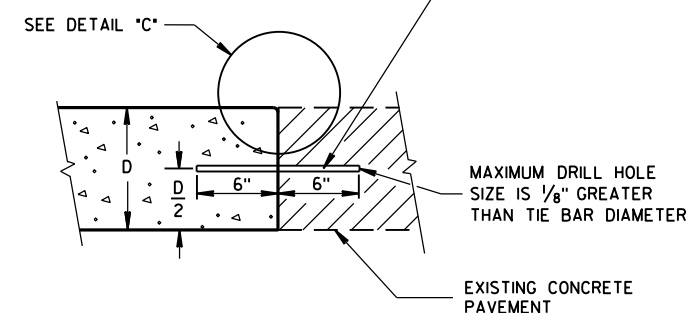
CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

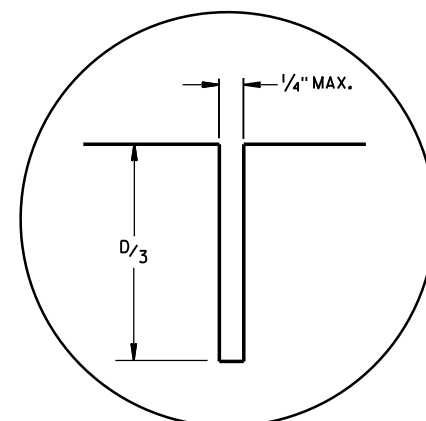
- ① ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ② PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.



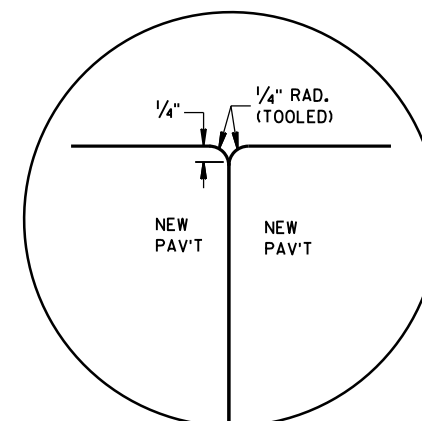
PLAN VIEW



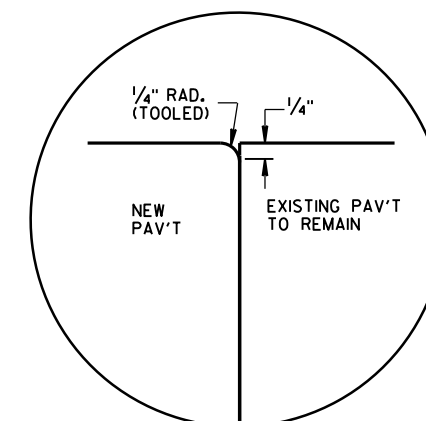
SECTION A-A  
LONGITUDINAL CONSTRUCTION JOINT  
TIE BARS ANCHORED  
INTO EXISTING PAVEMENT



DETAIL "A"



DETAIL "B"



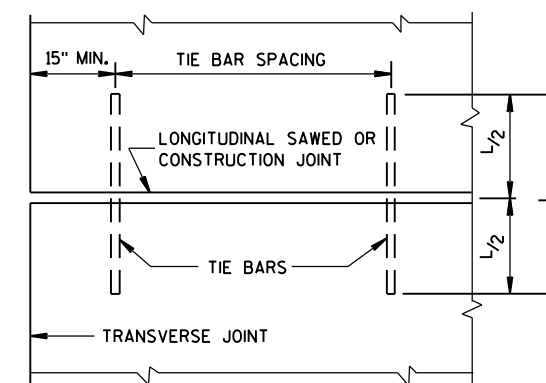
DETAIL "C"

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

\* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

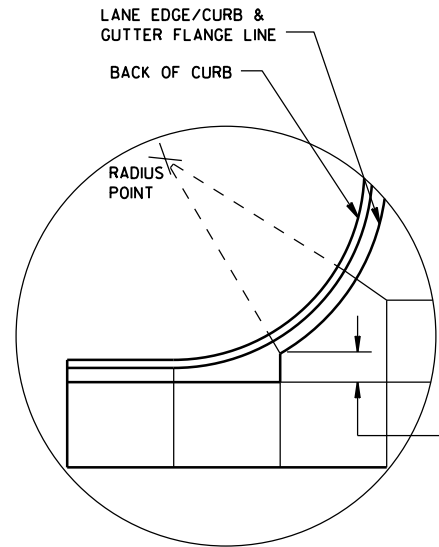


PLAN VIEW  
SHOWING LOCATION OF TIE BARS

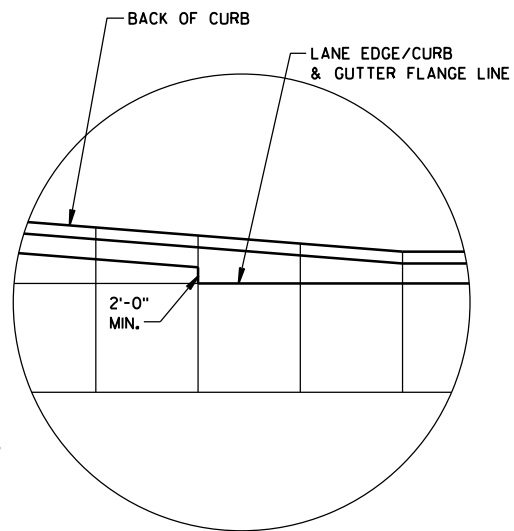
## CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

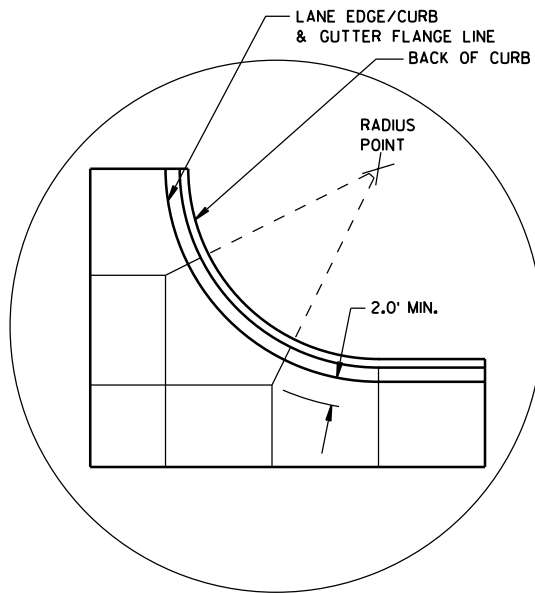
APPROVED  
June, 2015 /S/ Peter Kemp, P.E.  
DATE PAVEMENT SUPERVISOR  
FHWA



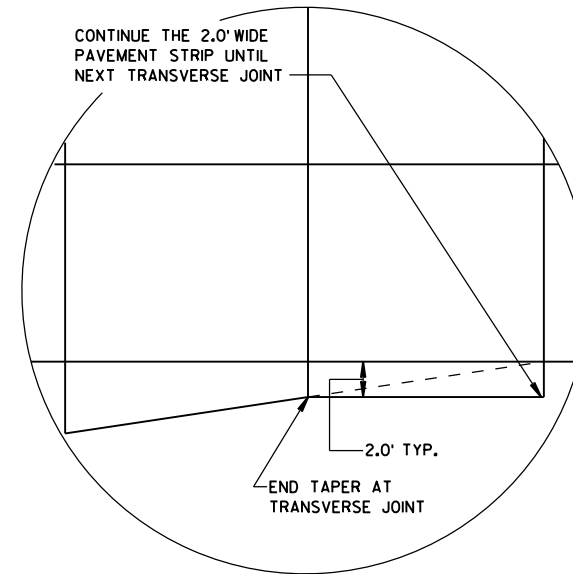
DETAIL "A"



DETAIL "B"



DETAIL "C"



DETAIL "D"

## GENERAL NOTES

THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.

ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.

CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.

ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G. MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.

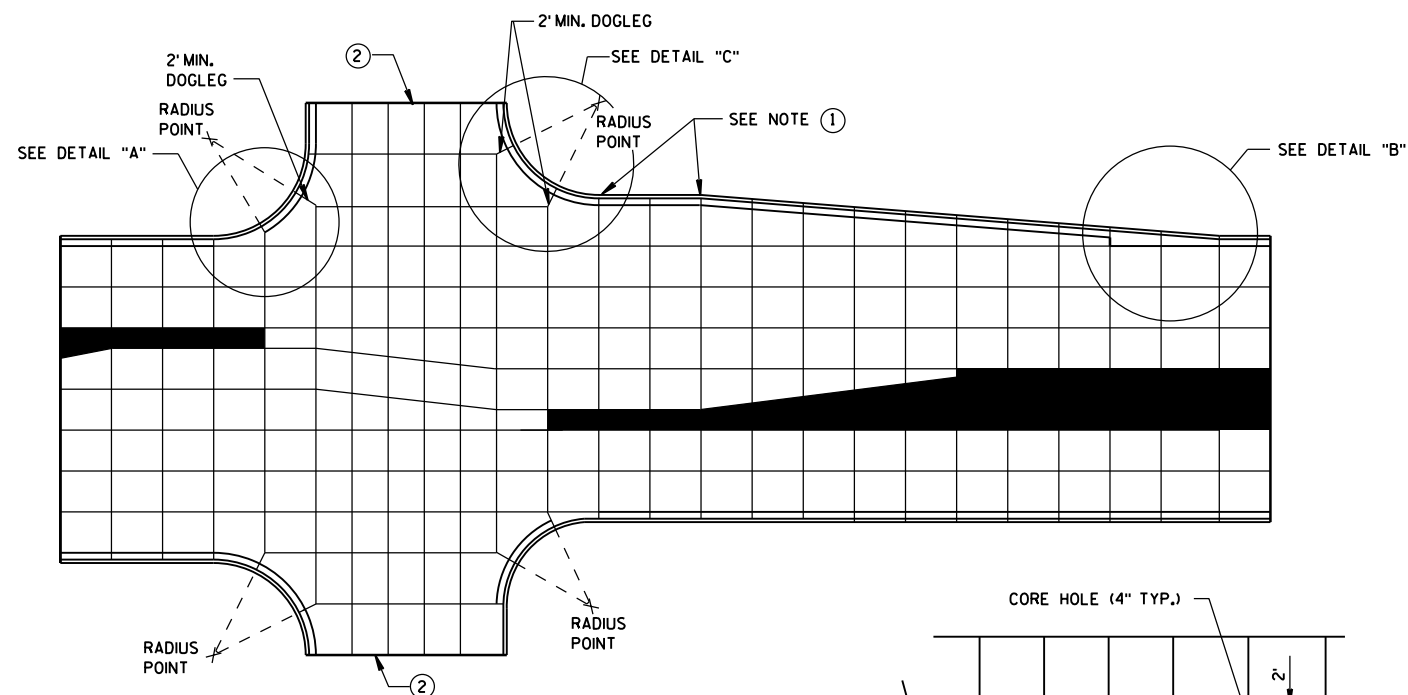
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.

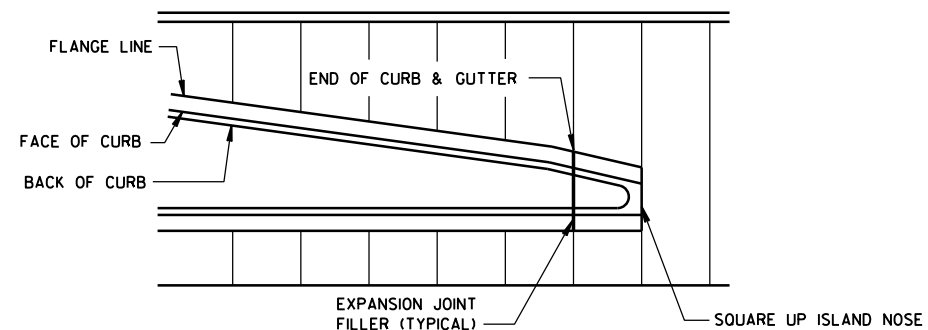
AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

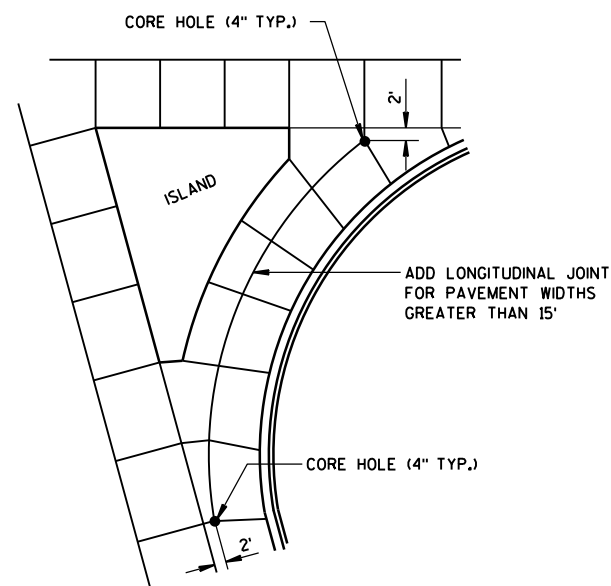
1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.



STANDARD INTERSECTION



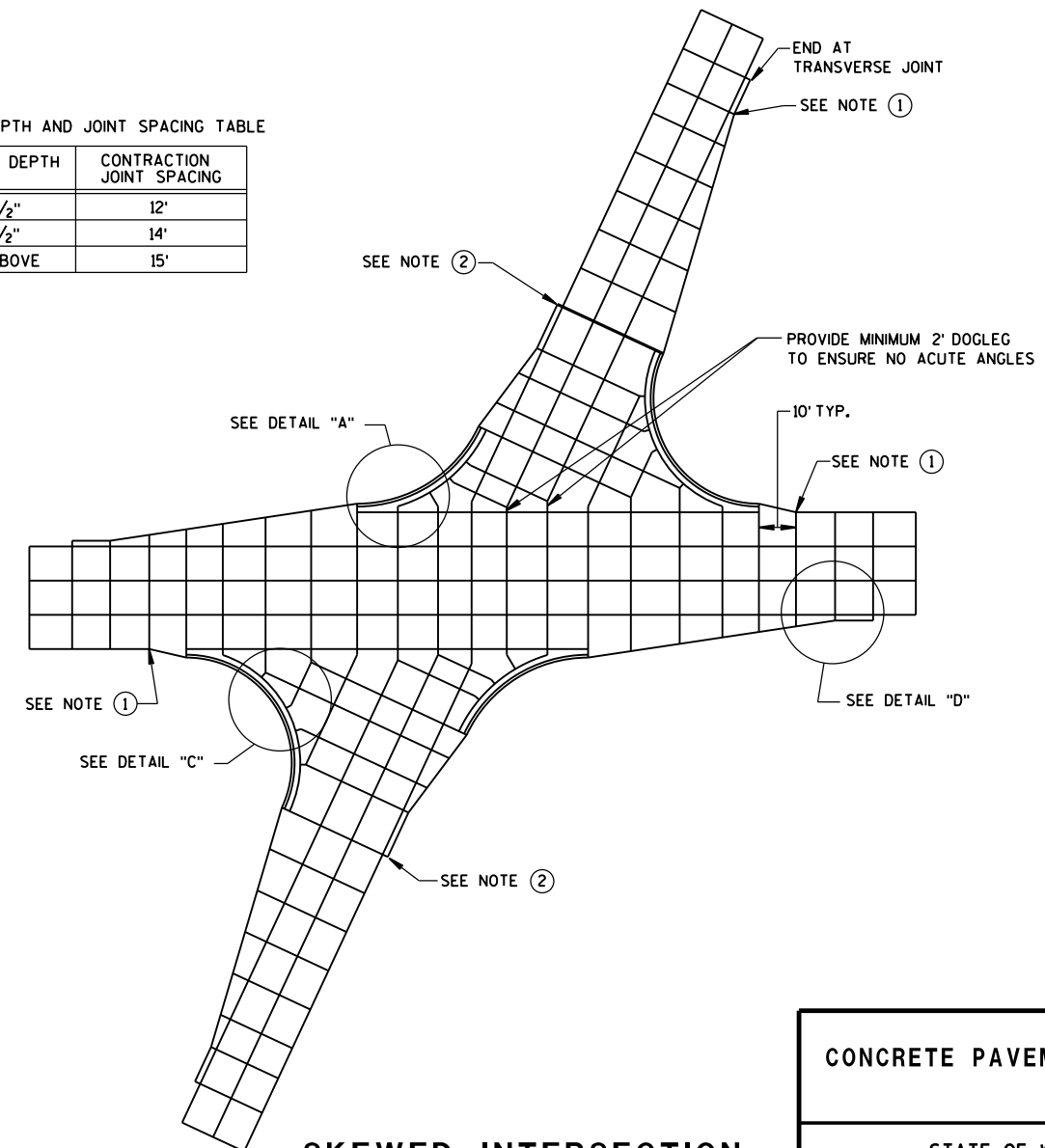
APPROACH TO MEDIAN



LARGE RIGHT TURN

PAVEMENT DEPTH AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6 1/2"	12'
7", 7 1/2"	14'
8" & ABOVE	15'



SKewed INTERSECTION

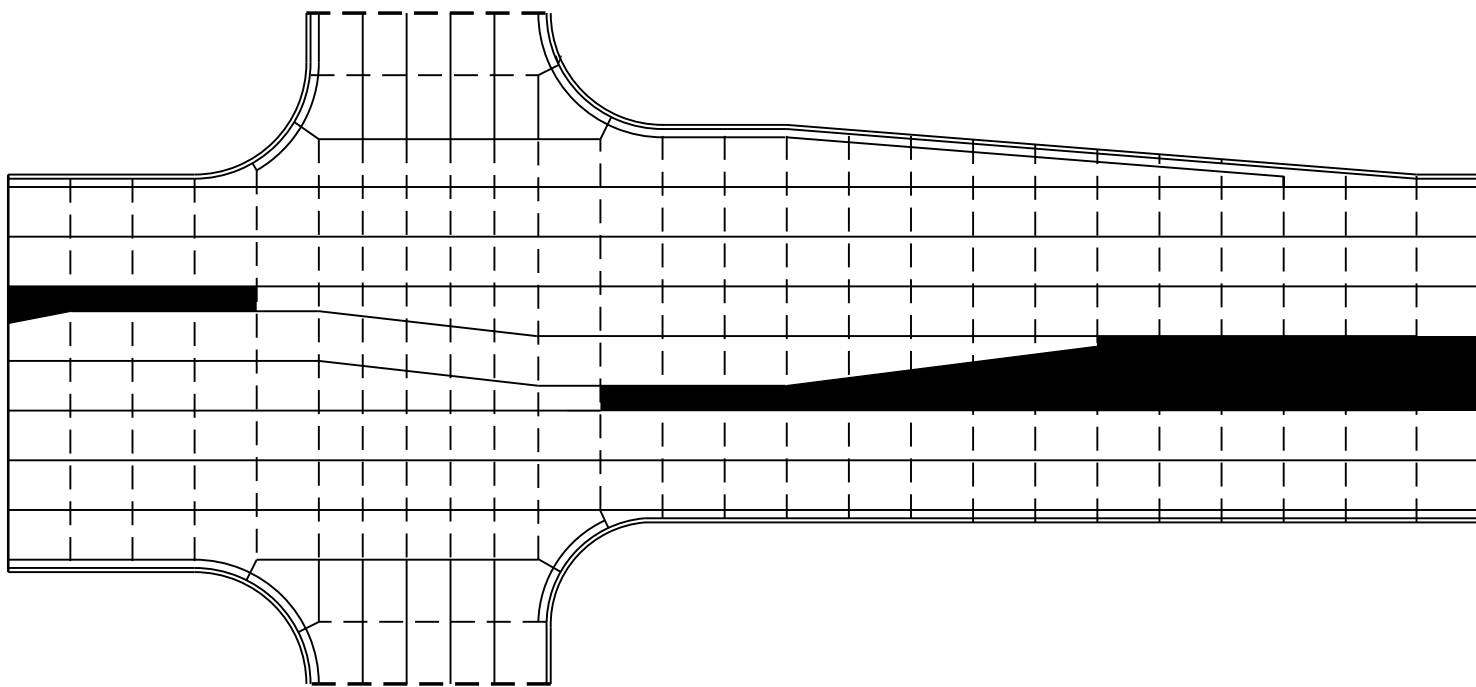
CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**LEGEND**

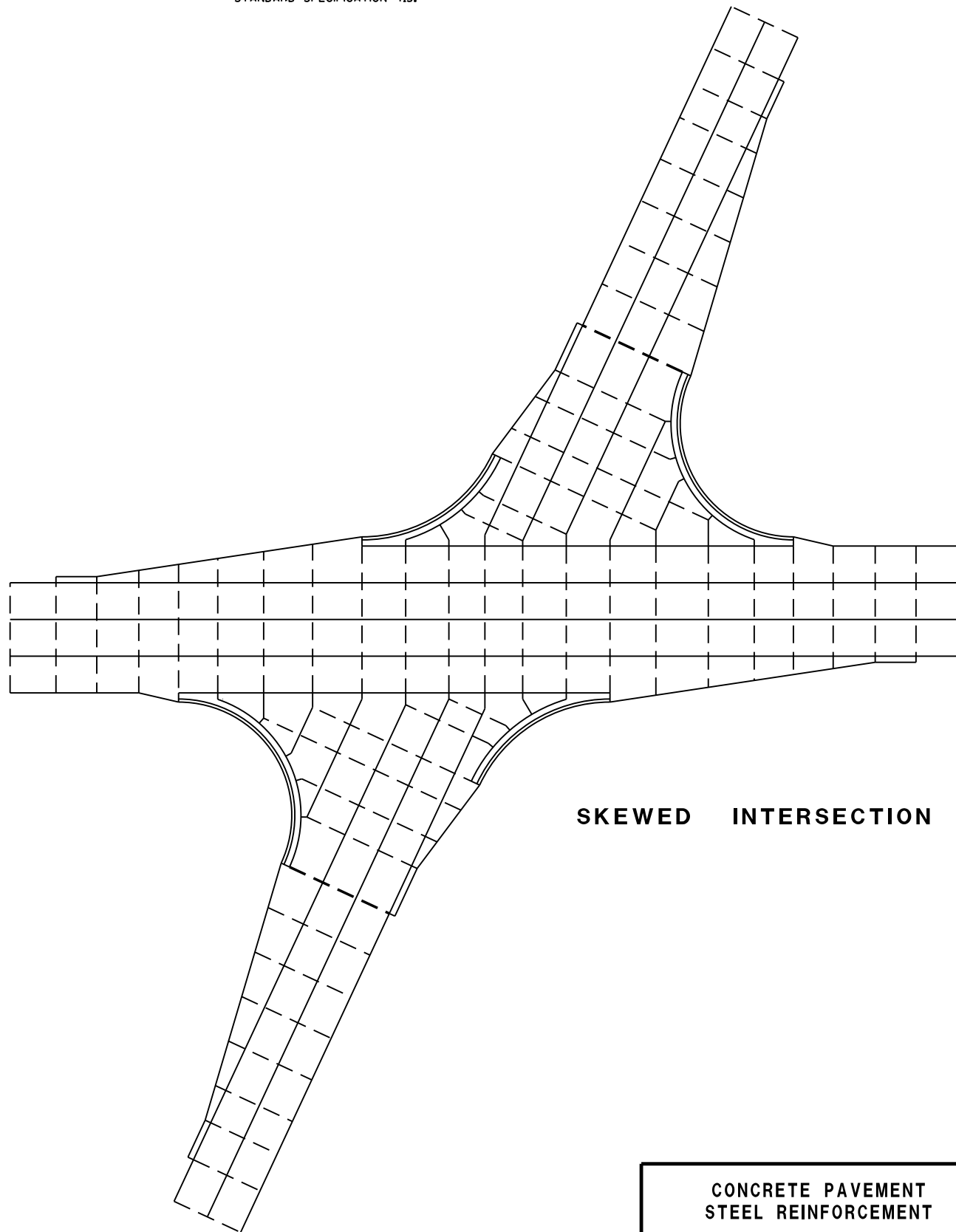
- POTENTIAL DOWELED EXPANSION JOINT
- DOWELED JOINT
- TIED JOINT



**STANDARD INTERSECTION**

**GENERAL NOTES**

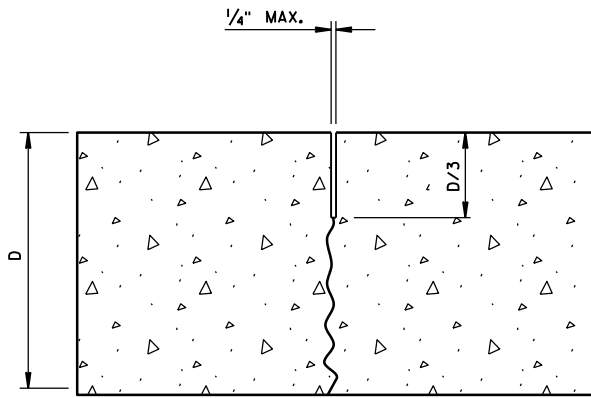
USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.



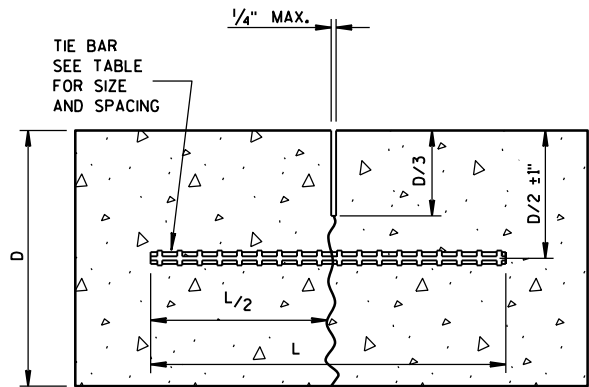
**SKEWED INTERSECTION**

CONCRETE PAVEMENT  
STEEL REINFORCEMENT

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



UNDOWELED-TRANSVERSE



TIED LONGITUDINAL

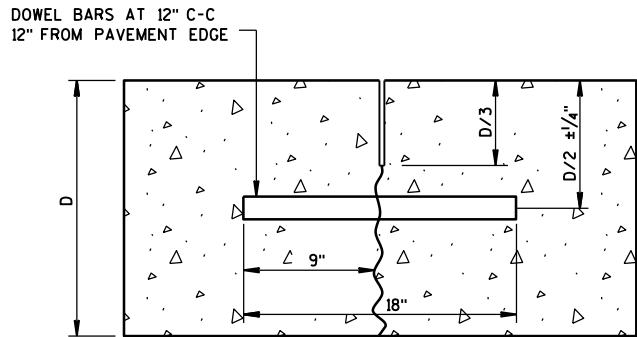
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

\* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

GENERAL NOTES

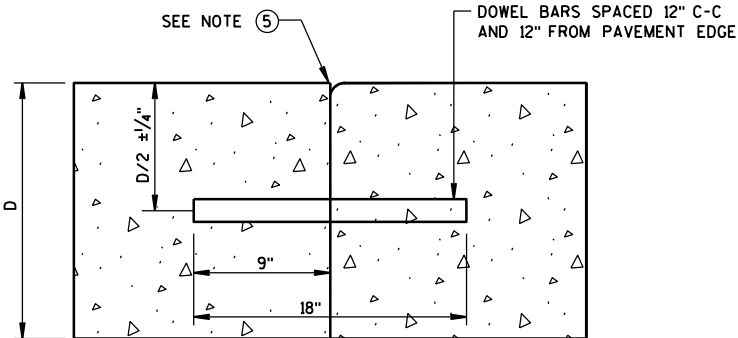
- ① USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
- ② SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
- ③ LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
- ④ CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
- ⑤ IF JOINT IS FORMED, PROVIDE A 1/4-INCH RADIUS.
- ⑥ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



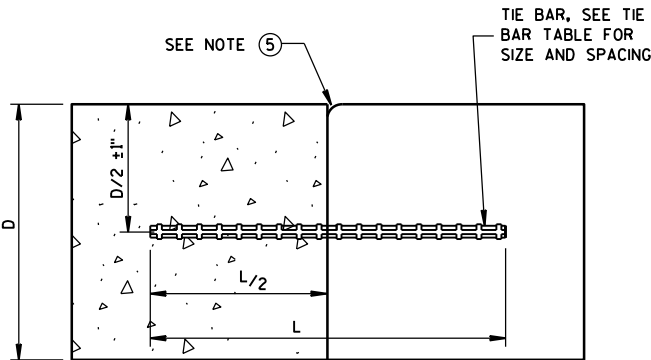
DOWELED-TRANSVERSE

CONTRACTION JOINTS

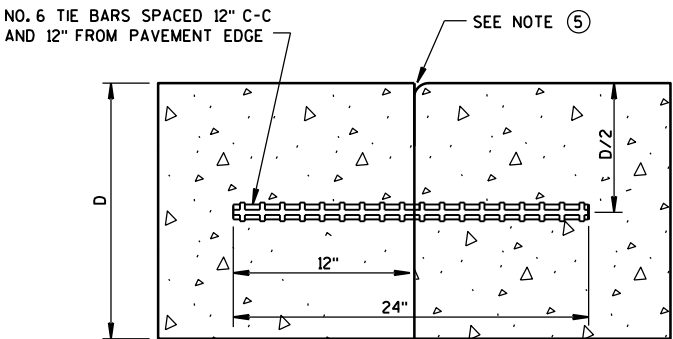
SEE NOTE ②



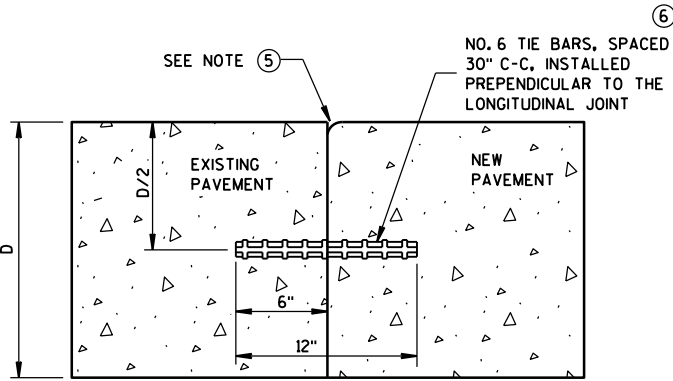
DOWELED TRANSVERSE ③



TIED LONGITUDINAL



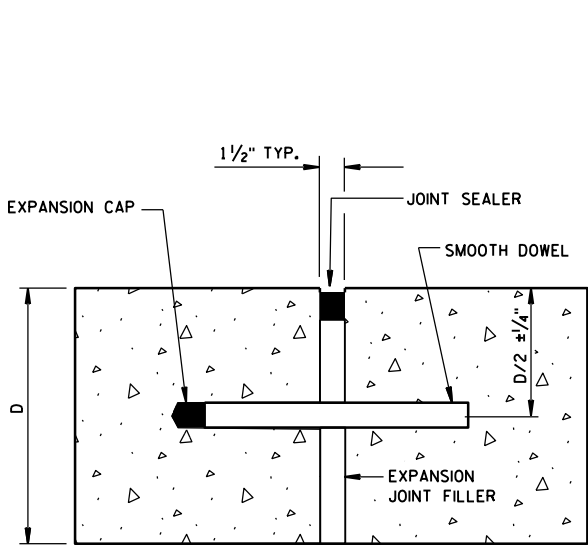
TIED TRANSVERSE ③  
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



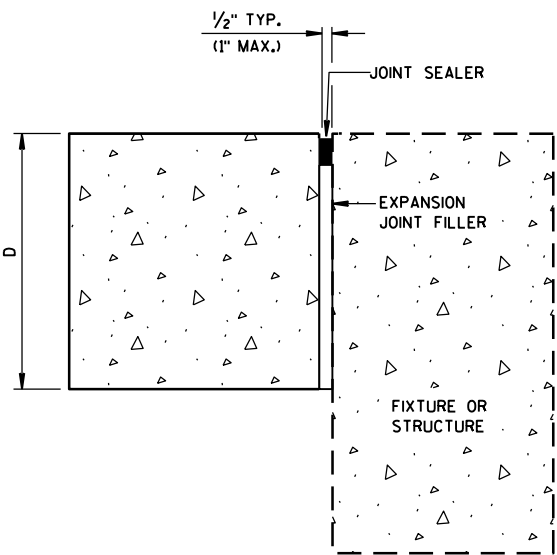
TIED LONGITUDINAL TO EXISTING

CONSTRUCTION JOINTS

SEE NOTE ④



DOWELED-TRANSVERSE  
SEE NOTE ①

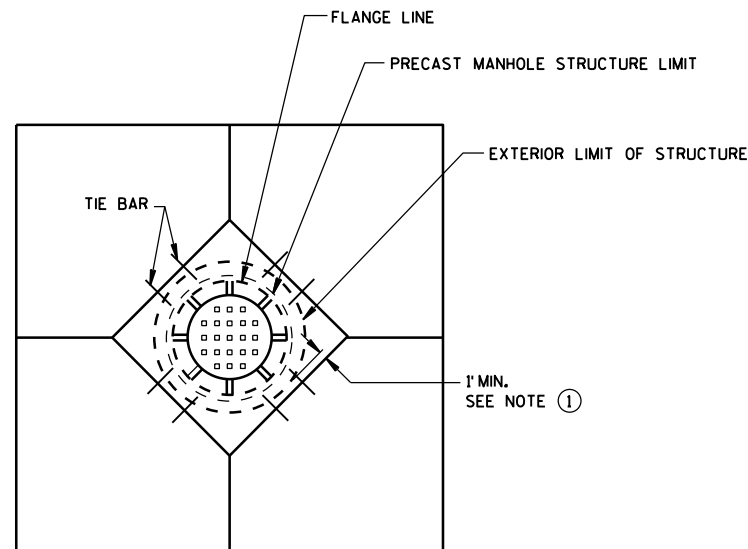


UNTIED-LONGITUDINAL

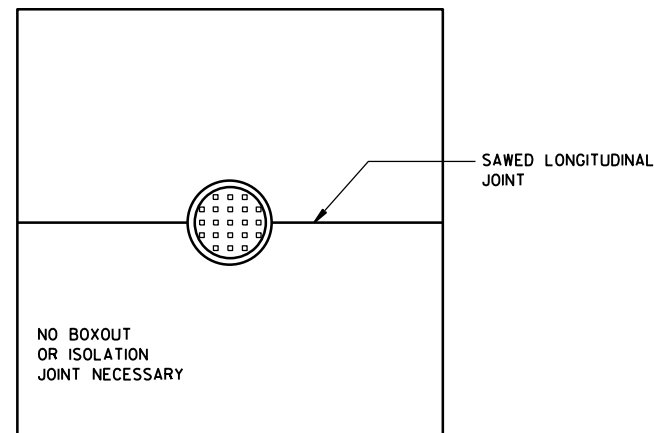
EXPANSION JOINTS

CONCRETE PAVEMENT  
JOINT TYPES

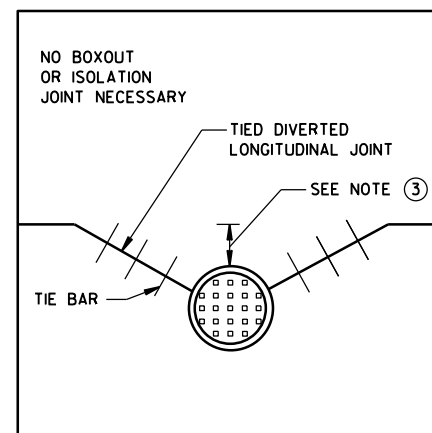
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



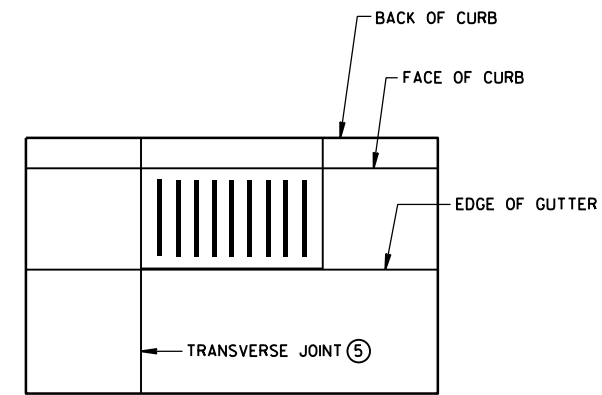
**DIAGONAL MANHOLE BOXOUT  
FOR CONSTRUCTION JOINTS**



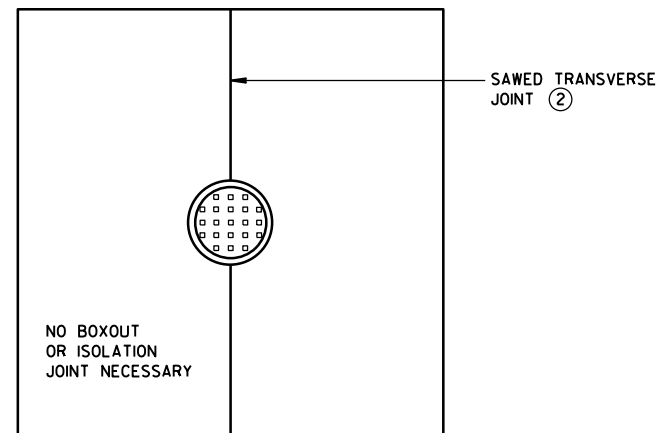
**MANHOLE WITH  
LONGITUDINAL JOINT**



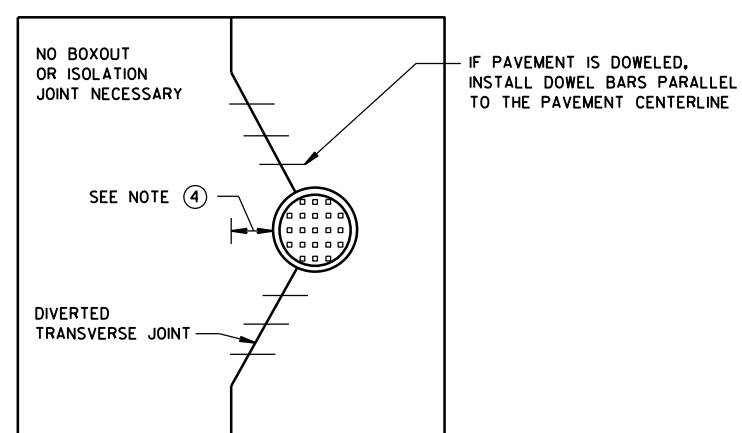
**MANHOLE WITH DIVERTED  
LONGITUDINAL CONTRACTION JOINT**



**INLET WITH  
TRANSVERSE JOINT**



**MANHOLE WITH  
TRANSVERSE JOINT**



**MANHOLE WITH DIVERTED  
TRANSVERSE CONTRACTION JOINT**

**GENERAL NOTES**

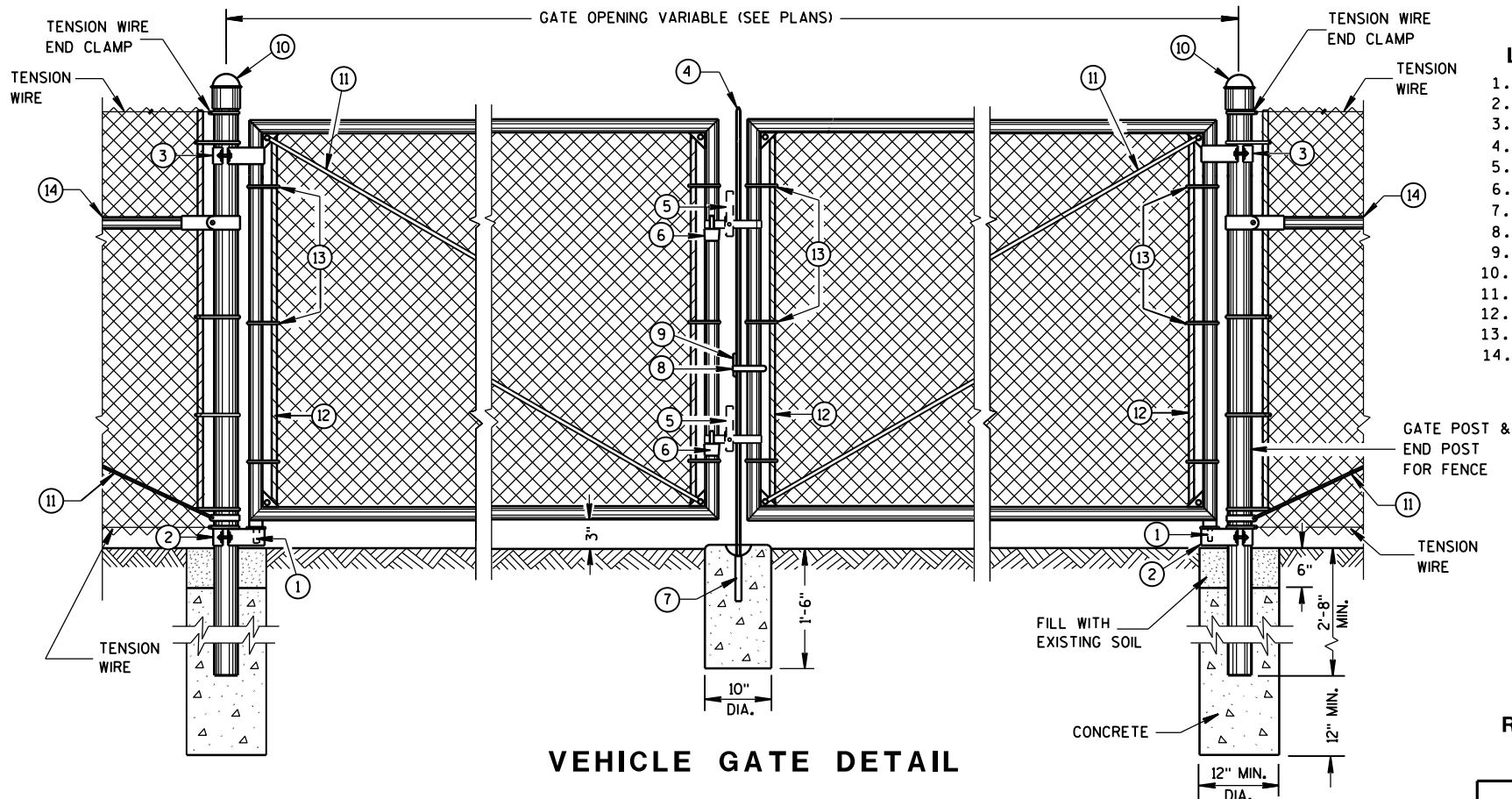
- ① USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1-FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.
- ② ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.
- ③ IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS 2 FEET OR LESS, DIVERT THE LONGITUDINAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE. IF THE DISTANCE IS GREATER THAN 2 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REBAR REINFORCEMENT AROUND THE MANHOLE.
- ④ IF DISTANCE FROM THE EDGE OF THE MANHOLE TO THE NEAREST TRANSVERSE JOINT IS 4 FEET OR LESS, REDIRECT JOINT TO INTERSECT THE CENTER OF THE MANHOLE. IF DISTANCE IS GREATER THAN 4 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REBAR REINFORCEMENT AROUND THE MANHOLE.
- ⑤ ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.

