SUP APR 12

PROJECT ID: 1195-00-72
WITH: 1195-00-73

COUNTY: DOUGLAS

ORDER OF SHEETS



TOTAL SHEETS = 16

| STATE PROJECT | FEDERAL PROJECT | |
|---|---|---|
| | PROJECT | CONTRACT |
| 1195-00-72 | | |
| | | |
| | | |
| | | |

# SUPERIOR WATER LIGHT & POWER

PLAN OF PROPOSED IMPROVEMENT

# SUPERIOR, EAST SECOND STREET 18TH AVENUE INTERSECTION

## U.S.H. 2

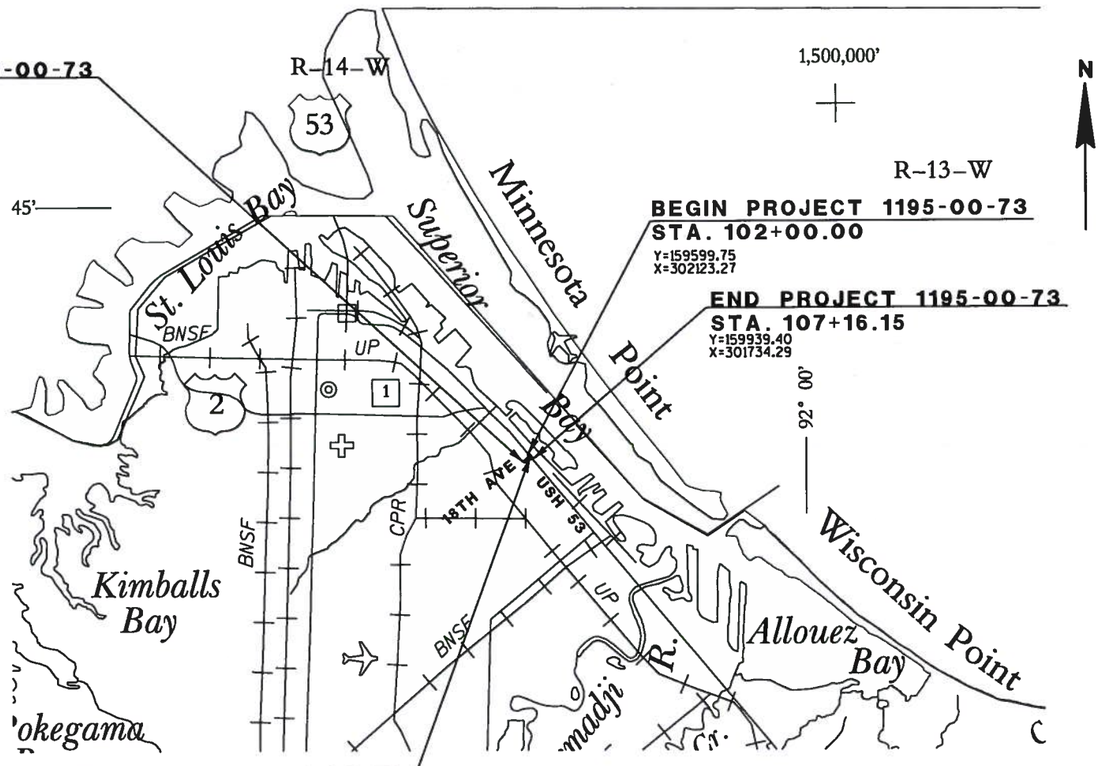
## DOUGLAS COUNTY

STATE PROJECT NUMBER
**1195-00-72**

PROJECT LOCATION

32

N




N

TOTAL NET LENGTH OF CENTERLINE = 0.16 MI.

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

DESIGN DESIGNATION

| | | |
|---|---|---|
| A.A.D.T. 2011 | = | 23,000 |
| A.A.D.T. 2031 | = | 26,500 |
| D.H.V. | = | 2,700 |
| D.D. | = | 58/42 |
| T. | = | 7.5% |
| DESIGN SPEED | = | 45 MPH |
| ESALS | = | TBD |

CONVENTIONAL SYMBOLS

| PLAN | | PROFILE | |
|---|---|---|---|
| CORPORATE LIMITS | | GRADE LINE | |
| PROPERTY LINE | | ORIGINAL GROUND | |
| LOT LINE | | MARSH OR ROCK PROFILE (To be noted as such) | ROCK |
| LIMITED HIGHWAY EASEMENT | | SPECIAL DITCH | LABEL |
| EXISTING RIGHT OF WAY | | GRADE ELEVATION | 95.36 |
| PROPOSED OR NEW R/W LINE | | CULVERT (Profile View) | |
| SLOPE INTERCEPT | | UTILITIES | |
| REFERENCE LINE | | ELECTRIC | E |
| EXISTING CULVERT | | FIBER OPTIC | FO |
| PROPOSED CULVERT (Box or Pipe) | | GAS | G |
| COMBUSTIBLE FLUIDS | CAUTION | SANITARY SEWER | SAN |
| | | STORM SEWER | SS |
| MARSH AREA | | TELEPHONE | T |
| | | WATER | W |
| WOODED OR SHRUB AREA | | UTILITY PEDESTAL | |
| | | POWER POLE | |
| | | TELEPHONE POLE | |

ORIGINAL PLANS PREPARED BY

ENGINEERS · SURVEYORS · PLANNERS
SALO ENGINEERING, INC.
4560 Norway Pines Place Duluth, Minnesota 55811 218/727-8796

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN.

ENGINEER 1/9/2012 DATE

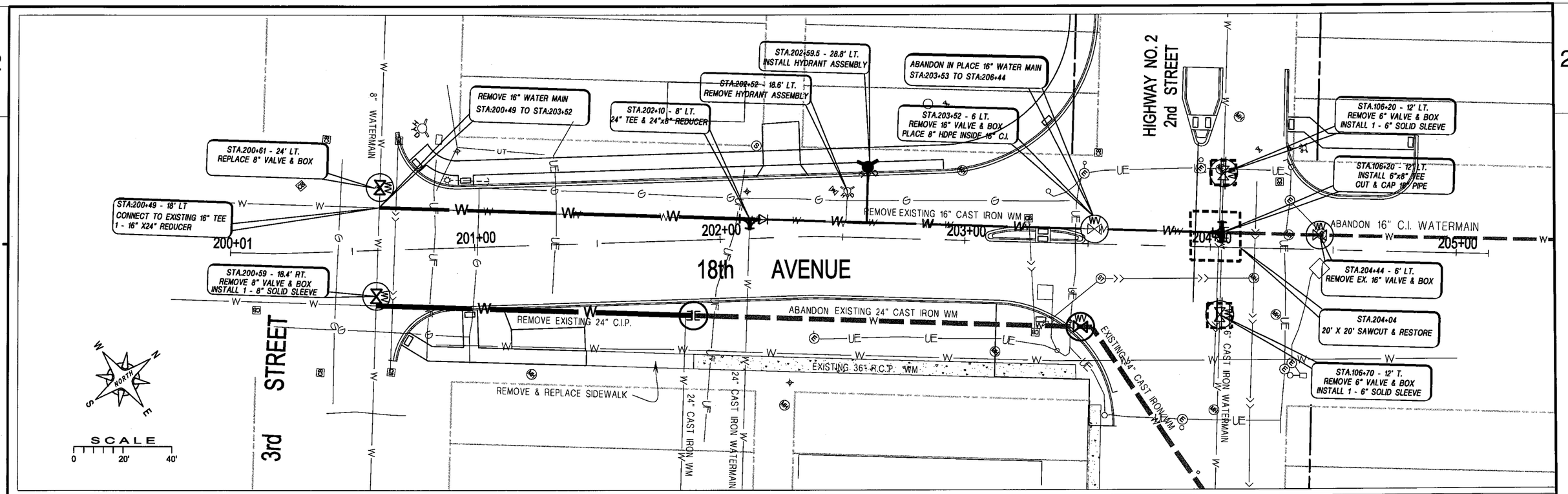
DAVID BOLF 39511-006
PRINTED NAME REG. NO.

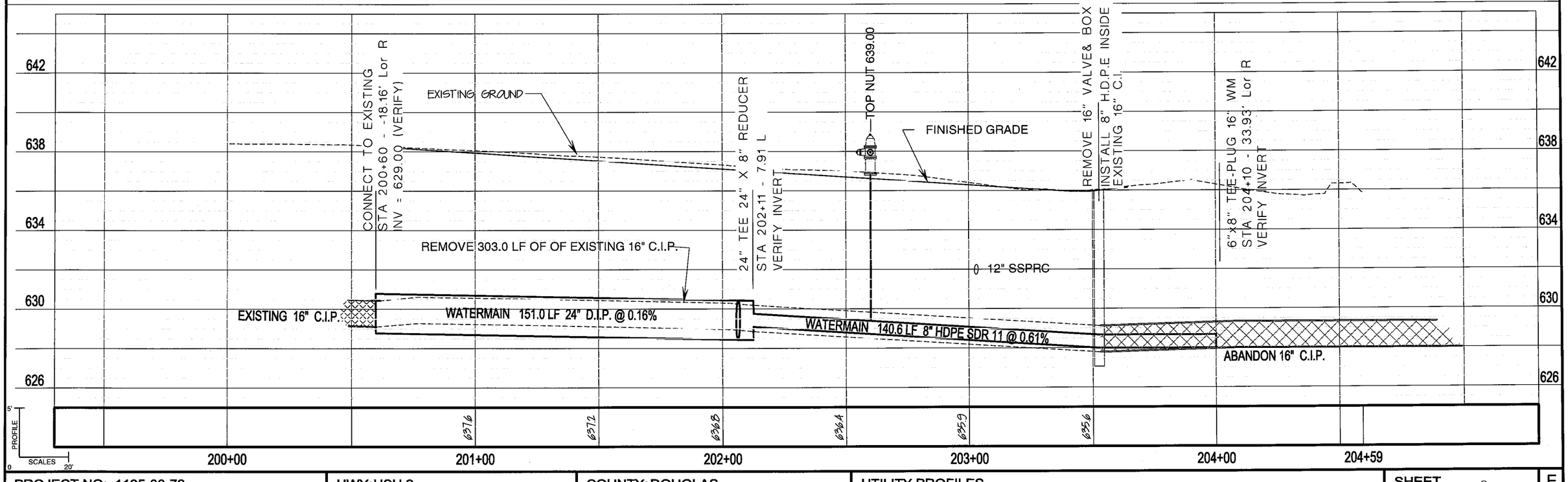
WISCONSIN
TIMOTHY D. MELBY E-19244 CLOQUET MINN.
PROFESSIONAL ENGINEER
2/6/12

PREPARED BY
Surveyor JAMES FOWLDS
Designer AARON MARTINEAU
Project Manager DAVID BOLF

E

PROJECT ID: 1195-00-72 & 1195-00-73




| PROJECT NO: 1195-00-72 | HWY: USH 2 | COUNTY: DOUGLAS | UTILITY PROFILES | SHEET 2 | E |
|---|---|---|---|---|---|

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

PROJECT ID: 1195-00-72 & 1195-00-73

2

2

STA.200+61 - 24' LT.
REPLACE 8" VALVE & BOX

8" WATERMAIN

UT

HIGHWAY NO.2
2nd STREET

SEE 24" WATERMAIN SHEET FOR WORK

REMOVE EXISTING 16" CAST IRON WM

ABANDON 16" C.I. WATERMAIN

200+01

201+00

202+00

203+00

204+00

205+00

STA.200+59 - 18.4' RT.
REMOVE 8" VALVE & BOX
INSTALL 1 - 8" SOLID SLEEVE

STA.201+88 - 30.7' RT.
24" TEE & PLUG
CUT & CAP 24" PIPE

18th AVENUE

ABANDON EXISTING 24" CAST IRON WM

REMOVE EXISTING 24" C.I.P.

EXISTING 36" R.C.P. WM

EXISTING 24" CAST IRON WM

SEE 24" WATERMAIN SHEET FOR WORK

6" CAST IRON WATERMAIN

REMOVE & REPLACE SIDEWALK

24" CAST IRON WM

24" CAST IRON WATERMAIN

STA.203+45 - 32' RT.
REMOVE 24" VALVE & BOX
INSTALL 1 - 24" SOLID SLEEVE

3rd STREET

N
NORTH
S
E
W

SCALE
0 20' 40'

642
638
634
630
626

CONNECT TO EXISTING 8" TEE
STA 200+62 - 24.4' LT.
SURFACE = 637.50
INV = 629.0 (VERIFY)

EXISTING GROUND

16" TEE & 16"x8" REDUCER
STA 202+1 - 7.9' LT
SURFACE = 636.7
INV = 628.0 (VERIFY)

FINISHED GRADE

REMOVE 24" VALVE & BOX
INSTALL 24" SOLID SLEVE
STA 203+47.68 - 33.93' R
T/C = 635.51
INV = 626.50

REMOVE 140.1 LF OF EXISTING 24" C.I.P.

WATERMAIN 13.9 LF 24" D.I.P. @ 0.00%

WATERMAIN 126.2 LF 24" D.I.P. @ 0.79%

ABANDON WATERMAIN 24" C.I.P.

ABANDON WATERMAIN 24" C.I.P.

637.6 637.2 636.8 636.4 635.9 635.6

5'
PROFILE
SCALES
0 20'

200+00 201+00 202+00 203+00 204+00 204+59

| PROJECT NO: 1195-00-72 | HWY: USH 2 | COUNTY: DOUGLAS | UTILITY PROFILES | SHEET 3 | E |
|---|---|---|---|---|---|

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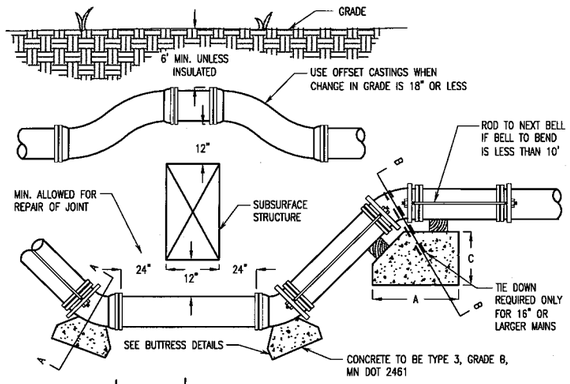
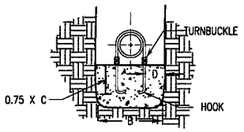
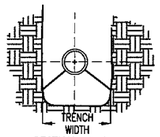



SECTION B-B

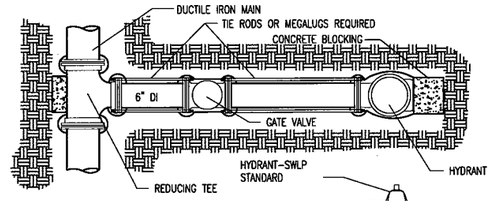


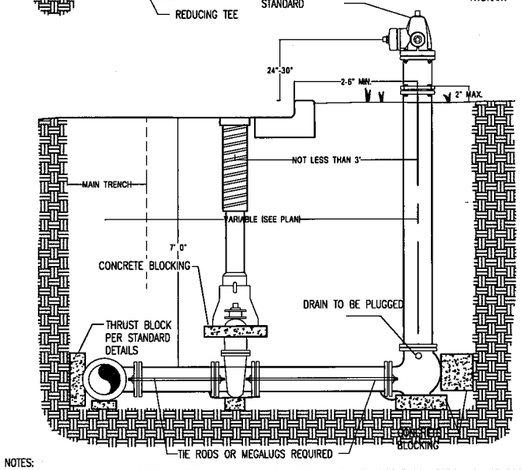

SECTION A-A

NOTES:
1. TIE RODS, BOLTS, NUTS, BANDS, AND WASHERS TO BE FURNISHED BY THE CONTRACTOR AND INSTALLED BY CONTRACTOR. ALL RODS AND CONNECTING HARDWARE SHALL BE GALVANIZED. ALL BOLTS SHALL BE COR-TEN WITH ZINC ANODE CAPS
2. STRAPPING MATERIAL:
   - 2.1. NO. RODS 2 PER TIE
   - 2.2. DIA. RODS 1 INCH
   - 2.3. STRAP SIZE 1/2" X 2"
   - 2.4. BOLT DIA. 3/4"
   - 2.5. WASHER SIZE 1/2" X 3" X 5"
3. OFFSETS FOR 16" WATER MAIN AND LARGER, TIE DOWNS SHALL BE INSTALLED AS SHOWN. TURNBUCKLE AND BLOCK SIZES:

| PIPE SIZE | A | B | C | D |
|---|---|---|---|---|
| 16" | 6'-0" | 2'-6" | 3'-0" | 0'-1" |
| 20" | 8'-0" | 3'-0" | 3'-0" | 0'-1 1/4" |
| 24" | 8'-0" | 3'-0" | 5'-0" | 0'-1 1/2" |
| 30" | 8'-0" | 5'-0" | 5'-0" | 0'-2" |

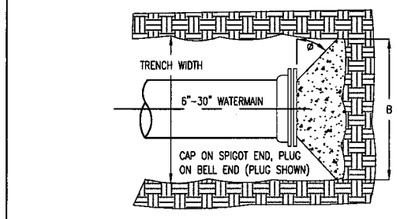
STRAPPING WATERMAIN VERTICAL OFFSETS



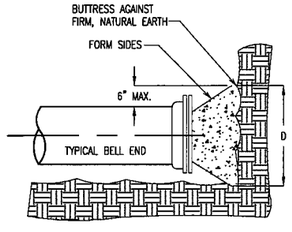




NOTES:
1. VALVES SHALL BE CONNECTED DIRECTLY TO AN ANCHORING TEE. WHENEVER DIRECT CONNECTION IS NOT POSSIBLE, TIE RODS OR MEGALUGS SHALL BE USED. TIE RODS SHALL BE GALVANIZED.
2. USE EPOXY COATING ON VALVE AND HYDRANT BASE.
3. ALL BOLTS SHALL BE STAINLESS STEEL.

FIRE HYDRANT SETTING DETAIL – DUCTILE IRON




PLAN

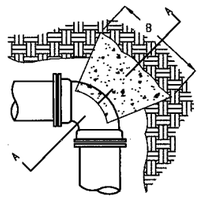



ELEVATION

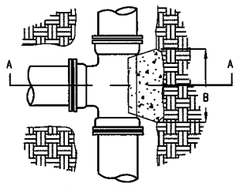
| BLOCKING DIMENSIONS | | |
|---|---|---|
| PLUG SIZE | B | D |
| 6" | 12" | 15" |
| 8" | 24" | 15" |
| 10" | 24" | 20" |
| 12" | 30" | 22" |
| 16" | 40" | 28" |
| 20" | 50" | 34" |
| 24" | 62" | 40" |
| 30" | 80" | 48" |
| | | |

NOTES:
1. BLOCKING DIMENSIONS BASED ON EARTH RESISTANCE OF 2 TONS PER SQ. FT. WHERE, IN THE OPINION OF THE ENGINEER, EARTH IS POOR, BLOCKING SHALL BE INCREASED IN SIZE AS DIRECTED OR STRAPPING MAY BE NECESSARY.
2. ANGLE⌀ SHALL BE EQUAL TO OR LARGER THAN 45°.
3. BLOCKING SHALL BE CENTERED ON MAIN.
4. CONCRETE SHALL BE TYPE 3, GRADE B – MNDOT 2461.
5. POLYETHYLENE SHALL BE USED TO SEPARATE CONCRETE FROM FITTING.
6. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

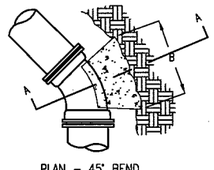
PLUG BLOCKING FOR WATERMAIN



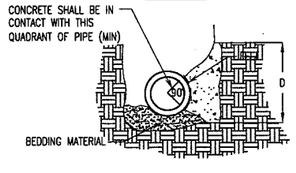

PLAN – 90° BEND




PLAN – TEE




PLAN – 45° BEND

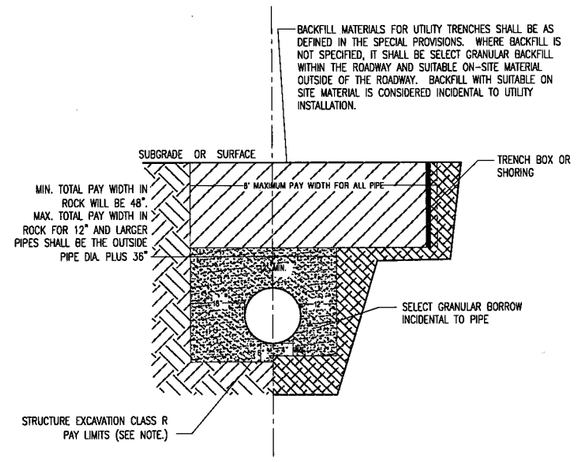



SECTION A-A

NOTES
1. DIMENSIONS IN TABLE ARE BASED ON A WATER PRESSURE OF 150 P.S.I. & AN EARTH RESISTANCE OF 2 TONS/S.F.
2. BLOCKING TO BE SET AGAINST UNDISTURBED SOIL
3. CONCRETE SHALL BE TYPE 3 GRADE B. (MNDOT SPEC. 2461) CONCRETE SHALL NOT INTERFERE WITH MECHANICAL JOINTS
4. POLYETHLYENE SHALL BE USED TO SEPARATE CONCRETE FROM FITTING.
5. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

THRUST BLOCKING FOR WATERMAIN

ROCK SECTION UNDISTURBED GROUND SECTION




NOTES:
1. TRENCH STABILIZATION MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
2. A MIN. OF 1 CU. YD. OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
3. EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
4. WHERE UTILITIES ARE INSTALLED IN ROCK TRENCHES OUTSIDE OF THE ROADWAY, THE CONTRACTOR SHALL PROVIDE COMMON BORROW MATERIAL TO SUPPLEMENT SUITABLE ON SITE BACKFILL MATERIALS AS NECESSARY. COMMON BORROW MATERIAL IS INCIDENTAL TO STRUCTURE EXCAVATION, CLASS R. REFER TO SPECIFICATIONS FOR RESTRICTIONS ON COMMON BORROW MATERIALS.

DUCTILE IRON, PE WATERMAIN, PRESSURE SEWER, & FORCEMAIN BEDDING

DATE 07FEB12 E S T I M A T E O F Q U A N T I T I E S

| LINE NUMBER | ITEM | ITEM DESCRIPTION | UNIT | TOTAL | 1195-00-72 QUANTITY |
|---|---|---|---|---|---|
| 0010 | 204.0100 | REMOVING PAVEMENT | SY | 67.000 | 67.000 |
| 0030 | 204.0155 | REMOVING CONCRETE SIDEWALK | SY | 262.000 | 262.000 |
| 0110 | 213.0100 | FINISHING ROADWAY (PROJECT) 01. 1195-00-72 | EACH | 1.000 | 1.000 |
| 0140 | 310.0110 | BASE AGGREGATE OPEN GRADED | TON | 50.000 | 50.000 |
| 0150 | 350.0145 | SUBBASE 12-INCH | SY | 67.000 | 67.000 |
| 0170 | 415.1090 | CONCRETE PAVEMENT HES 9-INCH | SY | 67.000 | 67.000 |
| 0200 | 416.0620 | DRILLED DOWEL BARS | EACH | 76.000 | 76.000 |
| 0280 | 602.0415 | CONCRETE SIDEWALK 6-INCH | SF | 262.000 | 262.000 |
| 0410 | 619.1000 | MOBILIZATION | EACH | 0.500 | 0.500 |
| 0690 | 645.0140 | GEOTEXTILE FABRIC TYPE SAS | SY | 67.000 | 67.000 |
| 1330 | 690.0250 | SAWING CONCRETE | LF | 160.000 | 160.000 |
| 1370 | SPV.0060 | SPECIAL 01. REMOVE HYDRANT | EACH | 1.000 | 1.000 |
| 1380 | SPV.0060 | SPECIAL 02. REMOVE 6" VALVE & BOX | EACH | 2.000 | 2.000 |
| 1390 | SPV.0060 | SPECIAL 03. REMOVE 8" VALVE & BOX | EACH | 2.000 | 2.000 |
| 1400 | SPV.0060 | SPECIAL 04. REMOVE 16" VALVE & BOX | EACH | 2.000 | 2.000 |
| 1410 | SPV.0060 | SPECIAL 05. REMOVE 24" VALVE & BOX | EACH | 1.000 | 1.000 |
| 1420 | SPV.0060 | SPECIAL 06. CONNECT TO EXISTING WATERMAIN | EACH | 3.000 | 3.000 |
| 1430 | SPV.0060 | SPECIAL 07. HYDRANT ASSEMBLY | EACH | 1.000 | 1.000 |
| 1440 | SPV.0060 | SPECIAL 08. 8" GATE VALVE & BOX | EACH | 1.000 | 1.000 |
| 1450 | SPV.0060 | SPECIAL 09. CUT & CAP 16" CAST IRON WATERMAIN | EACH | 1.000 | 1.000 |
| 1460 | SPV.0060 | SPECIAL 10. CUT & CAP 24" CAST IRON WATERMAIN | EACH | 1.000 | 1.000 |
| 1500 | SPV.0090 | SPECIAL 02. 8" DIPS HDPE WATERMAIN SDR11 | LF | 195.000 | 195.000 |
| 1510 | SPV.0090 | SPECIAL 03. 24" WATERMAIN DUCTILE IRON CLASS 52 | LF | 291.000 | 291.000 |
| 1520 | SPV.0090 | SPECIAL 04. REMOVE 16" CI WATERMAIN | LF | 350.000 | 350.000 |
| 1530 | SPV.0090 | SPECIAL 05. REMOVE 24" CI WATERMAIN | LF | 140.000 | 140.000 |
| 1580 | SPV.0165 | SPECIAL 01. CONCRETE SIDEWALK CURE AND SEAL TREATMENT | SF | 262.000 | 262.000 |

## CONCRETE ITEMS

| CATEGORY | STATION | 415.1090 CONCRETE PAVEMENT HES 9-INCH SY | 602.0415 CONCRETE SIDEWALK 6-INCH SF | SPV.0165.01 CONCRETE SIDEWALK CURE & SEAL TREATMENT SF |
|---|---|---|---|---|
| 0010 | USH 2 | | | |
| | 106+25 - 106+75 | 67 | -- | |
| | SUBTOTAL | 67 | -- | |
| 0010 | 18TH AVE | | | |
| | 201+50 - 201+94 | | 262 | 262 |
| | SUBTOTAL | -- | 262 | 262 |
| | TOTAL | 67 | 262 | 262 |

GENERAL NOTES
1. INSPECTION TO COMPLETED BY SWLP
2. SWLP CONTACT
   TIM MELBY
   (218) 355-5949/ TMELBY@SWLP.COM

## GEOTEXTILE FABRIC TYPE SAS

| CATEGORY | STATION | 645.0140 GEOTEXTILE FABRIC TYPE SAS SY |
|---|---|---|
| 0010 | USH 2 | |
| | 106+06 -- 106+16 | 11 |
| | 106+27 -- 106+47 | 45 |
| | 106+64 -- 106+74 | 11 |
| | TOTAL | 67 |

## MOBILIZATION

| CATEGORY | LOCATION | 619.1000 MOBILIZATION EACH |
|---|---|---|
| 0010 | USH 2 | 0.5 |
| | TOTAL | 0.5 |

## FINISHING ROADWAY (1195-00-72)

| CATEGORY | LOCATION | 213.0100 FINISHING ROADWAY EACH |
|---|---|---|
| 0010 | USH 2 (1195-00-72) | 1 |
| | TOTAL | 1 |

3

## REMOVING PAVEMENT

| CATEGORY | STATION | 204.01 REMOVING PAVEMENT SY |
|---|---|---|
| 0010 | USH 2 | |
| | 106+06 - 106+16 | 11.00 |
| | 106+27 - 106+47 | 45.00 |
| | 106+64 - 106+74 | 11.00 |
| | TOTAL | 67.00 |

## SUBBASE

| CATEGORY | LOCATION | 350.0145 SUBBASE 12-INCH SY |
|---|---|---|
| 0010 | USH 2 & 18TH AVE | 67 |
| | TOTAL | 67 |

## DRILLED DOWEL BARS

| CATEGORY | LOCATION | 416.0620 DRILLED DOWEL BARS EACH |
|---|---|---|
| 0010 | USH 2 SOUTHBOUND | |
| | 106+06 - 106+16 | 20 |
| | 106+27 - 106+47 | 36 |
| | 106+64 - 106+74 | 20 |
| | TOTAL | 76 |

*NOTE: THIS IS A PRELIMINARY ESTIMATE. EXACT QUANTITIES WILL BE KNOWN WHEN PAVEMENT JOINT LAYOUT IS DETERMINED.

## REMOVING CONCRETE SIDEWALK

| CATEGORY | STATION | 204.0155 REMOVING CONCRETE SIDEWALK SY |
|---|---|---|
| 0010 | 18TH AVE | |
| | 201+50 - 201+94 | 262 |
| | TOTAL | 262 |

## SAW CUTTING ITEMS

| CATEGORY | STATION | LOCATION | 690.0250 SAWING CONCRETE LF |
|---|---|---|---|
| 0010 | USH 2 | | |
| | 106+06 - 106+16 | WATERMAIN | 40 |
| | 106+27 - 106+47 | WATERMAIN | 80 |
| | 106+64 - 106+74 | WATERMAIN | 40 |
| | TOTAL | | 160 |

## BASE AGGREGATE ITEMS

| CATEGORY | STATION | 310.0110 BASE AGGREGATE OPEN GRADED TON |
|---|---|---|
| 0010 | USH 2 | |
| | 106+06 - 106+16 | 15 |
| | 106+27 - 106+47 | 20 |
| | 106+64 - 106+74 | 15 |
| | TOTAL | 50 |

## WATER MAIN ITEMS

| CATEGOR\ | LOCATION | SPV.0060.06 CONNECT TO EXISTING WATERMAIN EACH | SPV.0060.07 HYDRANT ASSEMBLY EACH | SPV.0060.08 8" GATE VALVE AND BOX EACH | SPV.0060.09 CUT AND CAP 16" CAST IRON WATERMAIN EACH | SPV.0060.10 CUT AND CAP 24" CAST IRON WATERMAIN EACH | SPV.0090.02 8" DIPS HDPE WATERMAIN SDR 11 LF | SPV.0090.03 24" WATERMAIN DUCTILE IRON CLASS 52 LF |
|---|---|---|---|---|---|---|---|---|
| 0010 | 18TH AVE | 3 | 1 | 1 | 1 | 1 | 194 | 291 |
| | | 3 | 1 | 1 | 1 | 1 | 194 | 291 |

## REMOVE WATERMAIN ITEMS

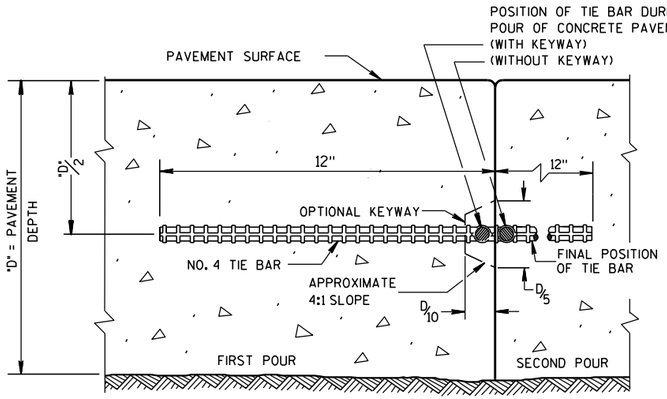
| CATEGOR\ | LOCATION | SPV.0060.01 REMOVE HYDRANT EACH | SPV.0060.02 REMOVE 6" VALVE AND BOX EACH | SPV.0060.03 REMOVE 8" VALVE AND BOX EACH | SPV.0060.04 REMOVE 16" VALVE AND BOX EACH | SPV.0060.05 REMOVE 24" VALVE AND BOX EACH | SPV.0090.04 REMOVE 16" CI WATERMAIN LF | SPV.0090.05 REMOVE 24" CI WATERMAIN LF |
|---|---|---|---|---|---|---|---|---|
| 0010 | 18TH AVE | 1 | 2 | 2 | 2 | 1 | 350 | 140 |
| | | 1 | 2 | 2 | 2 | 1 | 350 | 140 |

# Standard Detail Drawing List

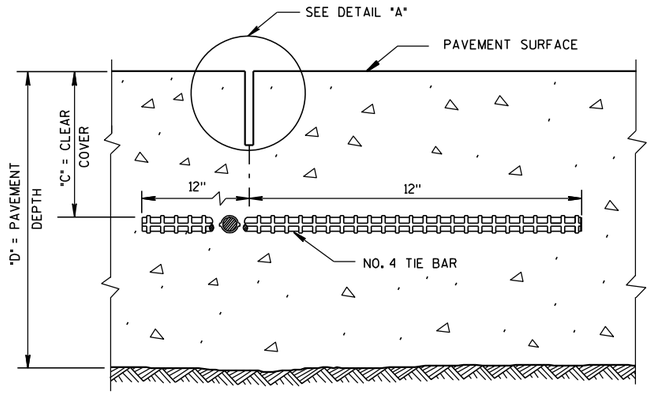
| | |
|---|---|
| 13C1-15 | CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES |
| 13C13-7 | URBAN DOWELED CONCRETE PAVEMENT |
| 13C18-1A | CONCRETE PAVEMENT JOINTING |
| 13C18-1B | CONCRETE PAVEMENT STEEL REINFORCEMENT |
| 13C18-1C | CONCRETE PAVEMENT JOINT TIES |
| 13C18-1D | CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES |



6




## CONSTRUCTION JOINT




## SAWED JOINT

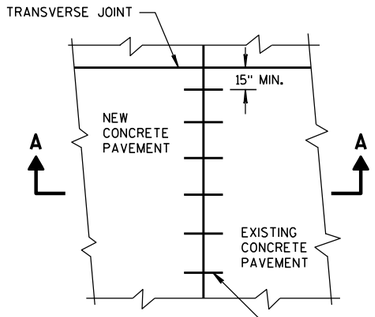
## GENERAL NOTES

DO NOT SEAL OR FILL LONGITUDINAL JOINTS.

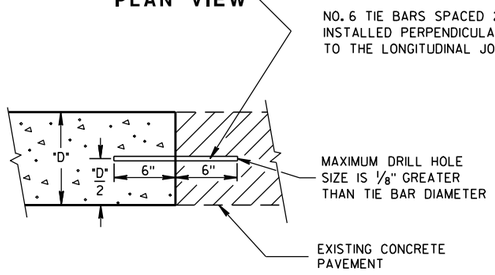
CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

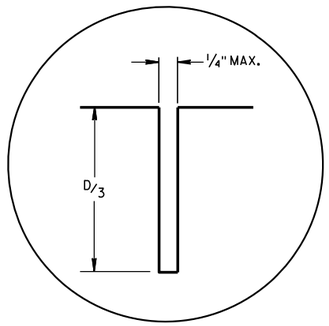
(1) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.




## PLAN VIEW

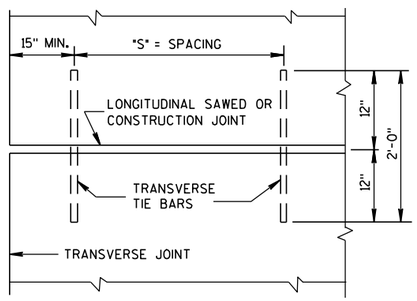



## SECTION A-A
## LONGITUDINAL CONSTRUCTION JOINT TIE BARS ANCHORED INTO EXISTING PAVEMENT




## DETAIL "A"

| PAVEMENT DEPTH "D" | CLEAR COVER "C" | MAXIMUM TIE BAR SPACING "S" | |
|---|---|---|---|
| | | PAVEMENT WIDTH | |
| | | 24' OR 26' | ≥ 30' |
| 6, 6 ½" | 3" ± ½" | 48" | 42" |
| 7, 7 ½" | 3 ¼" ± 1" | 45" | 36" |
| 8, 8 ½" | 3 ¾" ± 1" | 39" | 30" |
| 9, 9 ½" | 4 ¼" ± 1" | 33" | 27" |
| 10, 10 ½" | 4 ¾" ± 1" | 30" | 24" |
| 11, 11 ½" | 5 ¼" ± 1" | 27" | 21" |
| 12" | 5 ¾" ± 1" | 24" | 21" |




## PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT
LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10-5-2010 — DATE

/S/ Deb Bischoff — PAVEMENT POLICY & DESIGN ENGINEER

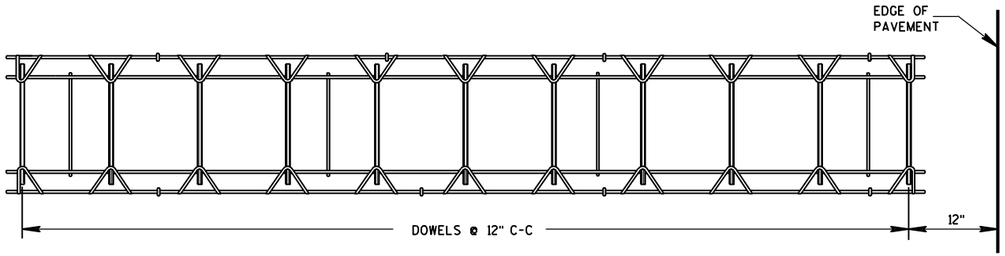
FHWA

6

S.D.D. 13 C 1-15

6

S.D.D. 13 C 1-15



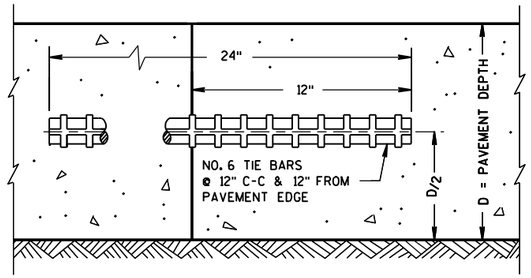

PLAN VIEW


SIDE VIEW

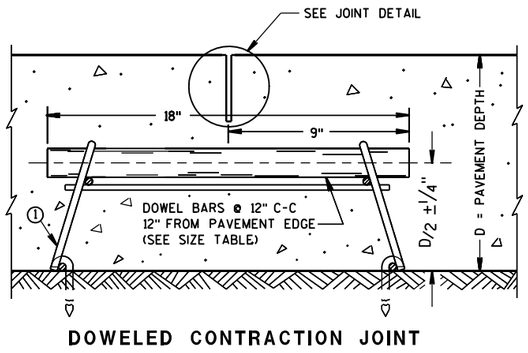
CONTRACTION JOINT DOWEL ASSEMBLY ①

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

| PAVEMENT DEPTH (D) | DOWEL BAR DIAMETER | CONTRACTION JOINT SPACING |
|---|---|---|
| 5 ½", 6", 6 ½" | NONE | 12' |
| 7", 7 ½" | 1" | 14' |
| 8", 8 ½" | 1 ¼" | 15' |
| 9", 9 ½" | 1 ¼" | 15' |
| 10" & ABOVE | 1 ½" | 15' |




TRANSVERSE CONSTRUCTION JOINT




DOWELED CONTRACTION JOINT

## GENERAL NOTES

CONTRACTION JOINTS

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

DO NOT SEAL OR FILL CONTRACTION JOINTS.

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

FOR PAVEMENT SLABS OF VARYING WIDTHS, CENTER THE DOWEL ASSEMBLY ACROSS THE LANES. LOCATE THE INNER AND OUTER MOST DOWEL BARS SO THAT THE CENTER OF THE BARS ARE A MINIMUM OF 6 INCHES AND A MAXIMUM OF 12 INCHES FROM THE LONGITUDINAL JOINT AND THE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 4 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

THE CONTRACTOR MAY INSERT TIE BARS THROUGH THE HEADER BOARD AFTER THE CONCRETE HAS BEEN PLACED.

① THE ENGINEER MAY APPROVE THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. THE CONTRACTOR MAY USE MECHANICAL DOWEL BAR INSERTERS INSTEAD OF DOWEL ASSEMBLIES.

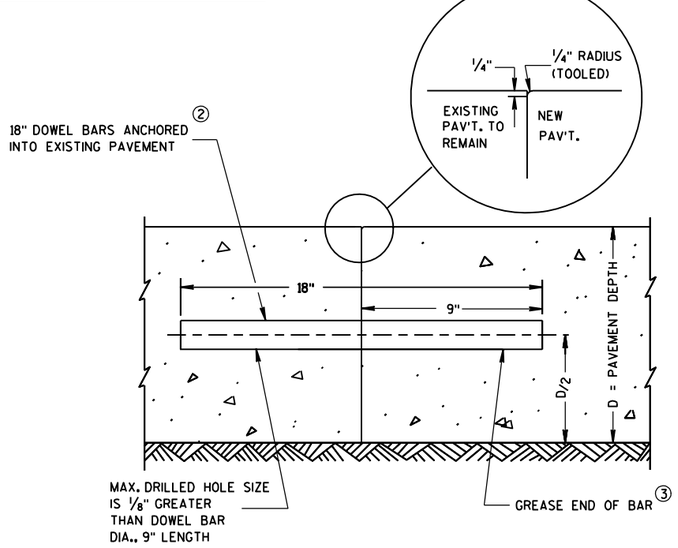
② ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY.

③ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

④ SPACE DOWEL BARS INSTALLED BY DRILLING 1'-3" ON CENTER. CENTER THE GROUPING OF DOWEL BARS INSIDE THE SLAB BASED ON ALL THE FOLLOWING SITUATIONS:

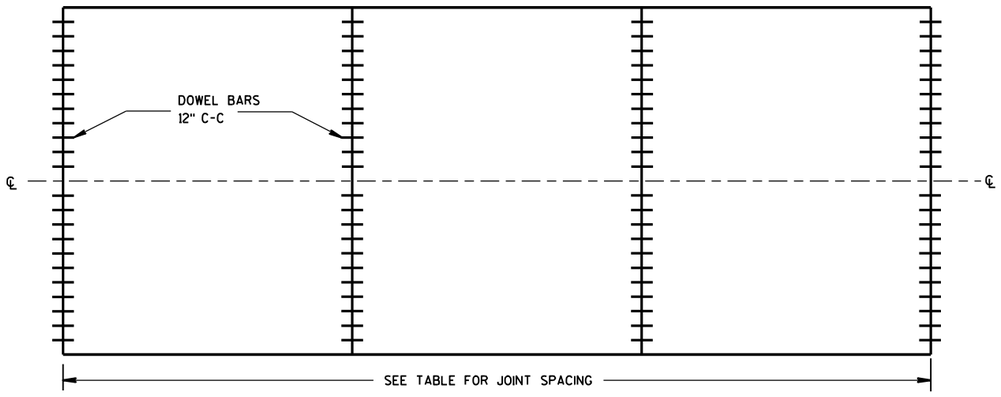
BETWEEN THE EDGES OF PAVEMENTS WITHOUT LONGITUDINAL JOINTS OR
BETWEEN THE EDGE OF PAVEMENT AND NEAREST LONGITUDINAL JOINT OR
BETWEEN TWO ADJACENT LONGITUDINAL JOINTS.

⑤ 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.

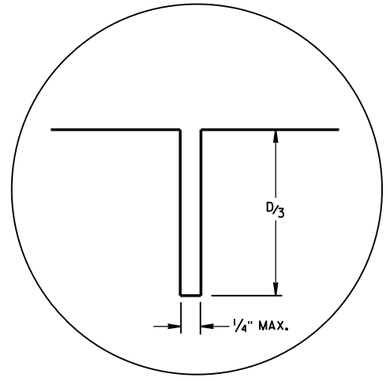



TRANSVERSE CONTRACTION JOINTS ABUTTING EXISTING PAVEMENT

④ DOWEL BAR DETAIL




CONTRACTION JOINT LOCATIONS




JOINT DETAIL

URBAN DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/11/2009 DATE
/S/ Deb Bischoff PAVEMENT POLICY & DESIGN ENGINEER
FHWA

6

S.D.D. 13 C 13-7

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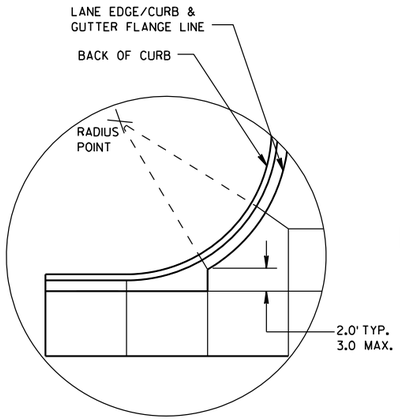
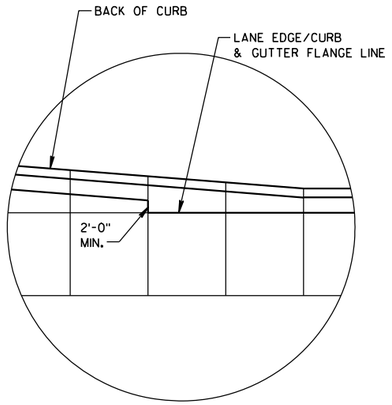
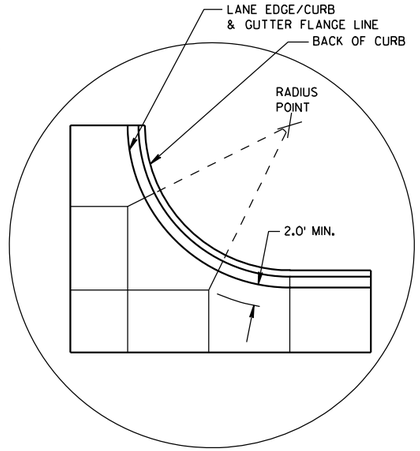
S.D.D. 13 C 13-7



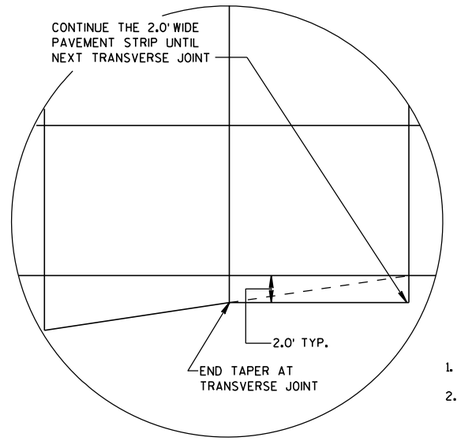

DETAIL "A"




DETAIL "B"




DETAIL "C"




DETAIL "D"

## GENERAL NOTES

THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.

ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.

CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.

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

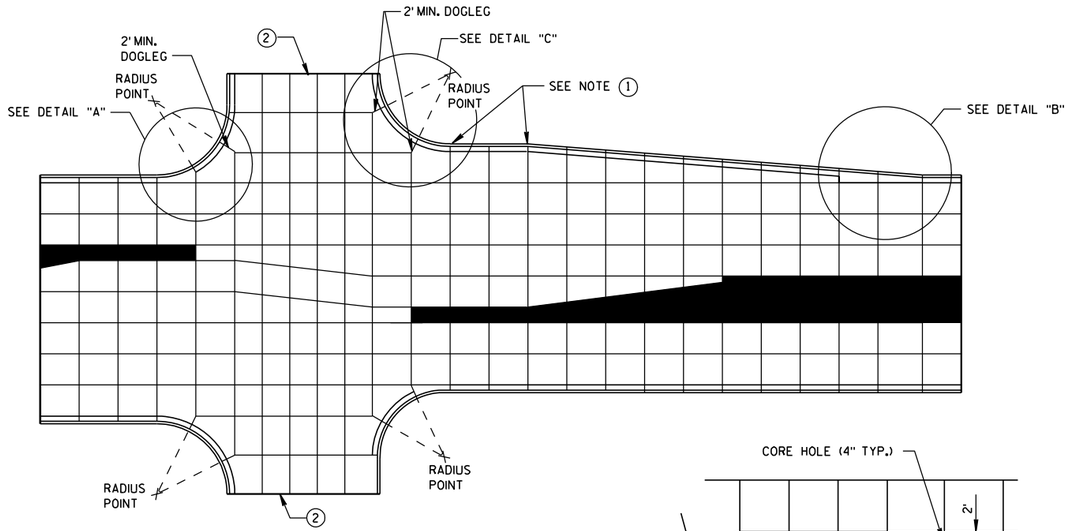
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

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

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

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

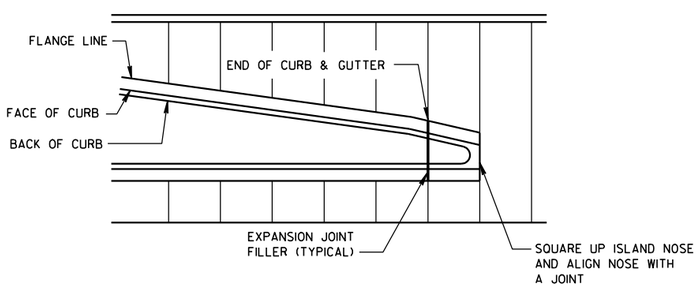
1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM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



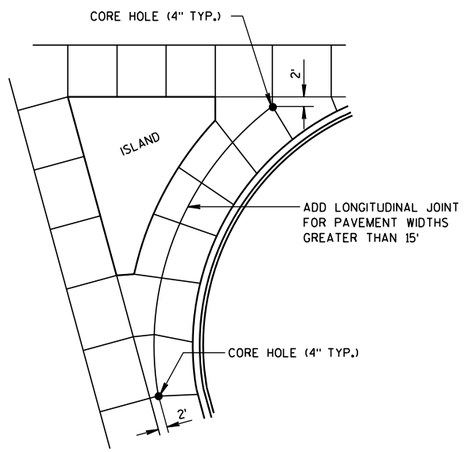

STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

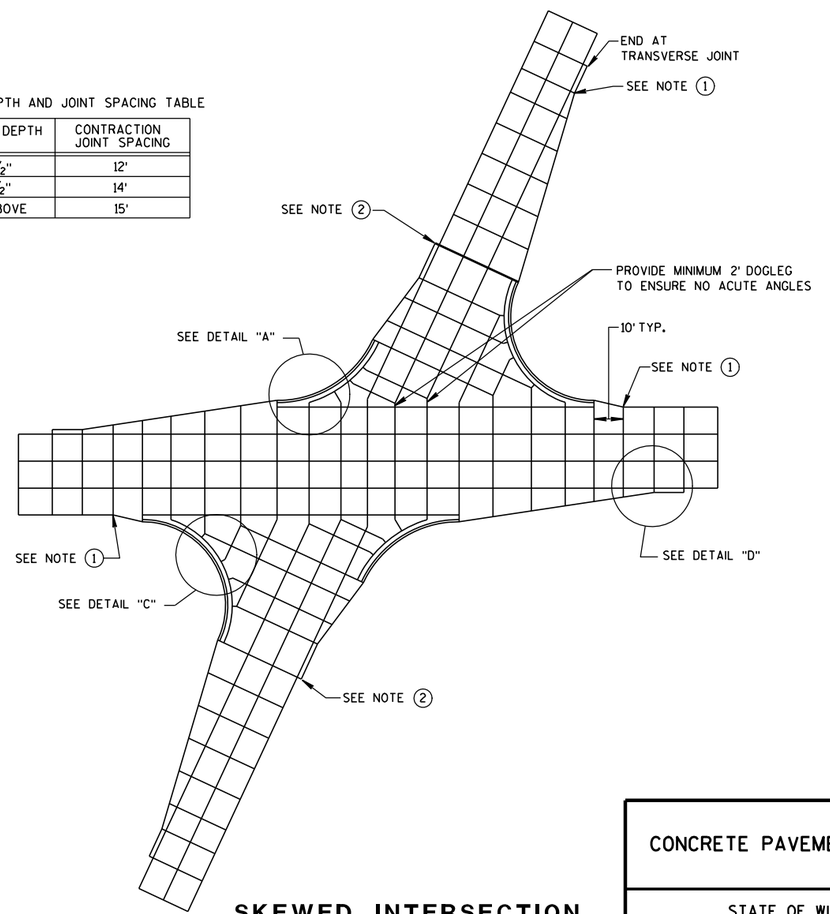
| PAVEMENT DEPTH (D) | CONTRACTION JOINT SPACING |
|---|---|
| 6", 6½" | 12' |
| 7", 7½" | 14' |
| 8" & ABOVE | 15' |




APPROACH TO MEDIAN




LARGE RIGHT TURN




SKEWED INTERSECTION

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

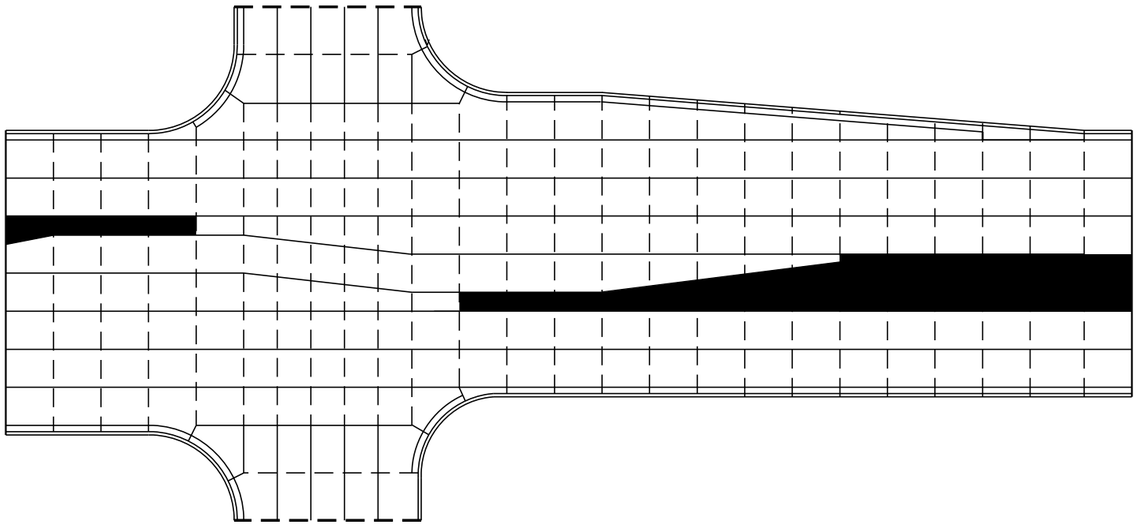
S.D.D. 13C18-1a

## LEGEND

POTENTIAL DOWELED EXPANSION JOINT

DOWELED JOINT

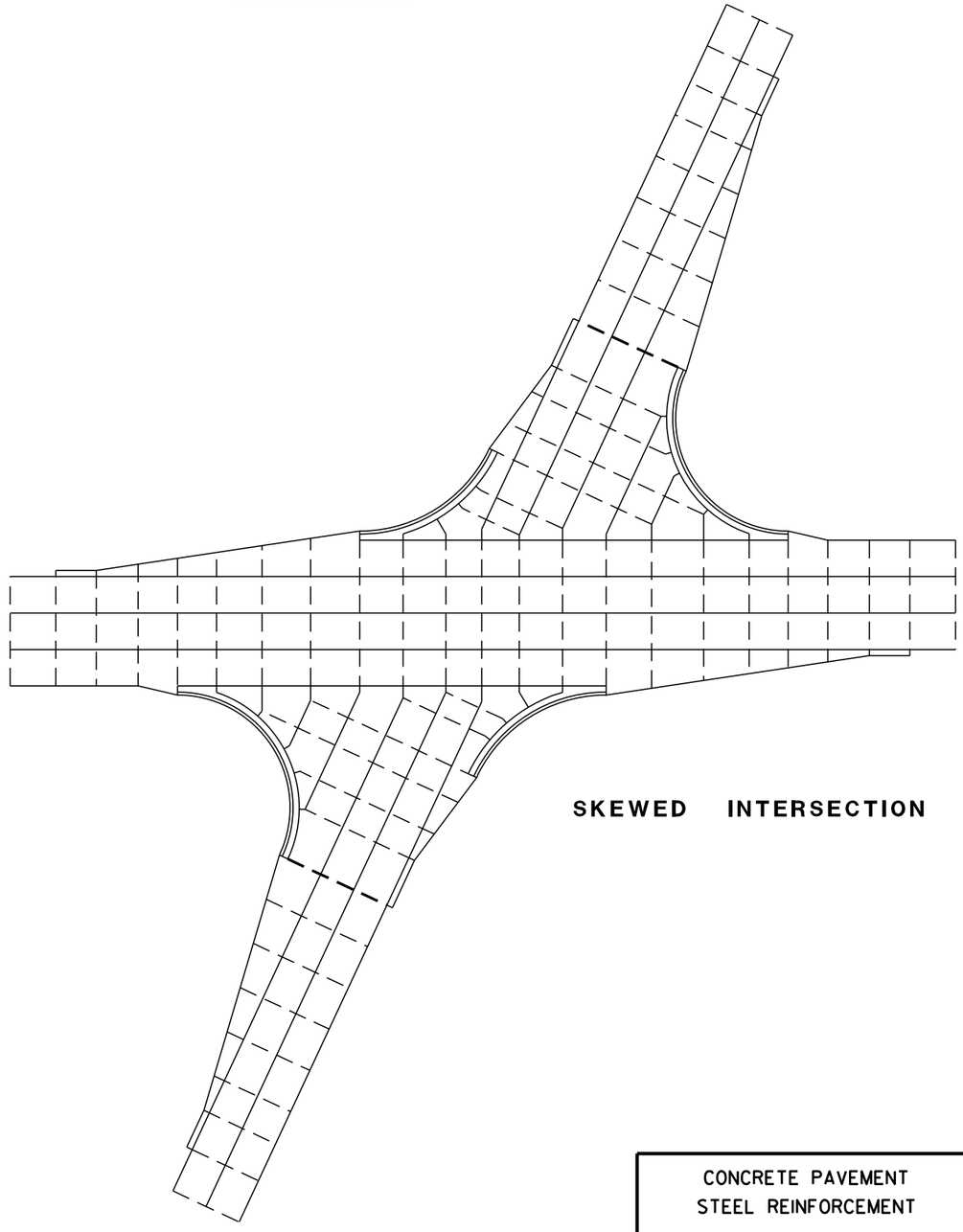
TIED JOINT



STANDARD INTERSECTION

## GENERAL NOTES

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



SKEWED INTERSECTION

6

S.D.D. 13C18-1b

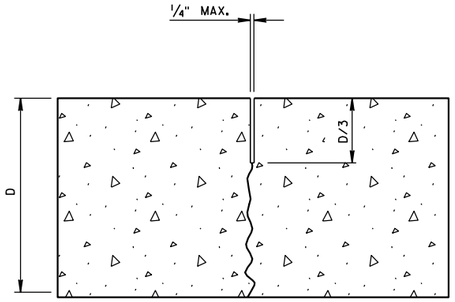
CONCRETE PAVEMENT
STEEL REINFORCEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATIO

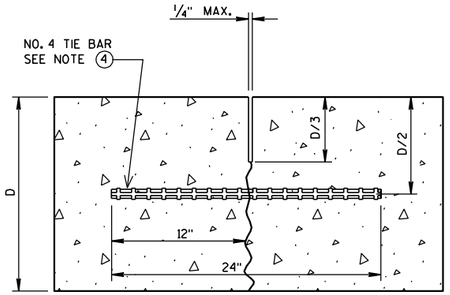


6

S.D.D. 13C18-1b



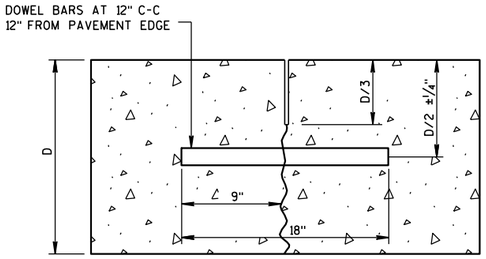

UNDOWELED-TRANSVERSE



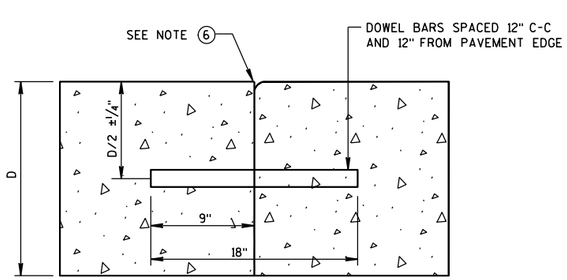

TIED LONGITUDINAL

## GENERAL NOTES

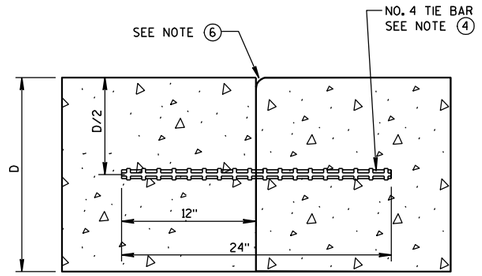
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF 4 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.
4. SPACE TIE BARS AT LONGITUDINAL CONSTRUCTION OR CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C1.
5. CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
6. IF JOINT IS FORMED, PROVIDE A 1/4-INCH RADIUS.




