

WKE
PROJECT ID: 2126-00-70
WITH:

FEB 2016

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 Plot
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 = 208

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
W MCKINLEY AVENUE
8TH STREET TO 3RD STREET
LOCAL STREET
MILWAUKEE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2126-00-70		

STATE PROJECT NUMBER
2126-00-70

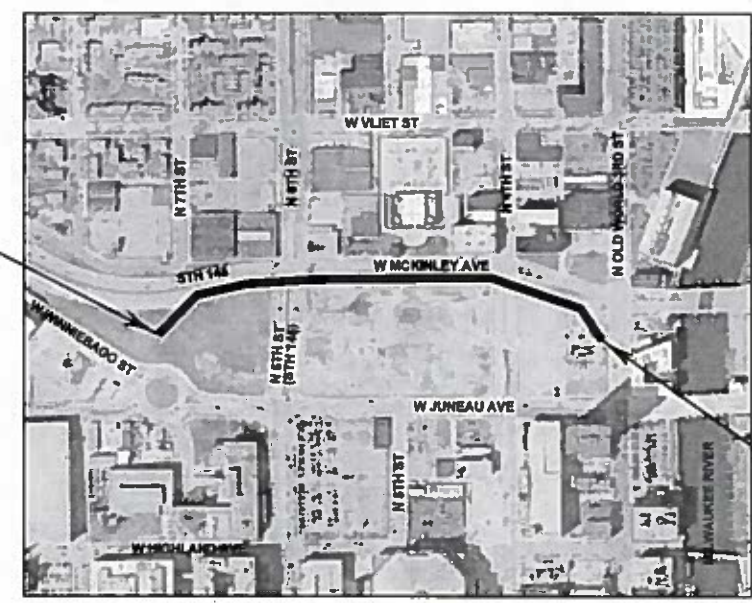
R-22-E



DESIGN DESIGNATION

A.A.D.T. 2015	= 34,700
A.A.D.T. 2035	= 27,700
D.H.V.	= 3,000
D.D.	= 50/50
T.	= 4%
DESIGN SPEED	= 35 MPH
ESALS	= N/A

BEGIN PROJECT 2126-00-70
STA 109+34.52
Y=2556025.29
X=388500.66



END PROJECT 2126-00-70
STA 125+50.68

CONVENTIONAL SYMBOLS

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

PROFILE

- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such)
- SPECIAL DITCH
- GRADE ELEVATION
- CULVERT (Profile View)
- UTILITIES
- ELECTRIC
- FIBER OPTIC
- GAS
- SANITARY SEWER
- STORM SEWER
- COMBINED SEWER
- TELEPHONE
- WATER
- UTILITY PLACED PER PLAN
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

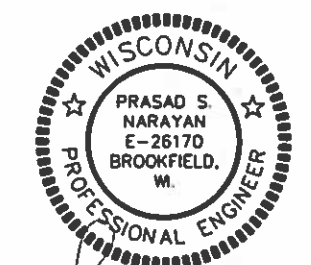
LAYOUT
SCALE 0 0.05 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.306 MI. (URBAN)

COORDINATES ON THIS PLAN ARE GROUND COORDINATES REFERENCED TO THE WISCONSIN STATE PLANE COORDINATE SYSTEM SOUTH ZONE (NAD 27) WITH A GRID TO GROUND SCALE FACTOR OF 0.99992542 AS PUBLISHED BY SEWRPC.

ELEVATIONS ON THIS PLAN ARE REFERENCED TO THE CITY OF MILWAUKEE DATUM, NGVD 29 MINUS 580.603'

ORIGINAL PLANS PREPARED BY
KAPUR & ASSOCIATES, INC.
CONSULTING ENGINEERS
MILWAUKEE, WISCONSIN
414.351.6668



1-5-2016 (Date)
Prasad Narayan (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	Kapur & Associates, Inc.
Designer	Kapur & Associates, Inc.
Project Manager	David Nguyen
Regional Examiner	James Morrissey
Regional Supervisor	David Nguyen

APPROVED FOR THE DEPARTMENT
DATE: 1/5/2016 (Signature)

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GENERAL NOTES

UTILITY INFORMATION SHOWN ON THE PLANS IS APPROXIMATE. LOCATIONS SHOWN ARE TAKEN FROM EXISTING RECORDS AND BEST INFORMATION AVAILABLE FROM EXISTING PLANS. IT IS EXPECTED THAT THERE MAY BE DISCREPANCIES AND OMISSIONS IN THE LOCATION OF UTILITIES AND STRUCTURES SHOWN. VERIFY ALL LOCATIONS IN THE FIELD.

ALL PRIVATE EXISTING UTILITIES NOT INCLUDED IN THE PLAN ARE TO BE ADJUSTED BY THE UTILITIES CONCERNED.

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 DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

COORDINATE WITH DIGGERS HOTLINE TO FIELD LOCATE UTILITIES. ANY UTILITIES DAMAGED DUE TO CONTRACTOR ACTIVITIES SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE UTILITY FACILITY.

ANY ABANDONED UTILITY OPENINGS SHALL BE SEALED WITH BRICK AND MORTAR OR CONCRETE. THIS WORK SHALL BEE INCIDENTAL TO THE CONTRACT.

DISTURBED AREAS WITHIN RIGHT-OF-WAY OR TLE SHALL BE RESTORED IN KIND BY DIRECTION OF THE ENGINEER WITH THE FOLLOWING FINISHING ITEMS: 4" TOPSOIL AND SOD LAWN, OR 6" BASE AGGREGATE DENSE ¾-INCH. TOPSOIL SHALL BE APPLIED WITHIN 7 DAYS AFTER GRADING WORK IS COMPLETED. SOD SHALL BE APPLIED WITHIN 7 DAYS AFTER PLACEMENT OF TOPSOIL.

CAREFULLY REMOVE AND SALVAGE COBBLESTONES IN THE PROJECT TERRACE AREA AS SHOWN ON THE PLAN. DELIVER SALVAGED COBBLESTONES TO THE CITY OF MILWAUKEE.

EROSION CONTROL DEVICES WILL BE PLACED IN SEQUENCE WITH CONSTRUCTION ACTIVITIES AS DETERMINED BY THE ENGINEER.

EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER.

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

REMOVAL OF EROSION CONTROL DEVICES IS INCIDENTAL TO THE COST OF THEIR RESPECTIVE BID ITEMS.

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

CURB AND GUTTER GRADES ARE GIVEN TO THE FLANGE LINE. CURB AND GUTTER RADIARE MEASURED TO THE FACE.

CURB AND GUTTER JOINTS SHALL BE ALIGNED WITH CONCRETE PAVEMENT JOINTS.

1/2-INCH FELT EXPANSION JOINT MATERIAL IS REQUIRED BETWEEN BACK OF CURB AND FRONT OF WALK OR DRIVEWAY APRON.

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

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

CITY OF MILWAUKEE FORCES WILL REMOVE TRAFFIC SIGNALS AT N 6TH STREET AND N 4TH STREET, LIGHT POLES AND TRAFFIC SIGNS MOUNTED ON LIGHT POLES PRIOR TO CONSTRUCTION.

CITY OF MILWAUKEE FORCES WILL INSTALL AND MAINTAIN TEMPORARY TRAFFIC SIGNALS AT N 6TH STREET AND N 4TH STREET AND TEMPORARY STREET LIGHTS PRIOR TO CONSTRUCTION.

LOCATION OF STRUCTURES IN CURB AND GUTTER REFER TO CURB AND GUTTER FLOW LINE. LOCATION OF STRUCTURES NOT IN CURB AND GUTTER SECTION REFER TO CENTER OF STRUCTURE OR AS NOTED ON PLAN.

RIM ELEVATIONS ARE GIVEN AT FLOW LINE OF INLET OR AT CENTER OF MANHOLE. SEE STRUCTURE LOCATION DETAIL.

USE MONOLITHIC CONCRETE SHIMMING AS SHOWN ON PLANS FOR FINAL ADJUSTMENT OF DRAINAGE STRUCTURES LOCATED WITHIN THE CONCRETE PAVEMENT, AND CONCRETE CURB AND GUTTER. IF THE ADJUSTMENT IS LESS THAN 4-INCHES, THE ENGINEER MAY CHOOSE TO DIRECT THE CONTRACTOR TO USE GRADE RINGS FOR ADJUSTMENTS FOR STORM SEWER STRUCTURES.

PLAN LENGTH REPRESENTS LENGTH OF PIPE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE AND IS USED FOR ESTIMATING. PIPE LENGTH REPRESENTS LENGTH OF PIPE MEASURED FROM INSIDE FACE OF STRUCTURE TO INSIDE FACE OF STRUCTURE AND IS USED TO COMPUTE PIPE SLOPE.

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

VERIFY THE EXISTING STORM SEWER SYSTEM CONNECTION LOCATIONS AND ELEVATIONS PRIOR TO ORDERING DRAINAGE STRUCTURES AND PIPES. NOTIFY THE ENGINEER OF ANY DEVIATIONS FROM THE INFORMATION SHOWN ON THE PLANS PRIOR TO INSTALLING THE PROPOSED STORM SEWER.

SEE REMOVAL PLANS FOR REMOVAL OF EXISTING STORM SEWER SYSTEM.

ALL DRAINAGE STRUCTURES, EXISTING OR PROPOSED, SUBJECT TO TRAFFIC LOADING SHALL HAVE NON-ROCKING COVERS AS DIRECTED BY THE ENGINEER IN THE FIELD. COST INCIDENTAL TO NEW COVER ON PROPOSED STRUCTURE.

PROVIDE TEMPORARY POSITIVE DRAINAGE THROUGHOUT THE PROJECT DURING ALL PROJECT STAGES. PROVIDING TEMPORARY POSITIVE DRAINAGE IS INCIDENTAL TO CONSTRUCTION.

SUPPORTING UTILITIES DURING STORM SEWER CONSTRUCTION IS INCIDENTAL TO STORM SEWER PIPE AND/OR STORM SEWER STRUCTURE. NO SEPARATE PAYMENTS WILL BE MADE.

TEMPORARY SHORING IS THE RESPONSIBILITY OF THE CONTRACTOR. THIS WORK SHALL BE INCIDENTAL TO THE CONTRACT.

CONSTRUCTION AND REMOVAL OF TEMPORARY BULKHEAD IS CONSIDERED INCIDENTAL TO COST OF STORM SEWER PIPE OR STORM SEWER STRUCTURE WHEN A PIPE OR STRUCTURE IS CONSTRUCTED OR REMOVED IN MULTIPLE STAGES.

UTILITY/AGENCY CONTACTS

AT&T WISCONSIN - COMMUNICATIONS LINE
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CITY OF MILWAUKEE - STREET LIGHTS
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CITY OF MILWAUKEE - SIGNALS
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BROOMFIELD, CO 80021

TIME WARNER CABLE - COMMUNICATION LINE
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WIS.ENGINEERING@TWCABLE.COM
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MILWAUKEE, WI 53212-4002

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MILWAUKEE, WI 53203

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WE ENERGIES - STEAM
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DESIGN INDEX

- TITLE
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- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- REMOVAL PLAN
- PLAN DETAILS
- PAVING GRADES
- JOINT DETAILS
- EROSION CONTROL
- STORM SEWER
- PIPE UNDERDRAIN PLAN
- WATERMAIN PLAN
- SIGNING
- LIGHTING PLAN
- TRAFFIC SIGNAL BASE AND CONDUIT PLAN
- PAVEMENT MARKING
- STAGE CONSTRUCTION
- TRAFFIC CONTROL
- DETOUR PLAN
- ALIGNMENT PLAN



STANDARD ABBREVIATIONS

<	ANGLE	NC	NORMAL CROWN OR NO CHANGE
ADT	AVERAGE DAILY TRAFFIC	NO	NUMBER
AC	ACRE	NW OR N/W	NORMAL WATER
AE, AEW	APRON ENDWALL	OBLIT	OBLITERATE
AGG	AGGREGATE	OD	OUTSIDE DIAMETER
AH	AHEAD	PAVT	PAVEMENT
ASPH	ASPHALTIC	PC	POINT OF CURVATURE
BC	BACK OF CURB	PCC	POINT OF COMPOUND CURVE
BF	BACK FACE	PE	PRIVATE ENTRANCE
BIT	EXISTING BITUMINOUS	PGL	PROFILE GRADE LINE
BM	BENCH MARK	PI	POINT OF INTERSECTION
BEG	BEGIN	PL	PROPERTY LINE
BK	BACK	PLE	PERMANENT LIMITED EASEMENT
C & G	CURB AND GUTTER	PRC	POINT OF REVERSE CURVE
CABC	CRUSHED AGGREGATE BASE COURSE	PROJ	PROJECT
CB	CATCH BASIN	PSI	POUNDS PER SQUARE INCH
CMCP	CORRUGATED METAL CULVERT PIPE	PT	POINT OF TANGENCY
CMP	CORRUGATED METAL PIPE	PVC	POLYVINYL CHLORIDE
CP	CULVERT PIPE	PT	POINT OF TANGENCY
CY	CUBIC YARD	PAV'T	PAVEMENT
CL OR C/L	CENTER LINE	PCC	PORTLAND CEMENT CONCRETE
CO	COUNTY	R	RADIUS OR RANGE
CONC	CONCRETE	RC	REVERSE CURVE
CONST	CONSTRUCTION	RCCP	REINFORCED CONCRETE CULVERT PIPE
CR	CREEK	RCHECP	REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CULVERT PIPE
CSO	COMBINED SEWER OVERFLOW	RCPSS	REINFORCED CONCRETE PIPE STORM SEWER
CTH	COUNTY TRUNK HIGHWAY	RHF	RIGHT HAND FORWARD
CWT	HUNDRED WEIGHT	R/L	REFERENCE LINE
D	DEGREE OF CURVE	R/W	RIGHT OF WAY
Δ	DELTA	RD	ROAD
DHV	DESIGN HOUR VOLUME	RDWY	ROADWAY
DIA	DIAMETER	REL	RELOCATE
DISCH	DISCHARGE	REM	REMAINING
E	EAST	REOD	REQUIRED
EA	EACH	RO	RUN OFF LENGTH
EB	EASTBOUND	RT	RIGHT
EBS	EXCAVATION BELOW SUBGRADE	RW	RETAINING WALL
EL, ELEV	ELEVATION	S	SOUTH
ELEC	ELECTRIC(AL), ELEC CABLE	SALV	SALVAGED
EMB	EMBANKMENT	SAN/SA	SANITARY
ESALS	EQUIVALENT SINGLE AXEL LOADS	SB	SOUTHBOUND
ESMT	EASEMENT	SDD	STANDARD DETAIL DRAWINGS
EW	ENDWALL	SE	SUPERELEVATION
EXC	EXCAVATION	SEC	SECTION
EXIST	EXISTING BITUMINOUS	SF	SQUARE FOOT (FEET)
EXP	EXPANSION	S/L	SURVEY LINE
FC	FACE OF CURB	SHLDR	SHOULDER(S)
FE	FIELD ENTRANCE	SHR	SHRINKAGE
FF	FACE TO FACE	SPECS	SPECIFICATIONS
F/L, FL	FLOW LINE	SS	STORM SEWER
FERT	FERTILIZER	STA	STATION
FWHA	FEDERAL HIGHWAY	STH	STATE TRUNK HIGHWAY
FT	FOOT (FEET)	STR	STRUCTURE
G	GAS	SW	SIDEWALK
GN	GRID NORTH	SY	SQUARE YARD
H	HOUSE	TAN	TANGENT
HMA	HOT MIX ASPHALT	TEL	TELEPHONE
HP	HIGH POINT	T	(TRUCKS) PERCENT OF
HR	HANDICAP RAMP	TC	TOP OF CURB
HYD	HYDRANT	TAN	TANGENT
I	INTERSECTION ANGLE	TEMP	TEMPORARY
ID	INSIDE DIAMETER	TL OR T/L	TRANSIT LINE
INL	INLET	TLE	TEMPORARY LIMITED EASEMENT
INTER	INTERSECTION	TYP	TYPICAL
INV	INVERT	UG	UNDERGROUND (CABLE)
IP	IRON PIPE	UNCL	UNCLASSIFIED
JT	JOINT	VAR	VARIABLE
K	RATE OF VERTICAL CURVATURE	VCL	VERTICAL CURVE LENGTH
L	LENGTH OF CURVE	VPC	VERTICAL POINT OF CURVATURE
LB	POUND	VPCC	VERTICAL POINT OF COMPOUND CURVE
LC	LONG CHORD OF CURVE	VPI	VERTICAL POINT OF INTERSECTION
LP	LOW POINT	VPRC	VERTICAL POINT OF REVERSE CURVE
LF	LINEAR FOOT(FEET)	VPT	VERTICAL POINT OF TANGENCY
LHF	LEFT HAND FORWARD	VLV	VALVE
LC	LONG CHORD	VOL	VOLUME
LS	LUMP SUM	W	WEST
LT	LEFT	WB	WESTBOUND
M	MARSH	WV	WATER VALVE
MATL	MATERIAL	X	EASTING OR EAST GRID COORDINATE
MP	MARKER POST	Y	NORTHING OR NORTH GRID COORDINATE
MAX	MAXIMUM	YD	YARD
MGAL	1,000 GALLONS		
MH	MANHOLE		
MIN	MINIMUM		
ML OR M/L	MATCH LINE		
N	NORTH		
NB	NORTHBOUND		



PROJECT NO: 2126-00-70

HWY: W MCKINLEY AVE

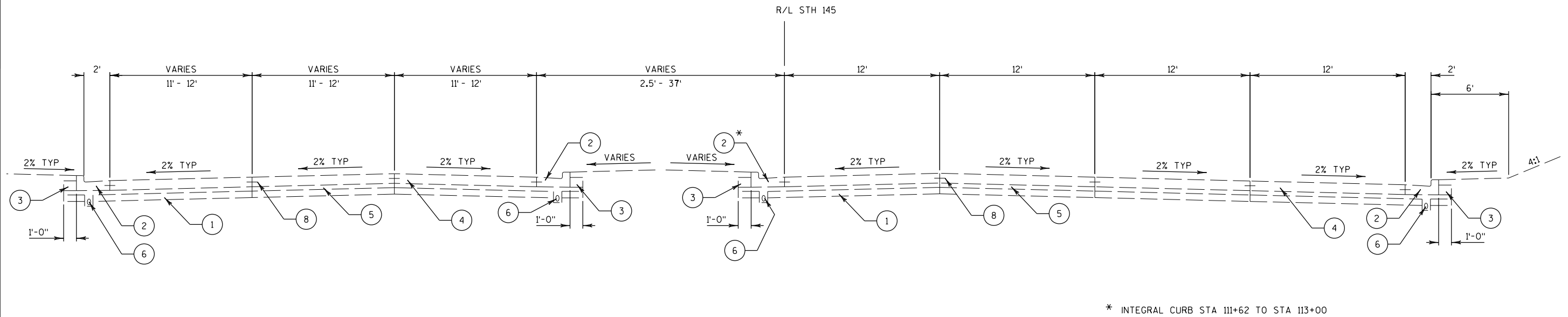
COUNTY: MILWAUKEE

PROJECT OVERVIEW

SHEET

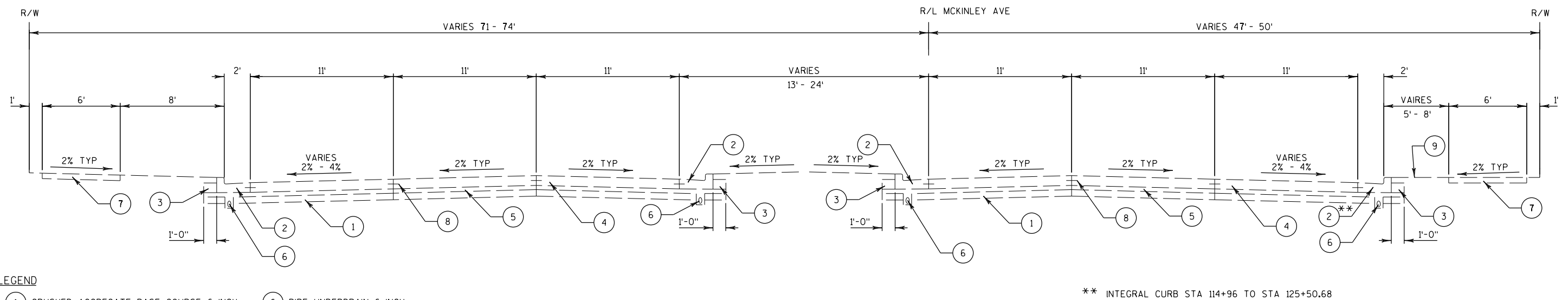
4

E



EXISTING TYPICAL SECTION

STH 145
STA 109+34.52 TO STA 114+00

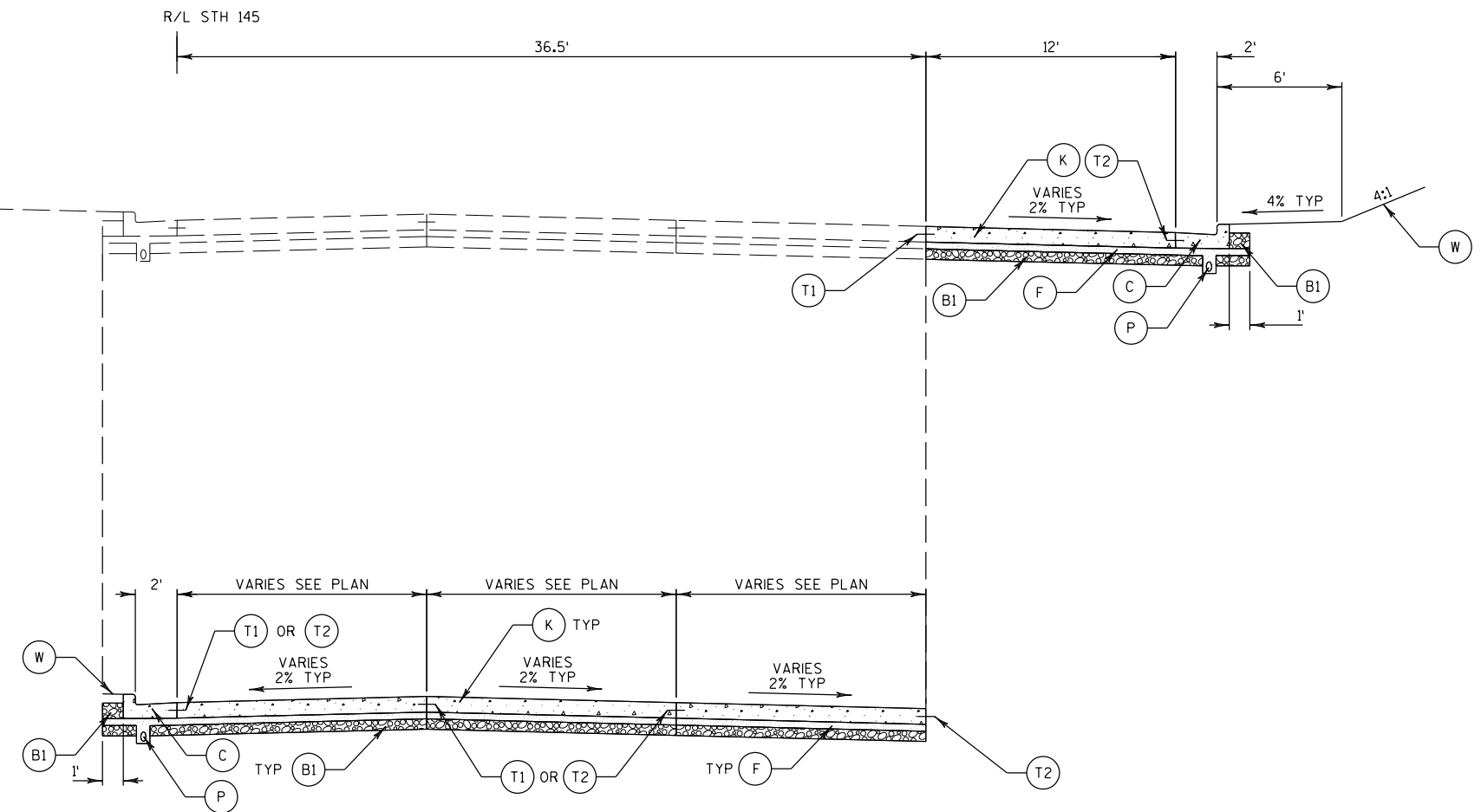


EXISTING TYPICAL SECTION

W MCKINLEY AVE
STA 114+00 TO STA 125+50.68

LEGEND

- | | |
|---|----------------------------|
| 1 CRUSHED AGGREGATE BASE COURSE, 6-INCH | 6 PIPE UNDERDRAIN 6-INCH |
| 2 CONCRETE CURB AND GUTTER, 31-INCH | 7 CONCRETE SIDEWALK 5-INCH |
| 3 GRANULAR BACKFILL | 8 TIE BAR |
| 4 CONCRETE PAVEMENT, 9-INCH | 9 COBBLESTONES |
| 5 OPEN GRADED BASE COURSE NO. 2, 4-INCH | |



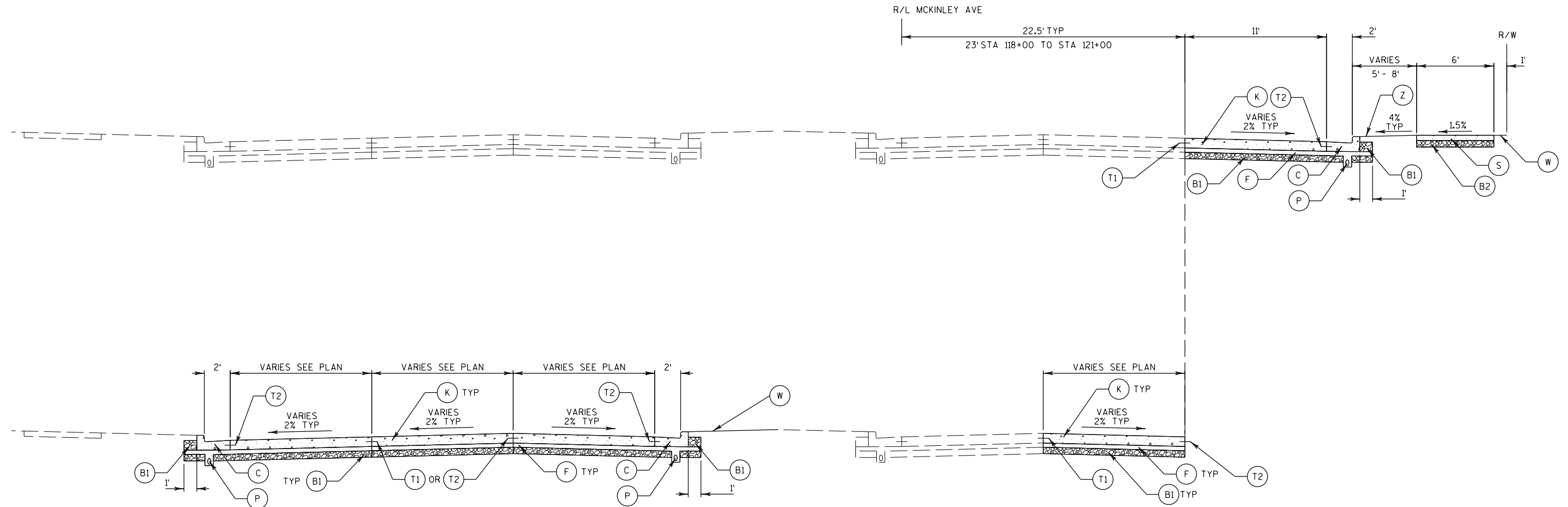
ADDITIONAL PAVEMENT REPLACEMENT AREAS - SEE PLANS FOR LOCATIONS

FINISHED TYPICAL SECTION

STH 145
STA 109+34.52 TO STA 114+00

LEGEND

- | | |
|--|--|
| (B1) 6" BASE AGGREGATE DENSE 1 1/4-INCH | (P) PIPE UNDERDRAIN 6-INCH |
| (B2) 4" BASE AGGREGATE DENSE 1 1/4-INCH | (S) CONCRETE SIDEWALK 5-INCH |
| (C) CONCRETE CURB AND GUTTER, 31-INCH | (T1) DRILLED TIE BAR |
| (K) CONCRETE PAVEMENT, 9-INCH
(DOWELED, TINED AND JOINT SEALED) | (T2) TIE BAR |
| (F) 4" BASE AGGREGATE OPEN GRADED | (W) RESTORE IN KIND
(SEE GENERAL NOTES) |
| | (Z) 4-INCH TOPSOIL & SOD LAWN |



ADDITIONAL PAVEMENT REPLACEMENT AREAS - SEE PLANS FOR LOCATIONS

FINISHED TYPICAL SECTION

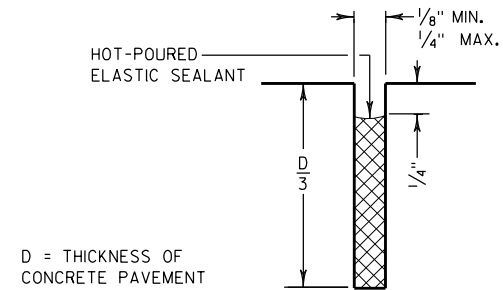
W MCKINLEY AVE
STA 114+00 TO STA 125+50.68

LEGEND

- | | |
|--|--|
| (B1) 6" BASE AGGREGATE DENSE 1 1/4-INCH | (P) PIPE UNDERDRAIN 6-INCH |
| (B2) 4" BASE AGGREGATE DENSE 1 1/4-INCH | (S) CONCRETE SIDEWALK 5-INCH |
| (C) CONCRETE CURB AND GUTTER, 31-INCH | (T1) DRILLED TIE BAR |
| (K) CONCRETE PAVEMENT, 9-INCH
(DOWELED, TINED AND JOINT SEALED) | (T2) TIE BAR |
| (F) 4" BASE AGGREGATE OPEN GRADED | (W) RESTORE IN KIND
(SEE GENERAL NOTES) |
| | (Z) 4-INCH TOPSOIL & SOD LAWN |

NOTES

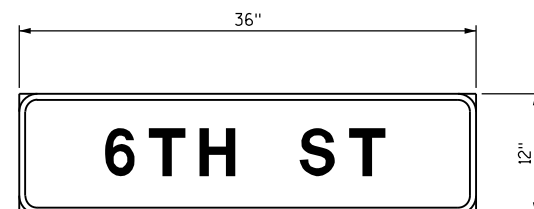
- 1) THIS DETAIL IS APPLICABLE TO NEW CONCRETE PAVEMENT.
- 2) POLYETHYLENE PLASTIC PARTING STRIPS ARE NOT ALLOWED AS AN ALTERNATIVE JOINT TYPE.
- 3) THIS WORK IS PAID AS "CONCRETE JOINT SEALER".



JOINT AND JOINT SEALANT FOR CONCRETE PAVEMENT DETAIL

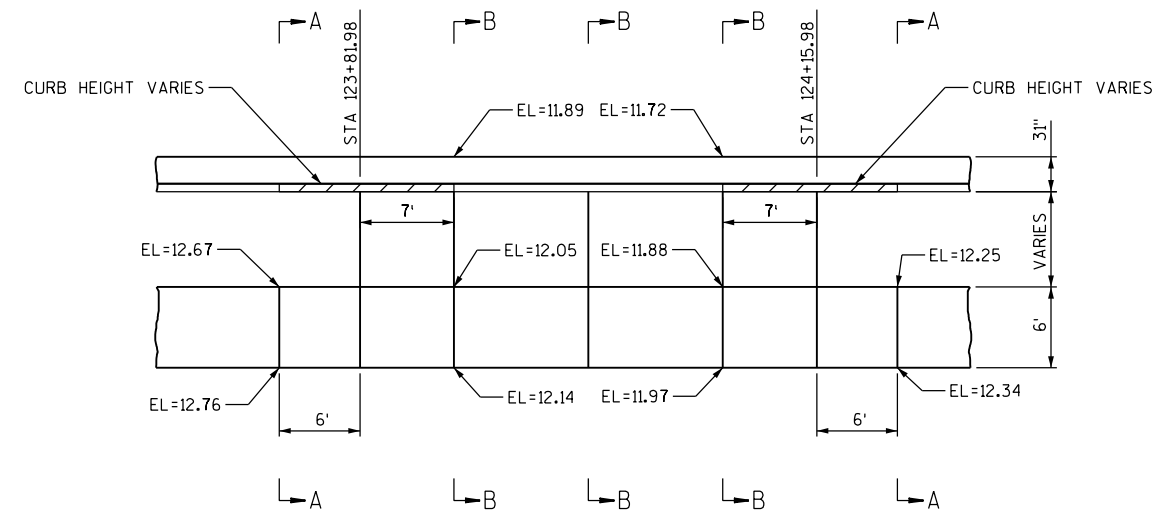
NOTES

- 1) SEE TRAFFIC CONTROL STAGE 1C FOR FIXED MESSAGE SIGN LOCATIONS.
- 2) SIGNS SHALL HAVE BLACK NON-REFLECTIVE MESSAGE ON ORANGE FLUORESCENT REFLECTIVE BACKGROUND.
SHEETING AND BASE MATERIAL PER SPEC 637 & 643.
REFERENCE: "WISDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION," LATEST EDITION.
- 3) SIGNS SHALL HAVE 6" CAPITAL LETTERS, SERIES "C".
- 4) SIGNS SHALL HAVE A 1" BLACK BORDER WITH 3" CORNER RADIUS.
- 5) CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEER FOR REVIEW PRIOR TO MANUFACTURING.

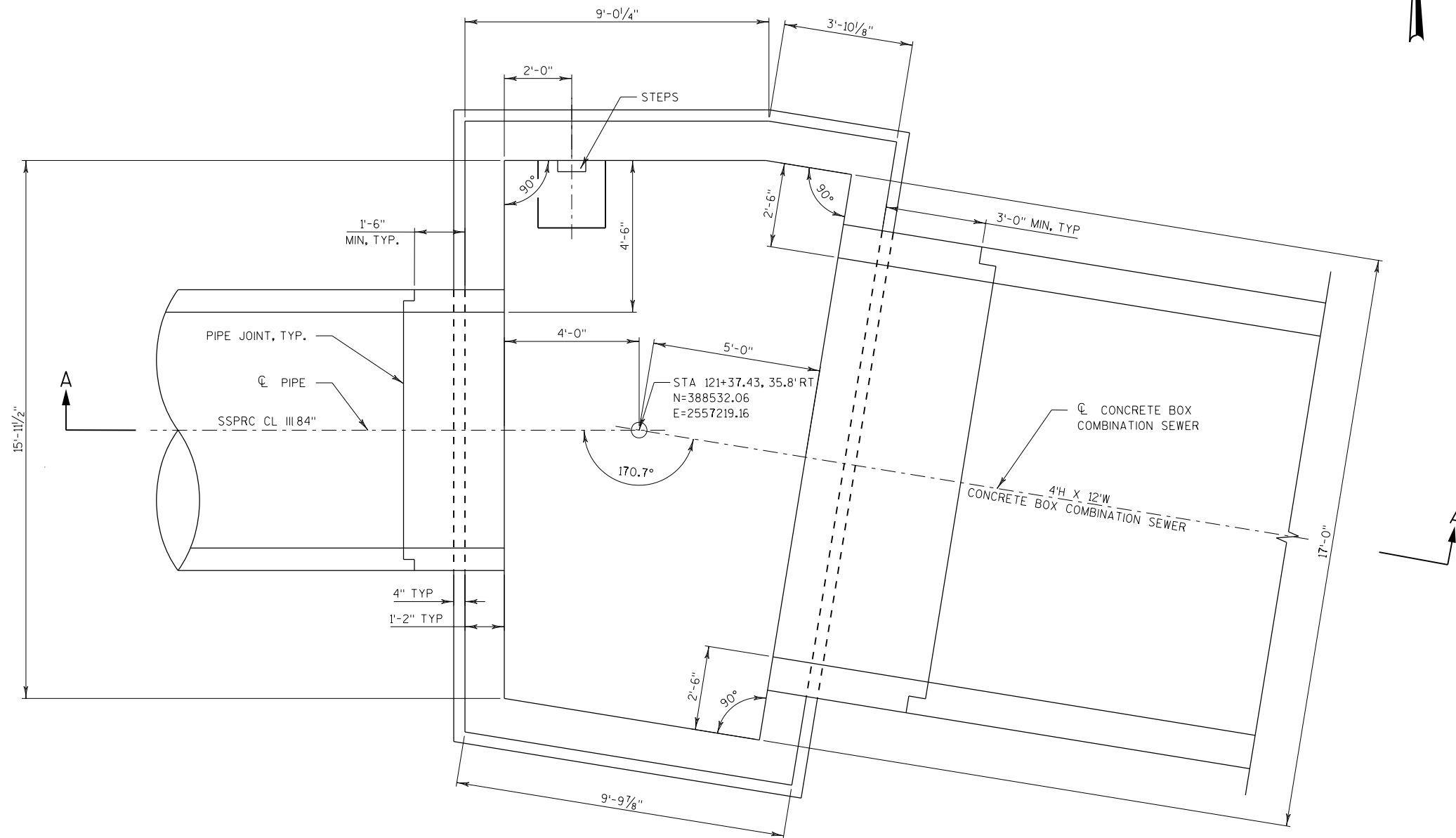


TRAFFIC CONTROL SIGNS FIXED MESSAGE

2 |



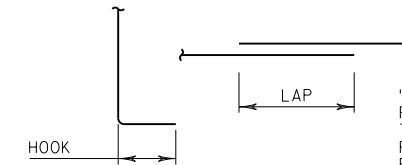
DEPRESSED SIDEWALK DETAIL
STA 123+75.97, RT TO STA 124+21.97, RT

**GEOMETRIC/SECTIONAL PLAN - STRUCTURE M4**W MCKINLEY AVE
NOT TO SCALE**GENERAL NOTES**

1. THE NORTH ARROW DIRECTION IS TYPICAL ON THIS SHEET.
2. THE CENTER OF THE SEWER IS NOT NECESSARILY THE CENTER OF THE TOP OPENING IN THE STRUCTURE. ADJUST THE LAYOUT AS DIRECTED BY THE ENGINEER TO ENSURE PROPER LOCATION OF THE FRAME ON THE STRUCTURE.
3. DESIGN LOADS
EARTH:
SOIL WEIGHT: 120 PCF
HYDROSTATIC PRESSURE: 62.4 PCF
AT-REST LATERAL EARTH PRESSURE: 90 PCF

LIVE:
HL-93 AXLE LOAD: 32,000 LBS
4. 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.
5. 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.
6. 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 HORIZONTAL LOAD OF 400 LBS.
7. SEE STORM SEWER MISCELLANEOUS QUANTITIES FOR CASTING TYPE, RIM OR FLOW ELEVATION, AND PIPE ELEVATION.
8. DESIGN STRENGTHS
CONCRETE GRADE A, A-FA, A-S, A-T,
A-IS, OR A-IP
REINFORCEMENT ASTM A615 GRADE 60
9. MINIMUM CLEARANCE FOR REINFORCING BARS SHALL BE 3" FOR CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH OR ROCK; 2" FOR CONCRETE EXPOSED TO EARTH, ROCK, WEATHER OR WATER AND REINFORCED WITH #6 BARS OR LARGER; 1 1/2" FOR CONCRETE EXPOSED TO EARTH, ROCK, WEATHER OR WATER AND REINFORCED WITH #5 BARS OR SMALLER; 1 1/2" FOR REINFORCING BARS IN THE BOTTOM OF ELEVATED SLABS.
10. ROUGHEN CONSTRUCTION JOINTS BETWEEN CAST-IN-PLACE CONCRETE SURFACES TO 1/4" MINIMUM AMPLITUDE.
11. USE CONCRETE BONDING AGENT AT ALL NEW PIPE PENETRATIONS.
12. MINIMUM BAR HOOK AND LAP LENGTHS SHALL BE AS SHOWN IN THE TABLE ON FOLLOWING SHEET.
13. PRECAST CONCRETE MANHOLE RISERS SHALL COMPLY WITH THE PERTINENT REQUIREMENTS OF AASHTO M 199.
14. PRECAST CONCRETE MANHOLE RISERS MAY BE PLACED WITH THE TONGUE UP OR DOWN.
15. DAMPPROOF THE EXTERIOR OF ALL WALLS, TOP SLABS AND MANHOLE RISERS.

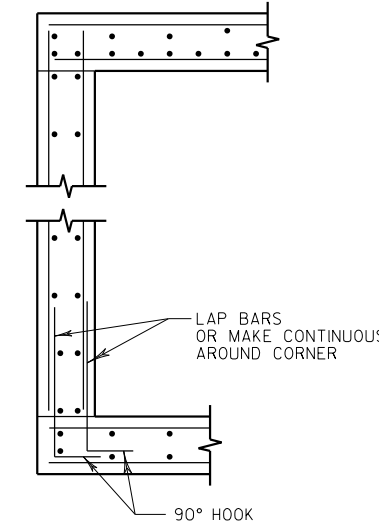
MINIMUM BAR BEND AND LAP LENGTHS



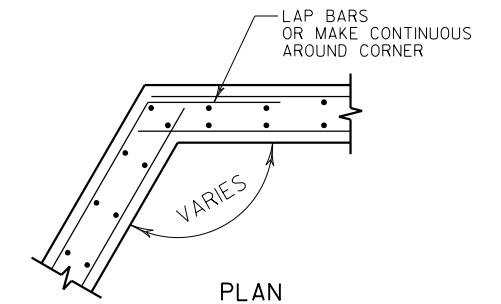
BAR SIZE	HOOK LENGTH	LAP LENGTH	
		TOP BARS	OTHER BARS
#4	8"	1'-9"	1'-4"
#5	10"	2'-2"	1'-8"
#6	12"	2'-7"	2'-0"
#7	14"	3'-9"	2'-11"

"TOP BARS" ARE HORIZONTAL REINFORCEMENT PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST BELOW THE SPLICE. FOR OTHER SITUATIONS, USE THE "OTHER BARS" LENGTH.

BAR BENDS SHALL CONFORM TO THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES," AMERICAN CONCRETE INSTITUTE COMMITTEE 315.

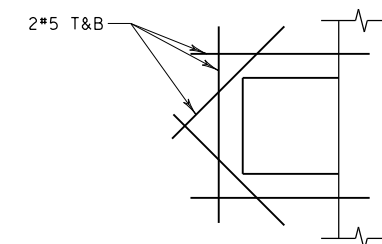


ELEVATION

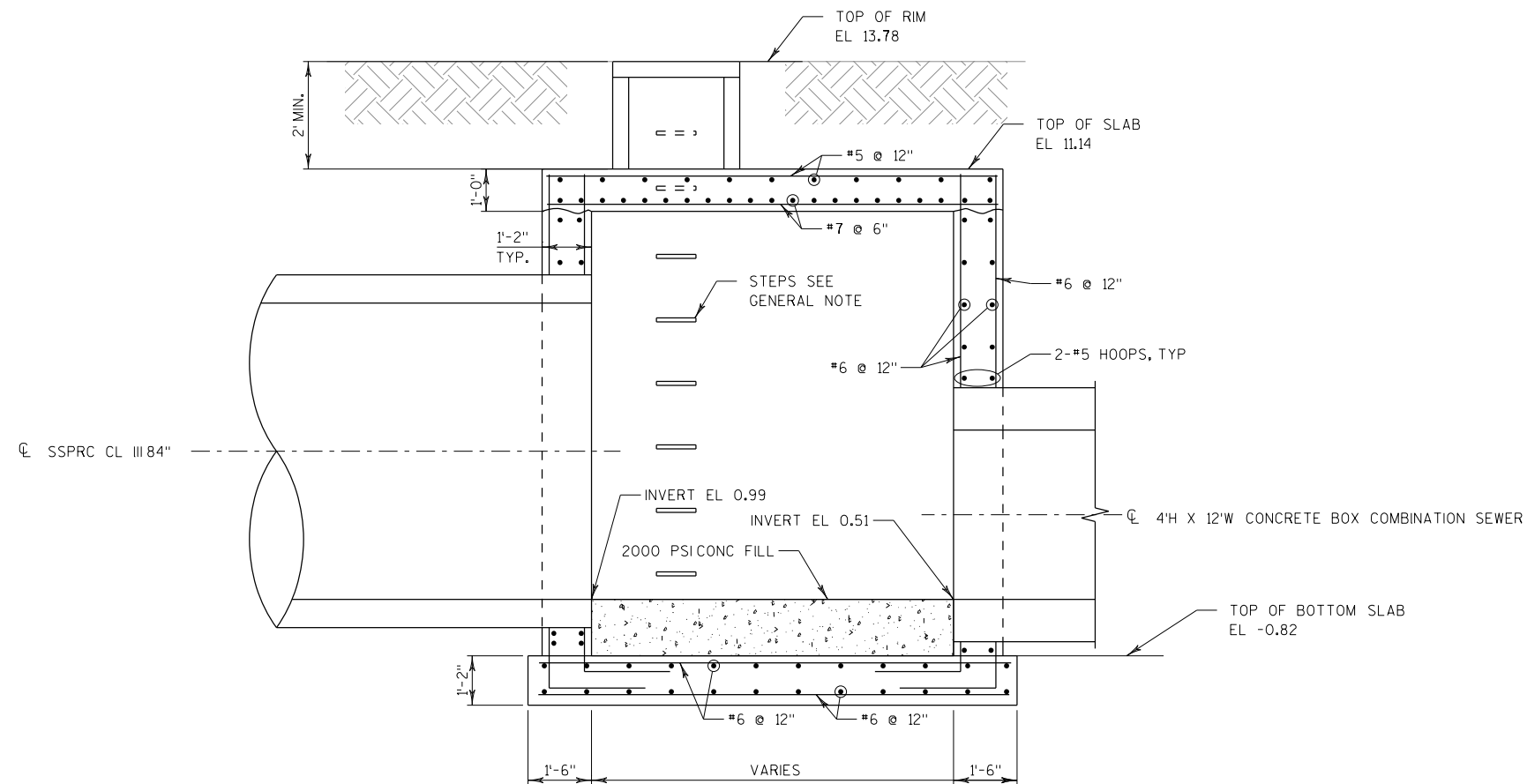


PLAN

TYPICAL CORNER REINFORCEMENT

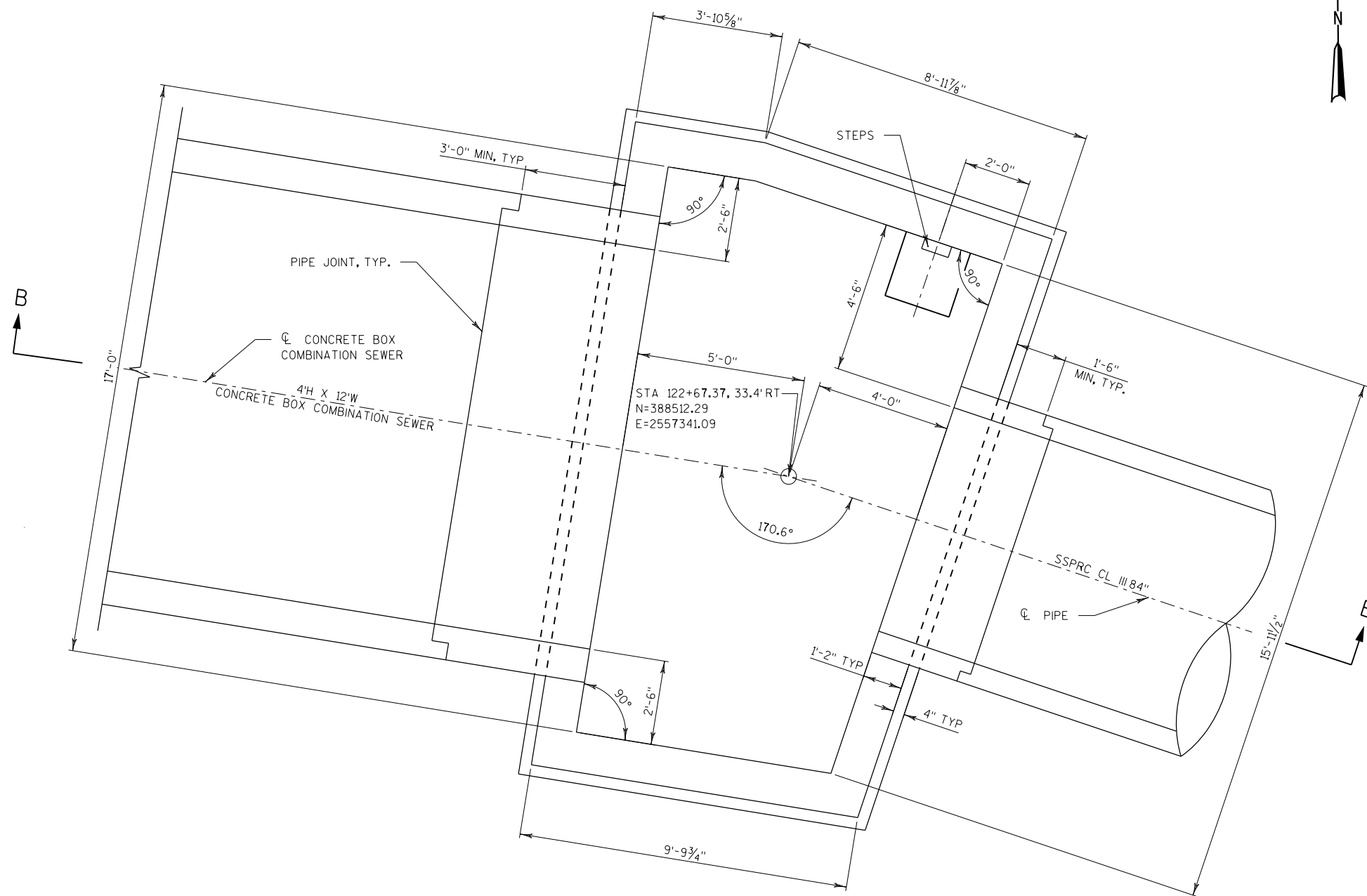


REINFORCEMENT AROUND CEILING OPENING



SECTION A-A STRUCTURE M4

NOT TO SCALE



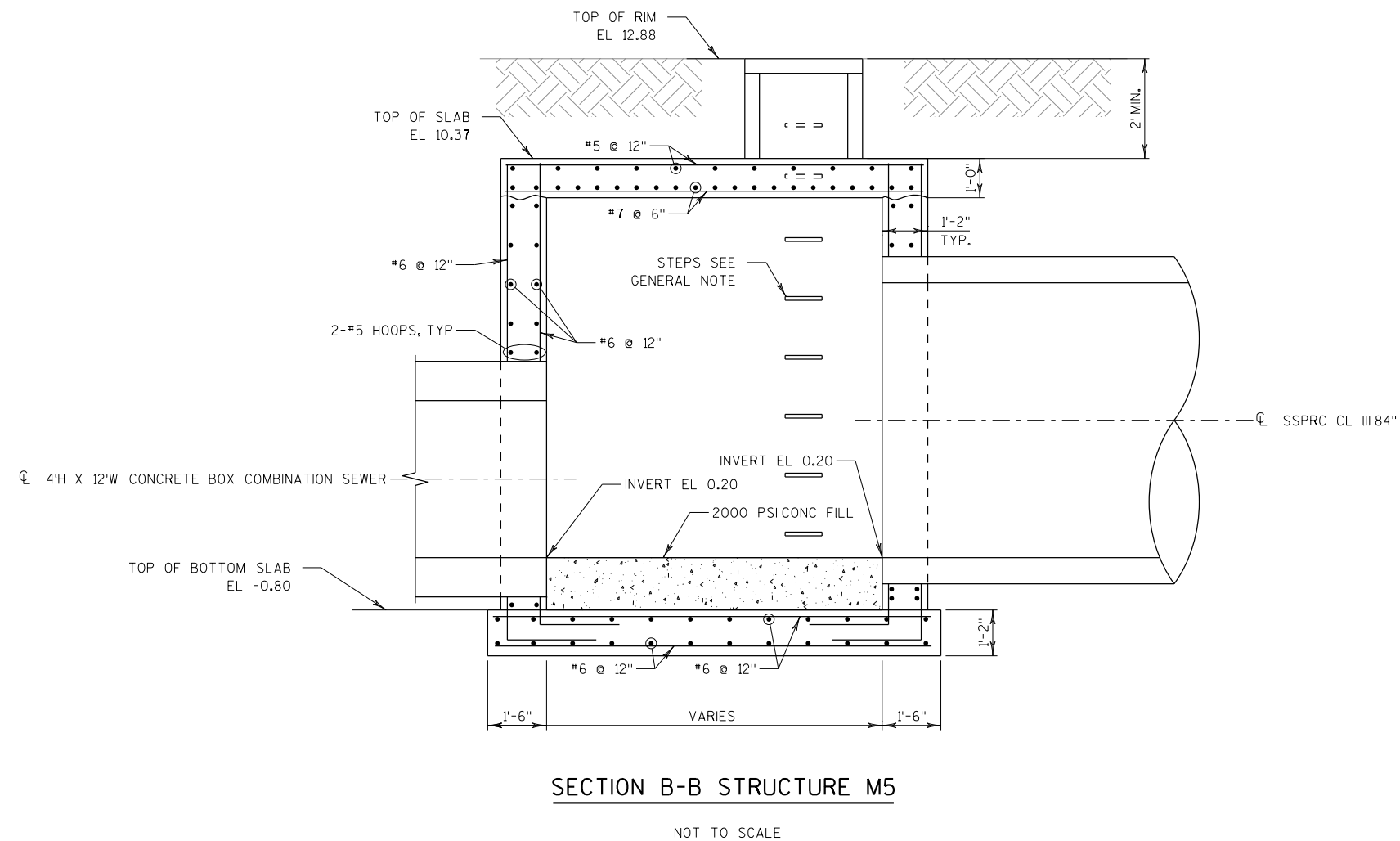
GEOMETRIC/SECTIONAL PLAN - STRUCTURE M5

W MCKINLEY AVE
NOT TO SCALE

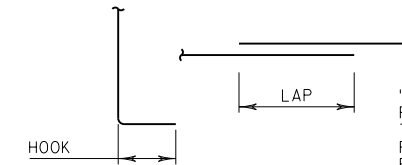
GENERAL NOTES

1. THE NORTH ARROW DIRECTION IS TYPICAL ON THIS SHEET.
2. THE CENTER OF THE SEWER IS NOT NECESSARILY THE CENTER OF THE TOP OPENING IN THE STRUCTURE. ADJUST THE LAYOUT AS DIRECTED BY THE ENGINEER TO ENSURE PROPER LOCATION OF THE FRAME ON THE STRUCTURE.
3. DESIGN LOADS
EARTH:
SOIL WEIGHT: 120 PCF
HYDROSTATIC PRESSURE: 62.4 PCF
AT-REST LATERAL EARTH PRESSURE: 90 PCF

LIVE:
HL-93 AXLE LOAD: 32,000 LBS
4. 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.
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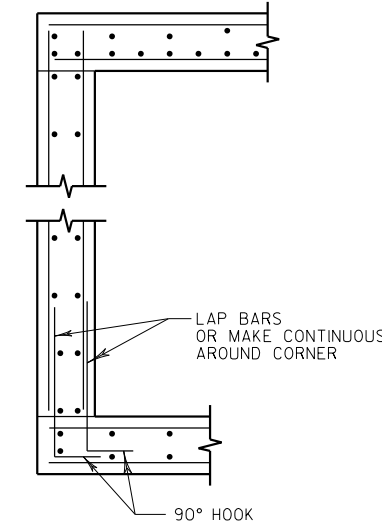
MINIMUM BAR BEND AND LAP LENGTHS



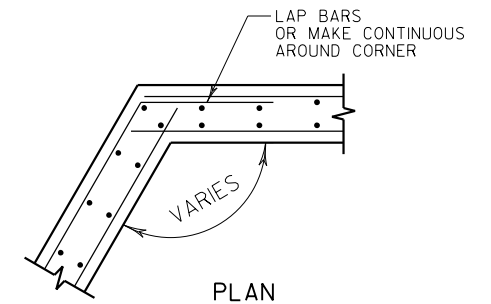
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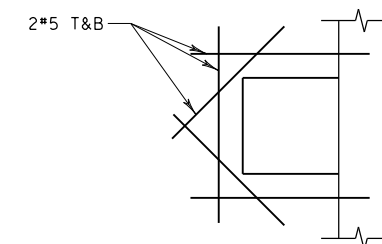


ELEVATION



PLAN

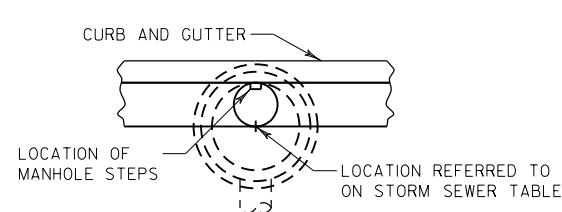
TYPICAL CORNER REINFORCEMENT



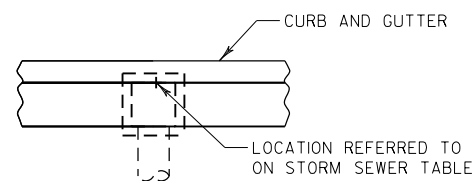
REINFORCEMENT AROUND CEILING OPENING

NOTE

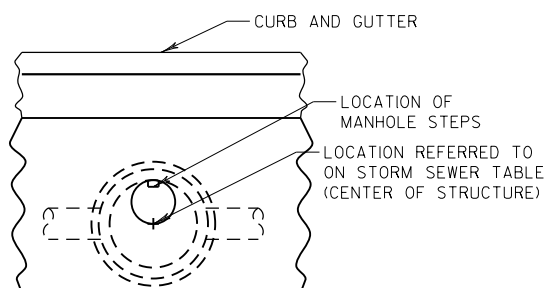
- 1) LOCATION OF STRUCTURE MAY BE ADJUSTED TO FIT FIELD CONDITIONS.
 2) LOCATION OF STRUCTURE OPENING DEPENDS ON TYPE OF CASTING. CASTING TYPES ARE SHOWN ON THE STORM SEWER TABLE.



MANHOLE IN CURB AND GUTTER



INLET IN CURB AND GUTTER



MANHOLE NOT IN CURB AND GUTTER

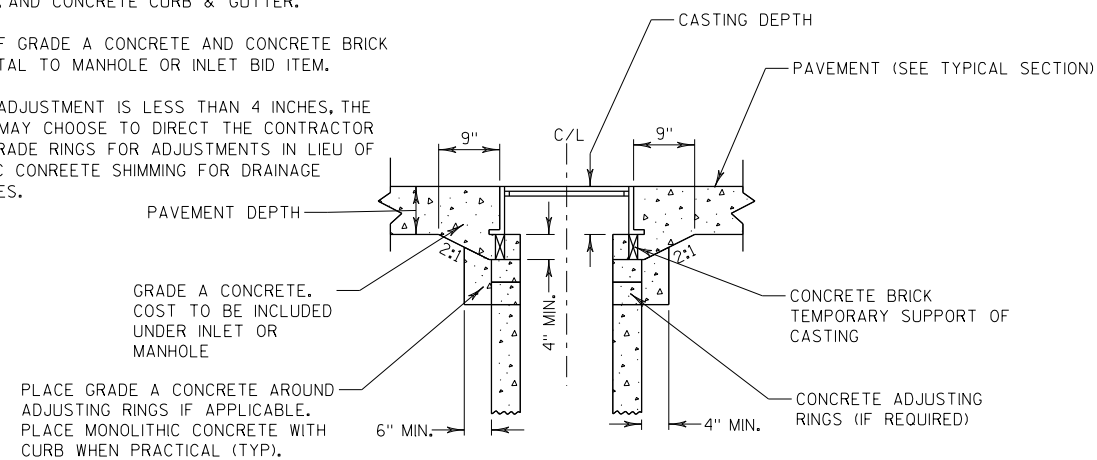
STRUCTURE LOCATION DETAIL

NOTE

1) MONOLITHIC CONCRETE SHIMMING TO BE PROVIDED FOR ALL PROPOSED COVERS LOCATED IN CONCRETE PAVEMENT, AND CONCRETE CURB & GUTTER.

2) COST OF GRADE A CONCRETE AND CONCRETE BRICK IS INCIDENTAL TO MANHOLE OR INLET BID ITEM.

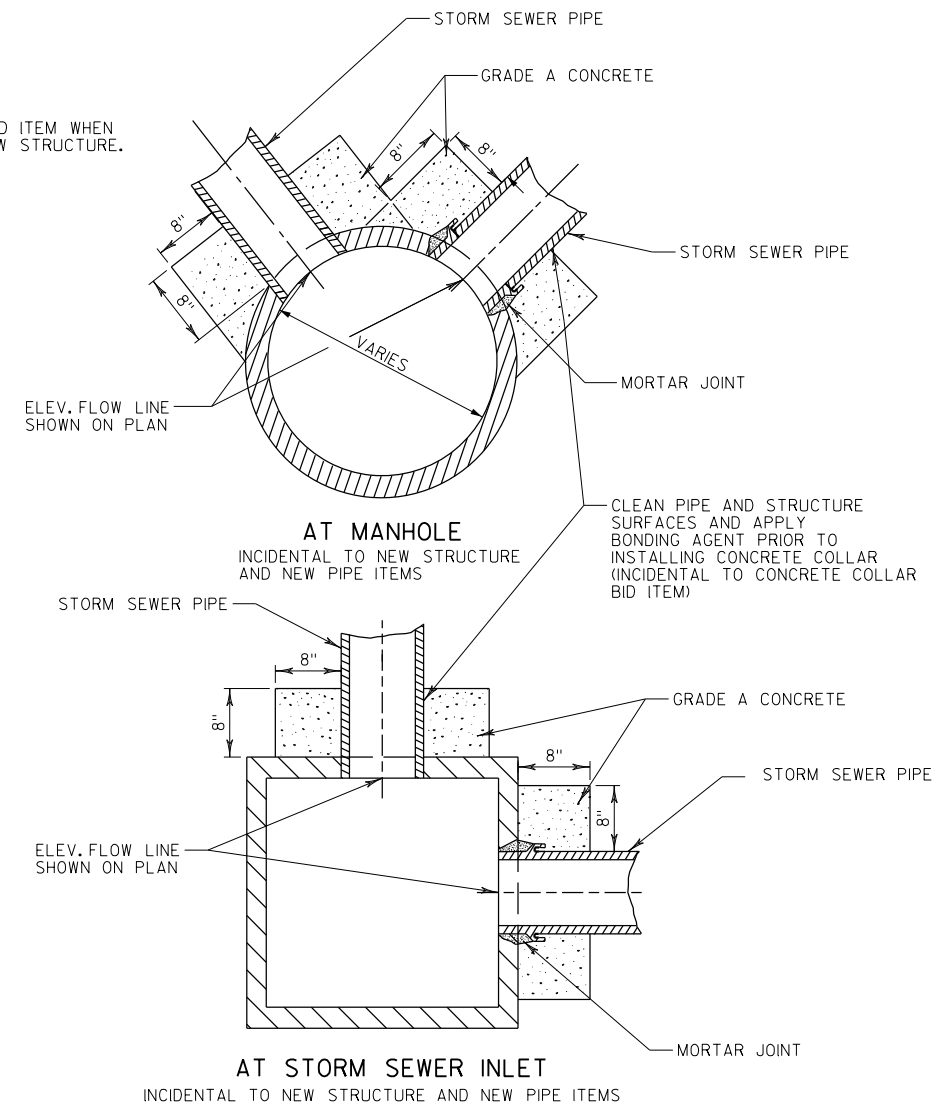
3) IF THE ADJUSTMENT IS LESS THAN 4 INCHES, THE ENGINEER MAY CHOOSE TO DIRECT THE CONTRACTOR TO USE GRADE RINGS FOR ADJUSTMENTS IN LIEU OF MONOLITHIC CONCRETE SHIMMING FOR DRAINAGE STRUCTURES.



MONOLITHIC CONCRETE SHIMMING DETAIL

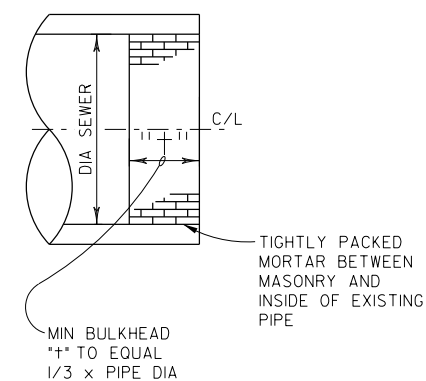
NOTE

CONCRETE COLLAR TO BE PAID AS A BID ITEM WHEN CONNECTING AN EXISTING PIPE TO A NEW STRUCTURE.



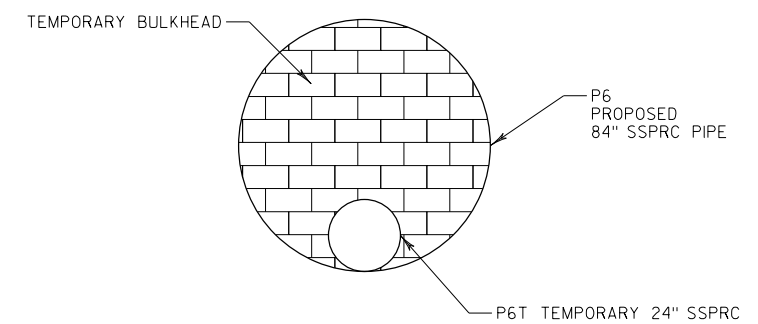
CONCRETE COLLAR DETAIL

FOR LOCATIONS SEE MISCELLANEOUS QUANTITIES SHEETS



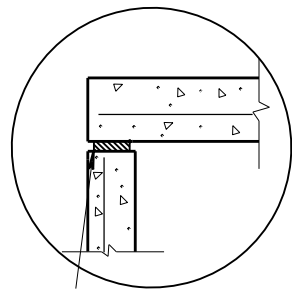
BULKHEAD PIPE MASONRY

ITEM TO BE PAID FOR UNDER ITEM "SEALING PIPES"

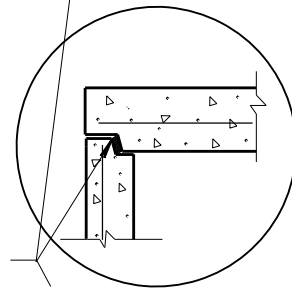


TEMPORARY CONNECTION BETWEEN EXISTING AND PROPOSED 84" SSPPC AT MCKINLEY STA 125+45, 111.0' RT

P6T TO EXISTING 84" SSPPC
(COST INCIDENTAL TO CONSTRUCTION)

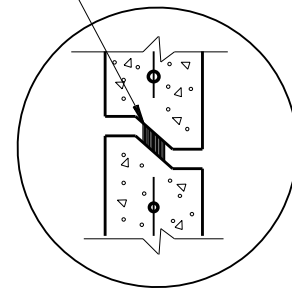


TOP WITH PLAIN END JOINT

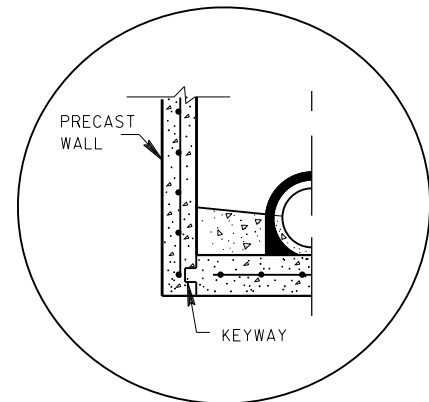
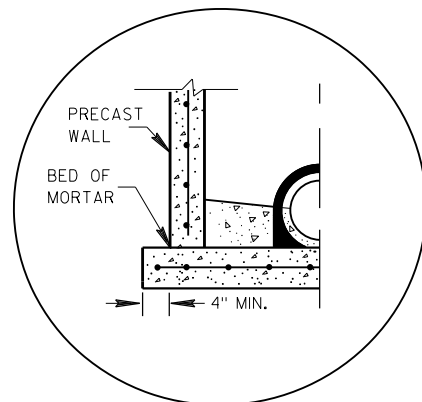


TOP WITH TONGUE AND GROOVE JOINT

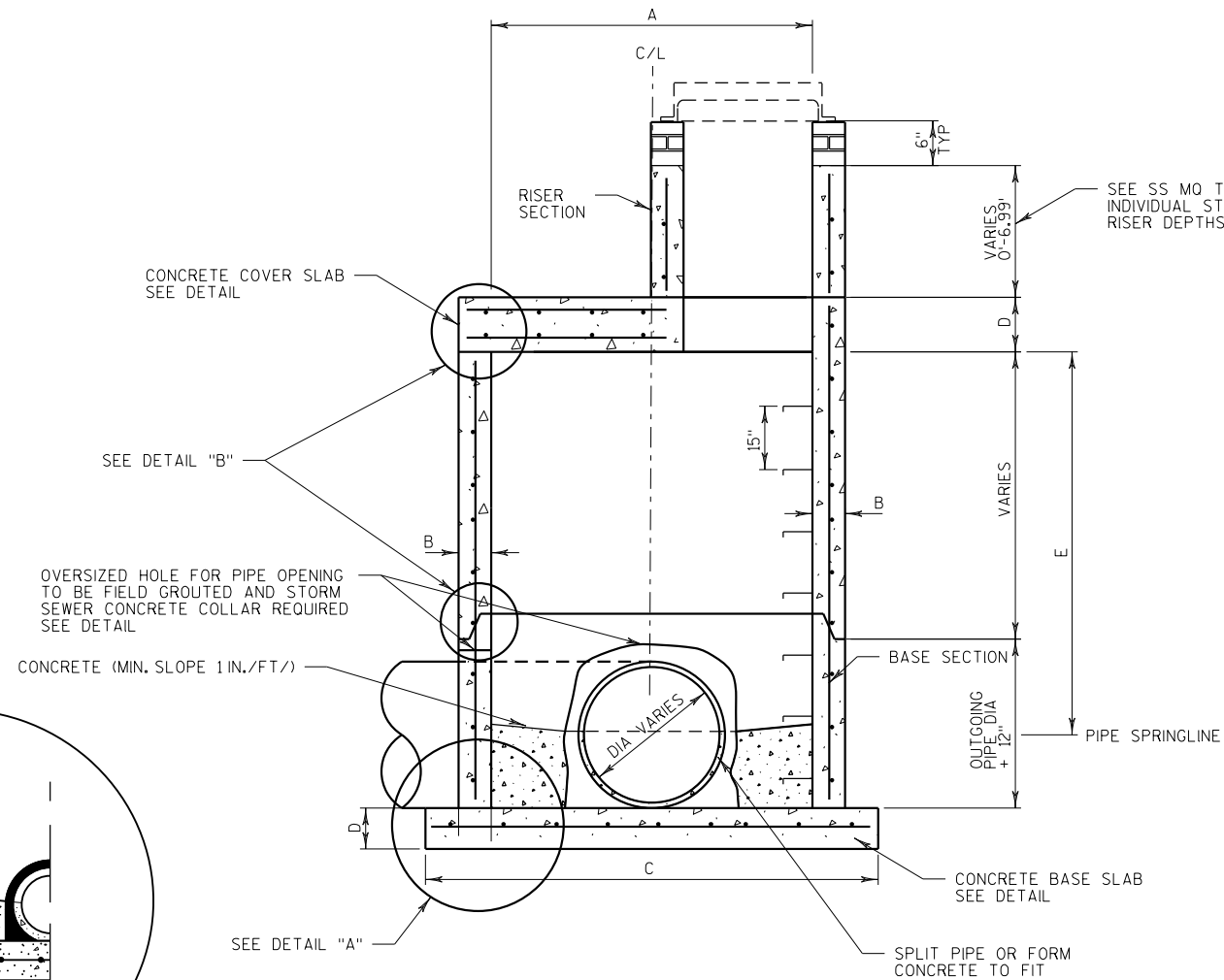
JOINTS TO BE SEALED WITH
A BUTYL RUBBER SEAL PER
SEALANT MANUFACTURERS
RECOMMENDATIONS
CONFORMING TO ASTM C990
(TYP)



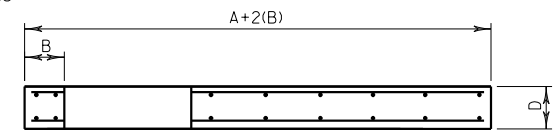
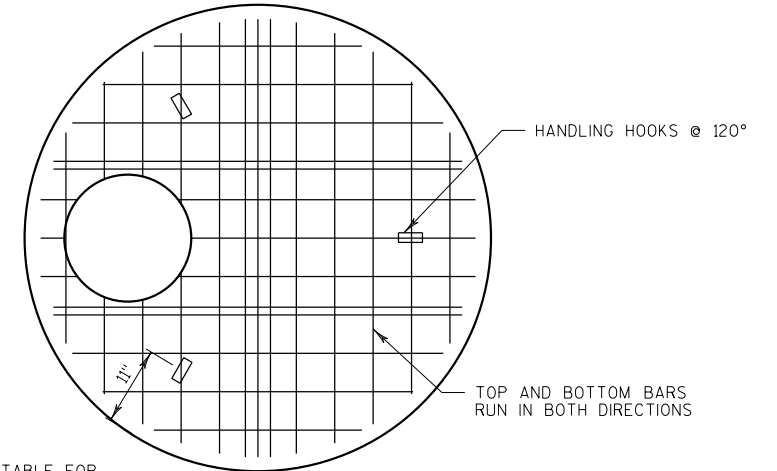
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"PRECAST REINFORCED
CONCRETE WITH INTEGRAL BASE OPTIONSEPARATE PRECAST REINFORCED
CONCRETE BASE OPTION**DETAIL "A"**

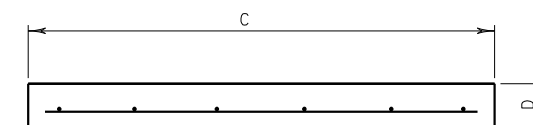
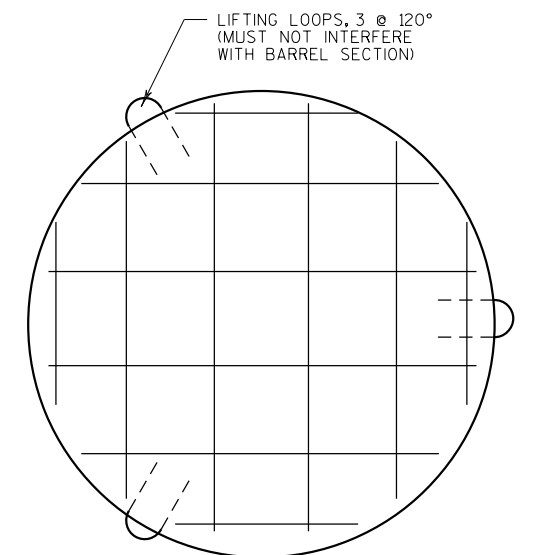
	A	B	C	D	E
MANHOLE 9-FT SPECIAL	108"	10"	132"	12"	VARIES, 72" MAX
MANHOLE 10-FT SPECIAL	120"	11"	146"	12"	VARIES, 72" MAX

MANHOLE 9-FT SPECIALMANHOLE 10-FT SPECIAL**NOTES**

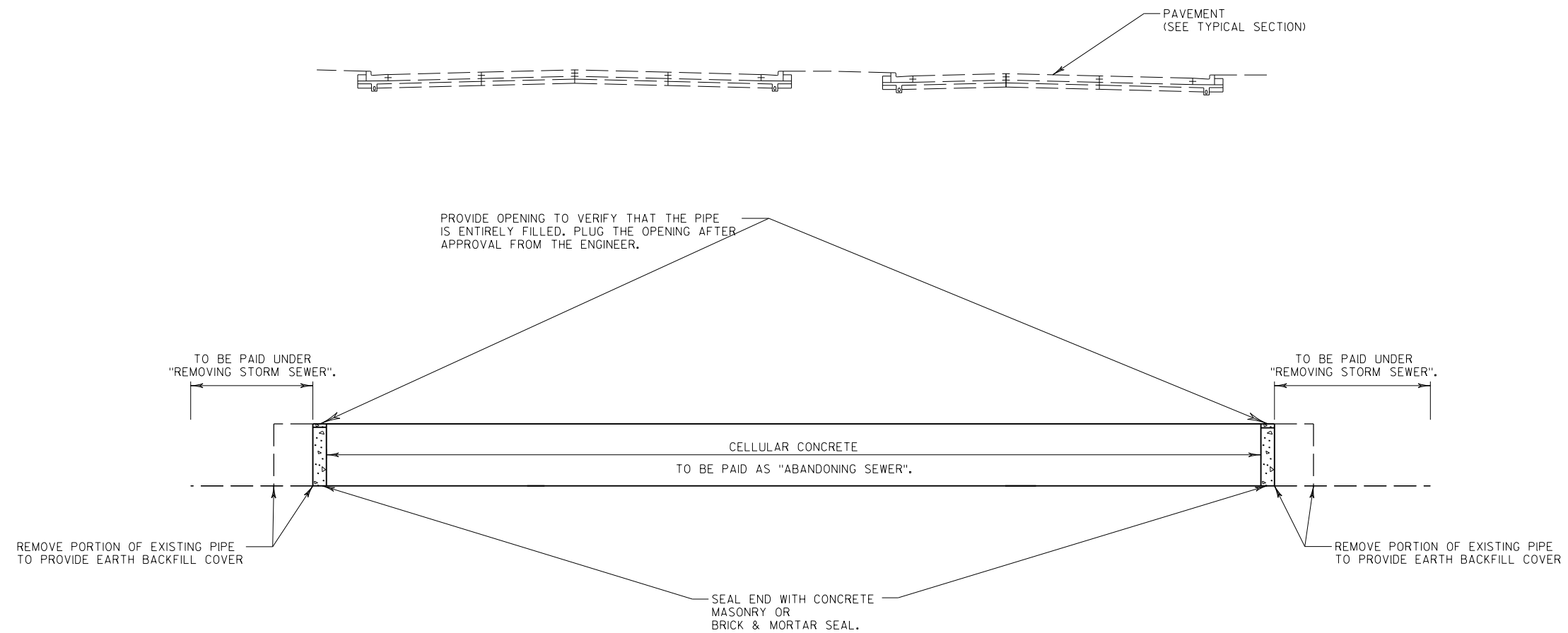
- 1) REINFORCING COMPLIES WITH ASTM C-478.
- 2) STEPS PLACED AT 15". STEPS COMPLY WITH ASTM C-478.
- 3) RISER & SLABS DESIGN FOR HS20 LOADING.



CONCRETE COVER SLAB

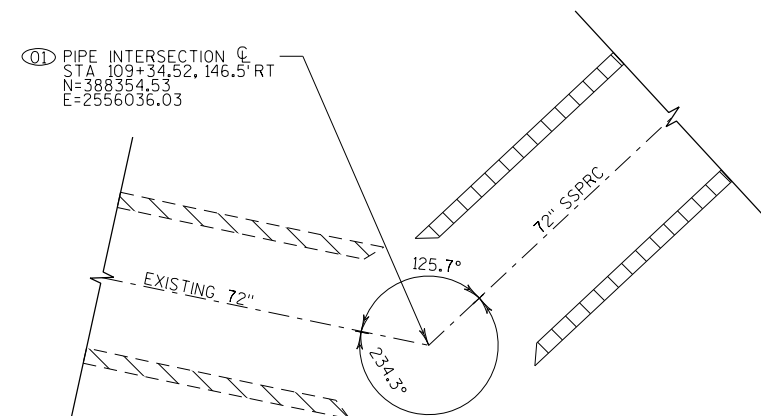


CONCRETE BASE SLAB



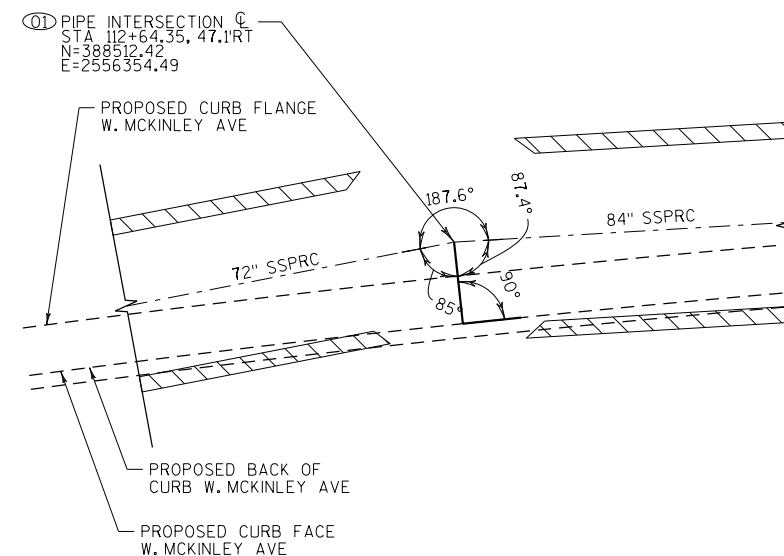
ABANDONING SEWER DETAIL

AT N. 6TH ST
AT N. 5TH ST
AT N. 4TH ST



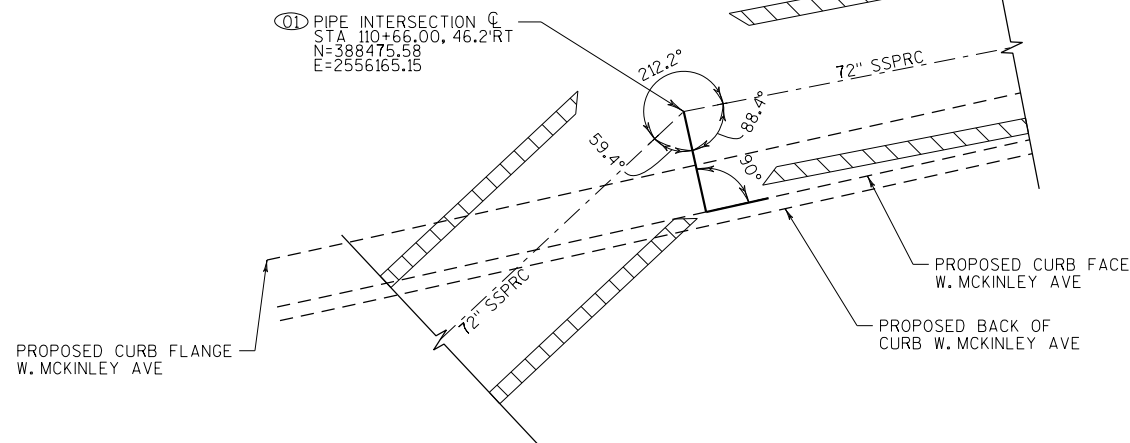
GEOMETRIC PLAN - STRUCTURE NO. M23

W. MCKINLEY AVE



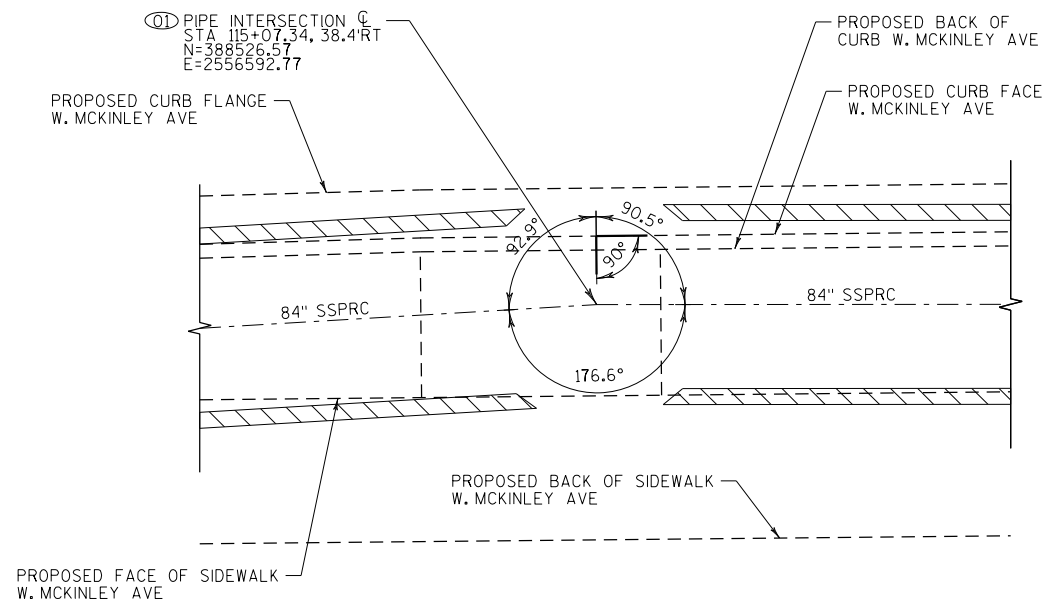
GEOMETRIC PLAN - STRUCTURE NO. M2

W. MCKINLEY AVE



GEOMETRIC PLAN - STRUCTURE NO. M1

W. MCKINLEY AVE



GEOMETRIC PLAN - STRUCTURE NO. M3

W. MCKINLEY AVE

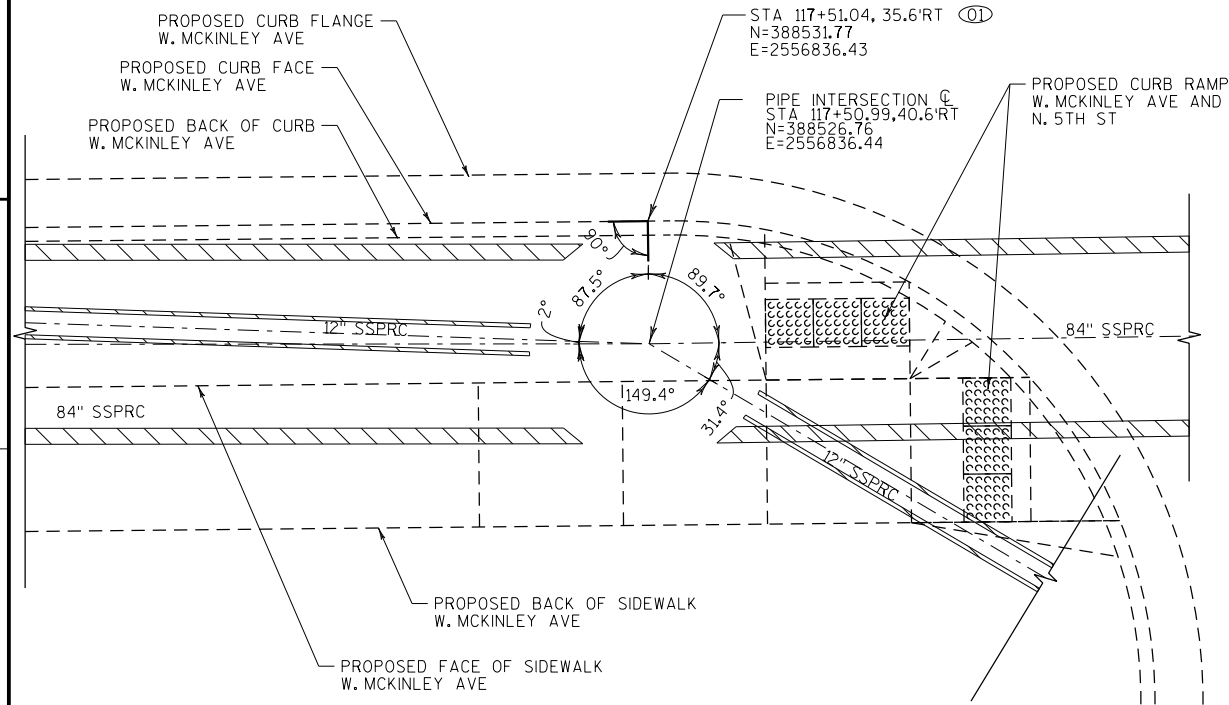
NOTES

1. THE NORTH ARROW DIRECTION IS TYPICAL FOR ALL PLANS ON THIS SHEET.
2. STRUCTURES SHALL BE DESIGNED ACCORDING TO APPLICABLE AASHTO AND/OR ASTM REQUIREMENTS AS PER STANDARD SPECIFICATION 611.
3. THE CENTER OF THE SEWER IS NOT NECESSARILY THE CENTER OF THE TOP OPENING IN THE STRUCTURE. PLACE MANHOLE FRAME WITHIN THE ROADWAY, AND CLEAR OF THE ROADWAY FLANGE. ADJUST THE LAYOUT AS DIRECTED BY THE ENGINEER TO ENSURE PROPER LOCATION OF THE FRAME ON THE STRUCTURE.
4. DESIGN LOADS
EARTH:
SOIL WEIGHT: 120 PCF
HYDROSTATIC PRESSURE: 62.5 PCF
AT-REST LATERAL EARTH PRESSURE: 60 PCF

LIVE:
HL-93 AXLE LOAD
5. STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES: 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.
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7. 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 HORIZONTAL LOAD OF 400 LBS.
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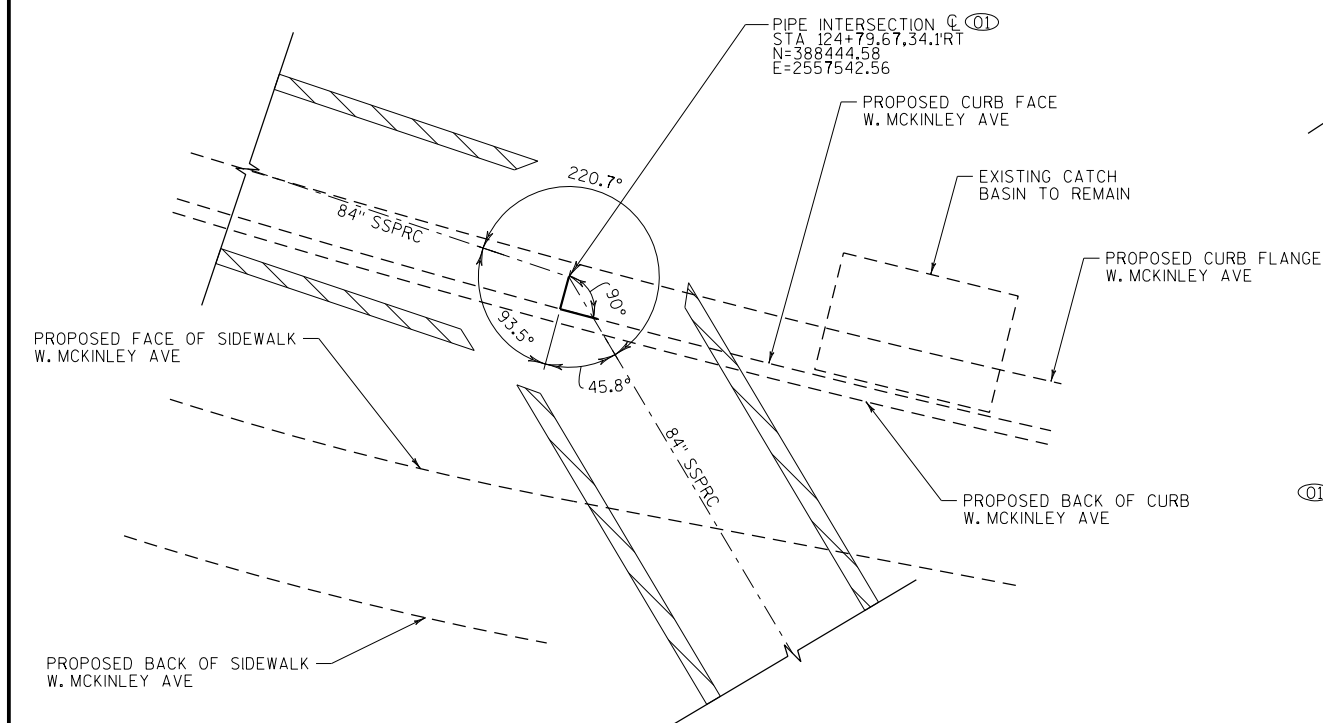
LEGEND

-
- SUBTENDED ANGLES OF PIPE CENTERLINES
-
- SUBTENDED ANGLE OF LOCATION REFERRED TO ON STORM SEWER MISCELLANEOUS QUANTITY TABLE TO PROPOSED CURB FACE
-
- SUBTENDED ANGLES OF LINE PERPENDICULAR TO CURB FACE AND PIPE CENTERLINES
- ① LOCATION REFERRED TO ON STORM SEWER MISCELLANEOUS QUANTITY TABLE



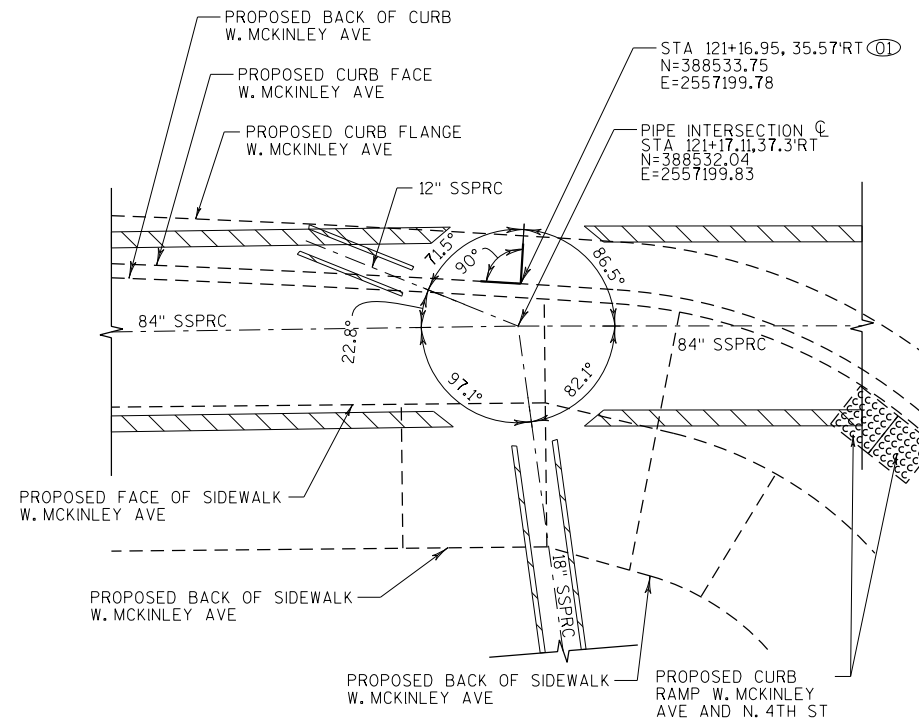
GEOMETRIC PLAN - STRUCTURE NO. 62

W. MCKINLEY AVE



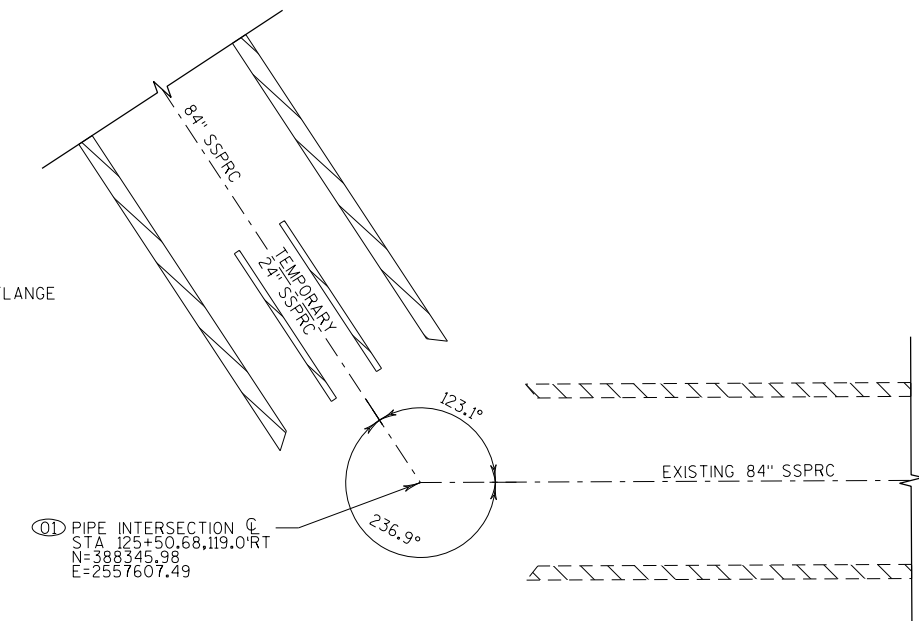
GEOMETRIC PLAN - STRUCTURE NO. M6

W. MCKINLEY AVE



GEOMETRIC PLAN - STRUCTURE NO. 83

W. MCKINLEY AVE



GEOMETRIC PLAN - STRUCTURE NO. M7

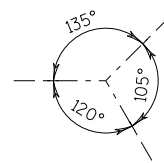
N. OLD WORLD 3RD ST

NOTES

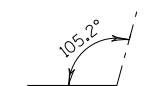
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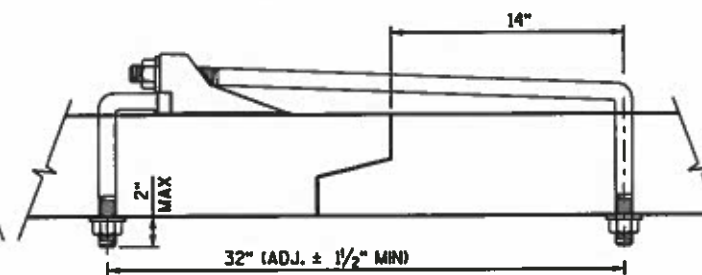
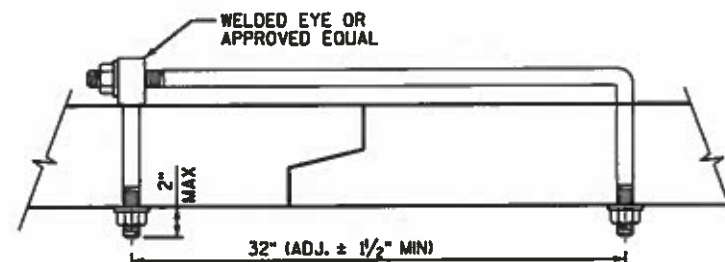
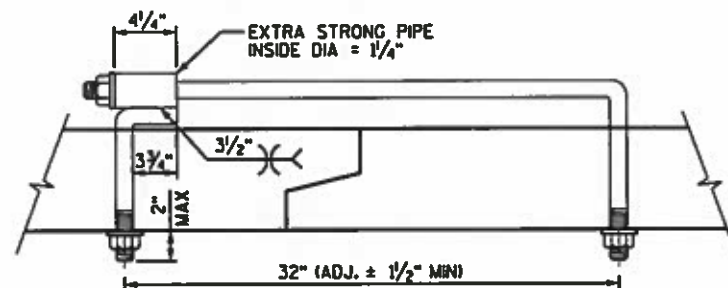
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LEGEND



SUBTENDED ANGLES OF PIPE CENTERLINES

SUBTENDED ANGLE OF LOCATION
REFERRED TO ON STORM SEWER
MISCELLANEOUS QUANTITY TABLE TO
PROPOSED CURB FACESUBTENDED ANGLES OF LINE
PERPENDICULAR TO CURB FACE AND
PIPE CENTERLINESLOCATION REFERRED TO ON STORM
SEWER MISCELLANEOUS QUANTITY TABLE



NOTES

DETAILS FOR MATERIALS, FABRICATION, CONSTRUCTION AND DESIGN OF PRECAST BOX CULVERTS NOT SHOWN OR STATED ON THIS DRAWING SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM SPECIFICATION, C1577; AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS; WISCONSIN DOT BRIDGE MANUAL; WISCONSIN DOT STANDARD SPECIFICATIONS & APPLICABLE SPECIAL PROVISIONS, EXCEPT THAT THE CONCRETE MIXTURE SHALL CONTAIN NOT LESS THAN 565 LBS. OF CEMENTITIOUS MATERIALS PER CUBIC YARD.

ALL PRECAST BOX SECTIONS SHALL BE PLACED ON A BEDDING OF "STRUCTURE BACKFILL" OF 6" MINIMUM DEPTH.

THE COVER OF CONCRETE OVER THE REINFORCEMENT SHALL BE 1 INCH OR 2 INCHES AS SHOWN WITH AN ALLOWABLE VARIATION OF -3/8" TO +1/2 INCH.

THE SPACING CTR. TO CTR. OF THE CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CTR. TO CTR. OF THE LONGIT. WIRES SHALL NOT BE MORE THAN 8.

NOT MORE THAN FOUR (4) HOLES MAY BE CAST, DRILLED OR OTHERWISE NEATLY MADE IN THE SHELL OF EACH PIECE OF BOX SECTION FOR HANDLING. THE HOLES SHALL BE TAPERED UNLESS DRILLED. HOLES SHALL BE FILLED WITH PORTLAND CEMENT MORTAR EXCEPT TAPERED HOLES MAY BE FILLED WITH CONCRETE PLUGS SECURED WITH PORTLAND CEMENT MORTAR OR OTHER APPROVED ADHESIVE.

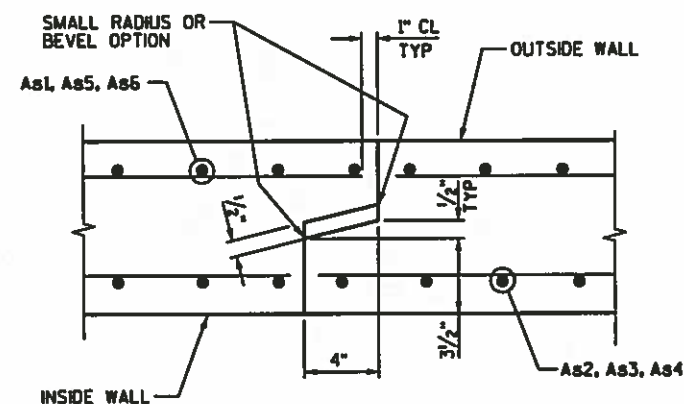
THE JOINT ON THE BOTTOM OF THE CULVERT & THE SIDES OF THE CULVERT FROM THE BOTTOM TO A POINT 1'-0" FROM THE CEILING SHALL BE SEALED WITH A PREFORMED MASTIC. PREFORMED MASTIC MUST CONFORM TO AASHTO MATERIALS SPEC, M198, TYPE B. A 2'-0" STRIP OF GEOTEXTILE FABRIC SHALL BE PLACED OVER THE JOINTS ON THE TOP AND ON THE SIDES OF THE CULVERT. THE GEOTEXTILE FABRIC SHALL COMPLY WITH REQUIREMENTS OF STANDARD SPECIFICATION 645.2.4, SCHEDULE A. (FABRIC NOT REQUIRED OVER INSIDE WALL JOINTS OF MULTICELL INSTALLATION).

SEE CONSTRUCTION DETAILS FOR STRUCTURE
M4 AND M5 END CONNECTION.

MATERIAL PROPERTIES:

CONCRETE MASONRY-----f'c=5,000 P.S.I.

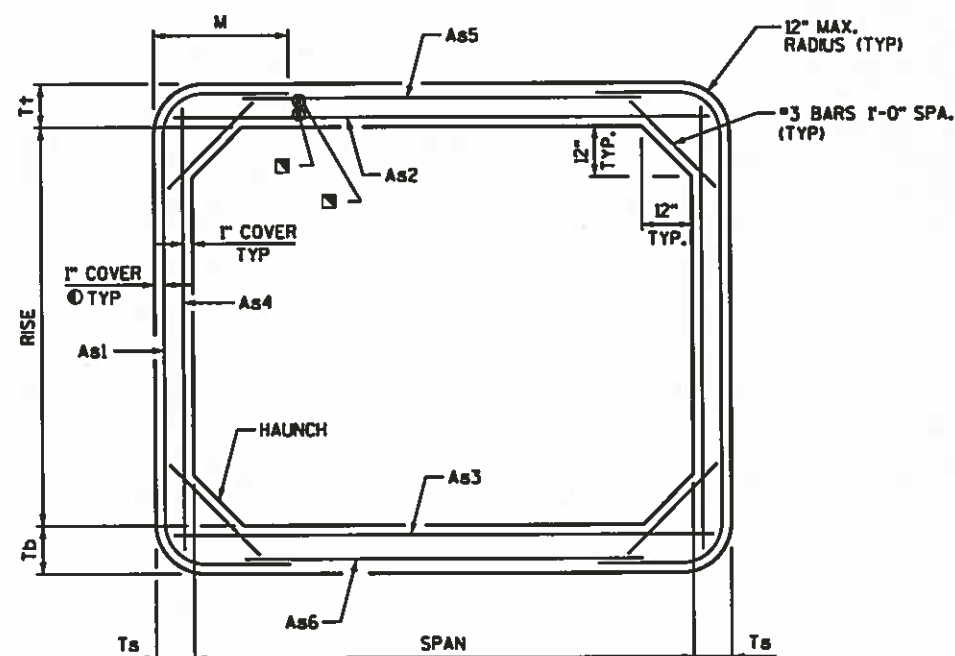
WELDED WIRE REINFORCEMENT..... $f_y=65,000$ P.S.I.



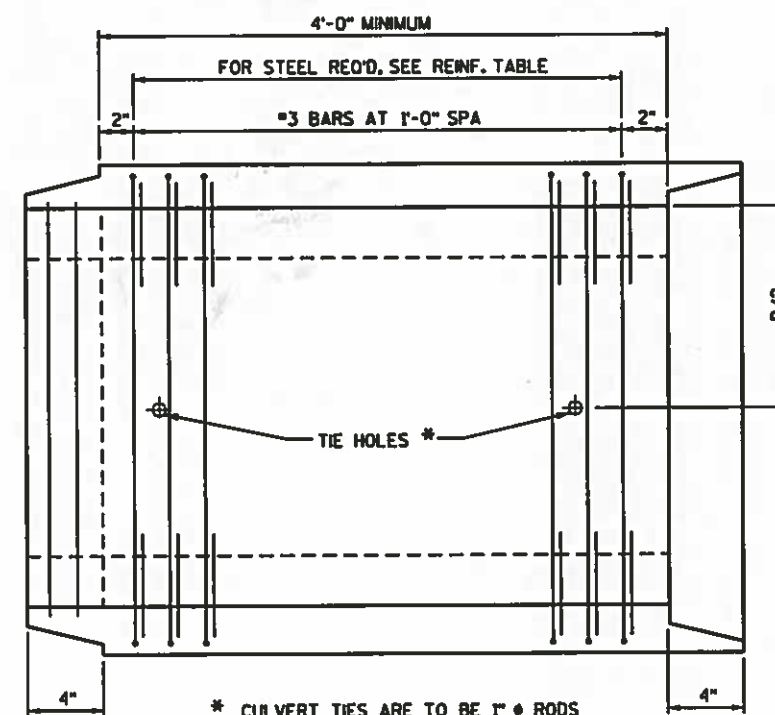
JOINT TIES

NOTE:
EITHER EYE BOLT TIES, WELDED PIPE TIES, OR CANOPY TIES
MAY BE USED. THREADS MAY BE CUT OR ROLLED. TIE NUTS
SHALL BE TIGHTENED AS DIRECTED BY THE ENGINEER. (2 TIES
REQ'D. PER JOINT). (TIES TO BE GALVANIZED).

JOINT DETAIL



SECTION THRU BARREL



LONGITUDINAL SECTION

BOX CULVERT DATA

DIMENSIONS			EARTH COVER (FT)		
S (FT)	R (FT)	Ts, Tb, T+ (IN)			
12	4	10, 10, 9	8-9		
REINFORCEMENT			AREA/FT	LENGTH	M
As1			1.21	13'-11"	4'-5"
As2			0.92	12'-8"	
As3			0.94	12'-8"	
As4			0.22	4'-8"	
As5			0.24	8'-11"	
As6			0.24	8'-11"	
TOTAL BARREL OR PANEL LENGTH			113'-6"		

① 1" OR 3 x WIRE DIAMETER,
WHICHEVER IS GREATER

■ PLACE LONGITUDINAL REINFORCEMENT IN ALL SLABS AND WALLS WITH A MINIMUM OF .06 INI/FT.

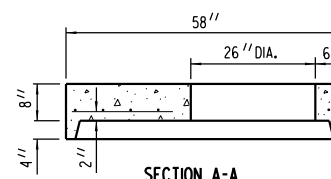
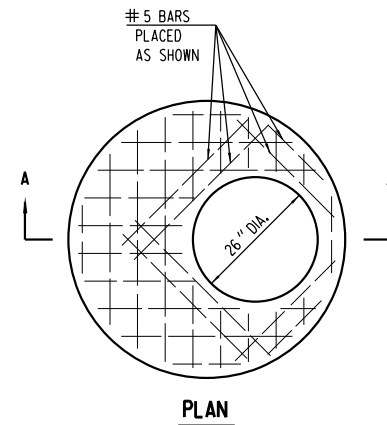
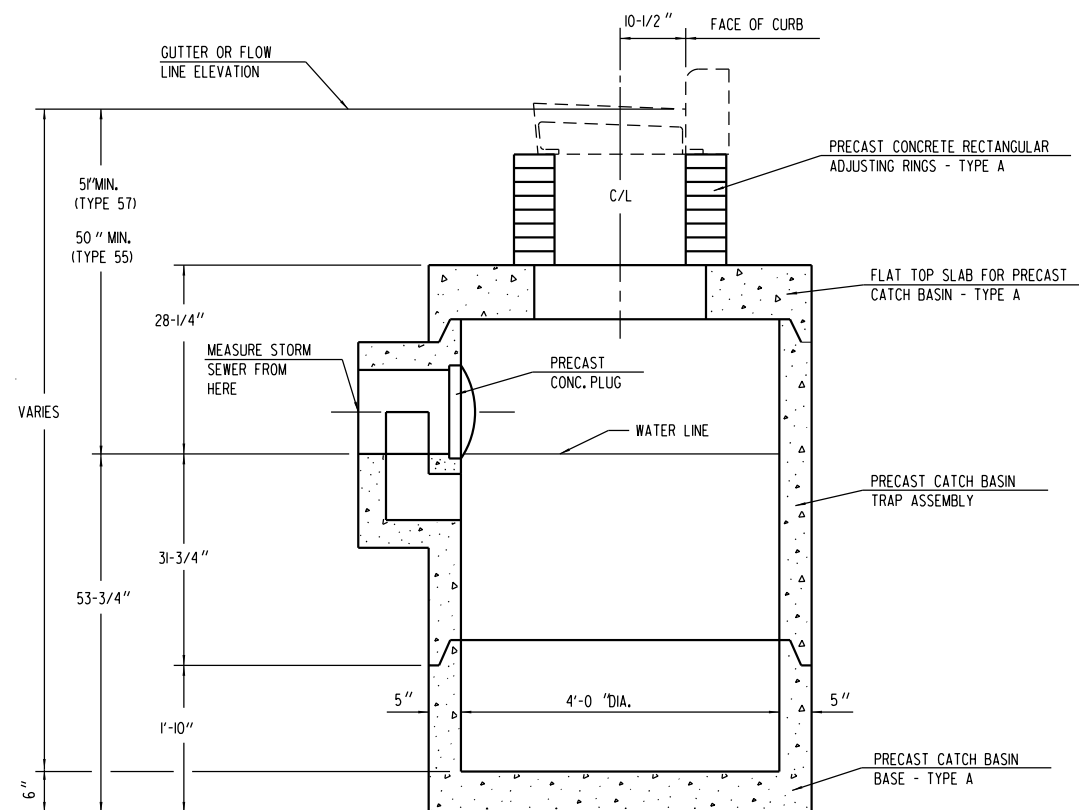
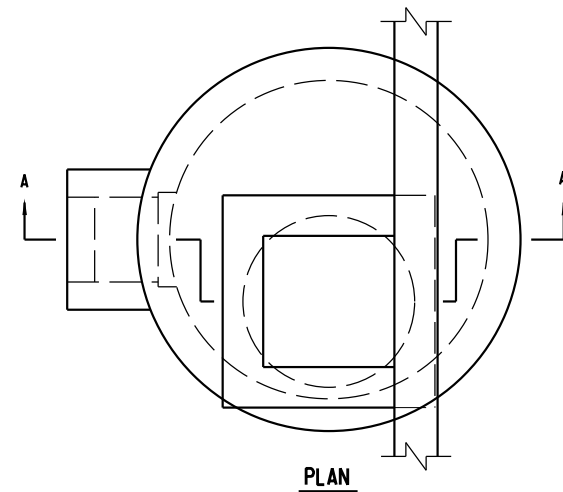
CONCRETE BOX COMBINATION SEWER

WISCONSIN

MOHAMMED H.
ZAGLOUL
E-26970
MILWAUKEE
WISCONSIN

PROFESSIONAL ENGINEER

1/7/2016

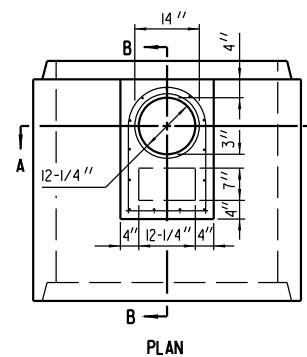
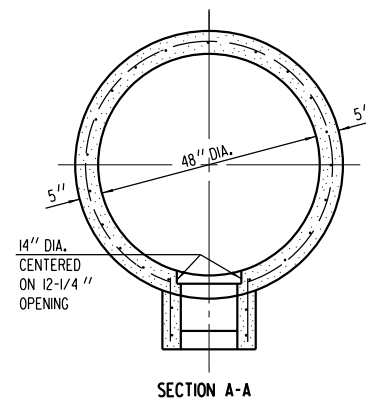


TOP SLAB - TYPE A

FLAT TOP SLAB SHALL BE 8" THICK REINFORCED WITH ONE LAYER OF STEEL WITH A MINIMUM AREA OF 0.12 SQ. IN. PER LINEAL FOOT IN BOTH DIRECTIONS, PLACED IN THE CENTER THIRD OF THE SECTION AS SHOWN.

REINFORCEMENT SHALL BE TIED OR WELDED TOGETHER.

THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE 3300 P.S.I.



TRAP ASSEMBLY

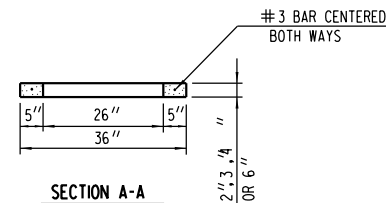
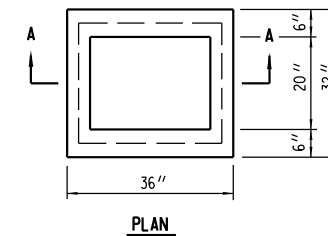
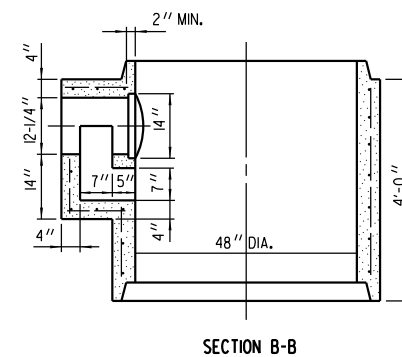
CIRCUMFERENTIAL REINFORCEMENT SHALL CONSIST OF ONE LINE OF STEEL NOT LESS THAN 0.12 SQ. IN. PER LINEAL FOOT, AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.

TRAP ASSEMBLY SHALL BE REINFORCED WITH ONE LAYER OF STEEL WITH A MINIMUM AREA OF 0.12 SQ. IN. PER LINEAL FOOT IN BOTH DIRECTIONS, PLACED IN THE CENTER THIRD OF THE SECTION AS SHOWN.

CIRCUMFERENTIAL AND TRAP ASSEMBLY REINFORCEMENT SHALL BE TIED OR WELDED TOGETHER.

THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE 3300 P.S.I.

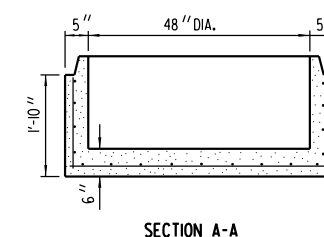
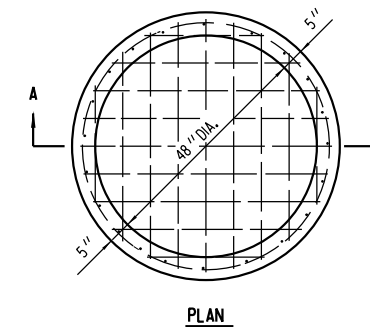
TWO HANDLING HOLES 2 1/4 INCHES IN DIAMETER SHALL BE CAST OR DRILLED IN THE WALL.



RECTANGULAR ADJUSTING RING - TYPE A

THE ADJUSTING RINGS SHALL BE 2", 3", 4" OR 6" IN HEIGHT.

THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE 3300 P.S.I.



BASE - TYPE A

CIRCUMFERENTIAL REINFORCEMENT SHALL CONSIST OF ONE LINE OF STEEL NOT LESS THAN 0.12 SQ. IN. PER LINEAL FOOT, AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.

BOTTOM SLAB SHALL BE REINFORCED WITH ONE LAYER OF STEEL WITH A MINIMUM AREA OF 0.12 SQ. IN. PER LINEAL FOOT IN BOTH DIRECTIONS, PLACED IN THE CENTER THIRD OF THE SLAB.

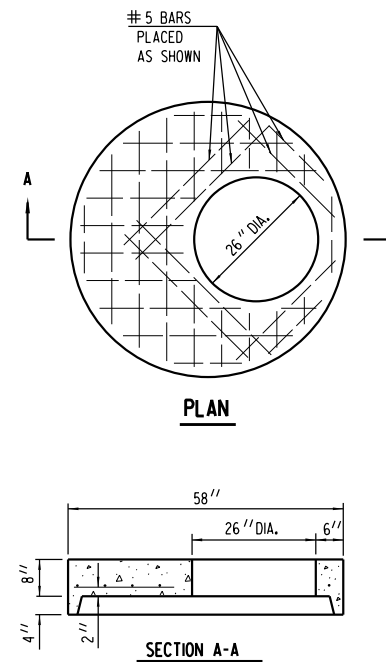
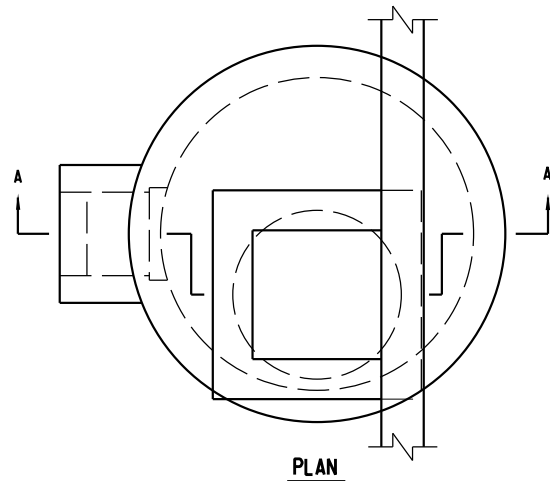
CIRCUMFERENTIAL AND BOTTOM SLAB REINFORCEMENT SHALL BE TIED OR WELDED TOGETHER.

THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE 3300 P.S.I.

TWO HANDLING HOLES 2 1/4 INCHES IN DIAMETER SHALL BE CAST OR DRILLED IN THE WALL.

GENERAL NOTES

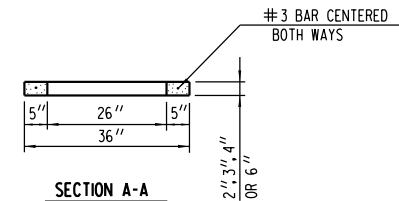
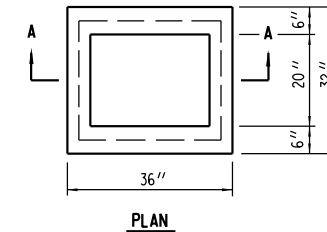
1. REINFORCEMENT FOR 5" PRECAST REINFORCED CONCRETE SHALL BE 6" X 6" WIG X WIG WELDED STEEL WIRE FABRIC AND SHALL BE EMBEDDED 2" CLEAR.
2. PRECAST INLET UNITS AND BASES SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.
3. PRECAST REINFORCED BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 4" IN DEPTH WHICH MEETS REQUIREMENTS FOR GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.
4. SET FRAME ELEVATION 0.03 FT. LOWER THAN ELEVATION INDICATED ON PLAN.

**TOP SLAB - TYPE A**

FLAT TOP SLAB SHALL BE 8" THICK REINFORCED WITH ONE LAYER OF STEEL WITH A MINIMUM AREA OF 0.12 SQ. IN. PER LINEAL FOOT IN BOTH DIRECTIONS, PLACED IN THE CENTER THIRD OF THE SECTION AS SHOWN.

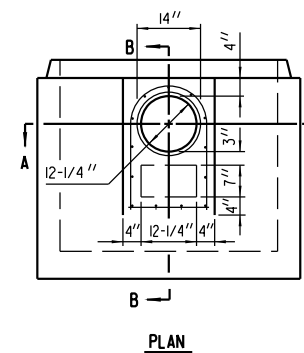
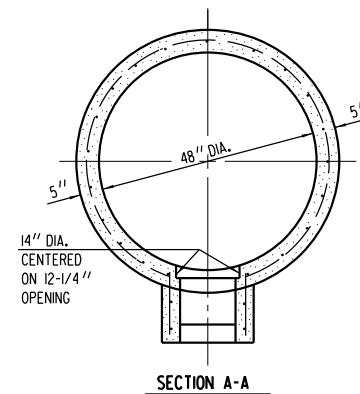
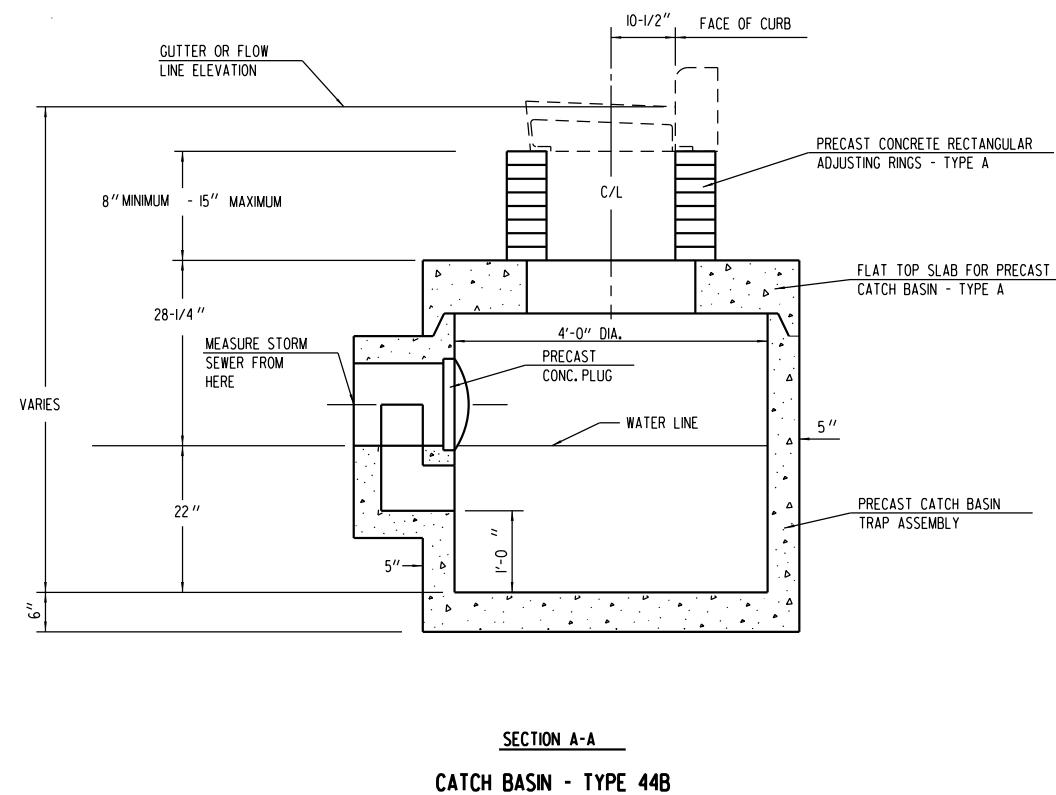
REINFORCEMENT SHALL BE TIED OR WELDED TOGETHER.

THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE 3300 P.S.I.

**RECTANGULAR ADJUSTING RING - TYPE A**

THE ADJUSTING RINGS SHALL BE 2", 3", 4" OR 6" IN HEIGHT.

THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE 3300 P.S.I.

**CATCH BASIN TRAP ASSEMBLY**

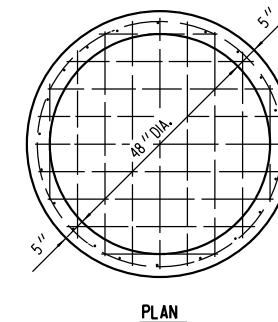
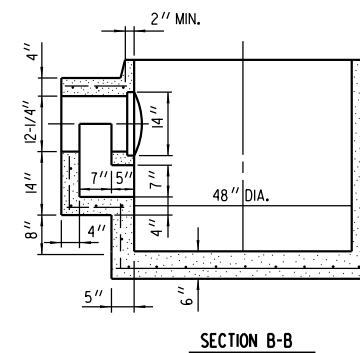
CIRCUMFERENTIAL REINFORCEMENT SHALL CONSIST OF ONE LINE OF STEEL NOT LESS THAN 0.12 SQ. IN. PER LINEAL FOOT, AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.

TRAP ASSEMBLY SHALL BE REINFORCED WITH ONE LAYER OF STEEL WITH A MINIMUM AREA OF 0.12 SQ. IN. PER LINEAL FOOT IN BOTH DIRECTIONS, PLACED IN THE CENTER THIRD OF THE SECTION AS SHOWN.

CIRCUMFERENTIAL AND TRAP ASSEMBLY REINFORCEMENT SHALL BE TIED OR WELDED TOGETHER.

THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE 3300 P.S.I.

TWO HANDLING HOLES 2 1/4 INCHES IN DIAMETER SHALL BE CAST OR DRILLED IN THE WALL.

**BOTTOM REINFORCEMENT**

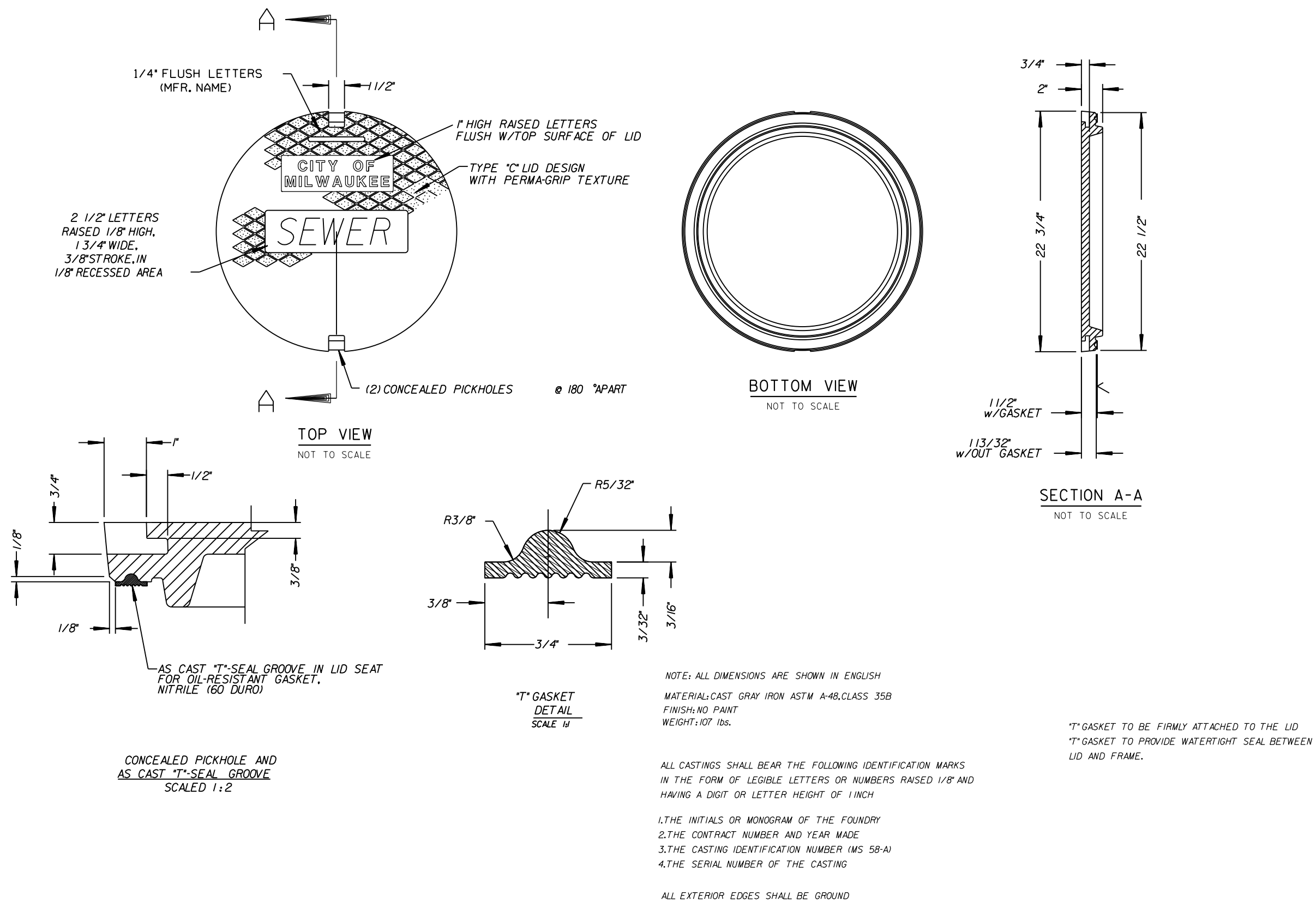
CIRCUMFERENTIAL REINFORCEMENT SHALL CONSIST OF ONE LINE OF STEEL NOT LESS THAN 0.12 SQ. IN. PER LINEAL FOOT, AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.

BOTTOM SLAB SHALL BE REINFORCED WITH ONE LAYER OF STEEL WITH A MINIMUM AREA OF 0.12 SQ. IN. PER LINEAL FOOT IN BOTH DIRECTIONS, PLACED IN THE CENTER THIRD OF THE SLAB.

CIRCUMFERENTIAL AND BOTTOM SLAB REINFORCEMENT SHALL BE TIED OR WELDED TOGETHER.

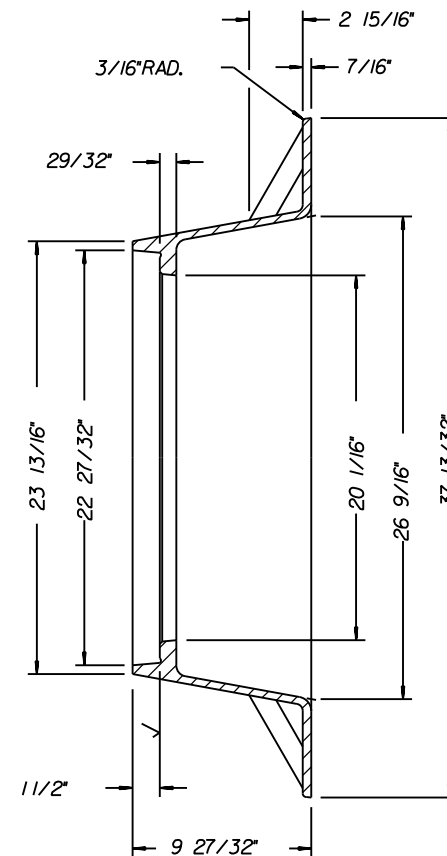
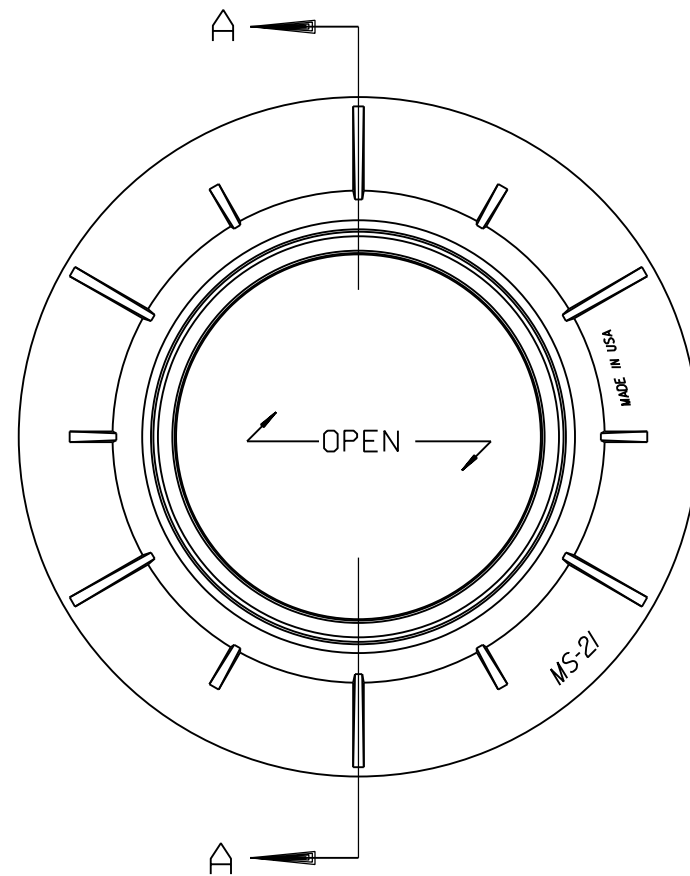
THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE SHALL BE 3300 P.S.I.

TWO HANDLING HOLES 2 1/4 INCHES IN DIAMETER SHALL BE CAST OR DRILLED IN THE WALL.



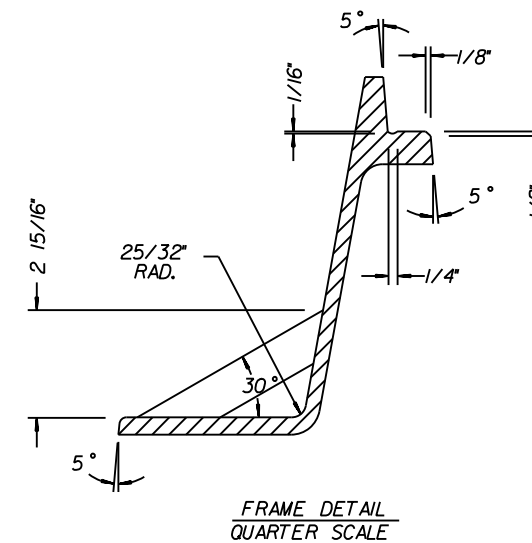
MANHOLE COVER TYPE MS 58-A

NOT TO SCALE
BID ITEM INCLUDES MANHOLE FRAME TYPE MS 21



SECTION A-A

NOT TO SCALE

FRAME DETAIL
QUARTER SCALE

NOTE: ALL DIMENSIONS ARE SHOWN IN ENGLISH

MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B

FINISH: NO PAINT

WEIGHT: 182 lbs.