**CONCRETE PAVEMENT  
JOINTING AT UTILITY FIXTURES**

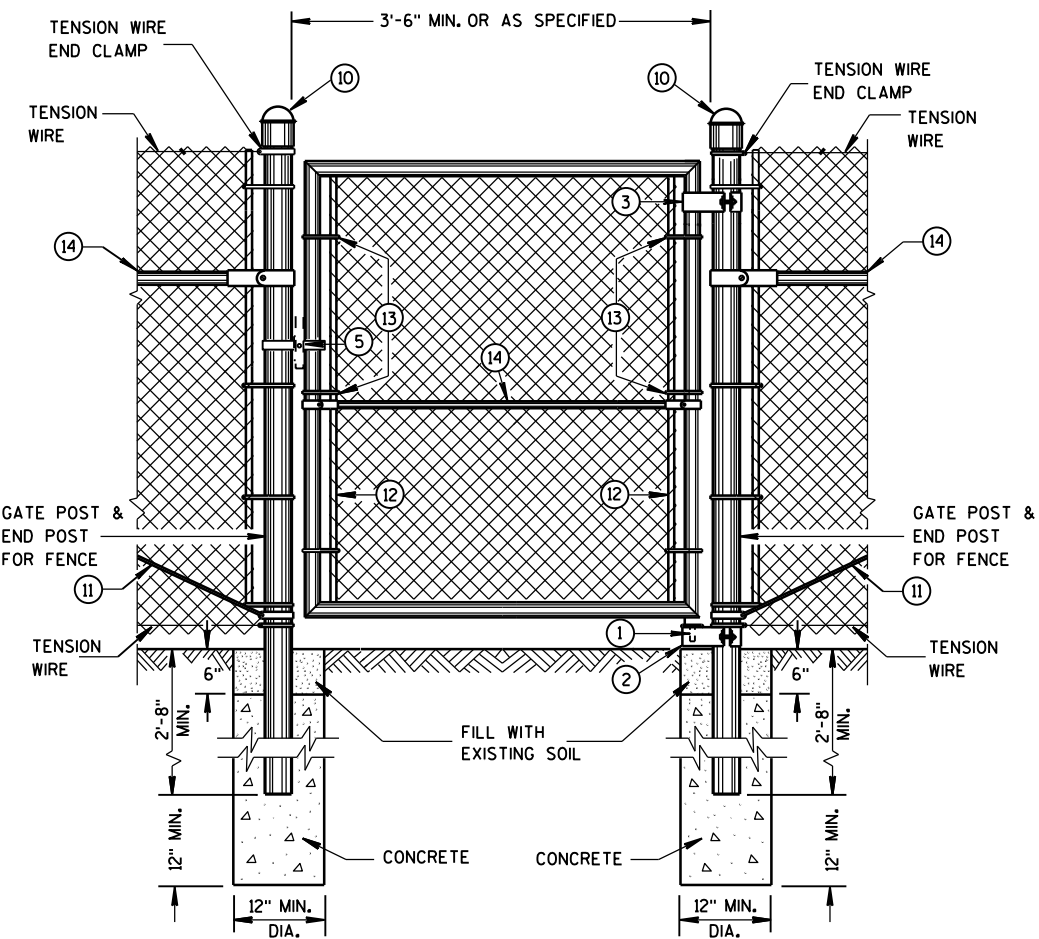
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June, 2015  
DATE  
FHWA

/S/ Peter Kemp, P.E.  
PAVEMENT SUPERVISOR



VEHICLE GATE DETAIL



PEDESTRIAN GATE DETAIL

REQUIRED FENCE POST SIZES

USE	FABRIC HEIGHTS FEET	POST TYPE
TERMINAL POSTS **	LESS THAN OR EQUAL TO 6 FT.	SP3
	GREATER THAN OR EQUAL TO 6 FT.	SP4
LINE POSTS	LESS THAN OR EQUAL TO 6 FT.	SP2
	LESS THAN OR EQUAL TO 8 FT.	SP3
	GREATER THAN OR EQUAL TO 8 FT.	SP4
	LESS THAN OR EQUAL TO 8 FT.	FS2 OR FS2+
	GREATER THAN OR EQUAL TO 8 FT.	FS3

BRACE RAIL TYPES

USE	TYPE
BRACE RAIL	SP1 OR FS1

\*\* INCLUDES END, CORNER, ANGLE, INTERSECTION AND INTERMEDIATE BRACED POSTS

LEGEND

1. STRAIGHT PLUG
2. BOTTOM HINGE
3. TOP HINGE
4. PLUNGER ROD
5. FULCRUM LATCH
6. FORK CATCH \*
7. PLUNGER ROD CATCH
8. LOCK KEEPER GUIDE
9. LOCK KEEPER
10. DOME TOPS
11. TRUSS RODS
12. TENSION BAR
13. TENSION BANDS
14. BRACE RAIL

\*NOT REQUIRED ON SINGLE SWING PEDESTRIAN GATE

GENERAL NOTES

FENCE POSTS INSTALLED ON CONCRETE WALLS SHALL BE ANCHORED INTO EMBEDDED METAL SLEEVES OR CORED HOLE BY FILLING THE ANNULAR SPACE WITH PEA GRAVEL FOLLOWED BY AN EPOXY RESIN ADHESIVE. THE EPOXY RESIN ADHESIVE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 235, CLASS A, B OR C.

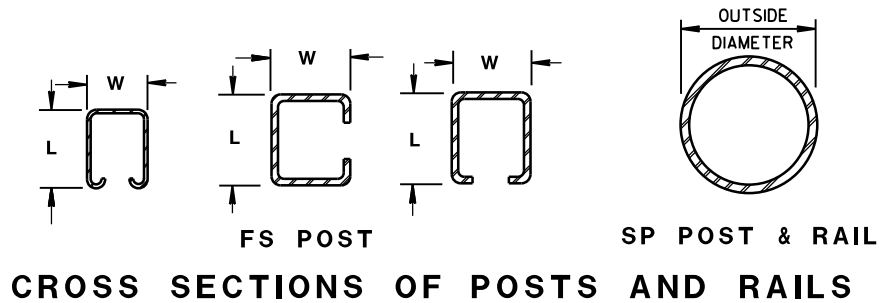
USE FENCE FABRIC KNUCKLED AT BOTH SELVAGES.

FOR LEAF GATES GREATER THAN 8 FEET WIDE, INSTALL INTERIOR VERTICAL BRACE RAIL AT 8 FOOT INTERVALS.

FOR FABRIC HEIGHTS GREATER THAN 8 FEET, INSTALL INTERIOR HORIZONTAL BRACE RAILS TO LEAF GATE.

MAXIMUM SAG FOR OUTER GATE MEMBER SHALL NOT EXCEED THE GREATER OF 1% OF THE LEAF GATE WIDTH OR 2 INCHES.

USE TYPE 2, CLASS 3, MARCELLED/CRIMPED, TENSION WIRE PER ASTM A 817.



ROLLED-FORMED STEEL FENCE POST  
(2.0 OZ./SQ. FT. COATING)

POST TYPE	LENGTH (L) INCH	WIDTH (W) INCH	WEIGHT LBS/FT
FS1	1.625	1.25	1.35
FS2+	1.875	1.625	1.850
FS2	1.875	1.625	2.400
FS3	2.250	1.700	2.780

ROUND STEEL FENCE POST  
(1.8 OZ./SQ. FT. COATING)

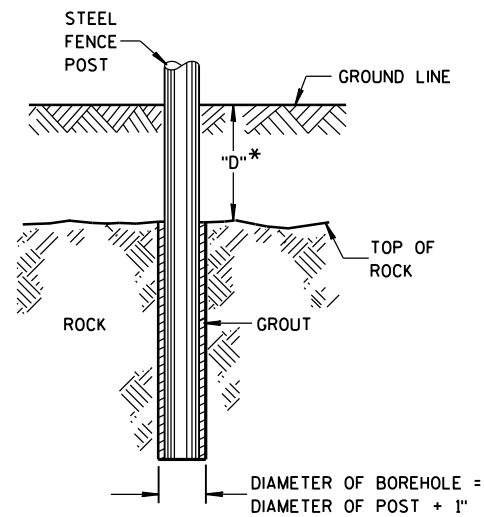
POST TYPE	OUTSIDE DIMENSION INCH	WALL THICKNESS INCH	WEIGHT LBS/FT
SP1	1.660	0.140	2.270
SP2	1.900	0.145	2.720
SP3	2.375	0.154	3.650
SP4	2.875	0.203	5.800
SP5	4.000	0.226	9.120
SP6	6.625	0.280	18.990
SP7	8.625	0.322	28.580

REQUIRED POST SIZE FOR GATES

USE	LEAF WIDTHS FEET	POST TYPE
GATES	LESS THAN OR EQUAL TO 6 FT.	SP4
	LESS THAN OR EQUAL TO 13 FT.	SP5
	LESS THAN OR EQUAL TO 18 FT.	SP6
	LESS THAN OR EQUAL TO 23 FT.	SP7

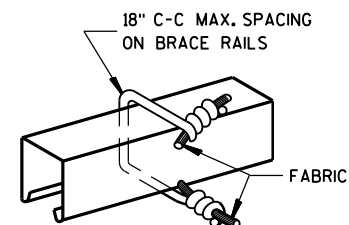
FENCE CHAIN LINK

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



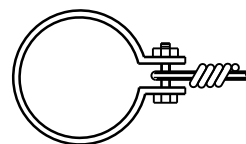
\* IF "D" IS LESS THAN 2'-6",  
DRILL ROCK AND INSTALL GROUT

### ROCK INSTALLATION OF LINE POST

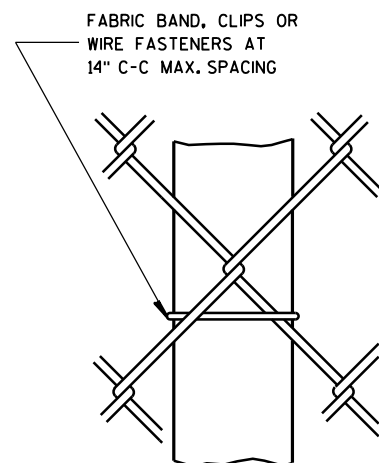


### BRACE RAIL FABRIC FASTENER

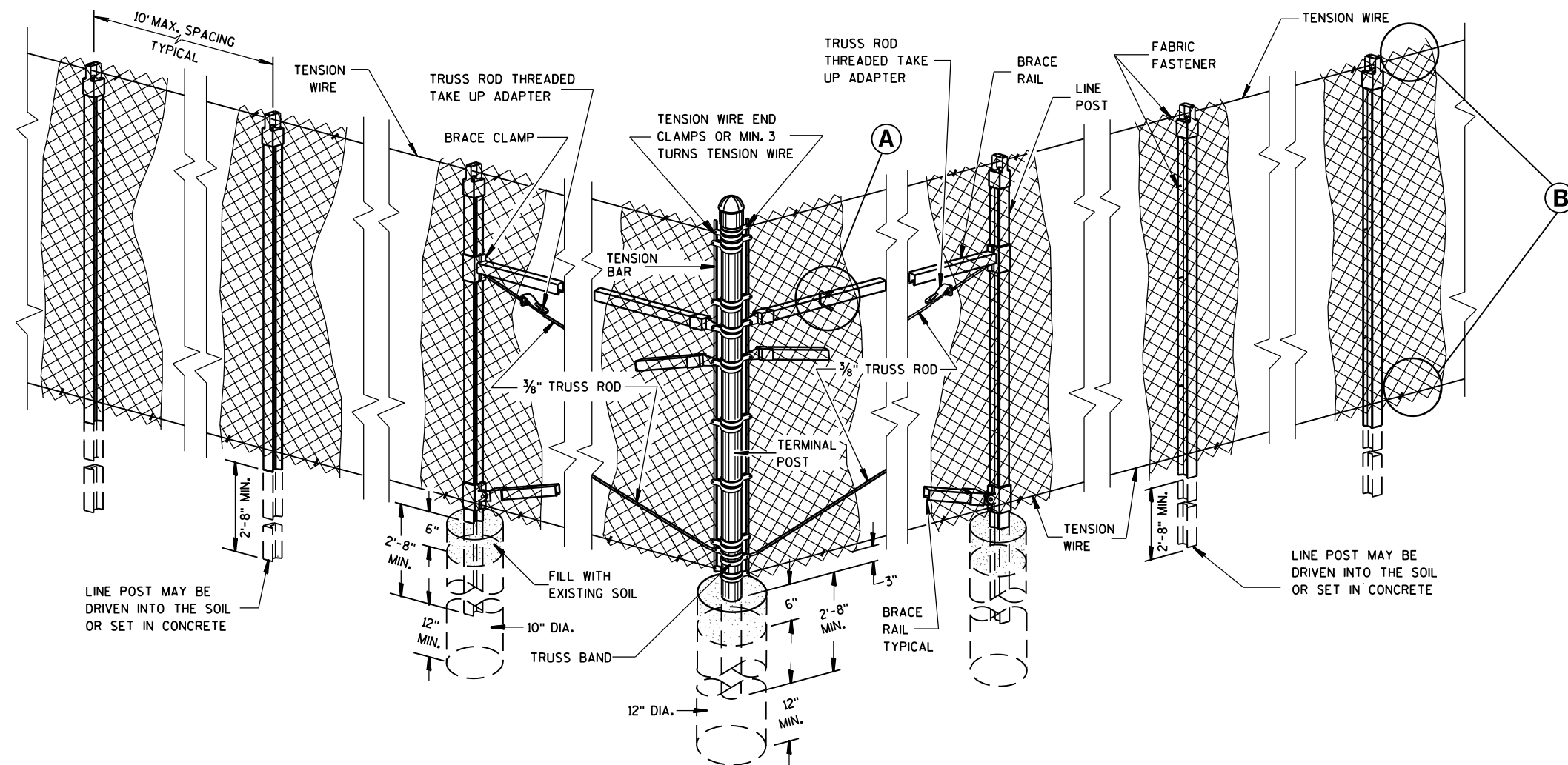
(A)



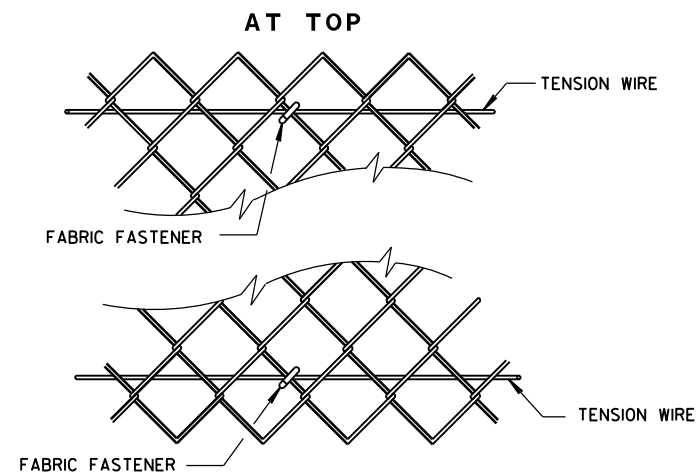
### TENSION WIRE END CLAMP



### LINE POST FABRIC FASTENER



### END, CORNER, ANGLE INTERSECTION & INTERMEDIATE BRACED POSTS

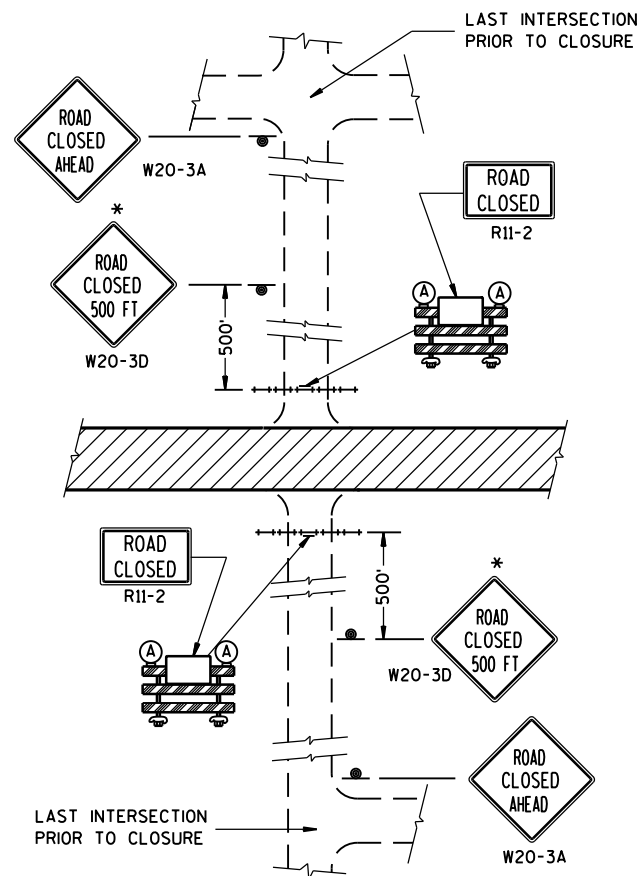


(B)

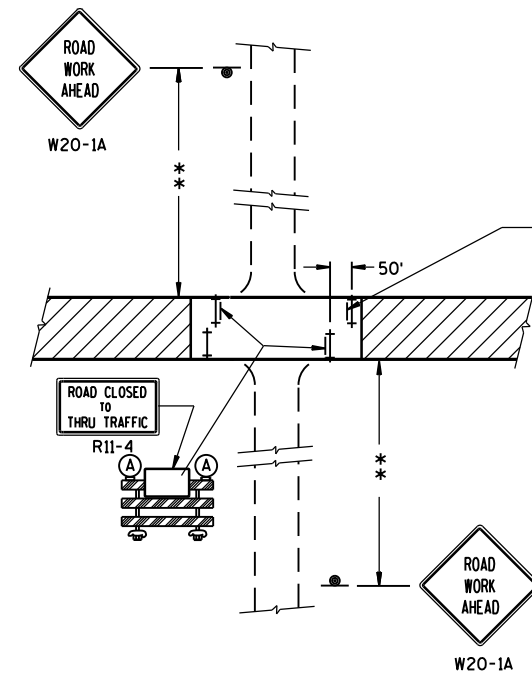
### FENCE CHAIN LINK

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

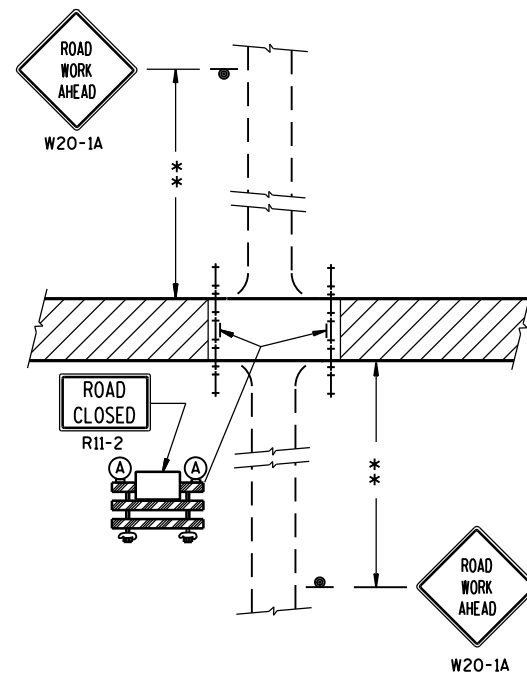
APPROVED  
FEB. 2015  
DATE /S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA



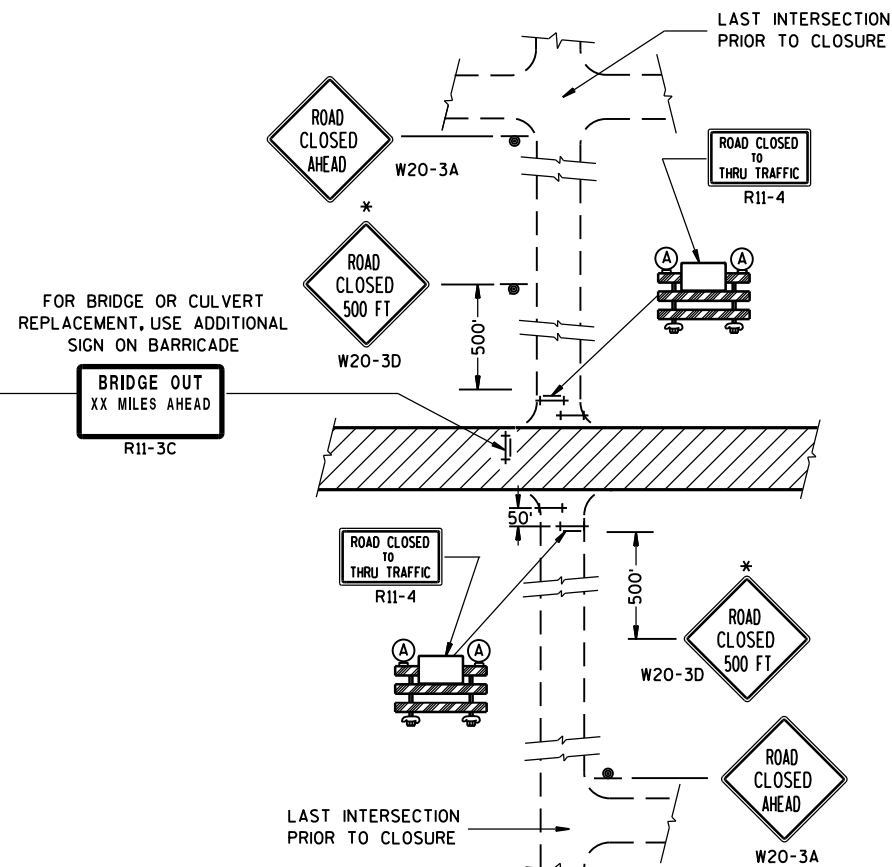
**DETAIL 1**  
(NO ACCESS TO PROJECT)



**DETAIL 3**  
(PUBLIC CROSS-TRAFFIC MAINTAINED. CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS).



**DETAIL 2**  
(PUBLIC CROSS-TRAFFIC MAINTAINED.  
NO ACCESS TO PROJECT).



**DETAIL 4**  
(CONTRACTOR, LOCAL BUSINESS AND  
RESIDENT ACCESS TO PROJECT)

## 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.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

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 AND R11-4 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.

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

R11-2 SHALL BE 48" X 30".

R11-4 AND R11-3 SHALL BE 60" X 30".

\*OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FT. OR LESS FROM THE WORK ZONE.

\*\*500' MAX. OR AT LAST INTERSECTION WHICHEVER IS CLOSER.

## LEGEND

- ⊙ SIGN ON PERMANENT SUPPORT
- ⊢ TYPE III BARRICADE
- ⊢ TYPE III BARRICADE WITH ATTACHED SIGN
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- ▨ WORK AREA

## BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2015

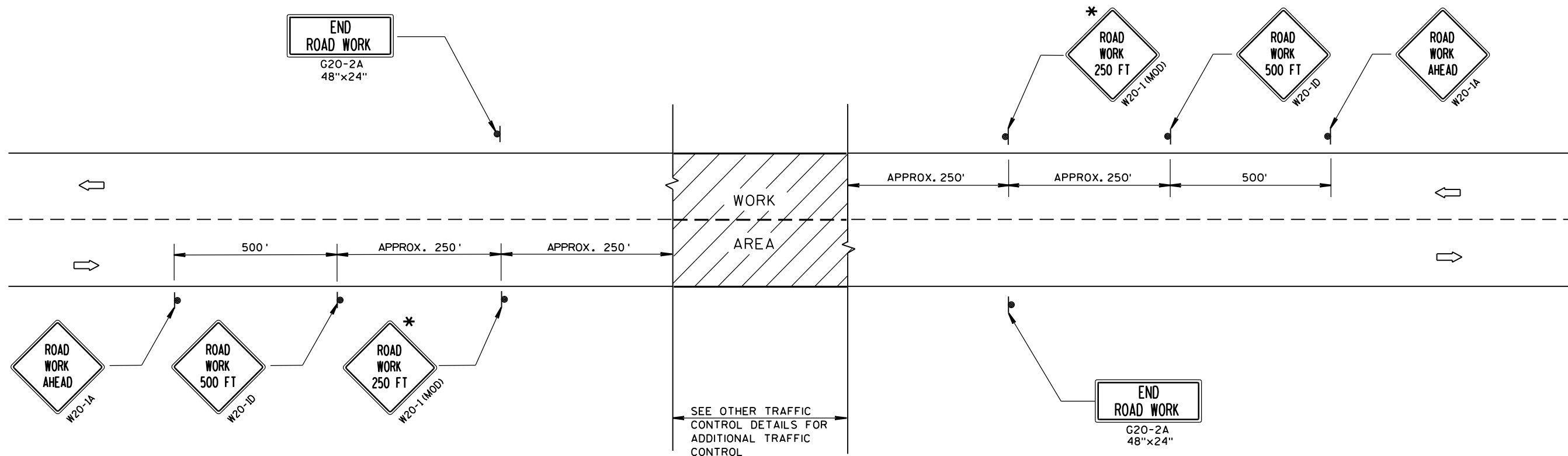
DATE

FHWA

/S/ Peter Amakobe Atepe

STATEWIDE WORK ZONE TRAFFIC

SAFETY ENGINEER



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

## GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

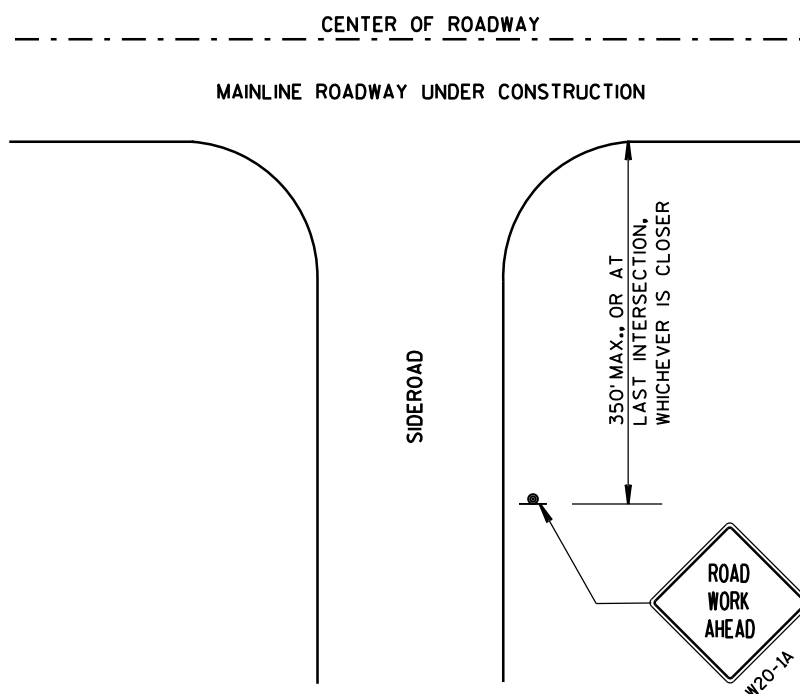
THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS.

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

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

\* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FT" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.



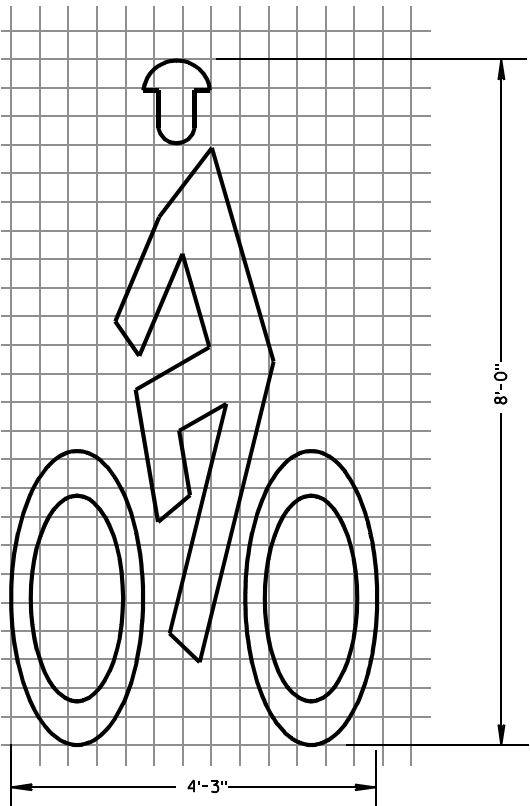
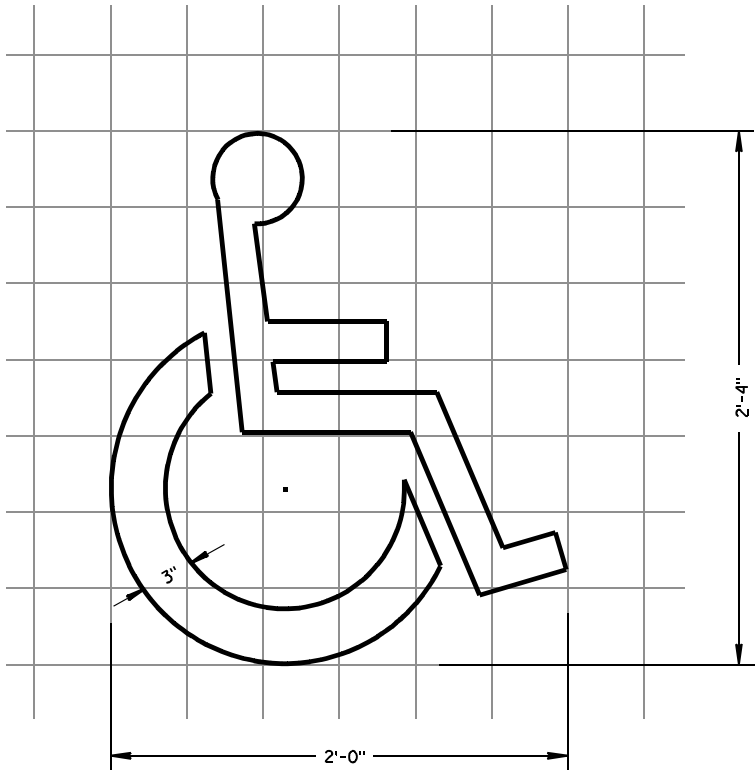
## LEGEND

- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA

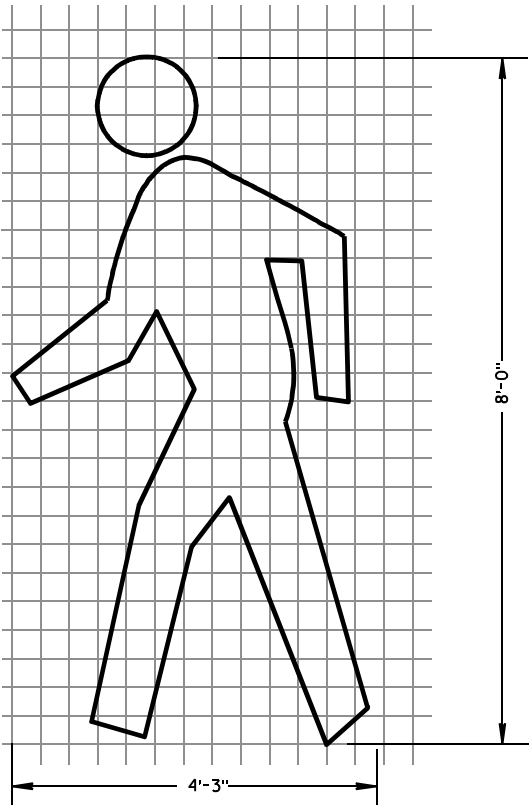
TRAFFIC CONTROL, ADVANCE  
WARNING SIGNS 40 M.P.H.  
OR LESS TWO-WAY UNDIVIDED  
ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

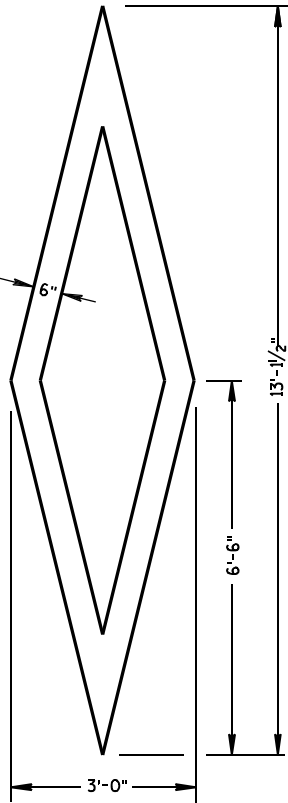
APPROVED  
Sept. 2015 /S/ Peter Amakobe Atepe  
DATE STATEWIDE WORK ZONE TRAFFIC  
FHWA SAFETY ENGINEER



BIKE CROSSING SYMBOL



PEDESTRIAN SYMBOL



PREFERENTIAL  
LANE SYMBOL

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.

A DETAILED DRAWING OF THE HANDICAPPED PARKING SYMBOL IS ILLUSTRATED IN THE "STANDARD HIGHWAY SIGNS MANUAL" BY THE FEDERAL HIGHWAY ADMINISTRATION.

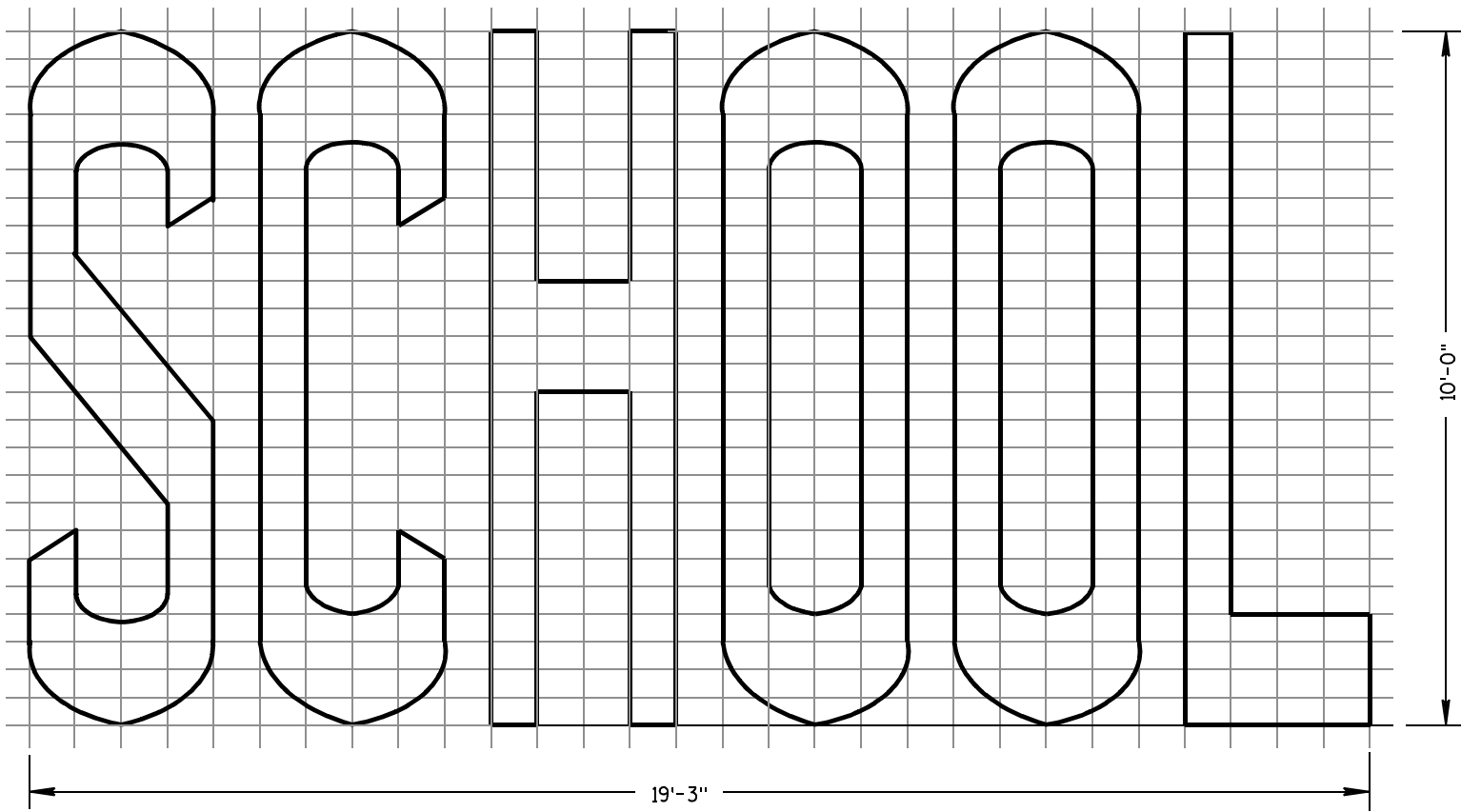
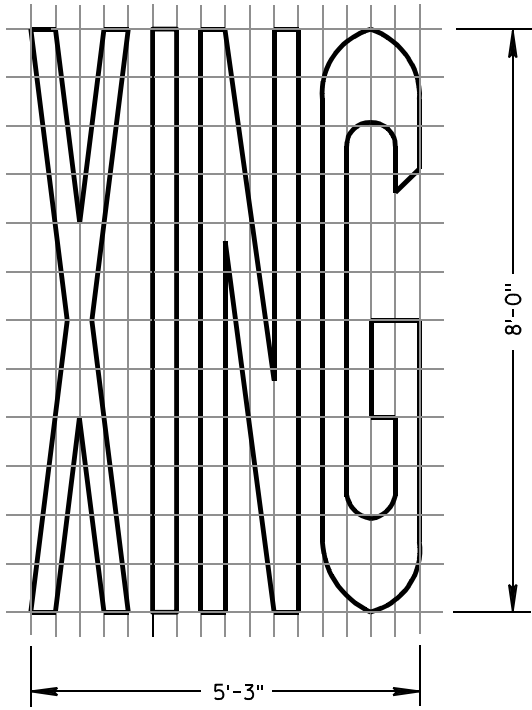
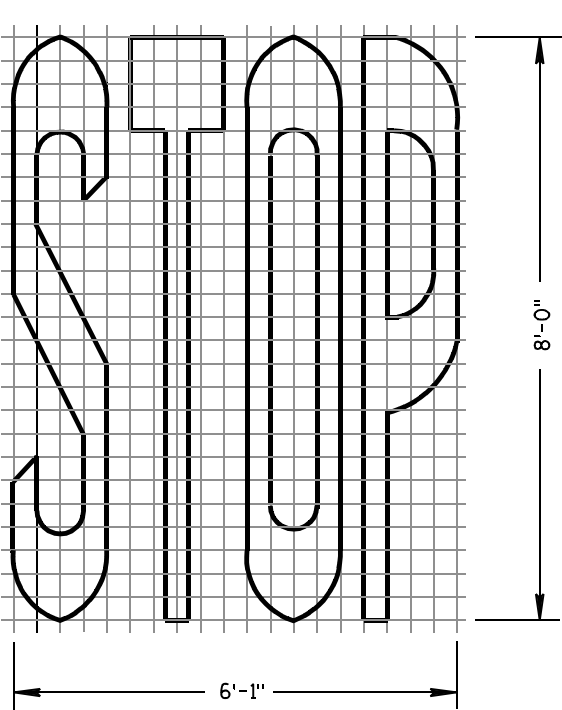
PAVEMENT MARKING SYMBOLS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 7/1/11 DATE	/S/ Thomas N. Notbohm STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



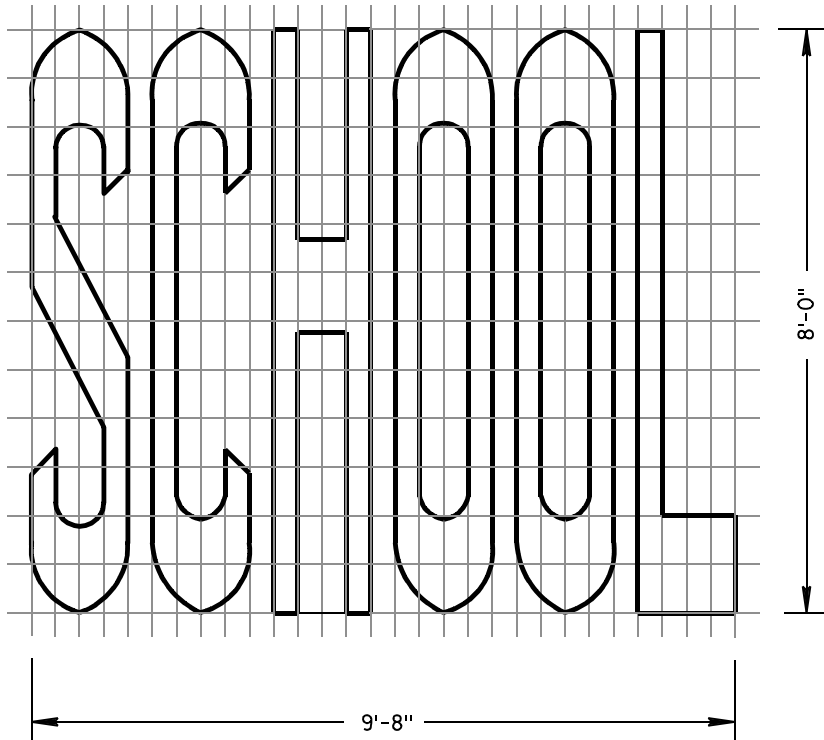
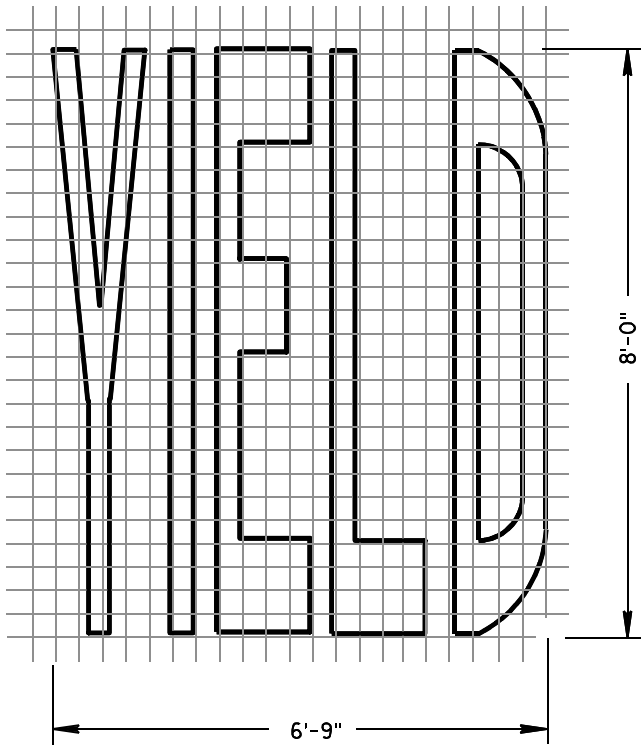
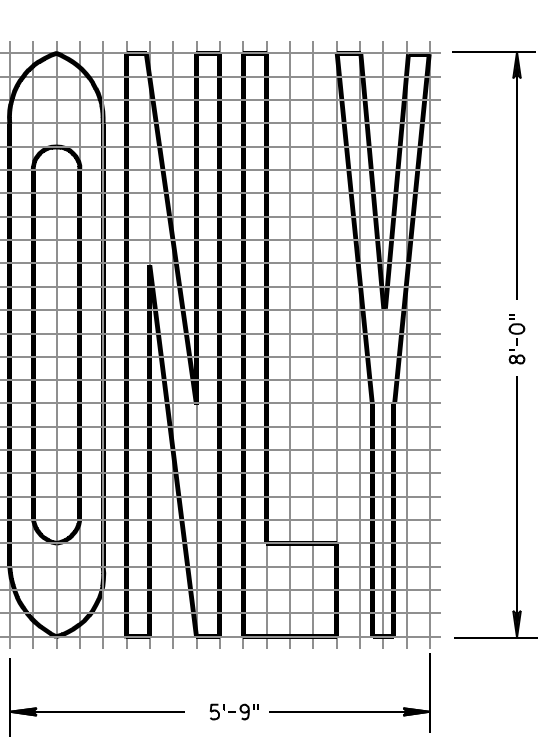
GENERAL NOTES

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.