DOWELED-TRANSVERSE



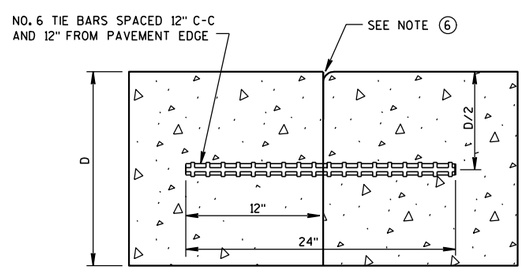

DOWELED TRANSVERSE



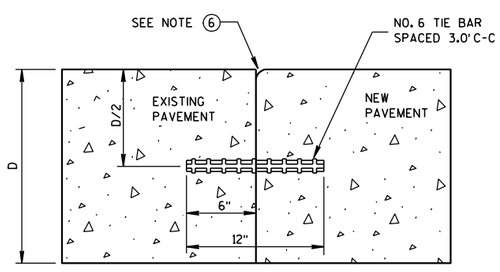

TIED LONGITUDINAL

## CONTRACTION JOINTS

SEE NOTE (2)



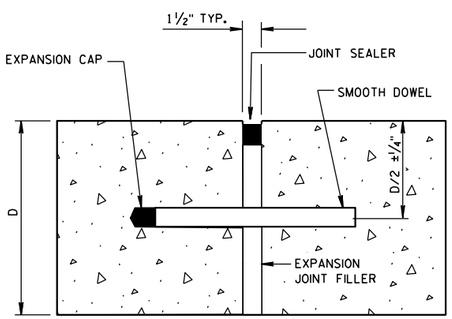

TIED TRANSVERSE
SEE NOTE (3)



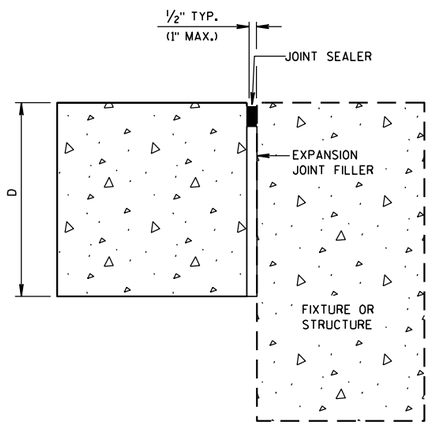

TIED LONGITUDINAL TO EXISTING

## CONSTRUCTION JOINTS

SEE NOTE (5)




DOWELED-TRANSVERSE
SEE NOTE (1)




UNTIED-LONGITUDINAL

## EXPANSION JOINTS

CONCRETE PAVEMENT
JOINT TYPES

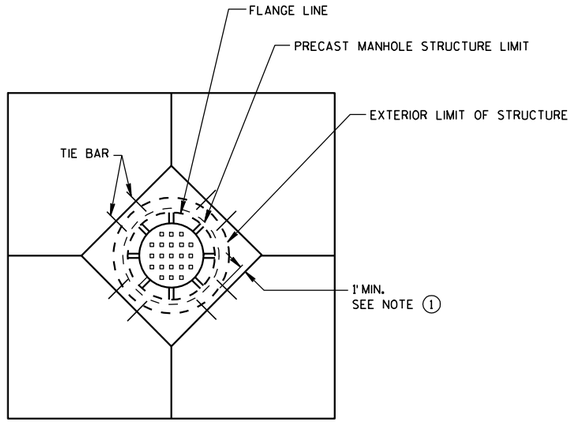
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

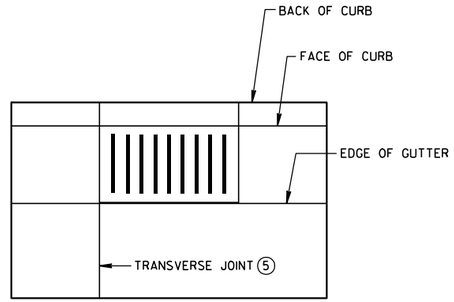
S.D.D. 13 C 18-1c

6

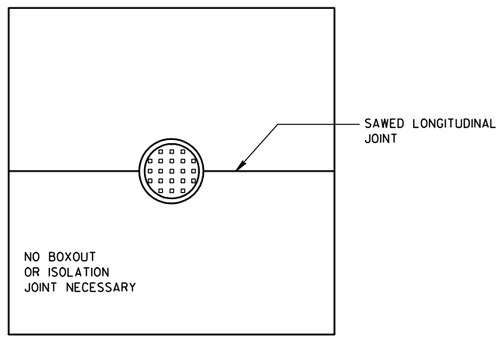
S.D.D. 13 C 18-1c



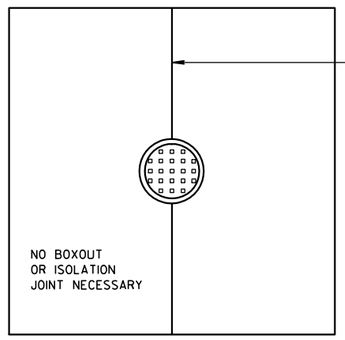

## DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS



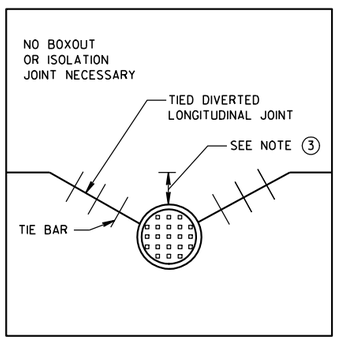

## INLET WITH TRANSVERSE JOINT



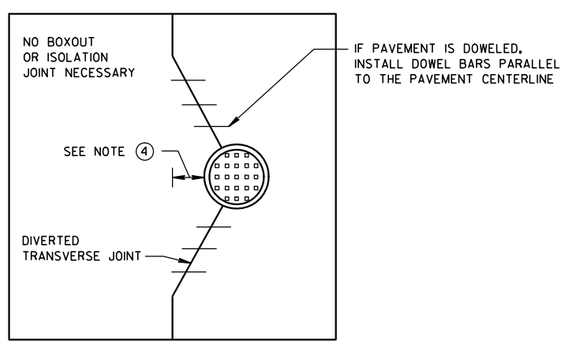

## MANHOLE WITH LONGITUDINAL JOINT




## MANHOLE WITH TRANSVERSE JOINT




## MANHOLE WITH DIVERTED LONGITUDINAL CONTRACTION JOINT




## MANHOLE WITH DIVERTED TRANSVERSE CONTRACTION JOINT

## GENERAL NOTES

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

6

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S.D.D. 13C18-1d

S.D.D. 13C18-1d

CONCRETE PAVEMENT
JOINTING AT UTILITY FIXTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10-5-2010
DATE

/S/ Deb Bischoff
PAVEMENT POLICY & DESIGN ENGINEER

FHWA

Notes

*Wisconsin Department of Transportation*

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov

SUP APR 12

PROJECT ID: 1195-00-73
WITH: 1195-00-72

COUNTY: DOUGLAS

ORDER OF SHEETS



TOTAL SHEETS = 152

PROJECT LOCATION

32

# STATE OF WISCONSIN
# DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

# SUPERIOR, EAST SECOND STREET
# 18TH AVENUE INTERSECTION

## U.S.H. 2
## DOUGLAS COUNTY

STATE PROJECT NUMBER
**1195-00-73**

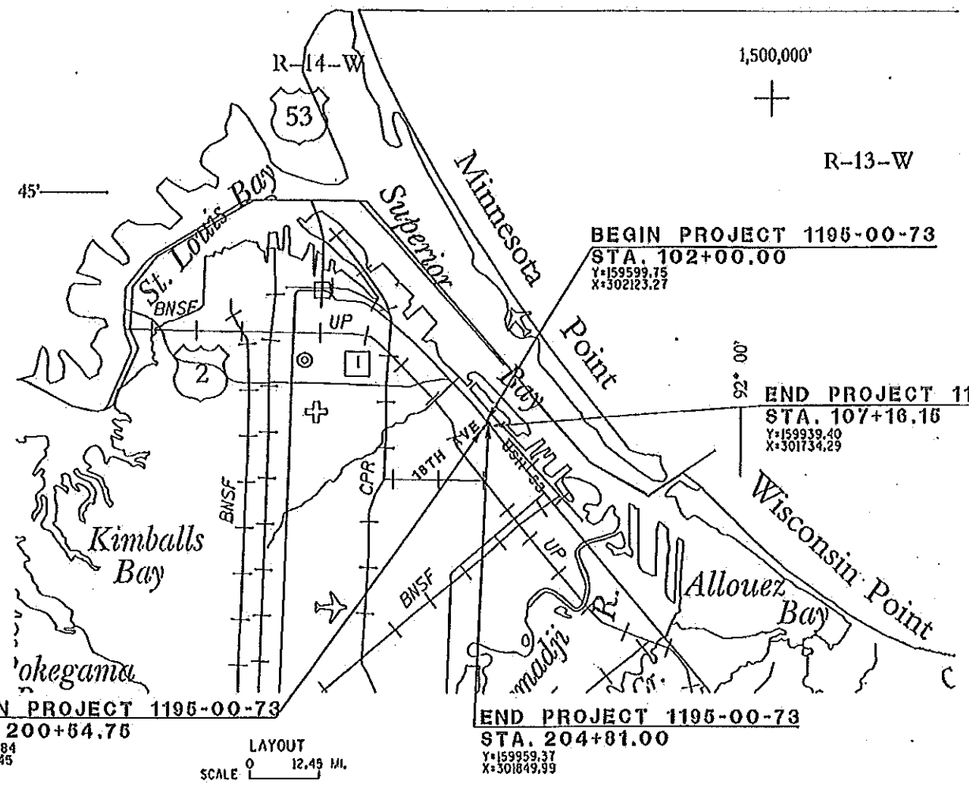
| STATE PROJECT | FEDERAL PROJECT | |
|---|---|---|
| | PROJECT | CONTRACT |
| 1195-00-73 | WISC 2012175 | 1 |
| | | |
| | | |
| | | |

DESIGN DESIGNATION

| | | |
|---|---|---|
| A.A.D.T. 2011 | = | 23,000 |
| A.A.D.T. 2031 | = | 26,500 |
| D.H.V. | = | 2,700 |
| D.D. | = | 58/42 |
| T. | = | 7.5% |
| DESIGN SPEED | = | 45 MPH |
| ESALS | = | TBD |

CONVENTIONAL SYMBOLS

| PLAN | | PROFILE | |
|---|---|---|---|
| CORPORATE LIMITS | | GRADE LINE | |
| PROPERTY LINE | | ORIGINAL GROUND | |
| LOT LINE | | MARSH OR ROCK PROFILE (To be noted as such) | ROCK |
| LIMITED HIGHWAY EASEMENT | | SPECIAL DITCH | LABEL |
| EXISTING RIGHT OF WAY | | GRADE ELEVATION | 95.36 |
| PROPOSED OR NEW R/W LINE | | CULVERT (Profile View) | |
| SLOPE INTERCEPT | | UTILITIES | |
| REFERENCE LINE | | ELECTRIC | E |
| EXISTING CULVERT | | FIBER OPTIC | FO |
| PROPOSED CULVERT (Box or Pipe) | | GAS | G |
| COMBUSTIBLE FLUIDS | CAUTION | SANITARY SEWER | SAN |
| | | STORM SEWER | SS |
| | | TELEPHONE | T |
| MARSH AREA | | WATER | W |
| | | UTILITY PEDESTAL | |
| | | POWER POLE | |
| WOODED OR SHRUB AREA | | TELEPHONE POLE | |




TOTAL NET LENGTH OF CENTERLINE = 0.16 MI.

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

ACCEPTED FOR
CITY of SUPERIOR
1/10/2012 (Date) Public Works Director (Signature & Title of Official)

ORIGINAL PLANS PREPARED BY

WISCONSIN
EYAD K. OMARI
E-39585
MILWAUKEE
WI
PROFESSIONAL ENGINEER

01/09/2012 (Date) Eyad K Omari (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

| | |
|---|---|
| Surveyor | SEH |
| Designer | DES |
| Project Manager | STEPHANIE KOIS |
| Regional Examiner | DANIEL OJIBWAY |
| Regional Supervisor | ROBERT J ANDERSON |
| C.O. Examiner | JANE ENGLEBRETSEN |

APPROVED FOR THE DEPARTMENT
DATE: 1/9/12 Mark B Hughes (Signature)

E

## ABBREVIATIONS

| | |
|---|---|
| ADT | AVERAGE DAILY TRAFFIC |
| AGG | AGGREGATE |
| BAD | BASE AGGREGATE DENSE |
| BM | BENCH MARK |
| CB | CATCH BASIN |
| C&G | CURB AND GUTTER |
| C-C | CENTER TO CENTER |
| CONC | CONCRETE |
| CSD | CONCRETE SURFACE DRAIN |
| CTR | CENTER |
| CWT | HUNDREDWEIGHT |
| CY | CUBIC YARD |
| D | DEGREE OF CURVE |
| Δ | DELTA |
| DD ∅ | DIRECTIONAL DISTRIBUTION |
| DHV | DESIGN HOUR VOLUME |
| DIA OR | DIAMETER |
| E | EAST |
| EB | EASTBOUND |
| EL OR ELEV | ELEVATION |
| EXIST | EXISTING |
| FS | FULL SUPERELEVATION |
| FT | FOOT |
| HE | HIGHWAY EASEMENT |
| HMA | HOT MIX ASPHALT |
| INCID | INCIDENTAL |
| INL | INLET |
| L | LENGTH OF CURVE |
| LF | LINEAR FOOT |
| LONG | LONGITUDINAL |
| LT | LEFT |
| MH | MANHOLE |
| MIN | MINIMUM |
| ML OR M/L | MATCH LINE |
| N | NORTH |
| NB | NORTHBOUND |
| NC | NORMAL CROWN |
| NTS | NOT TO SCALE |
| PAVT | PAVEMENT |
| PC | POINT OF CURVATURE |
| PCC | POINT OF COMPOUND CURVATURE |
| PI | POINT OF INTERSECTION |
| PLE | PERMANENT LIMITED EASEMENT |
| PT | POINT OF TANGENCY |
| PVC | POINT OF VERTICAL CURVATURE |
| PVI | POINT OF VERTICAL INTERSECTION |
| PVT | POINT OF VERTICAL TANGENCY |
| R | RADIUS |
| RCPSS | REINFORCED CONCRETE PIPE STORM SEWER |
| REQD | REQUIRED |
| R/L | REFERENCE LINE |
| RO | RUN OFF LENGTH |
| RT | RIGHT |
| RW OR R/W | RIGHT-OF-WAY |
| S | SOUTH |
| SB | SOUTHBOUND |
| SDD | STANDARD DETAIL DRAWINGS |
| SHT | SHEET |
| SS | STORM SEWER |
| STA | STATION |
| SY | SQUARE YARD |
| SYM | SYMMETRICAL |
| T | TANGENT LENGTH |
| TEMP | TEMPORARY |
| TYP | TYPICAL |
| V | VELOCITY OR DESIGN SPEED |
| VAR | VARIABLE OR VARIES |
| W | WEST |
| WB | WESTBOUND |
| YD | YARD |

## UTILITY CONTACTS

TO OBTAIN LOCATION OF
PARTICIPANTS UNDERGROUND
FACILITIES BEFORE YOU
DIG IN WISCONSIN

FAX-A-LOCATE 1-800-338-3860

WISCONSIN STATUTE 182.0175 (1974)
REQUIRES MINIMUM OF 3 WORKING DAYS
NOTICE BEFORE YOU EXCAVATE
IN WISCONSIN

DIGGERS HOTLINE

Dial 811 or Toll Free (800) 242-8511
Milwaukee Area (414) 259-1181
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com

SUPERIOR WATER LIGHT & POWER CO.
KEVIN HABERMAN (ELECTRIC)
2915 HILL AVENUE
PO BOX 519
SUPERIOR WI 54880
715-635-4229
KHABERMAN@SWLP.COM

TIM MELBY (WATER & GAS)
218-355-5949
TMELBY@SWLP.COM

CITY OF SUPERIOR PUBLIC WORKS
JEFF GOETZMAN
1316 N 14TH STREET
SUPERIOR WI 54880
715-395-7539
GOETZMAN@CI.SUPERIOR.WI.US

CENTURYLINK
STEVE HAUGE
ACCESS ENGINEERING
135 N 21ST STREET
SUPERIOR WI 54880
715-392-0033
STEVE.HAUGE@CENTURYLINK.COM

CHARTER COMMUNICATIONS
JOHN QUADE
640 GARFIELD AVE
DULUTH MN 55802
218-529-8042
JQUADE@CHARTERCOM.COM

WisDOT
BRENDAN DIRKES
PROJECT DEVELOPMENT SECTION
NORTHWEST REGION -SUPERIOR OFFICE
1701 N 4TH ST
SUPERIOR WI 54880

CITY OF CLOQUET (WATER MAIN)
CALEB PETERSON
1307 CLOQUET AVENUE
CLOQUET WI 55720
218-879-6758
CPETERSON@CI.CLOQUET.MN.US

## OTHER AGENCIES

WISCONSIN DEPARTMENT OF
NATURAL RESOURCES CONTACT
STATE OF WISCONSIN
NORTHWEST REGION
AMY CRONK
810 W MAPLE
SPOONER WISCONSIN 54801
715-635-4229
AMY.CRONK@WISCONSIN.GOV

## GENERAL NOTES

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

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

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

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

REMOVAL OF EROSION CONTROL DEVICES IS INCLUDED IN THE COST OF THEIR RESPECTIVE BID ITEMS.

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

DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE SALVAGED TOPSOILED, FERTILIZED, SEEDED AND INSTALL EROSION CONTROL MAT AS DIRECTED BY THE ENGINEER.

SEED, INSTALL EROSION CONTROL MAT, AND FERTILIZE ALL SALVAGED TOPSOILED AREAS WITHIN 7 WORKING DAYS AFTER GRADING WORK IS COMPLETED

STATIONING, DISTANCES AND OFFSETS FOR SIGNS SHOWN IN THE PLANS ARE APPROXIMATE AND THE FINAL LOCATION OF SIGNS ARE TO BE DETERMINED BY THE ENGINEER.

SIGNS IN CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE COVERED AS DIRECTED BY THE ENGINEER AND PAID FOR UNDER ITEMS TRAFFIC CONTROL COVERING SIGNS TYPE I OR TRAFFIC CONTROL COVERING SIGNS TYPE II

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

CONCRETE JOINTS SHALL MATCH ABUTTING PAVEMENT AND CURB AND GUTTER JOINTS UNLESS OTHERWISE DESIGNATED BY THE ENGINEER.

THE LOCATIONS OF LONGITUDINAL JOINTS IN HMA PAVEMENT SHALL BE APPROVED BY THE ENGINEER.

9" ASPHALTIC PAVEMENT PLACED IN 3 LAYERS. THE UPPER LAYER CONSIST OF 2.5" (12.5 mm). THE TWO LOWER LAYERS TOTAL 6.5" (19 mm)

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

THE EXACT LOCATION AND WIDTH OF PRIVATE DRIVEWAYS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

EDGE OF PAVEMENT SHALL BE CONSTRUCTED 1/4" HIGHER THAN THE CURB FLAG.

SAFETY FENCE SHALL BE INSTALLED PER THE DIRECTION OF THE ENGINEER.

DISTURBED POWER POLES WILL BE RELOCATED BY SUPERIOR WATER LIGHT & POWER CO.

WIDTH OF GUTTER IN NOTE 2 OF SDD (11B-2) IN GENERAL NOTES SHALL BE 22"

## ORDER OF SHEETS

2

N

BEGIN PROJECT
1195-00-73
STA 102+00.00

CONSTRUCTION LIMITS
1195-00-73
STA 204+81.00

100 102 104 106 108 109

USH 2 (EAST SECOND STREET)

205 204

18TH AVENUE EAST

END PROJECT
1195-00-73
STA 107+16.15

CITY OF SUPERIOR

202

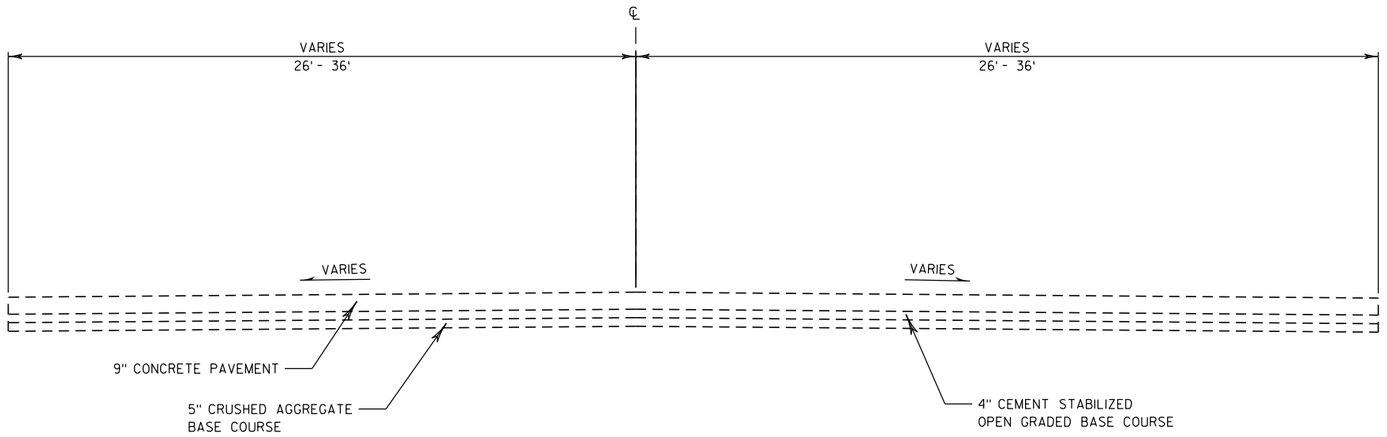
CONSTRUCTION LIMITS
1195-00-73
STA 200+54.75

200

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | PROJECT OVERVIEW | SHEET | E |
|---|---|---|---|---|---|



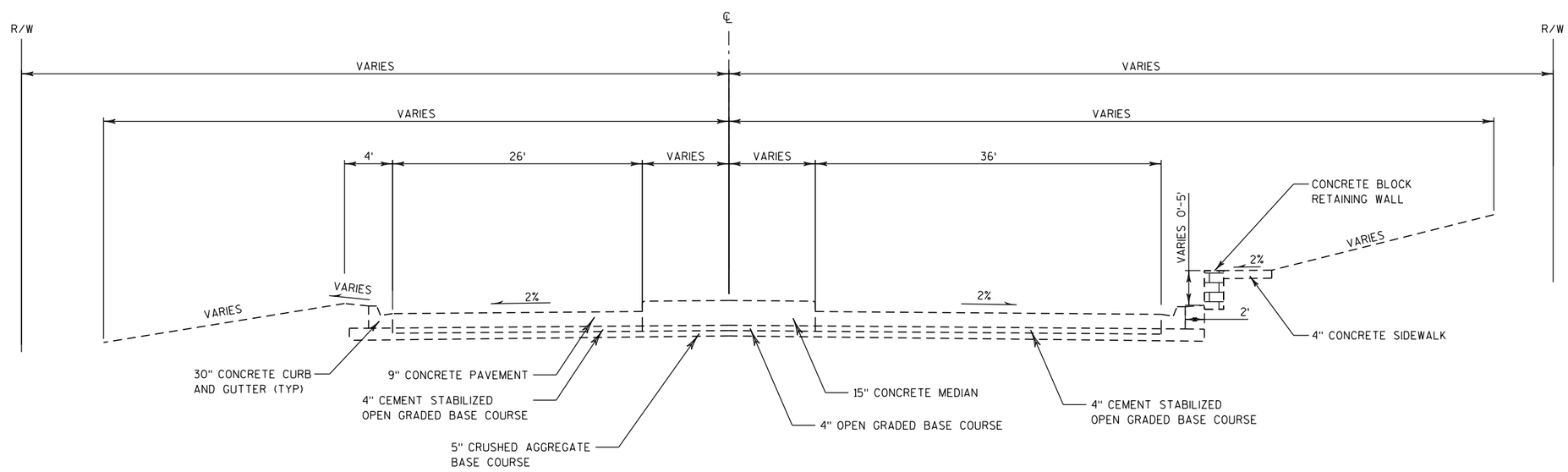
FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\020201_po.dgn PLOT DATE : 2/3/2012 PLOT BY : eomari PLOT NAME : PLOT SCALE : 1:80




TYPICAL EXISTING SECTION

USH 2

STA. 106+31 TO 106+79




TYPICAL EXISTING SECTION

USH 2

STA. 102+00 TO 106+31

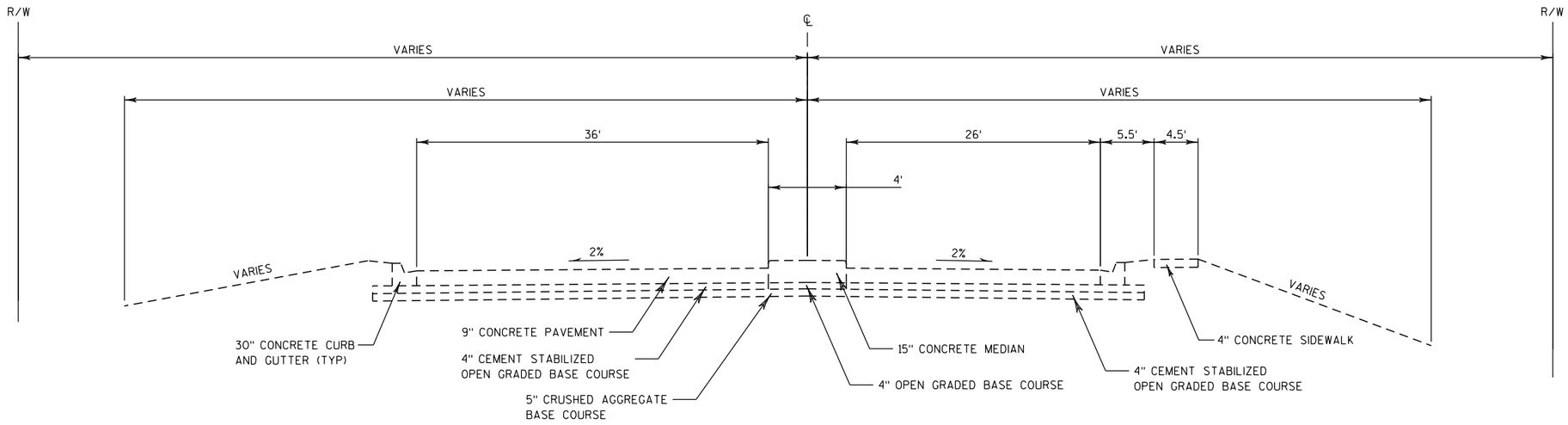
NOTE: PAVEMENT AND BASE THICKNESS SHOWN ARE APPROXIMATE

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | TYPICAL SECTIONS: EXISTING USH 2 | SHEET 4 | E |
|---|---|---|---|---|---|

FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\020301_ts.dgn PLOT DATE : 2/3/2012 PLOT BY : eomari PLOT NAME : PLOT SCALE : 1:200

WISDOT/CADDS SHEET 42

2




## TYPICAL EXISTING SECTION

USH 2

STA. 106+79 TO 107+16

NOTE: PAVEMENT AND BASE THICKNESS SHOWN ARE APPROXIMATE

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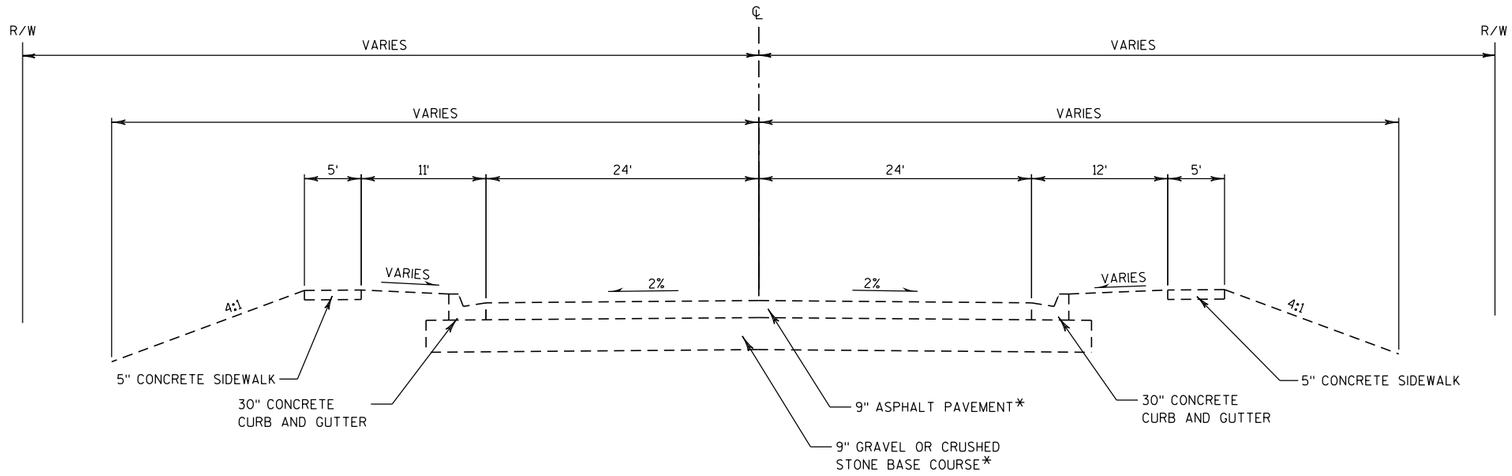
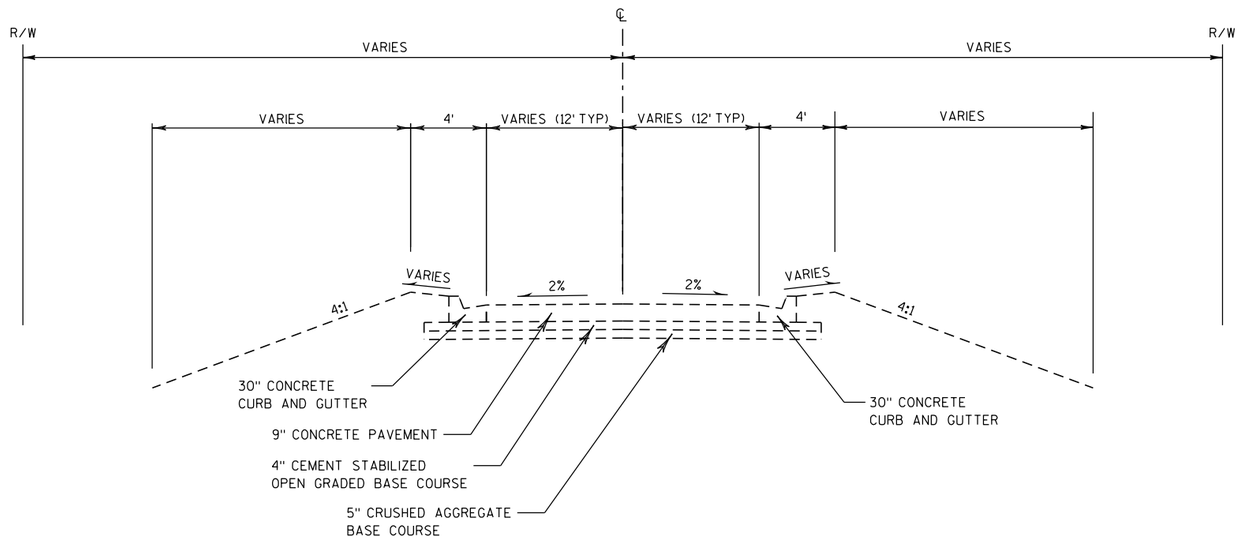
|---|---|---|---|---|---|




TYPICAL EXISTING SECTION

18TH AVENUE

STA. 200+55 TO 203+62



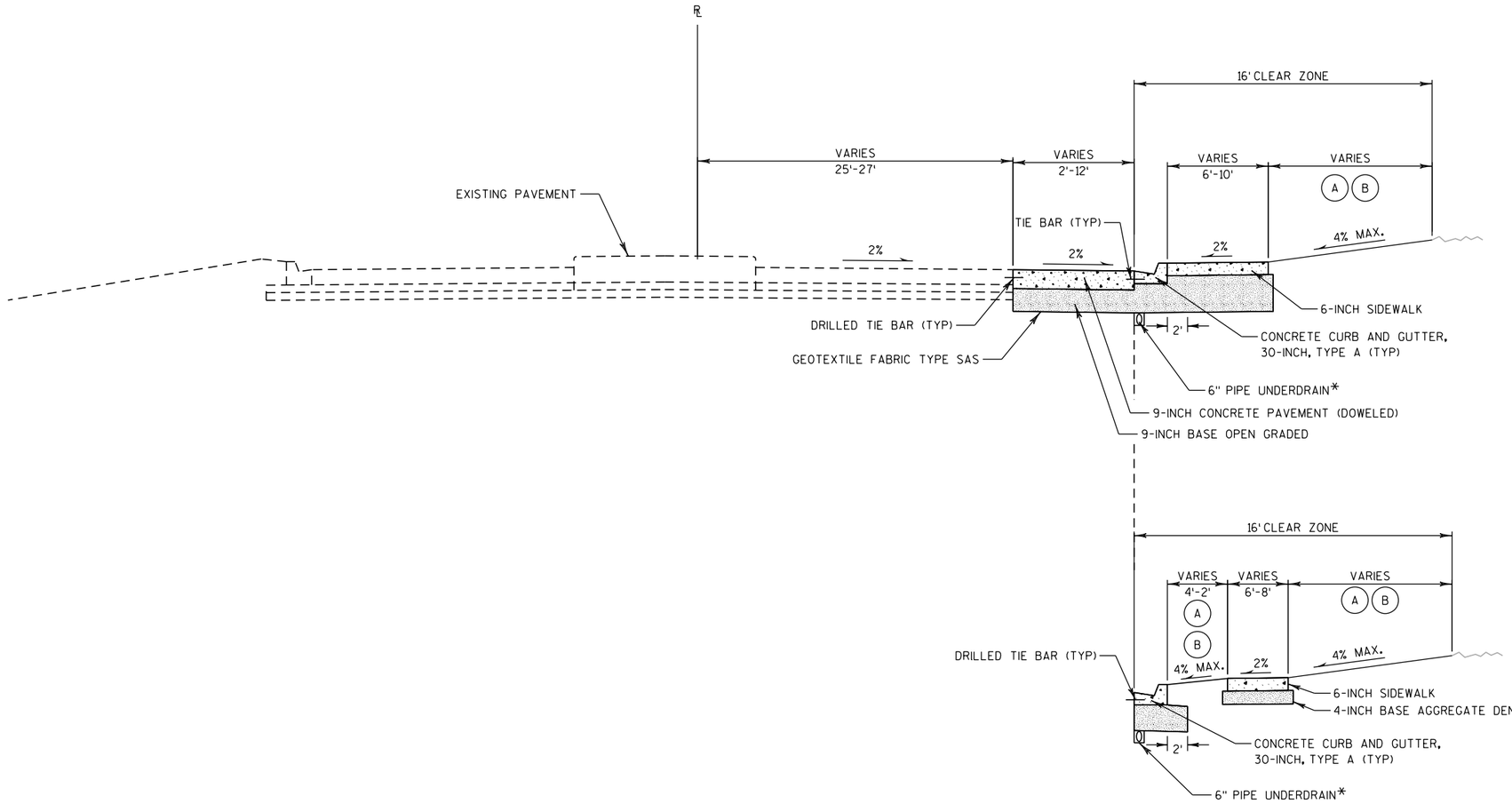

TYPICAL EXISTING SECTION

18TH AVENUE

STA. 203+62 TO 204+85

NOTE: PAVEMENT AND BASE THICKNESS SHOWN ARE APPROXIMATE

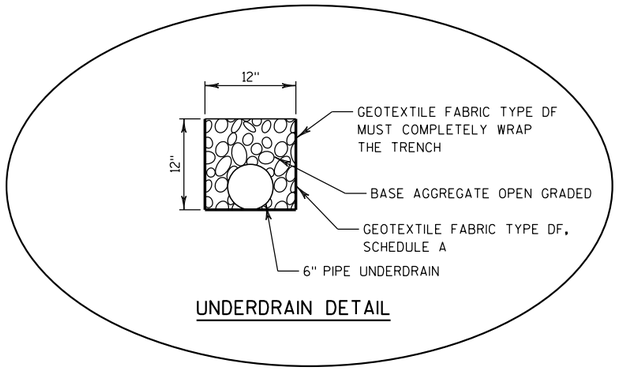
| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | TYPICAL SECTIONS: EXISTING 18TH AVE | SHEET 6 | E |
|---|---|---|---|---|---|




STA. 102+00 TO 102+25

## TYPICAL FINISHED SECTION
## USH 2

STA. 102+00 TO 105+50




## UNDERDRAIN DETAIL

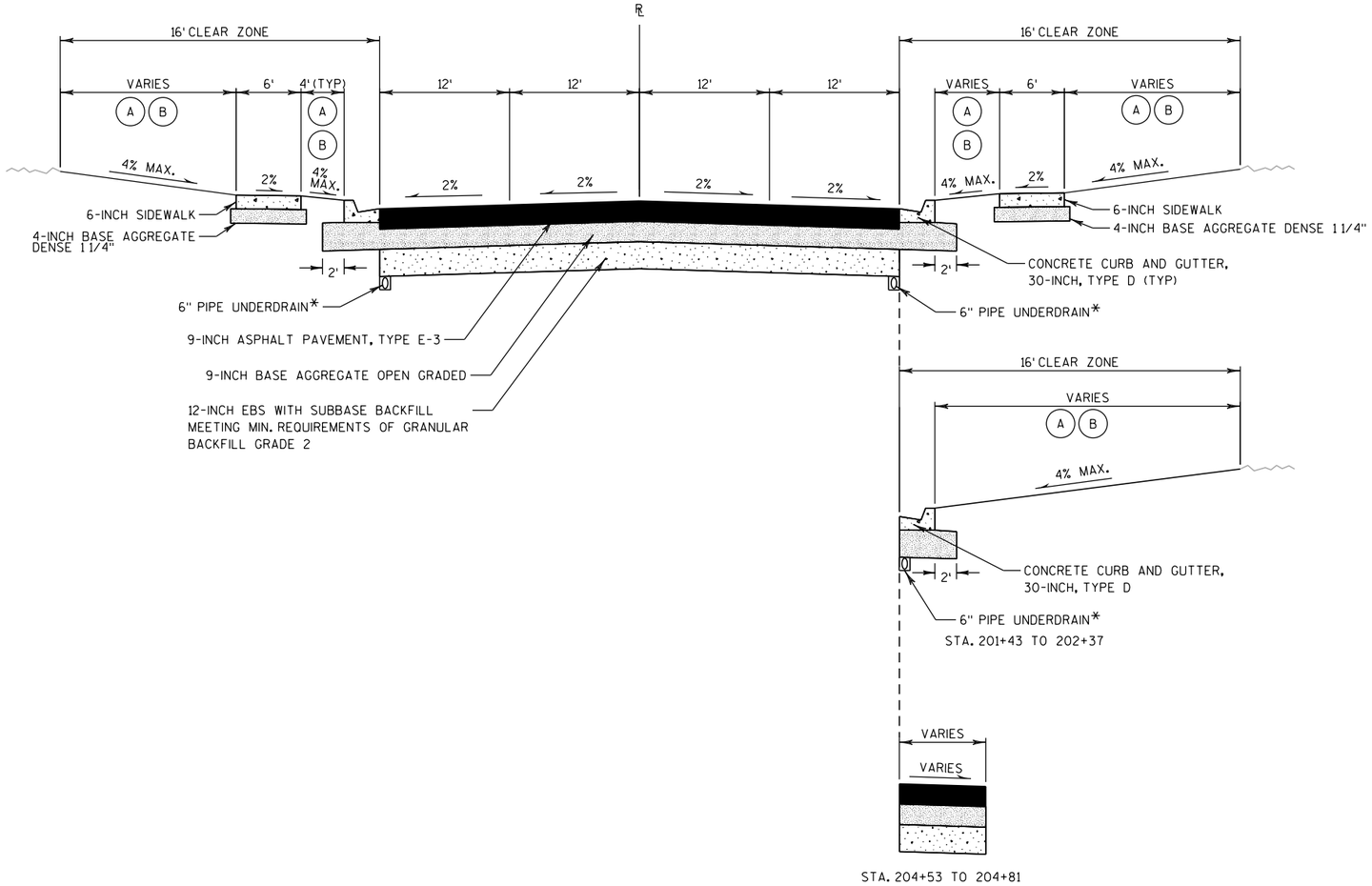
LEGEND

(A) FERTILIZER TYPE B

(B) 4" SALVAGED TOPSOIL SEED MIX #40 WITH CLASS 1 URBAN TYPE B EROSION CONTROL MAT

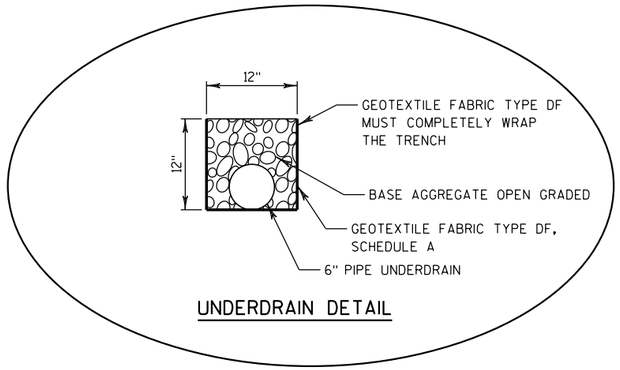
* WRAP PIPE WITH GEOTEXTILE FABRIC TYPE DF IF LOCATED IN SAND

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | TYPICAL SECTIONS: USH 2 & 18TH AVE | SHEET 7 | E |
|---|---|---|---|---|---|




## TYPICAL FINISHED SECTION
### 18TH AVENUE

STA. 200+55 TO 202+37
STA. 204+53 TO 204+81




UNDERDRAIN DETAIL

LEGEND

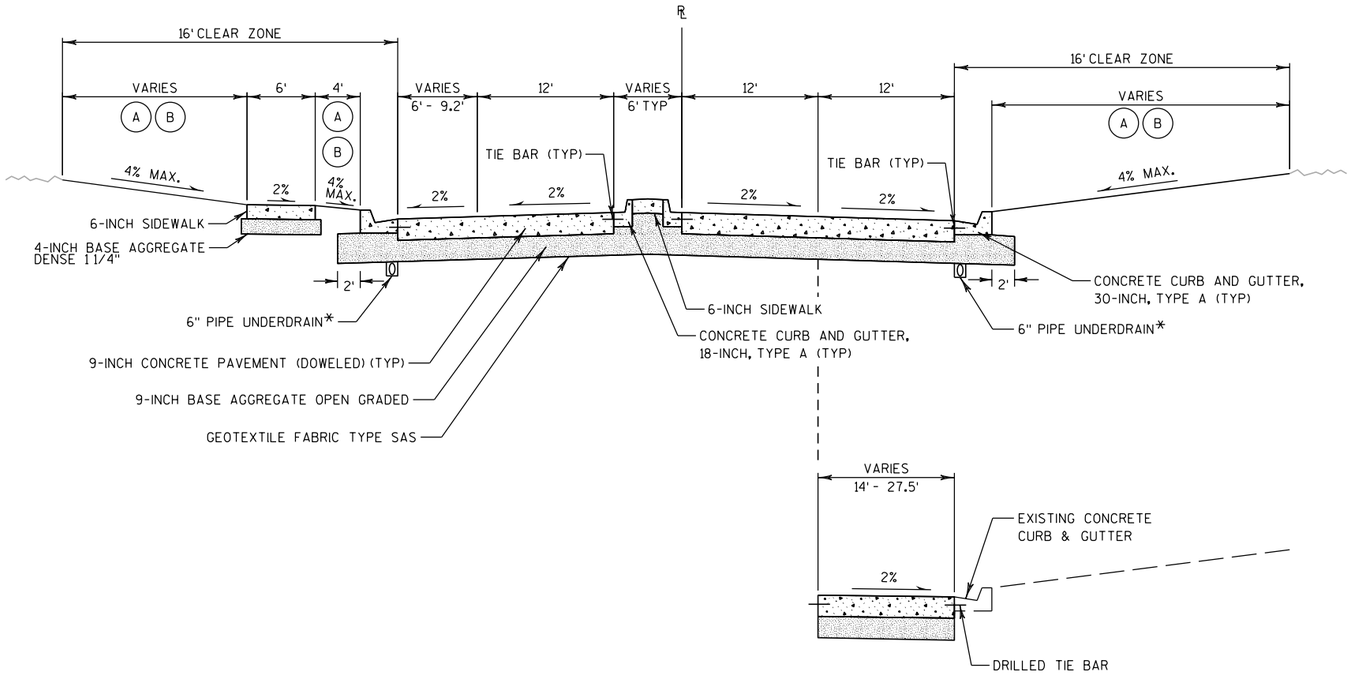
(A) FERTILIZER TYPE B

(B) 4" SALVAGED TOPSOIL SEED MIX #40 WITH CLASS 1 URBAN TYPE B EROSION CONTROL MAT

* WRAP PIPE WITH GEOTEXTILE FABRIC TYPE DF IF LOCATED IN SAND

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | TYPICAL SECTIONS: USH 2 & 18TH AVE | SHEET 8 | E |
|---|---|---|---|---|---|

* WRAP PIPE WITH GEOTEXTILE FABRIC TYPE DF IF LOCATED IN SAND




STA. 204+28 TO 204+53

## TYPICAL FINISHED SECTION
## 18TH AVENUE

STA. 202+37 TO 203+63
STA. 204+28 TO 204+53

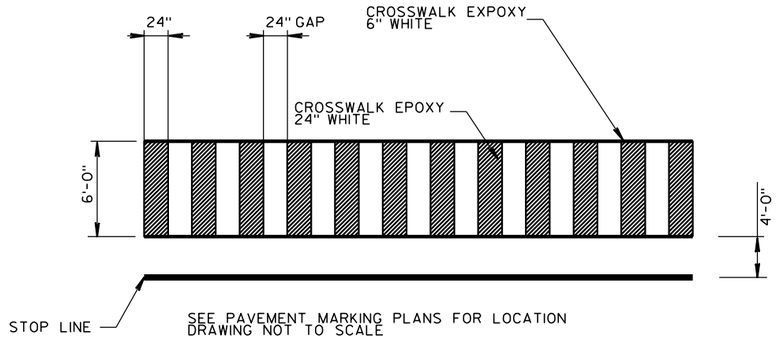
LEGEND

(A) FERTILIZER TYPE B

(B) 4" SALVAGED TOPSOIL SEED MIX #40 WITH CLASS 1 URBAN TYPE B EROSION CONTROL MAT

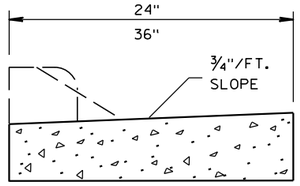
| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | TYPICAL SECTIONS: USH 2 & 18TH AVE | SHEET 9 | E |
|---|---|---|---|---|---|

2

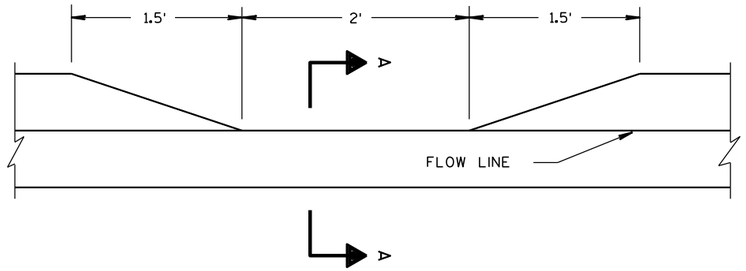



PAVEMENT CROSSEWALK MARKING DETAIL

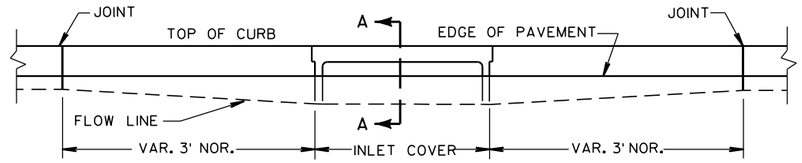
| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CONSTRUCTION DETAILS | SHEET 10 | E |
|---|---|---|---|---|---|



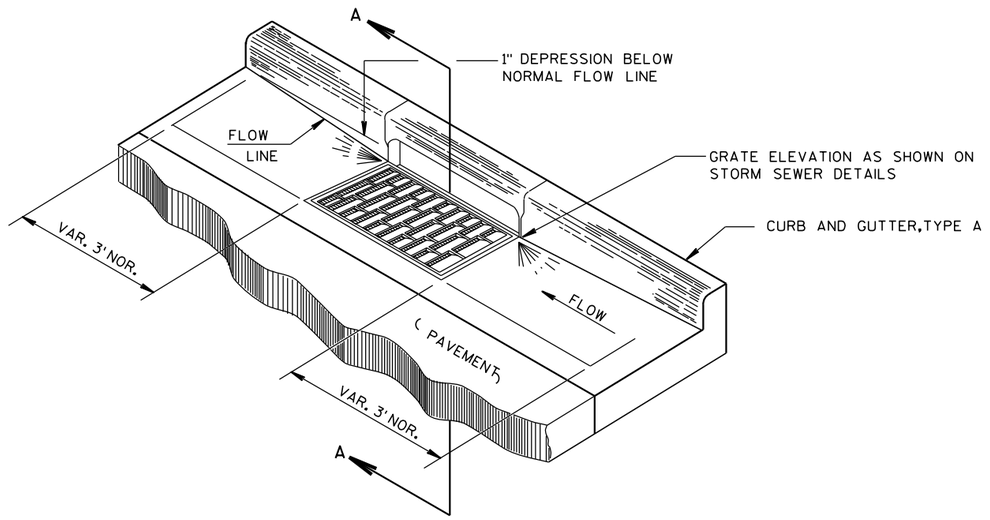

SECTION A-A

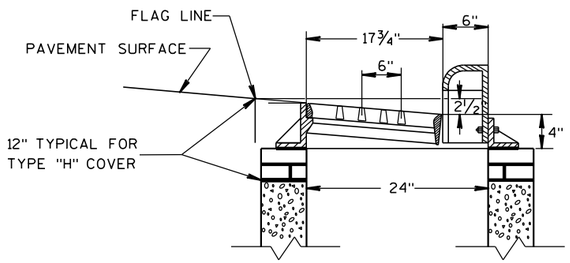



DETAIL OF CURB HEAD DEPRESSION FOR
DRAINAGE AT CURB & GUTTER SECTION



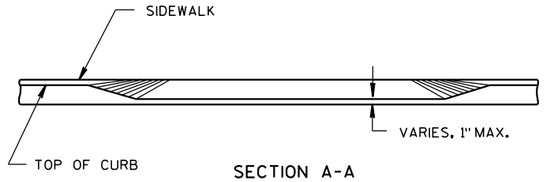

ELEVATION



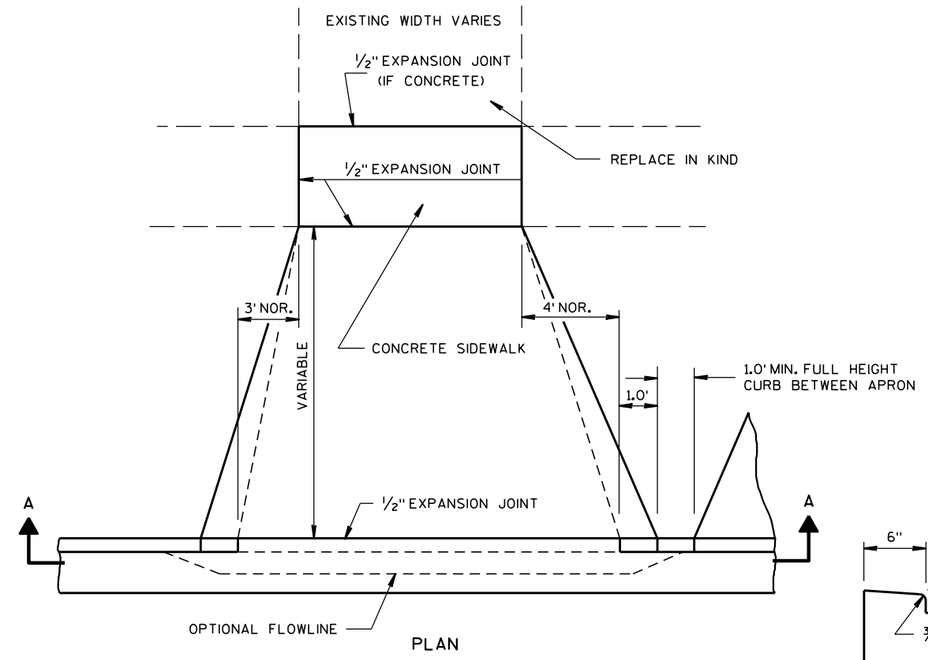




SECTION A-A

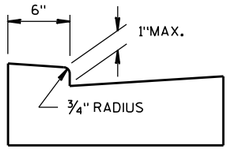
DETAIL OF CURB AND GUTTER AT INLETS
(TYPE 3-H INLET SHOWN)



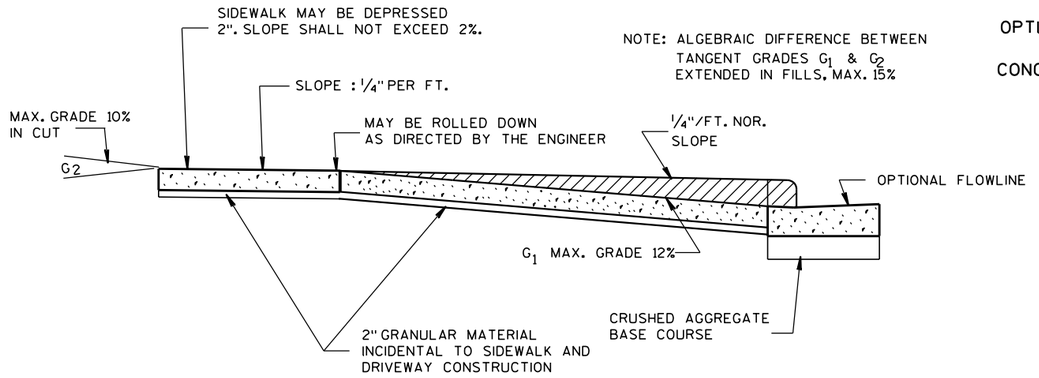

SECTION A-A




PLAN

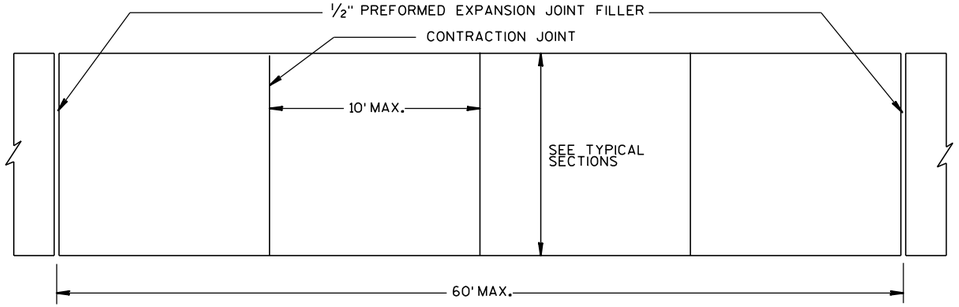


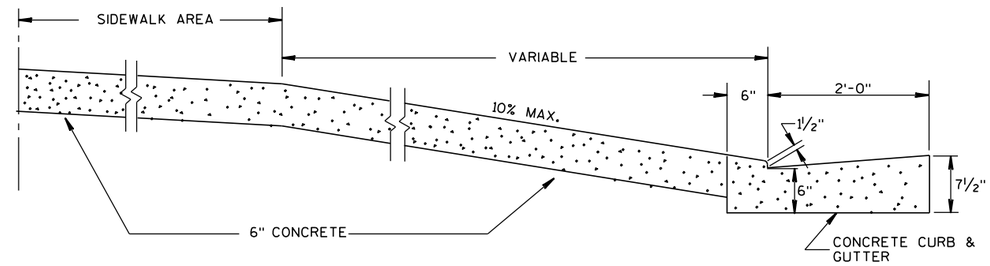

OPTIONAL METHOD FOR CONCRETE GUTTER



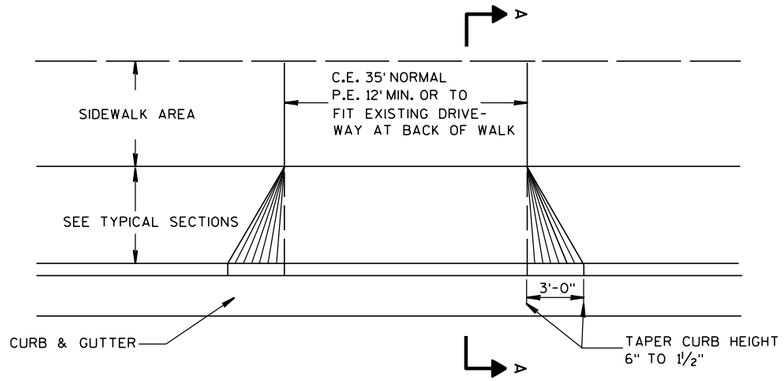

PROFILE

## URBAN DRIVEWAY DETAIL



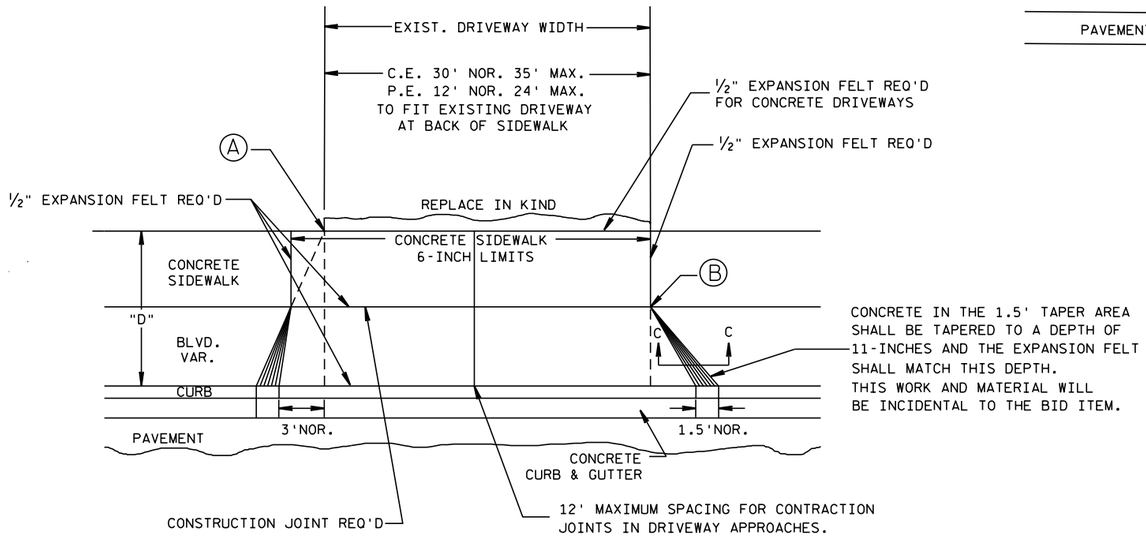




SECTION A-A




## PRIVATE AND COMMERCIAL ENTRANCES

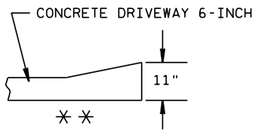
# DRIVEWAY ENTRANCE DETAIL WITH SIDEWALK, CURB & GUTTER



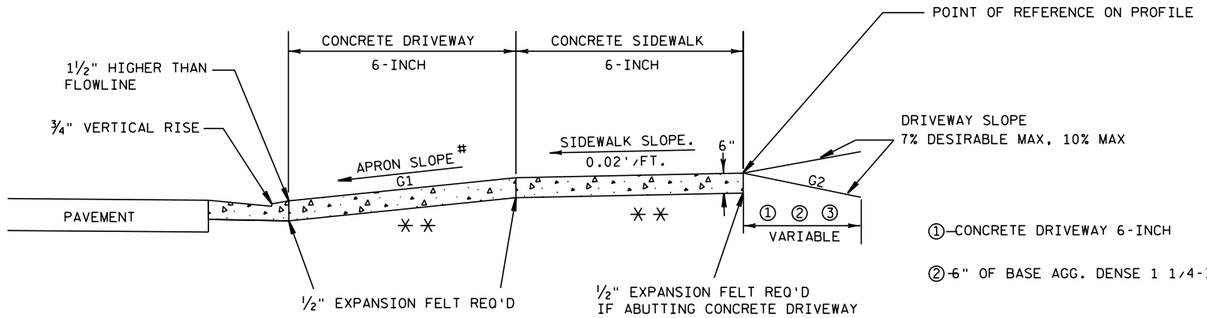

## PLAN VIEW

Ⓐ WHEN "D" IS 13' OR LESS, ALIGN TAPER WITH BACK OF SIDEWALK

Ⓑ WHEN "D" IS GREATER THAN 13', ALIGN TAPER WITH FRONT OF SIDEWALK




SECTION C-C




## TYPICAL SIDEWALK SECTION

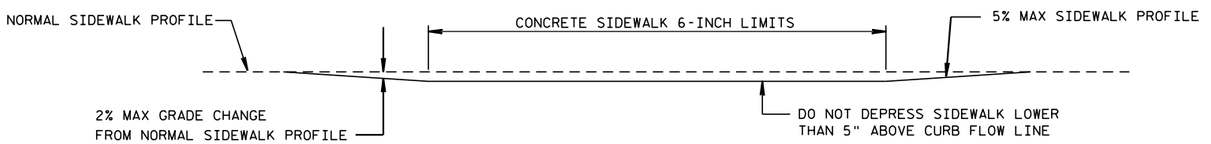
✳✳ = 6" BASE AGG. DENSE 1 1/4-INCH REQ'D UNDER CONCRETE DRWY