ALL CASTINGS SHALL BEAR THE FOLLOWING IDENTIFICATION MARKS
IN THE FORM OF LEGIBLE LETTERS OR NUMBERS RAISED 1/8" AND
HAVING A DIGIT OR LETTER HEIGHT OF 1 INCH ON THE UPPER FACE
OF THE FRAME FLANGE

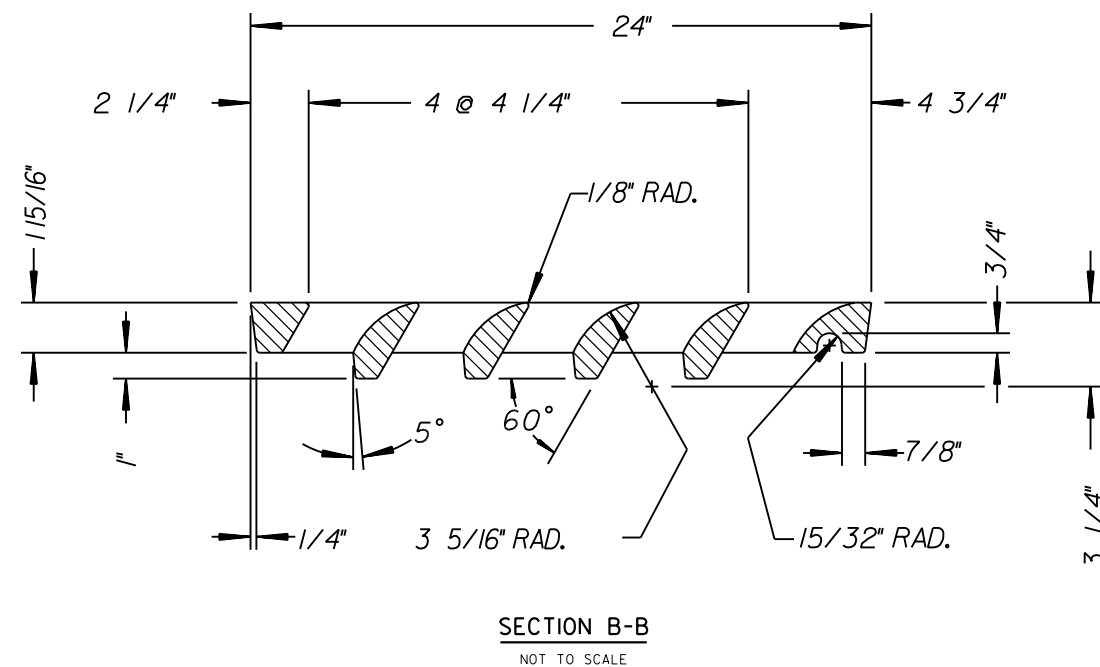
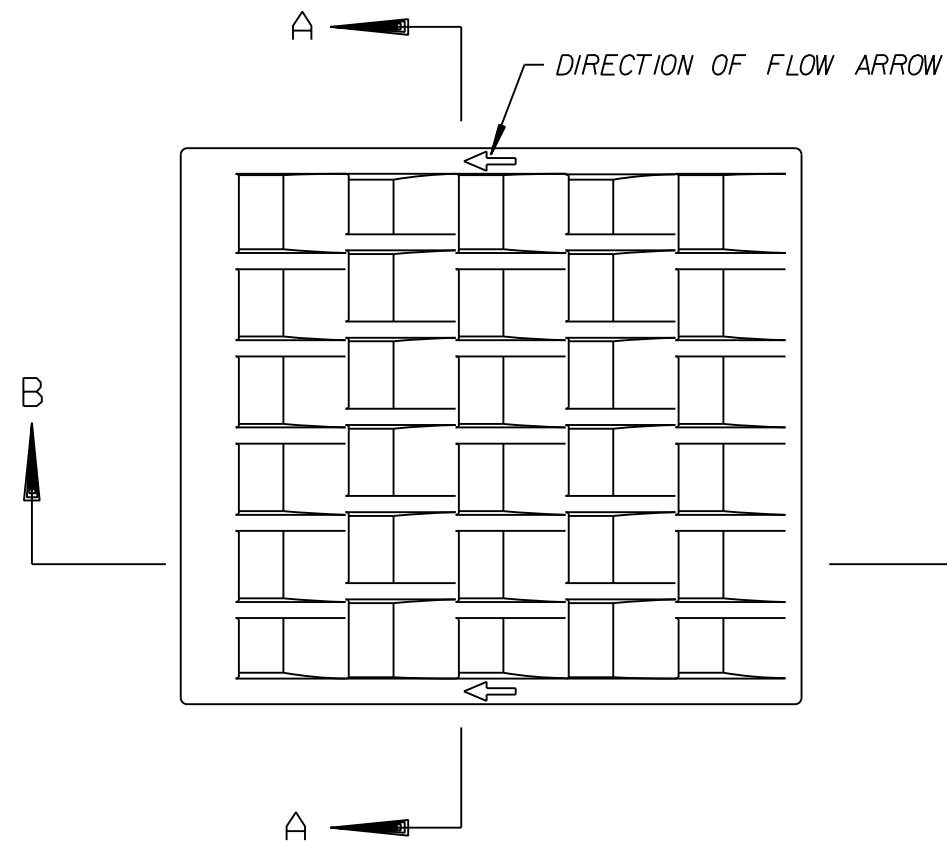
1. THE INITIALS OR MONOGRAM OF THE FOUNDRY
2. THE CONTRACT NUMBER AND YEAR MADE
3. THE CASTING IDENTIFICATION NUMBER (MS-21)
4. THE SERIAL NUMBER OF THE MANHOLE CASTING

ALL EXTERIOR EDGES SHALL BE GROUND

MANHOLE FRAME TYPE MS 21

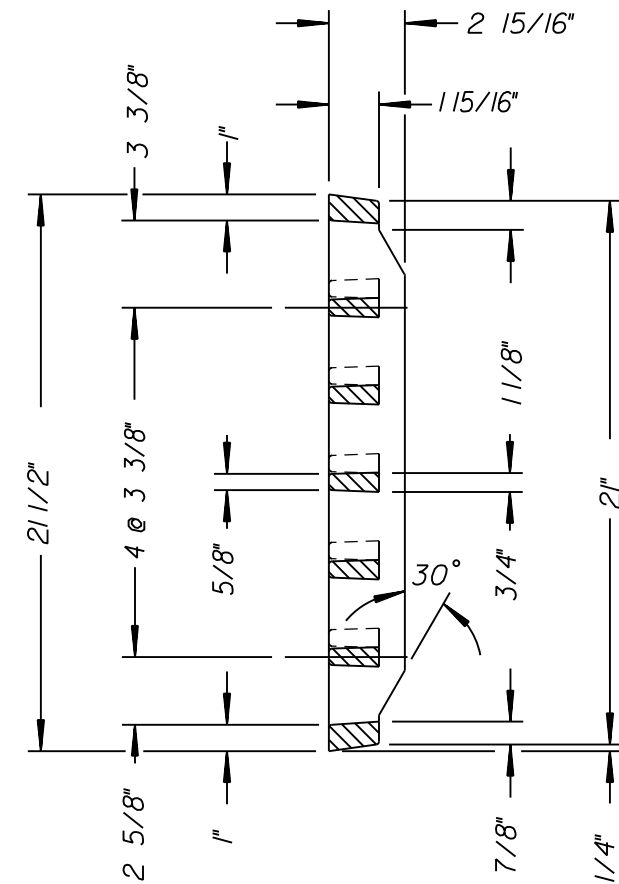
NOT TO SCALE

INCLUDED IN BID ITEM "MANHOLE COVER TYPE MS 58-A"



INLET COVER TYPE MS 57

NOT TO SCALE
BID ITEM INCLUDES INLET FRAME TYPE MS 51

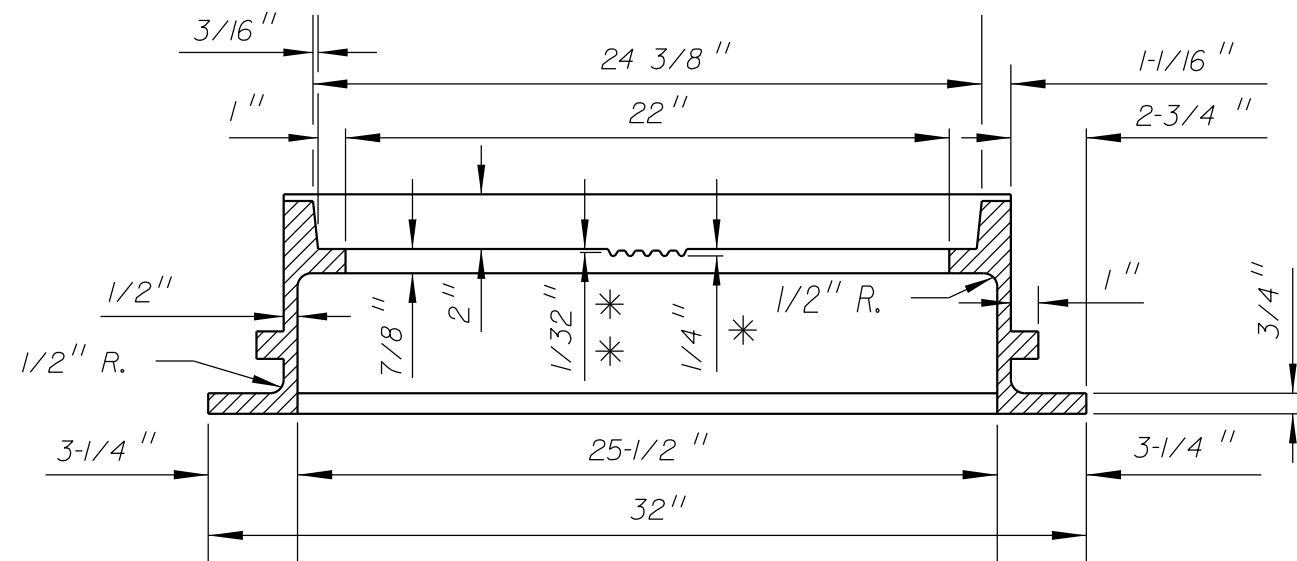
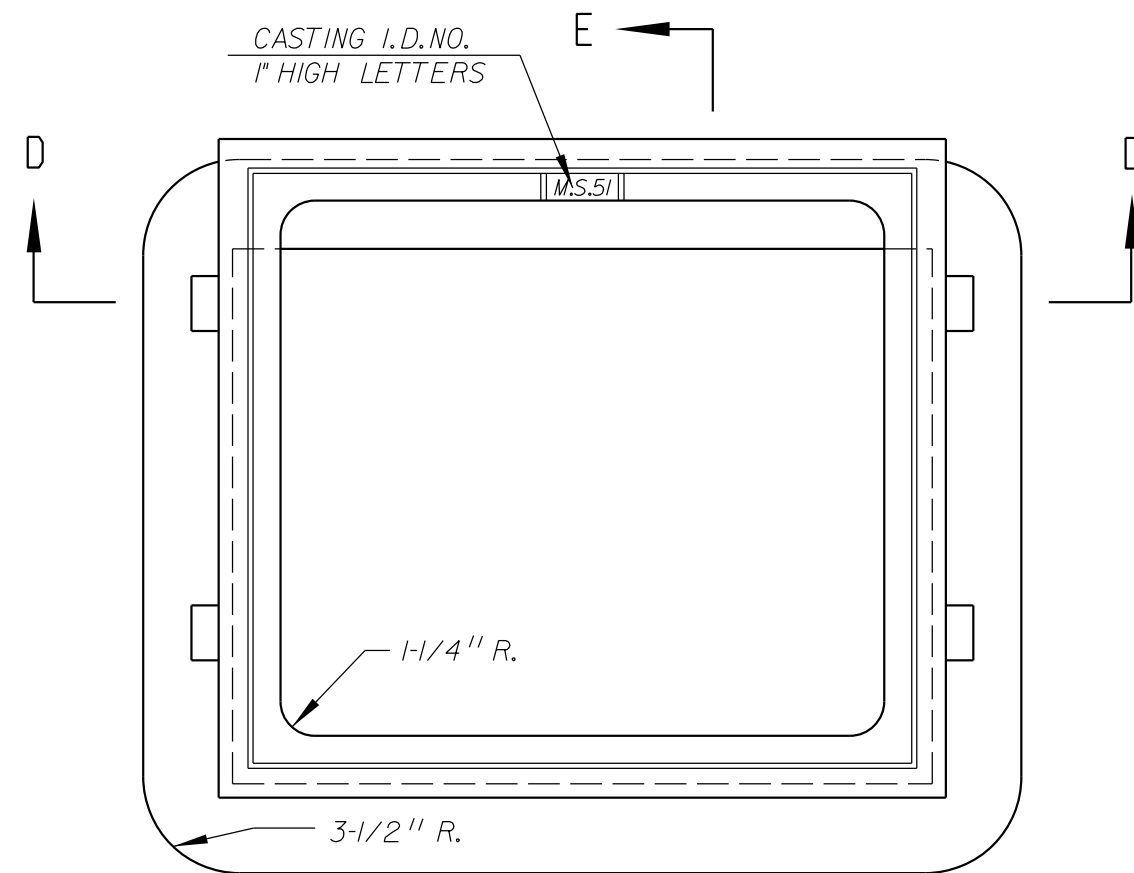


NOTE: ALL DIMENSIONS ARE SHOWN IN ENGLISH
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
FINISH: NO PAINT
WEIGHT: GRATE 145 lbs.

ALL CASTINGS SHALL BEAR THE FOLLOWING IDENTIFICATION MARKS
IN THE FORM OF LEGIBLE LETTERS OR NUMBERS RAISED 1/8" AND
HAVING A DIGIT OR LETTER HEIGHT OF 1 INCH ON THE UPPER FACE
OF THE GRATE

1. THE INITIALS OR MONOGRAM OF THE FOUNDRY
2. THE CONTRACT NUMBER AND YEAR MADE
3. THE CASTING IDENTIFICATION NUMBER (MS-57)
4. THE SERIAL NUMBER OF THE CASTING

ALL EXTERIOR EDGES SHALL BE GROUND



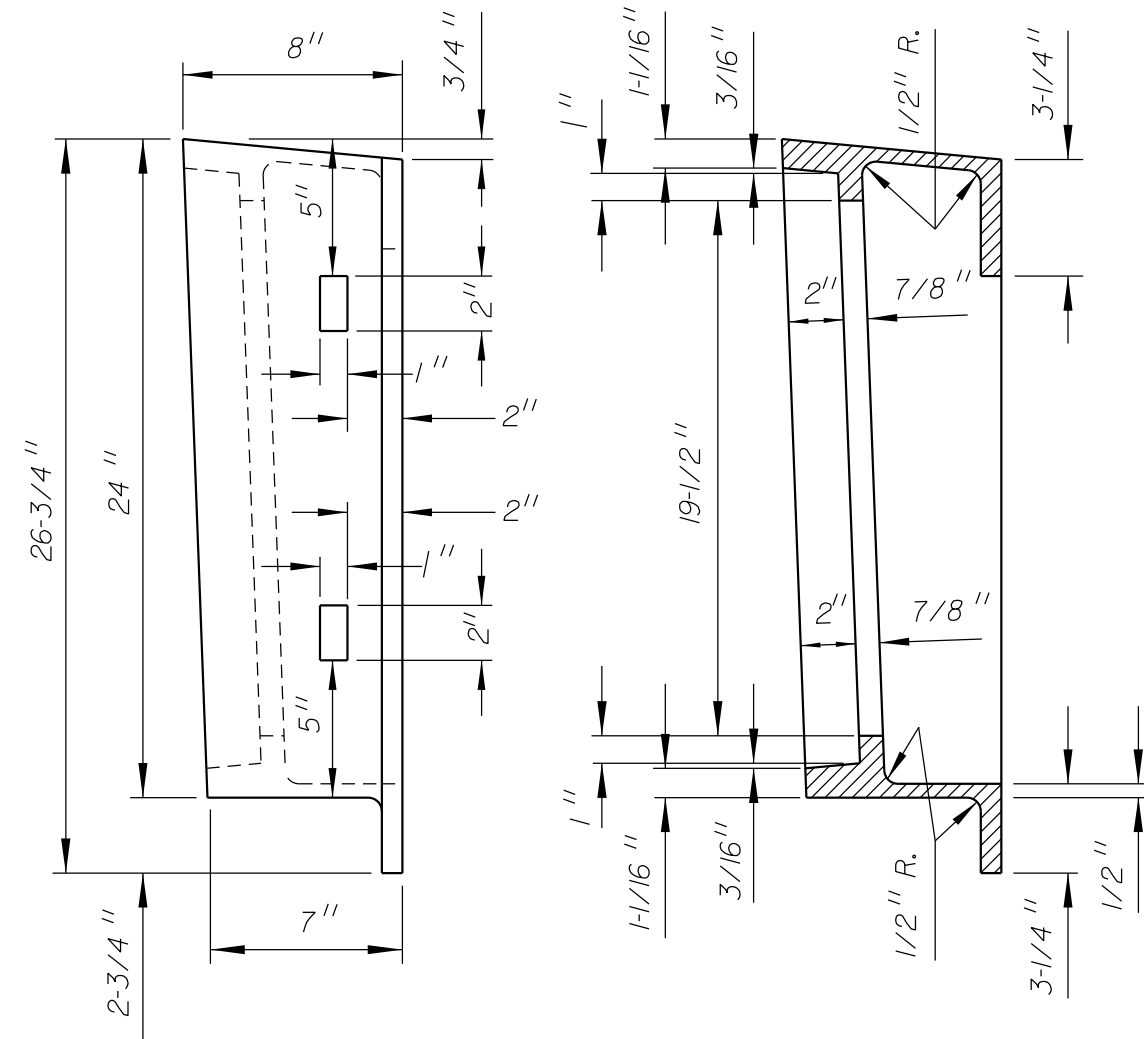
* DEPRESSION FOR LETTERS

* * CLEARANCE FROM TOP OF
LETTERS TO FACE OF SEAT

SECTION D-D

INLET FRAME TYPE MS 51

NOT TO SCALE
INCLUDED IN BID ITEM "INLET COVER TYPE MS 57"



SECTION E-E

NOTE: ALL DIMENSIONS ARE SHOWN IN ENGLISH

MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B

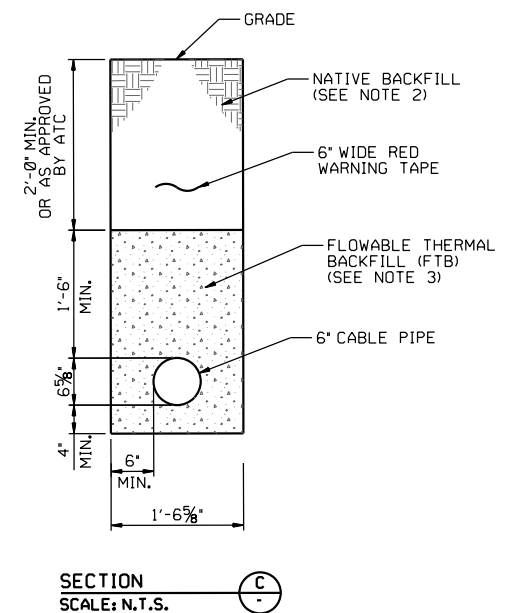
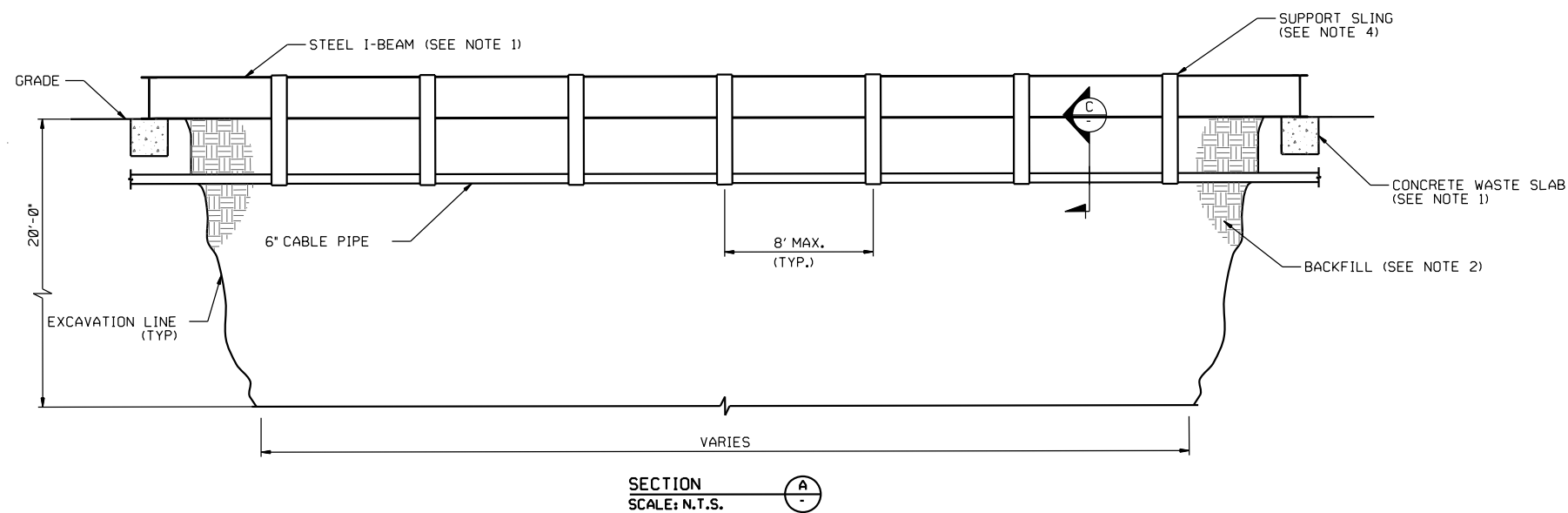
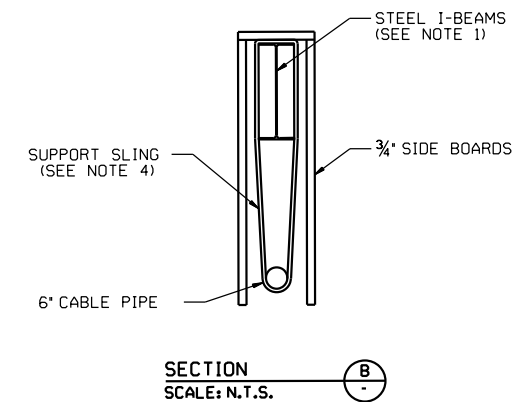
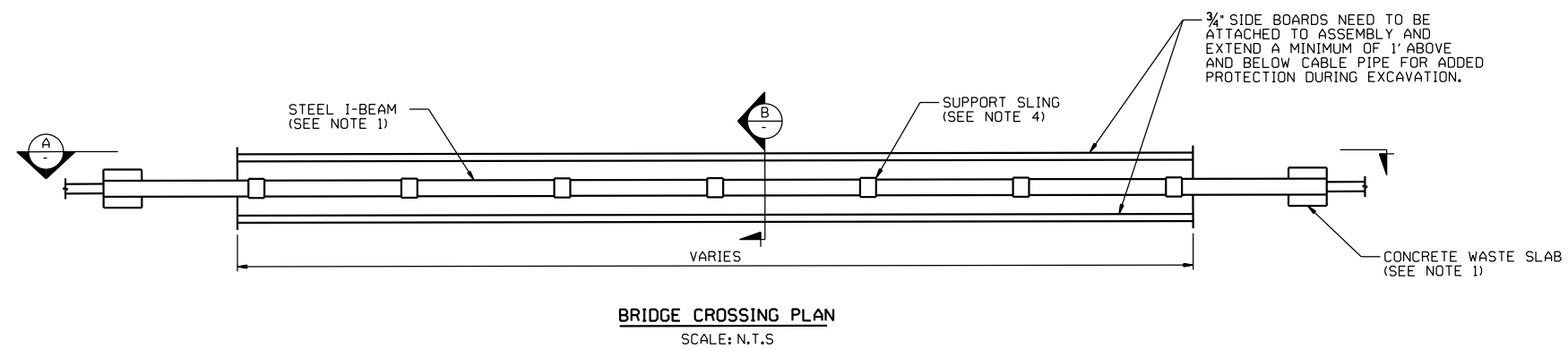
FINISH: NO PAINT

WEIGHT: 237 lbs.

ALL CASTINGS SHALL BEAR THE FOLLOWING IDENTIFICATION MARKS
IN THE FORM OF LEGIBLE LETTERS OR NUMBERS RAISED 1/8" AND
HAVING A DIGIT OR LETTER HEIGHT OF 1 INCH ON THE UPPER FACE
OF THE FRAME FLANGE

1. THE INITIALS OR MONOGRAM OF THE FOUNDRY
2. THE CONTRACT NUMBER AND YEAR MADE
3. THE CASTING IDENTIFICATION NUMBER (MS-21)
4. THE SERIAL NUMBER OF THE MANHOLE CASTING

ALL EXTERIOR EDGES SHALL BE GROUND

**NOTES:**

1. CONTRACTOR SHALL SPECIFY SIZE FOR TEMPORARY SUPPORT BEAM AND WASTE SLAB TO SUPPORT THE CABLE PIPE WHICH WEIGHS 40 LBS. PER FOOT (+/-).
2. BACKFILL AND COMPACTION SHALL MEET SECTION 209 OF STANDARD SPECIFICATION.
3. THERMAL BACKFILL AND GROUT SHALL MEET REQUIREMENTS AS SHOWN IN SPECIAL PROVISIONS.
4. 10" WIDE MIN. FABRIC SUPPORT SLINGS SHALL BE USED, WITH A MAXIMUM DISTANCE BETWEEN SLINGS OF 8'-0" ON CENTER. NO PIPE DEFLECTION ALLOWED.

ATC THERMAL BACKFILL DETAIL

STREET LIGHTING & TRAFFIC GENERAL NOTES:

PRIOR TO CONSTRUCTION, THE LOCATION OF UNDERGROUND UTILITIES SHALL BE DETERMINED IN THE FIELD BY CONTACTING "DIGGERS HOTLINE."

STREET LIGHTING & TRAFFIC SIGNALS SHALL BE INSTALLED IN COMPLIANCE WITH WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS SECTION 652 EXCEPT:

THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS INCLUDING REPAIRS, REPLACEMENT OR RELOCATION ETC. OF STREET LIGHTING OR TRAFFIC SIGNAL FACILITIES IF THE CONTRACTOR DOES ANY DEVIATION FROM THE STREET LIGHTING OR TRAFFIC SIGNAL DESIGN WITHOUT THE STREET LIGHTING ENGINEERS SIGNED PERMISSION.

- 1
- DETAILS OF CONSTRUCTION MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
- 2
- LOCATIONS OF THE PVC CONDUITS WHERE THEY ARE REQUIRED ARE IDENTIFIED IN THE PRINTS. HOWEVER, INSTALLATION MAY REQUIRE INTEGRATION WITH EXISTING FIELD CONDITIONS. APPROPRIATE ADJUSTMENT ON CONDUIT LOCATIONS MAY BE MADE IF THE FIELD CONDITIONS ARE SUCH THAT THE CONDUIT CANNOT BE INSTALLED AT THE SPECIFIED LOCATIONS. ANY RELOCATIONS MUST BE APPROVED BY THE ENGINEER. FIELD MARK EACH CONDUIT LOCATION BY STAMPING AND PAINTING WITH RED PAINT ON TOP AND BACKSIDE OF CURB.
- 3
- TYPICAL CONDUIT INSTALLED UP TO DIRECT BURIED STREET LIGHT POLES IS AS FOLLOWS 3-INCH OR 2.5-INCH (AS NOTED) SCHEDULE 40 RIGID PVC TO STREET LIGHTING METAL HOUSING (PEDESTAL), THE 1.5-INCH SCHEDULE 40 RIGID PVC TO STREET LIGHT POLE CABLE SLOT, AND THE 2-INCH SCHEDULE 40 RIGID PVC TO SIGNAL STANDARD BASE AND RISER FOR TRAFFIC SIGNAL ON STREET LIGHT POLE.
- 4
- DEPTH OF CONDUIT INSTALLED BELOW THE STREETS, HIGHWAYS, ROADS, AND ALLEYS SHALL BE 24-INCHES MINIMUM AND 36-INCHES MAXIMUM. (MEASURED FROM FINISHED FLANGE LINE)
- 5
- CONDUIT INSTALLED BEHIND CURB, AND UNDER DRIVEWAYS SHALL BE INSTALLED AT A DISTANCE OF 6 INCHES AWAY FROM THE BACK OF CURB TO THE CENTER LINE OF CONDUIT, AND 18 INCHES DOWN MEASURED FROM THE TOP OF CURB OR FINISHED GRADE TO THE TOP OF CONDUIT.
- 6
- WHEN THERE IS MORE THAN ONE CONDUIT TO BE INSTALLED, PLACE ALL CONDUITS IN THE SAME TRENCH.
- 7
- ANY EXCEPTION TO THE MINIMUM OR MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.
- 8
- THE CONTRACTOR OR HIS SUBCONTRACTOR MUST MAKE SURE THE AREA BEHIND CURB AND/OR TRENCH SHALL BE FREE OF DEBRIS AND OVERPOUR AND SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.
- 9
- 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.
- 10
- ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON ALL CONDUITS. (SEE NEC 352.28 2008 CODE)
- 11
- PRIOR TO CONDUIT ACCEPTANCE, ALL CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND BE CAPPED IMMEDIATELY AFTER INSTALLATION WITH THE APPROPRIATE CAST PLASTIC CAP WHICH FITS SNUGGLY ON THE CONDUIT, BUT EASILY REMOVED IN THE FUTURE. DUCT TAPE OR ANY OTHER CAPPING METHOD IS NOT ACCEPTABLE.
- 12
- ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.
- 13
- CONDUIT RUNS SHALL BE THE SAME SIZE PIPE FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX OR JUNCTION BOX OR BASE TO BASE, ETC.).
- 14
- PULL ROPE (3/8-INCH NYLON) SHALL BE INSTALLED IN ALL NEW CONDUIT.
- 15
- 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 UNLESS OTHERWISE APPROVED BY THE STREET LIGHTING ENGINEER.
- 16
- WHEN ENDS OF CONDUIT DO NOT CONNECT TO A VAULT AND WILL END UP UNDER CONCRETE WALK. THE CONTRACTOR IS REQUIRED TO LEAVE A 24" X 24" BOX FORM CENTERED OVER THE END OF CONDUIT AND FILL THE BOXFORM WITH CRUSHED GRAVEL. (PER WISDOT SPEC 209.2.1(1) GRANULAR BACKFILL)
- 17
- ALL PIPE CROSSINGS AND VAULTS SHALL BE AT LEAST SIX (6) FEET AWAY FROM FIRE HYDRANTS, UNLESS NOTED OTHERWISE, OR APPROVED BY THE STREET LIGHTING ENGINEER.
- 18
- ALL POLES AND TRAFFIC STANDARDS IN CONCRETE ARE REQUIRED TO HAVE A 30"X30" BOX SHAPED JOINT PLACED AROUND THEM USING AN EXPANSION JOINT FILLER. UNLESS NOTED OTHERWISE (SEE DETAIL 122)
- 19
- TYPICAL RECTANGULAR VAULTS SHOULD BE INSTALLED AS SHOWN ON PLANS, BUT WHEN IT IS NOT POSSIBLE, A 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS AND FIRE HYDRANTS SHOULD BE USED, OTHERWISE APPROVED BY THE STREET LIGHTING ENGINEER.

TRAFFIC & STREET LIGHTING GENERAL NOTES:

- 20
- COORDINATE NEW CONDUIT CONNECTIONS WITH EXISTING CONDUIT, DUCT PACKAGES, AND VAULTS/ MANHOLES WITH CITY OF MILWAUKEE STREET LIGHTING. THE CITY REQUIRES THREE WORKING DAYS ADVANCED NOTICE. CONTACT ELECTRICAL SUPERVISOR STREET LIGHTING - DENNIS MILLER (OFFICE) 414-286-5942 (CELL) 414-708-4251 OR DISPATCHER @ 414-286-5944 TRAFFIC SIGNALS - AL NICHOLS (OFFICE) 414-286-3687 (CELL) 414-708-5148 OR DISPATCHER @ 414-286-3687
- 21
- IMMEDIATELY AFTER THE CONTRACTOR HAS COMPLETED ALL THE ELECTRICAL VAULT, CONDUIT AND CONDUIT CONNECTIONS, AND JUST BEFORE ELECTRICAL WORK IS COVERED UP WITH CONRETE, SOIL, OR ETC. THE CONTRACTOR IS REQUIRED TO CONTACT THE CITY OF MILWAUKEE ELECTRICAL SHOP SUPERVISORS FOR FINAL INSPECTION AND APPROVAL OF ALL WORK. STREET LIGHTING - DENNIS MILLER (OFFICE) 414-286-5942 (CELL) 414-708-4251 STREET LIGHTING - GEORGE BERDINE (OFFICE) 414-286-5943 (CELL) 414-708-4245 STREET LIGHTING - THOMAS HUGHES (OFFICE) 414-286-3457 (CELL) 414-708-3175 STREET LIGHTING - DISPATCHER @ 414-286-5944 TRAFFIC SIGNALS - AL NICHOLS (OFFICE) 414-286-5941 (CELL) 414-708-5148 TRAFFIC SIGNALS - DISPATCHER @ 414-286-3687
- 22
- CONDUIT WILL ONLY BE INSTALLED AFTER THE CURB IS POURED, UNLESS APPROVED BY BOTH THE ENGINEER & STREET LIGHTING SHOP SUPERVISOR.

LEGEND

STREET LIGHT POLE

TRAFFIC SIGNAL MOUNTED ON LIGHT POLE

EXISTING SIGNAL STANDARD BASE

VAULT TO BE INSTALLED

TRAFFIC CONTROL CABINET

STREET LIGHTING ENCLOSURE

PVC CONDUIT

TRAFFIC SIGNAL BASE TO BE INSTALLED

MONOTUBE MAST ARM BASE TO BE INSTALLED

MAST ARM

SIGNAL HEAD LOCATION ON MAST ARM

EVP DETECTOR LOCATION ON MAST ARM

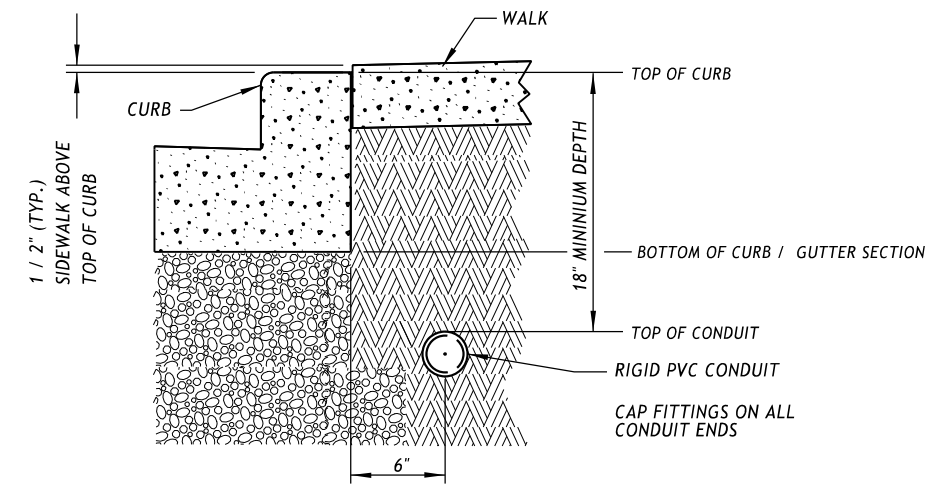
CONCRETE BOX JOINT AROUND FACILITIES

SEE DETAIL NUMBER FOR ADDITIONAL INFORMATION

UTILITY LINE CODE

- SANITARY SEWER
- STORM SEWER
- WATER
- GAS
- PROPOSED GAS
- ELECTRIC
- TRAFFIC & STREET LIGHTING
- OLD CITY UNDERGROUND CONDUIT
- PROPOSED CITY UNDERGROUND CONDUIT
- TELEPHONE
- CABLE

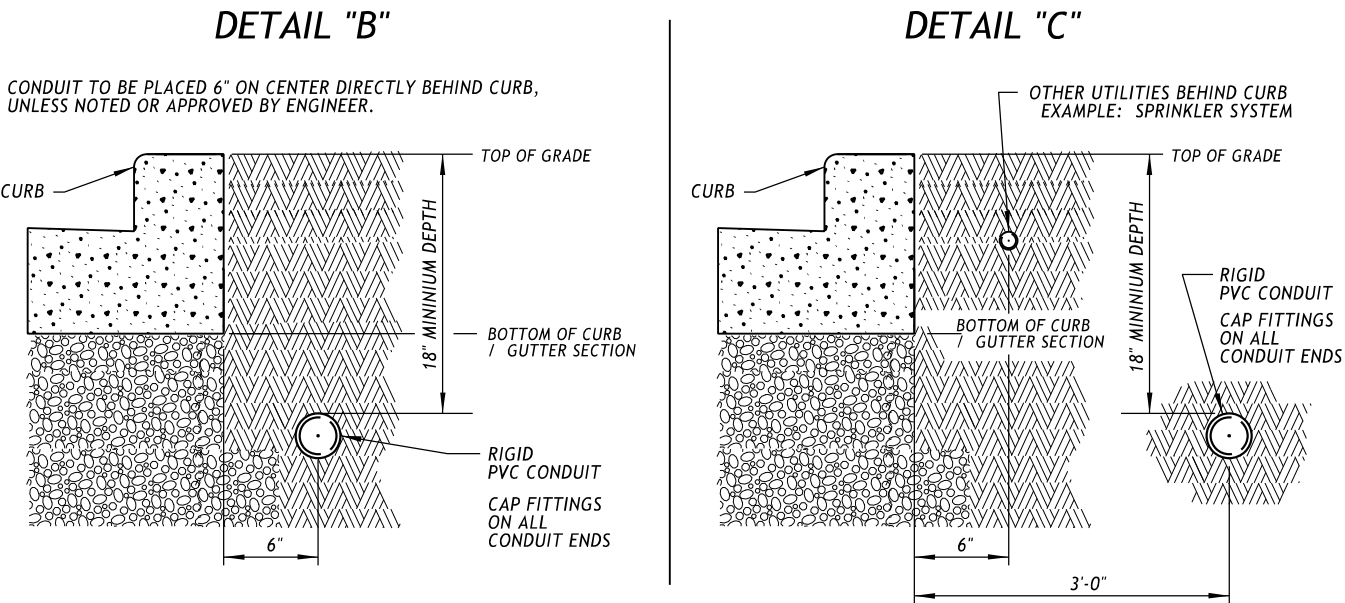
NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.
2.) CONDUIT TO BE PLACED 6 INCHES ON CENTER DIRECTLY BEHIND CURB, UNLESS NOTED OR APPROVED BY ENGINEER.



100 **DETAIL "A"**
TYPICAL CONDUIT INSTALLATION
BEHIND CURB NOT TO SCALE

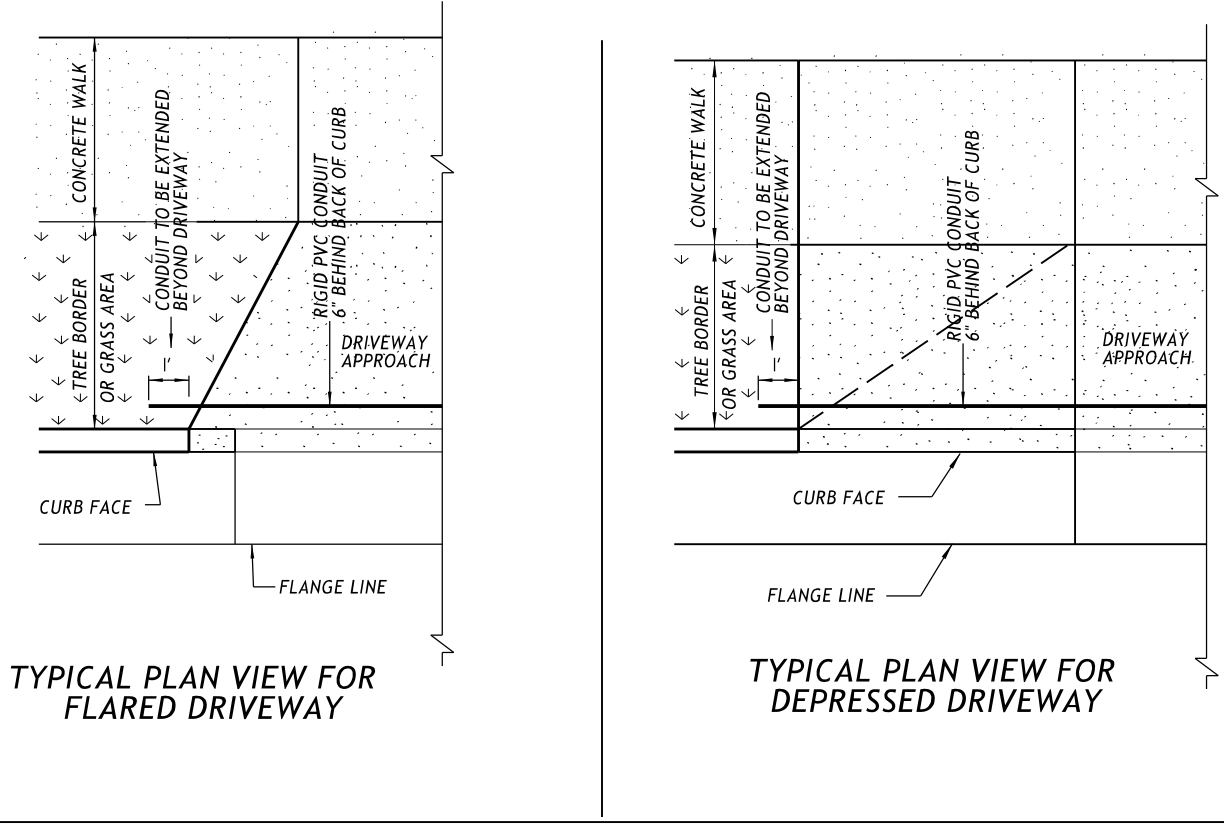
ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.



100 **DETAIL "B" & "C"**
TYPICAL CONDUIT INSTALLATION
BEHIND CURB NOT TO SCALE

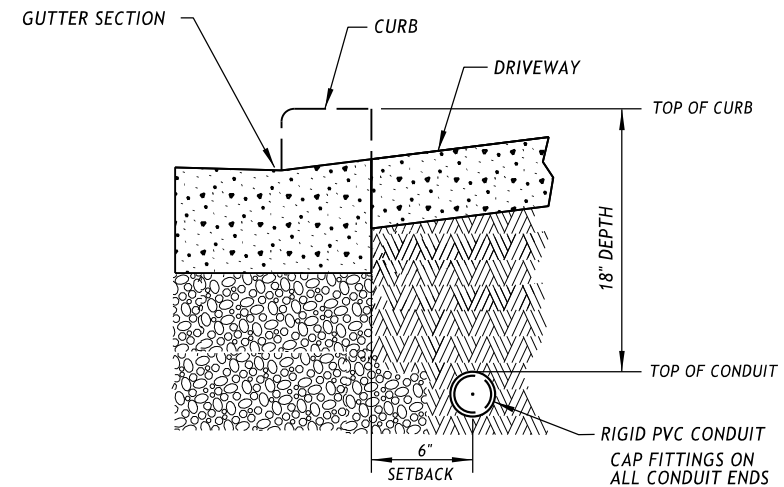
ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.



TYPICAL PLAN VIEW FOR
FLARED DRIVEWAY

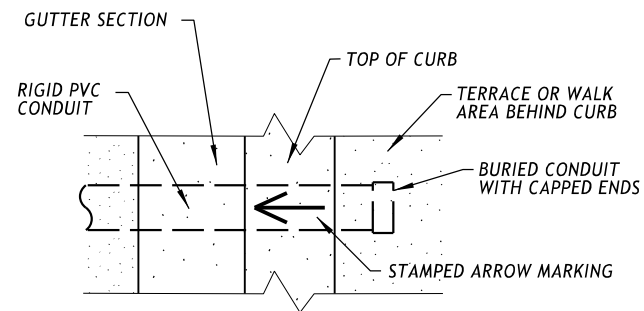
TYPICAL PLAN VIEW FOR
DEPRESSED DRIVEWAY

NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.
2.) CONDUIT TO BE PLACED 6 INCHES ON CENTER DIRECTLY BEHIND CURB, UNLESS NOTED OR APPROVED BY ENGINEER.



101 **DETAIL**
TYPICAL CONDUIT INSTALLATION
UNDER DRIVEWAYS OR PEDESTRIAN RAMPS NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

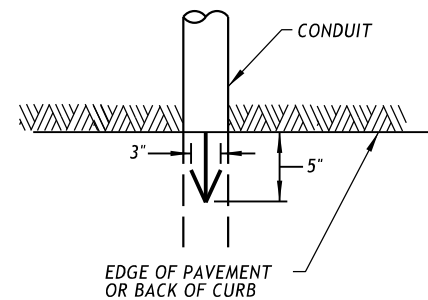


TOP VIEW OF CURB STAMPING

NOT TO SCALE

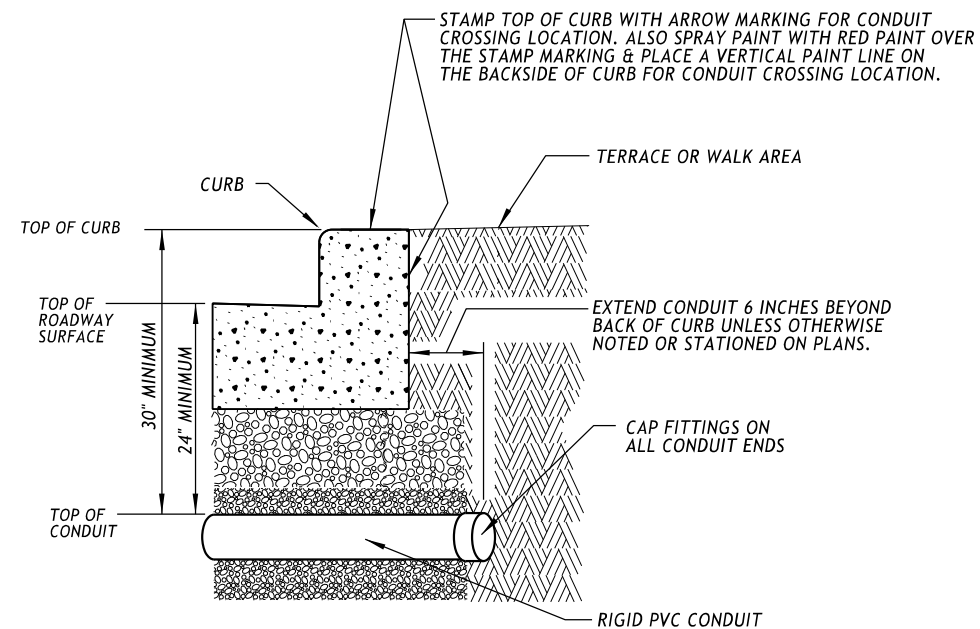
NOTE:

ARROW MARK SHALL BE INSCRIBED IN PAVEMENT SURFACE 1 / 4-INCH TO 3 / 8-INCH DEEP AT EACH LOCATION WHERE CONDUITS ARE PLACED UNDER THE PAVEMENT.



ARROW MARK

NOT TO SCALE



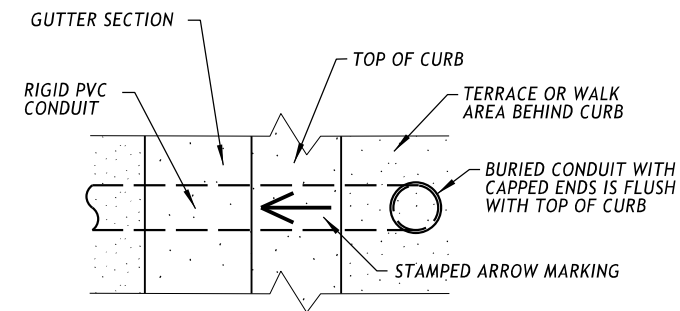
102

DETAIL VERSION #1

TYPICAL CONDUIT INSTALLATION
FOR CROSSING ROADWAYS

NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

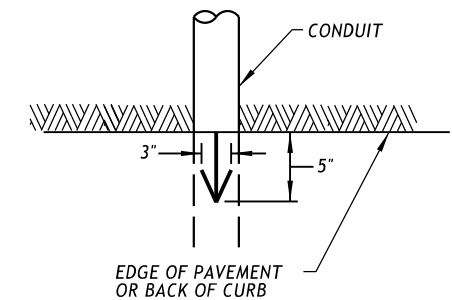


TOP VIEW OF CURB STAMPING

NOT TO SCALE

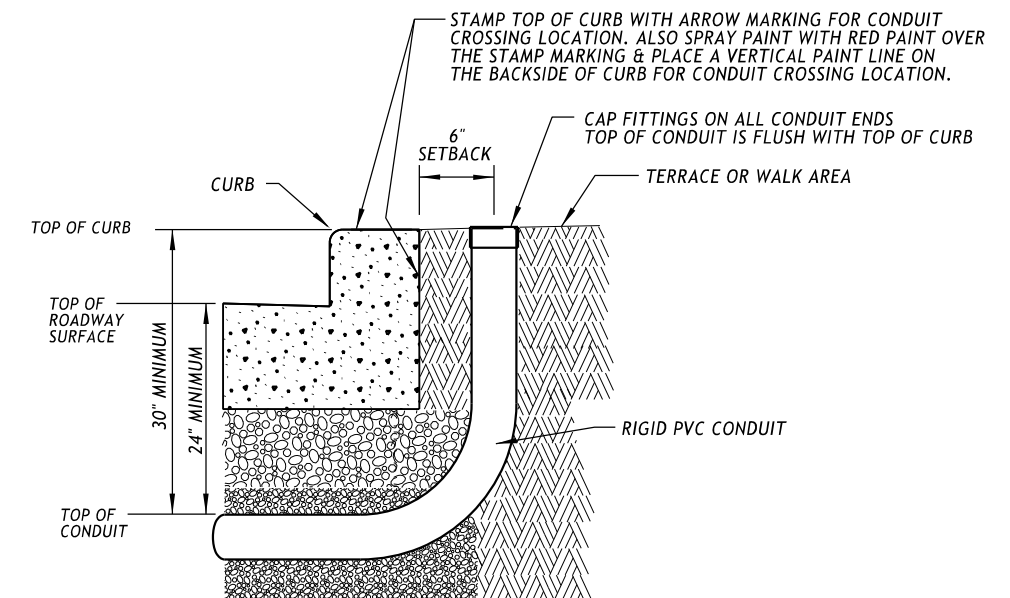
NOTE:

ARROW MARK SHALL BE INSCRIBED IN PAVEMENT SURFACE 1 / 4-INCH TO 3 / 8-INCH DEEP AT EACH LOCATION WHERE CONDUITS ARE PLACED UNDER THE PAVEMENT.



ARROW MARK

NOT TO SCALE



102

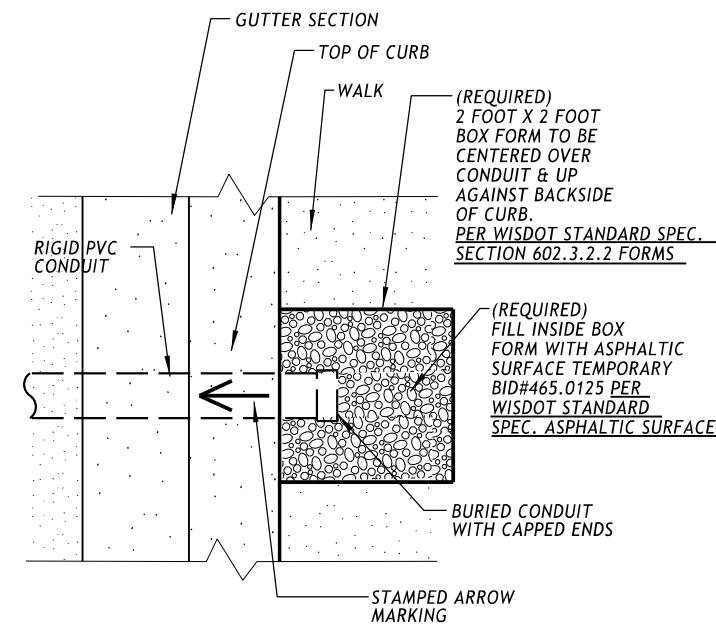
DETAIL VERSION #2

TYPICAL CONDUIT INSTALLATION
FOR CROSSING ROADWAYS

NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

SHEET 3 OF 9

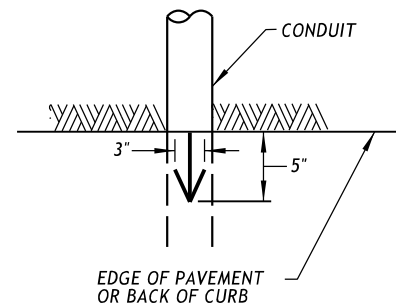


TOP VIEW OF CURB STAMPING

NOT TO SCALE

NOTE:

ARROW MARK SHALL BE INSCRIBED IN PAVEMENT SURFACE 1 / 4-INCH TO 3 / 8-INCH DEEP AT EACH LOCATION WHERE CONDUITS ARE PLACED UNDER THE PAVEMENT.

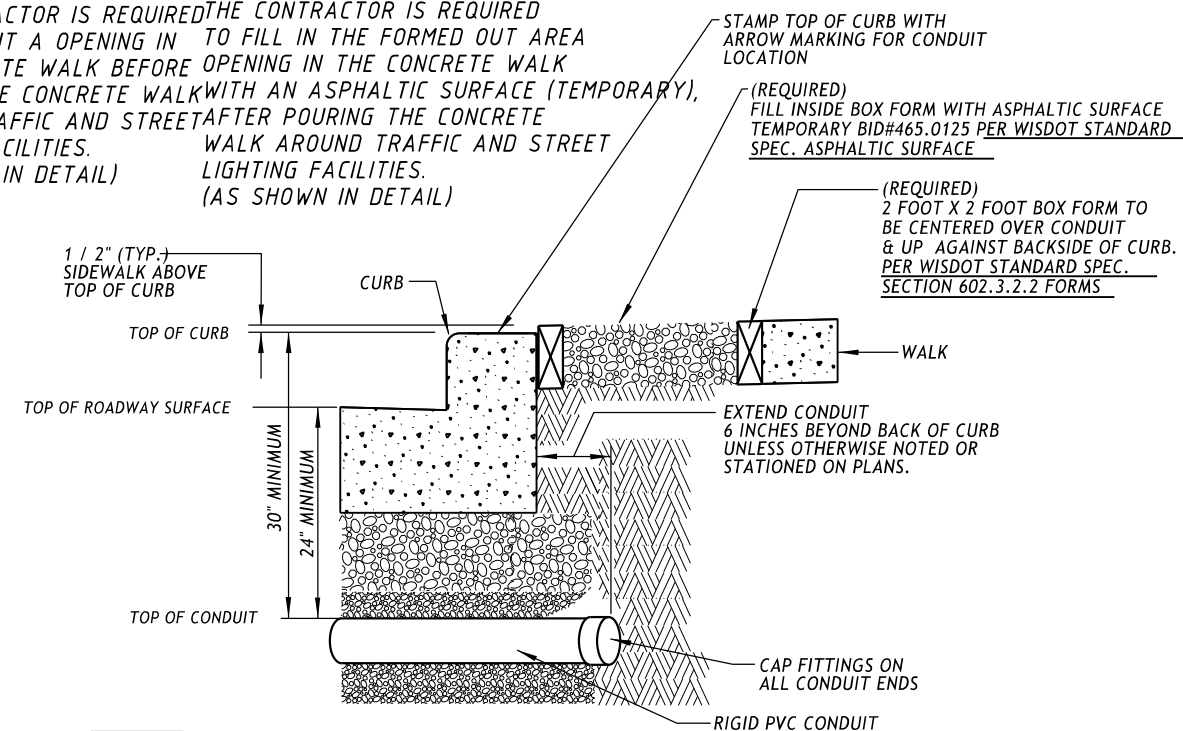


ARROW MARK

NOT TO SCALE

THE CONTRACTOR IS REQUIRED TO FORM OUT A OPENING IN THE CONCRETE WALK BEFORE OPENING IN THE CONCRETE WALK POURING THE CONCRETE WALK WITH AN ASPHALTIC SURFACE (TEMPORARY), AROUND TRAFFIC AND STREET LIGHTING FACILITIES. (AS SHOWN IN DETAIL)

THE CONTRACTOR IS REQUIRED TO FILL IN THE FORMED OUT AREA AFTER POURING THE CONCRETE WALK AROUND TRAFFIC AND STREET LIGHTING FACILITIES. (AS SHOWN IN DETAIL)

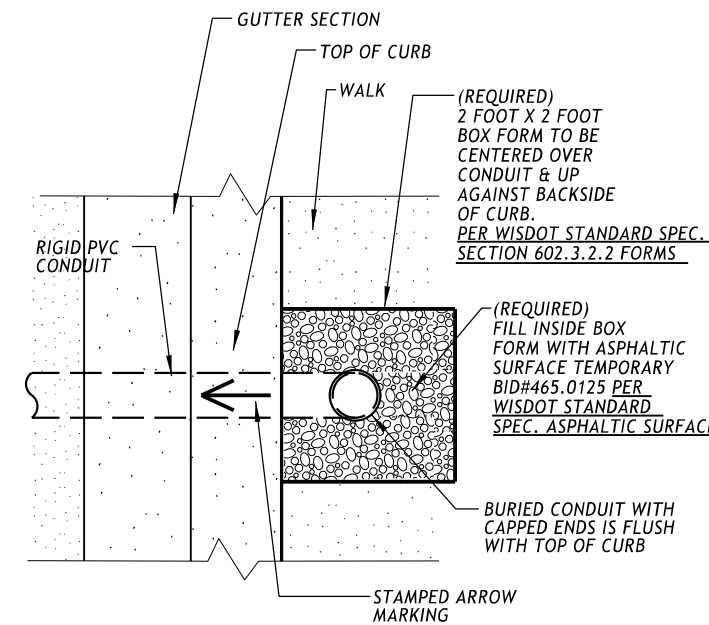


103

DETAIL VERSION #1
TYPICAL CONDUIT INSTALLATION
FOR CROSSING ROADWAYS
FROM FULL WALK AREAS

NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

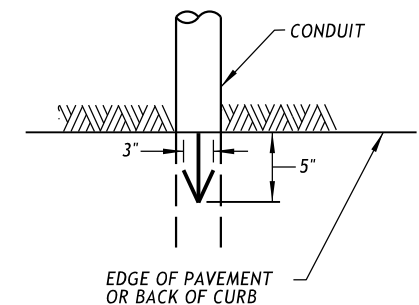


TOP VIEW OF CURB STAMPING

NOT TO SCALE

NOTE:

ARROW MARK SHALL BE INSCRIBED IN PAVEMENT SURFACE 1 / 4-INCH TO 3 / 8-INCH DEEP AT EACH LOCATION WHERE CONDUITS ARE PLACED UNDER THE PAVEMENT.

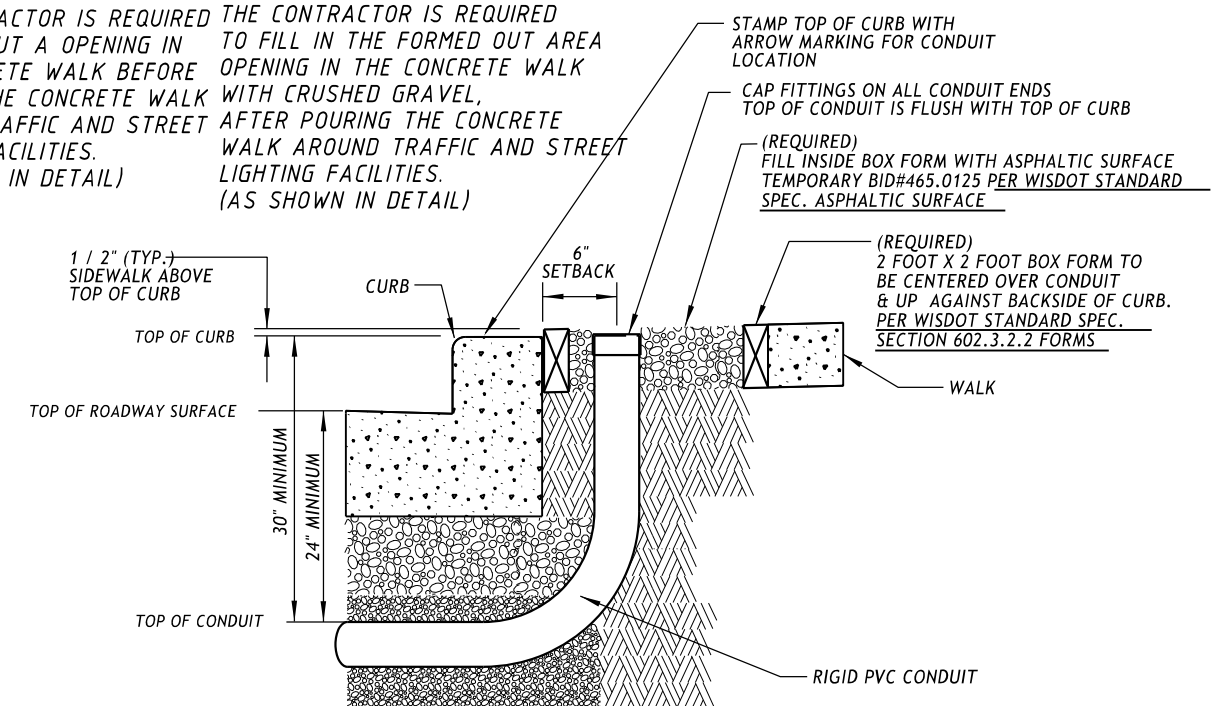


ARROW MARK

NOT TO SCALE

THE CONTRACTOR IS REQUIRED TO FORM OUT A OPENING IN THE CONCRETE WALK BEFORE OPENING IN THE CONCRETE WALK POURING THE CONCRETE WALK WITH CRUSHED GRAVEL, AROUND TRAFFIC AND STREET LIGHTING FACILITIES. (AS SHOWN IN DETAIL)

THE CONTRACTOR IS REQUIRED TO FILL IN THE FORMED OUT AREA AFTER POURING THE CONCRETE WALK AROUND TRAFFIC AND STREET LIGHTING FACILITIES. (AS SHOWN IN DETAIL)



103

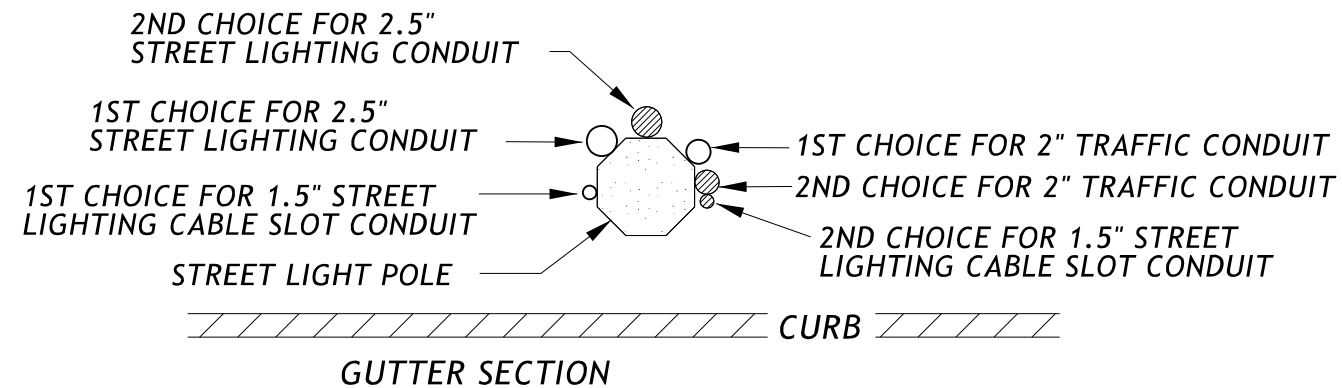
DETAIL VERSION #2
TYPICAL CONDUIT INSTALLATION
FOR CROSSING ROADWAYS
FROM FULL WALK AREAS

NOT TO SCALE

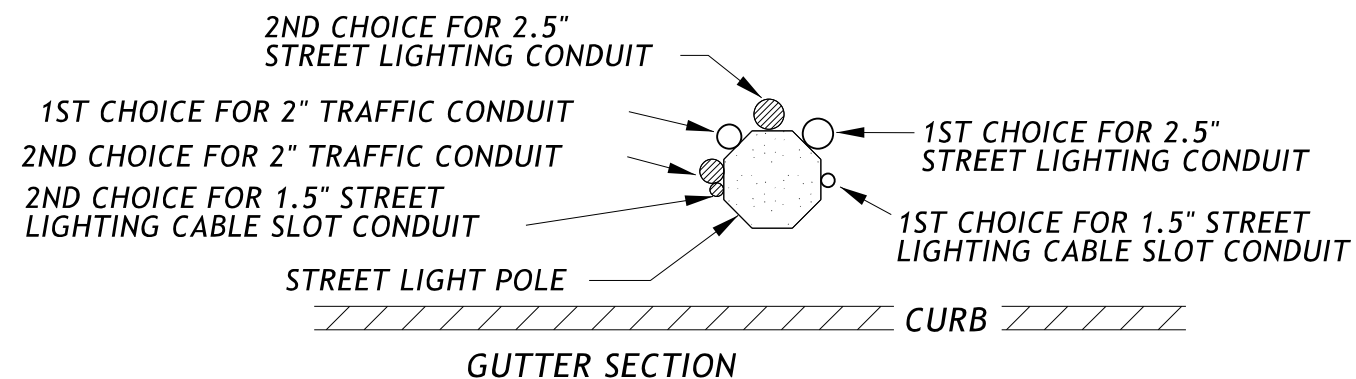
ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

SHEET 4 OF 9

NOTE: CAP FITTINGS ON
CONDUIT ENDS



DIRECTION OF TRAFFIC AT CURB



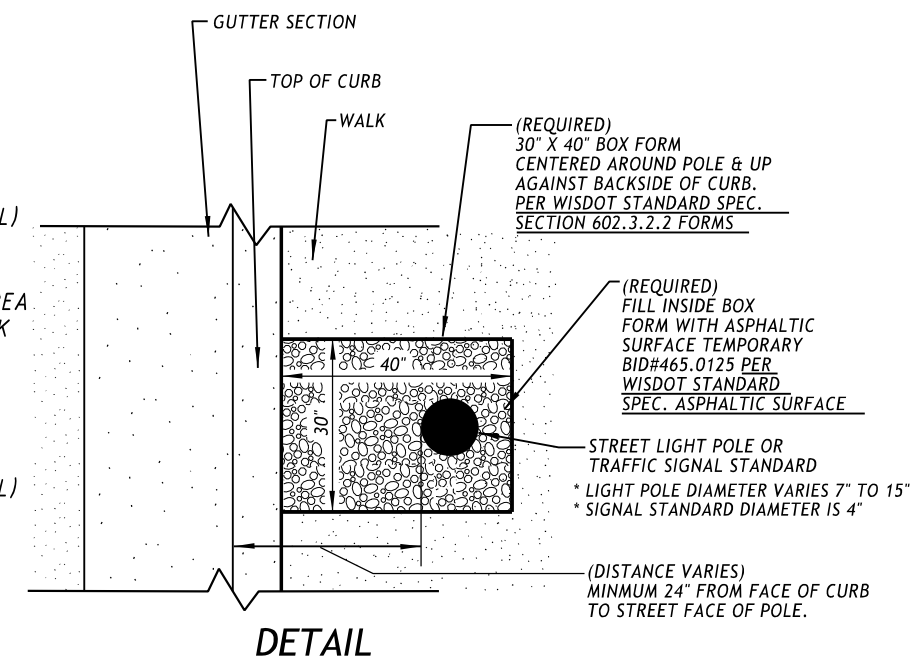
DIRECTION OF TRAFFIC AT CURB

104 **DETAIL**
**TYPICAL TRAFFIC SIGNAL RISER AND
STREET LIGHTING CONDUIT LOCATIONS
ON LIGHT POLES DEPENDING ON DIRECTION OF
TRAFFIC AT CURB**

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM TRAFFIC / STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

THE CONTRACTOR IS REQUIRED
TO FORM OUT A OPENING IN
THE CONCRETE WALK BEFORE
POURING THE CONCRETE WALK
AROUND TRAFFIC AND STREET
LIGHTING FACILITIES.
(AS SHOWN IN ADJACENT DETAIL)

THE CONTRACTOR IS REQUIRED
TO FILL IN THE FORMED OUT AREA
OPENING IN THE CONCRETE WALK
WITH AN ASPHALTIC SURFACE
(TEMPORARY), AFTER POURING
THE CONCRETE WALK AROUND
TRAFFIC AND STREET LIGHTING
FACILITIES.
(AS SHOWN IN ADJACENT DETAIL)



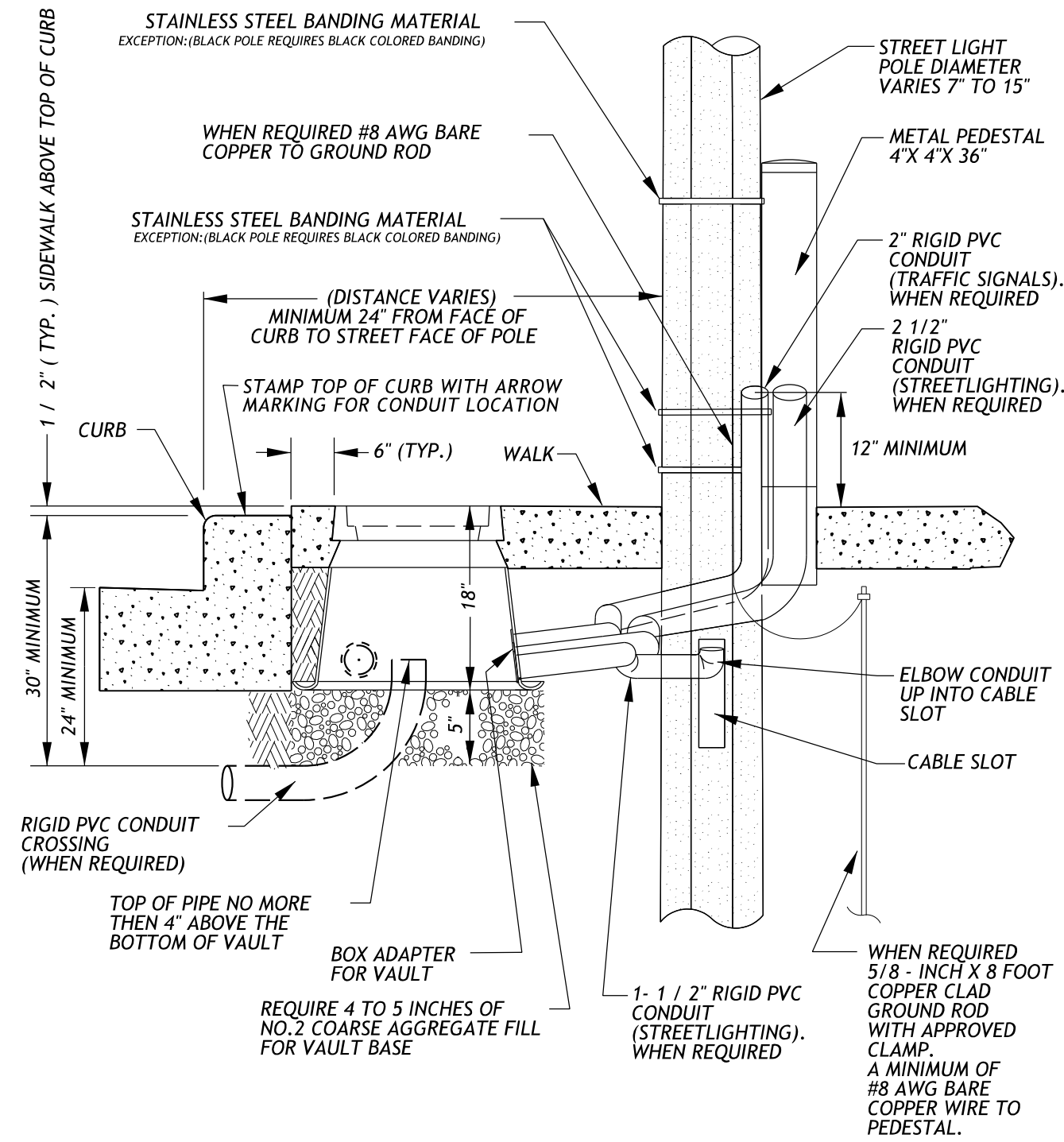
105

DETAIL
**TYPICAL 30" X 40" BOX FORM
AROUND STREET LIGHTING POLE OR
TRAFFIC SIGNAL STANDARD**

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

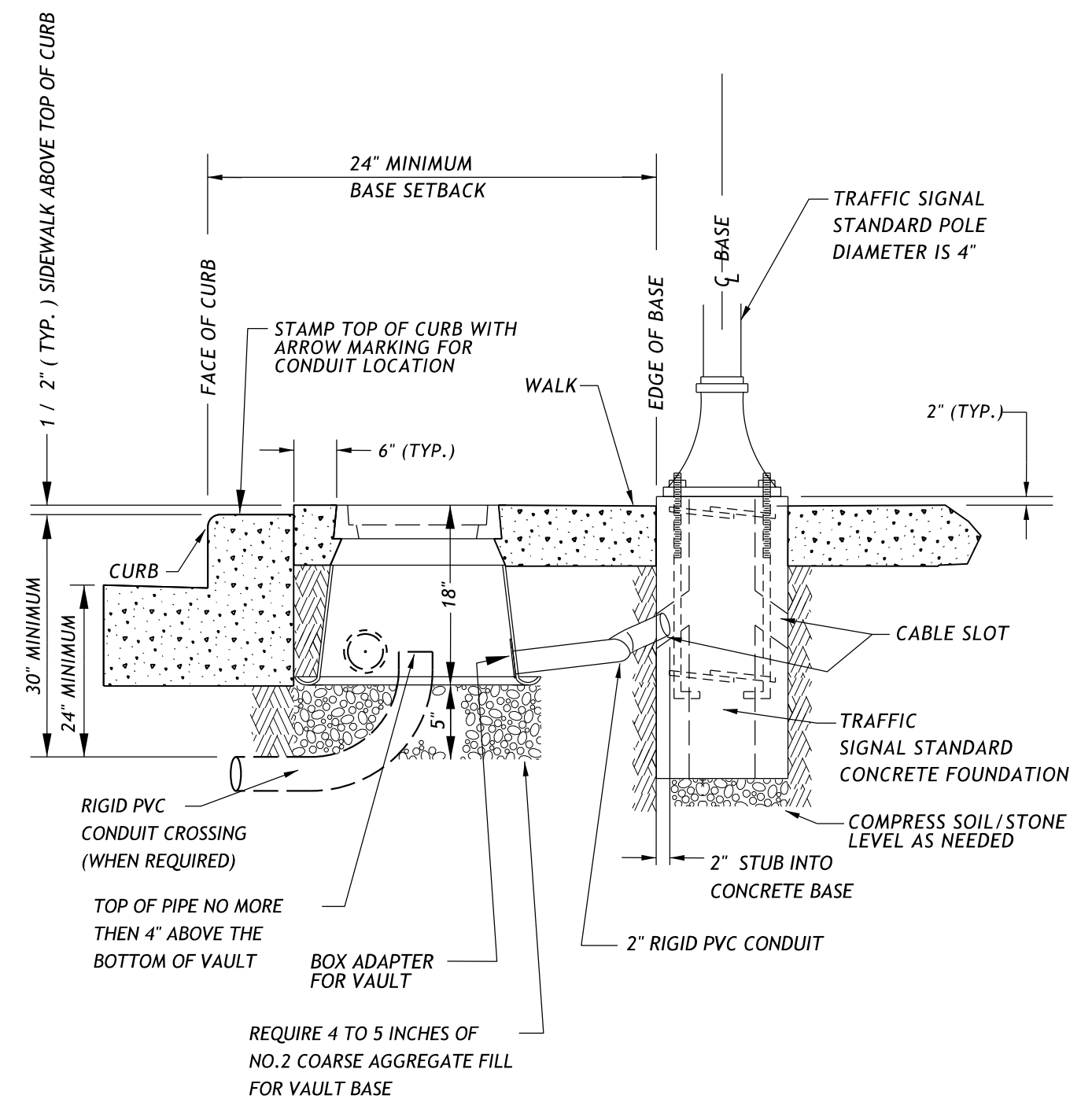
NOT TO SCALE

SHEET 5 OF 9



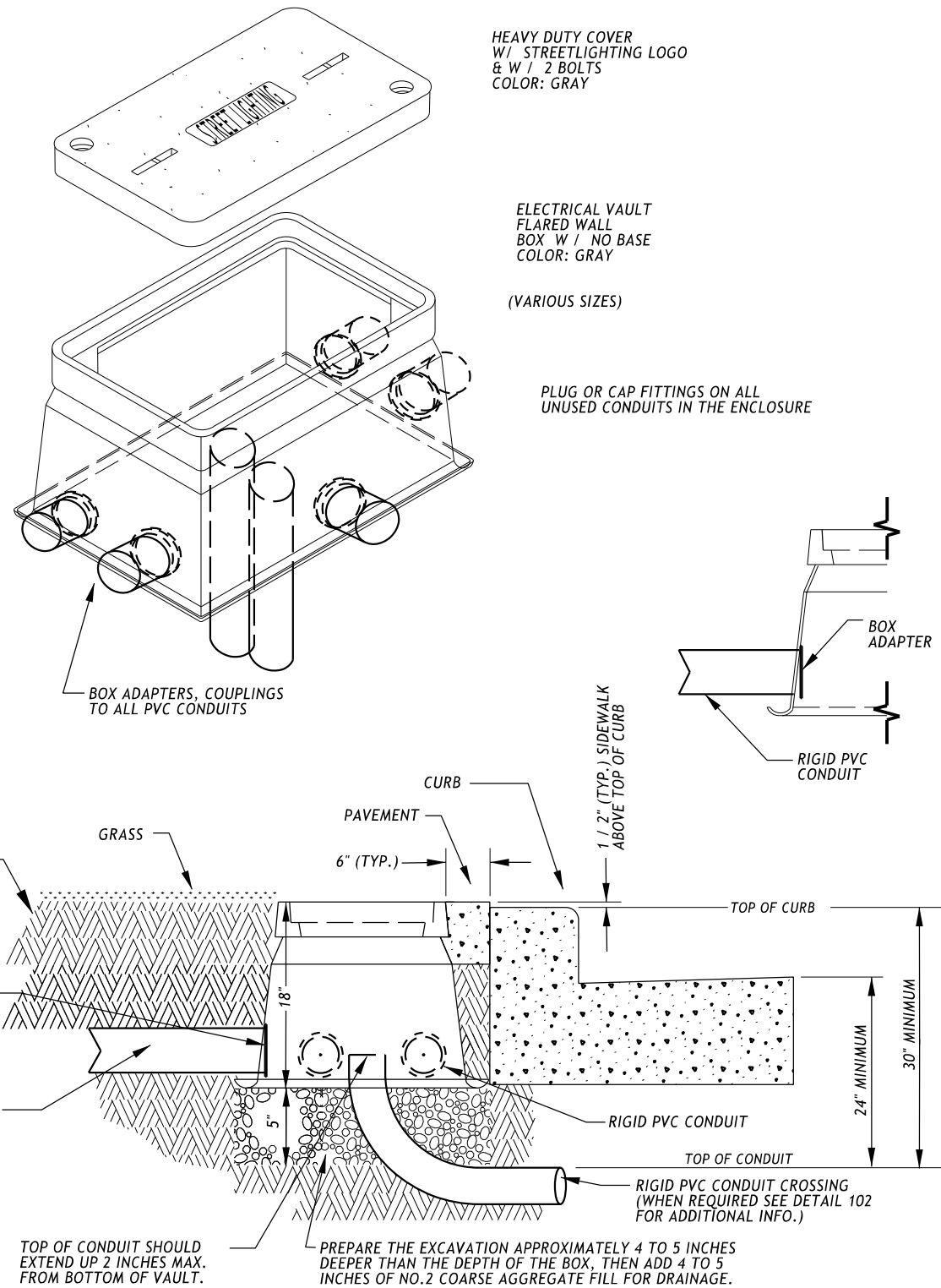
108 **DETAIL VERSION #1**
TYPICAL CONDUIT INSTALLATION
FROM VAULT TO POLE NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
 CONTACT DISPATCHER AT (414) (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.



109 **DETAIL**
TYPICAL CONDUIT INSTALLATION
FROM VAULT TO SIGNAL STANDARD
AND TYPICAL BASE INSTALLATION NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM TRAFFIC & LIGHTING FORCES.
 CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.



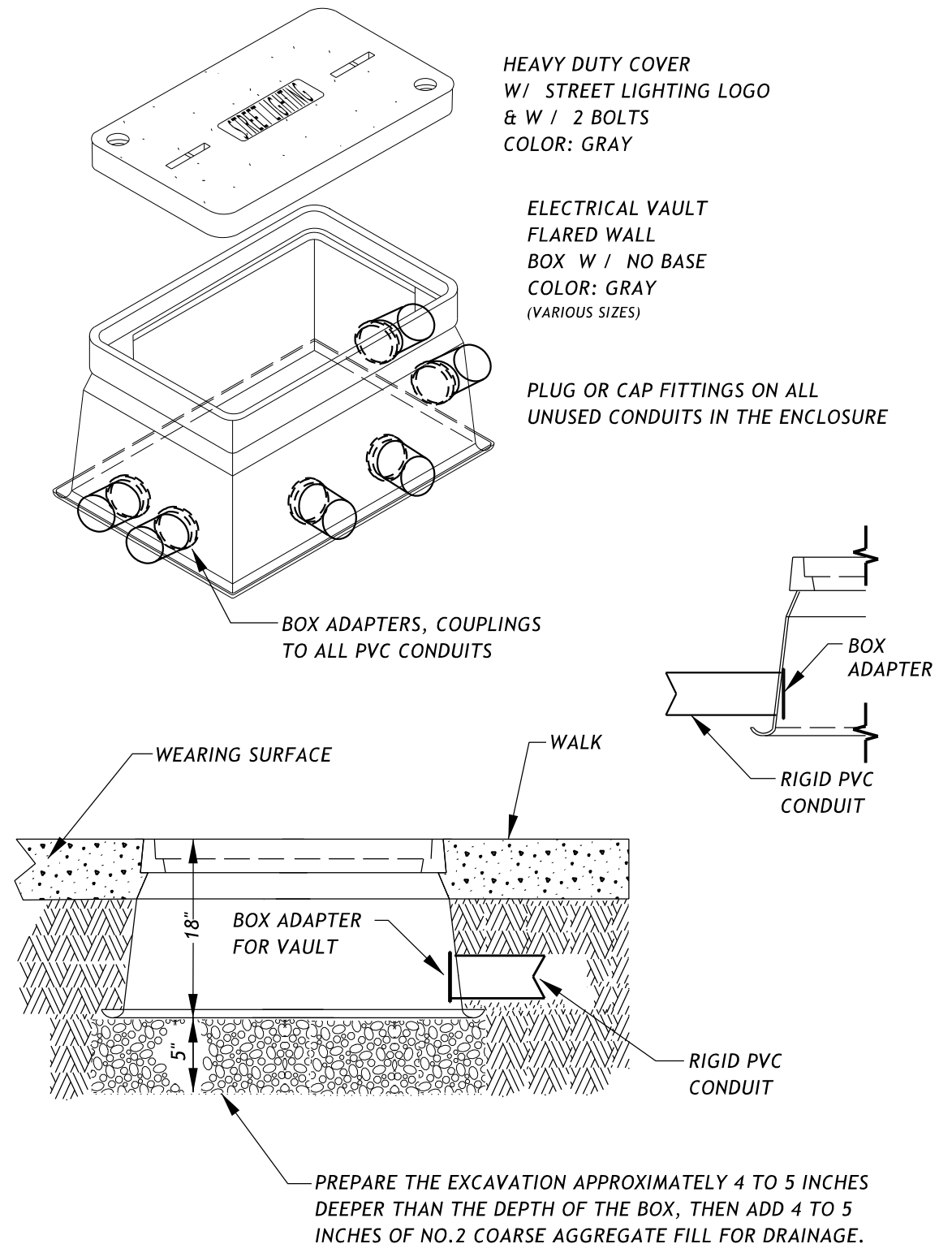
112

DETAIL

NOT TO SCALE

**TYPICAL VAULT INSTALLATION IN EITHER
PAVEMENT OR GRASS AREAS**

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.



113

DETAIL

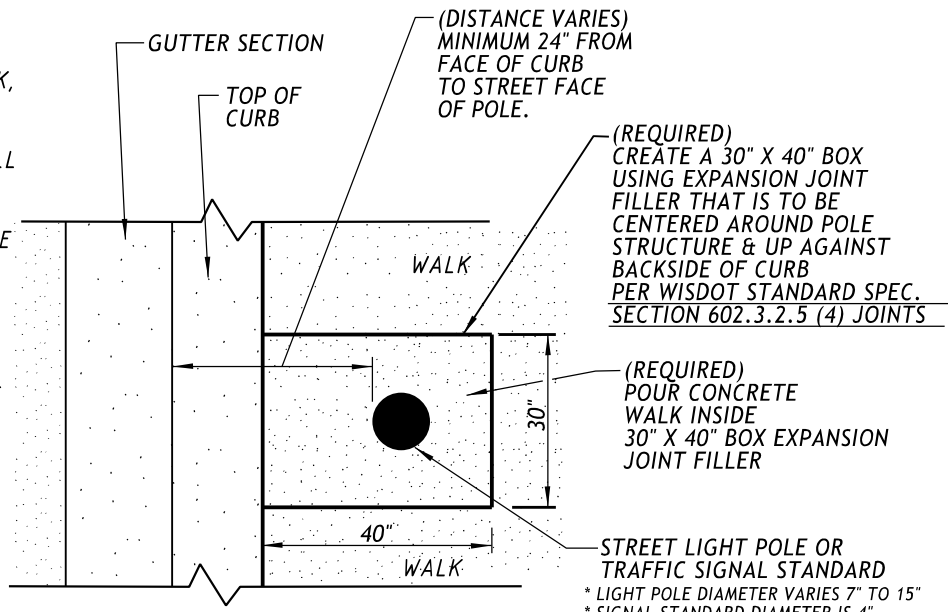
TYPICAL VAULT INSTALLATION IN SIDEWALK

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

NOT TO SCALE
SHEET 7 OF 9

THE CONTRACTOR IS REQUIRED TO INSTALL EXPANSION JOINT FILLER INTO THE CONCRETE WALK, WHICH SHALL BE 1/2" WIDE MINIMUM TO BE USED TO CREATE A SEPARATION BETWEEN A SMALL CONCRETE AREA AROUND THE TRAFFIC & STREET LIGHTING FACILITIES AND THE REST OF THE CONCRETE WALK.

THE BOX SIZE OF THE AREA CREATED USING THE EXPANSION JOINT FILLER IS STANDARD AROUND LIGHT POLES AND TRAFFIC SIGNALS, BUT WILL VARY WHEN PLACED AROUND TRAFFIC & LIGHTING CONTROL CABINETS.

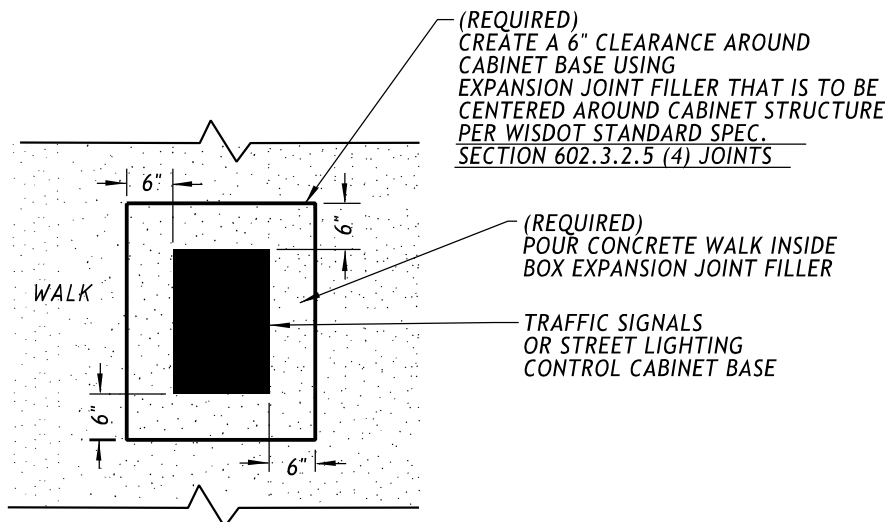


122 **DETAIL VERSION #1**
TYPICAL 30" X 40" BOX EXPANSION JOINT FILLER
AROUND STREET LIGHTING AND
TRAFFIC SIGNAL FACILITIES NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

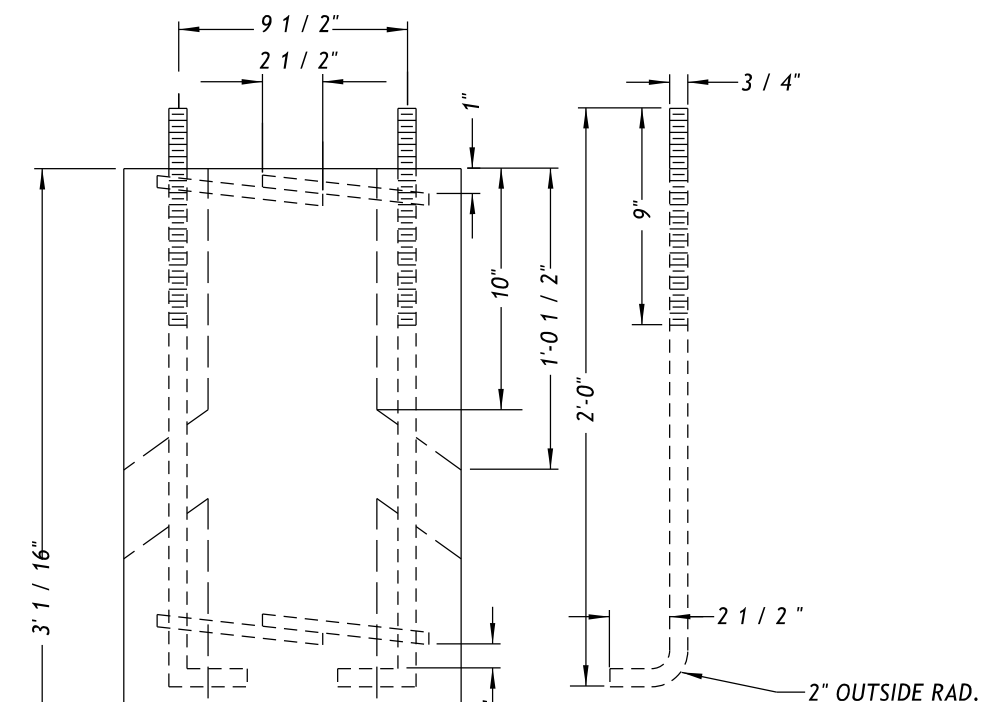
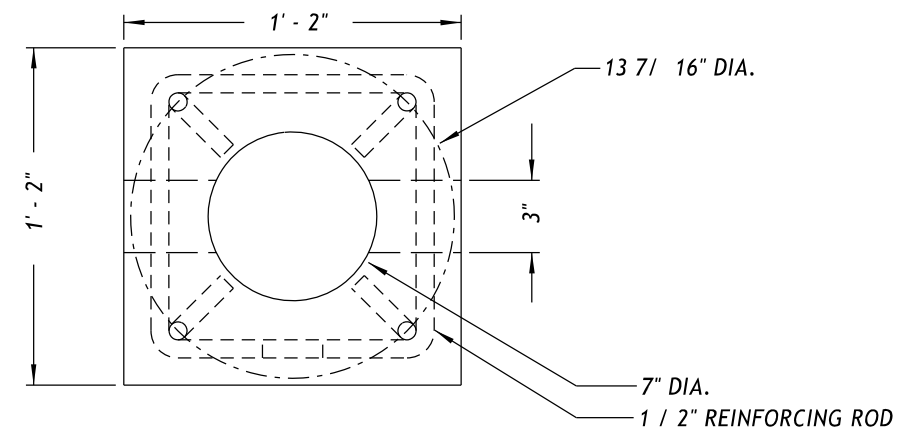
THE CONTRACTOR IS REQUIRED TO INSTALL EXPANSION JOINT FILLER INTO THE CONCRETE WALK, WHICH SHALL BE 1/2" WIDE MINIMUM TO BE USED TO CREATE A SEPARATION BETWEEN A SMALL CONCRETE AREA AROUND THE TRAFFIC & STREET LIGHTING FACILITIES AND THE REST OF THE CONCRETE WALK.

THE BOX SIZE OF THE AREA CREATED USING THE EXPANSION JOINT FILLER IS STANDARD AROUND LIGHT POLES AND TRAFFIC SIGNALS, BUT WILL VARY WHEN PLACED AROUND TRAFFIC & LIGHTING CONTROL CABINETS.



122 **DETAIL VERSION #2**
TYPICAL BOX EXPANSION JOINT FILLER
AROUND TRAFFIC SIGNAL
OR STREET LIGHTING CONTROL CABINET NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

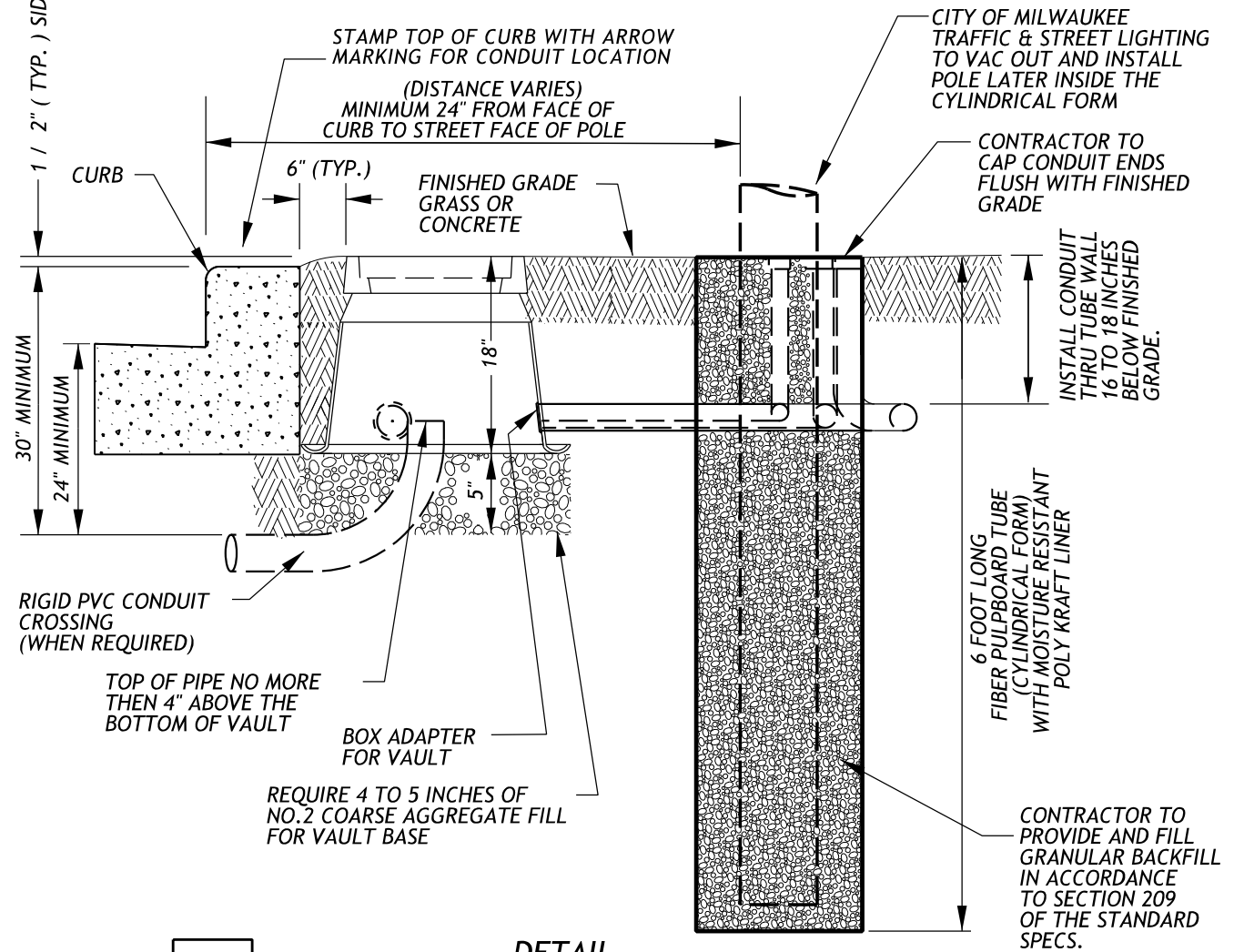
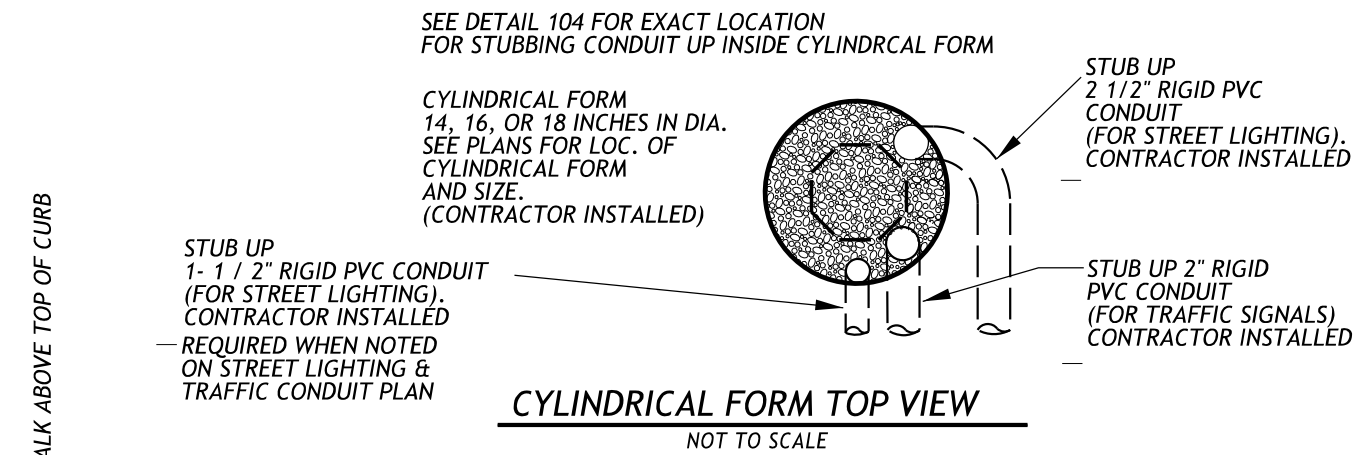


126 **DETAIL**
TYPICAL TRAFFIC SIGNAL
STANDARD CONCRETE FOUNDATION

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM TRAFFIC SIGNAL FORCES.
CONTACT DISPATCHER AT (414) 286-3687 FOR SHOP SUPERVISOR.

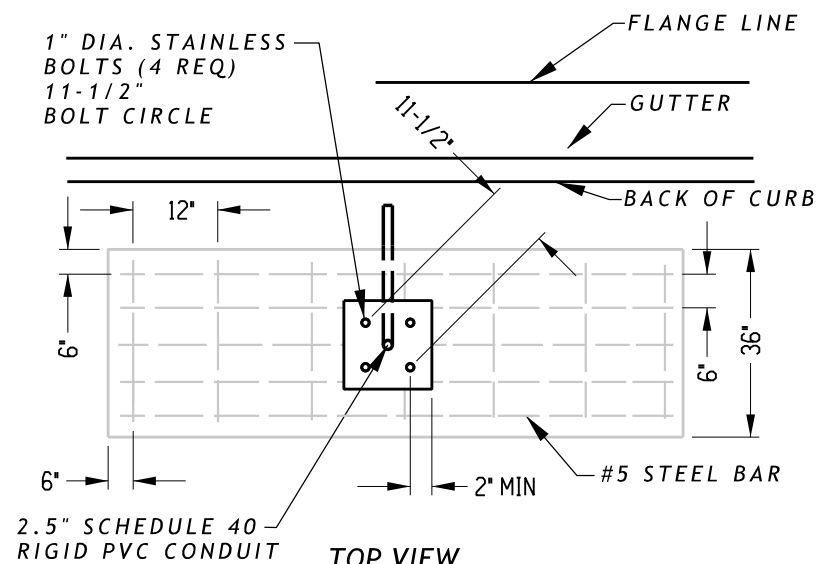
6 BAG MIX #1 STONE				
COMM. CODE 1238-936				
CONCRETE FOUNDATION				
TRAFFIC SIGNAL STANDARD				
BUREAU OF TRAFFIC ENGINEERING				
AND				
ELECTRICAL SERVICES				
D.P.W. CITY OF MILWAUKEE				
TRAFFIC CONTROL MATERIAL				
DATE	SCALE	DRAWN	CHECKED	APPROVED
4-18-75	Not To Scale	J.H.S.	B.J.T.	R.J.B.
SUPERSEDES	REVISED DATE	DRG.		
	07-29-03	C-75-563-T		
SUPERSEDED BY	NEW DRG.	F-82-535-T		

NOT TO SCALE

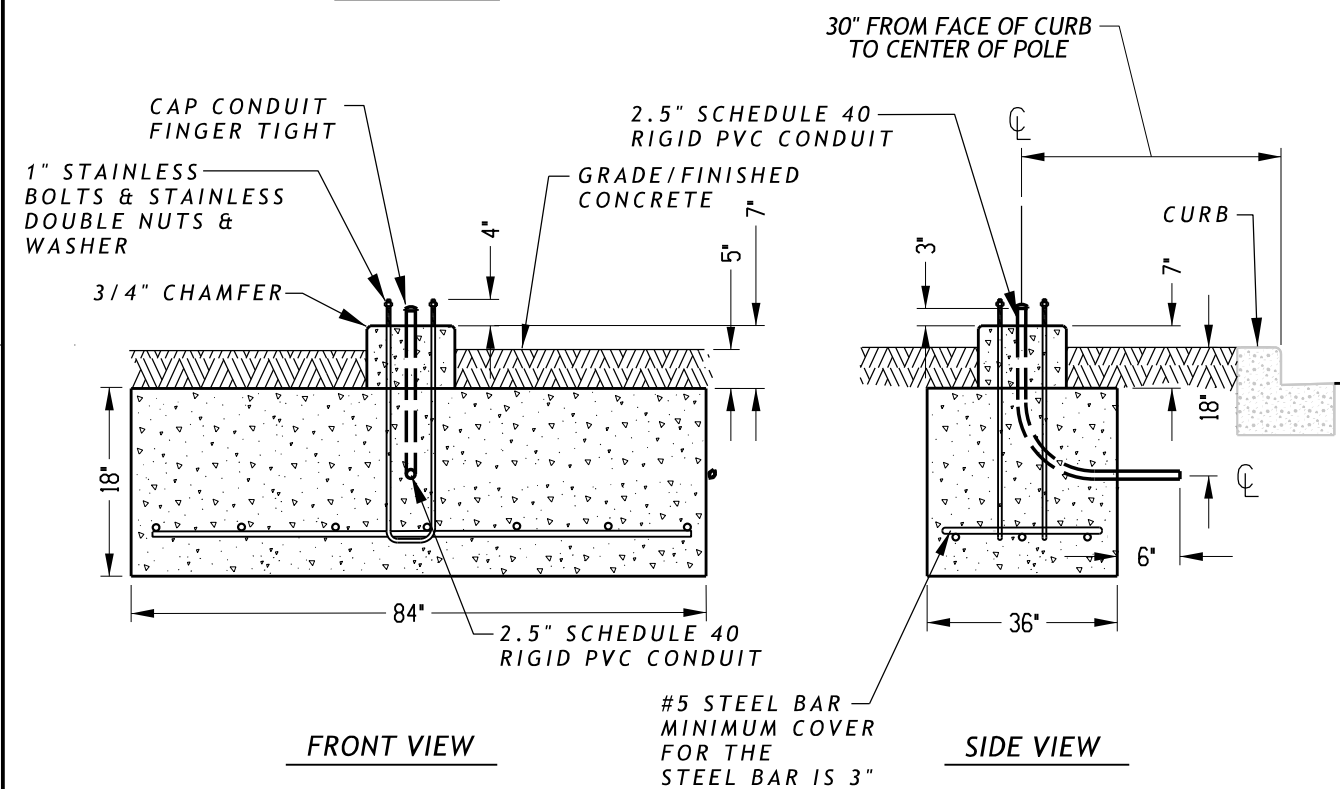


ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

2



CONTACT: DENNIS MILLER
(DPW) @ (414) 708-4251



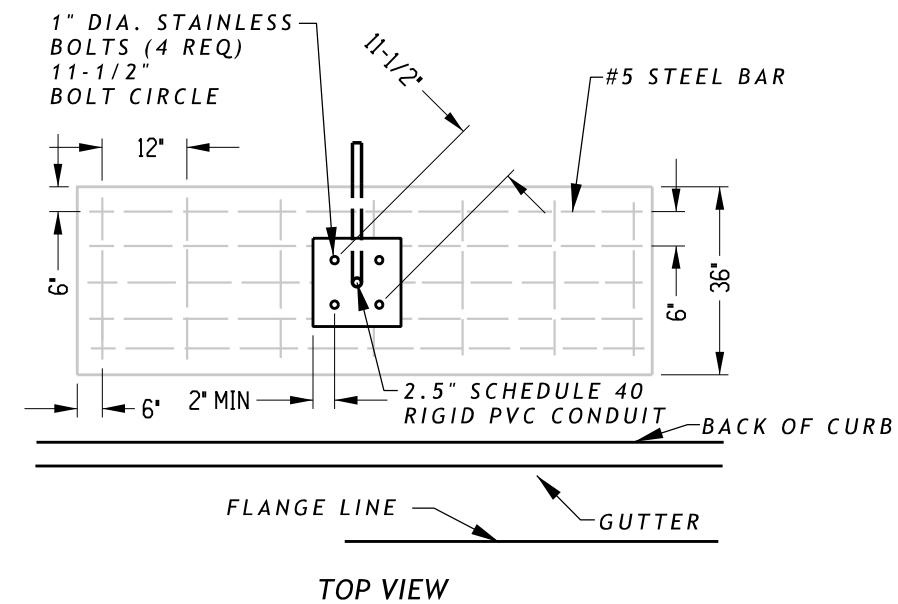
DETAIL

TYPICAL SPREAD FOOTING WITH CURBSIDE CONDUIT FEED

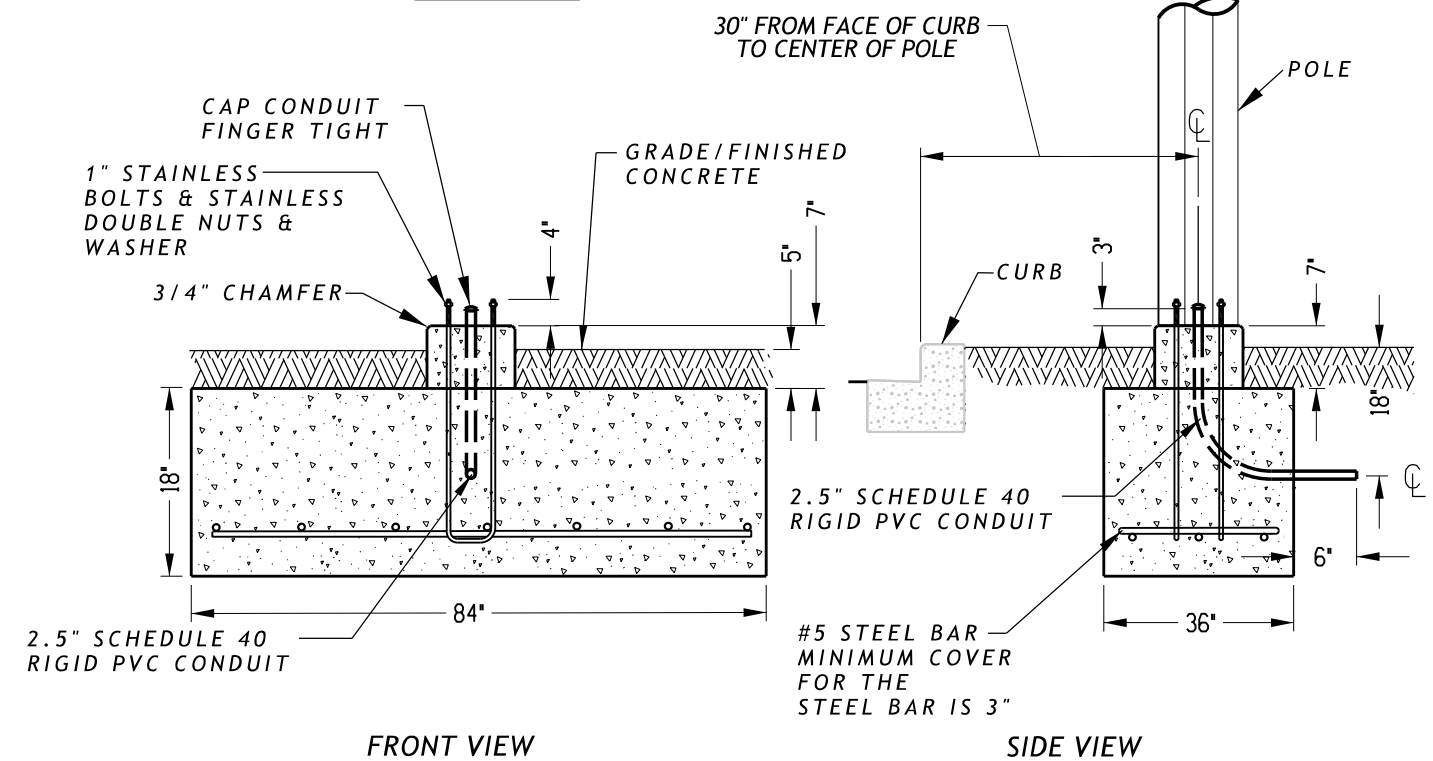
ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

NOT TO SCALE

2



CONTACT: DENNIS MILLER
(DPW) @ (414) 708-4251



DETAIL

TYPICAL SPREAD FOOTING WITH SIDEWALK SIDE CONDUIT FEED

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

NOT TO SCALE

SPREAD FOOTING BASE FOR A-31 BOLT DOWN CONCRETE POLE

1" DIA. STAINLESS BOLTS (4 REQ)
1'-1" BOLT CIRCLE

FLANGE LINE

GUTTER

BACK OF CURB

12"

6"

36"

6"

6"

RIGID PVC CONDUIT

#5 STEEL BAR

1'-1"

The diagram is a cross-sectional view of a curb and gutter assembly. At the top, a horizontal line represents the 'FLANGE LINE'. Below it is a 'GUTTER' channel. The 'BACK OF CURB' is indicated by a vertical line. The curb itself is a rectangular structure with a grid of '#5 STEEL BAR' reinforcement. A 'RIGID PVC CONDUIT' is shown passing through the curb, secured by '1" DIA. STAINLESS BOLTS (4 REQ)' with a '1'-1" BOLT CIRCLE'. Dimensions are provided for various parts: a 12" width for the gutter area, a 6" height for the gutter, a 36" total height for the curb, and a 6" height for the curb base. A 1'-1" dimension is also shown for the bolt circle.

**CONTACT: DENNIS MILLER
(DPW) @ (414) 708-4251**



TYPICAL SPREAD FOOTING WITH CURBSIDE CONDUIT FEED

NOT TO SCALE

[illegible]

CONTACT: DENNIS MILLER
(DPW) @ (414) 708-4251



TYPICAL SPREAD FOOTING WITH SIDEWALK SIDE CONDUIT FEED

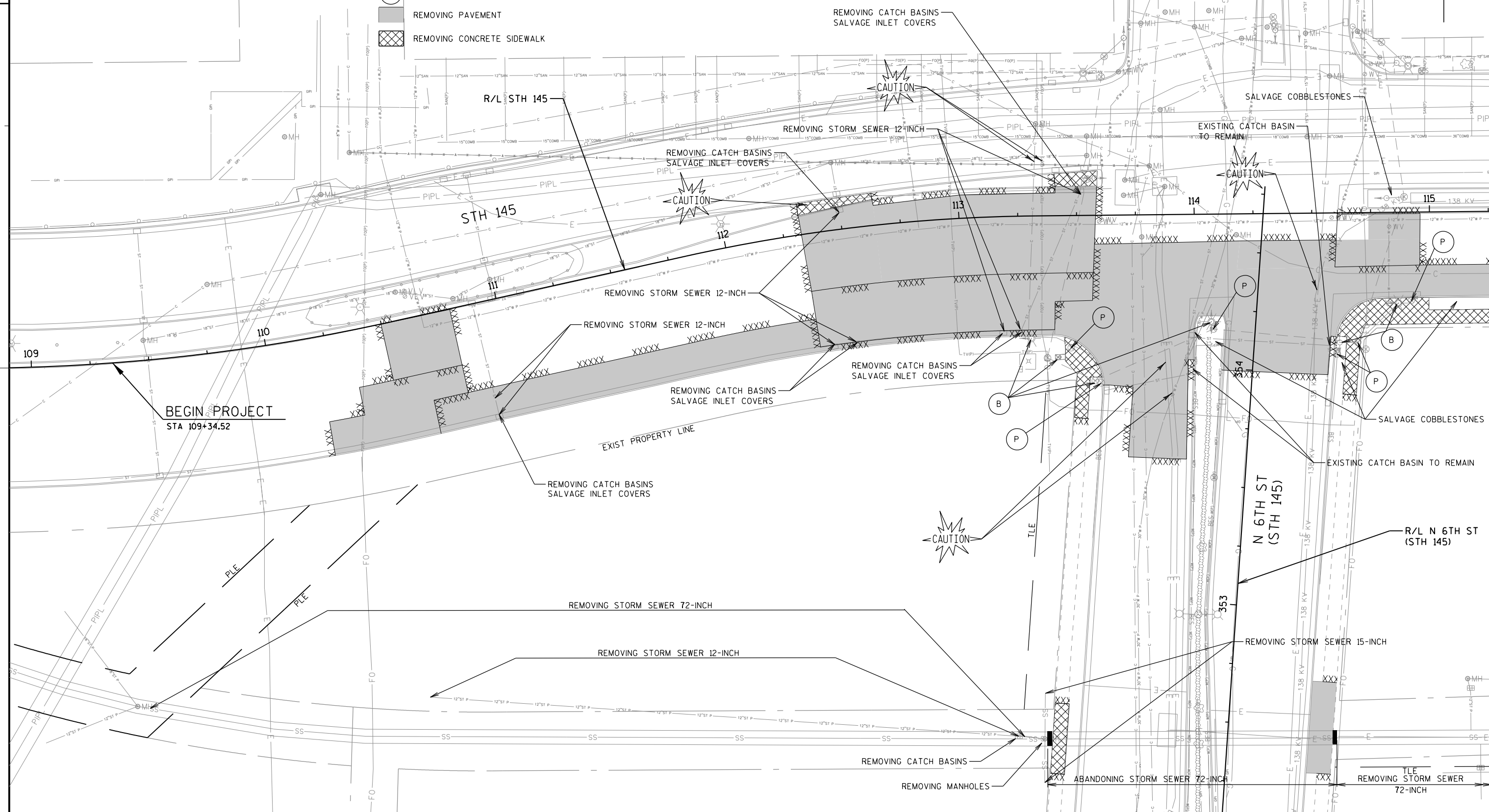
NOT TO SCALE

LEGEND:

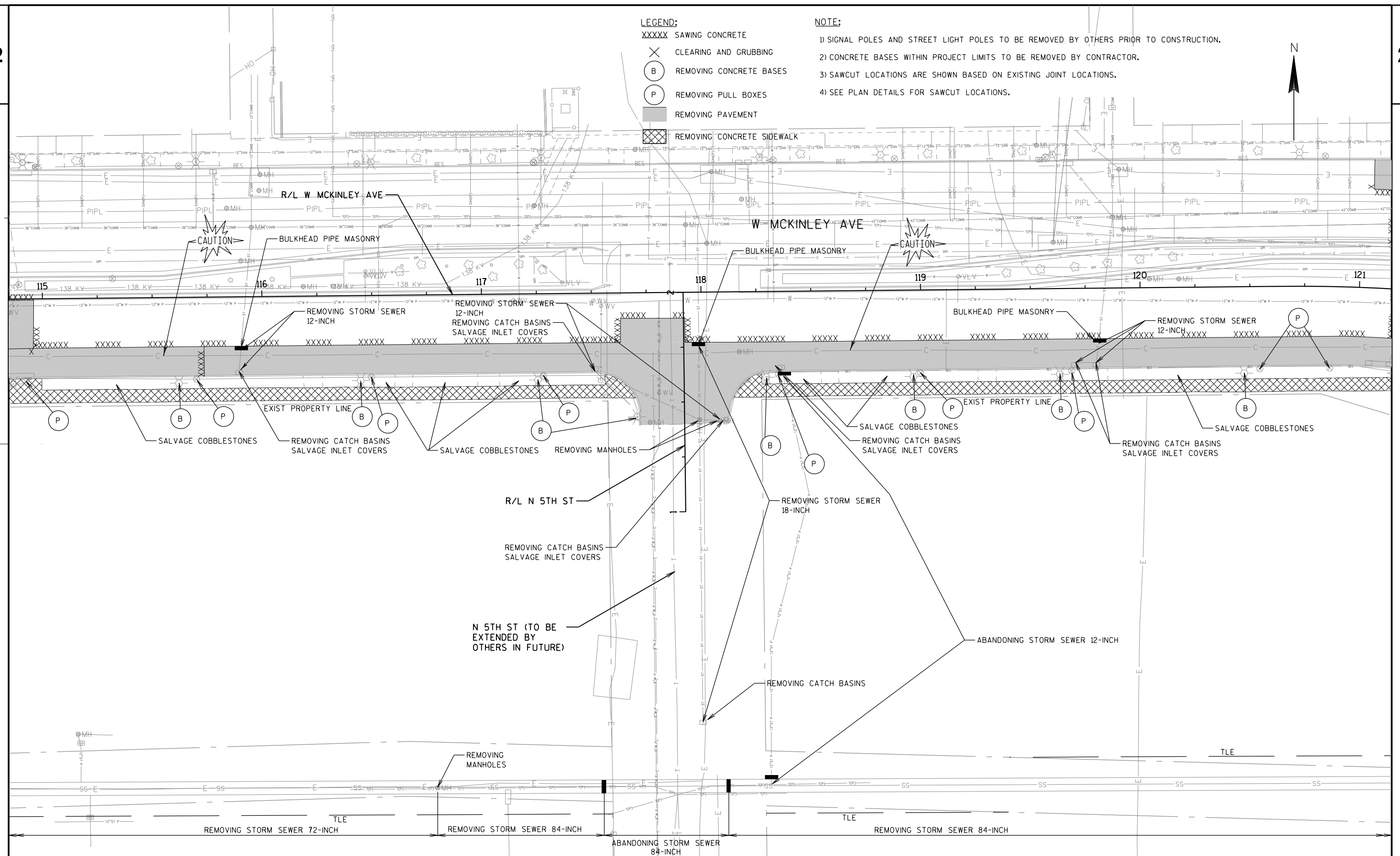
- XXXXX SAWING CONCRETE
X CLEARING AND GRUBBING
B REMOVING CONCRETE BASES
P REMOVING PULL BOXES
REMOVING PAVEMENT
REMOVING CONCRETE SIDEWALK

NOTE:

- 1) SIGNAL POLES AND STREET LIGHT POLES TO BE REMOVED BY OTHERS PRIOR TO CONSTRUCTION.
2) CONCRETE BASES WITHIN PROJECT LIMITS TO BE REMOVED BY CONTRACTOR.
3) SAWCUT LOCATIONS ARE SHOWN BASED ON EXISTING JOINT LOCATIONS.
4) SEE PLAN DETAILS FOR SAWCUT LOCATIONS.

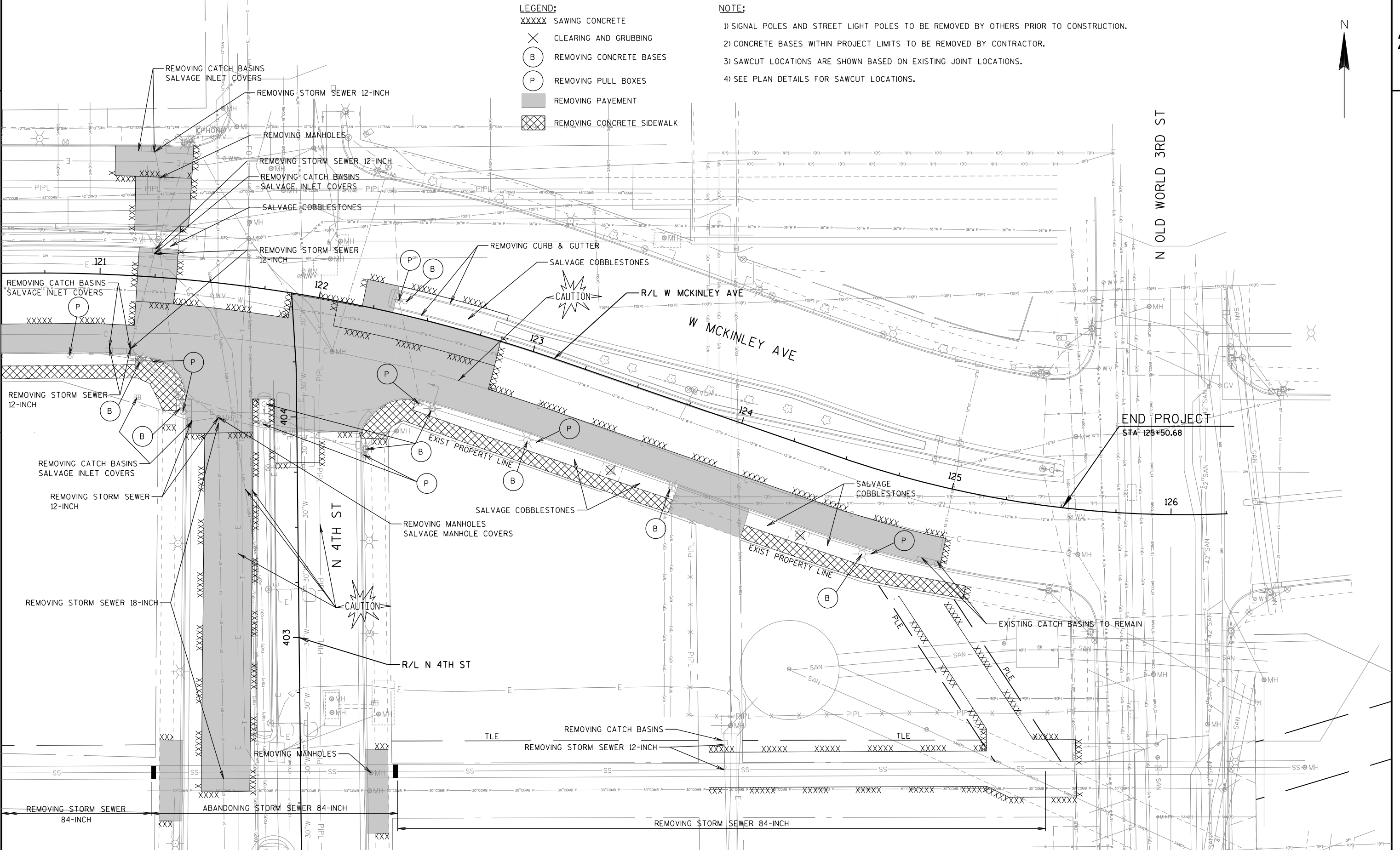


2



38

WISDOT/CADDS SHEET 42



LEGEND:

- AS1 3" ASPHALTIC SURFACE DRIVEWAYS
AND FIELD ENTRANCES
CG1 CONCRETE CURB AND GUTTER 31-INCH
CP1 CONCRETE PAVEMENT 9-INCH
CP2 CONCRETE PAVEMENT HES 9-INCH
CM1 CONCRETE MEDIAN SLOPED NOSE TYPE 2
CS1 CONCRETE SIDEWALK 5-INCH
CS2 COLORED CONCRETE SIDEWALK 5-INCH
DR1 CONCRETE DRIVEWAY 7-INCH
XXXX SAWING CONCRETE/ASPHALT

NOTE:

- 1) SEE PLAN DETAILS - CURB RAMPES FOR ADDITIONAL DIMENSIONS AND CALLOUTS.
2) CURB AND GUTTER LOCATIONS ARE TO FACE OF CURB

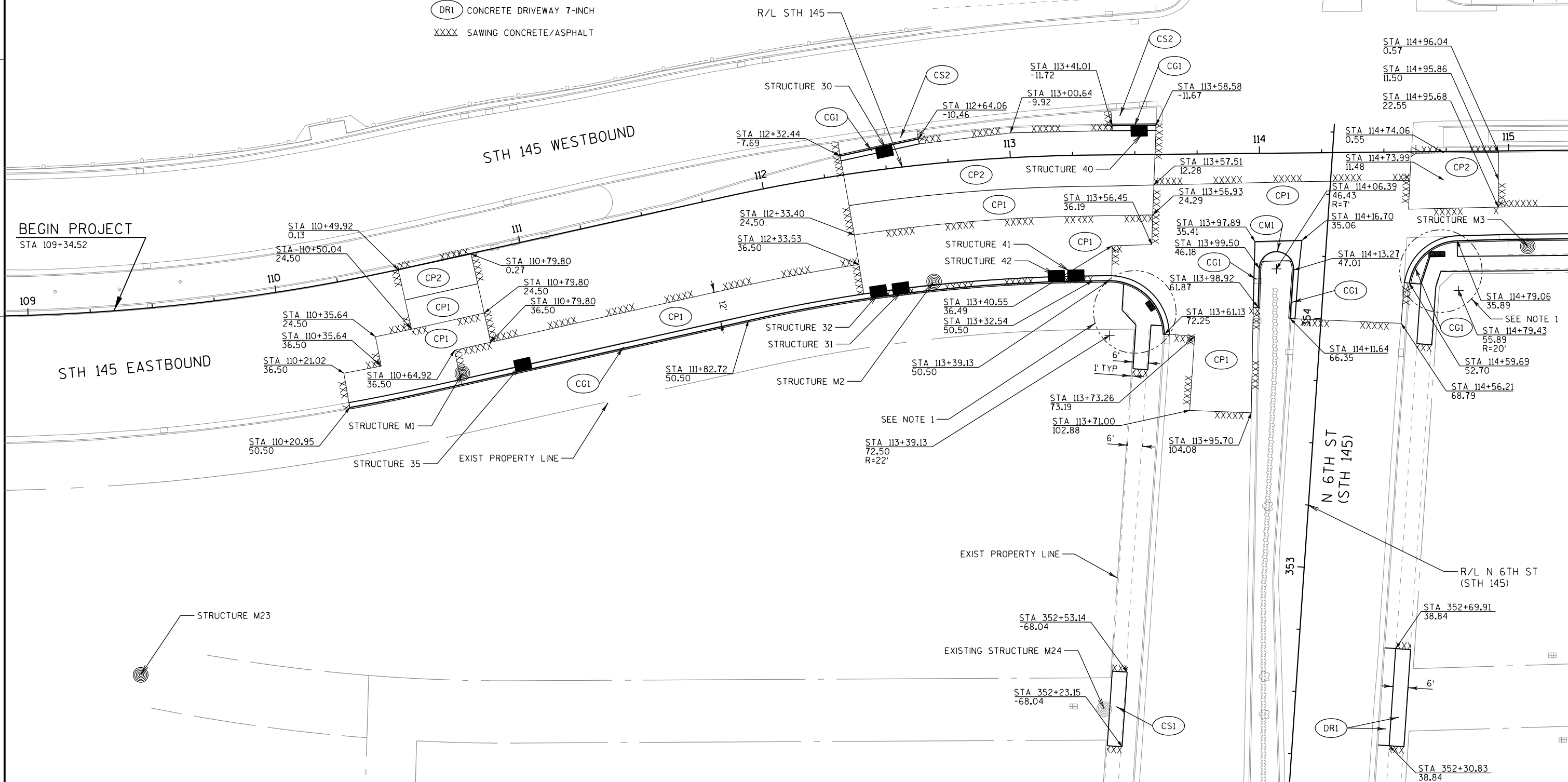
STH 145 WESTBOUND

BEGIN PROJECT
STA 109+34.52

STH 145 EASTBOUND



EXIST R/W

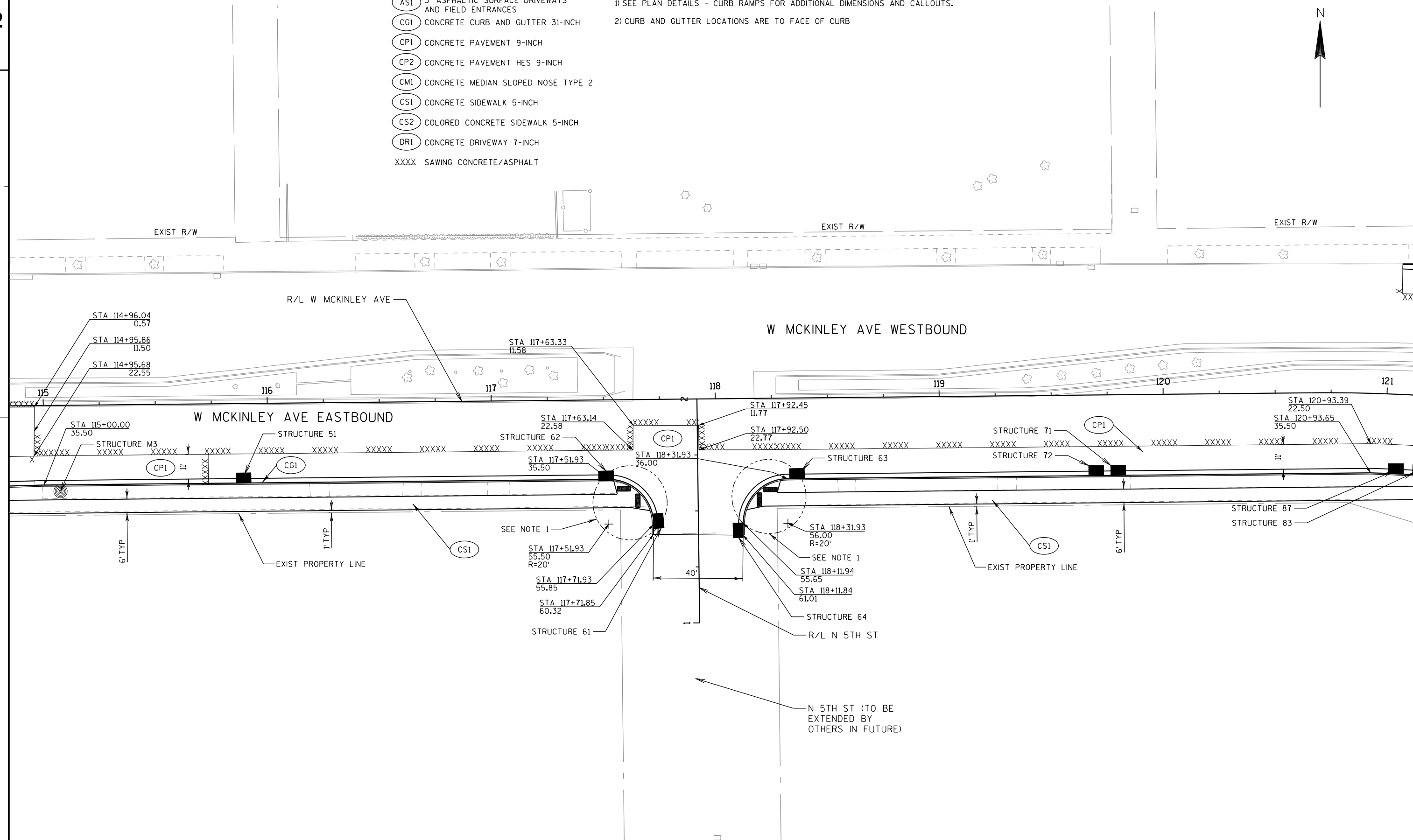


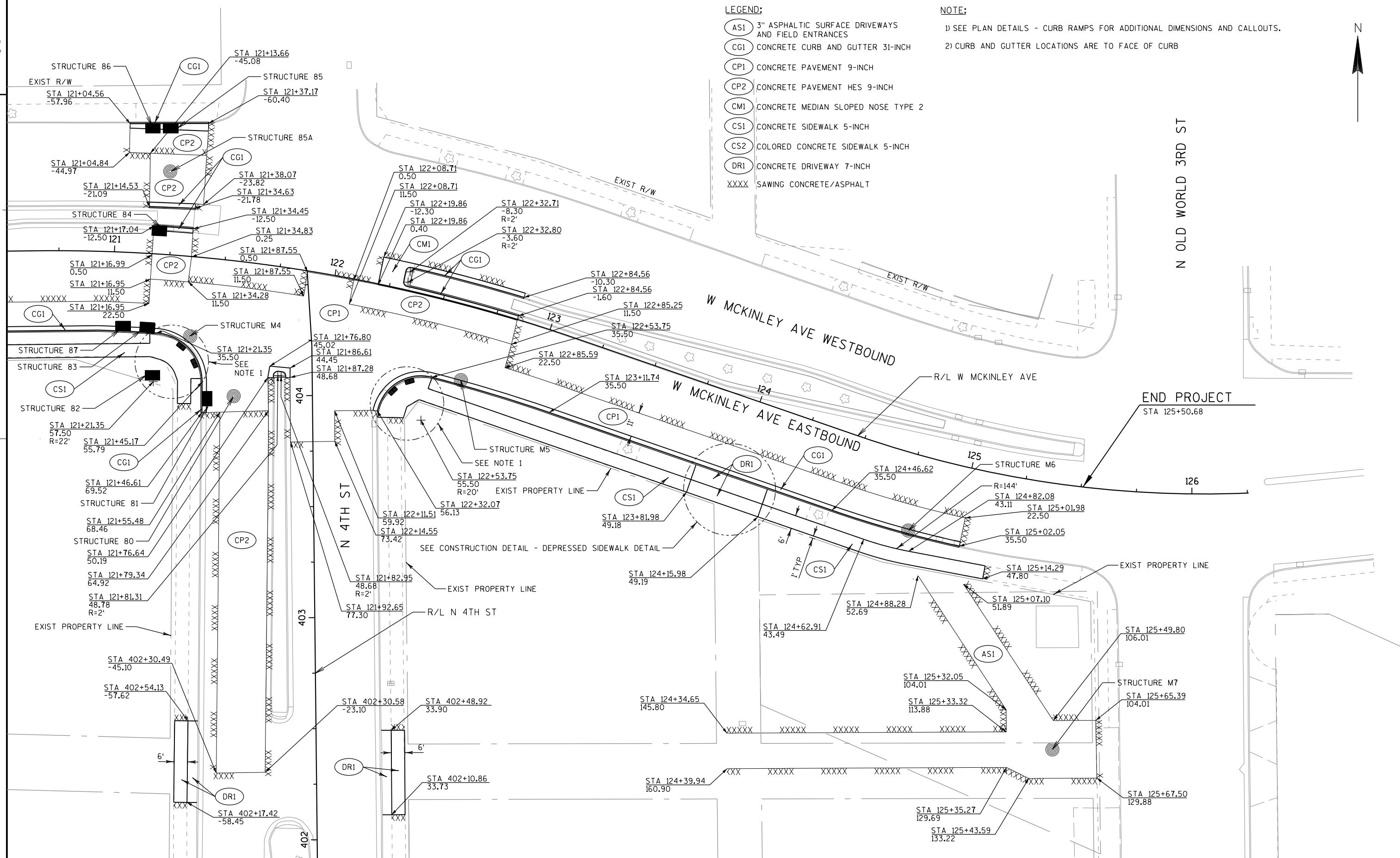
LEGEND:

- AS1 3" ASPHALTIC SURFACE DRIVEWAYS
AND FIELD ENTRANCES
CG1 CONCRETE CURB AND GUTTER 31-INCH
CP1 CONCRETE PAVEMENT 9-INCH
CP2 CONCRETE PAVEMENT HES 9-INCH
CM1 CONCRETE MEDIAN SLOPED NOSE TYPE 2
CS1 CONCRETE SIDEWALK 5-INCH
CS2 COLORED CONCRETE SIDEWALK 5-INCH
DR1 CONCRETE DRIVEWAY 7-INCH
XXXX SAWING CONCRETE/ASPHALT

NOTE:

- 1) SEE PLAN DETAILS - CURB RAMPS FOR ADDITIONAL DIMENSIONS AND CALLOUTS.
2) CURB AND GUTTER LOCATIONS ARE TO FACE OF CURB





W MCKINLEY AVE

N 6TH ST
(STH 145)STA 113+39.13
50.50STA 113+45.05
51.92
STA 113+50.91
61.07
EL=19.89STA 113+44.23
62.29STA 113+46.66
64.95
EL=19.98

EXIST PROPERTY LINE

STA 113+49.78
68.37
EL=20.03STA 113+49.34
73.96
EL=20.30STA 113+48.87
79.94
EL=20.57STA 113+48.40
85.92

EXIST PROPERTY LINE

STA 113+55.51
57.85
EL=19.50STA 113+57.00
56.47
EL=19.58

CURB RAMP TYPE 1 (MODIFIED)

STA 113+60.15
60.92
EL=19.65STA 113+58.40
61.89
EL=19.57STA 113+53.84
65.13
EL=19.96STA 113+60.22
68.79STA 113+61.13
72.25STA 113+55.79
68.45
EL=19.98STA 113+55.32
74.43
EL=20.21STA 113+54.85
80.41
EL=20.48STA 113+54.38
86.39

LEGEND



DETECTABLE WARNING FIELD



1.5' FLARE TO FULL CURB HEIGHT



4% GUTTER SLOPE

NOTES:

1) SEE PLAN DETAILS FOR ADDITIONAL DIMENSIONS AND CALLOUTS.

2) MAXIMUM 2% SIDEWALK CROSS SLOPE.

3) MAXIMUM 11% CHANGE IN GRADE ALONG RAMP AT GUTTER.

