WKE

PROJECT ID: 2395-07-71

WITH: N/A

COUNTY: MILWAUKEE

FEBRUARY 2026

ORDER OF SHEETS

TOTAL SHEETS = 94

N

DESIGN DESIGNATION (2395-07-71)

A.A.D.T.	2026	=	9,400
A.A.D.T.	2046	=	9,900
D.H.V.		=	1,120
D.D.		=	58/42
T.		=	1.90%
DESIGN SPEED		=	35 MPH
ESALS		=	360,000

BEGIN PROJECT 2395-07-71
STA. 104+34.18
Y = 276,009.77
X = 594,409.83

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 (300'EB')
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE

- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES

- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

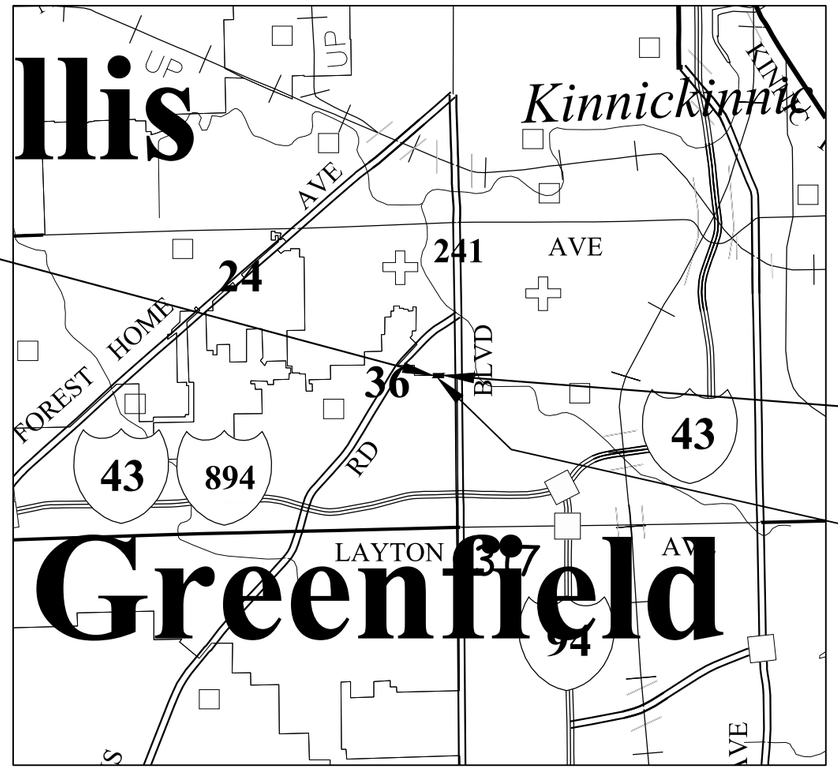
PLAN OF PROPOSED IMPROVEMENT

C GREENFIELD - W HOWARD AVENUE

BRIDGE OVER MINER CREEK B-40-0532

LOC STR
MILWAUKEE

STATE PROJECT NUMBER
2395-07-71



END PROJECT 2395-07-71
STA. 105+74.45
Y = 276,009.99
X = 594,550.10

REPLACE BRIDGE STRUCTURE (B-40-0532)

LAYOUT

SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.027 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), MILWAUKEE COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2395-07-71	WISC 2026179	1

ACCEPTED FOR
CITY OF GREENFIELD

Date 10/28/25 (CITY ENGINEER)

ORIGINAL PLANS PREPARED BY

WISCONSIN
AMANDA M. INMAN 44690 OREGON WI
PROFESSIONAL ENGINEER

11/3/2025

DATE: _____ (Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AYRES ASSOCIATES INC
Designer	AYRES ASSOCIATES INC
Project Manager	MICHAEL BAIRD , PE
Regional Examiner	SOUTHEAST REGION
Regional Supervisor	AMY TAETSCH , PE

APPROVED FOR THE DEPARTMENT

DATE: 10/28/2025 (Signature)

E

FILE NAME : I:\49\49074900 HOWARD AVE BR GREENFIELD\C3D\SHEETS\010101-TI.DWG PLOT DATE : 10/28/2025 2:49 PM PLOT BY : INMAN, AMANDA PLOT NAME :

GENERAL NOTES

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. UTILITY LOCATES WERE NOT FULLY COMPLETED BY EVERY UTILITY. WHAT IS SHOWN IS WHAT WAS SURVEYED AND IS NOT COMPLETE.

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

A SAWED JOINT WILL BE REQUIRED WHERE NEW PAVEMENT MEETS AN EXISTING PAVED SURFACE. SAWCUTS SHALL BE NEATLY DELINEATED THROUGH THE CONCRETE WITHOUT DAMAGING EXISTING PAVEMENT TO REMAIN. SAWCUT LOCATIONS SHOWN ON THE PLAN ARE SUBJECT TO ADJUSTMENT BY THE ENGINEER IN THE FIELD.

TRAFFIC CONTROL DEVICES AS SHOWN IN THE PLAN ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

NO TREES OR SHRUBS SHALL BE REMOVED WITHOUT APPROVAL OF THE ENGINEER. GRUBBING LIMITS TO BE MARKED BY THE ENGINEER.

THE EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

RESTORATION OF EXPOSED SLOPES AND TERRACE SHALL TAKE PLACE WITHIN 7 CALENDAR DAYS AFTER FINISHED GRADING IS COMPLETE. UNLESS NOTED OTHERWISE OR DIRECTED BY THE ENGINEER, ALL DISTURBED AREAS SHALL BE RESTORED WITH 6-INCHES OF TOPSOIL, SEEDING TEMPORARY, SEEDING MIXTURE NOTED BELOW, FERTILIZER TYPE B, AND E-MAT URBAN CLASS I TYPE A.

- USE SEED MIXTURE NO. 40.
- DO NOT PLACE FERTILIZER IN OR NEAR WETLANDS.

THE FOLLOWING CONVERSION FACTORS WERE USED TO ESTIMATE QUANTITIES FOR BASE AGGREGATE DENSE:

- 1 1/4-INCH = 2.0 TONS/CY

PROPERTY LINES AS SHOWN ARE APPROXIMATE.

BEARINGS SHOWN ON THIS PLAN ARE TRUE BEARINGS TO THE NEAREST SECOND.

PROJECT CONTACTS

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
RYAN PAPPAS
DNR SERVICE CENTER
1027 WEST PAUL AVENUE
MILWAUKEE, WI 53233
P: (414) 750-7495
E: RYAN.PAPPAS@WISCONSIN.GOV

CITY OF GREENFIELD
BRYAN HAAS, PE
7325 W FOREST HOME AVENUE
GREENFIELD, WI 53220
P: (414) 329-5324
E: BRYAN.HAAS@GREENFIELDWI.GOV

DESIGNER
AYRES ASSOCIATES
JOE BLUMA, PE
20975 SWENSON DRIVE, SUITE 200
WAUKESHA, WI 53186
P: (262) 523-4488
E: BLUMAJ@AYRESASSOCIATES.COM

CITY OF GREENFIELD - STREET LIGHTING
JEFF KATZ
7325 W FOREST HOME AVENUE
GREENFIELD, WI 53220
P:(414)-939-8322
E: JEFF.KATZ@GREENFIELDWI.GOV

CITY OF GREENFIELD - STORM SEWER
JEFF KATZ
7325 W FOREST HOME AVENUE
GREENFIELD, WI 53220
P: (414)-939-8322
E: JEFF.KATZ@GREENFIELDWI.GOV

CITY OF MILWAUKEE - STREET LIGHTING
NEAL KARWEIK
1540 WEST CANAL STREET
MILWAUKEE, WI 53233
P: (414)-286-5943
E: NKARWEIK@MILWAUKEE.GOV

CITY OF MILWAUKEE - STORM SEWER
ZAFAR YOUSEF
841 N BROADWAY , ROOM 501
MILWAUKEE, WI 53202
P: (414)-286-2467
E: ZYOUSUF@MILWAUKEE.GOV

UTILITY CONTACTS

AT&T WISCONSIN - COMMUNICATIONS
TYLER FLECK
220 WISCONSIN AVENUE
WAUKESHA, WI 53186
P: (414)-248-6803
E: TF8394@ATT.COM

CITY OF MILWAUKEE - WATER
MWW CONTROL CENTER (24/7 CONTACT)
841 N BROADWAY , ROOM 501
MILWAUKEE, WI 53202
P: (414)-286-3710

MILWAUKEE METROPOLITAN SEWER DISTRICT - SANITARY SEWER
MICHAEL LEE
260 WEST SEEBOTH STREET
MILWAUKEE, WI 53221
P: (414) 225-2241
E: MLEE@MMSD.COM

SPECTRUM - COMMUNICATIONS
ROBERT DETERT
1320 N DR MARTIN LUTHER KING JUNIOR DRIVE
MILWAUKEE, WI 53212
C: (414)-688-0348
E: ROBERT.DETERT@CHARTER.COM

WE ENERGIES - ELECTRIC
BRIAN DRESSLER
500 S 116TH STREET
WEST ALLIS, WI 53214
P: (608)-219-2820
E: BRIAN.DRESSLER@WE-ENERGIES.COM

WE ENERGIES - GAS
JEANNETTE SCHULTZ
500 S 116TH STREET
WEST ALLIS, WI 53214
P: (262)-365-6421
E: JEANNETTE.SCHULTZ@WE-ENERGIES.COM

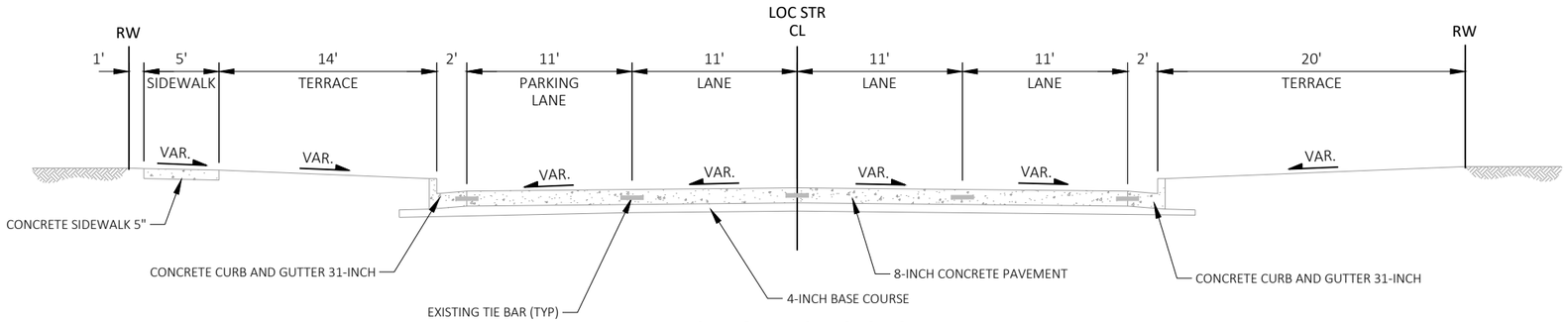
DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

SECTION 2 ORDER OF SHEETS

ABBREVIATIONS

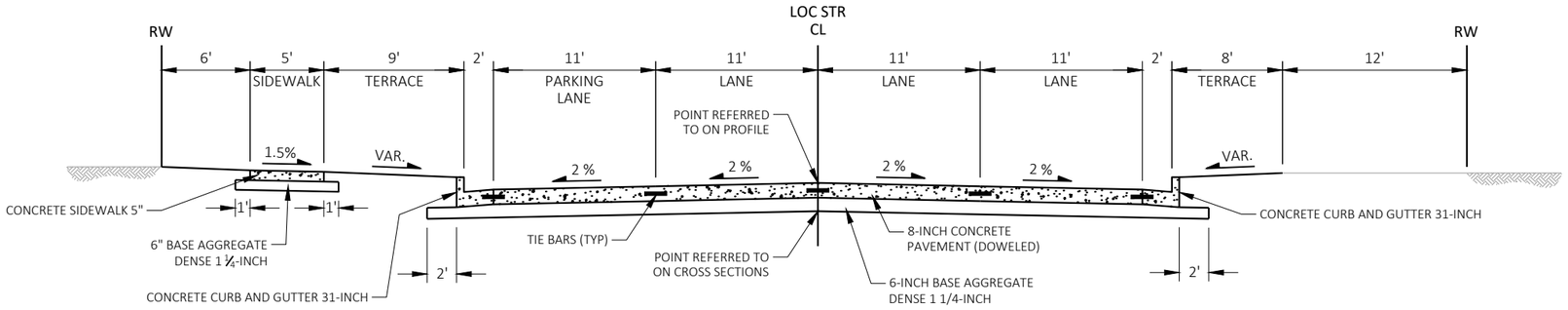
A.D.T.	AVERAGE DAILY TRAFFIC
A.A.D.T.	AVERAGE ANNUAL DAILY TRAFFIC
ABUT	ABUTMENT
AC	ACRE
AGG	AGGREGATE
AH	AHEAD
ASPH	ASPHALTIC
AVG	AVERAGE
BK	BACK
BM	BENCH MARK
BOC	BACK OF CURB
CB	CATCH BASIN
CE	COMMERCIAL ENTRANCE
CL OR C/L	CENTERLINE
C&G	CURB AND GUTTER
CONC	CONCRETE
CP	CONTROL POINT
CPRC	CULVERT PIPE REINFORCED CONCRETE
CPCS	CULVERT PIPE CORRUGATED STEEL
CTH	COUNTY HIGHWAY
CWT	HUNDREDWEIGHT
CY	CUBIC YARD
D	DEGREE OF CURVE
D.D	DIRECTIONAL DISTRIBUTION
D.H.V	DESIGN HOURLY VOLUME
DISCH	DISCHARGE
DWY	DRIVEWAY
EAT	ENERGY ABSORBING TERMINAL
EBS	EXCAVATION BELOW SUBGRADE
EL	ELEVATION
ESALS	EQUIVALENT SINGLE AXEL LOAD
EW / AEW	APRON ENDWALL
EXC	EXCAVATION
EXIST	EXISTING
FERT	FERTILIZE
FE	FIELD ENTRANCE
FL	FLOW LINE
FO	FIBER OPTIC
HE	HELICAL ELLIPTICAL
HYD	HYDRANT
ID	INSIDE DIAMETER
IN / INL	INLET
INV	INVERT
L	LENGTH OF CURVE
LF	LINEAR FEET
LHF	LEFT-HAND FORWARD
LS	LUMP SUM
MH	MANHOLE
NC	NORMAL CROWN
PAVT	PAVEMENT
PCC	POINT OF COMPOUND CURVE
PC	POINT OF CURVATURE
PE	PRIVATE ENTRANCE
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVATURE
PVD	PAVED
R	RADIUS
RDWY	ROADWAY
REQ'D	REQUIRED
RES	RESIDENCE OR RESIDENTIAL
RHF	RIGHT HAND FORWARD
R/W	RIGHT OF WAY
R	RIVER
R/L	REFERENCE LINE
SAN	SANITARY SEWER
SF	SQUARE FEET
SDD	STANDARD DETAIL DRAWINGS
SHLD	SHOULDER
SS	STORM SEWER
SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
STA	STATION
STH	STATE HIGHWAY
T	TANGENT
T/TN	TOWN
TYP	TYPICAL
VAR	VARIABLE
VC	VERTICAL CURVE
X	EAST GRID COORDINATE
Y	NORTH GRID COORDINATE
YD	YARD

2



EXISTING TYPICAL SECTION

STA. 104+34 - STA. 105+74



FINISHED TYPICAL SECTION

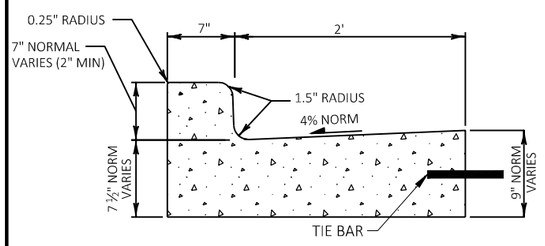
STA. 104+34 - STA. 105+74

NOTE:

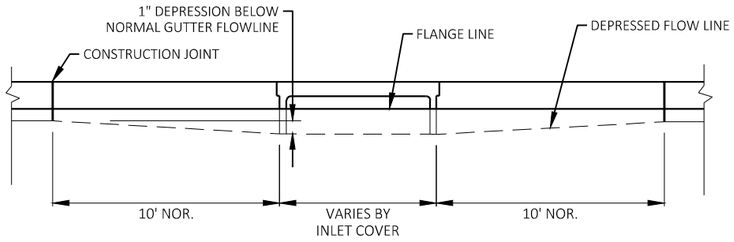
ALL DISTURBED AREAS SHALL BE RESTORED WITH 6-INCHES OF TOPSOIL, SEEDING TEMPORARY, SEEDING MIXTURE NO. 40, FERTILIZER TYPE B, AND E-MAT URBAN CLASS TYPE A.

PROJECT NO: 2395-07-71	HWY: W. HOWARD AVE	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 3	E

NOTE:
TIE BARS ARE REQUIRED FOR
CURB AND GUTTER TYPE A.

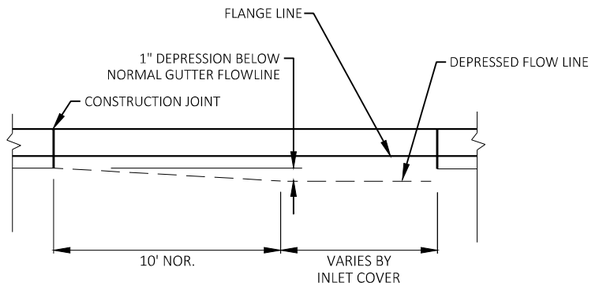


CONCRETE CURB & GUTTER 31-INCH



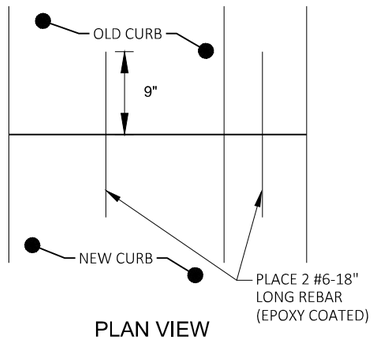
ELEVATION VIEW AT FLANGE LINE

(GRATE AND CURB DETAILS OMITTED FOR DRAWING CLARITY)

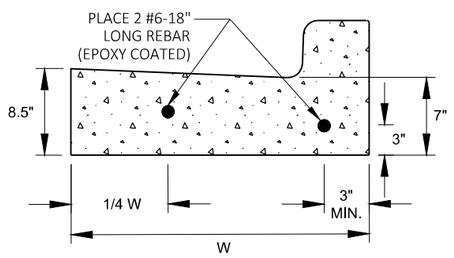


ELEVATION VIEW AT FLANGE LINE

(GRATE AND CURB DETAILS OMITTED FOR DRAWING CLARITY)

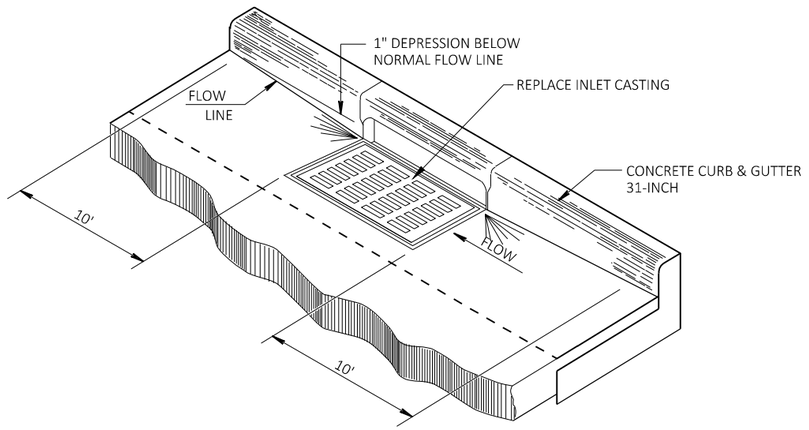


PLAN VIEW



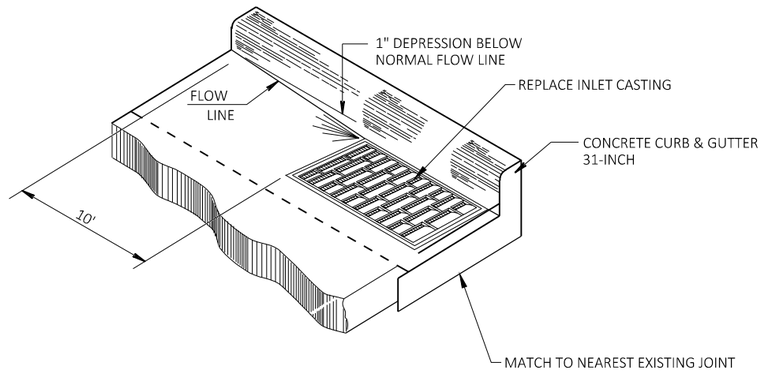
NOTE: CURB SECTION VARIES IN SHAPE

CONCRETE CURB & GUTTER TIE BAR DETAIL



CURB & GUTTER AT INLETS DETAIL

STA 105+72 RT

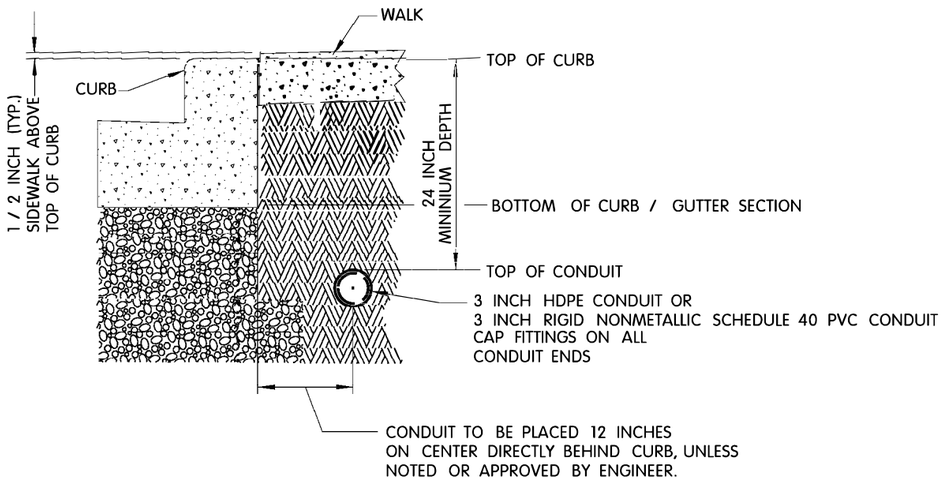


CURB & GUTTER AT INLETS DETAIL

STA 105+65 LT

2

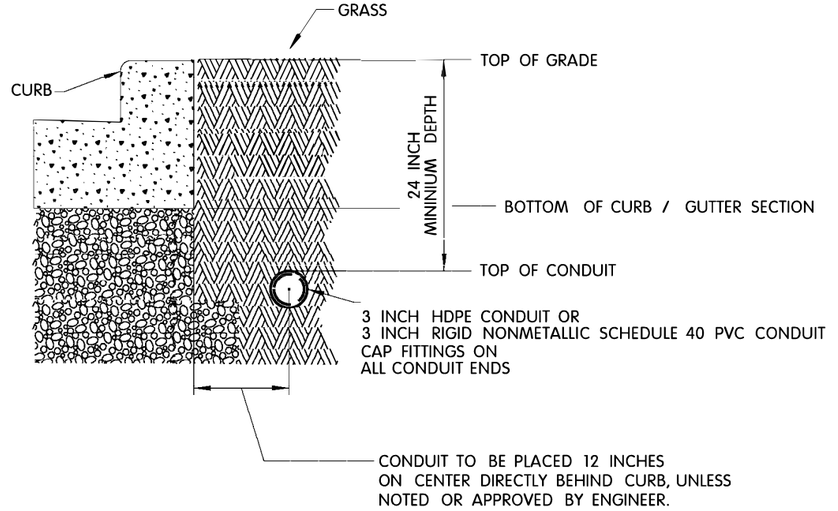
NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.



100 DETAIL "A" NOT TO SCALE

TYPICAL CONDUIT INSTALLATION
BEHIND CURB UNDER WALK

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



100 DETAIL "B" NOT TO SCALE

TYPICAL CONDUIT INSTALLATION
BEHIND CURB IN GRASS AREA

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

SHEET 1 OF 2

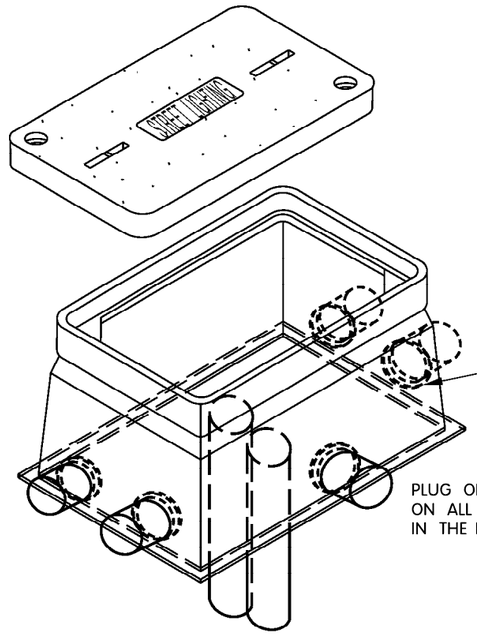
CITY OF MILWAUKEE
DEPARTMENT OF PUBLIC WORKS
STREET LIGHTING SECTION

REVISION BY: dkozel REVISION DATE: 14-DEC-2023 09:28
APPROVED REVISION BY: R.BERTRAN APPROVED REVISION DATE: DEC.14-2023

PROJECT NO. 2395-07-71	HWY: W. HOWARD AVE	COUNTY: MILWAUKEE	STREET LIGHTING - CITY OF MILWAUKEE	SHEET 5	E

FILE NAME : V:\beslib\pavings\TypicalDetailInstallations\100 – Rev12-13-23 Conduit Install Behind Curb.dgn PLOT DATE : 14-DEC-2023 09:28 PLOT BY : dkozel PLOT NAME : PLOT SCALE : 1:40

WISDOTCADDS SHEET 42

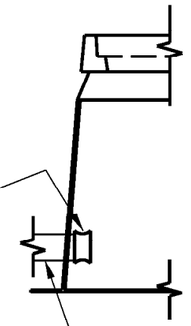


HEAVY DUTY COVER
W/ STREETLIGHTING LOGO
& W / 2 PENTA BOLTS
COLOR: GRAY
TIER 15 RATING (MINIMUM)

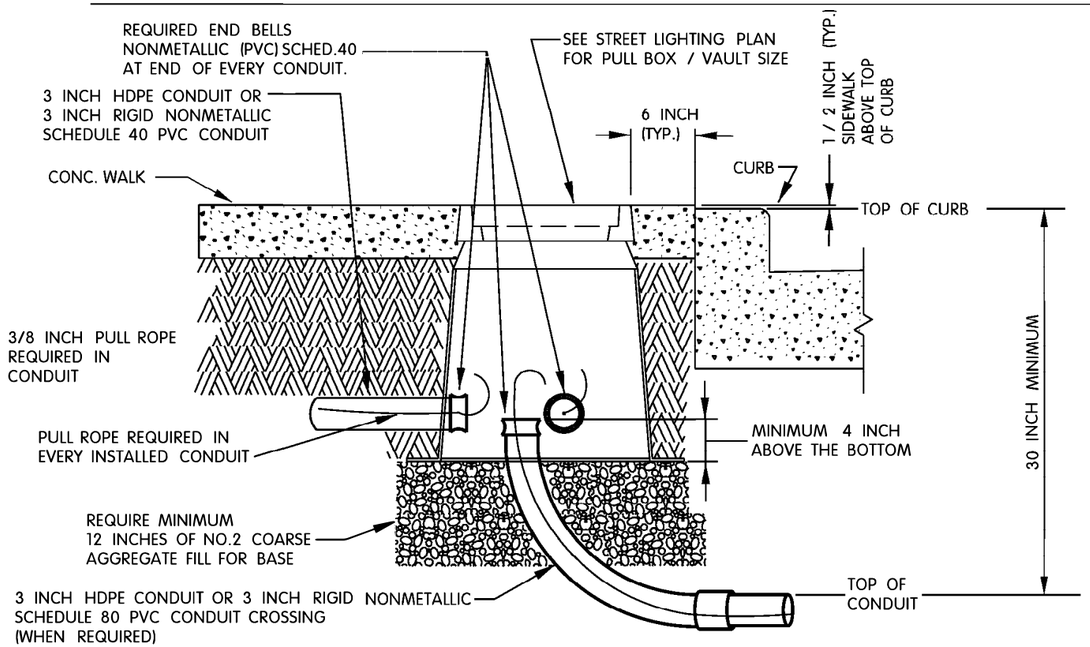
PULL BOX / VAULT
FLARED WALL
BOX W / NO BASE
COLOR: GRAY
TIER 15 RATING (MINIMUM)
(VARIOUS SIZES)

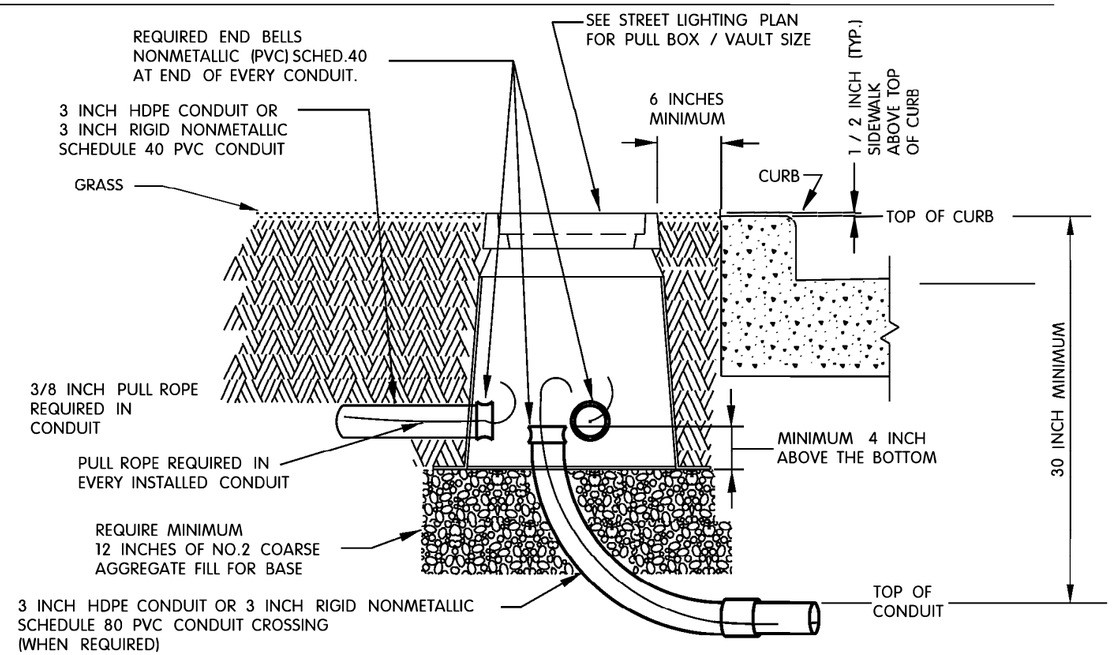
REQUIRED END BELLS
NONMETALLIC (PVC) SCHED.40
AT END OF EVERY CONDUIT.

PLUG OR CAP FITTINGS
ON ALL UNUSED CONDUITS
IN THE ENCLOSURE



3 INCH HDPE OR
3 INCH RIGID NONMETALLIC
SCHEDULE 40 PVC CONDUIT





112 DETAIL — NOT TO SCALE

TYPICAL PULL BOX / VAULT INSTALLATION
IN EITHER PAVEMENT OR GRASS AREAS

SHEET 2 OF 2

CITY OF MILWAUKEE
DEPARTMENT OF PUBLIC WORKS
STREET LIGHTING SECTION

REVISION BY: dkozel — REVISION DATE: 14-DEC-2023 11:34
APPROVED REVISION BY: R.BERTRAN — APPROVED REVISION DATE: DEC.13-2023

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

PROJECT NO. 2395-07-71	HWY: W. HOWARD AVE	COUNTY: MILWAUKEE	STREET LIGHTING - CITY OF MILWAUKEE	SHEET 6	E

2

2

N

CITY OF MILWAUKEE

MINER CREEK

GRUBBING LIMITS
STA 104+00 - STA 106+00
85.00' LT

CLEARING BY OTHERS

METROPOLITAN ASSOCIATES FKA

METROPOLITAN ASSOCIATES FKA

METROPOLITAN ASSOCIATES FKA

METROPOLITAN ASSOCIATES FKA

EX. P.L.

EX. P.L.

EX. P.L.

EX. P.L.

S MINER ST

BLDG

BLDG

BLDG

BLDG

WV

WV

FLAG

TREE REMOVAL BY OTHERS

REMOVING CONCRETE
SIDEWALK

EX. R/W

EX. R/W

REMOVING STORM
SEWER PIPES 15-INCH

REMOVING STORM
SEWER PIPES 12-INCH

REMOVING CURB & GUTTER

W HOWARD AVE

W HOWARD AVE

102+00

103+00

104+00

105+00

106+00

107+00

108+00

REMOVING CONCRETE PAVEMENT

REMOVING CURB & GUTTER

REMOVING STORM
SEWER PIPES 12-INCH

EX. R/W

EX. R/W

CLEARING AND
GRUBBING LIMITS
STA 105+00 - STA 106+00
44.00' RT

EXISTING SMALL DAM
IN CEMETERY

S.E. CEMETERIES OF WISCONSIN, INC.

PROJECT NO: 2395-07-71	HWY: W. HOWARD AVE	COUNTY: MILWAUKEE	REMOVAL PLAN	SHEET 7	E

FILE NAME : I:\49\49074900 HOWARD AVE BR GREENFIELD\C3D\SHEETS\021101-RP.DWG
LAYOUT NAME - Plan 1 IN 40 FT

PLOT DATE : 12/17/2025 10:14 AM PLOT BY : JOHNSON, ZACHARY PLOT NAME : PLOT SCALE : ##########

WISDOT/CADDS SHEET 42

2

2

N

METROPOLITAN ASSOCIATES FKA

EX. P.L.

S MINER ST

METROPOLITAN ASSOCIATES FKA

EX. P.L.

MINER CREEK

CITY OF MILWAUKEE

EX. P.L.

METROPOLITAN ASSOCIATES FKA

METROPOLITAN ASSOCIATES FKA

TEMPORARY DITCH CHECKS FOR BYPASS PIPES

EX. R/W

EX. R/W

W HOWARD AVE

W HOWARD AVE

102+00 103+00 104+00 105+00 106+00 107+00 108+00

TEMPORARY LIMITED EASEMENT (1125 SF)

EXISTING SMALL DAM IN CEMETERY

S.E. CEMETERIES OF WISCONSIN, INC.

EX. R/W

EX. R/W

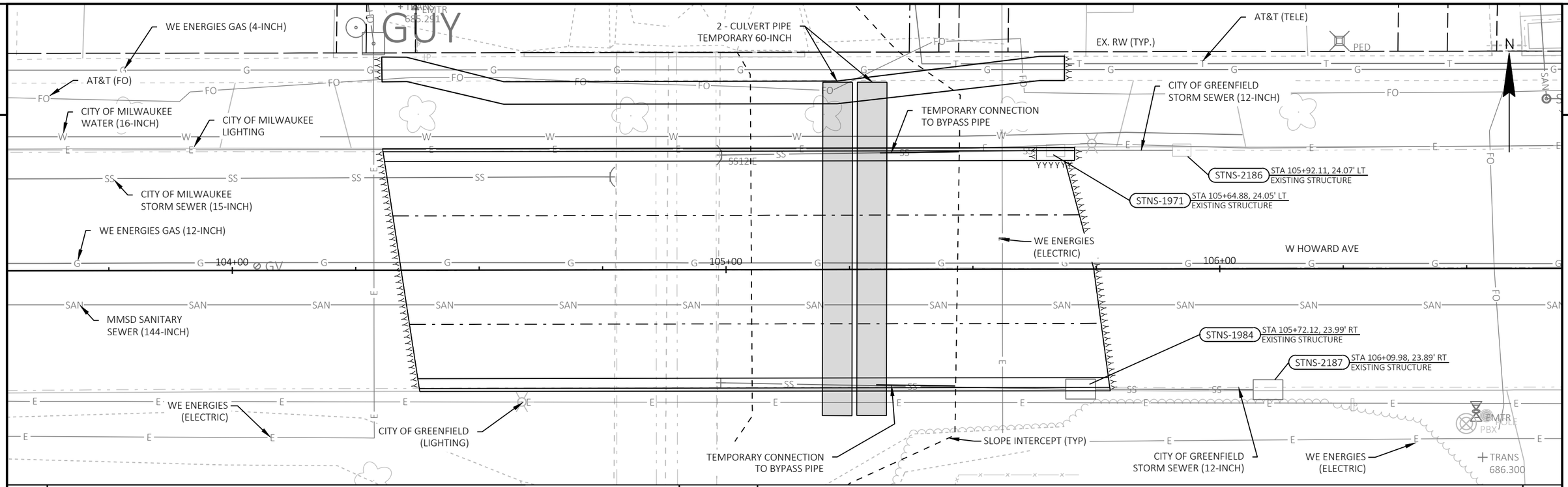
LEGEND

- SLOPE INTERCEPT
- SURFACE WATER FLOW
- EROSION MAT CLASS I URBAN, TYPE A
- INLET PROTECTION
- A B C D INLET PROTECTION TYPE
- RIPRAP HEAVY
- TEMPORARY DITCH CHECK
- SAWCUT CONCRETE

PROJECT NO: 2395-07-71	HWY: W. HOWARD AVE	COUNTY: MILWAUKEE	EROSION CONTROL	SHEET 8	E

FILE NAME : I:\49\49074900 HOWARD AVE BR GREENFIELD\C3D\SHEETS\022001-EC.DWG
LAYOUT NAME - Plan 1 IN 40 FT

PLOT DATE : 12/17/2025 9:18 AM PLOT BY : JOHNSON, ZACHARY PLOT NAME : PLOT SCALE : ##########



PROJECT NO: 2395-07-71	HWY: W. HOWARD AVE	COUNTY: MILWAUKEE	STORM SEWER - TEMPORARY BYPASS CHANNEL	SHEET 9	E

N

WE ENERGIES GAS (4-INCH)

EX. RW (TYP.)

AT&T (FO)

S MINER ST

CITY OF MILWAUKEE LIGHTING

CITY OF MILWAUKEE WATER (16-INCH)

17 STA 102+66, 18.44' LT EXISTING STRUCTURE

CITY OF MILWAUKEE STORM SEWER (15-INCH)

WE ENERGIES GAS (12-INCH)

W HOWARD AVE

103+00

104+00

105+00

MMSD SANITARY SEWER (144-INCH)

CITY OF GREENFIELD (LIGHTING)

WE ENERGIES (ELECTRIC)

2

17

690

685

680

675

EXISTING GROUND AT PIPE C/L

FINISHED GROUND AT PIPE C/L

EXISTING SSPRC 15-INCH TO REMAIN

PROPOSED STRUCTURE AT PIPE C/L

24 LF SSPRC CLASS III 15-INCH @ 3.07%

677.49

676.81

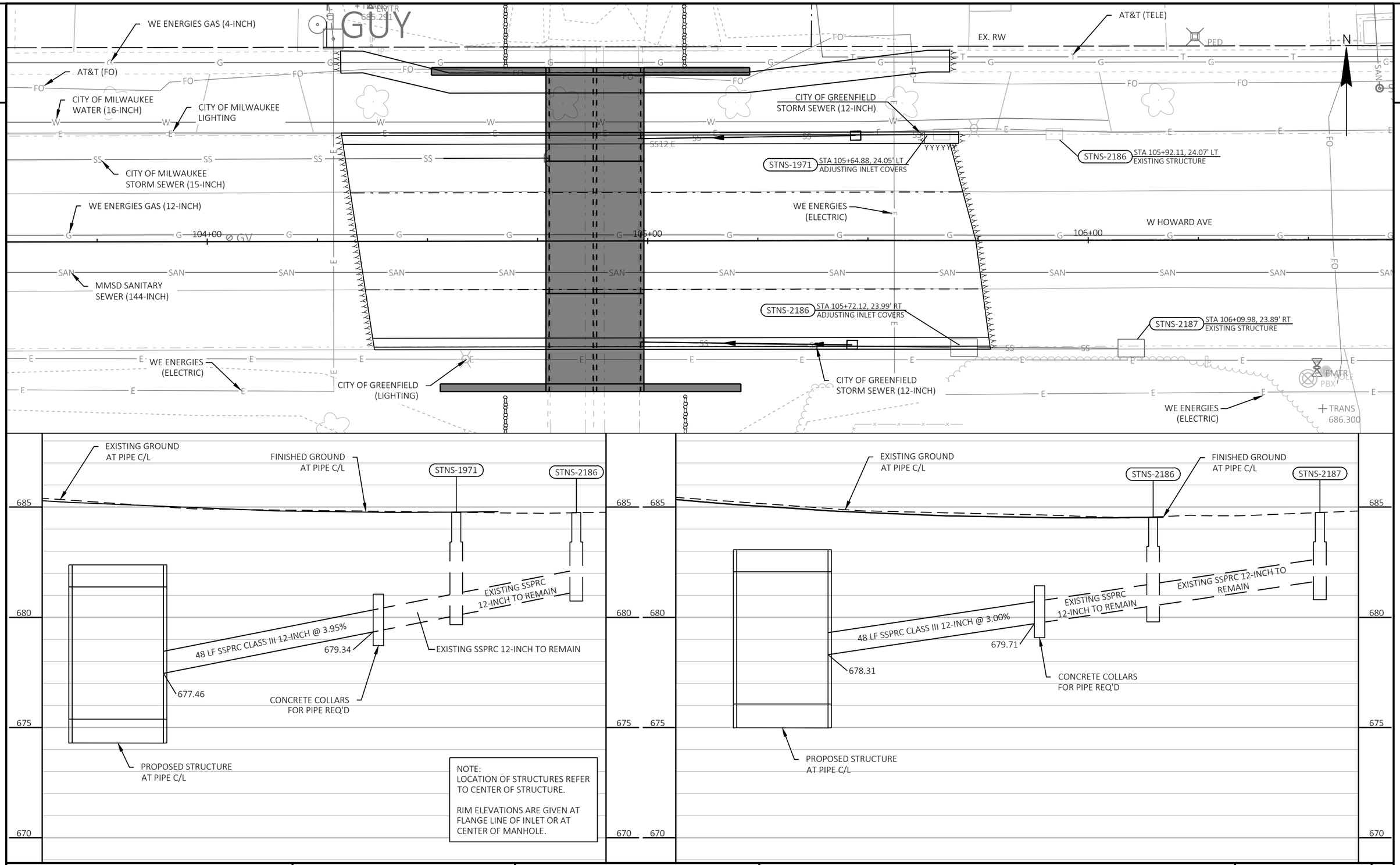
CONCRETE COLLARS FOR PIPE REQ'D

NOTE:
LOCATION OF STRUCTURES REFER TO CENTER OF STRUCTURE.

RIM ELEVATIONS ARE GIVEN AT FLANGE LINE OF INLET OR AT CENTER OF MANHOLE.

PROJECT NO: 2395-07-71	HWY: W. HOWARD AVE	COUNTY: MILWAUKEE	STORM SEWER	SHEET 10	E

FILE NAME : I:\49\49074900 HOWARD AVE BR GREENFIELD\C3D\SHEETS\022501-SS.DWG
LAYOUT NAME - ss1
PLOT DATE : 11/7/2025 10:23 AM
PLOT BY : JOHNSON, ZACHARY
PLOT NAME :
PLOT SCALE : 1 IN:20 FT
WISDOT/CADDS SHEET 41



PROJECT NO: 2395-07-71	HWY: W. HOWARD AVE	COUNTY: MILWAUKEE	STORM SEWER	SHEET 11	E

2

2

N

CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH

STA 105+68.59, -27.00' LT
PULL BOX 13"x24"x24"

CONDUIT RIGID NONMETALLIC SCHEDULE 40 2 1/2 -INCH
CONNECT TO EXISTING CONDUIT

STA 104+33.16, 27.00' LT
PULL BOX 13"x24"x24"

CONDUIT RIGID NONMETALLIC SCHEDULE 40 2 1/2-INCH
CONNECT TO EXISTING CONDUIT

102+00 103+00 104+00 105+00 106+00 107+00

CITY OF MILWAUKEE

CITY OF GREENFIELD

LIGHT 10a9

LIGHT 10a8

LIGHT 10a10

STA 104+58, 27.50' RT
REMOVE AND REINSTALL LIGHTING UNIT
CONCRETE BASE TYPE 5 REQUIRED

CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH
CONNECT TO EXISTING CONDUIT

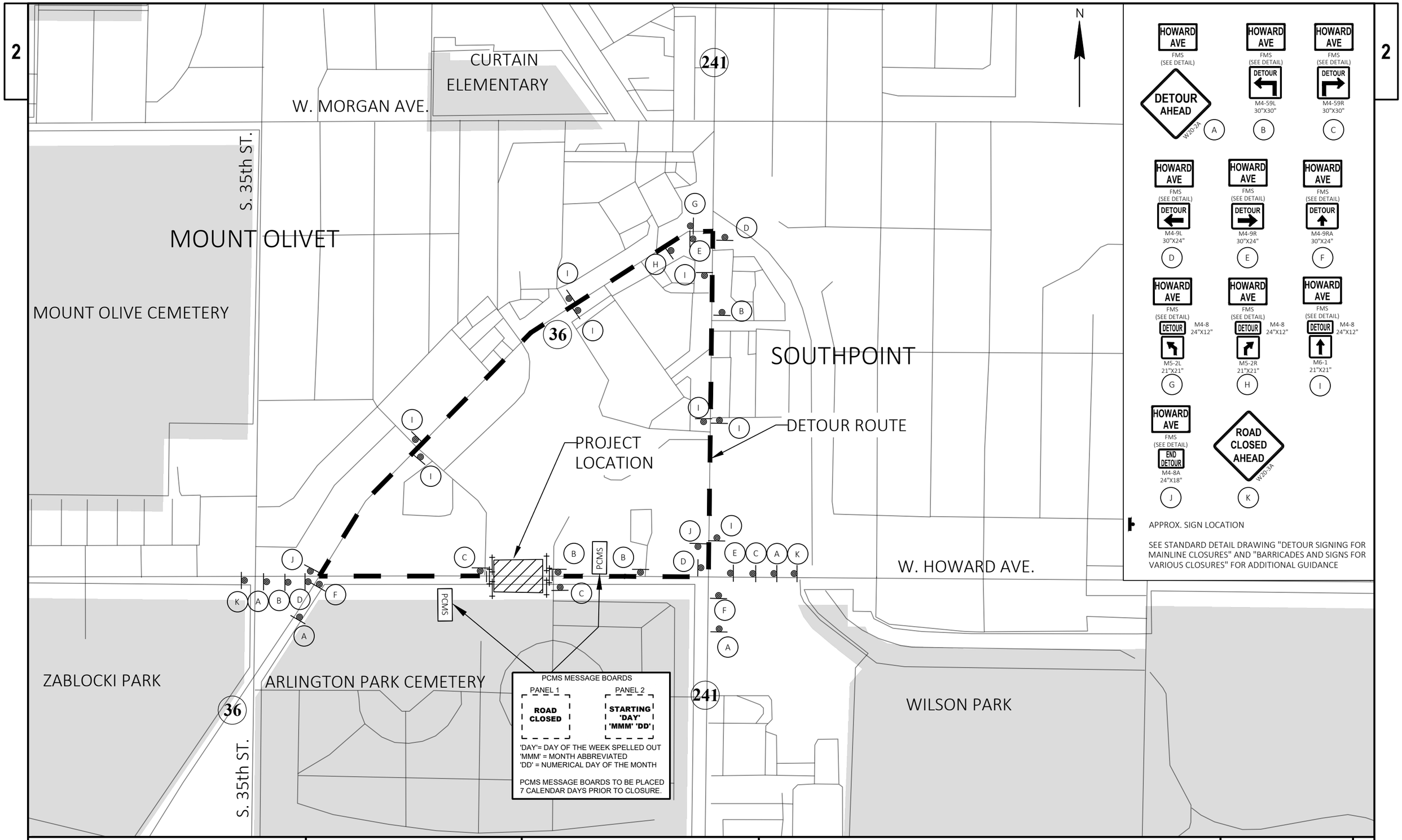
NOTES
INSTALL NEW LIGHTING WIRE FROM
LIGHT 10a8 TO 10a9 TO 10a10
CIRCUIT "a"
1- #8 BLACK
1- #8 WHITE
1- #8 GREEN

PROJECT NO: 2395-07-71	HWY: W. HOWARD AVE	COUNTY: MILWAUKEE	LIGHTING PLAN	SHEET 12	E

FILE NAME : I:\49\49074900 HOWARD AVE BR GREENFIELD\C3D\SHEETS\023601-LP.DWG
LAYOUT NAME - 01 023601-lp

PLOT DATE : 10/30/2025 11:06 AM PLOT BY : AYRES PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 41



PROJECT NO: 2395-07-71	HWY: W. HOWARD AVE	COUNTY: MILWAUKEE	DETOUR ROUTE	SHEET 13	E

FILE NAME : I:\49\49074900 HOWARD AVE BR GREENFIELD\C3D\SHEETS\027001-DT.DWG
LAYOUT NAME - Plan 1 IN 200 FT

PLOT DATE : 10/29/2025 4:34 PM PLOT BY : JOHNSON, ZACHARY PLOT NAME : PLOT SCALE : 1 IN:500 FT

WISDOT/CADDS SHEET 42

2

N

CURTAIN ELEMENTARY

W. MORGAN AVE.

241

S. 35th ST.

MOUNT OLIVET

MOUNT OLIVE CEMETERY

SOUTHPOINT

36

BICYCLE DETOUR ROUTE

PROJECT LOCATION

W. HOWARD AVE.

ZABLOCKI PARK

ARLINGTON PARK CEMETERY

241

36

S. 35th ST.

WILSON PARK

A

M4-9CA 30"X24"

M4-9CL 30"X24"

B

M4-9CA 30"X24"

M4-9CR 30"X24"

C

M4-9CL 30"X24"

D

M4-9CR 30"X24"

E *

FMS (SEE DETAIL)

F

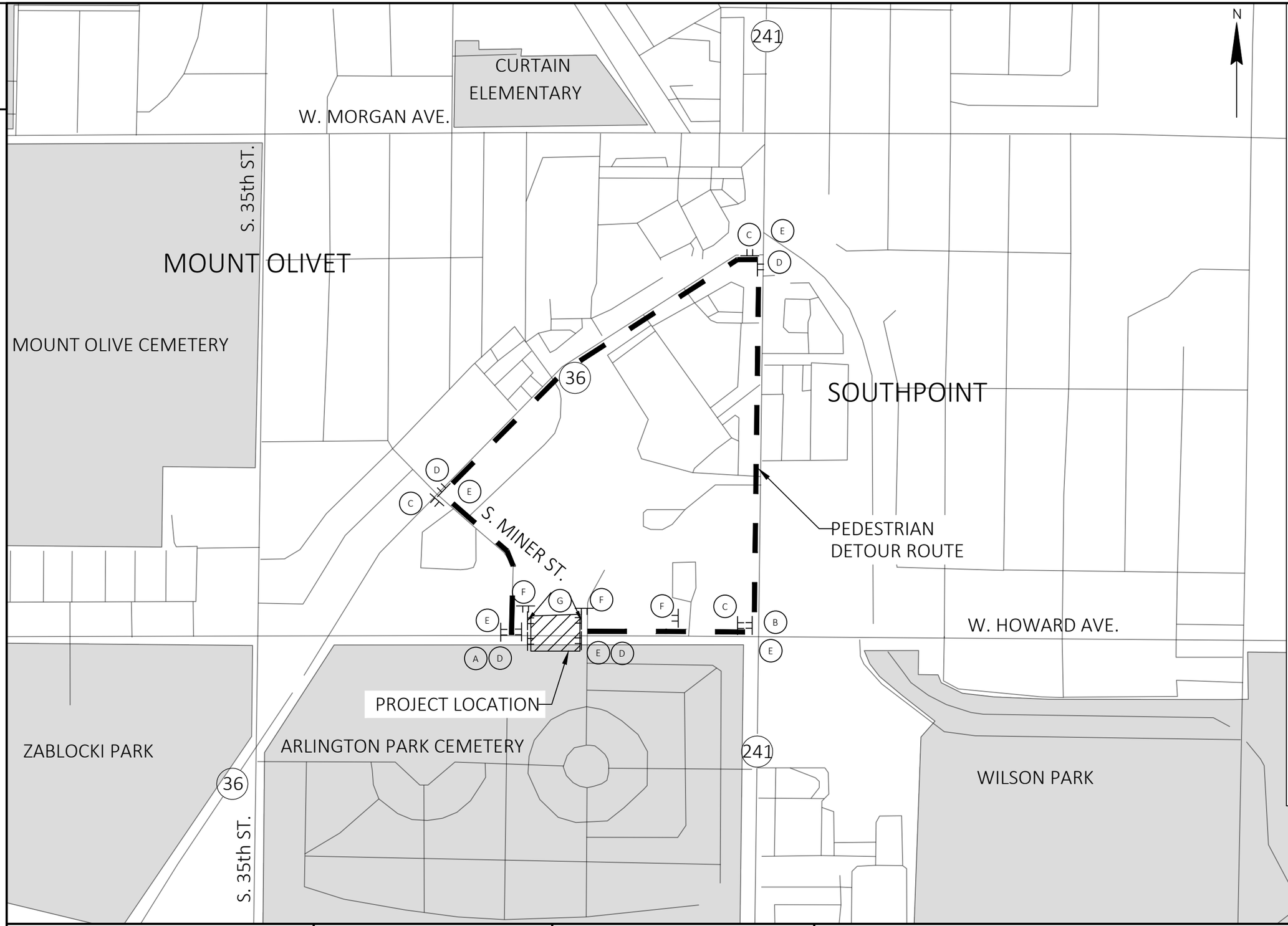
M4-8A 24"X18"

APPROX. SIGN LOCATION ON EXISTING SIGN SUPPORT

NOTES:
* PLACE SIGNS AT ALL POTENTIAL ENTRY POINTS, CLEARLY VISIBLE TO BOTH PEDESTRIANS AND BIKERS.

