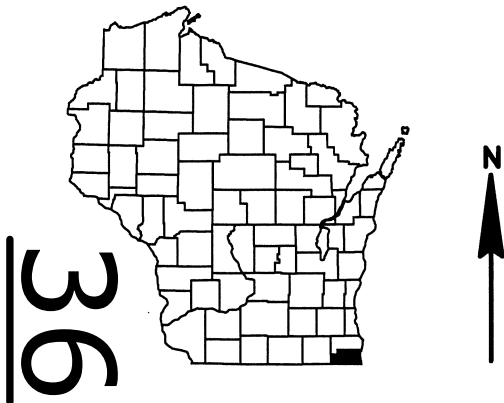


DECEMBER 2018

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 Plan
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 = 238



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	CAUTION
MARSH AREA	~
WOODED OR SHRUB AREA	~

PROFILE	
GRADE LINE	—
ORIGINAL GROUND	—
MARSH OR ROCK PROFILE (To be noted as such)	ROCK
SPECIAL DITCH	LABEL
GRADE ELEVATION	95.36
CULVERT (Profile View)	—
UTILITIES	—
ELECTRIC	E
FIBER OPTIC	FO
GAS	G
SANITARY SEWER	SAN
STORM SEWER	SS
TELEPHONE	T
WATER	W
UTILITY PEDESTAL	—
POWER POLE	—
TELEPHONE POLE	—

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

104TH STREET, V. PLEASANT PRAIRIE

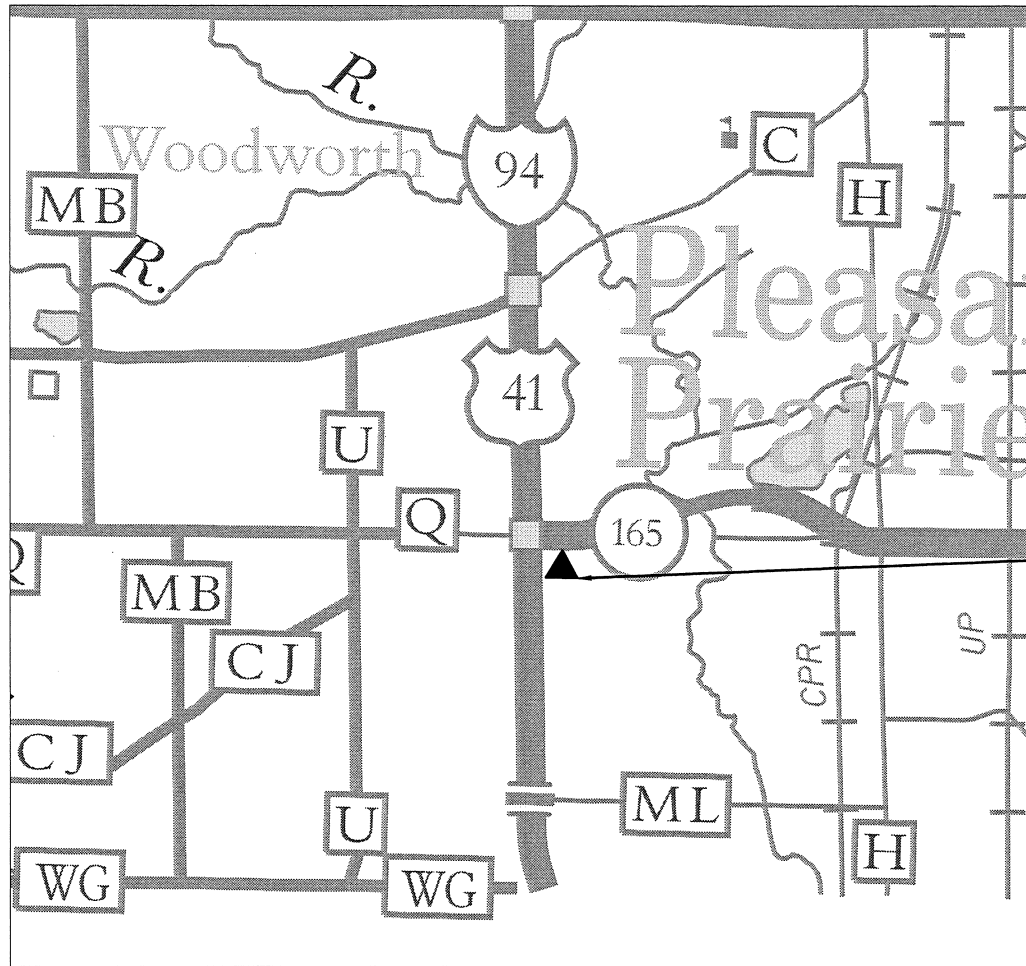
PLEASANT PRAIRIE WELCOME CENTER

STH 165

KENOSHA COUNTY

STATE PROJECT NUMBER
3738-08-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
3738-08-70		



LAYOUT
SCALE 0 1 MILE
TOTAL NET LENGTH OF CENTERLINE = 0.000 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, MILWAUKEE COUNTY, NAD83 (2007), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 NAVD 88 (2007).

T-1-N

BEGIN PROJECT 3738-08-70
STA. 23+22
X=595,245.1426
Y=110,938.3727
END PROJECT 3738-08-70
STA. 28+18

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
PREPARED BY	
Surveyor	
Designer	WISDOT
Project Manager	CHRISTOPHER HAGER, P.E.
Regional Examiner	
Regional Supervisor	WAFA ELQAO, P.E.
APPROVED FOR THE DEPARTMENT	
DATE: 8/29/18	(Signature)

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HIGHWAY COMMISSIONER
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BRISTOL, WI 53104-9772
PHONE: (262) 857-1870



Dial  or (800) 242-8511
www.DiggersHotline.com

STANDARD ABBREVIATIONS

AEW	APRON ENDWALL	PCMS	PORTABLE CHANGEABLE MESSAGE SIGN
AGG	AGGREGATE	PE	PRIVATE ENTRANCE
ASPH	ASPHALTIC	PI	POINT OF INTERSECTION
BAD	BASE AGGREGATE DENSE	PLE	PERMANENT LIMITED EASEMENT
BM	BENCHMARK	PT	POINT OF TANGENT
C&G	CURB AND GUTTER	R	RADIUS OF CURVE
CL OR ^C _L	CENTER LINE OR CONSTRUCTION LINE	R/L	REFERENCE LINE
CMCP	CULVERT PIPE CORRUGATED METAL	R/W	RIGHT OF WAY
CONC	CONCRETE	RC	REVERSE CROWN
CP	CULVERT PIPE	RCAEW	APRON END WALL FOR CULVERT PIPE
CPRC	CULVERT PIPE REINFORCED CONCRETE		REINFORCED CONCRETE
CPRCHE	CULVERT PIPE REINFORCED CONCRETE	REQD	REQUIRED
	HORIZONTAL ELLIPTICAL	RHF	RIGHT HAND FORWARD
CSD	CONCRETE SURFACE DRAIN	RO	RUN OFF LENGTH
CY	CUBIC YARD	RRSP	RAILROAD SPIKE
D	DEGREE OF CURVE	RT	RIGHT
Δ	DELTA	SLV	SALVAGED
DISCH	DISCHARGE	SB	SOUTHBOUND
FE	FIELD ENTRANCE	SDD	STANDARD DETAIL DRAWING
HMA	HOT MIX ASPHALTIC	SE	SUPER ELEVATION
INV	INVERT	SF	SQUARE FOOT
L	LENGTH OF CURVE	SI	SLOPE INTERCEPT
LHF	LEFT HAND FORWARD	SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
LT	LEFT	STA	STATION
MIN	MINIMUM	SY	SQUARE YARD
M/L	MAINLINE	T	TANGENT LENGTH
NB	NORTHBOUND	TLE	TEMPORARY LIMITED EASEMENT
NC	NORMAL CROWN	VCL	VERTICAL CURVE LENGTH
PAVT	PAVEMENT	VPC	POINT VERTICAL CURVE
PC	POINT OF CURVE	VPI	POINT OF VERTICAL INTERSECTION
PCC	POINT OF COMPOUND CURVE	VPT	POINT OF VERTICAL TANGENT

ORDER OF SECTION 2 DETAIL SHEETS

UTILITY CONTACTS AND STANDARD ABBREVIATIONS
GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
REMOVAL PLAN
PLAN DETAILS
PAVING GRADES
CROSS SECTION MATCHLINES
EROSION CONTROL
STORM SEWER
EXISTING UTILITY PLAN
PERMANENT SIGNING
LIGHTING PLANS
TRAFFIC SIGNALS
PAVEMENT MARKING
TRAFFIC CONTROL
ALIGNMENT INFORMATION & SURVEY CONTROL



Dial 811 or (800) 242-8511

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GENERAL NOTES

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

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

THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY LOCAL MUNICIPAL UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS MUST BE CONTACTED SEPARATELY.

WHEN THE QUANTITY OF ASPHALTIC SURFACE OR BASE AGGREGATE IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLAN IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

ALL HOLES OR OPENINGS BELOW SUBGRADE RESULTING FROM ABANDONMENT OR REMOVAL OF EXISTING STRUCTURES SHALL BE FILLED WITH GRANULAR BACKFILL, UNLESS SPECIFICATIONS REQUIRE DIFFERENTLY. GRANULAR MATERIAL IS INCIDENTAL TO REMOVAL ITEM.

ALL INLETS IN DRIVING LANES DURING STAGED CONSTRUCTION MUST BE WELDED OR FASTENED AS APPROVED BY THE ENGINEER. SECURING AND REMOVAL OF INLET COVERS SHALL BE INCIDENTAL TO INSTALLATION OF THE INLETS.

REINFORCED CONCRETE APRON ENDWALLS AND ADJOINING TWO SECTIONS OF CONCRETE PIPE SHALL BE TIED TOGETHER AS SHOWN ON THE STANDARD DETAIL DRAWINGS AND AS LOCATED IN THE MISCELLANEOUS QUANTITIES. JOINT TIES SHALL BE INCIDENTAL ITEMS INCLUDED IN THE COST OF THE CONCRETE PIPE

INLET AND DISCHARGE ELEVATIONS FOR DRAINAGE STRUCTURES SHOWN ON THE PLAN MAY BE ADJUSTED BY THE ENGINEER TO FIT FIELD CONDITIONS.

PRIOR TO ORDERING DRAINAGE PIPES AND STRUCTURES, THE CONTRACTOR SHALL VERIFY VERIFY RELATED DRAINAGE INFORMATION IN THE PLAN AND PROVIDE DOCUMENTATION TO ENGINEER IN ACCORDANCE WITH THE SPECIFICATIONS.

FERTILIZER SHALL NOT BE USED NEAR NAVIGABLE WATERWAYS OR WETLANDS.

EXISTING PIPE CULVERT SIZES AND CONCRETE BOX CULVERT SIZES SHOWN ARE APPROXIMATE AND CONTRACTOR WILL BASE BID ON THE ACTUAL FIELD CONDITIONS.

ANY AREA OF PAVEMENT REMOVAL SHALL HAVE ALL ROADBED AGGREGATE MATERIAL REMOVED AND SHALL BE TOPSOILED, SEEDED AND MULCHED TO ESTABLISH VEGETATION.

THE QUANTITY OF SALVAGED TOPSOIL IS COMPUTED FROM MEASUREMENTS BETWEEN BACK OF CURB OR SUBGRADE SHOULDER POINTS AND THE SLOPE INTERCEPTS AS SHOWN THE CROSS SECTIONS PLUS 5 FEET FOR ROUNDING

EROSION CONTROL DEVICES ARE AT SUGGESTED LOCATIONS. THE ACTUAL LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S ECIP AND BY THE ENGINEER. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR UNTIL THE ENGINEER DETERMINES THE DEVICE IS NO LONGER REQUIRED.

STOCKPILE EXCESS MATERIAL OR SPOILS ON UPLAND AREAS AWAY FROM WETLANDS, FLOODPLAINS AND WATERWAYS. STOCKPILED SOIL SHALL BE PROTECTED AGAINST EROSION. IF STOCKPILED MATERIAL IS LEFT FOR MORE THAN FOURTEEN (14) CALENDAR DAYS, SEED THE STOCKPILE WITH TEMPORARY SEED AND MULCH.

INLET PROTECTION IS REQUIRED AT ALL INLETS AS PER DETAIL OR AS DIRECTED BY THE ENGINEER.

CROSS SECTIONS SHOWN INCLUDE THE THICKNESS OF TOPSOIL WHERE REQUIRED. TOPSOIL SHALL BE PLACED WITH 6-INCH TYPICAL DEPTH.

RE-TOPSOIL OF GRADED AREAS, AS DESIGNATED BY THE ENGINEER, IMMEDIATELY AFTER GRADING IS COMPLETED WITHIN THOSE AREAS. SEED, FERTILIZE, AND MULCH / EROSION MAT TOP-SOILED AREAS, AS DESIGNATED BY THE ENGINEER, WITHIN FIVE (5) CALENDAR DAYS AFTER PLACEMENT OF TOPSOIL. IF GRADED AREAS ARE LEFT EXPOSED FOR MORE THAN FOURTEEN(14) CALENDAR DAYS. SEED THOSE AREAS WITH TEMPORARY SEED AND MULCH.

EXISTING DRIVEWAYS AND FIELD ENTRANCES SHALL BE RESTORED IN KIND AS DIRECTED BY THE ENGINEER IN THE FIELD AND AT THE LOCATION DETERMINED BY THE ENGINEER.

ALL TYPES OF ASPHALTIC SURFACE SHALL BE CONSTRUCTED WITH THE FOLLOWING LAYERS AND GRADATIONS:

PAVEMENT TYPE	TOTAL LAYER PAVEMENT THICKNESS	LAYERS	NOMINAL MAXIMUM SIZE GRADATION	ASPHALTIC MATERIAL
ASPHALTIC SURFACE	1.5"	1.5"	25.0 MM	--

BROKEN CONCRETE CONTAINING RE-BAR SHALL NOT BE USED AS RIPRAP.

SIGNS IN CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE COVERED AS DIRECTED BY THE ENGINEER AND PAID FOR UNDER THE ITEM TRAFFIC CONTROL COVERING SIGNS.

TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

VERIFY EXISTING PAVEMENT ELEVATIONS AT ALL TIE-INS TO EXISTING PAVEMENT PRIOR TO CONSTRUCTION. IF A DISCREPANCY IS FOUND BETWEEN PROPOSED PLAN ELEVATIONS AND THE EXISTING PAVEMENT ELEVATIONS , THE CONTRACTOR IS TO NOTIFY THE ENGINEER.

SAWCUT CONCRETE DRIVEWAYS AND/OR PARKING LOTS AT THE MATCHLINE AS SHOWN ON THE PAVING DETAILS OR AS DIRECTED BY THE ENGINEER.

A SAWED JOINT IS REQUIRED WHERE NEW ASPHALTIC SURFACE MEETS EXISTING ASPHALTIC SURFACE.

SQUEEGEE ALL SAWCUT SLURRY TO THE AGGREGATE SHOULDER AND/OR REMOVE INCIDENTAL TO THE SAWCUTTING.

THE CONTRACTOR SHALL PROVIDE A CONCRETE JOINT DETAIL 14 DAYS PRIOR TO PAVING FOR APPROVAL BY THE ENGINEER.

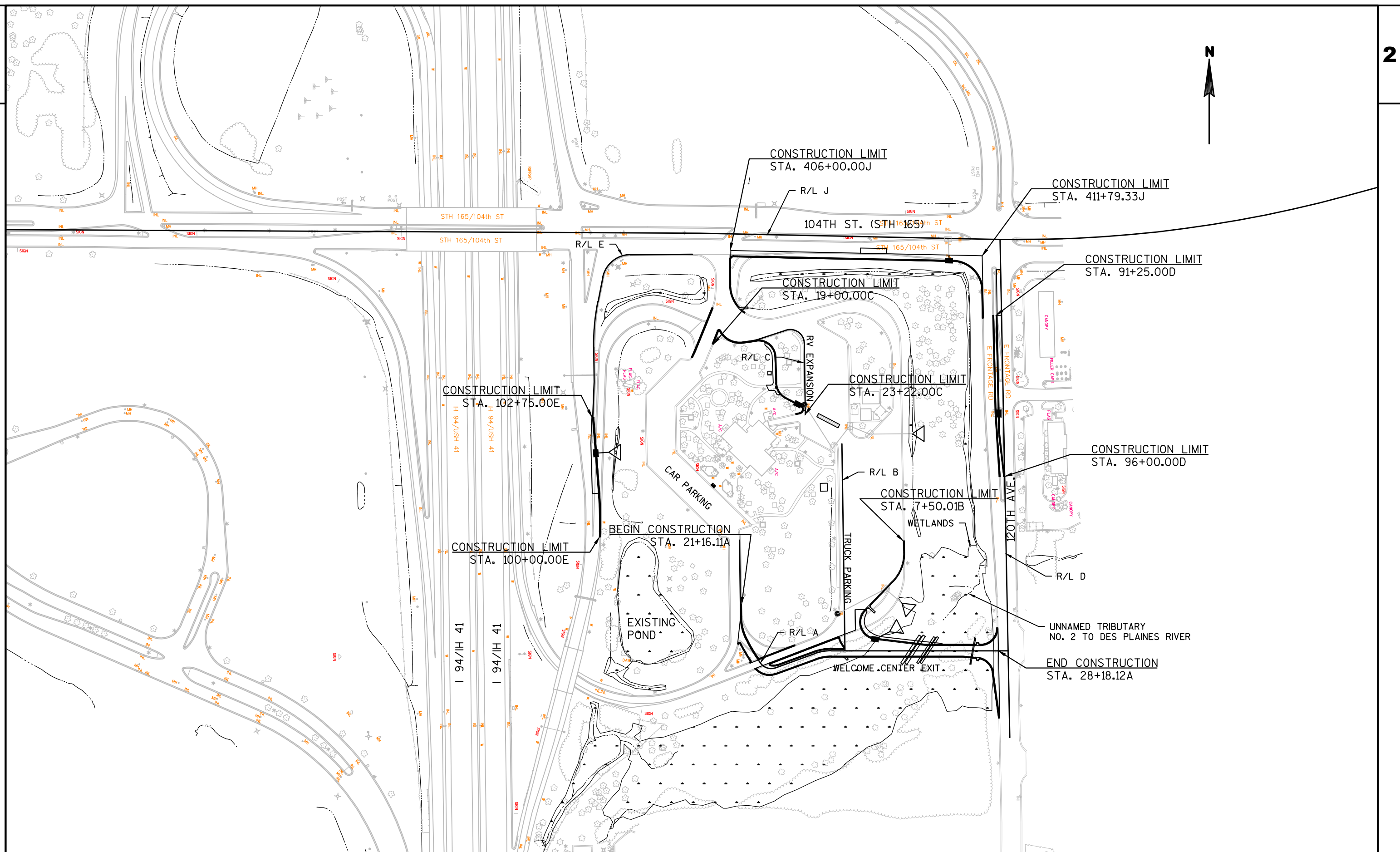
PROVIDE A TYPICAL SIDEWALK CROSS SLOPE OF 1.5% WITH A CONSTRUCTION TOLERANCE OF +/- 0.5%

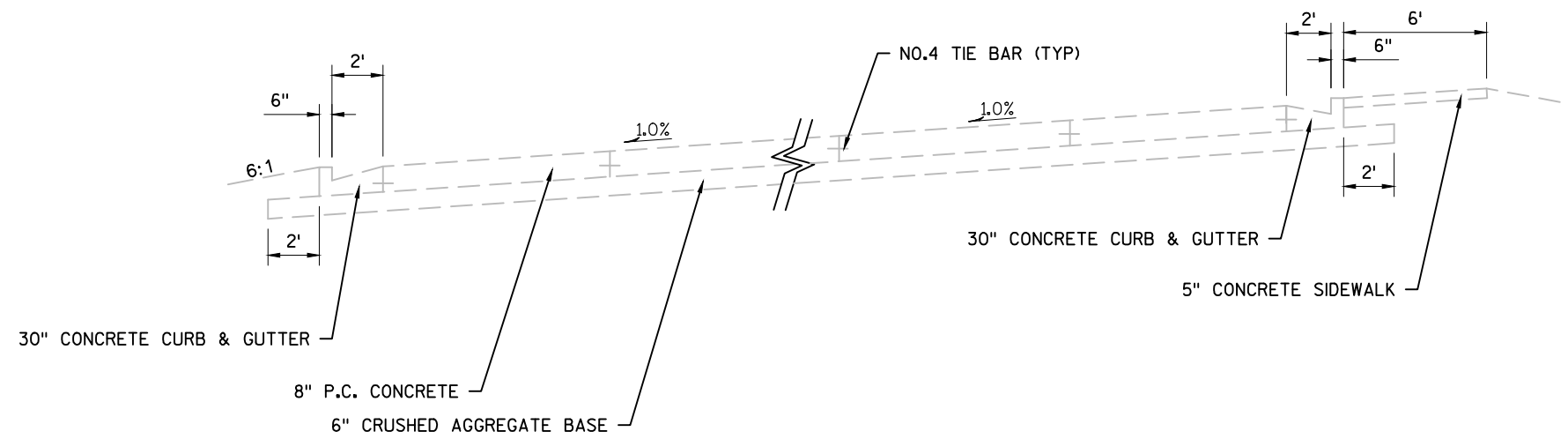
CURB HEIGHTS AT THE END OF CURB AND GUTTER SHALL BE TAPERED FROM 0 TO 4 INCHES TO 0 TO 6 INCHES IN 6 FEET.

CURB AND GUTTER GRADES ARE GIVEN TO THE FLANGE. CURB AND GUTTER RADII ARE MEASURED TO THE FLANGE.

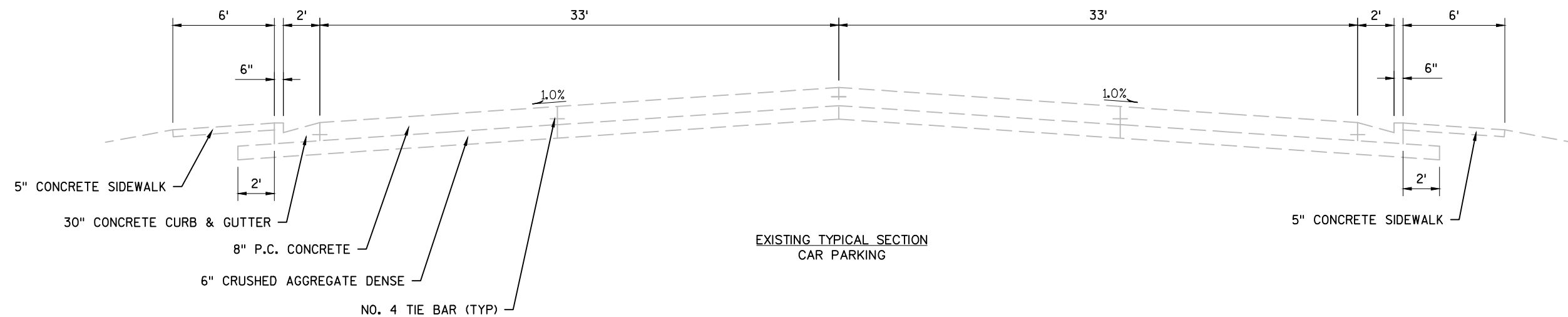
A CONVERSION FACTOR OF 2.0 TONS/CY WAS USED TO ESTIMATE QUANTITIES FOR BASE AGGREGATE DENSE 1 1/4-INCH.

A CONVERSION FACTOR OF 112 LBS/SY/IN WAS USED TO ESTIMATE QUANTITIES FOR ASPHALTIC SURFACE.

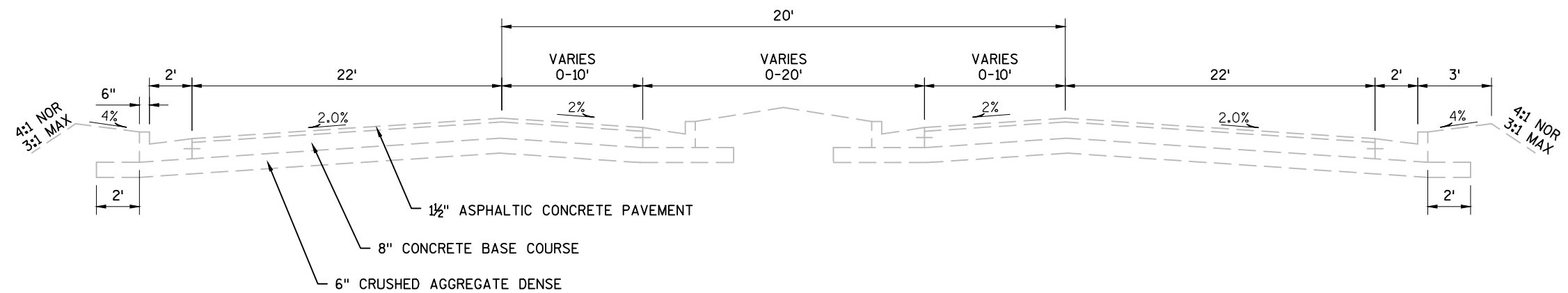




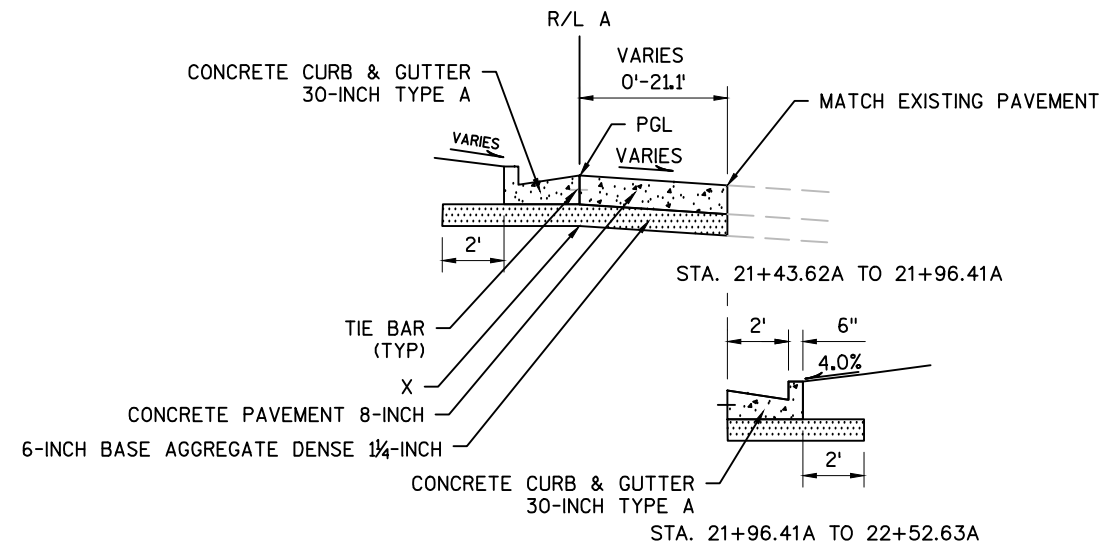
EXISTING TYPICAL SECTION
TRUCK PARKING



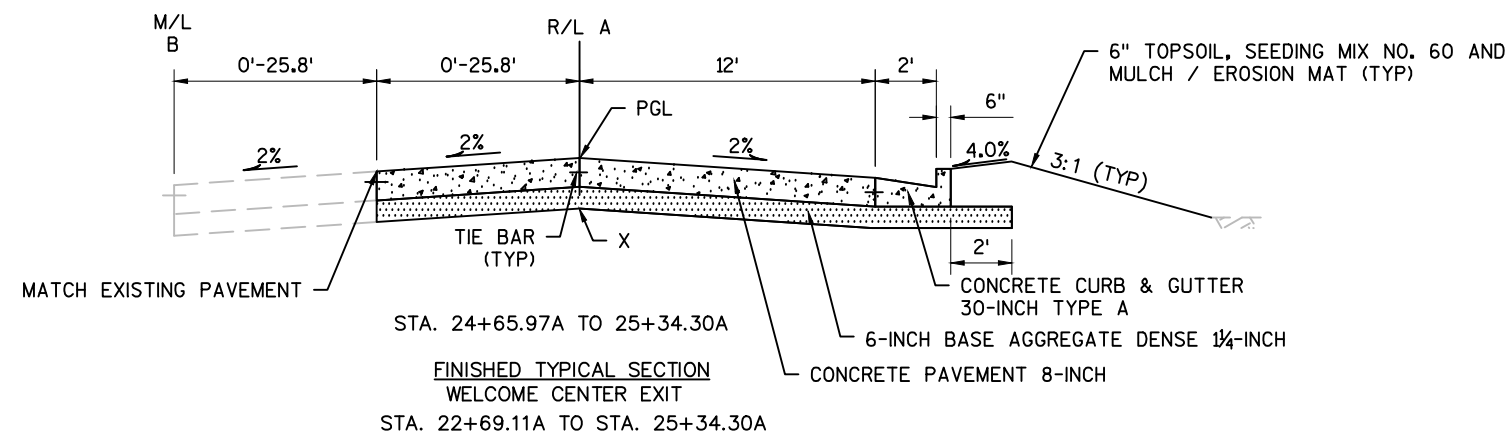
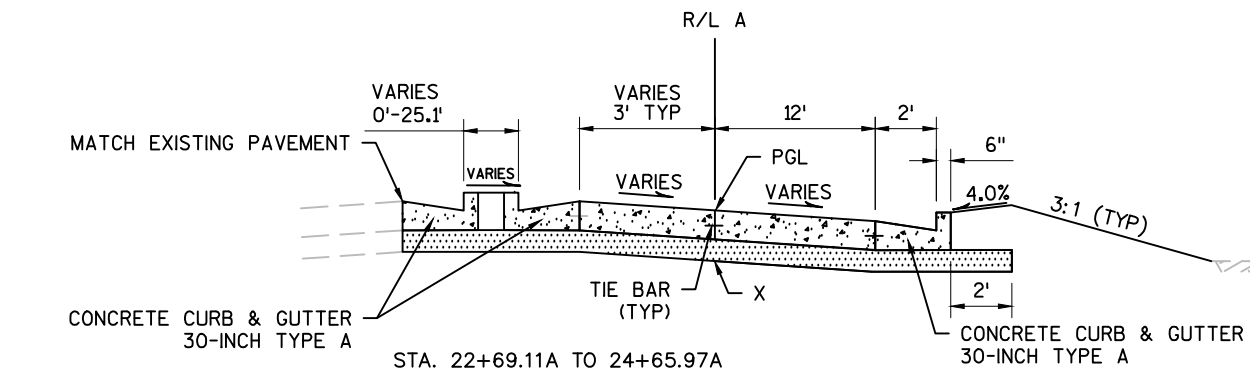
EXISTING TYPICAL SECTION
CAR PARKING



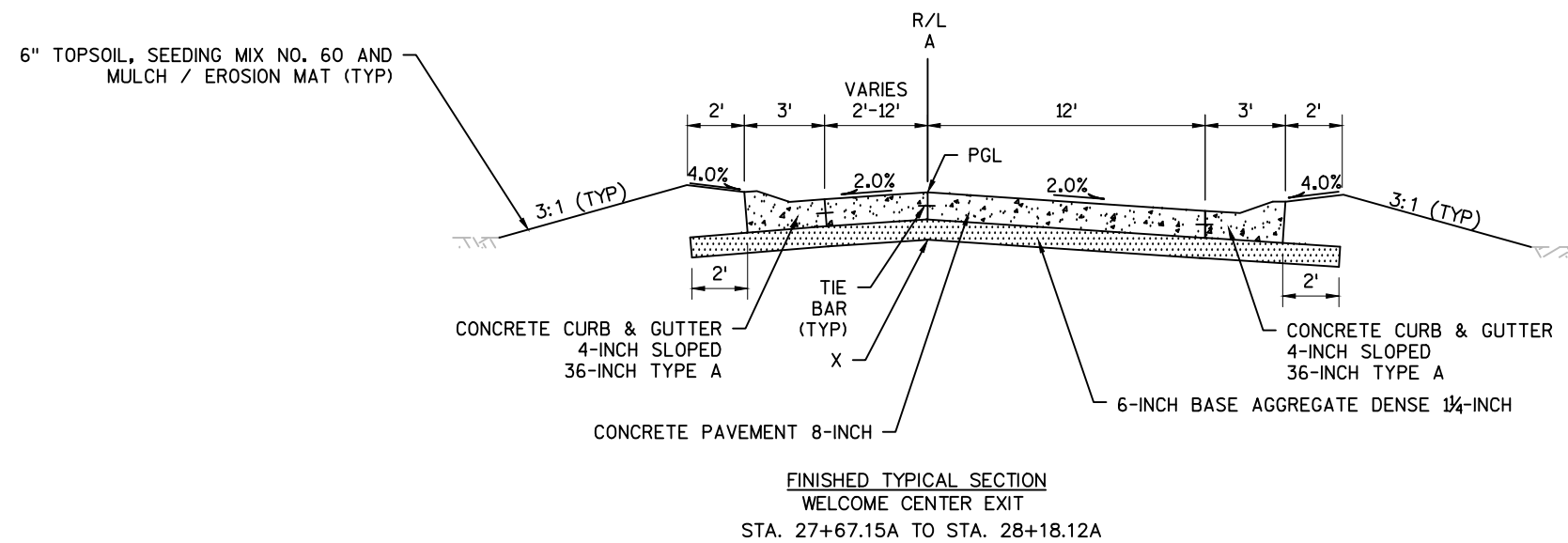
EXISTING TYPICAL SECTION
STH 120 AVE.



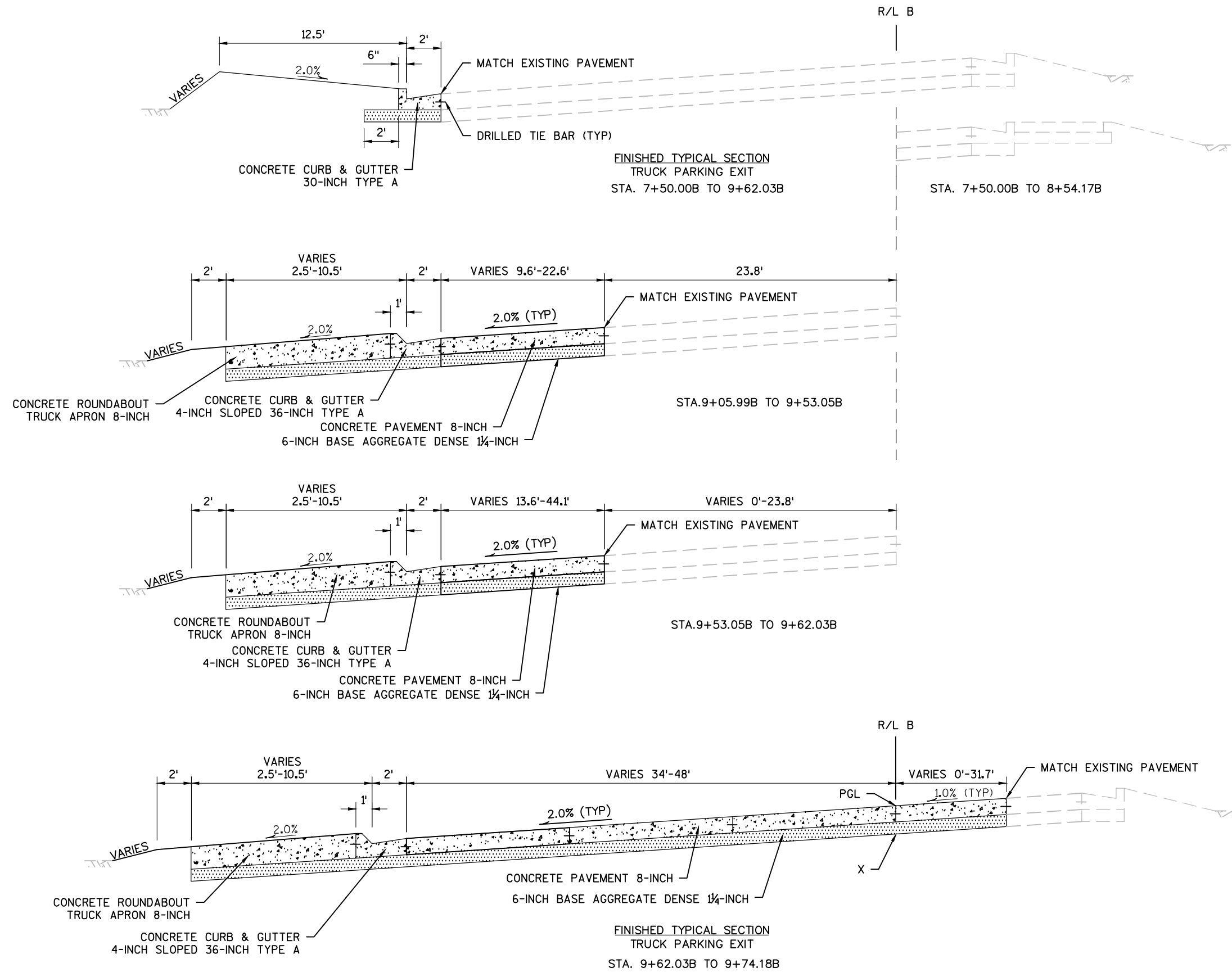
FINISHED TYPICAL SECTION
WELCOME CENTER EXIT
STA. 21+43.62A TO STA. 22+52.63A

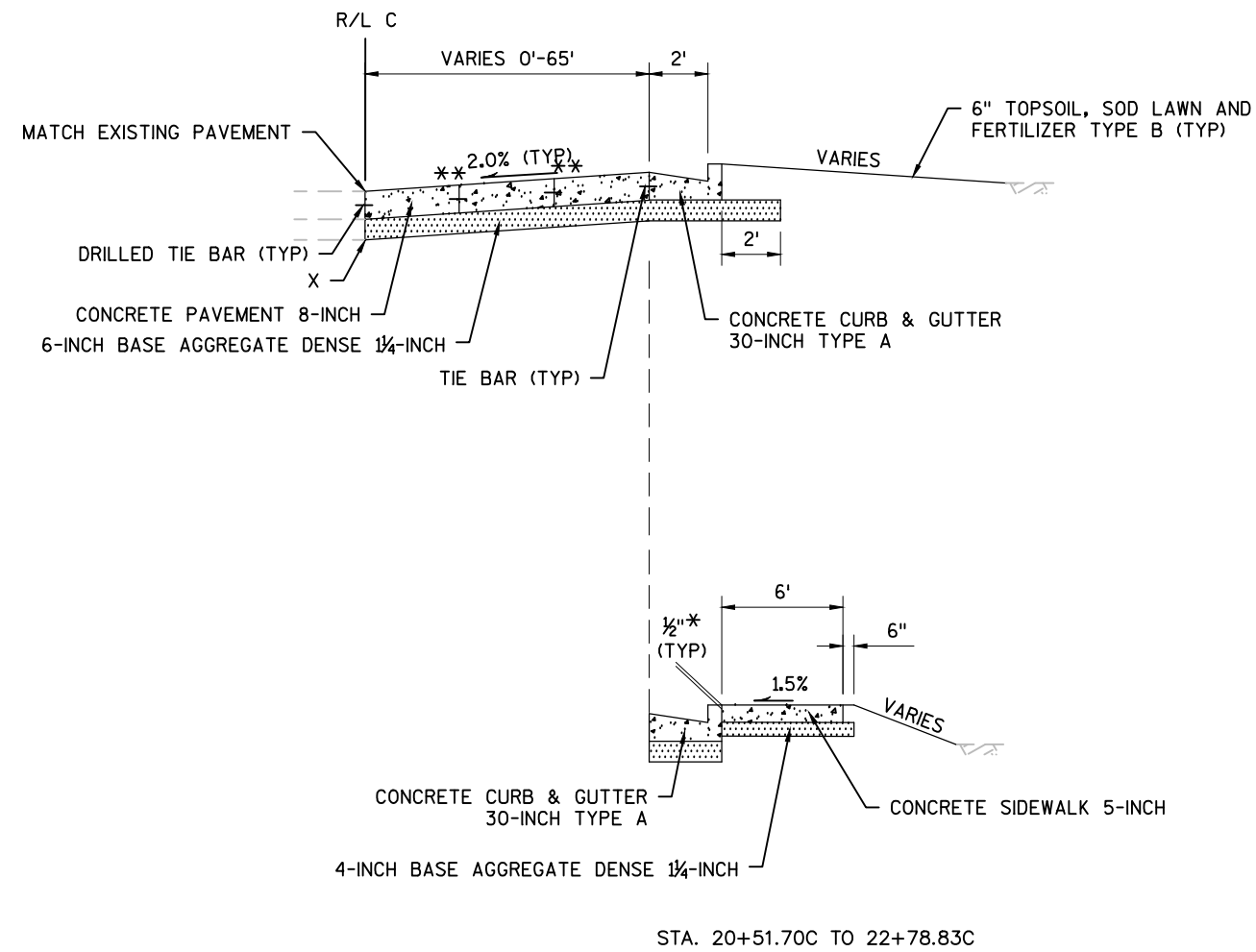


NOTE:
X = POINT REFERRED TO ON CROSS-SECTION
PGL = POINT REFERRED TO ON PROFILE



PROJECT NO:3738-08-70	HWY:STH 165	COUNTY:KENOSHA	PLAN: TYPICAL SECTIONS	SHEET 9	E
FILE NAME : N:\PDS\C3D\CAD\37380800\020301_TS.DWG		PLOT DATE : 12/6/2017 7:59 AM		PLOT BY : SPAETH, MICHELE L	
LAYOUT NAME - 03 (2)		PLOT NAME :		PLOT SCALE : 1 IN:200 FT	
WISDOT/CADDs SHEET 42					





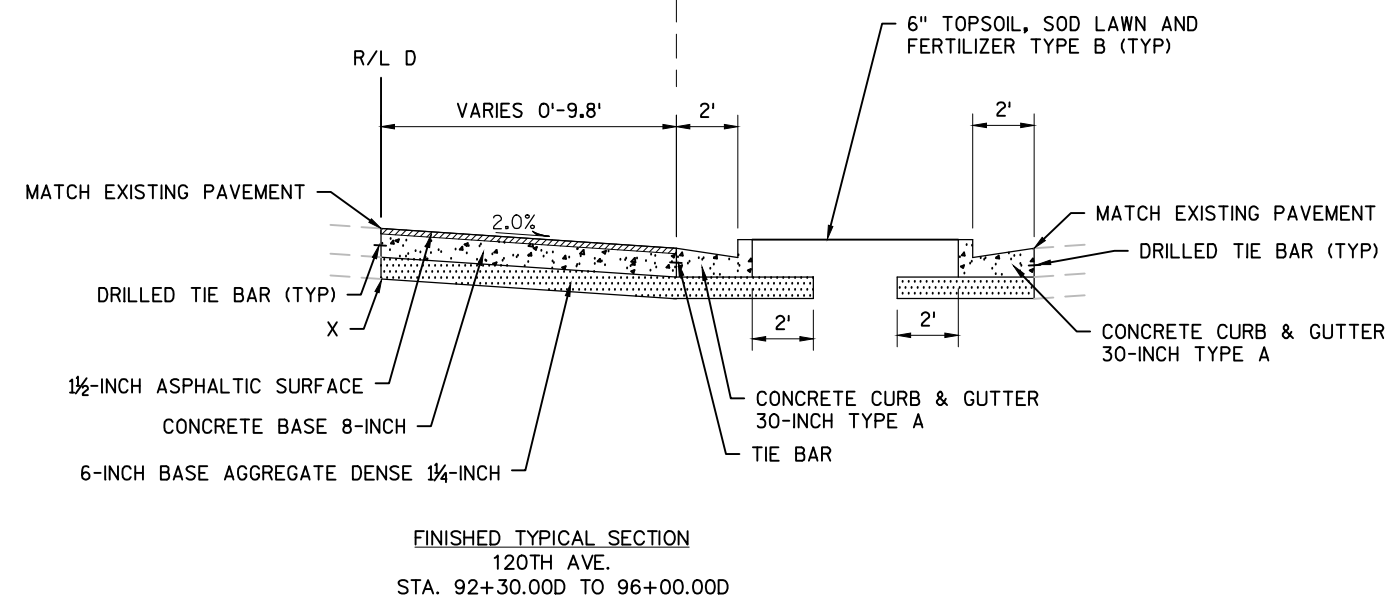
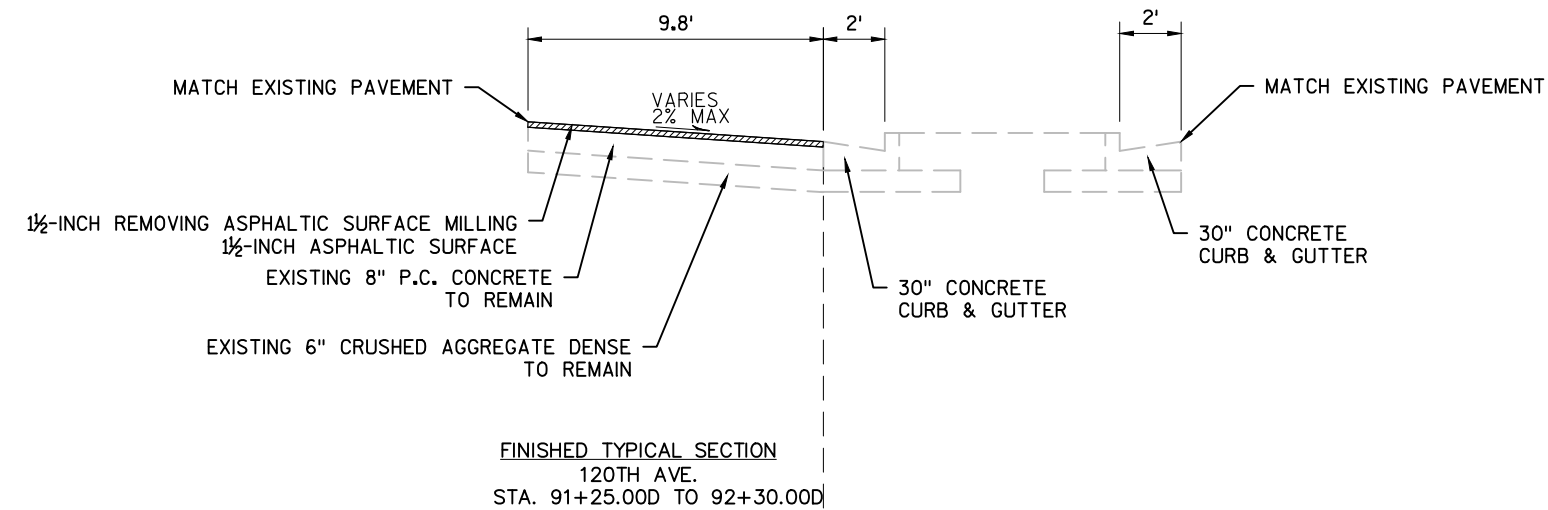
FINISHED TYPICAL SECTION
RV EXPANSION
STA. 19+00.00C TO 23+22.00C

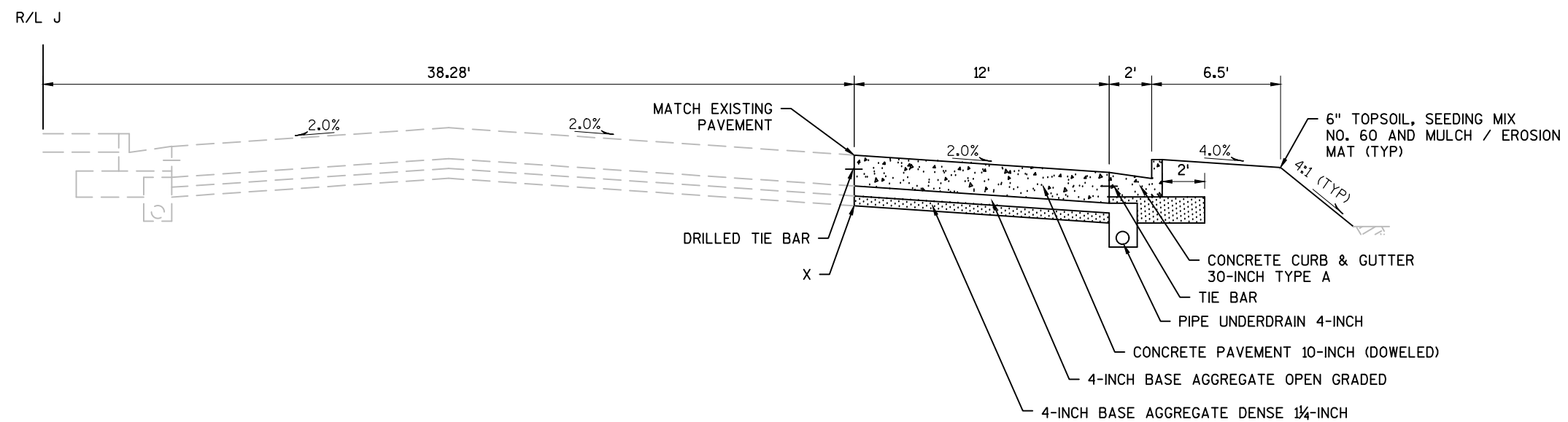
NOTE:

X = POINT REFERRED TO ON CROSS-SECTION.

* FINISH CONCRETE SIDEWALK 1/2" HIGHER THAN TOP-OF-CURB.
PLACE 1/2" EXPANSION JOINT FILLER ALONG BACK OF CURB.

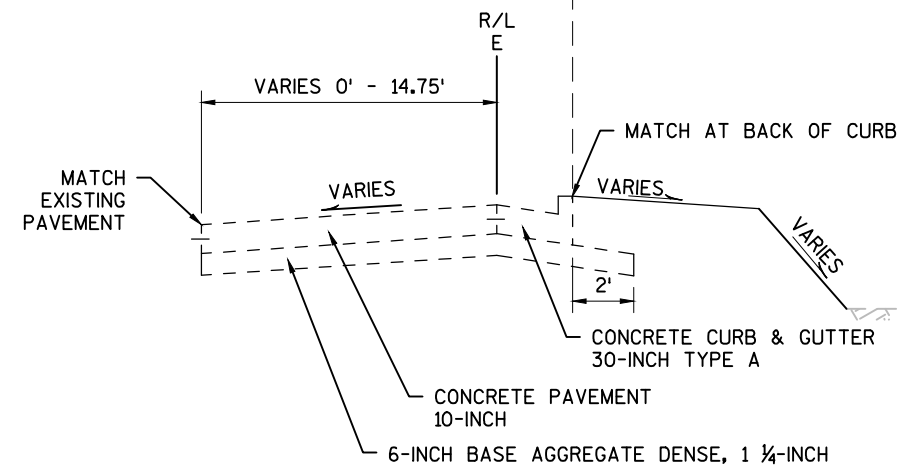
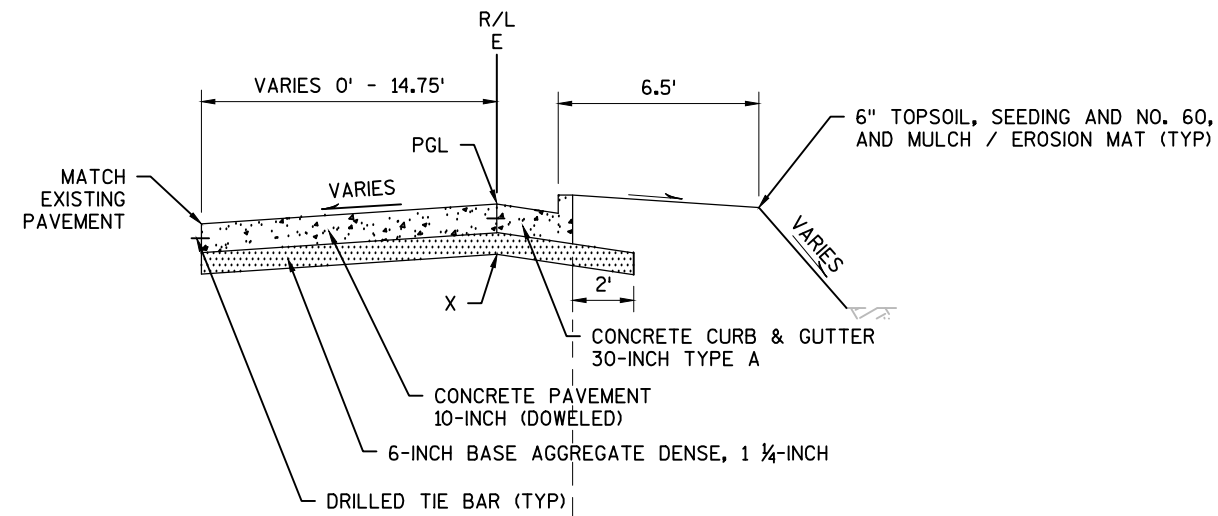
** 15' MAXIMUM SPACING FOR LONGITUDINAL JOINTS.
15' MAXIMUM SPACING FOR TRANSVERSE JOINTS.





FINISHED TYPICAL SECTION
STH 165
STA. 406+00.00J TO 411+79.33J

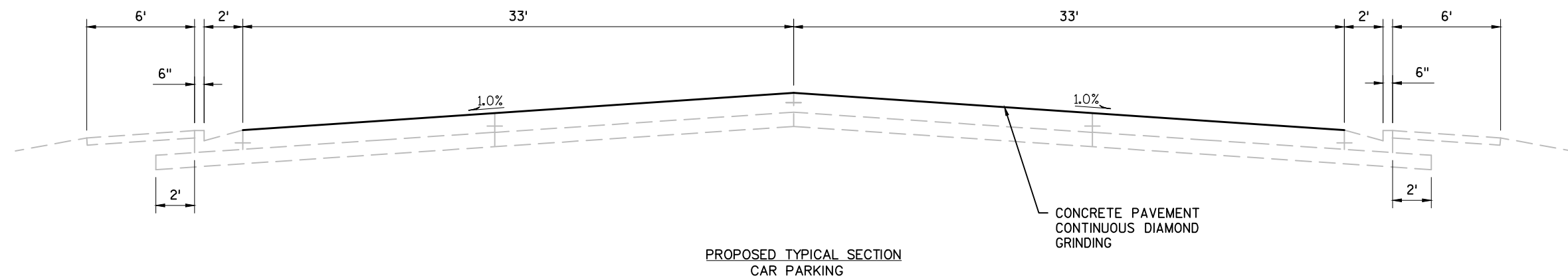
NOTE:
X = POINT REFERRED TO ON CROSS-SECTION

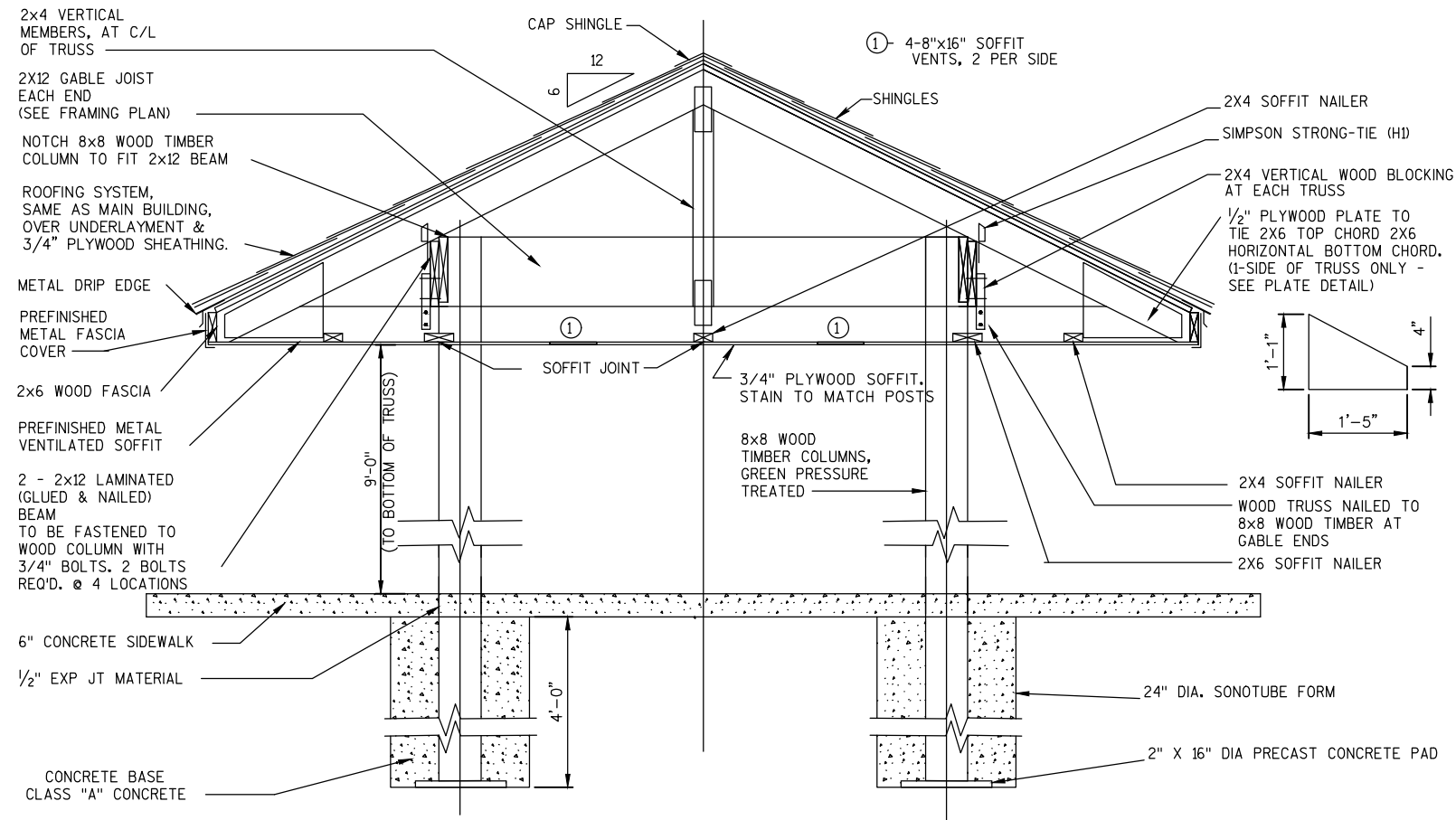


STA. 102+75.00E TO 105+50.00E

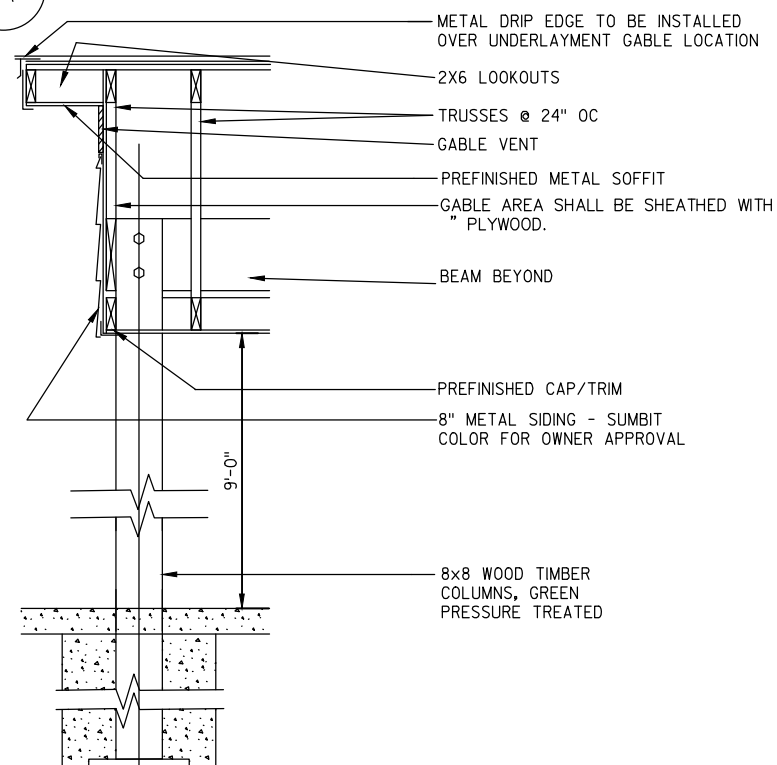
FINISHED TYPICAL SECTION
RAMP EDGE
STA. 100+00.00E TO 105+50.00E

NOTE:
X = POINT REFERRED TO ON CROSS-SECTION
PGL = POINT REFERRED TO ON PROFILE

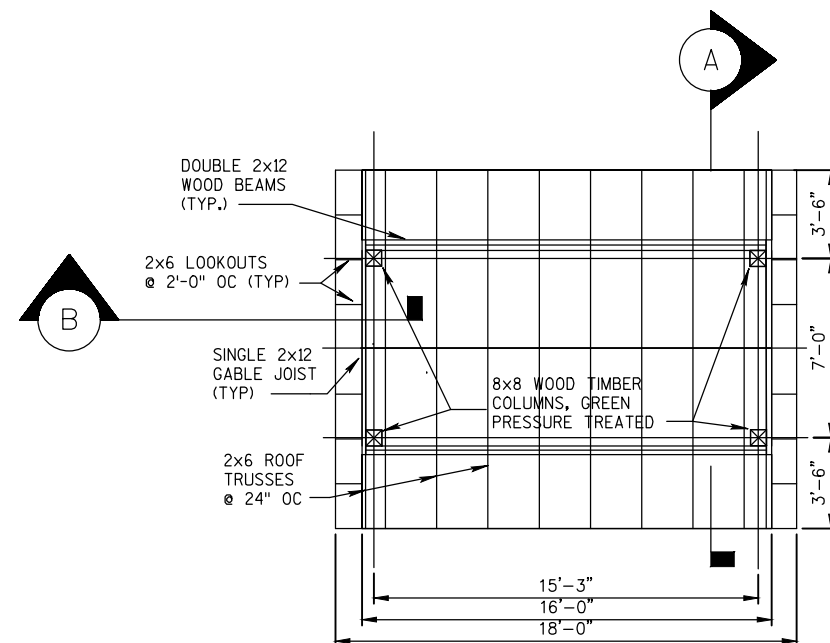




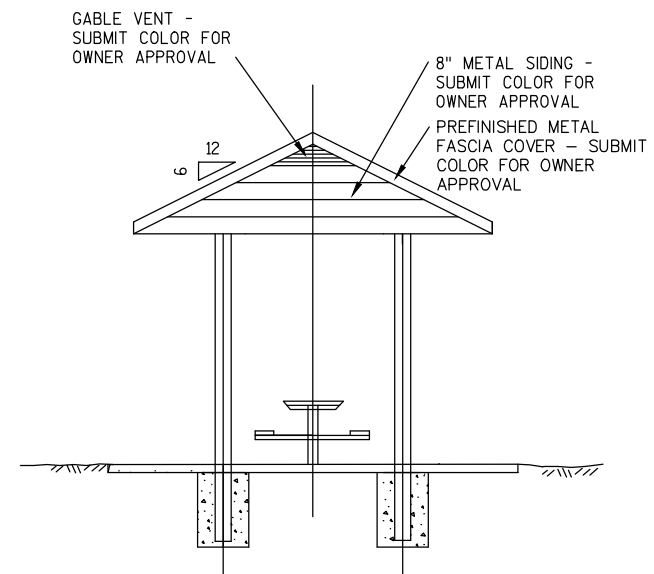
A TYPICAL CROSS-SECTION SECTION



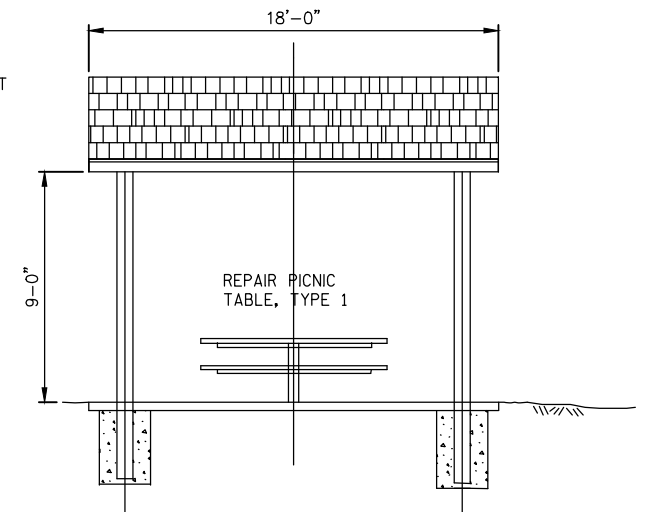
B TYPICAL GABLE SECTION



ROOF FRAMING PLAN

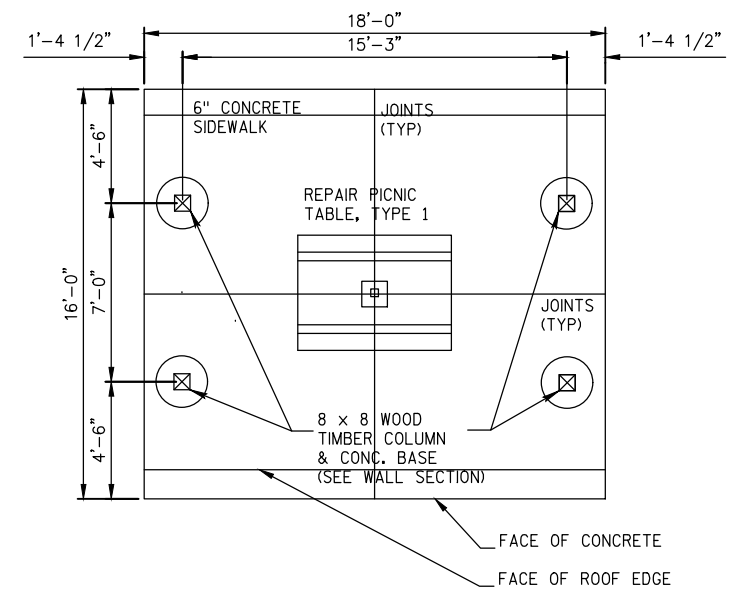


END ELEVATION

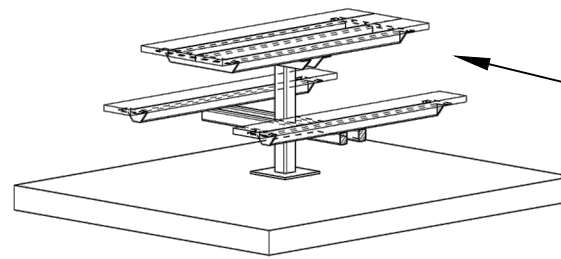
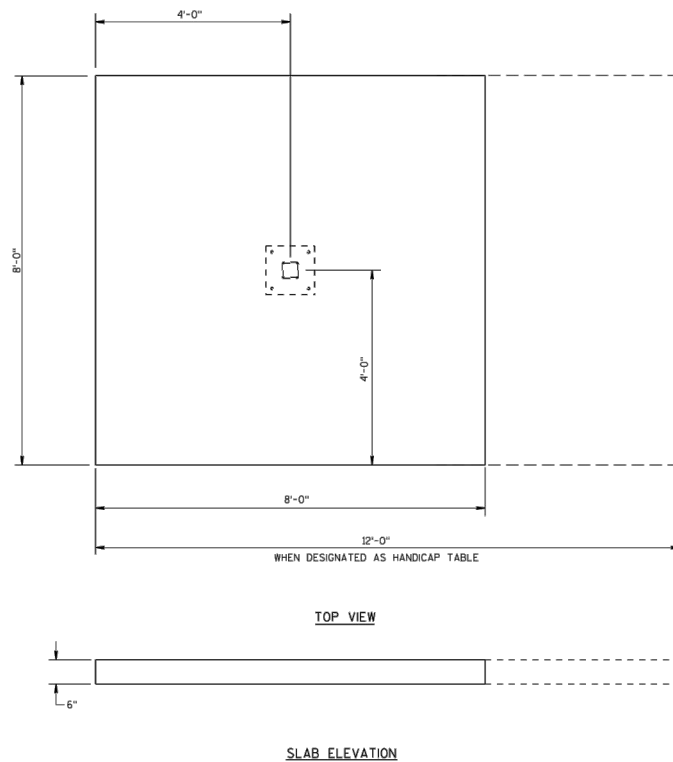


SIDE ELEVATION

- NOTES:
- A. ROOF RAFTER SHALL BE FASTENED TO THE DOUBLE 2X12 BEAM WITH APPROVED TRUSS TIES.
- B. ALL EXPOSED WOOD SHALL BE STAINED BROWN.



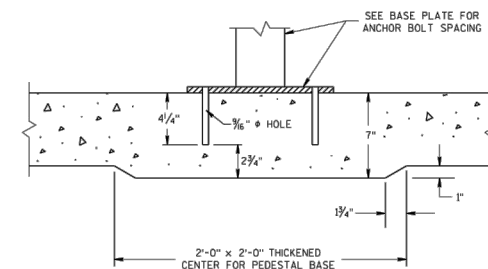
FOUNDATION/FLOOR PLAN



PERSPECTIVE VIEW

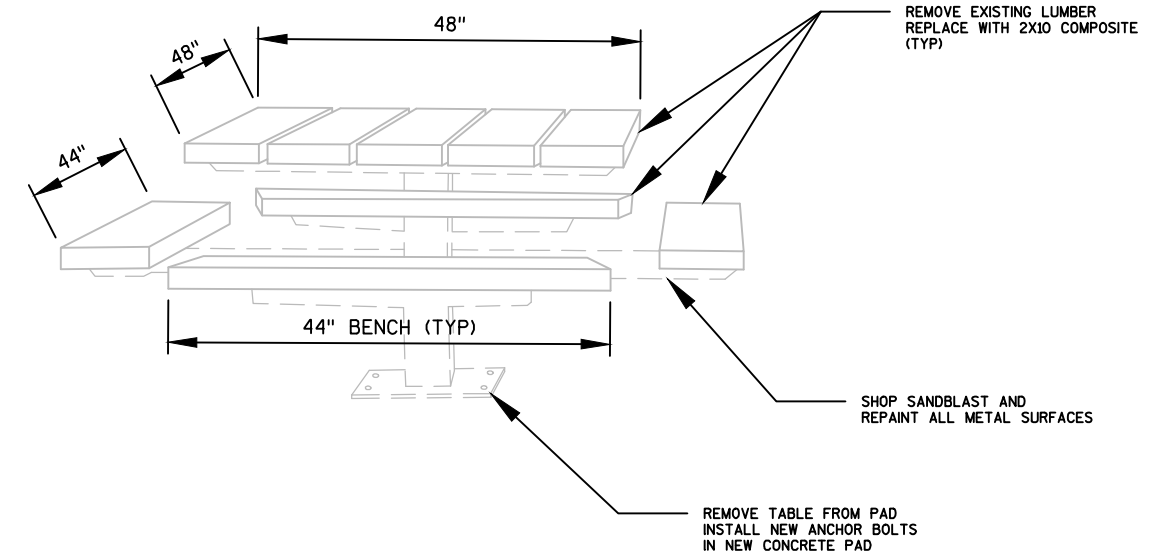
NOTES:

PICNIC TABLE PAD SHALL BE PAID FOR AS CONCRETE SIDEWALK 6-INCH.
 PICNIC TABLE PAD SHALL BE LEVEL.
 HANDICAP TABLES MUST HAVE SIDEWALK EXTENSION FOR ACCESSIBILITY.

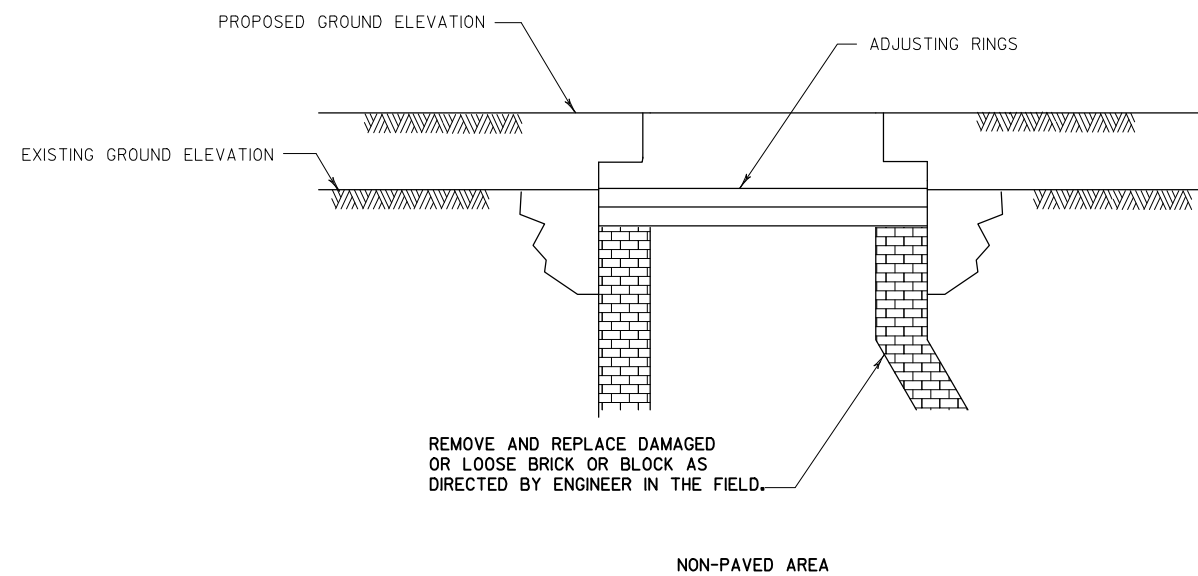


ANCHOR BOLT HOLE DETAIL

GRAPHIC FOR LAYOUT ONLY
 REUSE EXISTING TABLE FRAME

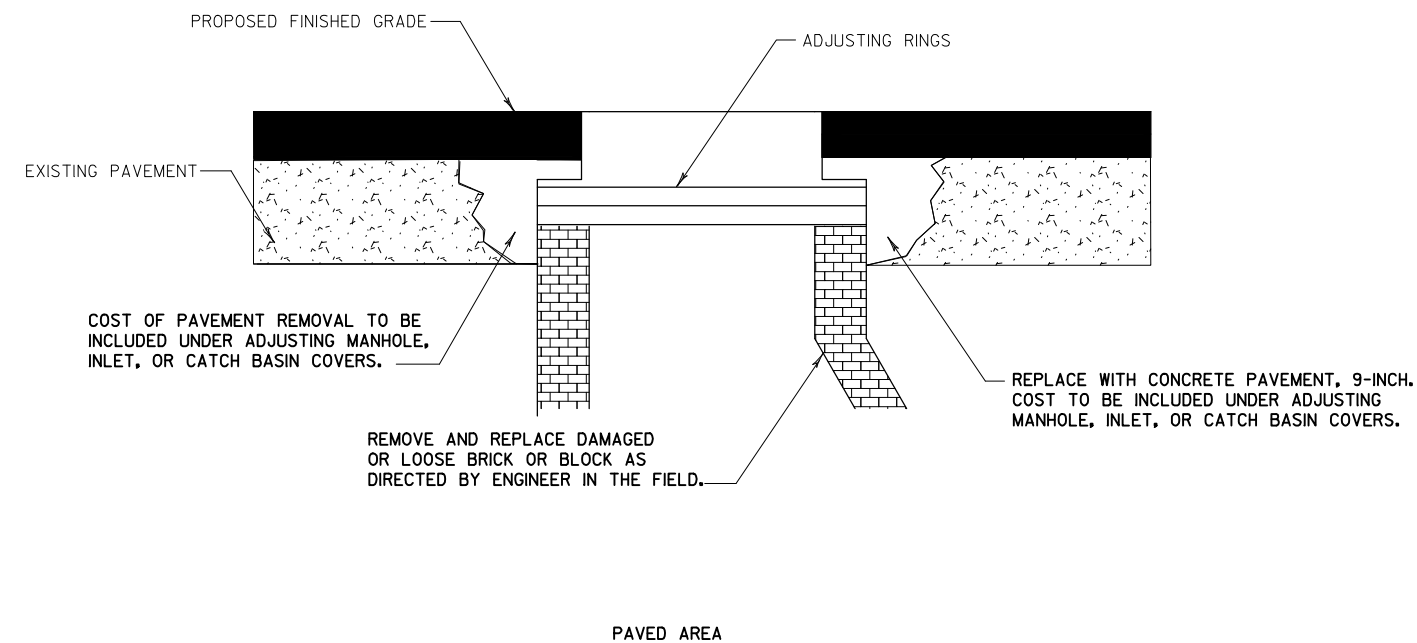


REPAIR PICNIC TABLE, TYPE 1

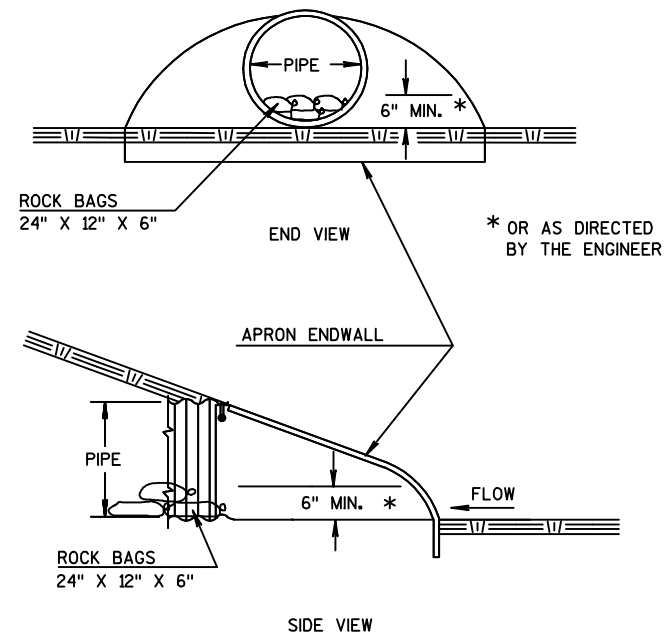


NOTE:

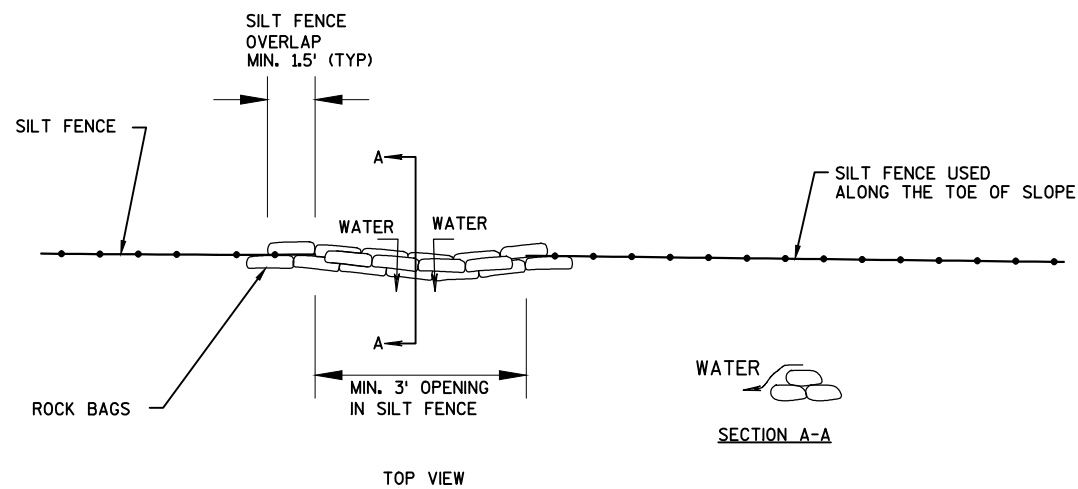
ADJUST CHIMNEY WITH PROPER SIZE CONCRETE ADJUSTING RINGS (SIZE OF OPENING OF CONCRETE ADJUSTING RING TO BE DETERMINED BY SIZE OF OPENING IN FRAME) AND REINSTALL EXISTING FRAME AND LID TO FINISHED GRADE. (BACKFILL AND OTHER WORK TO BE DONE IN ACCORDANCE WITH ITEM ADJUSTING INLET COVER.)



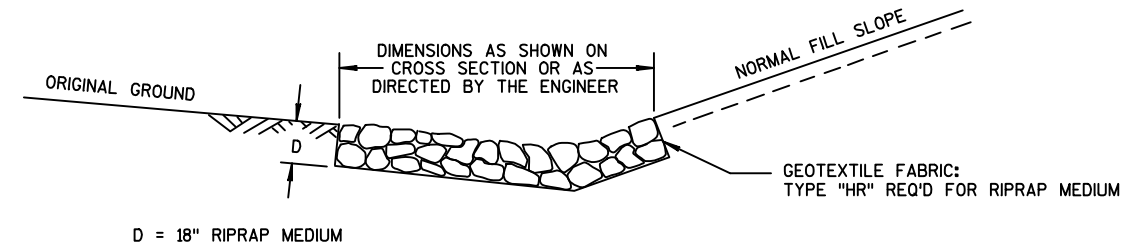
ADJUSTING MANHOLE OR INLET COVERS



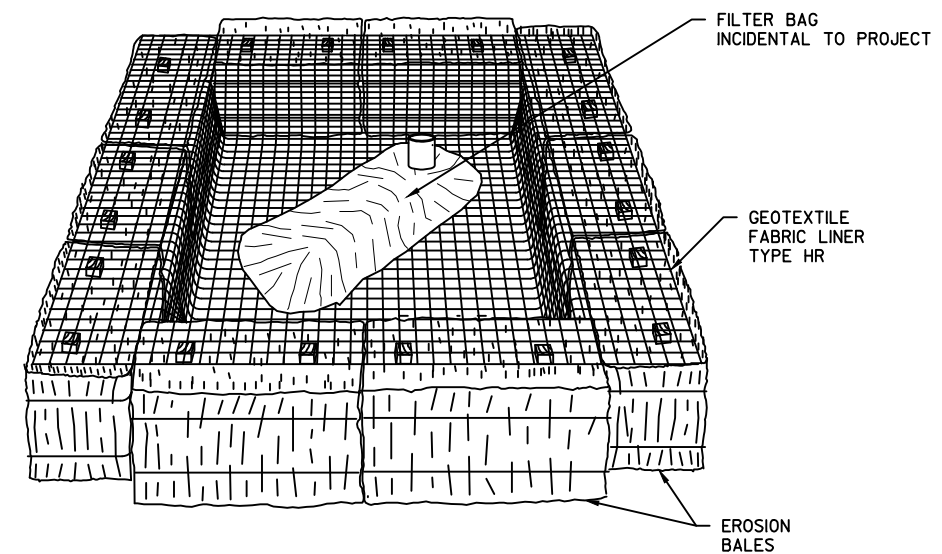
CULVERT PIPE CHECKS
PLACE AT UPSTREAM CULVERTS PIPE END



ROCK BAGS USED FOR SILT FENCE RELIEF DETAIL
SEE EROSION CONTROL PLAN FOR LOCATIONS



DETAIL FOR RIPRAP IN DITCHES
SEE EROSION CONTROL
PLAN FOR LOCATIONS



NOTE:
GEOTEXTILE FABRIC AND EROSION BALES WILL BE
PAID UNDER THE ITEMS "GEOTEXTILE TYPE HR"
AND "EROSION BALES"

TEMPORARY SETTLING BASIN
(SIZE TO BE DETERMINED IN FIELD AS INDICATED BELOW:)

STORAGE VOLUME (C.F.) = 16 X GPM (PUMP RATE)

EXAMPLE:

CONTRACTOR INDICATES PUMP CAPABLE OF 50 GPM
HEIGHT OF BALES = 1.5 FT.

SOLUTION:

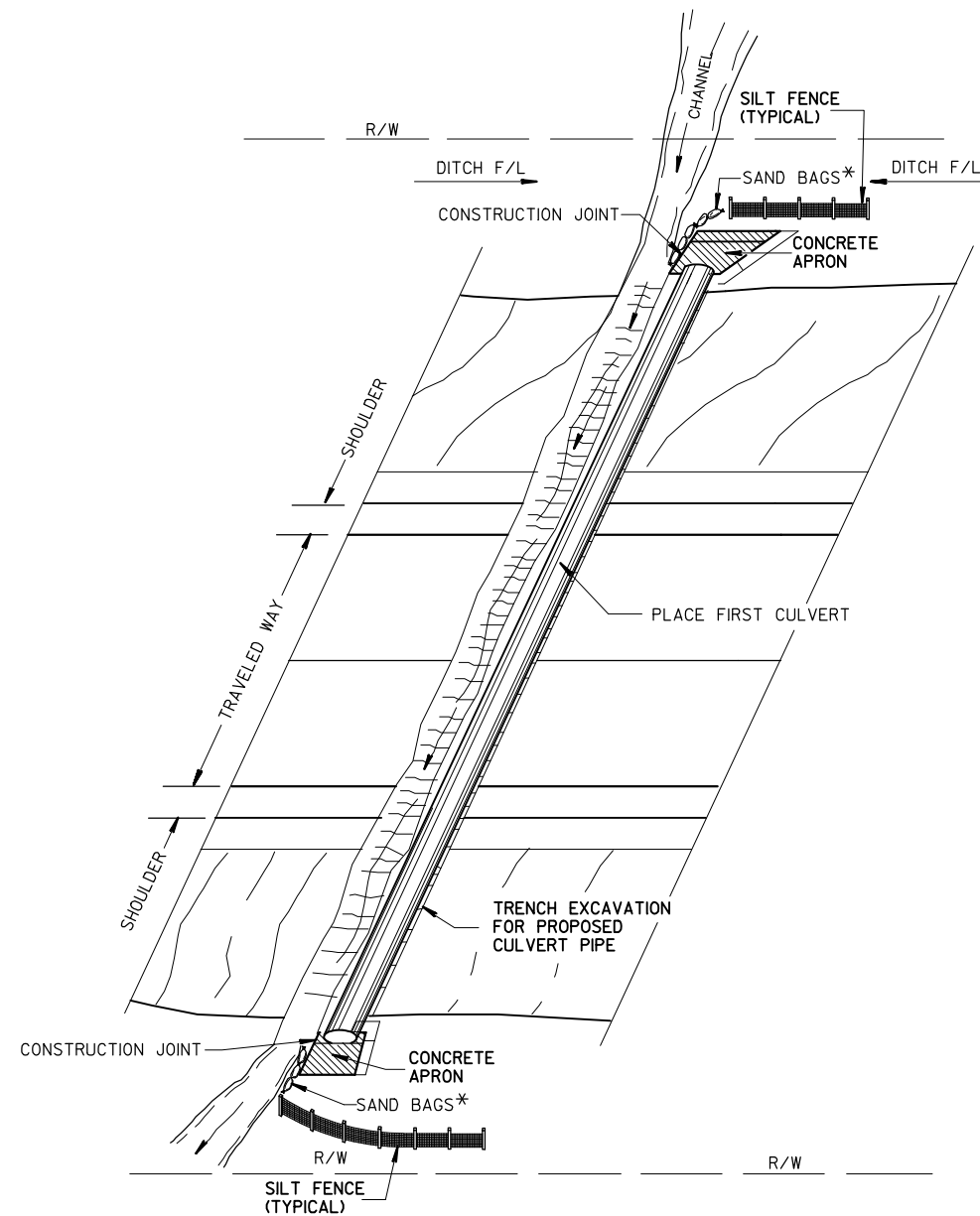
SV (C.F.) = 16 X 50

SV = 800 C.F.

$\frac{800 \text{ C.F.}}{1.5 \text{ FT.}} = 533 \text{ S.F.}$

USE A 20 FT. X 27 FT. BASIN

STAGE CONSTRUCTION DETAILS FOR CULVERT INSTALLATION IN CHANNEL

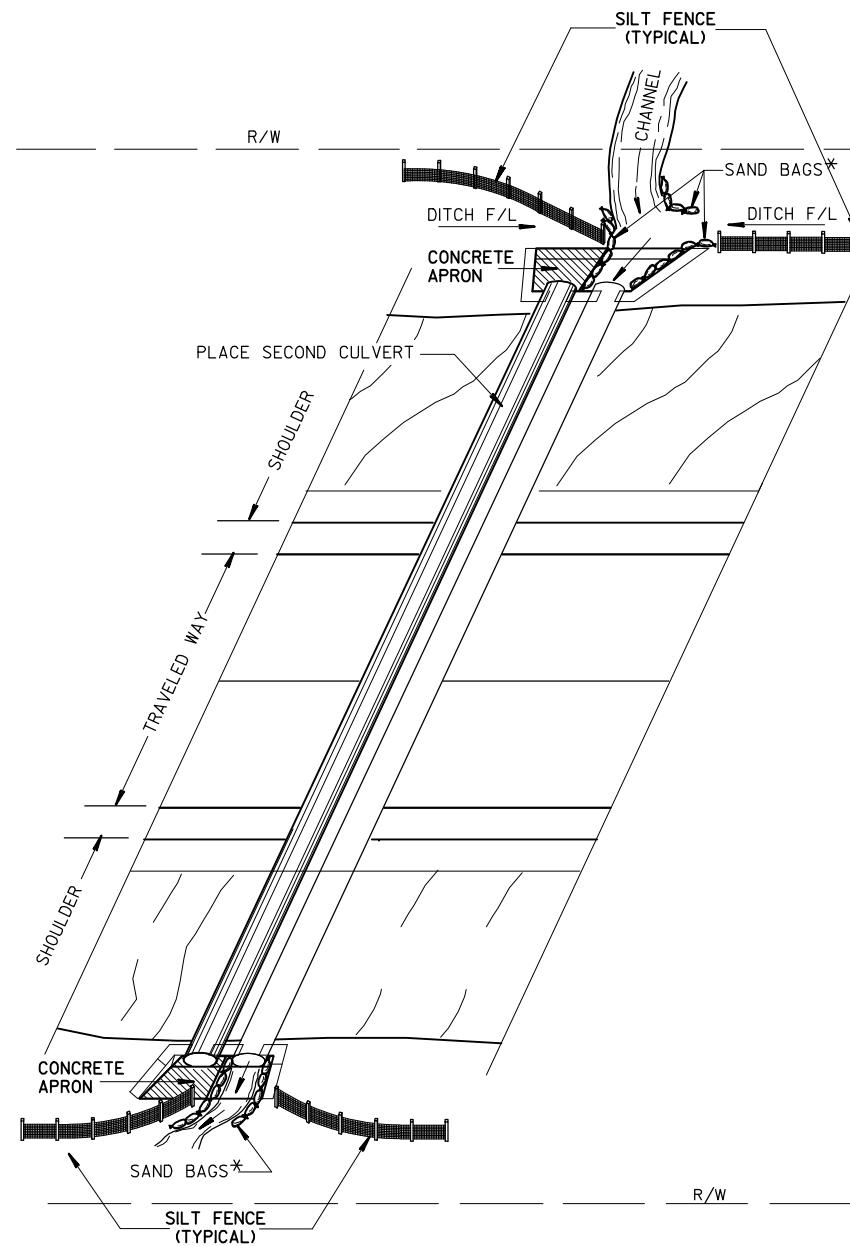


STAGE 1

- NO EXISTING CULVERT JUST CHANNEL
- REPOSITION SAND BAGS AND SILT FENCE.
- EXCAVATE TRENCH FOR CULVERT PIPE.
- CONSTRUCT ONE - HALF OF EACH CONCRETE APRON.
- PLACE CULVERT PIPE AND BACKFILL

NOTE: ALL WORK SHALL BE WITHIN EXISTING R/W. EROSION CONTROL DEVICES TO BE LOCATED AS SHOWN AND AS DIRECTED BY THE ENGINEER.

* SANDBAGS ARE INCIDENTAL TO THE INSTALLATION OF THE CULVERT PIPE

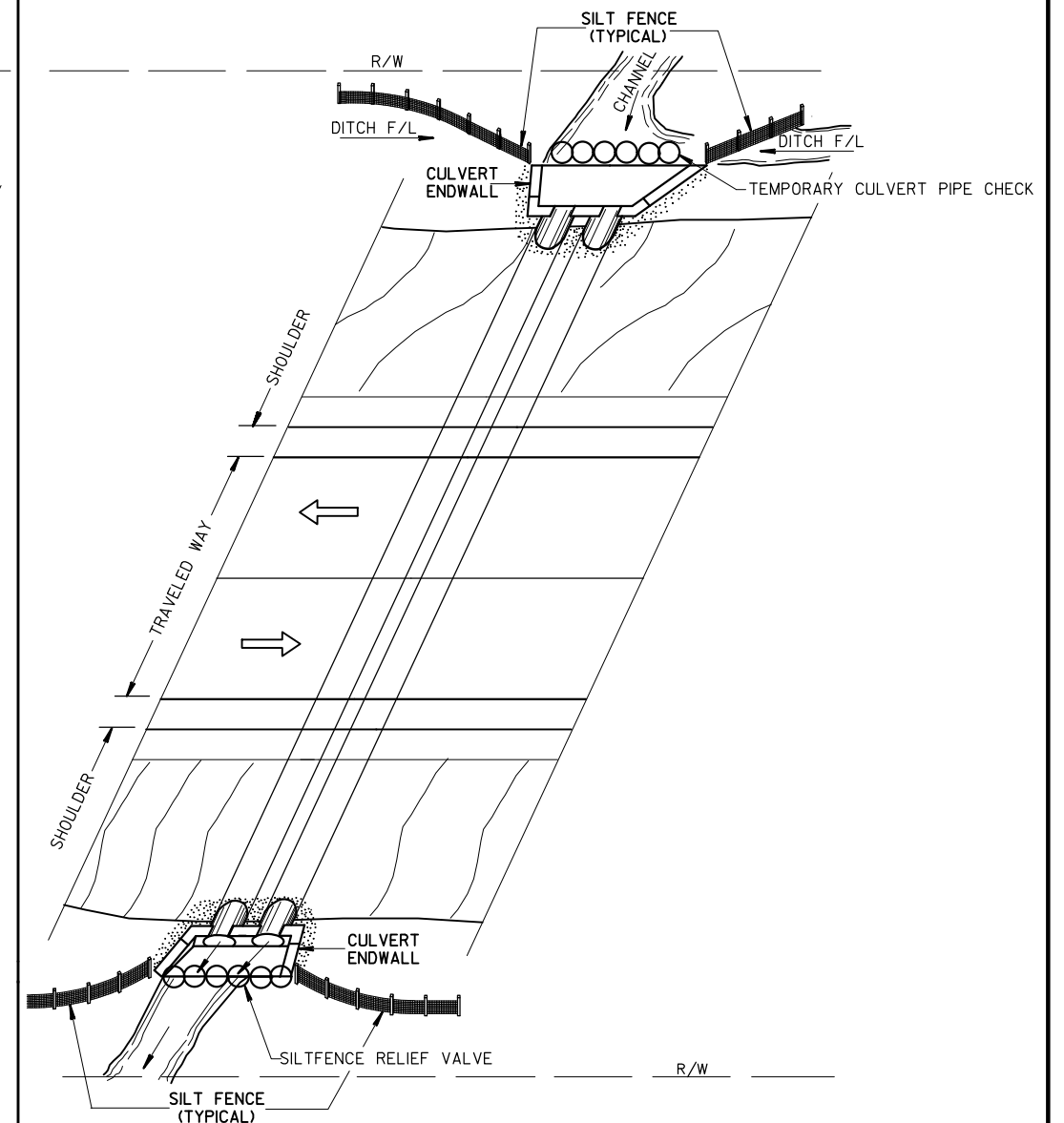


STAGE 2

- REPOSITION SAND BAGS AND SILT FENCE.
- DIVERT CHANNEL THROUGH NEW CULVERT PIPE.
- CONSTRUCT REMAINING HALF OF EACH CONCRETE APRON.
- PLACE CULVERT PIPE AND BACKFILL
- CONSTRUCT PAVEMENT STRUCTURE OVER NEW CULVERT PIPE.
- TOPSOIL, SEED, AND EROSION MAT DISTURBED AREAS.

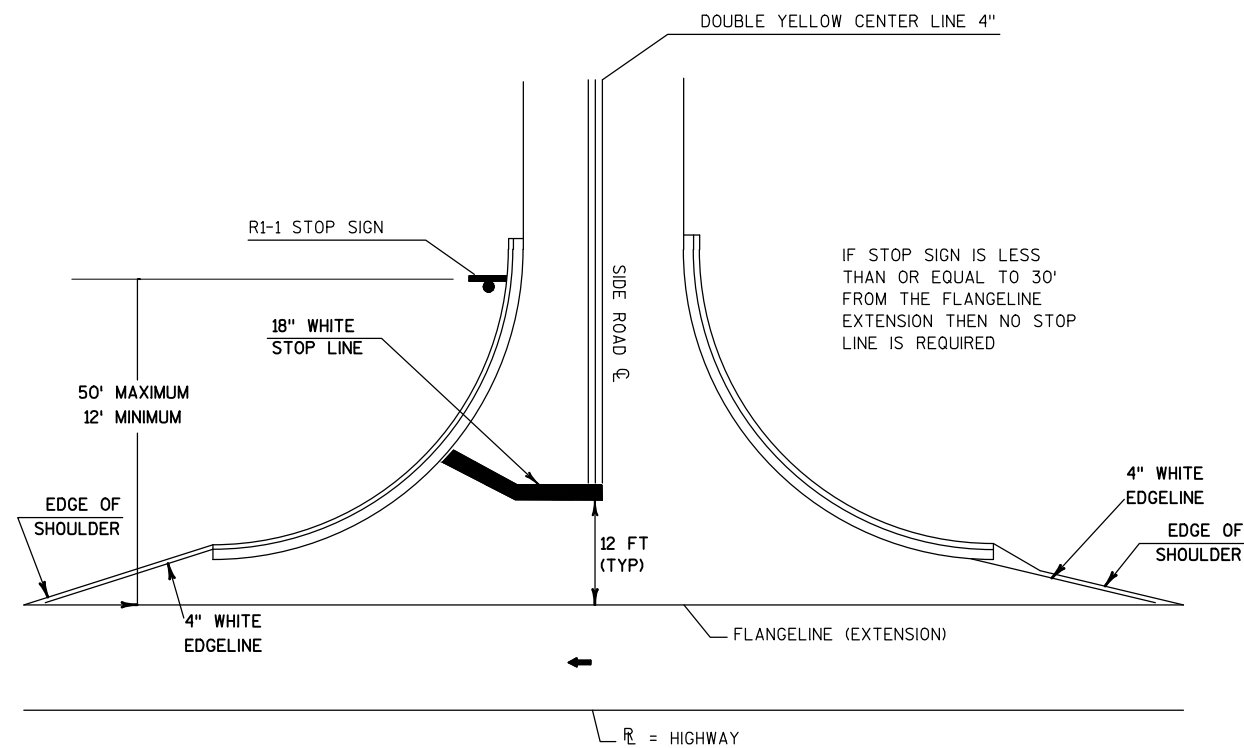
NOTE: AREAS REQUIRING DE-WATERING DURING ANY CONSTRUCTION STAGE, SHALL FOLLOW PROCEDURES DETAILED ELSEWHERE IN THE PLANS OR SPECIFICATIONS.

* SANDBAGS ARE INCIDENTAL TO THE INSTALLATION OF THE CULVERT PIPE

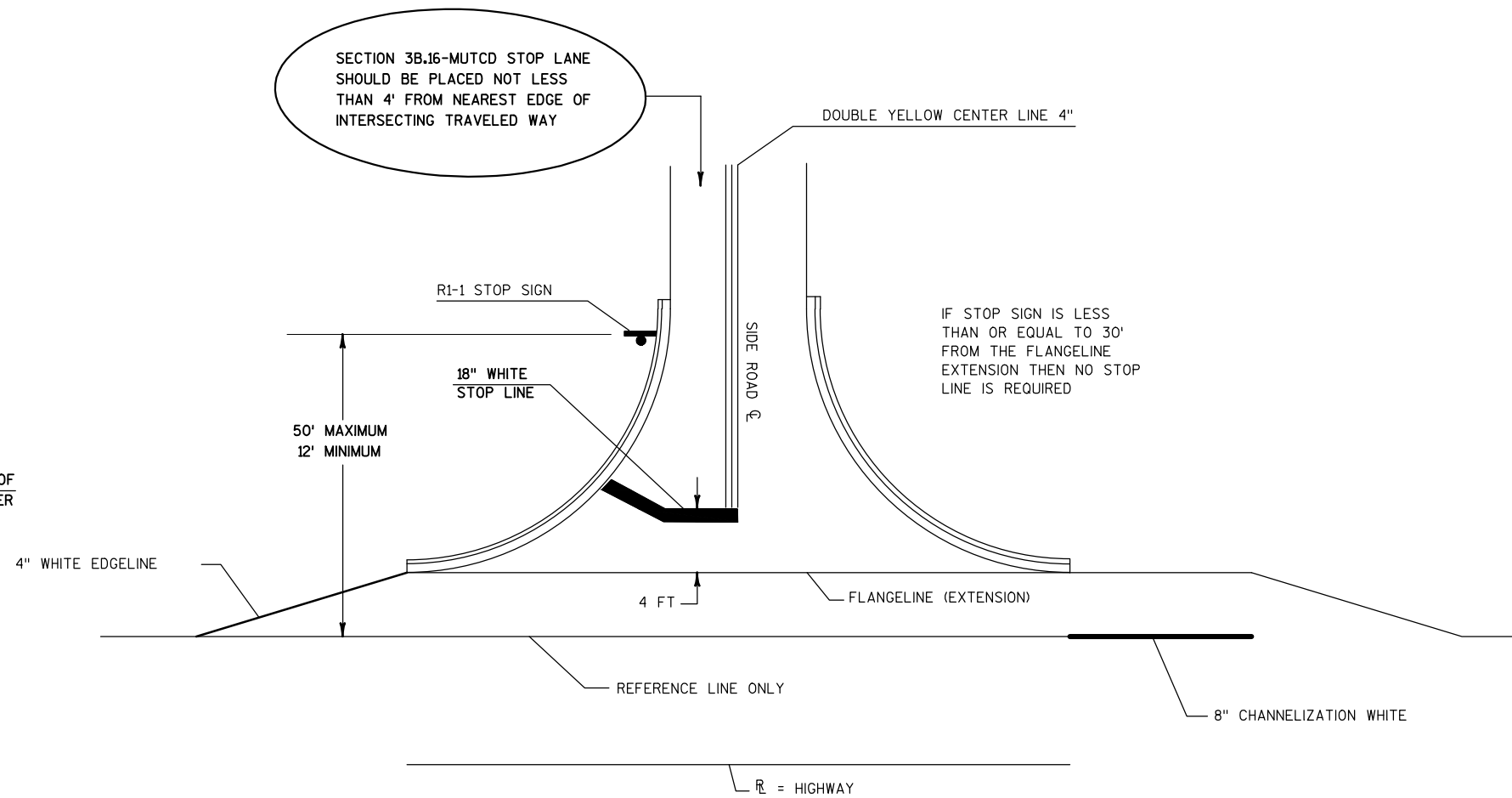


STAGE 3

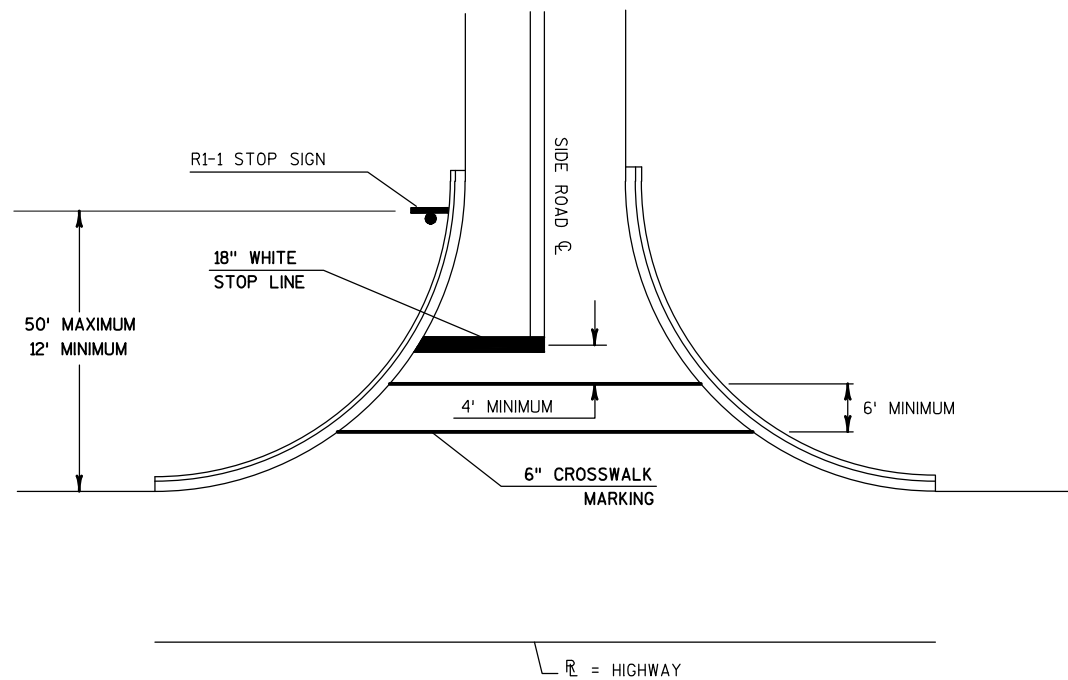
- OPEN BOTH CULVERT PIPES TO CHANNEL.
- REPOSITION SILT FENCE AS REQUIRED.
- CONSTRUCT CULVERT ENDWALLS.
- PLACE SILT FENCE RELIEF VALVE AT DISCHARGE END.
- COMPLETE TOPSOILING, SEEDING, AND EROSION MAT OF REMAINING DISTURBED AREAS.



TYPICAL PAVEMENT MARKING FOR SIDEROADS



TYPICAL PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



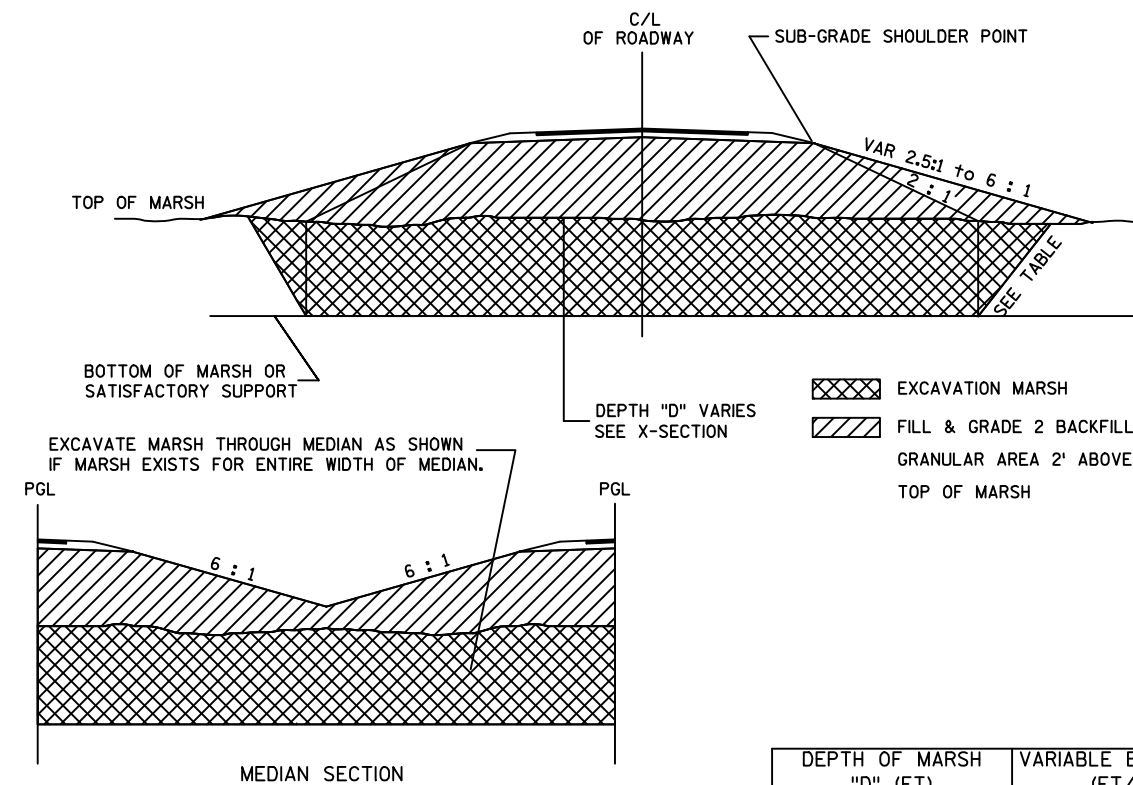
TYPICAL PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING

NOTES:

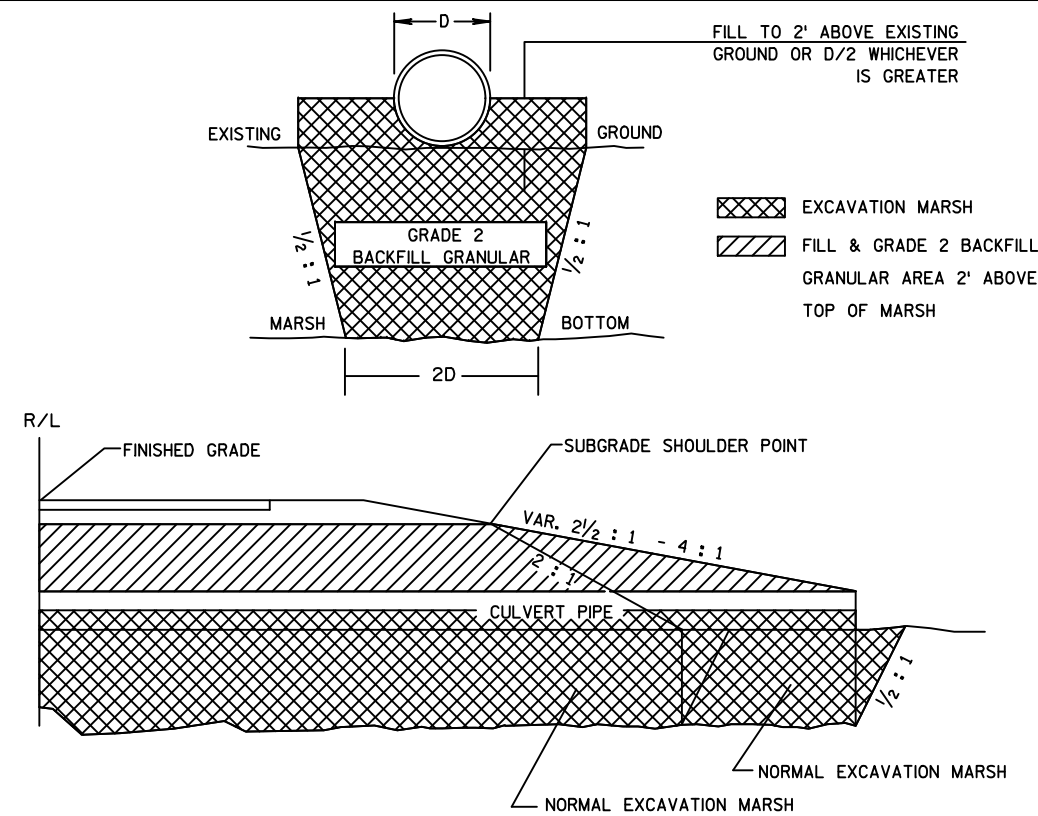
18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE PROJECT ENGINEER BASED ON VISIBILITY AND SIGHT LINES.

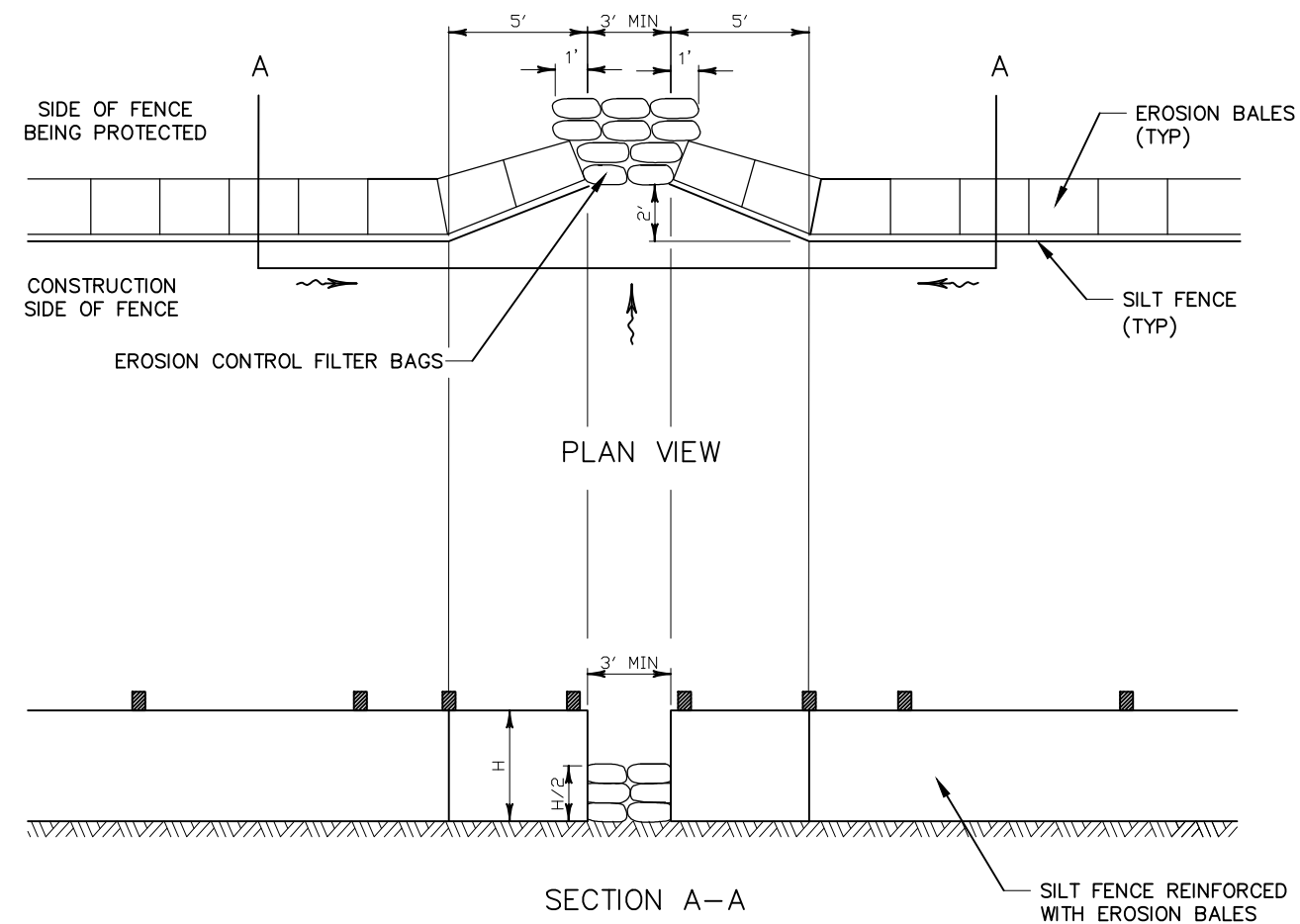
STOP LINES REQUIRED WHERE:

- CROSSWALK MARKINGS EXIST OR BEING PROVIDED
- LARGE RADII
- OFFSET LEFT TURNS WHERE STOP BAR FOR LEFT TURN IS SET BACK FROM THRU MOVEMENT.



DEPTH OF MARSH "D" (FT)	VARIABLE BACKSLOPE (FT/FT)
0 TO 8	1 : 1
8 TO 12	1.5 : 1
12 +	2 : 1



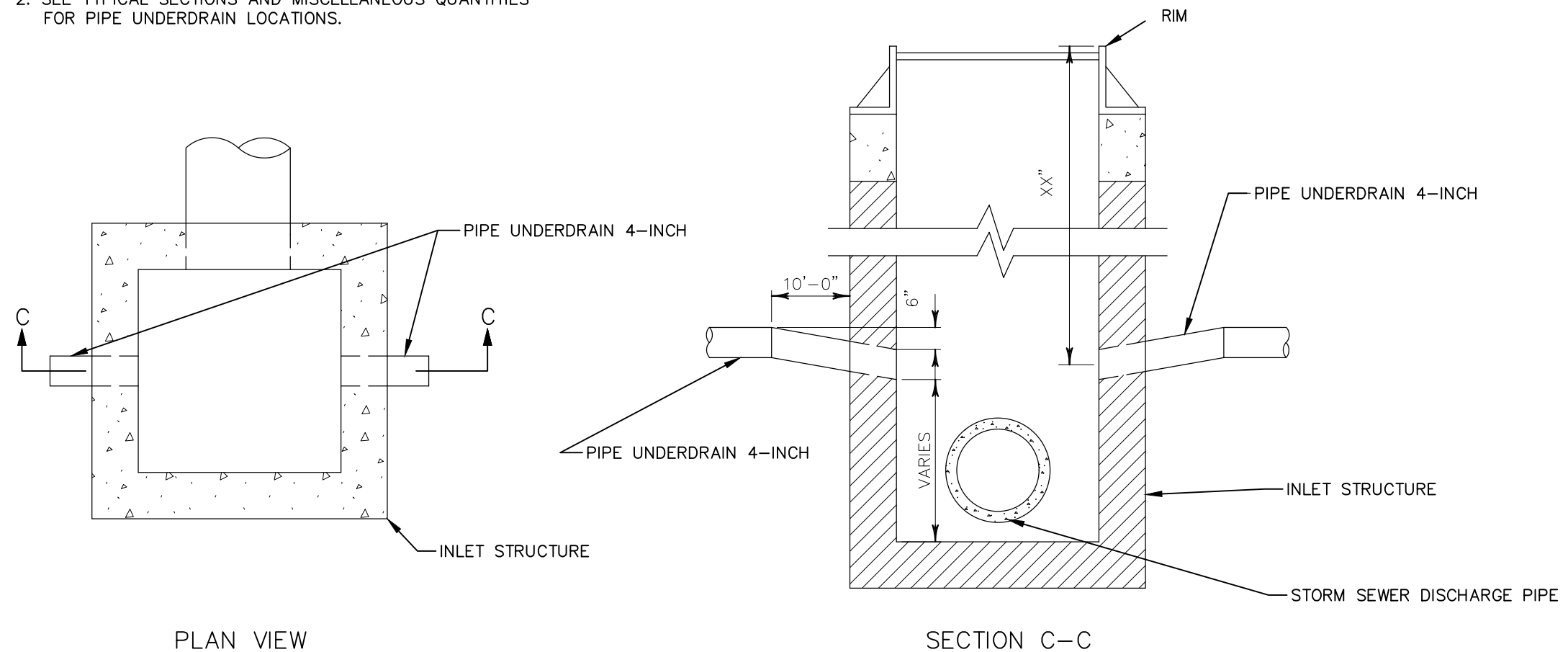


NOTE: DIMENSIONS MAY BE ADJUSTED TO FIT FIELD CONDITIONS
AS DIRECTED BY THE ENGINEER.

SILT FENCE DRAINAGE OUTLET, EROSION CONTROL FILTER BAGS
(FOR USE IN ENVIRONMENTALLY SENSITIVE AREAS)

NOTES

1. PROVIDE 4" DIA. OPENINGS FOR UNDERDRAIN PIPE AS NECESSARY.
2. SEE TYPICAL SECTIONS AND MISCELLANEOUS QUANTITIES FOR PIPE UNDERDRAIN LOCATIONS.



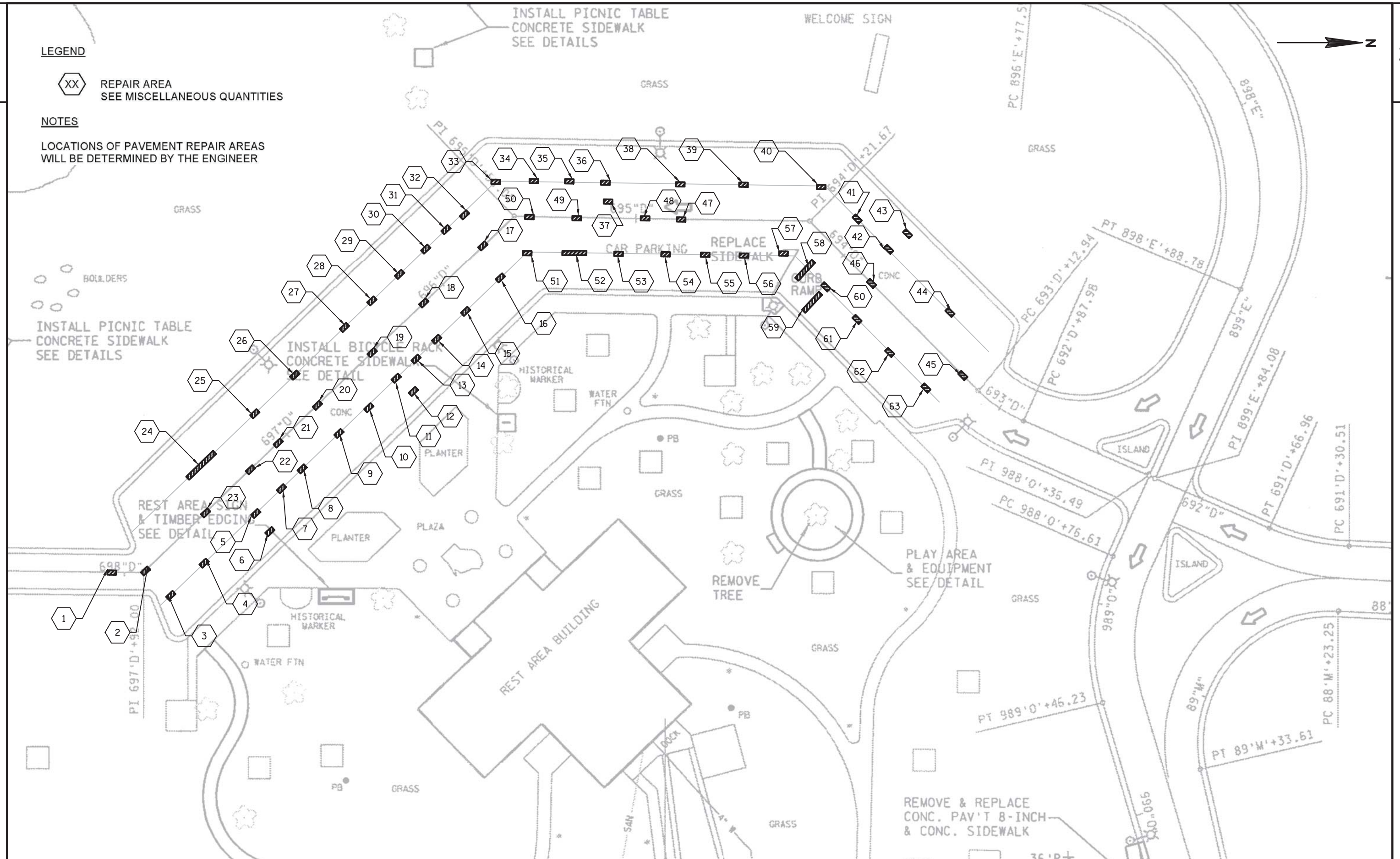
UNDERDRAIN OUTFALL AT INLET

LEGEND

XX REPAIR AREA
SEE MISCELLANEOUS QUANTITIES

NOTES

LOCATIONS OF PAVEMENT REPAIR AREAS
WILL BE DETERMINED BY THE ENGINEER



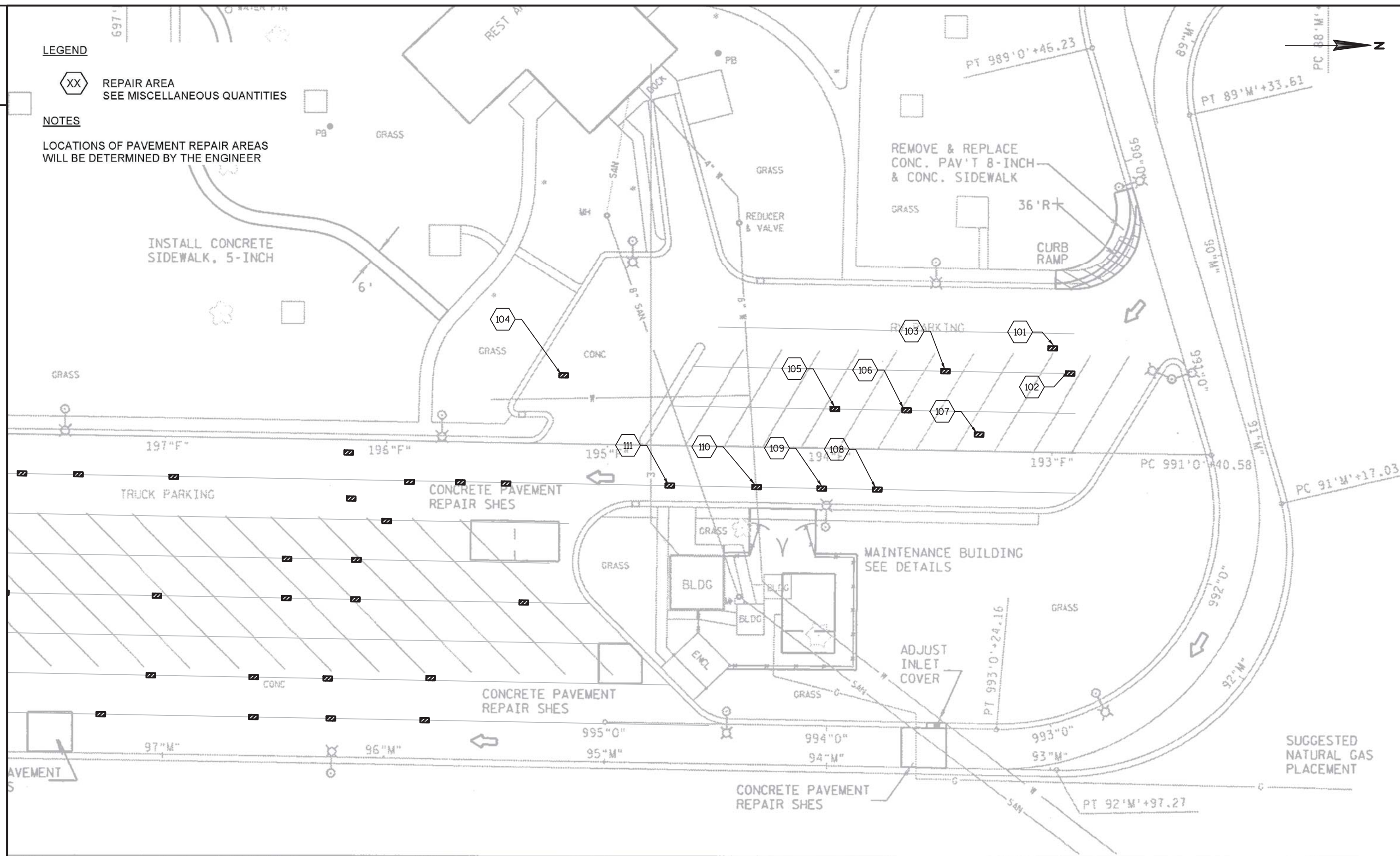
LEGEND



REPAIR AREA
SEE MISCELLANEOUS QUANTITIES

NOTES

LOCATIONS OF PAVEMENT REPAIR AREAS
WILL BE DETERMINED BY THE ENGINEER

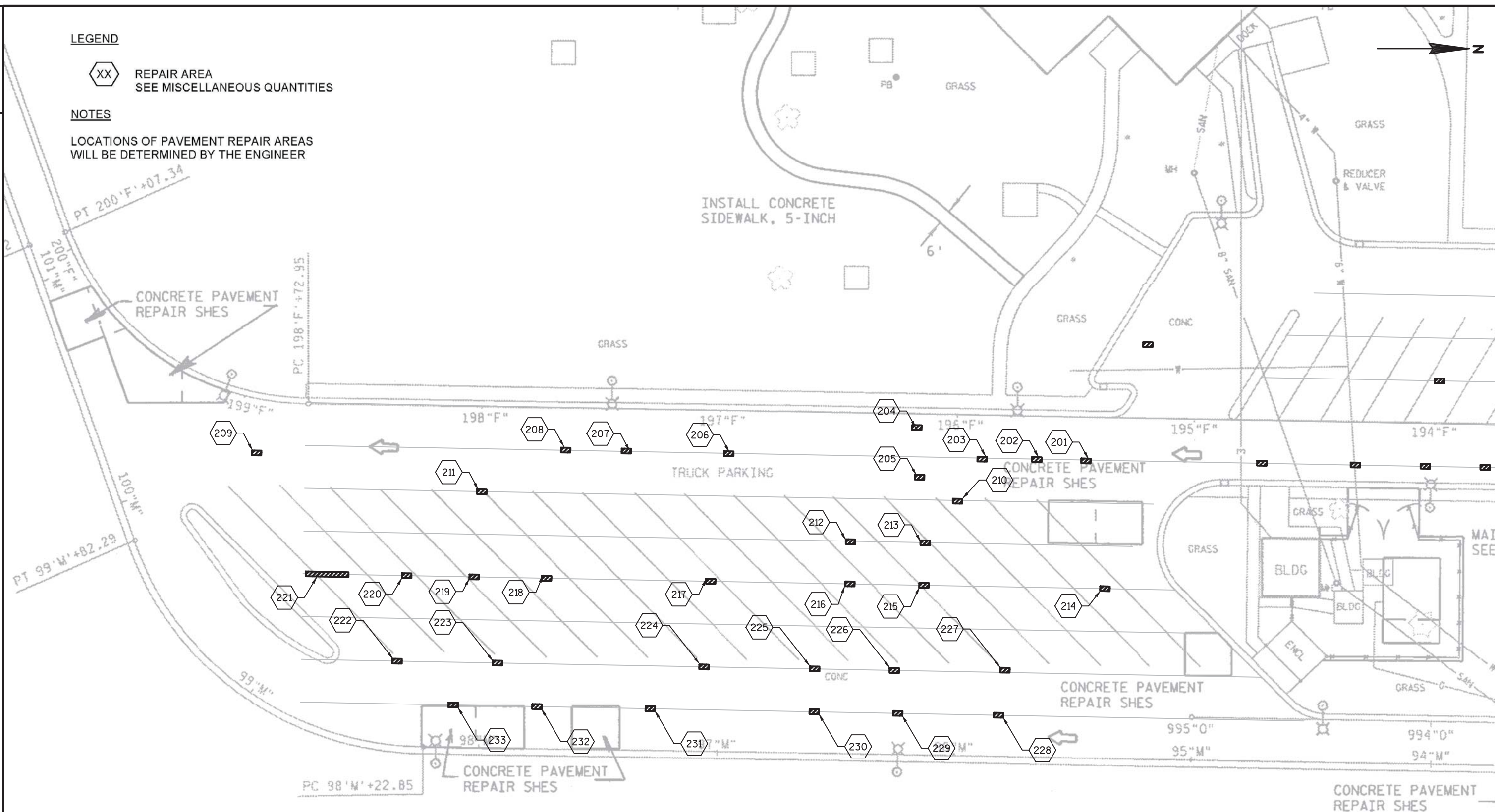


LEGEND

XX REPAIR AREA
SEE MISCELLANEOUS QUANTITIES

NOTES

LOCATIONS OF PAVEMENT REPAIR AREAS
WILL BE DETERMINED BY THE ENGINEER



HWY: IH 94

COUNTY: KENOSHA

KENOSHA TRAVEL INFO. CENTER

PLOT DATE : 21-MAY-2004 08:52

PLOT BY : DOTRES

PLOT NAME : PLAN.dgn

ORG DATE : 2-24-2004

Originator : BHO -

PROJECT NO: 3738-08-70

HWY: IH 94

COUNTY: KENOSHA

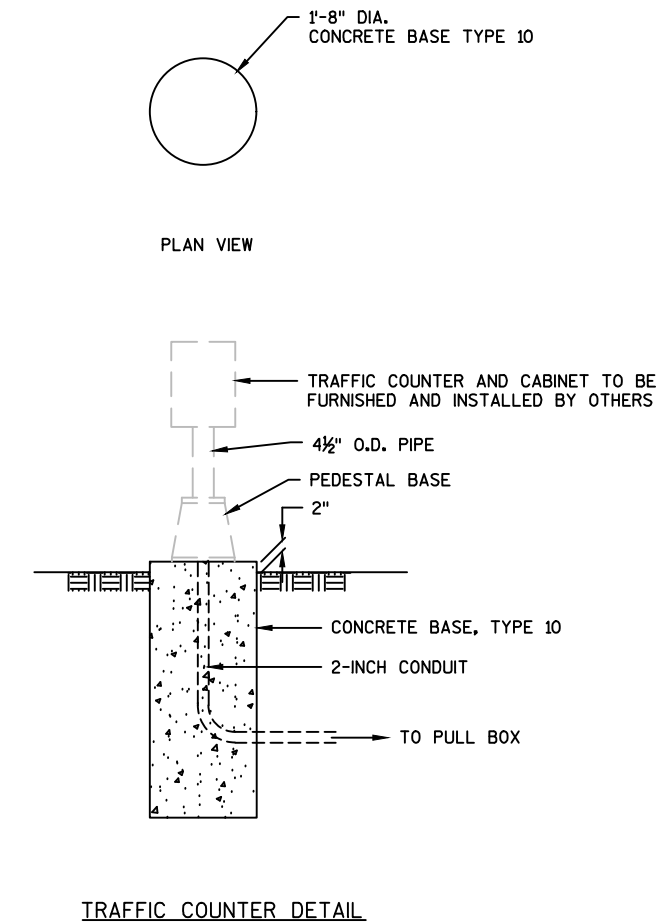
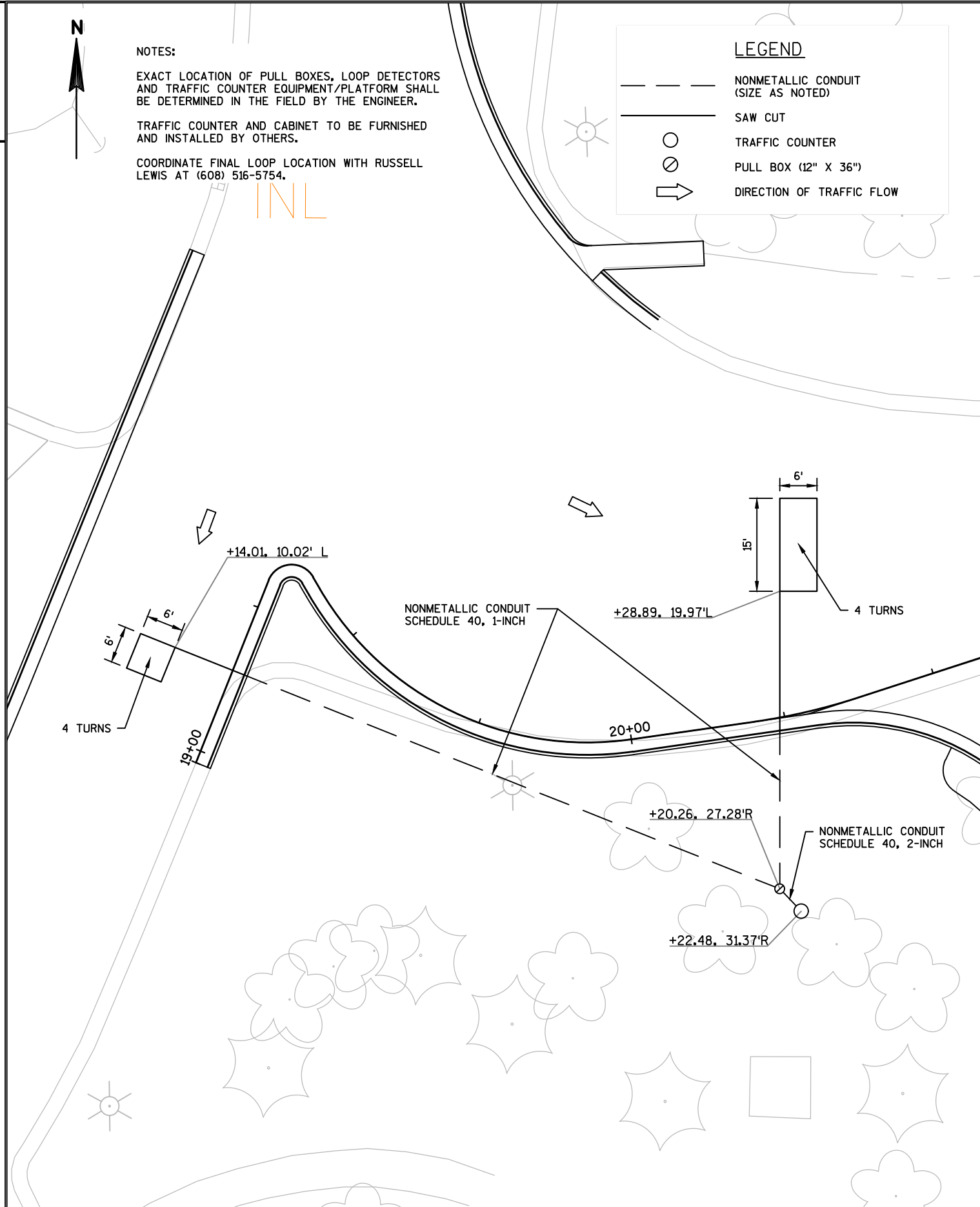
PARKING LOT JOINT REPAIRS

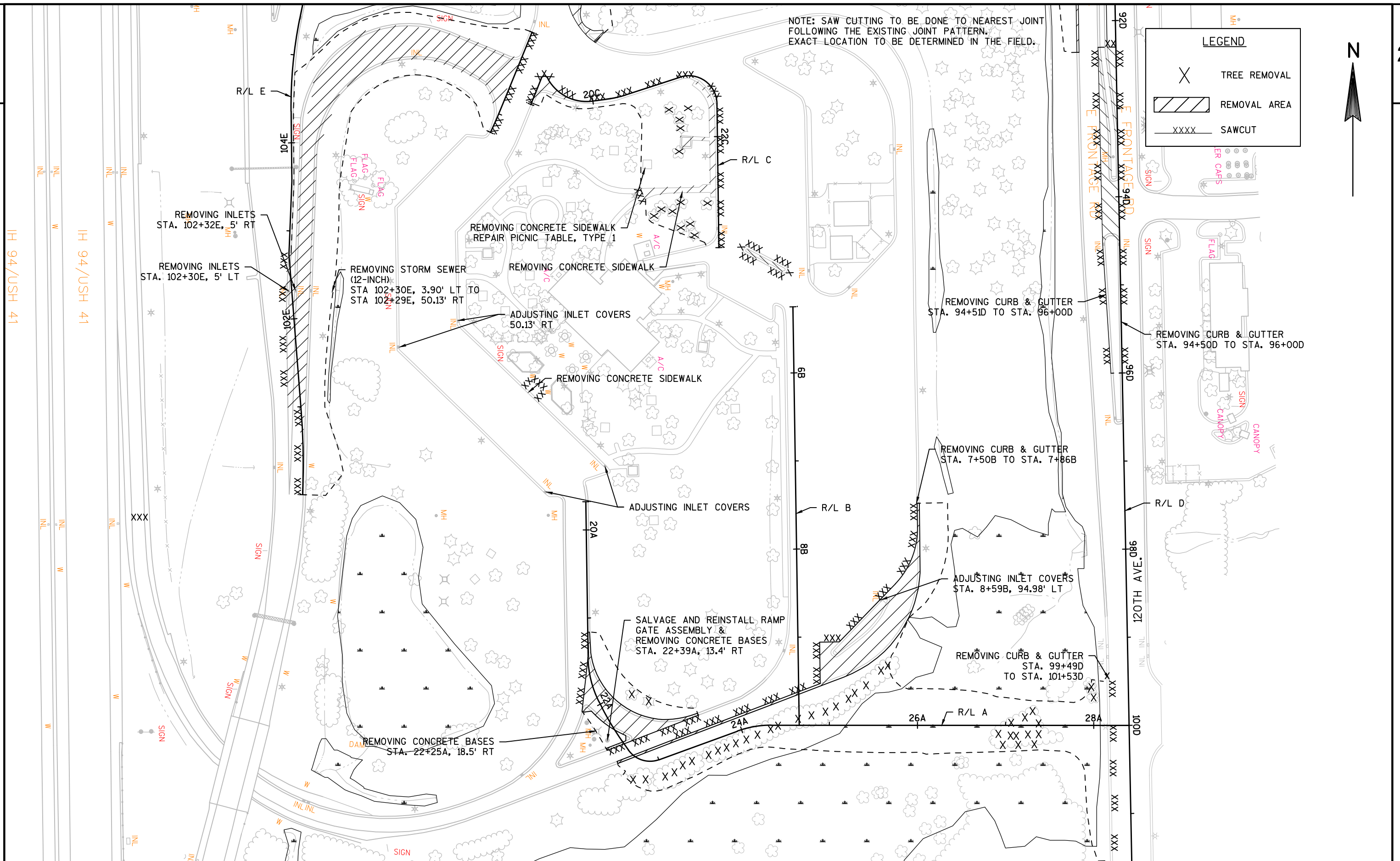
SHEET 27

E

2

2





NOTE: SAW CUTTING TO BE DONE TO NEAREST JOINT
FOLLOWING THE EXISTING JOINT PATTERN.
EXACT LOCATION TO BE DETERMINED IN THE FIELD.