W MCKINLEY AVE

STA 114+73.52
34.70
EL=17.01STA 114+74.06
36.63
EL=16.93STA 114+74.06
39.44
EL=16.98

CURB RAMP TYPE 4B (MODIFIED)

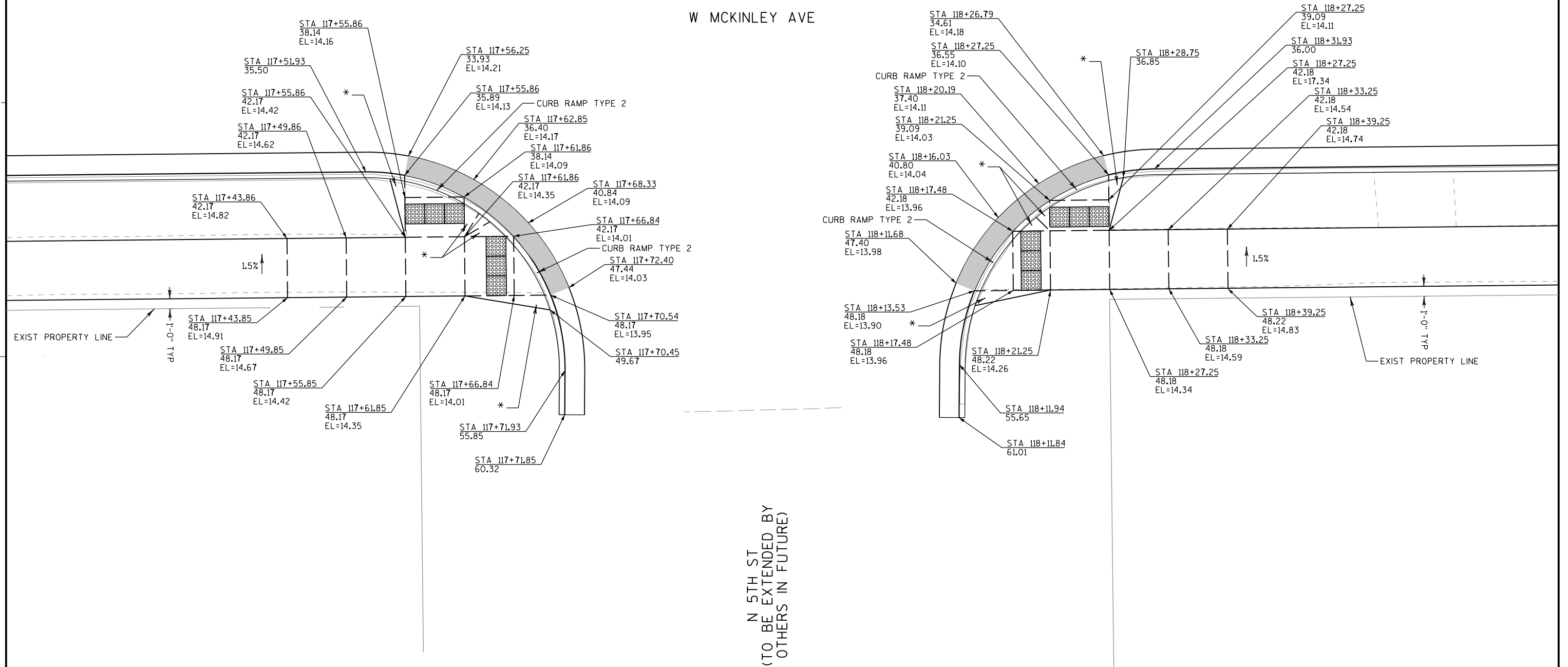
STA 114+66.92
37.80
EL=17.08STA 114+68.06
39.44
EL=17.00STA 114+68.06
42.16
EL=17.18STA 114+66.21
47.63
EL=17.28STA 114+59.69
52.70

CONCRETE CURB PEDESTRIAN

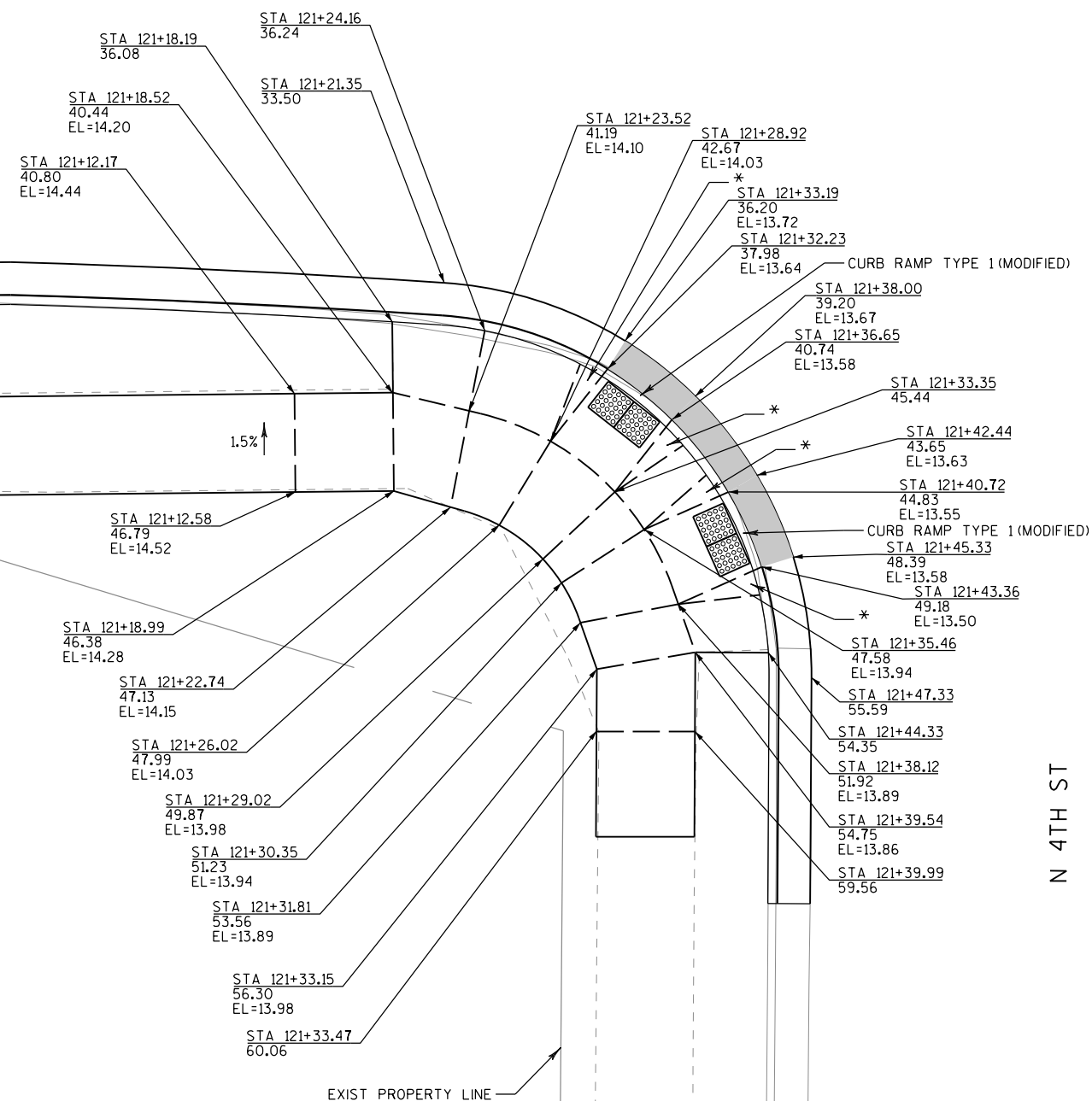
STA 114+64.37
53.09
EL=17.51STA 114+63.89
59.08
EL=17.81STA 114+63.41
65.06
EL=18.11STA 114+62.93
71.04
EL=18.38STA 114+62.45
77.02STA 114+79.06
35.89STA 114+79.07
36.48STA 114+79.07
42.16
EL=17.28STA 114+85.07
42.16
EL=17.28STA 114+85.07
48.16
EL=17.37STA 114+79.07
48.16
EL=17.37STA 114+74.06
42.16
EL=17.16STA 114+72.36
48.16
EL=17.28STA 114+70.29
54.31
EL=17.60STA 114+69.87
59.55
EL=17.90STA 114+69.39
65.54
EL=18.20STA 114+68.91
71.52
EL=18.47STA 114+68.43
77.50

2

2 |



W MCKINLEY AVE



N 4TH ST

LEGEND

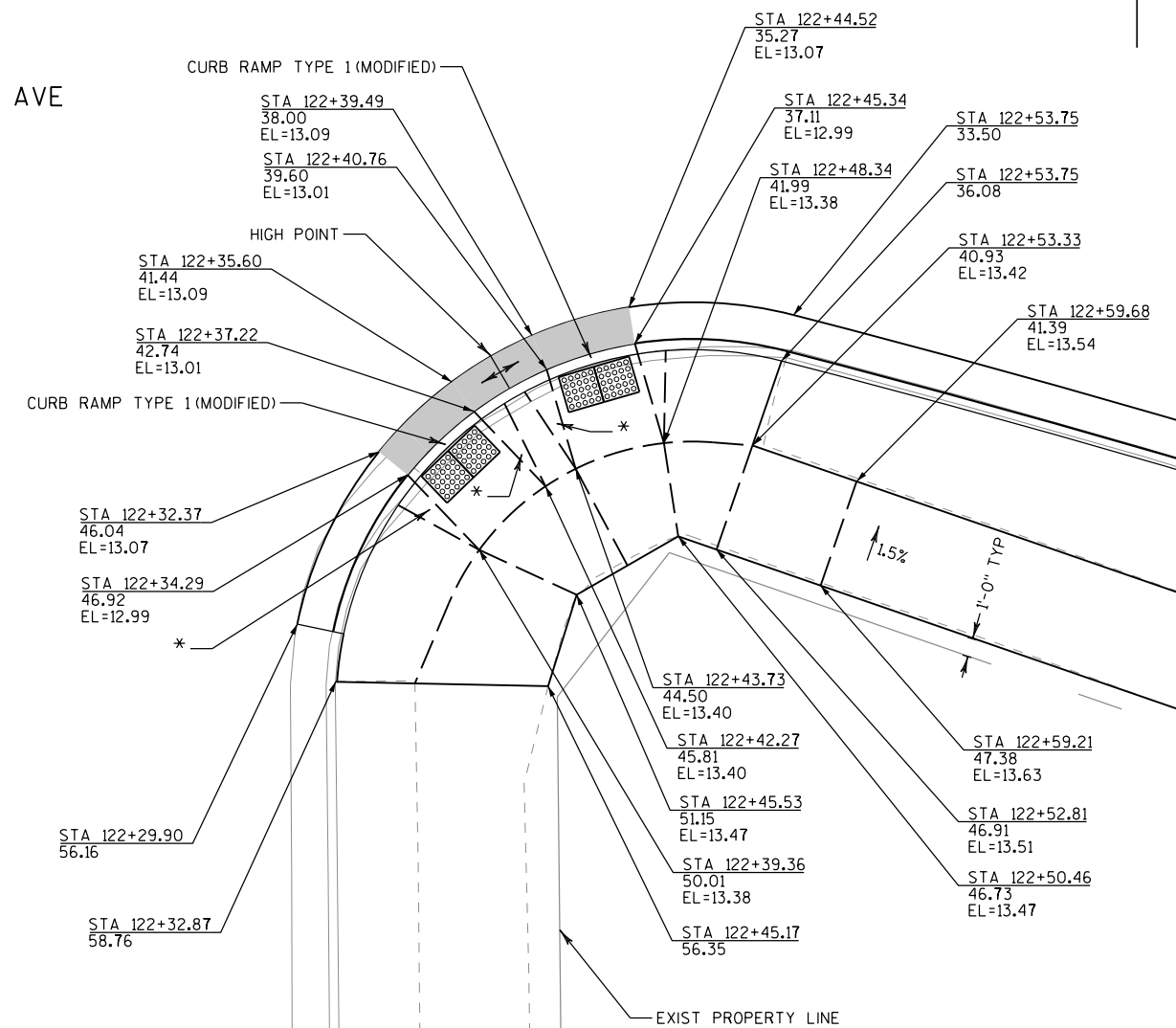
- DETECTABLE WARNING FIELD
- 1.5' FLARE TO FULL CURB HEIGHT
- 4% GUTTER SLOPE

NOTES:

- 1) SEE PLAN DETAILS FOR ADDITIONAL DIMENSIONS AND CALLOUTS.
- 2) MAXIMUM 2% SIDEWALK CROSS SLOPE.
- 3) MAXIMUM 11% CHANGE IN GRADE ALONG RAMP AT GUTTER.

W MCKINLEY AVE

N 4TH ST



NOTE:

1) GRADES SHOWN AT 25' INTERVALS FOR LANE LINE, CURB FLANGE,
FRONT OF SIDEWALK AND BACK OF SIDEWALK.

2) SEE PLAN DETAILS - CURB RAMPS FOR APPLICABLE GRADES.



EXIST R/W

STH 145

R/L STH 145

STRUCTURE 30

STRUCTURE 40

STRUCTURE M3

BEGIN PROJECT
STA 109+34.52

STRUCTURE M1

STRUCTURE 35

EXIST PROPERTY LINE

STRUCTURE 32

STRUCTURE 31

STRUCTURE M2

SEE NOTE 2

R/L N 6TH ST
(STH 145)N 6TH ST
(STH 145)

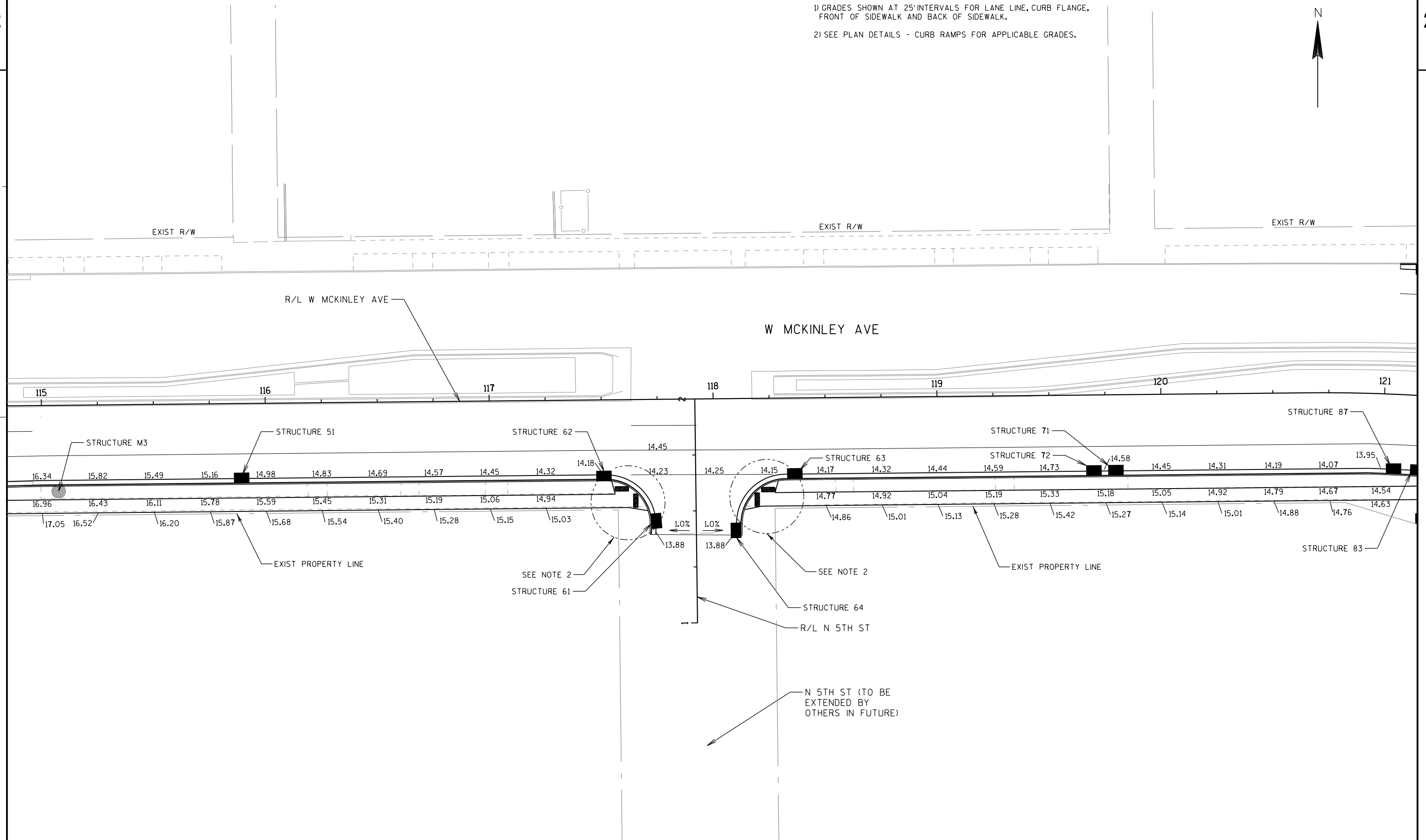
EXIST PROPERTY LINE

SEE NOTE 2

STRUCTURE M23

NOTE:

- 1) GRADES SHOWN AT 25' INTERVALS FOR LANE LINE, CURB FLANGE, FRONT OF SIDEWALK AND BACK OF SIDEWALK.
2) SEE PLAN DETAILS - CURB RAMP FOR APPLICABLE GRADES.



PROJECT NO: 2126-00-70

HWY: W MCKINLEY AVE

COUNTY: MILWAUKEE

PAVING GRADES

SHEET

47

E

FILE NAME : S:\DOT\DOT_SE\150271 Marq IC Park East Fwy Drainage\DGN FILES\Plansheets\021222_PG.dgn

PLOT DATE : 1/7/2016

PLOT BY : wwolck

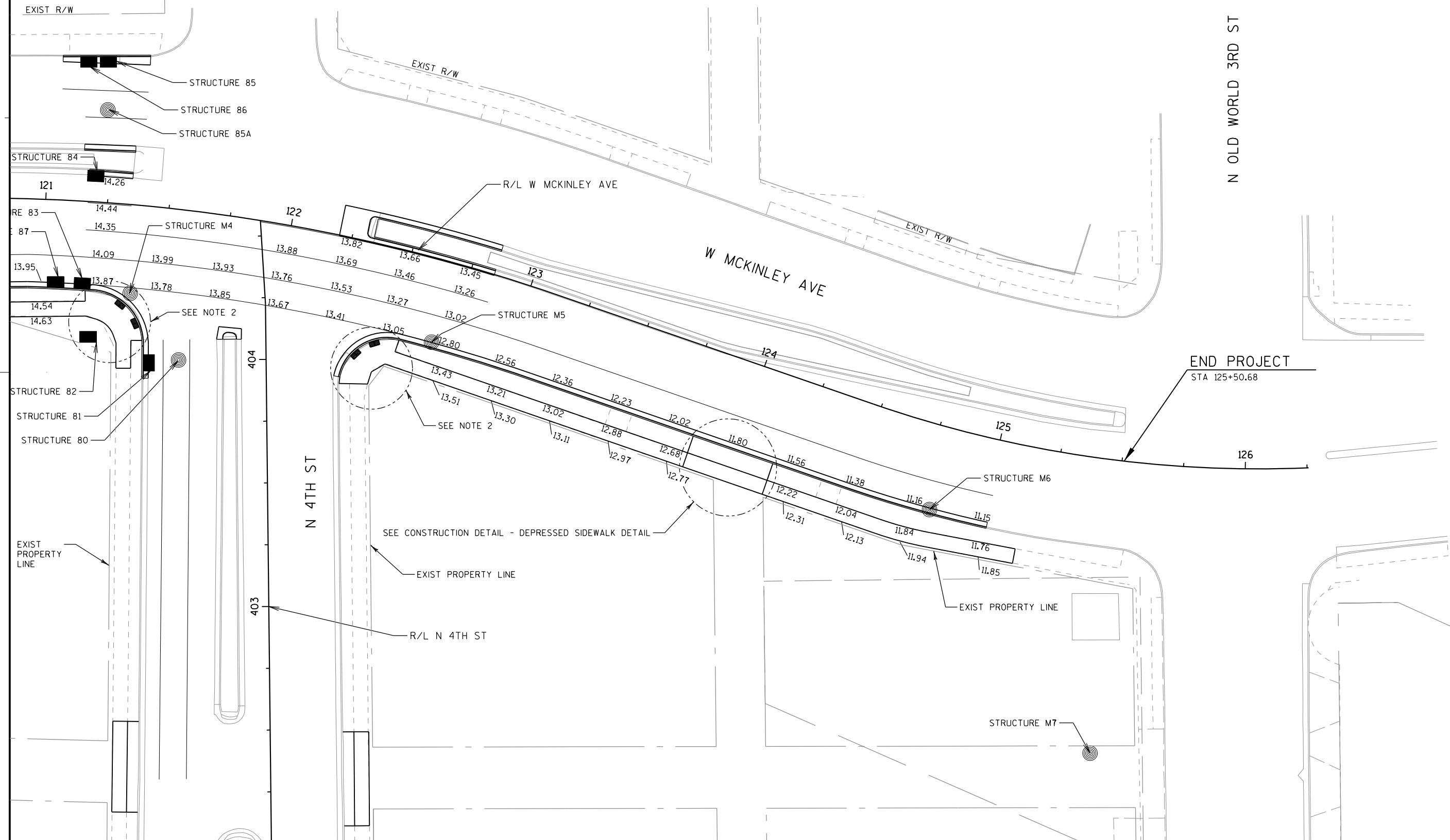
PLOT NAME :

PLOT SCALE : 1:40

WISDOT/CADDs SHEET 42

2

2) SEE PLAN DETAILS - CURB RAMPS FOR APPLICABLE GRADES.



NOTE:

1) FOR INFORMATION ONLY, MATCH EXISTING JOINT PATTERN.



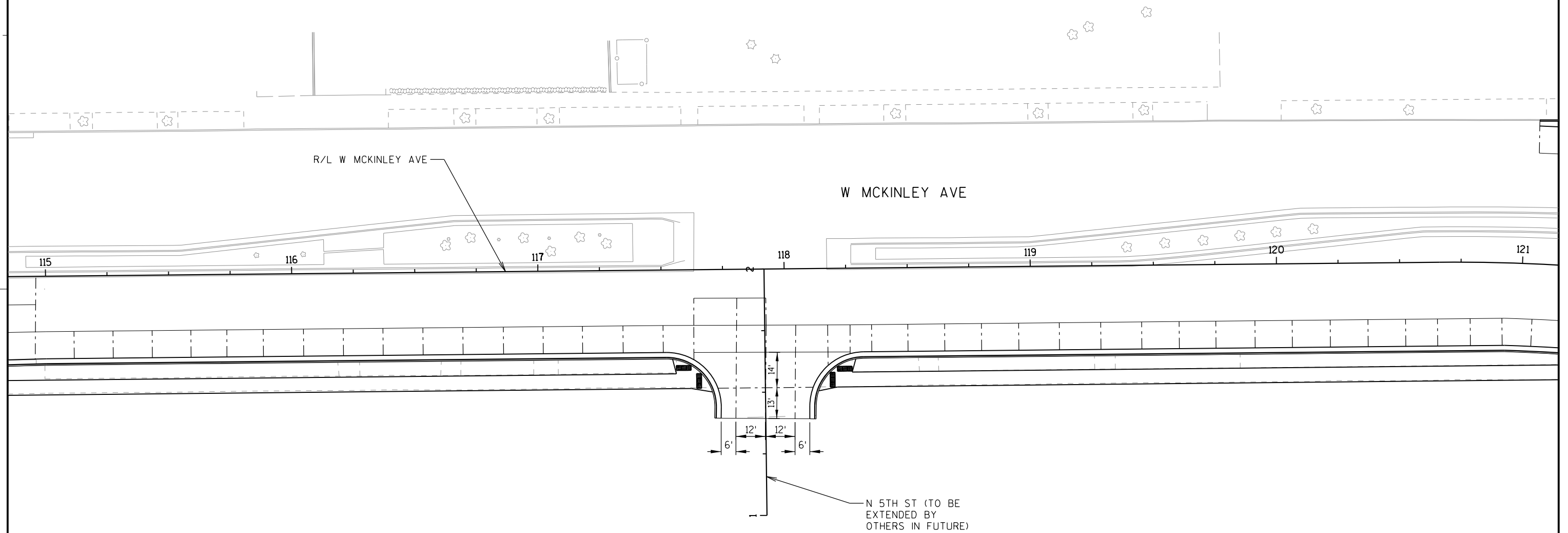
STH 145

R/L STH 145

BEGIN PROJECT
STA 109+34.52R/L N 6TH ST
(STH 145)N 6TH ST
(STH 145)

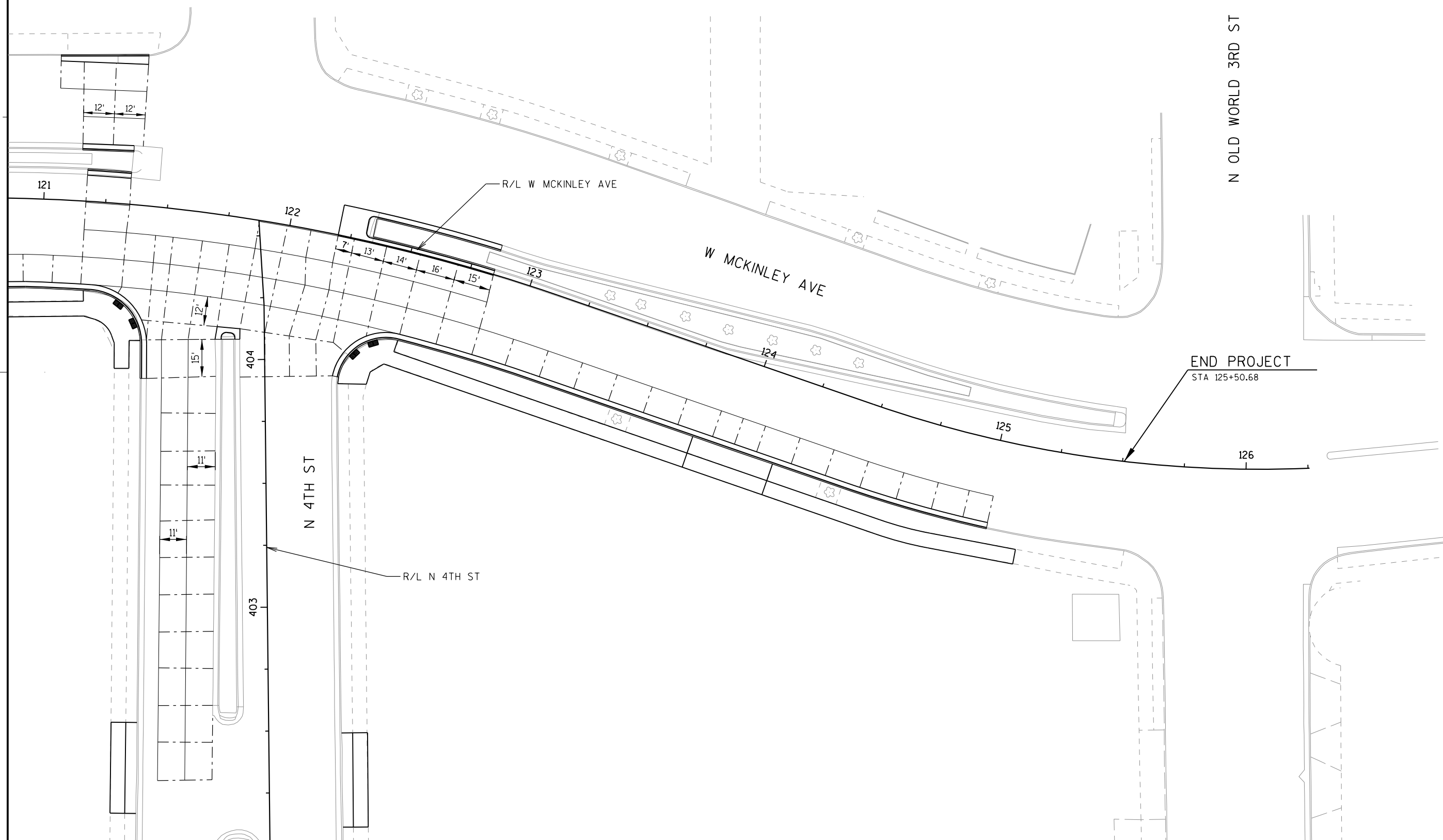
NOTE:

1) FOR INFORMATION ONLY, MATCH EXISTING JOINT PATTERN.



NOTE:

1) FOR INFORMATION ONLY, MATCH EXISTING JOINT PATTERN.



PROJECT NO: 2126-00-70

HWY: W MCKINLEY AVE

COUNTY: MILWAUKEE

JOINT DETAILS

SHEET

51

E

FILE NAME : S:\DOT\DOT_SE\150271 Marq IC Park East Fwy Drainage\DGN FILES\Plansheets\021303_JT.dgn

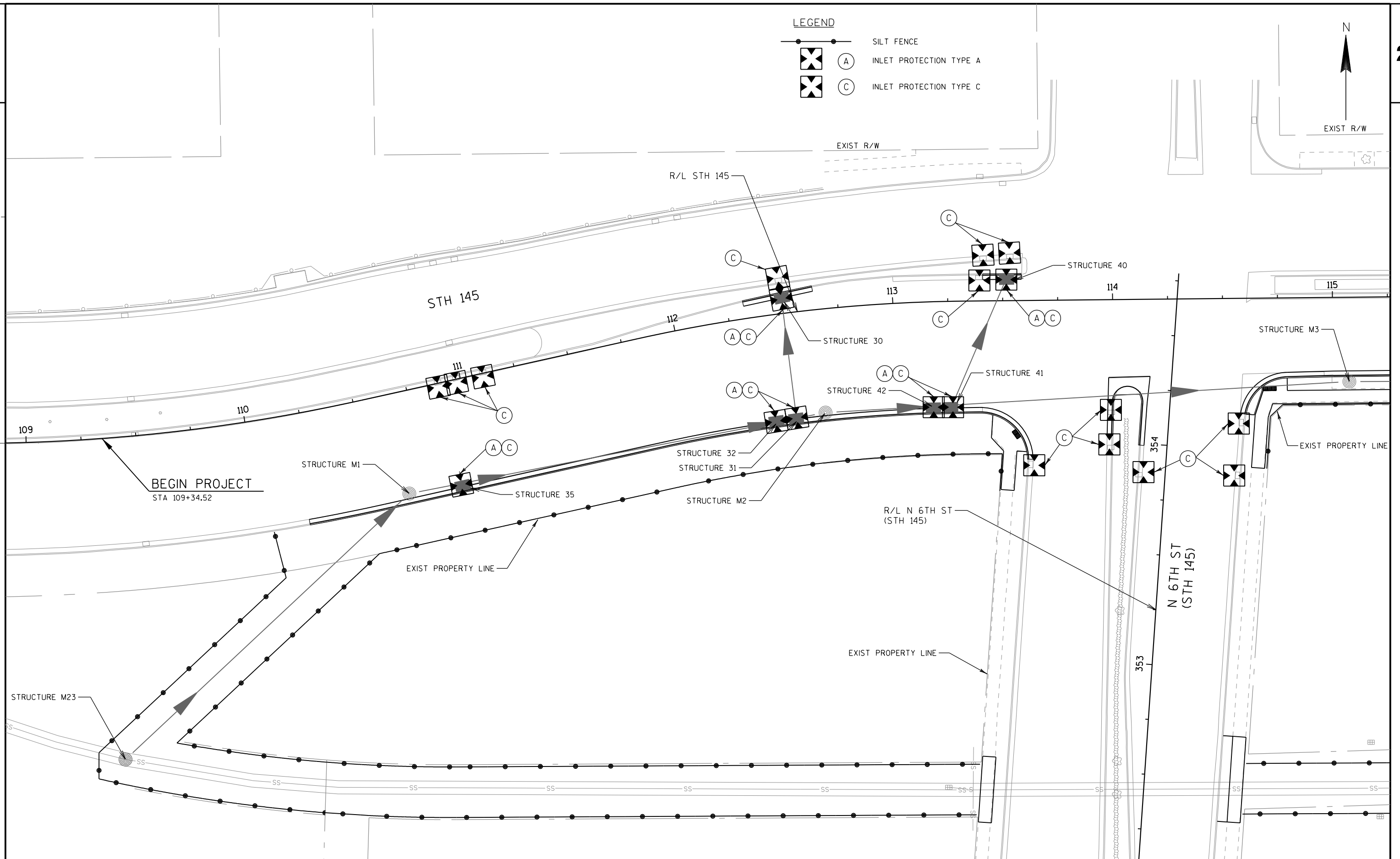
PLOT DATE : 1/7/2016

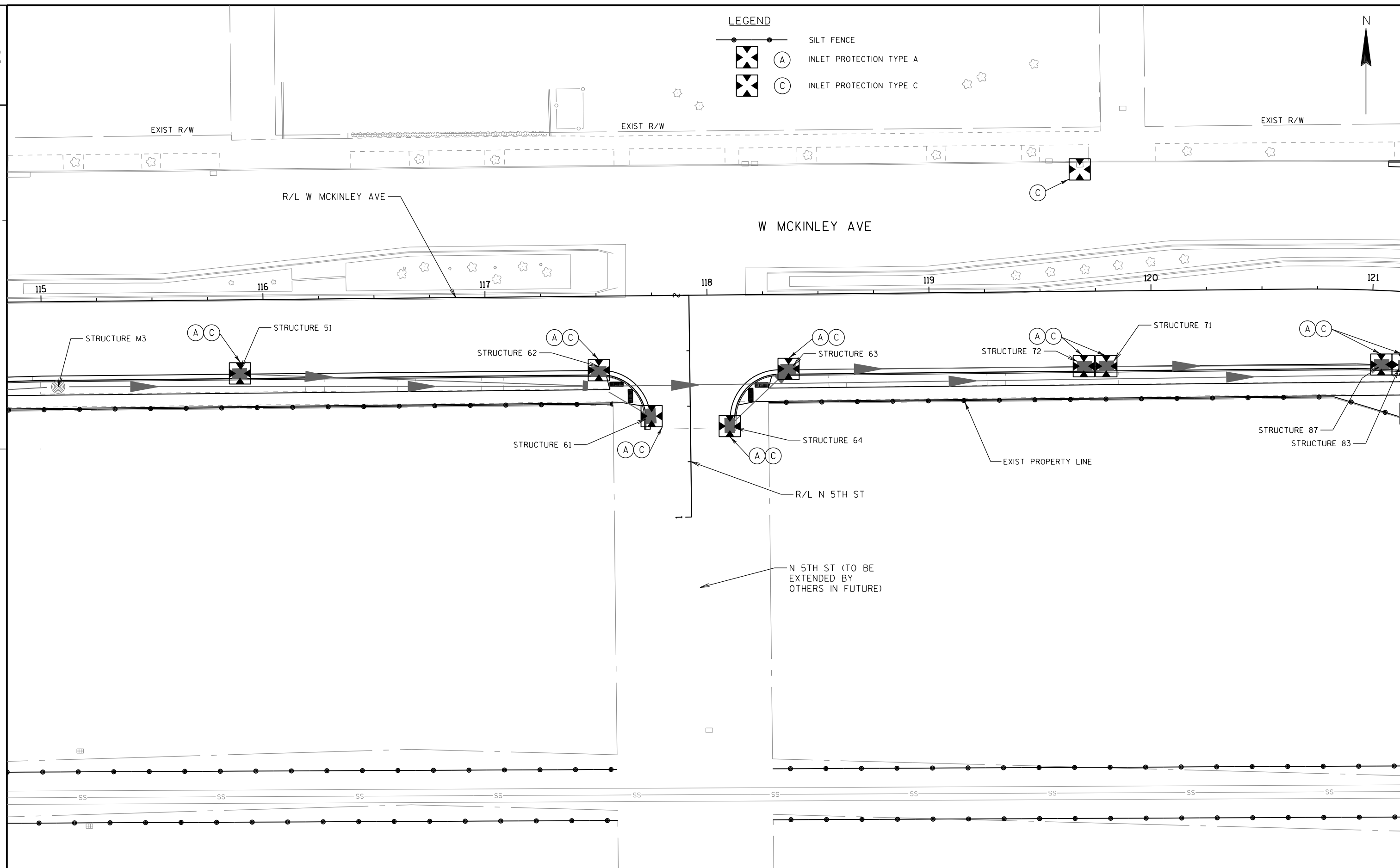
PLOT BY : wwolck

PLOT NAME :

PLOT SCALE : 1:40

WISDOT/CADDs SHEET 42



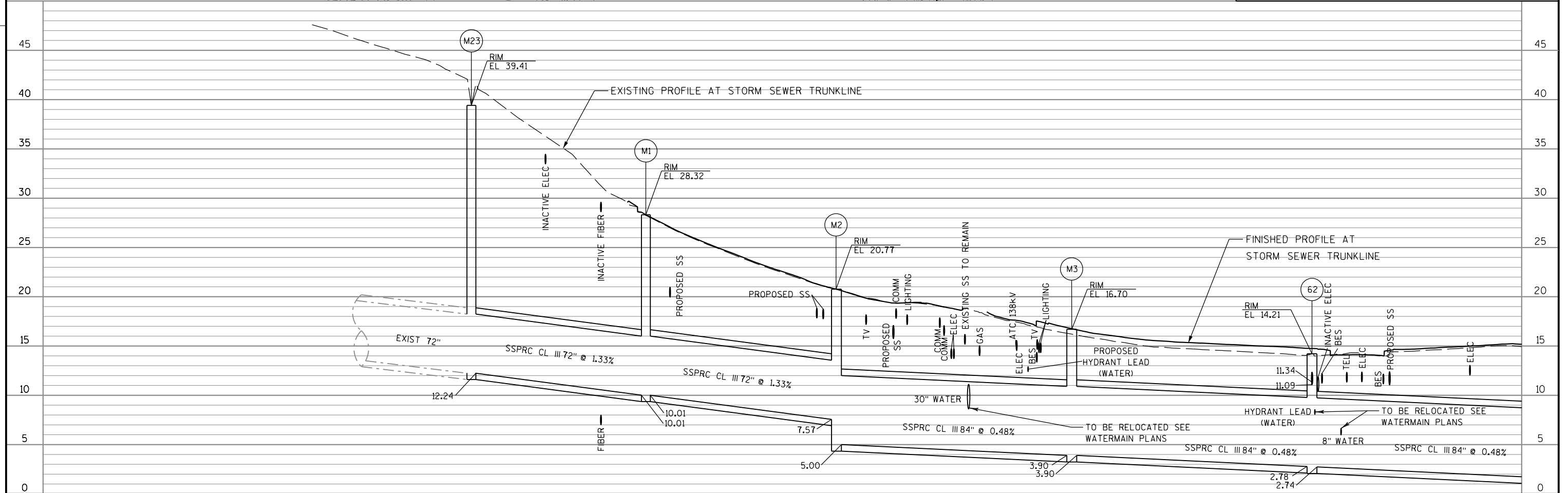
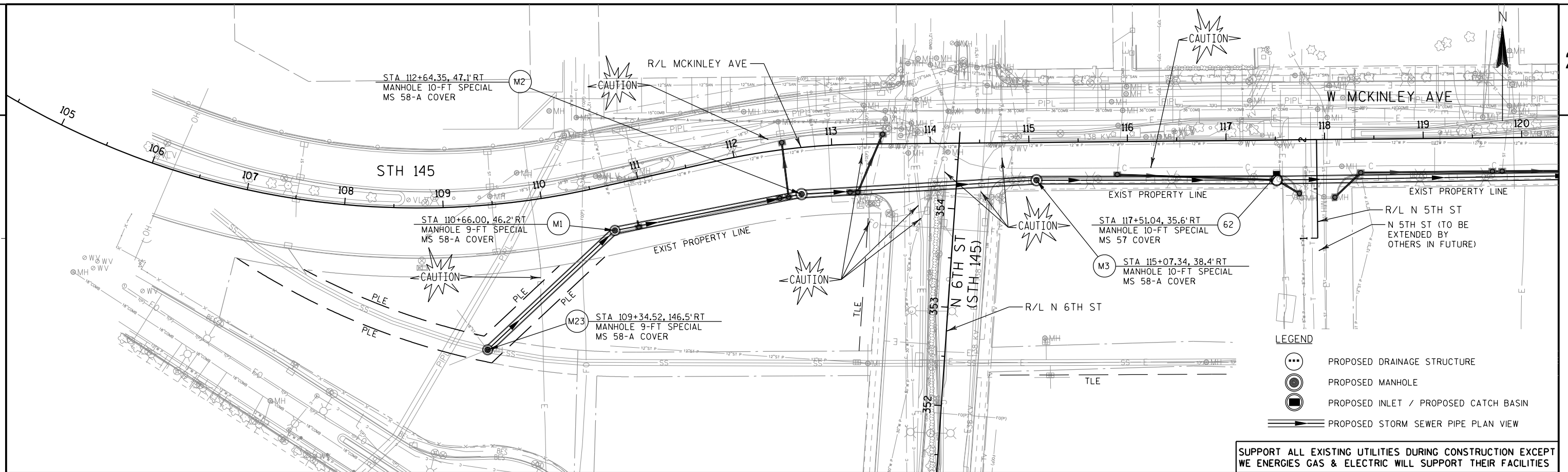


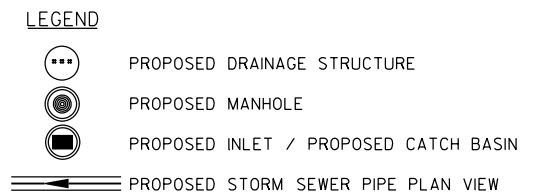
2



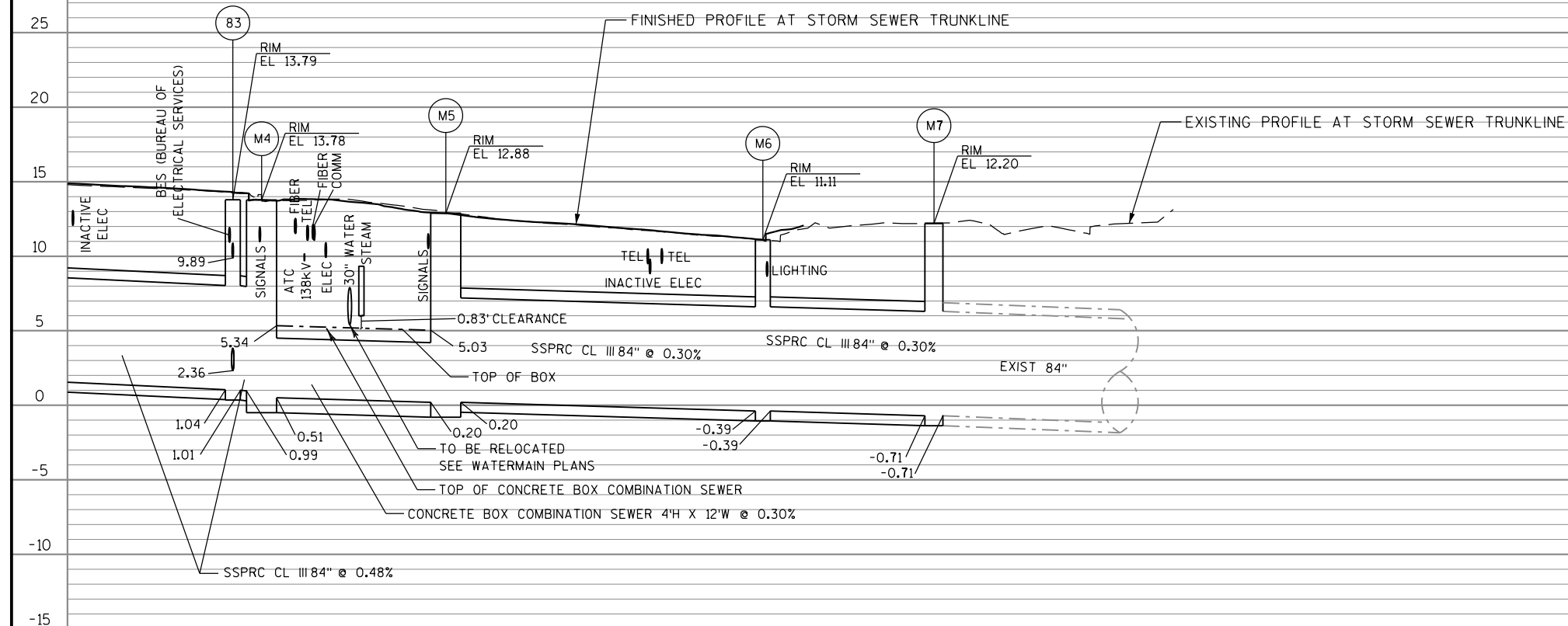
54

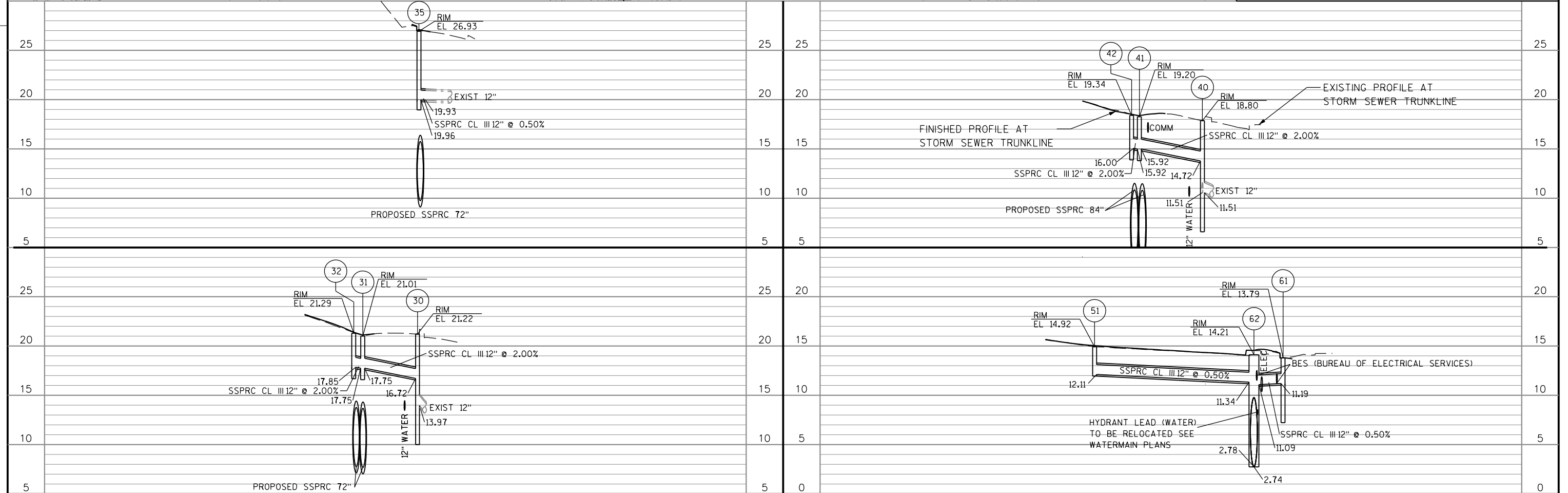
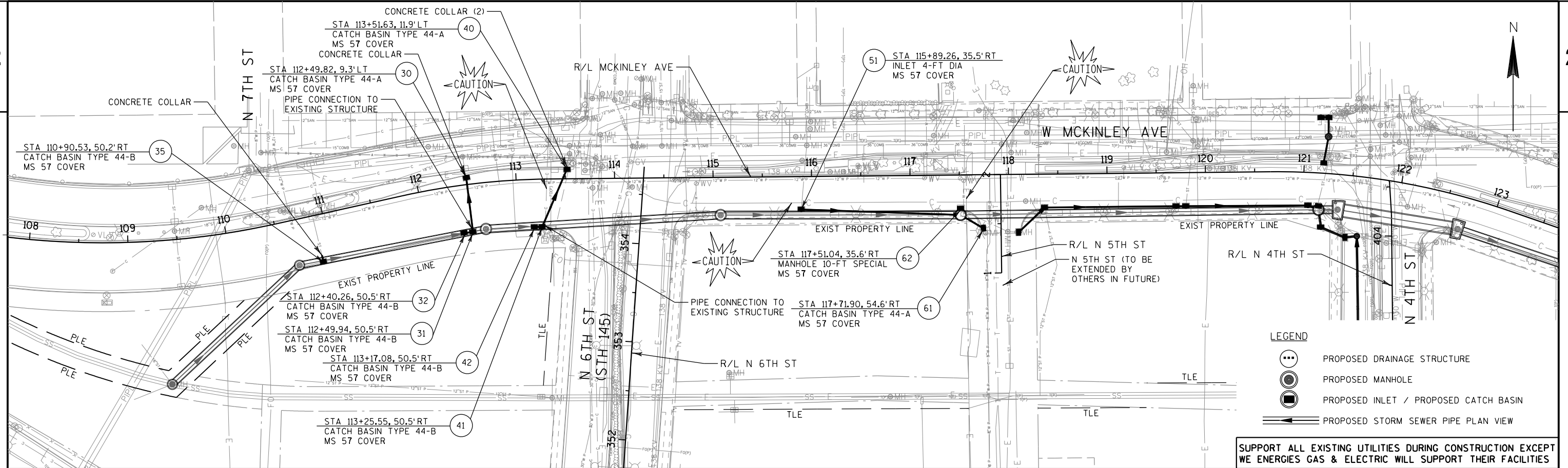
WISDOT/CADDS SHEET 42





SUPPORT ALL EXISTING UTILITIES DURING CONSTRUCTION EXCEPT
WE ENERGIES GAS & ELECTRIC WILL SUPPORT THEIR FACILITIES





PROJECT NO: 2126-00-70

HWY: W MCKINLEY AVE

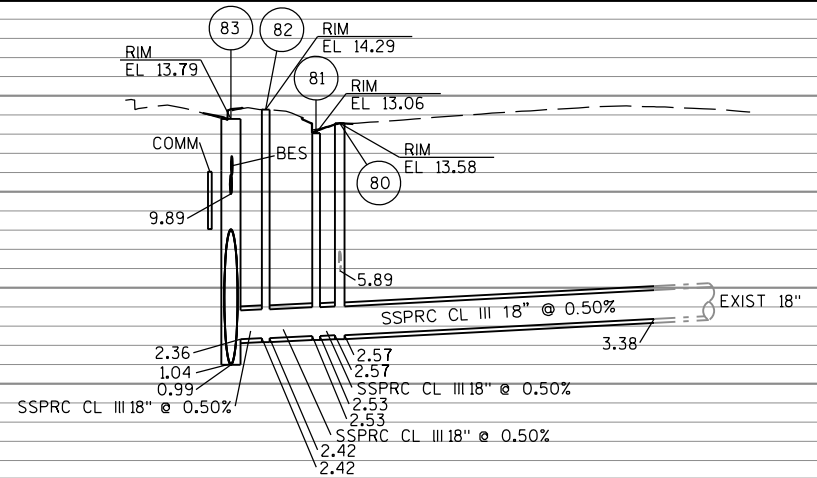
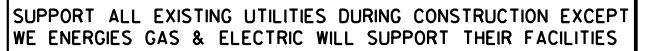
COUNTY: MILWAUKEE

STORM SEWER PLAN & PROFILE: MCKINLEY AVE STORM SEWER

SHEET

57

E



2

2

NOTE:

1) CONNECT TO EXISTING PIPE UNDERDRAIN AT LIMITS OF CURB AND GUTTER.
INCIDENTAL TO BID ITEM PIPE UNDERDRAIN 6-INCH.



EXIST R/W

STH 145

R/L STH 145

CONNECT TO CATCH BASIN
PIPE UNDERDRAIN 6-INCH

CONNECT TO CATCH BASIN

PIPE UNDERDRAIN 6-INCH

113

114

115

STRUCTURE 30
STRUCTURE M2

STRUCTURE 31

STRUCTURE 32

STRUCTURE 41
STRUCTURE 42

PIPE UNDERDRAIN 6-INCH

CONNECT TO CATCH BASIN

STRUCTURE M3

PIPE UNDERDRAIN 6-INCH

CONNECT TO CATCH BASIN

109

110

111

112

BEGIN PROJECT
STA 109+34.52

STRUCTURE M1

STRUCTURE 35

PIPE UNDERDRAIN 6-INCH

CONNECT TO CATCH BASIN

EXIST PROPERTY LINE

CONNECT TO CATCH BASIN

R/L N 6TH ST
(STH 145)

EXIST PROPERTY LINE

N 6TH ST
(STH 145)

354

353

STRUCTURE M23

PROJECT NO: 2126-00-70

HWY: W MCKINLEY AVE

COUNTY: MILWAUKEE

PIPE UNDERDRAIN PLAN

SHEET

59

E

FILE NAME : S:\DOT\DOT_SE\150271 Marq IC Park East Fwy Drainage\DGN FILES\Plansheets\022601_PU.dgn

PLOT DATE : 1/7/2016

PLOT BY : wwolck

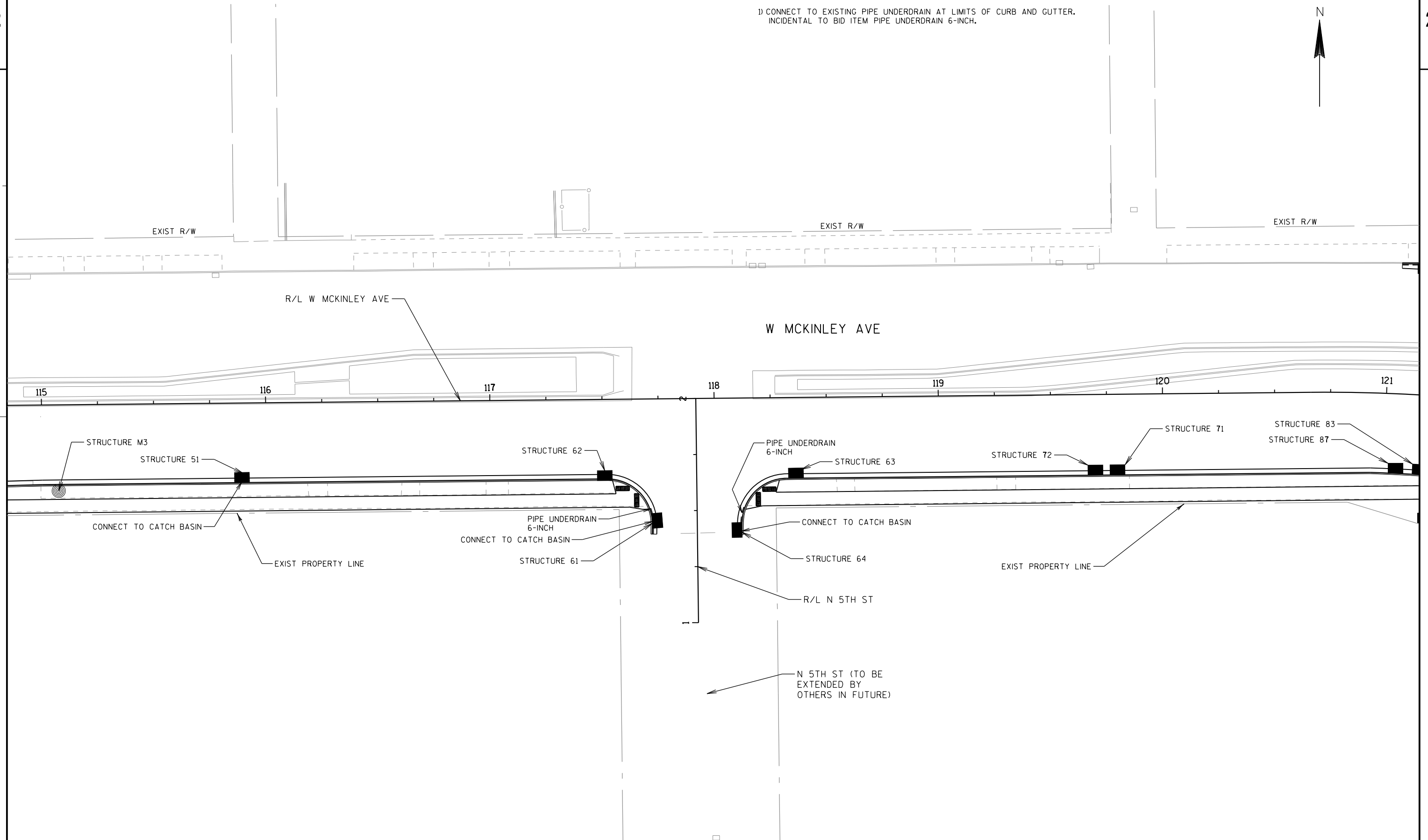
PLOT NAME :

PLOT SCALE : 1:40

WISDOT/CADDs SHEET 42

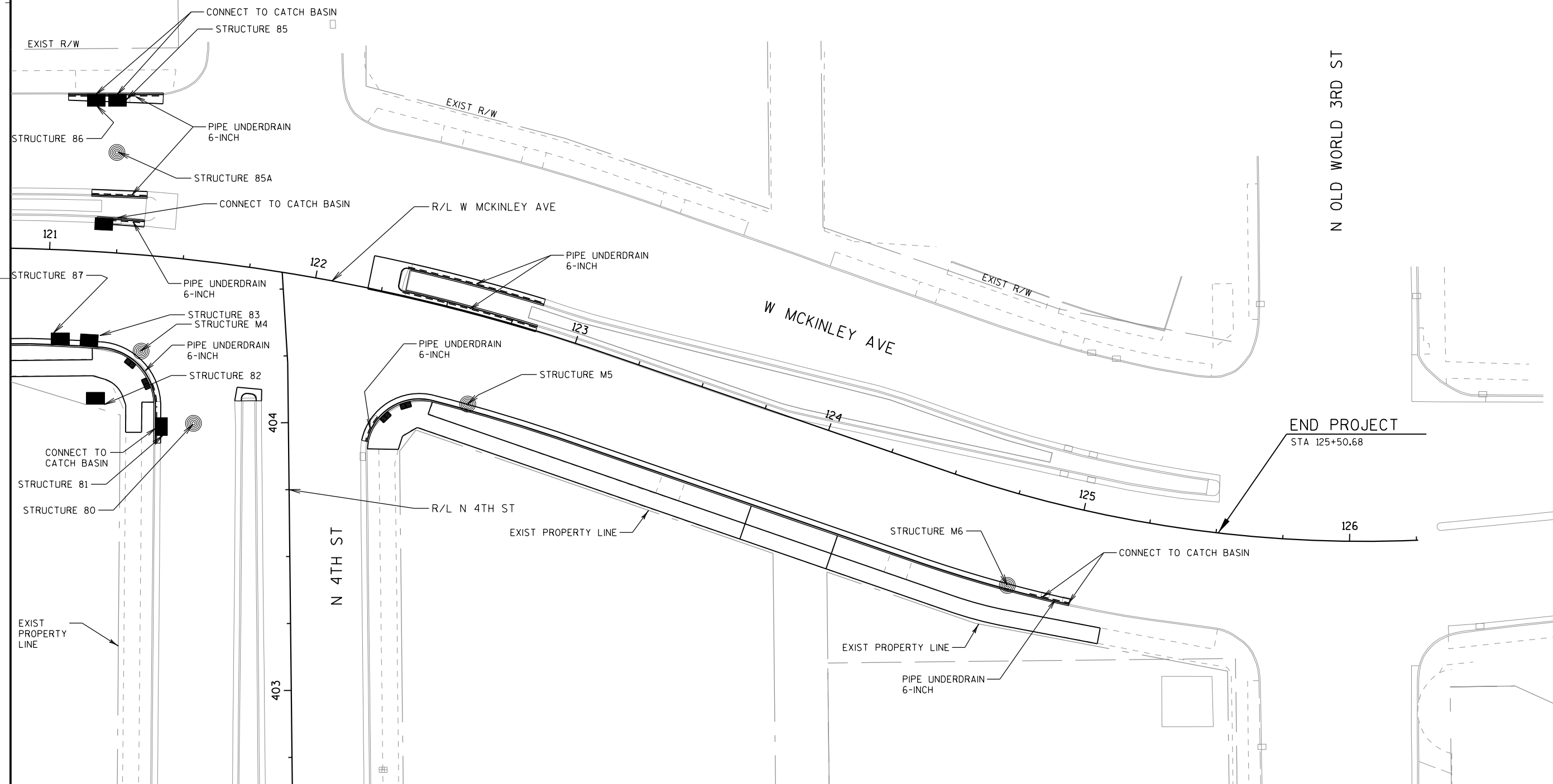
NOTE:

1) CONNECT TO EXISTING PIPE UNDERDRAIN AT LIMITS OF CURB AND GUTTER.
INCIDENTAL TO BID ITEM PIPE UNDERDRAIN 6-INCH.



NOTE:

1) CONNECT TO EXISTING PIPE UNDERDRAIN AT LIMITS OF CURB AND GUTTER.
INCIDENTAL TO BID ITEM PIPE UNDERDRAIN 6-INCH.



PROJECT NO: 2126-00-70

HWY: W MCKINLEY AVE

COUNTY: MILWAUKEE

PIPE UNDERDRAIN PLAN

SHEET

61

E

ESTIMATE OF QUANTITIES

FOR BIDDING

FURNISH PIPE AND INSTALL

(DUCTILE IRON PUSH-ON RUBBER GASKET JOINT) (SPV.0090.5002)
12 FT. - 6" HYDRANT BRANCH WATER MAIN

(DUCTILE IRON PUSH-ON RUBBER GASKET JOINT) (SPV.0090.5003)
54 FT. - 8" WATER MAIN

(DUCTILE IRON PUSH-ON RUBBER GASKET JOINT) (SPV.0090.5004)
63 FT. - 30" WATER MAIN

INSTALL (FURNISHED BY CITY)

1 - HYDRANT 8.0 (SPV.0060.5001)

FURNISH AND INSTALL

1 - 8" VALVE
1 - 6" HYDRANT VALVE

WATER MAIN REMOVALS

48 FT. - 8" - 2004-D.I. WATER MAIN (SPV.0090.5005)
63 FT. - 30" - 2003-C.W.M. WATER MAIN (SPV.0090.5005)
1 - 8" VALVE
1 - HYDRANT / MAJOR (SPV.0060.5000)

FITTING SHOW ON THIS CONSTRUCTION PLAN
THAT WILL BE FURNISHED BY CONTRACTOR

1 - AT8x6
4 - B8-45
4 - B30-22-1/2
1 - V6
1 - V8
2 - VB-DD W/18" EXT
2 - SL8
2 - 30" COUPLING PER CITY SPEC NO. 30-D-5
1 - 30" ADAPTER (DI SPIGOT (CLASS 55) X R&S SPIGOT)
1 - H (8.0) (HYDRANT FURNISHED BY CITY)

GENERAL NOTES

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF MILWAUKEE "WATER MAIN INSTALLATION SPECIFICATIONS", DATED JANUARY 2, 1987. ADDITIONALLY, ALL WORK SHALL BE DONE IN ACCORDANCE WITH "THE MILWAUKEE WATER WORKS SPECIAL PROVISIONS FOR WATER MAIN CONSTRUCTION", WHICH IS ATTACHED AND MADE PART OF THESE WATER MAIN PLANS AND CONTRACT DOCUMENTS.

THE DEPARTMENT OF PUBLIC WORKS GENERAL SPECIFICATIONS, DATED JANUARY 31, 1992, LATEST REVISION, APPLIES TO THIS CONTRACT AND WILL SUPERSEDE ANY PART OF THE SPECIFICATIONS WHICH DIFFERS THEREFROM.

THE CONTRACTOR SHALL FURNISH ALL ITEMS REQUIRED TO COMPLETE THIS PROJECT, EXCEPT HYDRANTS TO BE FURNISHED BY THE CITY.

BACKFILL AND BEDDING MATERIAL

THE REQUIREMENTS FOR BACKFILL AND BEDDING MATERIAL SHALL BE AS STATED IN THE "THE MILWAUKEE WATER WORKS SPECIAL PROVISIONS FOR WATER MAIN CONSTRUCTION".

ABANDONMENT OF VALVE BOXES

IN ACCORDANCE WITH SECTION 5.14.5 OF THE CITY OF MILWAUKEE "WATER MAIN INSTALLATION SPECIFICATIONS", WHEN VALVES OR CURB STOPS ARE TO BE ABANDONED, THE CONTRACTOR SHALL REMOVE ONLY THE TOP SECTION OF THE VALVE OR SERVICE BOX AND BACKFILL THE REMAINING HOLE WITH GRAVEL. ALL VALVE AND CURB STOP BOXES ON MAINS ABANDONED AS PART OF THE CONTRACT SHALL BE ABANDONED IN THIS MANNER. THE ABANDONMENT SHALL INCLUDE ALL NECESSARY PAVEMENT OR SOD REPLACEMENT.

MILWAUKEE WATER WORKS COORDINATION

THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING MR. TIM GARCZYNSKI OF MWW DISTRIBUTION AT 414-708-2563 ONE MONTH PRIOR TO MAKING WET CONNECTIONS TO THE 30" WATER MAIN. THE INITIAL CONTACT WITH MR. GARCZYNSKI IS TO PROVIDE HIM INFORMATION REGARDING THE CONTRACTOR'S PLANNED TIMING FOR EVERY WET CONNECTION LOCATION. ANOTHER NOTIFICATION IS REQUIRED 10 WORKING DAYS PRIOR TO ANY WET CONNECTIONS TO CONFIRM THE SCHEDULES AND PLANNED CONNECTION PROCEDURES.

H. REM/MAJOR
CLOSE 6" HYD GV &
ABANDON VALVE BOX PER SPEC. 5.14.5
1-60.25, 38.08' L

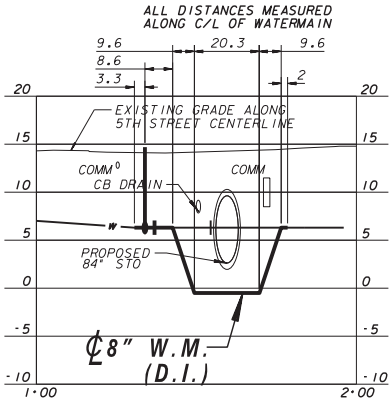
SWC POINT OF N. 5TH ST. AND
W. MCKINLEY AVE. IS
STA 1+50.89, 34.72' L

FOR MILWAUKEE WATER WORKS RECORDS ONLY -

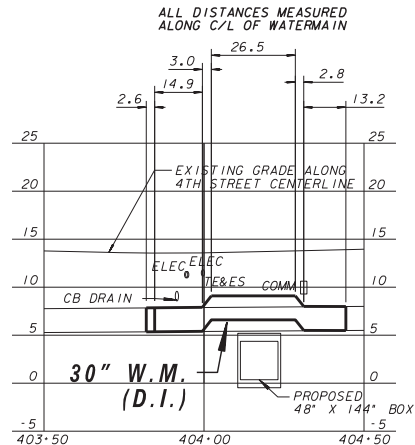
ABANDONMENTS/REMOVALS
48 FT. - 8" - 2004-D.I. WATER MAIN
63 FT. - 30" - 2003-C.W.M. WATER MAIN
1 - 8" VALVE
1 - HYDRANT

PLAN LINE & UTILITY LEGEND

GAS	G	SANITARY SEWER	SAN	STREET LIGHTING	
ELECTRIC	E	STORM SEWER	STO	CITY UNDERGROUND CONDUIT	CUC
TELEPHONE	T	COMBINED SEWER	CMB	PROPOSED CURB / PAVMT	
CABLE TELEVISION	TV	WATER MAIN	W	PAVING LIMITS	X X X X
FIBER OPTICS	FO	WATER SERVICE		STRUCTURE / BUILDING	
PROPOSED UTILITY		PRESSURE DISTRICT		FENCE	X
POWER POLES	○-CONCRETE	□-ALUMINUM	⊙-WOOD	WATER MAIN VALVES	├-GATE
					├-BUTTERFLY
					○-SERVICE
UTILITIES	⊞-TRAFFIC SIGNAL	⊞-TRAFFIC CONTROL BOX	⊞-GAS VALVE	HYDRANTS	⊞-1 NOZZLE
					⊞-3 NOZZLE



CONNECT 6.3' -/-
1-30.64, 11.50' L
AT8x6 6.3' -/-
1-33.93, 11.46' L
P.1. BEND 6.3'
1-42.57, 11.43' L
P.1. BEND -0.5'
1-49.37, 11.38' L
P.1. BEND -0.5'
1-69.69, 11.32' L
P.1. BEND 6.3'
1-76.50, 11.22' L
CONNECT 6.3' -/-
1-78.50, 11.20' L



CONNECT F.L. 5.4' -/-
403-81.96, 3.39' R
P.1. BEND F.L. 5.4'
403-99.47, 3.37' R
P.1. BEND F.L. 6.6'
402-02.28, 3.36' R
P.1. BEND F.L. 6.6'
404-28.55, 3.68' R
P.1. BEND F.L. 5.5'
404-31.15, 3.81' R
CONNECT F.L. 5.5' -/-
404-44.36, 4.47' R

W. MCKINLEY

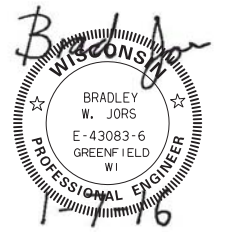
W. MCKINLEY

N. 5TH ST.

N. 4TH ST.

AVE.

AVE.



Milwaukee Water Works		Water Engineering Department of Public Works	
WATER MAIN			
W. MCKINLEY AV.			
IN FROM TO			
N. 4TH ST. N. 7TH ST.			
SCALE		APPROVED DATE	
HORIZONTAL 1" = 30'		01-08-16	
VERTICAL 1" = 10'		01-08-16	
1/4 SEC. NO. 361, 362		01-08-16	
PLAN DATE 1-7-16		01-08-16	
DRAWN BY BWJ		01-08-16	
CHECKED BY BWJ		01-08-16	
SURVEY BY KAPUR & ASSOC.		01-08-16	
PROGRAM NO. 2015-773		CONTRACT NO. STATE	
WORK ORDER WT410150773		O.N. & PROJECT NO. 2126-06	
SHEET NO. 1 OF 3		PLAN FILE NO. 2016011	

CALL DIGGERS HOTLINE
1-800-242-8511
TOLL FREE TO OBTAIN LOCATION OF UNDERGROUND
BEFORE YOU DIG. WISCONSIN STATUTE 182.0715 REQUIRES
MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE

KAPUR & ASSOCIATES, INC.
CONSULTING ENGINEERS
MILWAUKEE, WISCONSIN
414.351.6668

NO.	BY	REVISION	DATE
1	JEI	MWW REVIEW OF CONSULTANT DESIGN	01-04-16

ESTIMATE OF QUANTITIES

FOR BIDDING

FURNISH PIPE AND INSTALL

(DUCTILE IRON PUSH-ON RUBBER GASKET JOINT) (SPV.0090.5002)
136 FT. - 6" HYDRANT BRANCH WATER MAIN

(DUCTILE IRON PUSH-ON RUBBER GASKET JOINT) (SPV.0090.5006)
10 FT. - 12" WATER MAIN

(DUCTILE IRON PUSH-ON RUBBER GASKET JOINT) (SPV.0090.5004)
92 FT. - 30" WATER MAIN

INSTALL (FURNISHED BY CITY)

1 - HYDRANT 8.5 (SPV.0060.5001)
1 - HYDRANT 6.5 (SPV.0060.5001)

FURNISH AND INSTALL

2 - 6" HYDRANT VALVE

WATER MAIN ABANDONMENTS

32 FT. - 30" - 1965-C.W.M. WATER MAIN

WATER MAIN REMOVALS

50 FT. - 30" - 1965-C.W.M. WATER MAIN (SPV.0090.5005)
1 - HYDRANT / MAJOR (SPV.0060.5000)

FITTING SHOW ON THIS CONSTRUCTION PLAN
THAT WILL BE FURNISHED BY CONTRACTOR

- 1 - AT12x6
1 - T 12x6
6 - B6-45
2 - B30-11 1/4
4 - B30-45
2 - V6
2 - V8-DD
4 - VALVE BOX 24" EXT
1 - 3FT EXTENSION ROD
4 - SL12
2 - 30" COUPLING
1 - H (6.5) [HYDRANT FURNISHED BY CITY]
1 - H (8.5) [HYDRANT FURNISHED BY CITY]
1 - 30" ADAPTER (D) SPIGOT (CLASS 55) X R8S BELL
1 - 30" ADAPTER (D) SPIGOT (CLASS 55) X R8S SPIGOT

GENERAL NOTES

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF MILWAUKEE "WATER MAIN INSTALLATION SPECIFICATIONS", DATED JANUARY 2, 1987. ADDITIONALLY, ALL WORK SHALL BE DONE IN ACCORDANCE WITH "THE MILWAUKEE WATER WORKS SPECIAL PROVISIONS FOR WATER MAIN CONSTRUCTION", WHICH IS ATTACHED AND MADE PART OF THESE WATER MAIN PLANS AND CONTRACT DOCUMENTS.

THE DEPARTMENT OF PUBLIC WORKS GENERAL SPECIFICATIONS,
DATED JANUARY 31, 1992, LATEST REVISION, APPLIES TO
THIS CONTRACT AND WILL SUPERSEDE ANY PART OF THE
SPECIFICATIONS WHICH DIFFERS THEREFROM.

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THE REQUIREMENTS FOR BACKFILL AND BEDDING MATERIAL SHALL BE AS STATED IN THE "THE MILWAUKEE WATER WORKS SPECIAL PROVISIONS FOR WATER MAIN CONSTRUCTION".

ABANDONMENT OF VALVE BOXES

IN ACCORDANCE WITH SECTION 5.14.5 OF THE CITY OF MILWAUKEE "WATER MAIN INSTALLATION SPECIFICATIONS", WHEN VALVES OR CURB STOPS ARE TO BE ABANDONED, THE CONTRACTOR SHALL REMOVE ONLY THE TOP SECTION OF THE VALVE OR SERVICE BOX AND BACKFILL THE REMAINING HOLE WITH GRAVEL. ALL VALVE AND CURB STOP BOXES ON MAINS ABANDONED AS PART OF THE PROJECT SHALL BE ABANDONED IN THIS MANNER. THE ABANDONMENT SHALL INCLUDE ALL NECESSARY PAVEMENT OR SOD REPLACEMENT.

MILWAUKEE WATER WORKS COORDINATION

THE CONTRACTOR'S RESPONSIBLE FOR CONTACTING MR. TIM GARCZYNSKI OF MWW DISTRIBUTION AT 414-708-2563 ONE MONTH PRIOR TO MAKING WET CONNECTIONS TO THE 30" WATER MAIN. THE INITIAL CONTACT WITH MR. GARCZYNSKI IS TO PROVIDE HIM INFORMATION REGARDING THE CONTRACTOR'S PLANNED TIMING FOR EVERY WET CONNECT LOCATION. ANOTHER NOTIFICATION IS REQUIRED 10 WORKING DAYS PRIOR TO ANY WET CONNECTIONS TO CONFIRM THE SCHEDULES AND PLANNED CONNECTION PROCEDURES.

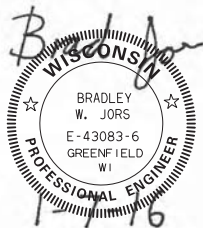
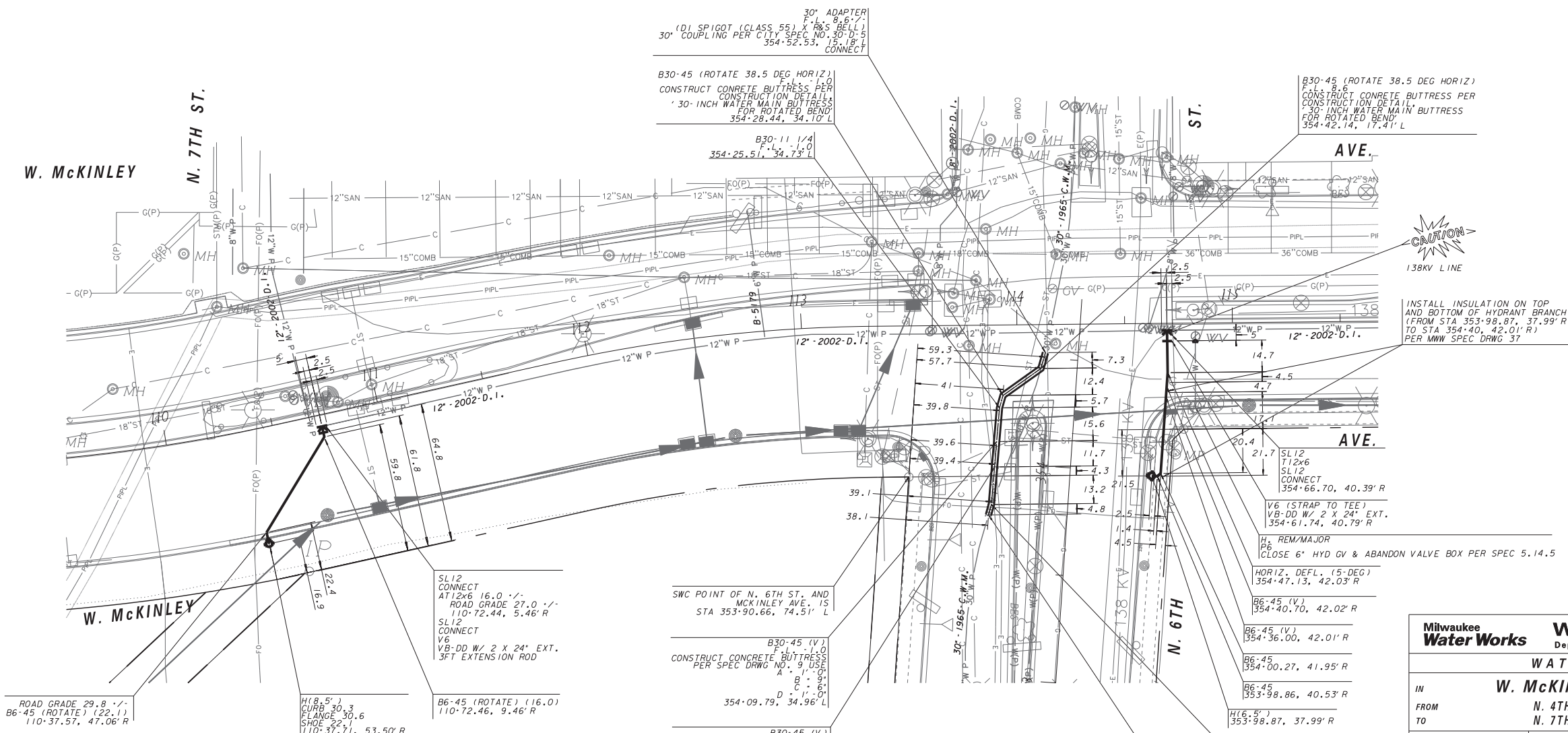
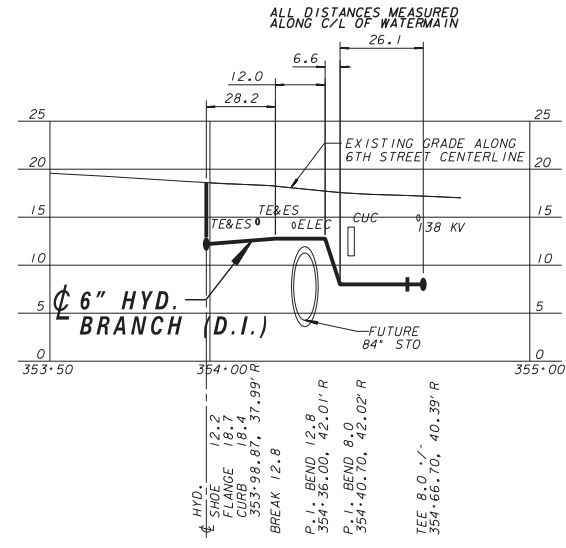
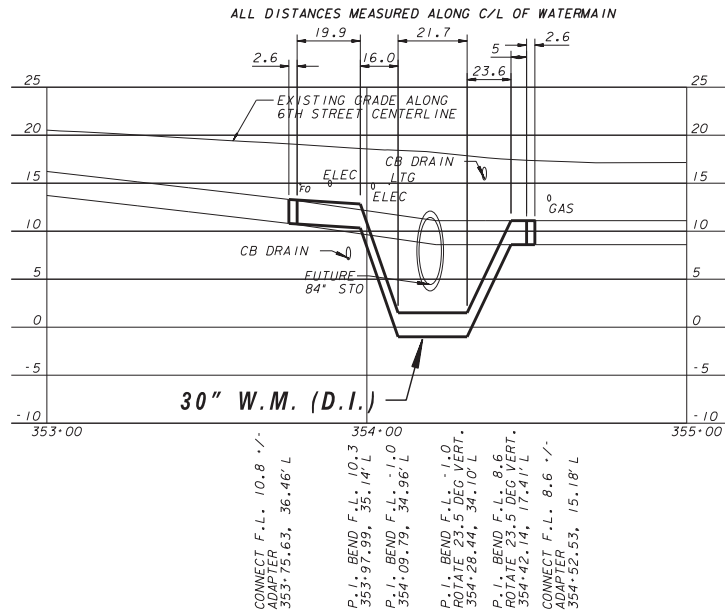
FOR MILWAUKEE WATER WORKS RECORDS ONLY -

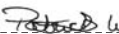
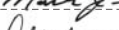
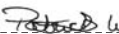
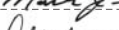
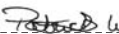
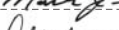
ABANDONMENTS/REMOVALS
82 FT. - 30" - 1960-C.W.M. WATER MAIN
1 - HYDRANT

PLAN LINE & UTILITY LEGEND

GAS	G	SANITARY SEWER	SAN	STREET LIGHTING	
ELECTRIC	E	STORM SEWER	STO	CITY UNDERGROUND CONDUIT	CUC
TELEPHONE	T	COMBINED SEWER	CMB	PROPOSED CURB / PAVT	
CABLE TELEVISION	CA	WATER MAIN	W	PROPOSED LIMITS	X
FIBER OPTICS	FO	WATER SERVICE		STRUCTURE / BUILDING	X
PROPOSED UTILITY		PRESSURE DISTRICT		FENCE	X

POWER POLES	○ CONCRETE	○ ALUMINUM	○ WOOD	WATER MAIN VALVES	+ GATE	+ BUTTERFLY	W SERVICE
UTILITIES	□ TRAFFIC SIGNAL	□ TRAFFIC CONTROL BOX	G GAS VALVE	HYDRANTS	8 - 1 NOZZLE	8 - 3 NOZZLE	



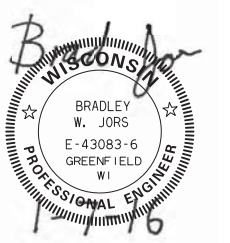
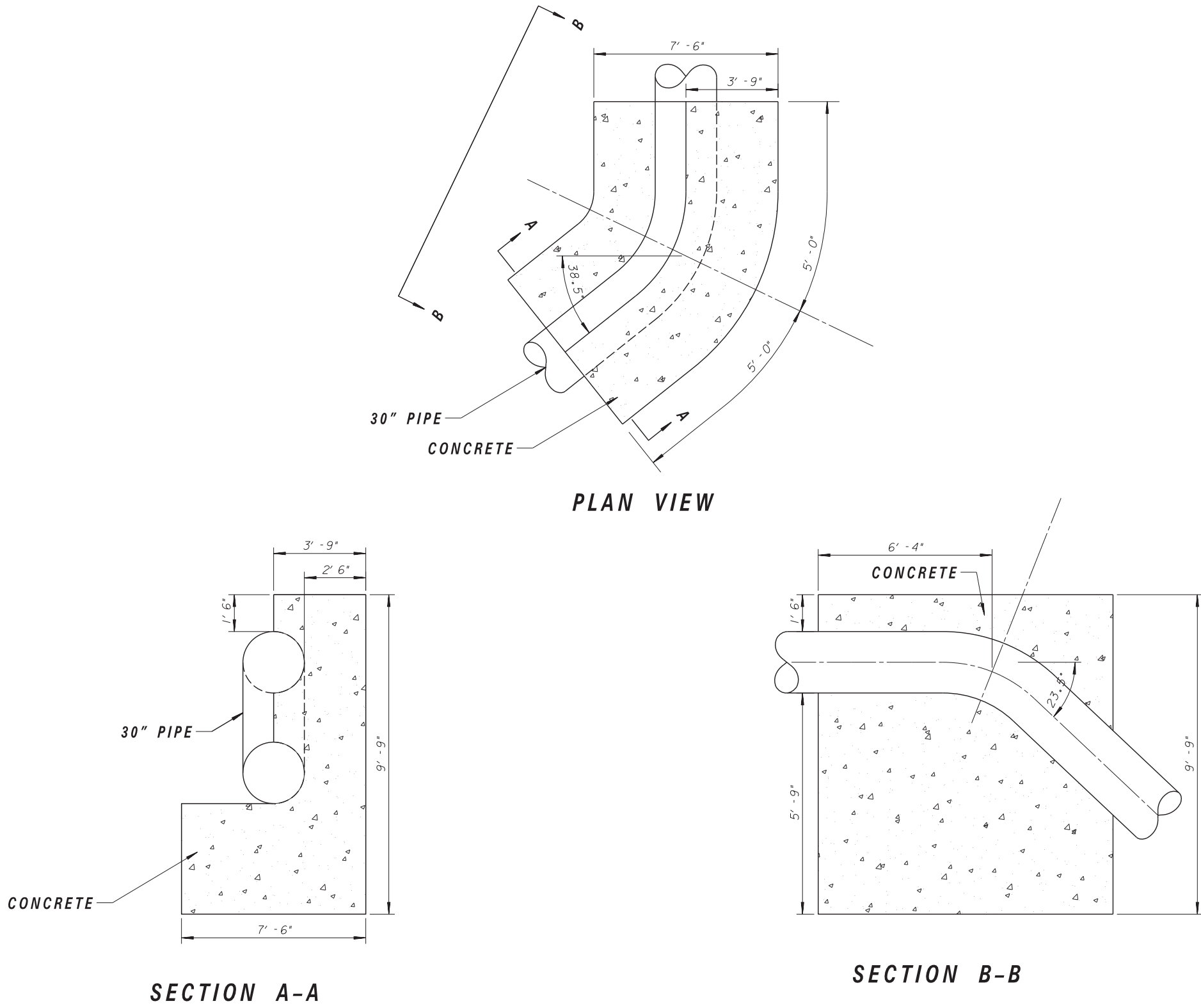
Milwaukee Water Works Department of Public Works																							
WATER MAIN																							
W. MCKINLEY AV.																							
IN FROM TO	N. 4TH ST. N. 7TH ST.																						
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;"> SCALE HORIZONTAL 1" = 30' VERTICAL 1" = 10' </td> <td style="padding: 5px;"> APPROVED </td> <td style="padding: 5px;"> DATE </td> </tr> <tr> <td style="padding: 5px;"> 14 SEC. NO. 361, 362 </td> <td colspan="2" style="padding: 5px;">  01-08-16 </td> </tr> <tr> <td style="padding: 5px;"> PLAN DATE 1-7-16 </td> <td colspan="2" style="padding: 5px;">  01-08-16 CHIEF DESIGN ENGINEER </td> </tr> <tr> <td style="padding: 5px;"> DRAWN BY BWJ </td> <td colspan="2" style="padding: 5px;">  01-08-16 SPECIAL DEPUTY COMMISSIONER OF PUBLIC WORKS </td> </tr> <tr> <td colspan="3" style="padding: 5px;"> SURVEY BY KAPUR & ASSOC. </td> </tr> <tr> <td style="padding: 5px;"> PROGRAM NO. 2015-773 </td> <td style="padding: 5px;"> CONTRACT NO. STATE </td> <td style="padding: 5px;"> C.C. FILE NO. 141515 </td> </tr> <tr> <td style="padding: 5px;"> WORK ORDER WT410150773 </td> <td style="padding: 5px;"> O.N. & PROJECT NO. 2126-0C </td> <td style="padding: 5px;"> 63 PTD 02-10-2015 </td> </tr> </table>	SCALE HORIZONTAL 1" = 30' VERTICAL 1" = 10'	APPROVED	DATE	14 SEC. NO. 361, 362	 01-08-16		PLAN DATE 1-7-16	 01-08-16 CHIEF DESIGN ENGINEER		DRAWN BY BWJ	 01-08-16 SPECIAL DEPUTY COMMISSIONER OF PUBLIC WORKS		SURVEY BY KAPUR & ASSOC.			PROGRAM NO. 2015-773	CONTRACT NO. STATE	C.C. FILE NO. 141515	WORK ORDER WT410150773	O.N. & PROJECT NO. 2126-0C	63 PTD 02-10-2015	SHEET NO. 2 OF 3 PLAN FILE NO. 2016012	
SCALE HORIZONTAL 1" = 30' VERTICAL 1" = 10'	APPROVED	DATE																					
14 SEC. NO. 361, 362	 01-08-16																						
PLAN DATE 1-7-16	 01-08-16 CHIEF DESIGN ENGINEER																						
DRAWN BY BWJ	 01-08-16 SPECIAL DEPUTY COMMISSIONER OF PUBLIC WORKS																						
SURVEY BY KAPUR & ASSOC.																							
PROGRAM NO. 2015-773	CONTRACT NO. STATE	C.C. FILE NO. 141515																					
WORK ORDER WT410150773	O.N. & PROJECT NO. 2126-0C	63 PTD 02-10-2015																					

 CALL DIGGERS HOTLINE
1-800-242-8511
TOLL FREE TO OBTAIN LOCATION OF UNDERGROUND
BEFORE YOU DIG. WISCONSIN STATUTE 182.0715 REQUIRE:
MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE



KAPUR & ASSOCIATES, INC.
CONSULTING ENGINEERS
MILWAUKEE, WISCONSIN
414.351.6668

			
			
	JEI	MWW REVIEW OF CONSULTANT DESIGN	01-04-16
N O .	B Y	REVISION	DATE



**30-INCH WATER MAIN BUTTRESS
FOR ROTATED BEND**
NOT TO SCALE

NOTES

1. DIMENSIONS ARE BASED ON A WATER PRESSURE OF 150 PSI AND SOIL BEARING PRESSURE OF 4000 LBS. PER SQ. FT.
2. CONCRETE TO BE CLASS "F"
3. CONCRETE TO BE POURED AGAINST FIRM NATURAL GROUND.
4. POLYETHYLENE FILM ENVELOPE REQUIRED FOR DUCTILE IRON PIPE NOT SHOWN.
5. BUTTRESS FOR BEND GREATER THAN 22½° SHALL BE INDIVIDUALLY DESIGNED OR AS INDICATED ON THE PLAN.

CALL DIGGERS HOTLINE
1-800-242-8511
TOLL FREE TO OBTAIN LOCATION OF UNDERGROUND
BEFORE YOU DIG. WISCONSIN STATUTE 182.0715 REQUIRES
MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE

KAPUR & ASSOCIATES, INC.
CONSULTING ENGINEERS
MILWAUKEE, WISCONSIN
414.351.6668

NO.	BY	REVISION	DATE
△			
△	JEL	MWW REVIEW OF CONSULTANT DESIGN	01-04-2016

Milwaukee Water Works		Water Engineering Department of Public Works	
WATER MAIN			
IN		W. MCKINLEY AV.	
FROM		N. 4TH ST.	
TO		N. 7TH ST.	
HORIZONTAL NTS		APPROVED	
VERTICAL NTS		DATE	
1/4 SEC. NO. 361, 362		01-08-16	
PLAN DATE 1-7-16		01-08-16	
DRAWN BY BWJ		01-08-16	
CHECKED BY BWJ		01-08-16	
SURVEY BY KAPUR & ASSOC.		SPECIAL DEPUTY COMMISSIONER OF PUBLIC WORKS	
PROGRAM NO. 2015-773		CONTRACT NO. STATE	
WORK ORDER WT410150773		O.N. & PROJECT NO. 2126-00 64	
		C.C. FILE NO. 141515	
		PTED 02-10-2015	
SHEET NO. 3 OF 3 PLAN FILE NO. 2016013			

NOTE:

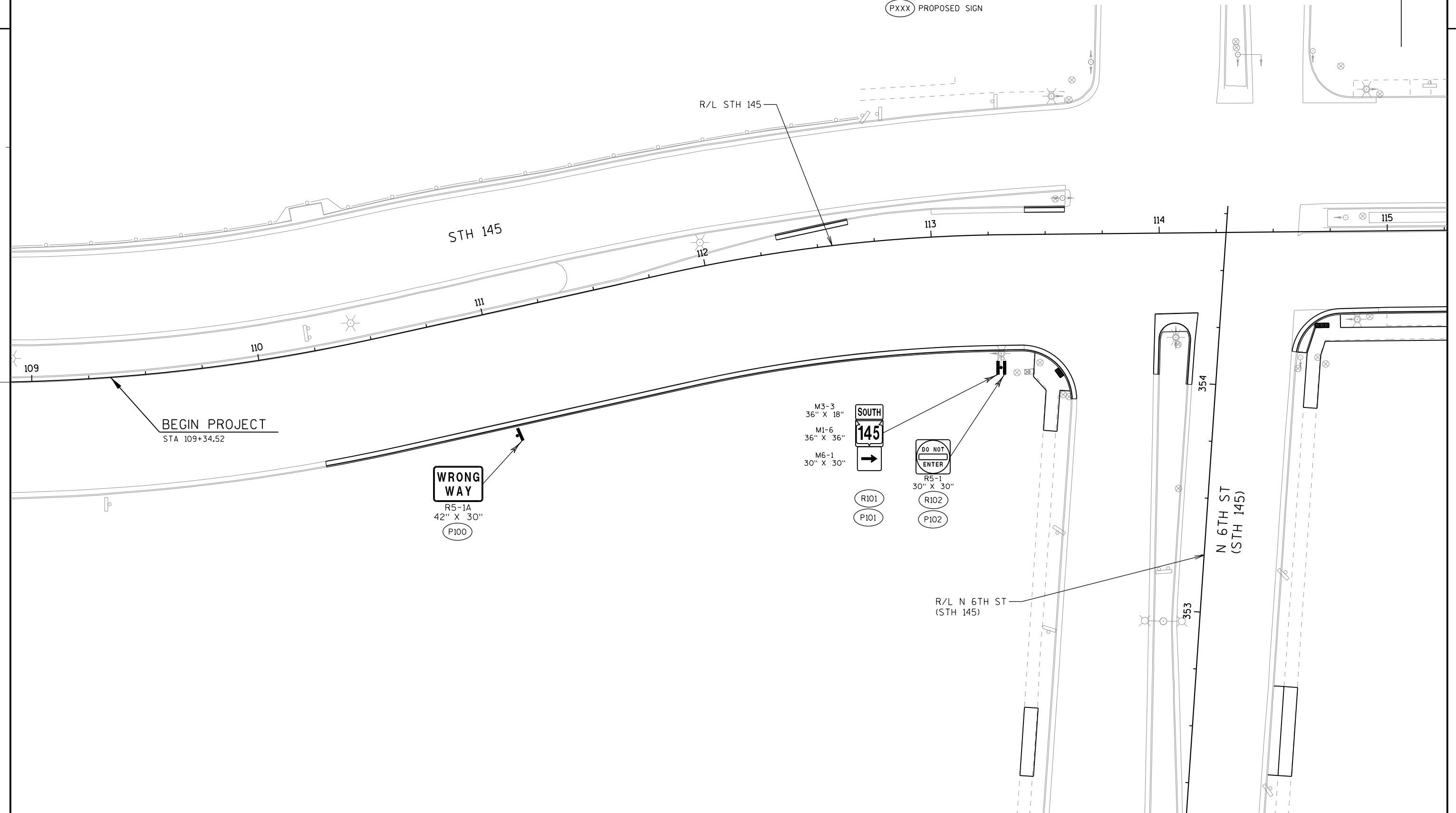
1) ALL OTHER SIGNS WITHIN PROJECT LIMITS TO BE REMOVED/REPLACED BY THE CITY OF MILWAUKEE.

LEGEND

PERMANENT SIGN ON POST

RXXX SIGN TO BE REMOVED

PXXX PROPOSED SIGN



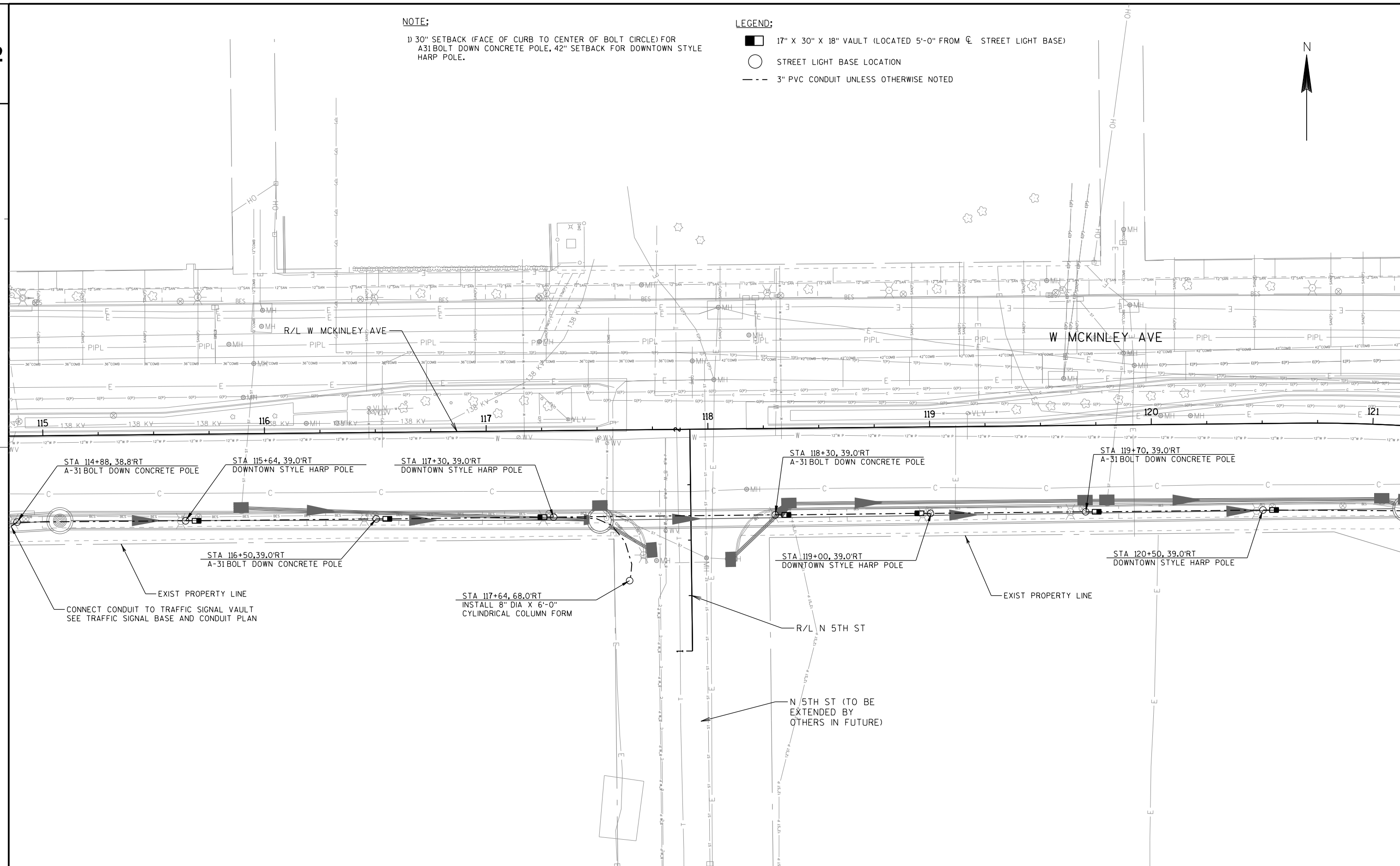
NOTE:

1) 30" SETBACK (FACE OF CURB TO CENTER OF BOLT CIRCLE) FOR A31 BOLT DOWN CONCRETE POLE, 42" SETBACK FOR DOWNTOWN STYLE HARP POLE.

LEGEND:

- 17" X 30" X 18" VAULT (LOCATED 5'-0" FROM CL STREET LIGHT BASE)
- STREET LIGHT BASE LOCATION
- 3" PVC CONDUIT UNLESS OTHERWISE NOTED

N

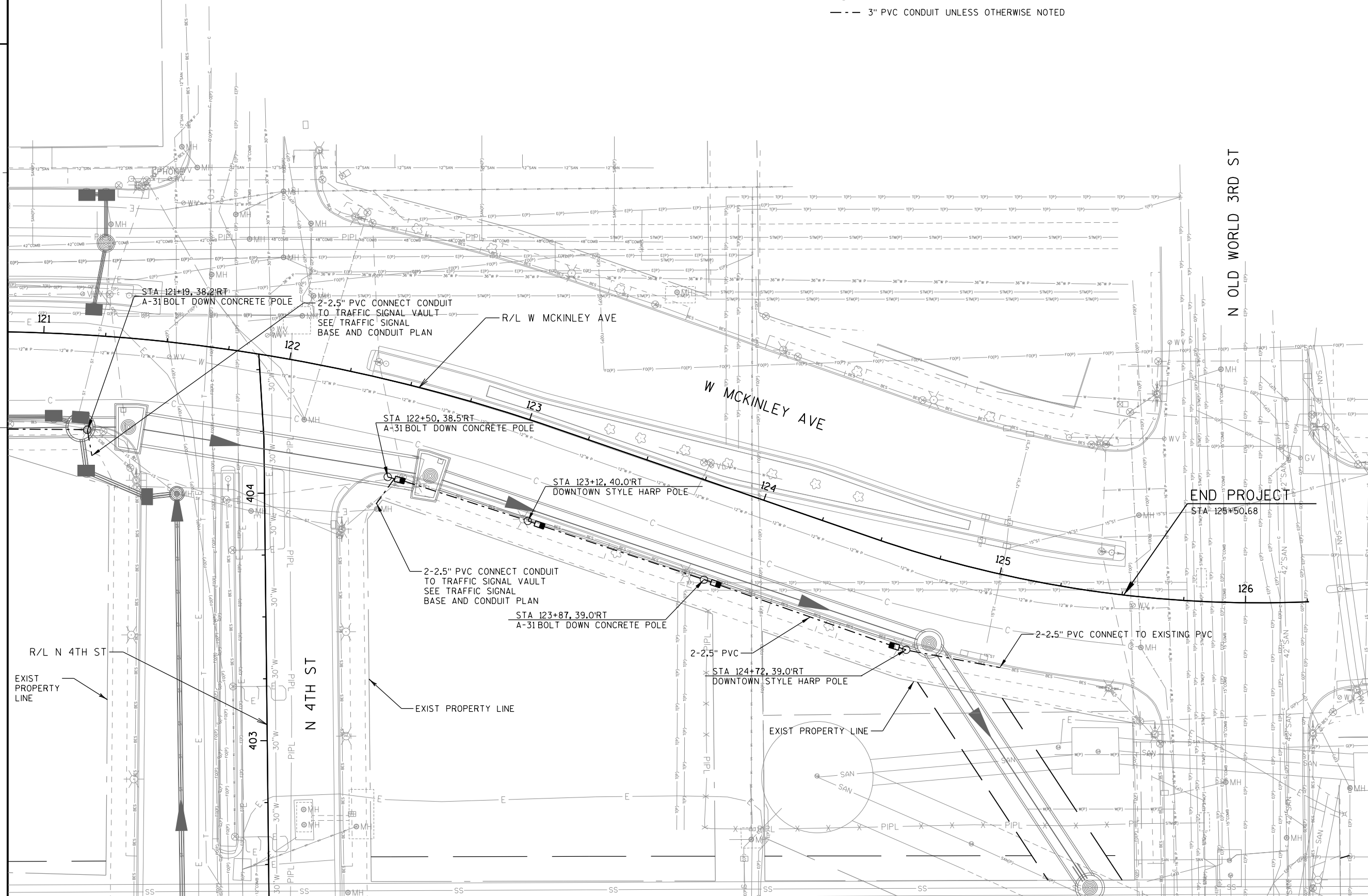


NOTE:

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LEGEND:

- 17" X 30" X 18" VAULT (LOCATED 5'-0" FROM CL STREET LIGHT BASE)
STREET LIGHT BASE LOCATION
3" PVC CONDUIT UNLESS OTHERWISE NOTED



PROJECT NO: 2126-00-70

HWY: W MCKINLEY AVE

COUNTY: MILWAUKEE

LIGHTING PLAN

SHEET

67

E

NOTE:

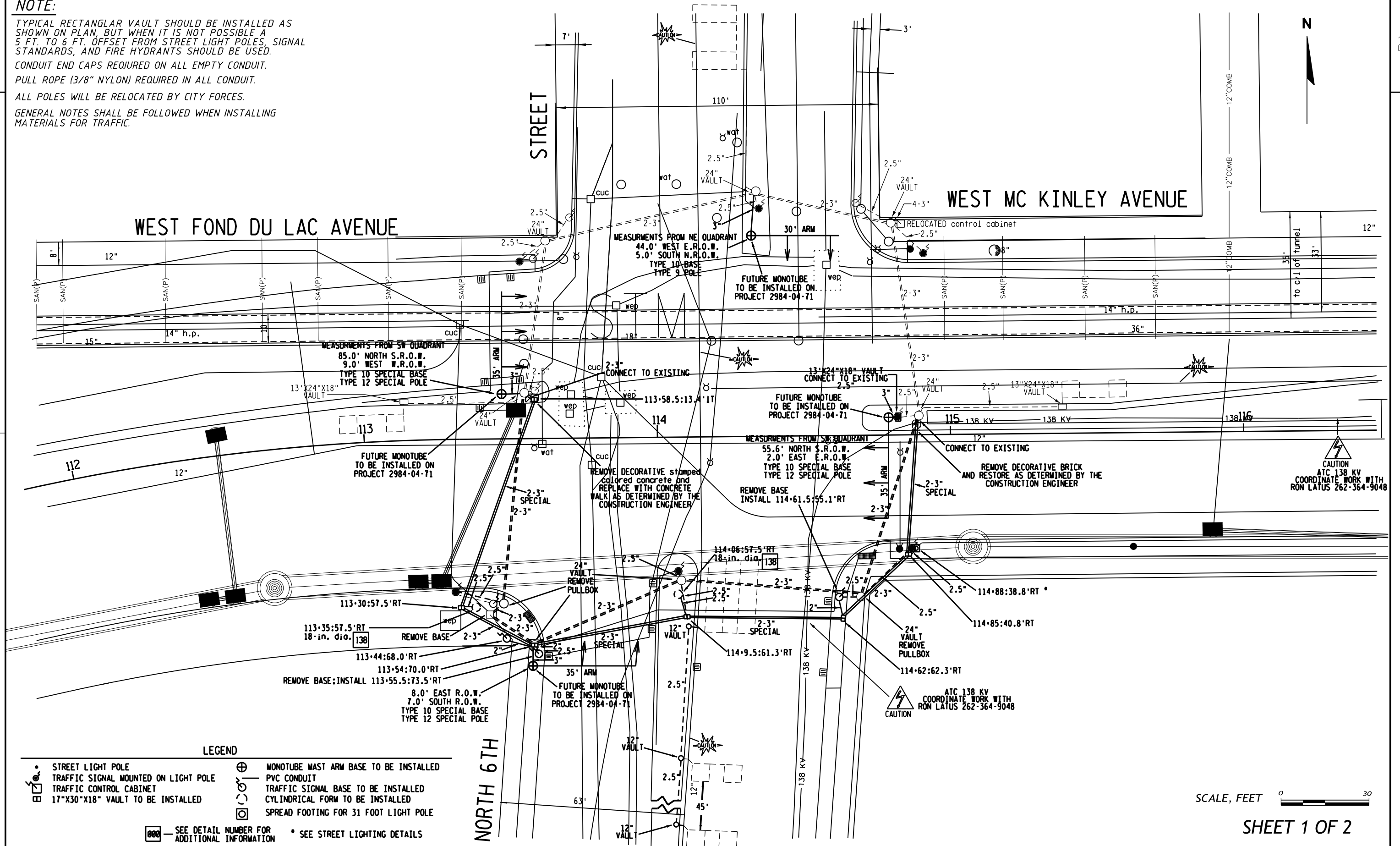
TYPICAL RECTANGULAR VAULT SHOULD BE INSTALLED AS SHOWN ON PLAN, BUT WHEN IT IS NOT POSSIBLE A 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS, AND FIRE HYDRANTS SHOULD BE USED.

CONDUIT END CAPS REQUIRED ON ALL EMPTY CONDUIT.

PULL ROPE (3/8" NYLON) REQUIRED IN ALL CONDUIT.

ALL POLES WILL BE RELOCATED BY CITY FORCES.

GENERAL NOTES SHALL BE FOLLOWED WHEN INSTALLING MATERIALS FOR TRAFFIC.



PROJECT NO: 2126-00-70

HWY: W MCKINLEY AVE

COUNTY: MILWAUKEE

TRAFFIC SIGNAL BASE AND CONDUIT PLAN

SHEET

68

FILE NAME: S:\DOT\DOT_SE\150271 Marq IC Park East Fwy Drainage\DGN FILES\Plansheets\024001_SP.dgn

PLOT DATE: 1/7/2016

PLOT BY: wwolak

PLOT NAME:

PLOT SCALE: 1:30

WISDOT/CADDs SHEET 42

NOTE:

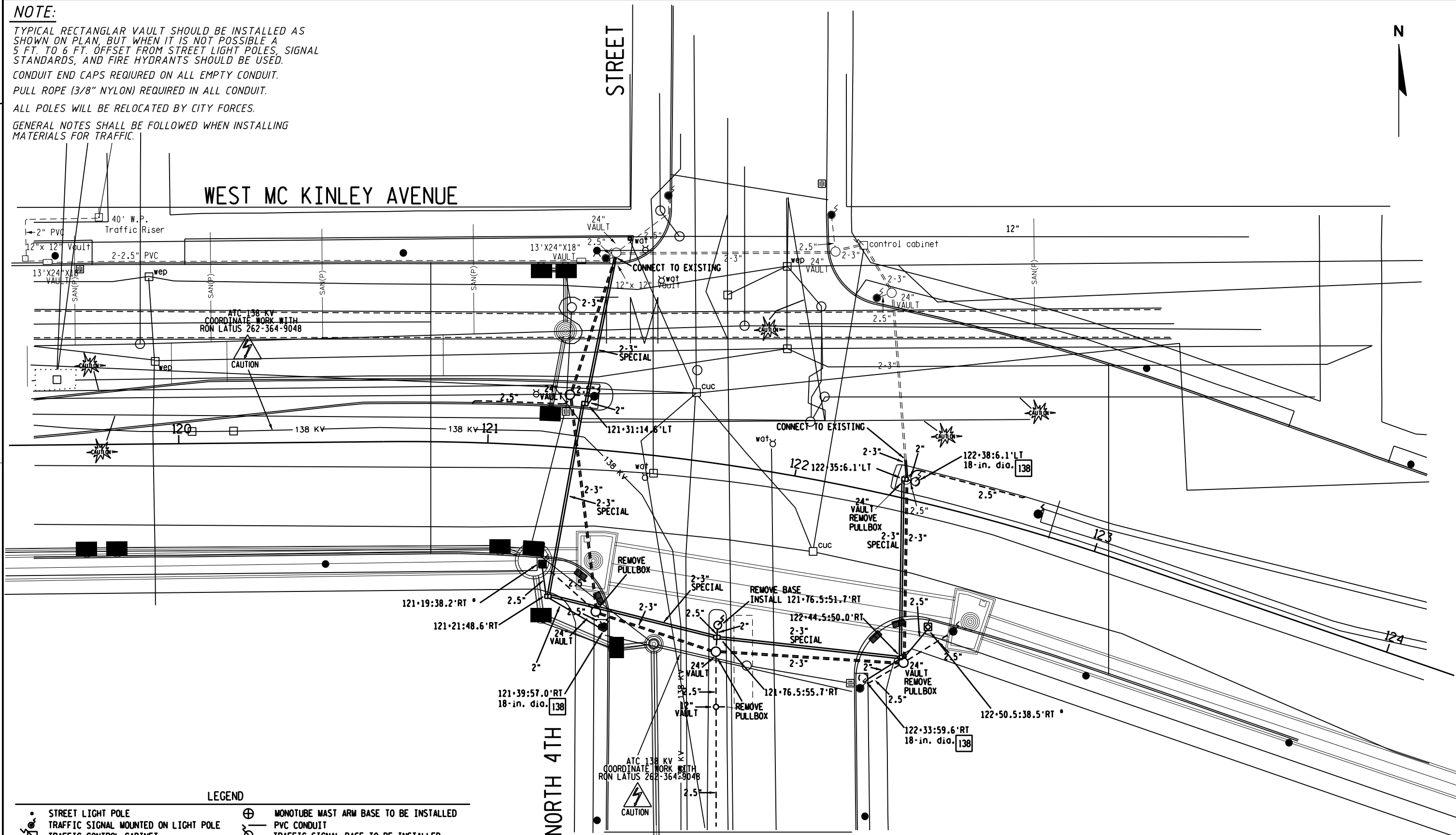
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LEGEND

- | | |
|--|--|
| • STREET LIGHT POLE | ⊕ MONOTUBE MAST ARM BASE TO BE INSTALLED |
| ◻ TRAFFIC SIGNAL MOUNTED ON LIGHT POLE | ○ PVC CONDUIT |
| ◻ TRAFFIC CONTROL CABINET | ◻ TRAFFIC SIGNAL BASE TO BE INSTALLED |
| ◻ 17"X30"X18" VAULT TO BE INSTALLED | ◻ CYLINDRICAL FORM TO BE INSTALLED |
| | ◻ SPREAD FOOTING FOR 31 FOOT LIGHT POLE |

◻ SEE DETAIL NUMBER FOR ADDITIONAL INFORMATION

* SEE STREET LIGHTING DETAILS

SCALE, FEET 0 30

SHEET 2 OF 2

PROJECT NO: 2126-00-70

HWY: W MCKINLEY AVE

COUNTY: MILWAUKEE

TRAFFIC SIGNAL BASE AND CONDUIT PLAN

SHEET

69

FILE NAME: S:\DOT\DOT_SE\150271 Marq IC Park East Fwy Drainage\DGN FILES\Plansheets\024001_SP.dgn

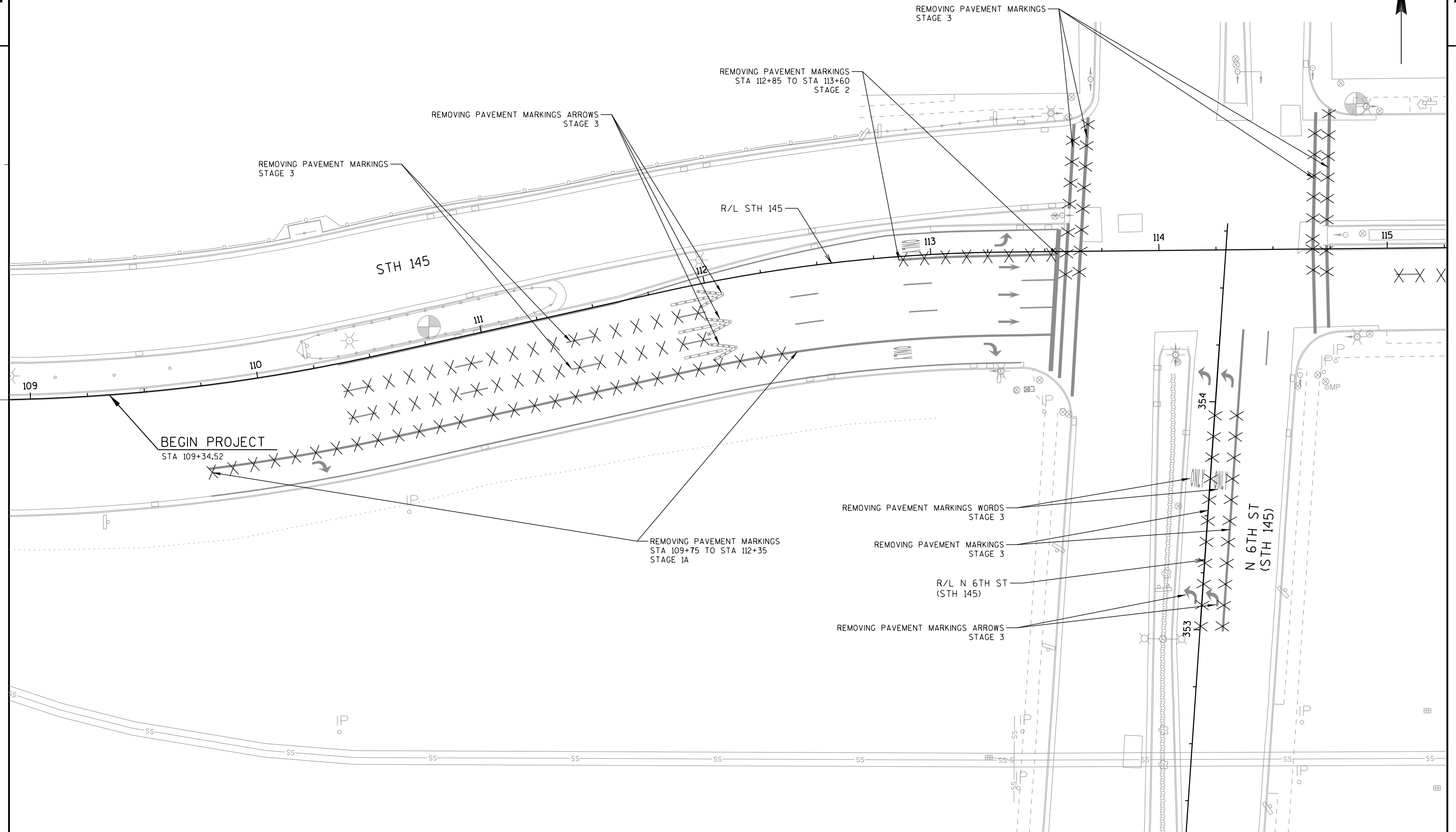
PLOT DATE: 1/7/2016

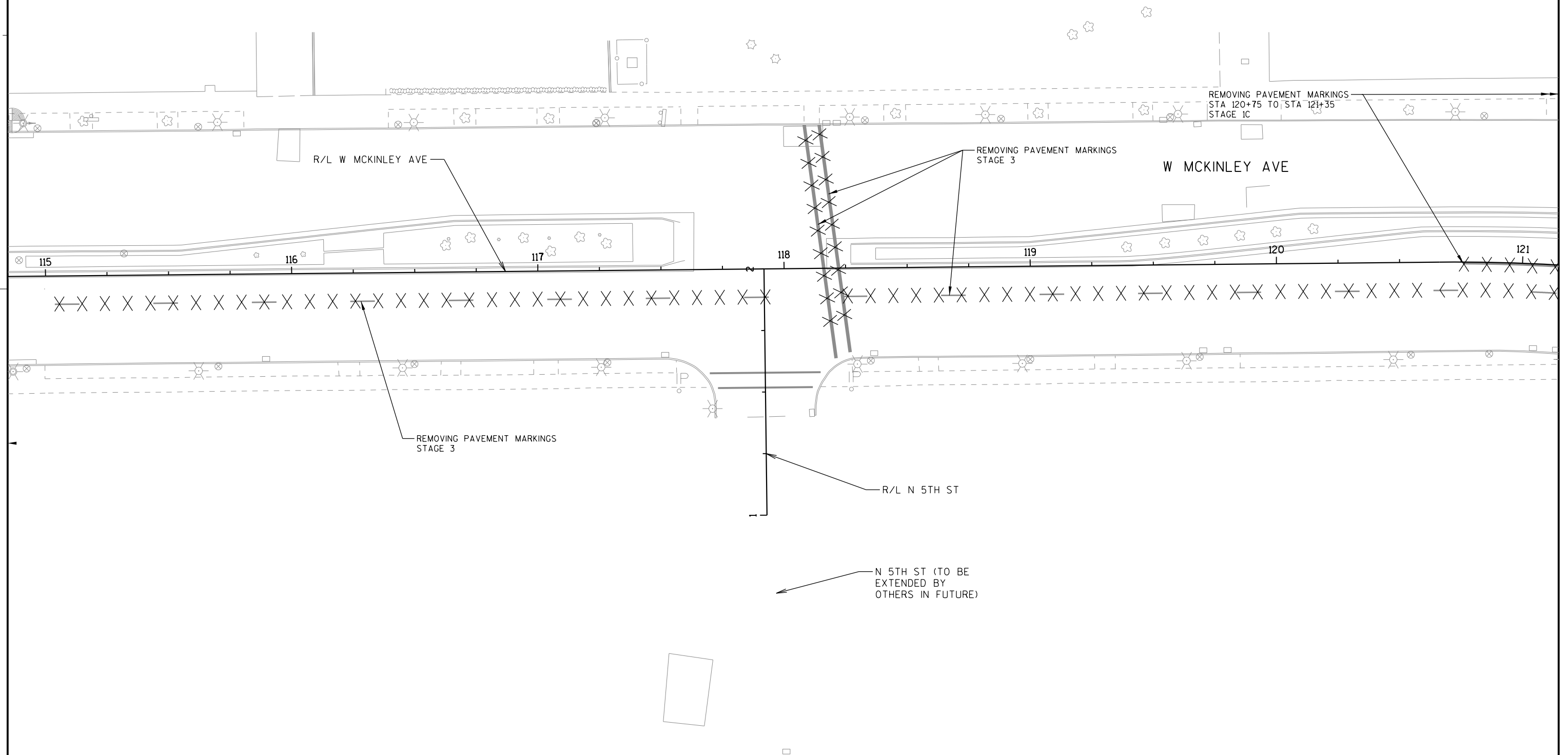
PLOT BY: wwolak

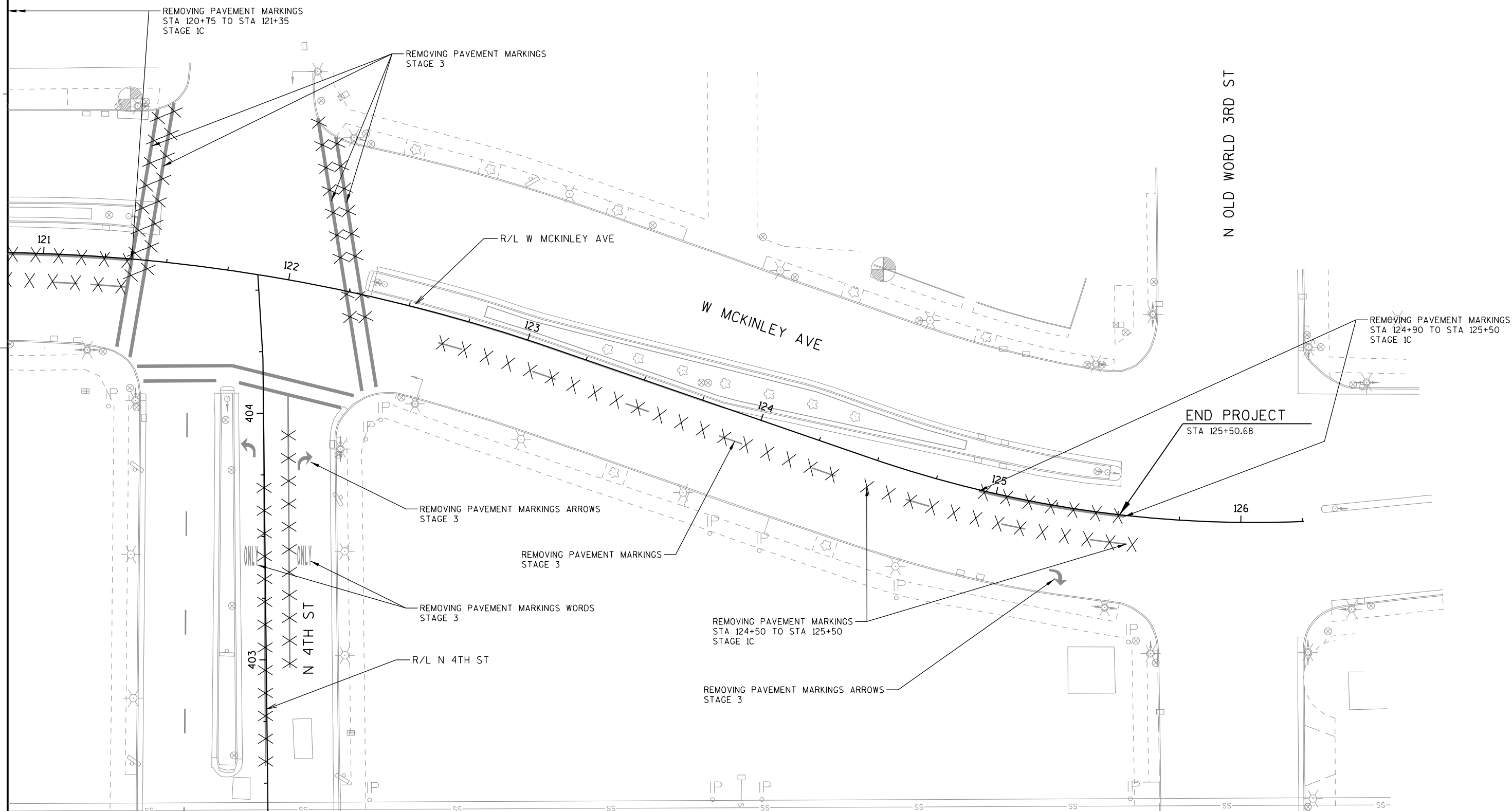
PLOT NAME:

PLOT SCALE: 1:30

WISDOT/CADDS SHEET 42







PROJECT NO: 2126-00-70

HWY: W MCKINLEY AVE

COUNTY: MILWAUKEE

PAVEMENT MARKING REMOVALS

SHEET

72

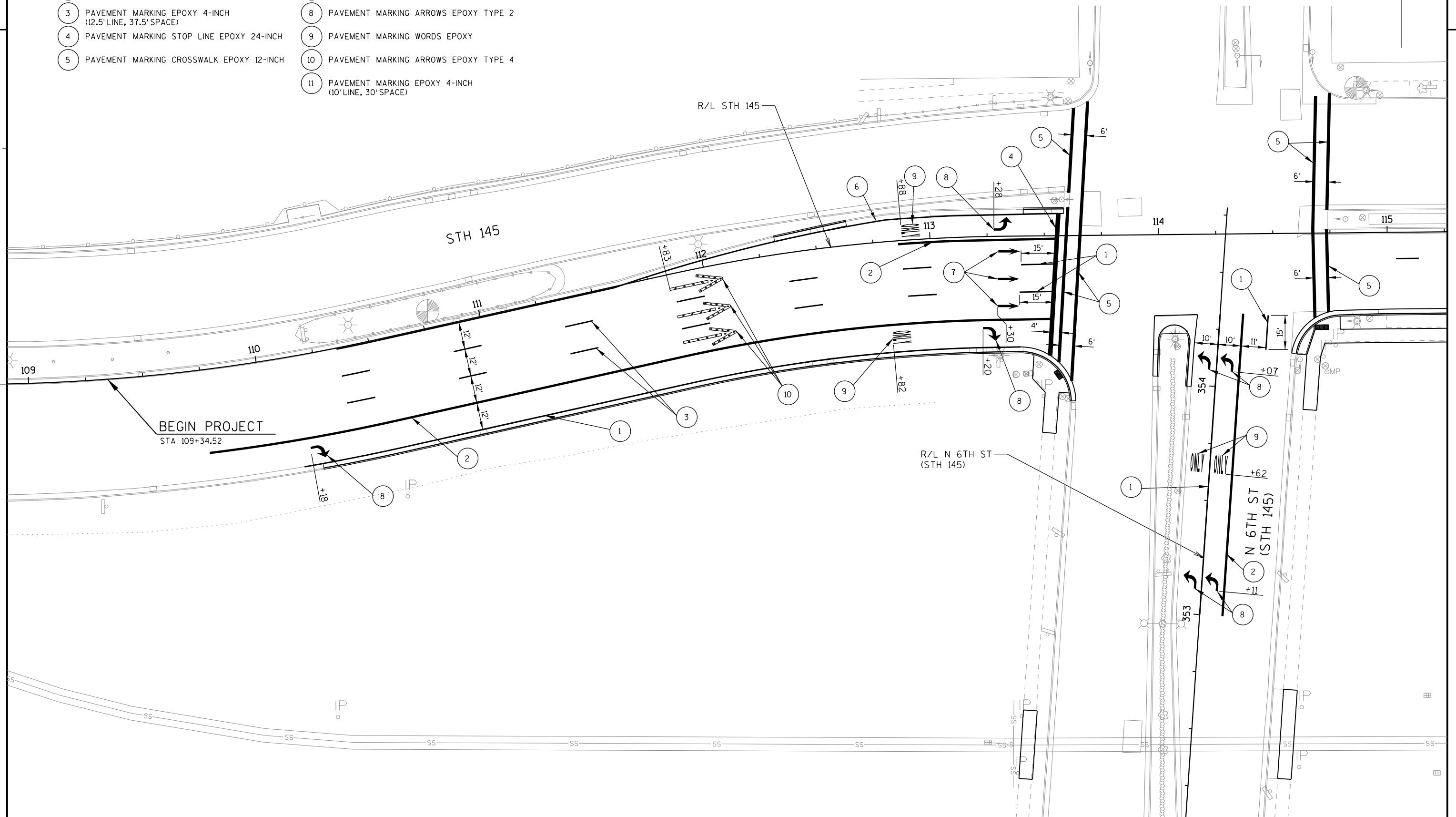
E

LEGEND:

- | | | | |
|---|--|----|--|
| 1 | PAVEMENT MARKING EPOXY 4-INCH | 6 | PAVEMENT MARKING EPOXY 4-INCH (YELLOW) |
| 2 | PAVEMENT MARKING EPOXY 8-INCH | 7 | PAVEMENT MARKING ARROWS EPOXY TYPE 1 |
| 3 | PAVEMENT MARKING EPOXY 4-INCH
(12.5' LINE, 37.5' SPACE) | 8 | PAVEMENT MARKING ARROWS EPOXY TYPE 2 |
| 4 | PAVEMENT MARKING STOP LINE EPOXY 24-INCH | 9 | PAVEMENT MARKING WORDS EPOXY |
| 5 | PAVEMENT MARKING CROSSWALK EPOXY 12-INCH | 10 | PAVEMENT MARKING ARROWS EPOXY TYPE 4 |
| | | 11 | PAVEMENT MARKING EPOXY 4-INCH
(10' LINE, 30' SPACE) |

NOTE:

- 1) ALL MARKINGS ARE WHITE UNLESS OTHERWISE NOTED.
2) SAND BLAST PAVEMENT MARKING LOCATIONS PRIOR TO APPLYING EPOXY.

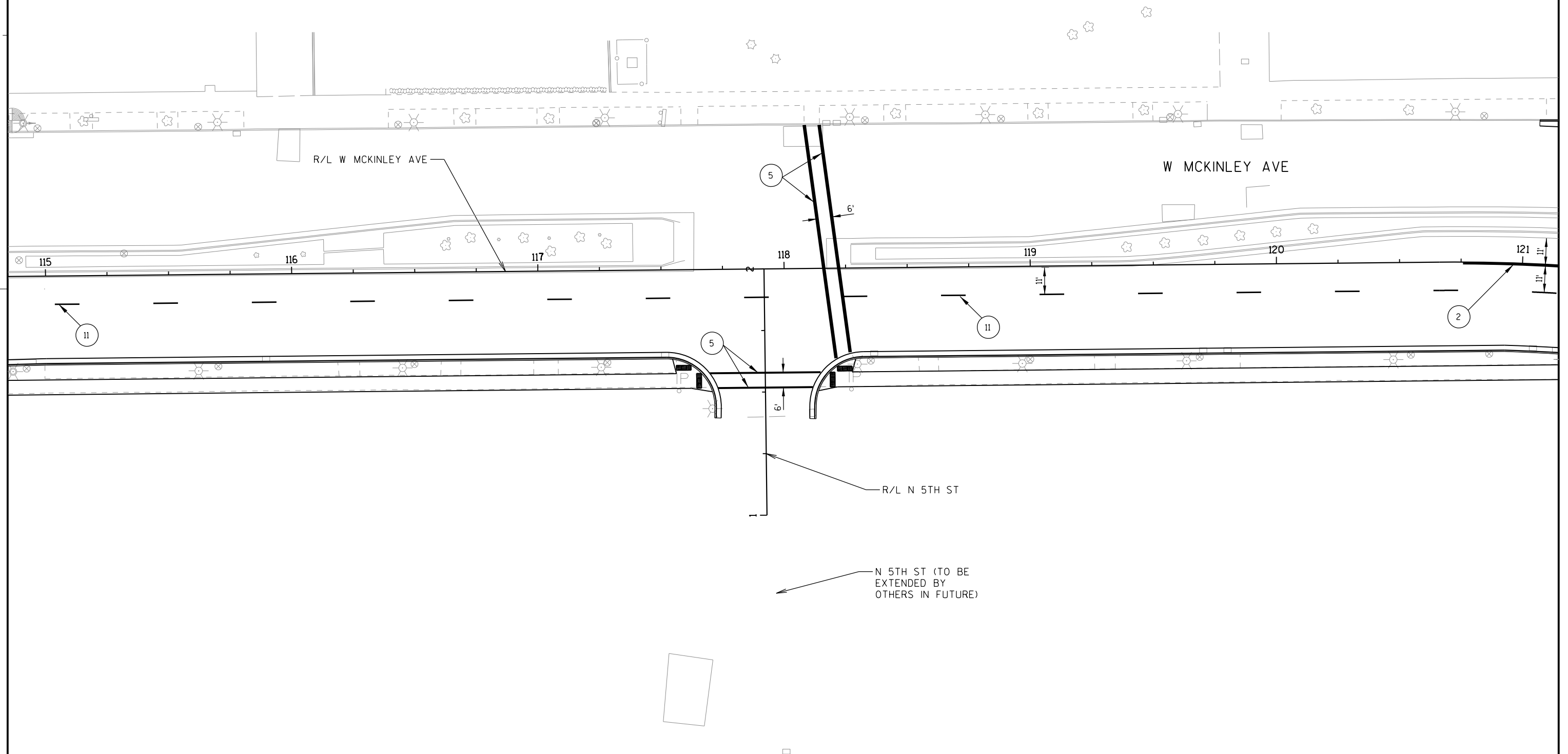


LEGEND:

- | | | | |
|---|--|----|--|
| 1 | PAVEMENT MARKING EPOXY 4-INCH | 6 | PAVEMENT MARKING EPOXY 4-INCH (YELLOW) |
| 2 | PAVEMENT MARKING EPOXY 8-INCH | 7 | PAVEMENT MARKING ARROWS EPOXY TYPE 1 |
| 3 | PAVEMENT MARKING EPOXY 4-INCH
(12.5' LINE, 37.5' SPACE) | 8 | PAVEMENT MARKING ARROWS EPOXY TYPE 2 |
| 4 | PAVEMENT MARKING STOP LINE EPOXY 24-INCH | 9 | PAVEMENT MARKING WORDS EPOXY |
| 5 | PAVEMENT MARKING CROSSWALK EPOXY 12-INCH | 10 | PAVEMENT MARKING ARROWS EPOXY TYPE 4 |
| | | 11 | PAVEMENT MARKING EPOXY 4-INCH
(10' LINE, 30' SPACE) |

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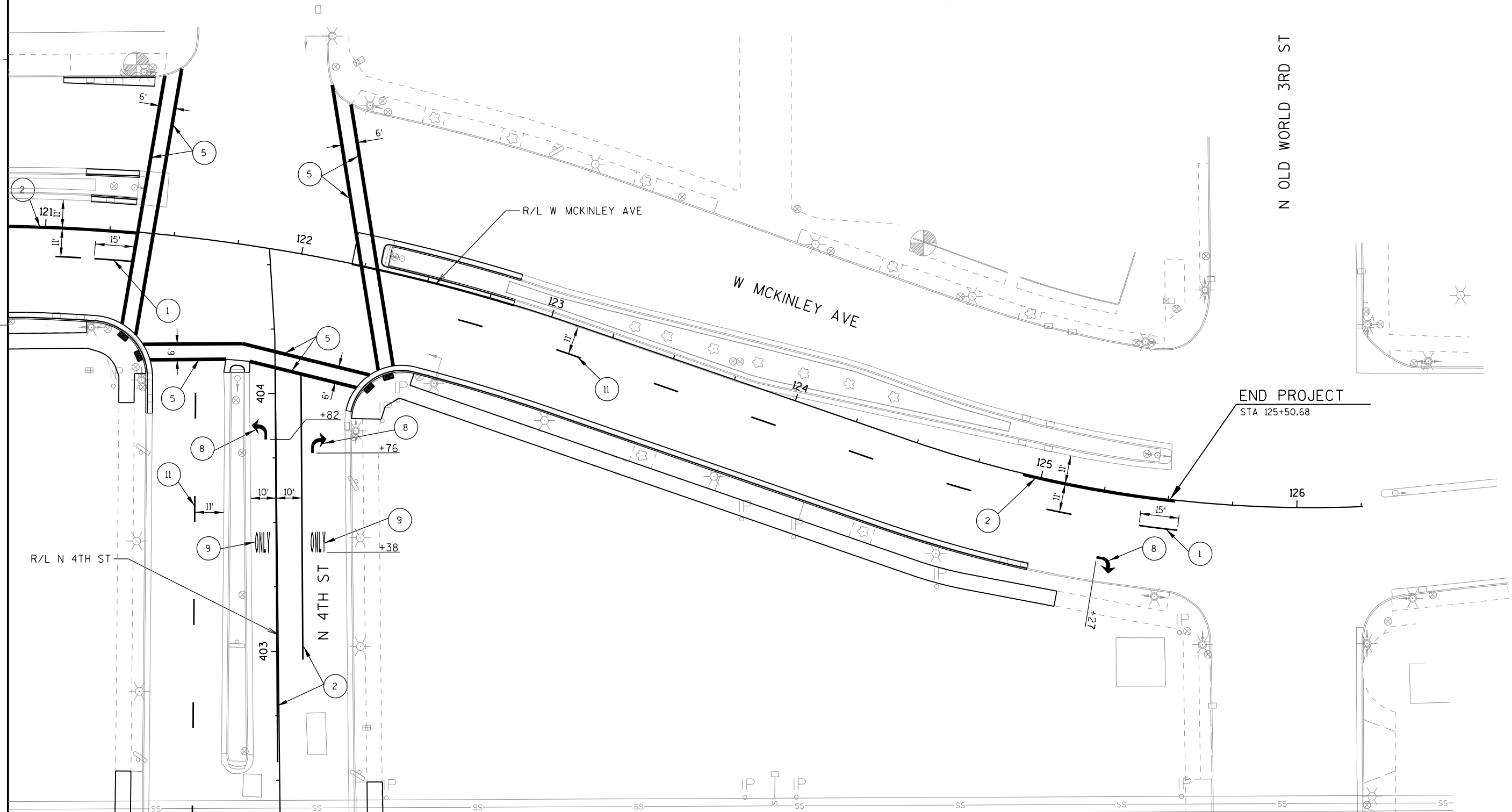
LEGEND:

- 1 PAVEMENT MARKING EPOXY 4-INCH
- 2 PAVEMENT MARKING EPOXY 8-INCH
- 3 PAVEMENT MARKING EPOXY 4-INCH
(12.5' LINE, 37.5' SPACE)
- 4 PAVEMENT MARKING STOP LINE EPOXY 24-INCH
- 5 PAVEMENT MARKING CROSSWALK EPOXY 12-INCH

- 6 PAVEMENT MARKING EPOXY 4-INCH (YELLOW)
- 7 PAVEMENT MARKING ARROWS EPOXY TYPE 1
- 8 PAVEMENT MARKING ARROWS EPOXY TYPE 2
- 9 PAVEMENT MARKING WORDS EPOXY
- 10 PAVEMENT MARKING ARROWS EPOXY TYPE 4
- 11 PAVEMENT MARKING EPOXY 4-INCH
(10' LINE, 30' SPACE)

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- 2) SAND BLAST PAVEMENT MARKING LOCATIONS PRIOR TO APPLYING EPOXY.



PROJECT NO: 2126-00-70

HWY: W MCKINLEY AVE

COUNTY: MILWAUKEE

PAVEMENT MARKING

SHEET

75

E

STAGE 1A

CONSTRUCTION

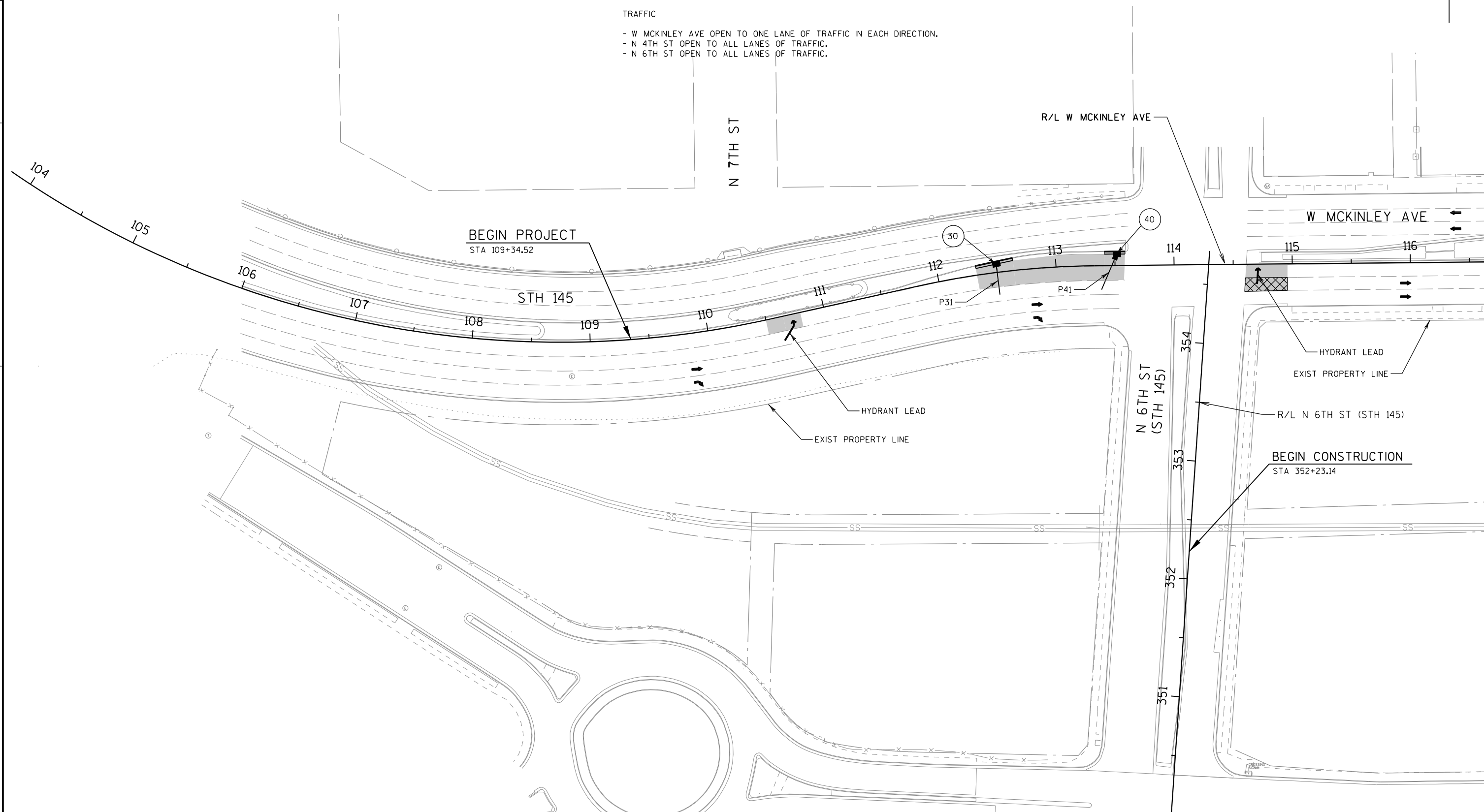
- PARTIALLY CONSTRUCT HYDRANT LEADS AT STA 110+50 AND N 4TH ST.
- CONSTRUCT STORM SEWER STRUCTURES 30, 40, 84, & 85A.
- PARTIALLY CONSTRUCT STORM SEWER PIPES 31, 41, & 84.
- CONSTRUCT CONDUIT & BASES WITHIN WORK AREA.

TRAFFIC

- W MCKINLEY AVE OPEN TO ONE LANE OF TRAFFIC IN EACH DIRECTION.
- N 4TH ST OPEN TO ALL LANES OF TRAFFIC.
- N 6TH ST OPEN TO ALL LANES OF TRAFFIC.