PROJECT NO: 2395-07-71	HWY: W. HOWARD AVE	COUNTY: MILWAUKEE	BICYCLE DETOUR ROUTE	SHEET 14	E

FILE NAME : I:\49\49074900 HOWARD AVE BR GREENFIELD\C3D\SHEETS\027002-DT.DWG
LAYOUT NAME - Plan 1 IN 200 FT
PLOT DATE : 8/13/2025 2:46 PM
PLOT BY : JOHNSON, ZACHARY
PLOT NAME :
PLOT SCALE : 1 IN:500 FT
WISDOT/CADDS SHEET 42



A
R9-9A 30"X18"
SIDEWALK CLOSED AHEAD
DETOUR
M4-9BL 30"X24"
POST MOUNTED

B
R9-9A 30"X18"
SIDEWALK CLOSED AHEAD
DETOUR
M4-9BR 30"X24"
POST MOUNTED

C
DETOUR
M4-9BL 30"X24"
POST MOUNTED

D
DETOUR
M4-9BR 30"X24"
POST MOUNTED

E TEMPORARY AUDIBLE MESSAGE DEVICE

F
SIDEWALK CLOSED
R9-9 24"X12"

G *
DANGER
KEEP OUT
FMS (SEE DETAIL)

NOTES:
FOLLOW SDD 15D30-10f SIDEWALK DETOUR, SIDEWALK ONLY ON ONE SIDE FOR MORE DETAILS

* PLACE SIGNS AT ALL POTENTIAL ENTRY POINTS, CLEARLY VISIBLE TO BOTH PEDESTRIANS AND BIKERS.

APPROX. SIGN LOCATION ON TEMPORARY SUPPORT

PROJECT NO: 2395-07-71	HWY: W. HOWARD AVE	COUNTY: MILWAUKEE	PEDESTRIAN DETOUR ROUTE	SHEET 15	E

FILE NAME : I:\49\49074900 HOWARD AVE BR GREENFIELD\C3D\SHEETS\027003-DT.DWG
LAYOUT NAME - Plan 1 IN 200 FT
PLOT DATE : 8/18/2025 10:38 AM
PLOT BY : JOHNSON, ZACHARY
PLOT NAME :
PLOT SCALE : 1 IN:500 FT
WISDOT/CADDS SHEET 42

Estimate Of Quantities

2395-07-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	1.000	1.000
0004	201.0205	Grubbing	STA	3.000	3.000
0006	203.0250	Removing Structure Over Waterway Remove Debris (structure) 01. B-40-532	EACH	1.000	1.000
0008	204.0100	Removing Concrete Pavement	SY	690.000	690.000
0010	204.0150	Removing Curb & Gutter	LF	282.000	282.000
0012	204.0155	Removing Concrete Sidewalk	SY	75.000	75.000
0014	204.0195	Removing Concrete Bases	EACH	1.000	1.000
0016	204.0245	Removing Storm Sewer (size) 01. 12-Inch	LF	96.000	96.000
0018	204.0245	Removing Storm Sewer (size) 02. 15-Inch	LF	24.000	24.000
0020	205.0100	Excavation Common	CY	1,550.000	1,550.000
0022	206.2001	Excavation for Structures Culverts (structure) 01. B-40-1104	EACH	1.000	1.000
0024	210.2500	Backfill Structure Type B	TON	1,860.000	1,860.000
0026	213.0100	Finishing Roadway (project) 01. 2395-07-71	EACH	1.000	1.000
0028	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	310.000	310.000
0030	311.0110	Breaker Run	TON	825.000	825.000
0032	415.0080	Concrete Pavement 8-Inch	SY	690.000	690.000
0034	416.0620	Drilled Dowel Bars	EACH	64.000	64.000
0036	504.0100	Concrete Masonry Culverts	CY	340.000	340.000
0038	505.0400	Bar Steel Reinforcement HS Structures	LB	15,490.000	15,490.000
0040	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	34,020.000	34,020.000
0042	513.7084	Railing Steel Type NY4	LF	142.200	142.200
0044	516.0500	Rubberized Membrane Waterproofing	SY	28.000	28.000
0046	520.8000	Concrete Collars for Pipe	EACH	3.000	3.000
0048	601.0331	Concrete Curb & Gutter 31-Inch	LF	282.000	282.000
0050	602.0410	Concrete Sidewalk 5-Inch	SF	650.000	650.000
0052	606.0300	Riprap Heavy	CY	435.000	435.000
0054	608.0312	Storm Sewer Pipe Reinforced Concrete Class III 12-Inch	LF	96.000	96.000
0056	608.0315	Storm Sewer Pipe Reinforced Concrete Class III 15-Inch	LF	24.000	24.000
0058	611.8115	Adjusting Inlet Covers	EACH	2.000	2.000
0060	619.1000	Mobilization	EACH	1.000	1.000
0062	624.0100	Water	MGAL	15.000	15.000
0064	625.0100	Topsoil	SY	480.000	480.000
0066	628.1504	Silt Fence	LF	150.000	150.000
0068	628.1520	Silt Fence Maintenance	LF	150.000	150.000
0070	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0072	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0074	628.2006	Erosion Mat Urban Class I Type A	SY	470.000	470.000
0076	628.7010	Inlet Protection Type B	EACH	1.000	1.000
0078	628.7015	Inlet Protection Type C	EACH	1.000	1.000
0080	628.7020	Inlet Protection Type D	EACH	2.000	2.000
0082	628.7504	Temporary Ditch Checks	LF	18.000	18.000
0084	629.0210	Fertilizer Type B	CWT	1.000	1.000
0086	630.0140	Seeding Mixture No. 40	LB	23.000	23.000
0088	630.0200	Seeding Temporary	LB	13.000	13.000
0090	630.0500	Seed Water	MGAL	13.000	13.000
0092	642.5001	Field Office Type B	EACH	1.000	1.000
0094	643.0300	Traffic Control Drums	DAY	5,010.000	5,010.000
0096	643.0420	Traffic Control Barricades Type III	DAY	4,008.000	4,008.000
0098	643.0705	Traffic Control Warning Lights Type A	DAY	7,348.000	7,348.000

2395-07-71

Line	Item	Item Description	Unit	Total	Qty
0100	643.0715	Traffic Control Warning Lights Type C	DAY	3,340.000	3,340.000
0102	643.0900	Traffic Control Signs	DAY	21,042.000	21,042.000
0104	643.1050	Traffic Control Signs PCMS	DAY	28.000	28.000
0106	643.5000	Traffic Control	EACH	1.000	1.000
0108	644.1900.S	Temporary Audible Message Devices	DAY	835.000	835.000
0110	645.0105	Geotextile Type C	SY	520.000	520.000
0112	645.0120	Geotextile Type HR	SY	545.000	545.000
0114	646.6466	Cold Weather Marking Epoxy 6-Inch	LF	480.000	480.000
0116	650.4000	Construction Staking Storm Sewer	EACH	3.000	3.000
0118	650.4500	Construction Staking Subgrade	LF	140.000	140.000
0120	650.5000	Construction Staking Base	LF	140.000	140.000
0122	650.6501	Construction Staking Structure Layout (structure) 01. B-40-1104	EACH	1.000	1.000
0124	650.7000	Construction Staking Concrete Pavement	LF	140.000	140.000
0126	650.8501	Construction Staking Electrical Installations (project) 01. 2395-07-71	EACH	1.000	1.000
0128	650.9500	Construction Staking Sidewalk (project) 01. 2395-07-71	EACH	1.000	1.000
0130	650.9911	Construction Staking Supplemental Control (project) 01. 2395-07-71	EACH	1.000	1.000
0132	650.9920	Construction Staking Slope Stakes	LF	140.000	140.000
0134	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	150.000	150.000
0136	652.0230	Conduit Rigid Nonmetallic Schedule 40 2 1/2-Inch	LF	5.000	5.000
0138	652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	145.000	145.000
0140	654.0105	Concrete Bases Type 5	EACH	1.000	1.000
0142	655.0620	Electrical Wire Lighting 8 AWG	LF	1,600.000	1,600.000
0144	690.0250	Sawing Concrete	LF	122.000	122.000
0146	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	207.000	207.000
0148	ASP.1.1PA	On-the-Job Training Pre-Apprentice at $5.00/HR	HRS	800.000	800.000
0150	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	1,800.000	1,800.000
0152	SPV.0060	Special 01. Salvage and Reinstall Light Unit	EACH	1.000	1.000
0154	SPV.0060	Special 02. Temporary Bypass	EACH	1.000	1.000
0156	SPV.0060	Special 03. Pull Boxes 13-Inch X 24-Inch X 24-Inch	EACH	2.000	2.000
0158	SPV.0195	Special 01. Coarse Aggregate Mix for Stream Bed	TON	85.000	85.000

FROM/TO STATION	LOCATION	205.0100 EXCAVATION COMMON (1) CUT (2)	205.0100 EXCAVATION COMMON (1) EBS EXCAVATION	SALVAGED/UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (13) FACTOR 1.30	MASS ORDINATE +/- (14)	WASTE	COMMENT
104+34.18/105+74.44	W Howard Ave	420	0	151	269	24	31	238	238	
5+00.00/6+45.00	Bypass Channel	1,130	0	-	1,130	53	69	1,098	1,098	TO BE USED IN BYPASS INSTALL, USE, AND REMOVAL
		1,550	0	151	1,399	77	100	1,336	1,336	
		1,550	0	151	1,399	77	100	1,336	1,336	
TOTAL COMMON EXC		1,550								

NOTES:
(1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
(2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
(4) SALVAGED/UNUSABLE PAVEMENT MATERIAL
5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL
(13) EXPANDED FILL FACTOR = 1.30
(14) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

REMOVALS

CATEGORY	STATION	TO	STATION	LOCATION	204.0100 REMOVING CONCRETE PAVEMENT SY	204.0150 REMOVING CURB & GUTTER LF	204.0155 REMOVING CONCRETE SIDEWALK SY	204.0245.01 REMOVING STORM SEWER (SIZE) (01. 12-INCH) LF	204.0245.02 REMOVING STORM SEWER (SIZE) (02. 15-INCH) LF
0010	104+34	-	105+00	W HOWARD AVE	340	133	38	-	24
	105+00	-	105+74	W HOWARD AVE	350	149	37	96	-
				TOTAL 0010	690	282	75	96	24

BASE AGGREGATE DENSE ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL
0010	104+34	-	105+00	W HOWARD AVE	155	7
0010	105+00	-	105+74	W HOWARD AVE	155	8
				TOTAL 0010	310	15

CLEARING & GRUBBING

CATEGORY	STATION	TO	STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
0010	104+00	-	106+00	LT	-	2
	105+00	-	106+00	RT	1	1
				TOTAL 0010	1	3

CONCRETE ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	415.0080 CONCRETE PAVEMENT 8-INCH SY	416.0620 DRILLED DOWEL BARS EACH	601.0331 CONCRETE CURB & GUTTER 31-INCH LF	602.0410 CONCRETE SIDEWALK 5-INCH SF
0010	104+34	-	105+00	W HOWARD AVE	340	32	133	325
	105+00	-	105+74	W HOWARD AVE	350	32	149	325
				TOTAL 0010	690	64	282	650

LANDSCAPING ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	625.0100 TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	630.0140 SEEDING MIXTURE NO. 40 LB	630.0200 SEEDING TEMPORARY LB	630.0500 SEED WATER MGAL
0010	104+34	-	105+00	W HOWARD AVE	190	0.10	9	5	5
	105+00	-	105+74	W HOWARD AVE	190	0.10	9	5	5
				UNDISTRIBUTED*	100	0.80	5	3	3
				TOTAL 0010	480	1.00	23	13	13

*UNDISTRIBUTED APPROXIMATELY 25%

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

3

STORM SEWER INLETS

CATEGORY	STA	TO	STA	LOCATION	520.8000 CONCRETE COLLARS FOR PIPE EACH	608.0312 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH LF	608.0315 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 15-INCH LF	611.8115 ADJUSTING INLET COVERS EACH	650.4000 CONSTRUCTION STAKING STORM SEWER EACH
0010	104+34	-	105+00	LT	1	-	24	-	1
	105+00	-	105+74	LT	1	48	-	1	1
	105+00	-	105+74	RT	1	48	-	1	1
				TOTAL 0010	**3**	**96**	**24**	**2**	**3**

EROSION CONTROL ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.2006 EROSION MAT URBAN CLASS I TYPE A SY	628.7010 INLET PROTECTION TYPE B EACH	628.7015 INLET PROTECTION TYPE C EACH	628.7020 INLET PROTECTION TYPE D EACH	628.7504 TEMPORARY DITCH CHECKS LF
0010	104+34	-	105+00	W HOWARD AVE	-	-	187	-	-	-	-
	105+00	-	105+74	W HOWARD AVE	-	-	187	1	1	2	14
				UNDISTRIBUTED*	150	150	96	-	-	-	4
				TOTAL 0010	**150**	**150**	**470**	**1**	**1**	**2**	**18**

*UNDISTRIBUTED APPROXIMATELY 25%

STAKING

CATEGORY	LOCATION	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.7000 CONSTRUCTION STAKING CONCRETE PAVEMENT LF	650.9500.01 CONSTRUCTION STAKING SIDEWALK (PROJECT) (2395-07-71) EACH	650.9911.01 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (2395-07-71) EACH	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
0010	W HOWARD AVE	140	140	140	1	1	140
	TOTAL 0010	**140**	**140**	**140**	**1**	**1**	**140**

PAVEMENT MARKING

CATEGORY	STATION	TO	STATION	LOCATION	646.6466 COLD WEATHER MARKING EPOXY 6-INCH LF	REMARKS
0010	103+84	-	106+24	CL	480	YELLOW DOUBLE CL
				TOTAL 0010	**480**	

TRAFFIC CONTROL

CATEGORY	LOCATION	DURATION (DAYS)	643.0300 TRAFFIC CONTROL DRUMS NO	643.0300 TRAFFIC CONTROL DRUMS DAY	643.0420 TRAFFIC CONTROL BARRICADES TYPE III NO	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A NO	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C NO	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C DAY	643.0900 TRAFFIC CONTROL SIGNS NO	643.0900 TRAFFIC CONTROL SIGNS DAY	643.1050 TRAFFIC CONTROL SIGNS PCMS NO	643.1050 TRAFFIC CONTROL SIGNS PCMS DAY	643.5000 TRAFFIC CONTROL EACH	644.1900.S TEMPORARY AUDIBLE MESSAGE DEVICES NO	644.1900.S TEMPORARY AUDIBLE MESSAGE DEVICES DAY
0010	ADVANCED WARNING	14	-	-	-	-	-	-	-	-	-	-	2	28	-	-	-
	DETOUR ROUTE	167	-	-	-	-	-	-	-	-	70	11,690	-	-	-	-	-
	BICYCLE DETOUR	167	-	-	-	-	-	-	-	-	20	3,340	-	-	-	-	-
	PEDESTRIAN DETOUR	167	10	1670	2	334	-	-	-	-	18	3,006	-	-	-	5	835
	PER SDD 15C2	167	-	-	22	3,674	44	7,348	-	-	18	3,006	-	-	-	-	-
	W HOWARD AVE	167	20	3340	-	-	-	-	20	3340	-	-	-	-	1	-	-
		TOTAL 0010	**5,010**		**4,008**		**7,348**		**3,340**		**21,042**		**28**		**1**	**835**	

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

TEMPORAY BYPASS CHANNEL

CATEGORY	STATION	TO	STATION	LOCATION	203.0100 REMOVING SMALL PIPE CULVERTS EACH	512.1000 PILING STEEL SHEET TEMPORARY SF	520.2060 CULVERT PIPE TEMPORARY 60-INCH LF	520.3312 CULVERT PIPE CLASS III-A 12-INCH LF	606.0100 RIPRAP LIGHT CY	628.5505 POLYETHYLENE SHEETING SY	SPV.0060.02 SPECIAL (02. TEMPORARY BYPASS) EACH
0010	105+07	-	105+42	BYPASS CHANNEL	2	980	68	16	70	140	1
							68	16			
				TOTAL 0010			FOR INFORMATION ONLY				1

SAWING ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	690.0250 SAWING CONCRETE LF
0010	104+34	-	105+00	W HOWARD AVE	55
0010	105+00	-	105+74	W HOWARD AVE	67
				TOTAL 0010	122

CITY OF GREENFIELD LIGHTING ITEMS

CATEGORY	LOCATION	650.8501.01 CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS (PROJECT) (01. 2395-07-71) EACH	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF	654.0105 CONCRETE BASES TYPE 5 EACH	655.0620 ELECTRICAL WIRE LIGHTING 8 AWG LF	SPV.0060.01 SPECIAL (01. SALVAGE AND REINSTALL LIGHTING UNIT) EACH
0010	W HOWARD AVENUE	1	150	1	1,600	1
	TOTAL 0010	1	150	1	1,600	1

CITY OF GREENFIELD LIGHTING

CATEGORY	LOCATION	204.0195 REMOVING CONCRETE BASES EACH
0030	W HOWARD AVENUE	1
	TOTAL 0030	1

STAKING STRUCTURE

CATEGORY	LOCATION	650.6501.01 CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) (B-40-1104) EACH
0020	STRUCTURE B-40-1104	1
	TOTAL 0020	1

CITY OF MILWAUKEE LIGHTING ITEMS

CATEGORY	LOCATION	652.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH LF	SPV.0060.03 SPECIAL (03. PULL BOXES 13-INCH X 24-INCH X 24-INCH) EACH
0010	W HOWARD AVENUE	145	2
	TOTAL 0010	145	2

CITY OF MILWAUKEE LIGHTING

CATEGORY	LOCATION	652.0230 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2 1/2-INCH LF
0040	W HOWARD AVENUE	5
	TOTAL 0040	5

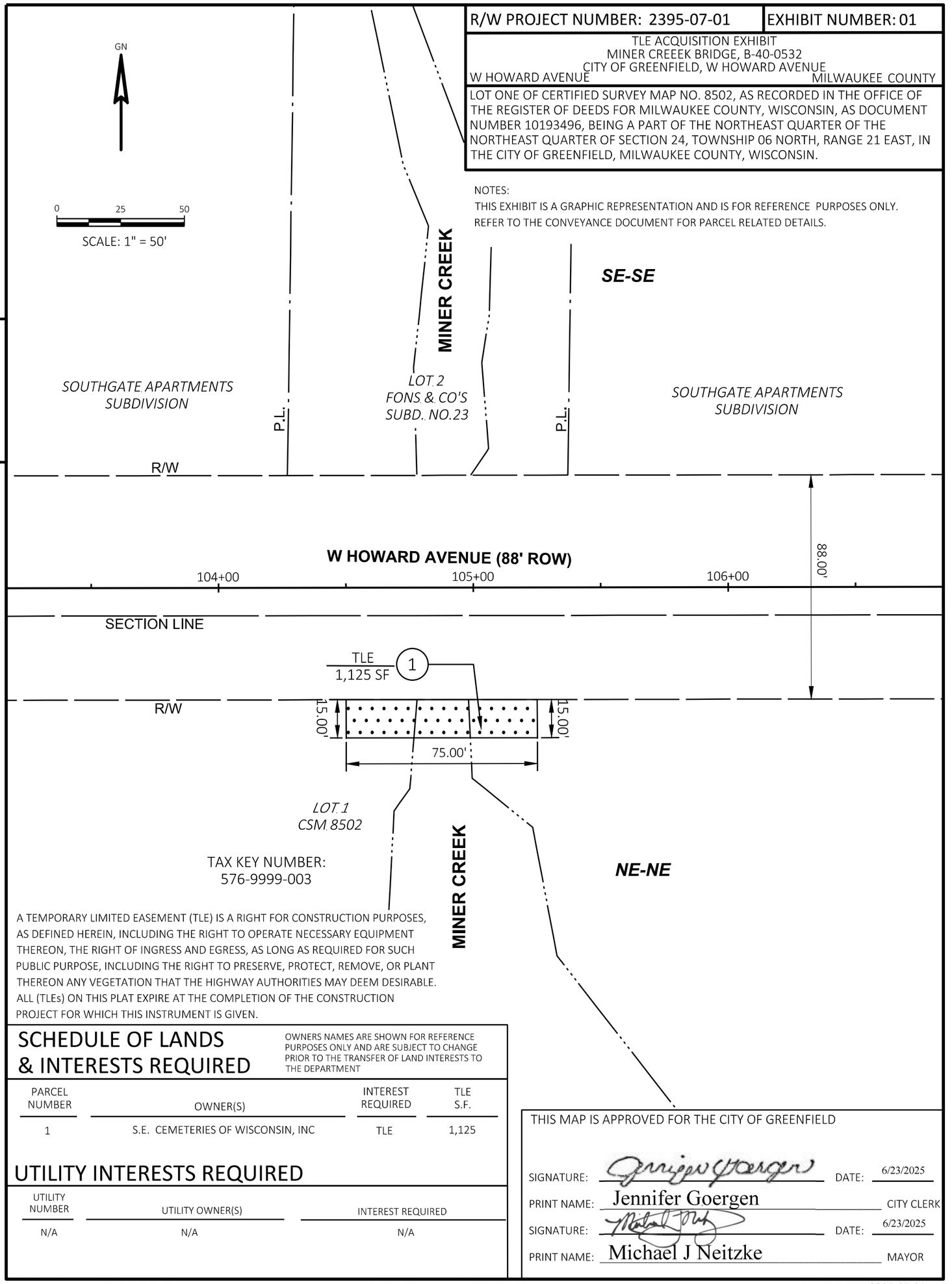
ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

R/W PROJECT NUMBER: 2395-07-01	EXHIBIT NUMBER: 01

TLE ACQUISITION EXHIBIT
MINER CREEEK BRIDGE, B-40-0532
CITY OF GREENFIELD, W HOWARD AVENUE
W HOWARD AVENUE MILWAUKEE COUNTY

LOT ONE OF CERTIFIED SURVEY MAP NO. 8502, AS RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS FOR MILWAUKEE COUNTY, WISCONSIN, AS DOCUMENT NUMBER 10193496, BEING A PART OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 24, TOWNSHIP 06 NORTH, RANGE 21 EAST, IN THE CITY OF GREENFIELD, MILWAUKEE COUNTY, WISCONSIN.

NOTES:
THIS EXHIBIT IS A GRAPHIC REPRESENTATION AND IS FOR REFERENCE PURPOSES ONLY.
REFER TO THE CONVEYANCE DOCUMENT FOR PARCEL RELATED DETAILS.



A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON, THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM DESIRABLE. ALL (TLEs) ON THIS PLAT EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.

SCHEDULE OF LANDS & INTERESTS REQUIRED

OWNERS NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE DEPARTMENT

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	TLE S.F.
1	S.E. CEMETERIES OF WISCONSIN, INC	TLE	1,125

UTILITY INTERESTS REQUIRED

UTILITY NUMBER	UTILITY OWNER(S)	INTEREST REQUIRED
N/A	N/A	N/A

THIS MAP IS APPROVED FOR THE CITY OF GREENFIELD

SIGNATURE: Jennifer Goergen DATE: 6/23/2025
PRINT NAME: Jennifer Goergen CITY CLERK
SIGNATURE: Michael J Neitzke DATE: 6/23/2025
PRINT NAME: Michael J Neitzke MAYOR

FILE NAME : 490749_TLE.DWG PLOT DATE : 4/17/2025 2:28 PM R/W PROJECT: 2395-07-01

METROPOLITAN ASSOCIATES FKA

METROPOLITAN ASSOCIATES FKA

CITY OF MILWAUKEE

METROPOLITAN ASSOCIATES FKA

METROPOLITAN ASSOCIATES FKA

EX. P.L.

EX. P.L.

EX. P.L.

EX. P.L.

S MINER ST

MINER CREEK

N

EX. R/W

EX. R/W

EX. R/W

EX. R/W

W HOWARD AVE

W HOWARD AVE

102+00

103+00

104+00

105+00

106+00

107+00

108+00

C/L OF BYPASS PIPE

CULVERT PIPE
TEMPORARY 60-INCH

CULVERT PIPE
TEMPORARY 60-INCH

STA 5+78.41 BYPASS, 4.5' LT

STA 5+78.41 BYPASS, 4.5' RT

STA 5+78.41 BYPASS = STA 105+26.02 W HOWARD AVE

SHEET PILING REQUIRED
FOR TEMPORARY BYPASS

SHEET PILING REQUIRED
FOR TEMPORARY BYPASS

SPV.0060.02 TEMPORARY
BYPASS 400 CFS

SPV.0060.02 TEMPORARY
BYPASS 400 CFS

EXISTING WINGWALL TO BE
REMOVED PRIOR TO TEMPORARY
BYPASS CONSTRUCTION.

TEMPORARY LIMITED
EASEMENT (1125 SF)

EXISTING SMALL
DAM IN CEMETERY

S.E. CEMETERIES OF WISCONSIN, INC.

ADDITIONAL WE ENERGIES GAS UTILITY INFORMATION:

APPROXIMATELY STA 104+34, 12-INCH GAS MAIN IS LOCATED 80-INCHES BELOW SURFACE TO TOP OF PIPE. DATA WAS COLLECTED FROM WE ENERGIES GAS HYDRO-VACING.

ADDITIONAL WE ENERGIES GAS UTILITY INFORMATION:

APPROXIMATELY STA 106+34, 12-INCH GAS MAIN IS LOCATED 63-INCHES BELOW SURFACE TO TOP OF PIPE. DATA WAS COLLECTED FROM WE ENERGIES GAS HYDRO-VACING.

BEGINNING OF BYPASS
CHANNEL STA 5+39.00

END OF BYPASS
CHANNEL STA 6+19.00

STA 5+39.00
EL 676.23

STA 6+19.00
EL 675.14

-1.36%

685

680

675

672

675.75

685.22
676.08

684.90
675.40

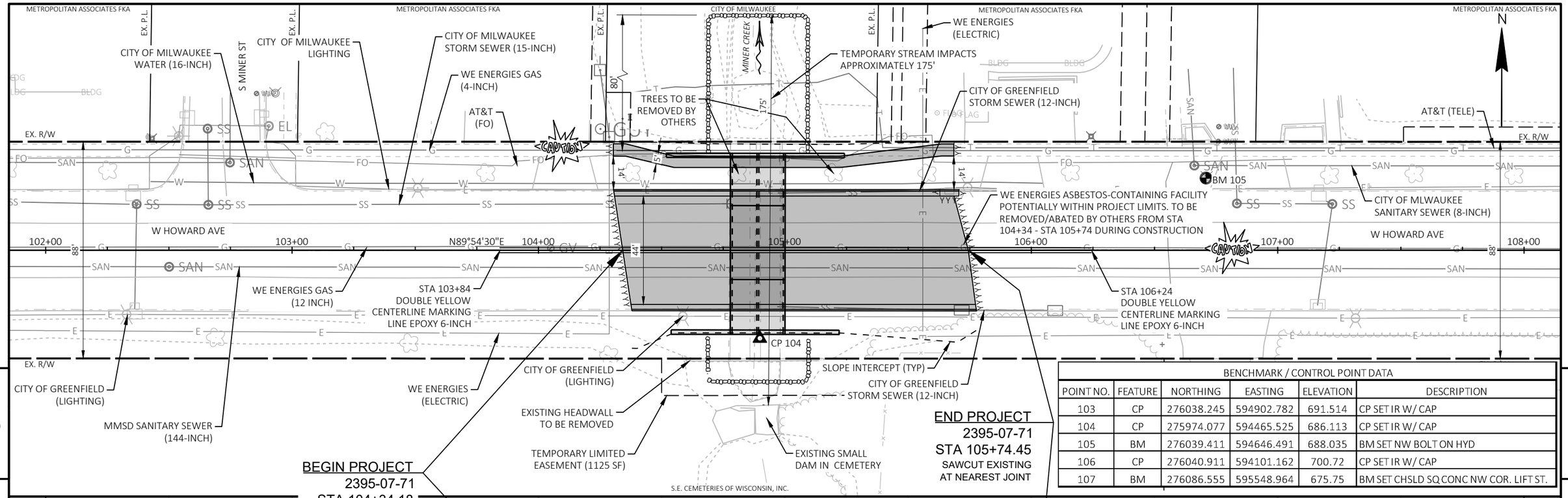
674.23

PROJECT NO: 2395-07-71	HWY: W. HOWARD AVE	COUNTY: MILWAUKEE	PLAN AND PROFILE: TEMPORARY BYPASS CHANNEL	SHEET 22	E

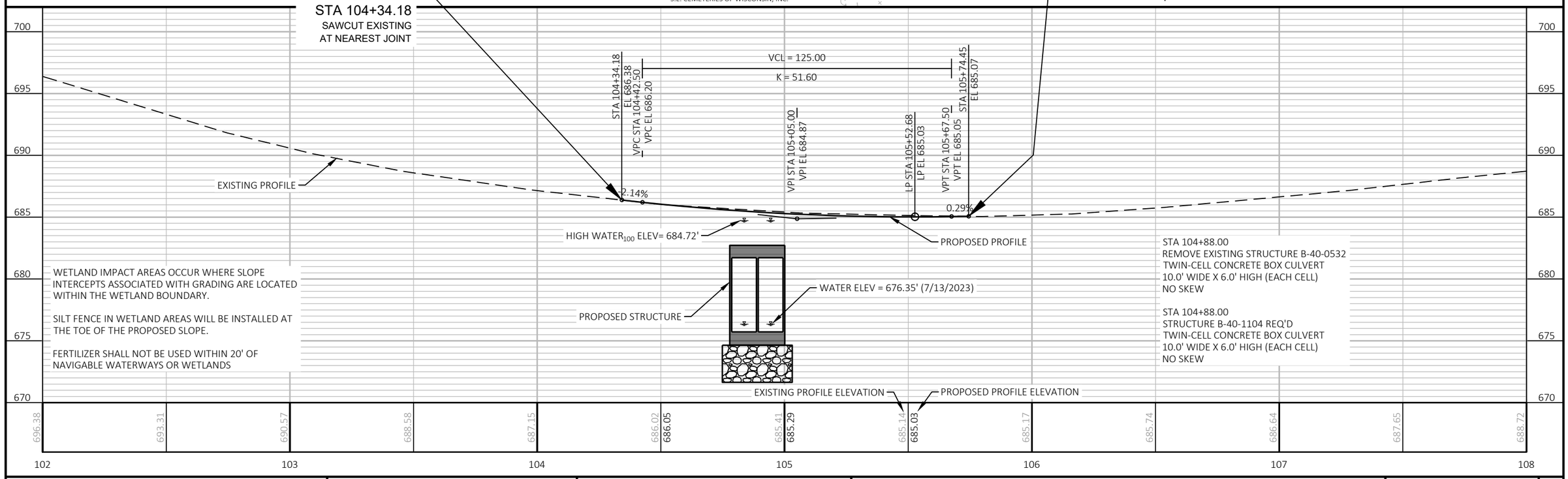
FILE NAME : I:\49\49074900 HOWARD AVE BR GREENFIELD\C3D\SHEETS\050101-PP-BYPASS CHANNEL.DWG
LAYOUT NAME - Plan Dbl 1 IN 40 FT

PLOT DATE : 11/2/2025 9:47 AM PLOT BY : JOHNSON, ZACHARY PLOT NAME : PLOT SCALE : ##########

WISDOT/CADDS SHEET 44



BENCHMARK / CONTROL POINT DATA					
POINT NO.	FEATURE	NORTHING	EASTING	ELEVATION	DESCRIPTION
103	CP	276038.245	594902.782	691.514	CP SET IR W/ CAP
104	CP	275974.077	594465.525	686.113	CP SET IR W/ CAP
105	BM	276039.411	594646.491	688.035	BM SET NW BOLT ON HYD
106	CP	276040.911	594101.162	700.72	CP SET IR W/ CAP
107	BM	276086.555	595548.964	675.75	BM SET CHSLD SQ CONC NW COR. LIFT ST.



WETLAND IMPACT AREAS OCCUR WHERE SLOPE INTERCEPTS ASSOCIATED WITH GRADING ARE LOCATED WITHIN THE WETLAND BOUNDARY.

SILT FENCE IN WETLAND AREAS WILL BE INSTALLED AT THE TOE OF THE PROPOSED SLOPE.

FERTILIZER SHALL NOT BE USED WITHIN 20' OF NAVIGABLE WATERWAYS OR WETLANDS

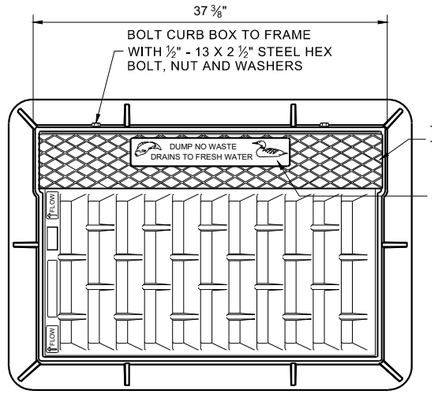
STA 104+88.00
REMOVE EXISTING STRUCTURE B-40-0532
TWIN-CELL CONCRETE BOX CULVERT
10.0' WIDE X 6.0' HIGH (EACH CELL)
NO SKEW

STA 104+88.00
STRUCTURE B-40-1104 REQ'D
TWIN-CELL CONCRETE BOX CULVERT
10.0' WIDE X 6.0' HIGH (EACH CELL)
NO SKEW

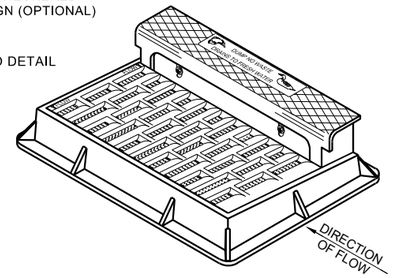
PROJECT NO: 2395-07-71	HWY: W. HOWARD AVE	COUNTY: MILWAUKEE	PLAN AND PROFILE: WEST HOWARD AVENUE	SHEET 23	E

Standard Detail Drawing List

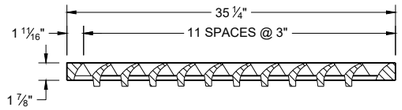
08A05-22A	INLET COVERS TYPE A, H, A-S, H-S & Z
08A05-22B	INLET COVERS TYPE B, B-A, C, MS, MS-A, DW & WM
08D01-24A	CONCRETE CURB & GUTTER
08D01-24B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D16-11	CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
12A03-10	NAME PLATE (STRUCTURES)
13A03-07	CONCRETE PAVEMENT SHOULDERS
13C01-19	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C09-17A	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-17B	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-17C	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C13-11	URBAN DOWELED CONCRETE PAVEMENT
13C18-08C	CONCRETE PAVEMENT JOINT TYPES
13C18-08D	CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C11-10A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D30-11F	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION

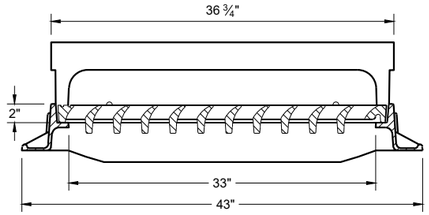


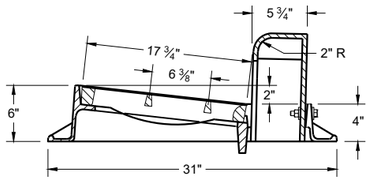
NOTE: EITHER CASTING IS ACCEPTABLE

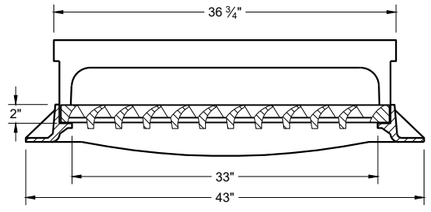


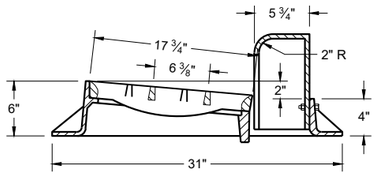
NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"







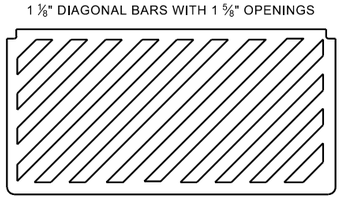




TYPE "H"

NOTE: EITHER CASTING IS ACCEPTABLE

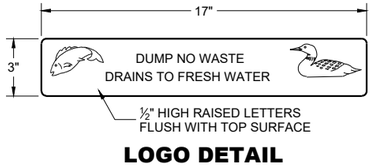
1 ⅛" DIAGONAL BARS WITH 1 ⅝" OPENINGS



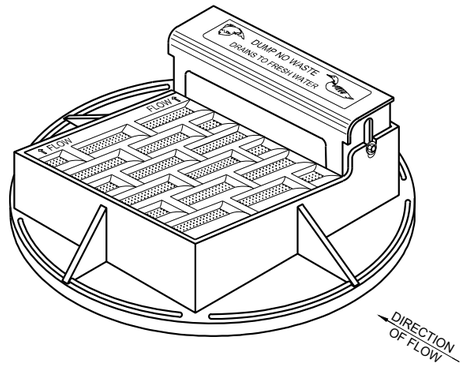
SPECIAL GRATE FOR TYPE "H" COVER

(MEASURES 35" X 17 ¾" X 2")

(NOTED AS TYPE H-S ON DRAINAGE TABLE)

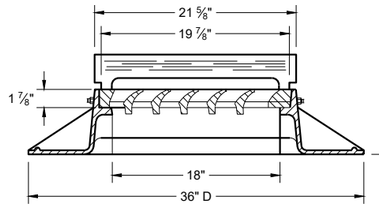


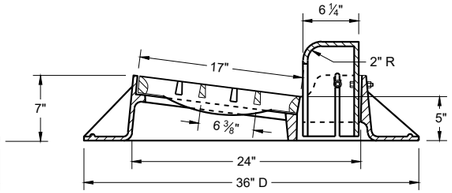
LOGO DETAIL



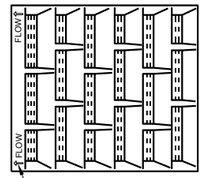
NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"

NOTE: EITHER CASTING IS ACCEPTABLE

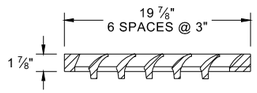




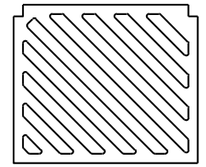
TYPE "A"



DIRECTION OF FLOW ARROWS



1" DIAGONAL BARS
WITH 1 ½" OPENINGS



SPECIAL GRATE FOR TYPE "A" COVER

(MEASURES 19 ¾" X 17" X 1 ⅞")

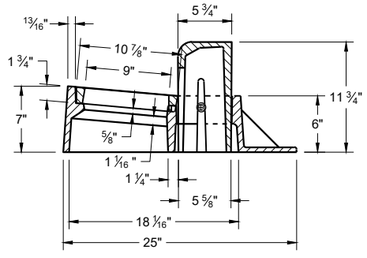
(NOTED AS TYPE A-S ON DRAINAGE TABLE)

GENERAL NOTES

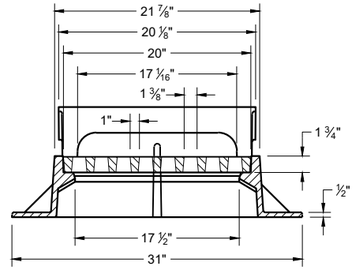
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

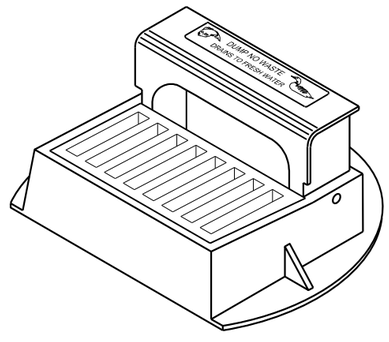
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



TYPE "Z"





INLET COVERS
TYPES A, H, A-S, H-S AND Z

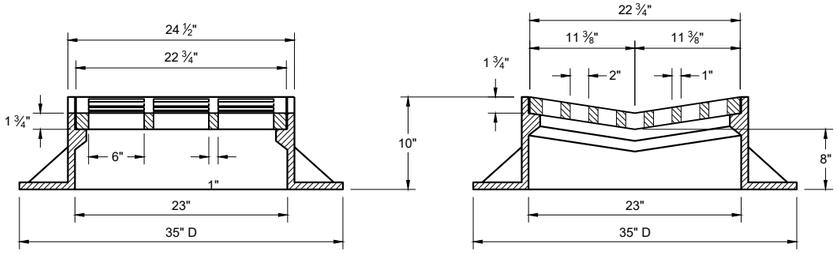
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

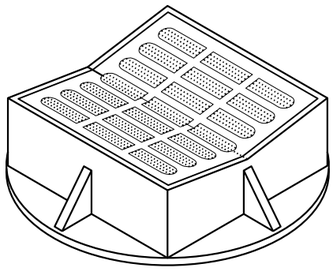
APPROVED
February 2025
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

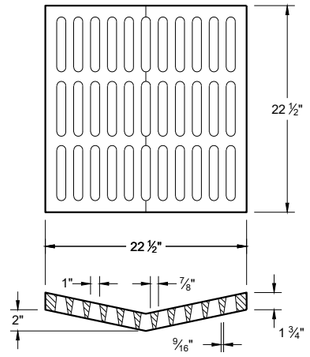
FHWA

6
SDD 08A05-22a





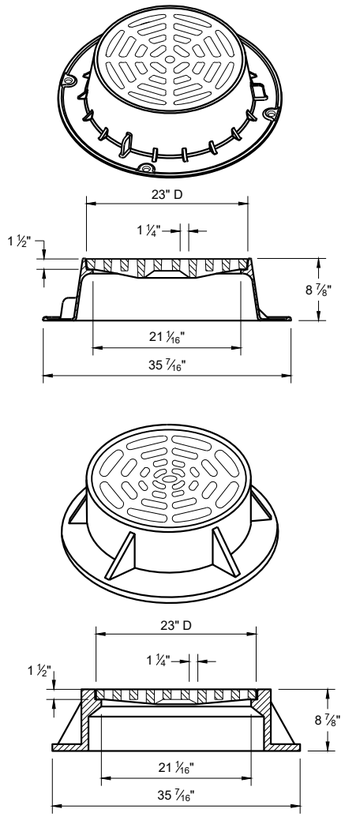
TYPE "B"



ALTERNATIVE GRATE FOR TYPE "B" COVER

USE WHERE PEDESTRIAN OF BICYCLE TRAFFIC IS POSSIBLE

NOTED AS TYPE B - A ON THE DRAINAGE TABLE



TYPE "C"

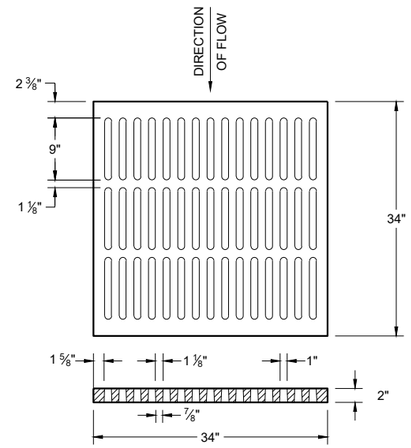
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

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

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

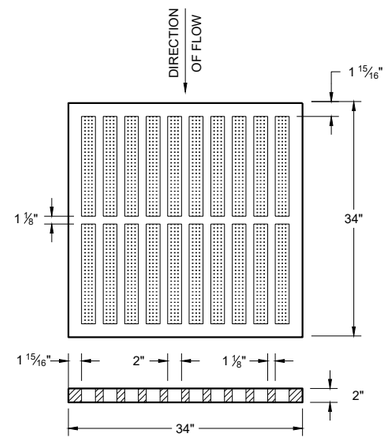
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



ALTERNATIVE TYPE "MS"

USE WHERE PEDESTRIAN OF BICYCLE TRAFFIC IS PERMITTED

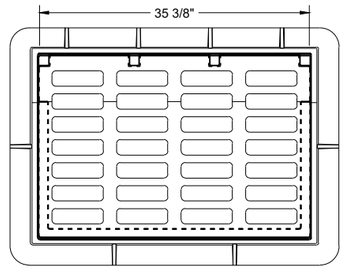
NOTED AS TYPE MS-A ON THE DRAINAGE TABLE

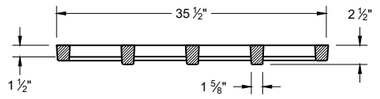


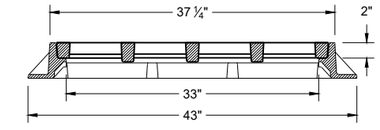
TYPE "MS"

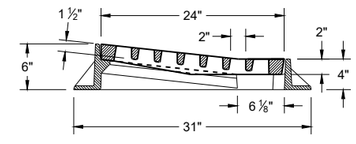
USE ON FREEWAYS AND EXPRESSWAYS

NOTED AS TYPE MS ON THE DRAINAGE TABLE



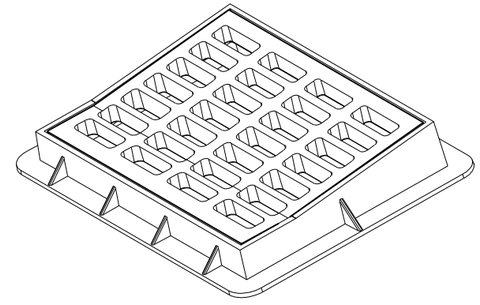


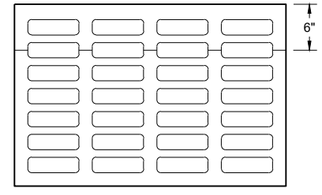


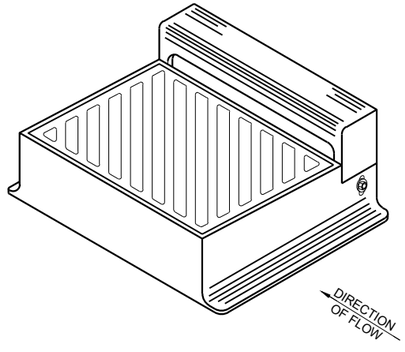


TYPE "DW"

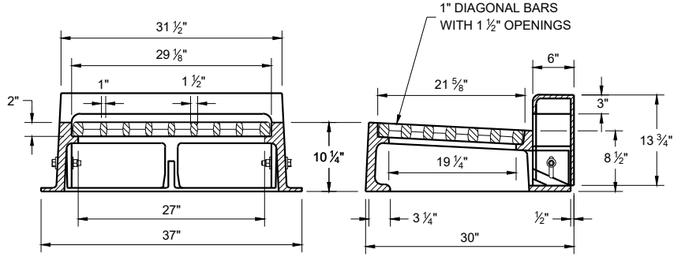
NOTES: FOR USE IN A SUMP CONDITION. THIS OPTION IS ONLY TO BE USED IF NO OTHER INLETS ARE APPLICABLE.







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



TYPE "WM"

NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"

INLET COVERS
TYPES B, B-A, C,
MS, MS-A ,DW AND WM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

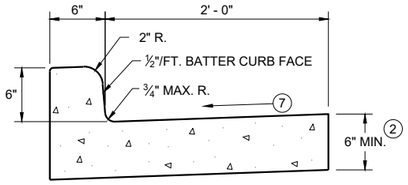
APPROVED
February 2025 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

FHWA

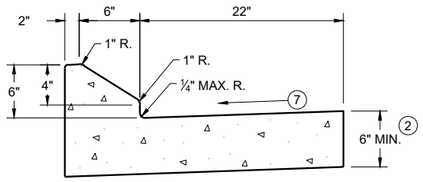
6

SDD 08A05-22b

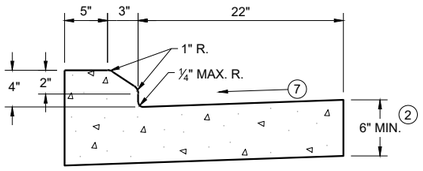
SDD 08A05-22b



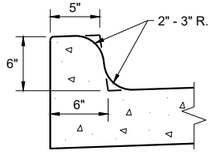
TYPES A (1) & D



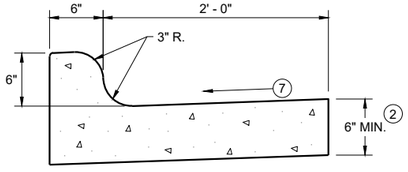
6" SLOPED CURB TYPES G (1) & J



4" SLOPED CURB TYPES G (1) & J

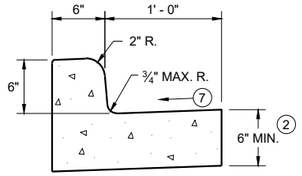


TYPES K (1) & L
(OPTIONAL CURB SHAPE)



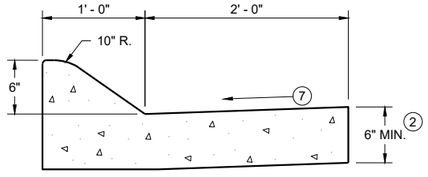
TYPES K (1) & L

CONCRETE CURB AND GUTTER 30"

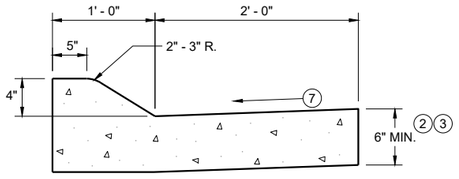


TYPES A (1) & D

CONCRETE CURB AND GUTTER 18"

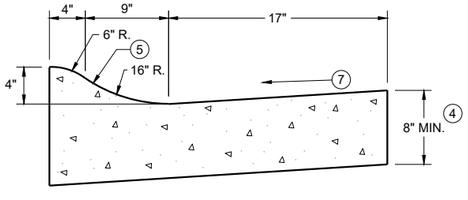


6" SLOPED CURB TYPES A (1) & D



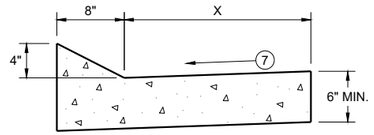
4" SLOPED CURB TYPES A (1) & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R (1) & T
CONCRETE CURB AND GUTTER 30"

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

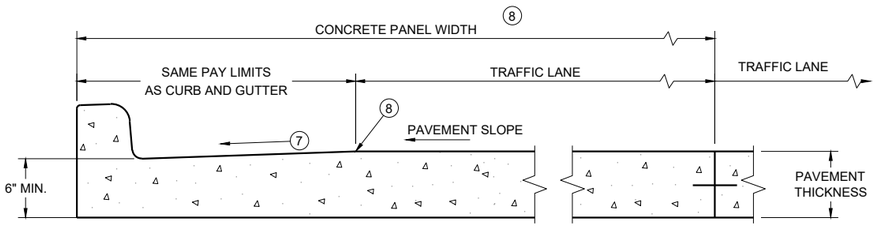


TYPES TBT & TBTT (1)

CONCRETE CURB AND GUTTER

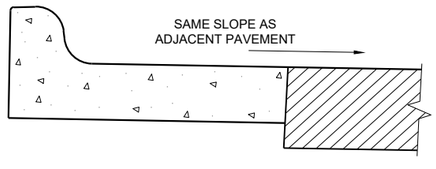
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

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



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB AND GUTTER *

* BIKE LANE IS NOT SHOWN



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

GENERAL NOTES

DETAILS OF CONSTRUCTION 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 AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.

(2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

(3) USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.

(4) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

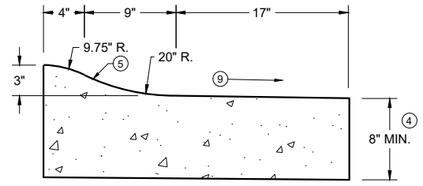
(5) UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

(6) WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.

(7) USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.

(8) INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.