LEGEND



TREE REMOVAL



REMOVAL AREA

XXXX SAWCUT



165/104th ST

STH 165

CONCRETE PAVEMENT
REPLACEMENT SHES
STA. 408+97J TO STA. 409+57J

STH 165/104th ST

REMOVING PAVEMENT
STA. 405+98J TO STA. 411+77J

65/104th ST

REMOVING PAVEMENT
STA. 101+00E - STA. 405+52J

R/L E

REMOVING INLETS
STA. 105+19E, 135.56' RT

REMOVING SMALL
PIPE CULVERTS
STA. 404+26J

REMOVING PAVEMENT

104E

106E

108E

110E

112E

114E

116E

118E

120E

122E

124E

126E

128E

130E

132E

134E

136E

138E

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850E

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856E

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860E

LEGEND

- CP29

CONCRETE PAVEMENT 8-INCH
- CP30

CONCRETE PAVEMENT 10-INCH (DOWELED)
- CP31

CONCRETE ROUNDABOUT TRUCK APRON 8-INCH
- PV03

ASPHALTIC SURFACE TEMPORARY, 5-INCH
- PV11

CONCRETE SURFACE DRAINS
- PV26

ASPHALTIC SURFACE, 1 1/2-INCH
- PV27

CONCRETE PAVEMENT CONTINUOUS DIAMOND GRINDING
- CG01

CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE A
- CG04

CURB RAMP TYPE 3
- CG06

CONCRETE CURB AND GUTTER 30-INCH TYPE A

CG30

CURB RAMP TYPE 7A

CM05

CONCRETE SIDEWALK 5-INCH

CM08

CONCRETE SIDEWALK 6-INCH

LS01

SOD LAWN

SW02

SAWING CONCRETE

●

PROPOSED MANHOLE

■

PROPOSED INLET

←

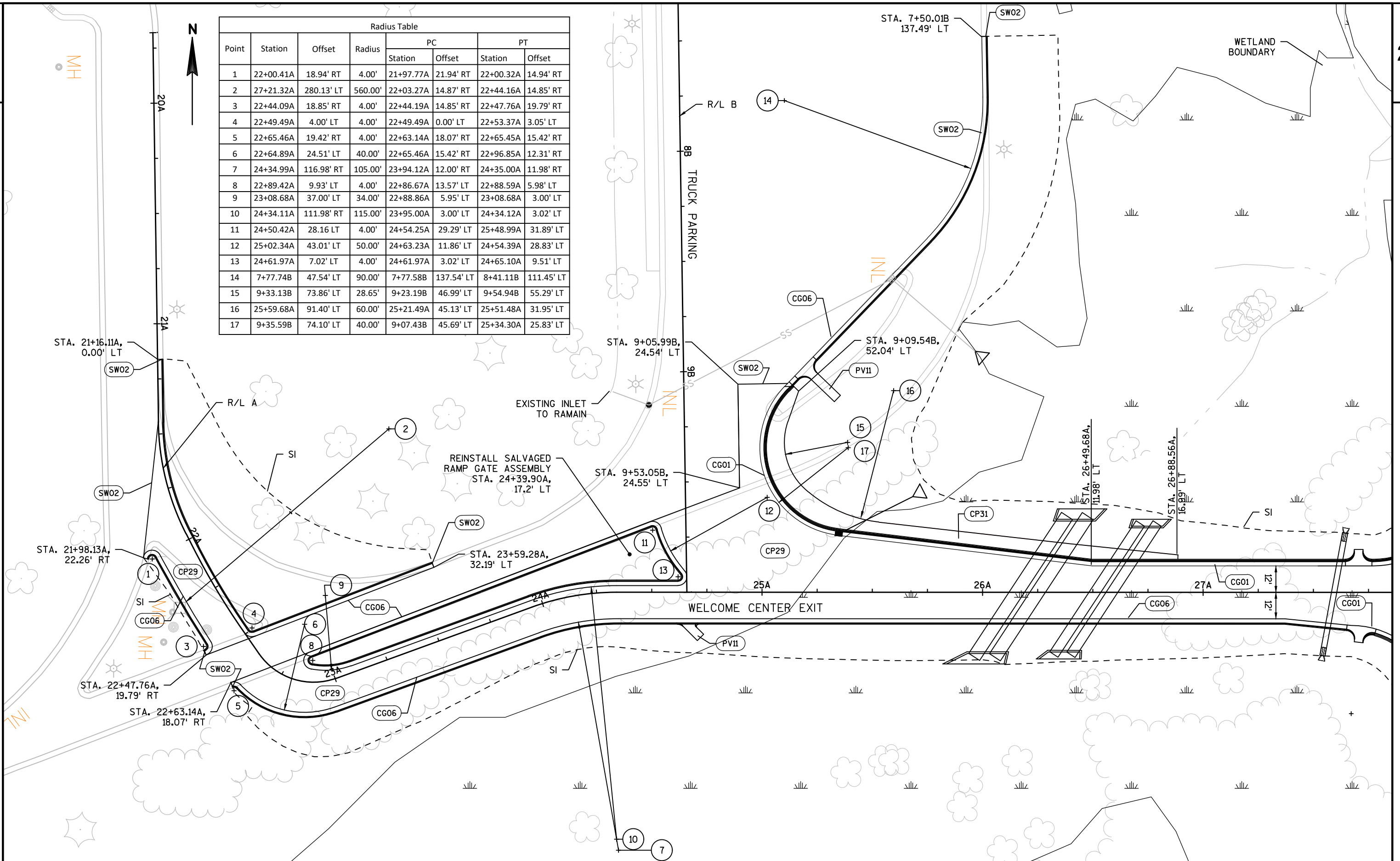
PROPOSED STORM SEWER PIPE

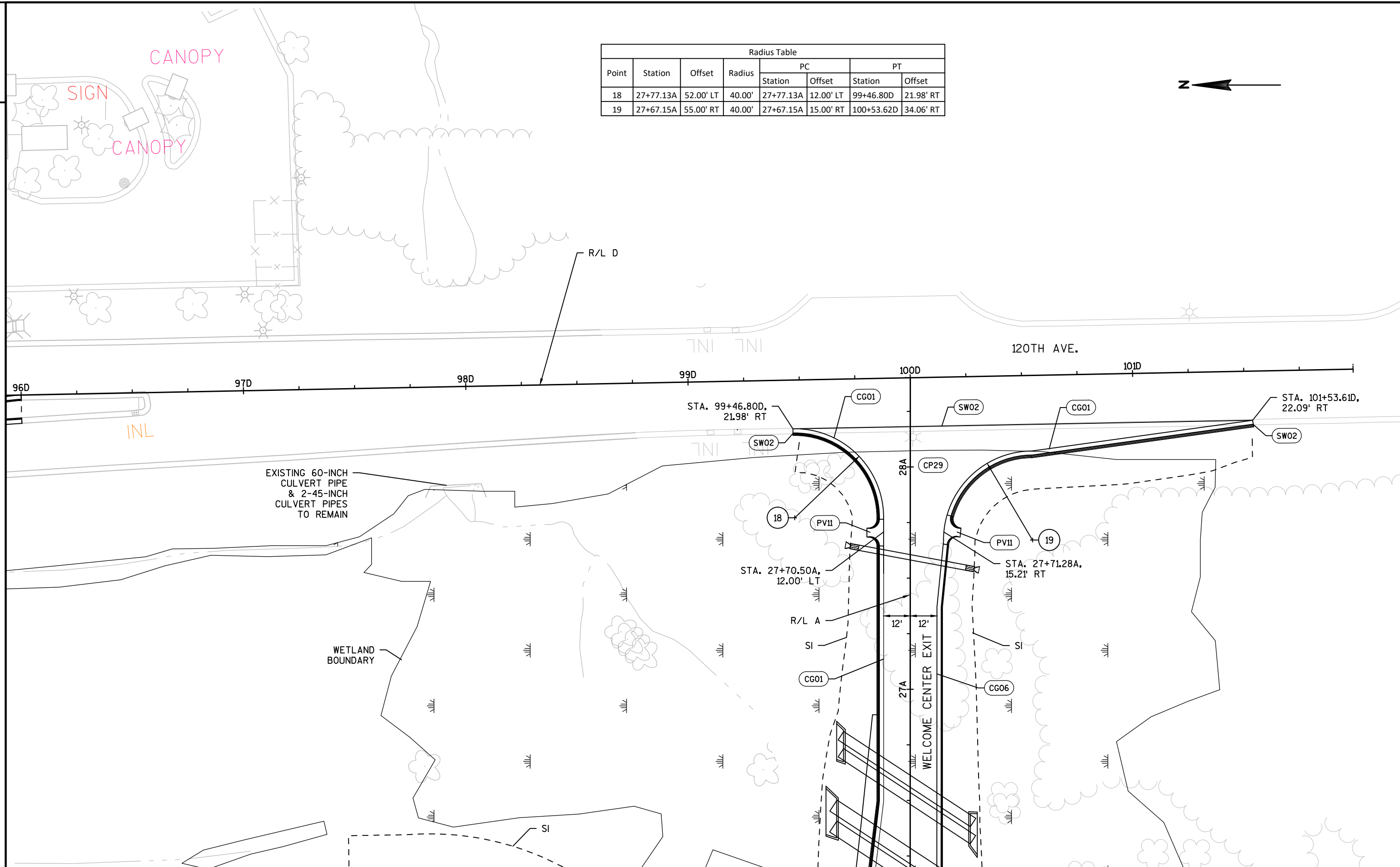
▷

PROPOSED STORM SEWER OUTFALL

NOTE:
RADIi AND OFFSETS MEASURED TO THE CURB AND GUTTER FLANGE, UNLESS OTHERWISE NOTED.

Radius Table							
Point	Station	Offset	Radius	PC		PT	
				Station	Offset	Station	Offset
1	22+00.41A	18.94' RT	4.00'	21+97.77A	21.94' RT	22+00.32A	14.94' RT
2	27+21.32A	280.13' LT	560.00'	22+03.27A	14.87' RT	22+44.16A	14.85' RT
3	22+44.09A	18.85' RT	4.00'	22+44.19A	14.85' RT	22+47.76A	19.79' RT
4	22+49.49A	4.00' LT	4.00'	22+49.49A	0.00' LT	22+53.37A	3.05' LT
5	22+65.46A	19.42' RT	4.00'	22+63.14A	18.07' RT	22+65.45A	15.42' RT
6	22+64.89A	24.51' LT	40.00'	22+65.46A	15.42' RT	22+96.85A	12.31' RT
7	24+34.99A	116.98' RT	105.00'	23+94.12A	12.00' RT	24+35.00A	11.98' RT
8	22+89.42A	9.93' LT	4.00'	22+86.67A	13.57' LT	22+88.59A	5.98' LT
9	23+08.68A	37.00' LT	34.00'	22+88.86A	5.95' LT	23+08.68A	3.00' LT
10	24+34.11A	111.98' RT	115.00'	23+95.00A	3.00' LT	24+34.12A	3.02' LT
11	24+50.42A	28.16' LT	4.00'	24+54.25A	29.29' LT	25+48.99A	31.89' LT
12	25+02.34A	43.01' LT	50.00'	24+63.23A	11.86' LT	24+54.39A	28.83' LT
13	24+61.97A	7.02' LT	4.00'	24+61.97A	3.02' LT	24+65.10A	9.51' LT
14	7+77.74B	47.54' LT	90.00'	7+77.58B	137.54' LT	8+41.11B	111.45' LT
15	9+33.13B	73.86' LT	28.65'	9+23.19B	46.99' LT	9+54.94B	55.29' LT
16	25+59.68A	91.40' LT	60.00'	25+21.49A	45.13' LT	25+51.48A	31.95' LT
17	9+35.59B	74.10' LT	40.00'	9+07.43B	45.69' LT	25+34.30A	25.83' LT

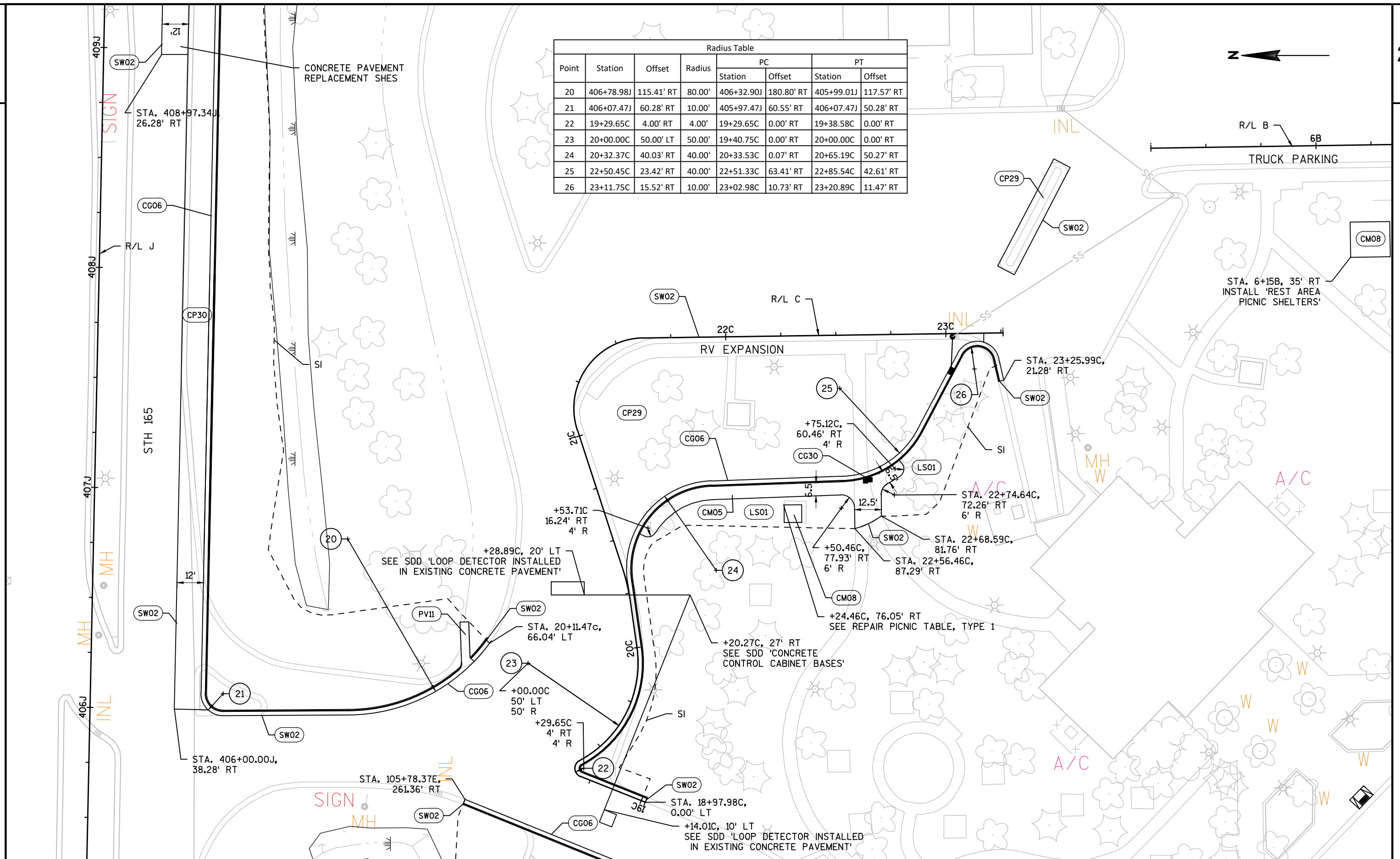




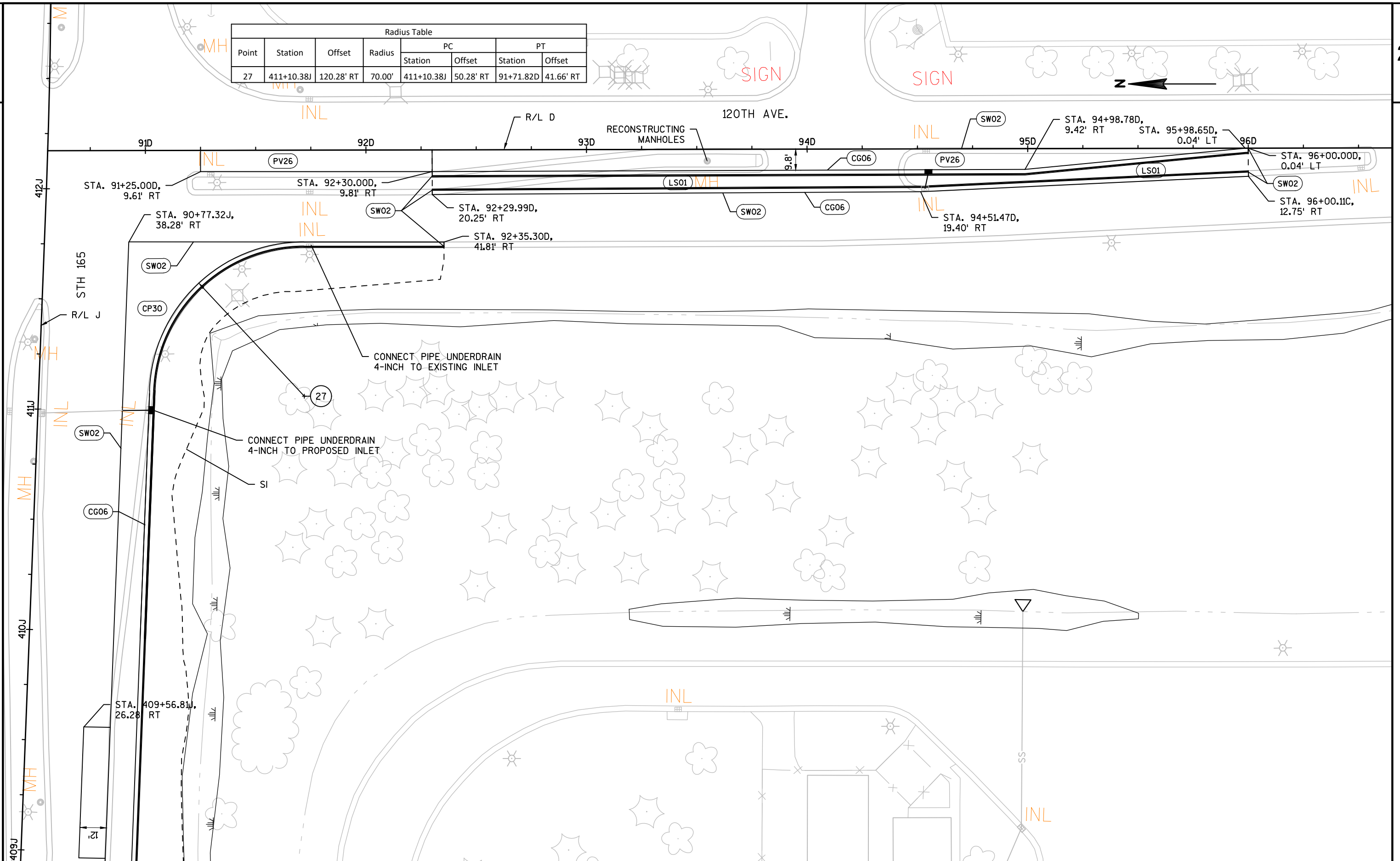
Radius Table							
Point	Station	Offset	Radius	PC		PT	
				Station	Offset	Station	Offset
18	27+77.13A	52.00' LT	40.00'	27+77.13A	12.00' LT	99+46.80D	21.98' RT
19	27+67.15A	55.00' RT	40.00'	27+67.15A	15.00' RT	100+53.62D	34.06' RT



Point	Station	Offset	Radius	PC		PT	
				Station	Offset	Station	Offset
20	406+78.98J	115.41' RT	80.00'	406+32.90J	180.80' RT	405+99.01J	117.57' RT
21	406+07.47J	60.28' RT	10.00'	405+97.47J	60.55' RT	406+07.47J	50.28' RT
22	19+29.65C	4.00' RT	4.00'	19+29.65C	0.00' RT	19+38.58C	0.00' RT
23	20+00.00C	50.00' LT	50.00'	19+40.75C	0.00' RT	20+00.00C	0.00' RT
24	20+32.37C	40.03' RT	40.00'	20+33.53C	0.07' RT	20+65.19C	50.27' RT
25	22+50.45C	23.42' RT	40.00'	22+51.33C	63.41' RT	22+85.54C	42.61' RT
26	23+11.75C	15.52' RT	10.00'	23+02.98C	10.73' RT	23+20.89C	11.47' RT

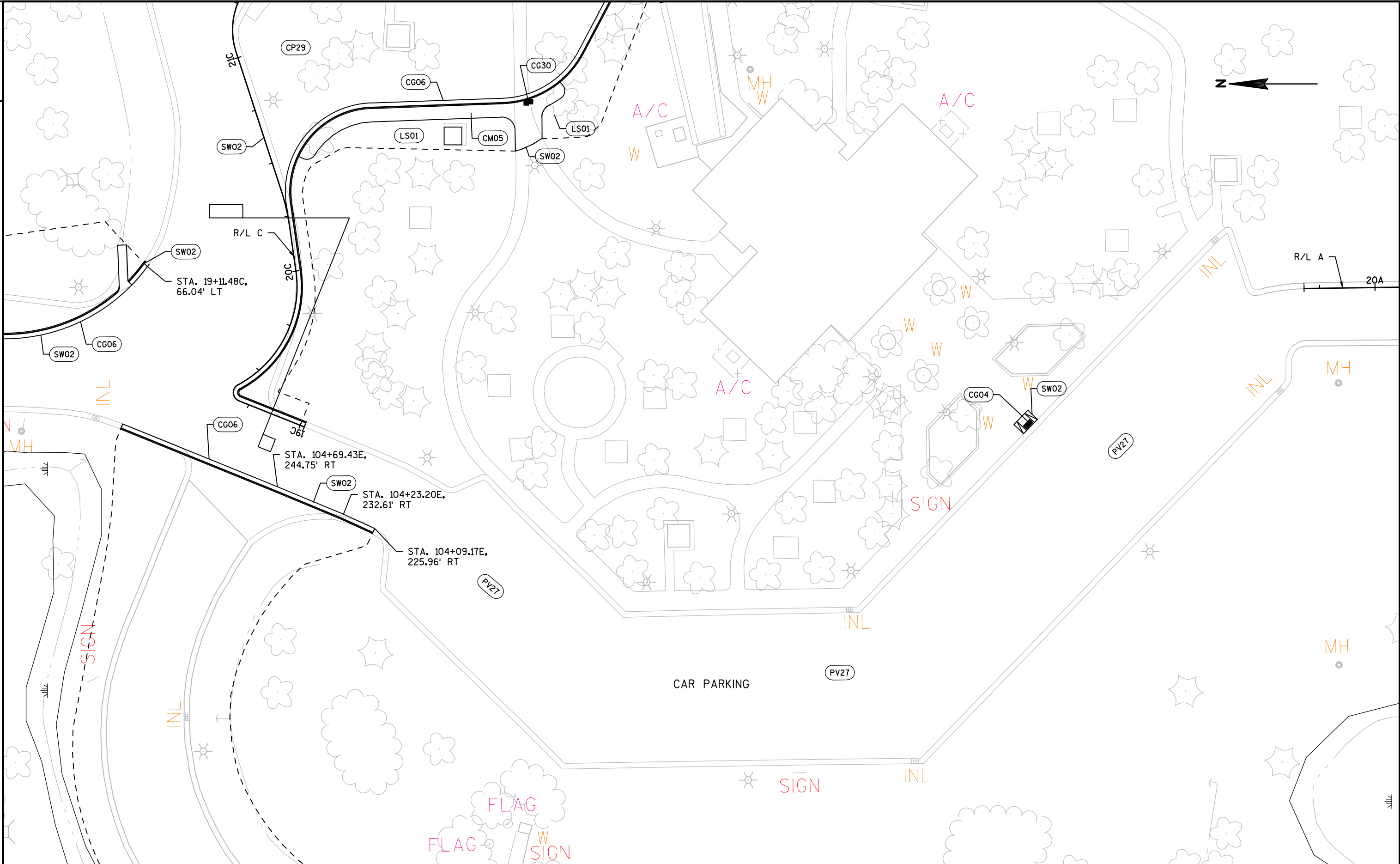


Radius Table							
Point	Station	Offset	Radius	PC		PT	
				Station	Offset	Station	Offset
27	411+10.38J	120.28' RT	70.00'	411+10.38J	50.28' RT	91+71.82D	41.66' RT



2

2



PROJECT NO:3738-08-70

HWY:STH 165

COUNTY: KENOSHA

PLAN DETAIL

SHEET	37	E
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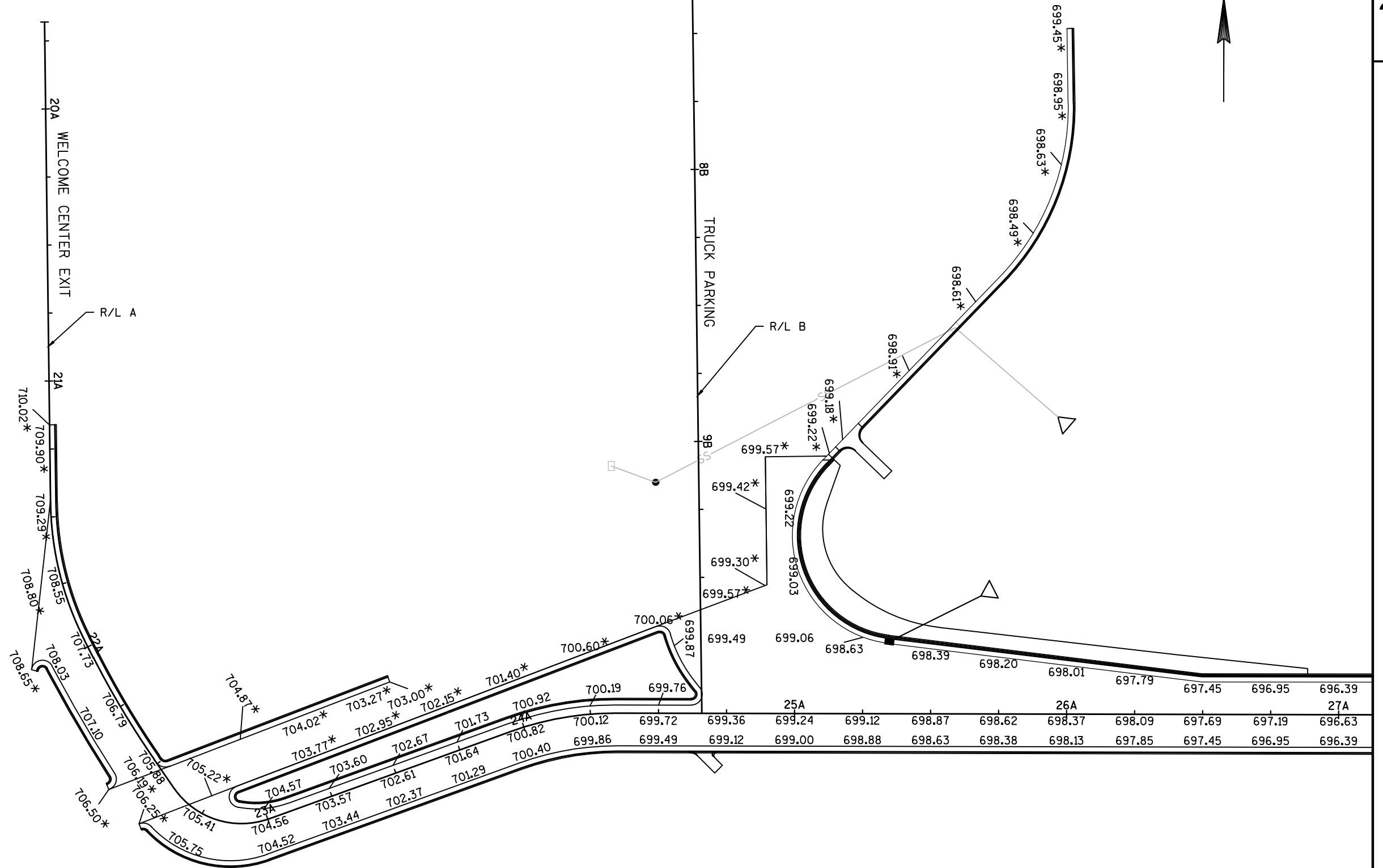
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LAYOUT NAME - 021208_PD

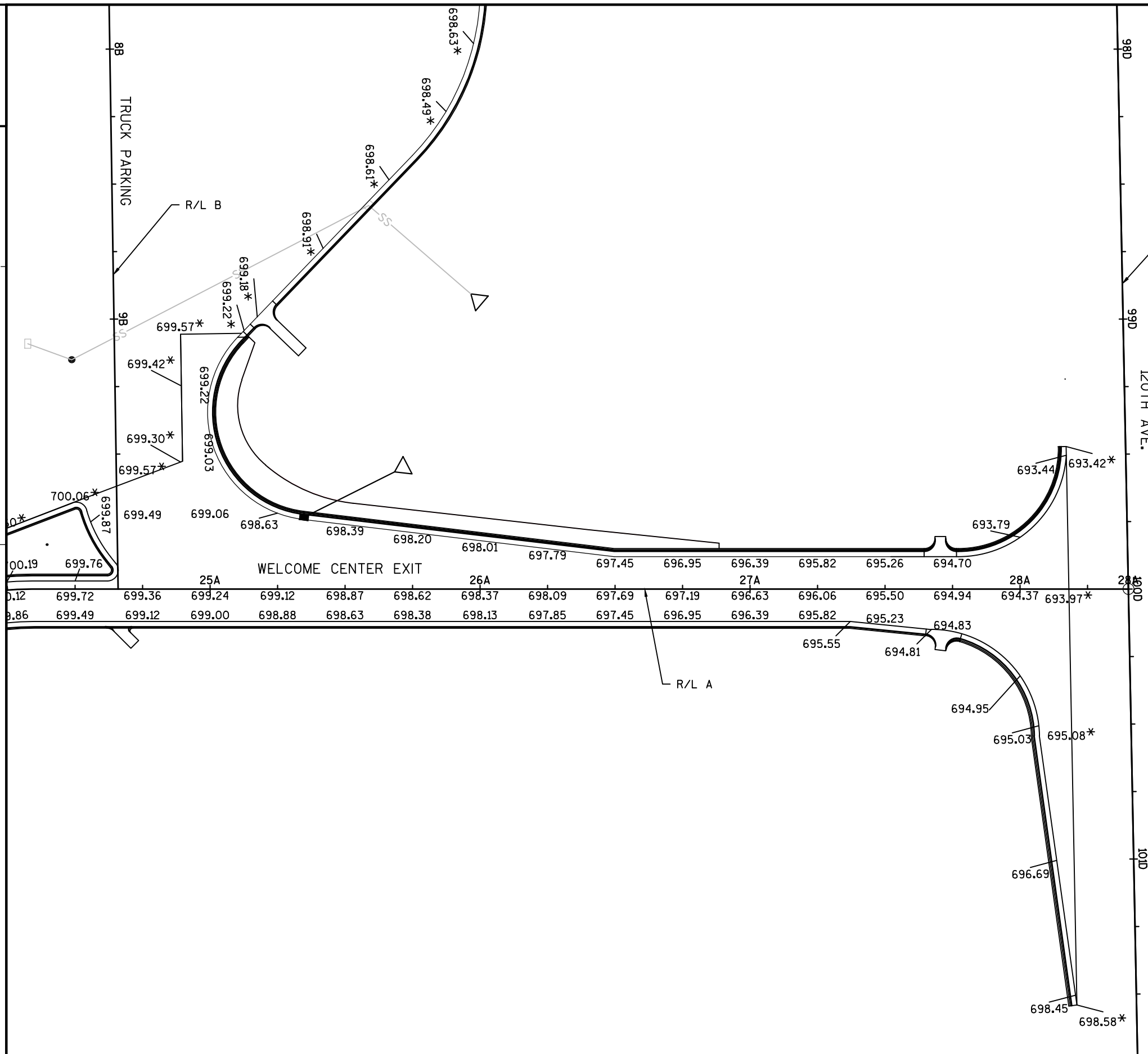
PLOT DATE : 8/8/2018 3:36 PM

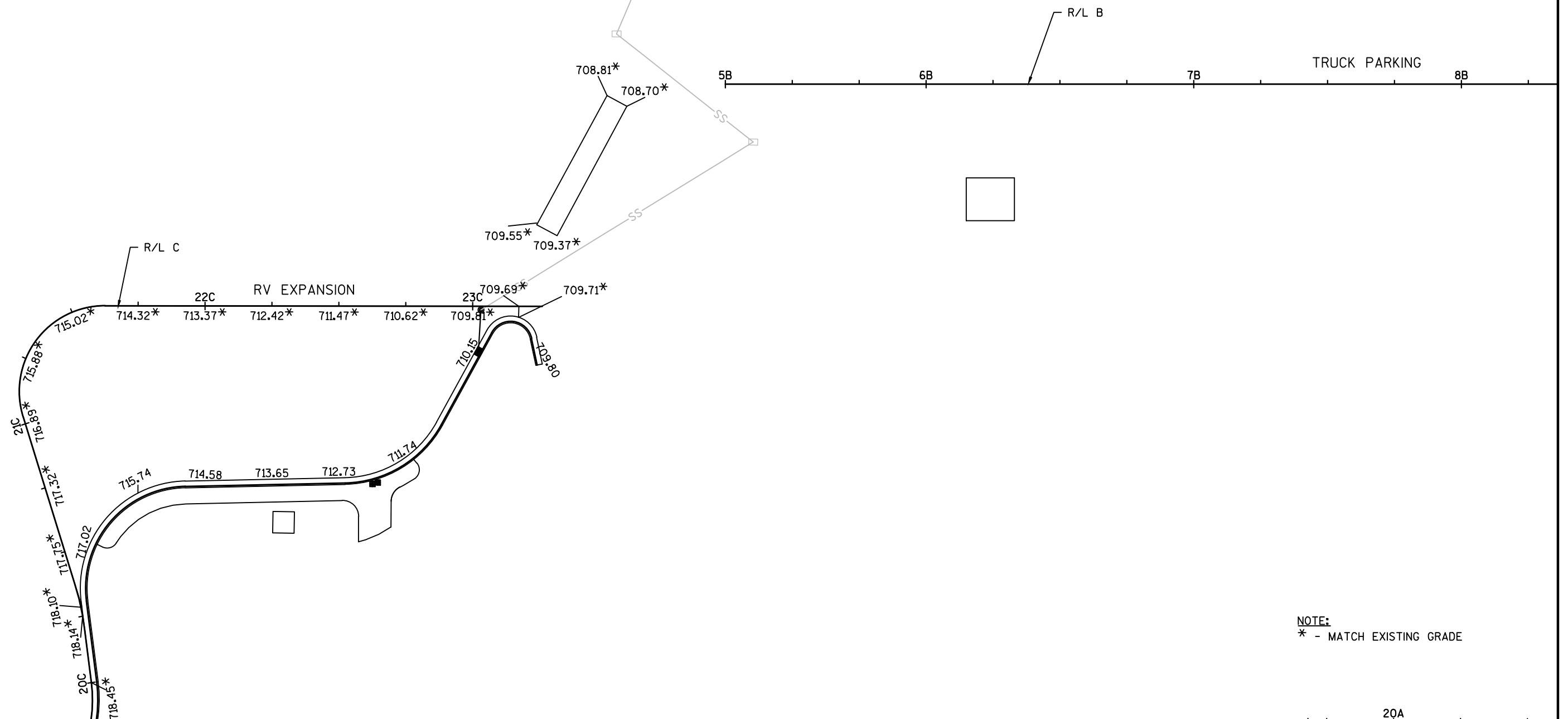
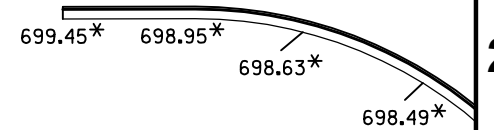
PLOT BY : SPAETH, MICHELE L PLOT NAME : PLOT SCALE : 1 IN:40 FT

PLOT SCALE : 1 IN:40 FT

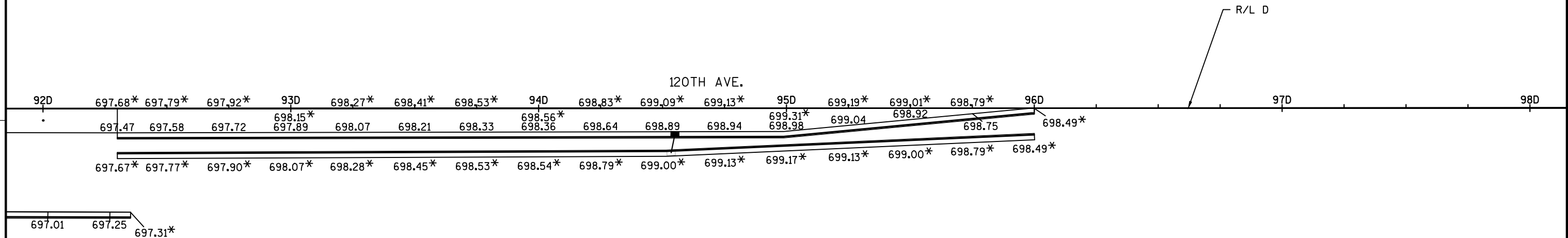
WISDOT/CADDS SHEET 42



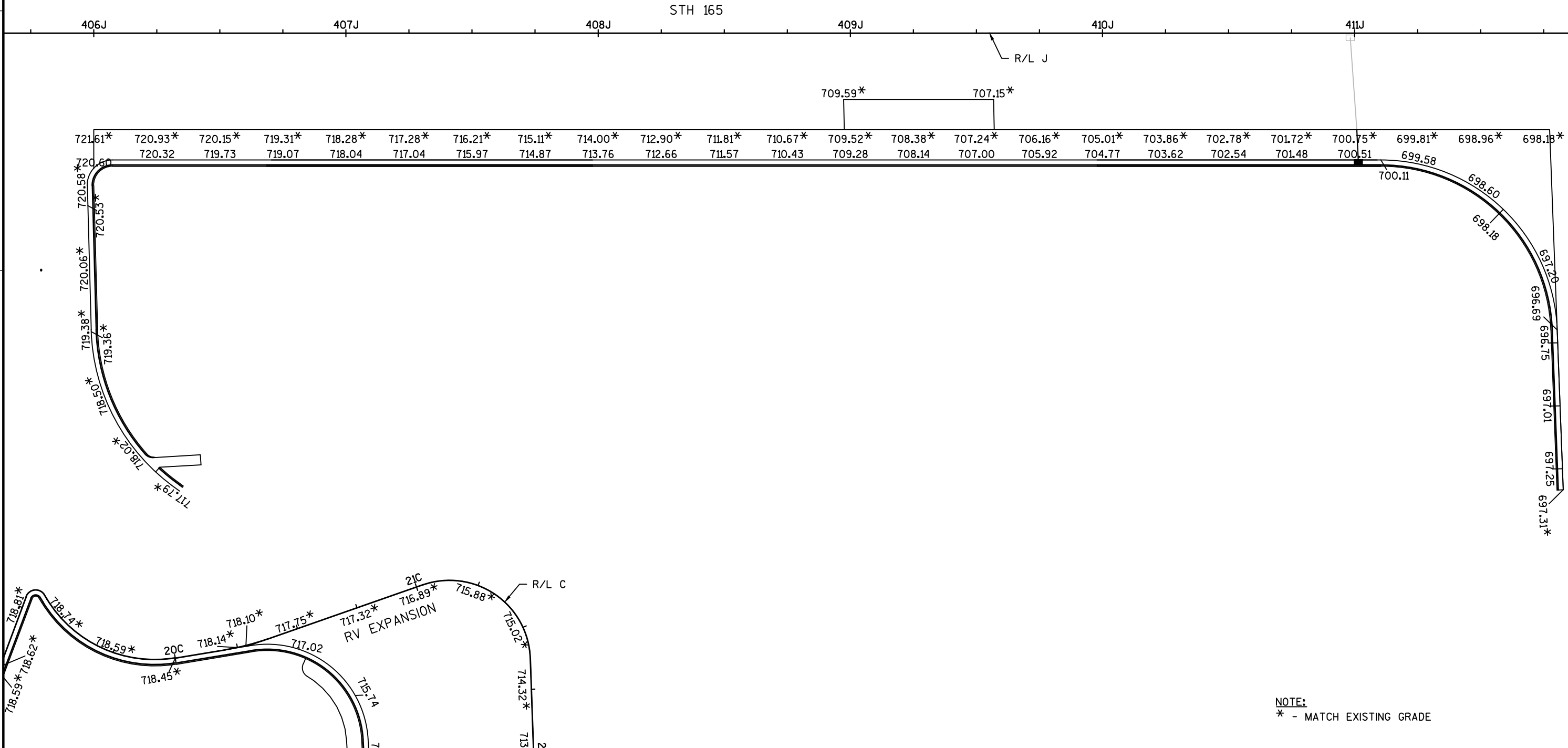


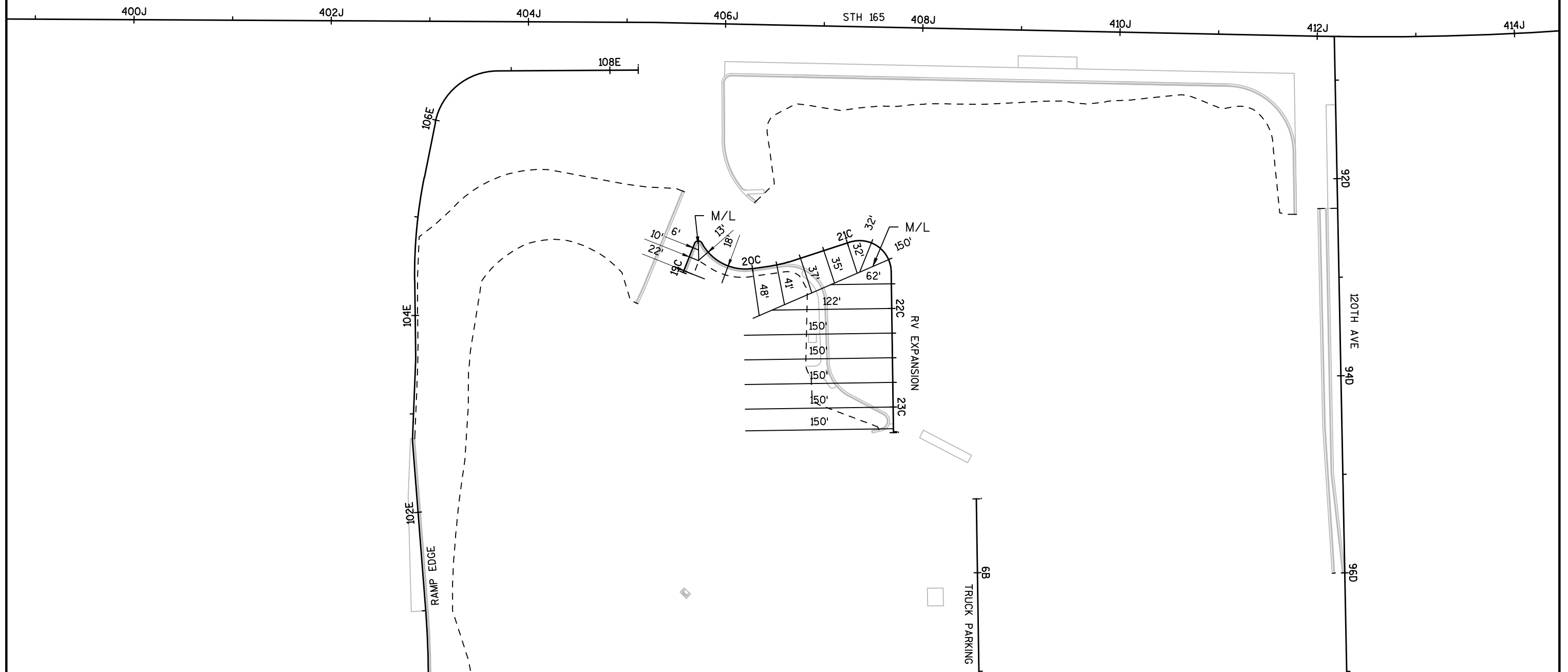


NOTE:
* - MATCH EXISTING GRADE



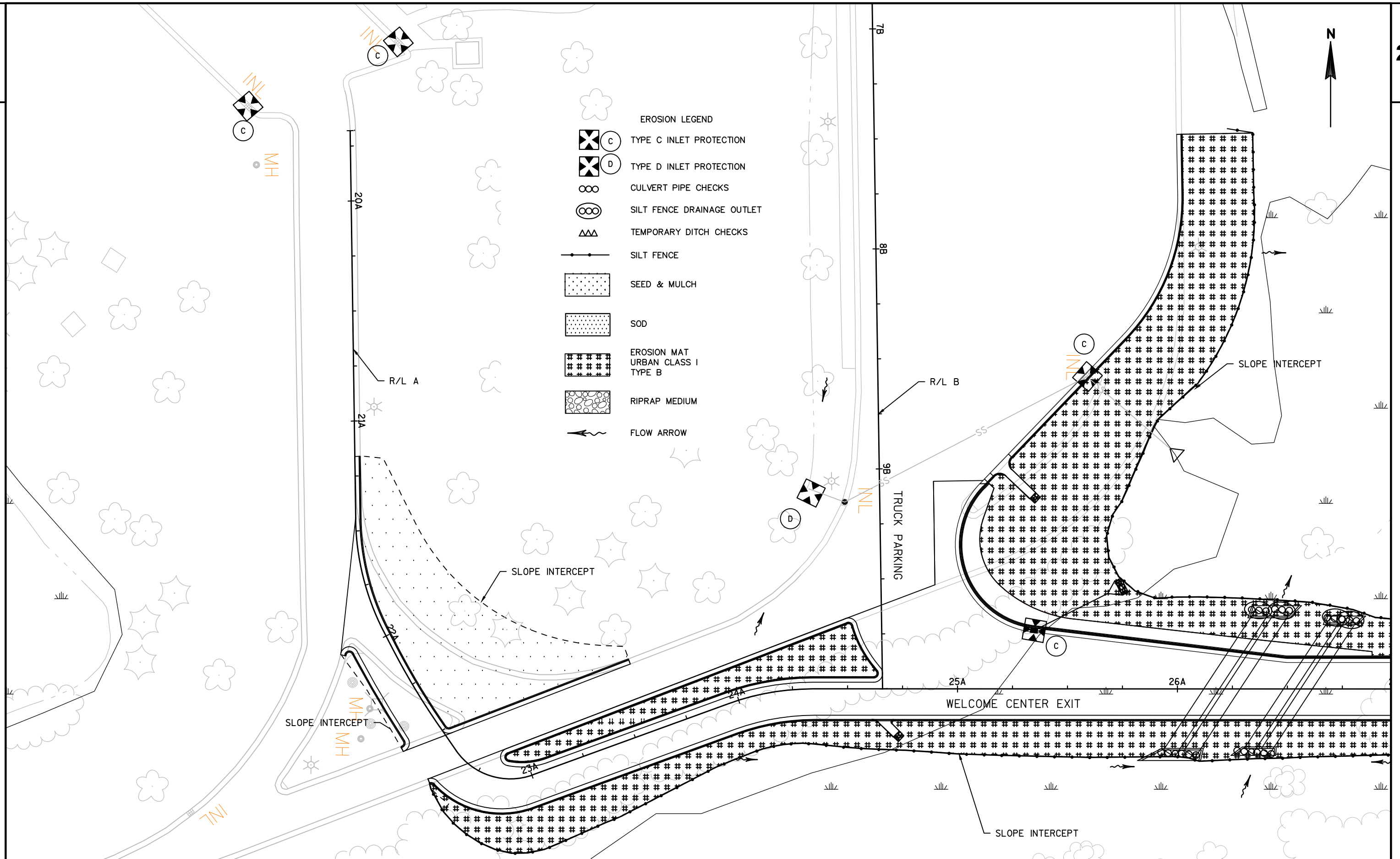
NOTE:
* - MATCH EXISTING GRADE

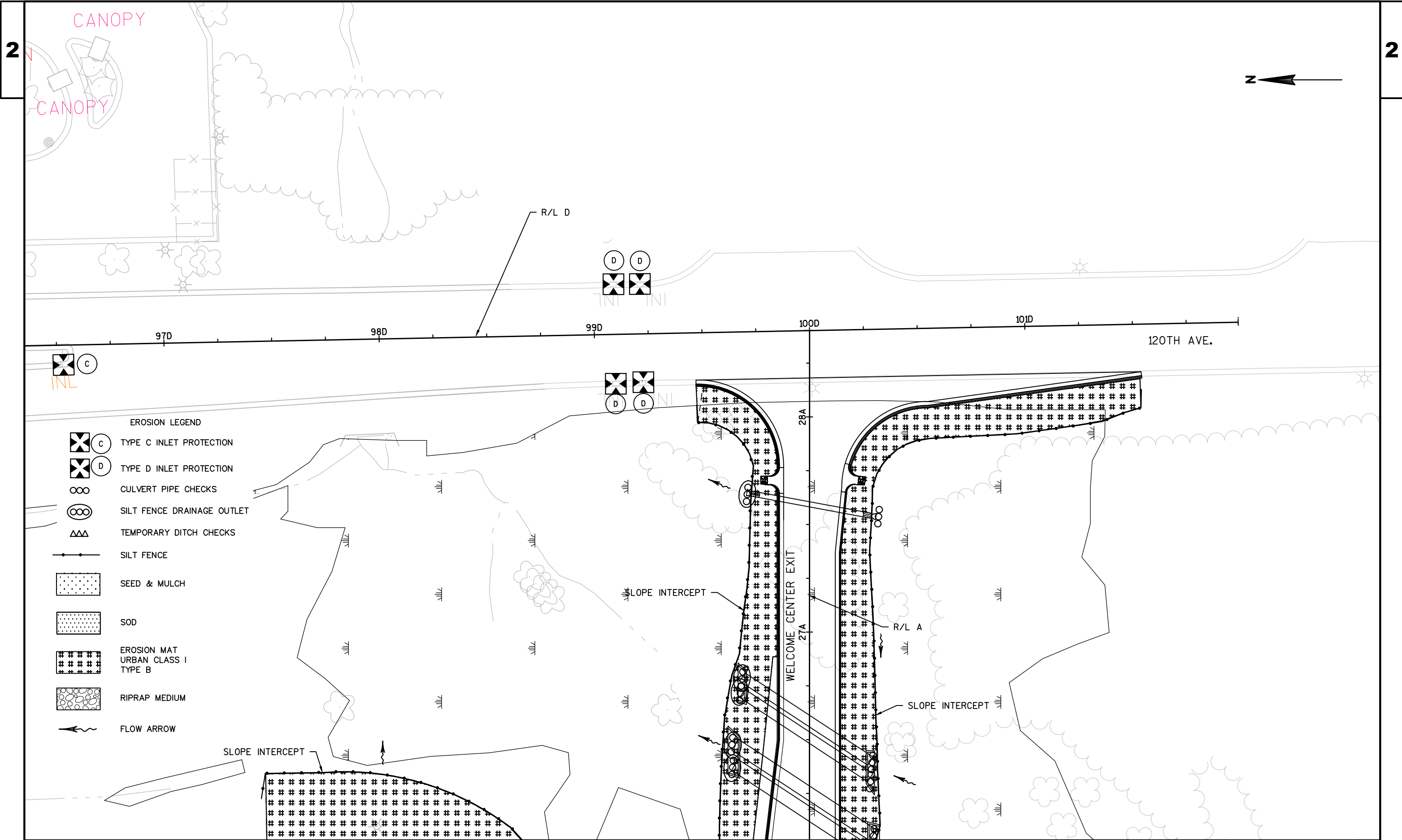




2

2





PROJECT NO: 3738-08-70

HWY: IH 94

COUNTY: KENOSHA

EROSION CONTROL

SHEET

47

E

FILE NAME : N:\PDS\C3D\CAD\37380800\022001_EC.DWG
LAYOUT NAME - 022002_EC

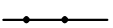
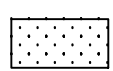
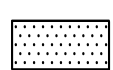
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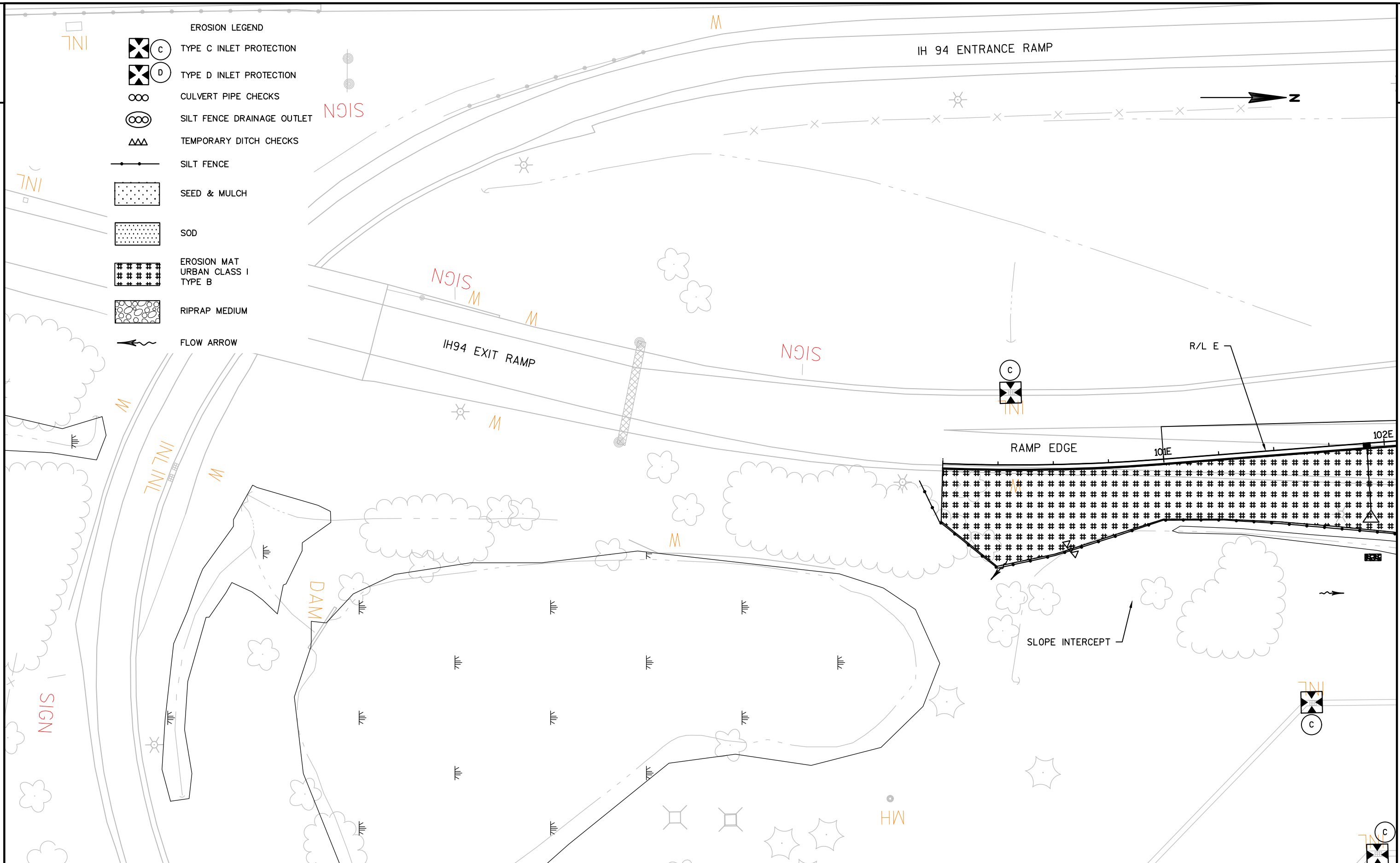
PLOT BY : SPAETH, MICHELE L

PLOT NAME :

PLOT SCALE : 1 IN:40 FT

WISDOT/CADDs SHEET 42

- EROSION LEGEND
-  TYPE C INLET PROTECTION
 -  TYPE D INLET PROTECTION
 -  CULVERT PIPE CHECKS
 -  SILT FENCE DRAINAGE OUTLET
 -  TEMPORARY DITCH CHECKS
 -  SILT FENCE
 -  SEED & MULCH
 -  SOD
 -  EROSION MAT URBAN CLASS I TYPE B
 -  RIPRAP MEDIUM
 -  FLOW ARROW



EROSION LEGEND



TYPE C INLET PROTECTION



TYPE D INLET PROTECTION



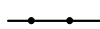
CULVERT PIPE CHECKS



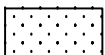
SILT FENCE DRAINAGE OUTLET



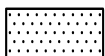
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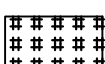
SILT FENCE



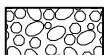
SEED & MULCH



SOD



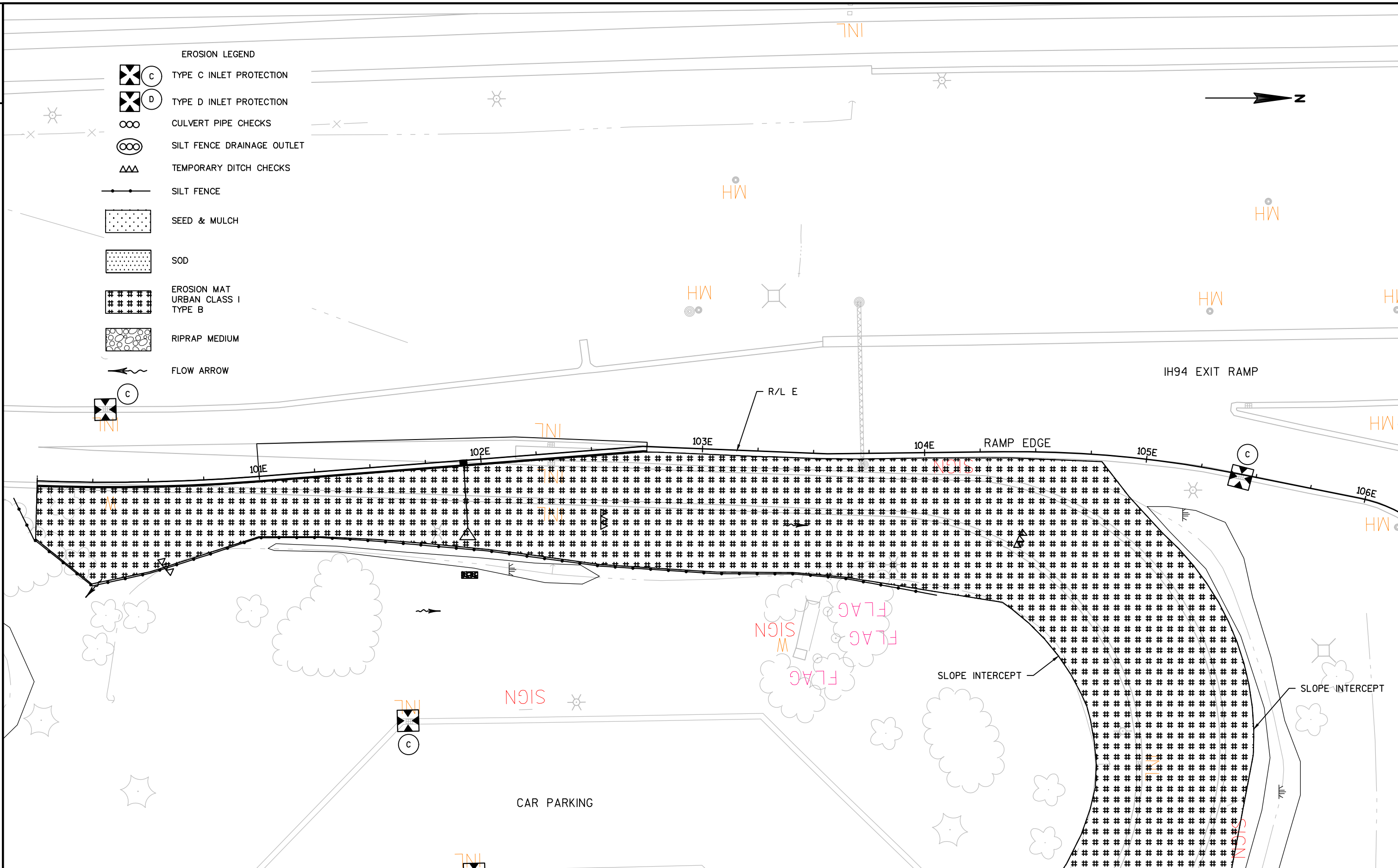
EROSION MAT
URBAN CLASS I
TYPE B

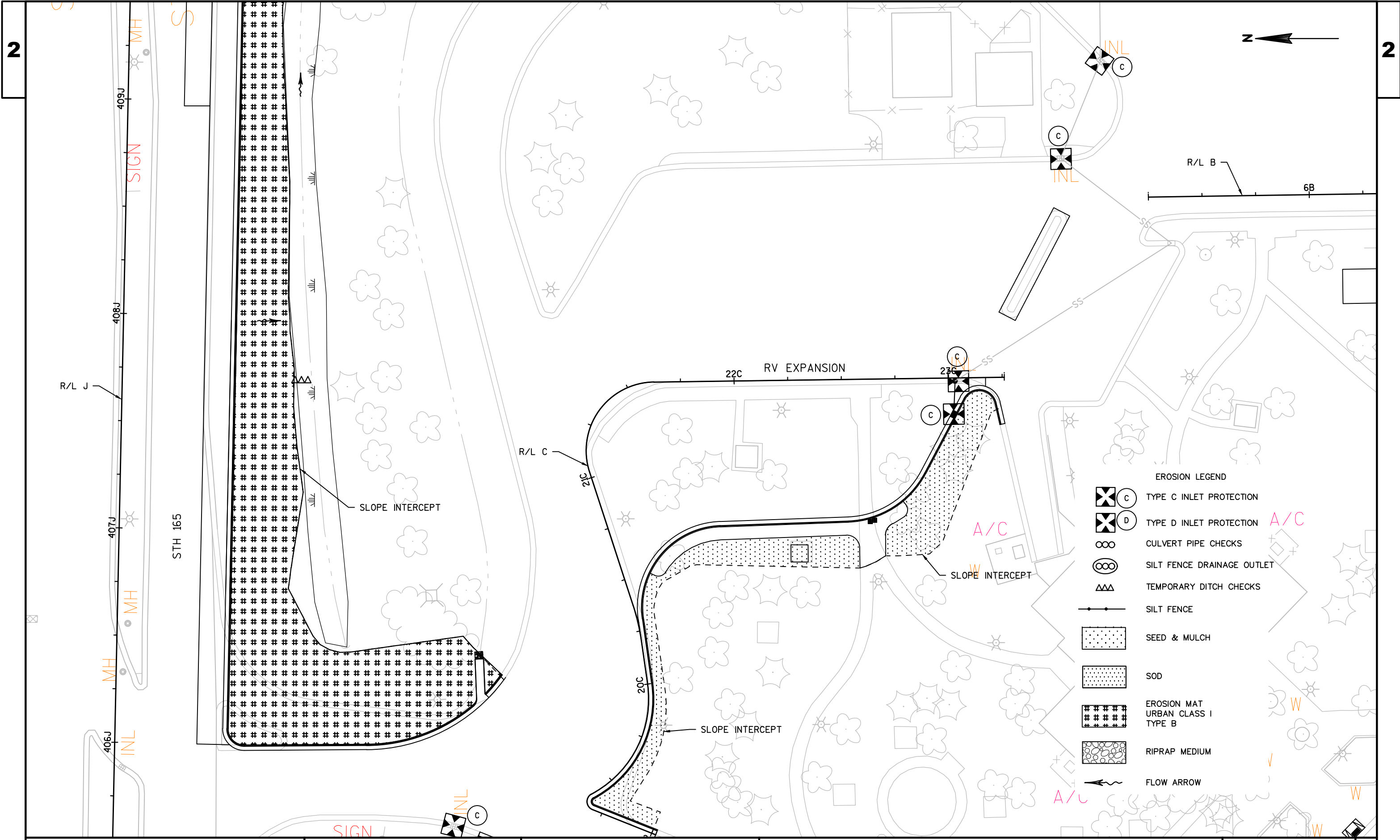


RIPRAP MEDIUM

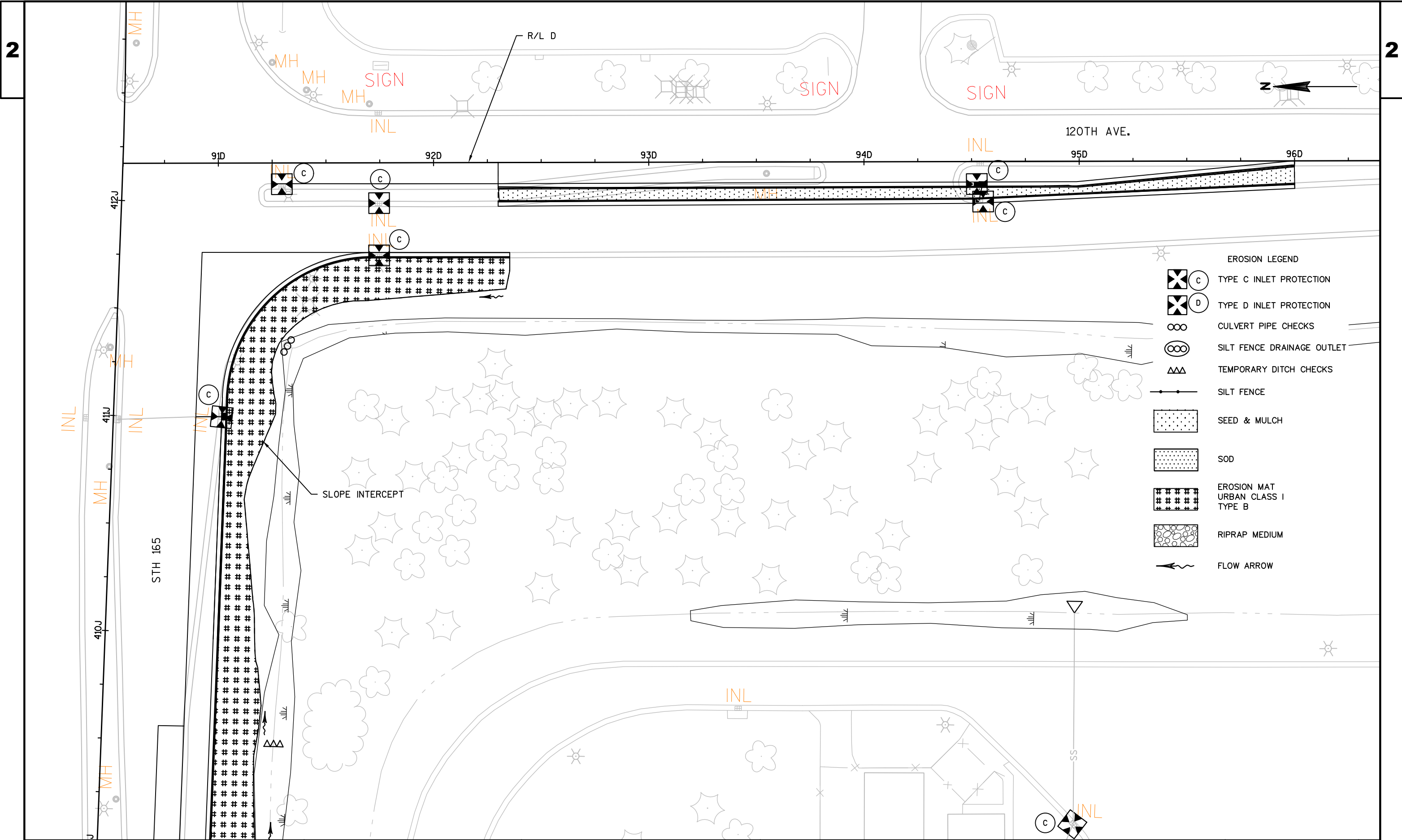


FLOW ARROW



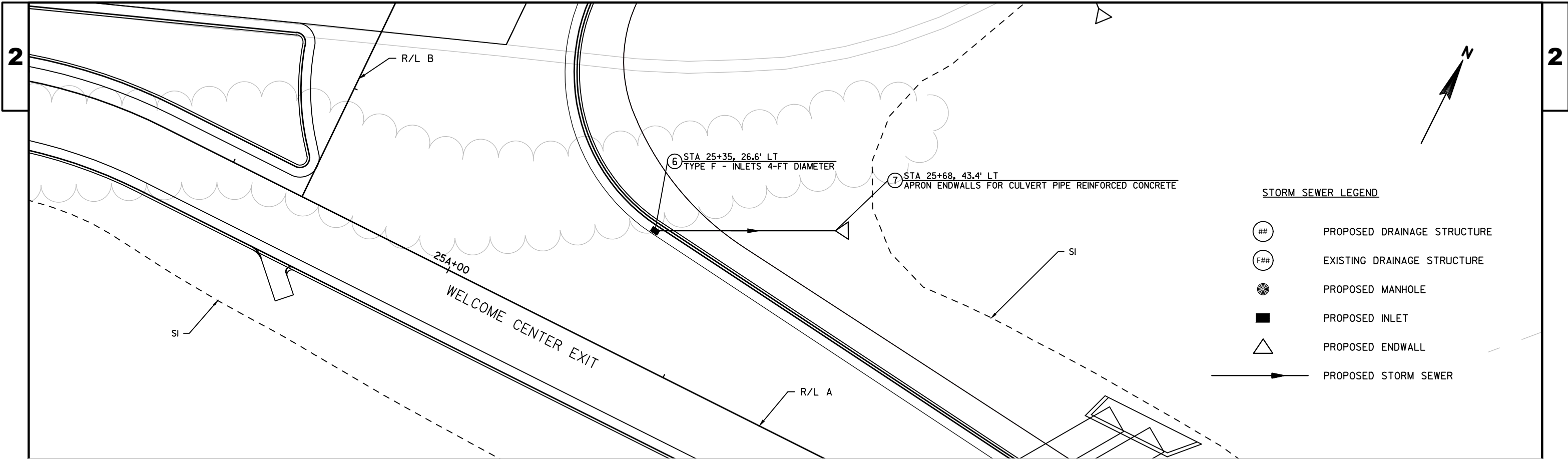


- EROSION LEGEND**
- TYPE C INLET PROTECTION
 - TYPE D INLET PROTECTION
 - CULVERT PIPE CHECKS
 - SILT FENCE DRAINAGE OUTLET
 - TEMPORARY DITCH CHECKS
 - SILT FENCE
 - SEED & MULCH
 - SOD
 - EROSION MAT URBAN CLASS I TYPE B
 - RIPRAP MEDIUM
 - FLOW ARROW



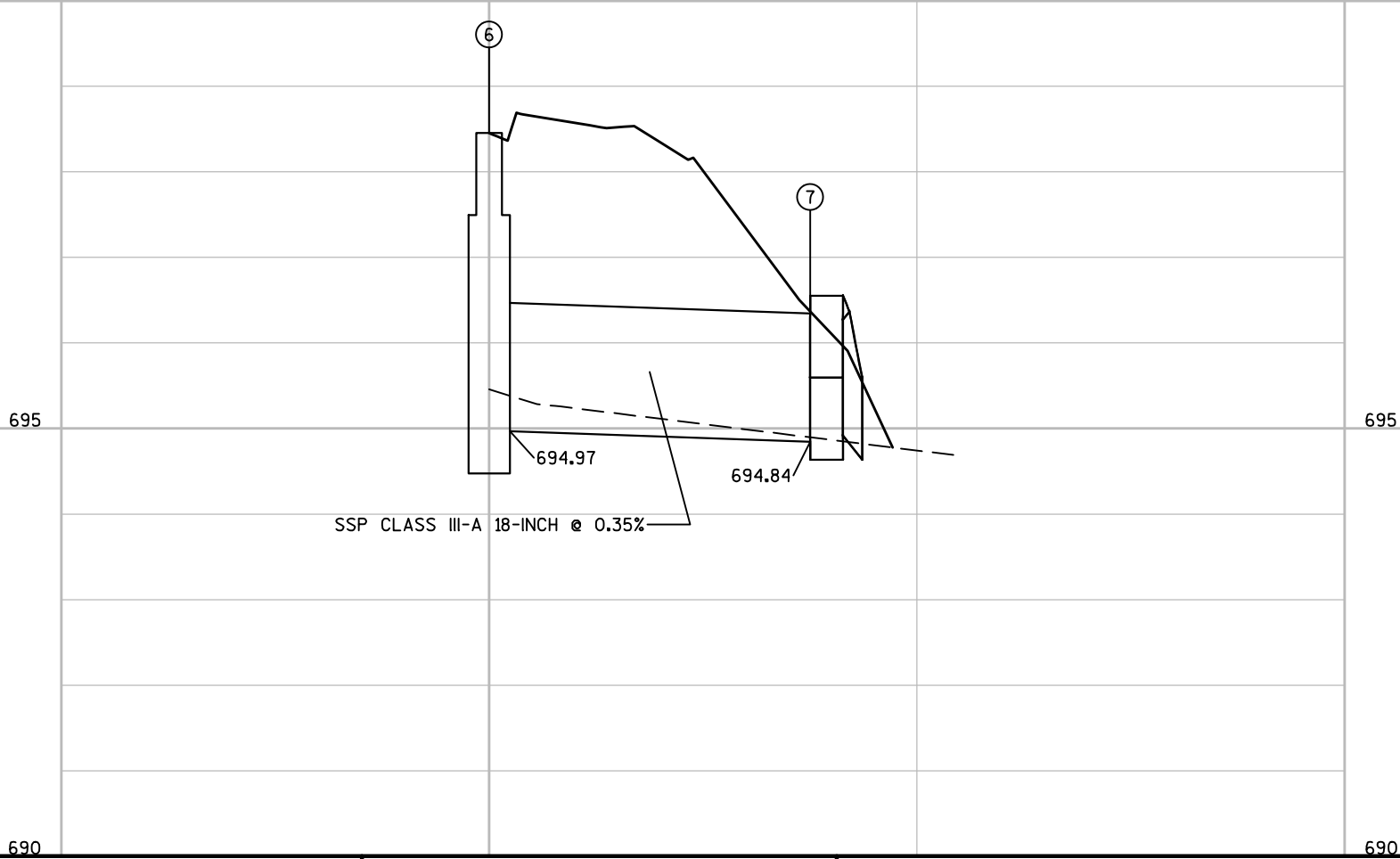
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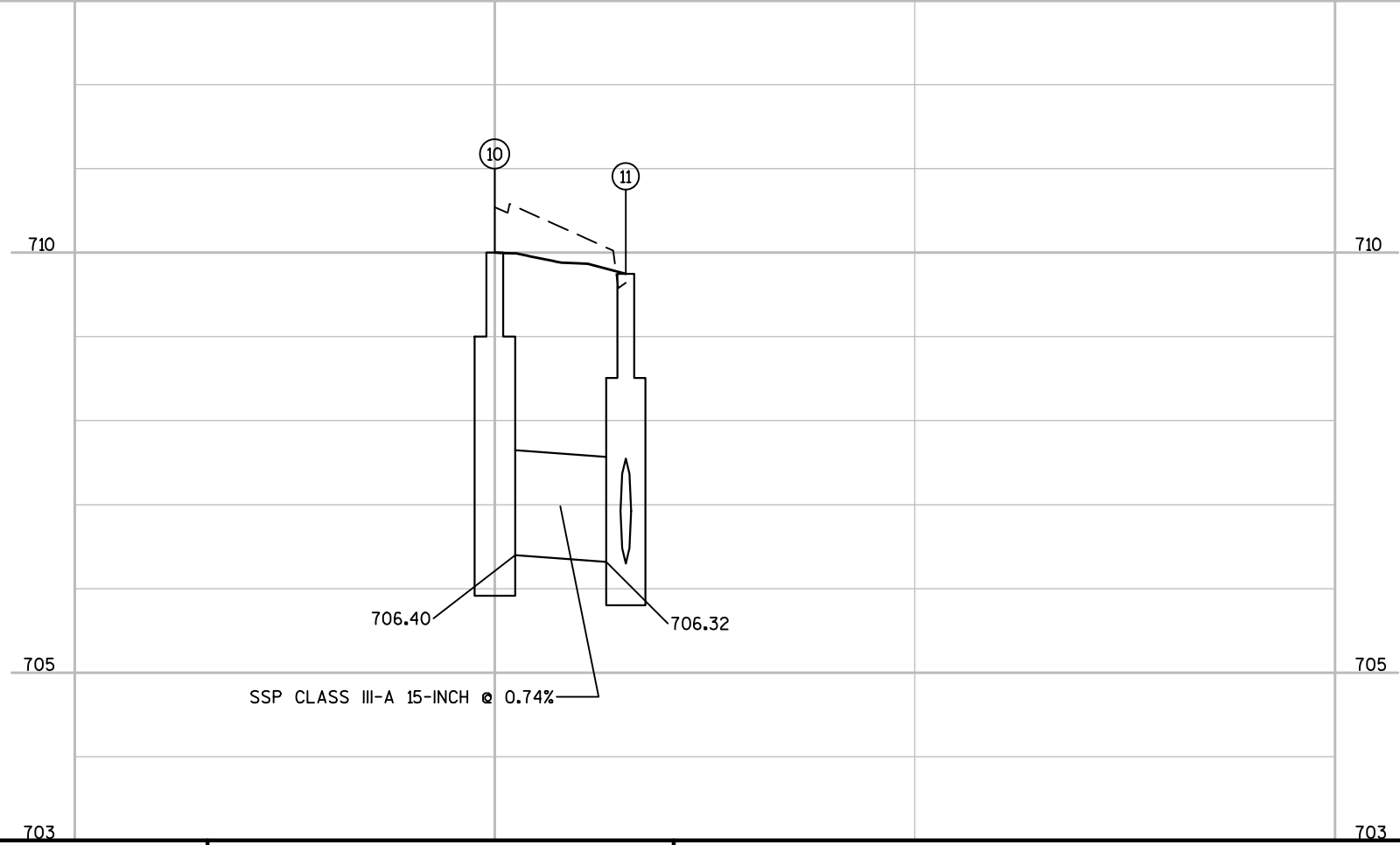
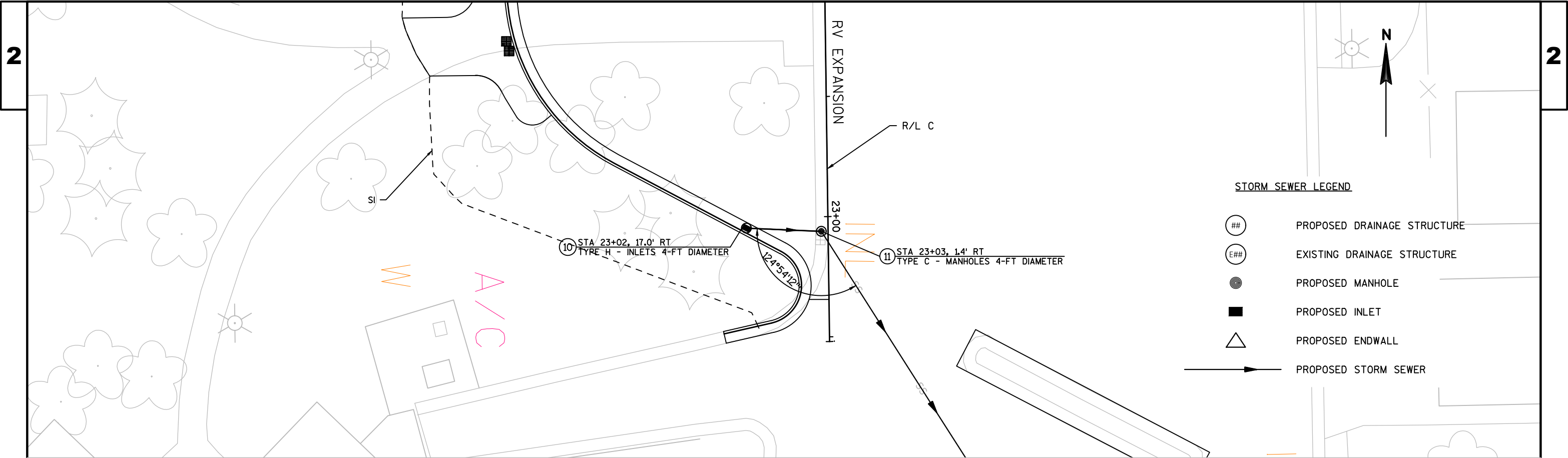




STORM SEWER LEGEND

- ## PROPOSED DRAINAGE STRUCTURE
- E## EXISTING DRAINAGE STRUCTURE
- PROPOSED MANHOLE
- PROPOSED INLET
- △ PROPOSED ENDWALL
- PROPOSED STORM SEWER





STORM SEWER LEGEND

- ## PROPOSED DRAINAGE STRUCTURE
E## EXISTING DRAINAGE STRUCTURE
● PROPOSED MANHOLE
■ PROPOSED INLET
△ PROPOSED ENDWALL
→ PROPOSED STORM SEWER

STA 94+53, 17.9' RT
TYPE H - EXISTING INLET TO REMAIN

E13

12

STA 94+55, 10.4' RT
TYPE H - INLETS 4-FT DIAMETER

120TH AVE

95+00

700

700

695

695

692

692

E13

12

SSP CLASS III-A 15-INCH @ 1.05%

695.60

695.58

STORM SEWER LEGEND

- ## PROPOSED DRAINAGE STRUCTURE
E## EXISTING DRAINAGE STRUCTURE
● PROPOSED MANHOLE
■ PROPOSED INLET
△ PROPOSED ENDWALL
→ PROPOSED STORM SEWER

STA 101+92, 0.8' RT
TYPE H - INLETS 2X3-FT

14

RAMP EDGE

102

R/L E

15

STA 101+92, 30.3' RT
APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE

SI

SIGN

N

720

720

715

715

712

712

14

15

715.99

715.85

SSP CLASS III-A 18-INCH @ 0.50%

2

2

STORM SEWER LEGEND

- ## PROPOSED DRAINAGE STRUCTURE
E## EXISTING DRAINAGE STRUCTURE
● PROPOSED MANHOLE
■ PROPOSED INLET
△ PROPOSED ENDWALL
→ PROPOSED STORM SEWER

STA 411+01, 51.2' RT
TYPE H/- INLETS 2X3-FT

16

411+00

700

700

SSP CLASS III-A 12-INCH @ 1.00%

CONCRETE COLLARS
FOR PIPE CONNECTION

EXISTING SSCPRC CLASS III 12-INCH @ 1.84%

695

695

694.99

694.87

692

692

PROJECT NO: 3738-08-70

HWY: STH 165

COUNTY: KENOSHA

STORM SEWER

SHEET

57

E

FILE NAME : N:\PDS\C3D\37380800\SHEETS\PLAN\022501_SS.DWG
LAYOUT NAME - 022505

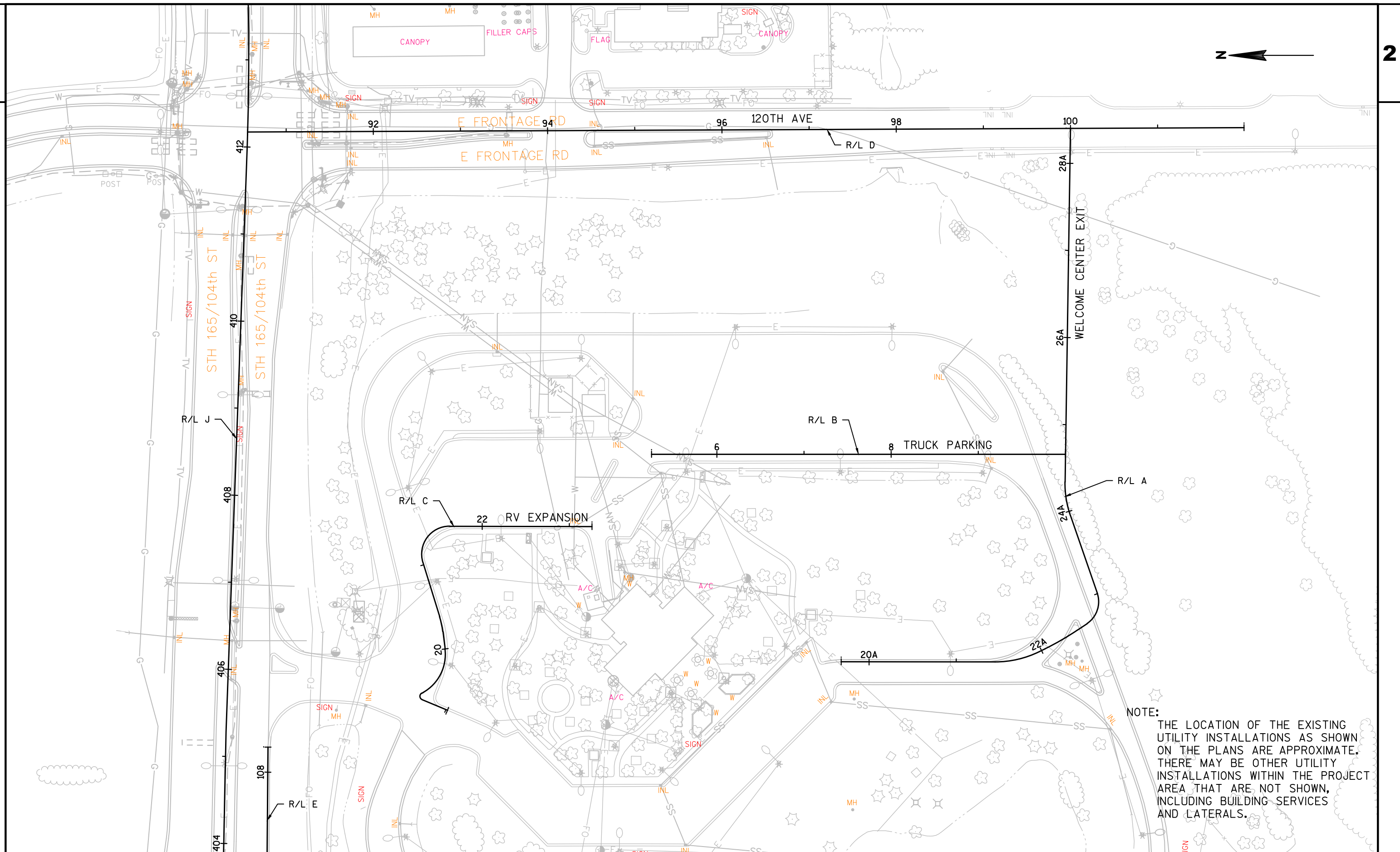
PLOT DATE : 8/8/2018 5:12 PM

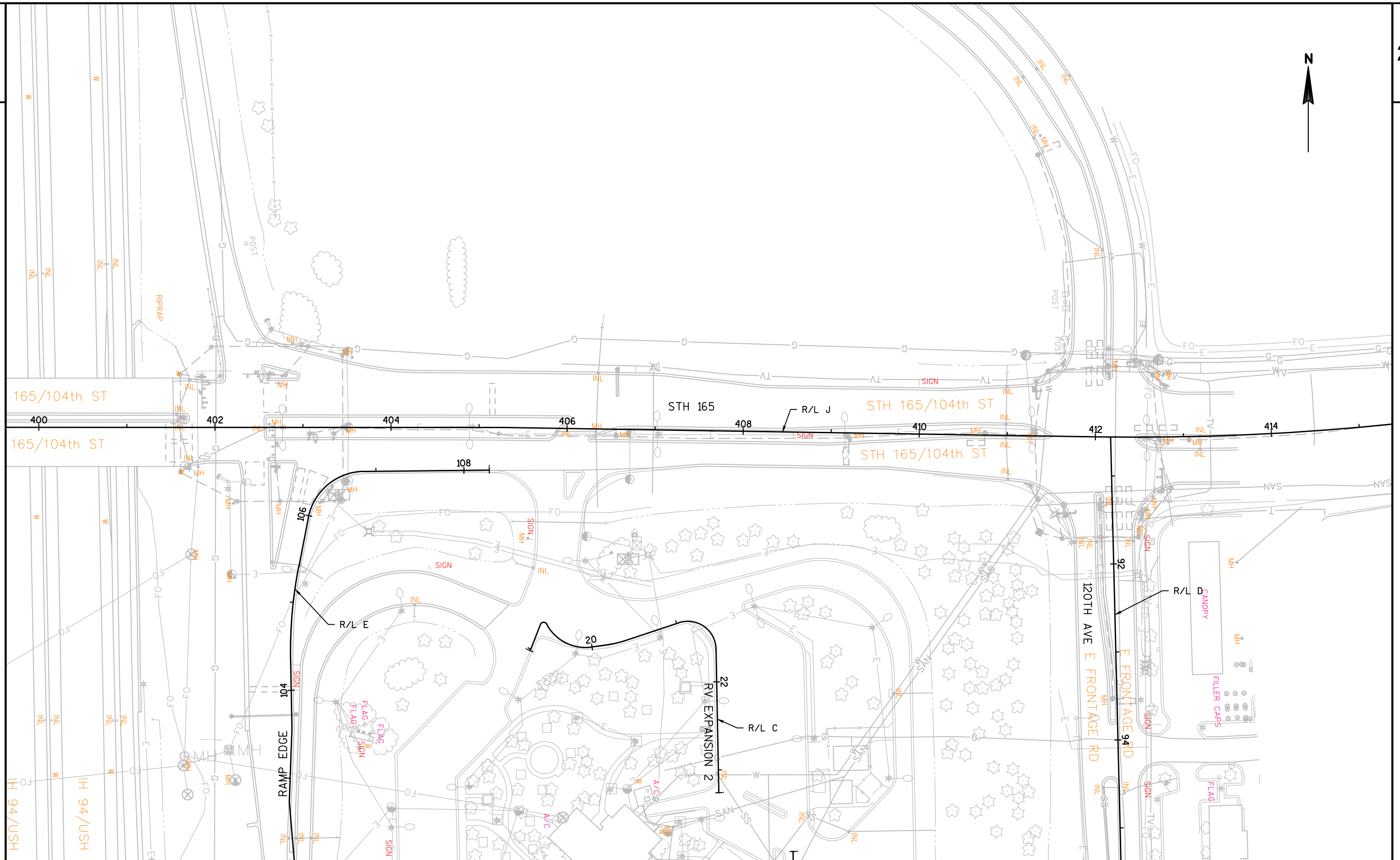
PLOT BY : SPAETH, MICHELE L

PLOT NAME :

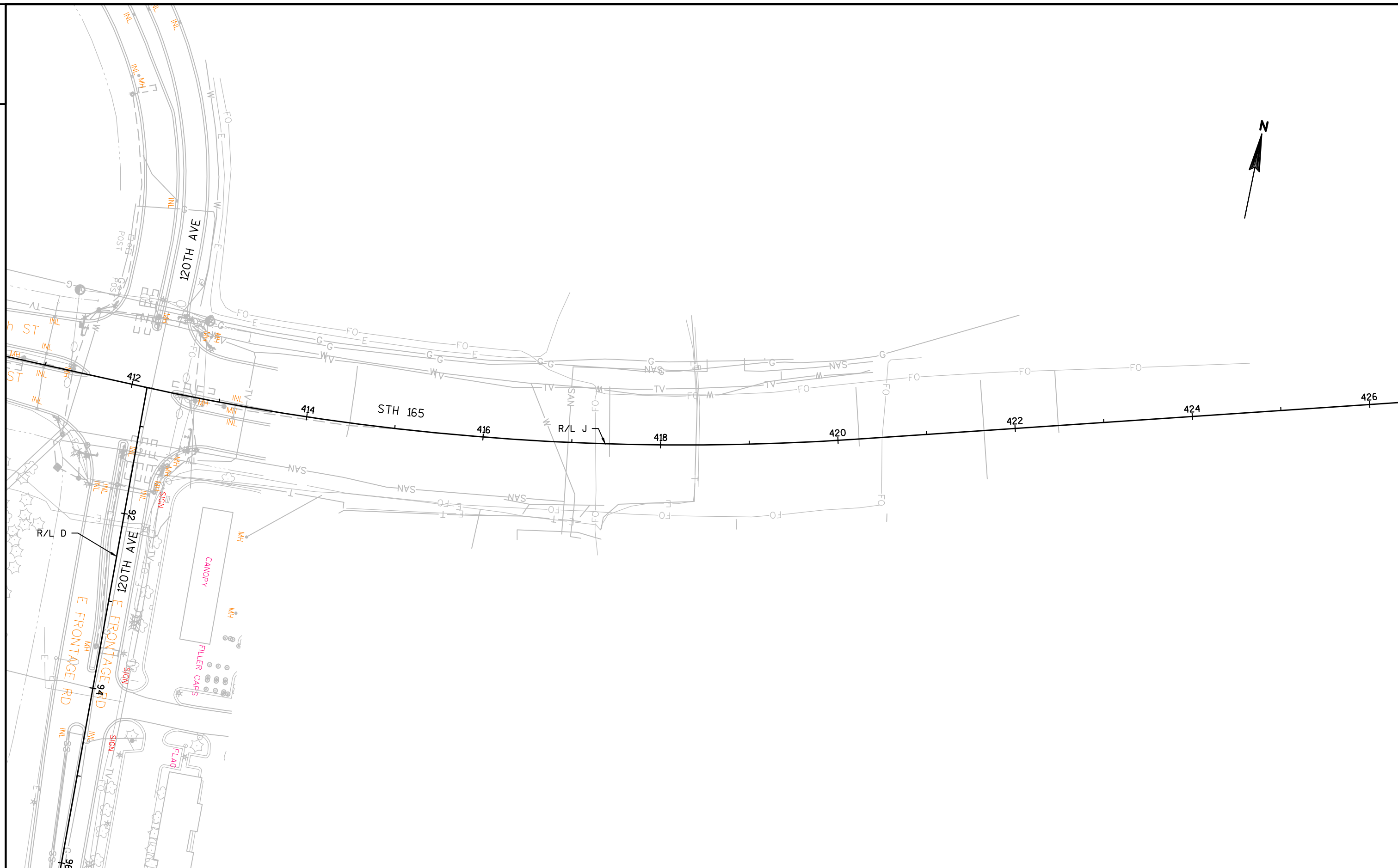
PLOT SCALE : 1 IN:20 FT

WISDOT/CADDs SHEET 41





PROJECT NO: 3738-08-70	HWY: STH 165	COUNTY: KENOSHA	EXISTING UTILITY PLANS	SHEET 59	E
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PROJECT NO: 3738-08-70

HWY: STH 165

COUNTY: KENOSHA

EXISTING UTILITY PLANS

SHEET

60

E

FILE NAME : N:\PDS\C3D\CAD\37380800\023001_UP.DWG
LAYOUT NAME - 023003_UP

PLOT DATE : 12/5/2017 3:15 PM

PLOT BY : SPAETH, MICHELE L

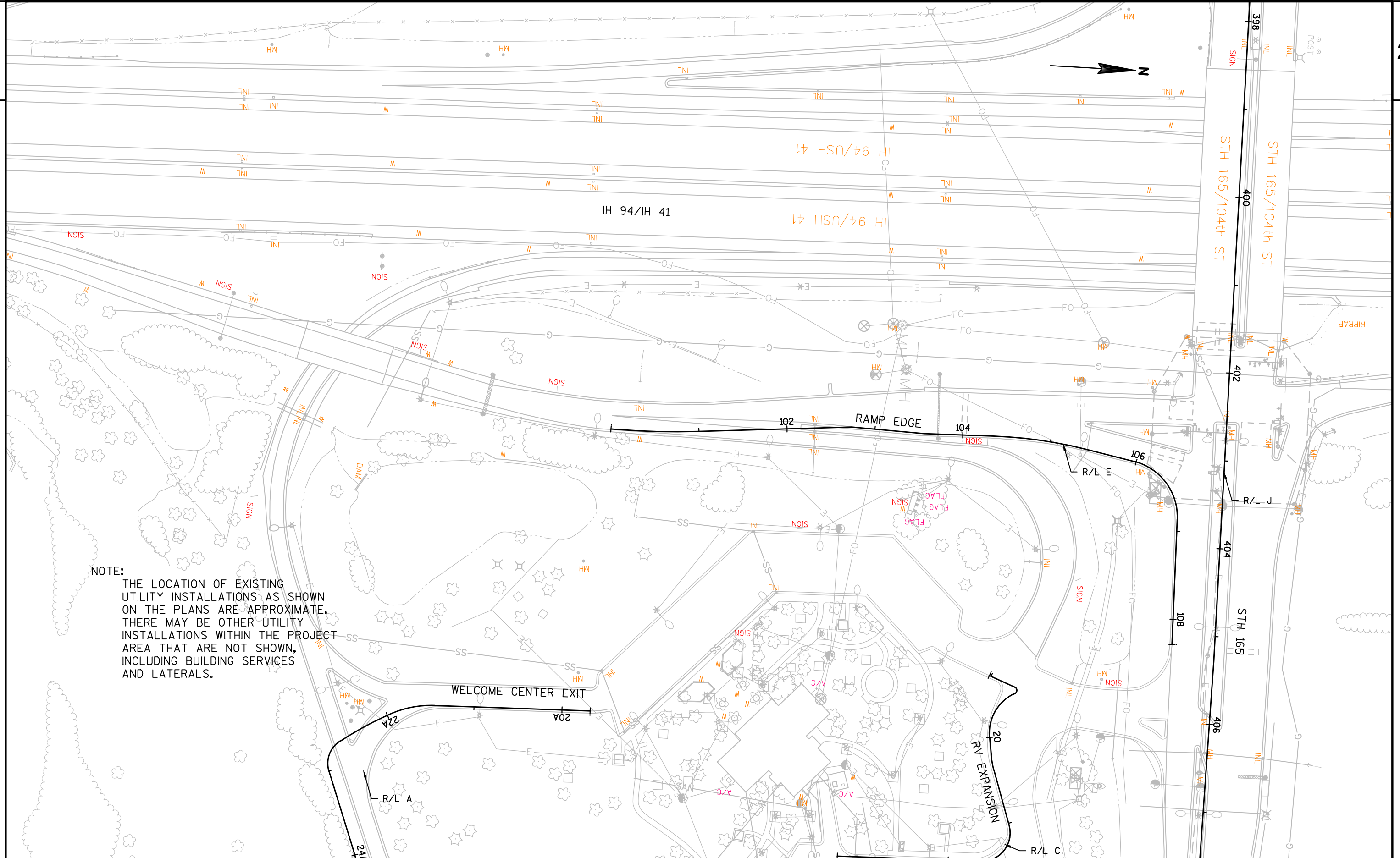
PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDs SHEET 42

2

2



PROJECT NO:3738-08-70	HWY:STH 165	COUNTY:KENOSHA	EXISTING UTILITY PLANS	SHEET 61	E
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LAYOUT NAME - 023004_UP

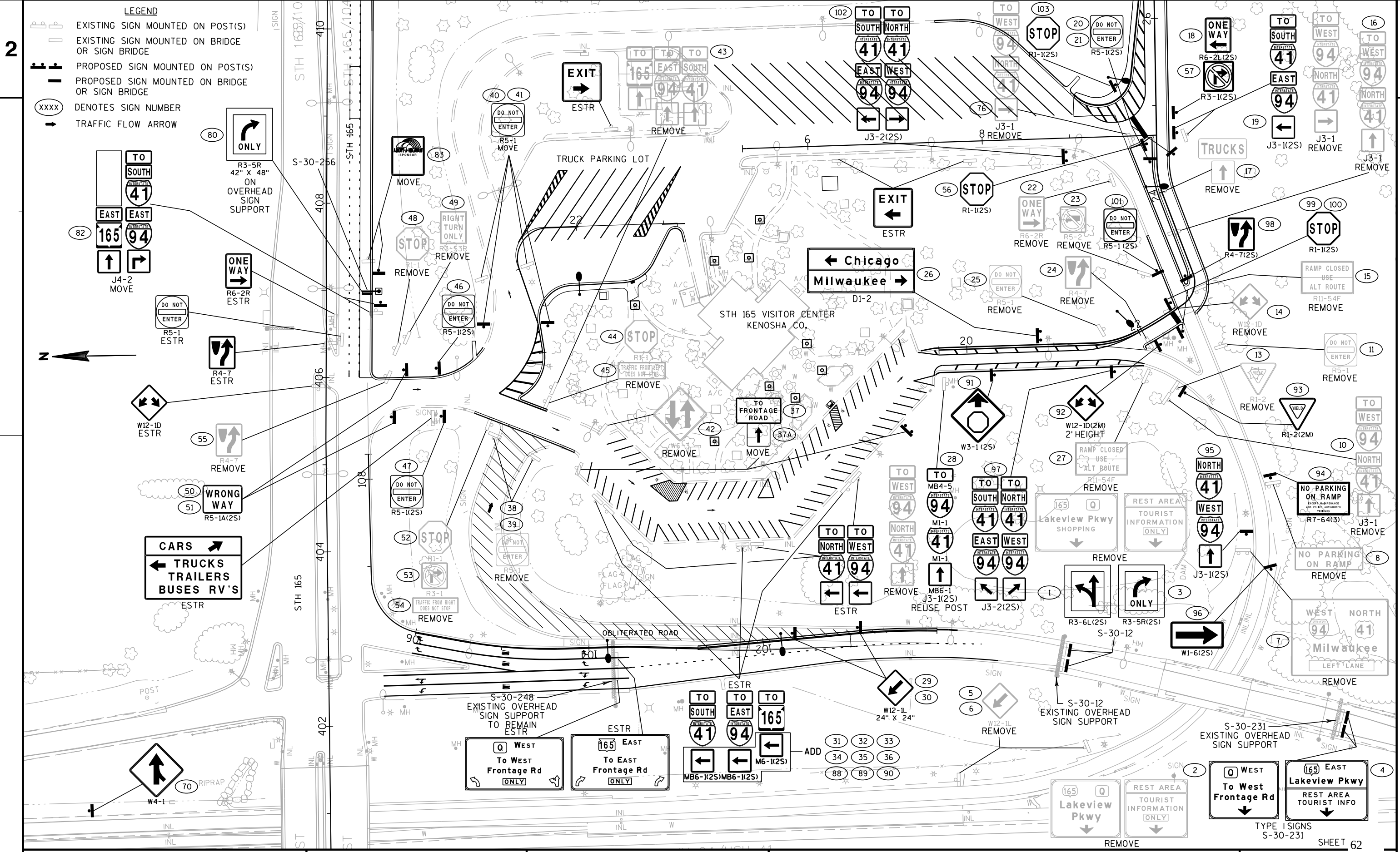
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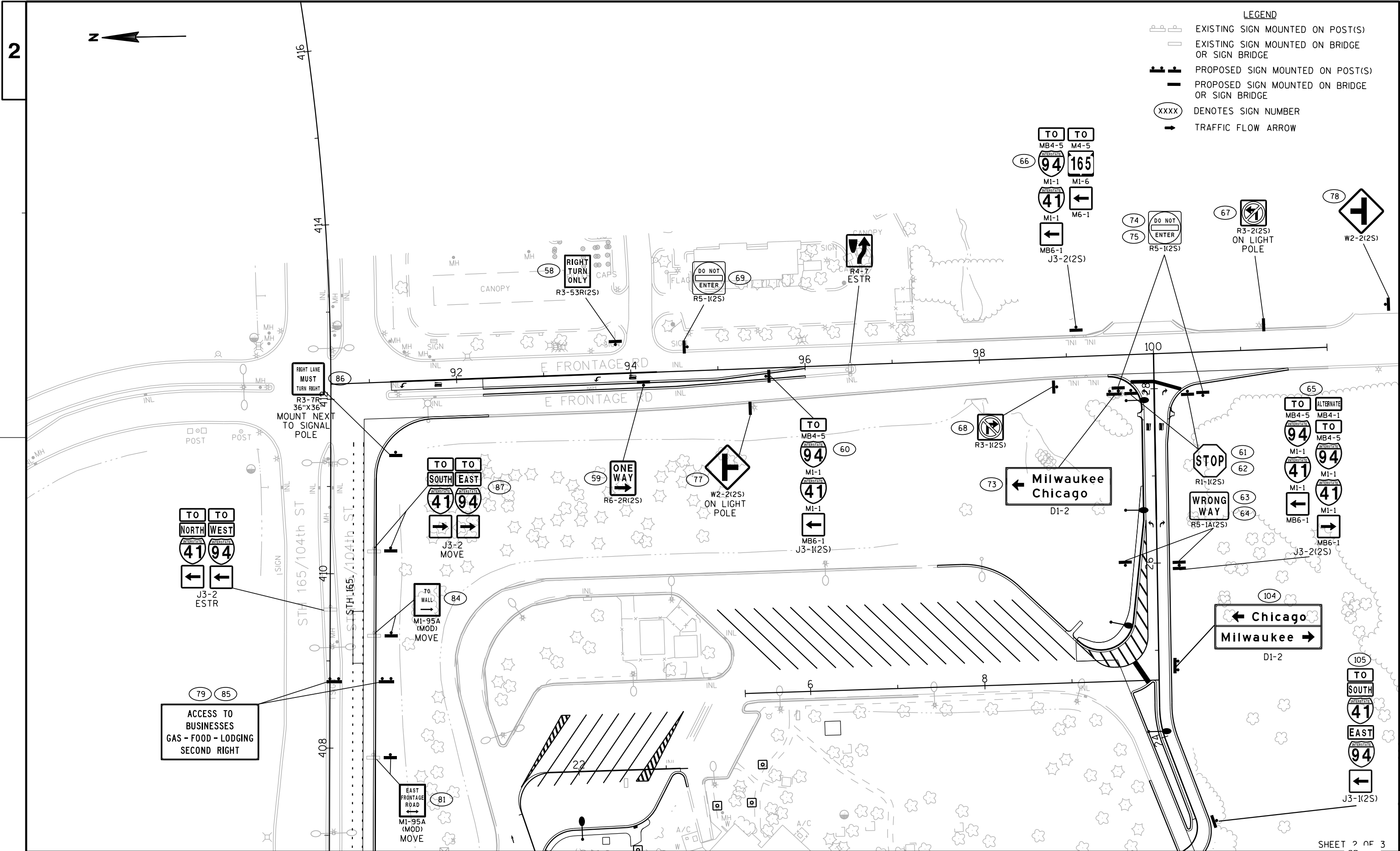
PLOT BY : SPAETH, MICHELE L

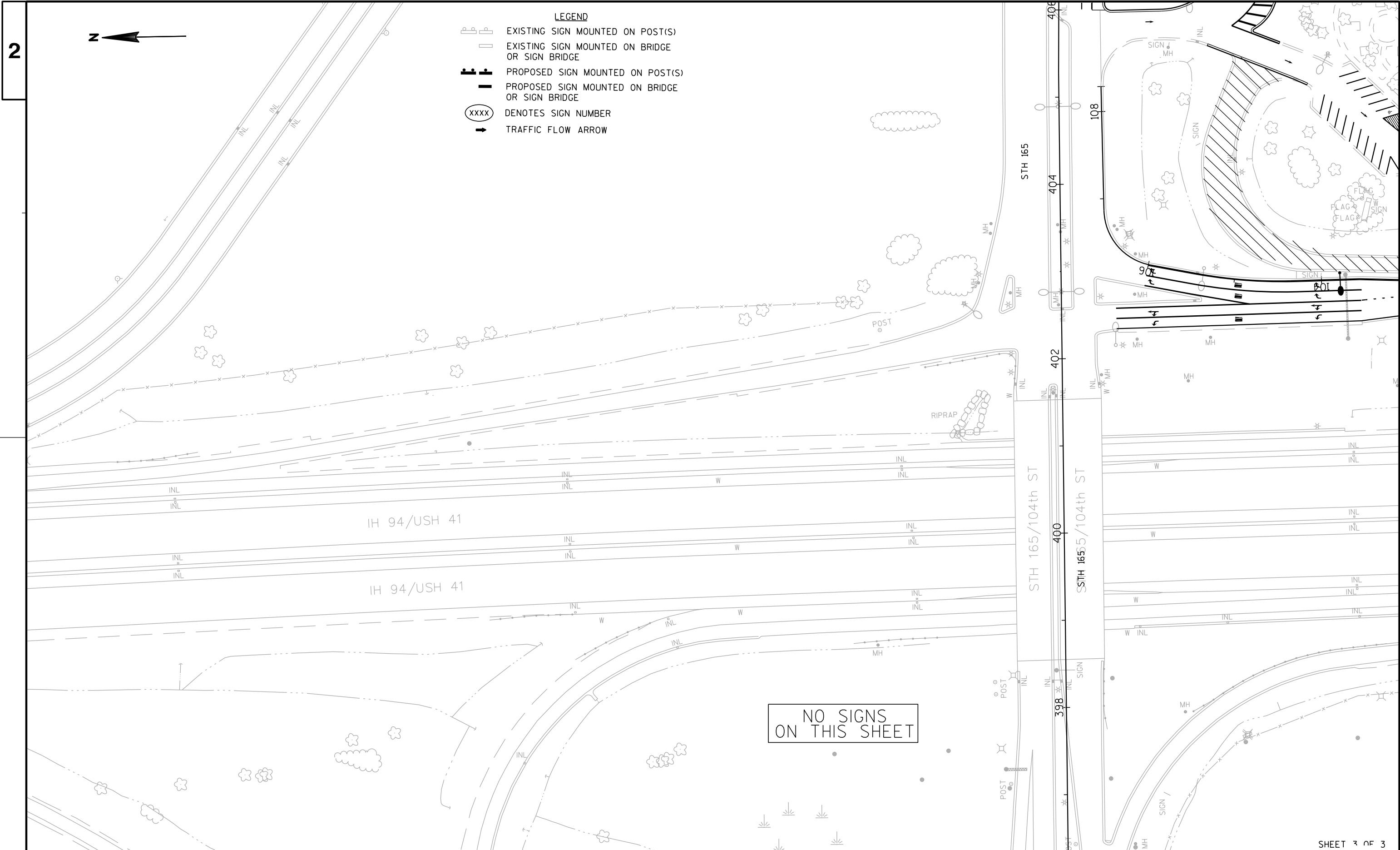
PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDs SHEET 42

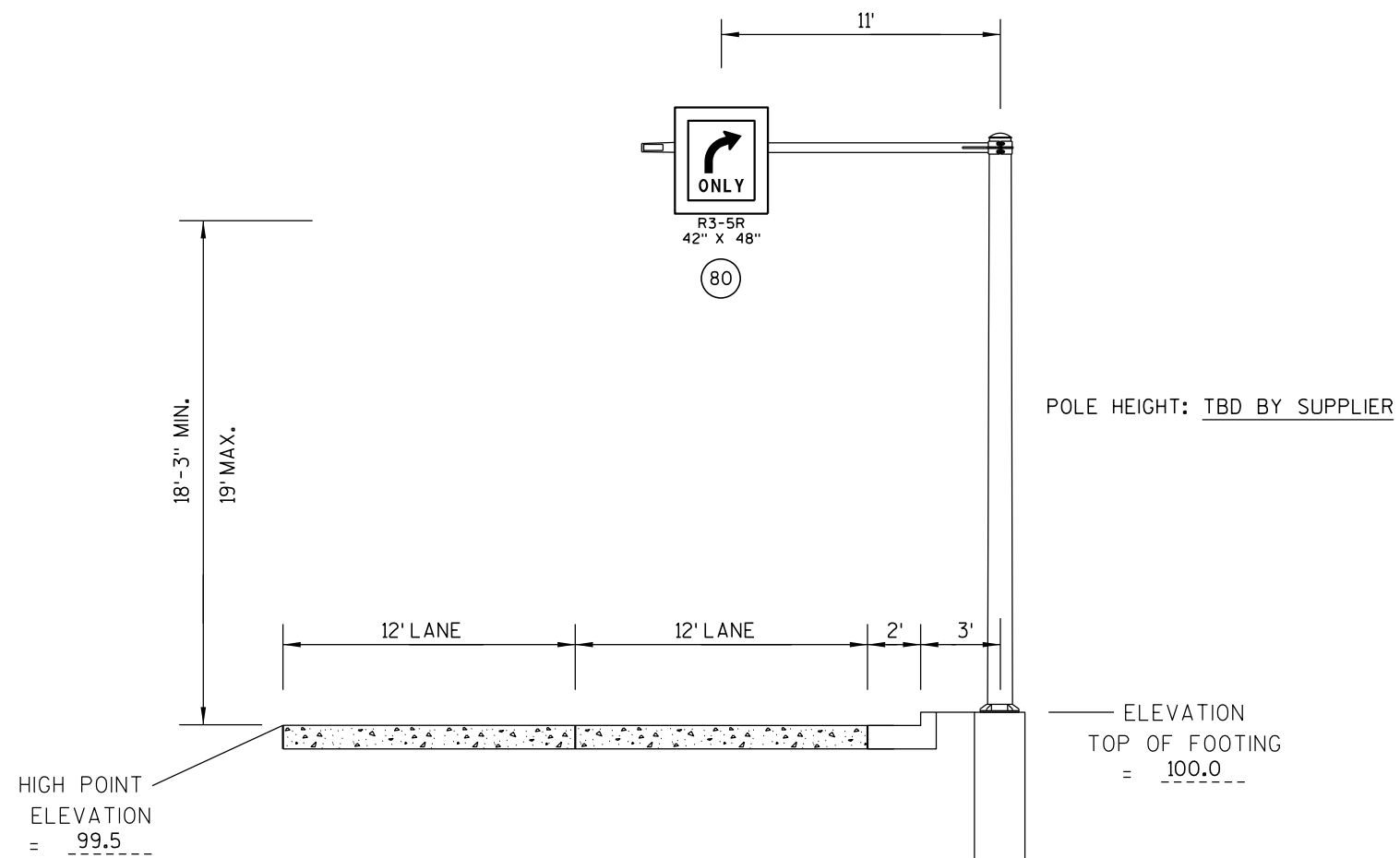






LEGEND

- (X) DENOTES SIGN NUMBER
(X) INDICATES SIGN SIZE



OVERHEAD SIGN SUPPORTS DETAIL
S-30-256
STH 165 EB EAST @ EAST FRONTAGE RD.
STATION

NOTE, CONTRACTOR SHALL:

1. SUBMIT SHOP DRAWINGS OF OVERHEAD SIGN SUPPORT. FOOTING IS INCIDENTAL TO OVERHEAD SIGN SUPPORT.
2. PROVIDE DESIGN CALCULATIONS.
3. SHOW SIGNS ON SHOP DRAWINGS.
4. I.D. PLAQUE INCIDENTAL TO OVERHEAD SIGN SUPPORT.
5. 6 ANCHOR RODS SHALL BE USED PER SDD, 36" DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE.

CONTRACTOR TO USE SDD, 36" DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE

MOUNTING BRACKETS FOR SIGNS TO BE APPROVED FROM PRODUCT LIST FOR TYPE II SIGNS.

IBEAMS - W5X3.7 IBEAMS FOR MOUNTING SIGNS ARE INCIDENTAL TO TYPE I SIGNS.

SHEET 1 OF 1

GENERAL NOTES:

FREEWAY LIGHTING SHALL BE INSTALLED IN COMPLIANCE WITH WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS SECTIONS 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 ON THE CONDUIT.
- 4. ALL OPEN AND UN-TERMINATED 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.
- 12. 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.
- 13. PROVIDE MINIMUM CABLE SLACK AS MENTIONED BELOW:
 - PULL BOXES: 3-FT
 - EMBEDDED JUNCTION BOXES: 3-FT
 - DISTRIBUTION CENTER/LOAD CENTER: 10-FT
 - POLES: 5-FT IN AND 5-FT OUT

2

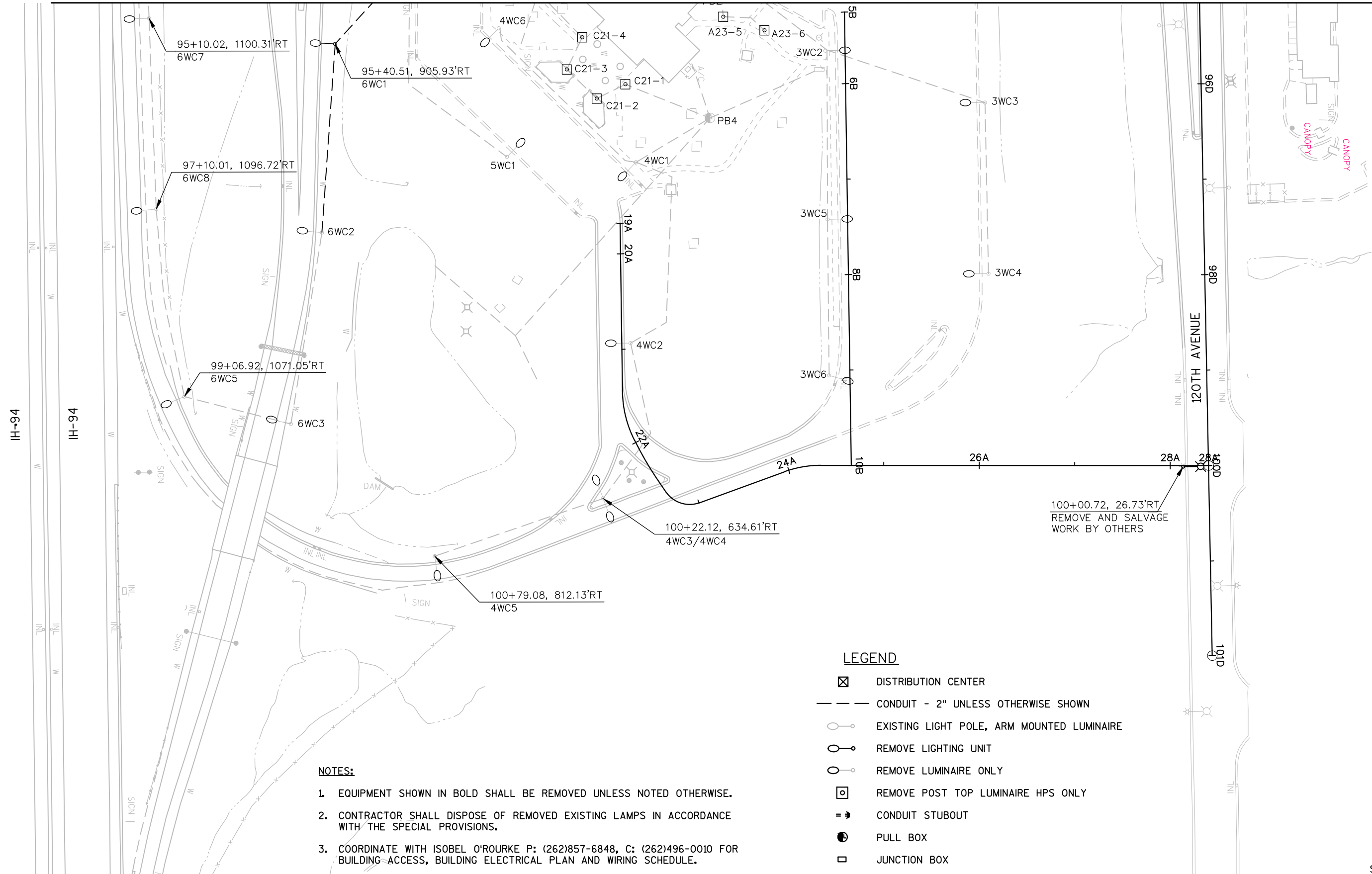


1. EQUIPMENT SHOWN IN BOLD SHALL BE REMOVED UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL DISPOSE OF REMOVED EXISTING LAMPS IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
3. COORDINATE WITH ISOBEL O'ROURKE P: (262)857-6848, C: (262)496-0010 FOR BUILDING ACCESS, BUILDING ELECTRICAL PLAN AND WIRING SCHEDULE.

67

WISDOT/CADDS SHEET 42

MATCH LINE - SEE LIGHTING REMOVAL PLAN SHEET 1



NOTES:

- EQUIPMENT SHOWN IN BOLD SHALL BE REMOVED UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL DISPOSE OF REMOVED EXISTING LAMPS IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- COORDINATE WITH ISOBEL O'ROURKE P: (262)857-6848, C: (262)496-0010 FOR BUILDING ACCESS, BUILDING ELECTRICAL PLAN AND WIRING SCHEDULE.

LEGEND

- DISTRIBUTION CENTER
- CONDUIT - 2" UNLESS OTHERWISE SHOWN
- EXISTING LIGHT POLE, ARM MOUNTED LUMINAIRE
- REMOVE LIGHTING UNIT
- REMOVE LUMINAIRE ONLY
- REMOVE POST TOP LUMINAIRE HPS ONLY
- CONDUIT STUBOUT
- PULL BOX
- JUNCTION BOX

SHEET 2 OF 2

PROJECT NO: 3738-08-70

HWY: STH 165

COUNTY: KENOSHA

PLAN: LIGHTING PLAN - REMOVAL

SHEET

68

E

FILE NAME : N:\PDS\C3D\CAD\37380800\023501_LP.DWG

PLOT DATE : 12/6/2017 1:17 PM

PLOT BY : SPAETH, MICHELE L

PLOT NAME : _____

PLOT SCALE : 1:100_XREF

WISDOT/CADDs SHEET 42

2



	DISTRIBUTION CENTER
— —	CONDUIT - 2" UNLESS OTHERWISE SHOWN
	INSTALL LIGHTING UNIT WITH LED-B LUMINAIRE
	INSTALL LED-B LUMINAIRE
	INSTALL POST TOP LUMINAIRE UTILITY LED
= ➔	CONDUIT STUBOUT
	PULL BOX 24"x42"
	PULL BOX 24"x36"
	JUNCTION BOX

EB STH 165

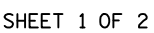
93+24.94, (532.18'RT)
LED-B-5(T)-15-1WC1

93+41.86, (929.98'RT)
LED-B-5(T)-15-6WC9

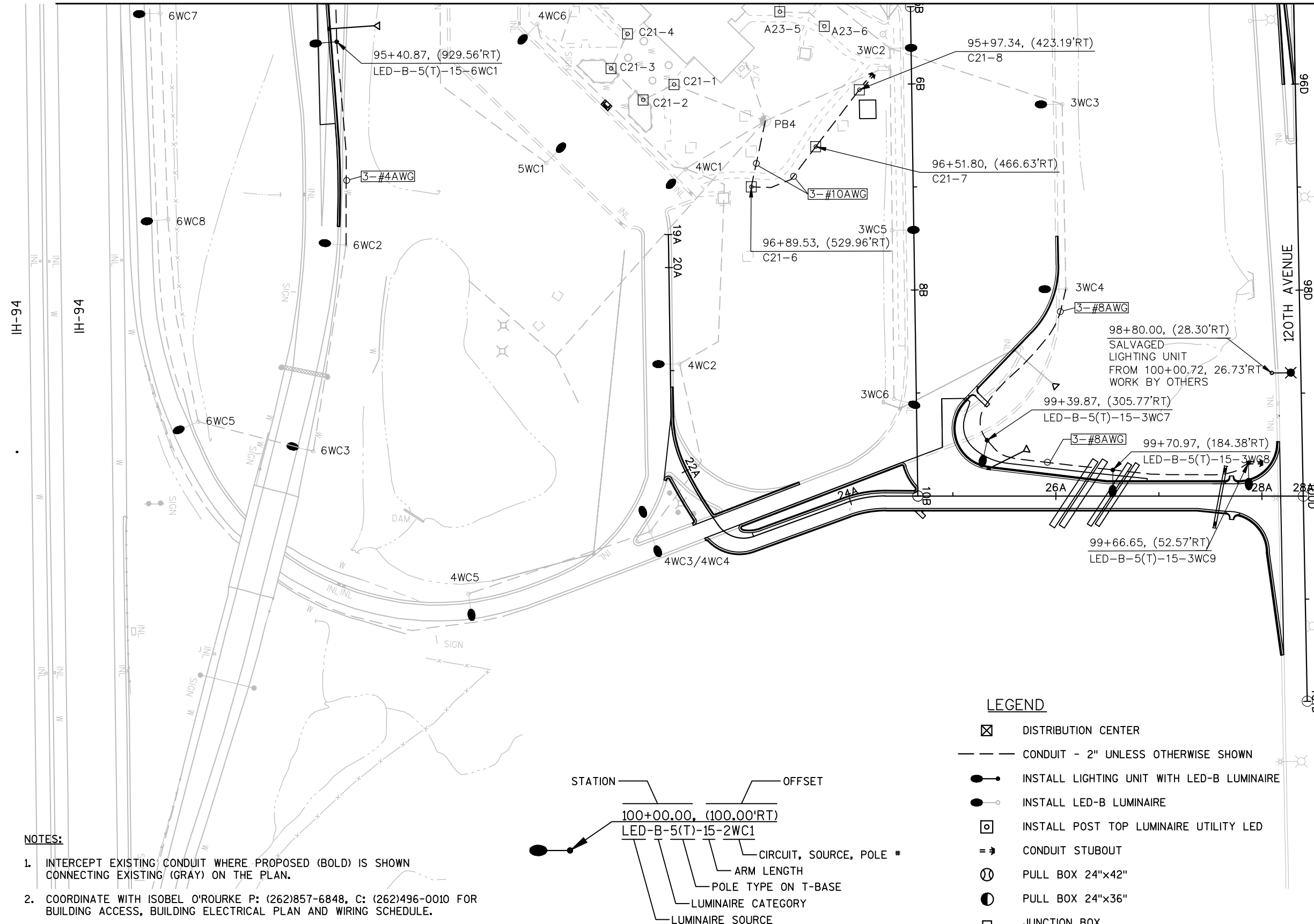
6-#4AWG

MATCH LINE - SEE LIGHTING PLAN SHEET 2

1. INTERCEPT EXISTING CONDUIT WHERE PROPOSED (BOLD) IS SHOWN
CONNECTING EXISTING (GRAY) ON THE PLAN.
2. COORDINATE WITH ISOBEL O'ROURKE P: (262)857-6848, C: (262)496-0010 FOR
BUILDING ACCESS, BUILDING ELECTRICAL PLAN AND WIRING SCHEDULE.



MATCH LINE - SEE LIGHTING PLAN SHEET 1



SHEET 2 OF 2

PROJECT NO: 3738-08-70

HWY: STH 165

COUNTY: KENOSHA

PLAN: LIGHTING PLAN

SHEET 70

E

FILE NAME : N:\PDS\C3D\CAD\37380800\023503_LP.DWG

PLOT DATE : 1/2/2018 5:15 PM

PLOT BY : SPAETH, MICHELE L

PLOT NAME : PLOT SCALE : 1:100_XREF

WISDOT/CADDs SHEET 42



EXISTING LIGHT CONTROLLER
TO REMAIN (NO WORK
UNDER THIS CONTRACT)

HL-30-LV

A,C RED
B,D BLACK
N WHITE
GND GREEN
OR BARE

A,B,C,D 30 A

240/480 VAC 3 WIRE
ISOLATED NEUTRAL

WB STH 165

EB STH 165

IH-94

IH-94

120TH AVENUE

EXISTING CONTROL PANEL
INSIDE THE BUILDING TO REMAIN

HL-30-WC

1,3,5 RED
2,4,6 BLACK
N WHITE
GND GREEN
OR BARE

1,3,5 30 A
2,4,6 30 A

120/208 VAC 3 WIRE
ISOLATED NEUTRAL

NOTES:

1. WIRE IN THE PULL BOX IS INCIDENTAL TO THE PULL BOX BID ITEM.
2. 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.

SHEET 1 OF 1

PROJECT NO: 3738-08-70

HWY: STH 165

COUNTY: KENOSHA

PLAN: LIGHTING PLAN - LIGHTING CONTROLLER OVERVIEW

SHEET

71

E

FILE NAME : N:\PDS\C3D\CAD\37380800\023505_LP.DWG

PLOT DATE : 12/6/2017 2:18 PM

PLOT BY : SPAETH, MICHELE L

PLOT NAME : PLOT SCALE : 1 IN:200 FT

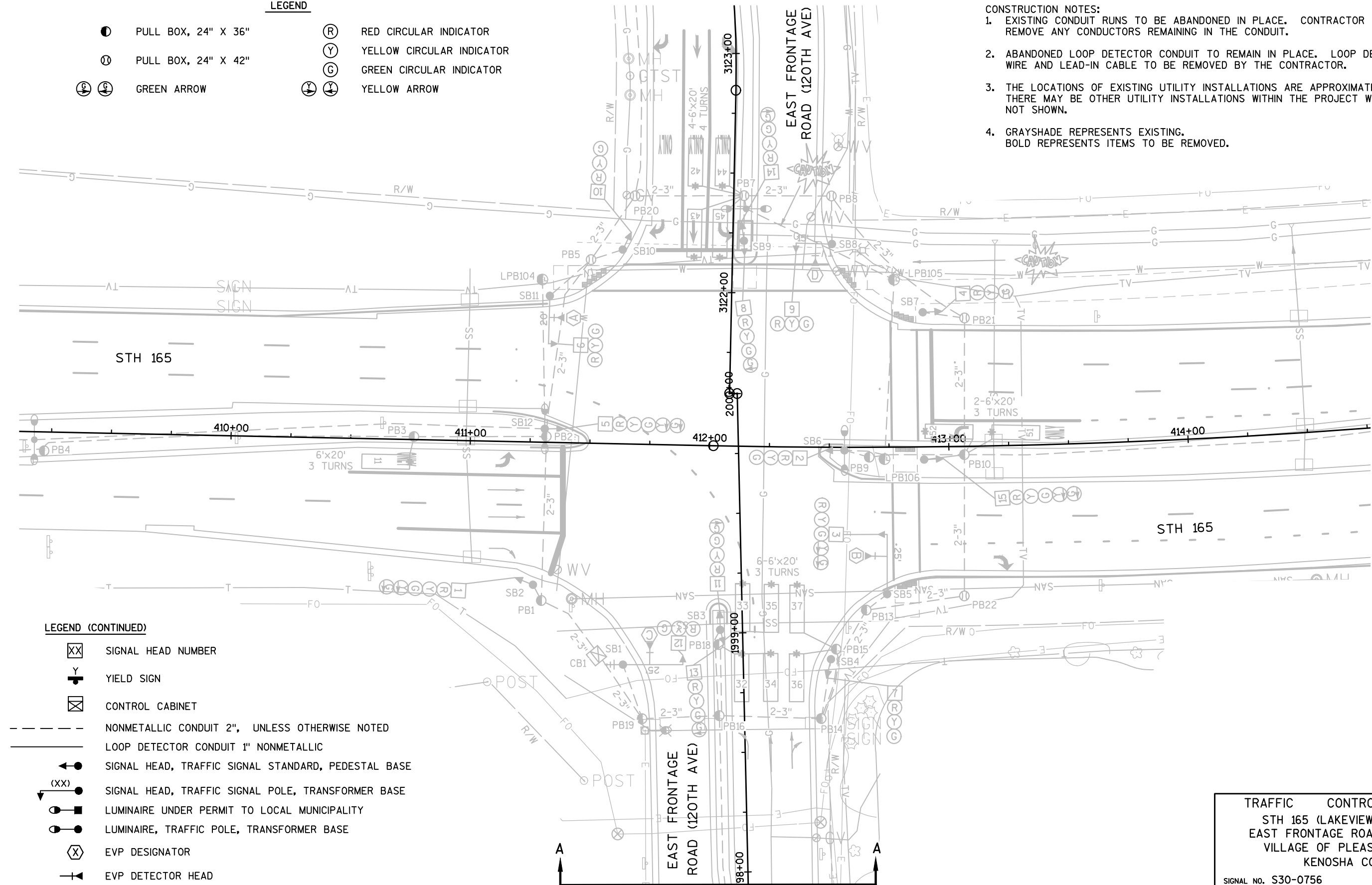
WISDOT/CADDs SHEET 42

LEGEND

- | | | | |
|--|---------------------|--|---------------------------|
| | PULL BOX, 24" X 36" | | RED CIRCULAR INDICATOR |
| | PULL BOX, 24" X 42" | | YELLOW CIRCULAR INDICATOR |
| | GREEN ARROW | | GREEN CIRCULAR INDICATOR |
| | | | YELLOW ARROW |

CONSTRUCTION NOTES:

- EXISTING CONDUIT RUNS TO BE ABANDONED IN PLACE. CONTRACTOR TO REMOVE ANY CONDUCTORS REMAINING IN THE CONDUIT.
- ABANDONED LOOP DETECTOR CONDUIT TO REMAIN IN PLACE. LOOP DETECTOR WIRE AND LEAD-IN CABLE TO BE REMOVED BY THE CONTRACTOR.
- THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
- GRAYSHADE REPRESENTS EXISTING. BOLD REPRESENTS ITEMS TO BE REMOVED.



LEGEND (CONTINUED)

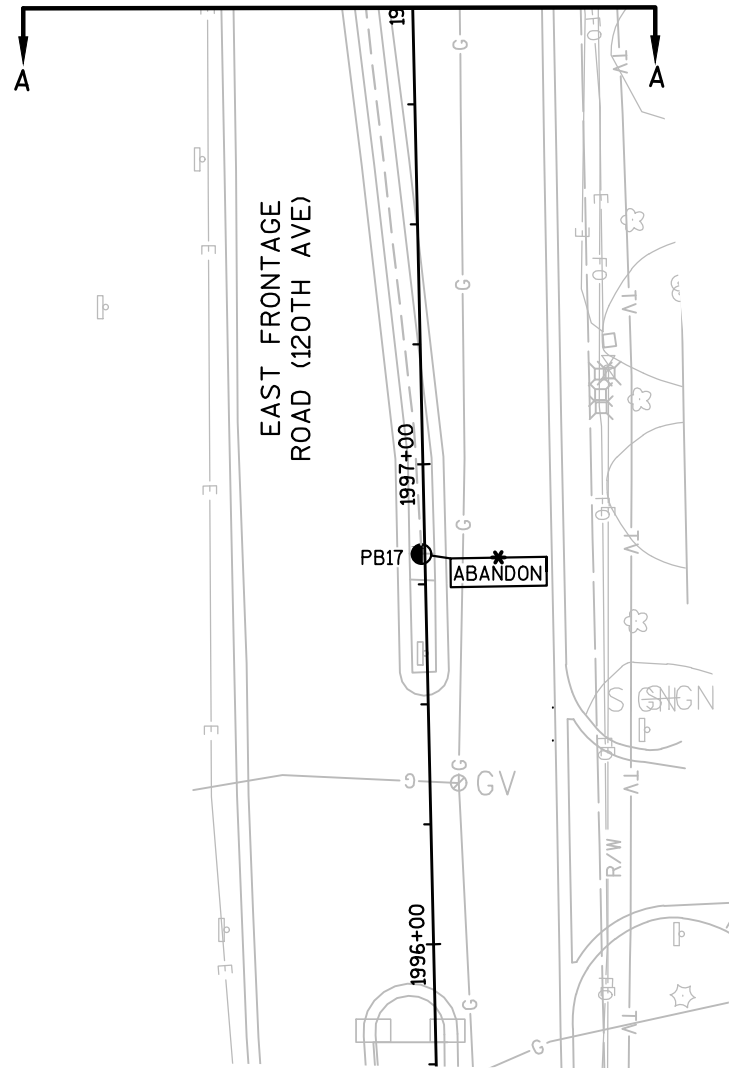
- | | |
|--|---|
| | SIGNAL HEAD NUMBER |
| | YIELD SIGN |
| | CONTROL CABINET |
| | NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED |
| | LOOP DETECTOR CONDUIT 1" NONMETALLIC |
| | SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE |
| | SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE |
| | LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY |
| | LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE |
| | EVP DESIGNATOR |
| | EVP DETECTOR HEAD |
| | LOOP DETECTOR IN 1" NONMETALLIC CONDUIT |

TRAFFIC CONTROL SIGNAL
STH 165 (LAKEVIEW PKWY) AND
EAST FRONTAGE ROAD (120TH AVE)
VILLAGE OF PLEASANT PRAIRIE
KENOSHA COUNTY

SIGNAL NO. S30-0756

REGION CONTACT: S. SWARD
DESIGNED BY:
REVISED BY: C. VANDE LEEST

PAGE 1 OF 2



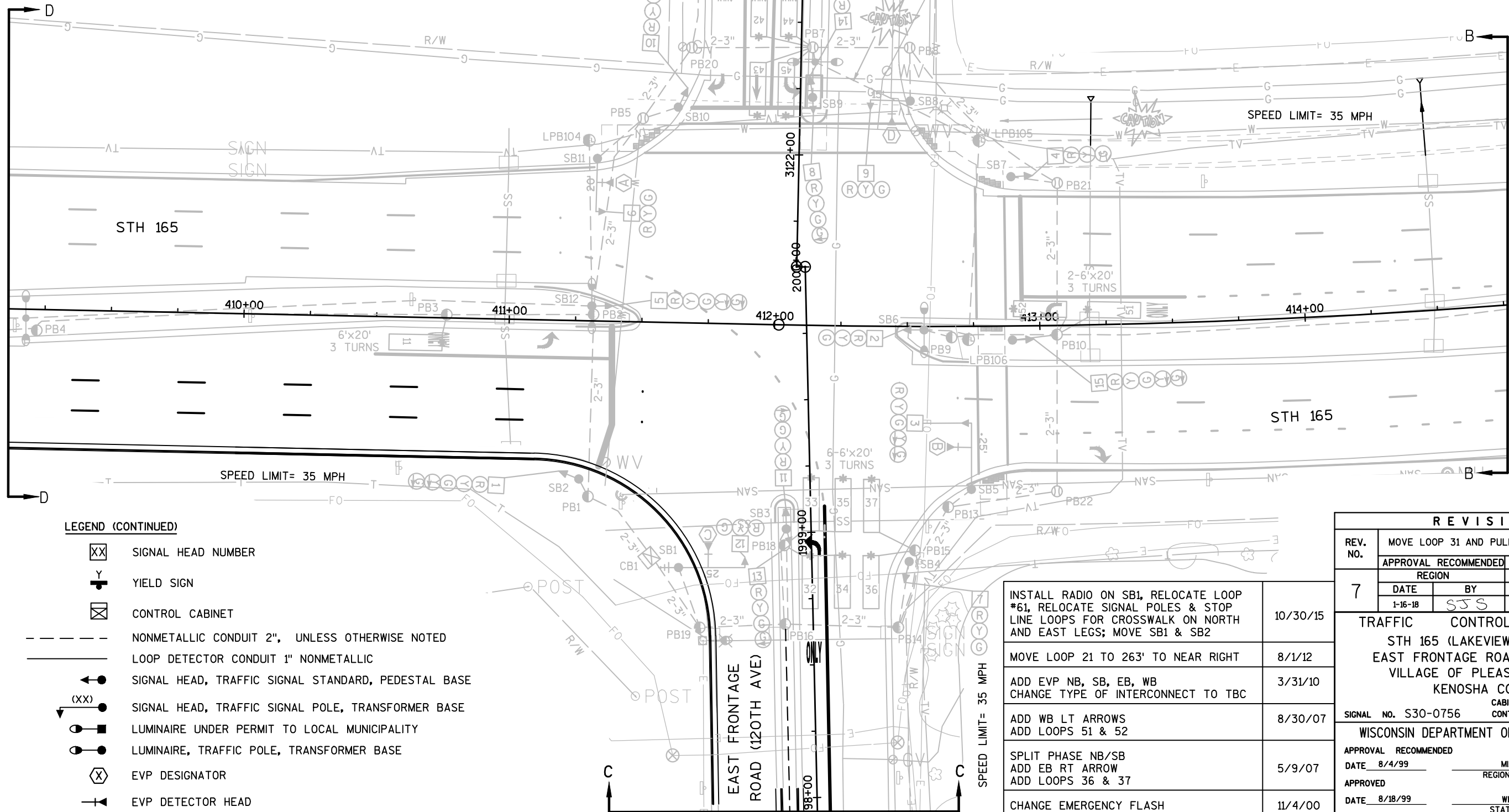
TRAFFIC CONTROL SIGNAL	
STH 165 (LAKEVIEW PKWY) AND EAST FRONTAGE ROAD (120TH AVE) VILLAGE OF PLEASANT PRAIRIE KENOSHA COUNTY	
SIGNAL NO. S30-0756	
REGION CONTACT: S. SWARD DESIGNED BY: REVISED BY: C. VANDE LEEST	PAGE 2 OF 2

LEGEND

- | | | | |
|---|---------------------|---|---------------------------|
| ● | PULL BOX, 24" X 36" | Ⓡ | RED CIRCULAR INDICATOR |
| ○ | PULL BOX, 24" X 42" | Ⓢ | YELLOW CIRCULAR INDICATOR |
| Ⓢ | GREEN ARROW | Ⓢ | GREEN CIRCULAR INDICATOR |
| | | Ⓢ | YELLOW ARROW |

CONSTRUCTION NOTES

- * LOCATION IS TO FRONT CENTER OF DETECTOR LOOP
- THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 5 WORKING DAYS PRIOR TO PLACING SIGNAL CABLE INTO SYSTEM. CONTACT THE WISDOT ELECTRICAL FIELD UNIT TO MAKE ARRANGEMENTS (414) 266-1170.
- ALL LUMINAIRES ARE 250 HPS UNLESS OTHERWISE NOTED.
- THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.