LEGEND

- PAVEMENT CONSTRUCTION THIS STAGE
- ASPHALTIC SURFACE TEMPORARY CONSTRUCTION THIS STAGE



STAGE 1A

CONSTRUCTION

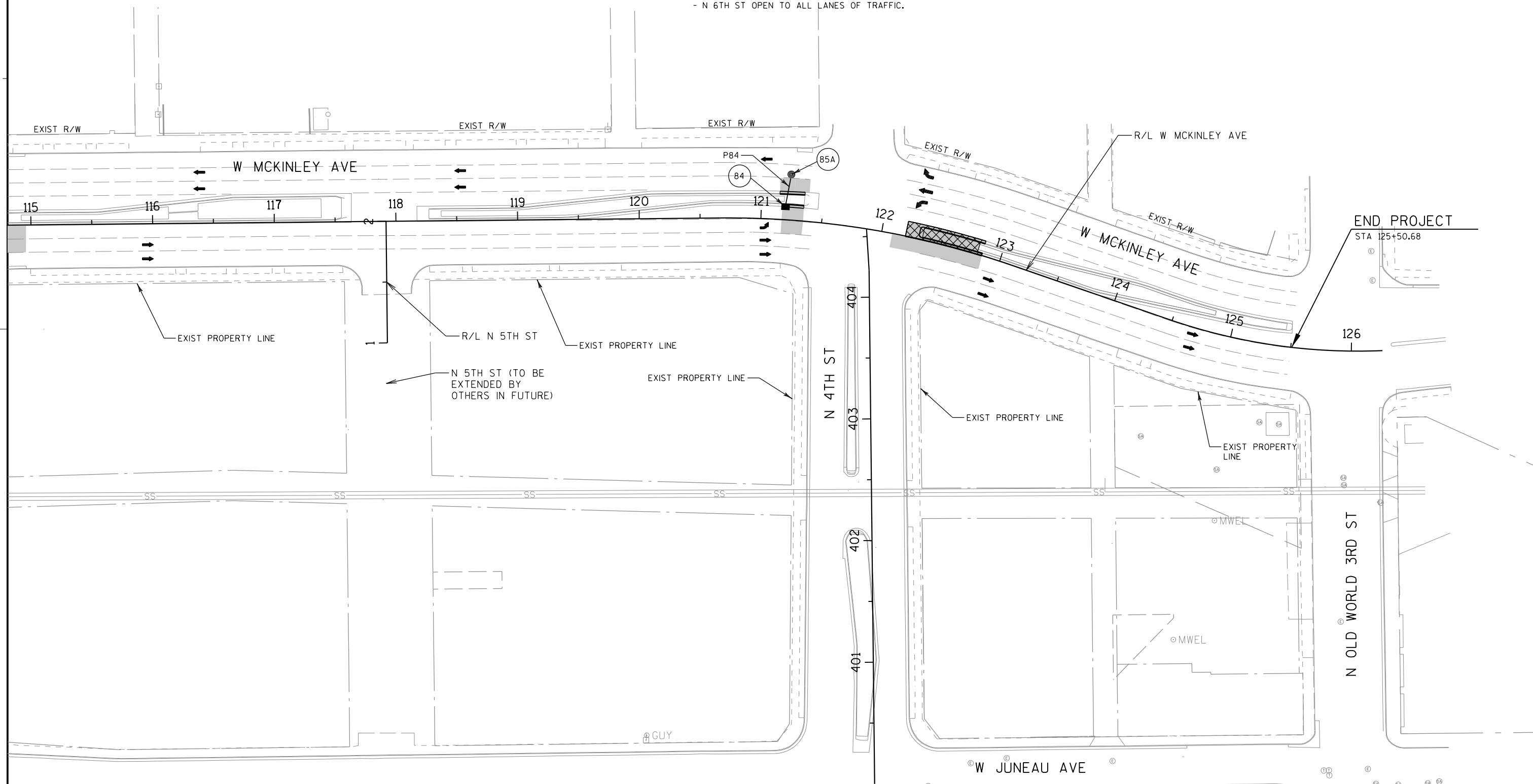
- PARTIALLY CONSTRUCT HYDRANT LEADS AT STA 110+50 AND N 4TH ST.
- CONSTRUCT STORM SEWER STRUCTURES 30, 40, 84, & 85A.
- PARTIALLY CONSTRUCT STORM SEWER PIPES 31, 41, & 84.
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TRAFFIC

- W MCKINLEY AVE OPEN TO ONE LANE OF TRAFFIC IN EACH DIRECTION.
- N 4TH ST OPEN TO ALL LANES OF TRAFFIC.
- N 6TH ST OPEN TO ALL LANES OF TRAFFIC.

LEGEND

- PAVEMENT CONSTRUCTION THIS STAGE
- ASPHALTIC SURFACE TEMPORARY CONSTRUCTION THIS STAGE



STAGE 1B**CONSTRUCTION**

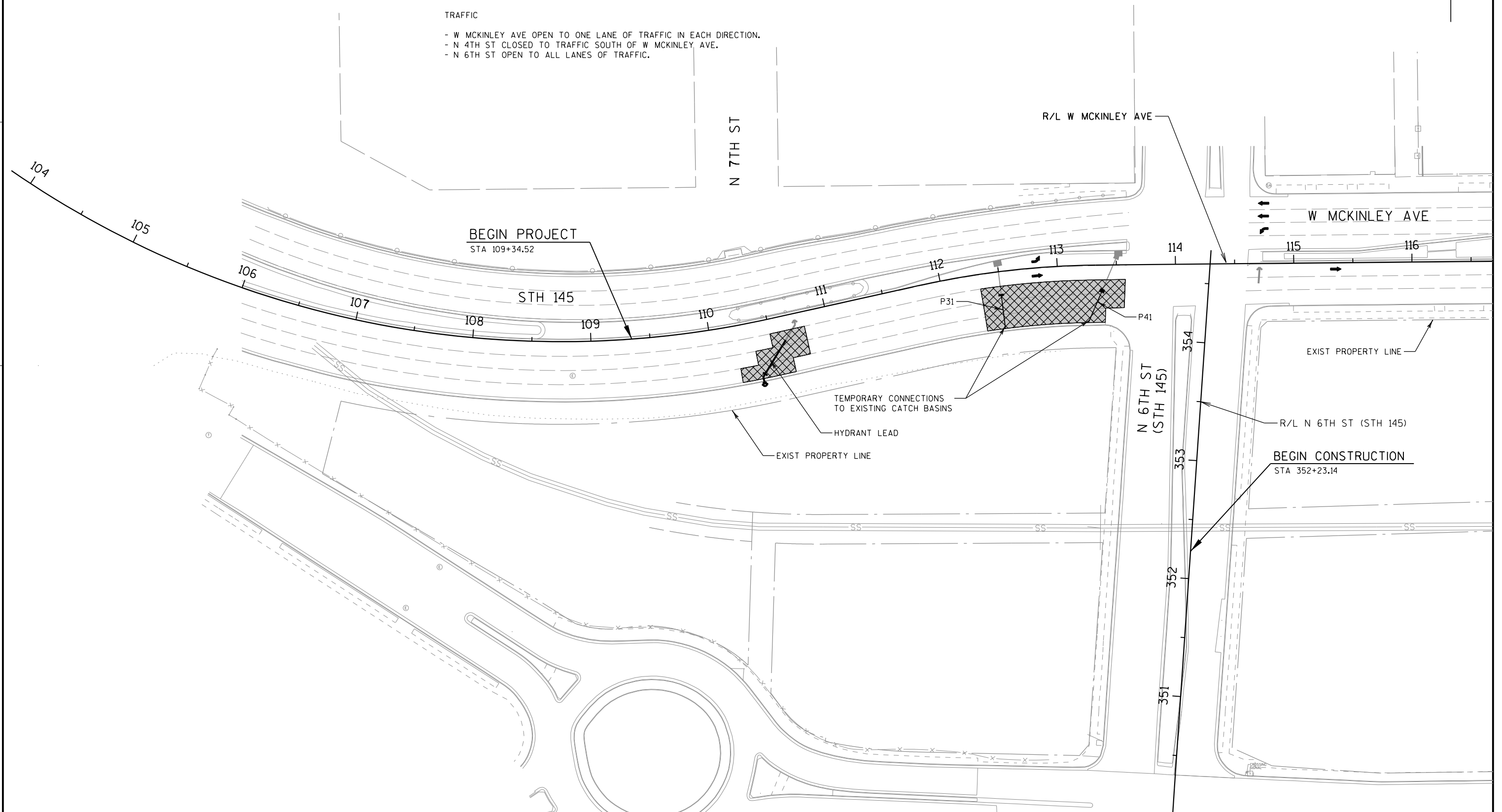
- COMPLETE CONSTRUCTION OF HYDRANT LEAD AT STA 110+50.
- COMPLETE CONSTRUCTION OF STORM SEWER PIPES 31 & 41 WITH TEMPORARY CONNECTIONS TO EXISTING CATCH BASINS.
- CONSTRUCT STORM SEWER STRUCTURES 85 & 86.
- CONSTRUCT STORM SEWER PIPES 85 & 86.
- CONSTRUCT CONDUIT & BASES WITHIN WORK AREA.

TRAFFIC

- W MCKINLEY AVE OPEN TO ONE LANE OF TRAFFIC IN EACH DIRECTION.
- N 4TH ST CLOSED TO TRAFFIC SOUTH OF W MCKINLEY AVE.
- N 6TH ST OPEN TO ALL LANES OF TRAFFIC.

LEGEND

- PAVEMENT CONSTRUCTION THIS STAGE
- ASPHALTIC SURFACE TEMPORARY CONSTRUCTION THIS STAGE



STAGE 1B

CONSTRUCTION

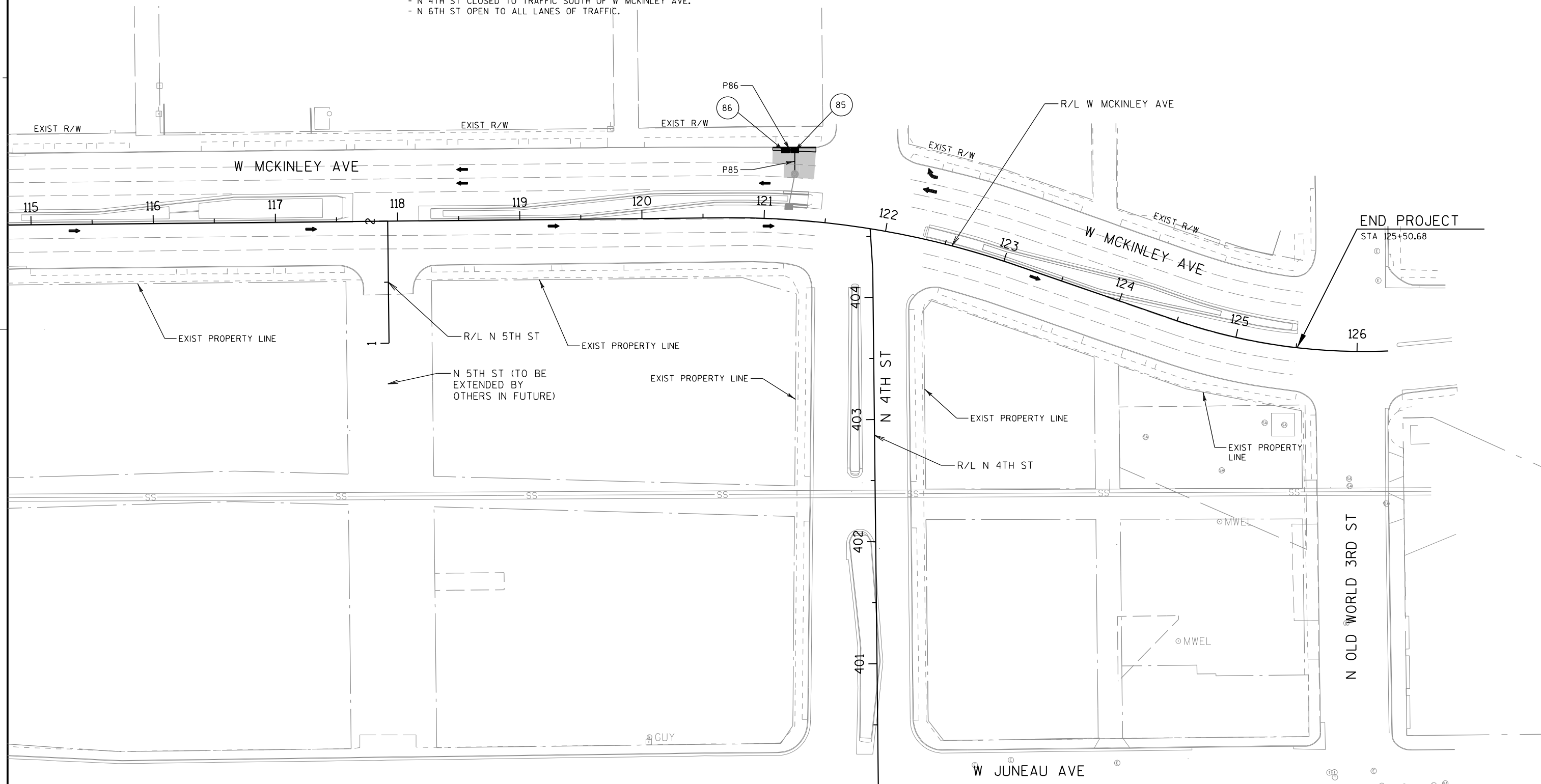
- COMPLETE CONSTRUCTION OF HYDRANT LEAD AT STA 110+50.
- COMPLETE CONSTRUCTION OF STORM SEWER PIPES 31 & 41 WITH TEMPORARY CONNECTIONS TO EXISTING CATCH BASINS.
- CONSTRUCT STORM SEWER STRUCTURES 85 & 86.
- CONSTRUCT STORM SEWER PIPES 85 & 86.
- CONSTRUCT CONDUIT & BASES WITHIN WORK AREA.

TRAFFIC

- W MCKINLEY AVE OPEN TO ONE LANE OF TRAFFIC IN EACH DIRECTION.
- N 4TH ST CLOSED TO TRAFFIC SOUTH OF W MCKINLEY AVE.
- N 6TH ST OPEN TO ALL LANES OF TRAFFIC.

LEGEND

-  PAVEMENT CONSTRUCTION THIS STAGE
-  ASPHALTIC SURFACE TEMPORARY CONSTRUCTION THIS STAGE



STAGE 1C

CONSTRUCTION

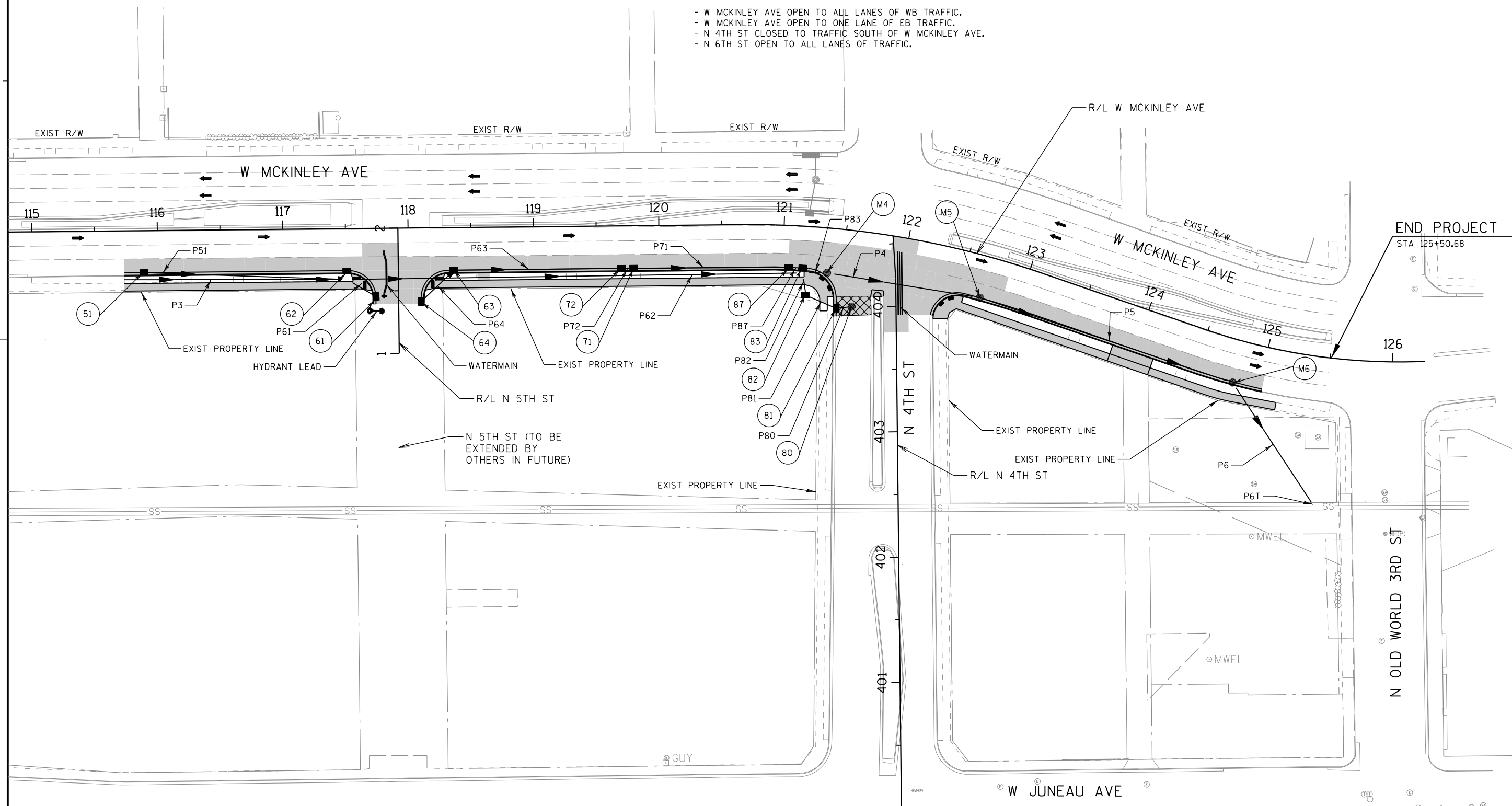
- CONSTRUCT WATER MAIN AND HYDRANT LEAD AT STA 117+75.
- CONSTRUCT WATER MAIN AT N 4TH ST.
- PARTIALLY CONSTRUCT STORM SEWER PIPE 3.
- CONSTRUCT STORM SEWER PIPES 4, 5, 6, 6T, 51, 61, 62, 63, 64, 71, 72, 80, 81, 82, 83 & 87.
- CONSTRUCT STORM SEWER STRUCTURES M4, M5, M6, 51, 61, 62, 63, 64, 71, 72, 80, 81, 82, 83 & 87.
- CONSTRUCT CONDUIT & BASES WITHIN WORK AREA.
- CONSTRUCT PAVEMENT, CURB AND GUTTER AND SIDEWALK EAST OF STA 115+75.

TRAFFIC

- W MCKINLEY AVE OPEN TO ALL LANES OF WB TRAFFIC.
- W MCKINLEY AVE OPEN TO ONE LANE OF EB TRAFFIC.
- N 4TH ST CLOSED TO TRAFFIC SOUTH OF W MCKINLEY AVE.
- N 6TH ST OPEN TO ALL LANES OF TRAFFIC.

LEGEND

- PAVEMENT CONSTRUCTION THIS STAGE
- ASPHALTIC SURFACE TEMPORARY CONSTRUCTION THIS STAGE



STAGE 2

LEGEND

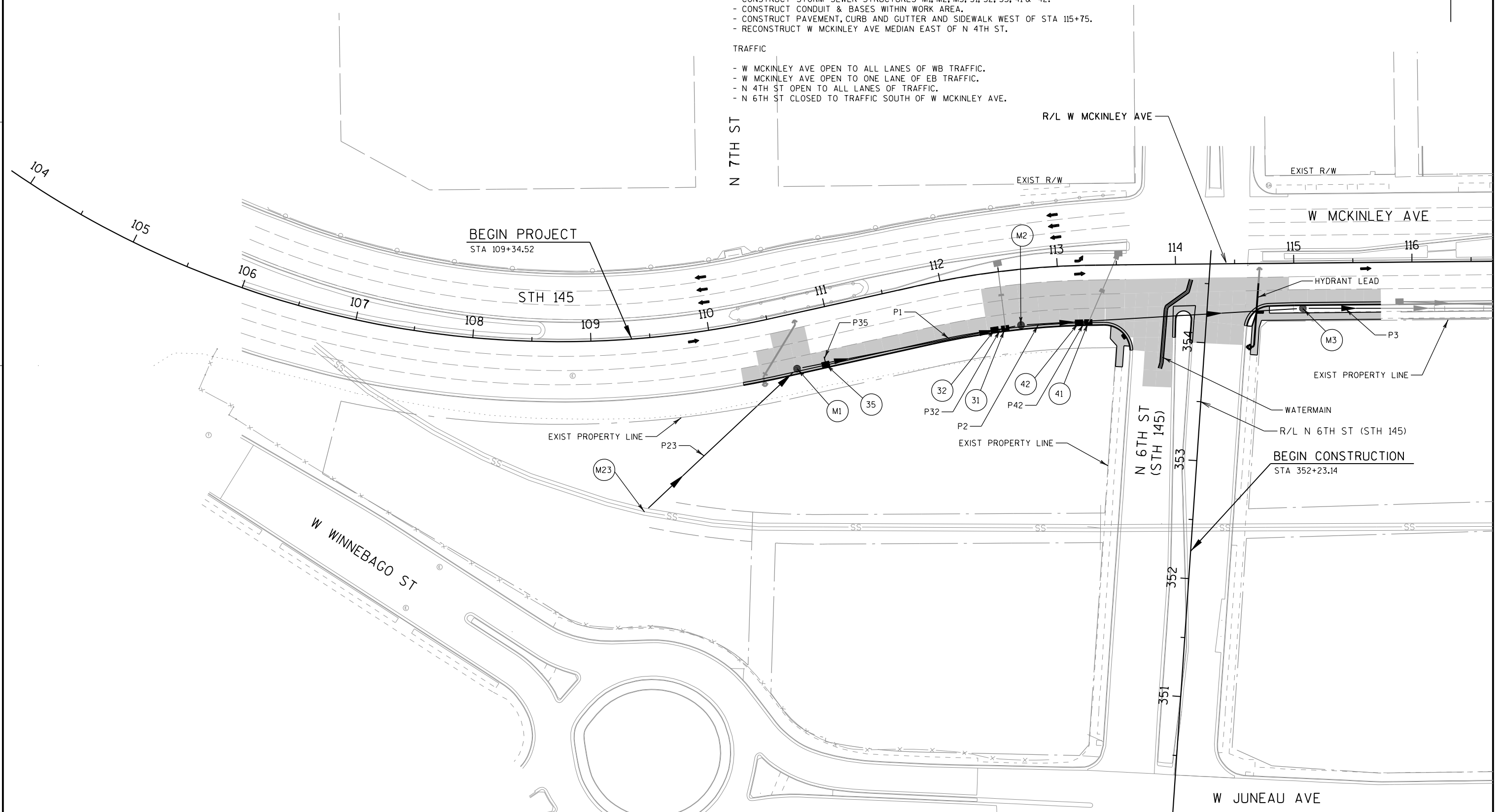
CONSTRUCTION

- CONSTRUCT WATERMAIN AT N 6TH ST.
- COMPLETE CONSTRUCTION OF HYDRANT LEAD AT N 6TH ST.
- COMPLETE CONSTRUCTION OF STORM SEWER PIPE 3.
- CONSTRUCT STORM SEWER PIPES 1, 2, 23, 32, 35 & 42.
- CONSTRUCT STORM SEWER STRUCTURES M1, M2, M3, 31, 32, 35, 41 & 42.
- CONSTRUCT CONDUIT & BASES WITHIN WORK AREA.
- CONSTRUCT PAVEMENT, CURB AND GUTTER AND SIDEWALK WEST OF STA 115+75.
- RECONSTRUCT W MCKINLEY AVE MEDIAN EAST OF N 4TH ST.

TRAFFIC

- W MCKINLEY AVE OPEN TO ALL LANES OF WB TRAFFIC.
- W MCKINLEY AVE OPEN TO ONE LANE OF EB TRAFFIC.
- N 4TH ST OPEN TO ALL LANES OF TRAFFIC.
- N 6TH ST CLOSED TO TRAFFIC SOUTH OF W MCKINLEY AVE.

PAVEMENT CONSTRUCTION THIS STAGE



STAGE 3

CONSTRUCTION

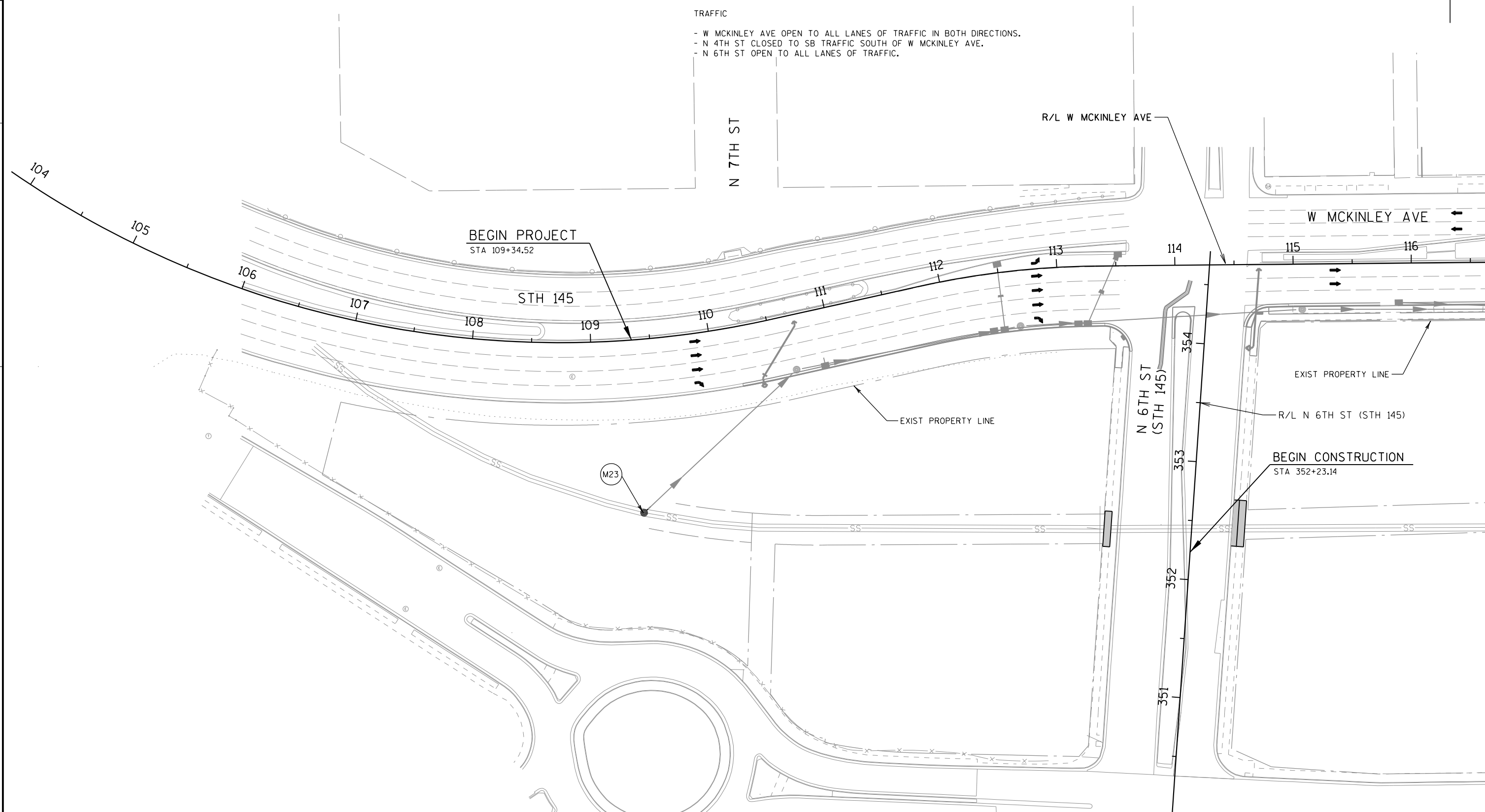
- CONSTRUCT STORM SEWER STRUCTURES M23 & M7.
- CONSTRUCT STORM SEWER PIPE 78.
- REMOVE/ABANDON EXISTING STORM SEWER FROM M23 TO M7.
- REMOVE/PLACE PAVEMENT MARKINGS DURING OFF-PEAK HOURS.

TRAFFIC

- W MCKINLEY AVE OPEN TO ALL LANES OF TRAFFIC IN BOTH DIRECTIONS.
- N 4TH ST CLOSED TO SB TRAFFIC SOUTH OF W MCKINLEY AVE.
- N 6TH ST OPEN TO ALL LANES OF TRAFFIC.

LEGEND

PAVEMENT CONSTRUCTION THIS STAGE



STAGE 3

CONSTRUCTION

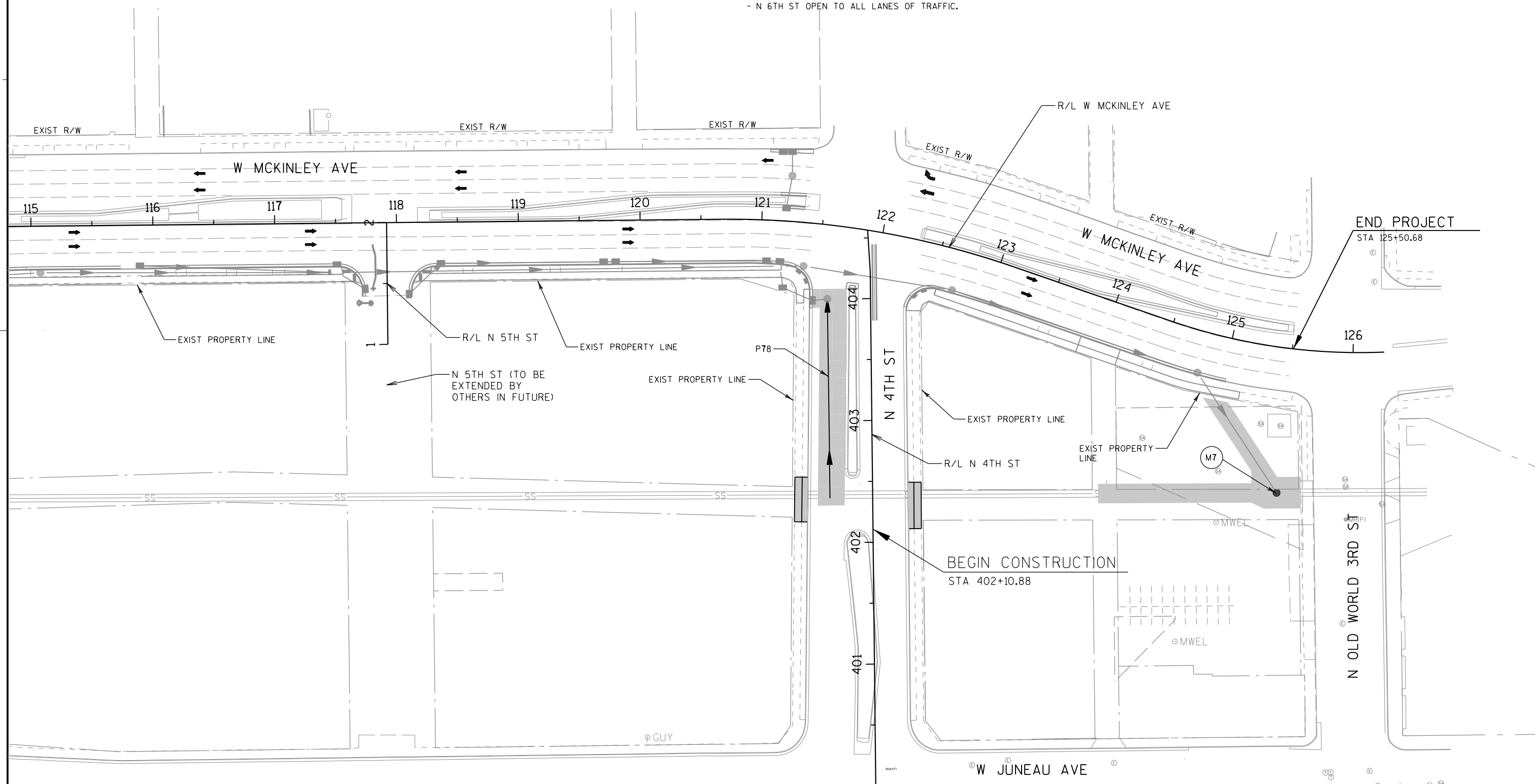
- CONSTRUCT STORM SEWER STRUCTURES M23 & M7.
- CONSTRUCT STORM SEWER PIPE 78.
- REMOVE/ABANDON EXISTING STORM SEWER FROM M23 TO M7.
- REMOVE/PLACE PAVEMENT MARKINGS DURING OFF-PEAK HOURS.

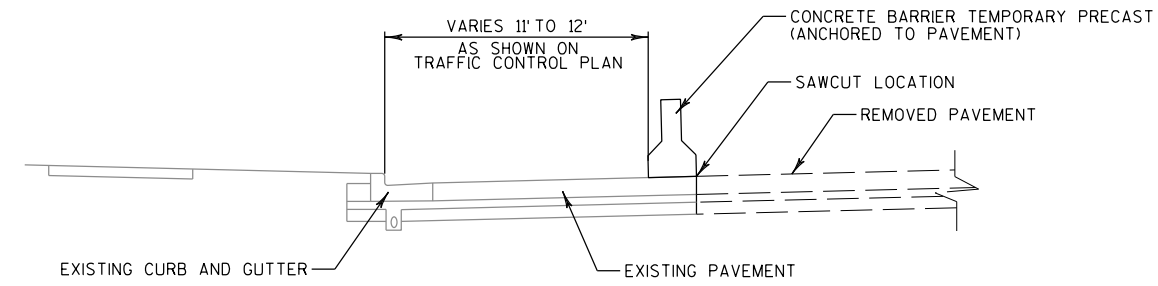
TRAFFIC

- W MCKINLEY AVE OPEN TO ALL LANES OF TRAFFIC IN BOTH DIRECTIONS.
- N 4TH ST CLOSED TO SB TRAFFIC SOUTH OF W MCKINLEY AVE.
- N 6TH ST OPEN TO ALL LANES OF TRAFFIC.

LEGEND

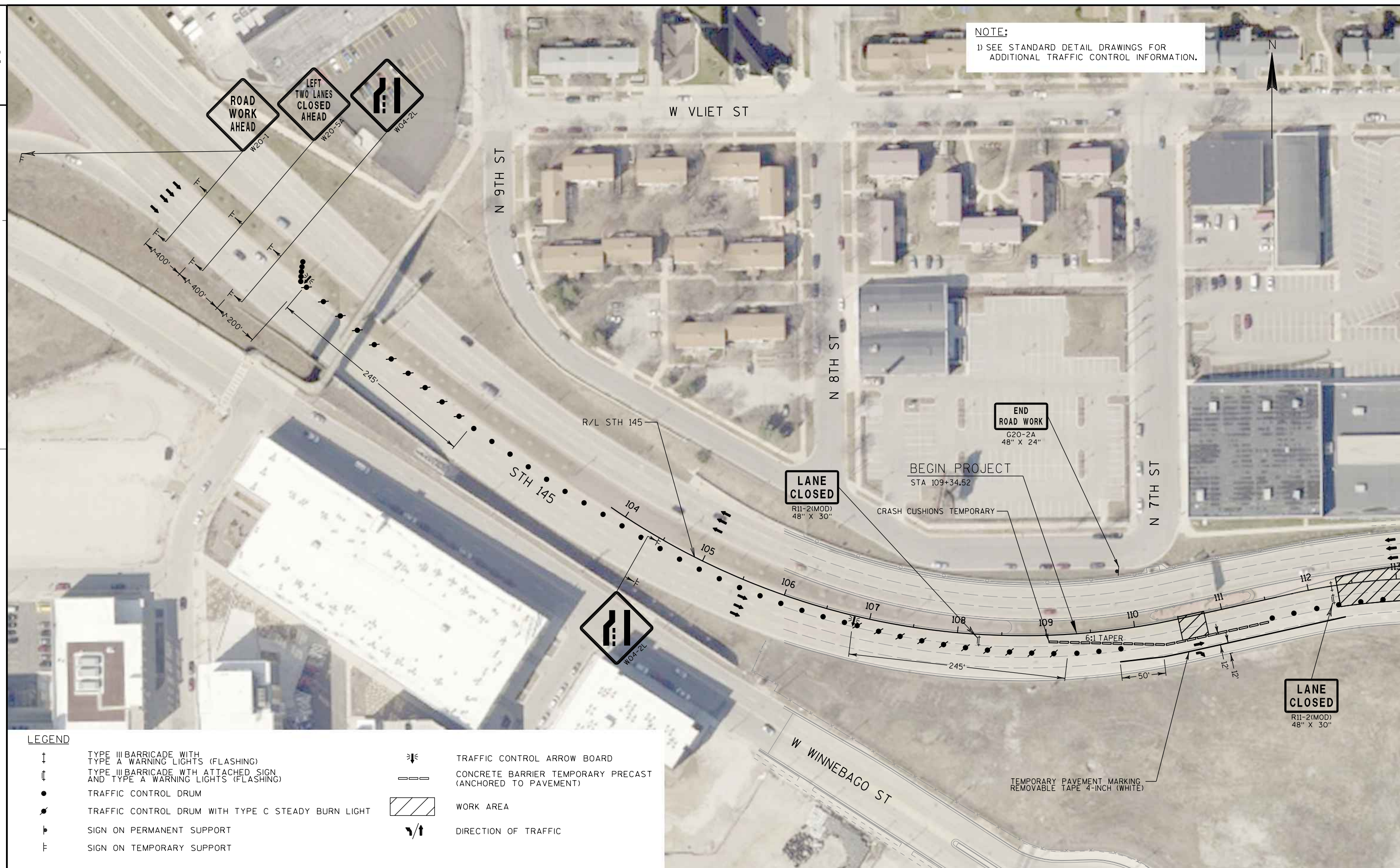
PAVEMENT CONSTRUCTION THIS STAGE

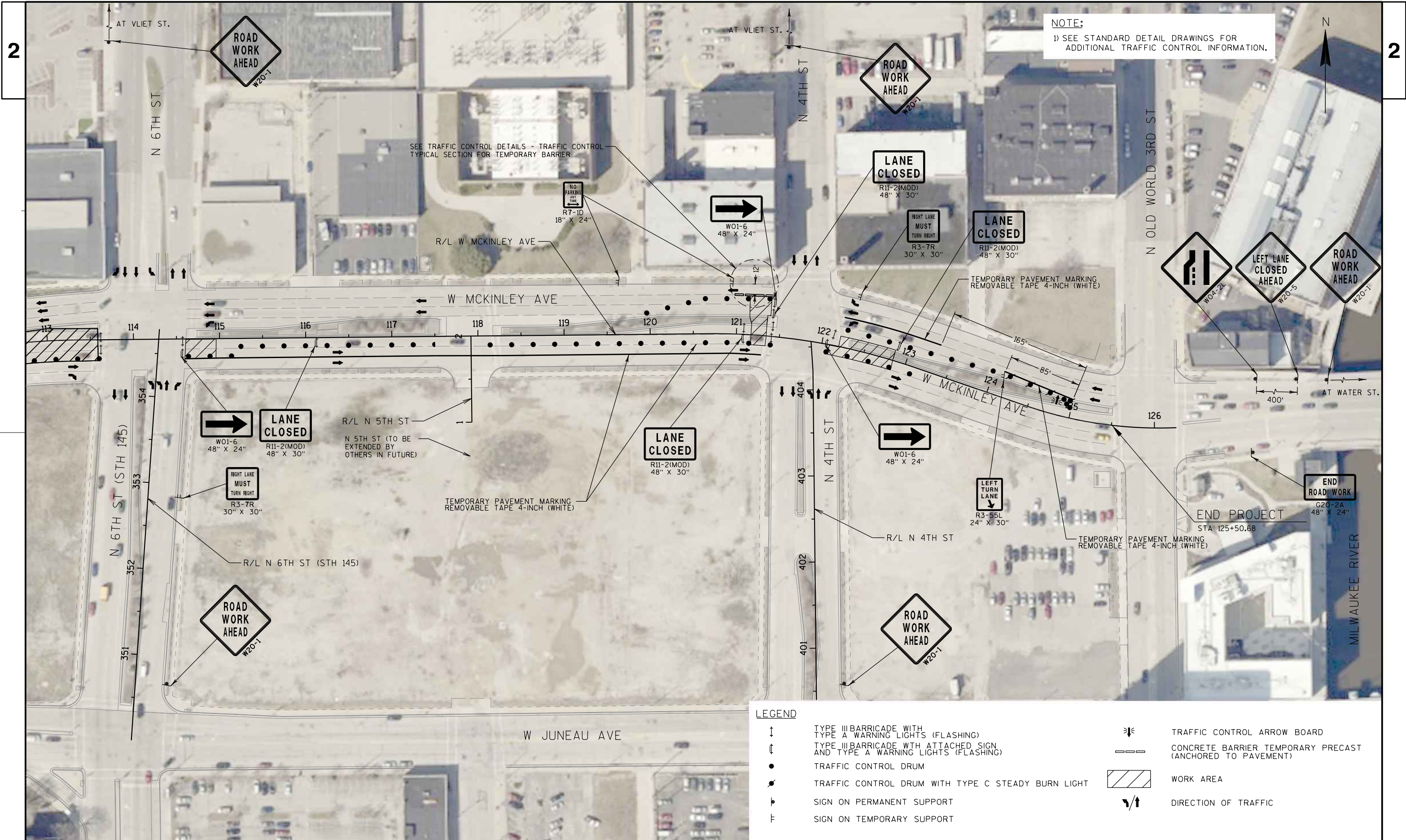




TRAFFIC CONTROL TYPICAL SECTION FOR TEMPORARY BARRIER

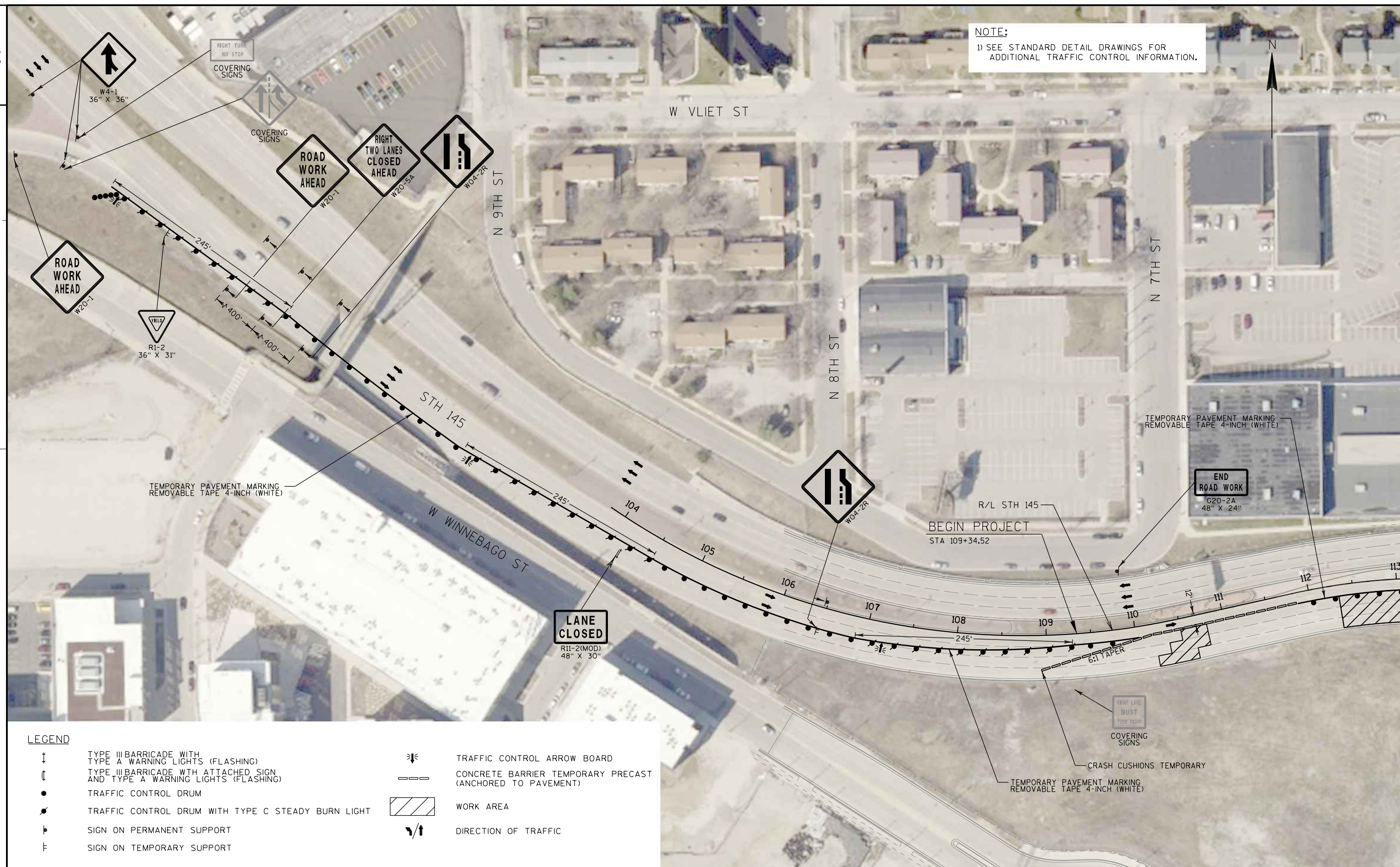
NOT TO SCALE

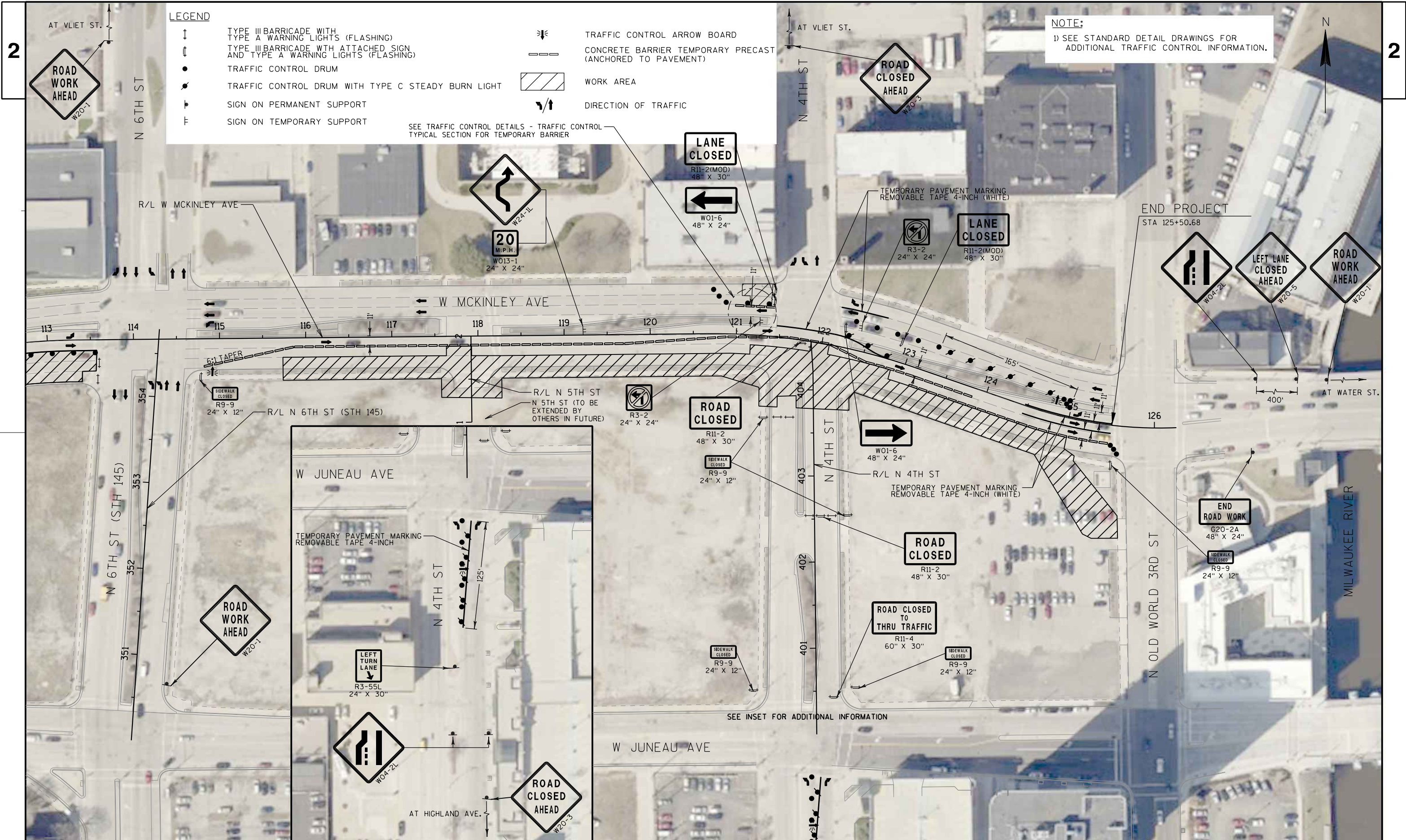


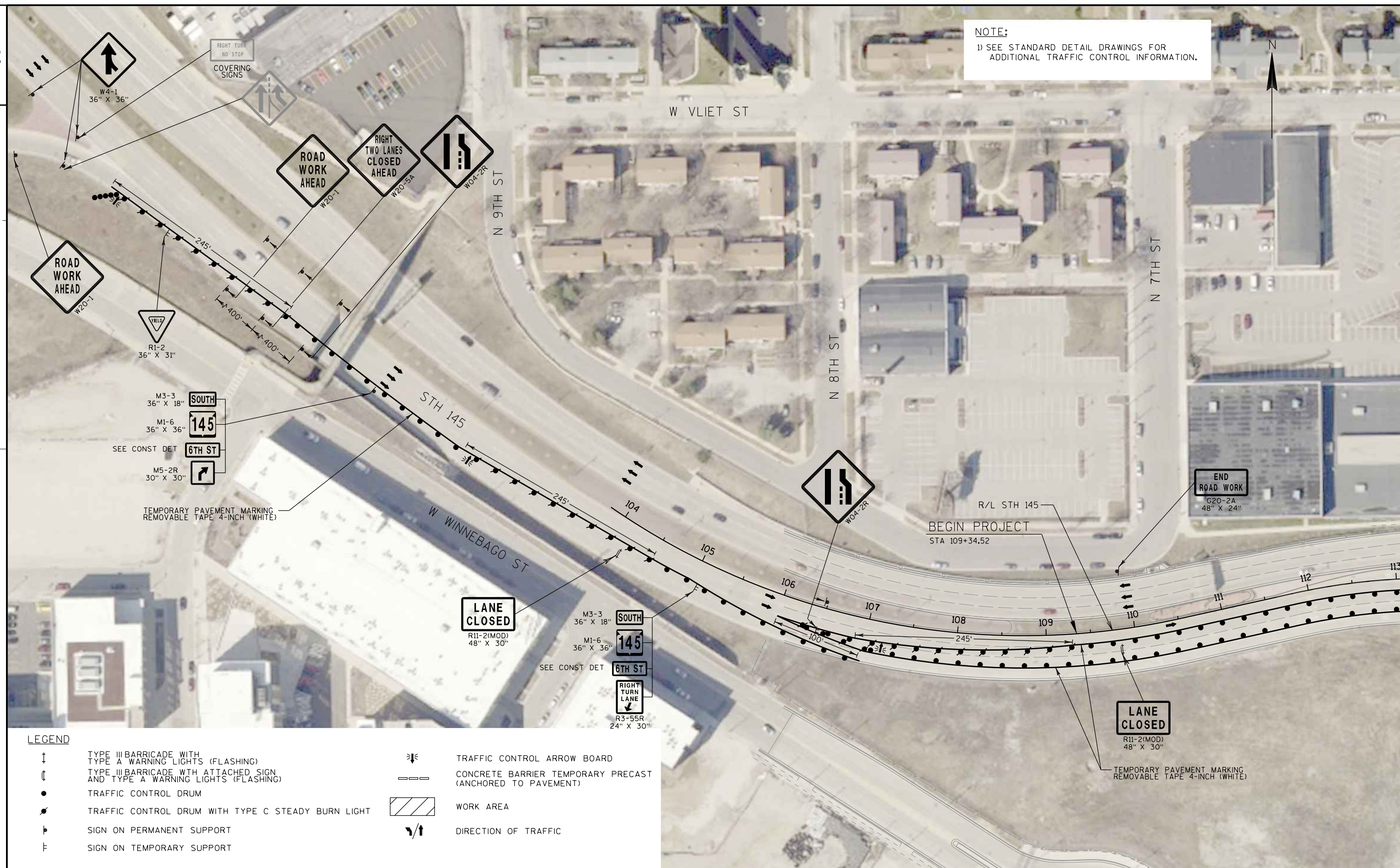


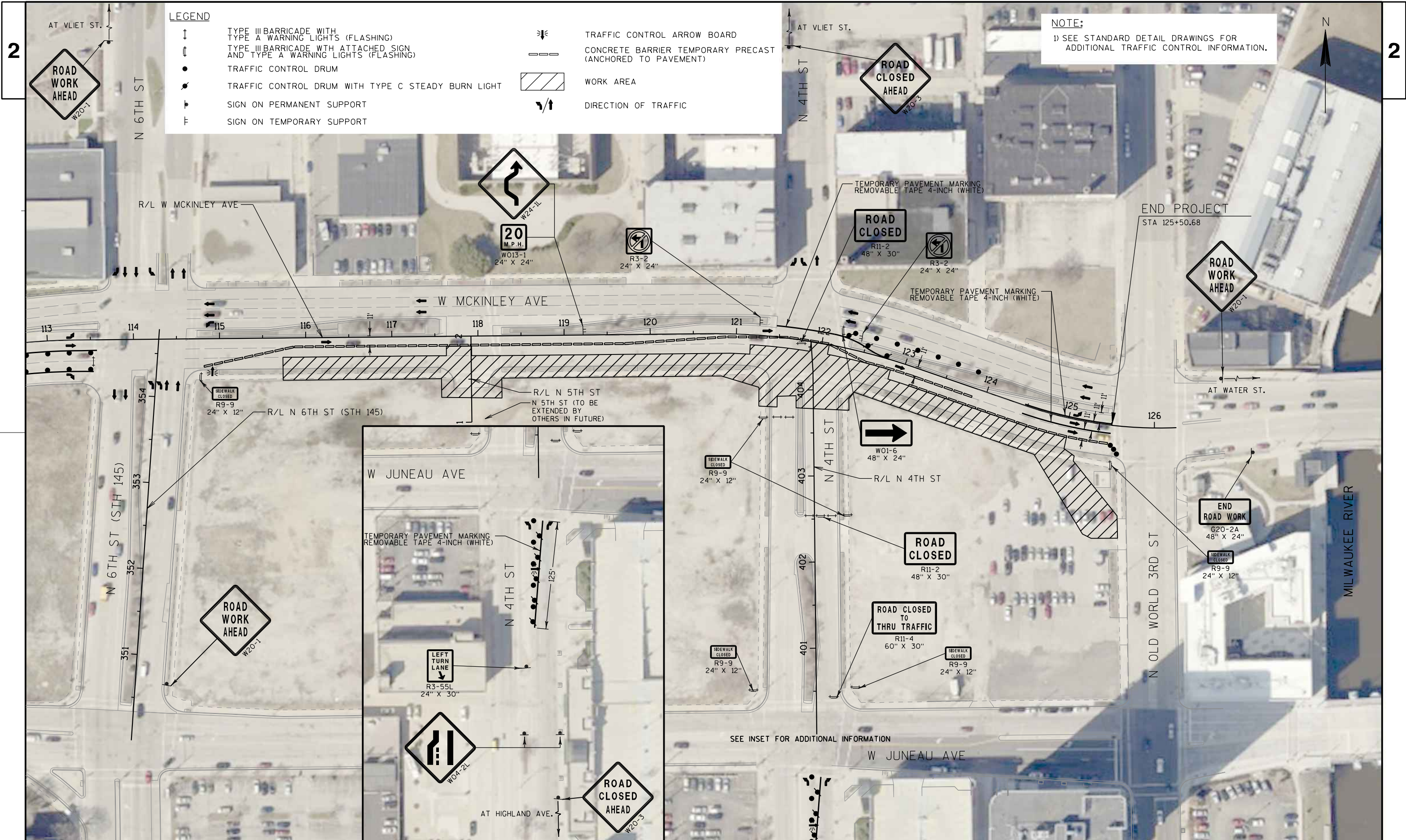
NOTE:
1) SEE STANDARD DETAIL DRAWINGS FOR
ADDITIONAL TRAFFIC CONTROL INFORMATION.

LEGEND	
↑	TYPE III BARRICADE WITH TYPE A WARNING LIGHTS (FLASHING)
↑	TYPE III BARRICADE WITH ATTACHED SIGN AND TYPE A WARNING LIGHTS (FLASHING)
•	TRAFFIC CONTROL DRUM
⚡	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
Ⓢ	SIGN ON PERMANENT SUPPORT
Ⓣ	SIGN ON TEMPORARY SUPPORT
⬆	TRAFFIC CONTROL ARROW BOARD
—	CONCRETE BARRIER TEMPORARY PRECAST (ANCHORED TO PAVEMENT)
▨	WORK AREA
↗	DIRECTION OF TRAFFIC







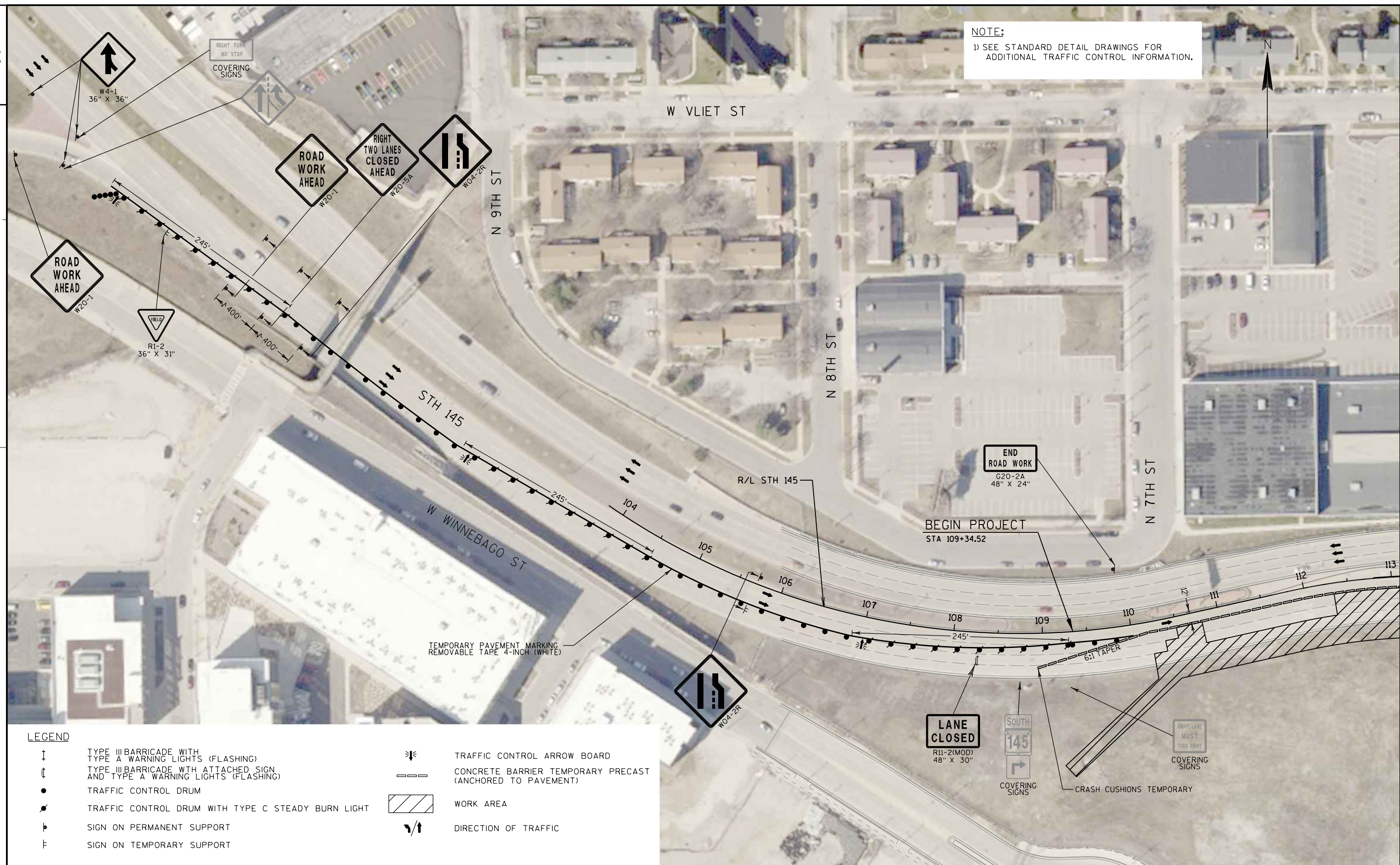


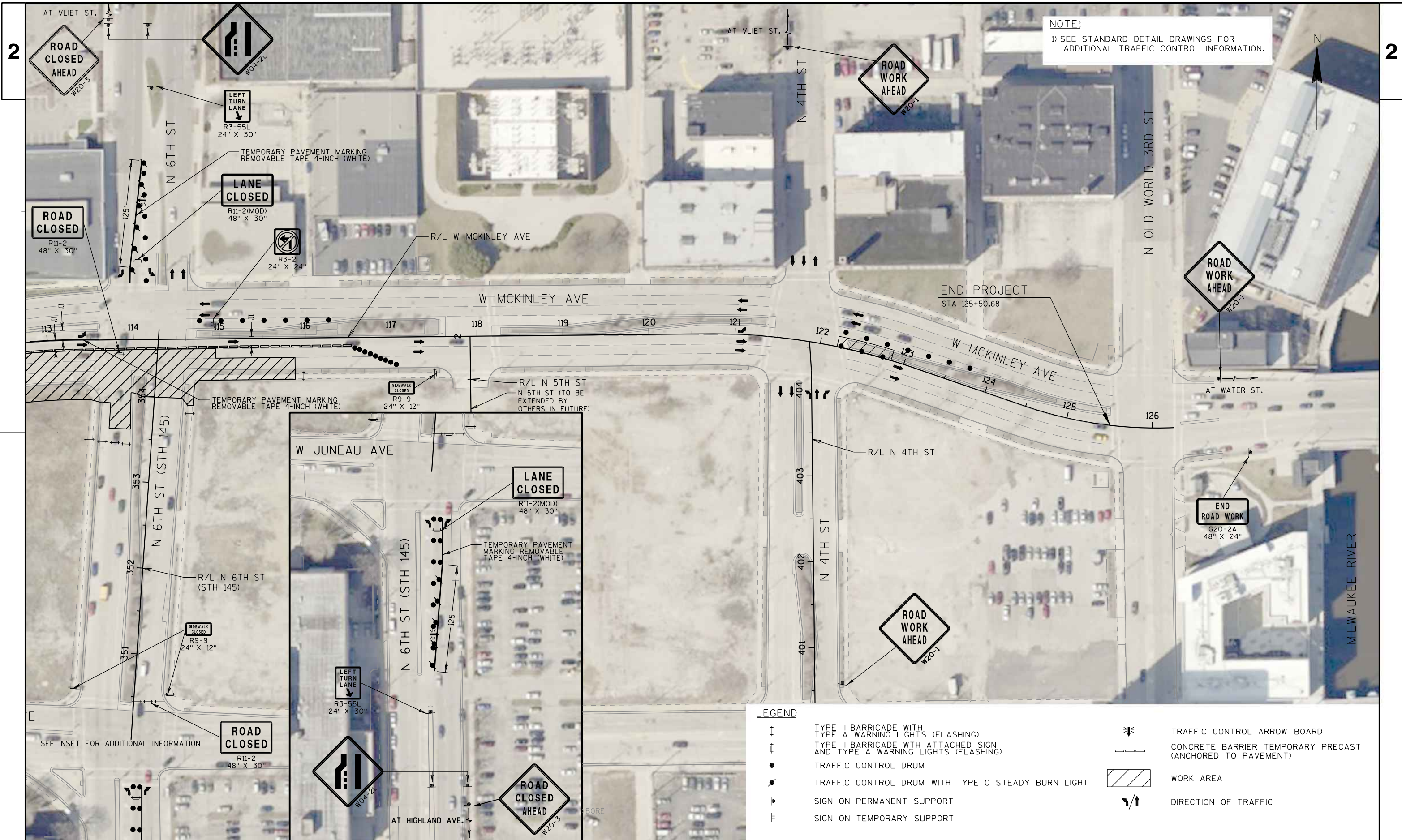
LEGEND

- | | | | |
|---|--|---|---|
| ↑ | TYPE III BARRICADE WITH TYPE A WARNING LIGHTS (FLASHING) | ↔ | TRAFFIC CONTROL ARROW BOARD |
| ↑ | TYPE III BARRICADE WITH ATTACHED SIGN AND TYPE A WARNING LIGHTS (FLASHING) | — | CONCRETE BARRIER TEMPORARY PRECAST (ANCHORED TO PAVEMENT) |
| • | TRAFFIC CONTROL DRUM | ▨ | WORK AREA |
| ⦿ | TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT | ↗ | DIRECTION OF TRAFFIC |
| ⌋ | SIGN ON PERMANENT SUPPORT | | |
| ⌋ | SIGN ON TEMPORARY SUPPORT | | |

NOTE:

1) SEE STANDARD DETAIL DRAWINGS FOR ADDITIONAL TRAFFIC CONTROL INFORMATION.





PROJECT NO: 2126-00-70

HWY: W MCKINLEY AVE

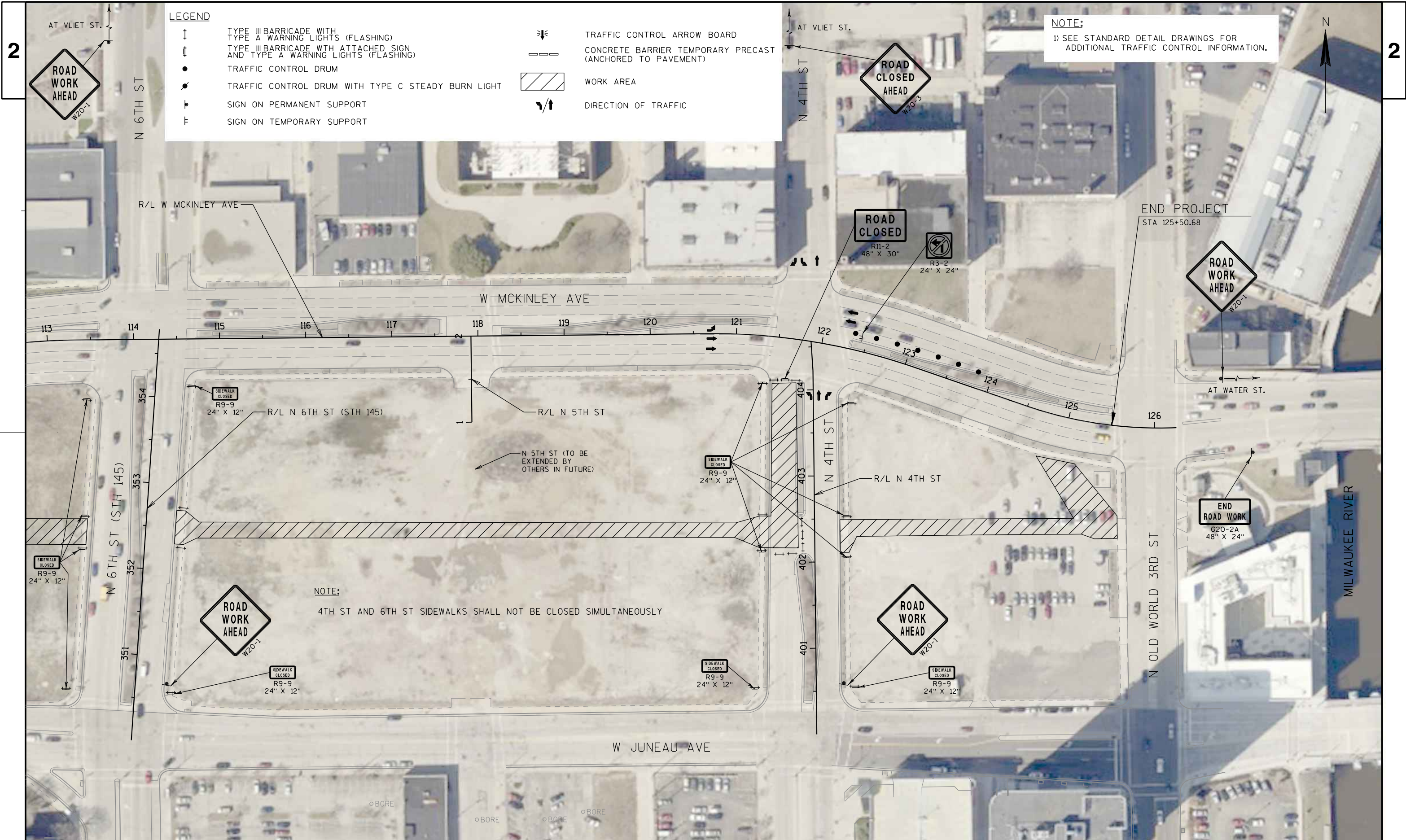
COUNTY: MILWAUKEE

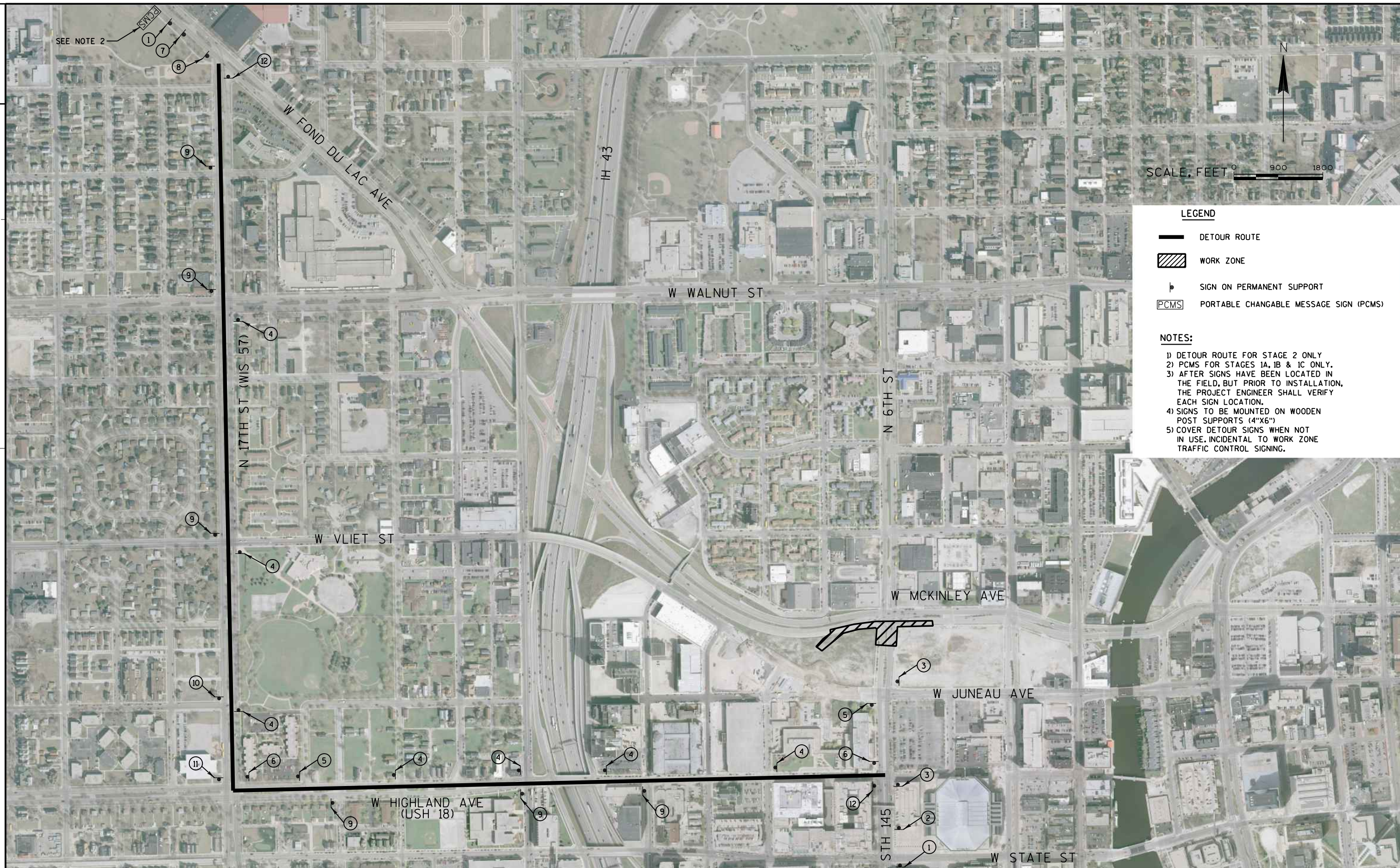
TRAFFIC CONTROL STAGE 2

SHEET

92

E





PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) - FOR STAGES 1A, 1B & 1C ONLY.

SIGN MESSAGES:

LANES
CLOSED
AT 6TH ST

USE ALT
ROUTE

DETOUR SIGNS - FOR STAGE 2 ONLY

①

DETOUR
AHEAD

M1-6
24" X 24"

②

DETOUR
NORTH

145

M5-1L
21" X 21"

③

DETOUR
NORTH

145

M6-1
21" X 21"

④

DETOUR
NORTH

145

M6-1
21" X 21"

⑤

DETOUR
NORTH

145

M5-1R
21" X 21"

⑥

DETOUR
NORTH

145

M6-1
21" X 21"

⑦

DETOUR
SOUTH

145

M5-2R
21" X 21"

⑧

DETOUR
SOUTH

145

M6-2
21" X 21"

⑨

DETOUR
SOUTH

145

M6-1
21" X 21"

⑩

DETOUR
SOUTH

145

M5-1L
21" X 21"

⑪

DETOUR
SOUTH

145

M6-1
21" X 21"

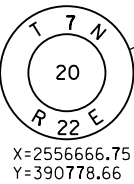
⑫

END

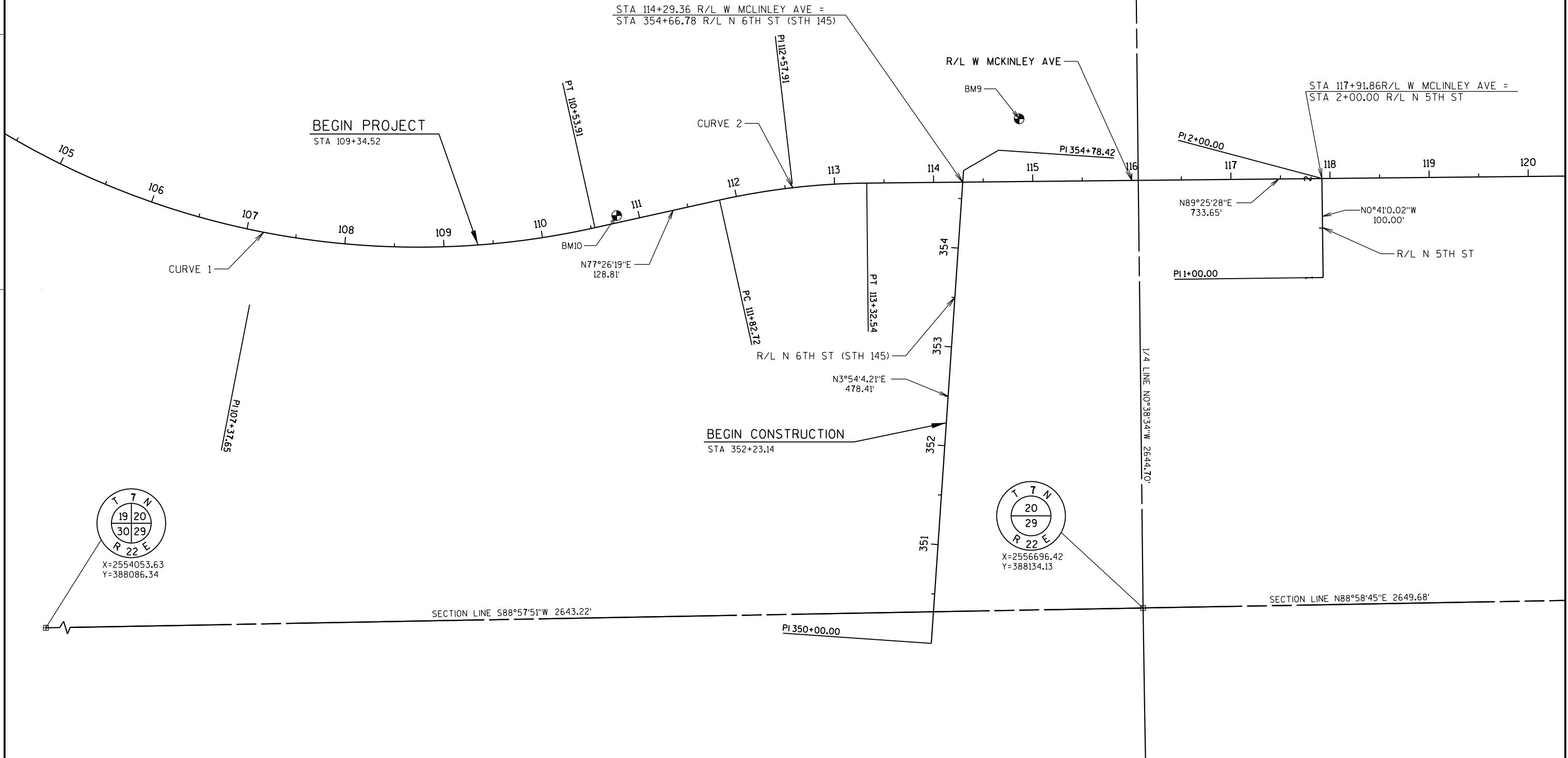
DETOUR

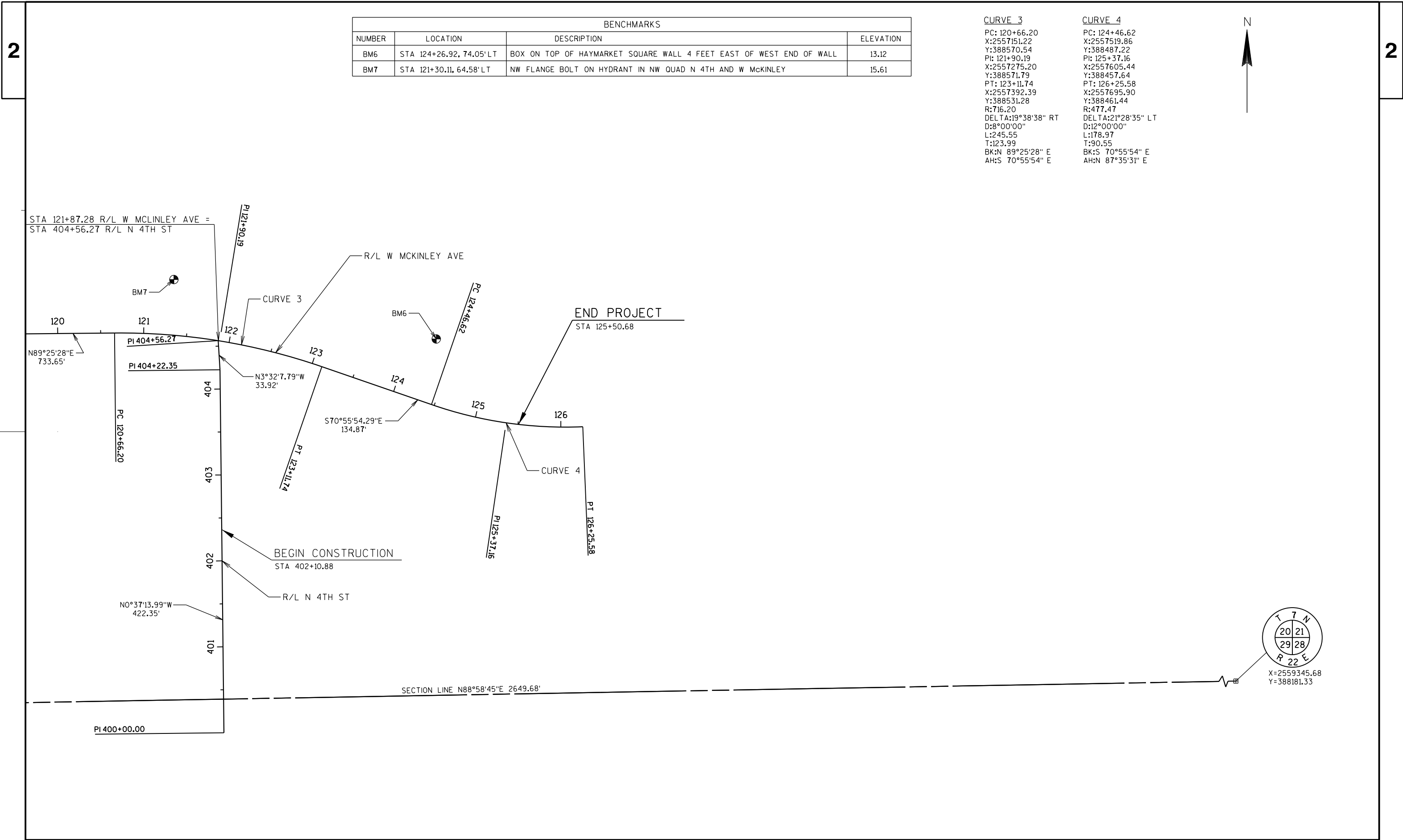
145

BENCHMARKS			
NUMBER	LOCATION	DESCRIPTION	ELEVATION
BM9	STA 114+87.07, 63.35' LT	SE FLANGE BOLT ON HYDRANT IN NE QUAD N 6TH AND W MCKINLEY	17.23
BM10	STA 110+78.10, 7.29' LT	SE BOLT SIGN BRIDGE IN MEDIAN +/- 150' W OF N 6TH AND W MCKINLEY	28.20



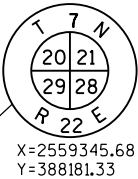
CURVE 1	CURVE 2
PC: 103+80.67	PC: 111+82.72
X:2555500.91	X:2556269.03
Y:388642.95	Y:388546.07
PI: 107+37.65	PI: 112+57.91
X:2555794.87	X:2556342.42
Y:388440.42	Y:388562.42
PT: 110+53.91	PT: 113+32.54
X:2556143.30	X:2556417.60
Y:388518.05	Y:388563.17
R:818.51	R:716.20
DELTA:47°07'36" LT	DELTA:11°59'08" RT
D:7°00'00"	D:8°00'00"
L:673.24	L:149.82
T:356.98	T:75.18
BK:S 55°26'04" E	BK:N 77°26'20" E
AH:N 77°26'20" E	AH:N 89°25'28" E





BENCHMARKS			
NUMBER	LOCATION	DESCRIPTION	ELEVATION
BM6	STA 124+26.92, 74.05' LT	BOX ON TOP OF HAYMARKET SQUARE WALL 4 FEET EAST OF WEST END OF WALL	13.12
BM7	STA 121+30.11, 64.58' LT	NW FLANGE BOLT ON HYDRANT IN NW QUAD N 4TH AND W MCKINLEY	15.61

CURVE 3	CURVE 4
PC: 120+66.20	PC: 124+46.62
X:2557151.22	X:2557519.86
Y:388570.54	Y:388487.22
PI: 121+90.19	PI: 125+37.16
X:2557275.20	X:2557605.44
Y:388571.79	Y:388457.64
PT: 123+11.74	PT: 126+25.58
X:2557392.39	X:2557695.90
Y:388531.28	Y:388461.44
R:716.20	R:477.47
DELTA:19°38'38" RT	DELTA:21°28'35" LT
D:8°00'00"	D:12°00'00"
L:245.55	L:178.97
T:123.99	T:90.55
BK:N 89°25'28" E	BK:S 70°55'54" E
AH:S 70°55'54" E	AH:N 87°35'31" E



3

DATE 11JAN16		E S T I M A T E O F Q U A N T I T I E S			
LINE				2126-00-70	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	108.4400	CPM Progress Schedule	EACH	1.000	1.000
0020	201.0120	Clearing	ID	23.000	23.000
0030	201.0220	Grubbing	ID	23.000	23.000
0040	204.0100	Removing Pavement	SY	5,165.000	5,165.000
0050	204.0150	Removing Curb & Gutter	LF	202.000	202.000
0060	204.0155	Removing Concrete Sidewalk	SY	736.000	736.000
0070	204.0195	Removing Concrete Bases	EACH	23.000	23.000
0080	204.0210	Removing Manholes	EACH	8.000	8.000
0090	204.0215	Removing Catch Basins	EACH	24.000	24.000
0100	204.0245	Removing Storm Sewer (size) 0001.12-Inch	LF	694.000	694.000
0110	204.0245	Removing Storm Sewer (size) 0002.15-Inch	LF	25.000	25.000
0120	204.0245	Removing Storm Sewer (size) 0003.18-Inch	LF	348.000	348.000
0130	204.0245	Removing Storm Sewer (size) 0004.24-Inch	LF	6.000	6.000
0140	204.0245	Removing Storm Sewer (size) 0005.72-Inch	LF	599.000	599.000
0150	204.0245	Removing Storm Sewer (size) 0006.84-Inch	LF	676.000	676.000
0160	204.0280	Sealing Pipes	EACH	3.000	3.000
0170	204.0291.S	Abandoning Sewer	CY	382.000	382.000
0180	205.0100	Excavation Common	CY	3,637.000	3,637.000
0190	205.0501.S	Excavation, Hauling, and Disposal of Petroleum Contaminated Soil	TON	33,915.000	33,915.000
0200	209.0100	Backfill Granular	CY	5.000	5.000
0210	213.0100	Finishing Roadway (project) 0001.2126-00-70	EACH	1.000	1.000
0220	305.0110	Base Aggregate Dense 3/4-Inch	TON	975.000	975.000
0230	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	2,752.000	2,752.000
0240	310.0110	Base Aggregate Open Graded	TON	1,517.000	1,517.000
0250	415.0090	Concrete Pavement 9-Inch	SY	3,533.000	3,533.000
0260	415.1090	Concrete Pavement HES 9-Inch	SY	1,017.000	1,017.000
0270	416.0170	Concrete Driveway 7-Inch	SY	181.000	181.000
0280	416.0610	Drilled Tie Bars	EACH	658.000	658.000
0290	416.0620	Drilled Dowel Bars	EACH	376.000	376.000
0300	440.4410	Incentive IRI Ride	DOL	1,300.000	1,300.000
0310	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	84.000	84.000
0320	465.0125	Asphaltic Surface Temporary	TON	290.000	290.000
0330	520.8000	Concrete Collars for Pipe	EACH	9.000	9.000
0340	601.0331	Concrete Curb & Gutter 31-Inch	LF	1,542.000	1,542.000
0350	601.0600	Concrete Curb Pedestrian	LF	14.000	14.000
0360	602.0410	Concrete Sidewalk 5-Inch	SF	6,387.000	6,387.000
0370	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	100.000	100.000
0380	603.8000	Concrete Barrier Temporary Precast Delivered	LF	2,738.000	2,738.000
0390	603.8125	Concrete Barrier Temporary Precast Installed	LF	2,738.000	2,738.000
0400	608.0312	Storm Sewer Pipe Reinforced Concrete Class III 12-Inch	LF	704.000	704.000
0410	608.0318	Storm Sewer Pipe Reinforced Concrete Class III 18-Inch	LF	220.000	220.000

3

DATE 11JAN16		E S T I M A T E O F Q U A N T I T I E S			
LINE					2126-00-70
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0420	608.0324	Storm Sewer Pipe Reinforced Concrete Class III 24-Inch	LF	6.000	6.000
0430	608.0372	Storm Sewer Pipe Reinforced Concrete Class III 72-Inch	LF	370.000	370.000
0440	608.0384	Storm Sewer Pipe Reinforced Concrete Class III 84-Inch	LF	1,196.000	1,196.000
0450	611.2004	Manholes 4-FT Diameter	EACH	2.000	2.000
0460	611.2005	Manholes 5-FT Diameter	EACH	1.000	1.000
0470	611.2006	Manholes 6-FT Diameter	EACH	1.000	1.000
0480	611.3004	Inlets 4-FT Diameter	EACH	5.000	5.000
0490	611.9705	Salvaged Manhole Covers	EACH	1.000	1.000
0500	611.9710	Salvaged Inlet Covers	EACH	20.000	20.000
0510	612.0106	Pipe Underdrain 6-Inch	LF	435.000	435.000
0520	614.0905	Crash Cushions Temporary	EACH	3.000	3.000
0530	616.0700.S	Fence Safety	LF	1,000.000	1,000.000
0540	619.1000	Mobilization	EACH	1.000	1.000
0550	620.0300	Concrete Median Sloped Nose	SF	371.000	371.000
0560	623.0200	Dust Control Surface Treatment	SY	8,487.000	8,487.000
0570	624.0100	Water	MGAL	204.000	204.000
0580	625.0100	Topsoil	SY	1,000.000	1,000.000
0590	628.1504	Silt Fence	LF	3,805.000	3,805.000
0600	628.1520	Silt Fence Maintenance	LF	3,805.000	3,805.000
0610	628.1905	Mobilizations Erosion Control	EACH	1.000	1.000
0620	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0630	628.7005	Inlet Protection Type A	EACH	18.000	18.000
0640	628.7015	Inlet Protection Type C	EACH	42.000	42.000
0650	628.7560	Tracking Pads	EACH	4.000	4.000
0660	629.0205	Fertilizer Type A	CWT	1.000	1.000
0670	631.1000	Sod Lawn	SY	1,000.000	1,000.000
0680	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	1.000	1.000
0690	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	1.000	1.000
0700	637.2210	Signs Type II Reflective H	SF	34.750	34.750
0710	638.2602	Removing Signs Type II	EACH	2.000	2.000
0720	638.3000	Removing Small Sign Supports	EACH	1.000	1.000
0730	643.0200	Traffic Control Surveillance and Maintenance (project) 0001. 2126-00-70	DAY	116.000	116.000
0740	643.0300	Traffic Control Drums	DAY	11,305.000	11,305.000
0750	643.0420	Traffic Control Barricades Type III	DAY	2,048.000	2,048.000
0760	643.0705	Traffic Control Warning Lights Type A	DAY	4,096.000	4,096.000
0770	643.0715	Traffic Control Warning Lights Type C	DAY	3,922.000	3,922.000
0780	643.0800	Traffic Control Arrow Boards	DAY	472.000	472.000
0790	643.0900	Traffic Control Signs	DAY	4,270.000	4,270.000
0800	643.0920	Traffic Control Covering Signs Type II	EACH	5.000	5.000
0810	643.1000	Traffic Control Signs Fixed Message	SF	6.000	6.000
0820	643.1050	Traffic Control Signs PCMS	DAY	61.000	61.000
0830	643.2000	Traffic Control Detour (project) 0001. 2126-00-70	EACH	1.000	1.000
0840	643.3000	Traffic Control Detour Signs	DAY	3,710.000	3,710.000
0850	645.0111	Geotextile Fabric Type DF Schedule A	SY	302.000	302.000
0860	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,523.000	1,523.000
0870	646.0126	Pavement Marking Epoxy 8-Inch	LF	696.000	696.000
0880	646.0600	Removing Pavement Markings	LF	2,254.000	2,254.000
0890	647.0156	Pavement Marking Arrows Epoxy Type 1	EACH	3.000	3.000
0900	647.0166	Pavement Marking Arrows Epoxy Type 2	EACH	10.000	10.000

3

DATE 11JAN16		E S T I M A T E O F Q U A N T I T I E S			
LINE				2126-00-70	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0910	647.0186	Pavement Marking Arrows Epoxy Type 4	EACH	3.000	3.000
0920	647.0356	Pavement Marking Words Epoxy	EACH	6.000	6.000
0930	647.0576	Pavement Marking Stop Line Epoxy 24-Inch	LF	62.000	62.000
0940	647.0776	Pavement Marking Crosswalk Epoxy 12-Inch	LF	1,180.000	1,180.000
0950	647.0955	Removing Pavement Markings Arrows	EACH	7.000	7.000
0960	647.0965	Removing Pavement Markings Words	EACH	4.000	4.000
0970	649.0400	Temporary Pavement Marking Removable Tape 4-Inch	LF	5,943.000	5,943.000
0980	650.8500	Construction Staking Electrical Installations (project) 0001. 2126-00-70	LS	1.000	1.000
0990	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	70.000	70.000
1000	652.0230	Conduit Rigid Nonmetallic Schedule 40 2 1/2-Inch	LF	225.000	225.000
1010	652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	1,265.000	1,265.000
1020	652.0615	Conduit Special 3-Inch	LF	815.000	815.000
1030	653.0905	Removing Pull Boxes	EACH	22.000	22.000
1040	690.0150	Sawing Asphalt	LF	495.000	495.000
1050	690.0250	Sawing Concrete	LF	3,124.000	3,124.000
1060	715.0415	Incentive Strength Concrete Pavement	DOL	1,365.000	1,365.000
1070	SPV.0060	Special 0001. Catch Basin Type 44-A	EACH	6.000	6.000
1080	SPV.0060	Special 0002. Catch Basin Type 44-B	EACH	6.000	6.000
1090	SPV.0060	Special 0003. Manhole 9-Foot Special	EACH	1.000	1.000
1100	SPV.0060	Special 0004. Manhole 10-Foot Special	EACH	6.000	6.000
1110	SPV.0060	Special 0005. Manhole Cover MS 58-A	EACH	8.000	8.000
1120	SPV.0060	Special 0006. Inlet Cover MS 57	EACH	1.000	1.000
1130	SPV.0060	Special 0007. Storm Sewer Structure M4	EACH	1.000	1.000
1140	SPV.0060	Special 0008. Storm Sewer Structure M5	EACH	1.000	1.000
1150	SPV.0060	Special 0009. Pipe Connection to Existing Structure	EACH	2.000	2.000
1160	SPV.0060	Special 0010.Exposing Infrastructure Paved Area	EACH	8.000	8.000
1170	SPV.0060	Special 0011.Exposing Infrastructure Unpaved Area	EACH	3.000	3.000
1180	SPV.0060	Special 3000. Rectangular Polymer Concrete Vault 17"x30"x18"	EACH	22.000	22.000
1190	SPV.0060	Special 3001. Install 18" Dia x 6 Ft Cylindrical Column Form	EACH	5.000	5.000
1200	SPV.0060	Special 3002. Install Traffic Signal Base	EACH	4.000	4.000
1210	SPV.0060	Special 3003. Spread Footing Base for A-31 Bolt Down Concrete Pole	EACH	7.000	7.000
1220	SPV.0060	Special 3004. Spread Footing Base for Downtown Style Harp Pole	EACH	6.000	6.000
1230	SPV.0060	Special 5000. Removing Hydrant	EACH	2.000	2.000
1240	SPV.0060	Special 5001. Install Hydrant	EACH	3.000	3.000
1250	SPV.0075	Special 0001. Pavement Cleanup Project 2126-00-70	HRS	16.000	16.000
1260	SPV.0090	Special 0001. Concrete Box Combination Sewer 4' x 12'	LF	124.000	124.000
1270	SPV.0090	Special 5002. Ductile Iron Hydrant Branch 6-Inch	LF	148.000	148.000
1280	SPV.0090	Special 5003. Ductile Iron Water Main 8-Inch	LF	54.000	54.000
1290	SPV.0090	Special 5004. Ductile Iron Water Main 30-Inch	LF	148.000	148.000

3

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DATE 11JAN16		E S T I M A T E O F Q U A N T I T I E S			
LINE					2126-00-70
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
1300	SPV.0090	Special 5005. Remove Water Main	LF	191.000	191.000
1310	SPV.0090	Special 5006. Ductile Iron Water Main 12-Inch	LF	10.000	10.000
1320	SPV.0105	Special 0001. Survey Project 2126-00-70	LS	1.000	1.000
1330	SPV.0105	Special 0002. Control of Water	LS	1.000	1.000
1340	SPV.0105	Special 0003. Concrete Pavement Joint Layout	LS	1.000	1.000
1350	SPV.0105	Special 0004. ATC Thermal Backfill	LS	1.000	1.000
1360	SPV.0165	Special 0001. Colored and Stamped Concrete Sidewalk 5-Inch	SF	235.000	235.000
1370	SPV.0180	Special 0001. Salvage Cobblestones	SY	530.000	530.000
1380	SPV.0180	Special 0002. Concrete Joint Sealer	SY	4,550.000	4,550.000

3

CPM PROGRESS SCHEDULE

108.4400	
CPM PROGRESS SCHEDULE	
EACH	
PROJECT ID 2126-00-70	1
TOTAL CATEGORY 0010	1

CLEARING AND GRUBBING

				201.0120	201.0220
				CLEARING	GRUBBING
STATION	OFFSET		LOCATION	ID	ID
123+50	40'	RT	MCKINLEY	11	11
124+42	40'	RT	MCKINLEY	12	12
TOTALS CATEGORY 0010				23	23

REMOVING CONCRETE BASES

				204.0195
				REMOVING
				CONCRETE
				BASES
STATION	OFFSET	LT/RT	LOCATION	EACH
113+30	52'	RT	MCKINLEY	1
113+42	60'	RT	MCKINLEY	1
113+57	70'	RT	MCKINLEY	1
114+06	46'	RT	MCKINLEY	1
114+61	55'	RT	MCKINLEY	1
114+86	39'	RT	MCKINLEY	1
115+62	39'	RT	MCKINLEY	1
116+45	39'	RT	MCKINLEY	1
117+25	39'	RT	MCKINLEY	1
117+70	56'	RT	MCKINLEY	1
118+29	39'	RT	MCKINLEY	1
118+96	39'	RT	MCKINLEY	1
119+63	39'	RT	MCKINLEY	1
120+47	39'	RT	MCKINLEY	1
121+20	38'	RT	MCKINLEY	1
121+42	57'	RT	MCKINLEY	1
121+82	52'	RT	MCKINLEY	1
122+35	6'	LT	MCKINLEY	1
122+36	63'	RT	MCKINLEY	1
122+63	38'	RT	MCKINLEY	1
123+10	39'	RT	MCKINLEY	1
123+80	38'	RT	MCKINLEY	1
124+69	39'	RT	MCKINLEY	1
TOTAL CATEGORY 0010				23

REMOVING PAVEMENT

204.0100	
REMOVING	
PAVEMENT	
SY	
STAGE 1	3452
STAGE 2	1183
STAGE 3	530
TOTAL CATEGORY 0010	5165

NOTE: INCLUDES CURB & GUTTER
REMOVAL ADJACENT TO
CONCRETE PAVEMENT

REMOVING PULL BOXES

653.0905				
REMOVING				
PULL BOXES				
STATION	OFFSET	LT/RT	LOCATION	EACH
113+47	56'	RT	MCKINLEY	1
113+60	71'	RT	MCKINLEY	1
114+08	49'	RT	MCKINLEY	1
114+60	60'	RT	MCKINLEY	1
114+69	55'	RT	MCKINLEY	1
114+92	37'	RT	MCKINLEY	1
115+70	37'	RT	MCKINLEY	1
116+50	37'	RT	MCKINLEY	1
117+27	37'	RT	MCKINLEY	1
118+35	38'	RT	MCKINLEY	1
119+00	38'	RT	MCKINLEY	1
119+68	38'	RT	MCKINLEY	1
120+54	37'	RT	MCKINLEY	1
120+87	37'	RT	MCKINLEY	1
121+27	38'	RT	MCKINLEY	1
121+43	60'	RT	MCKINLEY	1
121+83	60'	RT	MCKINLEY	1
122+36	66'	RT	MCKINLEY	1
122+38	8'	LT	MCKINLEY	1
122+56	37'	RT	MCKINLEY	1
123+15	39'	RT	MCKINLEY	1
124+73	38'	RT	MCKINLEY	1
TOTAL CATEGORY 0010				22

REMOVING CURB & GUTTER

		204.0150
		REMOVING
		CURB & GUTTER
	LOCATION	LF
STAGE 1	MCKINLEY	102
STAGE 2	MCKINLEY	100
TOTAL CATEGORY 0010		202

REMOVING CONCRETE SIDEWALK

204.0155	
REMOVING CONCRETE SIDEWALK	
SY	
STAGE 1	575
STAGE 2	141
STAGE 3	20
TOTAL CATEGORY 0010	736

SALVAGE COBBLESTONES

SPV.0180.0001	
SALVAGE COBBLESTONES	
LOCATION	SY
MCKINLEY	530
TOTAL CATEGORY 0010	530

2126-00-70 MCKINLEY AVENUE
EARTHWORK SUMMARY

LOCATION	(1) 205.0100 EXCAVATION COMMON	(2) 205.0501.S EXCAVATION, HAULING, AND DISPOSAL (BIOREMEDIATION) OF PETROLEUM CONTAMINATED SOIL	624.0100* WATER
	CY	TON	MGAL
ROADWAY	3,637	--	15
PROPOSED STORM SEWER	--	20,495	82
EXISTING 72" AND 84" PIPE REMOVAL	--	13,420	54
TOTALS CATEGORY 0010	3,637	33,915	151

(1) EXCAVATION COMMON ESTIMATED BASED ON PAVEMENT REMOVAL AREA x 19 INCH DEPTH, PLUS SIDEWALK REMOVAL AREA x 9 INCH DEPTH
(2) CONTAMINATED SOIL VOLUME ESTIMATED AS FOLLOWS (ASSUMED 1.7 TONS PER CUBIC YARD):
FOR PROPOSED STORM SEWER PIPES, ASSUMED 12' TRENCH WIDTH, 1.25' BELOW INVERT
FOR PROPOSED CONCRETE BOX COMBINATION SEWER, ASSUMED 16' TRENCH WIDTH, 1.25' BELOW INVERT
FOR PROPOSED STORM SEWER PIPES, ASSUMED 5' TRENCH WIDTH, 1' BELOW INVERT
FOR PROPOSED WATER MAIN, ASSUMED 6.5' TRENCH WIDTH, 1' BELOW INVERT
FOR EXISTING SEWER PIPE REMOVAL, ASSUMED 12' TRENCH WIDTH, 1.25' BELOW INVERT, MINUS EXISTING PIPE VOLUME

*ADDITIONAL QUANTITIES LISTED ELSEWHERE. SEE "AGGREGATE ITEMS" AND "DRIVEWAYS"

3

REMOVING MANHOLES

204.0210 REMOVING MANHOLES					
STAGE	STATION	OFFSET	LOCATION	EACH	NOTES:
1	109+35	146' RT	W. MCKINLEY AVE	1	
	116+78	225' RT	W. MCKINLEY AVE	1	
	117+99	58' RT	W. MCKINLEY AVE	1	
	118+08	59' RT	W. MCKINLEY AVE	1	
	121+24	45' LT	W. MCKINLEY AVE	1	
	404+00	35' LT	N. 4TH ST	1	SALVAGE COVER
SUBTOTAL				6	
3	352+38	77' LT	N. 6TH ST	1	
	402+38	32' RT	N. 4TH ST	1	
SUBTOTAL				2	
TOTAL CATEGORY 0010				8	

ABANDONING SEWER

204.0291.S ABANDONING SEWER							
STAGE	FROM STATION	FROM OFFSET	TO STATION	TO OFFSET	LOCATION	DESCRIPTION	CY
3	117+54	225' RT	118+10	225' RT	W. MCKINLEY AVE	84-INCH DIAM	81
	118+30	221' RT	118+38	38' RT	W. MCKINLEY AVE	12-INCH DIAM	5
	352+37	82' LT	352+47	46' RT	N. 6TH ST	72-INCH DIAM	136
	402+39	68' LT	402+39	44' RT	N. 4TH ST	84-INCH DIAM	160
SUBTOTAL							382
TOTAL							382

REMOVING CATCH BASINS

204.0215 REMOVING CATCH BASINS					
STAGE	STATION	OFFSET	LOCATION	EACH	NOTES:
1	112+50	7' LT	W. MCKINLEY AVE	1	SALVAGE COVER
	113+52	9' LT	W. MCKINLEY AVE	1	SALVAGE COVER
	115+89	33' RT	W. MCKINLEY AVE	1	SALVAGE COVER
	117+51	33' RT	W. MCKINLEY AVE	1	SALVAGE COVER
	117+99	195' RT	W. MCKINLEY AVE	1	
	118+10	59' RT	W. MCKINLEY AVE	1	SALVAGE COVER
	118+36	33' RT	W. MCKINLEY AVE	1	SALVAGE COVER
	119+70	33' RT	W. MCKINLEY AVE	1	SALVAGE COVER
	119+80	33' RT	W. MCKINLEY AVE	1	SALVAGE COVER
	121+06	33' RT	W. MCKINLEY AVE	1	SALVAGE COVER
	121+14	56' LT	W. MCKINLEY AVE	1	SALVAGE COVER
	121+16	33' RT	W. MCKINLEY AVE	1	SALVAGE COVER
	121+21	56' LT	W. MCKINLEY AVE	1	SALVAGE COVER
	121+21	55' RT	W. MCKINLEY AVE	1	SALVAGE COVER
	121+24	10' LT	W. MCKINLEY AVE	1	SALVAGE COVER
	403+99	47' LT	N. 4TH ST	1	SALVAGE COVER
SUBTOTAL				16	
2	110+91	49' RT	W. MCKINLEY AVE	1	SALVAGE COVER
	112+40	48' RT	W. MCKINLEY AVE	1	SALVAGE COVER
	112+50	48' RT	W. MCKINLEY AVE	1	SALVAGE COVER
	113+17	48' RT	W. MCKINLEY AVE	1	SALVAGE COVER
	113+25	48' RT	W. MCKINLEY AVE	1	SALVAGE COVER
SUBTOTAL				5	
3	124+39	138' RT	W. MCKINLEY AVE	1	
	352+38	88' LT	N. 6TH ST	1	
	352+38	339' LT	N. 6TH ST	1	
SUBTOTAL				3	
TOTAL CATEGORY 0010				24	

SEALING PIPES

204.0280 SEALING PIPES				
STAGE	STATION	OFFSET	LOCATION	EACH
1	115+90	24' RT	W. MCKINLEY AVE	1
	117+99	24' RT	W. MCKINLEY AVE	1
	119+81	24' RT	W. MCKINLEY AVE	1
TOTAL CATEGORY 0010				3

3

REMOVING STORM SEWER

						204.0245.0001	204.0245.0002	204.0245.0003	204.0245.0004	204.0245.0005	204.0245.0006	COMMENTS:
						REMOVING	REMOVING	REMOVING	REMOVING	REMOVING	REMOVING	
						STORM	STORM	STORM	STORM	STORM	STORM	
						SEWER	SEWER	SEWER	SEWER	SEWER	SEWER	
STAGE	FROM		TO		LOCATION	12-INCH	15-INCH	18-INCH	24-INCH	72-INCH	84-INCH	
	STATION	OFFSET	STATION	OFFSET		LF	LF	LF	LF	LF	LF	
1	115+89	33' RT	115+90	24' RT	W. MCKINLEY AVE	9	--	--	--	--	--	
	117+51	33' RT	117+99	58' RT	W. MCKINLEY AVE	54	--	--	--	--	--	
	117+99	23' RT	117+99	58' RT	W. MCKINLEY AVE	--	--	34	--	--	--	
	117+99	195' RT	117+99	58' RT	W. MCKINLEY AVE	--	--	136	--	--	--	
	117+99	58' RT	118+07	59' RT	W. MCKINLEY AVE	8	--	--	--	--	--	
	118+07	59' RT	118+10	59' RT	W. MCKINLEY AVE	3	--	--	--	--	--	
	119+70	33' RT	119+80	33' RT	W. MCKINLEY AVE	10	--	--	--	--	--	
	119+80	33' RT	119+81	24' RT	W. MCKINLEY AVE	10	--	--	--	--	--	
	121+06	33' RT	121+16	33' RT	W. MCKINLEY AVE	10	--	--	--	--	--	
	121+14	56' LT	121+21	56' LT	W. MCKINLEY AVE	7	--	--	--	--	--	
	121+16	33' RT	121+24	10' LT	W. MCKINLEY AVE	44	--	--	--	--	--	
	121+16	33' RT	404+00	35' LT	W. MCKINLEY AVE/N. 4TH ST	51	--	--	--	--	--	
	121+21	55' RT	403+99	47' LT	W. MCKINLEY AVE/N. 4TH ST	27	--	--	--	--	--	
	121+21	56' LT	121+24	45' LT	W. MCKINLEY AVE	12	--	--	--	--	--	
	121+24	10' LT	121+24	45' LT	W. MCKINLEY AVE	35	--	--	--	--	--	
	403+99	47' LT	404+00	35' LT	W. MCKINLEY AVE/N. 4TH ST	12	--	--	--	--	--	
SUBTOTALS						292	--	170	--	--	--	
2	110+90	41' RT	110+90	48' RT	W. MCKINLEY AVE	7	--	--	--	--	--	
	112+40	48' RT	112+50	48' RT	W. MCKINLEY AVE	10	--	--	--	--	--	
	112+50	48' RT	112+50	7' LT	W. MCKINLEY AVE	54	--	--	--	--	--	
	113+17	48' RT	113+25	48' RT	W. MCKINLEY AVE	8	--	--	--	--	--	
	113+25	48' RT	113+52	9' LT	W. MCKINLEY AVE	63	--	--	--	--	--	
SUBTOTALS						142	--	--	--	--	--	
3	109+35	147' RT	113+26	222' RT	W. MCKINLEY AVE	--	--	--	--	379	--	
	114+58	223' RT	116+78	223' RT	W. MCKINLEY AVE	--	--	--	--	220	--	
	116+78	223' RT	117+54	225' RT	W. MCKINLEY AVE	--	--	--	--	--	76	
	118+10	225' RT	121+46	224' RT	W. MCKINLEY AVE	--	--	--	--	--	312	
	123+00	200' RT	125+51	119' RT	W. MCKINLEY AVE	--	--	--	--	--	288	
	124+39	138' RT	124+44	151' RT	W. MCKINLEY AVE	--	--	14	--	--	--	
	125+45	111' RT	125+49	116' RT	W. MCKINLEY AVE	--	--	--	6	--	--	
	352+25	77' LT	352+37	77' LT	N. 6TH ST	--	12	--	--	--	--	EXACT LENGTH TO BE VERIFIED IN FIELD
	352+37	77' LT	352+50	78' LT	N. 6TH ST	--	13	--	--	--	--	EXACT LENGTH TO BE VERIFIED IN FIELD
	352+38	88' LT	352+38	77' LT	N. 6TH ST	11	--	--	--	--	--	
	352+38	339' LT	352+38	88' LT	N. 6TH ST	249	--	--	--	--	--	
	402+36	35' LT	404+00	35' LT	N. 4TH ST	--	--	164	--	--	--	
SUBTOTALS						260	25	178	6	599	676	
TOTALS CATEGORY 0010						694	25	348	6	599	676	

FINISHING ROADWAY

213.0100 FINISHING ROADWAY (2126-00-70)		
PROJECT I.D.	DESCRIPTION	EACH
2126-00-70	MCKINLEY	1
TOTAL CATEGORY 0010		1

AGGREGATE ITEMS

STATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH	305.0120* BASE AGGREGATE DENSE 1 1/4-INCH	310.0110 BASE AGGREGATE OPEN GRADED	624.0100** WATER	NOTES
	TON	TON	TON	MGAL	
STAGE 1	--	1,559	915	25	
STAGE 2	--	819	501	13	
STAGE 3	--	156	101	3	
UNDISTRIBUTED	975	--	--	10	FOR RESTORATION
TOTALS CATEGORY 0010	975	2,534	1,517	51	

* ADDITIONAL QUANTITIES LISTED ELSEWHERE. SEE "DRIVEWAYS"

** ADDITIONAL QUANTITIES LISTED ELSEWHERE. SEE "EARTHWORK SUMMARY" AND "DRIVEWAYS"

PAVEMENT ITEMS

	415.0090 CONCRETE PAVEMENT 9-INCH SY	415.1090 CONCRETE PAVEMENT HES 9-INCH SY	465.0125 ASPHALTIC SURFACE TEMPORARY TON	SPV.0180.0002 CONCRETE JOINT SEALER SY
STAGE 1	1,793	619	290	2,412
STAGE 2	1,740	--	--	1,740
STAGE 3	--	398	--	398
TOTALS CATEGORY 0010	3,533	1,017	290	4,550

DRILLED TIE BARS & DOWEL BARS

	416.0610 DRILLED TIE BARS EACH	416.0620 DRILLED DOWEL BARS EACH
STAGE 1	390	232
STAGE 2	155	120
STAGE 3	113	24
TOTAL CATEGORY 0010	658	376

DRIVEWAYS

STATION	LOCATION	OFFSET	305.0120* BASE AGGREGATE DENSE 1 1/4-INCH	416.0170 CONCRETE DRIVEWAY 7-INCH	465.0120 ASPHALTIC SURFACE DRIVEWAYS & FIELD ENTRANCES	624.0100** WATER	NOTES
			TON	SY	TON	MGAL	
124+00	MCKINLEY	RT	9	49	--	--	
125+00	MCKINLEY	RT	179	--	84	2	PARKING LOT
352+50	6TH	RT	9	45	--	--	
402+25	4TH	LT	9	43	--	--	
402+25	4TH	RT	12	44	--	--	
TOTALS CATEGORY 0010			218	181	84	2	

* ADDITIONAL QUANTITIES LISTED ELSEWHERE. SEE "AGGREGATE ITEMS"

* ADDITIONAL QUANTITIES LISTED ELSEWHERE. SEE "AGGREGATE ITEMS" AND "EARTHWORK"

CONCRETE CURB AND GUTTER

	601.0331 CONCRETE CURB & GUTTER 31-INCH	601.0600 CONCRETE CURB PEDESTRIAN
	LF	LF
STAGE 1	915	--
STAGE 2	627	14
TOTALS CATEGORY 0010	1,542	14

CONCRETE SIDEWALK

	602.0410 CONCRETE SIDEWALK 5-INCH	SPV.0165.0001 COLORED AND STAMPED CONCRETE SIDEWALK 5-INCH
	SF	SF
STAGE 1	4,942	235
STAGE 2	1,265	--
STAGE 3	180	--
TOTAL CATEGORY 0010	6,387	235

PIPE UNDERDRAIN ITEMS

	612.0106 PIPE UNDERDRAIN 6-INCH LF	645.0111 GEOTEXTILE FABRIC TYPE DF SCHEDULE A SY
STAGE 1	200	139
STAGE 2	235	163
TOTALS CATEGORY 0010	435	302

MOBILIZATION

PROJECT ID	DESCRIPTION	619.1000 MOBILIZATION EACH
2126-00-70	MCKINLEY	1
TOTAL CATEGORY 0010		1

CONCRETE MEDIAN SLOPED NOSE

STATION	LOCATION	OFFSET	TYPE	620.0300 CONCRETE MEDIAN SLOPED NOSE SF
114+10	MCKINLEY	40' RT	2	148
121+75	MCKINLEY	46' RT	2	45
122+25	MCKINLEY	3' LT	2	178
TOTAL CATEGORY 0010				371

DUST CONTROL SURFACE TREATMENT

STAGE	LOCATION	623.0200 DUST CONTROL SURFACE TREATMENT SY
STAGE 1	MCKINLEY	3,579
STAGE 2	MCKINLEY	1,966
STAGE 3	MCKINLEY	398
UNDISTRIBUTED	MCKINLEY	2,544
TOTAL CATEGORY 0010		8,487

MOBILIZATIONS EROSION CONTROL

PROJECT ID	DESCRIPTION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
2126-00-70	MCKINLEY	1	2
TOTALS CATEGORY 0010		1	2

FENCE SAFETY

LOCATION	616.0700.S FENCE SAFETY LF
UNDISTRIBUTED	1000
TOTAL CATEGORY 0010	1000

EROSION CONTROL

	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.7005 INLET PROTECTION TYPE A EACH	628.7015 TYPE C EACH
STAGE 1	682	682	18	42
STAGE 2	694	694	--	--
STAGE 3	2,429	2,429	--	--
TOTALS CATEGORY 0010	3,805	3,805	18	42

RESTORATION ITEMS

	625.0100 TOPSOIL SY	629.0205 FERTILIZER TYPE A CWT	631.1000 SOD LAWN SY
UNDISTRIBUTED	1000	1	1,000
TOTALS CATEGORY 0010	1,000	1	1,000

TRACKING PADS

LOCATION	628.7560 TRACKING PADS EACH
UNDISTRIBUTED	4
TOTAL CATEGORY 0010	4

STORM SEWER STRUCTURES											STORM SEWER PIPES											
ROADWAY	STRUCTURE NO.	STRUCTURE STAGE	STATION	OFFSET (FT)	LOCATION	RIM OR FLOW ELEV	STRUCTURE TYPE	INLET/MANHOLE COVERS TYPE	DEPTH ¹ (FT)	STRUCTURE COMMENTS	PIPE ID	PIPE STAGE	FROM STR	TO STR	INLET ELEV	DISCH ELEV	SLOPE ^A %	PIPE LENGTH ^B (FT)	PLAN LENGTH ^C (FT)	PIPE CLASS	PIPE SIZE (INCH)	PIPE COMMENTS
W. MCKINLEY AVE	M23	3	109+34.52	146.5	RT	39.41	MANHOLES 9-FT SPECIAL	MS 58-A	27.17	---	P23	2,3	M23	M1	12.24	10.01	1.33	168	177	III	72	---
W. MCKINLEY AVE	M1	2	110+66.00	46.2	RT	28.32	MANHOLES 9-FT SPECIAL	MS 58-A	18.31	6.99' RISER DEPTH	P1	2	M1	M2	10.01	7.57	1.33	183	193	III	72	---
W. MCKINLEY AVE	M2	2	112+64.35	47.1	RT	20.77	MANHOLES 10-FT SPECIAL	MS 58-A	15.77	1.88' RISER DEPTH	P2	2	M2	M3	5.00	3.90	0.48	229	239	III	84	---
W. MCKINLEY AVE	M3	2	115+07.34	38.4	RT	16.70	MANHOLES 10-FT SPECIAL	MS 58-A	12.80	0.98' RISER DEPTH	P3	1C,2	M3	62	3.90	2.78	0.48	234	244	III	84	---
W. MCKINLEY AVE	62	1C	117+51.04	45.6	RT	14.21	MANHOLES 10-FT SPECIAL	MS 57	11.47	USE SALVAGED INLET/MANHOLE COVER	P62	1C	62	83	2.74	1.04	0.48	353	363	III	84	---
W. MCKINLEY AVE	83	1C	121+16.95	35.6	RT	13.79	MANHOLES 10-FT SPECIAL	MS 57	12.78	1.08' RISER DEPTH, USE SALVAGED INLET/MANHOLE COVER	P83	1C	83	M4	1.01	0.99	0.48	4	19	III	84	---
W. MCKINLEY AVE	M4	1C	121+37.43	35.8	RT	13.78	SPV STRUCTURE	MS 58-A	13.27	SEE STRUCTURE GEOMETRY TABLE FOR BID ITEM	P4	1C	M4	M5	0.51	0.20	0.30	103	124	III	48x144	---
W. MCKINLEY AVE	M5	1C	122+67.37	33.4	RT	12.88	SPV STRUCTURE	MS 58-A	12.68	SEE STRUCTURE GEOMETRY TABLE FOR BID ITEM	P5	1C	M5	M6	0.20	-0.39	0.30	198	213	III	84	---
W. MCKINLEY AVE	M6	1C	124+79.67	34.1	RT	11.11	MANHOLES 10-FT SPECIAL	MS 58-A	11.50	---	P6	1C,3	M6	M7	-0.39	-0.71	0.30	108	118	III	84	---
W. MCKINLEY AVE	---	---	---	---	---	---	---	---	--	---	P6T	1C	M6	EXISTING CSO	-0.69	-0.71	0.30	6	6	III	24	TEMPORARY PIPE TO BE REMOVED IN STAGE 3
W. MCKINLEY AVE	M7	1C	125+50.68	119.0	RT	12.20	MANHOLES 10-FT SPECIAL	MS 58-A	12.91	1.09' RISER DEPTH	PE7	---	M7	---	-0.71	---	---	---	---	---	84	EXIST PIPE INTERPOL ELEV

¹DEPTH = RIM OR FLOW ELEV - LOWEST PIPE INVERT ELEVATION UNLESS STRUCTURE IS A CATCH BASIN. CATCH BASINS DEPTH SHOWN INCLUDES 3.97-FT SUMP FOR CATCH BASIN 44A AND 1-FT SUMP FOR CATCH BASIN 44B.

^A SLOPE CALCULATED BASED ON PIPE LENGTH. PIPE LENGTH REPRESENTS LENGTH OF PIPE MEASURED FROM INSIDE FACE OF STRUCTURE TO INSIDE FACE OF STRUCTURE

^BPIPE LENGTH SHOWN FOR SLOPE CALCULATION ONLY. NOT INTENDED FOR PAY QUANTITY.
^CPLAN LENGTH SHOWN FOR PAY QUANTITY.

STORM SEWER STRUCTURES											STORM SEWER PIPES											
ROADWAY	STRUCTURE NO.	STRUCTURE STAGE	STATION	OFFSET (FT)	LOCATION	RIM OR FLOW ELEV	STRUCTURE TYPE	INLET/MANHOLE COVERS TYPE	DEPTH ¹ (FT)	STRUCTURE COMMENTS	PIPE ID	PIPE STAGE	FROM STR	TO STR	INLET ELEV	DISCH ELEV	SLOPE ^A %	PIPE LENGTH ^B (FT)	PLAN LENGTH ^C (FT)	PIPE CLASS	PIPE SIZE (INCH)	PIPE COMMENTS
W. MCKINLEY AVE	30	1A	112+49.82	9.3	LT	21.22	CATCH BASINS TYPE 44-A	MS 57	11.22	USE SALVAGED INLET/MANHOLE COVER	PE30	---	30	---	13.97	---	---	---	---	---	12	EXIST PIPE INTERPOL ELEV
W. MCKINLEY AVE	31	2	112+49.94	50.5	RT	21.01	CATCH BASINS TYPE 44-B	MS 57	4.26	USE SALVAGED INLET/MANHOLE COVER	P31	1A,1B	31	30	17.75	16.72	2.00	52	56	III	12	---
W. MCKINLEY AVE	32	2	112+40.26	50.5	RT	21.29	CATCH BASINS TYPE 44-B	MS 57	4.44	USE SALVAGED INLET/MANHOLE COVER	P32	2	32	31	17.85	17.75	2.00	5	9	III	12	---
W. MCKINLEY AVE	35	2	110+90.53	50.2	RT	26.93	CATCH BASINS TYPE 44-B	MS 57	7.97	USE SALVAGED INLET/MANHOLE COVER	P35	2	35	PE36	19.96	19.93	0.50	5	7	III	12	---
W. MCKINLEY AVE	---	---	---	---	---	---	---	---	--	---	PE39	---	---	40	---	11.51	---	---	---	---	12	EXIST PIPE INTERPOL ELEV
W. MCKINLEY AVE	40	1A	113+51.63	11.9	LT	18.80	CATCH BASINS TYPE 44-A	MS 57	11.26	USE SALVAGED INLET/MANHOLE COVER	PE40	---	40	---	11.51	---	---	---	---	---	12	EXIST PIPE INTERPOL ELEV
W. MCKINLEY AVE	41	2	113+25.55	50.5	RT	19.20	CATCH BASINS TYPE 44-B	MS 57	4.28	USE SALVAGED INLET/MANHOLE COVER	P41	1A,1B	41	40	15.92	14.72	2.00	60	64	III	12	---
W. MCKINLEY AVE	42	2	113+17.08	50.5	RT	19.34	CATCH BASINS TYPE 44-B	MS 57	4.34	USE SALVAGED INLET/MANHOLE COVER	P42	2	42	41	16.00	15.92	2.00	4	8	III	12	---
W. MCKINLEY AVE	51	1C	115+89.26	35.5	RT	14.92	INLETS 4-FT DIAMETER	MS 57	2.81	USE SALVAGED INLET/MANHOLE COVER	P51	1C	51	62	12.11	11.34	0.50	155	162	III	12	---
W. MCKINLEY AVE	61	1C	117+71.90	54.6	RT	13.79	CATCH BASINS TYPE 44-A	MS 57	6.57	---	P61	1C	61	62	11.19	11.09	0.50	20	27	III	12	---
W. MCKINLEY AVE	63	1C	118+36.39	36.0	RT	14.03	INLETS 4-FT DIAMETER	MS 57	2.84	USE SALVAGED INLET/MANHOLE COVER	P63	1C	63	72	11.19	10.54	0.50	130	134	III	12	---
W. MCKINLEY AVE	64	1C	118+11.94	58.6	RT	13.75	CATCH BASINS TYPE 44-A	MS 57	6.37	USE SALVAGED INLET/MANHOLE COVER	P64	1C	64	63	11.35	11.19	0.50	32	36	III	12	---
W. MCKINLEY AVE	71	1C	119+79.71	36.0	RT	14.45	INLETS 4-FT DIAMETER	MS 57	3.94	USE SALVAGED INLET/MANHOLE COVER	P71	1C	71	87	10.51	9.91	0.50	120	124	III	12	---
W. MCKINLEY AVE	72	1C	119+69.90	36.0	RT	14.50	INLETS 4-FT DIAMETER	MS 57	3.96	USE SALVAGED INLET/MANHOLE COVER	P72	1C	72	71	10.54	10.51	0.50	6	10	III	12	---
W. MCKINLEY AVE	---	---	---	---	---	---	---	---	--	---	PE77	---	---	78	---	3.38	---	---	---	---	18	EXIST PIPE INTERPOL ELEV

¹DEPTH = RIM OR FLOW ELEV - LOWEST PIPE INVERT ELEVATION UNLESS STRUCTURE IS A CATCH BASIN. CATCH BASINS DEPTH SHOWN INCLUDES 3.97-FT SUMP FOR CATCH BASIN 44A AND 1-FT SUMP FOR CATCH BASIN 44B.

^A SLOPE CALCULATED BASED ON PIPE LENGTH. PIPE LENGTH REPRESENTS LENGTH OF PIPE MEASURED FROM INSIDE FACE OF STRUCTURE TO INSIDE FACE OF STRUCTURE

^BPIPE LENGTH SHOWN FOR SLOPE CALCULATION ONLY . NOT INTENDED FOR PAY QUANTITY.
^CPLAN LENGTH SHOWN FOR PAY QUANTITY .

STORM SEWER STRUCTURES											STORM SEWER PIPES											
ROADWAY	STRUCTURE NO.	STRUCTURE STAGE	STATION	OFFSET (FT)	LOCATION	RIM OR FLOW ELEV	STRUCTURE TYPE	INLET/MANHOLE COVERS TYPE	DEPTH ¹ (FT)	STRUCTURE COMMENTS	PIPE ID	PIPE STAGE	FROM STR	TO STR	INLET ELEV	DISCH ELEV	SLOPE ^A %	PIPE LENGTH ^B (FT)	PLAN LENGTH ^C (FT)	PIPE CLASS	PIPE SIZE (INCH)	PIPE COMMENTS
W. MCKINLEY AVE	---	---	---	---	---	---	---	---	--	---	P78	3	PE77	80	3.38	2.57	0.50	161	164	III	18	---
W. MCKINLEY AVE	---	---	---	---	---	---	---	---	--	---	PE79	---	---	80	---	5.89	---	---	---	---	12	EXIST PIPE INTERPOL ELEV
N. 4TH ST	80	1C	404+00.15	35.4	LT	13.58	MANHOLES 5-FT DIAMETER	MS 58-A	11.01	USE SALVAGED INLET/MANHOLE COVER	P80	1C	80	81	2.57	2.53	0.50	8	12	III	18	---
N. 4TH ST	81	1C	403+98.99	49.7	LT	13.06	MANHOLES 4-FT DIAMETER	MS 57	10.53	USE SALVAGED INLET/MANHOLE COVER	P81	1C	81	82	2.53	2.42	0.50	22	26	III	18	---
W. MCKINLEY AVE	82	1C	121+21.06	57.0	RT	14.29	MANHOLES 4-FT DIAMETER	MS 57	11.87	USE SALVAGED INLET/MANHOLE COVER	P82	1C	82	83	2.42	2.36	0.50	11	18	III	18	---
W. MCKINLEY AVE	84	1A	121+19.39	12.7	LT	14.27	CATCH BASINS TYPE 44-A	MS 57	9.74	USE SALVAGED INLET/MANHOLE COVER	P84	1A	84	85A	8.50	8.28	1.00	22	27	III	12	---
W. MCKINLEY AVE	85	1B	121+21.20	59.2	LT	13.26	CATCH BASINS TYPE 44-A	MS 57	8.73	USE SALVAGED INLET/MANHOLE COVER	P85	1B	85	85A	8.50	8.43	0.50	15	20	III	12	---
W. MCKINLEY AVE	85A	1B	121+22.58	37.5	LT	13.88	MANHOLES 6-FT DIAMETER	MS 58-A	12.77	---	PE85A	---	85A	---	1.11	---	---	---	---	---	42	EXIST PIPE INTERPOL ELEV
W. MCKINLEY AVE	86	1B	121+13.91	58.7	LT	13.30	CATCH BASINS TYPE 44-B	MS 57	3.74	USE SALVAGED INLET/MANHOLE COVER	P86	1B	86	85	10.56	10.52	1.00	4	8	III	12	---
W. MCKINLEY AVE	87	1C	121+05.72	35.6	RT	13.80	INLETS 4-FT DIAMETER	MS 57	3.89	USE SALVAGED INLET/MANHOLE COVER	P87	1C	87	83	9.91	9.89	0.50	5	12	III	12	---

STORM SEWER STRUCTURE SUMMARY									
SPV.0060.0001 CATCH BASINS	SPV.0060.0002 CATCH BASINS	611.2004 MANHOLES	611.2005 MANHOLES	611.2006 MANHOLES	SPV.0060.0003 MANHOLES	SPV.0060.0004 MANHOLES	611.3004 INLETS	SPV.0060.0005 MANHOLE COVERS	SPV.0060.0006 INLET COVERS
TYPE 44-A EACH	TYPE 44-B EACH	4-FT DIAMETER EACH	5-FT DIAMETER EACH	6-FT DIAMETER EACH	9-FT SPECIAL EACH	10-FT SPECIAL EACH	4-FT DIAMETER EACH	TYPE MS 58-A EACH	TYPE MS 57 EACH
6	6	2	1	1	2	6	5	9	1

STORM SEWER PIPE SUMMARY					
608.0312 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH LF	608.0318 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 18-INCH LF	608.0324 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 24-INCH LF	608.0372 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 72-INCH LF	608.0384 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 84-INCH LF	SPV.0090.0001 CONCRETE BOX COMBINATION SEWER LF
704	220	6	370	1196	124

¹DEPTH = RIM OR FLOW ELEV - LOWEST PIPE INVERT ELEVATION UNLESS STRUCTURE IS A CATCH BASIN. CATCH BASINS DEPTH SHOWN INCLUDES 3.97-FT SUMP FOR CATCH BASIN 44A AND 1-FT SUMP FOR CATCH BASIN 44B.

^A SLOPE CALCULATED BASED ON PIPE LENGTH. PIPE LENGTH REPRESENTS LENGTH OF PIPE MEASURED FROM INSIDE FACE OF STRUCTURE TO INSIDE FACE OF STRUCTURE

^BPIPE LENGTH SHOWN FOR SLOPE CALCULATION ONLY . NOT INTENDED FOR PAY QUANTITY.
^CPLAN LENGTH SHOWN FOR PAY QUANTITY .