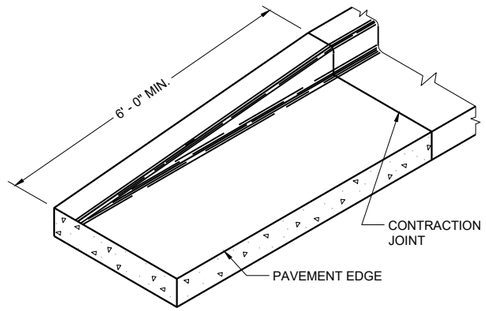
(9) SLOPE TO BE REVERSE SLOPE MATCHING THE SLOPE OF THE PAVEMENT AND THE CIRCULATORY ROADWAY



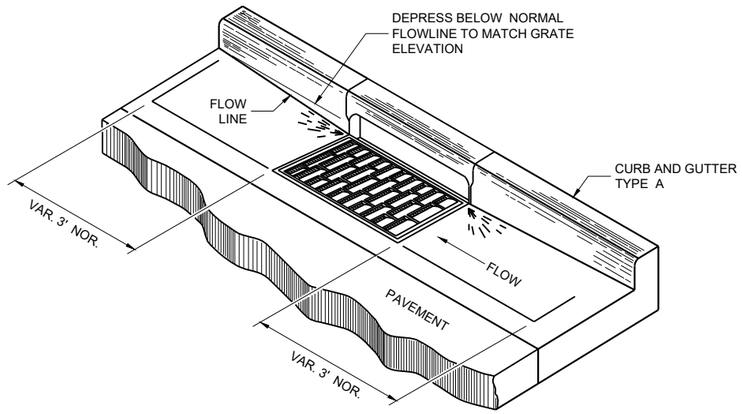
3" SLOPED CURB TYPES R (1) & T

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



END SECTION CURB AND GUTTER



DETAIL OF CURB AND GUTTER AT INLETS

(TYPICAL H INLET COVER SHOWN)

GENERAL NOTES

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

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

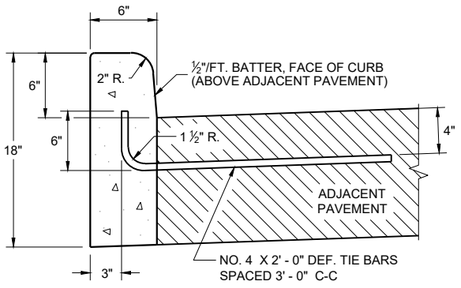
UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2' - 0" BEHIND THE BACK OF CURBS.

(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.

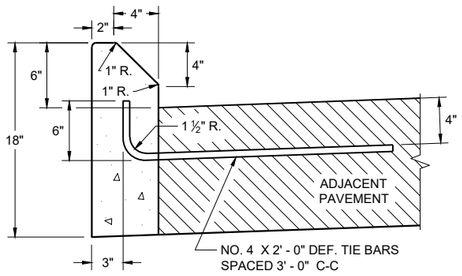
(2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

(10) REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.

(11) PLACE 1" THICK EXPANSION JOINT MATERIAL BETWEEN VERTICAL FACE CURB TYPES EXTENDING FROM THE TOP OF CURB TO 1 INCH BELOW THE ADJOINING CONCRETE SURFACE. RIGID CONCRETE STRUCTURES INCLUDE RAISED CONCRETE MEDIANS, CONCRETE SAFETY ISLANDS, SPLITTER ISLANDS, OR LOCATIONS IDENTIFIED ON THE PLANS.

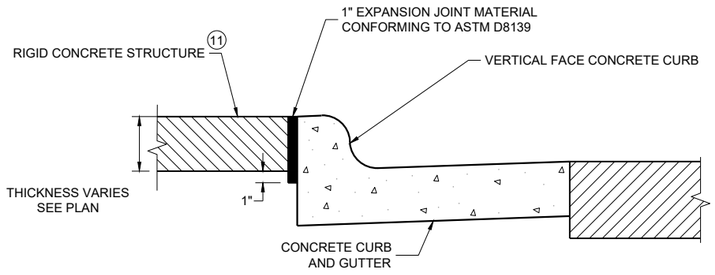


TYPES A (1) & D

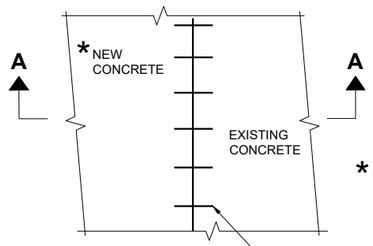


TYPES G (1) & J

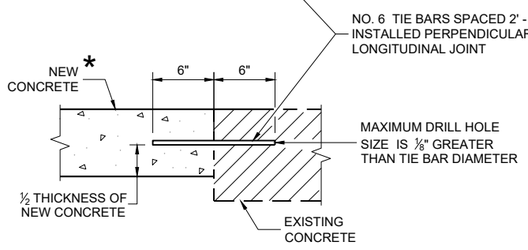
CONCRETE CURB



EXPANSION JOINT DETAIL FOR VERTICAL CURB ABUTTING A RIGID STRUCTURE (11)

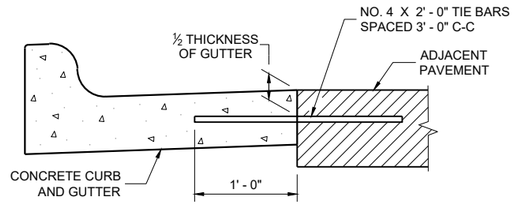


PLAN VIEW

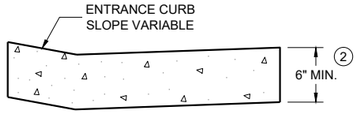


SECTION A - A

TIE BARS DRILLED INTO EXISTING PAVEMENT



TYPICAL TIE BAR LOCATION (1)



DRIVEWAY ENTRANCE CURB (10)

(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 — DATE
/S/ Rodnery Taylor — ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

FHWA

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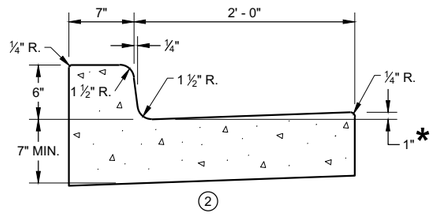
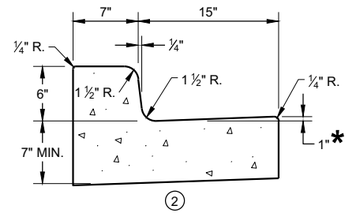
SDD 08D01-24b

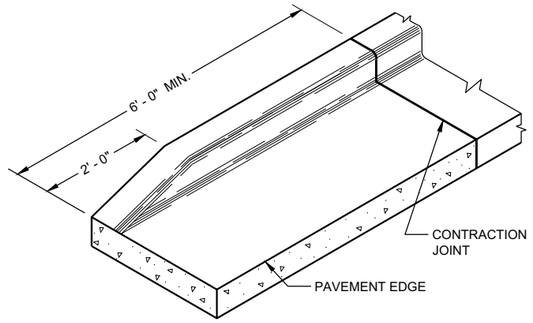


CONCRETE CURB AND GUTTER 31" ①

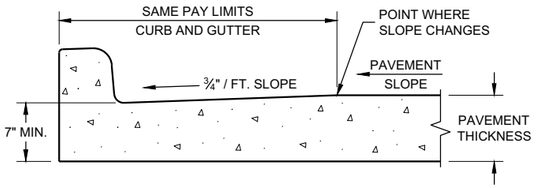
*TO BE MEASURED TO A MAXIMUM OF 3" WHERE DRAINAGE PROBLEMS EXIST.



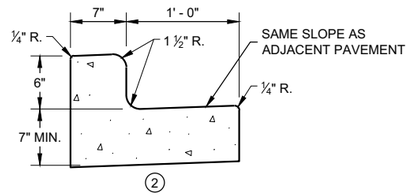
CONCRETE CURB AND GUTTER 22" ①



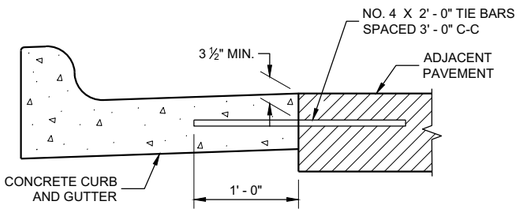
END SECTIONCURB AND GUTTER



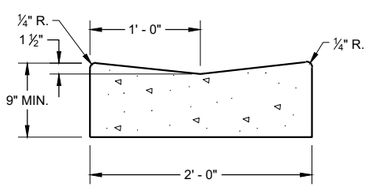
PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB AND GUTTER



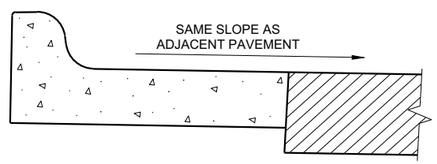
CONCRETE CURB AND GUTTER 19" ①



TYPICAL TIE BAR LOCATION ①



CONCRETE GUTTER 24" ①



HIGH SIDE SECTION ③

(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

DETAILS OF CONSTRUCTION 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.

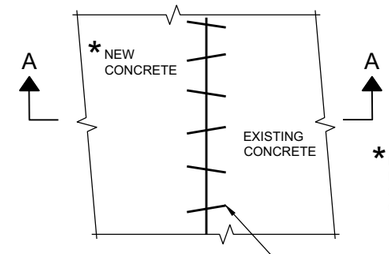
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

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

① WHEN PLACED ADJACENT TO NEW CONCRETE, TIE BARS ARE REQUITED FOR CURB AND GUTTER 31", 22", 19" AND CONCRETE GUTTER 24".

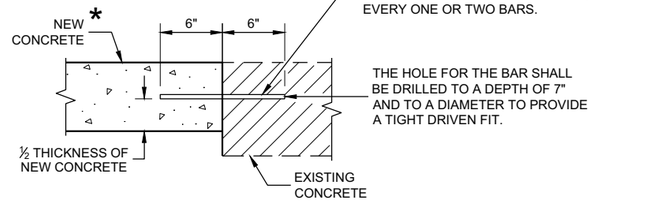
② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE COURSE PROVIDED A 7" MINIMUM GUTTER THICKNESS IS MAINTAINED.

③ WHEN HIGH SIDE CURB SECTION IS REQUIRED, THE LOCATION(S) WILL BE NOTED ON THE PLANS



*EXISTING AND NEW CONCRETE MAY BE CURB AND GUTTER, SURFACE DRAINS, PAVEMENT OR OTHER CONCRETE STRUCTURE.

PLAN VIEW



SECTION A - A

PAVEMENT TIES

CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES

(For Optional use in Milwaukee Co. Only)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVE ENGINEER

FHWA

SDD 08D16 - 11

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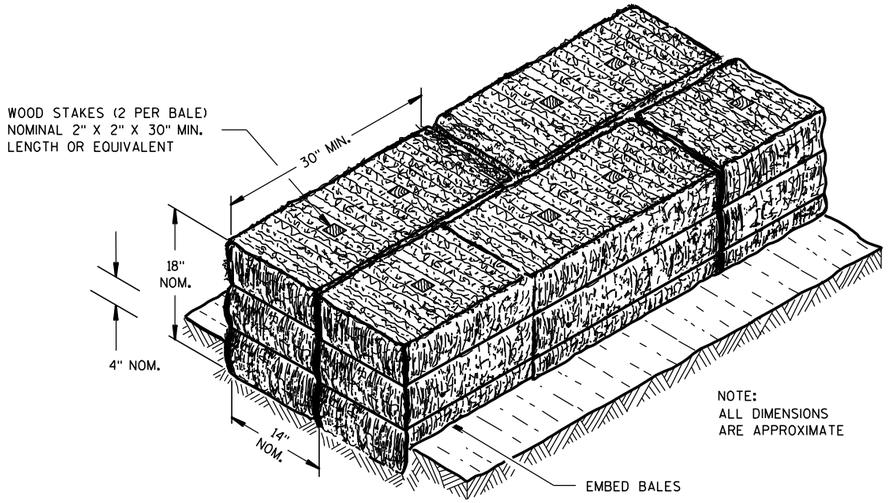
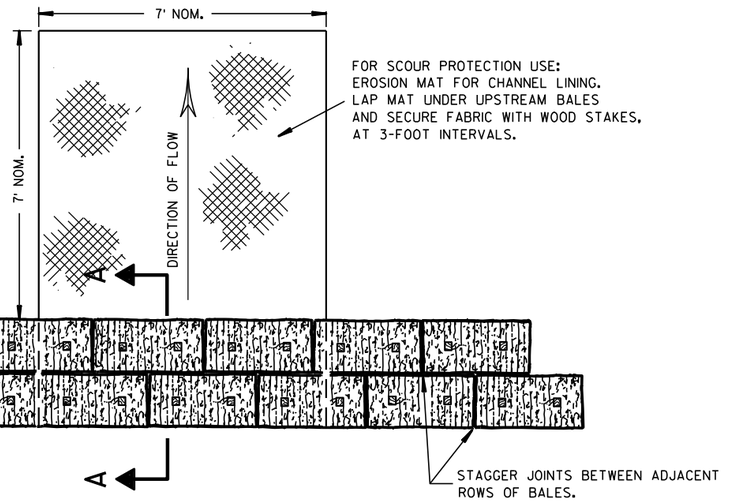
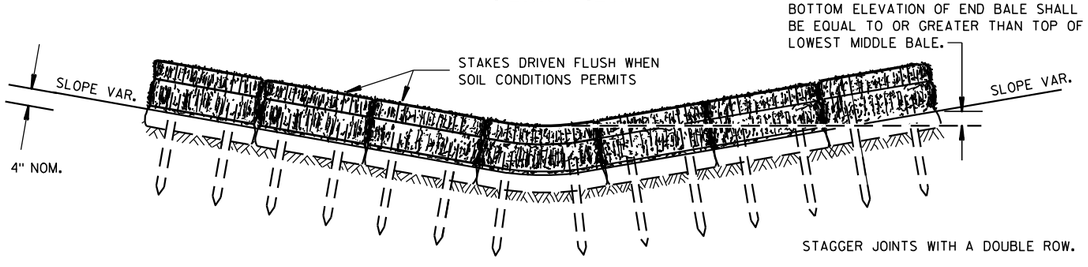
SDD 08D16 - 11



SECTION A-A



PLAN VIEW



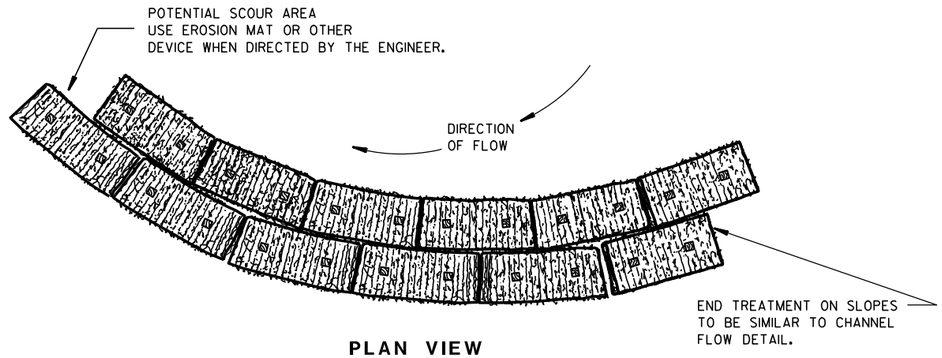
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

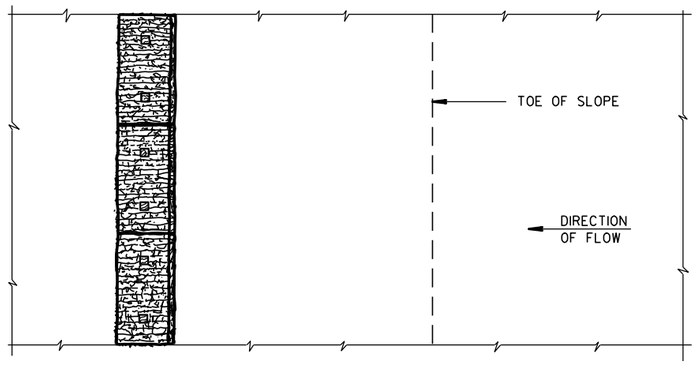
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

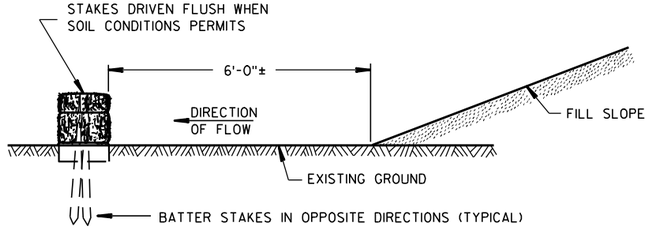


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

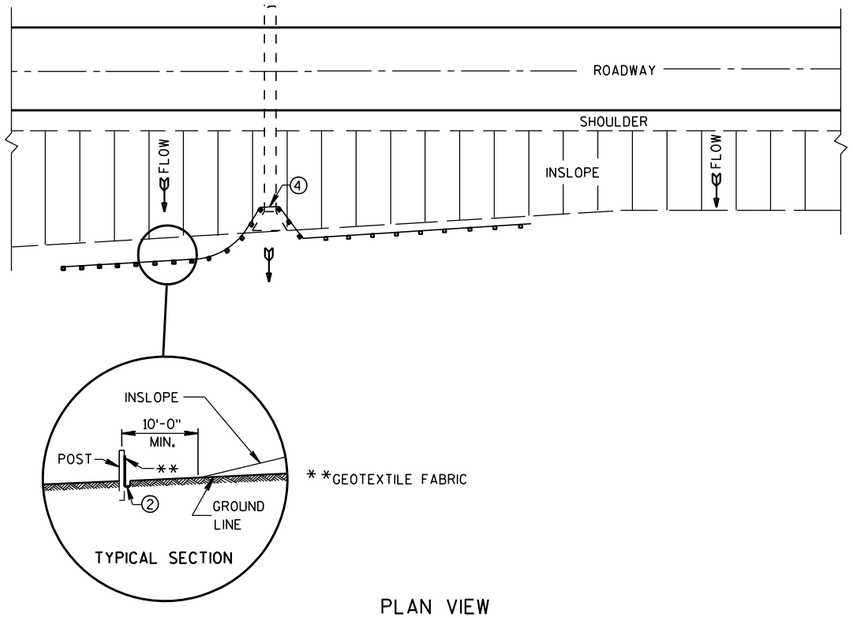
APPROVED

6/04/02 — DATE

/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

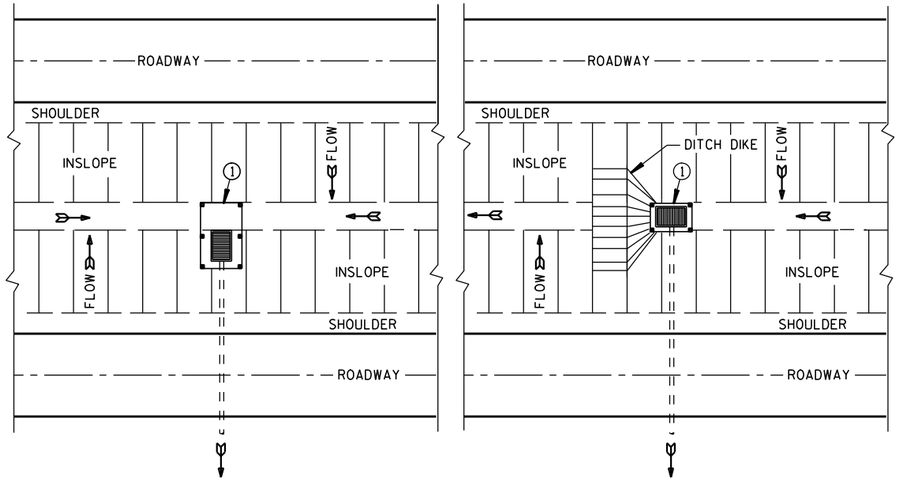
FHWA

6
S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



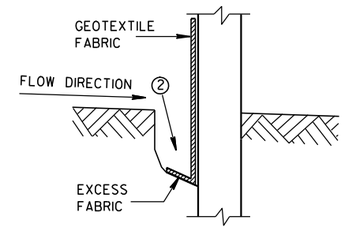
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

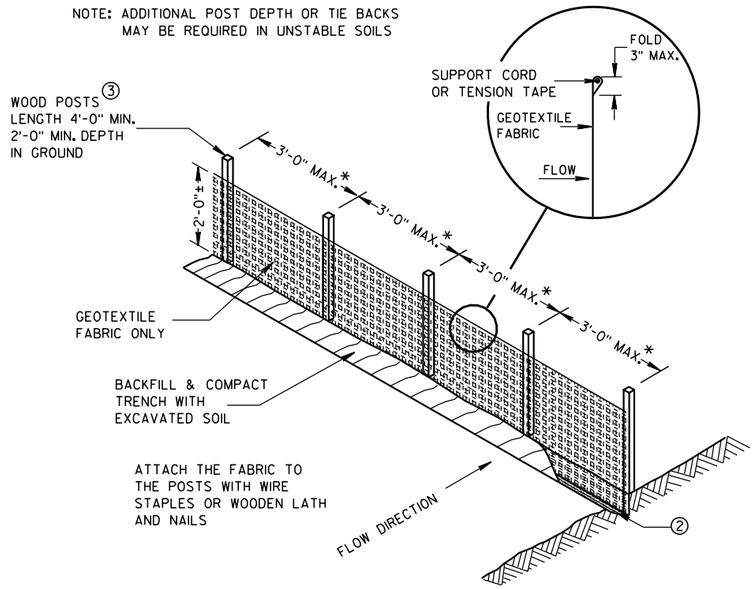
GENERAL NOTES

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

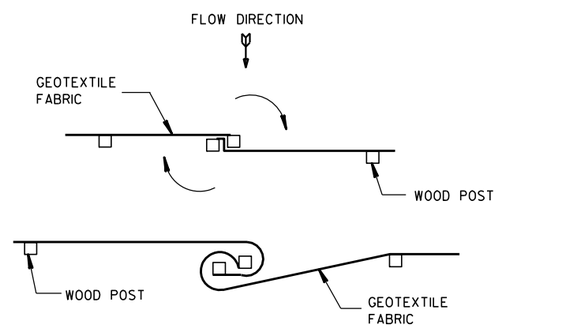
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



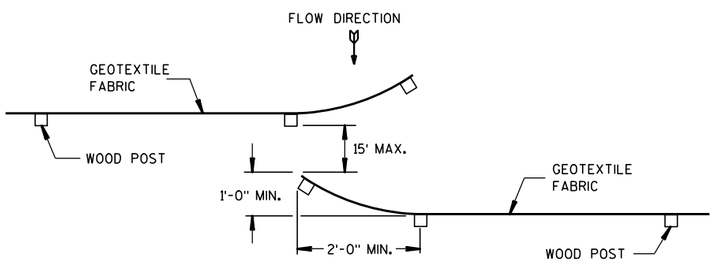
TRENCH DETAIL



SILT FENCE

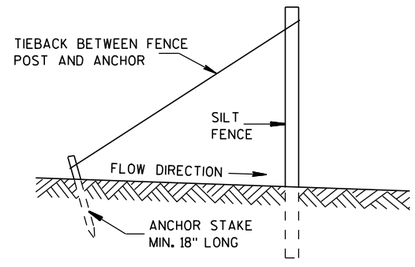


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

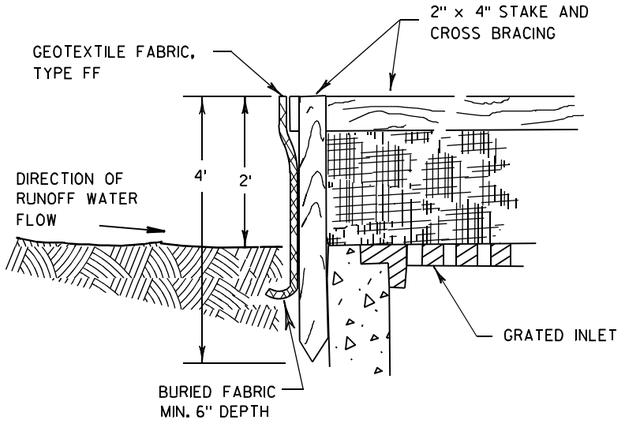
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

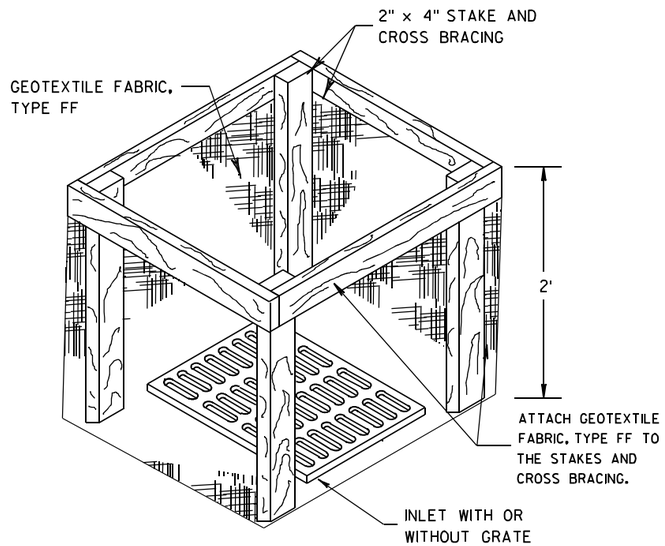
6

S.D.D. 8 E 9-6

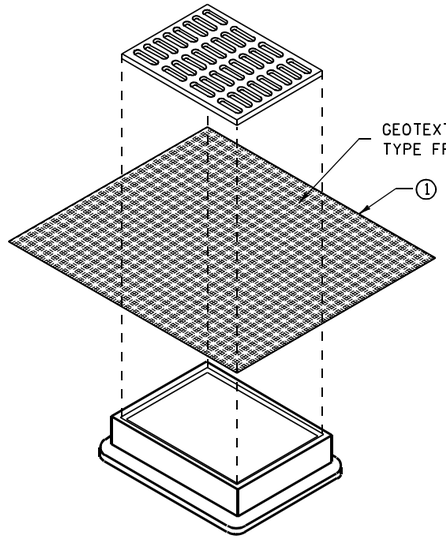
6

S.D.D. 8 E 9-6



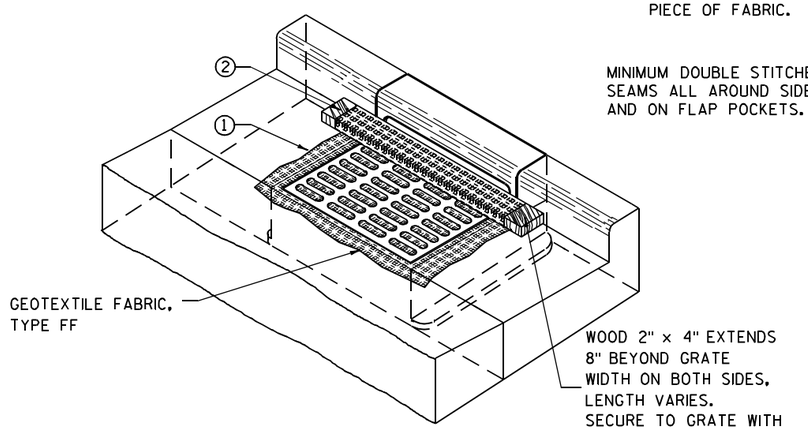


INLET PROTECTION, TYPE A

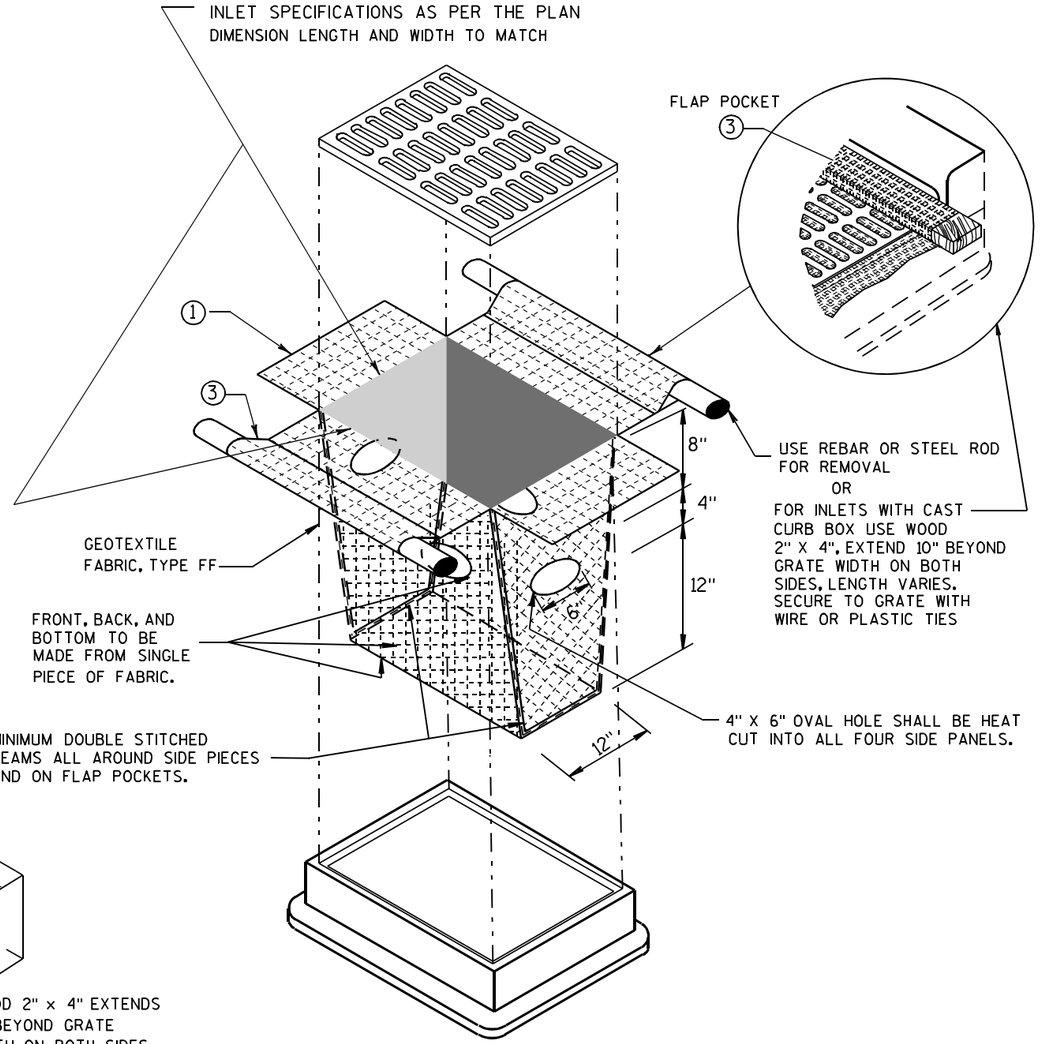


INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D

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

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.

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 A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/16/02
DATE

/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

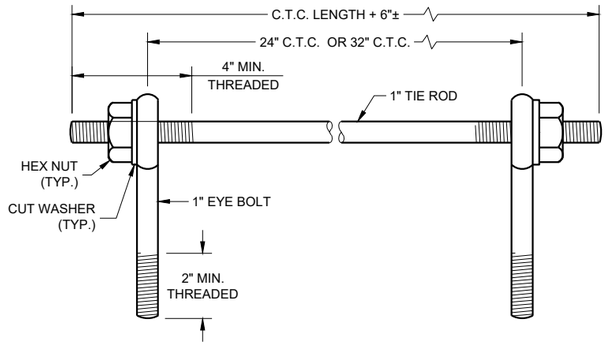
FHWA

6

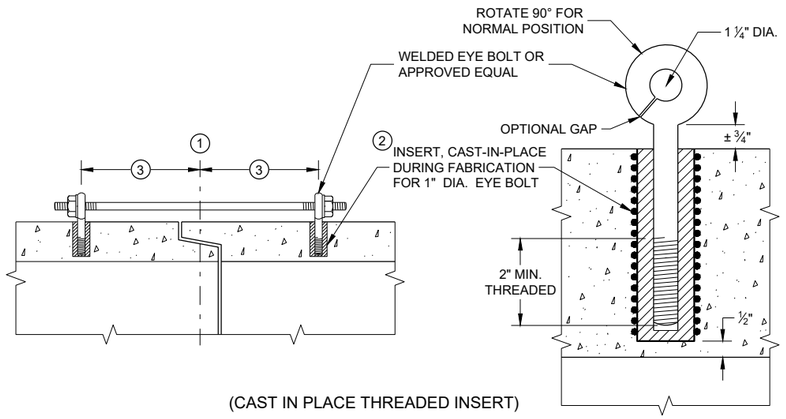
S.D.D. 8 E 10-2

6

S.D.D. 8 E 10-2



EYE BOLTS AND TIE ROD



(CAST IN PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)

GENERAL NOTES

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

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

(1) CENTER LINE OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.

(2) THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

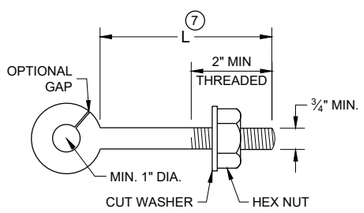
(3) HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.

(4) BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

(5) OPENING TO BE ROD DIAMETER PLUS 1 INCH.

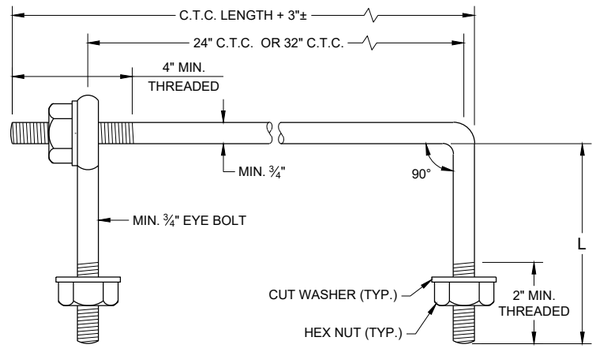
(6) LENGTH ADEQUATE TO EXTEND TO WITHIN ½ INCH OF THE INNER SURFACE OF THE PIPE.

(7) EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.

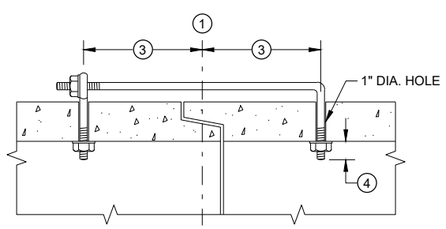


EYE BOLT (7)

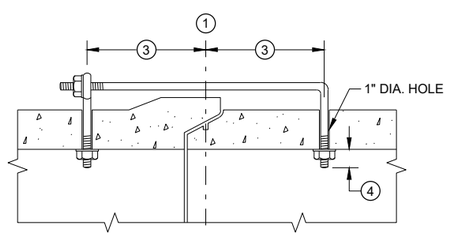
NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" OR 38" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD



(TONGUE AND GROOVE PIPE)



(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

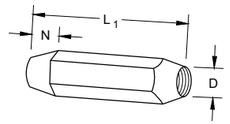
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12 - 60	⅝	⅝	5	½
66 - 84	¾	¾	5	½
90 - 144	1	1	7	1 7/16

DIMENSIONS SHOWN ARE IN INCHES



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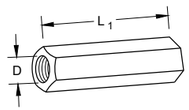
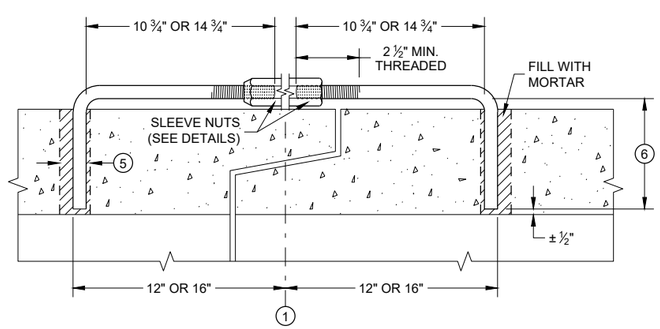


PLAIN

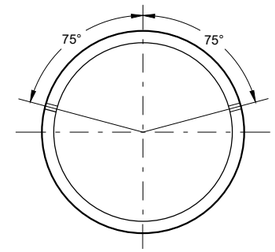
RIGHT AND LEFT THREADS

SLEEVE NUTS



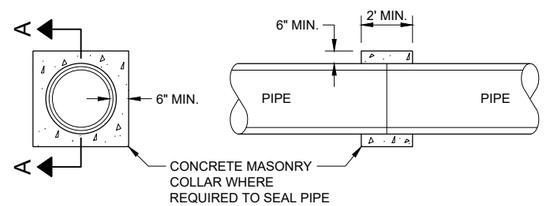
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



SECTION A - A

CONCRETE COLLAR DETAIL

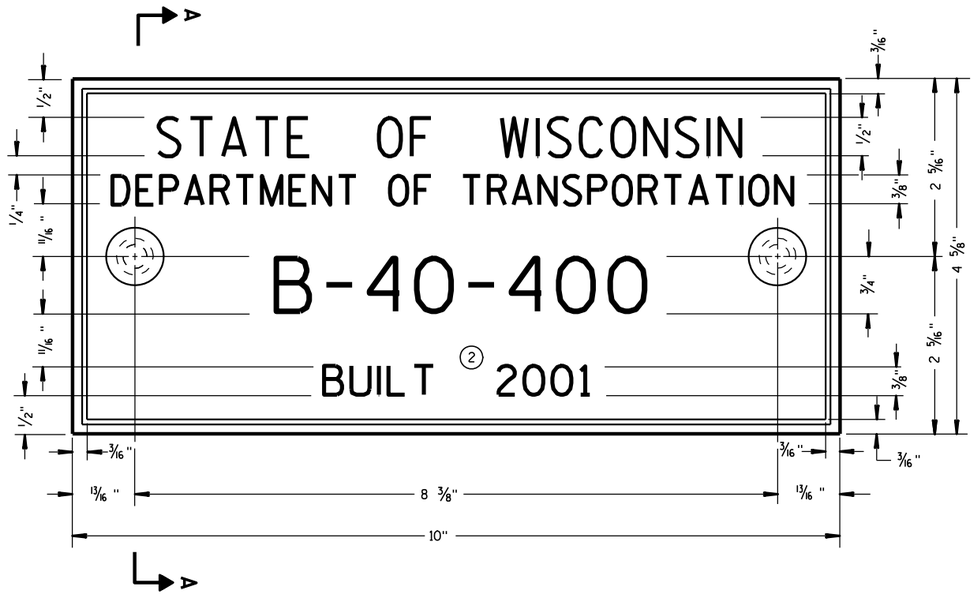
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE ENGINEER
FHWA

SDD 08F04 - 08

SDD 08F04 - 08



TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

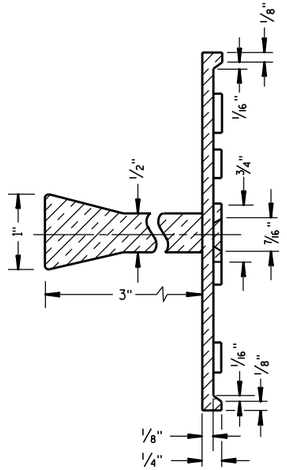
GENERAL NOTES

NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

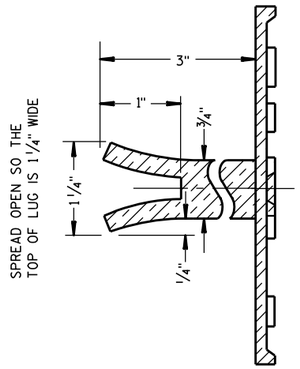
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

(1) EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG

FOR MULTI-UNIT STRUCTURES LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

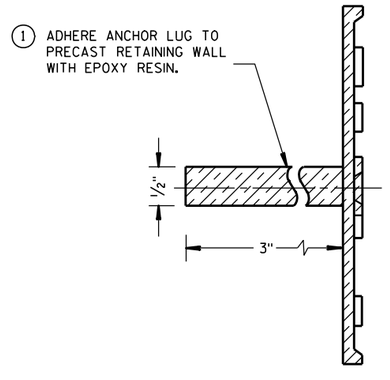
COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

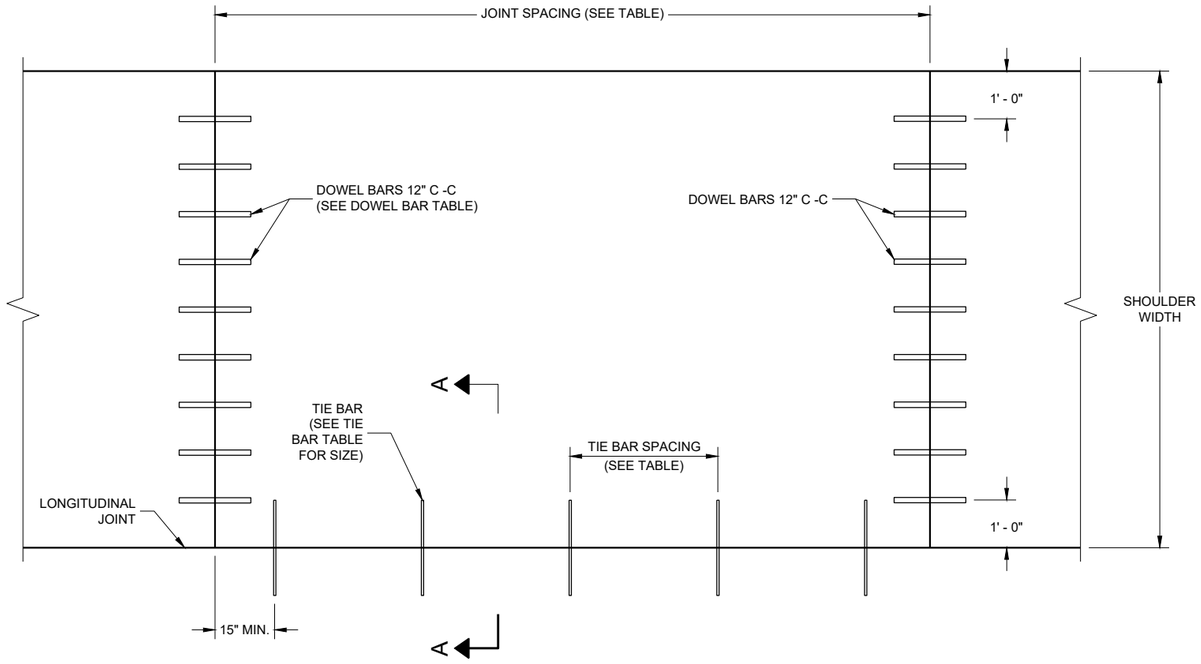
3/26/10 DATE

/S/ Scot Beck-- CHIEF STRUCTURAL DEVELOPMENT ENGINEER

FHWA

6

S.D.D. 12 A 3-10



PLAN VIEW

CONCRETE PAVEMENT SHOULDER

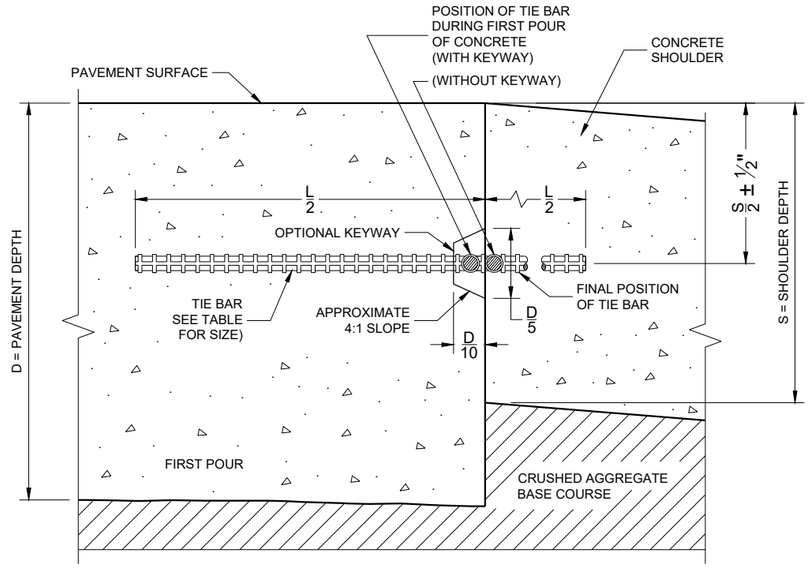
GENERAL NOTES

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

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

FINISH THE SHOULDER PAVEMENT CONFORMING TO SUBSECTION 415.3.8 OF THE STANDARD SPECIFICATIONS.

TIE BARS SHALL CONFORM TO SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.



SECTION A - A

LONGITUDINAL CONSTRUCTION JOINT

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
<10 ½"	NO. 4	30"	36"
>10 ½"	NO. 5	36"	36"
	NO. 4*	30"	24"**

* SUBSTITUTE BENT BATS 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.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER ***	CONTRACTION JOINT SPACING
6", 6 ½"	NONE	12"
7", 7 ½"	1"	14"
8" & ABOVE	1 ¼"	15"

*** FOR DOWELED CONCRETE SHOULDERS WITH TRAPEZOIDAL CROSS SECTIONS, CHOSE THE APPROPRIATE DOWEL BAR DIAMETER BASED ON THE SMALLER PAVEMENT DEPTH (LIKELY THE OUTSIDE EDGE OF THE SHOULDER). IF USING BASKETS, USE BASKETS FRO THE AVERAGE THICKNESS OF THE CROSS SECTION.

CONCRETE PAVEMENT SHOULDERS

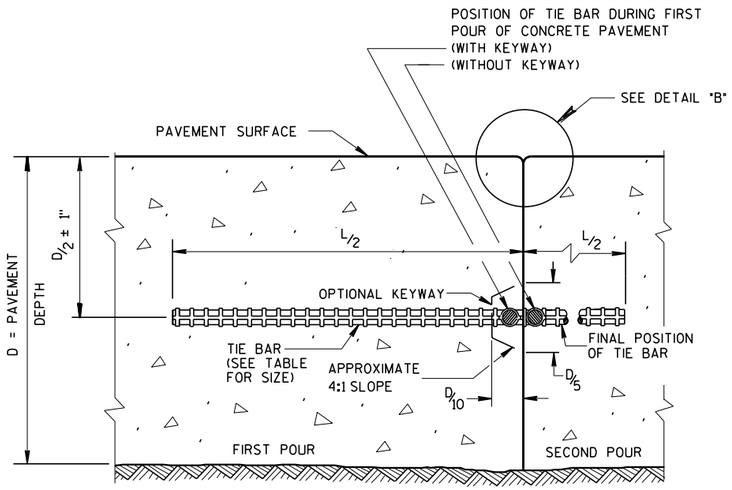
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022 — DATE
/S/ Peter Kemp — PAVEMENT SUPERVIS

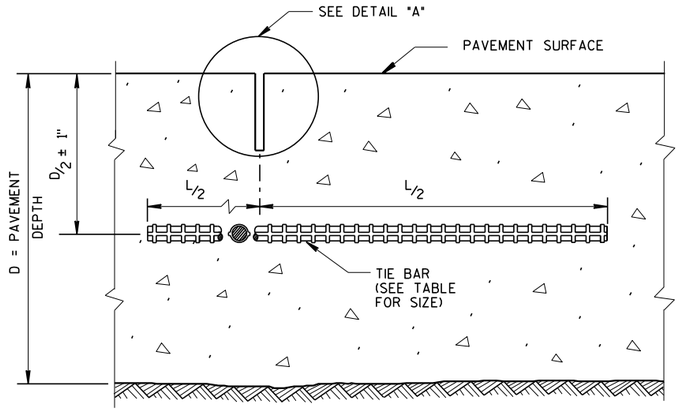
FHWA

6

SDD 13A03 - 07



CONSTRUCTION JOINT



SAWED JOINT

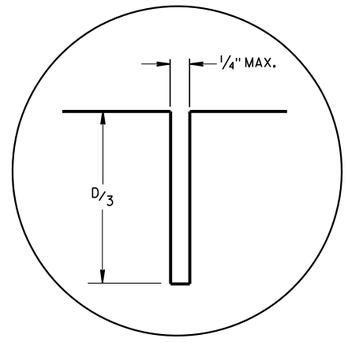
GENERAL NOTES

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

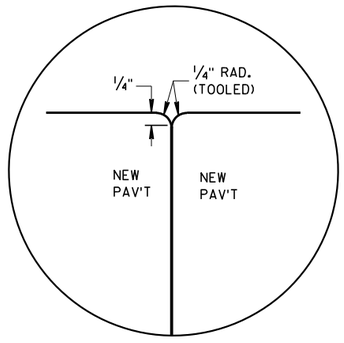
CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

(1) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

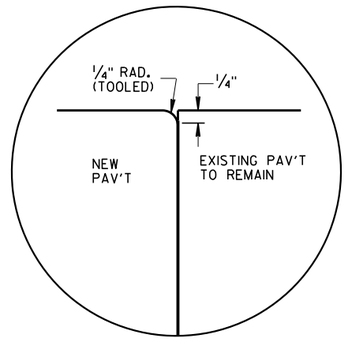
(2) PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.



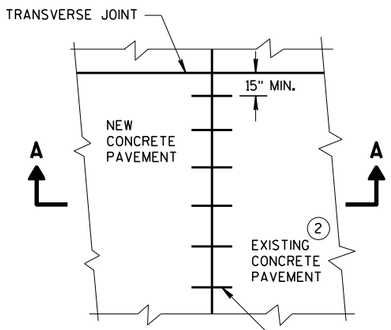
DETAIL "A"



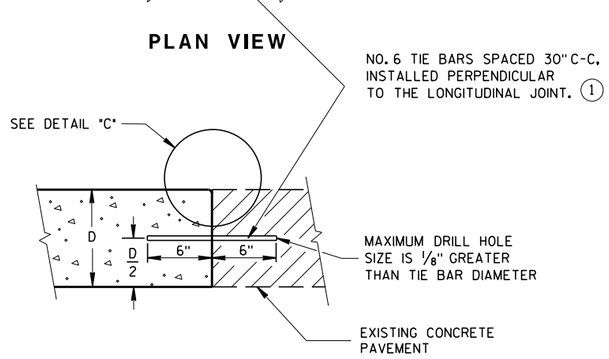
DETAIL "B"



DETAIL "C"



PLAN VIEW



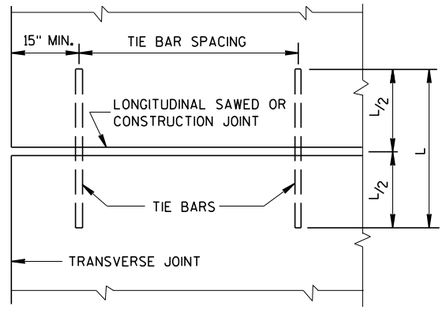
SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT TIE BARS ANCHORED INTO EXISTING PAVEMENT

TIE BAR TABLE

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

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

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



PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 — DATE
/S/ Peter Kemp — PAVEMENT SUPE
FHWA

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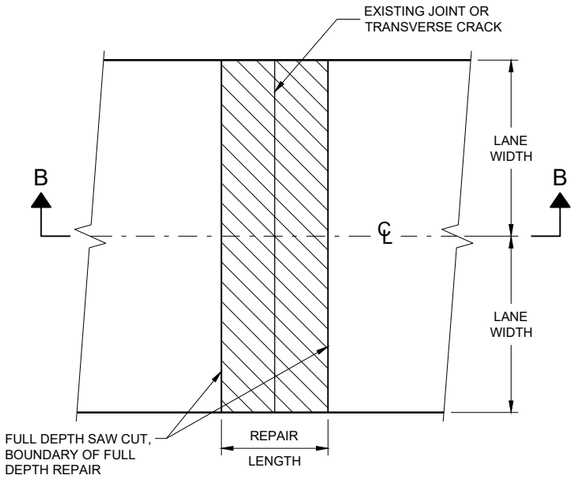
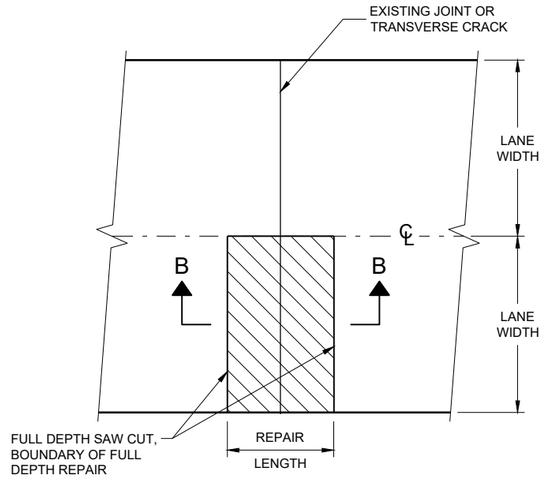
S.D.D. 13 C 1-19



PLAN VIEW
(DOUBLE LANE REPAIR)



PLAN VIEW
(SINGLE LANE REPAIR)

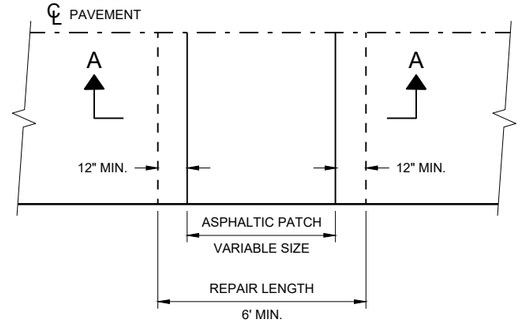
GENERAL NOTES

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

PROVIDE A 6 FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREA TO ADJACENT TRANSVERSE JOINT OR CRACK.