LEGEND (CONTINUED)

- | | |
|--------|---|
| XX | SIGNAL HEAD NUMBER |
| Y | YIELD SIGN |
| ⊠ | CONTROL CABINET |
| --- | NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED |
| --- | LOOP DETECTOR CONDUIT 1" NONMETALLIC |
| ● | SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE |
| (XX) ● | SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE |
| ● | LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY |
| ● | LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE |
| (X) | EVP DESIGNATOR |
| ⊠ | EVP DETECTOR HEAD |
| * ⊠ * | LOOP DETECTOR IN 1" NONMETALLIC CONDUIT |

INSTALL RADIO ON SB1, RELOCATE LOOP #61, RELOCATE SIGNAL POLES & STOP LINE LOOPS FOR CROSSWALK ON NORTH AND EAST LEGS; MOVE SB1 & SB2

10/30/15

MOVE LOOP 21 TO 263' TO NEAR RIGHT

8/1/12

ADD EVP NB, SB, EB, WB
CHANGE TYPE OF INTERCONNECT TO TBC

3/31/10

ADD WB LT ARROWS
ADD LOOPS 51 & 52

8/30/07

SPLIT PHASE NB/SB
ADD EB RT ARROW
ADD LOOPS 36 & 37

5/9/07

CHANGE EMERGENCY FLASH
FROM YELLOW TO RED

11/4/00

INITIAL INSTALLATION

8/99

REVISION

REV. NO.	MOVE LOOP 31 AND PULL BOX 17; PLAN UPDATE			
	APPROVAL RECOMMENDED		APPROVED	
7	REGION		CENTRAL OFFICE	
	DATE	BY	DATE	BY
	1-16-18	SJS	1-31-18	DMK

TRAFFIC CONTROL SIGNAL
STH 165 (LAKEVIEW PKWY) AND
EAST FRONTAGE ROAD (120TH AVE)
VILLAGE OF PLEASANT PRAIRIE
KENOSHA COUNTY
CABINET TYPE: TS1
CONTROLLER TYPE: EPAC

SIGNAL NO. S30-0756

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED

DATE 8/4/99

APPROVED

DATE 8/18/99

REGION CONTACT: S. SWARD

DESIGNED BY: C. VANDE LEEST

MITZI M. DOBERSEK
REGION TRAFFIC ENGINEER

WILLIAM C. GILDING
STATE TRAFFIC ENGINEER

PAGE 1 OF 4

PROJECT NO: 3738-08-70

HWY: STH 165

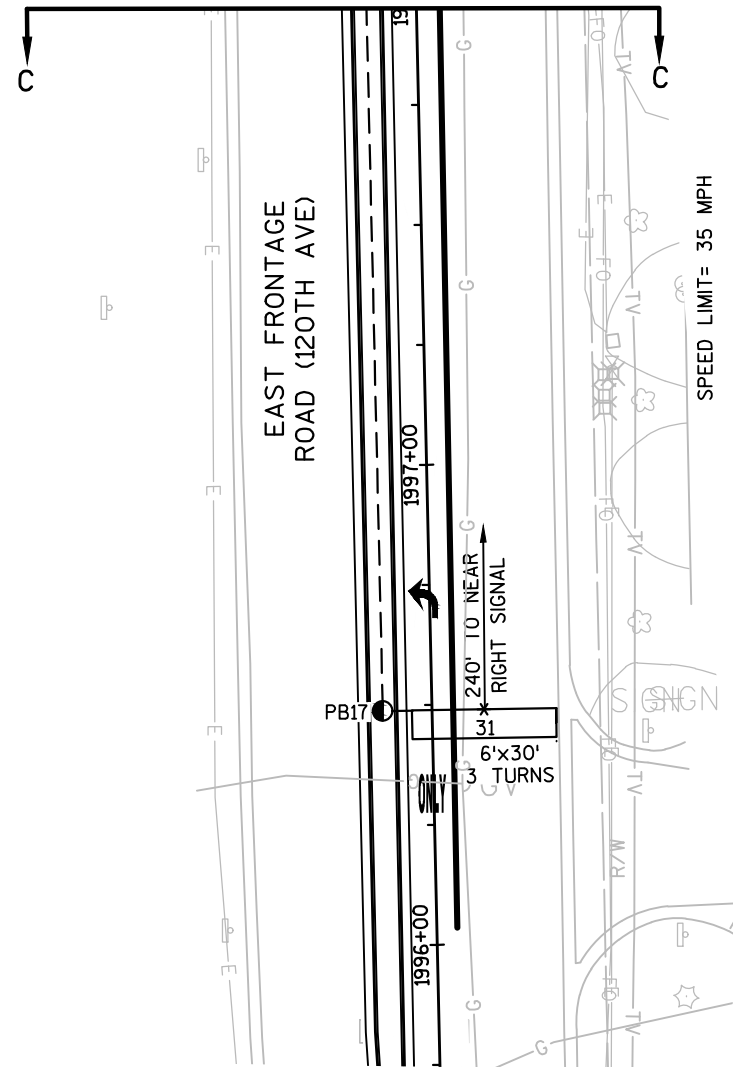
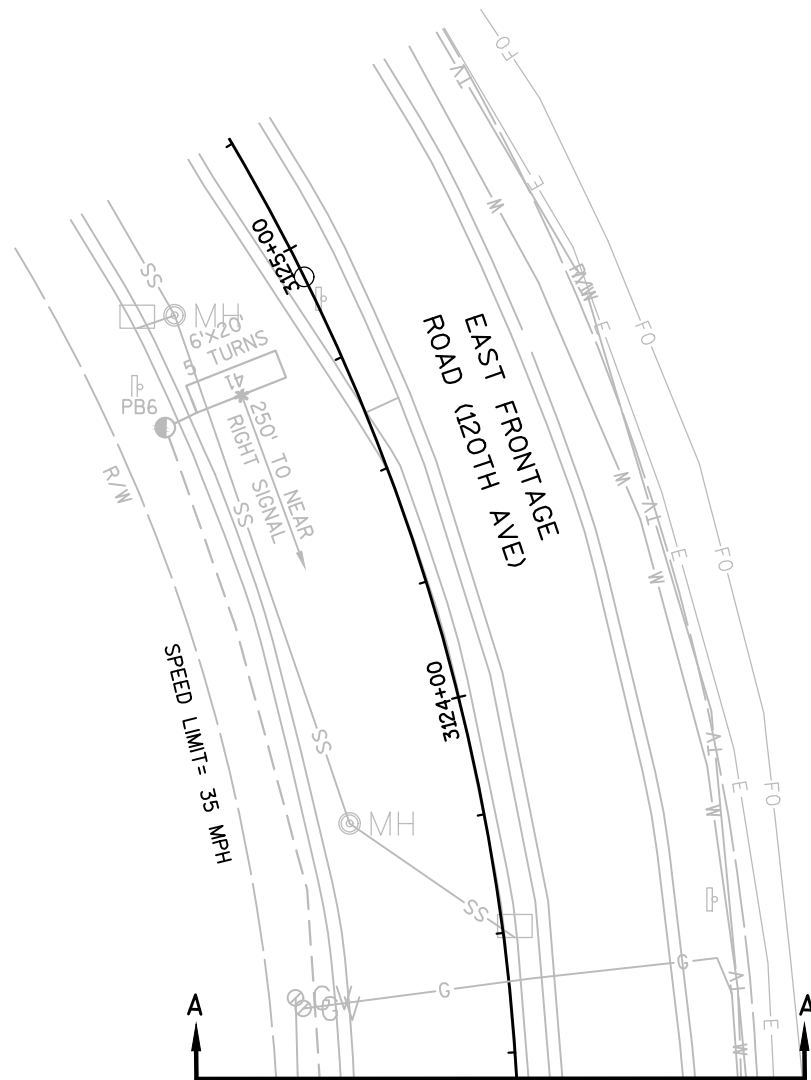
COUNTY: KENOSHA

TRAFFIC SIGNAL PLAN

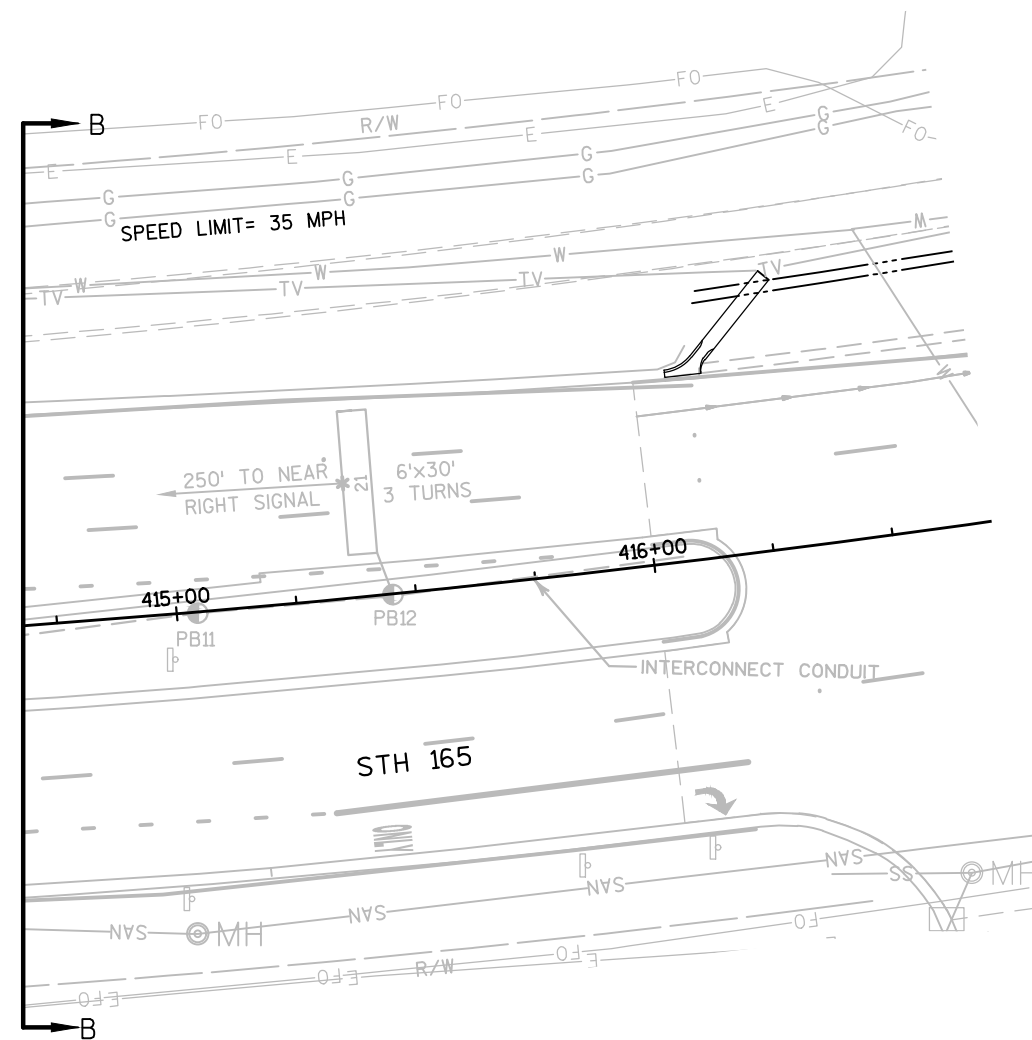
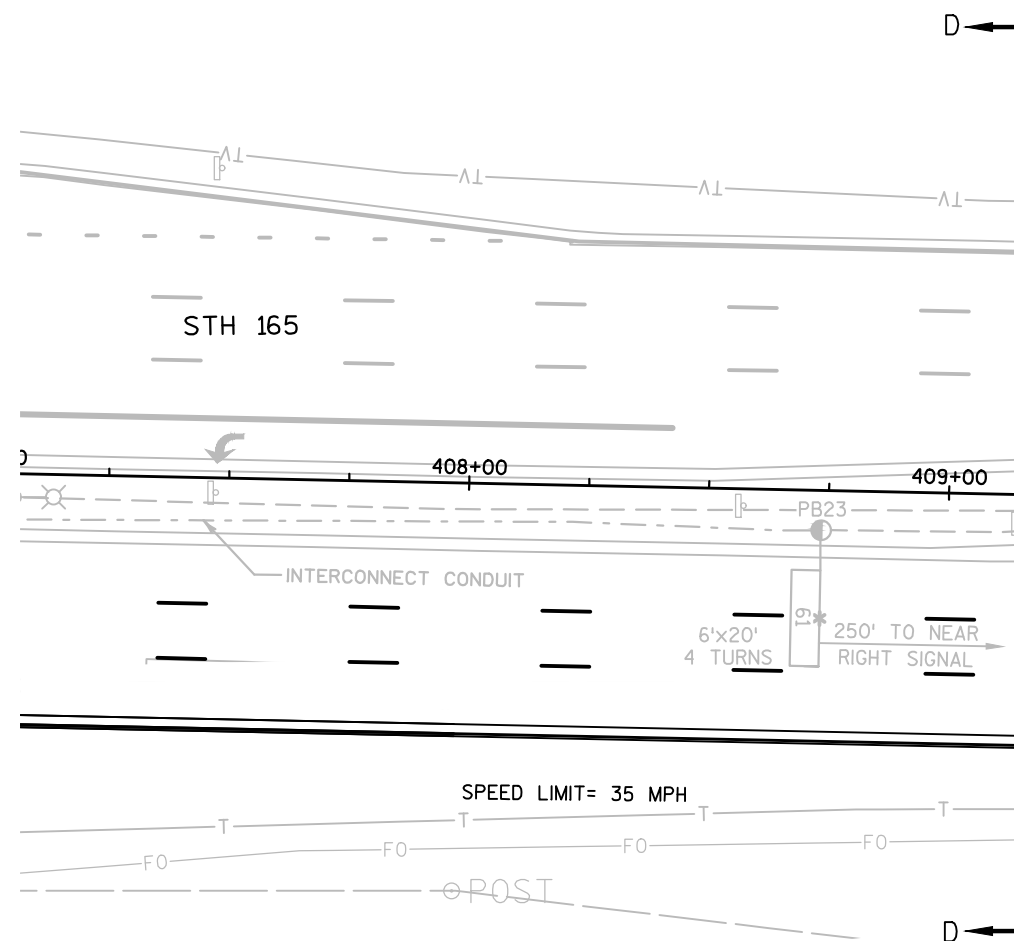
SHEET

74

E



TRAFFIC CONTROL SIGNAL	
STH 165 (LAKEVIEW PKWY) AND	
EAST FRONTAGE ROAD (120TH AVE)	
VILLAGE OF PLEASANT PRAIRIE	
KENOSHA COUNTY	
SIGNAL NO. S30-0756	
REGION CONTACT: S. SWARD	PAGE 2 OF 4
DESIGNED BY:	
REVISED BY: C. VANDE LEEST	



TRAFFIC CONTROL SIGNAL
STH 165 (LAKEVIEW PKWY) AND
EAST FRONTAGE ROAD (120TH AVE)
VILLAGE OF PLEASANT PRAIRIE
KENOSHA COUNTY

SIGNAL NO. S30-0756

REGION CONTACT: S. SWARD

DESIGNED BY:

REVISED BY: C. VANDE LEEST

PAGE 3 OF 4

PROJECT NO: 3738-08-70

HWY: STH 165

COUNTY: KENOSHA

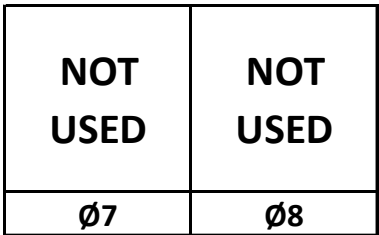
TRAFFIC SIGNAL PLAN

SHEET

76

E

RING 2



BARRIER

[illegible]

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1				
2	X	6	MIN	X
3				X
4				X
5		2		X
6	X	2	MIN	X
7				
8				

N

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	X
CELL MODEM	

TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER	
CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS- 0170

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	
IN SEPARATE DOT LIGHTING CABINET	X

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+6	6+2	4	3

AFTER PREEMPTION SEQUENCE 2+6 OR 6+2, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4, CONTROLLER SHALL RETURN TO PHASE 4.

AFTER PREEMPTION SEQUENCE 3, CONTROLLER SHALL RETURN TO PHASE 3.

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	X
GTT	X
TOMAR	
HARDWARE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

STH 165 (LAKEVIEW PKWY) & E. FRONTAGE ROAD (120TH AVE) VILLAGE OF PLEASANT PRAIRIE KENOSHA COUNTY		
SIGNAL NO: S30-0756		CABINET TYPE: TS1
		CONTROLLER TYPE: EPAC
DATE: JULY 2016	PAGE NO. 4 OF 4	

LEGEND

- 1

MARKING LINE EPOXY 4-INCH (YELLOW)
- 2

MARKING LINE EPOXY 4-INCH (WHITE)
- 3

MARKING LINE EPOXY 4-INCH (DASHED WHITE)
(12.5 FT LINE, 37.5 FT SKIP)
- 6

MARKING LINE EPOXY 8-INCH (WHITE)
- 7

MARKING STOP LINE EPOXY 18-INCH (WHITE)
- 10

MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
- 14

MARKING WORD EPOXY (WHITE)
- 15

MARKING ARROW EPOXY (TYPE 1)
- 16

MARKING ARROW EPOXY (TYPE 2)
- 17

MARKING ARROW EPOXY (TYPE 3)
- 20

MARKING CURB EPOXY (YELLOW)
- 30

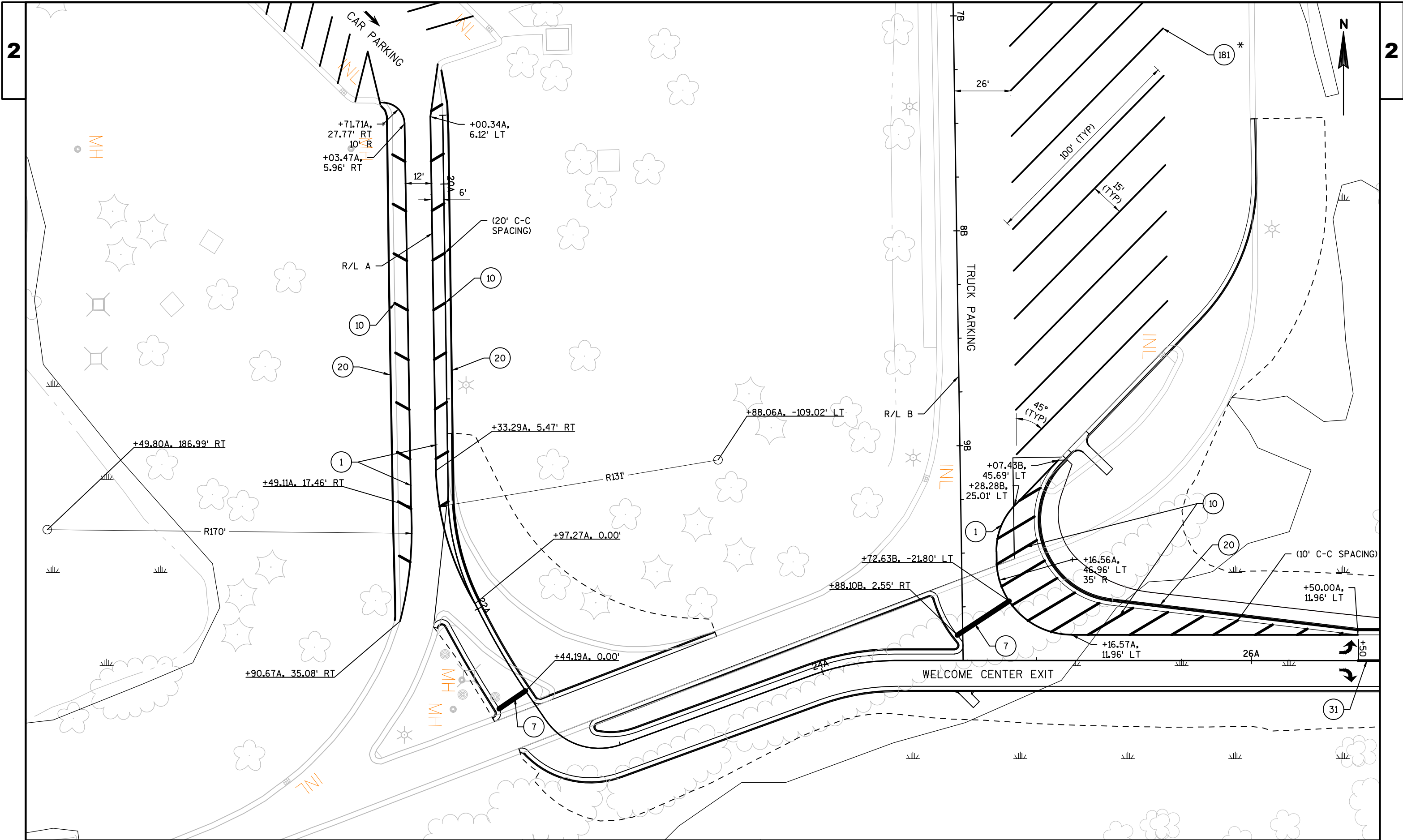
MARKING LINE GROOVED WET REF CONTRAST
EPOXY 4-INCH (12.5 FT LINE, 37.5 FT SKIP)
- 31

MARKING LINE GROOVED WET REF EPOXY
8-INCH (WHITE)
- 141

MARKING SYMBOL EPOXY (WHITE)
- 181

MARKING PARKING STALL EPOXY (WHITE)
- *

PLACE PAVEMENT MARKING OVER EXISTING MARKINGS
UNLESS OTHERWISE DIRECTED BY THE ENGINEER.



PROJECT NO: 3738-08-70

HWY: STH 165

COUNTY: KENOSHA

PAVEMENT MARKING

SHEET

79

E

FILE NAME : N:\PDS\C3D\CAD\37380800\024501_PM.DWG
LAYOUT NAME - 024501_PM

PLOT DATE : 9/5/2018 4:21 PM

PLOT BY : SPAETH, MICHELE L

PLOT NAME :

PLOT SCALE : 1 IN:40 FT

WISDOT/CADDs SHEET 42



PROJECT NO: 3738-08-70

HWY: STH 165

COUNTY: KENOSHA

PAVEMENT MARKING

SHEET

80

E

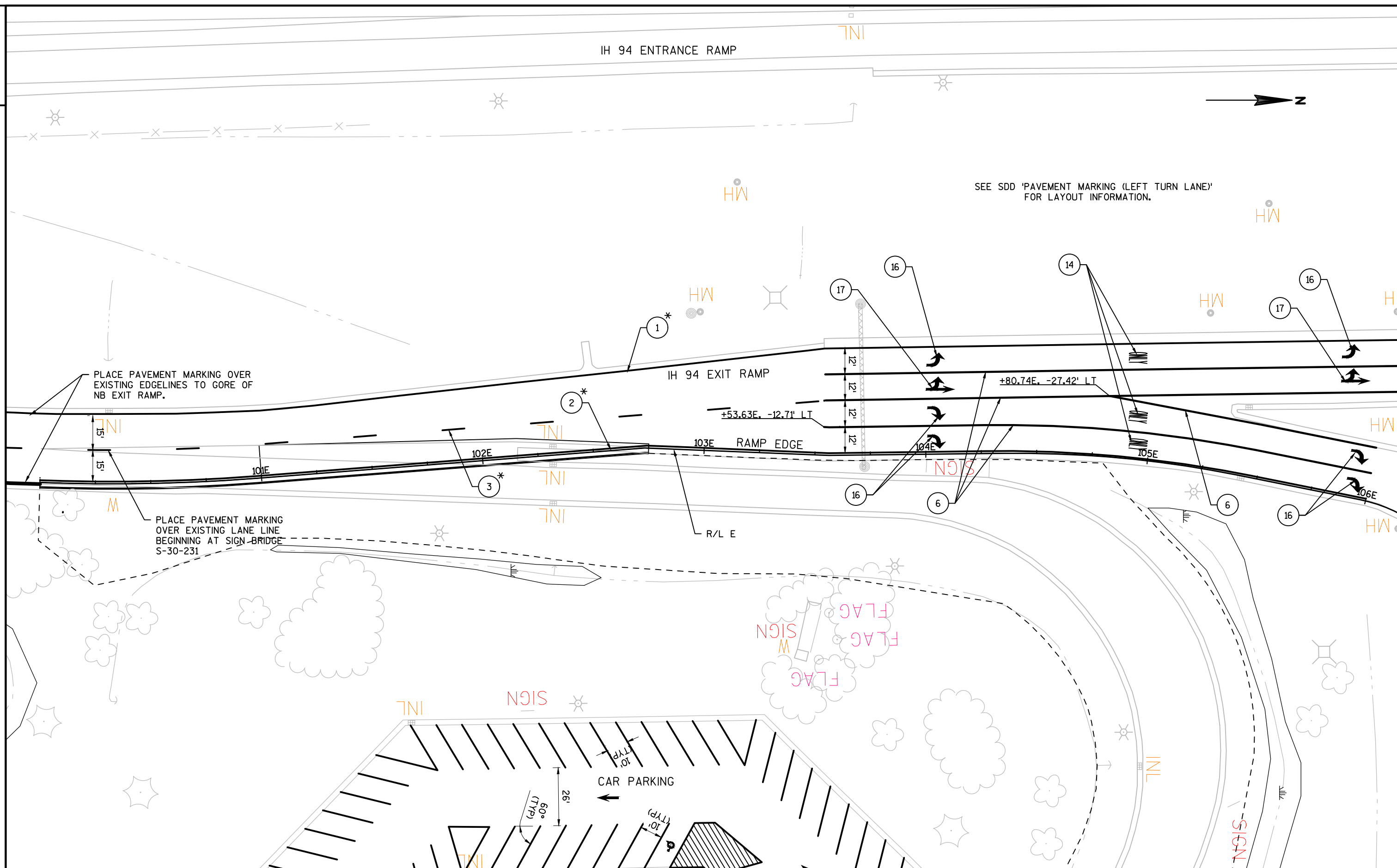
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LAYOUT NAME - 024502_PM

PLOT DATE : 9/5/2018 4:22 PM

PLOT BY : SPAETH, MICHELE L PLOT NAME :

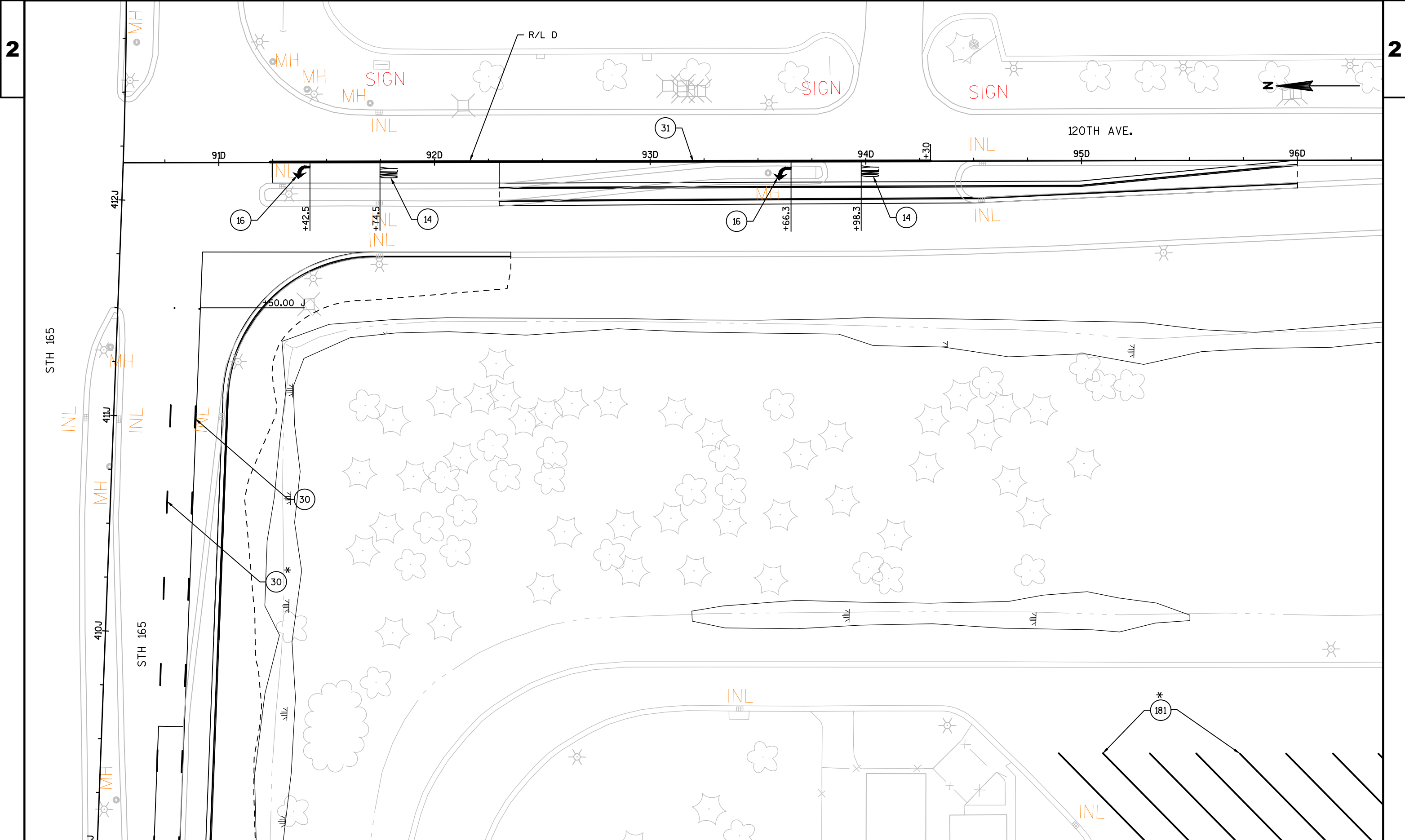
PLOT SCALE : 1 IN:40 FT

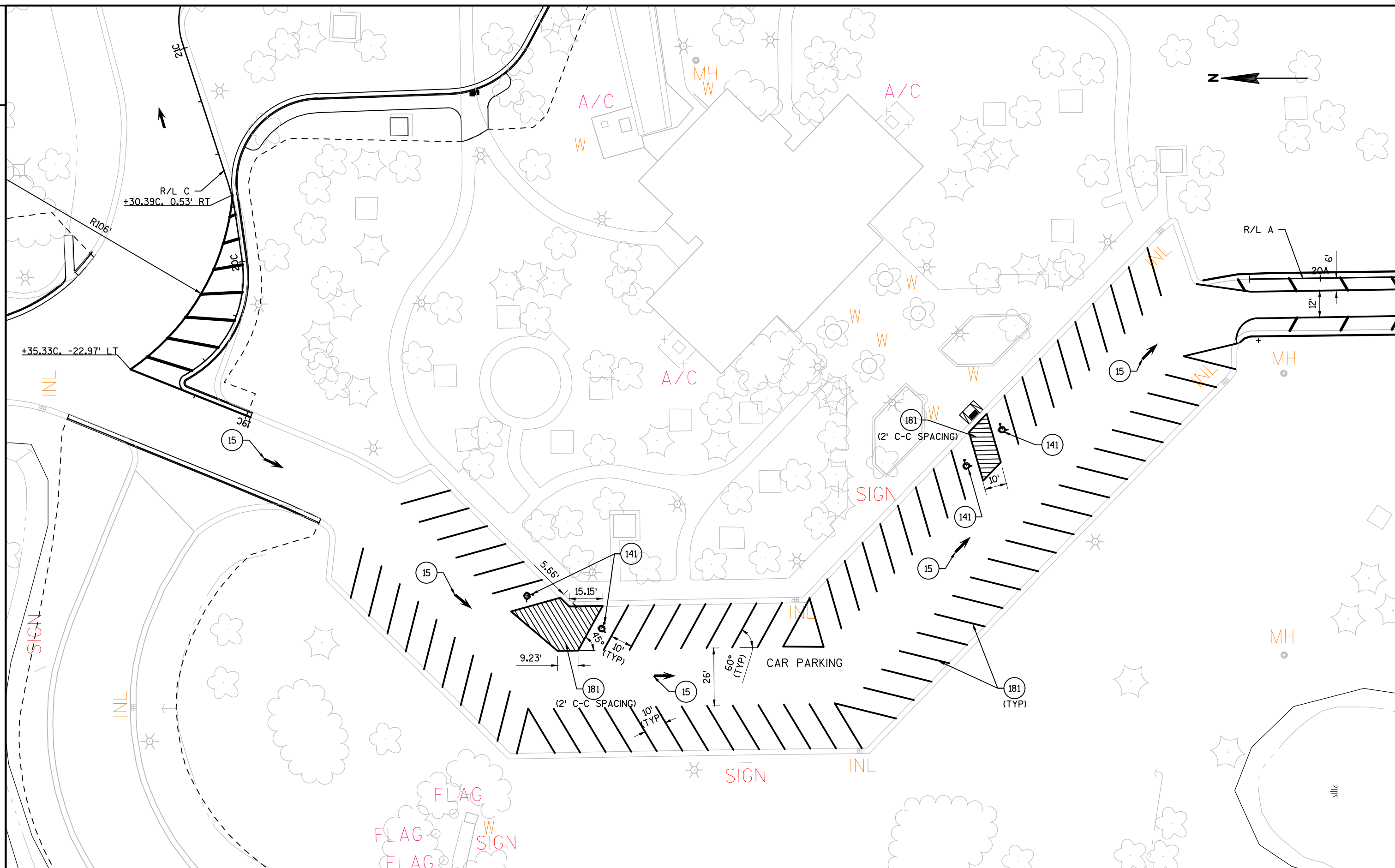
WISDOT/CADDs SHEET 42

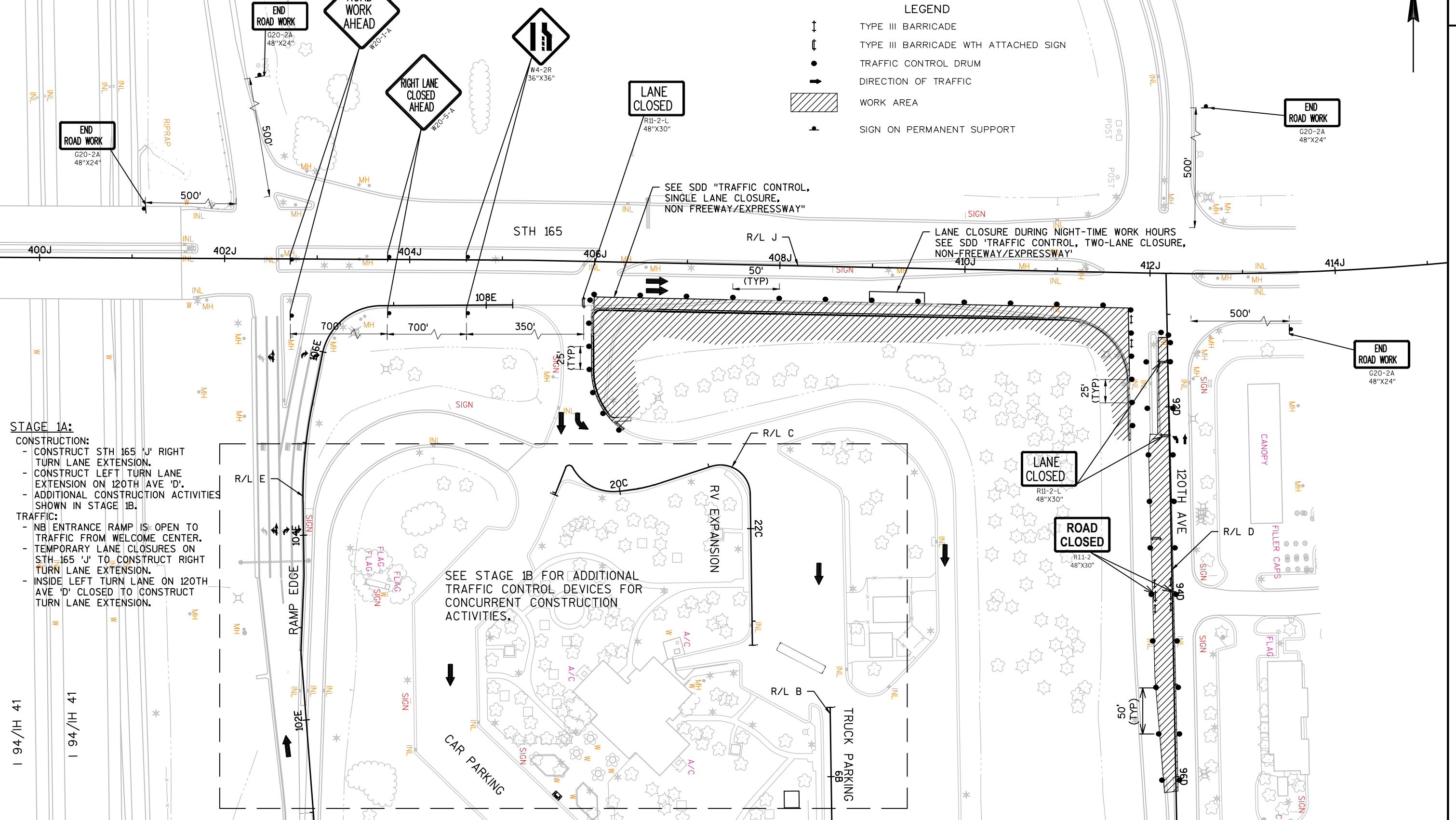


2









PROJECT NO: 3738-08-70

HWY: STH 165

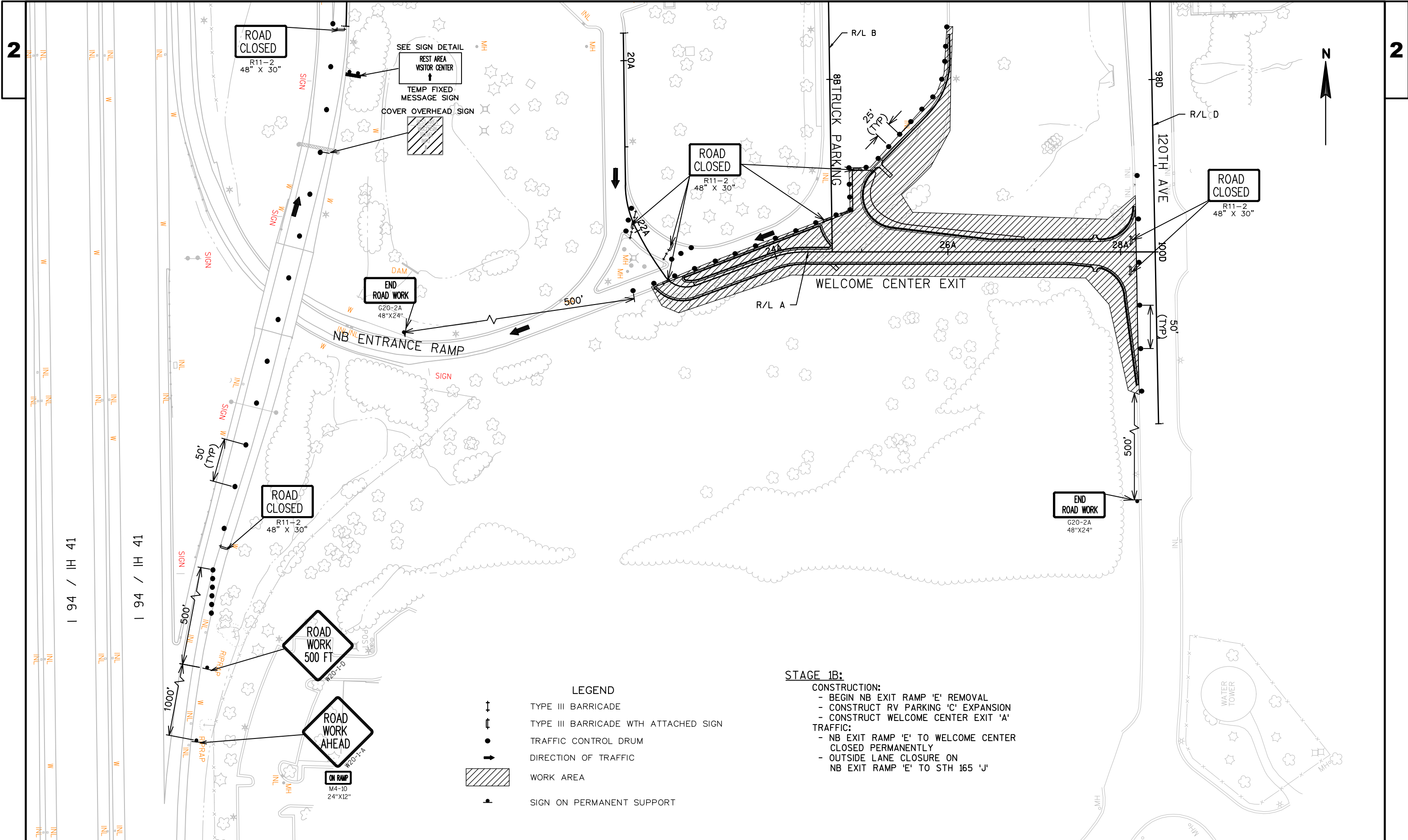
COUNTY: KENOSHA

TRAFFIC CONTROL STAGE 1A

SHEET

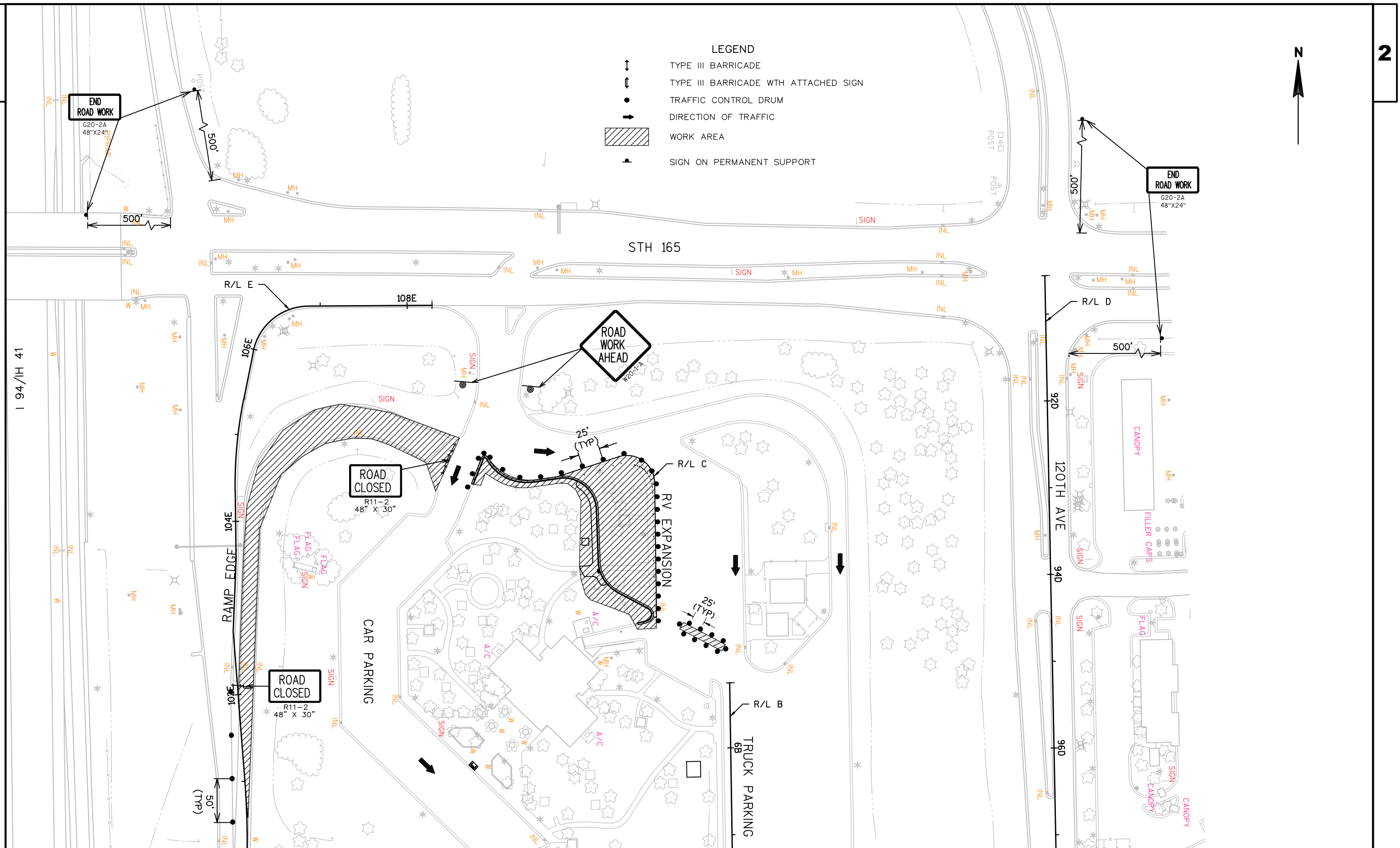
85

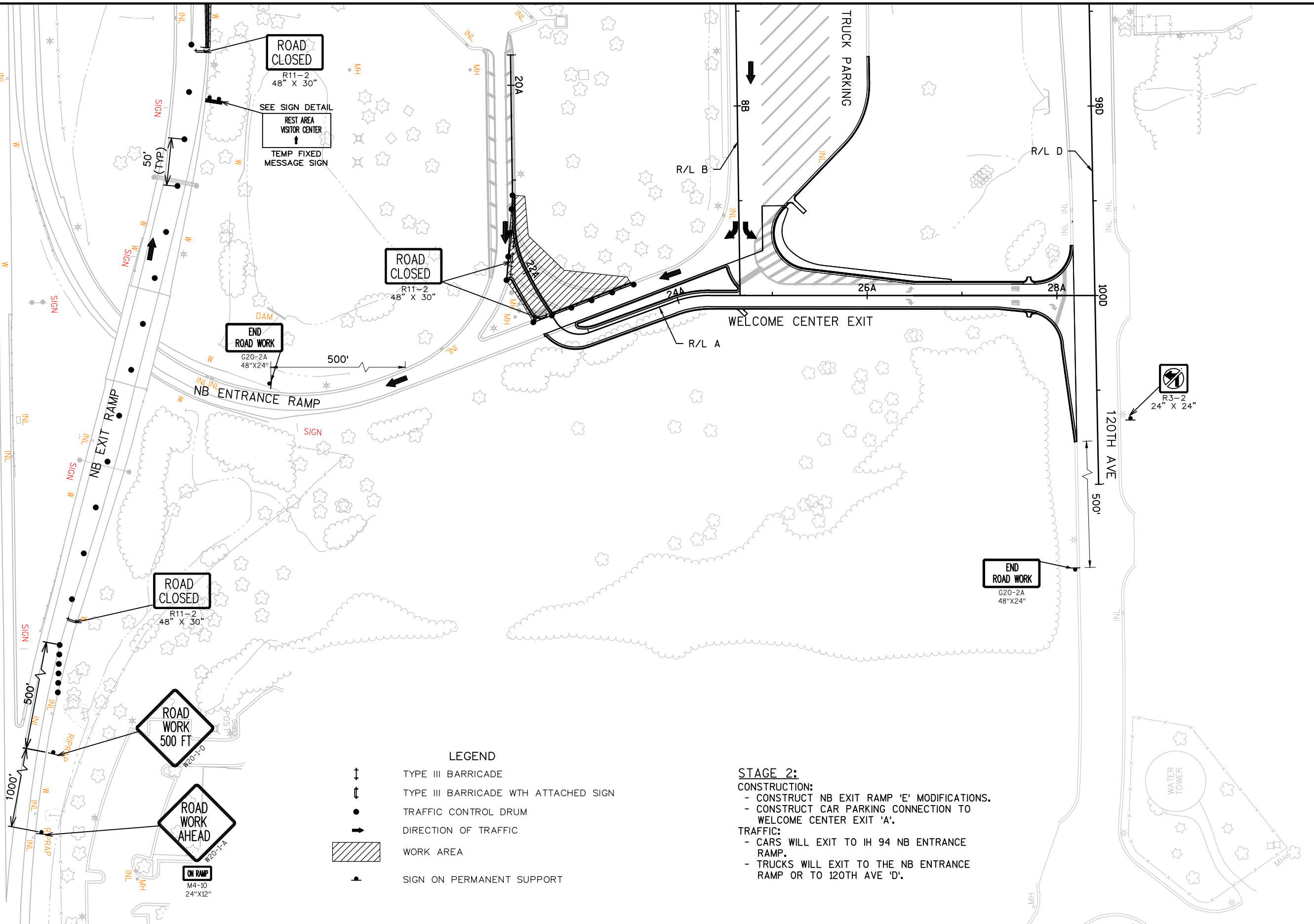
E



STAGE 1B:
CONSTRUCTION:
- BEGIN NB EXIT RAMP 'E' REMOVAL
- CONSTRUCT RV PARKING 'C' EXPANSION
- CONSTRUCT WELCOME CENTER EXIT 'A'
TRAFFIC:
- NB EXIT RAMP 'E' TO WELCOME CENTER
CLOSED PERMANENTLY
- OUTSIDE LANE CLOSURE ON
NB EXIT RAMP 'E' TO STH 165 'J'

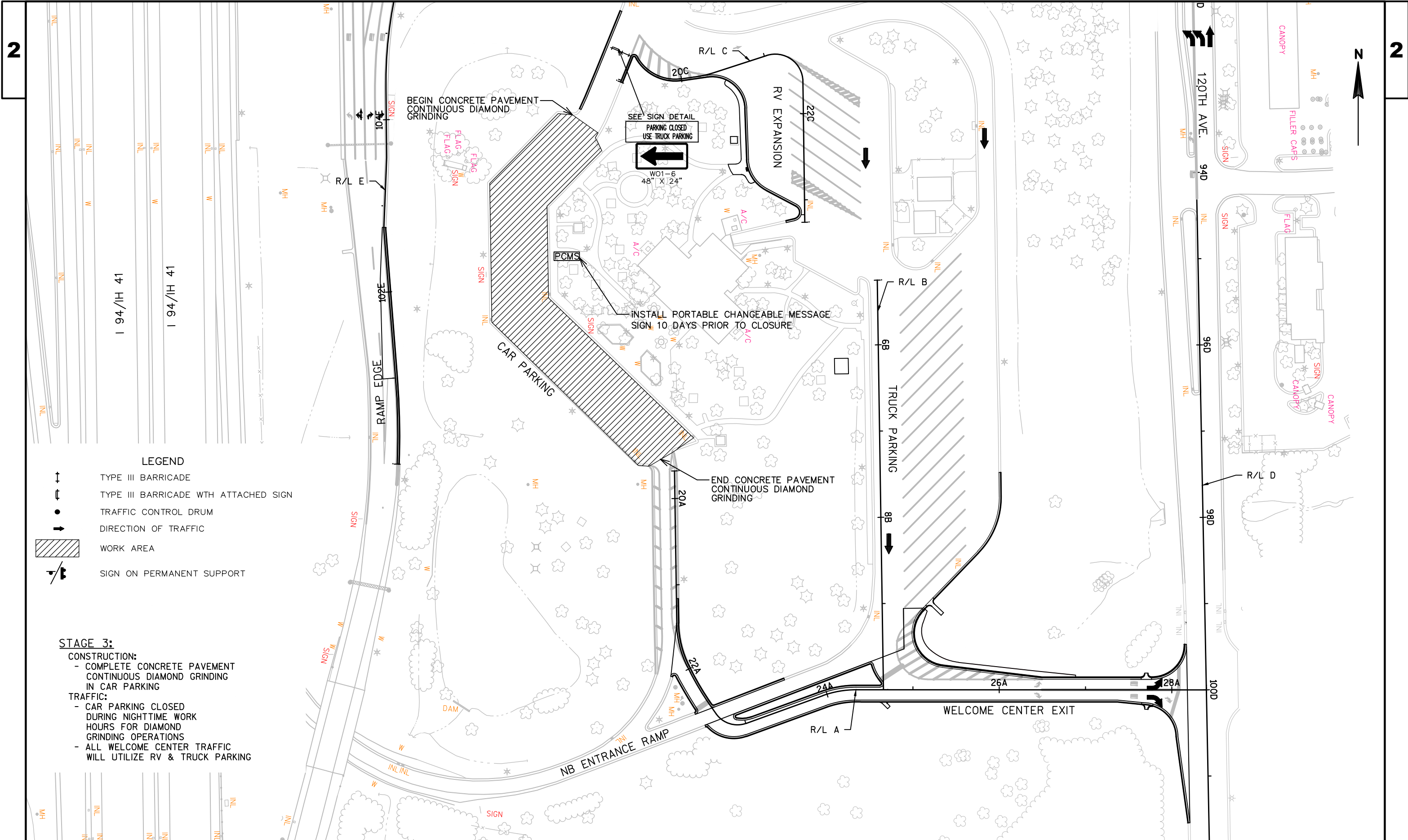
- LEGEND**
- TYPE III BARRICADE
 - TYPE III BARRICADE WITH ATTACHED SIGN
 - TRAFFIC CONTROL DRUM
 - DIRECTION OF TRAFFIC
 - WORK AREA
 - SIGN ON PERMANENT SUPPORT





2



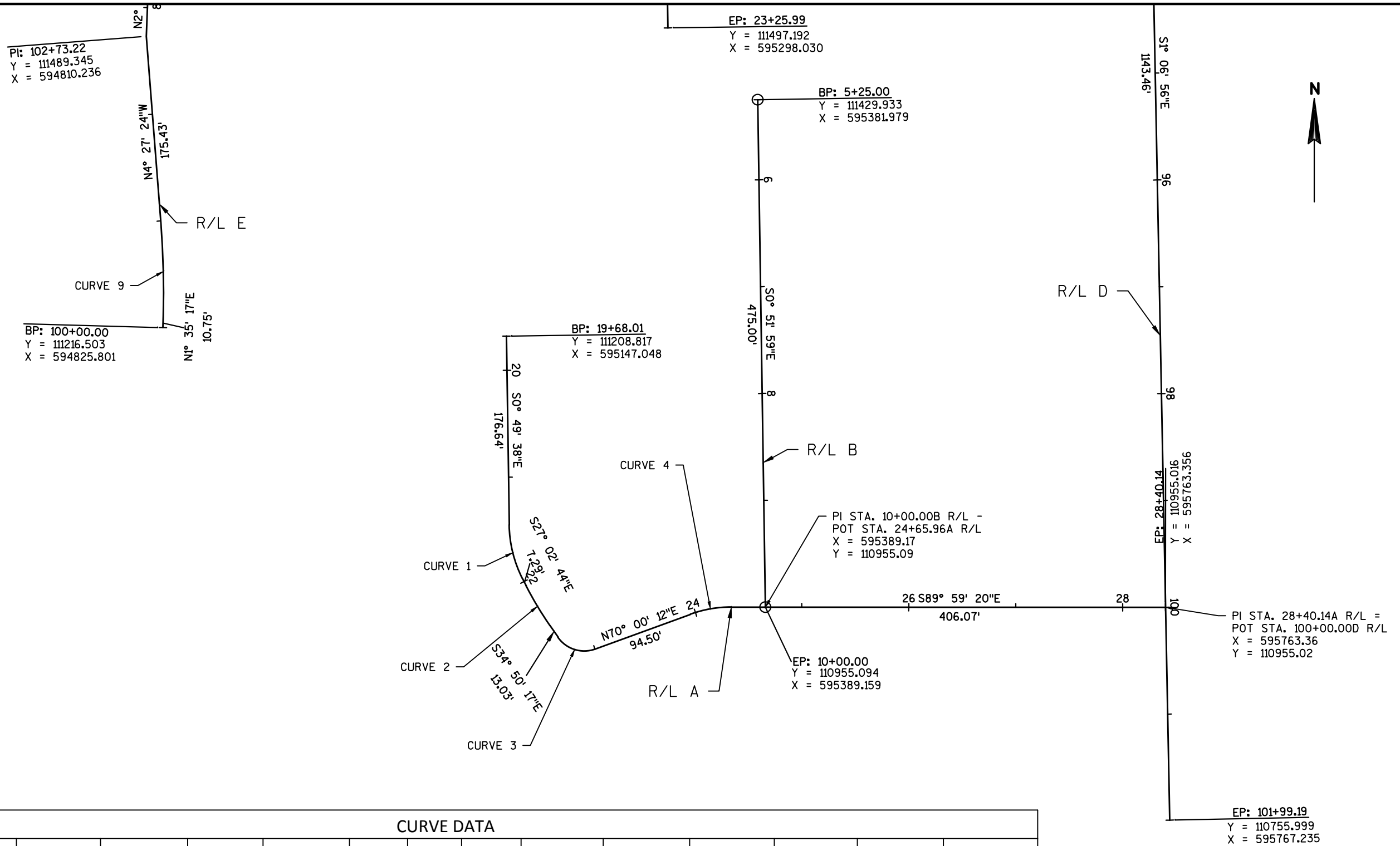


LEGEND

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

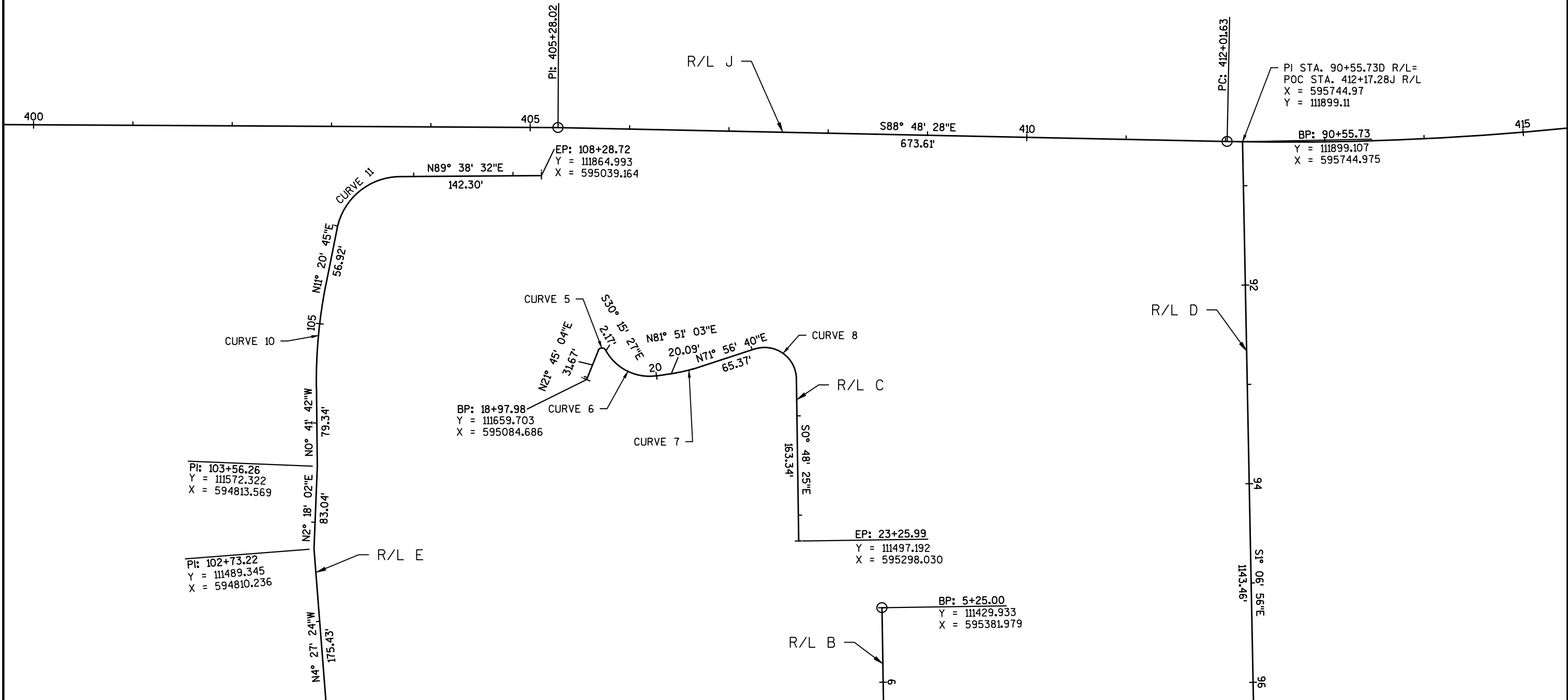
STAGE 3:

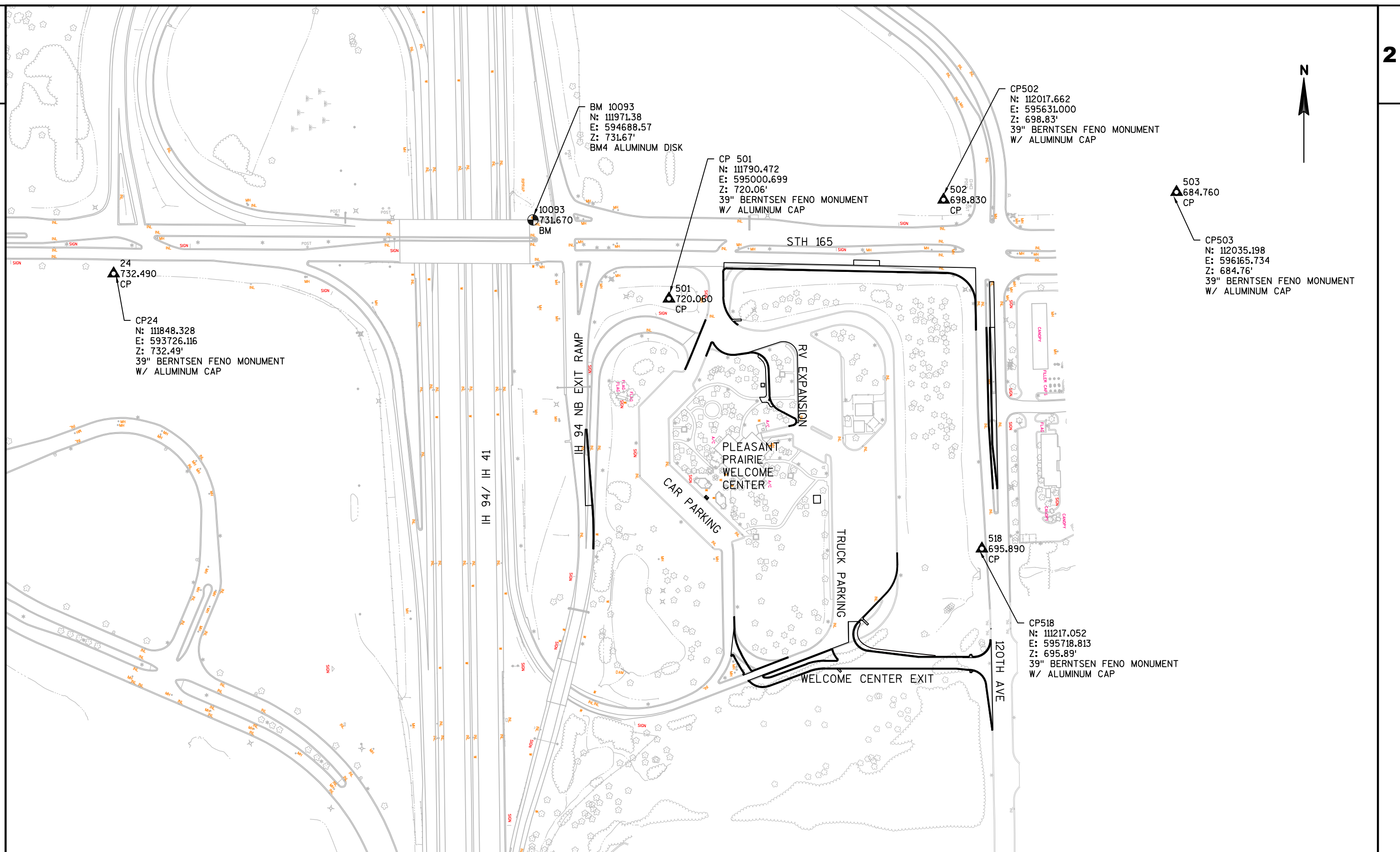
- CONSTRUCTION:
 - COMPLETE CONCRETE PAVEMENT CONTINUOUS DIAMOND GRINDING IN CAR PARKING
- TRAFFIC:
 - CAR PARKING CLOSED DURING NIGHTTIME WORK HOURS FOR DIAMOND GRINDING OPERATIONS
 - ALL WELCOME CENTER TRAFFIC WILL UTILIZE RV & TRUCK PARKING



CURVE DATA														
CURVE NO.	PI STA	PI EASTING	PI NORTHING	DELTA	D	T	L	R	PC	X	Y	PT	X	Y
1	21+71.42A	595149.985	111005.421	26°13'06"	49°49'21"	26.78'	52.62'	115.00'	21+44.64A	595149.598	111032.198	21+97.27A	595162.162	110981.568
2	22+26.35A	595175.387	110955.663	7°47'33"	17°54'18"	21.79'	43.52'	320.00'	22+04.56A	595165.477	110975.075	22+48.08A	595187.837	110937.775
3	22+84.19A	595208.468	110908.133	75°09'32"	190°59'09"	23.09'	39.35'	30.00'	22+61.11A	595195.280	110927.081	23+00.46A	595230.163	110916.028
4	24+14.72A	595337.528	110955.099	20°00'28"	51°09'25"	19.76'	39.11'	112.00'	23+94.96A	595318.963	110948.343	24+34.07A	595357.285	110955.095
9	100+54.31E	594827.252	111271.019	6°02'40"	6°56'42"	43.56'	87.04'	825.00'	100+10.75E	594826.045	111227.477	100+97.79E	594823.867	111314.445

CURVE DATA														
CURVE NO.	PI STA	PI EASTING	PI NORTHING	DELTA	D	T	L	R	PC	X	Y	PT	X	Y
5	19+37.85C	595099.459	111696.729	127°59'30"	1432°23' 40"	8.20'	8.94'	4.00'	19+29.65C	595096.420	111689.114	19+38.58C	595103.591	111689.647
6	19+74.41C	595121.644	111658.699	67°53'30"	114°35'30"	33.66'	59.25'	50.00'	19+40.75C	595104.685	111687.771	20+00.00C	595154.961	111663.470
7	20+34.07C	595185.610	111667.859	9°48'15"	190°59'09"	2.57'	5.13'	30.00'	20+31.49C	595183.064	111667.432	20+36.63C	595188.058	111668.590
8	21+48.44C	595294.429	111703.118	107°08'47"	163°42'08"	47.43'	65.45'	35.00'	21+01.02C	595249.313	111688.437	21+66.47C	595295.098	111655.634
10	104+88.34E	594811.967	111704.388	12°02'27"	11°27'33"	52.73'	105.08'	500.00'	104+35.60E	594812.607	111651.659	105+40.68E	594822.341	111756.089
11	106+50.51E	594843.949	111863.774	78°17'47"	88°08'50"	52.91'	88.82'	65.00'	105+97.60E	594833.539	111811.894	106+86.42E	594896.863	111864.105
12	416+14.06J	596141.658	111890.808	16°23'04"	2°00'00"	412.43'	819.22'	2864.79'	412+01.63J	595729.323	111899.328	420+20.85J	596539.671	111998.825





Estimate Of Quantities

3738-08-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	8.000	8.000
0004	201.0205	Grubbing	STA	8.000	8.000
0006	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0008	204.0100	Removing Pavement	SY	4,579.000	4,579.000
0010	204.0120	Removing Asphaltic Surface Milling	SY	118.000	118.000
0012	204.0150	Removing Curb & Gutter	LF	1,370.000	1,370.000
0014	204.0155	Removing Concrete Sidewalk	SY	224.000	224.000
0016	204.0190	Removing Surface Drains	EACH	1.000	1.000
0018	204.0195	Removing Concrete Bases	EACH	7.000	7.000
0020	204.0220	Removing Inlets	EACH	7.000	7.000
0022	204.0245	Removing Storm Sewer (size) 01. 12-Inch	LF	83.000	83.000
0024	204.9060.S	Removing (item description) 01. Picnic Shelter	EACH	1.000	1.000
0026	204.9060.S	Removing (item description) 02. Luminaires	EACH	40.000	40.000
0028	204.9060.S	Removing (item description) 03. Lighting Unit	EACH	5.000	5.000
0030	204.9105.S	Removing (item description) 04. Loop Detector Wire & Lead-In Cable STH 165 & E. Front. Rd (120th Ave)	LS	1.000	1.000
0032	205.0100	Excavation Common	CY	4,466.000	4,466.000
0034	205.0400	Excavation Marsh	CY	2,902.000	2,902.000
0036	208.1100	Select Borrow	CY	4,063.000	4,063.000
0038	213.0100	Finishing Roadway (project) 01. 3738-08-70	EACH	1.000	1.000
0040	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	2,725.000	2,725.000
0042	310.0110	Base Aggregate Open-Graded	TON	217.000	217.000
0044	320.0145	Concrete Base 8-Inch	SY	343.000	343.000
0046	415.0080	Concrete Pavement 8-Inch	SY	3,898.000	3,898.000
0048	415.0100	Concrete Pavement 10-Inch	SY	1,067.000	1,067.000
0050	415.5110.S	Concrete Pavement Joint Layout	LS	1.000	1.000
0052	416.0512	Concrete Truck Apron 12-Inch	SY	158.000	158.000
0054	416.0610	Drilled Tie Bars	EACH	1,170.000	1,170.000
0056	416.0620	Drilled Dowel Bars	EACH	48.000	48.000
0058	416.1010	Concrete Surface Drains	CY	6.000	6.000
0060	416.1725	Concrete Pavement Replacement SHES	SY	79.000	79.000
0062	420.1000	Continuous Diamond Grinding Concrete Pavement	SY	3,539.000	3,539.000
0064	455.0605	Tack Coat	GAL	32.000	32.000
0066	465.0105	Asphaltic Surface	TON	38.000	38.000
0068	504.0900	Concrete Masonry Endwalls	CY	16.000	16.000
0070	520.8000	Concrete Collars for Pipe	EACH	1.000	1.000
0072	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	2.000	2.000
0074	522.2329	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 29x45-Inch	LF	144.000	144.000

Estimate Of Quantities

3738-08-70

Line	Item	Item Description	Unit	Total	Qty
0076	522.2338	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 38x60-Inch	LF	156.000	156.000
0078	522.2414	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 14x23-Inch	LF	50.000	50.000
0080	522.2614	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 14x23-Inch	EACH	2.000	2.000
0082	601.0409	Concrete Curb & Gutter 30-Inch Type A	LF	4,378.000	4,378.000
0084	601.0551	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type A	LF	527.000	527.000
0086	602.0410	Concrete Sidewalk 5-Inch	SF	1,050.000	1,050.000
0088	602.0415	Concrete Sidewalk 6-Inch	SF	352.000	352.000
0090	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	16.000	16.000
0092	606.0200	Riprap Medium	CY	10.900	10.900
0094	608.3012	Storm Sewer Pipe Class III-A 12-Inch	LF	13.000	13.000
0096	608.3015	Storm Sewer Pipe Class III-A 15-Inch	LF	24.000	24.000
0098	608.3018	Storm Sewer Pipe Class III-A 18-Inch	LF	68.000	68.000
0100	611.0420	Reconstructing Manholes	EACH	1.000	1.000
0102	611.0612	Inlet Covers Type C	EACH	1.000	1.000
0104	611.0615	Inlet Covers Type F	EACH	1.000	1.000
0106	611.0624	Inlet Covers Type H	EACH	4.000	4.000
0108	611.2004	Manholes 4-FT Diameter	EACH	1.000	1.000
0110	611.3004	Inlets 4-FT Diameter	EACH	3.000	3.000
0112	611.3230	Inlets 2x3-FT	EACH	2.000	2.000
0114	611.8115	Adjusting Inlet Covers	EACH	8.000	8.000
0116	612.0104	Pipe Underdrain 4-Inch	LF	620.000	620.000
0118	618.0100	Maintenance And Repair of Haul Roads (project) 01. 3738-08-70	EACH	1.000	1.000
0120	619.1000	Mobilization	EACH	1.000	1.000
0122	624.0100	Water	MGAL	26.000	26.000
0124	625.0100	Topsoil	SY	791.000	791.000
0126	625.0500	Salvaged Topsoil	SY	9,517.000	9,517.000
0128	627.0200	Mulching	SY	11,788.000	11,788.000
0130	628.1104	Erosion Bales	EACH	580.000	580.000
0132	628.1504	Silt Fence	LF	2,006.000	2,006.000
0134	628.1520	Silt Fence Maintenance	LF	2,006.000	2,006.000
0136	628.1905	Mobilizations Erosion Control	EACH	15.000	15.000
0138	628.1910	Mobilizations Emergency Erosion Control	EACH	6.000	6.000
0140	628.2008	Erosion Mat Urban Class I Type B	SY	11,406.000	11,406.000
0142	628.7015	Inlet Protection Type C	EACH	29.000	29.000
0144	628.7020	Inlet Protection Type D	EACH	9.000	9.000
0146	628.7504	Temporary Ditch Checks	LF	120.000	120.000
0148	628.7555	Culvert Pipe Checks	EACH	8.000	8.000

Estimate Of Quantities

3738-08-70

Line	Item	Item Description	Unit	Total	Qty
0150	628.7570	Rock Bags	EACH	135.000	135.000
0152	629.0210	Fertilizer Type B	CWT	6.500	6.500
0154	630.0160	Seeding Mixture No. 60	LB	131.000	131.000
0156	630.0200	Seeding Temporary	LB	15.000	15.000
0158	631.0300	Sod Water	MGAL	13.000	13.000
0160	631.1000	Sod Lawn	SY	600.000	600.000
0162	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	60.000	60.000
0164	637.1220	Signs Type I Reflective SH	SF	228.000	228.000
0166	637.2210	Signs Type II Reflective H	SF	537.144	537.144
0168	637.2230	Signs Type II Reflective F	SF	50.500	50.500
0170	638.2102	Moving Signs Type II	EACH	9.000	9.000
0172	638.2601	Removing Signs Type I	EACH	5.000	5.000
0174	638.2602	Removing Signs Type II	EACH	27.000	27.000
0176	638.3000	Removing Small Sign Supports	EACH	35.000	35.000
0178	638.3100	Removing Structural Steel Sign Supports	EACH	2.000	2.000
0180	641.8100	Overhead Sign Support (structure) 01. S-30-0256	LS	1.000	1.000
0182	642.5001	Field Office Type B	EACH	1.000	1.000
0184	643.0300	Traffic Control Drums	DAY	10,876.000	10,876.000
0186	643.0420	Traffic Control Barricades Type III	DAY	2,179.000	2,179.000
0188	643.0705	Traffic Control Warning Lights Type A	DAY	4,278.000	4,278.000
0190	643.0715	Traffic Control Warning Lights Type C	DAY	20.000	20.000
0192	643.0800	Traffic Control Arrow Boards	DAY	4.000	4.000
0194	643.0900	Traffic Control Signs	DAY	2,864.000	2,864.000
0196	643.0910	Traffic Control Covering Signs Type I	EACH	1.000	1.000
0198	643.1050	Traffic Control Signs PCMS	DAY	10.000	10.000
0200	643.5000	Traffic Control	EACH	1.000	1.000
0202	645.0120	Geotextile Type HR	SY	32.000	32.000
0204	646.1020	Marking Line Epoxy 4-Inch	LF	2,712.000	2,712.000
0206	646.1545	Marking Line Grooved Wet Ref Contrast Epoxy 4-Inch	LF	275.000	275.000
0208	646.3020	Marking Line Epoxy 8-Inch	LF	932.000	932.000
0210	646.3040	Marking Line Grooved Wet Ref Epoxy 8-Inch	LF	466.000	466.000
0212	646.5020	Marking Arrow Epoxy	EACH	21.000	21.000
0214	646.5120	Marking Word Epoxy	EACH	7.000	7.000
0216	646.5220	Marking Symbol Epoxy	EACH	4.000	4.000
0218	646.6120	Marking Stop Line Epoxy 18-Inch	LF	104.000	104.000
0220	646.7120	Marking Diagonal Epoxy 12-Inch	LF	661.000	661.000
0222	646.8120	Marking Curb Epoxy	LF	689.000	689.000
0224	646.8320	Marking Parking Stall Epoxy	LF	4,643.000	4,643.000
0226	646.9000	Marking Removal Line 4-Inch	LF	1,406.000	1,406.000
0228	646.9100	Marking Removal Line 8-Inch	LF	932.000	932.000

Estimate Of Quantities

3738-08-70

Line	Item	Item Description	Unit	Total	Qty
0230	650.4000	Construction Staking Storm Sewer	EACH	9.000	9.000
0232	650.4500	Construction Staking Subgrade	LF	2,304.000	2,304.000
0234	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	1,400.000	1,400.000
0236	650.6000	Construction Staking Pipe Culverts	EACH	5.000	5.000
0238	650.7000	Construction Staking Concrete Pavement	LF	2,154.000	2,154.000
0240	650.8500	Construction Staking Electrical Installations (project) 01. 3738-08-70	LS	1.000	1.000
0242	650.9910	Construction Staking Supplemental Control (project) 01. 3738-08-70	LS	1.000	1.000
0244	650.9920	Construction Staking Slope Stakes	LF	2,493.000	2,493.000
0246	652.0210	Conduit Rigid Nonmetallic Schedule 40 1-Inch	LF	220.000	220.000
0248	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	1,672.000	1,672.000
0250	652.0615	Conduit Special 3-Inch	LF	100.000	100.000
0252	652.0800	Conduit Loop Detector	LF	84.000	84.000
0254	653.0115	Pull Boxes Steel 12x36-Inch	EACH	1.000	1.000
0256	653.0135	Pull Boxes Steel 24x36-Inch	EACH	1.000	1.000
0258	653.0140	Pull Boxes Steel 24x42-Inch	EACH	5.000	5.000
0260	653.0905	Removing Pull Boxes	EACH	4.000	4.000
0262	654.0105	Concrete Bases Type 5	EACH	8.000	8.000
0264	654.0111	Concrete Bases Type 11	EACH	3.000	3.000
0266	654.0220	Concrete Control Cabinet Bases Type 10	EACH	1.000	1.000
0268	655.0610	Electrical Wire Lighting 12 AWG	LF	999.000	999.000
0270	655.0615	Electrical Wire Lighting 10 AWG	LF	1,000.000	1,000.000
0272	655.0620	Electrical Wire Lighting 8 AWG	LF	3,830.000	3,830.000
0274	655.0630	Electrical Wire Lighting 4 AWG	LF	2,640.000	2,640.000
0276	655.0700	Loop Detector Lead In Cable	LF	296.000	296.000
0278	655.0800	Loop Detector Wire	LF	852.000	852.000
0280	657.0255	Transformer Bases Breakaway 11 1/2-Inch Bolt Circle	EACH	6.000	6.000
0282	657.0322	Poles Type 5-Aluminum	EACH	6.000	6.000
0284	657.0715	Luminaire Arms Truss Type 4 1/2-Inch Clamp 15-FT	EACH	6.000	6.000
0286	659.1120	Luminaires Utility LED B	EACH	34.000	34.000
0288	690.0250	Sawing Concrete	LF	3,698.000	3,698.000
0290	715.0415	Incentive Strength Concrete Pavement	DOL	1,296.000	1,296.000
0292	SPV.0060	Special 21. Lighting Units Walkway LED	EACH	3.000	3.000
0294	SPV.0060	Special 22. Post Top Luminaires Utility Led	EACH	11.000	11.000
0296	SPV.0060	Special 25. Repair Picnic Table Type1	EACH	2.000	2.000
0298	SPV.0060	Special 26. Rest Area Picnic Shelters	EACH	1.000	1.000
0300	SPV.0060	Special 27. Grading Shaping Finishing Picnic Shelters	EACH	1.000	1.000
0302	SPV.0060	Special 29.Salvage & Reinstall Ramp Gate Assembly	EACH	1.000	1.000
0304	SPV.0085	Special 01. Concrete Pavement Corner Repair Partial	LB	10,901.000	10,901.000

Estimate Of Quantities

3738-08-70					
Line	Item	Item Description	Unit	Total	Qty
		Depth			
0306	SPV.0105	Special 11. Lighting System Integrator	LS	1.000	1.000
0308	SPV.0105	Special 12. Lighting System Survey	LS	1.000	1.000

CLEARING AND GRUBBING ITEMS

CATEGORY	STATION	STATION	OFFSET	201.0105	201.0205
				CLEARING STA	GRUBBING STA
0010	22+00 'A' -	28+00 'A'	RT/LT	6	6
	21+00 'C' -	23+00 'C'	RT	2	2
TOTAL:				8	8

REMOVING CULVERT ITEMS

CATEGORY	LOCATION	STATION	OFFSET	DESCRIPTION	203.0100	NOTES
					REMOVING SMALL PIPE CULVERTS EACH	
0010	STH 165	404+26 'J'	RT	RAMP REMOVAL	1	15" RCCP, 14' LENGTH
TOTAL:					1	

REMOVING PAVEMENT

CATEGORY	STAGE	ROADWAY	STATION	STATION	OFFSET	204.0100	204.0120	204.0155	NOTES
						REMOVING PAVEMENT SY	REMOVING ASPHALTIC SURFACE MILLING SY	REMOVING CONCRETE SIDEWALK SY	
0010	1	RV EXPANSION	408+09 'J'	- 408+54 'J'		--	--	19	CONCRETE ISLAND
		TRUCK PARKING	7+80 'B'	- 9+56 'B'		700	--	--	
		RV EXPANSION	19+00 'C'	- 19+75 'C'		47	--	--	
		RV EXPANSION	21+23 'C'	- 22+68 'C'		--	--	188	
		RV EXPANSION	23+05 'C'	- 23+25 'C'		5	--	--	
		RV EXPANSION	22+30 'C'		80' RT	--	--	11	
		NB OFF-RAMP	101+00 'E'	- 405+52 'J'		2188	--	--	CONCRETE PAD
	STAGE 1 SUBTOTAL:					2940	--	218	
	2	WELCOME CENTER EXIT	21+16 'A'	- 23+59 'A'		365	--	--	
		CAR PARKING	WELCOME CENTER ENTRANCE			--	--	6	
STAGE 2 SUBTOTAL:					365	--	6		
3B	120TH AVE	91+25 'D'	- 92+30 'D'		--	118	--		
	120TH AVE	92+30 'D'	- 93+32 'D'		87	--	--		
	120TH AVE	92+30 'D'	- 94+52 'D'		301	--	--		
	STH 165	405+98 'J'	- 411+77 'J'		887	--	--		
	STAGE 3B SUBTOTAL:					1275	118	--	
TOTAL:						4,579	118	224	

REMOVING CURB & GUTTER

204.0150 REMOVING CURB & GUTTER						
CATEGORY	LOCATION	STATION	STATION	OFFSET	LF	NOTES
0010	WELCOME CENTER EXIT	22+53 'A'		LT/RT	24	
	WELCOME CENTER EXIT	22+63 'A'	- 24+90 'A'	RT/LT	247	
	120TH AVE	93+32 'D'	- 93+75 'D'	RT	43	
	120TH AVE	94+51 'D'	- 96+00 'D'	RT	149	
	120TH AVE	94+50 'D'	- 96+00 'D'	RT	150	
	120TH AVE	99+49 'D'	- 101+53 'D'	RT	207	
	TRUCK PARKING	7+50 'B'	- 9+25 'B'	LT	101	
	RV EXPANSION	19+00 'C'	- 23+22 'C'	RT	365	
	STH 165	408+07 'J'	- 408+56 'J'	RT	108	ISLAND
	TOTAL:				1,370	

REMOVING INLETS

204.0220 REMOVING INLETS					
CATEGORY	ROADWAY	STATION	OFFSET	EACH	NOTES
0010	RV EXPANSION	23+02 'C'	0.5' RT	1	REPLACE
	RAMP EDGE	102+29 'E'	21' RT	1	
	RAMP EDGE	102+30 'E'	5' LT	1	
	RAMP EDGE	102+32 'E'	5' RT	1	
	RAMP EDGE	105+19 'E'	135.56' RT	1	
	120TH AVE	94+54 'D'	1' RT	1	REPLACE
	STH 165	411+01 'J'	50.22' RT	1	
	TOTAL :			7	

REMOVING SURFACE DRAINS

204.0190 REMOVING SURFACE DRAINS					
CATEGORY	LOCATION	STATION	OFFSET	DESCRIPTION	EACH
0010	STH 165	406+23.68 'J'	168.30' RT		1
	TOTAL:				1

REMOVING STORM SEWER

204.0245.01 REMOVING STORM SEWER (SIZE) 12-INCH					
CATEGORY	ROADWAY	STATION	STATION	OFFSET	LF
0010	120TH AVE	94+54 'D'	- 94+54 'D'	RT	17
	RAMP EDGE	102+29 'E'	- 102+30 'E'	RT/LT	54
	STH 165	411+01 'J'	- 411+01 'J'	RT	12
	TOTAL:				83

FINISHING ROADWAY PROJECT ID 3738-08-70

213.0100 FINISHING ROADWAY (3738-08-70)			
CATEGORY	STAGE		EACH
0010	ALL	PROJECT	1
	TOTAL:		1

Division	From/To Station	Location	Common Excavation (1)	Salvaged/ Unusable Pavement Material	Available Material (4)	Marsh Excavation (5)	Expanded Marsh Backfill (6)	Unexpanded Fill	Expanded Fill (7)	Mass Ordinate +/- (8)	Comment:
			Cut (2) (item # 205.0100)			(item #205.0400)	Factor 1.40		Factor 1.20		
Division 1											
WELCOME CENTER EXIT	21+16.11/28+18.13		373	81	292	2,902	4,063	2,380	2,856	-2,565	
TRUCK PARKING	07+50.05/09+50		82	156	-74	0	0	160	192	-266	
RV EXPANSION	19+00/23+22		1,157	0	1,157	0	0	0	0	1,157	
120TH AVE	92+30.12/95+99.95		320	0	320	0	0	7	8	311	
RAMP EDGE	100+00/105+50		1,737	608	1,129	0	0	152	182	947	
STH 165	406+00/411+79.37		798	0	798	0	0	272	326	472	
Division 1 Subtotal			4,466	845	3,621	2,902	4,063	2,971	3,565	56	
Grand Total			4,466	845	3,621	2,902	4,063	2,971	3,565	56	
Total Common Exc			4,466								

- 1) Common Excavation is the sum of the Cut column. Item number 205.0100
- 2) Salvaged/Unusable Pavement Material is included in Cut.
- 3) Salvaged/Unusable Pavement Material
- 4) Available Material = Cut - Salvaged/Unusable Pavement Material
- 5) Marsh Excavation - to be backfilled with Select Borrow Material. Item number 205.0400
- 6) Expanded Marsh Backfill - This is to be filled with Select Borrow material which is shown in the Base Aggregate Items table. Marsh Backfill Factor = 1.4.
- 7) Expanded Fill. Factor = 1.20
- Expanded Fill = (Unexpanded Fill) * Fill Factor
- 8) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

BASE AGGREGATE ITEMS

						208.1100	305.0120	310.0110	624.0100		
						SELECT	BASE	BASE			
						BORROW	AGGREGATE	AGGREGATE			
CATEGORY	STAGE	LOCATION	STATION	STATION	OFFSET	CY	DENSE, 1 1/4-INCH	OPEN GRADED	WATER	COMMENTS:	
0010	1	WELCOME CENTER EXIT	22+69 'A'	- 28+18 'A'		4063	1,111	--	11		
		TRUCK PARKING	6+15 'B'		35' RT	--	11	--	--	PICNIC SHELTER	
		TRUCK PARKING	7+50 'B'	- 9+07 'B'		--	42	--	--	CURB, LEFT	
		RV EXPANSION	19+00 'C'	- 23+22 'C'		--	484	--	5	INCL ISLAND REPLACEMENT	
		RV EXPANSION	20+52 'C'	- 22+78 'C'		--	27	--	--	SIDEWALK	
		RV EXPANSION	22+30 'C'		76' RT	--	2	--	--	PICNIC SHELTER	
	STAGE 1 SUBTOTAL:					4,063	1,677	--	16		
	2	WELCOME CENTER EXIT	21+16 'A'	- 22+53 'A'		--	108	--	1		
		RAMP EDGE	100+00 'E'	- 102+75 'E'		--	153	--	2		
		NEW CURB	104+09 'E'	- 105+78 'E'		--	27	--	--		
STAGE 2 SUBTOTAL:					--	288	--	3			
3B	120TH AVE	92+30 'D'	- 96+00 'D'		--	276	--	3			
	STH 165	406+34 'J'	- 92+35 'D'		--	484	217	5			
	STAGE 3B SUBTOTAL:					--	760	217	8		
TOTAL:						4,063	2,725	217	26		

* - SELECT BORROW WILL BE USED FOR MARSH EXCAVATION BACKFILL.

DIAMOND GRINDING

				420.1000
				CONCRETE PAVEMENT
				CONTINUOUS DIAMOND
				GRINDING
CATEGORY	STAGE	LOCATION	SY	
0010	3A	CAR PARKING	3539	
TOTAL:			3539	

ASPHALTIC PAVEMENT ITEMS

				465.0105	455.0605
				ASPHALTIC	TACK
				SURFACE	COAT
CATEGORY	LOCATION	STATION	STATION	TON	GAL
0010	120TH AVE	91+25 'D'	- 96+00 'D'	38	32
TOTAL:				38	32

CONCRETE ITEMS															
CATEGORY	STAGE	LOCATION	STATION	STATION	OFFSET	415.0080	415.0100	320.0145	416.0512	416.0610	416.0620	416.1725	601.0409	601.0551	715.0415
						CONCRETE	CONCRETE	CONCRETE	CONCRETE	DRILLED	DRILLED	CONCRETE	CONCRETE CURB	CONCRETE CURB	INCENTIVE
						PAVEMENT	PAVEMENT	BASE	TRUCK	TIE BARS	DOWEL BARS	PAVEMENT	& GUTTER	& GUTTER 4-INCH	STRENGTH
						8-INCH	10-INCH	8-INCH	12-INCH	EACH	EACH	SHES	TYPE A	TYPE A	CONCRETE
						SY	SY	SY	SY			SY	LF	LF	PAVEMENT
															DOL
0010	1	WELCOME CENTER EXIT	22+69 'A'	- 28+18 'A'		1,904	--	--	158	28	--	--	--	--	565
		WELCOME CENTER EXIT	25+13.25 'A'	- 28+17 'A'	LT	--	--	--	--	--	--	--	--	331	--
		WELCOME CENTER EXIT	22+69 ' A'	- 27+65 'A'	RT	--	--	--	--	--	--	--	506	--	--
		WELCOME CENTER EXIT	22+69 'A'	- 24+66 'A'	LT	--	--	--	--	55	--	--	374	--	--
		TRUCK PARKING	7+50 'B'	- 9+07.43 'B'	LT	--	--	--	--	64	--	--	179	--	--
		TRUCK PARKING	9+07.43 'B'	- 9+51.26 'B'	LT	--	--	--	--	24	--	--	--	47	--
		RV EXPANSION	20+25 'C'	- 23+22 'C'		1,176	--	--	--	159	--	--	--	--	353
		RV EXPANSION	19+00 'C'	- 23+24 'C'		--	--	--	--	--	--	--	367	--	--
		STH 165 (RV PARKING)	408+07 'J'	- 408+56 'J'		52	--	--	--	--	--	--	--	--	16
		120TH AVE	100+17 'D'	- 101+54 'D'	RT	--	--	--	--	--	--	--	--	149	--
		120TH AVE	99+47 'D'	- 101+54 'D'	RT	--	--	--	--	68	--	--	--	--	--
		STAGE 1 SUBTOTAL:				3,132	--	--	158	398	--	--	1,426	527	934
	2	RAMP EDGE	100+00 'E'	- 102+75 'E'		--	186	--	--	104	8	--	275	--	56
		NEW CURB	104+09 'E'	- 105+78 'E'		--	--	--	--	41	--	--	123	--	--
		WELCOME CENTER EXIT	21+45 'A'	- 22+53 'A'		140	--	--	--	29	--	--	--	--	42
		WELCOME CENTER EXIT	21+16 'A'	- 23+59 'A'	LT	--	--	--	--	38	--	--	222	--	--
		WELCOME CENTER EXIT	21+96 'A'	- 22+48 'A'	RT	--	--	--	--	--	--	--	55	--	--
		STAGE 2 SUBTOTAL:				140	186	--	--	212	8	--	675	--	98
	3B	120TH AVE	92+30 'D'	- 96+00 'D'	RT	--	--	--	--	--	--	--	370	--	--
		120TH AVE	92+30 'D'	- 96+00 'D'	RT	--	--	343	--	273	8	--	370	--	--
		STH 165	406+00 'J'	- 411+79 'J'		--	881	--	--	287	32	79	807	--	264
		STAGE 3B SUBTOTAL:				--	881	343	--	560	40	79	1,548	--	264
	UNDISTRIBUTED						626	--	--	--	--	--	730	--	--
TOTAL:						3,898	1,067	343	158	1,170	48	79	4,378	527	1,296

CONCRETE SURFACE DRAIN

		416.1010 CONCRETE SURFACE DRAINS			
CATEGORY	ROADWAY	STATION	OFFSET	CY	REMARKS
0010	WELCOME CENTER EXIT	24+67 'A'	12' RT	1.0	
	WELCOME CENTER EXIT	27+70 'A'	12' LT	1.0	
	WELCOME CENTER EXIT	27+72 'A'	16' RT	1.0	
	TRUCK PARKING	8+98 'B'	55' LT	1.5	
	RV EXPANSION	20+05 'C'	77' LT	1.5	
TOTAL:				6.0	

CONCRETE SIDEWALK

						602.0410	602.0415	602.0505
						CONCRETE SIDEWALK 5-INCH	CONCRETE SIDEWALK 6-INCH	CURB RAMP DETECTABLE WARNING FIELD YELLOW
CATEGORY	STAGE	LOCATION	STATION	STATION	OFFSET	SF	SF	SF
0010	1	RV EXPANSION	20+52 'C'	-	22+78 'C'	996	--	8
		RV EXPANSION	22+30 'C'		76' RT	--	64	
		TRUCK PARKING	6+15' B'		35' RT	--	288	--
	STAGE 1 SUBTOTAL:					996	352	8
	2	CAR PARKING	WELCOME CTR ENTRANCE			54	--	8
STAGE 2 SUBTOTAL:					54	--	8	
TOTAL:						1,050	352	16

CONCRETE MASONRY ENDWALLS

		504.0900 CONCRETE MASONRY ENDWALLS			
CATEGORY	ROADWAY	STATION	OFFSET	CY	
0010	WELCOME CENTER EXIT	26+00.80 'A'	RT	5	
	WELCOME CENTER EXIT	26+42.86 'A'	LT	5	
	WELCOME CENTER EXIT	26+36.21 'A'	RT	3	
	WELCOME CENTER EXIT	26+75.31 'A'	LT	3	
TOTAL:				16	

SAW CUTTING ITEMS

						690.0250 SAWING CONCRETE	
CATEGORY	STAGE	ROADWAY	STATION	STATION	OFFSET	LF	REMARKS
0010	1	VC EXIT	22+63 'A'	24+90 'A'	RT/LT	249	
		TRUCK PARKING	7+50 'B'	9+53 'B'	LT	262	
		RV EXPANSION	19+00 'C'	23+22 'C'		449	EXISTING CURB FLANGE
		RV EXPANSION	22+56 'C'	22+69 'C'	RT	14	SIDEWALK PATH
		RV EXPANSION				127	ISLAND
STAGE 1 SUBTOTAL:						1,101	
	2	VC EXIT	21+16 'A'	21+98 'A'	RT	95	
		VC EXIT	22+53 'A'		LT/RT	116	
		RAMP EDGE	100+00 'E'	102+75 'E'	LT	298	
		RAMP EDGE	104+09 'E'	105+78 'E'	RT	128	
		CAR PARKING				21	SW OF WELCOME CENTER BUILDING
STAGE 2 SUBTOTAL:						658	
3B		120TH AVE	92+30 'D'	96+00 'D'	RT	376	
		120TH AVE	92+30 'D'	96+00 'D'		385	
		120TH AVE	99+47 'D'	101+53 'D'	RT	212	EXISTING CURB FLANGE
		STH 165	406+39 'J'	92+35 'D'	RT	966	
STAGE 3B SUBTOTAL:						1,939	
TOTAL:						3,698	

CROSS CULVERT ITEMS

										522.2338	522.2329	522.2414 **	522.2614	APRON ENDWALLS FOR CULVERT	
										CULVERT PIPE REINFORCED CONCRETE			PIPE REINFORCED CONCRETE		
										HORIZONTAL ELLIPTICAL			HORIZONTAL ELLIPTICAL		
										CLASS HE-III	CLASS HE-III	CLASS HE-IV			
										38 X 60 INCH	29 X 45 INCH	14 X 23 INCH	14 X 23 INCH		
CATEGORY	ROADWAY	STATION	INLET END			DISCHARGE END			SLOPE (%)	LF	LF	LF	EACH	COMMENTS:	
0010	'A'	26+15.50	25+96.23	29.30' RT	692.41	26+38.26	34.60' LT	691.83	0.76	78	--	--	--		
	'A'	26+24.98	26+05.62	29.47' RT	692.40	26+47.66	34.53' LT	691.64	1.00	78	--	--	--		
	'A'	26+50.94	26+32.36	28.20' RT	693.01	26+71.49	31.20' LT	691.79	1.71	--	72	--	--		
	'A'	26+58.65	26+40.08	28.30' RT	692.67	26+79.12	31.20' LT	691.79	1.24	--	72	--	--		
	'A'	27+59.40	27+54.08	28.70' RT	691.72	27+64.38	26.90' LT	691.43	0.51	--	--	50	2	6 JOINT TIES REQ'D***	
TOTAL:										156	144	50	2		

NOTES

1) STATION OFFSETS AND INVERT ELEVATIONS SHOWN ARE TO THE END OF THE APRON ENDWALLS.

2) JOINT TIES FOR CONCRETE PIPE SHALL BE PROVIDED AT CONCRETE APRON ENDWALLS. PIPE JOINTS SHALL BE TIED FOR THE LAST THREE JOINTS

JOINT TIES ARE NOT REQUIRED FOR CONCRETE PIPES WITH CONCRETE MASONRY ENDWALLS.

AT PIPE ENDS. THE COST OF THE JOINT TIES SHALL BE INCIDENTAL TO THE COST OF THE PIPE

3) BACKFILL GRANULAR IS INCIDENTAL TO THE COST OF THE INSTALLATION OF THE PIPE

**PIPE LENGTH IS FROM END OF PIPE TO END OF PIPE AND DOES NOT INCLUDE LENGTH OF THE APRON ENDWALL

***TIE THE APRON AND LAST TWO JOINTS AT OUTFALL LOCATIONS, SEE SDD.

DRAINAGE STRUCTURE TABLE

INLET		STRUCTURE TYPE			COVER	GRATE	DEPTH	LOCATION		SIZE	LENGTH	GRADE	INVERT ELEVATION		REMARKS	CONCRETE			
NO.	ROADWAY	STATION	OFFSET	MANHOLE	INLET	TYPE	ELEVATION	FT	FROM	TO	IN	FT	TYPE	%		INLET	DISCHARGE	COLLARS FOR PIPE	APRON ENDWALLS
6	'A'	25+35	26.6' LT	--	4-FT	F	698.455	3.48	6	7	18	38**	CL III	0.35%	694.976	694.845	3 JOINT TIES REQ'D***	--	1
10	'C'	23+01	16.3' RT	--	4-FT	H	710.000	3.58	10	11	15	16	CL III	0.74%	706.416	706.300	--	--	--
11	'C'	23+02	0.7' RT	4-FT	--	C	709.748	3.43	--	--	--	--	--	--	--	--	--	--	--
12	'D'	94+55	10.4' RT	--	4-FT	H	698.822	3.19	12	E13	15	8	CL III	1.05%	695.630	695.550	--	--	--
14	'E'	101+92	0.8' RT	--	2X3-FT	H	718.979	2.98	14	15	18	44**	CL III	0.50%	716.000	715.780	3 JOINT TIES REQ'D***	--	1
16	'J'	411+01	51.2' RT	--	2X3-FT	H	700.400	5.40	16	EXIST PIPE	12	13	CL III	1.00%	695.000	694.871	CONNECT TO EXIST	1	--

NOTES

1) STATION OFFSETS AND INVERT ELEVATIONS SHOWN ARE TO THE END OF THE APRON ENDWALLS.

2) JOINT TIES FOR CONCRETE PIPE SHALL BE PROVIDED AT ALL CONCRETE APRON ENDWALLS. PIPE JOINTS SHALL BE TIED FOR THE LAST THREE JOINTS

AT PIPE ENDS. THE COST OF THE JOINT TIES SHALL BE INCIDENTAL TO THE COST OF THE PIPE

3) BACKFILL GRANULAR IS INCIDENTAL TO THE COST OF THE INSTALLATION OF THE PIPE

**PIPE LENGTH IS FROM END OF PIPE TO END OF PIPE AND DOES NOT INCLUDE LENGTH OF THE APRON ENDWALL

***TIE THE APRON AND LAST TWO JOINTS AT OUTFALL LOCATIONS, SEE SDD.

STORM SEWER PIPE QUANTITIES

			611.0612	611.0615	611.0624	611.2004	611.3004	611.3230	608.3012	608.3015	608.3018 **	520.8000	522.1018	COMMENTS:
			INLET COVERS			MANHOLES	INLETS	INLETS	STORM SEWER PIPE			CONCRETE	APRON ENDWALLS	
									CLASS III-A			COLLARS	FOR CULVERT PIPE	
			TYPE C	TYPE F	TYPE H	4-FT DIAMETER	4-FT DIAMETER	2X3-FT				FOR PIPE	REINFORCED CONCRETE	
CATEGORY	ROADWAY	STATION	EACH	EACH	EACH	EACH	EACH	EACH	12 INCH LF	15 INCH LF	18 INCH LF	EACH	18-INCH EACH	
0010	'A'	25+35	--	1	--	--	1	--	--	--	38	--	1	3 JOINT TIES REQ'D
	'C'	23+01	--	--	1	--	1	--	--	16	--	--	--	
	'C'	23+02	1	--	--	1	--	--	--	--	--	--	--	
	'D'	94+55	--	--	1	--	1	--	--	8	--	--	--	3 JOINT TIES REQ'D
	'E'	101+92	--	--	1	--	--	1	--	--	30	--	1	
	'J'	411+01	--	--	1	--	--	1	13	--	--	1	--	
TOTAL:			1	1	4	1	3	2	13	24	68	1	2	

NOTES

- 1) STATION OFFSETS AND INVERT ELEVATIONS SHOWN ARE TO THE END OF THE APRON ENDWALLS.
- 2) JOINT TIES FOR CONCRETE PIPE SHALL BE PROVIDED AT CONCRETE APRON ENDWALLS. PIPE JOINTS SHALL BE TIED FOR THE LAST THREE JOINTS
JOINT TIES ARE NOT REQUIRED FOR CONCRETE PIPES WITH CONCRETE MASONRY ENDWALLS.
AT PIPE ENDS. THE COST OF THE JOINT TIES SHALL BE INCIDENTAL TO THE COST OF THE PIPE.
- 3) BACKFILL GRANULAR IS INCIDENTAL TO THE COST OF THE INSTALLATION OF THE PIPE
- 4) PIPE LENGTHS ARE CALCULATED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE OR CENTER OF STRUCTURE TO APRON ENDWALLS

**PIPE LENGTH IS FROM CENTER OF STRUCTURE TO END OF PIPE AND DOES NOT INCLUDE LENGTH OF THE APRON ENDWALL

***TIE THE APRON AND LAST TWO JOINTS AT OUTFALL LOCATIONS, SEE SDD.

ADJUSTING/RECONSTRUCTING STORM SEWER STRUCTURES

				611.8115	611.0420
				ADJUSTING INLET COVERS	RECONSTRUCTING MANHOLES
CATEGORY	ROADWAY	STATION	OFFSET	EACH	EACH
0010	TRUCK PARKING	8+59 'B'	94.98' LT	1	--
	CAR PARKING	7+25 'B'	RT	2	--
	CAR PARKING	102+25 'E'	RT	2	--
	120TH AVE	91+30 'D'	11.14' RT	1	--
	120TH AVE	91+74 'D'	43.51' RT	1	--
	120TH AVE	93+55 'D'	5.34' RT	--	1
	120TH AVE	94+54 'D'	17.86' RT	1	--
TOTAL :				8	1

PIPE UNDERDRAIN

				612.0104
				PIPE UNDERDRAIN
CATEGORY	LOCATION	STATION	STATION	4-INCH LF
0010	STH 165	406+00 'J' - 411+79 'J'		620
		TOTAL:		620

RIPRAP

CATEGORY	ROADWAY	STATION	OFFSET	606.0200	645.0120
				RIPRAP MEDIUM CY	GEOTEXTILE FABRIC TYPE HR SY
0010	WELCOME CENTER EXIT	24+67 'A'	12' RT	1.3	4
	WELCOME CENTER EXIT	25+68 'A'	43' LT	2.2	6
	WELCOME CENTER EXIT	27+70 'A'	12' LT	1.3	4
	WELCOME CENTER EXIT	27+72 'A'	16' RT	1.3	4
	TRUCK PARKING	8+98 'B'	55' LT	1.3	4
	RV EXPANSION	20+05 'C'	77' LT	1.3	4
	RAMP EDGE	101+92 'E'	45' RT	2.2	6
TOTAL:				10.9	32

HAUL ROAD MAINTENANCE

CATEGORY	STAGE	LOCATION	618.0100
			MAINTENANCE AND REPAIR OF HAUL ROADS ID 3738-08-70 EACH
0010	ALL	PROJECT	1
TOTAL:			1

RESTORATION ITEMS

CATEGORY	ROADWAY	STATION	STATION	OFFSET	SY	625.0100	625.0500	627.0200	629.0210	630.0160	630.0200	631.0300	631.1000
						TOPSOIL	SALVAGED		FERTILIZER	SEEDING	SEEDING	SOD	SOD
							TOPSOIL	MULCHING	TYPE B	MIX NO. 60	TEMPORARY	WATER	LAWN
							SY	SY	CWT	LB	LB	MGAL	SY
0010	WELCOME CENTER EXIT	21+16 'A'	- 22+53 'A'	LT	583	--	--	583	0.4	8	--	--	--
	WELCOME CENTER EXIT	22+69 'A'	- 28+18 'A'	RT	--	1074	1074	0.7	14	--	--	--	--
	WELCOME CENTER EXIT	22+89 'A'	24+65 'A'	LT	--	204	--	0.1	3	--	--	--	--
	WELCOME CENTER EXIT	25+10 'A'	- 28+50 'A'	LT	--	1539	1539	1.0	21	--	--	--	--
	RV EXPANSION	19+00 'C'	- 23+26 'C'	RT	--	391	--	0.2	--	--	--	9	391
	120TH AVE	91+30 'D'	- 96+52 'D'	RT	208	--	--	0.1	--	--	--	5	208
	RAMP EDGE	100+00 'E'	- 106+81 'E'	RT	--	4296	4296	2.7	58	--	--	--	--
	STH 165	406+00 'J'	- 411+80 'J'	RT	--	2012	4296	1.3	27	--	--	--	--
	UNDISTRIBUTED				--	--	--	--	--	--	15	--	--
TOTAL:					791	9,517	11,788	6.5	131	15	13	600	

MOBILIZATION			
CATEGORY	STAGE	LOCATION	619.1000 MOBILIZATION EACH
0010	ALL	PROJECT	1
TOTAL:			1

FIELD OFFICE			
CATEGORY	STAGE	LOCATION	642.5001 FIELD OFFICE TYPE B EACH
0010	ALL	PROJECT	1
TOTAL:			1

EROSION CONTROL ITEMS

CATEGORY	ROADWAY	STATION	STATION	OFFSET	628.1504	628.1520	628.1104	628.1905	628.1910	628.2008	628.7015	628.7020	628.7504	628.7555	628.7570
					SILT FENCE LF	SILT FENCE MAINTENANCE LF	EROSION BALES EACH	MOBILIZATIONS EROSION CONTROL EACH	MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	EROSION MAT URBAN CLASS I TYPE B SY	INLET PROTECTION TYPE C EACH	INLET PROTECTION TYPE D EACH	TEMPORARY DITCH CHECKS LF	CULVERT PIPE CHECKS EACH	ROCK BAGS EACH
0010	WELCOME CENTER EXIT	21+16 'A'	- 22+53 'A'	RT	--	--	--	--	--	--	--	2	--	--	--
	WELCOME CENTER EXIT	22+69 'A'	- 28+18 'A'	RT	678	678	271	--	--	1074	--	--	--	5	--
	WELCOME CENTER EXIT	22+89 'A'	24+65 'A'	LT	--	--	--	--	--	204	--	--	--	--	--
	WELCOME CENTER EXIT	25+10 'A'	- 28+50 'A'	LT	485	485	193	--	--	1539	2	4	--	--	108
	TRUCK PARKING	7+25 'B'	- 9+95 'B'	RT	--	--	--	--	--	--	2	1	--	--	--
	TRUCK PARKING	5+36 'B'		380' RT	--	--	--	--	--	--	1	--	--	--	--
	TRUCK PARKING	5+64 'B'		449' RT	--	--	--	--	--	--	1	--	--	--	--
	TRUCK PARKING	7+03 'B'		216' RT	--	--	--	--	--	--	1	--	--	--	--
	TRUCK PARKING	7+31 'B'		284' RT	--	--	--	--	--	--	1	--	--	--	--
	RV EXPANSION	19+00 'C'	- 23+26 'C'	RT/LT	--	--	--	--	--	--	4	--	--	--	--
	120TH AVE	91+30 'D'	- 96+52 'D'	RT	--	--	--	--	--	--	6	--	--	--	--
	RAMP EDGE	100+00 'E'	- 106+81 'E'	RT	442	442	--	--	--	4296	3	--	68	--	--
	STH 165	406+00 'J'	- 411+80 'J'	RT	--	--	--	--	--	2012	2	--	28	1	--
	UNDISTRIBUTED				401	401	116	15	6	2281	6	2	24	2	27
	TOTAL:				2,006	2,006	580	15	6	11,406	29	9	120	8	135

3

TYPE I & II PERMANENT SIGNING -

3738-08-70 IH 94 / STH 165

SIGN NO.	SIGN CODE & SIZE	SIGN TYPE	SIGN MESSAGE	SIGN SIZE W x H [IN.] x [IN.]	637.2210 SIGNS TYPE II REFLC H [SF]	637.2230 SIGNS TYPE II REFLC F [SF]	638.2602 REM SIGNS TYPE II (EA)	638.3000 REM SMALL SIGN SUP [EA]	638.2102 MOVE SIGNS TYPE II [EA]	634.0618 WOOD POSTS 4"X 6"x18' [EA]	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION	TYPE I SIGN SIZE W x H [IN.] x [IN.]	637.1220 SIGNS TYPE I [SF]	638.2601 REM SIGNS TYPE I [EA]	638.3100 REM STR STEEL SIGN SUP [EA]
1	R3-6L(2S)	II	--	42 x 48	14.000	--	--	--	--	--	--	INSTALL ON S-30-12 I BEAMS INCIDENTAL	-- x --	--	1	--
2	--	II	[Q] WEST TO WEST FRONTAGE RD [A]	-- x --	--	--	--	--	--	--	--	INSTALL ON S-30-231 I BEAMS INCIDENTAL	10 x 8.5	85.00	1	--
3	R3-5R(2S)	II	--	42 x 48	14.000	--	--	--	--	--	--	INSTALL ON S-30-12 I BEAMS INCIDENTAL	-- x --	--	1	--
4	--	II	[165] EAST LAKEVIEW PKWY REST AREA TOURIST INFO [A]	-- x --	--	--	--	--	--	--	--	INSTALL ON S-30-231 I BEAMS INCIDENTAL	13 x 11	143.00	1	--
5	W12-1L	II	--	-- x --	--	--	1	1	--	--	--	--	-- x --	--	--	--
6	W12-1L	II	--	-- x --	--	--	1	1	--	--	--	--	-- x --	--	--	--
7	--	II	WEST NORTH [94] [41] MILWAUKEE [LEFT LANE]	-- x --	--	--	--	--	--	--	--	--	-- x --	--	1	2
8	--	II	NO PARKING ON RAMP	-- x --	--	--	1	2	--	--	--	--	-- x --	--	--	--
9	--	II	* NOT USED *	-- x --	--	--	--	--	--	--	--	* NOT USED *	-- x --	--	--	--
10	J3-1	II	--	-- x --	--	--	1	1	--	--	--	--	-- x --	--	--	--
11	R5-1	II	--	-- x --	--	--	1	1	--	--	--	--	-- x --	--	--	--
12	NOT USED	II	--	-- x --	--	--	--	--	--	--	--	--	-- x --	--	--	--
13	R1-2	II	--	-- x --	--	--	1	1	--	--	--	--	-- x --	--	--	--
14	W12-1D	II	--	-- x --	--	--	1	1	--	--	--	--	-- x --	--	--	--
15	R11-54F	II	--	-- x --	--	--	1	2	--	--	--	--	-- x --	--	--	--
16	J3-1	II	EXISTING ASSEMBLY TRUCKS [A]	-- x --	--	--	1	1	--	--	--	--	-- x --	--	--	--
17	--	II	--	-- x --	--	--	1	1	--	--	--	--	-- x --	--	--	--
18	R6-2L(2S)	II	--	24 x 30	5.000	--	--	--	--	1	--	--	-- x --	--	--	--
19	J3-1(2S)	II	--	24 x 105	17.500	--	1	1	--	2	--	--	-- x --	--	--	--
	MB4-5			24 X 12									-- x --	--	--	--
	MB3-3			24 x 12									-- x --	--	--	--
	M1-1		IH 41	24 x 24									-- x --	--	--	--
	MB3-2			24 X 12									-- x --	--	--	--
	M1-1		IH 94	24 X 24									-- x --	--	--	--
	MB6-1			21 X 21									-- x --	--	--	--
20	R5-1(2S)	II	--	30 x 30	6.250	--	--	--	--	1	--	--	-- x --	--	--	--
21	R5-1(2S)	II	--	30 x 30	6.250	--	--	--	--	1	--	--	-- x --	--	--	--
22	R6-2R	II	--	-- x --	--	--	1	1	--	--	--	--	-- x --	--	--	--
23	R5-2	II	--	-- x --	--	--	1	1	--	--	--	--	-- x --	--	--	--
24	R4-7	II	--	-- x --	--	--	1	1	--	--	--	--	-- x --	--	--	--
25	R5-1	II	--	-- x --	--	--	1	1	--	--	--	--	-- x --	--	--	--
26	D1-2	II	MILWAUKEE CHICAGO Sign	72 X 30	15.000	--	--	--	--	2	--	--	-- x --	--	--	--
27	R11-54F	II	--	-- x --	--	--	1	2	--	--	--	--	-- x --	--	--	--
28	J3-1(2S)	II	--	24 x 81	13.500	--	1	--	--	--	--	RE-USE POST	-- x --	--	--	--
	MB4-5			24 x 12									-- x --	--	--	--
	M1-1		IH 94	24 x 24									-- x --	--	--	--

3

SHEET 1 OF 4

TYPE I & II PERMANENT SIGNING -

3738-08-70 IH 94 / STH 165

SIGN NO.	SIGN CODE & SIZE	SIGN TYPE	SIGN MESSAGE	SIGN SIZE			637.2210	637.2230	638.2602	638.3000	638.2102	634.0618	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION	TYPE I SIGN SIZE			637.1220	638.2601	638.3100
				W [IN.]	x x	H [IN.]	SIGNS TYPE II REFLC H [SF]	SIGNS TYPE II REFLC F [SF]	REM SIGNS TYPE II (EA)	REM SMALL SIGN SUP [EA]	MOVE SIGNS TYPE II [EA]	WOOD POSTS 4"X 6"x18' [EA]			W [IN.]	x x	H [IN.]	SIGNS TYPE I [SF]	REM SIGNS TYPE I [EA]	REM STR STEEL SIGN SUP [EA]
	M1-1 MB6-1		IH 41	24 21	x x	24 21									-- --	x x	-- --	-- --	-- --	-- --
29	W12-1L(2S)	II		24	x	24	--	4.000	--	--	--	1	--	2 FOOT HEIGHT	--	x	--	--	--	--
30	W12-1L(2S)	II		24	x	24	--	4.000	--	--	--	1	--	2 FOOT HEIGHT	--	x	--	--	--	--
31	MB6-1(2S)	II		21	x	21	3.063	--	--	--	--	--	--	ADD TO EXISTING ASSEMBLY	--	x	--	--	--	--
32	M6-1(2S)	II		21	x	21	3.063	--	--	--	--	--	--	ADD TO EXISTING ASSEMBLY	--	x	--	--	--	--
33	MB6-1(2S)	II		21	x	21	3.063	--	--	--	--	--	--	ADD TO EXISTING ASSEMBLY	--	x	--	--	--	--
34	M6-1(2S)	II	TO FRONTAGE ROAD [A]	21	x	21	3.063	--	--	--	--	--	--	ADD TO EXISTING ASSEMBLY	--	x	--	--	--	--
35	MB6-1(2S)	II		21	x	21	3.063	--	--	--	--	--	--	ADD TO EXISTING ASSEMBLY	--	x	--	--	--	--
36	M6-1(2S)	II		21	x	21	3.063	--	--	--	--	--	--	ADD TO EXISTING ASSEMBLY	--	x	--	--	--	--
37	--	II		--	x	--	--	--	--	--	1	2	--	--	--	x	--	--	--	--
37A	--	II		--	x	--	--	--	--	--	1	--	#37	--	--	x	--	--	--	--
38	R5-1	II		--	x	--	--	--	1	1	--	--	--	--	--	x	--	--	--	--
39	R5-1	II		--	x	--	--	--	1	1	--	--	--	--	--	x	--	--	--	--
40	R5-1	II		--	x	--	--	--	--	1	1	1	--	--	--	x	--	--	--	--
41	R3-1	II		--	x	--	--	--	--	1	1	1	--	--	--	x	--	--	--	--
42	W6-3	II		--	x	--	--	--	1	1	--	--	--	--	--	x	--	--	--	--
43	J2-2	II	EXISTING ASSEMBLY	--	x	--	--	--	1	1	--	--	--	--	--	x	--	--	--	--
44	R1-1	II		--	x	--	--	--	1	1	--	--	--	--	--	x	--	--	--	--
45	W4-4AL	II		--	x	--	--	--	--	--	--	--	--	SEE SIGN 44 -CONSIDERED 1 REMOVAL	--	x	--	--	--	--
46	R5-1(2S)	II		30	x	30	6.250	--	--	--	--	1	--	--	--	x	--	--	--	--
47	R5-1(2S)	II		30	x	30	6.250	--	--	--	--	1	--	--	--	x	--	--	--	--
48	R1-1	II		--	x	--	--	--	1	1	--	--	--	--	--	x	--	--	--	--
49	R3-53R	II		--	x	--	--	--	1	1	--	--	--	--	--	x	--	--	--	--
50	R5-1A(2S)	II		36	x	24	6.000	--	--	--	--	1	--	--	--	x	--	--	--	--
51	R5-1A(2S)	II		36	x	24	6.000	--	--	--	--	1	--	--	--	x	--	--	--	--
52	R1-1	II		--	x	--	--	--	1	1	--	--	--	--	--	x	--	--	--	--
53	R3-1	II		--	x	--	--	--	--	--	--	--	--	PART OF #52 PART OF #52	--	x	--	--	--	--
54	W4-4AL	II		--	x	--	--	--	--	--	--	--	--		--	x	--	--	--	--
55	R4-7	II		--	x	--	--	--	1	1	--	--	--	--	--	x	--	--	--	--
56	R1-1(3)	II		30	x	30	5.180	--	--	--	--	1	--	--	--	x	--	--	--	--
57	R3-1(2S)	II		24	x	24	4.000	--	--	--	--	--	18	--	--	x	--	--	--	--
58	R3-53R(2S)	II		24	x	30	5.000	--	--	--	--	1	--	--	--	x	--	--	--	--
59	R6-2R(2S)	II		24	x	30	5.000	--	--	--	--	--	--	--	--	x	--	--	--	--
60	J3-1(2S)	II	-- IH 94 IH 41	24	x	81	13.500	--	--	--	--	1	--		--	x	--	--	--	--
	MB4-5	II		24	x	12							--		--	x	--	--	--	--
	M1-1	II		24	x	24							--		--	x	--	--	--	--
	M1-1	II		24	x	24							--		--	x	--	--	--	--
	MB6-1	II		21	x	21							--		--	x	--	--	--	--
61	R1-1(3)	II		30	x	30	5.180	--	--	--	--	1	--		--	x	--	--	--	--
62	R1-1(3)	II		30	x	30	5.180	--	--	--	--	1	--		--	x	--	--	--	--
63	R5-1A(2S)	II		36	x	24	6.000	--	--	--	--	1	--		--	x	--	--	--	--
64	R5-1A(2S)	II		36	x	24	6.000	--	--	--	--	--	#65		--	x	--	--	--	--
65	J3-2(2S)	II	-- IH 94 IH 41 IH 94	48	x	93	31.000	--	--	--	--	1	--		--	x	--	--	--	--
	MB4-5	II		24	x	12							--		--	x	--	--	--	--
	M1-1	II		24	x	24							--		--	x	--	--	--	--
	M1-1	II		24	x	24							--		--	x	--	--	--	--
	MB6-1	II		21	x	21							--		--	x	--	--	--	--
	MB4-1	II		24	x	12							--		--	x	--	--	--	--
	MB4-5	II		24	x	12							--		--	x	--	--	--	--
	M1-1	II		24	x	24							--		--	x	--	--	--	--

TYPE I & II PERMANENT SIGNING -

3738-08-70 IH 94 / STH 165

SIGN NO.	SIGN CODE & SIZE	SIGN TYPE	SIGN MESSAGE	SIGN SIZE W x H [IN.] x [IN.]	637.2210 SIGNS TYPE II REFLC H [SF]	637.2230 SIGNS TYPE II REFLC F [SF]	638.2602 REM SIGNS TYPE II (EA)	638.3000 REM SMALL SIGN SUP [EA]	638.2102 MOVE SIGNS TYPE II [EA]	634.0618 WOOD POSTS 4"X 6"X18' [EA]	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION	TYPE I SIGN SIZE W x H [IN.] x [IN.]	637.1220 SIGNS TYPE I [SF]	638.2601 REM SIGNS TYPE I [EA]	638.3100 REM STR STEEL SIGN SUP [EA]
	M1-1 MB6-1	II II	IH 41	24 x 24 21 x 21									-- x -- -- x --	-- --	-- --	-- --
66	J3-2(2S) MB4-5 M1-1 M1-1 MB6-1 M4-5 M1-6 M6-1	II II II II II II II II	-- IH 94 IH 41 165	48 x 81 24 x 12 24 x 24 24 x 24 21 x 21 24 x 24 24 x 24 21 x 21	27.000	--	--	--	--	1	--	-- MOUNT ON LIGHT POLE	-- x -- -- x -- -- x -- -- x -- -- x -- -- x -- -- x -- -- x --	-- -- -- -- -- -- -- --	-- -- -- -- -- -- -- --	-- -- -- -- -- -- -- --
67	R3-2(2S)	II		24 x 24	4.000	--	--	--	--	--	--	MOUNT ON LIGHT POLE	-- x --	--	--	--
68	R3-1(2S)	II		24 x 24	4.000	--	--	--	--	1	--	--	-- x --	--	--	--
69	R5-1(2S)	II		30 x 30	6.250	--	--	--	--	1	--	--	-- x --	--	--	--
70	W4-1(3)	II		36 x 36	--	9.000	--	--	--	1	--		-- x --	--	--	--
71	NOT I USED	II	NOT USED	-- x --	--	--	--	--	--	--	--	* NOT USED *	-- x --	--	--	--
72	NOT USED												-- x --	--	--	--
73	D1-2	II	MILWAUKEE CHICAGO sign	78 x 24	13.000	--	--	--	--	2	--	--	-- x --	--	--	--
74	R5-1(2S)	II		30 x 30	6.250	--	--	--	--	--	#73	--	-- x --	--	--	--
75	R5-1(2S)	II		30 x 30	6.250	--	--	--	--	1	--	--	-- x --	--	--	--
76	J3-1	II	EXISTING ASSEMBLY	-- x --	--	--	1	1	--	--	--	--	-- x --	--	--	--
77	W2-2(2S)	II		30 x 30	--	6.250	--	--	--	--	--	MOUNT ON LIGHT POLE	-- x --	--	--	--
78	W2-2(2S)	II		30 x 30	--	6.250	--	--	--	1	--	--	-- x --	--	--	--
79		II	ACCESS TO BUSINESSES	84 x 48	28.000	--	--	--	--	2	--	--	-- x --	--	--	--
80	R3-5R	II		42 x 48	14.000	--	--	--	--	--	--	MOUNT ON S-30-256	-- x --	--	--	--
81	M1-95A(MOD)	II	EAST FRONTAGE ROAD (DOUBLE ARROWS)	-- x --	--	--	--	1	1	1	--	--	-- x --	--	--	--
82	J3-1		ROUTE MARKER	-- x --	--	--	--	1	1	1	--	--	-- x --	--	--	--
83	--	II	ADOPT A HIGHWAY	-- x --	--	--	--	1	1	1	--	--	-- x --	--	--	--
84	--	II II	MALL (ARROW RIGHT)	-- x --	--	--	--	--	1	--	--	REUSE POST - NOT WISDOT SIGN	-- x --	--	--	--
85		II	ACCESS TO BUSINESSES	84 x 48	28.000	--	--	--	--	2	--	--	-- x --	--	--	--
86	R3-7R	II		36 x 36	9.000	--	--	--	--	1	--	--	-- x --	--	--	--
87	J3-1			-- x --	--	--	--	1	1	1	--	--	-- x --	--	--	--
88	MB6-1(2S)	II		21 x 21	3.063	--	--	--	--	--	--	ADD TO EXISTING ASSEMBLY	-- x --	--	--	--
89	MB6-1(2S)	II		21 x 21	3.063	--	--	--	--	--	--	ADD TO EXISTING ASSEMBLY	-- x --	--	--	--
90	MB6-1(2S)	II		21 x 21	3.063	--	--	--	--	--	--	ADD TO EXISTING ASSEMBLY	-- x --	--	--	--
91	W3-1(2S)	II		36 x 36		9.000	--	--	--	1	--					

TYPE I & II PERMANENT SIGNING -

3738-08-70 IH 94 / STH 165

SIGN NO.	SIGN CODE & SIZE	SIGN TYPE	SIGN MESSAGE	SIGN SIZE			637.2210	637.2230	638.2602	638.3000	638.2102	634.0618	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION	TYPE I SIGN SIZE			637.1220	638.2601	638.3100	
				W [IN.]	x x	H [IN.]	SIGNS TYPE II REFLC H [SF]	SIGNS TYPE II REFLC F [SF]	REM SIGNS TYPE II (EA)	REM SMALL SIGN SUP [EA]	MOVE SIGNS TYPE II [EA]	WOOD POSTS 4"X 6"x18' [EA]			SIGNS TYPE I [SF]	REM SIGNS TYPE I [EA]	REM STR STEEL SIGN SUP [EA]				
92	W12-1D(2M)	II		24	X	24	7.000	4.000				1	2 FOOT HEIGHT								
93	R1-2(2M)	II		48	X	42						1									
94	R7-64(3)	II		48	X	30						1									
95	J3-1(2S)	II		24	X	93						15.500								1	
	MB3-1			24	X	12															
	M1-1			IH 41	24	X						24									
	MB3-4				24	X						12									
	M1-1			IH 94	24	X						24									
	MB6-1				21	X						21									
96	W1-6(2S)	II			48	X						24								35.000	8.000
97	J3-2(2S)	II		48	X	105	2														
	MB4-5			24	X	12															
	MB3-3			24	X	12															
	M1-1		IH 41	24	X	24															
	MB3-2			24	X	12															
	M1-1		IH 94	24	X	24															
	MB6-2			21	X	21															
	MB4-5			24	X	12															
	MB3-1			24	X	12															
	M1-1		IH 41	24	X	24															
	MB3-4			24	X	12															
	M1-1		IH 94	24	X	24															
	MB6-2			21	X	21															
98	R4-7(2S)	II		24	X	30	5.000					1									
99	R1-1(2S)	II		30	X	30	5.180					1									
100	R1-1(2S)	II		30	X	30	5.180					1									
101	R5-1(2S)	II		30	X	30	6.250					1									
102	J3-2(2S)	II		48	X	105	35.000					2									
	MB4-5			24	X	12															
	MB3-3			24	X	12															
	M1-1		IH 41	24	X	24															
	MB3-2			24	X	12															
	M1-1		IH 94	24	X	24															
	MB6-1			21	X	21															
	MB4-5			24	X	12															
	MB3-1			24	X	12															
	M1-1		IH 41	24	X	24															
	MB3-4			24	X	12															
	M1-1		IH 94	24	X	24															
	MB6-1			21	X	21															
103	R1-1(2S)			30	X	30	5.180					1									
104	D1-2	II	CHICAGO , MILWAUKEE	72	X	30	15.000					2									
105	J3-1(2S)	II		24	X	105	17.500					2									
	MB4-5			24	X	12															
	MB3-3			24	X	12															
	M1-1		IH 41	24	X	24															
	MB3-2			24	X	12															
	M1-1		IH 94	24	X	24															
	MB6-1			21	X	21															
				21	X	21															
TOTALS							537.144	50.500	27	35	9	60	--	--			228.000	5	2		

OVERHEAD SIGN SUPPORTS - MISC QUANTITIES		STH 165 at East Frontage Road	
LOCATION		641.8100.01	OVERHEAD SIGN SUPPORT (STRUCTURE) S-30-256 L.S.
STH 165 at EAST FRONTAGE ROAD		1	
TOTAL		1	

TRAFFIC CONTROL ID 3738-08-70				TRAFFIC CONTROL, COVERING SIGNS					
				643.0910 TRAFFIC CONTROL COVERING SIGNS TYPE I					
CATEGORY	STAGE	LOCATION	643.5000 TRAFFIC CONTROL EACH	NUMBER OF SIGNS	NUMBER OF CYCLES				
0010	ALL	PROJECT	1	1	1				
TOTAL:			1						

CATEGORY	ROADWAY	STATION	LOCATION	NUMBER OF SIGNS	NUMBER OF CYCLES	EACH
0010	NB EXIT RAMP		SIGN BRIDGE	1	1	1
TOTAL:						1

TRAFFIC CONTROL ITEMS																	
		643.0300		643.0420		643.0705		643.0715		643.0800		643.0900		643.1050			
		STAGE*		BARRICADES		WARNING LIGHTS		WARNING LIGHTS		ARROW		TRAFFIC CONTROL					
CATEGORY	STAGE	ROADWAY	DURATION DAYS	PER* DAY	DRUMS DAYS	PER* DAY	TYPE III DAYS	PER* DAY	TYPE A DAYS	PER* DAY	TYPE C DAYS	PER* DAY	BOARDS DAYS	PER* DAY	SIGNS DAYS	PER* DAY	SIGNS PCMS DAYS
0010	1A	WELCOME CENTER	40	--	--	--	--	--	--	--	--	--	1	40	--	--	
		120TH AVE	40	28	1120	9	360	16	640	--	--	--	5	200	--	--	
		STH 165	40	25	1000	3	120	6	240	--	--	--	11	440	--	--	
		STH 165 (NIGHT-TIME CLOSURE)	2	15	30	1	2	2	4	10	20	2	4	3	6	--	--
	STAGE 1A SUBTOTAL:			68	2150	13	482	24	884	10	20	2	4	20	686	--	--
	1B	120TH AVE	80	6	480	--	--	--	--	--	--	--	1	80	--	--	
		RAMP EDGE	80	23	1840	7	560	14	1120	--	--	--	7	560	--	--	
		WELCOME CENTER	80	68	5440	11	880	22	1760	--	--	--	10	800	--	--	
		STH 165	80	--	--	--	--	--	--	--	--	--	4	320	--	--	
	STAGE 1B SUBTOTAL:			97	7760	18	1440	36	2880	--	--	--	22	1760	--	--	
	2	RAMP EDGE	23	31	713	7	161	14	322	--	--	--	9	207	--	--	
		WELCOME CENTER	23	11	253	4	92	8	184	--	--	--	3	69	--	--	
		120TH AVE	23	--	--	--	--	--	--	--	--	--	2	46	--	--	
		STH 165	23	--	--	--	--	--	--	--	--	--	4	92	--	--	
	STAGE 2 SUBTOTAL:			42	966	11	253	22	506	--	--	--	18	414	--	--	
	3	WELCOME CENTER	2	--	--	2	4	4	8	--	--	--	2	4	--	--	
		WELCOME CENTER (PCMS)	10	--	--	--	--	--	--	--	--	--	--	--	1	10	
	STAGE 3 SUBTOTAL:			--	--	2	4	4	8	--	--	--	2	4	1	10	
TOTAL:					10876		2179		4278		20		4		2864		10
* FOR INFORMATION ONLY																	

PAVEMENT MARKING ITEMS																
CATEGORY	LOCATION	STATION	STATION	OFFSET	646.1020			646.3020	646.9000	646.9100	646.5020			646.5220	646.5120	646.8120
					MARKING LINE EPOXY 4-INCH			MARKING LINE	MARKING	MARKING				MARKING	MARKING	MARKING
					12.5 FT LINE			EPOXY	REMOVAL	REMOVAL				SYMBOL	WORD	CURB
					37.5 FT SKIP			8-INCH	LINE	LINE				EPOXY	EPOXY	EPOXY
					WHITE	YELLOW	WHITE	WHITE	4-INCH	8-INCH	TYPE 1	TYPE 2	TYPE 3	WHITE	WHITE	YELLOW
					LF	LF	LF	LF	LF	LF	EACH	EACH	EACH	EACH	EACH	LF
0010	CAR PARKING				--	--	--	--	--	--	5	--	--	4	--	--
	WELCOME CENTER EXIT	19+72 'A'	- 21+91 'A'	RT/RT	--	247	--	--	--	--	--	--	--	--	--	240
		19+69 'A'	- 22+97 'A'	RT/LT	--	255	--	--	--	--	--	--	--	--	--	249
		9+07 'B'	- 26+50 'A'		--	245	--	--	--	--	--	--	--	--	--	200
		22+44 'A'			--	--	--	--	--	--	--	--	--	--	--	--
		26+50 'A'			--	--	--	--	--	--	--	2	--	--	--	--
		27+60 'A'			--	--	--	--	--	--	--	--	--	--	2	--
		27+92 'A'			--	--	--	--	--	--	--	2	--	--	--	--
		26+50 'A'	- 28+10 'A'		--	--	--	--	--	--	--	--	--	--	--	--
		28+08 'A'	- 27+99 'A'		--	--	--	--	--	--	--	--	--	--	--	--
	TRUCK PARKING	5+00 'B'	- 9+05 'B'		--	--	--	--	--	--	--	--	--	--	--	--
	RV EXPANSION	19+00 'C'	- 23+16 'C'		--	559	--	--	--	--	1	--	--	--	--	--
	120TH AVE	91+00 'D'	- 94+30 'D'		--	--	--	--	--	--	--	--	--	--	--	--
		91+43 'D'			--	--	--	--	--	--	--	1	--	--	--	--
		91+75 'D'			--	--	--	--	--	--	--	--	--	--	1	--
		93+66 'D'			--	--	--	--	--	--	--	1	--	--	--	--
		93+98 'D'			--	--	--	--	--	--	--	--	--	--	1	--
	RAMP EDGE	RAMP GORE	- 106+50 'E'		706	600	--	--	1,306	--	--	--	--	--	--	--
	EXIT RAMP	SIGN S-30-231	- 103+53 'E'		--	--	100	--	100	--	--	--	--	--	--	--
		103+53 'E'	- 106+50 'E'		--	--	--	932	--	932	--	--	--	--	--	--
		104+00 'E'			--	--	--	--	--	--	--	3	1	--	--	--
		105+00 'E'			--	--	--	--	--	--	--	--	--	--	3	--
		106+50 'E'			--	--	--	--	--	--	--	3	1	--	--	--
	WELCOME CENTER ENTRANCE				--	--	--	--	--	--	1	--	--	--	--	--
	STH 165	406+00 'J'	- 411+50 'J'		--	--	--	--	--	--	--	--	--	--	--	--
	SUBTOTAL:				706	1,906	100	932	1,406	932	7	12	2	4	7	689
	TOTAL:					2,712		932	1,406	932		21		4	7	689

PAVEMENT MARKING ITEMS (CONT'D)

CATEGORY	LOCATION	STATION	STATION	OFFSET	646.8320	646.7120	646.3040	646.6120	646.1545
					MARKING	MARKING	MARKING LINE	MARKING	MARKING LINE
					PARKING	DIAGONAL	GROOVED	STOP LINE	GROOVED WET
					STALL	EPOXY	WET REF EPOXY	EPOXY	REF CONTRAST EPOXY
					EPOXY	12-INCH	8-INCH	18-INCH	4-INCH
					WHITE	YELLOW	WHITE	WHITE	(12.5 FT LINE 37.5 FT SKIP)
					LF	LF	LF	LF	LF
0010	CAR PARKING				2,343	--	--	--	--
	WELCOME CENTER EXIT	19+72 'A'	- 21+91 'A'	RT/RT	--	61	--	--	--
		19+69 'A'	- 22+97 'A'	RT/LT	--	56	--	--	--
		9+07 'B'	- 26+50 'A'		--	244	--	29	--
		22+44 'A'			--	--	--	15	--
		26+50 'A'			--	--	--	--	--
		27+60 'A'			--	--	--	--	--
		27+92 'A'			--	--	--	--	--
		26+50 'A'	- 28+10 'A'		--	--	160	--	--
		28+08 'A'	- 27+99 'A'		--	--	--	60	--
	TRUCK PARKING	5+00 'B'	- 9+05 'B'		1,700	--	--	--	--
	RV EXPANSION	19+00 'C'	- 23+16 'C'		600	300	--	--	--
	120TH AVE	91+00 'D'	- 94+30 'D'		--	--	306	--	--
		91+43 'D'			--	--	--	--	--
		91+75 'D'			--	--	--	--	--
		93+66 'D'			--	--	--	--	--
		93+98 'D'			--	--	--	--	--
	RAMP EDGE	RAMP GORE	- 106+50 'E'		--	--	--	--	--
	EXIT RAMP	SIGN S-30-231	- 103+53 'E'		--	--	--	--	--
		103+53 'E'	- 106+50 'E'		--	--	--	--	--
		104+00 'E'			--	--	--	--	--
		105+00 'E'			--	--	--	--	--
		106+50 'E'			--	--	--	--	--
	WELCOME CENTER ENTRANCE				--	--	--	--	--
	STH 165	406+00 'J'	- 411+50 'J'		--	--	--	--	275
	SUBTOTAL:				4,643	661	466	104	275
	TOTAL:				4,643	661	466	104	275

CONSTRUCTION STAKING									
				650.4000	650.4500	650.5500	650.6000	650.7000	650.9920
				CONSTRUCTION STAKING					
				STORM		CURB GUTTER AND	PIPE	CONCRETE	SLOPE
				SEWER	SUBGRADE	CURB & GUTTER	CULVERTS	PAVEMENT	STAKES
CATEGORY	STATION	STATION	LOCATION	EACH	LF	LF	EACH	LF	LF
0010	21+16 'A'	- 22+53 'A'	WELCOME CENTER EXIT	--	109	115	--	109	137
	22+69 'A'	- 28+18 'A'	WELCOME CENTER EXIT	2	549	165	5	549	549
	7+50 'B'	- 10+00 'B'	TRUCK PARKING	--	94	190	--	94	250
	18+98 'C'	- 23+26 'C'	RV EXPANSION	2	428	150	--	278	428
	91+25 'D'	- 96+00 'D'	120TH AVE	2	370	370	--	370	--
	100+00 'E'	- 105+50 'E'	RAMP EDGE	2	175	100	--	175	550
	406+00 'J'	- 411+79 'J'	STH 165	1	579	200	--	579	579
			NB ENTRANCE RAMP	--	--	110	--	--	--
TOTAL:				9	2304	1400	5	2154	2493

PICNIC SHELTERS							
		SPV.0060.25	SPV.0060.26	SPV.0060.27	204.9060.S.01		
				GRADING,			
		REPAIR	REST AREA	SHAPING AND	REMOVING		
		PICNIC TABLE	PICNIC	FINISHING	PICNIC		
		TYPE 1	SHELTERS	PICNIC SHELTERS	SHELTER		
CATEGORY	STATION	OFFSET	EACH	EACH	EACH	EACH	
0010	22+05 'C'	35' RT	1	--	--	1	
	22+30 'C'	80' RT	1	--	--	--	
	6+15 'B'	35' RT	--	1	1	--	
TOTAL:			2	1	1	1	

CATEGORY 0020
LIGHTING REMOVAL ITEMS

- 204.0195
- 653.0905
- 204.9060.S.02
- 204.9060.S.03
- REMOVING CONCRETE BASES
- REMOVING PULL BOXES
- REMOVING LUMINAIRES
- REMOVING LIGHTING UNITS

SYSTEM	LOCATION	OFFSET	ITEM	204.0195 REMOVING CONCRETE BASES	653.0905 REMOVING PULL BOXES	204.9060.S.02 REMOVING LUMINAIRES	204.9060.S.03 REMOVING LIGHTING UNIT	COMMENTS
				EACH	EACH	EACH	EACH	
HL-30-WC	93+45	468' RIGHT	1WC1	1	--	--	1	--
HL-30-WC	92+38	409' RIGHT	1WC2/1WC3	--	--	2	--	--
HL-30-WC	93+90	344' RIGHT	1WC4	--	--	1	--	--
HL-30-WC	92+66	275' RIGHT	1WC5	--	--	1	--	--
HL-30-WC	94+37	260' RIGHT	1WC6	--	--	1	--	--
HL-30-WC	92+71	517' RIGHT	2WC1	1	--	--	1	--
HL-30-WC	92+87	613' RIGHT	2WC2	--	--	1	--	--
HL-30-WC	93+38	678' RIGHT	2WC3	--	--	1	--	--
HL-30-WC	94+36	737' RIGHT	2WC4	--	--	1	--	--
HL-30-WC	91+82	600' RIGHT	2WC5	--	--	1	--	--
HL-30-WC	94+79	475' RIGHT	3WC1	--	--	1	--	--
HL-30-WC	95+57	391' RIGHT	3WC2	--	--	1	--	--
HL-30-WC	96+15	225' RIGHT	3WC3	--	--	1	--	--
HL-30-WC	97+94	228' RIGHT	3WC4	--	--	1	--	--
HL-30-WC	97+34	393' RIGHT	3WC5	--	--	1	--	--
HL-30-WC	98+97	395' RIGHT	3WC6	--	--	1	--	--
HL-30-WC	96+71	592' RIGHT	4WC1	--	--	1	--	--
HL-30-WC	98+59	601' RIGHT	4WC2	--	--	1	--	--
HL-30-WC	100+21	633' RIGHT	4WC3/4WC4	--	--	2	--	--
HL-30-WC	100+79	811' RIGHT	4WC5	--	--	1	--	--
HL-30-WC	95+28	733' RIGHT	4WC6	--	--	1	--	--
HL-30-WC	96+62	727' RIGHT	5WC1	--	--	1	--	--
HL-30-WC	94+79	827' RIGHT	5WC2	--	--	1	--	--
HL-30-WC	93+35	886' RIGHT	5WC3	1	--	--	1	--
HL-30-WC	92+34	809' RIGHT	5WC4	1	--	--	1	--
HL-30-WC	95+41	905' RIGHT	6WC1	1	--	--	1	--
HL-30-WC	97+38	924' RIGHT	6WC2	--	--	1	--	--
HL-30-WC	99+37	959' RIGHT	6WC3	--	--	1	--	--
HL-30-WC	94+60	1,101' RIGHT	6WC4	--	--	1	--	--
HL-30-WC	99+06	1,070' RIGHT	6WC5	--	--	1	--	--
HL-30-WC	96+10	1,101' RIGHT	6WC7	--	--	1	--	--
HL-30-WC	97+59	1,096' RIGHT	6WC8	--	--	1	--	--
HL-30-WC	94+42	559' RIGHT	PB1	--	1	--	--	ONLY IF NEEDED
HL-30-WC	94+57	827' RIGHT	PB5	--	1	--	--	ONLY IF NEEDED
HL-30-WC	VARIOUS	--	--	--	--	11	--	POST TOP LUMINAIRES UTILITY HPS
TOTAL (0020)				5	2	40	5	

CATEGORY 0020
LIGHTING WIRE QUANTITIES
120/208 VAC 3-WIRE ISOLATED NEUTRAL SYSTEM

655.0615 ELECTRICAL WIRE LIGHTING 10 AWG
655.0620 ELECTRICAL WIRE LIGHTING 8 AWG
655.0630 ELECTRICAL WIRE LIGHTING 4 AWG

SYSTEM	NETWORK	LOCATION TO LOCATION	DISTANCE	655.0615 10 AWG LF	655.0620 8 AWG LF	655.0630 4 AWG LF
HL-30-WC	1/N/G	EXISTING PB1 TO POLE 1WC1	120	--	390	--
HL-30-WC	1/N/G	POLE 1WC1 TO POLE 1WC2/1WC3	180	--	760	--
HL-30-WC	2/N/G	POLE 2WC2 TO POLE 2WC5	160	--	680	--
HL-30-WC	6/N/G	EXISTING PB5 TO PB TO POLE 6WC9	230	--	--	960
HL-30-WC	6/N/G	POLE 6WC9 TO PB TO POLE 6WC1	200	--	--	840
HL-30-WC	6/N/G	POLE 6WC1 TO POLE 6WC2	200	--	--	840
HL-30-WC	3/N/G	POLE 3WC4 TO POLE 3WC7	180	--	760	--
HL-30-WC	3/N/G	POLE 3WC7 TO POLE 3WC8	150	--	640	--
HL-30-WC	3/N/G	POLE 3WC8 TO POLE 3WC9	140	--	600	--
HL-30-WC	21/N/G	EXISTING PB4 TO POLE C21-6	70	320	--	--
HL-30-WC	21/N/G	POLE C21-6 TO POLE C21-7	80	360	--	--
HL-30-WC	21/N/G	POLE C21-7 TO POLE C21-8	70	320	--	--
TOTAL (0020)				1,000	3,830	2,640

CATEGORY 0020
LIGHTING PULL BOX QUANTITIES

653.0140 PULL BOXES STEEL 24x42-INCH

SYSTEM	STATION	OFFSET	LABEL	653.0140 PULL BOXES STEEL 24x42-INCH EACH	COMMENTS
HL-30-WC	92+15	569' RIGHT	LPB1	1	--
HL-30-WC	92+94	586' RIGHT	LPB2	1	--
HL-30-WC	94+42	559' RIGHT	LPB3 (PB1)	1	ONLY IF NEEDED
HL-30-WC	94+57	827' RIGHT	LPB4 (PB5)	1	ONLY IF NEEDED
HL-30-WC	94+57	935' RIGHT	LPB5	1	--
TOTAL (0020)				5	

CATEGORY 0020
LIGHTING BRANCH CIRCUIT CONDUIT

652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH
652.0615 CONDUIT SPECIAL 3-INCH

SYSTEM	LOCATION TO LOCATION	652.0225 CONDUIT 2-INCH SCHEDULE 40 LF	652.0615 CONDUIT SPECIAL 3-INCH LF	COMMENTS
HL-30-WC	EXISTING PB1 TO POLE 1WC1	120	--	--
HL-30-WC	POLE 1WC1 TO POLE 1WC2/1WC3	100	--	INTERCEPT EXISTING CONDUIT
HL-30-WC	LPB1 TO LPB2	--	100	INTERCEPT EXISTING CONDUIT
HL-30-WC	EXISTING PB5 TO PROPOSED LPB5	110	--	--
HL-30-WC	PROPOSED LPB5 TO POLE 6WC4	120	--	--
HL-30-WC	POLE 6WC9 TO STUBOUT NORTH	15	--	--
HL-30-WC	PROPOSED LPB3 TO POLE 6WC1	80	--	--
HL-30-WC	POLE 6WC1 TO POLE 6WC2	200	--	--
HL-30-WC	PB4 TO POLE C21-6	70	--	--
HL-30-WC	POLE C21-6 TO POLE C21-7	50	--	--
HL-30-WC	POLE C21-7 TO POLE C21-8	70	--	--
HL-30-WC	POLE C21-8 TO STUBOUT EAST	15	--	--
HL-30-WC	POLE 3WC4 TO POLE 3WC7	190	--	--
HL-30-WC	POLE 3WC7 TO POLE 3WC8	150	--	--
HL-30-WC	POLE 3WC8 TO POLE 3WC9	140	--	--
HL-30-WC	POLE 3WC9 TO STUBOUT EAST	15	--	--
TOTAL (0020)		1,445	100	

CATEGORY 0020
LIGHTING SYSTEM ITEMS

650.8500 CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS (3738-08-70)
SPV.0105.11 LIGHTING SYSTEM INTEGRATOR
SPV.0105.12 LIGHTING SYSTEM SURVEY

SYSTEM	LOCATION	650.8500 CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS (3738-08-70) LS	SPV.0105.11 LIGHTING SYSTEM INTEGRATOR LS	SPV.0105.12 LIGHTING SYSTEM SURVEY LS
HL-30-WC	PLEASANT PRAIRIE WELCOME CENTER	1	1	1
TOTAL (0020)		1	1	1

CATEGORY 0020
LIGHT POLE QUANTITIES

654.0105	CONCRETE BASES TYPE 7
654.0111	CONCRETE BASES TYPE 11
655.0610	ELECTRICAL WIRE LIGHTING 12 AWG
657.0255	TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE
657.0322	POLES TYPE 5-ALUMINUM
657.0715	LUMINAIRE ARMS TRUSS TYPE 4 1/2-INCH CLAMP 15-FT
659.1120	LUMINAIRES UTILITY LED B
SPV.0060.21	LIGHTING UNITS WALKWAY LED
SPV.0060.22	POST TOP LUMINAIRES UTILITY LED

SYSTEM	SEQUENCE I. D.	STATION	OFFSET	654.0105 CONCRETE BASES TYPE 5	654.0111 CONCRETE BASES TYPE 11	655.0610 AWG 12	657.0255 TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE	657.0322 POLES TYPE 5 ALUMINUM	657.0715 LUMINAIRES ARMS TRUSS TYPE 4 1/2-INCH CLAMP 15-FT	659.1120 LUMINAIRES UTILITY LED B	SPV.0060.21 LIGHTING UNITS WALKWAY LED	SPV.0060.22 POST TOP LUMINAIRES UTILITY LED
				EACH	EACH	L.F.	EACH	EACH	EACH	EACH	EACH	EACH
HL-30-WC	1WC1	93+24	532 RIGHT	1	--	144	1	1	1	1	--	--
HL-30-WC	1WC2/1WC3	92+38	409' RIGHT	--	--	--	--	--	--	2	--	--
HL-30-WC	1WC4	93+90	344' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	1WC5	92+66	275' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	1WC6	94+37	260' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	2WC1	92+71	516' RIGHT	1	--	144	1	1	1	1	--	--
HL-30-WC	2WC3	93+38	678' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	2WC4	94+36	737' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	2WC5	91+82	600' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	3WC1	94+79	475' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	3WC2	95+57	391' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	3WC3	96+15	225' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	3WC4	97+94	228' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	3WC5	97+34	393' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	3WC6	98+97	395' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	3WC7	99+50	310' RIGHT	1	--	144	1	1	1	1	--	--
HL-30-WC	3WC8	99+73	179' RIGHT	1	--	144	1	1	1	1	--	--
HL-30-WC	3WC9	99+67	53' RIGHT	1	--	144	1	1	1	1	--	--
HL-30-WC	4WC1	96+71	592' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	4WC2	98+59	601' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	4WC3/4WC4	100+22	634' RIGHT	--	--	--	--	--	--	2	--	--
HL-30-WC	4WC5	100+79	812' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	4WC6	95+28	733' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	5WC1	96+62	727' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	5WC2	94+79	827' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	6WC1	95+41	905' RIGHT	1	--	144	1	1	1	1	--	--
HL-30-WC	6WC2	97+38	924' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	6WC3	99+37	959' RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	6WC4	93+09	1104 RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	6WC5	99+06	1071 RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	6WC7	95+10	1100 RIGHT	--	--	--	--	--	--	1	--	--
HL-30-WC	6WC8	97+10	1096 RIGHT	--	--	--	--	--	--	1	--	-
HL-30-WC	6WC9	93+42	930' RIGHT	1	--	144	1	1	1	1	--	--
HL-30-WC	C21-6	96+90	530' RIGHT	--	1	45	--	--	--	--	1	--
HL-30-WC	C21-7	96+52	467' RIGHT	--	1	45	--	--	--	--	1	--
HL-30-WC	C21-8	95+97	423' RIGHT	--	1	45	--	--	--	--	1	--
HL-30-WC	VARIOUS	VARIOUS	--	--	--	--	--	--	--	--	--	11
TOTAL (0020)				7	3	999	6	6	6	34	3	11

STH 165 & EAST FRONTAGE ROAD (120th AVE)
KENOSHA COUNTY
CATEGORY 1500
S30-0756

REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE	
204.9105.S.04	
REMOVING LOOP DETECTOR WIRE & LEAD-IN CABLE	
LOCATION	L.S.
STH 165 & EAST FRONTAGE RD (120TH AVE)	1
TOTAL	1

CONDUIT		
652.0225		
CONDUIT RIGID		
NONMETALLIC		
SCHEDULE 40		
2-INCH		
FROM	TO	L.F.
PB16	PB17	217
TOTAL		217

TRAFFIC DETECTOR LOOPS								
LOOP NO.	HOME RUN PB	LOCATION*	SIZE (FT)x(FT)	NO. OF TURNS	SDD INSTALLATION REFERENCE	652.0800	655.0700	655.0800
						CONDUIT LOOP DETECTOR L.F.	LOOP DETECTOR LEAD IN CABLE L.F.	LOOP DETECTOR WIRE L.F.
31	PB17	1996+48.8, 10.8'RT	6'x30'	3	9F15-4A - LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 1)	84	296	252
TOTAL						84	296	252

* LOCATION IS TO FRONT CENTER OF DETECTOR LOOP
** FINAL LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

PULL BOXES		
653.0135		
PULL BOXES		
STEEL		
24x36-INCH		
PULL BOX NO.	LOCATION*	EACH
PB17	1996+48.9, 10.2'LT	1
TOTAL		1

* FINAL LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

REMOVE PULL BOXES	
	653.0905
	REMOVING
PULL BOX	PULL BOXES
NO.	EACH
PB17	1
TOTAL	1

LOOP DETECTOR

				652.0210	652.0225	653.0115	653.0905	654.0220	655.0800
				CONDUIT	CONDUIT	PULL	REMOVING	CONCRETE	
				RIGID	RIGID	BOXES	PULL	CONTROL	LOOP
				NONMETALLIC	NONMETALLIC	STEEL	BOXES	CABINET BASES	DETECTOR
				SCHEDULE 40 1-IN	SCHEDULE 40 2-IN	12 X 36-INCH		TYPE 10	WIRE
CATEGORY	STATION	STATION	LOCATION	LF	LF	EACH	EACH	EACH	LF
0010	19+14.01C		CAR PARKING ENTRANCE	130	--	--	--	--	320
	20+28.89C		TRUCK PARKING ENTRANCE	90	--	--	--	--	280
	20+20.27C		27' RT	--	--	1	--	--	--
	20+22.48C		31' RT	--	10	--	--	1	--
	22+25.29A		19' RT, ISLAND	--	--	--	1	--	--
TOTAL:				220	10	1	1	1	600

SALVAGE RAMP GATE

						204.0195	SPV.0060.29	654.0105
						*	SALVAGE &	
						REMOVING	REINSTALL	CONCRETE
						CONCRETE	RAMP GATE	BASE
						BASES	ASSEMBLY	TYPE 5
CATEGORY	STATION	OFFSET	EACH	EACH	EACH			
0010	22+25 'A'	18.5' RT	1	--	--			
	22+39 'A'	13.4' RT	1	1	--			
	24+40 'A'	17.2' LT	--	--	1			
TOTAL:			2	1	1			

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN THE PLANS.