SALVAGED COVERS

STAGE	STATION	OFFSET	LOCATION	611.9705	611.9710
				SALVAGED MANHOLE COVERS EACH	SALVAGED INLET COVERS EACH
1	115+89	33' RT	W. MCKINLEY AVE	--	1
	117+51	33' RT	W. MCKINLEY AVE	--	1
	118+10	59' RT	W. MCKINLEY AVE	--	1
	118+36	33' RT	W. MCKINLEY AVE	--	1
	119+70	33' RT	W. MCKINLEY AVE	--	1
	119+80	33' RT	W. MCKINLEY AVE	--	1
	121+06	33' RT	W. MCKINLEY AVE	--	1
	121+14	56' LT	W. MCKINLEY AVE	--	1
	121+16	33' RT	W. MCKINLEY AVE	--	1
	121+21	56' LT	W. MCKINLEY AVE	--	1
	121+21	55' RT	W. MCKINLEY AVE	--	1
	121+24	10' LT	W. MCKINLEY AVE	--	1
	403+99	47' LT	N. 4TH ST	--	1
	404+00	35' LT	N. 4TH ST	1	--
SUBTOTALS				1	13
2	110+91	49' RT	W. MCKINLEY AVE	--	1
	112+40	48' RT	W. MCKINLEY AVE	--	1
	112+50	48' RT	W. MCKINLEY AVE	--	1
	112+50	7' LT	W. MCKINLEY AVE	--	1
	113+17	48' RT	W. MCKINLEY AVE	--	1
	113+25	48' RT	W. MCKINLEY AVE	--	1
	113+52	9' LT	W. MCKINLEY AVE	--	1
SUBTOTALS				--	7
TOTAL CATEGORY 0010				1	20

PIPE CONNECTION TO EXISTING STRUCTURE

STAGE	STATION	OFFSET	STRUCTURE ID	LOCATION	SPV.0060.0009
					PIPE CONNECTION TO EXISTING STRUCTURE EACH
1	112+50	46' RT	31	W. MCKINLEY AVE	1
	113+26	47' RT	41	W. MCKINLEY AVE	1
TOTAL CATEGORY 0010					2

SPECIAL STRUCTURES

	SPV.0060.0007	SPV.0060.0008
	STORM SEWER STRUCTURE M4 EACH	STORM SEWER STRUCTURE M5 EACH
TOTAL CATEGORY 0010	1	1

FOR LOCATIONS SEE STORM SEWER STRUCTURES TABLE

CONTROL OF WATER

	SPV.0105.0002
	CONTROL OF WATER LS
UNDISTRIBUTED	1
TOTALS CATEGORY 0010	1

CONCRETE COLLARS FOR PIPE

STAGE	STATION	OFFSET	LOCATION	520.8000
				CONCRETE COLLARS FOR PIPE EACH
1	121+20	37' LT	W. MCKINLEY AVE	1
	121+25	38' LT	W. MCKINLEY AVE	1
	125+45	118' RT	W. MCKINLEY AVE	1
	404+00	33' LT	N. 4TH ST	1
SUBTOTAL				4
2	110+90	41' RT	W. MCKINLEY AVE	1
	112+50	10' LT	W. MCKINLEY AVE	1
	113+50	10' LT	W. MCKINLEY AVE	1
	113+52	12' LT	W. MCKINLEY AVE	1
SUBTOTAL				4
3	402+36	35' LT	N. 4TH ST	1
SUBTOTAL				1
TOTAL CATEGORY 0010				9

PERMANENT SIGNING

				637.2210	634.0616	634.0618		
				SIGNS TYPE II	POSTS WOOD	POSTS WOOD	SIGN MOUNTED	
SIGN #	SIGN CODE	SIGN SIZE IN		REFLECTIVE H SF	4X6-IN X 16 FT EACH	4X6-IN X 18 FT EACH	ON SAME POST AS	REMARKS
P100	R5-1A	42 X 30	WRONG WAY	8.75	1	--		
P101			ROUTE ASSEMBLY		--	--		
	M1-6	36 X 36	STH 145	9.00	--	1		
	M3-3	36 X 18	SOUTH	4.50	--	--		
	M6-1	30 X 30	RIGHT ARROW	6.25	--	--		
P102	R5-1	30 X 30	DO NOT ENTER	6.25	--	--	P101	MOUNT ON BACK
TOTALS CATEGORY 0010				34.75	1	1		

REMOVING SIGNS

		638.2602	638.3000		
		REMOVING	REMOVING		
		SIGNS	SMALL SIGN		
SIGN #	SIGN	TYPE II	SUPPORTS	SIGN MOUNTED	REMARKS
	CODE	EACH	EACH	ON SAME POST AS	
R101	J3-1	1	1		
R102	R5-1	1	--	R101	
TOTALS CATEGORY 0010					
		2	1		

TRAFFIC CONTROL COVERING SIGNS

		643.0920	
		TRAFFIC CONTROL COVERING SIGNS	
		TYPE II EACH	
LOCATION			
STAGE 1B		3	
STAGE 2		2	
TOTALS CATEGORY 0010		5	

TRAFFIC CONTROL DETOUR SIGNS

		643.3000		643.1050	
		TRAFFIC CONTROL DETOUR SIGNS		TRAFFIC CONTROL SIGNS PCMS	
		DURATION DAYS	NUMBER	DAYS	NUMBER DAYS
DETOUR (STAGE 2)		35	106	3710	-- --
STAGE 1A, 1B, 1C		61	--	--	1 61
TOTALS CATEGORY 0010		3710		61	

TRAFFIC CONTROL

		643.0200		643.2000	
		TRAFFIC CONTROL SURVEILLANCE AND MAINTENANCE (2126-00-70)		TRAFFIC CONTROL DETOUR (2126-00-70)	
PROJECT ID	DESCRIPTION	DAYS		EACH	
2126-00-70	MCKINLEY	116		1	
TOTALS CATEGORY 0010		116		1	

TRAFFIC CONTROL ITEMS

	603.8000		603.8125	614.0905	643.0300		643.0420		643.0705		643.0715		643.0800		643.0900		643.1000
	CONCRETE BARRIER			CRASH	TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL
	TEMPORARY PRECAST			CUSHIONS	DRUMS		BARRICADES		WARNING LIGHTS		WARNING LIGHTS		ARROW BOARDS		SIGNS		SIGNS
	DELIVERED	INSTALLED	TEMPORARY	TYPE III		TYPE A		TYPE C		FIXED MESSAGE							
	DAYS	LF	LF	EACH	NUMBER	DAYS	NUMBER	DAYS	NUMBER	DAYS	NUMBER	DAYS	NUMBER	DAYS	NUMBER	DAYS	SF
STAGE 1A	8	300	300	1	110	880	17	136	34	272	24	192	3	24	32	256	--
STAGE 1B	8	1500	1500	1	100	800	19	152	38	304	45	360	6	48	43	344	--
STAGE 1C	45	--	--	--	126	5670	16	720	32	1440	43	1935	5	225	45	2025	6
STAGE 2	35	938	938	1	109	3815	16	560	32	1120	41	1435	5	175	35	1225	--
STAGE 3	20	--	--	--	7	140	24	480	48	960	--	--	--	--	21	420	--
TOTALS CATEGORY 0010		2,738	2,738	3		11,305		2,048		4,096		3,922		472		4,270	6

3

REMOVING PAVEMENT MARKINGS

		646.0600 REMOVING PAVEMENT MARKINGS	647.0955 REMOVING PAVEMENT MARKING ARROWS	647.0965 REMOVING PAVEMENT MARKING WORDS
STATION TO STATION		LF	EACH	EACH
STAGE 1C				
	111+50 - 113+00	150	--	--
	114+00 - 121+35	184	--	--
	120+75 - 121+35	60	--	--
	122+35 - 125+50	79	--	--
	124+90 - 125+50	60	--	--
STAGE 2A				
	110+15 - 111+50	135	--	--
STAGE 2B				
	112+85 - 113+60	75	--	--
STAGE 2C				
	110+00 - 113+60	90	--	--
STAGE 3				
	100+00 - 125+30	1,421	7	4
TOTALS CATEGORY 0010		2,254	7	4

TEMPORARY PAVEMENT MARKING

	649.0400 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH WHITE LF
STAGE 1A	1,248
STAGE 1B	2,006
STAGE 1C	980
STAGE 2	1,709
STAGE 3	--
TOTALS CATEGORY 0010	5,943

SAWCUTS

	690.0150 SAWING ASPHALT LF	690.0250 SAWING CONCRETE LF
STAGE 1	156	2,209
STAGE 2	--	520
STAGE 3	339	395
TOTALS CATEGORY 0010	495	3,124

EXPOSING EXISTING INFRASTRUCTURE

SPV.0060.0010 EXPOSING EXISTING INFRASTRUTURE PAVED AREA		SPV.0060.0011 EXPOSING EXISTINGINFRASTRUTURE UNPAVED AREA
PROJECT ID	EACH	EACH
UNDISTRIBUTED	8	3
TOTALS CATEGORY 0010	8	3

PAVEMENT MARKING

	602.0505 CURB RAMP DETECTABLE WARNING FIELD YELLOW SF	646.0106 PAVEMENT MARKING EPOXY 4-INCH WHITE LF	646.0126 PAVEMENT MARKING EPOXY 8-INCH LF	647.0156 PAVEMENT MARKING ARROWS EPOXY TYPE 1 EACH	647.0166 PAVEMENT MARKING ARROWS EPOXY TYPE 2 EACH	647.0186 PAVEMENT MARKING ARROWS EPOXY TYPE 4 EACH	647.0356 PAVEMENT MARKING WORDS EPOXY EACH	647.0576 PAVEMENT MARKING STOP LINE EPOXY 24-INCH LF	647.0776 PAVEMENT MARKING CROSSWALK EPOXY 12-INCH LF
STAGE 1	80	494	--	120	--	3	--	2	768
STAGE 2	20	661	323	576	3	7	3	4	62
STAGE 3	--	45	--	--	--	--	--	--	--
SUBTOTALS		1,200	323						
TOTALS CATEGORY 0010	100	1,523	696	3	10	3	6	62	1,180

PAVEMENT CLEANUP

SPV.0075.0001 PAVEMENT CLEANUP (2126-00-70)	
PROJECT	DESCRIPTION
2126-00-70	MCKINLEY
TOTAL CATEGORY 0010	16

SURVEY PROJECT

SPV.0105.0001 SURVEY PROJECT (2126-00-70)	
PROJECT ID	DESCRIPTION
2126-00-70	MCKINLEY
TOTAL CATEGORY 0010	1

CONCRETE PAVEMENT JOINT LAYOUT

SPV.0105.0003 CONCRETE PAVEMENT JOINT LAYOUT	
PROJECT ID	DESCRIPTION
2126-00-70	MCKINLEY
TOTAL CATEGORY 0010	1

ATC THERMAL BACKFILL

SPV.0105.0004 ATC THERMAL BACKFILL	
PROJECT ID	DESCRIPTION
2126-00-70	MCKINLEY
TOTAL CATEGORY 0010	1

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CITY OF MILWAUKEE - WATER											
		SPV.0060.5000	SPV.0060.5001	SPV.0090.5002	SPV.0090.5003	SPV.0090.5004	SPV.0090.5005	SPV.0090.5006			
		REMOVING HYDRANT	INSTALL HYDRANT	DUCTILE IRON HYDRANT BRANCH 6-INCH	DUCTILE IRON WATER MAIN 8-INCH	DUCTILE IRON WATER MAIN 30-INCH	REMOVE WATER MAIN	DUCTILE IRON WATER MAIN 12-INCH			
ROADWAY	STATION	OFFSET TO	STATION	OFFSET	EACH	EACH	LF	LF	LF	LF	LF
<u>N. 5TH ST.</u>	1+60.25	38.1'LT	--	--	1	--	--	--	--	--	--
	1+33.93	23.2'LT	--	--	--	1	12	--	--	--	--
	1+30.64	11.5'LT	1+78.50	11.2'LT	--	--	--	54	--	48	--
<u>N. 4TH ST.</u>	403+81.96	3.4'RT	404+44.36	4.5'RT	--	--	--	--	63	63	--
<u>N. 6TH ST.</u>	353+75.63	36.5'LT	354+48.59	16.'LT	--	--	--	--	85	80	--
	353+98.87	38.'RT	--	--	--	1	--	--	--	--	5
	354+32.26	55.8'RT	--	--	1	--	--	--	--	--	--
	353+98.87	38.'RT	354+66.70	40.4'RT	--	--	73	--	--	--	--
<u>W. MCKINLEY AVE.</u>	110+37.71	53.5'RT	--	--	--	1	--	--	--	--	5
	110+37.71	53.5'RT	110+72.44	5'RT	--	--	63	--	--	--	--
TOTALS CATEGORY 0020					2	3	148	54	148	191	10

Traffic Signal Items

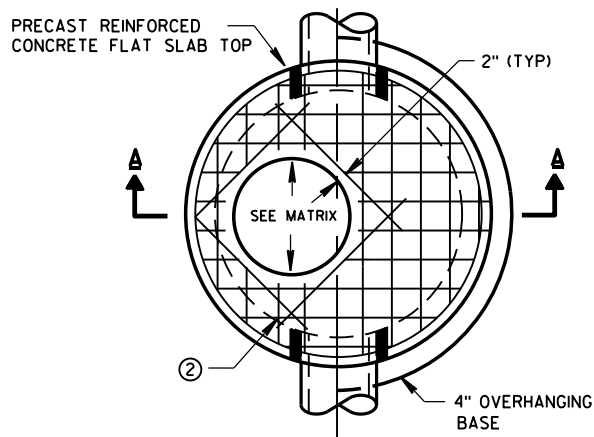
	Bid Item	Description	Unit	Quantity
	209.0100 *	Backfill Granular	CY	5
	650.8500	Construction Staking Electrical Installations (Project)	LS	1
	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	70
	652.0230	Conduit Rigid Nonmetallic Schedule 40 2 1/2-Inch	LF	225
	652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	1265
	652.0615	Conduit Special 3-Inch	LF	815
	SPV.0060.3000	Rectangular Polymer Concrete Vault 17"x30"x18"	Each	22
	SPV.0060.3001	Install 18" Dia x 6 Ft Cylindrical Column Form	Each	5
	SPV.0060.3002	Install Traffic Signal Base	Each	4
	SPV.0060.3003	Spread Footing Base for A-31 Bolt Down Conc Pole	Each	7
	SPV.0060.3004	Spread Footing Base for Downtown Style Harp Pole	Each	6

* Additional Quantities Listed Elsewhere, See "Earthwork Summary"

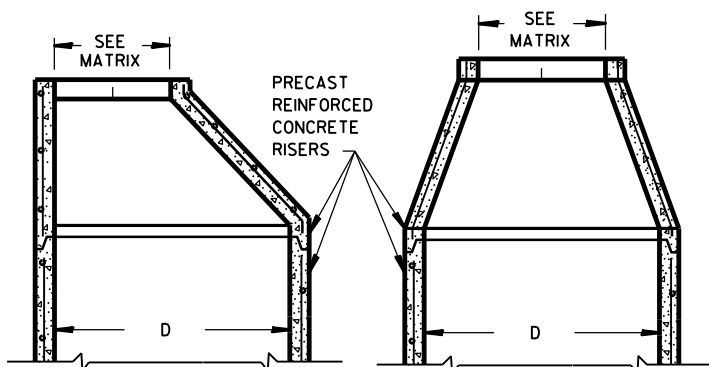
All Items Category 0030

Standard Detail Drawing List

08B09-01	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08C06-01	INLETS 3-FT AND 4-FT DIAMETER
08D05-16A	CURB RAMPS TYPES 1 AND 1-A
08D05-16B	CURB RAMPS TYPES 2 AND 3
08D05-16C	CURB RAMPS TYPES 4A AND 4A1
08D05-16D	CURB RAMPS TYPE 4B AND 4B1
08D05-16E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08D15-05A	EDGEDRAIN OUTLET AND OUTFALL MARKERS
08D15-05B	EDGEDRAIN AND BASE AGGREGATE OPEN GRADED
08D16-10	CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E14-01	TRACKING PAD
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F05-01	CLASS "B" BEDDING FOR CULVERT PIPE OR STORM SEWER
11B02-02	CONCRETE MEDIAN NOSE
13C01-18	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C13-08	URBAN DOWELED CONCRETE PAVEMENT
13C18-03A	CONCRETE PAVEMENT JOINTING
13C18-03B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-03C	CONCRETE PAVEMENT JOINT TIES
13C18-03D	CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES
14B07-14A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
15C03-03	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C07-12B	PAVEMENT MARKING WORDS
15C07-12C	PAVEMENT MARKING ARROWS
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C08-16B	PAVEMENT MARKING (INTERSECTIONS)
15C08-16E	PAVEMENT MARKING (LEFT TURN LANE)
15C33-01	STOP LINE AND CROSSWALK PAVEMENT MARKING
15D20-03	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D21-03	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D22-02	TRAFFIC CONTROL, TWO LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D23-03	TRAFFIC CONTROL, INTERSECTION WITHIN TWO LANE CLOSURE
15D38-01A	TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS
15D38-01B	ATTACHMENT OF SIGNS TO POSTS

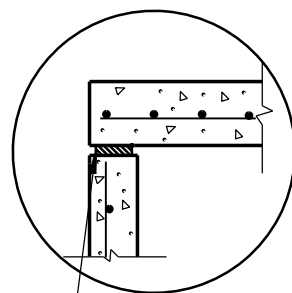


PLAN VIEW CIRCULAR OPENING

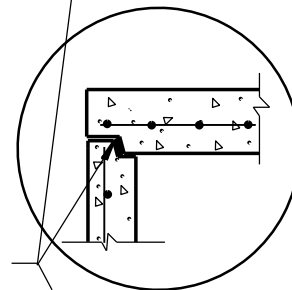


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

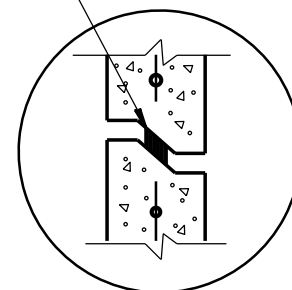
OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP



TOP WITH PLAIN END JOINT



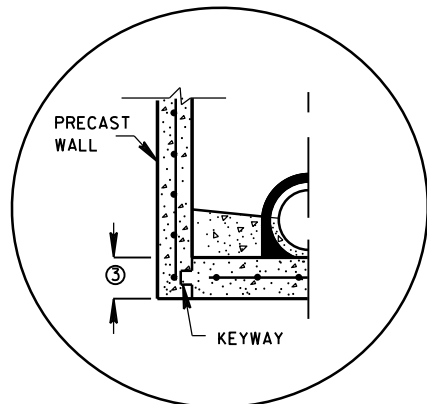
TOP WITH TONGUE AND GROOVE JOINT



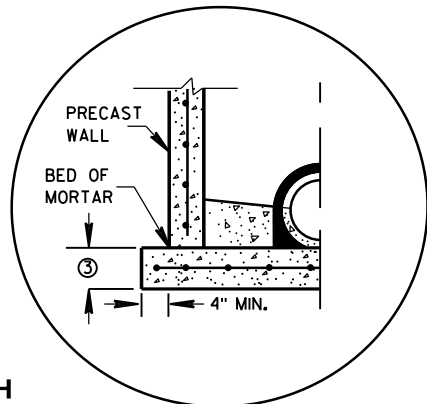
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

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

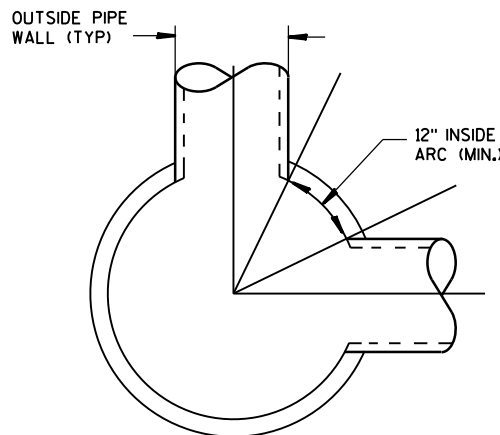


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

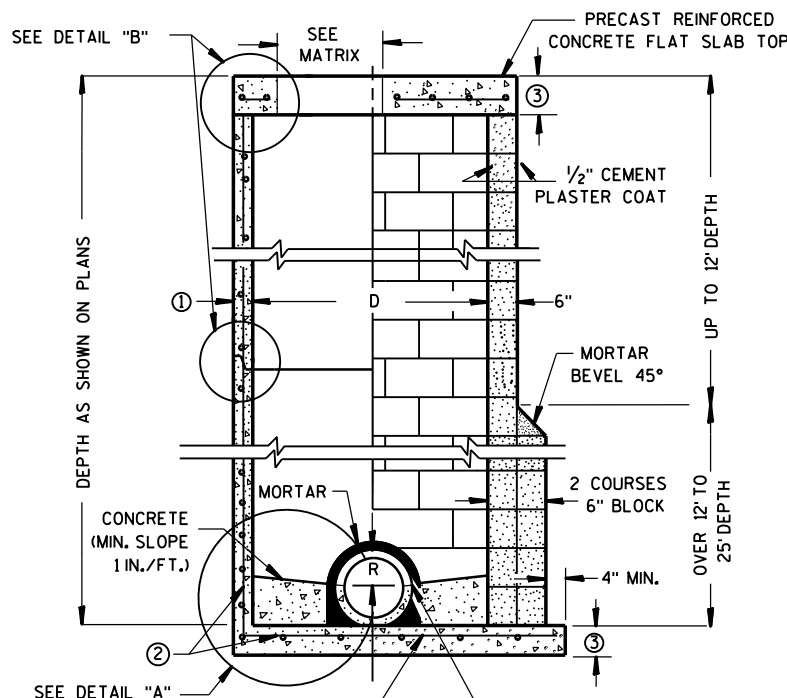


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"



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

SPLIT PIPE OR FORM CONCRETE TO FIT

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 GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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

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

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

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

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

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

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

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

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

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN 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

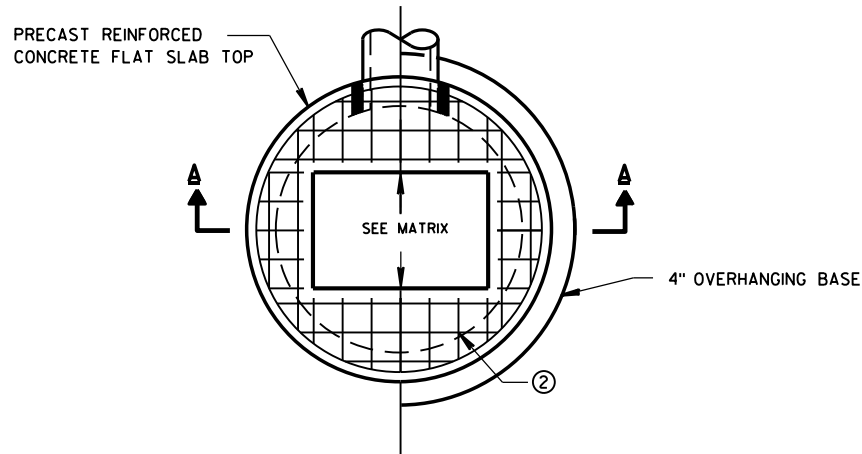
PIPE MATRIX

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

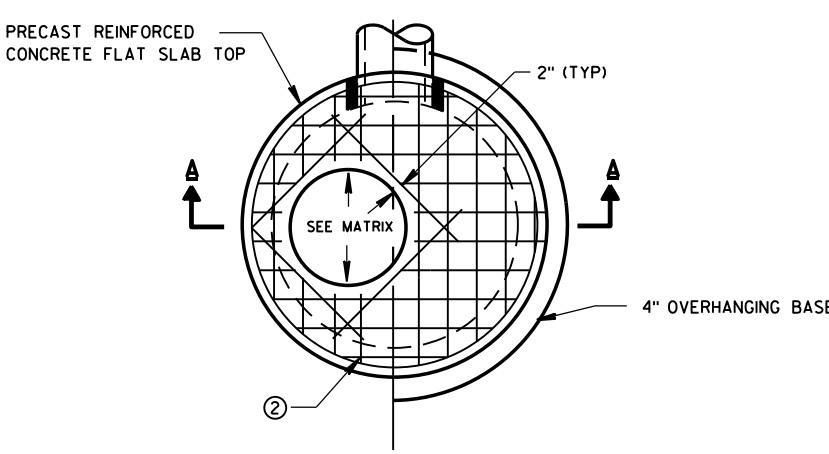
MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

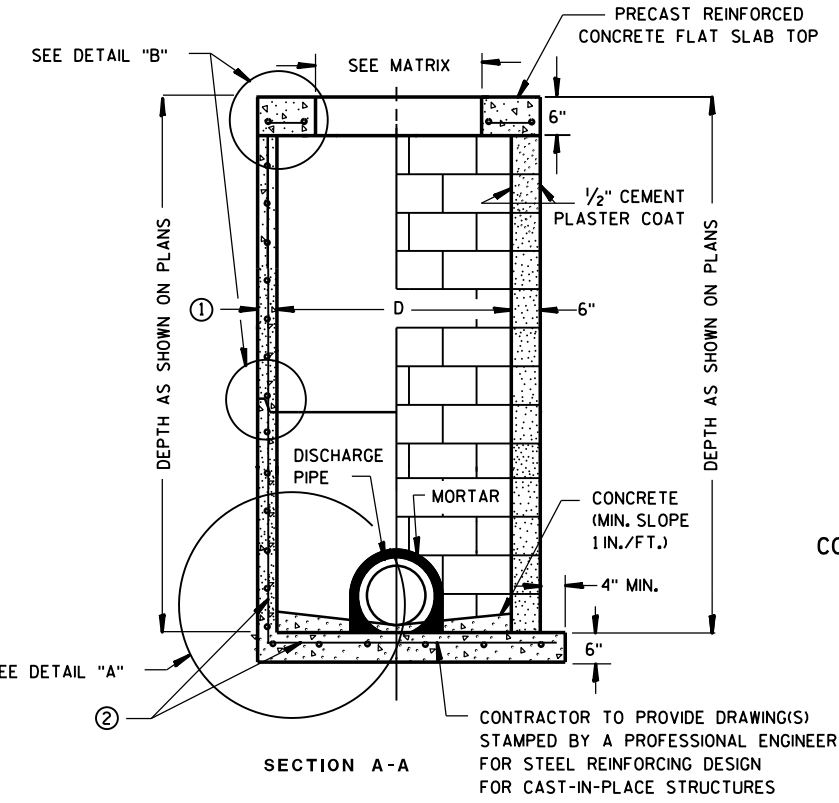
APPROVED
6/5/2012 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 117
FHWA



PLAN VIEW RECTANGULAR OPENING



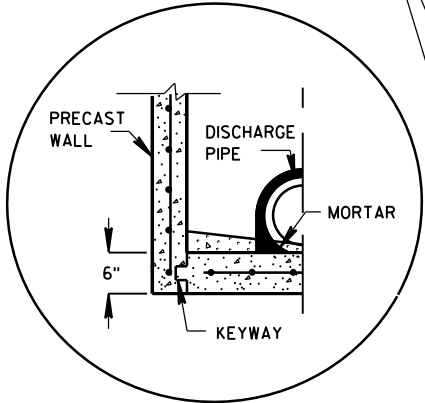
PLAN VIEW CIRCULAR OPENING



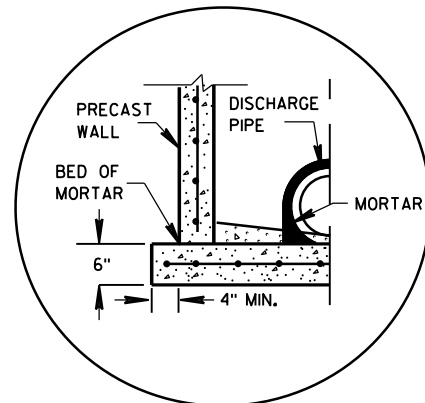
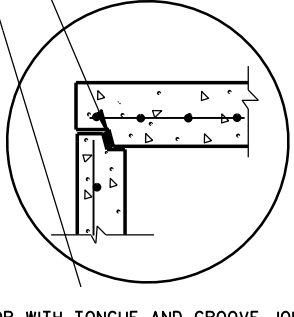
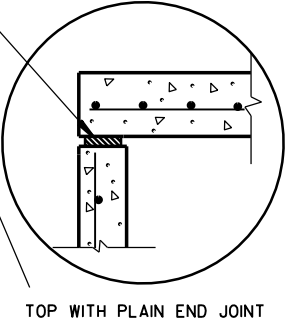
PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE **CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②**

CIRCULAR INLETS W/ FLAT TOP

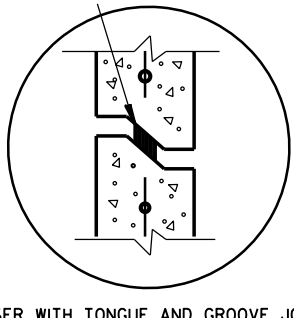
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)



PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION



RISER WITH TONGUE AND GROOVE JOINT

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 GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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

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.

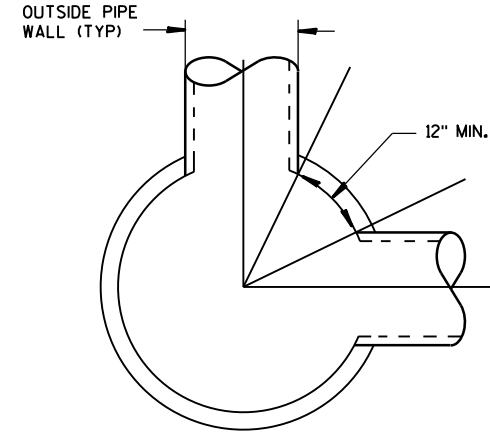
4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

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	X	X	
	2X2.5			X								
	2X3						X					
	2.5X3					X						



DETAIL "C"

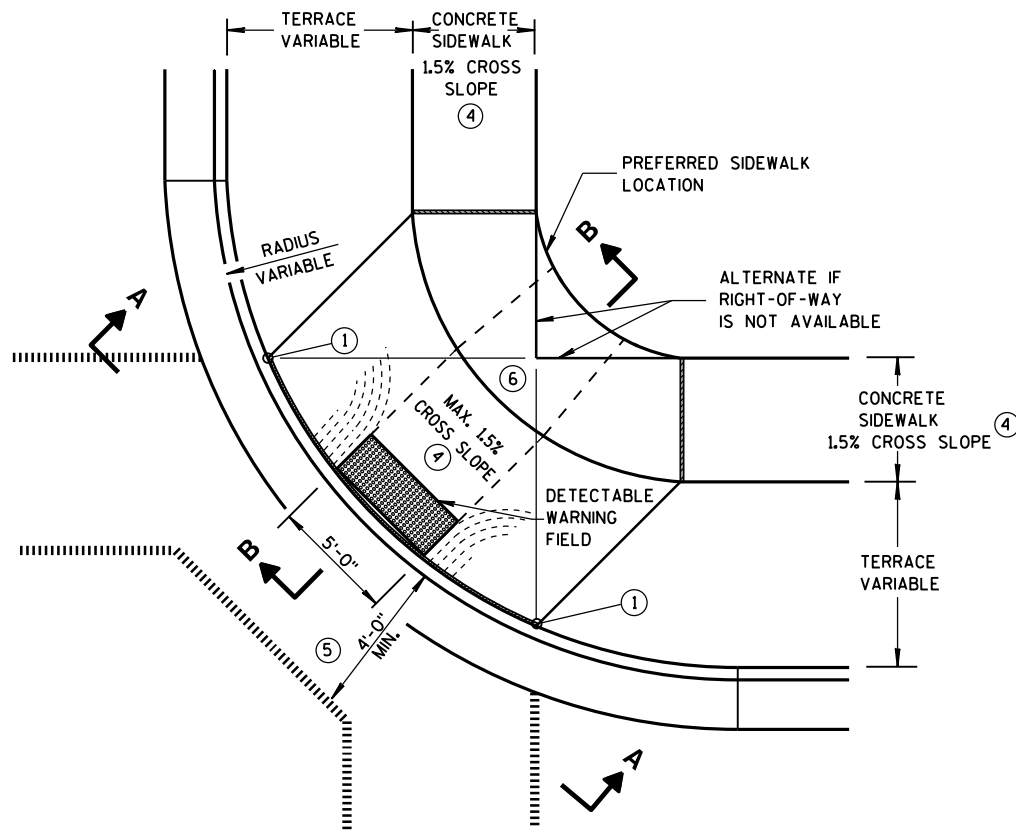
PIPE MATRIX

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

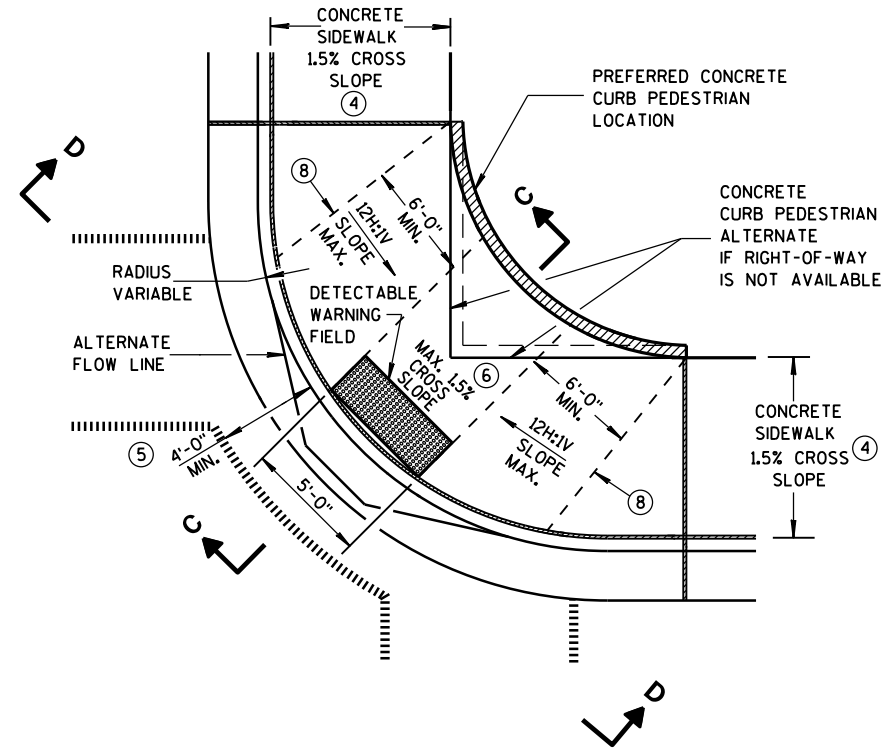
INLETS 3-FT AND 4-FT DIAMETER

**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION**

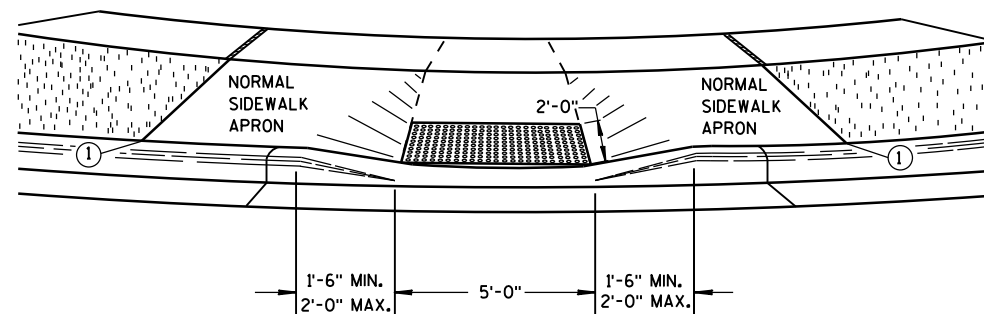
APPROVED
6/5/2012 DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER 118
FHWA



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

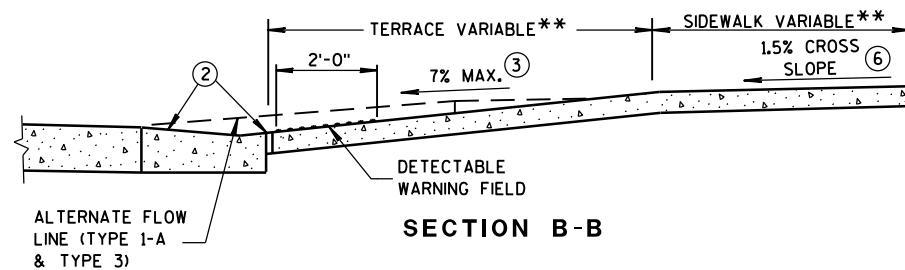


**PLAN VIEW
TYPE 1-A RAMP**
(NO TERRACE)

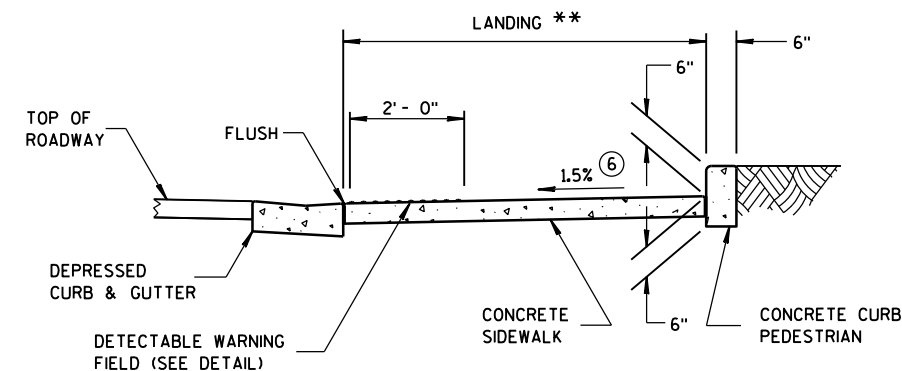


VIEW A-A

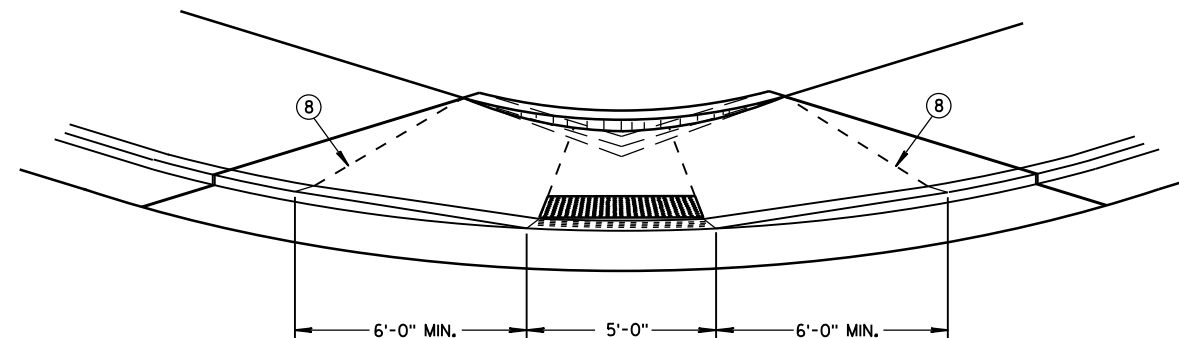
** WIDTH SHOWN ELSEWHERE
IN THE PLANS



SECTION B-B



SECTION C-C



VIEW D-D

GENERAL NOTES

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

WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

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

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

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

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

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

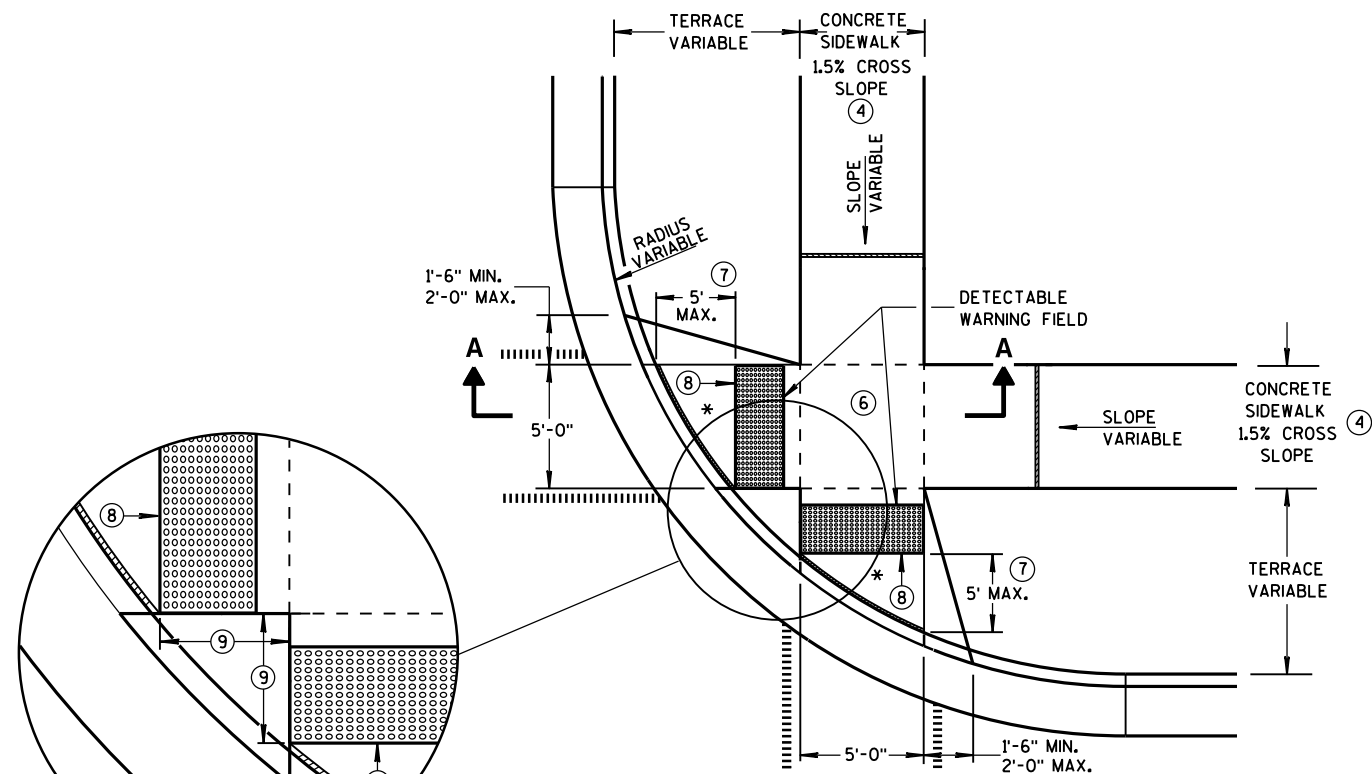
- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO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

LEGEND

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

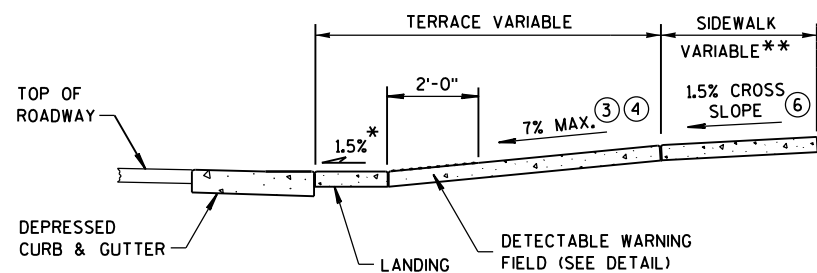
**CURB RAMPS
TYPES 1 AND 1-A**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 119



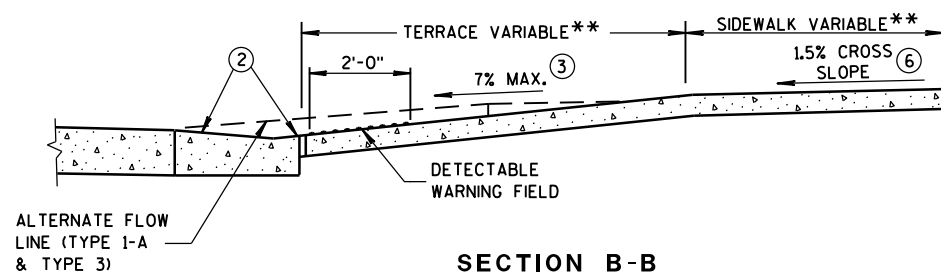
**PLAN VIEW
TYPE 2 RAMP**
(ON LINE WITH SIDEWALK)

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



SECTION A-A

** WIDTH SHOWN ELSEWHERE
IN THE PLANS



SECTION B-B

GENERAL NOTES

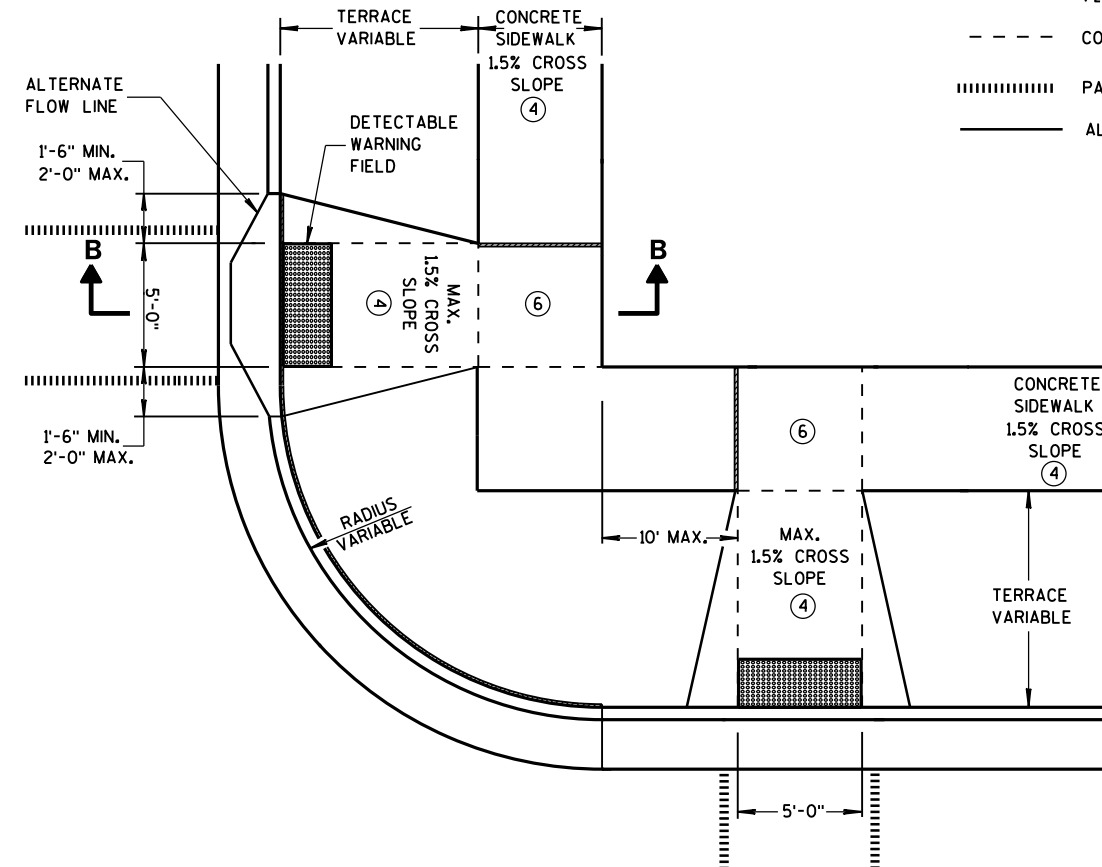
USE THE TYPE 3 RAMP ONLY WHEN A TYPE 1 OR TYPE 2 CANNOT BE ACHIEVED BECAUSE OF FIELD CONDITIONS.

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

- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.
- ③ ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).
- ⑦ WHEN THIS DISTANCE EXCEEDS 5 FEET, USE MULTIPLE DETECTABLE WARNING PANELS ACROSS THE RAMP AND STAGGER ADDITIONAL DETECTABLE WARNING PANEL(S) FORWARD TO REDUCE THIS DISTANCE.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑨ WHEN THIS DISTANCE IS LESS THAN 6'-0", IT MAY BE DIFFICULT TO ACHIEVE A 7% SLOPE OR FLATTER ALONG THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 7% SLOPE OR FLATTER ON RAMP. 2" MINIMUM CURB HEIGHT.

LEGEND

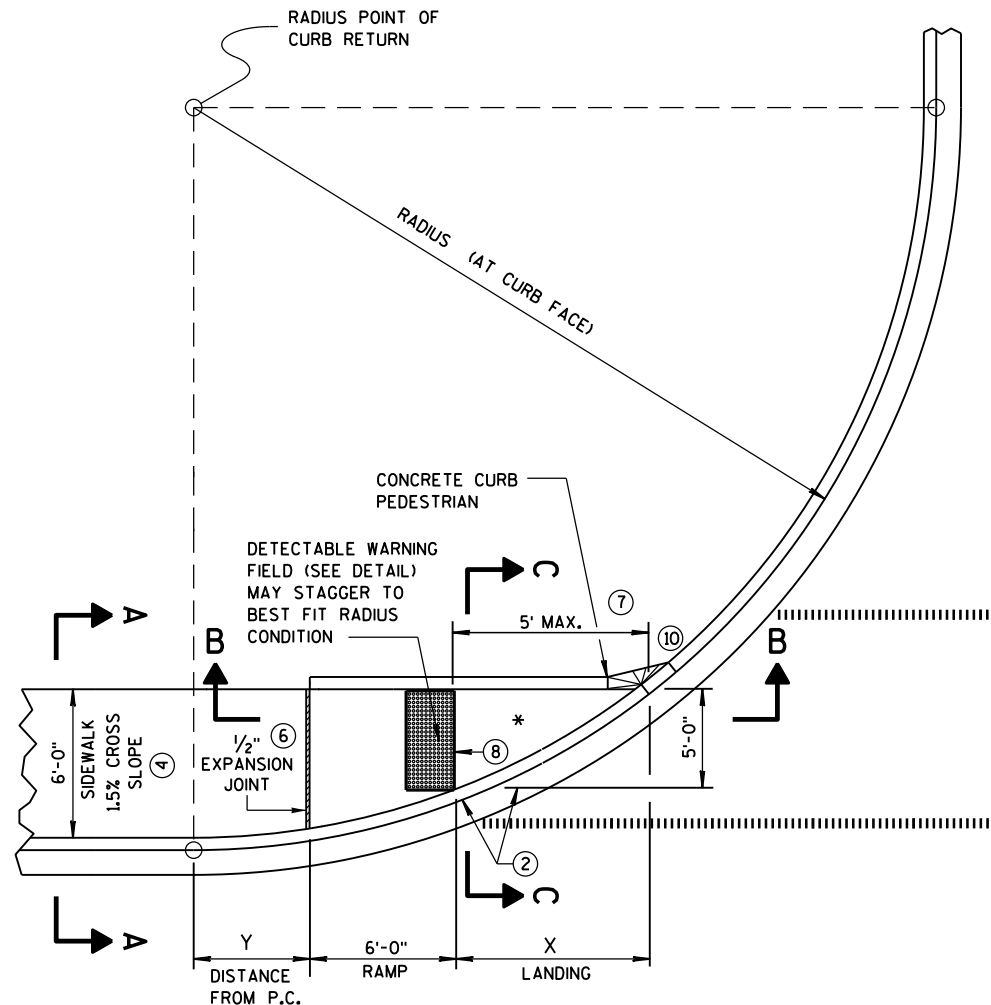
- 1/2" EXPANSION JOINT-SIDEWALK
- - - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



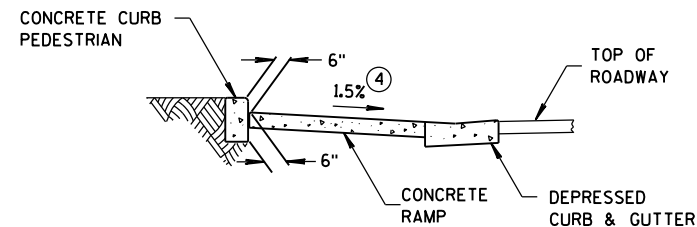
**PLAN VIEW
TYPE 3 RAMP**
(OUTSIDE OF CROSSWALK AREA)

**CURB RAMPS
TYPES 2 AND 3**

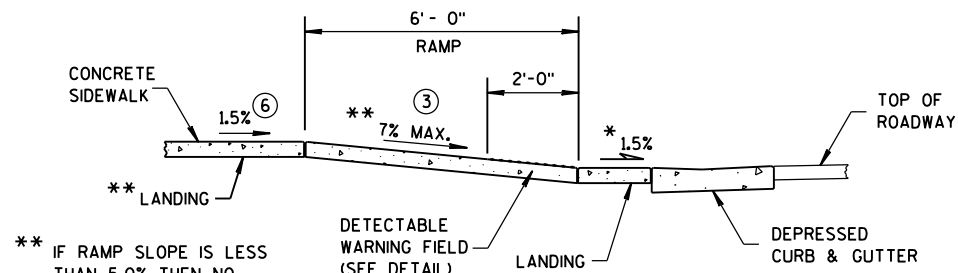
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 120



CURB RAMP TYPE 4A
PLAN VIEW



SECTION C-C FOR TYPE 4A



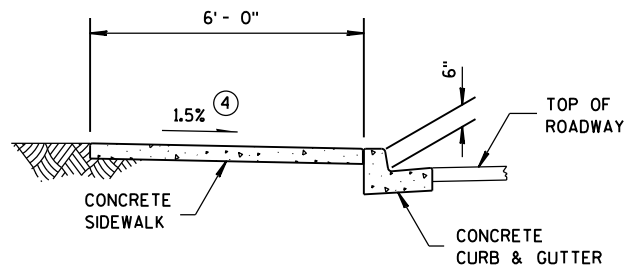
SECTION B-B FOR TYPE 4A

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

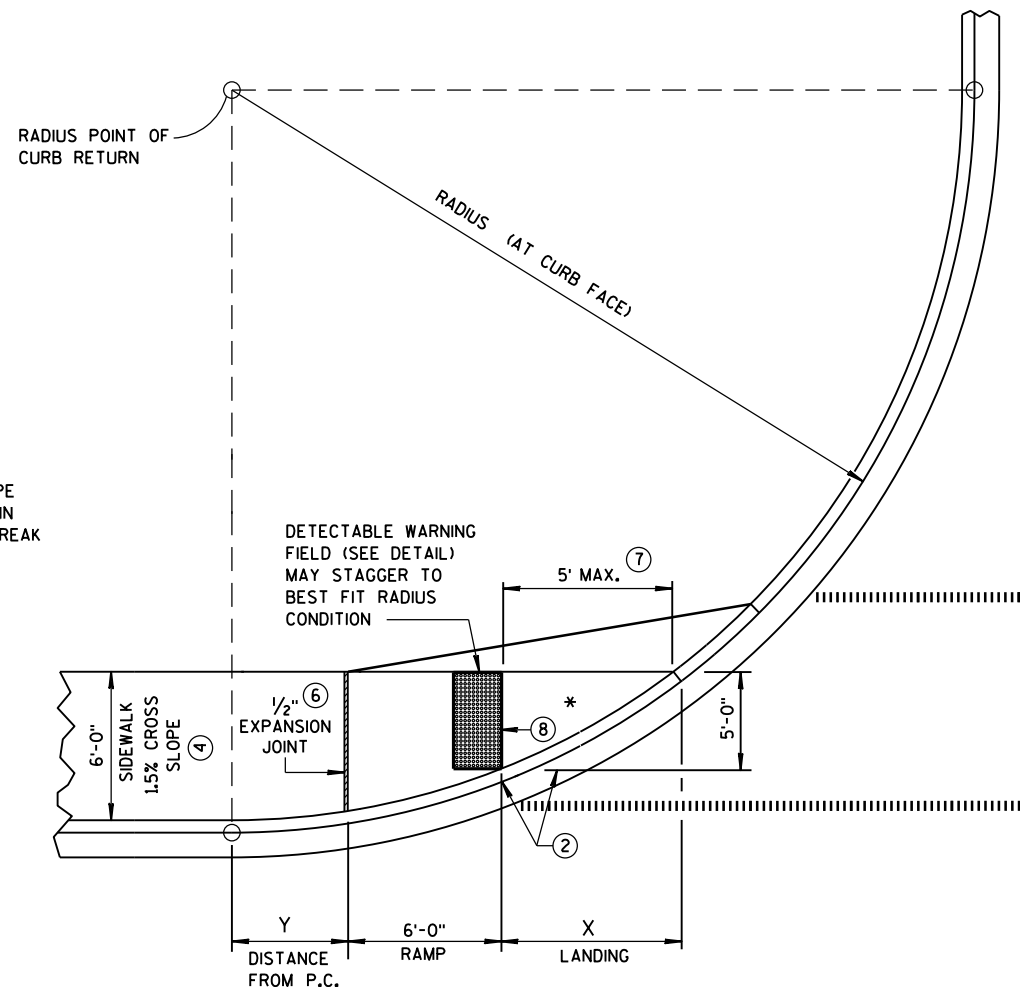
* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK

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

INTERMEDIATE RADII CAN BE INTERPOLATED



SECTION A-A FOR TYPE 4A



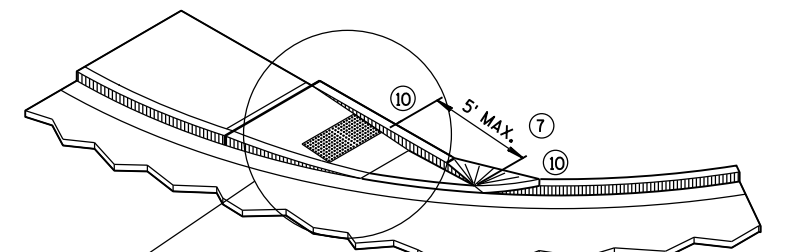
CURB RAMP TYPE 4A1
PLAN VIEW

GENERAL NOTES

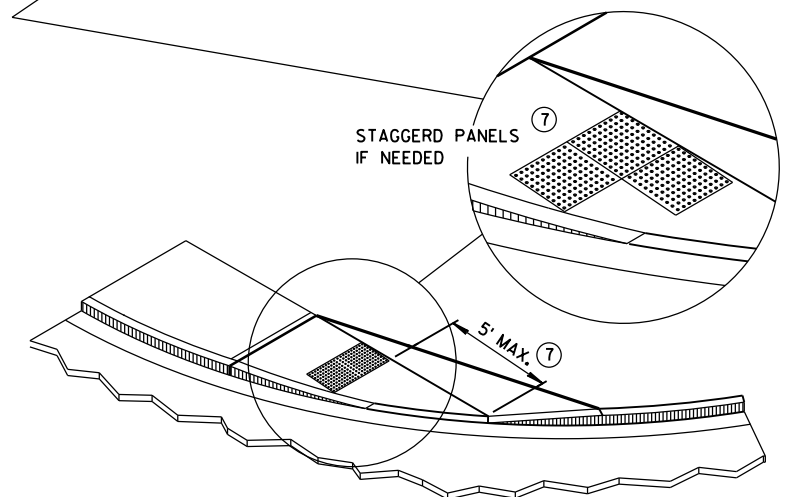
AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

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

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



ISOMETRIC VIEW FOR TYPE 4A



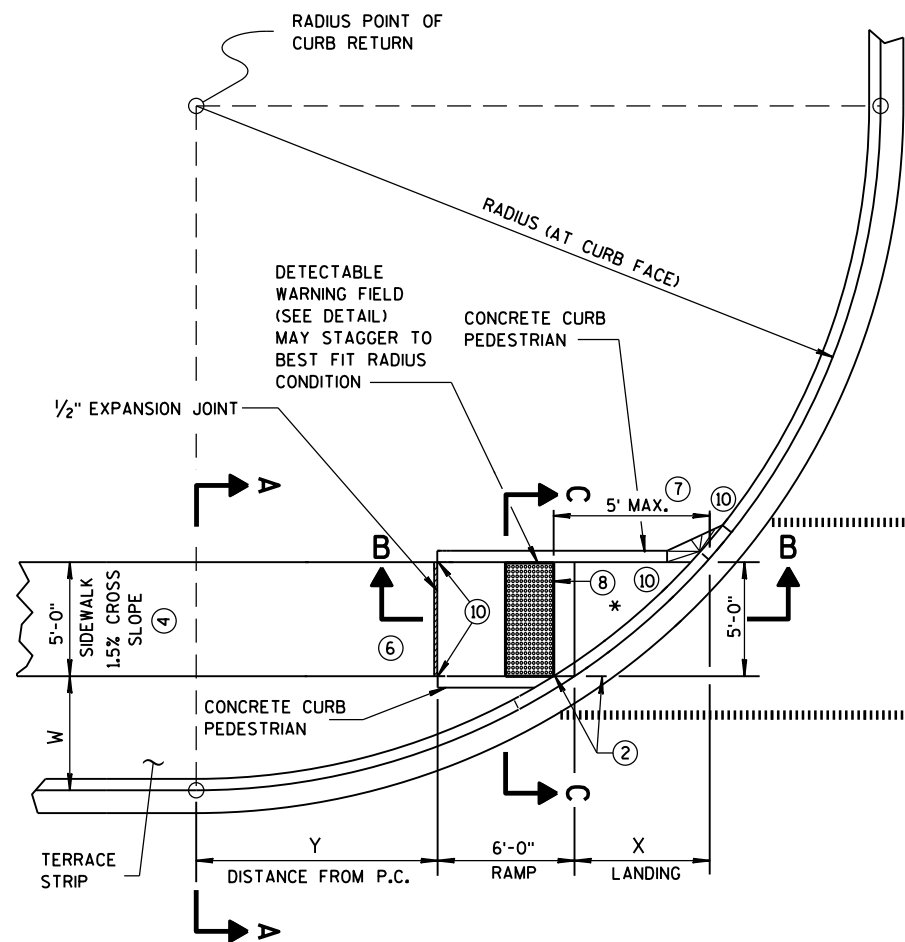
ISOMETRIC VIEW FOR TYPE 4A1

LEGEND

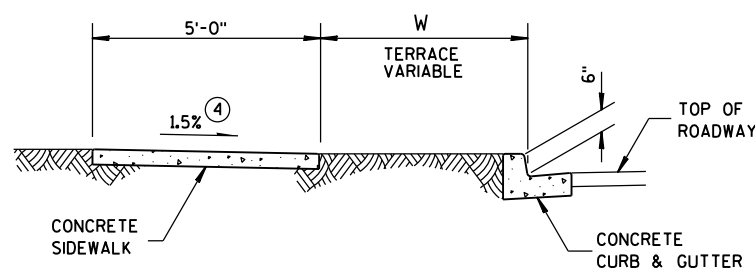
- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS
TYPES 4A AND 4A1

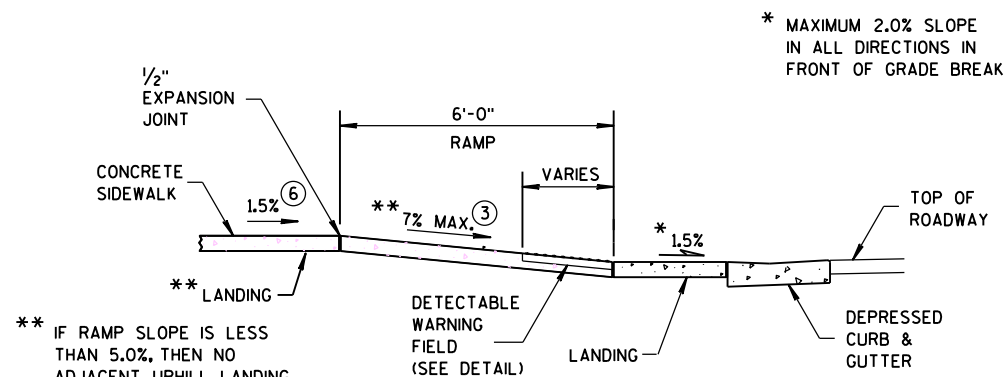
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 121



**CURB RAMP TYPE 4B
PLAN VIEW**

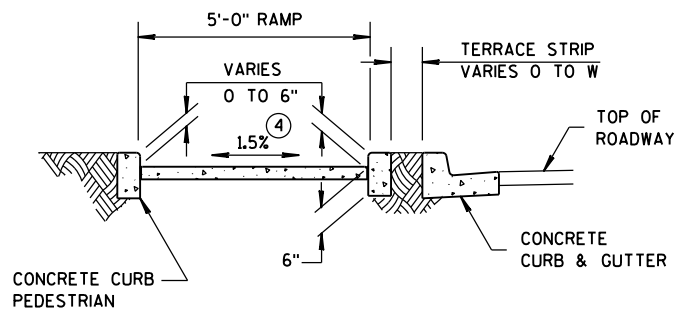


SECTION A-A FOR TYPE 4B

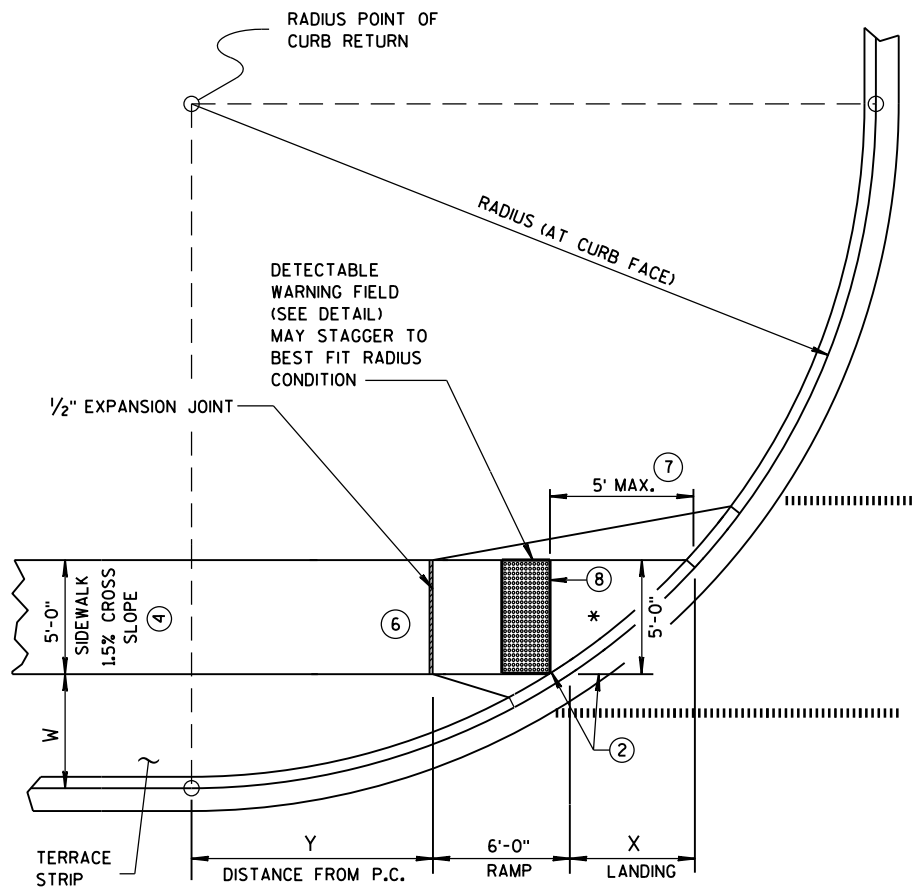


SECTION B-B FOR TYPE 4B

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



SECTION C-C FOR TYPE 4B

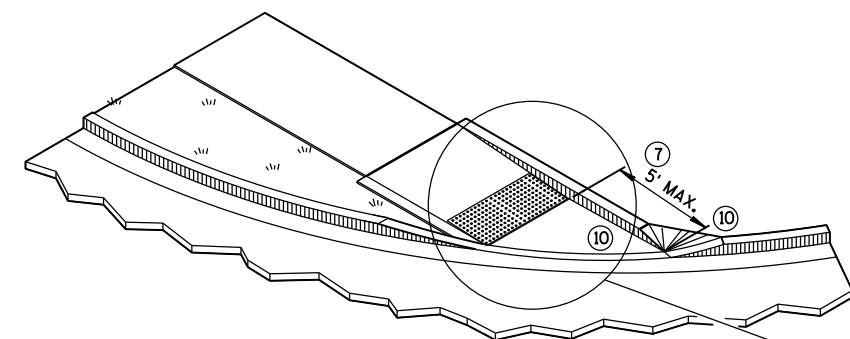


**CURB RAMP TYPE 4B1
PLAN VIEW**

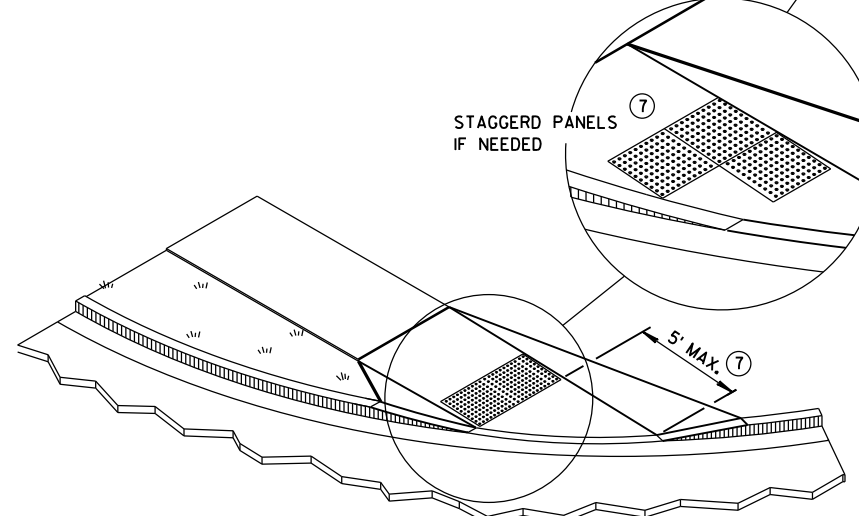
RADIUS (AT CURB FACE)	W = 3' - 0"		W = 4' - 0"		W = 5' - 0"		W = 6' - 0"		W = 7' - 0"	
	X	Y	X	Y	X	Y	X	Y	X	Y
20 FEET	5'-5 1/2"	4'-6 1/2"	4'-8 1/2"	6'-0"	4'-1"	7'-2 3/4"	3'-7"	8'-3 1/2"	3'-1 1/2"	9'-2 1/2"
30 FEET	7'-3 3/4"	7'-1"	6'-5 1/2"	8'-11 1/2"	5'-9 1/4"	10'-7"	5'-2 1/2"	12'-0"	4'-8 3/4"	13'-3 1/4"
40 FEET	8'-9 1/2"	9'-2 1/2"	7'-10"	11'-5 1/4"	7'-1"	13'-4 1/2"	6'-5 3/4"	15'-3/4"	5'-11 1/2"	16'-7 1/4"
50 FEET	10'-3/4"	11'-3/4"	9'-1/4"	13'-7 1/4"	8'-2 1/2"	15'-9 1/2"	7'-6 1/2"	17'-9"	6'-11 3/4"	19'-6 1/4"
60 FEET	11'-2 1/2"	12'-8 3/4"	10'-3/4"	15'-6 1/2"	9'-2 1/4"	17'-11 3/4"	8'-5 3/4"	20'-1 3/4"	7'-10 1/2"	22'-1 1/2"

GENERAL NOTES

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



ISOMETRIC VIEW FOR TYPE 4B



ISOMETRIC VIEW FOR TYPE 4B1

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



*** DETAILS TO BE DETERMINED
BY DESIGNER



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

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



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

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



TRUNCATED DOME DETECTABLE WARNING PATTERN DETAIL



DETECTABLE WARNING FIELD (TYPICAL)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
FHWA

/s/ Jerry H. Zogg
ROADWAY STANDARDS & ENGINEERING
123 ENT

6

S.D.D. 8 D 5-16e

6

SD D 8 D 5-16e

GENERAL NOTES

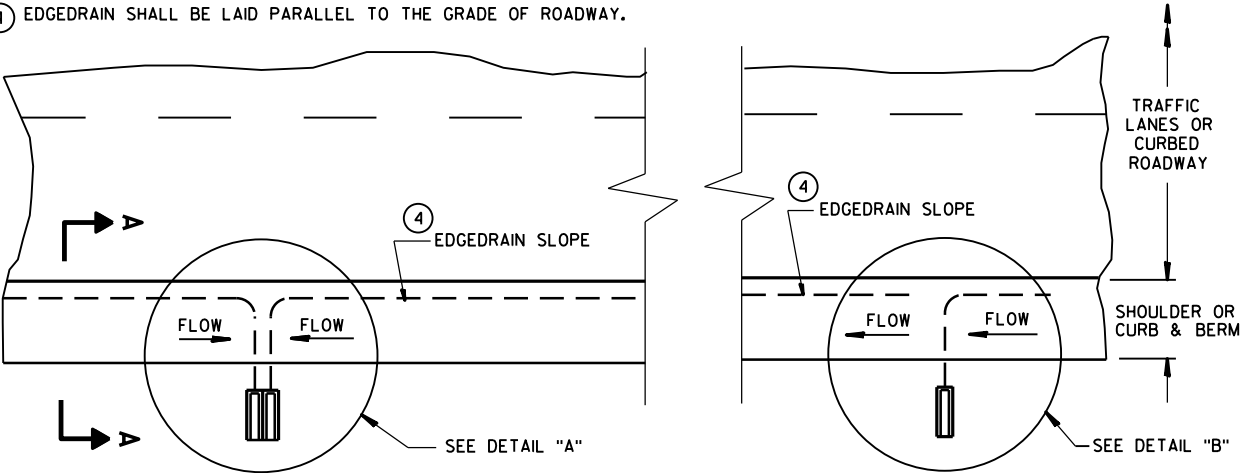
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① UNPERFORATED PIPE UNDERDRAIN AND FITTINGS FURNISHED FOR OUTFALL PIPE SHALL MEET THE REQUIREMENTS OF ONE OF THE FOLLOWING SPECIFICATIONS:

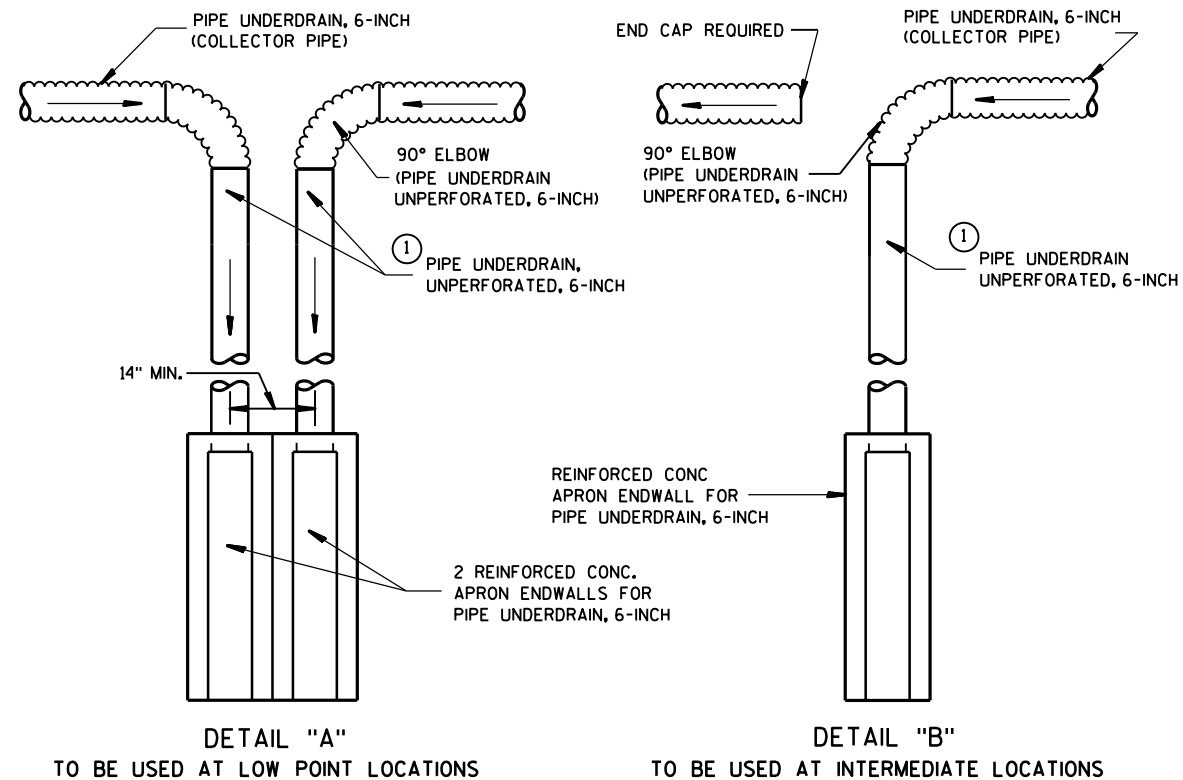
POLYVINYL CHLORIDE (PVC) PLASTIC DRAIN, WASTE, AND VENT PIPE AND FITTINGS, ASTM D 2665, SCHEDULE 40 PVC.

TYPE PSM POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS, ASTM D 3034, SDR 23.5 PVC SEWER PIPE.

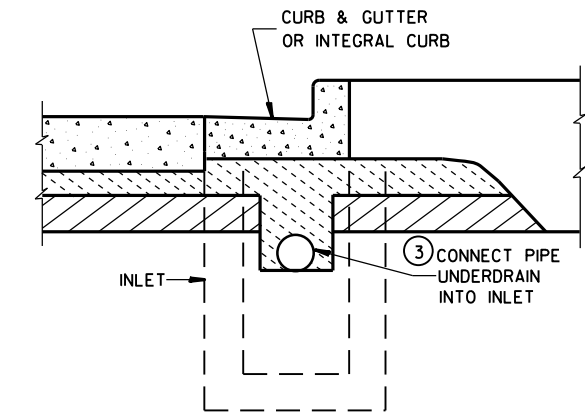
- ② MAXIMUM SPACING OF EDGEDRAIN OUTLETS SHALL BE 250 FEET UNLESS OTHERWISE SPECIFIED IN THE CONTRACT OR DIRECTED BY THE ENGINEER.
- ③ EDGEDRAIN SHALL BE CONNECTED TO INLETS REGARDLESS OF FLOW DIRECTION FOR DRAINAGE AND MAINTENANCE ACCESS.
- ④ EDGEDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF ROADWAY.



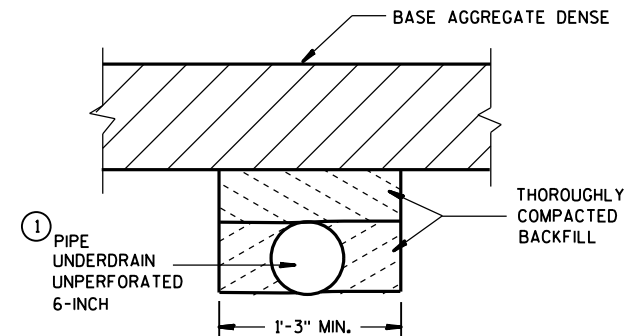
PLAN VIEW
ROADWAY WITH SHOULDERS OR CURBS
(EDGEDRAIN OUTLETS TO ROADSIDE) ②



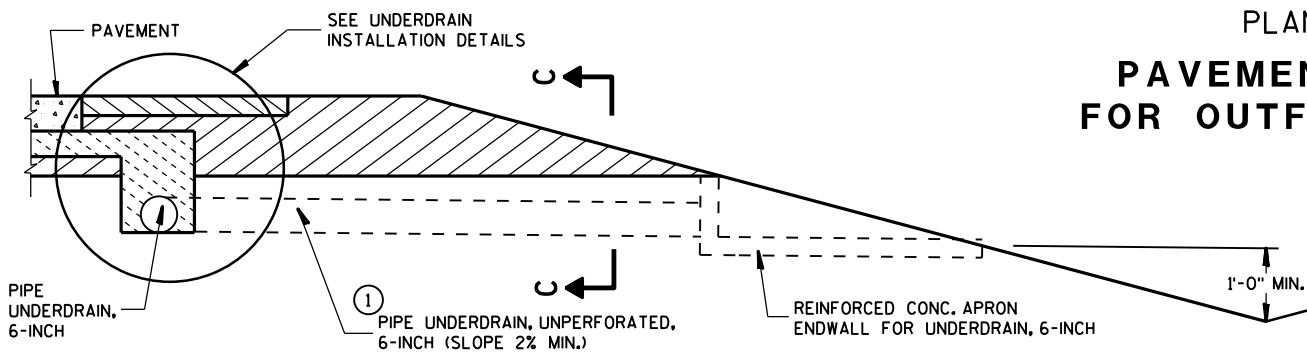
TYPICAL DRAIN OUT DETAILS



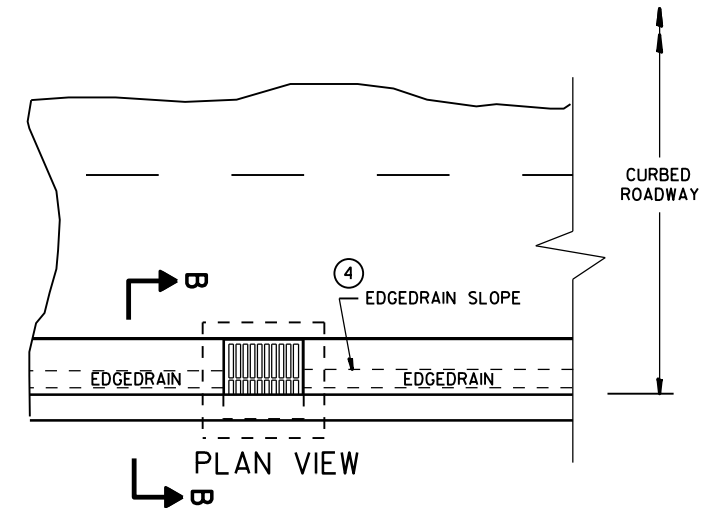
SECTION B-B
URBAN CROSS SECTION



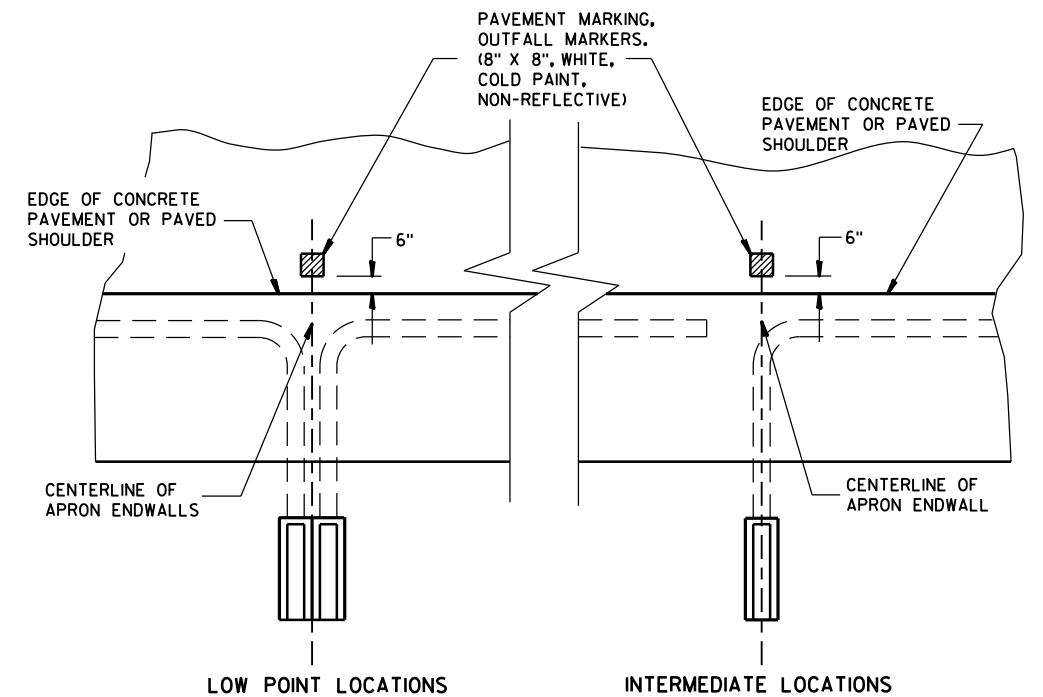
SECTION C-C
(TRENCH FOR OUTFALL PIPE)



SECTION A-A
RURAL CROSS SECTION



ROADWAY WITH CURBS
(EDGEDRAIN CONNECTS INTO INLET STRUCTURE)



PLAN VIEW
**PAVEMENT MARKING
FOR OUTFALL MARKERS**

**EDGEDRAIN OUTLET
AND OUTFALL MARKERS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 124

THE DIMENSIONS SHOWN ON THE TYPICAL CROSS SECTIONS WILL GOVERN IN THE EVENT THERE IS A CONFLICT WITH THE DETAILS SHOWN ON THIS DRAWING.

① FOLD OVER EXCESS GEOTEXTILE FABRIC AT THIS LOCATION.

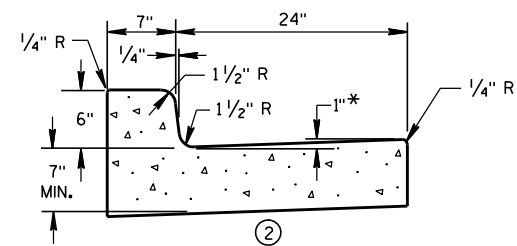
② TOTAL FABRIC WIDTH IS 6'-3" FOR PAYMENT.



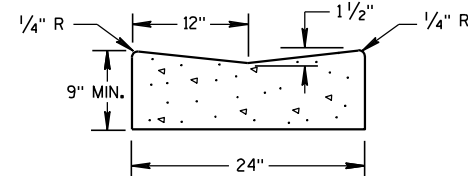
EDGEDRAIN AND BASE
AGGREGATE OPEN GRADED

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

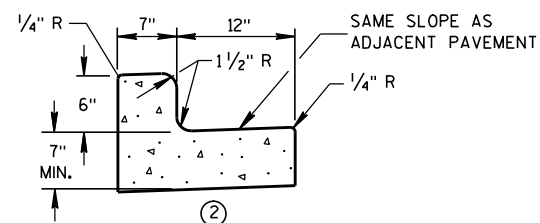
APPROVED
Sept. 2015 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPE 125
FHWA



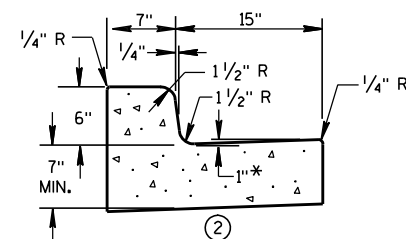
① CONCRETE CURB & GUTTER 31"



① CONCRETE GUTTER 24"

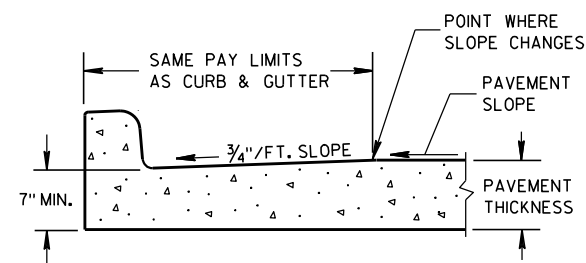


① CONCRETE CURB & GUTTER 19"

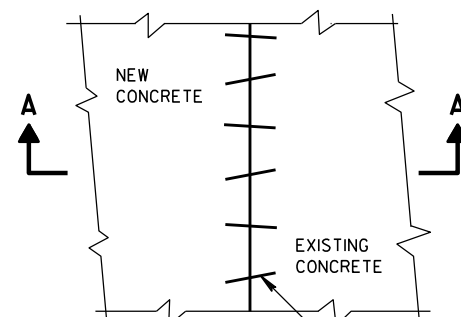


① CONCRETE CURB & GUTTER 22"

* TO BE MEASURED TO A MAXIMUM OF 3" WHERE DRAINAGE PROBLEMS EXIST.

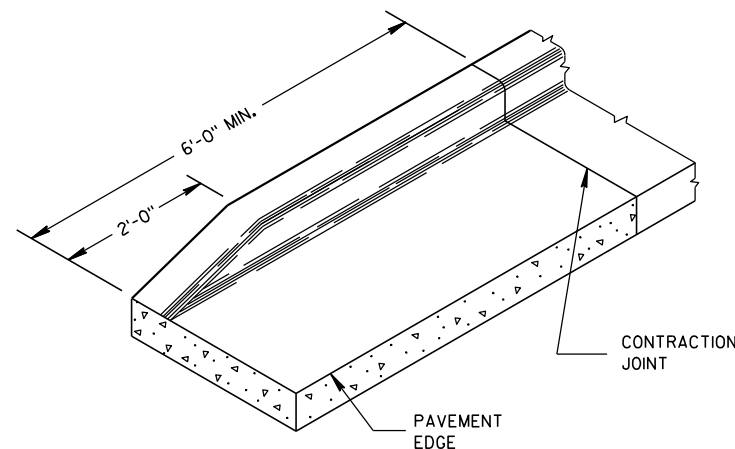


PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER

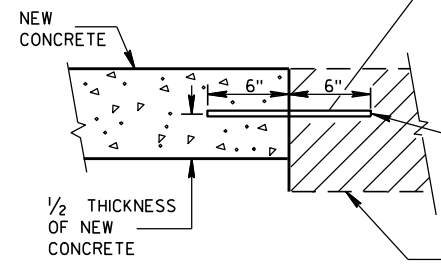


PLAN VIEW

EXISTING AND NEW CONCRETE MAY BE CURB & GUTTER, SURFACE DRAIN, PAVEMENT OR OTHER CONCRETE STRUCTURE.



END SECTION CURB & GUTTER



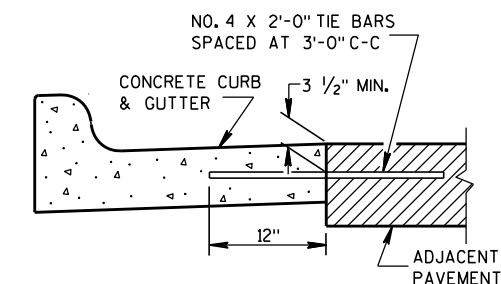
SECTION A-A
PAVEMENT TIES

NO. 6 X 12" DEF. BARS SPACED 3'-0" C-C, INSTALLED ON 6:1 SKEW HORIZONTALLY. DIRECTION OF SKEW ALTERNATING AFTER EVERY ONE OR TWO BARS.

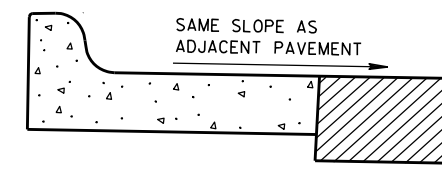
THE HOLE FOR THE BAR SHALL BE DRILLED TO A DEPTH OF 7" AND TO A DIAMETER TO PROVIDE A TIGHT DRIVEN FIT.

EXISTING CONCRETE

1/2 THICKNESS OF NEW CONCRETE



① TYPICAL TIE BAR LOCATION



③ HIGH SIDE SECTION
(TYPICAL FOR ALL CURB & GUTTER)

GENERAL NOTES

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

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

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

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

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE COURSE AND UNCLASSIFIED EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURB.

- ① WHEN PLACED ADJACENT TO NEW CONCRETE, TIE BARS ARE REQUIRED FOR CURB AND GUTTER 31", 22", 19" AND CONCRETE GUTTER 24".
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE COURSE PROVIDED A 7" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ WHEN HIGH SIDE CURB SECTION IS REQUIRED, THE LOCATION(S) WILL BE NOTED ON THE PLAN.

**CONCRETE GUTTER, CURB AND
GUTTER AND PAVEMENT TIES**
(For Optional Use in Milwaukee Co. Only)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/22/2010

DATE

FHWA

/S/ Jerry Zonn

ROADWAY STANDARDS 126

ENGINEER

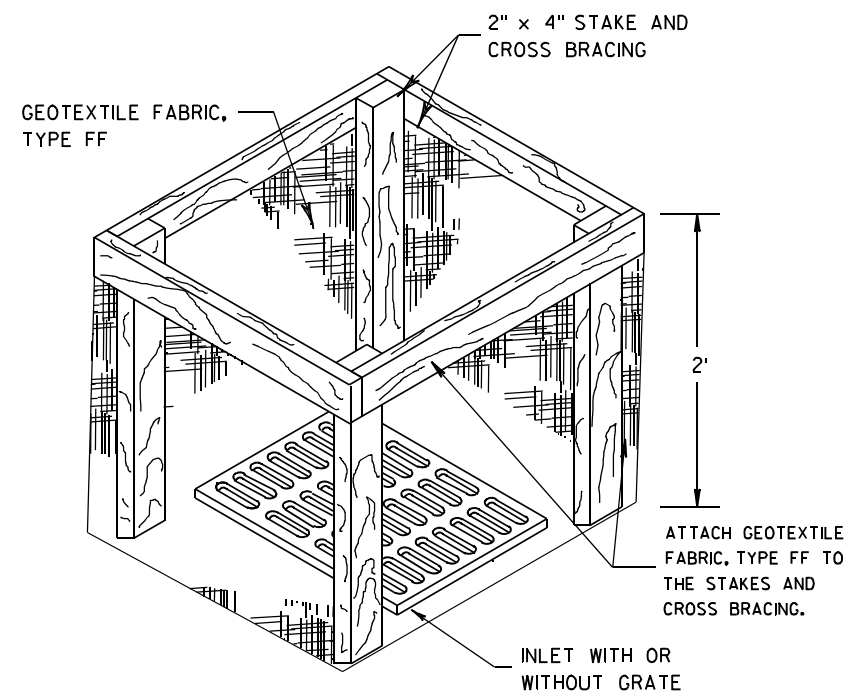
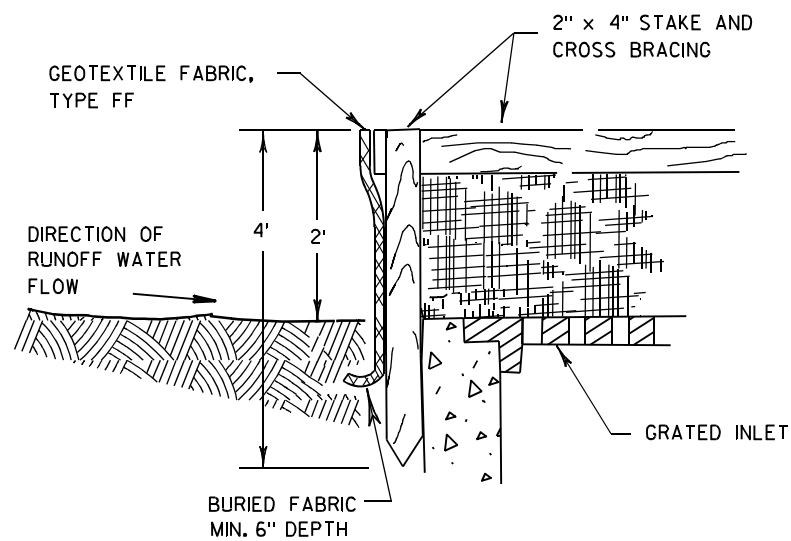
ENT



- 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 <u>4-29-05</u> <u>DATE</u> <u>/S/ Beth Cannata</u> CHIEF ROADWAY DEVELOP <u>127</u> ENGINEER FHWA



INLET PROTECTION, TYPE A

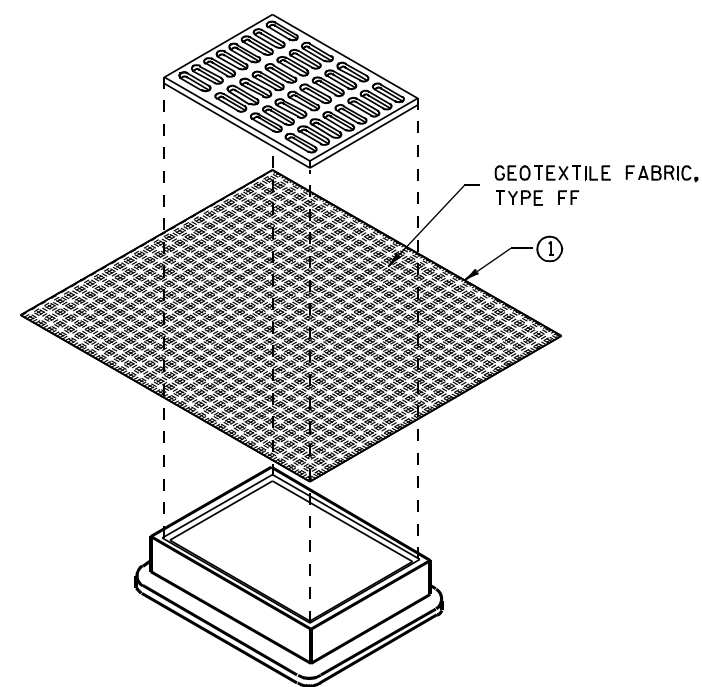
GENERAL NOTES

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.

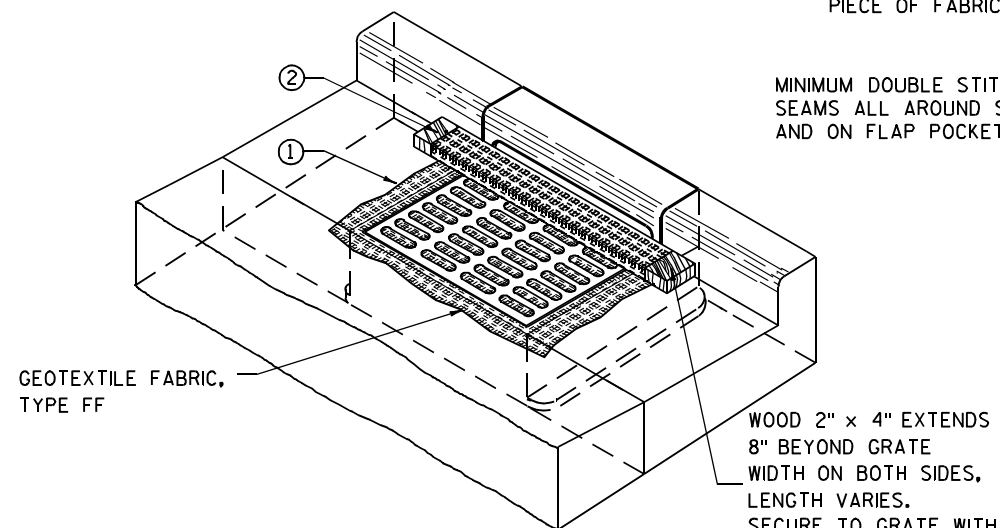
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- 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.

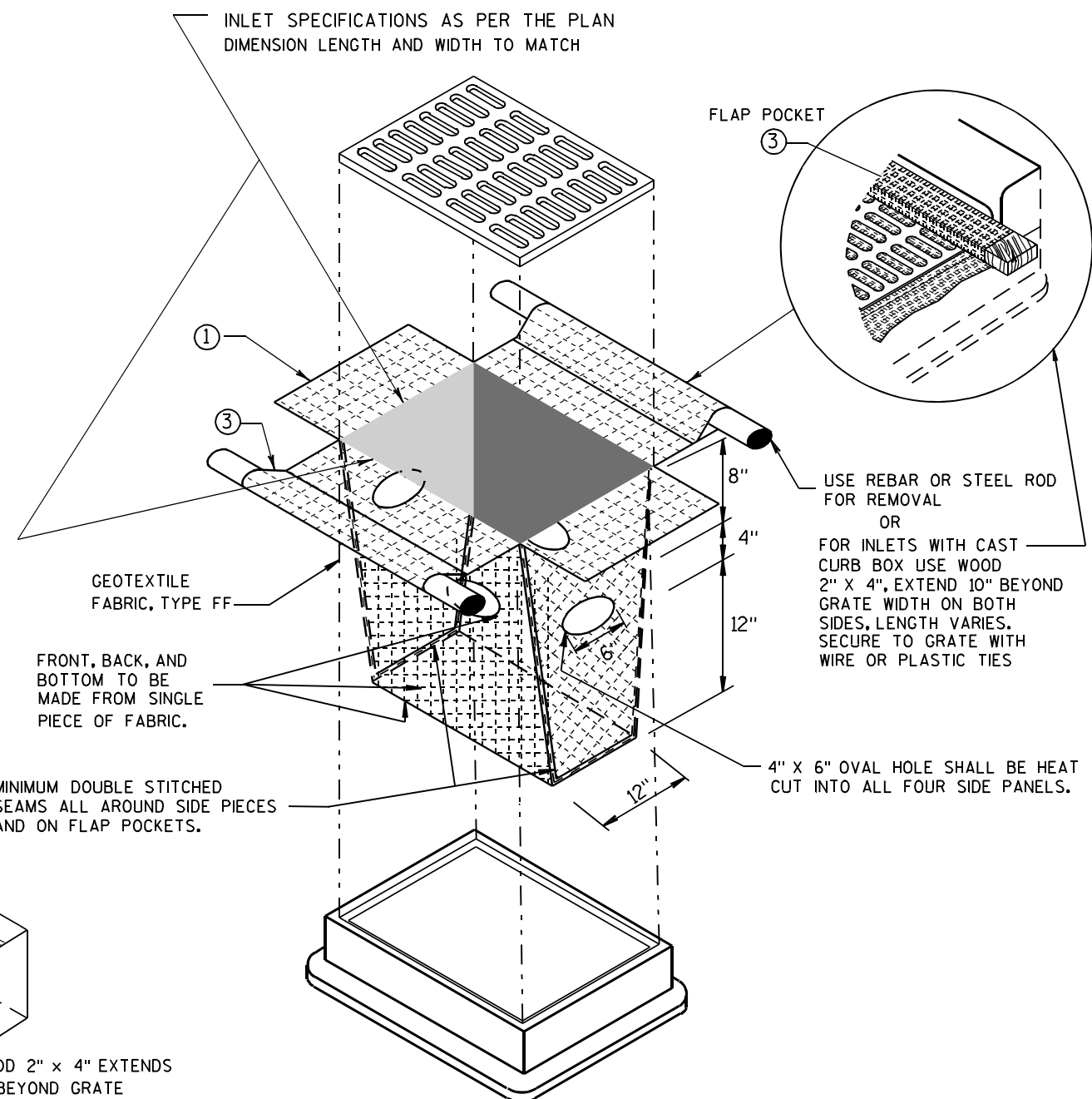
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

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.

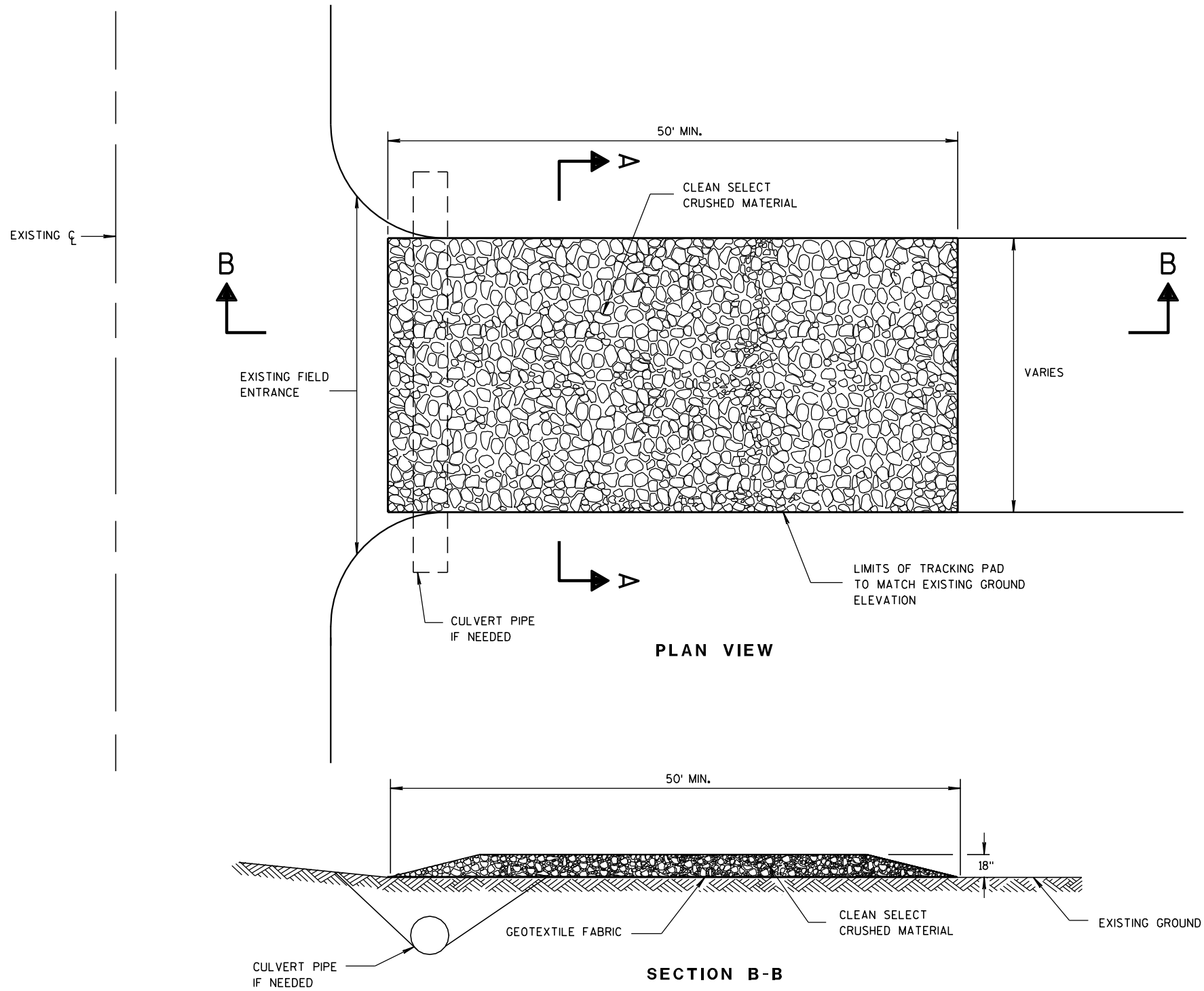
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE 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 DATE	/S/ Beth Connolly 128 CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



TRACKING PAD

GENERAL NOTES

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

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

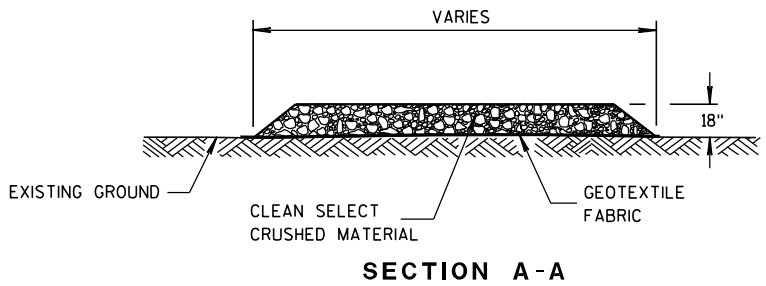
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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

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

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

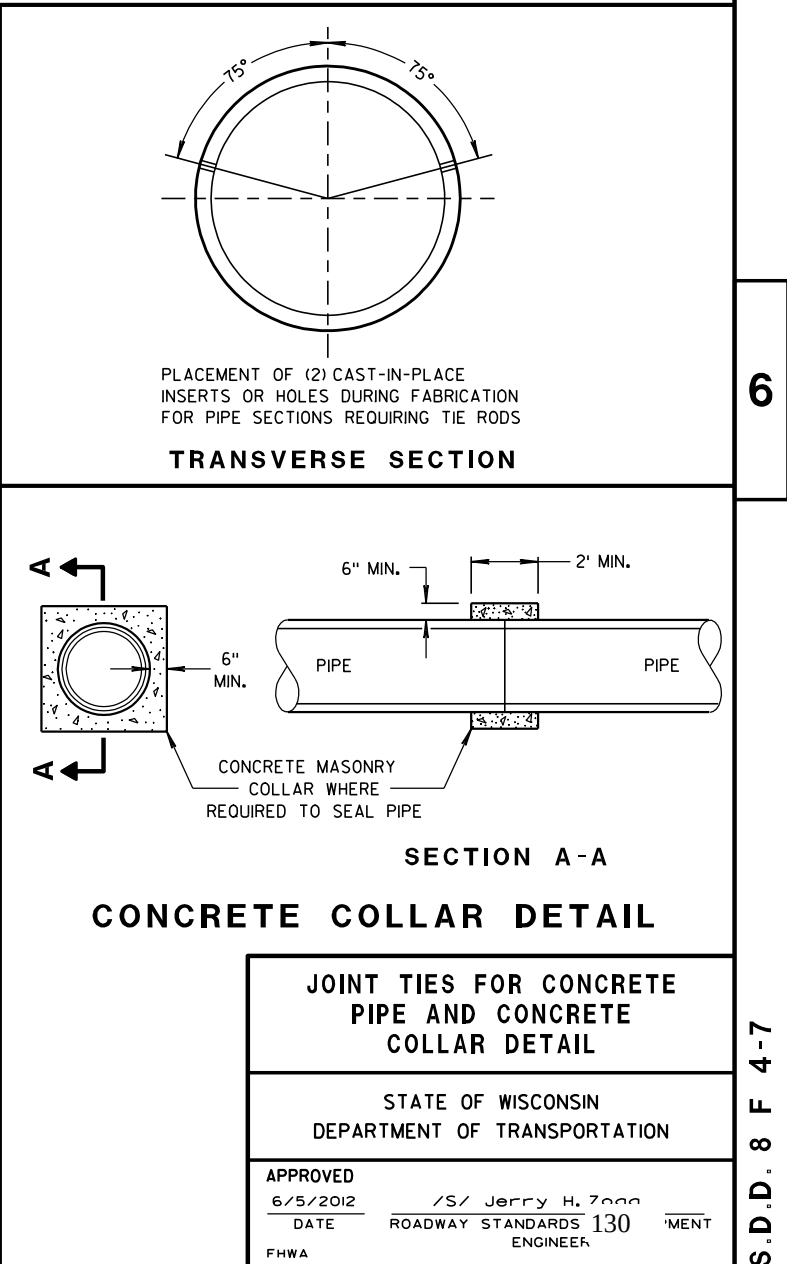
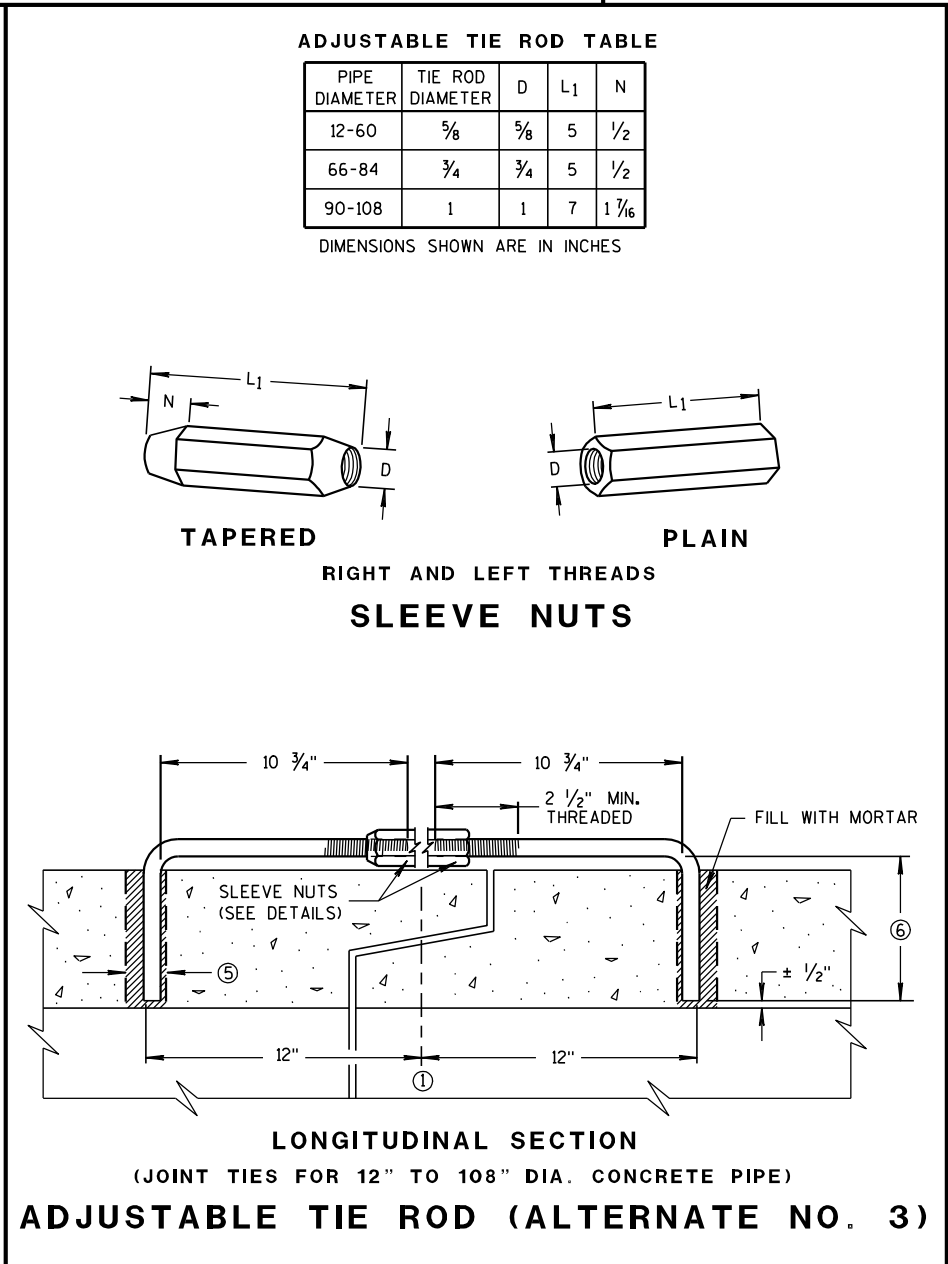
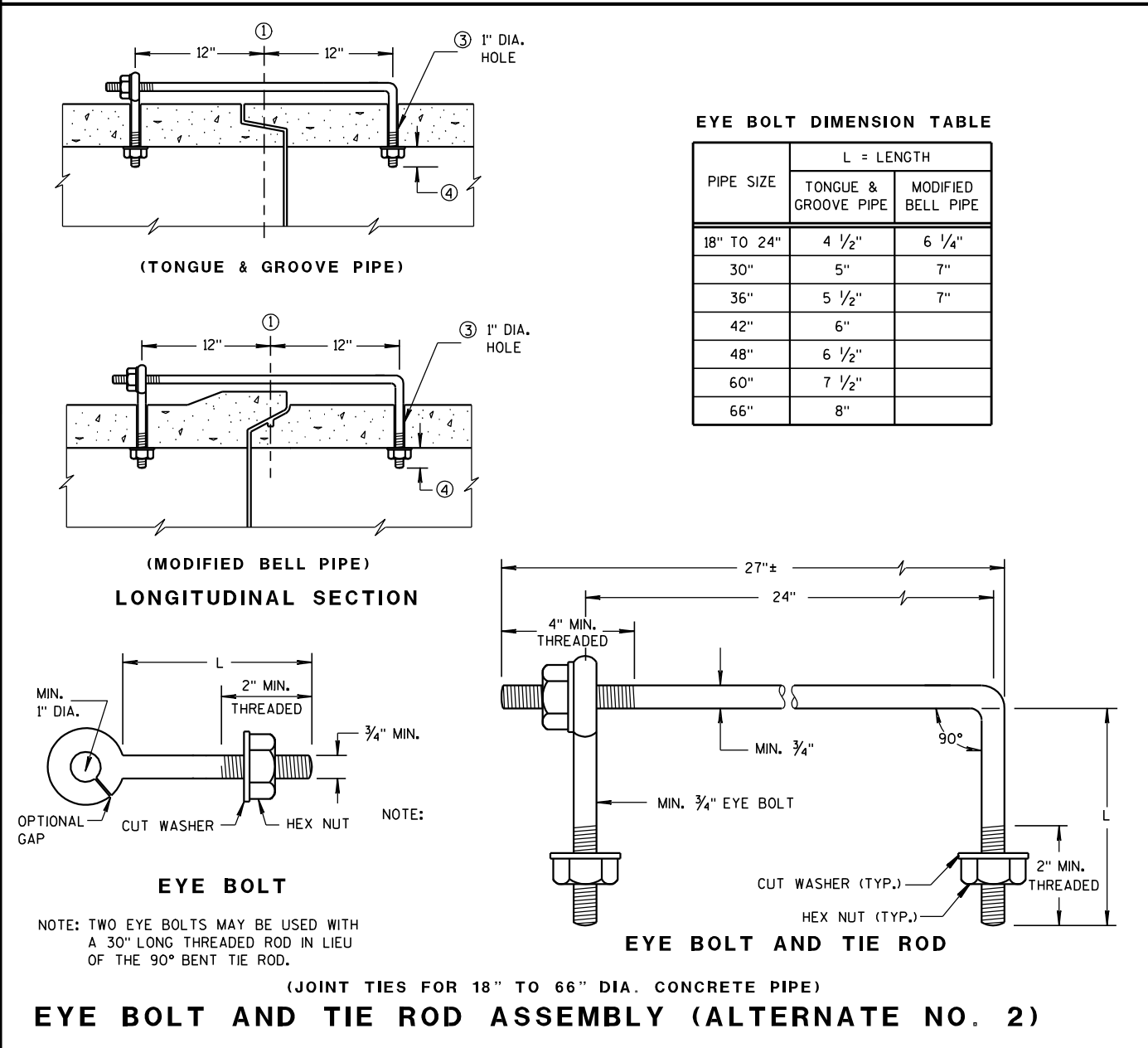
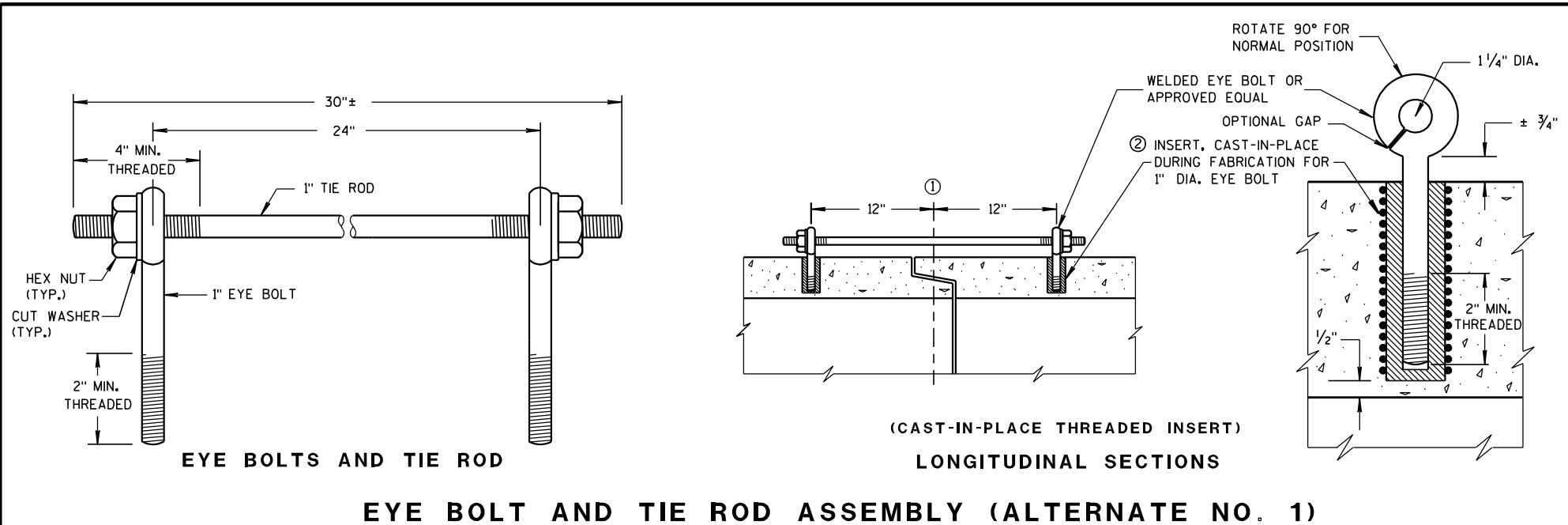
THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.

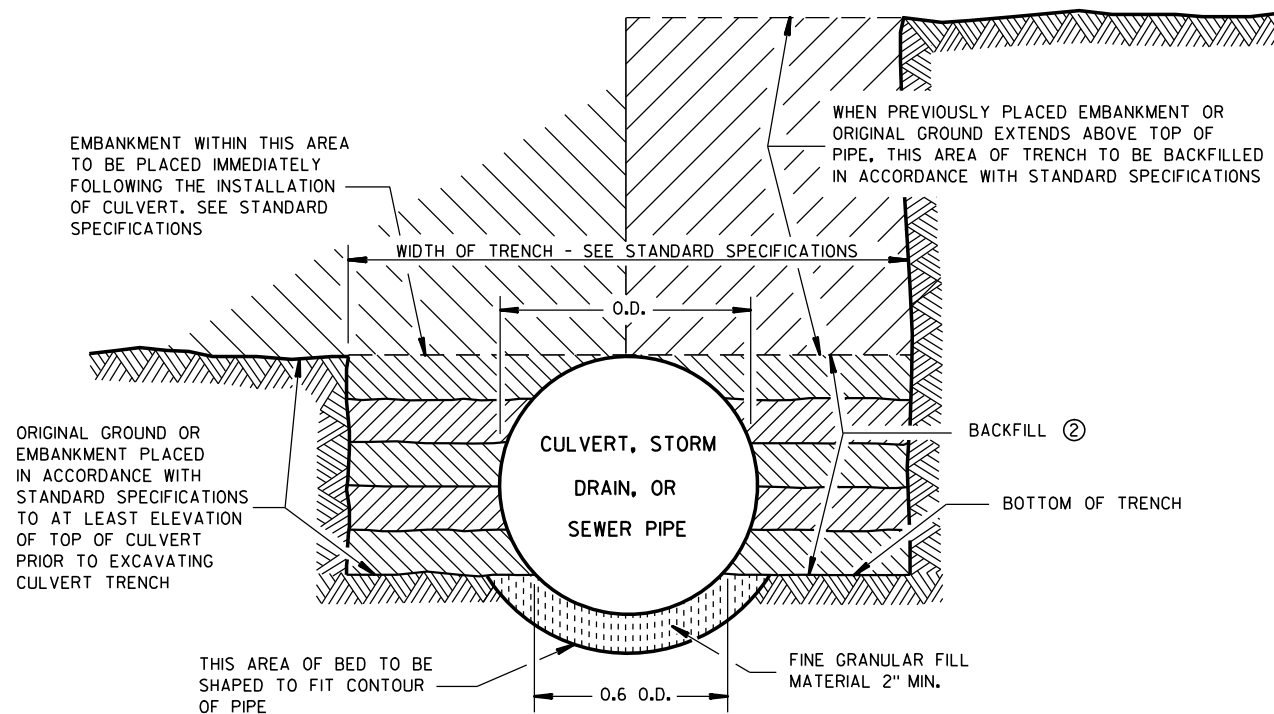


TRACKING PAD

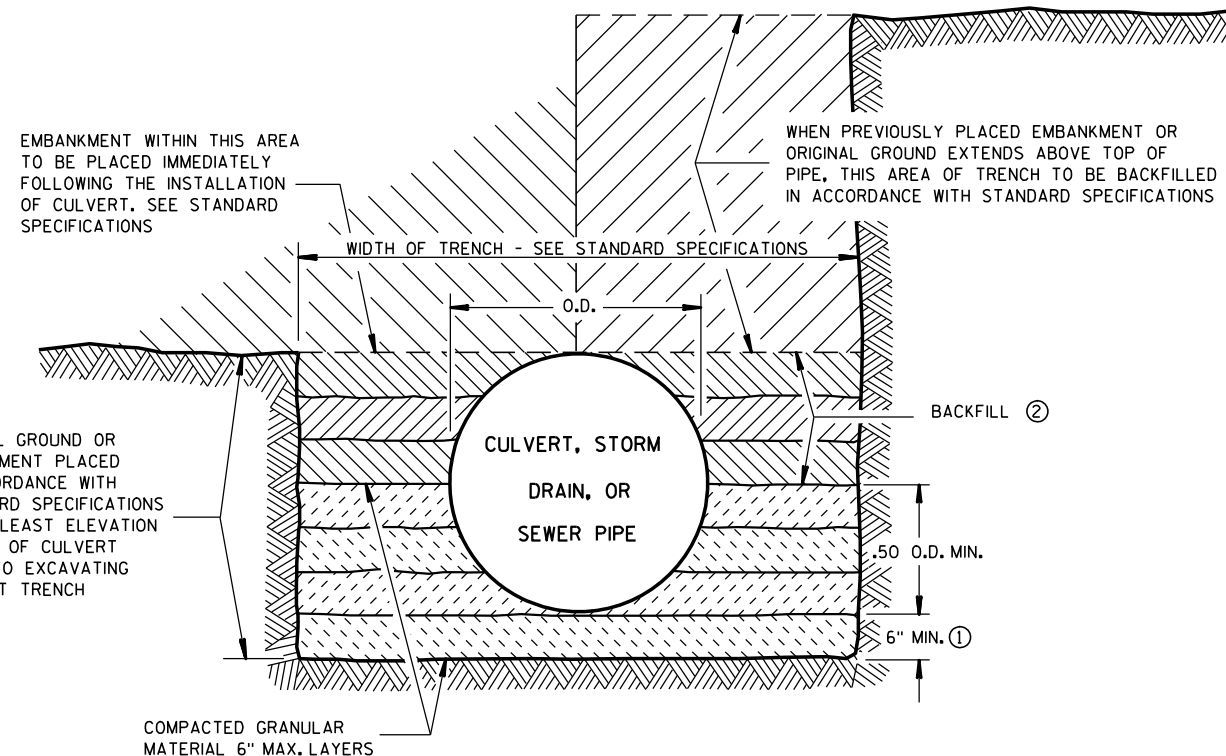
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/24/2011
DATE
/S/ Jerry H. Zonn
ROADWAY STANDARDS 129
ENGINEER
ENT





SHAPED SUBGRADE WITH GRANULAR FOUNDATION



GRANULAR FOUNDATION

GENERAL NOTES

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

THE SHAPED SUBGRADE WITH GRANULAR FOUNDATION IS AN EQUAL ALTERNATE TO THE GRANULAR FOUNDATION EXCEPT WHERE ROCK IS ENCOUNTERED.

- ① WHERE ROCK, HARD PAN OR FRAGMENTED MATERIAL IS ENCOUNTERED, THE TRENCH SHALL BE EXCAVATED BELOW THE BOTTOM OF THE PIPE AN AMOUNT EQUAL TO $\frac{1}{2}$ INCH PER FOOT OF PROPOSED EMBANKMENT ABOVE THE TOP OF THE PIPE, BUT NOT LESS THAN 6 INCHES.
- ② TRENCH SHALL BE BACKFILLED AS REQUIRED BY STANDARD SPECIFICATIONS; SECTION 520 FOR PIPE CULVERTS AND SECTION 607 FOR STORM SEWERS.

CLASS "B" BEDDING

CLASS "B" BEDDING FOR
CULVERT PIPE OR STORM SEWER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

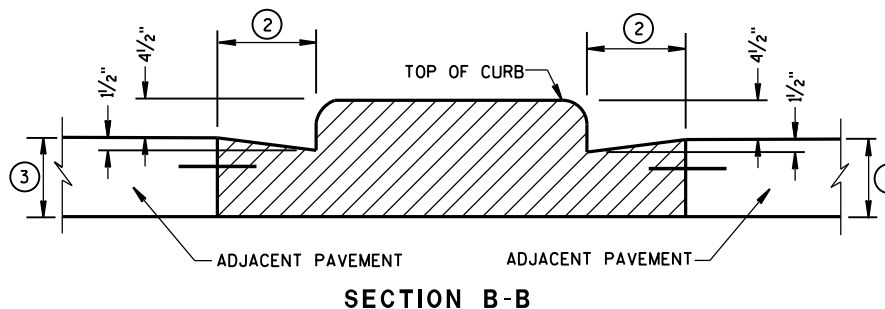
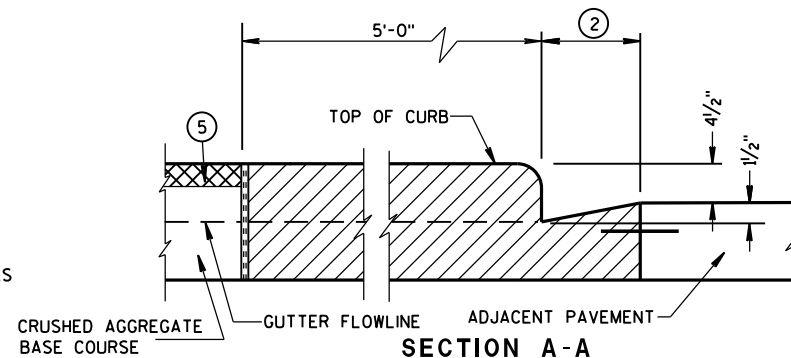
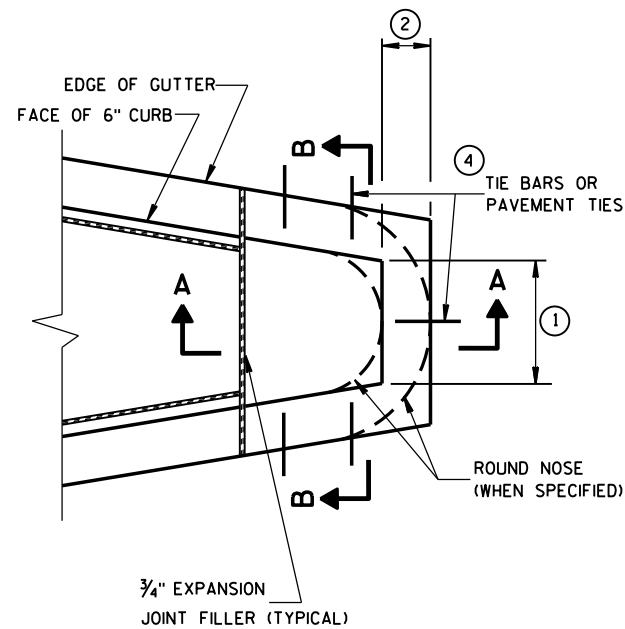
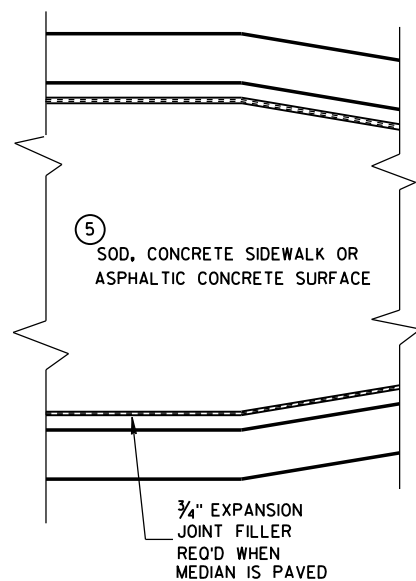
APPROVED

4/7/83
DATE

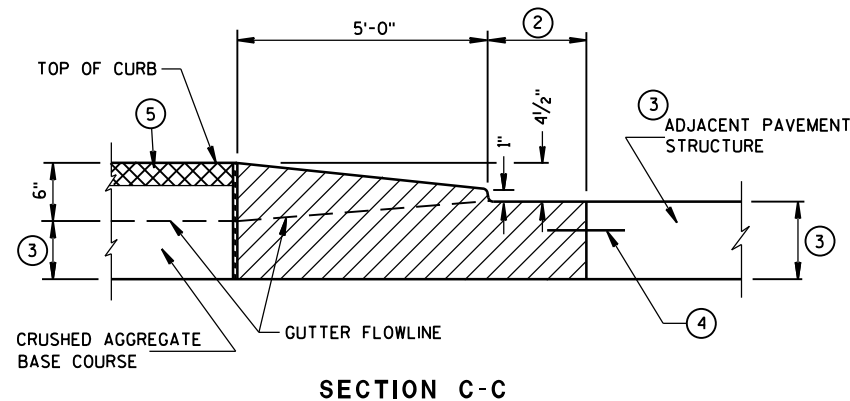
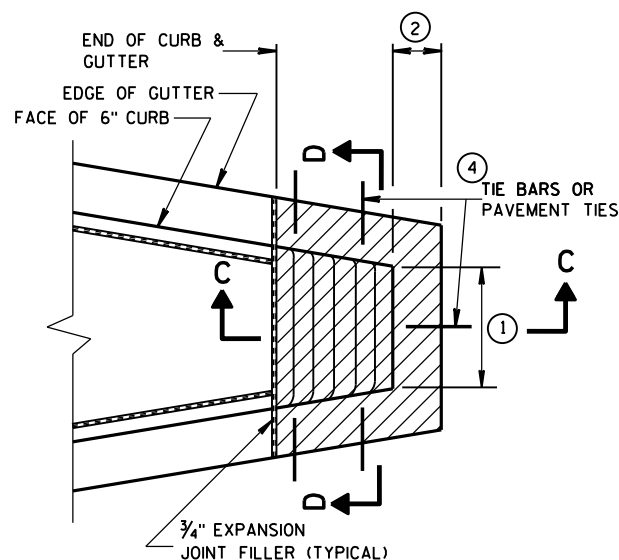
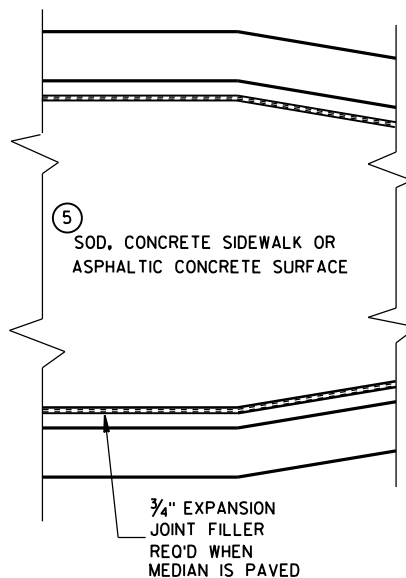
/S/ D.L. Str...
STATE DESIGN ENGINE 131

HWYS

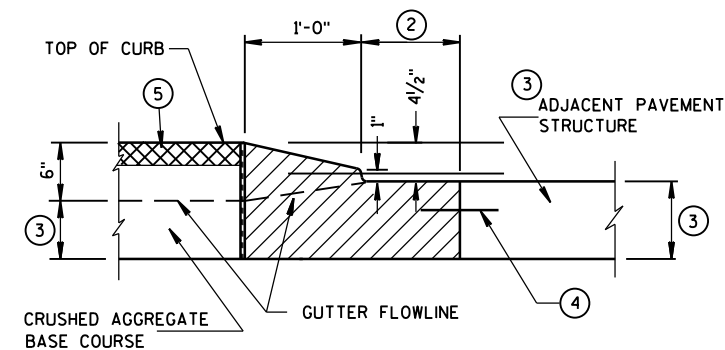
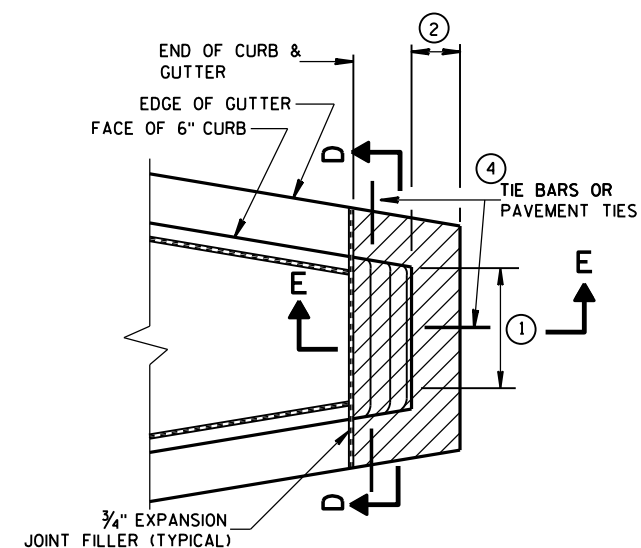
FHWA



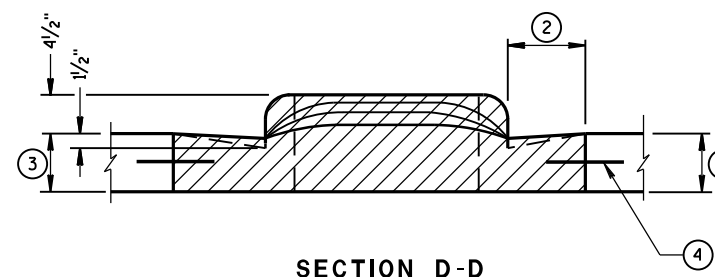
CONCRETE MEDIAN BLUNT NOSE DETAIL



CONCRETE MEDIAN SLOPED NOSE TYPE 1



CONCRETE MEDIAN SLOPED NOSE TYPE 2



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 SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).
- ② WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.
- ③ DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:
 - (1) NEW OR EXISTING CONCRETE PAVEMENT.
 - (2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.
 - (3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.

- ④ TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.

PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.

- ⑤ SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

CONCRETE MEDIAN NOSE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/8/2006

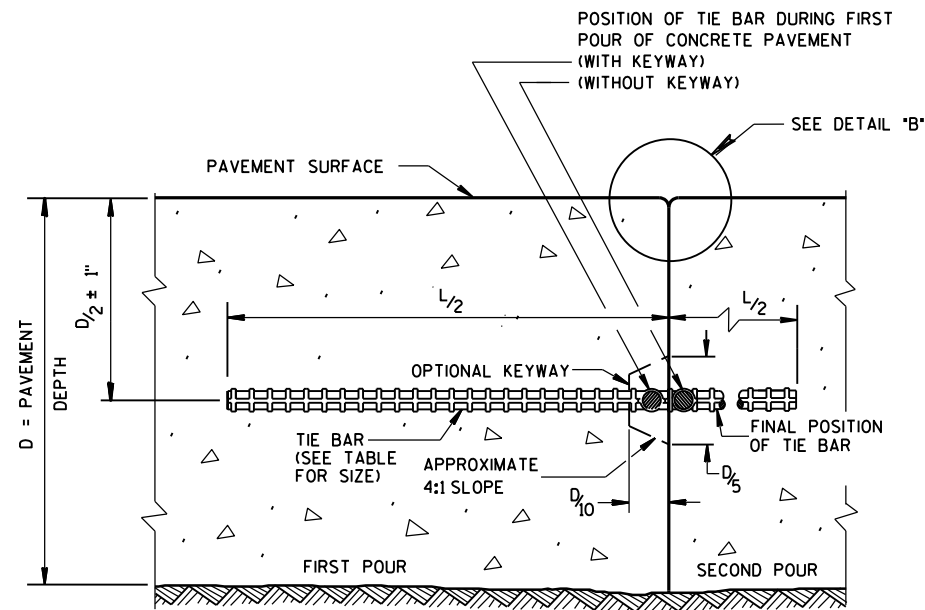
DATE

FHWA

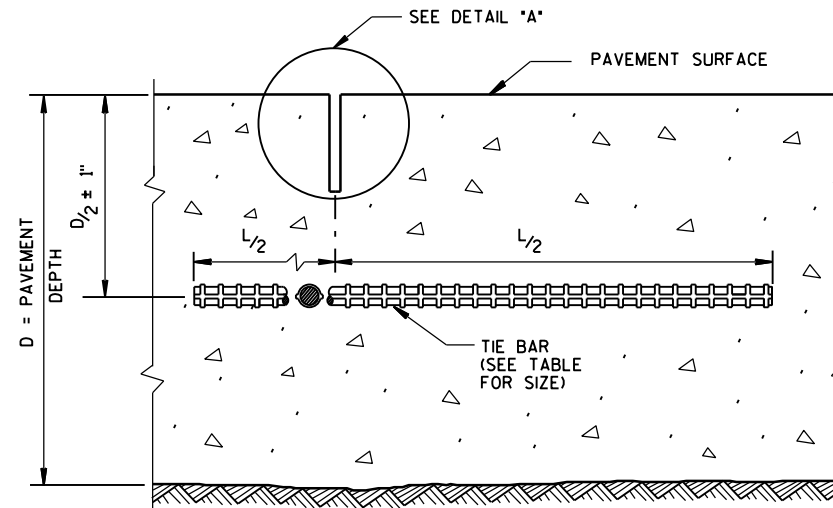
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

132

4T



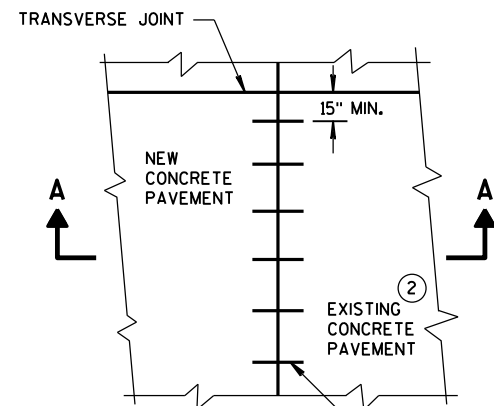
CONSTRUCTION JOINT



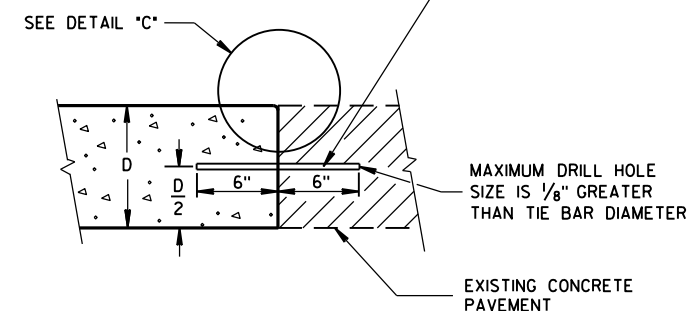
SAWED JOINT

GENERAL NOTES

- DO NOT SEAL OR FILL LONGITUDINAL JOINTS.
- CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.
- CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.
- ① ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ② PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.



PLAN VIEW

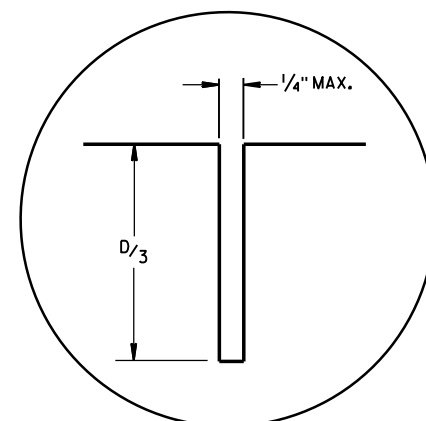


SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT
TIE BARS ANCHORED
INTO EXISTING PAVEMENT

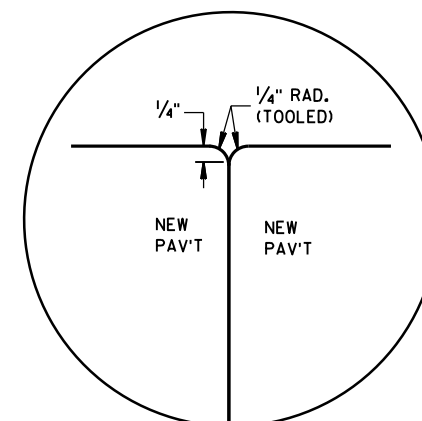
NO. 6 TIE BARS SPACED 30" C-C,
INSTALLED PERPENDICULAR
TO THE LONGITUDINAL JOINT. ①

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

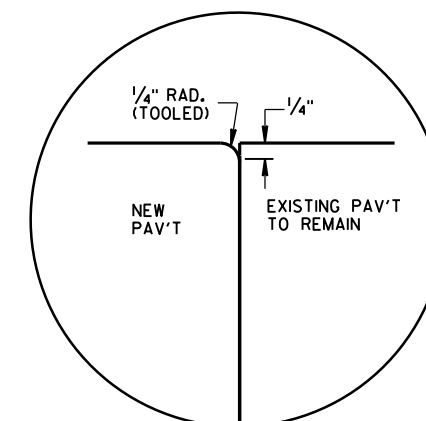
EXISTING CONCRETE
PAVEMENT



DETAIL "A"



DETAIL "B"



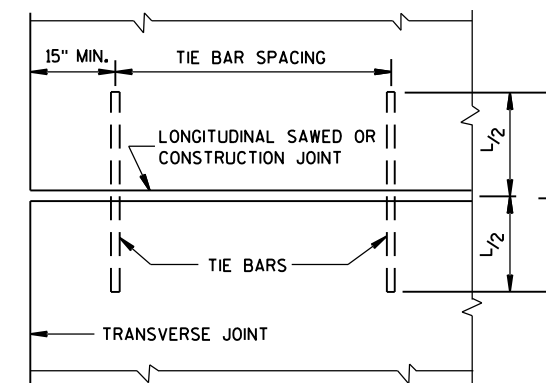
DETAIL "C"

TIE BAR TABLE

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

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

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

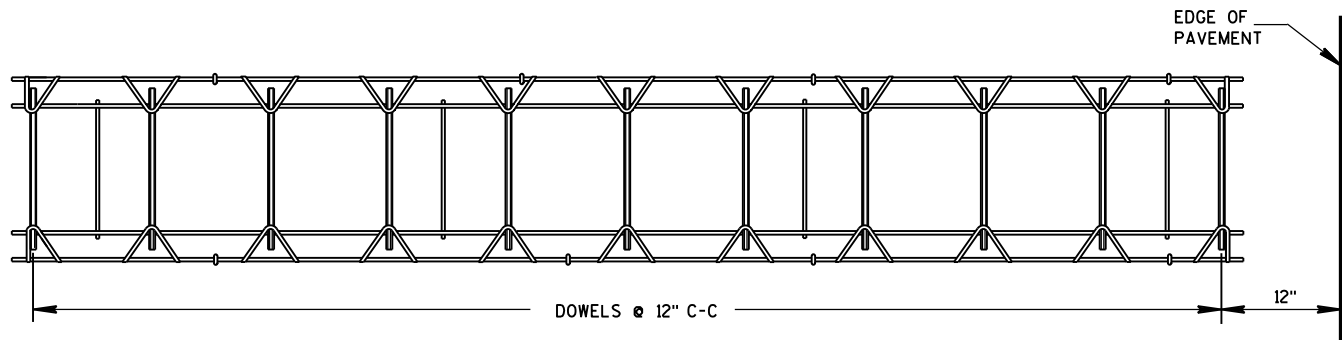


PLAN VIEW
SHOWING LOCATION OF TIE BARS

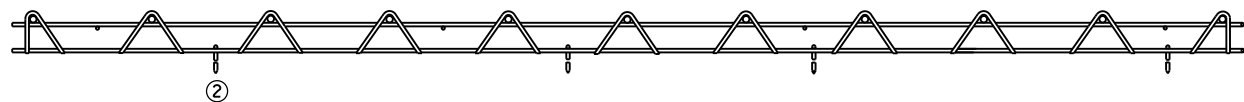
CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

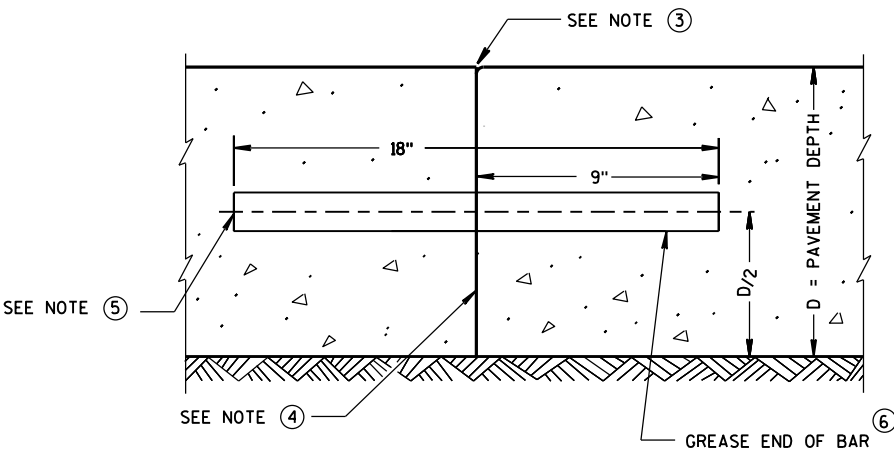
APPROVED
June, 2015 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPER 133
FHWA



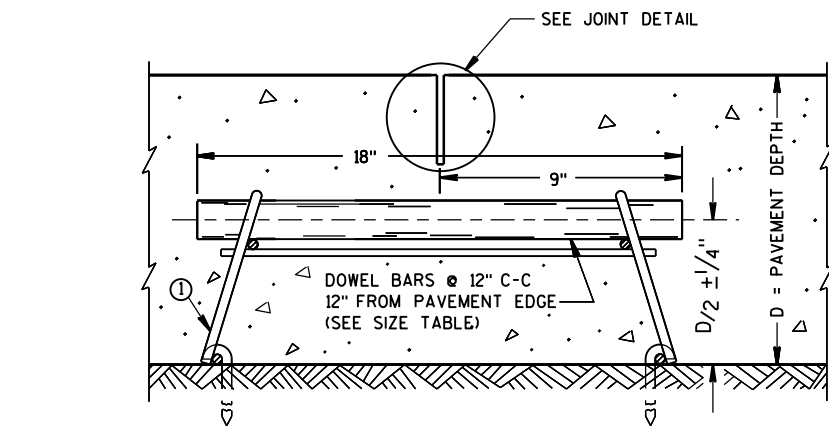
PLAN VIEW



SIDE VIEW
CONTRACTION JOINT DOWEL ASSEMBLY



TRANSVERSE CONSTRUCTION JOINT



DOWELED CONTRACTION JOINT

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'

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT SEAL OR FILL CONTRACTION JOINTS.