\# 

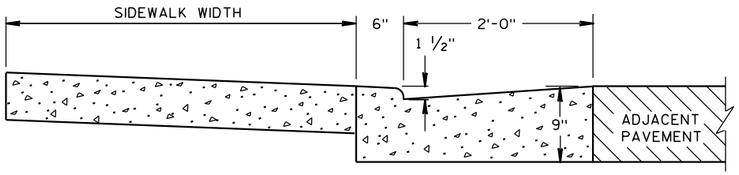
| TERRACE WIDTH | APRON SLOPE (G1) MIN % | DESIRABLE % | MAX % |
|---|---|---|---|
| 3 FT | 7.0 | 8.5 | 9.0 |
| 4 FT | 5.0 | 7.0 | 9.0 |
| 5 FT | 4.0 | 7.0 | 9.0 |
| 6 FT | 4.0 | 7.0 | 9.0 |
| 7 FT | 3.5 | 7.0 | 9.0 |
| 8 FT | 3.0 | 7.0 | 9.0 |

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

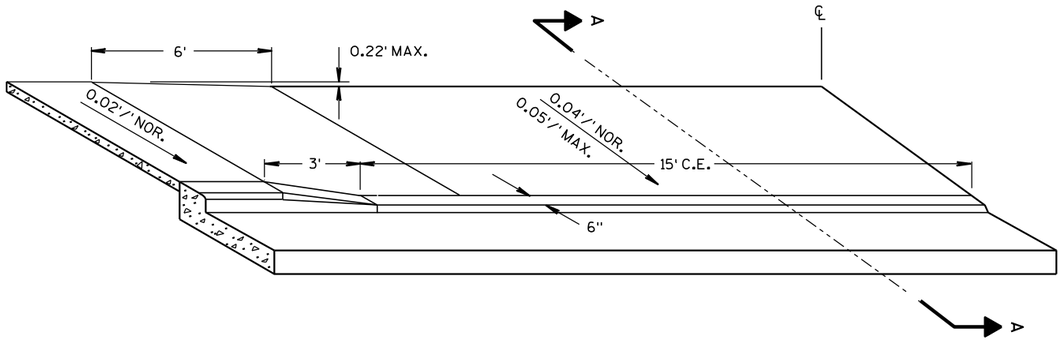
DEPRESS SIDEWALK PROFILE IF DRIVEWAY APRON EXCEEDS MAX SLOPE



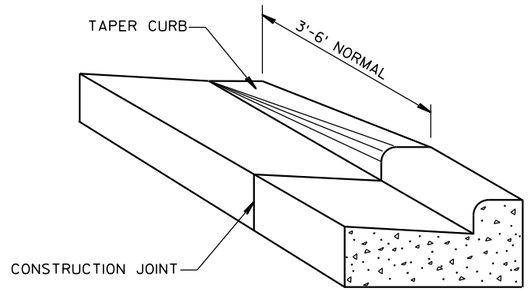

## DEPRESSED SIDEWALK PROFILE DETAIL




SECTION A-A




COMMERICAL ENTRANCE (HALF SECTION)




DETAIL OF CURB & GUTTER TERMINI

2

BEGIN PROJECT
1195-00-73
STA 102+00

END PROJECT
1195-00-73
STA 107+16

USH 2

R/L USH 2

R/W

102+00 103+00 104+00 105+00 106+00 204+00 205+00 107+00

205+00 05+12

BEGIN TAPER
STA 102+00.00
26.9' RT

END TAPER
STA 103+49.8
38.6' RT

SLOPE INTERCEPT

+22.17
26.39' RT

+49.85
38.54' RT

+68.98
38.06' LT

+68.96
12.95' LT

+68.95
3.05' RT

+36.18
47.82' LT

+44.07
41.48' LT

+29.30
47.79' LT

+96.28
38.14' LT

+83.70
38.01' LT

+24.12
12.92' LT

+24.09
38.08' RT

+16.09
27.10' RT

634.37 634.48 634.58 634.69 634.80 634.90 635.01 635.11 635.22 635.33 635.43 635.54 635.65 635.75 635.86

635.88 635.79 635.97 635.88 635.65 635.73 635.50 635.36 635.48 636.14 635.91 635.66 636.34 636.35 635.72 636.43 636.44 636.12 635.87 636.55 636.21 635.96 636.07 635.46 635.22 634.84 635.43 635.94 635.71 635.30 635.00

2% 10' 12' 6' R 25' R 35' R 65' R 50'

SAWN

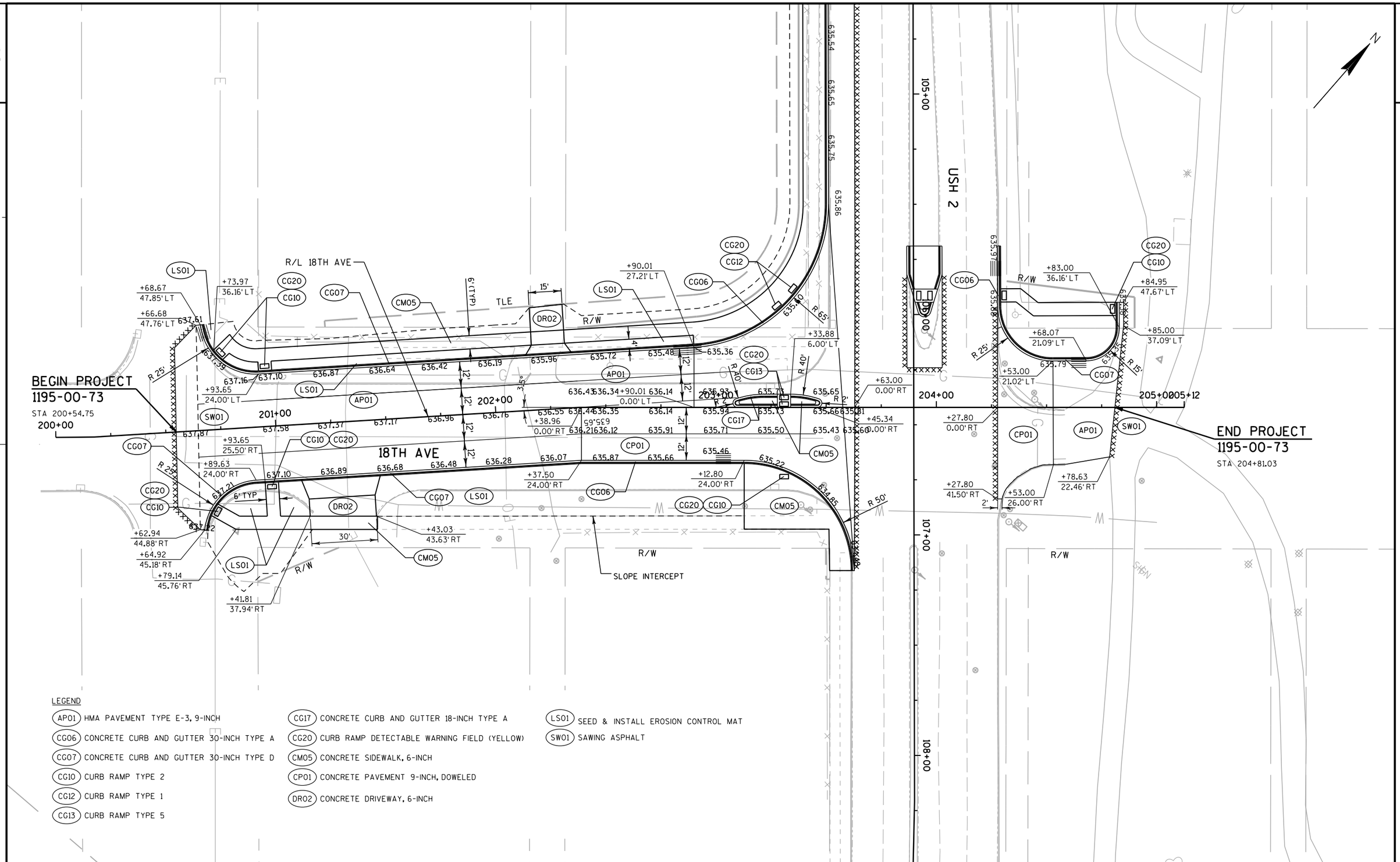
18TH AVE

LEGEND

| | |
|---|---|
| APO1 HMA PAVEMENT TYPE E-3, 9-INCH | CG17 CONCRETE CURB AND GUTTER 18-INCH TYPE A |
| CG06 CONCRETE CURB AND GUTTER 30-INCH TYPE A | CG20 CURB RAMP DETECTABLE WARNING FIELD (YELLOW) |
| CG07 CONCRETE CURB AND GUTTER 30-INCH TYPE D | CM05 CONCRETE SIDEWALK, 6-INCH |
| CG10 CURB RAMP TYPE 2 | CP01 CONCRETE PAVEMENT 9-INCH, DOWELED |
| CG12 CURB RAMP TYPE 1 | |
| CG13 CURB RAMP TYPE 5 | LS01 SEED AND INSTALL EROSION CONTROL MAT |
| | SW01 SAWING ASPHALT |

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | PLAN DETAIL | SHEET 15 | E |
|---|---|---|---|---|---|

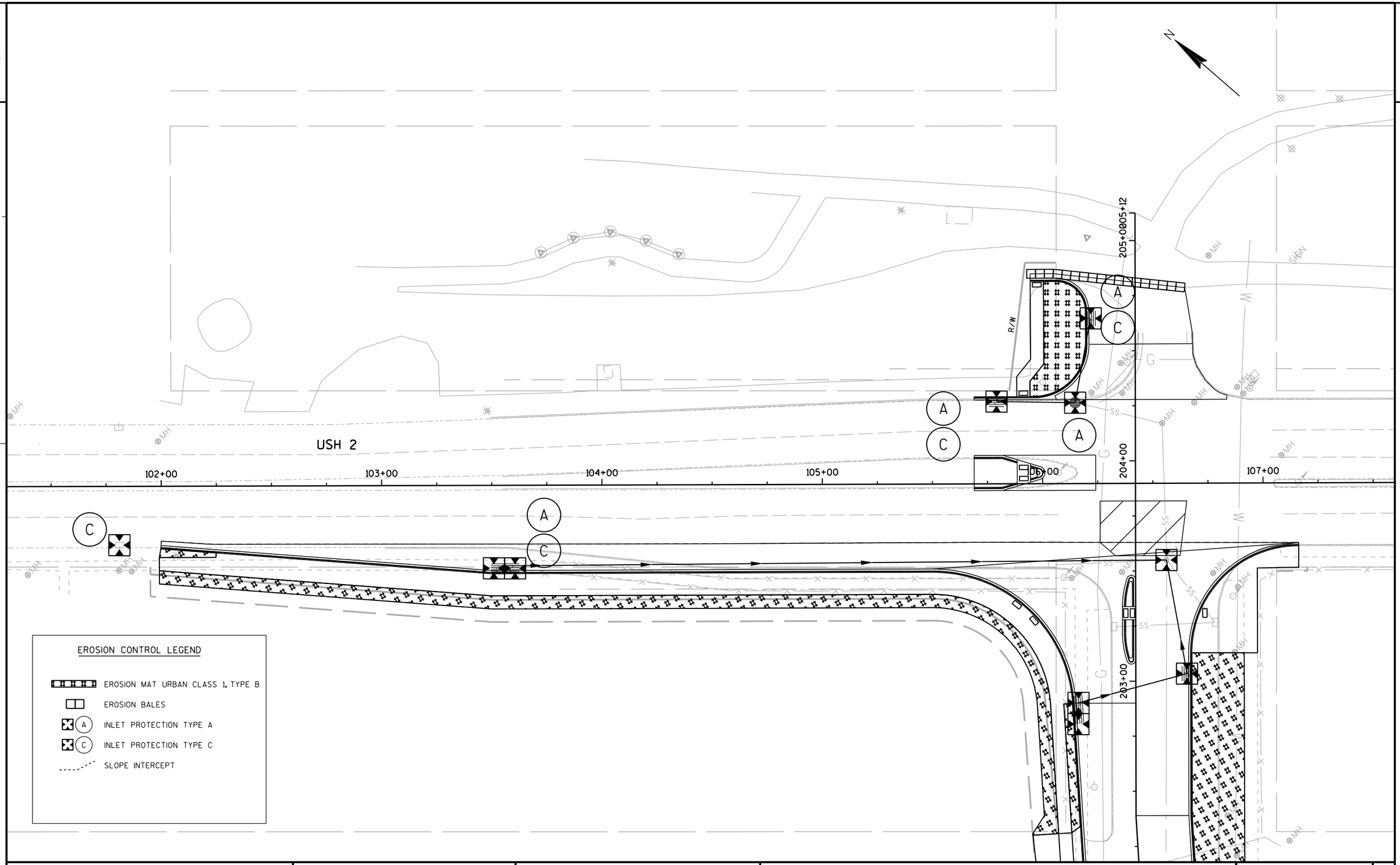
FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\021201_pd.dgn PLOT DATE : 2/3/2012 PLOT BY : eomari PLOT NAME : PLOT SCALE : 1:40




| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | PLAN DETAIL | SHEET 16 | E |
|---|---|---|---|---|---|

FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\021202_pd.dgn PLOT DATE : 2/3/2012 PLOT BY : eomari PLOT NAME : PLOT SCALE : 1:40

WISDOT/CADDS SHEET 42



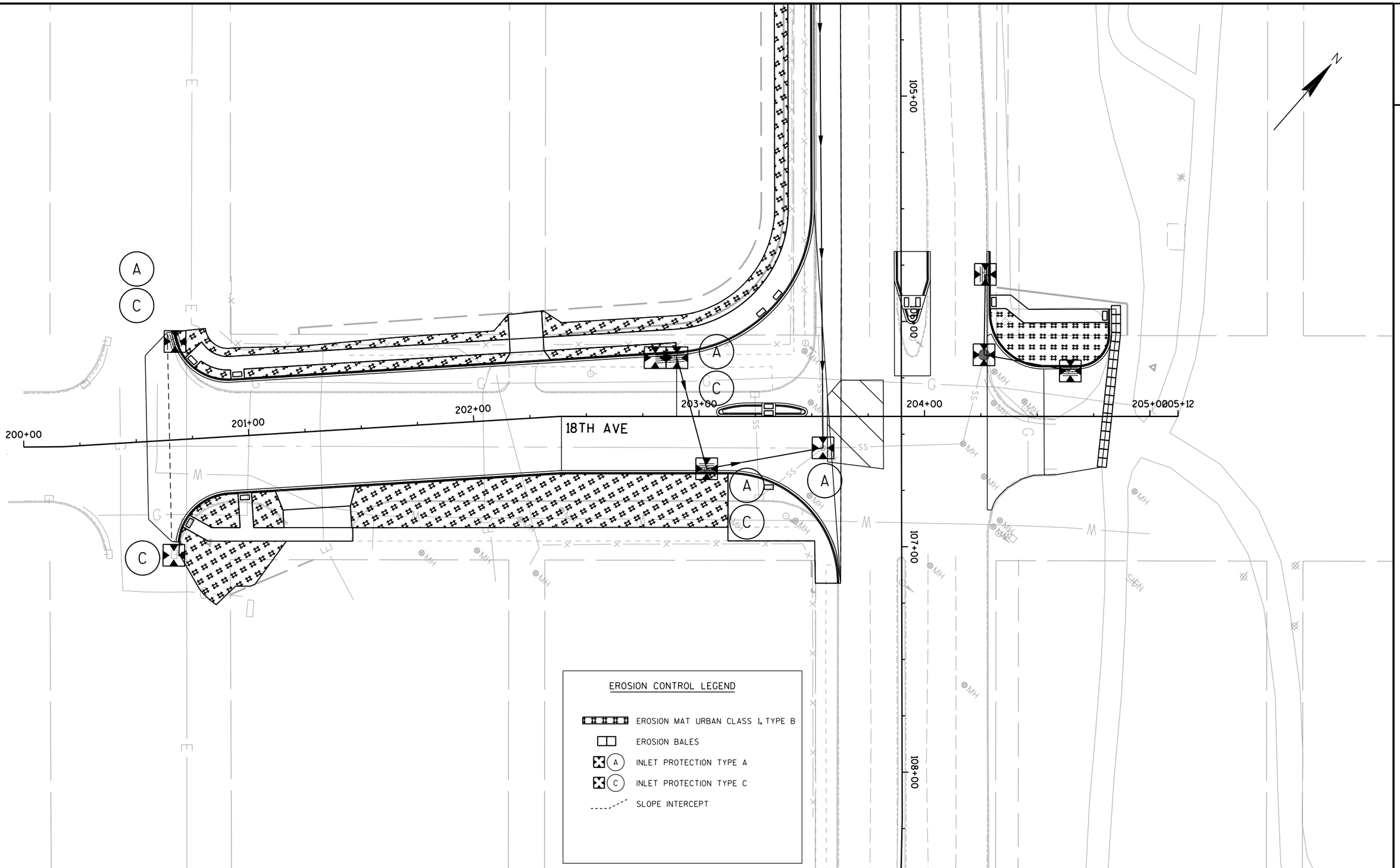

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | EROSION CONTROL | SHEET 17 | E |
|---|---|---|---|---|---|

FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\022001_ec.dgn PLOT DATE : 2/3/2012 PLOT BY : eomari PLOT NAME : PLOT SCALE : 1:40

WISDOT/CADDS SHEET 42

2

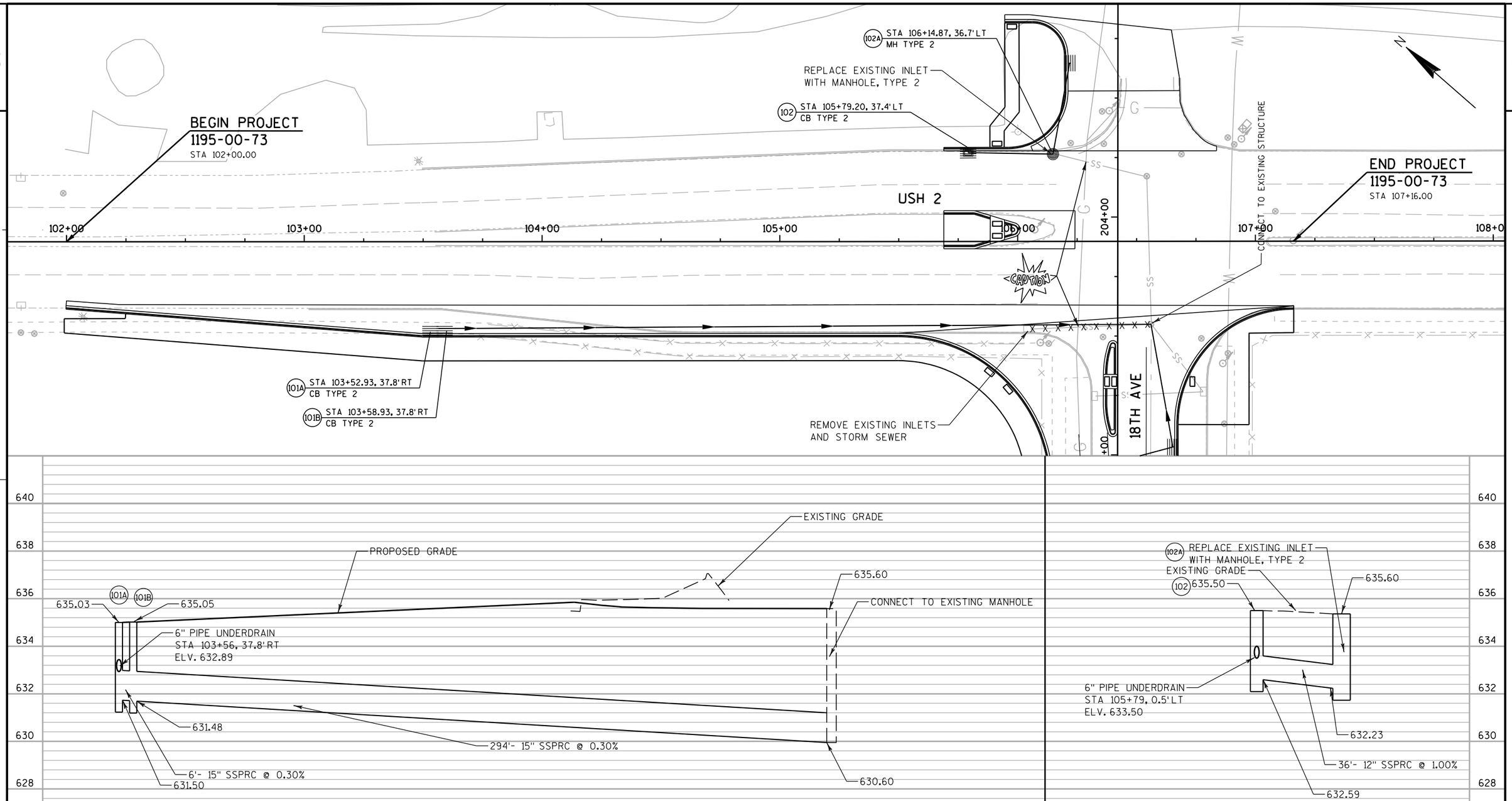
2




| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | EROSION CONTROL | SHEET 18 | E |
|---|---|---|---|---|---|

FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\022002_ec.dgn PLOT DATE : 2/3/2012 PLOT BY : eomari PLOT NAME : PLOT SCALE : 1:40

WISDOT/CADDS SHEET 42




| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | STORM SEWER- USH 2 | SHEET 19 | E |
|---|---|---|---|---|---|

STA 200+69.77, 44.0 LT
ADJUST EXISTING INLET COVER (200)

(201A) STA 202+90.00, 26.5 LT
CB TYPE 2

(201B) STA 202+84.00, 26.5 LT
CB TYPE 2

CAUTION

BEGIN PROJECT
1195-00-73
STA 200+54.75

200+00 201+00 202+00 203+00 204+00 205+00 5+12

18TH AVE

(202) STA 203+03.00, 23.0 RT
CB TYPE 2

STA 204+64.80, 20.5 LT
CB TYPE 2 (203)

END PROJECT
1195-00-73
STA 204+81.03

REMOVE EXISTING INLETS
AND STORM SEWER

CONNECT TO EXISTING STRUCTURE

CONNECT TO EXISTING STRUCTURE

107+00

USH 2

2

640 638 636 634 632 630 628 626 624 622

(201A) (201B) 635.36
635.42

(202) 635.44

EXISTING GRADE

PROPOSED GRADE

635.60

6" PIPE UNDERDRAIN
STA 202+91, 26.7' LT
ELV. 632.36

6'- 12" SSPRC @ 1.25%

6" PIPE UNDERDRAIN
STA 202+03, 23.5' RT
ELV. 632.46

CONNECT TO EXISTING MANHOLE

631.98
631.91

52'- 12" SSPRC @ 1.25%

631.26

631.01

630.27

52'- 15" SSPRC @ 1.42%

EXISTING GRADE

PROPOSED GRADE

635.36

(102A)

(203) 635.63

632.23

633.03

39'- 12" SSPRC @ 2.05%

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | STORM SEWER- 18TH AVE | SHEET 20 | E |
|---|---|---|---|---|---|

REPLACE
JVI-2
36"X102"
113

WEST
2
NORTH
53
REMAIN

STA 105+83
100 18th Ave E (CITY FURNISHED)
D3-1
52" X 12"

101 East 2nd St (CITY FURNISHED)
D3-1
52" X 12"

STA 105+84
102 18th Ave E
M1-94H
78" X 18"

R1-1F
36" X 36"
105 STOP

STA 107+00
R1-1F
36" X 36"
106 STOP

REPLACE
111 H
D9-2
36" X 36"
112
MB6-1
30"X30"

USH 2/53

110 ONLY ONLY
R3-8L
54" X 30"

103
R4-7
24" X 30"
STA 105+86

104 STOP
R1-1F
36" X 36"
STA 105+83

107 STOP
R1-1F
36" X 36"
STA 106+77

108 18th Ave E
M1-94H
70" X 18"
STA 107+00

109
R4-7
24" X 30"
STA 107+15

LEGEND

- EXISTING SIGN MOUNTED ON POST(S)
- EXISTING SIGN MOUNTED ON MAST ARM POLE
- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON MAST ARM POLE
- (XXXX) DENOTES SIGN NUMBER

NOTE:
EXISTING SIGNS ON TRAFFIC SIGNALS TO BE REMOVED
WILL BE REMOVED WITH THE TRAFFIC SIGNAL REMOVAL.

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | PERMANENT SIGNING | SHEET 21 E |
|---|---|---|---|---|

LEGEND

- EXISTING SIGN MOUNTED ON POST(S)
- EXISTING SIGN MOUNTED ON MAST ARM POLE
- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON MAST ARM POLE
- (XXXX) DENOTES SIGN NUMBER

RELOCATE

200 SPEED LIMIT 25

201 NO ENGINE BRAKING EXCEPT IN EMERGENCY

STOP
REMAIN

MALL DRIVE
EAST 3RD ST
18TH AVE. E.
REMAIN

202 ONLY
R3-8A
36" X 30"

200+00 201+00 202+00 203+00 204+00 105+00 107+00 108+00

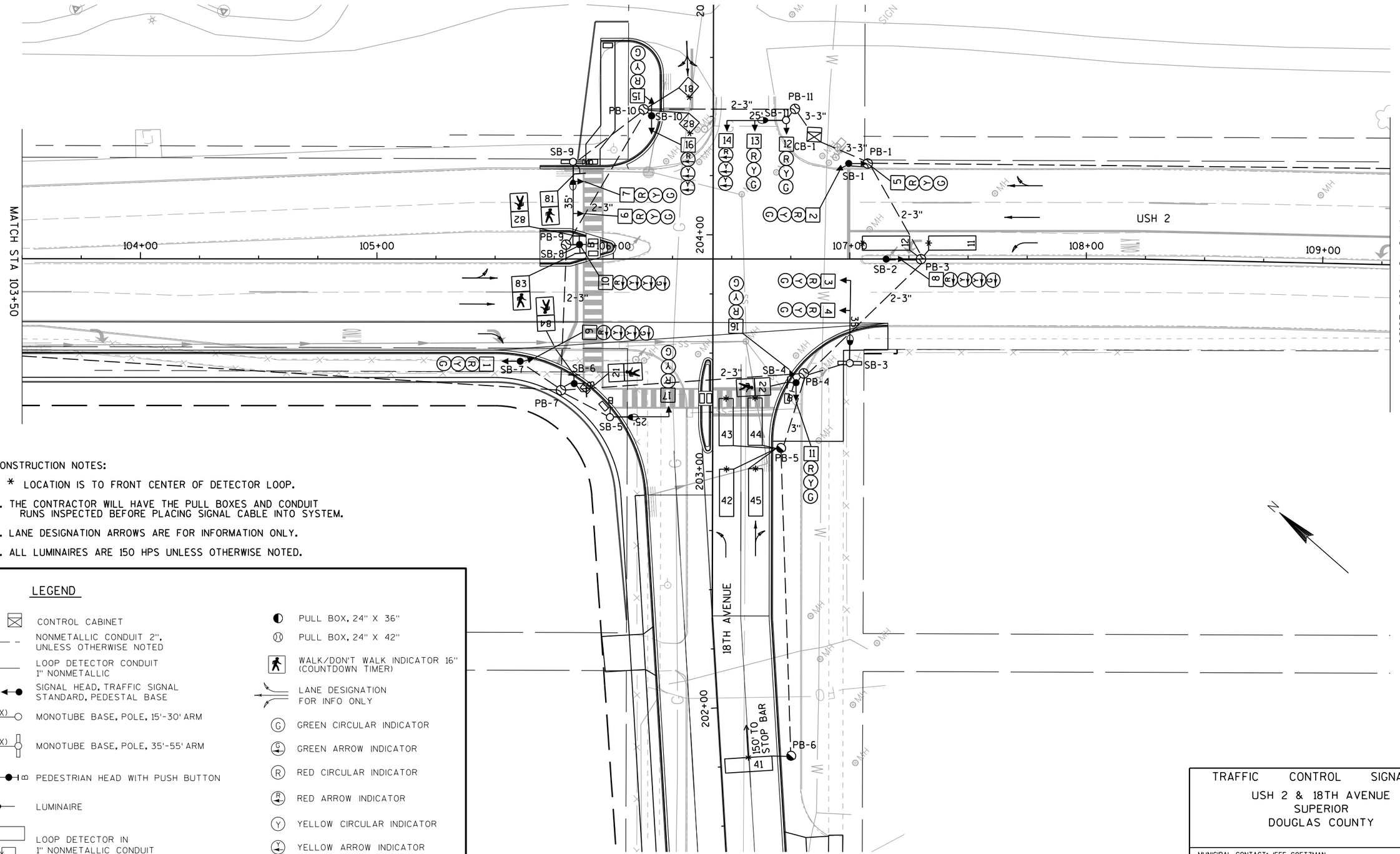
USH 2

NOTE:
EXISTING SIGNS ON TRAFFIC SIGNALS TO BE REMOVED
WILL BE REMOVED WITH THE TRAFFIC SIGNAL REMOVAL.

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | PERMANENT SIGNING | SHEET 22 | E |
|---|---|---|---|---|---|

FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\023202_es.dgn PLOT DATE : 2/3/2012 PLOT BY : eomari PLOT NAME : PLOT SCALE : 1:40

2




CONSTRUCTION NOTES:

1. * LOCATION IS TO FRONT CENTER OF DETECTOR LOOP.
2. THE CONTRACTOR WILL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED BEFORE PLACING SIGNAL CABLE INTO SYSTEM.
3. LANE DESIGNATION ARROWS ARE FOR INFORMATION ONLY.
4. ALL LUMINAIRES ARE 150 HPS UNLESS OTHERWISE NOTED.

## LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) MONOTUBE BASE, POLE, 15'-30' ARM
- (XX) MONOTUBE BASE, POLE, 35'-55' ARM
- PEDESTRIAN HEAD WITH PUSH BUTTON
- LUMINAIRE
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- LANE DESIGNATION FOR INFO ONLY
- G GREEN CIRCULAR INDICATOR
- G GREEN ARROW INDICATOR
- R RED CIRCULAR INDICATOR
- R RED ARROW INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- Y YELLOW ARROW INDICATOR

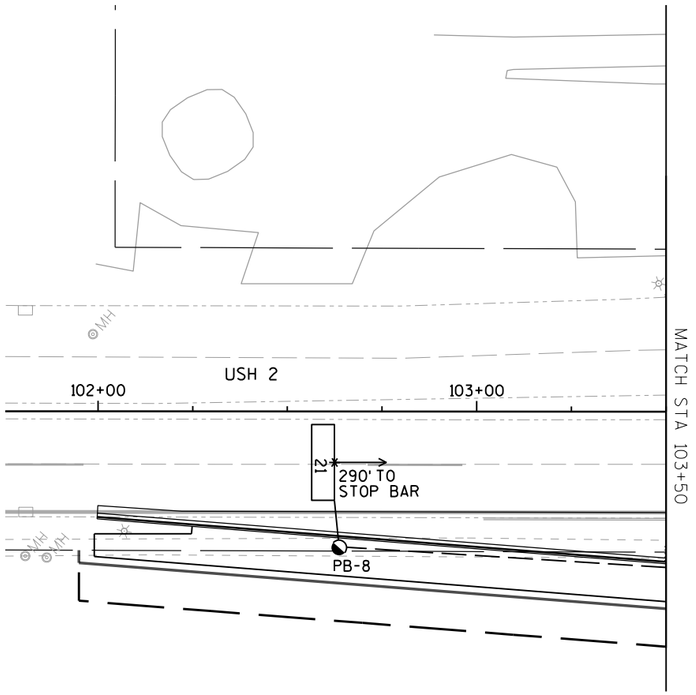
TRAFFIC CONTROL SIGNAL

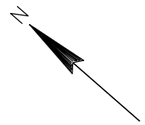
USH 2 & 18TH AVENUE
SUPERIOR
DOUGLAS COUNTY

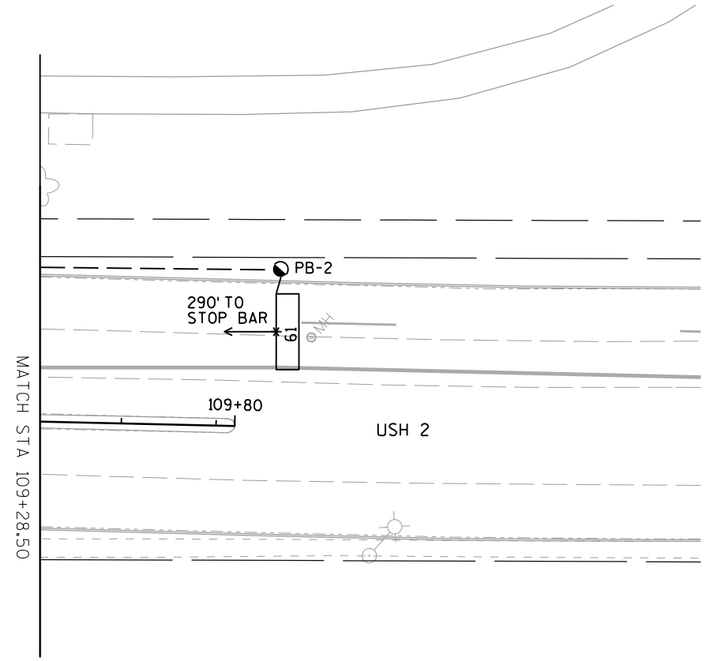
MUNICIPAL CONTACT: JEFF GOETZMAN
DESIGNED BY: KSA
REVISED BY: KSA



| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | TRAFFIC SIGNAL PLAN | SHEET 23 | E |
|---|---|---|---|---|---|




2

TRAFFIC CONTROL SIGNAL
USH 2 AND 18TH AVENUE
SUPERIOR
DOUGLAS COUNTY

MUNICIPAL CONTACT: JEFF GOETZMAN
DESIGNED BY: KSA
REVISED BY: KSA

PAGE 2 OF 3

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | TRAFFIC SIGNAL PLAN | SHEET 24 | E |
|---|---|---|---|---|---|

## SEQUENCE OF OPERATION

RING 1

| | HEAD NUMBERS | 01 R/W | 01 CLEAR TO ** | 01 CLEAR TO | 02 R/W | 02 CLEAR TO ** | 02 CLEAR TO | 03 R/W | 03 CLEAR TO ** | 03 CLEAR TO | 04 R/W | 04 CLEAR TO ** | 04 CLEAR TO | FLASH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 8,9,10 | G | - | - | - | - | - | | | | - | - | - | - |
| 02 | 1,2,3,4 | R | R | R | G | Y | R | | | | R | R | R | R |
| 03 | | | | | | | | | | | | | | |
| 04 | 11,12,13 | R | R | R | R | R | R | | | | G | Y | R | R |
| 05 | | | | | | | | | | | | | | |
| 06 | 5,6,7 | R | R | R | R | R | R | | | | R | R | R | R |
| 07 | | | | | | | | | | | | | | |
| 08 | 15,16,17 | R | R | R | R | R | R | | | | R | R | R | R |
| OLA | 8,9,10 | - | Y | R | FY | Y | R | | | | R | R | R | R |
| OLB | | | | | | | | | | | | | | |
| OLC | | | | | | | | | | | | | | |
| OLD | 14 | R | R | R | R | R | R | | | | R | R | R | R |
| 02P | 21,22 | DW | DW | DW | * | DW | DW | | | | DW | DW | DW | |
| 08P | 81,82,83,84 | * | DW | DW | DW | DW | DW | | | | * | DW | DW | |

RING 2

| | HEAD NUMBERS | 05 R/W | 05 CLEAR TO ** | 05 CLEAR TO | 06 R/W | 06 CLEAR TO ** | 06 CLEAR TO | 07 R/W | 07 CLEAR TO ** | 07 CLEAR TO | 08 R/W | 08 CLEAR TO ** | 08 CLEAR TO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | 8,9,10 | | | | - | - | - | | | | - | - | - |
| 02 | 1,2,3,4 | | | | R | R | R | | | | R | R | R |
| 03 | | | | | | | | | | | | | |
| 04 | 11,12,13 | | | | R | R | R | | | | R | R | R |
| 05 | | | | | | | | | | | | | |
| 06 | 5,6,7 | | | | G | Y | R | | | | R | R | R |
| 07 | | | | | | | | | | | | | |
| 08 | 15,16,17 | | | | R | R | R | | | | G | Y | R |
| OLA | 8,9,10 | | | | R | R | R | | | | R | R | R |
| OLB | | | | | | | | | | | | | |
| OLC | | | | | | | | | | | | | |
| OLD | 14 | | | | R | R | R | | | | FY | Y | R |
| 02P | 21,22 | | | | DW | DW | DW | | | | DW | DW | DW |
| 08P | 81,82,83,84 | | | | DW | DW | DW | | | | * | DW | DW |

BARRIER

* WHEN CALLED, TIME STEADY WALK, THEN FLASHING DON'T WALK, THEN STEADY DON'T WALK

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

## DETECTOR LOGIC

| DETECTOR NUMBER | AMPLIFIER CHANNEL NUMBER | DETECTOR OPERATION: CALLS AND EXTENDS | DETECTOR OPERATION: CALLS ONLY | DETECTOR OPERATION: EXTENDS ONLY | PHASE CALLED | PHASE EXTENDED | DETECTOR DISCONNECT PHASE | CALLING DELAY | EXTENSION STRETCH | SIZE | NUMBER OF TURNS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 1 | X | | | 1 | 1 | | | | 6'X20' | 2 |
| 12 | 2 | X | | | 1 | 1 | | | | 6'X20' | 2 |
| 21 | 3 | | | X | | 2 | | | | 6'X20' | 4 |
| 41 | 4 | X | | | 4 | 4 | | | | 6'X20' | 3 |
| 42 | 5 | X | | | 4 | 4 | | | | 6'X20' | 3 |
| 43 | 6 | X | | | 4 | 4 | | | | 6'X20' | 3 |
| 44 | 7 | X | | | 4 | 4 | | X | | 6'X20' | 3 |
| 45 | 8 | X | | | 4 | 4 | | | | 6'X20' | 3 |
| 61 | 9 | | | X | | 6 | | | | 6'X20' | 3 |
| 81 | 10 | X | | | 8 | 8 | | | | 6'X6' | 2 |
| 82 | 11 | X | | | 8 | 8 | | | | 6'X6' | 2 |

## CONTROLLER LOGIC

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

## SPECIAL OVERLAPS

| | PROTECTED | PERMISSIVE |
|---|---|---|
| O.L. "A" | 1 | 2 |
| O.L. "B" | | |
| O.L. "C" | | |
| O.L. "D" | | 8 |

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

## CHART 1

| PHASE ON | NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY | PHASES IN CONFLICT WITH PHASE ON |
|---|---|---|
| 1 | 6 | 2,4,8 |
| 2 | 6 | 1,4,8 |
| 3 | | |
| 4 | 8 | 1,2,6 |
| 5 | | |
| 6 | 1,2 | 4,8 |
| 7 | | |
| 8 | 4 | 1,2,6 |

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1)
3. IF ANY OPPOSING THRU PHASES ARE TIME CONCURRENTLY THEY SHALL TERMINATE TOGETHER DUE TO PERMISSIVE LEFT TURN CONFLICT.

| TYPE OF INTERCONNECT COMMUNICATION | |
|---|---|
| NONE | X |
| TBC | |
| CLOSED LOOP TWISTED PAIR* | |
| CLOSED LOOP FIBER OPTIC* | |
| FIBER OPTIC | |
| RADIO | |
| *LOCATION OF MASTER CONTROLLER NO: | S- |
| SIGNAL SYSTEM #: | SS- - |

| TYPE OF PRE-EMPT | |
|---|---|
| NONE | X |
| RAILROAD | |
| EMERGENCY VEHICLE | |
| 3M | |
| TOMAR | |
| HARDWIRE | |
| OTHER | |
| LIFT BRIDGE | |
| QUEUE DETECTOR | |

TRAFFIC CONTROL SIGNAL
USH 2 AND 18TH AVENUE
SUPERIOR
DOUGLAS COUNTY

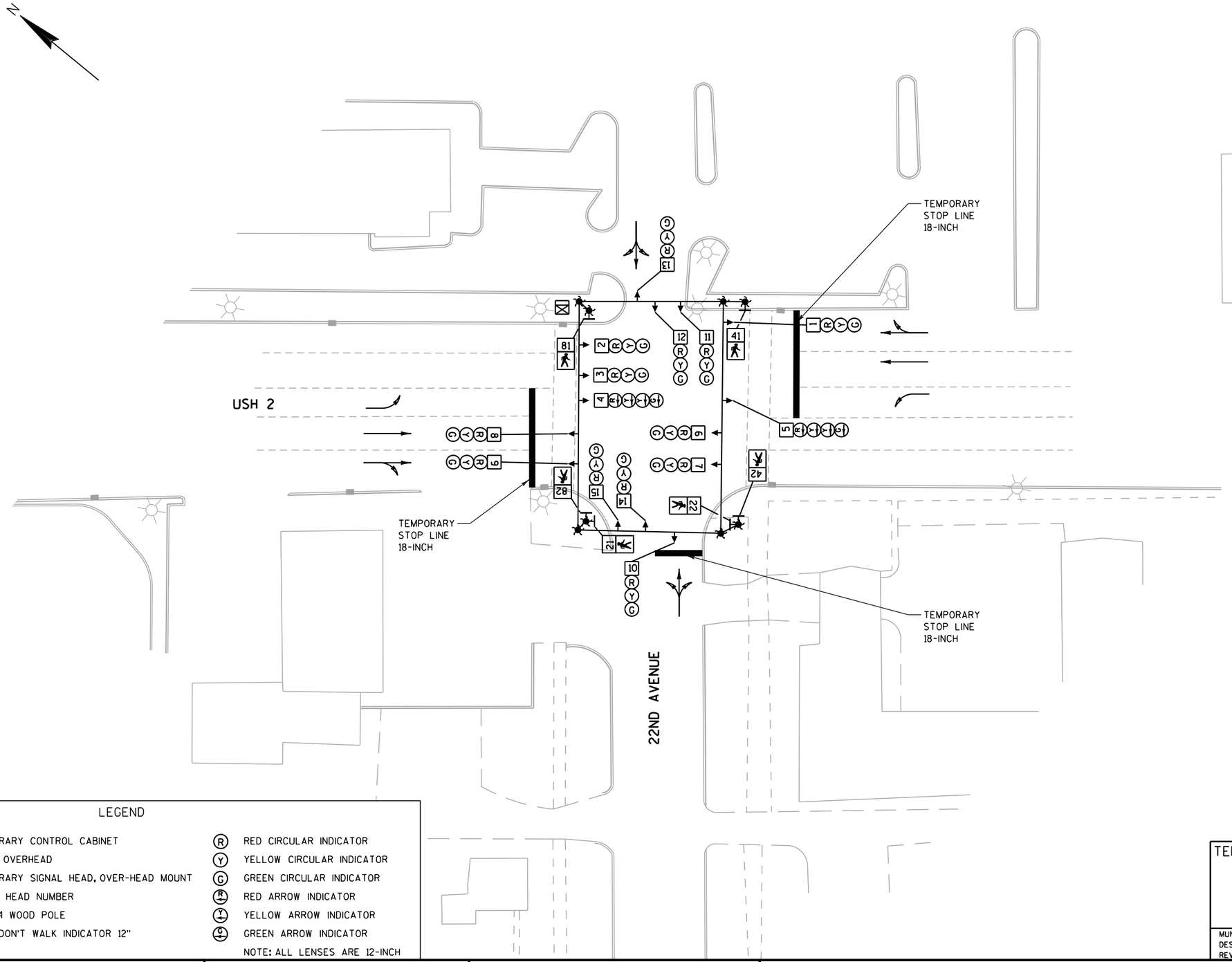
MUNICIPAL CONTACT: JEFF GOETZMAN
DESIGNED BY: KSA
REVISED BY: KSA





FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\024101_ph.dgn PLOT DATE : 2/3/2012 PLOT BY : eomari PLOT NAME : _____ PLOT SCALE : 1:12

2




LEGEND

| | | | |
|---|---|---|---|
| ⊠ | TEMPORARY CONTROL CABINET | (R) | RED CIRCULAR INDICATOR |
| ——— | CABLE OVERHEAD | (Y) | YELLOW CIRCULAR INDICATOR |
| → | TEMPORARY SIGNAL HEAD, OVER-HEAD MOUNT | (G) | GREEN CIRCULAR INDICATOR |
| X1 | SIGNAL HEAD NUMBER | (R) | RED ARROW INDICATOR |
| | TYPE 4 WOOD POLE | (Y) | YELLOW ARROW INDICATOR |
| | WALK/DON'T WALK INDICATOR 12" | (G) | GREEN ARROW INDICATOR |
| | | | NOTE: ALL LENSES ARE 12-INCH |

TEMPORARY TRAFFIC CONTROL SIGNAL
USH 2 AND 22ND AVENUE
SUPERIOR, WI
DOUGLAS COUNTY

MUNICIPAL CONTACT: JEFF GOETZMAN
DESIGNED BY: KSA
REVISED BY: KSA

PAGE 1 OF 2

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | TEMPORARY SIGNAL PLAN | SHEET 26 | E |
|---|---|---|---|---|---|

## SEQUENCE OF OPERATION

RING 1

| | HEAD NUMBERS | Ø1 R/W | Ø1 ** | Ø1 CLEAR TO | Ø2 R/W | Ø2 ** | Ø2 CLEAR TO | Ø3 R/W | Ø3 ** | Ø3 CLEAR TO | Ø4 R/W | Ø4 ** | Ø4 CLEAR TO | FLASH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ø1 | 4,5 | G ← | - - | | - | - - | | | | | - | - - | | - |
| Ø2 | 6,7,8,9 | R | R R | | G | Y R | | | | | R | R R | | R |
| Ø3 | | | | | | | | | | | | | | |
| Ø4 | 10,11,12 | R | R R | | R | R R | | | | | G | Y R | | R |
| Ø5 | | | | | | | | | | | | | | |
| Ø6 | 1,2,3 | R | R R | | R | R R | | | | | R | R R | | R |
| Ø7 | | | | | | | | | | | | | | |
| Ø8 | 13,14,15 | R | R R | | R | R R | | | | | R | R R | | R |
| OLA | 4,5 | - | Y ← R ← | | FY ← | Y ← R ← | | | | | R ← | R ← R ← | | R ← |
| Ø2P | 21,22 | DW | DW DW | | * ← | DW DW | | | | | DW | DW DW | | |
| Ø4P | 41,42 | DW | DW DW | | DW | DW DW | | | | | * | DW DW | | |
| Ø8P | 81,82 | DW | DW DW | | DW | DW DW | | | | | DW | DW DW | | |

RING 2

| | HEAD NUMBERS | Ø5 R/W | Ø5 ** | Ø5 CLEAR TO | Ø6 R/W | Ø6 ** | Ø6 CLEAR TO | Ø7 R/W | Ø7 ** | Ø7 CLEAR TO | Ø8 R/W | Ø8 ** | Ø8 CLEAR TO |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ø1 | 4,5 | | | | - | - - | | | | | - | - - | |
| Ø2 | 6,7,8,9 | | | | R | R R | | | | | R | R R | |
| Ø3 | | | | | | | | | | | | | |
| Ø4 | 10,11,12 | | | | R | R R | | | | | R | R R | |
| Ø5 | | | | | | | | | | | | | |
| Ø6 | 1,2,3 | | | | G | Y R | | | | | R | R R | |
| Ø7 | | | | | | | | | | | | | |
| Ø8 | 13,14,15 | | | | R | R R | | | | | G | Y R | |
| OLA | 4,5 | | | | R ← | R ← R ← | | | | | R ← | R ← R ← | |
| Ø2P | 21,22 | | | | DW | DW DW | | | | | DW | DW DW | |
| Ø4P | 41,42 | | | | DW | DW DW | | | | | DW | DW DW | |
| Ø8P | 81,82 | | | | DW | DW DW | | | | | * | DW DW | |

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

### TIMING/COORDINATION DATA

CYCLE REFERENCE:

| TIMING PLAN --/--/-- | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | PHASE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | GREEN | 14 | 24 | | 24 | | 24 | | 24 |
| | YELLOW | 4 | 4 | | 4 | | 4 | | 4 |
| | ALL RED | 2 | 2 | | 2 | | 2 | | 2 |
| | TOTAL | 20 | 30 | | 30 | | 30 | | 30 |
| | MODE | | | | | | | | |
| | OFFSET: | | | | | | | | |
| | CYCLE LENGTH: | | | | | | | | |
| | TIME OF DAY: | | | | | | | | |
| | DAY OF WEEK: | | | | | | | | |

N

### CONTROLLER LOGIC

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

### SPECIAL OVERLAPS

| | PROTECTED | PERMISSIVE |
|---|---|---|
| O.L. "A" | | 2 |
| O.L. "B" | | |
| O.L. "C" | | |
| O.L. "D" | | |

| TYPE OF INTERCONNECT COMMUNICATION | |
|---|---|
| NONE | x |
| TBC | |
| CLOSED LOOP TWISTED PAIR* | |
| CLOSED LOOP FIBER OPTIC* | |
| FIBER OPTIC | |
| RADIO | |
| *LOCATION OF MASTER CONTROLLER NO: S- | |
| SIGNAL SYSTEM *: SS- - | |

| TYPE OF PRE-EMPT | |
|---|---|
| NONE | x |
| RAILROAD | |
| EMERGENCY VEHICLE | |
| 3M | |
| TOMAR | |
| HARDWIRE | |
| OTHER | |
| LIFT BRIDGE | |
| QUEUE DETECTOR | |

| TYPE OF LIGHTING | |
|---|---|
| BY OTHER AGENCY | |
| IN TRAFFIC SIGNAL CABINET | |
| IN SEPARATE DOT LIGHTING CABINET | |

### CHART 1

| PHASE ON | NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY | PHASES IN CONFLICT WITH PHASE ON |
|---|---|---|
| 1 | 6 | 2,4,8 |
| 2 | 6 | 1,4,8 |
| 3 | | |
| 4 | 8 | 1,2,6 |
| 5 | | |
| 6 | 1,2 | 4,8 |
| 7 | | |
| 8 | 4 | 1,2,6 |

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)

TEMPORARY TRAFFIC CONTROL SIGNAL
USH 2 AND 22ND AVENUE
SUPERIOR, WI
DOUGLAS COUNTY

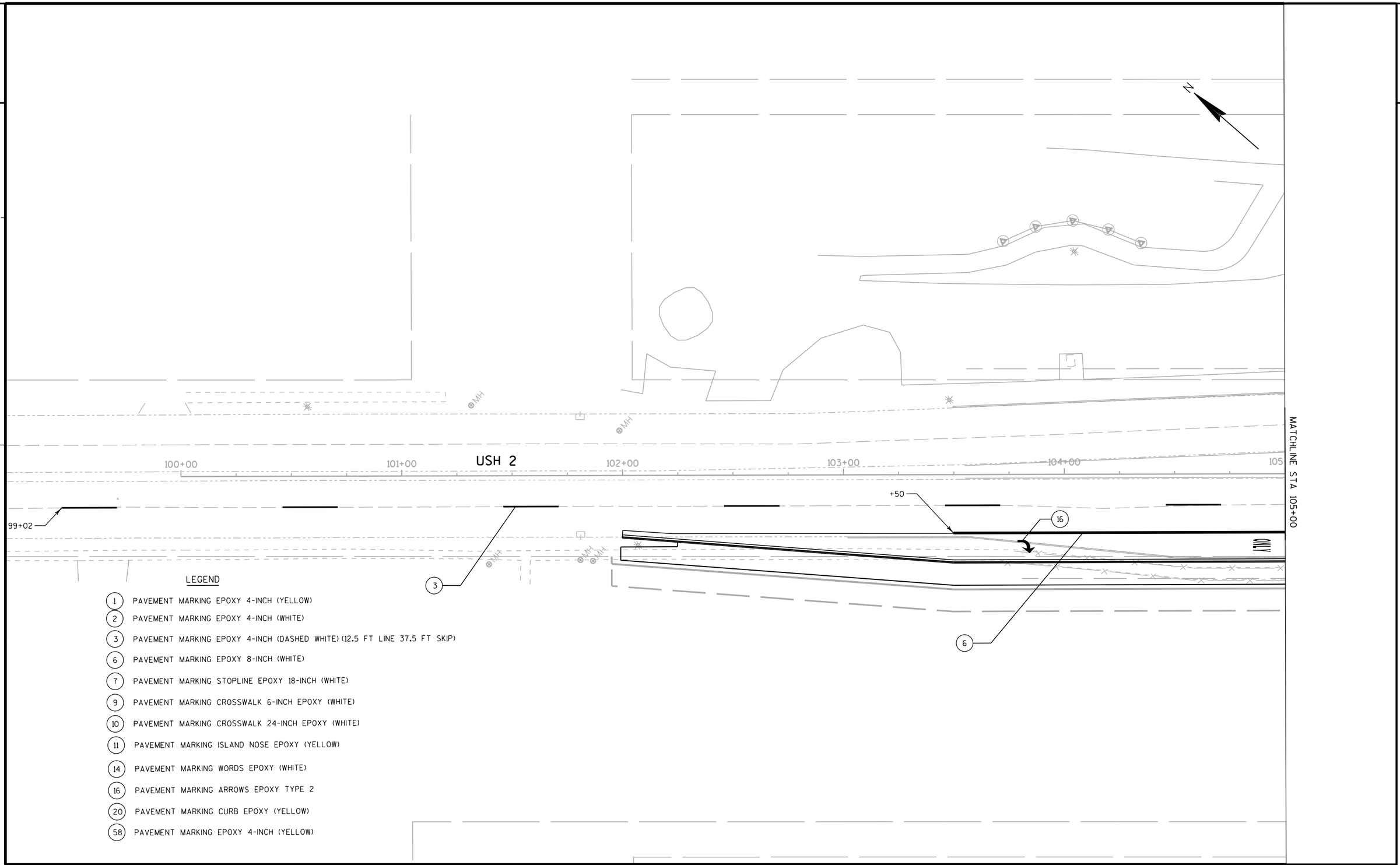
MUNICIPAL CONTACT: JEFF GOETZMAN
DESIGNED BY: KSA
REVISED BY: KSA



PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | TEMPORARY SIGNAL PHASING | SHEET 27 | E

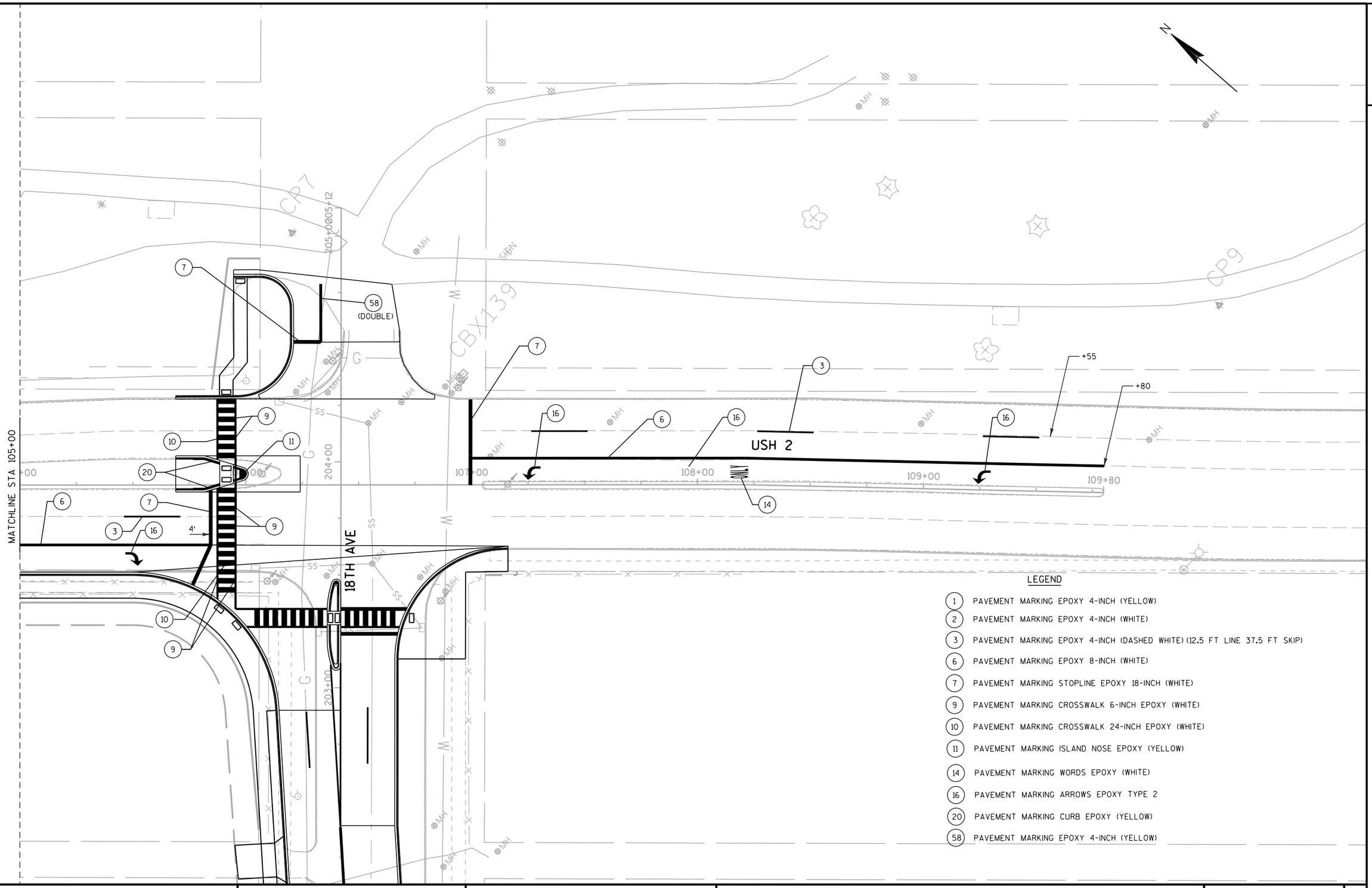
FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\024102_tsp.dgn
PLOT DATE : 2/3/2012
PLOT BY : eomari
PLOT SCALE : 1:2
WISDOT/CADDS SHEET 42