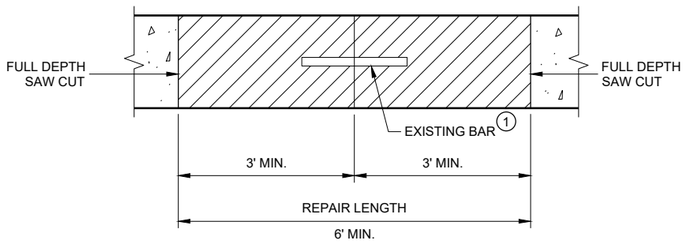
THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NON-DOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

(1) DOWEL BARS MAY NOT BE PRESENT.

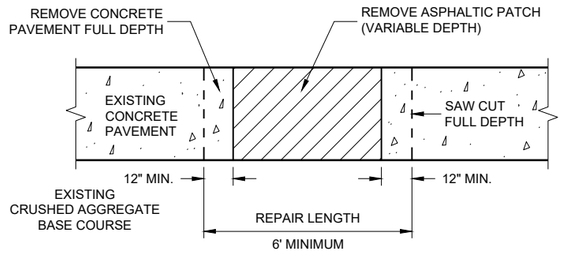


PLAN VIEW

FULL DEPTH CONCRETE PAVEMENT REMOVAL



SECTION B - B
CONCRETE REMOVAL



SECTION A - A

HMA PATCH REMOVAL

CONCRETE PAVEMENT
REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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SDD 13C09 - 17a

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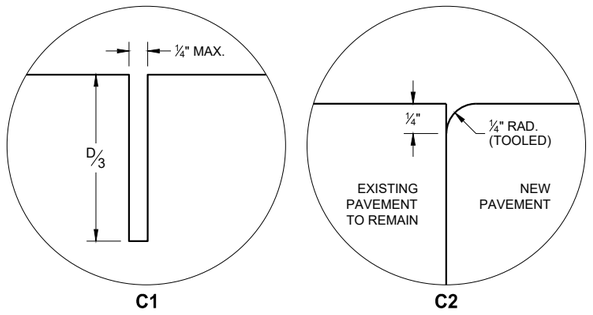
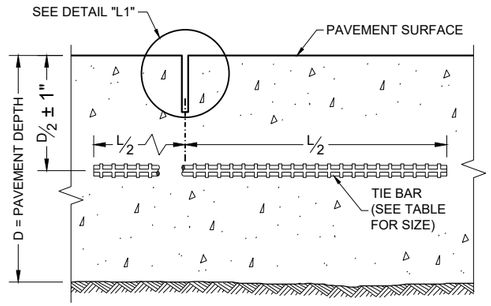
SDD13C09 - 17a

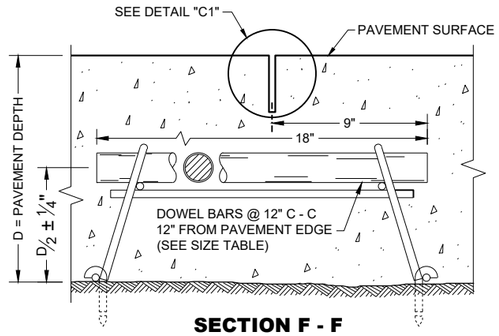


TRANSVERSE JOINTS



SECTION C - C

SAWED LONGITUDINAL JOINT



SECTION F - F

DOWELED CONTRACTION JOINT

GENERAL NOTES

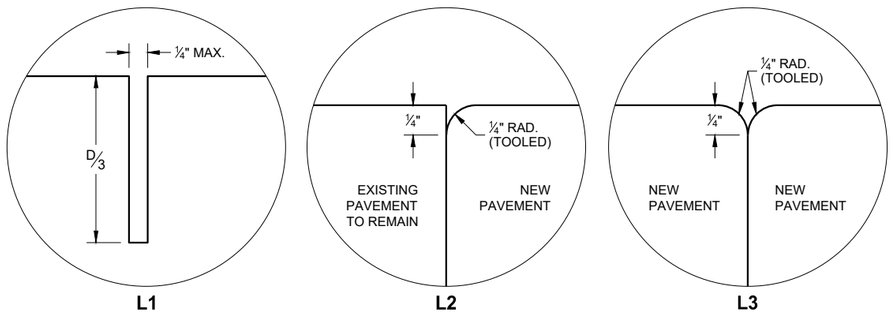
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

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

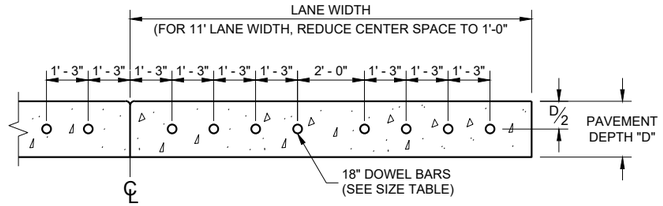
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

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

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

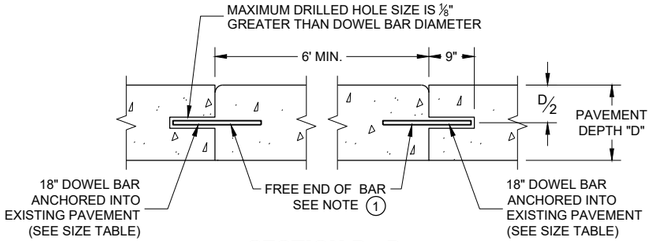


LONGITUDINAL JOINTS



SECTION E - E

DRILLED DOWEL BAR CONSTRUCTION JOINT



SECTION D - D

TIE BAR TABLE

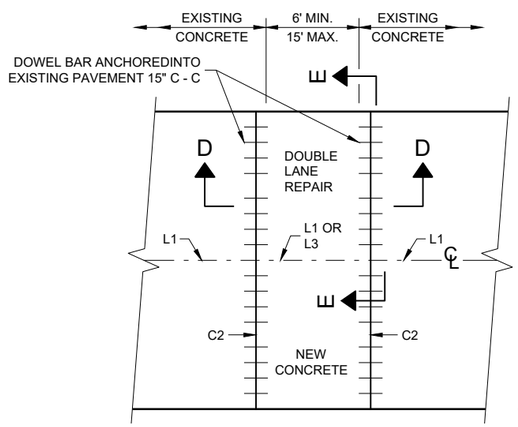
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 ½"	NO. 4	30"	36"
≥ 10 ½"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

* 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.

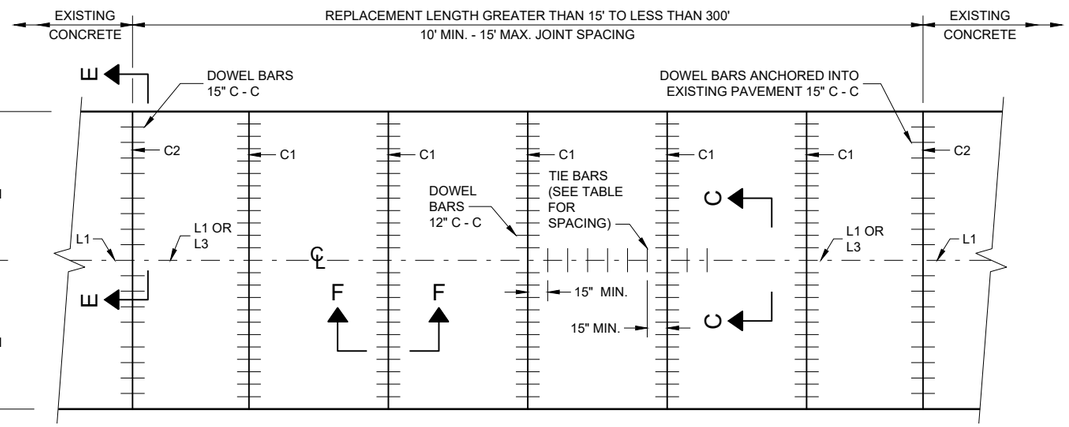
PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	DRILLED DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
6", 6 ½"	NONE	NONE	12'
7", 7 ½"	1"	1"	14'
8" & ABOVE	1 ¼"	1 ¼"	15'



PLAN VIEW

MULTILANE CONCRETE PAVEMENT REPAIR



PLAN VIEW

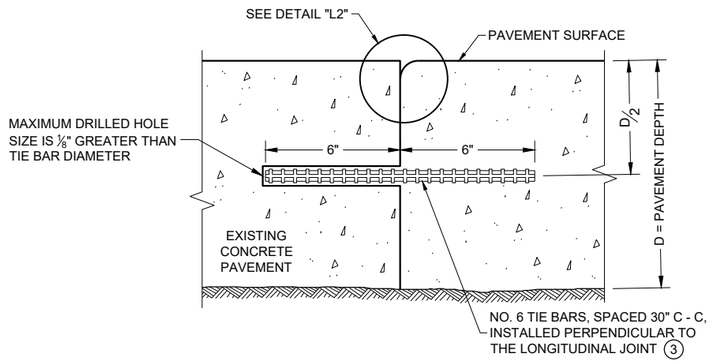
MULTILANE CONCRETE PAVEMENT REPLACEMENT

CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 13C09 - 17b
SDD 13C09 - 17b

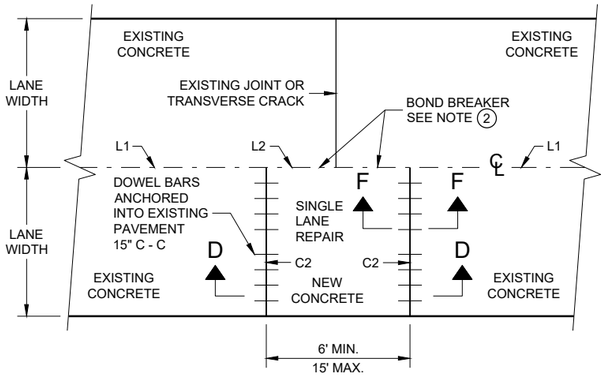


SECTION G - G

TIE BARS ANCHORED INTO EXISTING PAVEMENT

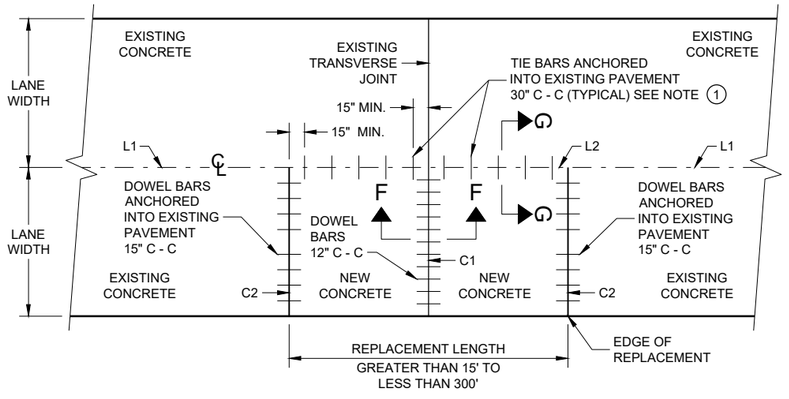
GENERAL NOTES

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



PLAN VIEW

SINGLE LANE CONCRETE PAVEMENT REPAIR



PLAN VIEW

SINGLE LANE CONCRETE PAVEMENT REPLACEMENT

CONCRETE REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022
DATE

/S/ Peter Kemp P.E.
PAVEMENT SUPERVIS

FHWA

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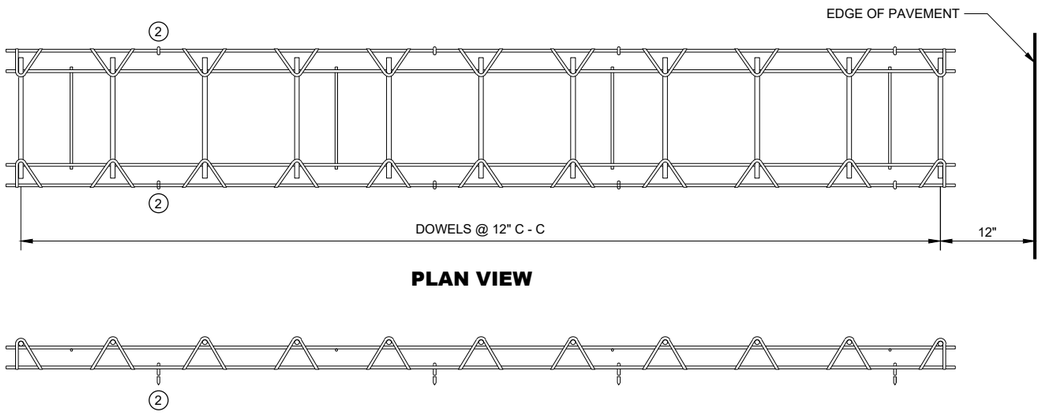
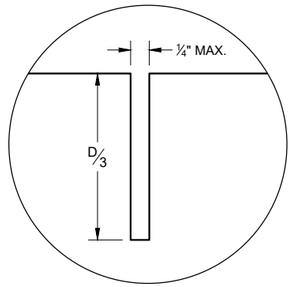
SDD 13C09 - 17c



PLAN VIEW

SIDE VIEW

CONTRACTION JOINT DOWEL ASSEMBLY (1)



JOINT DETAIL

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.

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 FROM AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

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

(1) OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTION CONTRACTION JOINTS.

(2) 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.

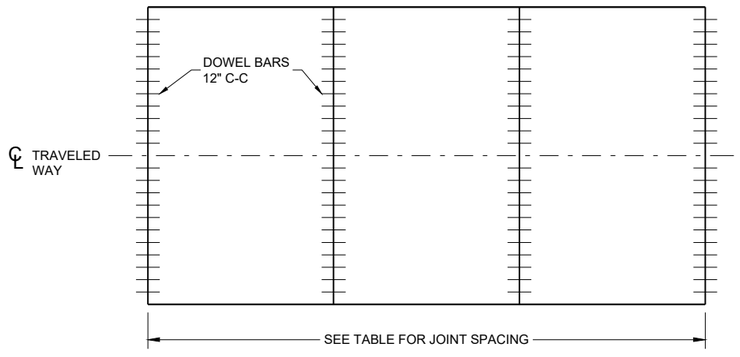
(3) FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A ¼" RADIUS AT FORMED JOINTS.

(4) PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.

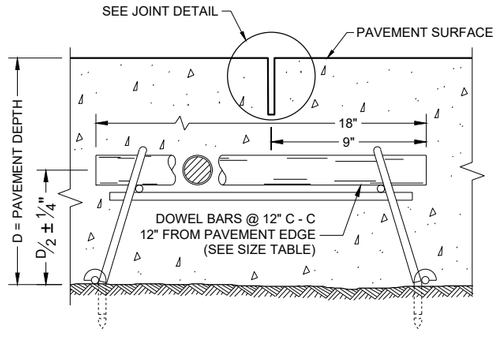
(5) INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C - C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO THE "DRILLED DOWEL BAR CONSTRUCTION JOINT" DETAIL.

(6) APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

(7) ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS ⅛" GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



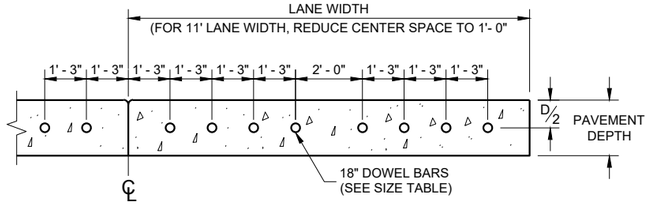
CONTRACTION JOINT LOCATIONS



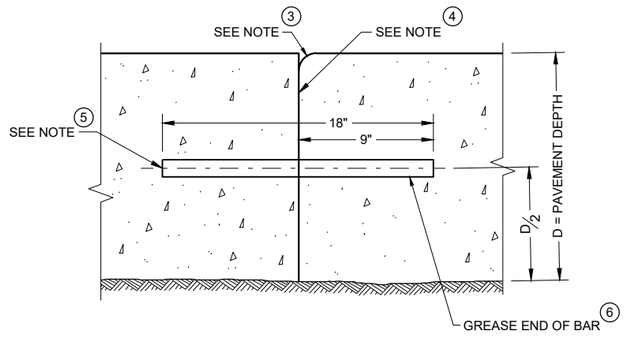
DOWELED CONTRACTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8" & ABOVE	1 ¼"	15'



DRILLED DOWEL BAR CONSTRUCTION JOINT (7)



TRANSVERSE CONSTRUCTION JOINT

URBAN DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022
DATE

/S/ Peter Kemp P.E.
PAVEMENT SUPERVIS

FHWA

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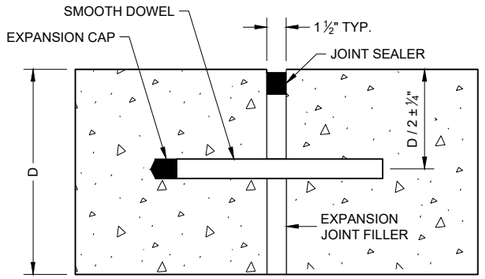
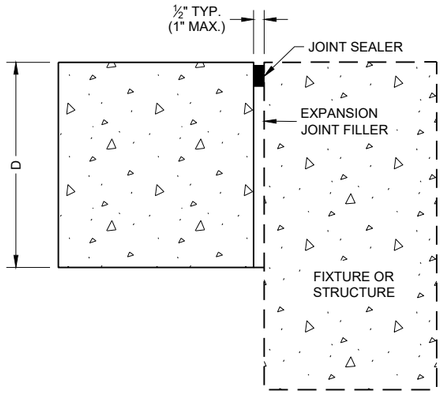
SDD 13C13 - 11



DOWELED TRANSVERSE (1)



UNTIED - LONGITUDINAL

EXPANSION JOINTS

TIE BAR TABLE

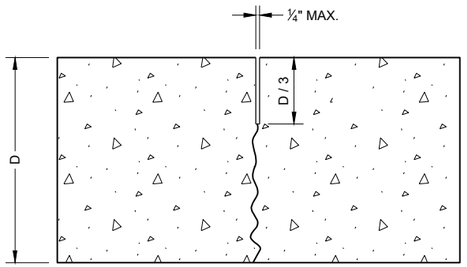
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 ½"	NO. 4	30"	36"
≥ 10 ½"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

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

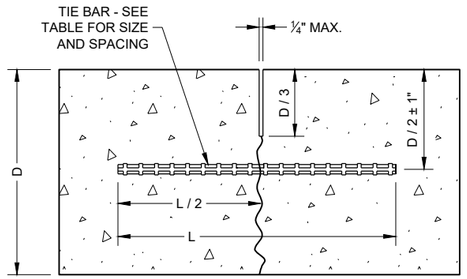
** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

GENERAL NOTES

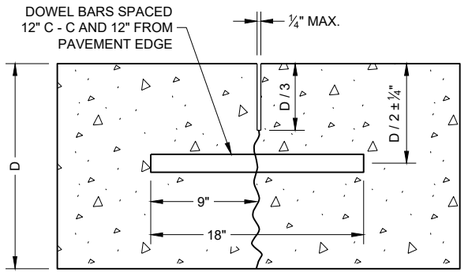
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATETHE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM 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 ¼" RADIUS.
6. ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



UNDOWELED TRANSVERSE

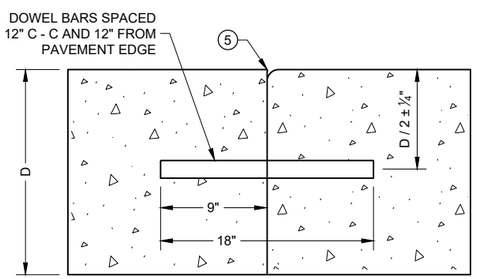


TIED LONGITUDINAL

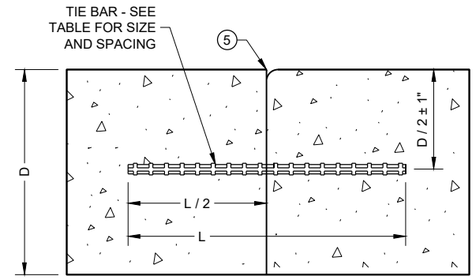


DOWELED TRANSVERSE

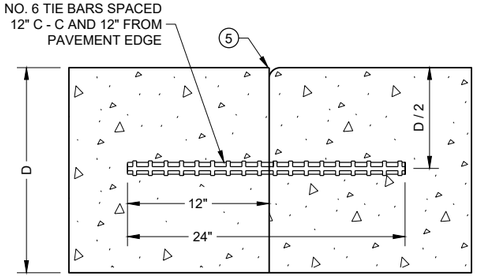
CONTRACTION JOINTS (2)



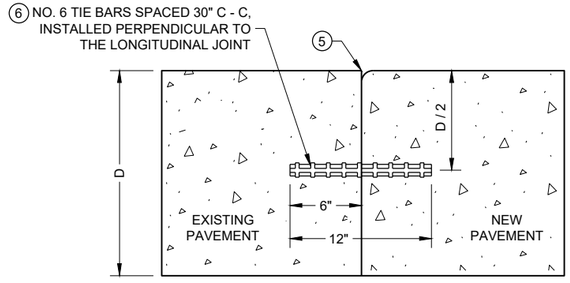
DOWELED TRANSVERSE (3)



TIED LONGITUDINAL



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



TIED LONGITUDINAL TO EXISTING

CONSTRUCTION JOINTS (4)

CONCRETE PAVEMENT JOINT TYPES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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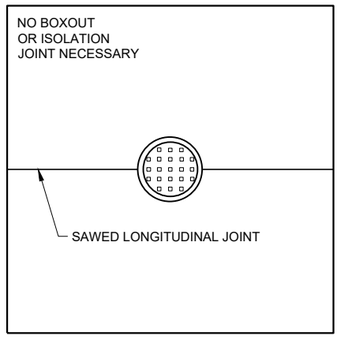
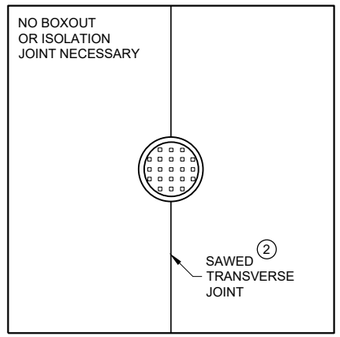
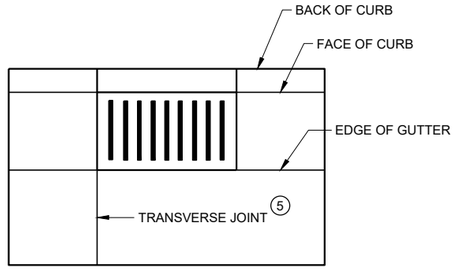
SDD 13C18 - 08c



MANHOLE WITH LONGITUDINAL JOINT



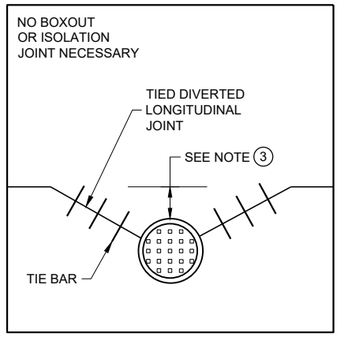
MANHOLE WITH TRANSVERSE JOINT



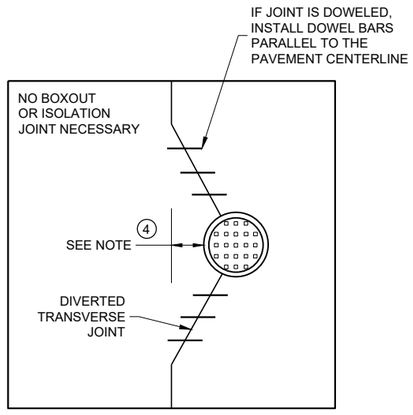
INLET WITH TRANSVERSE JOINT

GENERAL NOTES

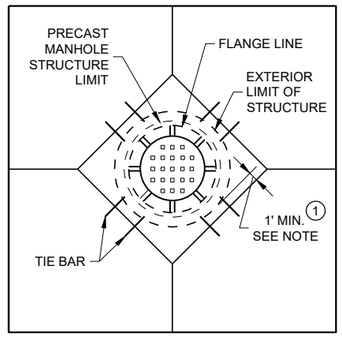
1. USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1 FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.
2. ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.
3. IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF 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 REINFORCEMENT REBAR AROUND THE MANHOLE.
4. IF THE DISTANCE FROM THE EDGE OF THE MANHOLE TO THE NEAREST TRANSVERSE JOINT IS LESS 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 REINFORCEMENT REBAR AROUND THE MANHOLE.
5. ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.



MANHOLE WITH DIVERTED LONGITUDINAL CONTRACTION JOINT



MANHOLE WITH DIVERTED TRANSVERSE CONTRACTION JOINT



DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS

CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE
/S/ Peter Kemp P.E.
PAVEMENT SUPERVISO

FHWA

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SDD13C18 - 08d

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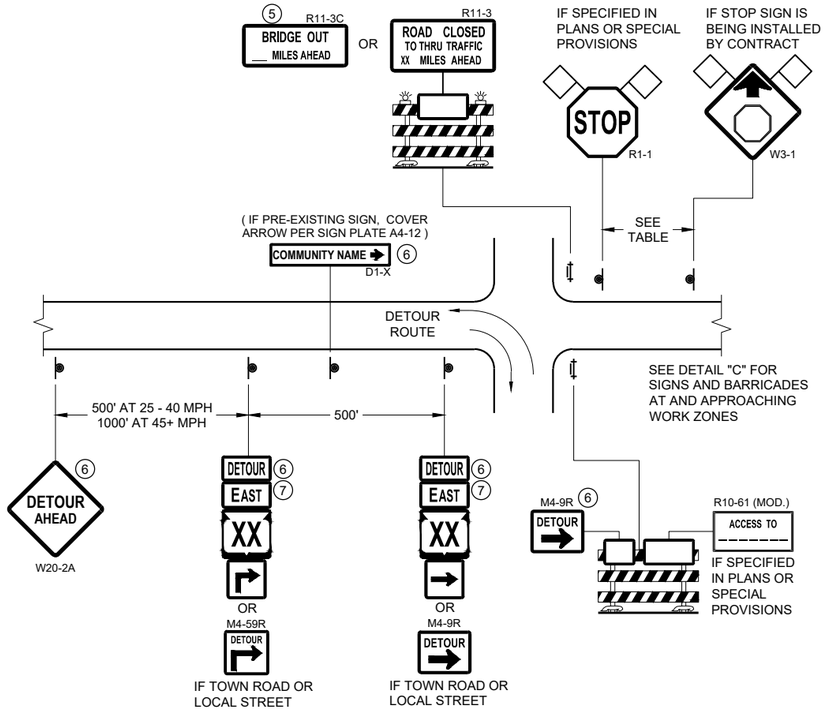
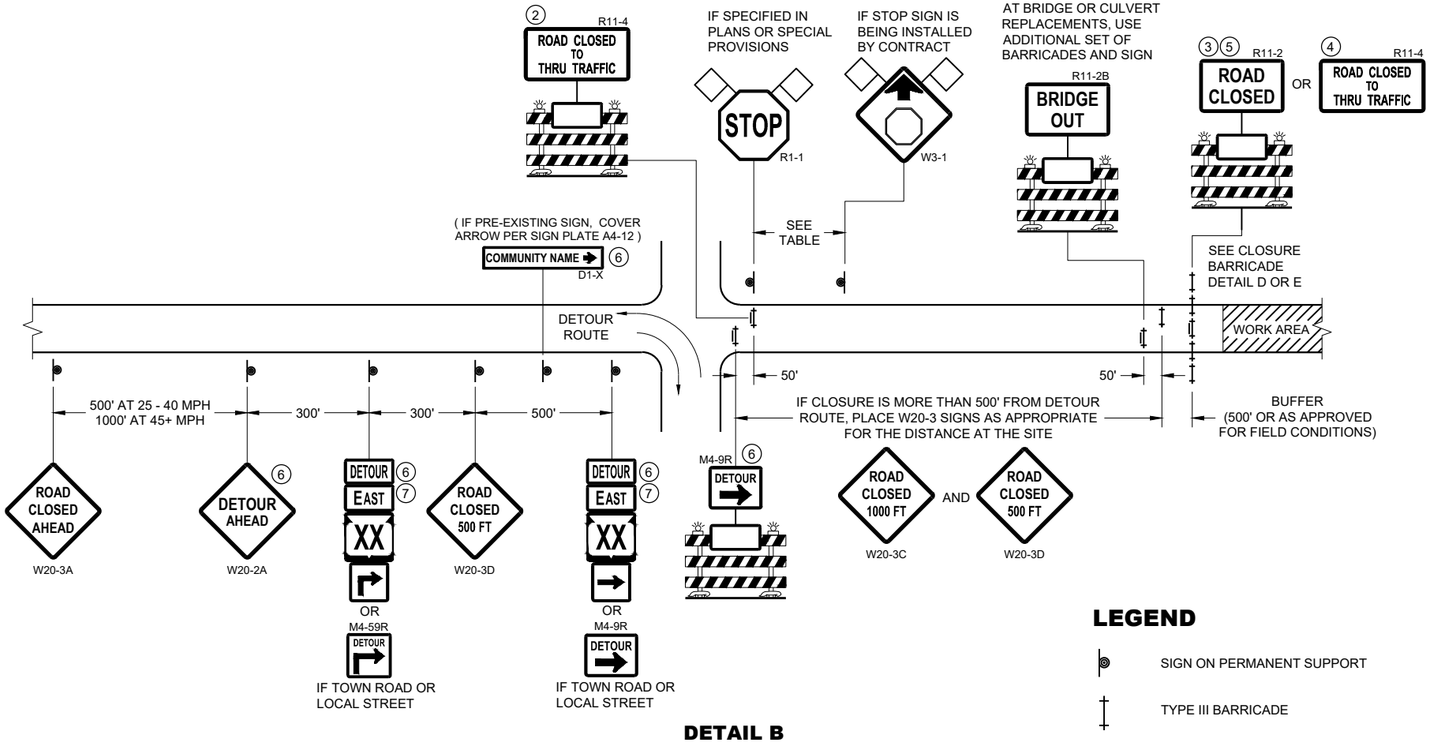
SDD13C18 - 08d



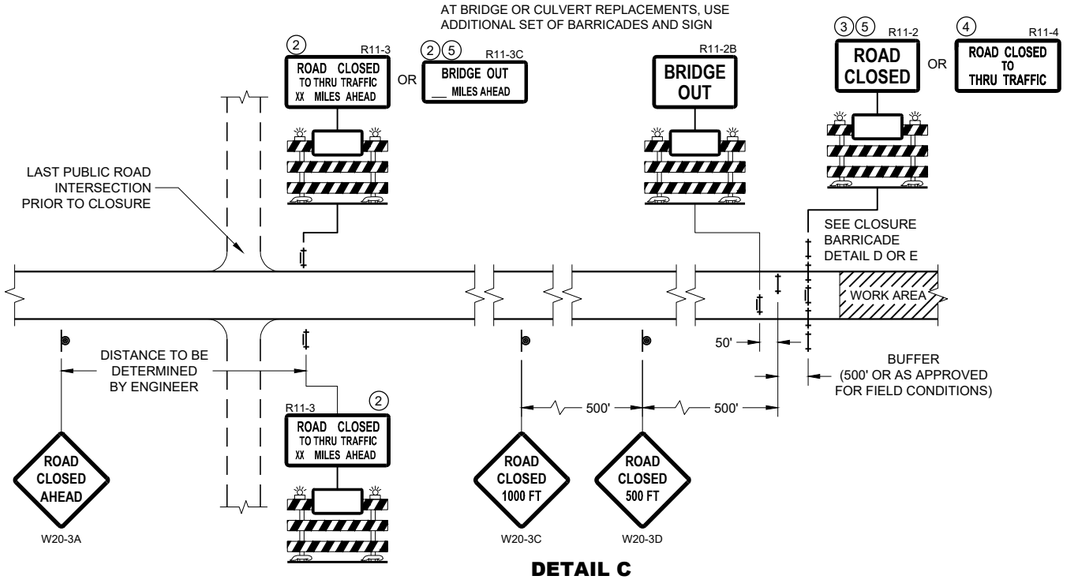
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)

DETOUR M4 - 8
EAST M3 - X
XX M1 - 4 OR XX M1 - 6 OR COUNTY X M1 - 5A
M05 - 1 OR M06 - 1

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE
/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

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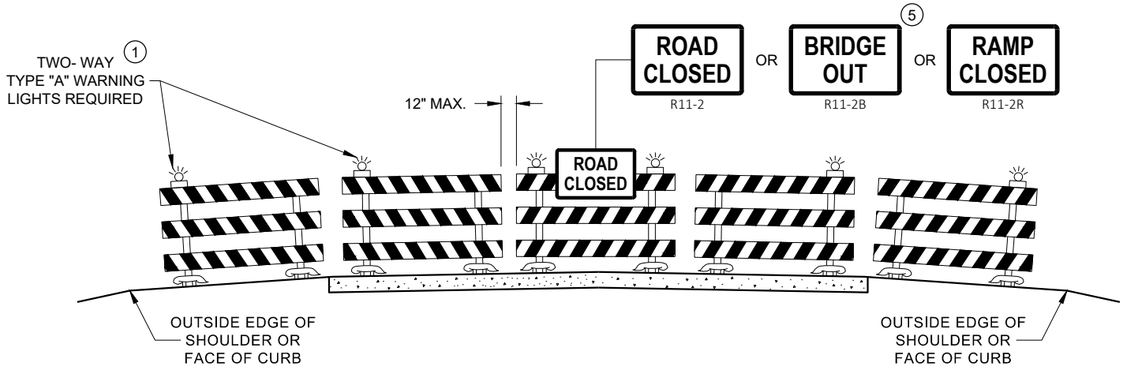
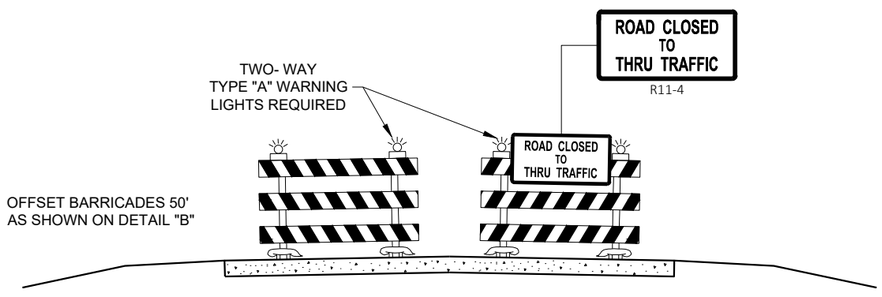
SDD 15C02 - 09a

SDD 15C02 - 09a



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60 " X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1 - 1 SHALL BE 36" X 36"

(1) TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING.

(2) THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.

(3) FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".

(4) FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".

(5) FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.

(6) INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.

(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE
/S/ Andrew Heidtke
WORK ZONE ENGINEE
FHWA

6

SDD 15C02 - 09b

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SDD 15C02 - 09b

THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR / EAST — M4 - 8, M3 - X
- XX — M1 - 4; OR XX — M1 - 6; OR COUNTY X — M1 - 5A
- M05 - 1; OR M06 - 1; OR M06 - 1

GENERAL NOTES

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

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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.

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

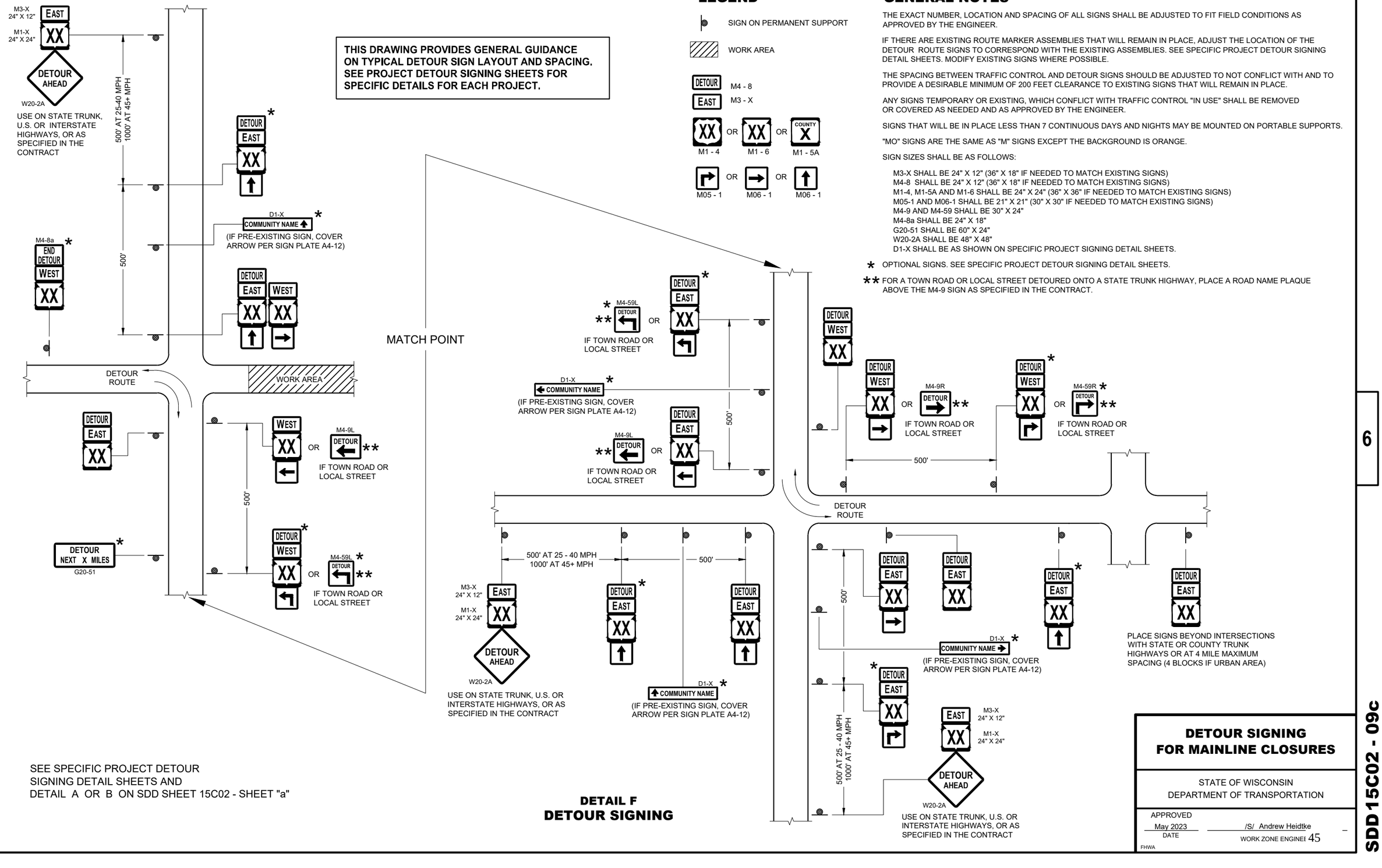
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-59 SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

DETAIL F
DETOUR SIGNING

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

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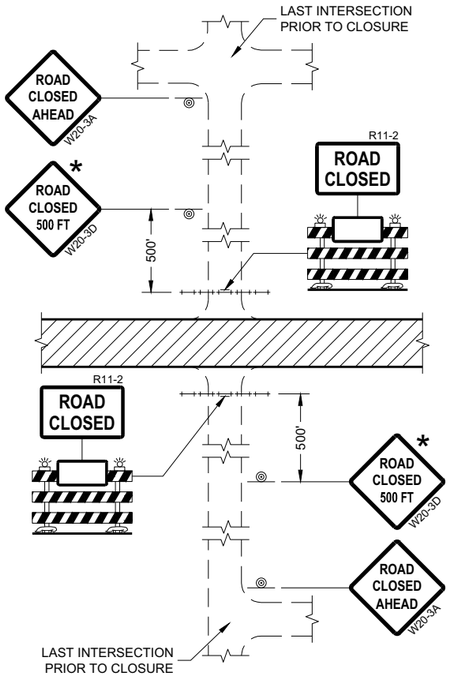
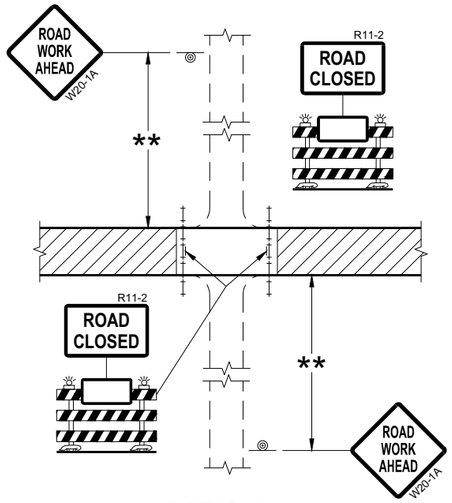
SDD 15C02 - 09c



DETAIL 1
(NO ACCESS TO PROJECT)



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO 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 (500 FEET DESIRABLE) 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 REESTABLISHED.

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

SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN 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.

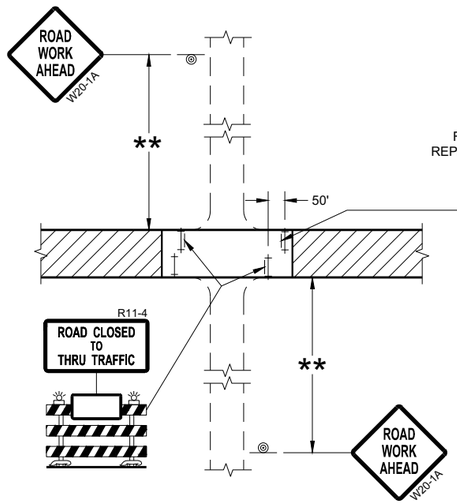
TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

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.

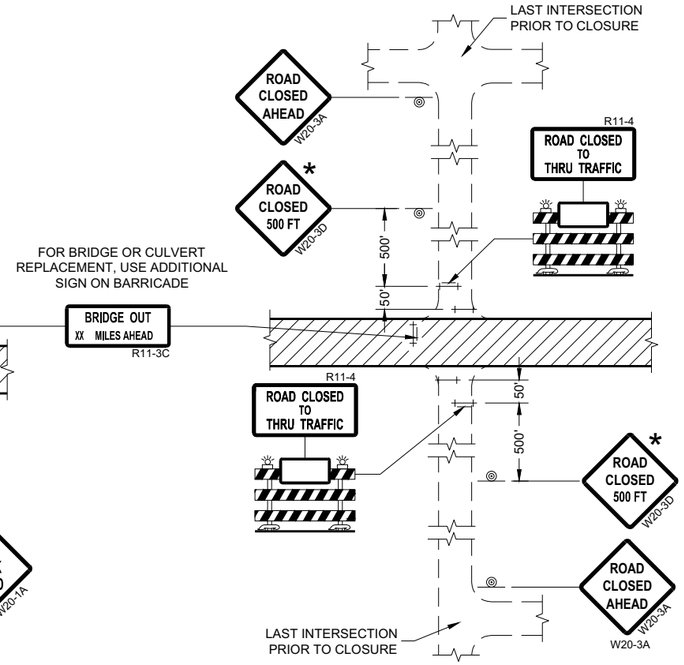
ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

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

** 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.



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



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

LEGEND

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

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

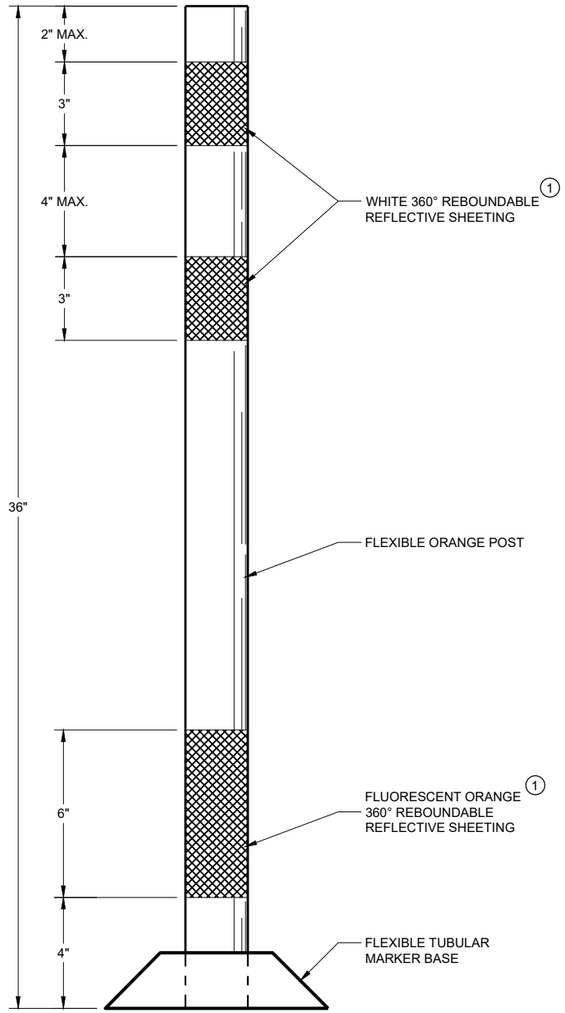
APPROVED
July 2018
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

6

SDD 15C03 - 05



FLEXIBLE TUBULAR MARKER POST WORK ZONE

GENERAL NOTES

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

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

(1) REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

6

SDD 15C11 - 10a

CHANNELIZING DEVICES
FLEXIBLE TUBULAR MARKER POST

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

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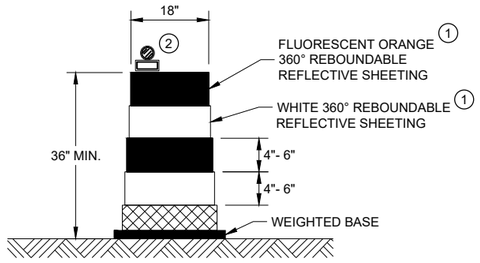
SDD 15C11 - 10a

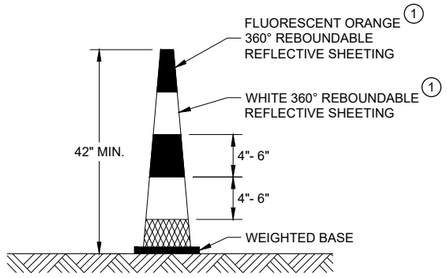
GENERAL NOTES

1. REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
2. LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.



DRUM

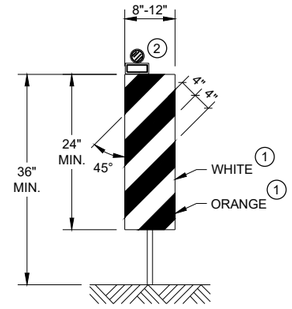
BALLAST WIDTHS
RANGE FROM 24"-36"



42" CONE

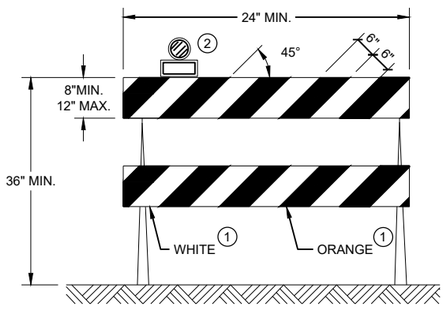
DO NOT USE IN TAPERS
½ SPACING OF DRUMS

BALLAST WIDTHS
RANGE FROM 14"-20"



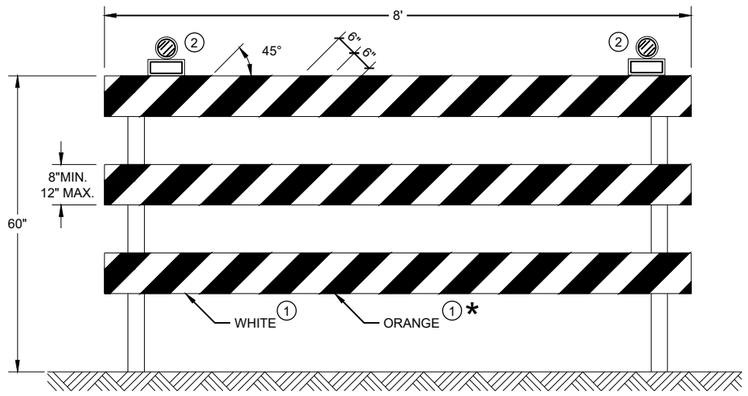
VERTICAL PANEL

THE STRIPES SHALL SLOPE DOWNWARD TO
THE TRAFFIC SIDE FOR CHANNELIZATION.



TYPE II BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES
MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD
TO THE TRAFFIC SIDE FOR CHANNELIZATION.



TYPE III BARRICADE

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

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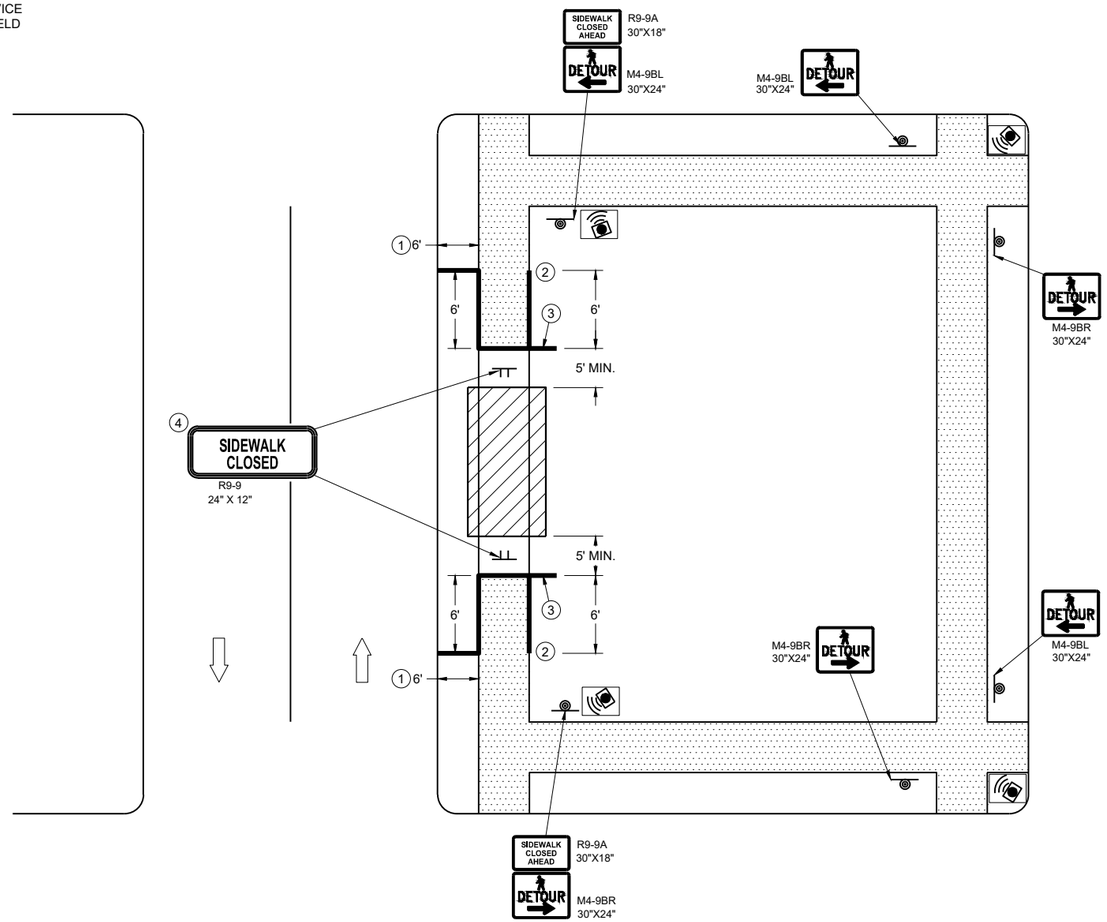
SDD 15C11 - 10b

LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- UNDER PEDESTRIAN TRAFFIC
- WORK AREA
- TEMPORARY PEDESTRIAN BARRICADE
- DIRECTION OF TRAFFIC
- TEMPORARY AUDIBLE MESSAGE DEVICE (EXACT PLACEMENT BASED UPON FIELD CONDITIONS)



SIDEWALK DETOUR, SIDEWALK ONLY ON ONE SIDE

GENERAL NOTES

WHERE TEMPORARY BARRICADE RUNS PARALLEL ALONG SIDEWALK, PLACE THE FACE OF THE BARRICADE AT THE EDGE OF THE SIDEWALK.

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

PLACE TEMPORARY PEDESTRIAN BARRICADE TO FIT FIELD CONDITIONS, AVOIDING CONFLICTS WITH DRIVEWAYS AND OTHER EXISTING FEATURES.