CONCRETE PAVEMENT JOINT LAYOUT

				415.5110.S
				CONCRETE PAVEMENT
				JOINT LAYOUT
CATEGORY	STAGE	LOCATION	LS	
0010	ALL	PROJECT	1	
	TOTAL:			1

CONCRETE PAVEMENT CORNER REPAIR

SPV.0085.01 CONCRETE PAVEMENT CORNER REPAIR PARTIAL DEPTH					
CATEGORY	REPAIR AREA	LOCATION	(LB)	L (IN)	W (IN)
0010	1	CAR PARKING	120	24	36
	2	CAR PARKING	10	12	6
	3	CAR PARKING	180	36	36
	4	CAR PARKING	80	24	24
	5	CAR PARKING	80	24	24
	6	CAR PARKING	20	12	12
	7	CAR PARKING	100	30	24
	8	CAR PARKING	100	30	24
	9	CAR PARKING	80	24	24
	10	CAR PARKING	40	12	24
	11	CAR PARKING	120	24	36
	12	CAR PARKING	70	12	42
	13	CAR PARKING	30	12	18
	14	CAR PARKING	75	18	30
	15	CAR PARKING	40	12	24
	16	CAR PARKING	20	12	12
	17	CAR PARKING	40	12	24
	18	CAR PARKING	20	12	12
	19	CAR PARKING	20	12	12
	20	CAR PARKING	60	12	36
	21	CAR PARKING	20	24	6
	22	CAR PARKING	30	12	18
	23	CAR PARKING	45	18	18
	24	CAR PARKING	680	204	24
	25	CAR PARKING	240	48	36
	26	CAR PARKING	45	18	18
	27	CAR PARKING	30	12	18
	28	CAR PARKING	50	12	30
	29	CAR PARKING	30	12	18
	30	CAR PARKING	125	30	30
	31	CAR PARKING	100	24	30
	32	CAR PARKING	175	42	30
	33	CAR PARKING	30	18	12
	34	CAR PARKING	125	30	30
	35	CAR PARKING	125	30	30

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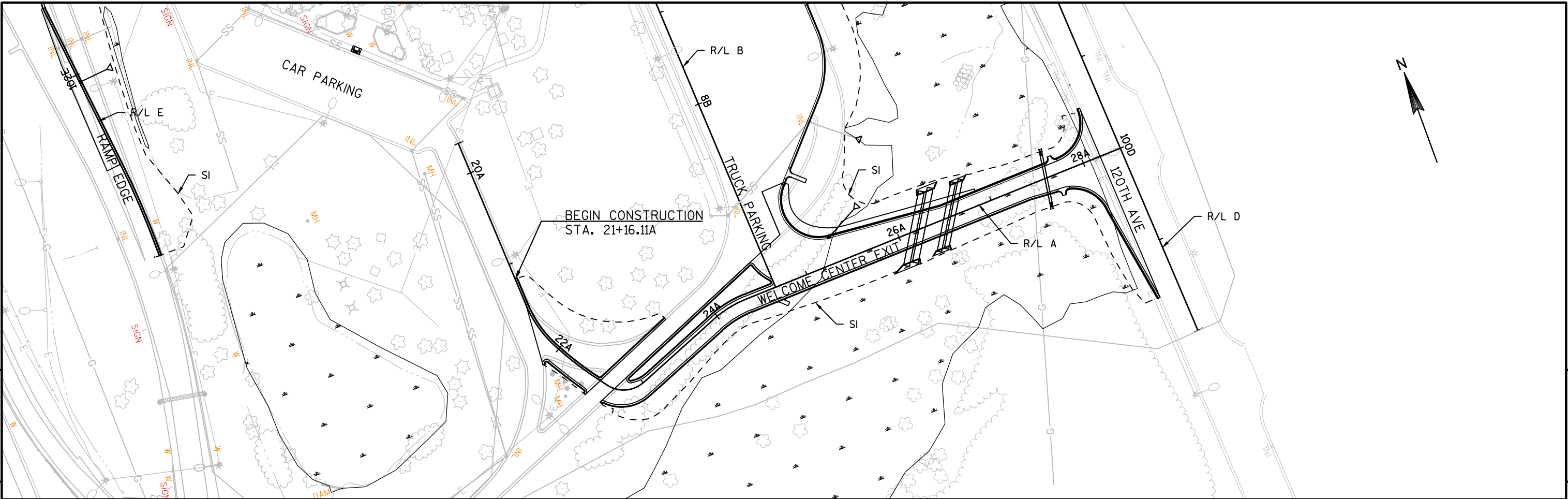
36	CAR PARKING	120	24	36
37	CAR PARKING	20	24	6
38	CAR PARKING	80	24	24
39	CAR PARKING	100	24	30
40	CAR PARKING	120	24	36
41	CAR PARKING	30	12	18
42	CAR PARKING	120	36	24
43	CAR PARKING	120	72	12
44	CAR PARKING	120	24	36
45	CAR PARKING	20	12	12
46	CAR PARKING	20	6	24
47	CAR PARKING	10	12	6
48	CAR PARKING	20	12	12
49	CAR PARKING	20	6	24
50	CAR PARKING	45	18	18
51	CAR PARKING	180	36	36
52	CAR PARKING	330	132	18
53	CAR PARKING	30	12	18
54	CAR PARKING	60	18	24
55	CAR PARKING	80	24	24
56	CAR PARKING	45	18	18
57	CAR PARKING	80	24	24
58	CAR PARKING	340	204	12
59	CAR PARKING	480	192	18
60	CAR PARKING	160	96	12
61	CAR PARKING	60	18	24
62	CAR PARKING	30	12	18
63	CAR PARKING	75	30	18
LONG. CRACKS	CAR PARKING	243	291.25	6
CAR PARKING SUBTOTAL:		6313		

101	RV PARKING	30	12	18
102	RV PARKING	10	12	6
103	RV PARKING	30	18	12
104	RV PARKING	40	24	12
105	RV PARKING	15	18	6
106	RV PARKING	100	60	12
107	RV PARKING	20	12	12
108	RV PARKING	30	12	18
109	RV PARKING	140	84	12
110	RV PARKING	30	12	18
111	RV PARKING	20	24	6
LONG. CRACKS	RV PARKING	346	415	6
RV PARKING SUBTOTAL:		811		

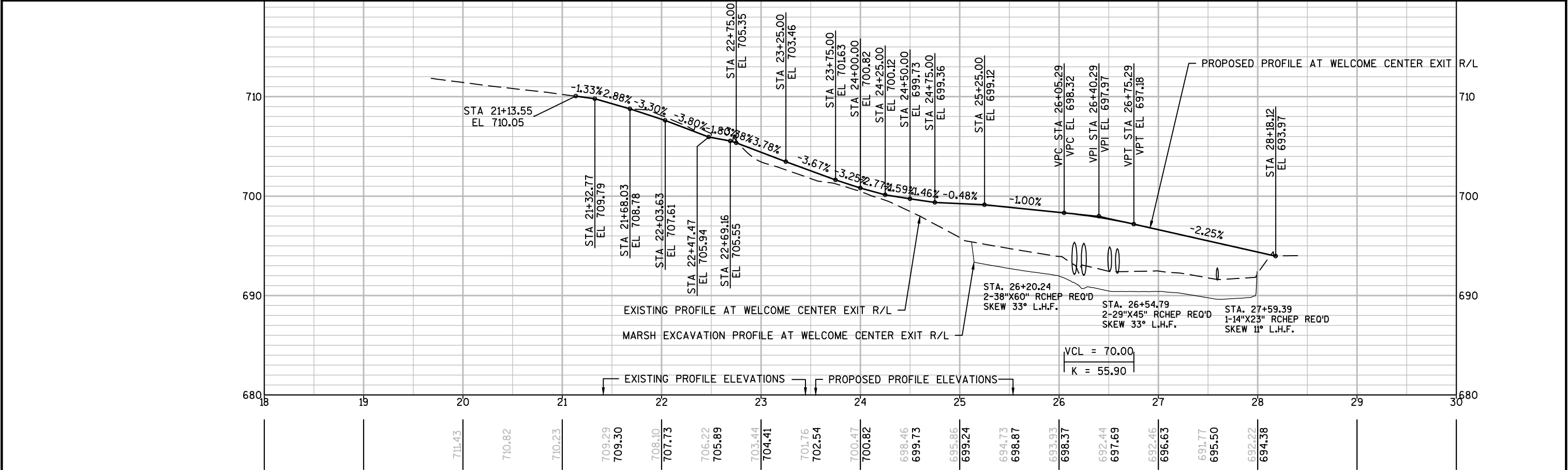
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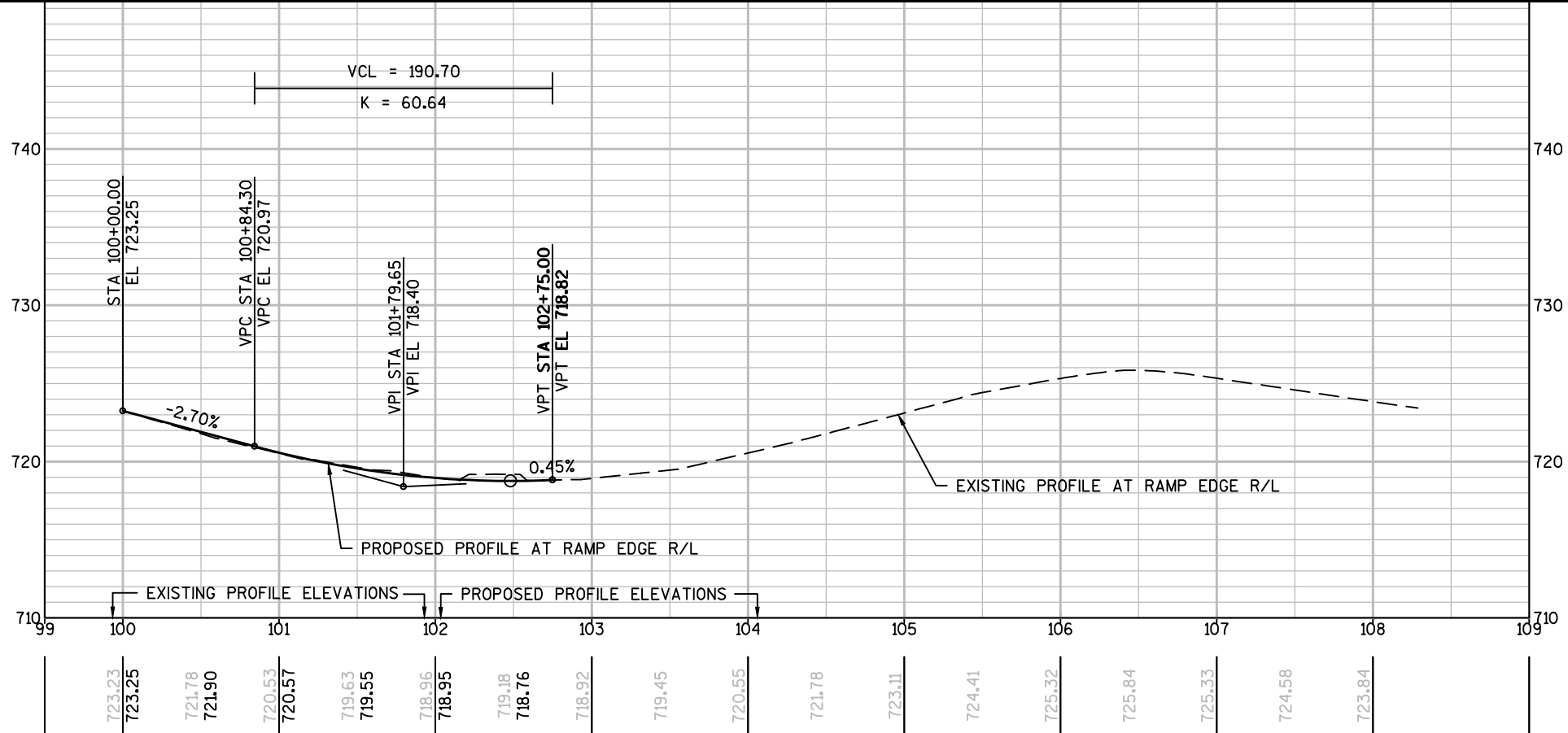
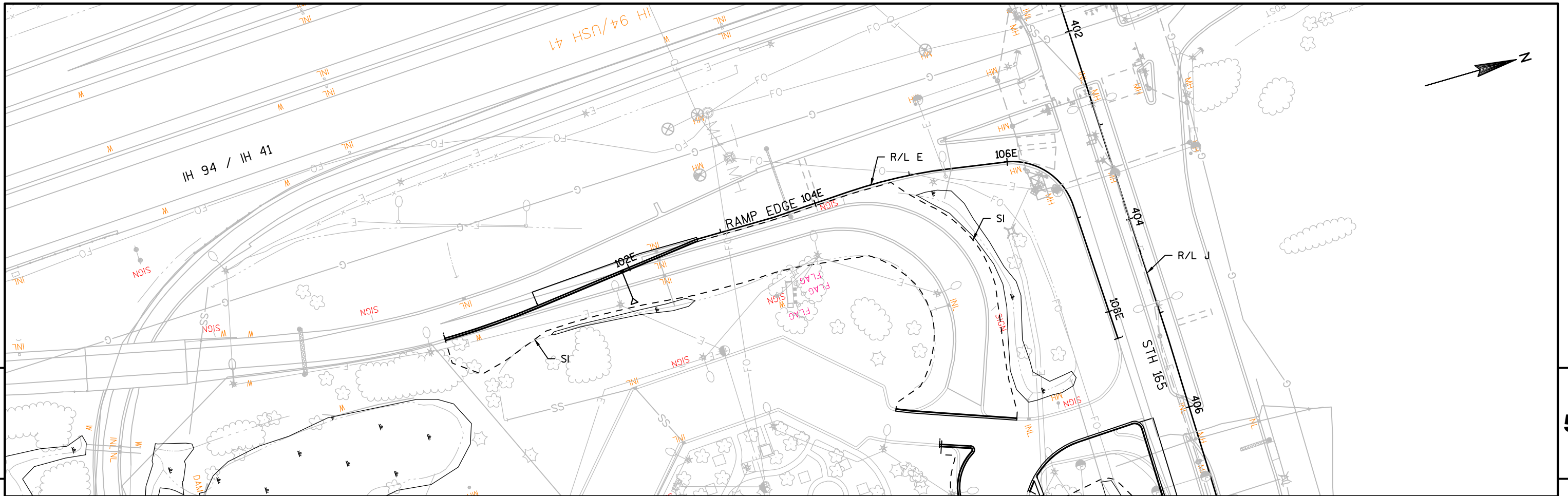
201	TRUCK PARKING	20	12	12
202	TRUCK PARKING	20	12	12
203	TRUCK PARKING	40	48	6
204	TRUCK PARKING	180	216	6
205	TRUCK PARKING	180	216	6
206	TRUCK PARKING	20	12	12
207	TRUCK PARKING	50	30	12
208	TRUCK PARKING	50	12	30
209	TRUCK PARKING	90	54	12
210	TRUCK PARKING	30	12	18
211	TRUCK PARKING	20	12	12
212	TRUCK PARKING	45	18	18
213	TRUCK PARKING	20	12	12
214	TRUCK PARKING	30	18	12
215	TRUCK PARKING	30	18	12
216	TRUCK PARKING	55	66	6
217	TRUCK PARKING	15	18	6
218	TRUCK PARKING	30	18	12
219	TRUCK PARKING	15	18	6
220	TRUCK PARKING	30	18	12
221	TRUCK PARKING	360	216	12
222	TRUCK PARKING	10	12	6
223	TRUCK PARKING	45	18	18
224	TRUCK PARKING	10	12	6
225	TRUCK PARKING	10	12	6
226	TRUCK PARKING	60	36	12
227	TRUCK PARKING	70	42	12
228	TRUCK PARKING	10	6	12
229	TRUCK PARKING	40	12	24
230	TRUCK PARKING	20	12	12
231	TRUCK PARKING	20	12	12
232	TRUCK PARKING	35	42	6
233	TRUCK PARKING	25	30	6
LONG. CRACKS	TRUCK PARKING	660	792	6
TRUCK PARKING SUBTOTAL:		2345		
UNDISTRIBUTED		1432		
TOTAL:		10901		
** FOR INFORMATION ONLY.				

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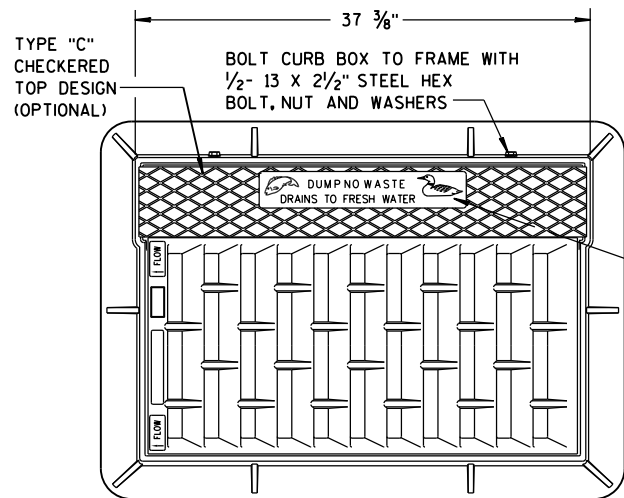


Standard Detail Drawing List

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
08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08A05-19D	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-02	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08C06-02	INLETS 3-FT AND 4-FT DIAMETER
08C07-02	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D01-20A	CONCRETE CURB & GUTTER
08D01-20B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D05-19A	CURB RAMPS TYPES 1 AND 1-A
08D05-19B	CURB RAMPS TYPES 2 AND 3
08D05-19C	CURB RAMPS TYPES 4A AND 4A1
08D05-19D	CURB RAMPS TYPE 4B AND 4B1
08D05-19E	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
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F06-04	REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN
08F10-01	CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH
09A01-13A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
09A01-13B	AT-GRADE SIDE ROAD INTERSECTION, TYPE "A1" & "A2"
09B02-10	CONDUIT
09B04-11	PULL BOX
09C02-07	CONCRETE BASES, TYPES 1, 2, 5, & 6
09C03-04	TRANSFORMER/PEDESTAL BASES
09C05-10	CONCRETE CONTROL CABINET BASES
09E01-14D	POLE MOUNTINGS FOR LIGHTING UNITS, TYPE 5 (30 FEET)
09E01-14G	HARDWARE DETAILS FOR POLE MOUNTINGS
09E02-04	FREEWAY LIGHTING UNIT POLE WIRING
09E03-05	NON-FREEWAY LIGHTING UNIT POLE WIRING
09F12-04	LOOP DETECTOR INSTALLED IN EXISTING CONCRETE PAVEMENT
09F15-04A	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 1)
10A01-03	ELECTRICAL HANDHOLE WIRING
10A02-03	IDENTIFICATION PLAQUES LIGHT POLES
10A05-02	ELECTRICAL DETAILS GROUND MOUNT LIGHT POLES ISOLATED NEUTRAL SYSTEMS
10A07-02	ELECTRICAL DETAILS GROUND MOUNT LIGHT POLES PHASE-TO-PHASE SYSTEMS
13C01-19	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C04-17	URBAN NON-DOWELED CONCRETE PAVEMENT
13C09-15A	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-15B	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-15C	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C15-06A	CONCRETE BASE
13C15-06B	CONCRETE BASE
13C18-06A	CONCRETE PAVEMENT JOINTING
13C18-06B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-06C	CONCRETE PAVEMENT JOINT TYPES
13C18-06D	CONCRETE PAVEMENT JOINT TYPES AT UTILITY FIXTURES
13C18-06E	CONCRETE PAVEMENT JOINTING AND STEEL REINFORCEMENT IN ROUNDABOUTS
13C18-06F	CONCRETE PAVEMENT JOINTING AND STEEL REINFORCEMENT IN ROUNDABOUTS
14C07-03A	PICNIC TABLE, SINGLE PEDESTAL
14C07-03B	PICNIC TABLE, SINGLE PEDESTAL
15C07-14A	PAVEMENT MARKING SYMBOLS
15C07-14B	PAVEMENT MARKING WORDS
15C07-14C	PAVEMENT MARKING ARROWS
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C08-19B	PAVEMENT MARKING (TURN LANES)
15C08-19C	PAVEMENT MARKING (TURN LANES)
15C12-06	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C24-04	36" DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE
15C33-03	STOP LINE AND CROSSWALK PAVEMENT MARKING
15D12-06A	TRAFFIC CONTROL, LANE CLOSURE
15D20-04	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D22-03	TRAFFIC CONTROL, TWO LANE CLOSURE, NON-FREEWAY/EXPRESSWAY

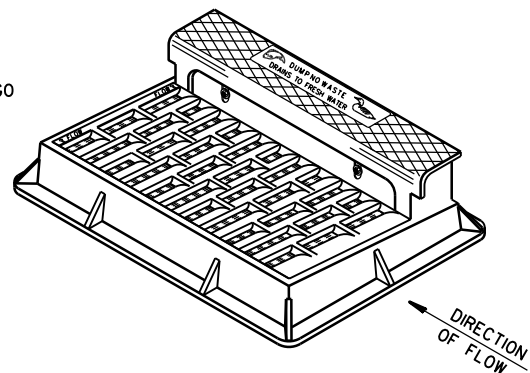
Standard Detail Drawing List

15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS

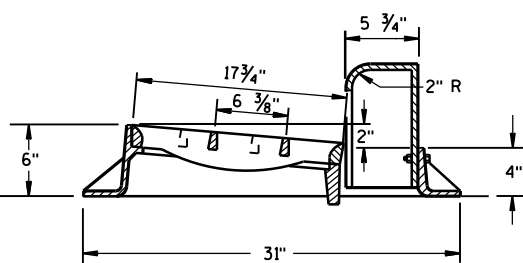
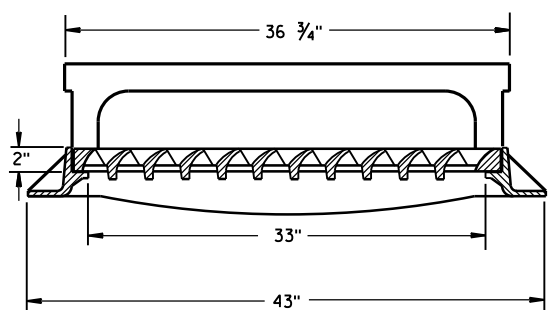
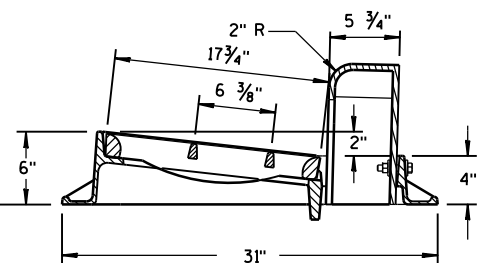
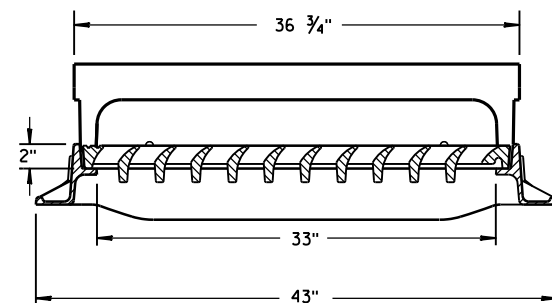
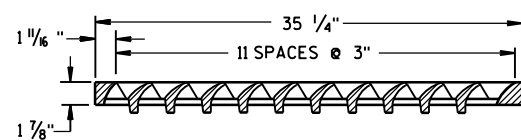


SEE LOGO
DETAIL

NOTE:
GRATE IS REVERSIBLE.

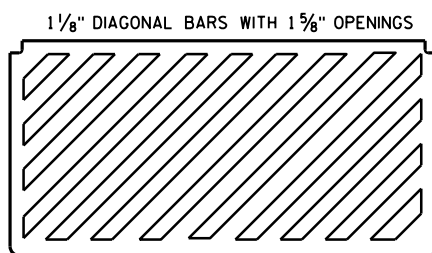


NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"



TYPE "H"

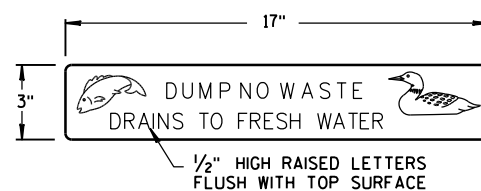
NOTE: EITHER CASTING IS ACCEPTABLE



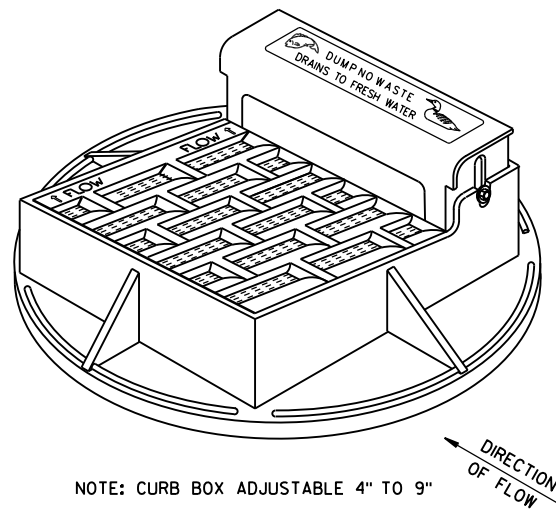
**SPECIAL GRATE FOR
TYPE "H" COVER**

(MEASURES 35 1/4" X 17 3/4" X 2")

(NOTED AS TYPE H-S ON DRAINAGE TABLE)

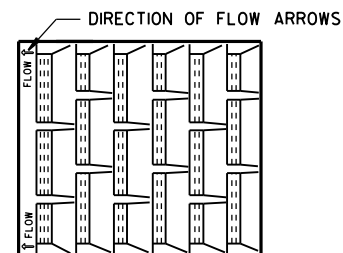


LOGO DETAIL

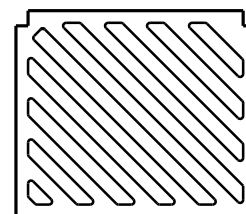


NOTE: CURB BOX ADJUSTABLE 4" TO 9"

NOTE:
GRATE IS REVERSIBLE.



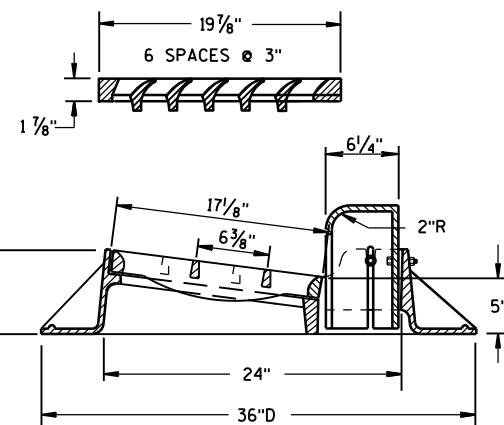
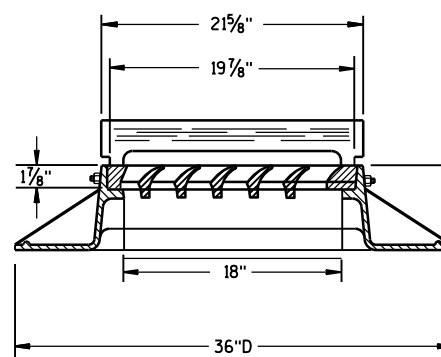
1" DIAGONAL BARS
WITH 1 1/2" OPENINGS



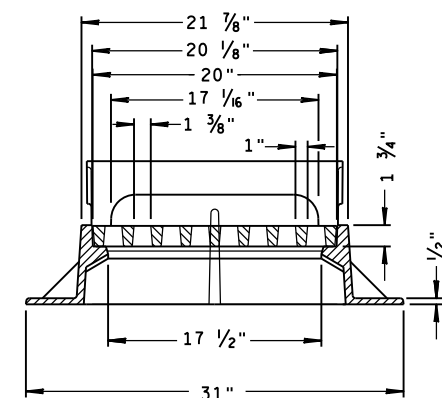
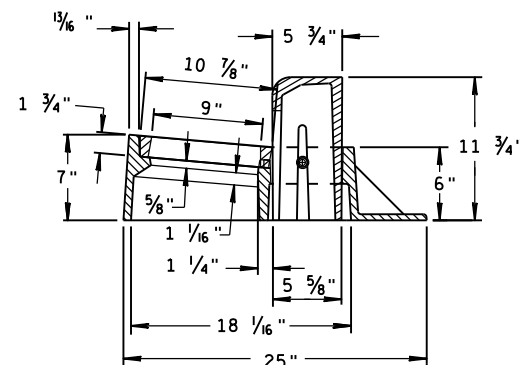
**SPECIAL GRATE FOR
TYPE "A" COVER**

(MEASURES 19 3/4" X 17" X 1 1/8")

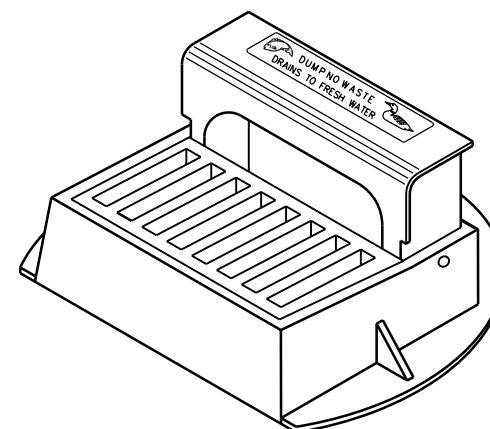
(NOTED AS TYPE A-S ON DRAINAGE TABLE)



TYPE "A"



TYPE "Z"



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

**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION**

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11-27-13

DATE

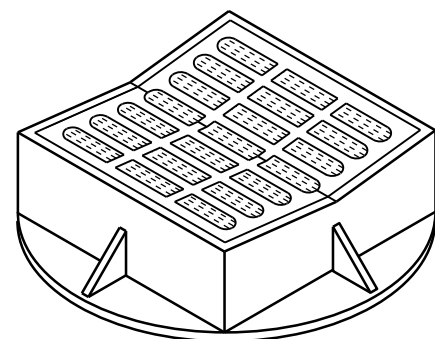
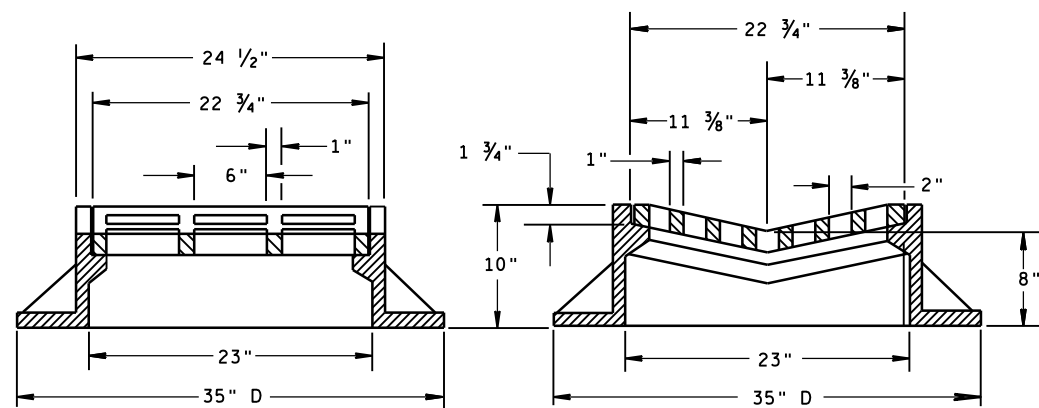
FHWA

/S/ Jerry H. Zogg

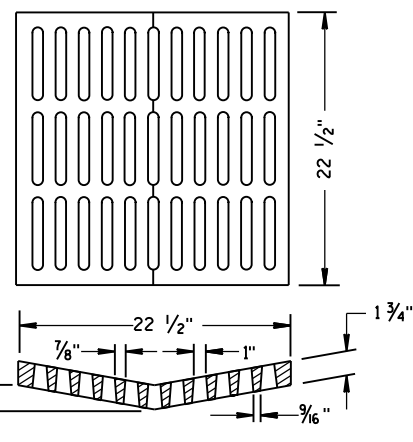
ROADWAY STANDARDS 130

ENGINEER

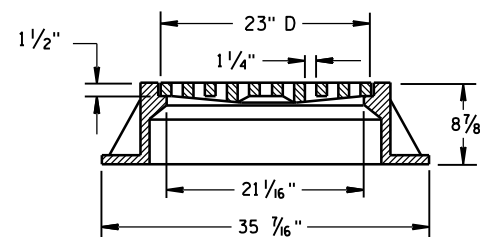
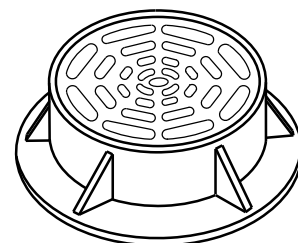
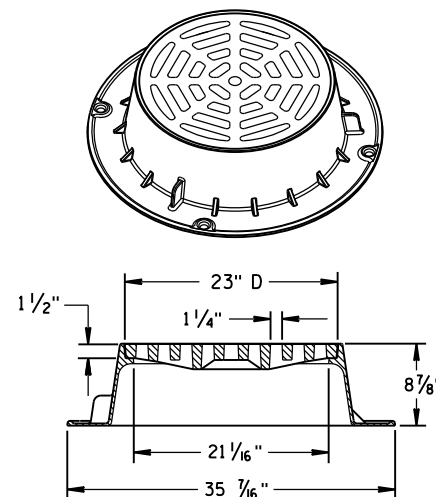
ENT



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"

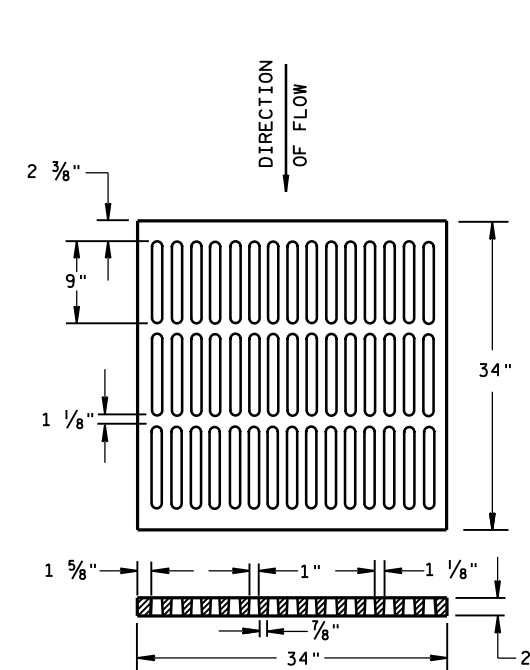
NOTE: EITHER CASTING IS ACCEPTABLE

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.

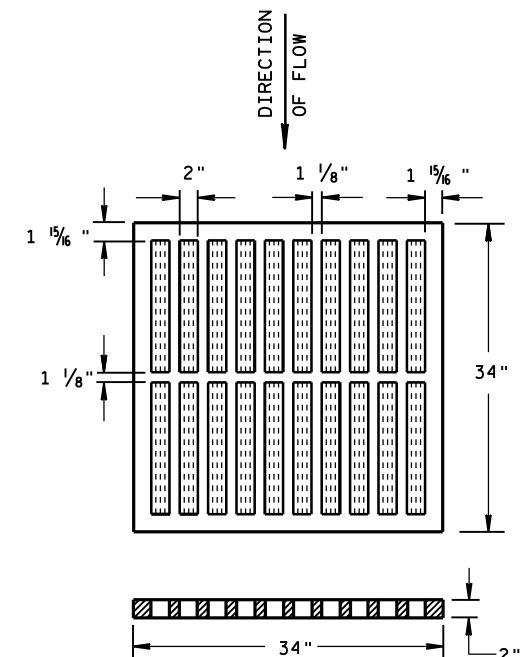
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



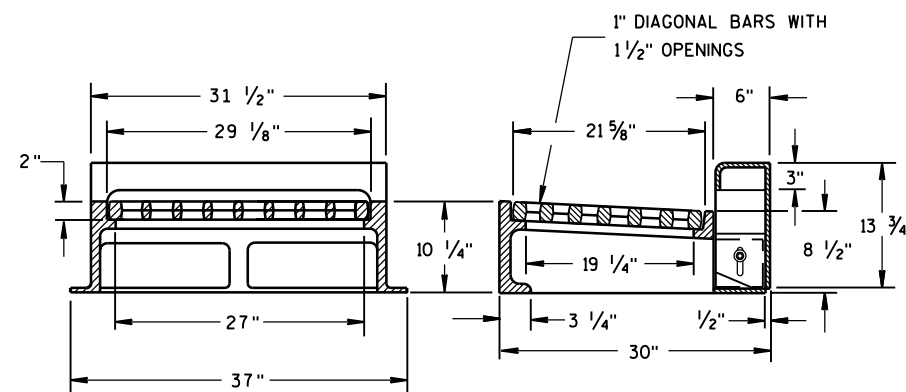
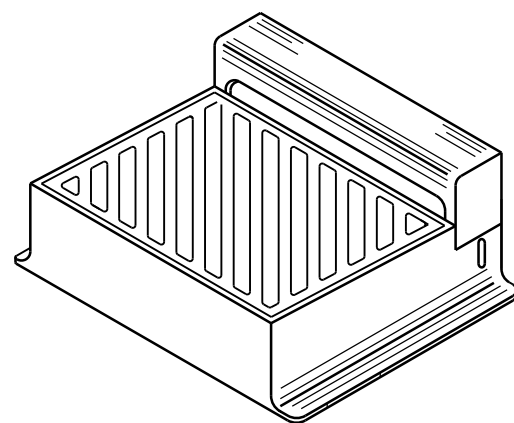
ALTERNATIVE TYPE "MS"

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

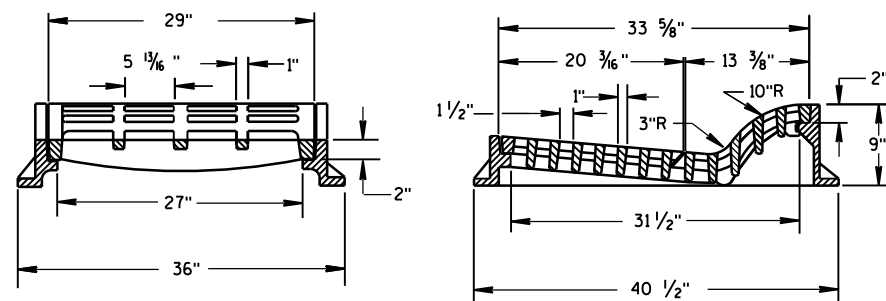
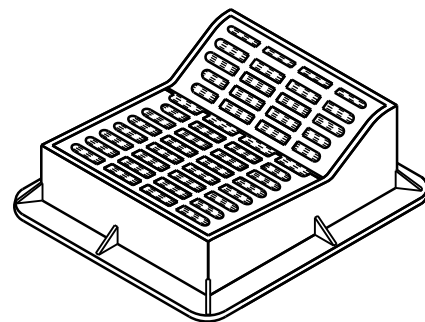
FHWA

/S/ Jerry H. Zogg

ROADWAY STANDARDS ENGINEER

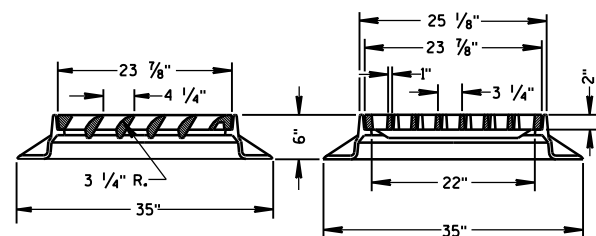
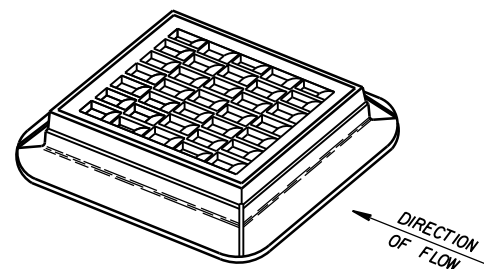
131

NT

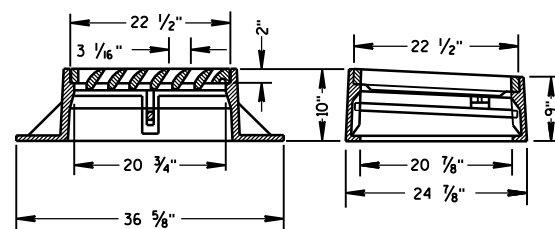
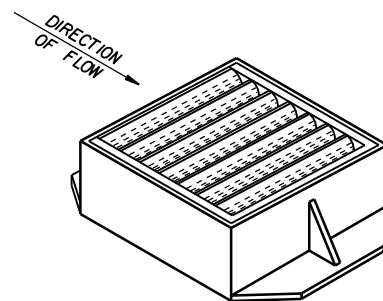


TYPE "F"

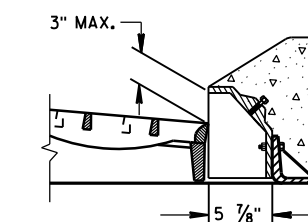
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



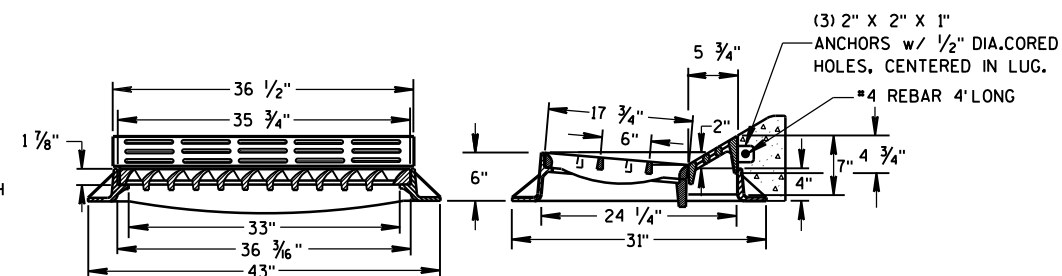
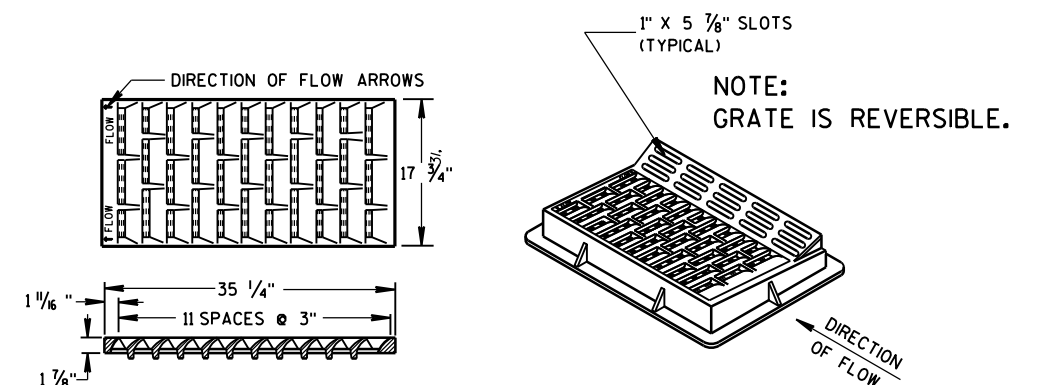
TYPE "S"



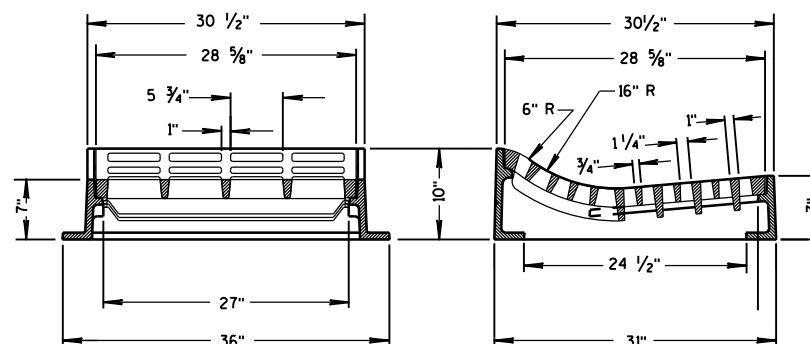
TYPE "V"

ALTERNATIVE CURB BOX
FOR TYPE "HM" COVERUSE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLENOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

GENERAL NOTES

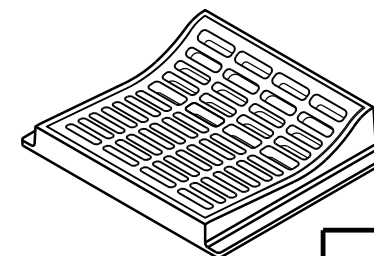
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING
SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND
THE APPLICABLE SPECIAL PROVISIONS.DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED
TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION
FOR EQUIVALENT CAPACITY AND STRENGTH.

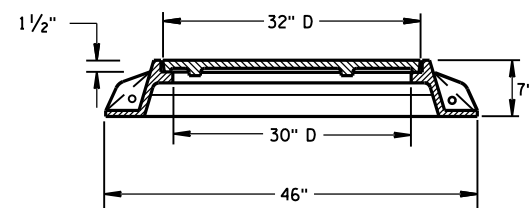
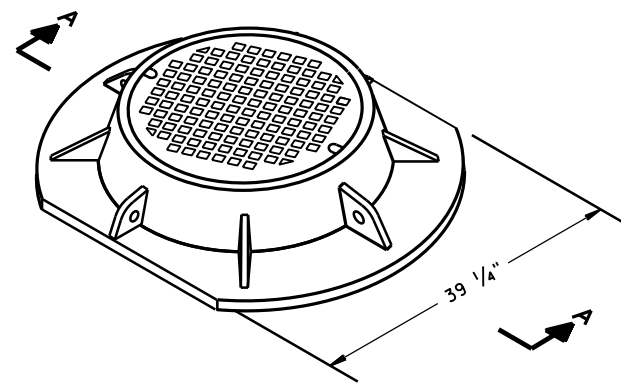
TYPE "HM"

USE WITH TYPES A & D CONCRETE
CURB & GUTTER, 36 INCH.NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE

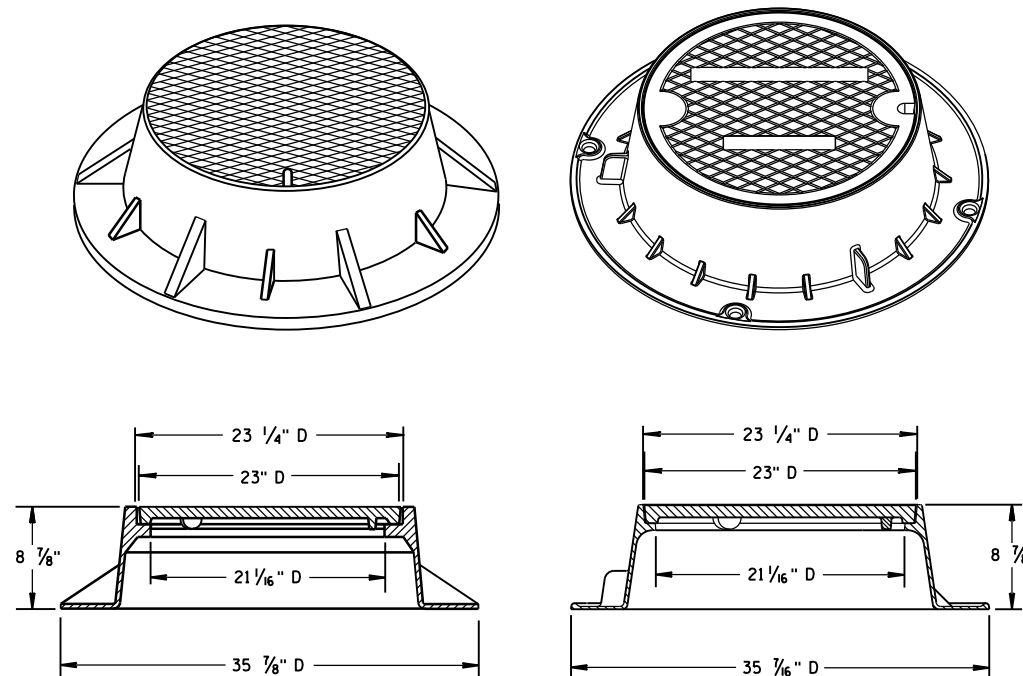
TYPE "T"

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

INLET COVERS
TYPE F, HM, HM-S, S, T, V,
HM-GJ, & HM-GJ-SSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATIONAPPROVED
11/27/2013
DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
FHWA 132 ENT

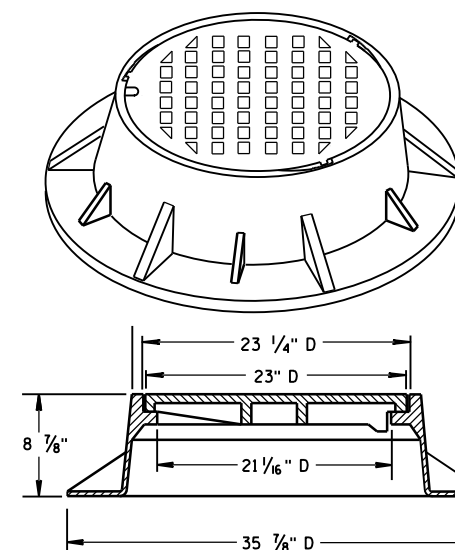
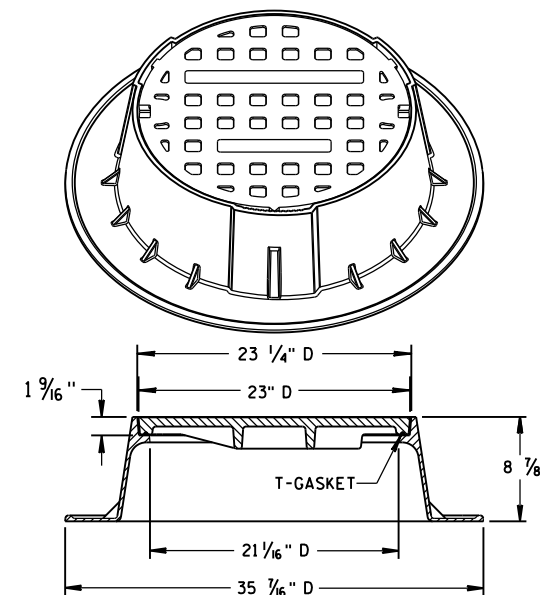


SECTION A-A
TYPE "K"



TYPE "J"

NOTE: EITHER CASTING IS ACCEPTABLE

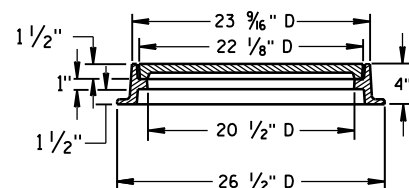
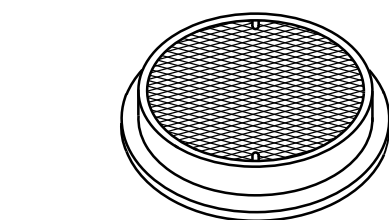


TYPE "J" SPECIAL

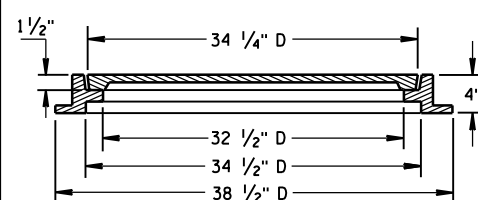
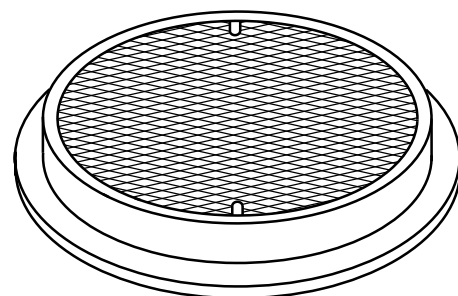
TYPE "B" NON-ROCKING SELF-SEAL LID

(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

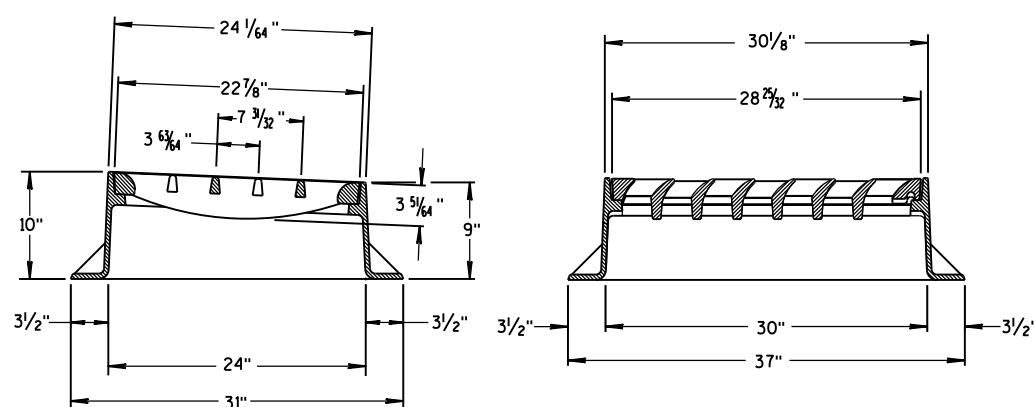
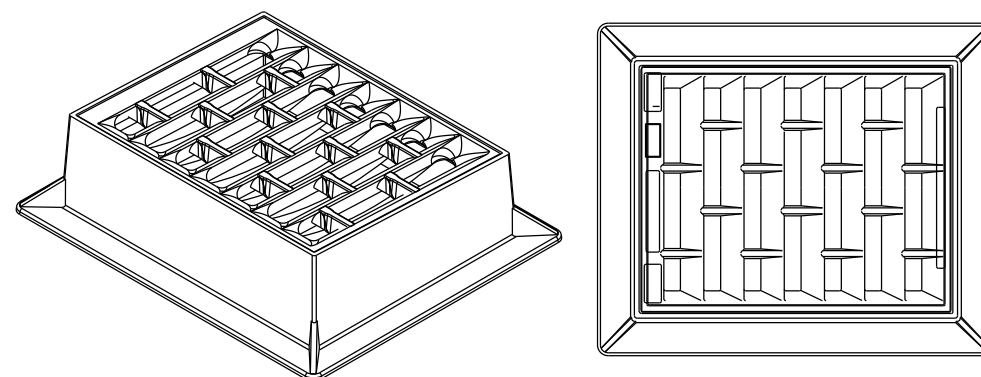
NOTE: EITHER CASTING IS ACCEPTABLE



TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"

GENERAL NOTES

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

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

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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11/27/2013

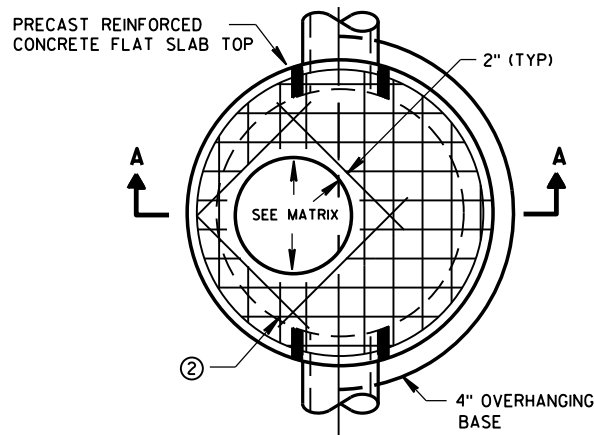
DATE

FHWA

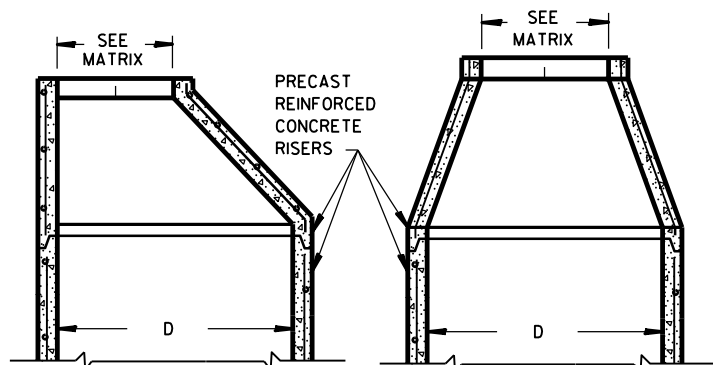
/S/ Jerry H. Zogg

ROADWAY STANDARDS 133

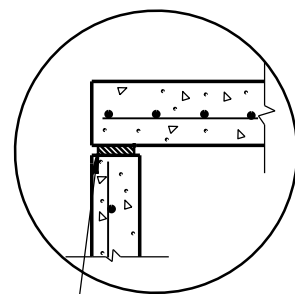
ENGINEER



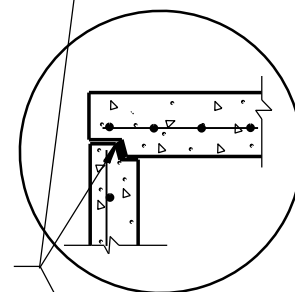
PLAN VIEW CIRCULAR OPENING



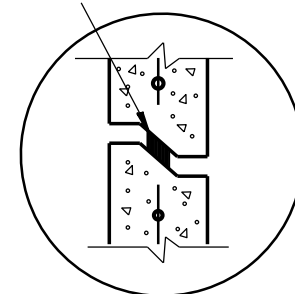
OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP
OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP



TOP WITH PLAIN END JOINT

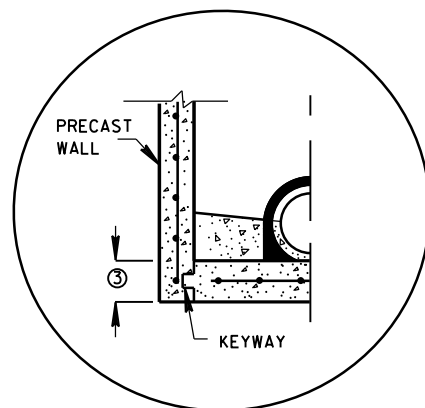


TOP WITH TONGUE AND GROOVE JOINT

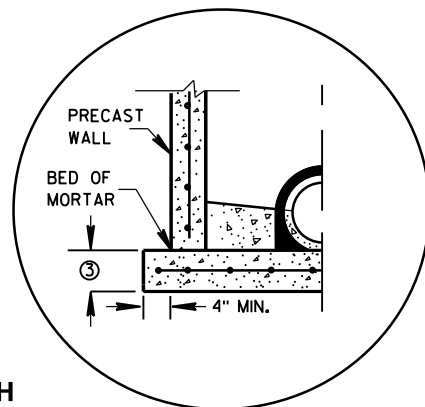


DETAIL "B"

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

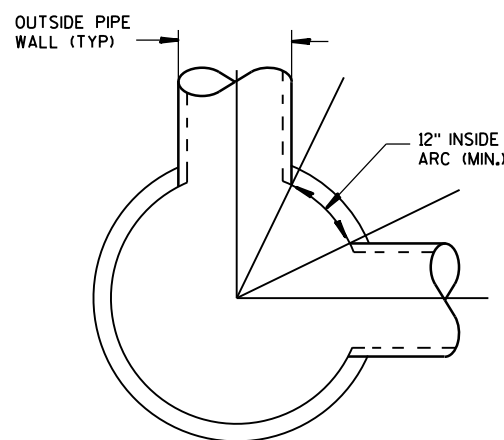


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

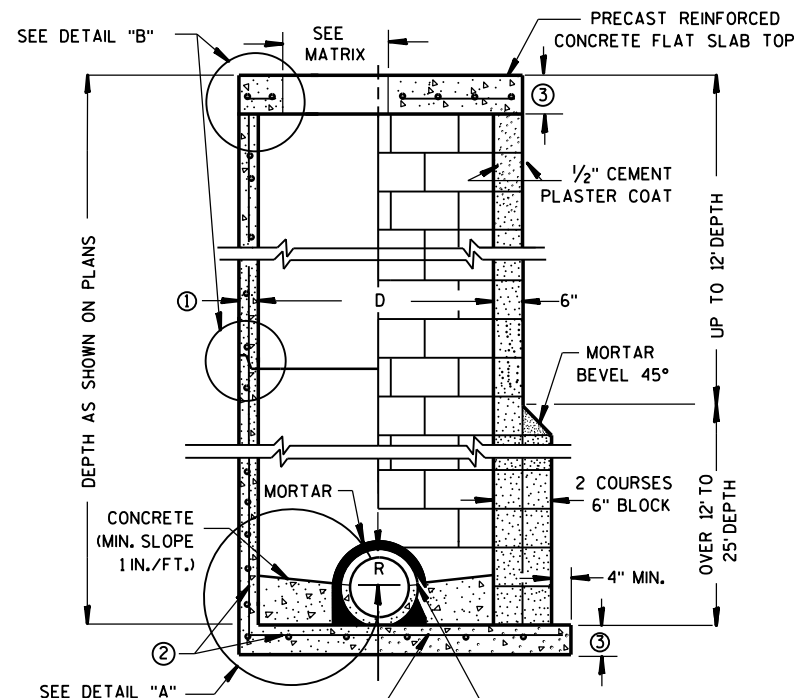


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"



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

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

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

MANHOLE COVER OPENING MATRIX

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

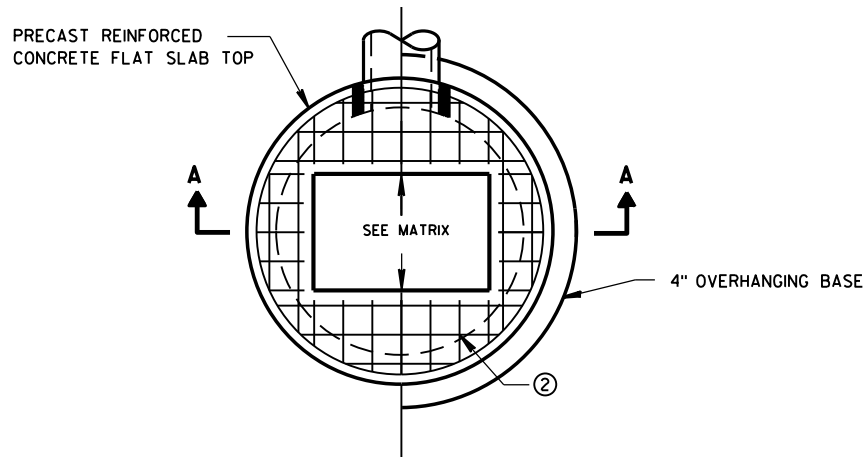
PIPE MATRIX

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

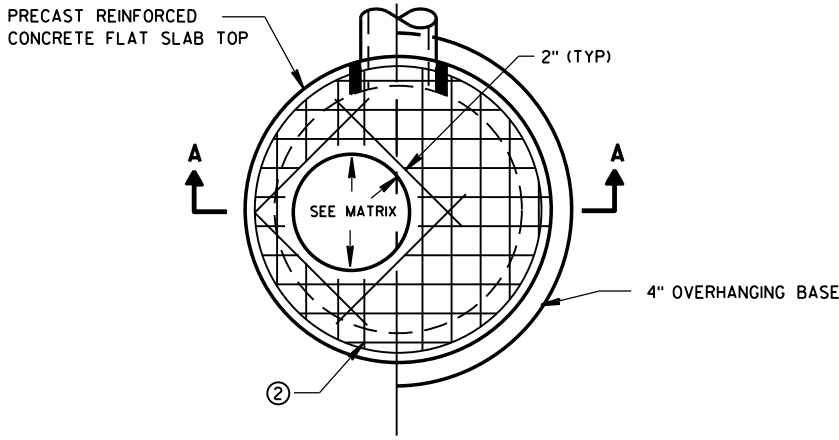
MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

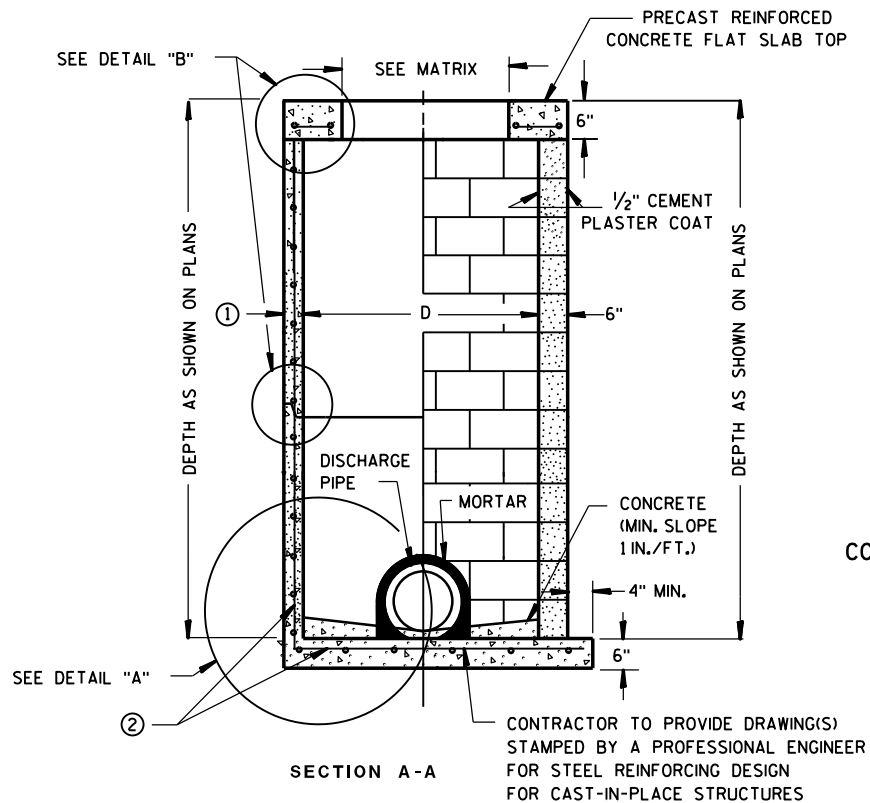
APPROVED
Sept., 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERV 134



PLAN VIEW RECTANGULAR OPENING

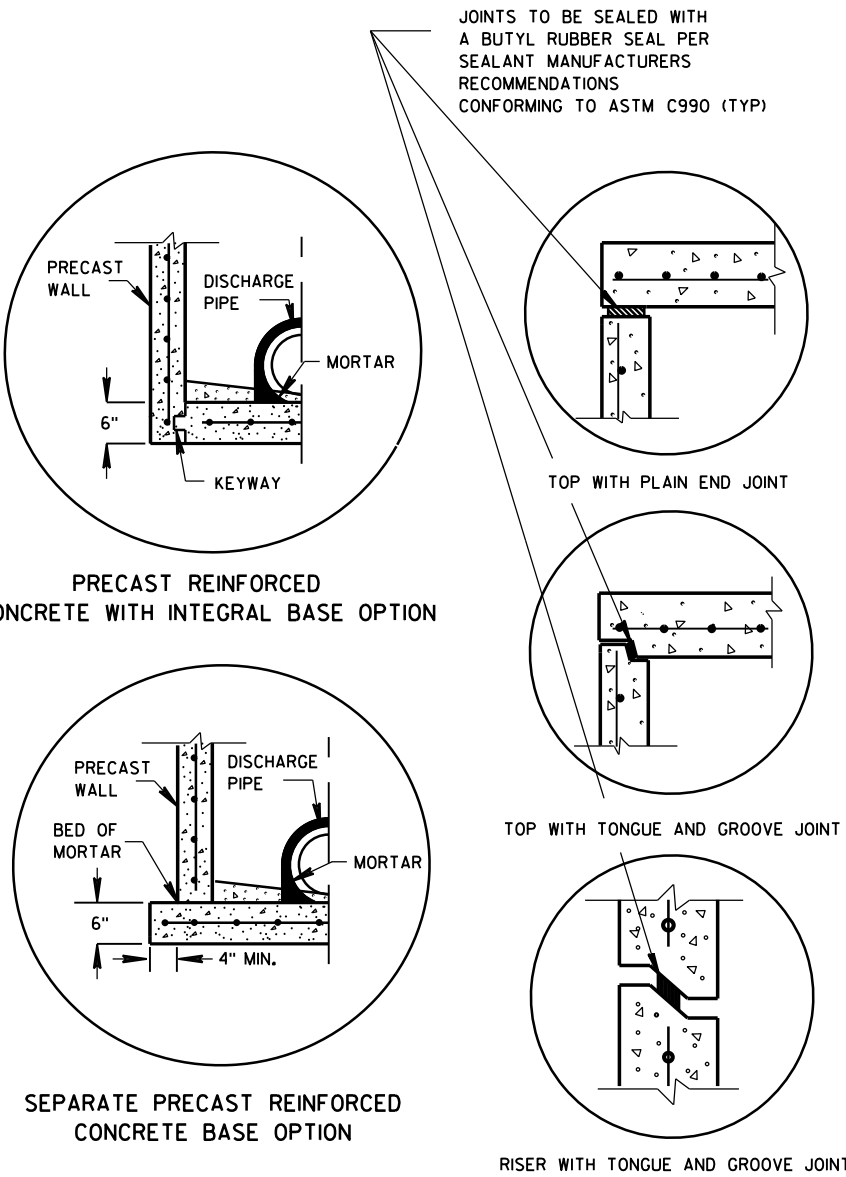


PLAN VIEW CIRCULAR OPENING



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

CIRCULAR INLETS W/ FLAT TOP



DETAIL "A"

DETAIL "B"

INLETS 3-FT AND 4-FT DIAMETER

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

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION 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.

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

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

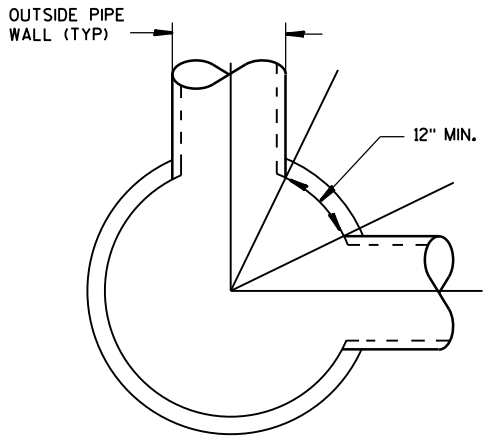
4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

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

- ① MINIMUM WALL THICKNESS SHALL BE 4-IN FOR 3-FT DIAMETER AND 5-IN FOR 4-FT DIAMETER PRECAST INLETS.
- ② FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

INLET COVER OPENING MATRIX

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



DETAIL "C"

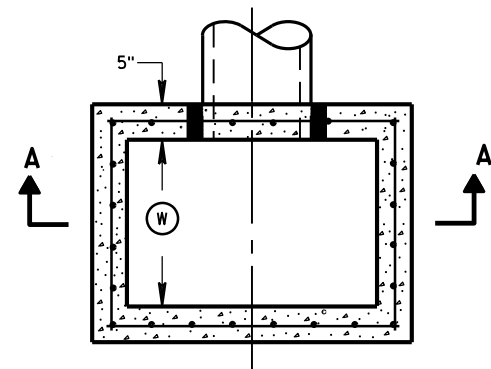
PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18

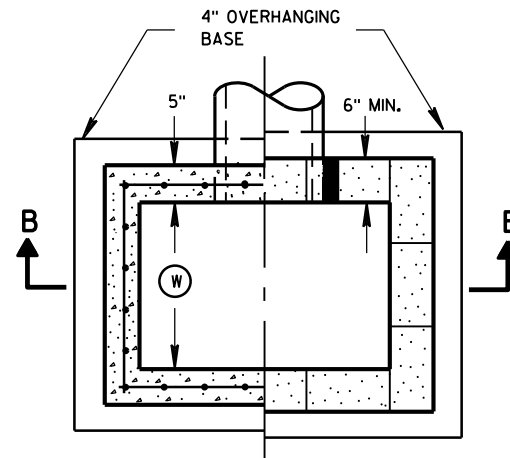
INLETS 3-FT AND 4-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

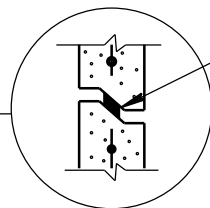
APPROVED
Sept., 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS UNIT SUPERVISOR
FHWA 135 ENT



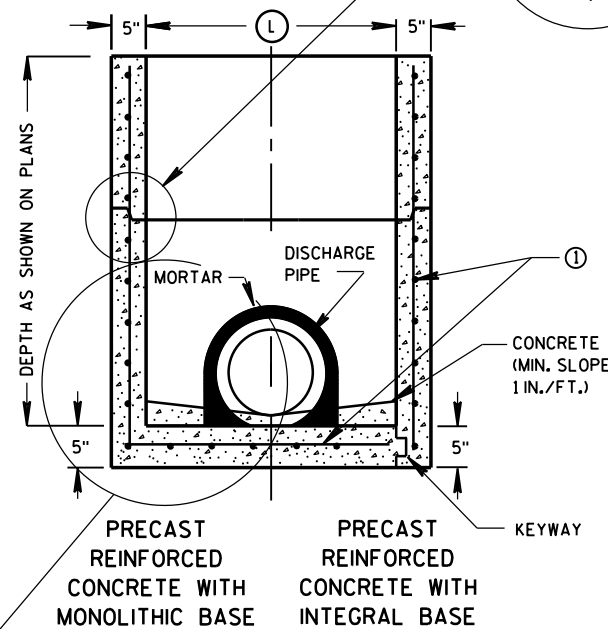
PLAN VIEW



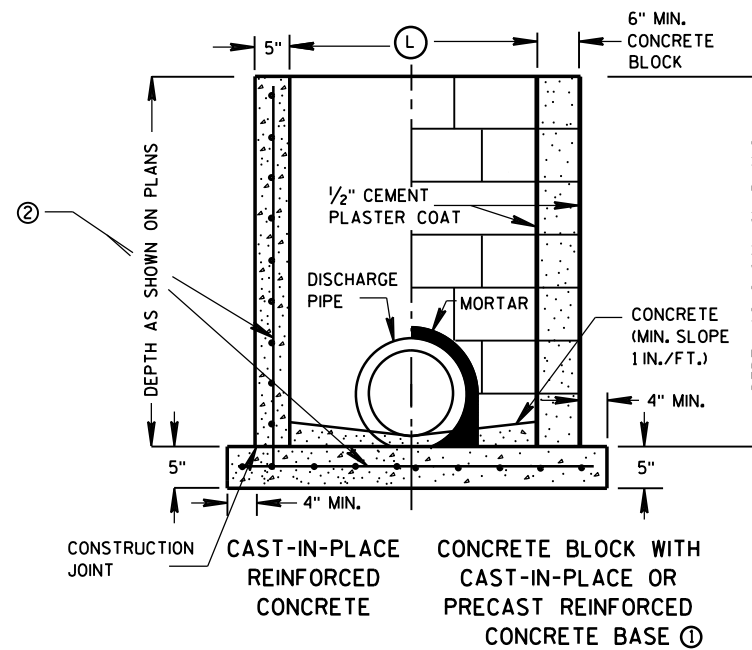
PLAN VIEW



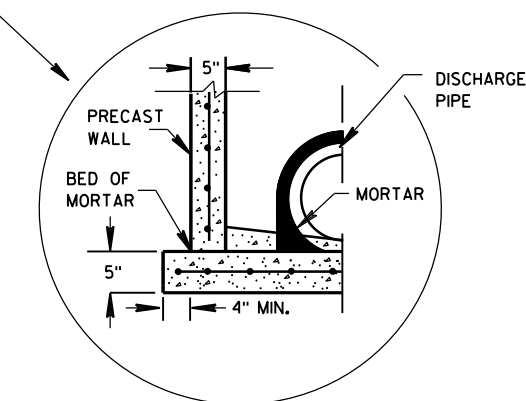
RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



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 FOUNDATION 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.

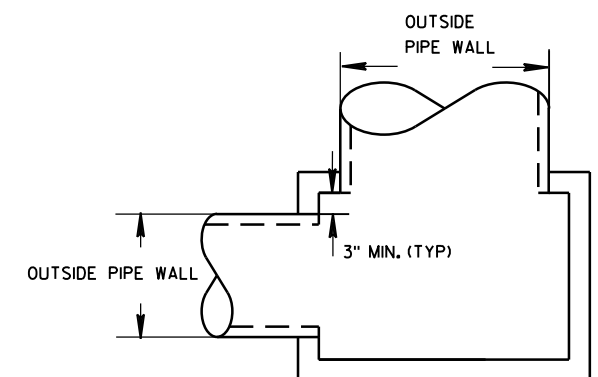
- FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

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 (2) (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

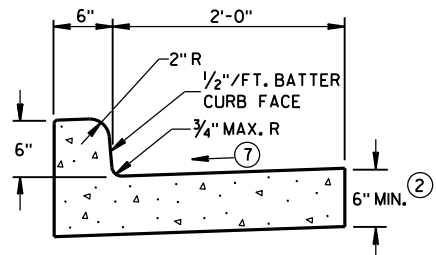


DETAIL "A"

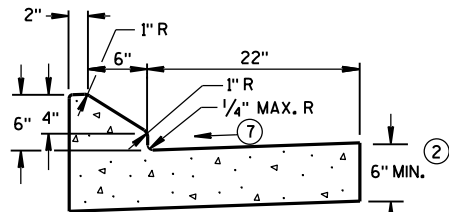
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

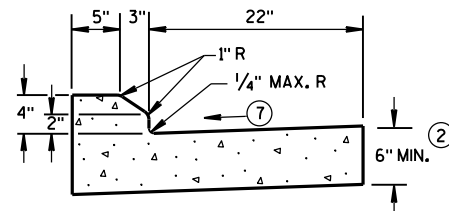
APPROVED
Sept., 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DIVISION
FHWA UNIT SUPERVISOR 136



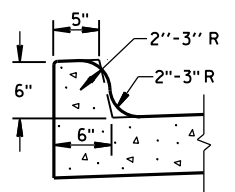
TYPES A^① & D



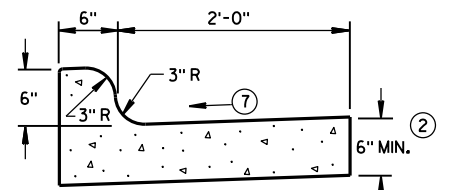
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

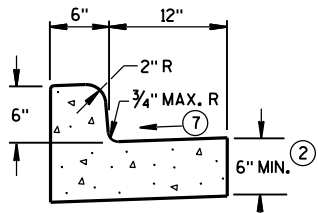


TYPES K^① & L
(OPTIONAL CURB SHAPE)



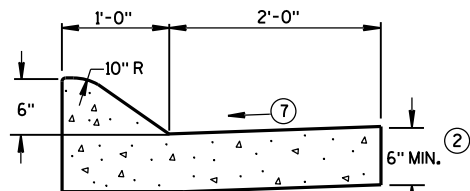
TYPES K^① & L

CONCRETE CURB & GUTTER 30"

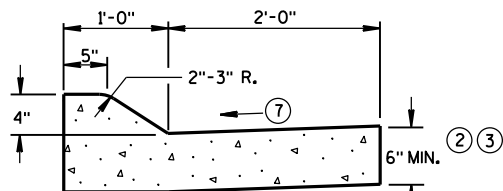


TYPES A^① & D

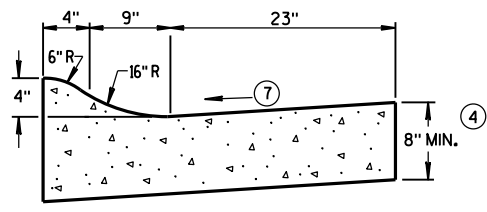
CONCRETE CURB & GUTTER 18"



6" SLOPED CURB TYPES A^① & D

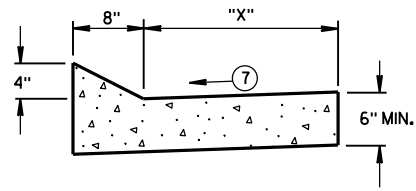


4" SLOPED CURB TYPES A^① & D



4" SLOPED CURB TYPES R^① & T^⑤

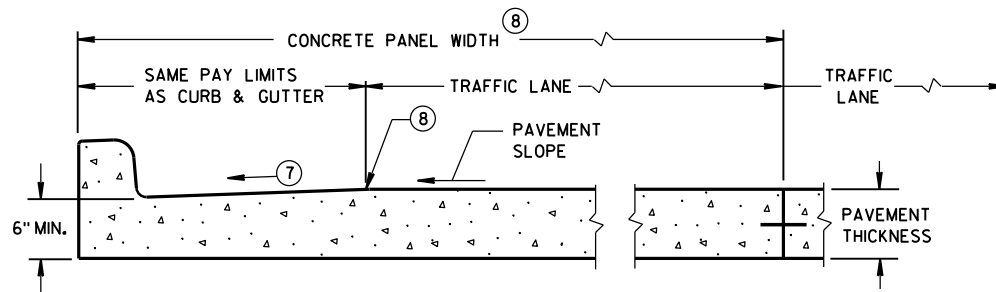
CONCRETE CURB & GUTTER 36"



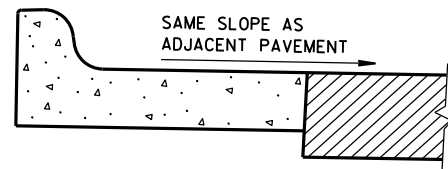
TYPES TBT & TBTT^①

CONCRETE CURB & GUTTER

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



PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



REVERSE SLOPE GUTTER^⑥
(TYPICAL FOR ALL CURB & GUTTER TYPES)

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.

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 TBTT.
- 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 USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ 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.
- ⑤ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.

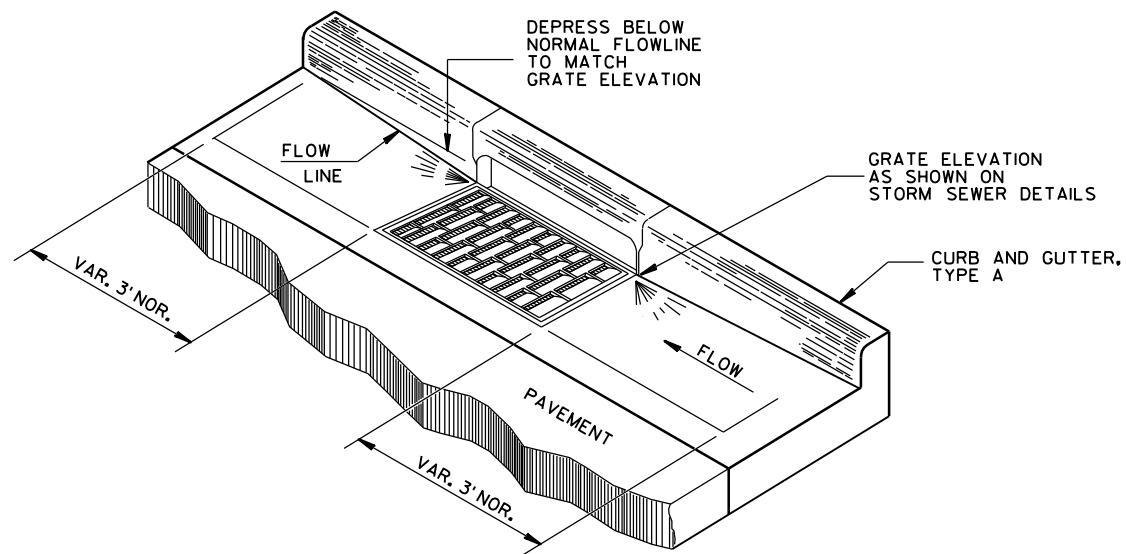
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'

* BIKE LANE IS NOT SHOWN.

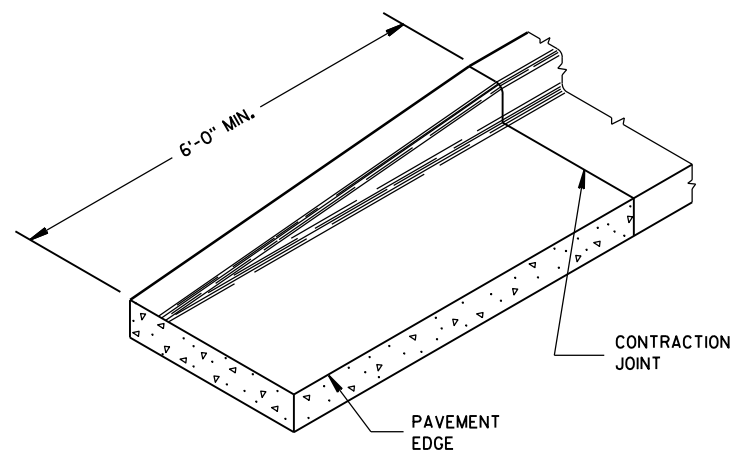
CONCRETE CURB & GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

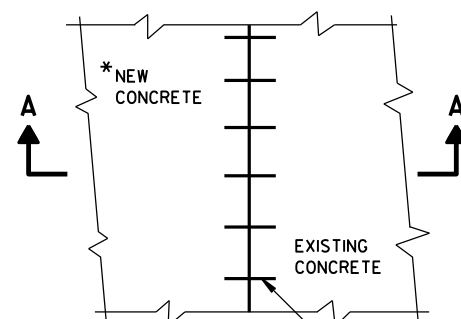


DETAIL OF CURB AND GUTTER AT INLETS

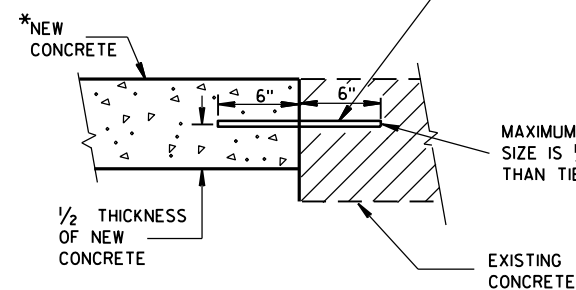
(TYPE H INLET COVER SHOWN)



END SECTION CURB & GUTTER



PLAN VIEW



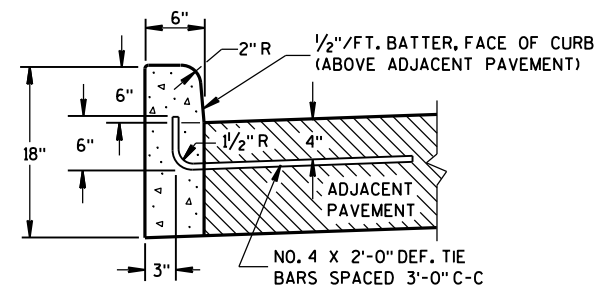
**SECTION A-A
TIE BARS DRILLED
INTO EXISTING PAVEMENT**

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

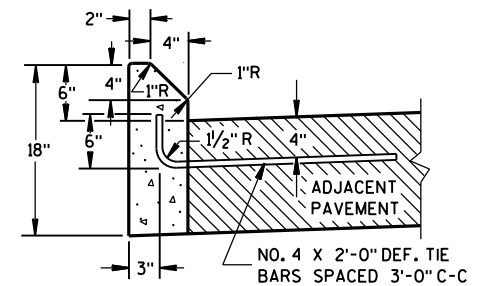
NO. 6 TIE BARS SPACED 2'-6" C-C,
INSTALLED PERPENDICULAR
TO THE LONGITUDINAL JOINT.

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

EXISTING
CONCRETE



TYPES A^① & D



TYPES G^① & J

GENERAL NOTES

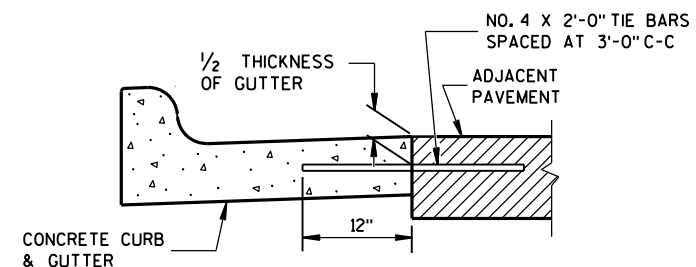
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

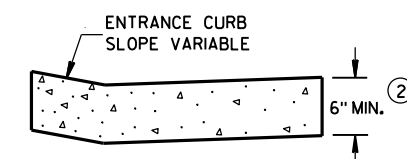
UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.
- 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.
- ⑨ REFER TO SDD 8D18 AND SDD 8D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.

CONCRETE CURB



TYPICAL TIE BAR LOCATION^①



DRIVEWAY ENTRANCE CURB^⑨
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2017

DATE

FHWA

/S/ Rodney Taylor

ROADWAY STANDARDS 138

UNIT SUPERVISOR

ENT

6



PLAN VIEW
FLUME AT CURB END



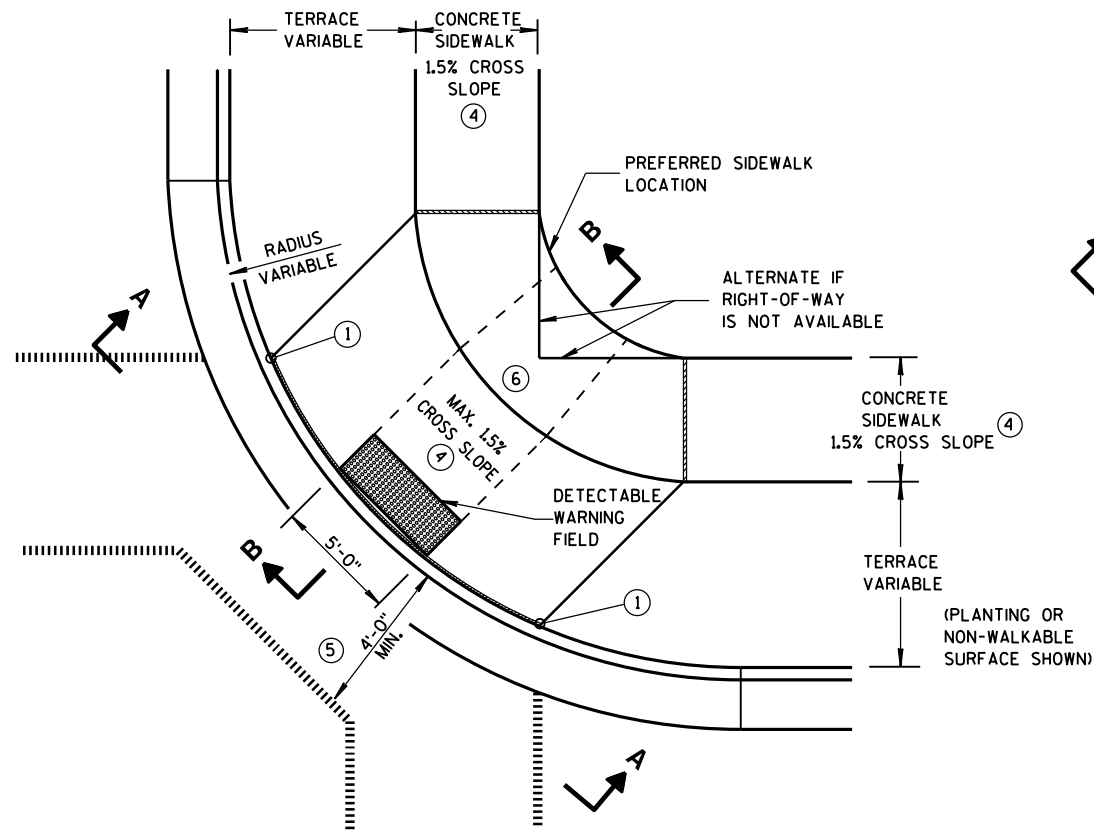
6

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

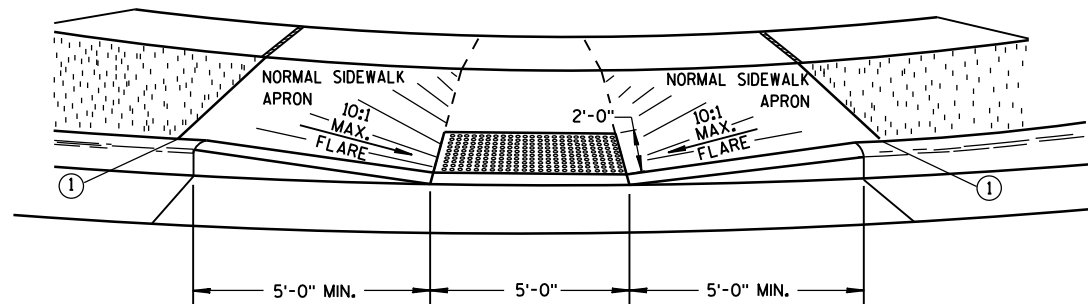
- ### ③ CONCRETE SURFACE DRAIN



APPROVED
9-4-08 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS 139
ENGINEER

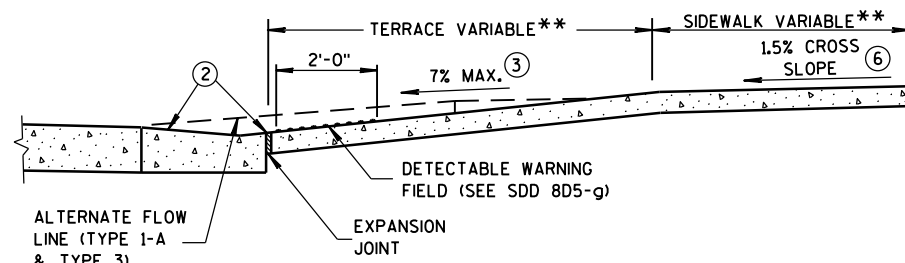


**PLAN VIEW
TYPE 1 RAMP**
(CENTER OF CORNER RADIUS)

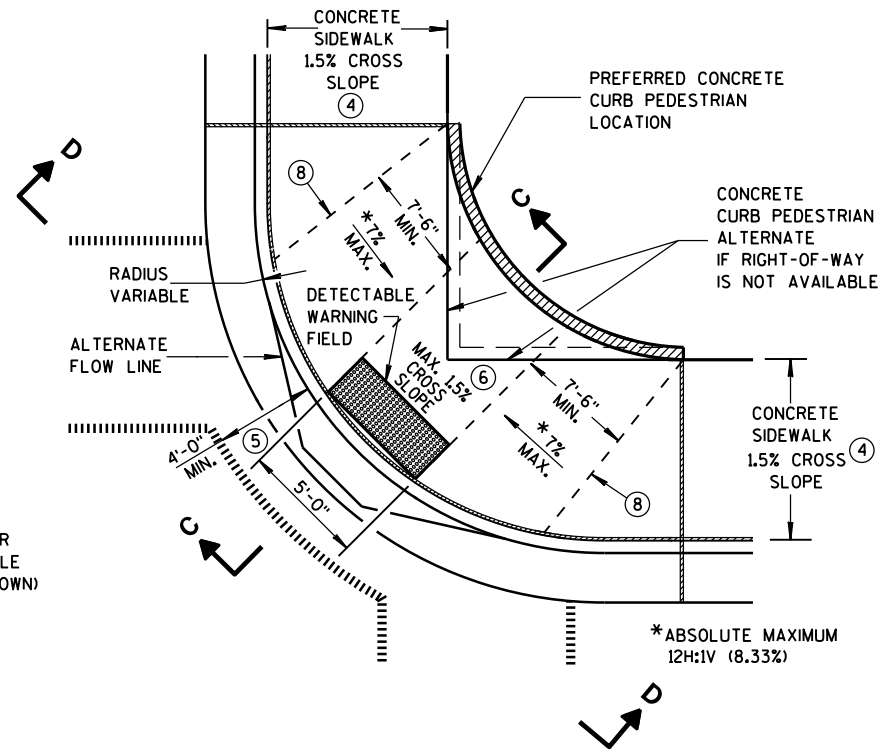


VIEW A-A

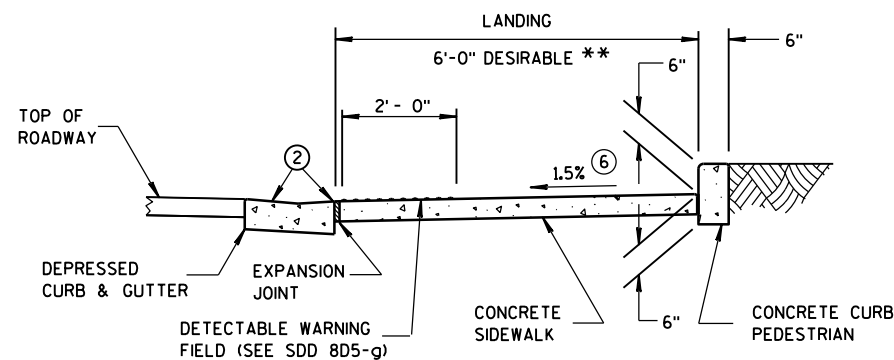
** WIDTH SHOWN ELSEWHERE
IN THE PLANS



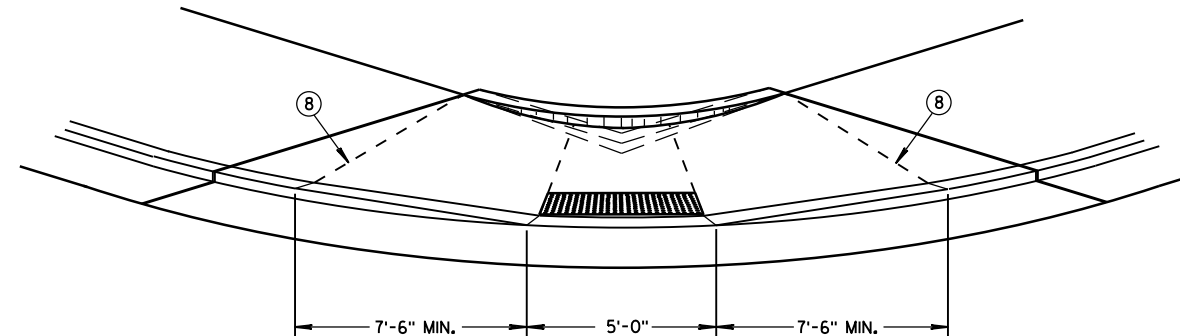
SECTION B-B



**PLAN VIEW
TYPE 1-A RAMP**
(NO TERRACE)



SECTION C-C



VIEW D-D

GENERAL NOTES

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

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.

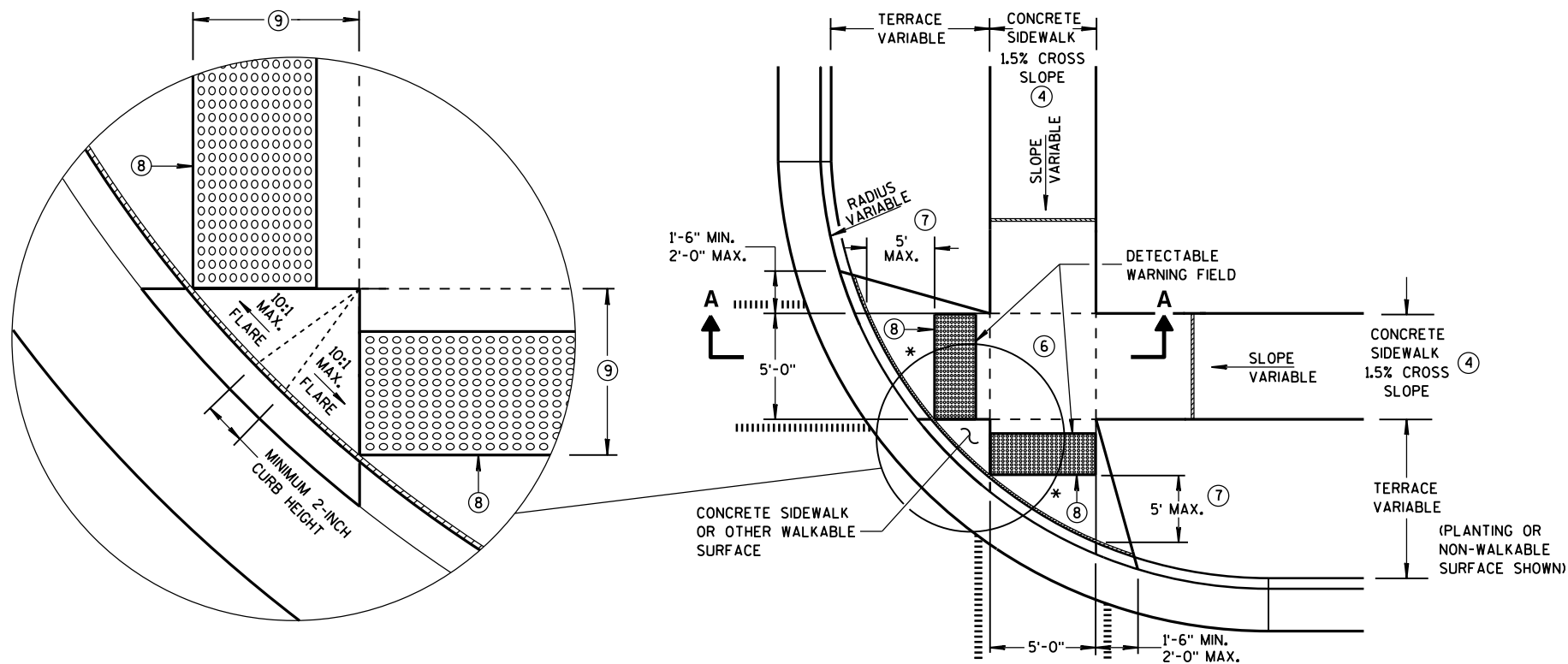
- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB. POINT LOCATION MAY BE ADJUSTED TO ALIGN WITH BEGINNING OF FULL-HEIGHT CURB IF THIS DISTANCE IS SHORT.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- 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.
- 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.
- 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

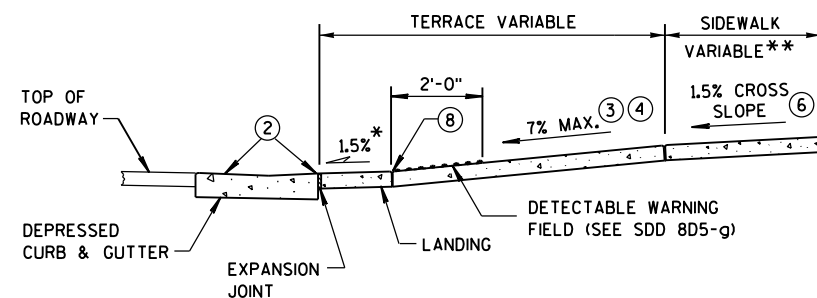
**CURB RAMPS
TYPES 1 AND 1-A**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 140



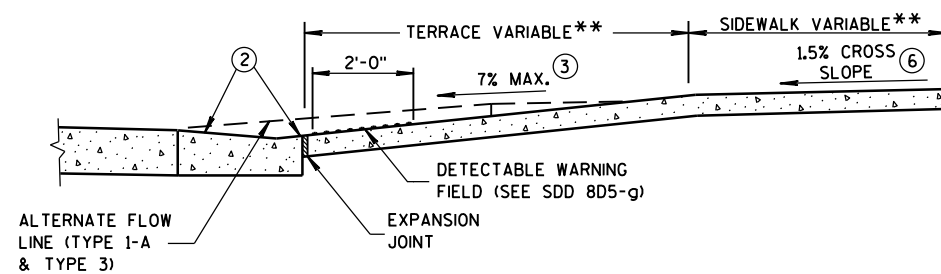
PLAN VIEW
TYPE 2 RAMP
(ON LINE WITH SIDEWALK)

* 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

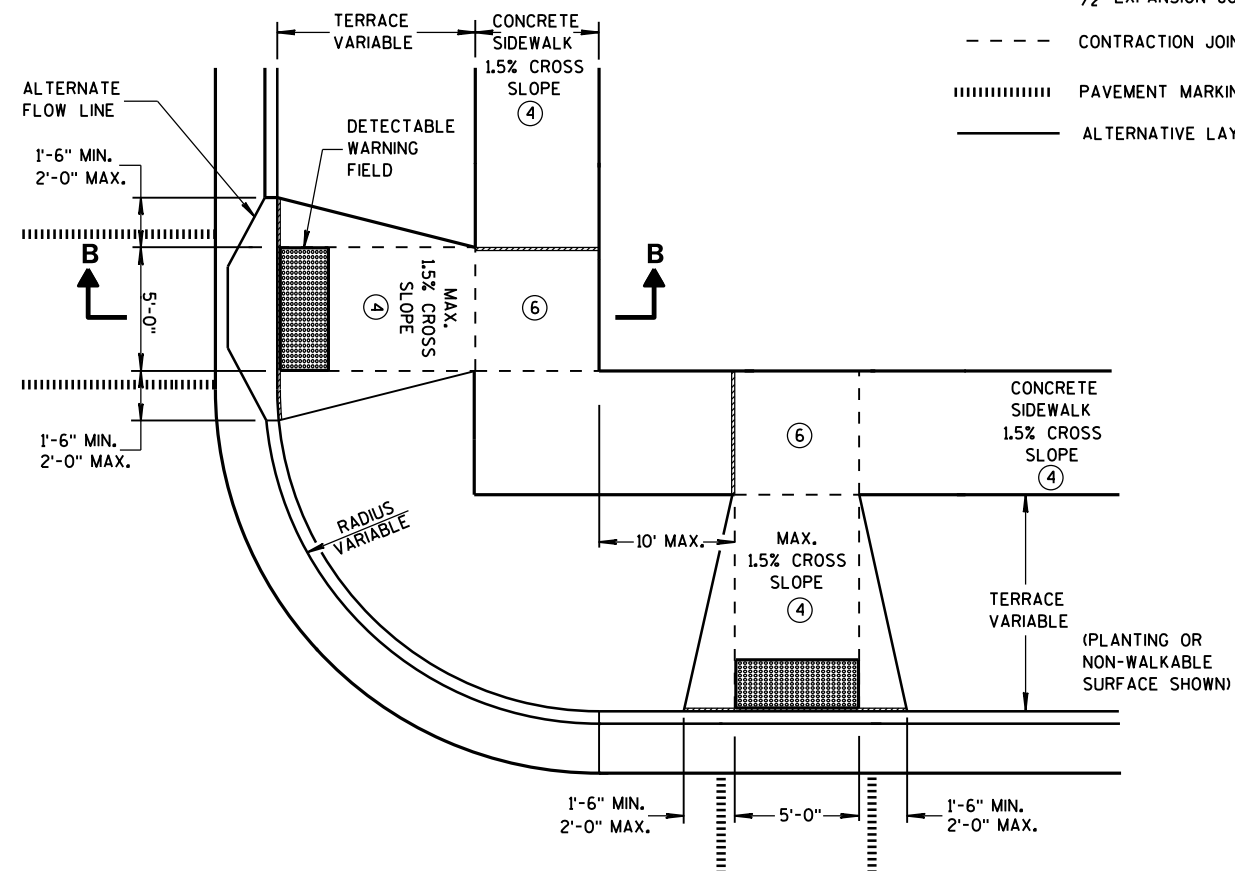
AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

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 LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- 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.
- ⑦ WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 805-f.
- 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. CONSTRUCT 2-INCH MINIMUM CURB HEIGHT BETWEEN 10:1 FLARES.

LEGEND

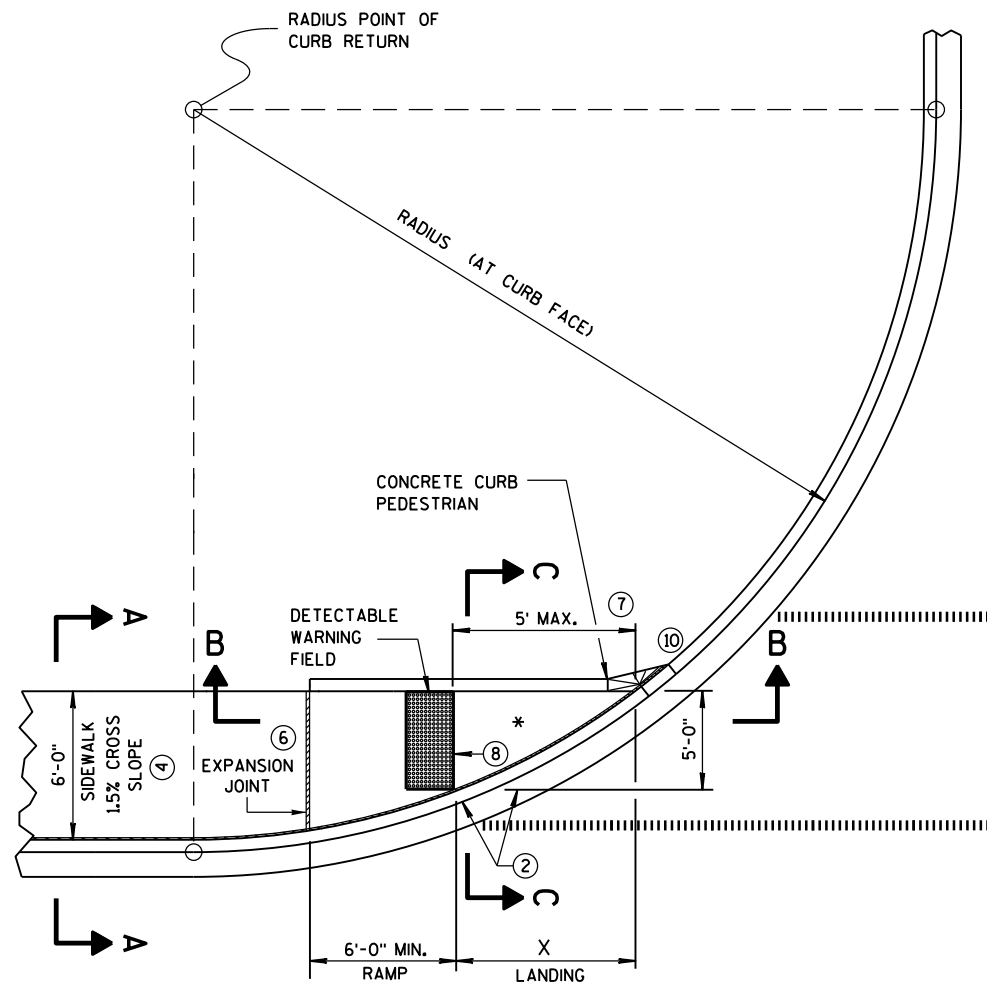
-  1/2" EXPANSION JOINT-SIDEWALK
 CONTRACTION JOINT FIELD LOCATED
 PAVEMENT MARKING CROSSWALK (WHITE)
 ALTERNATIVE LAYOUT



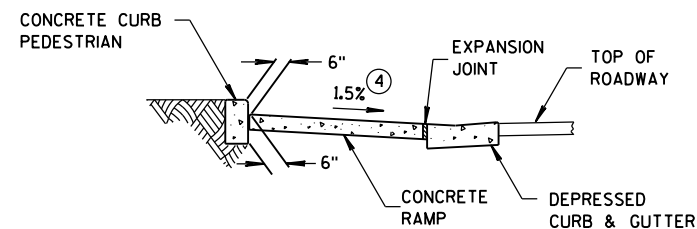
PLAN VIEW
TYPE 3 RAMP
(OUTSIDE OF CROSSWALK AREA)

CURB RAMPS TYPES 2 AND 3

STATE OF WISCONSIN
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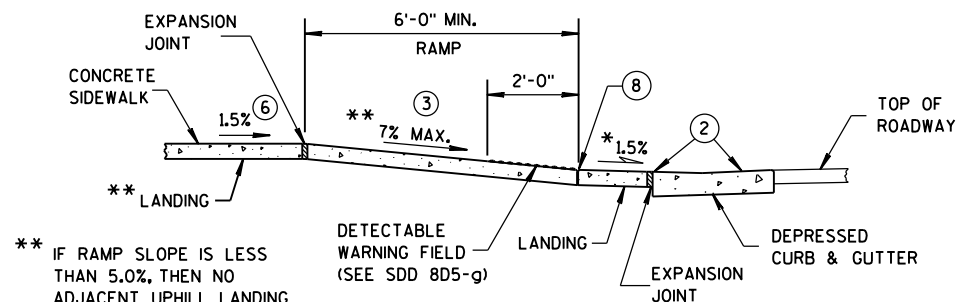


CURB RAMP TYPE 4A
PLAN VIEW



SECTION C-C FOR TYPE 4A

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

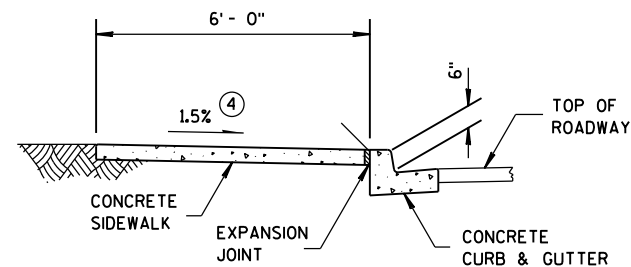


SECTION B-B FOR TYPE 4A

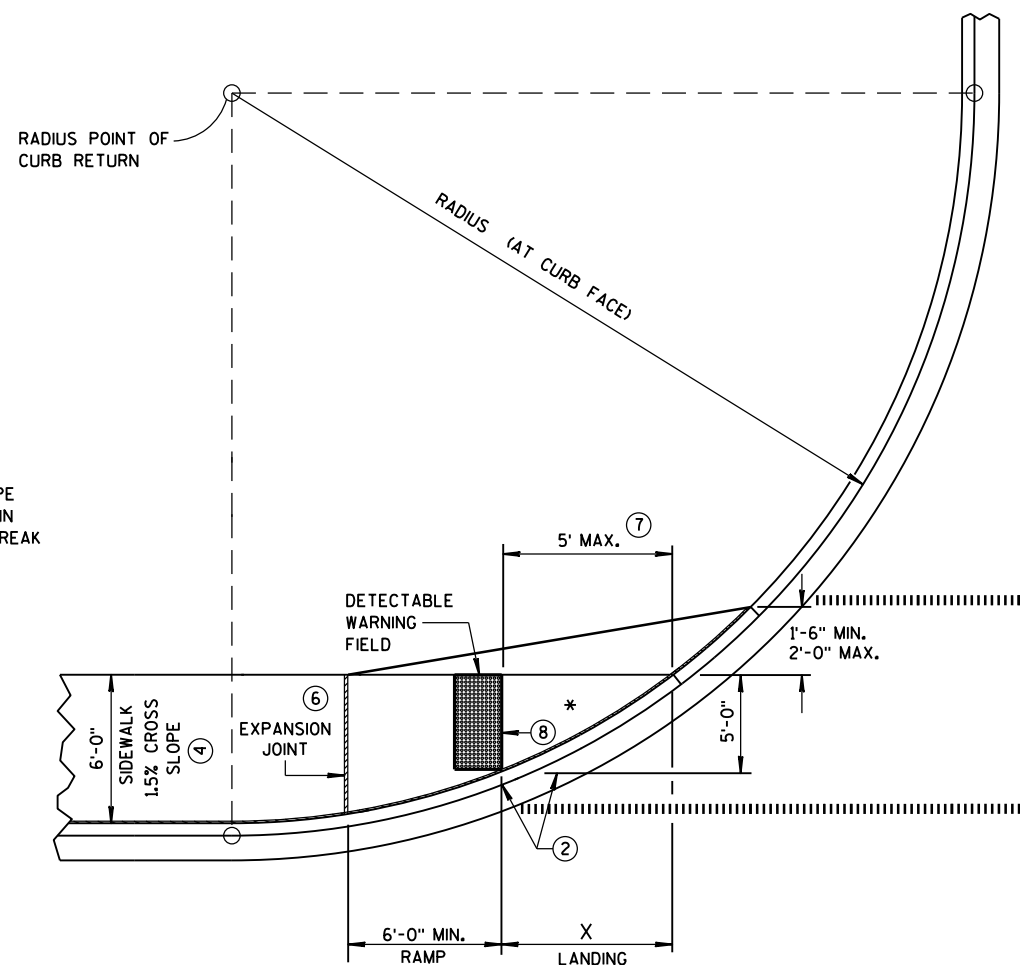
** IF RAMP SLOPE IS LESS
THAN 5.0%, THEN NO
ADJACENT UPHILL LANDING
IS REQUIRED

RADIUS (AT CURB FACE)	X
10 FEET	4'-7"
15 FEET	6'-5½"

INTERMEDIATE RADII CAN BE INTERPOLATED



SECTION A-A FOR TYPE 4A



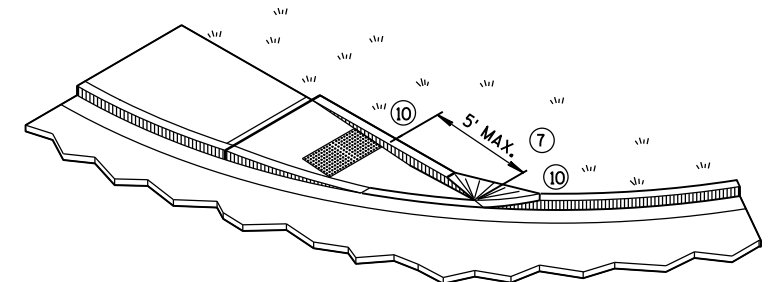
CURB RAMP TYPE 4A1
PLAN VIEW

GENERAL NOTES

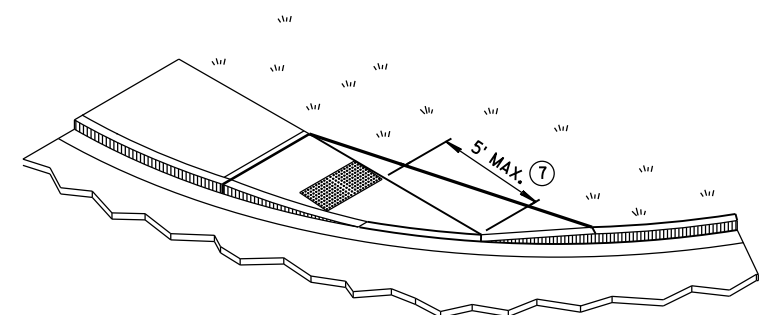
AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

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 LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN ¼-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- 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.
- ⑦ WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- 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



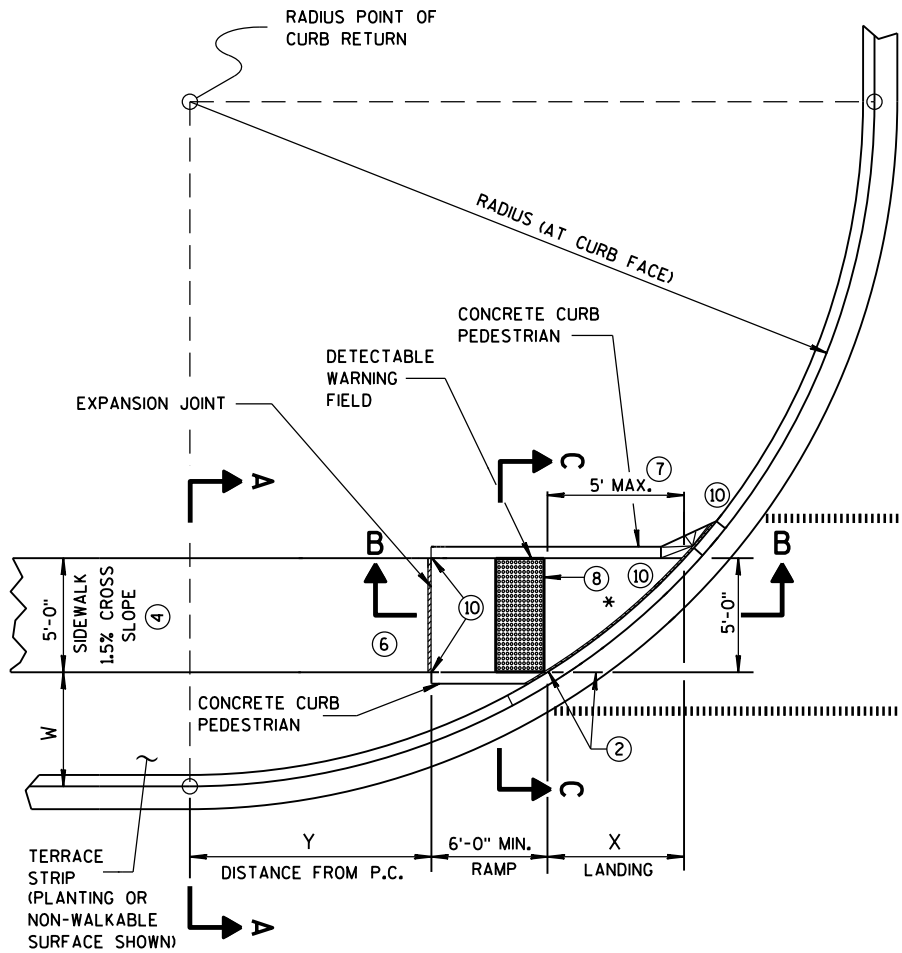
ISOMETRIC VIEW FOR TYPE 4A1

LEGEND

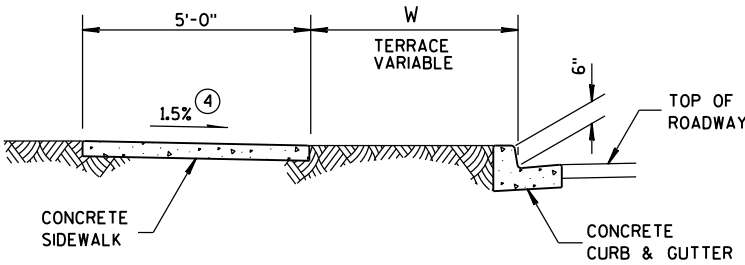
- ½" EXPANSION JOINT-SIDEWALK
- - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS
TYPES 4A AND 4A1

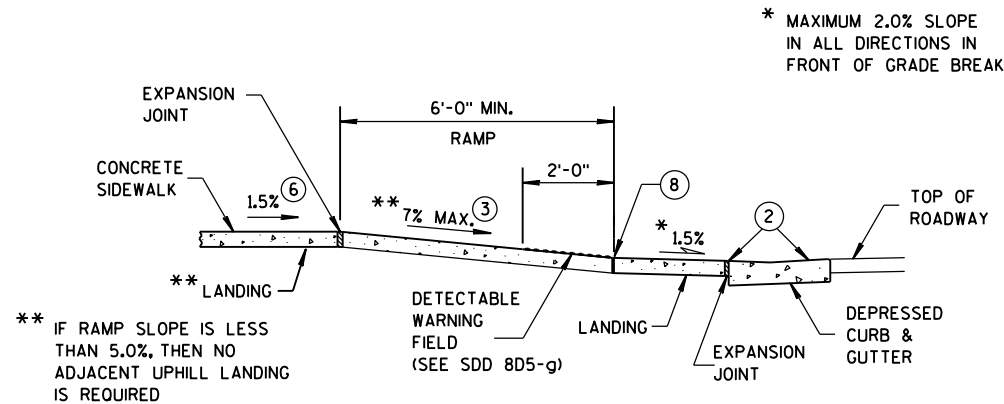
STATE OF WISCONSIN
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**CURB RAMP TYPE 4B
PLAN VIEW**



SECTION A-A FOR TYPE 4B



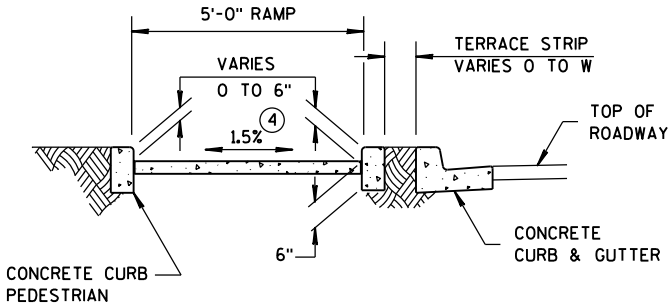
SECTION B-B FOR TYPE 4B

RADIUS (AT CURB FACE)	W = 3' - 0"		W = 4' - 0"		W = 5' - 0"		W = 6' - 0"		W = 7' - 0"		W = 8' - 0"		W = 9' - 0"		W = 10' - 0"	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
10 FEET	2'-10 1/4"	0'-5"	2'-1"	1'-4 1/2"	1'-5"	2'-1"	0'-10"	2'-7 1/2"	0'-3 1/4"	3'-0 1/4"						
15 FEET	4'-6 3/4"	2'-1 3/4"	3'-9"	3'-5 1/4"	3'-1 1/4"	4'-6"	2'-6 3/4"	5'-4 1/2"	2'-1"	6'-1"	1'-8"	6'-8 1/2"	1'-3 1/4"	7'-2 1/2"	0'-10 3/4"	7'-7 1/4"
20 FEET	5'-9 3/4"	3'-6 1/2"	4'-11 1/2"	5'-1 3/4"	4'-3 1/4"	6'-5 1/2"	3'-8 3/4"	7'-7"	3'-3"	8'-6 1/2"	2'-10"	9'-4 1/2"	2'-5 1/2"	10'-1 1/4"	2'-1 1/4"	10'-9"
30 FEET			6'-9 1/4"	7'-11 1/4"	6'-0 1/4"	9'-8"	5'-5"	11'-1 3/4"	4'-10 3/4"	12'-5 3/4"	4'-5 1/2"	13'-7 3/4"	4'-0 3/4"	14'-8 1/2"	3'-8 1/2"	15'-8 1/4"
40 FEET									6'-1 3/4"	15'-8 1/2"	5'-8"	17'-2"	5'-3"	18'-5 3/4"	4'-10 3/4"	19'-8 1/4"
50 FEET															5'-10 1/4"	23'-2"

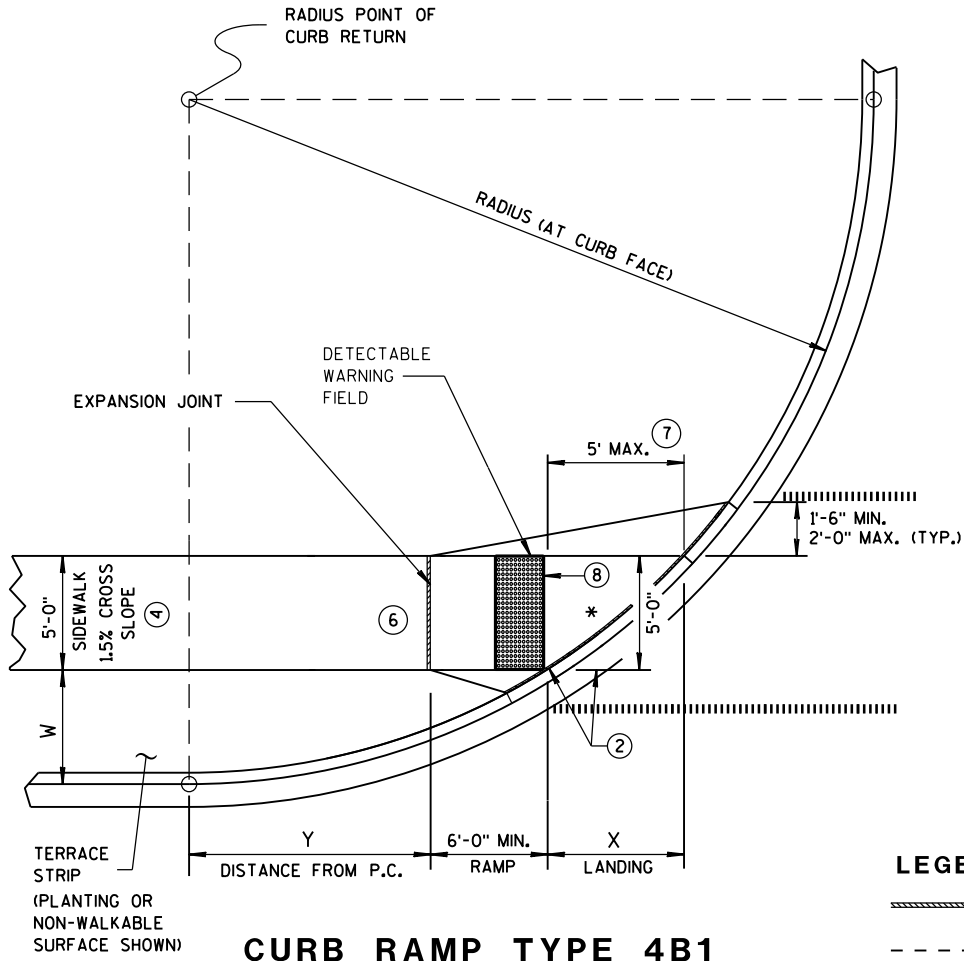
INTERMEDIATE RADII CAN BE INTERPOLATED
DIMENSION "Y" IS CALCULATED BASED ON 6'-0" RAMP LENGTH
DIMENSION "X" IS CALCULATED BASED ON 5'-0" SIDEWALK WIDTH

GENERAL NOTES

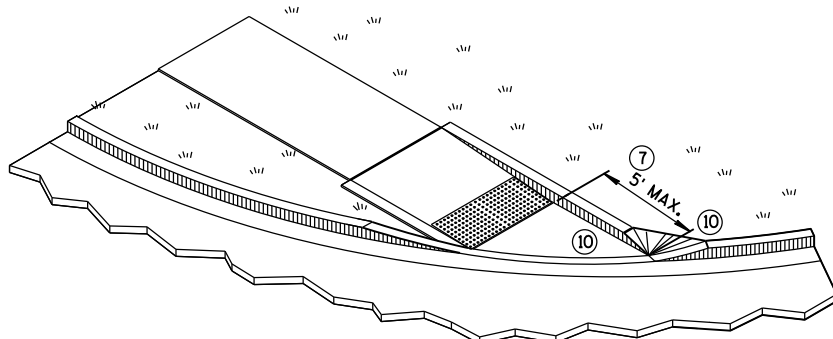
- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS. DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- 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.
- WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.