2




| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | PAVEMENT MARKING | SHEET 28 | E |
|---|---|---|---|---|---|

2



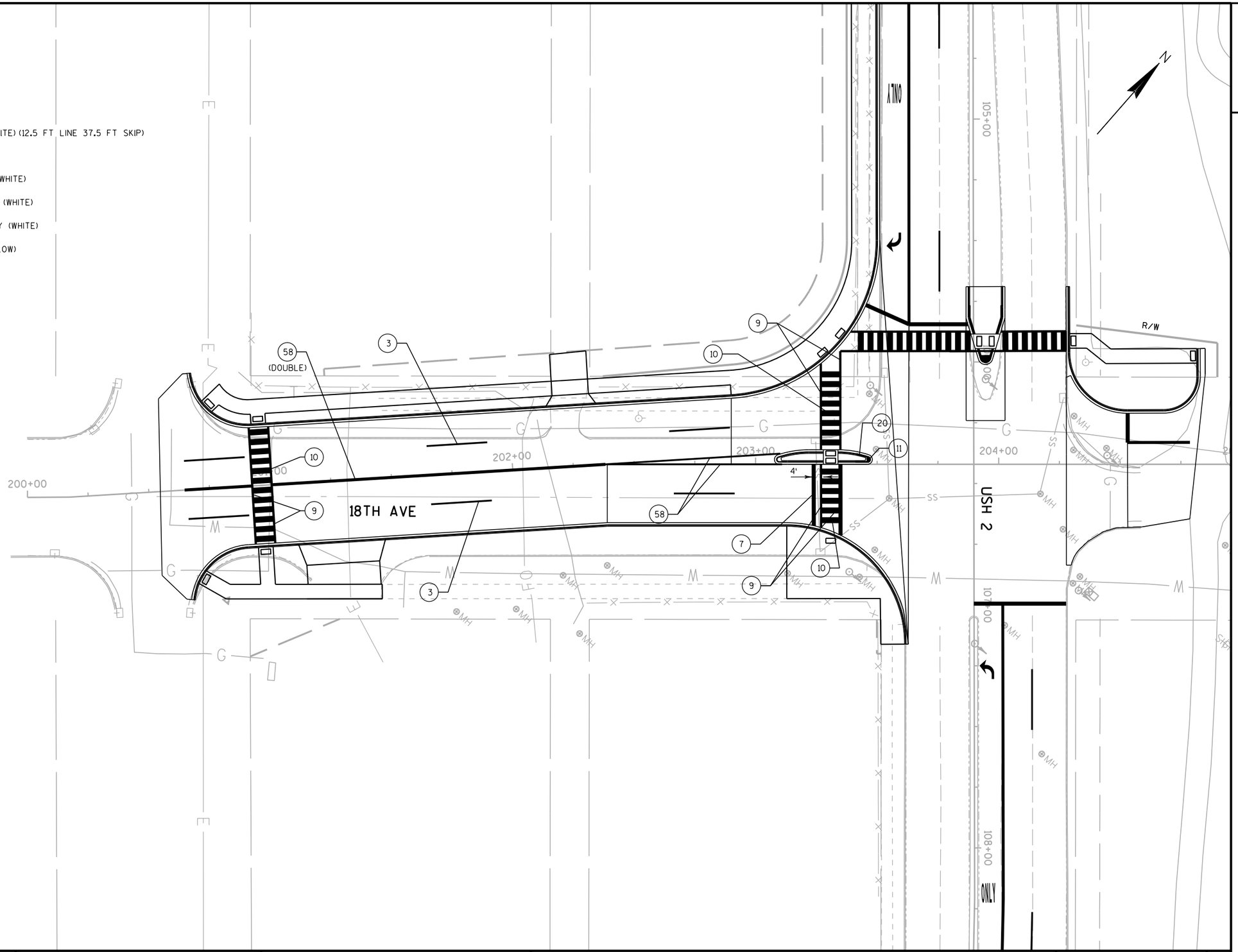

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | PAVEMENT MARKING | SHEET 29 | E |
|---|---|---|---|---|---|

FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\024502_pm.dgn PLOT DATE : 2/3/2012 PLOT BY : eomari PLOT NAME : PLOT SCALE : 1:40

2

LEGEND

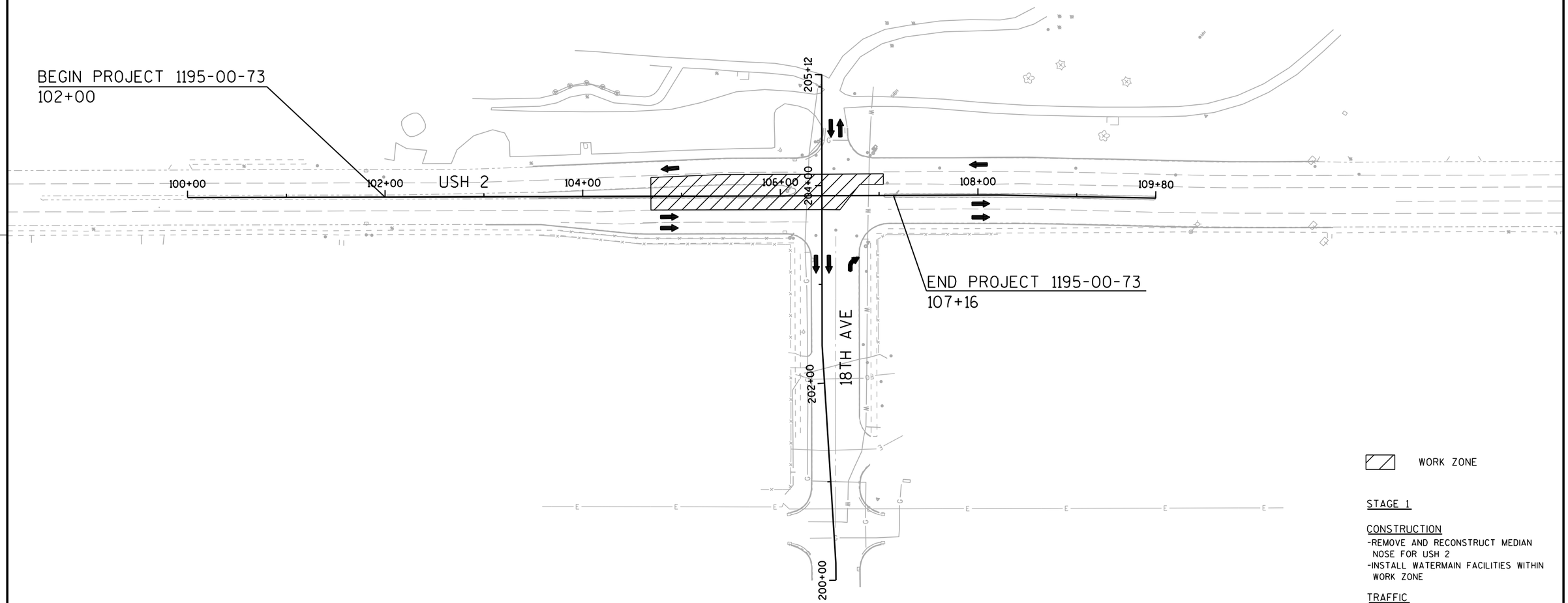
1. PAVEMENT MARKING EPOXY 4-INCH (YELLOW)
2. PAVEMENT MARKING EPOXY 4-INCH (WHITE)
3. PAVEMENT MARKING EPOXY 4-INCH (DASHED WHITE)(12.5 FT LINE 37.5 FT SKIP)
6. PAVEMENT MARKING EPOXY 8-INCH (WHITE)
7. PAVEMENT MARKING STOPLINE EPOXY 18-INCH (WHITE)
9. PAVEMENT MARKING CROSSWALK 6-INCH EPOXY (WHITE)
10. PAVEMENT MARKING CROSSWALK 24-INCH EPOXY (WHITE)
11. PAVEMENT MARKING ISLAND NOSE EPOXY (YELLOW)
14. PAVEMENT MARKING WORDS EPOXY (WHITE)
16. PAVEMENT MARKING ARROWS EPOXY TYPE 2
20. PAVEMENT MARKING CURB EPOXY (YELLOW)
58. PAVEMENT MARKING EPOXY 4-INCH (YELLOW)




| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | PAVEMENT MARKING | SHEET 30 | E |
|---|---|---|---|---|---|

FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\024503_pm.dgn PLOT DATE : 2/3/2012 PLOT BY : eomari PLOT NAME : PLOT SCALE : 1:40

2




WORK ZONE

STAGE 1

CONSTRUCTION

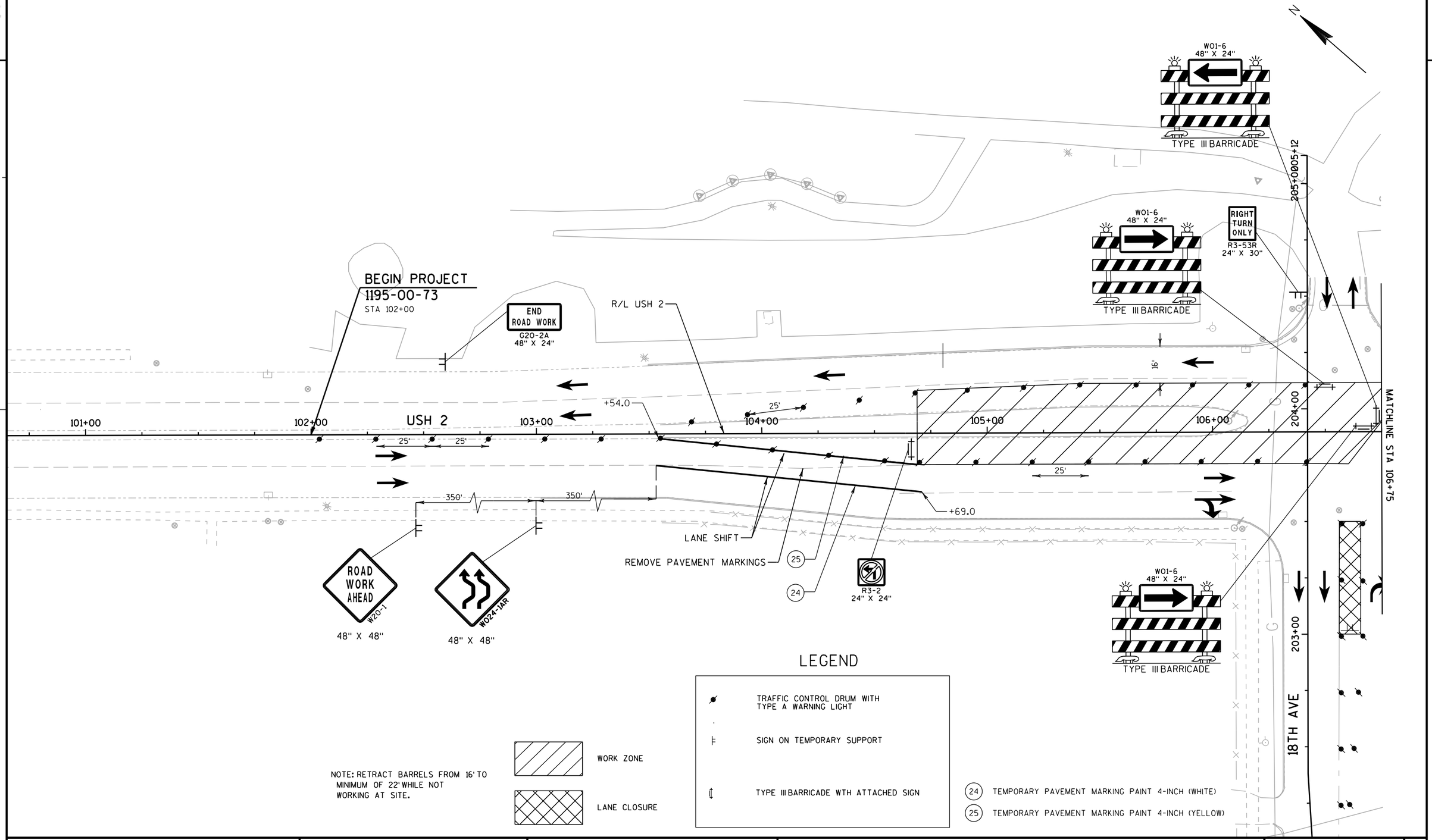
-REMOVE AND RECONSTRUCT MEDIAN NOSE FOR USH 2
-INSTALL WATERMAIN FACILITIES WITHIN WORK ZONE

TRAFFIC

-USH 2 INSIDE LANES CLOSED
-THROUGH TRAFFIC ON 18TH CLOSED
-LEFT TURNS FOR 18TH AND EB 2 CLOSED
-RETRACT BARRELS FROM 16' TO MINIMUM OF 22' WHILE NOT WORKING AT SITE.

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | TRAFFIC CONTROL- STAGE 1 | SHEET 31 | E |
|---|---|---|---|---|---|

2




## LEGEND

- TRAFFIC CONTROL DRUM WITH TYPE A WARNING LIGHT
- SIGN ON TEMPORARY SUPPORT
- TYPE III BARRICADE WTH ATTACHED SIGN

WORK ZONE

LANE CLOSURE

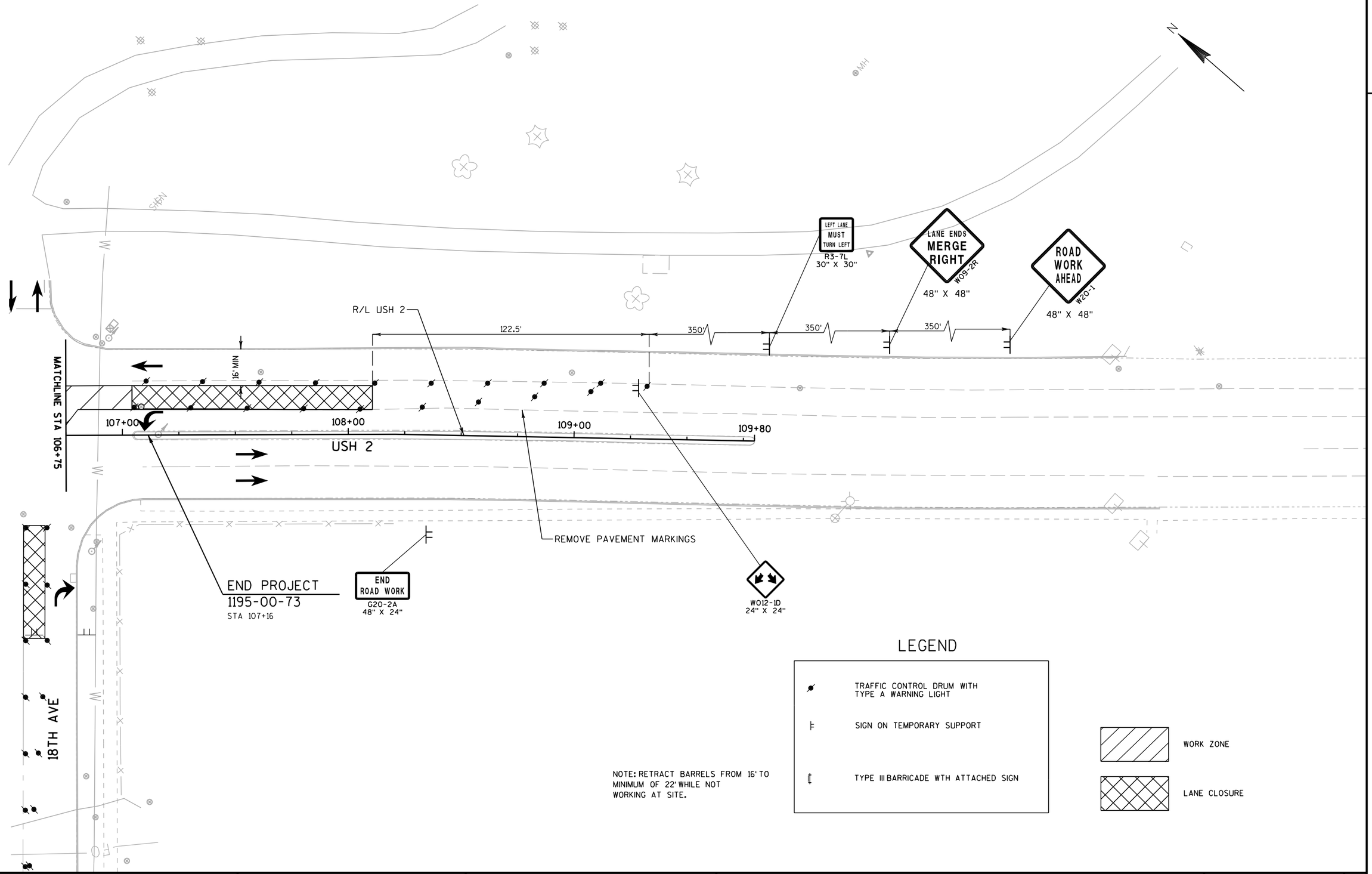
NOTE: RETRACT BARRELS FROM 16' TO MINIMUM OF 22' WHILE NOT WORKING AT SITE.

(24) TEMPORARY PAVEMENT MARKING PAINT 4-INCH (WHITE)

(25) TEMPORARY PAVEMENT MARKING PAINT 4-INCH (YELLOW)

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CONSTRUCTION STAGING- STAGE 1 | SHEET 32 | E |
|---|---|---|---|---|---|

2




## LEGEND

- TRAFFIC CONTROL DRUM WITH TYPE A WARNING LIGHT
- SIGN ON TEMPORARY SUPPORT
- TYPE III BARRICADE WTH ATTACHED SIGN
- WORK ZONE
- LANE CLOSURE

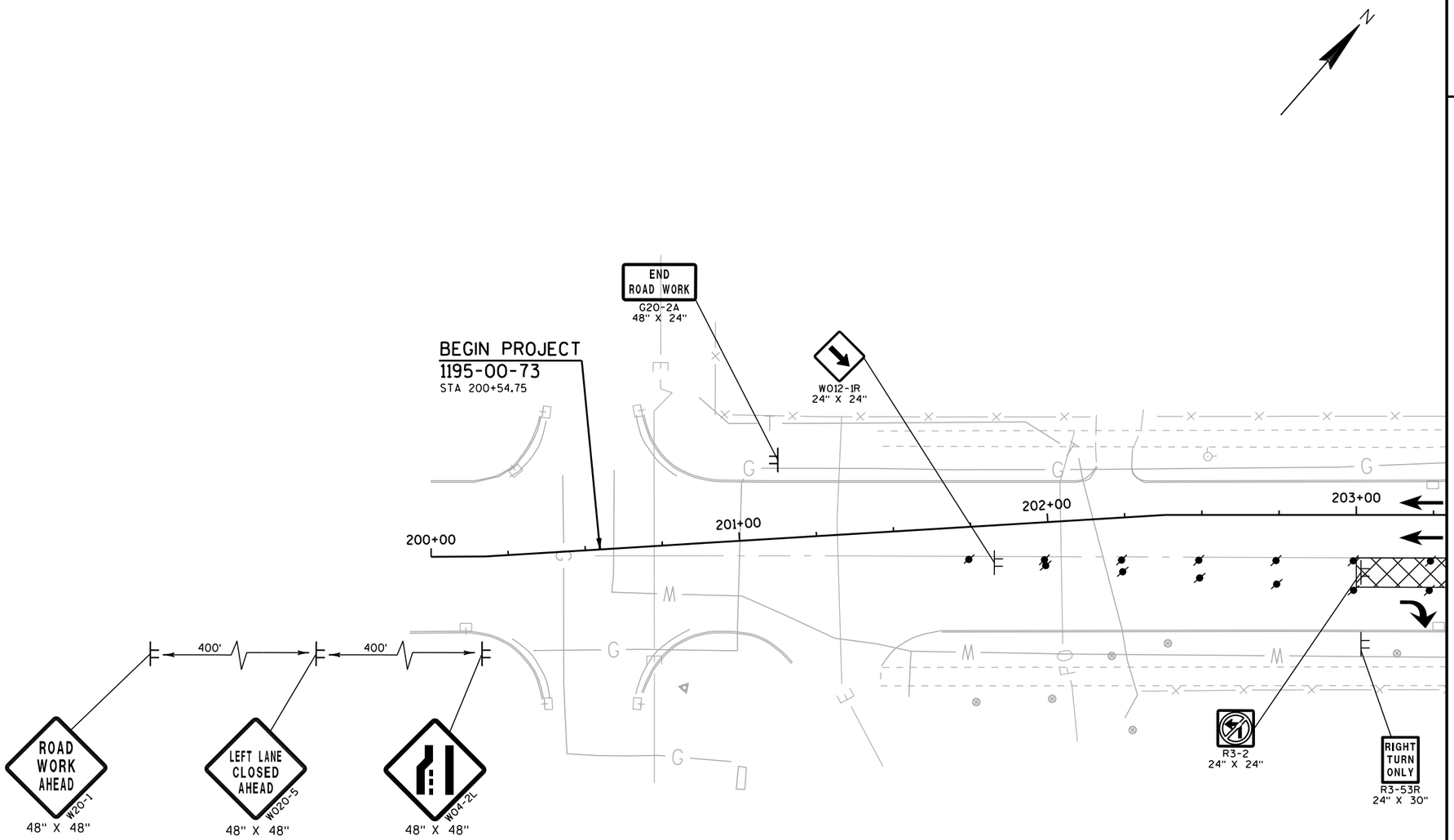
NOTE: RETRACT BARRELS FROM 16' TO MINIMUM OF 22' WHILE NOT WORKING AT SITE.

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CONSTRUCTION STAGING- STAGE 1 | SHEET | E |
|---|---|---|---|---|---|



FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\025003_S1.dgn PLOT DATE : 2/3/2012 PLOT BY : eomari PLOT NAME : PLOT SCALE : 1:40

2




## LEGEND

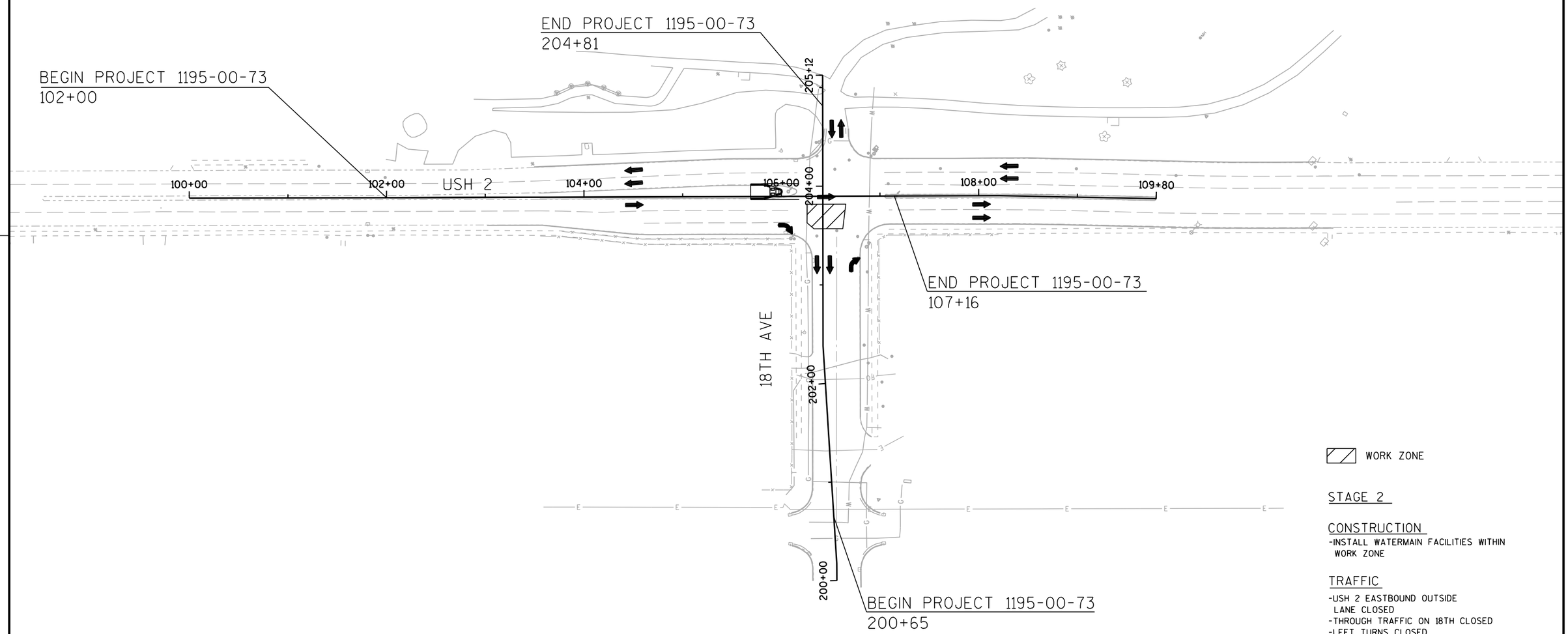
- TRAFFIC CONTROL DRUM WITH TYPE A WARNING LIGHT
- SIGN ON TEMPORARY SUPPORT
- TYPE III BARRICADE WTH ATTACHED SIGN
- WORK ZONE
- LANE CLOSURE

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CONSTRUCTION STAGING- STAGE 1 | SHEET | E |
|---|---|---|---|---|---|



FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\025004_S1.dgn PLOT DATE : 2/3/2012 PLOT BY : eomari PLOT NAME : PLOT SCALE : 1:40

2




WORK ZONE

STAGE 2

CONSTRUCTION

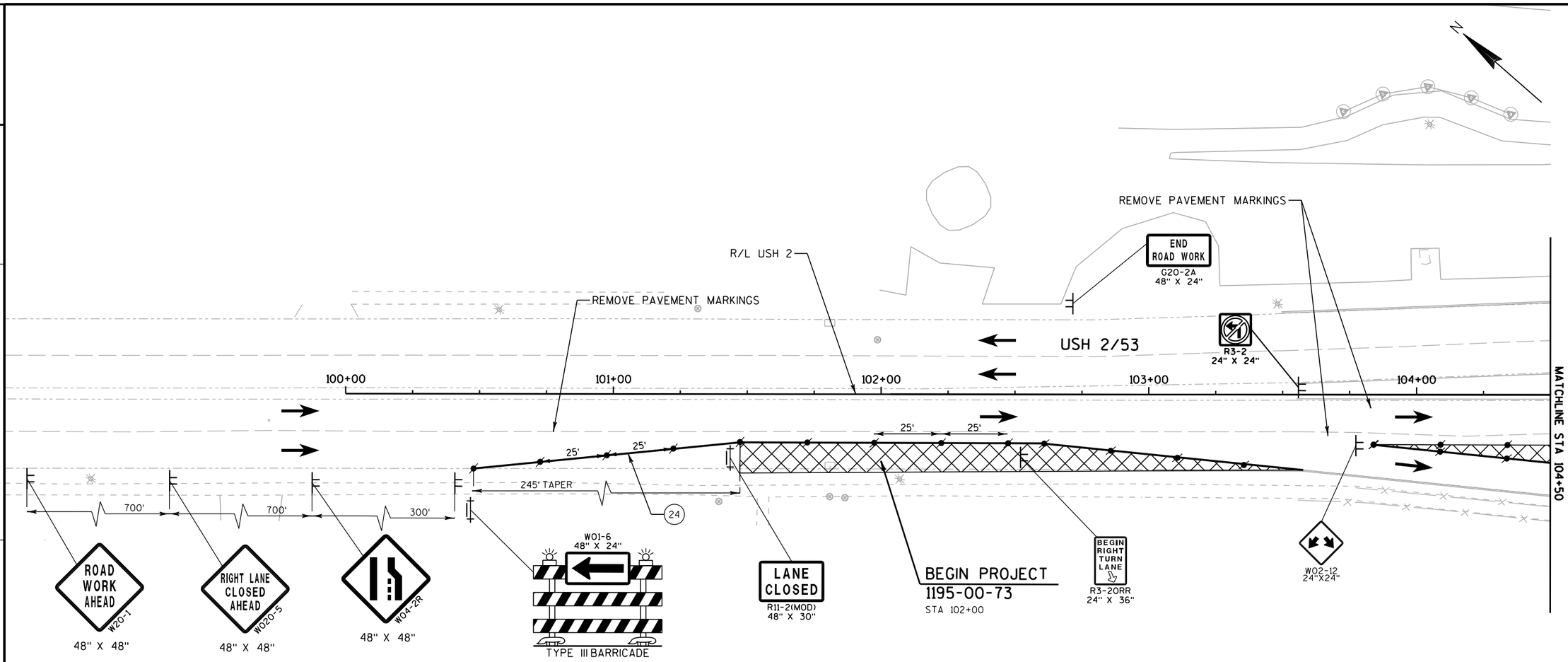
-INSTALL WATERMAIN FACILITIES WITHIN WORK ZONE

TRAFFIC

-USH 2 EASTBOUND OUTSIDE LANE CLOSED
-THROUGH TRAFFIC ON 18TH CLOSED
-LEFT TURNS CLOSED
-RETRACT BARRELS FROM 16' TO MINIMUM OF 22' WHILE NOT WORKING AT SITE

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | TRAFFIC CONTROL- STAGE 2 | SHEET 35 | E |
|---|---|---|---|---|---|

2




WORK ZONE

LANE CLOSURE

(24) TEMPORARY PAVEMENT MARKING PAINT 4-INCH (WHITE)

NOTE: RETRACT BARRELS FROM 16' TO MINIMUM OF 22' AND PLACE METAL COVERS OVER TRENCHES WHILE NOT WORKING AT SITE.

## LEGEND

- TRAFFIC CONTROL DRUM WITH TYPE A WARNING LIGHT
- SIGN ON TEMPORARY SUPPORT
- TYPE III BARRICADE WTH ATTACHED SIGN

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CONSTRUCTION STAGING- STAGE 2 | SHEET 36 | E |
|---|---|---|---|---|---|

2

R/L 18TH AVE

END PROJECT
1195-00-73
STA 204+81

205+00

W01-6
48" X 24"

RIGHT TURN ONLY
R3-53R
24" X 30"

W024-1L
48" X 48"

TYPE III BARRICADE

R/L USH 2

R3-2
24" X 24"

W012-1R
24" X 24"

25

STRAIGHT AHEAD LANE
R3-55A
24" X 30"

R3-2
24" X 24"

105+00

106+00

107+00

108+00

109+00

109+80

100' TAPER

25'

16' MIN

25'

25'

16' MIN

MATCLINE STA 104+50

24

24

24

RIGHT TURN LANE
R3-56R
22" X 28"

W01-1R
48" X 48"

W012-1L
24" X 24"

W012-1R
24" X 24"

W04-3L
30" X 30"

W04-3R
30" X 30"

END PROJECT
1195-00-73
STA 107+16

203+00

18TH AVE

W01-6
48" X 24"

TYPE III BARRICADE

W01-6
48" X 24"

TYPE III BARRICADE

REMOVE PAVEMENT MARKINGS

R/L 18TH AVE

202+00

R3-2
24" X 24"

700'

ROAD WORK AHEAD
W020-1
48" X 48"

25

END ROAD WORK
G20-2A
48" X 24"

W01-6
48" X 24"

N

## LEGEND

| | |
|---|---|
| | TRAFFIC CONTROL DRUM WITH TYPE A WARNING LIGHT |
| | SIGN ON TEMPORARY SUPPORT |
| | TYPE III BARRICADE WTH ATTACHED SIGN |

WORK ZONE

LANE CLOSURE

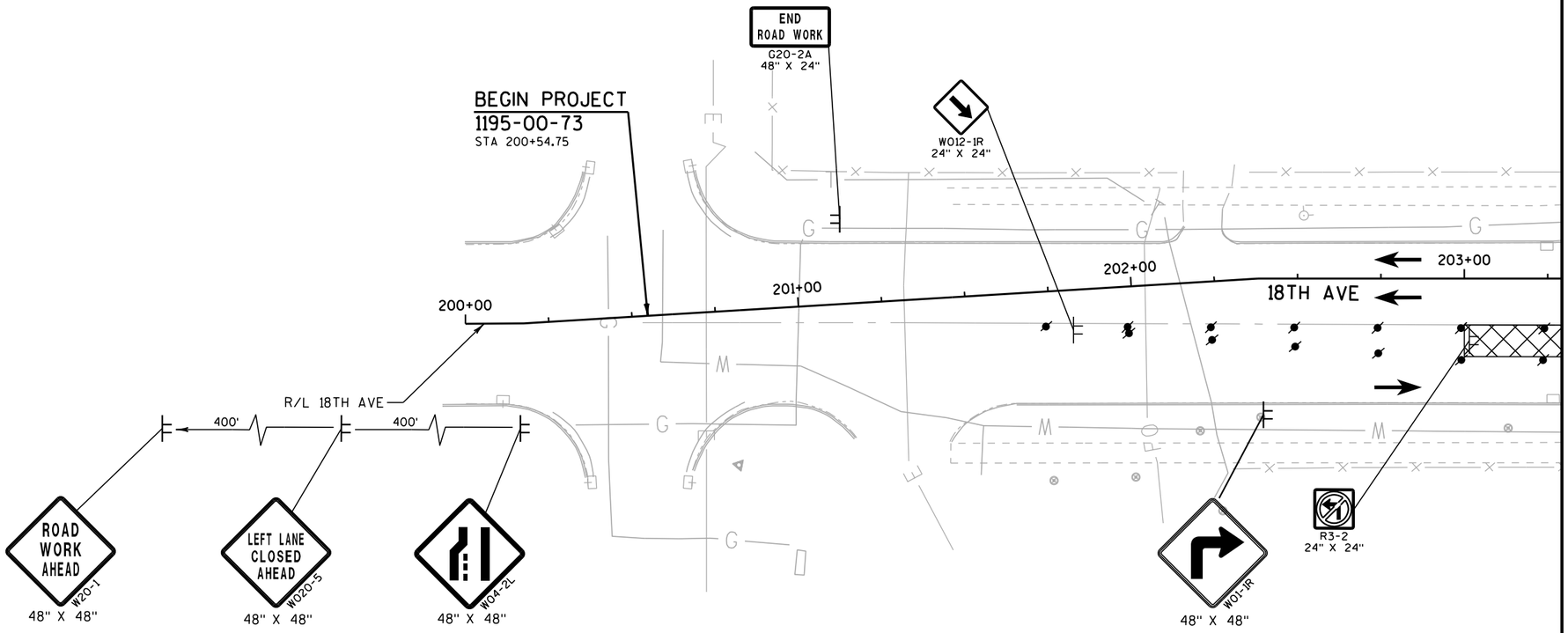
(24) PAVEMENT MARKING PAINT 4-INCH (WHITE)

(25) PAVEMENT MARKING PAINT 4-INCH (YELLOW)

NOTE: RETRACT BARRELS FROM 16' TO MINIMUM OF 22' AND PLACE METAL COVERS OVER TRENCHES WHILE NOT WORKING AT SITE.

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CONSTRUCTION STAGING- STAGE 2 | SHEET 37 | E |
|---|---|---|---|---|---|

2




## LEGEND

WORK ZONE

LANE CLOSURE

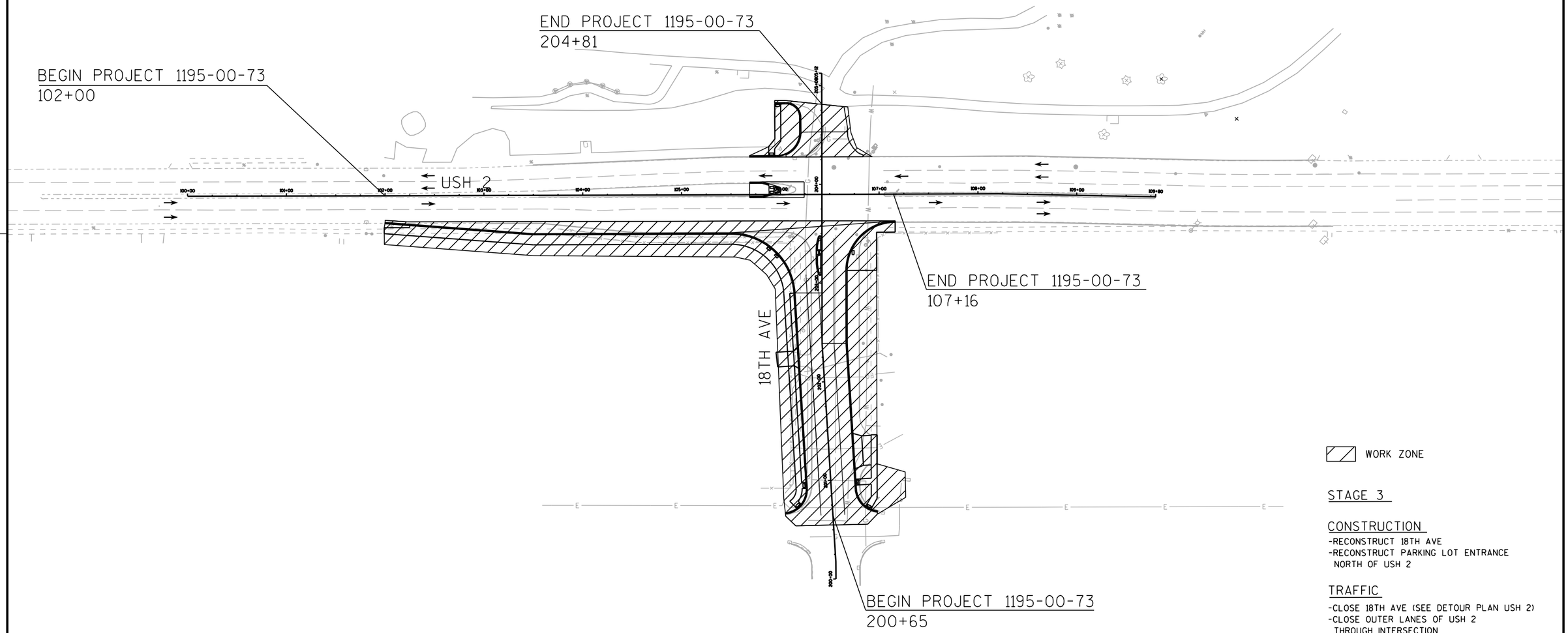
TRAFFIC CONTROL DRUM WITH TYPE A WARNING LIGHT

SIGN ON TEMPORARY SUPPORT

TYPE III BARRICADE WTH ATTACHED SIGN

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CONSTRUCTION STAGING- STAGE 2 | SHEET 38 | E |
|---|---|---|---|---|---|

2




WORK ZONE

STAGE 3

CONSTRUCTION

-RECONSTRUCT 18TH AVE
-RECONSTRUCT PARKING LOT ENTRANCE NORTH OF USH 2

TRAFFIC

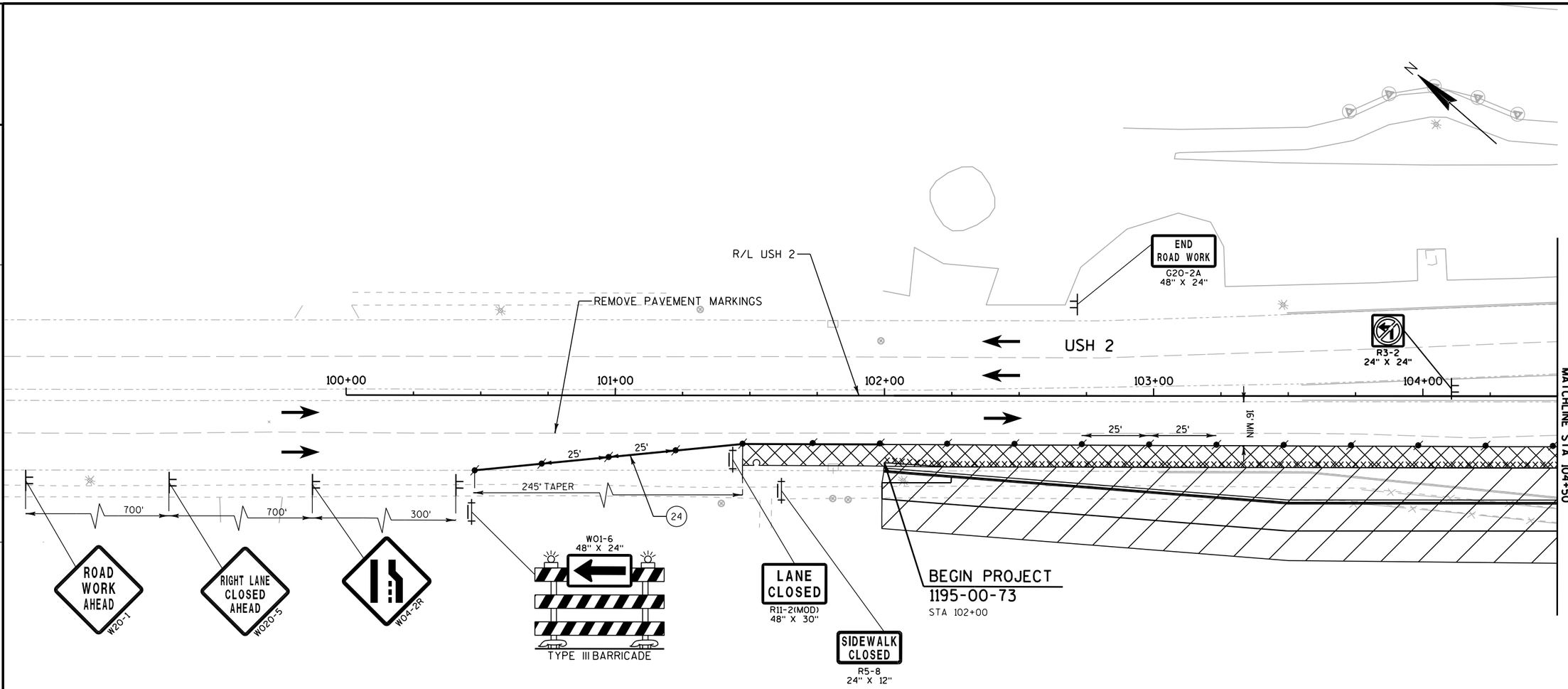
-CLOSE 18TH AVE (SEE DETOUR PLAN USH 2)
-CLOSE OUTER LANES OF USH 2 THROUGH INTERSECTION
-RETRACT BARRELS FROM 16' TO MINIMUM OF 22' WHILE NOT WORKING AT SITE

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | TRAFFIC CONTROL- STAGE 3 | SHEET 39 | E |
|---|---|---|---|---|---|

FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\025009_S3.dgn PLOT DATE : 2/3/2012 PLOT BY : eomari PLOT NAME : PLOT SCALE : 1:100

WISDOT/CADDS SHEET 42

2




## LEGEND

| | |
|---|---|
| | TRAFFIC CONTROL DRUM WITH TYPE A WARNING LIGHT |
| | SIGN ON TEMPORARY SUPPORT |
| | TYPE III BARRICADE WTH ATTACHED SIGN |

(24) PAVEMENT MARKING PAINT 4-INCH (WHITE)

NOTE: RETRACT BARRELS FROM 16' TO MINIMUM OF 22' WHILE NOT WORKING AT SITE.

WORK ZONE

LANE CLOSURE

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CONSTRUCTION STAGING- STAGE 3 | SHEET 40 | E |
|---|---|---|---|---|---|

2

R/L 18TH AVE

205+00

05+12

END PROJECT
1195-00-73
STA 204+81

W01-6
48" X 24"
TYPE III BARRICADE

W04-2R

RIGHT LANE CLOSED AHEAD
W020-5

ROAD WORK AHEAD
W20-1

LANE CLOSED
R11-2(MOD)
48" X 30"

R3-2
24" X 24"

R3-2
24" X 24"

R3-2
24" X 24"

R/L USH 2

245' TAPER

350'

700'

700'

25'

25'

24

REMOVE PAVEMENT MARKINGS

16' MIN

105+00

06+00

204+00

107+00

108+00

109+00

109+80

100' TAPER

25

25'

MATCLINE STA 104+50

25' 25'

16' MIN

25' 25'

100' TAPER

END PROJECT
1195-00-73
STA 107+16

END
ROAD WORK
G20-2A
48" X 24"

SIDEWALK CLOSED
R5-8
24" X 12"

W01-6
48" X 24"

REMOVE PAVEMENT MARKINGS

203+00

18TH AVE

R/L 18TH AVE

202+00

(24) TEMPORARY PAVEMENT MARKING PAINT 4-INCH (WHITE)

(25) TEMPORARY PAVEMENT MARKING PAINT 4-INCH (YELLOW)

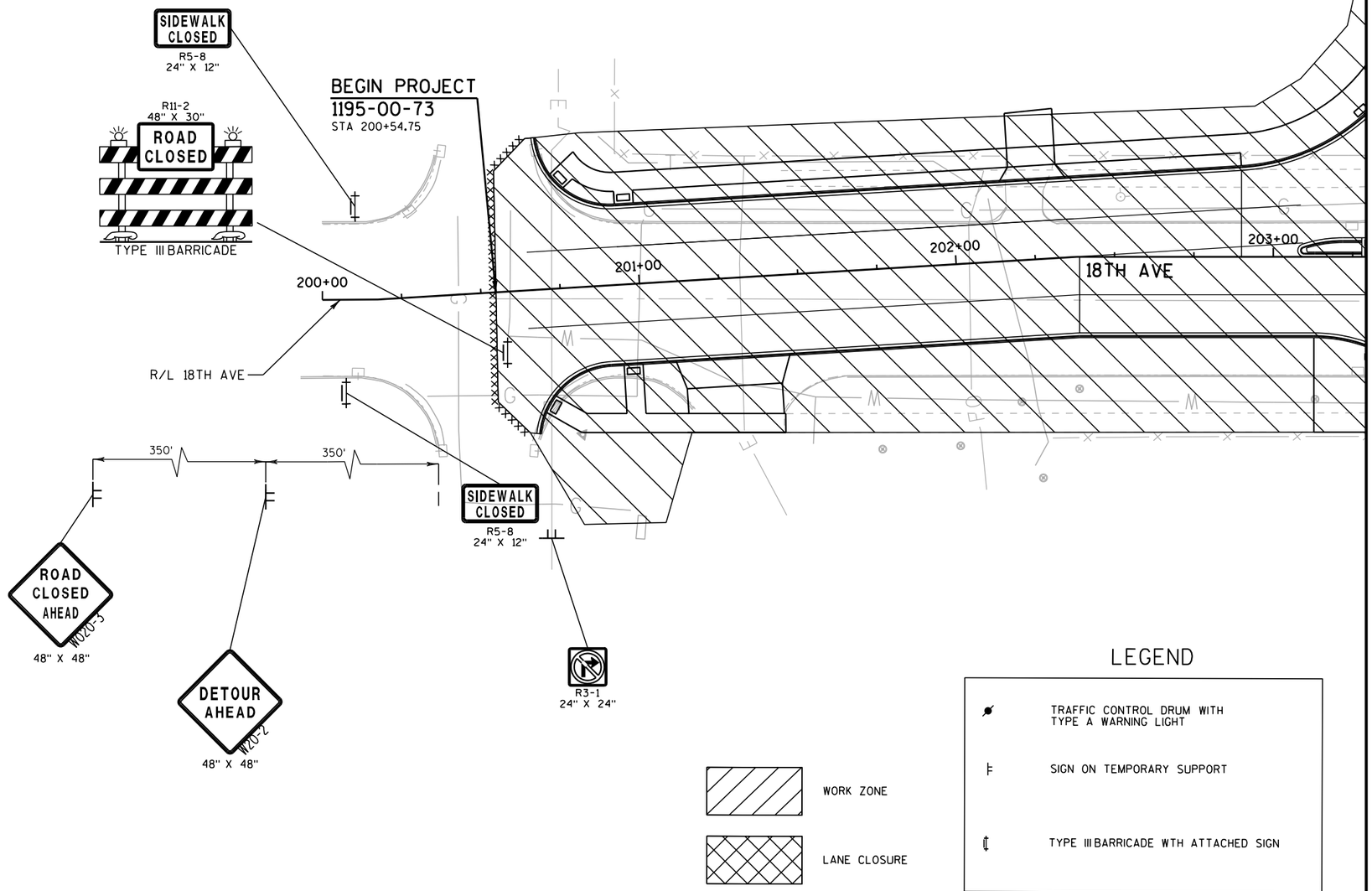
NOTE: RETRACT BARRELS FROM 16' TO MINIMUM OF 22' WHILE NOT WORKING AT SITE.

## LEGEND

- TRAFFIC CONTROL DRUM WITH TYPE A WARNING LIGHT
- SIGN ON TEMPORARY SUPPORT
- TYPE III BARRICADE WTH ATTACHED SIGN
- WORK ZONE
- LANE CLOSURE

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CONSTRUCTION STAGING- STAGE 3 | SHEET 41 | E |
|---|---|---|---|---|---|

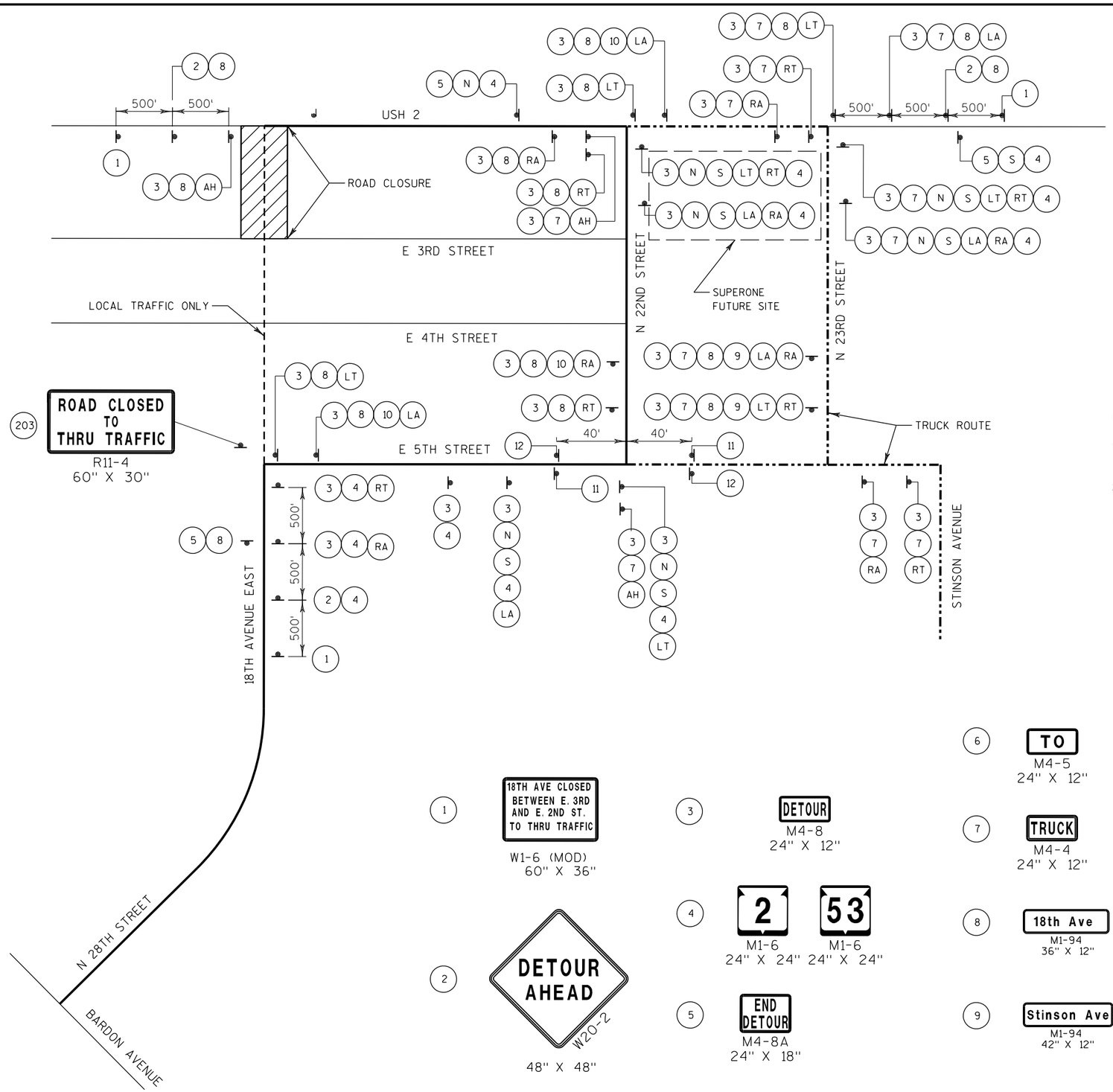
2




## LEGEND

- TRAFFIC CONTROL DRUM WITH TYPE A WARNING LIGHT
- SIGN ON TEMPORARY SUPPORT
- TYPE III BARRICADE WTH ATTACHED SIGN
- WORK ZONE
- LANE CLOSURE

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CONSTRUCTION STAGING- STAGE 3 | SHEET 42 | E |
|---|---|---|---|---|---|




## LEGEND

- EXISTING SIGN
- PROPOSED SIGN
- (X) SIGN NUMBER
- DETOUR ROUTE
- TRUCK ROUTE

## DETOUR - GENERAL NOTES

1. ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
2. EXACT NUMBER, LOCATION AND SPACING OF SIGNS AND DEVICES MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
3. SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL OF STANDARD HIGHWAY SIGNS. UNLESS OTHERWISE PROVIDED IN THE PLAN.
4. ANY EXISTING TRAFFIC SIGNS THAT CONFLICT WITH THIS WORK SHALL BE COVERED AS DIRECTED BY THE ENGINEER.
5. DETOUR SIGNS SHALL BE COVERED OR REMOVED WHEN 18TH AVENUE IS OPEN TO TRAFFIC AND SIGN DETOUR IS NOT IN USE.
6. NEW SIGNALS ON 18TH AVENUE AND USH 2 ARE TO BE BAGGED

## GENERAL NOTES

1. ALL SIGNS TO HAVE STANDARD REFLECTIVE SHEETING - REFERENCE "WISDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION" LATEST EDITION.
2. ALL WOODEN POST SUPPORTS ARE TO BE 4" X 6".
3. SIGN BASE MATERIAL SHALL BE ACCORDING TO SECTION 637.2.1.2.