1. IF TERRACE IS LESS THAN 6 FEET WIDE, OMIT TEMPORARY PEDESTRIAN BARRICADE FROM THE SIDEWALK TO THE CURB.
2. PLACE BARRICADE CLOSURE SO THAT THE TEMPORARY PEDESTRIAN BARRICADE END IS AT THE LAST OPEN SIDEWALK ACCESS TO RESIDENCES OR BUSINESSES BEFORE THE SIDEWALK CLOSURE.
3. IF TEMPORARY PEDESTRIAN BARRICADE PANEL IS WIDER THAN THE SIDEWALK WIDTH, THE PORTION OF EXCESS PANEL SHOULD EXTEND INTO THE TERRACE.
4. MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF SIGN.

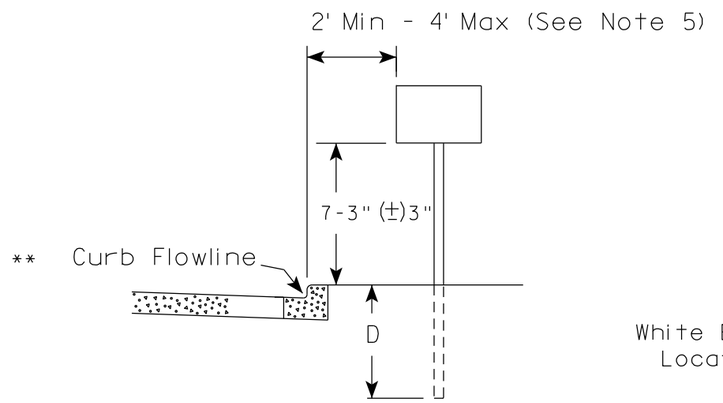
TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

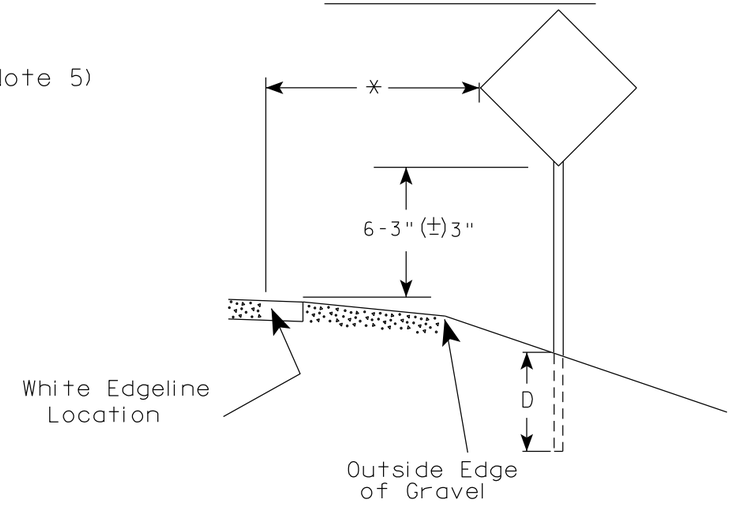
6

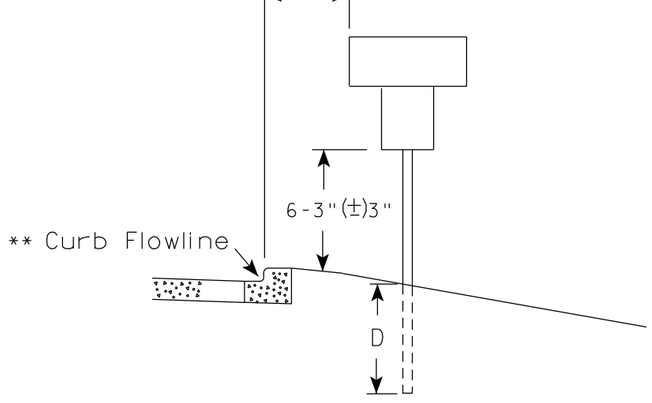
SDD 15D30-12f

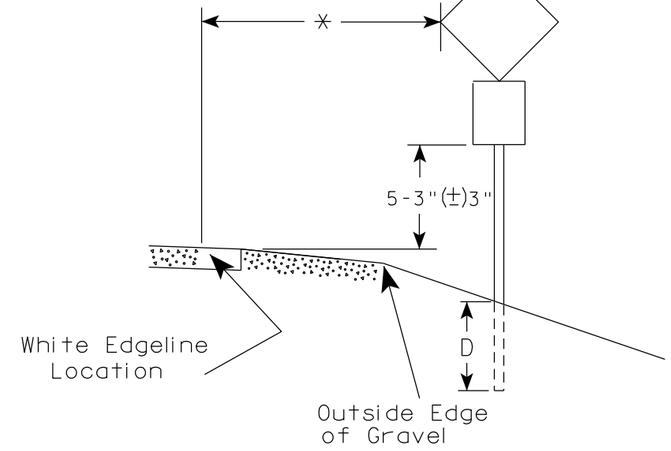
URBAN AREA



RURAL AREA (See Note 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. 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.

POST EMBEDMENT DEPTH

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

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 or behind barrier wall, see A4-10 sign plate.
   The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±) 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" (±) 3".
3. For expressways and freeways, mounting height is 7'- 3" (±) 3" or 6'-3" (±) 3" depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±) 3".
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directd by the Engineer.

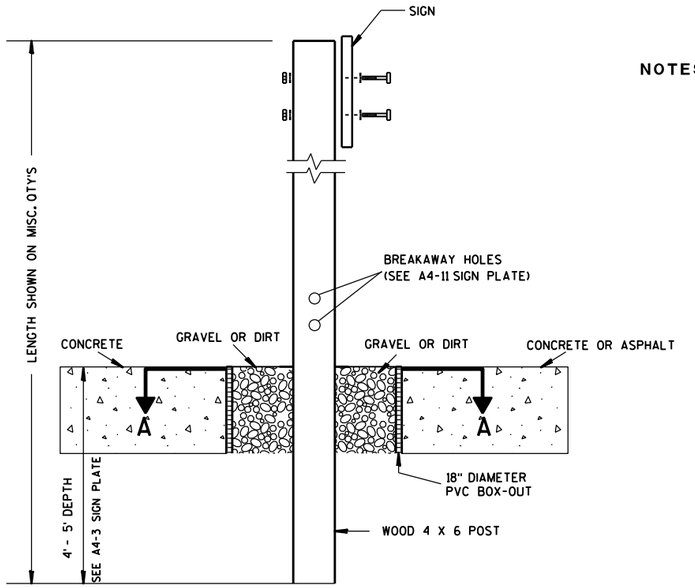
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-3.23

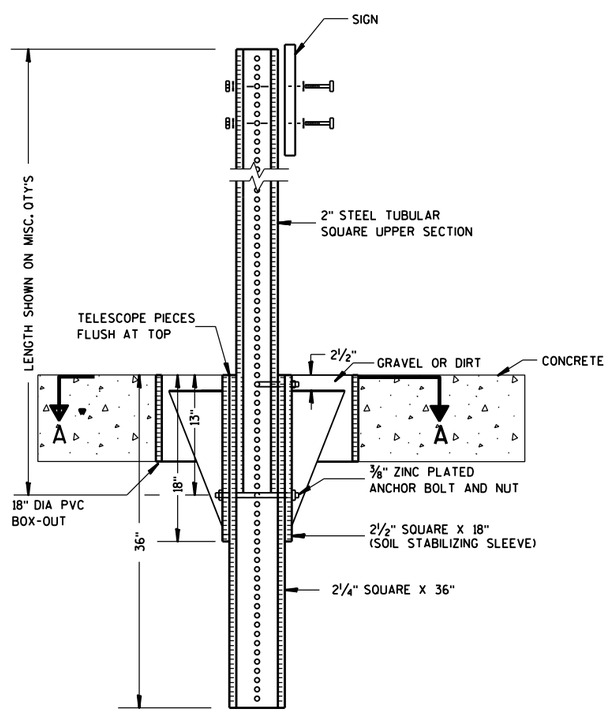
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 50	E



ELEVATION VIEW

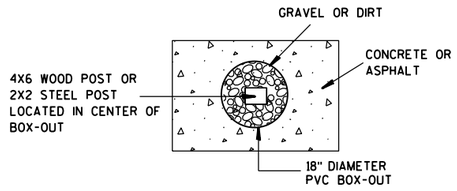
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B

WISCONSIN DEPT OF TRANSPORTATION

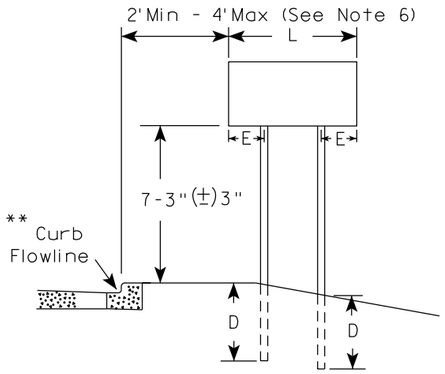
APPROVED Matthew R Rauch
for State Traffic Engineer

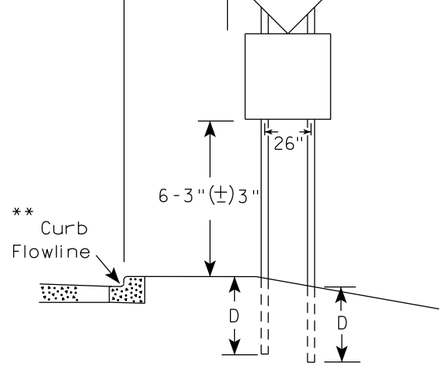
DATE 1/27/14 PLATE NO. A4-3B.1

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A43B.DGN PLOT DATE : 27-JAN-2014 09:48 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000 WISDOT/CADDS SHEET 42

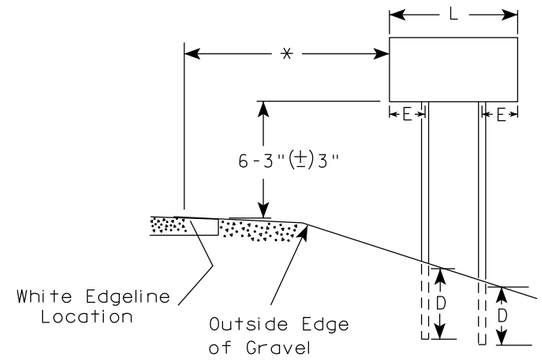
URBAN AREA

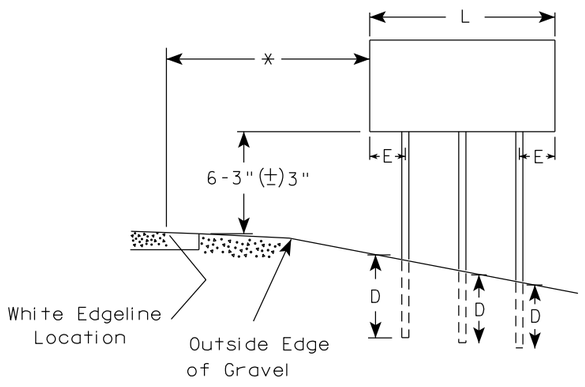


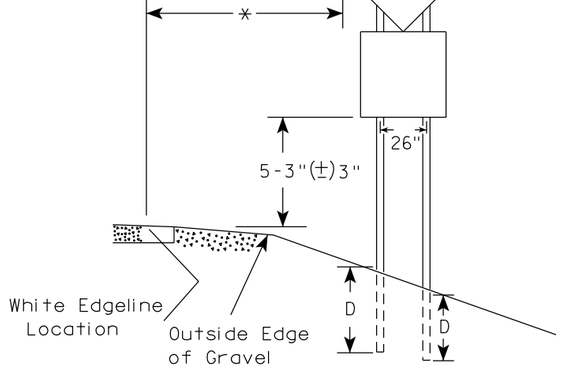


48" DIAMOND WARNING SIGN

RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)		
	L	E
***	Greater than 48" Less than 60"	12"
	60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

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" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
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" (±) 3" or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±) 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" (±) 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.

POST EMBEDMENT DEPTH

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

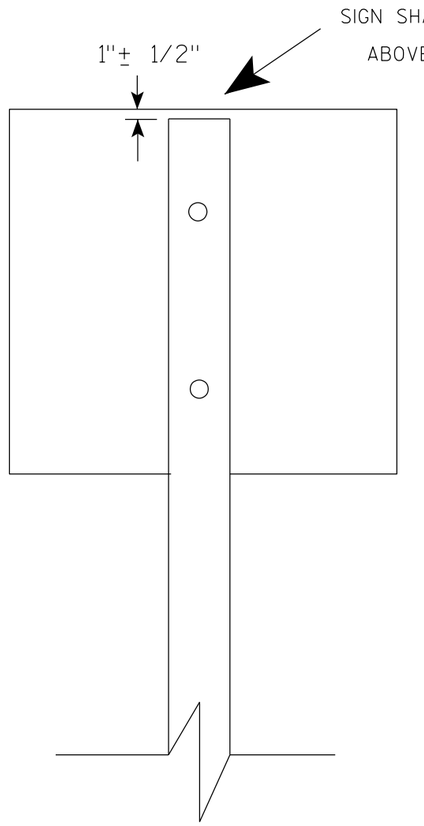
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

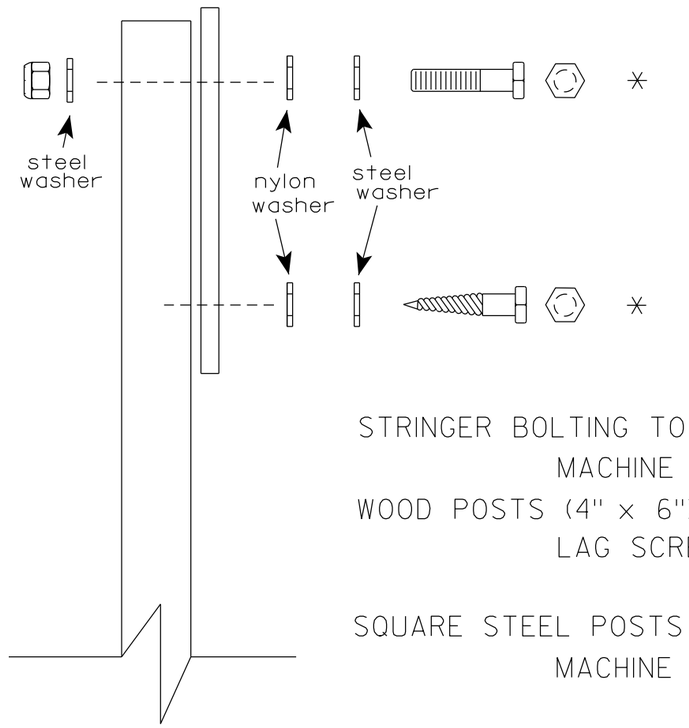
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 52	E





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

a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3

b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)

MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts

WOOD POSTS (4" x 6")

LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
3/8" X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)

RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -

1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON

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

ATTACHMENT OF SIGNS TO POSTS

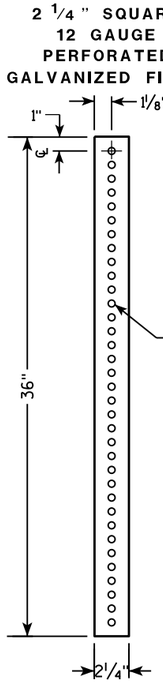
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

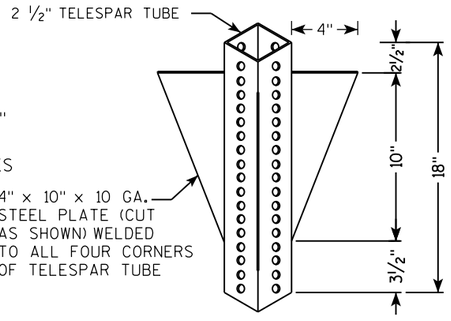
DATE 4/1/2020 PLATE NO. A4-8.9

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

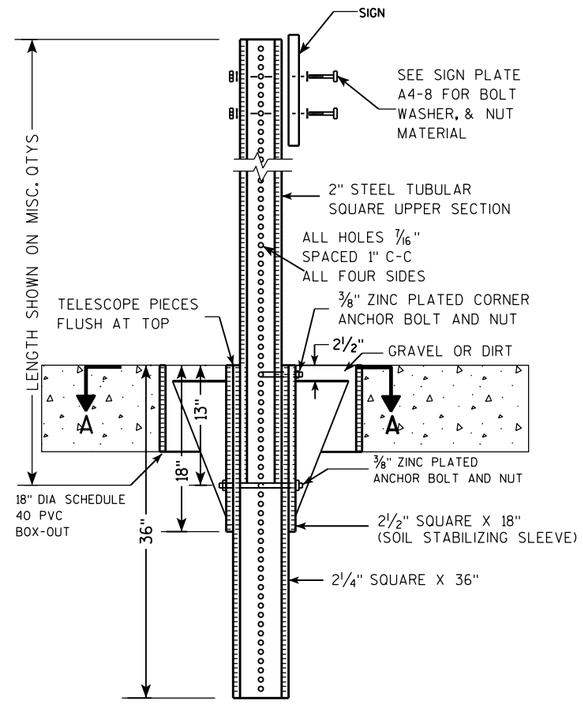
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



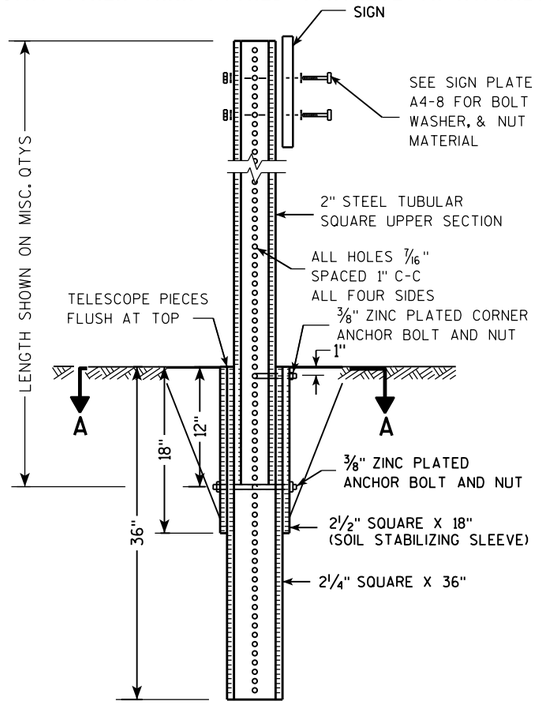
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

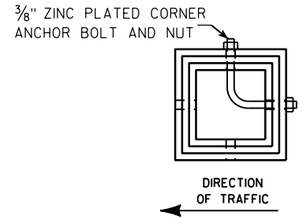


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



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





SECTION A-A

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

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

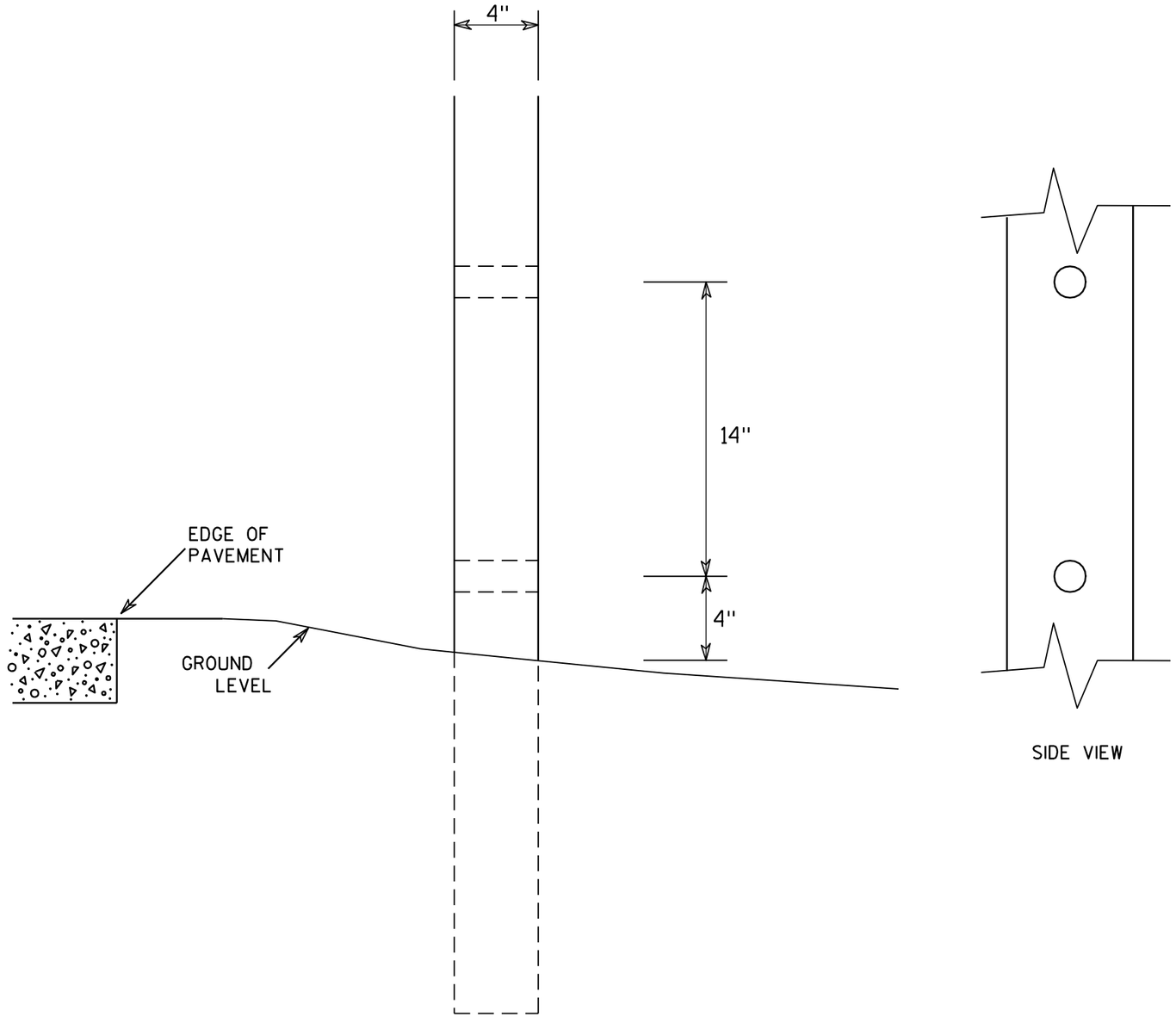
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE 54 A4-9.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



SIDE VIEW

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

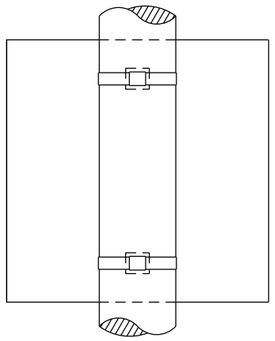
APPROVED Chester J Spang for State Traffic Engineer

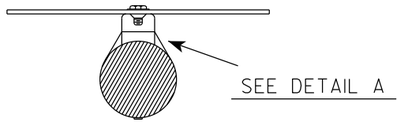
DATE 3/27/97 PLATE NO. A4-11.2

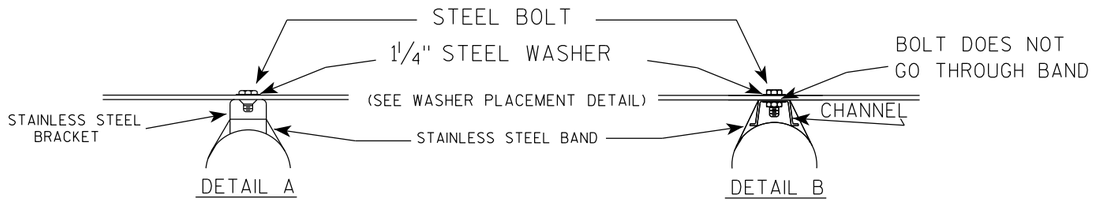
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 55	E

BANDING

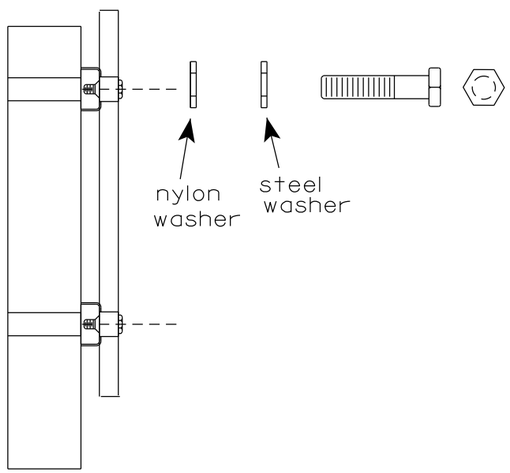
SINGLE SIGN







WASHER PLACEMENT

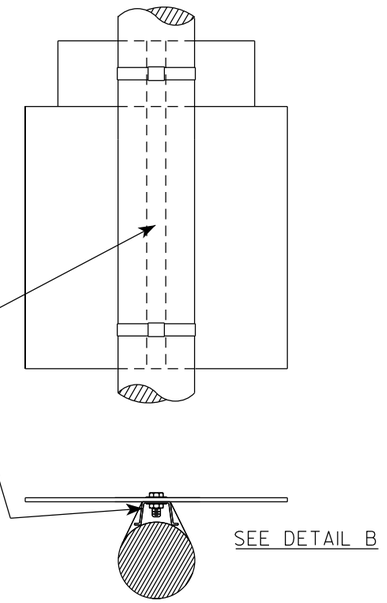


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be ¾" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
   a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
   b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

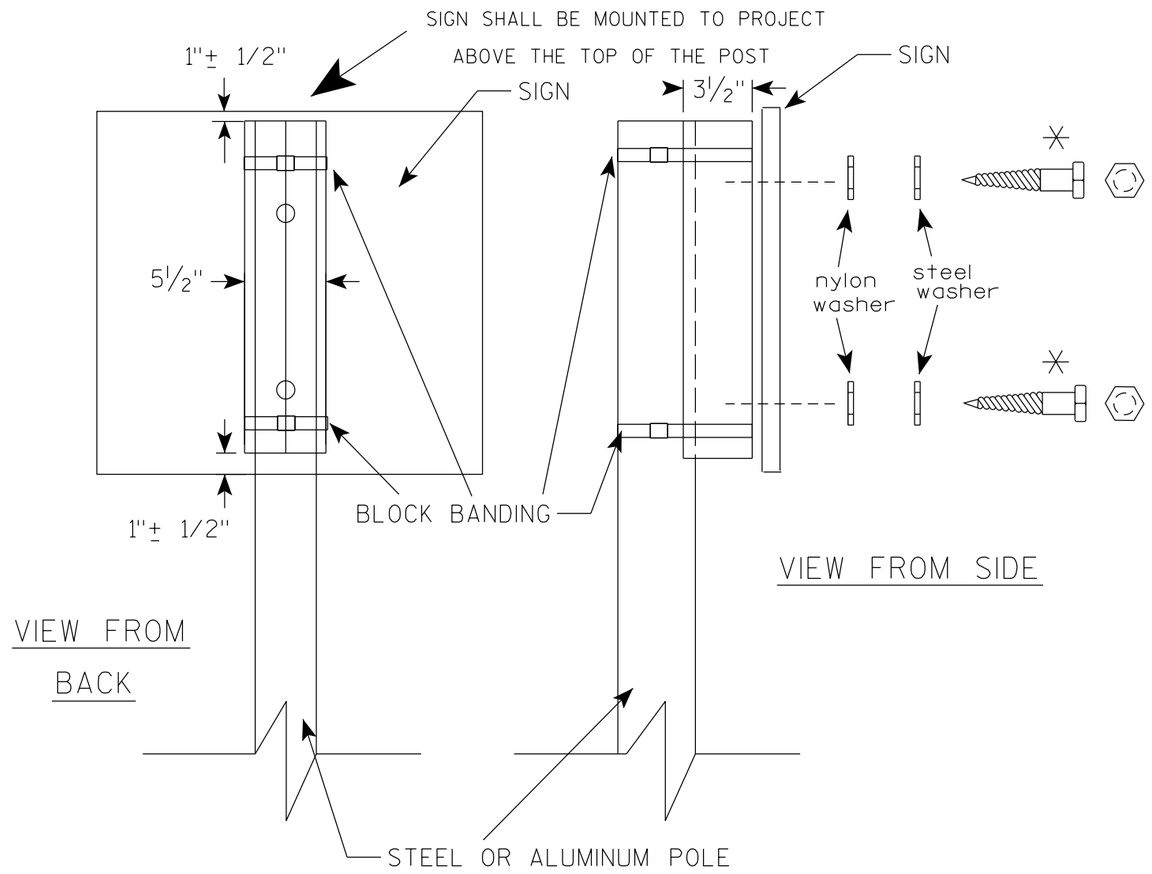
DATE 6/10/19 PLATE NO. A5-9.4

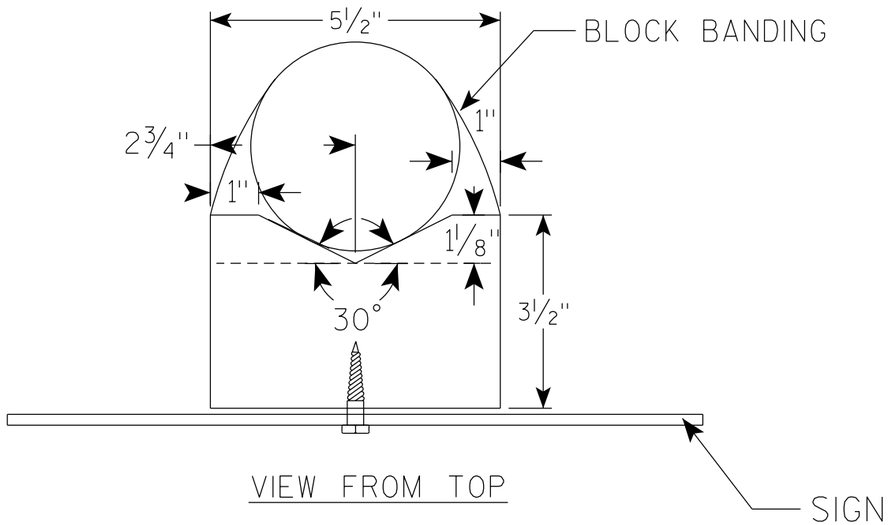
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 56	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\A59.dgn PLOT DATE : 10-JUN 2019 4:10 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

7

7





GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WisDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, ¾" WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORNALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
   a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
   b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✳ LAG BOLTS SHALL BE ⅜" X 2½"

BLOCK BANDING DETAIL (V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

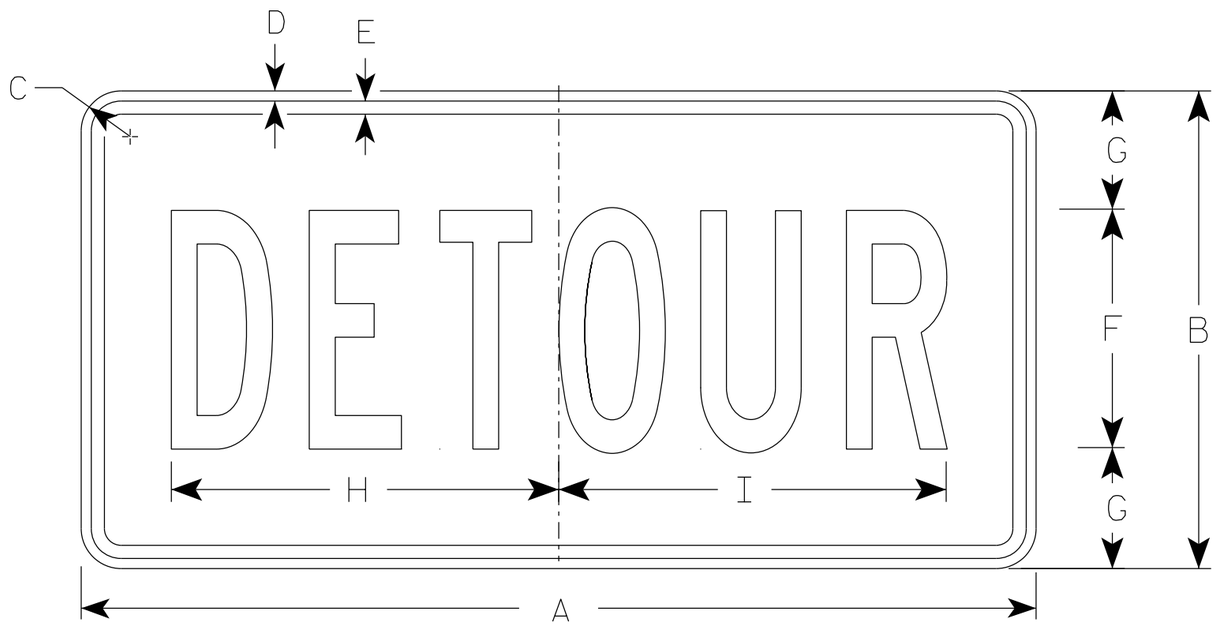
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

SHEET NO: 57 E

NOTES

1. Sign is Type II - Type F Reflective
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	Area sq. ft.
1																											
2	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
2M	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
5	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5

STANDARD SIGN
M4-8

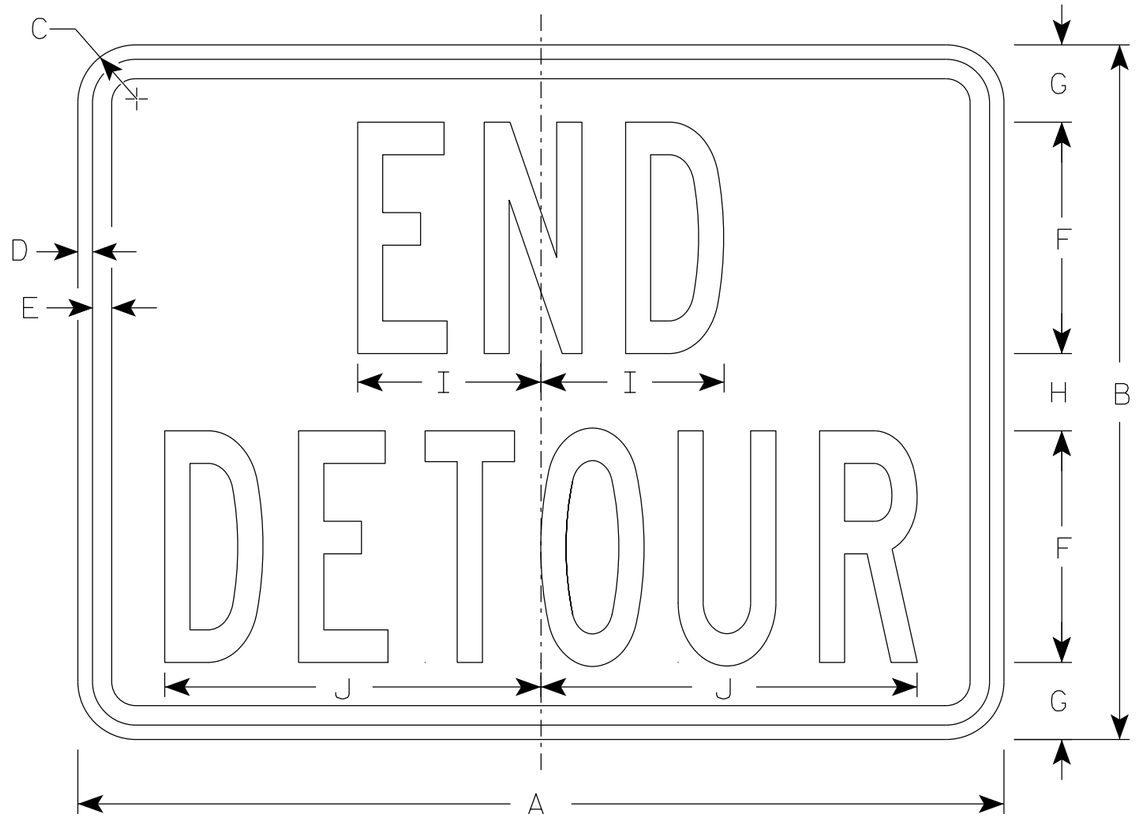
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8.4

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\M48.dgn PLOT DATE : 9-FEB 2023 7:38 PLOT BY : dotc4c PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42



M4-8A

NOTES

1. Sign is Type II - Type F Reflective
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.

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 ½	⅜	½	6	2	2	4 ¾	9 ¾																	3.0
2M	24	18	1 ½	⅜	½	6	2	2	4 ¾	9 ¾																	3.0
3	30	24	1 ½	⅜	½	8	2 ½	3	6 ¾	13																	5.0
4	30	24	1 ½	⅜	½	8	2 ½	3	6 ¾	13																	5.0
5	30	24	1 ½	⅜	½	8	2 ½	3	6 ¾	13																	5.0

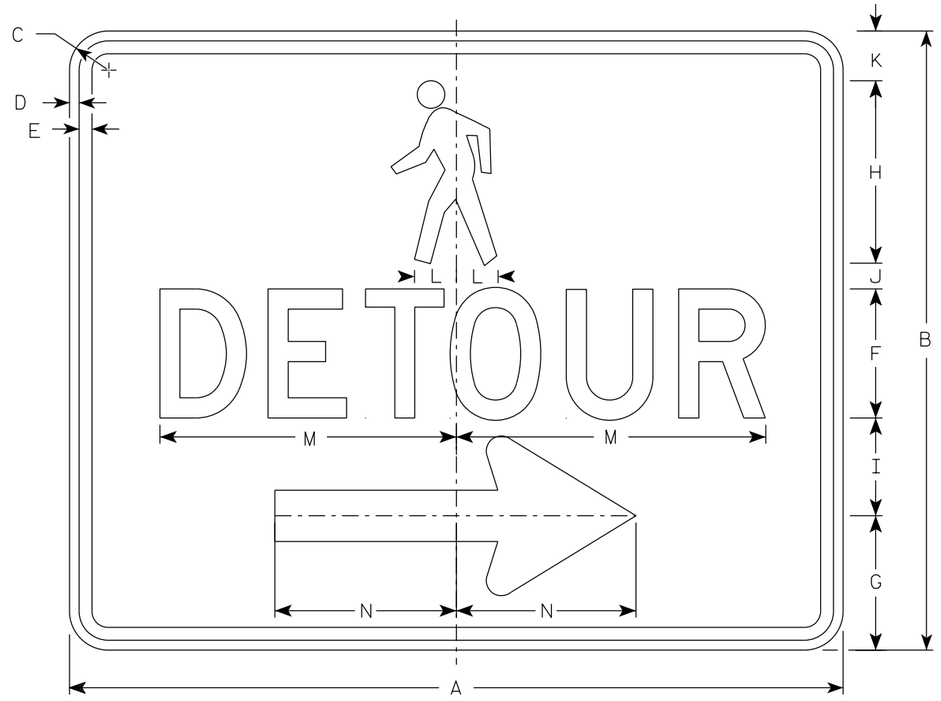
STANDARD SIGN
M4-8A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8A.4

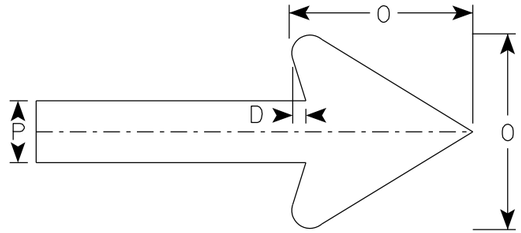
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 59 | E



M4-9BR

NOTES

1. Sign is Type II-Type F Reflective
2. Color:
   Background - Orange
   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. M4-9BL is the same as M4-9BR except the arrow is reversed.



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	30	24	1 1/2	3/8	1/2	5	5 1/4	7 1/8	3 3/4	1	1 1/8	1 5/8	11 3/4	7	6	2											5.0
2M	30	24	1 1/2	3/8	1/2	5	5 1/4	7 1/8	3 3/4	1	1 1/8	1 5/8	11 3/4	7	6	2											5.0
3																											
4																											
5																											

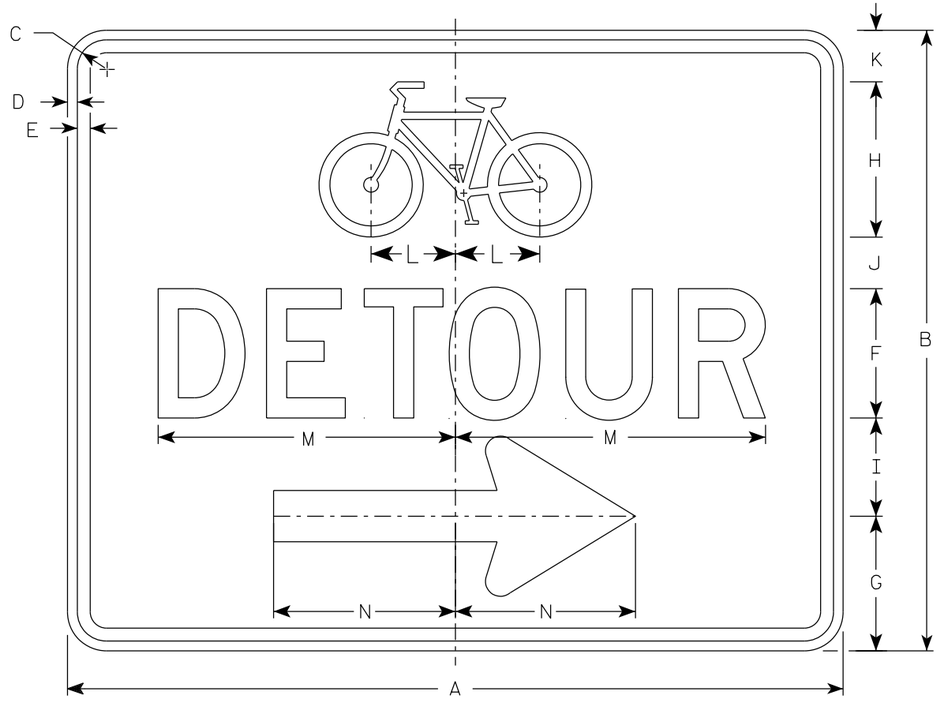
STANDARD SIGN
M4-9B L&R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-9B.4

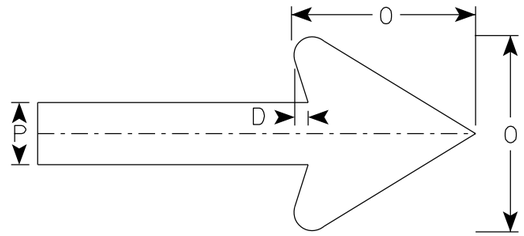
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 60 | E



M4-9CR

NOTES

1. Sign is Type II-Type F Reflective
2. Color:
   Background - Orange
   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. M4-9CL is the same as M4-9CR except the arrow is reversed.



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	30	24	1 1/8	3/8	1/2	5	5 1/4	6	3 3/4	2	2	3 1/4	11 3/4	7	6	2											5.00
2M	30	24	1 1/8	3/8	1/2	5	5 1/4	6	3 3/4	2	2	3 1/4	11 3/4	7	6	2											5.00
3																											
4																											
5																											

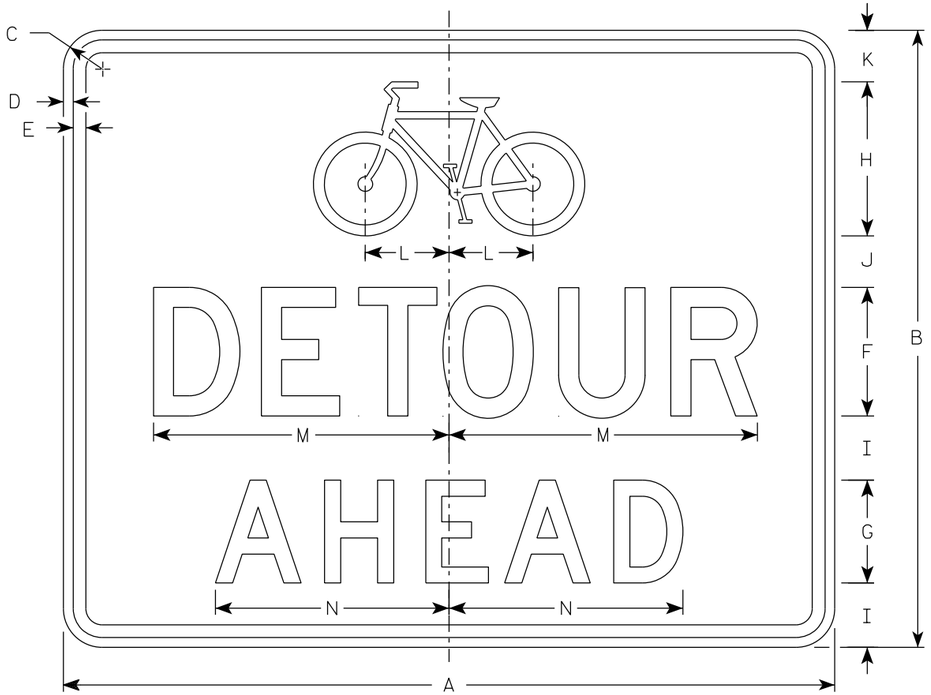
STANDARD SIGN
M4-9C L&R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 1/18/2023 PLATE NO. M4-9C.2

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 61	E



M4-9CA

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30	24	1 ½	⅜	½	5	4	6	2 ½	2	2	3 ¼	11 ¾	9 ⅛													5.0
2M	30	24	1 ½	⅜	½	5	4	6	2 ½	2	2	3 ¼	11 ¾	9 ⅛													5.0
3																											
4																											
5																											

STANDARD SIGN
M4-9CA

WISCONSIN DEPT OF TRANSPORTATION

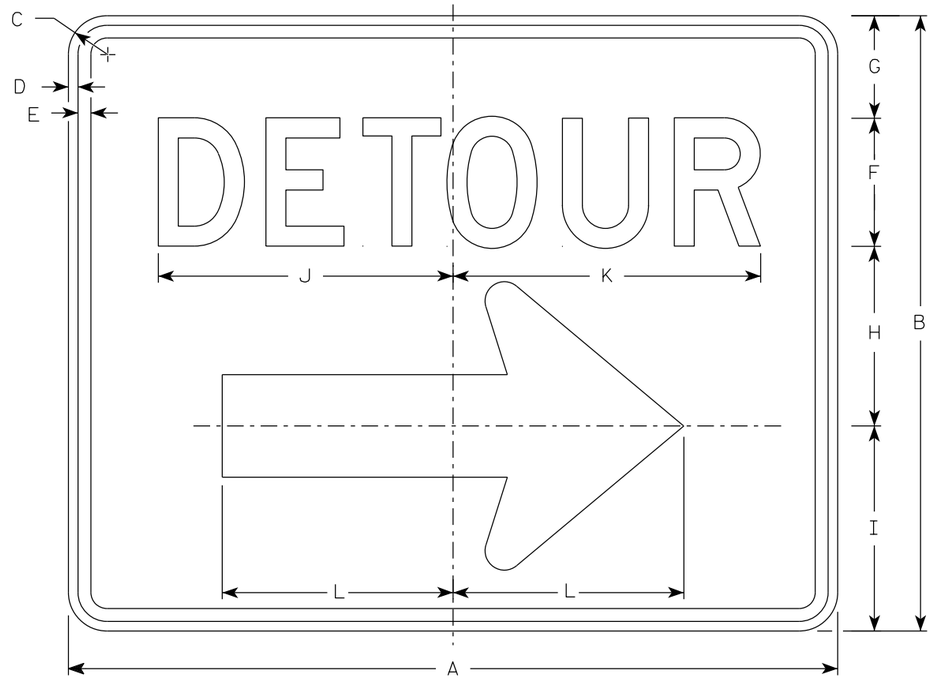
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-9CA.3

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 62 | E

7

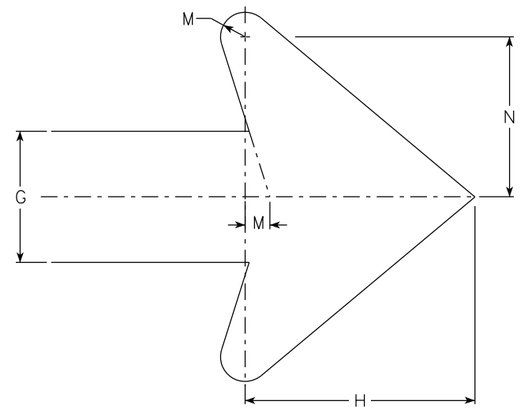
7



M4-9R

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Orange
   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.
4. M4-9L is the same as M4-9R except the arrow is reversed.



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																											
2	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
2M	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
4	48	36	1 7/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0
5	48	36	1 7/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0

STANDARD SIGN
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

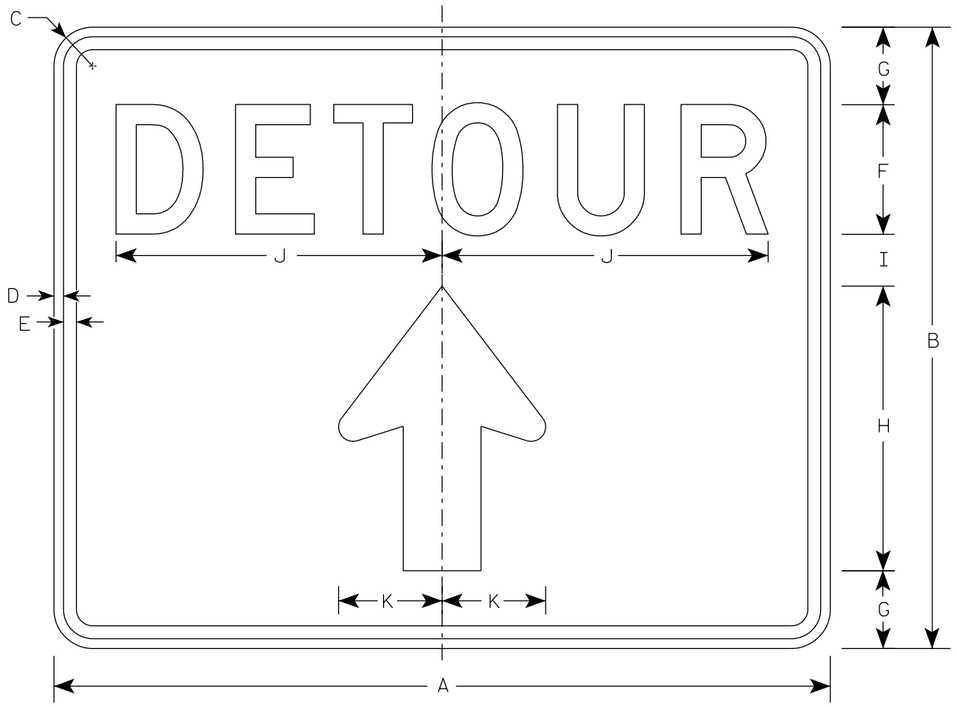
DATE 2/9/2023 PLATE NO. M4-9R.6

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

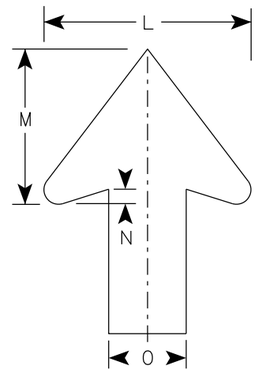
FILE NAME : C:\CAEfiles\Projects\tr_stdplate\M49R.dgn PLOT DATE : 21-MARCH 2023 1:40 PLOT BY : dotc4c PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

NOTES

1. Sign is Type II-Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - D



M4-9RA



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	30	24	1 1/2	3/8	1/2	5	3	11	2	12 5/8	4	8	6	1/2	3												5.00
2M	30	24	1 1/2	3/8	1/2	5	3	11	2	12 5/8	4	8	6	1/2	3												5.00
3																											
4																											
5																											

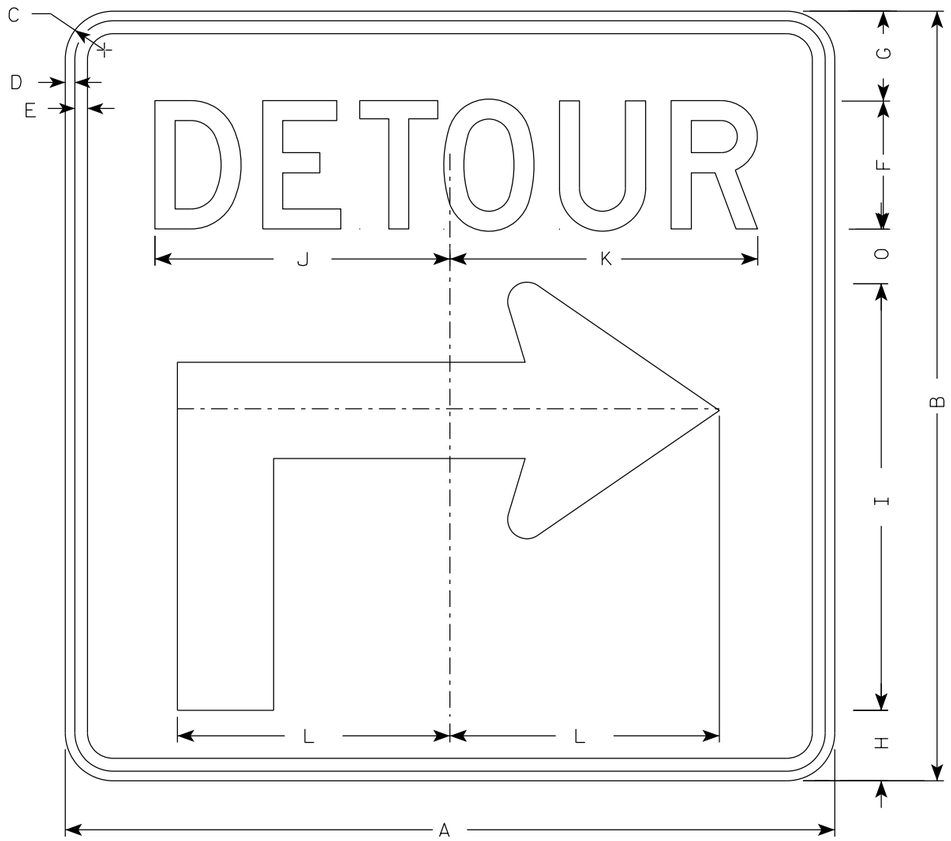
STANDARD SIGN
M4-9RA

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-9RA.3

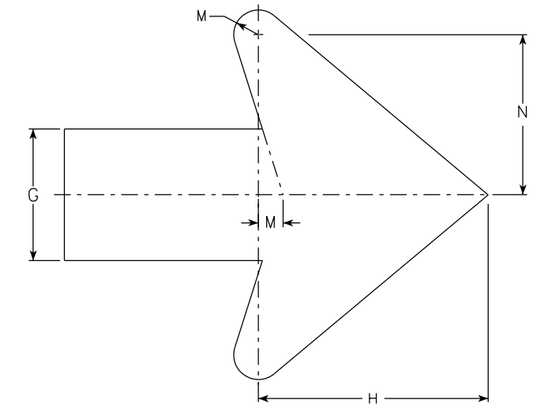
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 64	E



M4-59R

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Orange
   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.
5. M4-59L is the same as M4-59R except the arrow is reversed.