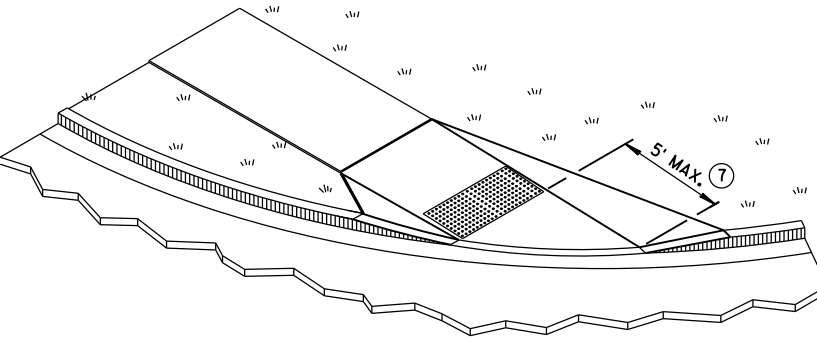
SECTION C-C FOR TYPE 4B



**CURB RAMP TYPE 4B1
PLAN VIEW**



ISOMETRIC VIEW FOR TYPE 4B



ISOMETRIC VIEW FOR TYPE 4B1

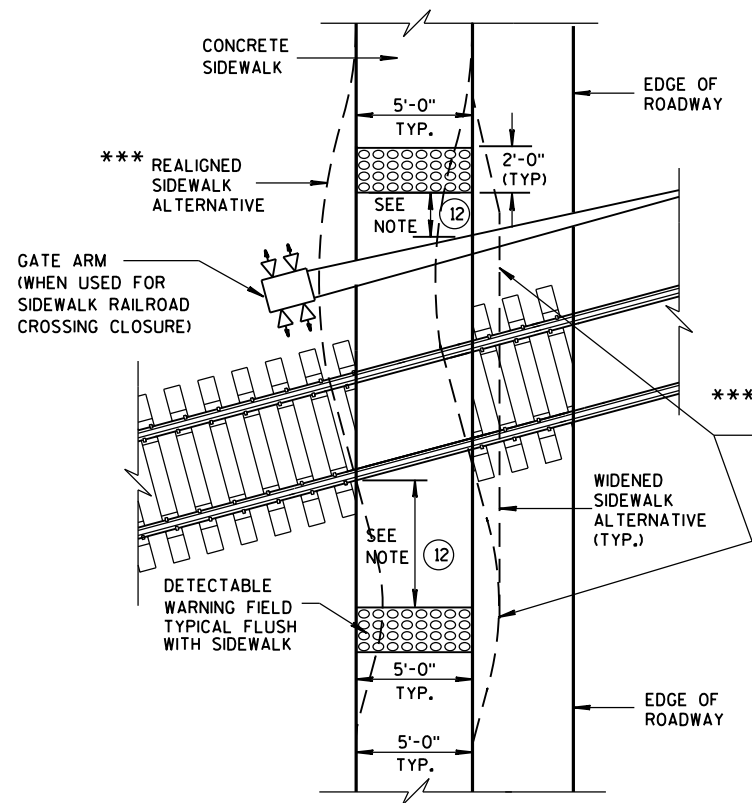
LEGEND

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

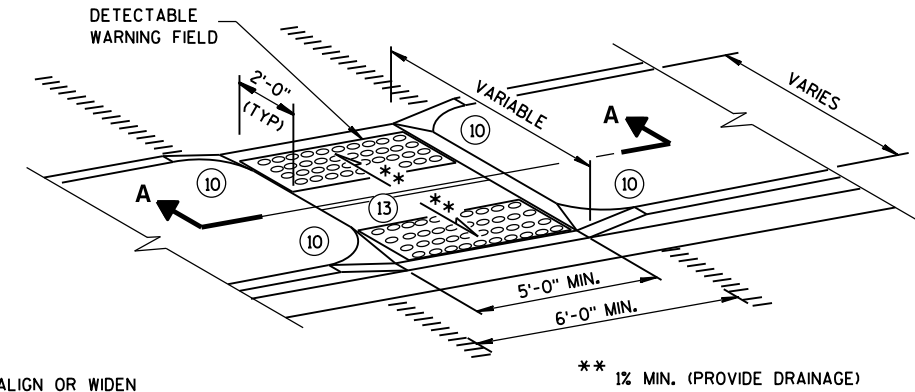
**CURB RAMPS
TYPE 4B AND 4B1**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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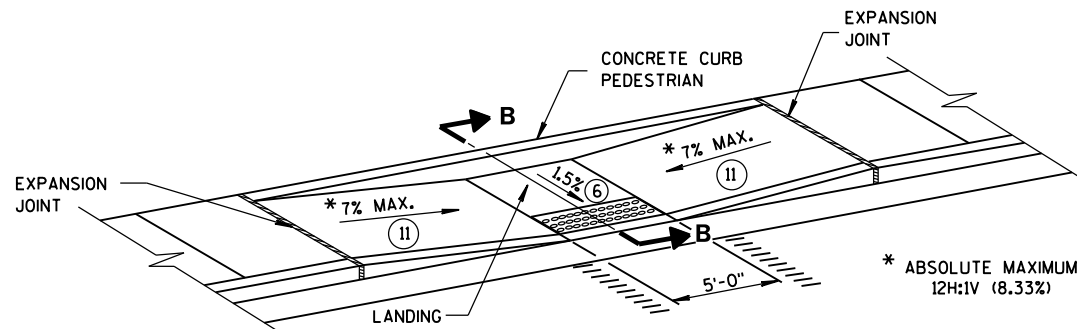
TYPE 8
DETECTABLE WARNINGS
AT RAILROAD CROSSING



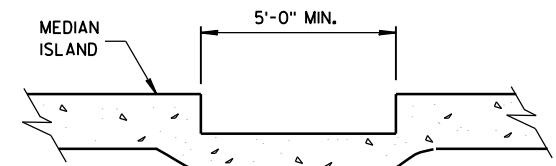
MEDIAN ISLAND
NON-ELEVATED PEDESTRIAN CROSSING
TYPE 5

GENERAL NOTES

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- 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 LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- 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.
- 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 15 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 AT THE EDGES OF STREET-LEVEL PEDESTRIAN REFUGE ISLANDS IF A MINIMUM 2-FOOT CONCRETE SURFACE WITHOUT DETECTABLE WARNINGS (MEASURED IN THE DIRECTION OF PEDESTRIAN TRAVEL) CANNOT BE ACHIEVED.

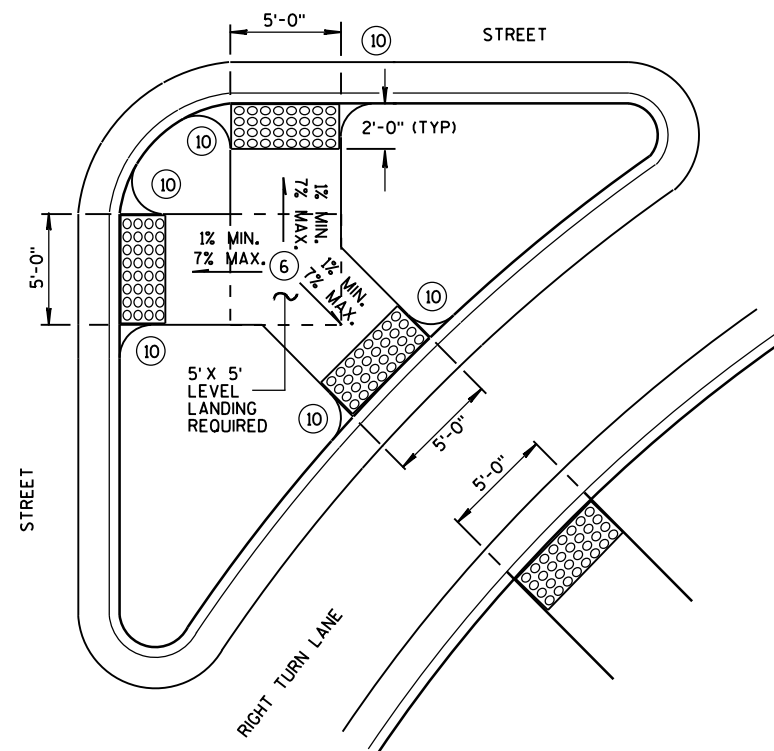


MID-BLOCK CROSSING
TYPE 7A

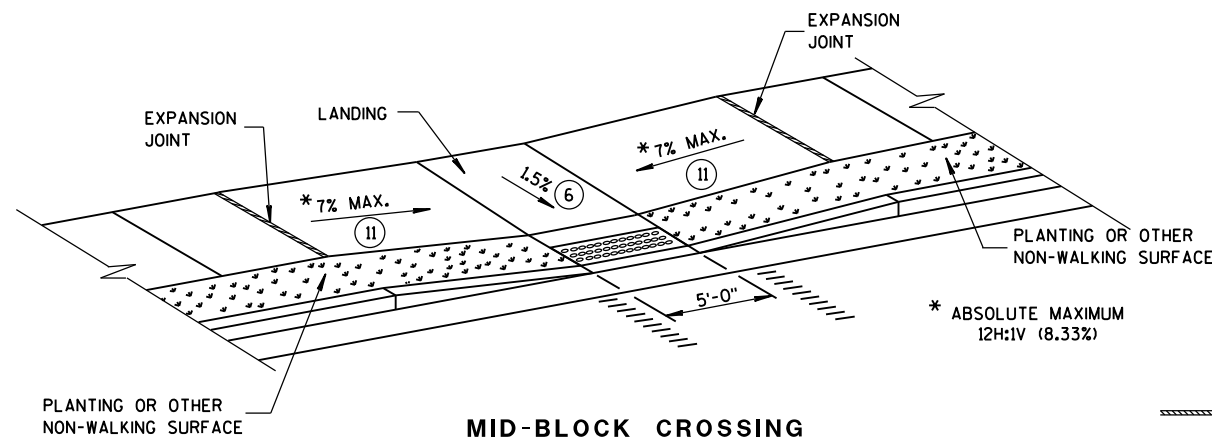


SECTION A-A

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

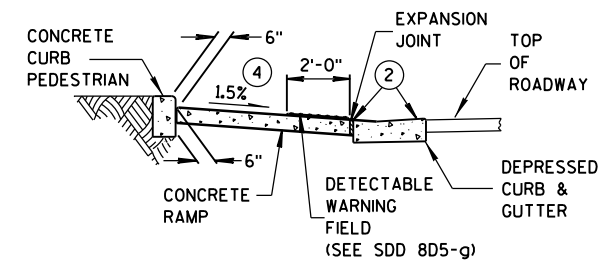


TYPE 6
DETECTABLE WARNING AT ISLANDS



MID-BLOCK CROSSING
TYPE 7B

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



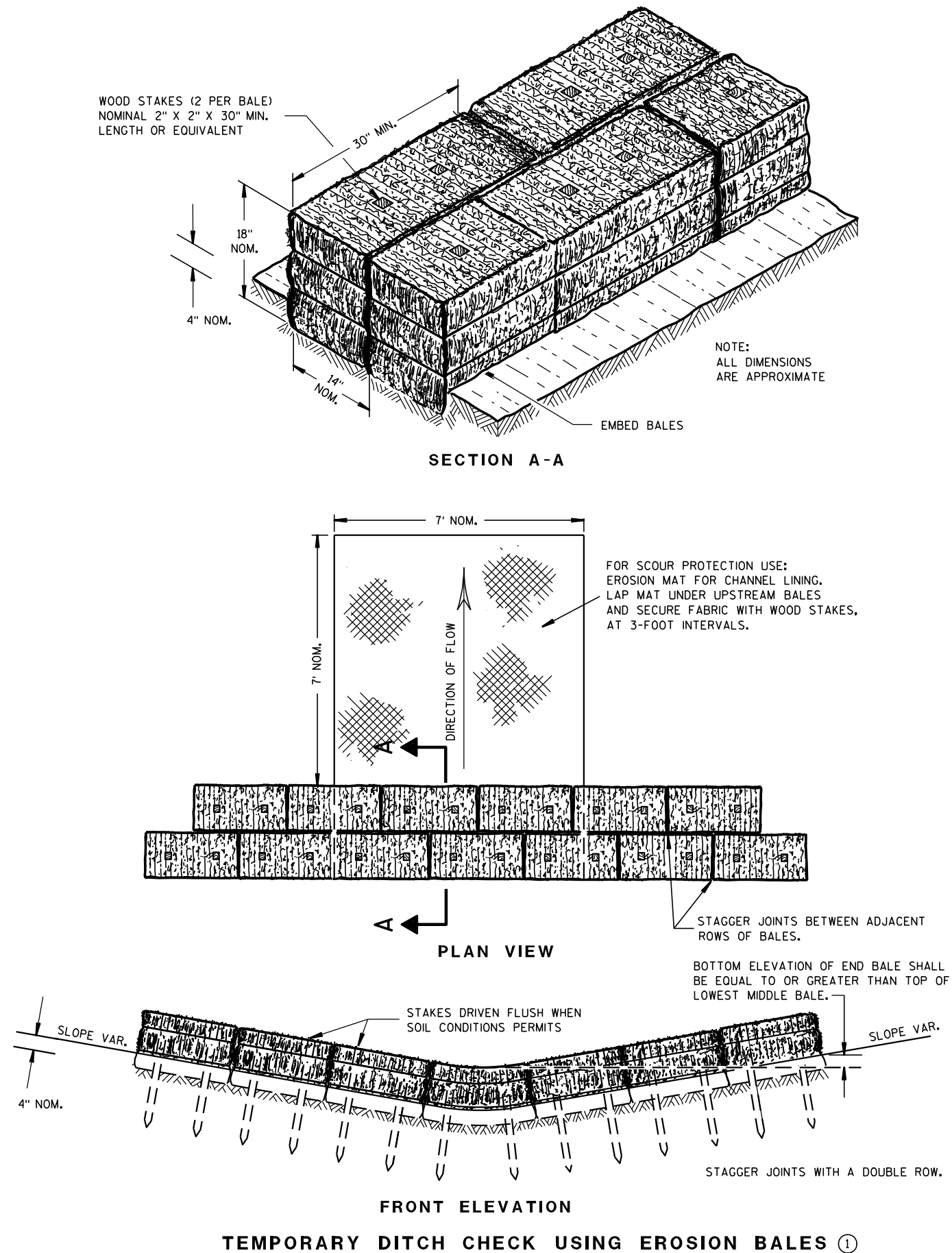
SECTION B-B

LEGEND

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

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

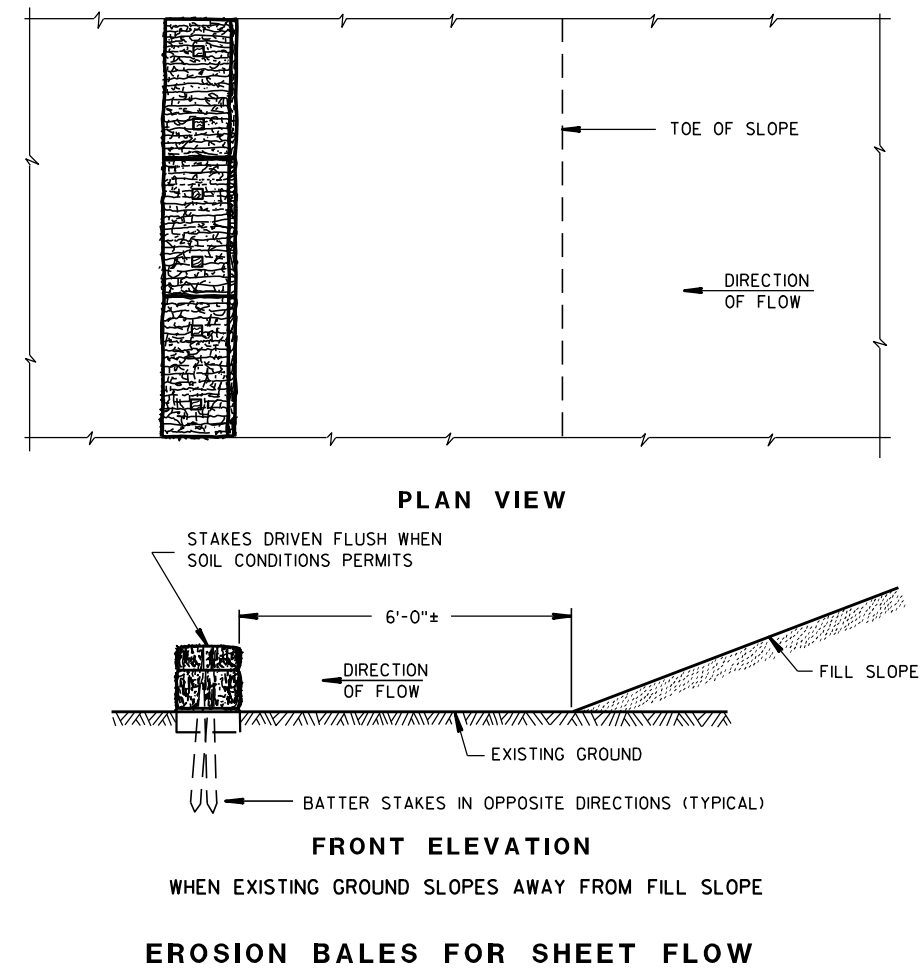
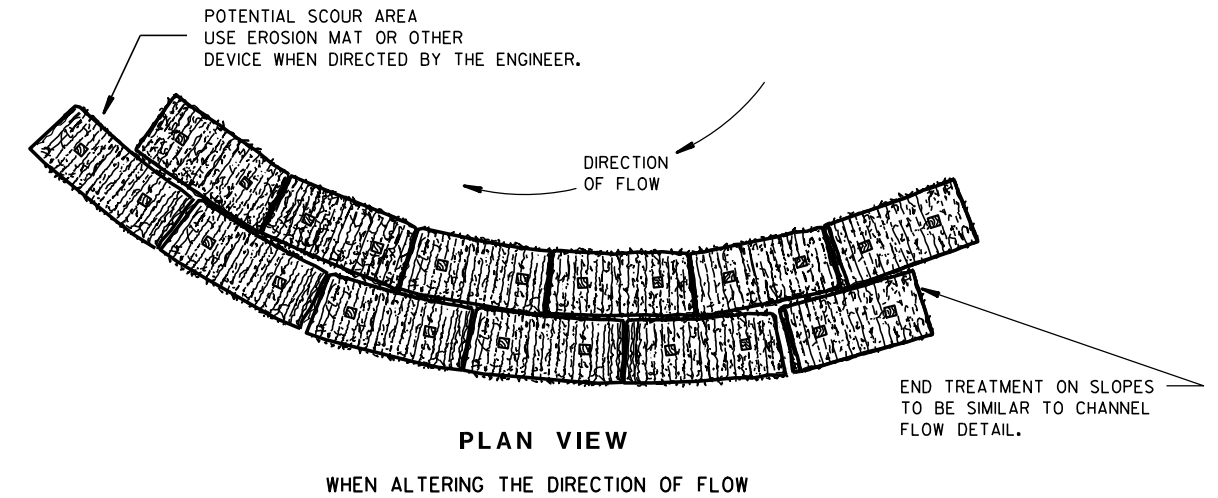
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 144



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.

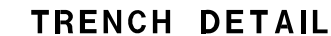
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/04/02 /S/ Beth Conn-----
DATE CHIEF ROADWAY DEVELOPER 145 ENGINEER
FHWA



- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 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.

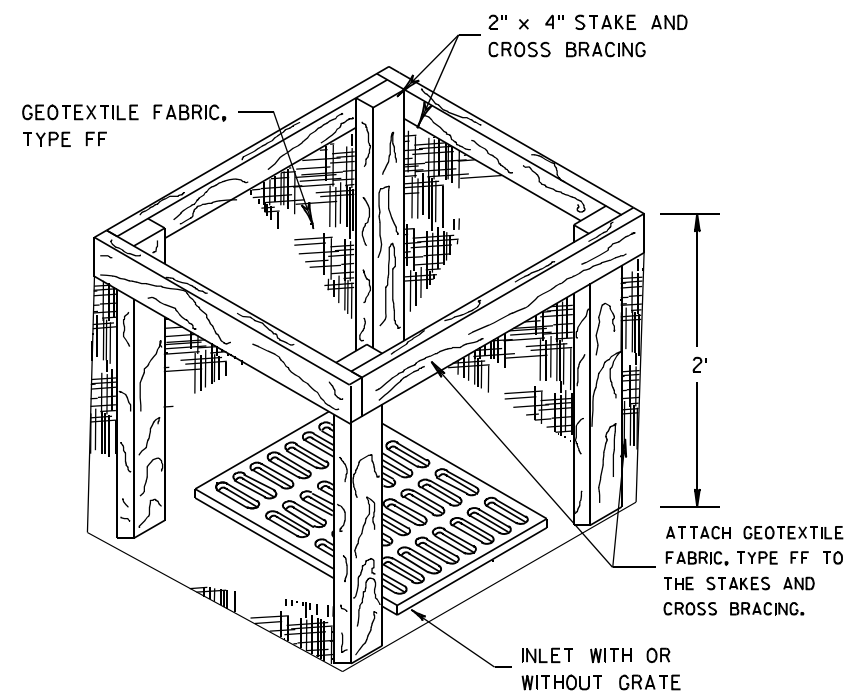
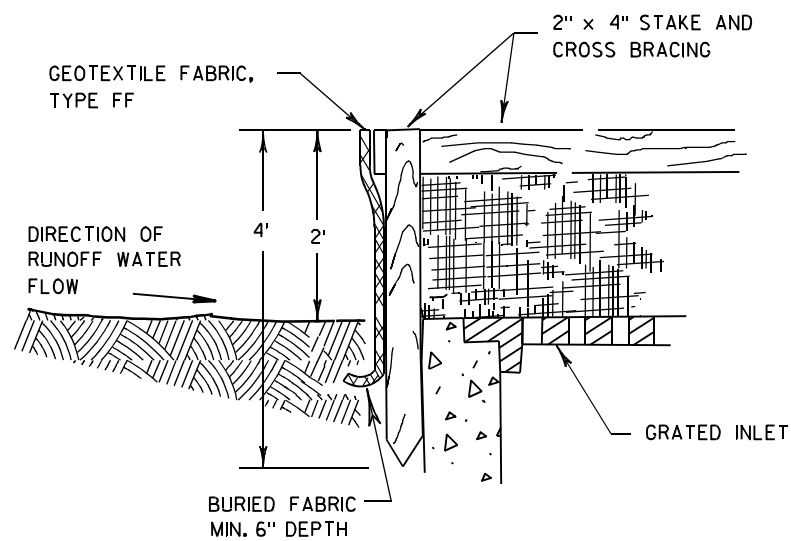


SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05 /S/ Beth Connolly
DATE CHIEF ROADWAY DEVELOPMENT 146 JINEER

FHWA



INLET PROTECTION, TYPE A

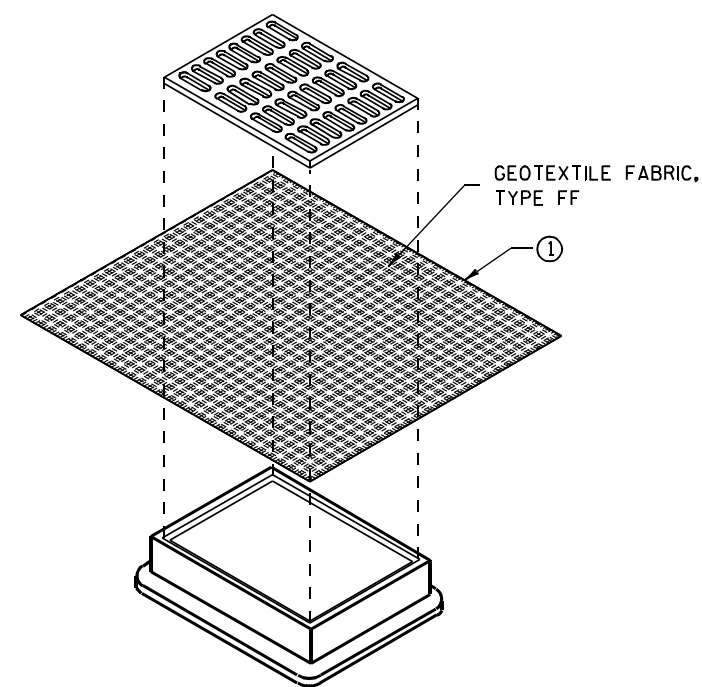
GENERAL NOTES

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

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

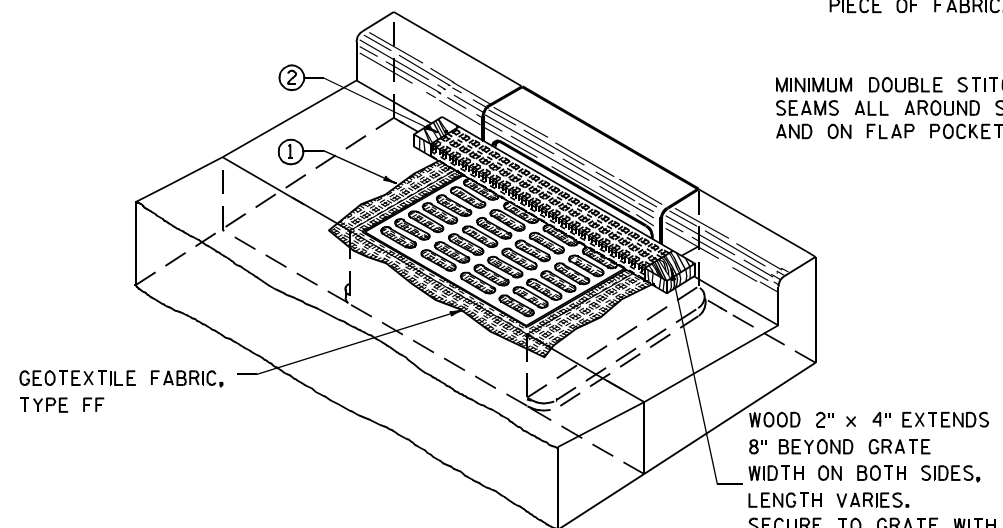
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

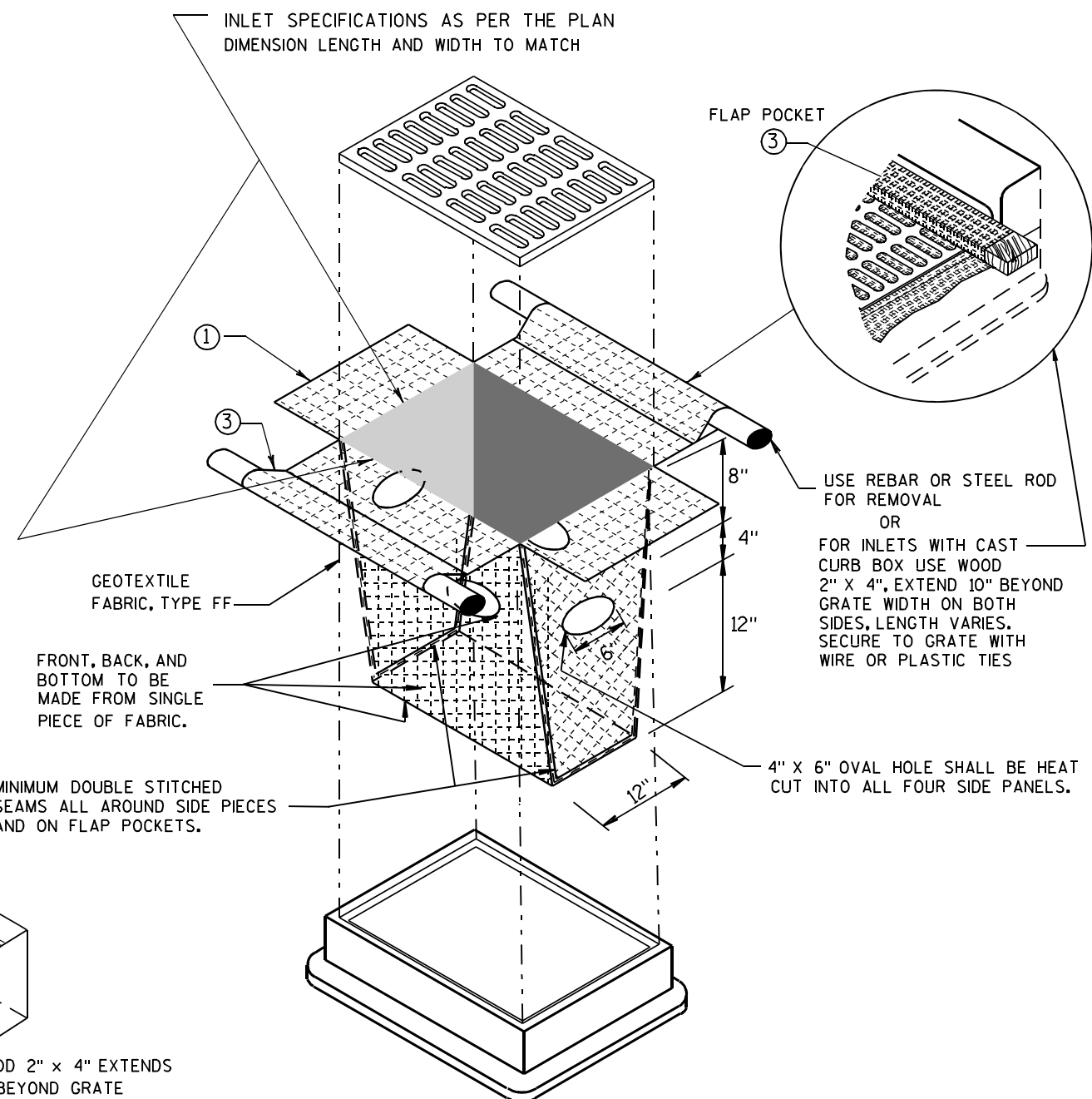
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

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



INLET PROTECTION, TYPE D

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

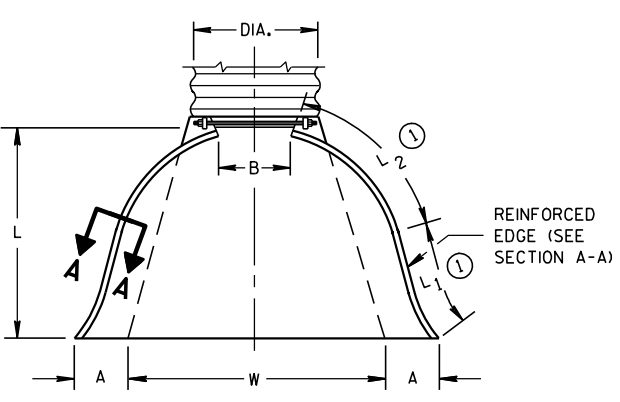
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

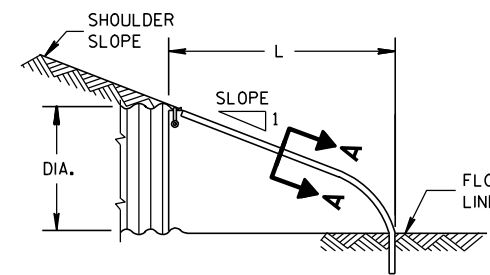
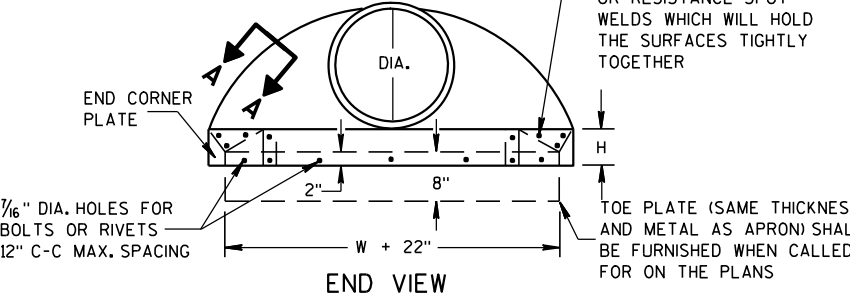
APPROVED
10/16/02 /S/ Beth Connolly
DATE 147
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER

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

* EXCEPT CENTER PANEL
SEE GENERAL NOTES



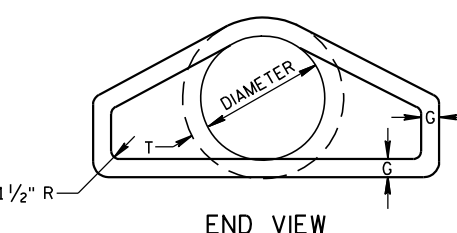
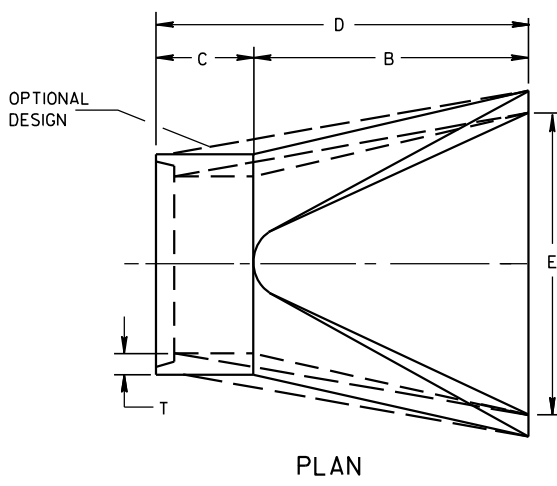
END CORNER PLATES MAY
BE FASTENED TO APRON
PROPER BY BOLTS, RIVETS,
OR RESISTANCE SPOT
WELDS WHICH WILL HOLD
THE SURFACES TIGHTLY
TOGETHER



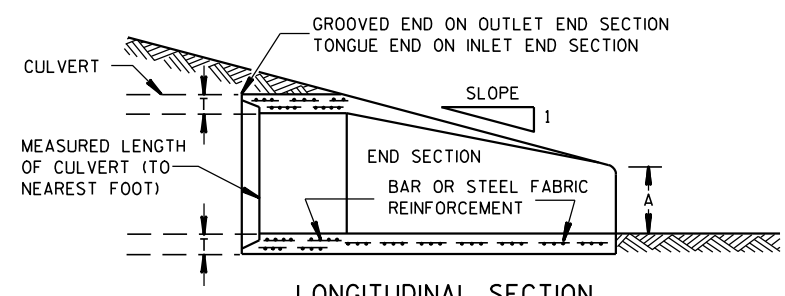
SIDE ELEVATION
METAL ENDWALLS

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

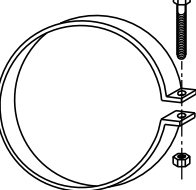


END VIEW

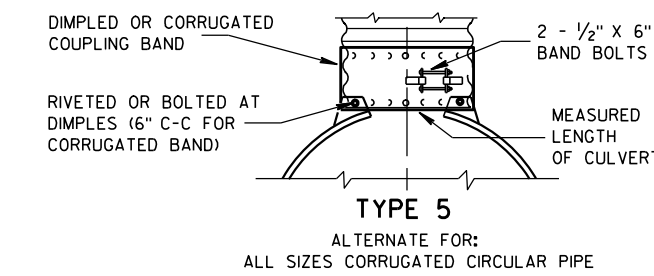
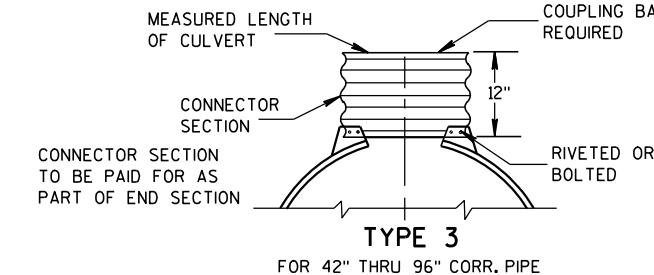
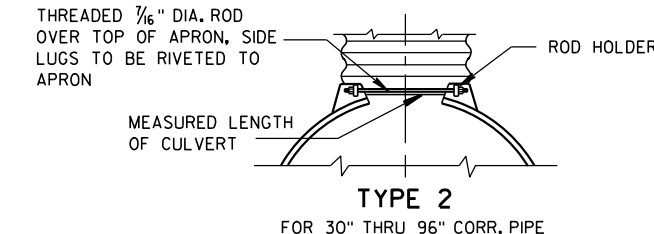
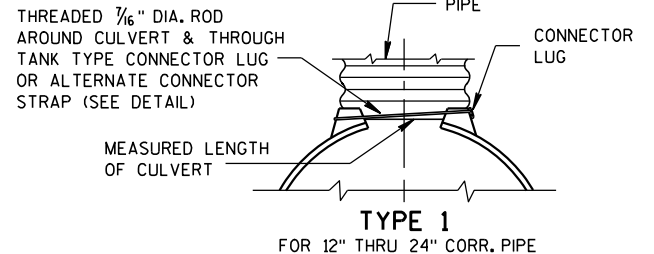


LONGITUDINAL SECTION
CONCRETE ENDWALLS

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



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



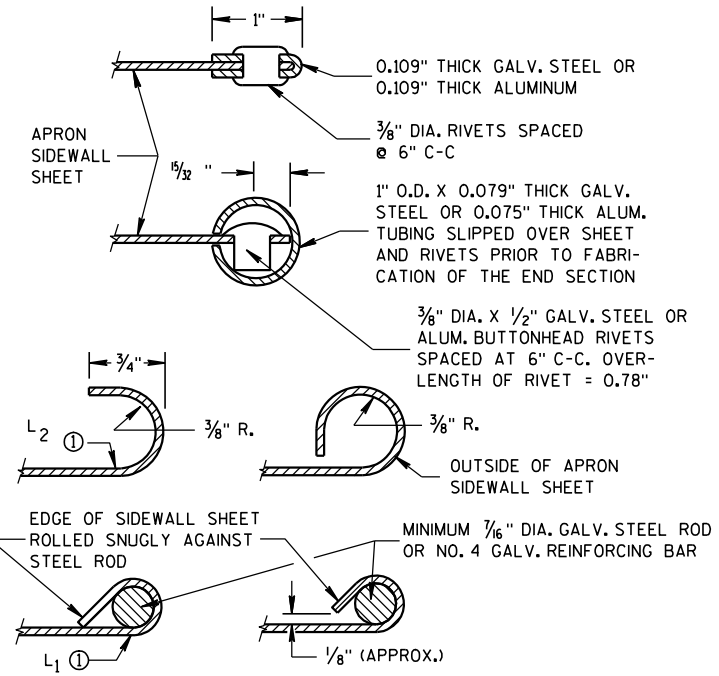
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.
DIMPLED BAND MAY BE USED WITH HELICALLY
CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

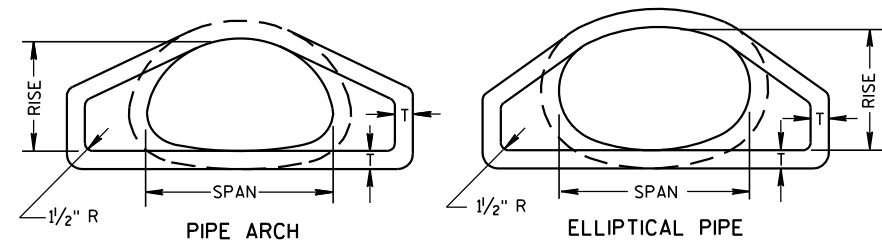
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT
TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT
TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

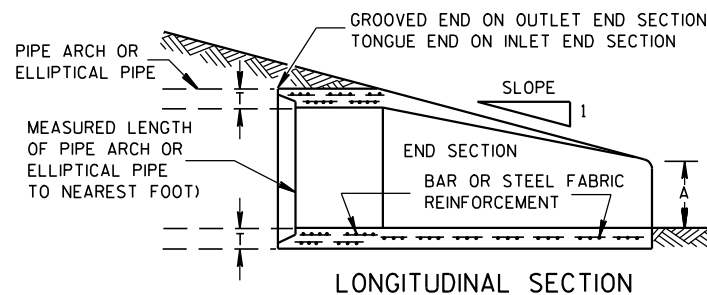
APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94
DATE
/S/ Rory L. Rhinehart
CHIEF ROADWAY DEVELOP 148
NEER
FHWA

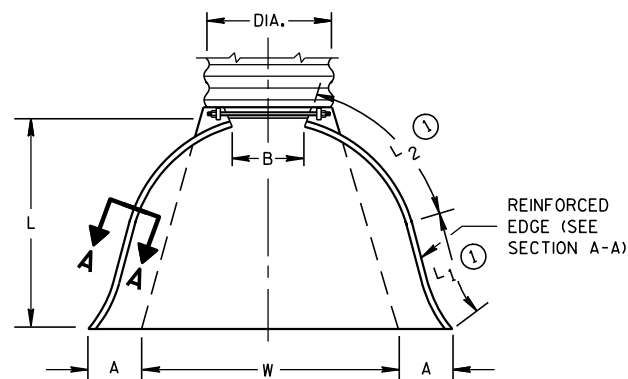


END VIEW



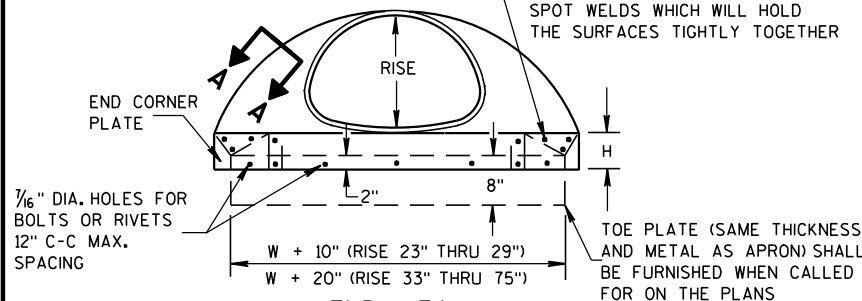
LONGITUDINAL SECTION

CONCRETE ENDWALLS

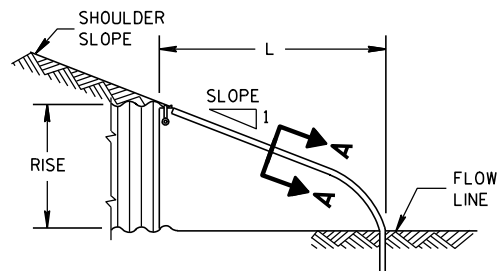


PLAN VIEW

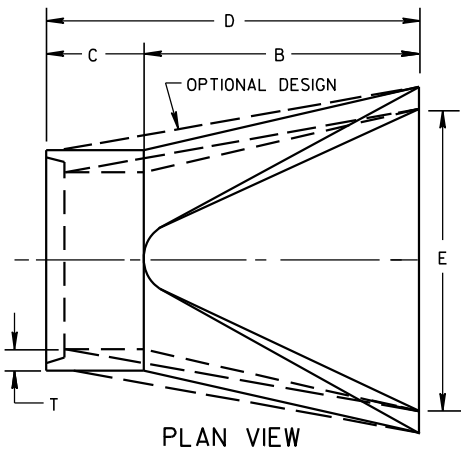
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



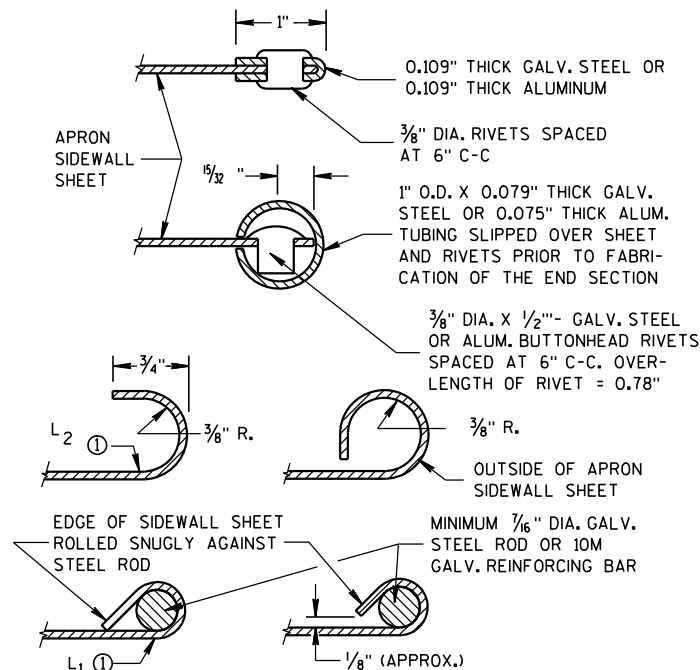
END VIEW



SIDE ELEVATION
METAL ENDWALLS



PLAN VIEW



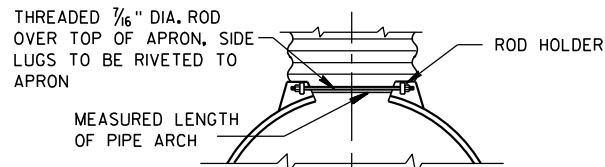
SECTION A-A

2- 2⅓" X ½" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1½")	L1 ①	L 2 ①	W (±2")		
15	17	13	.064	.060	7	9	6	19	14	16	30	2½ to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19⅜	36	2½ to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21¾	42	2½ to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27½	48	2½ to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37⅝	60	2½ to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45⅝	75	2½ to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54¾	85	2½ to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2½ to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72¾	102	2¼ to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82¼	114	2¼ to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
					A	B	H	L	L ₁	L ₂	W		
	SPAN	RISE	STEEL	ALUM.	(±1")	(MAX.)	(±1")	(±1 1/2")	①	①	(±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82 1/4	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1 1/2 to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1 1/2 to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1 1/2 to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1 1/2 to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1 1/2 to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1 1/2 to 1	3 Pc.

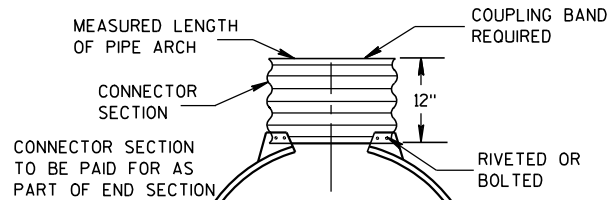
NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES



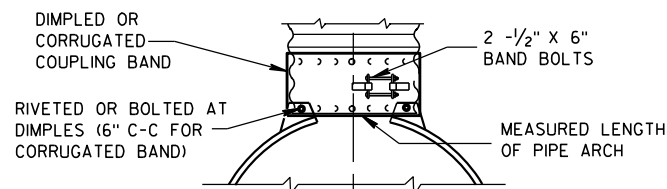
TYPE 2

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



TYPE 3

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



TYPE 5

ALTERNATE FOR:
ALL SIZES CORRUGATED PIPE ARCHES

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

CONNECTION DETAILS

REINFORCED CONCRETE PIPE ARCH									
EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	29	18	3	8½	39	33	72	48	3 to 1
30	36	22	3½	9½	50	46	96	60	3 to 1
36	44	27	4	11⅞	60	36	96	72	3 to 1
42	51	31	4½	15⅙	60	36	96	78	3 to 1
48	58	36	5	21	60	36	96	84	3 to 1
54	65	40	5½	25½	60	36	96	90	3 to 1
60	73	45	6	31	60	36	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28½	83	19	102	144	2 to 1

REINFORCED CONCRETE ELLIPTICAL PIPE									
EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	30	19	3¼	8½	39	33	72	48	3 to 1
30	38	24	3¾	9½	54	18	72	60	3 to 1
36	45	29	4½	11⅛	60	24	84	72	2½ to 1
42	53	34	5	15¾	60	36	96	78	2½ to 1
48	60	38	5½	21	60	36	96	84	2½ to 1
54	68	43	6	25½	60	36	96	90	2½ to 1
60	76	48	6½	30	60	36	96	96	2½ to 1

**NOMINAL SIZE

GENERAL NOTES

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

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

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

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

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

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

APRON ENDWALLS FOR
PIPE ARCH AND
ELLIPTICAL PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/94

DATE

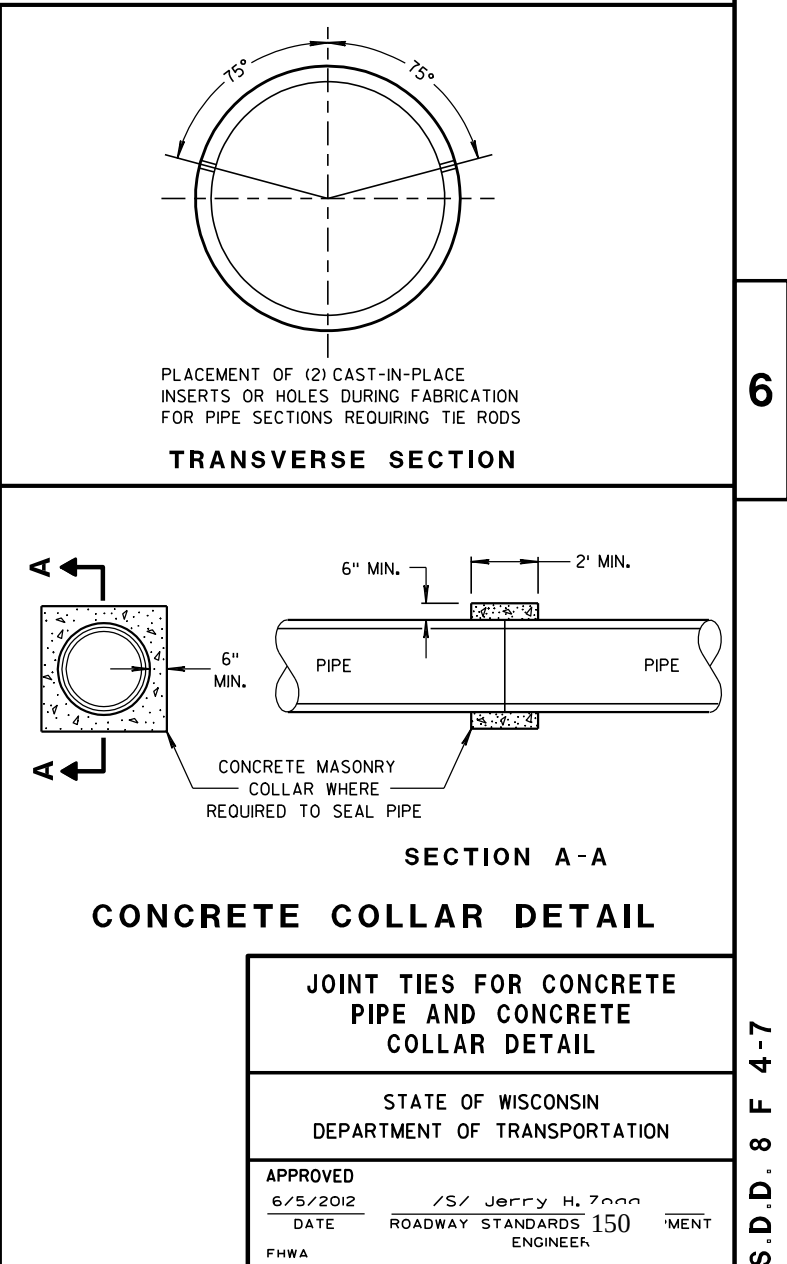
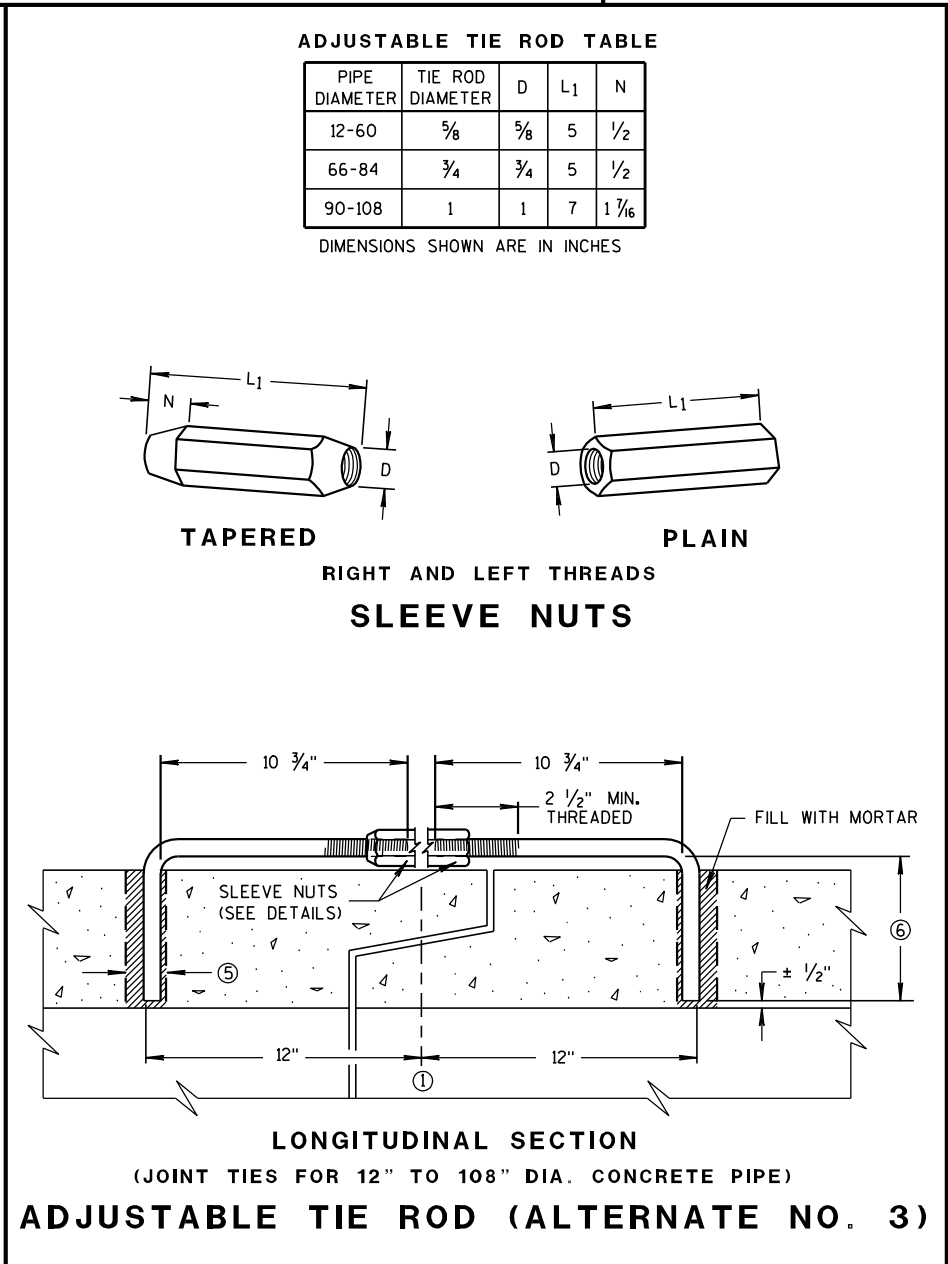
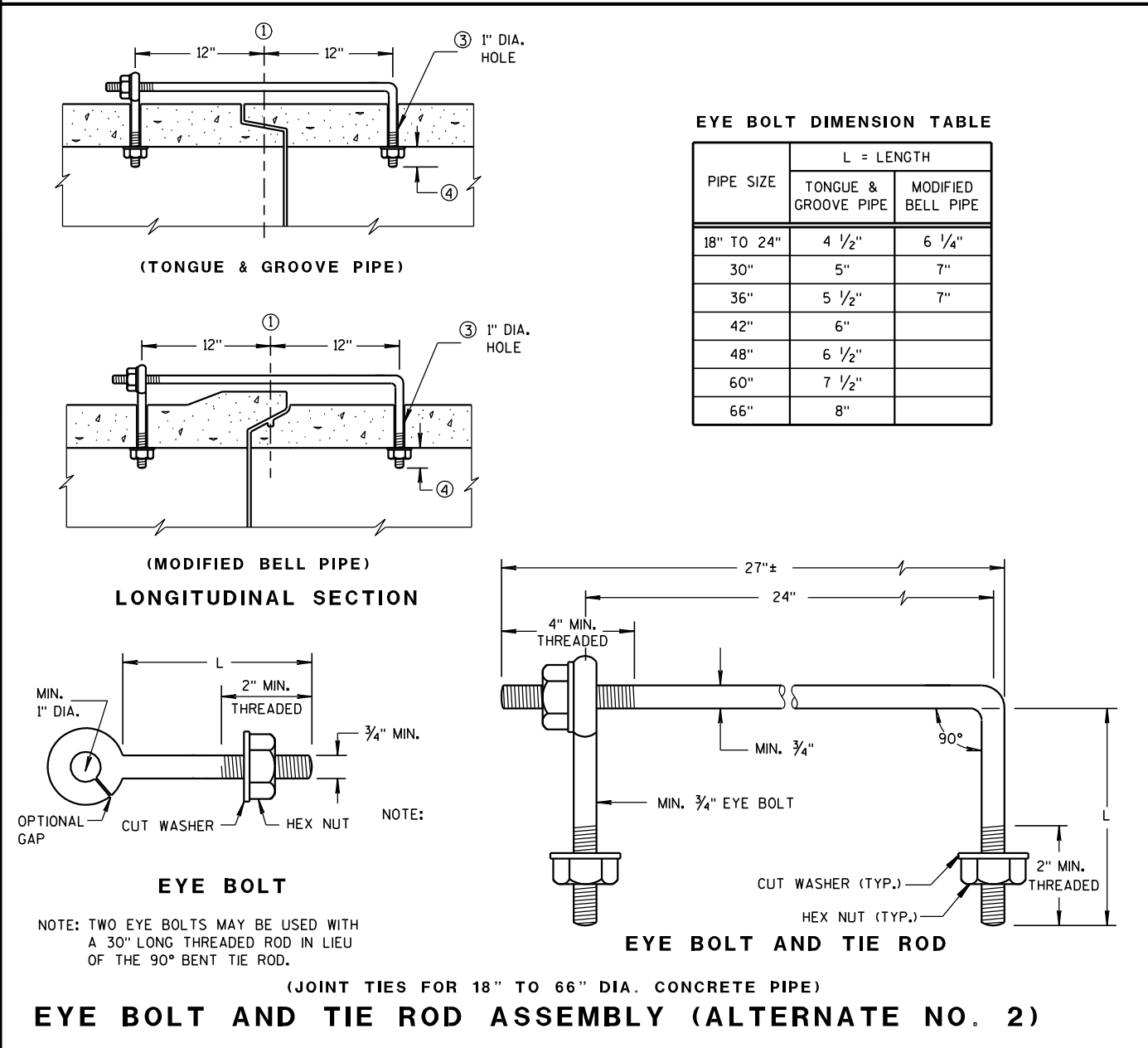
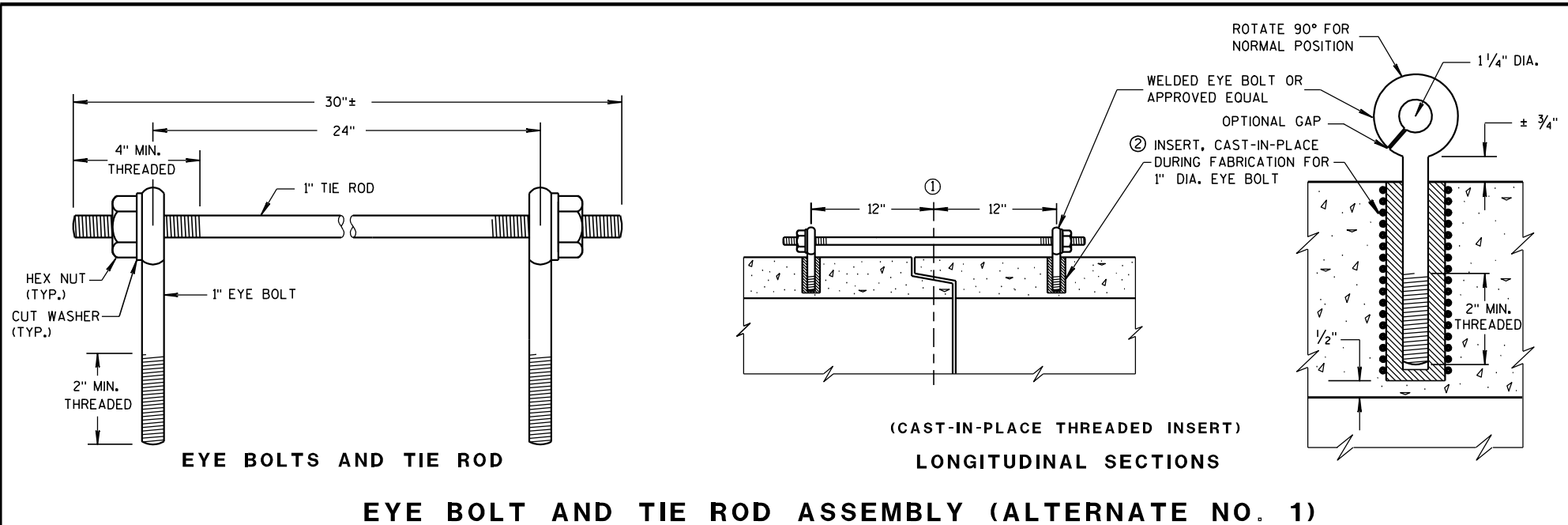
FHWA

/S/ Rory L. Rhinehart

CHIEF ROADWAY DEVELOPER

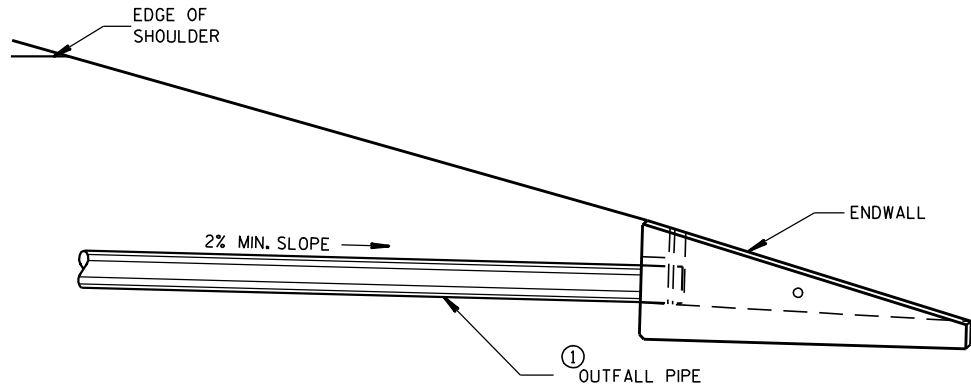
149 S.D.D. 8 F 2-1

ENGINEER

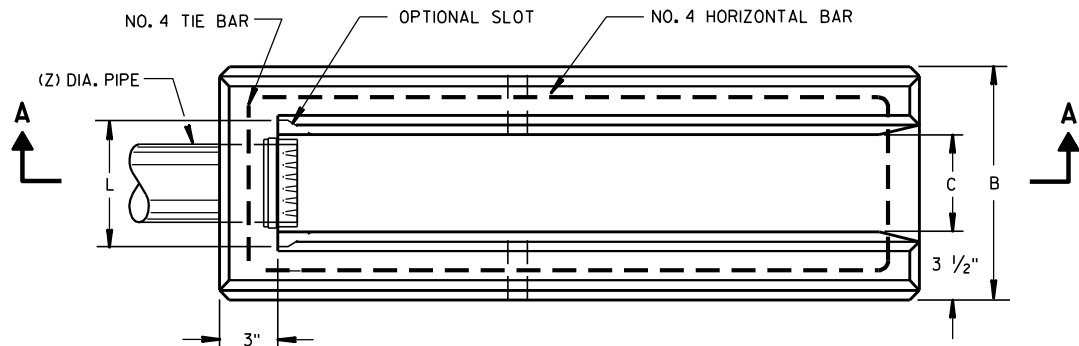


DIMENSIONS IN INCHES											
PIPE DIA.	A	B	C	D	E	F	G	H	J	L	Z
**4	6	12	5 1/4	9	8	32	36	11	2 3/8	6 1/2	4
6	8	14	7 1/4	11	10	42	44	13	3 5/8	8 1/2	6

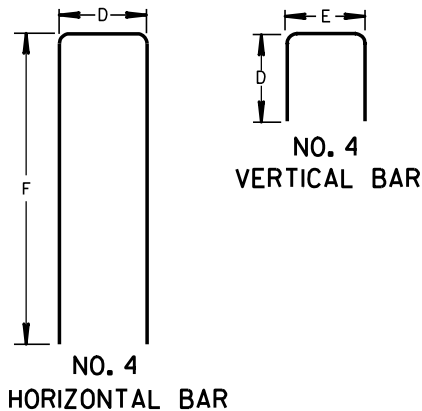
** APRON ENDWALL FOR 6 INCH DIAMETER PIPE MAY BE SUBSTITUTED FOR THIS SIZE PROVIDED THE HOLE IN THE HEADWALL IS SIZED AND LOCATED TO CONFORM TO THE 4 INCH DIAMETER PIPE DIMENSIONS (C & J)



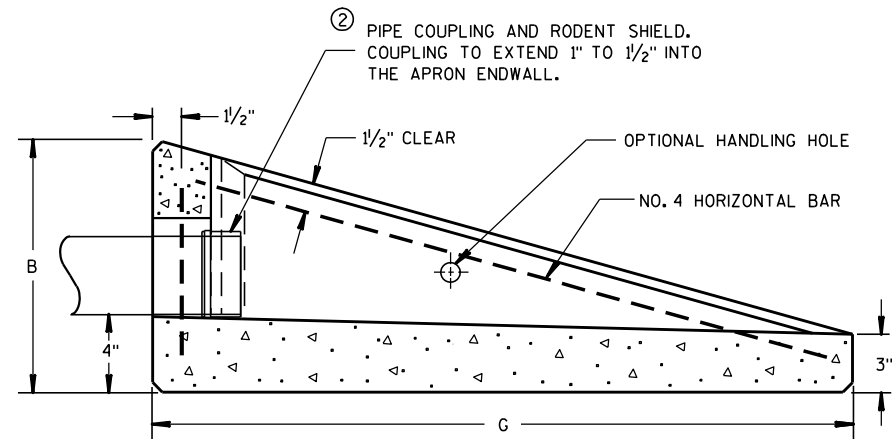
INSTALLATION DETAIL



PLAN VIEW

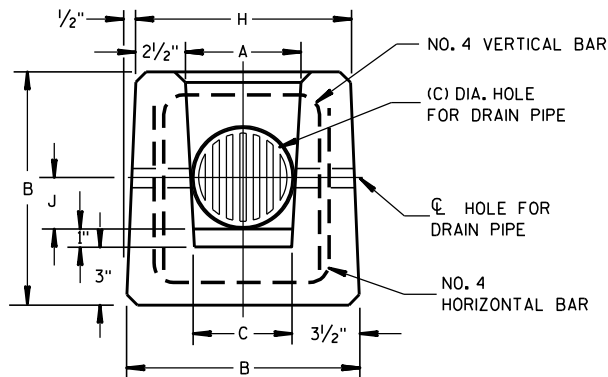


BAR STEEL REINFORCEMENT DETAILS

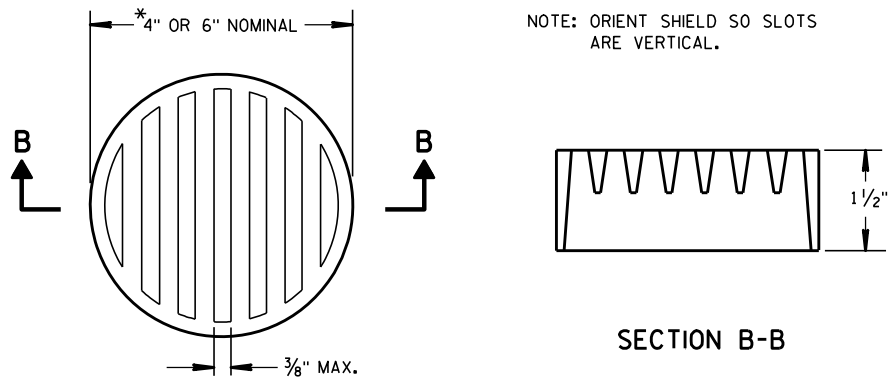


SECTION A-A

CONCRETE APRON ENDWALL FOR UNDERDRAIN



END VIEW



② RODENT SHIELD

*NOTE: DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

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.

ALTERNATIVE DESIGNS WHICH PROVIDE EQUIVALENT CAPACITY AND STRENGTH MAY BE USED WHEN APPROVED BY THE ENGINEER. ENDWALL MAY BE EITHER PRECAST OR CAST-IN-PLACE CONCRETE.

THE UNDERDRAIN PIPE SHALL BE FULLY INSERTED AND SEALED INTO THE ENDWALL WITH CEMENT MORTAR PRIOR TO BACKFILLING AROUND THE STRUCTURE.

THE UPPERMOST POINT OF THE ENDWALL SHALL BE PLACED FLUSH WITH THE ROADWAY SLOPE. ADJACENT EMBANKMENT SLOPES SHALL BE SHAPED TO FIT THE SIDES AND TOE OF THE ENDWALL. EXACT PLACEMENT OF THE OUTFALL PIPE AND ENDWALL SHALL BE DETERMINED BY THE ENGINEER TO MATCH THE ELEVATIONS AND FLOW DIRECTION OF THE ROADSIDE DITCH.

① THE OUTFALL PIPE UNDERDRAIN AND FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF THE SPECIFICATION FOR POLY (VINYL CHORIDE) (PVC) PLASTIC DRAIN, WASTE AND VENT PIPE AND FITTINGS, ASTM DESIGNATION: D 2665, SCHEDULE 40 PVC OR THE STANDARD SPECIFICATION FOR TYPE PSM POLY (VINYL CHORIDE) (PVC) SEWER PIPE AND FITTINGS, ASTM DESIGNATION: D 3034, TYPE PSM SDR 23.5 PVC SEWER PIPE, ALL JOINTS SHALL BE SOLVENT WELDED.

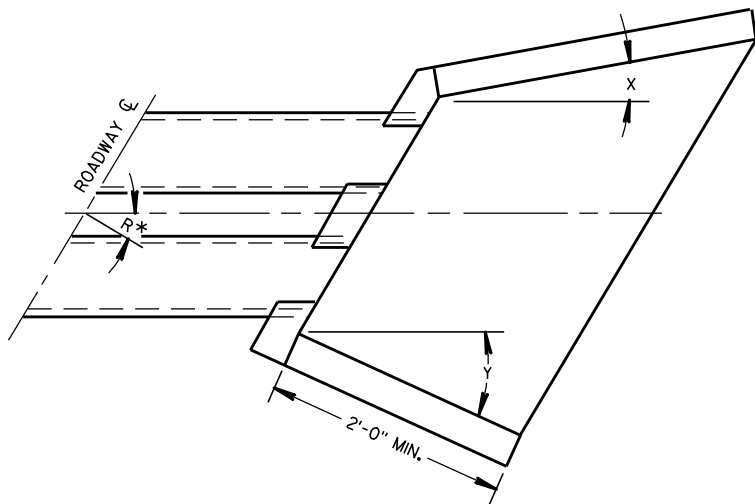
THE OUTFALL PIPE INCLUDING ALL FITTINGS AND THE RODENT SHIELD SHALL BE MEASURED AND PAID FOR AS PIPE UNDERDRAIN UNPERFORATED.

② THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

REINFORCED
CONCRETE APRON ENDWALL
FOR PIPE UNDERDRAIN

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/10/98 /S/ Rory L. Rhin...
DATE CHIEF ROADWAY DEVELOPER 151 INEER
FHWA



WINGWALL ANGLE DETAILS

INLET			OUTLET		
R*	X	Y	R*	X	Y
0 - 7°	30°	30°	0 - 15°	15°	15°
8 - 22°	25°	"	16 - 45°	10°	"
23 - 37°	20°	"	46 - 75°	5°	"
38 - 52°	15°	"	OVER 75°	0°	"
53 - 67°	10°	"			
68 - 82°	5°	"			
OVER 82°	0°	"			

*R = NUMBER OF DEGREES RIGHT OR LEFT HAND FORWARD

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.

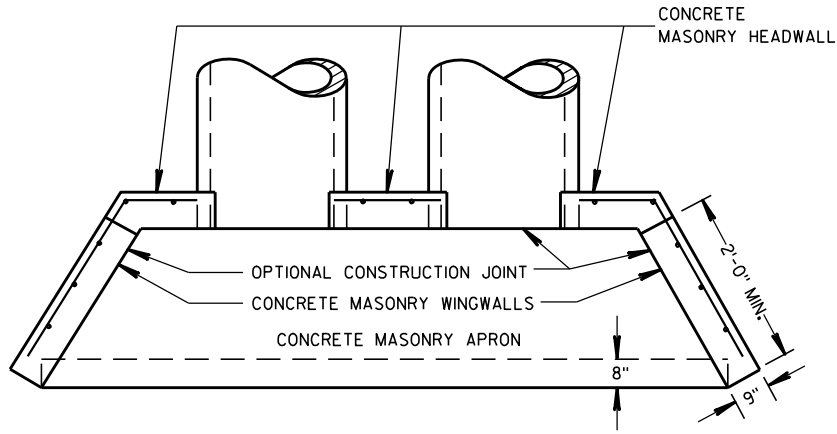
FILL SLOPES FLATTER THAN 2 1/2:1 SHALL BE WARPED TO MEET THE TOP OF THE WINGWALLS.

ALL STEEL REINFORCEMENT AND WELDED STEEL WIRE FABRIC SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE NOTED.

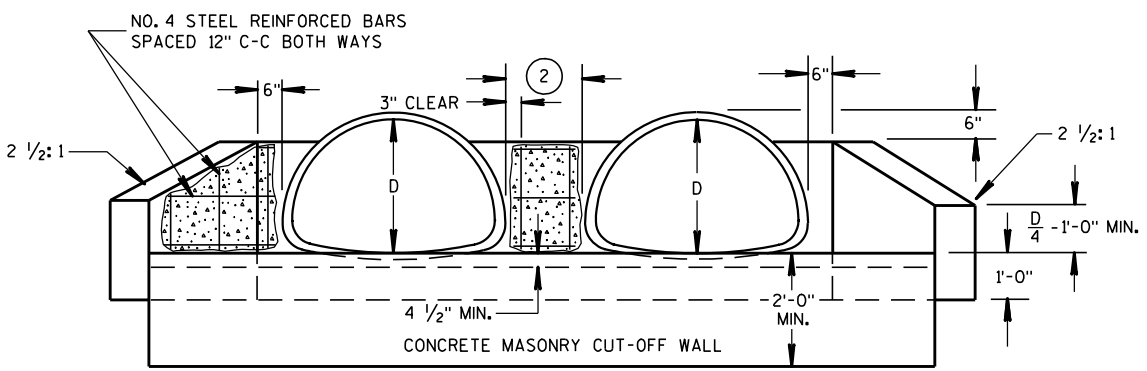
1 MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS SPACED 12" C-C IN BOTH DIRECTIONS.

2 THE SPACE BETWEEN PIPES SHALL BE AS FOLLOWS:

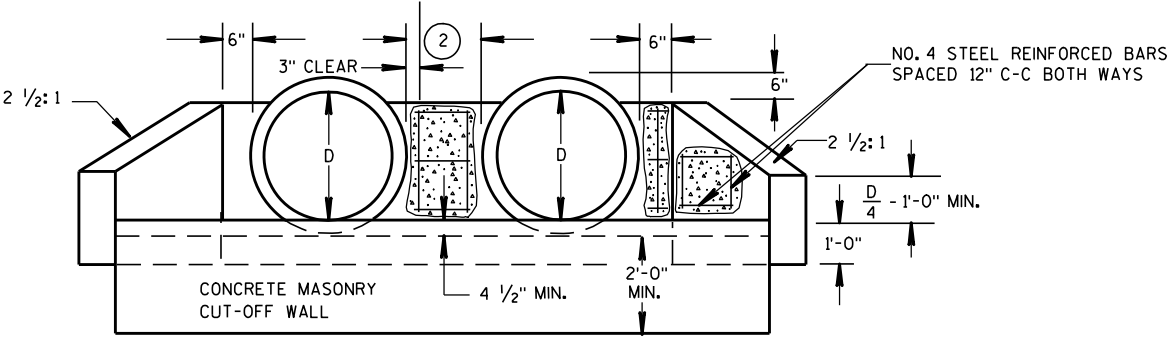
DIAMETER OR SPAN	SPACE
UP TO AND INCLUDING 48"	2'-0"
OVER 48" TO 72"	1/2 DIA. OR SPAN
OVER 72"	3'-0"



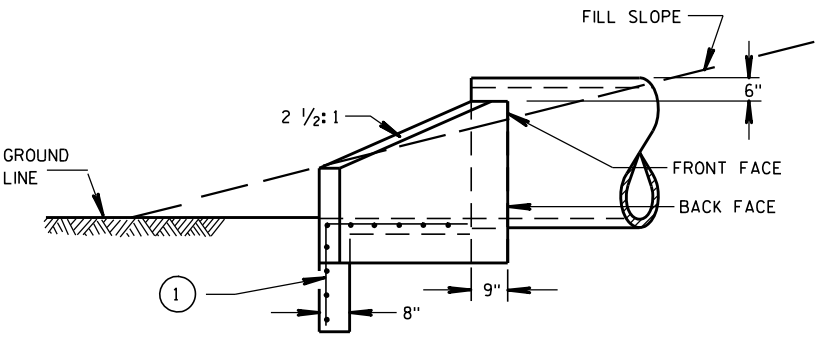
PLAN VIEW
CULVERT PIPE AND PIPE ARCH



END ELEVATION
PIPE ARCH



END ELEVATION
CULVERT PIPE

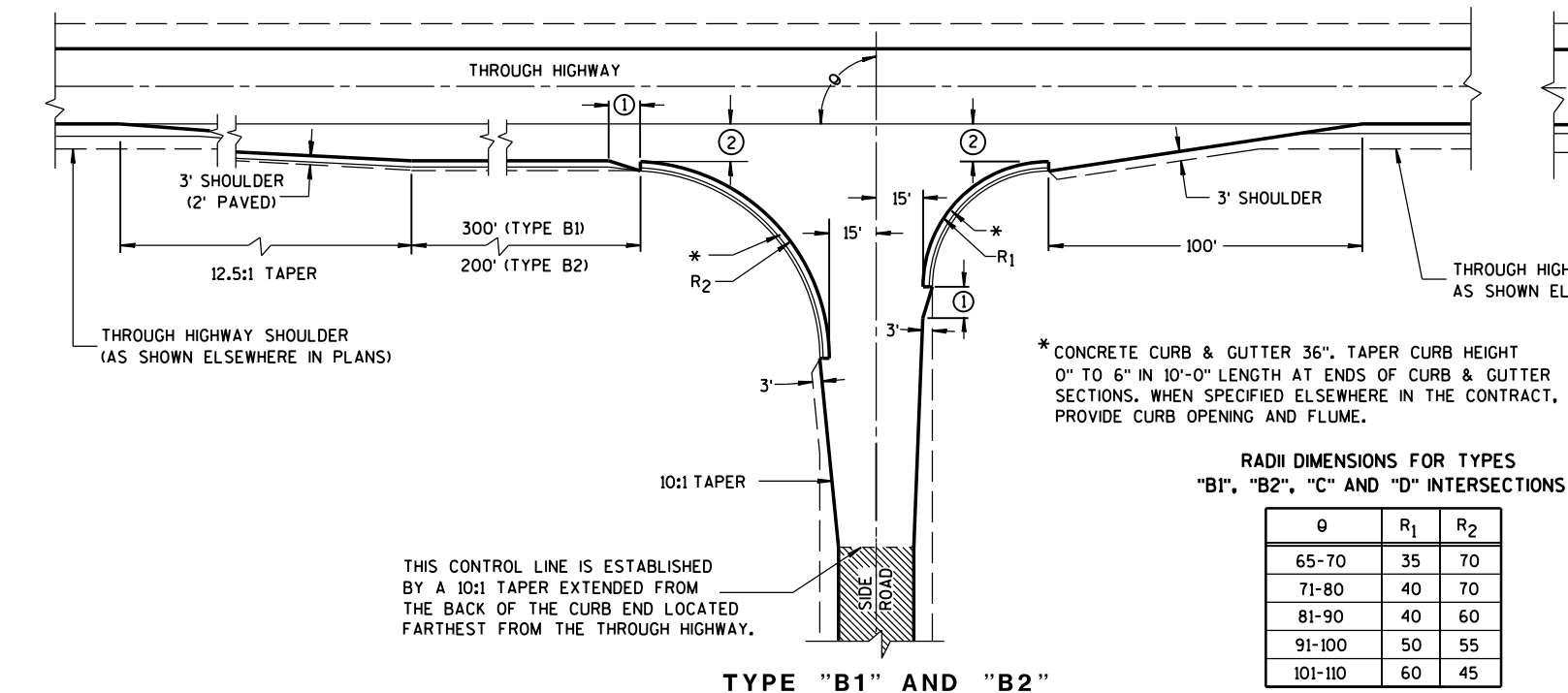


SIDE ELEVATION
CULVERT PIPE AND PIPE ARCH

CONCRETE MASONRY ENDWALLS
FOR CULVERT PIPE AND
PIPE ARCH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/14/98 /S/ Rory L. Rhinehart
DATE CHIEF ROADWAY DEVELOPER
FHWA



RADII DIMENSIONS FOR TYPES "B1", "B2", "C" AND "D" INTERSECTIONS

θ	R ₁	R ₂
65-70	35	70
71-80	40	70
81-90	40	60
91-100	50	55
101-110	60	45

GENERAL NOTES

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

SIDE ROAD SURFACING NOTE

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

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

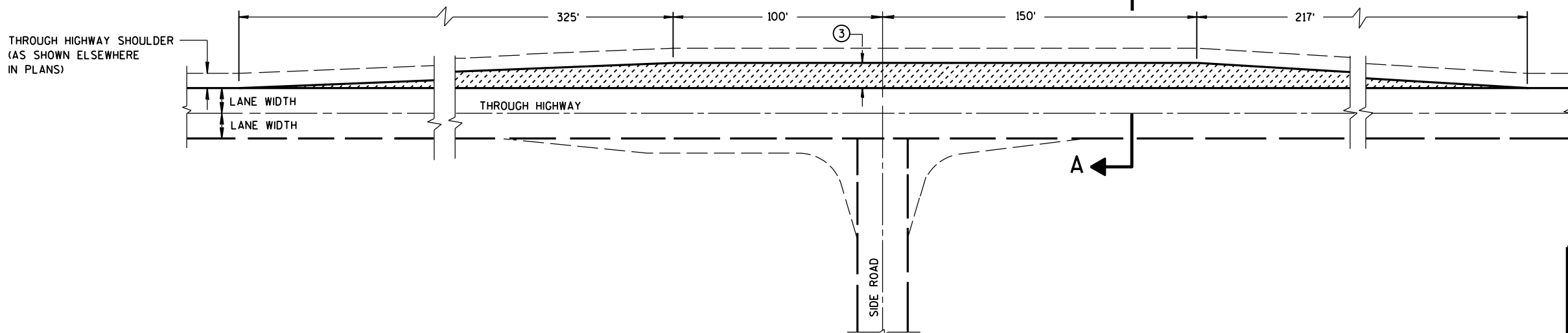
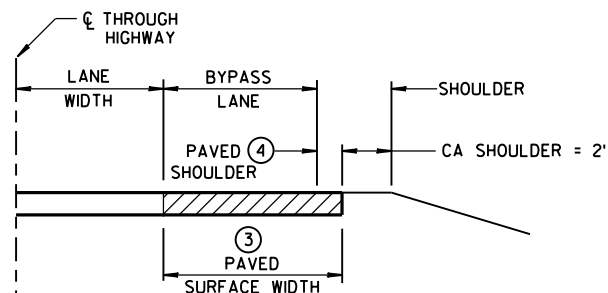
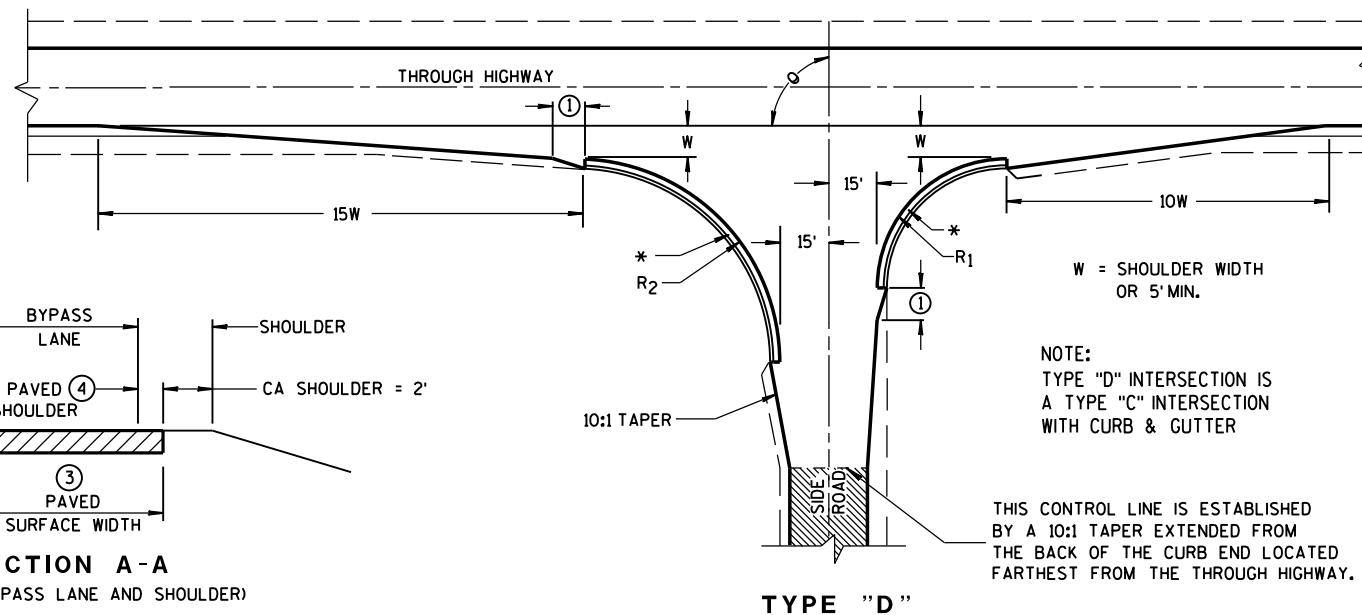
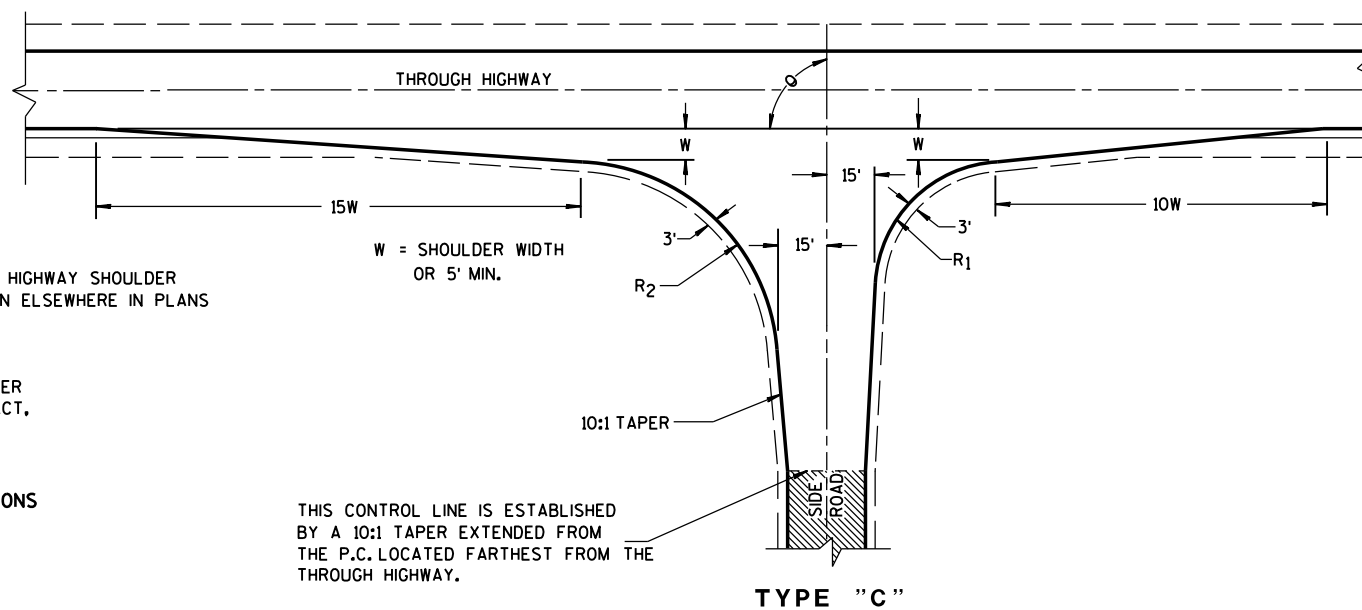
WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

EXISTING PAVED SURFACE

BYPASS LANE

- 10-FT TYPICAL.
- 12-FT** PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLAN.

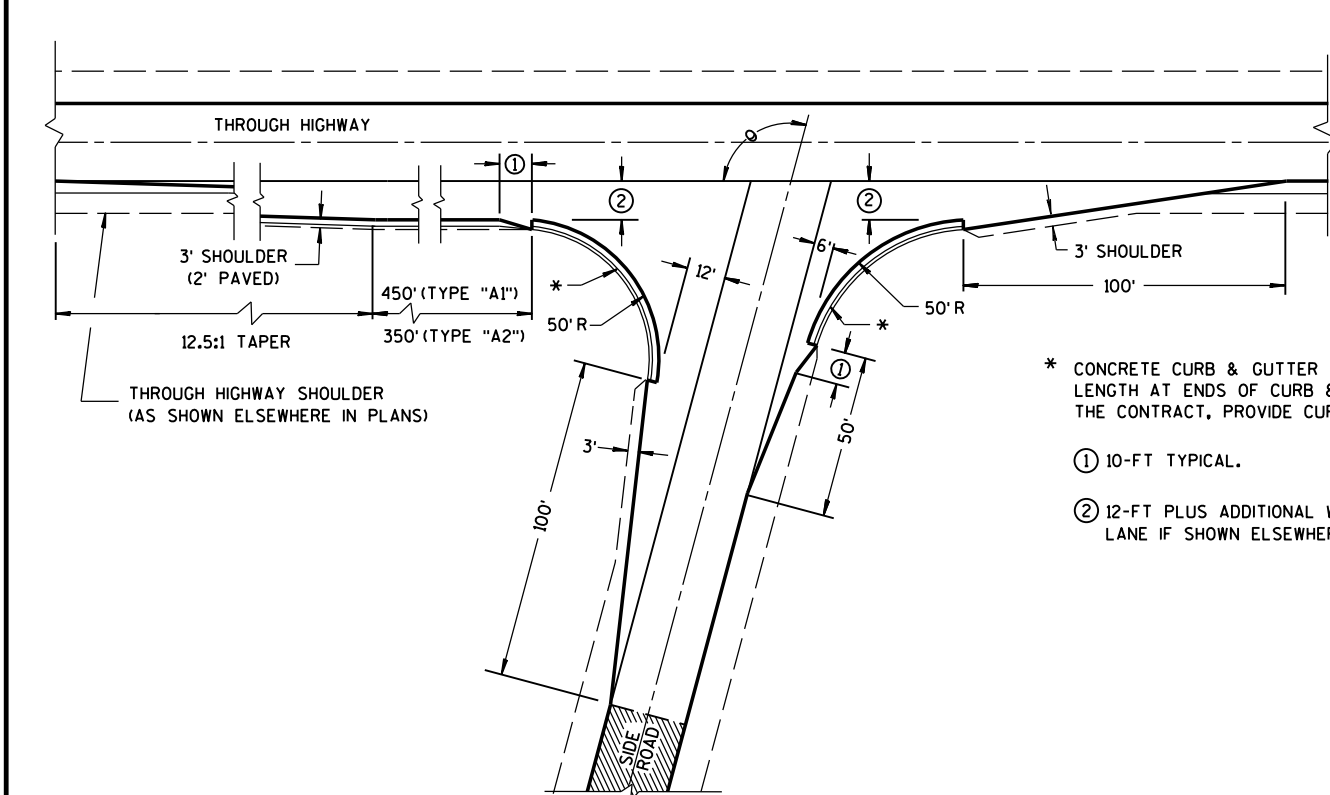
**10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.
- BYPASS LANE PAVED SURFACE WIDTH OUTSIDE OF TRAVEL LANE
-ASPHALT = 12-FT PLUS PAVED SHOULDER WIDTH.
-PC CPNCRETE = 13-FT PLUS PAVED SHOULDER WIDTH.
- BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.



TEE INTERSECTION BYPASS LANE DETAIL

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

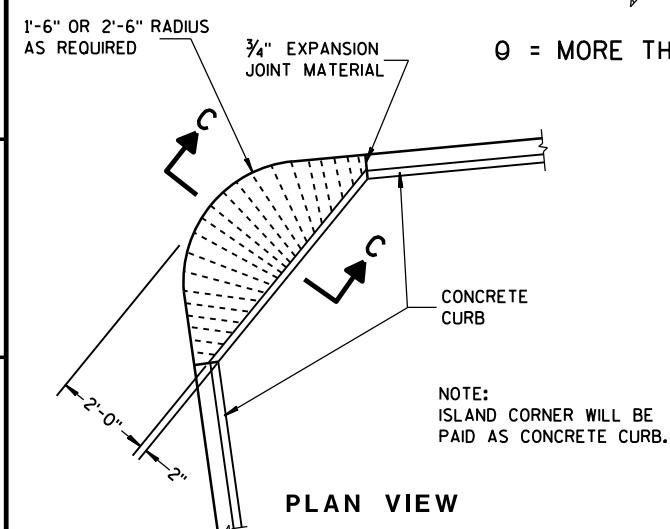
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



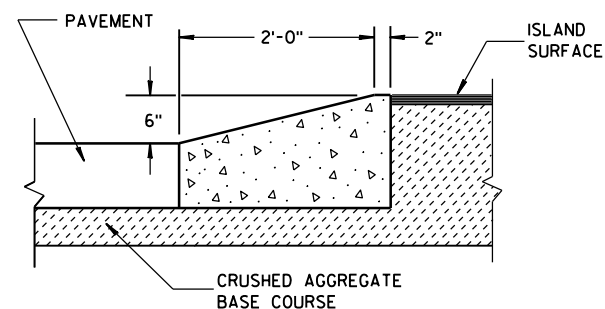
* CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

① 10-FT TYPICAL.

② 12-FT PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLANS.



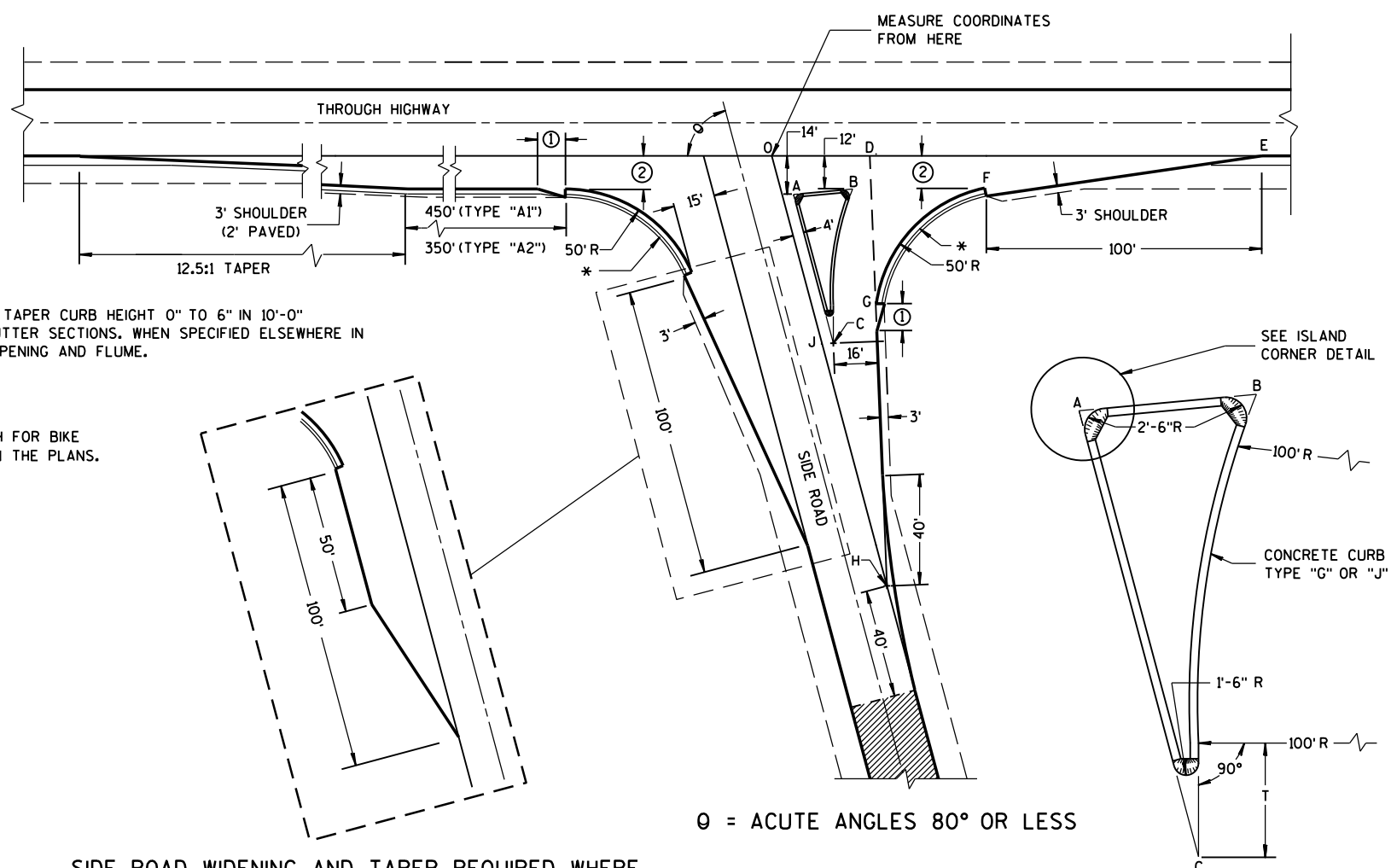
PLAN VIEW



SECTION C-C

ISLAND CORNER DETAIL

(TO BE CONSTRUCTED AT ALL ISLAND CORNERS)



θ = ACUTE ANGLES 80° OR LESS

SIDE ROAD WIDENING AND TAPER REQUIRED WHERE THE THROUGH HIGHWAY CARRIES TWO-WAY TRAFFIC
 θ = ACUTE ANGLES 70° OR LESS

TABLE OF DIMENSIONS FOR
VARIABLE SIDE ROAD INTERSECTION ANGLES

(INTERPOLATE VALUES FOR ANGLES NOT SHOWN)

ANGLE θ DEGREES	COORDINATES IN FEET (MEASURED FROM POINT "O")								LENGTH IN FEET				
	A	B	C	D	E	F	G	H	AB	AC	T	OJ	OH
60	12.7 -14.0	44.9 -12.0	46.4 -72.4	41.9 0.0	205.0 0.0	104.6 -12.0	64.0 -75.5	85.0 -147.1	32.3	67.4	4.9	85.9	169.9
65	10.9 -14.0	39.0 -12.0	37.8 -71.6	39.4 0.0	196.1 0.0	95.7 -12.0	54.1 -71.5	70.5 -151.3	28.2	63.6	8.5	80.9	166.9
70	9.4 -14.0	33.9 -12.0	29.8 -70.1	37.4 0.0	188.3 0.0	87.8 -12.0	45.6 -67.5	56.1 -154.2	24.6	59.7	11.5	76.1	164.1
75	7.9 -14.0	29.3 -12.0	22.3 -67.9	35.7 0.0	181.2 0.0	80.7 -12.0	38.2 -63.4	41.8 -155.9	21.5	55.8	13.8	71.4	161.4
80	6.5 -14.0	25.4 -12.0	15.6 -65.2	34.4 0.0	174.8 0.0	74.4 -12.0	31.8 -59.3	27.6 -156.5	18.9	52.0	15.6	66.9	158.9

TYPE "A1" & "A2" SIDE ROAD INTERSECTION DETAILS

AT-GRADE SIDE ROAD
INTERSECTION, TYPE "A1" & "A2"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

12/18/12

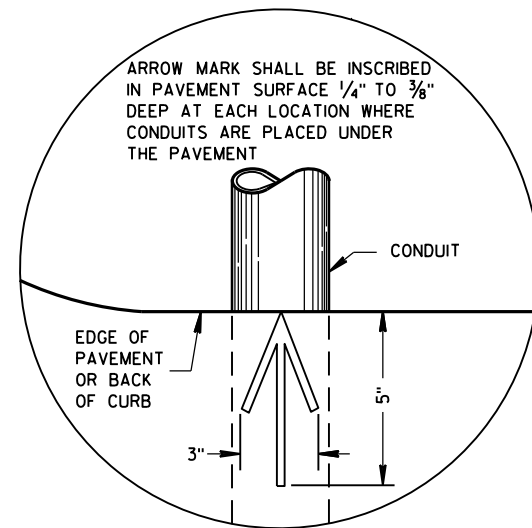
DATE

FHWA

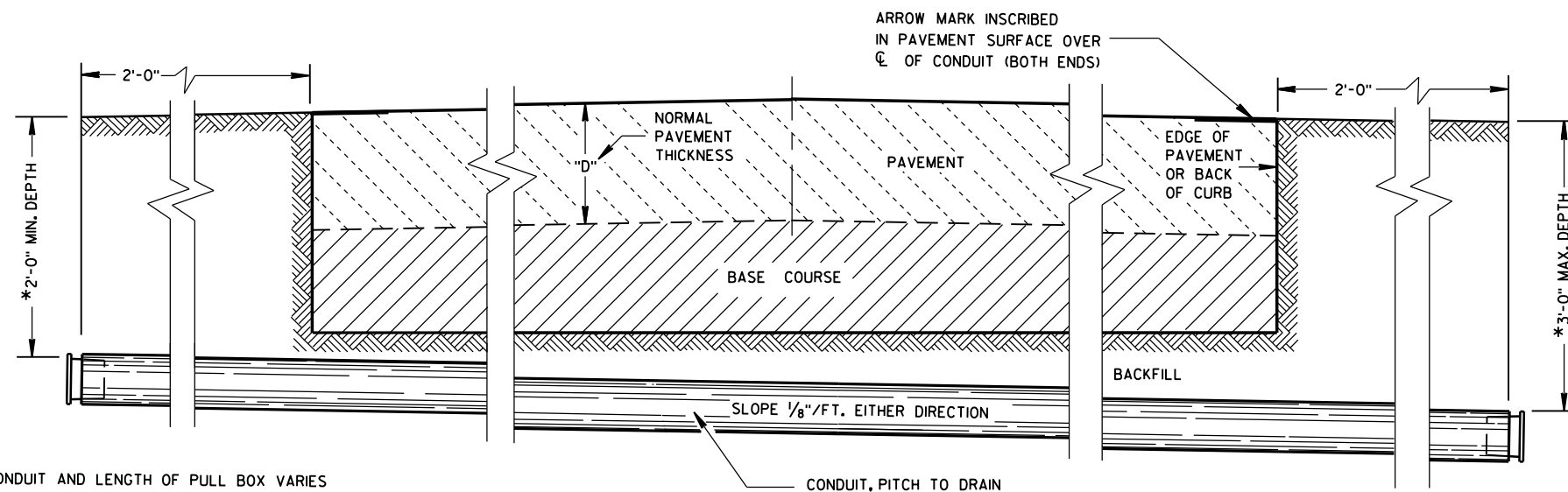
/S/ Jerry H. Zogg

ROADWAY STANDARDS D 154

ENGINEER



PLAN VIEW
ARROW MARK



SIDE ELEVATION
DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS

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

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.

CONDUIT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March, 2017 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL 155
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.

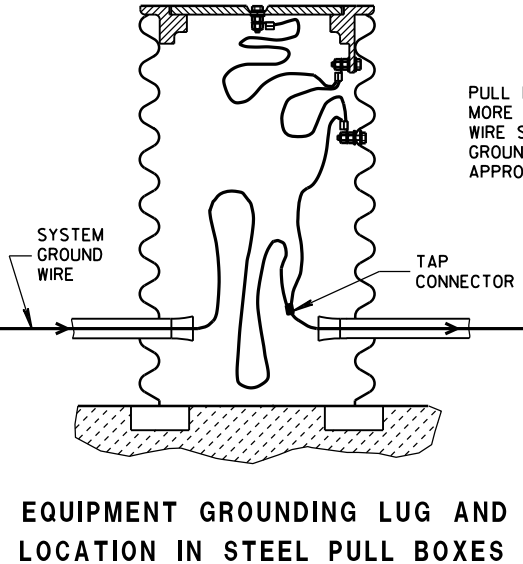
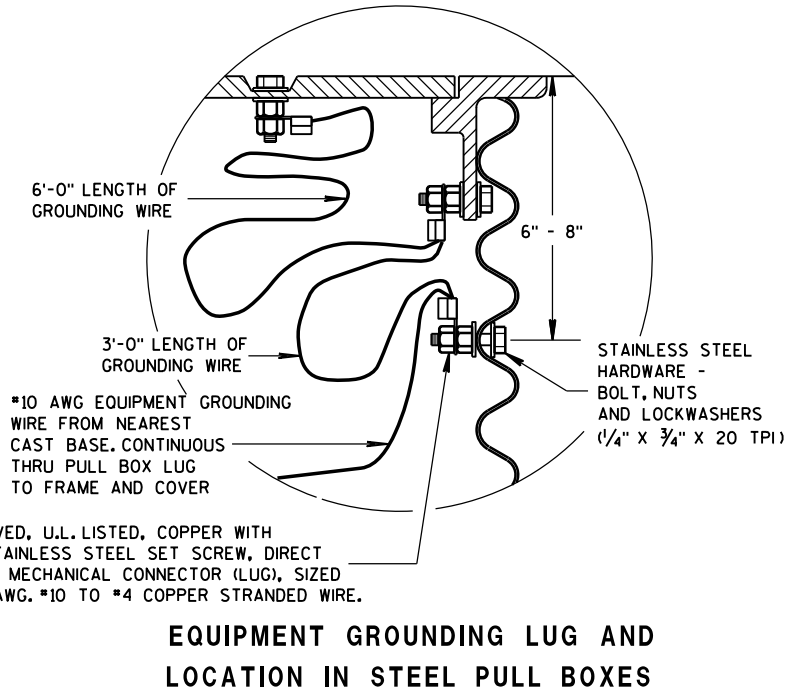
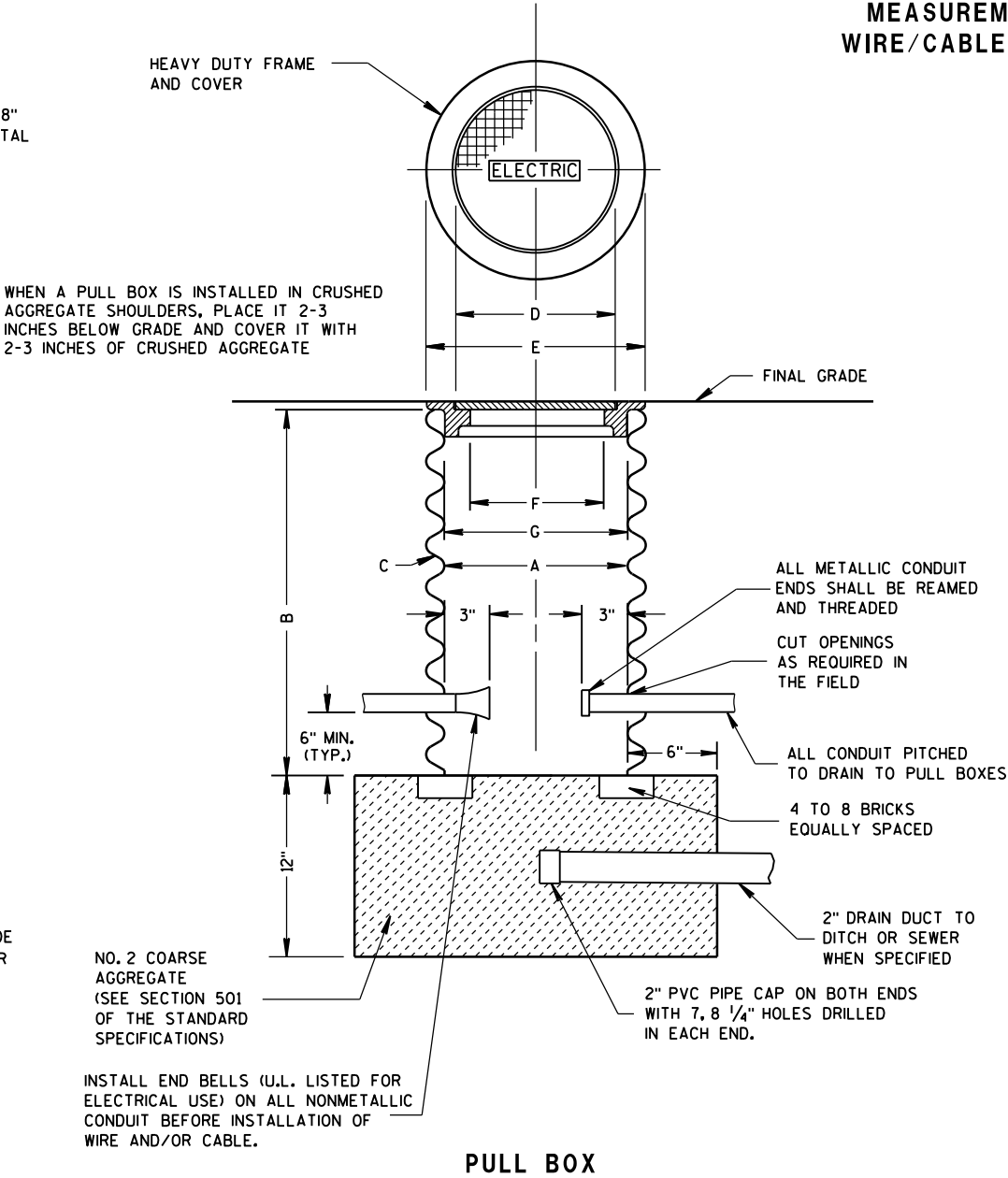
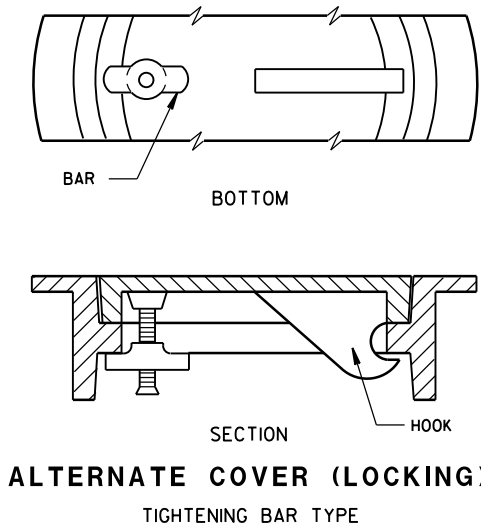
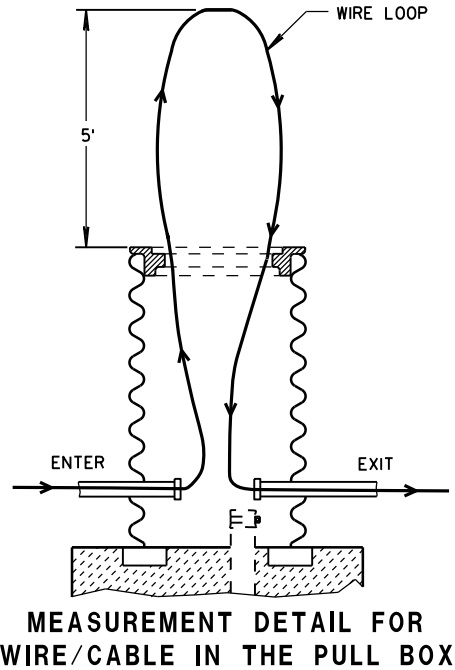
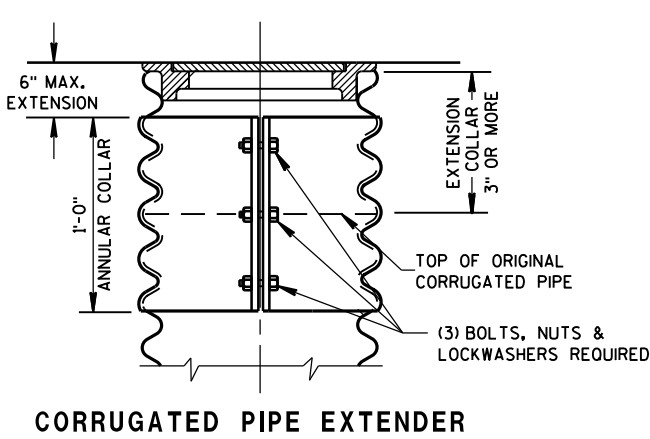
ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

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.

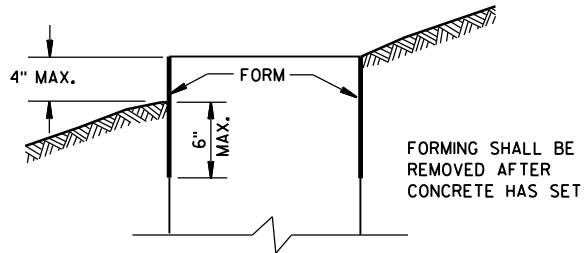
ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

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 156
FHWA	

FORM DEPTH SHALL BE NO MORE THAN 6" BELOW GRADE ON THE LOWER SIDE OF BASE



FORMING DETAIL

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

GENERAL NOTES

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

BASES SHALL BE EXCAVATED BY USE OF A CIRCULAR AUGER.

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

CONDUIT SIZES AND LOCATIONS SHALL BE AS SHOWN ON THE PLANS.

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.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 X THE DIAMETER.

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

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 INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

GENERAL NOTES (CONTINUED)

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

ENDS OF CONDUIT INSTALLED BELOW GRADE FOR FUTURE USE SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC.

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

IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE DIRT OR FILL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

A NO. 4 AWG. STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD) FOR TYPE 1, TYPE 2, TYPE 5, AND TYPE 6 BASES.

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE OF THE TYPE 2 AND TYPE 5 BASES THROUGH A 1 INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4 FOOT COIL OF WIRE ABOVE THE CONCRETE BASE. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD. ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 OF THE STANDARD SPECIFICATIONS.

WASHERS AND LOCK WASHERS ARE REQUIRED ON ALL ANCHOR RODS.

WHEN ANCHOR RODS USING THE ALTERNATE "L" BEND ARE FURNISHED, THE 4" "L" BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH. THE "L" BEND END SHALL NOT BE THREADED.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

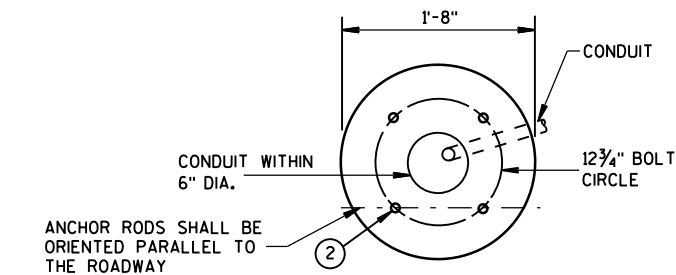
WELDING OF THE ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TIE WIRES SHALL BE USED.

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

- 1 THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES EXCEPT WITH WRITTEN APPROVAL BY THE ENGINEER.

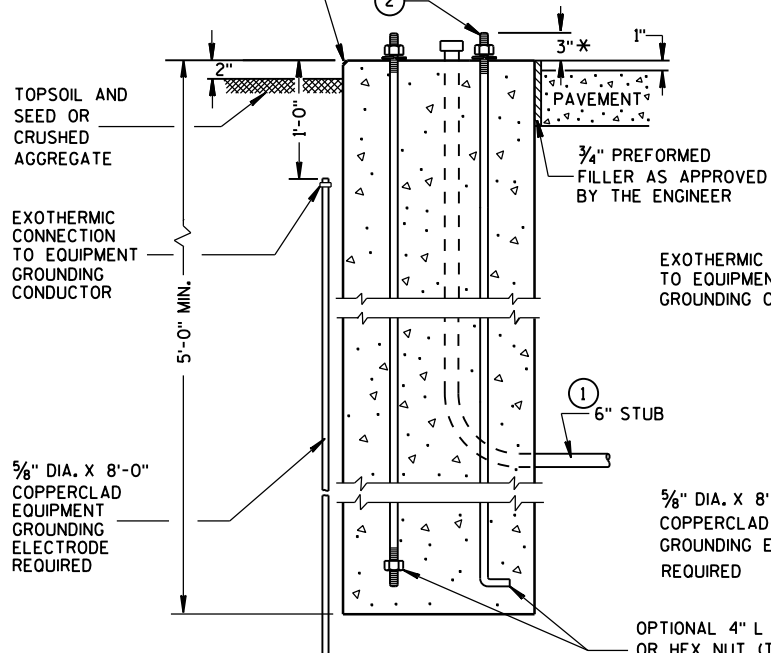
- 2 (4) 1" DIA. X 3'-6" ANCHOR RODS.
3 (4) 1" DIA. X 5'-0" ANCHOR RODS.
4 (6) NO. 6 X 6'-8" BAR STEEL REINFORCEMENT.
5 (7) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.
6 (4) 1" DIA. X 3'-6" ANCHOR RODS.
7 (6) NO. 4 X 4'-8" BAR STEEL REINFORCEMENT.
8 (5) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0"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

6

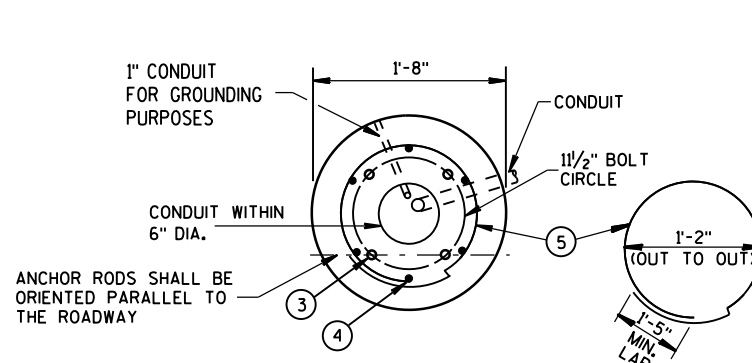


FORM ALL EXPOSED CONCRETE. PROVIDE 1" CHAMFER ALL AROUND

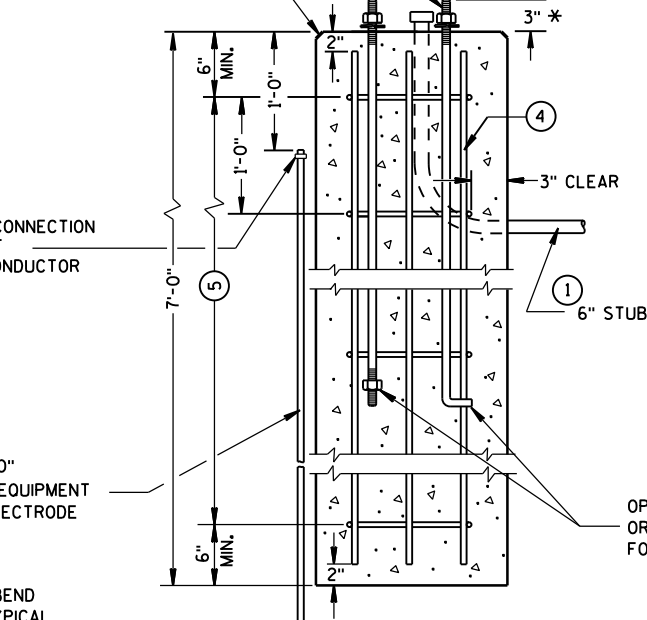
HALF SECTION IN UNPAVED AREA
(TYPICAL FOR TYPES 1, 2, 5, & 6)



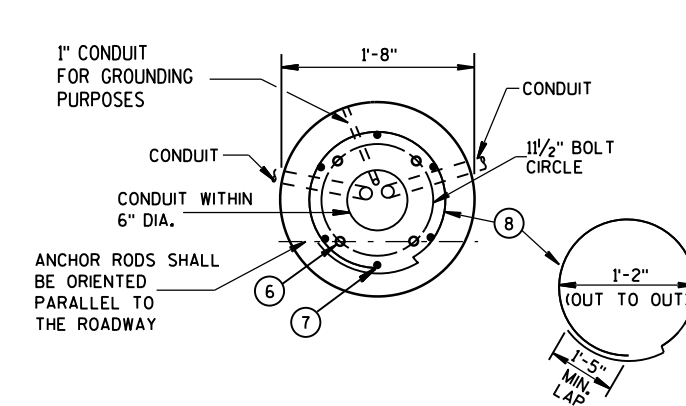
TYPE 1



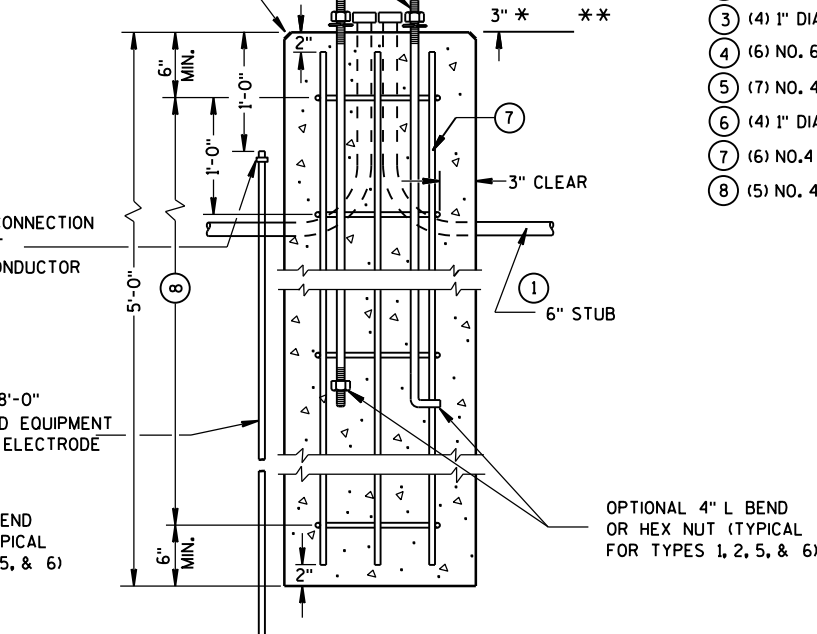
FORM ALL EXPOSED CONCRETE. PROVIDE 1" CHAMFER ALL AROUND



TYPE 2



FORM ALL EXPOSED CONCRETE. PROVIDE 1" CHAMFER ALL AROUND



TYPE 5 & 6

CONCRETE BASES

* ANY ANCHOR ROD PROJECTION SHORTER THAN 2 3/4" OR LONGER THAN 3 1/4" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE.

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

CONCRETE BASES,
TYPES 1, 2, 5, & 6

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2014

DATE

/S/ Ahmet Demirel

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S.D.D. 9 C 2-7

S.D.D. 9 C 2-7

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.

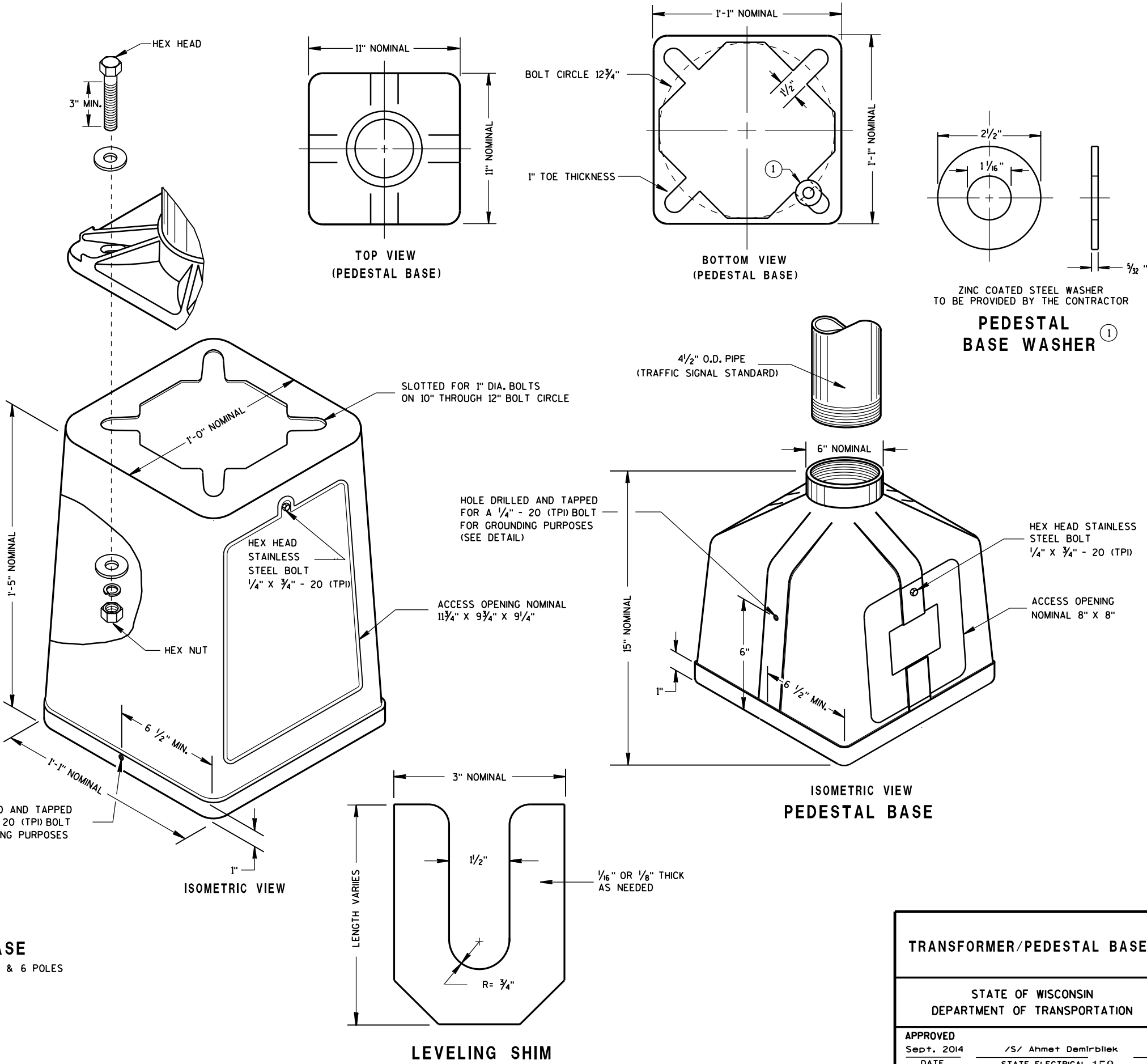
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

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

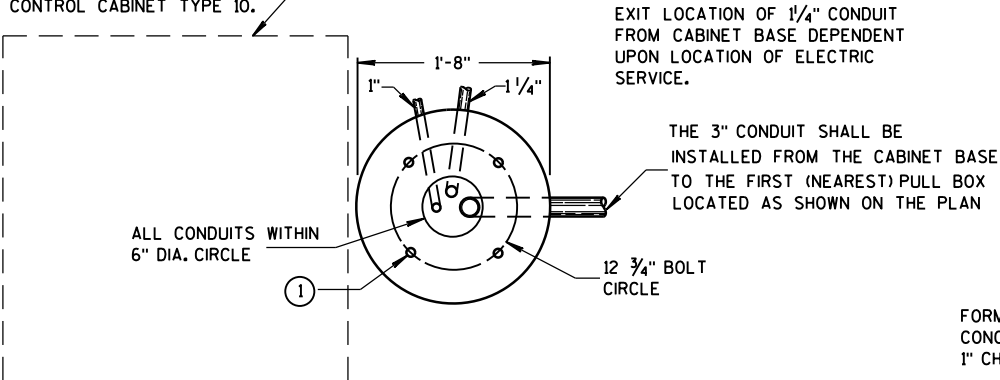
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED Sept. 2014 DATE /S/ Ahmet Demirbilek STATE ELECTRICAL 158 FHWA

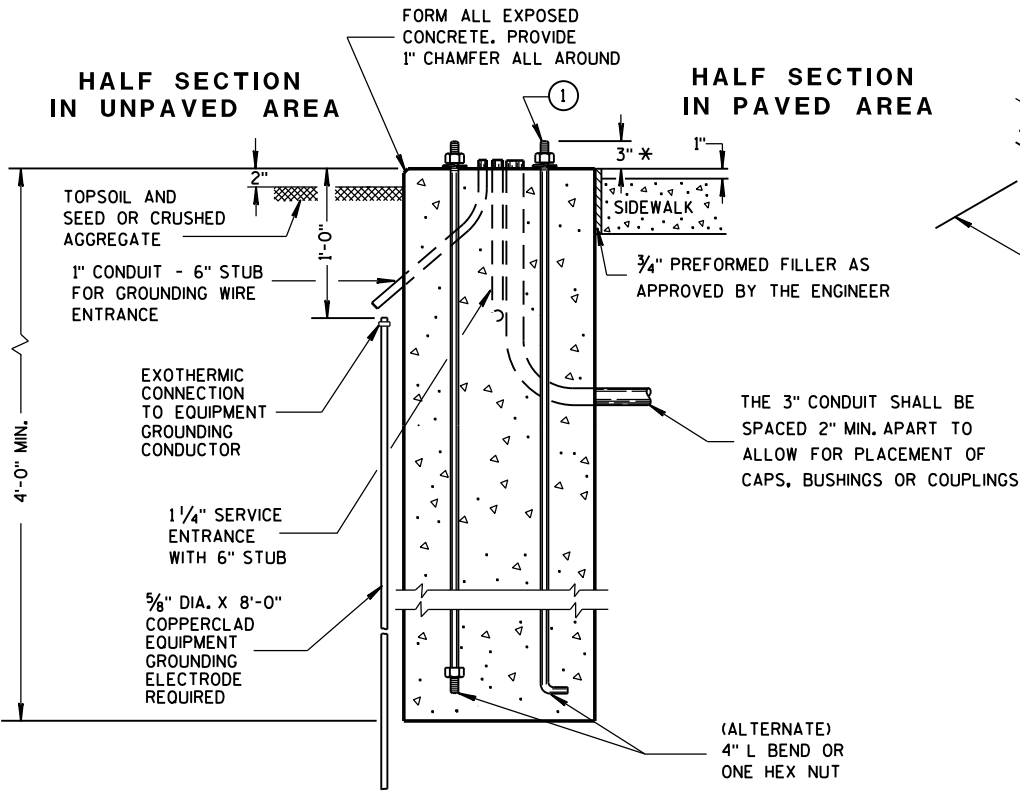
CONTROL CABINET BASE TYPE	DIMENSIONS				C.Y. CONCRETE (APPROX.)
	H	I	J	K	
TYPE 6 - 30" CABINET	34"	60"	10"	17"	.64
TYPE 7 - 38" CABINET	42"	60"	10"	21"	.93
TYPE 8 - 38" CABINET	42"	72"	12"	21"	1.29
TYPE 9 - VARIABLE	54"	72"	14"	27"	1.56
TYPE 10 - POST MOUNT	AS SHOWN				.65 *

* INCLUDES MAINTENANCE PLATFORM.

TYPICAL 3'-0" X 3'-0" X 4" THICK
MAINTENANCE PLATFORM.
LOCATION TO BE DETERMINED
IN THE FIELD. COST TO BE
INCLUDED UNDER CONCRETE
CONTROL CABINET TYPE 10.