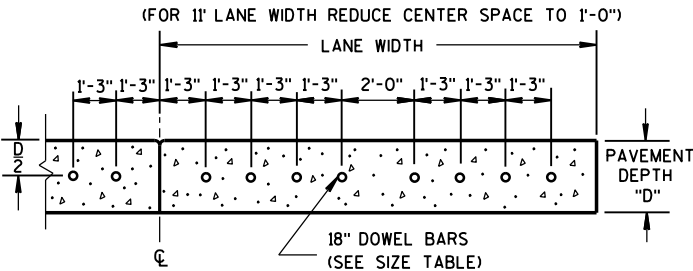
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES AND A MAXIMUM OF 18 INCHES FROM THE LONGITUDINAL JOINT AND THE FREE EDGE OF PAVEMENT.

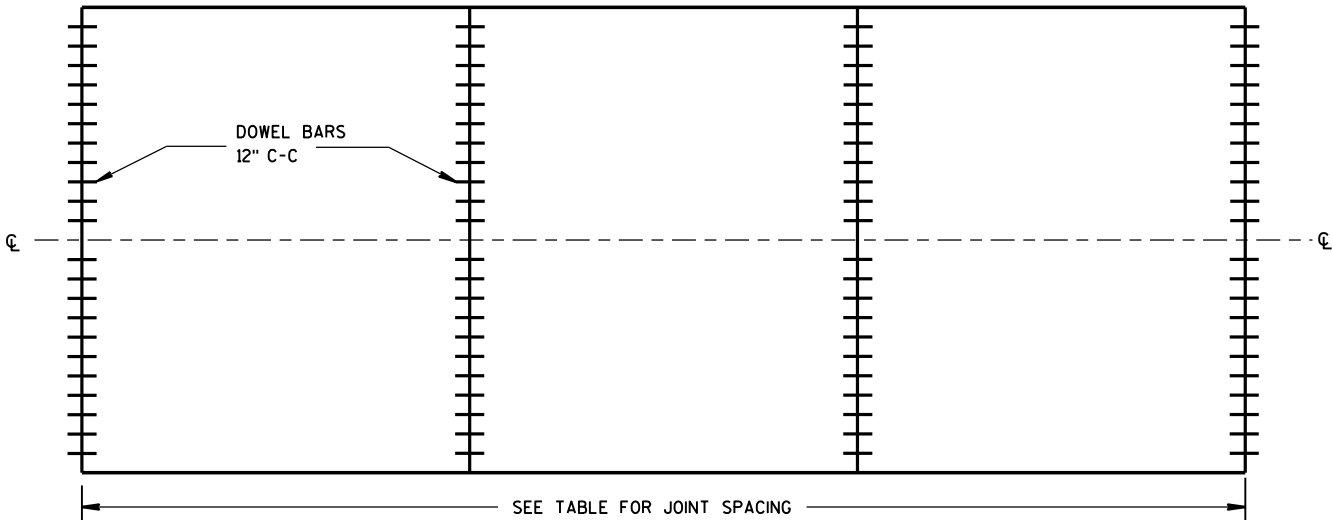
CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

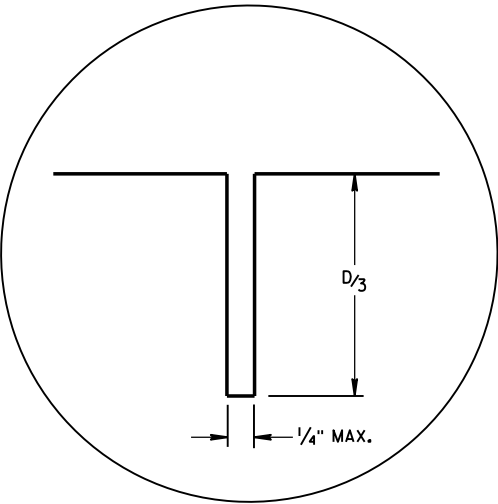
- OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.
- SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.
- FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4-INCH RADIUS AT FORMED JOINTS.
- PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.
- INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C-C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO *DRILLED DOWEL BAR CONSTRUCTION JOINT* DETAIL.
- APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.
- ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8-INCH GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



DRILLED DOWEL BAR CONSTRUCTION JOINT



CONTRACTION JOINT LOCATIONS

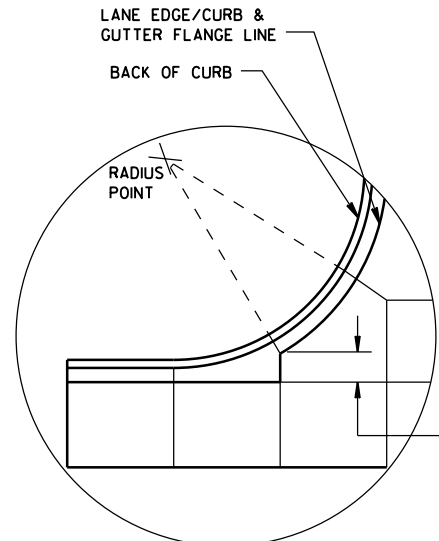


JOINT DETAIL

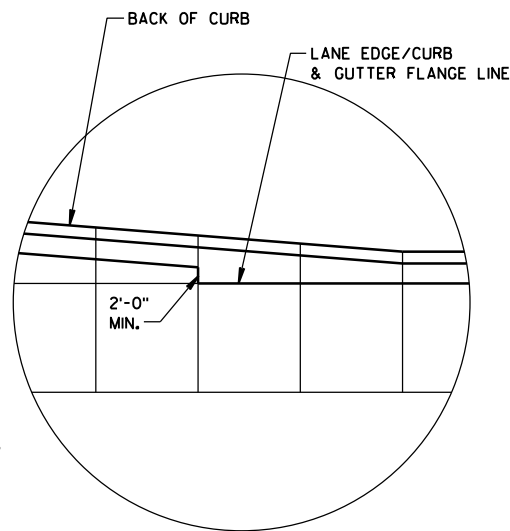
URBAN DOWELED
CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

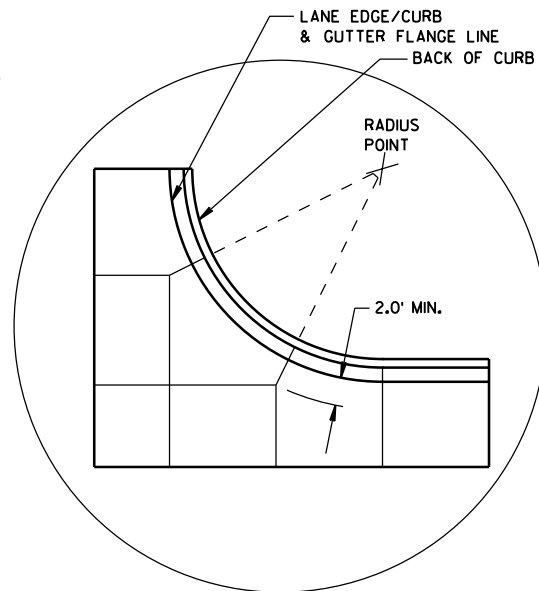
APPROVED
5/3/2013 /S/ Deb Bischoff
DATE PAVEMENT POLICY & DE 134 JEER
FHWA



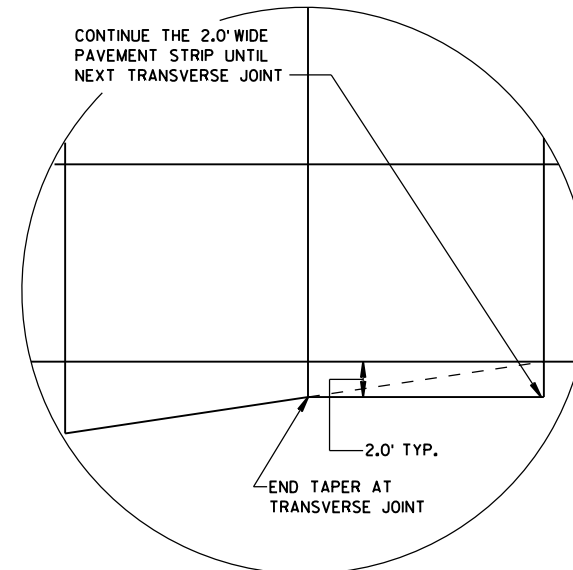
DETAIL "A"



DETAIL "B"



DETAIL "C"



DETAIL "D"

GENERAL NOTES

THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.

ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.

CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.

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

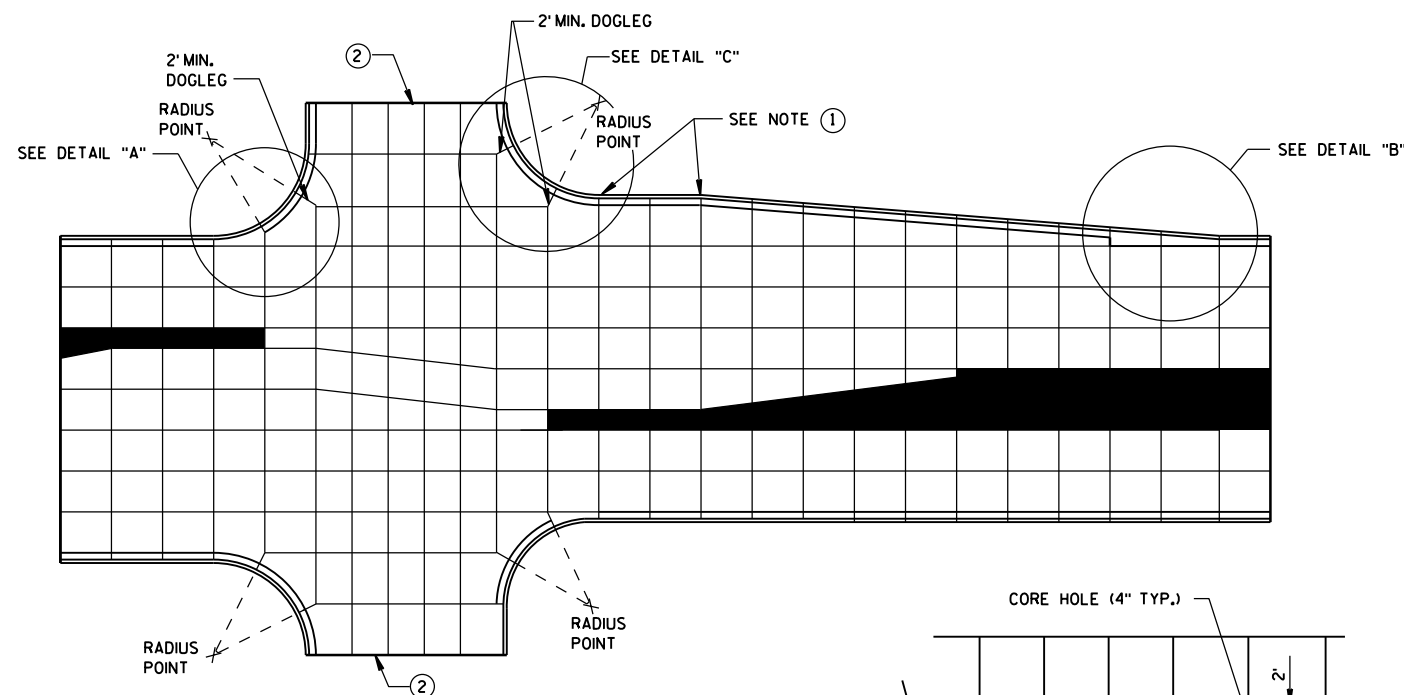
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

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

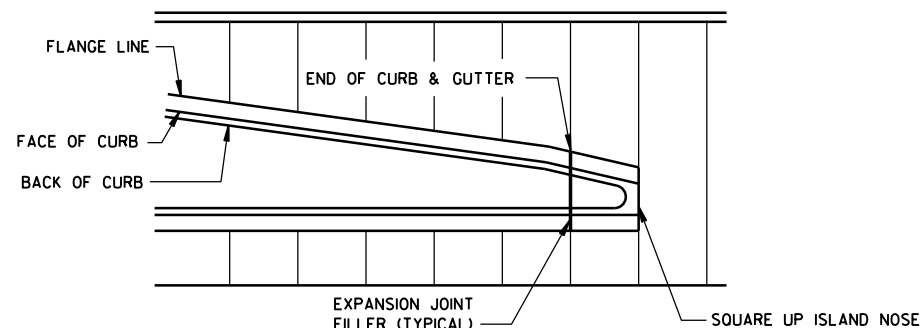
AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

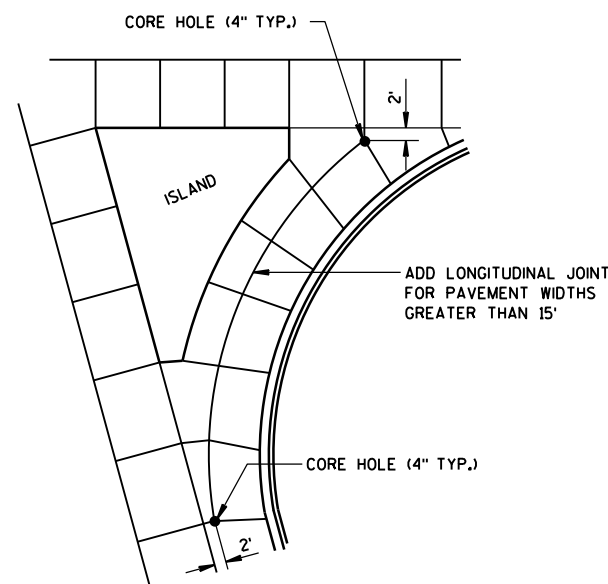
1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM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



STANDARD INTERSECTION



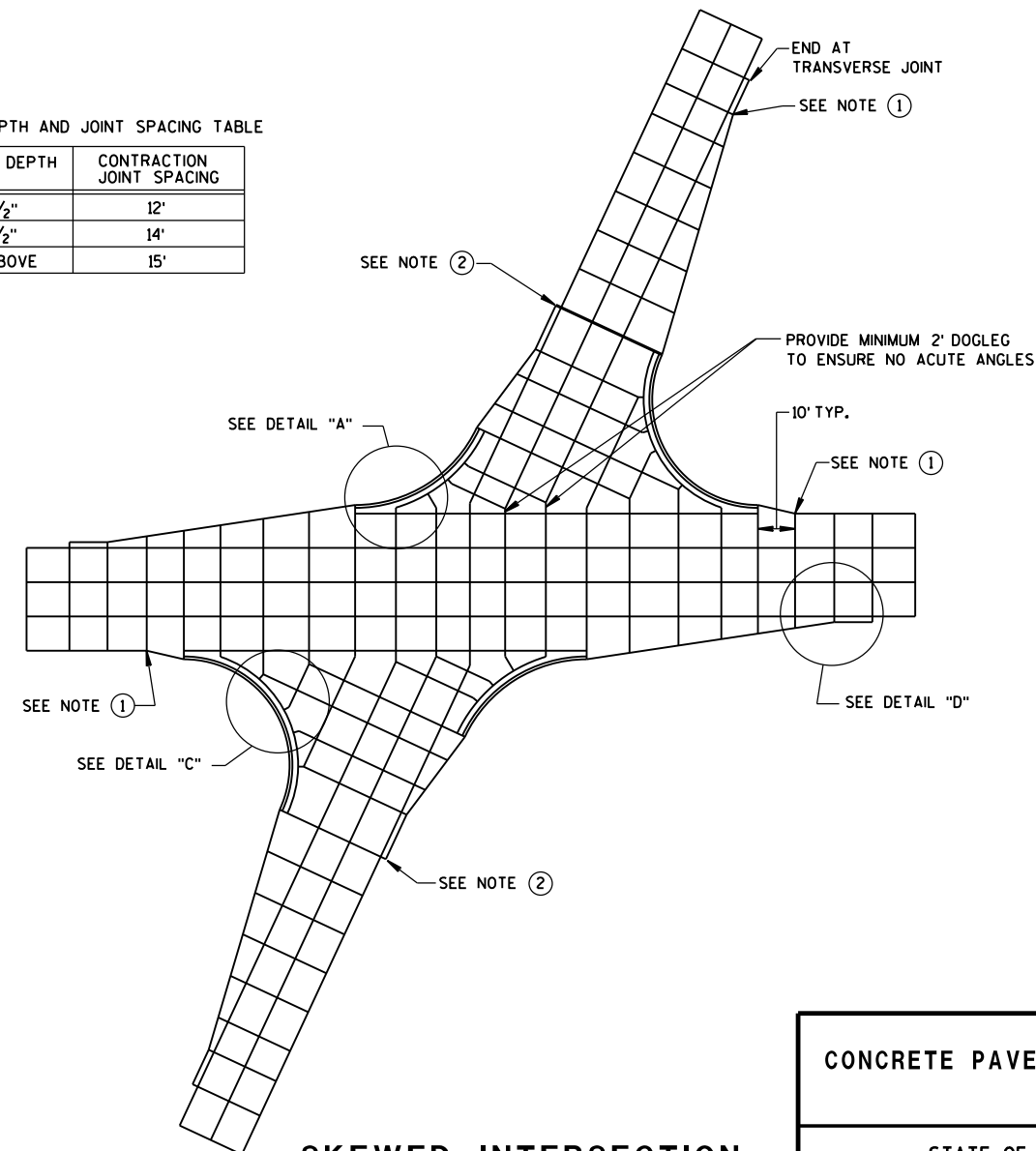
APPROACH TO MEDIAN



LARGE RIGHT TURN

PAVEMENT DEPTH AND JOINT SPACING TABLE

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



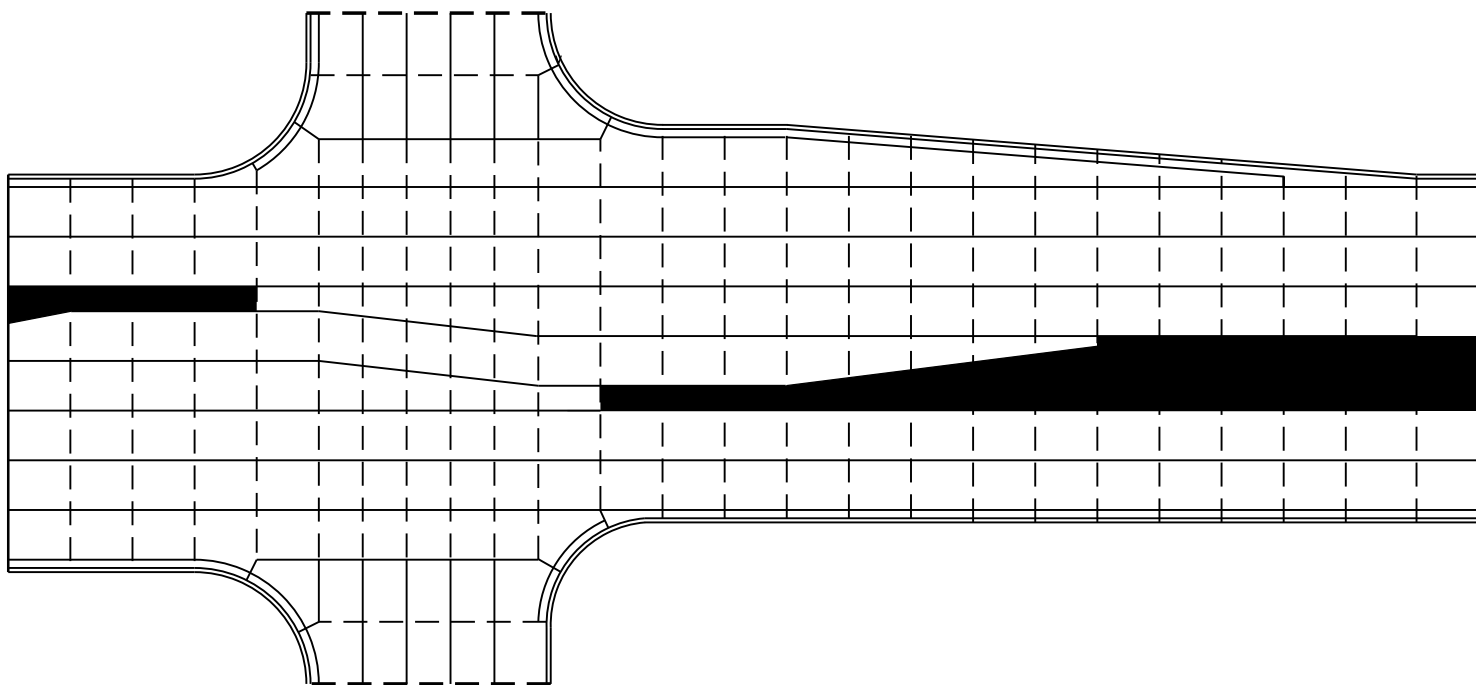
SKewed INTERSECTION

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

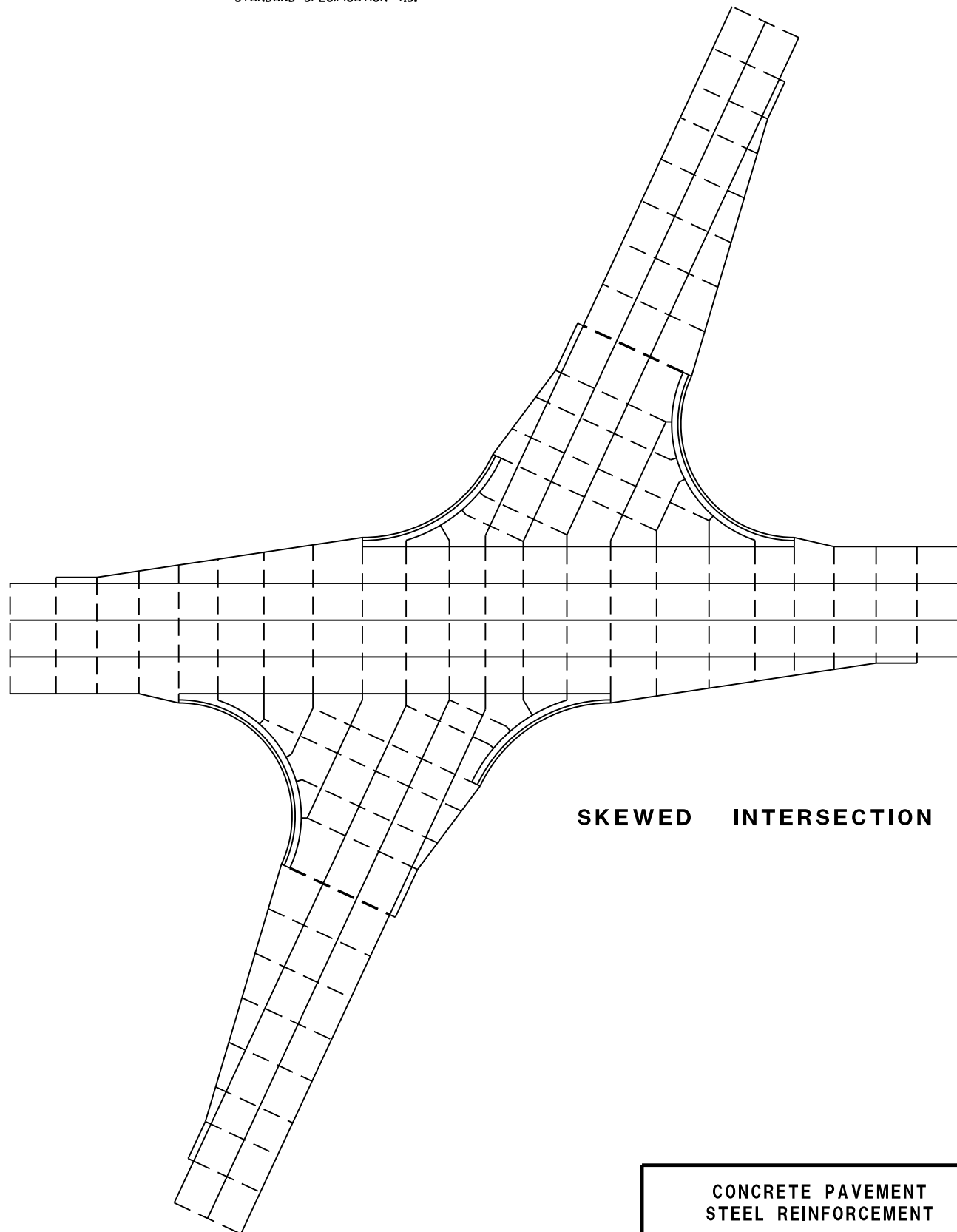
- POTENTIAL DOWELED EXPANSION JOINT
- DOWELED JOINT
- TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

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

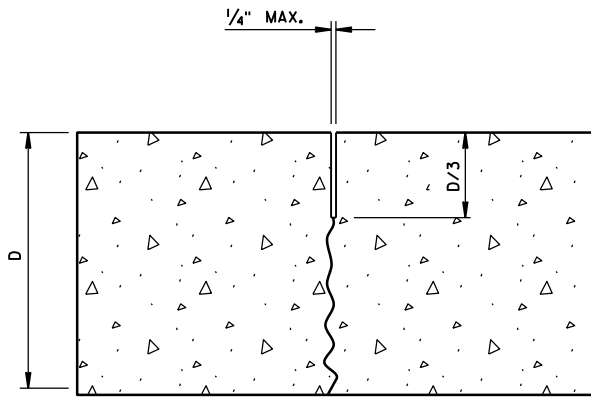


SKewed INTERSECTION

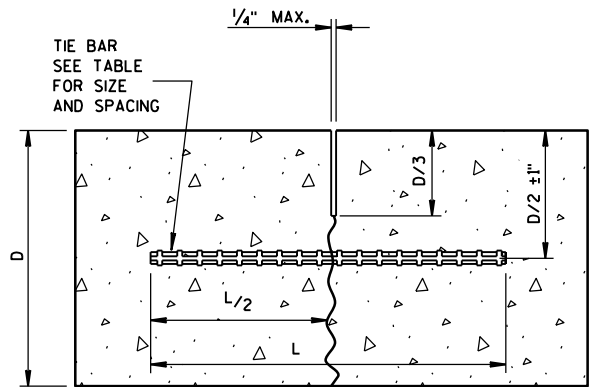
**CONCRETE PAVEMENT
STEEL REINFORCEMENT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

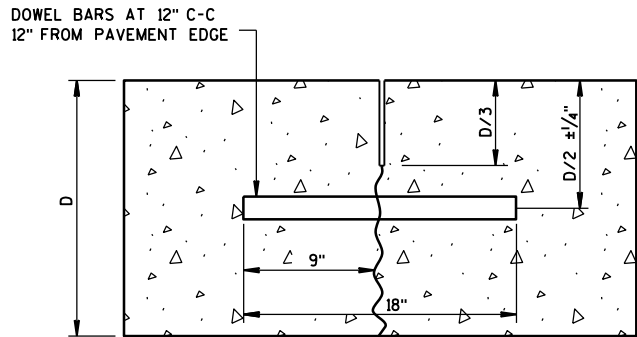
136



UNDOWELED-TRANSVERSE



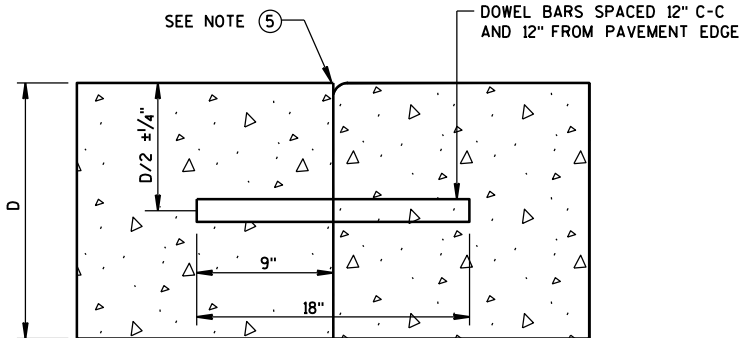
TIED LONGITUDINAL



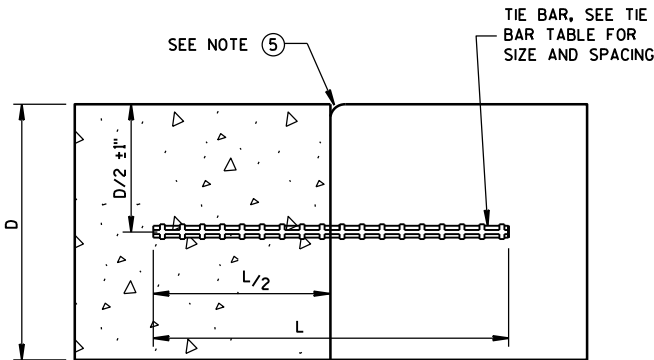
DOWELED-TRANSVERSE

CONTRACTION JOINTS

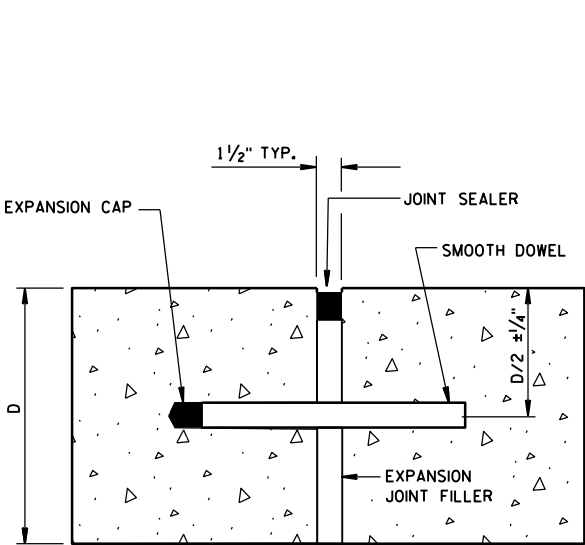
SEE NOTE ②



DOWELED TRANSVERSE ③

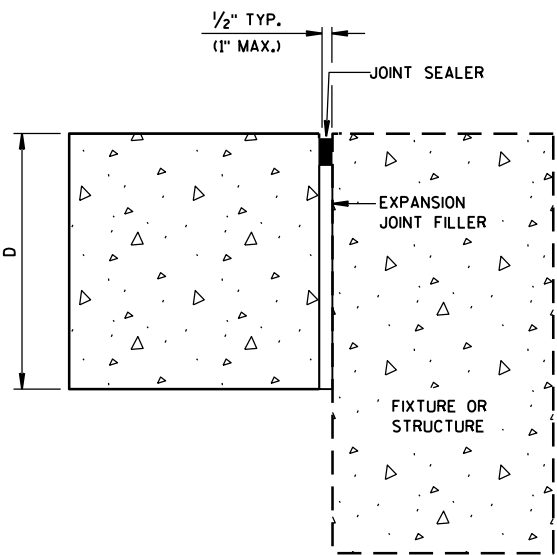


TIED LONGITUDINAL



DOWELED-TRANSVERSE

SEE NOTE ①



UNTIED-LONGITUDINAL

EXPANSION JOINTS

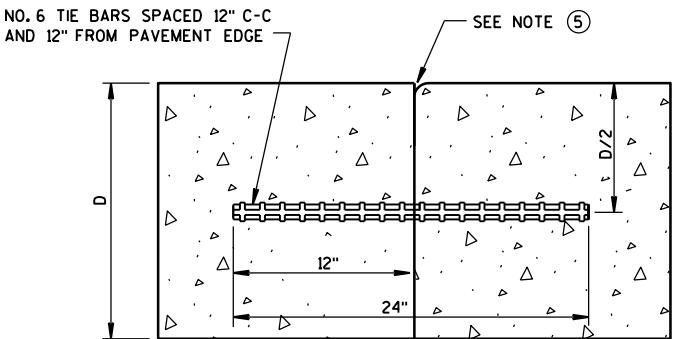
TIE BAR TABLE			
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
	NO. 5	36"	36"
	NO. 4 *	30"	24" **
≥ 10 1/2"			

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

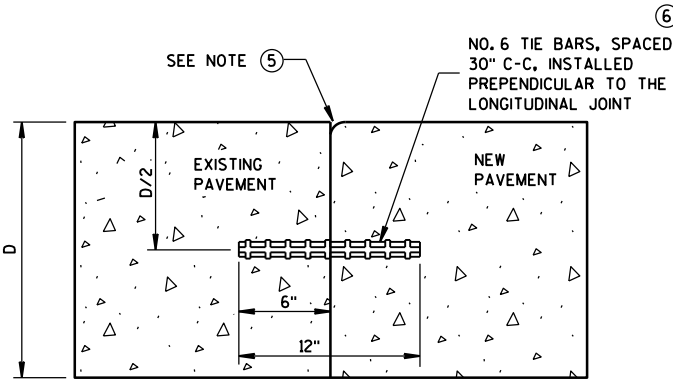
** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

GENERAL NOTES

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



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



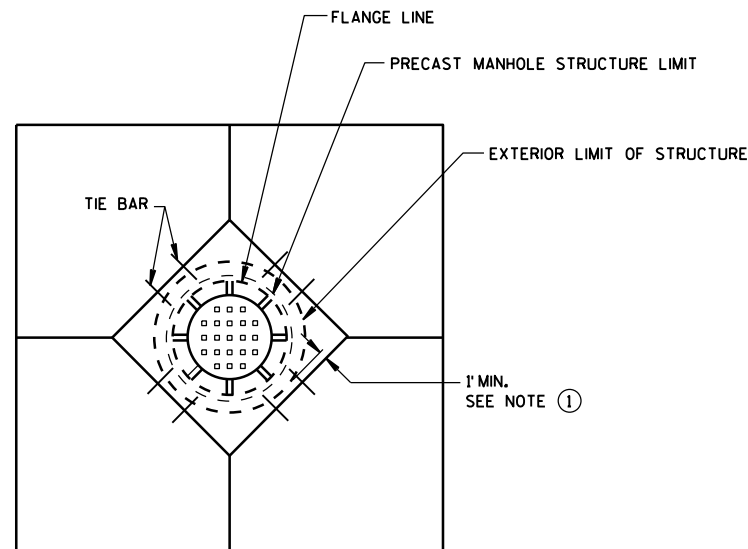
TIED LONGITUDINAL TO EXISTING

CONSTRUCTION JOINTS

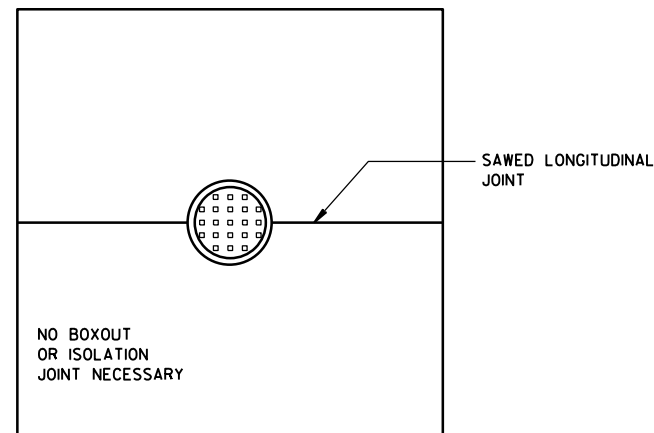
SEE NOTE ④

CONCRETE PAVEMENT
JOINT TYPES

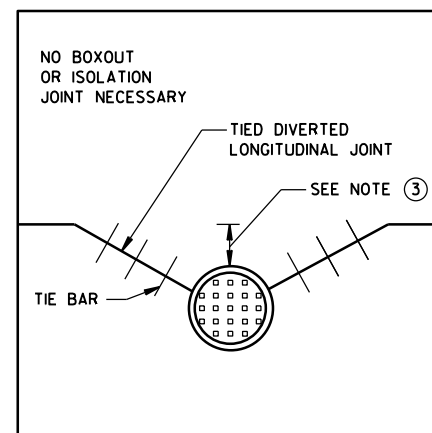
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 137



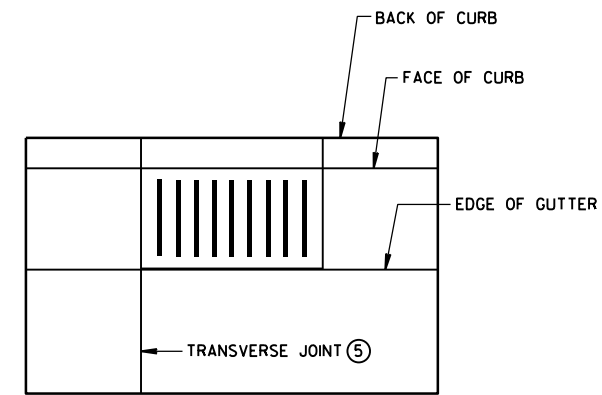
**DIAGONAL MANHOLE BOXOUT
FOR CONSTRUCTION JOINTS**



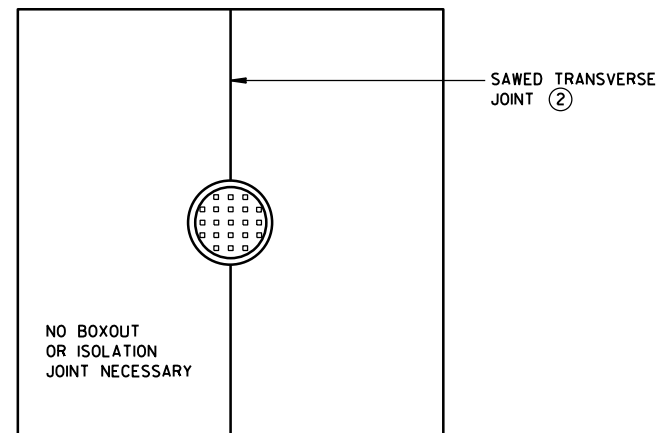
**MANHOLE WITH
LONGITUDINAL JOINT**



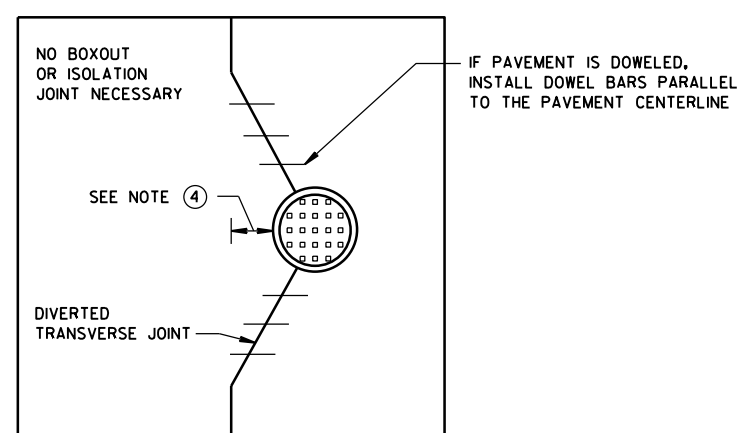
**MANHOLE WITH DIVERTED
LONGITUDINAL CONTRACTION JOINT**



**INLET WITH
TRANSVERSE JOINT**



**MANHOLE WITH
TRANSVERSE JOINT**



**MANHOLE WITH DIVERTED
TRANSVERSE CONTRACTION JOINT**

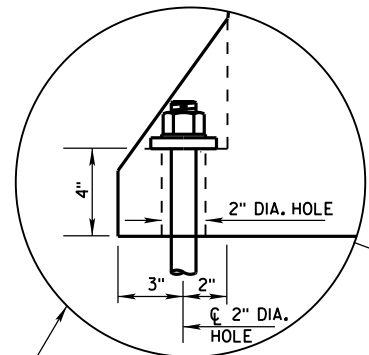
GENERAL NOTES

- 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.

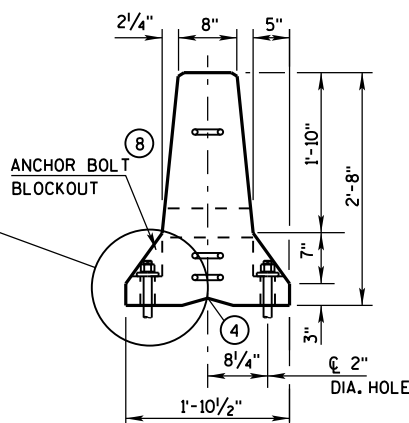
**CONCRETE PAVEMENT
JOINTING AT UTILITY FIXTURES**

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DEPARTMENT OF TRANSPORTATION

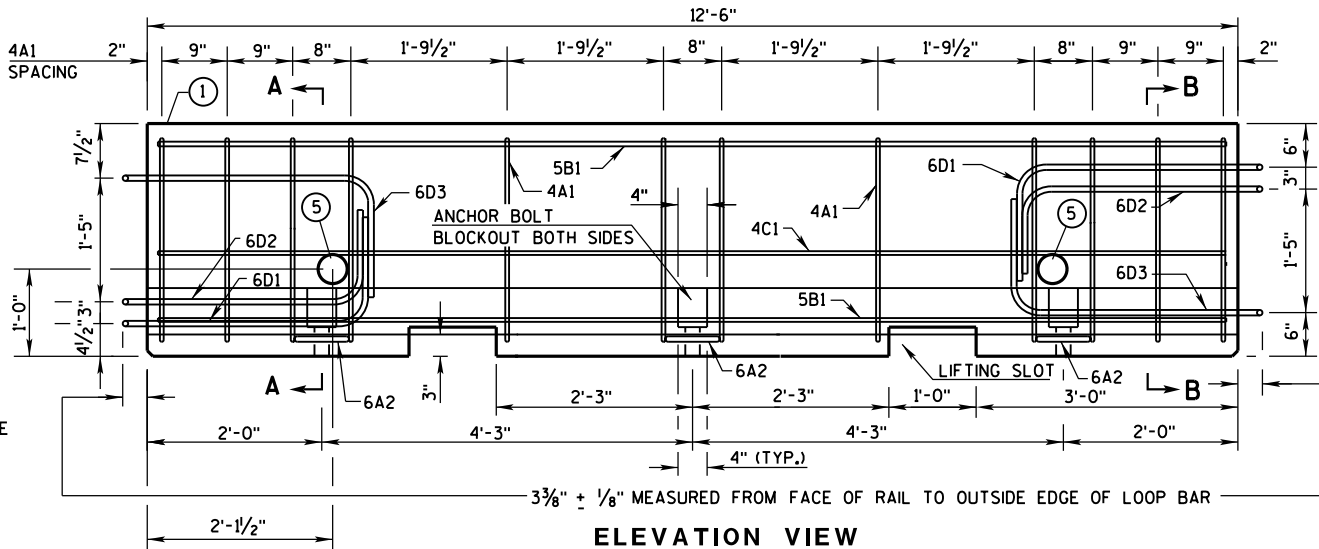
APPROVED
June, 2015 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPER 138
FHWA



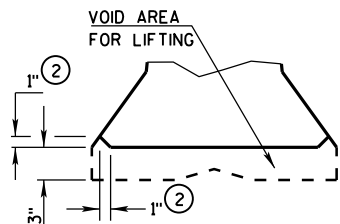
ANCHOR ON TRAFFIC SIDE
ONLY WHEN REQUIRED
(SEE SHEET D FOR ADDITIONAL
ANCHOR DETAIL)



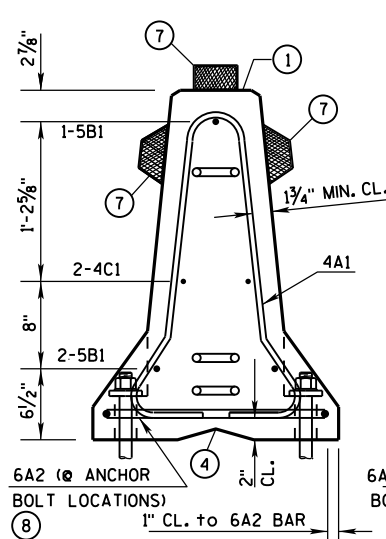
END VIEW



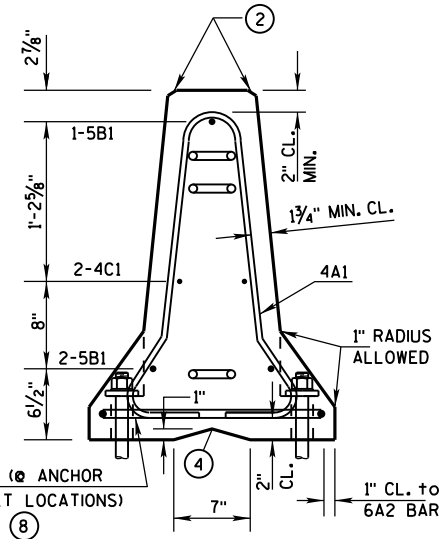
ELEVATION VIEW



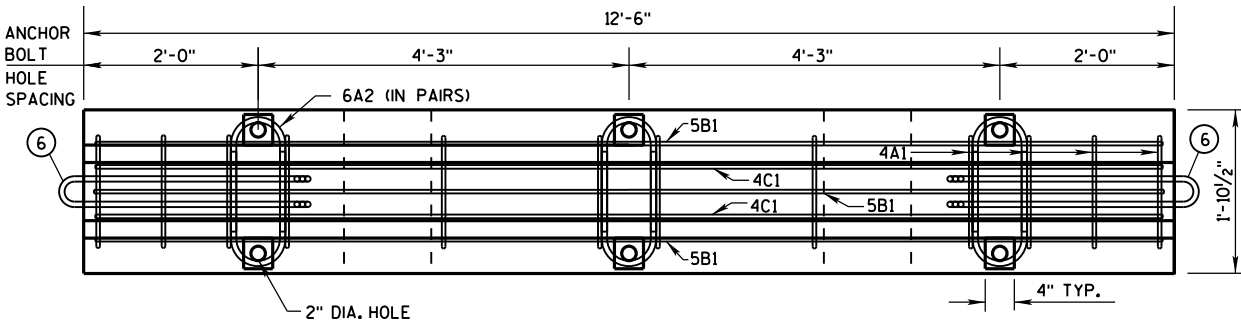
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)

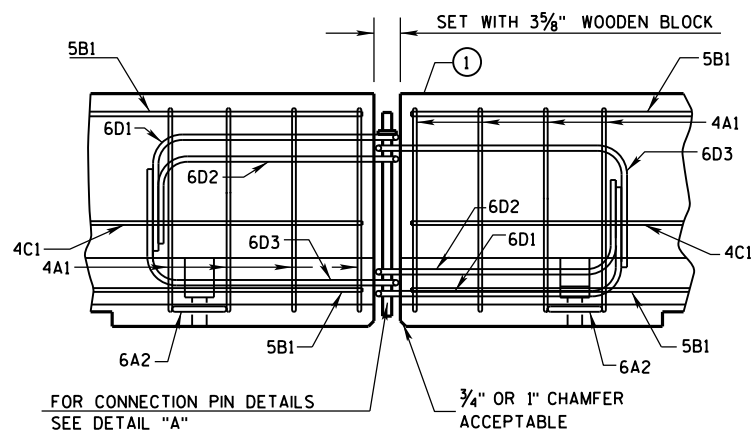


SECTION B-B
(STIRRUP PLACEMENT)

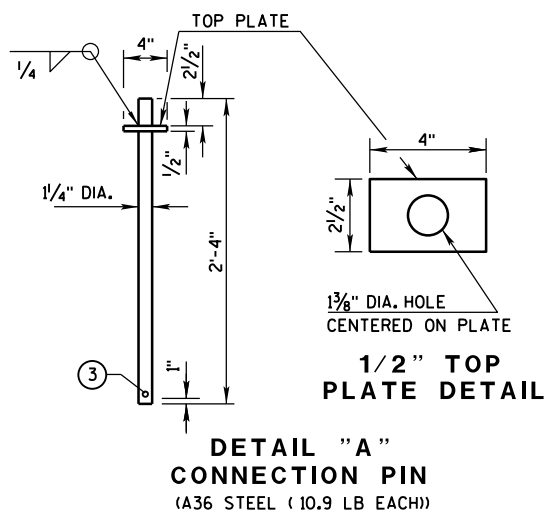


PLAN VIEW

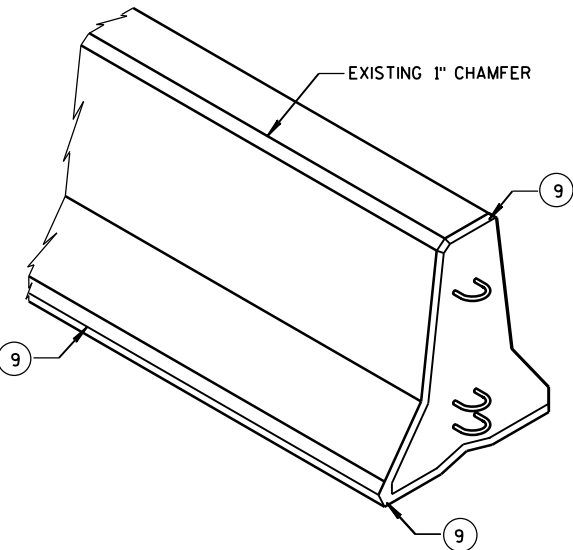
DETAILS OF BARRIER SECTION



DETAILS OF BARRIER CONNECTION



DETAIL "A"
CONNECTION PIN
(A36 STEEL (10.9 LB EACH))



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-14(g) THRU 14B7-14(h).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRCAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE 3/4" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-1/2" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN 1/8" OF THE PLAN DIMENSION.

CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

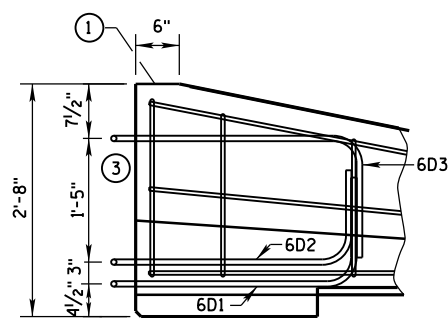
PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - TYPE: WICBTP
 - MANUFACTURER
 - DATE MANUFACTURED (MONTH AND YEAR)
- 1" CHAMFER TO PREVENT SPALLING.
- A 3/8" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
- "V" NOTCH IS OPTIONAL.
- THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
- NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
- USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURER'S INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
- SEE SHEET D FOR ANCHORING CRITERIA.
- 1" CHAMFER OPTIONAL.

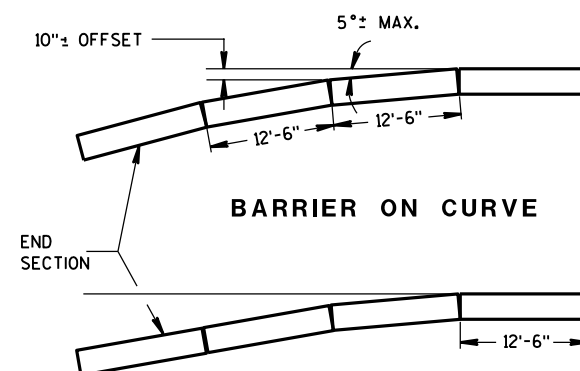
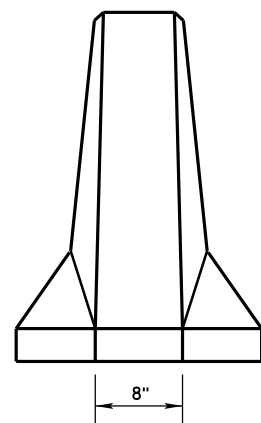
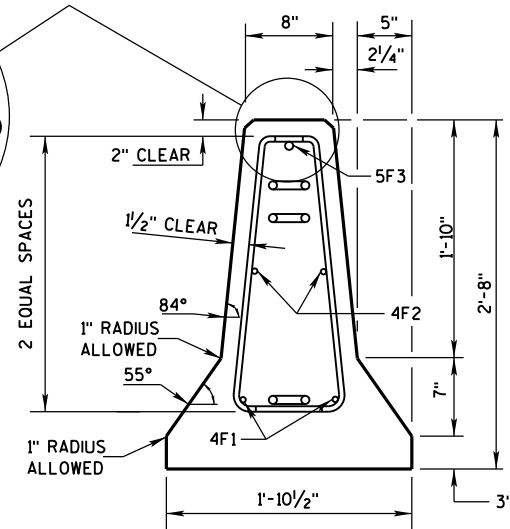
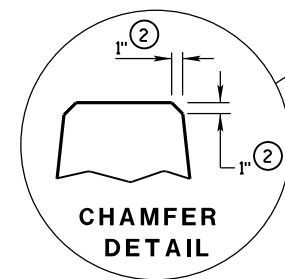
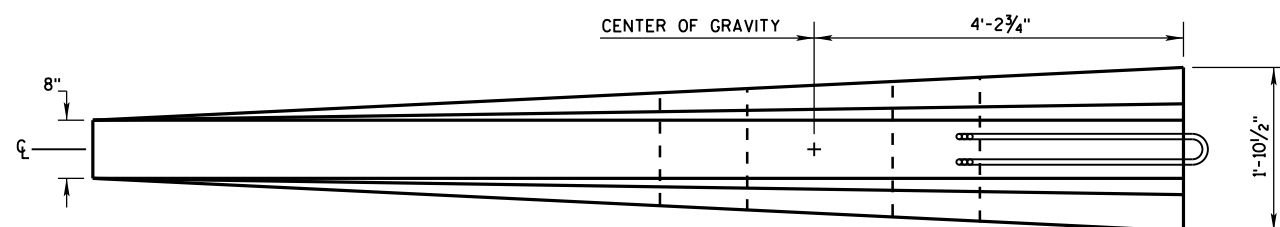
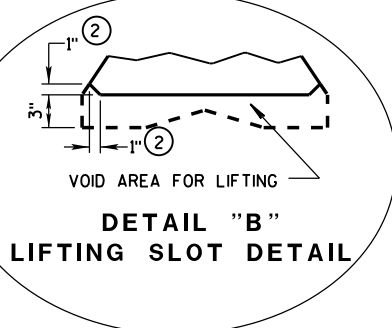
CONCRETE BARRIER
TEMPORARY PRCAST, 12'-6"

STATE OF WISCONSIN
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- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE WICBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)



POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

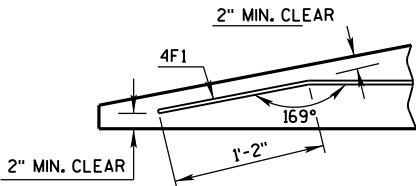
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 140

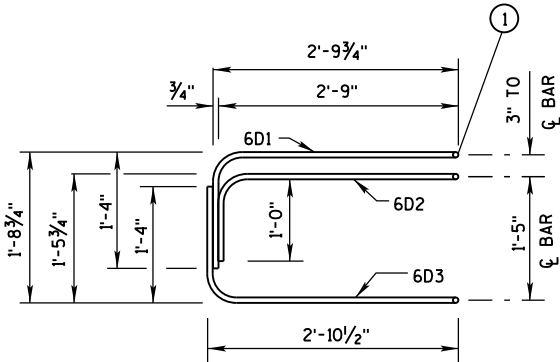
BARRIER TAPER SECTION
BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

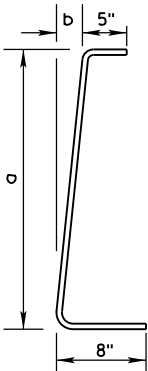
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



DETAIL "C"
BENT BAR DETAIL



ELEVATION
LOOP BAR ASSEMBLY



4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

BAR	a	b
V1	10"	1"
V2	1'-1"	1 1/4"
V3	1'-5"	1 5/8"
V4	1'-8"	1 7/8"
V5	2'-0 1/2"	2 3/8"
V6	2'-3"	2 3/4"

TAPER BARRIER SECTION

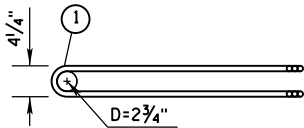
GENERAL NOTES

① NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

BARRIER SECTION
BILL OF MATERIALS

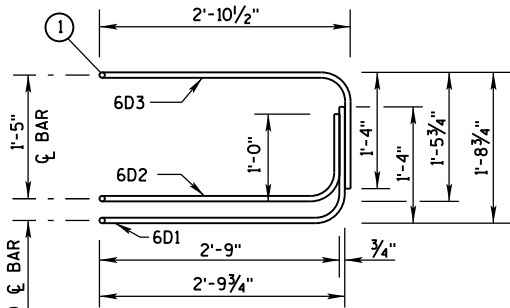
(PER 12'-6" BARRIER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"

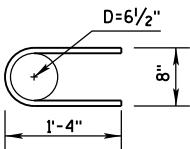


PLAN VIEW
LOOP BAR ASSEMBLY

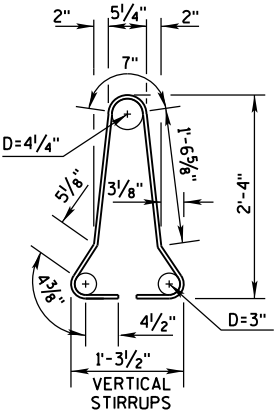
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2

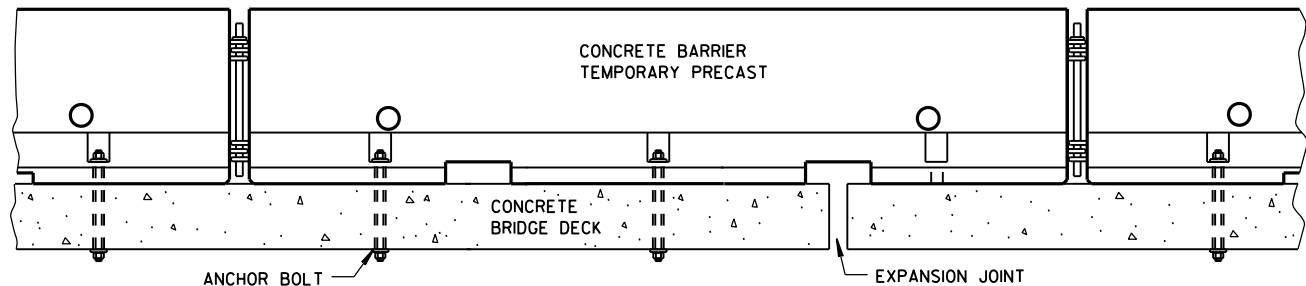
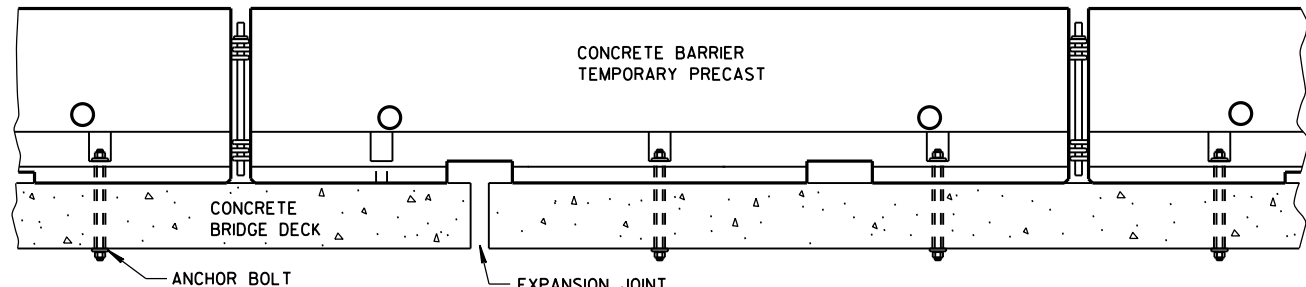


4A1

BARRIER SECTION

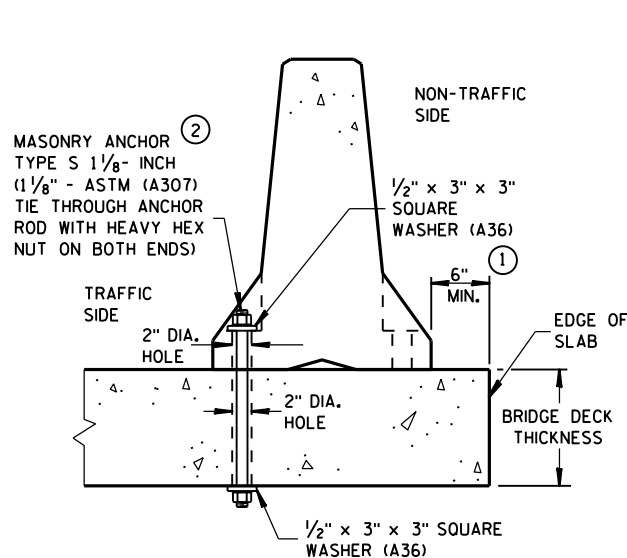
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

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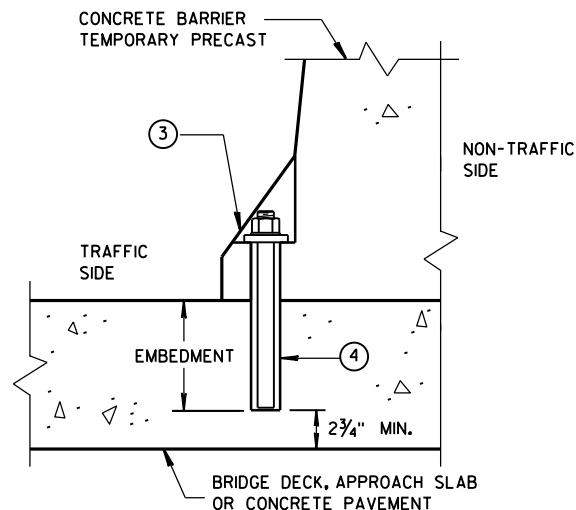
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



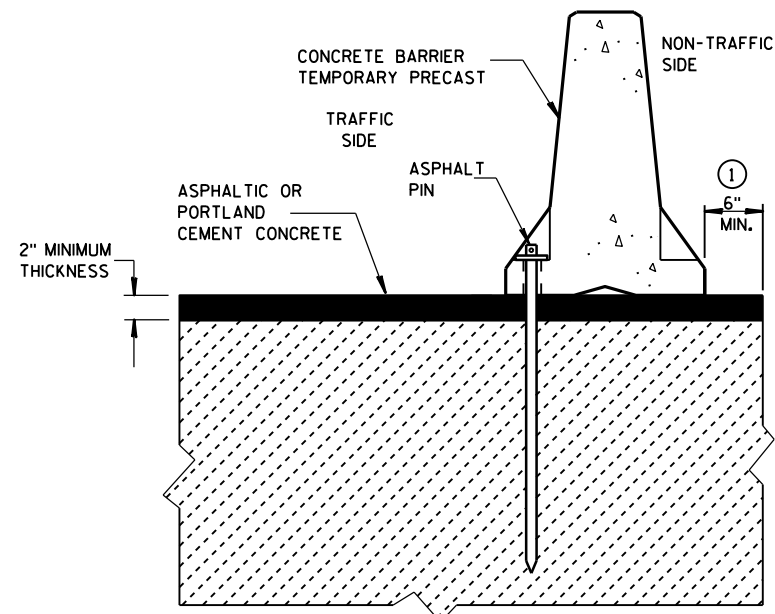
THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



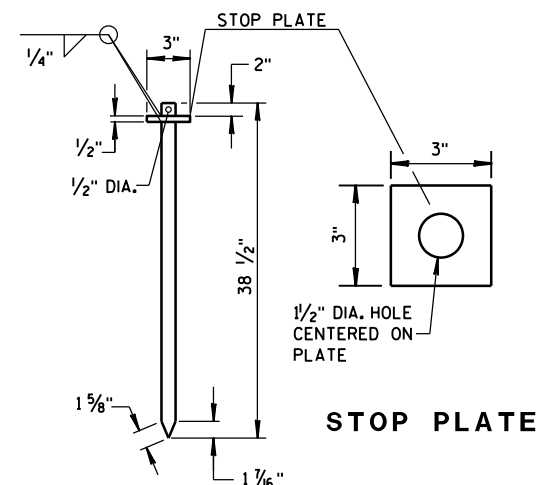
REMOVABLE ADHESIVE BONDED ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

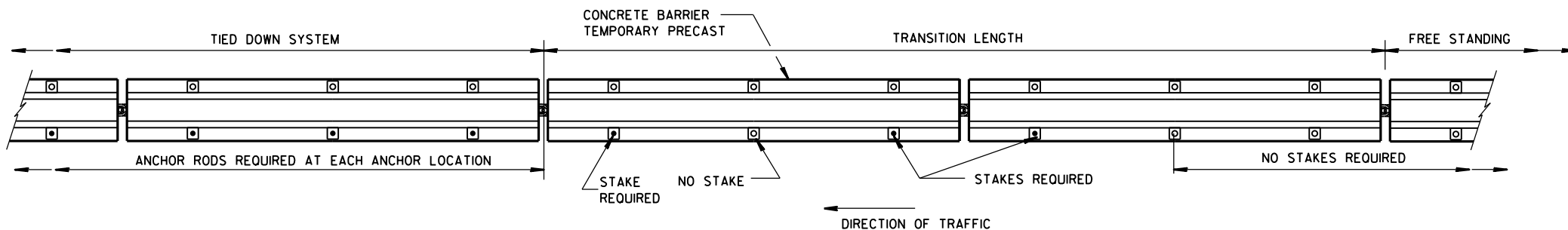


STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE

(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



ASPHALT PIN
(ASTM A36 STEEL)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

GENERAL NOTES

- CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" SHALL BE ANCHORED IF:
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 4 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 45 MPH OR GREATER, OR

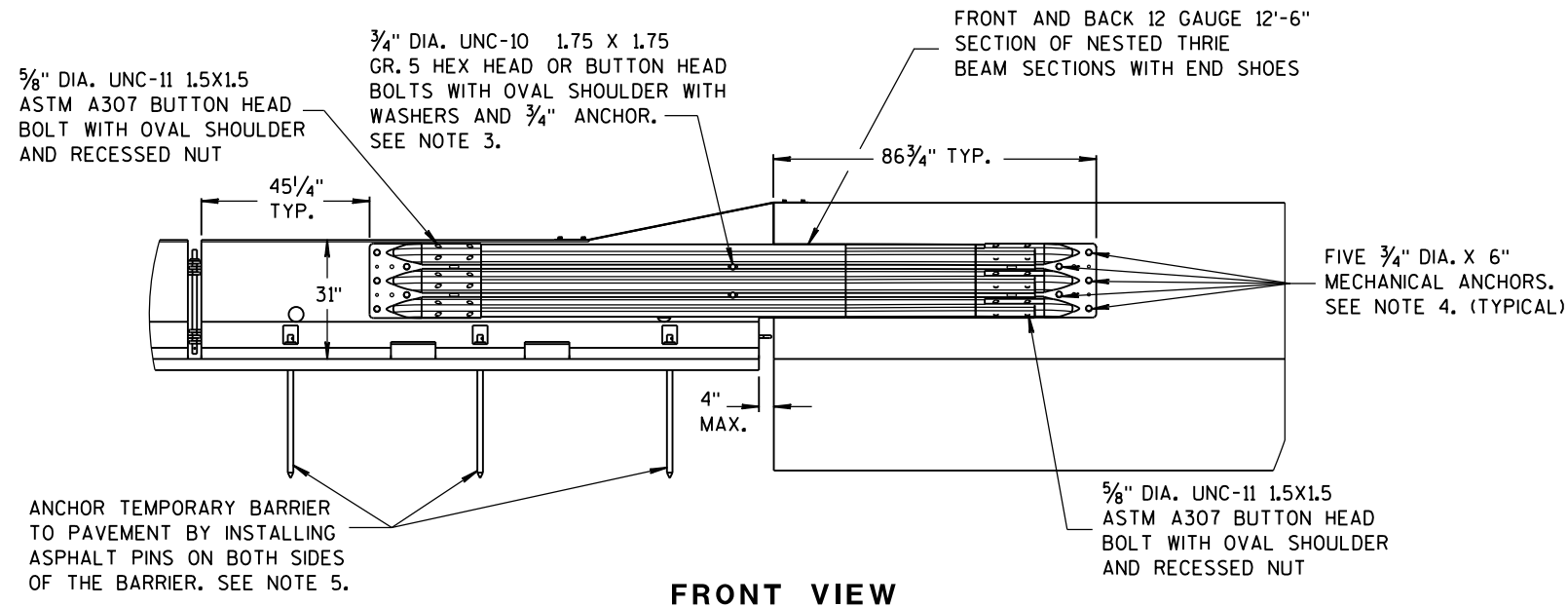
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V, FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT, IS LESS THAN 2 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF AND THE POSTED SPEED IS 40 MPH OR LESS.
- ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.

WITH THE APPROVAL OF THE ENGINEER, REMOVABLE ADHESIVE BONDED ANCHOR BOLT INSTALLATION MAY BE USED IN LIEU OF THROUGH BOLTED ANCHOR INSTALLATION. THE ADHESIVE BONDED ANCHOR BOLT MUST BE REMOVABLE. USE ASTM (A307) MASONRY ANCHORS TYPE S 1 1/8-INCH, EMBEDDED TO A DEPTH SUFFICIENT TO DEVELOP THE ULTIMATE CAPACITY OF THE ANCHOR BOLT AND PROVIDE DOCUMENTATION TO CONFIRM THIS.

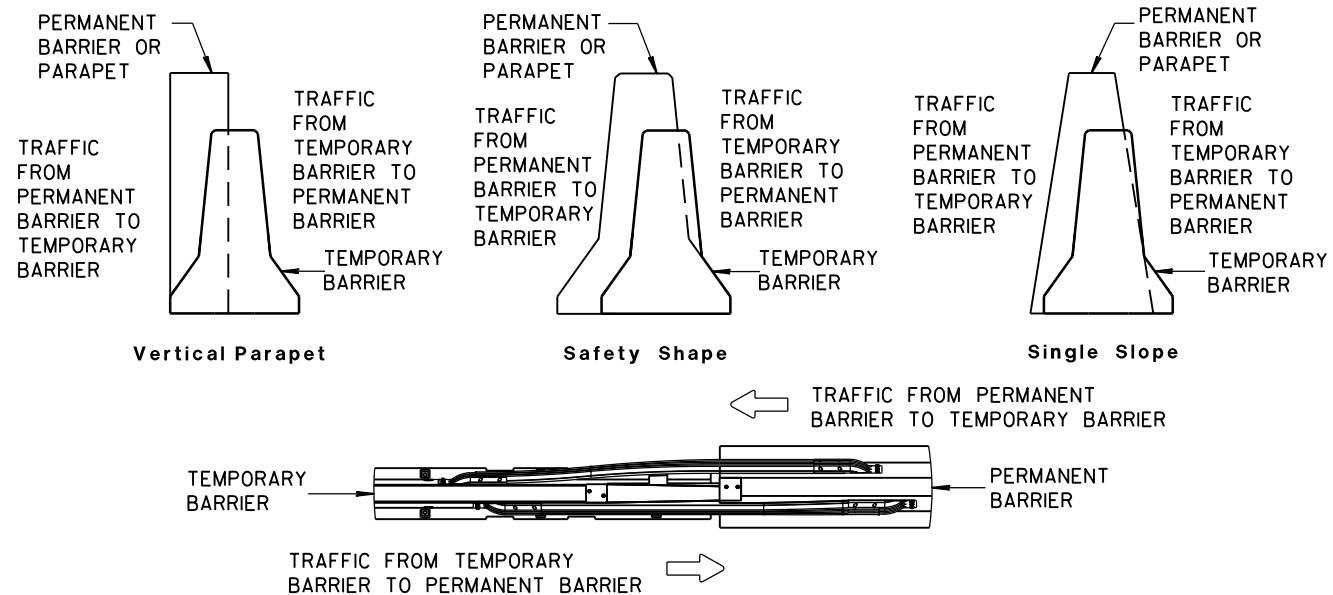
UPON REMOVAL OR RELOCATION OF THE BARRIER UNITS, REMOVE ALL ANCHOR BOLTS AND COMPLETELY FILL IN THE REMAINING HOLES IN CONCRETE BRIDGE DECKS, CONCRETE APPROACH SLABS AND CONCRETE PAVEMENTS THAT ARE TO REMAIN, WITH A NON-SHRINK COMMERCIAL GROUT OR MATERIAL IDENTIFIED ON THE CURRENT WISDOT APPROVED PRODUCTS LIST.
- 1/8" DIAMETER A307 THREADED ROD, 1/2" x 3" x 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.
- ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

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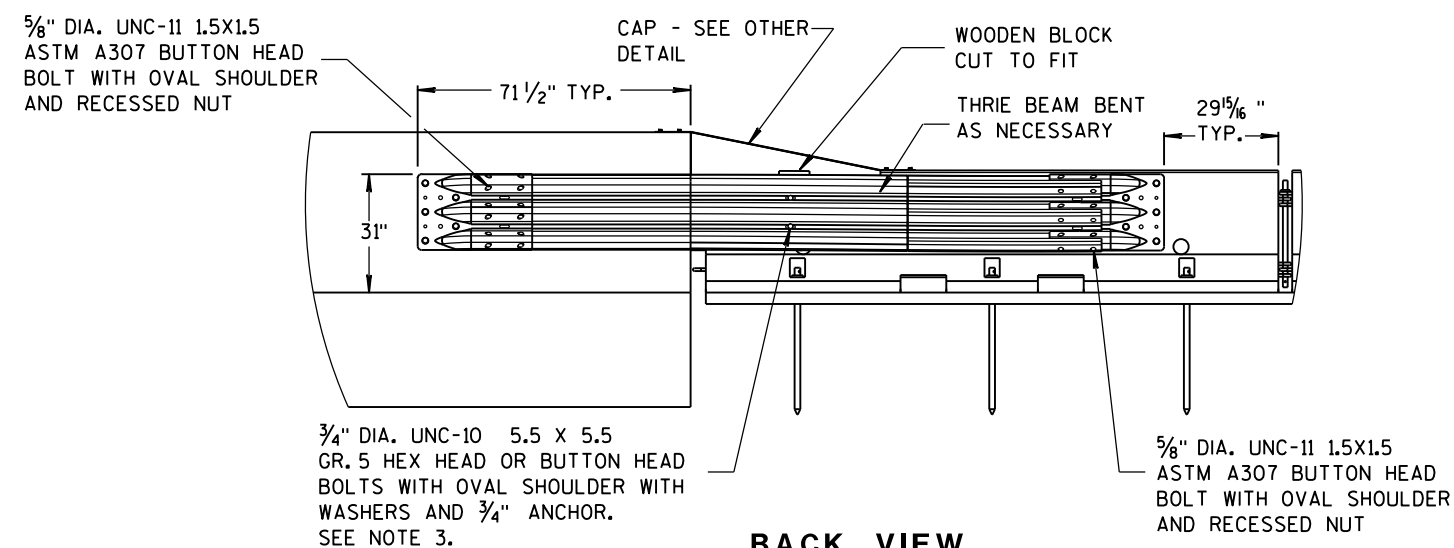
FRONT VIEW



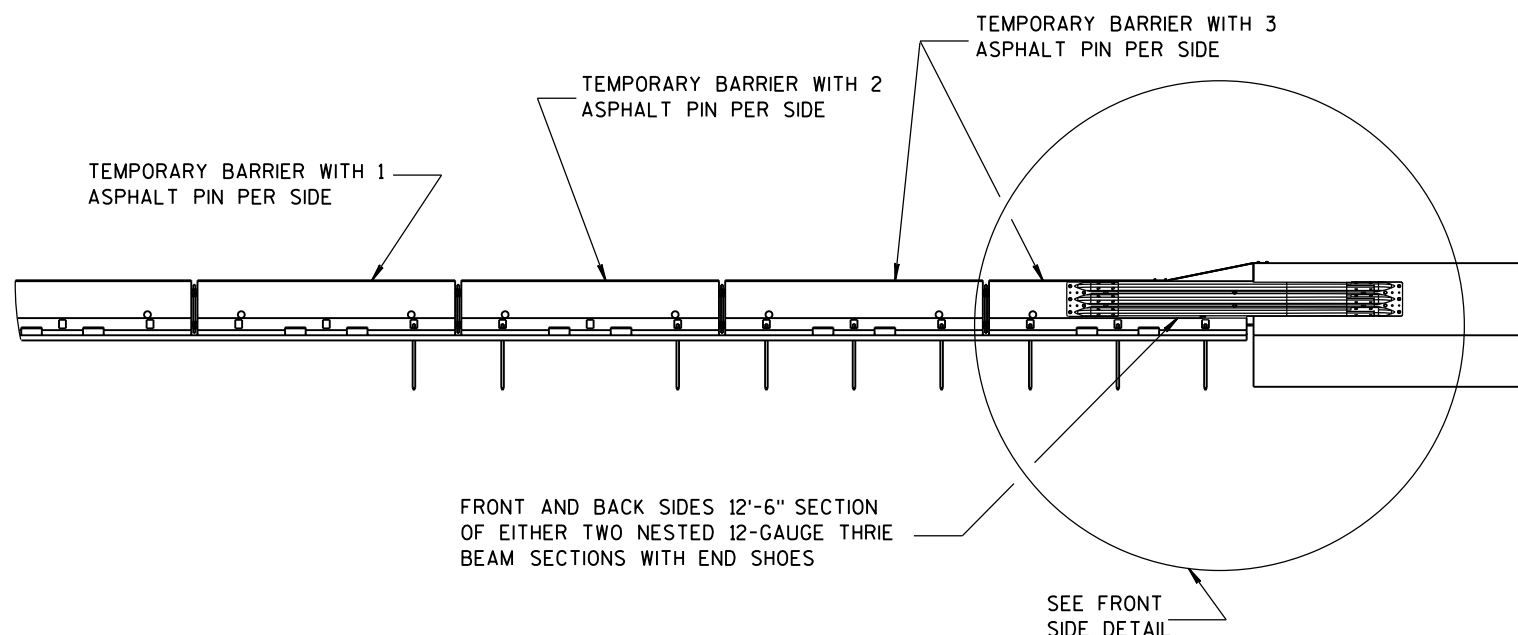
TEMPORARY BARRIER PLACEMENT FOR
BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

NOTES

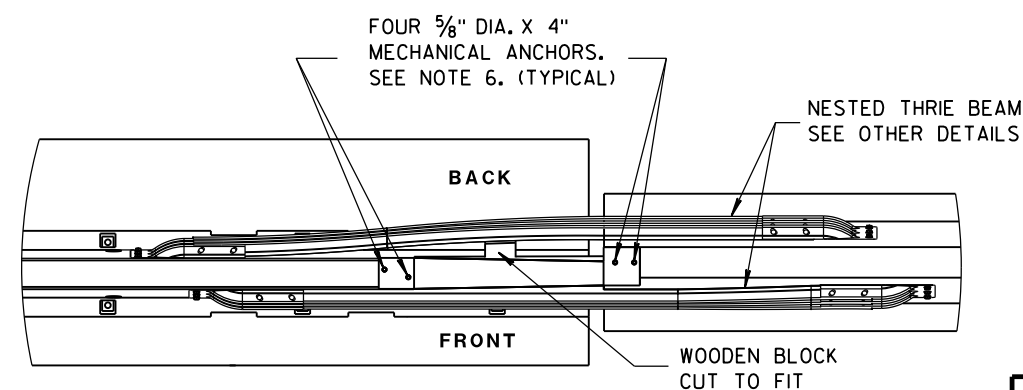
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



BACK VIEW



FRONT VIEW

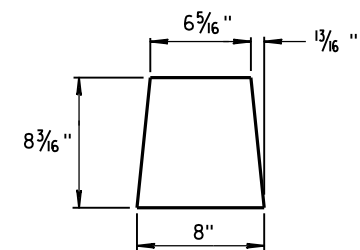


PLAN VIEW

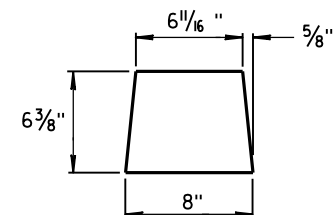
BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

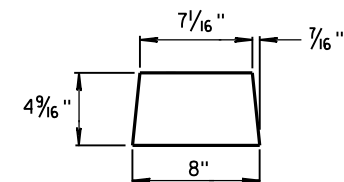
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 143



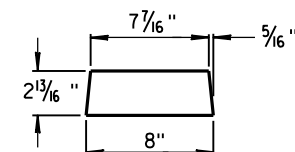
GUSSET 1



GUSSET 2

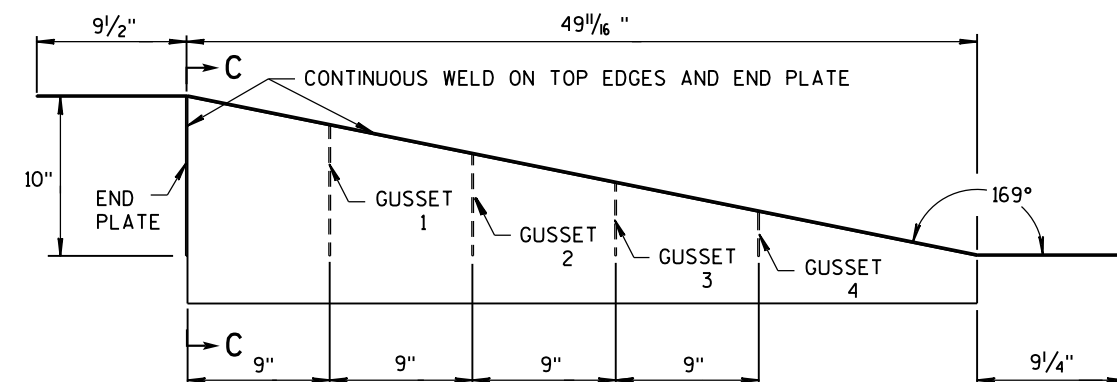
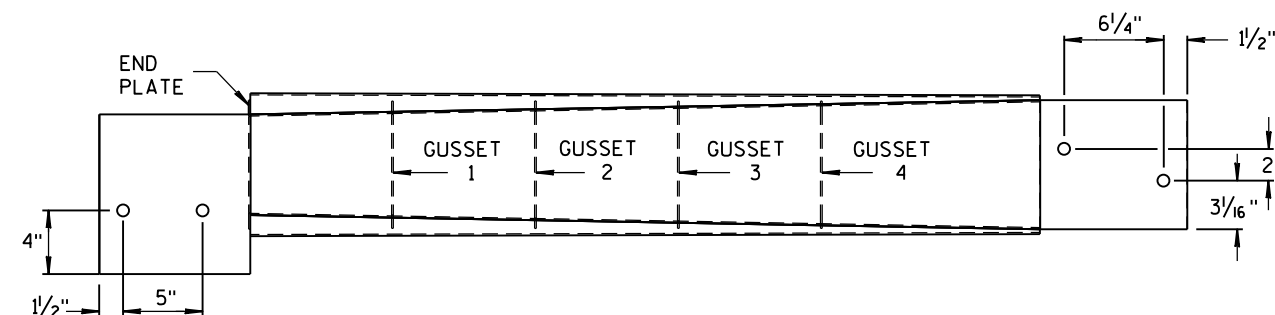


GUSSET 3



GUSSET 4

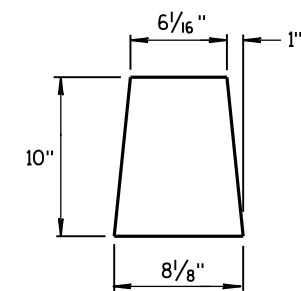
GUSSETS



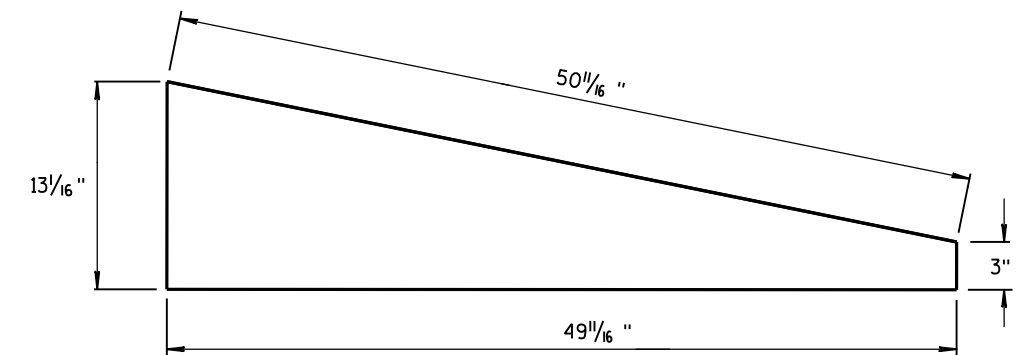
**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 42" PERMANENT CONCRETE BARRIER**

NOTES

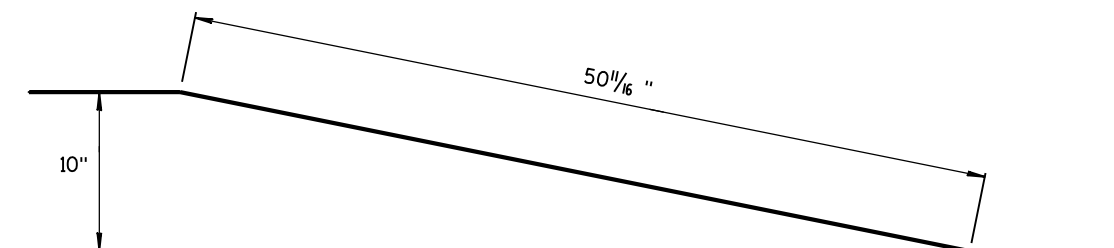
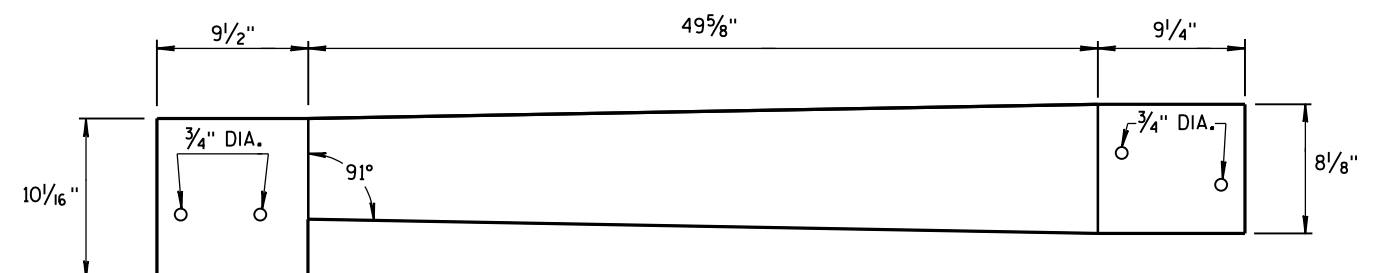
1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.



END PLATE



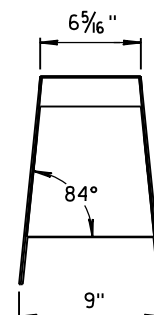
SIDE PLATE



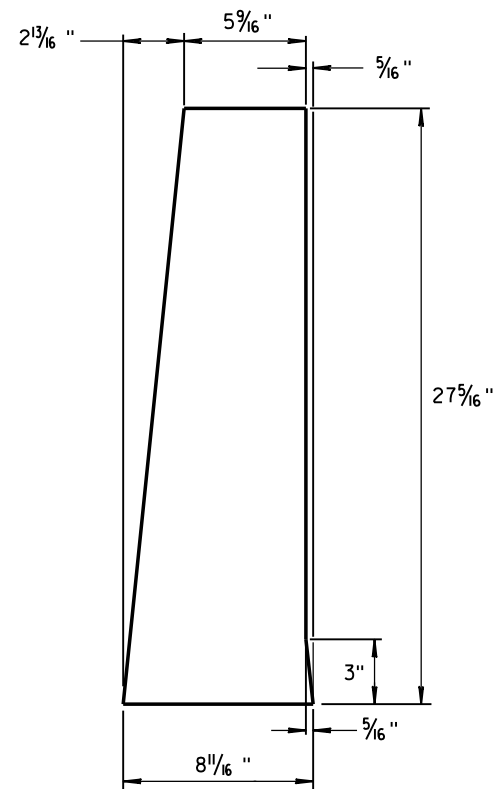
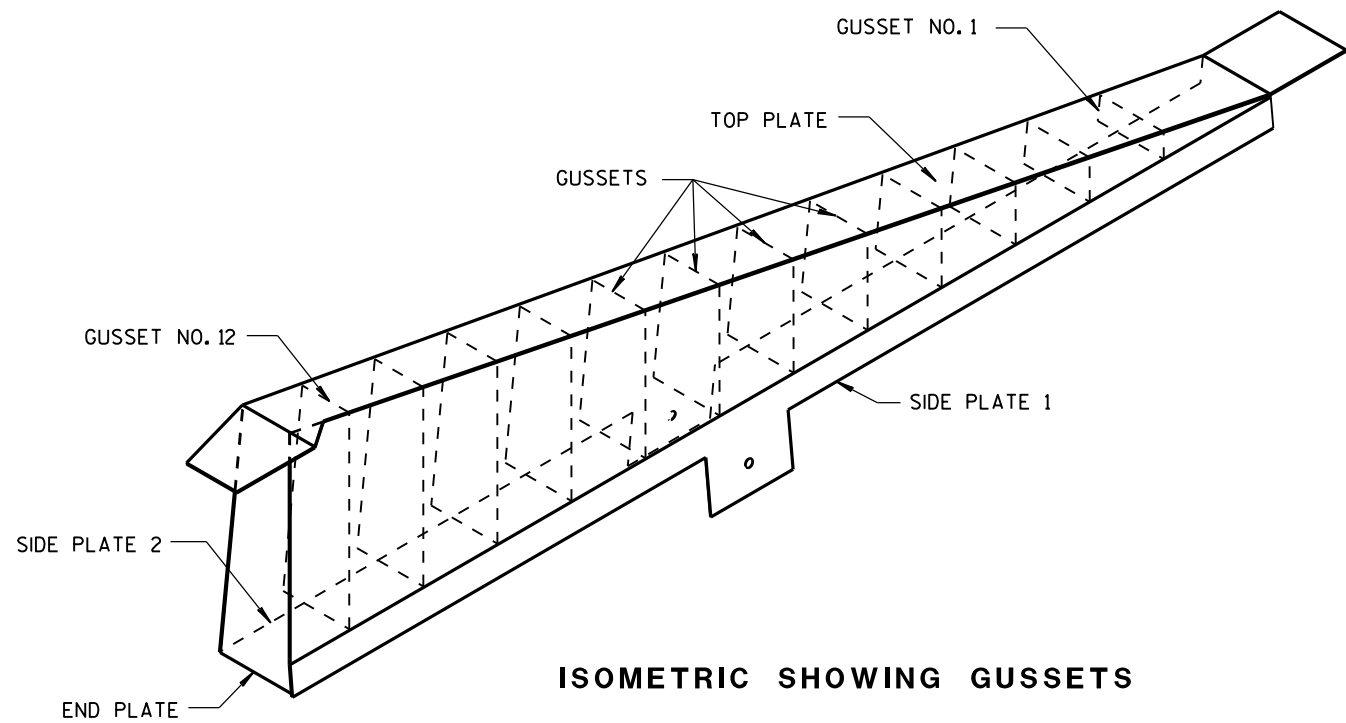
TOP PLATE

**SIDE, TOP AND END PLATES FOR CAP
FROM TEMPORARY CONCRETE BARRIER
TO 42" PERMANENT CONCRETE BARRIER**

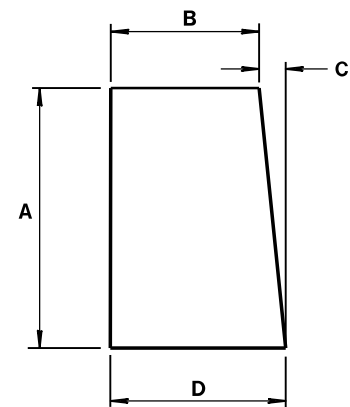
SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.



SECTION C-C



END PLATE
1/8" STEEL PLATE

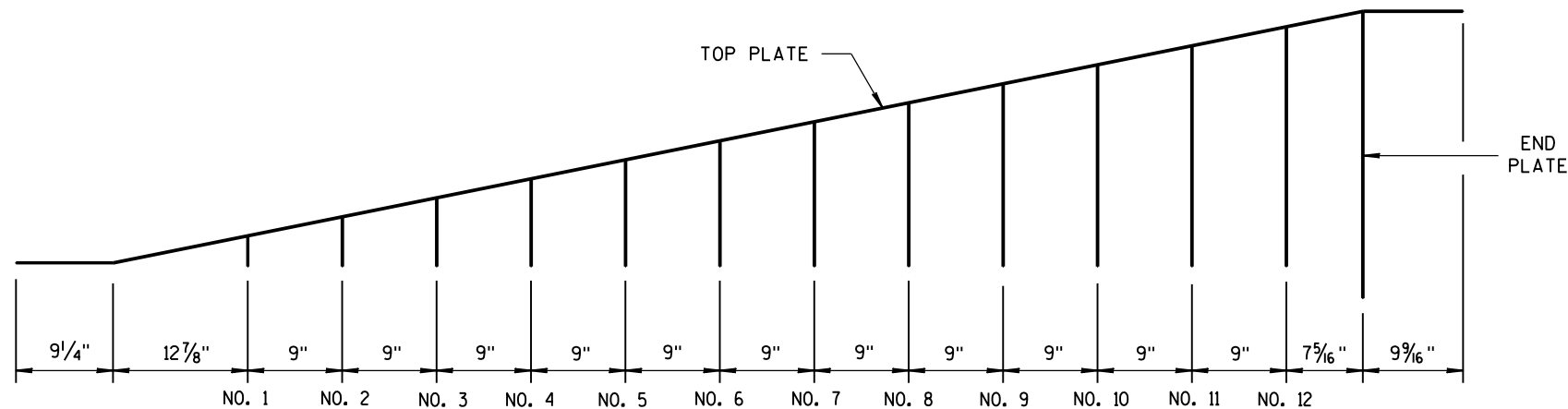


GUSSETS 1 - 12
ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 1/16 "	7 9/16 "	1/2"	8
3	6 1/2"	7 3/8"	1 1/16 "	8 1/16 "
4	8 5/16"	7 3/16"	7/8"	8 1/16"
5	10 1/8"	7"	1 1/16 "	8 1/16"
6	11 5/16 "	6 13/16 "	1 1/4"	8 1/16"
7	13 3/4"	6 5/8"	1 7/16 "	8 1/16"
8	15 9/16 "	6 7/16 "	1 9/16 "	8 1/16"
9	17 3/8"	6 1/4"	1 13/16 "	8 1/16"
10	19 3/16"	6 1/16"	1 15/16 "	8 1/16"
11	21"	5 7/8"	2 3/16"	8 1/16"
12	22 13/16 "	5 11/16 "	2 5/16"	8 1/16"

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

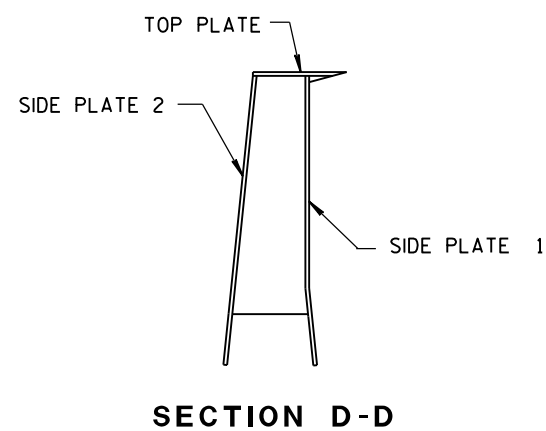
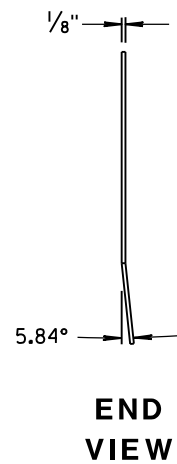
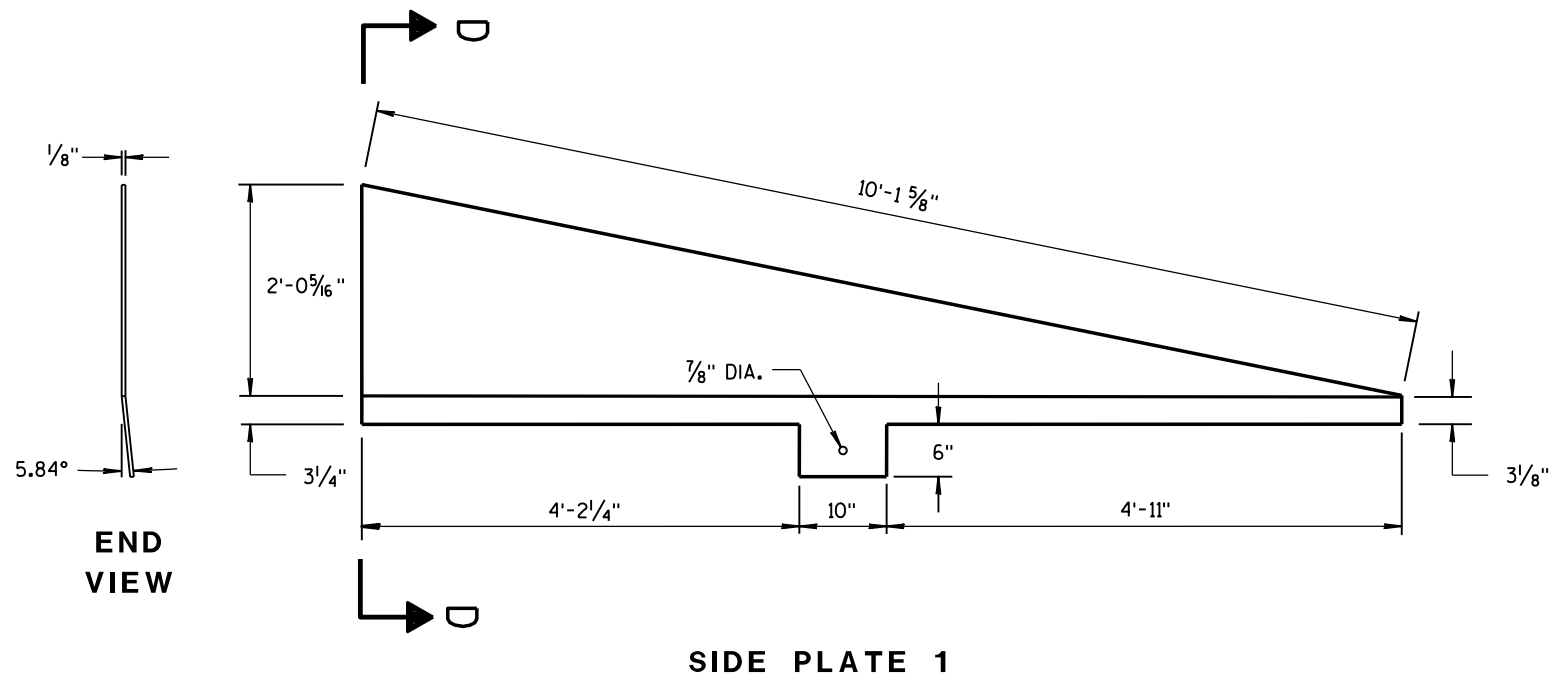
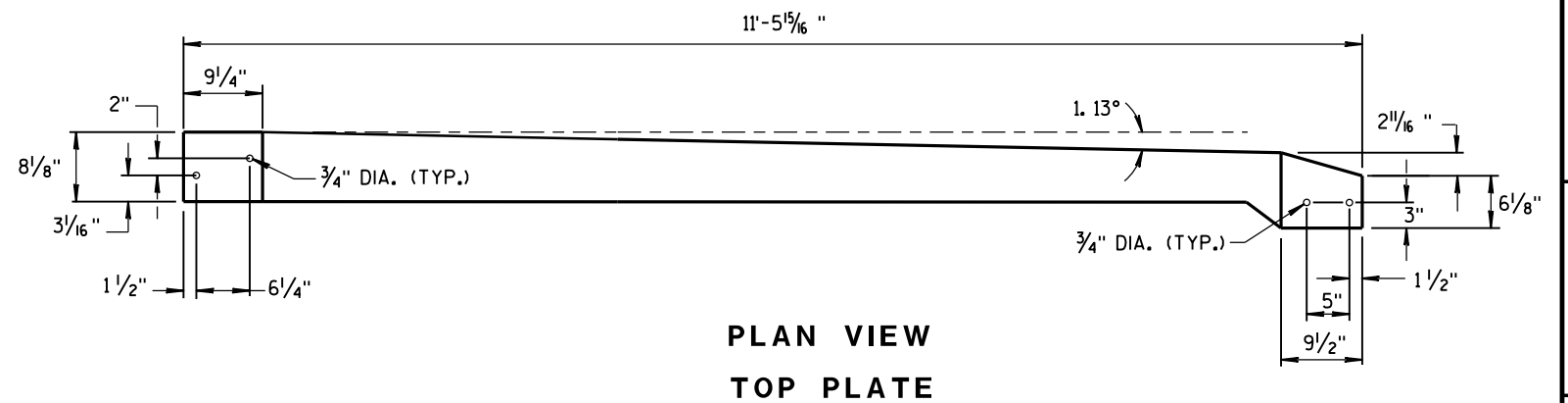
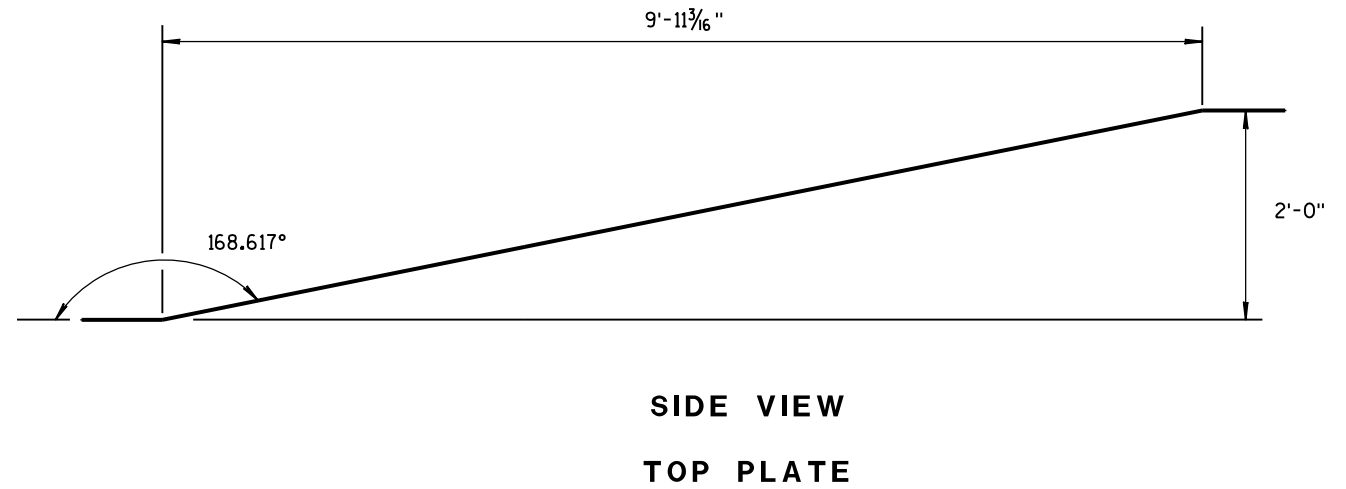
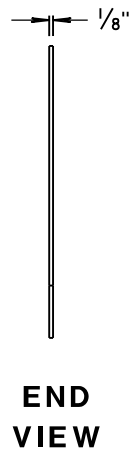
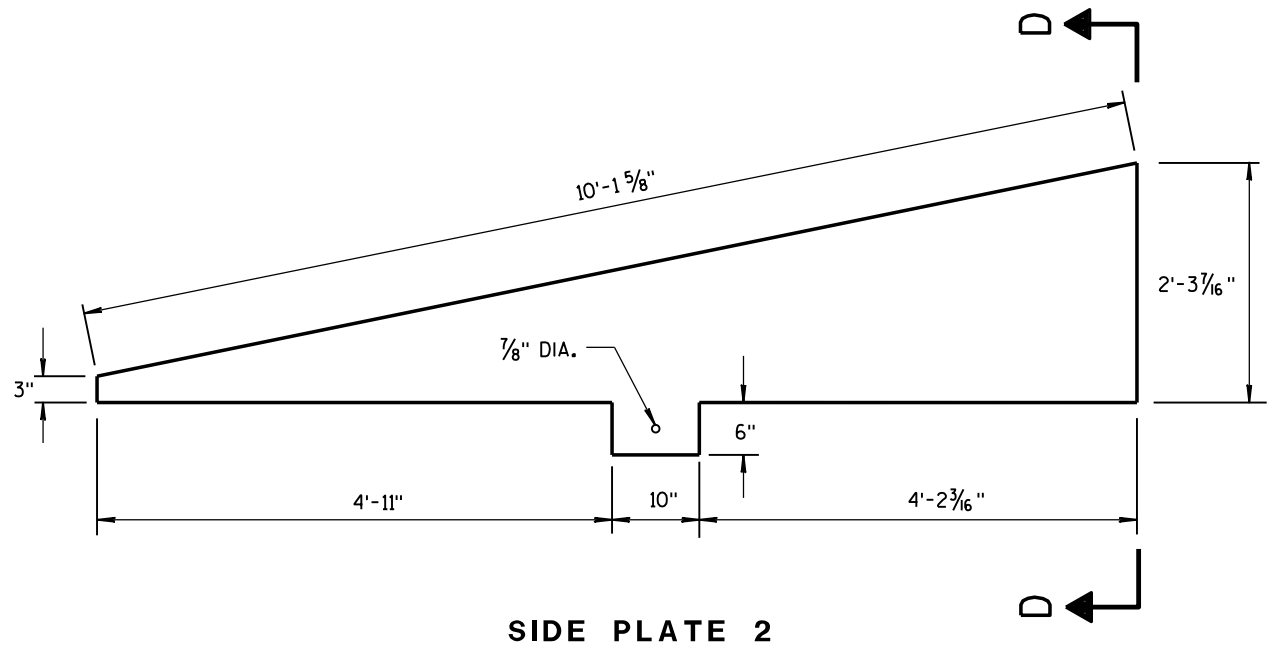
GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.



CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 56" PERMANENT CONCRETE BARRIER

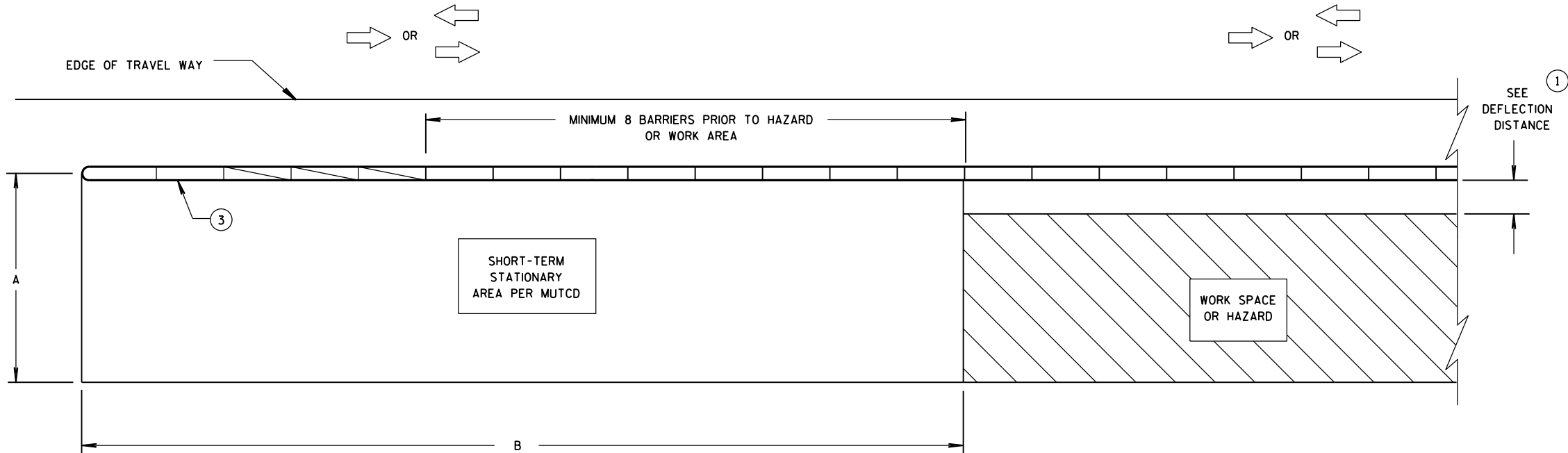
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 145

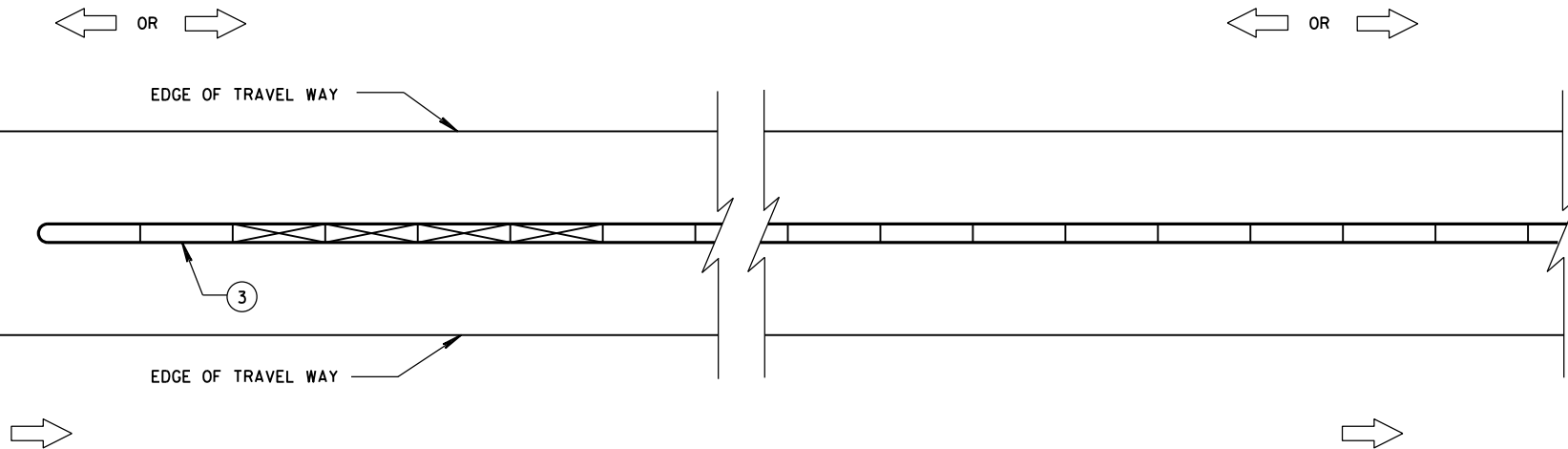


**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 56" PERMANENT CONCRETE BARRIER**

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED			
June 2014	/S/ Jerry H. Zoog		
DATE	ROADWAY STANDARD	146	INT
FHWA	ENGINEER		



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.

SLOPES LEADING TO TEMPORARY BARRIER, CRASH CUSHION OR SAND BARREL ARRAY ARE 10:1 OR LESS.

- 1 FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.
- 2 VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.
- 3 ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

DIMENSION A TABLE 2

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

DIMENSION B TABLE 2

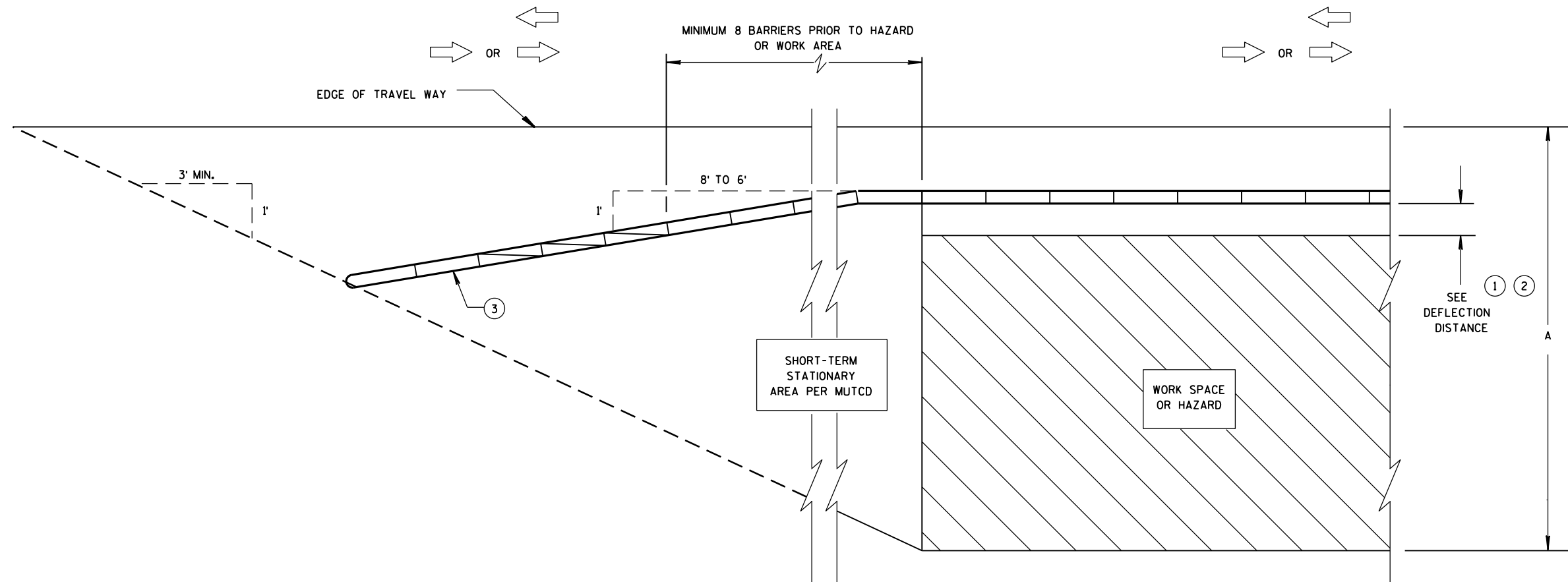
POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

LEGEND

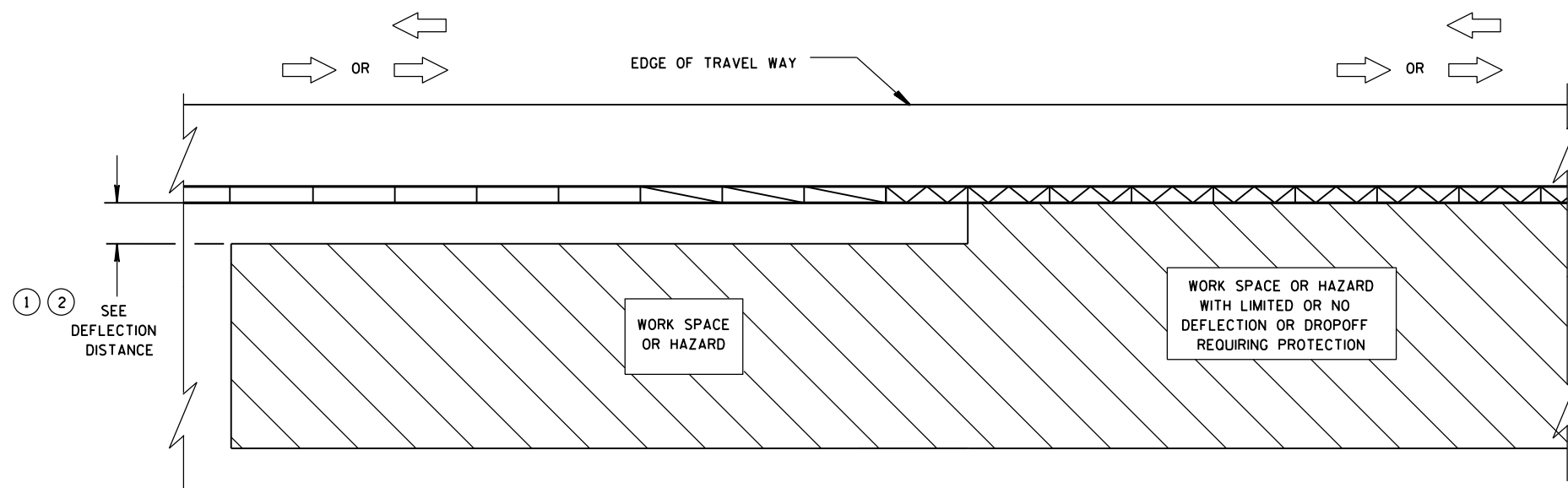
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION**



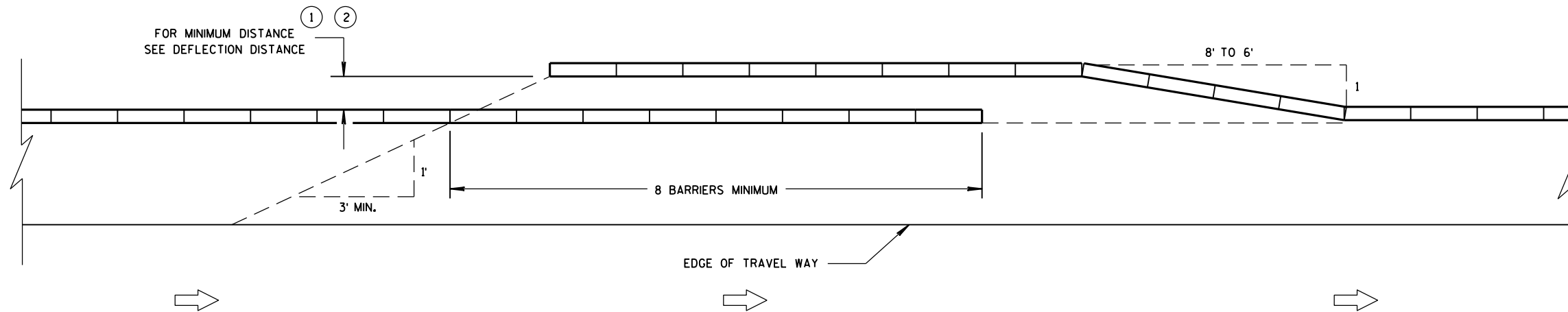
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER
TO ANCHORED BARRIER**

LEGEND

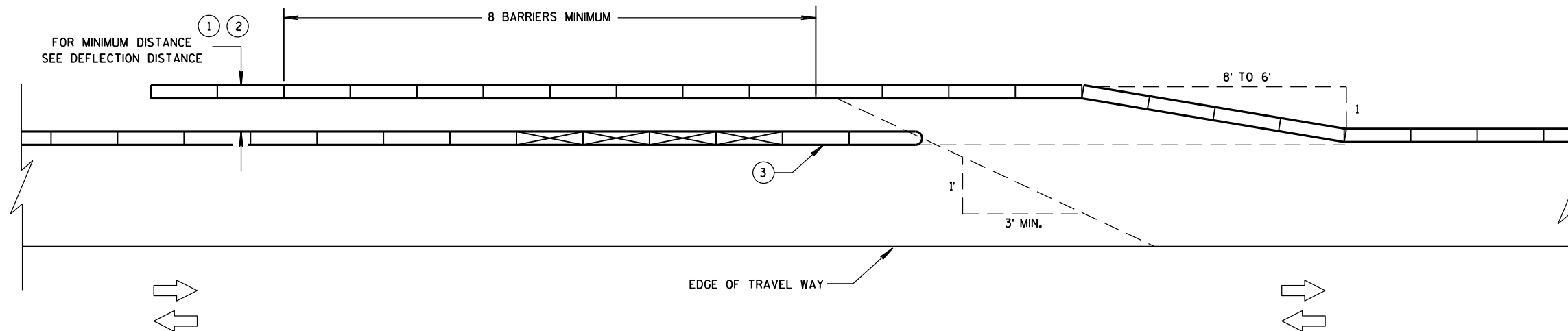
DIRECTION OF TRAVEL	
CRASH CUSHION OR SAND BARREL ARRAY	
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS	
SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS	
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER	
PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET	
FREE STANDING TEMPORARY BARRIER	

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

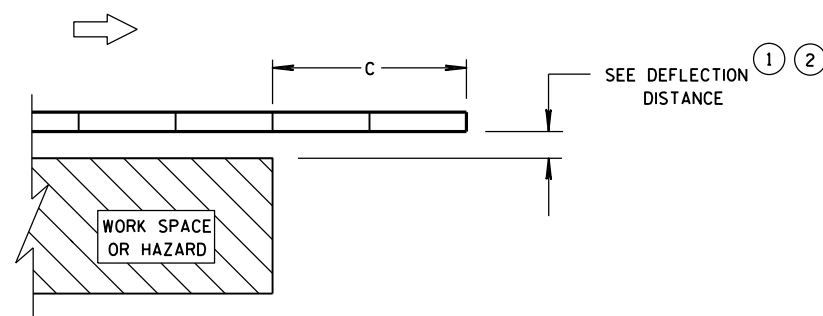
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 148



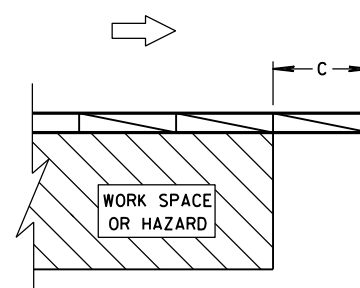
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



**ENDING TEMPORARY BARRIER
DOWNSTREAM - UNANCHORED**



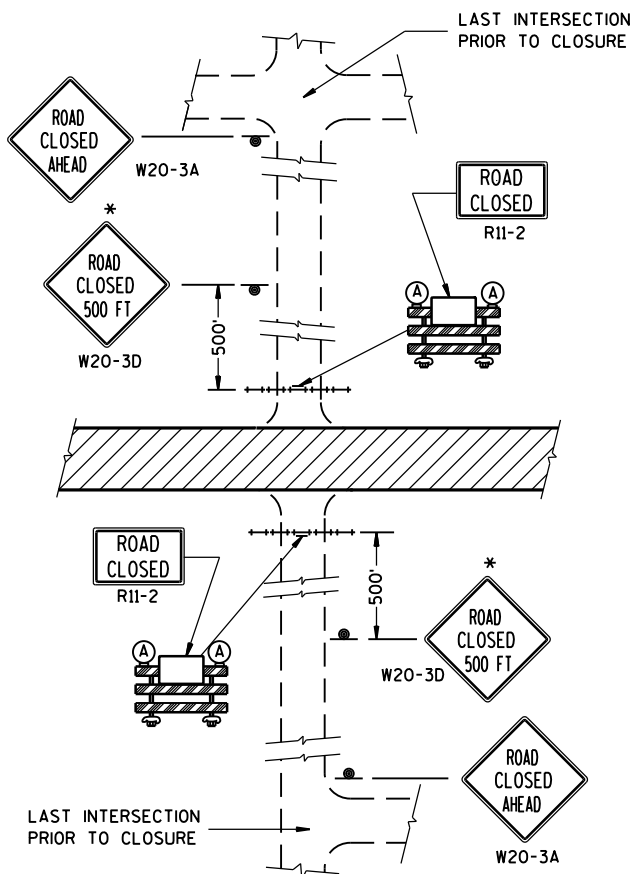
**ENDING TEMPORARY BARRIER
DOWNSTREAM - ANCHORED**

LEGEND

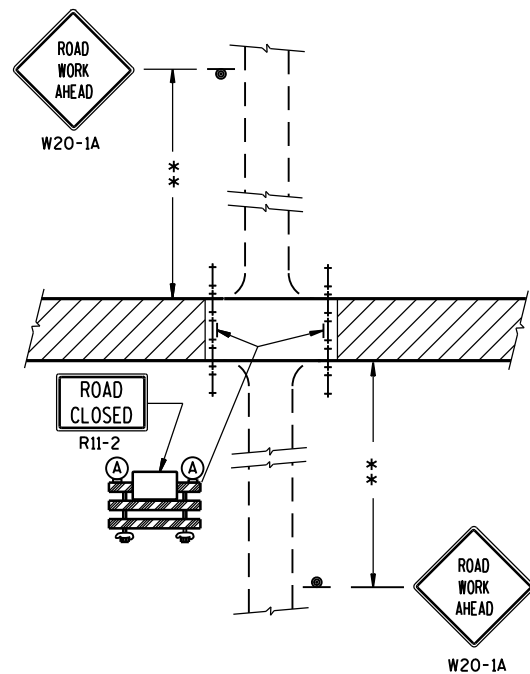
DIRECTION OF TRAVEL	
CRASH CUSHION OR SAND BARREL ARRAY	
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS	
SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS	
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER	
PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET	
FREE STANDING TEMPORARY BARRIER	

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

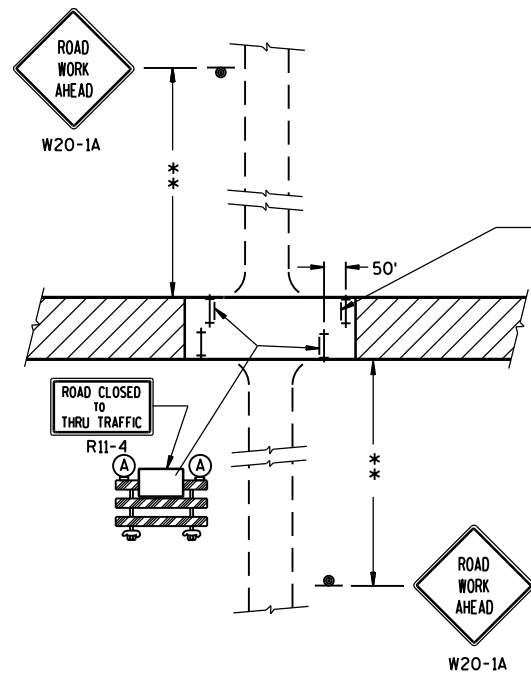
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 149



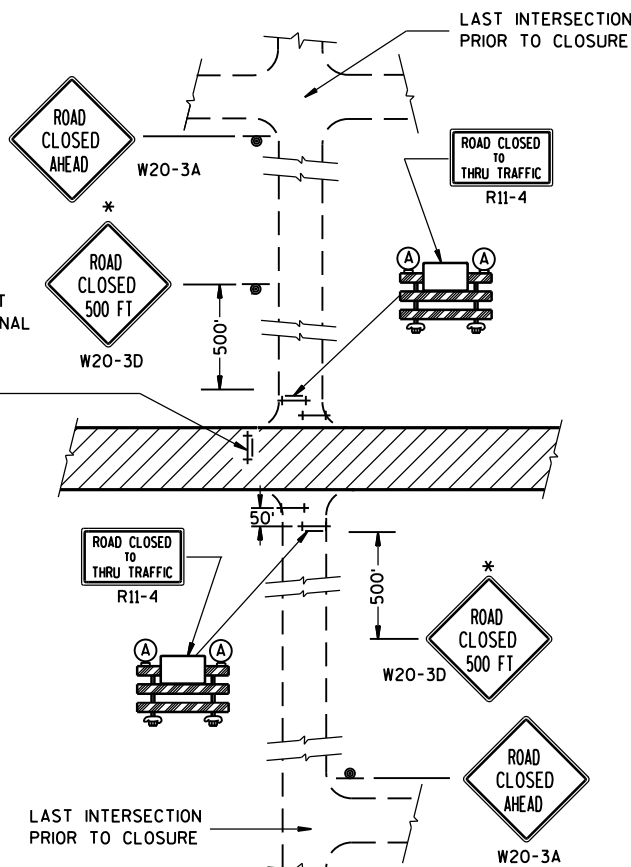
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

R11-2 SHALL BE 48" X 30".