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	30	30	1 7/8	3/8	1/2	5	3 1/2	2 3/4	16 5/8	11 1/2	12	10 1/2	3/4	4 7/8	2 1/8												6.25
2M	30	30	1 7/8	3/8	1/2	5	3 1/2	2 3/4	16 5/8	11 1/2	12	10 1/2	3/4	4 7/8	2 1/8												6.25
3	30	30	1 7/8	3/8	1/2	5	3 1/2	2 3/4	16 5/8	11 1/2	12	10 1/2	3/4	4 7/8	2 1/8												6.25
4	48	48	2 1/4	1/2	5/8	8	5 5/8	4 3/8	26 5/8	20 5/8	20 1/2	17	1 1/8	6 7/8	3 3/8												16.0
5	48	48	2 1/4	1/2	5/8	8	5 5/8	4 3/8	26 5/8	20 5/8	20 1/2	17	1 1/8	6 7/8	3 3/8												16.0

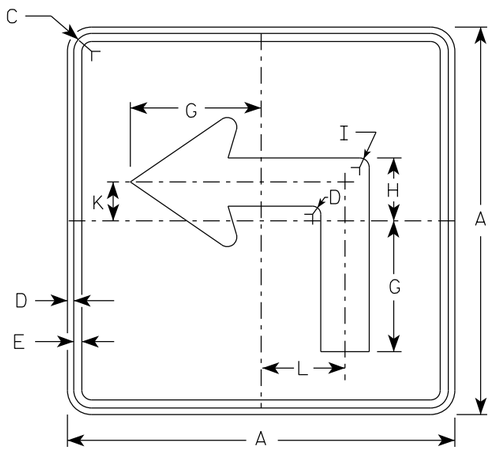
STANDARD SIGN
M4-59 L&R

WISCONSIN DEPT OF TRANSPORTATION

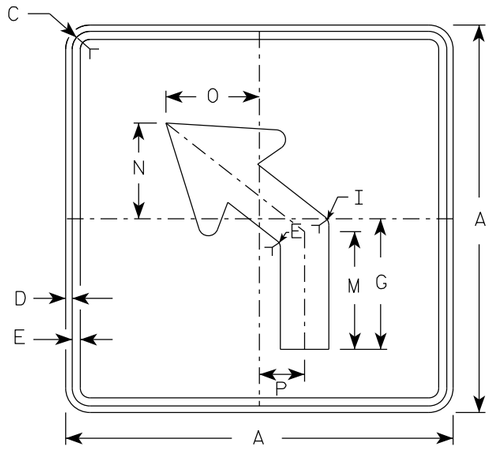
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/13/2023 PLATE NO. M4-59.2

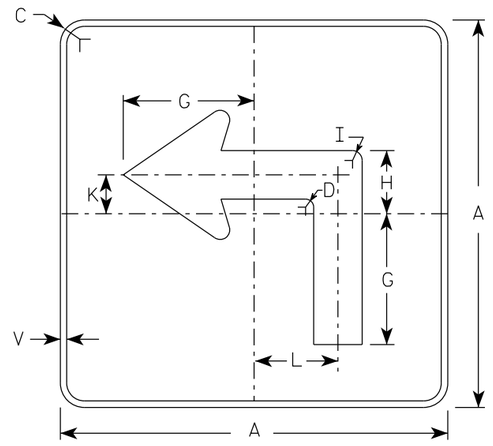
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



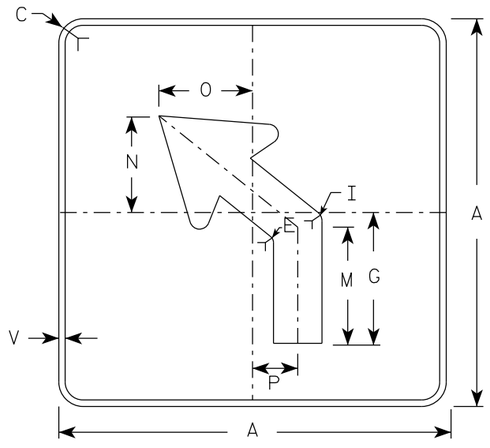
M5-1L
MM5-1L
MO5-1L
MP5-1L



M5-2L
MM5-2L
MO5-2L
MP5-2L



MB5-1L
MK5-1L
MN5-1L
MR5-1L

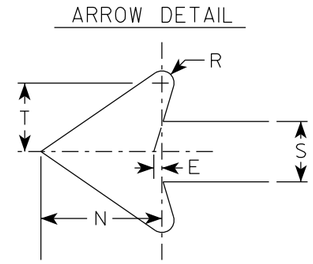


MB5-2L
MK5-2L
MN5-2L
MR5-2L

NOTES

1. Signs are Type II - Type H reflective except as shown
2. Color:
   Background - See note 4
   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. M5-1 and M5-2 Background - White
   Message - Black
   MB5-1 and MB5-2 Background - Blue
   Message - White
   MK5-1 and MK5-2 Background - Green
   Message - White
   MM5-1 and MM5-2 Background - White
   Message - Green
   MN5-1 and MN5-2 Background - Brown
   Message - White
   MO5-1 and MO5-2 Background - Orange - Type F Reflective
   Message - Black
   MP5-1 and MP5-2 Background - White
   Message - Blue
   MR5-1 and MR5-2 Background - Brown
   Message - Yellow
5. M5-1R same as M5-1L except arrow points right.
6. M5-2R same as M5-2L except arrow tilts right.

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	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
4	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
5	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25

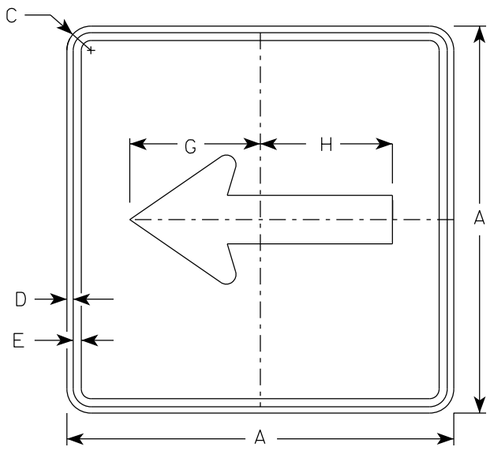
STANDARD SIGN
M5-1 & M5-2

WISCONSIN DEPT OF TRANSPORTATION

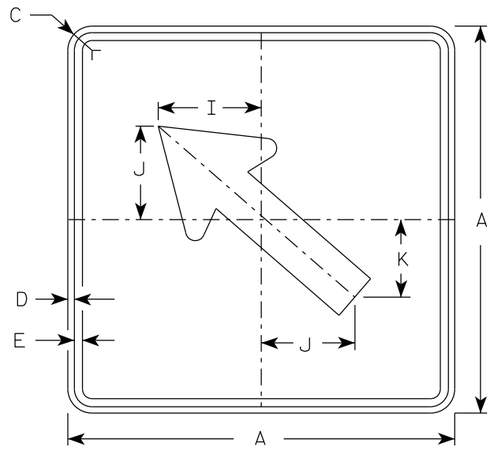
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/13/2023 PLATE NO. M5-1.15

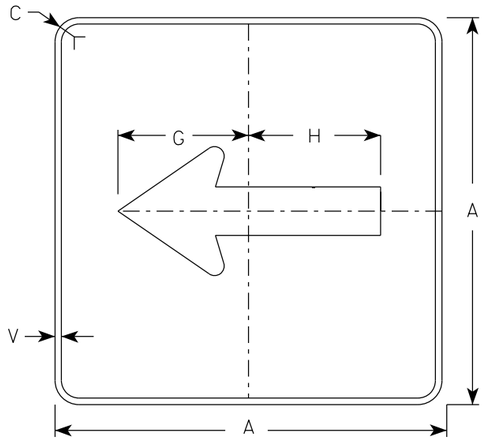
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 66 | E



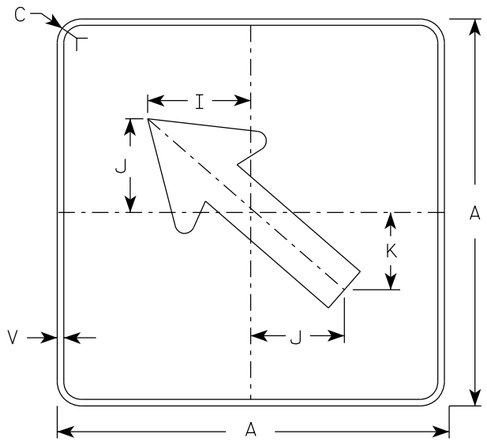
M6-1
MM6-1
MO6-1
MP6-1



M6-2
MM6-2
MO6-2
MP6-2



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

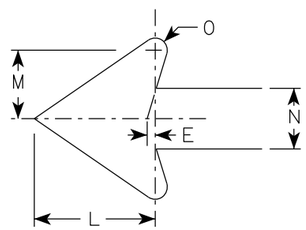


MB6-2
MK6-2
MN6-2
MR6-2

NOTES

1. Signs are Type II - Type H Reflective except as Shown
2. Color:
   Background - See note 4
   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. 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
   MO6-1 and MO6-2 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

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	21		1 1/2	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							1/2					3.06
2M	21		1 1/2	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							1/2					3.06
3	30		1 7/8	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							1/2					6.25
4	30		1 7/8	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							1/2					6.25
5	30		1 7/8	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							1/2					6.25

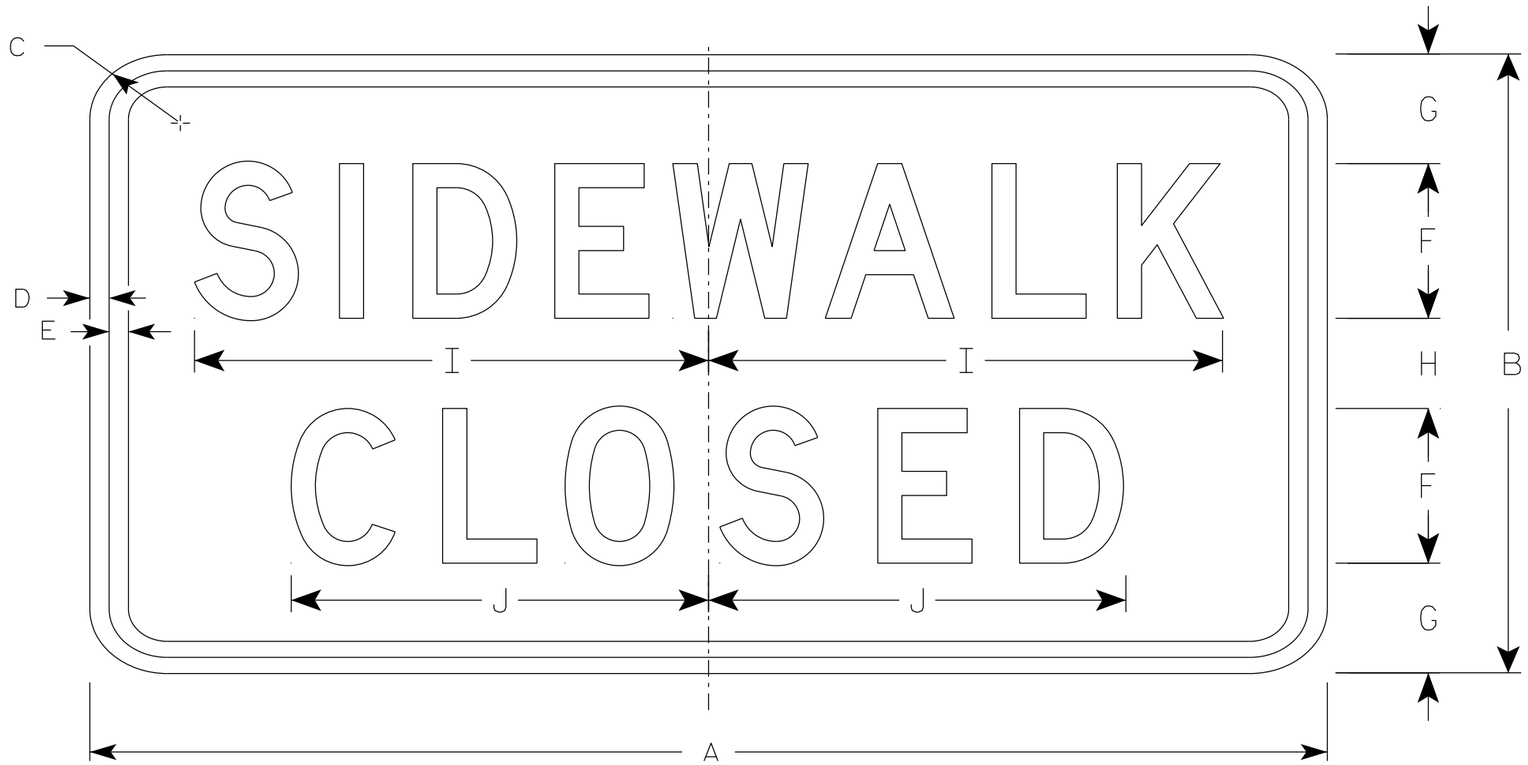
STANDARD SIGN
M6-1 & M6-2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 2/13/2023 PLATE NO. M6-1.16

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 67 | E



R9-9

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - C
4. Use Size 2 for Sidewalks. Use Size 3 for Paths and Trails.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	12	1 ½	½	½	3	2 ⅛	1 ¾	10	8 ⅛																	2.0
2M	24	12	1 ½	½	½	3	2 ⅛	1 ¾	10	8 ⅛																	2.0
3	30	18	1 ½	½	½	4	3 ½	3	12 ½	10 ¼																	3.75
4																											
5																											

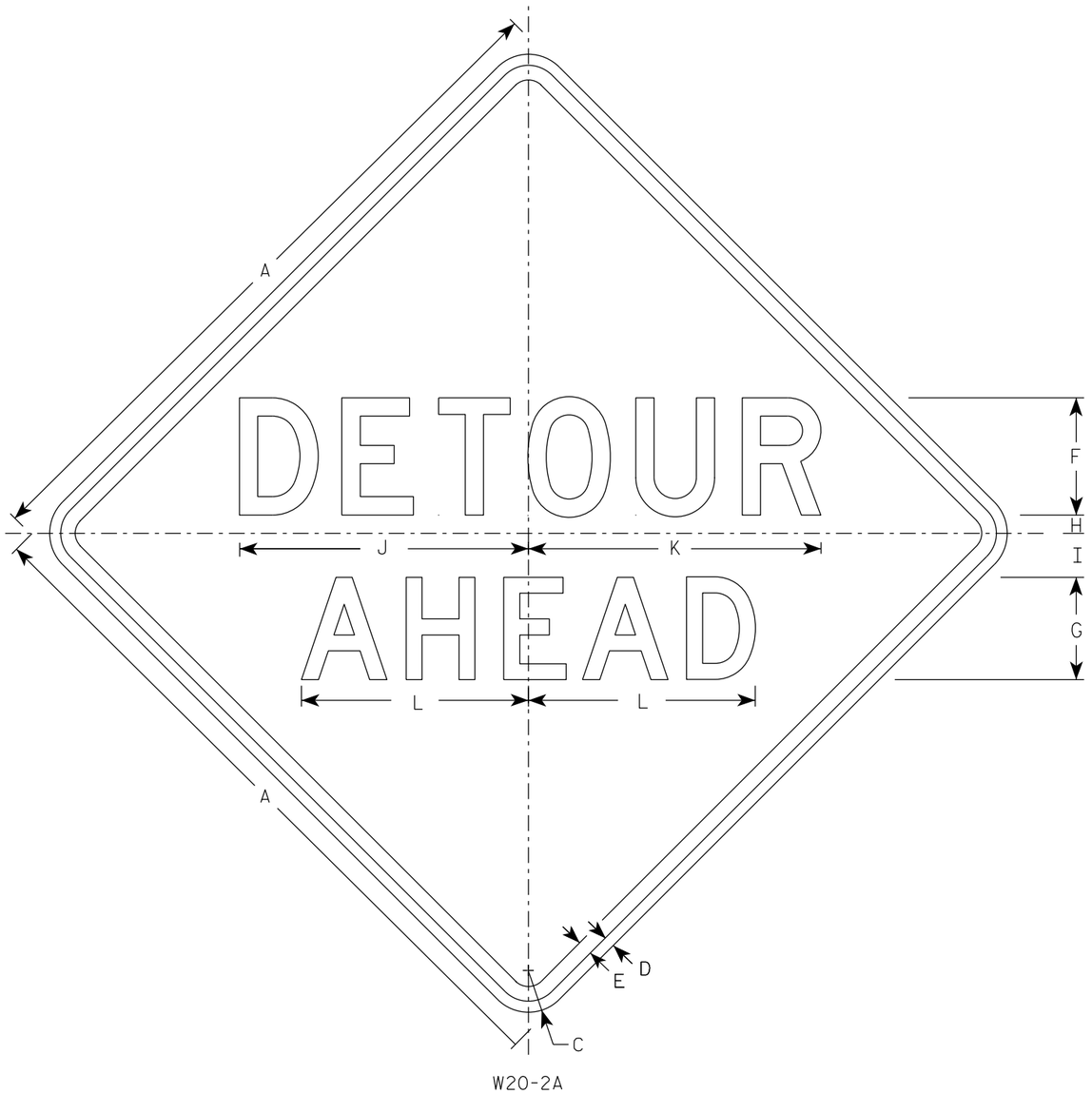
STANDARD SIGN
R9-9

WISCONSIN DEPT OF TRANSPORTATION

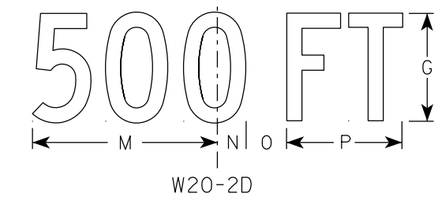
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 1/24/24 PLATE NO. R9-9.7

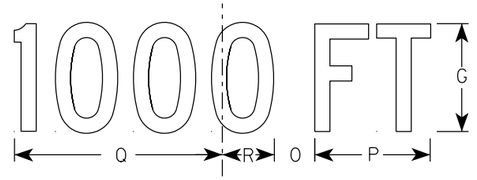
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 68 | E



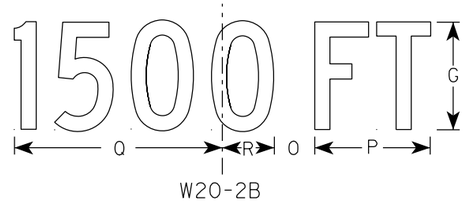
W20-2A



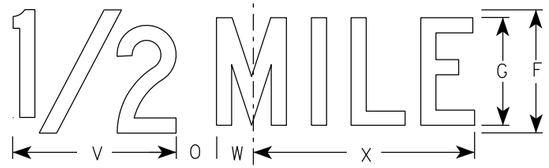
W20-2D



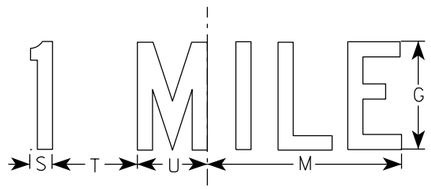
W20-2C



W20-2B



W20-2G



W20-2F

NOTES

1. Sign is Type II - Type F Reflective
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. Line 1 is Series D.
   Line 2 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		2 1/4	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

STANDARD SIGN
W20-2A,B,C,D,F & G

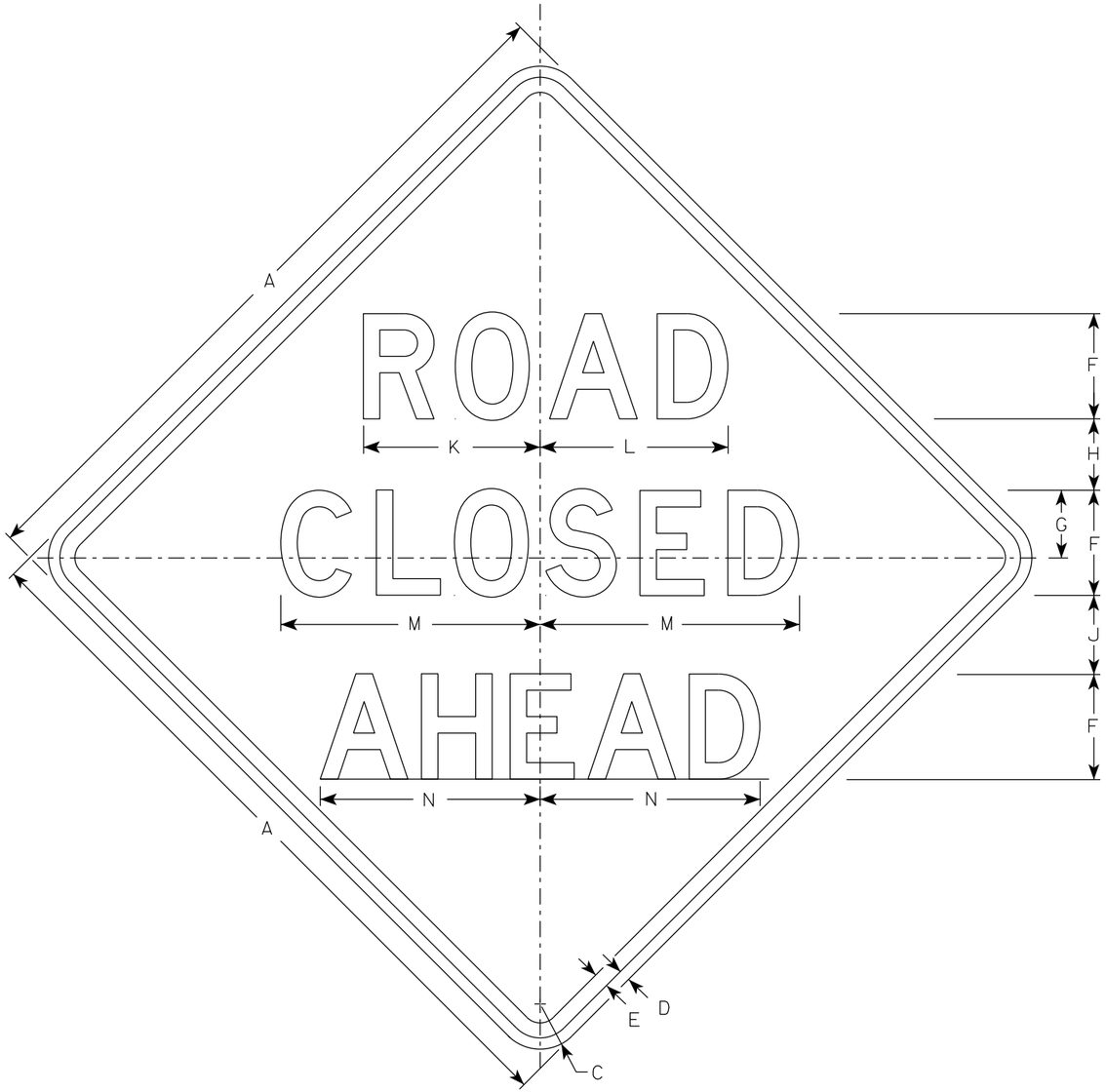
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

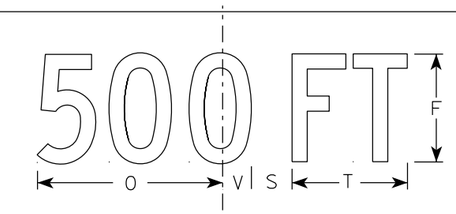
DATE 1/10/2024 PLATE NO. W20-2.7

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

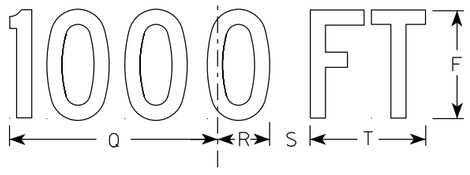
FILE NAME : C:\CAEfiles\Projects\tr_stdplate\W202.DGN PLOT DATE : 10-JAN 2024 11:36 PLOT BY : dotc4c PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42



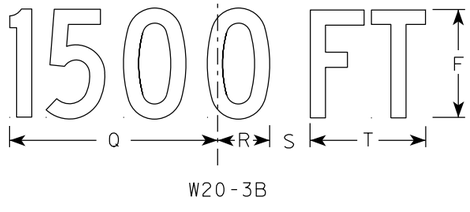
W20-3A



W20-3D



W20-3C



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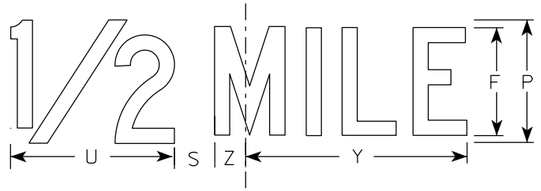
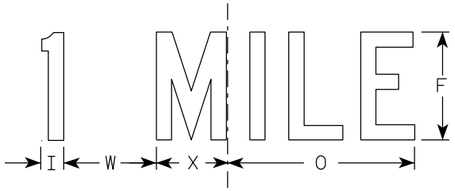


W20-3G



W20-3F

NOTES

1. Sign is Type II - Type F Reflective
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		2 1/4	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		3	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		3	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		3	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		3	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		3	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 1/10/2024 PLATE NO. W20-3.8

PROJECT NO: | HWY: | COUNTY: | SHEET NO: E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\W203.DGN PLOT DATE : 10-JAN 2024 12:02 PLOT BY : dotc4c PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

STATE PROJECT NUMBER

2395-07-71

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING: RF = 1.15
OPERATING RATING: RF = 1.50
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 210 (KIPS)

EARTHLOAD:

DESIGNED FOR 1.5 TO 3.0 FT. OF FILL.

MATERIAL PROPERTIES:

CONCRETE MASONRY — f'_c = 3,500 PSI

BAR STEEL REINFORCEMENT
GRADE 60 — f_y = 60,000 PSI

HYDRAULIC DATA

100-YEAR FREQUENCY:

Q_{100}= 990 C.F.S.
V_{100}= 15.7 F.P.S.
HW_{100}= EL. 683.53
WATERWAY AREA = 63 SQ. FT.
DRAINAGE AREA = 0.69 SQ. MI.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 8

2-YEAR FREQUENCY:

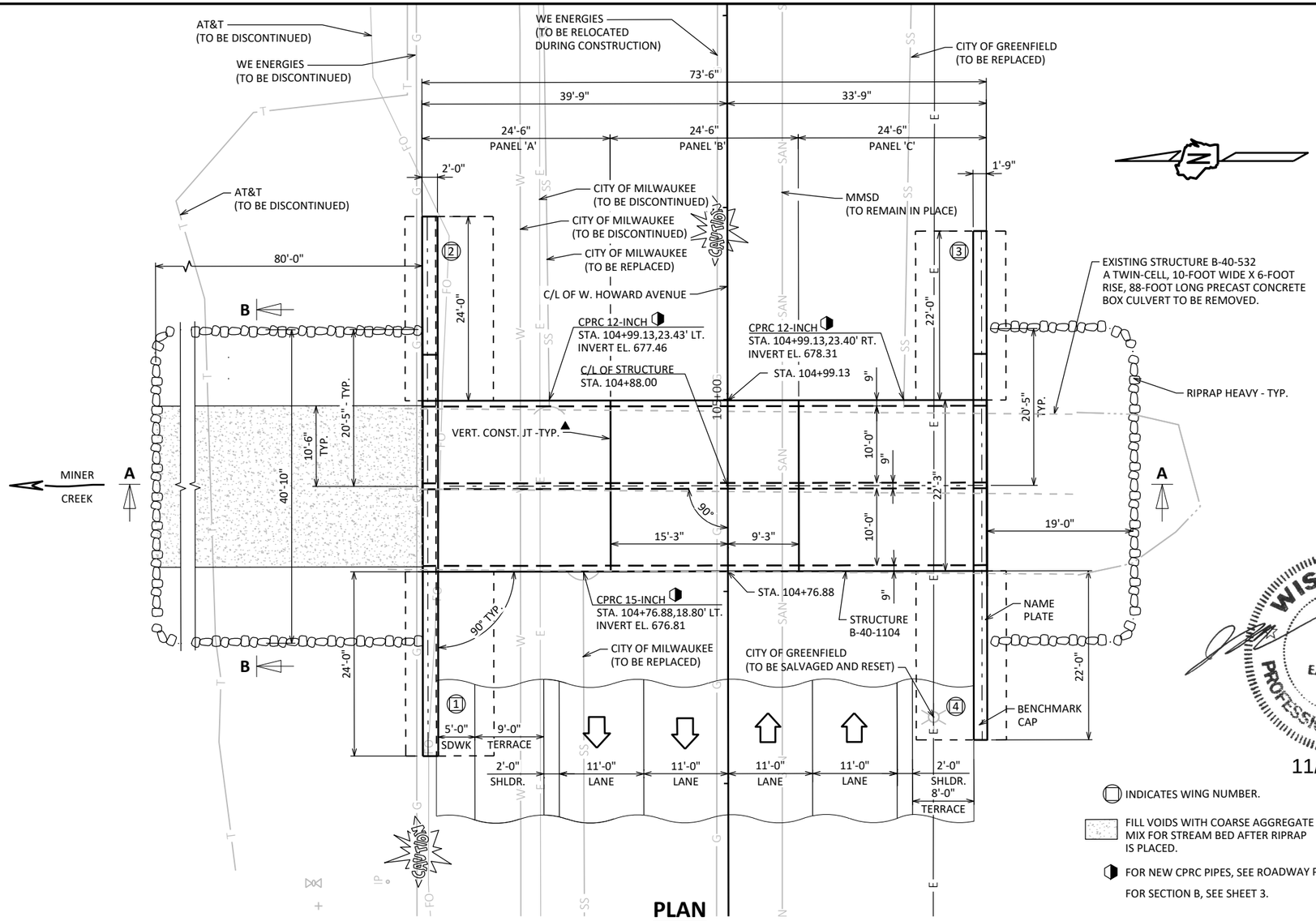
Q_2= 270 C.F.S.
V_2= 11.4 F.P.S.
HW_2= EL. 679.20

TRAFFIC DATA

FEATURE ON: W. HOWARD AVENUE

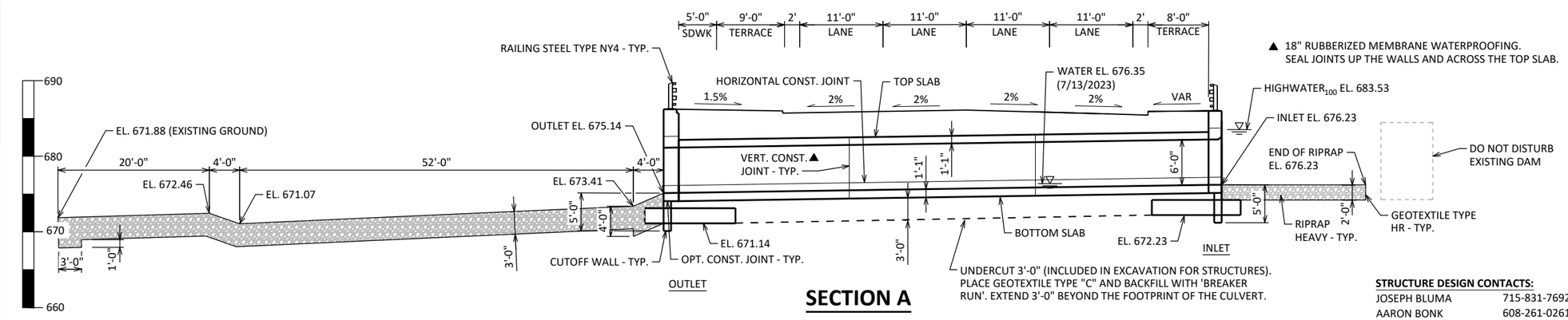
AADT = 9,400 (2026)
AADT = 9,900 (2046)
R.D.S. = 35 MPH

LIST OF DRAWINGS:



PLAN

TWIN-CELL CONCRETE BOX CULVERT



SECTION A

▲ 18" RUBBERIZED MEMBRANE WATERPROOFING.
SEAL JOINTS UP THE WALLS AND ACROSS THE TOP SLAB.

INDICATES WING NUMBER.

FILL VOIDS WITH COARSE AGGREGATE MIX FOR STREAM BED AFTER RIPRAP IS PLACED.

FOR NEW CPRC PIPES, SEE ROADWAY PLANS.

FOR SECTION B, SEE SHEET 3.

STRUCTURE DESIGN CONTACTS:

JOSEPH BLUMA 715-831-7692
AARON BONK 608-261-0261

WISCONSIN
JOSEPH L. BLUMA
E48464-6
EAU CLAIRE, WI
PROFESSIONAL ENGINEER
11/06/2025

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY

AYRES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORATION

ACCEPTED JLR 11/10/25
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-40-1104

W. HOWARD AVENUE OVER MINER CREEK

COUNTY	CITY
MILWAUKEE	GREENFIELD/MILWAUKEE

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGNED CK'D	DRAWN BY	PLANS CK'D
JLB	DRS	DRS/CLP	JLB

GENERAL PLAN

SHEET 1 OF 19
71

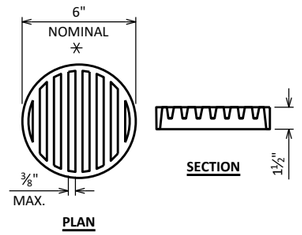
I.D.
DATE:
SCALE =

STATE PROJECT NUMBER

2395-07-71

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTALS
203.2500	REMOVING STRUCTURE OVER WATERWAY REMOVE DEBRIS (B-40-532)	EACH	1
206.2001	EXCAVATION FOR STRUCTURES CULVERTS B-40-1104	EACH	1
210.2500	BACKFILL STRUCTURE TYPE B	TON	1,860
311.0110	BREAKER RUN	TON	825
504.0100	CONCRETE MASONRY CULVERTS	CY	340
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	15,490
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	34,020
513.7084	RAILING STEEL TYPE NY4	LF	142.2
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	28
606.0300	RIPRAP HEAVY	CY	435
645.0105	GEOTEXTILE TYPE C	SY	520
645.0120	GEOTEXTILE TYPE HR	SY	545
SPV.0195	COARSE AGGREGATE MIX FOR STREAM BED	TON	85
	NON-BID ITEMS		
	FILLER	SIZE	¾"



RODENT SHIELD DETAIL

⚹ DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

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

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.

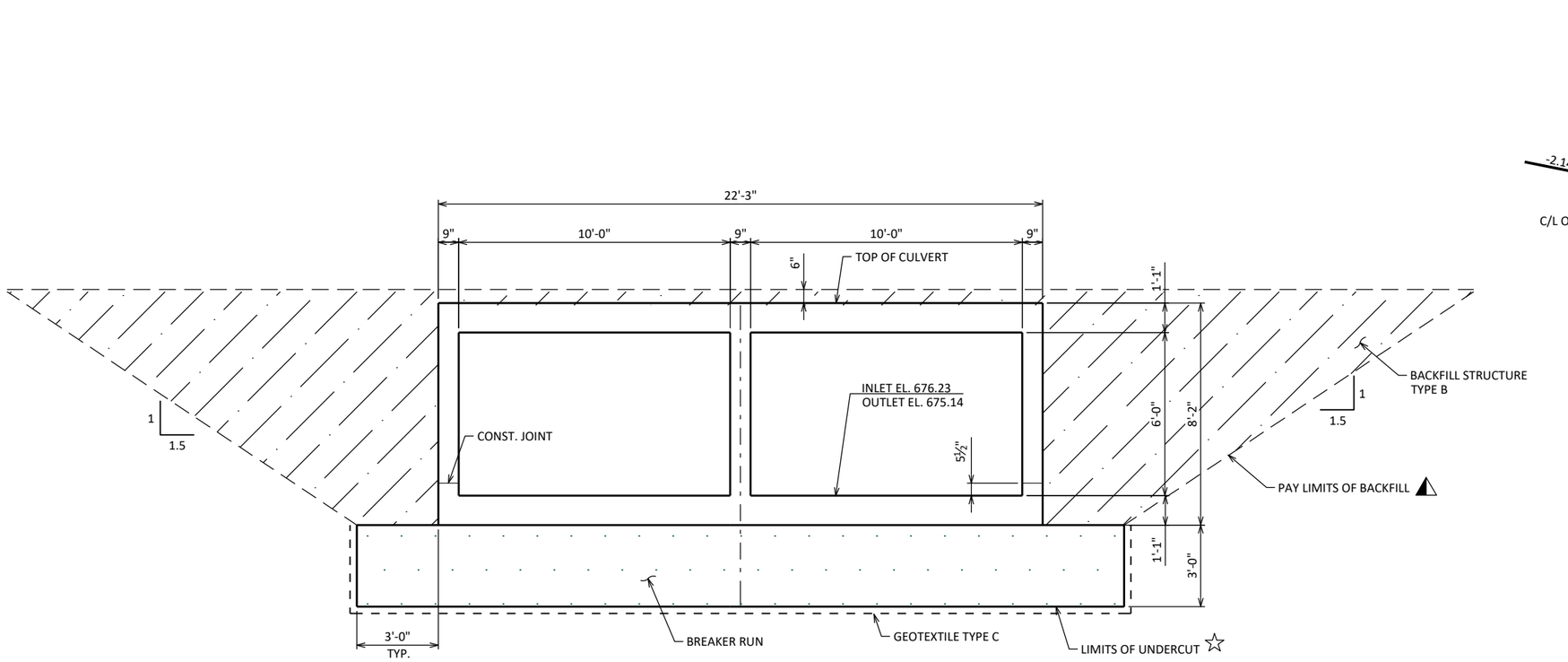
THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS B-40-1104 SHALL BE THE EXISTING GROUNDLINE.

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

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE B" REQUIRED ON THE BOX CULVERT SIDES AND BEHIND WINGWALLS FOR 3-FEET. BACKFILL PLACED BEYOND BACKFILL PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

WITHIN THE LENGTH OF THE BOX ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TO THE ELEVATION AND SECTION EXISTING PRIOR TO EXCAVATION WITHIN THE LENGTH OF THE CULVERT.

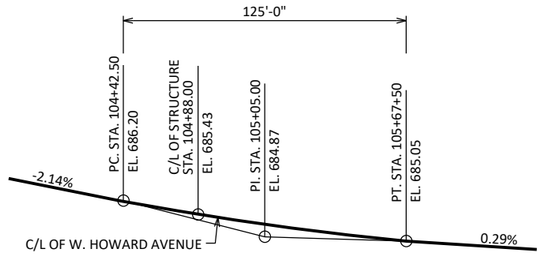
IN LIEU OF USING BREAKER RUN FOR THE BOX CONSTRUCTION PLATFORM, THE CONTRACTOR MAY ELECT TO SUBSTITUTE COARSE AGGREGATE AASHTO NO. 67 OR AASHTO NO. 4 IN ACCORDANCE WITH STANDARD SPEC 310 AND 604, RESPECTIVELY, SELECT CRUSHED MATERIAL OR OTHER GRANULAR MATERIAL AS APPROVED BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR BASE STABILITY WITH ANY SUBSTITUTED MATERIAL. THE REGION GEOTECHNICAL ENGINEER MAY BE CONTACTED TO DETERMINE IF "OTHER GRANULAR MATERIAL" IS ACCEPTABLE.



TYPICAL SECTION THRU BOX CULVERT AND BACKFILL DETAIL

◭ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

☆ UNDERCUT 3'-0". EXCAVATION FOR UNDERCUT TO BE INCLUDED IN EXCAVATION FOR STRUCTURES. PLACE "GEOTEXTILE TYPE C" AND BACKFILL WITH "BREAKER RUN".



PROFILE GRADE LINE

(W. HOWARD AVENUE)

BENCH MARK

NO.	STATION	DESCRIPTION	ELEV.
105	106+71	NW BOLT ON HYD., 30' LT.	688.04
107	116+36	CHISELED SQ. CONC. NW CORNER LIFT ST., 76' LT.	675.75

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D DRS

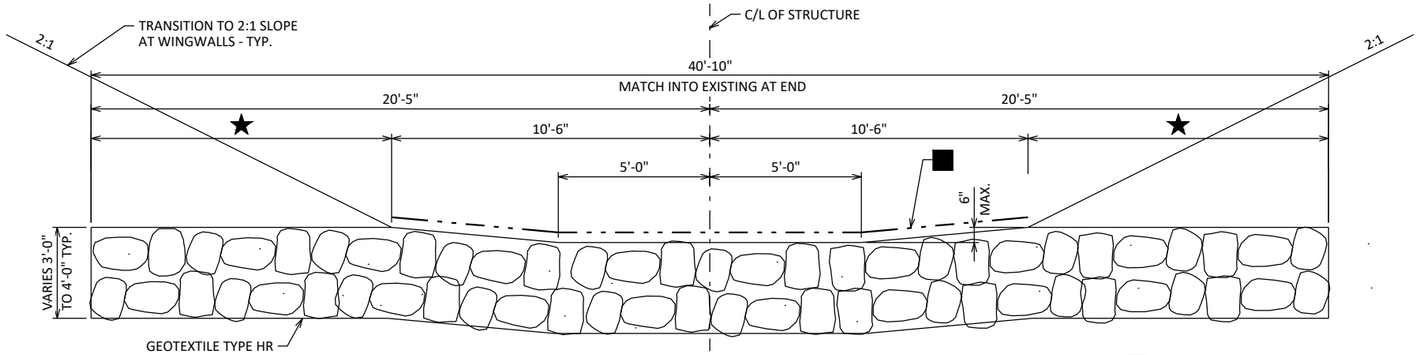
QUANTITIES AND NOTES

SHEET 2 OF 19

72

STATE PROJECT NUMBER

2395-07-71



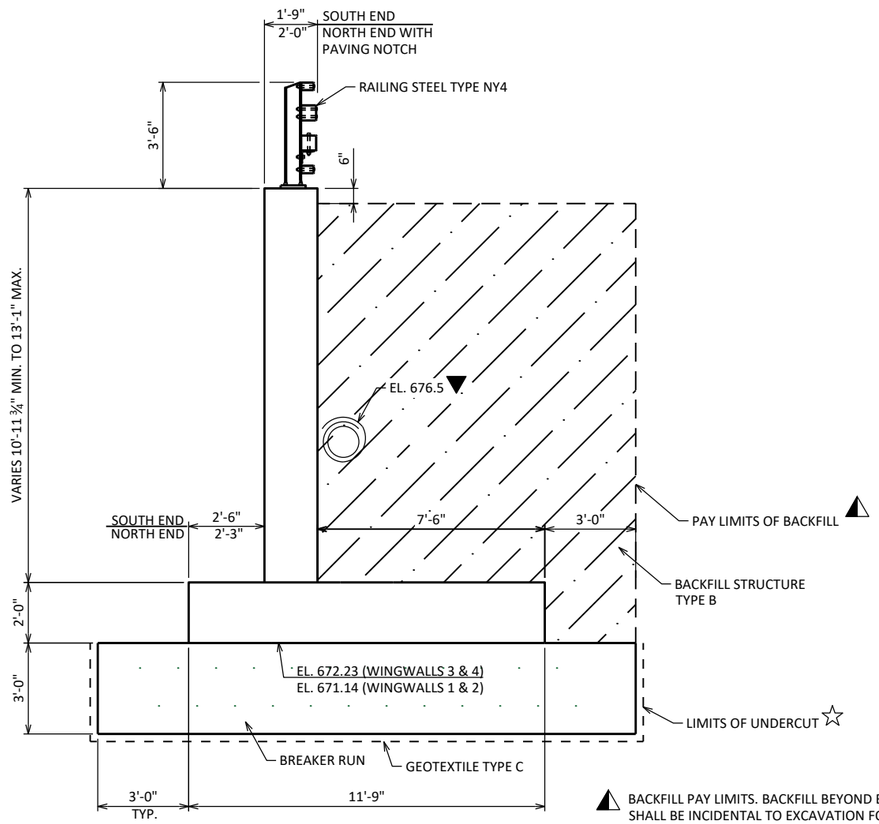
SECTION B

TYPICAL SECTION THRU DOWNSTREAM RIPRAP

FOR LOCATION OF SECTION B, SEE SHEET 1

■ FILL VOIDS IN RIPRAP HEAVY WITH COARSE AGGREGATE MIX FOR STREAM BED TO FULLY FILL ALL VOIDS AND LEAVE, ON AVERAGE, TWO INCHES ABOVE THE LOWEST ROCK POINTS WHERE THEY ABUT EACH OTHER. "COARSE AGGREGATE MIX FOR STREAM BED".

★ MATCH EXISTING GROUND CONTOURS

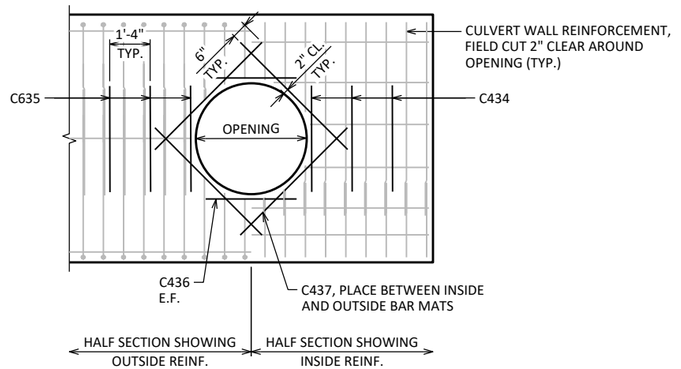


TYPICAL SECTION THRU WINGWALL

▼ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD ENDS OF PIPE UNDERDRAIN.

◭ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

☆ UNDERCUT 3'-0". EXCAVATION FOR UNDERCUT TO BE INCLUDED IN EXCAVATION FOR STRUCTURES. PLACE "GEOTEXTILE TYPE C" AND BACKFILL WITH "BREAKER RUN".