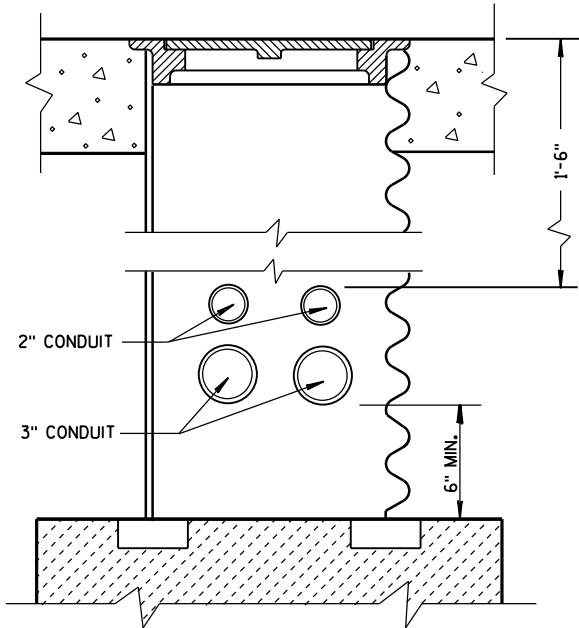
HALF SECTION IN UNPAVED AREA



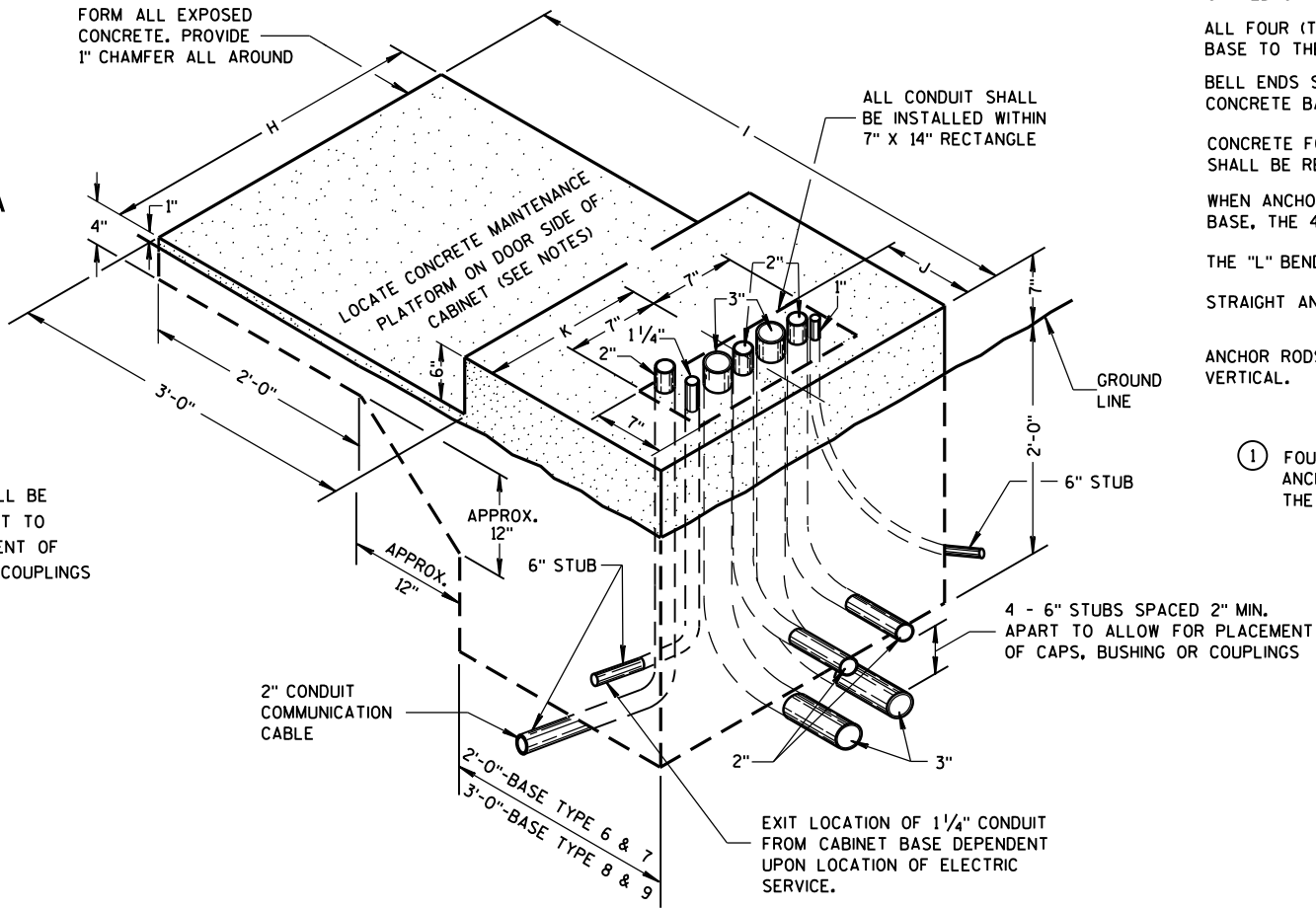
TYPE 10

* ANY ANCHOR ROD PROJECTION SHORTER THAN 2 3/4" OR LONGER THAN 3 1/4" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE.

CONCRETE CONTROL CABINET BASES



CONDUIT LOCATIONS IN 24" X 36" PULL BOX (LEADING TO CONTROLLER CABINET BASE TYPE 6, 7, 8 AND 9)



TYPE 6,7,8 AND 9
(ISOMETRIC VIEW)

GENERAL NOTES

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

INSTALL FOUR 1/2 INCH MINIMUM DIAMETER X 4 INCH MINIMUM LENGTH APPROVED CONCRETE MASONRY ANCHORS WITH A PULLOUT STRENGTH OF 9,000 LBS. TO ANCHOR THE CABINET TO TYPE 6, 7, 8, AND 9 BASES. THE ANCHOR STUDS 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 SURFACES SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

WHEN A TYPE 10 CONTROL CABINET BASE IS USED TO POST MOUNT A CONTROL CABINET, A 36" SQUARE 4" THICK CONCRETE MAINTENANCE PLATFORM SHALL BE REQUIRED ON THE DOOR SIDE OF THE CABINET. THE TOP 1 INCH SHALL BE ABOVE FINISHED GRADE AND BE BROOM FINISHED AND 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.

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.

ALL FOUR (TWO INCH AND THREE INCH) CONDUIT SHALL BE INSTALLED FROM THE CABINET BASE TO THE FIRST (NEAREST) PULL BOX LOCATED AS SHOWN ON THE PLANS.

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

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

WHEN ANCHOR RODS USING THE ALTERNATE L BEND ARE FURNISHED FOR THE TYPE 10 BASE, THE 4" L BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH.

THE "L" BEND SHALL NOT BE THREADED.

STRAIGHT ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

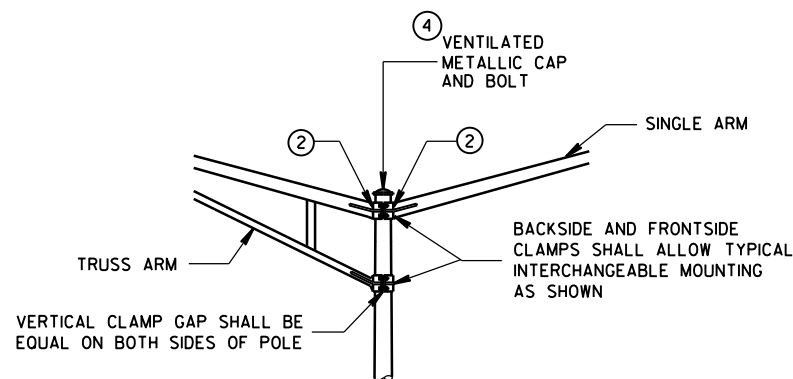
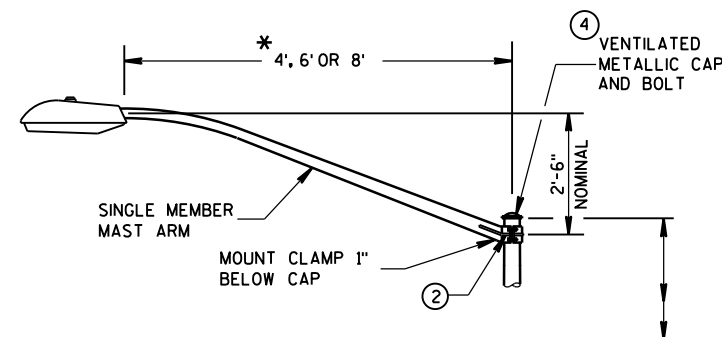
① FOUR (4) ANCHOR RODS, 1" DIA. X 3'-6". ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 OF THE STANDARD SPECIFICATIONS.

CONCRETE CONTROL CABINET BASES

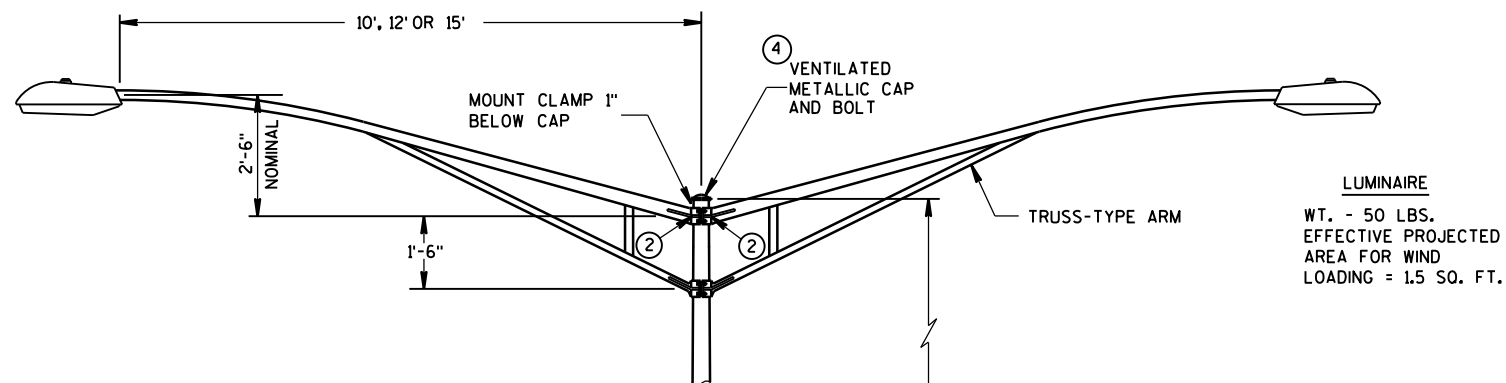
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Sept. 2016 /S/ Ahmet Demirblek
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* RISE FOR 4' ARM SHALL BE 2'-0".

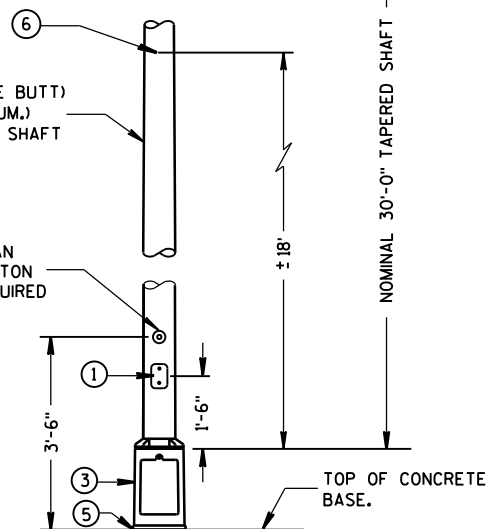


INTERCHANGEABLE MOUNTING DETAIL



ROUND SHAFT 8" O.D. (POLE BUTT)
X 3.8" (STEEL) OR 4.5" (ALUM.)
O.D. TOP FOR TAPERED 30' SHAFT

PEDESTRIAN
PUSH BUTTON
WHEN REQUIRED



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").

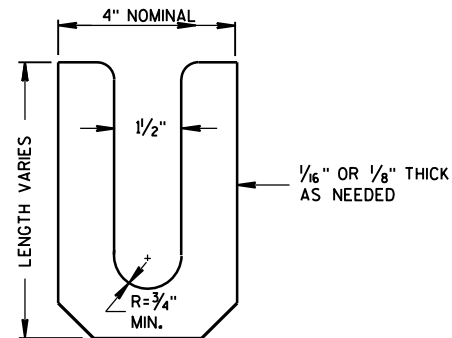
THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL $2\frac{3}{8}$ INCHES IN OUTSIDE DIAMETER. THE STRAIGHT PORTION OF THE SLIPFITTER END OF THE LUMINAIRE ARM SHALL BE A NOMINAL 12 INCHES IN LENGTH.

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

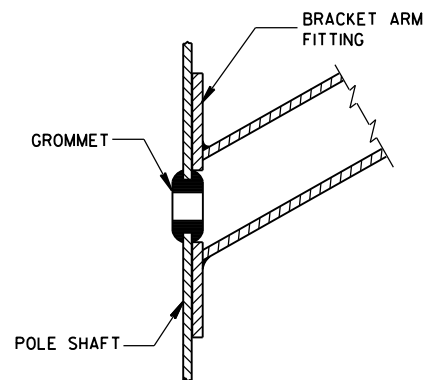
- ① 4" x 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO) $\frac{1}{4}$ " x $\frac{3}{4}$ " - 20 TPI HEX HEAD STAINLESS STEEL BOLTS.
- ② GROMMETS, 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR $1\frac{3}{8}$ " HOLE IN POLE SHAFT FOR WIRING.
- ③ CAST ALUMINUM TRANSFORMER 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)

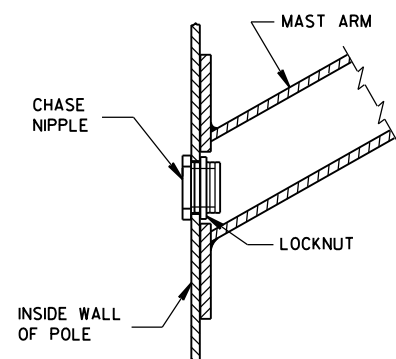
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LEVELING SHIM
SHALL BE ALUMINUM



TYPICAL APPLICATION OF GROMMET IN POLE SHAFT



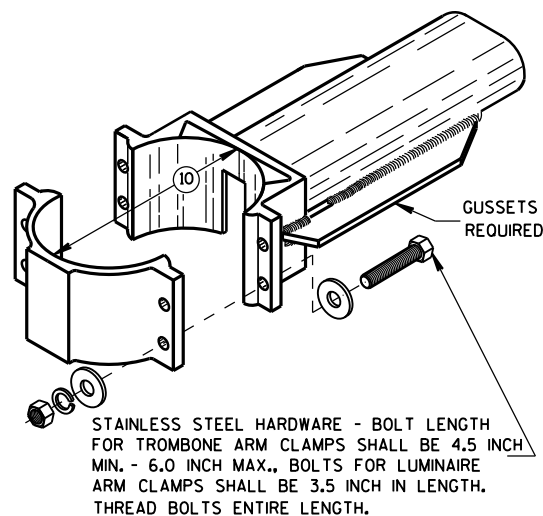
TYPICAL APPLICATION OF CHASE NIPPLE IN POLE SHAFT

GENERAL NOTES

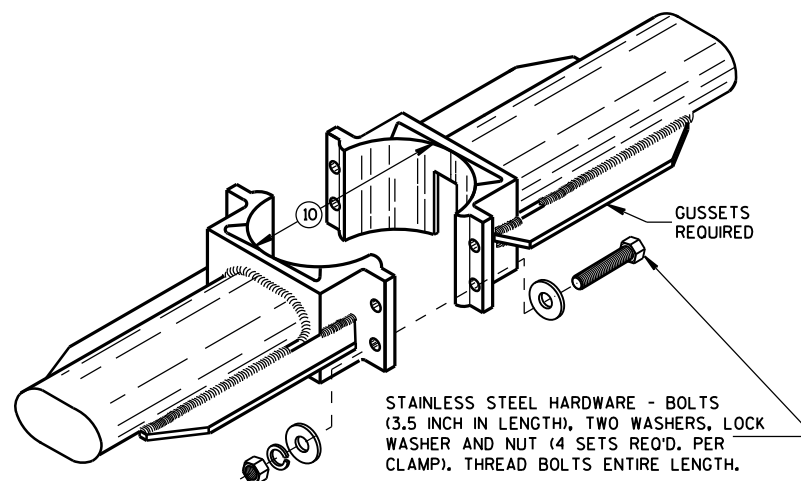
CLAMP BOLT-NUT TIGHTENING TORQUE SHALL BE INDICATED BY INDENT STAMPING (1/2 INCH NUMERALS AND LETTERS) OR WEATHERPROOF PRINTING ON THE INSIDE OF THE CLAMP THAT IS WELDED TO THE ARM MEMBER.

- 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.

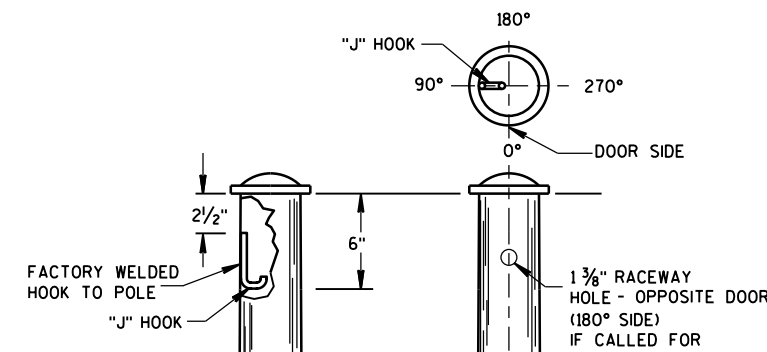
SHIMS SHALL BE LONG ENOUGH AND WIDE ENOUGH TO COMPLETELY COVER THE
AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.



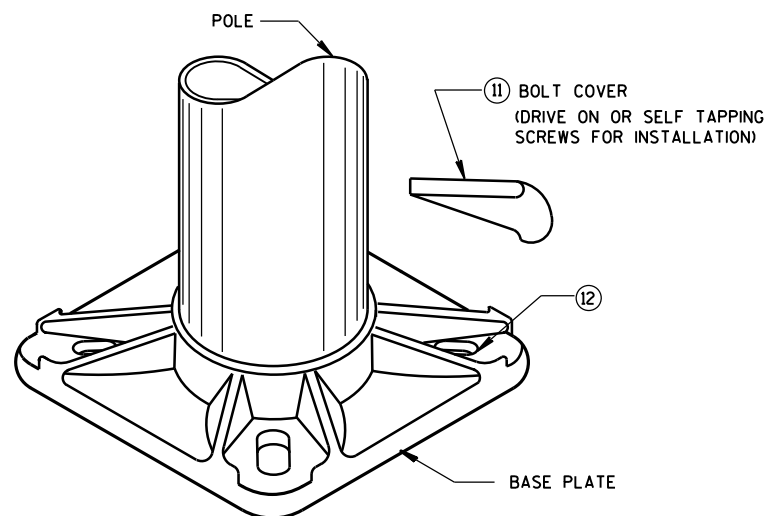
TYPICAL TROMBONE MAST ARM AND SINGLE LUMINAIRE MAST ARM MOUNTING CLAMP



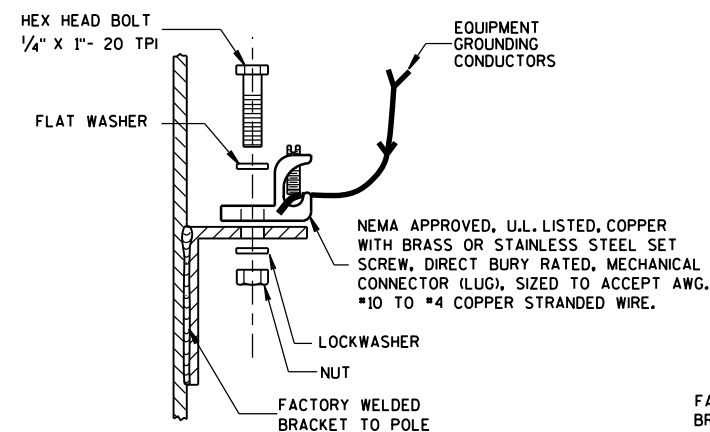
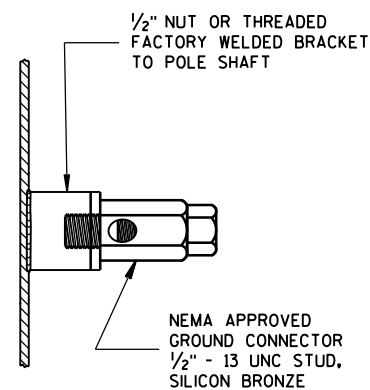
TYPICAL LUMINAIRE MAST ARM (DOUBLE) MOUNTING BRACKETS



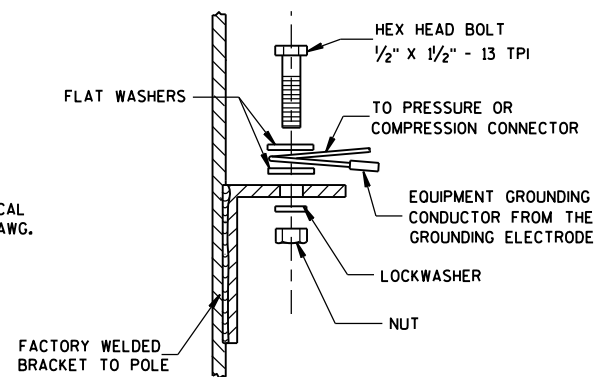
TYPICAL "J" HOOK LOCATION



BASE PLATE



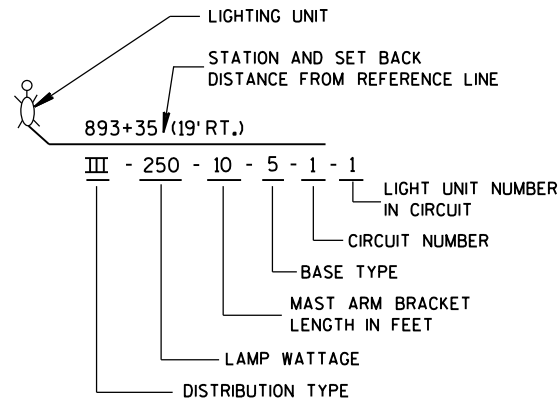
TYPICAL GROUNDING CONNECTIONS
NUT, BOLT AND WASHERS SHALL
BE STAINLESS STEEL



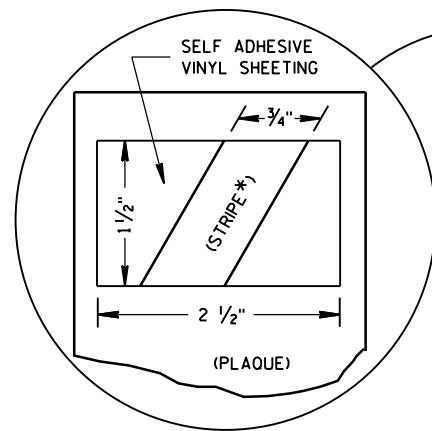
HARDWARE DETAILS FOR POLE MOUNTINGS

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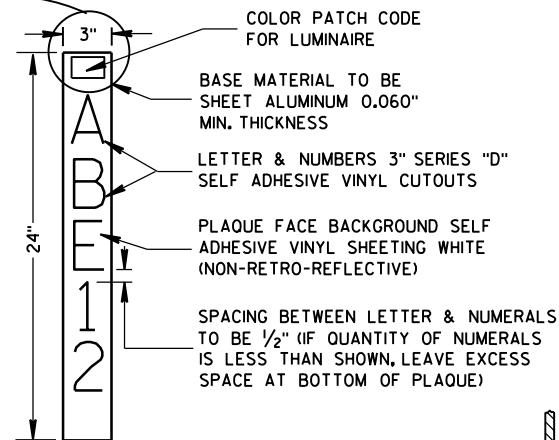
APPROVED
Feb. 2015
DATE /S/ Ahmet Demirbilek
STATE ELECTRICAL 161
FHWA



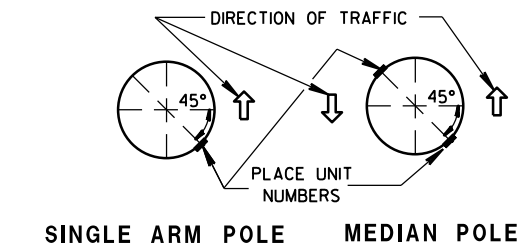
**LIGHTING UNIT CODE
(TYPICAL)**



- COLOR PATCH CODE FOR LUMINAIRES**
(HIGH PRESSURE SODIUM)
- 1000 WATT - NO PATCH
 - 400 WATT - ORANGE
 - 310 WATT - BLUE
 - 250 WATT - ORANGE W/WHITE STRIPE*
 - 200 WATT - RED
 - 150 WATT - GREEN
 - 100 WATT - BROWN
- (MERCURY VAPOR)
- 400 WATT - (NO PATCH)
 - 250 WATT - YELLOW



IDENTIFICATION PLAQUE

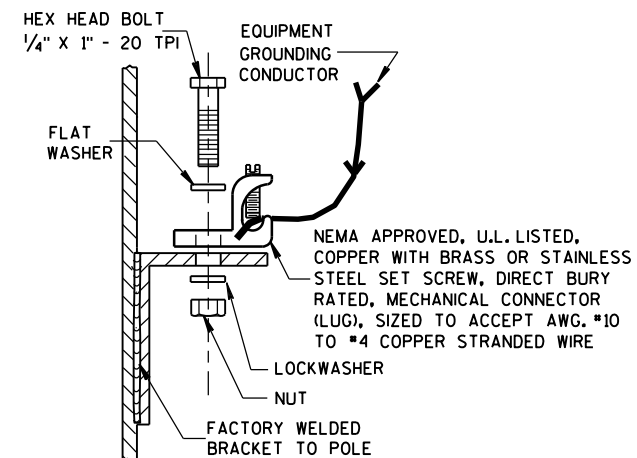
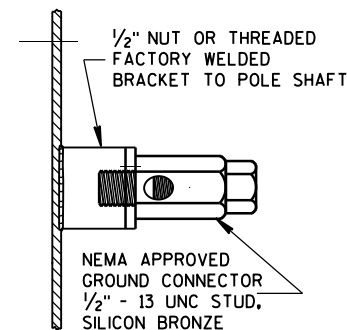


LIGHTING UNIT IDENTIFICATION PLAQUE REQUIREMENTS AND PLACEMENT
(TYPICAL ALL LIGHTING UNITS)
FURNISH PLAQUE WHEN CALLED FOR BY SPECIAL PROVISIONS

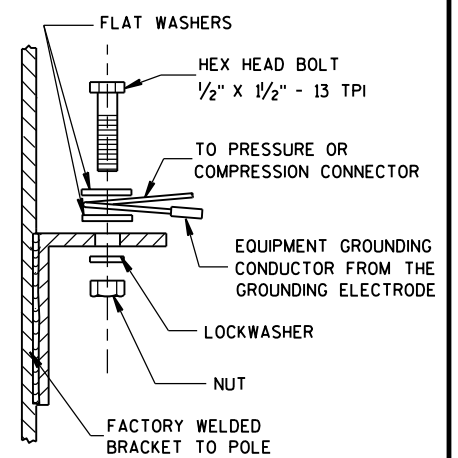
FASTEN TOP, CENTER AND BOTTOM OF PLAQUE WITH 3 ALUMINUM POP RIVETS (ALUM. POLES) OR STAINLESS STEEL POP RIVETS (STEEL POLES)

NOTES:

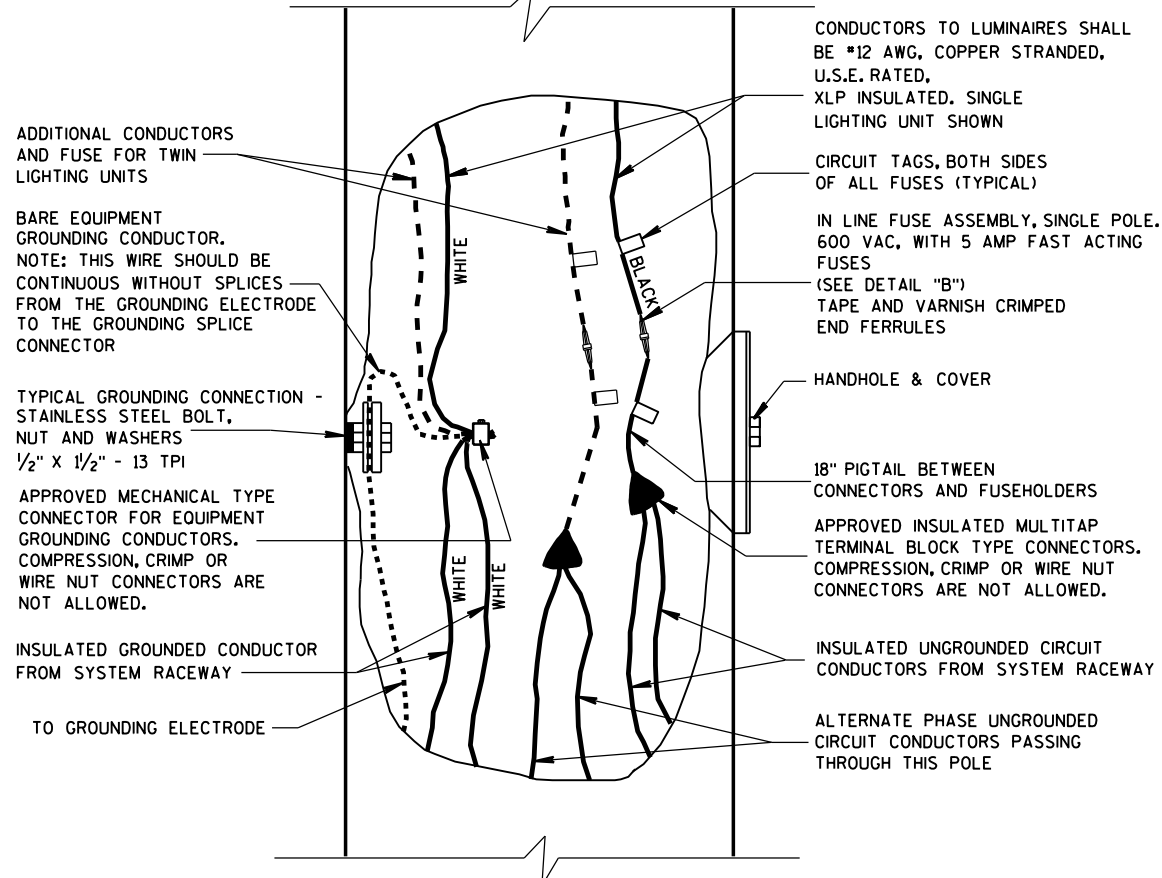
- 1) PLACE BOTTOM OF UNIT NUMBER PLAQUE 5'-0" ABOVE ELEVATION OF ADJACENT CURB OR SHOULDER.
- 2) UNIT NUMBERS: ONE REQUIRED FOR SINGLE ARM POLES TWO REQUIRED FOR MEDIAN MOUNT POLES.



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



OLD EXISTING FREEWAY WIRING (SOME AREAS)



UNGROUND CONDUCTORS TO LUMINAIRES TO BE #12 AWG, COPPER STRANDED, U.S.E. RATED, XLP INSULATED, SINGLE LIGHTING UNIT SHOWN

TWIN LIGHTING UNITS REQUIRE INDIVIDUAL SETS OF UNGROUNDED CONDUCTORS AND FUSE ASSEMBLY.

TWIN LIGHTING UNIT EQUIPMENT GROUNDING CONDUCTOR

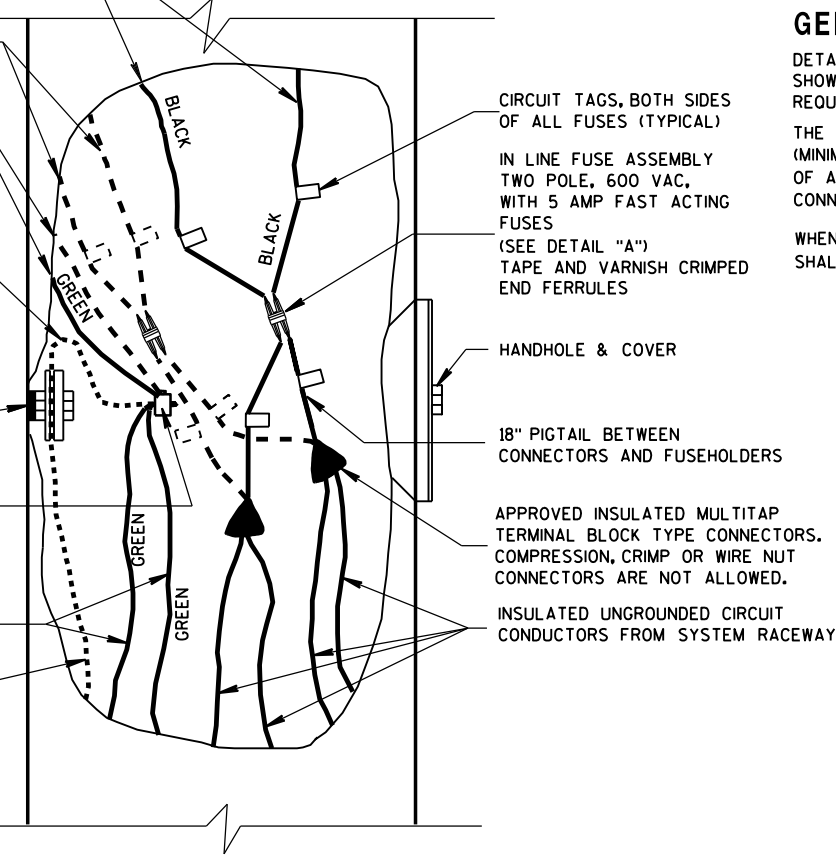
AWG #4 (MIN.) BARE EQUIPMENT GROUNDING CONDUCTOR. NOTE: THIS WIRE SHALL BE CONTINUOUS WITHOUT SPLICES FROM THE GROUNDING ELECTRODE TO THE EQUIPMENT GROUNDING CONDUCTOR SPLICE CONNECTOR

TYPICAL GROUNDING CONNECTION - STAINLESS STEEL BOLT, NUT AND WASHERS 1/2" x 1/2" - 13 TPI

APPROVED MECHANICAL TYPE CONNECTOR FOR EQUIPMENT GROUNDING CONDUCTORS. COMPRESSION, CRIMP OR WIRE NUT CONNECTORS ARE NOT ALLOWED.

INSULATED EQUIPMENT GROUNDING CONDUCTORS FROM SYSTEM RACEWAY

EXOTHERMICALLY WELDED TO GROUNDING ELECTRODE

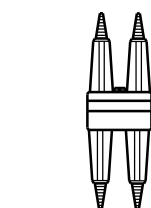


GENERAL NOTES

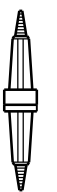
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

THE EQUIPMENT GROUND 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.



DETAIL "A"
BREAKAWY
DOUBLE POLE WITH
WATERPROOF
INSULATING BOOT

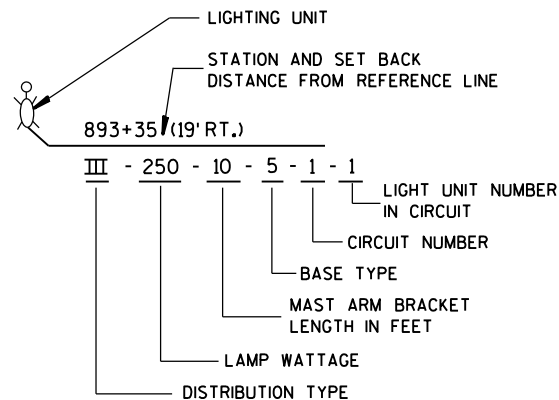


DETAIL "B"
BREAKAWY
SINGLE POLE WITH
WATERPROOF
INSULATING BOOT

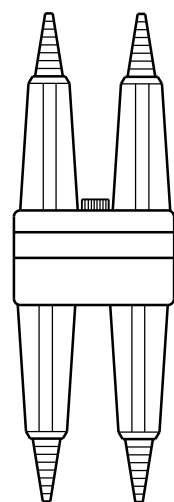
**FREEWAY LIGHTING UNIT
POLE WIRING**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

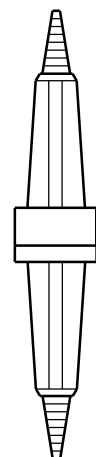
APPROVED
Sept. 2014 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL 162
FHWA



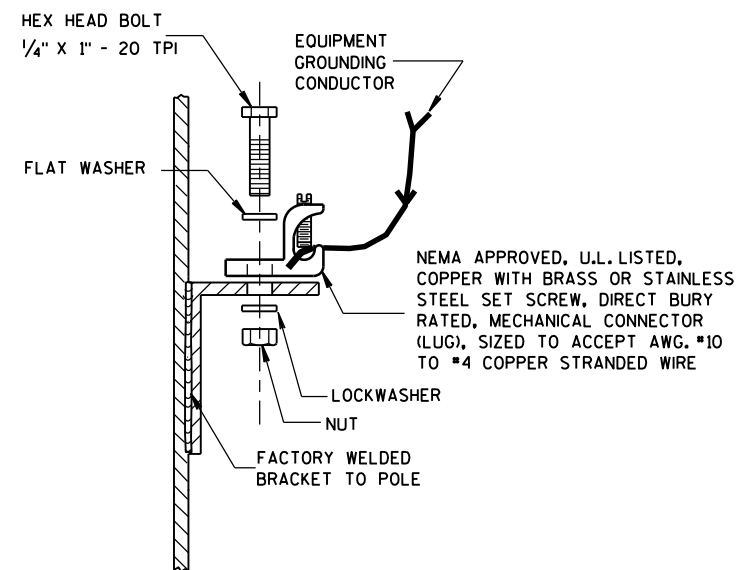
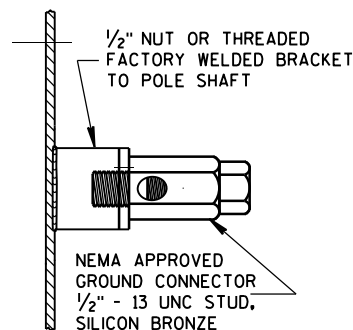
**LIGHTING UNIT CODE
(TYPICAL)**



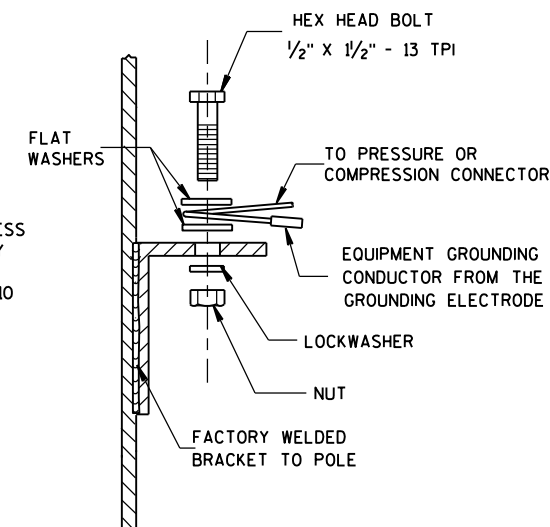
**DETAIL "A"
BREAKAWY
DOUBLE POLE WITH
WATERPROOF
INSULATING BOOT**



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

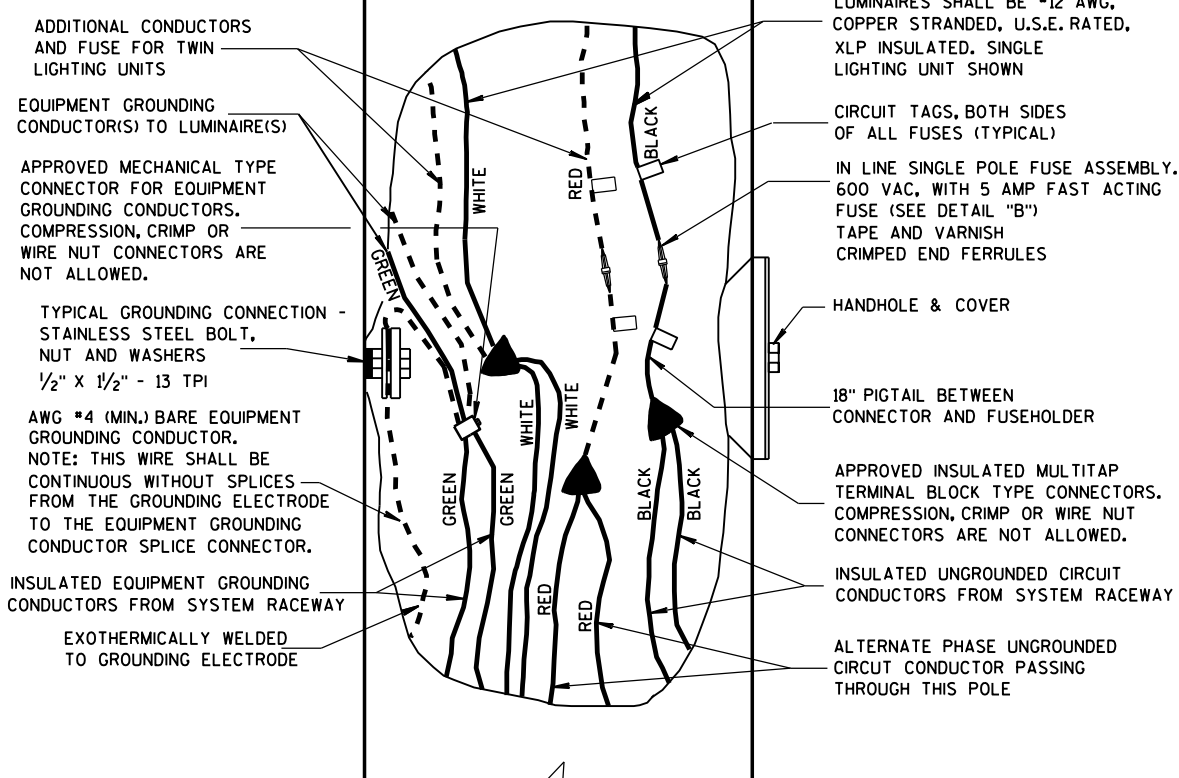


TYPICAL GROUNDING CONNECTIONS
NUT, BOLT, WASHERS AND LOCKWASHERS SHALL BE STAINLESS STEEL

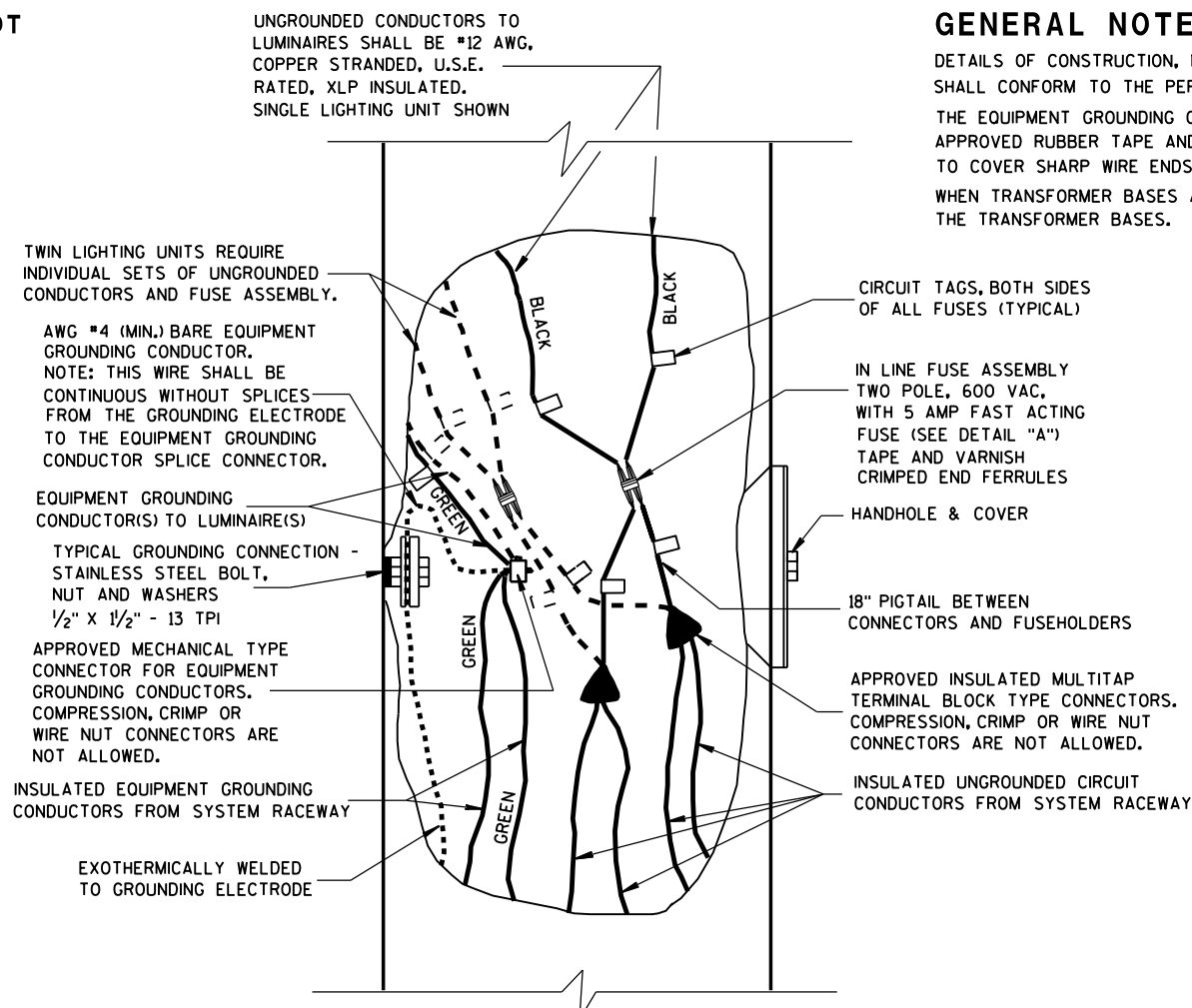


GENERAL NOTES

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 (UNGROUND CONDUCTOR)
WITH GROUNDED CONDUCTOR AND
WITH EQUIPMENT GROUNDING CONDUCTOR**

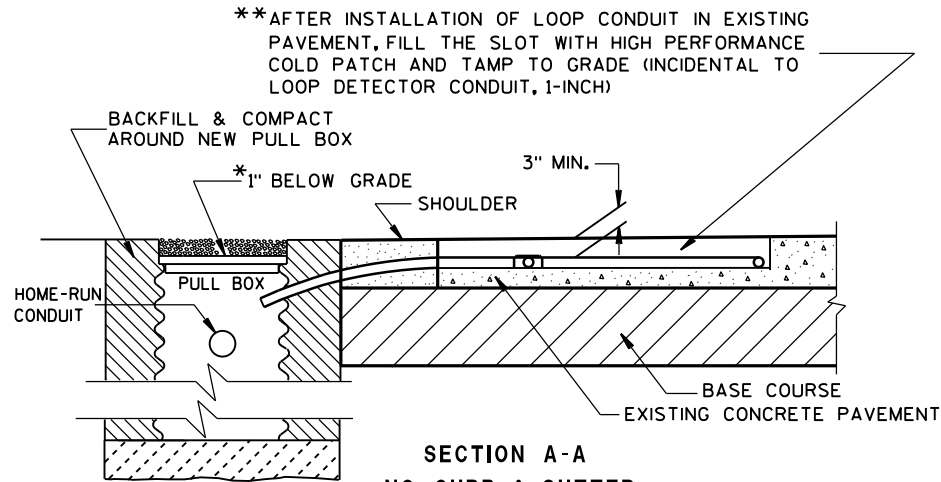


**2 WIRE - 240 OR 480 VAC (UNGROUND CONDUCTORS)
WITH EQUIPMENT GROUNDING CONDUCTOR**

**NON-FREWAY LIGHTING UNIT
POLE WIRING**

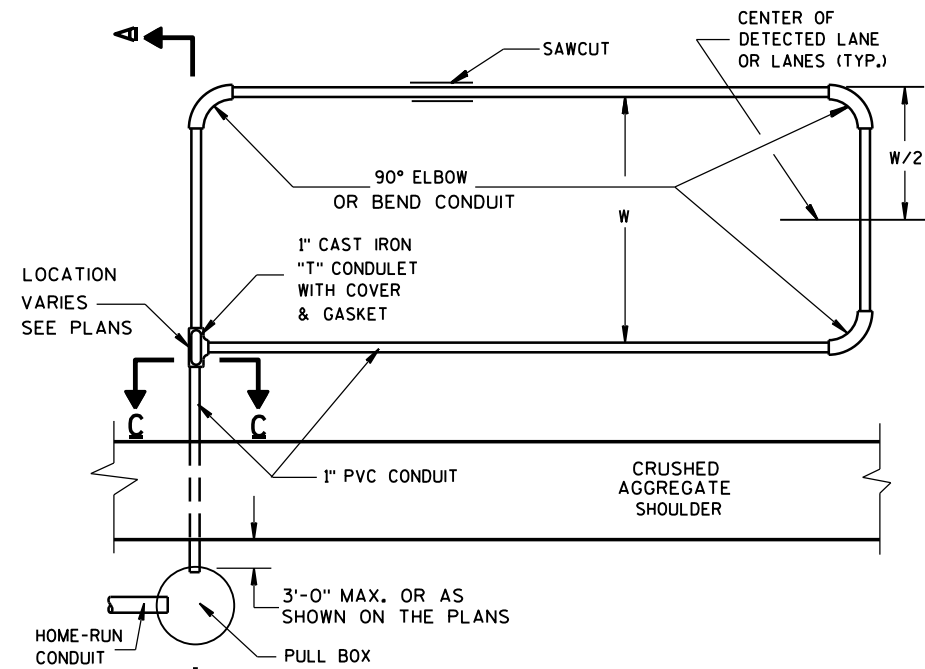
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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Sept. 2014 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL 163
FHWA

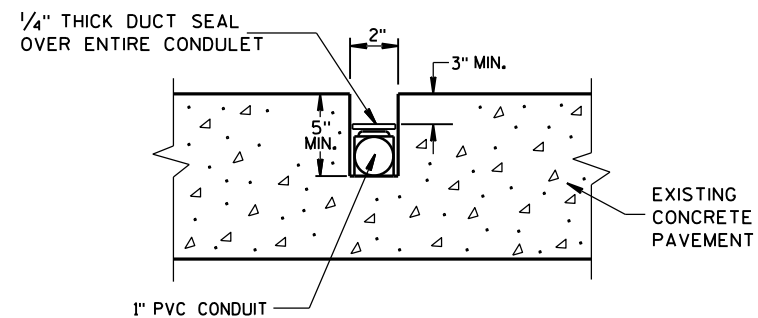


**SECTION A-A
NO CURB & GUTTER
LOOP DETECTOR INSTALLATION DETAIL**

**RECESS PULL BOX SO THAT THE COVER IS 3\"/>



TYPICAL PLAN OF LOOP DETECTOR



**SIDE VIEW
SECTION C-C
LOOP DETECTOR SLOT DETAIL**

GENERAL NOTES

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

LOOP SIZE, LOCATION, NUMBER OF TURNS OF WIRE AND ASSOCIATED SIGNAL PHASE SHALL BE AS SHOWN ON THE PLANS.

PITCH LEAD OUT CONDUIT TO DRAIN TO ROADSIDE PULL BOX.

SPLICES SHALL BE INSTALLED BY USING CAST IN PLACE SPLICE KITS LISTED ON THE DEPARTMENTS APPROVED PRODUCTS LIST OR AN ENGINEER APPROVED EQUAL. NON-INSULATED BUTT SPLICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPLICES SHALL BE SOLDERED AND INSULATED FROM EACH OTHER AS PER INSTRUCTIONS INCLUDED IN THE SPLICE KIT.

MEASURE GROUND RESISTANCE USING A MEGGER. REPLACE LOOP WIRE NOT ATTAINING A READING OF INFINITY TO GROUND.

AFTER SPLICING THE LOOP WIRE TO THE LOOP LEAD-IN CABLE, THE CONTRACTOR SHALL MEASURE INDUCTANCE, GROUND RESISTANCE AND WIRE RESISTANCE AT THE CABINET END OF THE LEAD-IN CABLE AND FURNISH A COPY OF THE READINGS TO THE PROJECT ENGINEER FOR EVALUATION.

BEFORE PLACING THE 1 INCH CONDUIT IN THE CLEANED OUT SLOT, PLACE SOME OF THE TAR OR EPOXY SEALANT IN THE SLOT TO A DEPTH OF APPROXIMATELY 1/2 INCH.

ONCE THE 2\"/>

LOOP DETECTOR LEADS SHALL BE IDENTIFIED WITH THEIR ASSOCIATED LOOP BY USE OF WATERPROOF TAGS AT BOTH ENDS OF THE CABLE. A LISTING OF THE CABLE IDENTIFICATION PER INDIVIDUAL LOOP LEAD-IN SHALL BE PLACED IN THE CABINET.

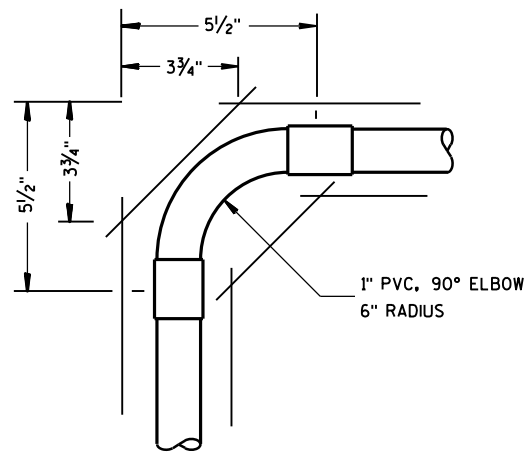
THE #12 AWG LOOP WIRE FROM THE LOOP TO THE ROADSIDE PULL BOX, SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE INSTALLATION.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL BOXES AT THE SIDE OF THE ROAD.

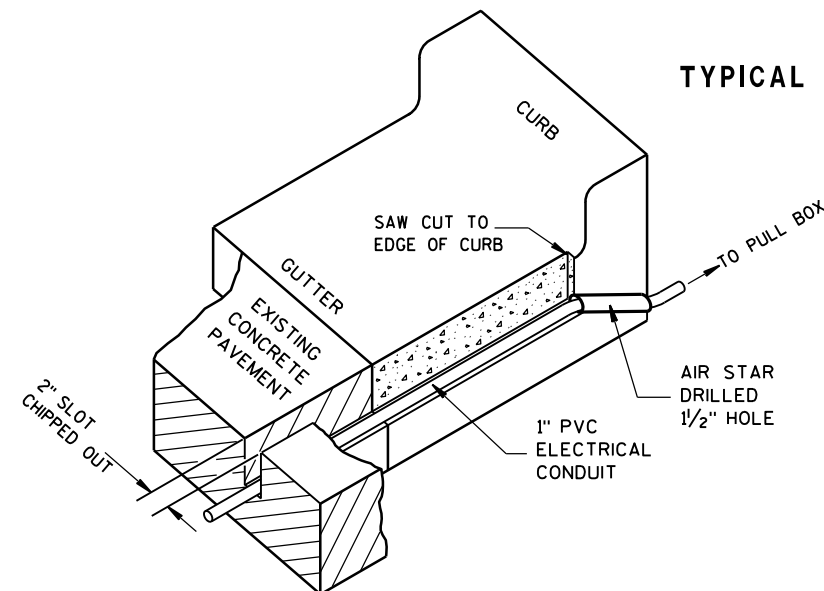
THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL BOX, THROUGH THE LOOP CONDUIT BACK TO THE ROADSIDE PULL BOX, AND BE INSTALLED IN ONE, NON-SPLICED, CONTINUOUS LENGTH.

** AFTER THE HIGH PERFORMANCE COLD PATCH HAS BEEN TAMPED, SEAL THE SLOT/HIGH PERFORMANCE COLD PATCH/PAVEMENT OPENING WITH HOT POURED ELASTIC TYPE MATERIAL CONFORMING TO THE REQUIREMENTS OF THE "SPECIFICATION FOR JOINT SEALANTS, HOT POURED, FOR CONCRETE AND ASPHALT PAVEMENTS, ASTM DESIGNATION: D3405".

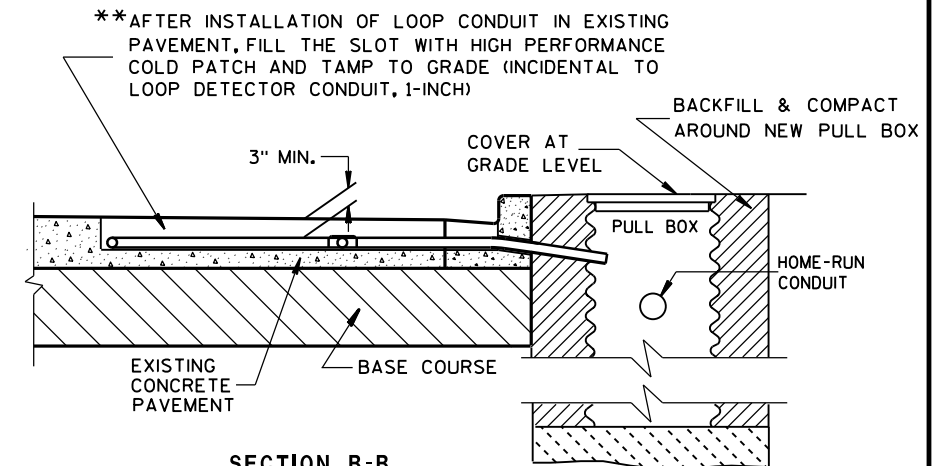
IN THE EVENT HIGH PERFORMANCE COLD PATCH IS NOT AVAILABLE, AND FLEXIBLE TYPE EPOXY IS USED AS A LOOP SLOT FILLER, THE 2 INCH SLOT SHALL BE TOTALLY CLEAN AND DRY BEFORE ITS INSTALLATION. EPOXY USE SHALL BE APPROVED BY THE DISTRICT TRAFFIC ENGINEER AND THE FURNISHED EPOXY SHALL BE INSTALLED AFTER WRITTEN APPROVAL BY THE PROJECT ENGINEER.



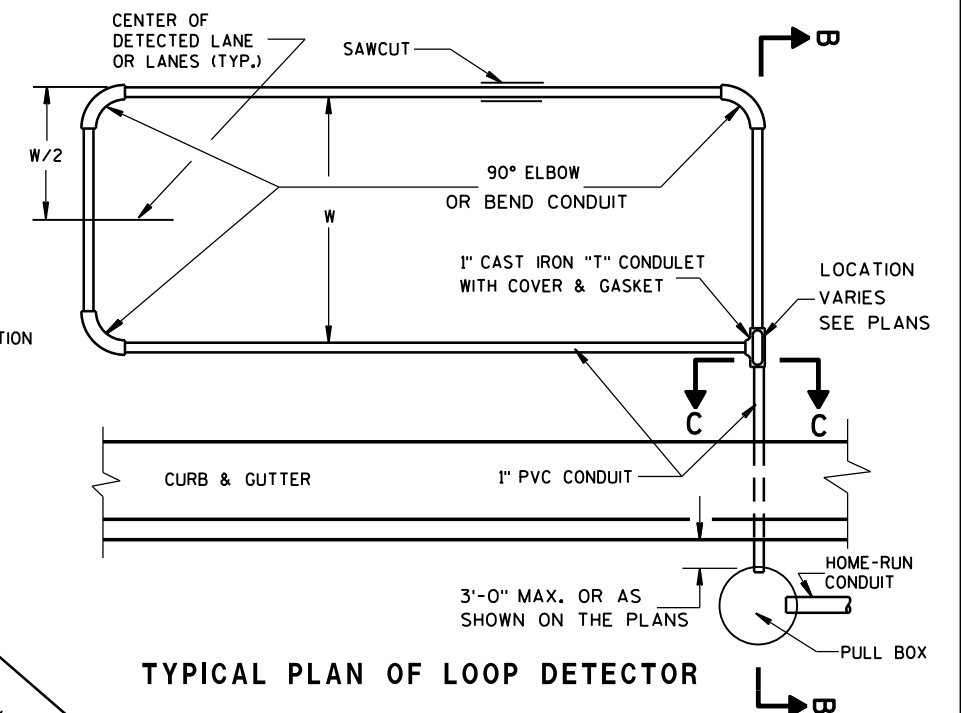
**TOP VIEW
CORNER SAW SLOT DETAIL**



**ISOMETRIC VIEW
TYPICAL SAW CUT DETAIL FOR LEAD-IN CONDUIT**



**SECTION B-B
CURB & GUTTER
LOOP DETECTOR INSTALLATION DETAIL**

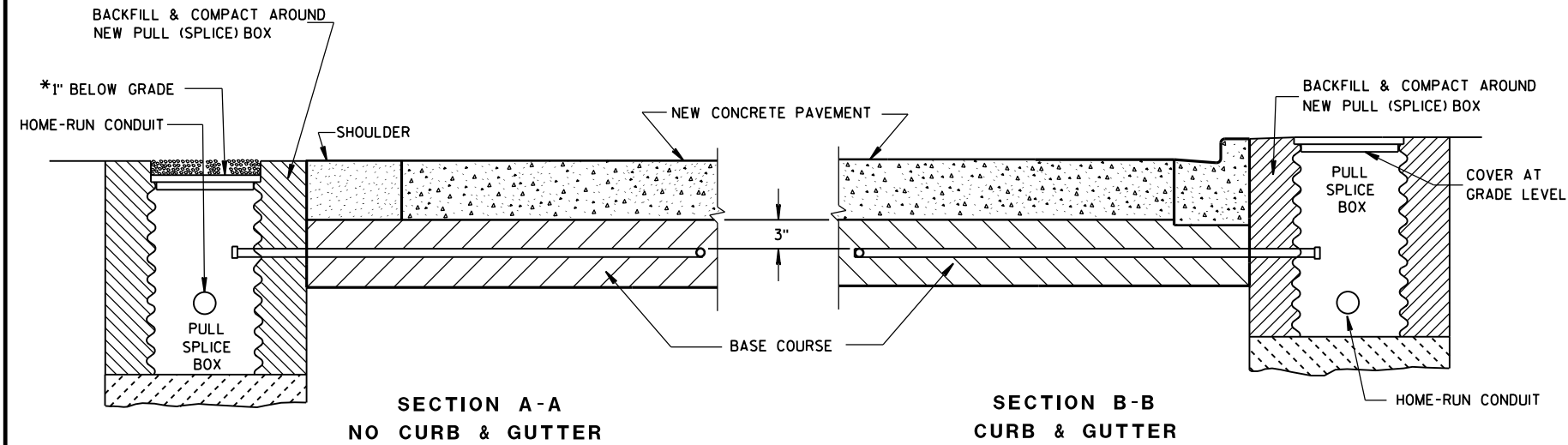


TYPICAL PLAN OF LOOP DETECTOR

**LOOP DETECTOR INSTALLED IN
EXISTING CONCRETE PAVEMENT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2014 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL 164
FHWA



*RECESS PULL (SPlice) BOX SO THAT THE COVER IS 3\"

LOOP DETECTOR INSTALLATION DETAIL

GENERAL NOTES

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

LOOP SIZE, CONFIGURATION LOCATION, NUMBER OF TURNS OF WIRE AND ASSOCIATED SIGNAL PHASE SHALL BE AS SHOWN ON THE PLANS.

PITCH LEAD OUT CONDUIT TO DRAIN TO ROADSIDE PULL (SPlice) BOX.

SPLICES SHALL BE INSTALLED BY USING CAST IN PLACE SPLICE KITS LISTED ON THE DEPARTMENTS APPROVED PRODUCTS LIST OR AN ENGINEER APPROVED EQUAL. NON-INSULATED BUTT SPLICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPLICES SHALL BE SOLDERED AND INSULATED FROM EACH OTHER AS PER INSTRUCTIONS INCLUDED IN THE SPLICE KIT.

MEASURE GROUND RESISTANCE USING A MEGGER. REPLACE LOOP WIRE NOT ATTAINING A READING OF INFINITY TO GROUND.

AFTER SPLICING THE LOOP WIRE TO THE LOOP LEAD-IN CABLE, THE CONTRACTOR SHALL MEASURE INDUCTANCE, GROUND RESISTANCE AND WIRE RESISTANCE AT THE CABINET END OF THE LEAD-IN CABLE AND FURNISH A COPY OF THE READINGS TO THE PROJECT ENGINEER FOR EVALUATION.

LOOP DETECTOR LEADS SHALL BE IDENTIFIED WITH THEIR ASSOCIATED LOOP BY USE OF WATERPROOF TAGS AT BOTH ENDS OF THE CABLE. A LISTING OF THE CABLE IDENTIFICATION PER INDIVIDUAL LOOP LEAD-IN SHALL BE PLACED IN THE CABINET.

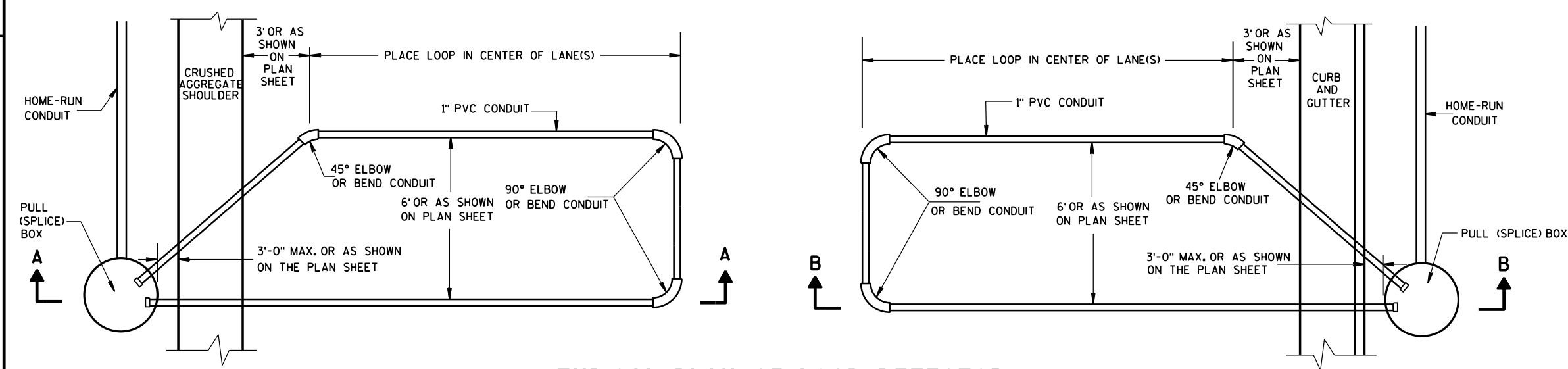
THE #12 AWG. LOOP WIRE IN THE PULL (SPlice) BOX SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE BEING SPLICED TO THE LOOP LEAD-IN CABLE.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL (SPlice) BOXES AT THE SIDE OF THE ROAD.

THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL (SPlice) BOX THROUGH THE LOOP CONDUIT, BACK TO THE ROADSIDE PULL (SPlice) BOX, AND BE INSTALLED IN ONE, NON-SPLICE CONTINUOUS LENGTH.

PROTECTION OF THE CONDUIT IN THE BASE COURSE, SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE NEW PAVEMENT IS INSTALLED.

SHOULD INSTALLATION REPAIR BE REQUIRED, IT SHALL BE DONE UNDER THE DIRECTION OF THE PROJECT ENGINEER.



TYPICAL PLAN OF LOOP DETECTOR WITH 18\"

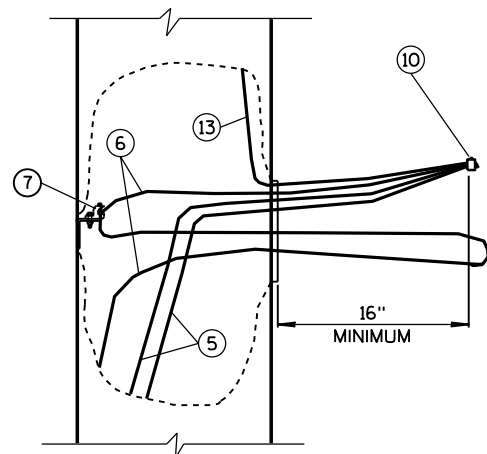
LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPlice) BOX OFF ROADWAY (OPTION 1)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED Sept. 2014 DATE	/S/ Ahmet Demirbilek STATE ELECTRICAL 165
FHWA	

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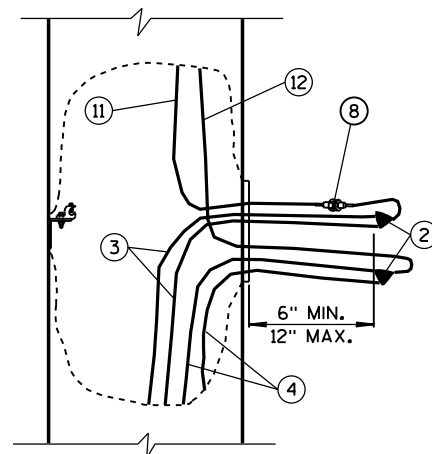
6

S.D.D. 9 F 15-4a

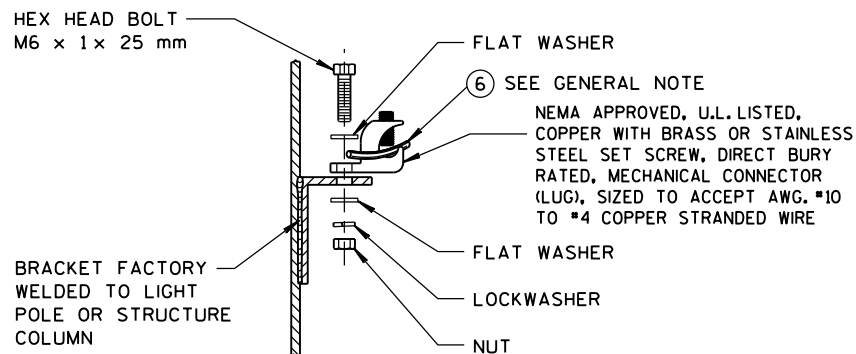
S.D.D. 9 F 15-4a



EQUIPMENT GROUNDING
CONDUCTOR SLACK



UNGROUND CONDUCTOR SLACK
(AND GROUNDED NEUTRAL SLACK
IN GROUNDED NEUTRAL SYSTEM)



HANDHOLE GROUNDING LUG

(NUT, BOLT, WASHERS, AND LOCK WASHERS
SHALL BE STAINLESS STEEL)

CONDUCTOR COLOR CODES

KEY	CONDUCTOR	COLOR
3	UNGROUND LINE WIRE	*
4	GROUNDED LINE WIRE	WHITE
5	SYSTEM GROUNDING LINE WIRE	GREEN
6	GROUNDING ELECTRODE CONDUCTOR	BARE
11	UNGROUND POLE WIRE	*
12	GROUNDED POLE WIRE	WHITE
13	EQUIPMENT GROUNDING POLE WIRE	GREEN

* FOLLOW COLOR CODING SHOWN IN THE PLANS.
WHERE THE PLANS DO NOT SHOW COLOR CODING,
USE BLACK FOR SINGLE LUMINAIRE POLES; BLACK
AND RED FOR TWIN LUMINAIRE POLES.



1 POLE (1P)



2 POLE (2P)

FUSE ASSEMBLIES

GENERAL NOTES

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

USE THIS DETAIL IN CONJUNCTION WITH THE ELECTRICAL DETAILS FOR THE
APPLICATION, WHICH MAY BE A LIGHT POLE, SIGN BRIDGE, ETC.

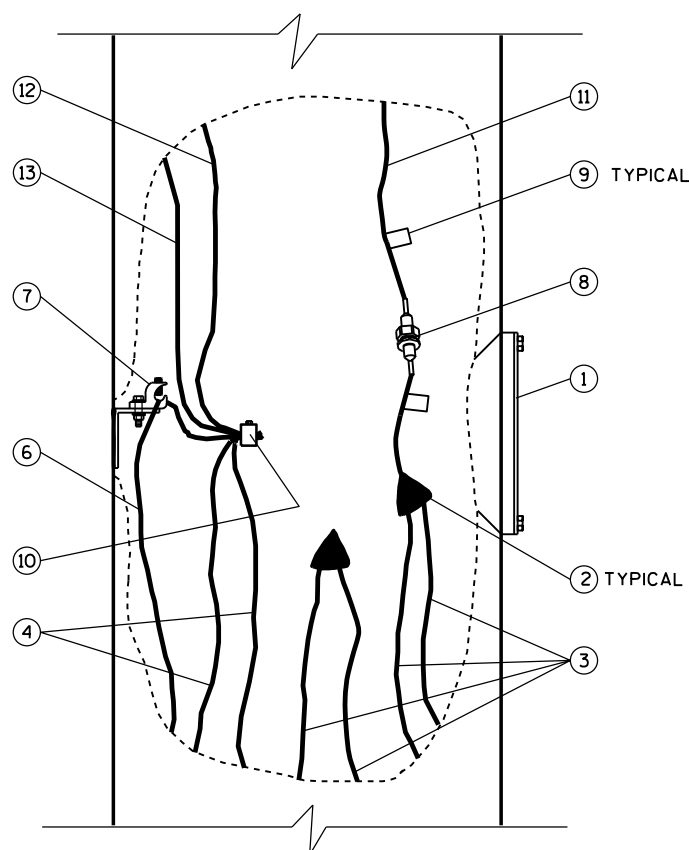
THE GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS WITHOUT
SPICES FROM THE GROUNDING ELECTRODE THROUGH THE HANDHOLE GROUNDING
LUG TO THE CONNECTOR.

THREE POLE WIRES ARE SHOWN FOR A SINGLE LUMINAIRE LIGHT POLE.
THREE ADDITIONAL POLE WIRES REQUIRED FOR TWIN LUMINAIRE LIGHT POLES
ARE OMITTED FROM THE DRAWING FOR CLARITY. IN THE TWIN POLE CASE,
BUNDLE EACH SET OF THREE WIRES WITH A NYLON CABLE TIE.

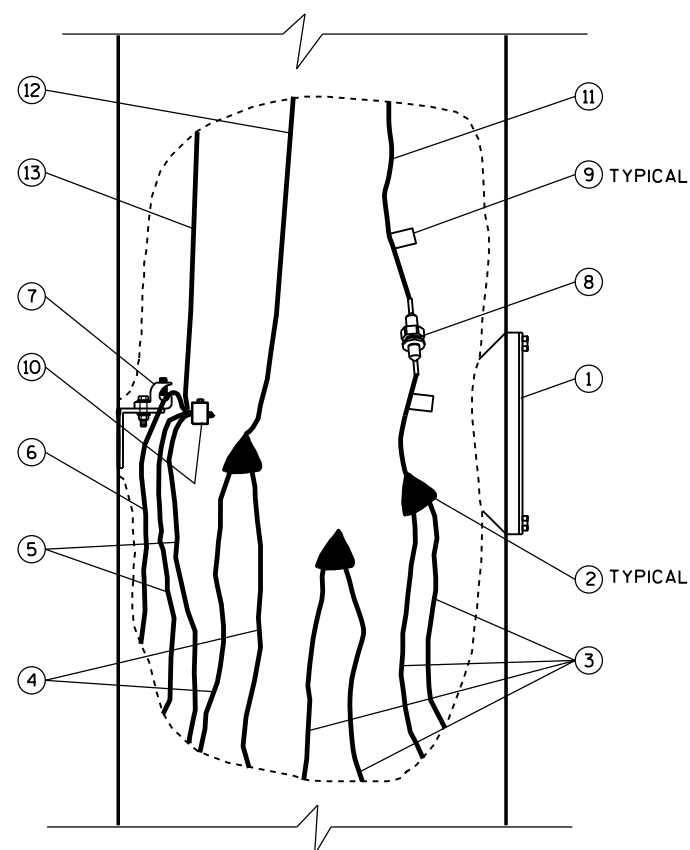
IN 3-PHASE SYSTEMS, THERE WILL BE ONE MORE UNGROUNDED LINE WIRE,
WHICH IS OMITTED FROM THE DRAWING FOR CLARITY.

CIRCUIT TAGS SHALL BE INSTALLED ONLY WHERE REQUIRED IN THE SPECIAL
PROVISIONS.

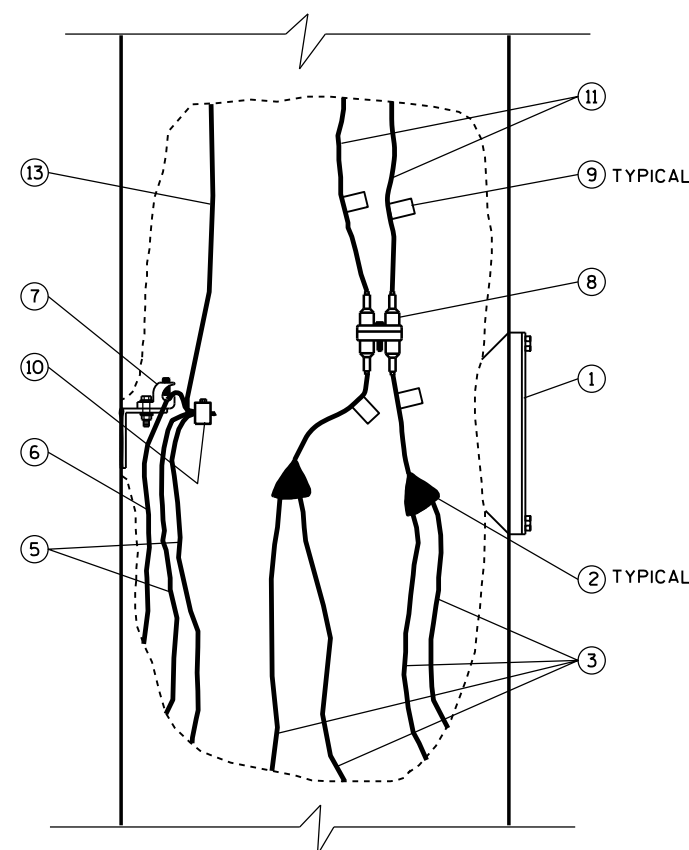
TYPICAL CONDUCTOR SLACK AT HANDHOLES



CUTAWAY HANDHOLE DETAIL
GROUNDED NEUTRAL SYSTEMS
1-φ



CUTAWAY HANDHOLE DETAIL
ISOLATED NEUTRAL SYSTEMS
1-φ SHOWN; 3-φ WYE SIMILAR
(SEE GENERAL NOTE)



CUTAWAY HANDHOLE DETAIL
PHASE-TO-PHASE SYSTEMS
1-φ SHOWN; 3-φ DELTA SIMILAR
(SEE GENERAL NOTE)

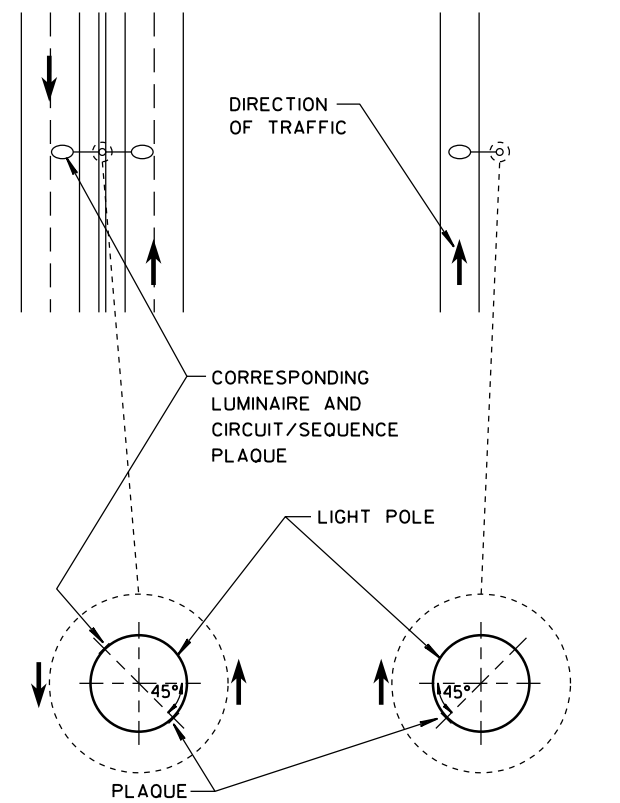
- ① HANDHOLE AND COVER
- ② INSULATED SPLICE
- ③ UNGROUND LINE WIRE
- ④ GROUNDED LINE WIRE
- ⑤ SYSTEM GROUNDING LINE WIRE
- ⑥ GROUNDING ELECTRODE CONDUCTOR
- ⑦ HANDHOLE GROUNDING LUG
- ⑧ FUSE ASSEMBLY, 1P OR 2P AS REQUIRED
- ⑨ CIRCUIT TAG (SEE GENERAL NOTE)
- ⑩ REVERSIBLE PRESSURE OR COMPRESSION
GROUNDING CONNECTOR (NOT INSULATED)
- ⑪ UNGROUND POLE WIRE
- ⑫ GROUNDED POLE WIRE
- ⑬ EQUIPMENT GROUNDING POLE WIRE

ELECTRICAL HANDHOLE WIRING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2014 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL 166
FHWA

NOTE: REQUIRED CONDUCTOR SLACK NOT SHOWN ON "CUTAWAY HAND HOLE" DETAILS FOR
DRAWING CLARITY, SEE "TYPICAL CONDUCTOR SLACK AT HANDHOLES" ON THIS SHEET.



MEDIAN POLE SINGLE ARM POLE

LOCATION OF LIGHT POLE
CIRCUIT/SEQUENCE PLAQUE

GENERAL NOTES

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

PLAQUES SHALL BE INCIDENTAL TO ALL NEW INSTALLATIONS.

WHERE SHOWN IN THE PLANS, REPLACEMENT PLAQUES WILL BE MEASURED AND PAID SEPARATELY.

FASTEN TOP, CENTER AND BOTTOM OF PLAQUE TO POLE OR OTHER LOCATION AS FOLLOWS:

GALVANIZED STEEL SHAFT - STAINLESS STEEL POP RIVETS

A588 STEEL SHAFT - SHIM FOR DRAINAGE WITH STAINLESS WASHERS;
FASTEN WITH STAINLESS SELF-TAPPING SCREWS

ALUMINUM SHAFTS - ALUMINUM POP RIVETS

MOUNTING HEIGHT SHALL BE APPROXIMATELY 5.0' ABOVE CURB OR SHOULDER. ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL OBSTRUCT.

PLAQUE MATERIALS:

BASE - SHEET ALUMINUM, 0.060" THICK.

FACE - WHITE, SELF-ADHESIVE VINYL SHEETING, NON-RETROREFLECTIVE

LINES - BLACK, 1/2" WIDE, SELF-ADHESIVE

CHARACTERS - BLACK, SELF-ADHESIVE, SERIES "D", SIZE AS SHOWN

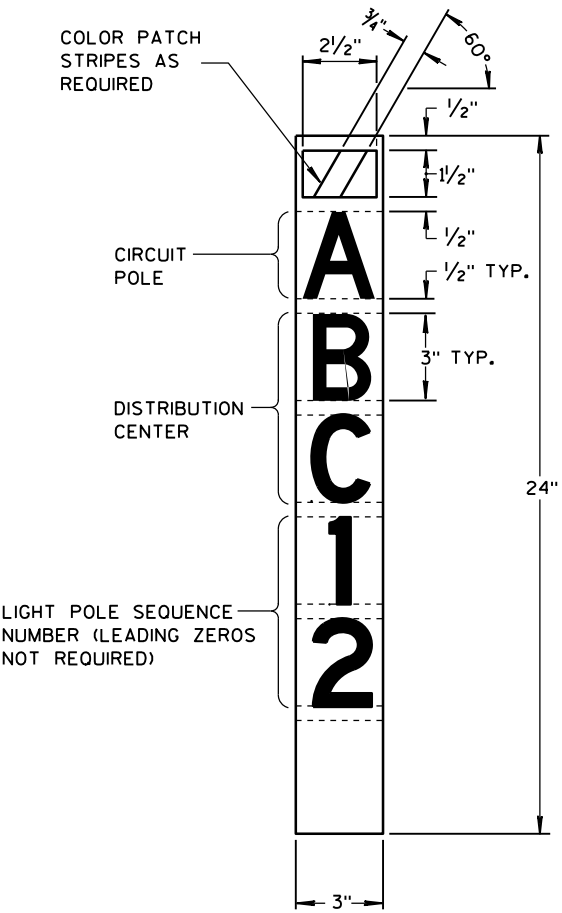
COLOR PATCHES - VARIOUS COLORS, SELF-ADHESIVE VINYL SHEETING

WITH THE APPROVAL OF THE ENGINEER, THE BASE MATERIAL MAY BE OMITTED AND THE FACE ADHERED DIRECTLY TO THE SURFACE, IN CASES SUCH AS SMOOTH, CLEAN ALUMINUM POLES.

ALTERNATIVE COMPUTER-GENERATED SIGN LETTERING MAY BE ACCEPTED IF THE ENGINEER FINDS IT TO BE EQUIVALENT.

COLOR PATCH CODE FOR HPS AND LED LUMINAIRES

HPS	LED	COLOR PATCH CODE
1000 WATT		NO PATCH
400 WATT	CATEGORY D	ORANGE
310 WATT		BLUE
250 WATT	CATEGORY C	ORANGE WITH WHITE STRIPE
200 WATT		RED
150 WATT	CATEGORY B	GREEN
100 WATT	CATEGORY A	BROWN
70 WATT	CATEGORY UDL	BROWN WITH WHITE STRIPE



LIGHT POLE CIRCUIT/SEQUENCE
PLAQUE

IDENTIFICATION PLAQUES
LIGHT POLES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Feb. 2015 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL 167
FHWA

GENERAL NOTES

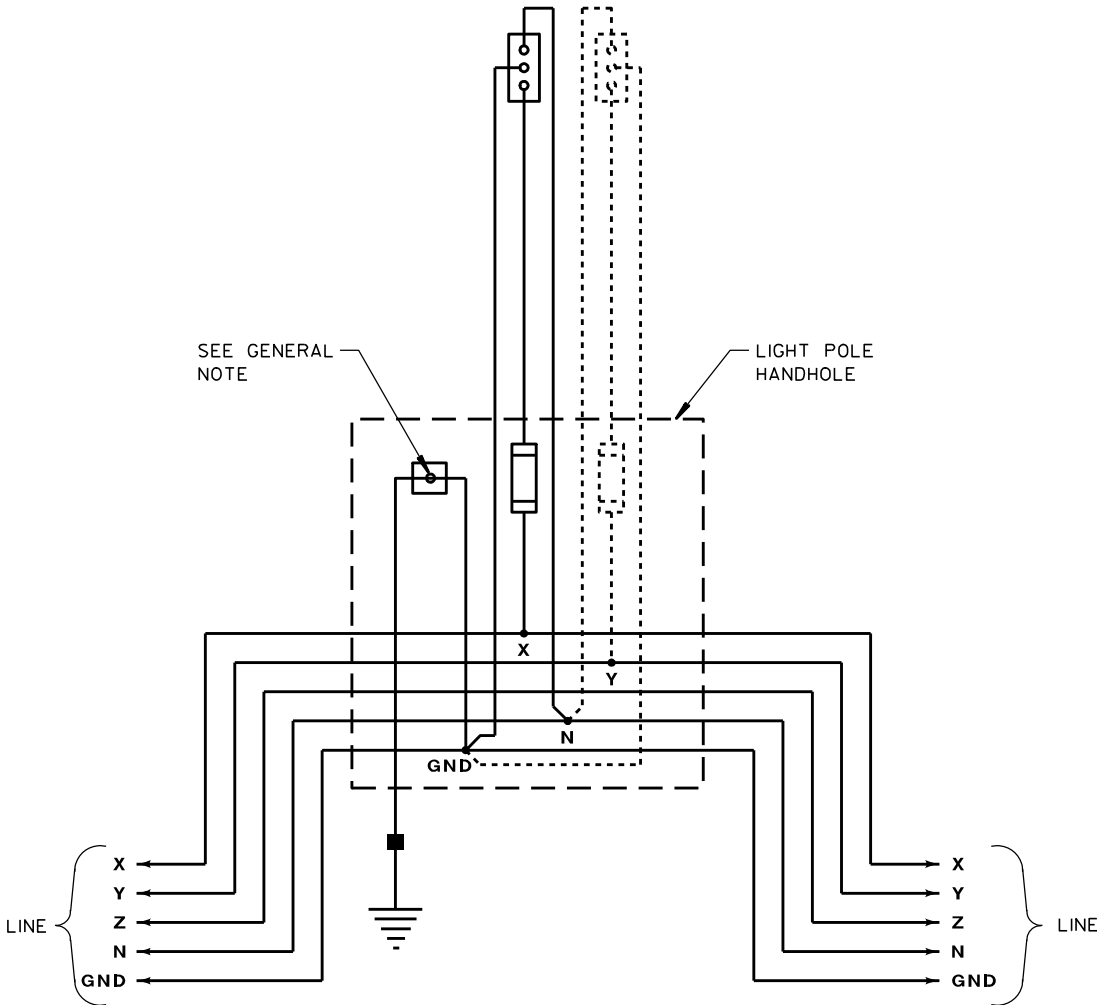
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN IN THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

USE THIS DETAIL IN CONJUNCTION WITH THE DETAIL FOR ELECTRICAL HANDHOLE WIRING.

THE GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS WITHOUT SPLICES FROM THE GROUNDING ELECTRODE THROUGH THE HANDHOLE GROUNDING LUG TO THE CONNECTOR.

WIRING FOR SINGLE LUMINAIRE POLES IS SHOWN WITH SOLID LINES. WIRING FOR THE SECOND LUMINAIRE OF TWIN LUMINAIRE POLES IS SHOWN WITH DOTTED LINES.

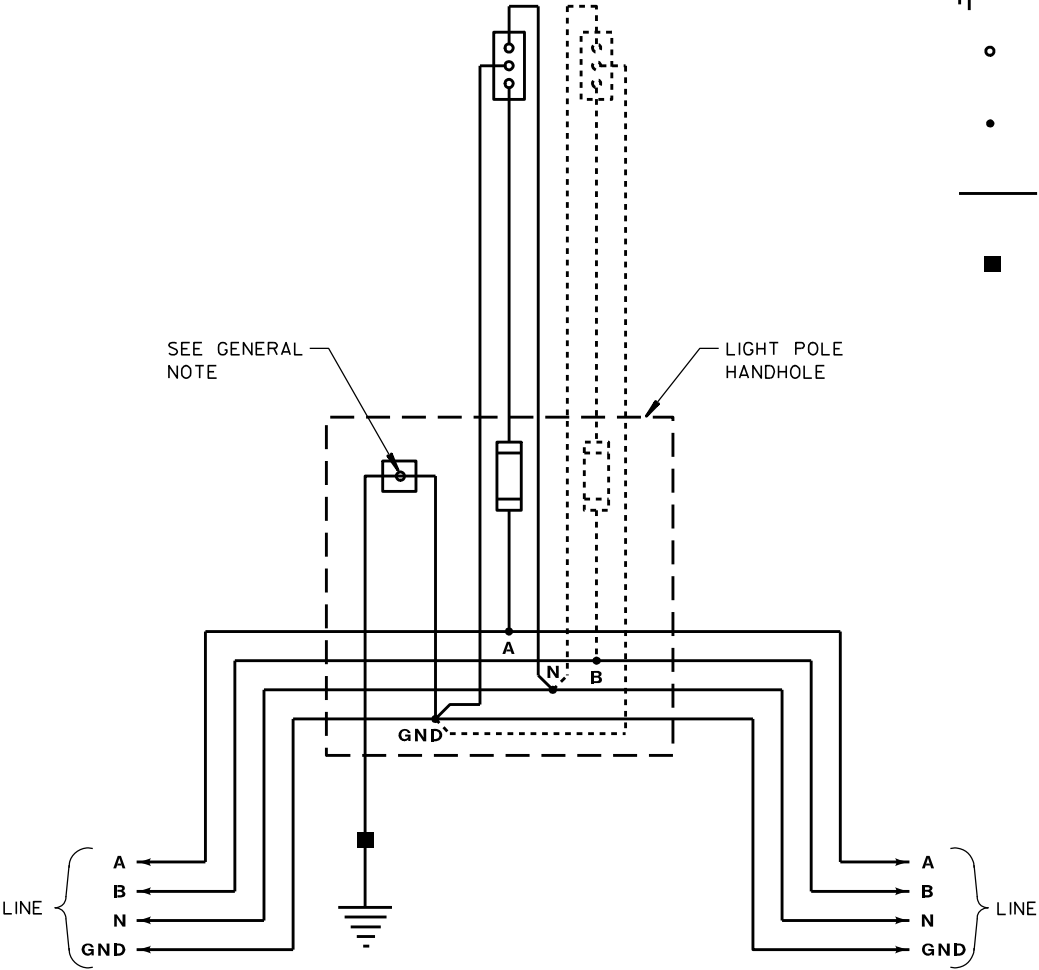
THE PLANS WILL SHOW WHICH CIRCUIT LEG(S) ARE CONNECTED TO EACH INSTALLATION.



TYPICAL WIRING DIAGRAM
ISOLATED NEUTRAL SYSTEM
3- ϕ 208Y/120VAC OR 480Y/277VAC 4 WIRE

HANDHOLE FUSE SCHEDULES

LINE VOLTAGE ϕ -GROUND	BALLAST WATTAGE	
	70-200 W	250-400 W
120 VAC	5 A	10 A
240 VAC	5 A	5 A
277 VAC	5 A	5 A
480 VAC	3 A	5 A



TYPICAL WIRING DIAGRAM
ISOLATED NEUTRAL SYSTEM
1- ϕ 120/240VAC OR 240/480VAC 3 WIRE

LEGEND

- A, B, X, Y, Z UNGROUNDED CIRCUIT CONDUCTORS
- N GROUNDED CIRCUIT CONDUCTORS
- GND EQUIPMENT GROUNDING CONDUCTOR
- P POLE (ELECTRICAL CIRCUIT)
- ϕ PHASE (ELECTRICAL CURRENT)
- [Symbol] HANDHOLE GROUND LUG
- [Symbol] SINGLE-POLE (1P) FUSE ASSEMBLY
- [Symbol] TWO-POLE (2P) FUSE ASSEMBLY
- [Symbol] UNFUSED LUMINAIRE
- [Symbol] EQUIPMENT GROUNDING ELECTRODE
- [Symbol] TERMINAL
- [Symbol] SPLICE
- [Symbol] CONDUCTOR
- [Symbol] EXOTHERMIC WELD

ELECTRICAL DETAILS
GROUND MOUNT LIGHT POLES
ISOLATED NEUTRAL SYSTEM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/25/2010 DATE /S/ John Corbin
STATE ELECTRICAL ENGI 168 HWYS
FHWA

GENERAL NOTES

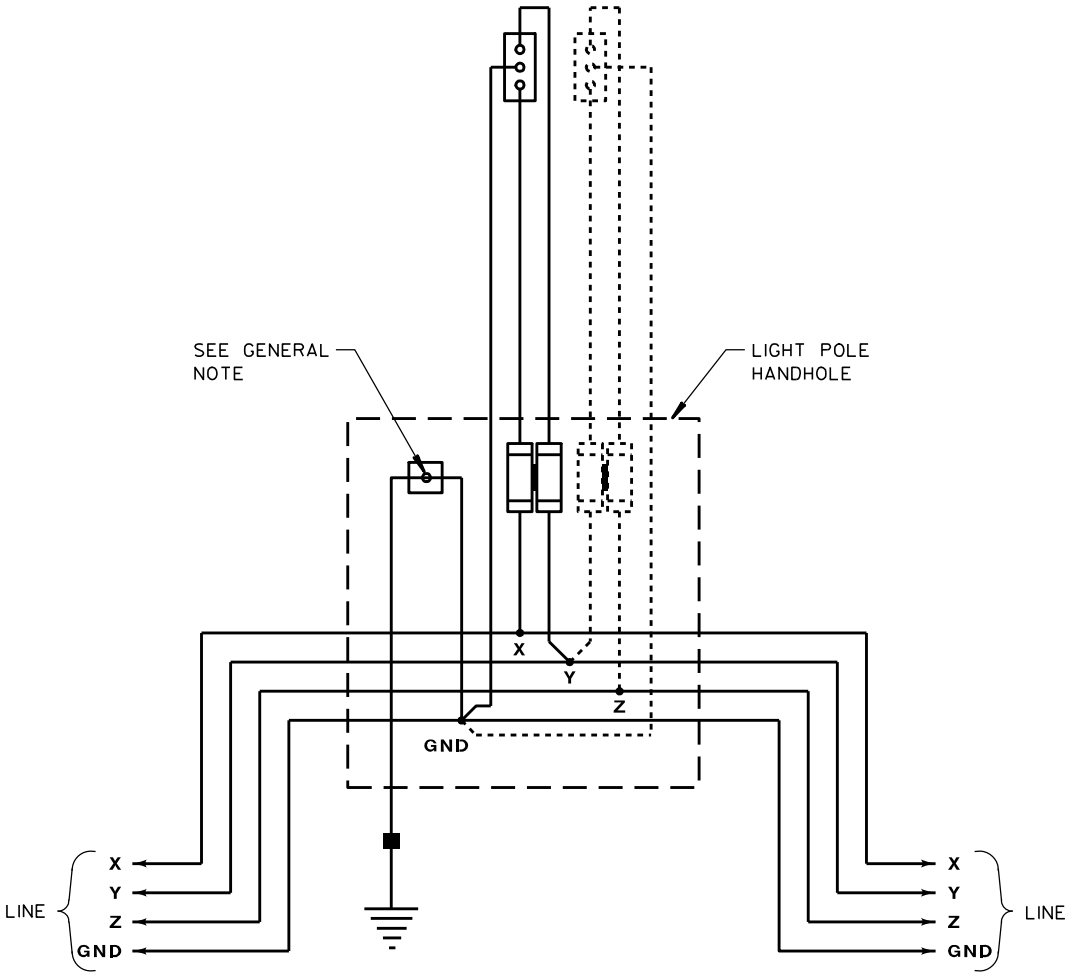
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN IN THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

USE THIS DETAIL IN CONJUNCTION WITH THE DETAIL FOR ELECTRICAL HANDHOLE WIRING.

THE GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS WITHOUT SPLICES FROM THE GROUNDING ELECTRODE THROUGH THE HANDHOLE GROUNDING LUG TO THE CONNECTOR.

WIRING FOR SINGLE LUMINAIRE POLES IS SHOWN WITH SOLID LINES.
WIRING FOR THE SECOND LUMINAIRE OF TWIN LUMINAIRE POLES IS SHOWN WITH DOTTED LINES.

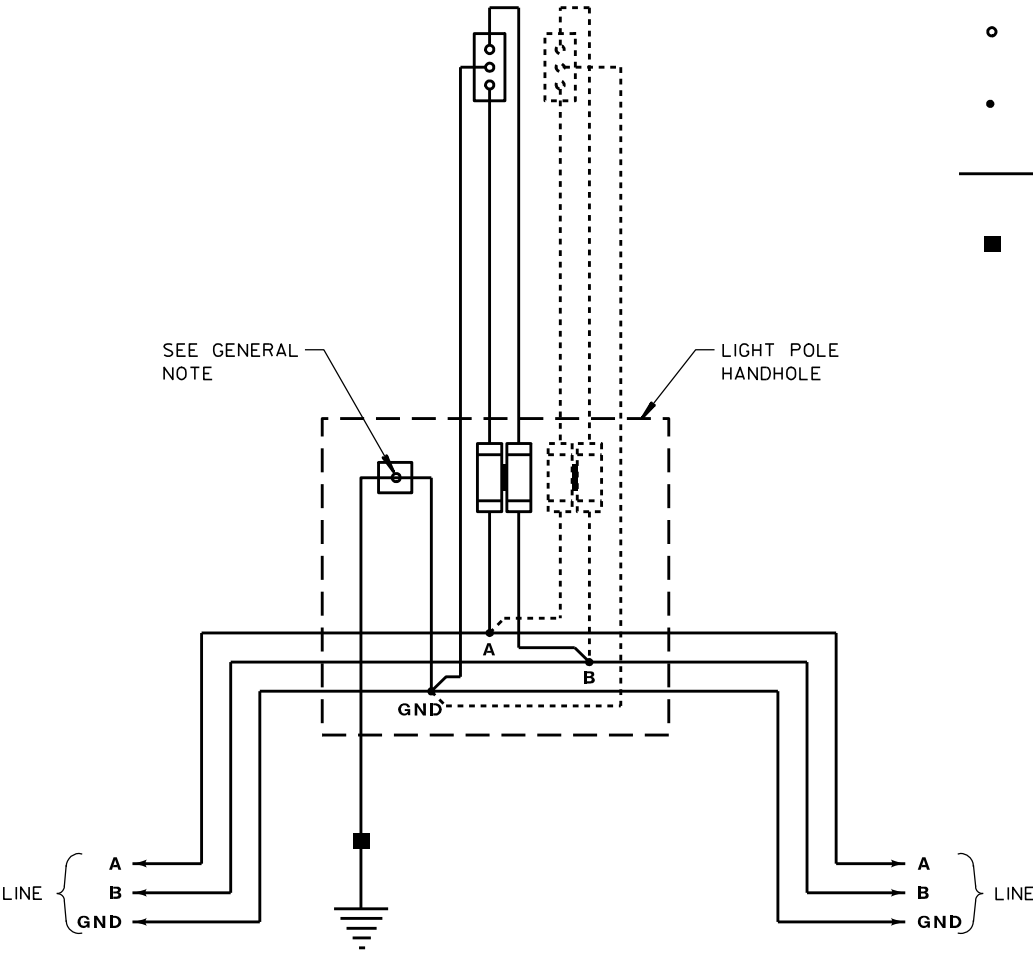
THE PLANS WILL SHOW WHICH CIRCUIT LEG(S) ARE CONNECTED TO EACH INSTALLATION.



TYPICAL WIRING DIAGRAM
PHASE-TO-PHASE DELTA SYSTEM
3- ϕ 480VAC 3 WIRE

HANDHOLE FUSE SCHEDULES

LINE VOLTAGE ϕ - ϕ	BALLAST WATTAGE	
	70-200 W	250-400 W
240 VAC	2P-5 A	2P-5 A
480 VAC	2P-5 A	2P-5 A



TYPICAL WIRING DIAGRAM
UNGROUND SYSTEM
1- ϕ 120-120VAC 2 WIRE

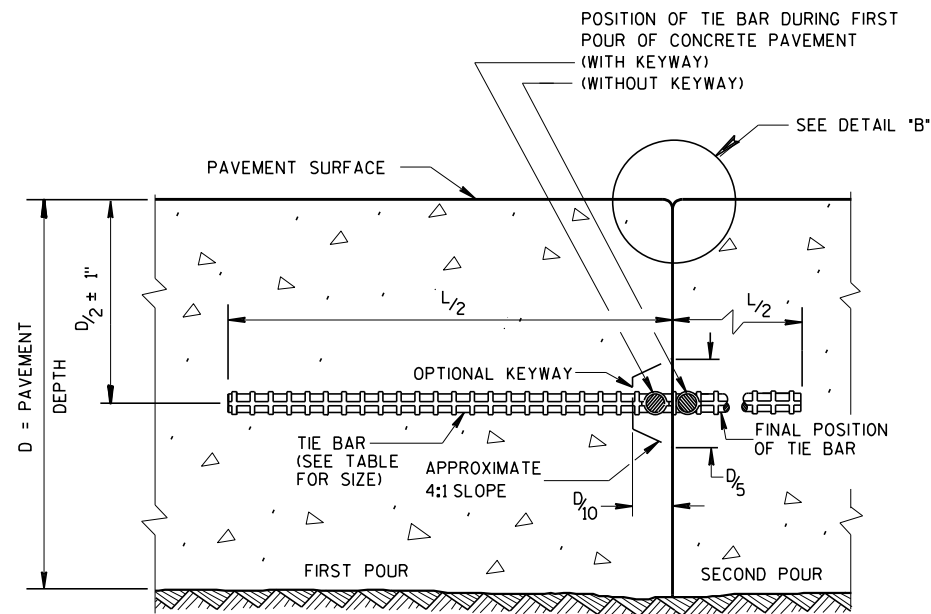
LEGEND

- A, B, X, Y, Z UNGROUNDED CIRCUIT CONDUCTORS
- N GROUNDED CIRCUIT CONDUCTORS
- GND EQUIPMENT GROUNDING CONDUCTOR
- P POLE (ELECTRICAL CIRCUIT)
- ϕ PHASE (ELECTRICAL CURRENT)
- [Symbol] HANDHOLE GROUND LUG
- [Symbol] SINGLE-POLE (1P) FUSE ASSEMBLY
- [Symbol] TWO-POLE (2P) FUSE ASSEMBLY
- [Symbol] UNFUSED LUMINAIRE
- [Symbol] EQUIPMENT GROUNDING ELECTRODE
- o TERMINAL
- SPLICE
- CONDUCTOR
- EXOTHERMIC WELD

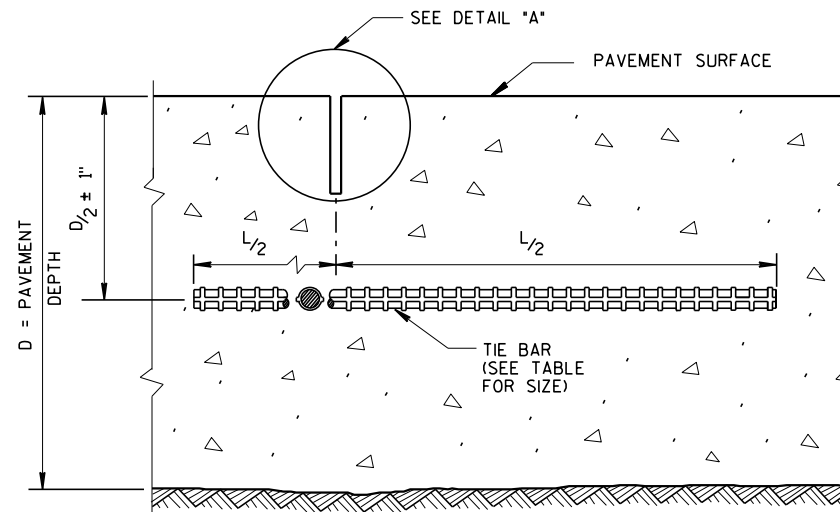
ELECTRICAL DETAILS
GROUND MOUNT LIGHT POLES
PHASE-TO-PHASE SYSTEMS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/25/2010 /S/ John Gashin
DATE STATE ELECTRICAL ENGI 169 HWYS
FHWA



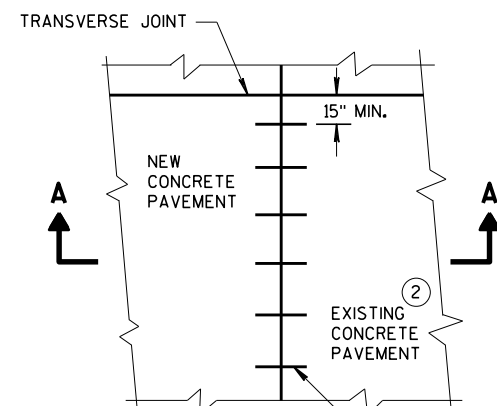
CONSTRUCTION JOINT



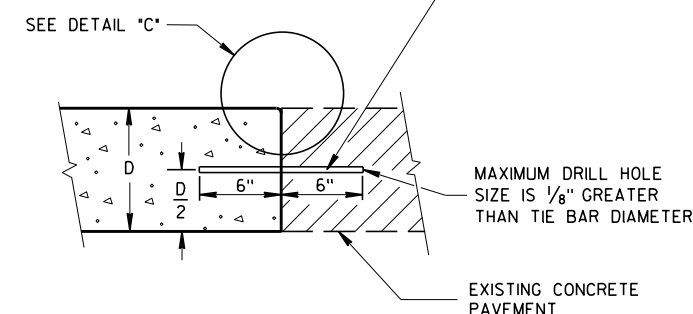
SAWED JOINT

GENERAL NOTES

- 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.

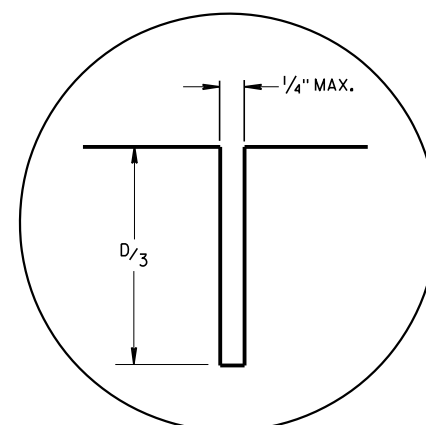


PLAN VIEW

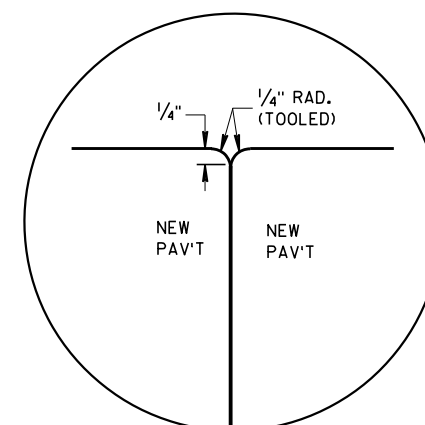


SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT
TIE BARS ANCHORED
INTO EXISTING PAVEMENT

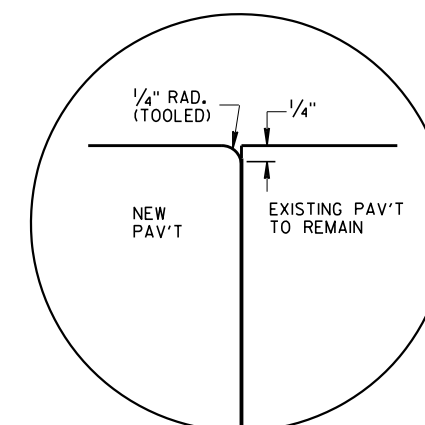
NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



DETAIL "A"



DETAIL "B"



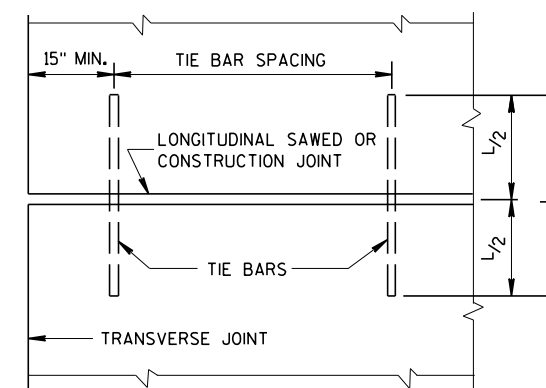
DETAIL "C"

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
$< 10 \frac{1}{2}"$	NO. 4	30"	36"
$\geq 10 \frac{1}{2}"$	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.

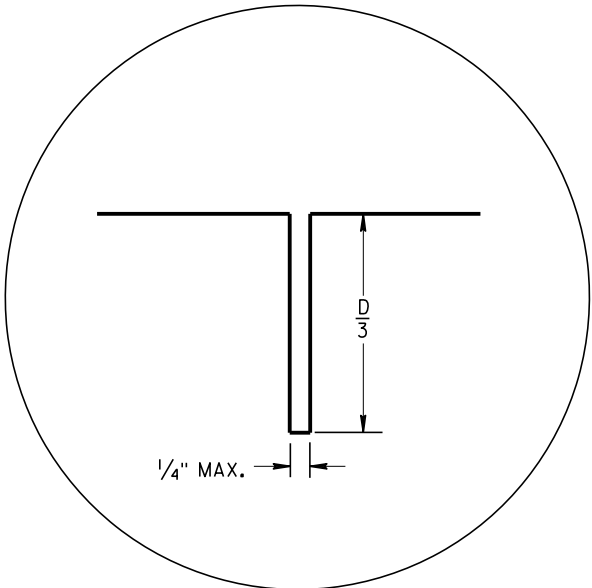


PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT
LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

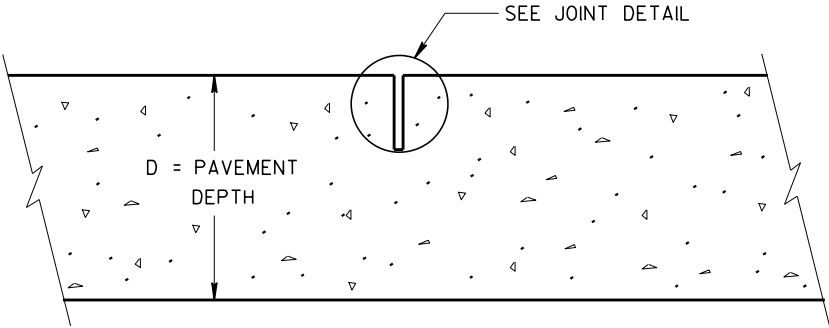
APPROVED
March 2018 /S/ Peter Kern
DATE PAVEMENT SUPE 170
FHWA



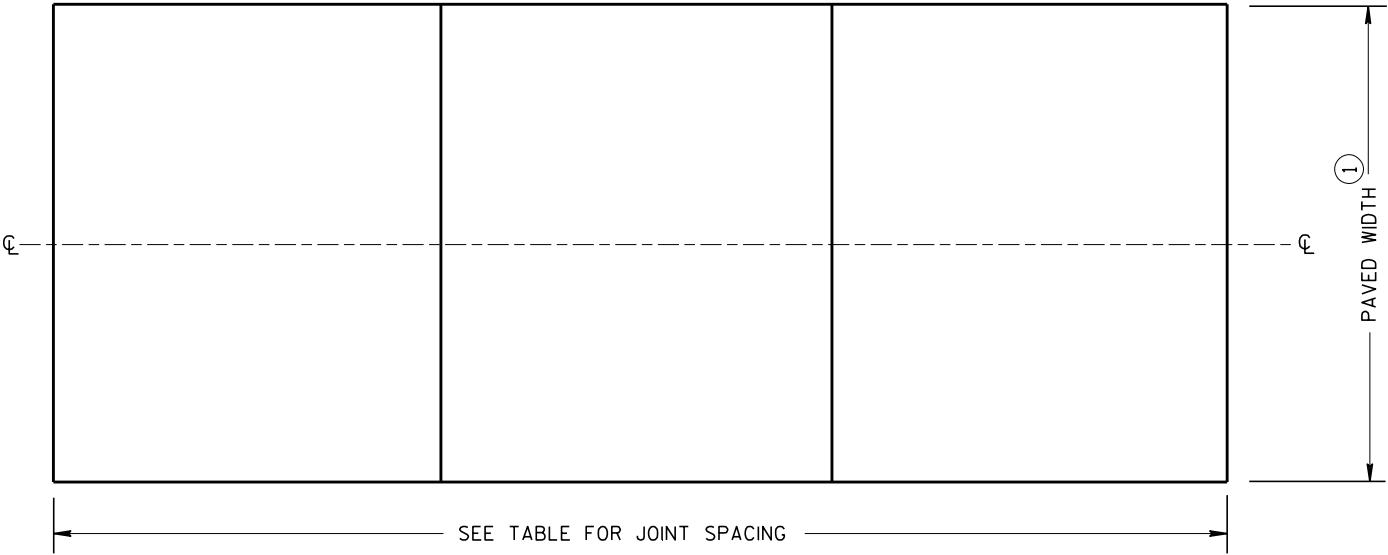
JOINT DETAIL

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'



CONTRACTION JOINT

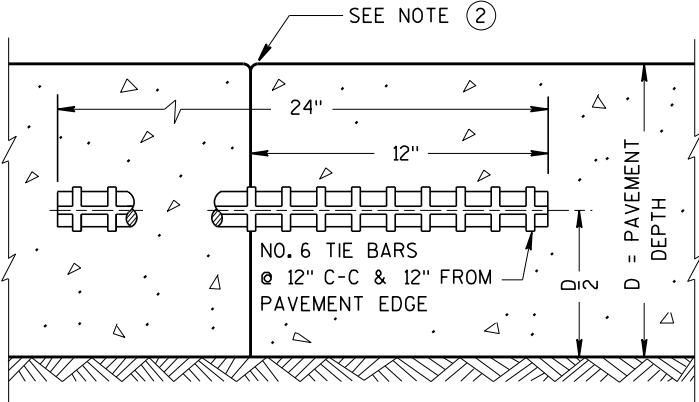


CONTRACTION JOINT LOCATIONS

GENERAL NOTES

CONTRACTION JOINTS
CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE.
LOCATE AND ORIENT CONTRACTION JOINTS THROUGH INTERSECTIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

- CONSTRUCTION JOINTS
LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.
FORM OR SAW CONSTRUCTION JOINTS.
THE CONTRACTOR MAY INSERT TIE BARS THROUGH THE HEADER BOARD AFTER THE CONCRETE HAS BEEN PLACED.
- 1 REFER TO TYPICAL CROSS SECTIONS FOR PAVED WIDTH AND LOCATION OF LONGITUDINAL JOINTS.
 - 2 PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS. PROVIDE A 1/4-INCH RADIUS AT FORMED JOINTS.

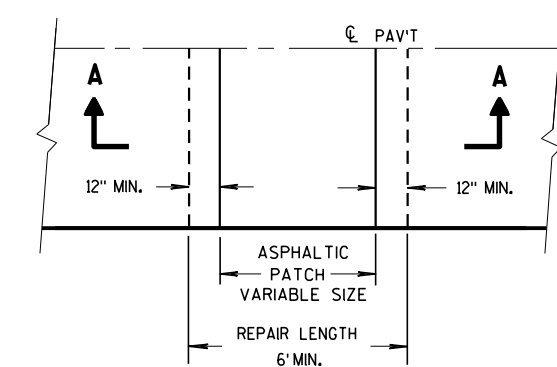


TIED TRANSVERSE CONSTRUCTION JOINT

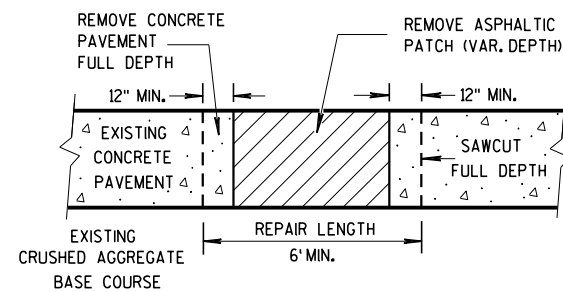
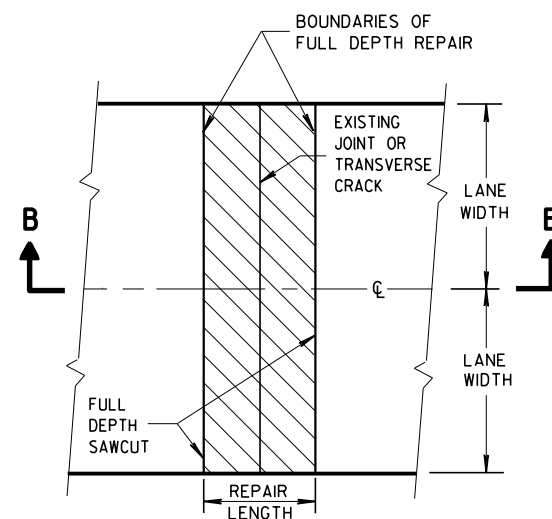
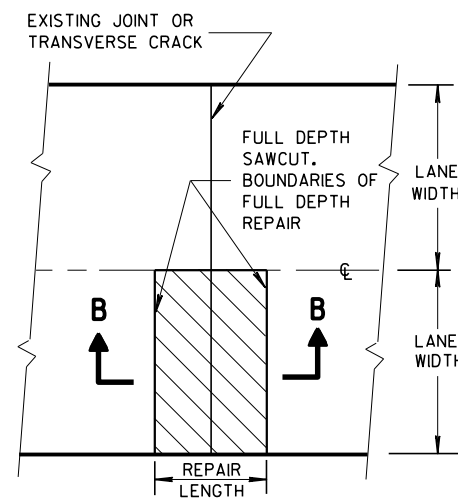
URBAN
NON-DOWELED CONCRETE
PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 /S/ Peter Kemper
DATE PAVEMENT SUP 171
FHWA



PLAN VIEW

SECTION A-A
HMA PATCH REMOVALPLAN VIEW
(DOUBLE LANE REPAIR)PLAN VIEW
(SINGLE LANE REPAIR)

FULL DEPTH CONCRETE PAVEMENT REMOVAL

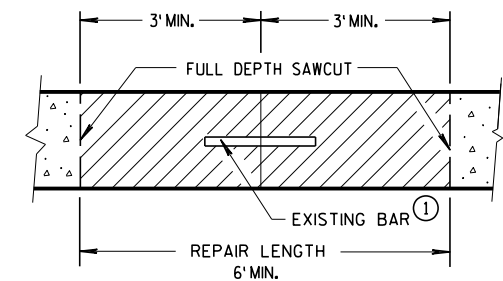
GENERAL NOTES

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

PROVIDE A 6-FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREAS TO ADJACENT TRANSVERSE JOINT OR CRACK IN THE SAME LANE.

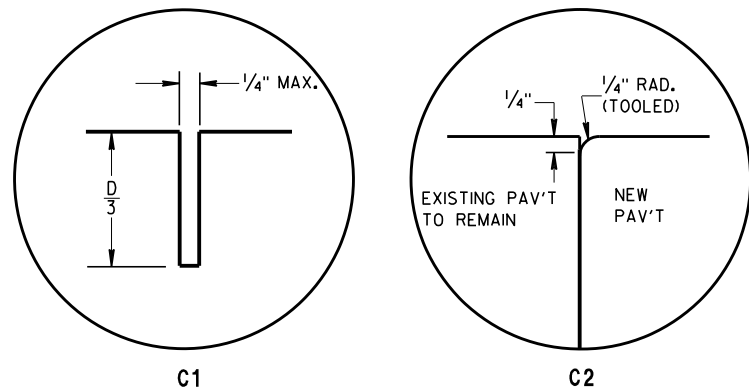
THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NONDOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

① DOWEL BARS MIGHT NOT EXIST.

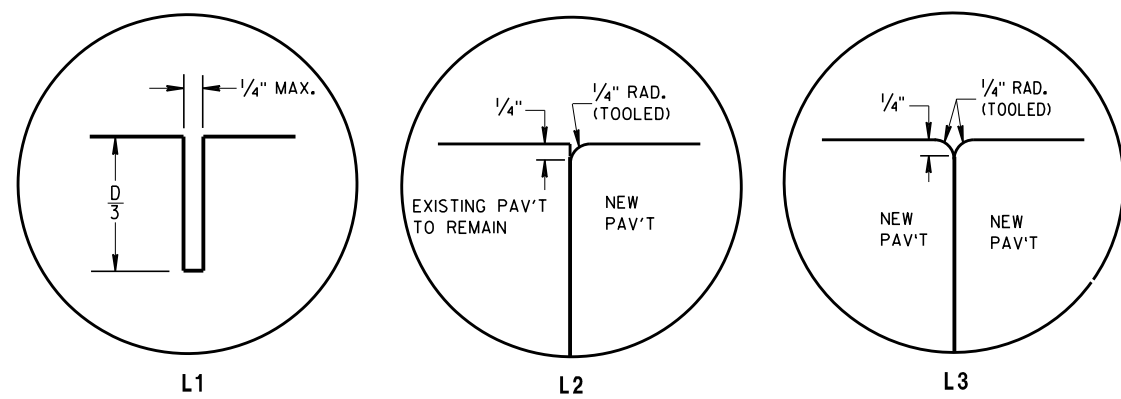
SECTION B-B
CONCRETE REMOVAL

CONCRETE PAVEMENT REPAIR
AND REPLACEMENT

STATE OF WISCONSIN¹⁷²
DEPARTMENT OF TRANSPORTATION



TRANSVERSE JOINTS



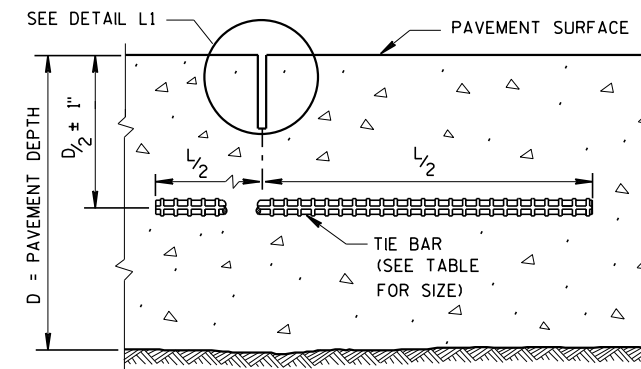
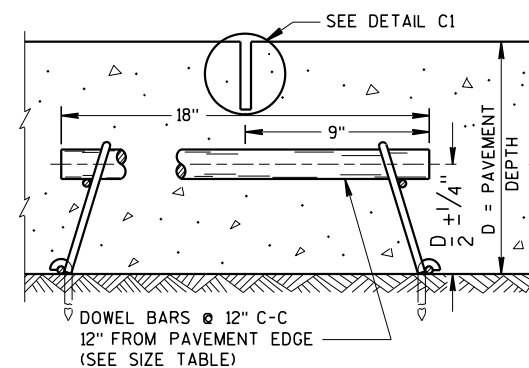
LONGITUDINAL JOINTS

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.

SECTION C-C
SAWED LONGITUDINAL JOINTSECTION F-F
CONTRACTION JOINT

GENERAL NOTES

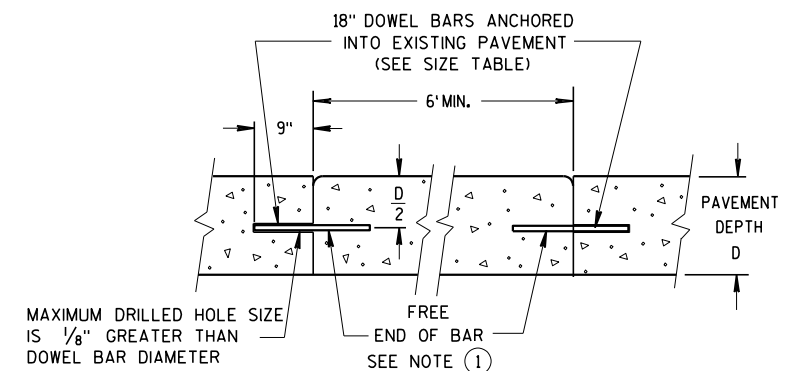
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

CONCRETE PAVEMENT REPAIRS OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

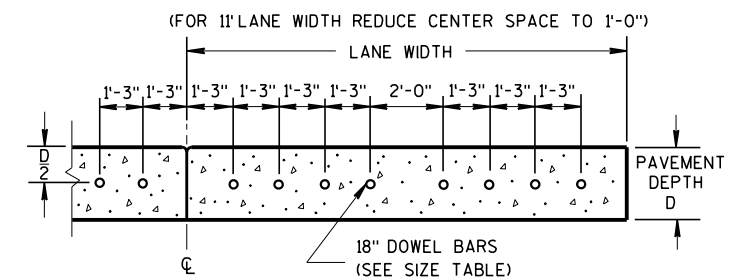
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

FOR MULTI-LANE CONCRETE PAVEMENT REPLACEMENTS, PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM ALL TRANSVERSE JOINTS OR EDGES OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

- ① APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



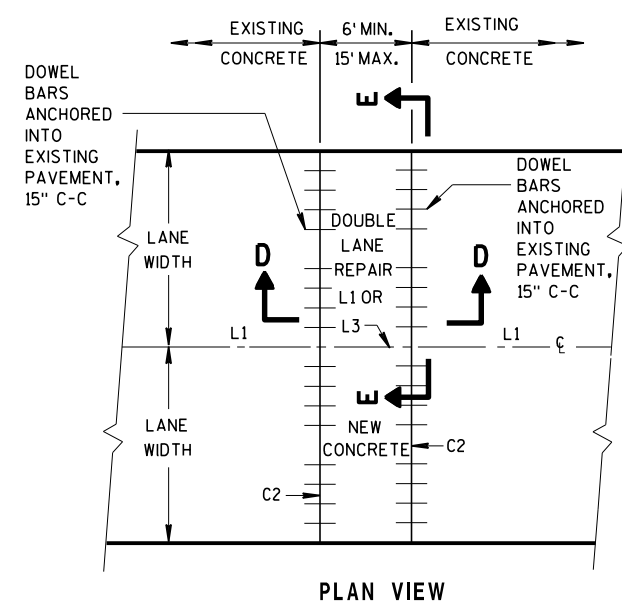
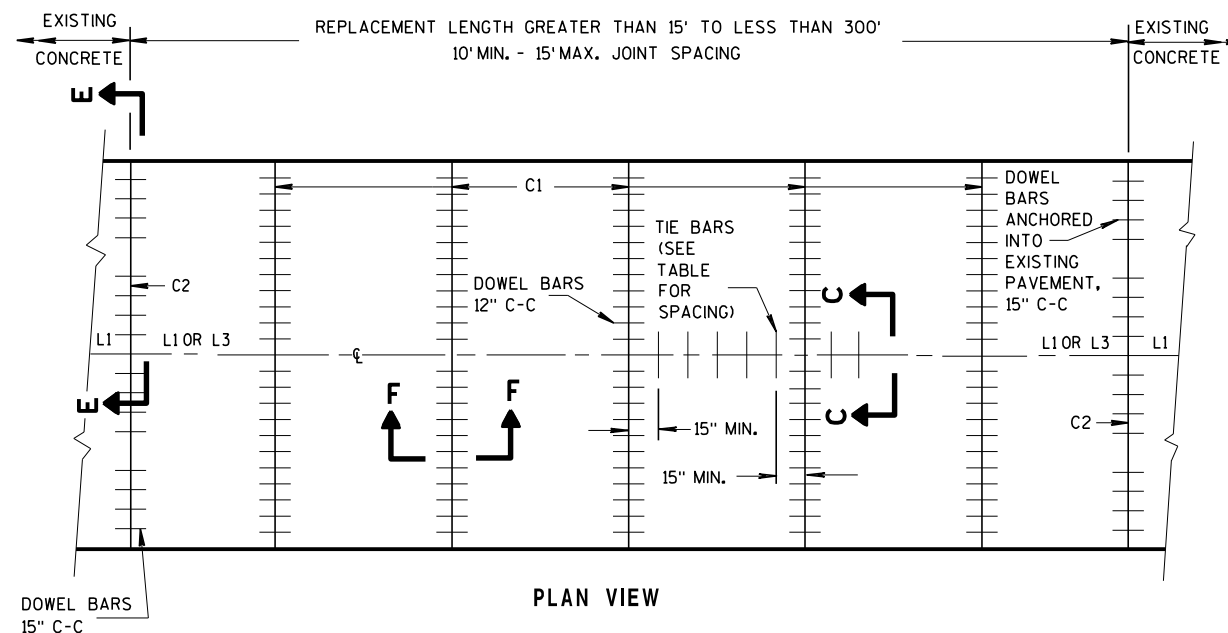
SECTION D-D

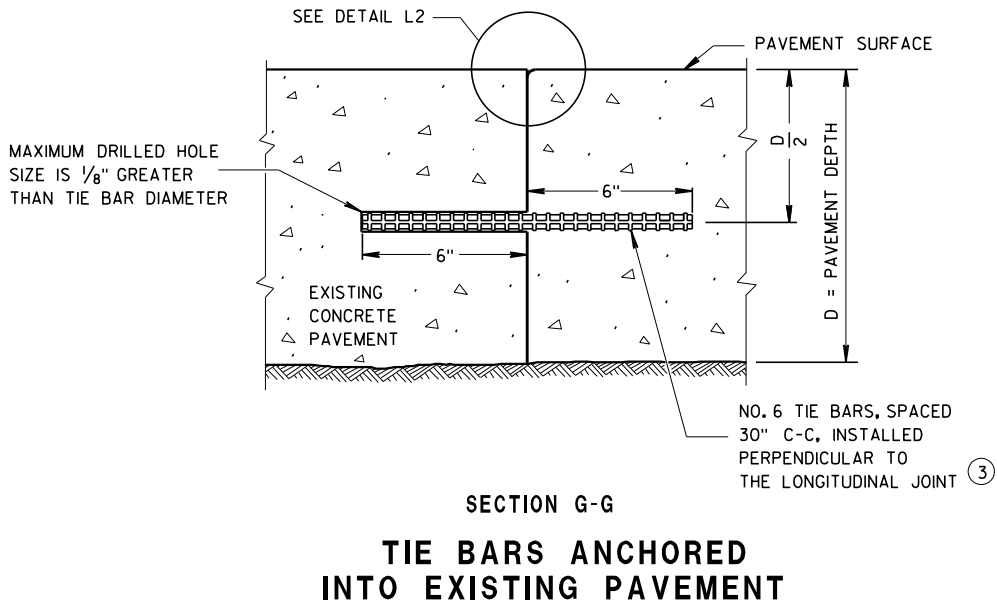
SECTION E-E
DRILLED DOWEL BAR CONSTRUCTION JOINTPAVEMENT DEPTH, DOWEL BAR SIZE
AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	DRILLED DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	NONE	12'
7", 7 1/2"	1"	1"	14'
8", 8 1/2"	1 1/4"	1 1/4"	15'
9", 9 1/2"	1 1/4"	1 1/4"	15'
10" & ABOVE	1 1/2"	1 1/4"	15'

CONCRETE PAVEMENT
REPAIR AND REPLACEMENT

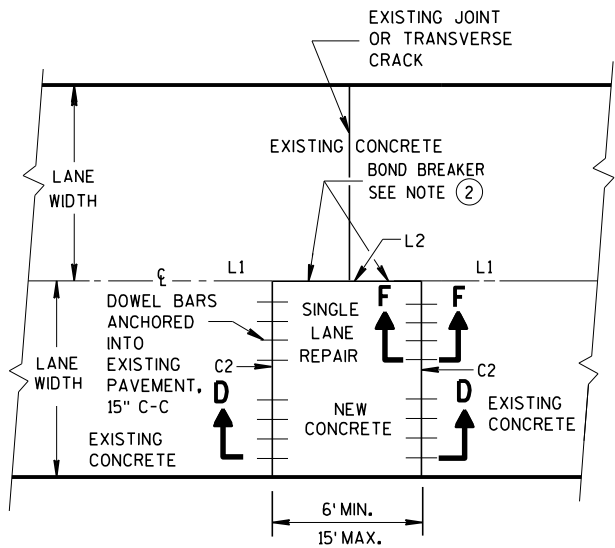
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN VIEW
MULTI-LANE CONCRETE PAVEMENT REPAIRPLAN VIEW
MULTI-LANE CONCRETE PAVEMENT REPLACEMENT

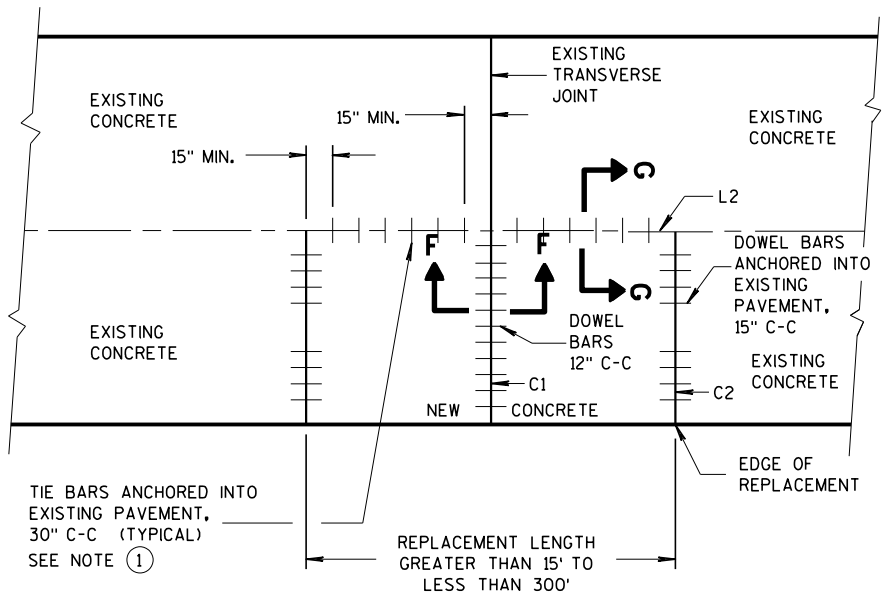


GENERAL NOTES

- ① WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, THE CONTRACTOR MAY INSTALL DRILLED TIE BARS ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.
- ② USE AN ENGINEER-APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.
- ③ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

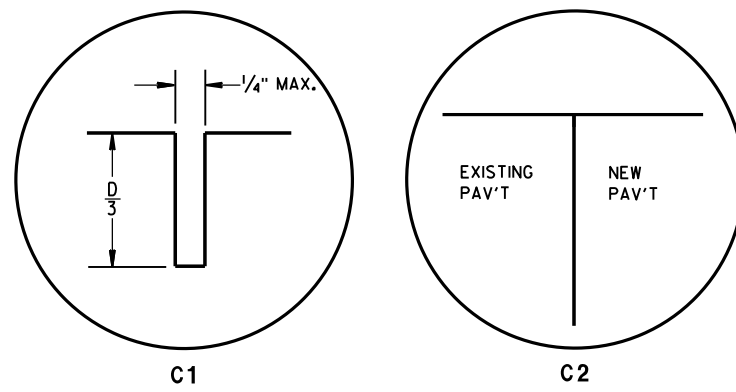


PLAN VIEW
SINGLE LANE
CONCRETE PAVEMENT REPAIR

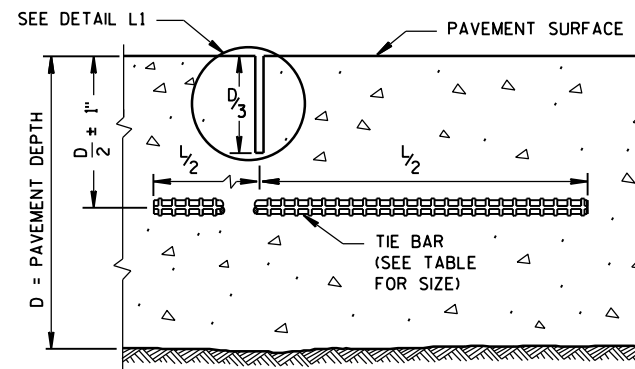


PLAN VIEW
SINGLE LANE
CONCRETE PAVEMENT REPLACEMENT

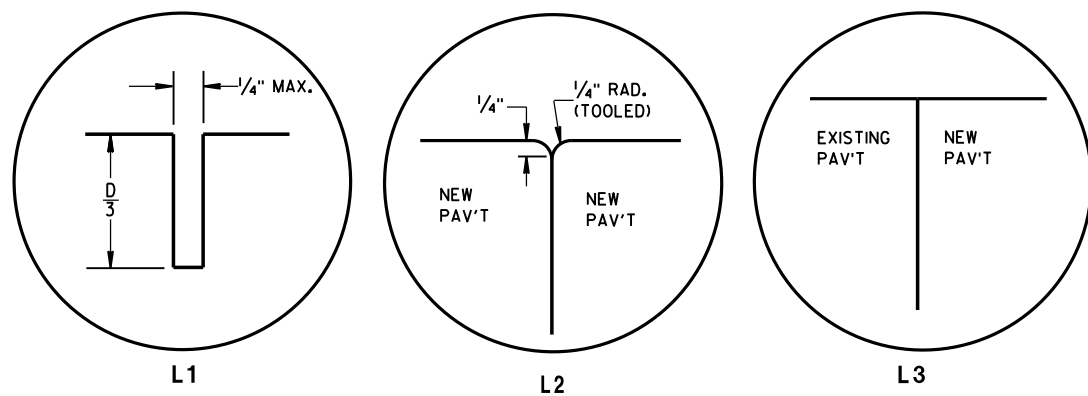
CONCRETE PAVEMENT REPAIR AND REPLACEMENT	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2018 DATE	/S/ Peter Kenney PAVEMENT SUPERVISOR 174
FHWA	



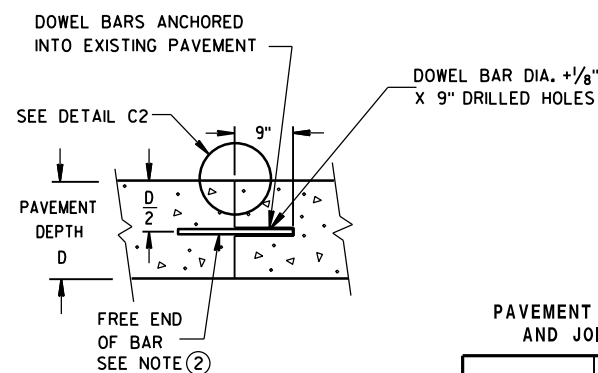
TRANSVERSE JOINTS



SECTION C-C
SAWED JOINT



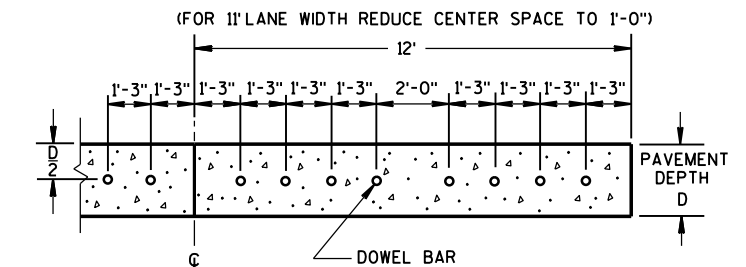
LONGITUDINAL JOINTS



SECTION D-D

PAVEMENT DEPTH, DOWEL BAR SIZE
AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 1/2", 6, 6 1/2"	NONE	12'
7, 7 1/2"	1"	14'
8, 8 1/2"	1 1/4"	15'
9, 9 1/2"	1 1/4"	15'
10" & ABOVE	1 1/2"	15'



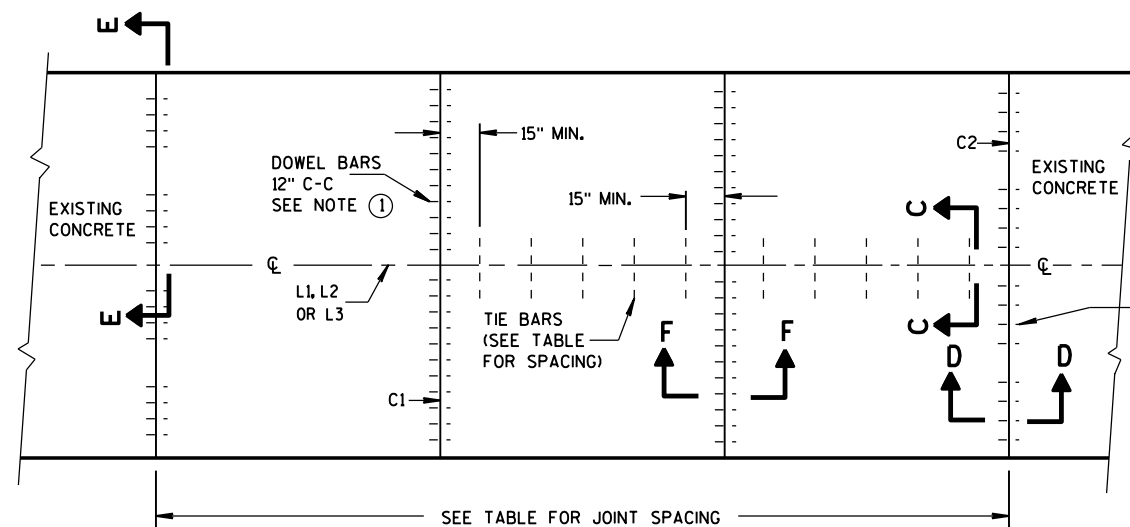
SECTION E-E
SPACING OF DOWEL BARS
ANCHORED INTO EXISTING PAVEMENT

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" **

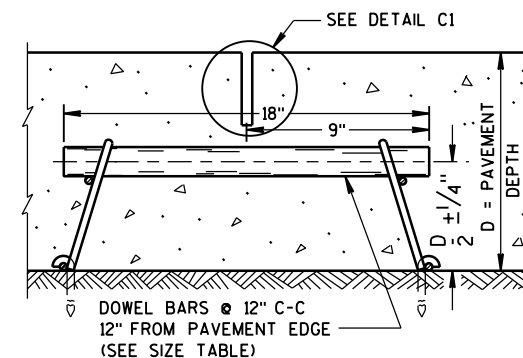
* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

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



PLAN VIEW
CONCRETE BASE
CONTRACTION JOINT LOCATIONS

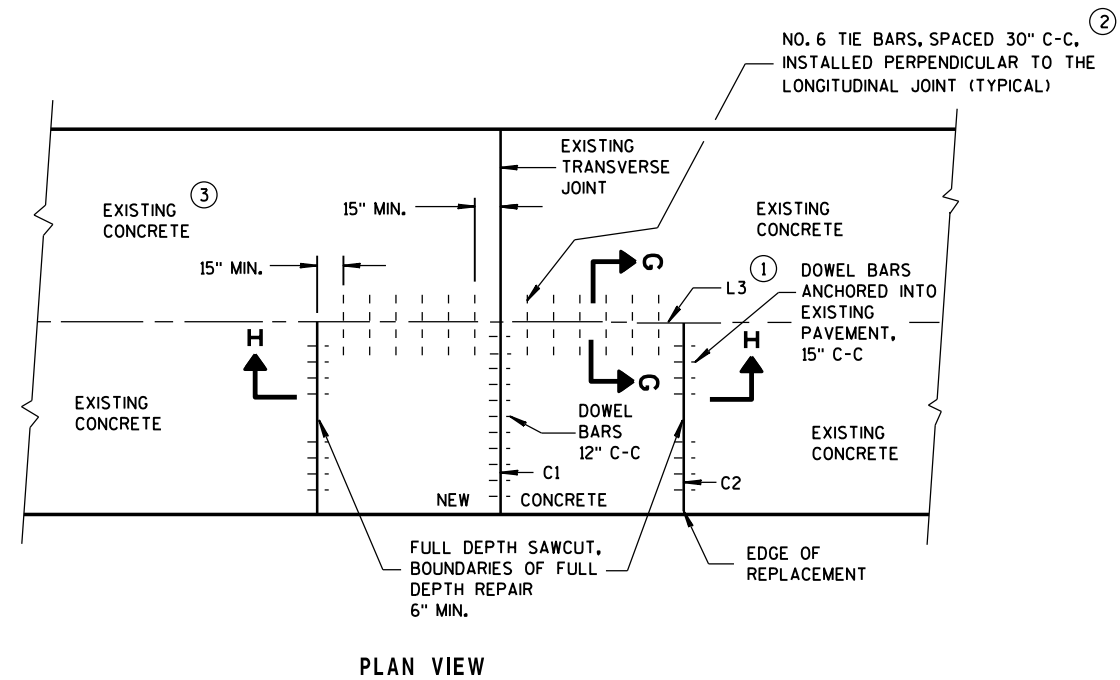
DOWEL BARS
ANCHORED
INTO EXISTING
PAVEMENT,
15" C-C



SECTION F-F
CONTRACTION JOINT

CONCRETE BASE

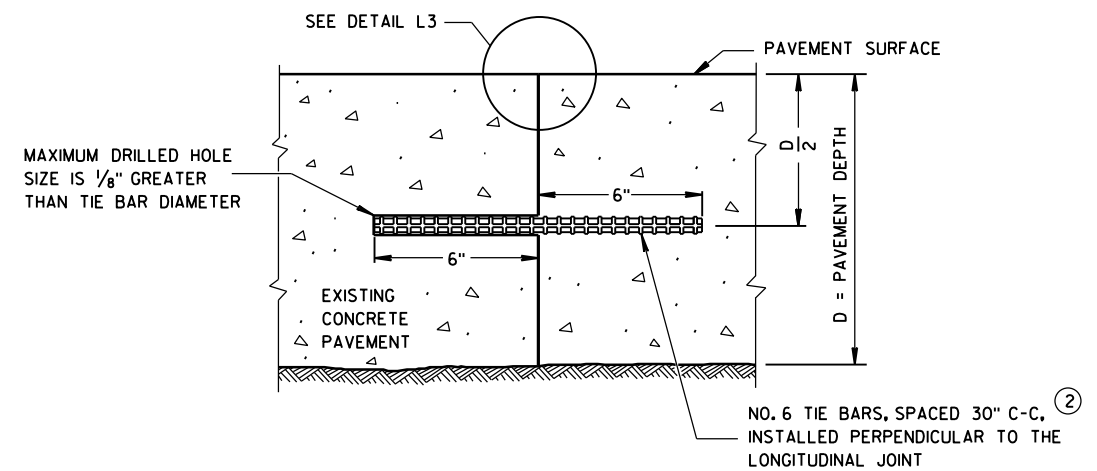
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 175



SINGLE LANE CONCRETE BASE REPAIR

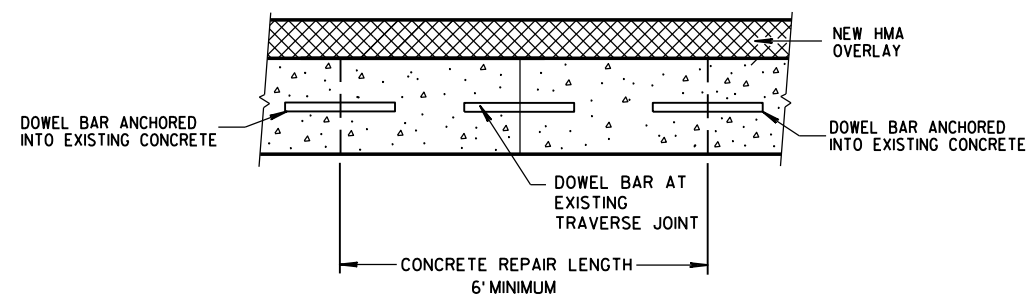
GENERAL NOTES

- (1) USE AN ENGINEER-APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) AT THE LONGITUDINAL JOINT IN LIEU OF TIE BARS FOR SINGLE LANE CONCRETE BASE REPAIRS UP TO 15 FEET IN LENGTH.
- (2) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- (3) PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.