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

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

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

LEGEND

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

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

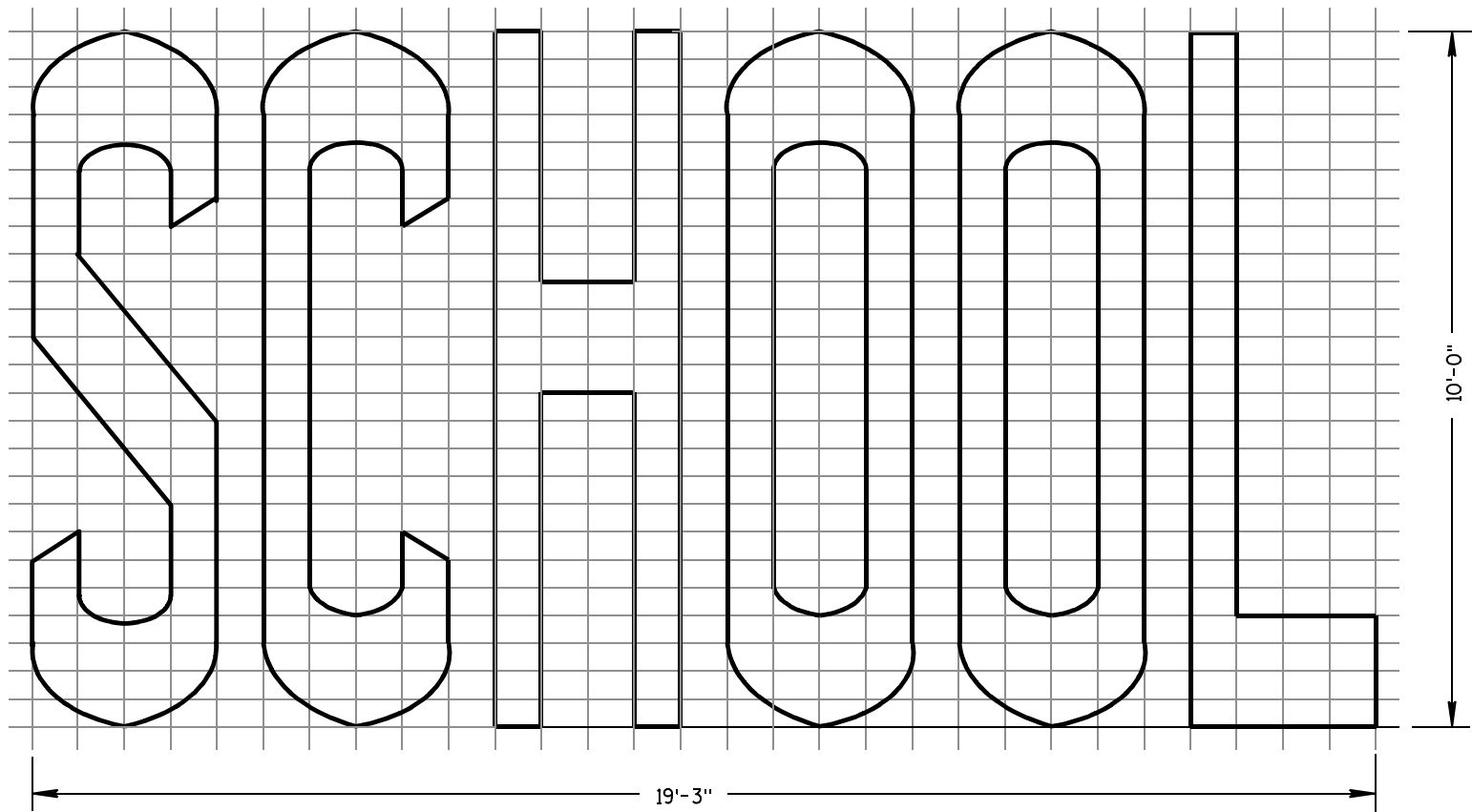
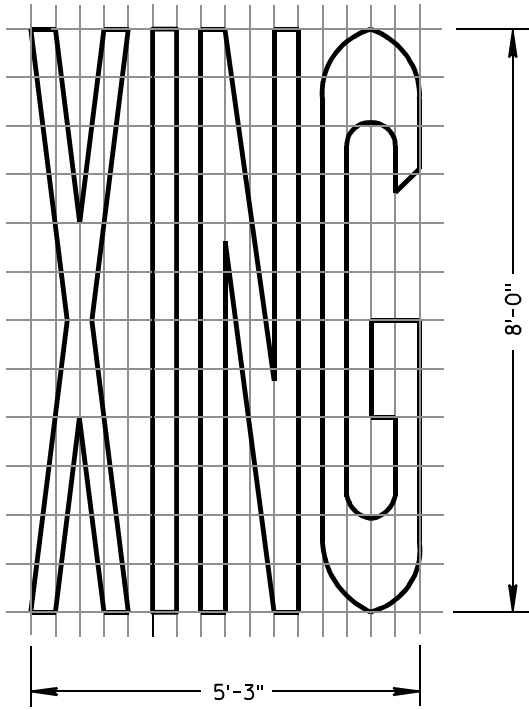
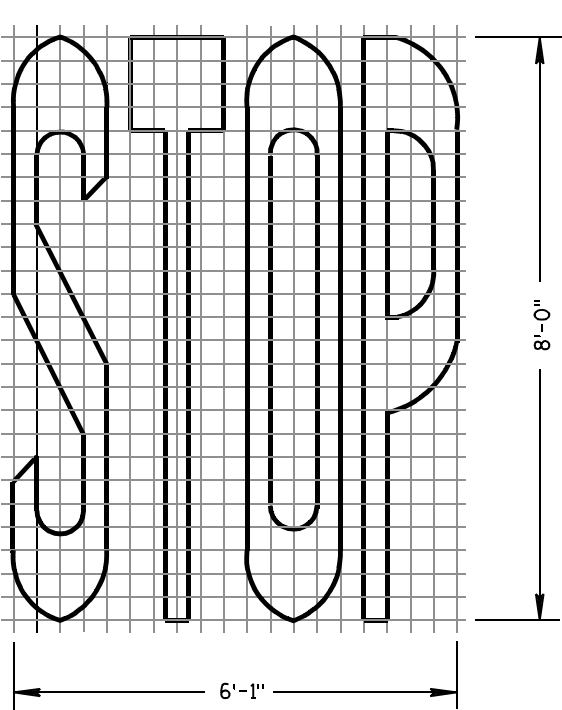
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2015 /S/ Peter Amakobe Atepe
DATE STATEWIDE WORK ZONE SAFETY ENGINEER
FHWA 150

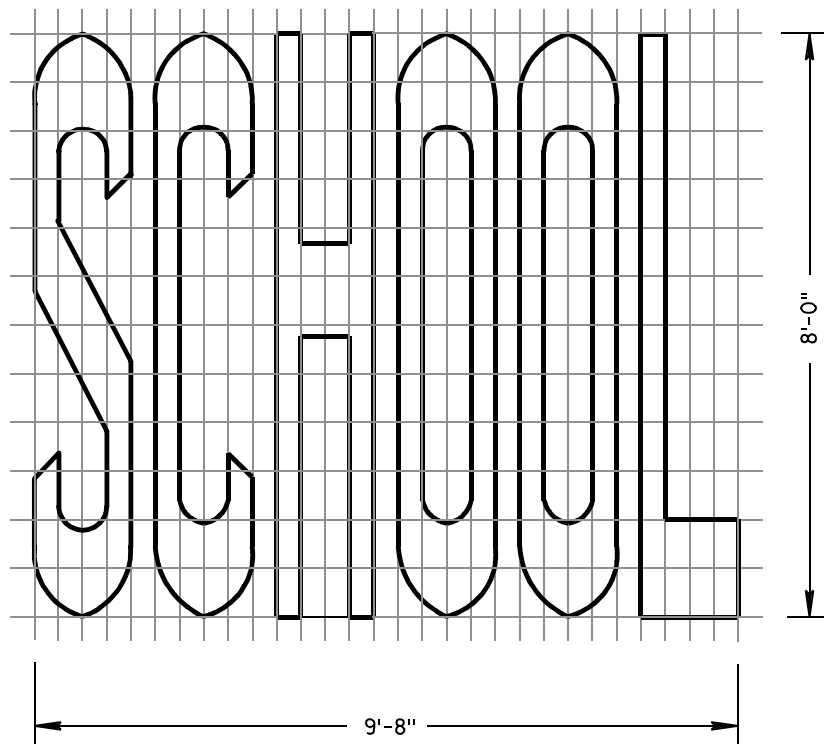
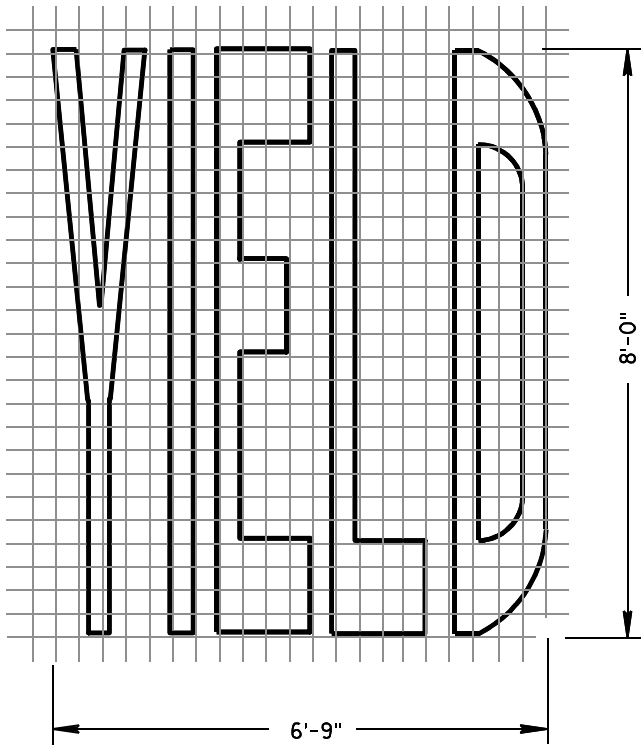
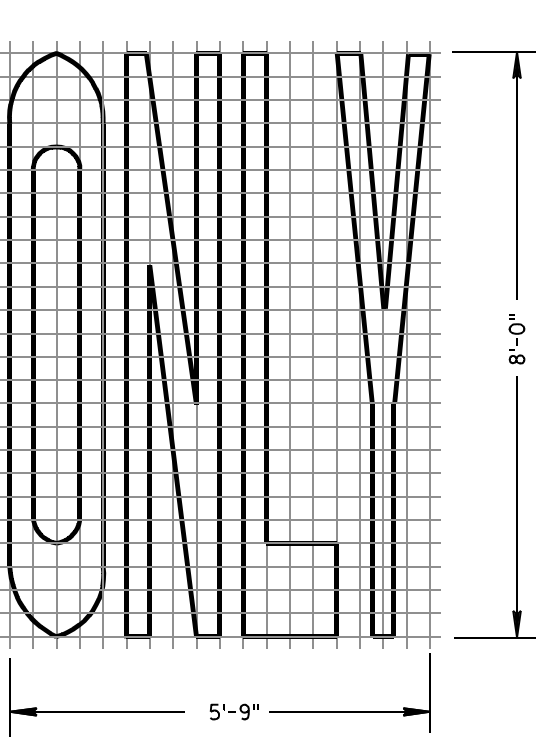
GENERAL NOTES

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

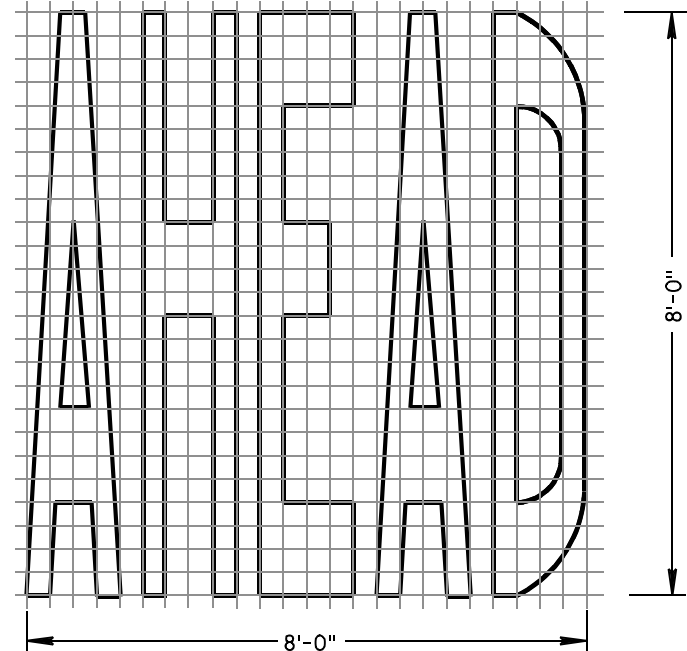
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES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



TWO-LANE



SINGLE-LANE



PAVEMENT MARKING WORDS

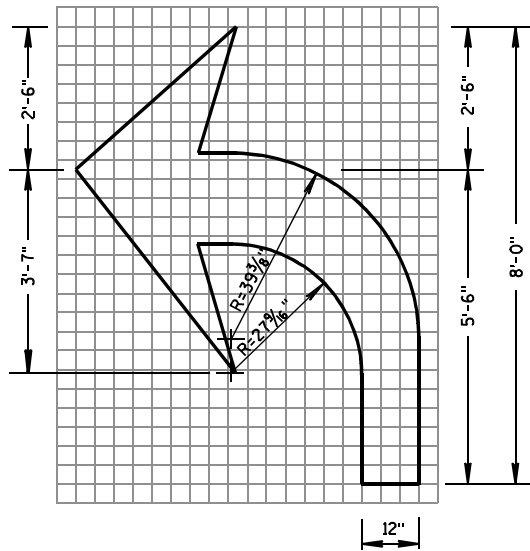
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

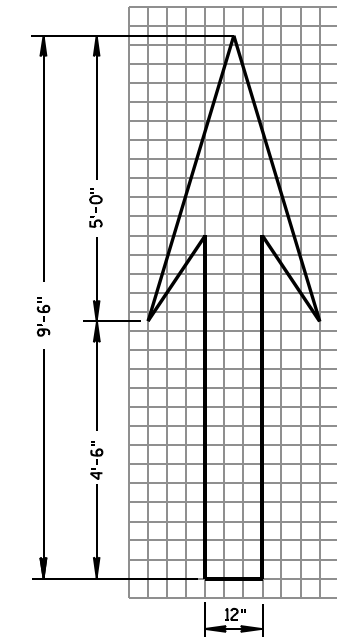
7-1-11
DATE

/S/ Thomas N. Nothmann
STATE TRAFFIC ENGINEER 151 IGN

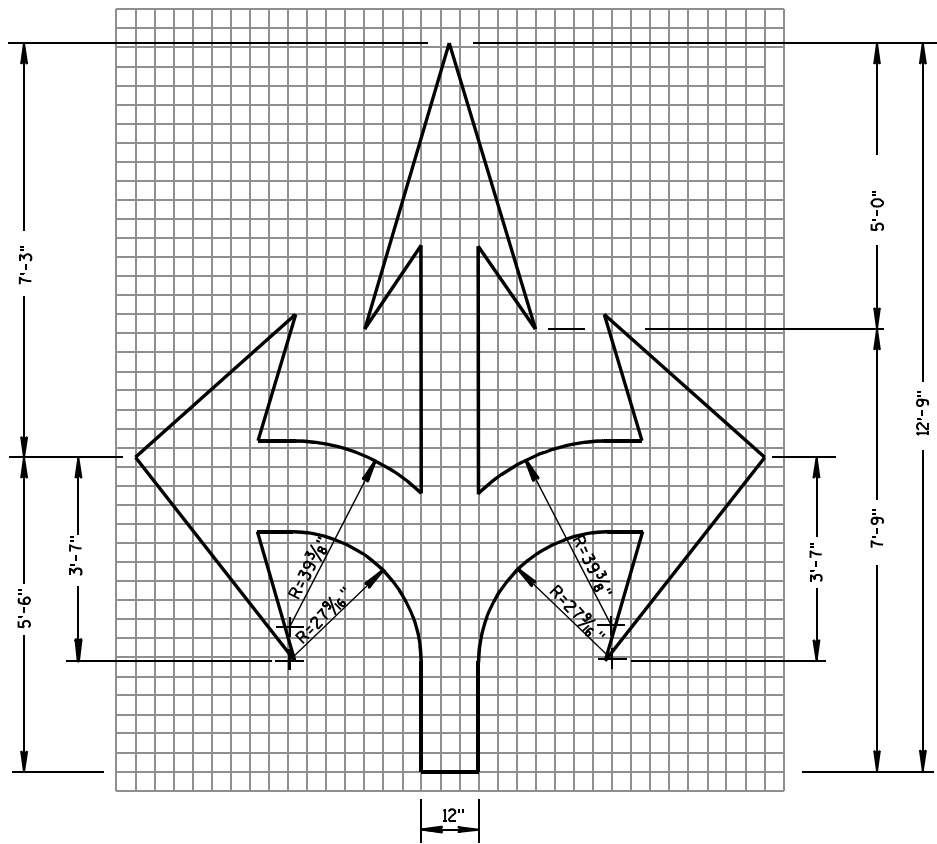
FHWA



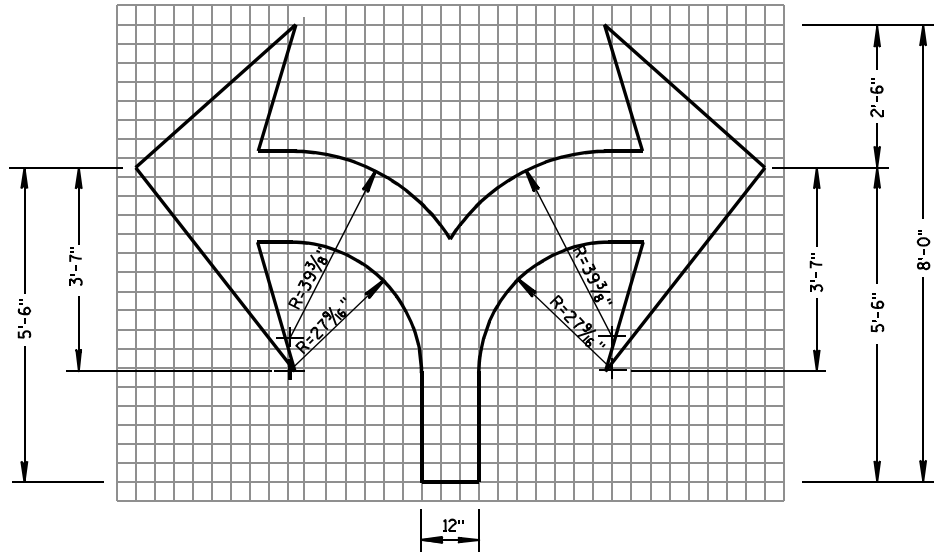
TYPE 2



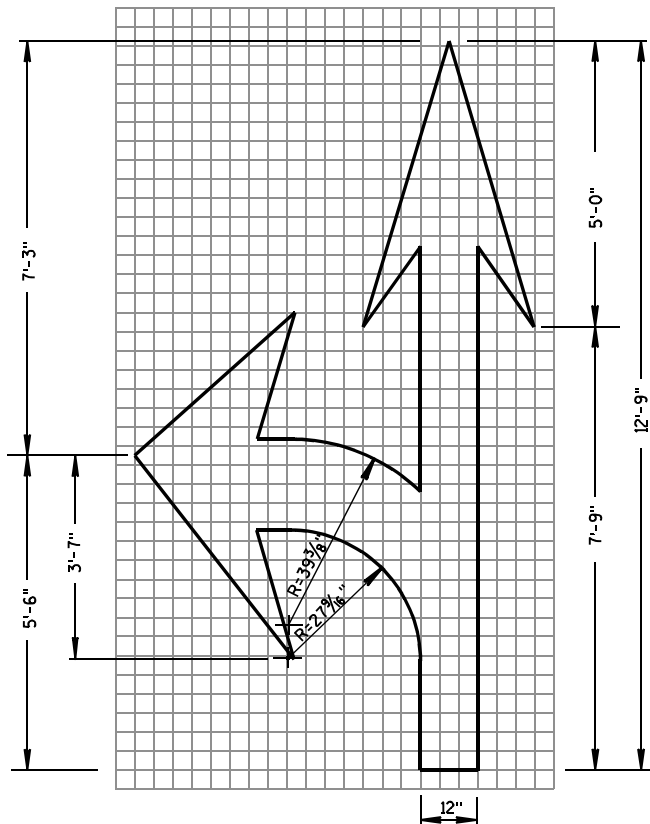
TYPE 1



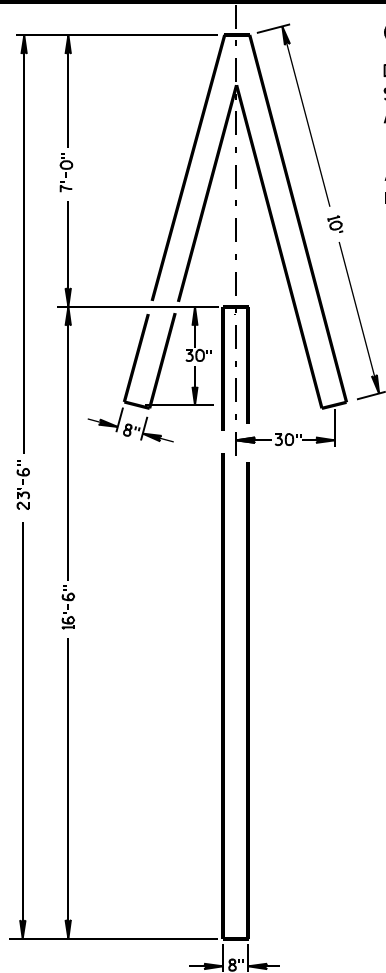
TYPE 6



TYPE 7



TYPE 3

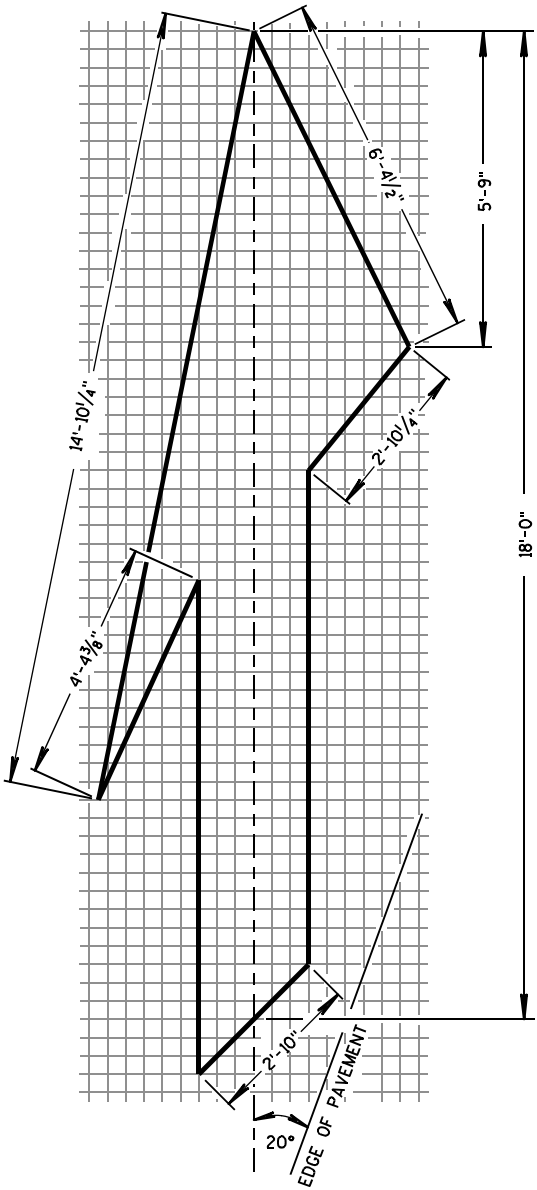


TYPE 4

GENERAL NOTES

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

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

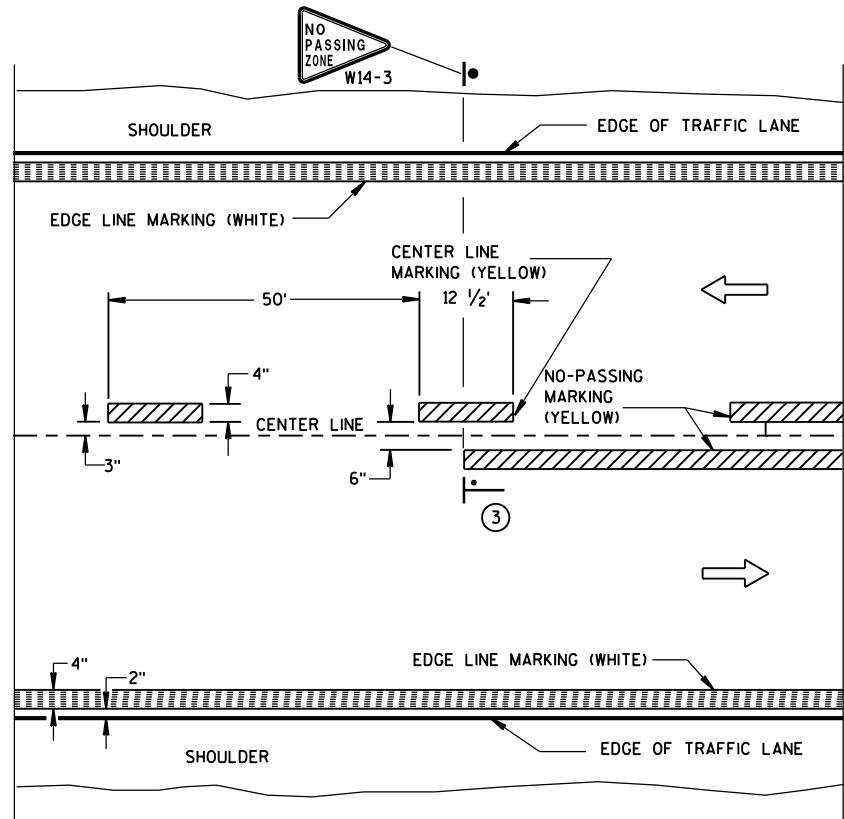


TYPE 5 LANE DROP ARROW

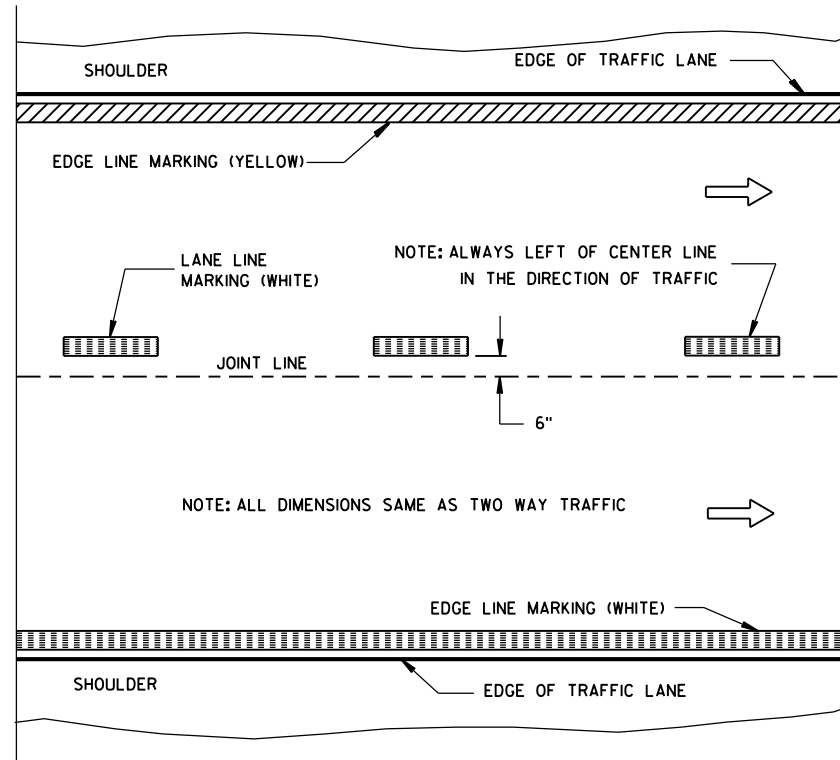
PAVEMENT MARKING ARROWS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 7/1/11
/S/ Thomas N. Nathahn
STATE TRAFFIC ENGINEER 152 SIGN
FHWA

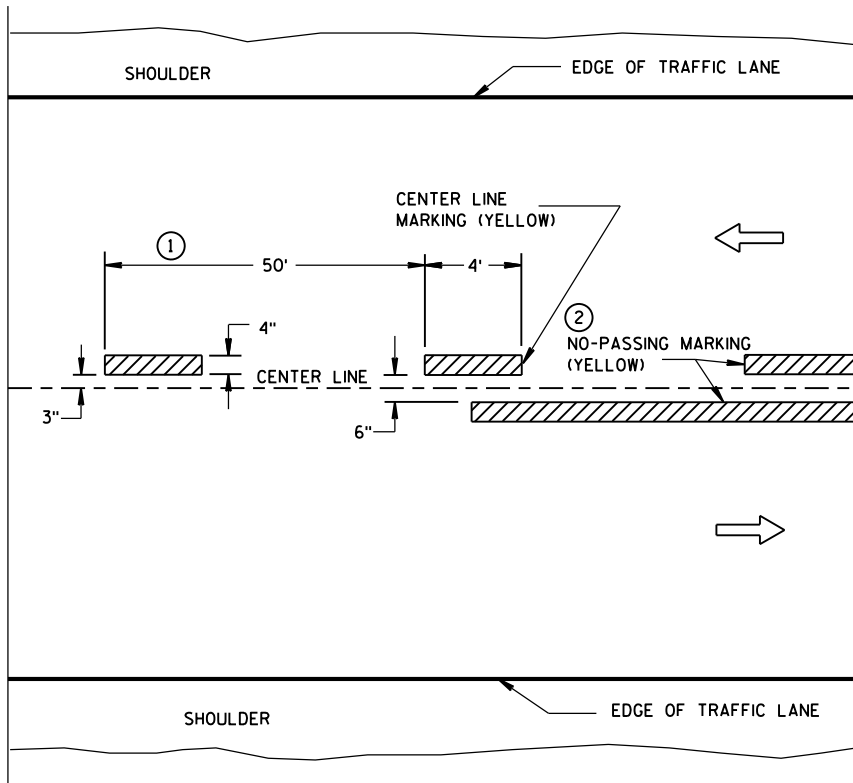


TWO WAY TRAFFIC

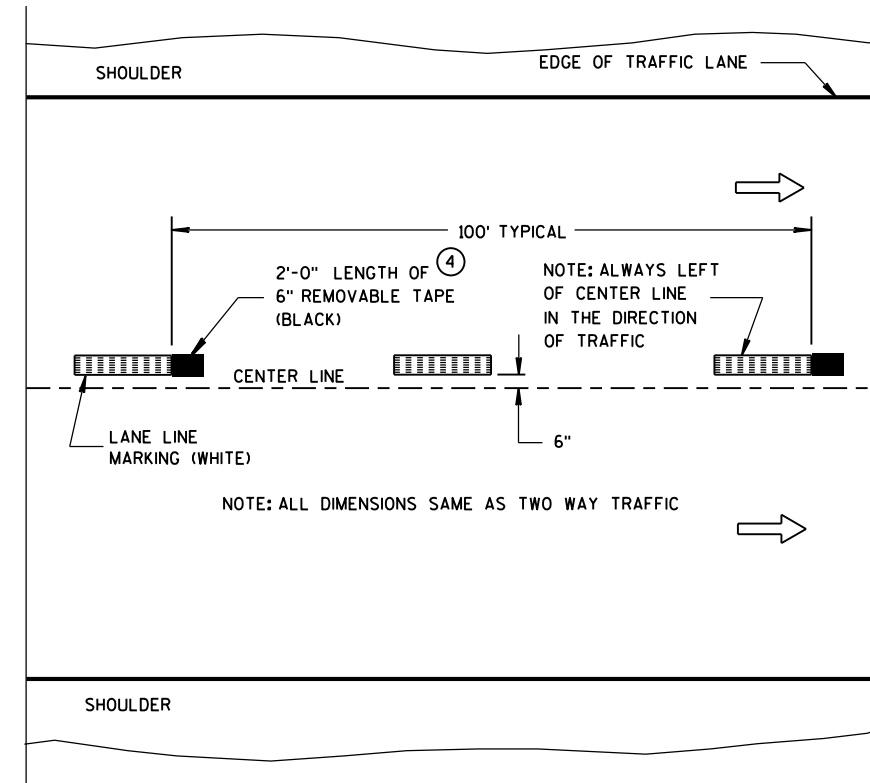


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

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

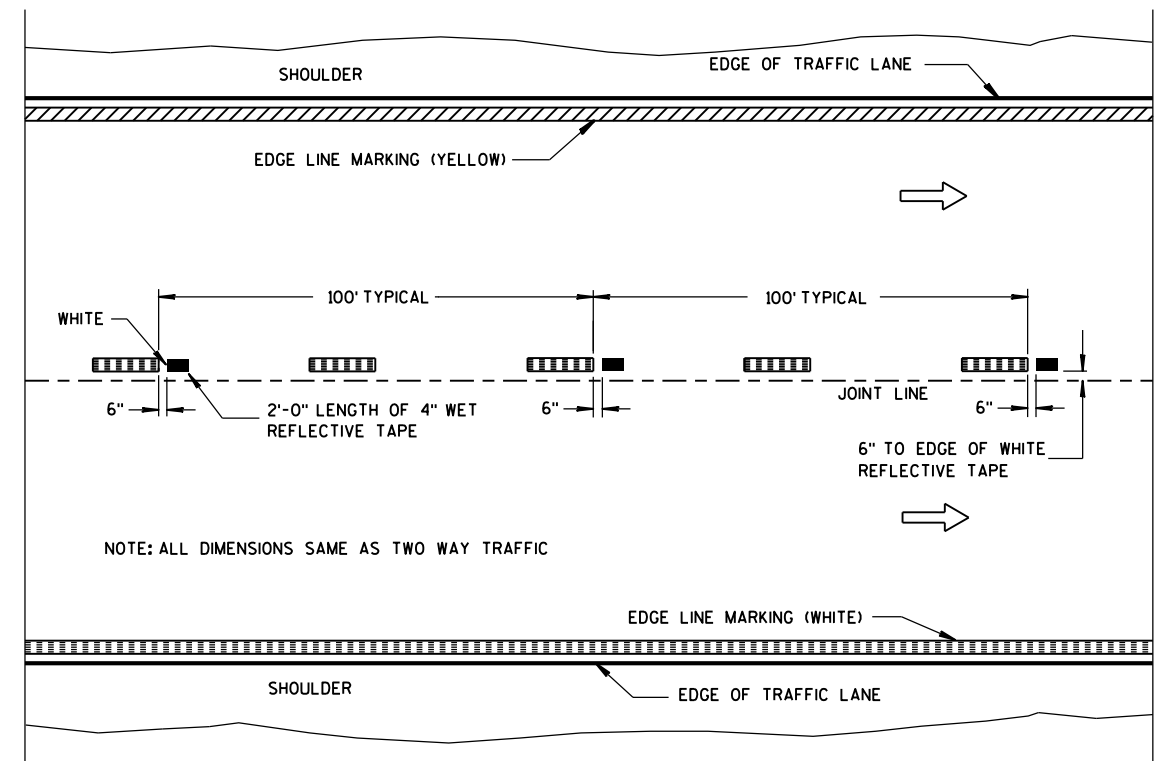
GENERAL NOTES

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

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

NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL



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

LEGEND

- "T" MARKING
- POST MOUNTED SIGN

PAVEMENT MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

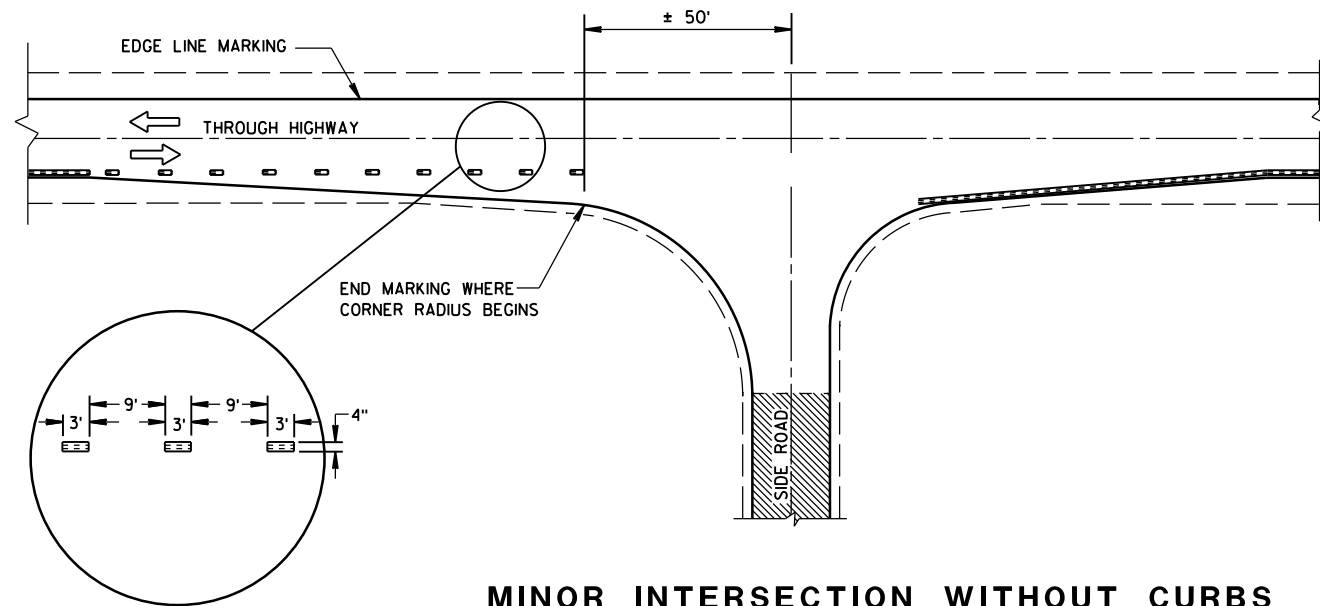
APPROVED

5-13-2013

DATE

FHWA

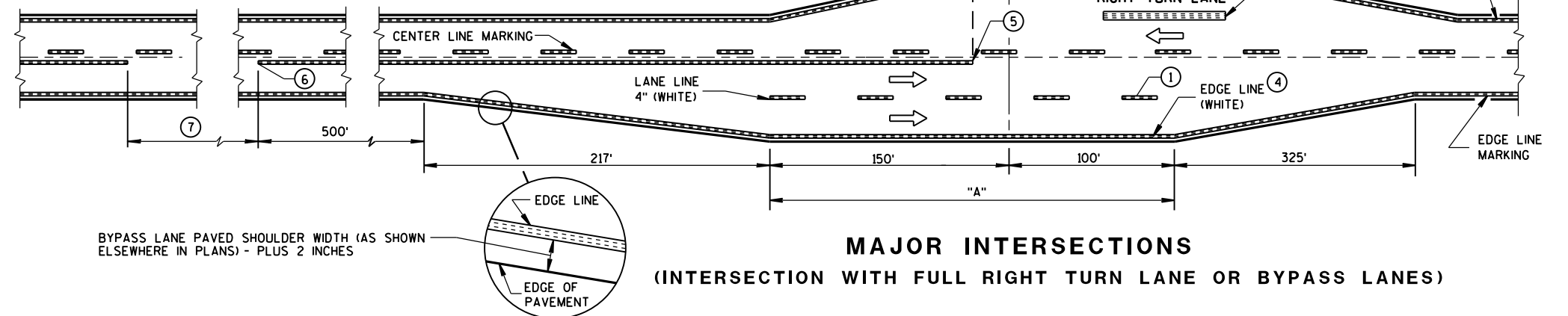
/S/ Travis Feltes
STATE TRAFFIC E 153



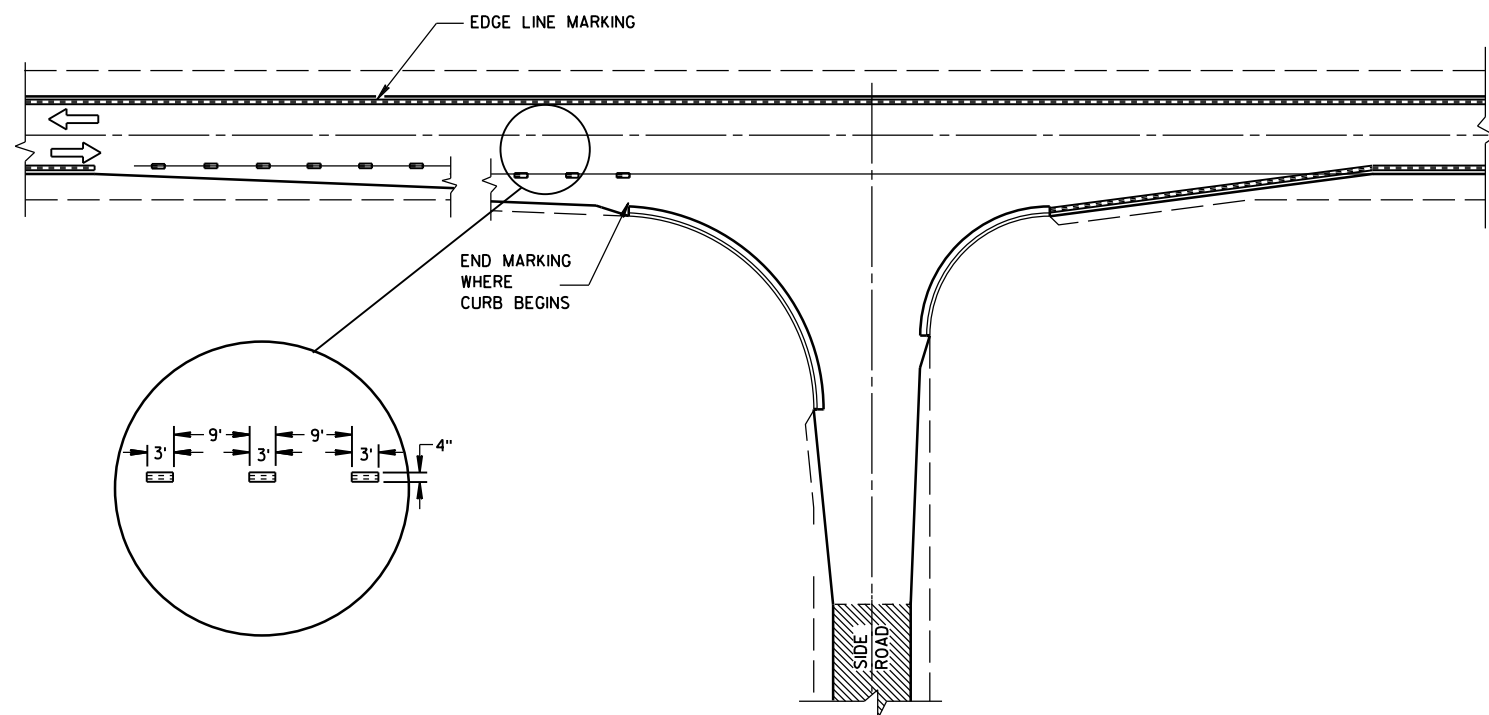
MINOR INTERSECTION WITHOUT CURBS

⑦

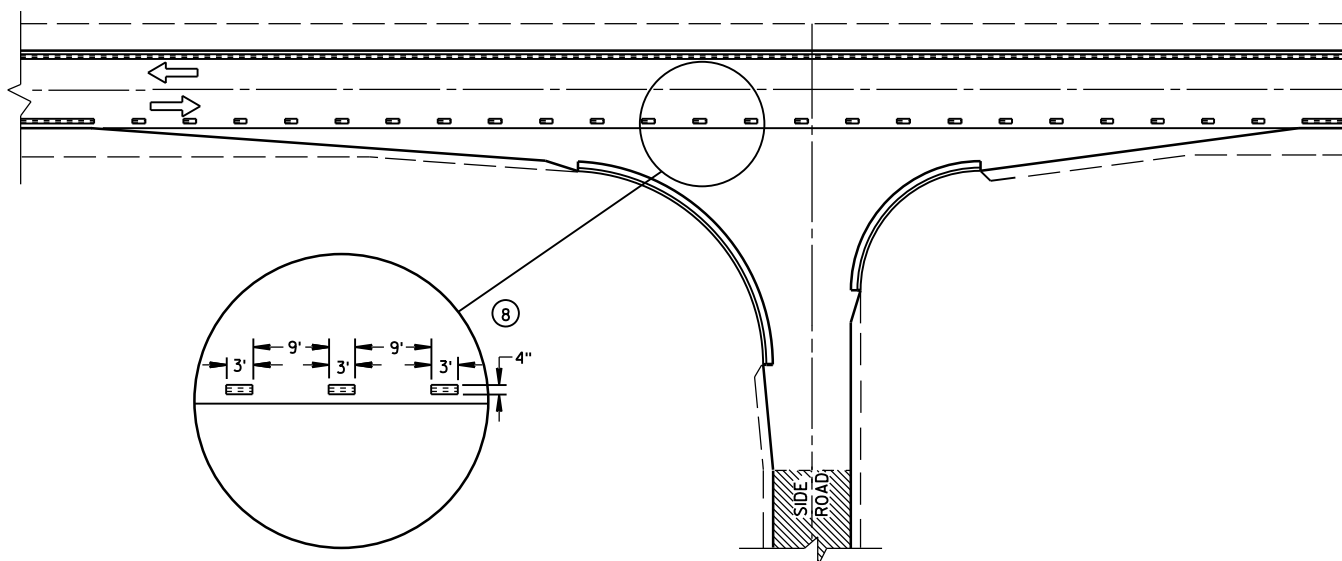
POSTED SPEED (MPH)	MINIMUM DISTANCE BETWEEN ZONES (FEET)
25 - 30	528
35 - 40	528
45 - 50	686
55	792



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



MINOR INTERSECTION WITH CURBS
(TYPICAL MARKING)



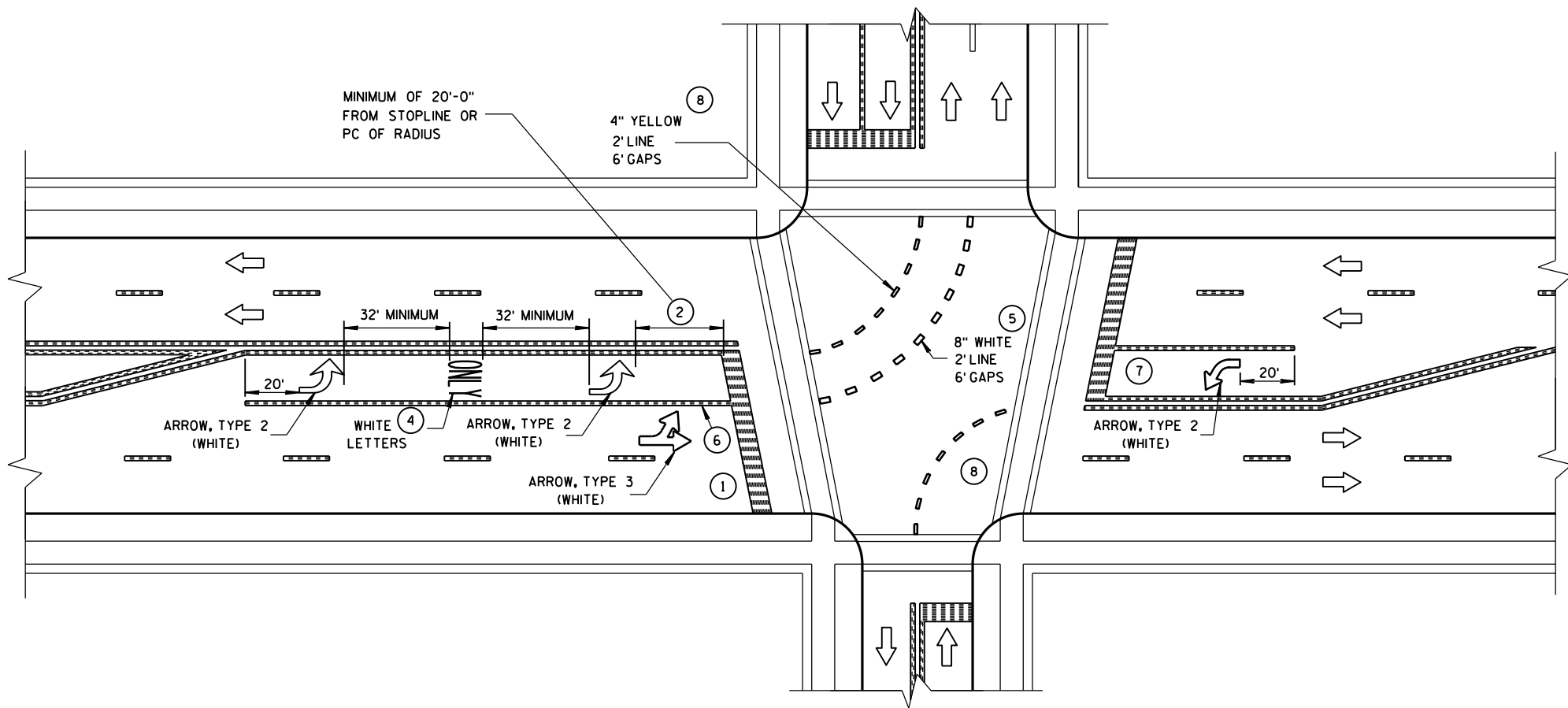
MINOR INTERSECTION WITH CURBS
③ (FOR SPECIAL CONDITIONS AS SPECIFIED)

GENERAL NOTES

- EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.
- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
 - ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
 - ③ ALTERNATIVE MARKING SHALL BE PROVIDED WHEN SPECIFIED IN THE CONTRACT. TYPICAL SITUATIONS WHERE THIS MARKING MAY BE REQUIRED ARE WHERE THE INTERSECTION IS ON A SHARP HORIZONTAL CURVE OR CREST VERTICAL CURVE IN AN UNLIGHTED AREA SUCH THAT THE EDGE LINE MAY BE MISLEADING TO THE MOTORIST OR DISAPPEAR FROM SIGHT.
 - ④ THE EDGE LINE IN THE TAPER AREAS OF THE BYPASS LANE AND THE BYPASS LANE SHALL BE LOCATED 1-FOOT FROM EDGE OF PAVEMENT TO THE OUTSIDE EDGE OF EDGE LINE.
 - ⑤ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.
 - ⑥ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.
 - ⑦ IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.
 - ⑧ 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.
- ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL

PAVEMENT MARKING
(INTERSECTIONS)

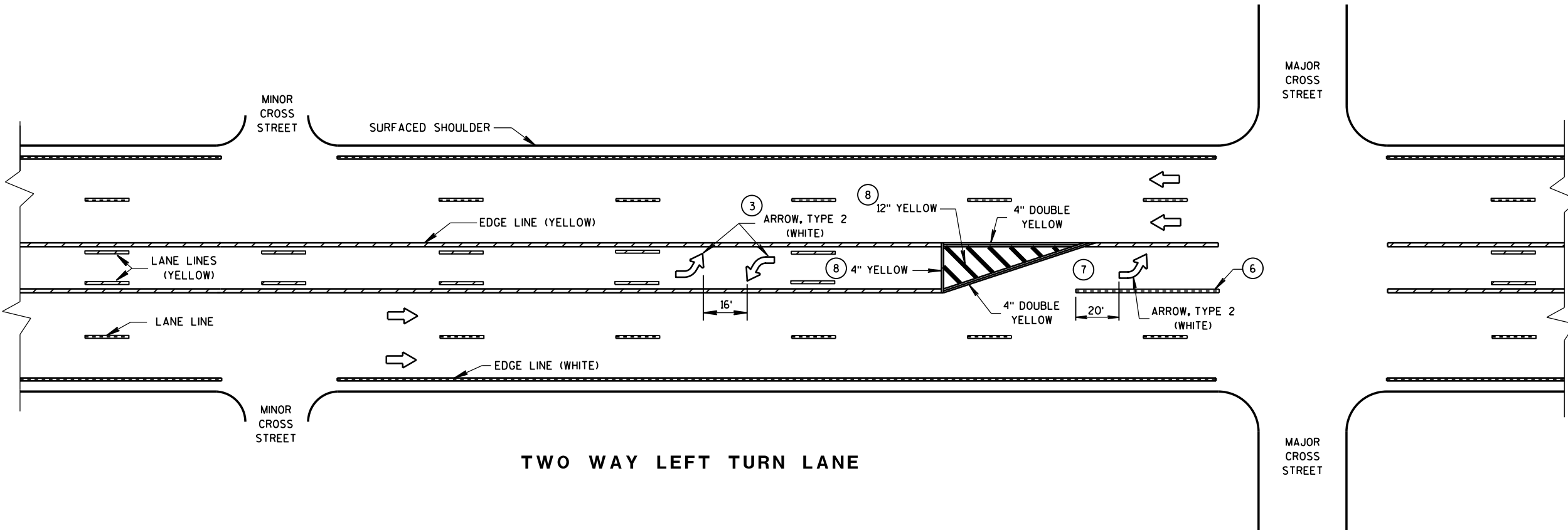
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 154



GENERAL NOTES

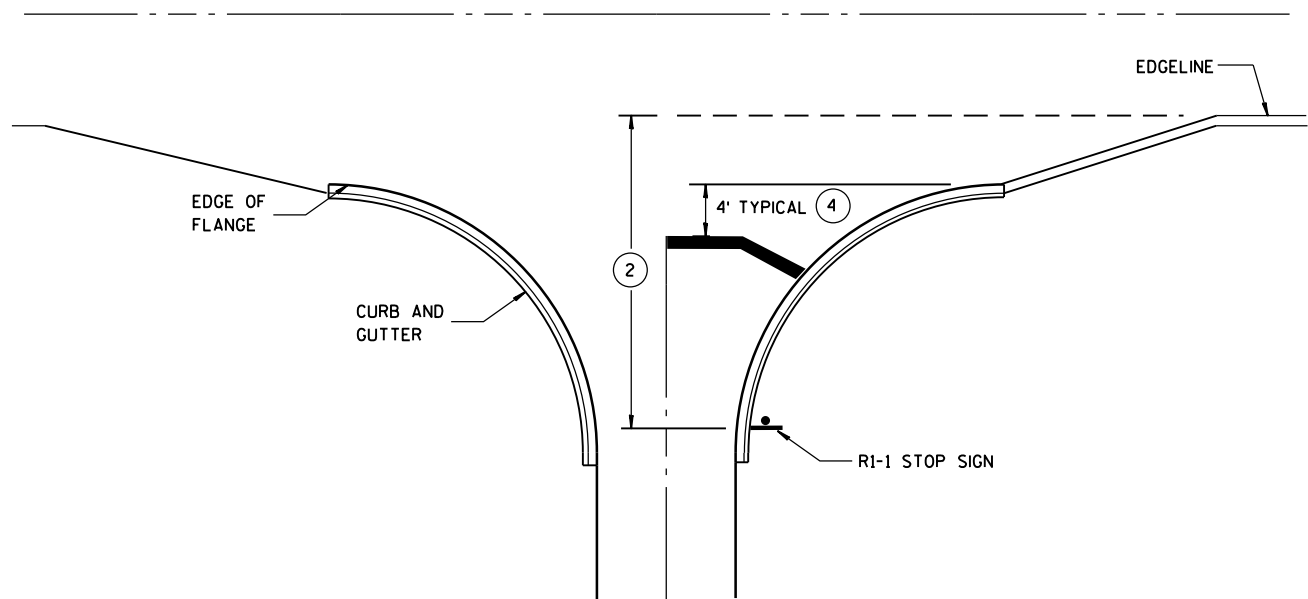
- 1 STOP BAR IS REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.
- 2 DISTANCE MAY BE ADJUSTED TO ACCOMODATE SHORT LEFT TURN LANES. AS APPROVED BY THE ENGINEER.
- 3 A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
- 4 ADD EXTRA SETS OF ONE ARROW AND ONE ONLY PER 160 FEET OR WHEN ON A CURVE.
- 5 8" WHITE WITH 2' LINE 6' GAPS FOR DUAL TURN LANE.
- 6 8" WHITE
- 7 ADD SECOND ARROW WHEN TURN BAY IS GREATER THAN OR EQUAL TO 108 FEET.
- 8 REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.

NOTE:
ARROW SYMBOL (➡)
SHOWS DIRECTION OF TRAVEL

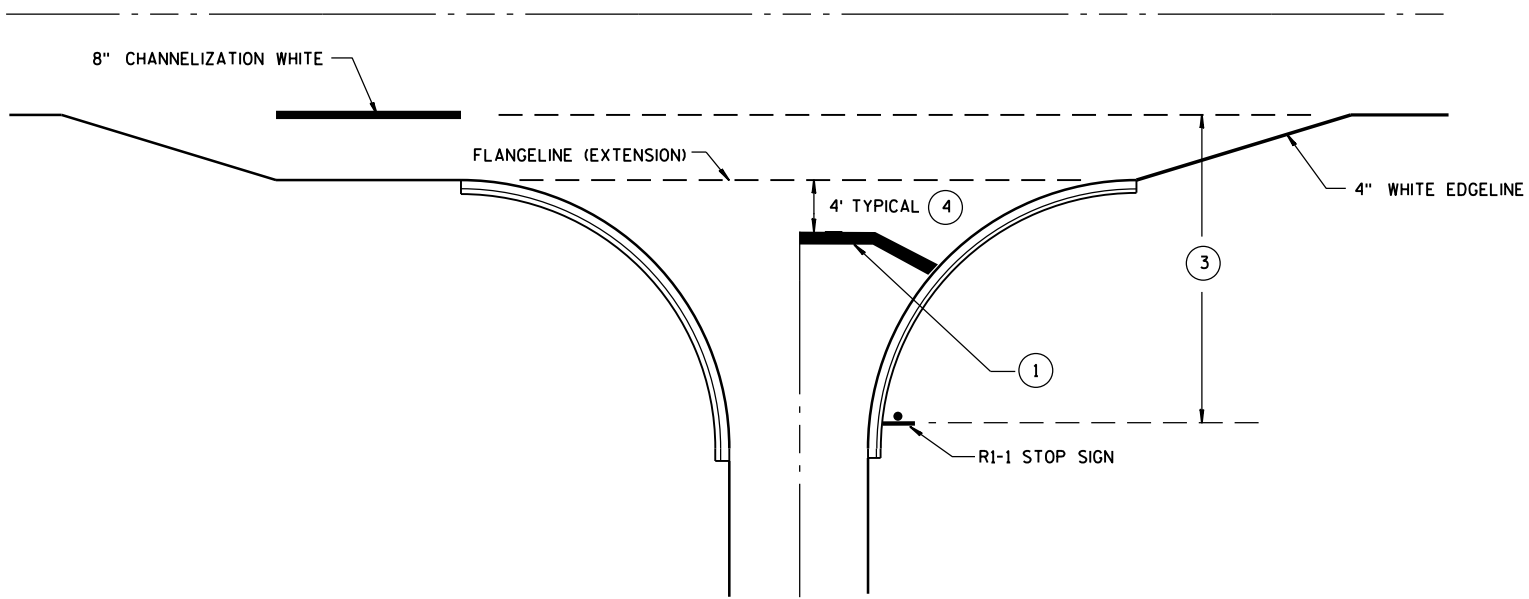


PAVEMENT MARKING
(LEFT TURN LANE)

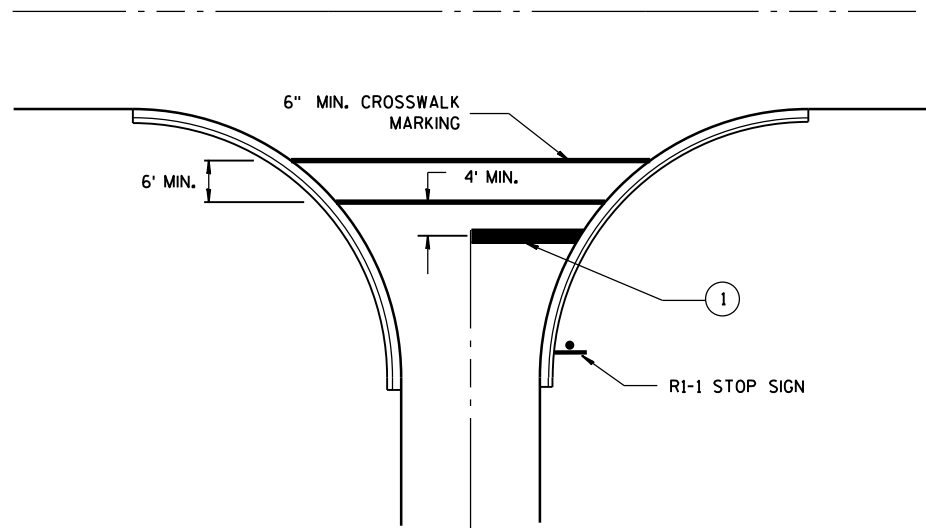
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



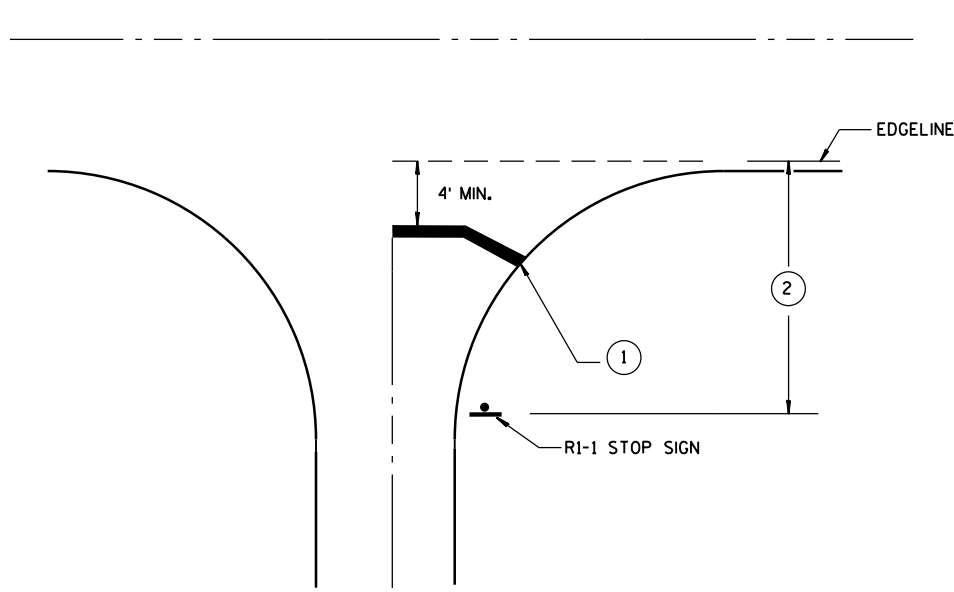
TYPICAL STOP LINE PAVEMENT MARKING
WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDEROADS WITH CROSSWALK MARKING

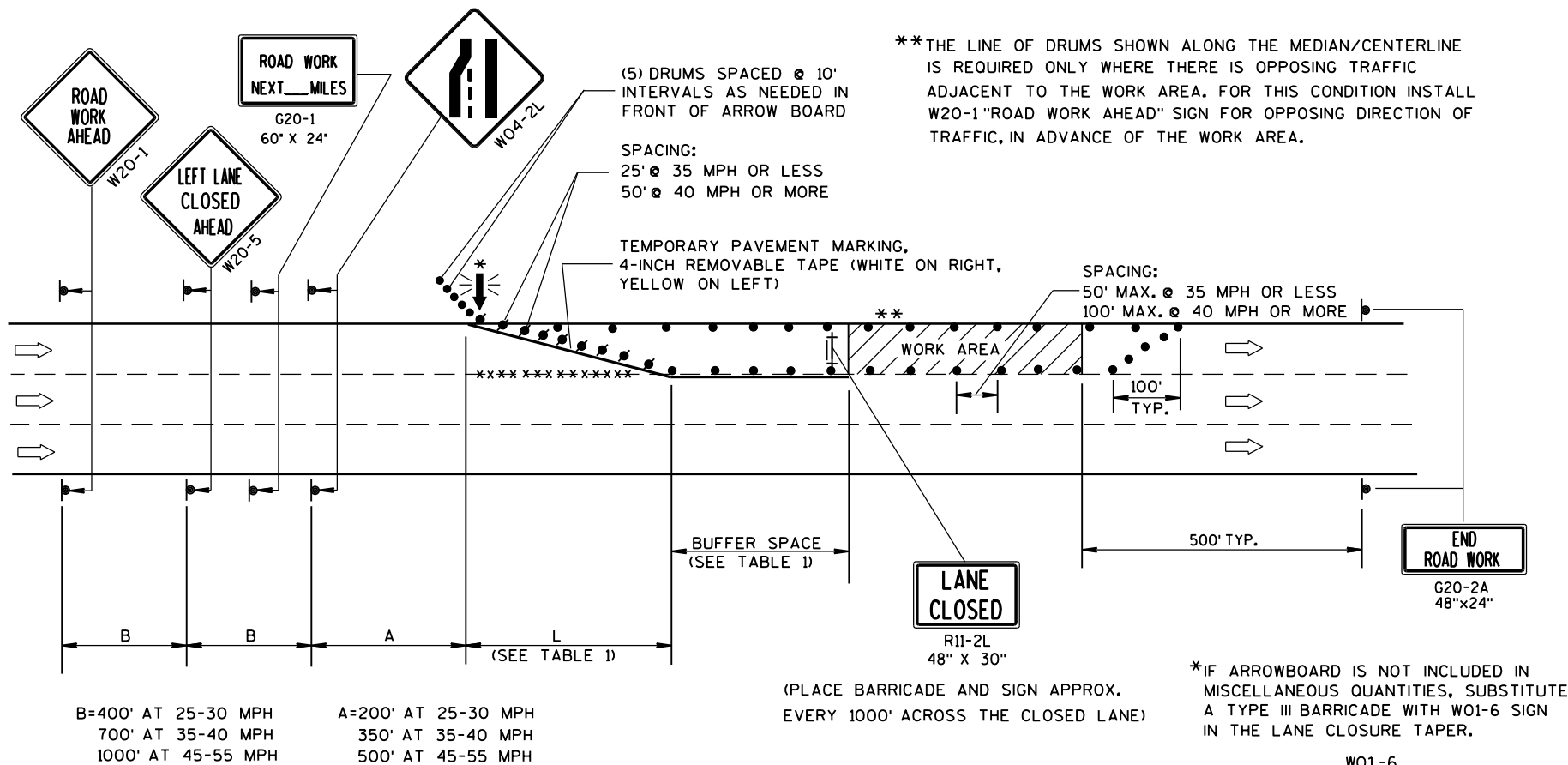


TYPICAL STOP LINE PAVEMENT MARKING
WITHOUT CURB AND GUTTER

GENERAL NOTES

- 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.

STOP LINE AND CROSSWALK PAVEMENT MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 4/30/2013	/S/ Travis Feltes STATE TRAFFIC ENGINEER 156
FHWA	



GENERAL NOTES

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.

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

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, 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.

W20-1, 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.

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

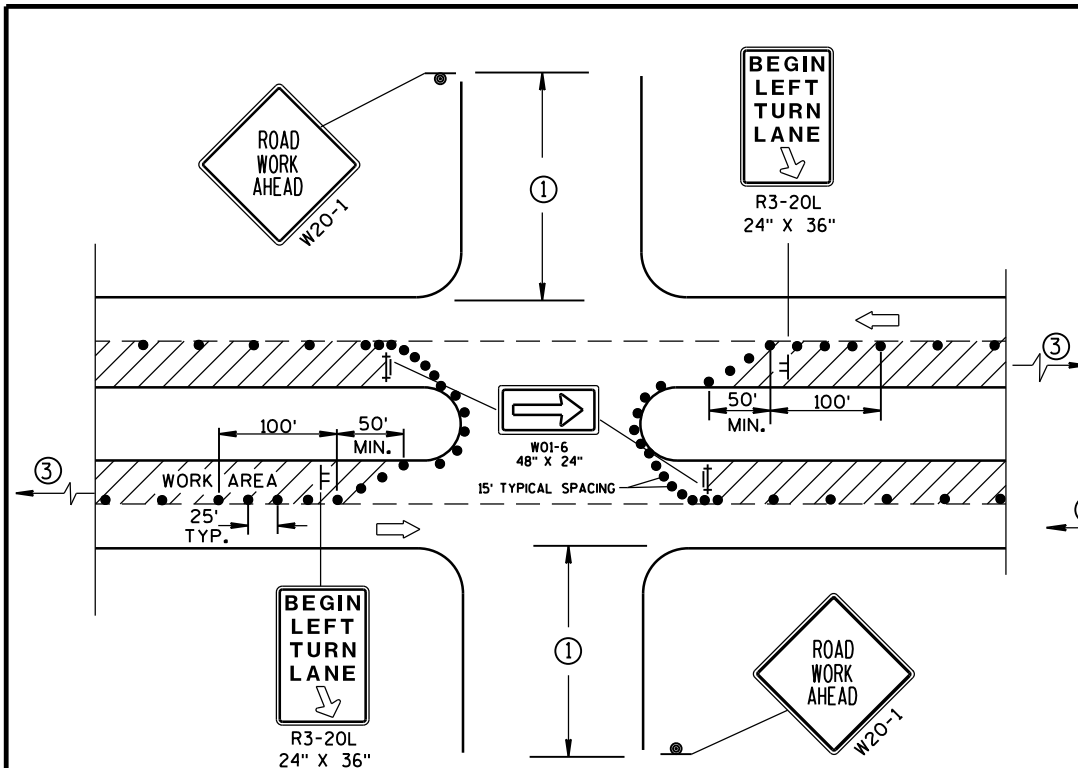
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

W = WIDTH OF LANE CLOSURE

LEGEND

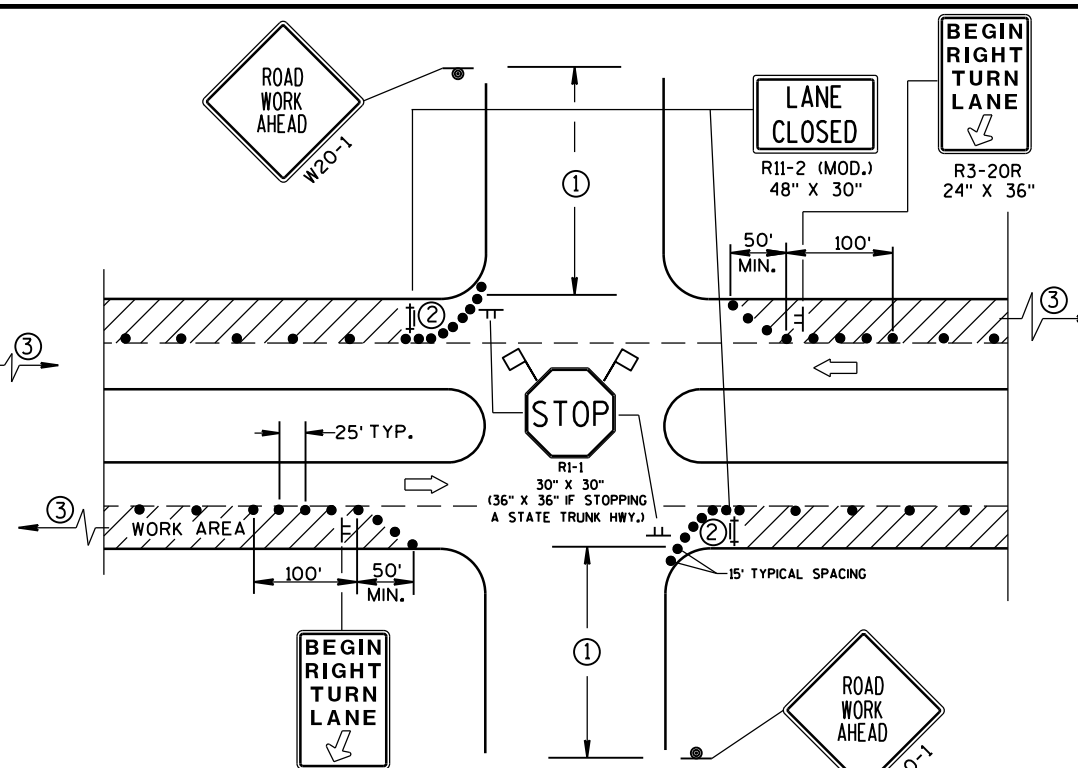
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- WORK AREA

TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED Feb. 2015	/S/ Travis Feltes	
DATE	STATE TRAFFIC ENGINE 157	SIGN
FHWA		

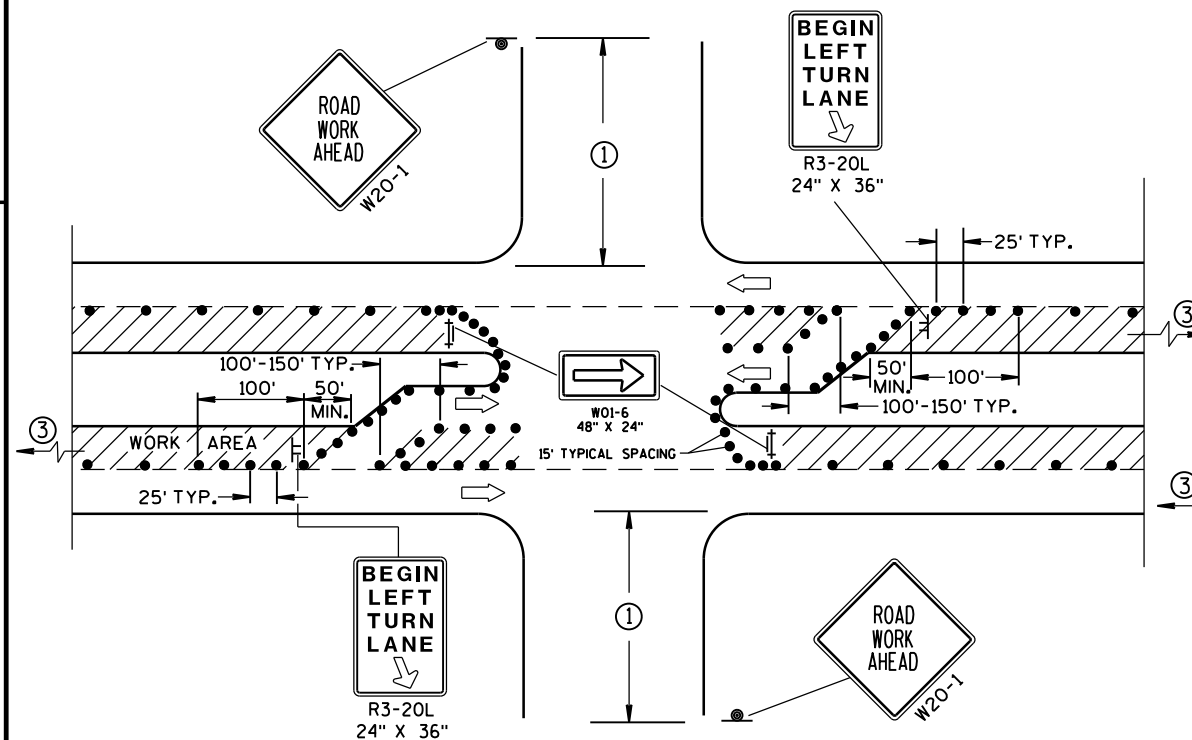


DETAIL A
FOR LEFT LANE CLOSURE AT
INTERSECTION OR MEDIAN OPENING

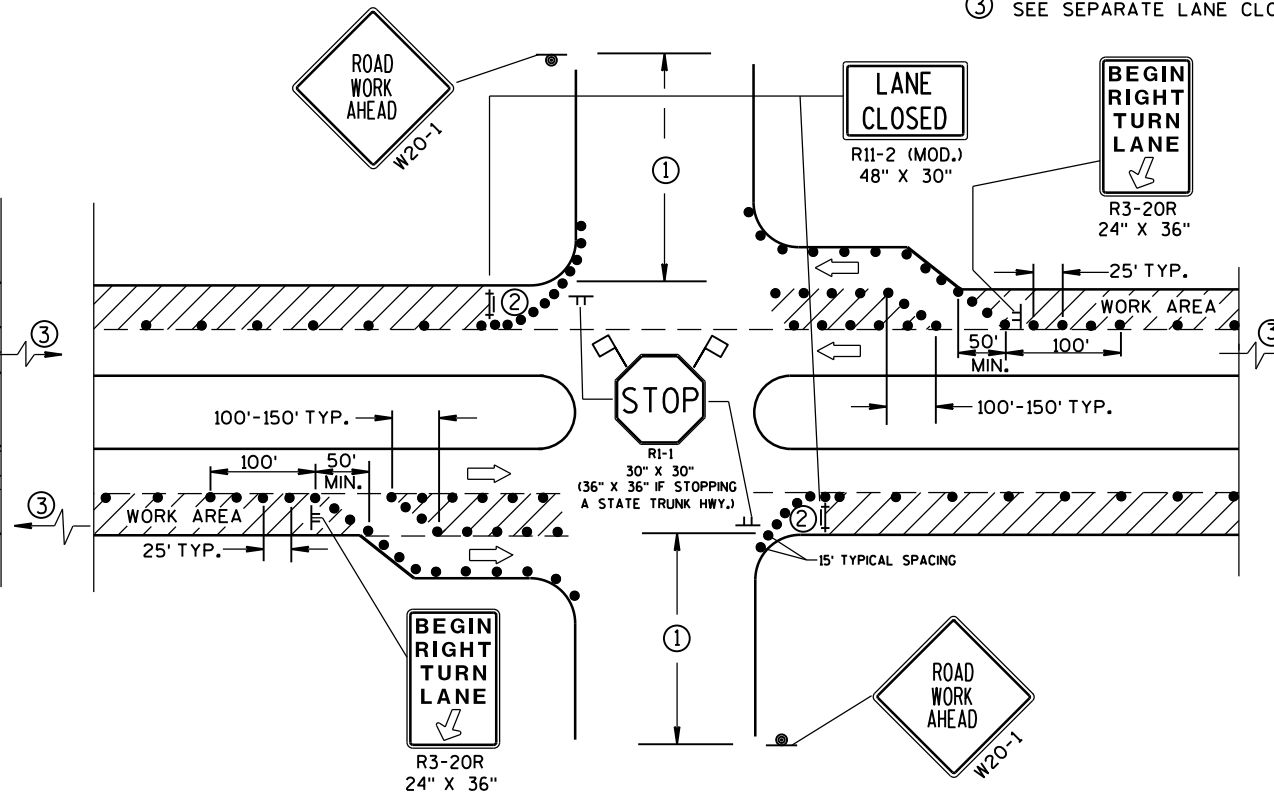
PROVIDE TURN LANES AT
INTERSECTIONS WHENEVER
STAGING OF WORK ALLOWS.
TAPER AND TURN LANE
LENGTHS BASED ON FIELD
CONDITIONS AS APPROVED
BY THE ENGINEER.



DETAIL B
FOR RIGHT LANE CLOSURE
AT INTERSECTION



DETAIL C
FOR LEFT LANE CLOSURE AT INTERSECTION OR
MEDIAN OPENING (WITH LEFT TURN BAY OPEN)



DETAIL D
FOR RIGHT LANE CLOSURE AT INTERSECTION
(WITH RIGHT TURN BAY OPEN)

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 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.

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

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.

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.

- 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35-40 MPH.
200' IF 25-30 MPH.
- ALSO USE BARRICADE AND 15-FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS.
- SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.

LEGEND

- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT (5' MIN. MOUNTING HEIGHT)
- TYPE III BARRICADE WITH ATTACHED SIGN AND TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., (ORANGE)
- WORK AREA

TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Nov. 2014 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINE 158 SIGN
FHWA

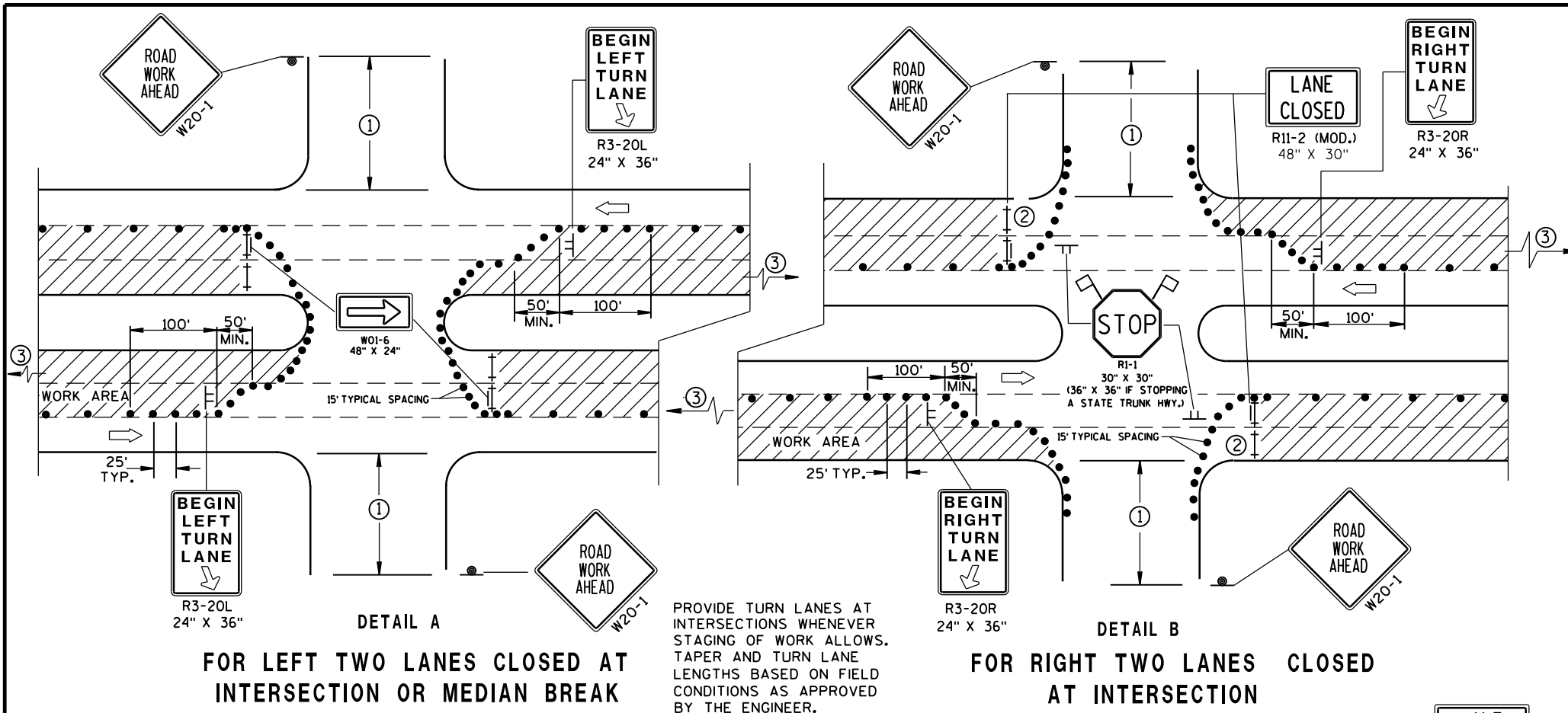
6

S.D.D. 15 D 22-2

6

S.D.D. 15 D 22-2

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



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 SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

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.

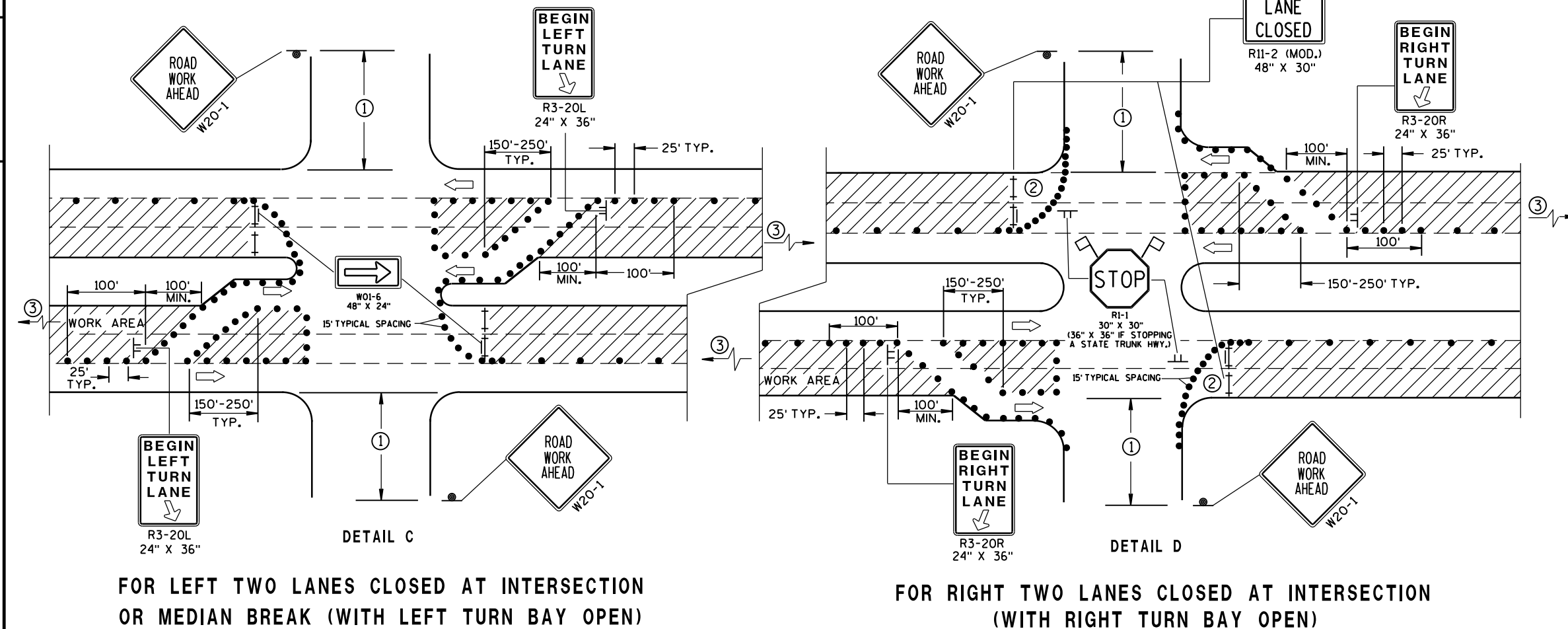
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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.

- 500 FEET TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350 FEET IF 35-40 MPH.
200 FEET IF 25-30 MPH.
- ALSO USE BARRICADES AND 15-FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS.
- SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.

LEGEND

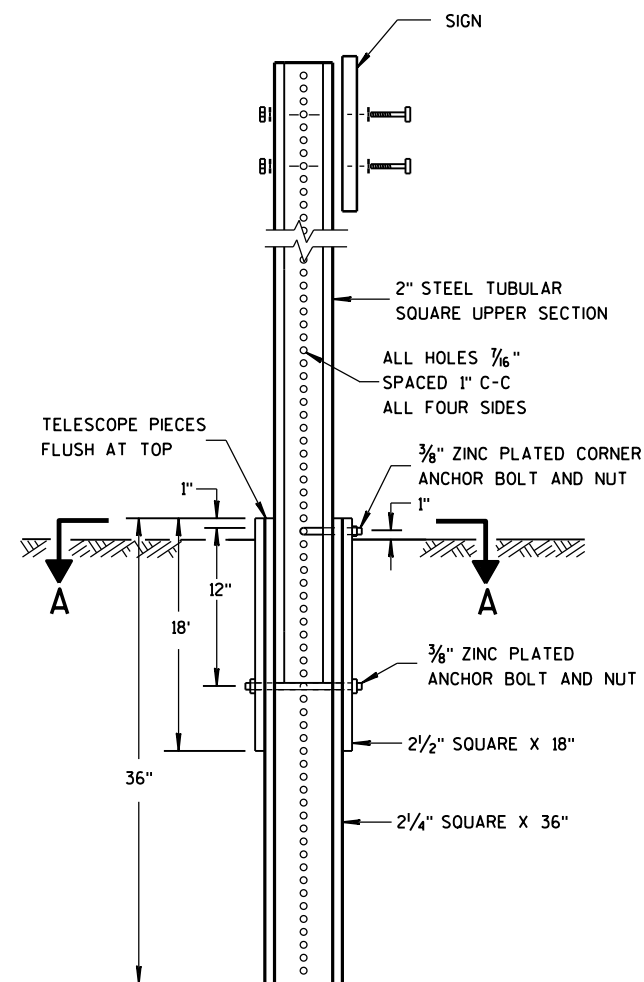
- TRAFFIC CONTROL DRUM
- ⊙ SIGN ON PERMANENT SUPPORT
- ⊢ SIGN ON TEMPORARY SUPPORT (5' MIN. MOUNTING HEIGHT)
- ⊢ TYPE III BARRICADE
- ⊢ TYPE III BARRICADE WITH ATTACHED SIGN AND TYPE "A" WARNING LIGHT (FLASHING)
- ➡ DIRECTION OF TRAFFIC
- ⚐ FLAGS, 16" X 16" MIN., (ORANGE)
- ▨ WORK AREA



TRAFFIC CONTROL, INTERSECTION WITHIN TWO LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Nov. 2014 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINE 160 SIGN
FHWA



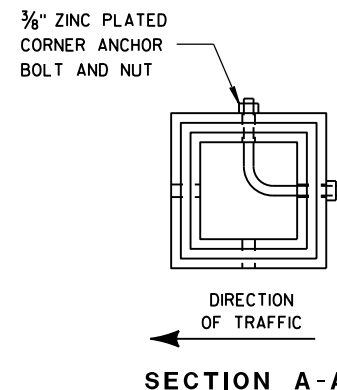
DETAIL OF TUBULAR
STEEL SIGN POST

TUBULAR STEEL POSTS

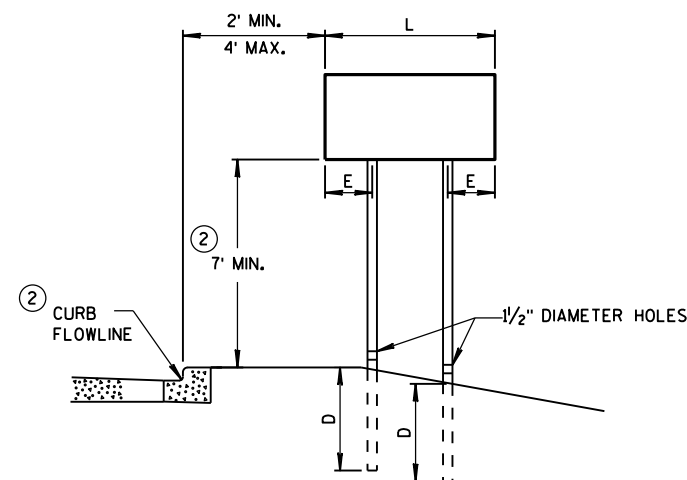
AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL
BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED
ON TUBULAR STEEL POSTS.



SECTION A-A

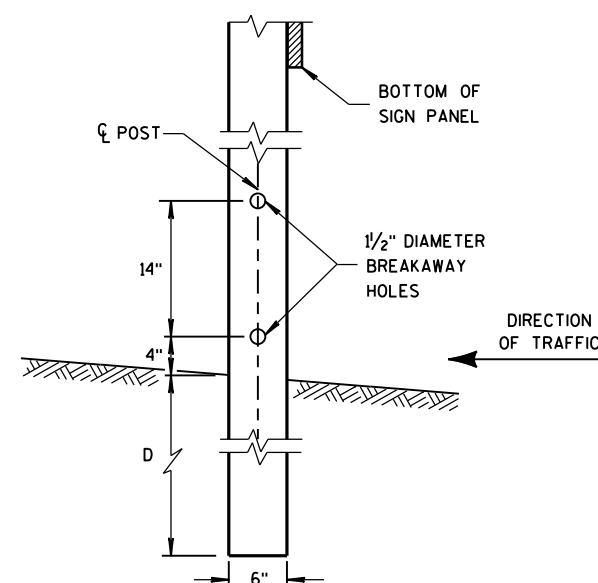


URBAN AREA

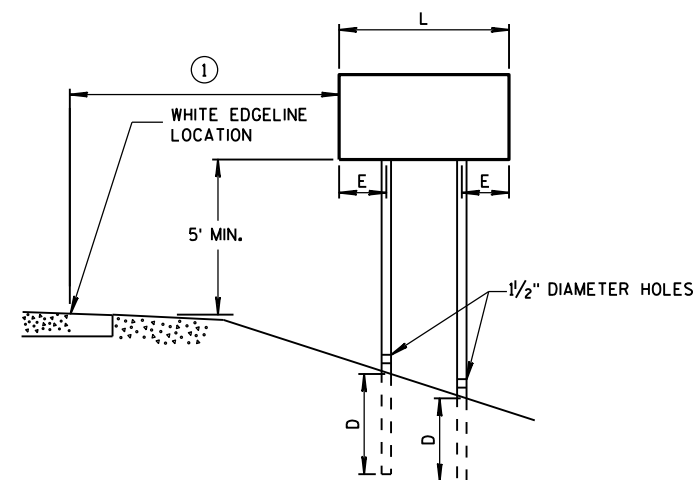
POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

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

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

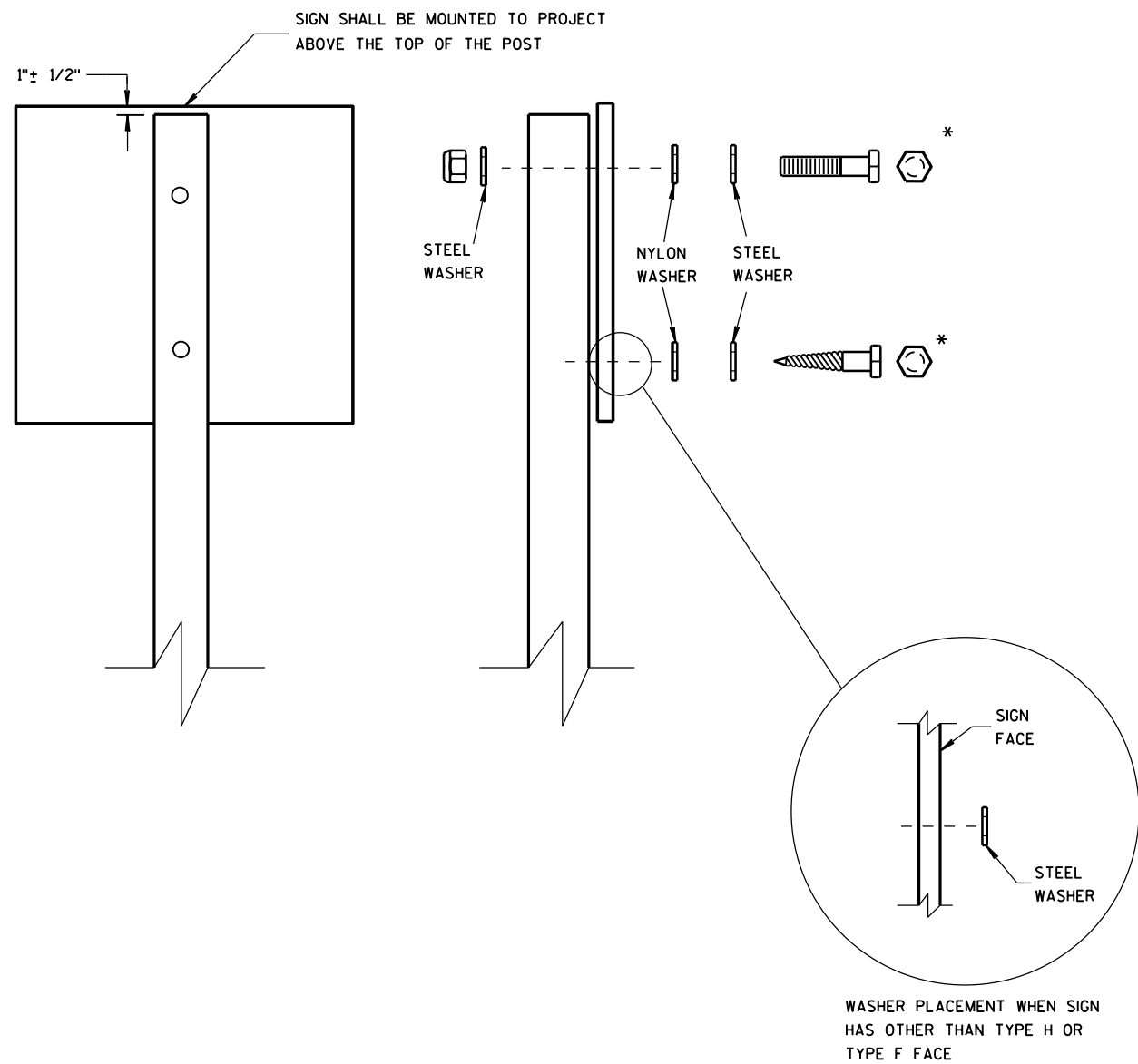
SEE NOTE ③

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.

TEMPORARY TRAFFIC CONTROL
FIXED MESSAGE SIGNS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 161



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

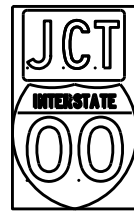
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" X 3-1/4" LENGTH W/ NUTS
 - RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

- 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

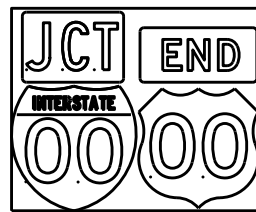
* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS TO POSTS		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED Feb. 2015	/S/ Travis Feltes	
DATE	STATE TRAFFIC ENGINE 162	SIGN
FHWA		

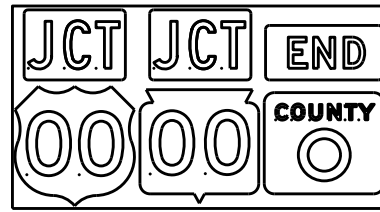
TYPICAL ASSEMBLIES



J1-1



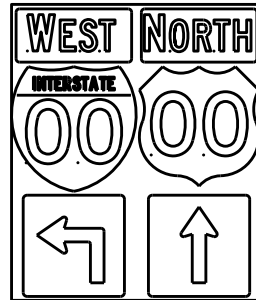
J1-2



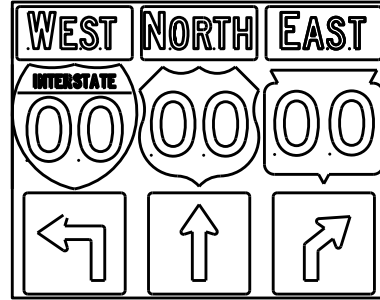
J1-3



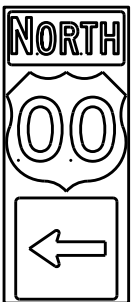
J2-1



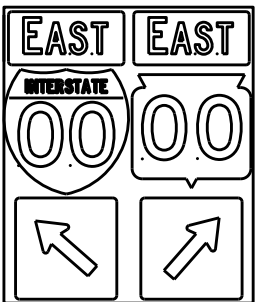
J2-2



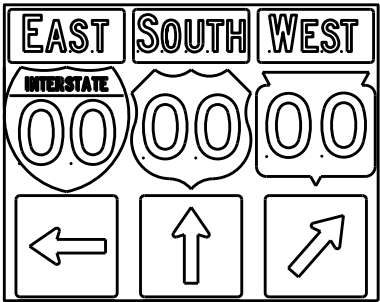
J2-3



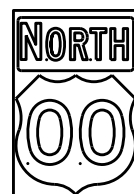
J3-1



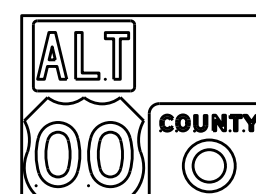
J3-2



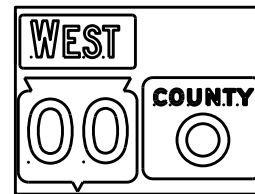
J3-3



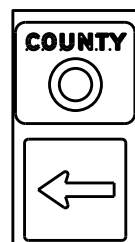
J4-1



J4-2



J4-2



J13-1



J12-1



J32-1



J33-1



J23-1

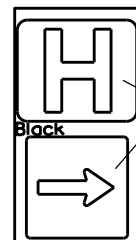


J22-1



JV

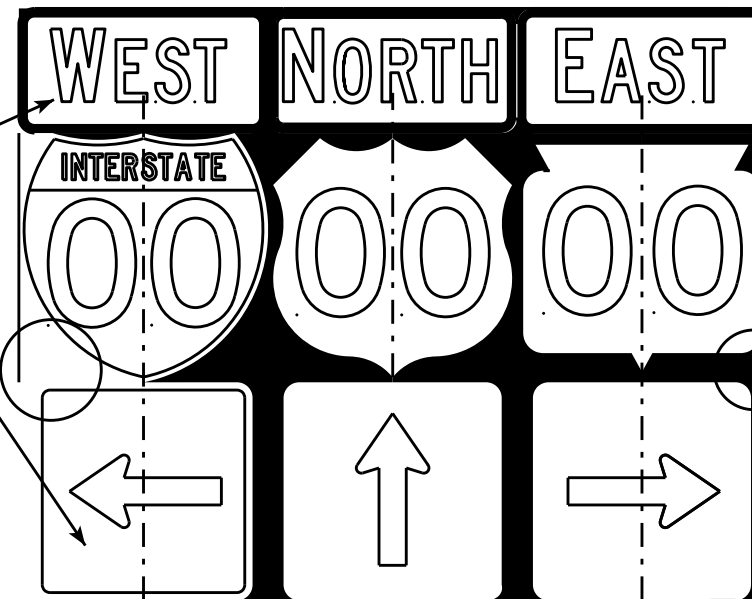
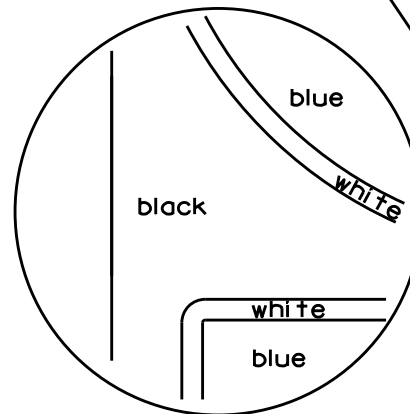
(Typical Vertical J-Assembly
See Note 10 and 11)



JH-1

Blue Background

[blue background
with interstate]



[black background]

ROUTE MARKERS & COMPONENTS
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

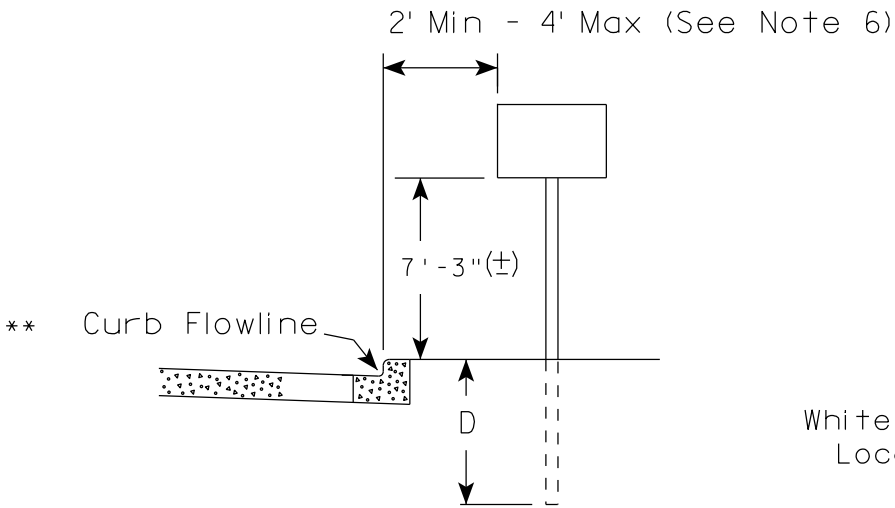
DATE 2/06/14 PL 163 A2-1S.8

SHEET NO: E

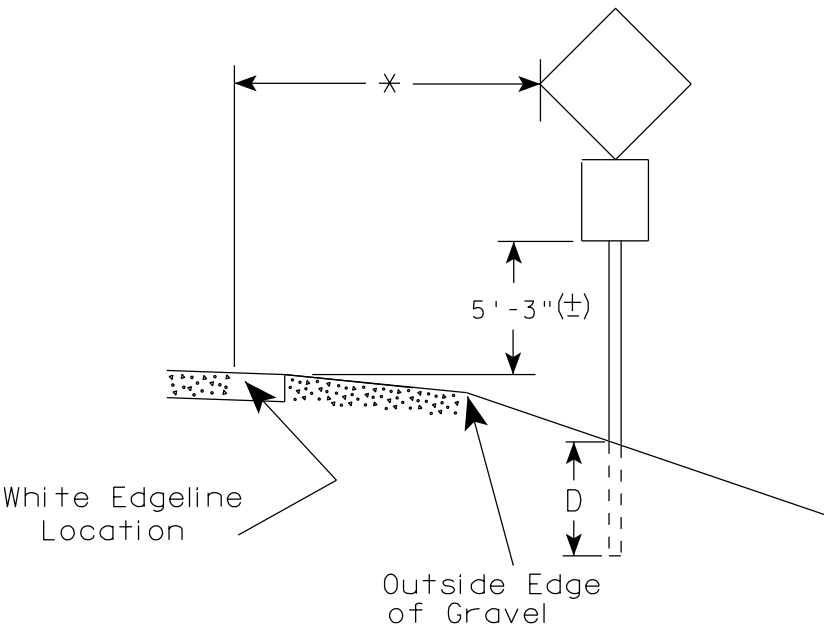
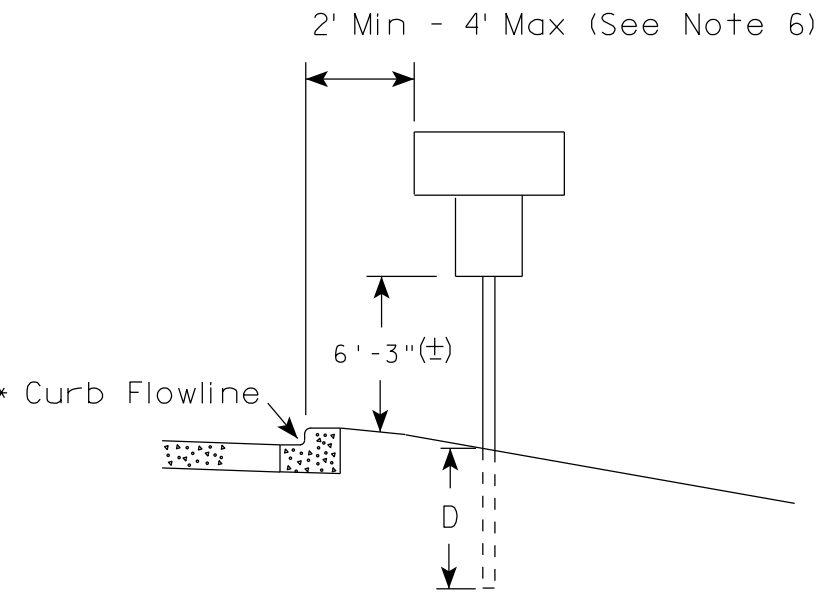
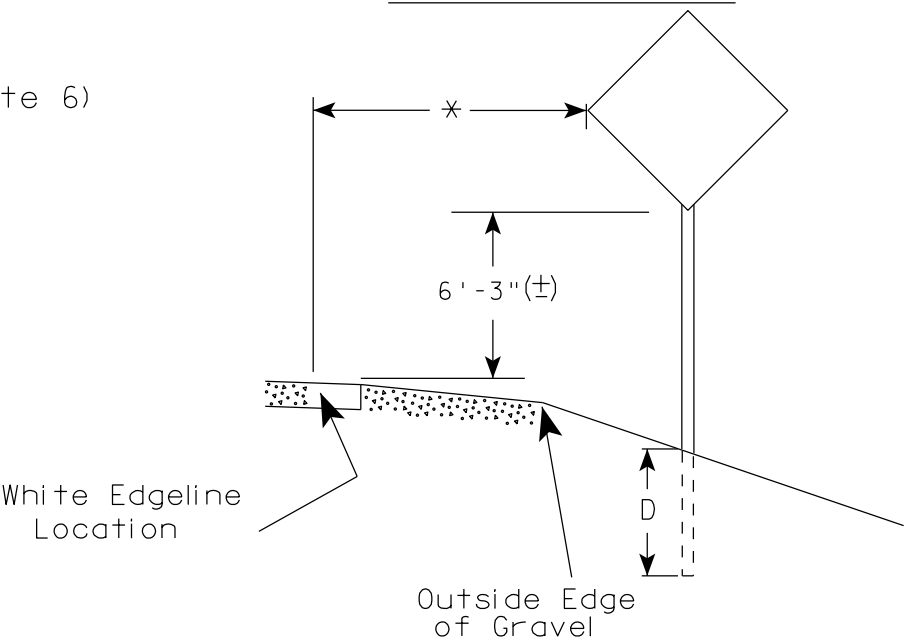
NOTES

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

URBAN AREA



RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

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

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

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

GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

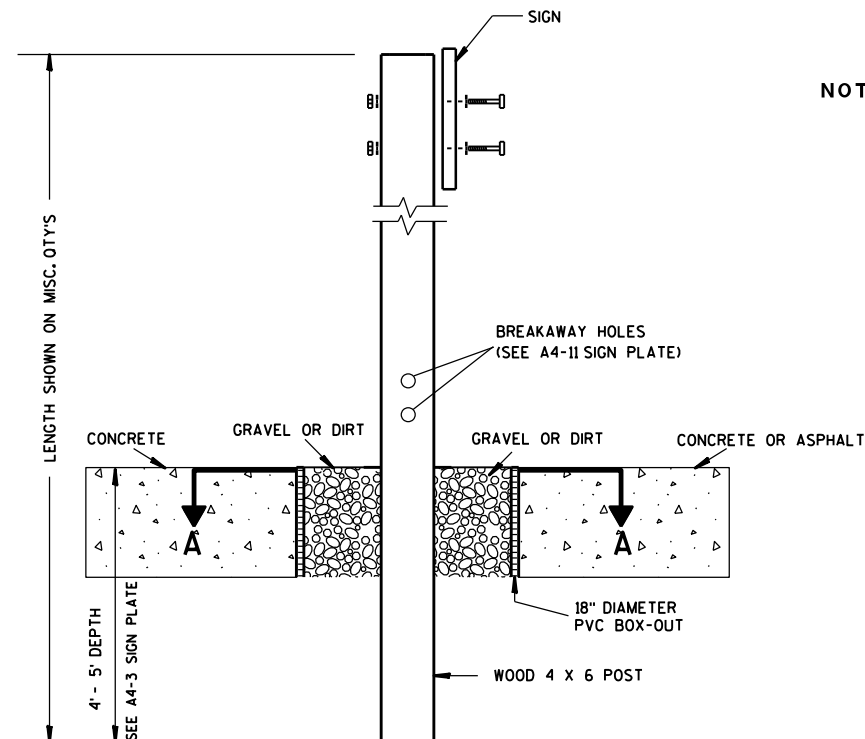
TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-3.20

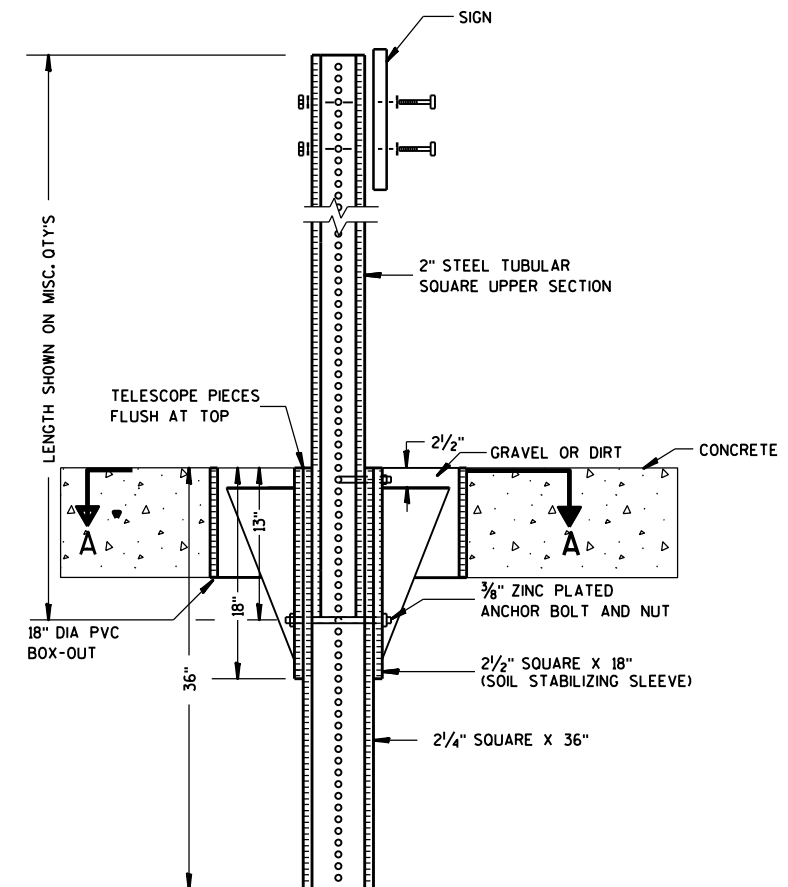
164



ELEVATION VIEW

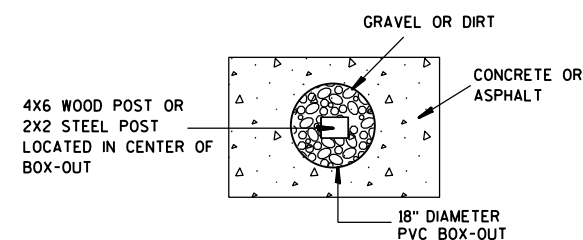
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 165 A4-3B.1

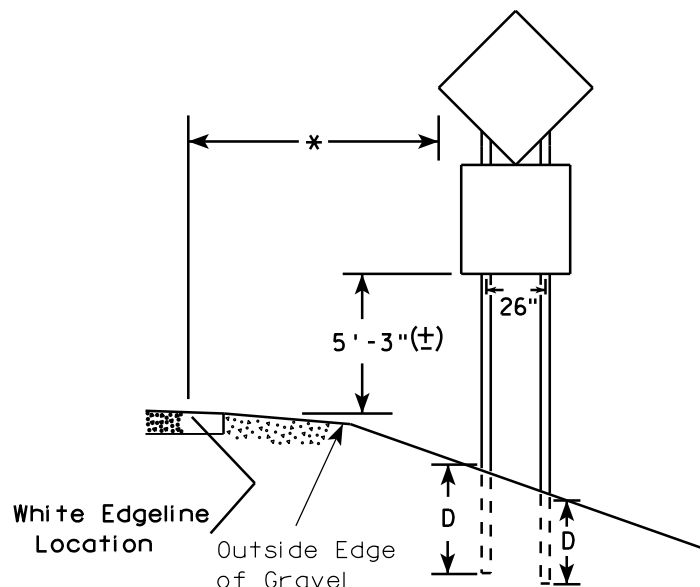
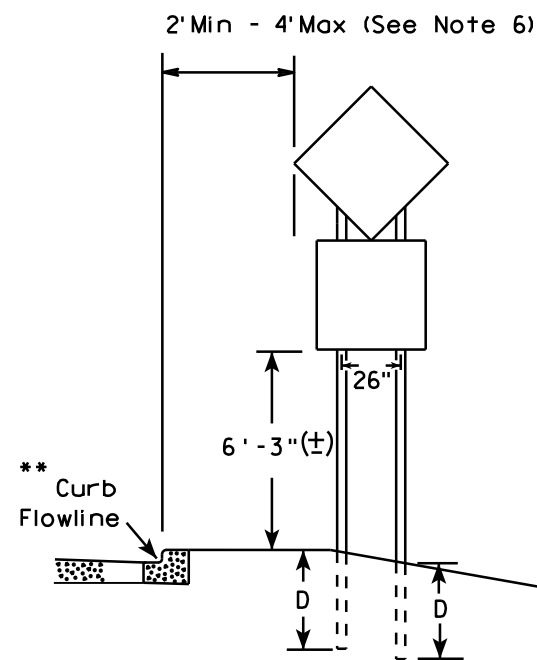
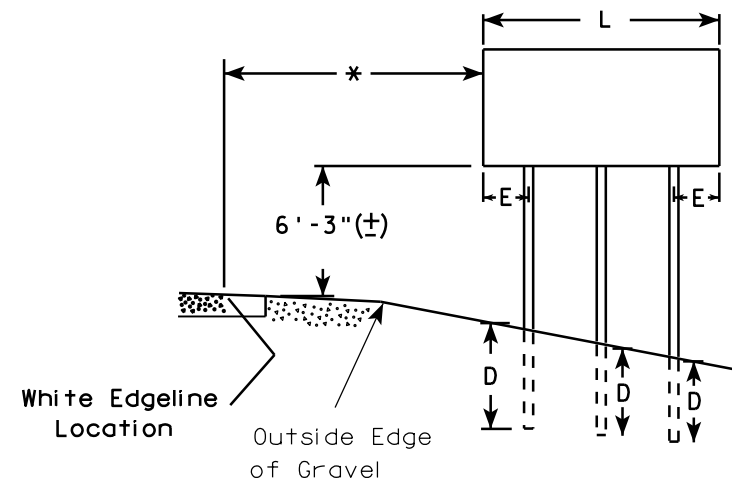
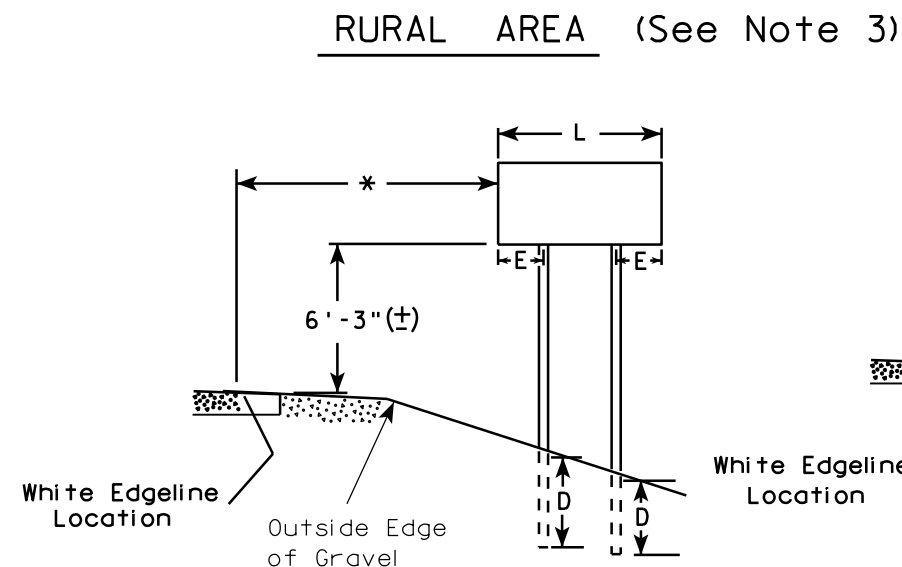
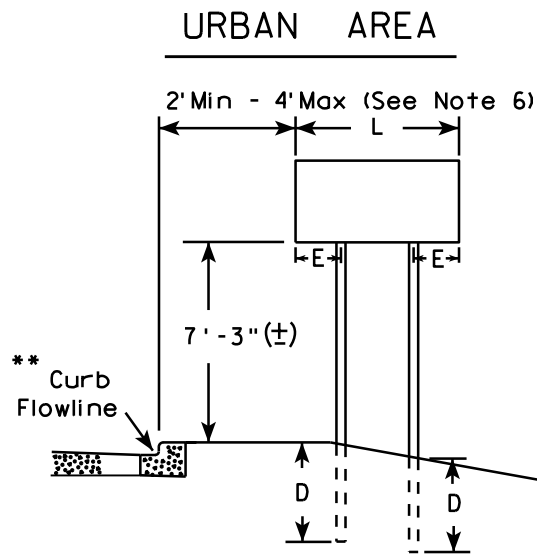
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



- GENERAL NOTES
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
 2. See tables below for required number of posts.
 3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
 4. The (±) tolerance for mounting height is 3 inches.
 5. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
 6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
 7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
 8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

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

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

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

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

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

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

POST EMBEDMENT DEPTH

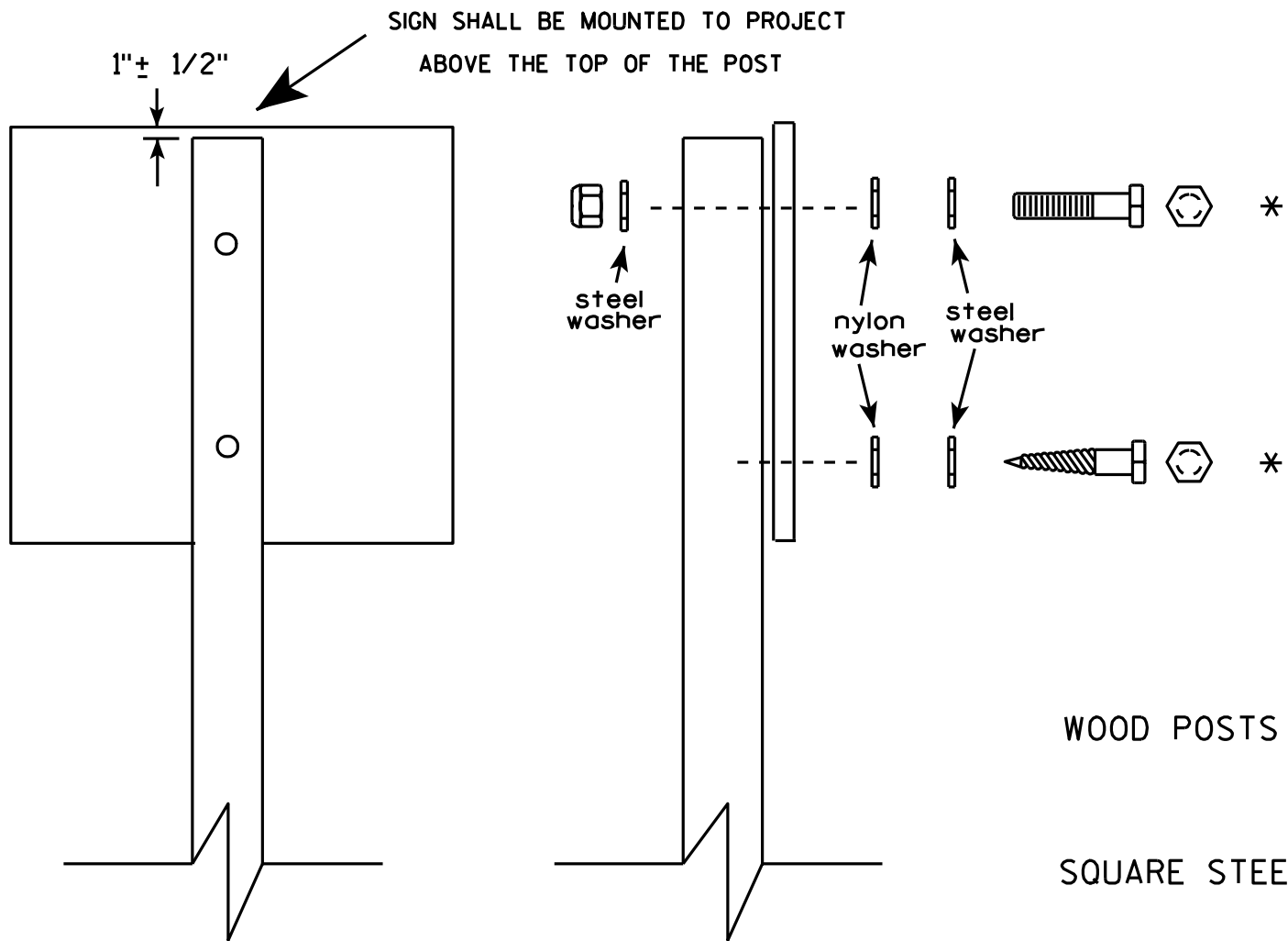
Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/23/15 PLATE NO. 14-166

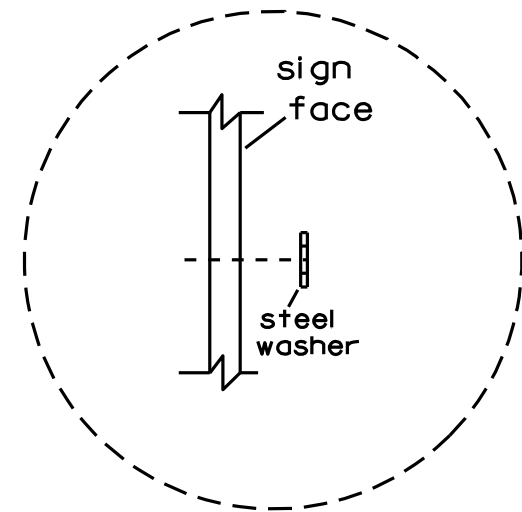


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- 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.

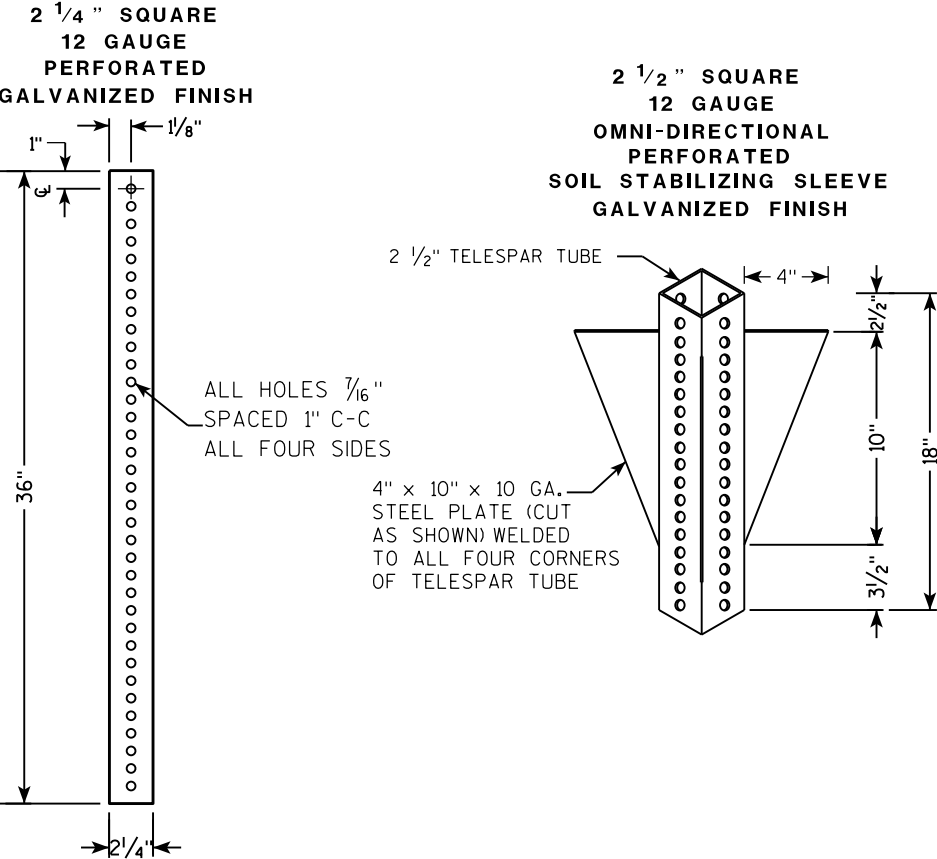


Washer Placement when Sign Has Other Than Type H or Type F Face

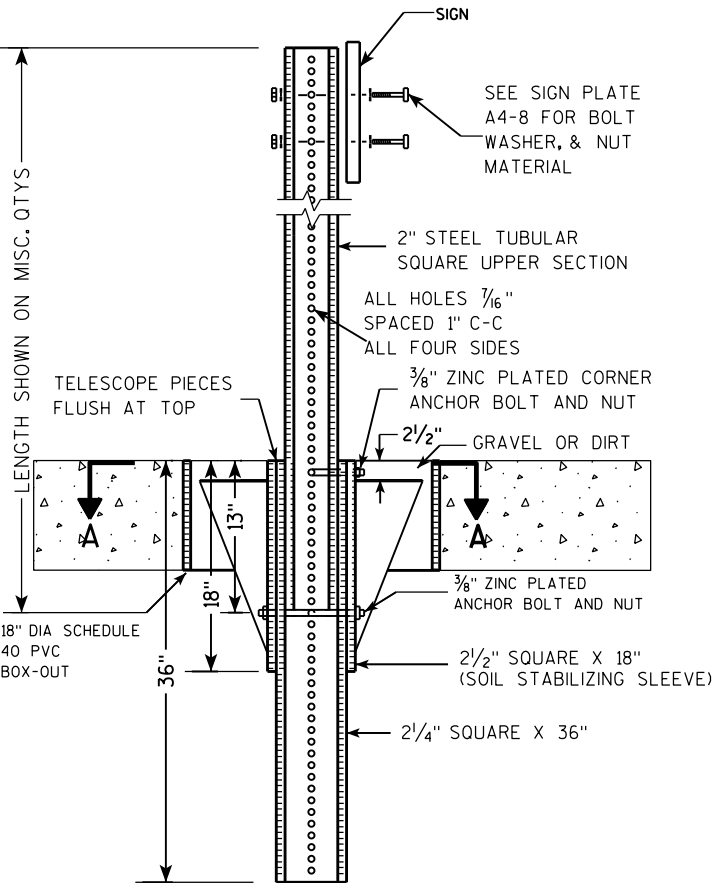
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/23/10	PLATE NO. A4-8.7

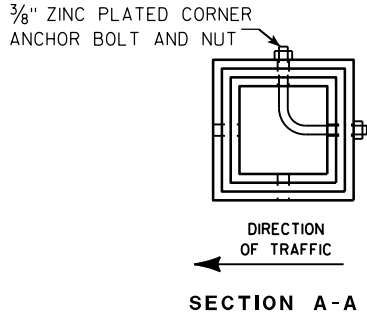
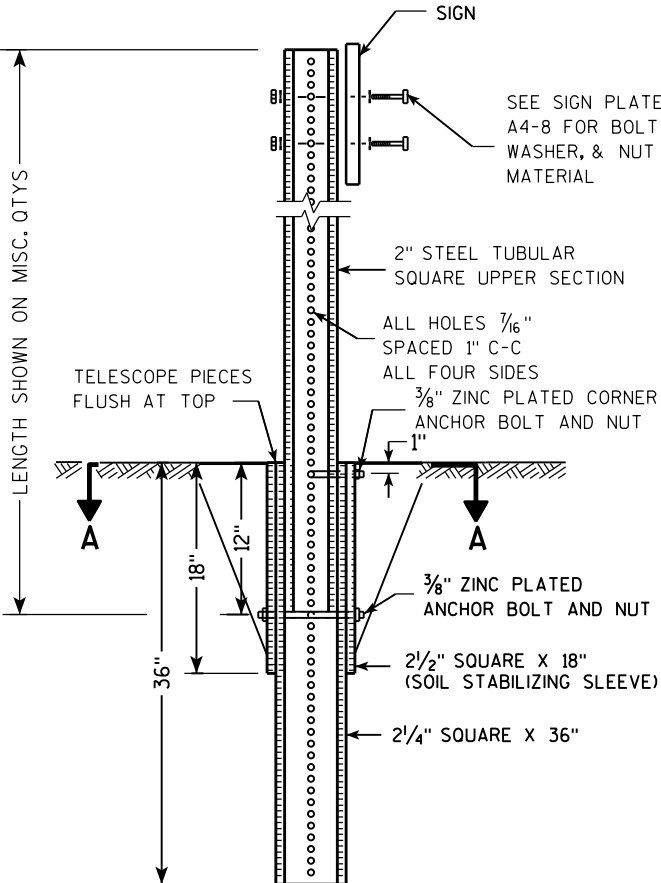
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



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



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



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

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

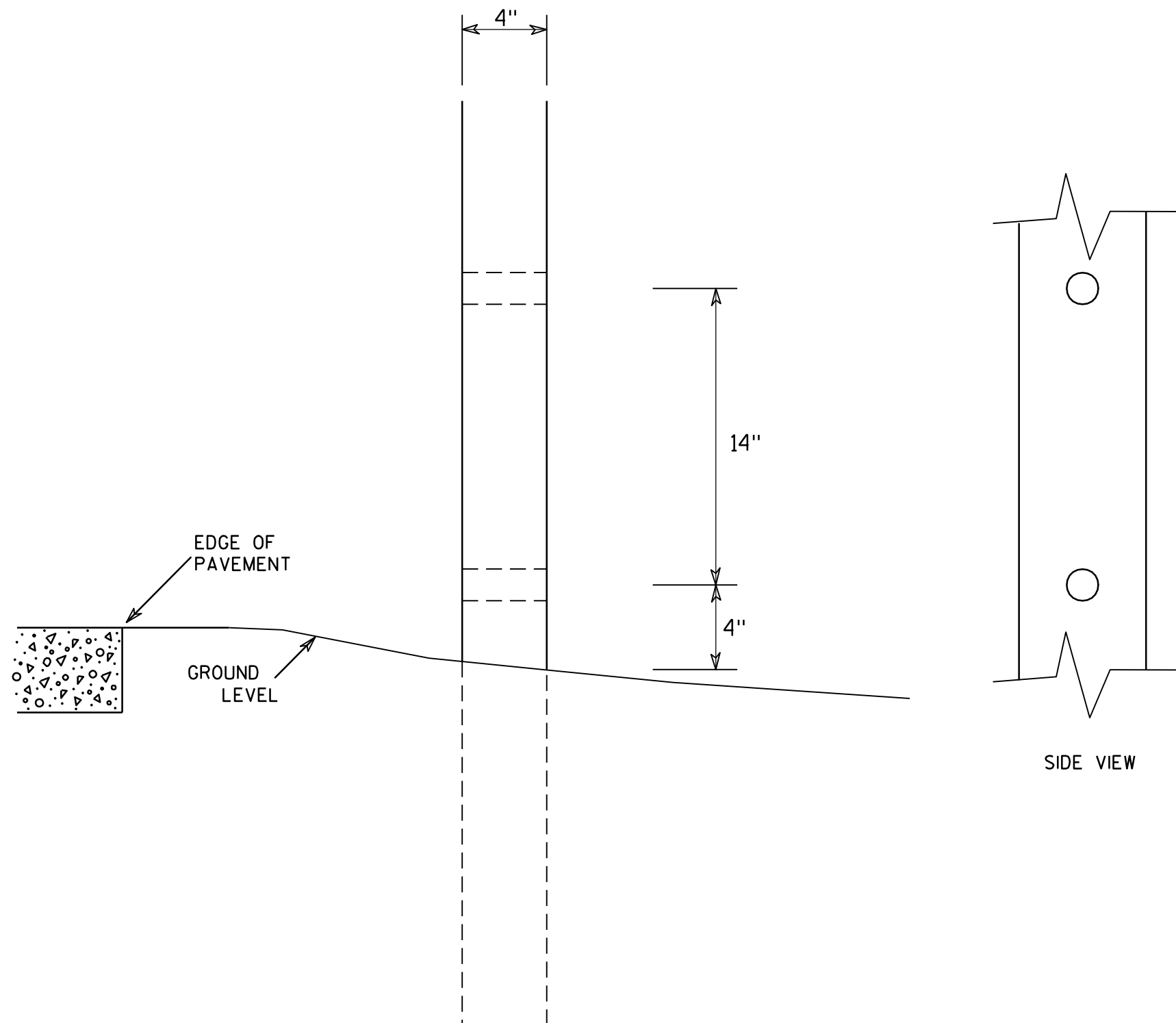
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLAT 168 14-9.9

7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

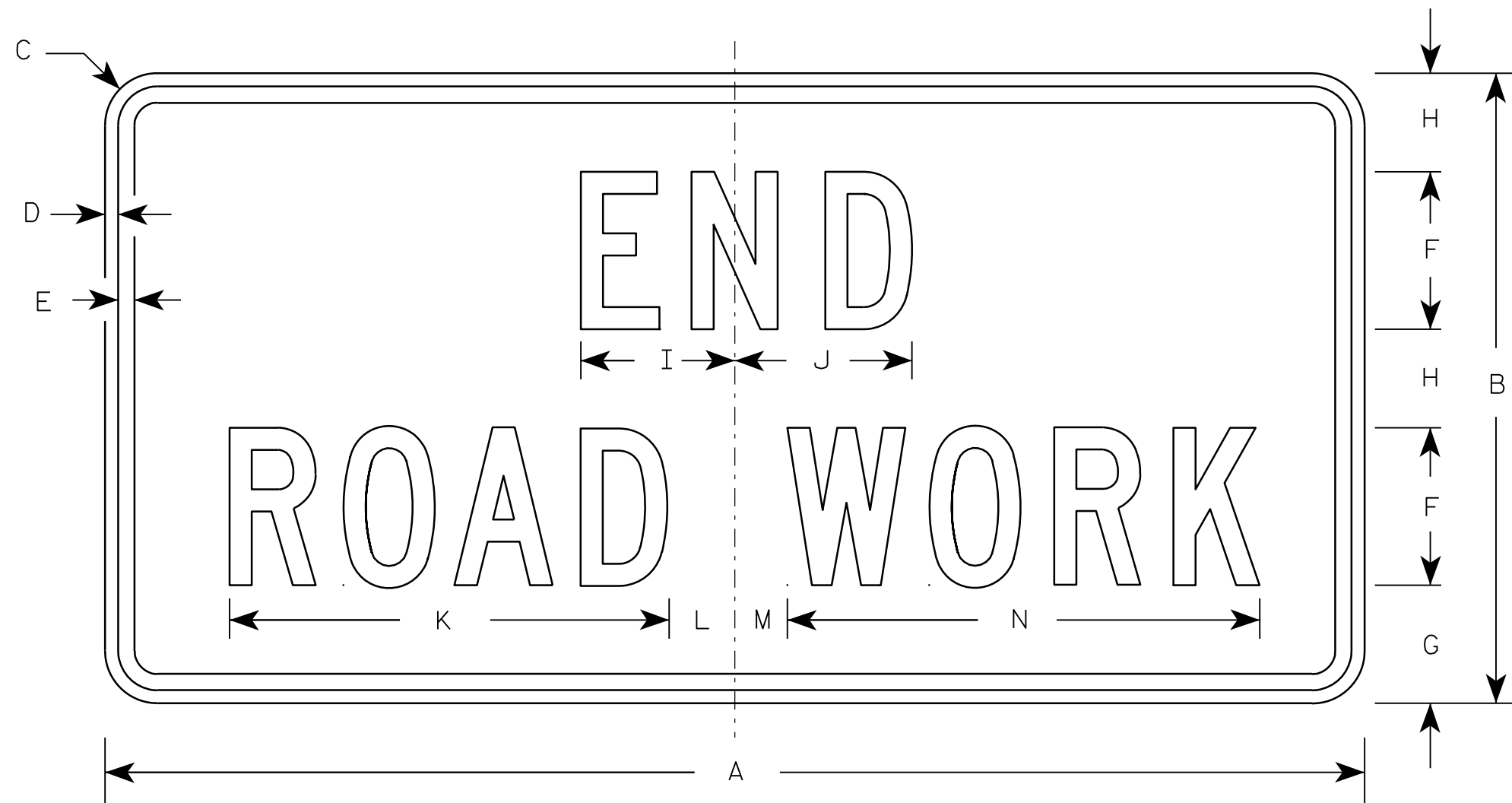
HWY:

COUNTY:

SHEET NO: 169

E

7



G20-2A

NOTES

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

Metric equivalent
for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area sq. m.
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

STANDARD SIGN

G20-2A

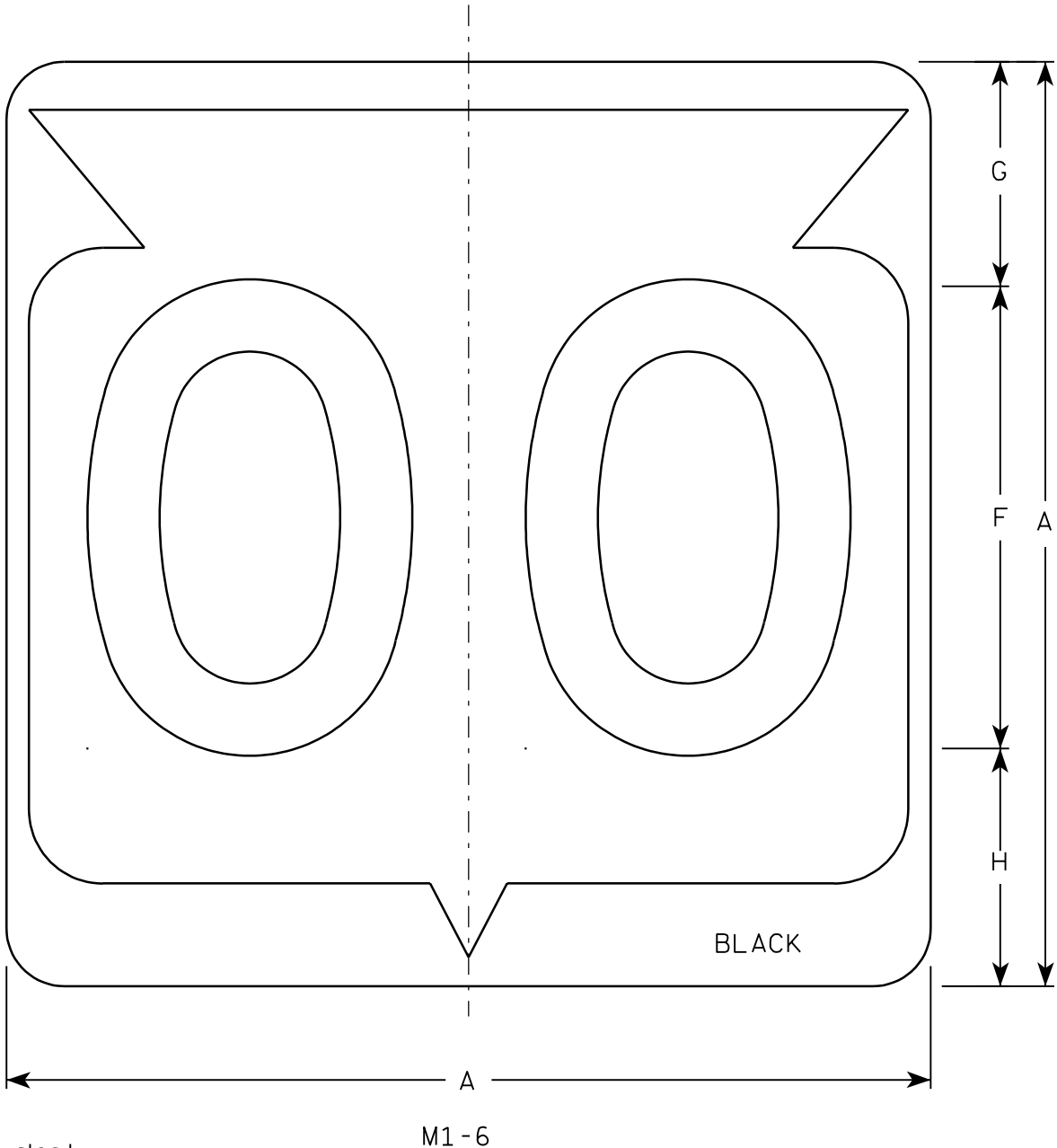
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

7

7



Metric equivalent
for this sign is:

SIZE	
1	
2	600 mm X 600 mm
3	900 mm X 900 mm
4	900 mm X 900 mm
5	900 mm X 900 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m ²
1																												
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0	.36
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81

PROJECT NO:

HWY:

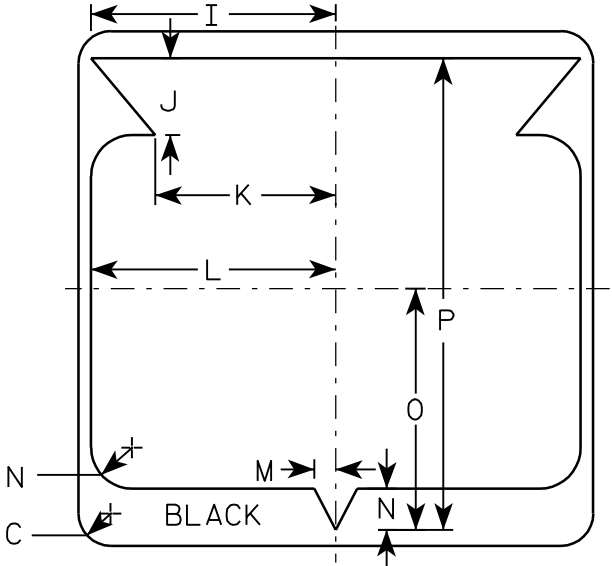
COUNTY:

SHEET NO: 171

E

NOTES

1. Sign is Type II - See Note 6 - reference
WIS DOT Standard Specification for HIGHWAY
and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White & Black - See Note 6
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base
material is plywood but borders shall be rounded
as shown. When base material is metal, the
corners and borders shall be rounded.
5. Substitute appropriate Series numerals and
adjust spacing as per plate A10-1.
6. Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective



STATE ROUTE MARKER
M1-6 FOR ASSEMBLIES

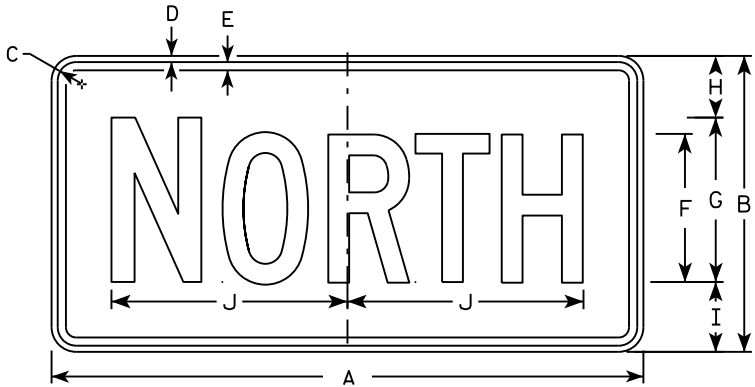
WISCONSIN DEPT OF TRANSPORTATION

APPROVED

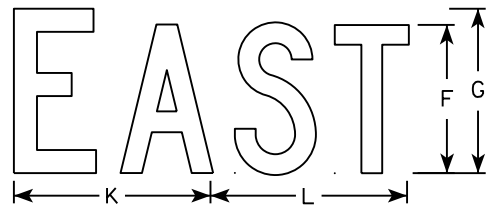
Chester J. Spang
for State Traffic Engineer

DATE 3/20/02

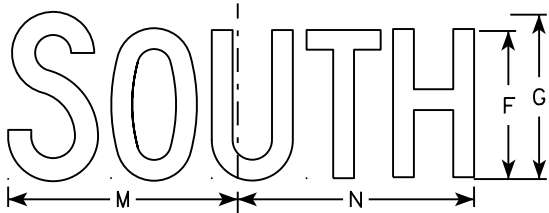
PLATE NO. M1-6.9



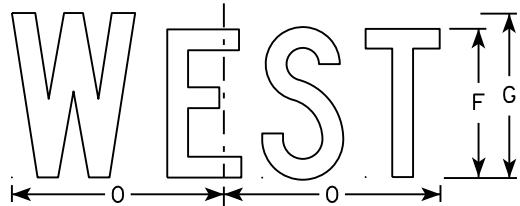
M3-1
MM3-1
MP3-1



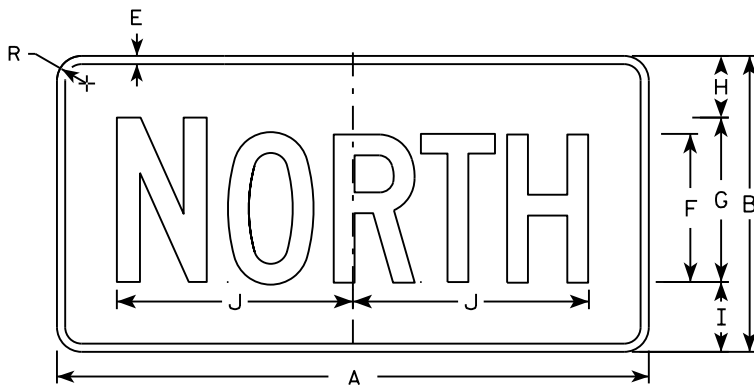
M3-2
MM3-2
MP3-2



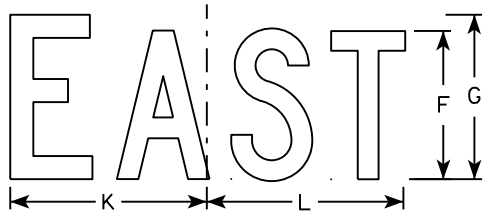
M3-3
MM3-3
MP3-3



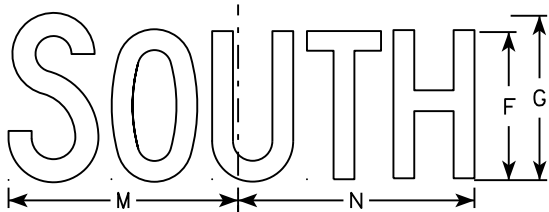
M3-4
MM3-4
MP3-4



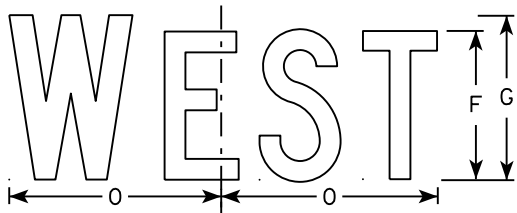
MB3-1
MK3-1
MN3-1



MB3-2
MK3-2
MN3-2



MB3-3
MK3-3
MN3-3



MB3-4
MK3-4
MN3-4

NOTES

1. All Signs Type II - Type H
2. Color:
Background - See note 5
Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White
Message - Black
MB3-1 thru MB3-4 Background - Blue
Message - White
MK3-1 thru MK3-4 Background - Green
Message - White
MM3-1 thru MM3-4 Background - White
Message - Green
MN3-1 thru MN3-4 Background - Brown
Message - White
MP3-1 thru MP3-4 Background - White
Message - Blue
6. Note the first letter of each direction is larger than the remainder of the message.