TYPICAL STORM SEWER PENETRATION DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D DRS

STRUCTURE DETAILS

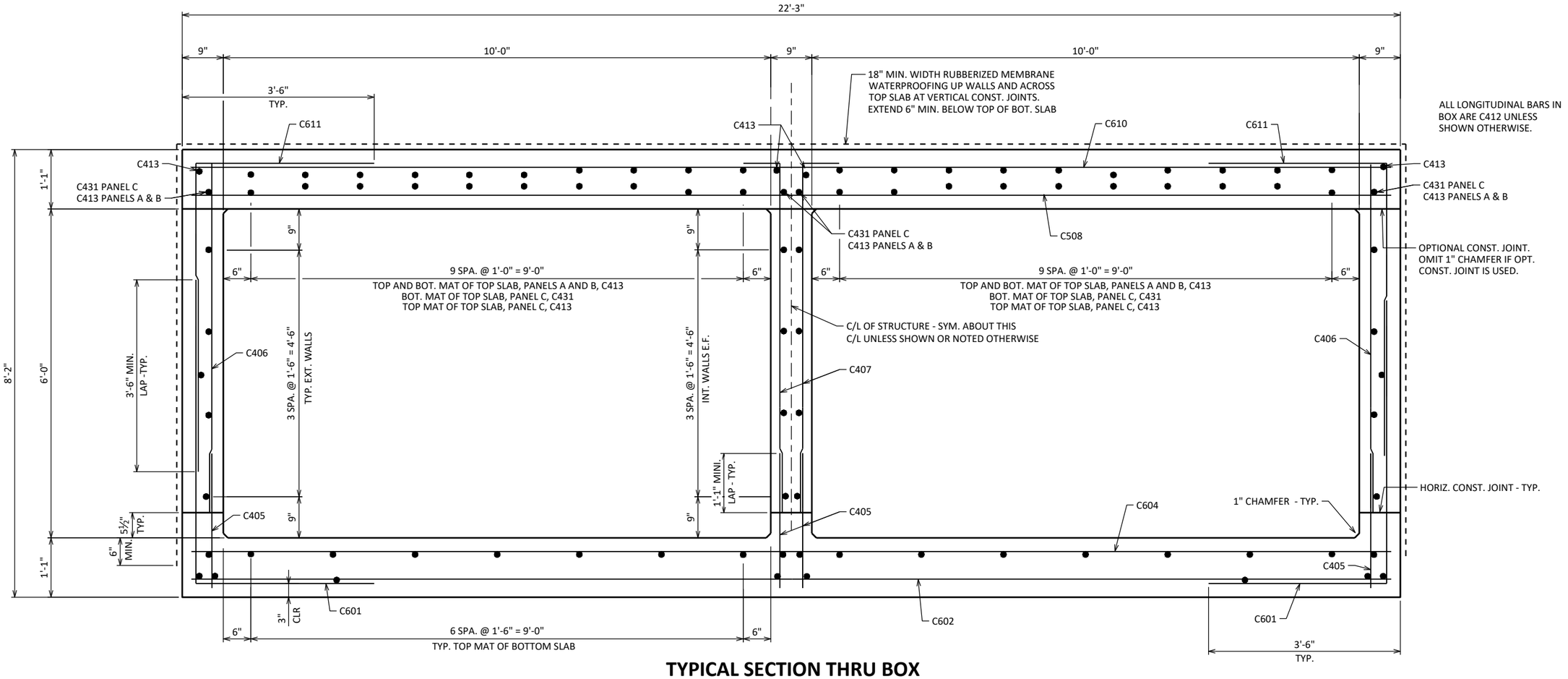
SHEET 3 OF 19

8

8

STATE PROJECT NUMBER

2395-07-71



TYPICAL SECTION THRU BOX

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

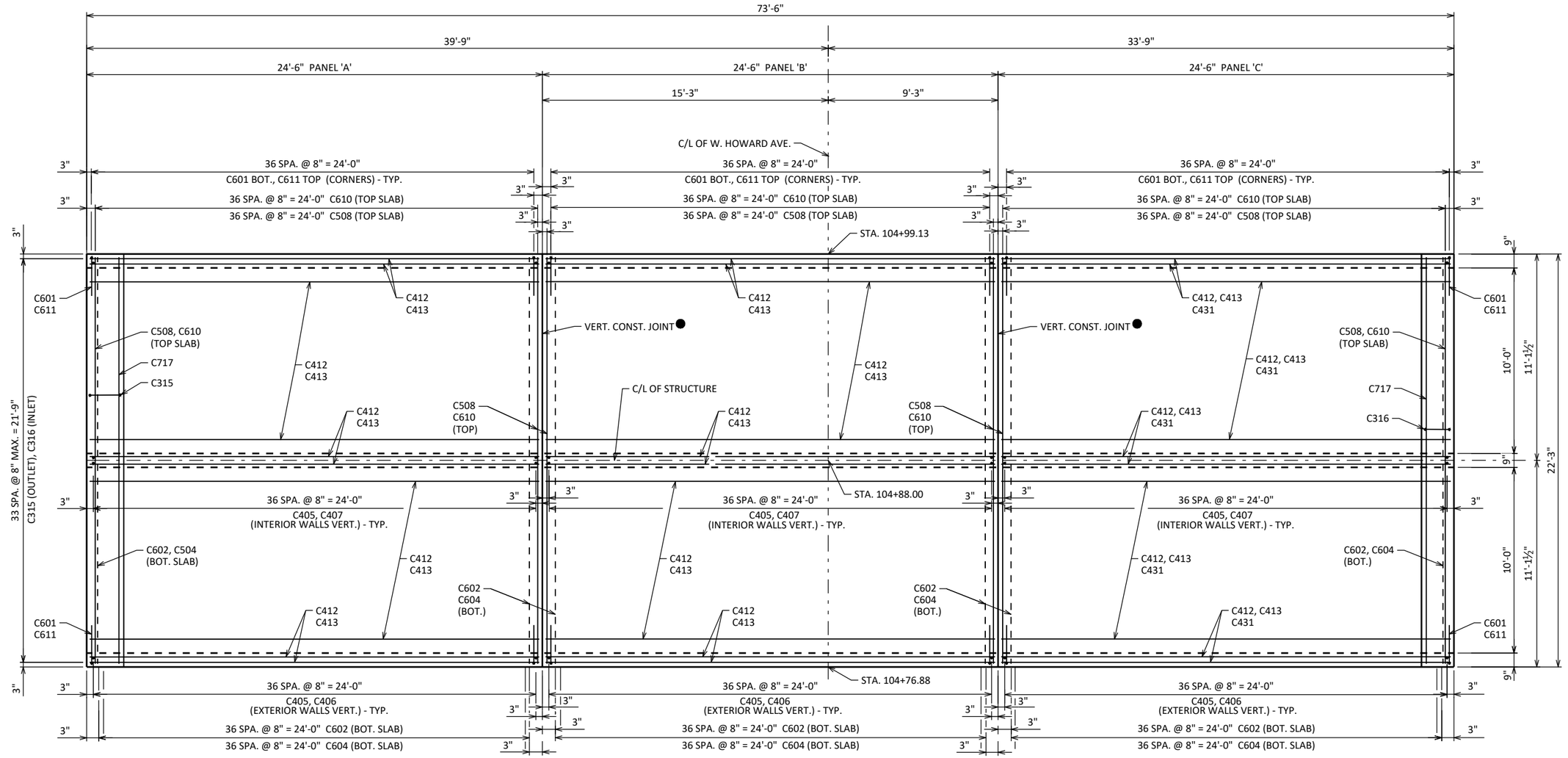
DRAWN BY CLP | PLANS CK'D DRS

BOX DETAILS

SHEET 4 OF 19

STATE PROJECT NUMBER

2395-07-71



BAR STEEL LAYOUT

● 18" MIN. WIDTH RUBBERIZED MEMBRANE WATERPROOFING UP WALLS AND ACROSS TOP SLAB AT VERTICAL CONST. JOINTS. EXTEND 6" MIN. BELOW TOP OF BOT. SLAB

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D DRS

BAR STEEL LAYOUT

SHEET 5 OF 19

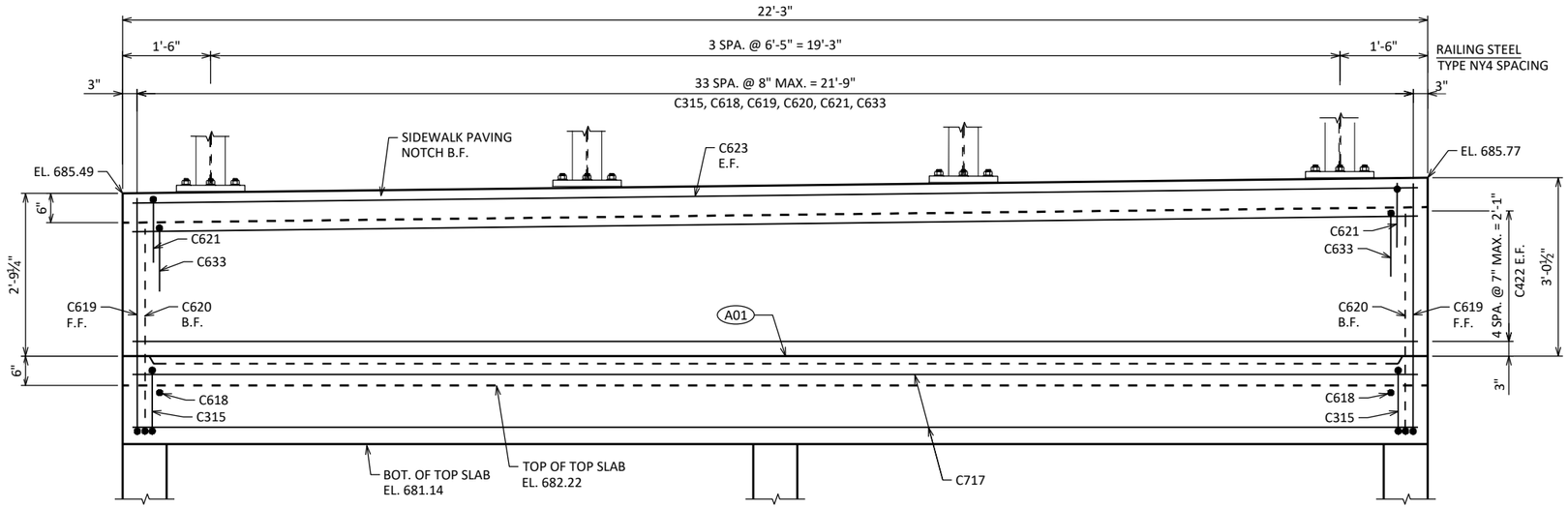
75

8

8

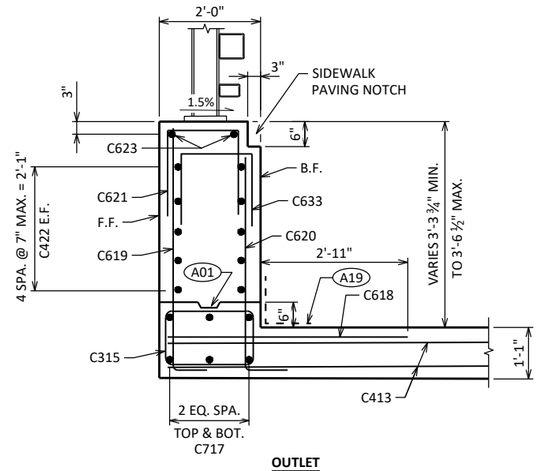
STATE PROJECT NUMBER

2395-07-71

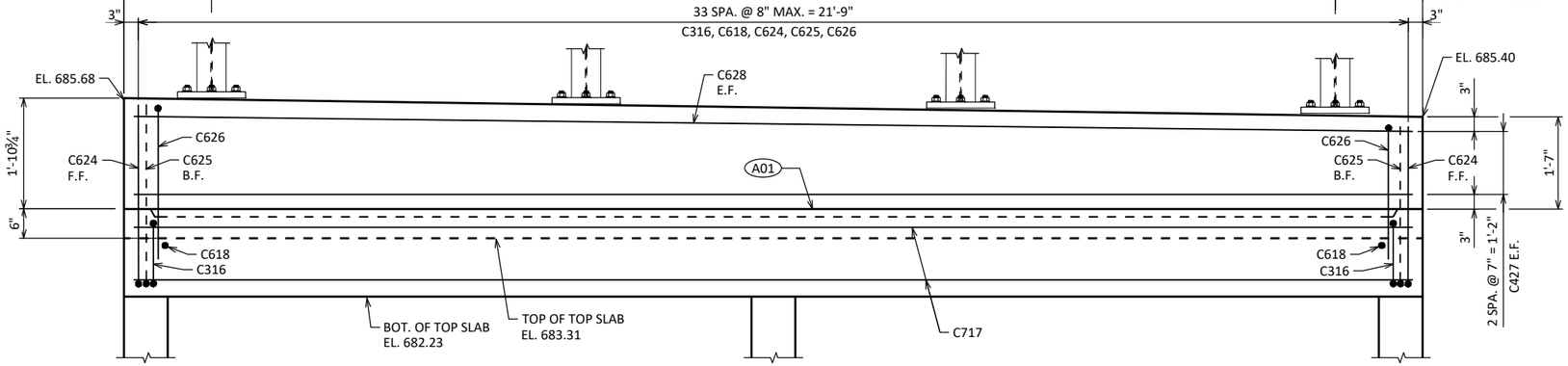


ELEVATION - OUTLET HEADER

(LOOKING SOUTH)

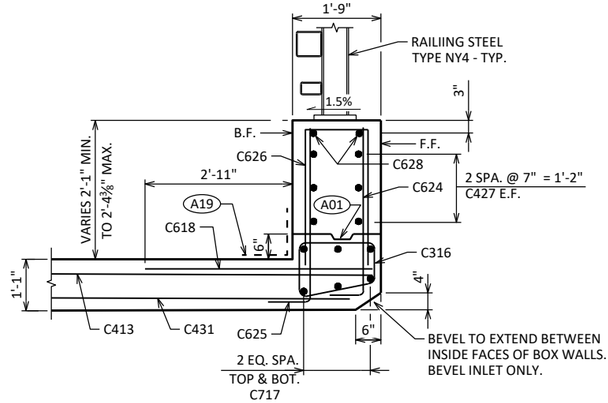


OUTLET



ELEVATION - INLET HEADER

(LOOKING NORTH)



INLET

SECTION THRU HEADERS

A01 CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6.

A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ. JOINTS AT BACK FACE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D JLB

HEADER DETAILS

SHEET 6 OF 19

8

8

STATE PROJECT NUMBER

2395-07-71

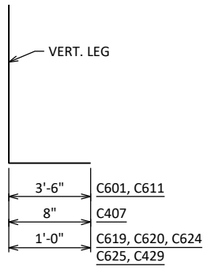
BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

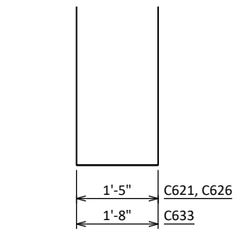
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
C601		222	9'-0"	X		BOX BOTTOM CORNERS
C602		111	21'-11"			BOX BOTTOM SLAB TRANS.
C604		111	21'-11"			BOX BOTTOM SLAB TRANS.
C405		444	2'-6"			BOX WALLS VERT. INT. & EXT.
C406		222	6'-5"			BOX WALLS VERT. EXT.
C407		222	7'-0"	X		BOX WALLS VERT. INT.
C508	X	111	21'-11"			BOX TOP SLAB TRANS.
C610	X	111	21'-11"			BOX TOP SLAB TRANS.
C611	X	222	9'-0"	X		BOX TOP CORNERS
C412		132	24'-2"			BOX LONG. WALLS AND BOTTOM SLAB
C413	X	120	24'-2"			BOX LONG. TOP SLAB
C514	X	128	4'-0"			BOX @ VERT. CONST. JOINT
C315	X	34	6'-1"	X		HEADER VERT. OUTLET
C316	X	34	5'-3"	X		HEADER VERT. INLET
C717	X	12	21'-11"			HEADER HORIZ. INLET & OUTLET
C618	X	68	4'-9"			HEADER LONG. INLET & OUTLET
C619	X	34	4'-6"	X		HEADER VERT. OUTLET
C620	X	34	4'-0"	X		HEADER VERT. OUTLET
C621	X	34	5'-5"	X		HEADER VERT. OUTLET TOP
C422	X	10	21'-11"			HEADER HORIZ. OUTLET
C623	X	2	21'-11"			HEADER HORIZ. OUTLET TOP
C624	X	34	3'-3"	X		HEADER VERT. INLET
C625	X	34	3'-7"	X		HEADER VERT. INLET
C626	X	34	4'-1"	X		HEADER VERT. INLET TOP
C427	X	6	21'-11"			HEADER HORIZ. INLET
C628	X	2	21'-11"			HEADER HORIZ. INLET TOP
C429		46	5'-6"	X		CUT-OFF WALL INLET & OUTLET
C430		10	21'-11"			CUT-OFF WALL HORIZ.
C431	X	24	23'-10"			BOX LONG. TOP SLAB PANEL C BOT.
C633	X	34	5'-0"	X		HEADER VERT. OUTLET TOP
C434	X	18	3'-6"			WALLS @ PIPE PENETRATIONS
C635	X	18	3'-6"			WALLS @ PIPE PENETRATIONS
C436	X	12	3'-0"			WALLS @ PIPE PENETRATIONS
C437	X	12	5'-0"			WALLS @ PIPE PENETRATIONS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

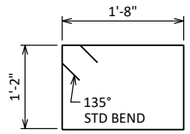
VARIOUS BAR MARKS PURPOSEFULLY OMITTED.



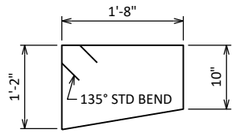
C601, C407, C611, C619 C620, C624, C625, C429



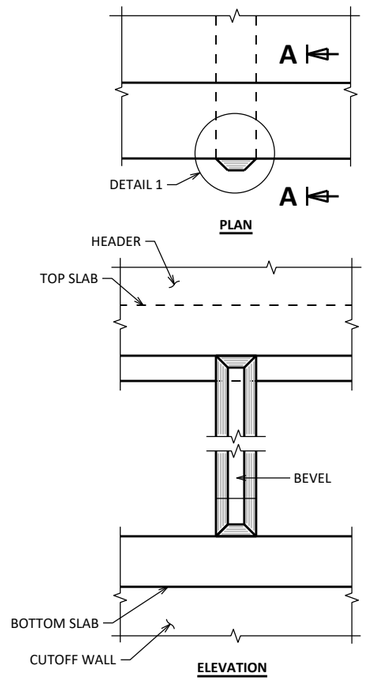
C621, C626, C633



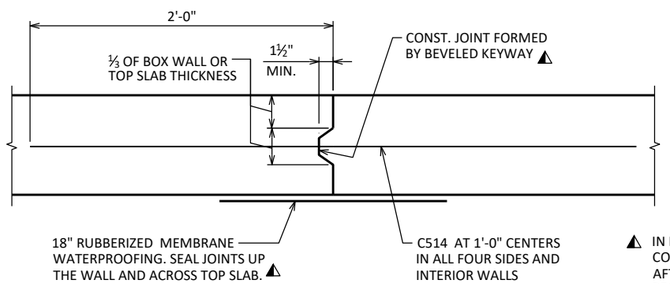
C315



C316

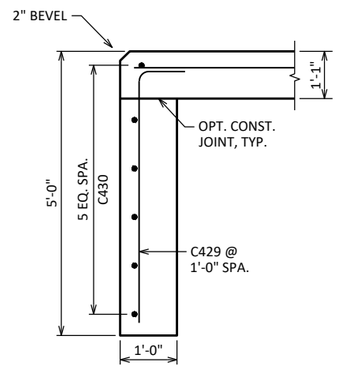


INLET NOSE DETAILS



⚠ IN LIEU OF CONSTRUCTION JOINTS IN THE BOTTOM SLAB, THE CONTRACTOR MAY USE 2" DEEP SAW CUTS WITHIN 12 HOURS AFTER POURING. C514 BARS 4'-0" LONG AT 1'-0" CENTERS STILL REQUIRED.

VERTICAL CONSTRUCTION JOINT



CUT-OFF WALLS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D DRS

BOX CULVERT BILL OF BARS AND DETAILS

SHEET 7 OF 19

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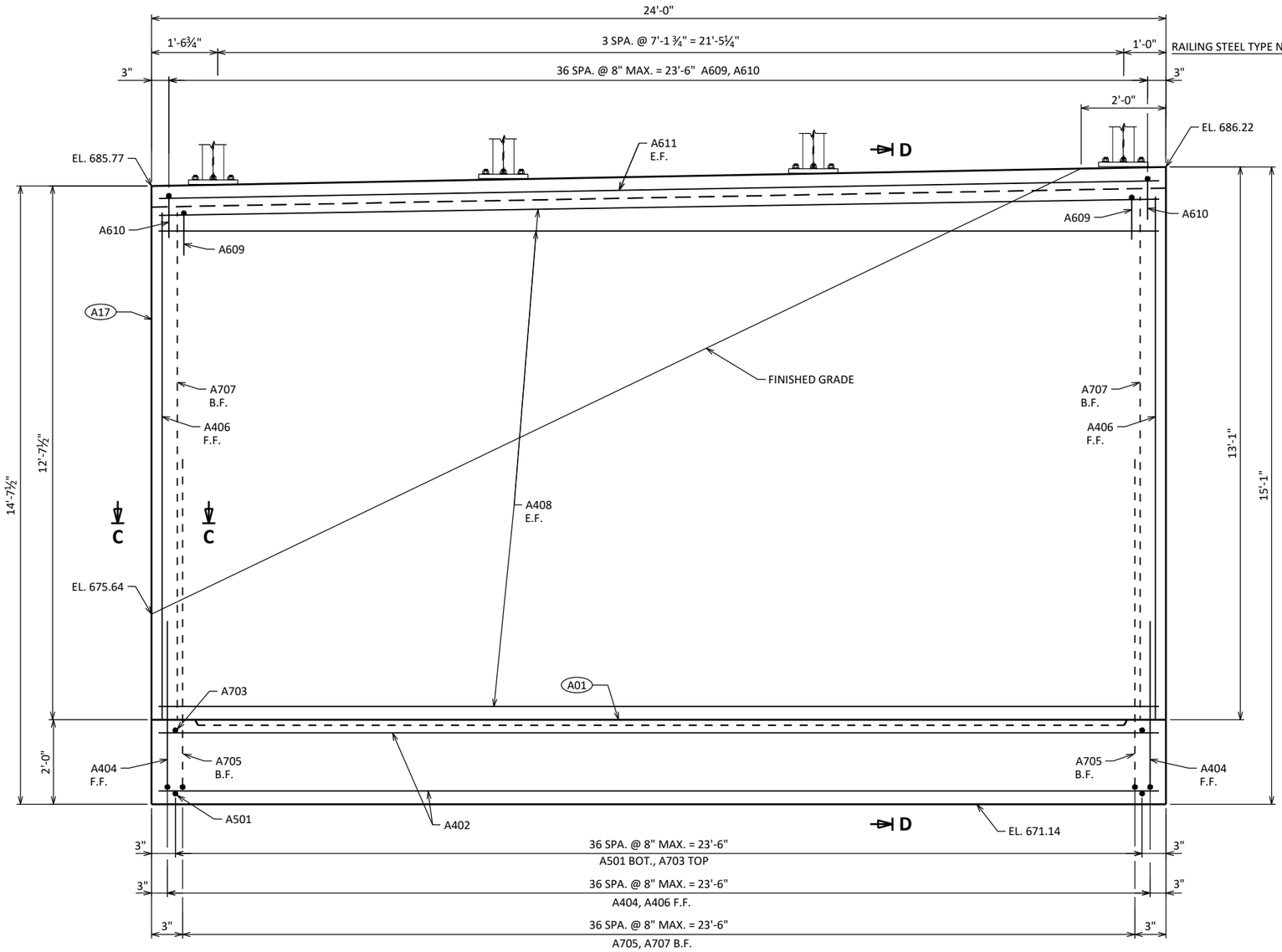
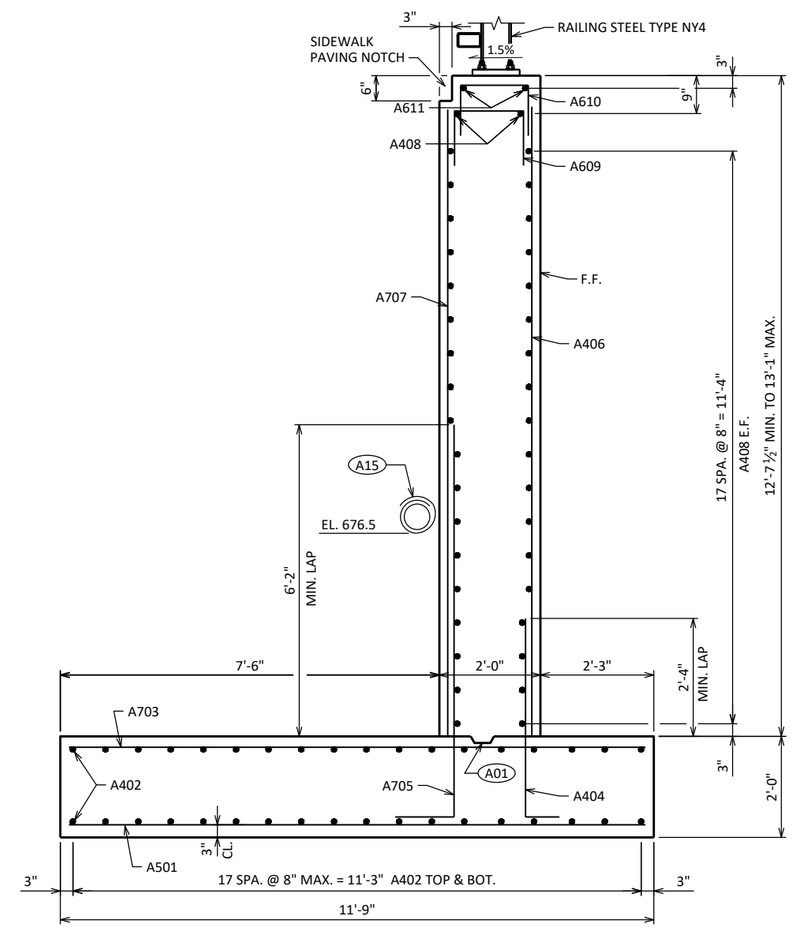
STATE PROJECT NUMBER

2395-07-71



WINGWALL 1 ELEVATION

FOR SECTION C, SEE SHEET 16
(LOOKING SOUTH)



SECTION D

A01 CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6.

A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

A17 ¾" PERFORMED FILLER FROM TOP OF FOOTING TO TOP OF WALL (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ¾" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW TOP AT INSIDE FACE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D DRS

WINGWALL 1

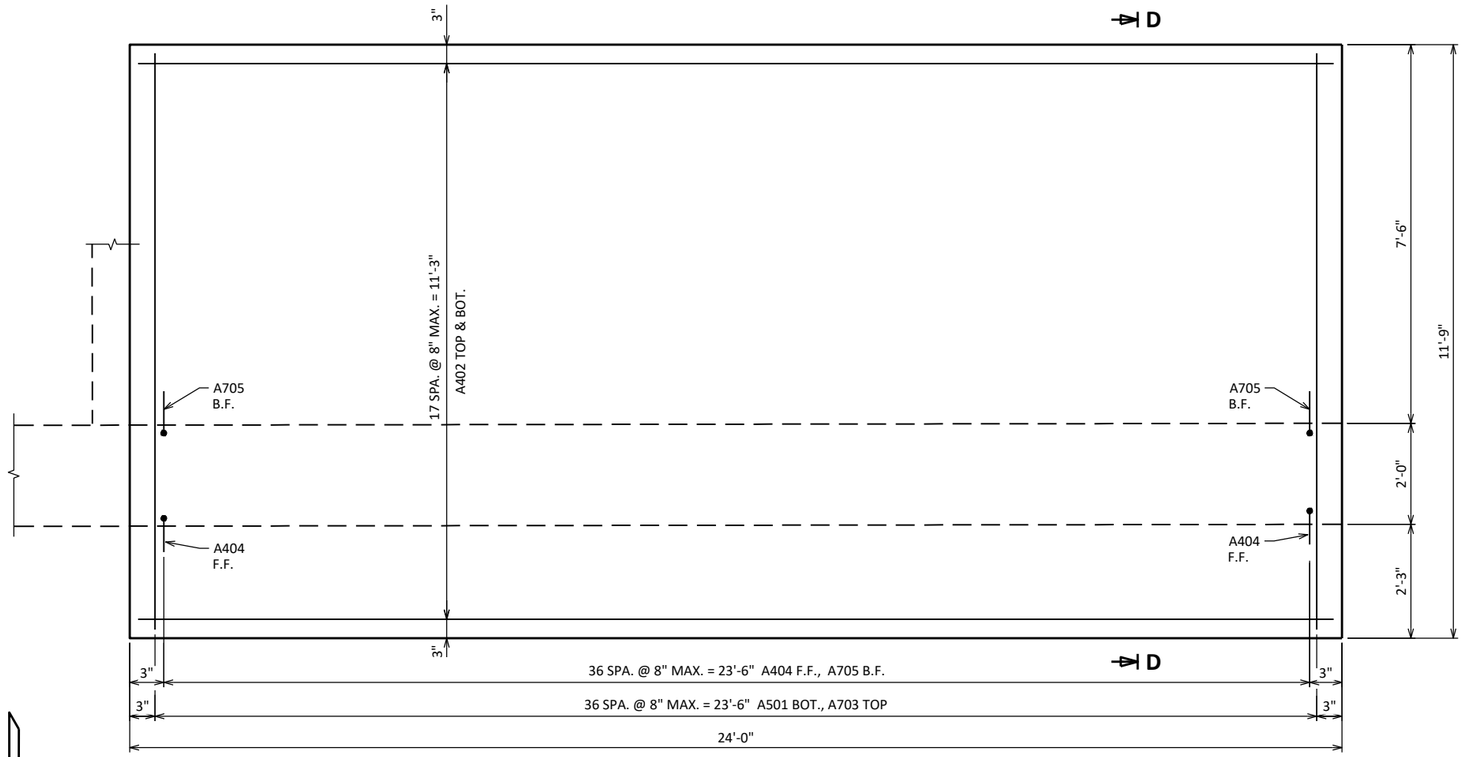
SHEET 8 OF 19
78

8

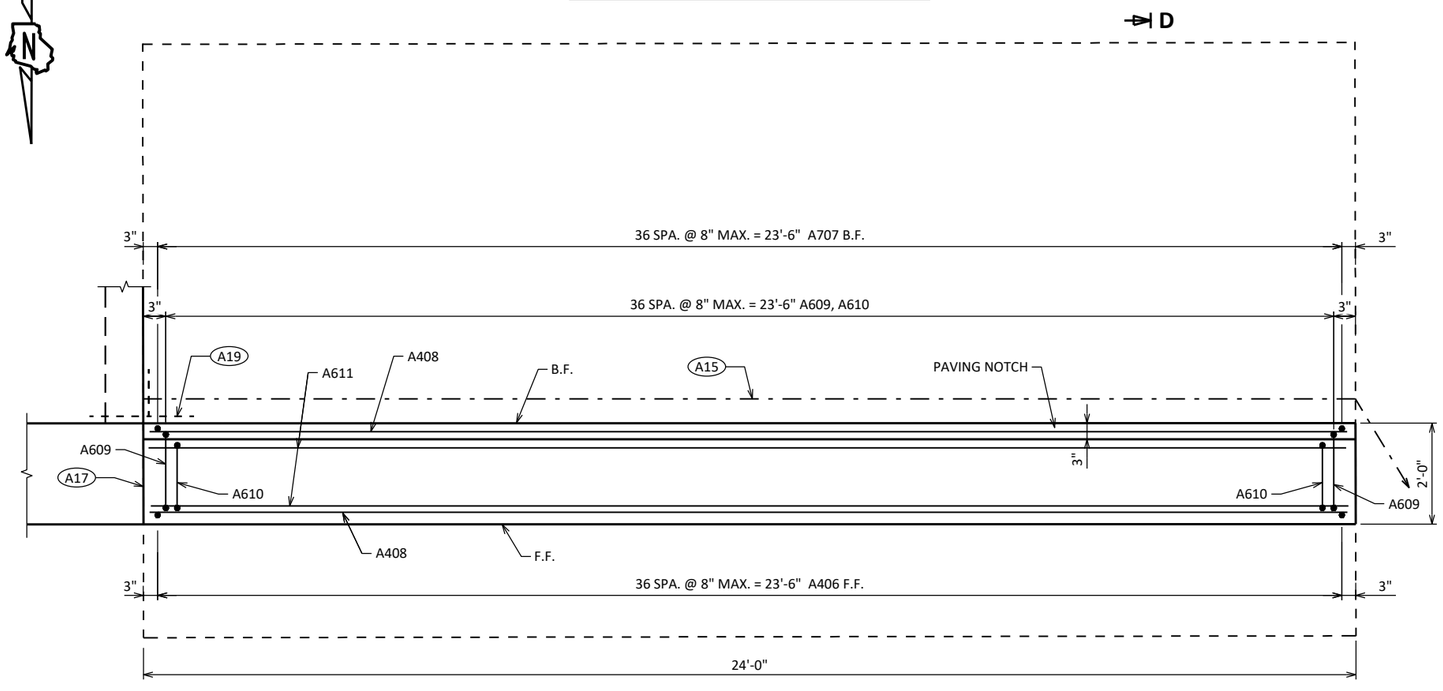
8

STATE PROJECT NUMBER

2395-07-71



WINGWALL 1 FOOTING PLAN



WINGWALL 1 STEM PLAN

FOR SECTION D, SEE SHEET 8.

(A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

(A17) ¾" PERFORMED FILLER FROM TOP OF FOOTING TO TOP OF WALL (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ¾" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW TOP AT INSIDE FACE.

(A19) VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM TOP OF FOOTING TO TOP OF WALL.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

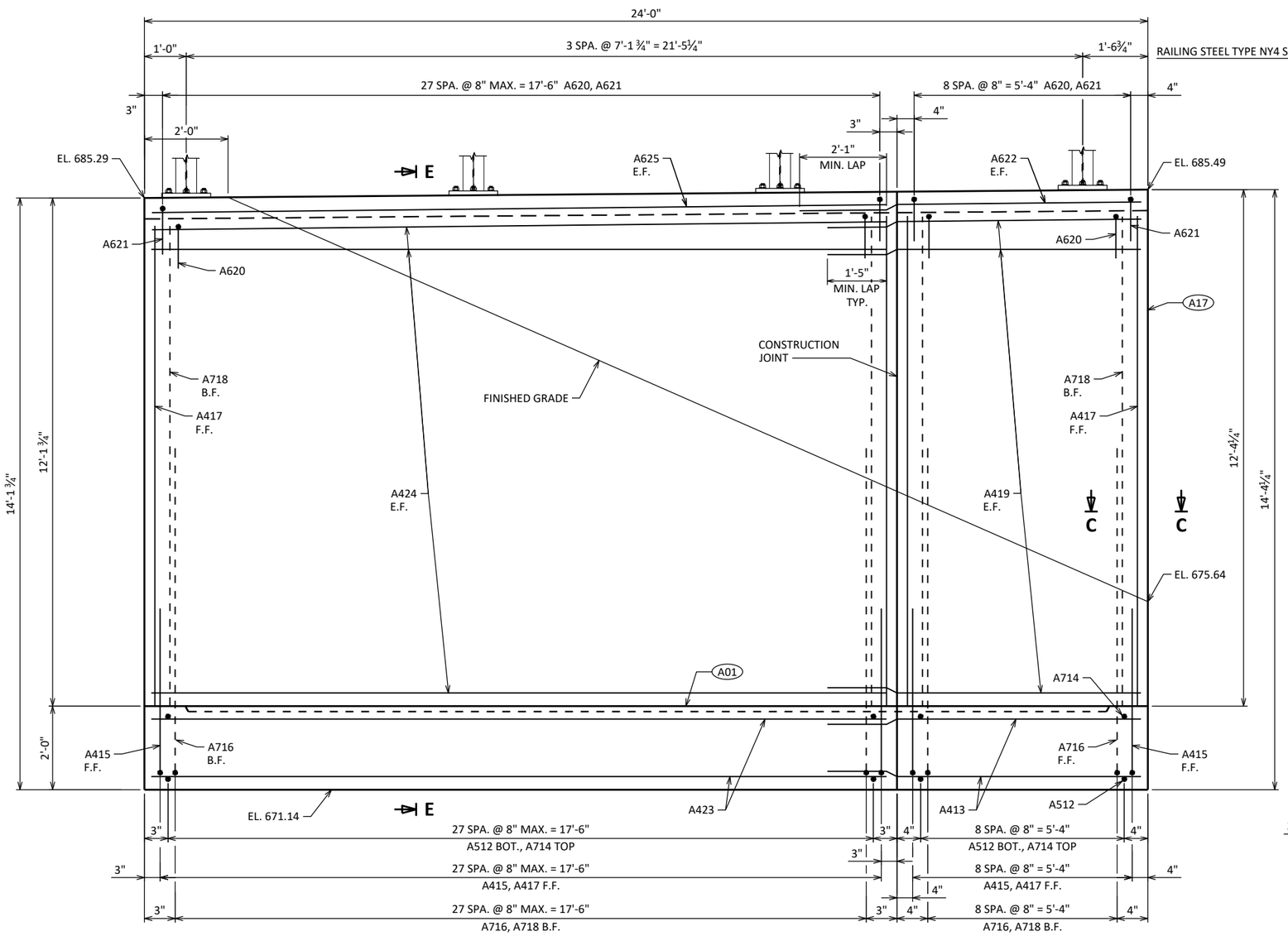
STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D DRS

WINGWALL 1 DETAILS

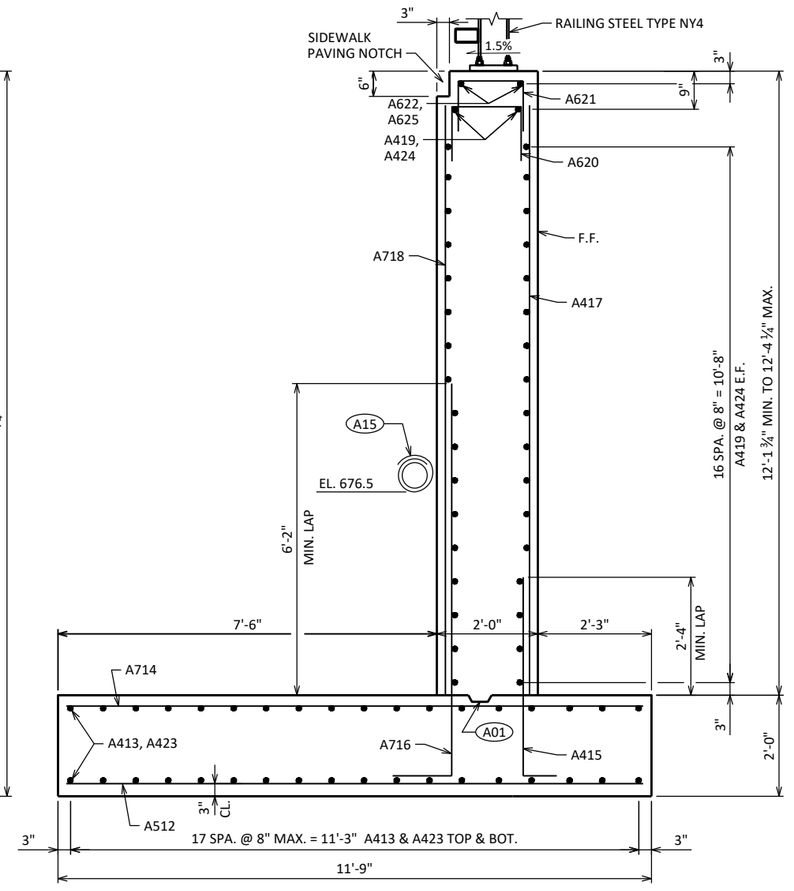
STATE PROJECT NUMBER

2395-07-71



WINGWALL 2 ELEVATION

FOR SECTION C, SEE SHEET 16
(LOOKING SOUTH)



SECTION E

A01 CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6.

A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

A17 ¾" PERFORMED FILLER FROM TOP OF FOOTING TO TOP OF WALL (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ¾" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW TOP AT INSIDE FACE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D DRS

WINGWALL 2

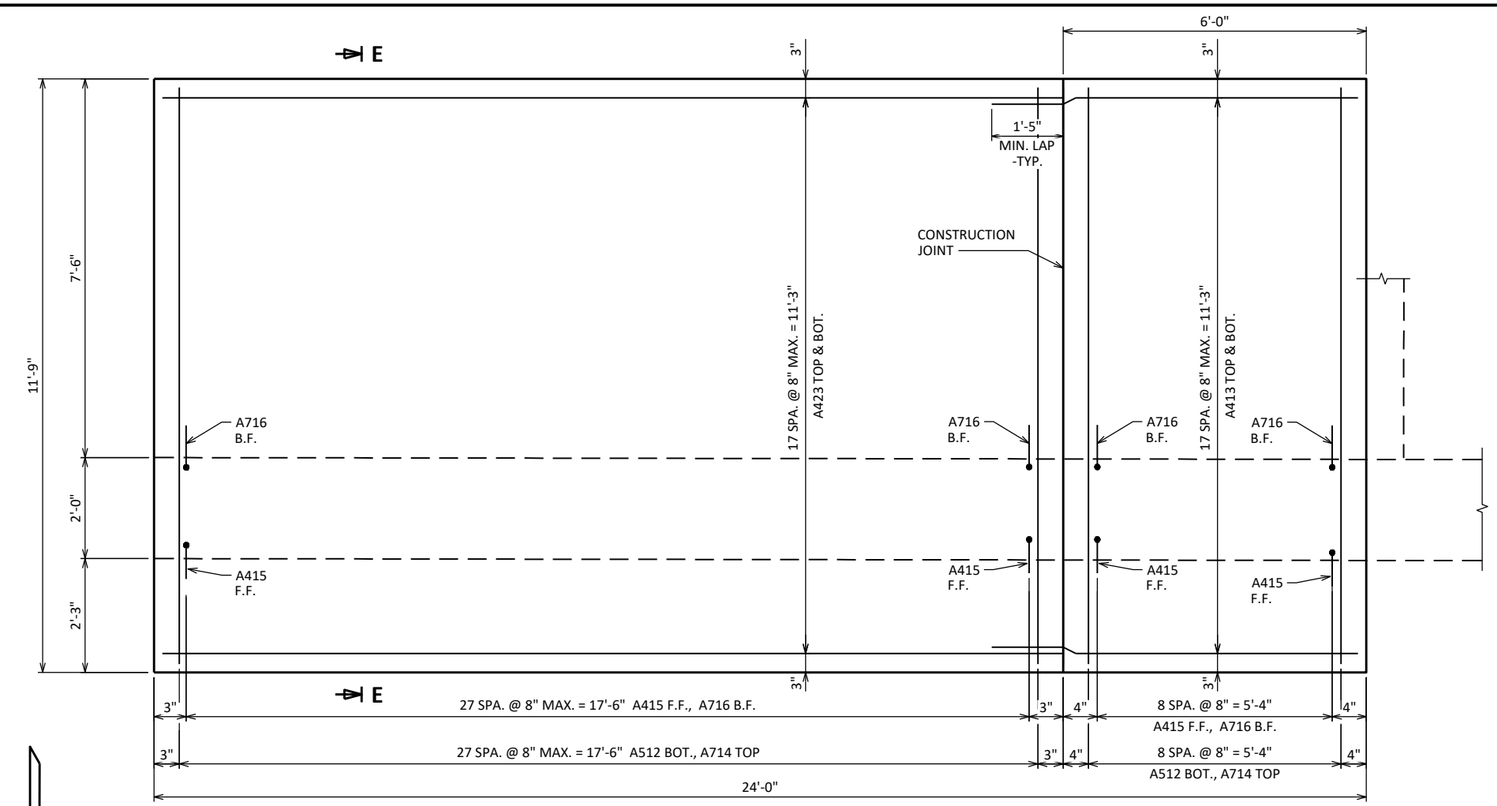
SHEET 10 OF 19

8

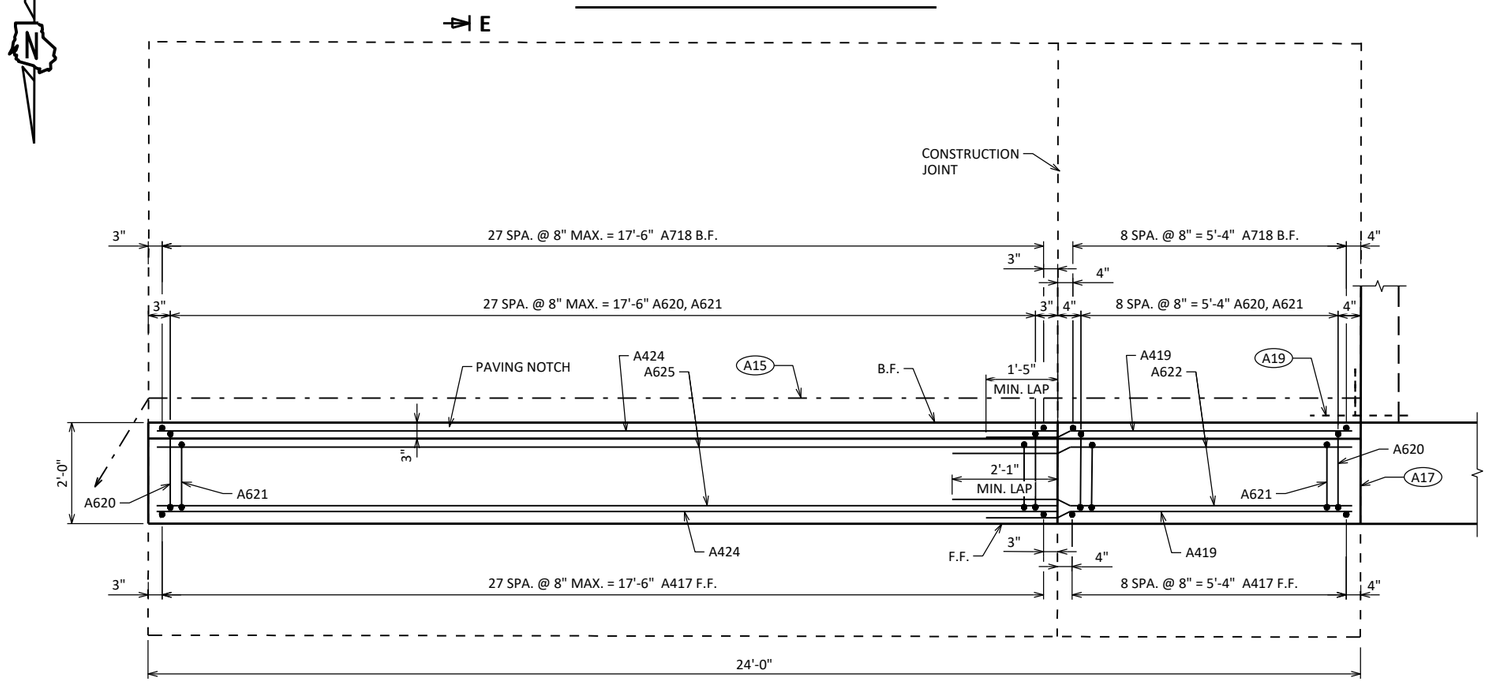
8

STATE PROJECT NUMBER

2395-07-71



WINGWALL 2 FOOTING PLAN



E

WINGWALL 2 STEM PLAN

FOR SECTION E, SEE SHEET 10.

(A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

(A17) ¾" PERFORMED FILLER FROM TOP OF FOOTING TO TOP OF WALL (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ¾" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW TOP AT INSIDE FACE.

(A19) VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM TOP OF FOOTING TO TOP OF WALL.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D DRS

WINGWALL 2 DETAILS

SHEET 11 OF 19

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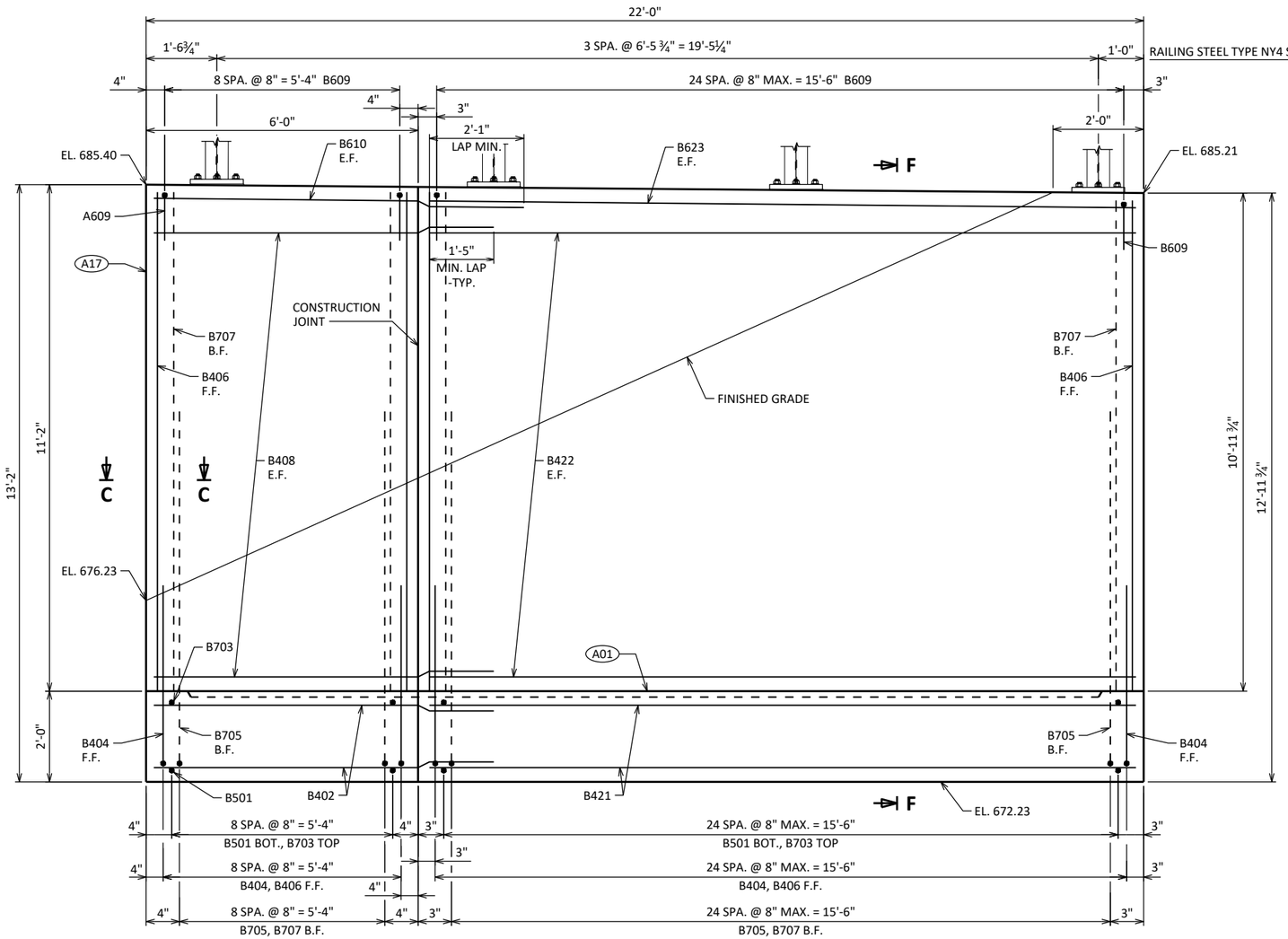
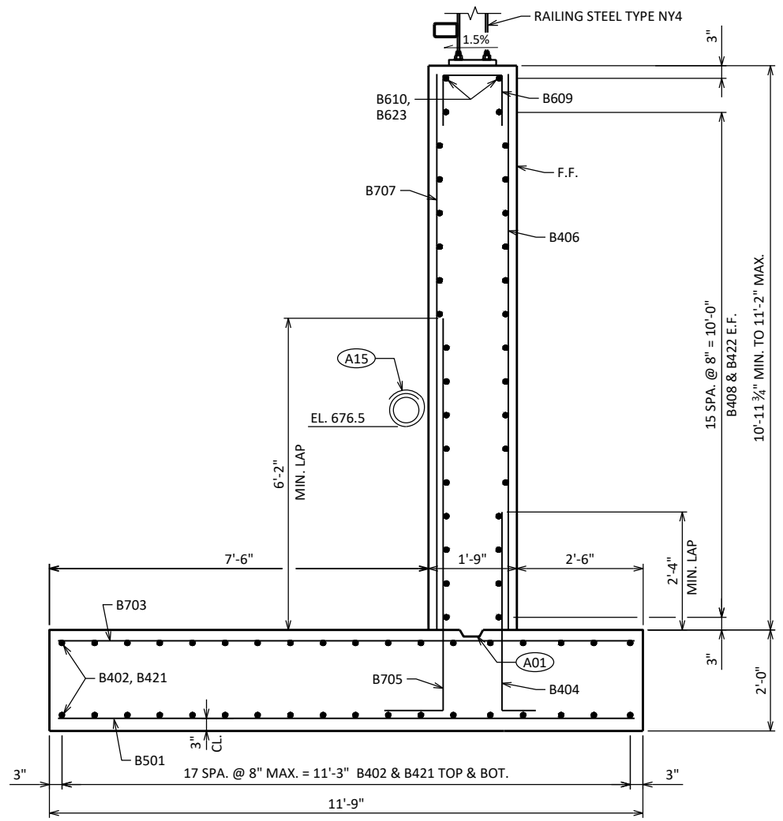
STATE PROJECT NUMBER

2395-07-71



WINGWALL 3 ELEVATION

FOR SECTION C, SEE SHEET 16
(LOOKING NORTH)



SECTION F

A01 CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6.

A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

A17 ¾" PERFORMED FILLER FROM TOP OF FOOTING TO TOP OF WALL (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ¾" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW TOP AT INSIDE FACE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D DRS

WINGWALL 3

SHEET 12 OF 19
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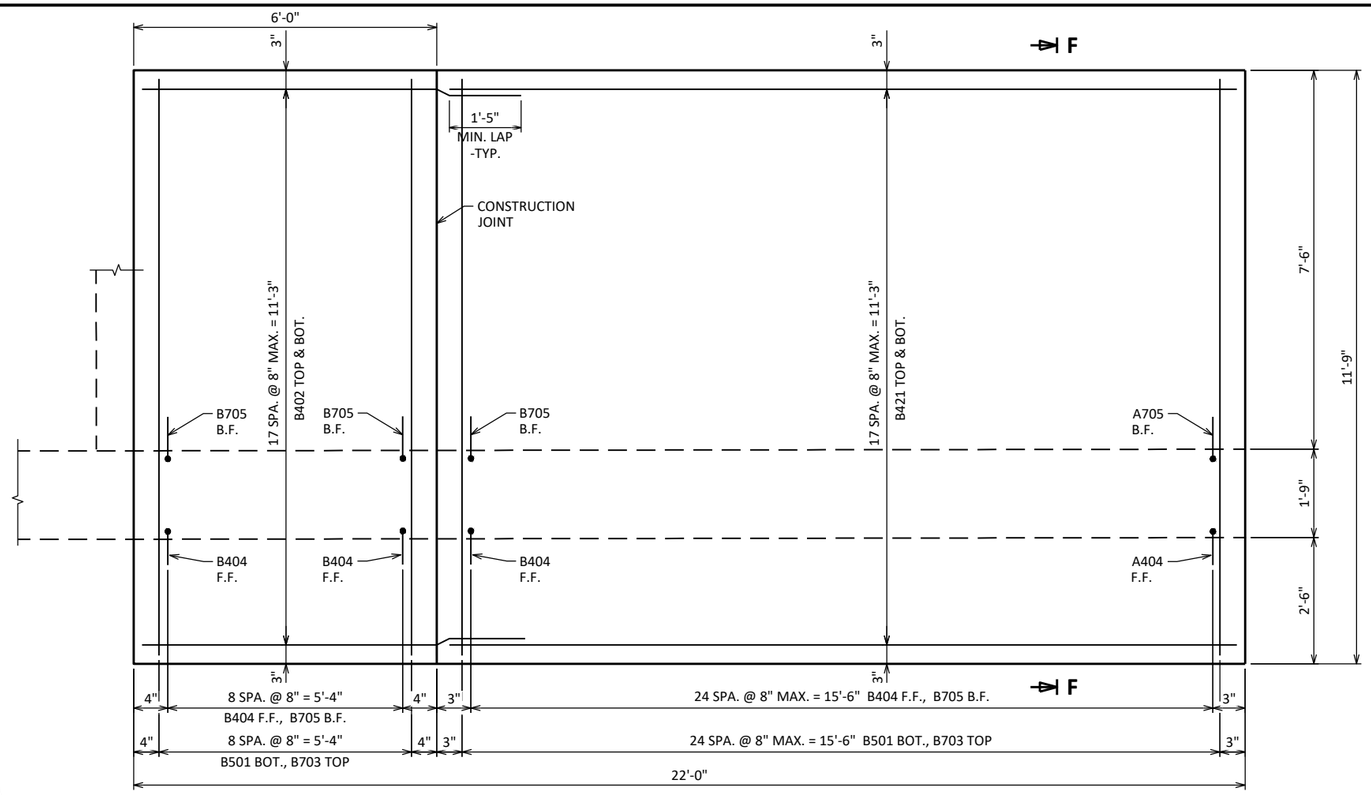
8

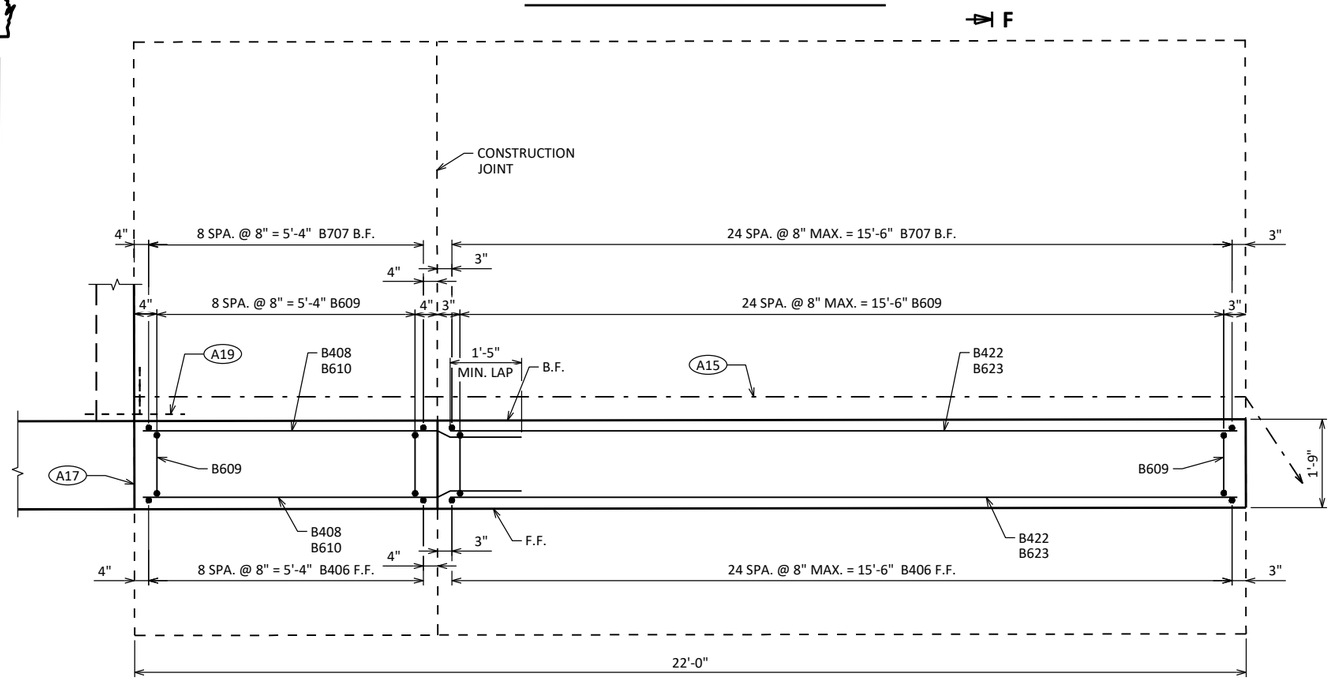
8

STATE PROJECT NUMBER

2395-07-71



WINGWALL 3 FOOTING PLAN



WINGWALL 3 STEM PLAN

FOR SECTION F, SEE SHEET 12.