203 — ROAD CLOSED TO THRU TRAFFIC, R11-4, 60" X 30"

1 — 18TH AVE CLOSED BETWEEN E. 3RD AND E. 2ND ST. TO THRU TRAFFIC, W1-6 (MOD), 60" X 36"

2 — DETOUR AHEAD, W20-2, 48" X 48"

3 — DETOUR, M4-8, 24" X 12"

4 — 2 / 53, M1-6, 24" X 24" / 24" X 24"

5 — END DETOUR, M4-8A, 24" X 18"

6 — TO, M4-5, 24" X 12"

7 — TRUCK, M4-4, 24" X 12"

8 — 18th Ave, M1-94, 36" X 12"

9 — Stinson Ave, M1-94, 42" X 12"

10 — H, D9-2, 24" X 24"

11 — NO PARKING ANY TIME, R7-1L, 18" X 24"

12 — NO PARKING ANY TIME, R7-1R, 18" X 24"

N — NORTH, M3-1, 24" X 12"

S — SOUTH, M3-3, 24" X 12"

E — EAST, M3-2, 24" X 12"

W — WEST, M3-4, 24" X 12"

LA — M05-1L, 21" X 21"

RA — M05-1R, 21" X 21"

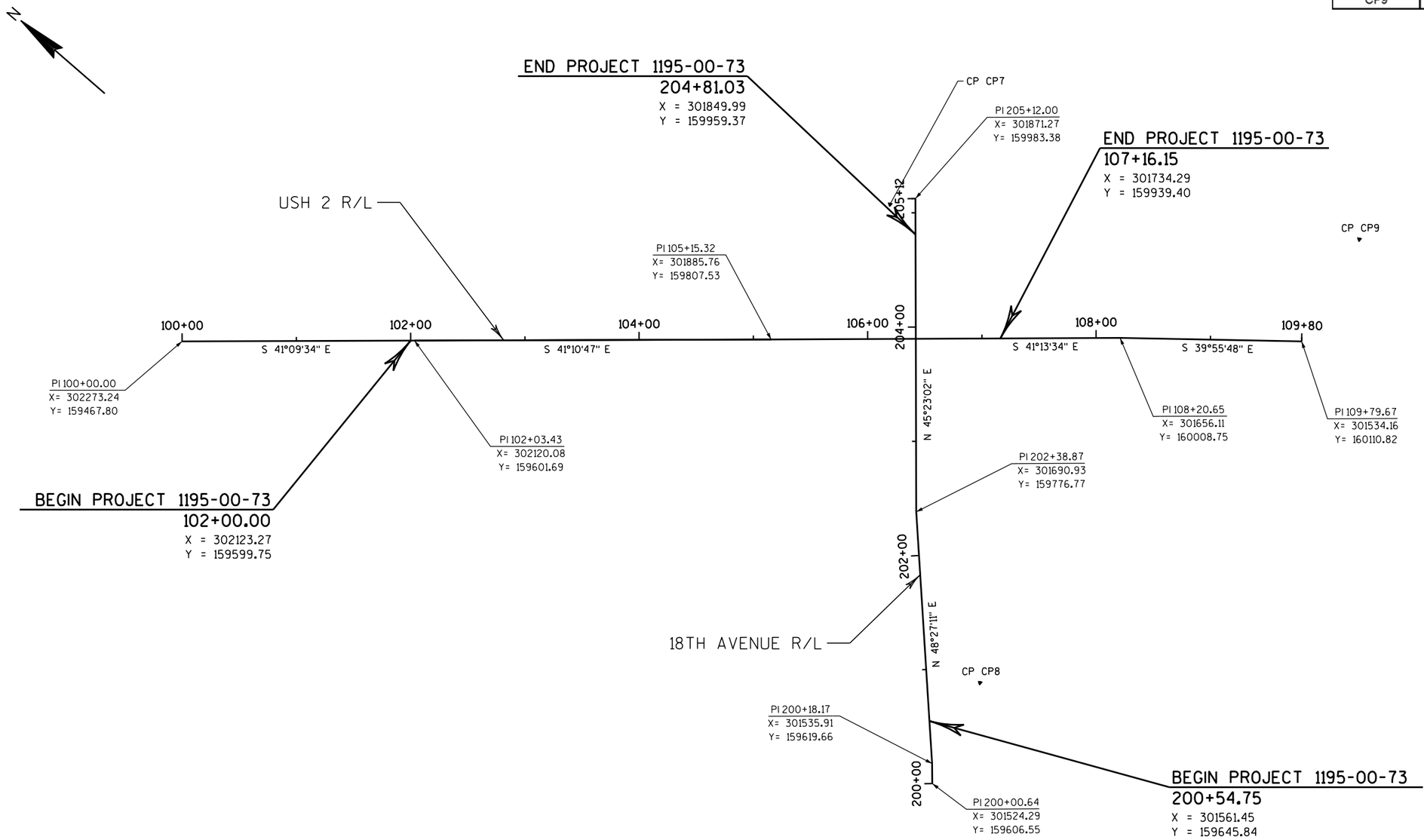
LT — M06-1 L, 21" X 21"

RT — M06-1 R, 21" X 21"

AH — M06-1, 21" X 21"

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | DETOUR ROUTE | SHEET 43 | E |
|---|---|---|---|---|---|

| CONTROL POINTS | | | |
|---|---|---|---|
| POINT NO. | COORDINATES | | |
| | X | Y | Z |
| CP7 | 301879.86 | 159960.42 | 634.122 |
| CP8 | 301545.75 | 159695.87 | 638.149 |
| CP9 | 301549.78 | 160206.69 | 634.291 |




| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | ALIGNMENT LAYOUT | SHEET 44 | E |
|---|---|---|---|---|---|

DATE 07FEB12 — E S T I M A T E O F Q U A N T I T I E S

| LINE NUMBER | ITEM | ITEM DESCRIPTION | UNIT | TOTAL | 1195-00-73 QUANTITY |
|---|---|---|---|---|---|
| 0010 | 204.0100 | REMOVING PAVEMENT | SY | 2,395.000 | 2,395.000 |
| 0020 | 204.0150 | REMOVING CURB & GUTTER | LF | 55.000 | 55.000 |
| 0030 | 204.0155 | REMOVING CONCRETE SIDEWALK | SY | 450.000 | 450.000 |
| 0040 | 204.0170 | REMOVING FENCE | LF | 635.000 | 635.000 |
| 0050 | 204.0195 | REMOVING CONCRETE BASES | EACH | 9.000 | 9.000 |
| 0060 | 204.0220 | REMOVING INLETS | EACH | 4.000 | 4.000 |
| 0070 | 204.0245 | REMOVING STORM SEWER (SIZE) 01. 12" | LF | 126.000 | 126.000 |
| 0080 | 204.0245 | REMOVING STORM SEWER (SIZE) 02. 15" | LF | 35.000 | 35.000 |
| 0090 | 205.0100 | EXCAVATION COMMON | CY | 3,081.000 | 3,081.000 |
| 0100 | 208.0100 | BORROW | CY | 624.000 | 624.000 |
| 0120 | 213.0100 | FINISHING ROADWAY (PROJECT) 02. 1195-00-73 | EACH | 1.000 | 1.000 |
| 0130 | 305.0120 | BASE AGGREGATE DENSE 1 1/4-INCH | TON | 197.000 | 197.000 |
| 0140 | 310.0110 | BASE AGGREGATE OPEN GRADED | TON | 1,875.000 | 1,875.000 |
| 0150 | 350.0145 | SUBBASE 12-INCH | SY | 1,800.000 | 1,800.000 |
| 0160 | 415.0090 | CONCRETE PAVEMENT 9-INCH | SY | 1,215.000 | 1,215.000 |
| 0170 | 415.1090 | CONCRETE PAVEMENT HES 9-INCH | SY | 100.000 | 100.000 |
| 0180 | 416.0160 | CONCRETE DRIVEWAY 6-INCH | SY | 140.000 | 140.000 |
| 0190 | 416.0610 | DRILLED TIE BARS | EACH | 328.000 | 328.000 |
| 0200 | 416.0620 | DRILLED DOWEL BARS | EACH | 608.000 | 608.000 |
| 0210 | 455.0105 | ASPHALTIC MATERIAL PG58-28 | TON | 42.000 | 42.000 |
| 0220 | 455.0605 | TACK COAT | GAL | 33.000 | 33.000 |
| 0230 | 460.1103 | HMA PAVEMENT TYPE E-3 | TON | 706.000 | 706.000 |
| 0240 | 460.2000 | INCENTIVE DENSITY HMA PAVEMENT | DOL | 452.000 | 452.000 |
| 0250 | 601.0405 | CONCRETE CURB & GUTTER 18-INCH TYPE A | LF | 271.000 | 271.000 |
| 0260 | 601.0409 | CONCRETE CURB & GUTTER 30-INCH TYPE A | LF | 714.000 | 714.000 |
| 0270 | 601.0411 | CONCRETE CURB & GUTTER 30-INCH TYPE D | LF | 415.000 | 415.000 |
| 0280 | 602.0415 | CONCRETE SIDEWALK 6-INCH | SF | 6,121.000 | 6,121.000 |
| 0290 | 602.0505 | CURB RAMP DETECTABLE WARNING FIELD YELLOW | SF | 128.000 | 128.000 |
| 0300 | 608.0312 | STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH | LF | 133.000 | 133.000 |
| 0310 | 608.0315 | STORM SEWER PIPE REINFORCED CONCRETE CLASS III 15-INCH | LF | 352.000 | 352.000 |
| 0320 | 611.0103 | CATCH BASINS TYPE 2 | EACH | 7.000 | 7.000 |
| 0330 | 611.0205 | MANHOLES TYPE 2 | EACH | 1.000 | 1.000 |
| 0340 | 611.0535 | MANHOLE COVERS TYPE J-SPECIAL | EACH | 1.000 | 1.000 |
| 0350 | 611.0627 | INLET COVERS TYPE HM | EACH | 7.000 | 7.000 |
| 0360 | 611.8110 | ADJUSTING MANHOLE COVERS | EACH | 7.000 | 7.000 |
| 0370 | 611.8115 | ADJUSTING INLET COVERS | EACH | 1.000 | 1.000 |
| 0380 | 612.0106 | PIPE UNDERDRAIN 6-INCH | LF | 935.000 | 935.000 |
| 0390 | 616.0700.S | FENCE SAFETY | LF | 500.000 | 500.000 |
| 0400 | 618.0100 | MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 02. 1195-00-73 | EACH | 1.000 | 1.000 |
| 0410 | 619.1000 | MOBILIZATION | EACH | 0.500 | 0.500 |
| 0420 | 620.0300 | CONCRETE MEDIAN SLOPED NOSE | SF | 12.000 | 12.000 |
| 0430 | 625.0500 | SALVAGED TOPSOIL | SY | 1,260.000 | 1,260.000 |
| 0440 | 628.1104 | EROSION BALES | EACH | 50.000 | 50.000 |
| 0450 | 628.1905 | MOBILIZATIONS EROSION CONTROL | EACH | 1.000 | 1.000 |
| 0460 | 628.1910 | MOBILIZATIONS EMERGENCY EROSION CONTROL | EACH | 1.000 | 1.000 |
| 0470 | 628.2008 | EROSION MAT URBAN CLASS I TYPE B | SY | 1,145.000 | 1,145.000 |
| 0480 | 628.7005 | INLET PROTECTION TYPE A | EACH | 10.000 | 10.000 |
| 0490 | 628.7015 | INLET PROTECTION TYPE C | EACH | 10.000 | 10.000 |
| 0500 | 629.0210 | FERTILIZER TYPE B | CWT | 40.000 | 40.000 |
| 0510 | 630.0140 | SEEDING MIXTURE NO. 40 | LB | 23.000 | 23.000 |

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DATE 07FEB12 E S T I M A T E O F Q U A N T I T I E S

| LINE NUMBER | ITEM | ITEM DESCRIPTION | UNIT | TOTAL | 1195-00-73 QUANTITY |
|---|---|---|---|---|---|
| 0520 | 634.0614 | POSTS WOOD 4X6-INCH X 14-FT | EACH | 6.000 | 6.000 |
| 0530 | 637.0202 | SIGNS REFLECTIVE TYPE II | SF | 101.000 | 101.000 |
| 0540 | 637.0402 | SIGNS REFLECTIVE FOLDING TYPE II | SF | 30.000 | 30.000 |
| 0550 | 638.2102 | MOVING SIGNS TYPE II | EACH | 2.000 | 2.000 |
| 0560 | 638.2602 | REMOVING SIGNS TYPE II | EACH | 6.000 | 6.000 |
| 0570 | 638.3000 | REMOVING SMALL SIGN SUPPORTS | EACH | 2.000 | 2.000 |
| 0580 | 642.5001 | FIELD OFFICE TYPE B | EACH | 1.000 | 1.000 |
| 0590 | 643.0100 | TRAFFIC CONTROL (PROJECT) 02. 1195-00-73 | EACH | 1.000 | 1.000 |
| 0600 | 643.0300 | TRAFFIC CONTROL DRUMS | DAY | 825.000 | 825.000 |
| 0610 | 643.0420 | TRAFFIC CONTROL BARRICADES TYPE III | DAY | 50.000 | 50.000 |
| 0620 | 643.0705 | TRAFFIC CONTROL WARNING LIGHTS TYPE A | DAY | 1,007.000 | 1,007.000 |
| 0630 | 643.0900 | TRAFFIC CONTROL SIGNS | DAY | 396.000 | 396.000 |
| 0640 | 643.0910.S | TRAFFIC CONTROL TYPE I SIGN COVERING | EACH | 2.000 | 2.000 |
| 0650 | 643.1000 | TRAFFIC CONTROL SIGNS FIXED MESSAGE | SF | 100.000 | 100.000 |
| 0660 | 643.2000 | TRAFFIC CONTROL DETOUR (PROJECT) 02. 1195-00-73 | EACH | 1.000 | 1.000 |
| 0670 | 643.3000 | TRAFFIC CONTROL DETOUR SIGNS | DAY | 1,725.000 | 1,725.000 |
| 0680 | 645.0111 | GEOTEXTILE FABRIC TYPE DF SCHEDULE A | SY | 3,456.000 | 3,456.000 |
| 0690 | 645.0140 | GEOTEXTILE FABRIC TYPE SAS | SY | 1,316.000 | 1,316.000 |
| 0700 | 646.0103 | PAVEMENT MARKING PAINT 4-INCH | LF | 875.000 | 875.000 |
| 0710 | 646.0106 | PAVEMENT MARKING EPOXY 4-INCH | LF | 1,960.000 | 1,960.000 |
| 0720 | 646.0126 | PAVEMENT MARKING EPOXY 8-INCH | LF | 516.000 | 516.000 |
| 0730 | 646.0600 | REMOVING PAVEMENT MARKINGS | LF | 2,690.000 | 2,690.000 |
| 0740 | 647.0166 | PAVEMENT MARKING ARROWS EPOXY TYPE 2 | EACH | 4.000 | 4.000 |
| 0750 | 647.0356 | PAVEMENT MARKING WORDS EPOXY | EACH | 2.000 | 2.000 |
| 0760 | 647.0456 | PAVEMENT MARKING CURB EPOXY | LF | 50.000 | 50.000 |
| 0770 | 647.0566 | PAVEMENT MARKING STOP LINE EPOXY 18-INCH | LF | 226.000 | 226.000 |
| 0780 | 647.0606 | PAVEMENT MARKING ISLAND NOSE EPOXY | EACH | 2.000 | 2.000 |
| 0790 | 647.0766 | PAVEMENT MARKING CROSSWALK EPOXY 6-INCH | LF | 295.000 | 295.000 |
| 0800 | 647.0776 | PAVEMENT MARKING CROSSWALK EPOXY 12-INCH | LF | 720.000 | 720.000 |
| 0810 | 647.0796 | PAVEMENT MARKING CROSSWALK EPOXY 24-INCH | LF | 355.000 | 355.000 |
| 0820 | 647.0955 | REMOVING PAVEMENT MARKINGS ARROWS | EACH | 3.000 | 3.000 |
| 0830 | 647.0965 | REMOVING PAVEMENT MARKINGS WORDS | EACH | 3.000 | 3.000 |
| 0840 | 650.4000 | CONSTRUCTION STAKING STORM SEWER | EACH | 4.000 | 4.000 |
| 0850 | 650.4500 | CONSTRUCTION STAKING SUBGRADE | LF | 720.000 | 720.000 |
| 0860 | 650.5000 | CONSTRUCTION STAKING BASE | LF | 225.000 | 225.000 |
| 0870 | 650.5500 | CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER | LF | 479.000 | 479.000 |
| 0880 | 650.7000 | CONSTRUCTION STAKING CONCRETE PAVEMENT | LF | 495.000 | 495.000 |
| 0890 | 650.8500 | CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS (PROJECT) 02. 1195-00-73 | LS | 1.000 | 1.000 |
| 0900 | 650.9910 | CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 02. 1195-00-73 | LS | 1.000 | 1.000 |
| 0910 | 650.9920 | CONSTRUCTION STAKING SLOPE STAKES | LF | 720.000 | 720.000 |
| 0920 | 652.0225 | CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH | LF | 909.000 | 909.000 |
| 0930 | 652.0235 | CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH | LF | 933.000 | 933.000 |
| 0940 | 652.0800 | CONDUIT LOOP DETECTOR | LF | 798.000 | 798.000 |
| 0950 | 652.0900 | LOOP DETECTOR SLOTS | LF | 258.000 | 258.000 |
| 0960 | 653.0135 | PULL BOXES STEEL 24X36-INCH | EACH | 4.000 | 4.000 |
| 0970 | 653.0140 | PULL BOXES STEEL 24X42-INCH | EACH | 7.000 | 7.000 |
| 0980 | 654.0101 | CONCRETE BASES TYPE 1 | EACH | 7.000 | 7.000 |
| 0990 | 654.0110 | CONCRETE BASES TYPE 10 | EACH | 2.000 | 2.000 |

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DATE 07FEB12 E S T I M A T E O F Q U A N T I T I E S

| LINE NUMBER | ITEM | ITEM DESCRIPTION | UNIT | TOTAL | 1195-00-73 QUANTITY |
|---|---|---|---|---|---|
| 1000 | 654.0113 | CONCRETE BASES TYPE 13 | EACH | 2.000 | 2.000 |
| 1010 | 654.0217 | CONCRETE CONTROL CABINET BASES TYPE 9 SPECIAL | EACH | 1.000 | 1.000 |
| 1020 | 655.0230 | CABLE TRAFFIC SIGNAL 5-14 AWG | LF | 666.000 | 666.000 |
| 1030 | 655.0270 | CABLE TRAFFIC SIGNAL 15-14 AWG | LF | 1,943.000 | 1,943.000 |
| 1040 | 655.0305 | CABLE TYPE UF 2-12 AWG GROUNDED | LF | 576.000 | 576.000 |
| 1050 | 655.0515 | ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG | LF | 768.000 | 768.000 |
| 1060 | 655.0700 | LOOP DETECTOR LEAD IN CABLE | LF | 4,146.000 | 4,146.000 |
| 1070 | 655.0800 | LOOP DETECTOR WIRE | LF | 2,574.000 | 2,574.000 |
| 1080 | 656.0200 | ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 02. 1195-00-73 | LS | 1.000 | 1.000 |
| 1090 | 657.0100 | PEDESTAL BASES | EACH | 7.000 | 7.000 |
| 1100 | 657.0415 | TRAFFIC SIGNAL STANDARDS ALUMINUM 11-FT | EACH | 1.000 | 1.000 |
| 1110 | 657.0420 | TRAFFIC SIGNAL STANDARDS ALUMINUM 13-FT | EACH | 6.000 | 6.000 |
| 1120 | 657.1350 | INSTALL POLES TYPE 10 | EACH | 2.000 | 2.000 |
| 1130 | 657.1360 | INSTALL POLES TYPE 13 | EACH | 2.000 | 2.000 |
| 1140 | 657.1525 | INSTALL MONOTUBE ARMS 25-FT | EACH | 2.000 | 2.000 |
| 1150 | 657.1535 | INSTALL MONOTUBE ARMS 35-FT | EACH | 2.000 | 2.000 |
| 1160 | 657.1815 | INSTALL LUMINAIRE ARMS STEEL 15-FT | EACH | 4.000 | 4.000 |
| 1170 | 658.0110 | TRAFFIC SIGNAL FACE 3-12 INCH VERTICAL | EACH | 15.000 | 15.000 |
| 1180 | 658.0115 | TRAFFIC SIGNAL FACE 4-12 INCH VERTICAL | EACH | 3.000 | 3.000 |
| 1190 | 658.0215 | BACKPLATES SIGNAL FACE 3 SECTION 12-INCH | EACH | 15.000 | 15.000 |
| 1200 | 658.0220 | BACKPLATES SIGNAL FACE 4 SECTION 12-INCH | EACH | 3.000 | 3.000 |
| 1210 | 658.0416 | PEDESTRIAN SIGNAL FACE 16-INCH | EACH | 6.000 | 6.000 |
| 1220 | 658.0500 | PEDESTRIAN PUSH BUTTONS | EACH | 5.000 | 5.000 |
| 1230 | 658.0600 | LED MODULES 12-INCH RED BALL | EACH | 13.000 | 13.000 |
| 1240 | 658.0605 | LED MODULES 12-INCH YELLOW BALL | EACH | 13.000 | 13.000 |
| 1250 | 658.0610 | LED MODULES 12-INCH GREEN BALL | EACH | 13.000 | 13.000 |
| 1260 | 658.0615 | LED MODULES 12-INCH RED ARROW | EACH | 5.000 | 5.000 |
| 1270 | 658.0620 | LED MODULES 12-INCH YELLOW ARROW | EACH | 10.000 | 10.000 |
| 1280 | 658.0625 | LED MODULES 12-INCH GREEN ARROW | EACH | 3.000 | 3.000 |
| 1290 | 658.5069 | SIGNAL MOUNTING HARDWARE (LOCATION) 02. 1195-00-73 | LS | 1.000 | 1.000 |
| 1300 | 659.0115 | LUMINAIRES UTILITY HPS 150 WATTS | EACH | 4.000 | 4.000 |
| 1310 | 661.0200 | TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (LOCATION) 02. USH 2/22ND ST | LS | 1.000 | 1.000 |
| 1320 | 690.0150 | SAWING ASPHALT | LF | 185.000 | 185.000 |
| 1330 | 690.0250 | SAWING CONCRETE | LF | 745.000 | 745.000 |
| 1340 | 715.0415 | INCENTIVE STRENGTH CONCRETE PAVEMENT | DOL | 500.000 | 500.000 |
| 1350 | ASP.1T0A | ON-THE-JOB TRAINING APPRENTICE AT $5. 00/HR | HRS | 1,000.000 | 1,000.000 |
| 1360 | ASP.1T0G | ON-THE-JOB TRAINING GRADUATE AT $5.00/HR | HRS | 500.000 | 500.000 |
| 1470 | SPV.0060 | SPECIAL 11. ERECTING CITY OWNED SIGNS TYPE II | EACH | 2.000 | 2.000 |
| 1480 | SPV.0060 | SPECIAL 12. TRAFFIC CONTROL COVERING SIGNS TYPE II | EACH | 3.000 | 3.000 |
| 1490 | SPV.0090 | SPECIAL 01. CONCRETE CURB AND GUTTER CURE AND SEAL TREATMENT | LF | 1,400.000 | 1,400.000 |
| 1540 | SPV.0105 | SPECIAL 01. CONCRETE PAVEMENT JOINT LAYOUT | LS | 1.000 | 1.000 |
| 1550 | SPV.0105 | SPECIAL 02. REMOVE AND SALVAGE TRAFFIC SIGNALS 18TH & USH 2 | LS | 1.000 | 1.000 |
| 1560 | SPV.0105 | SPECIAL 03. PROJECT CONCRETE CRACK MITIGATION AND REPAIR SPECIAL | LS | 1.000 | 1.000 |

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DATE 07FEB12 E S T I M A T E O F Q U A N T I T I E S

| LINE NUMBER | ITEM | ITEM DESCRIPTION | UNIT | TOTAL | 1195-00-73 QUANTITY |
|---|---|---|---|---|---|
| 1570 | SPV.0105 | SPECIAL 05. REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE | LS | 1.000 | 1.000 |
| 1580 | SPV.0165 | SPECIAL 01. CONCRETE SIDEWALK CURE AND SEAL TREATMENT | SF | 6,121.000 | 6,121.000 |
| 1590 | SPV.0180 | SPECIAL 02. CONCRETE PAVEMENT 9-INCH SPECIAL | SY | 130.000 | 130.000 |



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## REMOVING PAVEMENT

| CATEGORY | STATION | | | 204.0100 REMOVING PAVEMENT SY |
|---|---|---|---|---|
| 0010 | USH 2 | | | |
| | 102+20 | - | 107+16 | 2395.00 |
| | TOTAL | | | 2395.00 |

## REMOVING CONCRETE SIDEWALK

| CATEGORY | STATION | | | 204.0155 REMOVING CONCRETE SIDEWALK SY |
|---|---|---|---|---|
| 0010 | USH 2 | | | |
| | 102+00 | - | 106+15 | 231 |
| 0010 | 18TH AVE | | | |
| | 200+72 | - | 203+62 | 219 |
| | TOTAL | | | 450 |

## REMOVING FENCE

| CATEGORY | STATION | | | LOCATION | 204.0170 REMOVING FENCE LF |
|---|---|---|---|---|---|
| 0010 | USH 2 | | | | |
| | 103+55 | - | 106+10 | RT | 481 |
| | SUBTOTAL | | | | 481 |
| | 18TH AVE | | | | |
| | 200+94 | - | 202+16 | LT | 154 |
| | SUBTOTAL | | | | 154 |
| | TOTAL | | | | 635 |

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## REMOVING CONCRETE BASES

| CATEGORY | STATION | LOCATION | 204.0195 REMOVING CONCRETE BASES EACH | COMMENTS |
|---|---|---|---|---|
| 0010 | USH 2 | | | |
| | 106+06 | RT | 1 | SIGNAL/LIGHT |
| | 106+08 | LT | 1 | MEDIAN SIGNAL |
| | 106+10 | RT | 1 | SIGNAL |
| | 106+21 | RT | 1 | SIGNAL/LIGHT |
| | 106+39 | LT | 1 | SIGNAL |
| | 106+86 | RT | 1 | SIGNAL |
| | 106+94 | LT | 1 | SIGNAL/LIGHT |
| | 106+95 | LT | 1 | CABINET |
| | 107+09 | RT | 1 | SIGNAL/LIGHT |
| | TOTAL | | 9 | |

## REMOVING INLETS

| CATEGORY | STATION | LOCATION | 204.0220 REMOVING INLETS EACH |
|---|---|---|---|
| 0010 | USH 2 | | |
| | 106+09 | RT | 1 |
| | 106+15 | LT | 1 |
| | SUBTOTAL | | 2 |
| 0010 | 18TH AVENUE | | |
| | 203+29 | LT | 1 |
| | 203+39 | RT | 1 |
| | SUBTOTAL | | 2 |
| | TOTAL | | 4 |

## REMOVING STORM SEWER

| CATEGORY | STATION | | 204.0245.01 REMOVING STORM SEWER 12-INCH LF | 204.0245.02 REMOVING STORM SEWER 15-INCH LF |
|---|---|---|---|---|
| 0010 | USH 2 | | | |
| | 106+15 | 106+54 | 36 | -- |
| | 106+10 | 106+56 | 46 | -- |
| | SUBTOTAL | | 82 | -- |
| | 18TH AVE | | | |
| | 203+20 | 203+32 | 44 | -- |
| | 203+32 | 203+55 | -- | 35 |
| | SUBTOTAL | | 44 | 35 |
| | TOTAL | | 126 | 35 |

## REMOVING CURB & GUTTER

| CATEGORY | STATION | | | LOCATION | 204.0150 REMOVING CURB & GUTTER LF |
|---|---|---|---|---|---|
| 0010 | USH 2 | | | | |
| | 105+69 | - | 106+26 | LT | 55 |
| | TOTAL | | | | 55 |

## CURB AND GUTTER ITEMS

| CATEGORY | STATION | | | LOCATION | 601.0405 CONCRETE CURB & GUTTER 18-INCH TYPE A LF | 601.0409 CONCRETE CURB & GUTTER 30-INCH TYPE A LF | 601.0411 CONCRETE CURB & GUTTER 30-INCH TYPE D LF | SPV.0090.01 CONCRETE CURB AND GUTTER CURE AND SEAL TREATMENT LF |
|---|---|---|---|---|---|---|---|---|
| 0010 | USH 2 | | | | | | | |
| | 102+00 | - | 105+50 | RT | -- | 351 | -- | 351 |
| | 105+69 | - | 106+02 | RT | 31 | -- | -- | 31 |
| | 105+69 | - | 106+02 | LT | 31 | -- | -- | 31 |
| | SUBTOTAL | | | | 62 | 351 | -- | 413 |
| 0010 | 18TH AVE | | | | | | | |
| | 200+63 | - | 202+39 | RT | -- | -- | 182 | 182 |
| | 200+69 | - | 202+39 | LT | -- | -- | 183 | 183 |
| | 202+39 | - | 203+63 | RT | -- | 151 | -- | 151 |
| | 202+39 | - | 203+51 | LT | -- | 148 | -- | 148 |
| | 202+39 | - | 203+48 | RT | 104 | -- | -- | 104 |
| | 202+39 | - | 203+48 | LT | 105 | -- | -- | 105 |
| | 204+28 | - | 204+53 | LT | -- | 65 | -- | 65 |
| | 204+53 | - | 204+83 | LT | -- | -- | 50 | 50 |
| | SUBTOTAL | | | | 209 | 364 | 415 | 988 |
| | TOTAL | | | | 271 | 714 | 415 | 1,400 |

## FINISHING ROADWAY (1195-00-73)

| CATEGORY | LOCATION | 213.0100 FINISHING ROADWAY EACH |
|---|---|---|
| 0010 | USH 2 (1195-00-73) | 1 |
| | TOTAL | 1 |

## CONCRETE DRIVEWAY

| CATEGORY | STATION | LOCATION | 416.0160 CONCRETE DRIVEWAY 6-INCH SY |
|---|---|---|---|
| 0010 | 18TH AVE | | |
| | 201+00 | RT | 79 |
| | 202+25 | LT | 61 |
| | TOTAL | | 140 |

## SUBBASE

| CATEGORY | LOCATION | 350.0145 SUBBASE 12-INCH SY |
|---|---|---|
| 0010 | USH 2 & 18TH AVE | 1,800 |
| | TOTAL | 1,800 |

## ASPHALTIC ITEMS

| CATEGORY | STATION | 455.0105 ASPHALTIC MATERIAL PG58-28 TON | 455.0605 TACK COAT GAL | 460.1103 HMA PAVEMENT TYPE E-3 TON | 460.2000 INCENTIVE DENSITY HMA PAVEMENT DOL |
|---|---|---|---|---|---|
| 0010 | 18TH AVE | | | | |
| | 200+54 - 202+40 | 38 | 30 | 630 | 403 |
| | 204+53 - 204+85 | 5 | 3 | 76 | 49 |
| | TOTAL | 42 | 33 | 706 | 452 |

## BASE AGGREGATE ITEMS

| CATEGORY | STATION | 305.0120 BASE AGGREGATE DENSE 1-1/4 INCH TON | 310.0110 BASE AGGREGATE OPEN GRADED TON |
|---|---|---|---|
| 0010 | USH 2 | | |
| | 102+00 - 105+50 | 84 | 206 |
| | 105+69 - 106+24 | -- | 59 |
| | 106+25 - 106+70 | -- | 53 |
| | UNDISTRIBUTED | 4 | 22 |
| | SUBTOTAL | 88 | 341 |
| | 18TH AVE | | |
| | 200+60 - 203+63 | 96 | 1,216 |
| | 204+28 - 204+85 | 8 | 211 |
| | DRIVEWAYS | | 28 |
| | UNDISTRIBUTED | 5 | 80 |
| | SUBTOTAL | 109 | 1,535 |
| | TOTAL | 197 | 1,875 |

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## GEOTEXTILE FABRIC TYPE SAS

| CATEGORY | STATION | 645.0140 GEOTEXTILE FABRIC TYPE SAS SY |
|---|---|---|
| 0010 | USH 2 | |
| | 102+00 -- 107+16 | 482 |
| | 18TH AVE | |
| | 202+39 -- 203+58 | 678 |
| | 204+28 -- 204+53 | 156 |
| | TOTAL | 1,316 |

## CONCRETE ITEMS

| CATEGORY | STATION | 415.0090 CONCRETE PAVEMENT 9-INCH SY | 602.0415 CONCRETE SIDEWALK 6-INCH SF | 602.0505 CURB RAMP DETECTABLE WARNING FIELD YELLOW SF | SPV.0165.01 CONCRETE SIDEWALK CURE & SEAL TREATMENT SF | SPV.0180.02 CONCRETE PAVEMENT 9-INCH SPECIAL SY | 620.0300 CONCRETE MEDIAN SLOPED NOSE SF | 415.1090 CONCRETI PAVEMENT HES 9-INCH SY |
|---|---|---|---|---|---|---|---|---|
| 0010 | USH 2 | | | | | | | |
| | 102+00 - 105+50 | 371 | 3,433 | -- | 3,433 | | 8 | |
| | 105+81 - 106+24 | 53 | -- | 32 | -- | | | |
| | SUBTOTAL | 424 | 3,433 | 32 | 3,433 | | 8 | |
| 0010 | 18TH AVE | | | | | | | |
| | 200+65 - 202+90 | -- | 1,443 | 64 | 1,443 | | | |
| | 202+39 - 203+63 | 629 | 2,361 | 32 | 2,361 | | 4 | 100 |
| | 204+27 - 204+53 | 162 | 327 | -- | 327 | | | |
| | SUBTOTAL | 791 | 2,688 | 96 | 2,688 | | 4 | |
| | UNDISTRIBUTED | | | | | 132 | | |
| | TOTAL | 1,215 | 6,121 | 128 | 6,121 | 132 | 12 | 100 |

## STORM SEWER ITEMS

| CATEGORY | STRUCTURE NUMBER | STATION | OFFSET FT | | 611.0205 MANHOLES TYPE 2 EACH | 611.0103 CATCH BASIN TYPE 2 EACH | 611.0535 MANHOLE COVERS TYPE J-SPECIAL EACH | 611.0627 INLET COVERS TYPE HM EACH | 611.0642 INLET COVERS TYPE MS EACH | RIM OR FLANGE ELEV | STR DEPTH FT | FROM STR | TO STR | INLET ELEV | DISCH ELEV | SLOPE | 608.0312 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH LF | 608.0315 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 15-INCH LF | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0010 | USH 2 | | | | | | | | | | | | | | | | | | |
| | 101A | 103+52.93 | 37.80 | RT | -- | 1 | -- | 1 | -- | 635.03 | 2.70 | 101A | 101B | 631.50 | 631.48 | 0.33% | -- | 6 | |
| | 101B | 103+58.93 | 37.80 | RT | -- | 1 | -- | 1 | | 635.05 | 2.74 | 101B | EXIST | 631.48 | 630.60 | 0.30% | -- | 294 | CONNECT TO EXISTING MH |
| | 102 | 105+79.20 | 37.40 | LT | -- | 1 | -- | 1 | -- | 635.50 | 2.08 | 102 | 102A | 632.59 | 632.23 | 1.00% | 36 | -- | |
| | 102A | 106+14.87 | 36.70' | LT | 1 | -- | 1 | -- | -- | 635.60 | 2.29 | 102A | EXIST | 632.23 | -- | -- | -- | -- | REPLACE EXISTING INLET |
| | TOTAL | | | | 1 | 3 | 1 | 3 | | | | | | | | | 36 | 300 | |
| | 18th Avenue | | | | | | | | | | | | | | | | | | |
| | 201B | 202+84.00 | 26.50 | LT | -- | 1 | -- | 1 | -- | 635.42 | 2.61 | 201B | 201A | 631.98 | 631.91 | 1.17% | 6 | -- | |
| | 201A | 202+90.00 | 26.50 | LT | -- | 1 | -- | 1 | -- | 635.36 | 2.62 | 201A | 202 | 631.91 | 631.26 | 1.25% | 52 | -- | |
| | 202 | 203+03.00 | 23.00 | RT | -- | 1 | -- | 1 | -- | 635.44 | 3.60 | 202 | EXIST | 631.01 | 630.27 | 1.42% | -- | 52 | CONNECT TO EXISTING MH |
| | 203 | 204+64.80 | 20.50 | LT | -- | 1 | | 1 | | 635.63 | 1.77 | 203 | 102A | 633.03 | 632.23 | 2.05% | 39 | | |
| | TOTAL | | | | | 4 | 0 | 4 | | | | | | | | | 97 | 52 | |
| | TOTAL | | | | 1 | 7 | 1 | 7 | -- | | | | | | | | 133 | 352 | |

NOTES

1) JOINT TIES FOR CONCRETE PIPE SHALL BE PROVIDED AT ALL CONCRETE APRON ENDWALLS. APRON ENDWALLS SHALL BE TIED FOR THE LAST THREE JOINTS AT PIPE ENDS. THE COST OF THESE TIES SHALL BE INCIDENTAL TO THE COST OF THE PIPE.
2) STATIONS ARE TO THE CENTER OF STRUCTURES OR TO THE APRON END OF ENDWALLS.
   OFFSETS ARE TO THE FLANGE LINE FOR STRUCTURES IN THE ROADWAY WITH INLET GRATES, AND TO THE CENTER OF STRUCTURE FOR FIELD INLETS AND MANHOLES WITH SOLID LIDS.
3) PIPE LENGTHS ARE MEASURED TO THE CENTER OF STRUCTURES AND THE END OF PIPE UPSTREAM FROM APRON ENDWALLS (LENGTH DOES NOT INCLUDE APRON ENDWALL).
4) RIM ELEVATIONS ARE GIVEN AT THE FLANGE LINE FOR INLET GRATES OR THE CENTER OF THE MANHOLE COVER FOR MANHOLES
5) STRUCTURE DEPTH = RIM ELEVATION - INVERT - CASTING HEIGHT - ADJUSTMENT
   CASTING HEIGHT = 0.75 FT FOR J COVERS; 0.5 FT FOR HM AND S COVERS; 0.83 FT FOR TYPE V; 0.67 FT FOR TYPE B; 0 FT FOR TYPE MS COVERS
   ADJUSTMENT (RINGS) = 0.33 FT FOR B, V, J, HM AND S COVERS; 0 FT FOR TYPE MS COVERS
6) FLAT TOP SLAB WITH CENTERED 21" X 24" RECTANGULAR OPENING REQUIRED ON ALL MANHOLES WITH TYPE V INLET COVERS
7) FLAT TOP SLAB WITH CENTERED 21" X 24" RECTANGULAR OPENING REQUIRED ON TYPE 3 INLETS WITH TYPE V INLET COVERS
8) FLAT TOP SLAB WITH CENTERED 24" X 36" RECTANGULAR OPENING REQUIRED ON MANHOLES WITH TYPE HM INLET COVERS
9) FLAT TOP SLAB WITH CENTERED 26" X 26" RECTANGULAR OPENING REQUIRED ON MANHOLES WITH TYPE S INLET COVERS

## PIPE UNDERDRAIN

| CATEGORY | ROADWAY | STATION | TO | STATION | OFFSET | 612.0106 PIPE UNDERDRAIN 6-INCH LF | 645.0111 GEOTEXTILE FABRIC TYPE DF SCHEDULE A SY |
|---|---|---|---|---|---|---|---|
| 0010 | USH 2/53 | 105+69 | | 106+16 | LT | 47 | 251 |
| | | 102+00 | | 105+50 | RT | 350 | 1,867 |
| | SUBTOTAL | | | | | | 1,867 |
| | 18th Avenue | 200+64 | | 203+51 | LT | 287 | 1,531 |
| | | 200+64 | | 203+62 | RT | 298 | 1,589 |
| | SUBTOTAL | | | | | | 1,589 |
| | TOTAL | | | | | 935 | 3,456 |

## ADJUST MANHOLE AND INLET COVERS

| CATEGORY | LOCATION | 611.8110 ADJUSTING MANHOLE COVERS EACH | 611.8115 ADJUSTING INLET COVERS EACH |
|---|---|---|---|
| 0010 | 18TH AVE | 7 | 1 |
| | TOTAL | 7 | 1 |

3

| Division | From/To Station | Location | Common Excavation (1) | Item # 205.0100 | Salvaged/Unusable Pavement Material (4) | Available Material (5) | Reduced EBS in Fill (6) | Expanded EBS Backfill (7) | Unexpanded Fill (8) | Expanded Fill (9) | Mass Ordinate +/- (10) | Waste (11) | Borrow (12) | Comment: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cut (2) | EBS Excavation (3) | | | Factor 0.80 | Factor 1.30 | | Factor 1.20 | | | Item # 208.0100 | |
| | 200+55 - 204+81 | 18th AVE | 1,931 | 480 | 411 | 1,520 | 384 | 624 | 512 | 615 | 906 | 1,796 | 624 | |
| 1 | 102+00 - 103+50 | USH 2 | 472 | 0 | 0 | 472 | 0 | 0 | 0 | 0 | 472 | 472 | 0 | |
| | 106+06 - 106+74 | USH 2 | 196 | 0 | 0 | 196 | 0 | 0 | 0 | 0 | 196 | 196 | 0 | watermain excavation material |
| Division 1 Subtotal | | | 2,599 | 480 | 411 | 2,189 | 384 | 624 | 512 | 615 | 1,574 | 2,464 | 624 | |
| | | Subtotal Common Excavation | | 3,081 | | | | | | | | | | |
| Grand Total | | | 2,599 | 480 | 411 | 2,189 | 384 | 624 | 512 | 615 | 1,574 | 2,464 | 624 | |
| | | Total Common | | 3,081 | | | | | | | | | | |

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unusable Pavement Material is included in Cut unless existing pavement is below subgrade. (Existing Pavement EBS)
3) EBS Excavation to be backfilled with Select Borrow
4) Existing pavement volume (CY), not available for fill
5) Available Material = Cut - Salvaged/Unusable Pavement Material (0 if negative)
6) Reduced EBS in Fill - For Information Only. Excavated EBS material is assumed to be unused in Fills including outside the 1:1 slope. EBS in Fill Reduction factor = 0.8
7) Expanded EBS Backfill - This is to be filled with Select Borrow material. EBS Backfill Factor = 1.3. Item number 208.1100
8) Unexpanded Fill = Fill from Endarea Earthwork Volumes + Existing Pavement EBS
9) Fill Factor = 1.20, Expanded Fill = Unexpanded Fill x 1.20
10) Mass Ordinate = (Available Material) - (Expanded Fill). Plus quantity indicates an excess of material within the Division. Minus quantity indicates a shortage of material within the Division.
11) Waste = EBS + Salvaged/Unusable Pavement Material + (Mass Ordinate if positive within Division)
12) Borrow = Mass Ordinate if negative within Division

3

## DRILLED TIE BARS

| CATEGORY | STATION | LOCATION | 416.0610 DRILLED TIE BARS EACH |
|---|---|---|---|
| 0010 | USH 2 | | |
| | 102+00 - 105+69 | RT | 246 |
| | 202+37 - 203+48 | RT | 37 |
| | 202+37 - 203+48 | LT | 37 |
| | SUBTOTAL | | 320 |
| | 18TH AVE | | |
| | 204+28 - 204+53 | RT | 8 |
| | SUBTOTAL | | 8 |
| | TOTAL | | 328 |

## DRILLED DOWEL BARS

| CATEGORY | LOCATION | 416.0620 DRILLED DOWEL BARS EACH |
|---|---|---|
| 0010 | USH 2 SOUTHBOUND | 173 |
| | 18TH AVE | |
| | 202+39 - 203+63 | 396 |
| | 204+28 - 204+53 | 39 |
| | TOTAL | 608 |

*NOTE: THIS IS A PRELIMINARY ESTIMATE. EXACT QUANTITIES WILL BE KNOWN WHEN PAVEMENT JOINT LAYOUT IS DETERMINED.

## SAW CUTTING ITEMS

| CATEGORY | STATION | LOCATION | 690.0150 SAWING ASPHALT LF | 690.0250 SAWING CONCRETE LF |
|---|---|---|---|---|
| 0010 | USH 2 | | | |
| | 102+00 | RT TURN LANE | -- | 520 |
| | 105+69 | MEDIAN | -- | 127 |
| | SUBTOTAL | | -- | 647 |
| | 18TH AVE | | | |
| | 200+63 | LIMIT | 110 | -- |
| | 204+27 | LIMIT | -- | 98 |
| | 204+79 | LIMIT | 75 | -- |
| | SUBTOTAL | | 185 | 98 |
| | TOTAL | | 185 | 745 |

3

## CONSTRUCTION STAKING

| CATEGORY | LOCATION | 650.4000 STORM SEWER EACH | 650.4500 SUBGRADE LF | 650.5000 BASE LF | 650.5500 CURB GUTTER AND CURB & GUTTER LF | 650.7000 CONCRETE PAVEMENT LF | 650.8500 CONSTRUCTION STAKING ELECTRICAL INSTALLATION (I.D. 1195-00-73) LS | 650.9910 SUPPLEMENTAL CONTROL (I.D. 1195-00-73) LS | 650.9920 SLOPE STAKES LF | SPV.0105.01 CONCRETE PAVEMENT JOINT LAYOUT LS |
|---|---|---|---|---|---|---|---|---|---|---|
| 0010 | USH 2 | | | | | | | | | |
| | 102+00 - 105+69 | 2 | 369 | | | 369 | 1 | 1 | 369 | 1 |
| | SUBTOTAL | 2 | 369 | -- | -- | 369 | 1 | 1 | 369 | 1 |
| | 18TH AVE | | | | | | | | | |
| | 200+65 - 202+37 | -- | 172 | 172 | 365 | -- | -- | -- | 172 | -- |
| | 202+37 - 203+63 | 2 | 126 | | | 126 | -- | -- | 126 | |
| | 204+28 - 204+81 | -- | 53 | 53 | 114 | -- | -- | -- | 53 | |
| | SUBTOTAL | 2 | 351 | 225 | 479 | 126 | -- | -- | 351 | -- |
| | TOTAL | 4 | 720 | 225 | 479 | 495 | 1 | 1 | 720 | 1 |

3

## MAINTENANCE AND REPAIR OF HAUL ROADS (1195-00-73)

| CATEGORY | LOCATION | 618.0100 MAINTENANCE AND REPAIR OF HAUL ROADS EACH |
|---|---|---|
| 0010 | USH 2 (1195-00-73) | 1 |
| | TOTAL | 1 |

## TRAFFIC CONTROL FIXED MESSAGE SIGN

| CATEGORY | SIGN NO. | SIGN CODE | SIGN MESSAGE | SIGN SIZE IN | | | NUMBER OF LOCATIONS | 643.1000 TRAFFIC CONTROL FIXED MESSAGE SIGN SF |
|---|---|---|---|---|---|---|---|---|
| 0010 | 1 | W1-6 (MOD) | - | 60 | X | 36 | 3 | 45 |
| | 8 | M1-94 | 18TH AVE | 36 | X | 12 | 16 | 48 |
| | 9 | M1-94 | STINSON AVE | 42 | X | 12 | 2 | 7 |
| | TOTAL | | | | | | | 100 |

## FIELD OFFICE

| CATEGORY | LOCATION | 642.5001 FIELD OFFICE TYPE B EACH |
|---|---|---|
| 0010 | USH 2 | 1 |
| | TOTAL | 1 |

3

## TRAFFIC CONTROL ITEMS

| CATEGORY | STAGE | LOCATION | STAGE DURATION DAYS | 643.0300 TRAFFIC CONTROL DRUMS EACH | DAYS | 643.0420 TRAFFIC CONTROL BARRICADES TYPE III EACH | DAYS | 643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A EACH | DAYS | 643.0900 TRAFFIC CONTROL SIGNS EACH | DAYS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0010 | 1 | USH 2 | 5 | 50 | 250 | 3 | 15 | 56 | 280 | 6 | 30 |
| | | 18TH Ave | | 27 | 135 | | | 27 | 135 | 7 | 35 |
| | | UNDISTRIBUTED | | | | | 2 | | 28 | | 3 |
| | | SUBTOTAL | | 77 | 385 | 3 | 17 | 83 | 443 | 13 | 68 |
| | 2 | USH 2 | 5 | 65 | 325 | 3 | 15 | 72 | 360 | 26 | 130 |
| | | 18TH Ave | | 17 | 85 | 1 | 5 | 2 | 10 | 7 | 35 |
| | | UNDISTRIBUTED | | | | | 2 | | 36 | | 13 |
| | | SUBTOTAL | | 82 | 410 | 4 | 22 | 74 | 406 | 33 | 178 |
| | 3 | USH 2 | 15 | 55 | 825 | 2 | 30 | 59 | 885 | 18 | 270 |
| | | 18TH AVE | | -- | -- | 1 | 15 | 2 | 30 | 6 | 90 |
| | | UNDISTRIBUTED | | | | | 5 | | 92 | | 36 |
| | | SUBTOTAL | | 55 | 825 | 3 | 50 | 61 | 1,007 | 24 | 396 |

## MOBILIZATION

| CATEGORY | LOCATION | 619.1000 MOBILIZATION EACH |
|---|---|---|
| 0010 | USH 2 | 0.5 |
| | TOTAL | 0.5 |

## FENCING ITEMS

| CATEGORY | STATION | 616.0700.S SAFETY FENCE LF |
|---|---|---|
| 0010 | UNDISTRIBUTED | 500 |
| | TOTAL | 500 |

3

## TRAFFIC DETOUR ITEMS

| CATEGORY | DETOUR | 643.0910.S TRAFFIC CONTROL TYPE I SIGN COVERING EACH | SPV.0060.12 TRAFFIC CONTROL COVERING SIGNS TYPE II EACH | STAGE DURATION DAYS | 643.3000 TRAFFIC CONTROL DETOUR SIGNS EACH | 643.3000 TRAFFIC CONTROL DETOUR SIGNS DAYS |
|---|---|---|---|---|---|---|
| 0010 | 18TH AVE | 1 | 1 | 15 | 10 | 150 |
| | E. 5TH STREET | | | 15 | 32 | 480 |
| | N. 22ND STREET | | | 15 | 17 | 255 |
| | N. 23RD STREET | | | 15 | 22 | 330 |
| | USH 2 | 1 | 2 | 15 | 34 | 510 |
| | TOTAL | 2 | 3 | | 115 | 1,725 |

## TRAFFIC CONTROL (1195-00-73)

| CATEGORY | LOCATION | 643.0100 TRAFFIC CONTROL EACH | 643.2000 TRAFFIC CONTROL DETOUR EACH |
|---|---|---|---|
| 0010 | USH 2 (1195-00-73) | 1 | 1 |
| | TOTAL | 1 | 1 |

## MOBILIZATION EROSION CONTROL

| CATEGORY | LOCATION | 628.1905 MOBILIZATION EROSION CONTROL EACH |
|---|---|---|
| 0010 | USH 2 (1195-00-73) | 1 |
| | TOTAL | 1 |

3

## CRACK REPAIR

| CATEGORY | LOCATION | PROJECT CONCRETE CRACK MITIGATION & REPAIR SPECIAL LS |
|---|---|---|
| 0010 | USH 2 & 18TH AVE (1195-00-73) | 1 |
| | TOTAL | 1 |

## EMERGENCY MOBILIZATION EROSION CONTROL

| CATEGORY | LOCATION | 628.1910 EMERGENCY MOBILIZATION EROSION CONTROL EACH |
|---|---|---|
| 0010 | USH 2 (1195-00-73) | 1 |
| | TOTAL | 1 |

## EROSION MATERIALS

| CATEGORY | STATION | | | LOCATION | 628.2008 EROSION MAT URBAN CLASS I TYPE B SY | 629.0210 FERTILIZER TYPE B CWT | 625.0500 SALVAGED TOPSOIL SY | 630.0140 SEEDING MIXTURE NO. 40 LB |
|---|---|---|---|---|---|---|---|---|
| 0010 | | | | | | | | |
| | USH 2 | 101+99 | - 105+87 | RT | 268 | 8 | 268 | 5 |
| | 18TH AVE | 200+66 | - 203+25 | RT | 777 | 24 | 777 | 14 |
| | | 204+29 | - 204+81 | LT | 100 | 3 | 100 | 2 |
| | Undistributed | | 10% | | | 4 | 115 | 2 |
| | TOTAL | | | | 1,145 | 40 | 1,260 | 23 |

## EROSION CONTROL ITEMS

| CATEGORY | STATION | LOCATION | 628.1104 EROSION BALES EACH | 628.7005 INLET PROTECTION TYPE A EACH | 628.7015 INLET PROTECTION TYPE C EACH |
|---|---|---|---|---|---|
| 0010 | USH 2 | | | | |
| | 101+81 | 27' RT | -- | -- | 1 |
| | 103+56 | 37' RT | -- | 2 | 2 |
| | 105+79 | 37' LT | -- | 1 | 1 |
| | 106+15 | 37' LT | -- | 1 | -- |
| | SUBTOTAL | | -- | 4 | 4 |
| | 18TH AVE | | | | |
| | 200+70 | 44' LT | -- | 1 | 1 |
| | 200+64 | 51' RT | -- | -- | 1 |
| | 202+90 | 26' LT | -- | 2 | 2 |
| | 203+03 | 23' RT | -- | 1 | 1 |
| | 203+55 | 14' RT | -- | 1 | -- |
| | 240+80 | LT & RT | 50 | -- | -- |
| | 204+65 | 21' LT | -- | 1 | 1 |
| | SUBTOTAL | | 50 | 6 | 6 |
| | TOTALS | | 50 | 10 | 10 |

## REMOVING PAVEMENT MARKINGS

| CATEGORY | STATION | | | LOCATION | 646.0600 REMOVING PAVEMENT MARKINGS * LF | 647.0955 REMOVING PAVEMENT MARKING ARROWS EACH | 647.0965 REMOVING PAVEMENT MARKING WORDS EACH | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 0010 | STAGE 1 | | | | | | | |
| | 103+54 | - | 104+69 | RT | 115 | -- | -- | MARKINGS WITHIN THE LANE SHIFT |
| | 108+11 | - | 109+35 | LT | 124 | -- | -- | LENGTH OF TAPER FOR LT TURN LANE |
| | STAGE 2 | | | | | | | |
| | 99+02 | - | 102+00 | RT | 298 | -- | -- | MARKINGS AT TAPER |
| | 102+00 | - | 105+95 | RT | 395 | -- | -- | MARKINGS BETWEEN RT AND LT LANES |
| | 104+71 | - | 106+07 | RT | 136 | 1 | 1 | STAGE 1 LANE SHIFT LINES |
| | 105+75 | - | 106+00 | RT & LT | 166 | -- | -- | STOP LINE AND CROSS WALK |
| | 106+95 | - | 107+07 | RT&LT | 172 | -- | -- | STOP LINE AND CROSS WALK |
| | 109+80 | - | 110+80 | LT | 100 | -- | -- | MARKINGS AT TAPER |
| | 107+00 | - | 109+55 | LT | 64 | 2 | 2 | MARKINGS AT TAPER |
| | STAGE 3 | | | | | | | |
| | 107+00 | - | 109+55 | LT | 245 | -- | -- | MARKINGS AT TAPER |
| | SUBTOTAL | | | | 1,815 | 3 | 3 | |
| | TOTAL | | | | 1,815 | 3 | 3 | *646.0600 LISTED UNDER TEMPORARY PAVEMENT MARKING |

## TEMPORARY PAVEMENT MARKING

| CATEGORY | STATION | | | 646.0103 PAVEMENT MARKING PAINT 4-INCH WHITE LF | 646.0600 REMOVE PAVEMENT MARKINGS * LF | REMARKS |
|---|---|---|---|---|---|---|
| 0010 | STAGE 1 | | | | | |
| | 103+54 | - | 104+69 | 230 | 230 | STAGE 1 LANE SHIFT LINES |
| | STAGE 2 | | | | | |
| | 99+02 | - | 102+00 | 300 | 300 | TAPER FROM RT LANE CLOSURE |
| | 107+10 | - | 109+55 | 245 | 245 | TAPER FROM RT LANE CLOSURE |
| | 109+80 | - | 110+80 | 100 | 100 | TAPER CLOSING LT TURN LANE |
| | SUBTOTAL | | | 875 | 875 | |
| | TOTAL | | | 875 | 875 | * ITEM LISTED UNDER REMOVING PAVEMENT MARKING |

## ERECTING CITY OWNED SIGNS

| CATEGORY | SIGN NUMBER | SPV.0060.11 ERECTING CITY OWNED SIGNS TYPE II EACH | | REMARKS |
|---|---|---|---|---|
| 0010 | 100 | 1 | D3-1 | 18TH AVE E |
| | 101 | 1 | D3-1 | EAST 2ND ST |
| | SUBTOTAL | 2 | | |
| | TOTAL | 2 | | |

## PAVEMENT MARKING

| CATEGORY | STATION | 646.0106 EPOXY 4-INCH WHITE LF | 646.0106 EPOXY 4-INCH YELLOW LF | 646.0106 EPOX 4-INCH TOTALS | 646.0126 EPOXY 8-INCH WHITE LF | 647.0166 ARROWS EPOXY TYPE 2 EACH | 647.0356 WORDS EPOXY EACH | 647.0456 CURB EPOXY LF | 647.0606 ISLAND NOSE EPOXY EACH | 647.0566 STOP LINE EPOXY 18-INCH LF | 647.0766 CROSSWALK EPOXY 6-INCH WHITE LF | 647.0776 CROSSWALK EPOXY 12-INCH WHITE LF | 647.0796 CROSSWALK EXPOXY 24-INCH WHITE | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0010 | USH 2 | | | | | | | | | | | | | |
| | 99+02 - 105+95 | 604 | -- | 604 | 235 | 2 | 1 | 35 | 1 | 44 | 163 | 400 | 145 | USH 2 SB LANE LINES |
| | 107+00 - 109+80 | 281 | -- | 281 | 281 | 2 | 1 | -- | -- | 38 | -- | -- | -- | USH 2 NB LANE LINES |
| | SUBTOTAL | 885 | -- | 885 | 516 | 4 | 2 | 35 | 1 | 82 | 163 | 400 | 145 | |
| | 18TH AVE | | | | | | | | | | | | | |
| | 200+65 - 203+50 | 526 | 496 | 1,022 | -- | -- | -- | 15 | 1 | 132 | 132 | 320 | 95 | 18TH AVE |
| | 204+28 - 204+81 | -- | 53 | 53 | -- | -- | -- | -- | -- | 12 | -- | -- | 115 | 18TH AVE |
| | SUBTOTAL | 526 | 549 | 1,075 | -- | -- | -- | 15 | 1 | 144 | 132 | 320 | 210 | |
| | TOTAL | 1,411 | 549 | 1,960 | 516 | 4 | 2 | 50 | 2 | 226 | 295 | 720 | 355 | |

## PERMANENT SIGNING

| CATEGORY | SIGN NUMBER | SIGN CODE | SIGN SIZE INCH | 637.0202 SIGNS REFLECTIVE TYPE II SF | 634.0614 POSTS WOOD 4x6-INCH x 14-FT EACH | 637.0402 SIGNS REFLECTIVE FOLDING TYPE II SF | 638.3000 REMOVING SMALL SIGN SUPPORTS EACH | 638.2602 REMOVING SIGNS TYPE II EACH | 638.2102 MOVING SIGNS TYPE II EACH | SIGN MOUNTED ON SAME POST AS SIGN # | SIGN MESSAGE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0010 | USH 2 | | | | | | | | | | |
| USH 2 | 100 | D3-1 | | | -- | | | 1 | -- | 101 | 18TH AVE E |
| | 101 | D3-1 | | | -- | | | 1 | -- | 100 | EAST 2ND ST |
| | 102 | M1-94H | 78 X 18 | 9.75 | -- | | | | -- | -- | 18TH AVE E |
| | 103 | R4-7 | 24 X 30 | 5.00 | -- | | | | -- | -- | KEEP RIGHT |
| | 104 | R1-1F | 36 X 36 | | -- | 7.46 | | | -- | -- | FOLDING STOP SIGN |
| | 105 | R1-1F | 36 X 36 | | -- | 7.46 | | | -- | -- | FOLDING STOP SIGN |
| | 106 | R1-1F | 36 X 36 | | -- | 7.46 | | | -- | -- | FOLDING STOP SIGN |
| | 107 | R1-1F | 36 X 36 | | -- | 7.46 | | | -- | -- | FOLDING STOP SIGN |
| | 108 | M1-94H | 70 X 18 | 8.75 | -- | | | | -- | -- | 18TH AVE E |
| | 109 | R4-7 | 24 X 30 | 5.00 | -- | | | | -- | -- | KEEP RIGHT |
| | 110 | R3-8L | 54 X 30 | 11.25 | 2 | | | | -- | -- | ONLY SIGN |
| | 111 | D9-2 | 36 X 36 | 9.00 | 1 | | 1 | 1 | -- | 112 | HOSPITAL |
| | 112 | MB6-1 | 30 X 30 | 6.25 | -- | | | 1 | -- | 111 | DIRECTIONAL ARROW |
| | 113 | JV1-2 | 36 X 102 | 25.50 | -- | | | 1 | -- | | USH 2 WEST |
| 18TH AVE | 200 | R2-1 | | -- | -- | | 1 | | 1 | 201 | SPEED LIMIT 25 |
| | 201 | R10-64 | | -- | -- | | | | 1 | 200 | NO ENGINE BRAKING EXCEPT IN EMERGENCY |
| | 202 | R3-8A | 36 X 30 | 7.50 | 1 | | | | -- | -- | ONLY SIGN |
| | 203 | R11-4 | 60 X 30 | 12.50 | 2 | | | 1 | | | ROAD CLOSED TO THRU TRAFFIC |
| | TOTAL | | | 101 | 6.00 | 30 | 2.00 | 6.00 | 2.00 | | |

3

## CONDUIT

| CATEGORY | FROM | TO | 652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF | 653.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH LF |
|---|---|---|---|---|
| 0010 | USH 2 & 18TH AVE | | | |
| | CB1 | PB1 | --- | 75 |
| | PB1 | PB2 | 285 | --- |
| | PB1 | PB3 | --- | 92 |
| | PB1 | SB1 | 8 | --- |
| | PB3 | SB2 | 15 | --- |
| | PB3 | PB4 | --- | 140 |
| | PB4 | SB3 | 20 | --- |
| | PB4 | SB4 | 5 | --- |
| | PB4 | PB5 | 33 | --- |
| | PB4 | PB7 | --- | 204 |
| | PB5 | PB6 | 130 | --- |
| | PB7 | SB5 | 22 | --- |
| | PB7 | SB6 | 5 | --- |
| | PB7 | SB7 | 20 | --- |
| | PB7 | PB8 | 313 | --- |
| | PB7 | PB9 | --- | 120 |
| | PB9 | SB8 | 6 | --- |
| | PB9 | PB10 | --- | 132 |
| | PB10 | SB9 | 37 | --- |
| | PB10 | SB10 | 4 | --- |
| | PB10 | PB11 | --- | 128 |
| | PB11 | SB11 | 6 | --- |
| | PB11 | CB1 | --- | 42 |
| INTERSECTION TOTALS | | | 909 | 933 |

## SIGNAL MOUNTING HARDWARE

| CATEGORY | LOCATION | 658.5069 SIGNAL MOUNTING HARDWARE LS |
|---|---|---|
| 0010 | USH 2 & 18TH AVE | 1 |
| | INTERSECTION TOTAL | 1 |