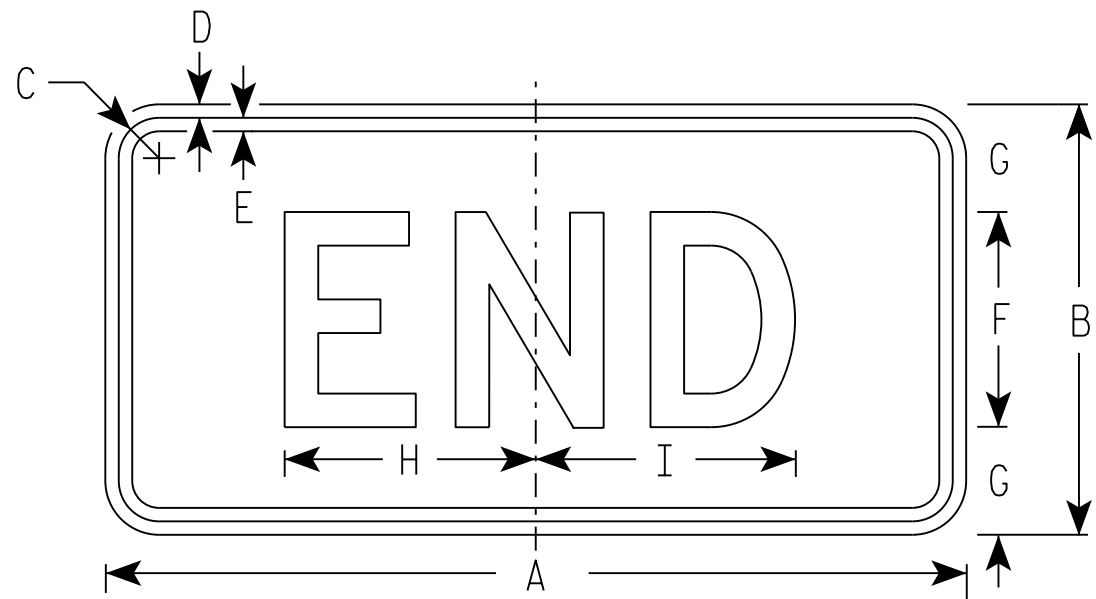
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8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

STANDARD SIGNS
M3-1 thru M3-4
SERIES

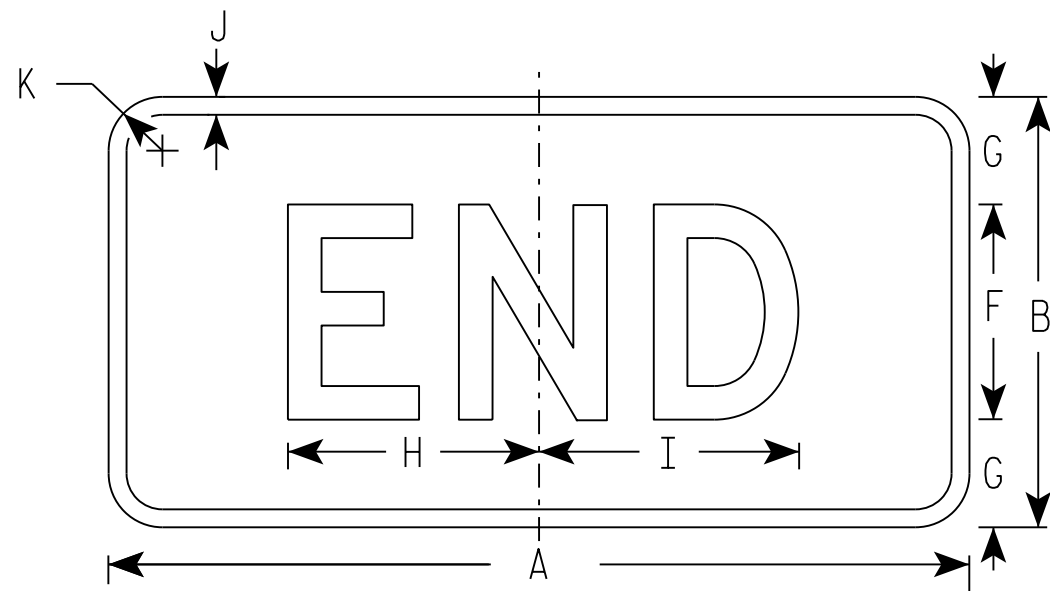
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 10/15/15 PLATE NO. 172 M3-1.14



M4-6
MM4-6
MP4-6



MB4-6
MK4-6
MN4-6
MR4-6

NOTES

- Sign is Type II - Type H
- Color:
Background - See note 5
Message - See note 5
- Message Series - D
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M4-6 Background - White
Message - Black
MB4-6 Background - Blue
Message - White
MK4-6 Background - Green
Message - White
MM4-6 Background - White
Message - Green
MN4-6 Background - Brown
Message - White
MP4-6 Background - White
Message - Blue
MR4-6 Background - Brown
Message - Yellow

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	3	7	7 1/4	1/2	1 1/2																2.00
3	36	18	1 1/8	3/8	1/2	9	4 1/2	12	11 7/8	1/2	1 1/2																4.5
4	36	18	1 1/8	3/8	1/2	9	4 1/2	12	11 7/8	1/2	1 1/2																4.5
5	36	18	1 1/8	3/8	1/2	9	4 1/2	12	11 7/8	1/2	1 1/2																4.5

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

STANDARD SIGN
M4-6

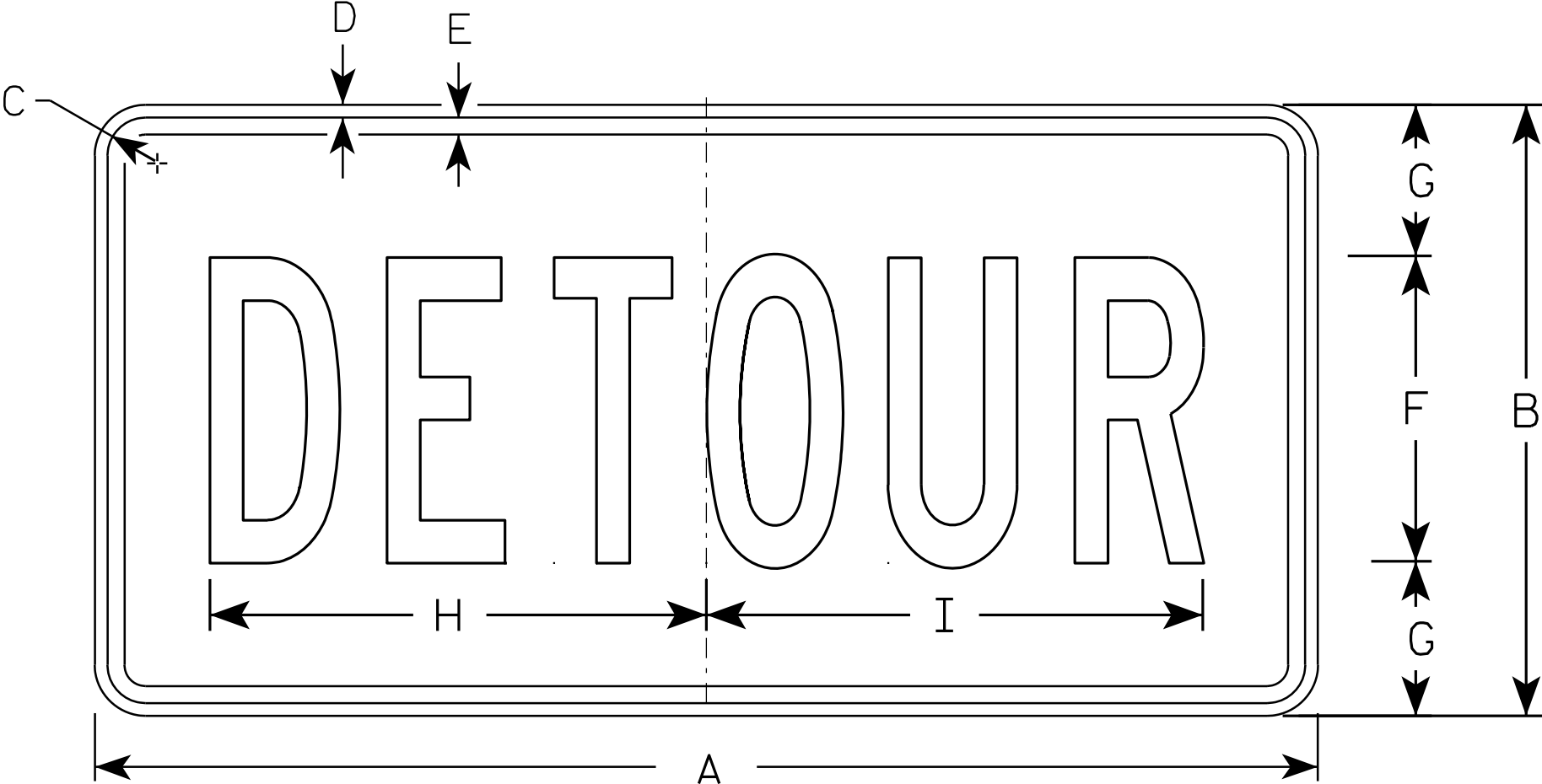
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 10/15/15 PLAT 173 '14-7.9

NOTES

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



M4 - 8

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Areg sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/8	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4																											
5																											

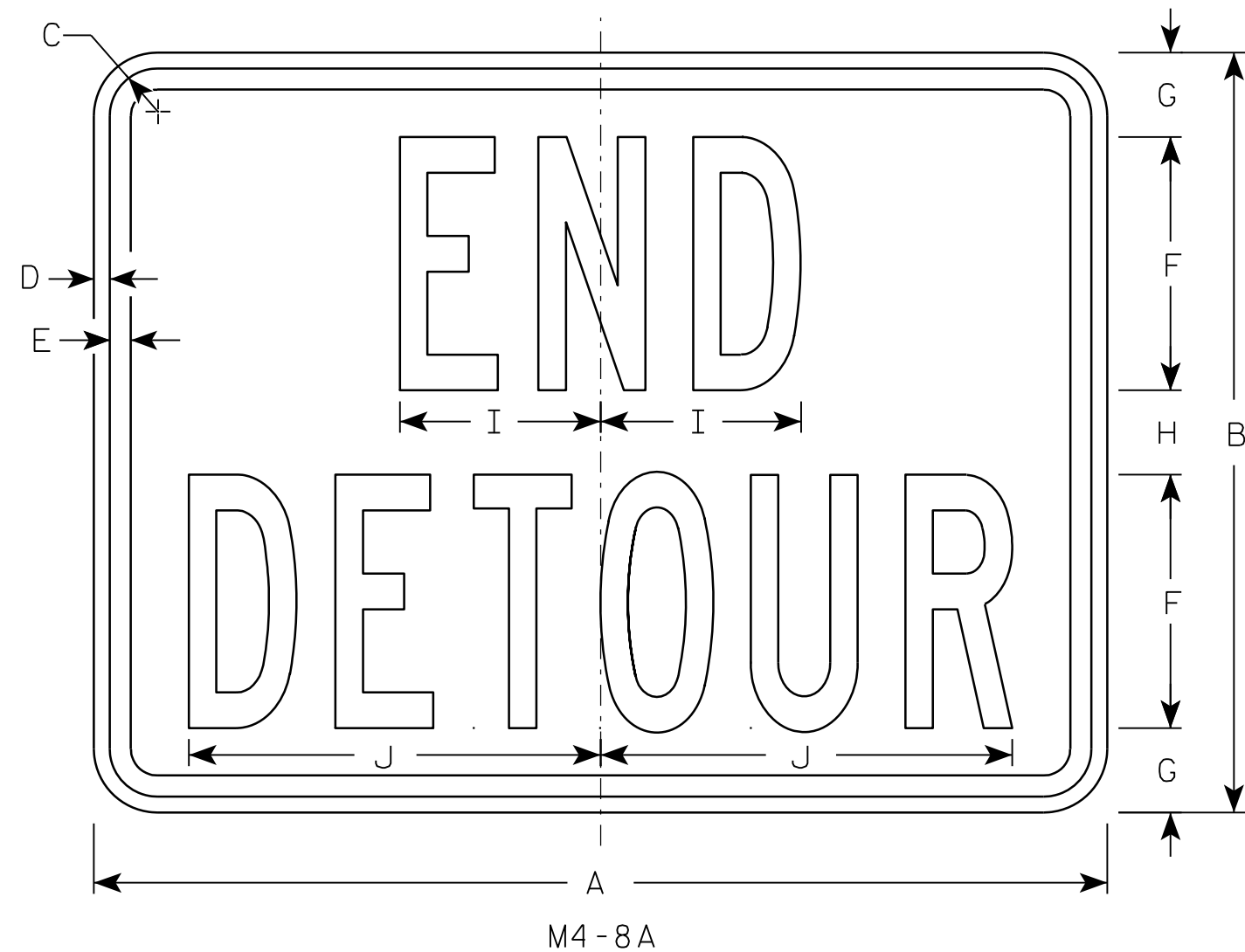
STANDARD SIGN
M4 - 8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 11/10/10 PLATE NO. M4-8.2

7



NOTES

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

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/8	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/8	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4																											
5																											

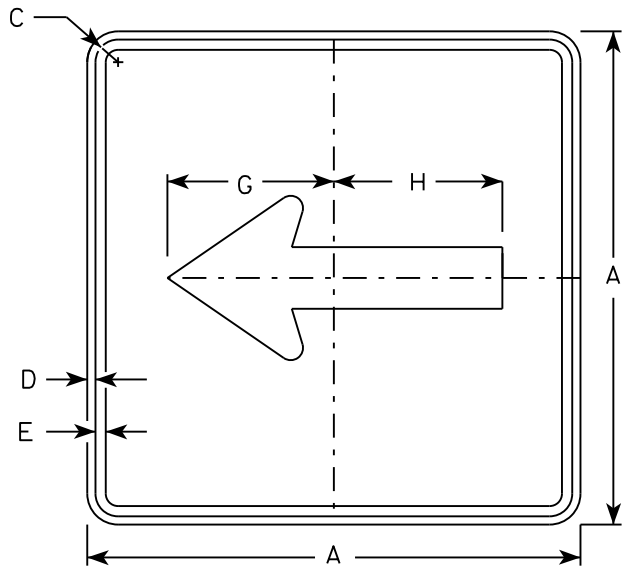
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 175	E
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STANDARD SIGN
M4-8A

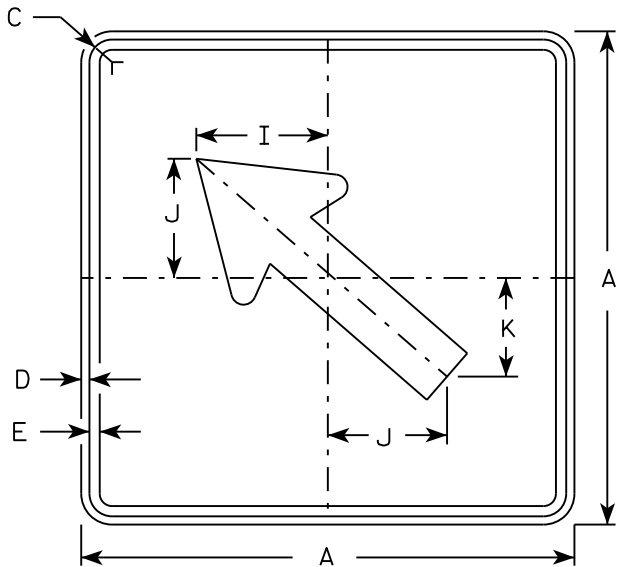
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

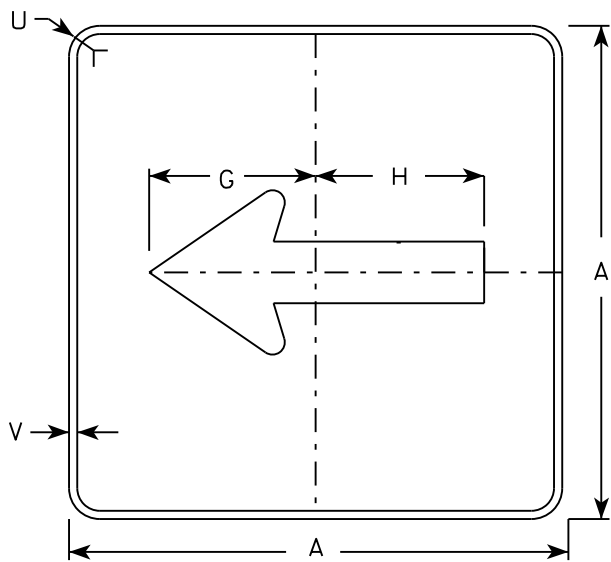
DATE 3/9/11 PLATE NO. M4-8A.2



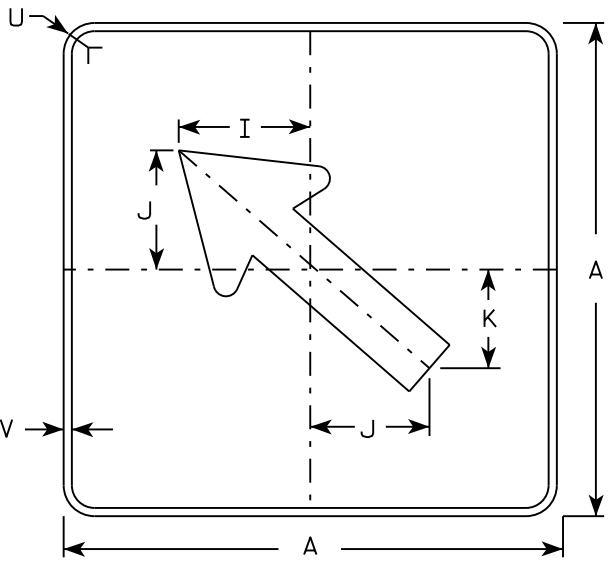
M6 - 1
MM6 - 1
M06 - 1
MP6 - 1



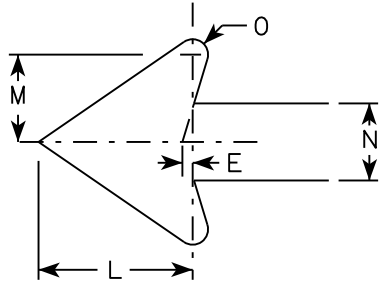
M6 - 2
MM6 - 2
M06 - 2
MP6 - 2



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



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



NOTES

- Signs are Type II - Type H except as Shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow

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

PROJECT NO:

HWY:

COUNTY:

DATE 10/15/15

PLAT 176

SHEET NO:

E

STANDARD SIGN
M6 - 1 & M6 - 2
SERIES

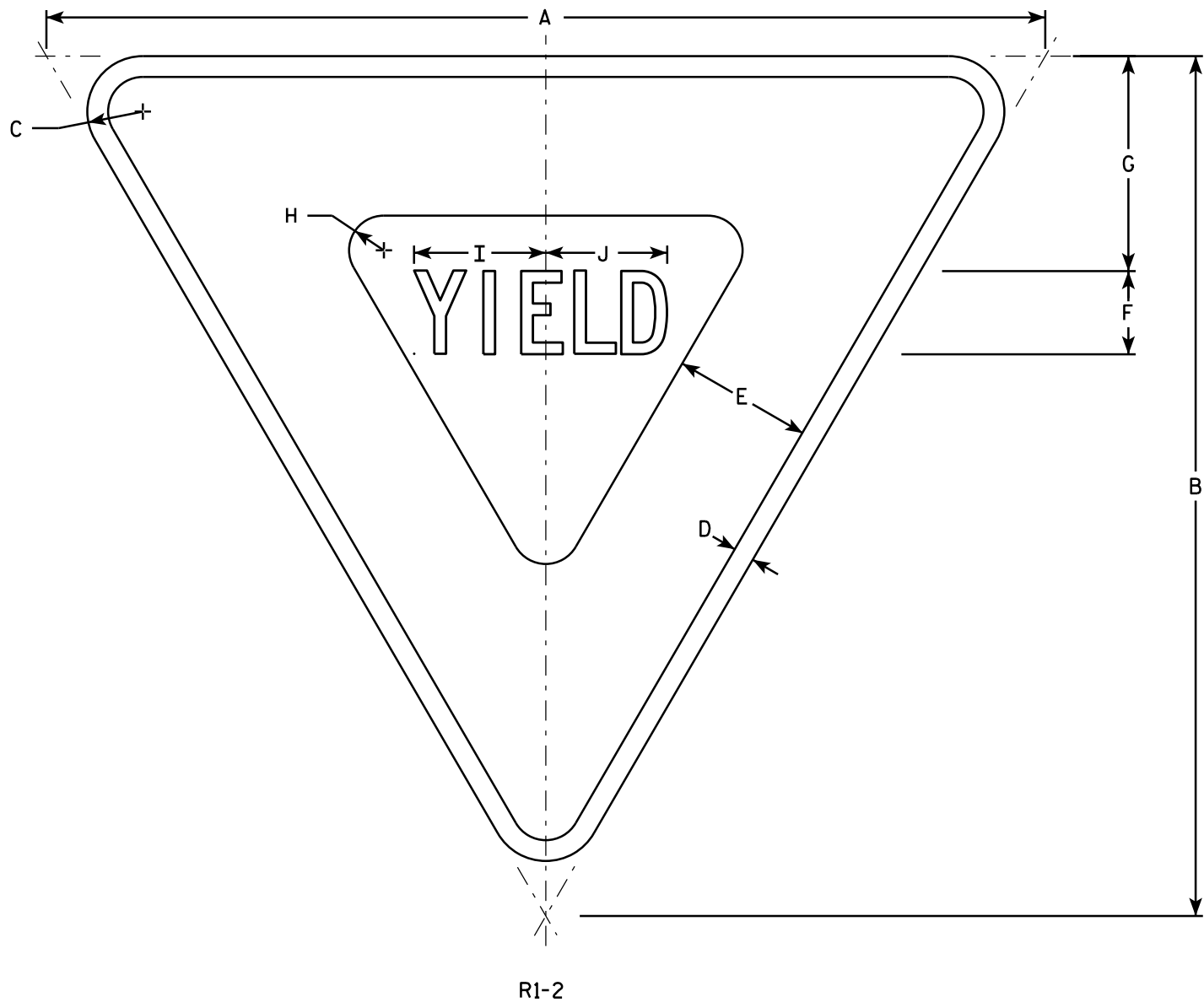
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 10/15/15

PLAT 176

M6-1.15



NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - White
Message - See note 5
- 3. Message Series - C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. The border strip and word message are reflectorized red.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30	26	1 1/2	5/8	4	2 1/2	6 3/8	7/8	4	3 5/8																	2.71
2S	36	31	2	3/4	5	3	7 3/4	1 1/4	4 3/4	4 3/8																	3.88
2M	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
3	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
4	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
5	60	52	3	1 1/2	8	5	13	2 1/2	7 7/8	7 1/4																	10.83
6																											
7	18	15 1/2	1	3/8	2 1/2	1 1/2	3 7/8	5/8	2 3/8	2 1/4																	0.97

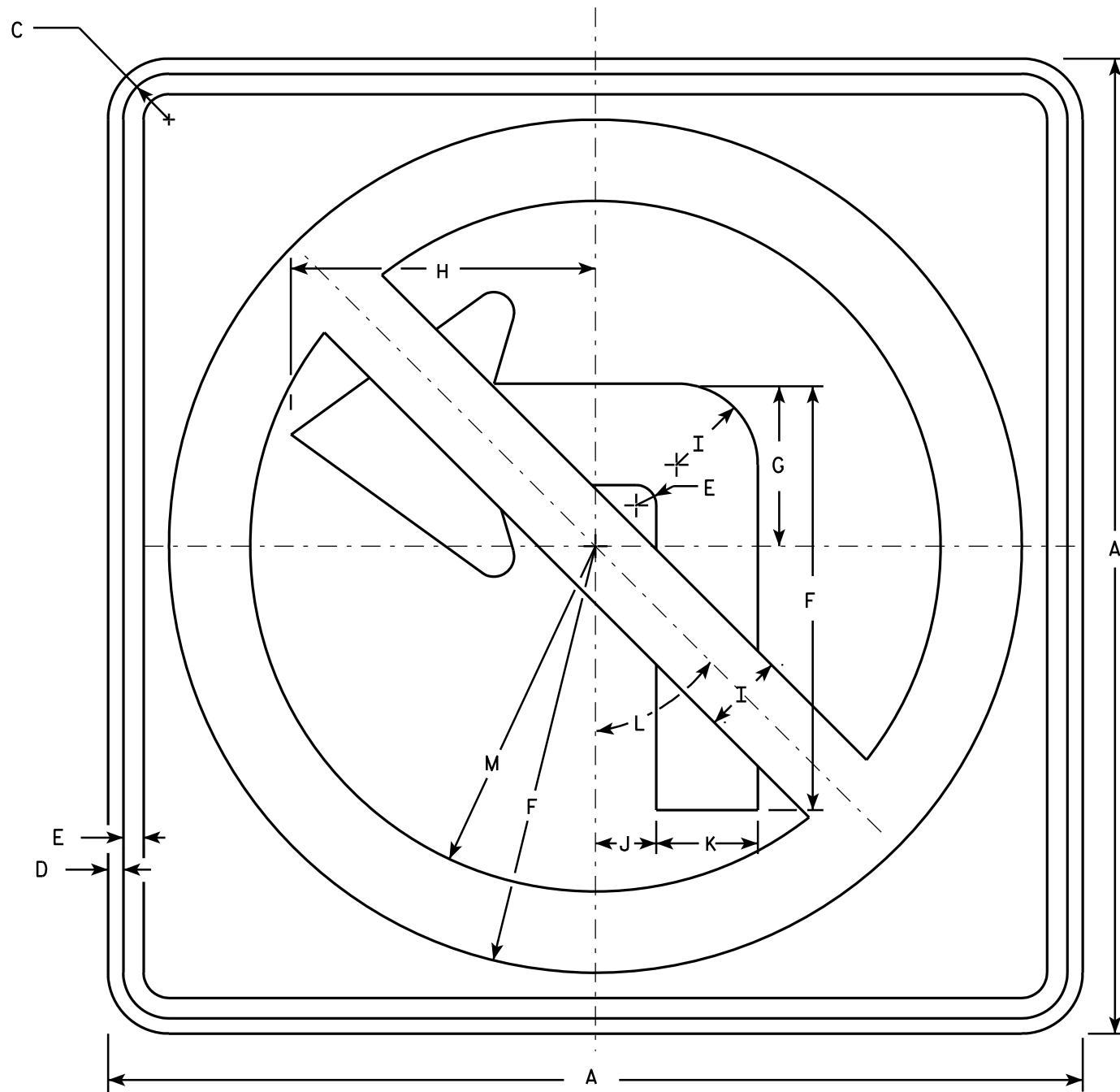
STANDARD SIGN

R1-2

WISCONSIN DEPT OF TRANSPORTATION

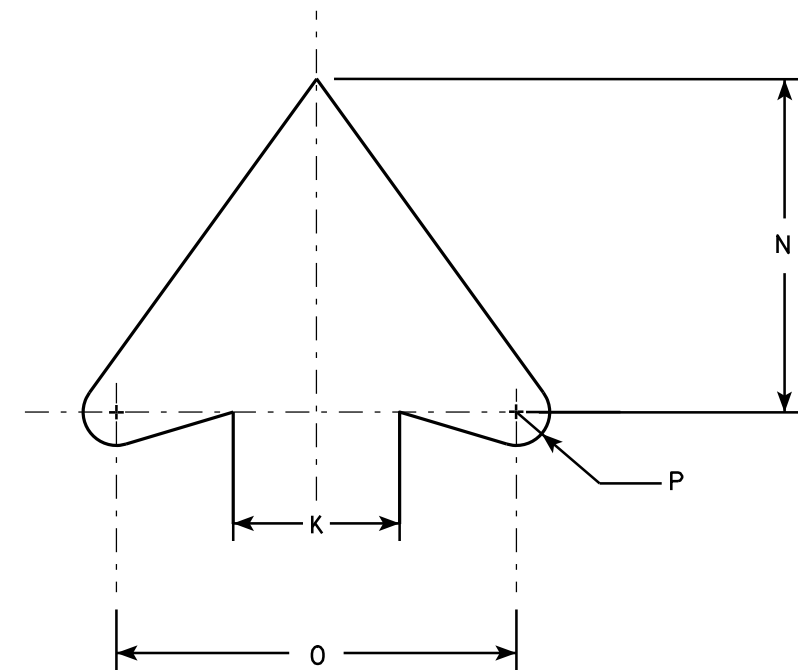
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/13/14 PLATE 177 P1-2.12



R3-2

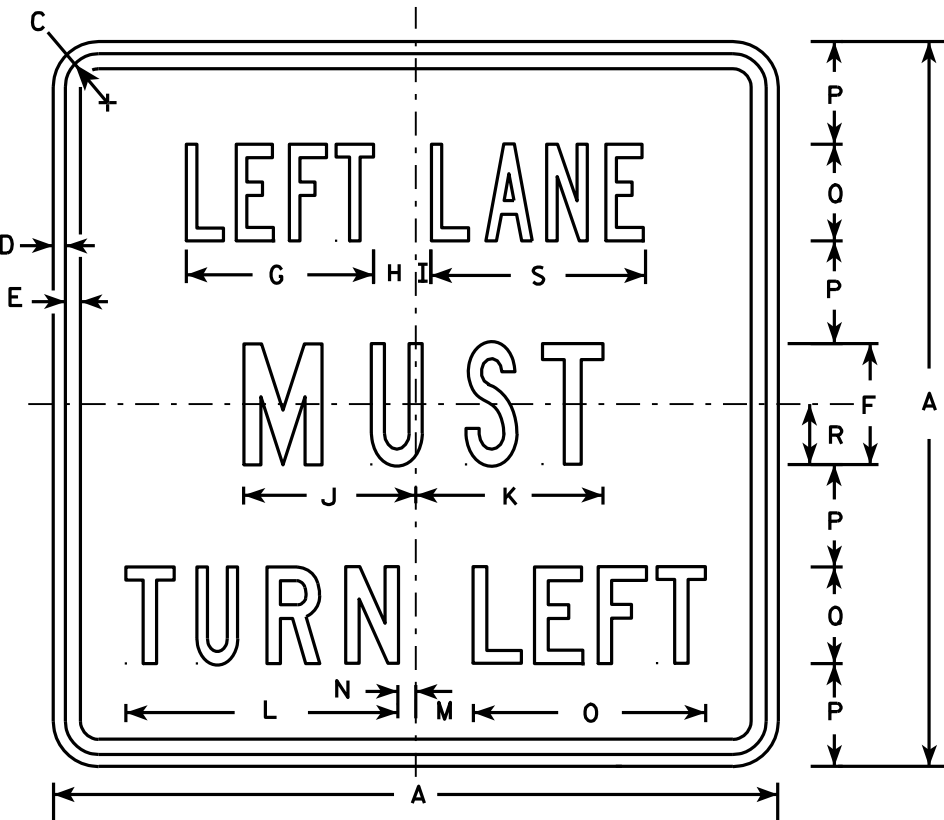
- NOTES**
1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
 2. Color:
Background - White
Message - See note 4
 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 4. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.



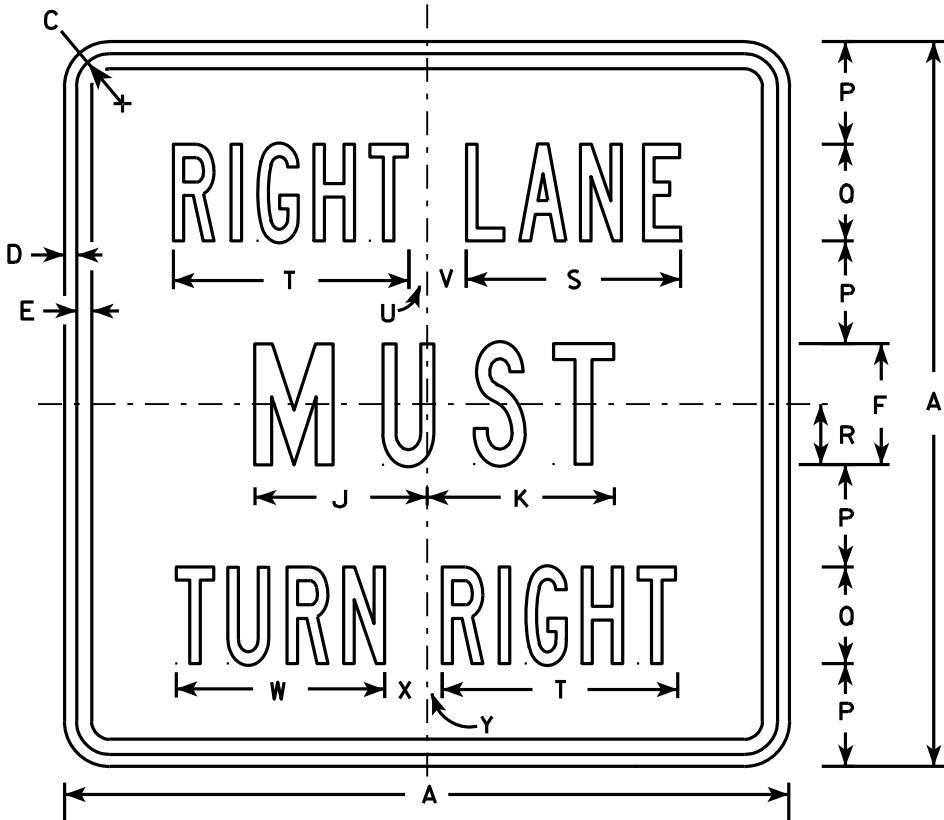
ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2											4.0
2S	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2											4.0
2M	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
3	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
4	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
5	48		2 1/4	3/4	1	21	8	15	4	3	5	45°	17	10	12	1											16.0

PROJECT NO: HWY: COUNTY: SHEET NO: 178 E



R3-7L



R3-7R

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - Line 1 is Series B.
Line 2 is Series C.
Line 3 on plate R3-7R is Series B and Series C on plate R3-7L.
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3⁄8	1⁄2	5⁄8	5	7 3⁄4	1 3⁄4	5⁄8	7 1⁄8	7 3⁄4	11 1⁄4	2 3⁄8	3⁄4	9 5⁄8	4 1⁄4	4	2 1⁄2	8 7⁄8	9 3⁄4	3⁄4	1 5⁄8	8 5⁄8	1 5⁄8	5⁄8		6.25
2S	30		1 3⁄8	1⁄2	5⁄8	5	7 3⁄4	1 3⁄4	5⁄8	7 1⁄8	7 3⁄4	11 1⁄4	2 3⁄8	3⁄4	9 5⁄8	4 1⁄4	4	2 1⁄2	8 7⁄8	9 3⁄4	3⁄4	1 5⁄8	8 5⁄8	1 5⁄8	5⁄8		6.25
2M	30		1 3⁄8	1⁄2	5⁄8	5	7 3⁄4	1 3⁄4	5⁄8	7 1⁄8	7 3⁄4	11 1⁄4	2 3⁄8	3⁄4	9 5⁄8	4 1⁄4	4	2 1⁄2	8 7⁄8	9 3⁄4	3⁄4	1 5⁄8	8 5⁄8	1 5⁄8	5⁄8		6.25
3	36		1 5⁄8	5⁄8	3⁄4	6	9 5⁄8	2	1 1⁄8	8 3⁄4	9	13 1⁄2	3 7⁄8	1 1⁄2	12 1⁄2	5	5	3	10 5⁄8	12	7⁄8	2 1⁄4	10 5⁄8	2 1⁄8	1		9.00
4	48		2 1⁄4	3⁄4	1	8	13 1⁄2	2 3⁄8	1 1⁄2	11 1⁄2	11 7⁄8	17 3⁄4	3 5⁄8	2 1⁄2	16 3⁄8	6 1⁄2	7	4	14 3⁄8	16 7⁄8	5⁄8	3 1⁄4	15 1⁄8	2 3⁄4	1 1⁄8		16.00
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 179

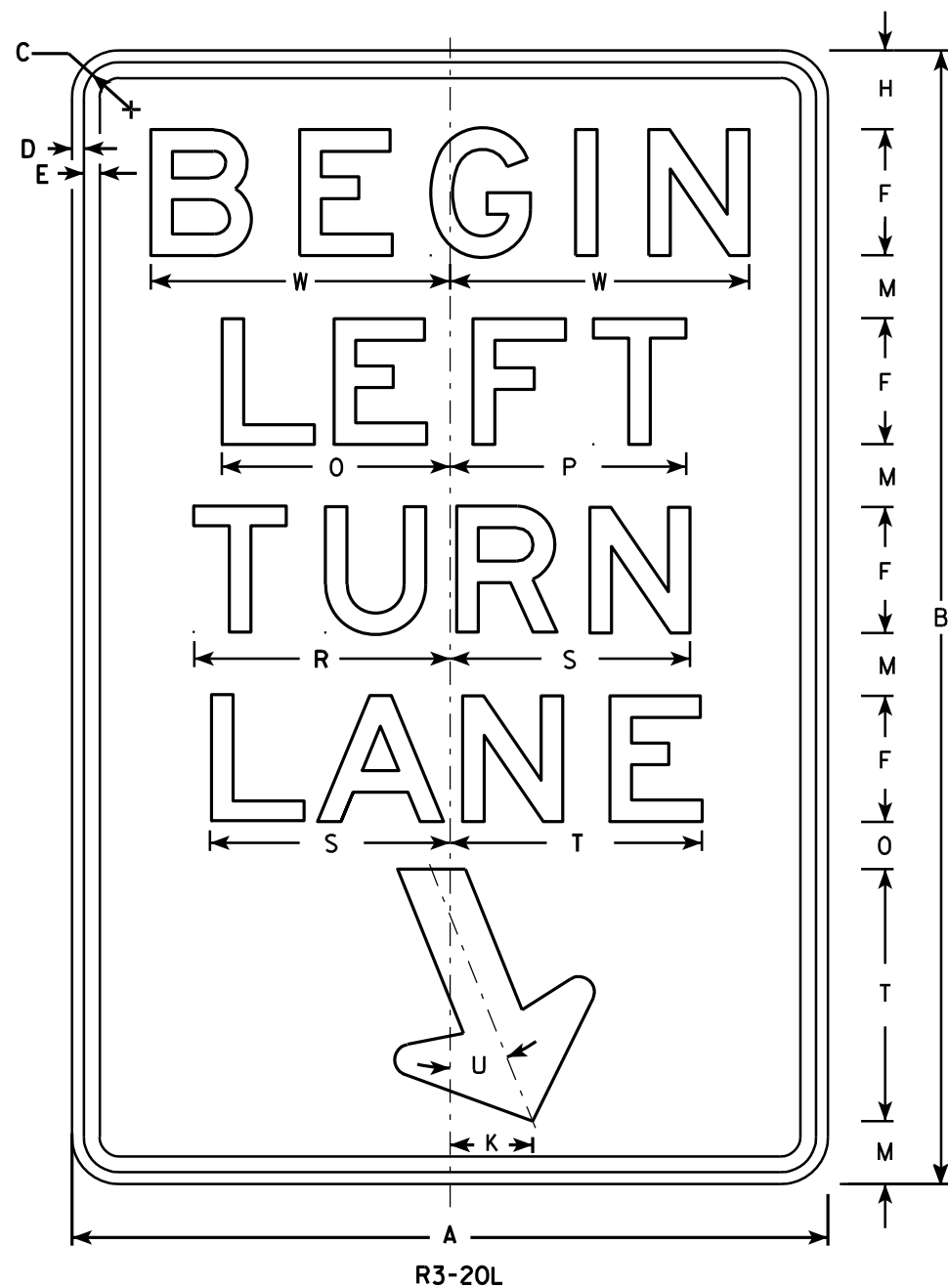
E

STANDARD SIGN
R3-7L & R3-7R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

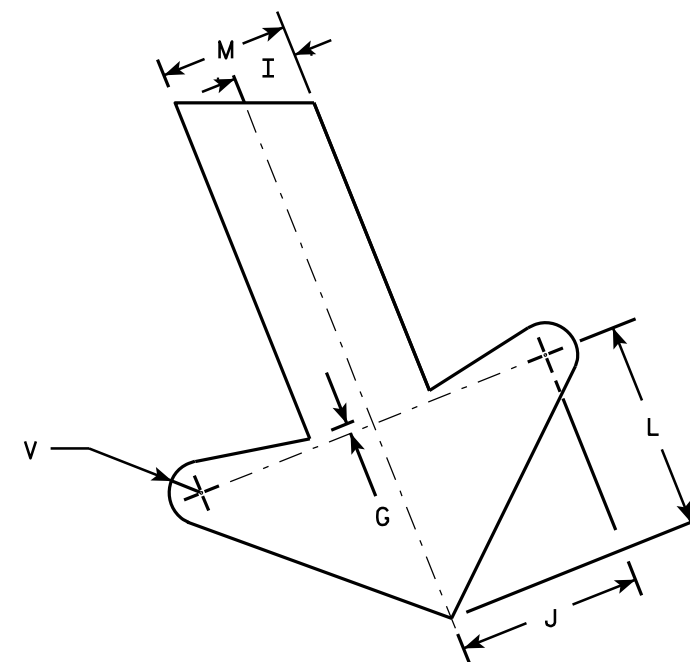
DATE 3/18/2011 PLATE NO. R3-7.3



R3-20L

NOTES

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



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	7 1/4	7 1/2		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
2M	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	7 1/4	7 1/2		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
3	36	54	1 3/4	1/2	5/8	6	3/8	3 3/4	1 1/2	4 1/4	4	4 7/8	3	2 1/4	10 7/8	11 1/4		12 1/4	11 1/2	12	22°	3/4	13 1/4				13.5
4																											
5																											

STANDARD SIGN
R3-20L

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

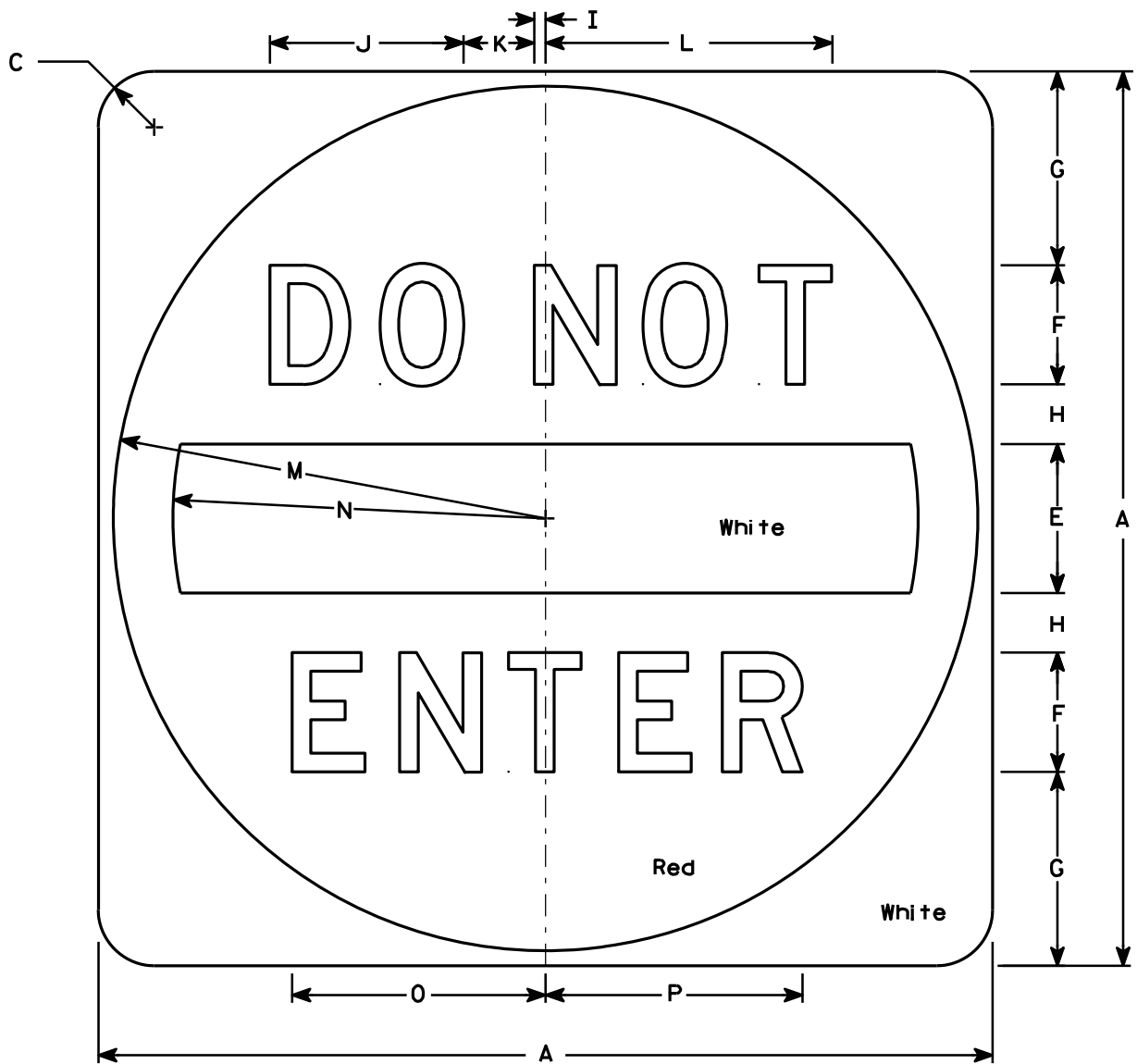
DATE 10/18/10 PLATE NO. R3-20L.7

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:

Background - See detail

Message - White - Type H Reflective
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but when base material is metal, the corners shall be rounded.



R5 - 1

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30		1 7⁄8		5	4	6 1⁄2	2	3⁄8	6 1⁄2	2 3⁄8	9 5⁄8	14 1⁄2	12 1⁄2	8 1⁄2	8 5⁄8											6.26
2M	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
3	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
4	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
5	48		3		8	6	11	3	5⁄8	9 3⁄4	3 5⁄8	14 1⁄2	23 1⁄2	20	12 3⁄4	12 7⁄8											16.0

PROJECT NO:

HWY:

COUNTY:

STANDARD SIGN
R5 - 1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/17/10 PLATE NO. R5-1.15

SHEET NO: 181

E

NOTES

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



R9-9

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30	18	1 ¾	½	½	4	3 ½	3	10 ¾	8 ⅛																	3.75
2M	30	18	1 ¾	½	½	4	3 ½	3	10 ¾	8 ⅛																	3.75
3																											
4																											
5																											

STANDARD SIGN

R9-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/1/2011 PLATE NO. R9-9.5

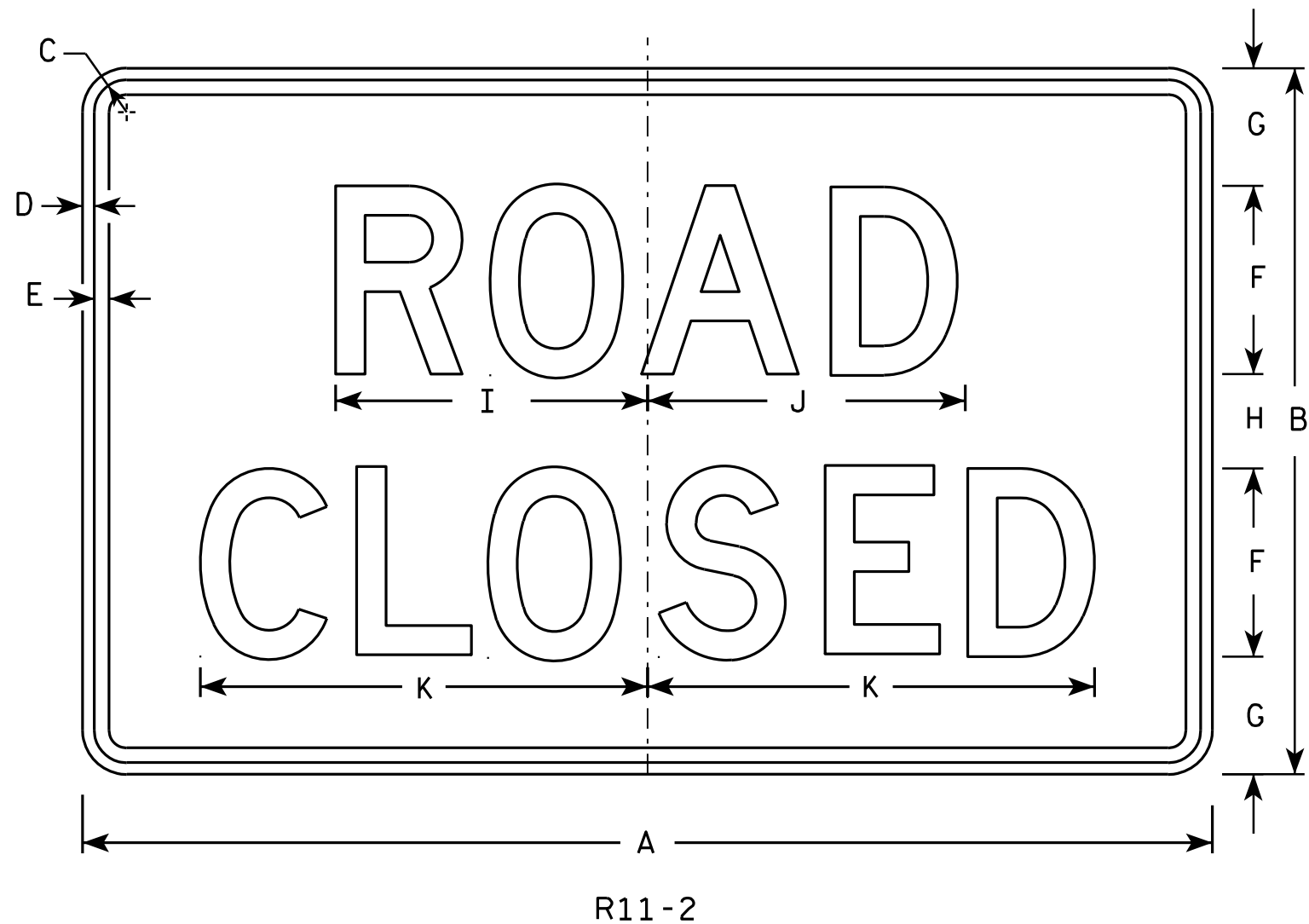
PROJECT NO:

HWY:

COUNTY:

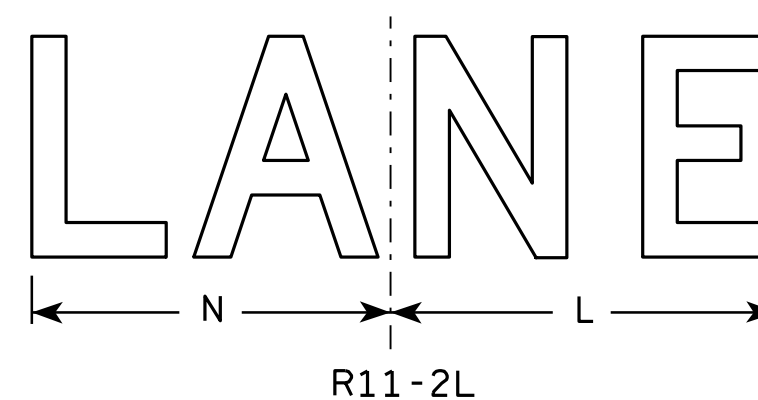
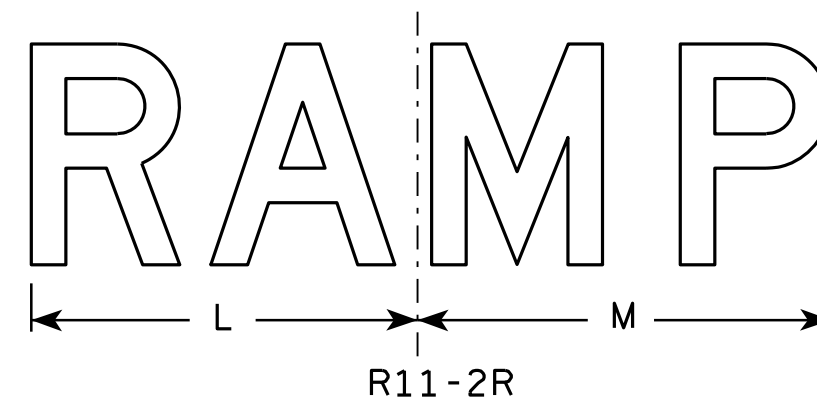
SHEET NO: 182

E



NOTES

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

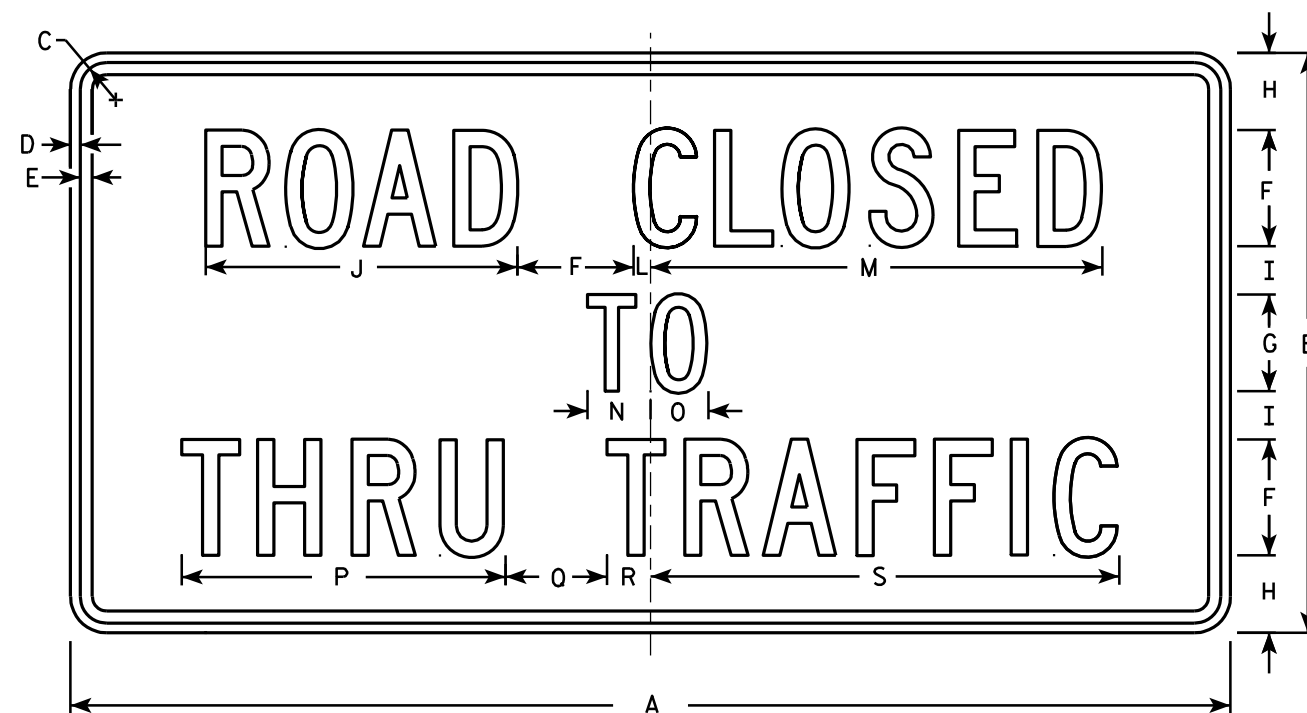


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0
2M	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0
3	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13				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

STANDARD SIGN R11-2

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

PROJECT NO: HWY: COUNTY: SHEET NO: 183 E



R11-4

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	60	30	1 3⁄8	½	5⁄8	6	5	4	2 ½	16 ⅛		7⁄8	23 3⁄8	3 ¼	3	16 ¾	5 ¼	2 ¼	24 ¼								12.5
2M	60	30	1 3⁄8	½	5⁄8	6	5	4	2 ½	16 ⅛		7⁄8	23 3⁄8	3 ¼	3	16 ¾	5 ¼	2 ¼	24 ¼								12.5
3																											
4																											
5																											

STANDARD SIGN
R11 - 4

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-4.3

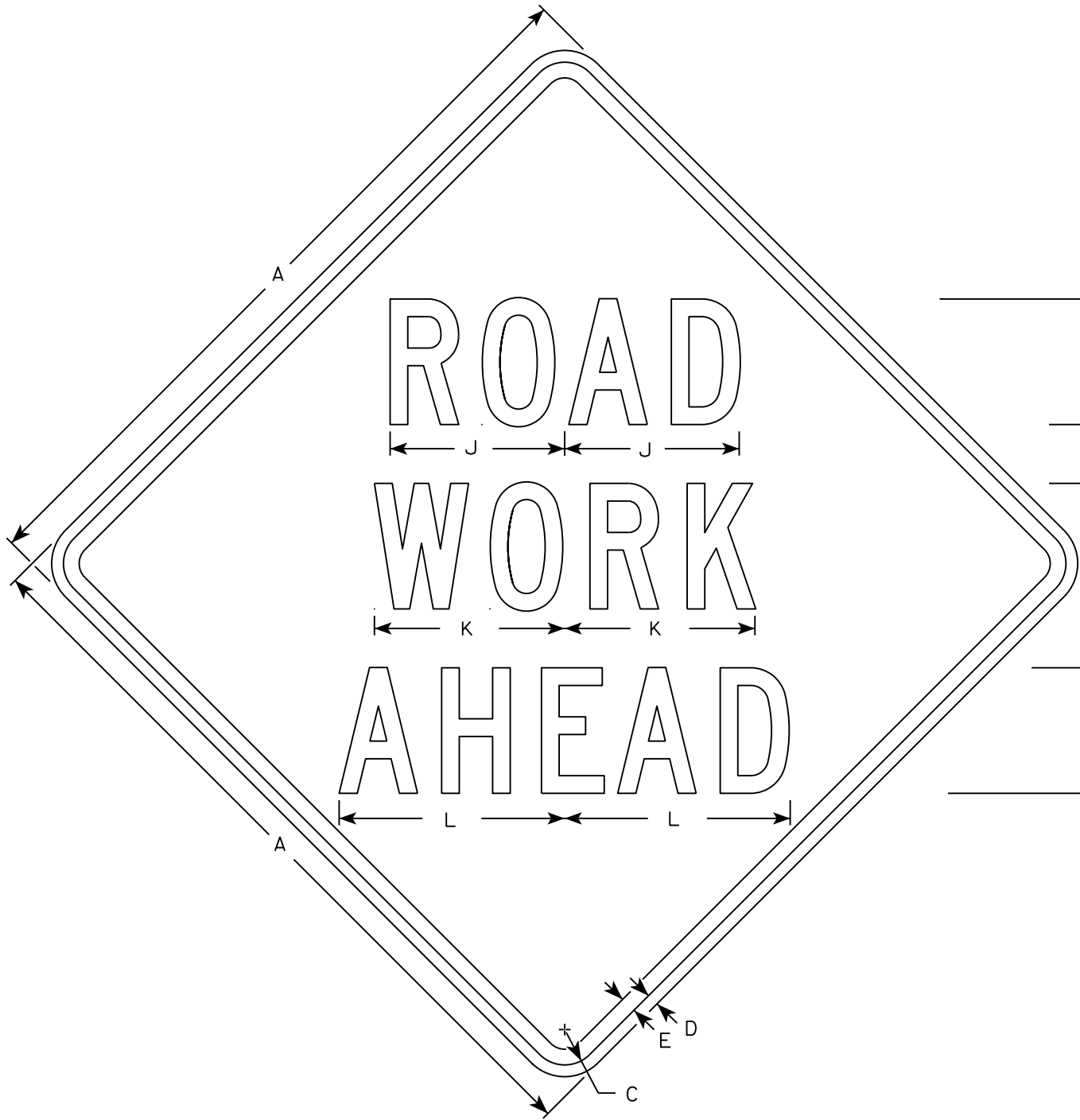
PROJECT NO:

HWY:

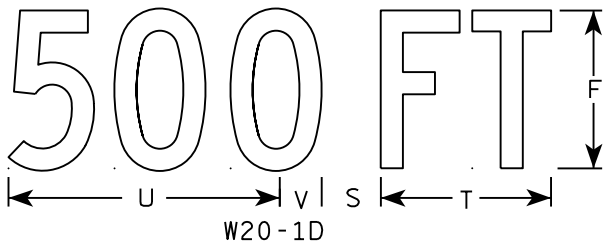
COUNTY:

SHEET NO: 184

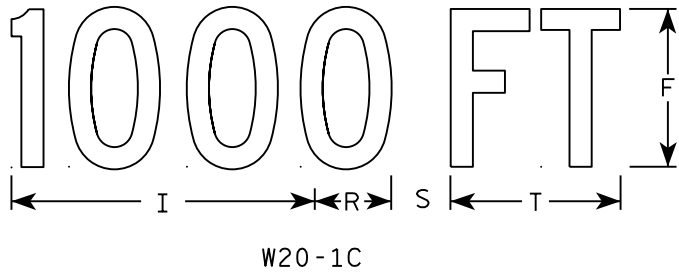
E



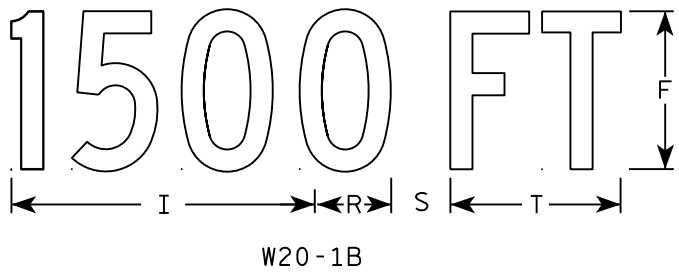
W20-1A



W20-1D



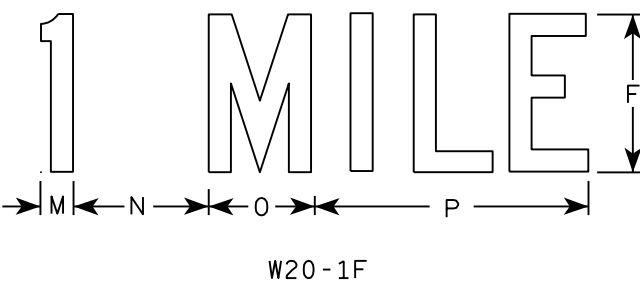
W20-1C



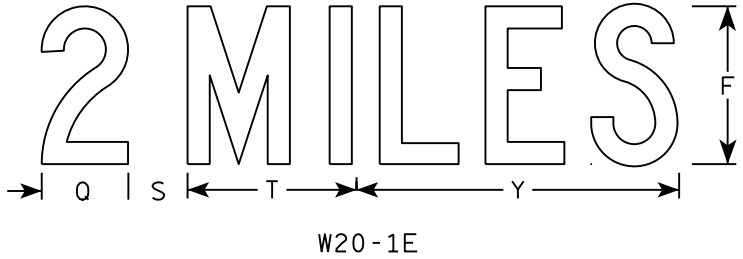
W20-1B



W20-1G



W20-1F



W20-1E

NOTES

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

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

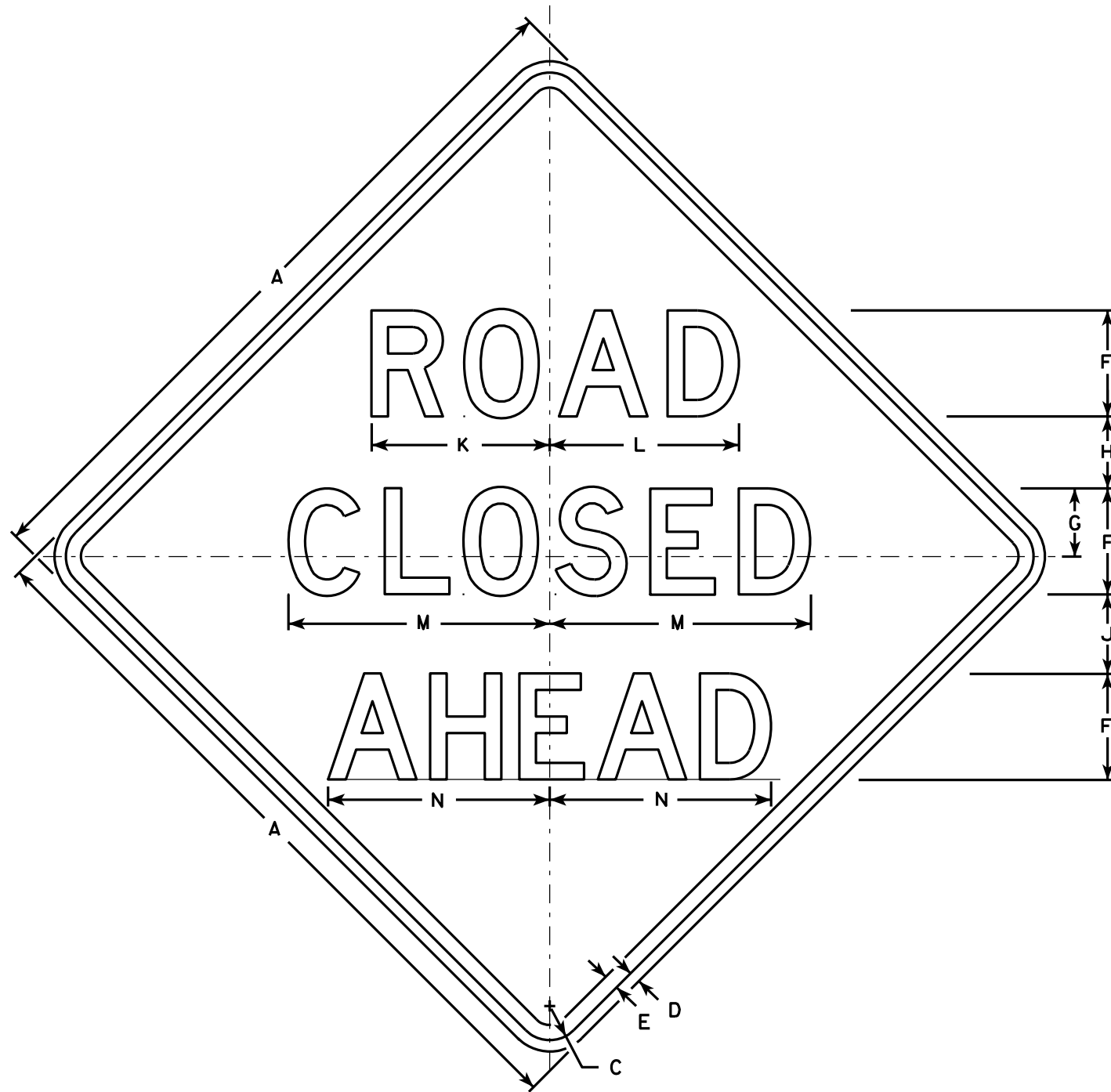
STANDARD SIGN
W20-1A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

185



W20-3A

500 FT

W20-3D

1000 FT

W20-3C

1500 FT

W20-3B

1/2 MILE

W20-3G

1 MILE

W20-3F

NOTES

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

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

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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 186

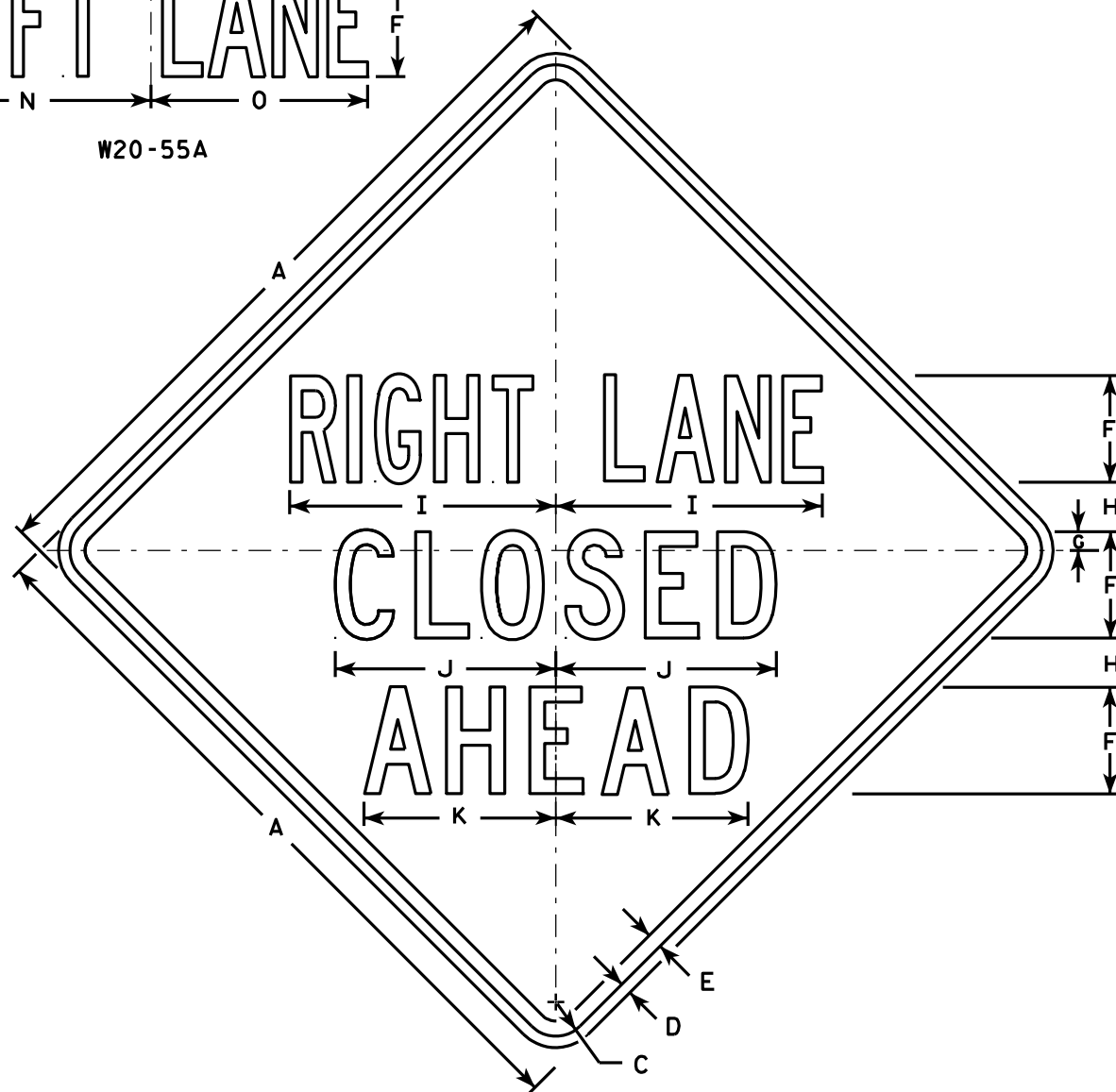
E

CENTER LANE

W20-56A

LEFT LANE

W20-55A



W20-5A

500 FT

W20-5D

1000 FT

W20-5C

1500 FT

W20-5B

1/2 MILE

W20-5G

1 MILE

W20-5F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - See Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. "----- LANE" is Series B.
All other copy is Series C.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	6	1 5/8	5/8	3/4	5	7/8	2 1/2	13 1/8	10 3/4	9 1/2	14 1/4	13 5/8	12	12	1 3/8	1 1/8	4 1/2	3 1/2	9	1 7/8	5 5/8	10 1/8	2 1/2	1 3/4	8	9.0
2S	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
2M	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
3	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
4	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
5	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0

PROJECT NO:

HWY:

COUNTY:

STANDARD SIGN
W20-5A, B, C, D, F & G

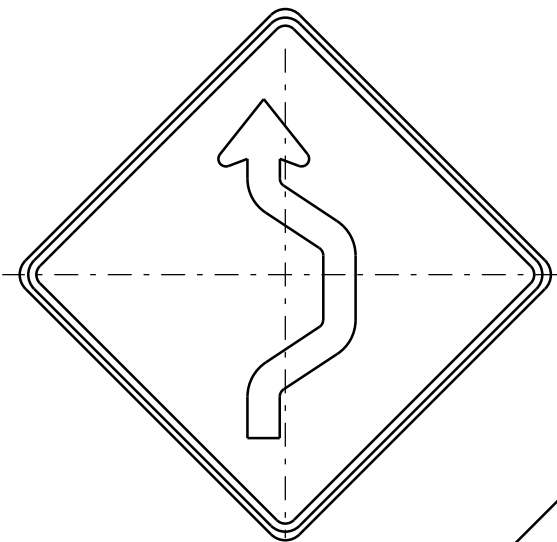
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

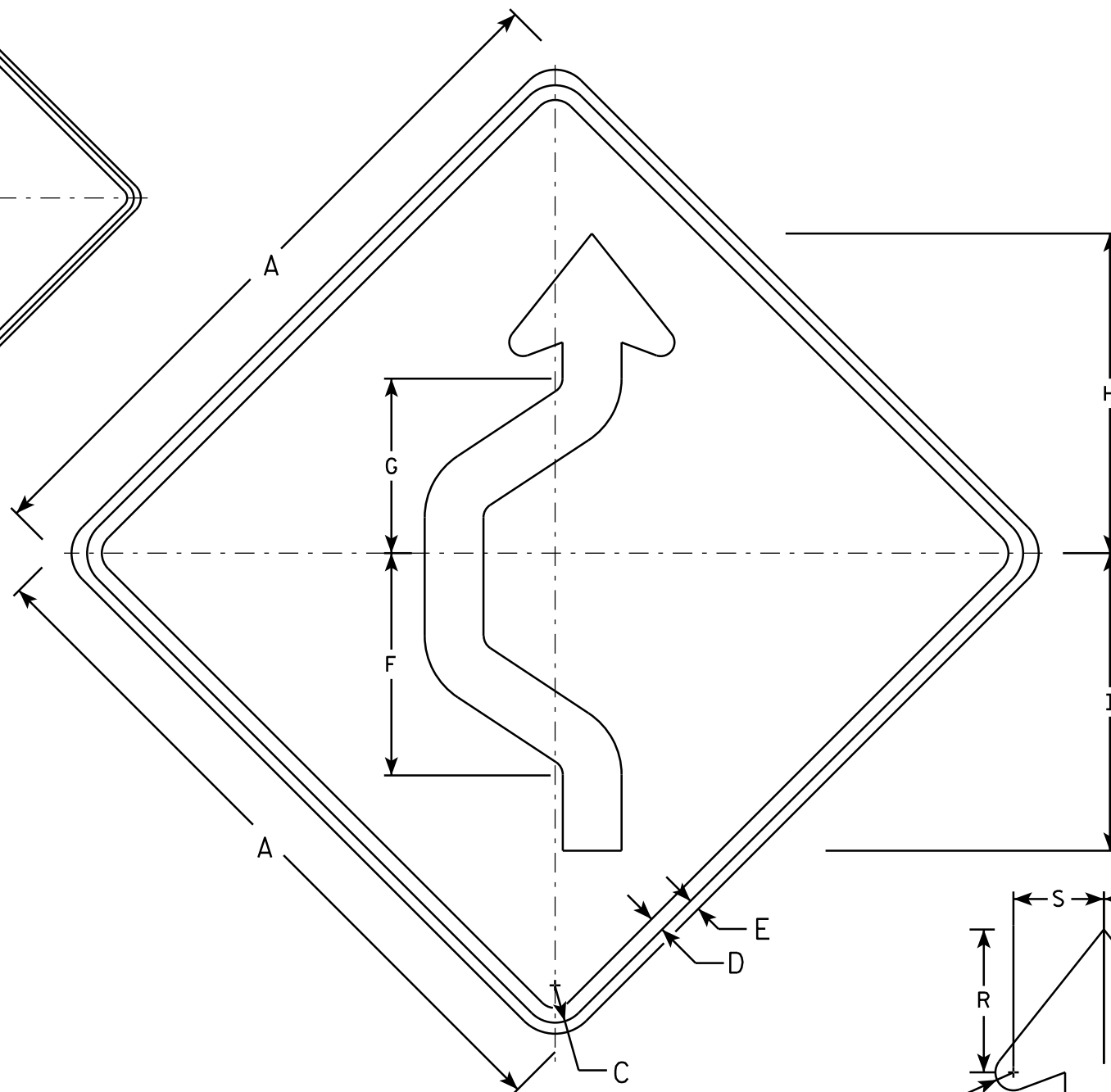
DATE 3/18/11 PLATE NO. W20-5.11

SHEET NO: 187

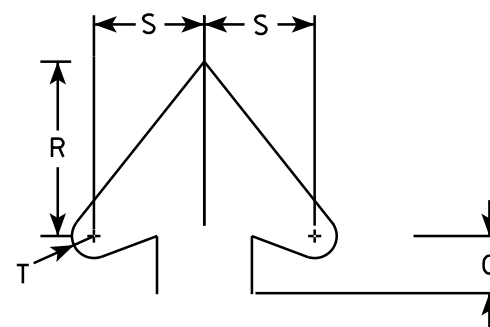
E



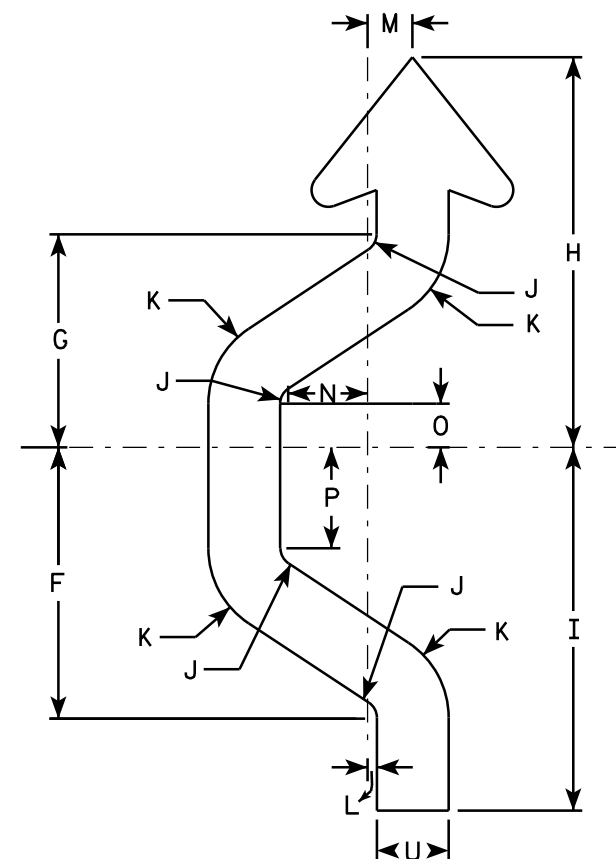
W24-1R



W24-1L



Arrowhead Detail



Arrow Detail

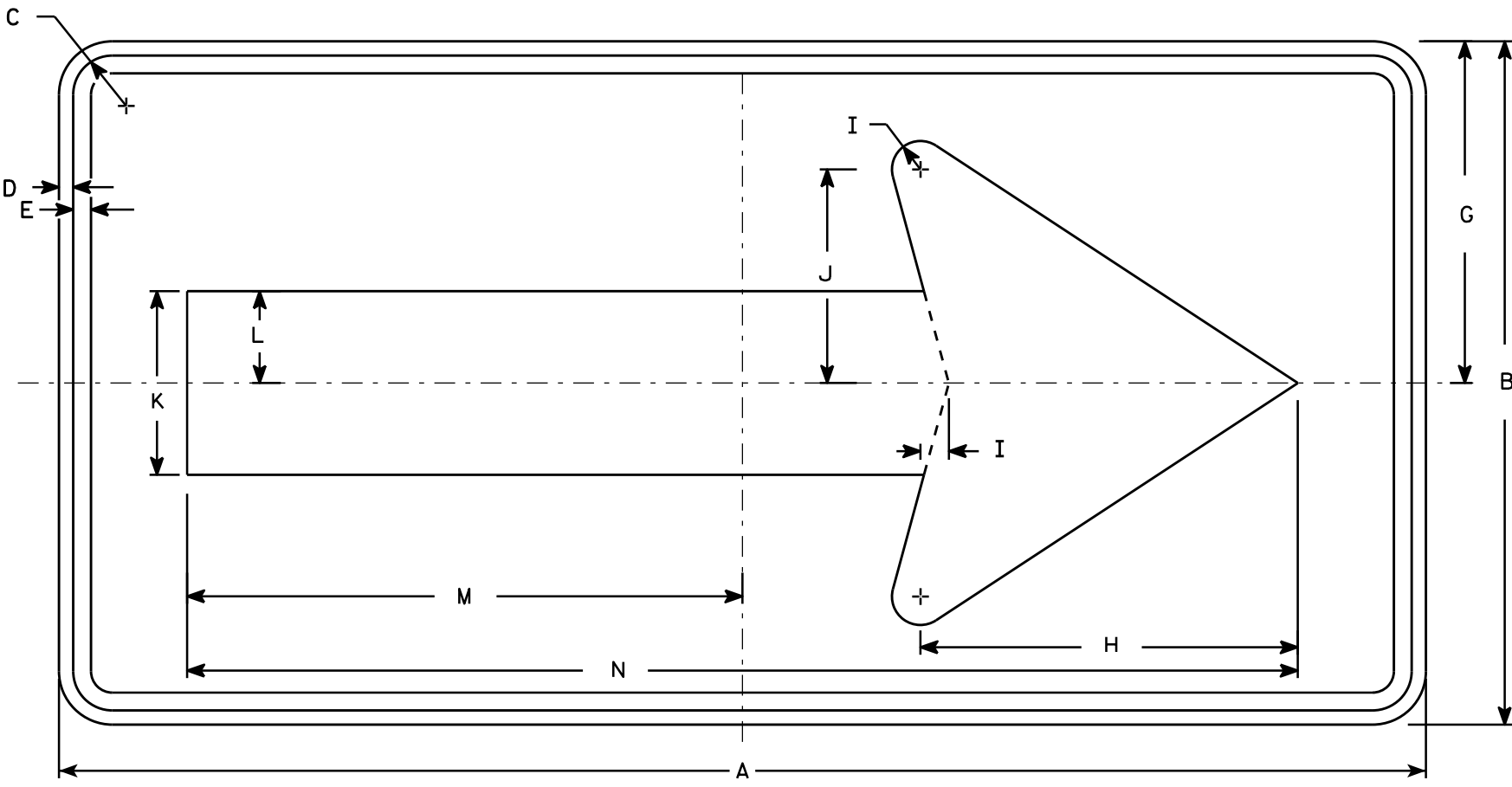
NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W24-1R is the same as W24-1L except reversed along the vertical centerline.

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

NOTES

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



W01-6

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	24	1 3⁄8	1⁄2	5⁄8		12	13 1⁄4	1	7 1⁄2	6 1⁄2	3 1⁄4	19 1⁄2	39													8.0
2M	48	24	1 3⁄8	1⁄2	5⁄8		12	13 1⁄4	1	7 1⁄2	6 1⁄2	3 1⁄4	19 1⁄2	39													8.0
3	60	30	1 3⁄8	1⁄2	5⁄8		15	16 1⁄4	1 1⁄4	9 1⁄4	8	4	24 3⁄8	48 3⁄4													12.5
4	60	30	1 3⁄8	1⁄2	5⁄8		15	16 1⁄4	1 1⁄4	9 1⁄4	8	4	24 3⁄8	48 3⁄4													12.5
5	60	30	1 3⁄8	1⁄2	5⁄8		15	16 1⁄4	1 1⁄4	9 1⁄4	8	4	24 3⁄8	48 3⁄4													12.5

STANDARD SIGN

W01-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 11/18/13

PLATE NO. 189

W01-6.1

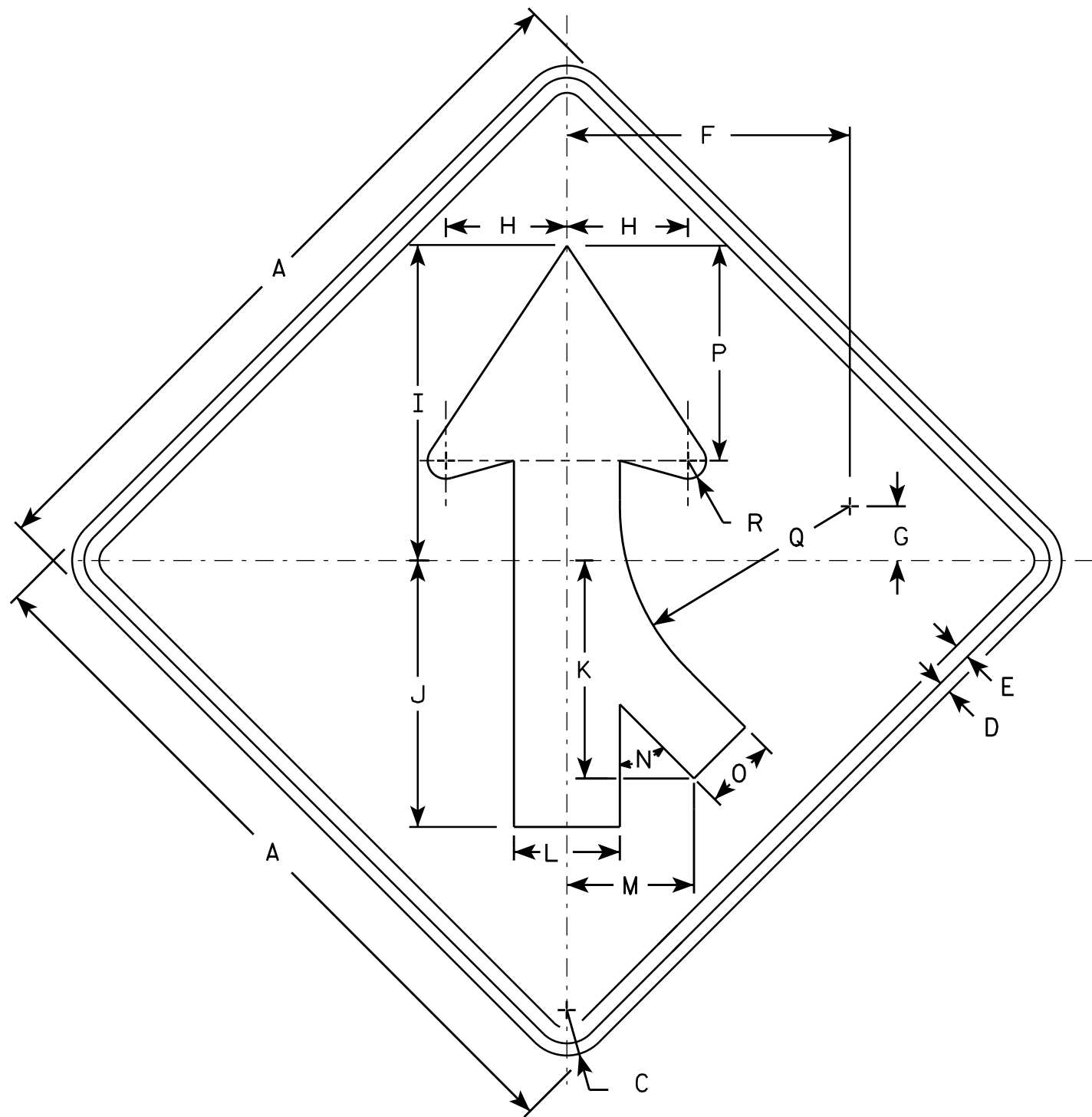
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



W04-1R

NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Orange
Message - Black
- 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 4. W4-1L is the same as W4-1R except the arrow is reversed along the vertical centerline.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	14	2 3/4	6	15 3/4	13 1/4	10 1/4	5 1/4	6 3/8	45°	3 5/8	10 5/8	11 3/8	7/8									9.0
2S	48		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0
2M	48		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0
3	48		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0
4	48		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0
5	48		2 1/4	3/4	1	18 3/4	3 5/8	8	20 1/2	17 1/2	14 3/8	7	8 3/8	45°	4 3/4	14 1/4	15 1/4	1 1/4									16.0

STANDARD SIGN

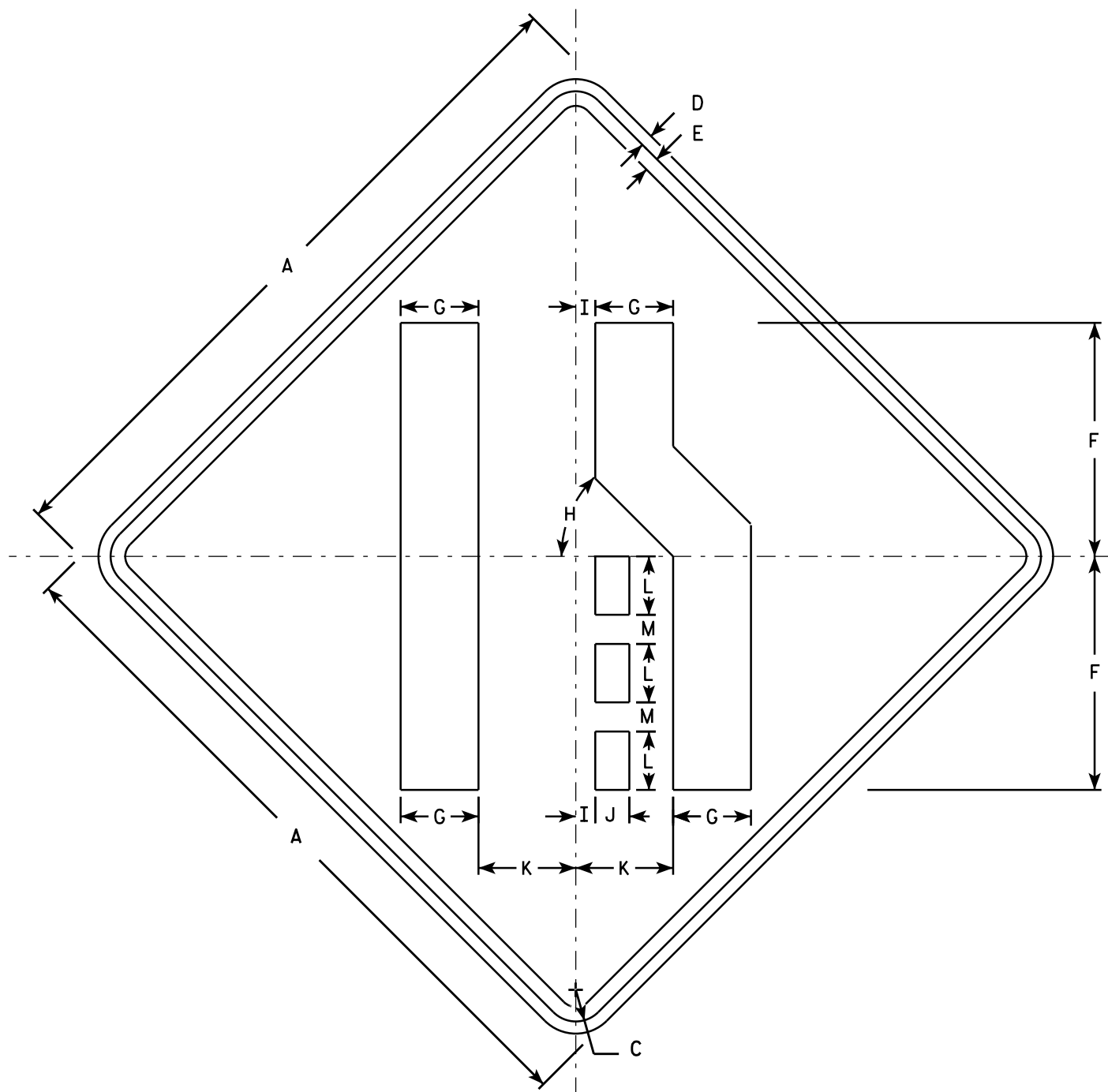
W04-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/20/13 PLATE NO. 190 W04-1.1

SHEET NO: E



W04-2R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W04-2L is the same as W04-2R except the symbol is reversed along the vertical centerline.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	12	4	45°	1	1 3/4	5	3	1 1/2														9.0
2S	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
2M	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
3	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
4	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
5	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0

STANDARD SIGN

W04-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch

For State Traffic Engineer

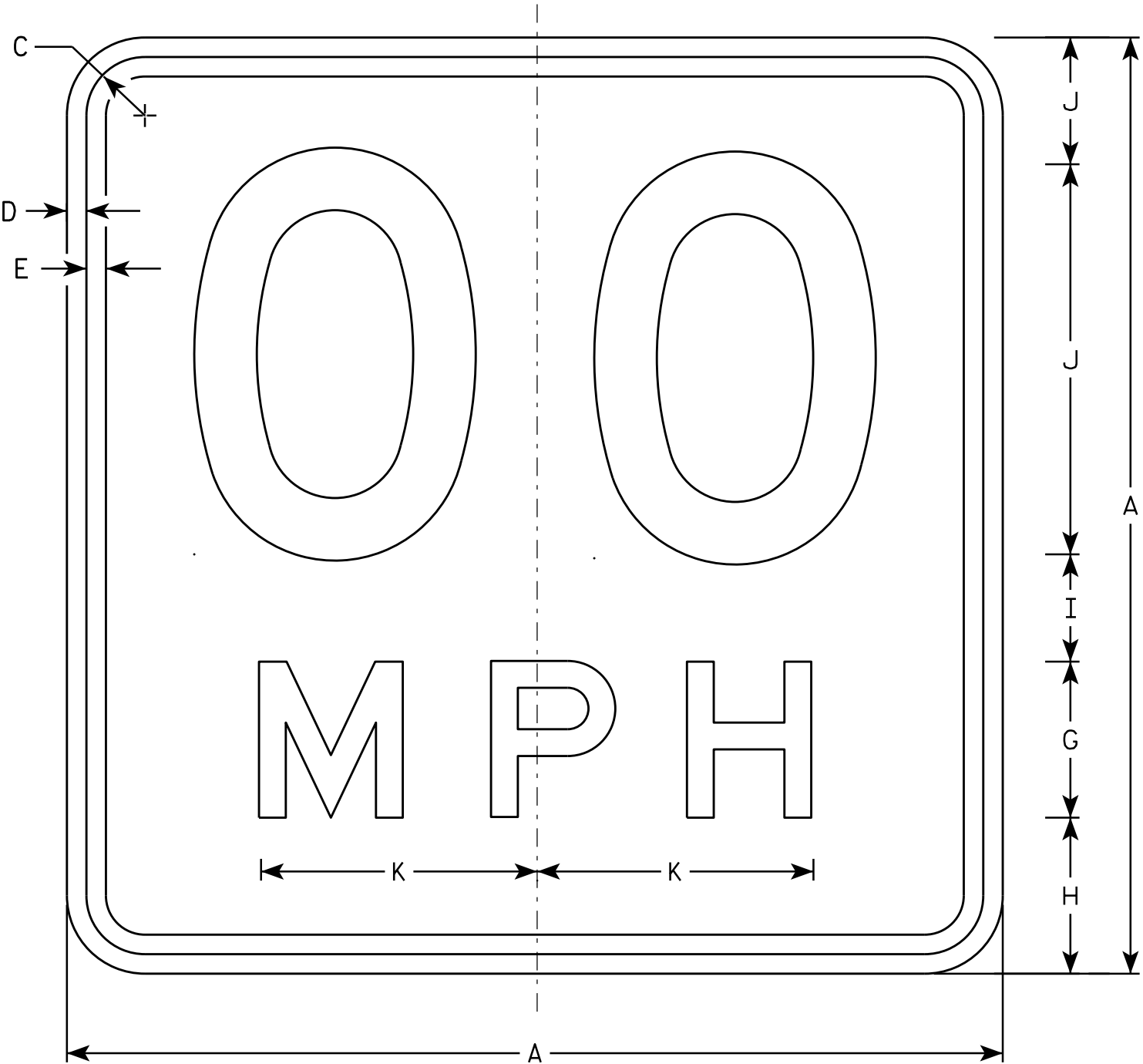
DATE 11/20/13

PLATE 191

W04-2.1

SHEET NO:

E



W013-1

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - See Note 6
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically space about centerline to achieve proper balance.
6. Line 1 is Series D
Line 2 is Series E

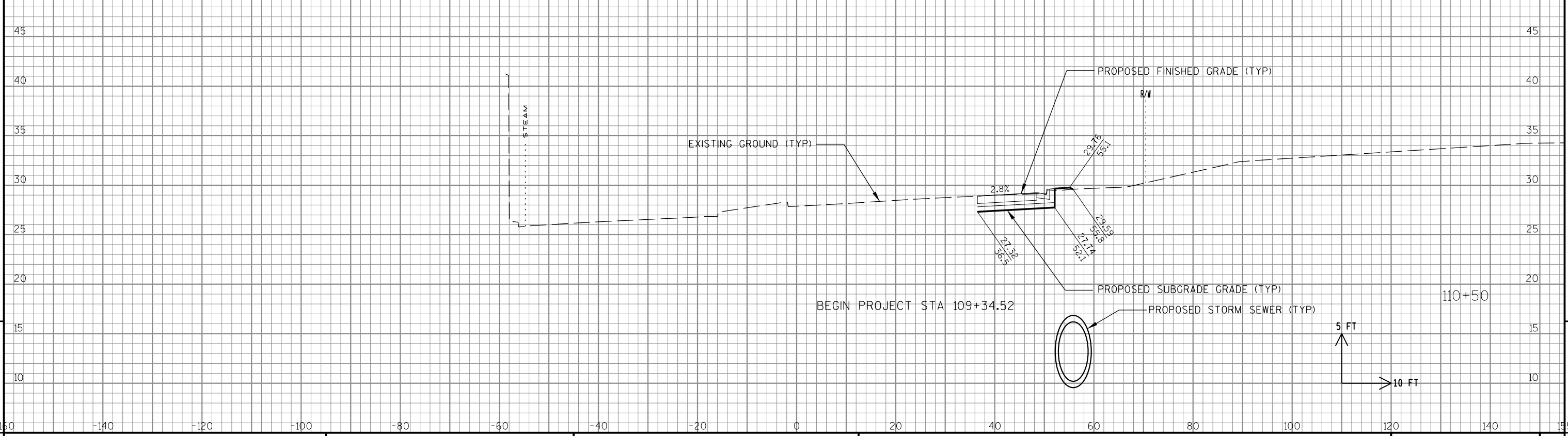
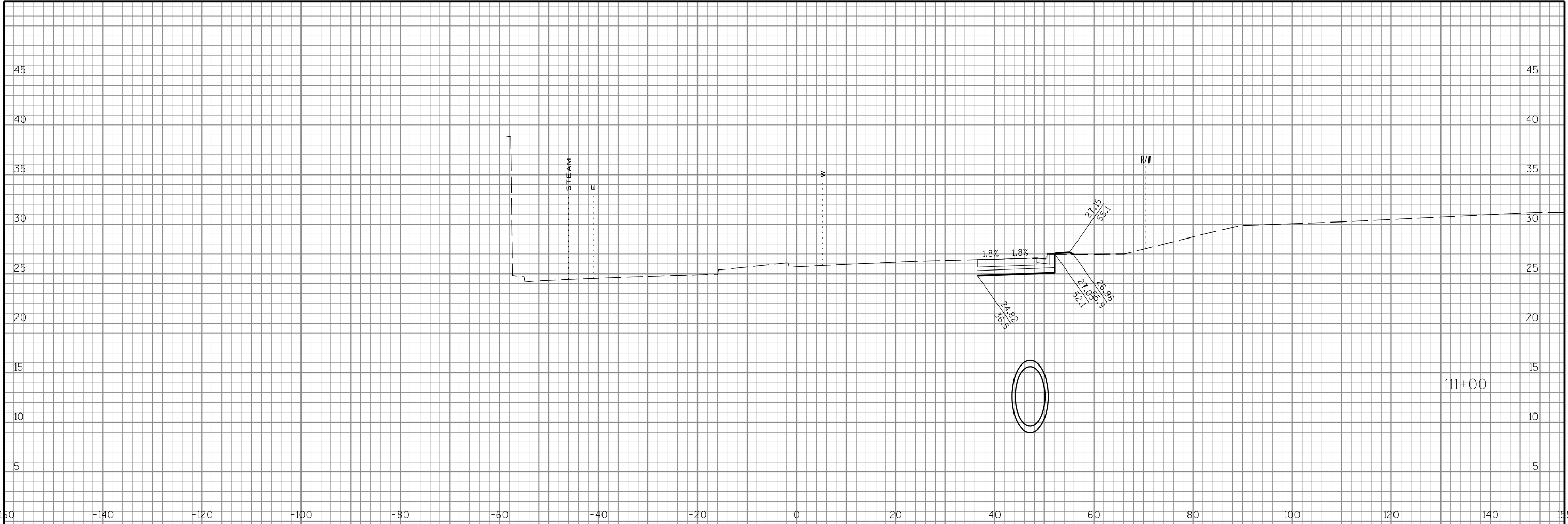
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	10	4	4	2 3/4	3 1/4	7 1/8																4.00
2S	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
2M	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
3	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
4	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
5	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00

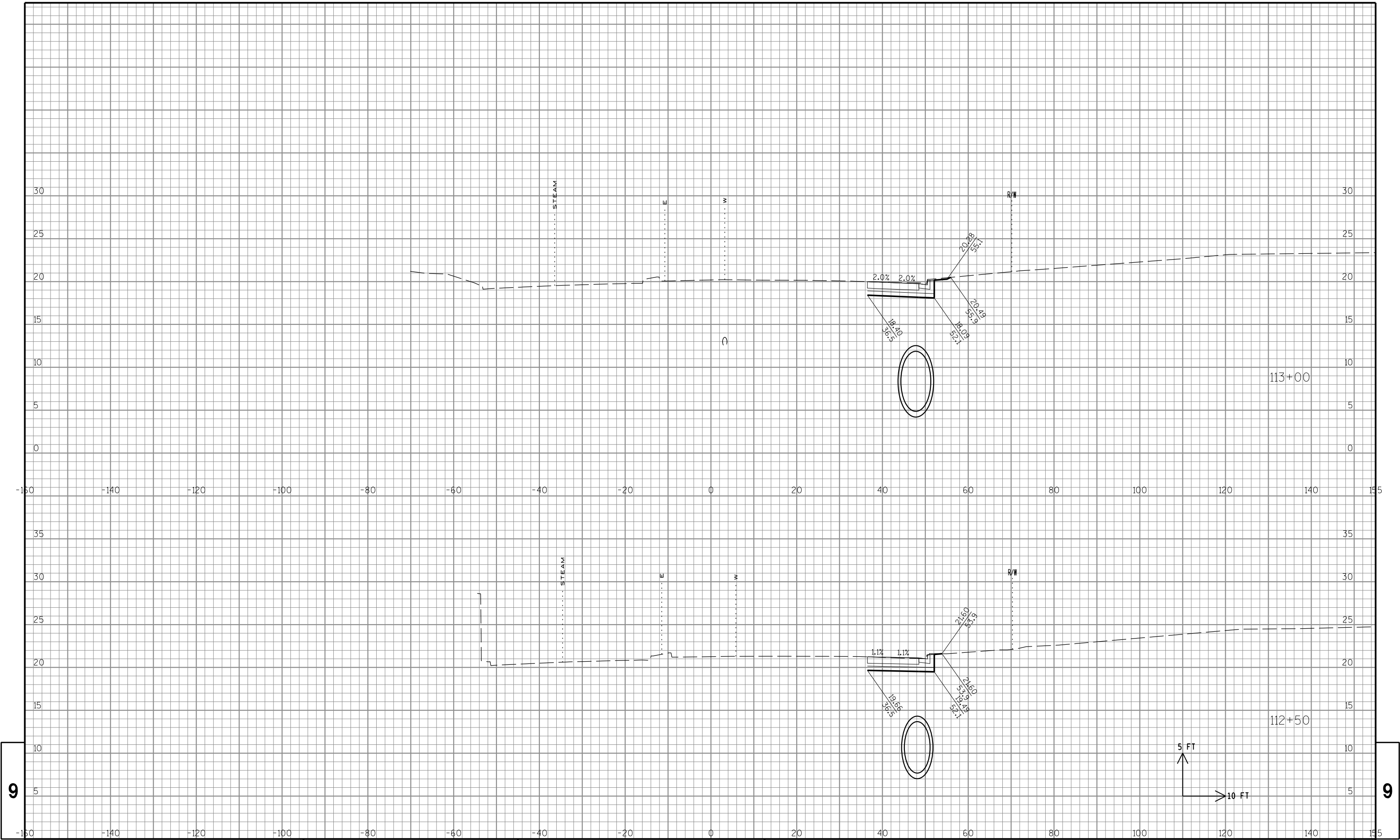
STANDARD SIGN
W013-1

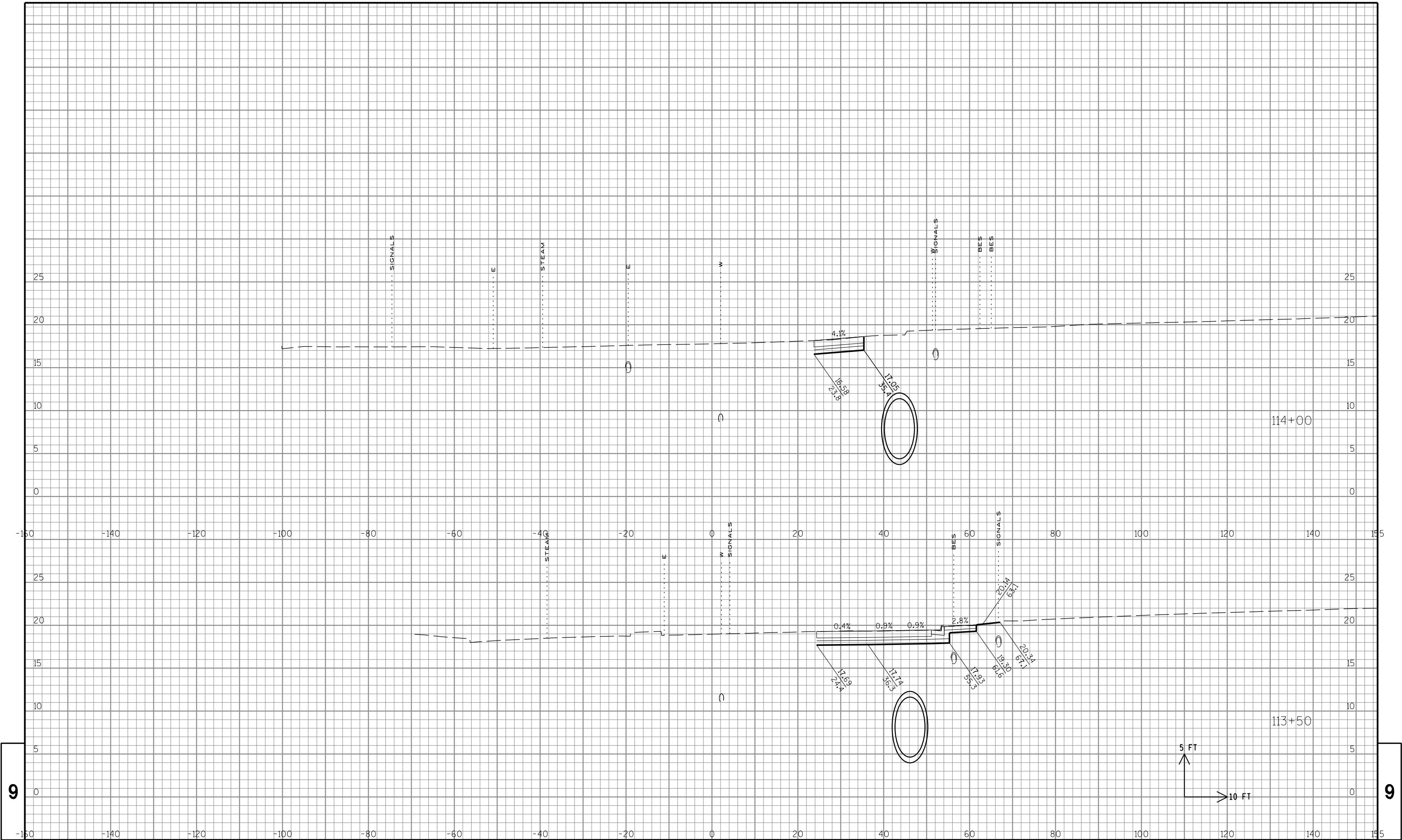
WISCONSIN DEPT OF TRANSPORTATION

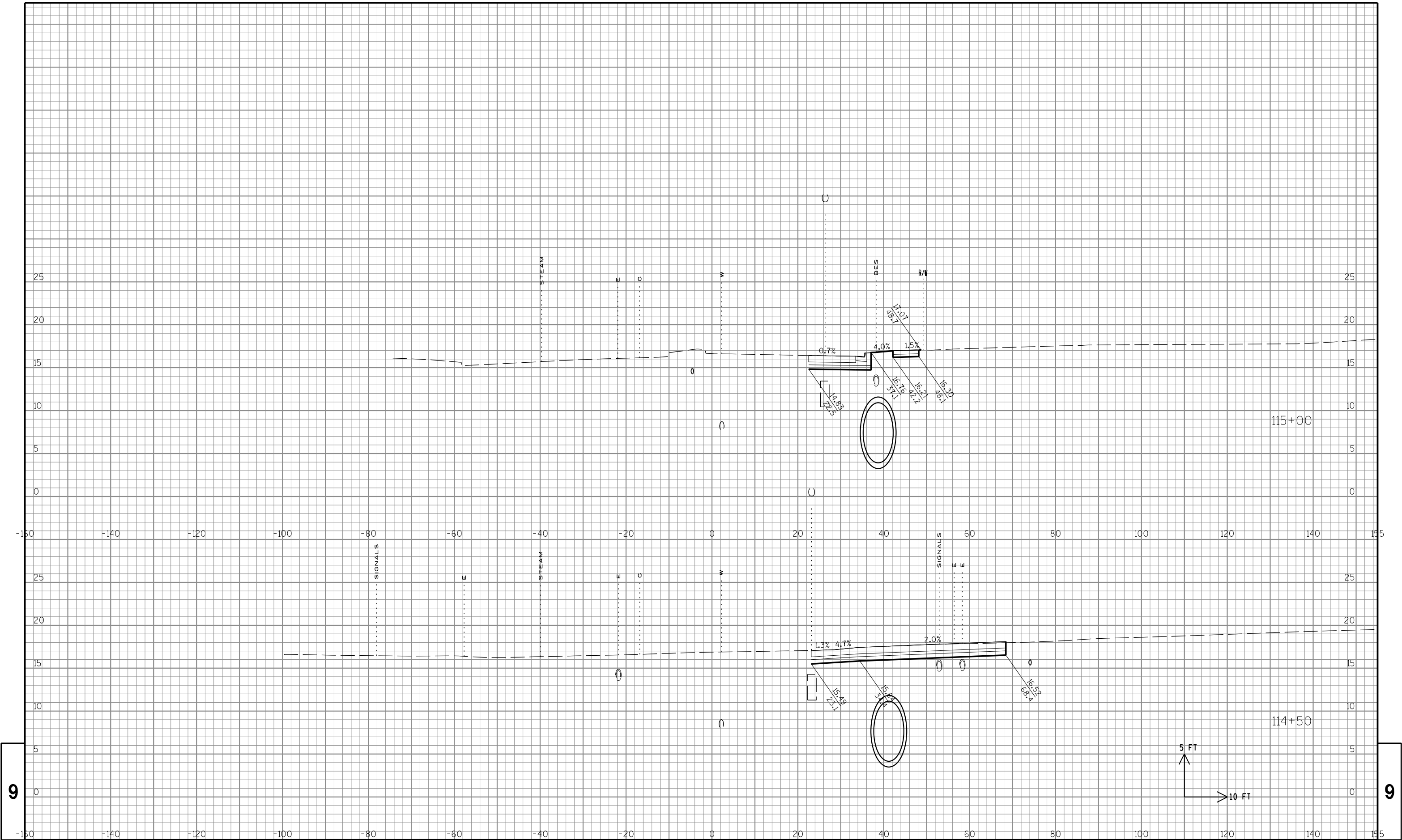
APPROVED
Matthew R. Rauch
For State Traffic Engineer

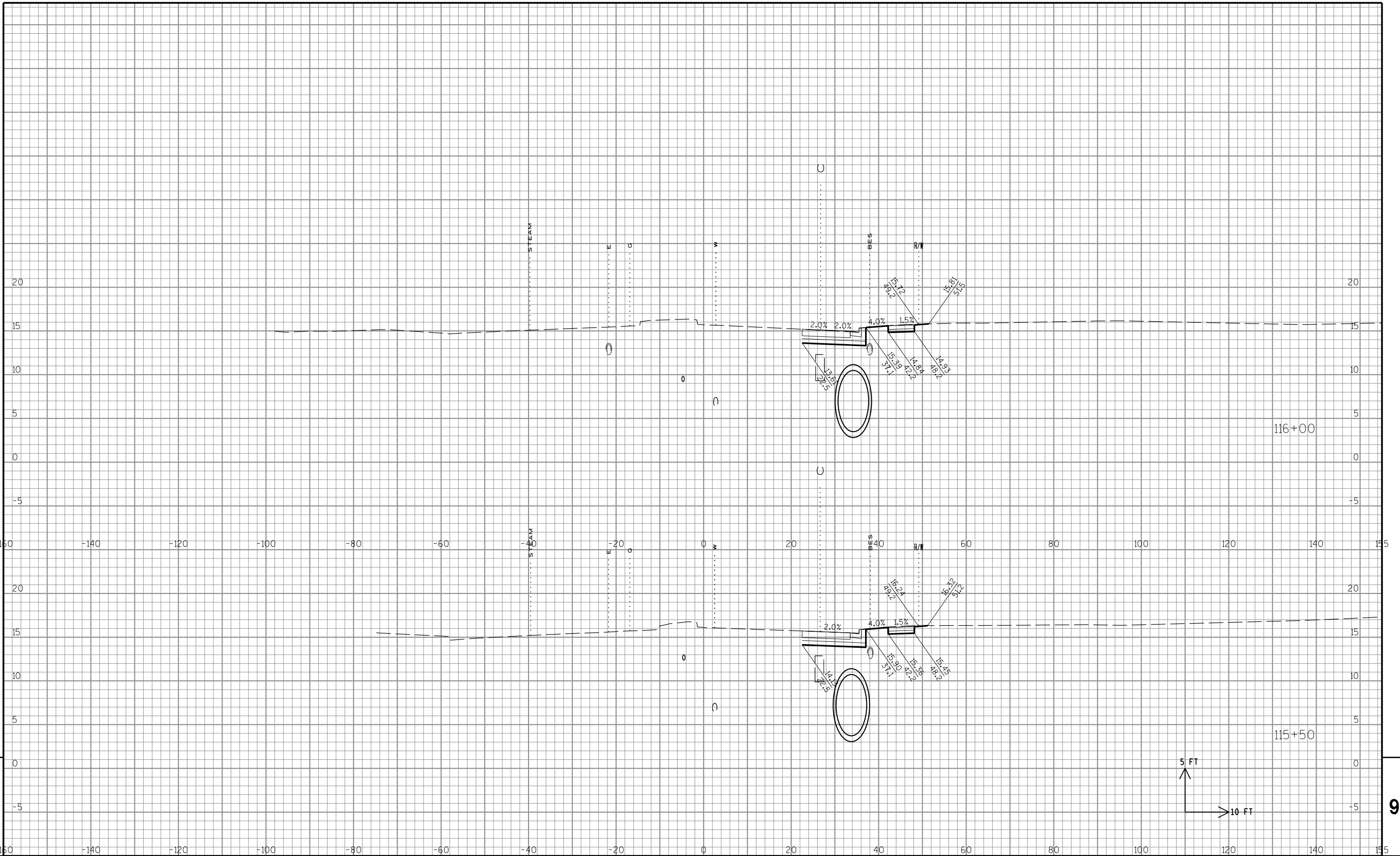
DATE 11/21/13 PLATE 192 W013-1.1

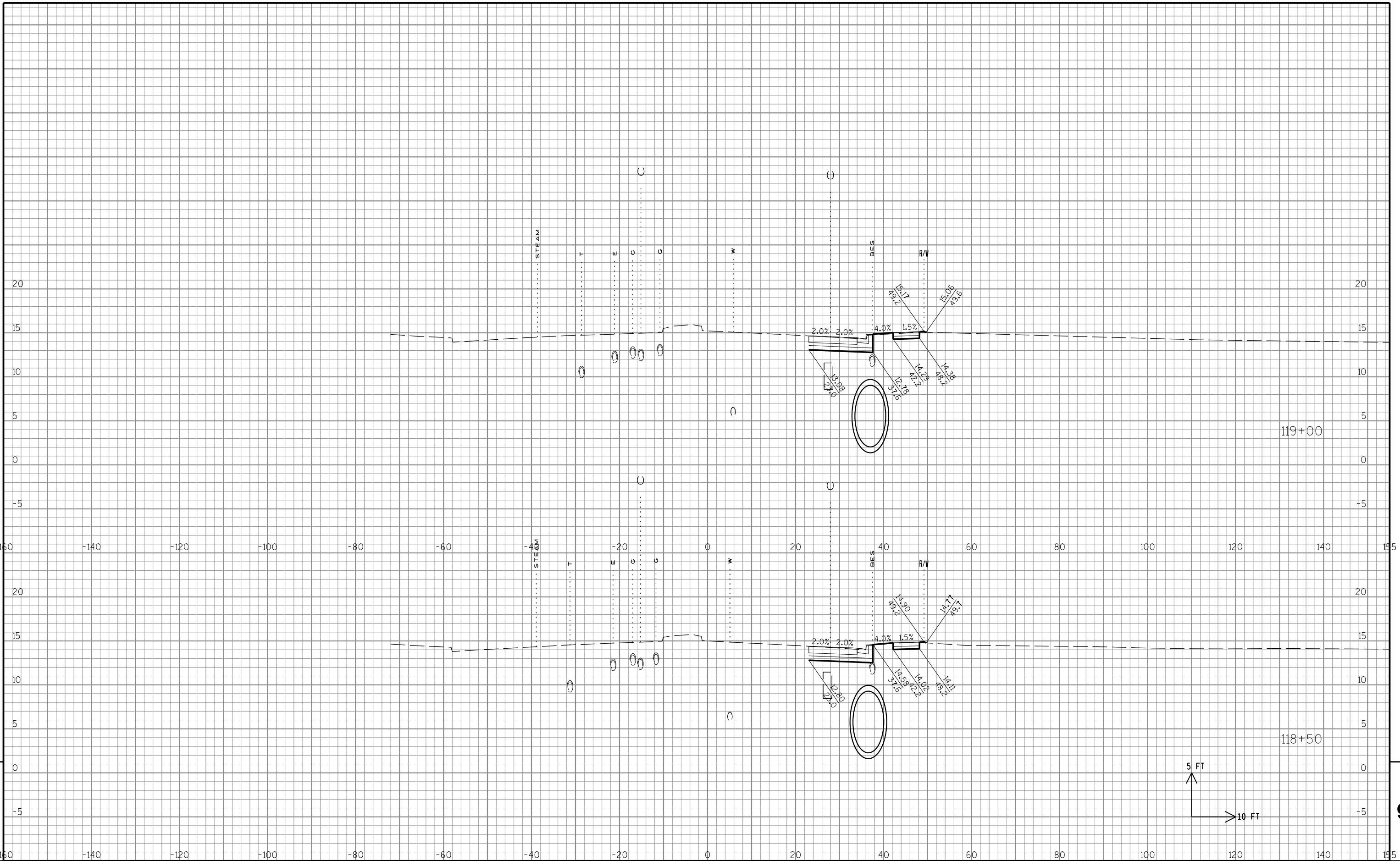


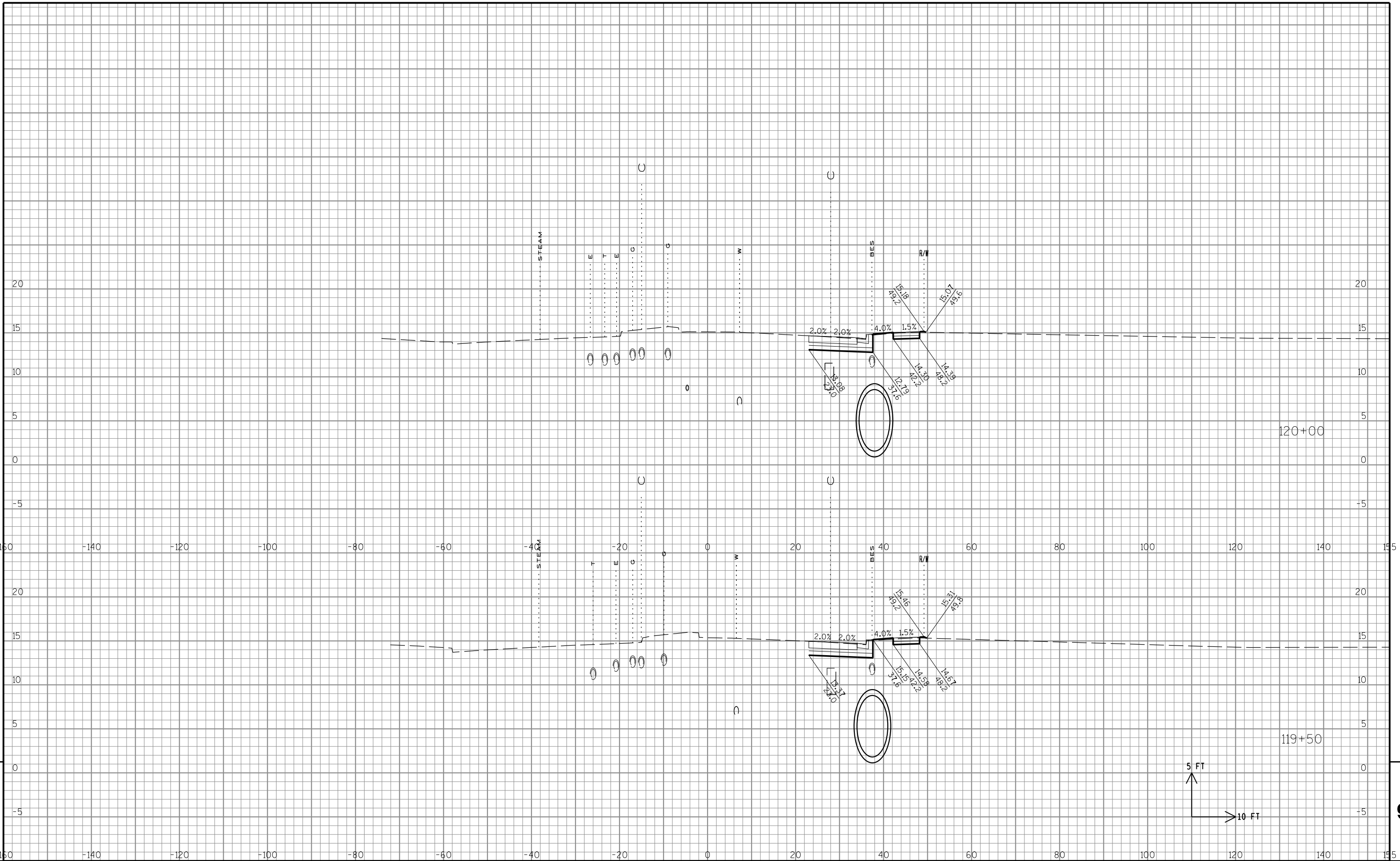


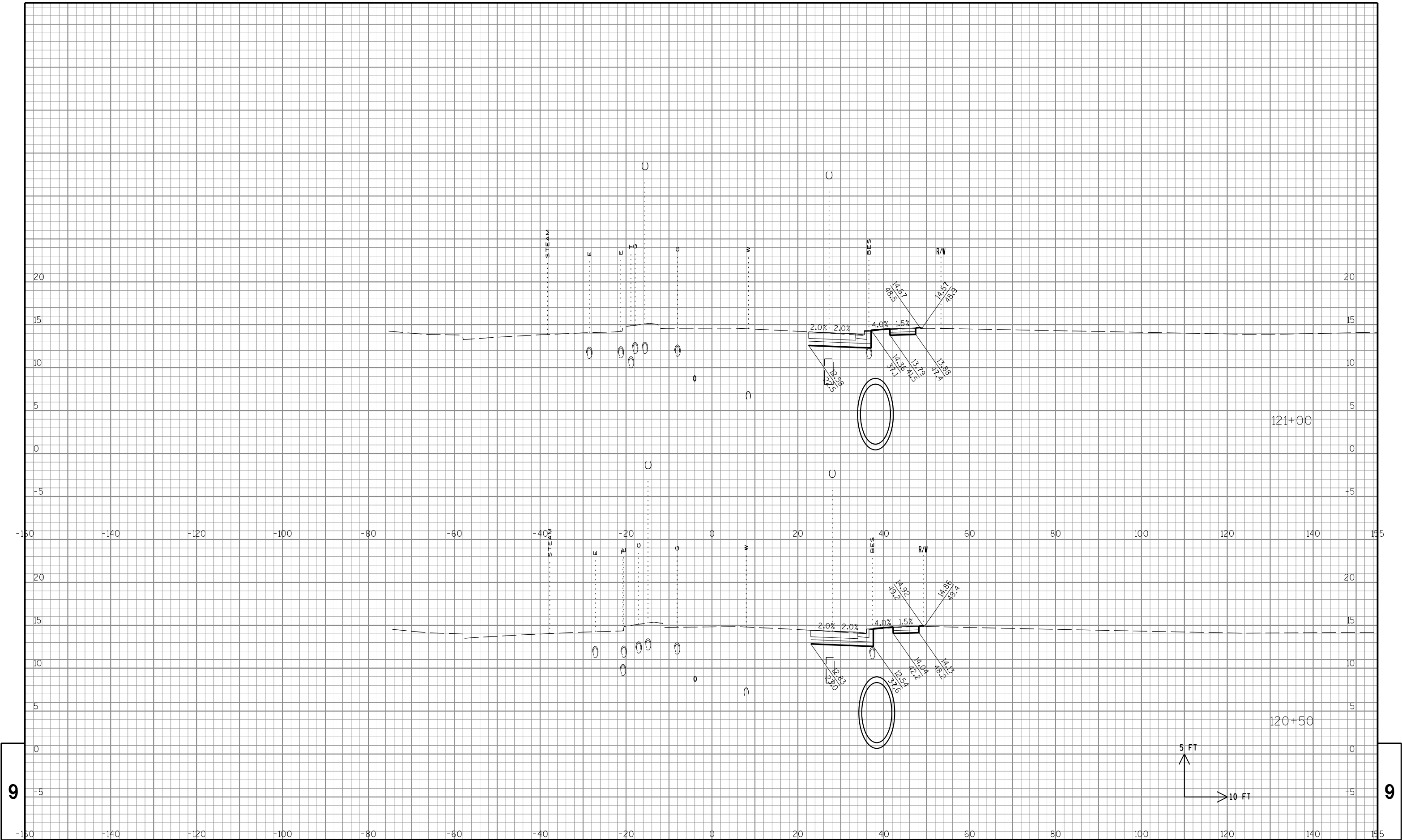


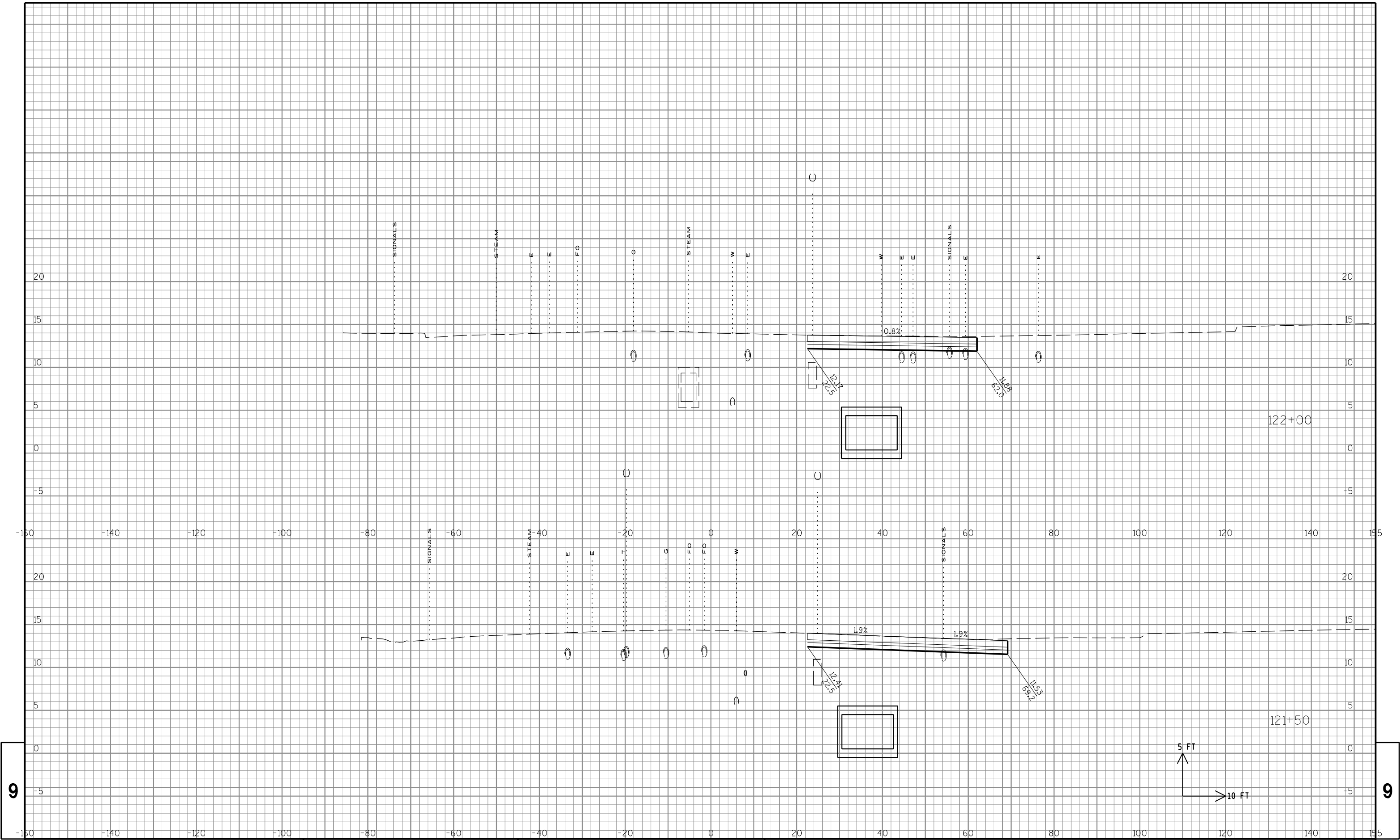


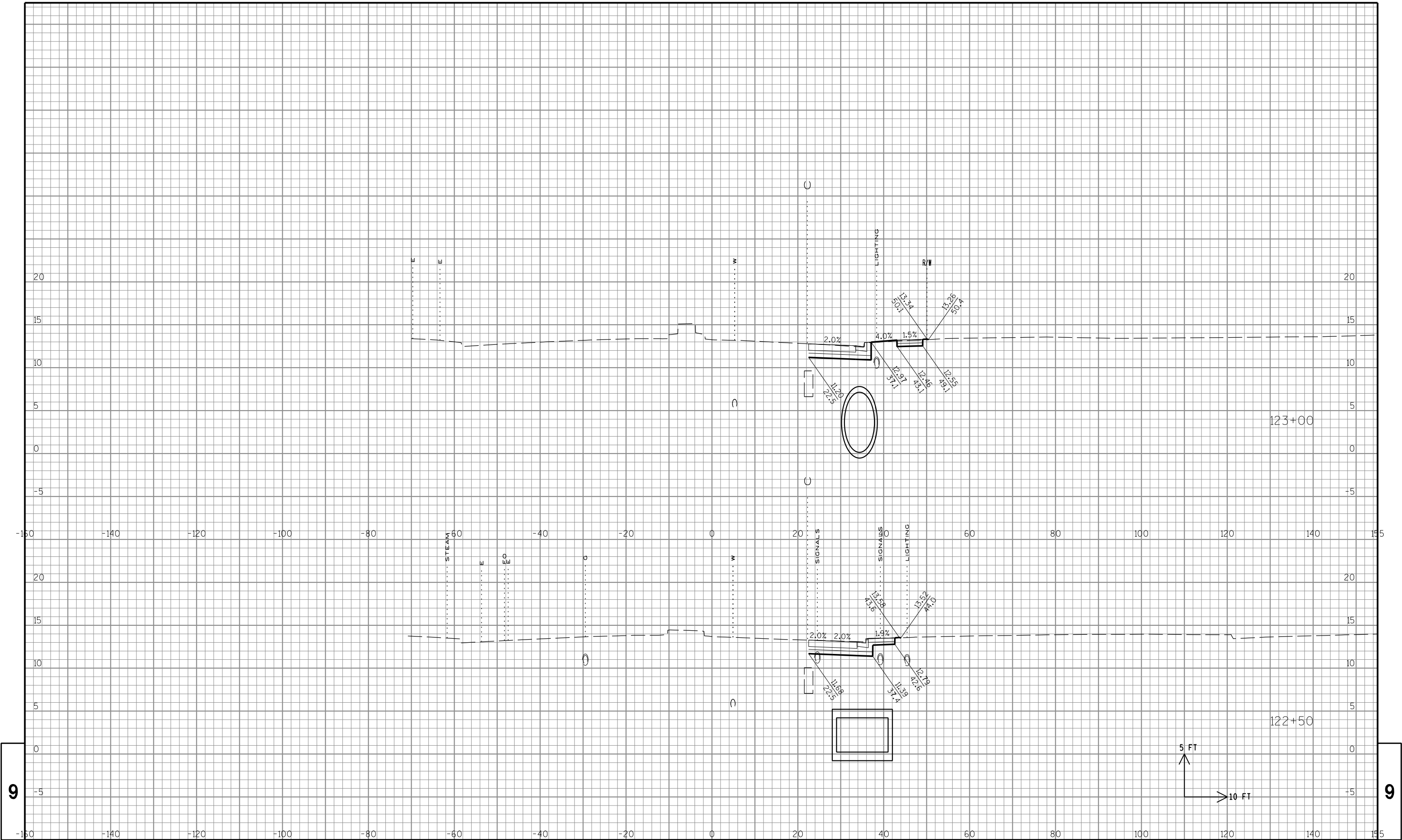


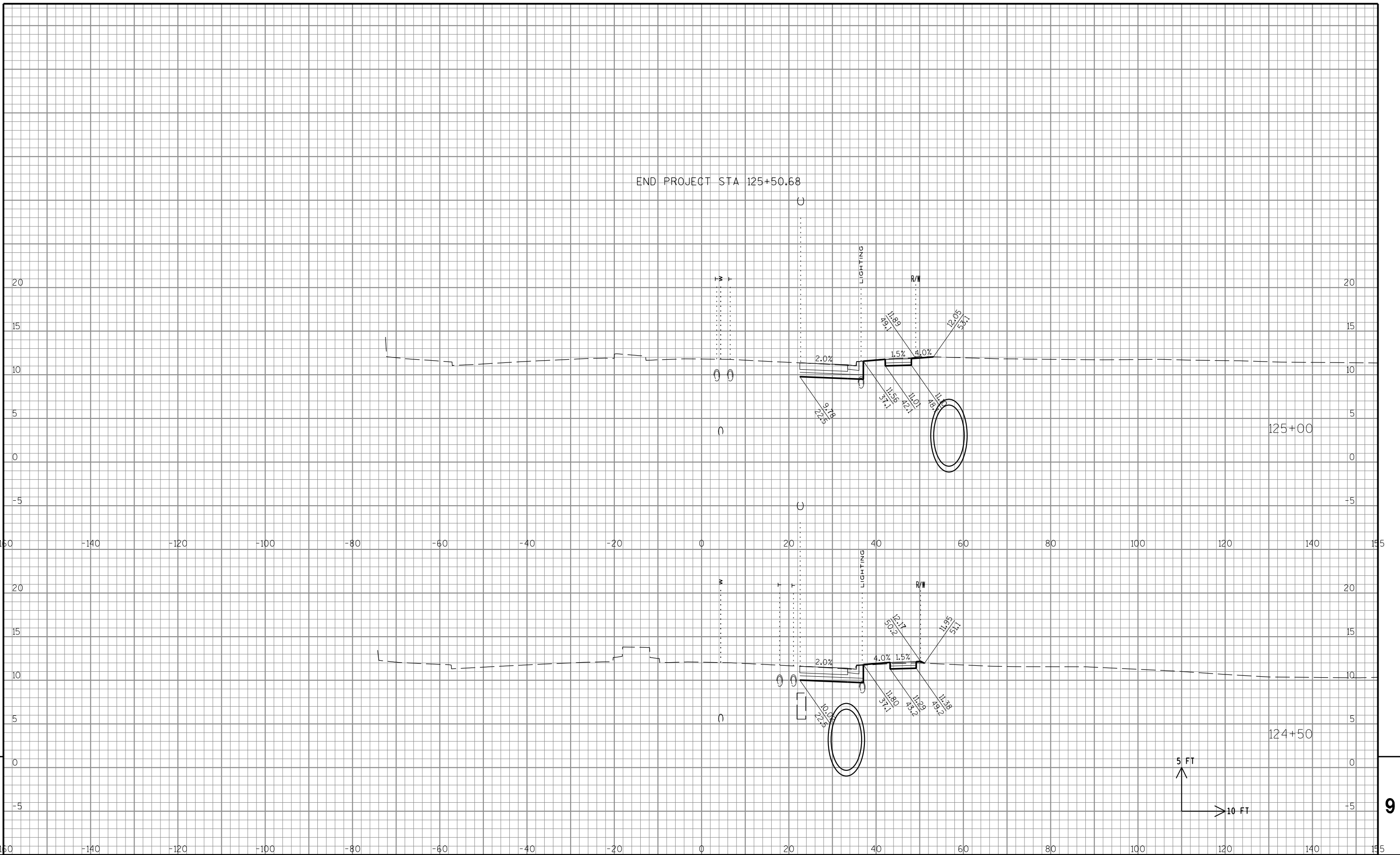


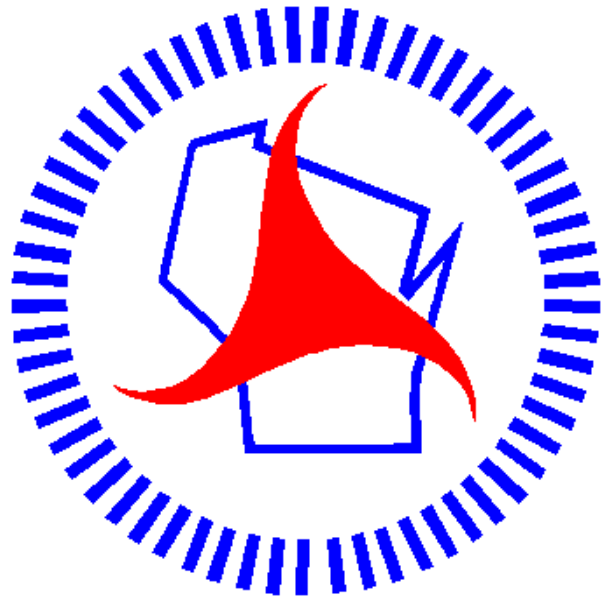












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