(A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

(A17) ¾" PERFORMED FILLER FROM TOP OF FOOTING TO TOP OF WALL (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ¾" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW TOP AT INSIDE FACE.

(A19) VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM TOP OF FOOTING TO TOP OF WALL.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D DRS

WINGWALL 3 DETAILS

SHEET 13 OF 19

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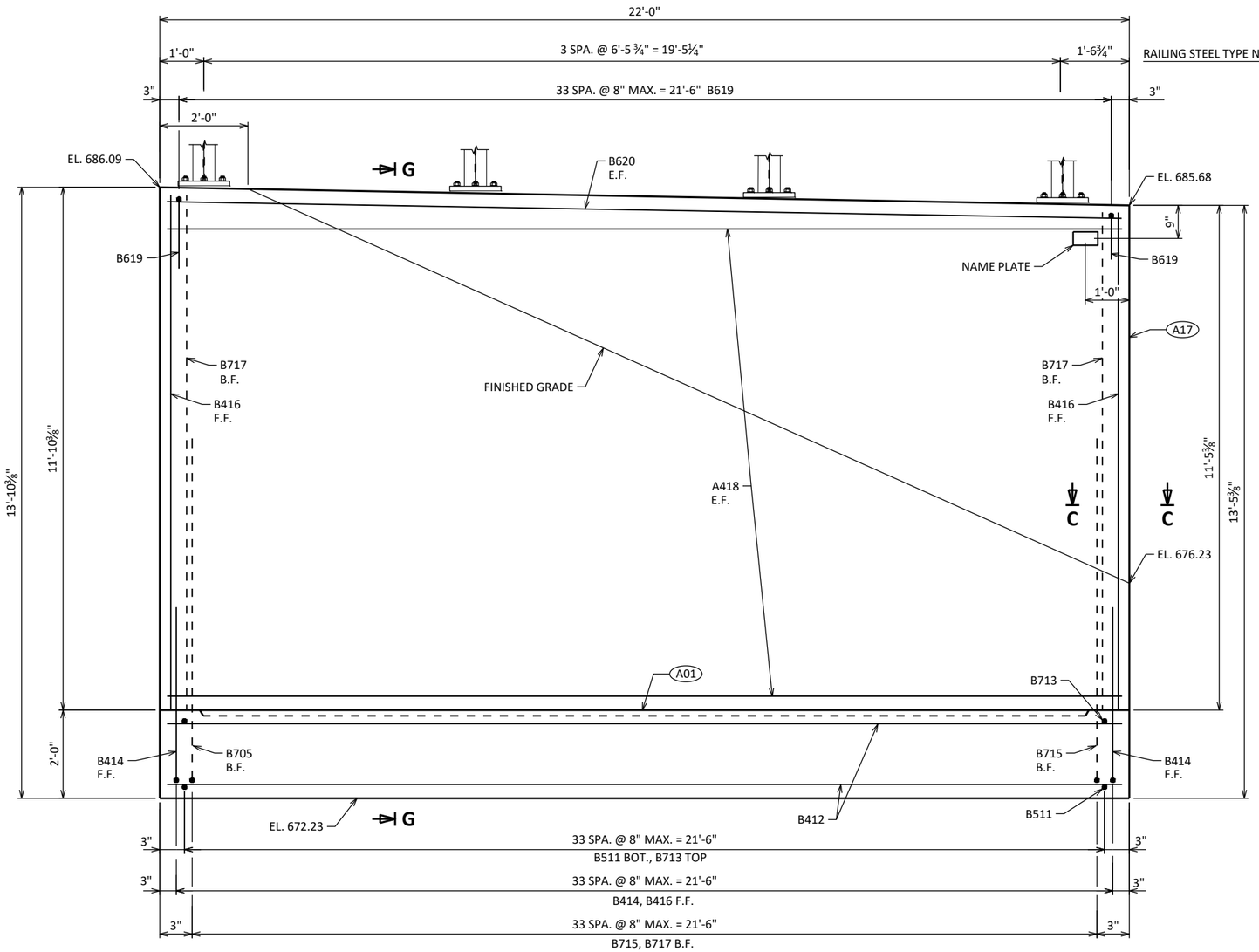
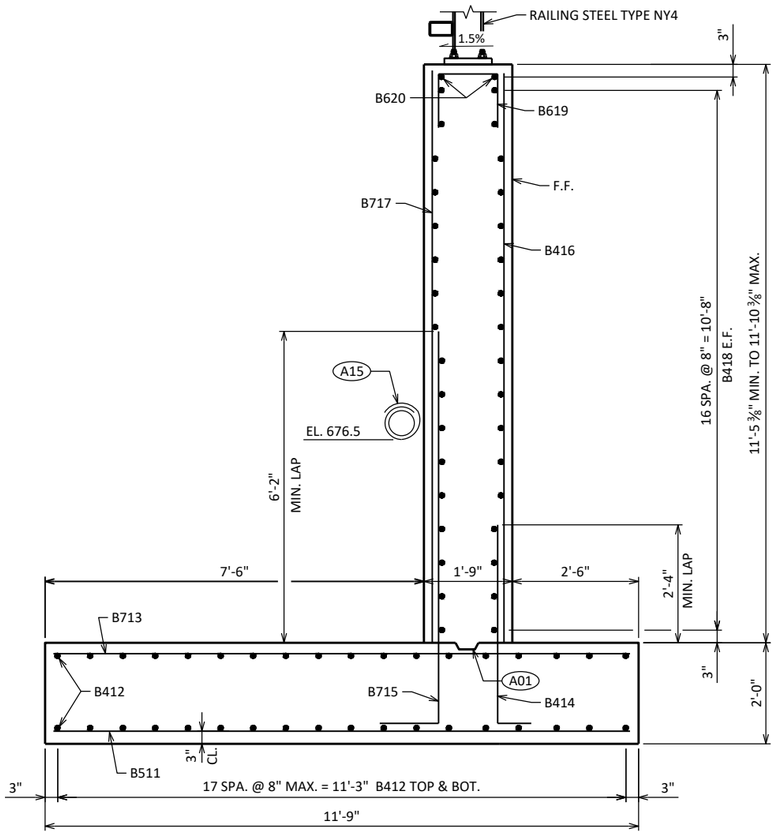
STATE PROJECT NUMBER

2395-07-71



WINGWALL 4 ELEVATION

FOR SECTION C, SEE SHEET 16
(LOOKING NORTH)



SECTION G

A01 CONST. JOINT: KEYWAY FORMED BY A BEVELED 2X6.

A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

A17 ¾" PERFORMED FILLER FROM TOP OF FOOTING TO TOP OF WALL (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ¾" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW TOP AT INSIDE FACE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D DRS

WINGWALL 4

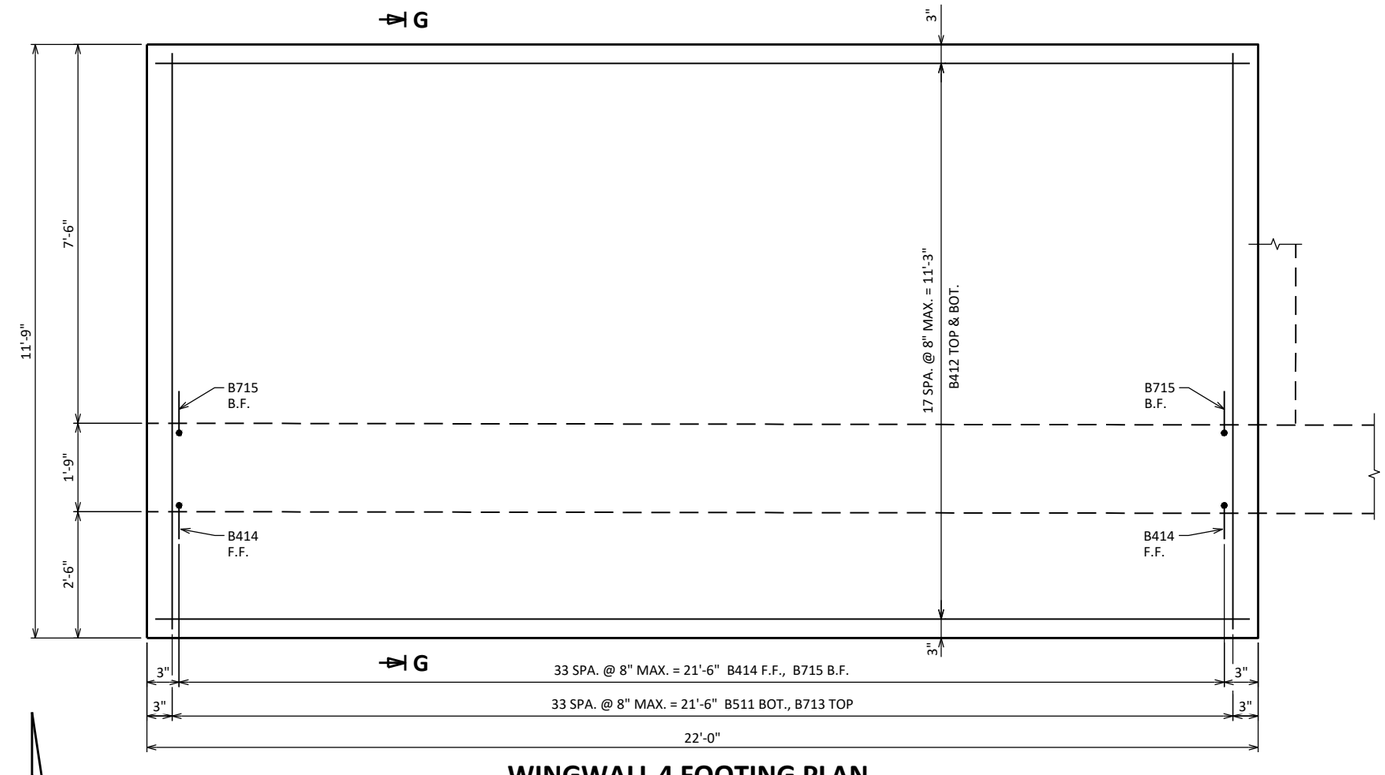
SHEET 14 OF 19
84

8

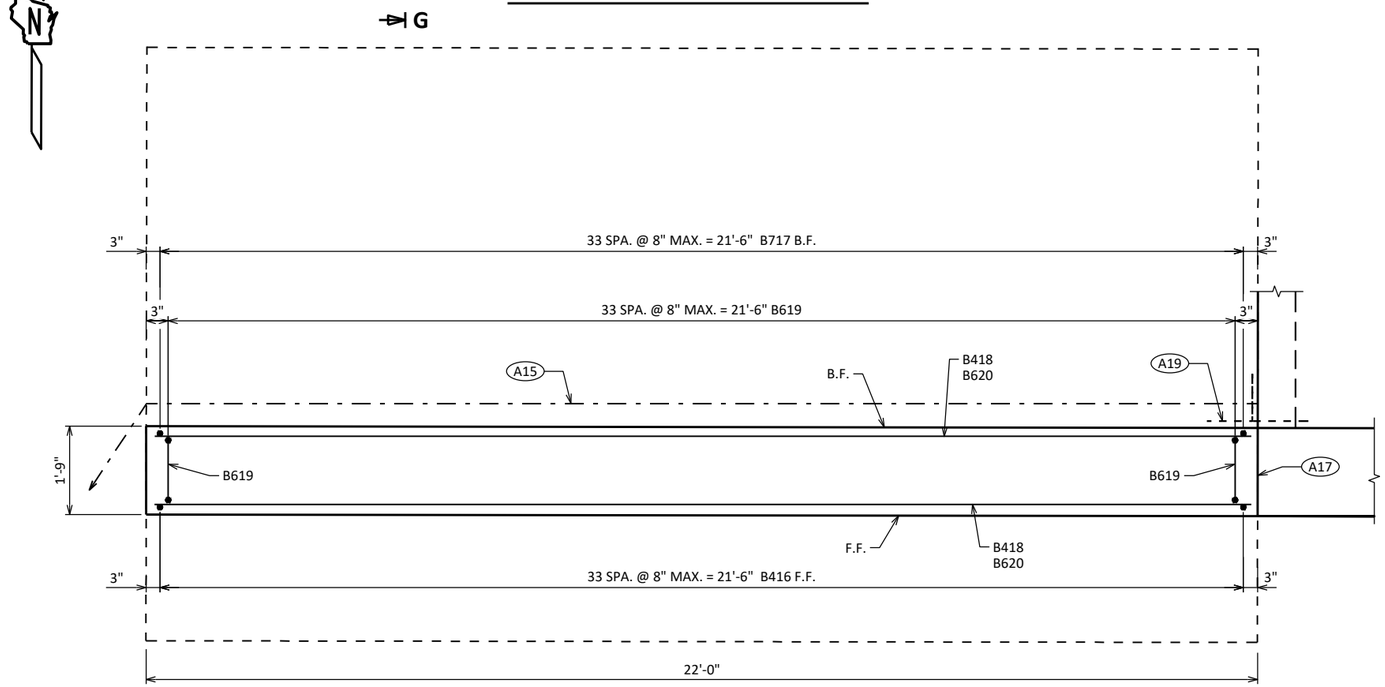
8

STATE PROJECT NUMBER

2395-07-71



WINGWALL 4 FOOTING PLAN



WINGWALL 4 STEM PLAN

FOR SECTION G, SEE SHEET 14.

(A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

(A17) ¾" PERFORMED FILLER FROM TOP OF FOOTING TO TOP OF WALL (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ¾" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW TOP AT INSIDE FACE.

(A19) VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM TOP OF FOOTING TO TOP OF WALL.

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D DRS

WINGWALL 4 DETAILS

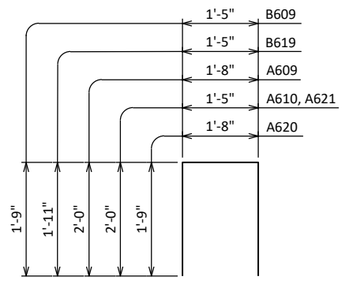
STATE PROJECT NUMBER

2395-07-71

WINGWALL 1 AND 2 BILL OF BARS

BAR NO.	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501	X	37	11'-5"			WINGWALL 1 FOOTING BOT.
A402	X	36	23'-7"			WINGWALL 1 FOOTING TOP & BOT.
A703	X	37	11'-5"			WINGWALL 1 FOOTING TOP
A404	X	37	4'-8"	X		WINGWALL 1 FOOTING VERT. F.F.
A705	X	37	8'-11"	X		WINGWALL 1 FOOTING VERT. B.F.
A406	X	37	11'-11"			WINGWALL 1 STEM VERT. F.F.
A707	X	37	11'-11"			WINGWALL 1 STEM VERT. B.F.
A408	X	38	23'-7"			WINGWALL 1 STEM HORIZ. E.F.
A609	X	37	5'-4"	X		WINGWALL 1 STEM VERT. TOP
A610	X	37	5'-1"	X		WINGWALL 1 STEM VERT. TOP
A611	X	2	23'-7"			WINGWALL 1 STEM HORIZ. TOP E.F.
A512	X	37	11'-5"			WINGWALL 2 FOOTING BOT.
A413	X	36	7'-2"			WINGWALL 2 FOOTING TOP & BOT.
A714	X	37	11'-5"			WINGWALL 2 FOOTING TOP
A415	X	37	4'-8"	X		WINGWALL 2 FOOTING VERT. F.F.
A716	X	37	8'-11"	X		WINGWALL 2 FOOTING VERT. B.F.
A417	X	37	11'-5"			WINGWALL 2 STEM VERT. F.F.
A718	X	37	11'-5"			WINGWALL 2 STEM VERT. B.F.
A419	X	36	7'-2"			WINGWALL 2 STEM HORIZ. E.F.
A620	X	37	4'-10"	X		WINGWALL 2 STEM VERT. TOP
A621	X	37	5'-1"	X		WINGWALL 2 STEM VERT. TOP
A622	X	2	7'-10"			WINGWALL 2 STEM HORIZ. TOP E.F.
A423	X	36	17'-10"			WINGWALL 2 FOOTING TOP & BOT.
A424	X	36	17'-10"			WINGWALL 2 STEM HORIZ. E.F.
A625	X	2	17'-10"			WINGWALL 2 STEM HORIZ. TOP E.F.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

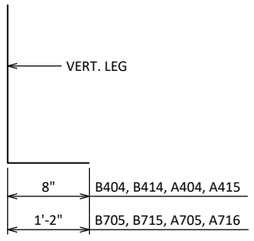


B609, B619, A609, A610
A620, A621

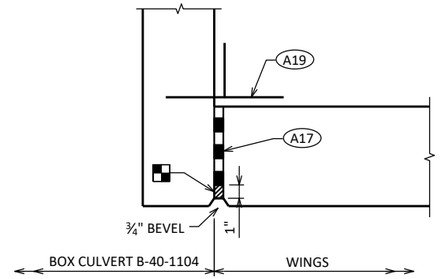
WINGWALL 3 AND 4 BILL OF BARS

BAR NO.	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B501	X	34	11'-5"			WINGWALL 3 FOOTING BOT.
B402	X	36	7'-2"			WINGWALL 3 FOOTING TOP & BOT.
B703	X	34	11'-5"			WINGWALL 3 FOOTING TOP
B404	X	34	4'-8"	X		WINGWALL 3 FOOTING VERT. F.F.
B705	X	34	8'-11"	X		WINGWALL 3 FOOTING VERT. B.F.
B406	X	34	10'-9"			WINGWALL 3 STEM VERT. F.F.
B707	X	34	10'-9"			WINGWALL 3 STEM VERT. B.F.
B408	X	32	7'-2"			WINGWALL 3 STEM HORIZ. E.F.
B609	X	34	4'-7"	X		WINGWALL 3 STEM VERT. TOP
B610	X	2	7'-10"			WINGWALL 3 STEM HORIZ. TOP E.F.
B511	X	34	11'-5"			WINGWALL 4 FOOTING BOT.
B412	X	36	21'-7"			WINGWALL 4 FOOTING TOP & BOT.
B713	X	34	11'-5"			WINGWALL 4 FOOTING TOP
B414	X	34	4'-8"	X		WINGWALL 4 FOOTING VERT. F.F.
B715	X	34	8'-11"	X		WINGWALL 4 FOOTING VERT. B.F.
B416	X	34	11'-3"			WINGWALL 4 STEM VERT. F.F.
B717	X	34	11'-3"			WINGWALL 4 STEM VERT. B.F.
B418	X	34	21'-7"			WINGWALL 4 STEM HORIZ. E.F.
B619	X	34	4'-11"	X		WINGWALL 4 STEM VERT. TOP
B620	X	2	21'-7"			WINGWALL 4 STEM HORIZ. TOP E.F.
B421	X	36	15'-10"			WINGWALL 3 FOOTING TOP & BOT.
B422	X	32	15'-10"			WINGWALL 3 STEM HORIZ. E.F.
B623	X	2	15'-10"			WINGWALL 3 STEM HORIZ. TOP E.F.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



B404, B414, A404, A415
B705, B715, A705, A716



SECTION C

FILL WITH NON-STAINING GRAY SINGLE COMPONENT NON-BITUMINOUS JOINT SEALER FROM 1'-0" BELOW GROUND LINE TO TOP OF WALL.

FOR LOCATIONS OF SECTION C, SEE SHEETS 8, 10, 12, 14.

(A17) ¾" PERFORMED FILLER FROM TOP OF FOOTING TO TOP OF WALL (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ¾" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW TOP AT INSIDE FACE.

(A19) VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM TOP OF FOOTING TO TOP OF WALL.

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D DRS

WINGWALL BILL OF BARS

SHEET 16 OF 19

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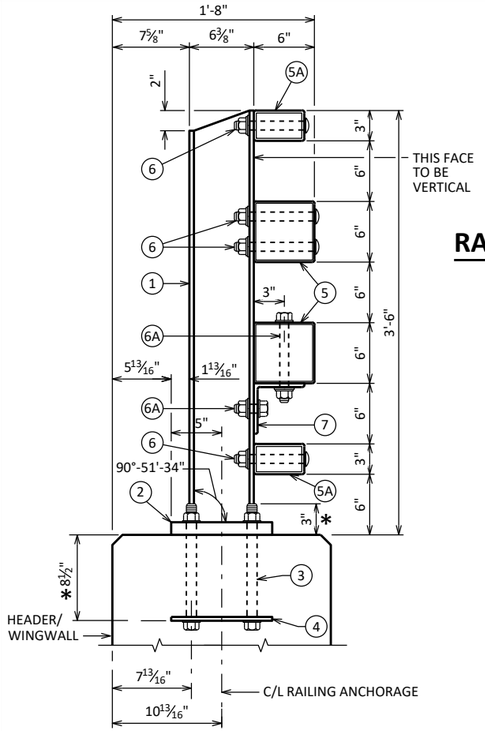
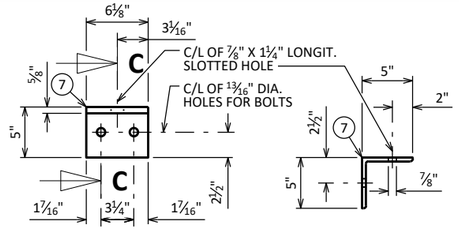


SECTION THRU RAILING ON HEADER/WINGWALL

* NORMAL TO BASE PLATE

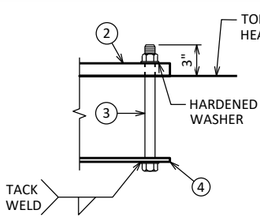


RAILING ANGLE DETAIL

INTERIOR ELEVATION

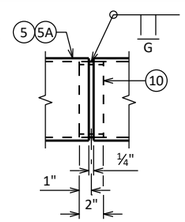
SECTION C-C

ANGLE SECTION



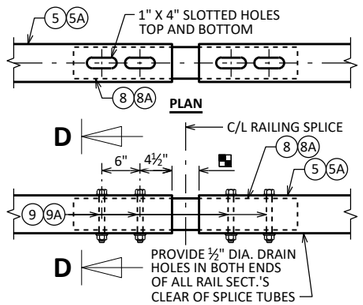
ANCHOR BOLTS

FOR ANCHOR BOLTS, TACK WELD MAY BE USED IN FIELD AFTER ANCHOR PLATE IS IN POSITION IF REQ'D FOR CONSTRUCTABILITY.

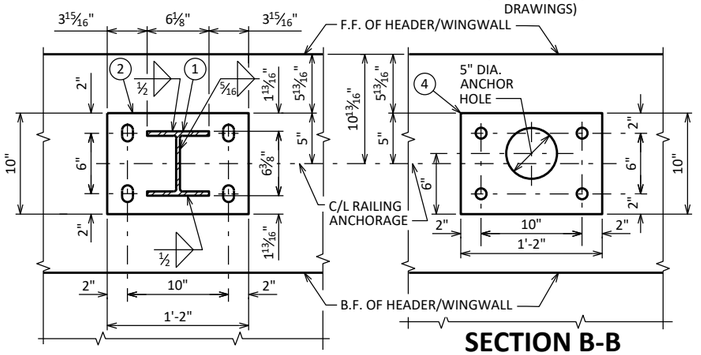


SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



FIELD ERECTION JOINT DETAIL

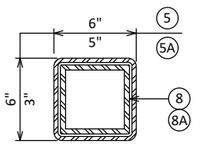


SECTION A-A

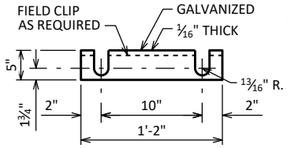
BASE PLATE DETAIL

SECTION B-B

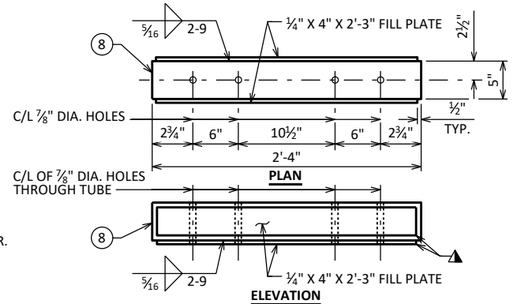
ANCHOR PLATE DETAIL



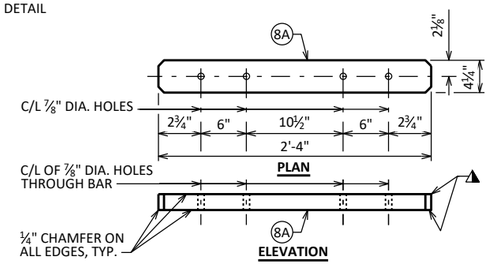
SECTION D-D



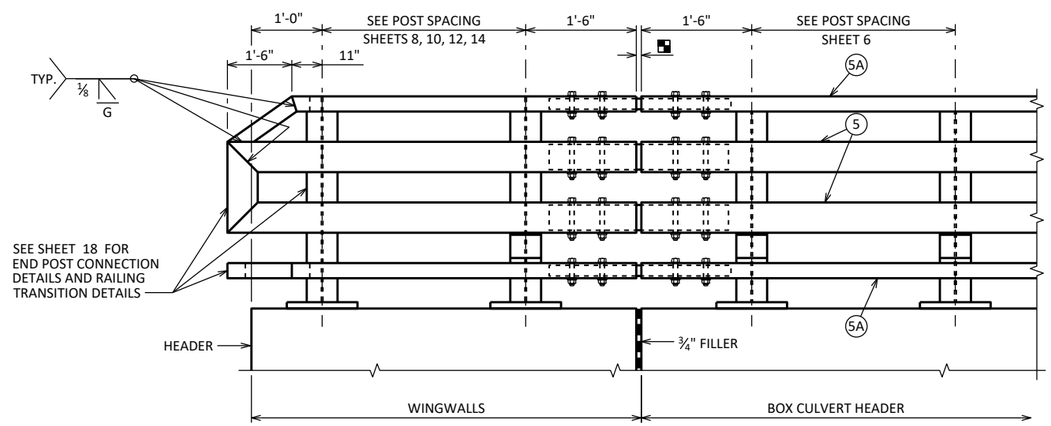
POST SHIM DETAIL



SPLICE TUBE

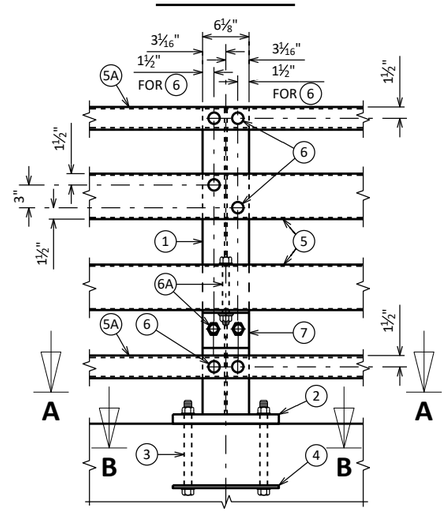


SPLICE BAR



PART ELEVATION OF RAILING

INTERIOR ELEVATION



PART ELEVATION OF RAILING AT POST

INTERIOR ELEVATION

LEGEND

(1) W6 X 25 WITH 1⅛" X 1⅜" HORIZONTAL SLOTTED HOLES ON EACH SIDE OF POST FOR BOLT NO. 6 AT TOP TWO RAILS. USE 1" DIA. HOLES FOR BOLTS NO. 6 AT BOTTOM NO. 5A AND FOR BOLT NO. 6A AT NO. 7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

(2) PLATE 1¼" X 10" X 1'-2" WITH 1⅛" X 1⁷⁄₁₆" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.

(3) ASTM A449 - 1" DIA. ANCHOR BOLTS WITH HEAVY HEX NUT AND 2" O.D. HARDENED WASHER (ALL GALVANIZED). 4 REQUIRED PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. ~~USE 11½" LONG BOLT FOR CONCRETE DECKS. ON CONCRETE SLAB SUPERSTRUCTURES, USE 1' 3" LONG BOLT FOR SLAB THICKNESS > 16" AND 11½" LONG FOR THICKNESS ≤ 16".~~ USE 1'-9" LONG IN WINGS AND HEADERS. (AN EQUIVALENT THREADED ROD WITH HEAVY HEX NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQUIRED FOR CONSTRUCTABILITY.)

(4) ⅜" X 10" X 1'-2" ANCHOR PLATE (GALVANIZED) WITH 1¹⁄₁₆" DIA. HOLES FOR ANCHOR BOLTS NO. 3.

(5) TS 6 X 6 X ⁵⁄₁₆" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 (FRONT & BACK) & ⅞" DIA. HOLES FOR BOLT NO. 6A (TOP & BOTTOM).

(5A) TS 5 X 3 X ¼" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 IN TOP RAIL (FRONT & BACK). USE 1⅛" X 1⅜" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.

(6) ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, ³⁄₁₆" X 1¾" X 1¾" WASHER, AND SPRING LOCK WASHER (2 REQUIRED AT RAIL TO POST LOCATIONS SHOWN).

(6A) ¾" DIA. A325 BOLT WITH HEX NUT & SPRING LOCK WASHER (1 REQUIRED AT RAIL TO ANGLE & 2 REQUIRED AT ANGLE TO POST LOCATIONS SHOWN WITH ³⁄₁₆" X 1¾" X 1¾" WASHER).

(7) L 5 X 5 X ⅝" STRUCTURAL ANGLE. ATTACH TO NO. 1 AND NO. 5 AS SHOWN.

(8) TS 5 X 5 X ⁵⁄₁₆" X 2'-4" LONG SPLICE TUBE. 1 PER RAIL. USED IN NO. 5.

(8A) 4¼" X 2⅛" X 2'-4" LONG SPLICE BAR. 1 PER RAIL. USED IN NO. 5A.

(9) ¾" DIA. A325 FULLY THREADED BOLTS, 7½" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5.

(9A) ¾" DIA. A325 FULLY THREADED BOLTS, 4½" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5A.

(10) SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".

▪ ROADWAY OPENING OR 2½" MIN. FOR STRIP SEAL EXP. JOINT & ½" OPENING FOR A1 ABUTMENT. ½" AT FIXED JOINTS. SPLICES ARE REQUIRED IN ANY RAILING SPAN BETWEEN POSTS THAT CONTAINS A SUPERSTRUCTURE EXPANSION JOINT.

⚠ PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE RAILS, SPLICE TUBES AND FILL PLATES.

NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE NY4" WHICH INCLUDES ALL ITEMS SHOWN.

RAILING SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.

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

ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS, ANGLES, SPLICE TUBES, SPLICE BARS AND STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS.

RAIL POST, BASE PLATES, SPLICE BAR, ANGLES AND SPLICE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED f_Y = 50 KSI. ANCHOR PLATES & SHIMS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.

THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN.

FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. CAULK AROUND PERIMETER OF NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER PLATE NO. 2 WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

SIDEWALK PAVING NOTCH ON WINGWALLS 3 AND 4 AND NORTH HEADER NOT SHOWN.

WORK THIS SHEET WITH SHEET 18.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STATE PROJECT NUMBER

2395-07-71

STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D DRS

TUBULAR STEEL RAILING TYPE NY4

SHEET 17 OF 19

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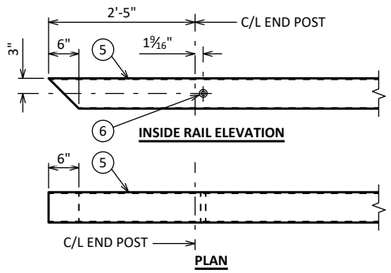
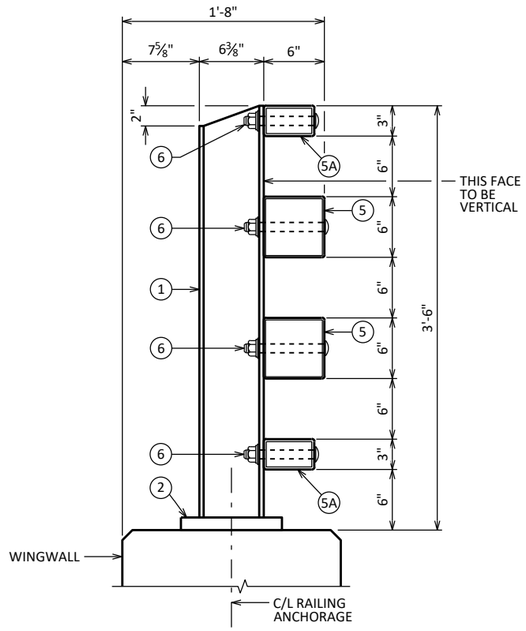
STATE PROJECT NUMBER

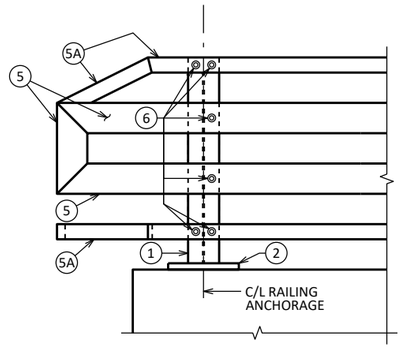
2395-07-71



TOP RAIL (5) DETAILS

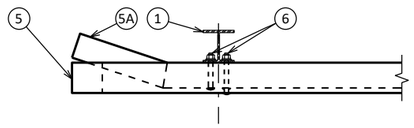


SECTION THRU RAILING END POST



ELEVATION DETAIL AT END POST

INTERIOR ELEVATION



PLAN OF DETAIL AT END POST

LEGEND

(1) W6 X 25 WITH 1⅛" X 1⅜" HORIZONTAL SLOTTED HOLES ON EACH SIDE OF POST FOR BOLT NO. 6 AT NO. 5 & AT TOP RAIL NO. 5A. USE 1" DIA. HOLE FOR BOLT NO. 6 AT NO. 5A BOTTOM RAIL. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

(2) PLATE 1¼" X 10" X 1'-2". SEE SHEET "TUBULAR STEEL RAILING NY4" FOR MORE INFORMATION.

(5) TS 6 X 6 X 3/16" STRUCTURAL TUBING. USE ⅞" DIA. HOLES IN TOP AND BOTTOM OF RAILS FOR BOLT NO. 13 AS SHOWN IN PLAN DETAILS. USE 1" DIA. HOLES IN FRONT AND BACK OF RAILS FOR BOLTS NO. 6 & NO. 14 AS SHOWN IN ELEVATION DETAILS.

(5A) TS 5 X 3 X ¼" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR TOP RAIL NO. 5A (FRONT & BACK). USE 1⅛" X 1⅜" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.

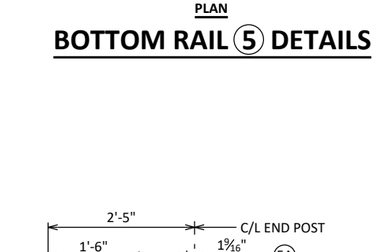
(6) ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, 3/16" X 1¾" X 1¾" WASHER, AND SPRING LOCK WASHER (1 REQUIRED AT RAIL NO. 5 TO POST NO. 1 CONNECTION LOCATIONS SHOWN. 2 REQUIRED AT RAIL NO. 5A TO POST NO. 1 CONNECTION LOCATIONS SHOWN).

NOTES

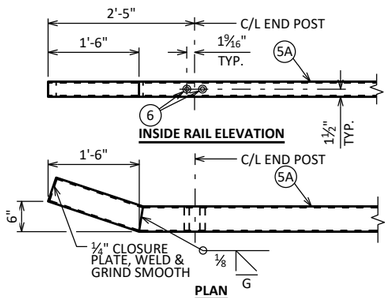
STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED f_y = 50 KSI. STRUCTURAL ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50.

SIDEWALK PAVING NOTCH ON WINGWALLS 3 AND 4 AND NORTH HEADER NOT SHOWN.

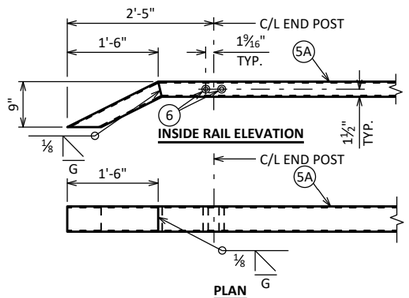
WORK THIS SHEET WITH SHEET 17.



BOTTOM RAIL (5) DETAILS



BOTTOM RAIL (5A) DETAILS



TOP RAIL (5A) DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

DRAWN BY CLP | PLANS CK'D DRS

END POST FOR RAILING TYPE NY4

SHEET 18 OF 19

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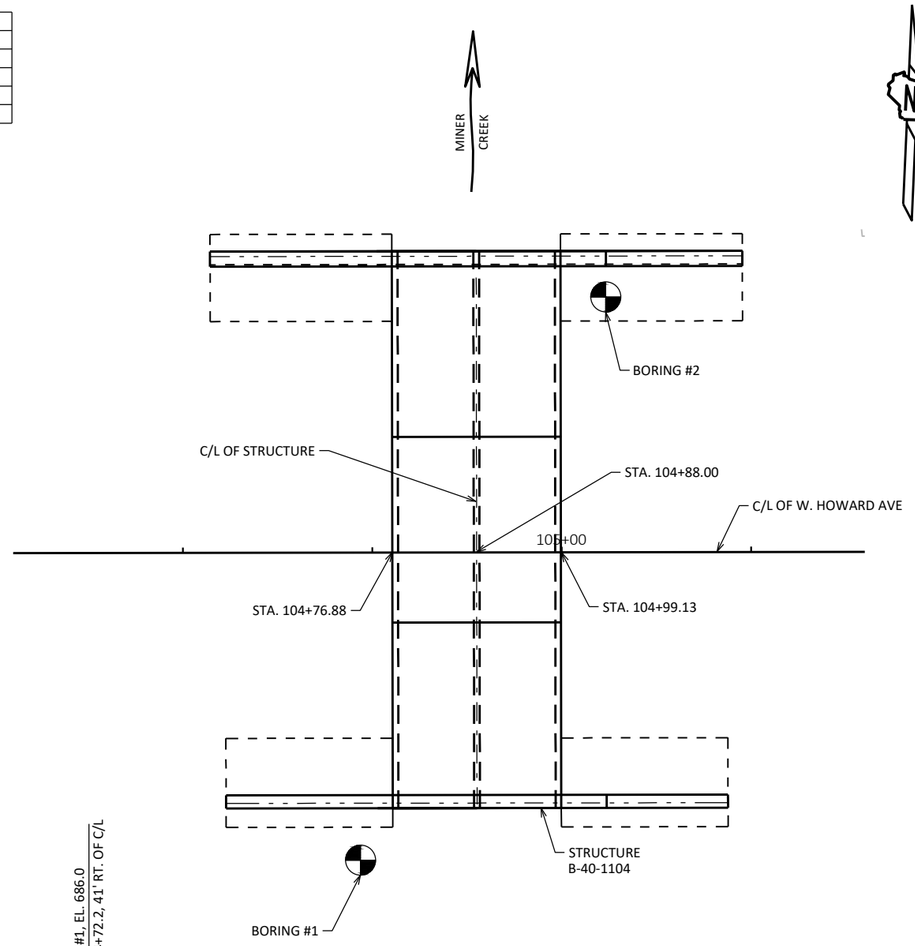
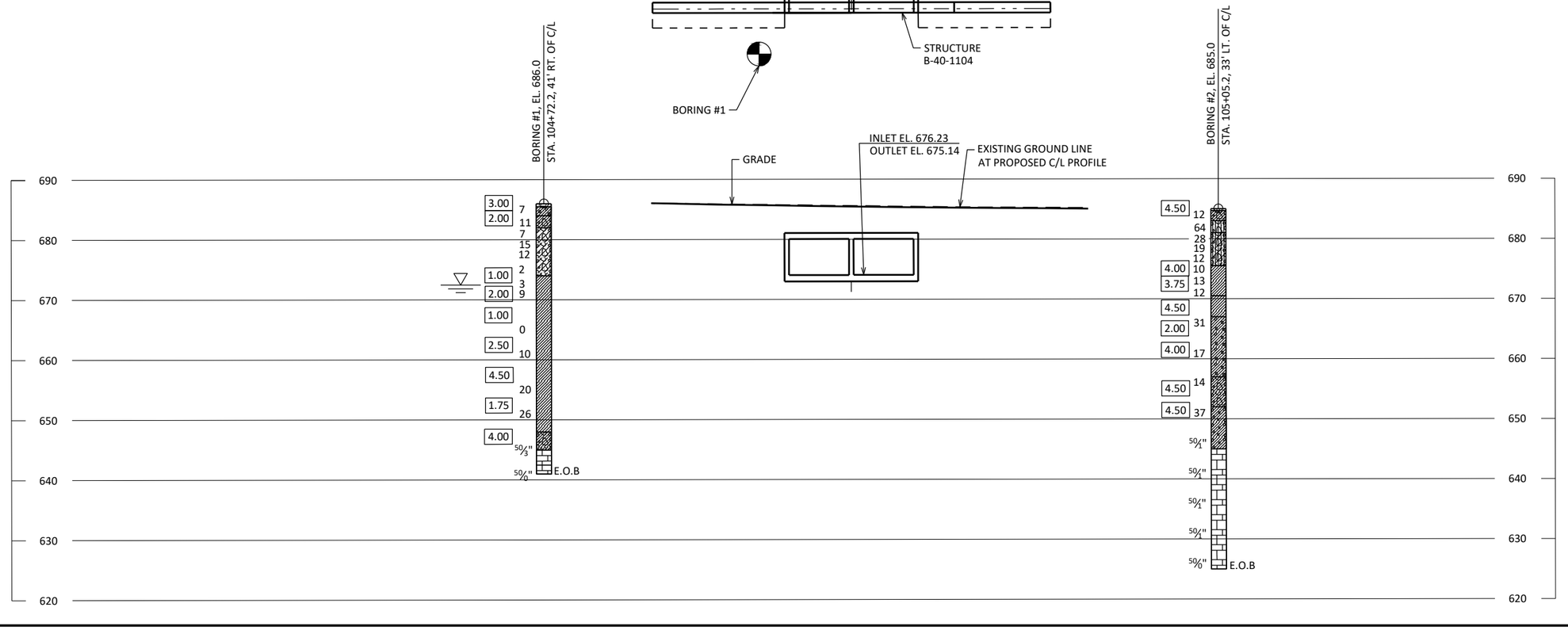
BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	NOVEMBER 1, 2023	361675.0	2516369.2
2	OCTOBER 31, 2023	361744.5	2516432.9
BORINGS COMPLETED BY: ECS MIDWEST, LLC			
REPORT COMPLETED BY: ECS MIDWEST, LLC			
ALL COORDINATES REFERENCED TO WCCS NAD 83(2011) MILWAUKEE COUNTY			





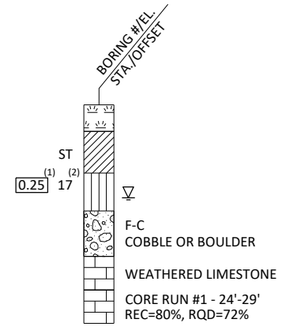
STATE PROJECT NUMBER

2395-07-71

MATERIAL SYMBOLS

ASPHALT, TOPSOIL, PEAT, CONCRETE, FILL, GRAVEL, SAND, CLAY, SILT, BOULDERS OR COBBLES, LIMESTONE, BEDROCK (UNKNOWN), SHALE, SANDSTONE, IGNEOUS/META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-1104

DRAWN BY DRS | PLANS CK'D JLB

SUBSURFACE EXPLORATION

SHEET 19 OF 19

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DIVISION 1 - HOWARD AVE

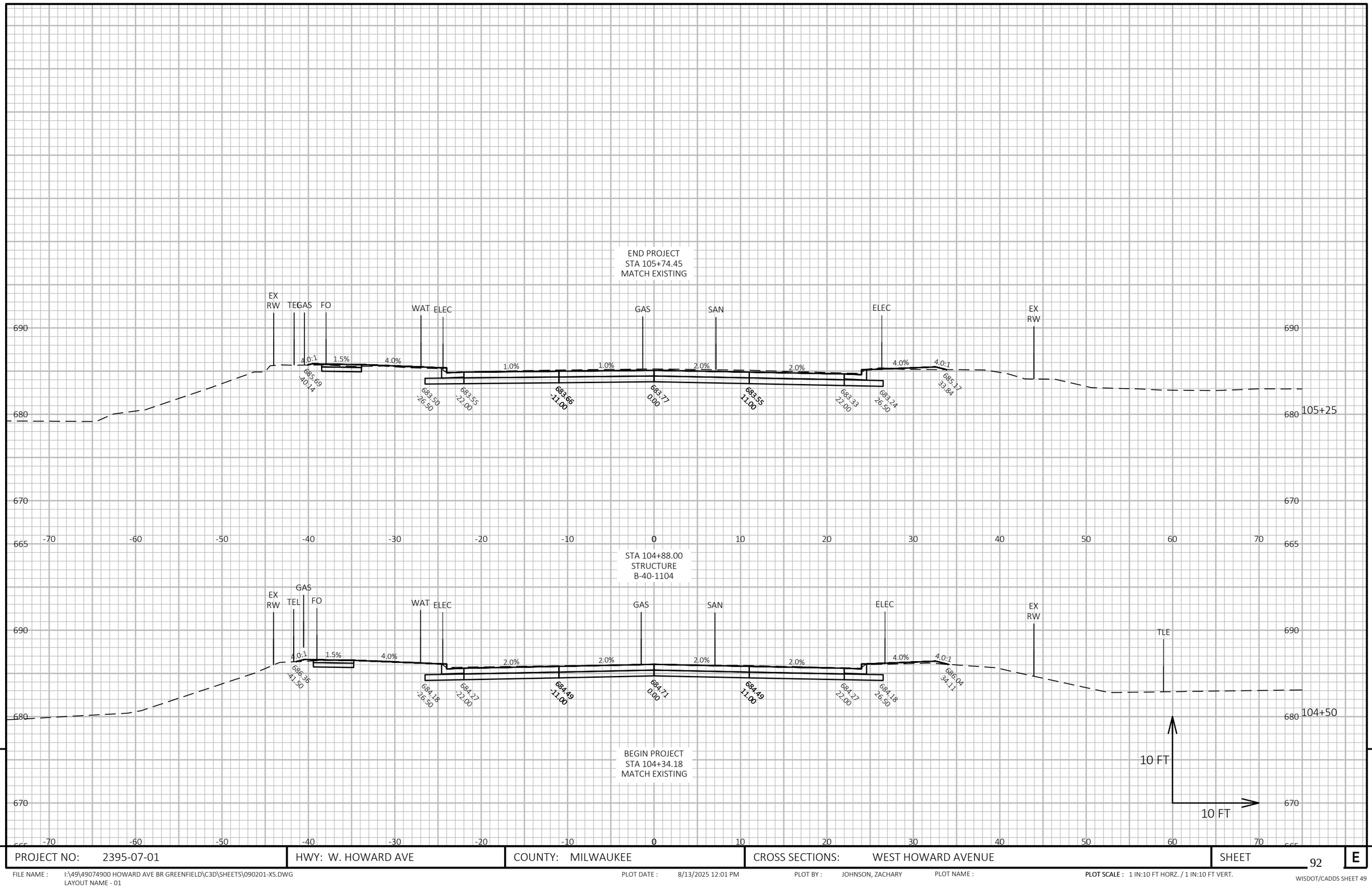
STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)			
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	SALVAGED / UNUSABLE	MASS ORDINATE
					NOTE 1	NOTE 2		1.00 NOTE 1	1.30 NOTE 3	NOTE 2	NOTE 8
104+34.18	-	80.10	29.00	15.82	0	0	0	0	0	0	0
104+37.91	3.73	80.08	29.00	13.44	11	4	2	11	3	4	4
104+50.00	12.09	80.15	29.00	1.53	36	13	3	47	7	17	24
104+75.00	25.00	83.37	29.00	2.85	76	27	2	123	9	44	70
105+00.00	25.00	80.70	29.00	2.57	76	27	3	199	13	71	115
105+25.00	25.00	83.18	29.00	2.17	76	27	2	275	16	98	161
105+50.00	25.00	81.31	29.00	7.41	76	27	4	351	21	125	205
105+68.63	18.63	76.20	29.00	10.21	54	20	6	405	29	145	231
105+74.44	5.81	65.53	29.00	11.53	15	6	2	420	31	151	238
					420	151	24				

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	EXISTING ASPHALT PAVEMENT. NOT TO BE ISED OUTSIDE THE 1:1 ROAD CORE.
3 - FILL	VOLUME NEEDED TO BE FILLED = FILL * 1.30
8 - MASS ORDINATE	(CUT) - (EXPANDED FILL)

DIVISION 1 - BYPASS CHANNEL

STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)			
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	SALVAGED / UNUSABLE	MASS ORDINATE
					NOTE 1	NOTE 2		1.00 NOTE 1	1.30 NOTE 3	NOTE 2	NOTE 8
5+00.00	0.00	39.67	0.00	40.20	0	0	0	0	0	0	0
5+15.00	15.00	13.35	0.00	6.71	15	0	13	15	17	0	-2
5+25.00	10.00	20.52	0.00	0.43	6	0	1	21	18	0	3
5+50.00	25.00	239.72	0.00	0.00	120	0	0	141	18	0	123
5+55.00	30.00	221.76	0.00	0.00	256	0	0	397	18	0	379
5+60.00	5.00	229.96	0.00	0.00	42	0	0	439	18	0	421
5+65.00	5.00	238.36	0.00	0.00	43	0	0	482	18	0	464
5+70.00	5.00	245.56	0.00	0.00	45	0	0	527	18	0	509
5+75.00	5.00	251.27	0.00	0.00	46	0	0	573	18	0	555
5+80.00	5.00	255.21	0.00	0.00	47	0	0	620	18	0	602
5+85.00	5.00	255.56	0.00	0.00	47	0	0	667	18	0	649
5+90.00	5.00	255.77	0.00	0.00	47	0	0	714	18	0	696
5+95.00	5.00	254.67	0.00	0.00	47	0	0	761	18	0	743
6+00.00	5.00	253.04	0.00	0.00	47	0	0	808	18	0	790
6+05.00	5.00	274.58	0.00	0.00	49	0	0	857	18	0	839
6+10.00	5.00	287.48	0.00	0.00	52	0	0	909	18	0	891
6+15.00	5.00	293.14	0.00	0.00	53	0	0	962	18	0	944
6+45.00	30.00	6.10	0.00	16.82	166	0	9	1128	30	0	1098
6+60.00	15.00	0.36	0.00	92.43	2	0	30	1130	69	0	1061
					1,130	0	53				

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	EXISTING ASPHALT PAVEMENT. NOT TO BE ISED OUTSIDE THE 1:1 ROAD CORE.
3 - FILL	VOLUME NEEDED TO BE FILLED = FILL * 1.30
8 - MASS ORDINATE	(CUT) - (EXPANDED FILL)



9

9

PROJECT NO: 2395-07-01	HWY: W. HOWARD AVE	COUNTY: MILWAUKEE	CROSS SECTIONS: WEST HOWARD AVENUE	SHEET 92	E

FILE NAME : I:\49\49074900 HOWARD AVE BR GREENFIELD\C3D\SHEETS\090201-XS.DWG
LAYOUT NAME - 01

PLOT DATE : 8/13/2025 12:01 PM PLOT BY : JOHNSON, ZACHARY PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

Notes

Wisconsin Department of Transportation

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