3

## CONCRETE BASES

| CATEGORY | NUMBER | LOCATION | 654.0101 CONCRETE BASES TYPE 1 EACH | 654.0110 CONCRETE BASES TYPE 10 EACH | 654.0113 CONCRETE BASES TYPE 13 EACH | 654.0217 CONCRETE CONTROL CABINET BASES TYPE 9 SPECIAL EACH |
|---|---|---|---|---|---|---|
| 0010 | USH 2 & 18TH AVE | | | | | |
| | SB1 | 107+00, 40.4' LT | 1 | -- | -- | -- |
| | SB2 | 107+15, 0' | 1 | -- | -- | -- |
| | SB3 | 107+00, 44.0' RT | -- | -- | 1 | -- |
| | SB4 | 106+77, 52.3' RT | 1 | -- | -- | -- |
| | SB5 | 105+99, 66.8' RT | -- | 1 | -- | -- |
| | SB6 | 105+83, 52.6' RT | 1 | -- | -- | -- |
| | SB7 | 105+61, 43.2' RT | 1 | -- | -- | -- |
| | SB8 | 105+86, 6.1' LT | 1 | -- | -- | -- |
| | SB9 | 105+83, 41.1' LT | -- | -- | 1 | -- |
| | SB10 | 106+16, 60.5' LT | 1 | -- | -- | -- |
| | SB11 | 106+73, 58.7' LT | -- | 1 | -- | -- |
| | CB1 | 106+85, 51.6' LT | -- | -- | -- | 1 |
| | INTERSECTION TOTALS | | 7 | 2 | 2 | 1 |

## TRAFFIC SIGNAL AND PEDESTRIAN FACES, PUSH BUTTONS, AND BACKPLATES

| CATEGORY | SIGNAL BASE NUMBER | 658.0110 TRAFFIC SIGNAL FACE 3 - 12 INCH VERTICAL EACH | 658.0115 TRAFFIC SIGNAL FACE 4 - 12 INCH VERTICAL EACH | 658.0215 BACKPLATES SIGNAL FACE 3 SECTION 12 - INCH EACH | 658.0220 BACKPLATES SIGNAL FACE 4 SECTION 12 - INCH EACH | 658.0416 PEDESTRIAN SIGNAL FACE 16-INCH EACH | 658.0500 PEDESTRIAN PUSH BUTTONS EACH | 658.0625 LED MODULES 12-INCH GREEN ARROW EACH | 658.0620 LED MODULES 12-INCH YELLOW ARROW EACH | 658.0615 LED MODULES 12-INCH RED ARROW EACH | 658.0610 LED MODULES 12-INCH GREEN BALL EACH | 658.0605 LED MODULES 12-INCH YELLOW BALL EACH | 658.0600 LED MODULES 12-INCH RED BALL EACH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0010 | USH 2 & 18TH | | | | | | | | | | | | |
| | SB1 | 2 | -- | 2 | -- | -- | -- | -- | -- | -- | 2 | 2 | 2 |
| | SB2 | -- | 1 | -- | 1 | -- | -- | 1 | 2 | 1 | -- | -- | -- |
| | SB3 | 2 | -- | 2 | -- | -- | -- | -- | -- | -- | 2 | 2 | 2 |
| | SB4 | 2 | -- | 2 | -- | 1 | 1 | -- | -- | -- | 2 | 2 | 2 |
| | SB5 | 1 | -- | 1 | -- | -- | 1 | -- | -- | -- | 1 | 1 | 1 |
| | SB6 | -- | -- | -- | -- | 2 | 1 | -- | -- | -- | -- | -- | -- |
| | SB7 | 1 | 1 | 1 | 1 | -- | -- | 1 | 2 | 1 | 1 | 1 | 1 |
| | SB8 | -- | 1 | -- | -- | 2 | 1 | -- | -- | -- | -- | -- | -- |
| | SB9 | 2 | -- | 2 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 2 |
| | SB10 | 2 | -- | 2 | -- | -- | -- | -- | 2 | 1 | 1 | 1 | 1 |
| | SB11 | 3 | -- | 3 | -- | -- | -- | -- | 2 | 1 | 2 | 2 | 2 |
| | | 15 | 3 | 15 | 3 | 6 | 5 | 3 | 10 | 5 | 13 | 13 | 13 |

## CAST BASES, POLES, TROMBONE ARMS, LUMINAIRES

| CATEGORY | NUMBER | 657.0100 PEDESTAL BASES EACH | 657.0415 TRAFFIC SIGNAL STANDARDS ALUMINUM 11 - FT EACH | 657.0420 TRAFFIC SIGNAL STANDARDS ALUMINUM 13 - FT EACH | 657.1350 INSTALL POLES TYPE 10 EACH | 657.1360 INSTALL POLES TYPE 13 EACH | 657.1525 INSTALL MONOTUBE ARMS 25-FT EACH | 657.1535 INSTALL MONOTUBE ARMS 35-FT EACH | 659.0115 LUMINAIRES UTILITY HPS 150 WATTS EACH | 657.1815 INSTALL LUMINAIRE ARMS STEEL 15-FT EACH |
|---|---|---|---|---|---|---|---|---|---|---|
| 0010 | USH 2 & 18TH AVE | | | | | | | | | |
| | SB1 | 1 | -- | 1 | -- | -- | -- | -- | -- | -- |
| | SB2 | 1 | -- | 1 | -- | -- | -- | -- | -- | -- |
| | SB3 | -- | -- | -- | -- | 1 | -- | 1 | 1 | 1 |
| | SB4 | 1 | -- | 1 | -- | -- | -- | -- | -- | -- |
| | SB5 | -- | -- | -- | 1 | -- | 1 | -- | 1 | 1 |
| | SB6 | 1 | 1 | -- | -- | -- | -- | -- | -- | -- |
| | SB7 | 1 | -- | 1 | -- | -- | -- | -- | -- | -- |
| | SB8 | 1 | -- | 1 | -- | -- | -- | -- | -- | -- |
| | SB9 | -- | -- | -- | -- | 1 | -- | 1 | 1 | 1 |
| | SB10 | 1 | -- | 1 | -- | -- | -- | -- | -- | -- |
| | SB11 | -- | -- | -- | 1 | -- | 1 | -- | 1 | 1 |
| | | 7 | 1 | 6 | 2 | 2 | 2 | 2 | 4 | 4 |

3

## CONTROL CABINET

| CATEGORY | NUMBER | LOCATION | 656.0200 ELECTRICAL SERVICE METER BREAKER PEDESTAL (USH 2 & 18TH AVE) LS |
|---|---|---|---|
| 0010 | USH 2 & 18TH AVE | | |
| | CB1 | 106+85, 51.6' LT | 1 |
| | INTERSECTION TOTAL | | 1 |

## PULL BOXES STEEL

| CATEGORY | NUMBER | LOCATION | 653.0135 PULL BOXES STEEL 24 X 36 - INCH EACH | 653.0140 PULL BOXES STEEL 24 X 42 - INCH EACH |
|---|---|---|---|---|
| 0010 | USH 2 & 18TH AVE | | | |
| | PB1 | 107+08, 40.4' LT | -- | 1 |
| | PB2 | 109+91, 41.6' LT | 1 | -- |
| | PB3 | 107+30, 0' | -- | 1 |
| | PB4 | 106+81, 48.3' RT | -- | 1 |
| | PB5 | 106+71, 80.0' RT | 1 | -- |
| | PB6 | 106+75, 210.0' RT | 1 | -- |
| | PB7 | 105+74, 53.4' RT | -- | 1 |
| | PB8 | 102+54, 36.0' RT | 1 | -- |
| | PB9 | 105+80, 6.1' LT | -- | 1 |
| | PB10 | 106+13, 63.3' LT | -- | 1 |
| | PB11 | 106+77, 63.5' LT | -- | 1 |
| | INTERSECTION TOTALS | | 4 | 7 |

3

## LOOP DETECTOR SCHEDULE

| CATEGORY | LOOP NUMBER | HOME RUN PB | LOCATION* | SIZE (FT)X(FT) | NO. OF TURNS | PAVEMENT TYPE | 652.0800 CONDUIT LOOP DETECTOR LF | 655.0700 LOOP DETECTOR LEAD IN CABLE LF* | 655.0800 LOOP DETECTOR WIRE LF | 652.0900 LOOP DETECTOR SLOTS LF | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0010 | JSH 2 & 18TH AVE | | | | | | | | | | |
| | 11 | PB3 | STA 107+33.32, 6.75' LT | 6X20 | 2 | CONCRETE | 64 | 144 | 140 | 64 | SEE SDD |
| | 12 | PB3 | STA 107+05.32, 6.69' LT | 6X20 | 2 | CONCRETE | 62 | 144 | 134 | 62 | SEE SDD |
| | 21 | PB8 | STA 102+62.46, 13.44' LT | 6X20 | 4 | CONCRETE | 78 | 1032 | 338 | 69 | SEE SDD |
| | 41 | PB6 | STA 201+78.31, 11.69' RT (18TH) | 6X20 | 3 | ASPHALT | 68 | 612 | 220 | -- | SEE SDD |
| | 42 | PB5 | STA 203+01.00, 5.90' RT (18TH) | 6X20 | 3 | CONCRETE | 96 | 352 | 332 | -- | SEE SDD |
| | 43 | PB5 | STA 203+30.85, 5.67' RT (18TH) | 6X20 | 3 | CONCRETE | 92 | 352 | 316 | -- | SEE SDD |
| | 44 | PB5 | STA 203+31.08, 17.92 (18TH) | 6X20 | 3 | CONCRETE | 68 | 352 | 220 | -- | SEE SDD |
| | 45 | PB5 | STA 203+01.20, 18.18' RT (18TH) | 6X20 | 3 | CONCRETE | 84 | 352 | 284 | -- | SEE SDD |
| | 61 | PB2 | STA 109+90.41, 25.12' LT | 6X20 | 4 | CONCRETE | 66 | 620 | 278 | 63 | SEE SDD |
| | 81 | PB10 | STA 204+42.92, 9.79' LT (18TH) | 6X6 | 2 | ASPHALT | 62 | 156 | 162 | -- | SEE SDD |
| | 82 | PB10 | STA 204+58.13, 10.10' LT (18TH) | 6X6 | 2 | CONCRETE | 58 | 156 | 150 | -- | SEE SDD |
| | INTERSECTION TOTALS | | | | | | 798 | 4116 | 2574 | 258 | |

*ITEM LISTED IN TRAFFIC SIGNAL CABLE NO. 14 (ABOVE GROUND)

## TRAFFIC SIGNAL CABLE NO. 14 (ABOVE GROUND)

| CATEGORY | FROM | TO | 655.0230 CABLE TRAFFIC SIGNAL 5 - 14 AWG LF | 655.0700 LOOP DETECTOR LEAD IN CABLE LF* |
|---|---|---|---|---|
| 0010 | USH 2 & 18TH AVE | | | |
| | SB1 | HEAD 2 | 17 | -- |
| | SB1 | HEAD 5 | 17 | -- |
| | SB2 | HEAD 8 | 17 | -- |
| | SB3 | HEAD 3 | 60 | -- |
| | SB3 | HEAD 4 | 48 | -- |
| | SB4 | HEAD 11 | 17 | -- |
| | SB4 | HEAD 16 | 17 | -- |
| | SB4 | HEAD 22 | 15 | -- |
| | SB4 | BUTTON | -- | 6 |
| | SB5 | HEAD 17 | 50 | -- |
| | SB5 | BUTTON | -- | 6 |
| | SB6 | HEAD 21 | 15 | -- |
| | SB6 | HEAD 84 | 15 | -- |
| | SB6 | BUTTON | -- | 6 |
| | SB7 | HEAD 1 | 17 | -- |
| | SB7 | HEAD 9 | 17 | -- |
| | SB8 | HEAD 82 | 15 | -- |
| | SB8 | HEAD 83 | 15 | -- |
| | SB8 | BUTTON | -- | 6 |
| | SB9 | HEAD 6 | 36 | -- |
| | SB9 | HEAD 7 | 48 | -- |
| | SB9 | HEAD 10 | 60 | -- |
| | SB9 | HEAD 81 | 15 | -- |
| | SB9 | BUTTON | -- | 6 |
| | SB10 | HEAD 15 | 17 | -- |
| | SB10 | HEAD 16 | 50 | -- |
| | SB11 | HEAD 12 | 17 | -- |
| | SB11 | HEAD 13 | 38 | -- |
| | SB11 | HEAD 14 | 50 | -- |
| INTERSECTION TOTALS | | | 666 | 30 |

*ITEM LISTED IN LOOP DETECTOR SCHEDULE

## TRAFFIC SIGNAL CABLE NO. 14 (BELOW GROUND)

| CATEGORY | FROM | TO | 655.0270 CABLE TRAFFIC SIGNAL 15 - 14 AWG LF |
|---|---|---|---|
| 0010 | USH 2 & 18TH AVE | | |
| | CB1 | SB1 | 56 |
| | CB1 | SB2 | 140 |
| | CB1 | SB3 | 220 |
| | CB1 | SB4 | 206 |
| | CB1 | SB5 | 252 |
| | CB1 | SB6 | 224 |
| | CB1 | SB7 | 231 |
| | CB1 | SB8 | 228 |
| | CB1 | SB9 | 200 |
| | CB1 | SB10 | 144 |
| | CB1 | SB11 | 42 |
| INTERSECTION TOTALS | | | 1943 |

## ELECTRIC WIRE TRAFFIC SIGNALS, NO. 10

| CATEGORY | FROM | TO | 655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG LF |
|---|---|---|---|
| 0010 | USH 2 & 18TH AVE | | |
| | GROUND (GREEN) | | |
| | CB1 | SB1 | 33 |
| | SB1 | SB2 | 67 |
| | SB2 | SB3 | 97 |
| | SB3 | SB4 | 25 |
| | SB4 | SB5 | 139 |
| | SB5 | SB6 | 42 |
| | SB6 | SB7 | 29 |
| | SB7 | SB8 | 83 |
| | SB8 | SB9 | 108 |
| | SB9 | SB10 | 42 |
| | SB10 | SB11 | 77 |
| | SB11 | CB1 | 25 |
| INTERSECTION TOTALS | | | 768 |

**LIGHTING WIRE**

| CATEGORY | FROM | TO | 655.0305 CABLE TYPE UF 2 - 12 AWG GROUNDED LF |
|---|---|---|---|
| 0010 | USH 2 & 18TH AVE | | |
| | SB3 | LUMINAIRE | 144 |
| | SB5 | LUMINAIRE | 144 |
| | SB9 | LUMINAIRE | 144 |
| | SB11 | LUMINAIRE | 144 |
| | INTERSECTION TOTALS | | 576 |

**REMOVE TRAFFIC SIGNALS**

| CATEGORY | LOCATION | SPV.0105.02 REMOVE AND SALVAGE TRAFFIC SIGNALS 18TH & USH 2 LS | SPV.0105.05 REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE LS |
|---|---|---|---|
| 0010 | USH 2 & 18TH ST | 1 | 1 |
| | INTERSECTION TOTAL | 1 | 1 |

**TEMPORARY SIGNALS FOR INTERSECTION**

| CATEGORY | LOCATION | 661.0200 TEMPORARY SIGNALS FOR INTERSECTION USH 2 AND 22ND AVE LS |
|---|---|---|
| 0010 | USH 2 & 22ND AVE | 1 |
| | INTERSECTION TOTAL | 1 |



FILE NAME : 030201_mq.ppt PLOT DATE : 2/3/2012 3:42:35 PM PLOT BY : - PLOT NAME : 030201_mq PLOT SCALE : 1:1

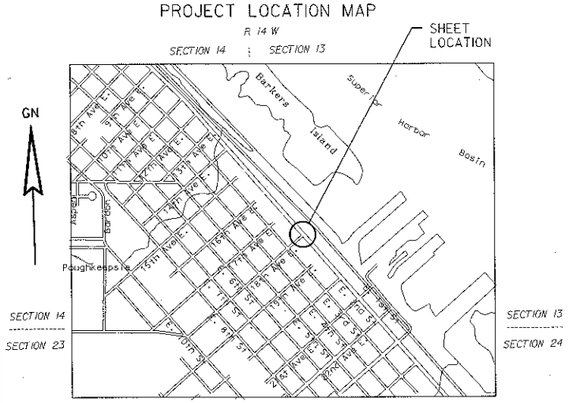
# TRANSPORTATION PROJECT PLAT NO: 1195-00-03 - 4.01

THAT PART OF GOVERNMENT LOT 1 OF SECTION 19, TOWN 49 NORTH, RANGE 13 WEST, CITY OF SUPERIOR, DOUGLAS COUNTY, WISCONSIN.

PROJECT DESCRIPTION: USH 2 SUPERIOR, EAST SECOND STREET (18TH AVENUE INTERSECTION) DOUGLAS COUNTY

THE STATE OF WISCONSIN HAS DEEMED IT NECESSARY TO DELINEATE RIGHT OF WAY INTERESTS PREVIOUSLY ACQUIRED UNDER SECTIONS 82.01 82.31(2), AND 84.09 OF THE WISCONSIN STATE STATUTES AND DOES HEREBY CERTIFY THE DEPARTMENT OF TRANSPORTATION HAS SURVEYED THE HIGHWAY RIGHT OF WAY; THAT THIS PLAT IS A TRUE AND CORRECT REPRESENTATION OF THE EXTERIOR BOUNDARIES OF THE LAND SURVEYED AND SHOWS ACCURATE MEASUREMENTS THEREOF.

## PROJECT LOCATION MAP




NOT TO SCALE

| USH 53 STATION OFFSET TABLE | | |
|---|---|---|
| Point | Station | Offset |
| 277 | 105+85 | 42.27' LT |
| 284 | 105+50 | 52.00' RT |
| 285 | 103+50 | 52.00' RT |
| 286 | 101+95 | 40.00' RT |
| 287 | 101+95 | 36.67' RT |
| 289 | 102+25 | 43.25' LT |
| 290 | 105+15.55 | 42.50' LT |
| 292 | 107+06.25 | 41.85' LT |
| 294 | 107+05.98 | 38.15' RT |

| 18TH AVE. STATION OFFSET TABLE | | |
|---|---|---|
| Point | Station | Offset |
| 278 | 204+90 | 50.00' LT |
| 279 | 204+90 | 35.66' LT |
| 282 | 202+38.23 | 36.26' LT |
| 283 | 202+91.17 | 41.14' LT |
| 291 | 204+90 | 64.14' RT |
| 292 | 204+31.73 | 64.06' RT |
| 293 | 203+89.88 | 63.99' RT |
| 294 | 203+51.73 | 63.93' RT |
| 295 | 202+36.28 | 63.77' RT |

| PROPOSED RW COURSE TABLE | | | |
|---|---|---|---|
| From | To | Direction | Distance |
| 2 | 274 | S00°27'54"E | 582.10' |
| 274 | 275 | N89°32'06"E | 541.63' |
| 275 | 51 | S41°09'34"E | 8.43' |
| 51 | 288 | S41°10'48"E | 21.57' |
| 288 | 289 | N48°49'12"E | 43.25' |
| 289 | 290 | S41°01'53"E | 290.55' |
| 290 | 277 | S41°01'53"E | 69.42' |
| 277 | 278 | N55°56'42"E | 58.53' |
| 278 | 279 | S41°07'04"E | 14.14' |
| 279 | 280 | S41°07'04"E | 35.86' |
| 280 | 291 | S41°07'04"E | 64.14' |
| 291 | 292 | S48°58'07"W | 58.27' |
| 292 | 293 | S48°58'07"W | 41.85' |
| 293 | 294 | S48°58'07"W | 38.15' |
| 294 | 295 | S48°58'07"W | 111.56' |
| 295 | 57 | N42°51'58"W | 63.80' |
| 57 | 282 | N42°51'58"W | 36.26' |
| 282 | 283 | N43°42'06"E | 54.27' |
| 284 | 285 | N61°11'16"W | 200.04' |
| 285 | 286 | N36°46'09"W | 155.48' |
| 286 | 287 | N48°50'26"E | 3.33' |
| 287 | 275 | N48°50'26"E | 36.67' |

| FEE CURVE TABLE - CURVE 283-284 | |
|---|---|
| RADIUS | 51.025' |
| DELTA | 84°53'22"LT |
| ARC LENGTH | 75.598' |
| CHORD BEARING | N01°15'25"E |
| CHORD LENGTH | 68.87' |

| BASIS OF EXISTING RW | |
|---|---|
| ROAD | DOCUMENT |
| 18TH STREET | TOWNSITE OF SUPERIOR PLAT<br>DOT PROJECT 1190-07-21 |
| USH 53 | TOWNSITE OF SUPERIOR PLAT<br>DOT PROJECT 1190-07-21 |

## CONVENTIONAL SIGNS AND ABBREVIATIONS

| | | | |
|---|---|---|---|
| ACCESS RIGHTS | A.R. | NO ACCESS (BY STATUTORY AUTHORITY) | ********** |
| ACRES | AC | PARCEL NUMBER | (5) |
| AND OTHERS | ET. AL. | PROPERTY LINE | P.L. |
| CENTERLINE | ℄ | PROPERTY LINE | ——.—— |
| CENTRAL ANGLE OR DELTA | Δ | PROPOSED OR NEW R/W LINE | ———— |
| CHORD | C | QUARTER LINE | ———— |
| DEED | D | RADIUS OR RANGE | R |
| DOCUMENT | DOC. | RIGHT OF WAY POINT | 870○ |
| EASEMENT LINE | ———— | RIGHT OF WAY POINT (MONUMENTED) | BST● |
| IRON PIPE OR PIN | I.P. ○ | REFERENCE LINE | ℞ |
| LENGTH OF CURVE | L | RESTRICTED DEVELOPMENT EASEMENT | R.D.E. |
| LIMITED EASEMENT (TEMPORARY OR PERMANENT) | ▨ | RIGHT OF WAY | R/W |
| LONG CHORD OR LAND CONTRACT | LC | SECTION | SEC. |
| LONG CHORD BEARING | LCB | SECTION LINE | ———— |
| LOT & TIE LINES | ····· | SIXTEENTH LINE | ———— |
| MONUMENT | MON. | STATION | STA. |
| NO ACCESS (BY ACQUISITION) | ▬▬▬ | TANGENT LENGTH OF CURVE OR TOWN | T. |
| NO ACCESS (BY PREVIOUS ACQUISITION) | ●●●●●● | TEMPORARY LIMITED EASEMENT | T.L.E. |

NOTES:

COORDINATES AND BEARINGS ON THE PLAT ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM, DOUGLAS COUNTY, (ENGLISH), NAD 1983 (1991) ADJUSTMENT, ALL DISTANCES ARE GROUND LENGTH.

RIGHT-OF-WAY MONUMENTS ARE ¾" X 24" REBARS AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

RIGHT-OF-WAY MONUMENTS WERE NOT SET IN THE FIELD AND ARE SHOWN ON THIS PLAT FOR ILLUSTRATIVE PURPOSES ONLY

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

PROPERTY LINES SHOWN ON THIS PLAT ARE DRAWN FROM MAPS AND DOCUMENTS OF PUBLIC RECORD AND/OR EXISTING OCCUPATIONAL LINES. EXCLUDING RIGHT-OF-WAY BOUNDARIES. THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.

FOR CURRENT ACCESS / DRIVEWAY INFORMATION CONTACT THE CITY OF SUPERIOR.

UTILITY INFORMATION IS NOT SHOWN ON THIS PLAT

THE POINT OF INTERSECTIONS DESIGNATED WITH A 200 SERIES POINT NUMBER HAVE BEEN CREATED FOR THE PURPOSE OF SHOWING A CLOSED TRAVERSE. THE POINTS ARE INTENDED TO BE ON THE RIGHT-OF-WAY LINES, BUT NOT NECESSARILY ON OR ANY PART OF A BOUNDARY, SIXTEENTH, QUARTER, OR SECTION (P.L.S.S.) LINE


SEH
421 FRENETTE DRIVE
CHIPPEWA FALLS, WI 54729


I, JASON L. CANCE, REGISTERED LAND SURVEYOR, HEREBY CERTIFY THAT IN FULL COMPLIANCE WITH THE PROVISIONS OF SECTION 84.095 OF THE WISCONSIN STATUTES AND UNDER THE DIRECTION OF THE CITY OF SUPERIOR, I HAVE SURVEYED TRANSPORTATION PROJECT PLAT 1195-00-03-4.01 AND THAT SUCH PLAT CORRECTLY REPRESENTS ALL EXTERIOR BOUNDARIES OF THE SURVEYED LAND.

DATE 2-10-2012

JASON CANCE

WISCONSIN JASON L. CANCE S-2688 CHIPPEWA FALLS WI LAND SURVEYOR

THIS PLAT IS APPROVED FOR THE CITY OF SUPERIOR.

DATE 2/14/2012

JEFF GOETZMAN

RESERVED FOR REGISTER OF DEEDS
PROJECT NUMBER 1195-00-03-4.01
AMENDMENT NO:

ACCEPTED FOR RECORDING AND FILING IN THE OFFICE OF THE REGISTER OF DEEDS IN _____ COUNTY, WISCONSIN AT ___:___ M ON _____ AS DOCUMENT #_____ AND FILED IN _____

_____
SIGNATURE OF REGISTER OF DEEDS

| BENCHMARK | | | | | |
|---|---|---|---|---|---|
| NO. | LOCATION | | | DESCRIPTION | ELEVATION |
| | STATION | OFFSET | DIR | | |
| CP7 | 106+20.52 | 111.75' | LT | --- | 634.12 |
| | 205+01.47 | 21.81' | LT | | |
| CP8 | 106+97.46 | 307.42' | RT | --- | 638.15 |
| | 200+79.33 | 46.32' | RT | | |

N

REPLACE EXISTING SIGNS

R/W

USH 2 R/L

REMOVE EXISTING PAVEMENT AND CURB & GUTTER

R/W

REPLACE EXISTING SIGNS

BEGIN PROJECT
1195-00-73
STA 102+00.00

END PROJECT
1195-00-73
STA 107+16.00

102+00 103+00 USH 2 104+00 105+00 106+00 107+00

16'

204+00

REMOVE EXISTING PAVEMENT AND CURB & GUTTER

USH 53 PGL

12'

6'

R/W

TLE

10'

R/W

TLE

REMOVE RETAINING WALL

REMOVE FENCE

REMOVE CONCRETE BASE; REPLACE TRAFFIC SIGNALS (SEE TRAFFIC SIGNAL PLANS)

18TH AVENUE

203+00

NOTE:
1. EXISTING SIGNS ON TRAFFIC SIGNALS TO BE REMOVED WILL BE REMOVED WITH THE TRAFFIC SIGNAL REMOVAL.

2. POWER POLES WILL BE RELOCATED BY SUPERIOR WATER, LIGHT AND POWER CO.

VPI STA 102+00.00
VPI EL 634.37

FINISHED PROFILE AT PGL

EXISTING GRADE AT PGL

VPI STA 105+50.48
VPI EL 635.85

0.42%

642 640 638 636 634 632 630 628

634.37 634.37 635.47 634.80 636.53 635.22 635.93 635.65

102 103 104 105 106 107

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | PLAN & PROFILE | SHEET 65 | E |
|---|---|---|---|---|---|

FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\050101_pp.dgn PLOT DATE : 1/12/2012 PLOT BY : eomari PLOT NAME : $FILE$ PLOT SCALE : 1:40

WISDOT/CADDS SHEET 40

| BENCHMARK | | | | | |
|---|---|---|---|---|---|
| NO. | LOCATION | | | DESCRIPTION | ELEVATION |
| | STATION | OFFSET | DIR | | |
| CP7 | 106+20.52 | 111.75' | LT | — | 634.12 |
| | 205+01.47 | 21.81' | LT | | |
| CP8 | 106+97.46 | 307.42' | RT | — | 638.15 |
| | 200+79.33 | 46.32' | RT | | |

BEGIN PROJECT
I.D. 1195-0073
STA. 200+54.75

RELOCATE EXISTING SIGNS
ADJUST INLET COVERS
REMOVE EXISTING PAVEMENT AND CURB & GUTTER
18TH AVE PGL
RELOCATE HYDRANT (SEE WATER UTILITY RELOCATION PLAN)
ADJUST MANHOLE COVERS
TLE
R/W
6'
4'
24'
200+00
201+00
202+00
203+00
204+00
205+00
205+12
18TH AVENUE
R/L 18TH AVE
EXISTING SIGNS TO REMAIN
REMOVE CONCRETE BASE
REPLACE TRAFFIC SIGNALS (SEE TRAFFIC SIGNAL PLANS)
USH 2
107+00
ADJUST MANHOLE COVERS
REPLACE TRAFFIC SIGNALS (SEE TRAFFIC SIGNAL PLANS)
47'
REMOVE EXISTING PAVEMENT AND CURB & GUTTER

END PROJECT
I.D. 1195-0073
STA. 204+81.03

NOTE:
1. EXISTING SIGNS ON TRAFFIC SIGNALS TO BE REMOVED WILL BE REMOVED WITH THE TRAFFIC SIGNAL REMOVAL.

2. POWER POLES WILL BE RELOCATED BY SUPERIOR WATER, LIGHT AND POWER CO.

VPI STA 200+54.75
VPI EL 637.95
FINISHED PROFILE AT R/L
-0.82%
VPI STA 203+44.47
VPI EL 635.57
VPI STA 203+62.96
VPI EL 635.67
0.54%
VPI STA 204+25.78
VPI EL 635.30
VPI STA 204+51.43
VPI EL 635.43
0.50%
3.56%
VPI STA 204+81.00
VPI EL 634.38
EXISTING PROFILE AT R/L

644 642 640 638 636 634 632 630

637.89 637.91 | 637.66 637.58 | 636.88 636.76 | 635.81 635.94 | 635.58 635.57 | 635.67 635.67 | 635.84 | 635.30 635.30 | 636.00 635.43 | 634.38 634.38 | 633.21

200 201 202 203 204

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | PLAN & PROFILE | SHEET 66 | E |
|---|---|---|---|---|---|

FILE NAME : P:\8317 E & 18th Street\CAD\18TH AVE FINAL\cds\050102_pp.dgn PLOT DATE : 1/12/2012 PLOT BY : eomari PLOT NAME : $FILE$ PLOT SCALE : 1:40

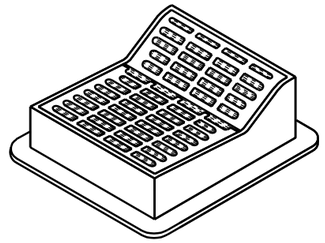
WISDOT/CADDS SHEET 40

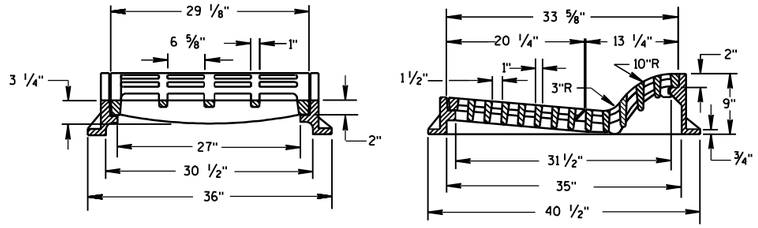
# Standard Detail Drawing List

| | |
|---|---|
| 08A5-17C | INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S |
| 08A5-17D | INLET COVER, TYPE Z MANHOLE COVERS, TYPE K, J, J-S, J-H, J-H-S, L & M |
| 08A6-4 | CATCH BASINS TYPE 1 & 2 |
| 08B7-4 | MANHOLES TYPE 2 & 3 |
| 08D1-17 | CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES |
| 08D5-14A | CURB RAMPS TYPES 1 AND 1-A |
| 08D5-14B | CURB RAMPS TYPES 2 AND 3 |
| 08D5-14C | CURB RAMPS TYPE 4A |
| 08D5-14D | CURB RAMPS TYPE 4B |
| 08D5-14E | CURB RAMPS TYPES 5, 6, 7A, 7B & 8 |
| 08D15-4B | EDGEDRAIN AND BASE AGGREGATE OPEN  GRADED |
| 08D15-4C | EDGEDRAIN AND BASE AGGREGATE OPEN  GRADED |
| 08E8-3 | TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS |
| 08E10-2 | INLET PROTECTION TYPE A, B, C AND D |
| 08F4-6 | JOINT TIES FOR CONCRETE PIPE |
| 09A1-12A | AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND  D AND TEE INTERSECTION BYPASS LANE |
| 09B2-7 | CONDUIT |
| 09B4-9 | PULL BOX |
| 09C2-6 | CONCRETE BASES, TYPES 1, 2 & 5 |
| 09C3-3 | TRANSFORMER/PEDESTAL BASES |
| 09C6-5 | CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL |
| 09C11-2 | CONCRETE BASE TYPE 10 |
| 09C12-2A | CONCRETE BASE TYPE 13 |
| 09C12-2B | CONCRETE BASE TYPE 13 |
| 09D1-4 | CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL) |
| 09D2-2 | SIGNAL OR LIGHTING CONTROL CABINET |
| 09E1-11G | HARDWARE DETAILS FOR POLE MOUNTINGS |
| 09E6-4 | TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTINGS (TYPICAL) 13 FT. OR 15 FT. |
| 09E8-4B | TYPE 10 POLE 15'-30' MONOTUBE ARM |
| 09E8-4D | TYPE 13 POLE 35'-55' MONOTBE ARM |
| 09E8-4E | GENERAL NOTES AND HARDWARE DETAILS FOR TYPE 9, 10, 12 & 13 POLES WITH MONOTUBE ARMS |
| 09F8-3 | LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW  ASPHALTIC PAVEMENT) |
| 09F12-3 | LOOP DETECTOR INSTALLED IN EXISTING CONCRETE PAVEMENT |
| 09F15-3B | LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2) |
| 09G1-3A | SPAN WIRE TEMPORARY TRAFFIC SIGNAL |
| 09G1-3B | SPAN WIRE TEMPORARY TRAFFIC SIGNAL |
| 09G1-3C | SPAN WIRE TEMPORARY TRAFFIC SIGNAL |
| 09G1-3D | SPAN WIRE TEMPORARY TRAFFIC SIGNAL |
| 09G1-3E | SPAN WIRE TEMPORARY TRAFFIC SIGNAL |
| 09G1-3F | SPAN WIRE TEMPORARY TRAFFIC SIGNAL |
| 09G1-3G | SPAN WIRE TEMPORARY TRAFFIC SIGNAL |
| 10A18-4A | LUMINAIRE ARMS, SINGLE MEMBER 6-INCH CLAMP |
| 10A18-4B | LUMINAIRE ARMS, TRUSS TYPE 6-INCH CLAMP |
| 11B1-5 | CONCRETE CORRUGATED MEDIAN |
| 11B2-2 | CONCRETE MEDIAN NOSE |
| 13C1-15 | CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES |
| 13C13-7 | URBAN DOWELED CONCRETE PAVEMENT |
| 13C18-1A | CONCRETE PAVEMENT JOINTING |
| 13C18-1B | CONCRETE PAVEMENT STEEL REINFORCEMENT |
| 13C18-1C | CONCRETE PAVEMENT JOINT TIES |
| 13C18-1D | CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES |
| 15C2-4A | BARRICADES AND SIGNS FOR MAINLINE CLOSURES |
| 15C2-4B | BARRICADES AND SIGNS FOR MAINLINE CLOSURES |
| 15C2-4C | DETOUR SIGNING FOR MAINLINE CLOSURES |
| 15C5-1 | TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS |
| 15C7-12B | PAVEMENT MARKING WORDS |
| 15C7-12C | PAVEMENT MARKING ARROWS |
| 15C8-14A | PAVEMENT MARKING (MAINLINE) |
| 15C8-14B | PAVEMENT MARKING (INTERSECTIONS) |
| 15C8-14E | PAVEMENT MARKING (LEFT TURN LANE) |
| 15C8-14F | PAVEMENT MARKING (ISLANDS, STOP LINE & CROSS WALK) |
| 15D20-1 | TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY |
| 15D30-1 | TRAFFIC CONTROL, SIDEWALK CLOSURE |



6



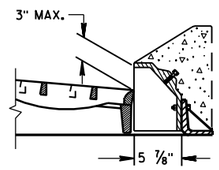



## TYPE "F"

(APPROXIMATE WEIGHT 645 LBS.)

FRAME.....300 LBS.
GRATE.....165 LBS.
GRATE.....180 LBS.

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




## ALTERNATIVE CURB BOX FOR TYPE "HM" COVER

(APPROXIMATE WEIGHT 79 LBS.)
CURB BOX.....79 LBS.

USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLE

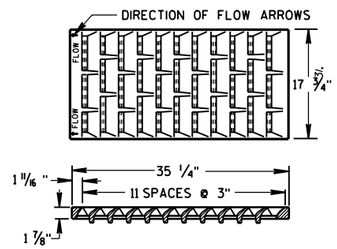
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

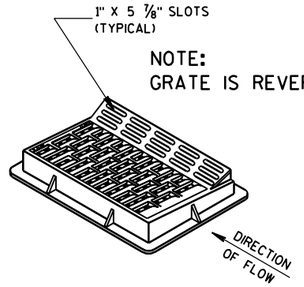
## GENERAL NOTES

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

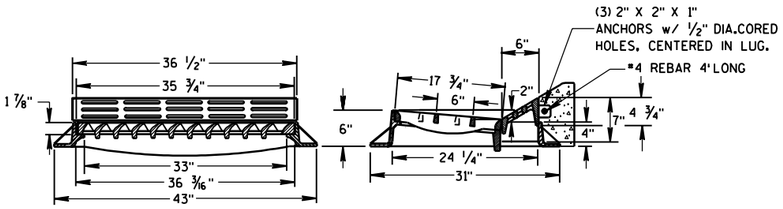
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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




NOTE:
GRATE IS REVERSIBLE.

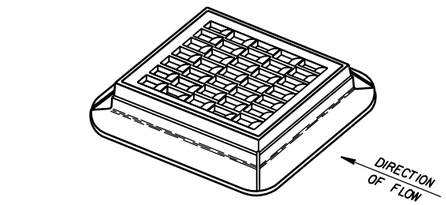


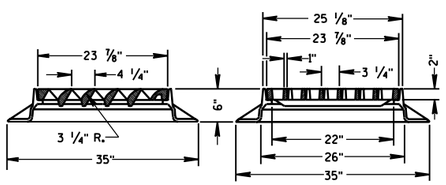

## TYPE "HM"

(APPROXIMATE WEIGHT 375 LBS.)
FRAME.....175 LBS.
GRATE.....138 LBS.
CURB BOX..... 62 LBS.

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

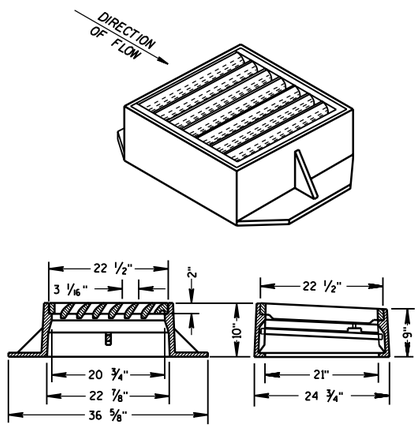
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE



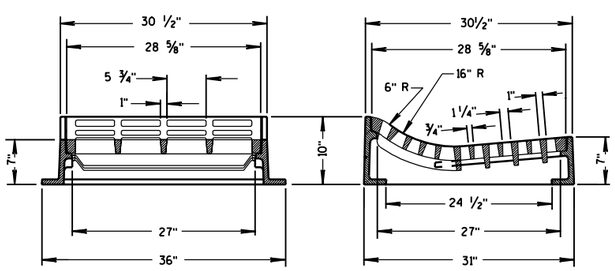

## TYPE "S"

(APPROXIMATE WEIGHT 334 LBS.)
FRAME.....165 LBS.
GRATE.....169 LBS.



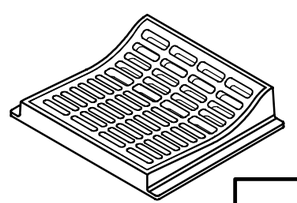

## TYPE "V"

(APPROXIMATE WEIGHT 405 LBS.)
FRAME.....270 LBS.
GRATE.....130 LBS.
SAFETY BAR..... 5 LBS.




## TYPE "T"

(APPROXIMATE WEIGHT 530 LBS.)
FRAME.....270 LBS.
GRATE.....260 LBS.
USE WITH TYPES R & T CONCRETE CURB & GUTTER, 30 INCH.



## INLET COVERS
## TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

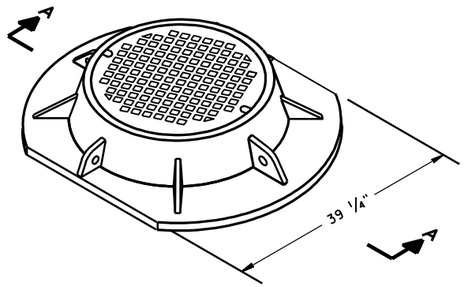
APPROVED
12/17/07
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

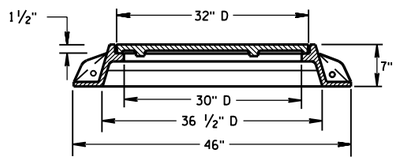
6

S.D.D. 8 A 5-17c

6

S.D.D. 8 A 5-17c



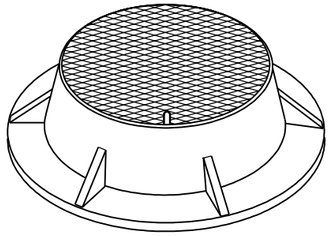



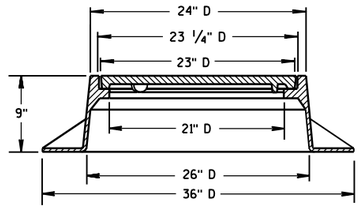

SECTION A-A

## TYPE "K"

(APPROXIMATE WEIGHT 415 LBS.)

FRAME.....210 LBS.
LID.....205 LBS.

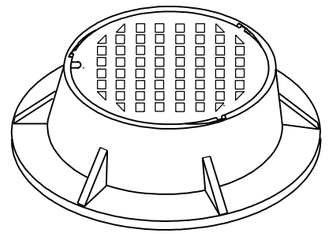


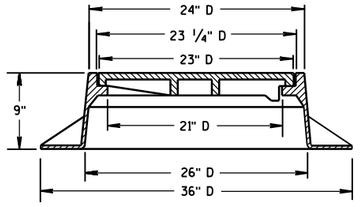



## TYPE "J"

(APPROXIMATE WEIGHT 250 LBS.)

FRAME.....135 LBS.
LID.....115 LBS.






## TYPE "J" SPECIAL

TYPE "B" NON-ROCKING SELF-SEAL LID

(APPROXIMATE WEIGHT 245 LBS.)

FRAME.....145 LBS.
LID.....100 LBS.

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

## GENERAL NOTES

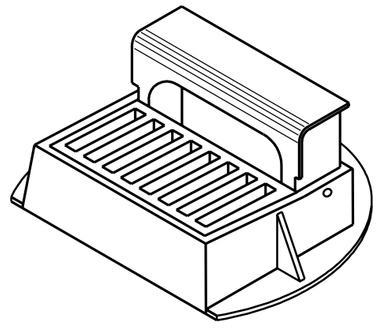
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

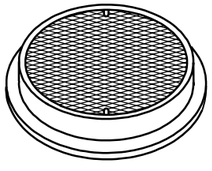
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

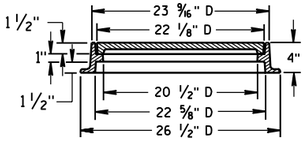
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

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

(1) MANUFACTURER MAY PROVIDE ADDITIONAL SEALS OR GASKETS.



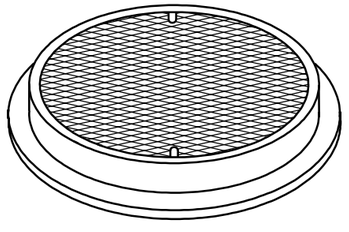


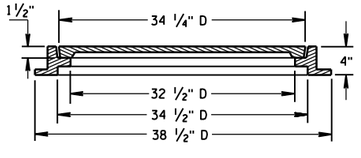



## TYPE "L"

(APPROXIMATE WEIGHT 145 LBS.)

FRAME.....75"
LID.....70"

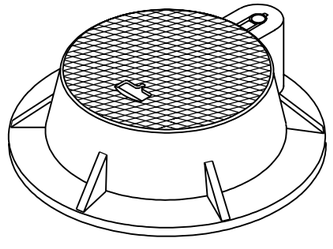


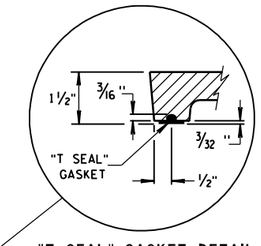



## TYPE "M"

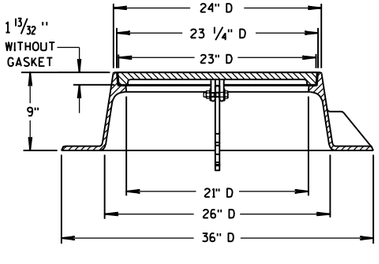
(APPROXIMATE WEIGHT 385 LBS.)

FRAME..... 125"
LID..... 260"






"T SEAL" GASKET DETAIL



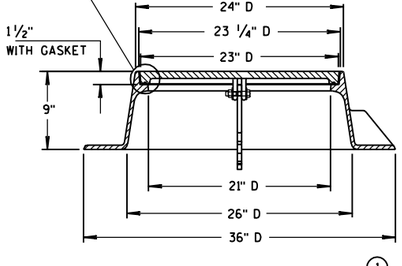

## TYPE "J" HINGED

LID WITHOUT "T SEAL" GASKET

(APPROXIMATE WEIGHT 310 LBS.)

FRAME.....190 LBS.
LID.....120 LBS.

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



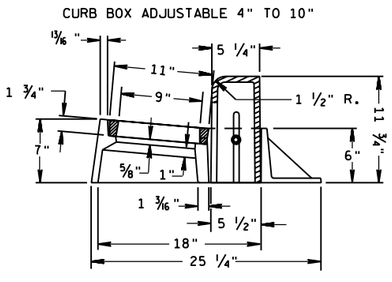

## TYPE "J" HINGED-SPECIAL (1)

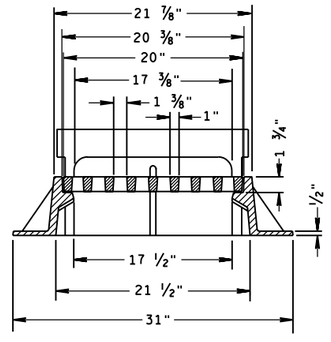
LID WITH "T SEAL" GASKET

(APPROXIMATE WEIGHT 310 LBS.)

FRAME.....190 LBS.
LID.....120 LBS.

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




## INLET COVER TYPE "Z"

(APPROXIMATE WEIGHT 340 LBS.)

FRAME.....198 LBS.
GRATE..... 50 LBS.
CURB BOX..... 92 LBS.

**INLET COVER, TYPE Z**
**MANHOLE COVERS, TYPE**
**K, J, J-S, J-H, J-H-S, L & M**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05
DATE
FHWA

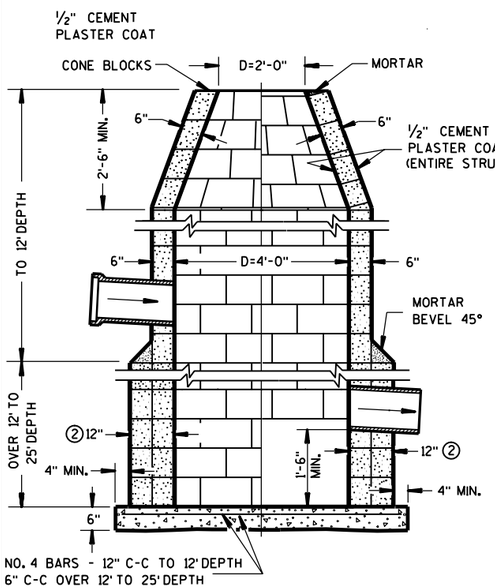
CHIEF ROADWAY DEVELOPMENT ENGINEER

6

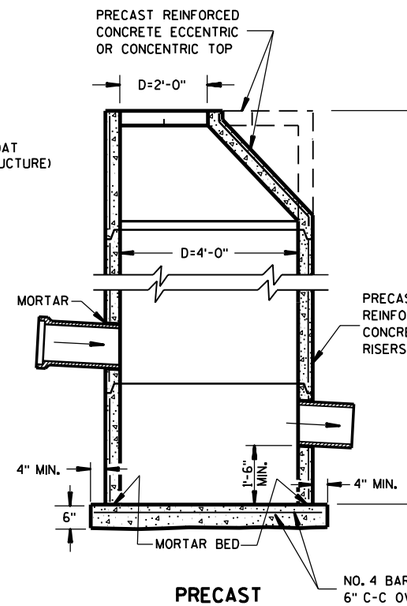
S.D.D. 8 A 5-17d

6

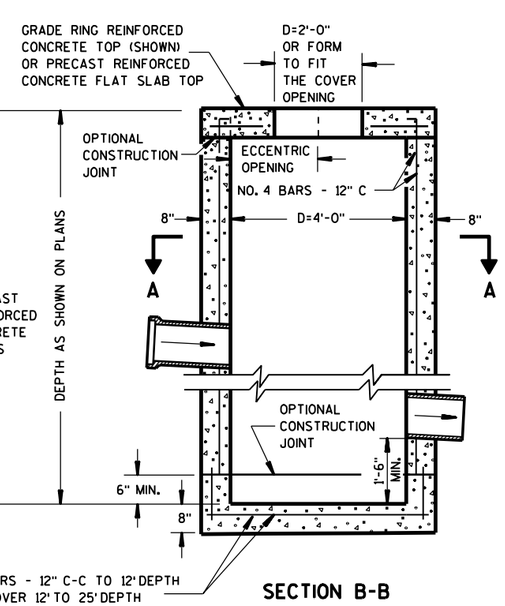
S.D.D. 8 A 5-17d




CONCRETE BLOCK

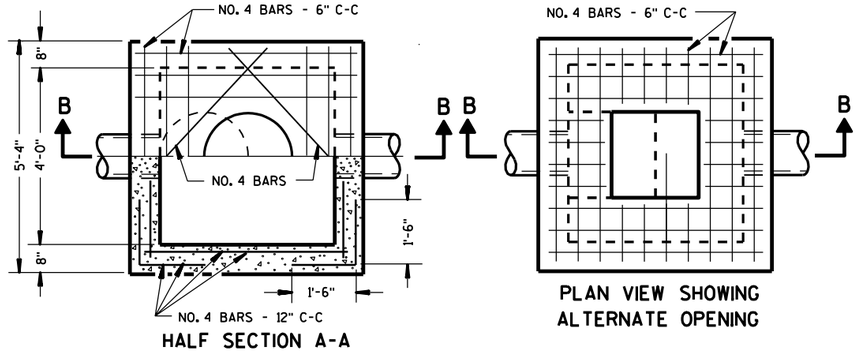



PRECAST REINFORCED CONCRETE




SECTION B-B
REINFORCED CONCRETE

## CATCH BASINS, TYPE 1




HALF SECTION A-A

PLAN VIEW SHOWING ALTERNATE OPENING

## 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.

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

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 1-C", "CATCH BASINS 1-B", "INLETS 3-H", ETC. THE FIRST DIGIT DESIGNATES THE MASONRY PORTION OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

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

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

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

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

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE.

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

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

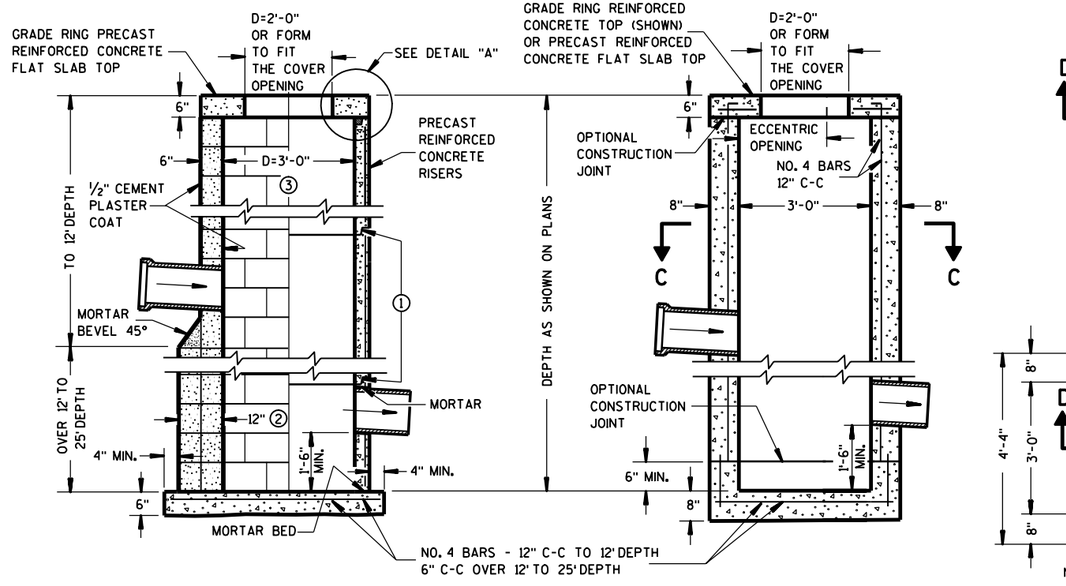
ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

THE "PRECAST REINFORCED CONCRETE FLAT SLAB TOP" OPTION IS REQUIRED ON CATCH BASINS, TYPE 1 WHEN 2' X 3' OPENING INLET COVERS ARE REQUIRED.

① PRECAST REINFORCED CONCRETE RISERS SHALL BE PLACED WITH THE TONGUE DOWN WHEN GRADE RINGS ARE USED FOR THE SLAB TOP.

② 2 COURSES 6" BLOCK.

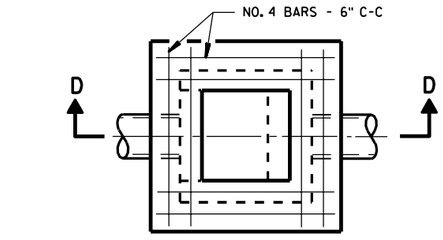
③ WHEN THE CONNECTING PIPES ARE 24" OR LARGER THE PRECAST CATCH BASIN MAY BE INCREASED TO 42" DIA.

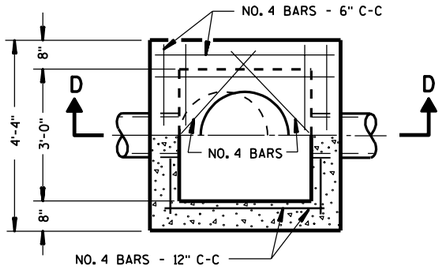


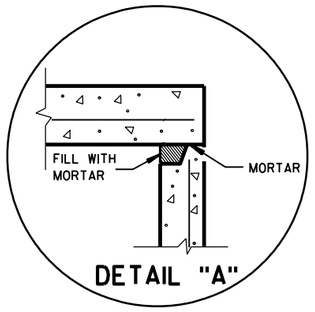

CONCRETE BLOCK — PRECAST REINFORCED CONCRETE

SECTION D-D
REINFORCED CONCRETE

## CATCH BASINS, TYPE 2



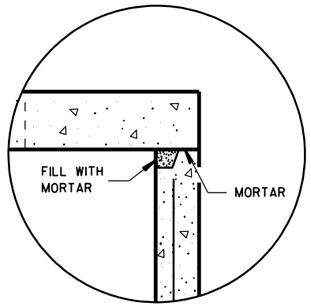



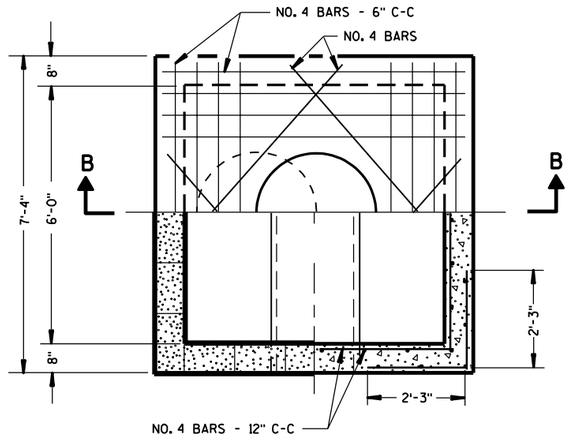

CATCH BASINS TYPE 1 & 2

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/9/99
DATE
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA




DETAIL "A"




HALF SECTION A-A

## GENERAL NOTES

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

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

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 1-C", "CATCH BASINS 1-B", "INLETS 3-H", ETC. THE FIRST DIGIT DESIGNATES THE MASONRY PORTION OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

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

STEPS CONFORMING TO AASHTO M 199 SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH.

SOLID ALUMINUM STEPS SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 0.75 INCH. ALUMINUM SURFACES TO BE EMBEDDED IN CONCRETE SHALL BE GIVEN ONE COAT OF SUITABLE QUALITY PAINT, SUCH AS ZINC CHROMATE PRIMER CONFORMING TO FEDERAL SPECIFICATION TT-P-645 OR EQUIVALENT.

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

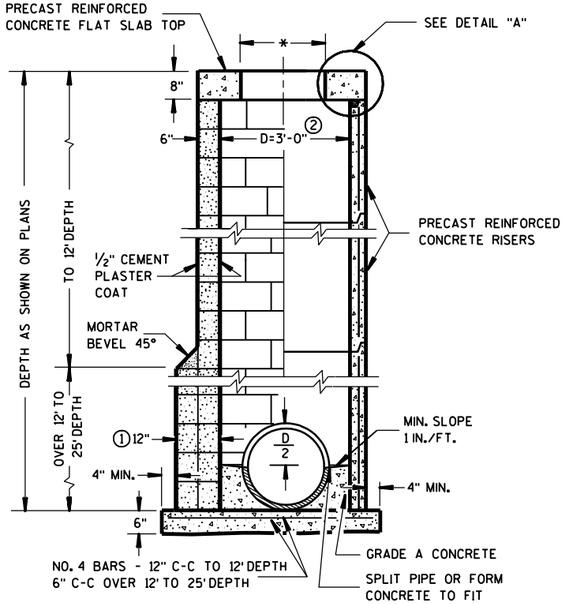
PRECAST REINFORCED CONCRETE RISERS MAY BE PLACED WITH TONGUE UP OR DOWN.

ALL PRECAST INLET UNITS AND MANHOLES SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

* USE 2'-0" DIAMETER OPENING WITH TYPE "C", "L" AND "J" COVERS, OR 3'-0" DIAMETER WITH TYPE "K" AND "M" COVERS.

① 2 COURSES 6" BLOCK.

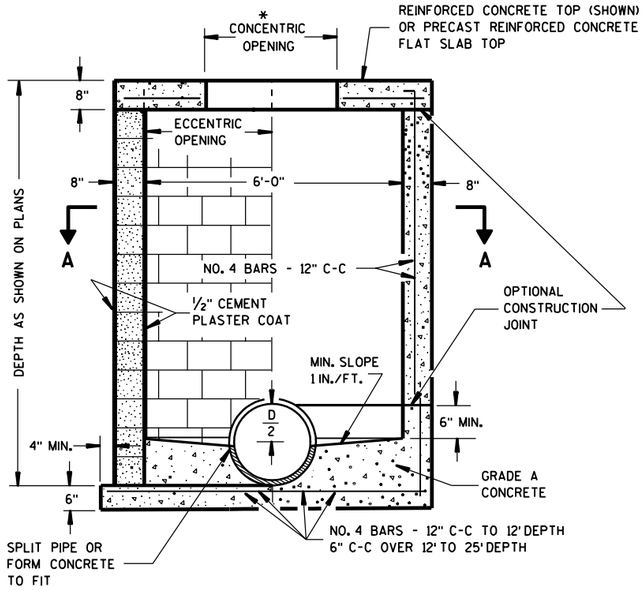
② WHEN CONNECTING PIPES ARE 24" OR LARGER THE PRECAST MANHOLES MAY BE INCREASED TO 42" DIAMETER.