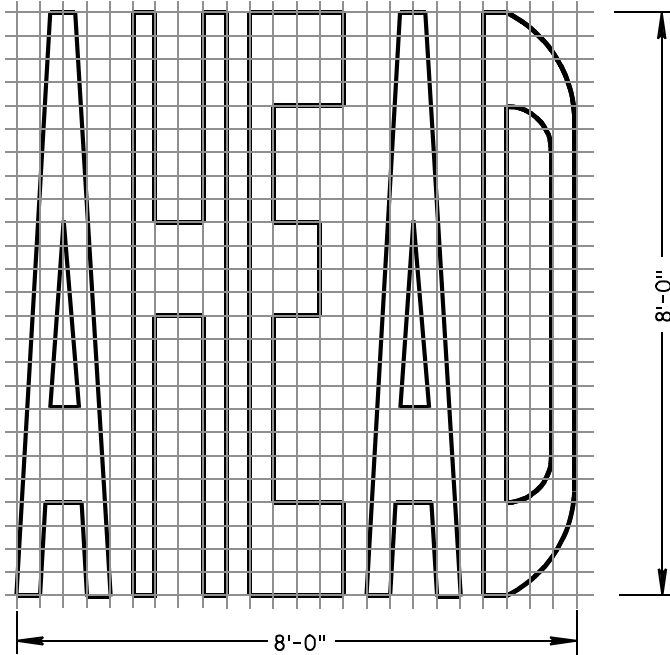
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES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



TWO-LANE



SINGLE-LANE



PAVEMENT MARKING WORDS

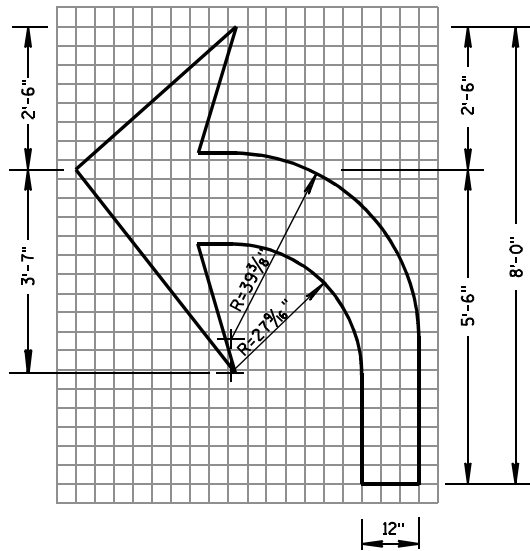
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

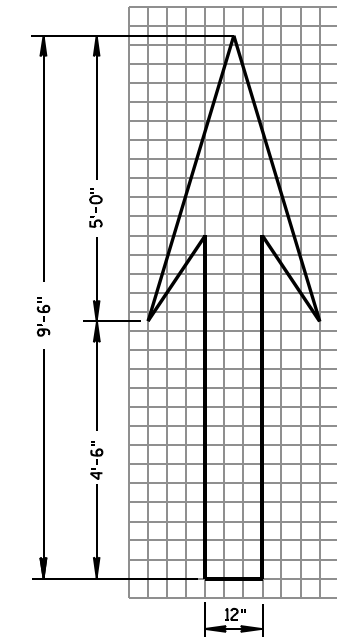
7-1-11  
DATE

/S/ Thomas N. Notbohm  
STATE TRAFFIC ENGINEER OF DESIGN

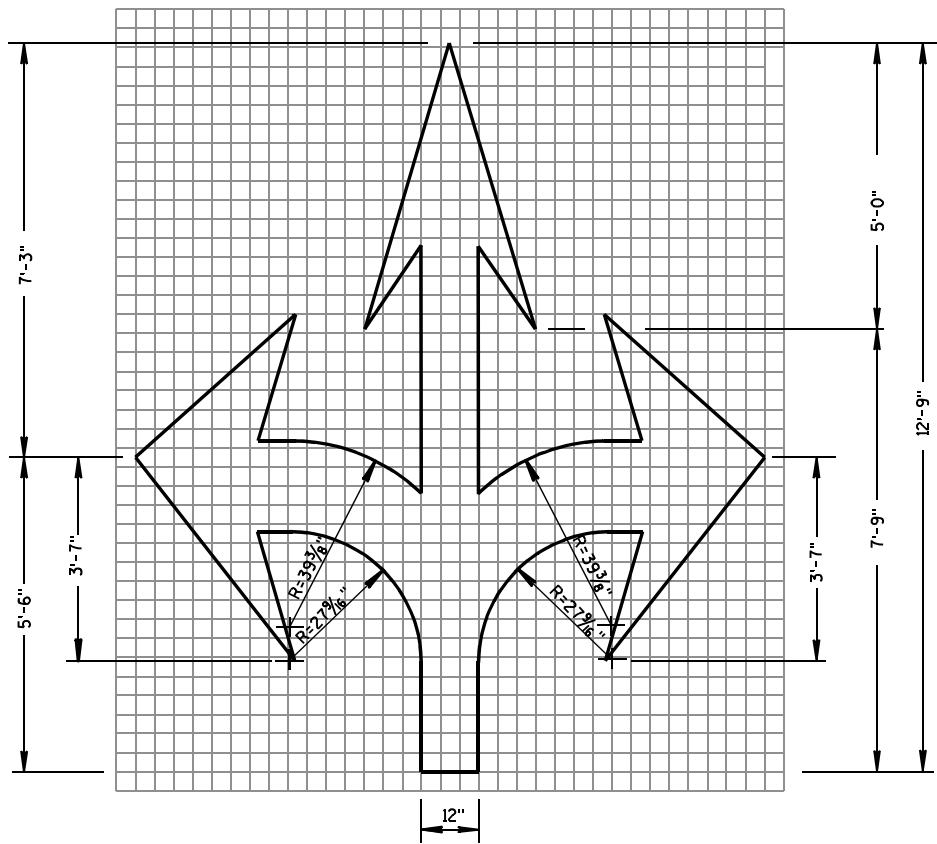
FHWA



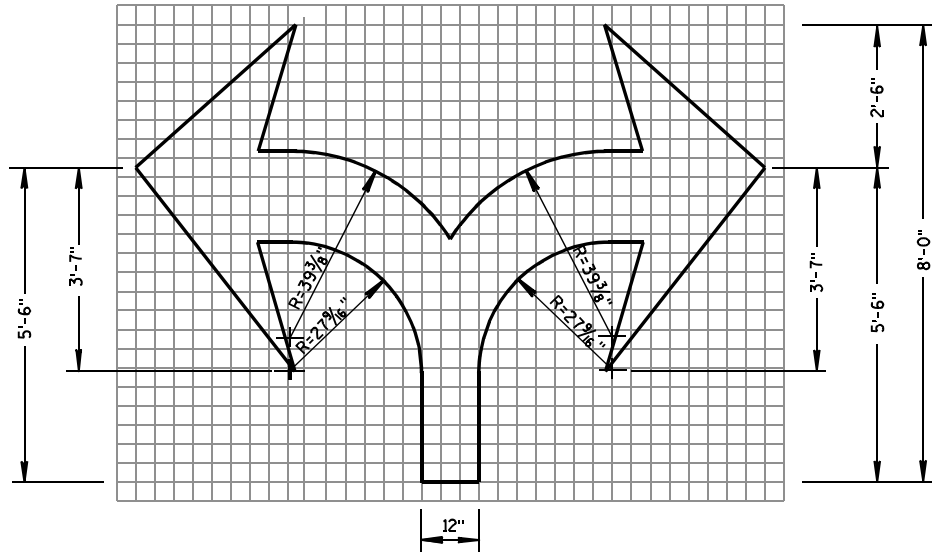
TYPE 2



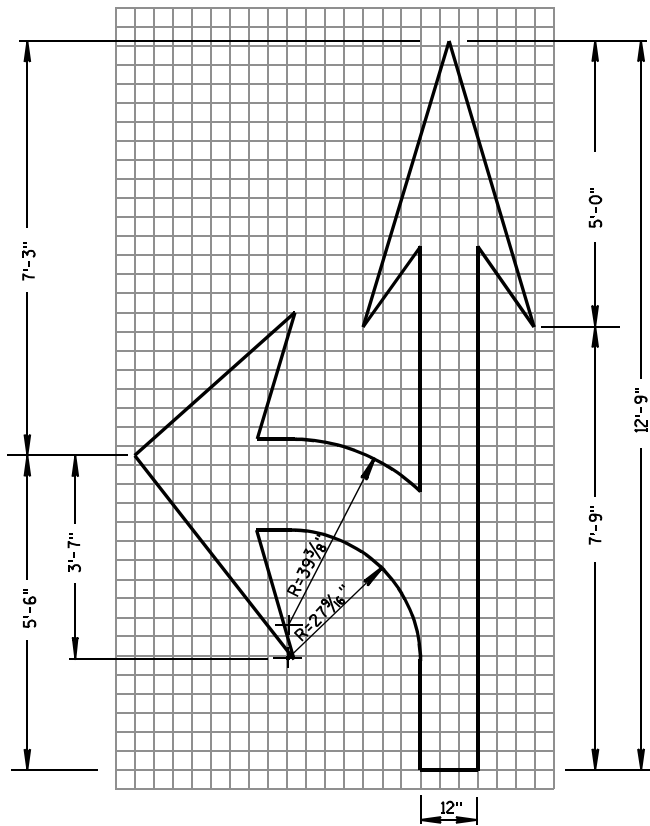
TYPE 1



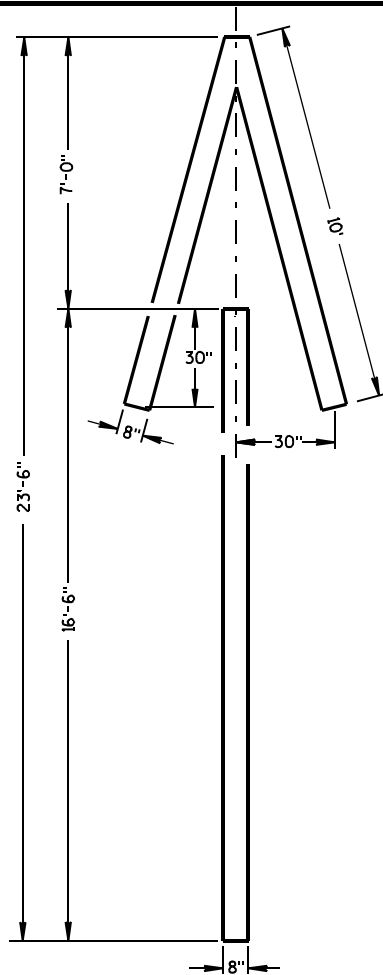
TYPE 6



TYPE 7



TYPE 3

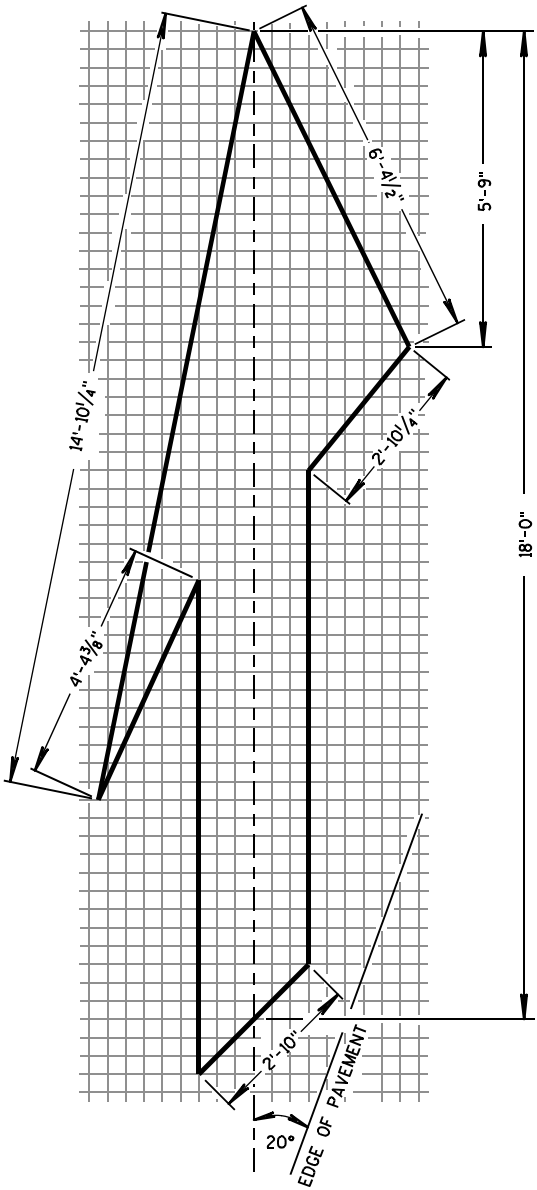


TYPE 4

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

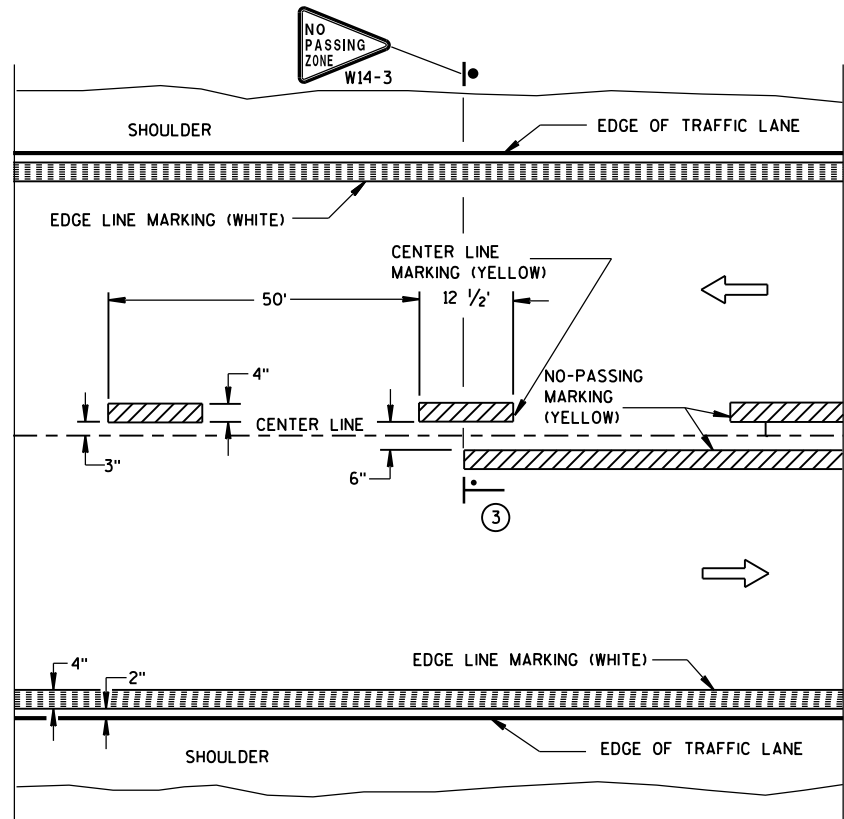
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

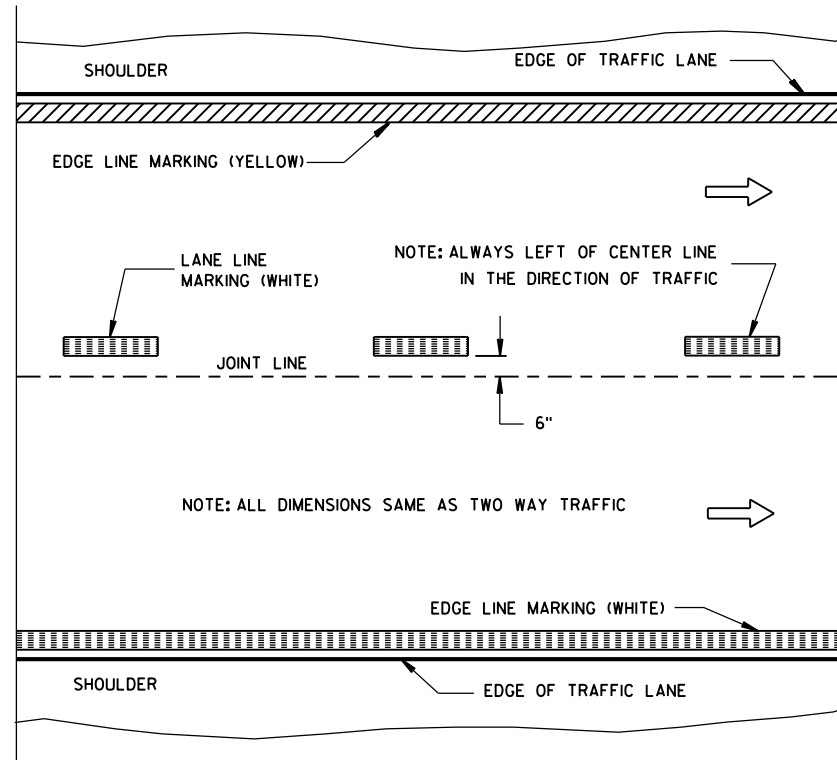
7/1/11  
DATE

/S/ Thomas N. Notbohm  
STATE TRAFFIC ENGINEER OF DESIGN

FHWA

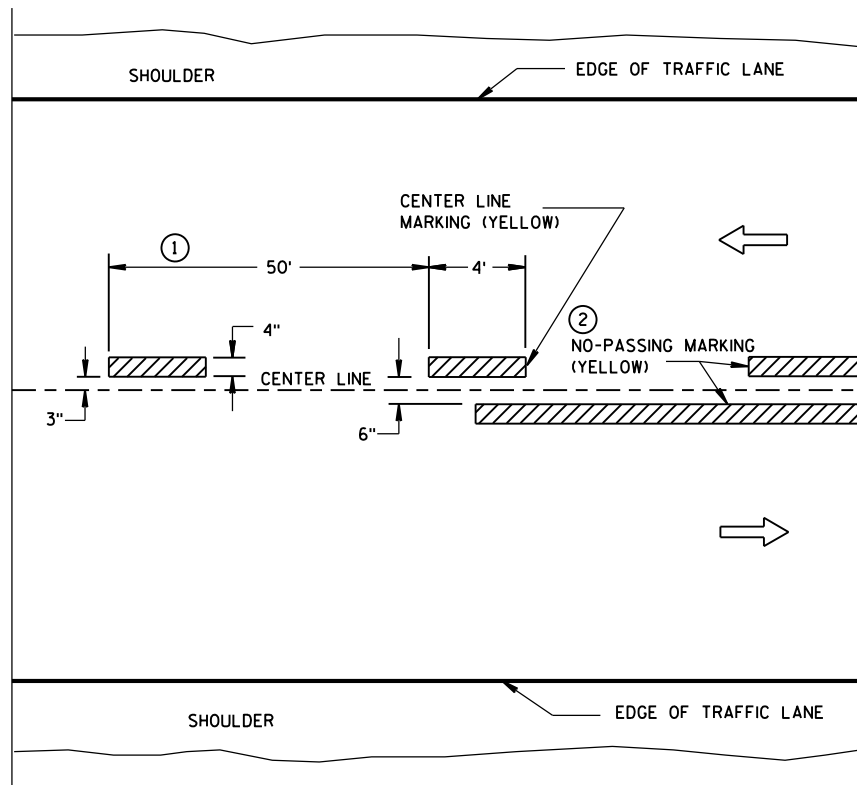


TWO WAY TRAFFIC

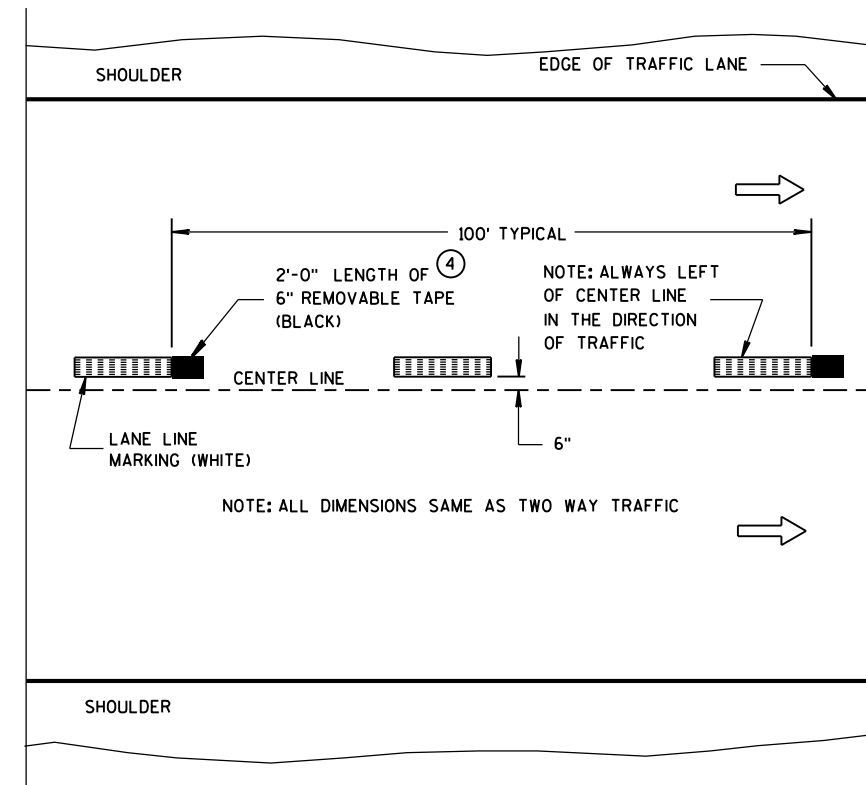


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

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

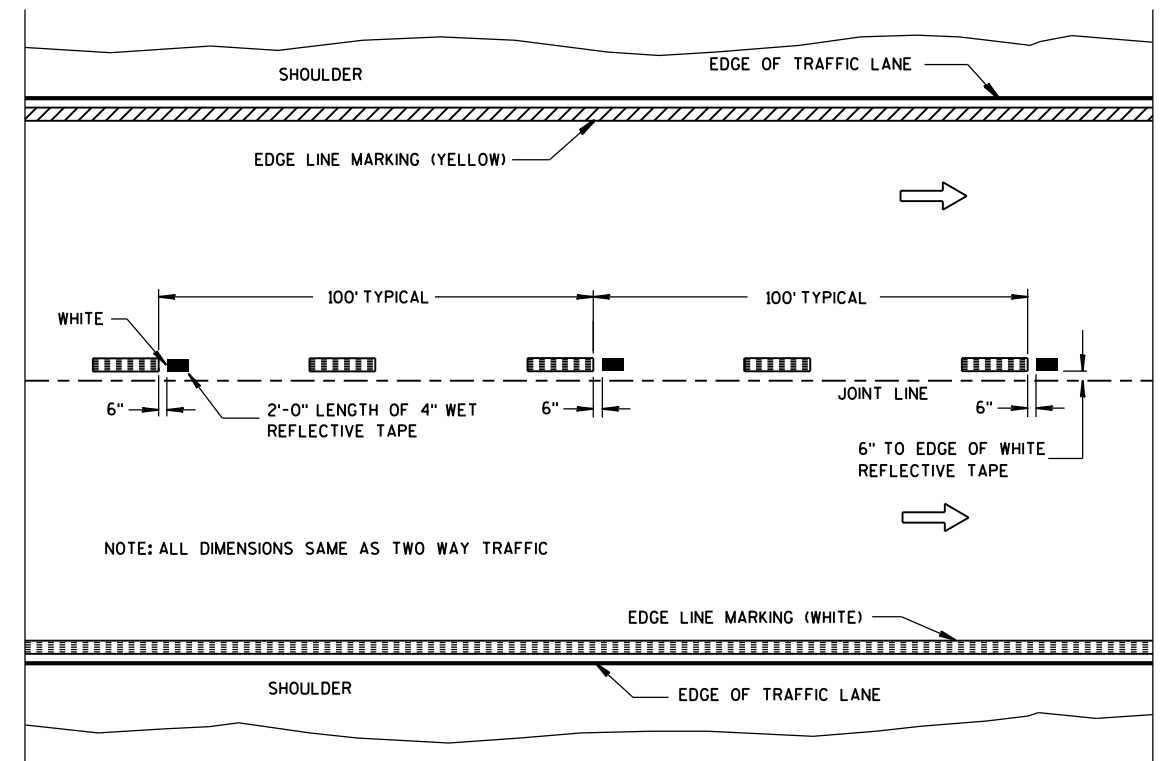
GENERAL NOTES

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  
5-13-2013 /S/ Travis Feltes  
DATE STATE TRAFFIC ENGINEER  
FHWA

LEGEND

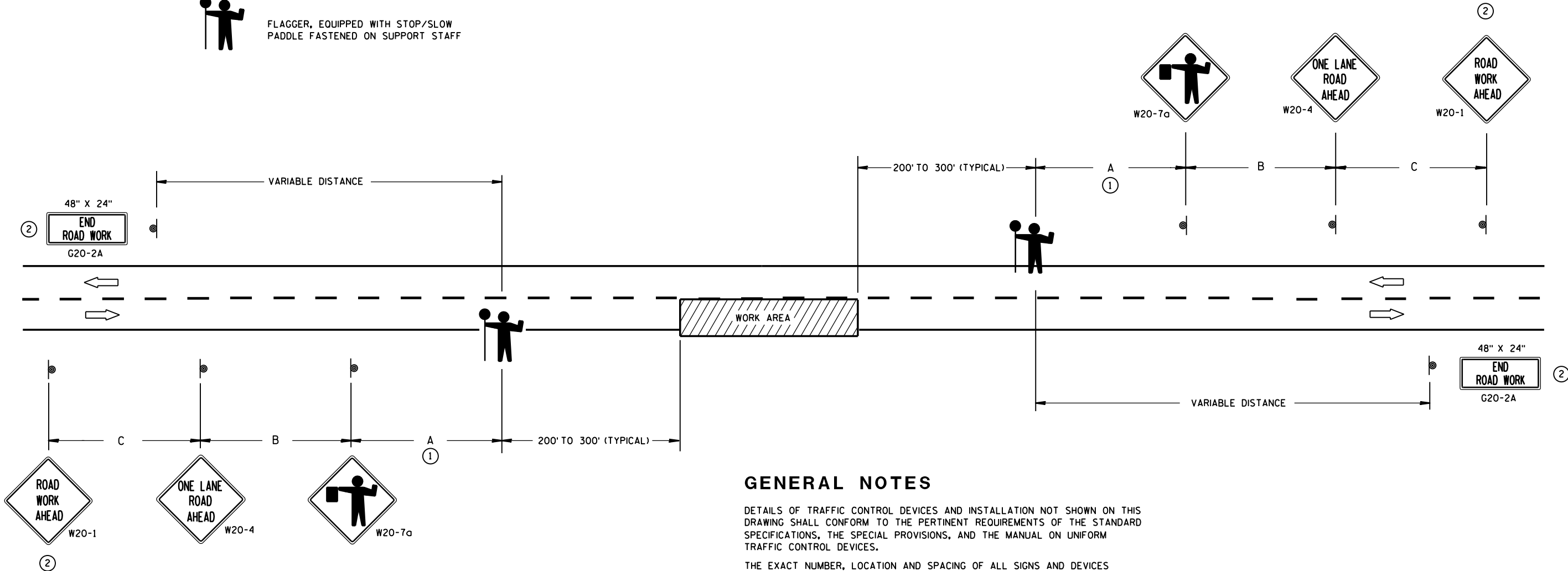
-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN SPACING TABLE

SPEED LIMIT	SIGN SPACING A,B,C
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, COVER OR REMOVE ALL TEMPORARY TRAFFIC CONTROL SIGNS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

- ① FOR A MOVING WORK OPERATION, SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
8/2013 /S/ Travis Feltes  
DATE STATE TRAFFIC ENGINEER OF DESIGN  
FHWA

GENERAL NOTES

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

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

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

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.

W20-1A AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

TABLE A

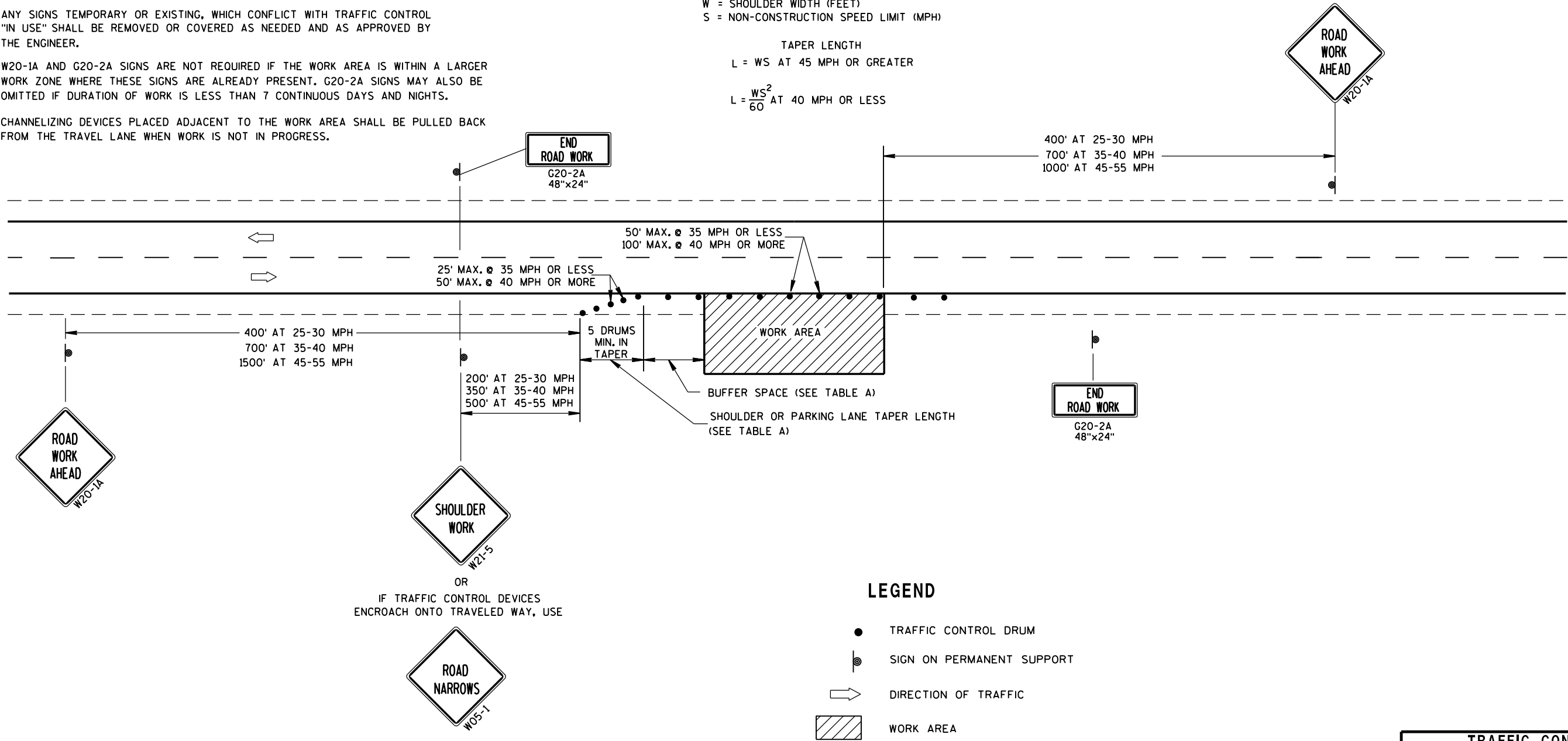
SHOULDER TAPER LENGTH (FEET)					BUFFER SPACE (FEET)
S \ W	4	6	8	10	
30	20	30	40	50	200
35	30	45	55	70	250
40	40	55	75	90	305
45	60	90	120	150	360
50	70	100	135	170	425
55	75	110	150	185	495

W = SHOULDER WIDTH (FEET)  
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

TAPER LENGTH  
L = WS AT 45 MPH OR GREATER

$L = \frac{WS^2}{60}$  AT 40 MPH OR LESS

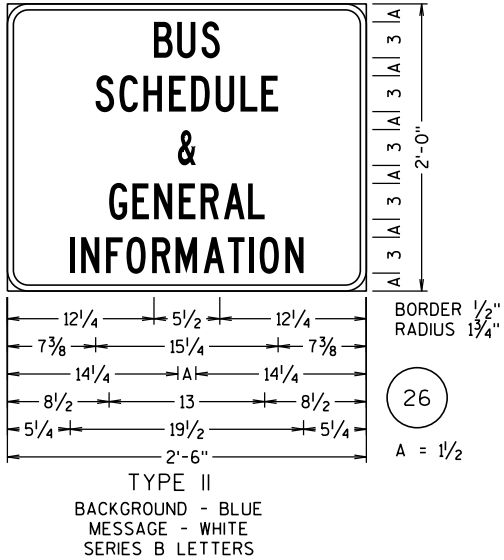
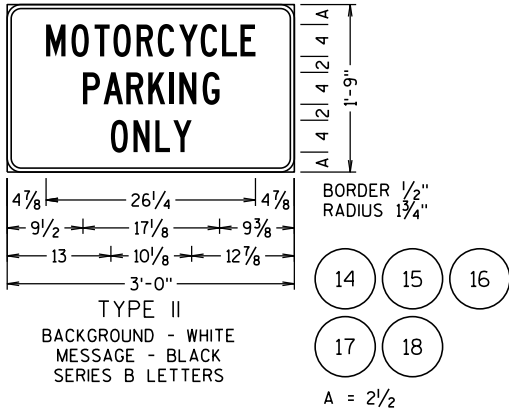
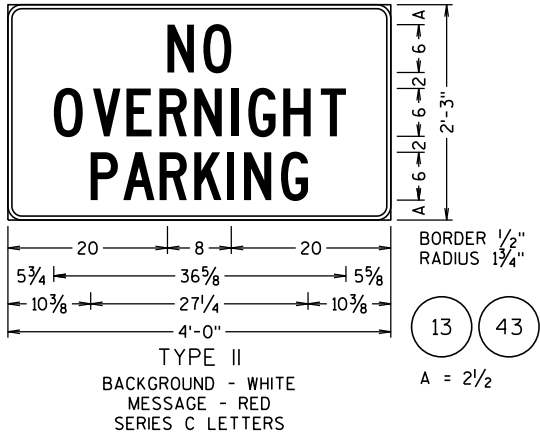
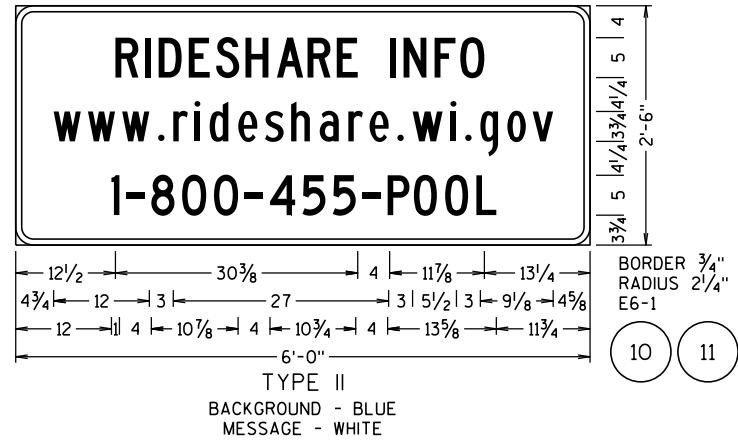
SHOULDER TAPER LENGTH =  $\frac{1}{3}L$



LEGEND

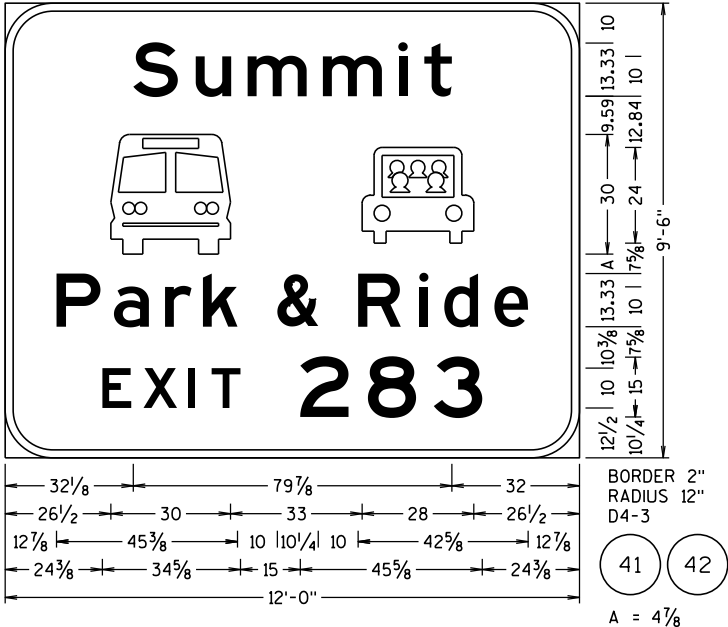
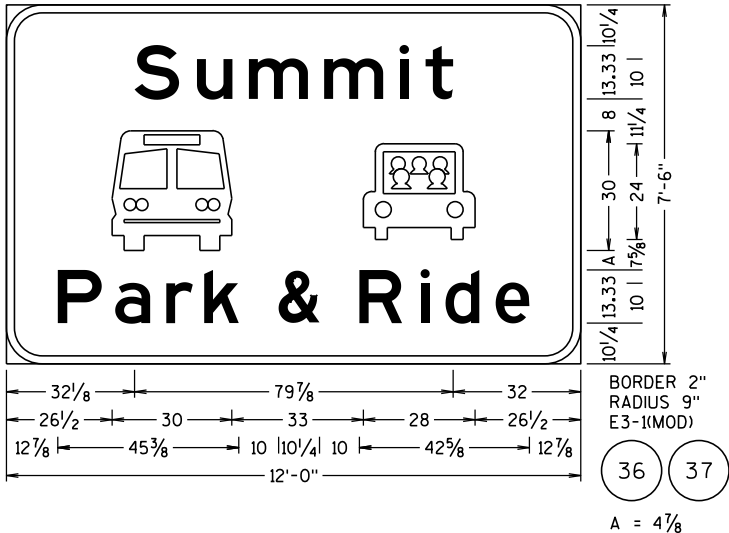
- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ▨ WORK AREA

TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED July 14, 2015 DATE	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	

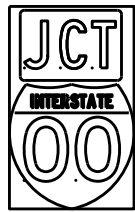


GENERAL NOTES:

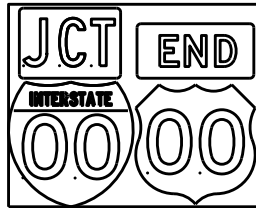
1. DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE PLANS.
2. UNLESS OTHERWISE NOTED, ALL SIGNS SHOWN ON THIS SHEET ARE "SIGNS, TYPE I".
3. UNLESS OTHERWISE NOTED, TYPE II SIGNS ON THIS SHEET SHALL HAVE "TYPE H REFLECTIVE SHEETING" AND, "TYPE H MESSAGE MATERIAL". TYPE I SIGNS SHALL HAVE TYPE SH REFLECTIVE SHEETING.
4. UNLESS OTHERWISE NOTED, ALL SIGNS SHOWN ON THIS SHEET SHALL HAVE A GREEN BACKGROUND AND WHITE MESSAGE.
5. TYPE II SIGNS ALL UPPER CASE MESSAGE (EXCEPT ON SHIELDS OR WHERE OTHERWISE NOTED) SHALL BE "SERIES E. ALL LOWER CASE MESSAGE WITH AN INITIAL UPPER CASE LETTER SHALL BE "SERIES E.
6. TYPE I SIGNS - ALL UPPER CASE MESSAGE (EXCEPT ON SHIELDS OR WHERE OTHERWISE NOTED) SHALL BE SERIES "E" MODIFIED. ALL LOWER CASE MESSAGE WITH AN INITIAL UPPER CASE LETTER SHALL BE SERIES "E" MODIFIED. ALL CAP WORDS ARE "SERIES E"
7. UNLESS OTHERWISE NOTED, ALL SIGNS SHOWN ON THIS SHEET SHALL HAVE "TYPE A" OR "TYPE C" ARROWS AS SHOWN. SEE THE STANDARD SIGN PLATES FOR FURTHER DETAILS.
8. SEE THE STANDARD SIGN PLATES FOR FURTHER DETAILS ON ROUTE MARKER SHIELDS.
9. THE SIGN NUMBER IS DENOTED IN THE CIRCLE NEAR EACH DETAIL.
10. NUMBER FRACTIONS FOR INTERCHANGE SEQUENCE SIGNS SHALL BE SERIES "E" PER PLATES ALL-7 AND ALL-10
11. DO NOT SCALE.