SECTION G-G

TIE BARS ANCHORED INTO EXISTING PAVEMENT



SECTION H-H

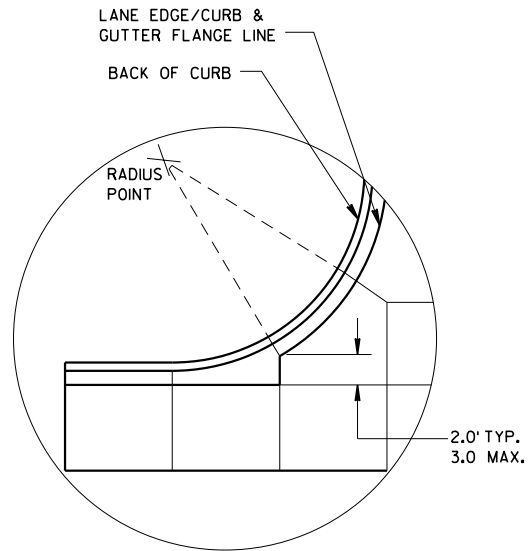
CONCRETE BASE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

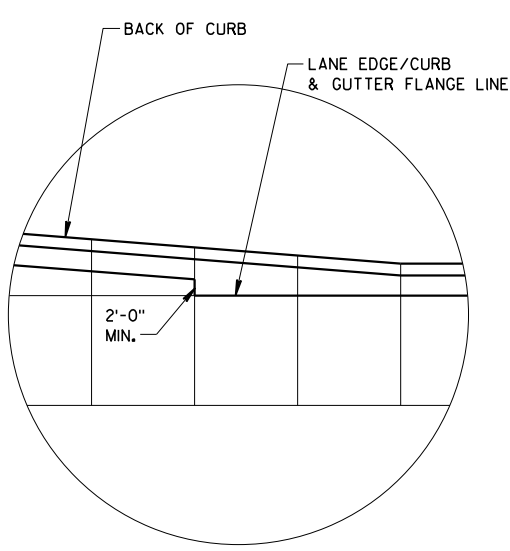
APPROVED

June, 2015
DATE/S/ Peter Kemp, P.E.
PAVEMENT SUPEI 176

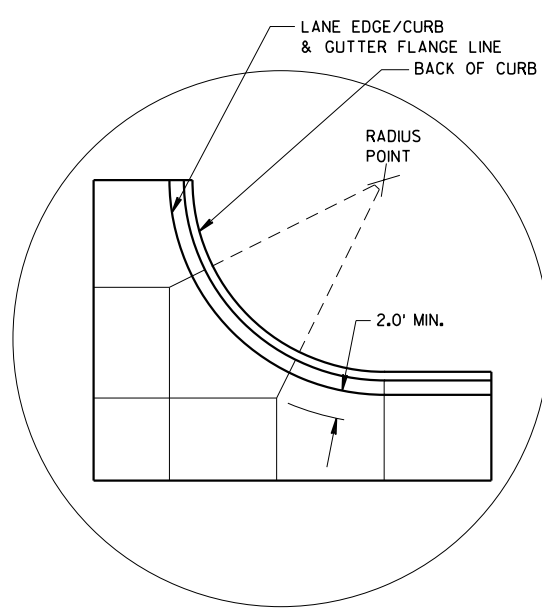
FHWA



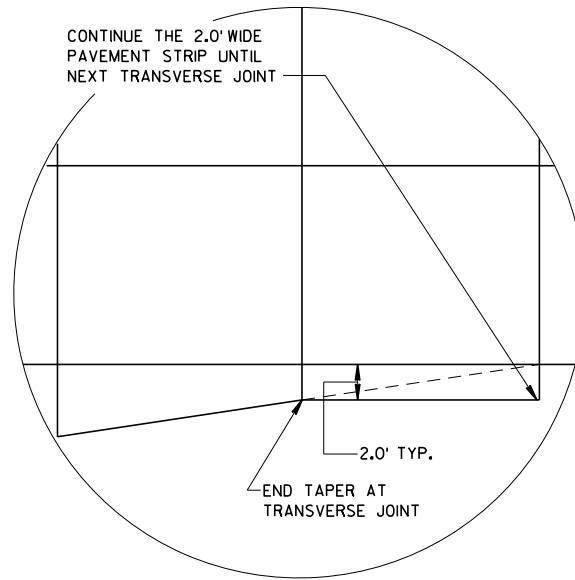
DETAIL "A"



DETAIL "B"



DETAIL "C"



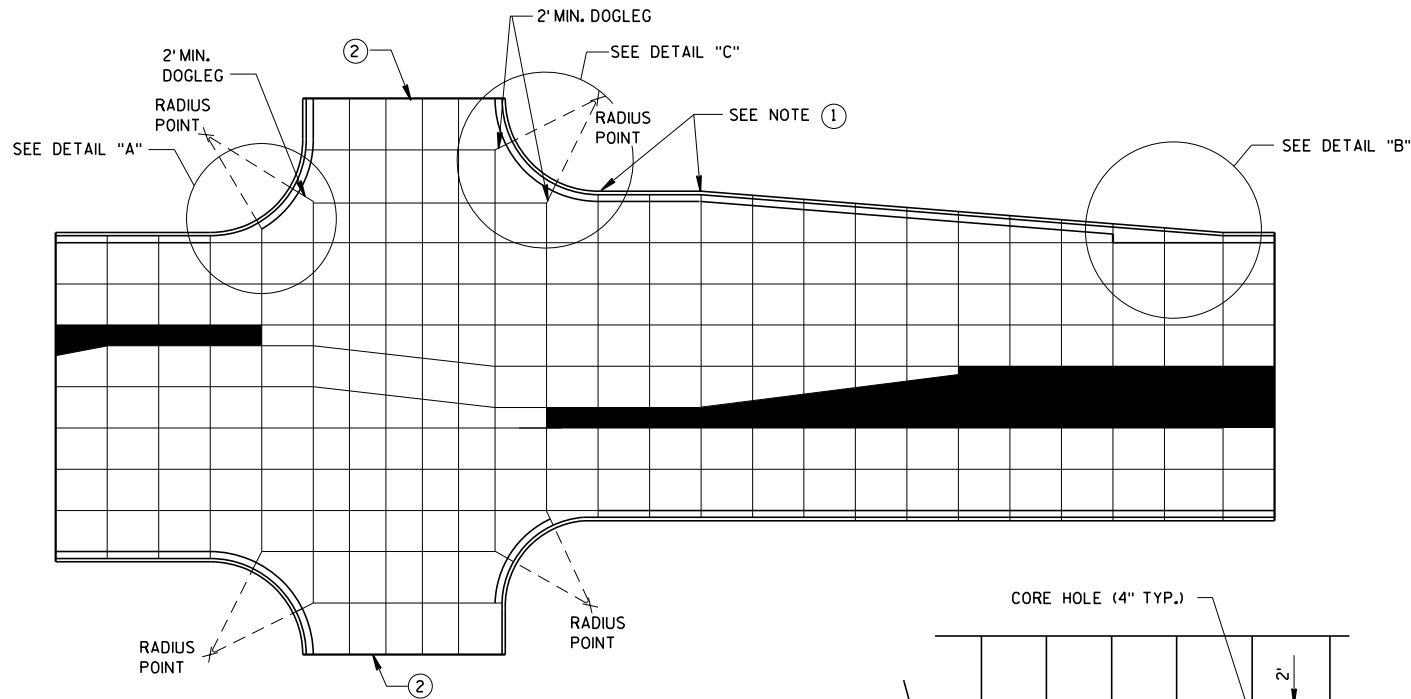
DETAIL "D"

GENERAL NOTES

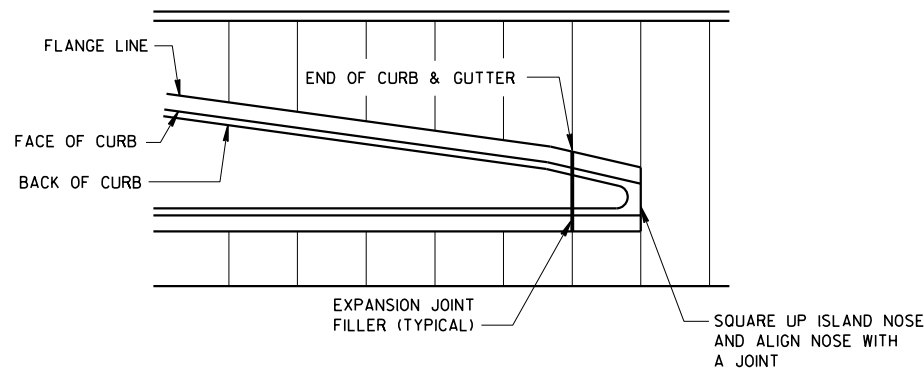
- THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.
- ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.
- CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.
- ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G. MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER 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.

PAVEMENT DEPTH AND JOINT SPACING TABLE

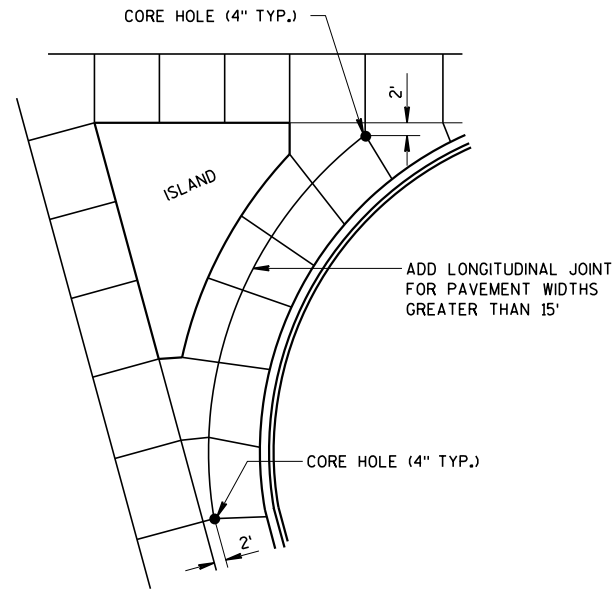
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6 1/2"	12'
7", 7 1/2"	14'
8" & ABOVE	15'



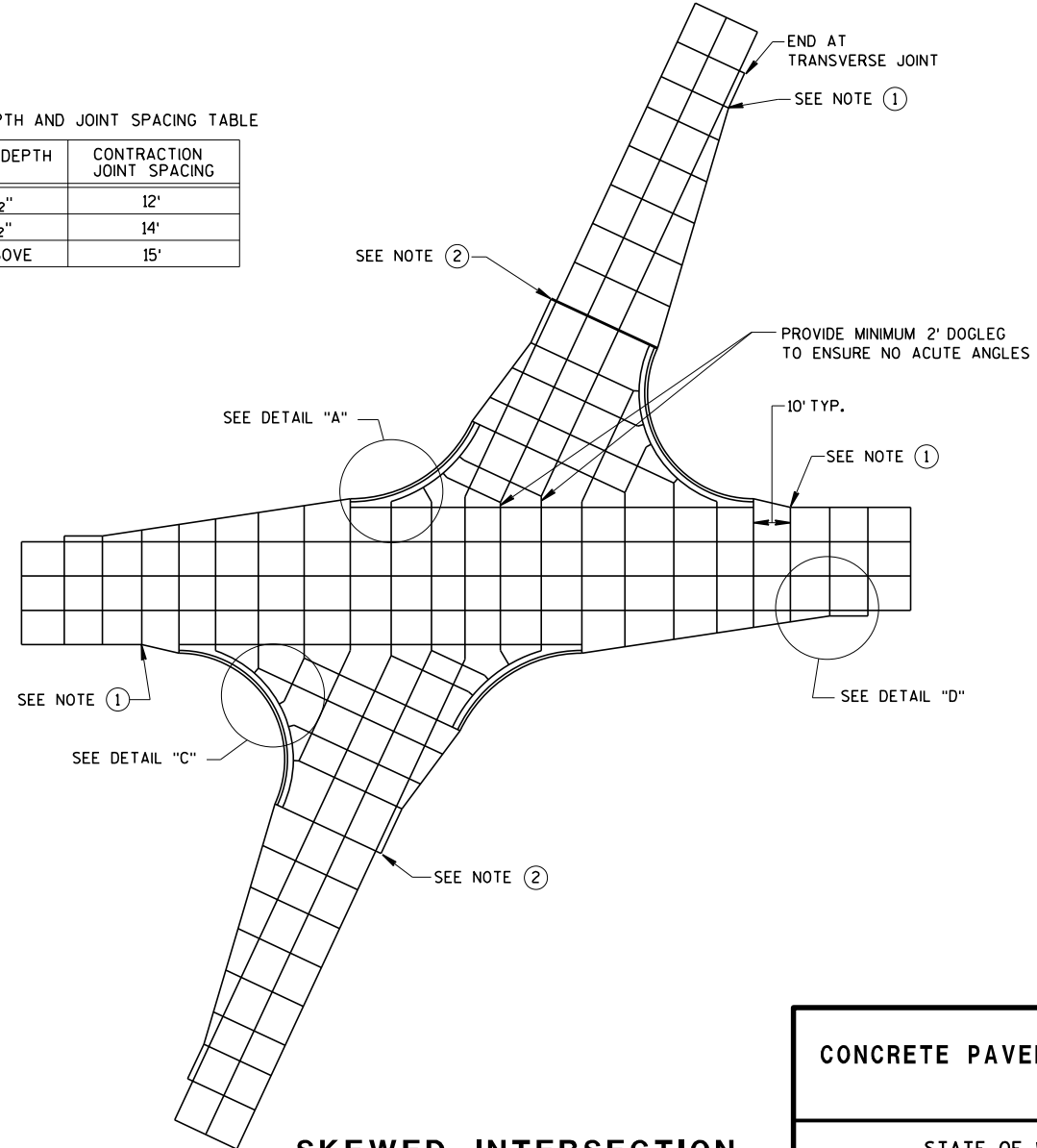
STANDARD INTERSECTION



APPROACH TO MEDIAN



LARGE RIGHT TURN



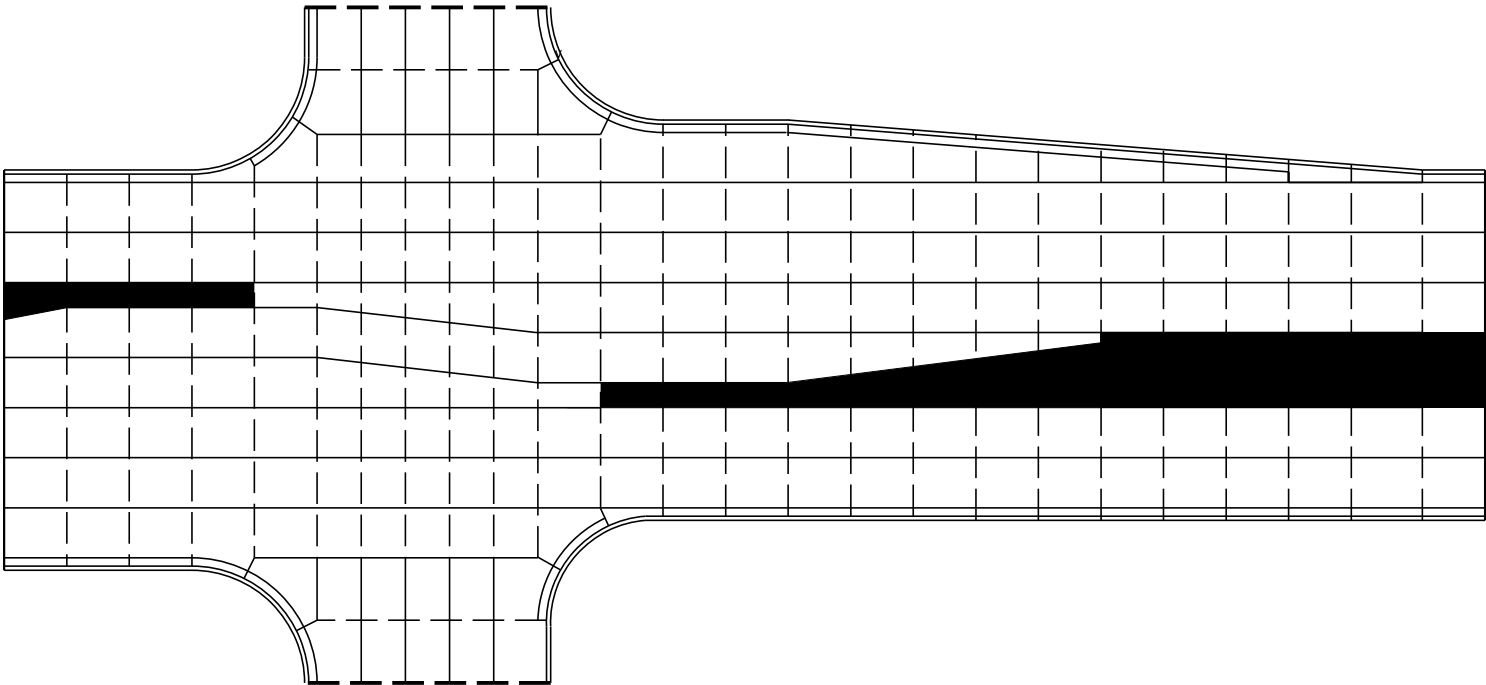
SKEWED INTERSECTION

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

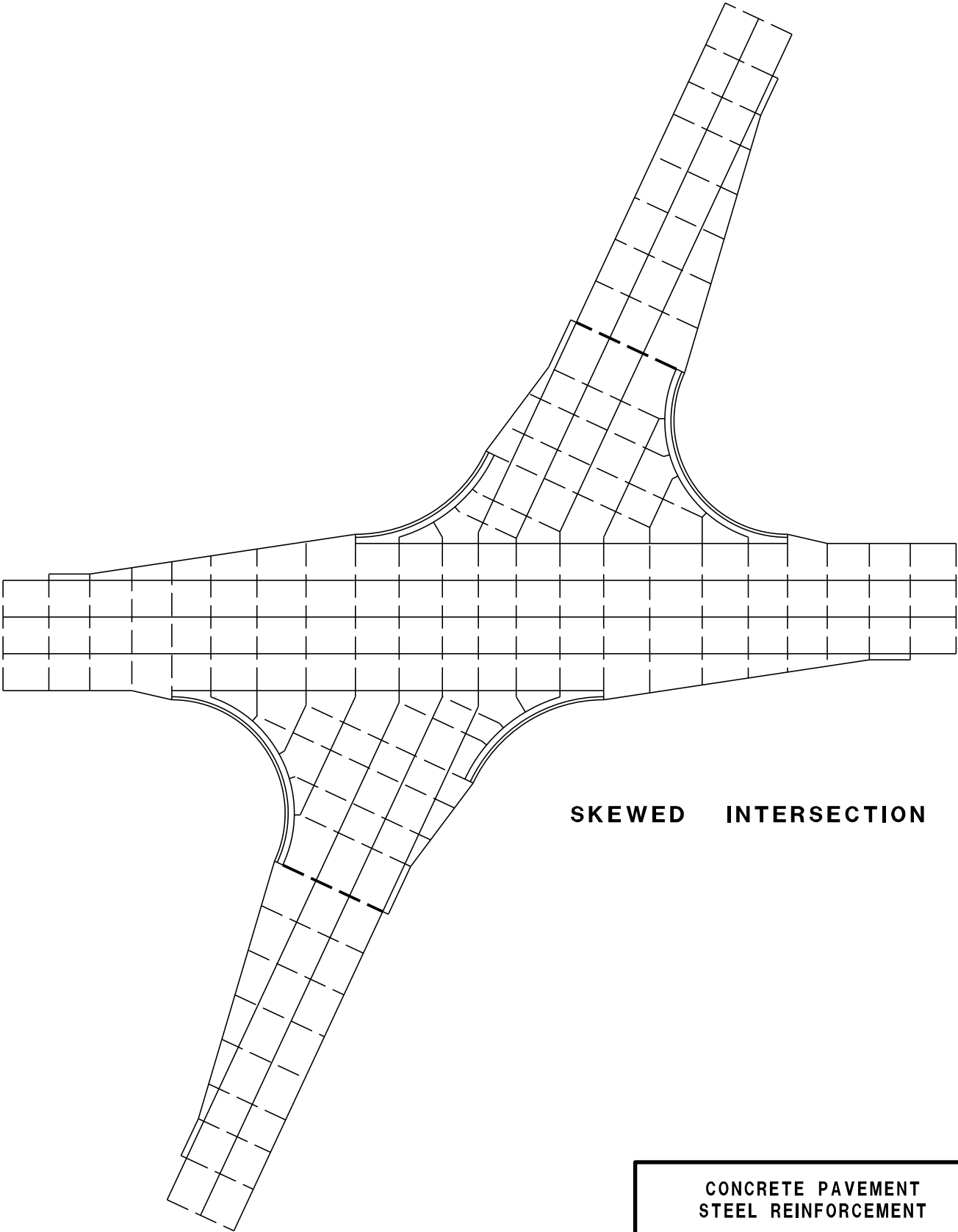
- POTENTIAL DOWELED EXPANSION JOINT
- DOWELED JOINT
- TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

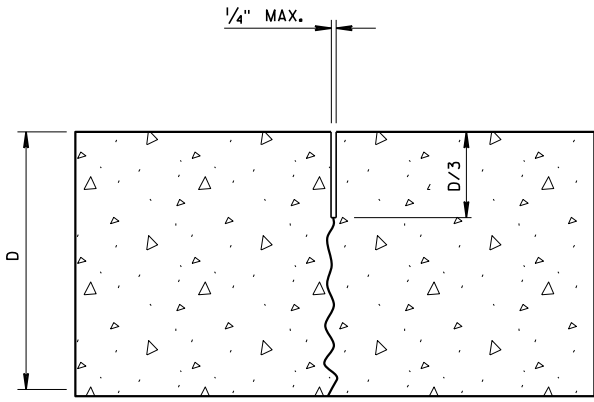
USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.



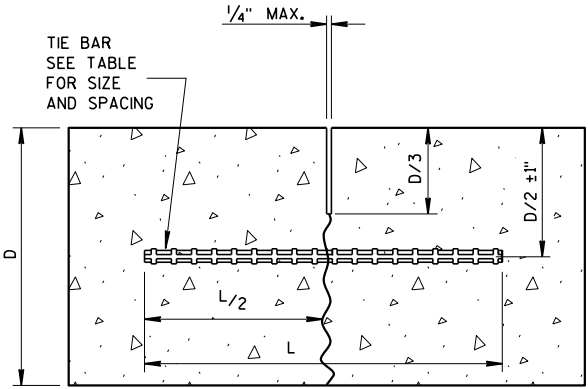
SKEWED INTERSECTION

CONCRETE PAVEMENT
STEEL REINFORCEMENT

STATE OF WISCONSIN¹⁷⁸
DEPARTMENT OF TRANSPORTATION



UNDOWELED-TRANSVERSE



TIED LONGITUDINAL

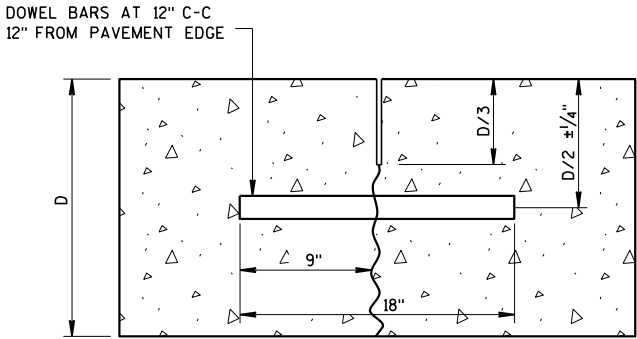
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

* 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

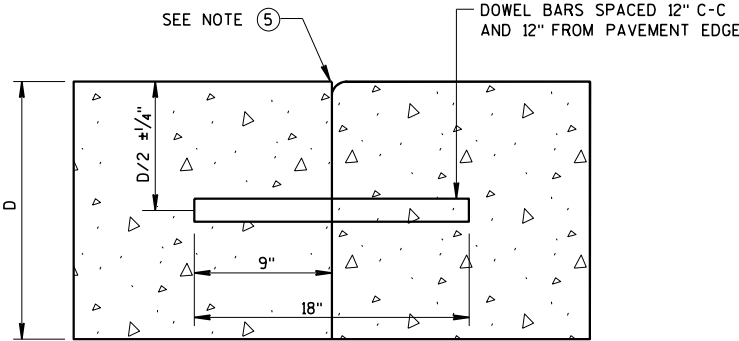
- USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
- SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
- LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET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



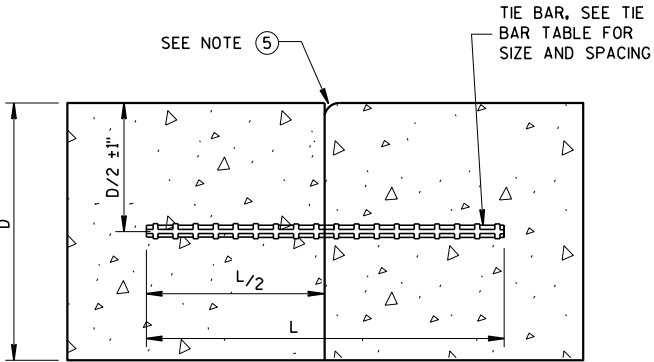
DOWELED-TRANSVERSE

CONTRACTION JOINTS

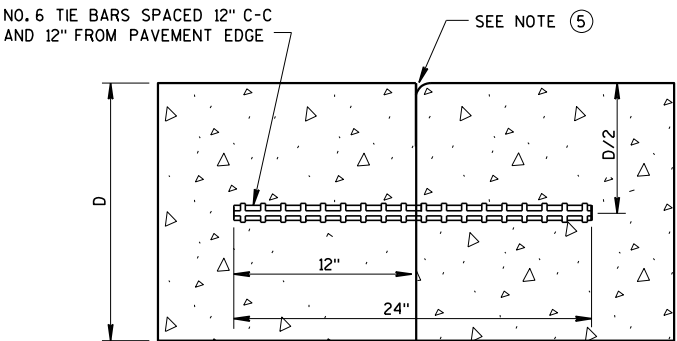
SEE NOTE ②



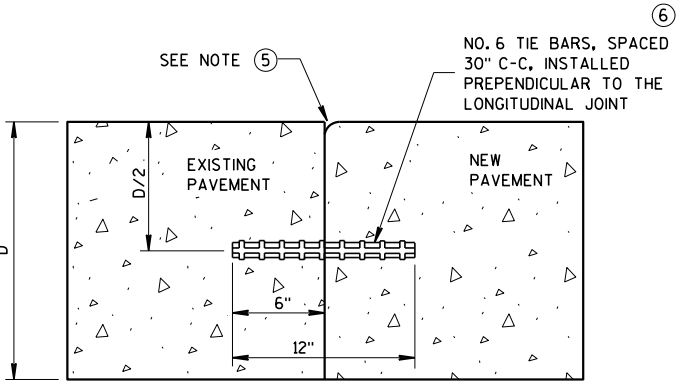
DOWELED TRANSVERSE ③



TIED LONGITUDINAL



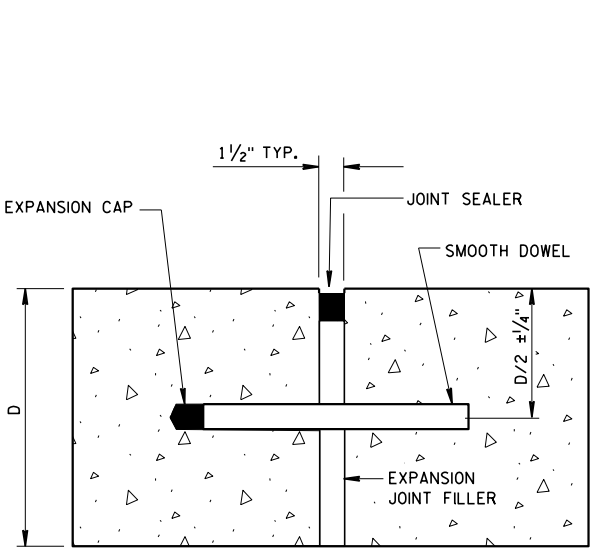
TIED TRANSVERSE ③
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



TIED LONGITUDINAL TO EXISTING

CONSTRUCTION JOINTS

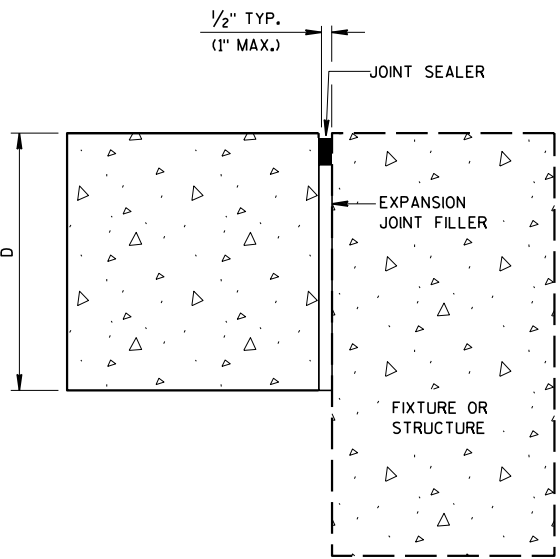
SEE NOTE ④



DOWELED-TRANSVERSE

SEE NOTE ①

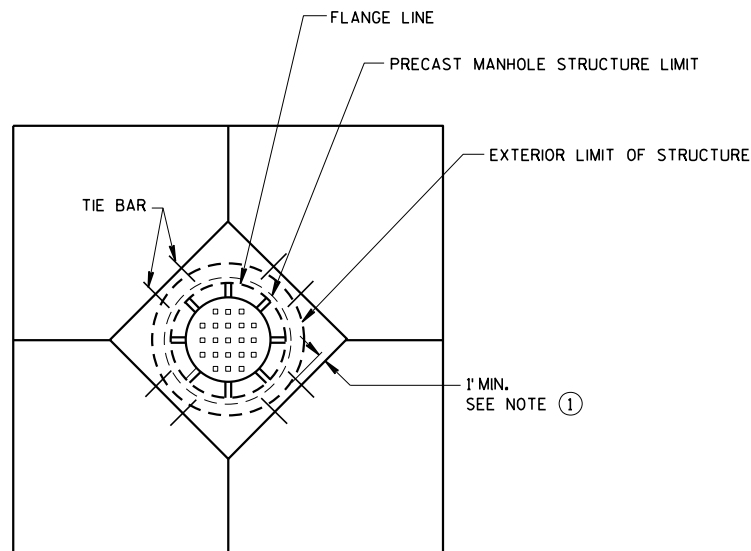
EXPANSION JOINTS



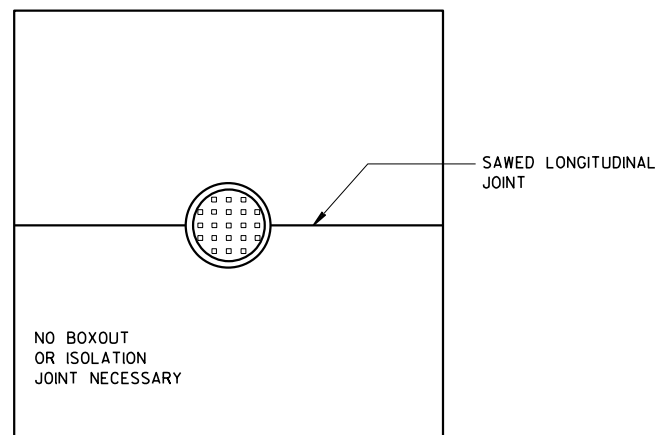
UNTIED-LONGITUDINAL

CONCRETE PAVEMENT
JOINT TYPES

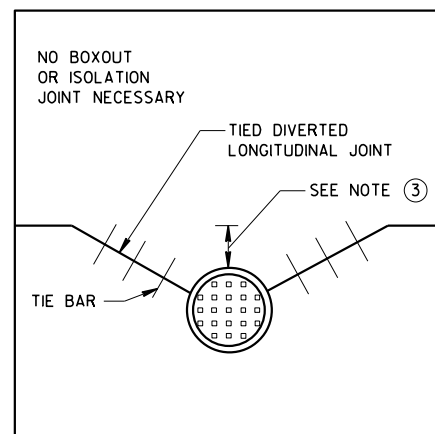
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



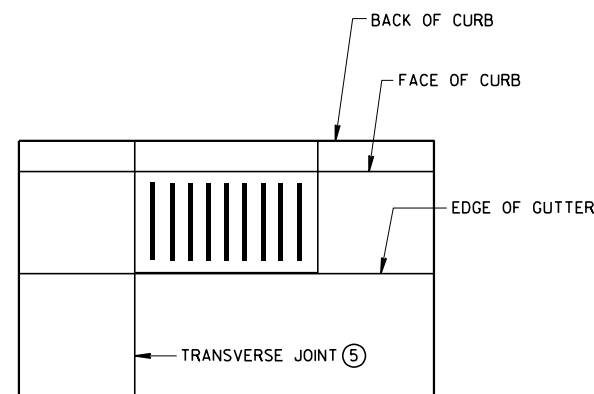
**DIAGONAL MANHOLE BOXOUT
FOR CONSTRUCTION JOINTS**



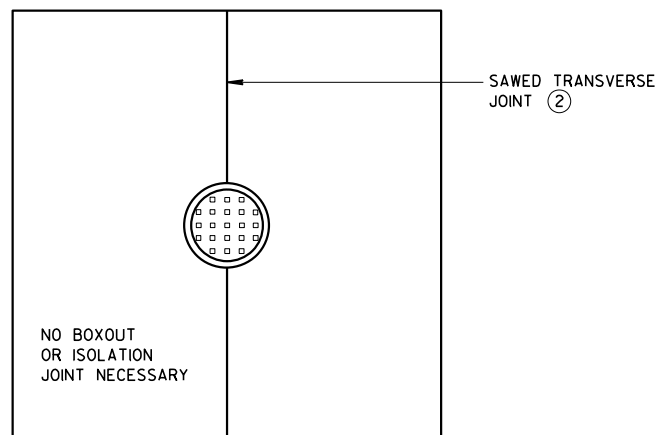
**MANHOLE WITH
LONGITUDINAL JOINT**



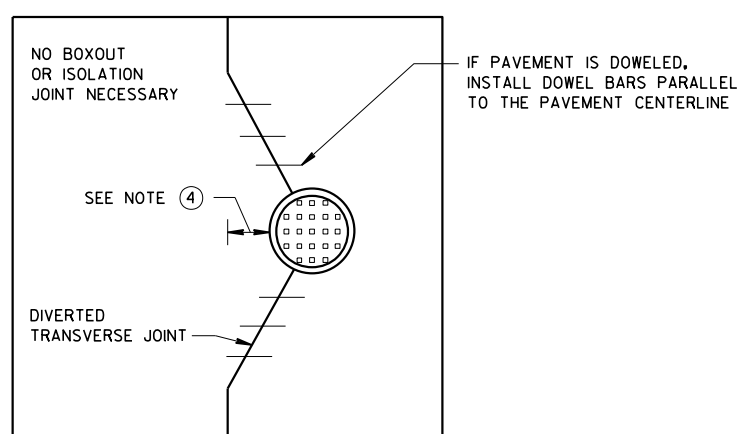
**MANHOLE WITH DIVERTED
LONGITUDINAL CONTRACTION JOINT**



**INLET WITH
TRANSVERSE JOINT**



**MANHOLE WITH
TRANSVERSE JOINT**



**MANHOLE WITH DIVERTED
TRANSVERSE CONTRACTION JOINT**

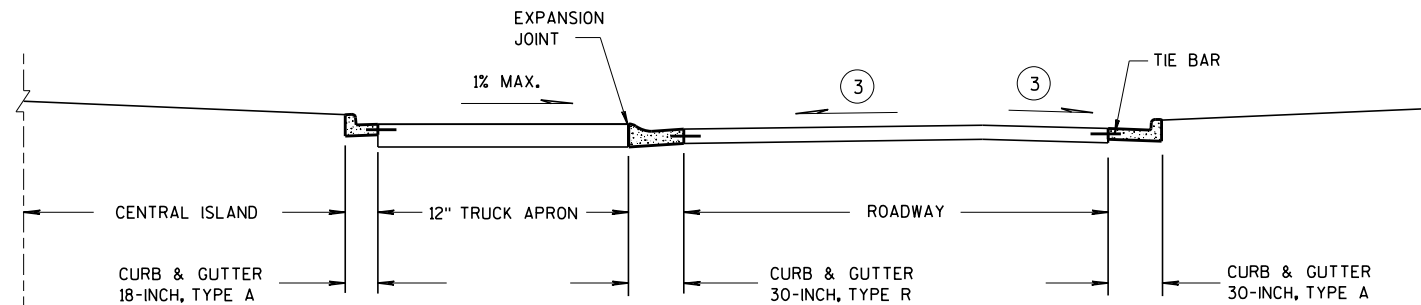
GENERAL NOTES

- 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.

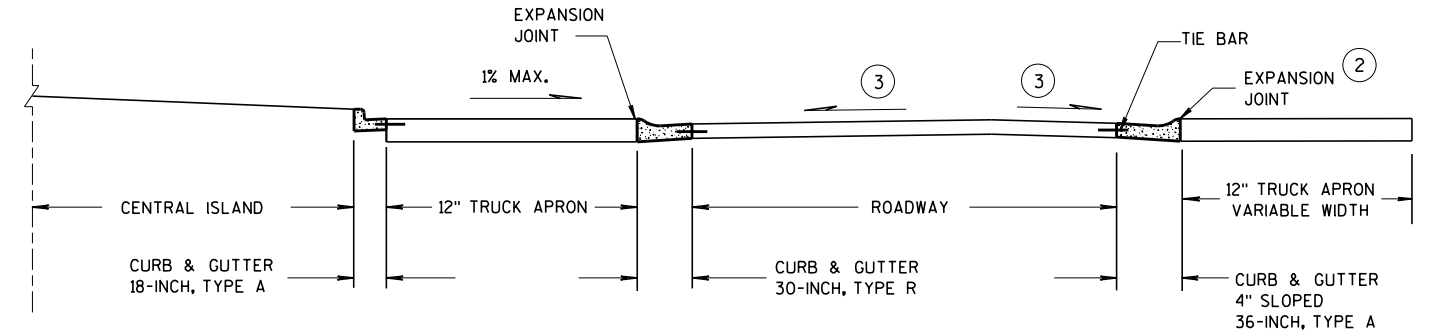
**CONCRETE PAVEMENT
JOINTING AT UTILITY FIXTURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

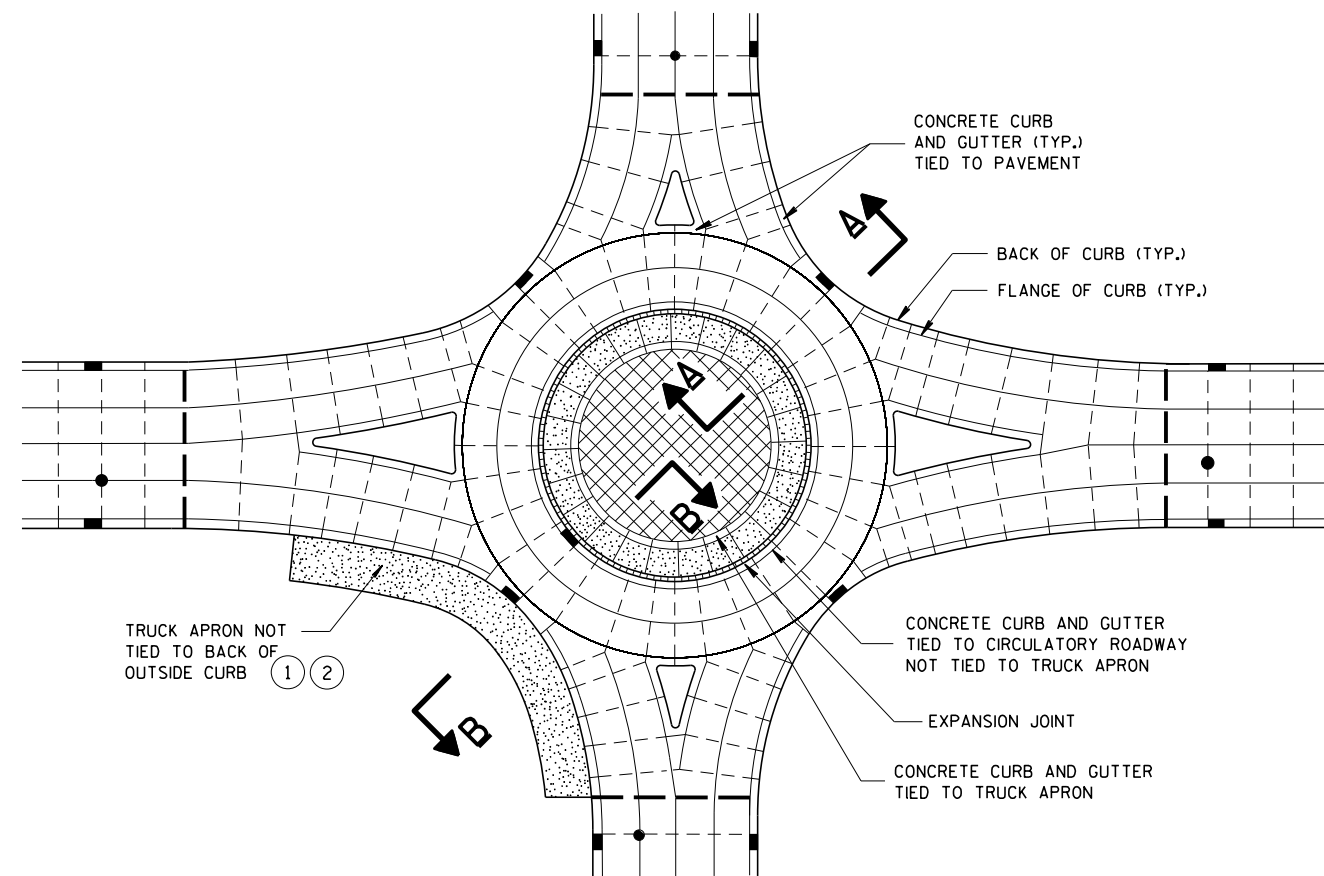
APPROVED
March 2018 /S/ Peter K...
DATE PAVEMENT SUP... 180
FHWA



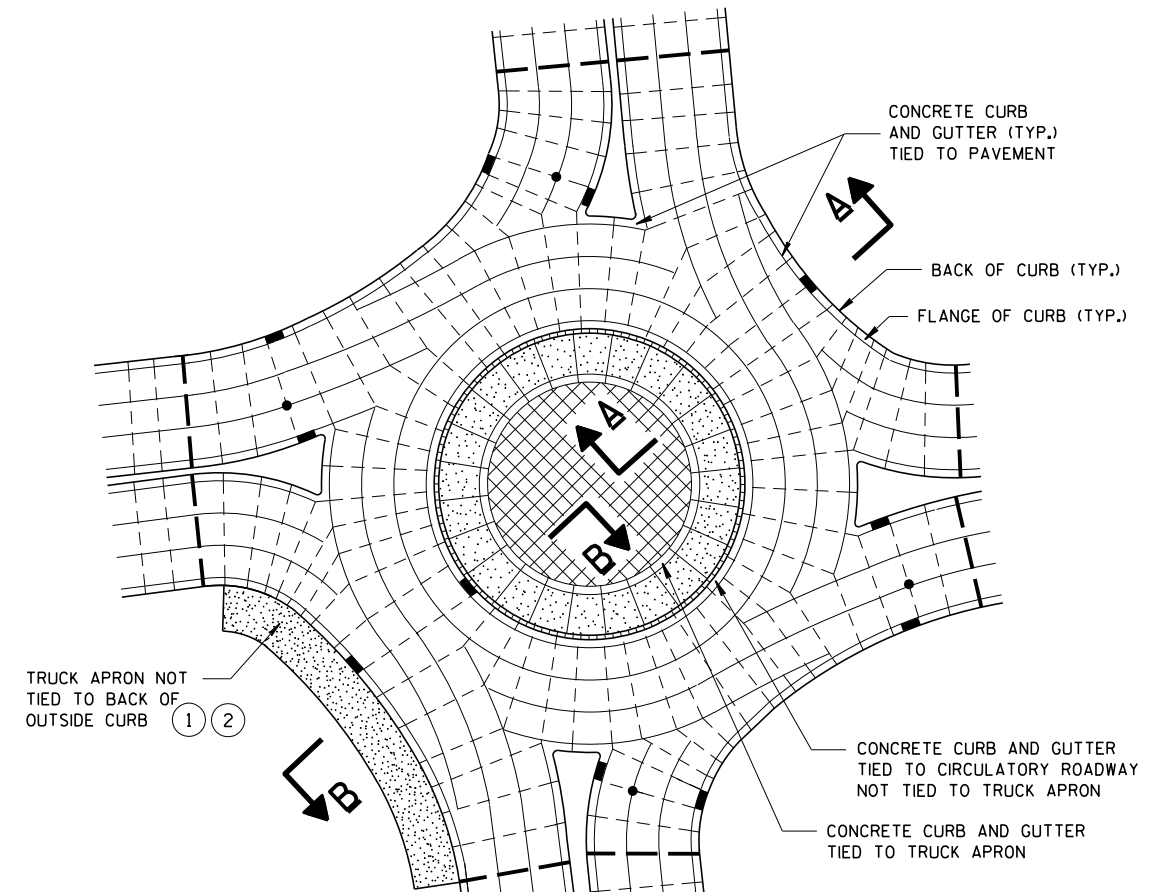
SECTION A-A



SECTION B-B



ISOLATED CIRCLE JOINT LAYOUT FOR ROUNDABOUTS



PINWHEEL JOINT LAYOUT FOR ROUNDABOUTS

GENERAL NOTES

MAXIMUM JOINT SPACING IS IN ACCORDANCE WITH THE TABLE SHOWN ON SDD 13C18 SHEET "a".

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

DO NOT DOWEL OR TIE THE TRUCK APRON TRANSVERSE JOINTS.

- ① DESIGNER DETERMINES SIZE AND LOCATION(S) OF TRUCK APRON TO ACCOMMODATE TRACKING OF OVERSIZE/OVERWEIGHT VEHICLES.
- ② TIE THE OUTSIDE TRUCK APRON TO THE BACK SIDE OF CURB ONLY WHEN ENTIRE TRUCK APRON WIDTH IS LESS THAN 3 FEET.
- ③ CONFORM TO PLAN CONSTRUCTION DETAILS FOR CIRCULATORY ROADWAY CROSS SLOPE.

LEGEND

— —	DOWELED JOINT	■ ■	UTILITY STRUCTURES
— —	TIED JOINT	■ ■	UTILITY STRUCTURES
— —	EXPANSION JOINT	■ ■	UTILITY STRUCTURES
— —	POTENTIAL DOWELED EXPANSION JOINT	■ ■	UTILITY STRUCTURES
■ ■	TRUCK APRON	■ ■	UTILITY STRUCTURES
■ ■	CENTRAL ISLAND	■ ■	UTILITY STRUCTURES

CONCRETE PAVEMENT JOINTING
AND STEEL REINFORCEMENT
IN ROUNDABOUTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

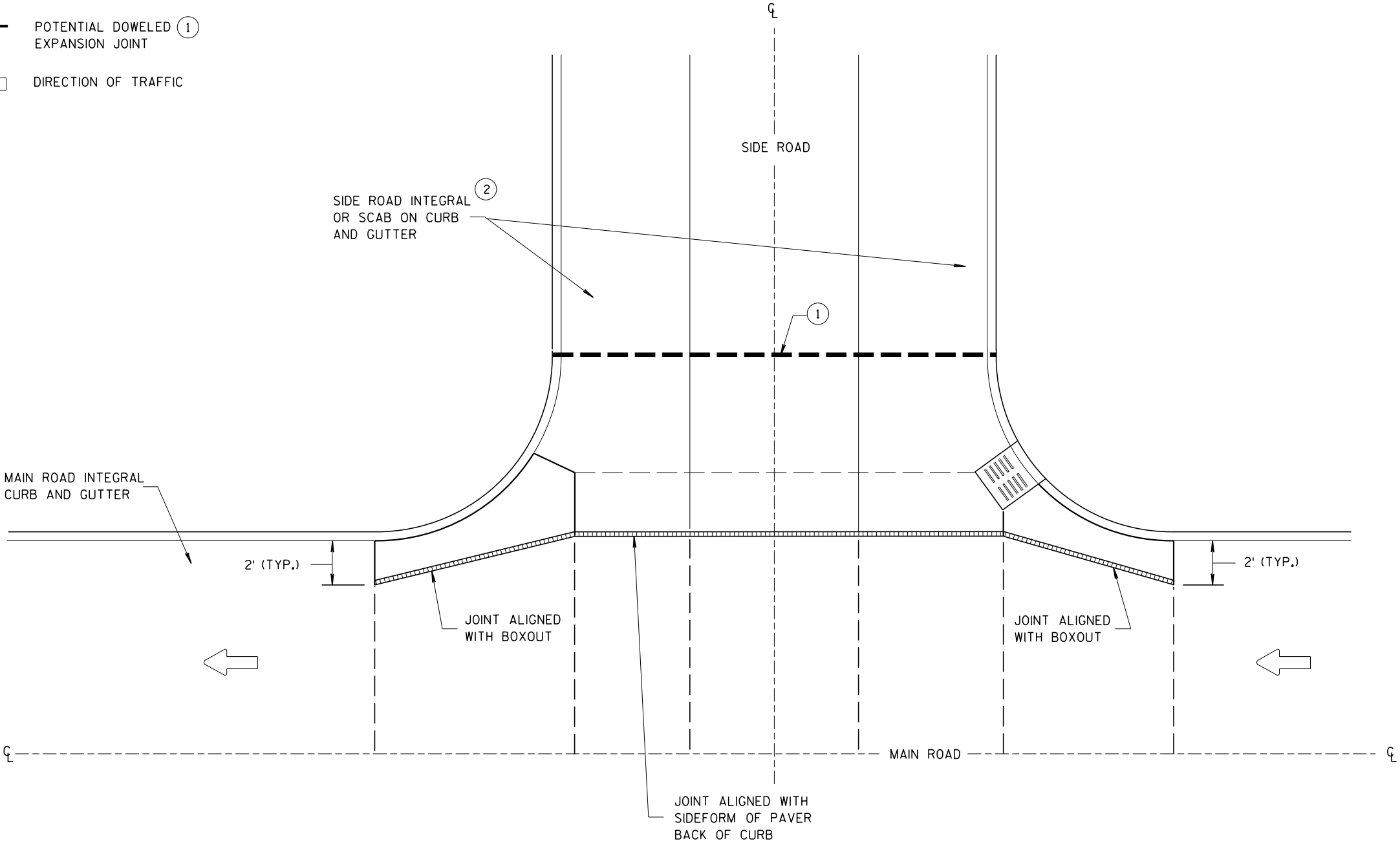
APPROVED
March 2018 /S/ Peter Ke
DATE PAVEMENT SUR 181
FHWA

LEGEND

- — — DOWELED JOINT
- TIED JOINT
- ▤ TIED CONSTRUCTION JOINT/BOXOUT
- - - - POTENTIAL DOWELED ① EXPANSION JOINT
- ← DIRECTION OF TRAFFIC

GENERAL NOTES

- ① 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.
- ② PROVIDE TIED JOINT AT THE FLANGE OF SCAB ON CURB IF SCAB ON CURB AND GUTTER IS USED.

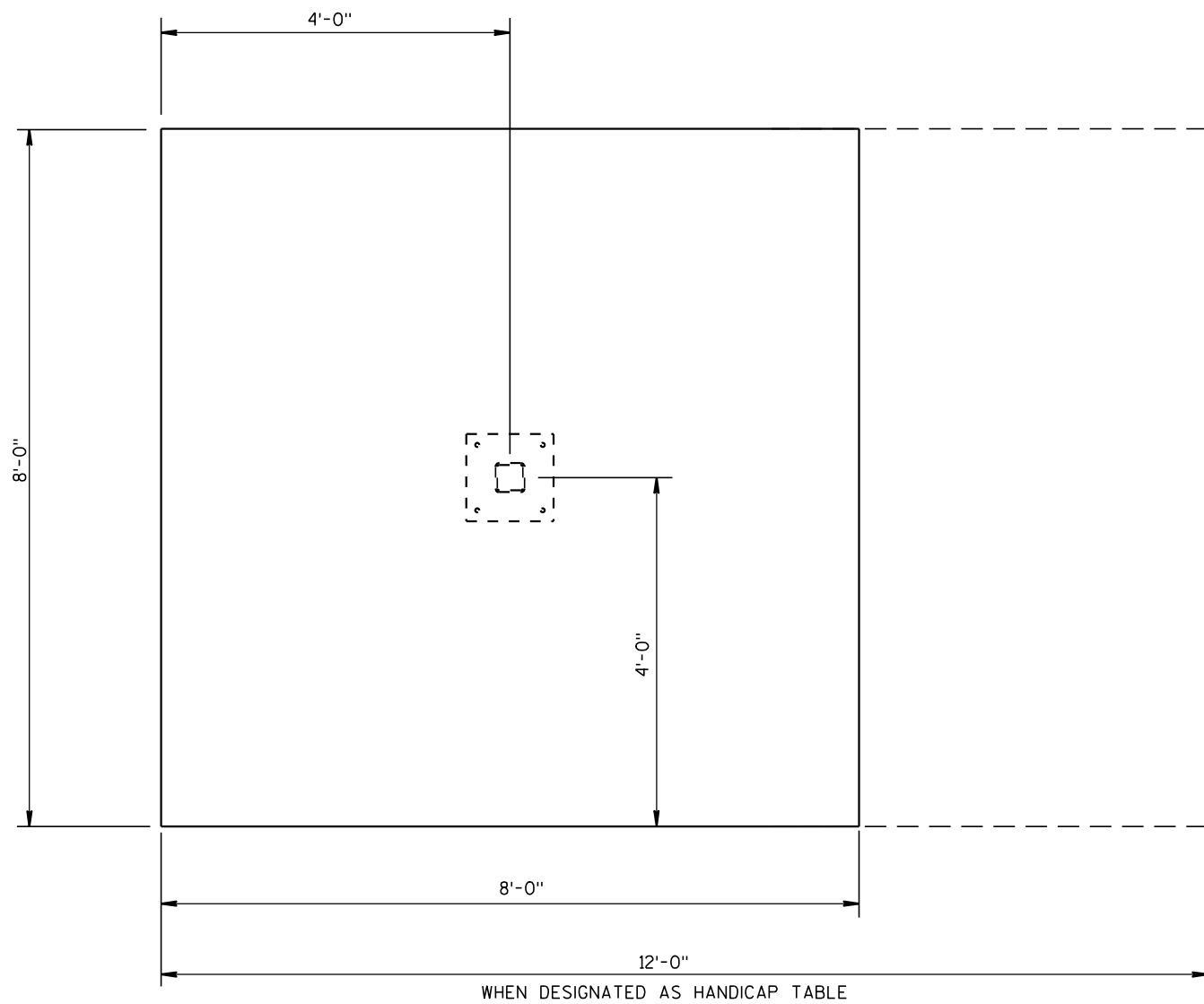


INTERSECTION BOXOUT FOR INTEGRAL CURB AND GUTTER

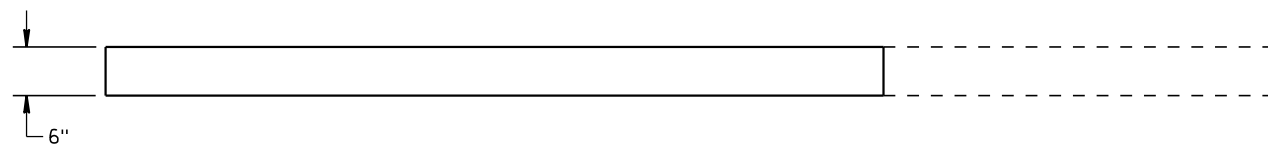
CONCRETE PAVEMENT
INTERSECTION BOXOUT FOR
INTEGRAL CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 /S/ Peter Ke...
DATE PAVEMENT SUR 182
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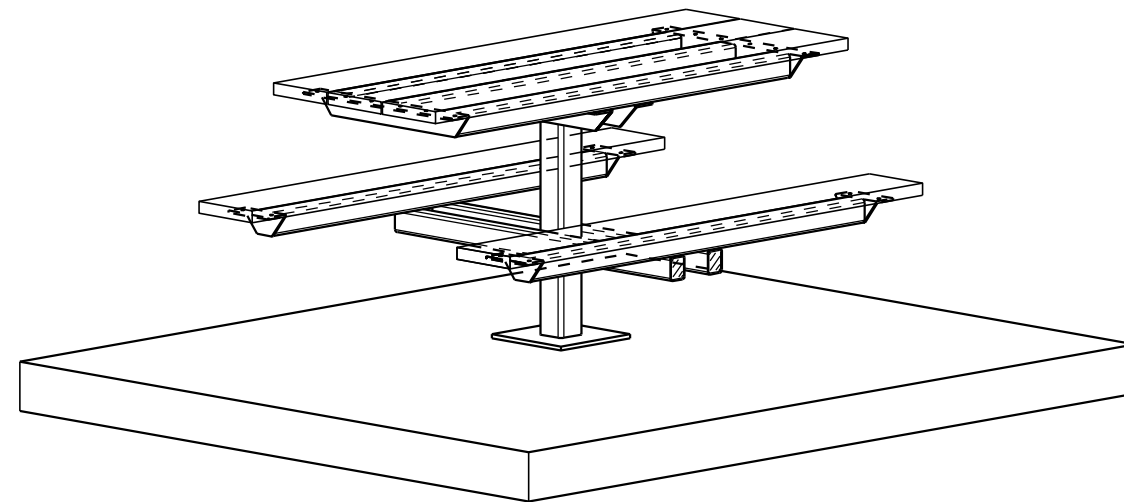


TOP VIEW



SLAB ELEVATION

CONCRETE PAD FOR PICNIC TABLE



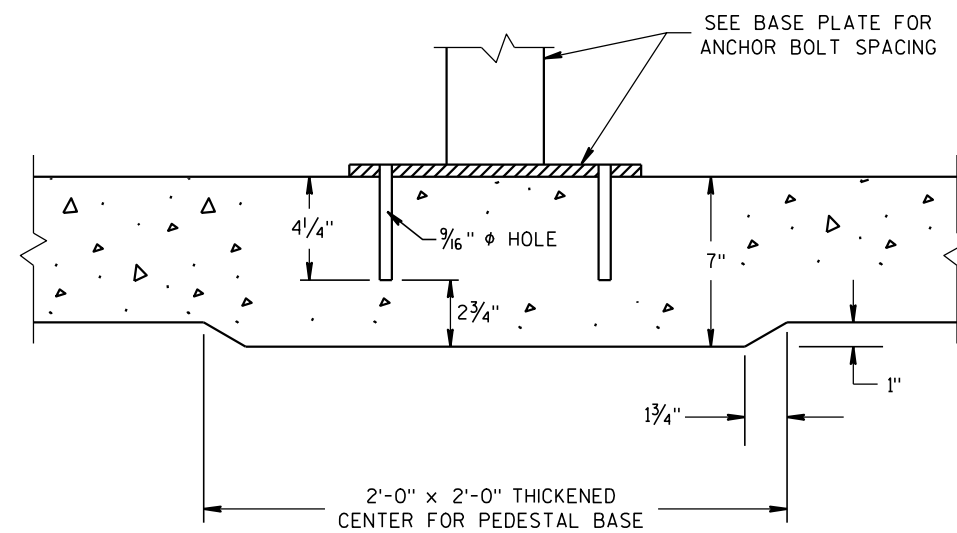
PERSPECTIVE VIEW

NOTES:

PICNIC TABLE PAD SHALL BE PAID FOR AS CONCRETE SIDEWALK 6-INCH.

PICNIC TABLE PAD SHALL BE LEVEL.

HANDICAP TABLES MUST HAVE SIDEWALK EXTENSION FOR ACCESSABILITY.

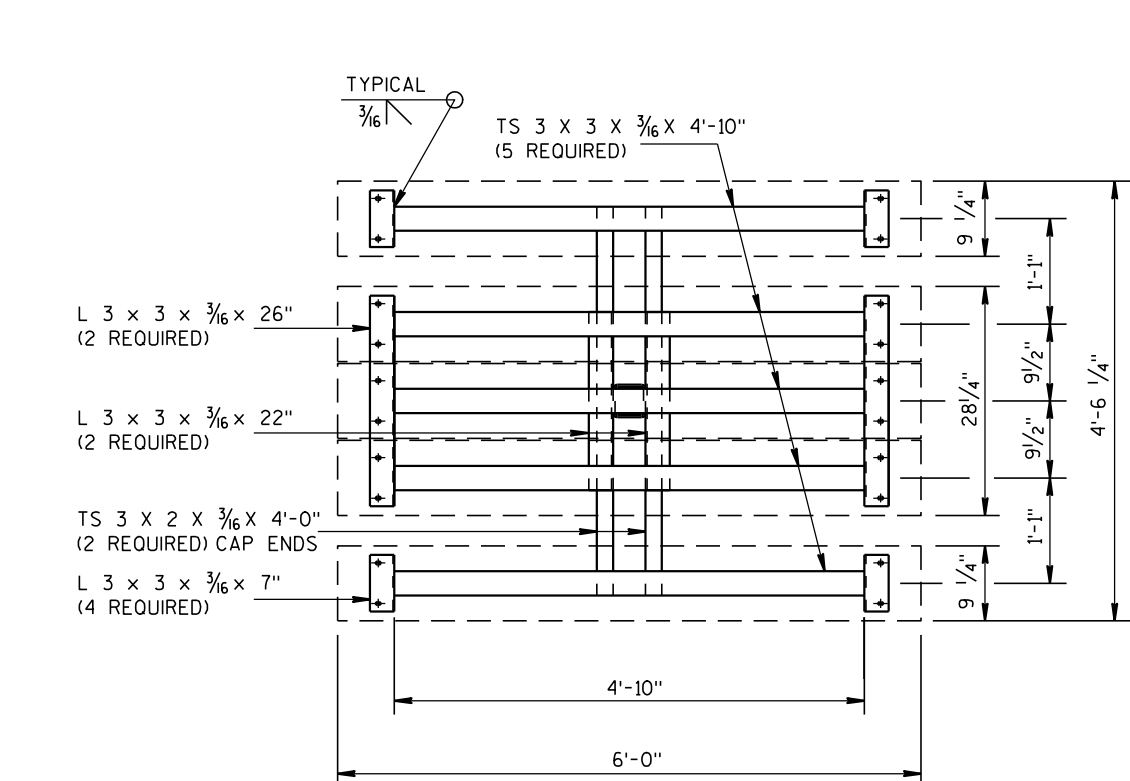


ANCHOR BOLT HOLE DETAIL

PICNIC TABLE
SINGLE PEDESTAL

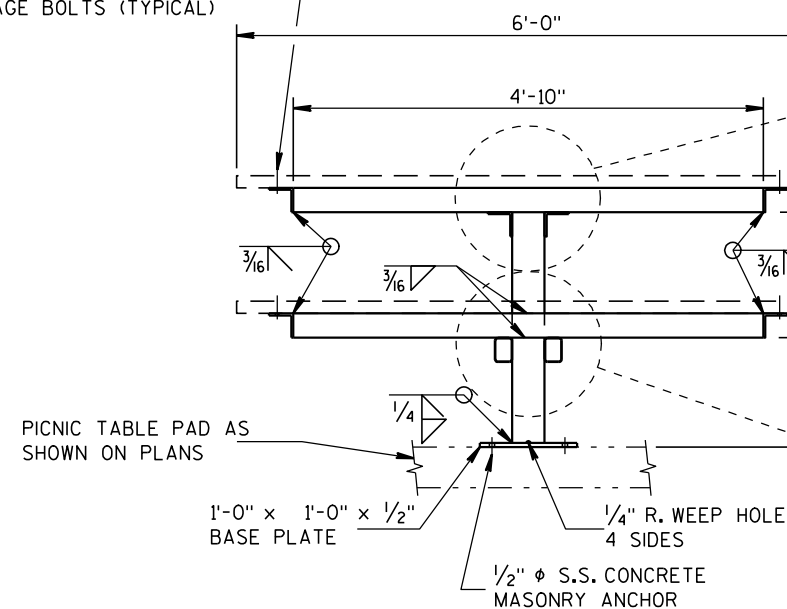
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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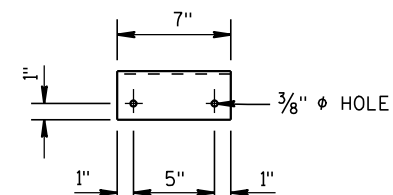
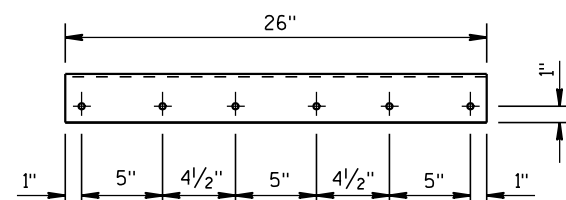


TOP VIEW

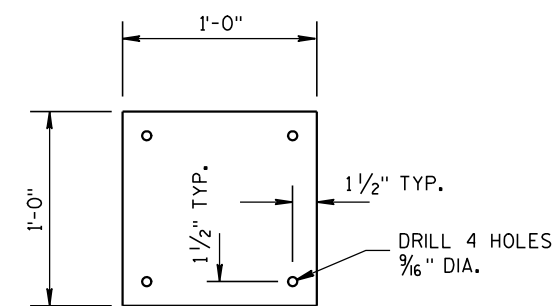
3/8" ϕ HOLES IN PLANKS FOR
5/16" ϕ X 2" GALV. STEEL
CARRIAGE BOLTS (TYPICAL)



FRONT VIEW



PUNCHED HOLE LAYOUT



BASE PLATE LAYOUT

NOTES:

ALL EDGES AND CORNERS OF CUT ANGLES TO BE ROUNDED TO PREVENT SHARP EDGES.

ALL STRUCTURAL TUBES TO BE 46 KSI YIELD, ALL OTHER STEEL TO BE 36 KSI YIELD MIN.

PLANKS TO BE MADE OF RECYCLED PLASTIC.

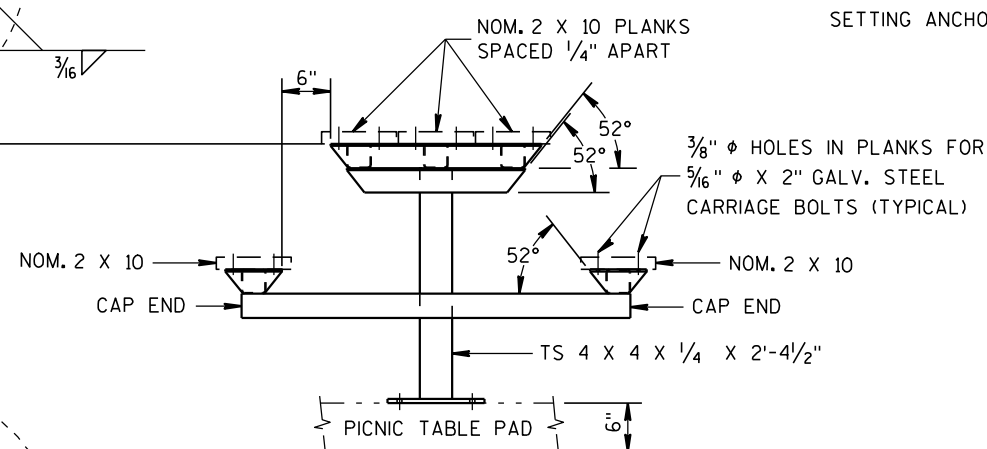
ACTUAL SIZE OF NOMINAL 2 X 10 PLANKS SHALL BE 1 1/2" X 9 1/4".

ALL NUTS, BOLTS, AND WASHERS SHALL BE ASTM A36.

THE 1/2" ϕ STAINLESS STEEL CONCRETE MASONRY ANCHOR SHALL BE TYPE S IN ACCORDANCE WITH SECTION 502.5.2.2 OF THE STANDARD SPECIFICATION.

THE TYPE S MASONRY ANCHOR SHALL DEVELOP A MIN. OF 2400 LBS. TENSION.

CONCRETE SHALL BE CURED MIN. OF 7 DAYS PRIOR TO SETTING ANCHOR BOLTS.



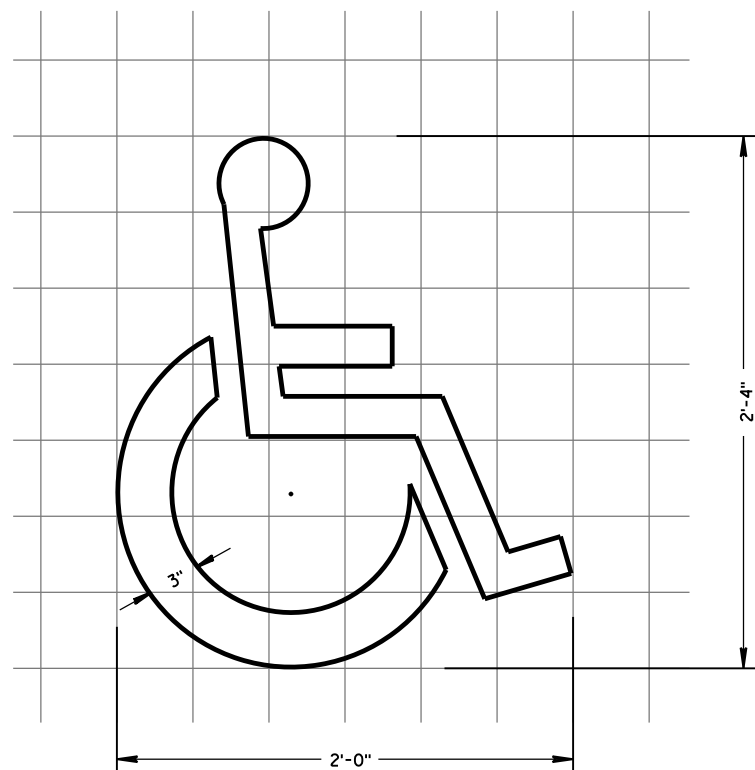
END VIEW

**PICNIC TABLE
SINGLE PEDESTAL**

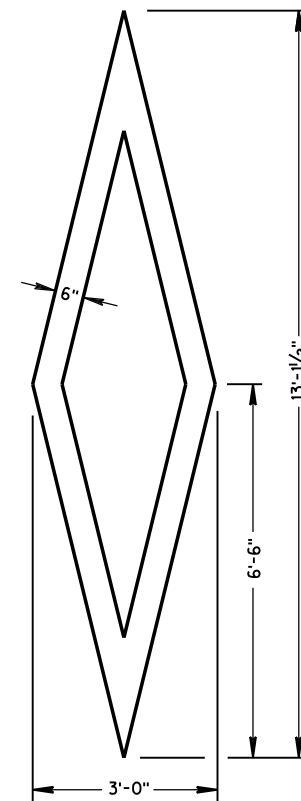
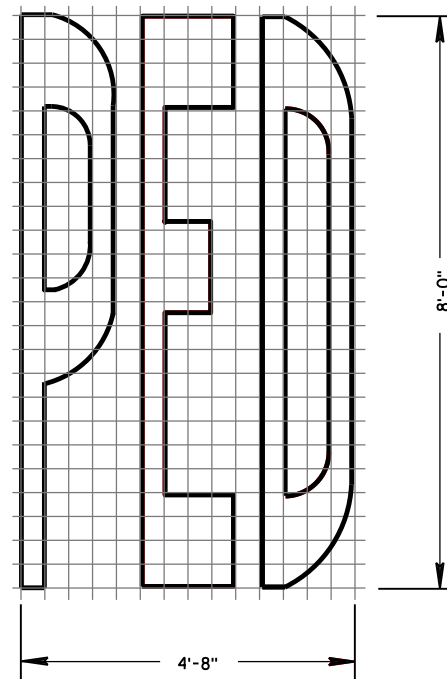
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/6/00 /S/ Rory L. Rhin...
DATE CHIEF ROADWAY DEVELOPER 184 INEER
FHWA



HANDICAP 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.

PAVEMENT MARKING SYMBOLS

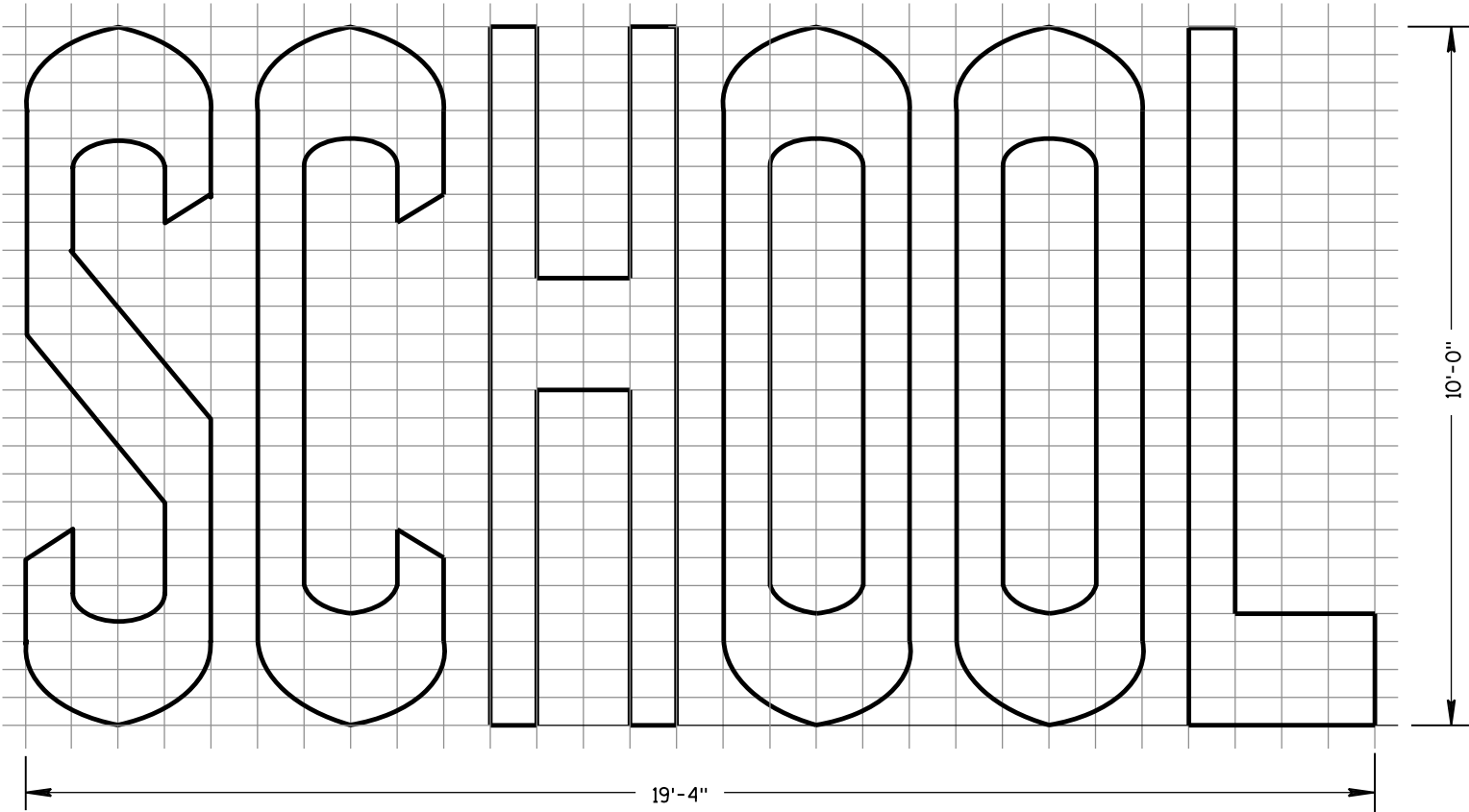
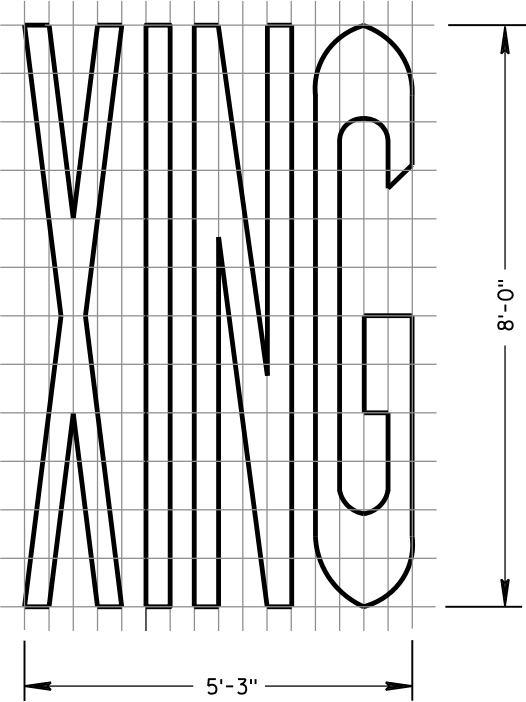
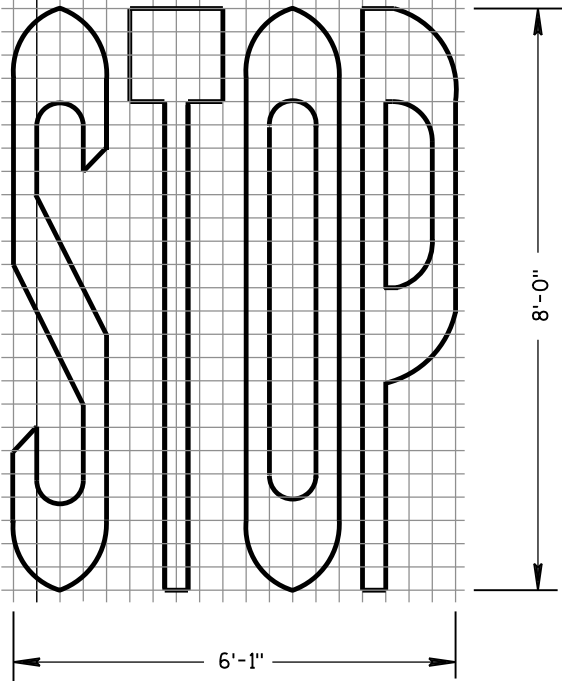
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

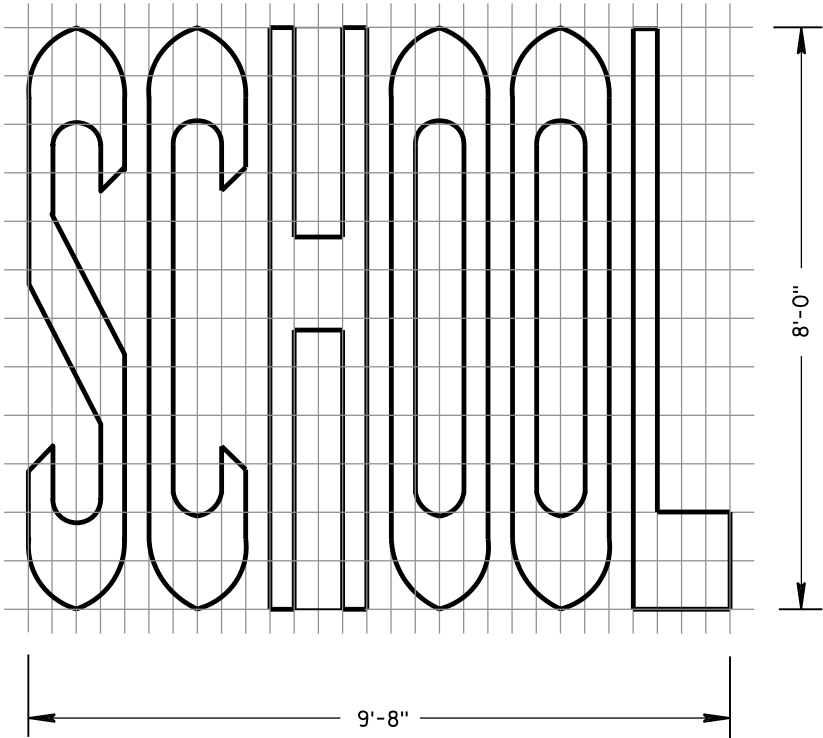
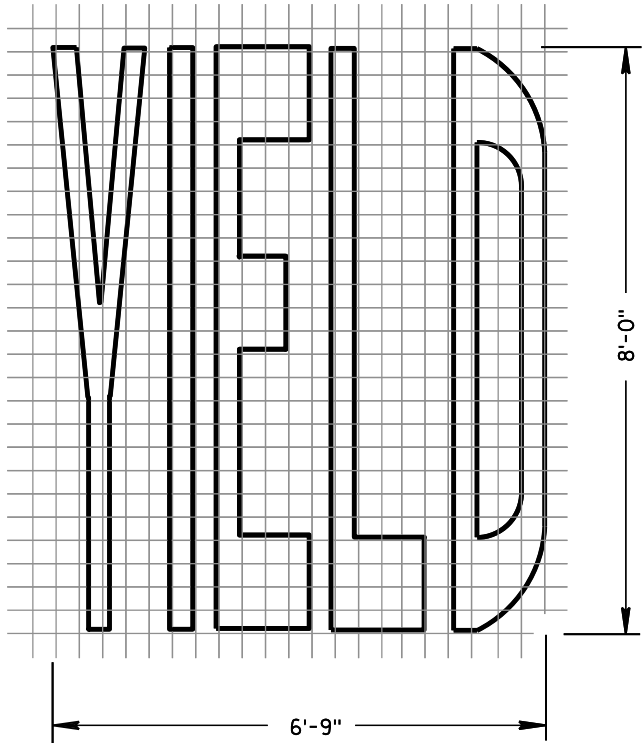
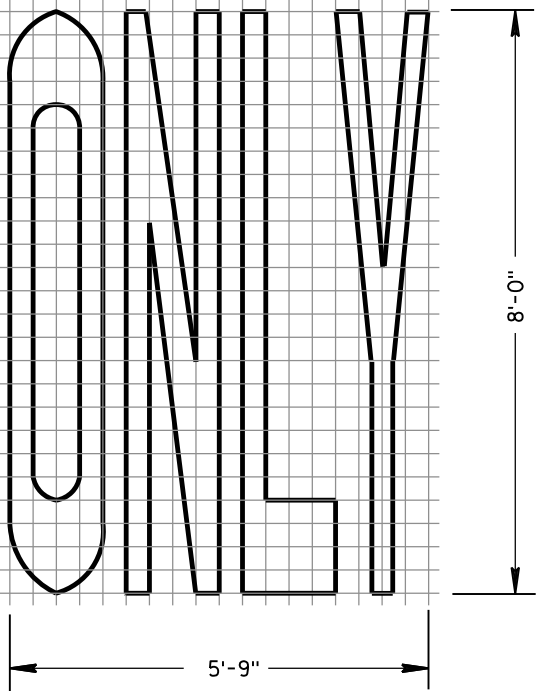
June 2017 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARK 185 EER
FHWA

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.



TWO-LANE

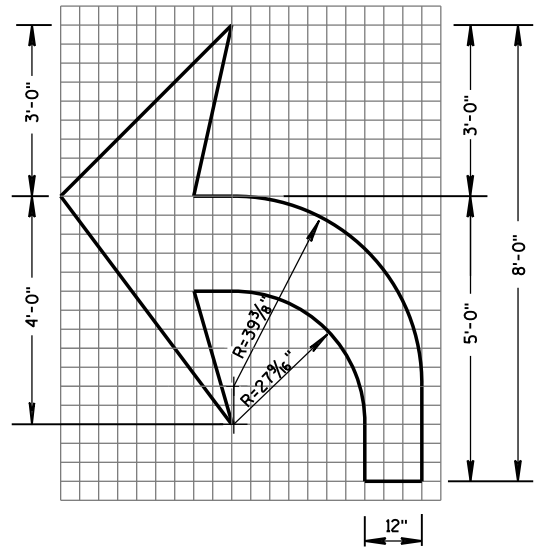


SINGLE-LANE

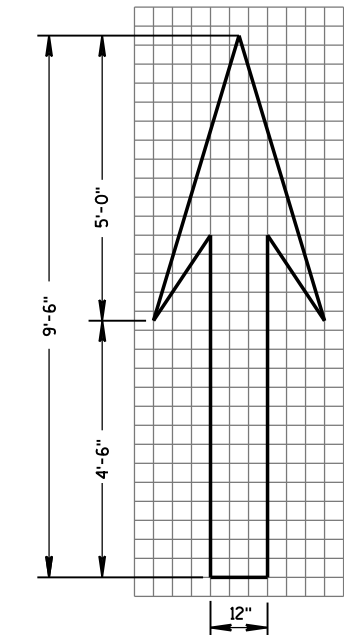
PAVEMENT MARKING WORDS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

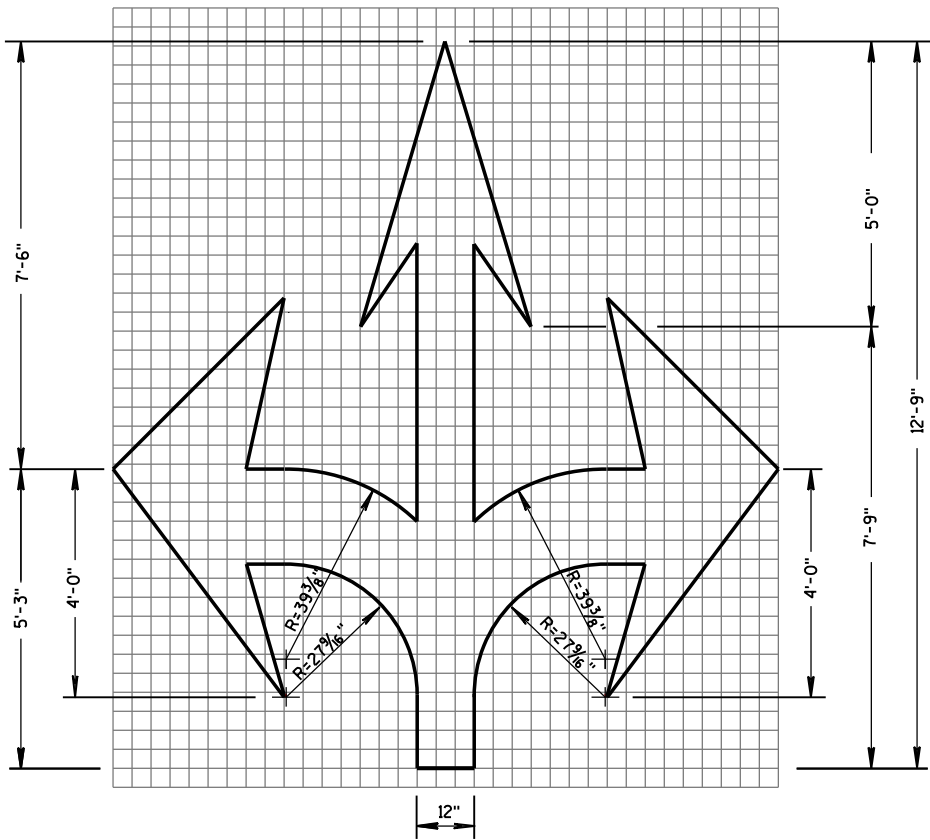
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June 2017 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARK 186 EER
FHWA



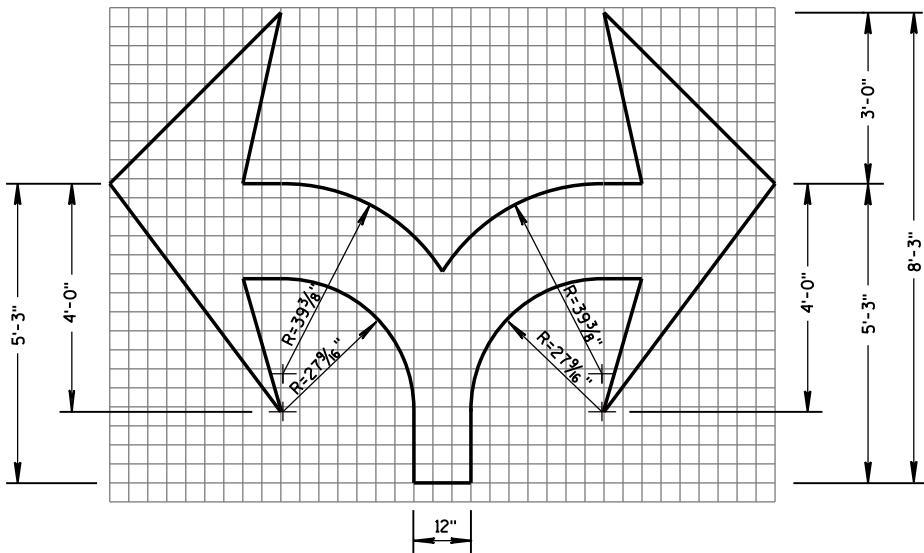
TYPE 2



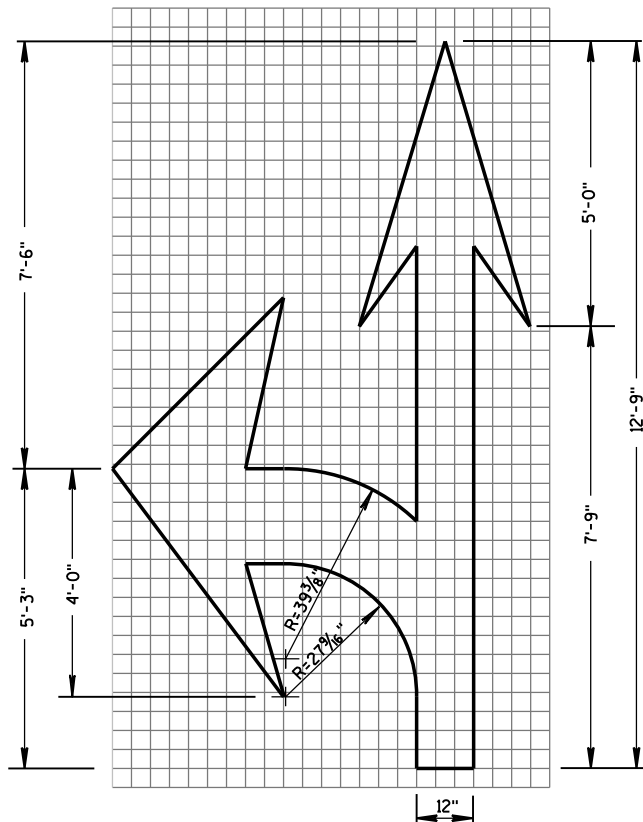
TYPE 1



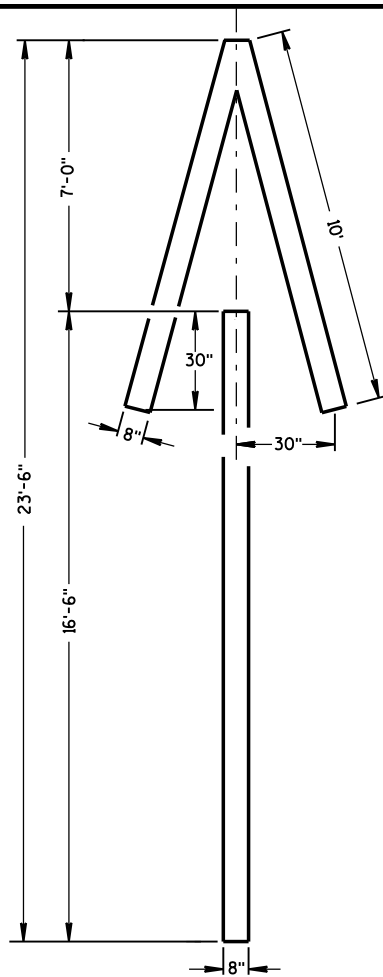
TYPE 6



TYPE 7



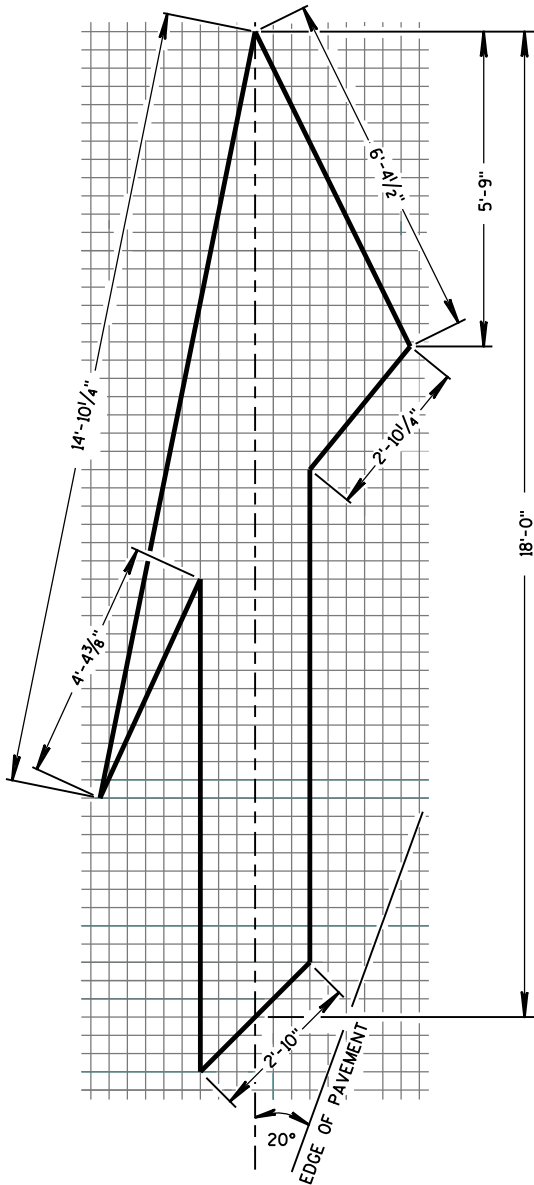
TYPE 3



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.



TYPE 5 LANE DROP ARROW

PAVEMENT MARKING ARROWS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017

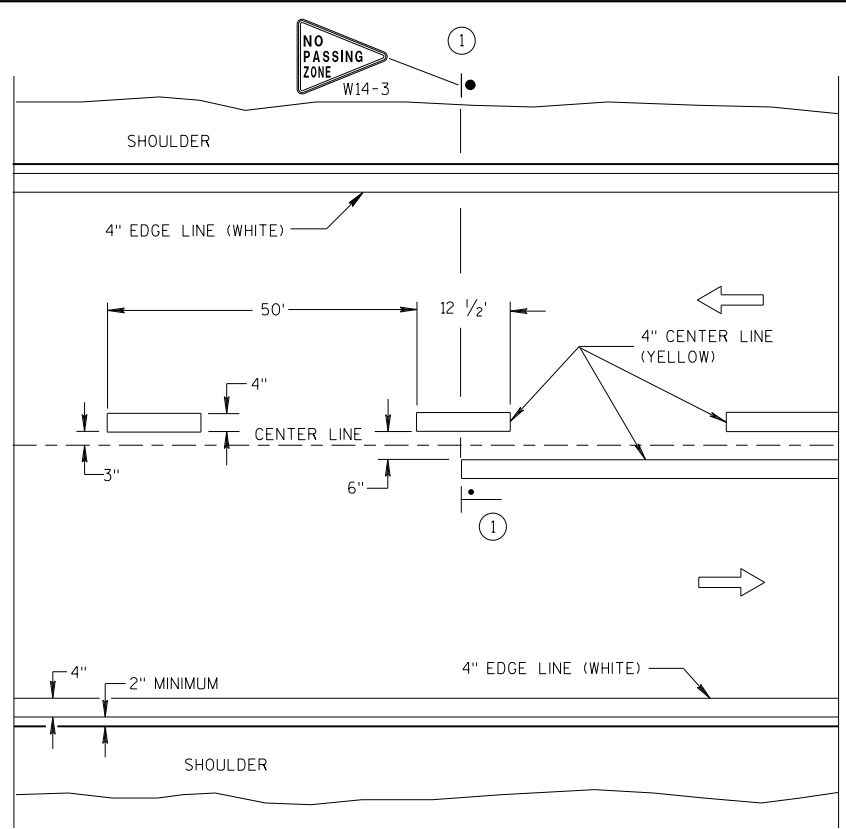
DATE

FHWA

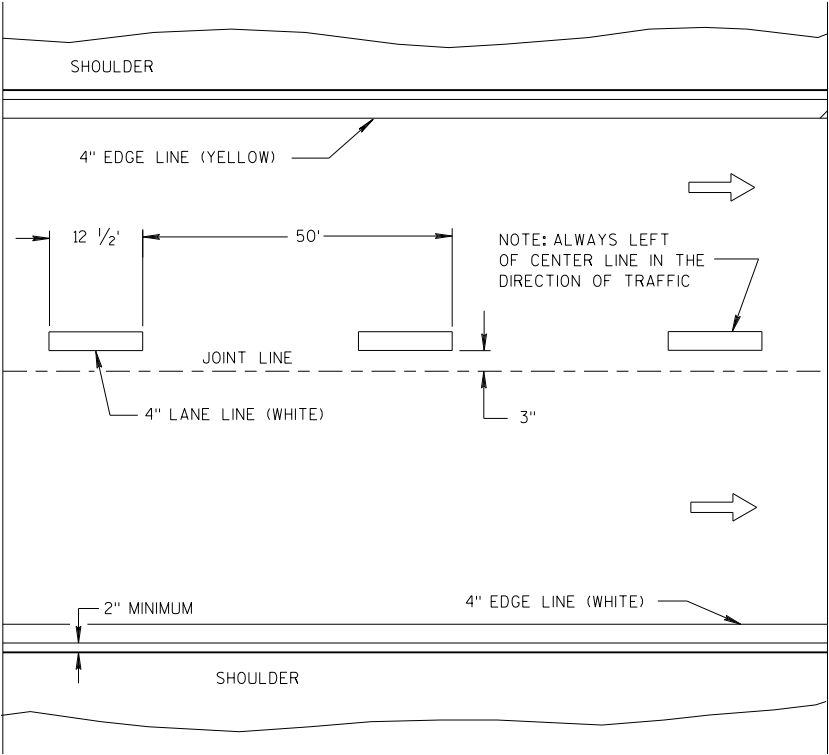
/S/ Matthew R. Rauch

STATE SIGNING AND MAR 187

VEER

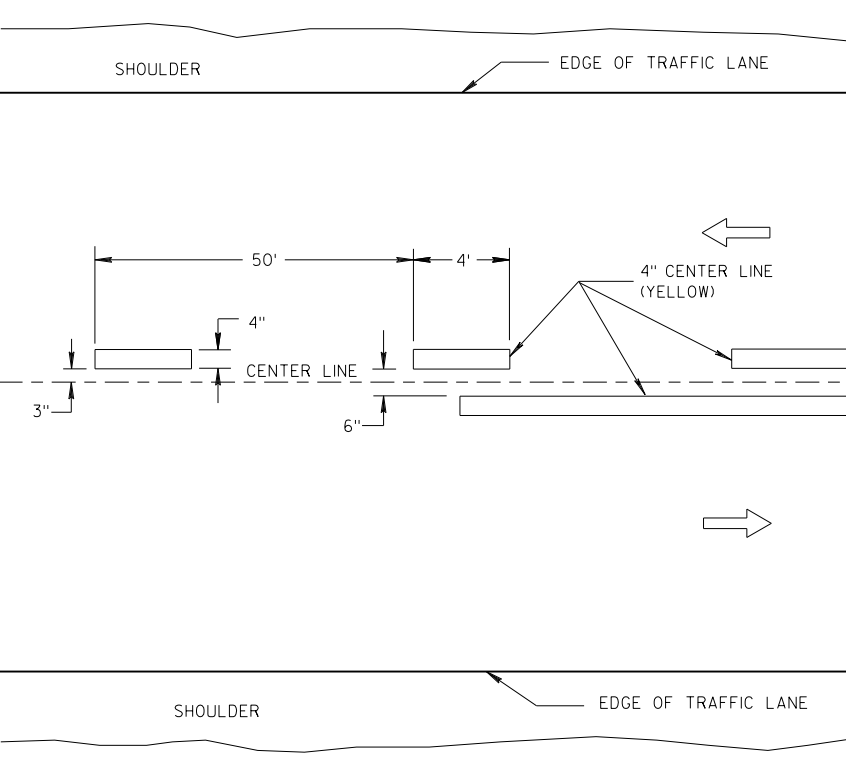


TWO WAY TRAFFIC

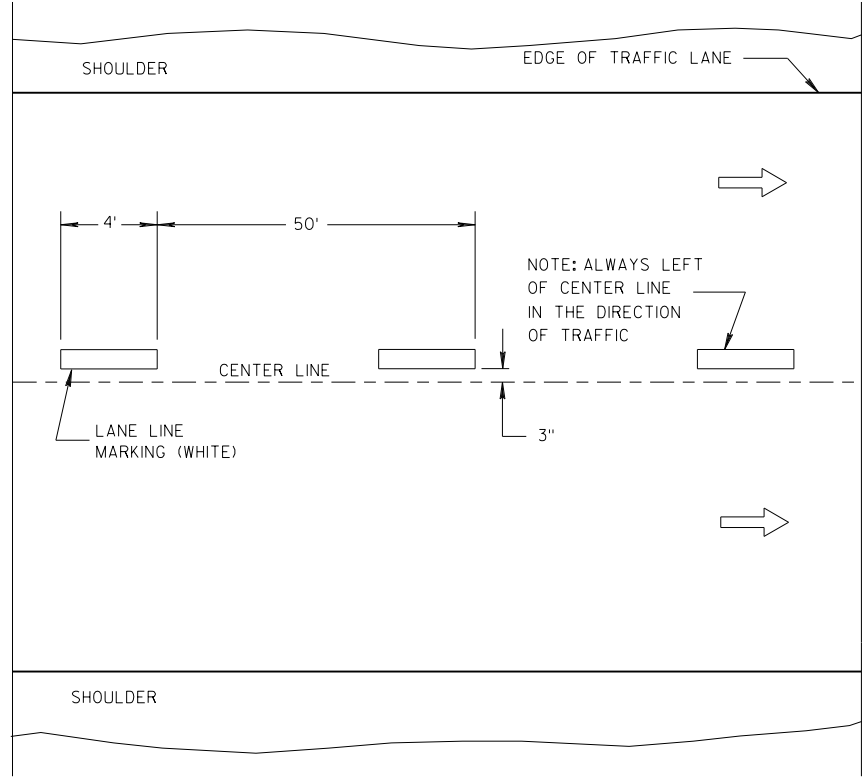


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

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

① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

NOTE

ARROW SYMBOL (➡) SHOWS DIRECTION OF TRAVEL

LEGEND

- "T" MARKING
- POST MOUNTED SIGN

LONGITUDINAL MARKING (MAINLINE)

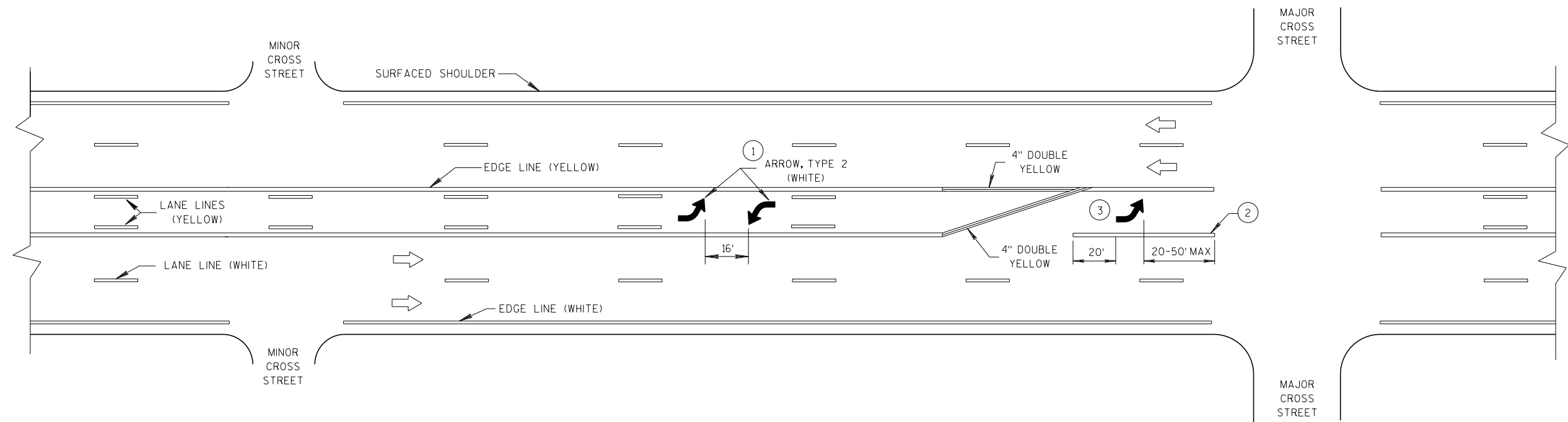
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 7/2018 /S/ Matthew R. Rauch
STATE SIGNING AND MAR 188 INEER
FHWA

GENERAL NOTES

- ① A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
- ② 8" WHITE
- ③ TURN BAY LENGTH OF LESS THAN 48' DOES NOT REQUIRE PAVEMENT ARROWS OR TEXT

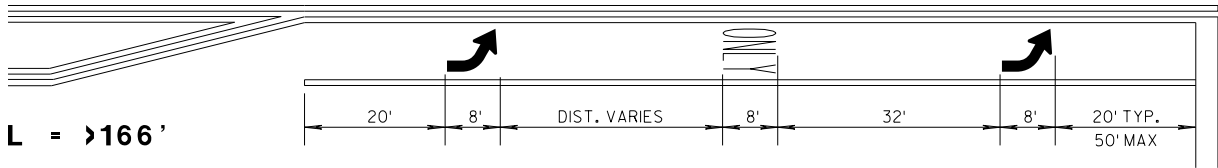
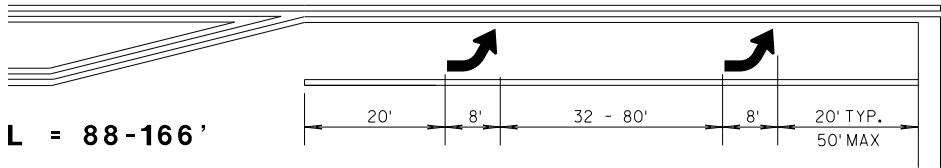
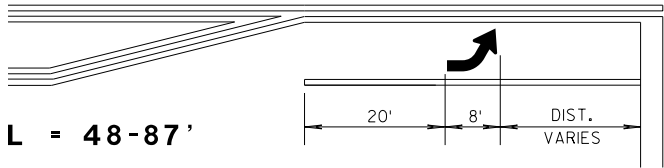
➔ DIRECTION OF TRAFFIC



TWO WAY LEFT TURN LANE

TURN LANE OPTIONS

LENGTH OF TURN BAY (L) OF 0-47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS



*(SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND WORDS)

GENERAL NOTES

- ① 8" WHITE
- ② QUANTITY AND LOCATION OF TYPE 3 ARROW ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION, THE ARROWS AND ONLY MARKING ARE ELIMINATED.

➡ DIRECTION OF TRAFFIC
L = LENGTH OF TURN BAY

PAVEMENT MARKING (TURN LANES)
STATE OF WISCONSIN DEPARTMENT OF TRANSPORT 190

LEGEND

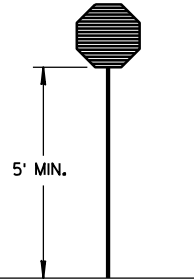
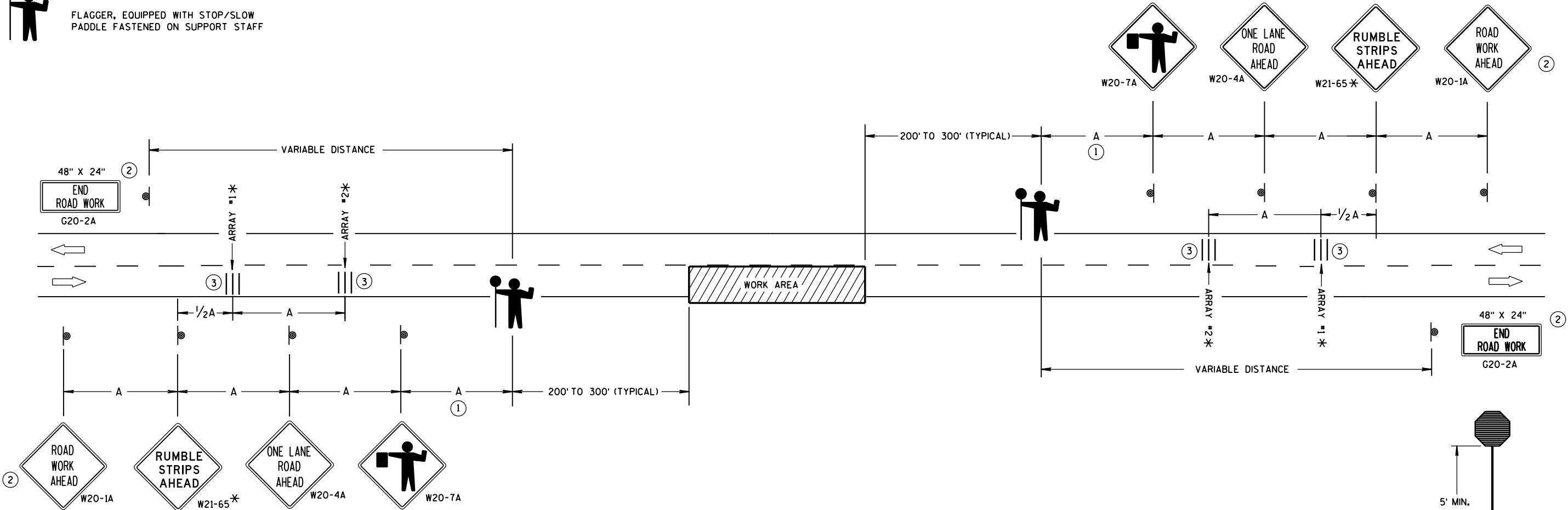
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING A
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 W20-4A SIGNS, USING SPACING A.



STOP/SLOW PADDLE ON SUPPORT STAFF

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

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.

"W0" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS. PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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

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, REMOVE TEMPORARY RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

* UTILIZE TEMPORARY RUMBLE STRIPS WHEN FLAGGING OPERATION IS ANTICIPATED TO BE STATIONARY IN EXCESS OF TWO HOURS.

- FOR A MOVING WORK OPERATION, SIGNING AND TEMPORARY RUMBLE STRIPS (IF USED) SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3,500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- EACH TEMPORARY RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Andrew Heldtke
DATE WORK ZONE ENG 191
FHWA

GENERAL NOTES

ORIENT ANCHOR RODS IN FOOTING AND PROVIDE ANCHOR ROD STICK OUT ABOVE TOP OF CONCRETE FOOTING BASE PER FABRICATION DRAWING.

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

USE 3" CLEAR FOR ALL REINFORCEMENT UNLESS NOTED OTHERWISE.

SIGN SUPPORTS SHALL BE LOCATED NORMAL TO ROADWAY.

THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.

WELDING OF ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TEMPLATES SHALL BE USED.

BAR CAGE TO BE ASSEMBLED USING TIE WIRES ONLY, NO WELDING.

BASES (SHAFT) SHALL BE EXCAVATED BY THE USE OF A CIRCULAR AUGER. IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE SOIL, THE FORM SHALL BE REMOVED BEFORE BACK FILLING AROUND THE BASE. ANY REQUIRED BACKFILL SHALL BE WELL COMPACTED IN LAYERS OF 1 FOOT OR LESS. COMPACTION SHALL BE BY MECHANICAL MEANS. CARE SHALL BE TAKEN SO NO DAMAGE OCCURS TO THE CONCRETE BASE DURING COMPACTION.

EXCAVATION OF MATERIALS NOT OCCUPIED BY CONCRETE SHALL BE MINIMIZED TO REDUCE DISTURBANCE OF THE SURROUNDING SOILS.

THE BOTTOM OF THE DRILLED HOLE SHALL BE FIRM AND THOROUGHLY CLEANED SO NO LOOSE OR COMPRESSIBLE MATERIALS ARE PRESENT AT THE TIME OF THE CONCRETE PLACEMENT.

IF THE DRILLED HOLE CONTAINS STANDING WATER, THE CONCRETE SHALL BE PLACED USING A TREMIE TO DISPLACE THE WATER.

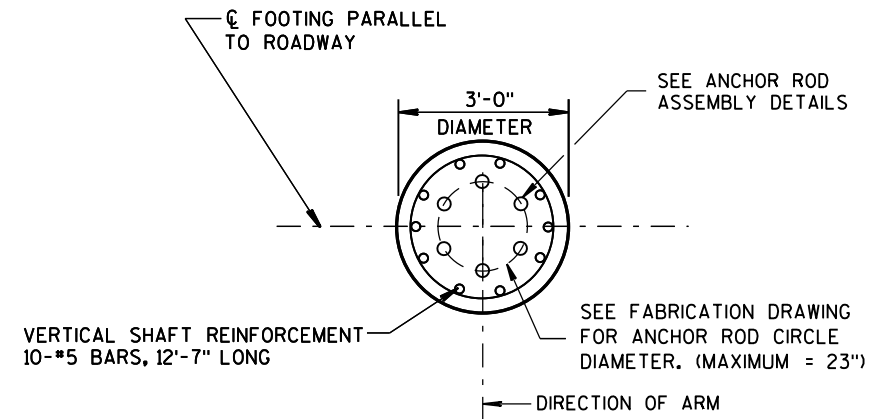
THE REINFORCEMENT AND ANCHOR RODS SHALL BE ADEQUATELY SUPPORTED IN THE PROPER POSITIONS SO NO MOVEMENT OCCURS DURING CONCRETE PLACEMENT.

FORM ALL EXPOSED CONCRETE CORNERS WITH 3/4" CHAMFER ALL AROUND. TOP OF THE CONCRETE BASE SHALL BE TROWEL FINISHED AND LEVEL.

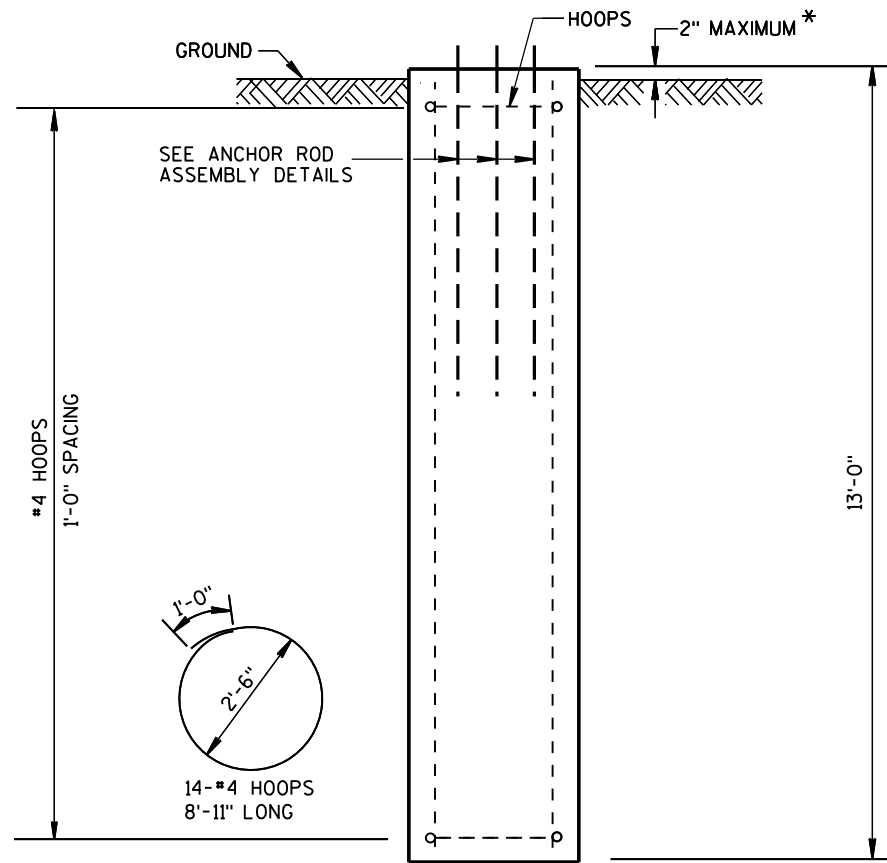
ANY DAMAGE TO THE CONCRETE BASE AND ANCHOR RODS DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED AT THE ENGINEER'S DIRECTION, AT THE EXPENSE OF THE CONTRACTOR.

CONCRETE MASONRY ----- $f_c=3,500$ p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 ----- $f_y=60,000$ p.s.i.
ANCHOR RODS, ASTM F1554, GRADE 55 ----- $f_y=55,000$ p.s.i.
ASTM A563A HEAVY HEX NUTS, AND ASTM F436 WASHERS.
PLATES, ASTM A709, GRADE 36 ----- $f_y=36,000$ p.s.i.

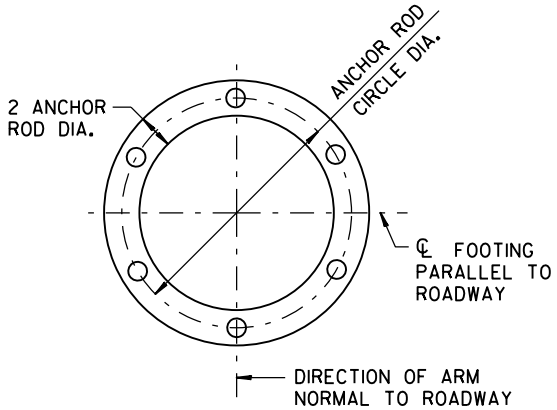
THIS FOOTING HAS BEEN DESIGNED FOR SITES WHERE SOILS EXHIBIT A PHI-ANGLE GREATER THAN OR EQUAL TO 20 DEGREES (GRANULAR SOILS), OR A COHESION VALUE GREATER THAN OR EQUAL TO 350 PSF (COHESIVE SOILS).



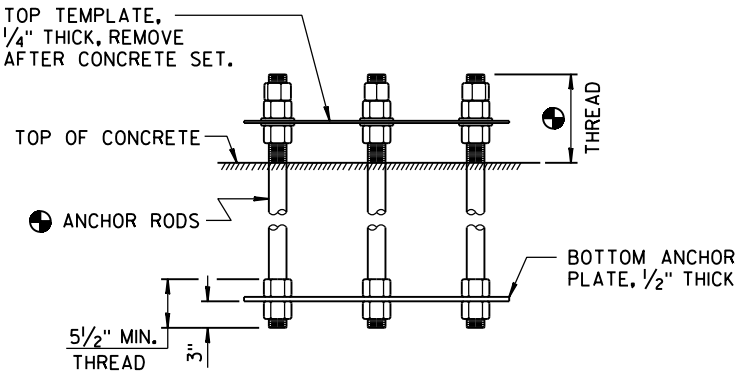
PLAN VIEW



ELEVATION VIEW



TOP TEMPLATE AND
BOTTOM ANCHOR PLATE



ANCHOR ROD ASSEMBLY DETAILS

MINIMUM OF 6 ANCHOR RODS,
EXACT NUMBER, SIZE, DIMENSION
AND ORIENTATION AS SHOWN ON
FABRICATION DRAWING.

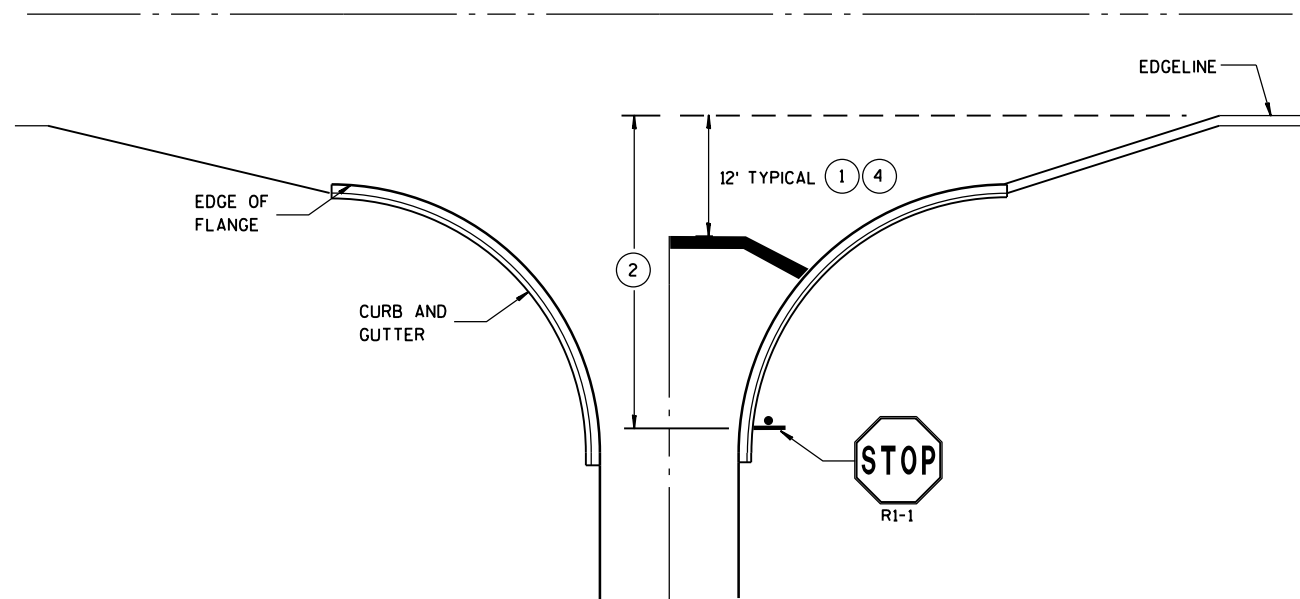
* FOR OVERHEAD SIGN SUPPORTS THAT ARE INSTALLED ADJACENT TO SIDEWALKS, THE TOP OF THE BASE SHALL BE POURED FLUSH WITH THE GROUND.

CONCRETE - 3.4 C.Y. PER FOOTING
H.S. REINFORCEMENT - 215 LBS. PER FOOTING

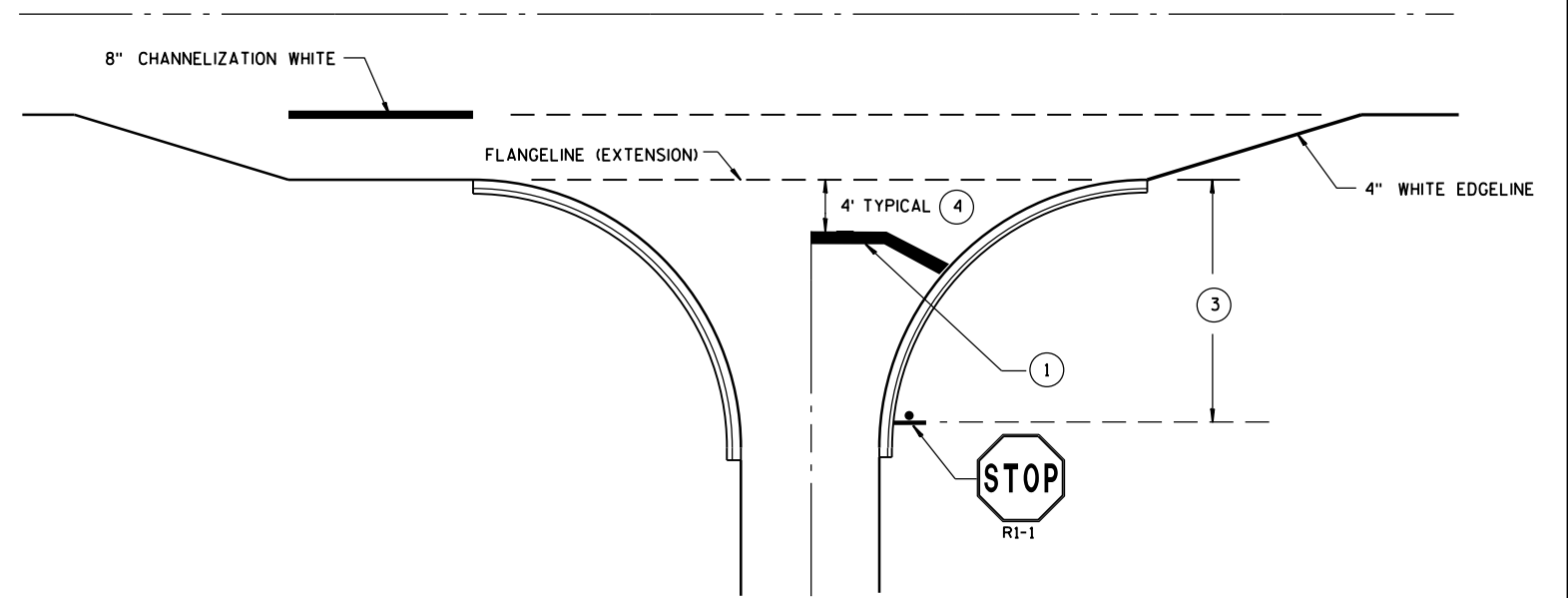
36" DIAMETER CANTILEVER
OVERHEAD SIGN SUPPORT BASE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

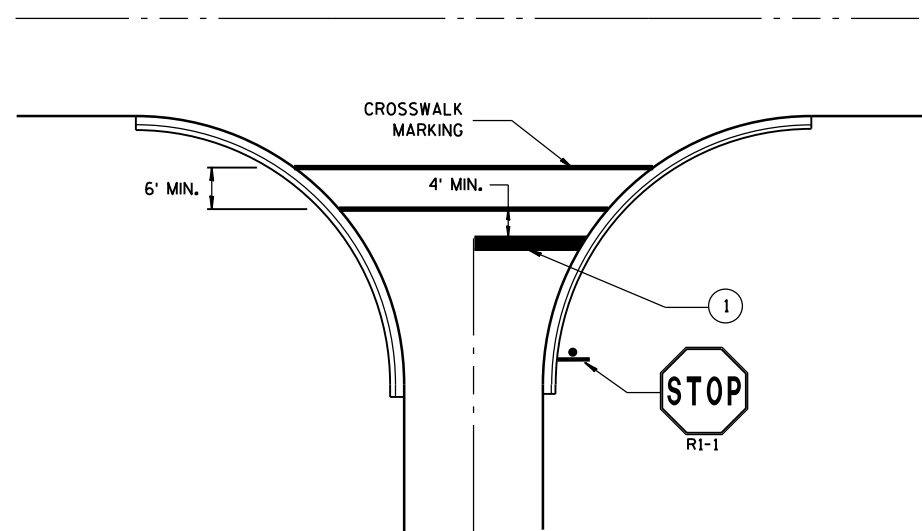
APPROVED
June 2016 /S/ Vu Thao
DATE WIND LOADED STRU 192
FHWA PROGRAM LEAD



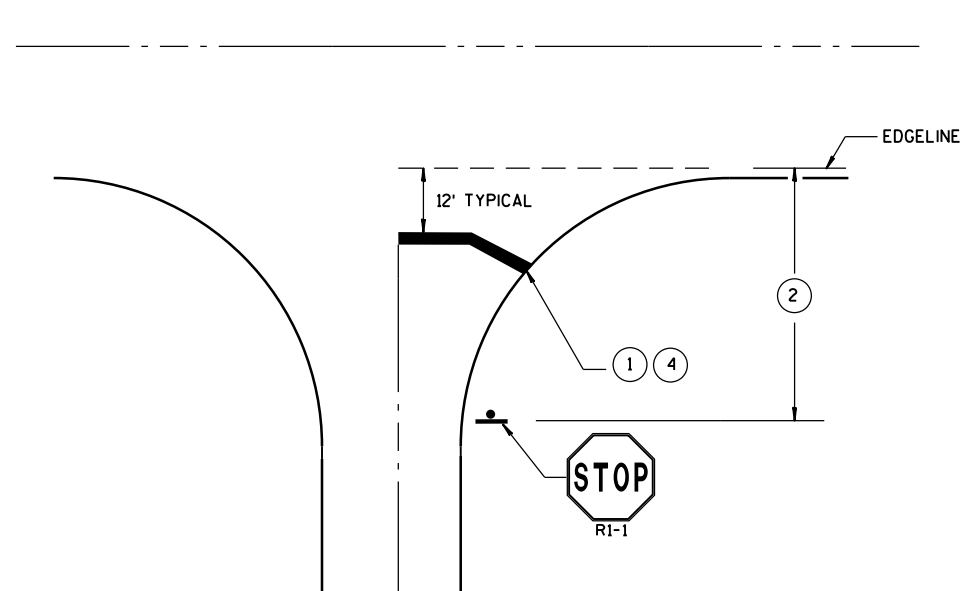
**TYPICAL STOP LINE PAVEMENT MARKING
WITH CURB AND GUTTER**



**TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDEROADS WITH RIGHT TURN LANE**



**TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDEROADS WITH CROSSWALK MARKING**



**TYPICAL STOP LINE PAVEMENT MARKING
WITHOUT CURB AND GUTTER**

GENERAL NOTES

STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGE LINE LOCATION.

- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE PROJECT ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGE LINE THAN NO STOP LINE IS REQUIRED.
- ③ IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION THAN NO STOP LINE IS REQUIRED.
- ④ MOVE CLOSER TO EDGE OF TRAVEL LANE AS NEEDED FOR VISIBILITY AND SIGHT LINES. (NO CLOSER THAN 4 FEET).

**STOP LINE AND CROSSWALK
PAVEMENT MARKING**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

DATE

Sept., 2017

FHWA

/S/ Matthew R. Rauch
STATE SIGNING AND MAR 193

JEER

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMENENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA

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.

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIREABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"W0" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

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. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

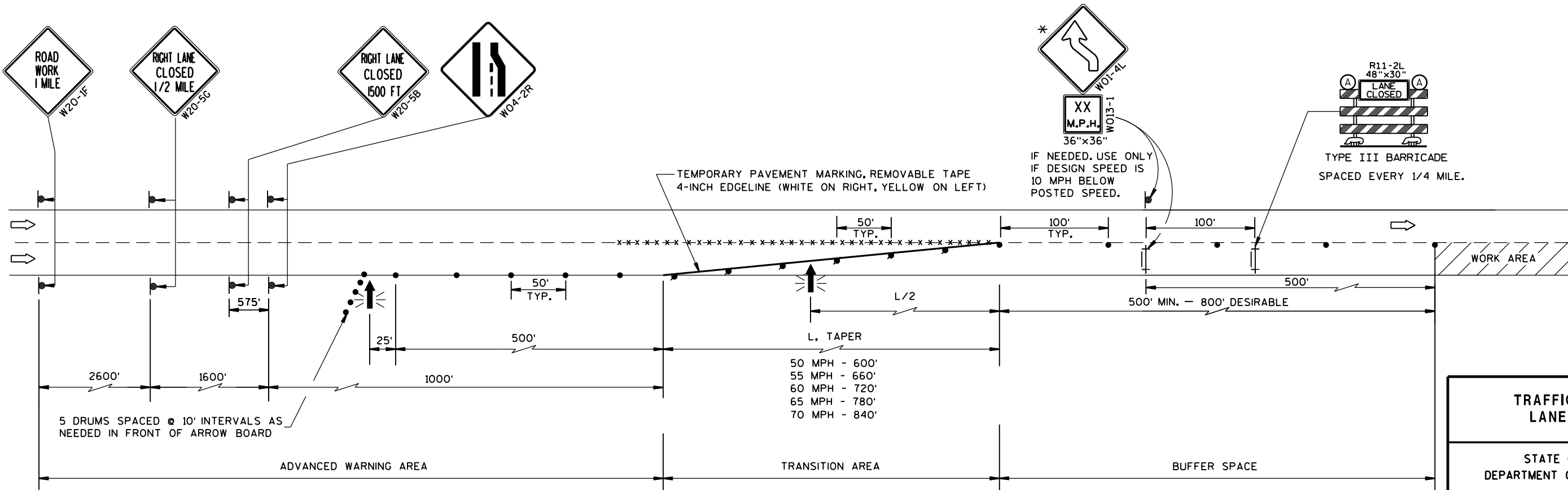
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

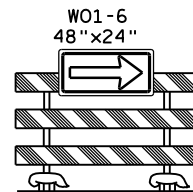
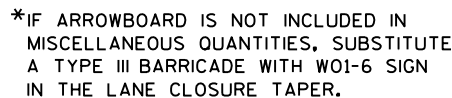
IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

* THE LEFT REVERSE CURVE SIGN (W01-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.