CONCRETE BLOCK

② PRECAST REINFORCED CONCRETE

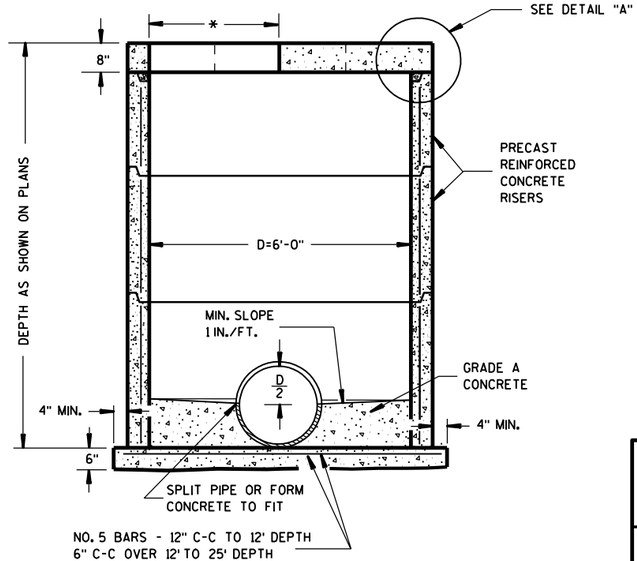
MANHOLES TYPE 2




SECTION B-B

CONCRETE BLOCK

REINFORCED CONCRETE




PRECAST REINFORCED CONCRETE

MANHOLES TYPE 3

MANHOLES TYPE 2 & 3

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/9/05
DATE
FHWA

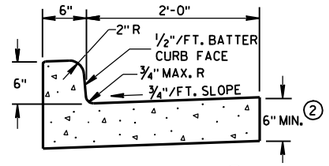
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

6

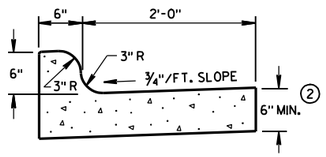
S.D.D. 8 B 7-4

6

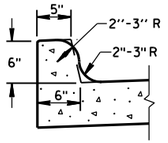
S.D.D. 8 B 7-4



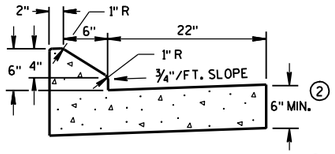

TYPES A & D ①



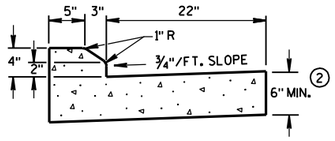

TYPES K & L ①




OPTIONAL CURB SHAPE FOR TYPES K & L ①

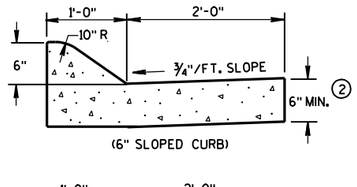



6" SLOPED CURB TYPES G & J ①

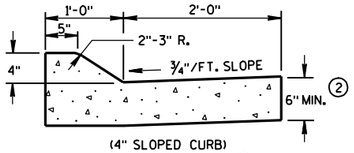



4" SLOPED CURB TYPES G & J ①

## CONCRETE CURB & GUTTER 30"

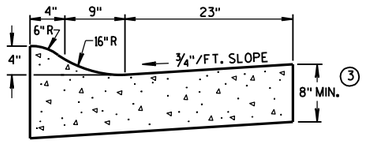



(6" SLOPED CURB)



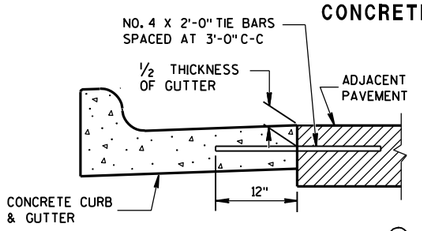

(4" SLOPED CURB)

TYPES A & D ①

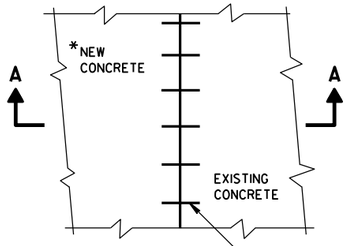



4" SLOPED CURB TYPES R & T ①④

## CONCRETE CURB & GUTTER 36"

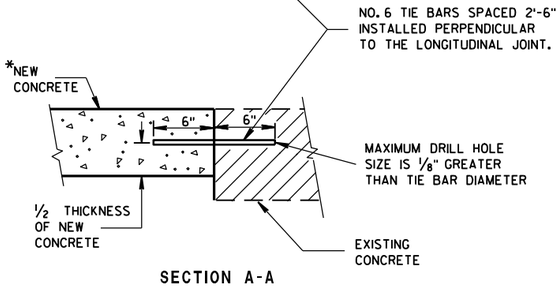



TYPICAL TIE BAR LOCATION ①



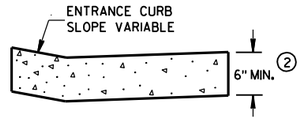

*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

PLAN VIEW

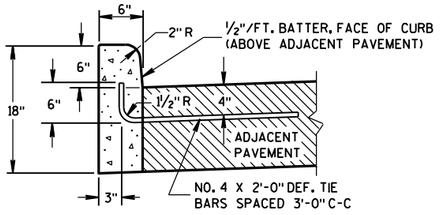



SECTION A-A

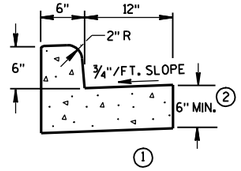
TIE BARS DRILLED INTO EXISTING PAVEMENT




DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

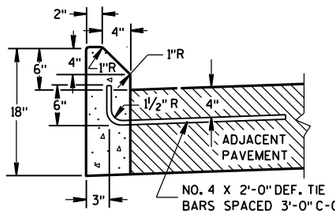



① TYPES A & D



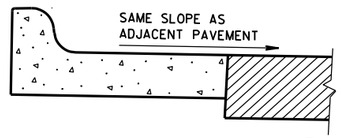

① TYPES A & D

## CONCRETE CURB & GUTTER 18"




① TYPES G & J

CONCRETE CURB




⑤ REVERSE SLOPE GUTTER
(TYPICAL FOR ALL CURB & GUTTER TYPES)

## GENERAL NOTES

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

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

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

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

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

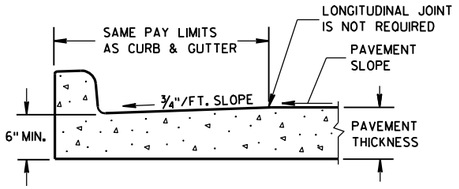
① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K AND R.

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

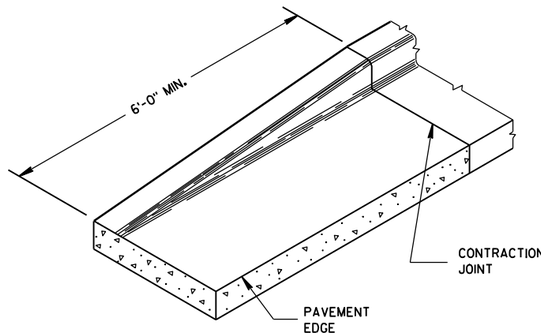
③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

④ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

⑤ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.




PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER




END SECTION CURB & GUTTER

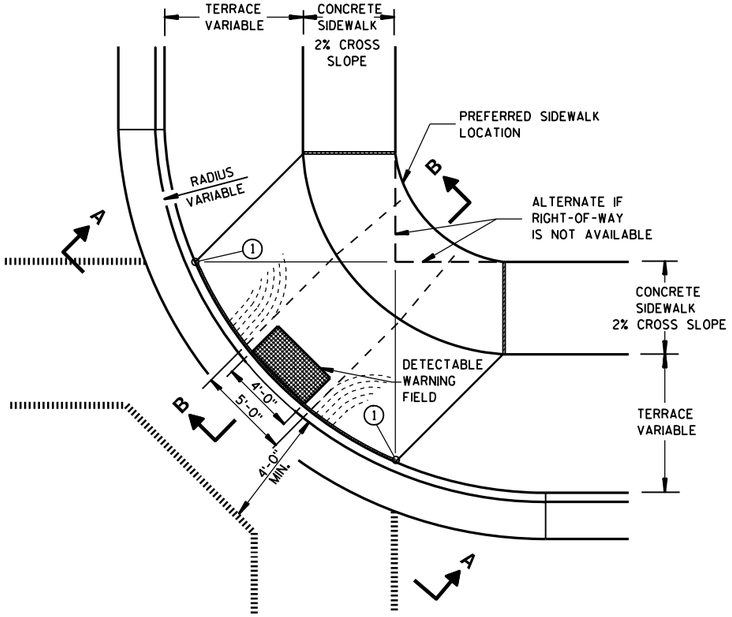
CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/4/08 DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

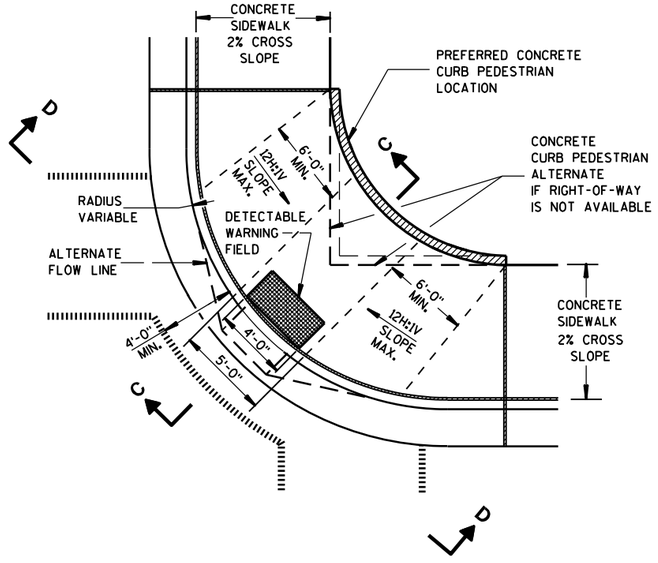
S.D.D. 8 D 1-17




PLAN VIEW

## TYPE 1 RAMP

(CENTER OF CORNER RADIUS)




PLAN VIEW

## TYPE 1-A RAMP

(NO TERRACE)

### GENERAL NOTES

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

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

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

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

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

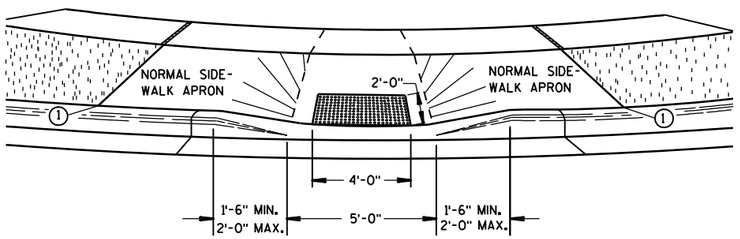
SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

(1) THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.

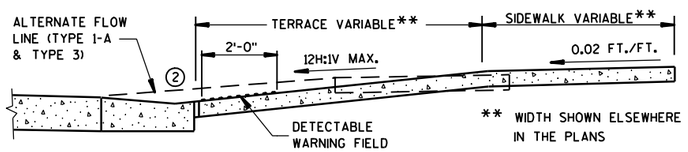
(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.

### LEGEND

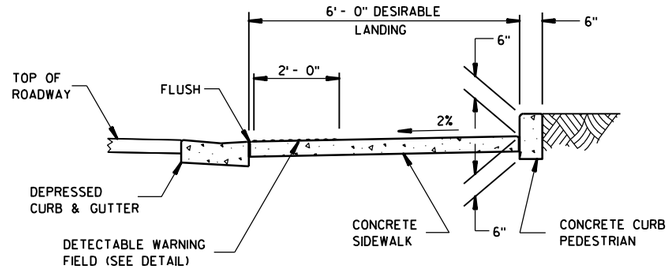
- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



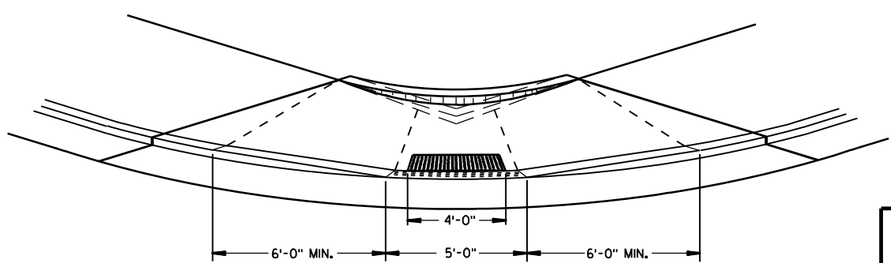

VIEW A-A




SECTION B-B




SECTION C-C




VIEW D-D

## CURB RAMPS TYPES 1 AND 1-A

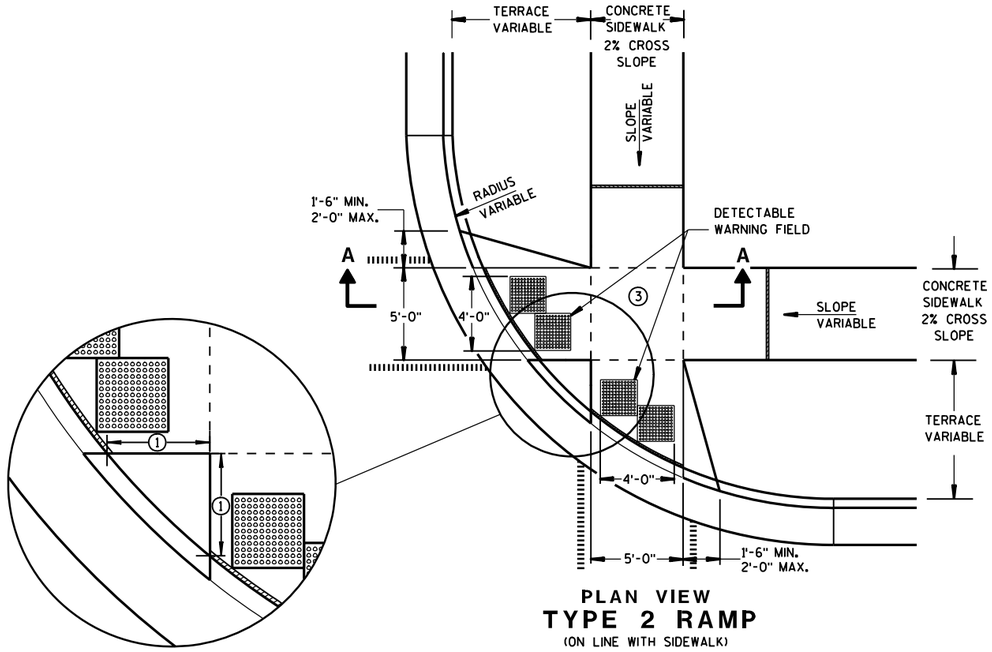
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 8 D 5-14a

6

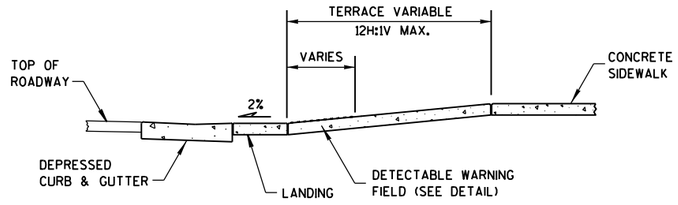
S.D.D. 8 D 5-14a



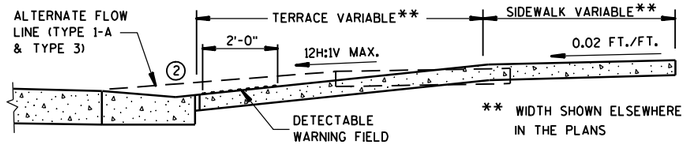

PLAN VIEW

## TYPE 2 RAMP

(ON LINE WITH SIDEWALK)




SECTION A-A




SECTION B-B

## GENERAL NOTES

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

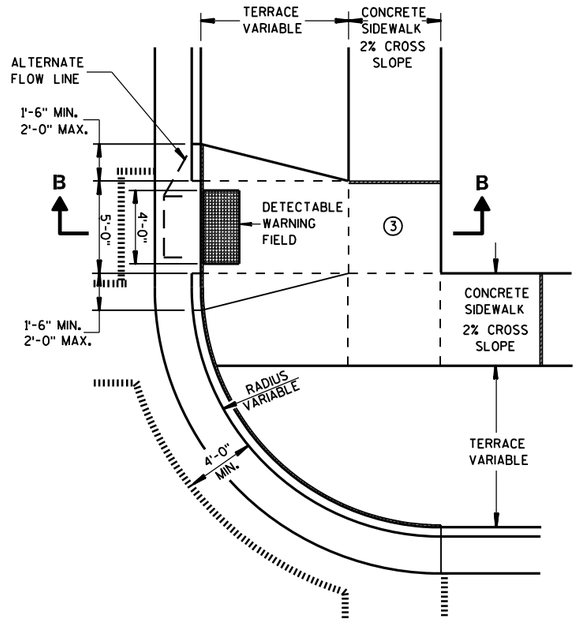
(1) WHEN THIS DISTANCE IS LESS THAN 6'-0" IT MAY BE DIFFICULT TO ACHIEVE A 12H:1V SLOPE, OR FLATTER, ON THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 12H:1V SLOPE, OR FLATTER, ON RAMP. 2" MINIMUM CURB HEIGHT.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE.

(3) PROVIDE LANDING AT TOP OF RAMP WITH NO MORE THAN 2% SLOPE IN ANY DIRECTION.

### LEGEND

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




PLAN VIEW

## TYPE 3 RAMP

(OUTSIDE OF CROSSWALK AREA)

**CURB RAMPS**
**TYPES 2 AND 3**

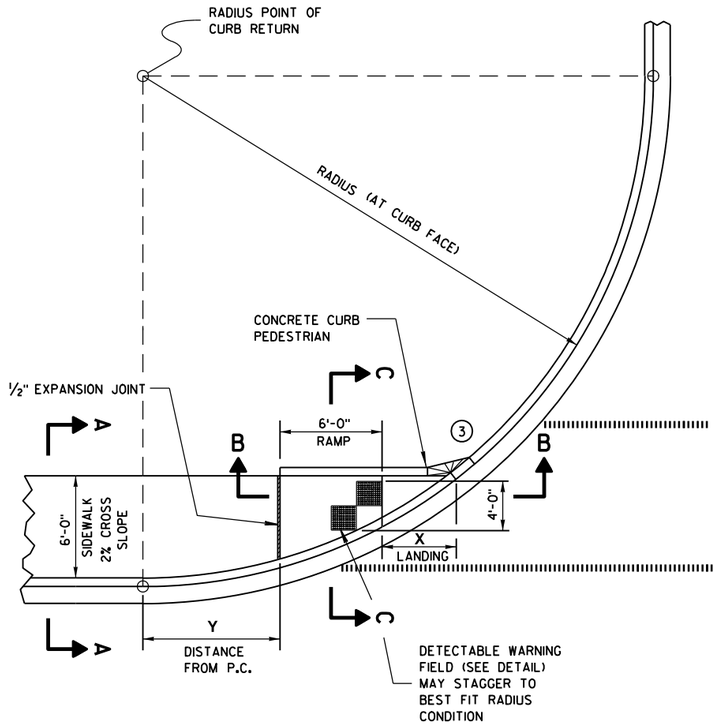
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 8 D 5-14b

6

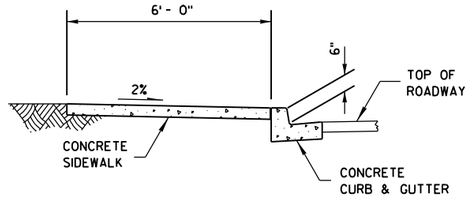
S.D.D. 8 D 5-14b




## CURB RAMP TYPE 4A
### PLAN VIEW

| RADIUS (AT CURB FACE) | X | Y |
|---|---|---|
| 20 FEET | 6'-1¾" | 2'-7¼" |
| 30 FEET | 7'-11¾" | 4'-8¼" |
| 40 FEET | 9'-5¼" | 6'-5" |
| 50 FEET | 10'-8¾" | 7'-11¼" |
| 60 FEET | 11'-10¼" | 9'-3½" |

INTERMEDIATE RADII CAN BE INTERPOLATED




SECTION A-A

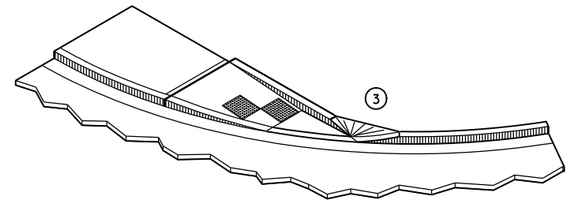
## GENERAL NOTES

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

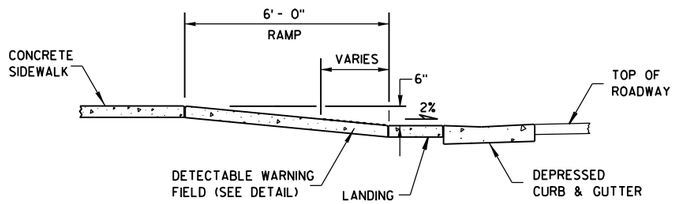
RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

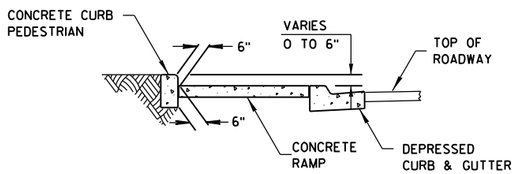
(3) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.




ISOMETRIC VIEW




SECTION B-B




SECTION C-C

LEGEND

½" EXPANSION JOINT-SIDEWALK

CONTRACTION JOINT FIELD LOCATED

PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS
TYPE 4A

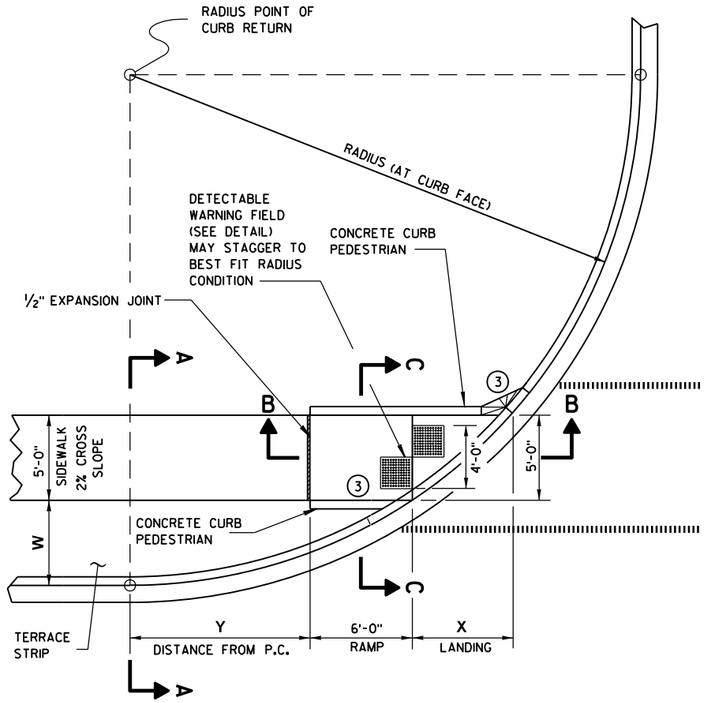
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

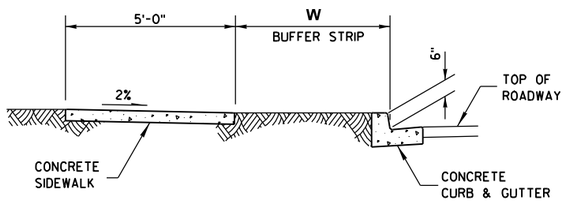
S.D.D. 8 D 5-14c

6

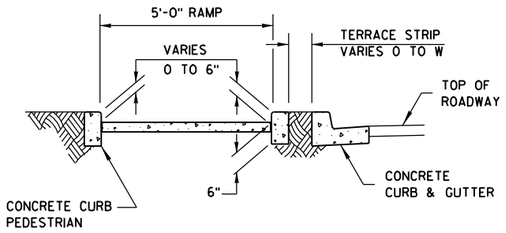
S.D.D. 8 D 5-14c



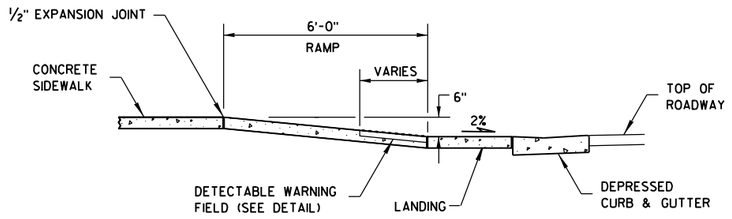

## CURB RAMP TYPE 4B
### PLAN VIEW




SECTION A-A




SECTION C-C




SECTION B-B

## GENERAL NOTES

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

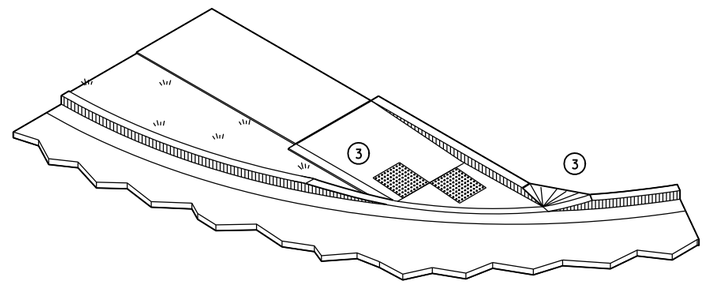
RAMP SLOPES SHALL NOT BE STEEPER THAN 12:1.

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

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

| RADIUS (AT CURB FACE) | W = 3'-0" | | W = 4'-0" | | W = 5'-0" | | W = 6'-0" | | W = 7'-0" | |
|---|---|---|---|---|---|---|---|---|---|---|
| | X | Y | X | Y | X | Y | X | Y | X | Y |
| 20 FEET | 5'-5½" | 4'-6½" | 4'-8½" | 6'-0" | 4'-1" | 7'-2¾" | 3'-7" | 8'-3½" | 3'-1½" | 9'-2½" |
| 30 FEET | 7'-3¾" | 7'-1" | 6'-5½" | 8'-11½" | 5'-9¼" | 10'-7" | 5'-2½" | 12'-0" | 4'-8¾" | 13'-3¼" |
| 40 FEET | 8'-9½" | 9'-2½" | 7'-10" | 11'-5¼" | 7'-1" | 13'-4½" | 6'-5¾" | 15'-¾" | 5'-11½" | 16'-7¼" |
| 50 FEET | 10'-¾" | 11'-¾" | 9'-¼" | 13'-7¼" | 8'-2½" | 15'-9½" | 7'-6½" | 17'-9" | 6'-11¾" | 19'-6¼" |
| 60 FEET | 11'-2½" | 12'-8¾" | 10'-¾" | 15'-6½" | 9'-2¼" | 17'-11¾" | 8'-5¾" | 20'-1¾" | 7'-10½" | 22'-1½" |
| 70 FEET | 12'-2¾" | 14'-3¼" | 11'-¼" | 17'-4" | 10'-1" | 19'-11¾" | 9'-3¾" | 22'-4¼" | 8'-8¼" | 24'-6¼" |
| 80 FEET | 13'-2" | 15'-8½" | 11'-10½" | 18'-11¾" | 10'-10¾" | 21'-10" | 10'-1" | 24'-4¾" | 9'-5" | 26'-8¾" |
| 90 FEET | 14'- ½" | 17'-½" | 12'-8¼" | 20'-6½" | 11'-7¾" | 23'-7" | 10'-9¾" | 26'-3¾" | 10'-1¼" | 28'-9½" |
| 100 FEET | 14'-10½" | 18'-3¾" | 13'-5½" | 22'-0" | 12'-4¼" | 25'-2¾" | 11'-5¾" | 28'-1½" | 10'-9" | 30'-9" |

INTERMEDIATE RADII CAN BE INTERPOLATED




ISOMETRIC VIEW

### LEGEND

½" EXPANSION JOINT-SIDEWALK

CONTRACTION JOINT FIELD LOCATED

PAVEMENT MARKING CROSSWALK (WHITE)

**CURB RAMPS TYPE 4B**

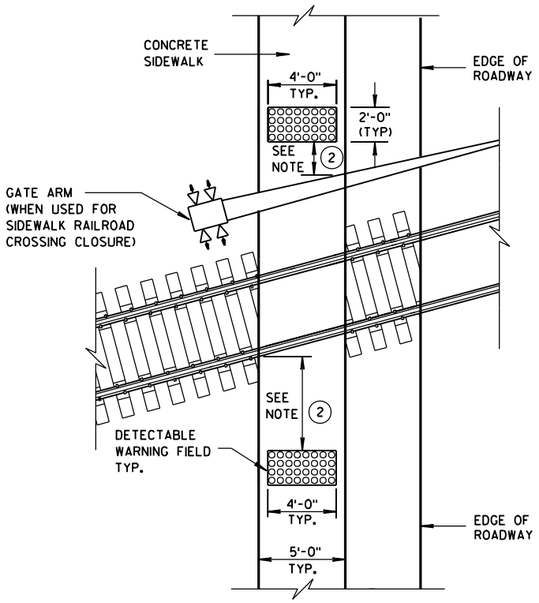
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

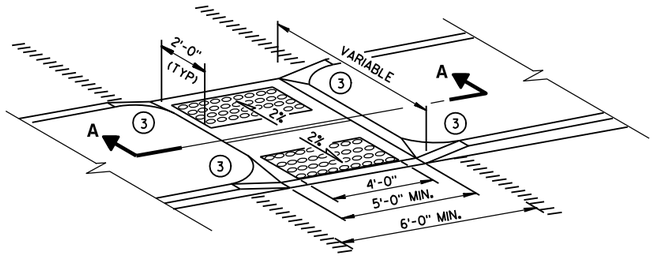
S.D.D. 8 D 5-14d

6

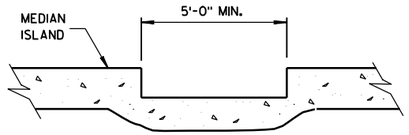
S.D.D. 8 D 5-14d




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




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




**SECTION A-A**

## GENERAL NOTES

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

(1) SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.

(2) THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET ± 0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.

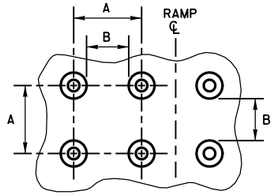
(3) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS.) DO NOT MARK TRANSITION NOSE.

### LEGEND

½" EXPANSION JOINT-SIDEWALK

CONTRACTION JOINT FIELD LOCATED

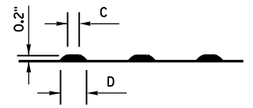
PAVEMENT MARKING CROSSWALK (WHITE)



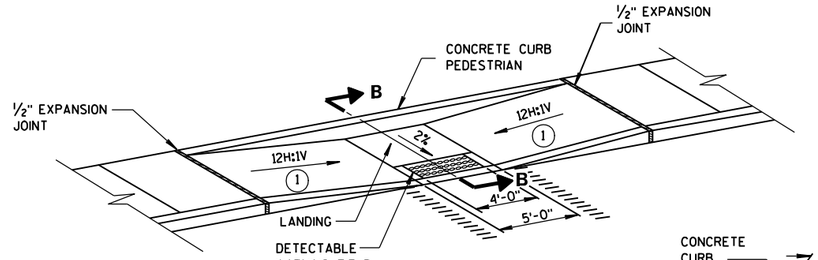

**PLAN VIEW**

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

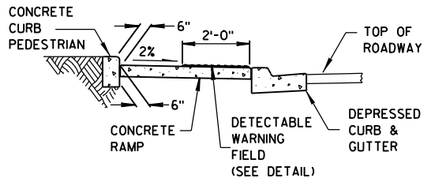
* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.




**ELEVATION VIEW**

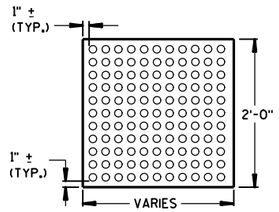



**MID-BLOCK CROSSING**
**TYPE 7A**



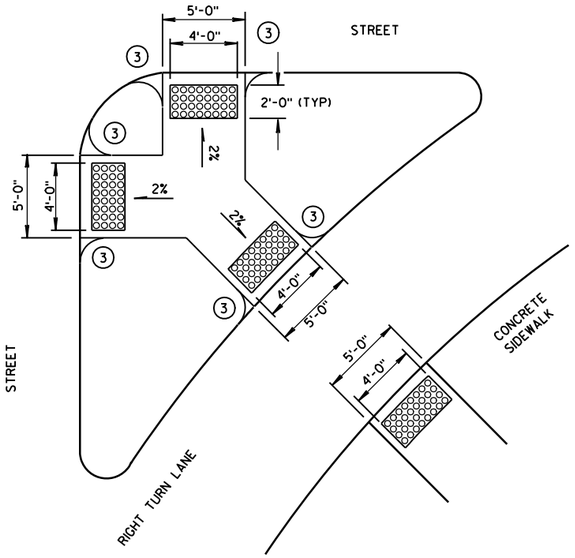

**SECTION B-B**

## TRUNCATED DOMES
### DETECTABLE WARNING PATTERN DETAIL

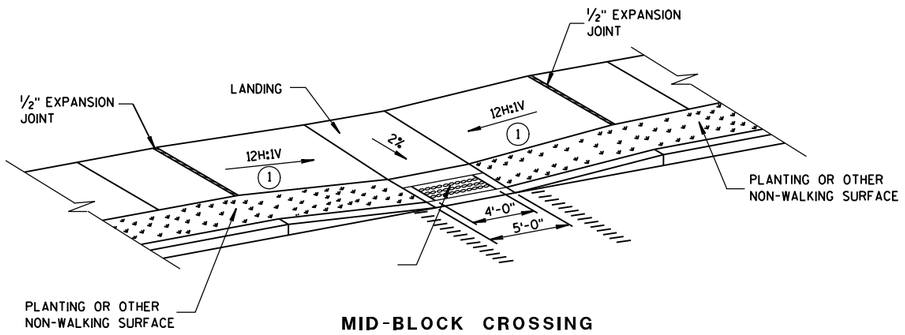



**PLAN VIEW**

**DETECTABLE WARNING FIELD (TYPICAL)**




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




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

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

2-9-10 — DATE — FHWA

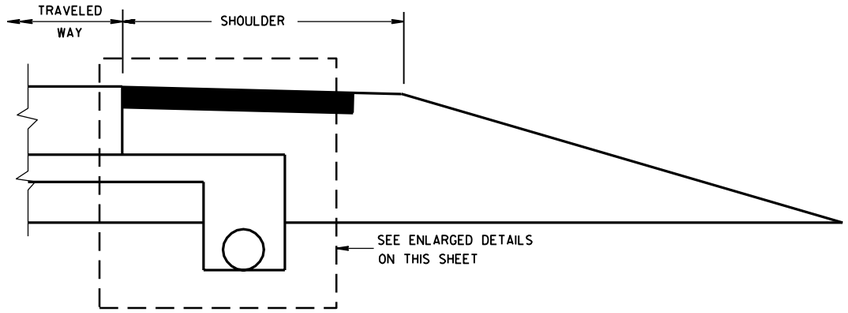
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER

6

S.D.D. 8 D 5-14e

6

S.D.D. 8 D 5-14e




## RURAL CROSS SECTION

## GENERAL NOTES

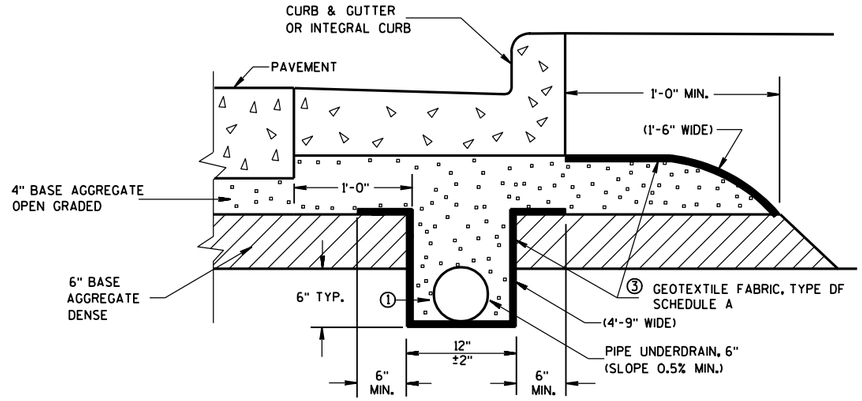
THE DIMENSIONS SHOWN ON THE TYPICAL CROSS SECTIONS WILL GOVERN IN THE EVENT THERE IS A CONFLICT WITH THE DETAILS SHOWN ON THIS DRAWING.

PIPE UNDERDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF THE ROADWAY.

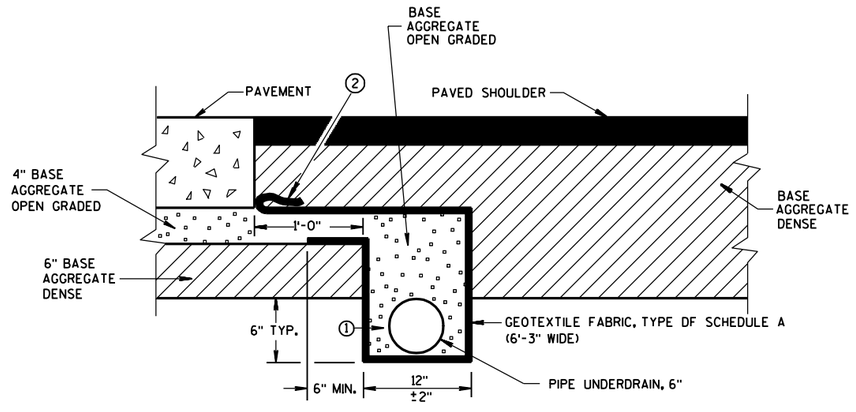
① TRENCH BACKFILL WILL BE PAID FOR AS BASE AGGREGATE OPEN GRADED.

② FOLD OVER EXCESS GEOTEXTILE FABRIC AT THIS LOCATION.

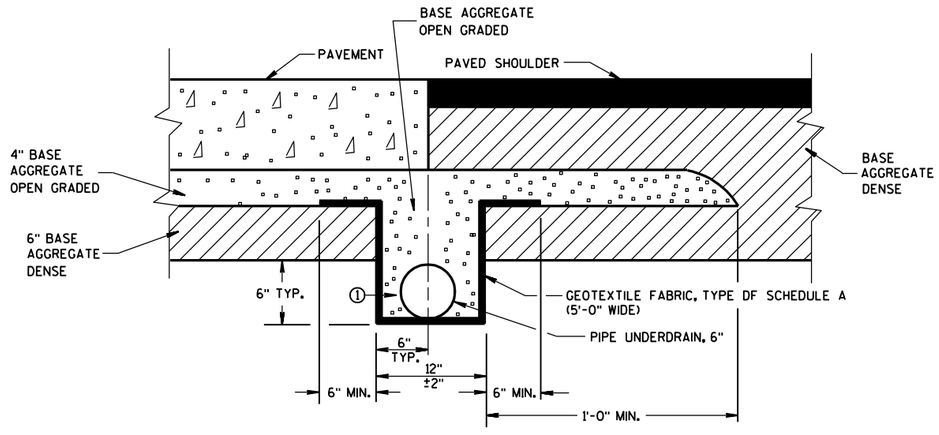
③ TOTAL FABRIC WIDTH IS 6'-3" FOR PAYMENT.




## EDGEDRAIN IN URBAN ROADWAY




**POST PAVING INSTALLATION**
(QUANTITIES ARE BASED ON THIS DETAIL)




**PRE-PAVING INSTALLATION ALTERNATE**

## EDGEDRAIN IN RURAL ROADWAY

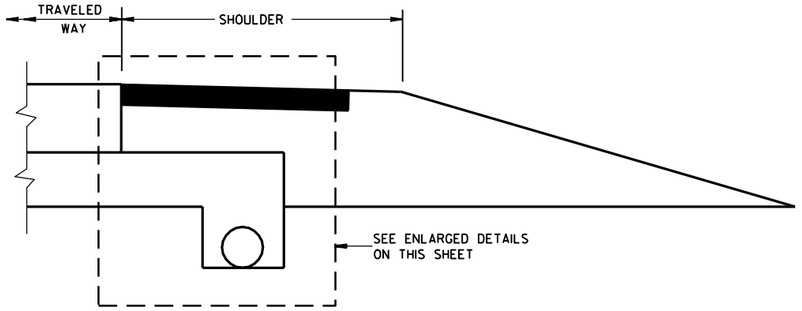
| EDGEDRAIN AND BASE AGGREGATE OPEN GRADED | |
|---|---|
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | |
| APPROVED | |
| 3/21/07 DATE | /S/ Steven W. Krebs CHIEF MATERIALS MANAGEMENT ENGINEER |
| FHWA | |

6

S.D.D. 8 D 15-4b

6

S.D.D. 8 D 15-4b



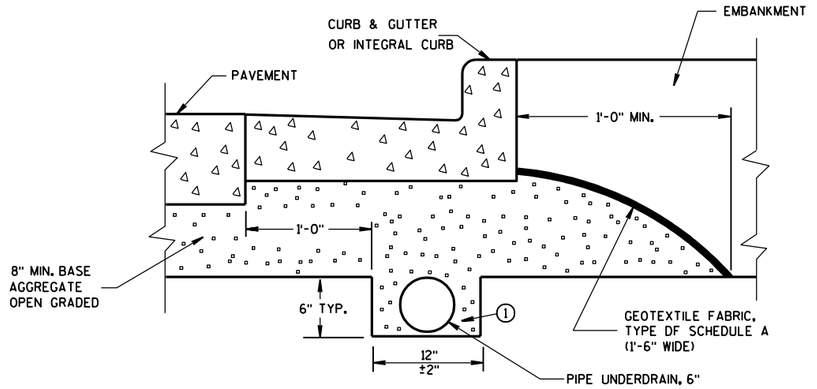

RURAL CROSS SECTION

## GENERAL NOTES

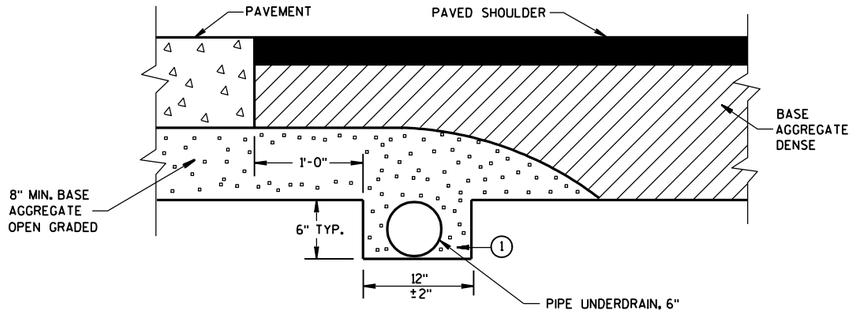
THE DIMENSIONS SHOWN ON THE TYPICAL CROSS SECTIONS WILL GOVERN IN THE EVENT THERE IS A CONFLICT WITH THE DETAILS SHOWN ON THIS DRAWING.

PIPE UNDERDRAIN SHALL BE LAID PARALLEL TO THE GRADE OF THE ROADWAY.

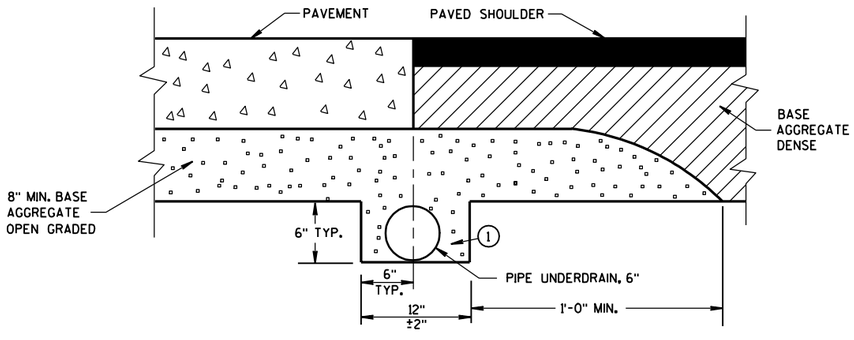
(1) TRENCH BACKFILL WILL BE PAID FOR AS BASE AGGREGATE OPEN GRADED.




EDGEDRAIN IN URBAN ROADWAY




POST PAVING INSTALLATION
(QUANTITIES ARE BASED ON THIS DETAIL)



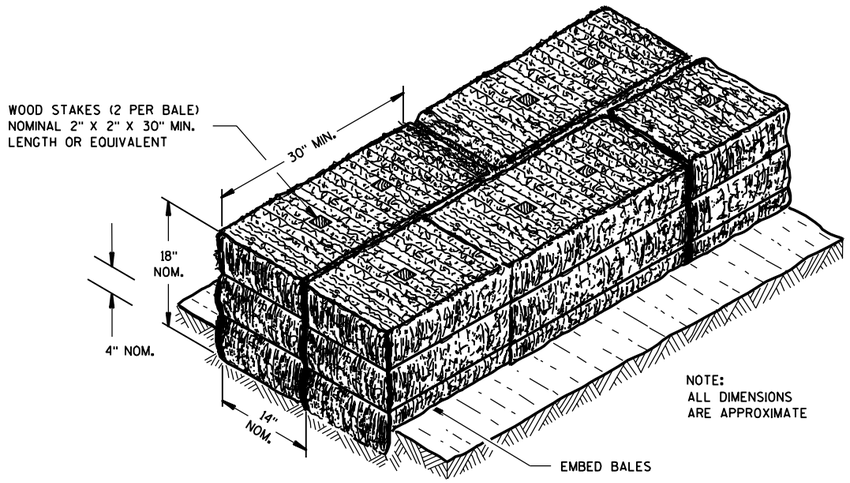

PRE-PAVING INSTALLATION ALTERNATIVE

EDGEDRAIN IN RURAL ROADWAY

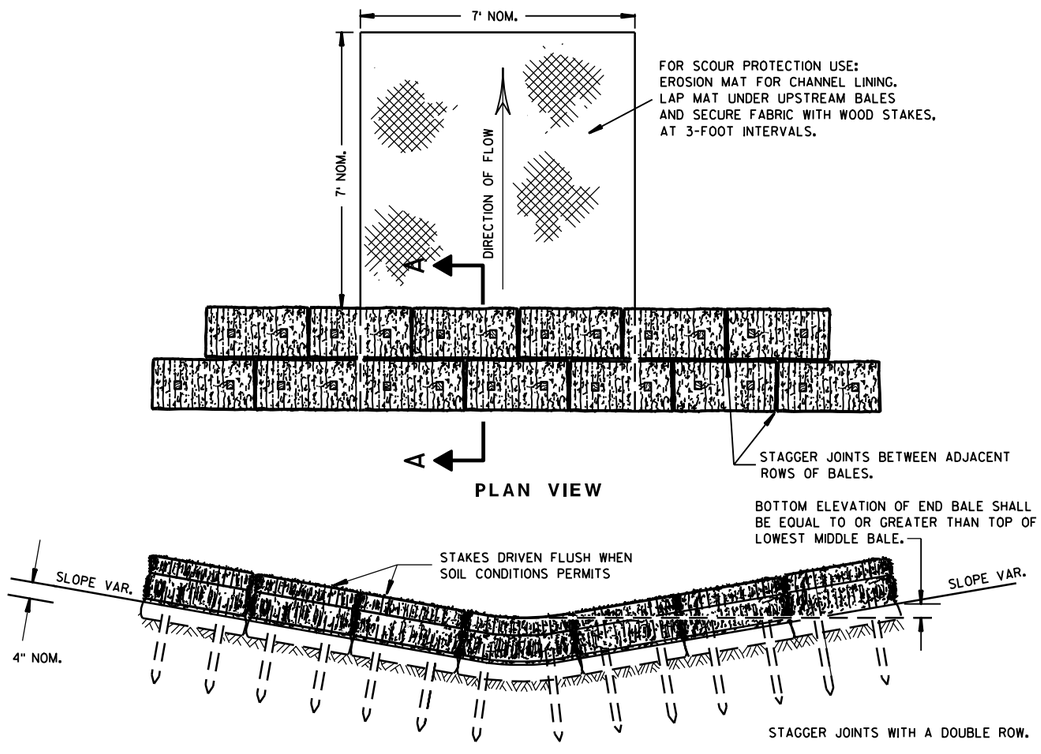
| EDGEDRAIN AND BASE AGGREGATE OPEN GRADED | |
|---|---|
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | |
| APPROVED | |
| 3/21/07 DATE | /S/ Steven W. Krebs CHIEF MATERIALS MANAGEMENT ENGINEER |
| FHWA | |



6
S.D.D. 8 D 15-4c




SECTION A-A




PLAN VIEW

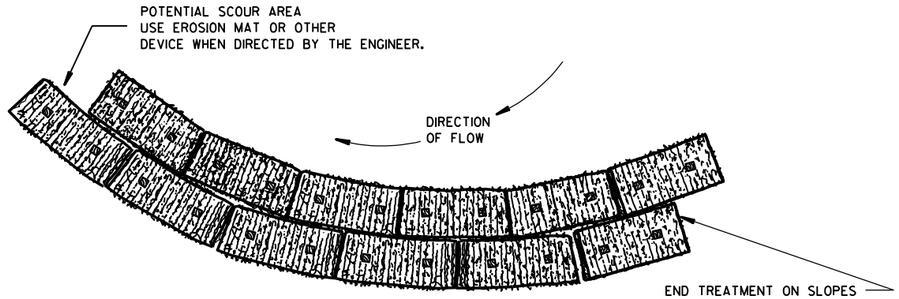
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

## GENERAL NOTES

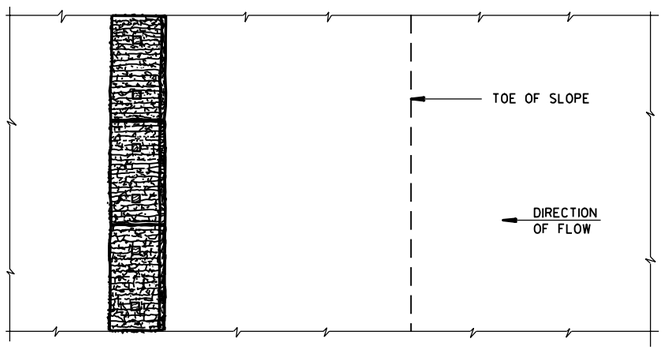
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

(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.

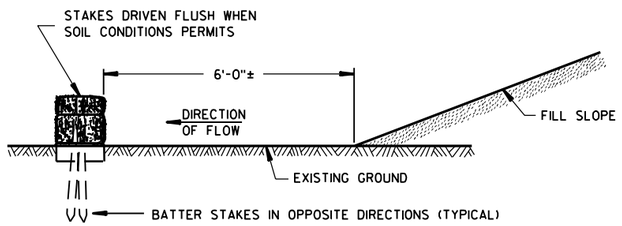



PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW




PLAN VIEW




FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

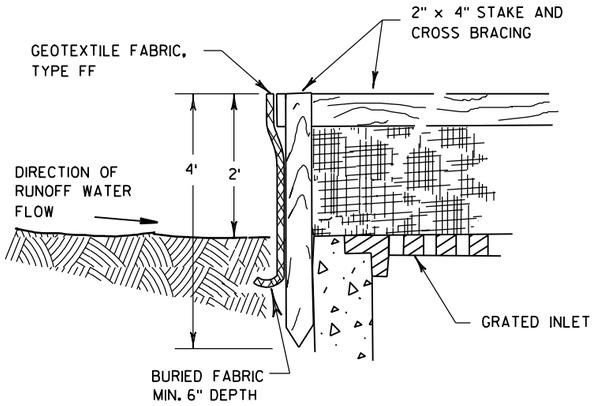
TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

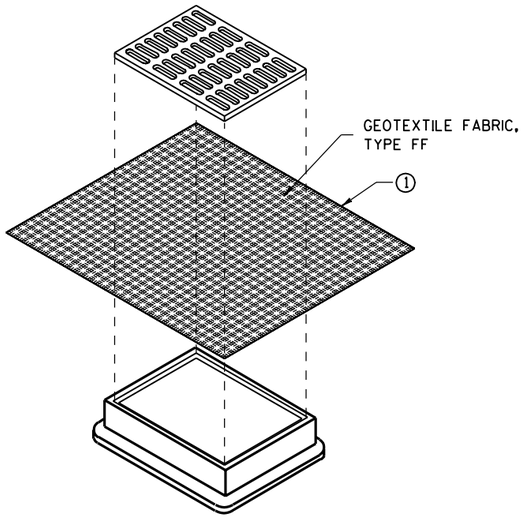
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/04/02
DATE
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

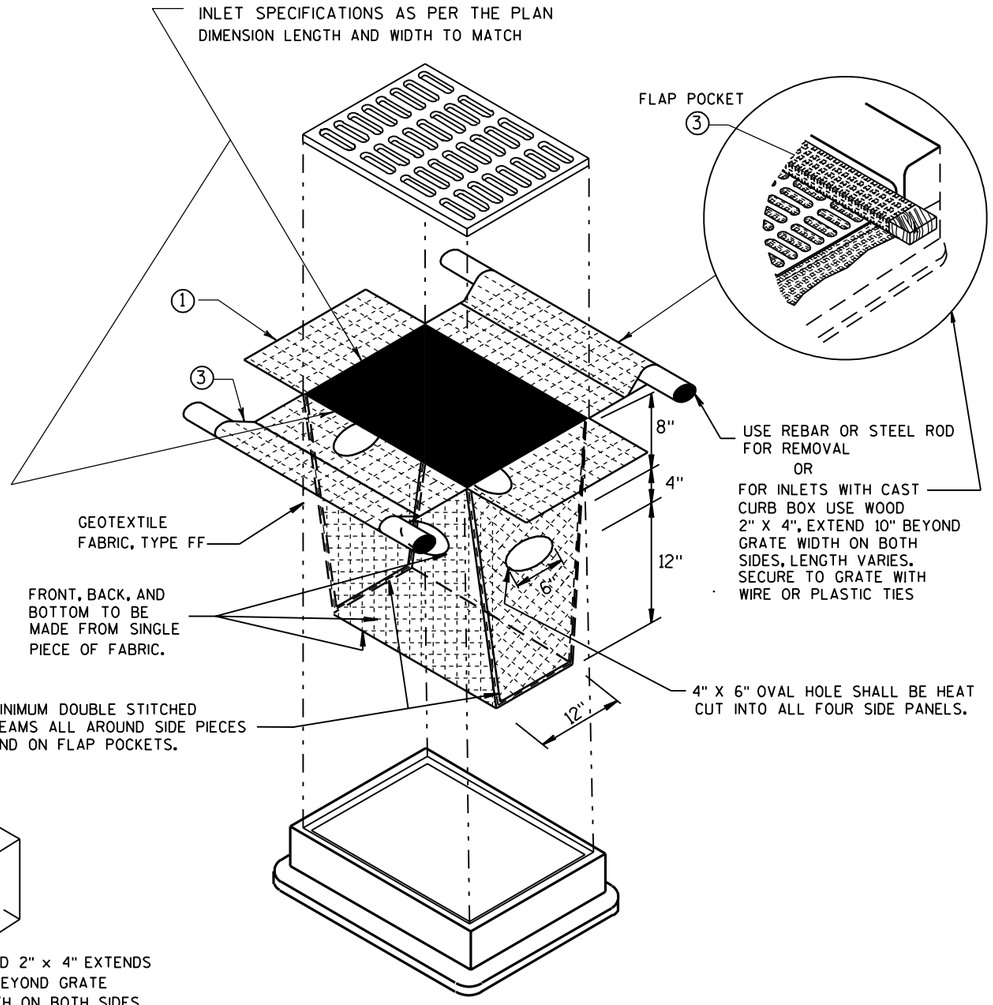
S.D.D. 8 E 8-3



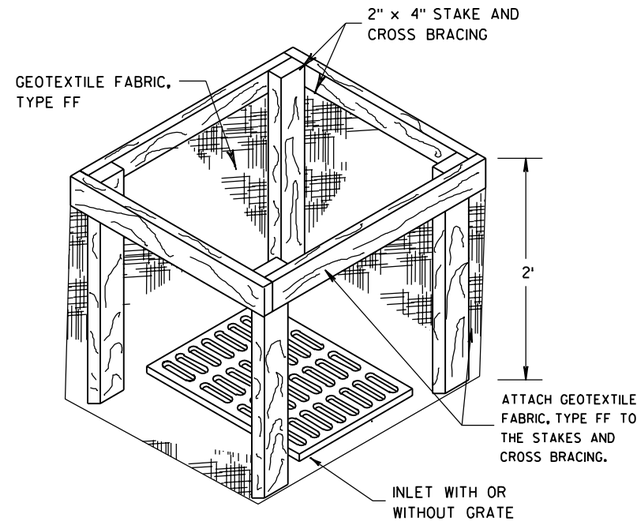

**INLET PROTECTION, TYPE B**
**(WITHOUT CURB BOX)**

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

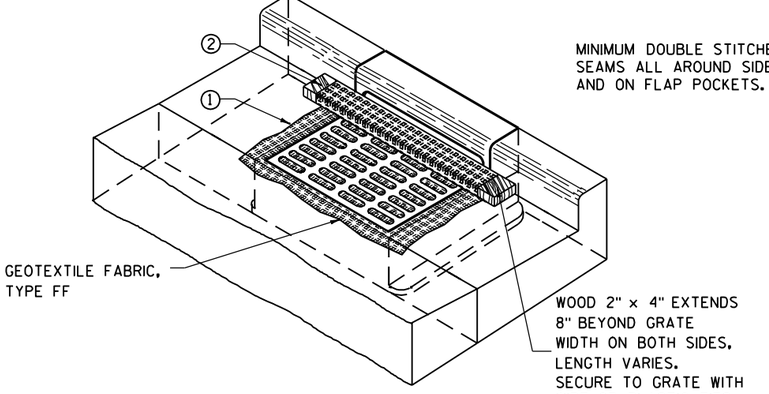



**INLET PROTECTION, TYPE D**

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




**INLET PROTECTION, TYPE A**




**INLET PROTECTION, TYPE C (WITH CURB BOX)**

## 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
FHWA

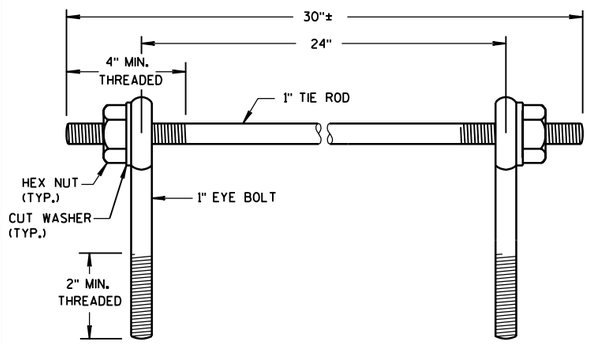
CHIEF ROADWAY DEVELOPMENT ENGINEER

6

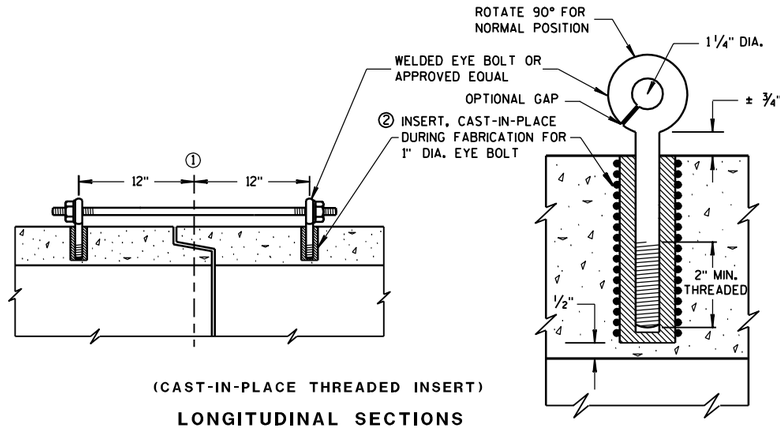
S.D.D. 8 E 10-2

6

S.D.D. 8 E 10-2




EYE BOLTS AND TIE ROD




(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

## 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 PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED ON 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 CULVERT PIPE AS INDICTED ON THE PLANS AND BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO CILVERT PIPE, REINFORCED CONCRETE CULVERT PIPE, OR REINFORCED CONCRETE PIPE CATTLE PASS.