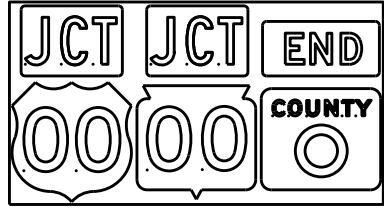
TYPICAL ASSEMBLIES



J1-1



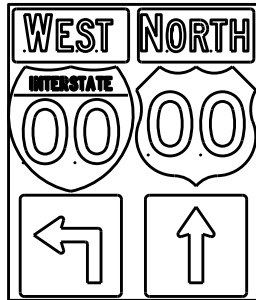
J1-2



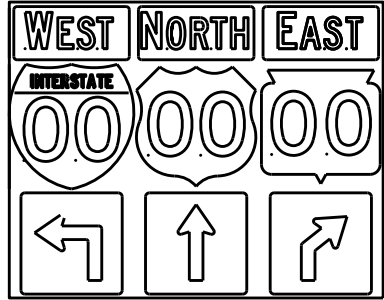
J1-3



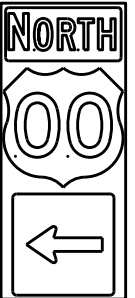
J2-1



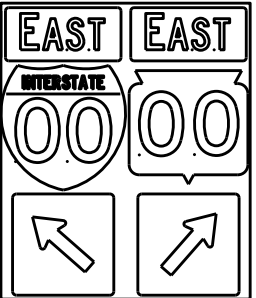
J2-2



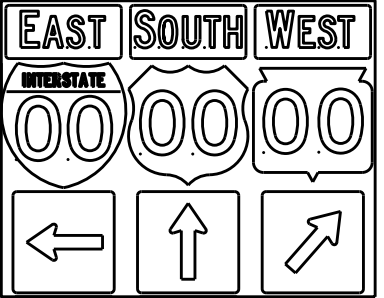
J2-3



J3-1



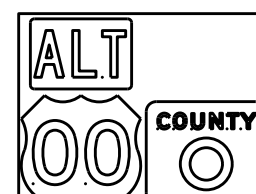
J3-2



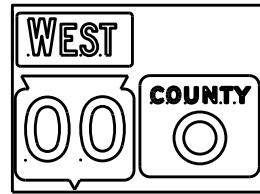
J3-3



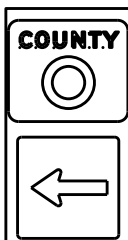
J4-1



J4-2



J4-2



J13-1



J12-1



J32-1



J33-1



J23-1

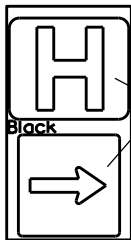


J22-1



JV

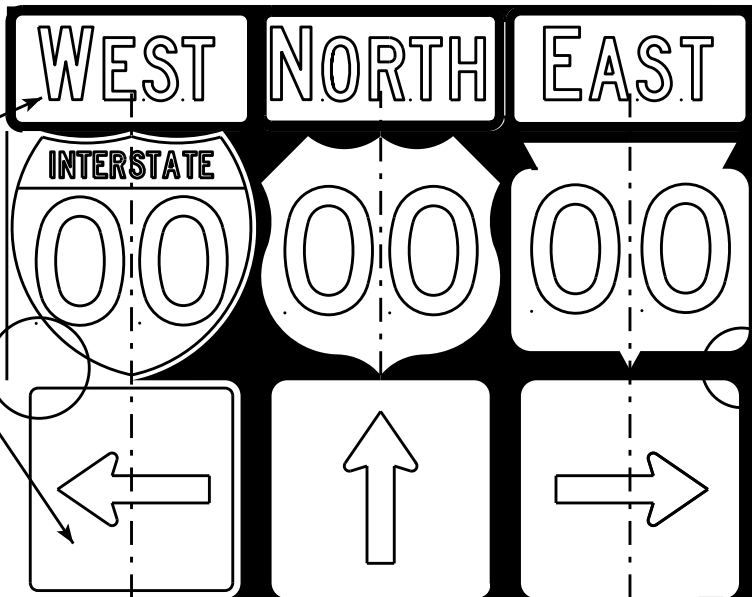
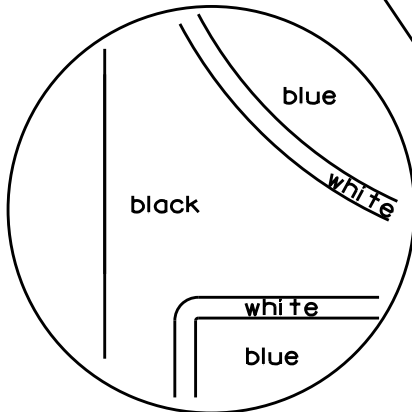
( Typical Vertical J-Assembly  
See Note 10 and 11)



JH-1

Blue Background

[blue background  
with interstate]



[black background]

ROUTE MARKERS & COMPONENTS  
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 2/06/14 PLATE NO. A2-1S.8

NOTES

1. Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Black Non-reflective  
Message - see Note 5
3. Message Series - See Note 5
4. Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
5. The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
6. Certain marker heads require the component pieces to be the same color. As an example, all the components used with an M1-1 Interstate marker shall be blue.
7. Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
8. Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
9. Route assemblies that have 36 inch shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
10. All Vertical J Assemblies are given a Sign Code of JV
11. For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

PROJECT NO:

FILE NAME : C:\CAEFiles\Projects\tr\_stdplate\A21S.DGN

PLOT DATE : 06-FEB-2014 14:10

PLOT BY : mscs.ja

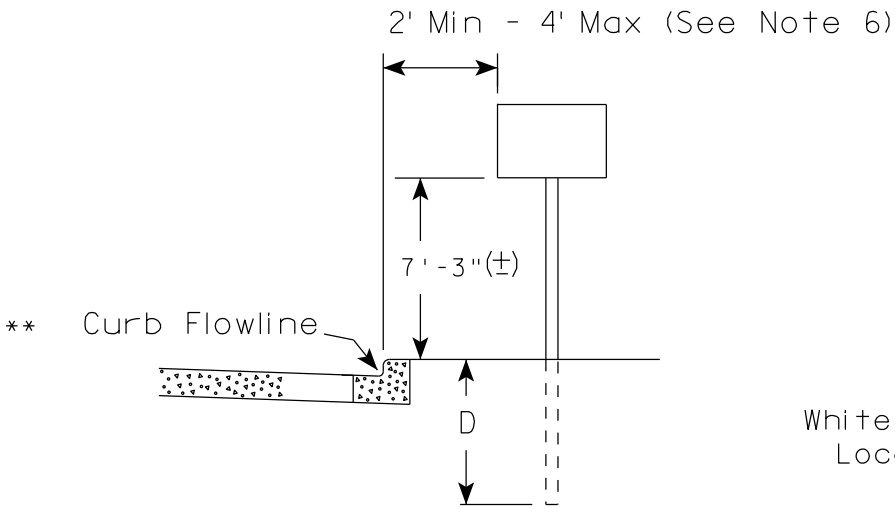
PLOT NAME :

SHEET NO:

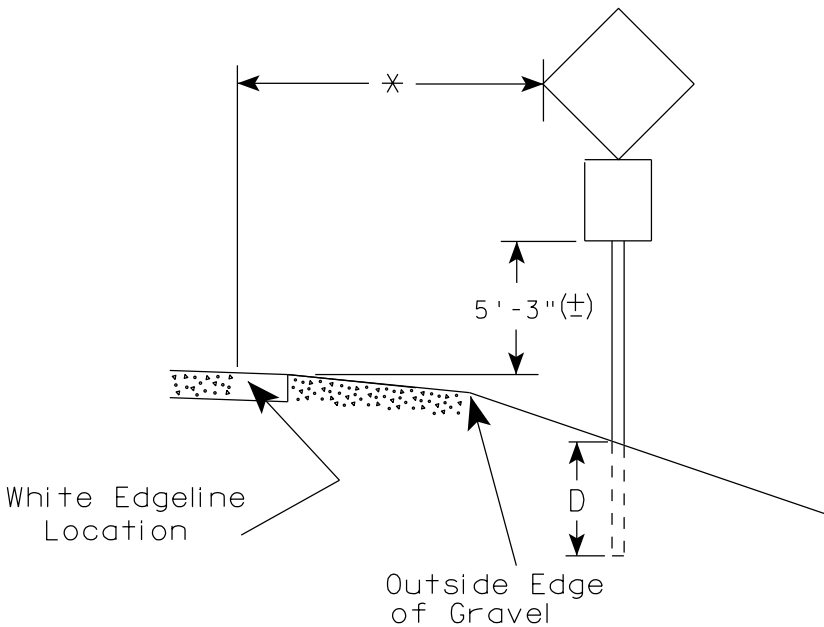
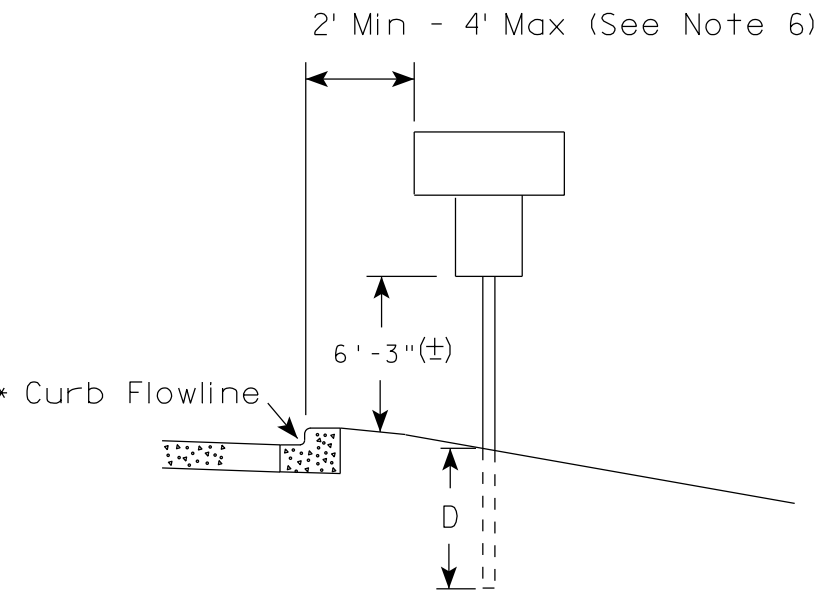
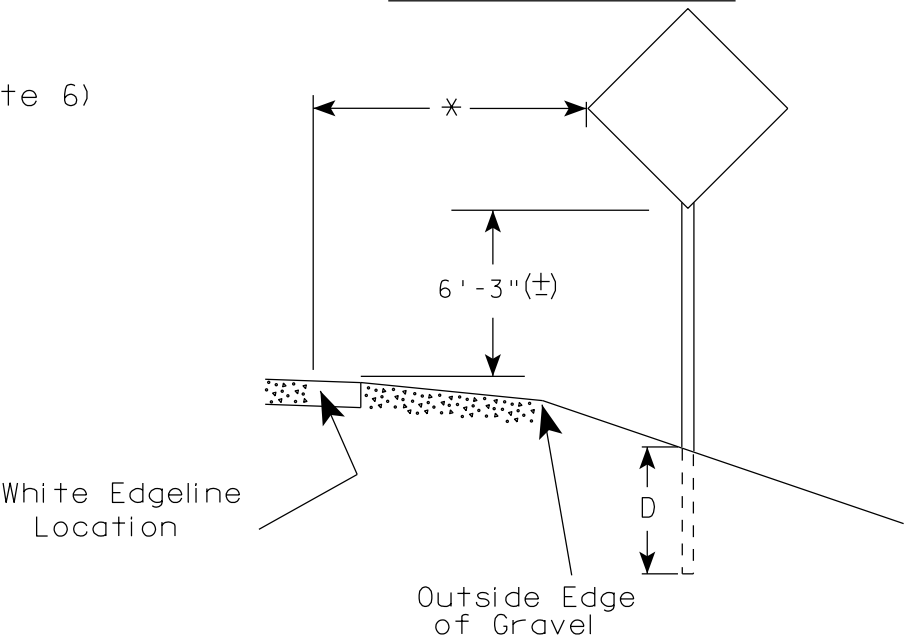
E

WISDOT/CADDs SHEET 42

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, 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 (A2-1S) 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 signs 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), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) 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 7/23/15 PLATE NO. A4-3.20





### ELEVATION VIEW

DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



### ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



### PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST  
BOX-OUTS  
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1

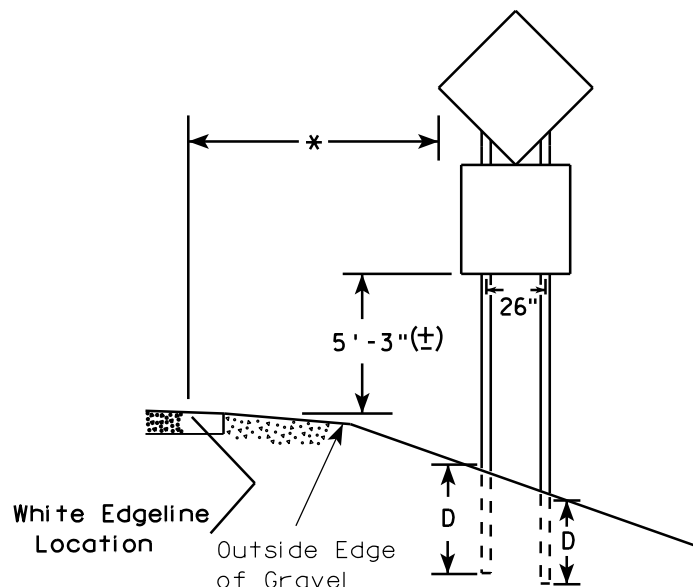
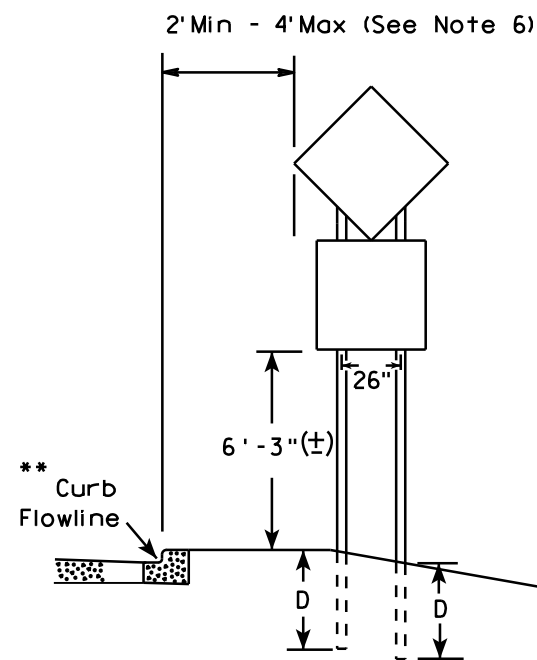
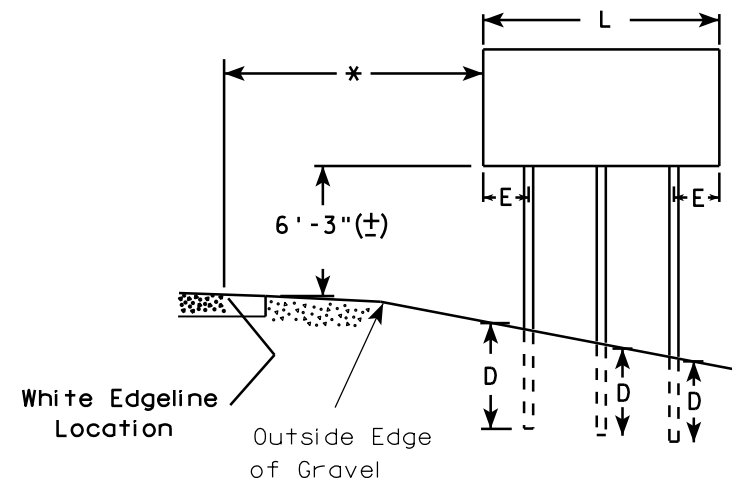
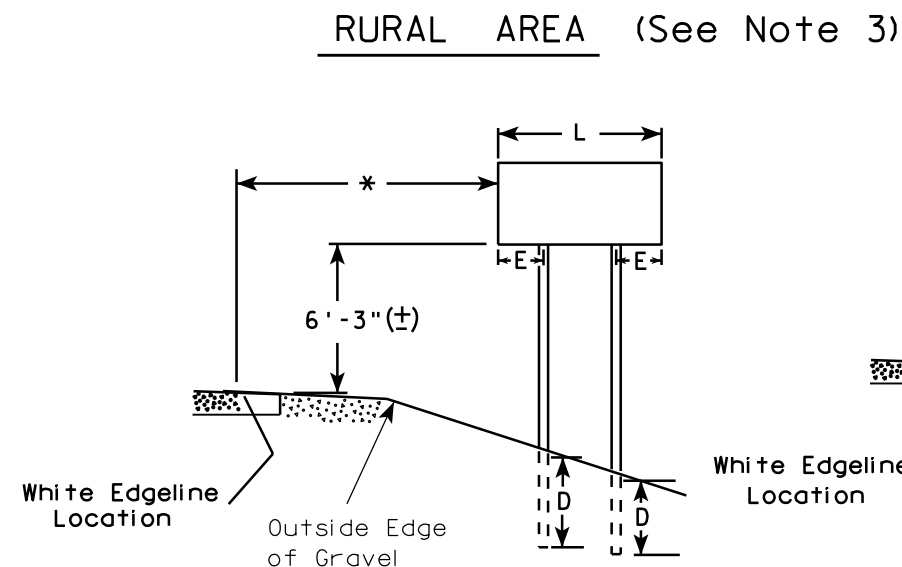
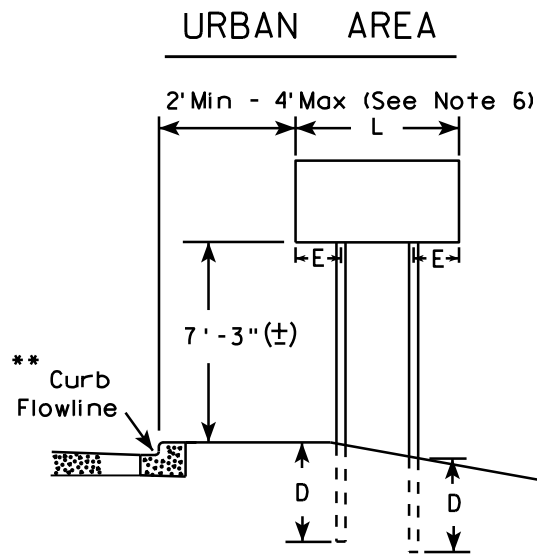
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



48" DIAMOND WARNING SIGN

48" DIAMOND WARNING SIGN

- GENERAL NOTES**
1. For 3 or 4 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" (±) or 6'-3" (±) depending upon existence of sub-sign.
  4. The (±) tolerance for mounting height is 3 inches.
  5. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
  6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
  7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
  8. 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), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

\* 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 and less than 20 S.F. in area.

\*\*\*

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

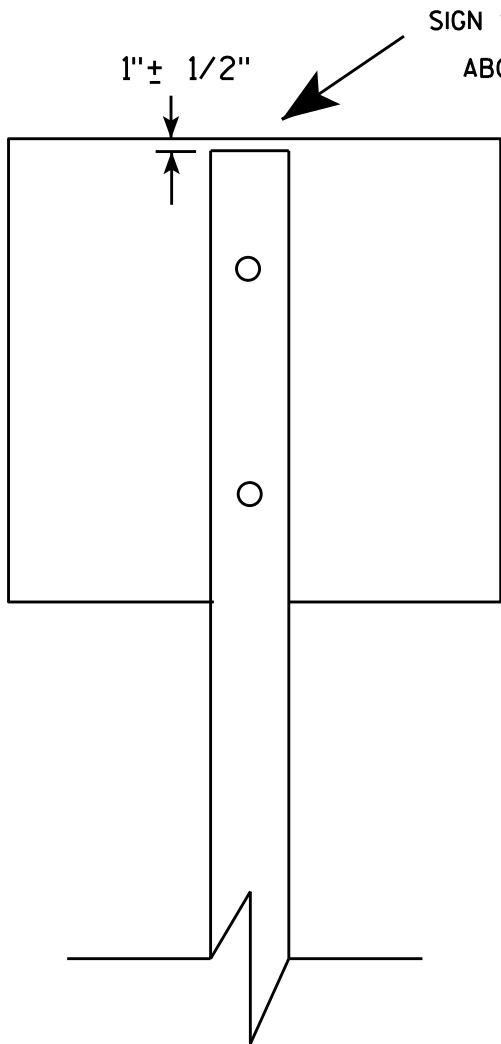
Area of Sign Installation ( Sq. Ft. )	D ( Min )
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION  
OF TYPE II SIGNS  
ON MULTIPLE POSTS

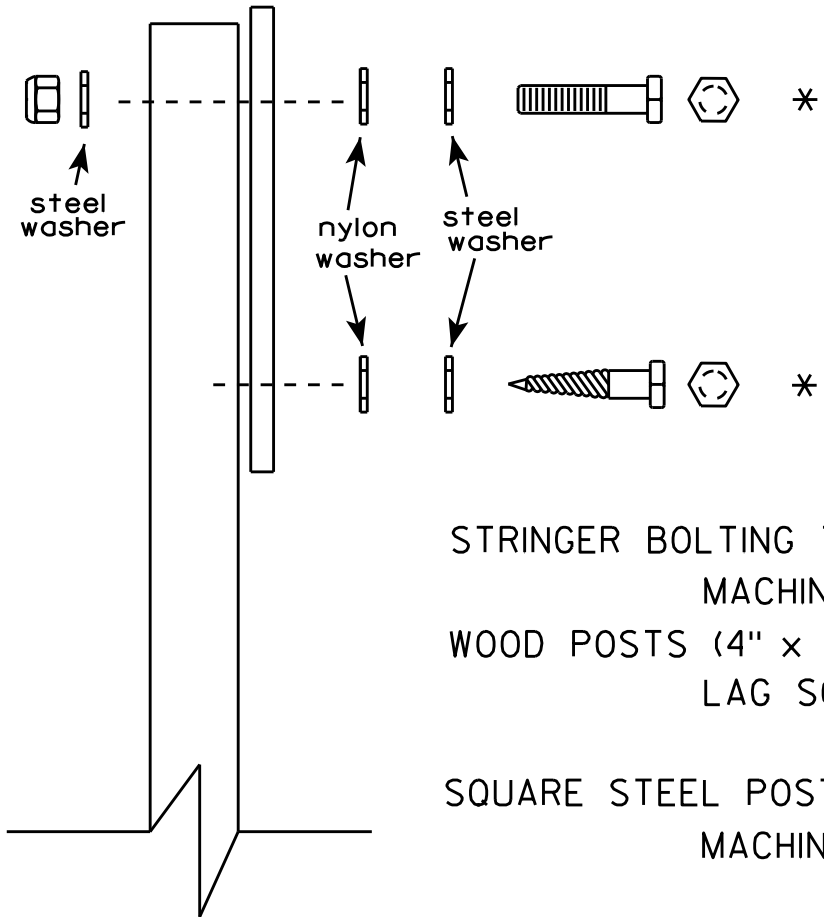
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-4.14



SIGN SHALL BE MOUNTED TO PROJECT  
ABOVE THE TOP OF THE POST



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

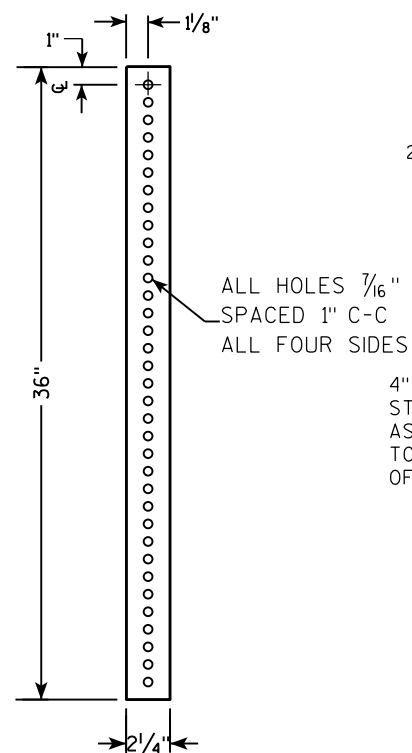
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - 5/16" X 1-3/4" Length w/ nuts
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
  - 3/8" X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
  - 3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
- O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
  - 1-1/4" O.D. X 3/8" I.D. X .080 NYLON

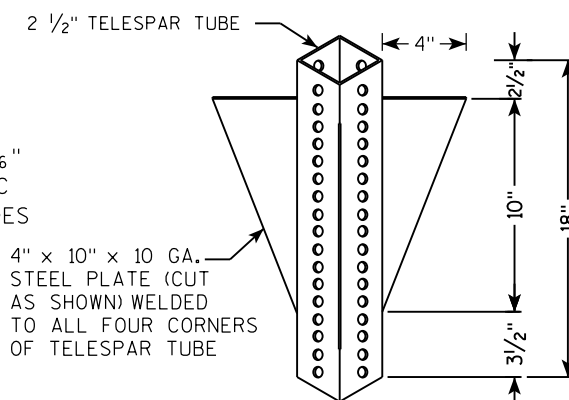
\* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 4/27/16	PLATE NO. A4-8.8

**2 1/4 " SQUARE  
12 GAUGE  
PERFORATED  
GALVANIZED FINISH**



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



TELESCOPE PIECES  
FLUSH AT TOP

18" DIA SCHEDULE  
40 PVC  
BOX-OUT

36"

13"

18"

2 1/2" GRAVEL OR DIRT

3/8" ZINC PLATED CORNER  
ANCHOR BOLT AND NUT

2 1/2" SQUARE X 18"  
(SOIL STABILIZING SLEEVE)

2 1/4" SQUARE X 36"

2" STEEL TUBULAR  
SQUARE UPPER SECTION

ALL HOLES 7/16"  
SPACED 1" C-C  
ALL FOUR SIDES

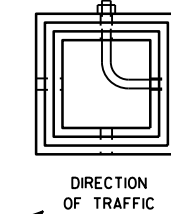
SEE SIGN PLATE  
A4-8 FOR BOLT  
WASHER, & NUT  
MATERIAL

SIGN

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY:

- TELESCOPE PIECES FLUSH AT TOP**: Indicated by a dimension line on the left.
- 2" STEEL TUBULAR SQUARE UPPER SECTION**: The main vertical support.
- ALL HOLES  $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES**: Specification for the perforations in the tubular section.
- SIGN**: Attached to the top of the post.
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL**: Reference to a separate plate for hardware details.
- 3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT**: Hardware used to secure the post to the base.
- 1"**: Dimension for the offset of the anchor bolt from the post face.
- 3/8" ZINC PLATED ANCHOR BOLT AND NUT**: Hardware used to secure the base plate to the ground.
- 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)**: The base plate of the post.
- 2 1/4" SQUARE X 36"**: The main base plate.
- 36"**: Dimension for the height of the main base plate.
- 18"** and **12"**: Dimensions for the offset of the anchor bolts from the post face.
- A**: Downward arrows indicating load or weight on the base plate.

3/8" ZINC PLATED CORNER  
ANCHOR BOLT AND NUT



**SECTION A-A**

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 2/05/15 PLATE NO. A4-9.9

PROJECT NO:

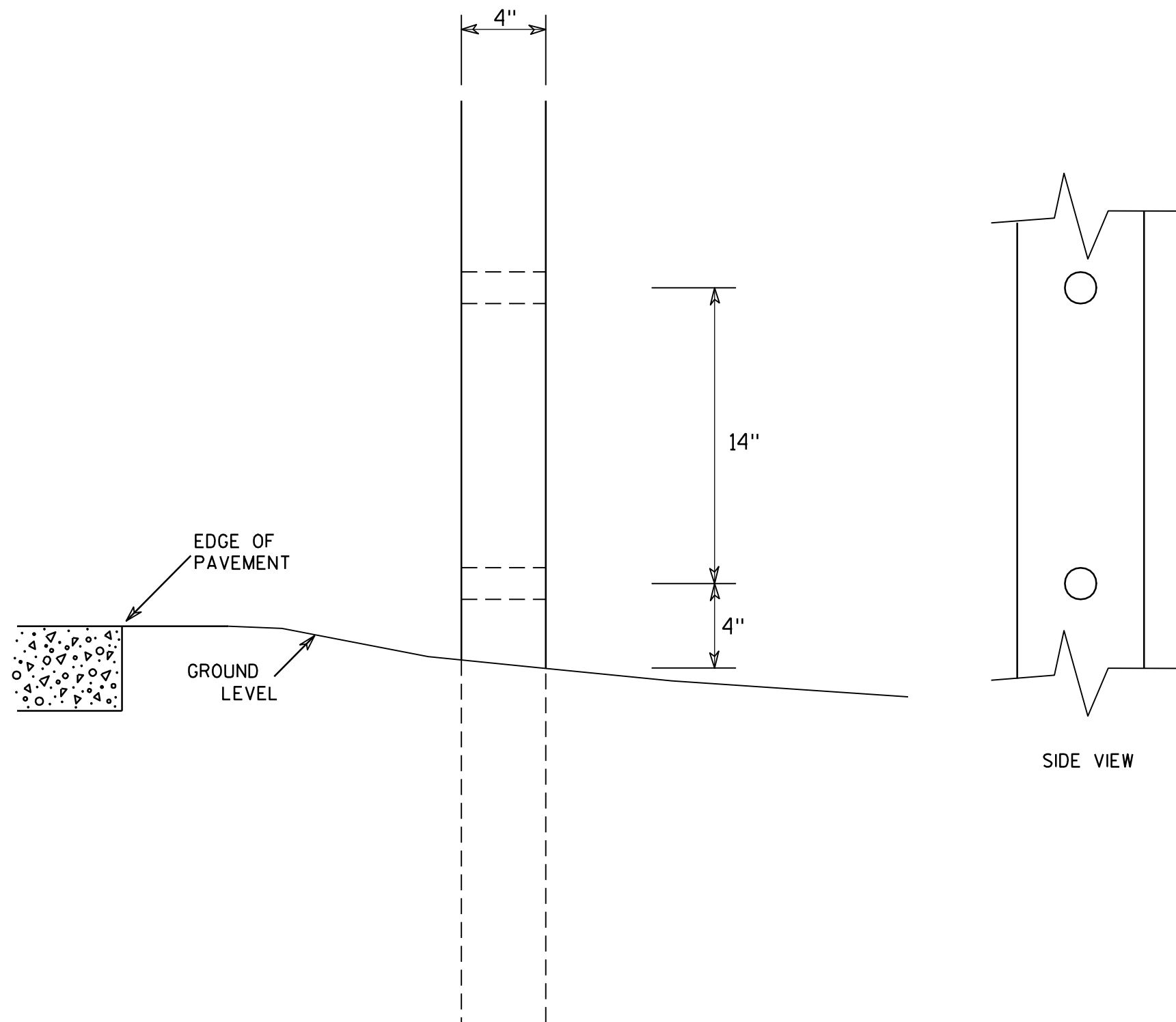
HWY:

COUNTY:

SHEET NO:

1

7



### GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

### 4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Chester J. Spang*  
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

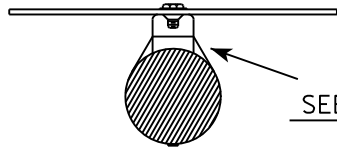
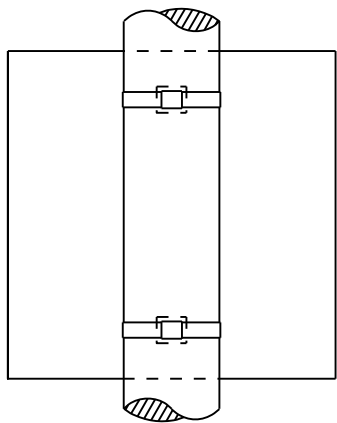
COUNTY:

SHEET NO:

E

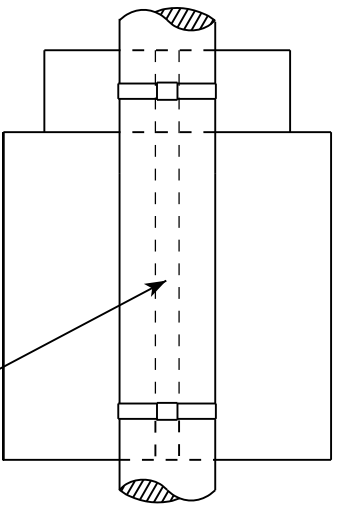
BANDING

SINGLE SIGN

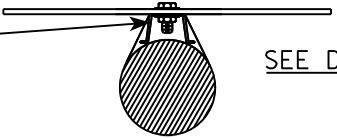


SEE DETAIL A

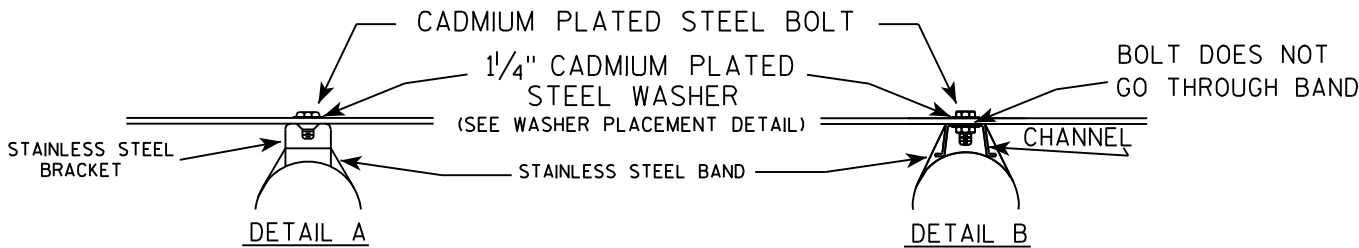
"J" ASSEMBLY



CHANNEL  
SEE TYPICAL PANEL  
INSTALLATION SHEET



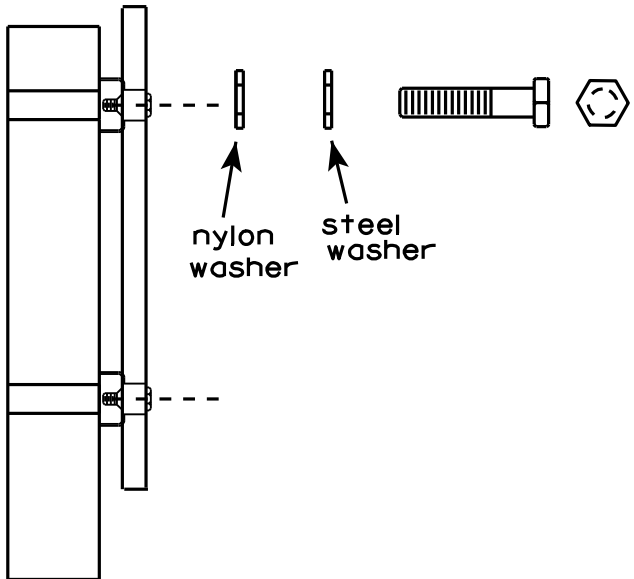
SEE DETAIL B



GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be  $\frac{3}{4}$ " in width and 0.025" thickness.

WASHER PLACEMENT



nylon washer  
steel washer

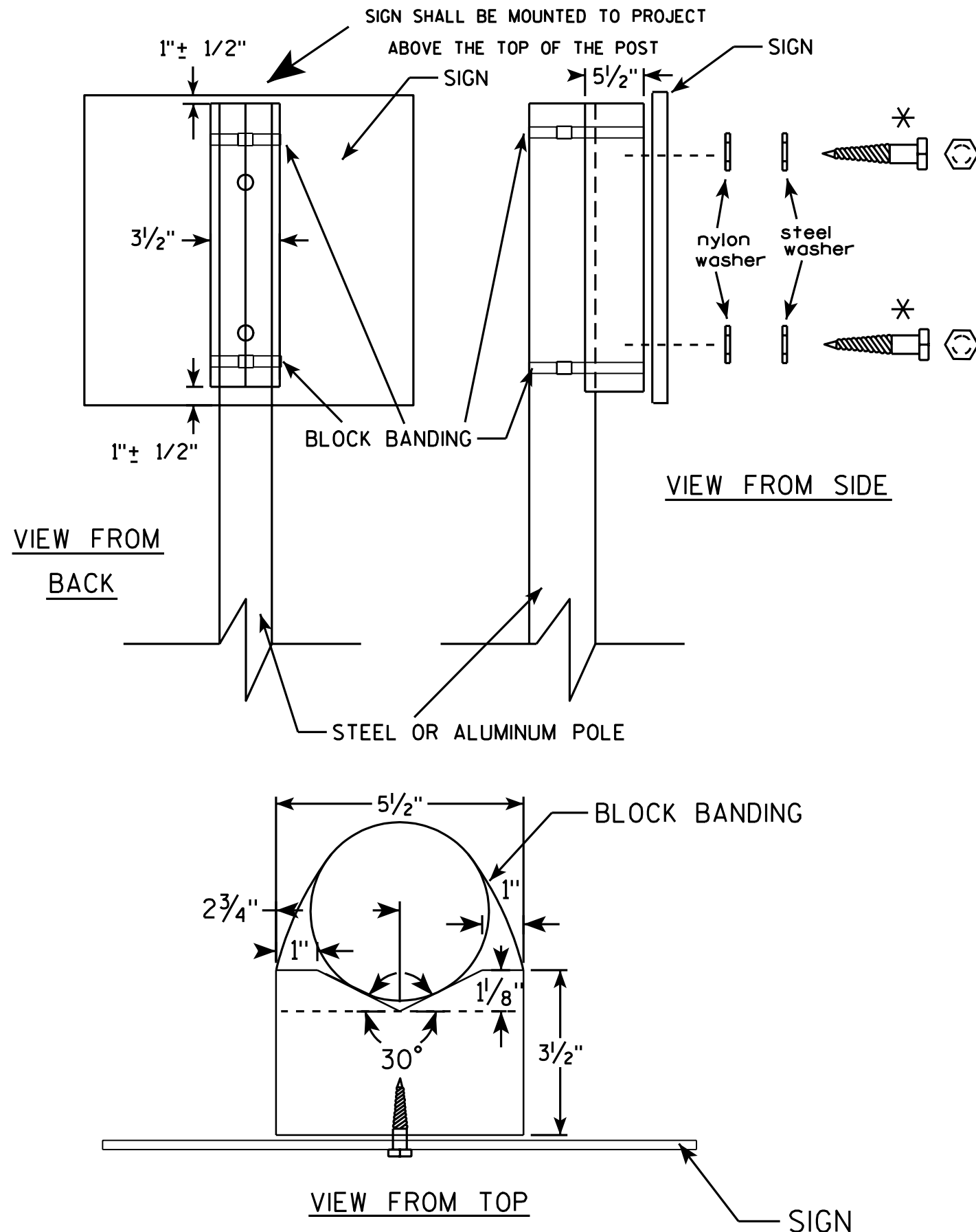
WASHERS (ALL POSTS) -  
1-1/4" O.D. X  $\frac{3}{8}$ " I.D. X  $\frac{1}{16}$ " STEEL  
1-1/4" O.D. X  $\frac{3}{8}$ " I.D. X .080 NYLON  
FOR ALL TYPE H SIGNS

STANDARD SIGN  
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 8/16/13 PLATE NO. A5-9.3



### GENERAL NOTES

1. WOOD 4"x6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WISDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, 3/4" WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
  - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D, or
  - b. Cadmium plated in accordance with ASTM Designation : B 766 TYPE 3, Class 12, or
  - c. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE 1 1/4" O.D. X 3/8" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1 1/4" O.D. X 3/8" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE 3/8" X 2 1/2"

BLOCK BANDING DETAIL  
( V-BLOCK OPTION )

WISCONSIN DEPT OF TRANSPORTATION

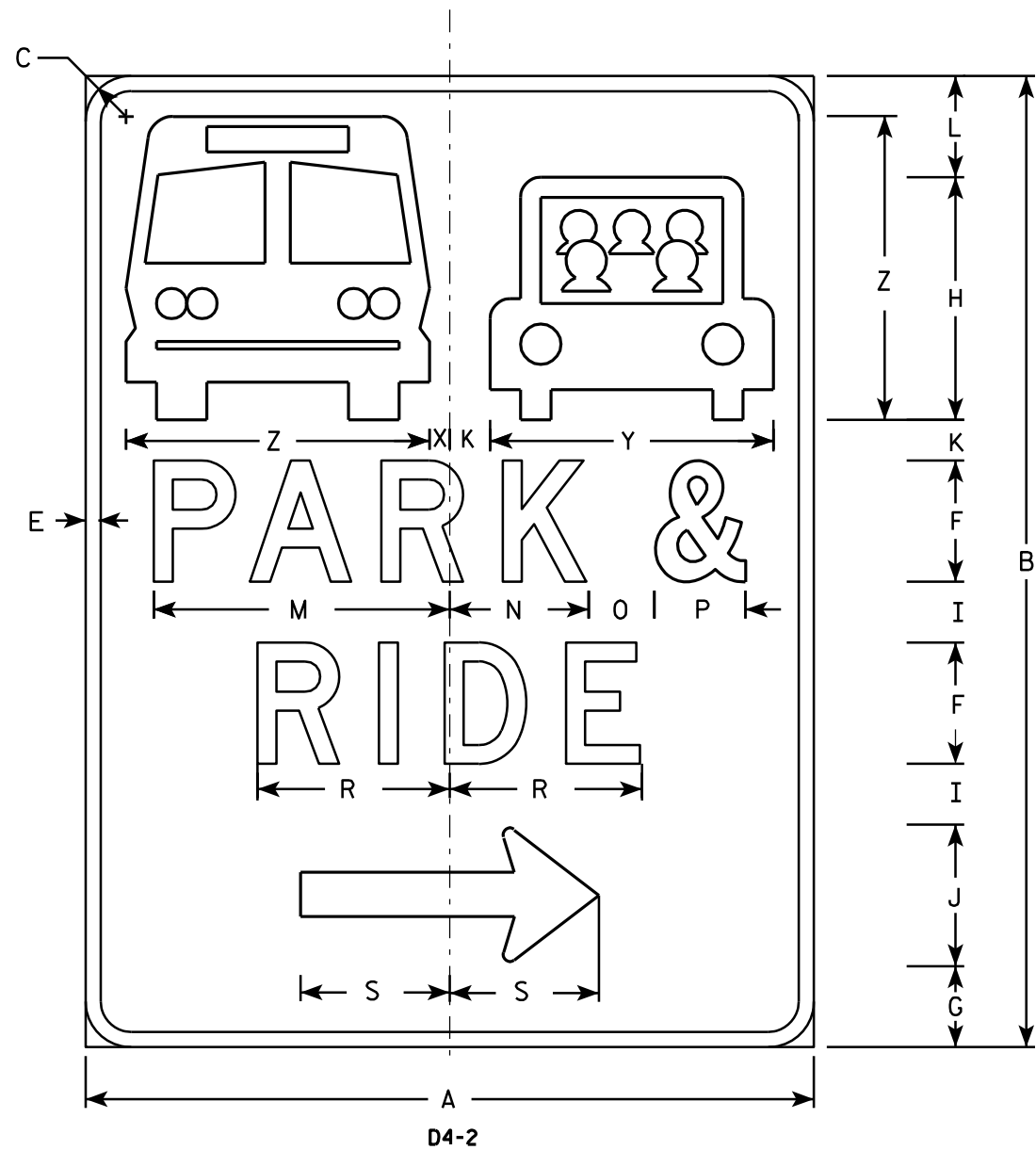
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 7/12/07 PLATE NO. A5-10.1

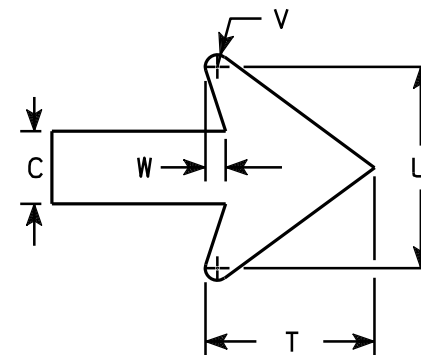
PROJECT NO:

SHEET NO:

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 - Green  
Message - White - Type H Reflective
  3. Message Series - D
  4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
  5. The D4-2L is the same as a D4-2R except the arrow is reversed.
  6. The D4-2 sign may have either symbol or both symbols at the same time.