TRAFFIC CONTROL, LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2016 DATE	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE SAFETY ENGINEER 194 FHWA



S	L	BUFFER SPACE
25	125'	55'
30	180'	85'
35	245'	120'
40	320'	170'
45	540'	220'
50	600'	280'
55	660'	335'

L = WS AT 45 MPH OR GREATER
 $L = \frac{WS^2}{60}$ AT 40 MPH OR LESS
 L = TAPER LENGTH IN FEET
 S = NON-CONSTRUCTION SPEED LIMIT (MPH)
 W = WIDTH OF LANE CLOSURE

	TYPE III BARRICADE WITH ATTACHED SIGN
	SIGN ON PERMANENT SUPPORT
	TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
	TRAFFIC CONTROL DRUM
	FLASHING ARROW BOARD
	DIRECTION OF TRAFFIC
	REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
	WORK AREA

THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE LEFT LANE. FOR A RIGHT LANE CLOSURE, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

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

ALL SIGNS ARE 48"x48" 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.

"W0" 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, OR THAT WILL BE PLACED IN A CLOSED LANE, 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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

ON UNDIVIDED ROADWAYS, OMIT THE SIGNS SHOWN ON LEFT SIDE OF ROAD.

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS.

PLACE THE ARROWBOARD AS CLOSE AS POSSIBLE TO THE BEGINNING OF THE LANE CLOSURE TAPER, PREFERABLY ON THE SHOULDER OR TERRACE.

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

BARRICADES IN A CLOSED LANE 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.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

APPROVED		
June 2016	/S/ Peter Amakobe Atepe	
DATE	STATEWIDE WORK ZONE	195
	SAFETY ENGINEER	IC
FHWA		

TABLE 1
TAPER AND BUFFER SPACE
FOR 12' LANE WIDTH

s	L	BUFFER SPACE
25	125'	55'
30	180'	85'
35	245'	120'
40	320'	170'
45	540'	220'
50	600'	280'
55	660'	335'

FOR LANE WIDTH OTHER THAN 12':

L = WS AT 45 MPH OR GREATER

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

L = TAPER LENGTH IN FEET

S = NON-CONSTRUCTION SPEED LIMIT (MPH)

W = WIDTH OF LANE CLOSURE

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT TWO LANES. FOR CLOSING THE LEFT TWO LANES, REVERSE THE TRAFFIC CONTROL.

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

THE SPACING BETWEEN 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 IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY THE DISTRICT TRAFFIC UNIT.

"W0" 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, OR THAT WILL BE PLACED IN A CLOSED LANE, 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.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS.

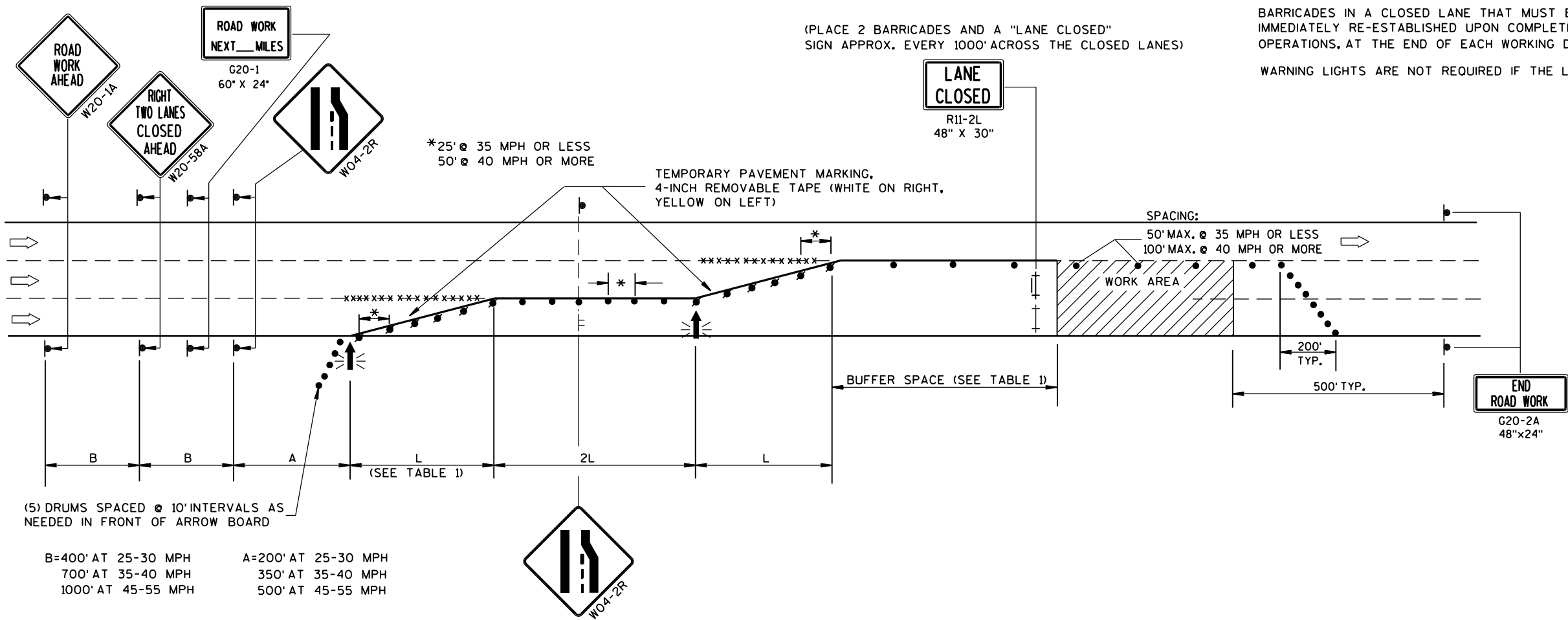
WHERE THE SHOULDER OR TERRACE HAS INSUFFICIENT SPACE TO LOCATE THE ARROWBOARD AS SHOWN, PLACE THE ARROWBOARD IN THE LANE CLOSURE TAPER AS CLOSE AS POSSIBLE TO THE BEGINNING OF THE TAPER.

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

BARRICADES IN A CLOSED LANE 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.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

(PLACE 2 BARRICADES AND A "LANE CLOSED" SIGN APPROX. EVERY 1000' ACROSS THE CLOSED LANES)



TRAFFIC CONTROL,
TWO LANE CLOSURE,
NON-FREEWAY/EXPRESSWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2016

DATE

FHWA

/S/ Peter Amakobe Atepe

STATEWIDE WORK ZONE SAFETY ENGINEER

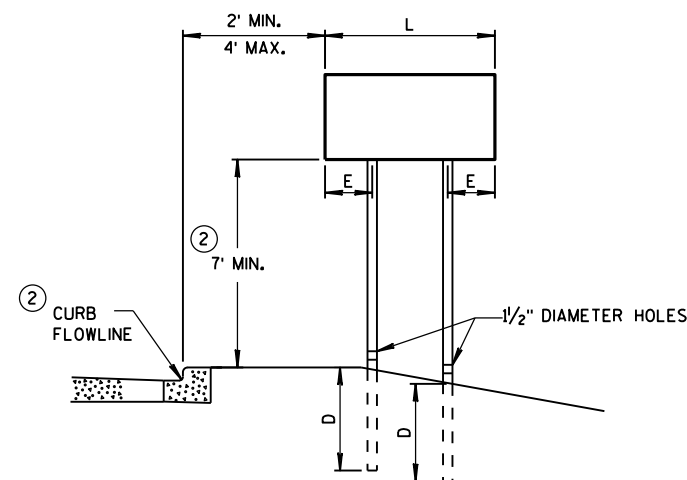
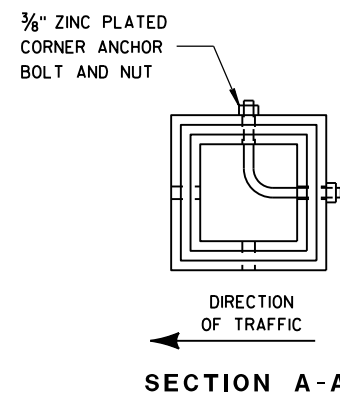
IC



TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL 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 LARGER THAN 27 SQ.FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

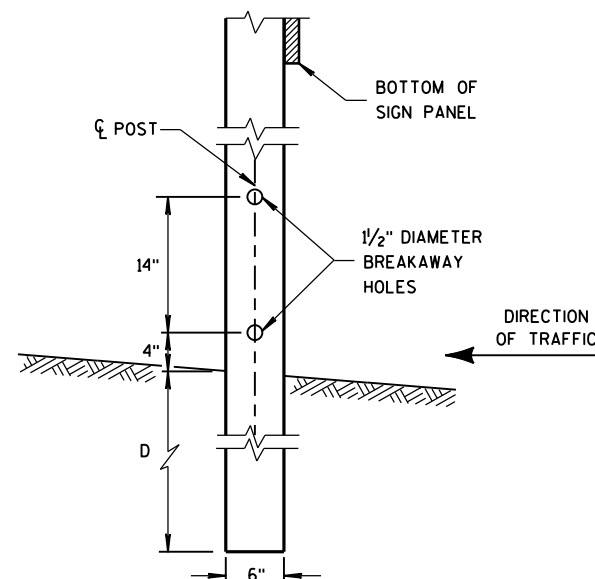


URBAN AREA

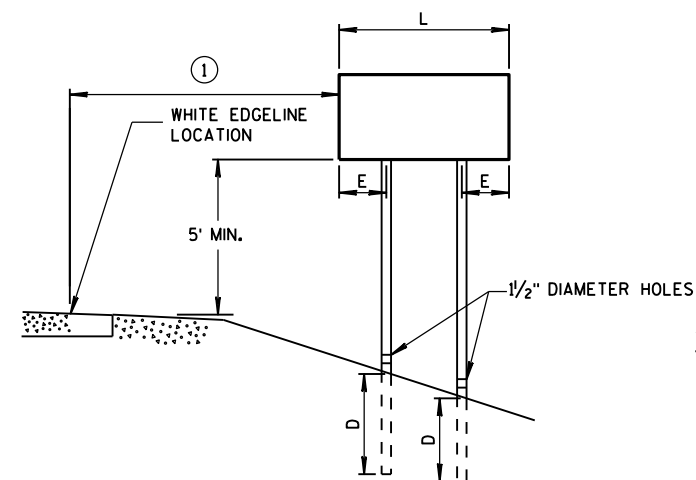
POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST
EMBEDMENT DEPTH

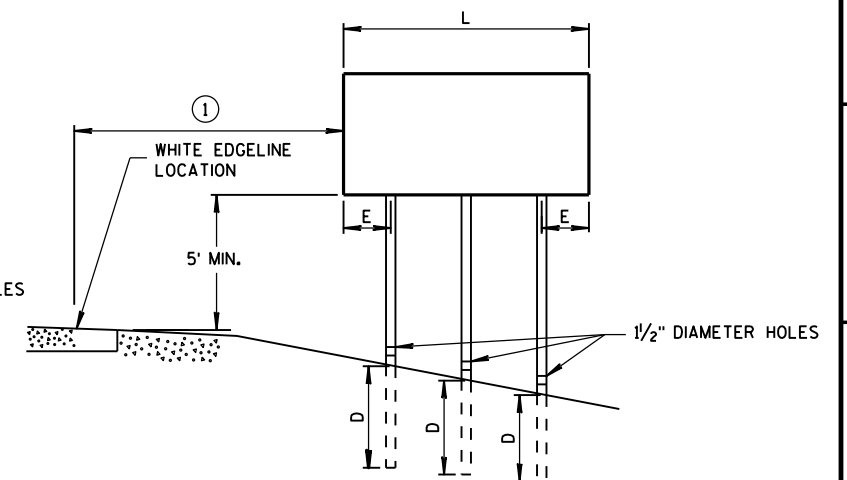
AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'



4"x6" WOOD POST MODIFICATION



RURAL AREA



GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② 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. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

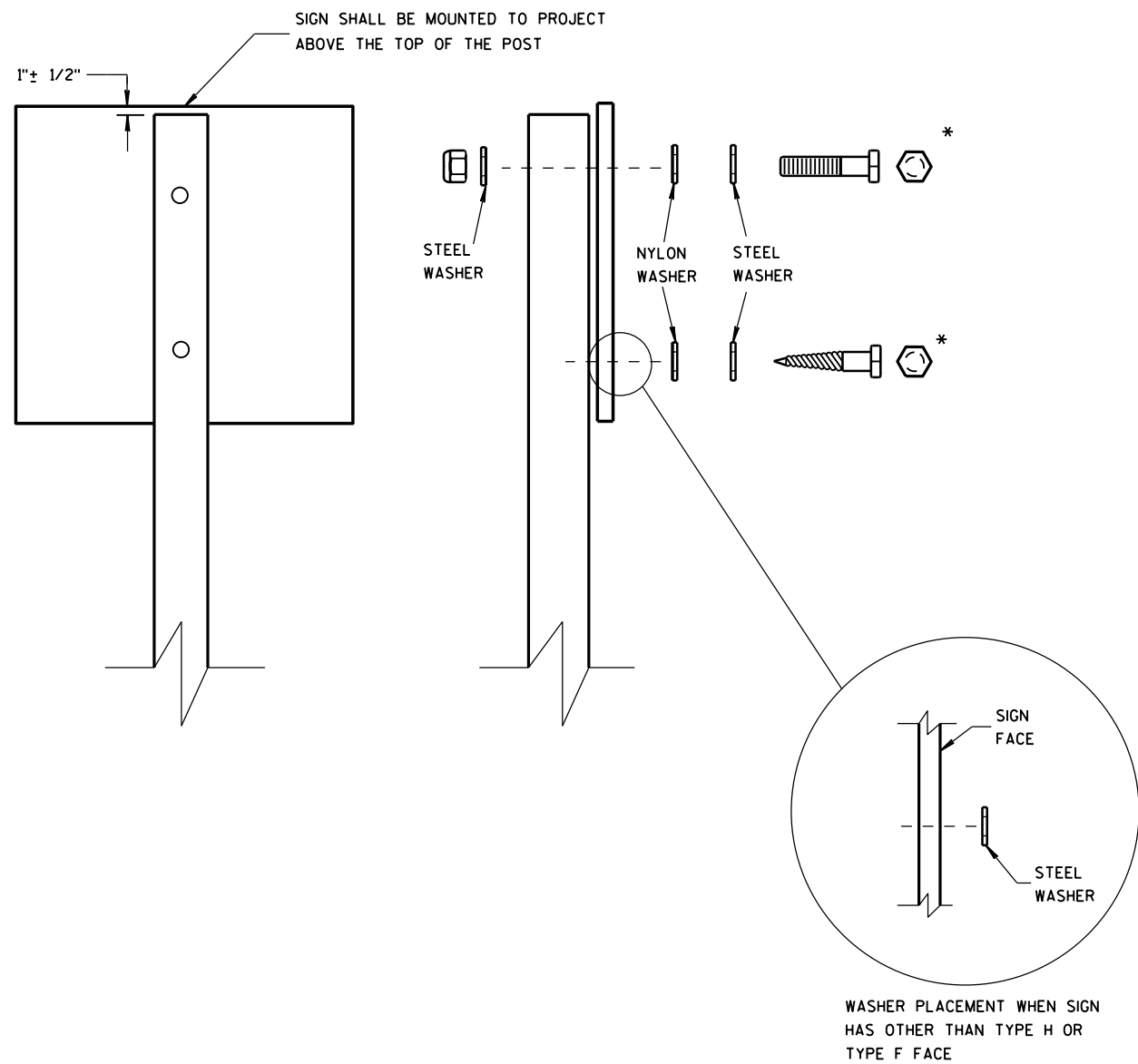
4" X 6" WOOD POST

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 197



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.

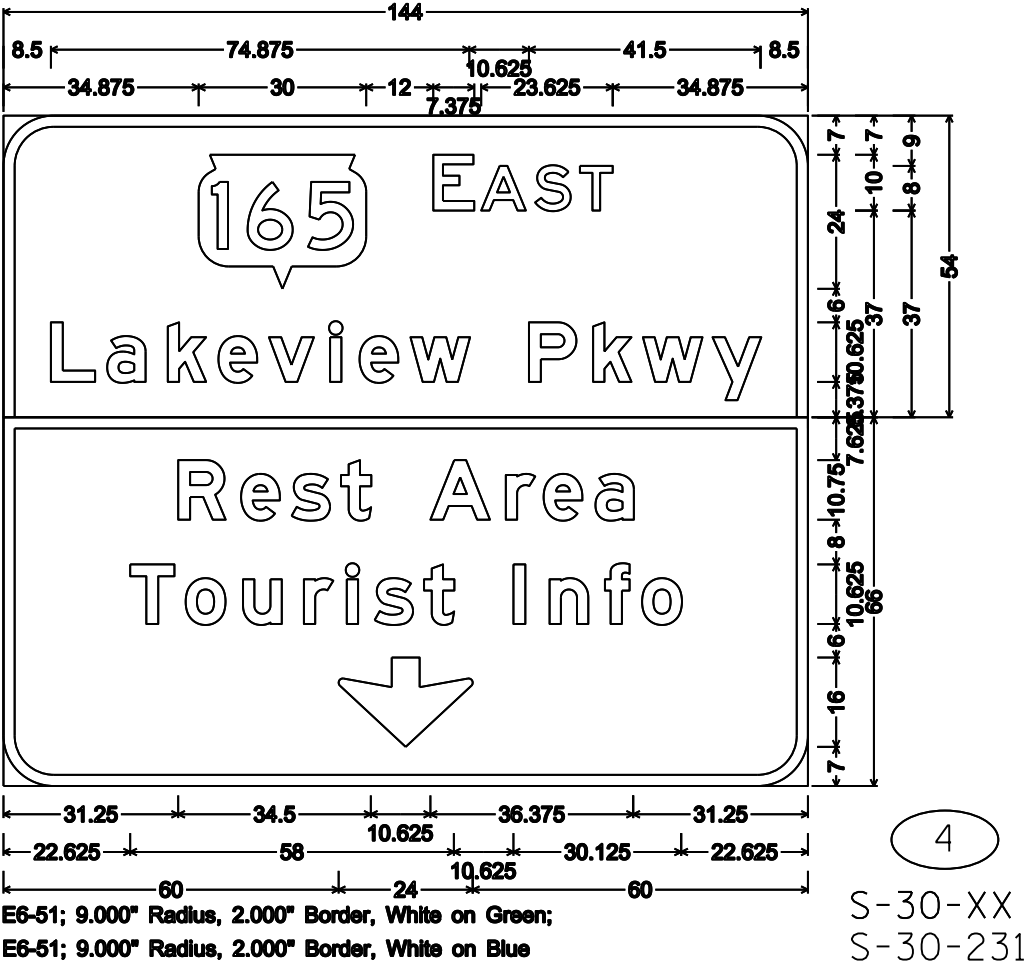
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" x 3"
 - MACHINE BOLTS - 5/16" x 6-1/2" OR 7" LENGTH W/ NUTS

- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" x 3-1/4" LENGTH W/ NUTS
 - 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 FOR ALL TYPE H SIGNS

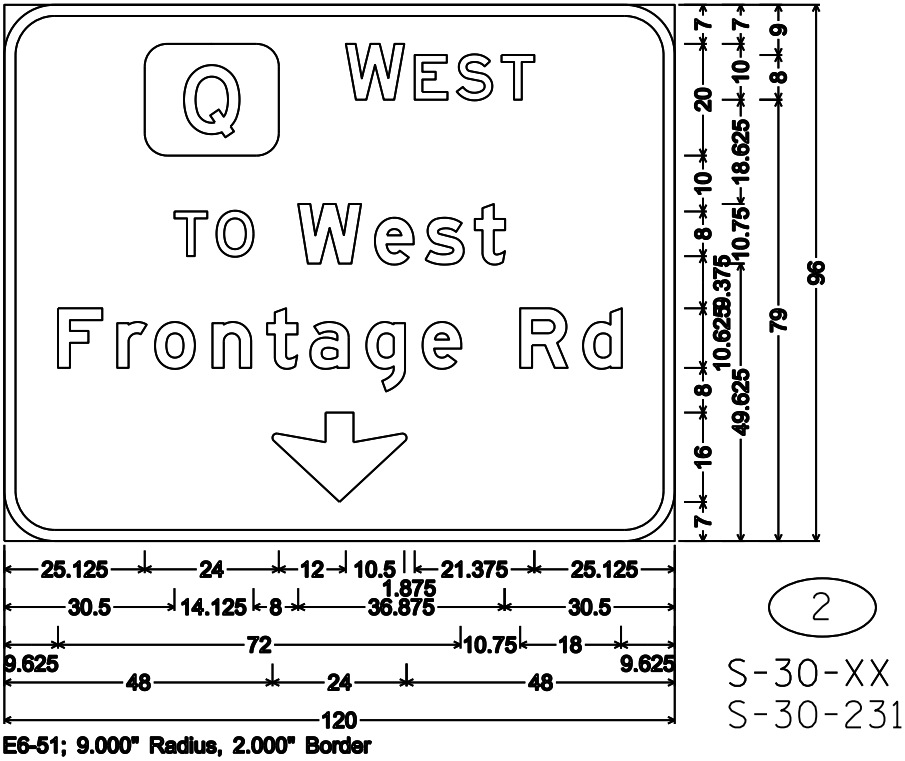
* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENC 198
FHWA	



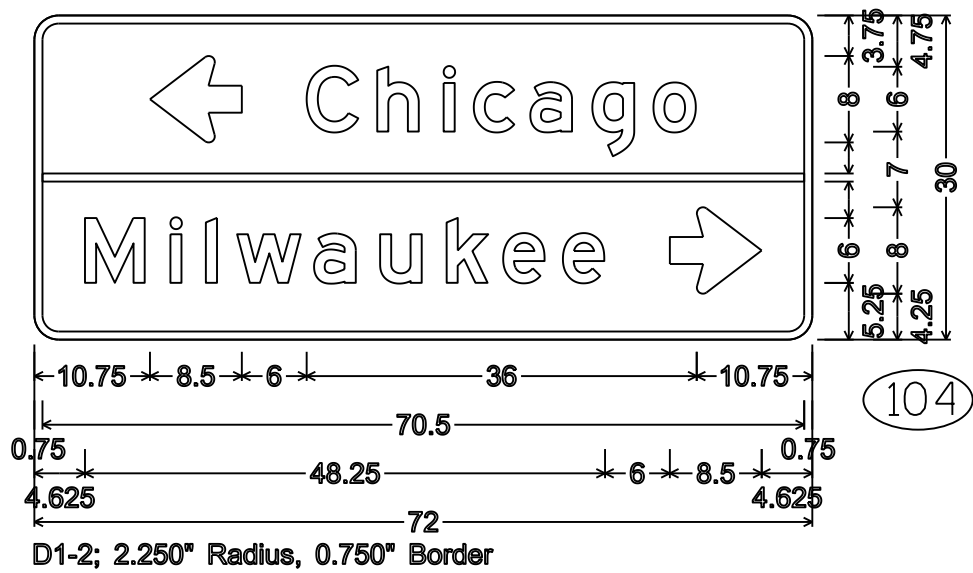
NOTES

- 1. All Signs Type I - Type SH Reflective
- 2. Color:
Background - Green except as noted
Message - White
- 3. Message Series - E Modified except all CAP words Series E

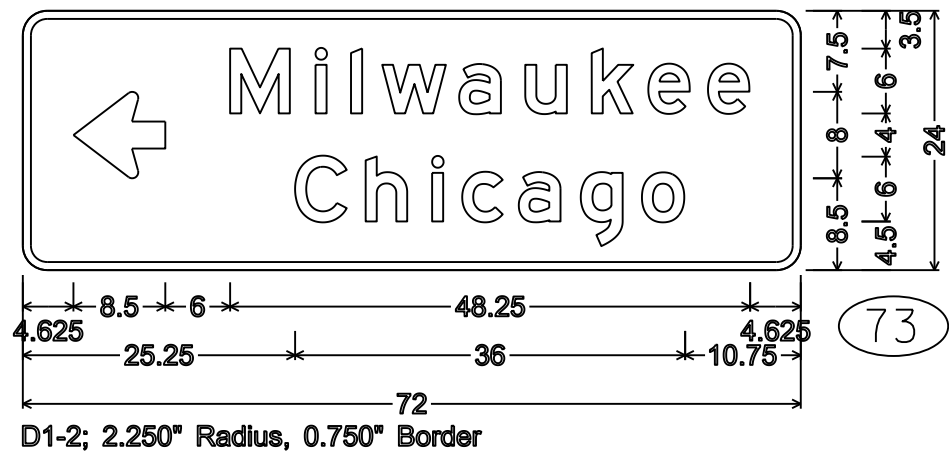


NOTES

- 1. All Signs Type II - Type H Reflective
- 2. Color:
 - Background - Green
 - Message - White
- 3. Message Series - E



104



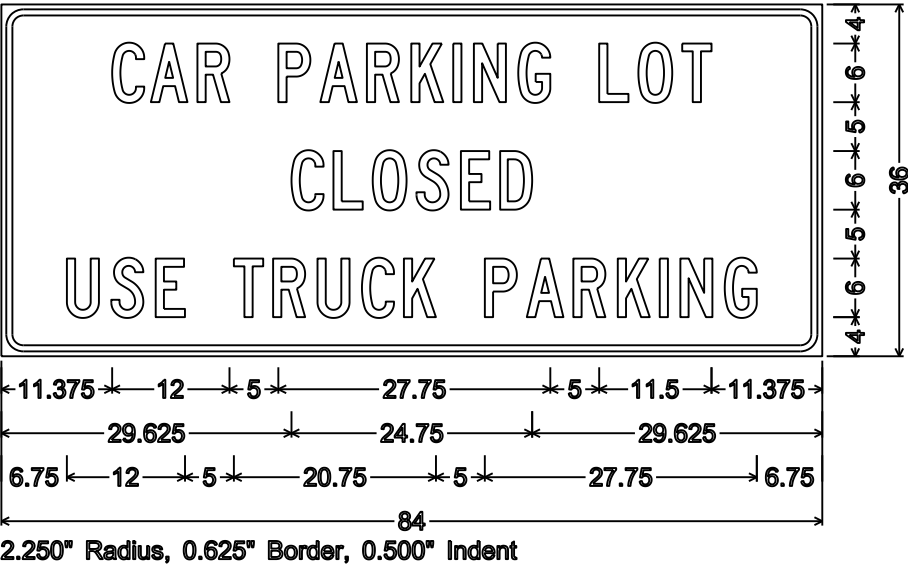
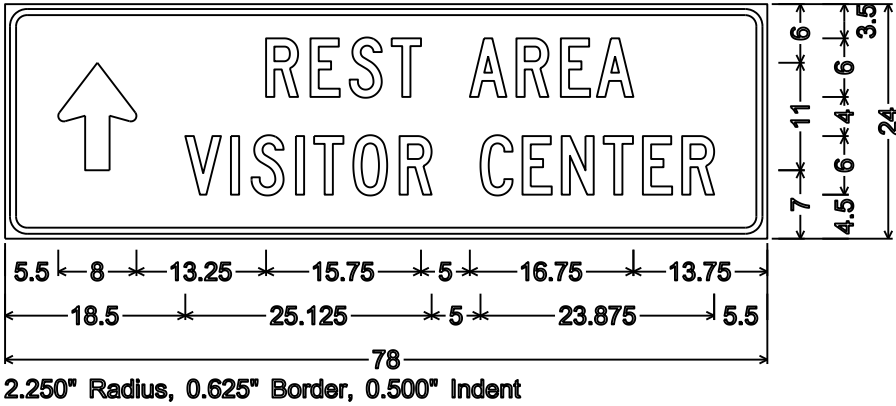
73

7

7

NOTES

- 1. Fixed Message Type II Signs - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - C



WELCOME CENTER EXIT - 'A'

STATION	Real Station	Distance	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)			Mass Ordinate
			Cut	Fill	Marsh Exc	Cut	Fill	Marsh Exc	Cut 1.00	Expanded Fill 1.20	Expanded Marsh Backfill 1.40	
21+16.11	2116.11	0.00	6.14	0.69	0.00	0	0	0	0	0	0	0.00
21+50	2150.00	33.89	7.62	1.22	0.00	9	1	0	9	1	0	7.20
21+75	2175.00	25.00	20.17	1.52	0.00	13	1	0	22	3	0	18.55
22+00	2200.00	25.00	43.92	2.27	0.00	30	2	0	51	5	0	46.12
22+45	2245.00	45.00	39.79	12.68	0.00	70	12	0	121	20	0	100.93
22+50	2250.00	5.00	25.82	13.89	0.00	6	2	0	127	23	0	104.05
22+63.61	2263.61	13.61	22.13	4.94	0.00	12	5	0	139	29	0	110.44
22+69.11	2269.11	5.50	24.38	0.00	0.00	5	1	0	144	29	0	114.57
22+75	2275.00	5.89	31.18	9.28	0.00	6	1	0	150	30	0	119.41
22+85	2285.00	10.00	23.09	33.97	0.00	10	8	0	160	40	0	119.85
23+00	2300.00	15.00	17.61	48.28	0.00	11	23	0	171	68	0	103.74
23+25	2325.00	25.00	17.23	39.18	0.00	16	40	0	187	116	0	71.28
23+50	2350.00	25.00	17.75	28.39	0.00	16	31	0	204	154	0	49.94
23+75	2375.00	25.00	18.51	12.18	0.00	17	19	0	220	176	0	44.19
24+00	2400.00	25.00	20.04	9.29	0.00	18	10	0	238	188	0	50.11
24+25	2425.00	25.00	16.64	12.39	0.00	17	10	0	255	200	0	55.05
24+50	2450.00	25.00	7.83	35.60	0.00	11	22	0	267	227	0	39.71
24+75	2475.00	25.00	22.61	51.25	10.82	14	40	5	281	275	7	5.56
25+00	2500.00	25.00	20.30	95.74	60.38	20	68	33	300	357	53	-56.24
25+50	2550.00	50.00	0.00	203.16	256.80	19	277	294	319	689	464	-369.55
26+00	2600.00	50.00	0.00	199.54	279.26	0	373	496	319	1,136	1,159	-817.00
26+15.5	2615.50	15.50	0.00	240.82	277.00	0	126	160	319	1,288	1,383	-968.64
26+24.62	2624.62	9.13	0.00	242.91	275.38	0	82	93	319	1,386	1,513	-1,066.74
26+50	2650.00	25.38	0.00	247.33	261.75	0	230	252	319	1,662	1,867	-1,343.21
26+50.98	2650.98	0.98	0.00	246.89	261.90	0	9	9	319	1,673	1,880	-1,353.92
26+58.61	2658.61	7.63	0.00	236.29	263.97	0	68	74	319	1,755	1,984	-1,435.85
27+00	2700.00	41.39	0.00	159.72	238.41	0	304	385	319	2,119	2,523	-1,800.13
27+50	2750.00	50.00	0.00	121.01	198.01	0	260	404	319	2,431	3,089	-2,112.05
27+59.4	2759.40	9.40	0.00	117.99	196.61	0	42	69	319	2,481	3,185	-2,161.95
27+90.55	2790.55	31.15	0.00	135.52	247.94	0	146	256	319	2,657	3,544	-2,337.44
28+00	2800.00	9.45	0.01	279.44	640.64	0	73	156	319	2,744	3,762	-2,424.62
28+18.13	2818.13	18.13	159.39	0.00	0.00	54	94	215	373	2,856	4,063	-2,483.69
						373	2,380	2,902				

TRUCK PARKING - 'B'

STATION	Real Station	Distance	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)			Mass Ordinate
			Cut	Fill	Marsh Exc	Cut	Fill	Marsh Exc	Cut 1.00	Expanded Fill 1.20	Expanded Marsh Backfill 1.40	
07+50.05	750.05	0.00	6.12	14.67	0.00	0	0	0	0	0	0	0.00
08+00	800.00	49.95	5.22	15.74	0.00	10	28	0	10	34	0	-23.28
08+50	850.00	50.00	8.61	18.04	0.00	13	31	0	23	71	0	-48.01
09+00	900.00	50.00	9.86	27.05	0.00	17	42	0	40	121	0	-81.00
09+50	950.00	50.00	35.37	36.63	0.00	42	59	0	82	192	0	-109.88
						82	160	0				

RV EXPANSION - 'C'

STATION	Real Station	Distance	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)			Mass Ordinate
			Cut	Fill	Marsh Exc	Cut	Fill	Marsh Exc	Cut 1.00	Expanded Fill 1.20	Expanded Marsh Backfill 1.40	
19+00	1900.00	0.00	6.52	0.00	0.00	0	0	0	0	0	0	0.00
19+14.99	1914.99	14.99	5.55	0.00	0.00	3	0	0	3	0	0	3.35
19+25	1925.00	10.01	5.45	0.00	0.00	2	0	0	5	0	0	5.39
19+50	1950.00	25.00	5.66	0.00	0.00	5	0	0	11	0	0	10.53
19+75	1975.00	25.00	6.29	0.00	0.00	6	0	0	16	0	0	16.06
20+00.05	2000.05	25.05	6.28	0.00	0.00	6	0	0	22	0	0	21.89
20+25	2025.00	24.95	5.94	0.00	0.00	6	0	0	28	0	0	27.54
20+50	2050.00	25.00	38.49	0.00	0.00	21	0	0	48	0	0	48.11
20+75	2075.00	25.00	64.60	0.00	0.00	48	0	0	96	0	0	95.83
21+00	2100.00	25.00	62.17	0.00	0.00	59	0	0	155	0	0	154.52
21+25	2125.00	25.00	60.22	0.00	0.00	57	0	0	211	0	0	211.18
21+50	2150.00	25.00	150.34	0.00	0.00	97	0	0	309	0	0	308.66
21+75	2175.00	25.00	108.55	0.00	0.00	120	0	0	429	0	0	428.52
22+00	2200.00	25.00	148.53	0.00	0.00	119	0	0	548	0	0	547.54
22+25	2225.00	25.00	171.72	0.00	0.00	148	0	0	696	0	0	695.80
22+50	2250.00	25.00	135.42	0.00	0.00	142	0	0	838	0	0	838.00
22+75	2275.00	25.00	203.03	0.00	0.00	157	0	0	995	0	0	994.68
23+00	2300.00	25.00	69.10	0.00	0.00	126	0	0	1,121	0	0	1,120.67
23+22	2322.00	22.00	19.07	0.00	0.00	36	0	0	1,157	0	0	1,156.59
						1,157	0	0				

120TH AVE - 'D'

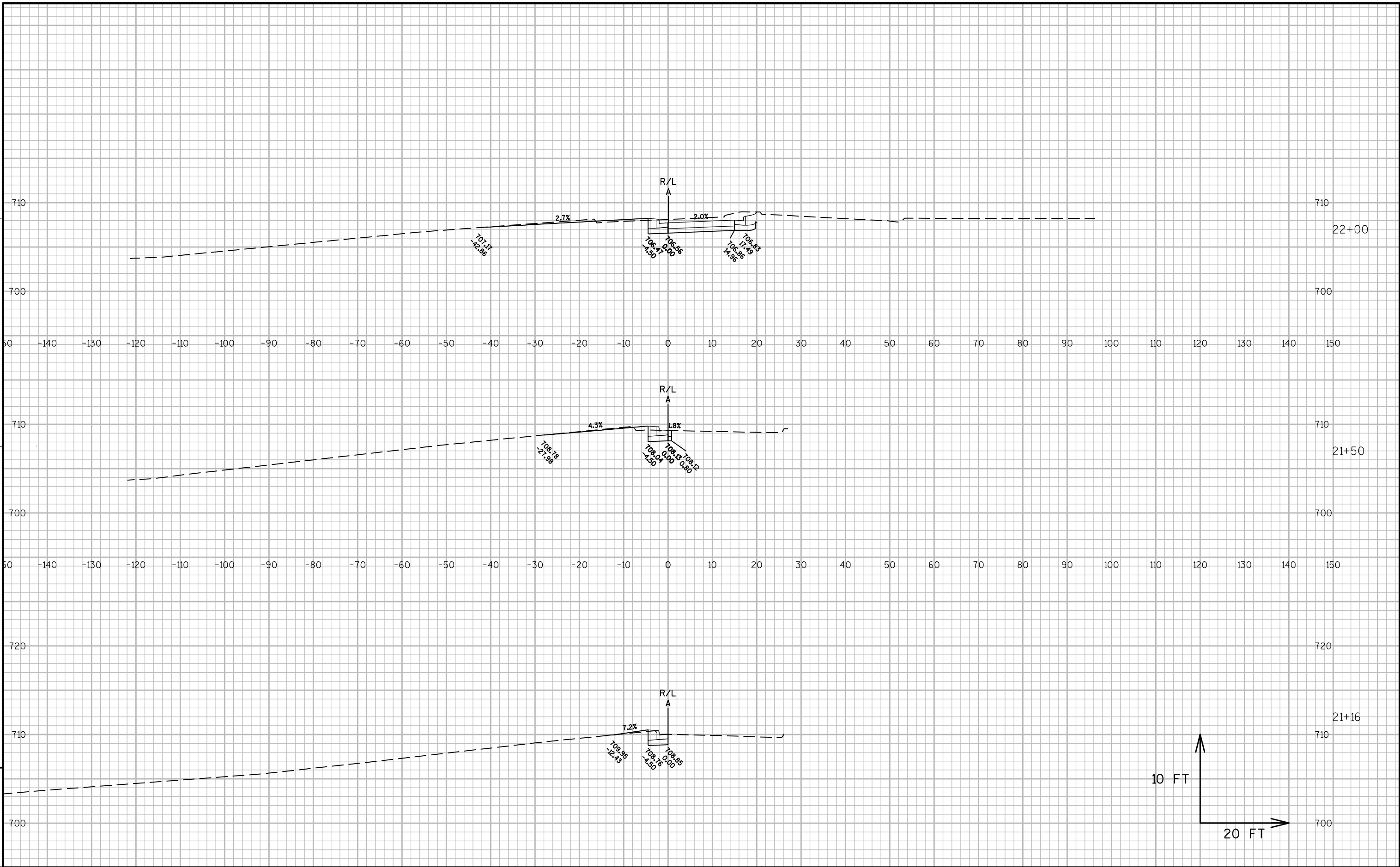
STATION	Real Station	Distance	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)			Mass Ordinate
			Cut	Fill	Marsh Exc	Cut	Fill	Marsh Exc	Cut 1.00	Expanded Fill 1.20	Expanded Marsh Backfill 1.40	
92+30.12	9230.12	0.00	23.61	0.00	0.00	0	0	0	0	0	0	0.00
92+50	9250.00	19.88	24.20	0.34	0.00	18	0	0	18	0	0	17.45
93+00	9300.00	50.00	24.94	1.34	0.00	45	2	0	63	2	0	61.09
93+50	9350.00	50.00	23.55	1.65	0.00	45	3	0	108	5	0	102.66
94+00	9400.00	50.00	25.74	0.36	0.00	46	2	0	154	8	0	146.05
94+50	9450.00	50.00	26.92	0.02	0.00	49	0	0	202	8	0	194.38
95+00	9500.00	50.00	26.67	0.01	0.00	50	0	0	252	8	0	243.97
95+50	9550.00	50.00	18.12	0.04	0.00	41	0	0	293	8	0	285.39
95+99.95	9599.95	49.95	10.04	0.10	0.00	26	0	0	320	8	0	311.28
						320	7	0				

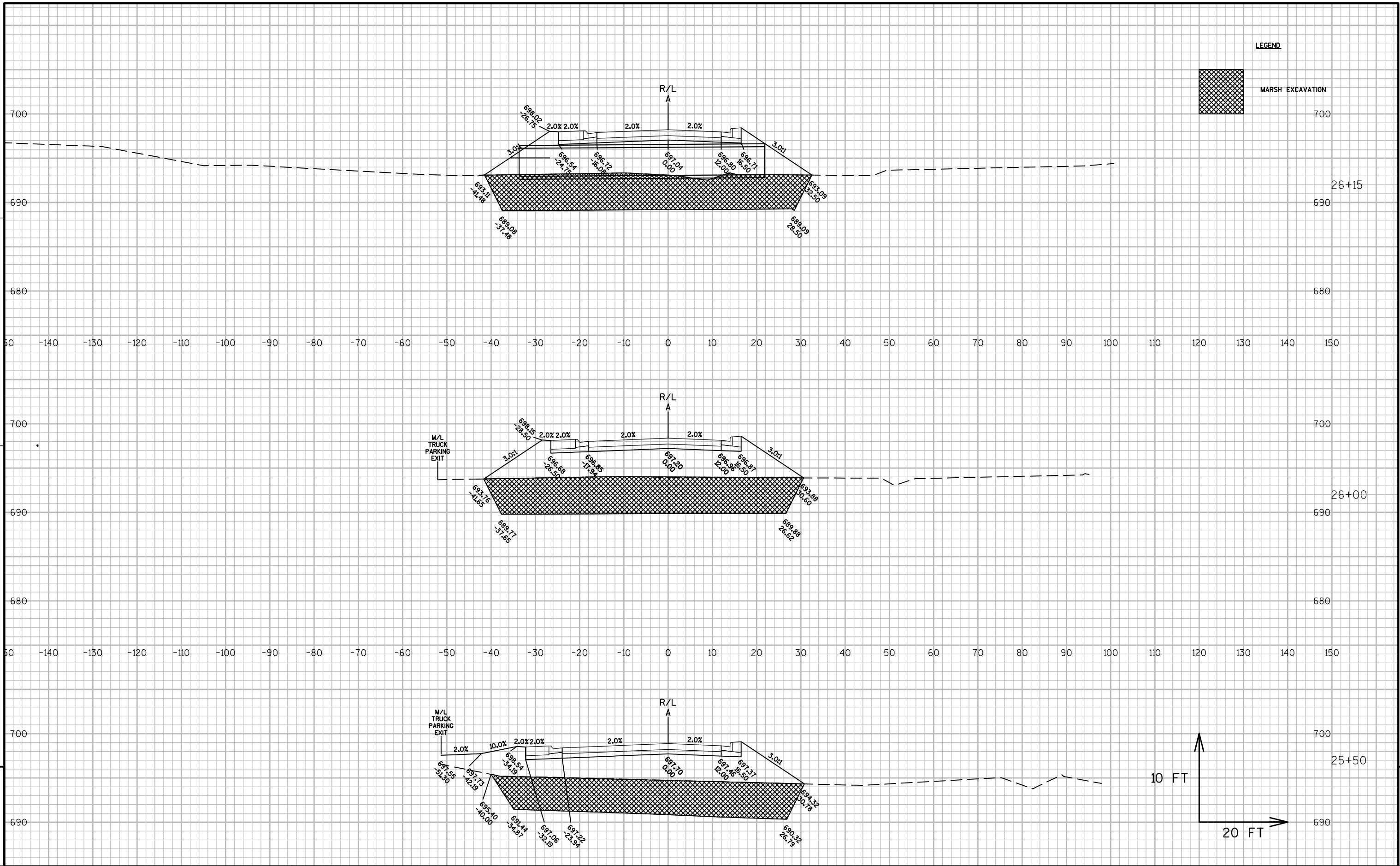
RAMP EDGE - 'E'

STATION	Real Station	Distance	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)			Mass Ordinate
			Cut	Fill	Marsh Exc	Cut	Fill	Marsh Exc	Cut 1.00	Expanded Fill 1.20	Expanded Marsh Backfill 1.40	
100+00	10000.00	0.00	4.76	10.98	0.00	0	0	0	0	0	0	0.00
100+50	10050.00	50.00	4.49	57.54	0.00	9	63	0	9	76	0	- 67.57
101+00	10100.00	50.00	27.14	2.16	0.00	29	55	0	38	142	0	- 104.62
101+50	10150.00	50.00	44.73	2.63	0.00	67	4	0	104	148	0	- 43.40
102+00	10200.00	50.00	45.97	3.24	0.00	84	5	0	188	154	0	34.05
102+50	10250.00	50.00	47.86	2.76	0.00	87	6	0	275	161	0	114.26
103+00	10300.00	50.00	54.07	0.11	0.00	94	3	0	370	164	0	205.45
103+50	10350.00	50.00	47.97	0.00	0.00	94	0	0	464	164	0	299.81
104+00	10400.00	50.00	40.29	0.13	0.00	82	0	0	546	164	0	381.39
104+50	10450.00	50.00	65.71	3.77	0.00	98	4	0	644	169	0	475.21
105+00	10500.00	50.00	304.67	4.00	0.00	343	7	0	987	177	0	809.54
105+50	10550.00	50.00	505.14	0.00	0.00	750	4	0	1,737	182	0	1,554.92
						1,737	152	0				

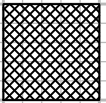
STH 165 - 'J'

STATION	Real Station	Distance	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)			Mass Ordinate
			Cut	Fill	Marsh Exc	Cut	Fill	Marsh Exc	Cut 1.00	Expanded Fill 1.20	Expanded Marsh Backfill 1.40	
406+00.03	40600.03	0.00	157.49	0.00	0.00	0	0	0	0	0	0	0.00
406+50	40650.00	49.97	37.99	1.30	0.00	181	1	0	181	1	0	179.46
407+00	40700.00	50.00	26.19	27.03	0.00	59	26	0	240	33	0	207.40
407+50	40750.00	50.00	25.10	27.20	0.00	47	50	0	288	93	0	194.64
408+00	40800.00	50.00	24.34	24.03	0.00	46	47	0	334	150	0	183.50
408+50	40850.00	50.00	24.93	21.17	0.00	46	42	0	379	200	0	178.90
409+00	40900.00	50.00	25.68	18.38	0.00	47	37	0	426	244	0	181.81
409+50	40950.00	50.00	27.17	16.16	0.00	49	32	0	475	283	0	192.37
410+00	41000.00	50.00	28.84	7.89	0.00	52	22	0	527	309	0	217.51
410+50	41050.00	50.00	27.02	1.58	0.00	52	9	0	579	320	0	258.70
411+00	41100.00	50.00	23.73	2.14	0.00	47	3	0	626	324	0	301.56
411+50	41150.00	50.00	50.18	0.00	0.00	68	2	0	694	326	0	367.62
411+79.37	41179.37	29.37	141.11	0.00	0.00	104	0	0	798	326	0	471.67
						798	272	0				

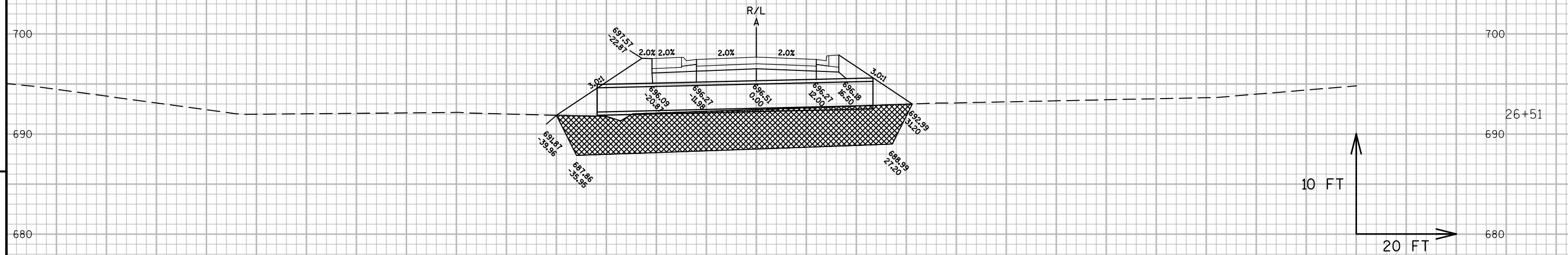
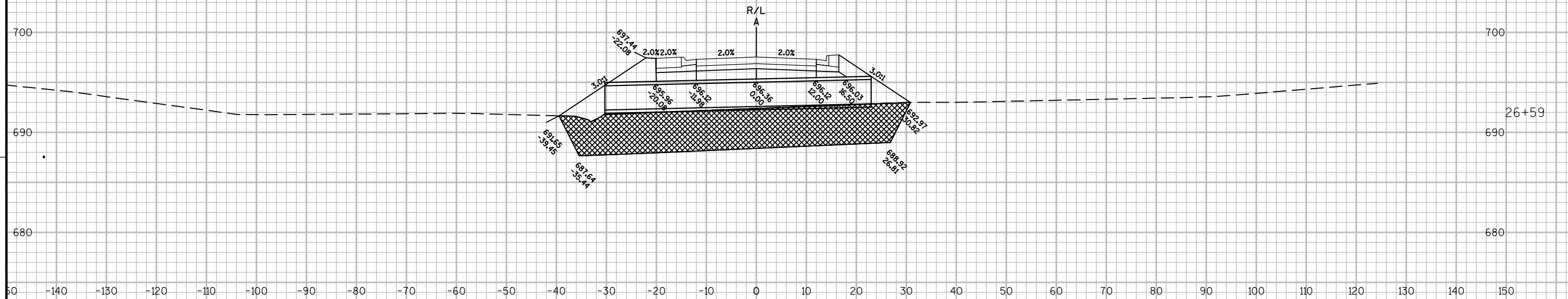




LEGEND



MARSH EXCAVATION



10 FT

20 FT

PROJECT NO: 3738-08-70

HWY: STH 165

COUNTY: KENOSHA

CROSS SECTIONS: WELCOME CENTER EXIT 'A'

SHEET 211

E

FILE NAME : N:\PDS\C3D\37380800\SHEETSP\PLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS-6

PLOT DATE : 8/8/2018 4:46 PM

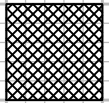
PLOT BY : SPAETH, MICHELE L

PLOT NAME :

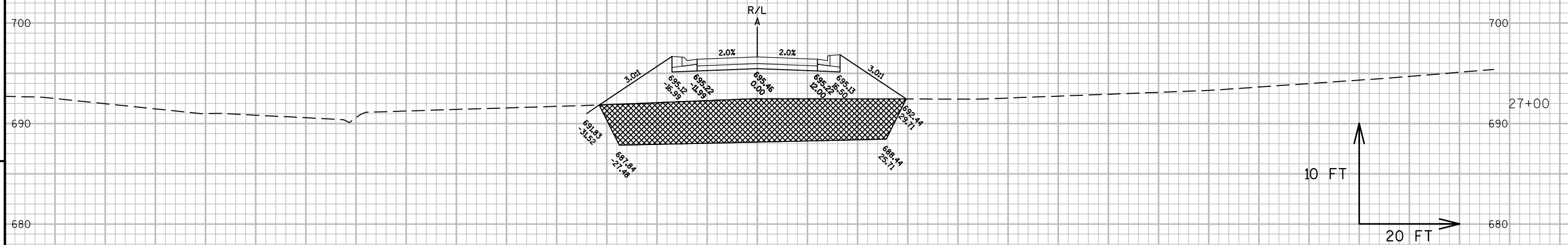
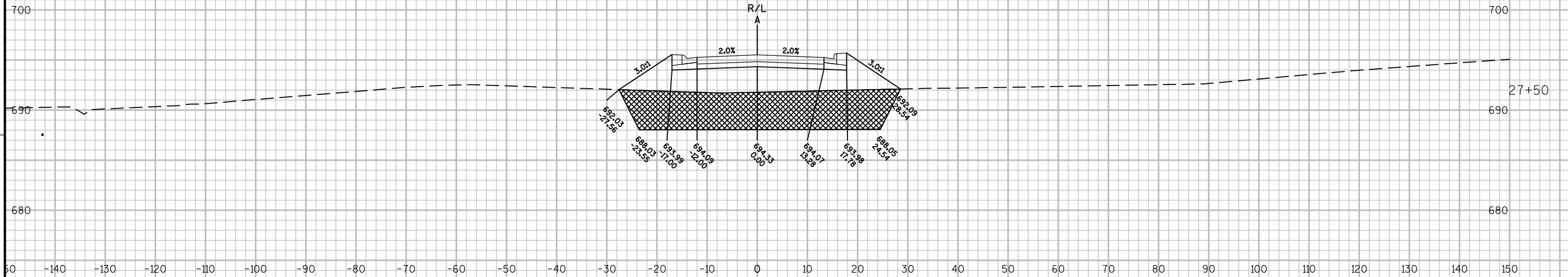
PLOT SCALE : 1 IN:20 FT

WISDOT/CADDs SHEET 49

LEGEND



MARSH EXCAVATION



PROJECT NO: 3738-08-70

HWY: STH 165

COUNTY: KENOSHA

CROSS SECTIONS: WELCOME CENTER EXIT 'A'

SHEET 212

E

FILE NAME : N:\PDS\C3D\37380800\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS-7

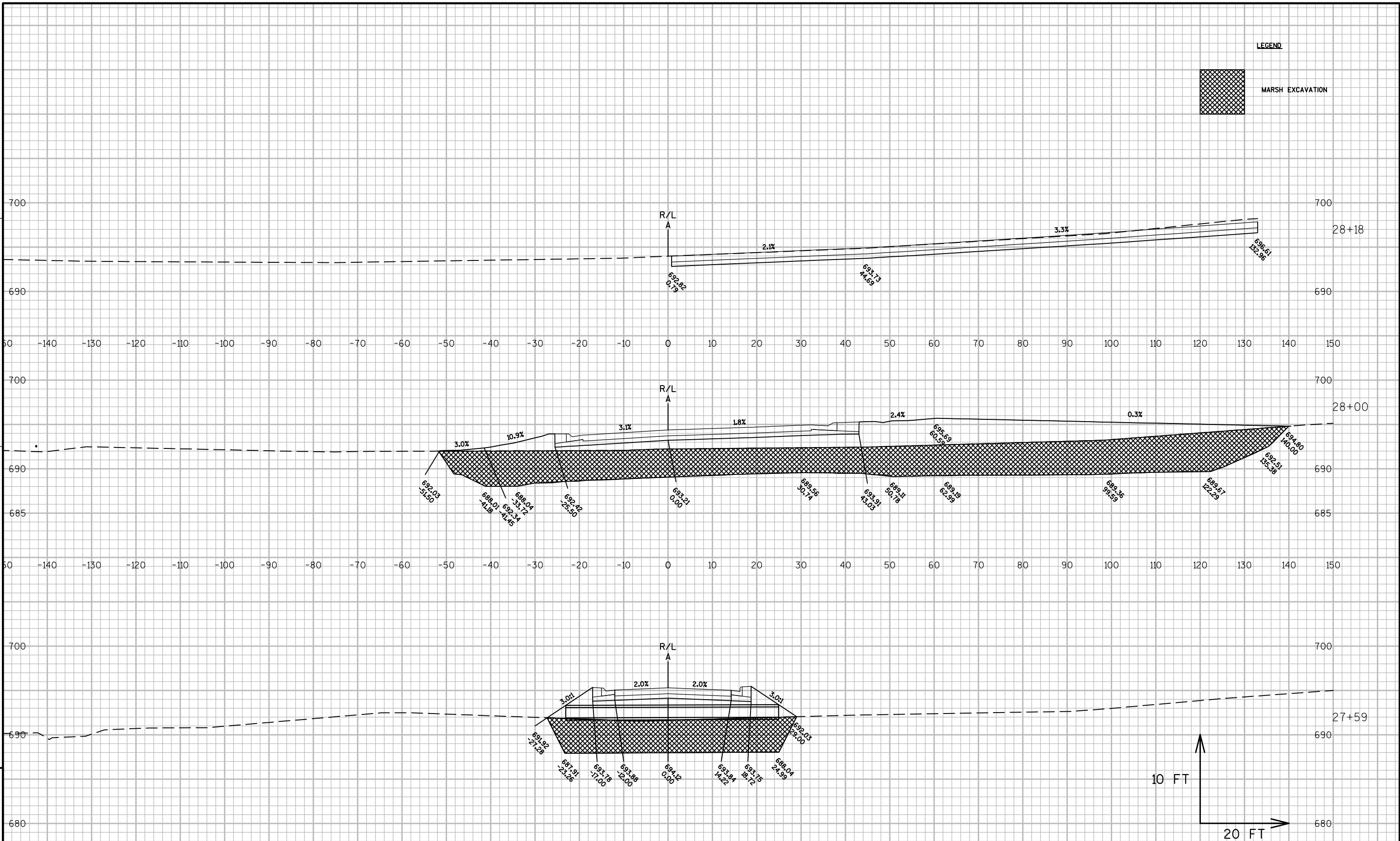
PLOT DATE : 8/8/2018 4:46 PM

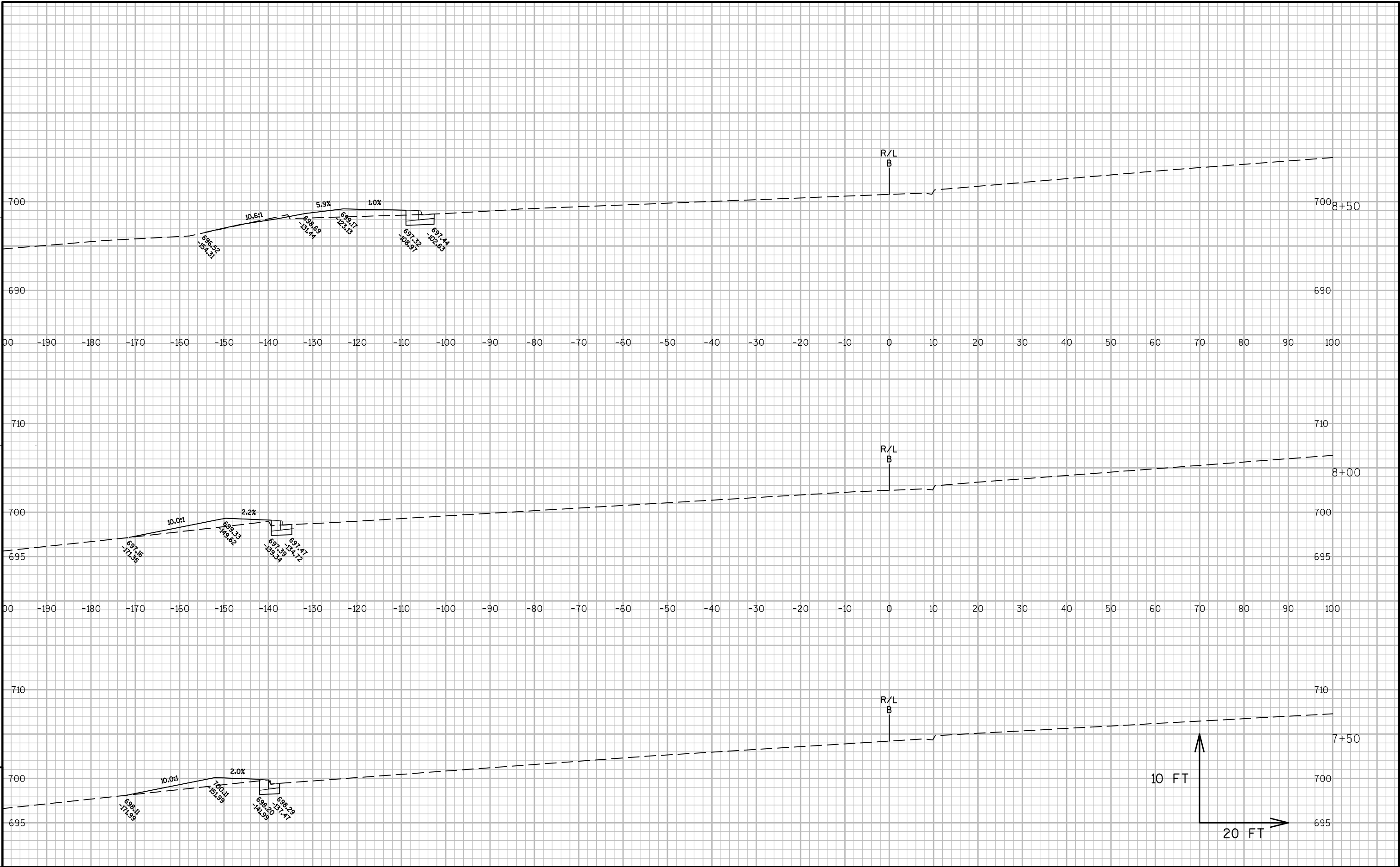
PLOT BY : SPAETH, MICHELE L

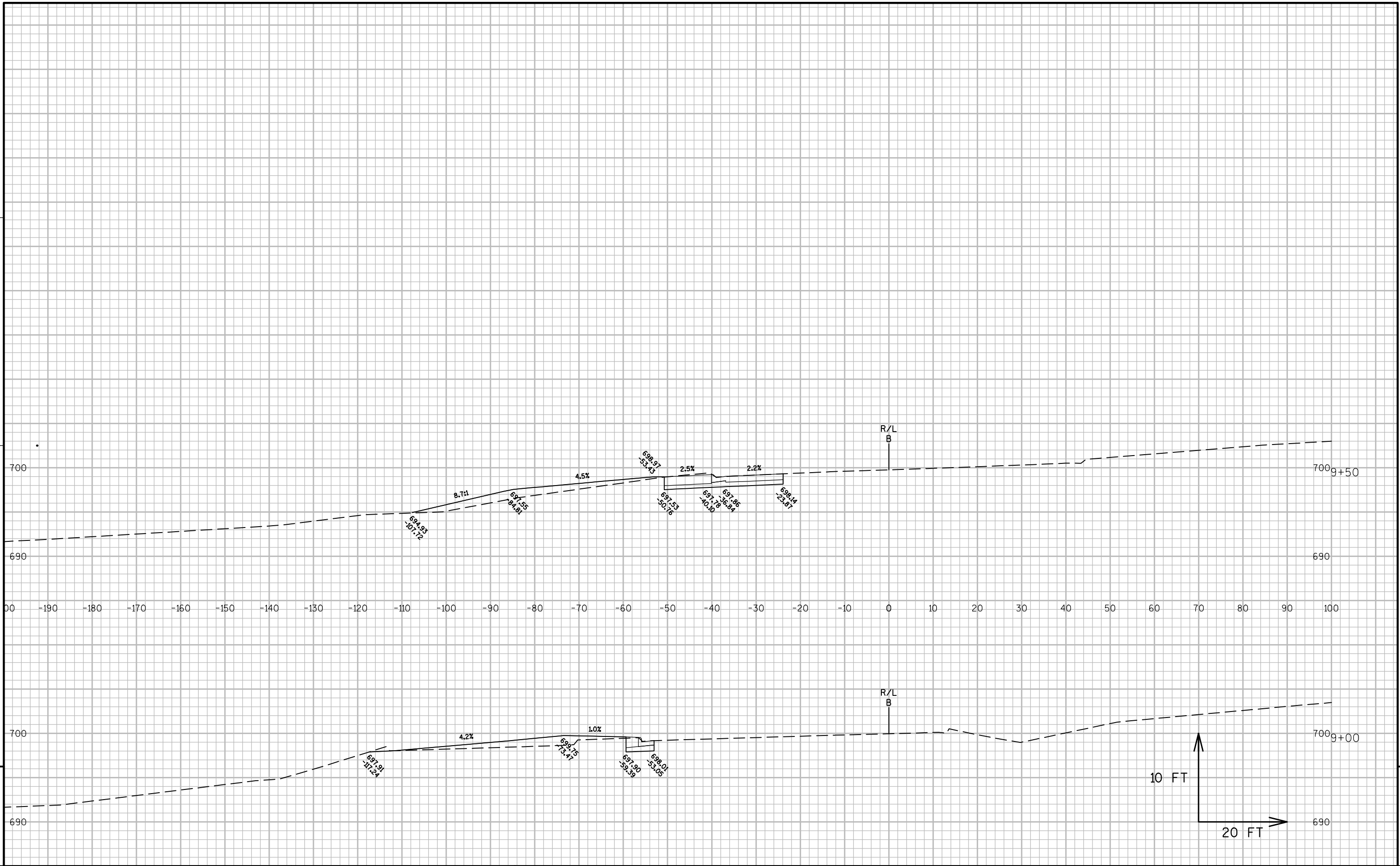
PLOT NAME :

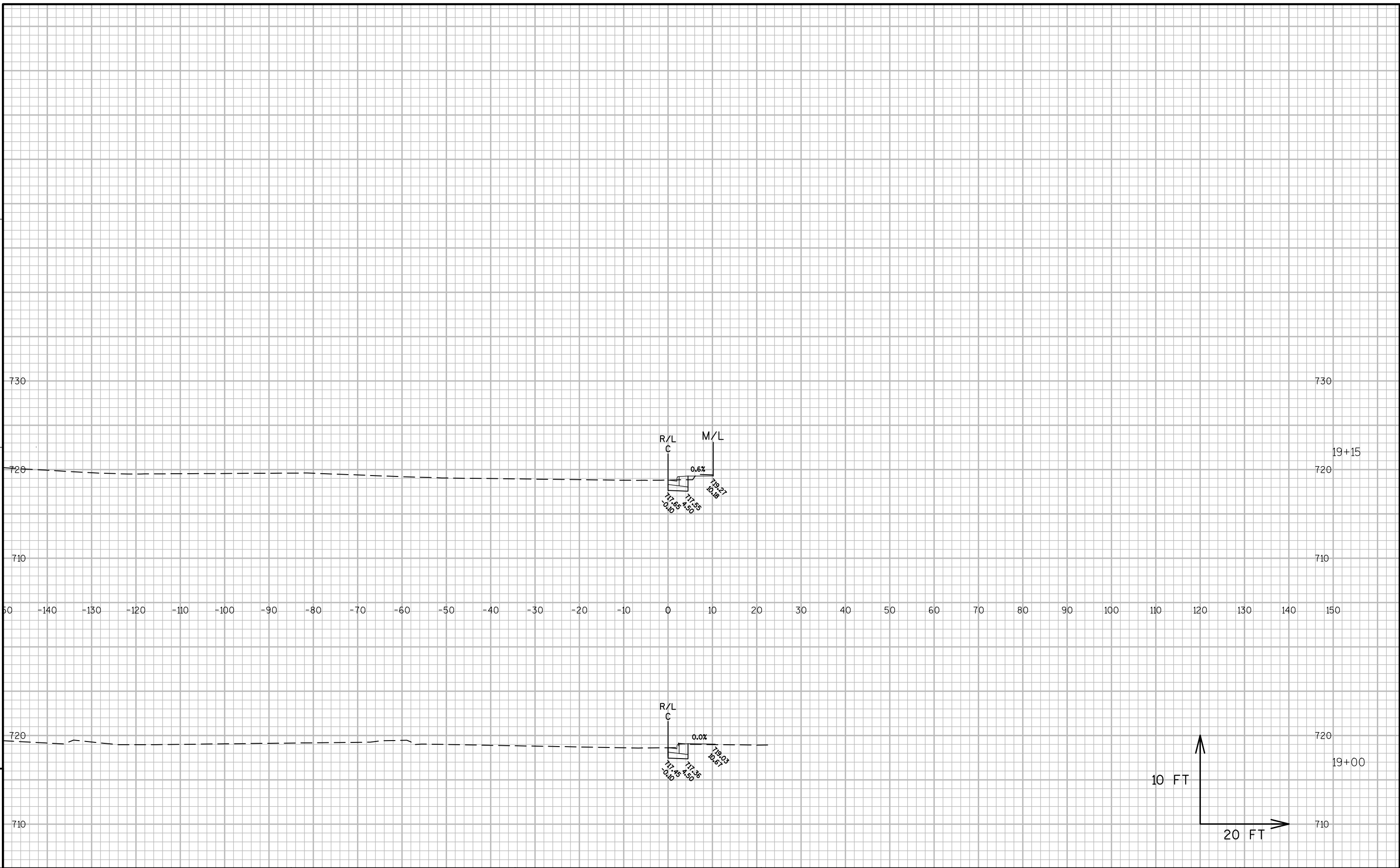
PLOT SCALE : 1 IN:20 FT

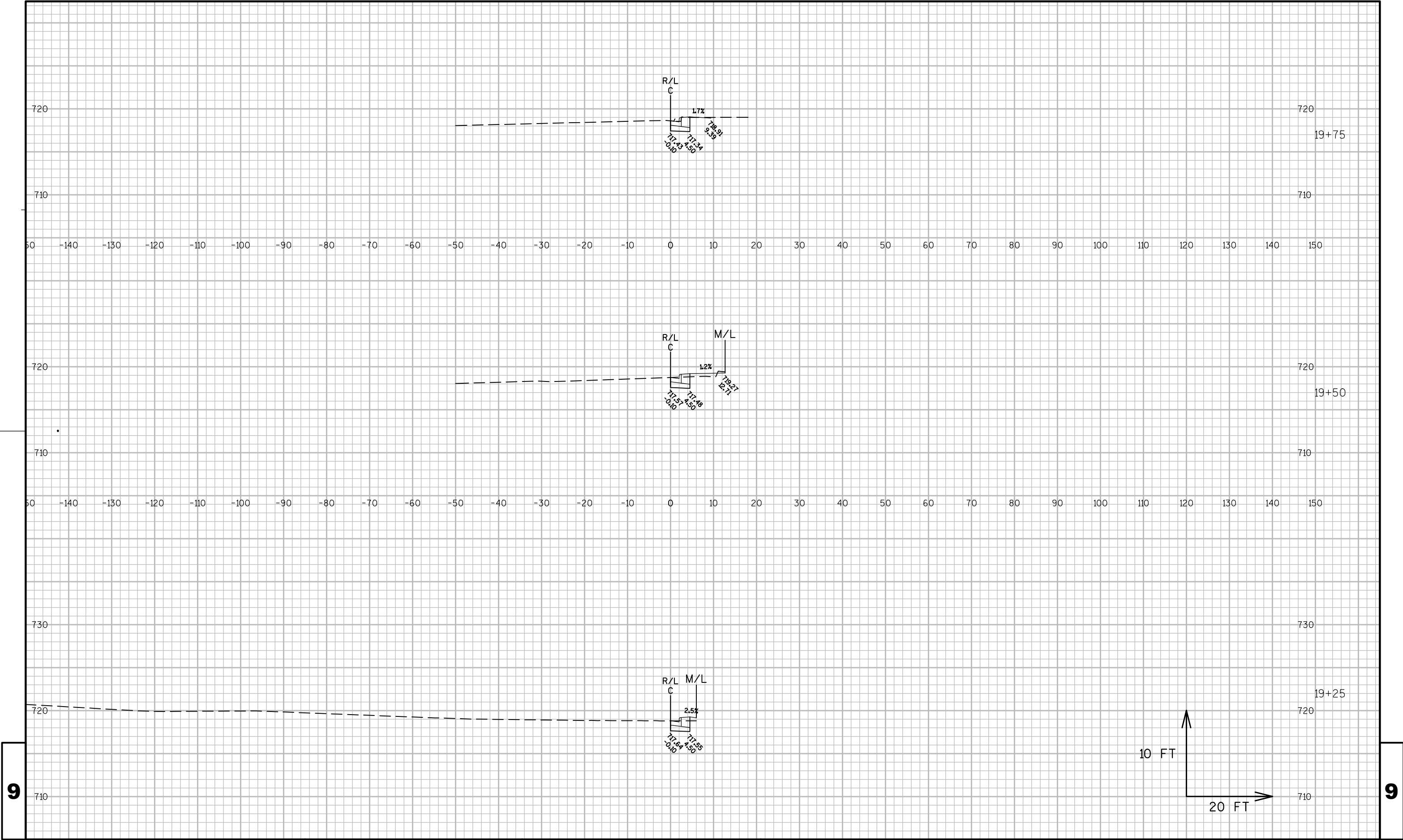
WISDOT/CADDs SHEET 49











PROJECT NO: 3738-08-70

HWY: STH 165

COUNTY: KENOSHA

CROSS SECTIONS: RV EXPANSION 'C'

SHEET 217

FILE NAME : N:\PDS\C3D\37380800\SHEETSP\AN\090203_XS.DWG
LAYOUT NAME - 090203_XS_2)

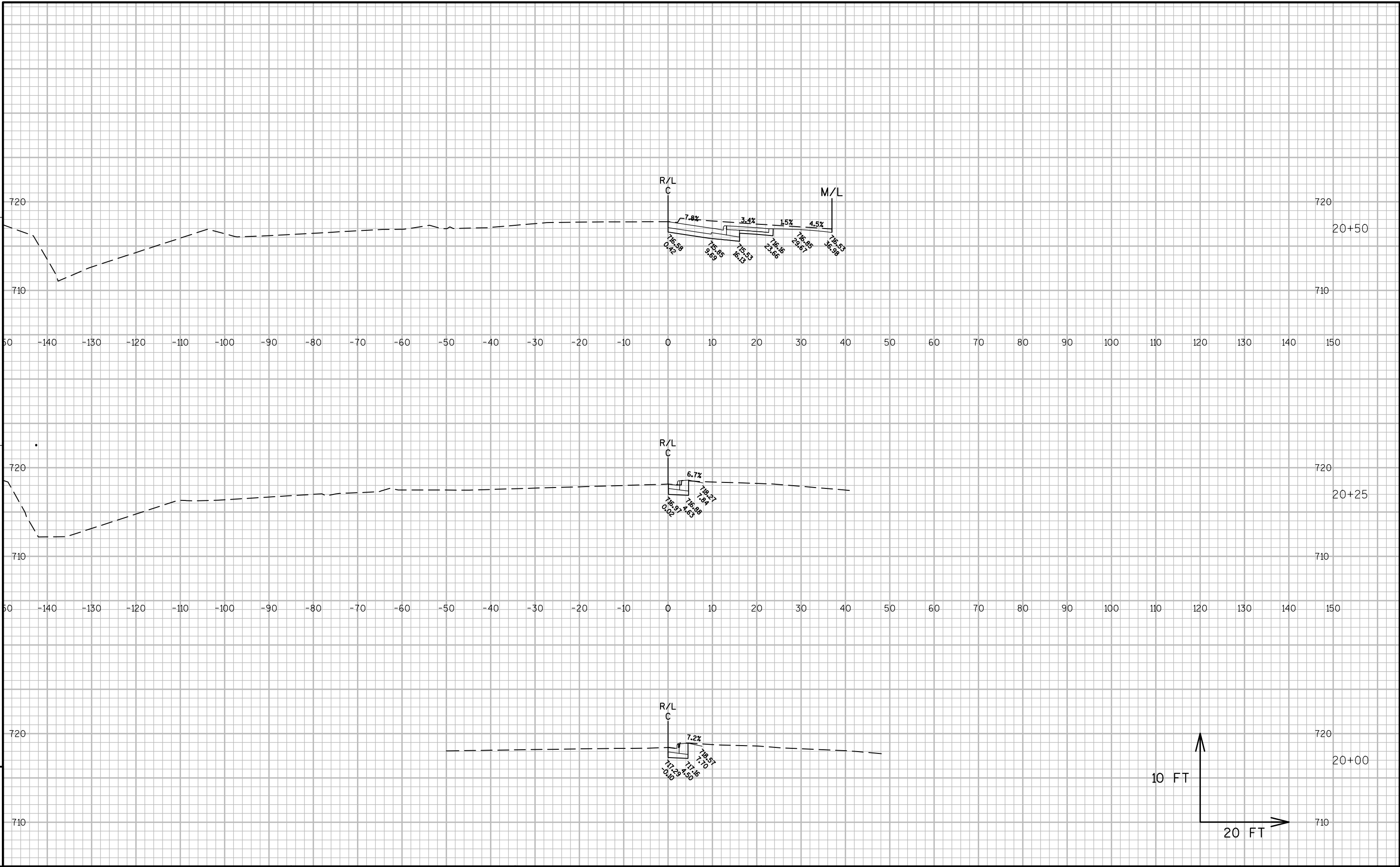
PLOT DATE : 7/31/2018 10:52 AM

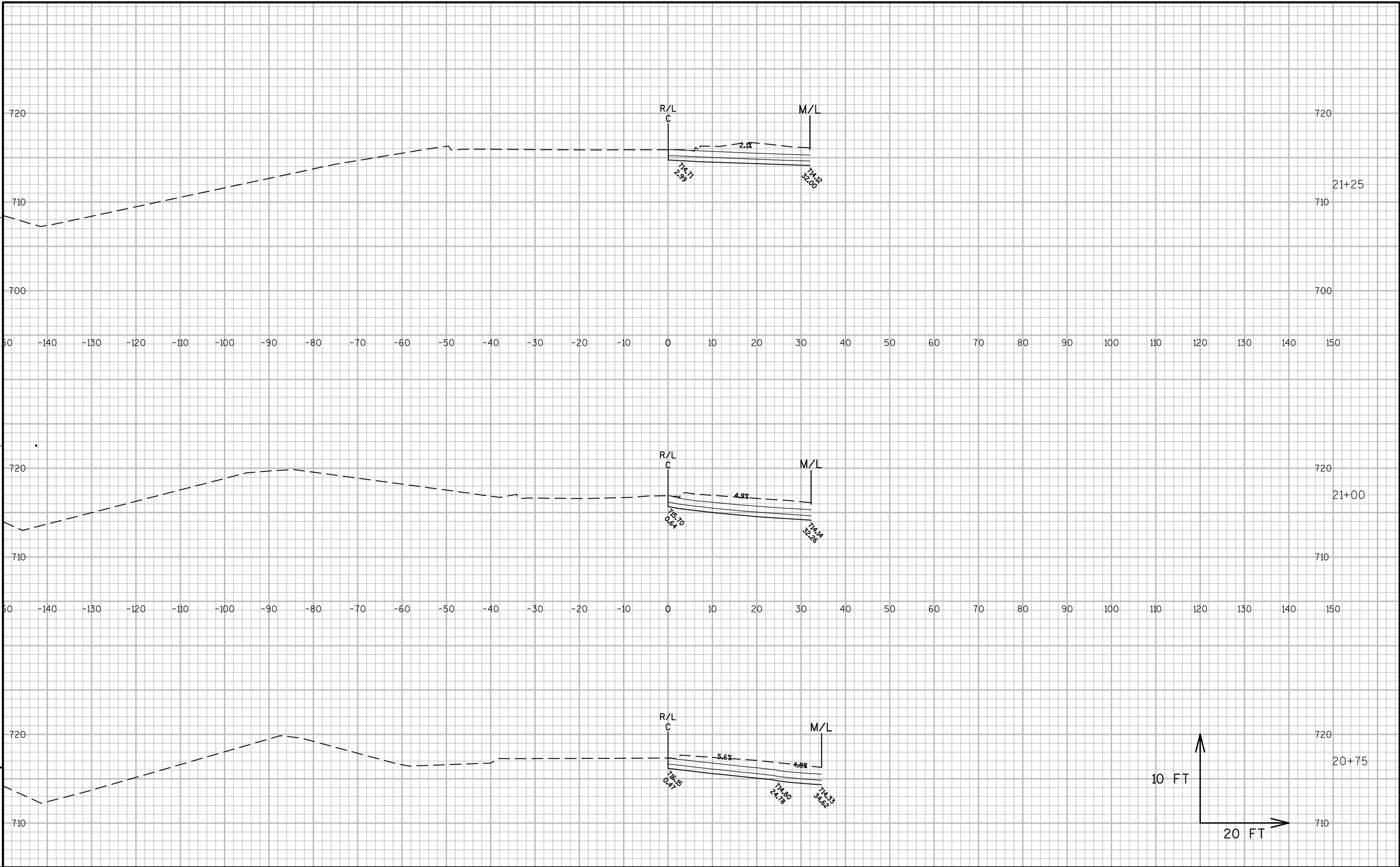
PLOT BY : SPAETH, MICHELE L

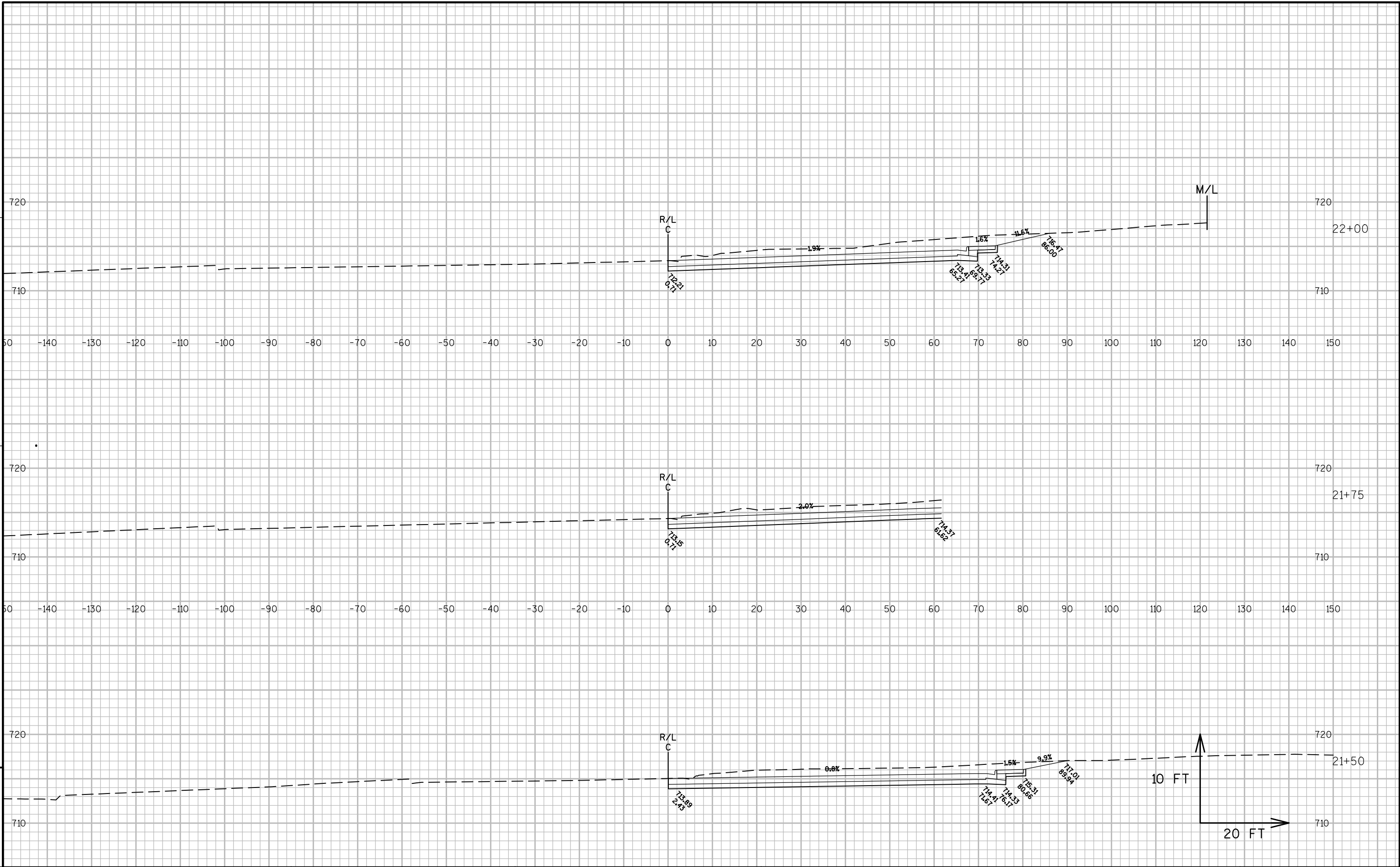
PLOT NAME :

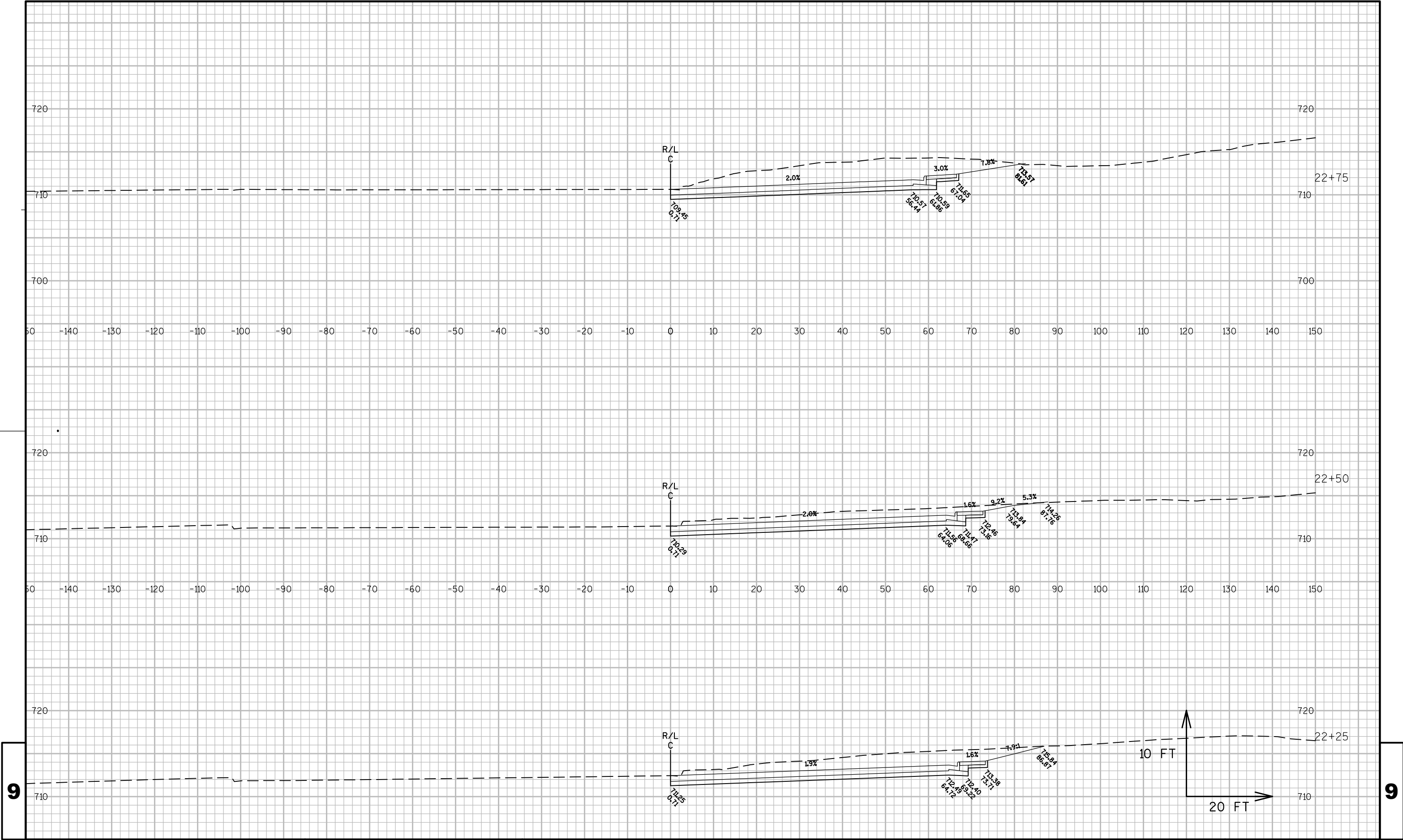
PLOT SCALE : 1 IN:20 FT

WISDOT/CADDs SHEET 49









PROJECT NO: 3738-08-70

HWY: STH 165

COUNTY: KENOSHA

CROSS SECTIONS: RV EXPANSION 'C'

SHEET 221

E

FILE NAME : N:\PDS\C3D\37380800\SHEETSPLAN\090203_XS.DWG
LAYOUT NAME - 090203_XS_6

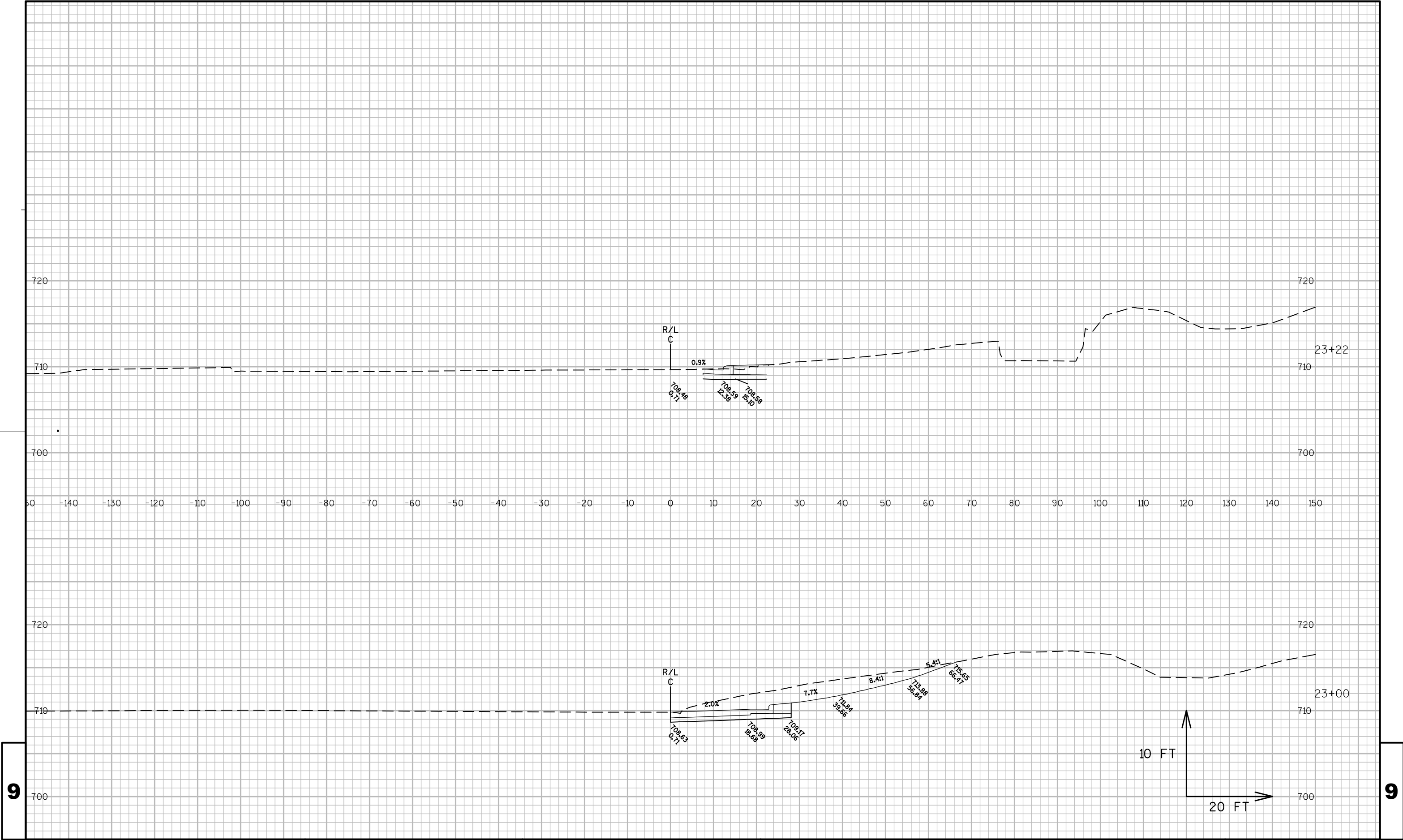
PLOT DATE : 7/31/2018 10:52 AM

PLOT BY : SPAETH, MICHELE L

PLOT NAME :

PLOT SCALE : 1 IN:20 FT

WISDOT/CADDs SHEET 49



PROJECT NO: 3738-08-70

HWY: STH 165

COUNTY: KENOSHA

CROSS SECTIONS: RV EXPANSION 'C'

SHEET 222

E

FILE NAME : N:\PDS\C3D\37380800\SHEETSPLAN\090203_XS.DWG
LAYOUT NAME - 090203_XS_7)

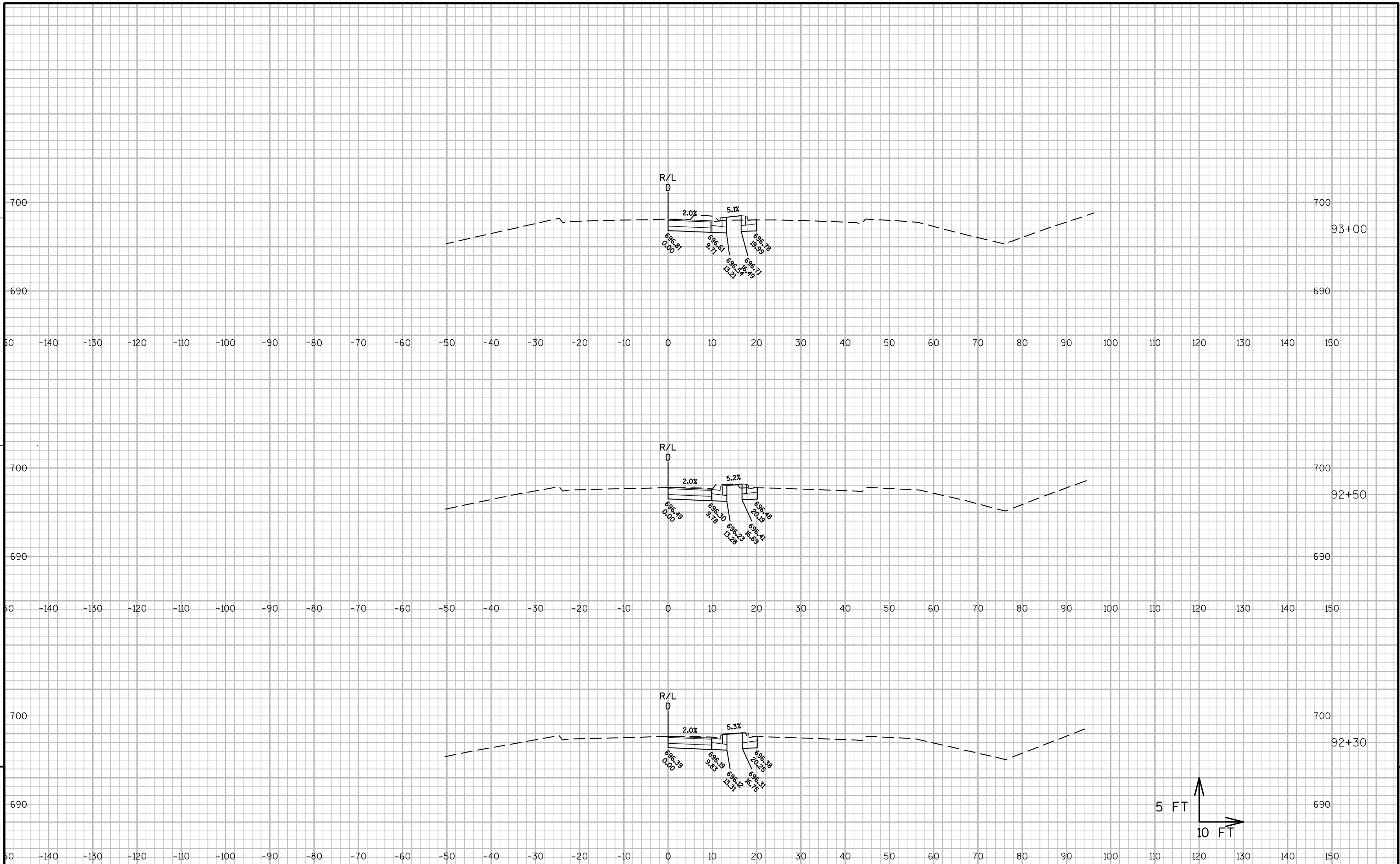
PLOT DATE : 7/31/2018 10:52 AM

PLOT BY : SPAETH, MICHELE L

PLOT NAME :

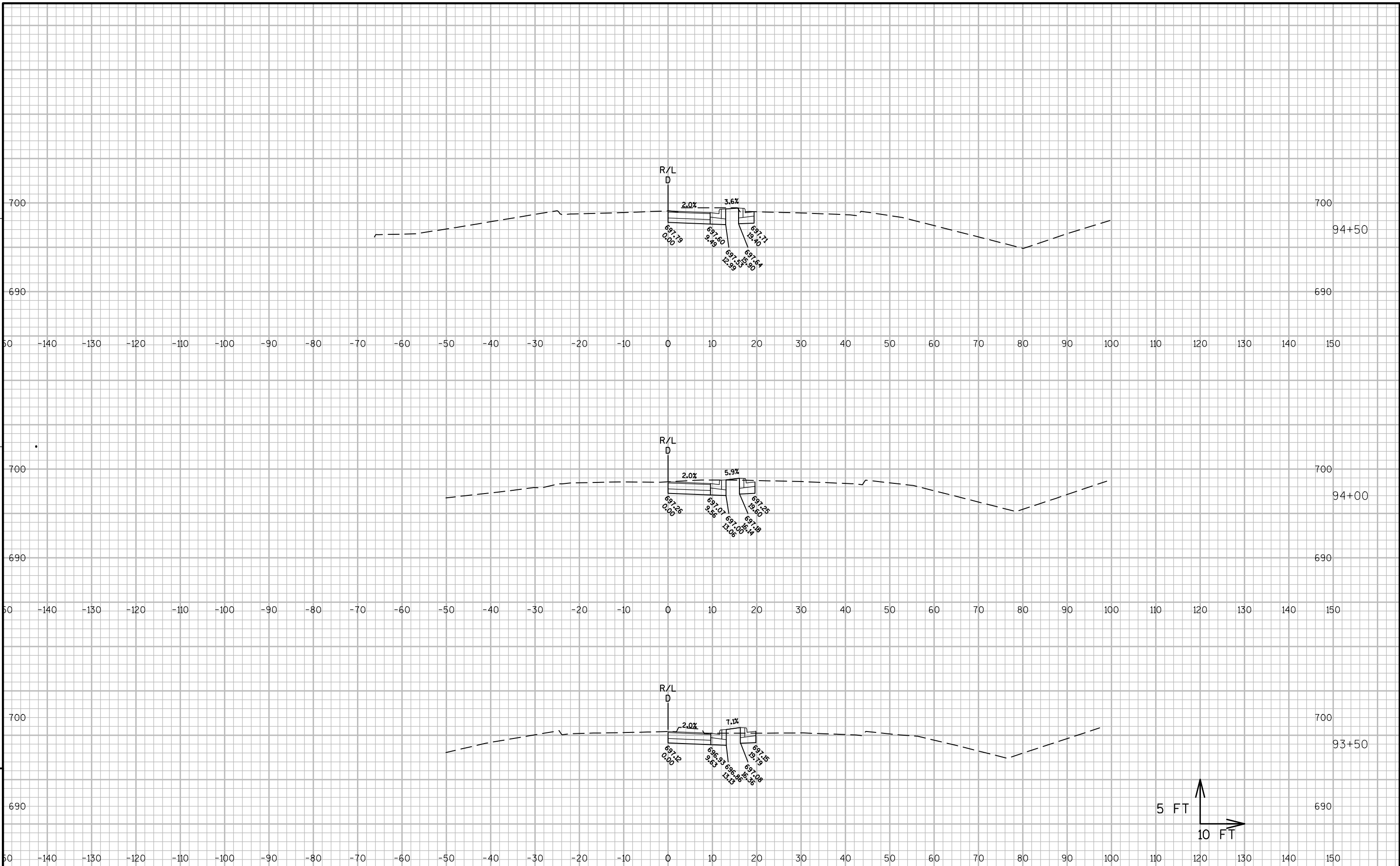
PLOT SCALE : 1 IN:20 FT

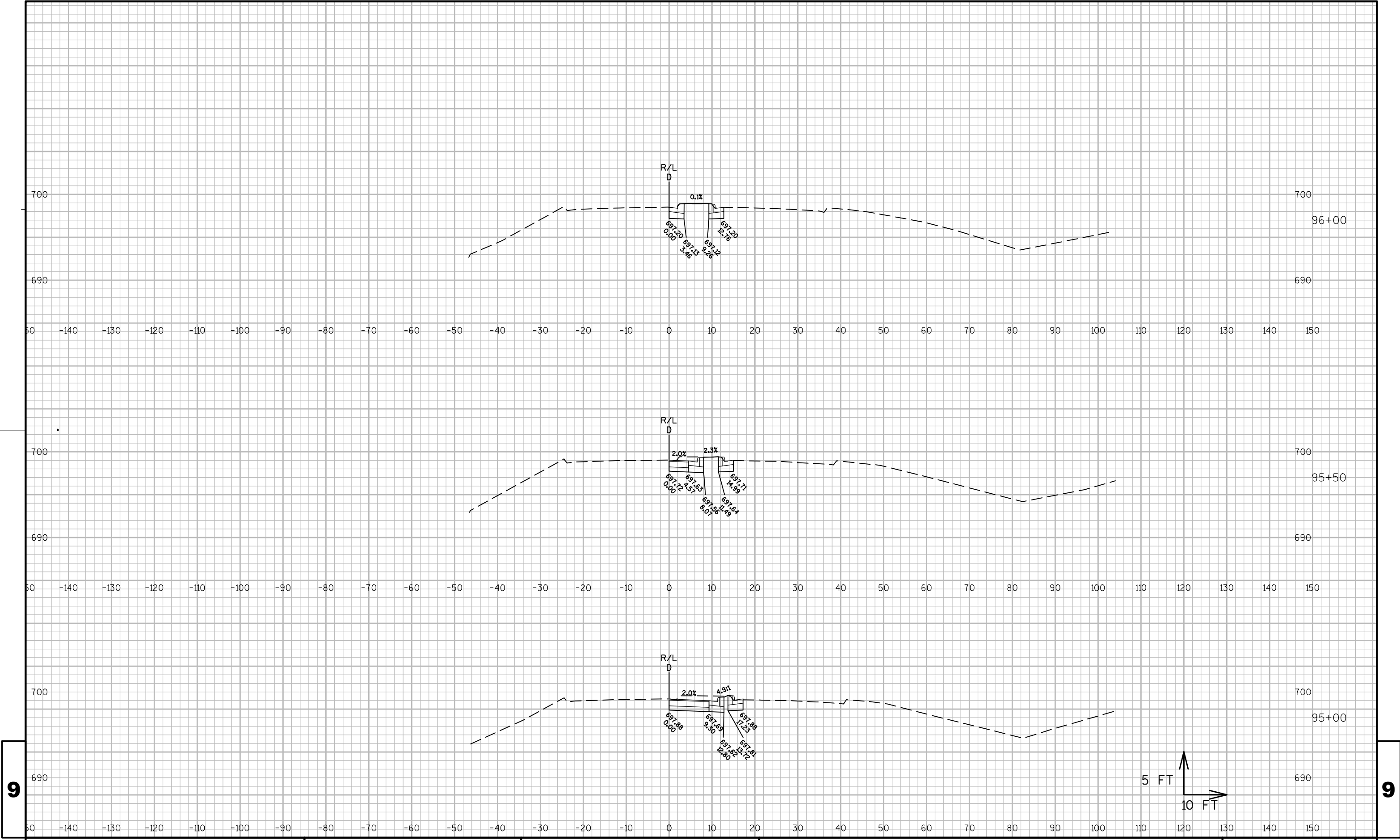
WISDOT/CADDs SHEET 49



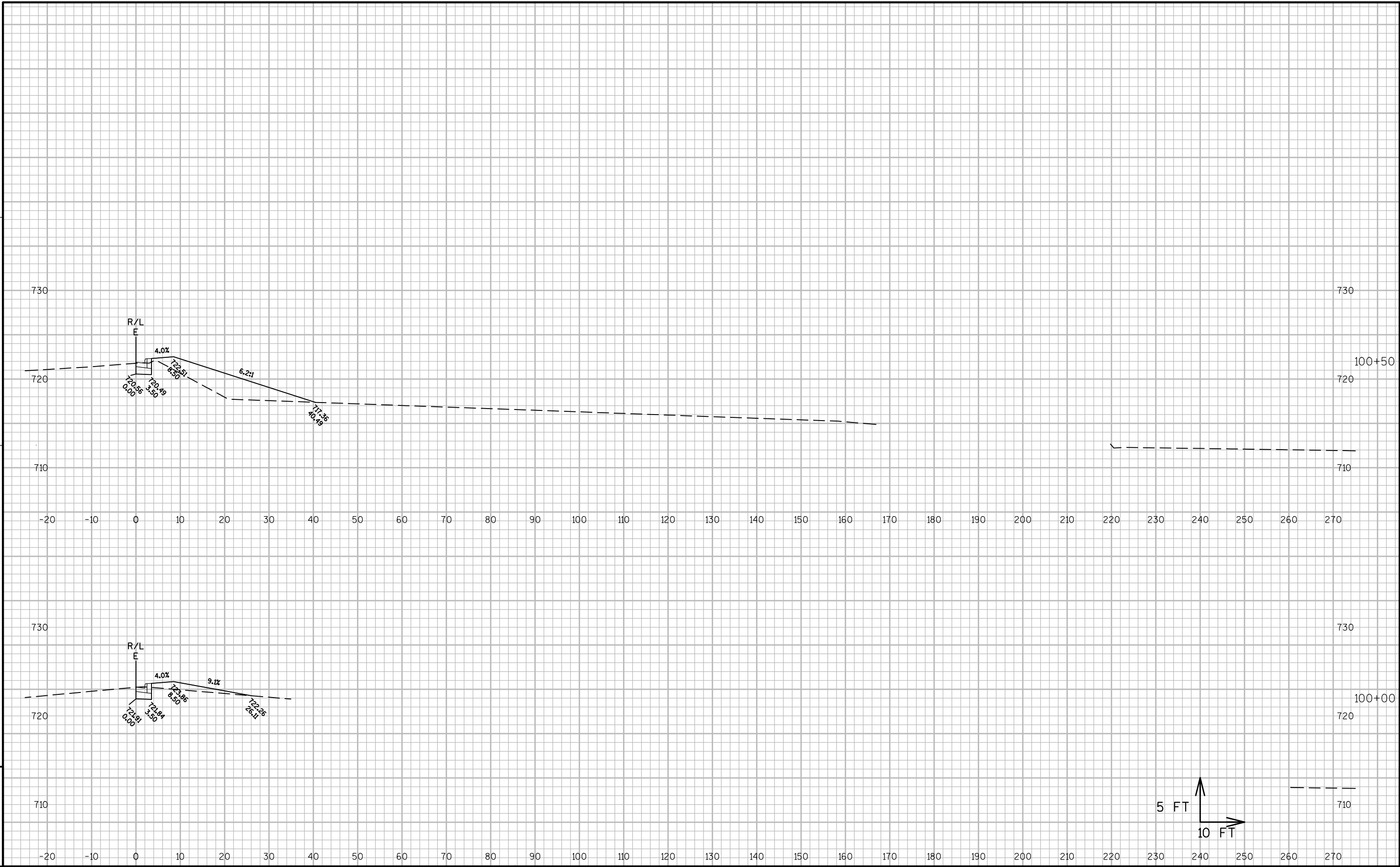
9

9



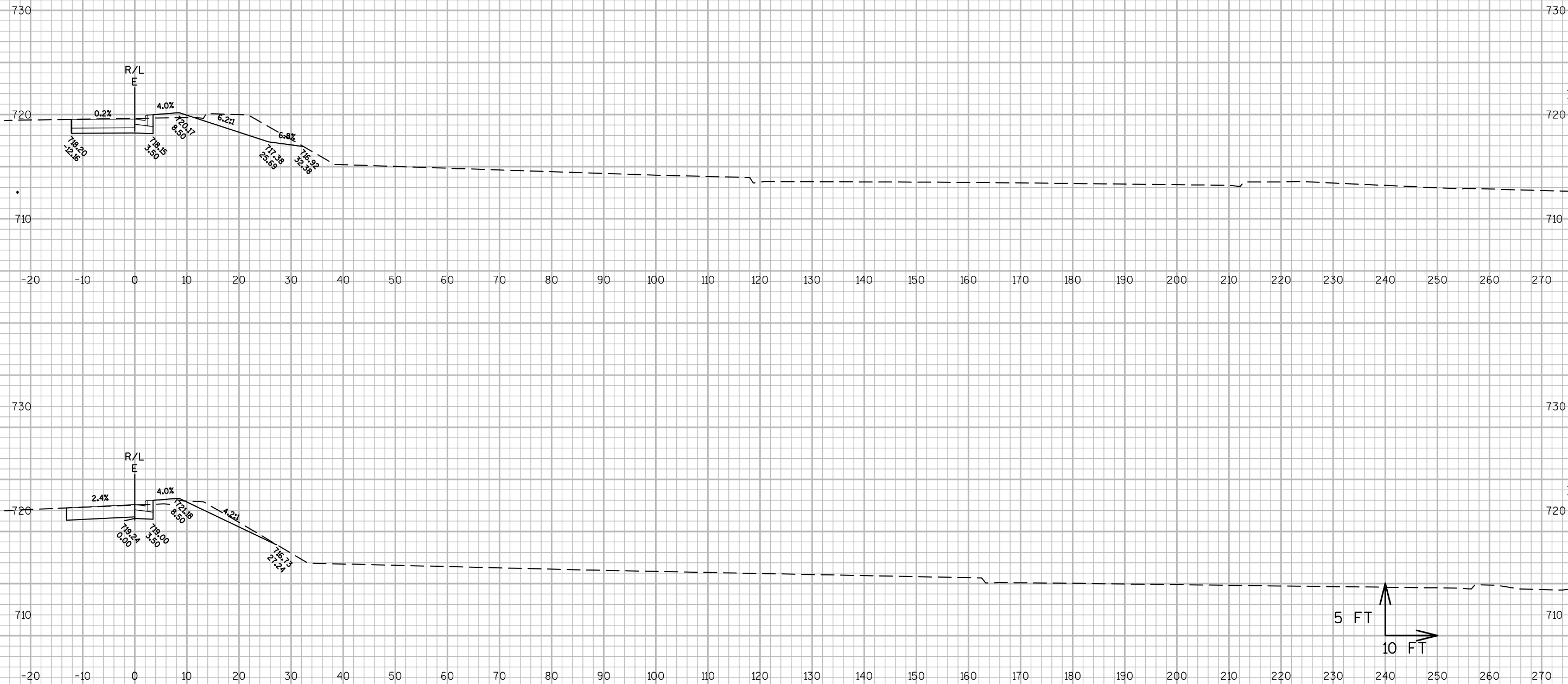


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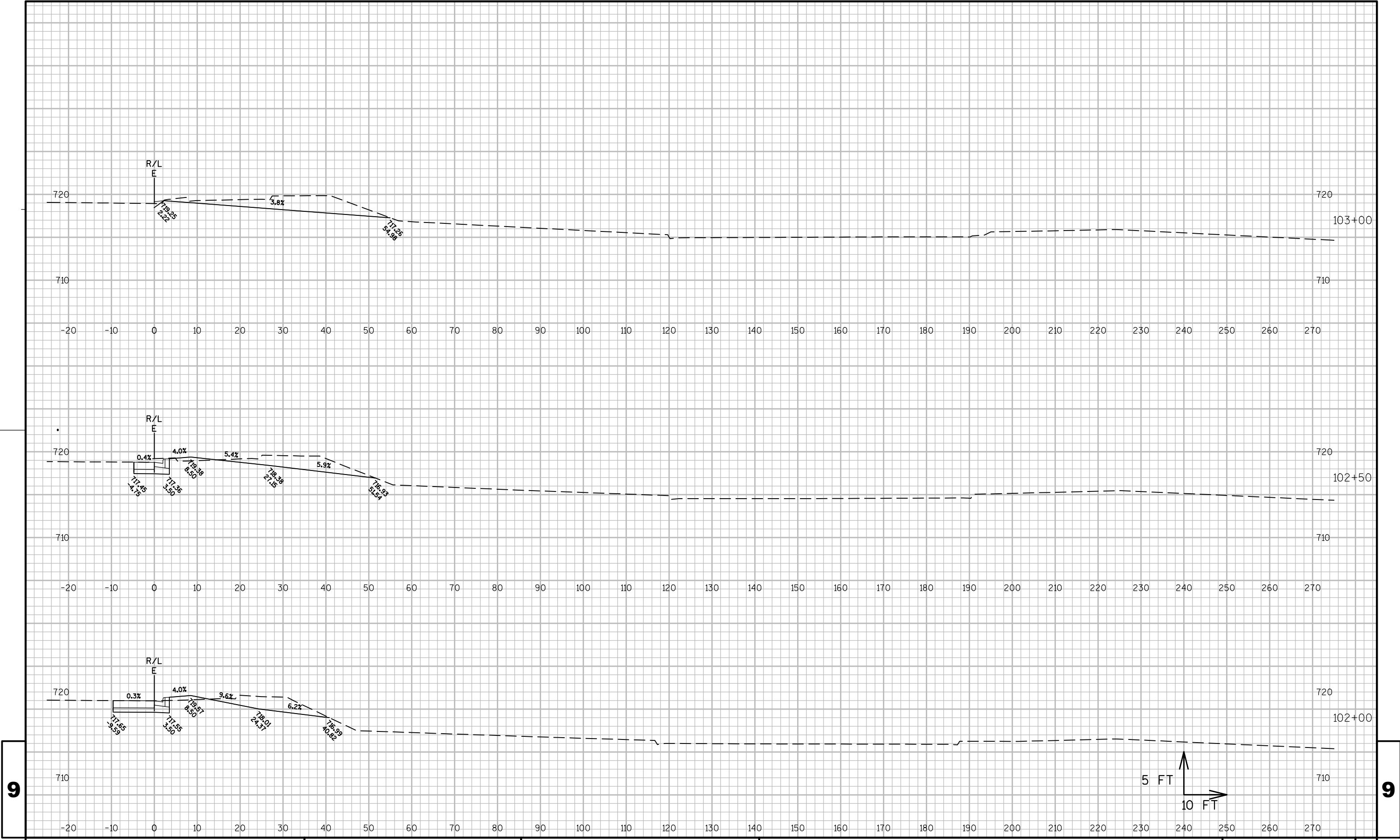


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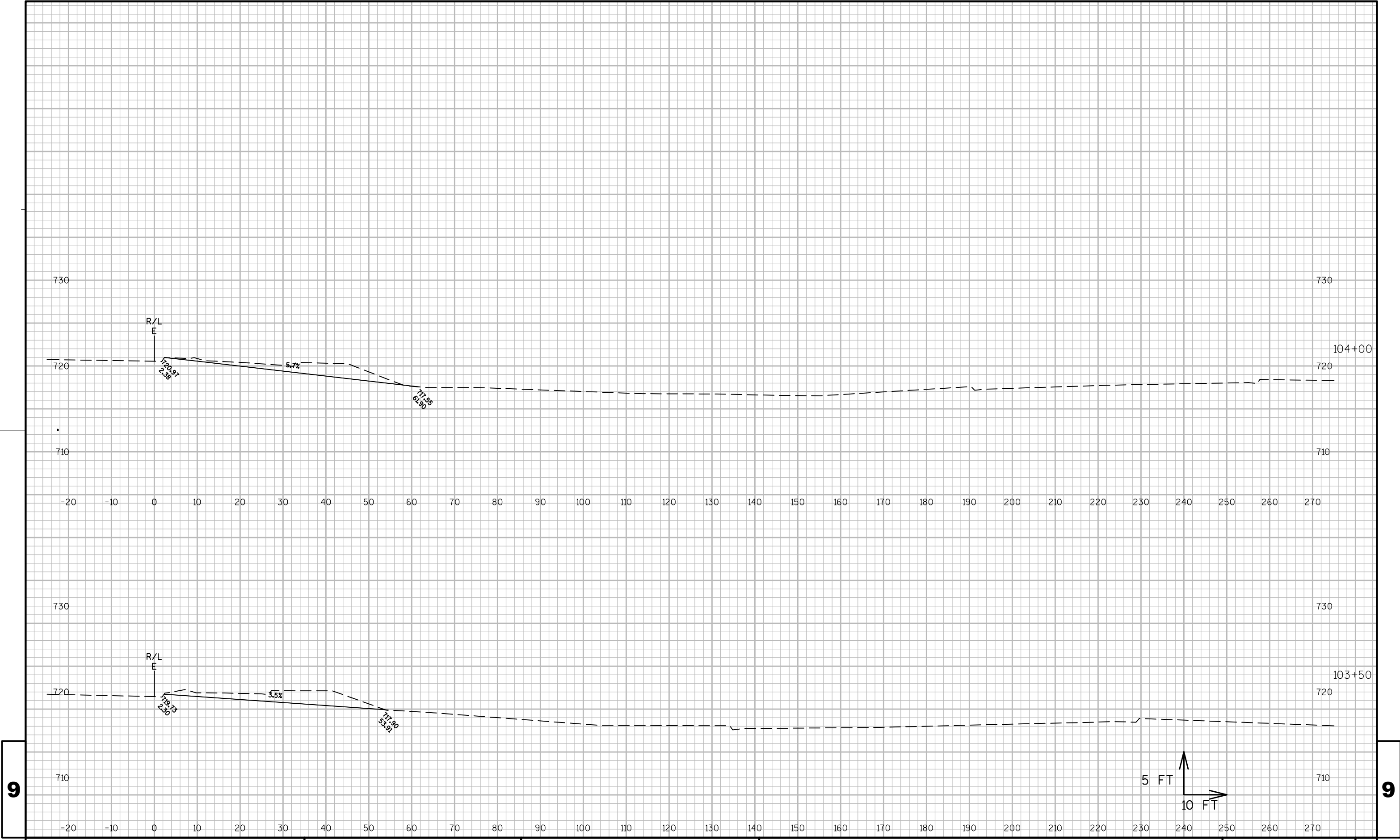


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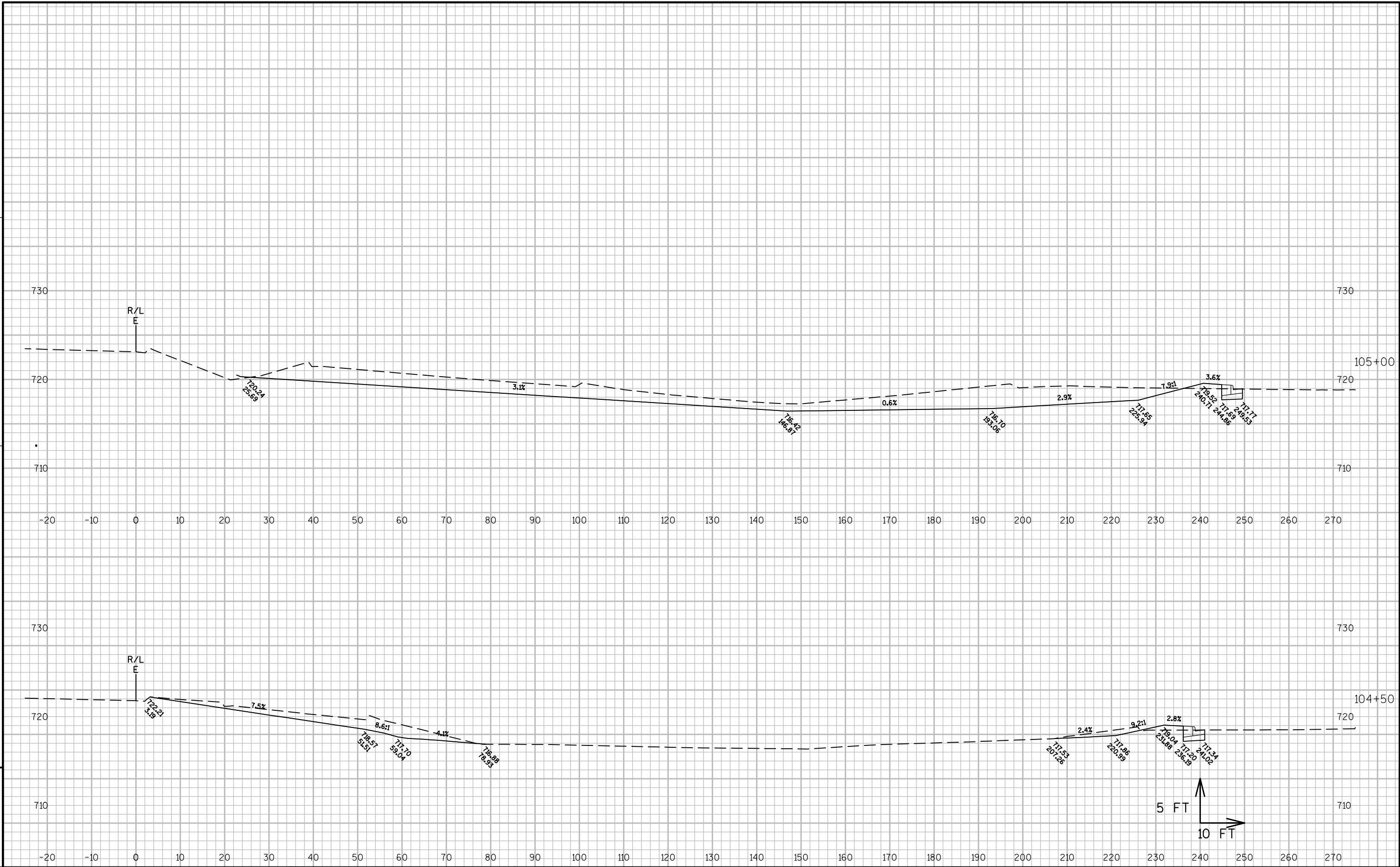
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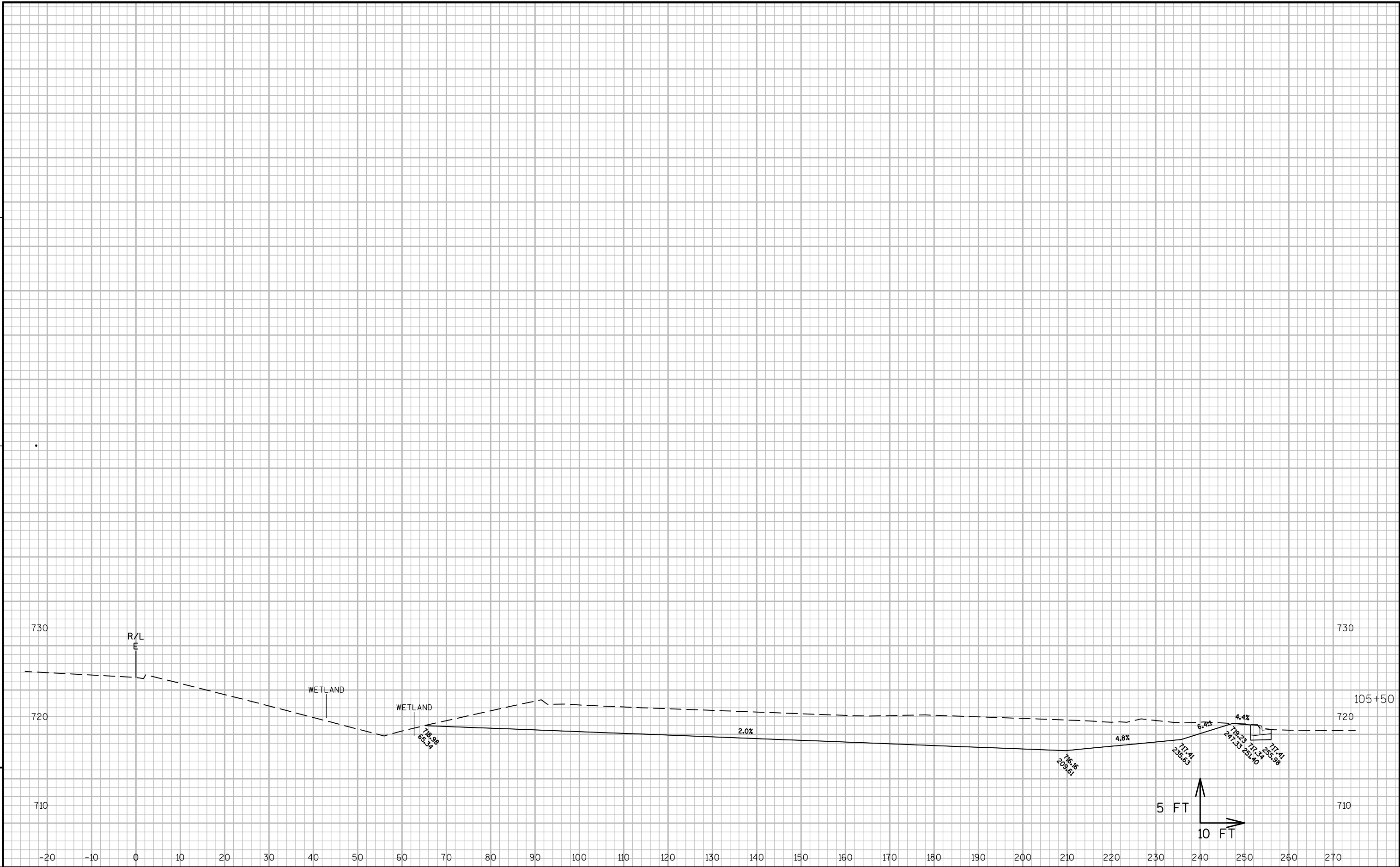
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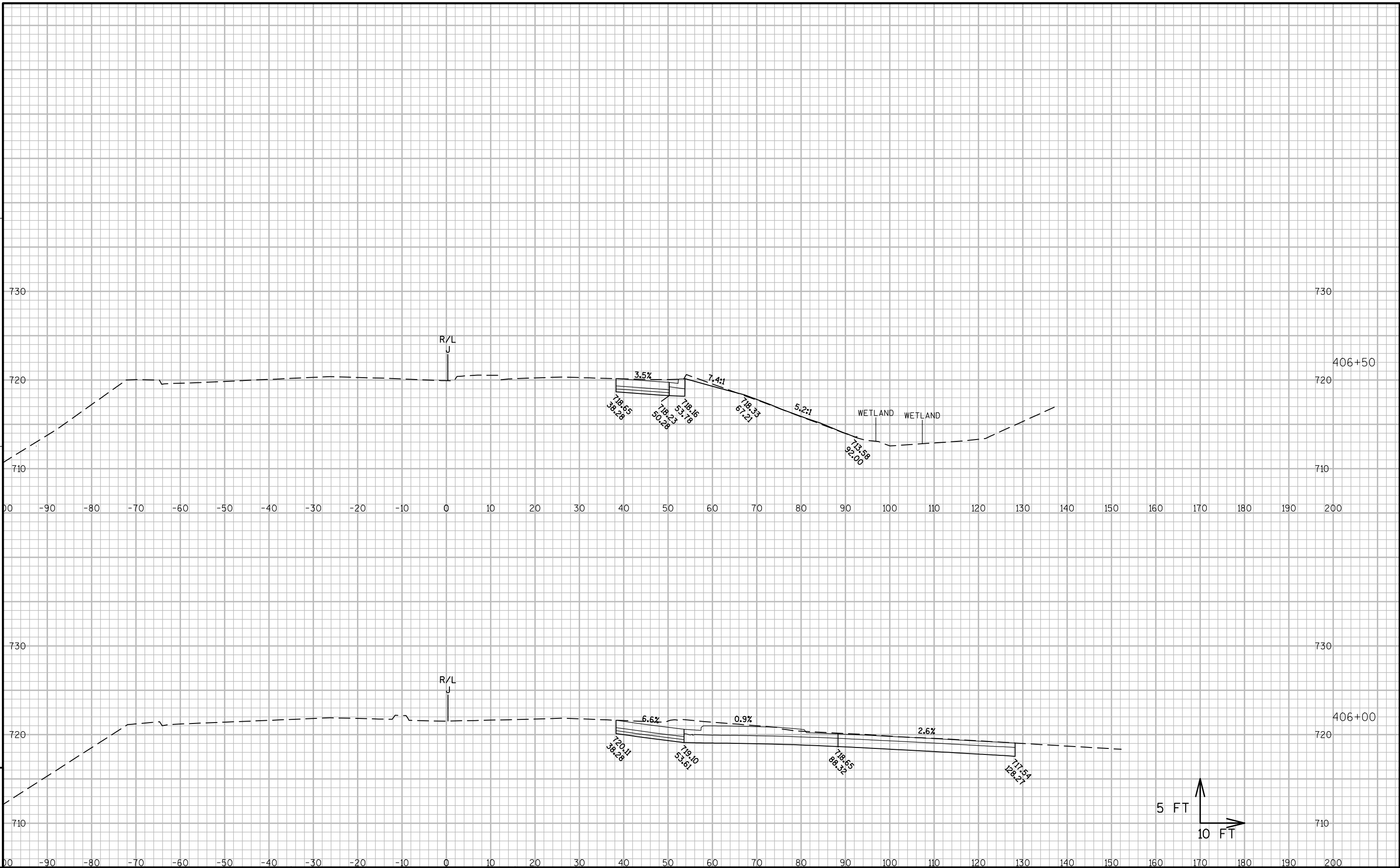


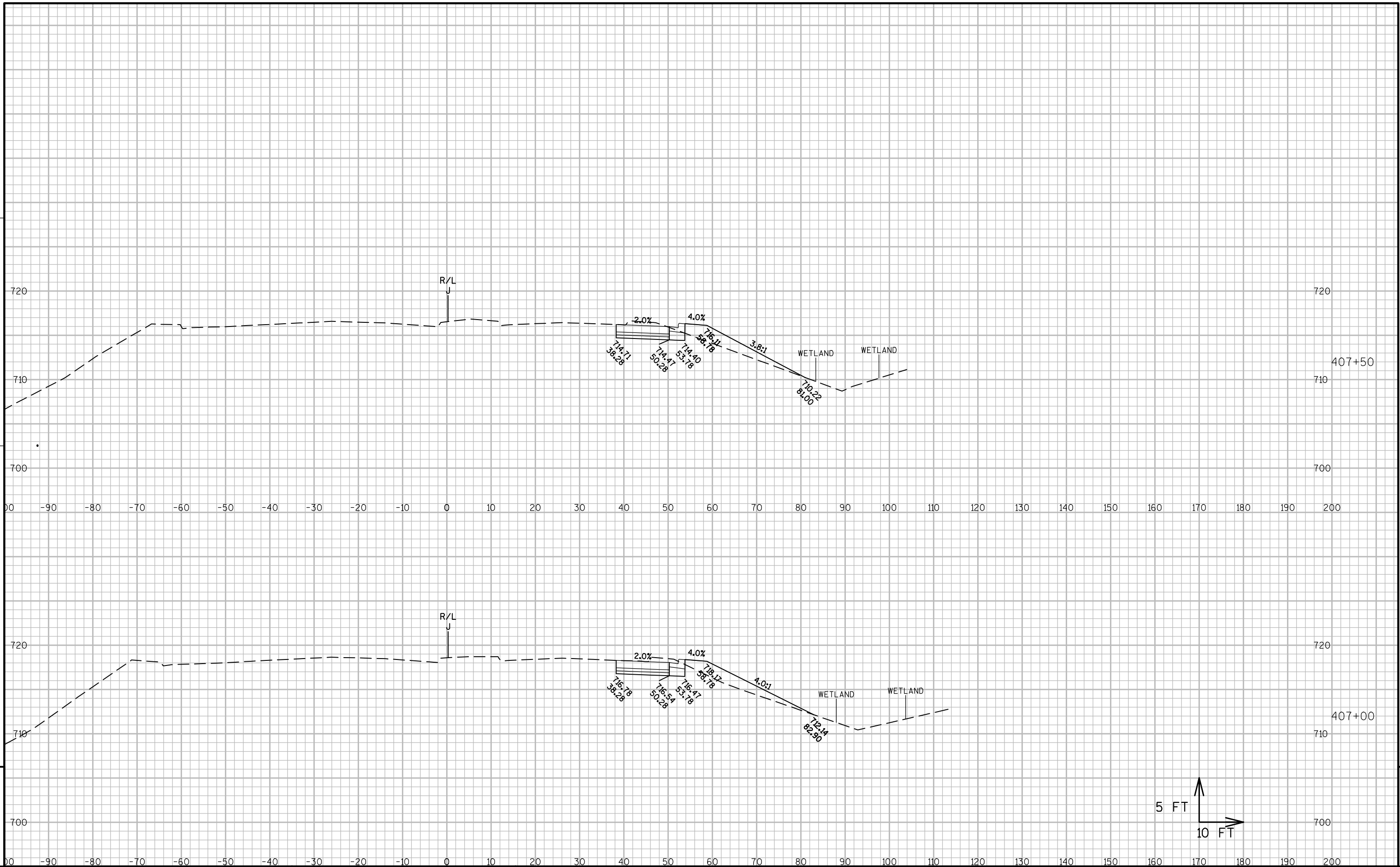
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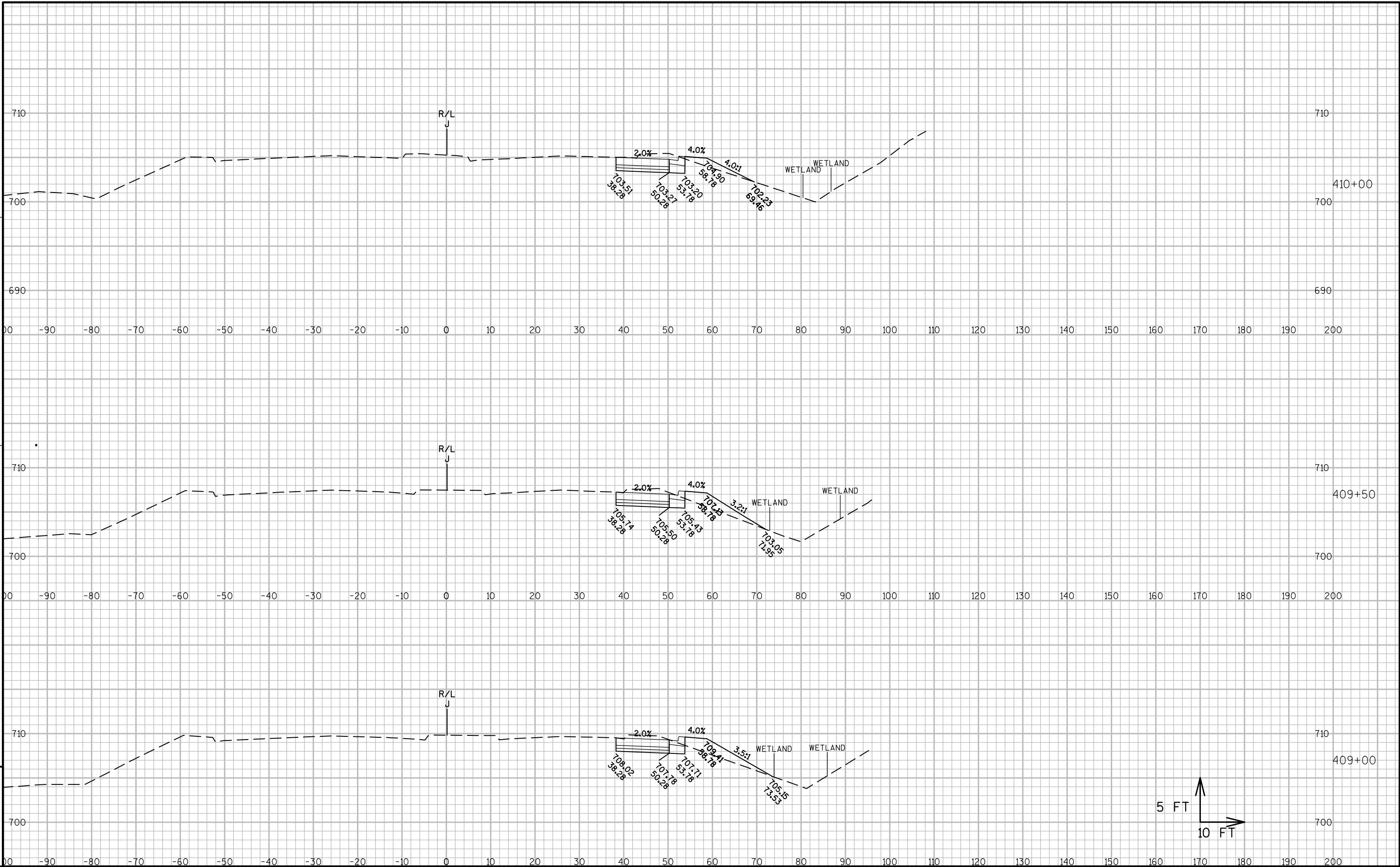
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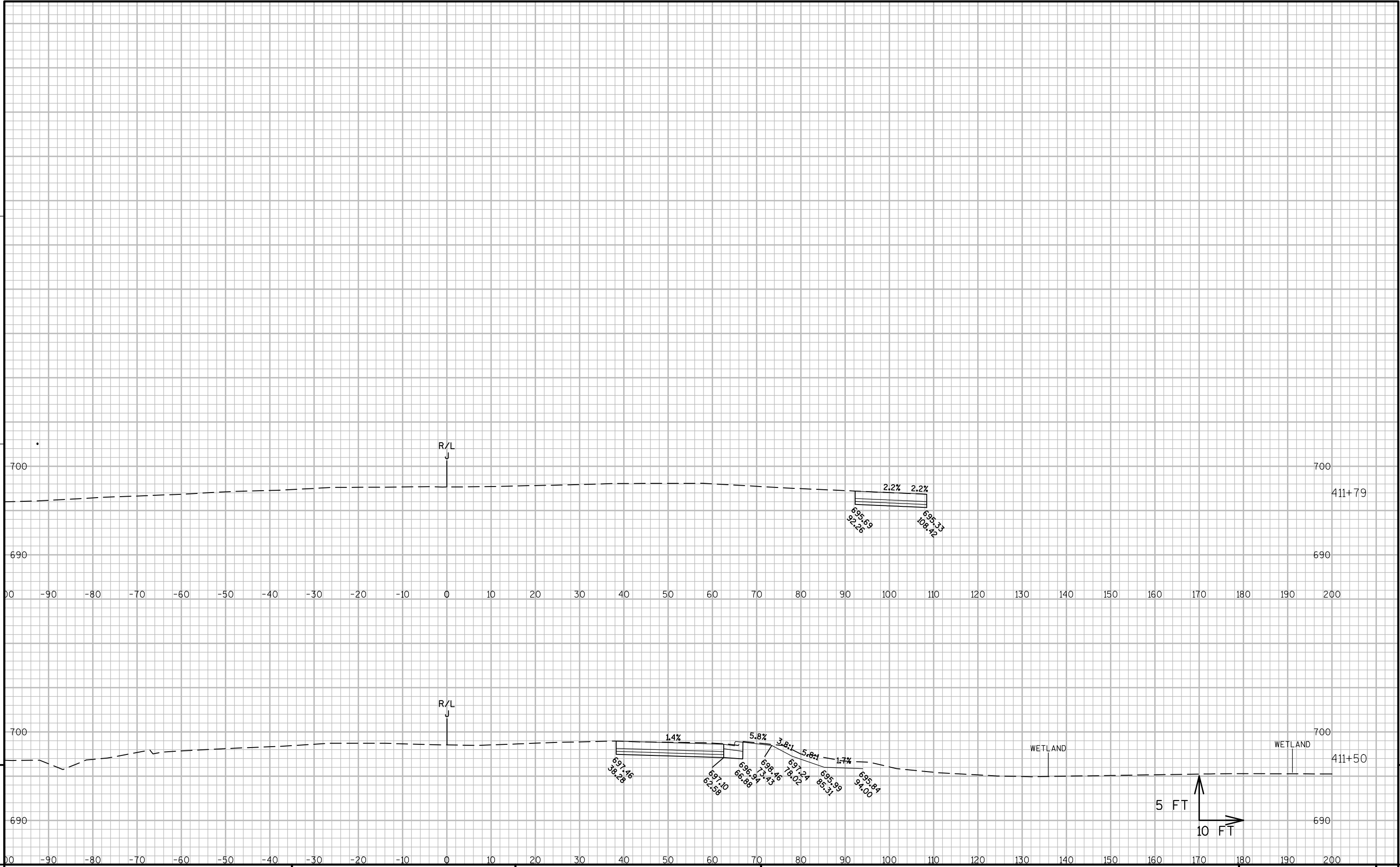


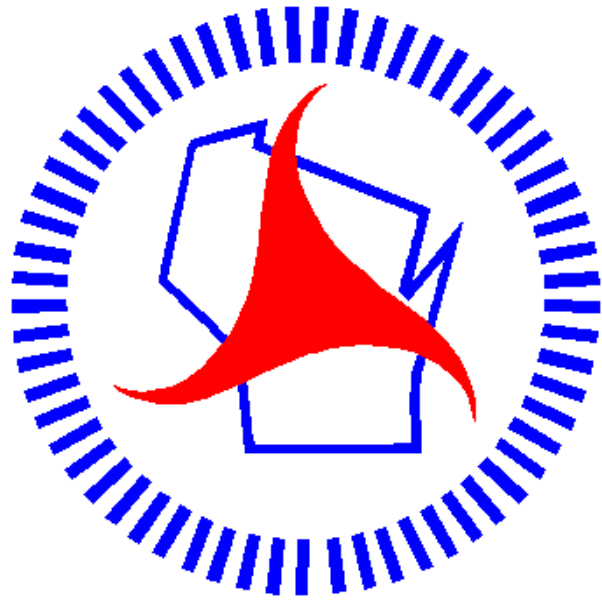
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