Arrow Detail

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	24	30	1 1/8		1/2	4	1 5/8	7 1/2	1 1/2	4 5/8	1 3/8	3 7/8	9 3/4	4	2 3/4	3		6 3/8	4 7/8	3 1/2	4 1/8	1/4	3/8	5/8	9 3/8	10	5.0
2	30	36	1 3/8		5/8	5	2	9	1 5/8	5 1/2	1 5/8	4 5/8	12 1/4	5 1/8	3 3/8	3 3/4		8	6 1/8	4 3/8	5 1/4	3/8	1/2	7/8	11 3/4	12 1/2	7.50
3	36	48	2 1/4		3/4	6	4	12	3	7	2	5	14 5/8	6 7/8	3 1/4	4 1/2		9 1/2	7 1/2	5 1/4	6 1/4	3/8	5/8	1	14	15	12.0
4																											
5																											

PROJECT NO:				SHEET NO:	E
-------------	--	--	--	-----------	---

STANDARD SIGN  
D4-2

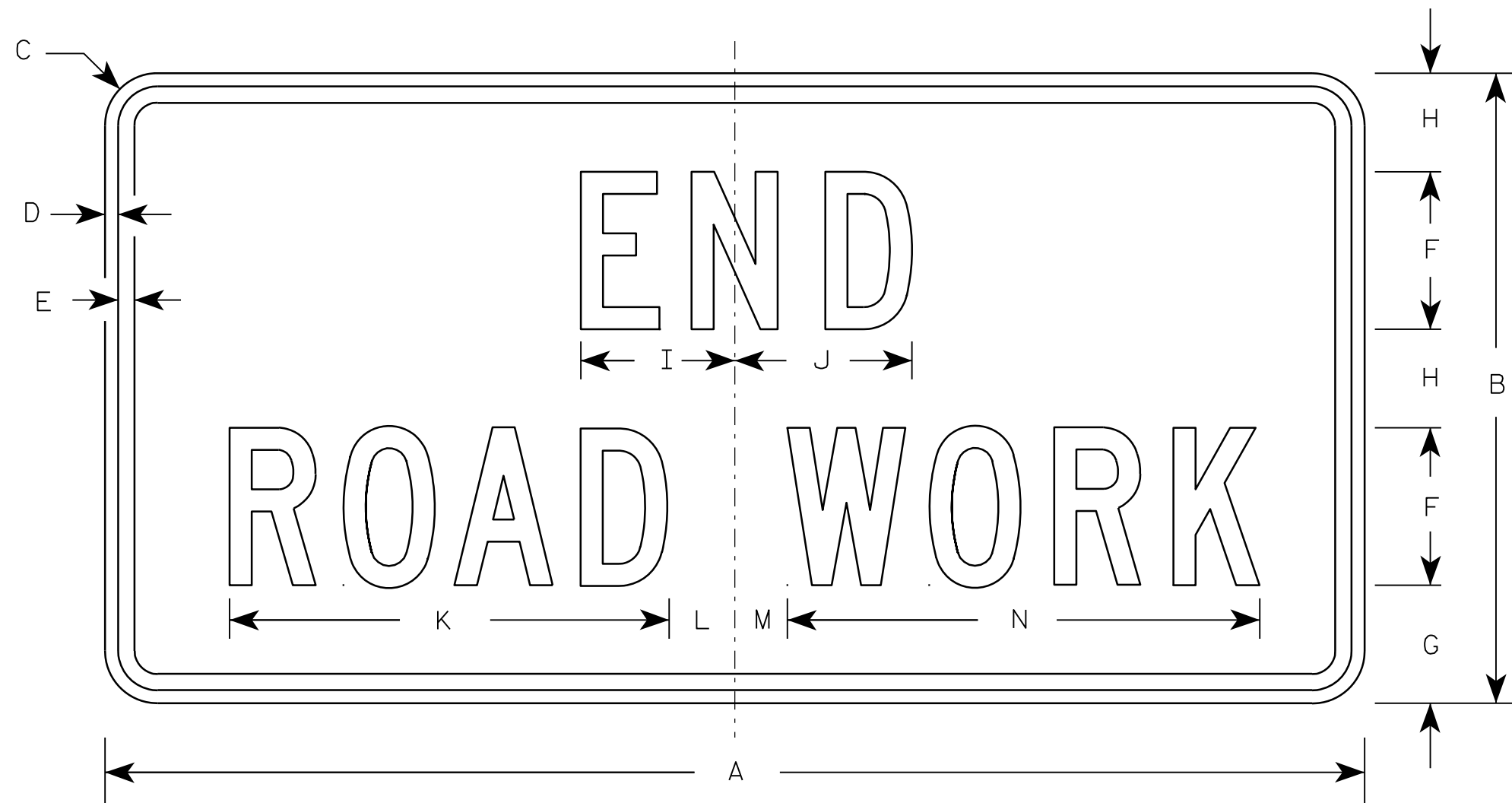
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 12/20/10 PLATE NO. D4-2.5



7



G20-2A

NOTES

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

Metric equivalent  
for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 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 <sup>2</sup>
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

STANDARD SIGN  
G20-2A

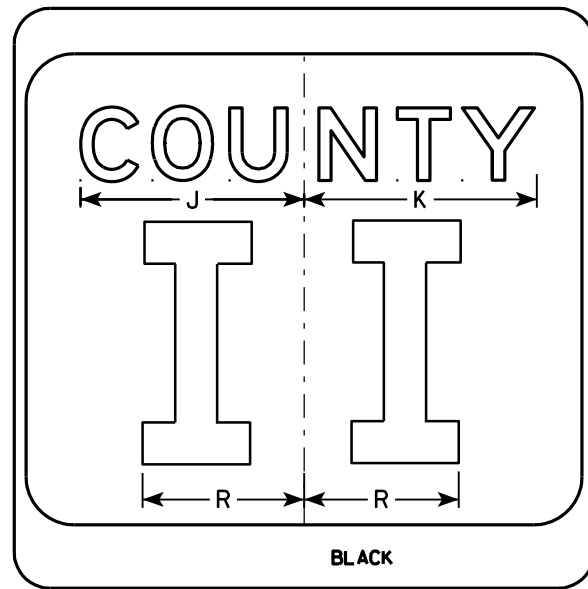
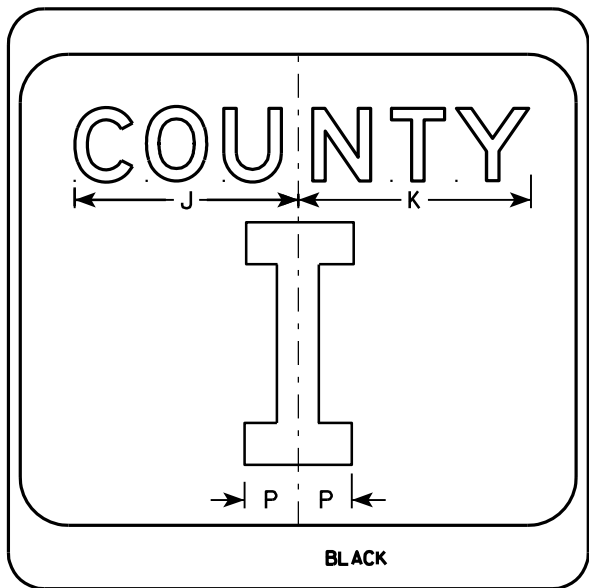
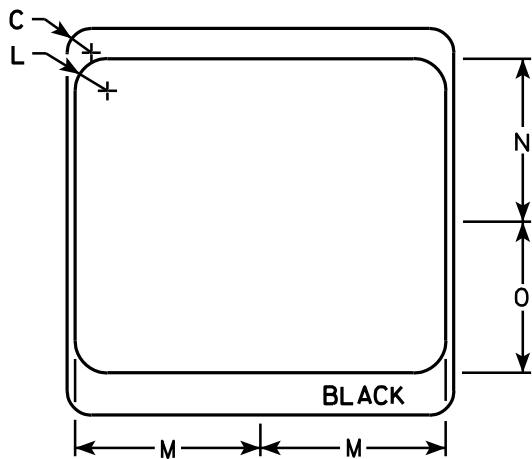
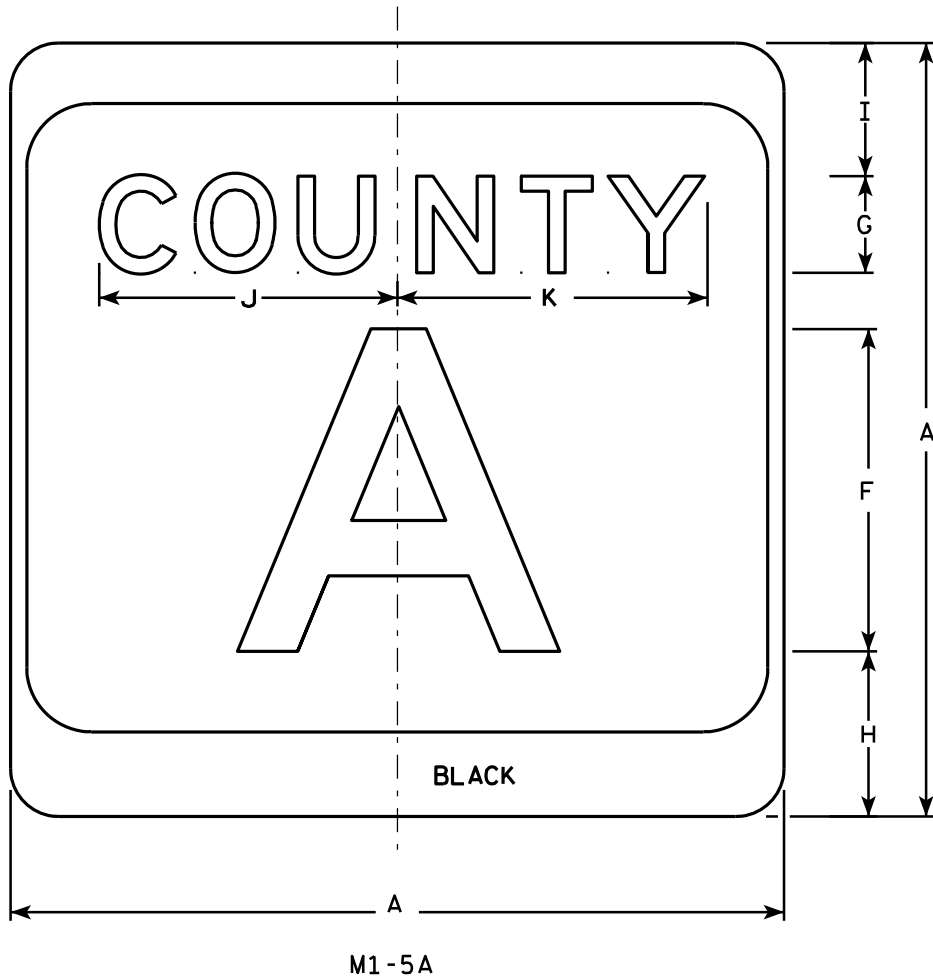
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 9/30/09 PLATE NO. G20-2A.8

7

7



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	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

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:

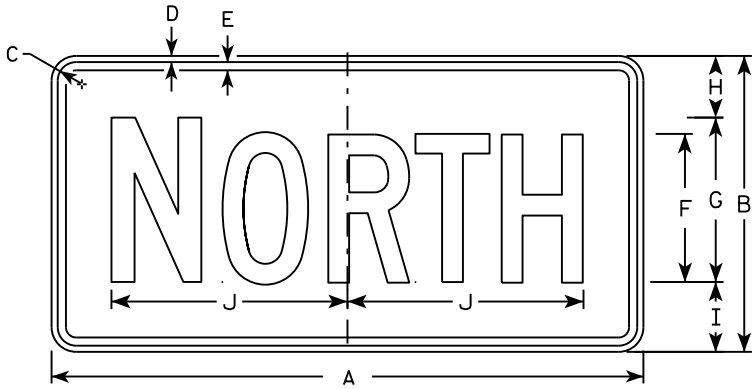
HWY:

COUNTY:

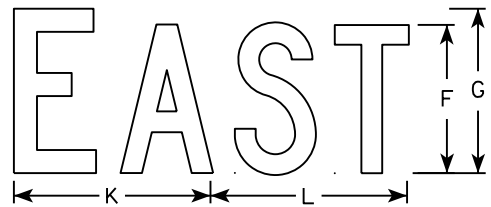
SHEET NO:

E

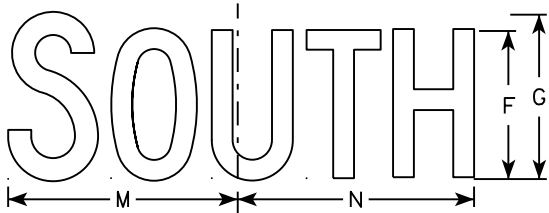
7



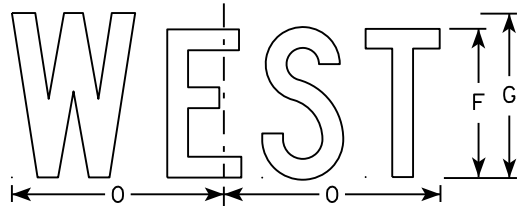
M3-1  
MM3-1  
MP3-1



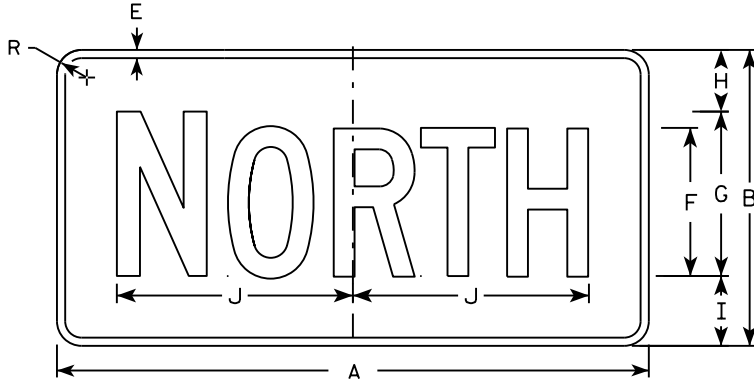
M3-2  
MM3-2  
MP3-2



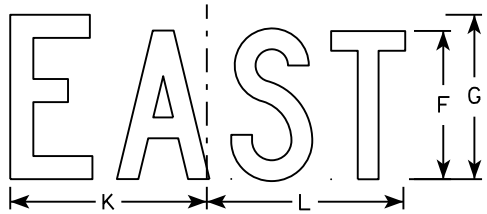
M3-3  
MM3-3  
MP3-3



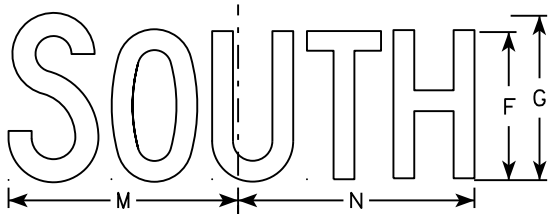
M3-4  
MM3-4  
MP3-4



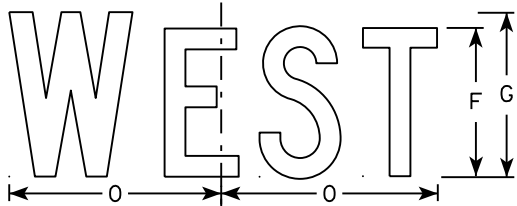
MB3-1  
MK3-1  
MN3-1



MB3-2  
MK3-2  
MN3-2



MB3-3  
MK3-3  
MN3-3



MB3-4  
MK3-4  
MN3-4

NOTES

1. All Signs Type II - Type H
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. M3-1 thru M3-4 Background - White  
Message - Black  
MB3-1 thru MB3-4 Background - Blue  
Message - White  
MK3-1 thru MK3-4 Background - Green  
Message - White  
MM3-1 thru MM3-4 Background - White  
Message - Green  
MN3-1 thru MN3-4 Background - Brown  
Message - White  
MP3-1 thru MP3-4 Background - White  
Message - Blue
6. Note the first letter of each direction is larger than the remainder of the message.

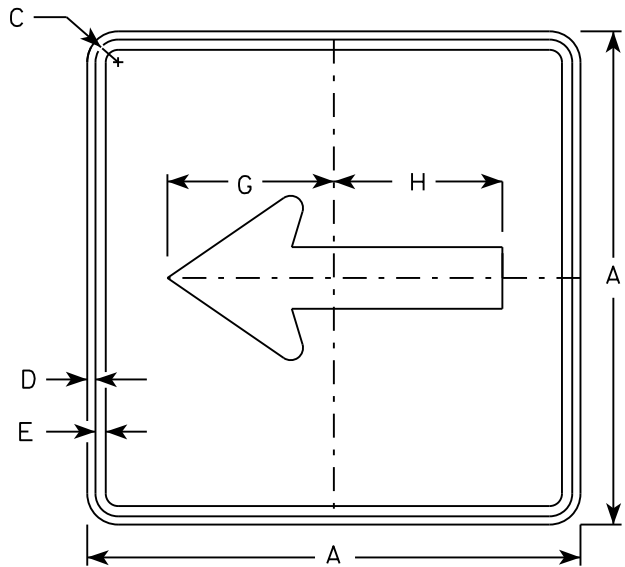
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS  
M3-1 thru M3-4  
SERIES

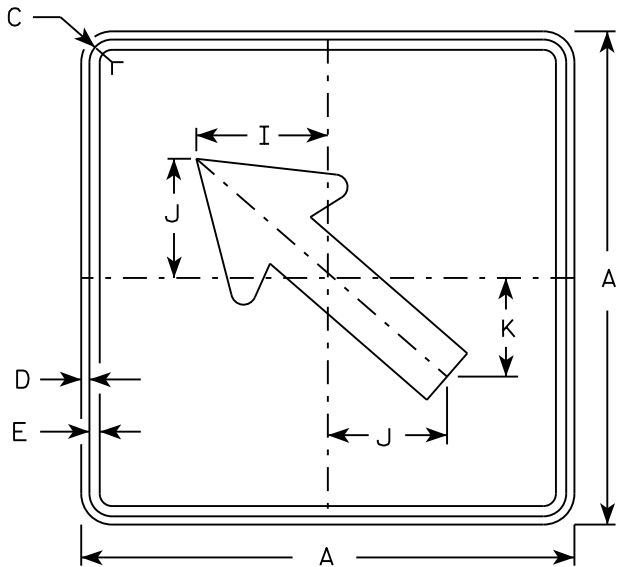
WISCONSIN DEPT OF TRANSPORTATION

APPROVED  
*Matthew R. Rauch*  
for State Traffic Engineer

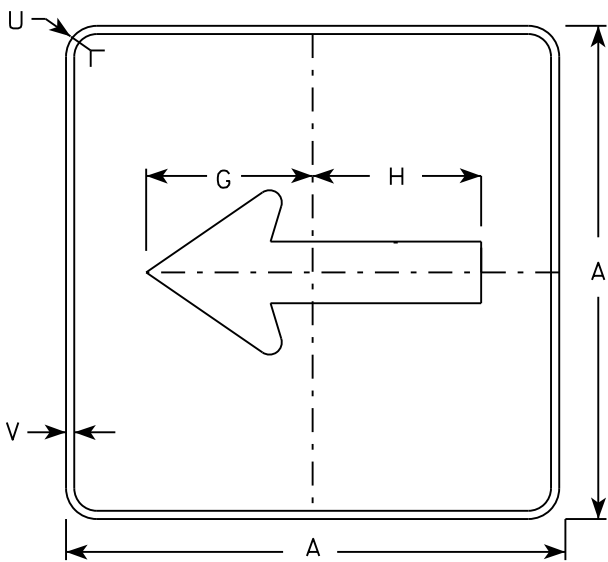
DATE 10/15/15 PLATE NO. M3-1.14



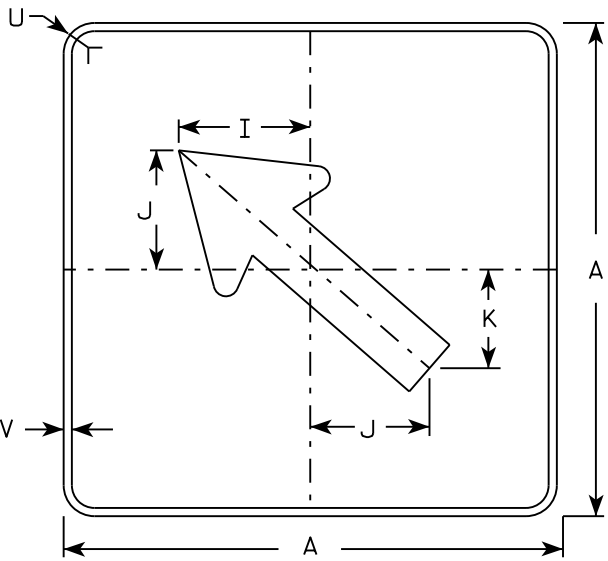
M6 - 1  
MM6 - 1  
M06 - 1  
MP6 - 1



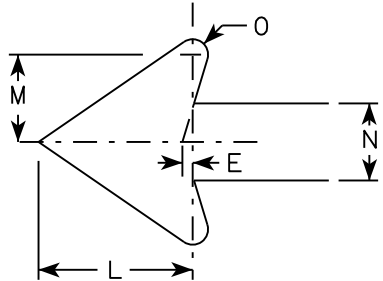
M6 - 2  
MM6 - 2  
M06 - 2  
MP6 - 2



MB6 - 1  
MK6 - 1  
MN6 - 1  
MR6 - 1



MB6 - 2  
MK6 - 2  
MN6 - 2  
MR6 - 2



NOTES

- Signs are Type II - Type H except as Shown
- Color:  
Background - See note 4  
Message - See note 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.
- M6-1 and M6-2 Background - White  
Message - Black  
MB6-1 and MB6-2 Background - Blue  
Message - White  
MK6-1 and MK6-2 Background - Green  
Message - White  
MM6-1 and MM6-2 Background - White  
Message - Green  
MN6-1 and MN6-2 Background - Brown  
Message - White  
M06-1 and M06-2 Background - Orange - Type F Reflective  
Message - Black  
MP6-1 and MP6-2 Background - White  
Message - Blue  
MR6-1 and MR6-2 Background - Brown  
Message - Yellow

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

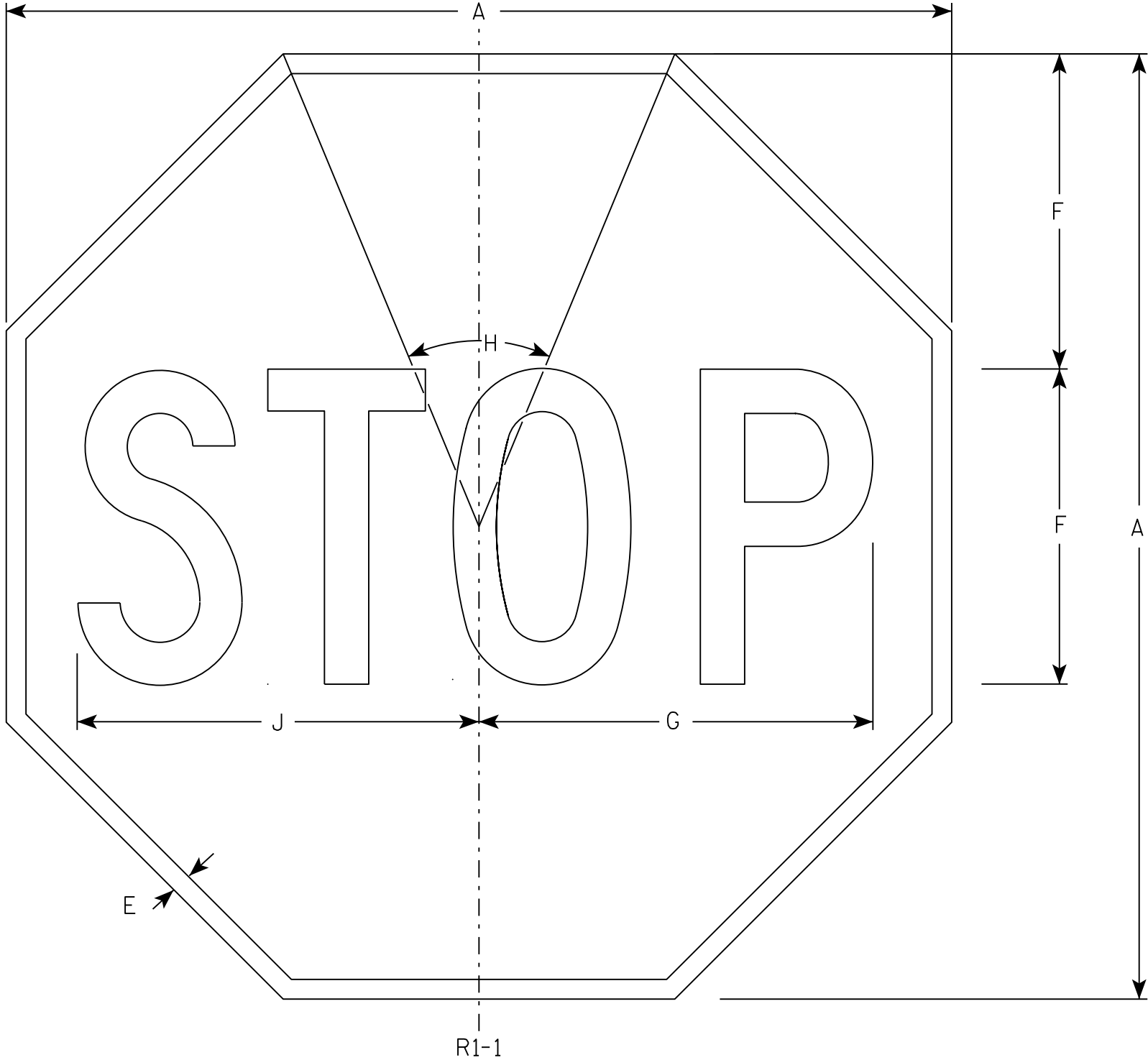
E

STANDARD SIGN  
M6 - 1 & M6 - 2  
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED  
*Matthew R. Rauch*  
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M6-1.15



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

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	30				5/8	10	12 1/2	45°		12 3/4																	5.18
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

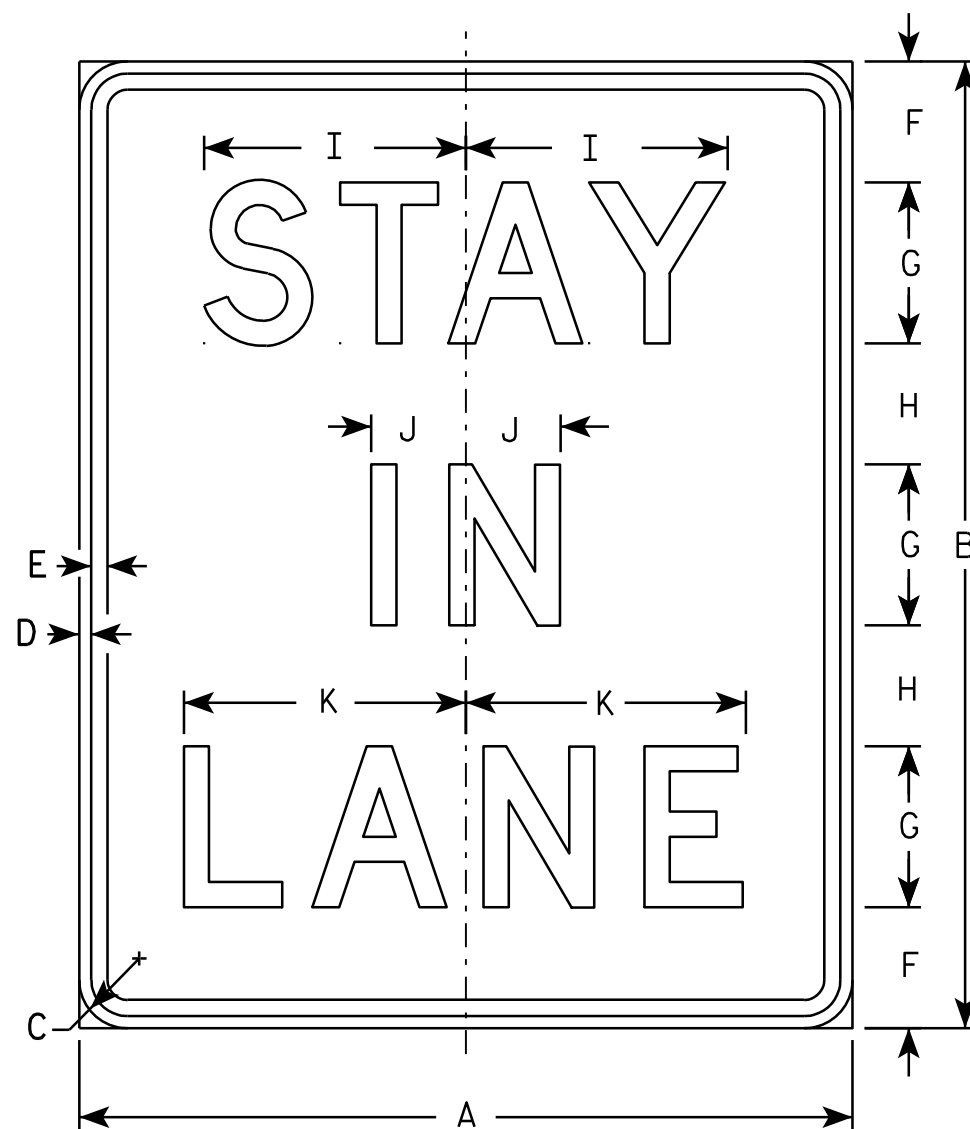
STANDARD SIGN

R1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 11/12/15 PLATE NO. R1-1.13



R4-9

### NOTES

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

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	3/8	3	4	3	6 1/2	2 3/8	7																3.0
2S	24	30	1 1/8	3/8	1/2	3 5/8	5	3 7/8	8 1/8	3	8 3/4																5.0
2M	24	30	1 1/8	3/8	1/2	3 5/8	5	3 7/8	8 1/8	3	8 3/4																5.0
3	36	48	1 3/8	1/2	5/8	8 1/4	7	5 1/4	11 3/8	4 1/8	12 1/4																12.0
4	36	48	1 3/8	1/2	5/8	8 1/4	7	5 1/4	11 3/8	4 1/8	12 1/4																12.0
5	48	60	2 1/4	3/4	1	7 1/2	10	7 1/2	16 1/4	5 7/8	17 1/2																20.0

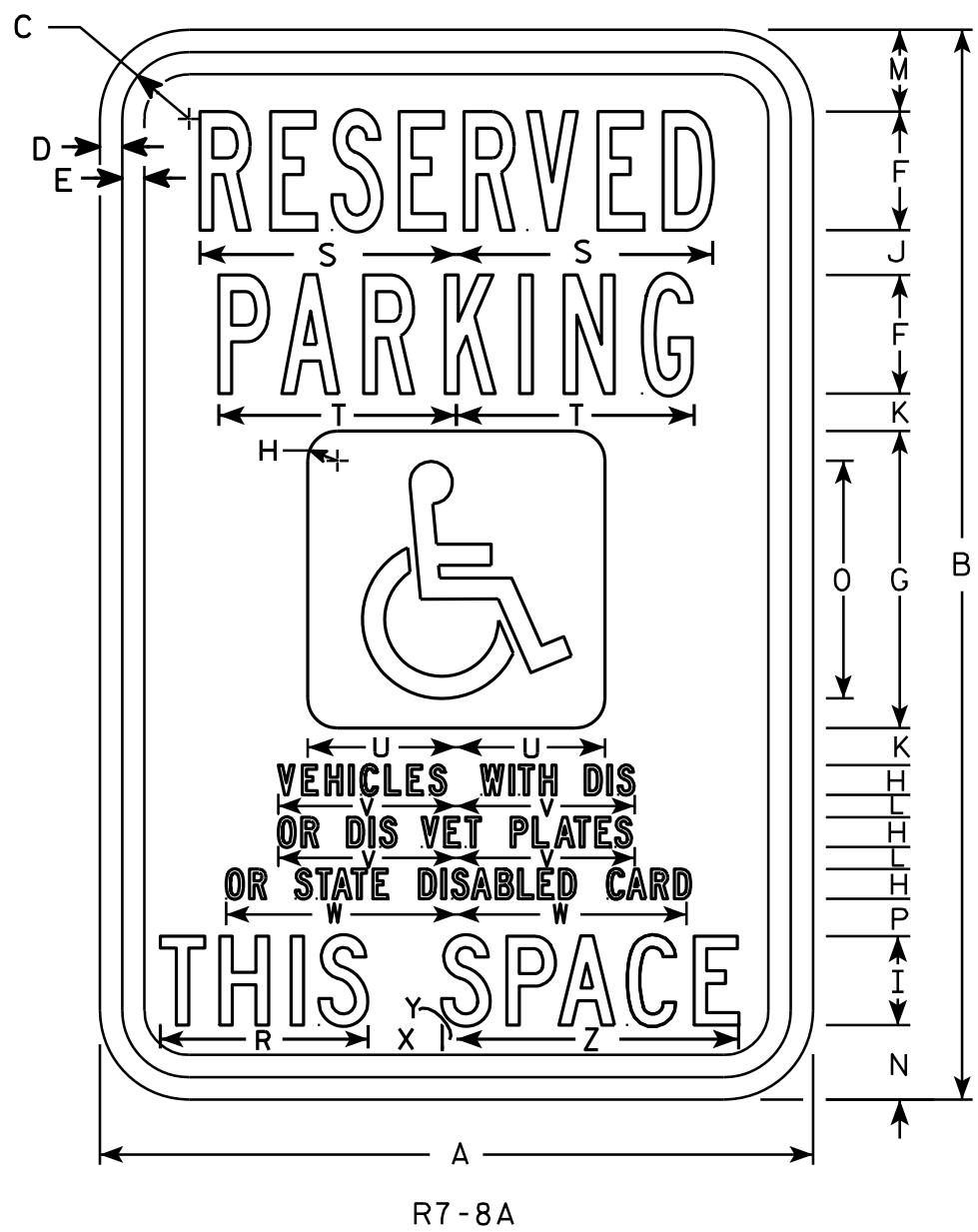
PROJECT NO:				SHEET NO:	E
-------------	--	--	--	-----------	---

### STANDARD SIGN R4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/25/2011 PLATE NO. R4-9.2



NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
  - Background - Sign is white Type H Reflective; paraplegic background is blue.
  - Message - Legend and border are green; paraplegic symbol is white
- 3. Message Series - Lines 1 & 2 are Series B  
Lines 3, 4, 5 & 6 are Series C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	18	1 1/8	3/8	3/8	2	5	1/2	1 1/2	3/4	5/8	3/8	1 3/8	1 1/4	4	5/8		3 1/2	4 3/8	4	2 1/2	3	3 7/8	1 1/4	1/4	4 3/4	1.5
2M	18	24	1 1/8	3/8	1/2	3	6	3/4	2	7/8	5/8	1/2	1 7/8	2	5	3/4		4 5/8	6 1/2	5 3/8	3	4 1/2	5 7/8	1 1/2	1/4	6 3/8	3.0
3	18	24	1 1/8	3/8	1/2	3	6	3/4	2	7/8	5/8	1/2	1 7/8	2	5	3/4		4 5/8	6 1/2	5 3/8	3	4 1/2	5 7/8	1 1/2	1/4	6 3/8	3.0
4																											
5																											

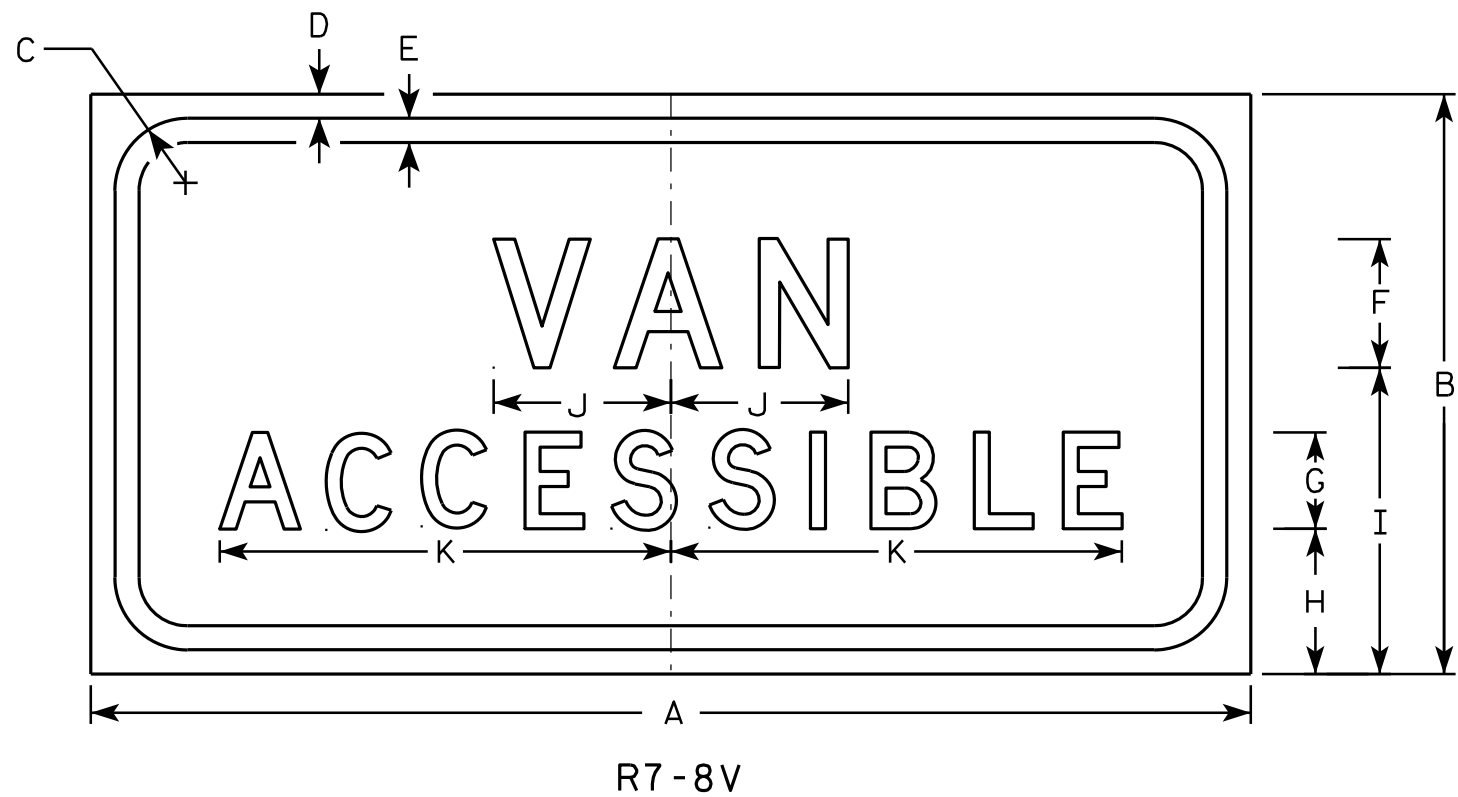
STANDARD SIGN  
R7-8A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 4/25/2011 PLATE NO. R7-8A.6

7



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 - Green - Type H Reflective
- 3. Message Series - D
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	6	1 1/8	3/8	3/8	1 1/2	1	1 5/8	3 1/2	2	4 1/4																0.50
2M	18	9	1 1/8	3/8	3/8	2	1 1/2	2 1/4	4 3/4	2 3/4	7																0.75
3	18	9	1 1/8	3/8	3/8	2	1 1/2	2 1/4	4 3/4	2 3/4	7																0.75
4																											
5																											

STANDARD SIGN

R7-8V

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/31/2011 PLATE NO. R7-8V.5

PROJECT NO:

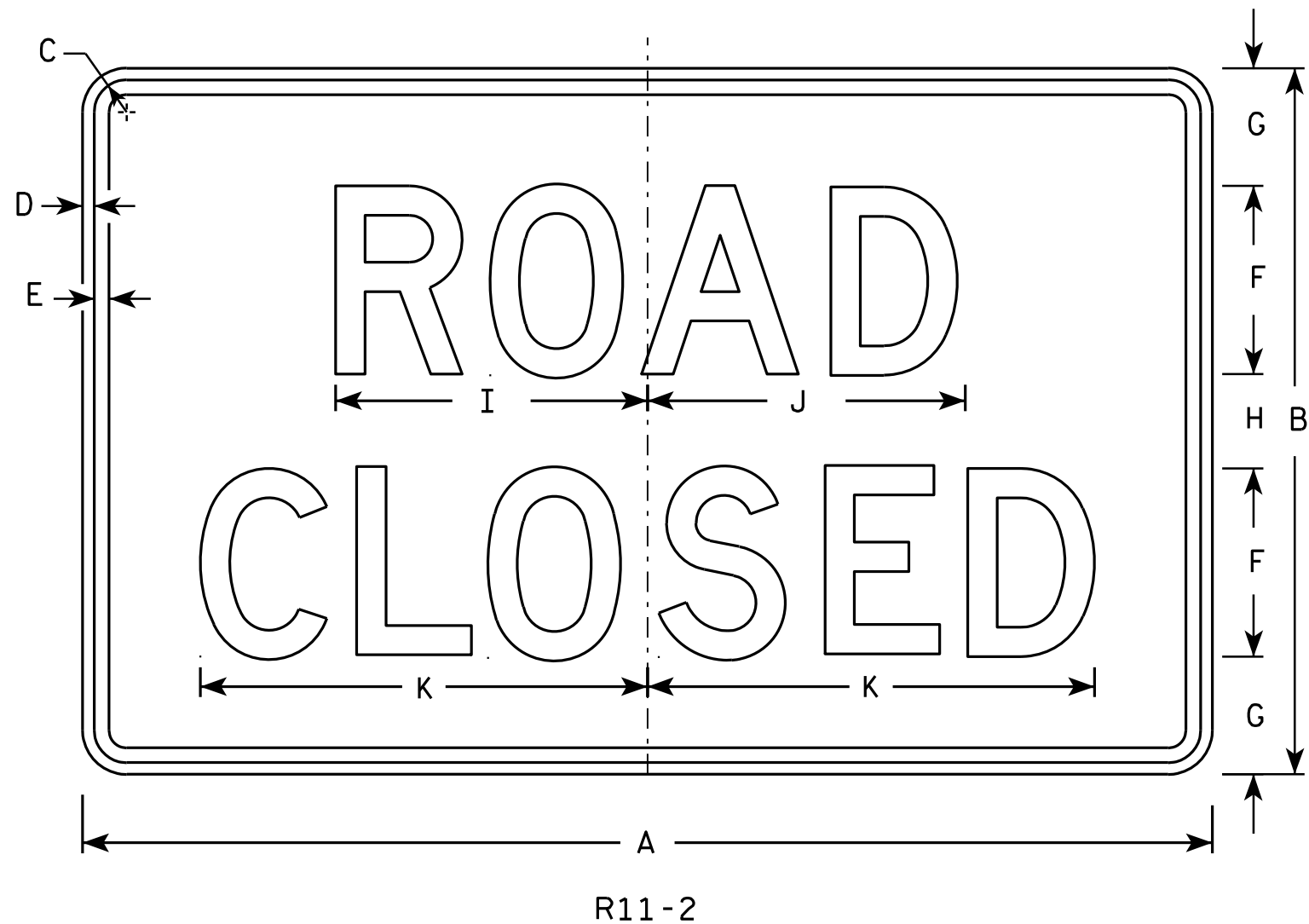
HWY:

COUNTY:

SHEET NO:

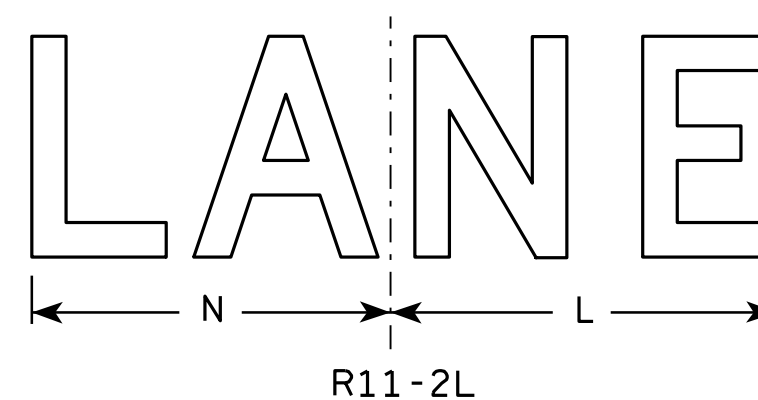
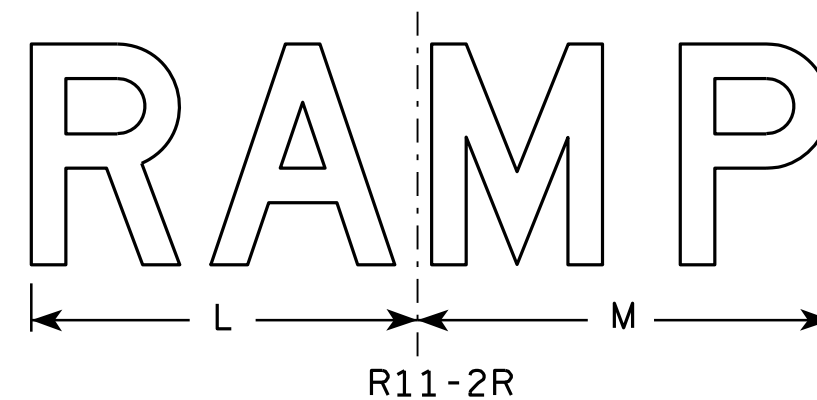
E





### NOTES

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

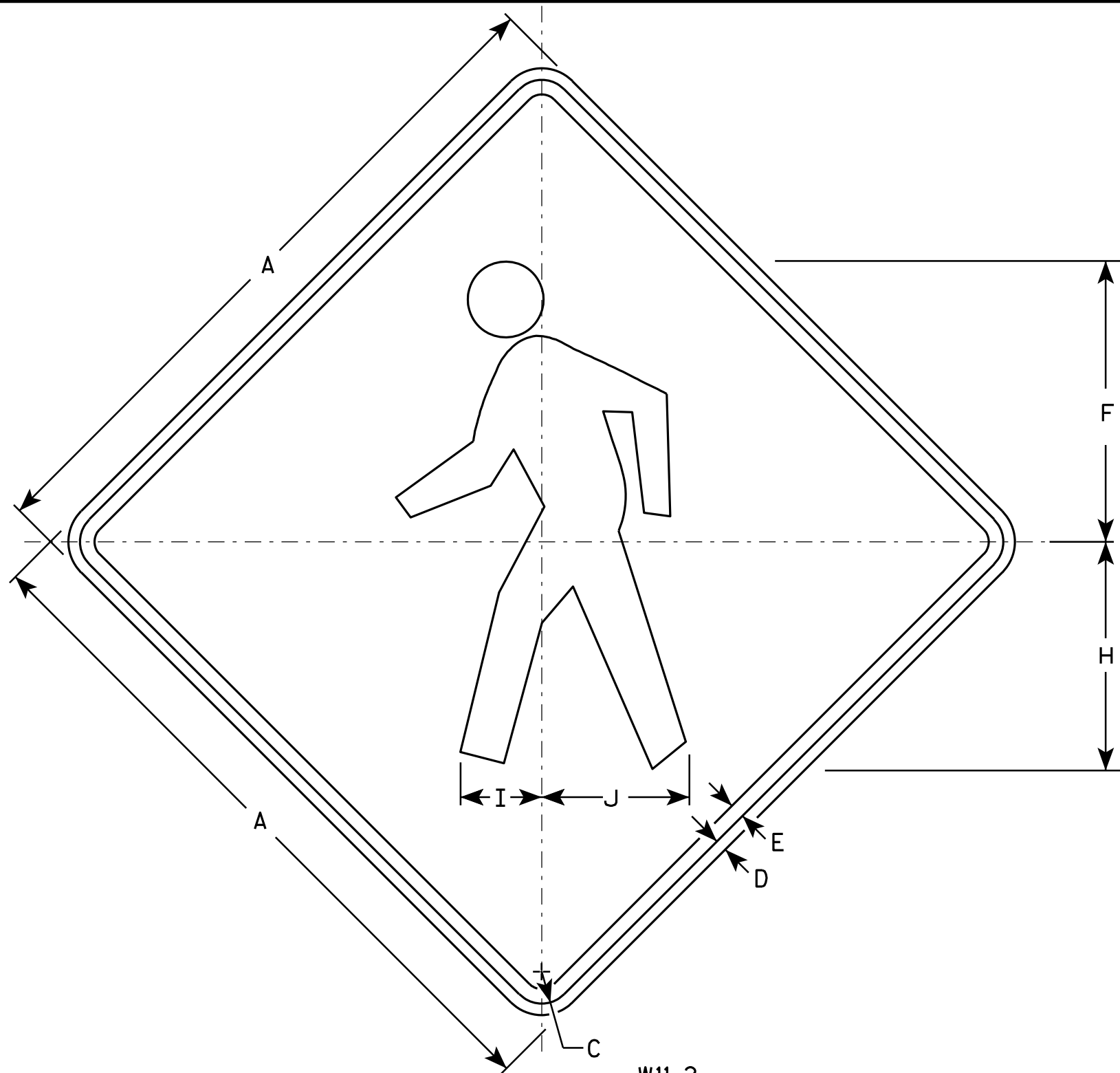


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0
2M	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0
3	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13				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

### STANDARD SIGN R11-2

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

PROJECT NO: HWY: COUNTY: SHEET NO: E



W11-2

# NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	9 3/4		7 7/8	2 7/8	5 1/8																	4.0
2S	30		1 3/8	1/2	5/8	12 1/8		9 7/8	3 1/2	6 3/8																	6.25
2M	36		1 5/8	5/8	3/4	14 1/2		11 7/8	4 1/4	7 5/8																	9.0
3	36		1 5/8	5/8	3/4	14 1/2		11 7/8	4 1/4	7 5/8																	9.0
4	48		2 1/4	3/4	1	19 3/8		15 3/4	5 5/8	10 1/4																	16.0
5																											

## STANDARD SIGN W11-2

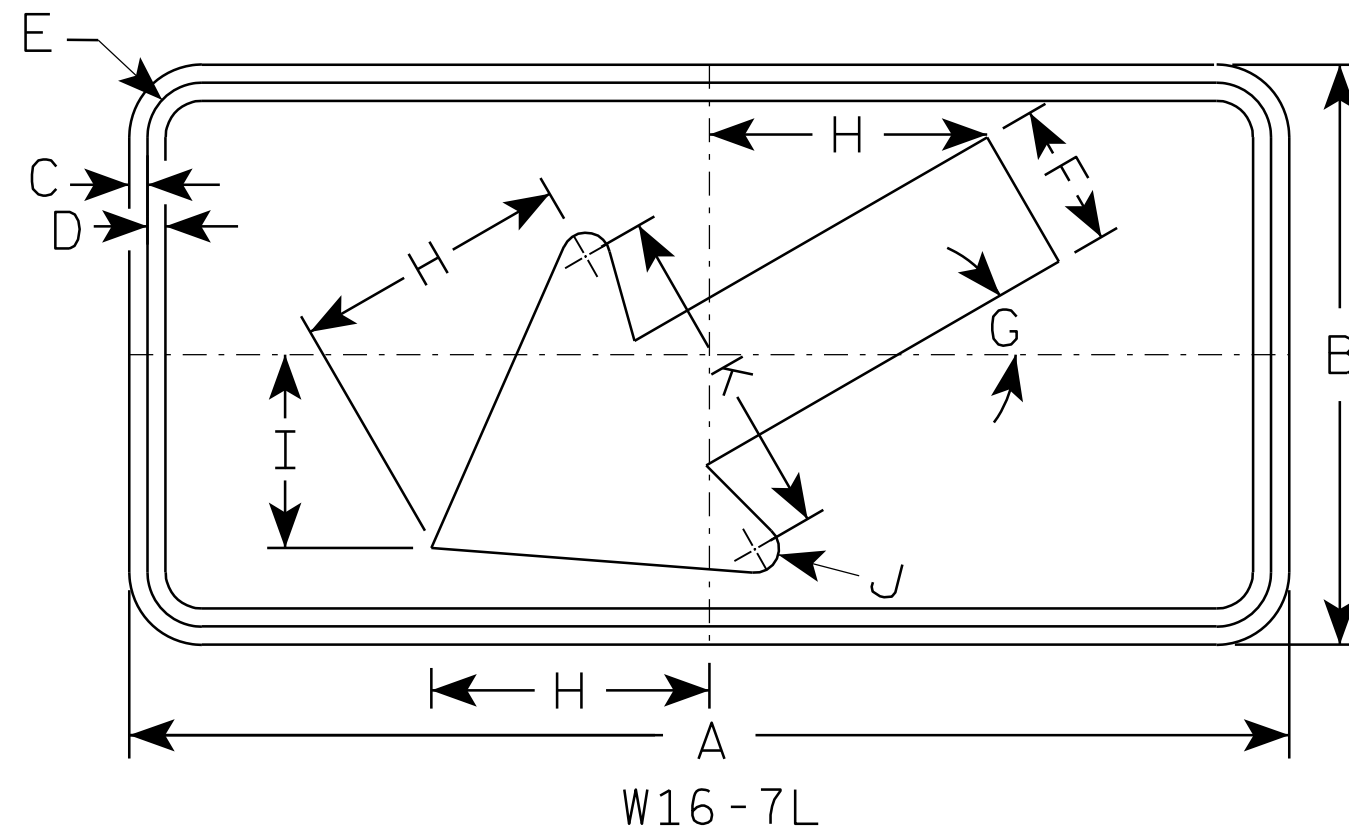
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer  
DATE 6/7/10 PLATE NO. W11-2.7

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
-------------	------	---------	-----------	---

NOTES

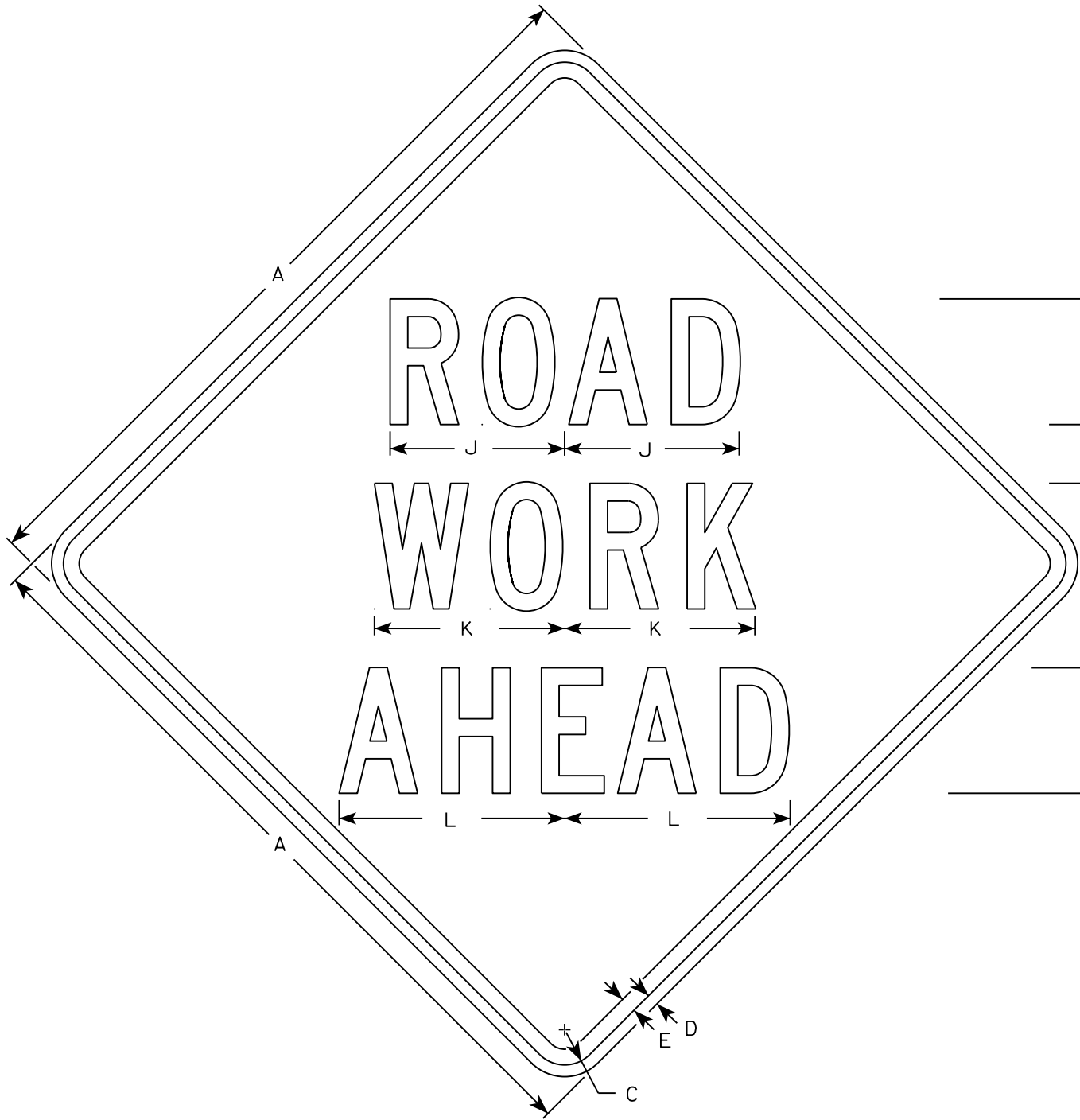
1. Sign is Type II - Type F Reflective -  
reference WIS DOT Standard Specification for  
HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Yellow  
Message - Black
3. Corners may be square or rounded when base  
material is plywood but borders shall be rounded  
as shown. When base material is metal, the  
corners and borders shall be rounded.
4. W16-7R is the same as W16-L  
except the arrow is reversed along  
the vertical centerline.



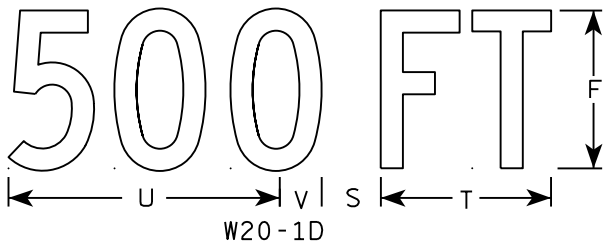
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	12	3/8	3/8	1 1/8	3	30°	5 3/4	4	1/2	7																2.0
2M	30	18	3/8	1/2	1 1/8	4 1/2	30°	8 1/2	6	5/8	10 1/4																3.75
3	30	18	3/8	1/2	1 1/8	4 1/2	30°	8 1/2	6	5/8	10 1/4																3.75
4																											8
5																											8

STANDARD SIGN	
W16-7	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 11/02/10	PLATE NO. W16-7.5

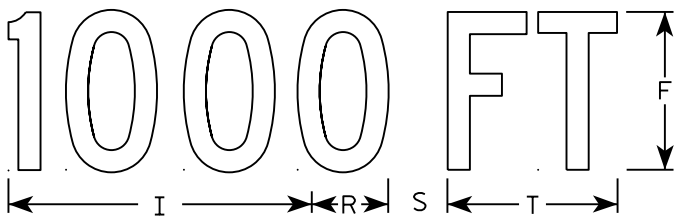
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
-------------	------	---------	-----------	---



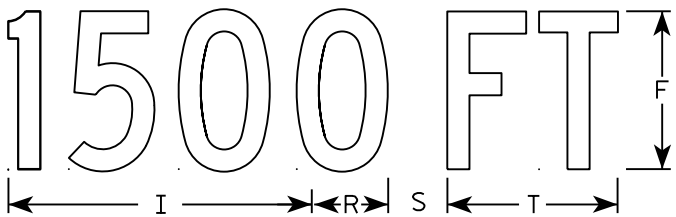
W20-1A



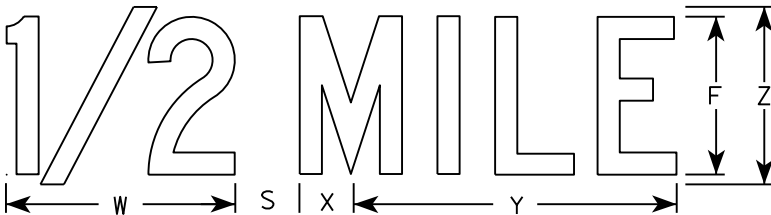
W20-1D



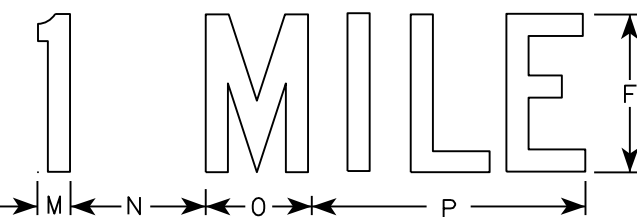
W20-1C



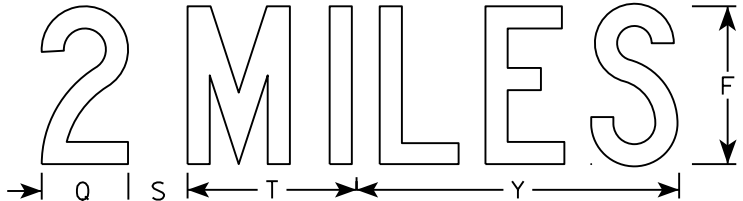
W20-1B



W20-1G



W20-1F



W20-1E

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:  
Background - Orange  
Message - Black
- 3. Message Series - C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

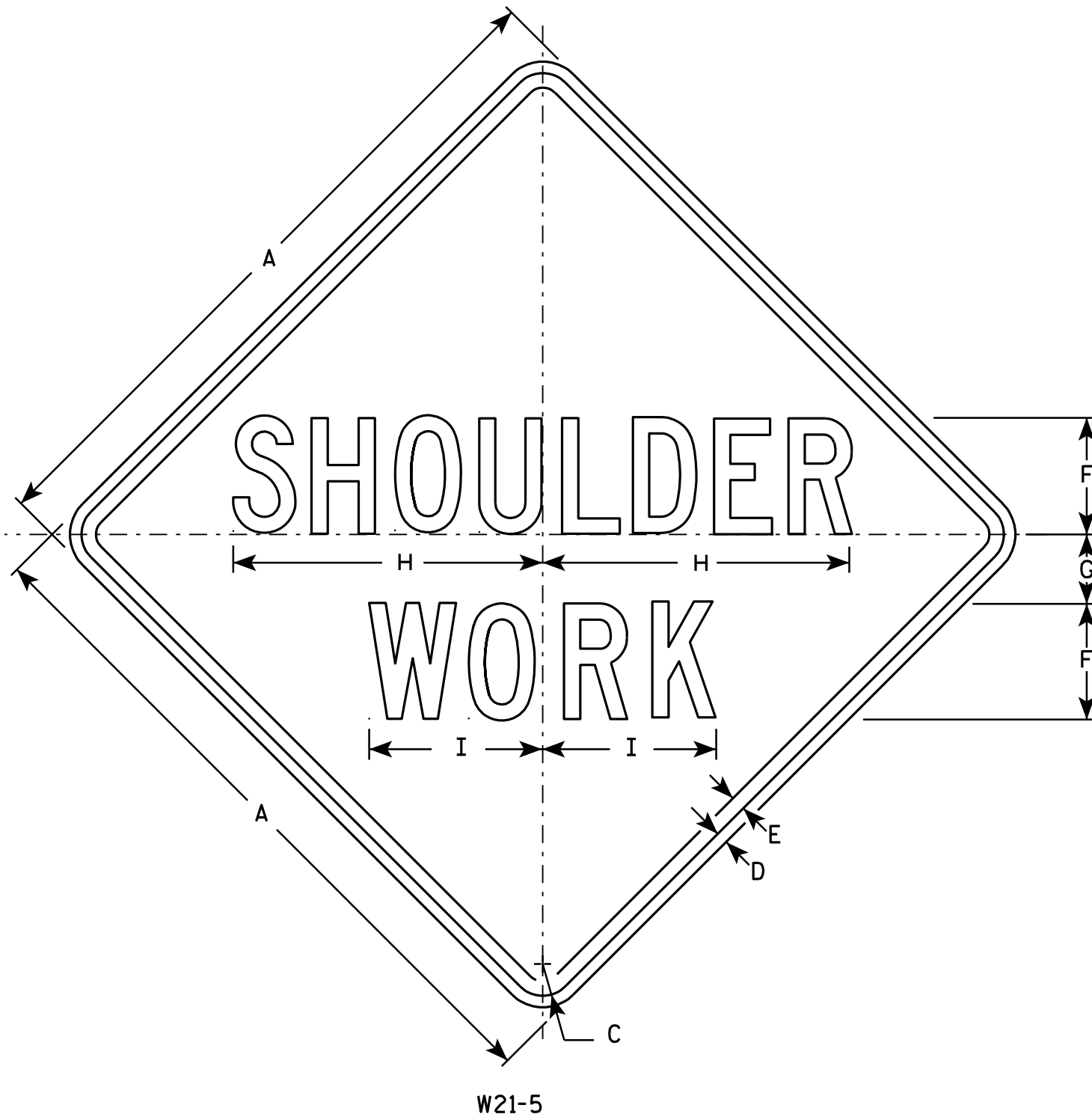
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	1/2	5/8	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9		2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13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

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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 5/07/15 PLATE NO. W20-1.10



### NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	4	2 1/2	10 3/4	6																		4.0
2S	30		1 3/8	1/2	5/8	5	3	13 3/8	7 1/2																		6.25
2M	30		1 3/8	1/2	5/8	5	3	13 3/8	7 1/2																		6.25
3	36		1 5/8	5/8	3/4	6	3 1/2	16	9																		9.0
4	48		2 1/4	3/4	1	8	5	21 3/8	11 1/4																		16.0
5	48		2 1/4	3/4	1	8	5	21 3/8	11 1/4																		16.0

### STANDARD SIGN

W21-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer  
DATE 3/21/11 PLATE NO. W21-5.5

PROJECT NO:

HWY:

COUNTY:

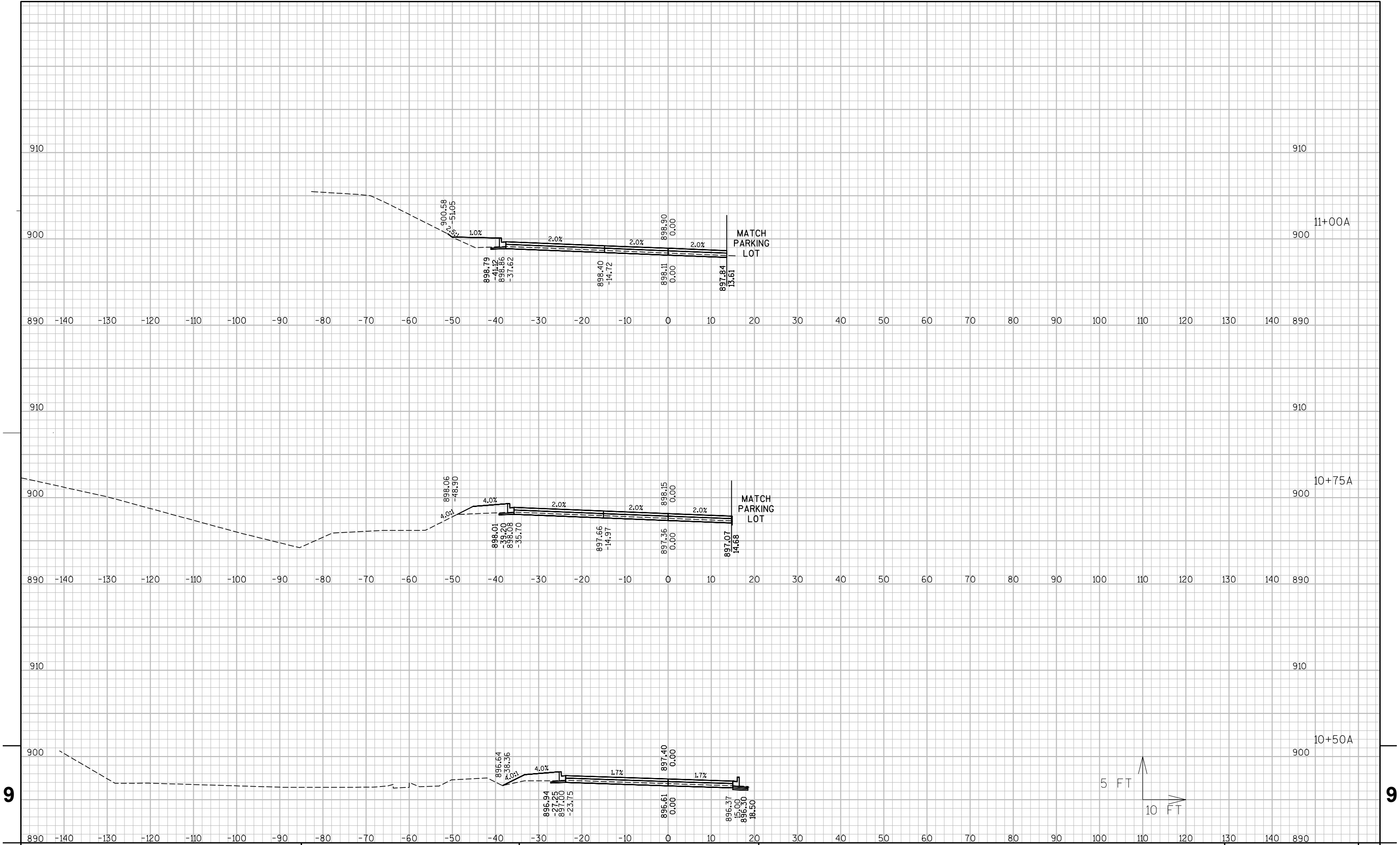
SHEET NO:

E

CTH P PARK AND RIDE LOT									
STATION	Distance	Area			Incremental Volume (Unadjusted)		Cumulative Vol		Mass Ordinate
		Cut	Fill	Marsh Exc	Cut	Fill	Expanded		
							Cut 1.00	Fill 1.25	
		(SF)	(SF)	(SF)	(CY)	(CY)	(CY)	(CY)	
10+40		0.0	0.0	0.0					
10+50	10	14.3	0.0	0.0	3	0	3	0	3
10+75	25	13.5	7.0	0.0	13	3	16	4	11
11+00	25	14.1	7.2	0.0	13	7	28	12	16
11+25	25	9.3	14.5	0.0	11	10	39	25	14
11+50	25	8.5	0.9	0.0	8	7	47	34	14
11+75	25	6.6	7.1	0.0	7	4	54	38	16
12+00	25	26.1	11.9	0.0	15	9	70	50	20
12+25	25	30.4	3.7	0.0	26	7	96	59	37
12+50	25	28.2	17.5	0.0	27	10	123	71	52
12+75	25	30.4	6.4	0.0	27	11	150	85	65
13+00	25	30.4	6.4	0.0	28	6	178	92	86
13+25	25	30.4	6.4	0.0	28	6	206	99	107
13+50	25	30.4	6.4	0.0	28	6	234	107	127
13+75	25	30.4	6.4	0.0	28	6	262	114	148
14+00	25	25.4	22.0	0.0	26	13	288	131	157
14+25	25	20.2	40.9	0.0	21	29	309	167	142
14+50	25	36.0	4.7	0.0	26	21	335	194	142
14+75	25	32.8	3.7	0.0	32	4	367	198	169
15+00	25	32.8	3.7	0.0	30	3	397	203	195
15+25	25	22.3	15.4	0.0	26	9	423	214	209
15+50	25	10.4	15.1	0.0	15	14	438	231	207
15+75	25	9.9	6.4	0.0	9	10	448	244	204
16+00	25	7.9	0.0	0.0	8	3	456	248	208
16+24	24	32.0	0.0	0.0	18	0	473	248	226
TOTAL					473	198			

MAINTENANCE RAMP								
STATION	Distance	Area		Incremental Volume (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
		Cut	Fill	Cut	Fill	Expanded		
						Cut 1.00 (CY)	Fill 1.25 (CY)	
20+18		0.0	15.0					
20+25	7	0.0	8.2	0	3	0	4	-4
20+50	25	15.1	0.0	5	7	5	9	-4
20+75	25	30.1	8.2	21	4	26	14	12
21+00	25	68.3	1.3	46	4	71	19	52
21+25	25	105.1	0.0	80	1	151	20	131
21+50	25	93.4	4.8	92	2	243	23	221
21+70	20	12.9	2.6	40	3	283	26	257
TOTAL				283	24			

SHARED-USE PATH								
STATION	Distance	Area		Incremental Volume (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
		Cut (SF)	Fill (SF)	Cut (CY)	Fill (CY)	Expanded		
						Cut 1.00 (CY)	Fill 1.25 (CY)	
10+58		0.0	0.0					
10+75	17	4.4	0.9	1	0	1	0	1
11+00	25	13.9	0.0	6	0	6	0	5
11+25	25	15.8	0.0	14	0	19	0	19
11+50	25	4.7	31.8	9	15	29	19	10
11+75	25	5.2	34.1	5	31	33	57	-23
12+00	25	4.5	39.7	4	33	33	60	-26
12+25	25	6.6	31.4	5	32	39	98	-59
12+50	25	5.4	25.9	5	30	38	97	-58
12+75	25	5.4	21.0	5	24	44	128	-84
13+00	25	3.8	23.5	5	22	43	124	-81
13+25	25	3.3	19.9	4	20	48	153	-105
13+50	25	4.1	15.3	3	18	46	147	-100
13+75	25	8.4	7.0	5	13	53	169	-116
14+00	25	16.4	0.0	9	7	55	155	-100
14+25	25	7.9	7.0	10	4	63	174	-111
14+50	25	8.7	5.6	10	4	66	160	-95
14+75	25	9.9	4.8	8	5	71	181	-110
15+00	25	11.7	4.1	9	4	75	166	-91
15+25	25	8.1	4.3	9	4	80	186	-106
15+50	25	11.0	0.0	10	3	84	169	-85
15+75	25	11.8	0.1	10	1	90	188	-98
16+00	25	2.1	4.1	8	1	92	171	-78
16+25	25	4.5	2.0	6	2	95	190	-95
16+50	25	5.2	1.6	4	2	96	174	-78
16+75	25	2.5	2.6	4	2	99	192	-93
17+00	25	3.6	1.5	3	2	99	176	-77
17+25	25	3.6	1.5	3	2	102	195	-93
17+50	25	6.9	0.0	4	1	104	177	-73
17+75	25	8.3	0.0	6	0	108	195	-87
18+00	25	9.9	0.0	8	0	111	177	-66
18+25	25	8.6	0.0	8	0	116	195	-79
18+50	25	7.3	0.1	8	0	119	177	-58
18+69	19	0.0	0.0	5	6	38	65	-27
TOTAL				213	289			

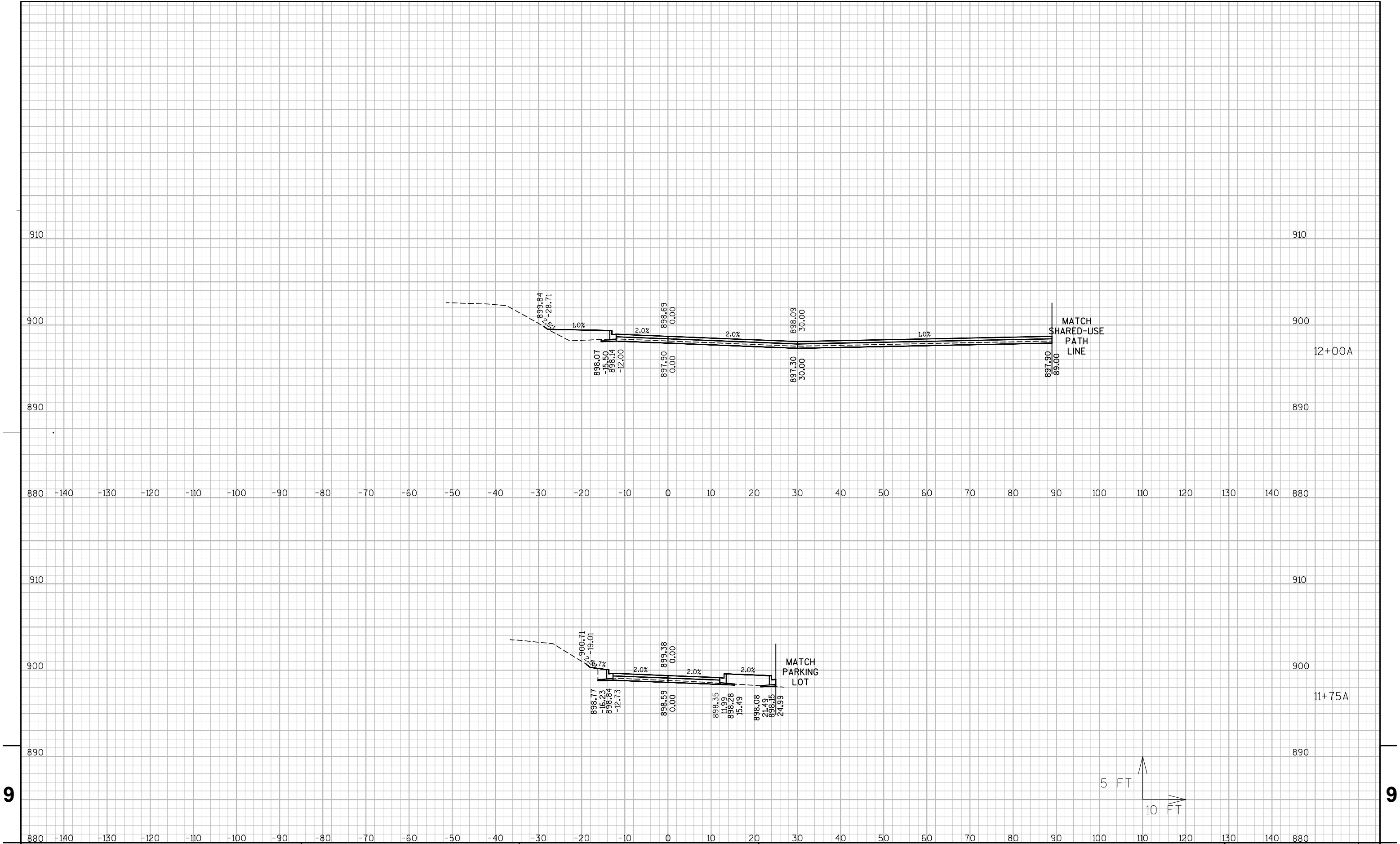


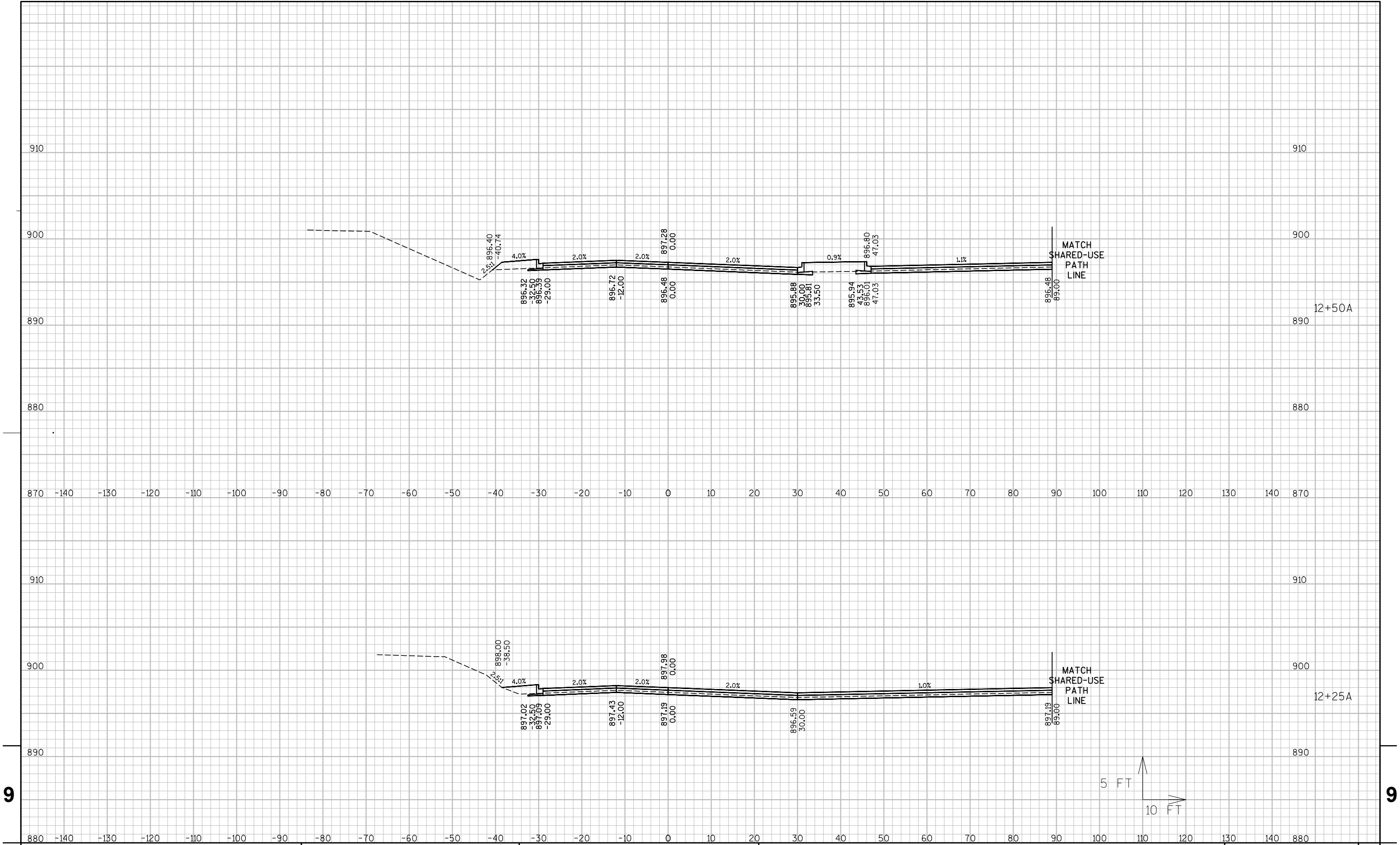
9

9





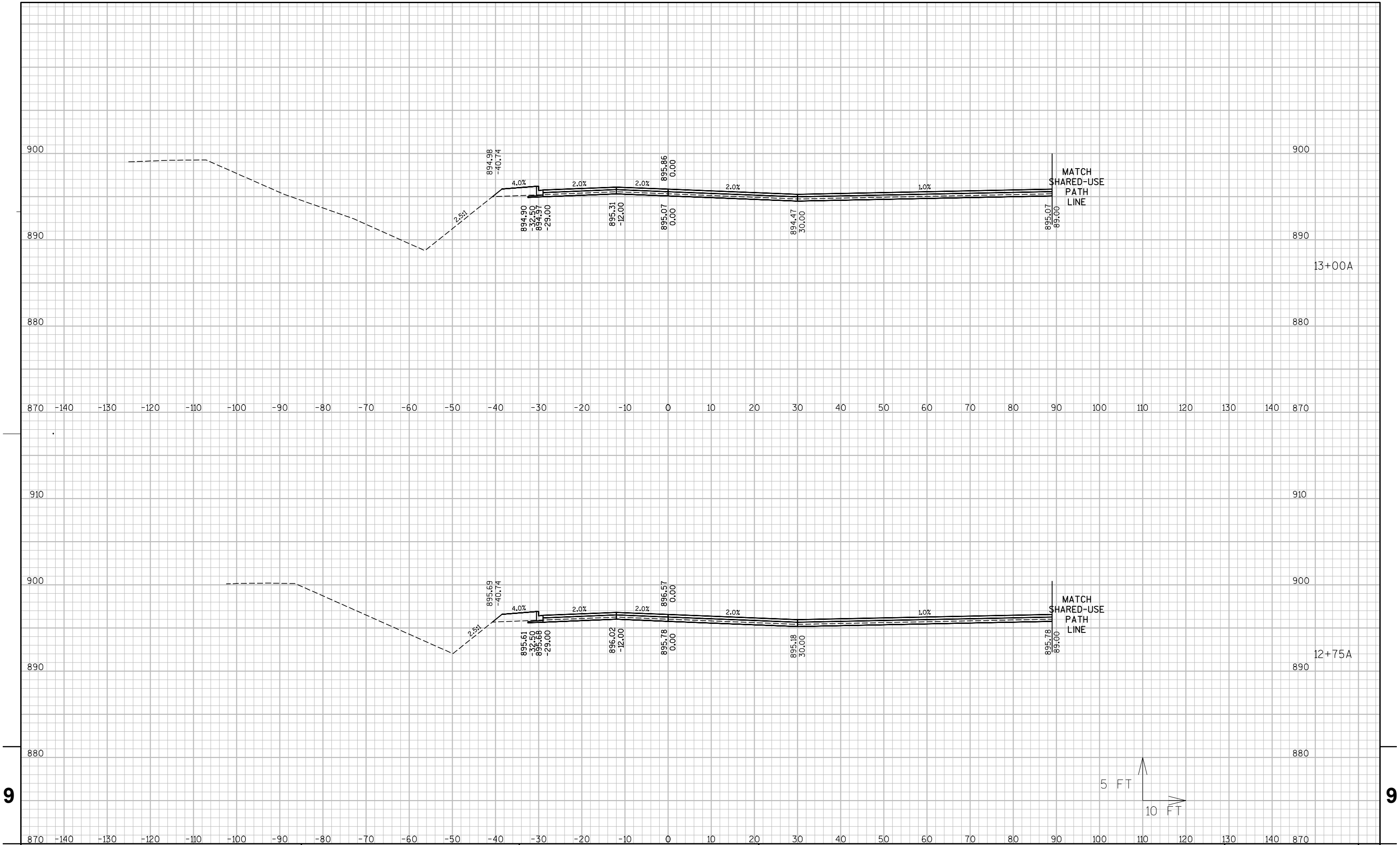




9

9

PROJECT NO:1060-31-71	HWY: IH 94	COUNTY: WAUKESHA	CROSS SECTIONS: ROUTE A	SHEET	E
-----------------------	------------	------------------	-------------------------	-------	---



PROJECT NO:1060-31-71

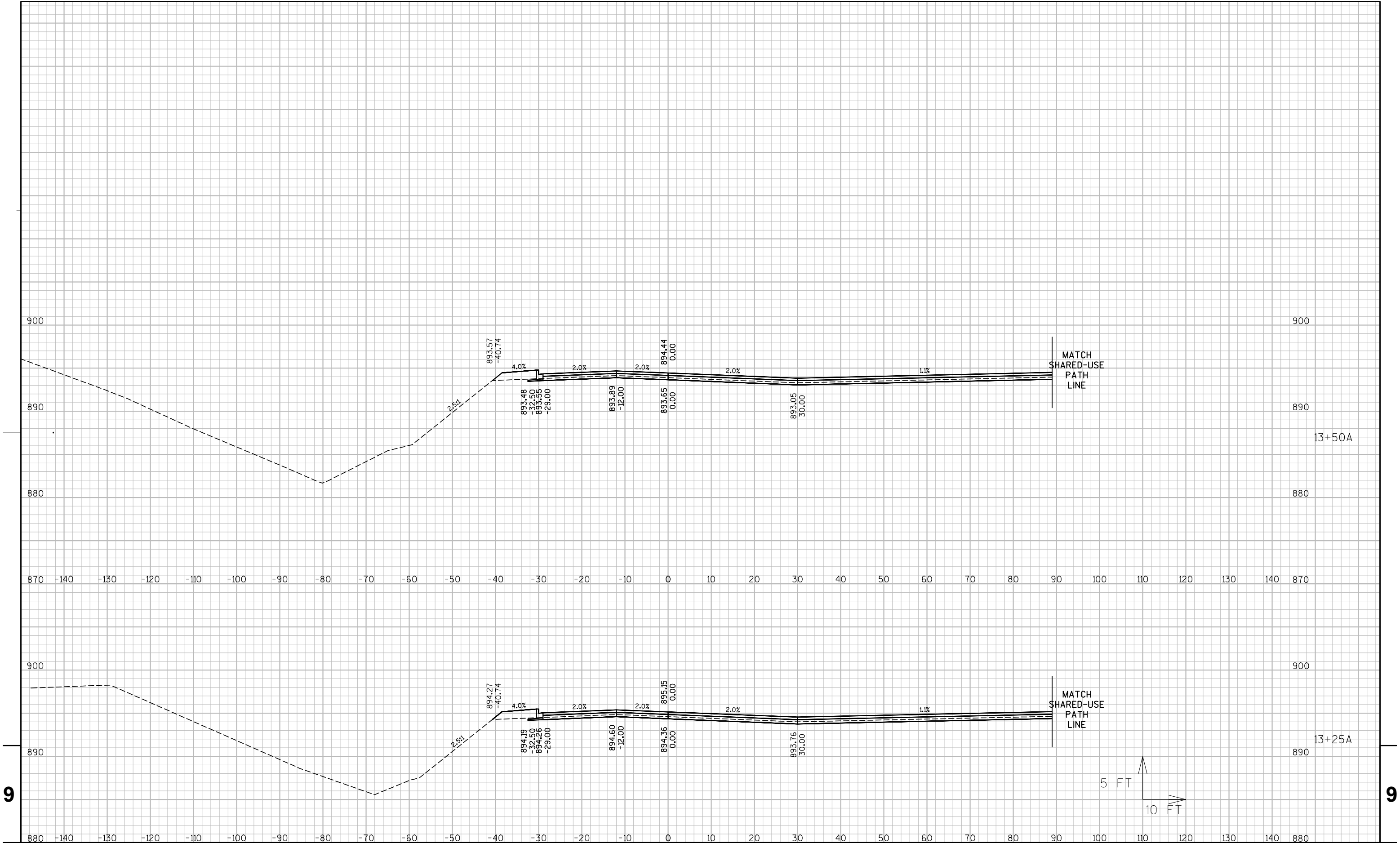
HWY: IH 94

COUNTY: WAUKESHA

CROSS SECTIONS: ROUTE A

SHEET

E



9

9

PROJECT NO:1060-31-71

HWY: IH 94

COUNTY: WAUKESHA

CROSS SECTIONS: ROUTE A

SHEET

E

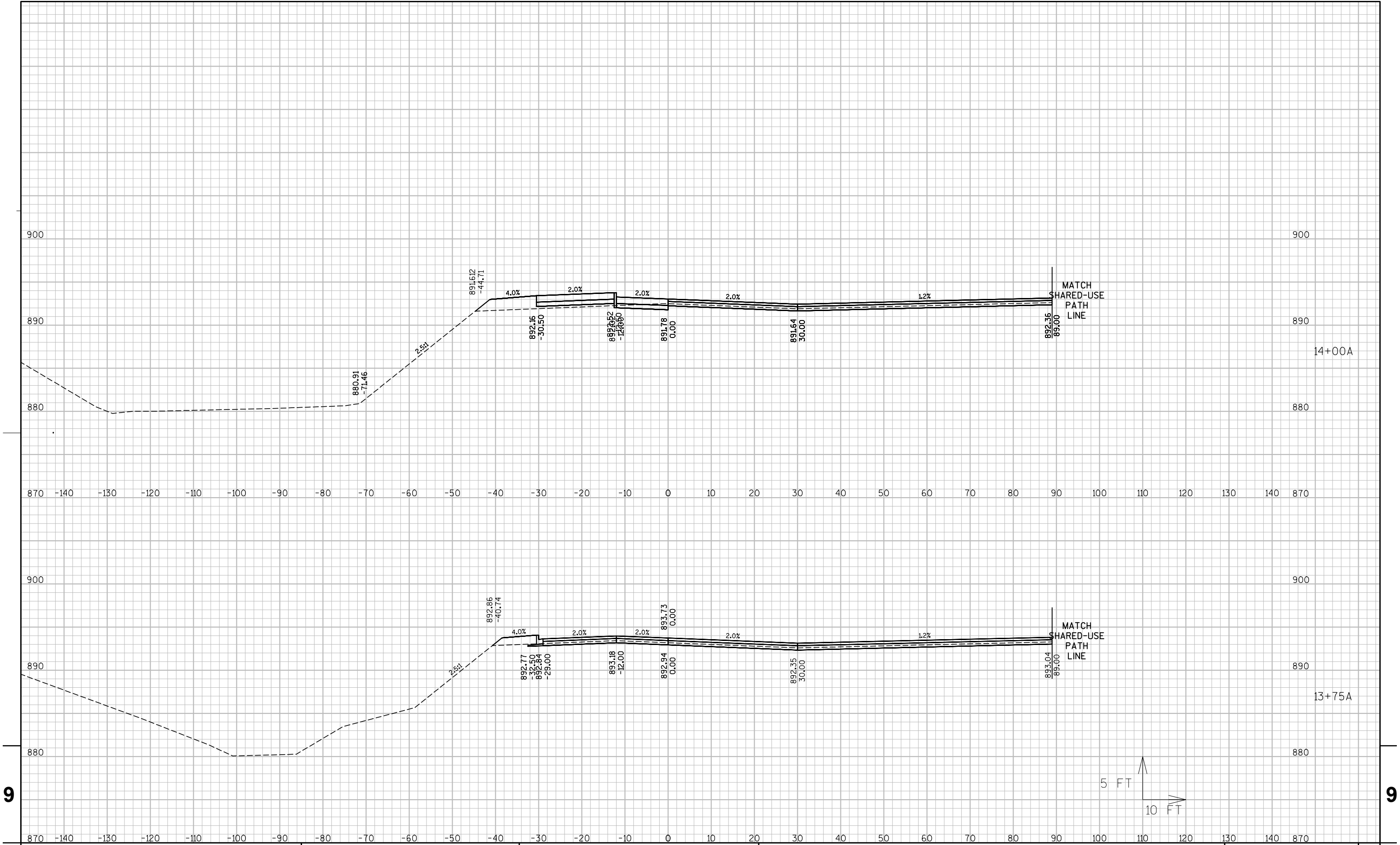
FILE NAME : N:\PDS\PROJECTS\10603101\PSE\PS&E\_5\_1\_2016\CIVIL 3D\SHEETSP\AN\090201\_XS\_RAFINAL.DWG

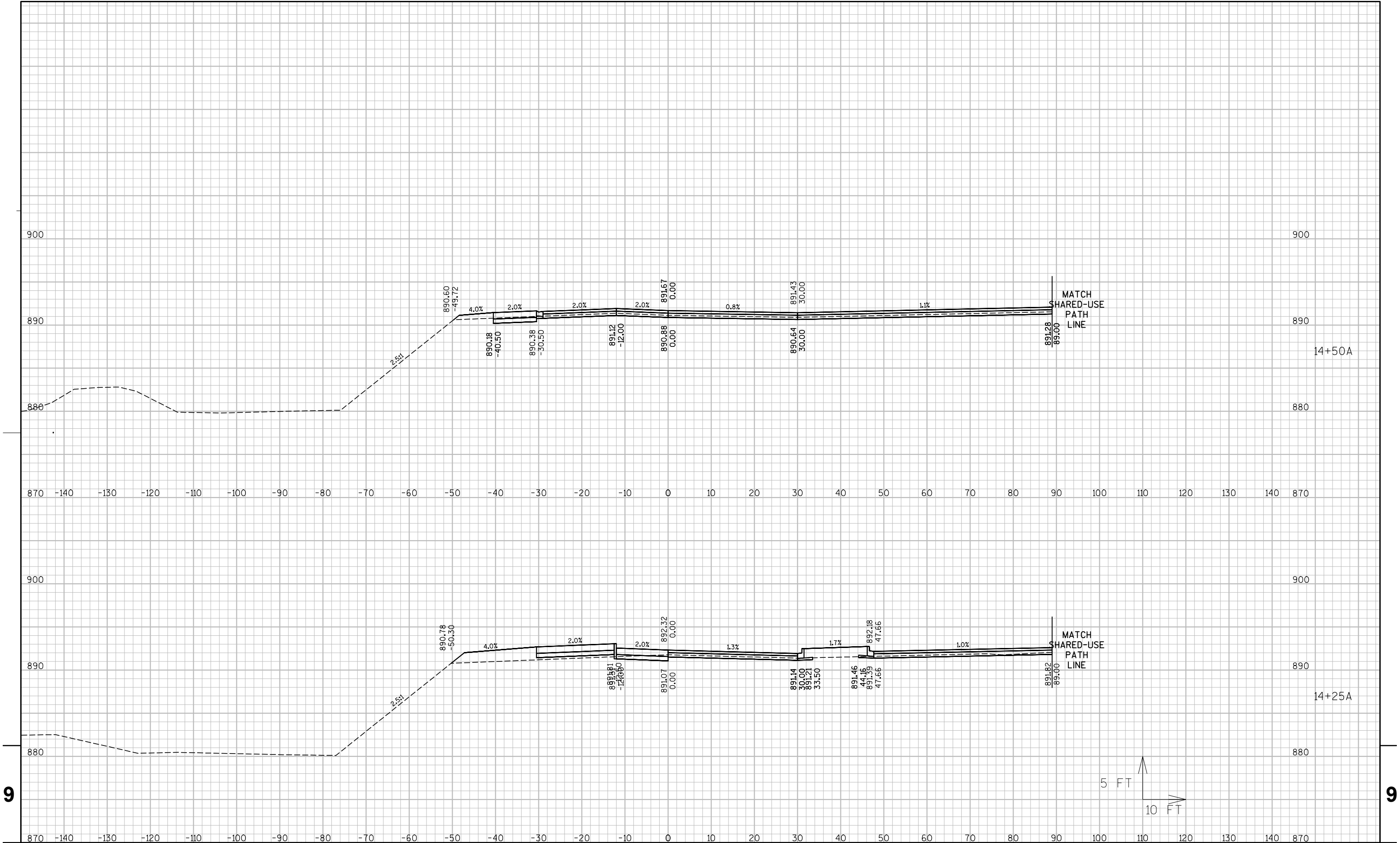
PLOT DATE : 4/21/2016

PLOT BY : KL ENGINEERING

PLOT NAME : -----PLOT SCALE : \*\*\*\*\*

WISDOT/CADDs SHEET 49





9

9

PROJECT NO:1060-31-71

HWY: IH 94

COUNTY: WAUKESHA

CROSS SECTIONS: ROUTE A

SHEET

E

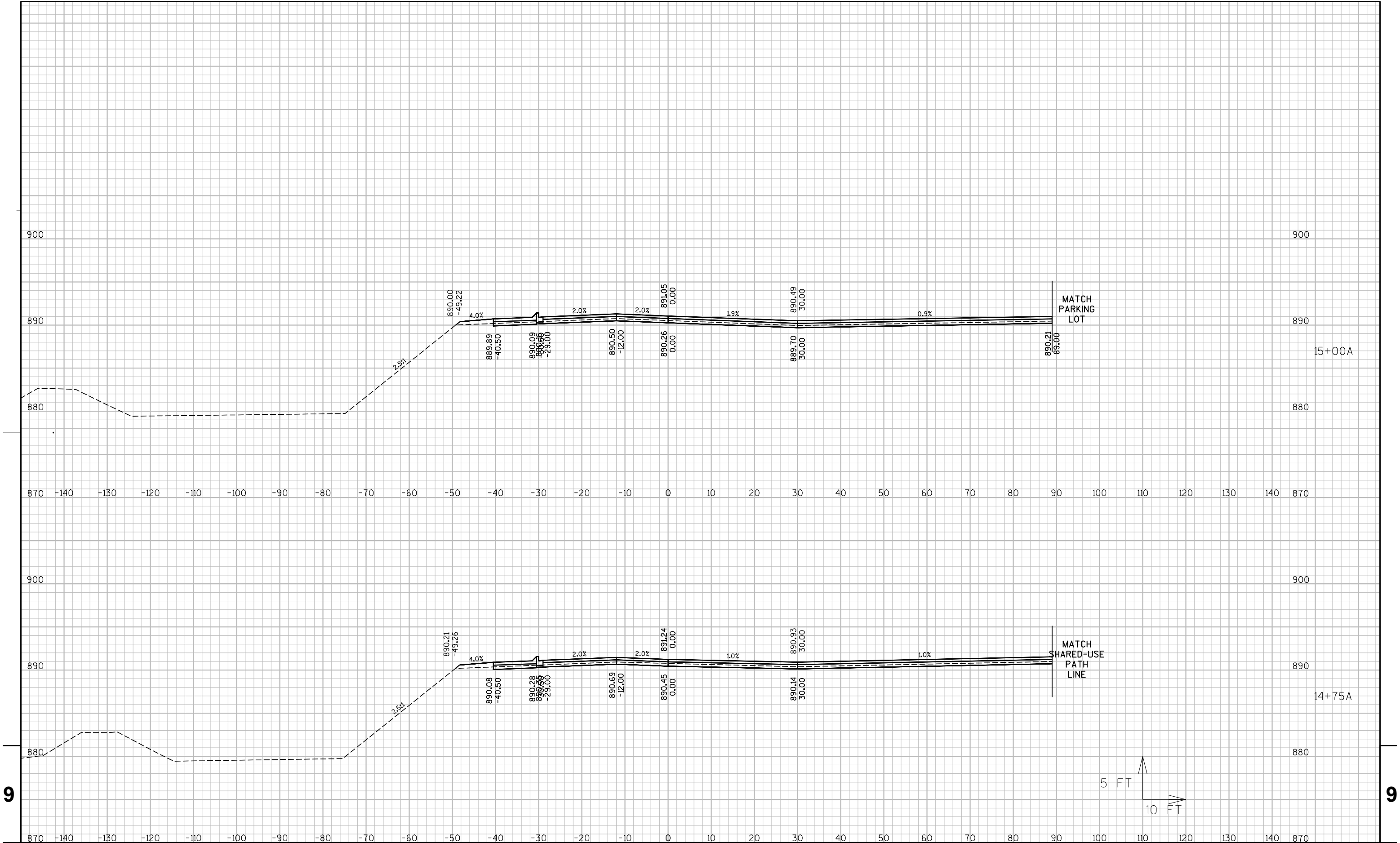
FILE NAME : N:\PDS\PROJECTS\10603101\PSE\PS&E\_5\_1\_2016\CIVIL 3D\SHEETSP\AN\090201\_XS\_RAFINAL.DWG

PLOT DATE : 4/21/2016

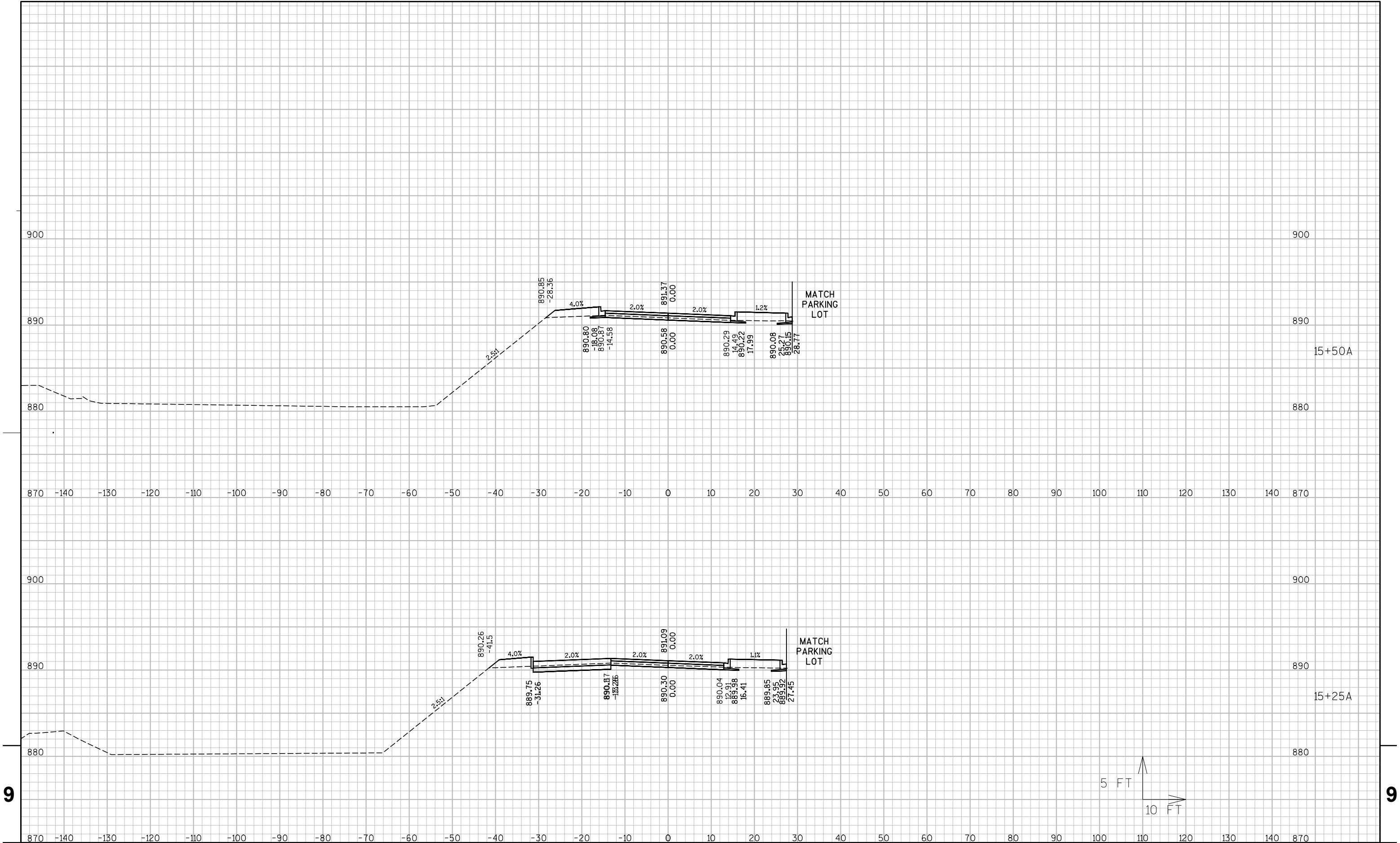
PLOT BY : KL ENGINEERING

PLOT NAME : -----PLOT SCALE : \*\*\*\*\*

WISDOT/CADDs SHEET 49







PROJECT NO:1060-31-71

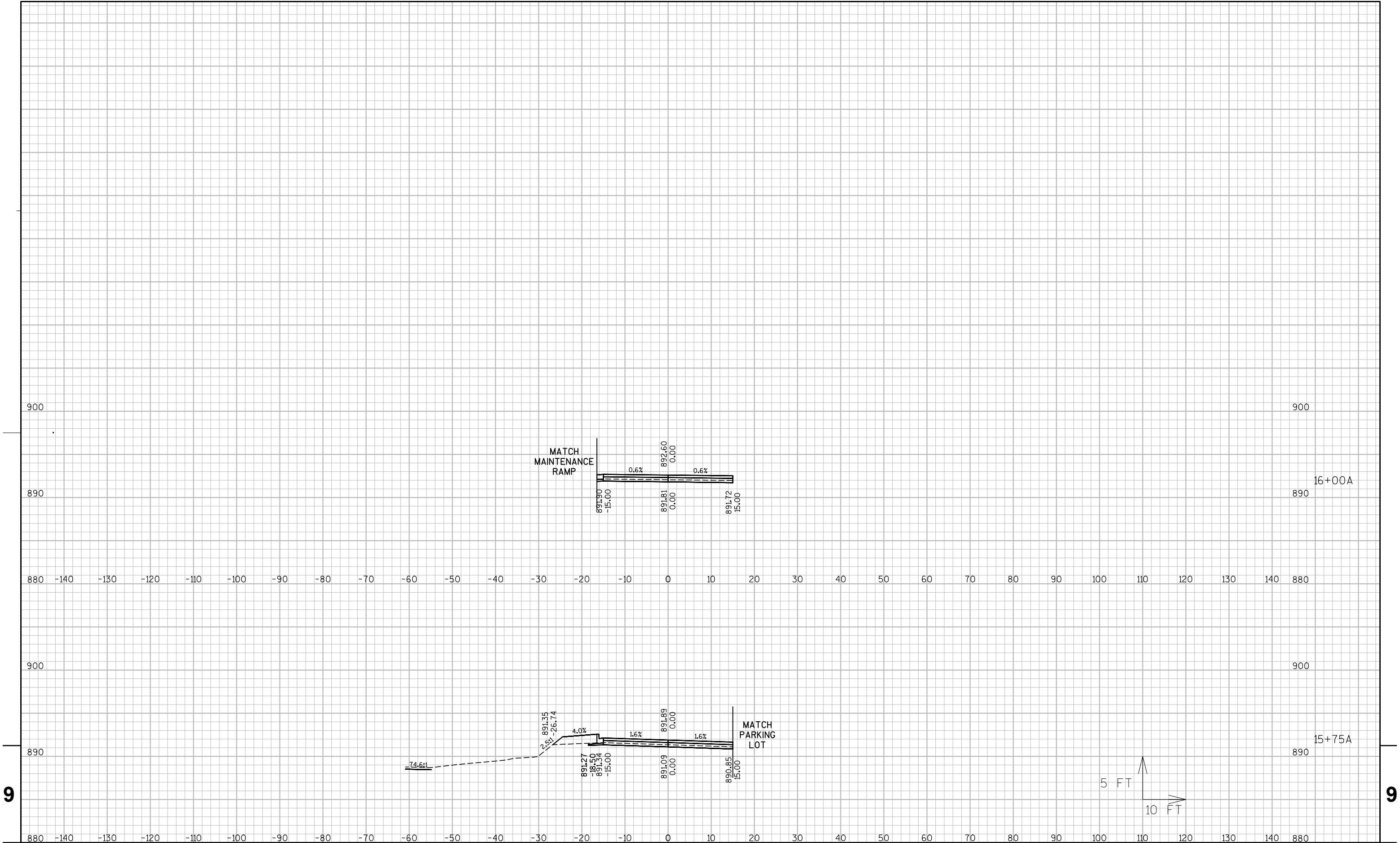
HWY: IH 94

COUNTY: WAUKESHA

CROSS SECTIONS: ROUTE A

SHEET

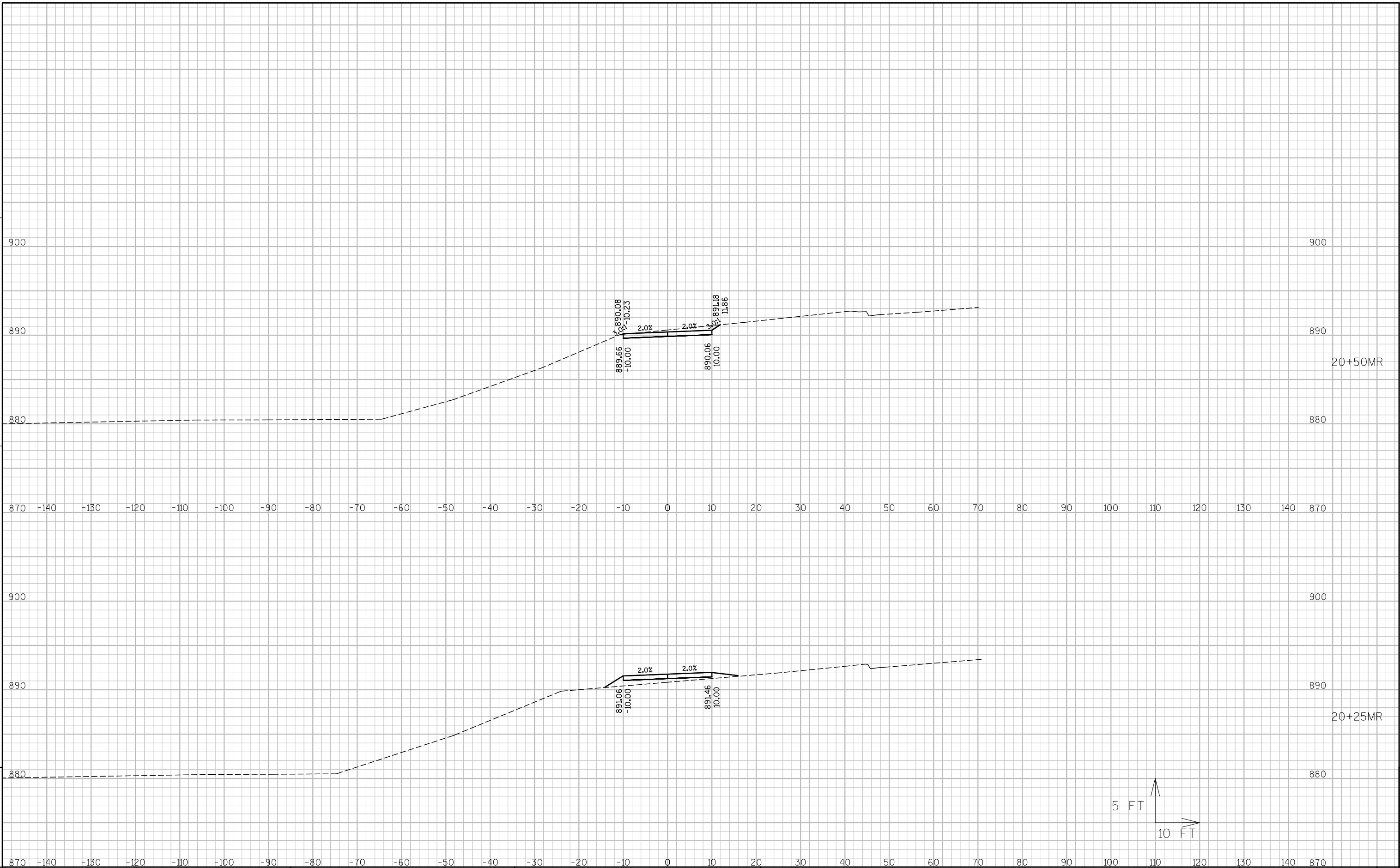
E

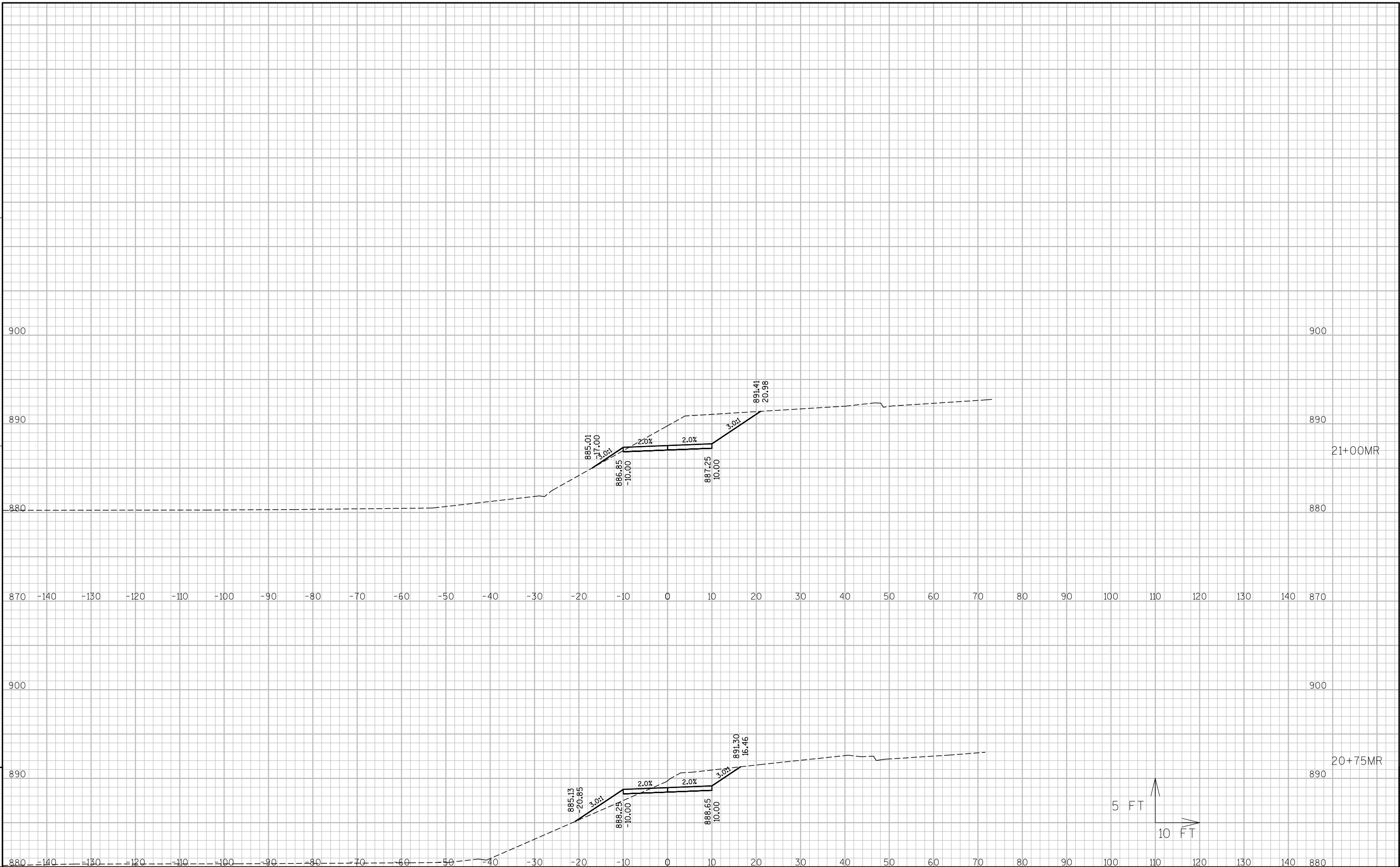


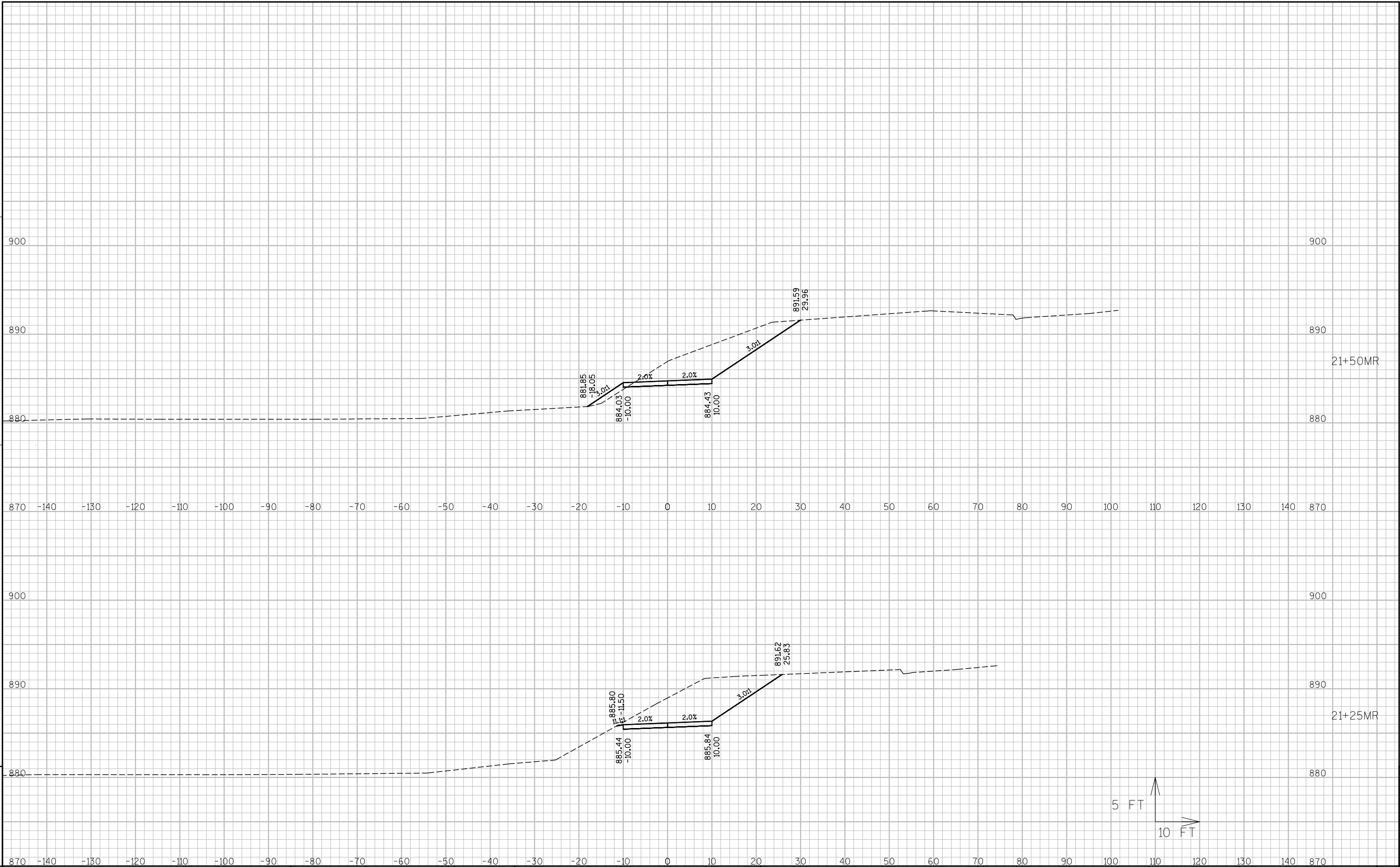
9

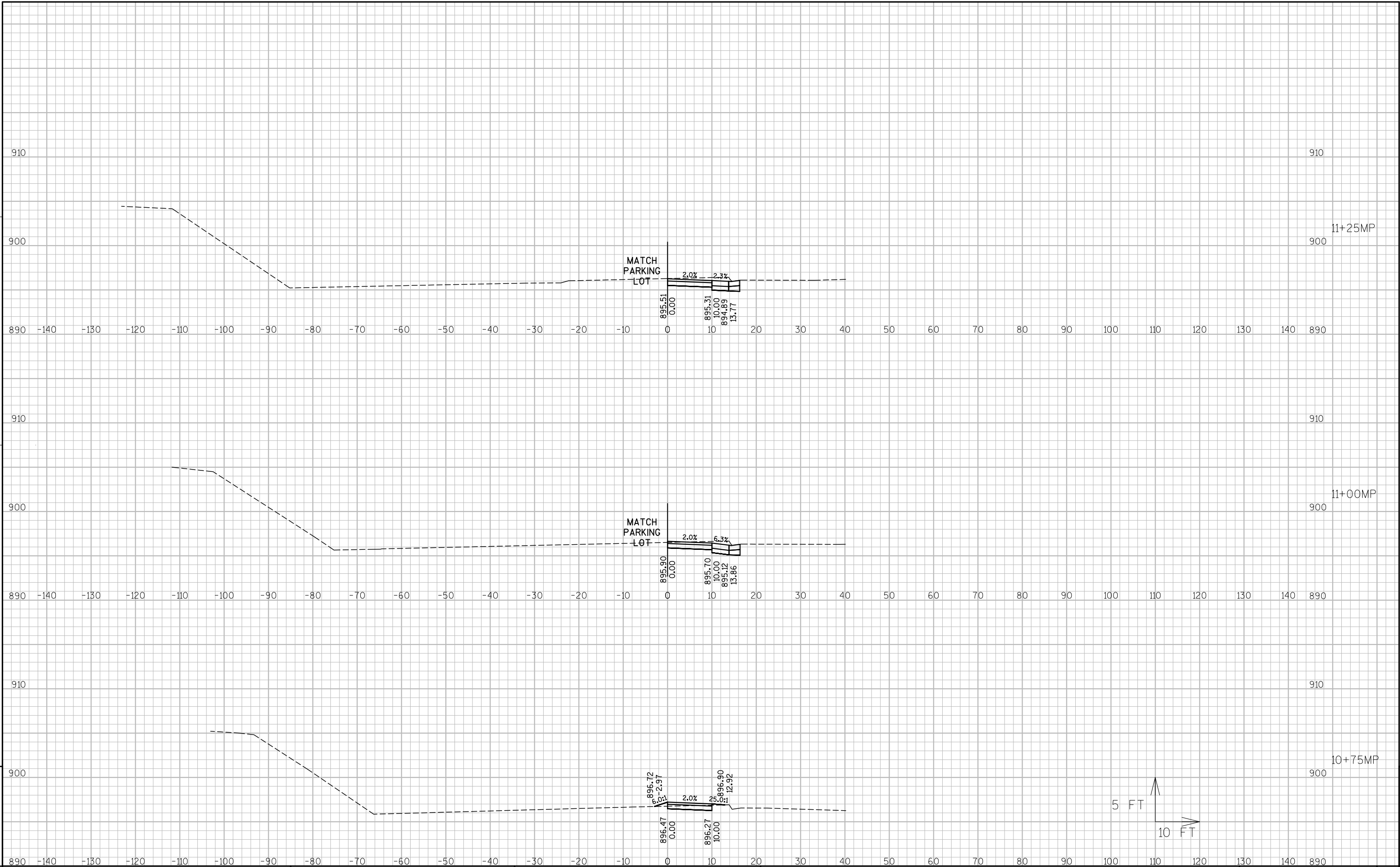
9

PROJECT NO:1060-31-71	HWY: IH 94	COUNTY: WAUKESHA	CROSS SECTIONS: ROUTE A	SHEET	E
-----------------------	------------	------------------	-------------------------	-------	---



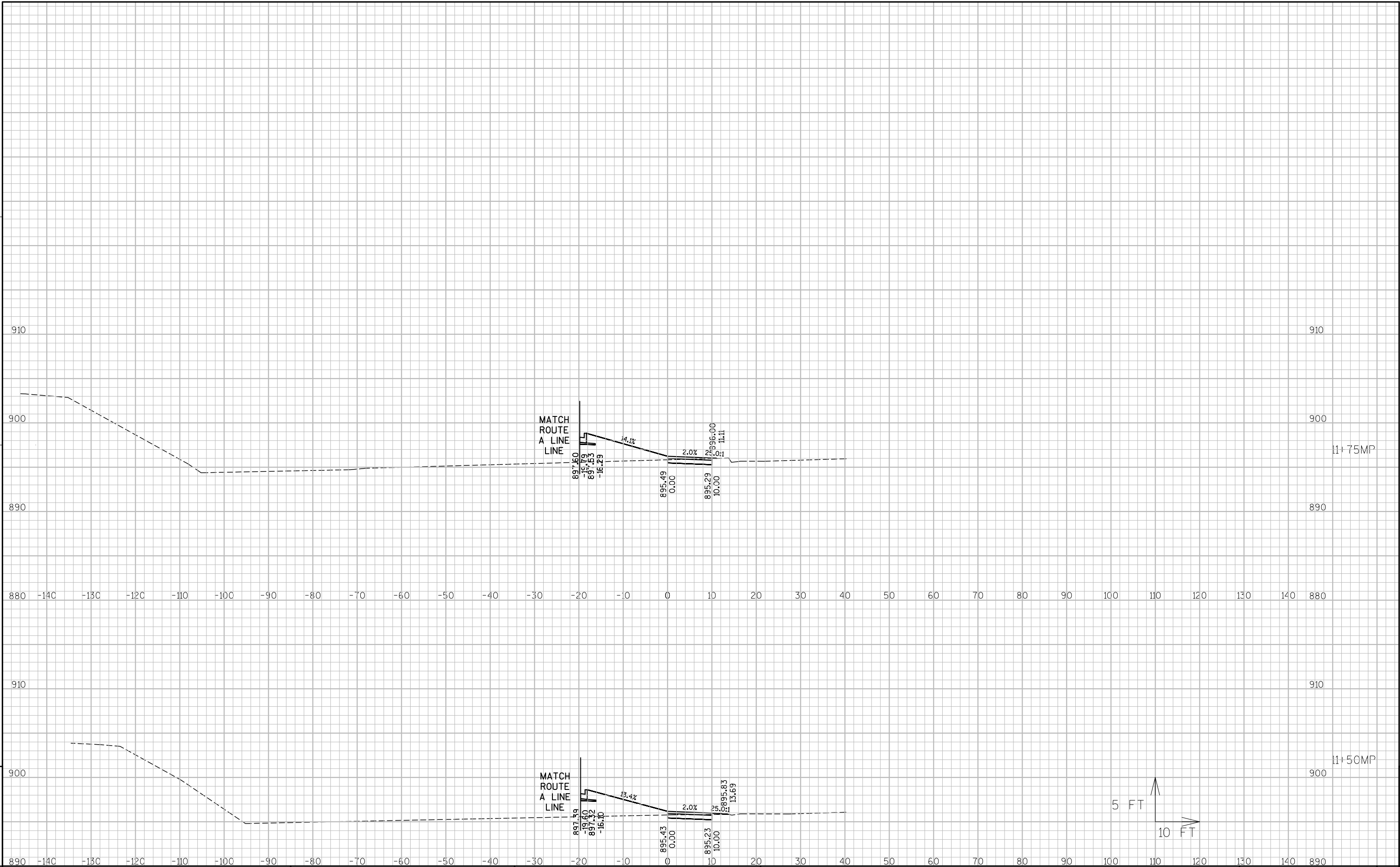


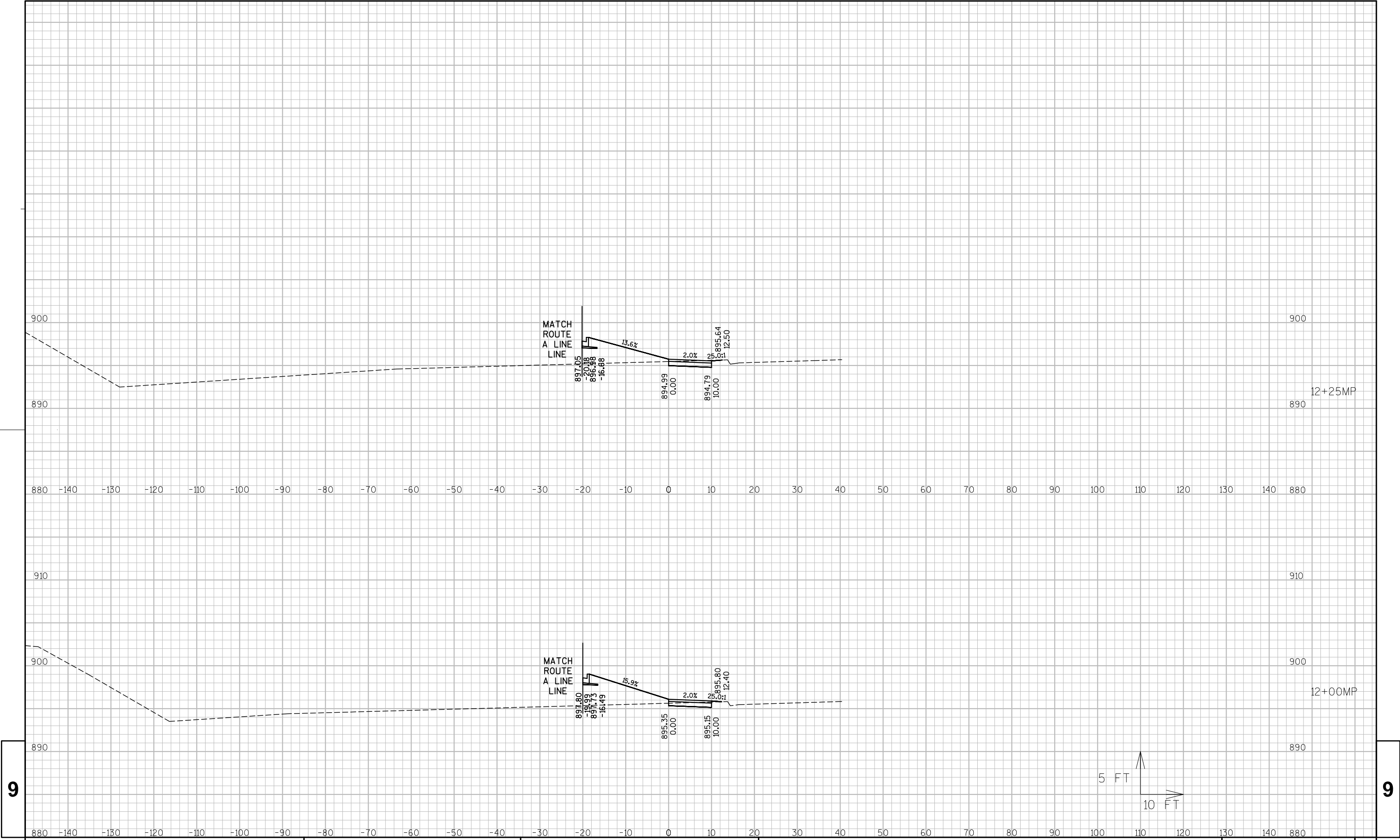




9

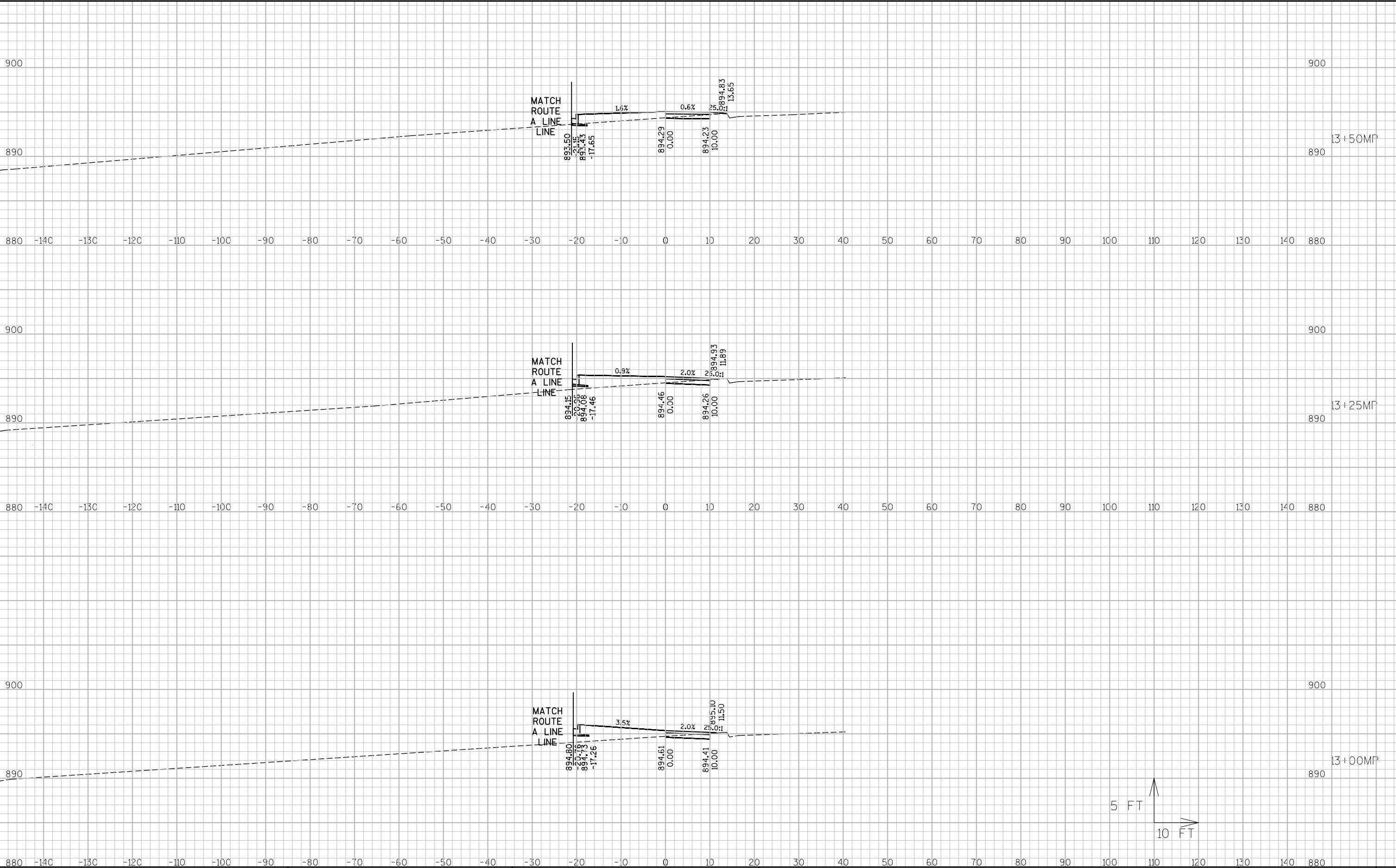
9





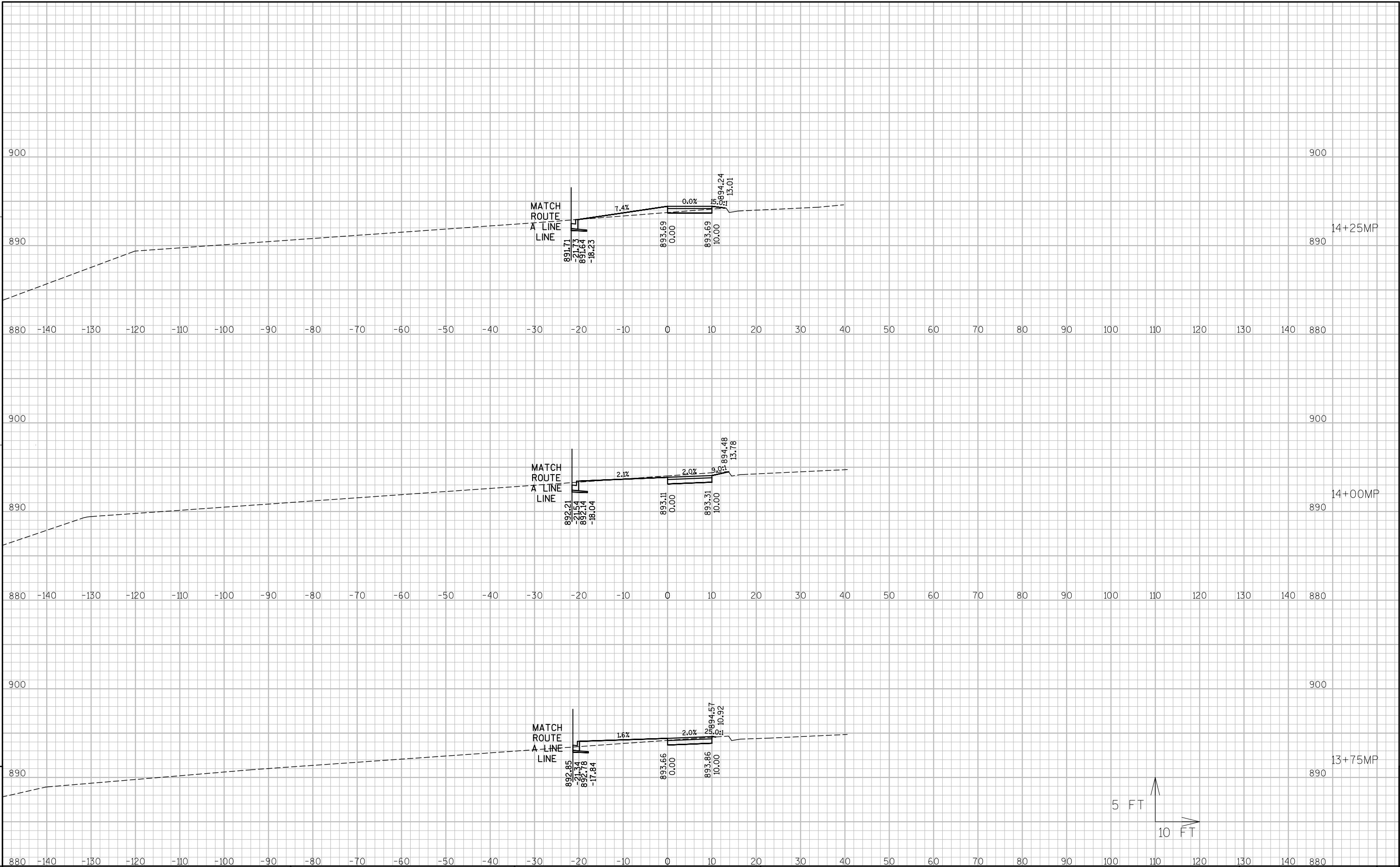


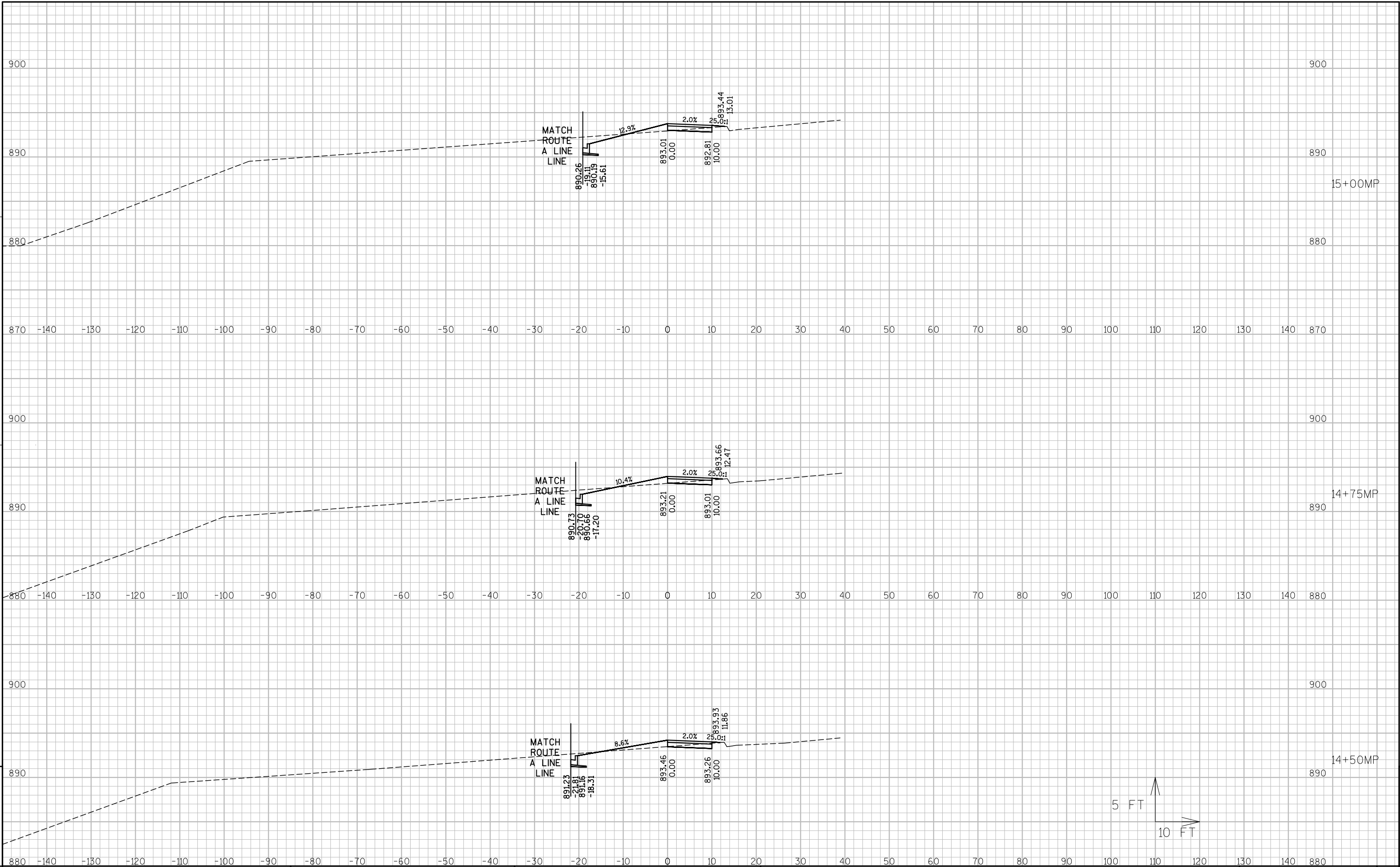


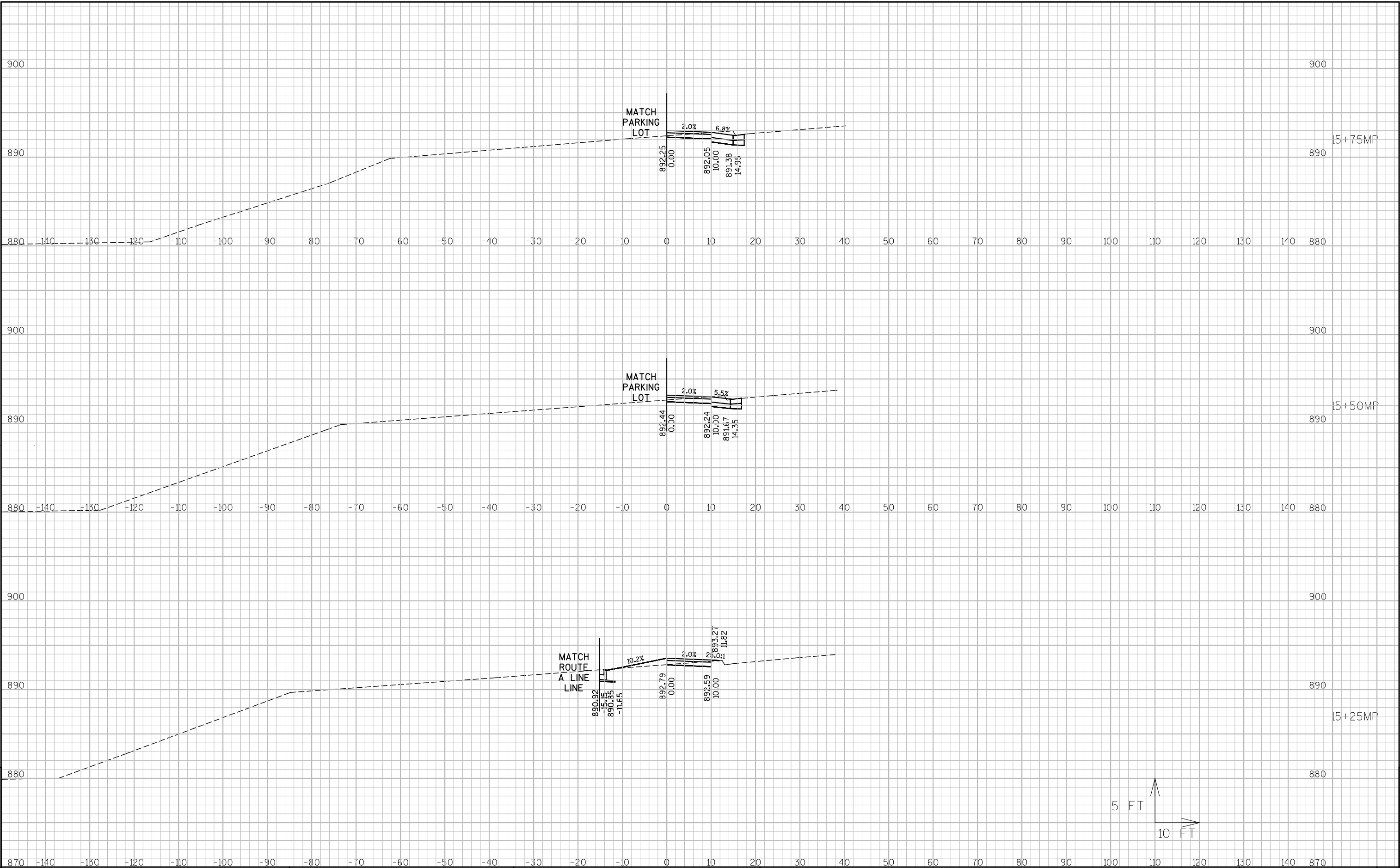


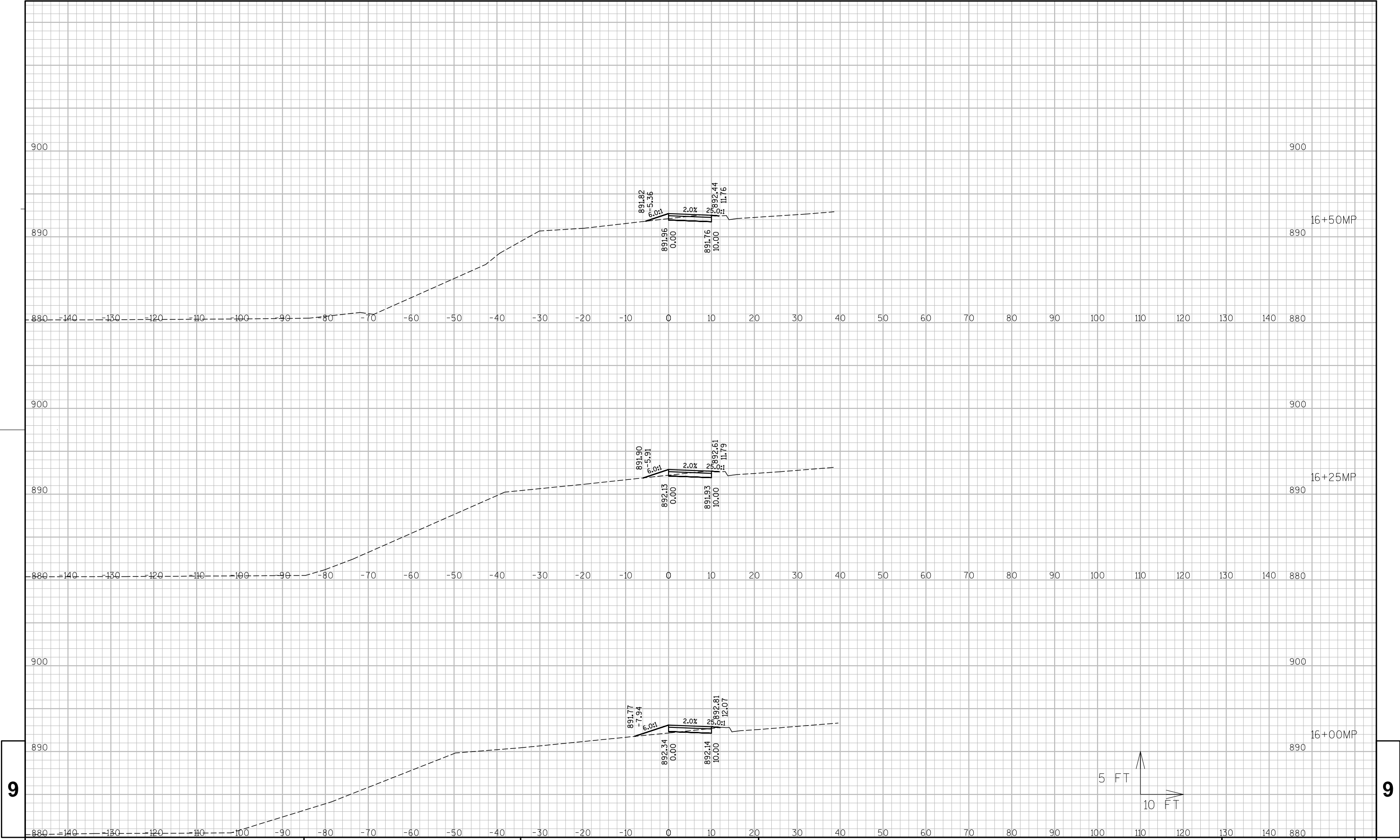
9

9





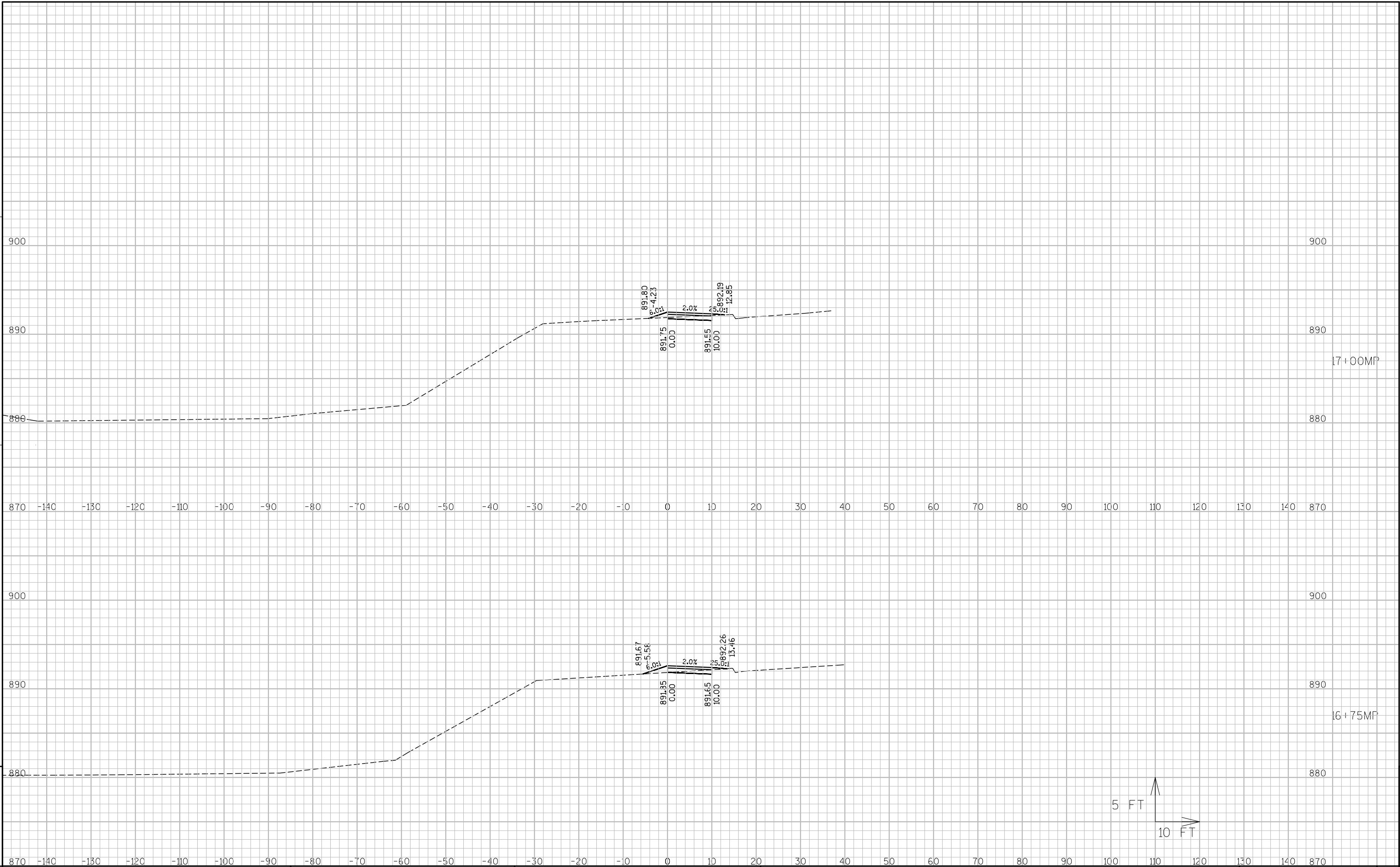


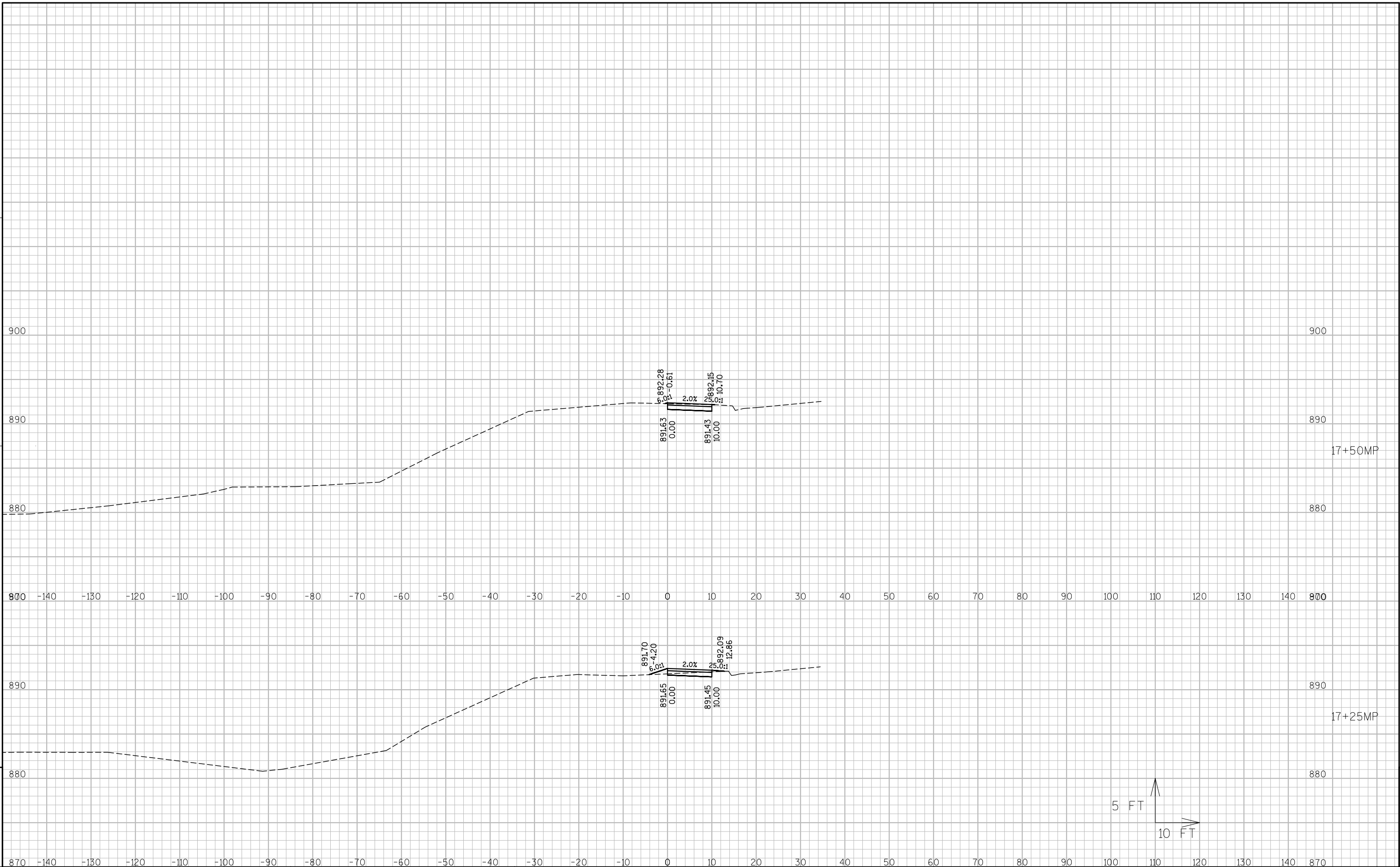


9

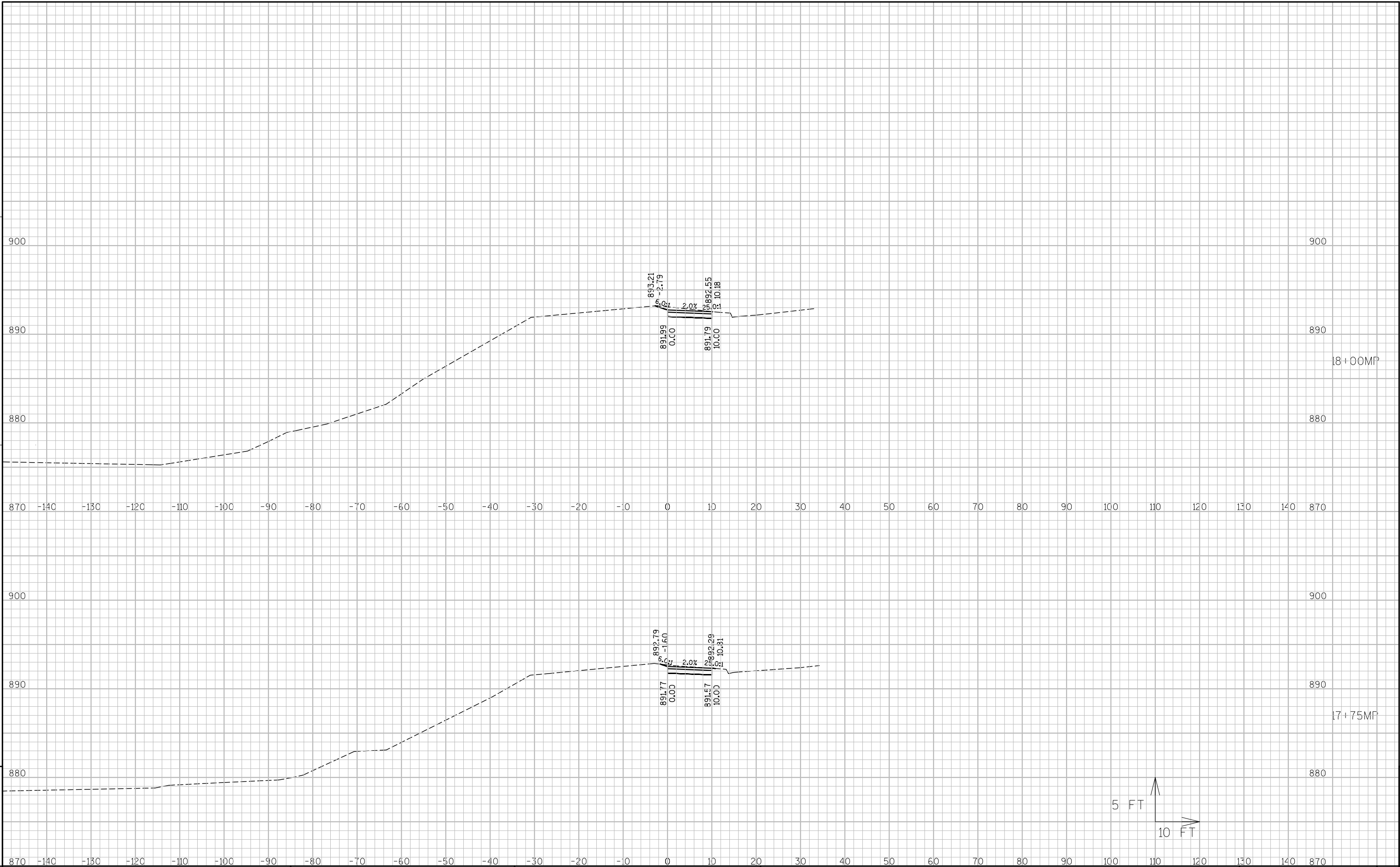
9

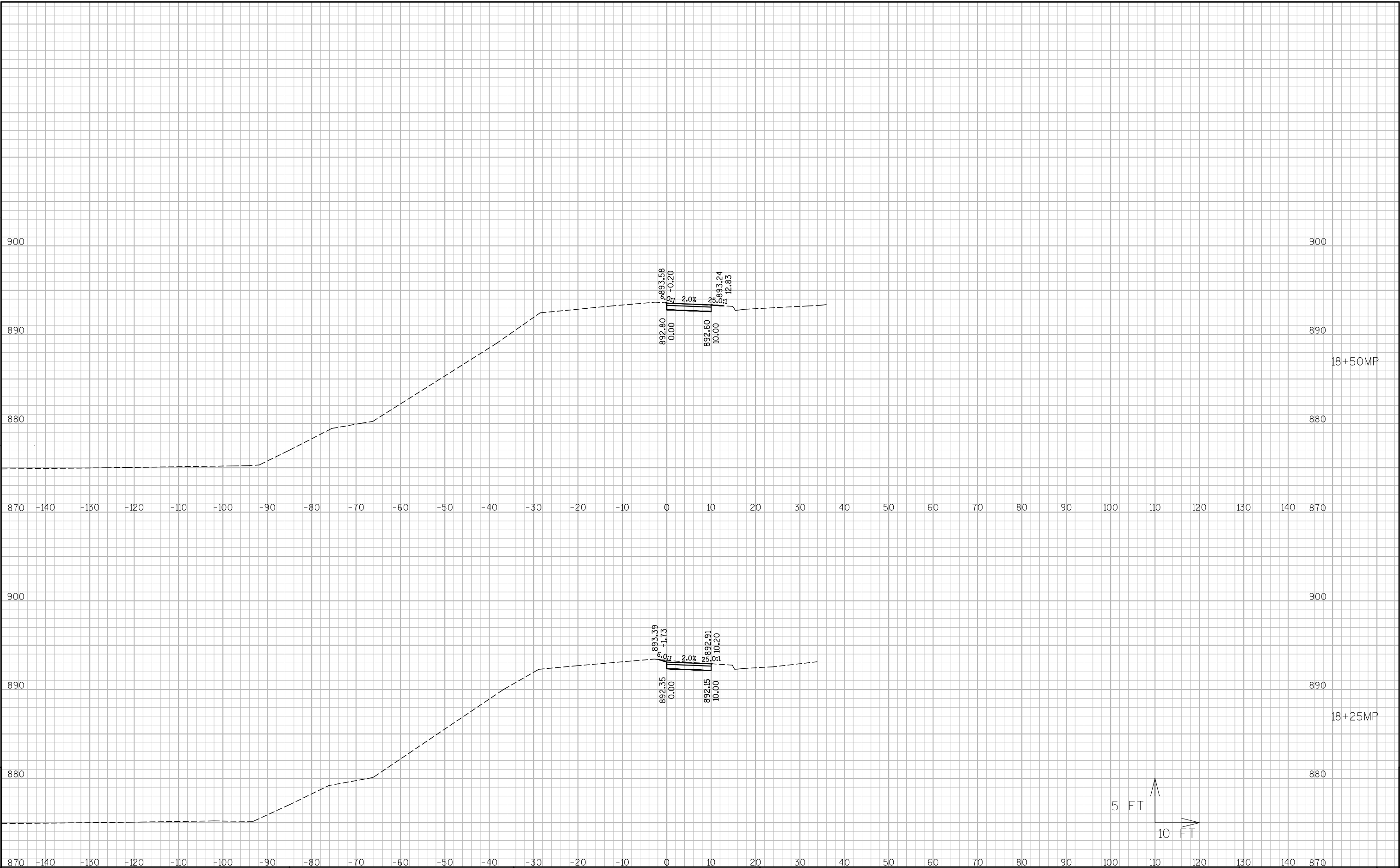
PROJECT NO:1060-31-71	HWY: IH 94	COUNTY: WAUKESHA	CROSS SECTIONS: SHARED-USE PATH	SHEET	E
-----------------------	------------	------------------	---------------------------------	-------	---











## Notes



## ***Wisconsin Department of Transportation***

Dedicated people creating transportation solutions  
through innovation and exceptional service.

<http://www.dot.wisconsin.gov>