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

① ℄ 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.

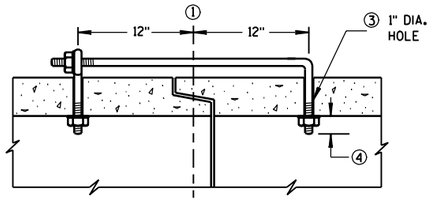
③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ℄ OF TONGUE AND GROOVE.

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

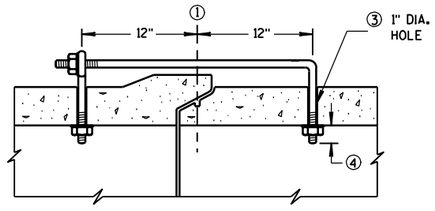
⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.

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




(TONGUE & GROOVE PIPE)




(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

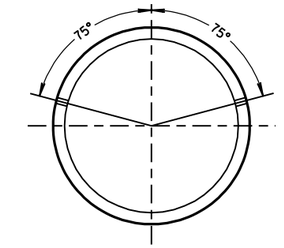
**EYE BOLT DIMENSION TABLE**

| PIPE SIZE | L = LENGTH | |
|---|---|---|
| | TONGUE & GROOVE PIPE | MODIFIED BELL PIPE |
| 18" TO 24" | 4 1/2" | 6 1/4" |
| 30" | 5" | 7" |
| 36" | 5 1/2" | 7" |
| 42" | 6" | |
| 48" | 6 1/2" | |
| 60" | 7 1/2" | |
| 66" | 8" | |

**ADJUSTABLE TIE ROD TABLE**

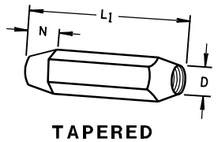
| PIPE DIAMETER | TIE ROD DIAMETER | D | $L_1$ | N |
|---|---|---|---|---|
| 12-60 | 5/8 | 5/8 | 5 | 1/2 |
| 66-84 | 3/4 | 3/4 | 5 | 1/2 |
| 90-108 | 1 | 1 | 7 | 1 7/16 |

DIMENSIONS SHOWN ARE IN INCHES

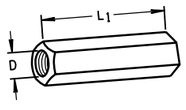



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



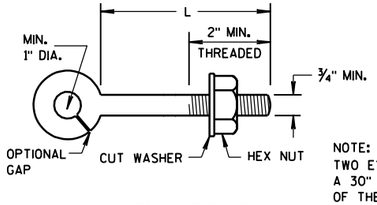

TAPERED




PLAIN

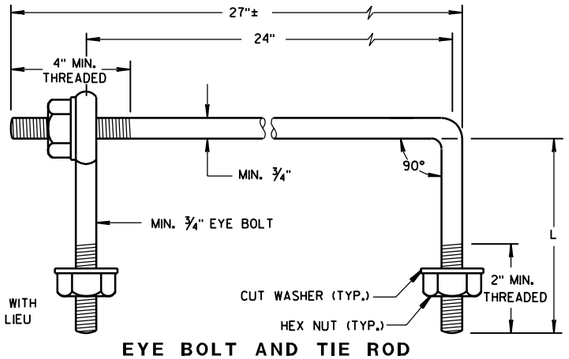
RIGHT AND LEFT THREADS

SLEEVE NUTS




EYE BOLT

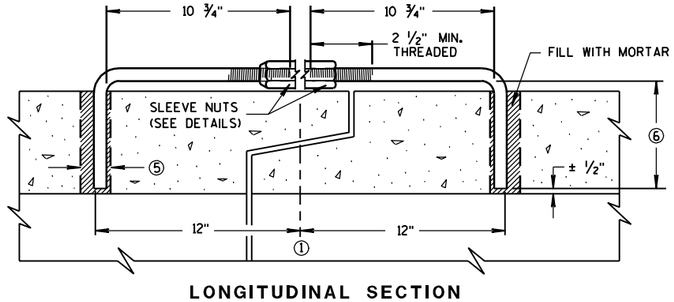
NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.




EYE BOLT AND TIE ROD

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

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




LONGITUDINAL SECTION

(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

## ADJUSTABLE TIE ROD (ALTERNATE NO. 3)

JOINT TIES FOR CONCRETE PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

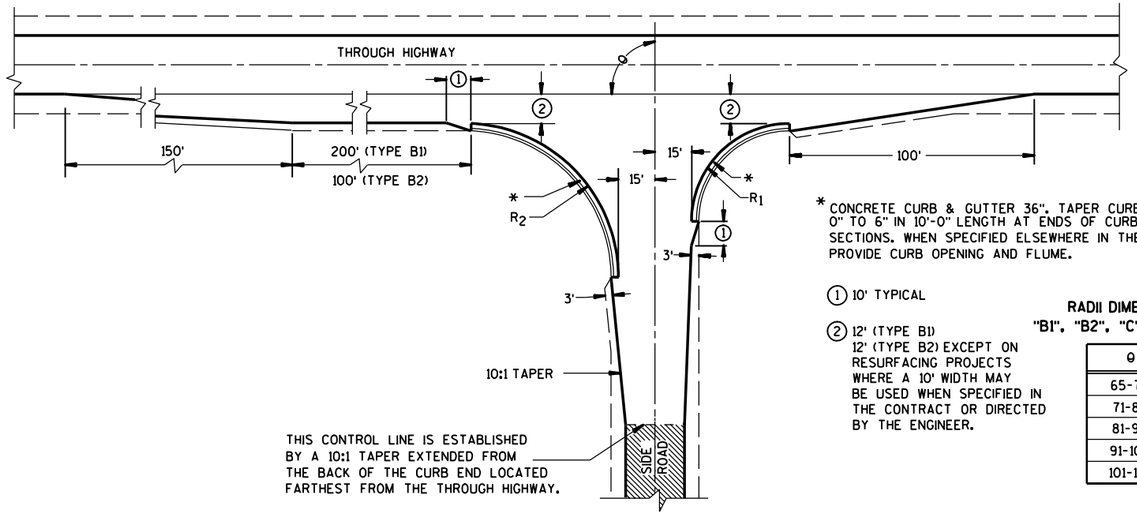
APPROVED
12/17/07
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 F 4-6

6

S.D.D. 8 F 4-6




TYPE "B1" AND "B2"

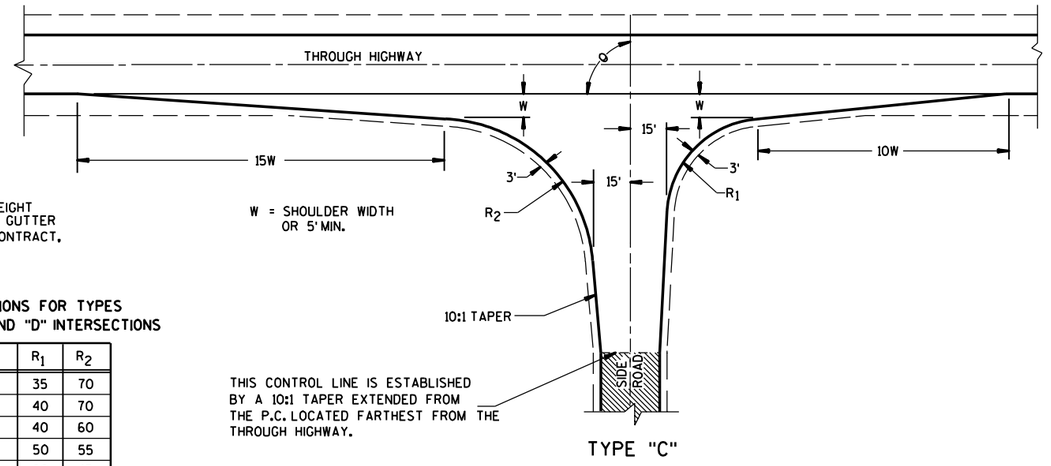
* CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

① 10' TYPICAL

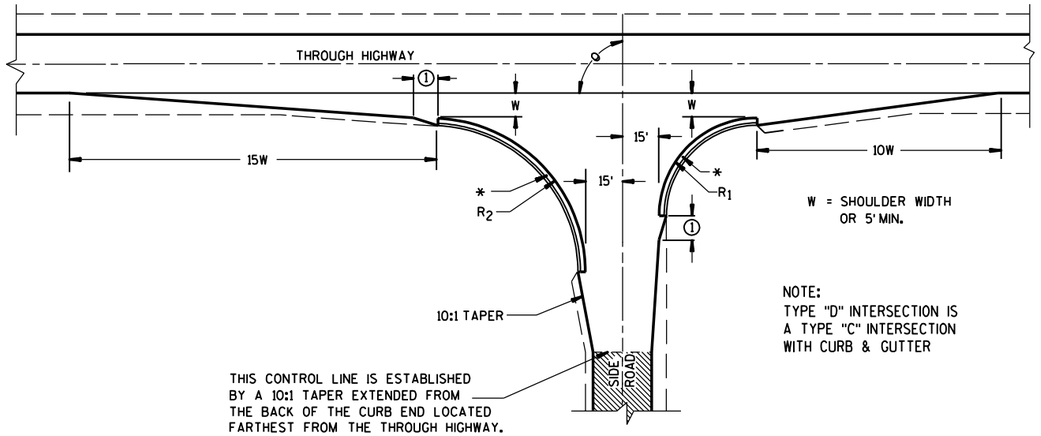
② 12' (TYPE B1)
12' (TYPE B2) EXCEPT ON RESURFACING PROJECTS WHERE A 10' WIDTH MAY BE USED WHEN SPECIFIED IN THE CONTRACT OR DIRECTED BY THE ENGINEER.

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

| θ | $R_1$ | $R_2$ |
|---|---|---|
| 65-70 | 35 | 70 |
| 71-80 | 40 | 70 |
| 81-90 | 40 | 60 |
| 91-100 | 50 | 55 |
| 101-110 | 60 | 45 |




TYPE "C"




TYPE "D"

## GENERAL NOTES

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

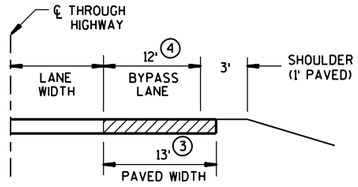
SIDE ROAD SURFACING NOTE

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

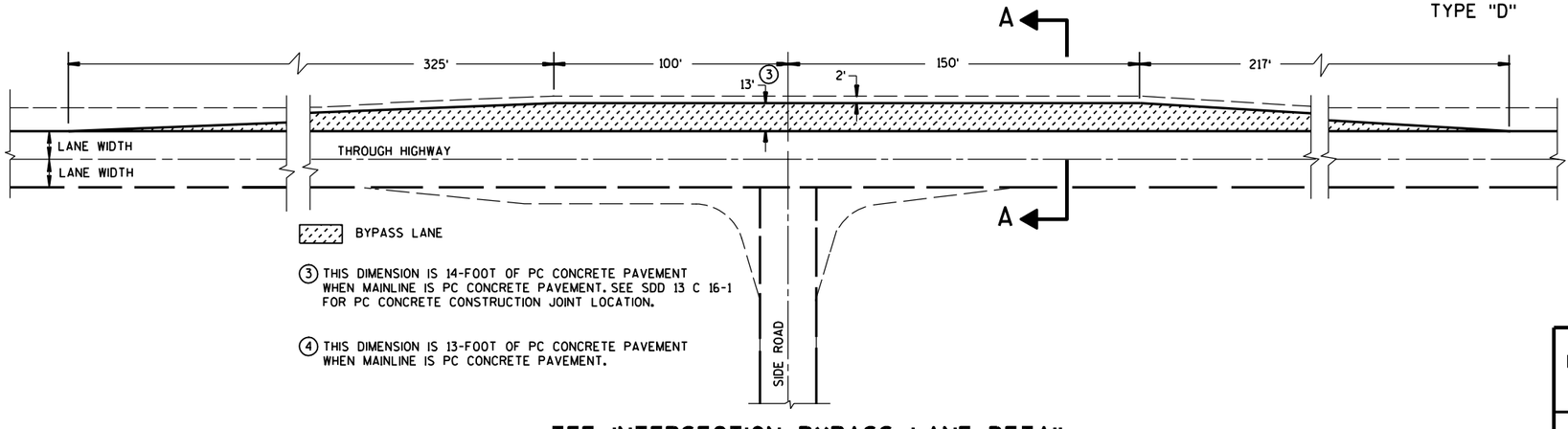
WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

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

▨ EXISTING SURFACE




SECTION A-A
(SHOWING BYPASS LANE AND SHOULDER)



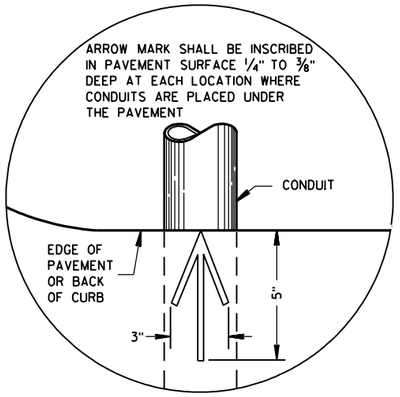

③ THIS DIMENSION IS 14-FOOT OF PC CONCRETE PAVEMENT WHEN MAINLINE IS PC CONCRETE PAVEMENT. SEE SDD 13 C 16-1 FOR PC CONCRETE CONSTRUCTION JOINT LOCATION.

④ THIS DIMENSION IS 13-FOOT OF PC CONCRETE PAVEMENT WHEN MAINLINE IS PC CONCRETE PAVEMENT.

TEE INTERSECTION BYPASS LANE DETAIL

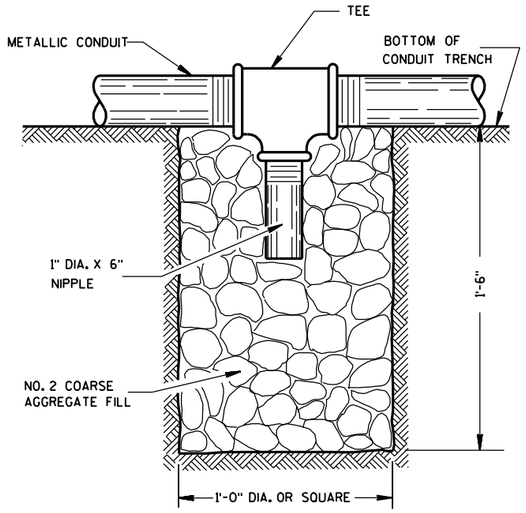
**AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND "D" AND TEE INTERSECTION BYPASS LANE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



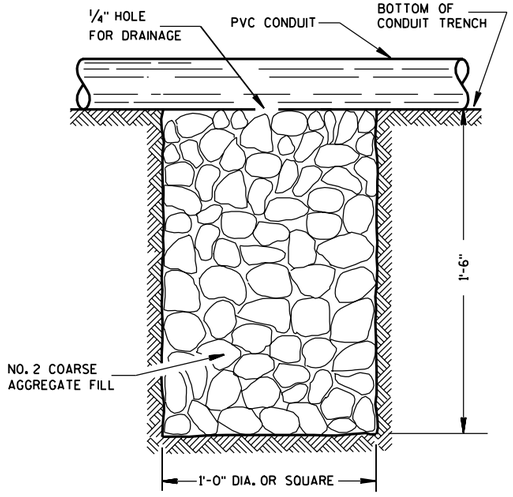

PLAN VIEW

**ARROW MARK**




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

**DRAIN SUMP FOR METALLIC CONDUIT**




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

**DRAIN SUMP FOR PVC CONDUIT**

## GENERAL NOTES

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

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

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

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

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

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

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

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

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

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

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

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

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

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

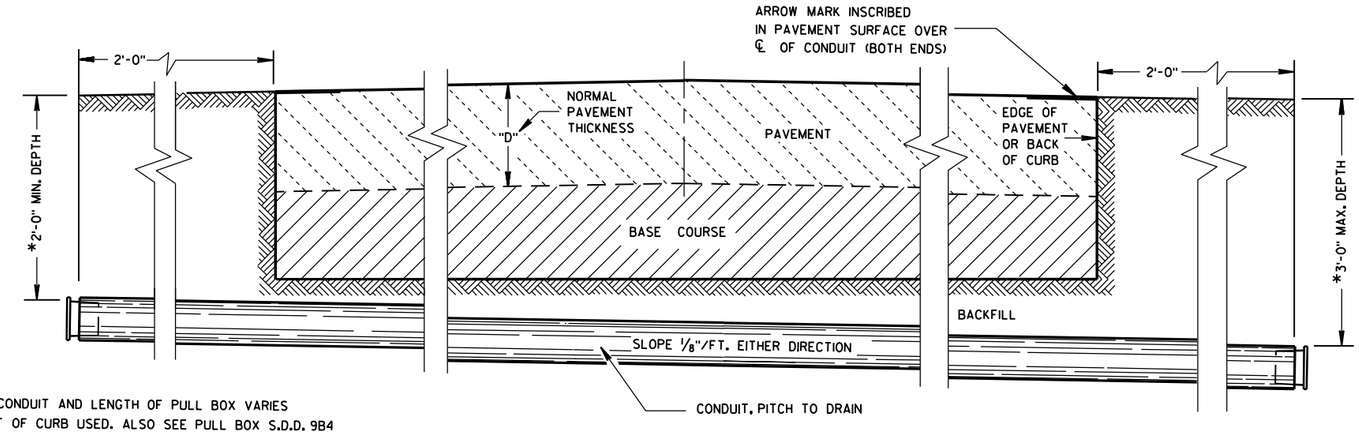
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

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

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

POLY ROPE OR A PULL WIRE SHALL BE INSTALLED AS STATED IN THE STANDARD SPECIFICATION, ITEM 652.3.1.1.

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




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

SIDE ELEVATION

**DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS**

**CONDUIT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/23/03
DATE
FHWA

STATE ELECTRICAL ENGINEER FOR HIGHWAYS

6

S.D.D. 9 B 2-7

## TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

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

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

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

## GENERAL NOTES

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

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

PULL BOXES LOCATED IN THE ROADWAYS SHALL HAVE LOCKING COVERS.

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

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

GROUNDING LUGS (MECHANICAL CONNECTORS) SHALL BE U.L. LISTED AND APPROVED FOR USE WITH COPPER WIRE. THE MECHANICAL CONNECTION (INSIDE AND OUTSIDE) TO THE PULL BOX, SHALL BE TOTALLY AND PERMANENTLY SEALED WITH A SILICONE OR RUBBERIZED CAULKING COMPOUND AS APPROVED BY THE ENGINEER.

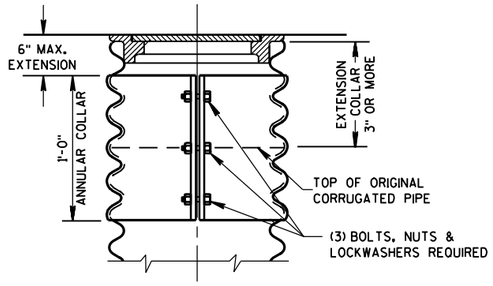
GROUNDING LUGS ARE NOT REQUIRED IN PULL BOXES WHEN VOLTAGES OF LESS THAN 50 VOLTS AC ARE THE ONLY VOLTAGES ENCOUNTERED IN THE BOXES.

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

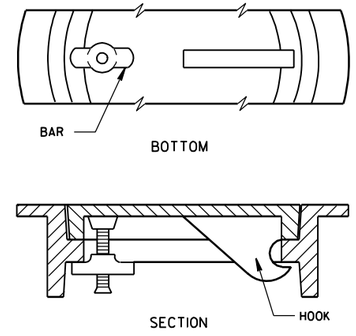
S.D.D. 9B2, "CONDUIT", APPLIES TO THIS DRAWING.

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

IF PULL BOX EQUIPMENT GROUNDING IS REQUIRED USING AN EQUIPMENT GROUNDING ELECTRODE IN EACH PULL BOX, THE EQUIPMENT GROUNDING ELECTRODE SHALL BE 5/8" X 8'-0", COPPERCLAD AND BE EXOTHERMICALLY WELDED TO A #4 AWG, COPPER, STRANDED WIRE (BARE OR GREEN INSULATED). THE #4 AWG WIRE SHALL BE 4 FEET IN LENGTH, NEATLY COILED, TAPED AND AVAILABLE FOR USE WHEN REQUIRED.

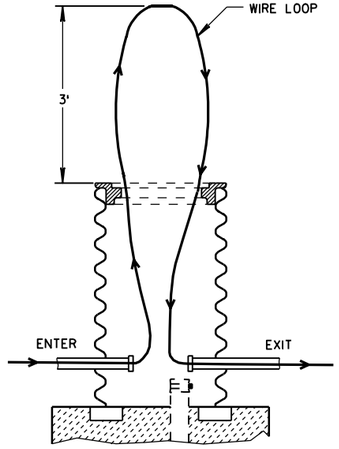



CORRUGATED PIPE EXTENDER

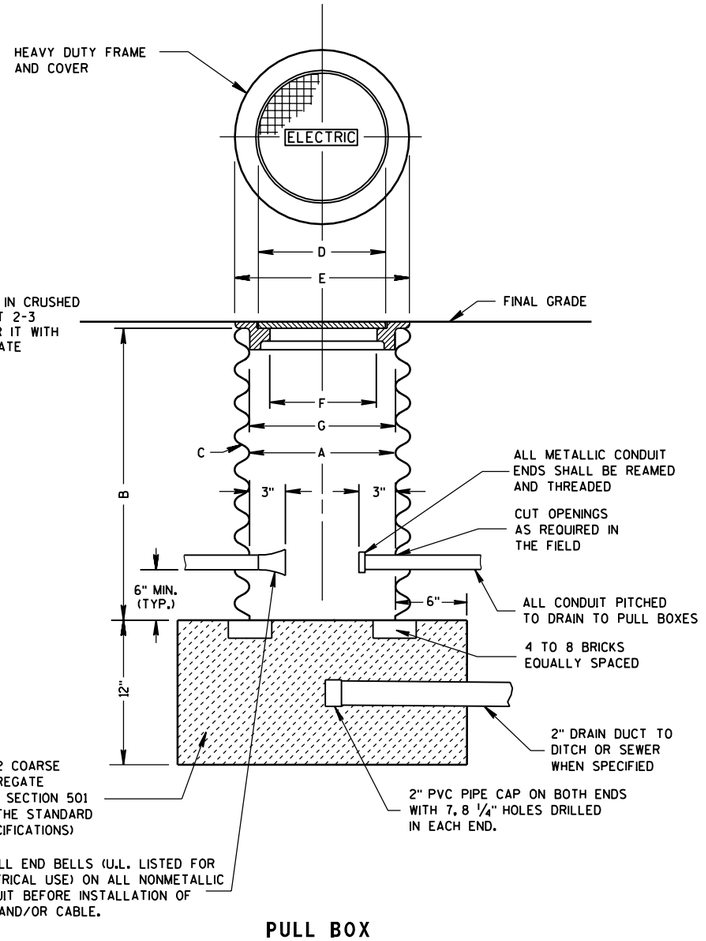



ALTERNATE COVER (LOCKING)

TIGHTENING BAR TYPE

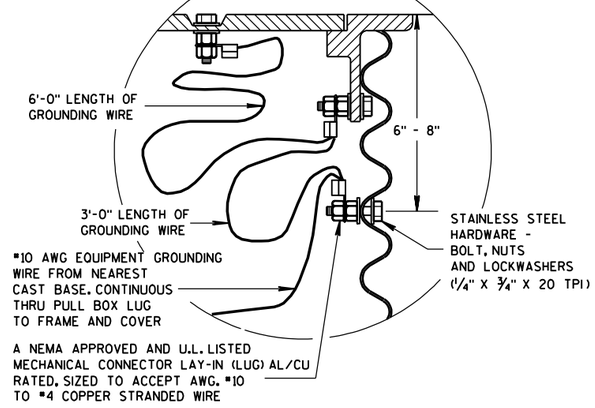



MEASUREMENT DETAIL FOR WIRE/CABLE IN THE PULL BOX




WHEN A PULL BOX IS INSTALLED IN CRUSHED AGGREGATE SHOULDERS, PLACE IT 2-3 INCHES BELOW GRADE AND COVER IT WITH 2-3 INCHES OF CRUSHED AGGREGATE

PULL BOX




EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES

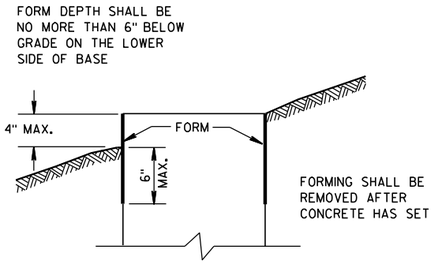
PULL BOX

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/27/06 DATE
/S/ Balu Ananthanarayanan
STATE ELECTRICAL ENGINEER FOR HIGHWAYS
FHWA

6

S.D.D. 9 B 4-9




## FORMING DETAIL

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

## GENERAL NOTES

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

BASES SHALL BE EXCAVATED BY USE OF A CIRCULAR AUGER.

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

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

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

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

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

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

## GENERAL NOTES (CONTINUED)

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

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

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

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

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

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

ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD. ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 AND 641.2.2 OF THE STANDARD SPECIFICATIONS, ASTM A-449, OR ASTM A-687 (GRADE 105).

WASHERS AND LOCK WASHERS ARE REQUIRED ON ALL ANCHOR RODS.

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

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

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

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

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

(2) (4) 1" DIA. X 3'-6" ANCHOR RODS.

(3) (4) 1" DIA. X 5'-0" ANCHOR RODS.

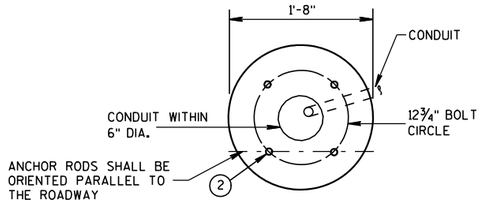
(4) (6) NO. 6 X 6'-8" BAR STEEL REINFORCEMENT.

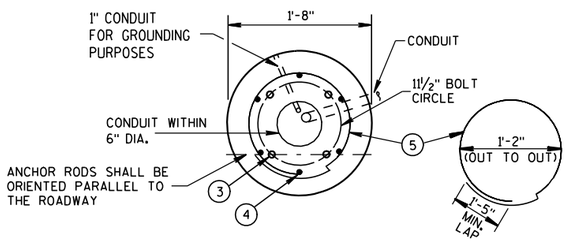
(5) (7) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

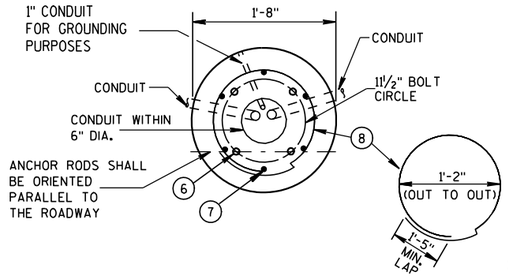
(6) (4) 1" DIA. X 3'-6" ANCHOR RODS.

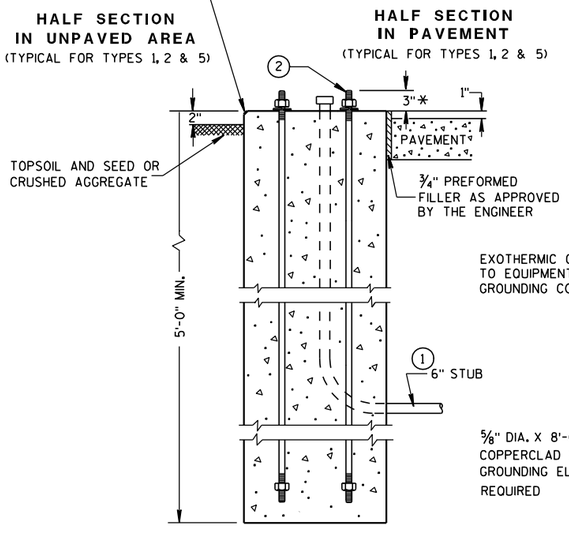
(7) (6) NO.4 X 4'-8" BAR STEEL REINFORCEMENT.

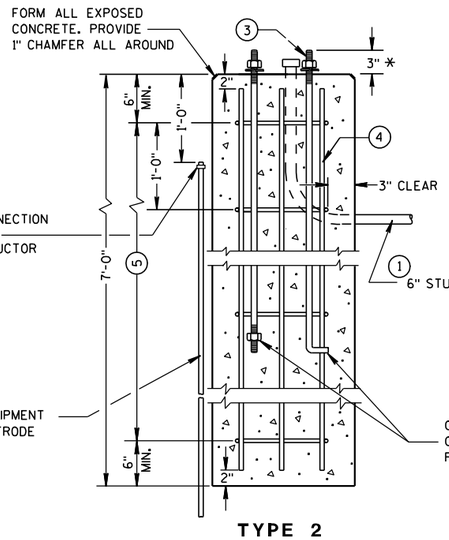
(8) (5) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

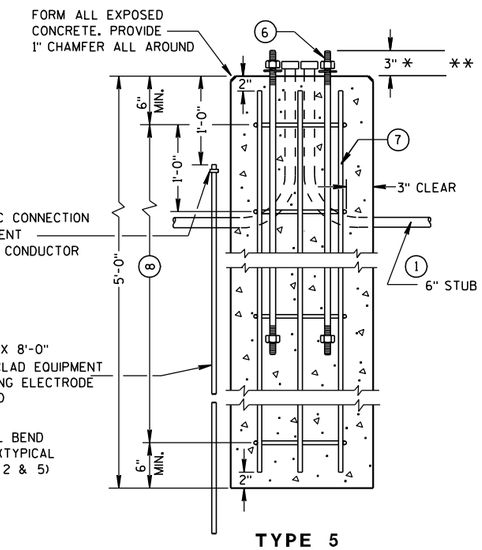



## CONCRETE BASES

* ANY ANCHOR ROD PROJECTION SHORTER THAN 2¾" OR LONGER THAN 3¼" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE.

** FOR NONBREAKAWAY INSTALLATIONS, 4½" ± ANCHOR ROD PROJECTION WITH THE USE OF LEVELING NUTS. RODENT SCREEN REQUIRED.

CONCRETE BASES, TYPES 1, 2 & 5

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

| 3/3/10 | /S/ Joanna L. Bush |
|---|---|
| DATE | STATE ELECTRICAL ENGINEER FOR HIGHWAYS |

FHWA

6

S.D.D. 9 C 2-6

## GENERAL NOTES

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

FOUR (4) BOLTS SHALL BE FURNISHED WITH EACH TRANSFORMER BASE. BOLTS SHALL BE 1" DIAMETER, 4" IN LENGTH, WITH WASHERS, LOCK WASHERS AND NUTS. BOLTS, NUTS AND WASHERS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 641.2.2 OF THE STANDARD SPECIFICATIONS, ASTM A-325, (92,000 YIELD) HEAVY HEX NUT AND BE GALVANIZED IN ACCORDANCE WITH ASTM A-153, CLASS C.

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

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

DOUBLE NUTTING IS NOT ACCEPTABLE FOR LEVELING OR MOUNTING PURPOSES.

A NEMA APPROVED AND U.L. LISTED MECHANICAL CONNECTOR (LUG) AL/CU RATED AND SIZED TO ACCEPT #10 AWG STRANDED WIRE, SHALL BE FURNISHED AND INSTALLED IN THE PEDESTAL AND TRANSFORMER BASES.

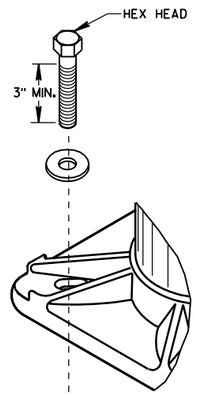
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

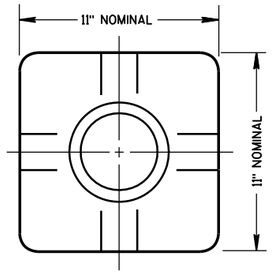
SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER - THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

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

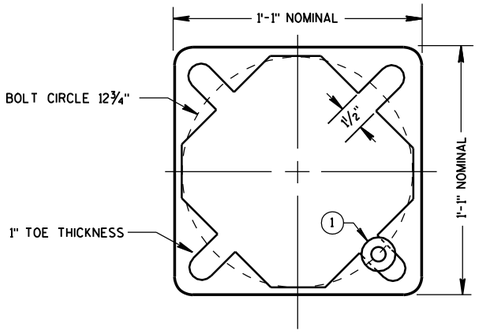
BASE COLLAR THREADING SHALL EXTEND INTO THE BASE COLLAR WITH SUFFICIENT DEPTH TO ACCEPT THE INSTALLATION OF TRAFFIC SIGNAL STANDARDS TO A DEPTH OF 1 1/2", THEN TIGHTENING TO A POINT OF BEING IMMOVABLE.

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

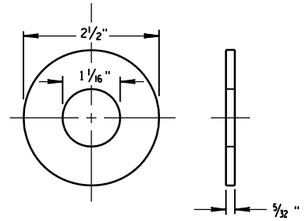



TOP VIEW
(PEDESTAL BASE)

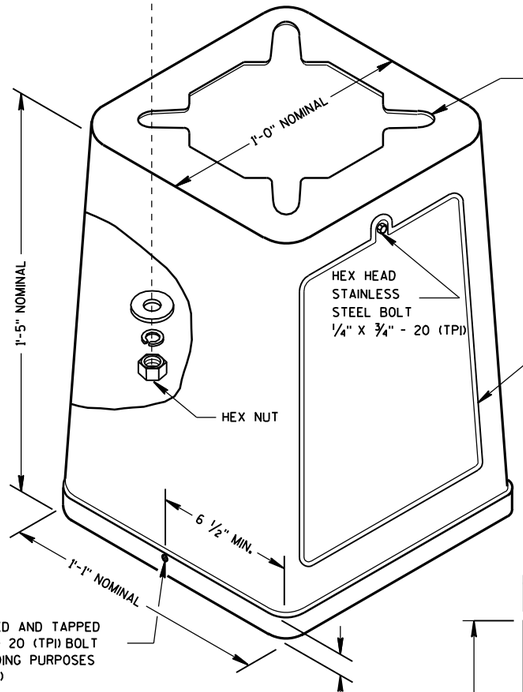



BOTTOM VIEW
(PEDESTAL BASE)

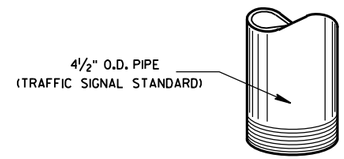


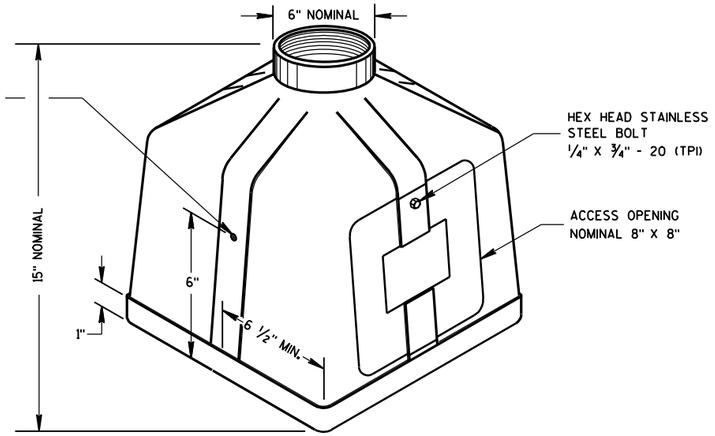

ZINC COATED STEEL WASHER
TO BE PROVIDED BY THE CONTRACTOR

**PEDESTAL BASE WASHER** (1)

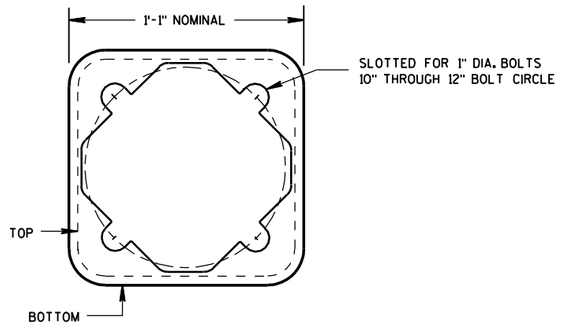



ISOMETRIC VIEW

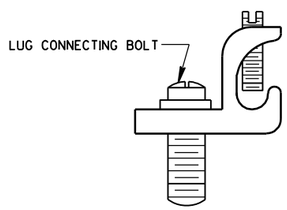



ISOMETRIC VIEW
**PEDESTAL BASE**

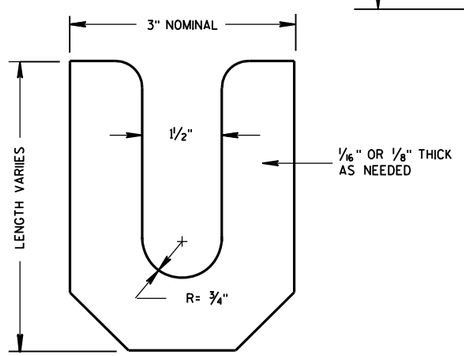



BOTTOM VIEW
(TRANSFORMER BASE)




**TYPICAL MECHANICAL CONNECTOR LUG**
TO BE FURNISHED WITH EACH BASE

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




**LEVELING SHIM**

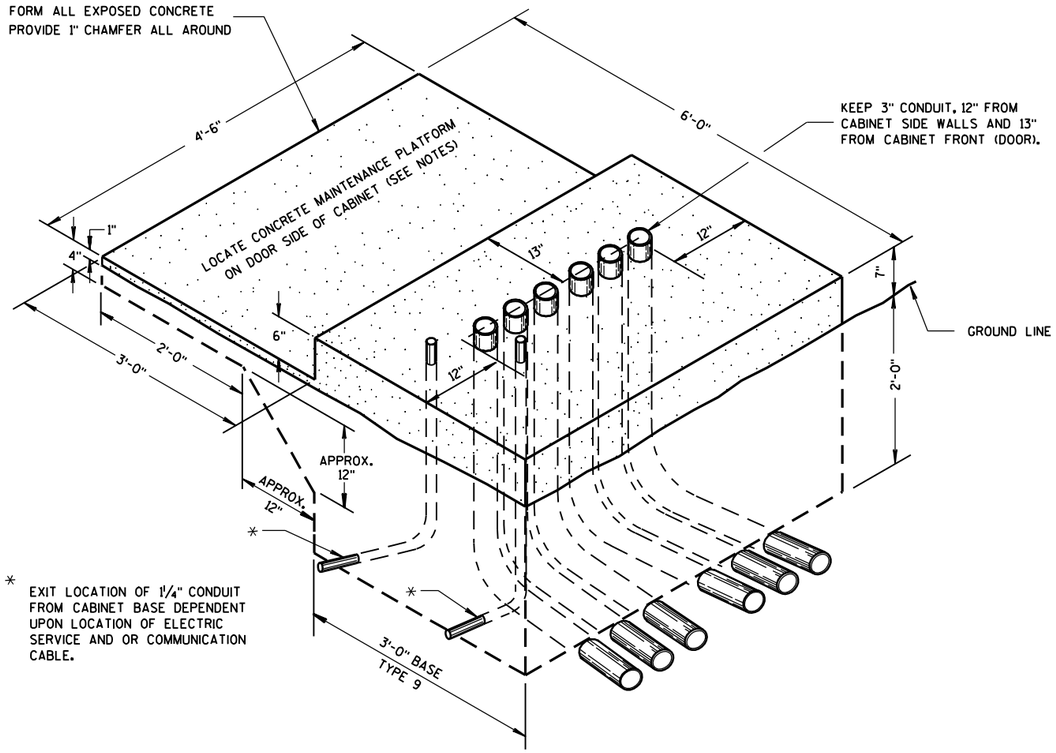
**TRANSFORMER/PEDESTAL BASES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/27/09
DATE
/S/ Joanna L. Bush
STATE ELECTRICAL ENGINEER FOR HIGHWAYS
FHWA

6

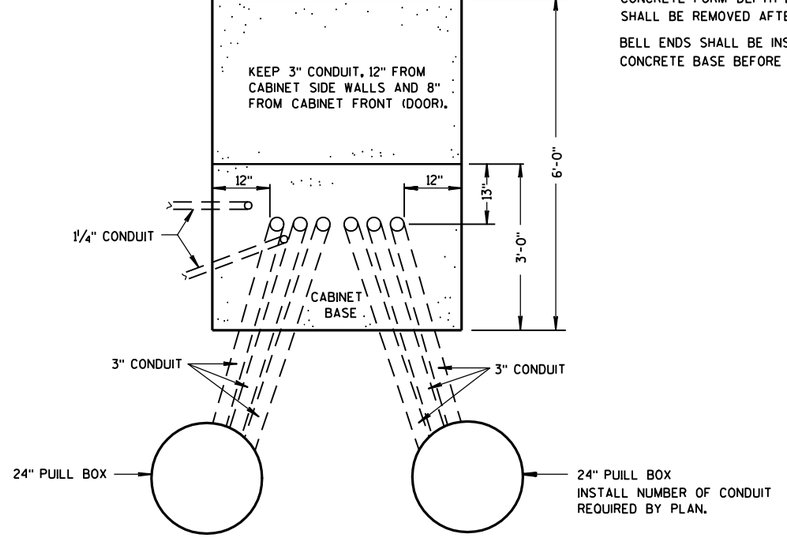
S.D.D. 9 C 3-3




ISOMETRIC VIEW

**TYPE 9, SPECIAL**

( C.Y. CONCRETE = APPROX. 1.56)




PLAN VIEW

**CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL**

## GENERAL NOTES

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

INSTALL FOUR ½ INCH MINIMUM DIAMETER X 4 INCH MINIMUM LENGTH STAINLESS STEEL APPROVED CONCRETE MASONRY ANCHORS TO ANCHOR THE CABINET TO TYPE 6, 7, 8, AND 9 BASES. THE ANCHOR STUDS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO PROPERLY ANCHOR THE CONTROL CABINET TO THE BASE.

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

CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 1 INCH.

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

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

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

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

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

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

MINIMUM BENDING RADIUS OF CONDUIT = 6 X THE DIAMETER.

ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

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

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

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

CONDUIT EXITING THE CONCRETE BASE (SIX THREE INCH) SHALL TERMINATE IN PULL BOXES AS SHOWN ON THE PLANS.

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

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

**CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

2/27/07 — DATE

/S/ Balu Ananthanarayanan — STATE ELECTRICAL ENGINEER FOR HIGHWAYS

FHWA

6

S.D.D. 9 C 6-5

## GENERAL NOTES

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

BASES SHALL BE EXCAVATED BY USE OF A CIRCULAR AUGER.

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

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

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

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

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 4 INCHES. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED. NONMETALLIC CONDUIT SHALL HAVE BELL END INSTALLED. ALL CONDUIT SHALL BE SLOPED TO PULL BOX.

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

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

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

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

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

A NO. 4 AWG, STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD).

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

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

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

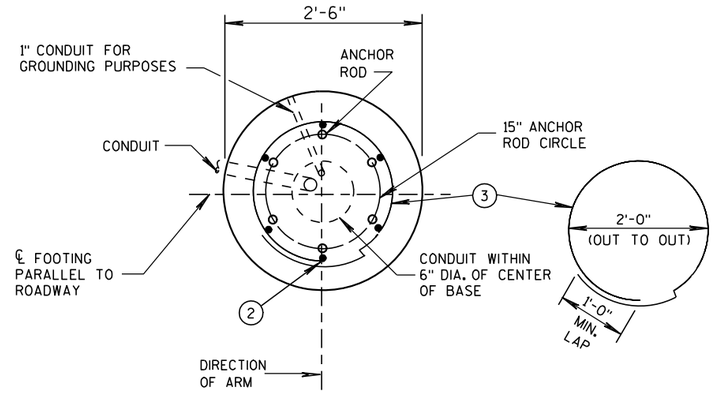
ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

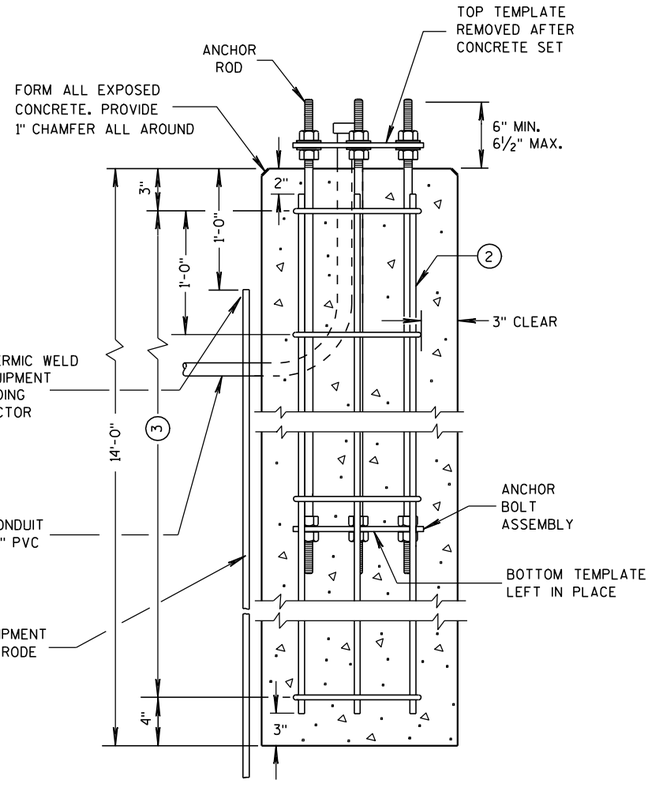
(1) THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES, (GREATER THAN 36 INCHES IF INSTALLED IN BREAKER-RUN), EXCEPT WITH WRITTEN APPROVAL BY THE ENGINEER.

(2) (6) NO. 6 X 13'-7" BAR STEEL REINFORCEMENT.

(3) (15) NO. 4 X 7'-4" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

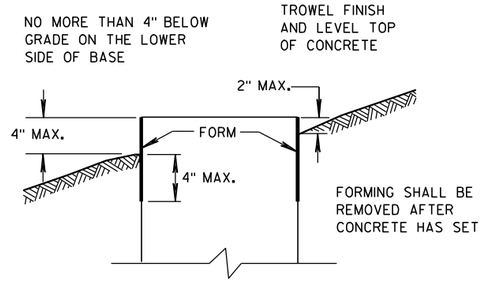
| | |
|---|---|
| CONCRETE MASONRY | fc=3,500 p.s.i. |
| HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 | fy=60,000 p.s.i. |
| ANCHOR RODS, AASHTO M314 GRADE 55 | fy=55,000 p.s.i. |
| TEMPLATES, ASTM, A709 GRADE 36 | fy=36,000 p.s.i. |



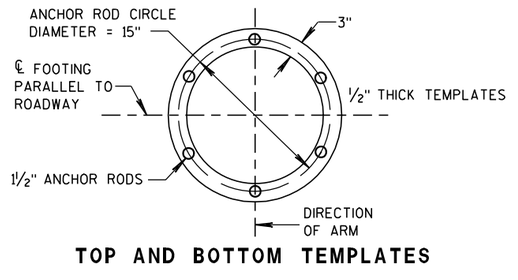




## CONCRETE BASE TYPE 10
### (FOR TYPE 9 & 10 POLES)

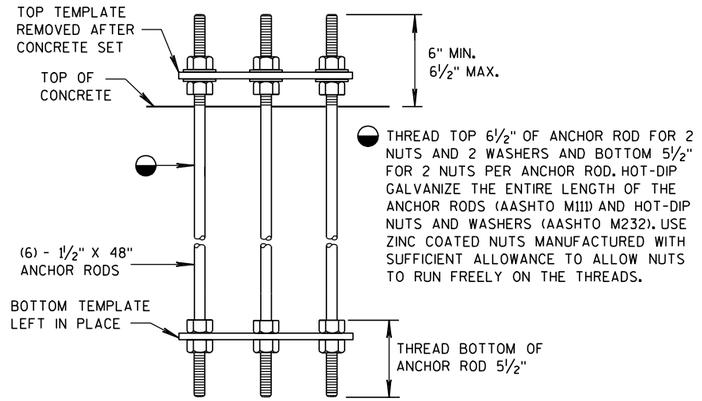
**TO BE USED WHEN GROUND ELEVATION AT BASE EQUALS OR IS GREATER THAN HIGH POINT OF ROADWAY ELEVATION. SEE S.D.D. 9C13-1 WHEN GROUND ELEVATION AT BASE IS LOWER THAN HIGH POINT OF ROADWAY ELEVATION.**




## FORMING DETAIL




## TOP AND BOTTOM TEMPLATES




## ANCHOR BOLT ASSEMBLY DETAIL

## CONCRETE BASE TYPE 10
## ANCHOR ASSEMBLY

| QUANTITY REQUIREMENTS | |
|---|---|
| APPROX. CUBIC YARDS OF CONCRETE | 2.5 |
| LBS. OF HOOP BAR STEEL | 69 |
| LBS. OF VERTICAL BAR STEEL | 122 |

CONCRETE BASE TYPE 10

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3-2-11 DATE

/S/ Thomas J. Cornine STATE ELECTRICAL ENGI

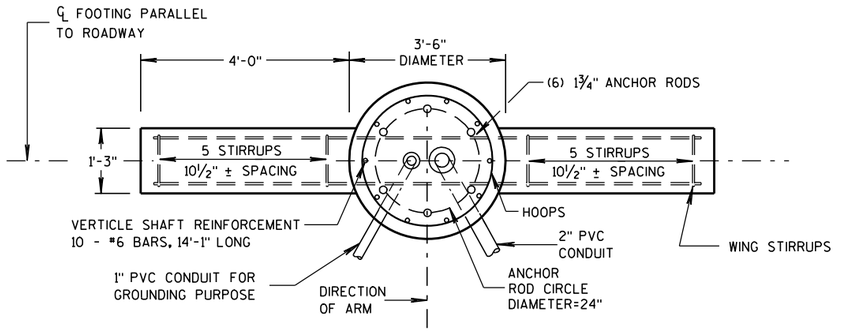
HWYS

FHWA

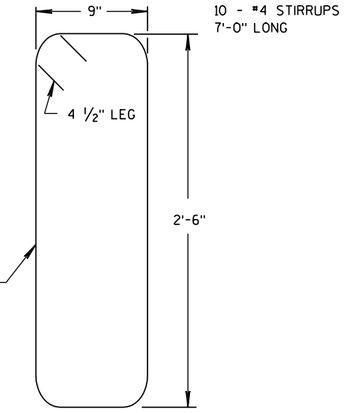



6

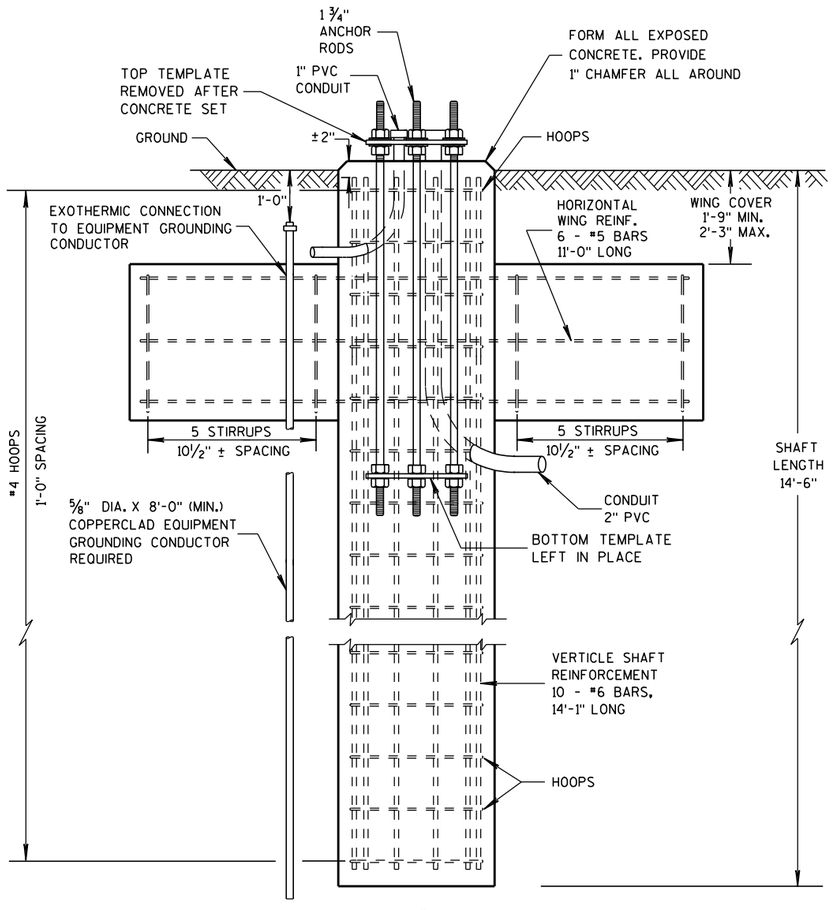
S.D.D. 9 C 11-2



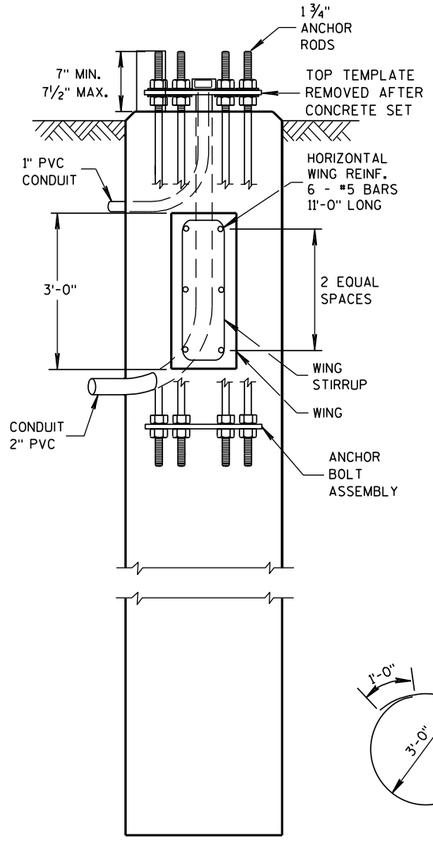

**PLAN VIEW**




**WING STIRRUP**

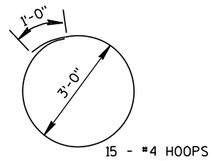



**ELEVATION VIEW**




**SIDE VIEW**

DOES NOT SHOW HOOPS OR
VERTICAL SHAFT REINFORCEMENT




15 - #4 HOOPS
10'-6" LONG

**HOOP DETAIL**

## GENERAL NOTES

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

ORIENT ANCHOR RODS IN FOOTING AND PROVIDE ANCHOR ROD PROJECTION ABOVE TOP OF CONCRETE FOOTING BASE PER THIS SHEET.

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

USE 3" CLEAR FOR ALL REINFORCEMENT UNLESS NOTED OTHERWISE.

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

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

BASES (SHAFT), BELOW THE WING, SHALL BE EXCAVATED BY THE USE OF A CIRCULAR AUGER. IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE SOIL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUNG THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

TOP SURFACE OF THE CONCRETE BASE SHALL BE TROWEL FINISHED AND LEVEL.

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

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

CONDUIT HEIGHT ABOVE CONCRETE BASE SHALL BE 4½" INCHES. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED. NONMETALLIC CONDUIT SHALL HAVE BELL ENDS INSTALLED. ALL CONDUIT SHALL SLOPE TO PULL BOX.

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

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

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTOR FITTINGS, UL LISTED FOR ELECTRICAL USE, SHALL BE USED.

A NO. 4 AWG, STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD).

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

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

THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVEL WAY SHALL BE 24-INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18-INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36-INCHES, (GREATER THAN 36-INCHES IF INSTALLED IN BREAKER-RUN), EXCEPT WITH THE WRITTEN APPROVAL OF THE ENGINEER.

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

| | |
|---|---|
| CONCRETE MASONRY | fc=3,500 p.s.i. |
| HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 | fy=60,000 p.s.i. |
| ANCHOR RODS, AASHTO M314 GRADE 55 | fy=55,000 p.s.i. |
| TEMPLATES, ASTM A709 GRADE 36 | fy=36,000 p.s.i. |

**(FOR TYPE 12 & 13 POLES)**

CONCRETE = 6.3 C.Y.
H.S. REINFORCEMENT = 433 LBS.

**TO BE USED WHEN GROUND ELEVATION AT BASE EQUALS OR IS GREATER THAN HIGH POINT OF ROADWAY ELEVATION.**
**SEE S.D.D. 9C13-1 WHEN GROUND ELEVATION AT BASE IS LOWER THAN HIGH POINT OF ROADWAY ELEVATION.**

**CONCRETE BASE TYPE 13**

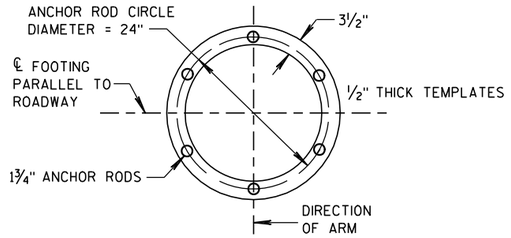
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



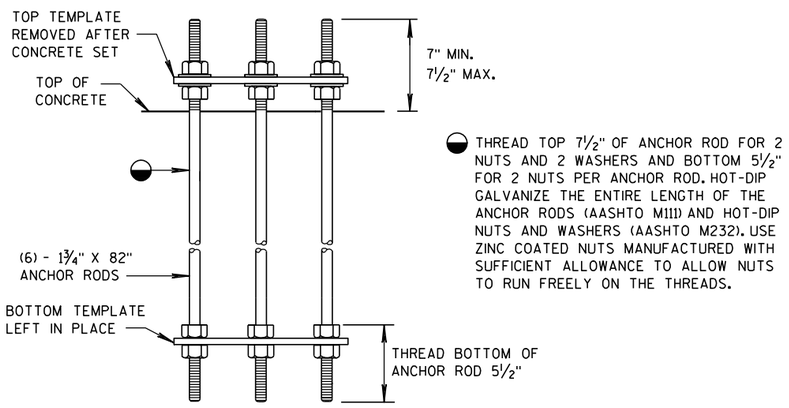


6

S.D.D. 9 C 12 -2a

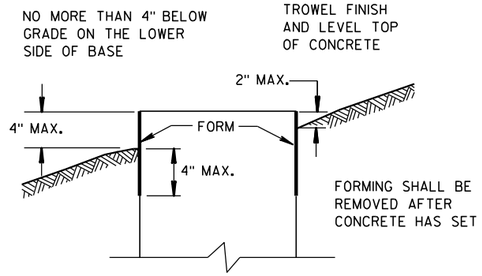



**TOP AND BOTTOM TEMPLATES**




**ANCHOR BOLT ASSEMBLY DETAIL**

## CONCRETE BASE TYPE 13 ANCHOR ASSEMBLY




**FORMING DETAIL**

CONCRETE BASE TYPE 13

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3-2-11 DATE

/S/ Thomas J. Cearlock
STATE ELECTRICAL ENGI

HWYS

FHWA

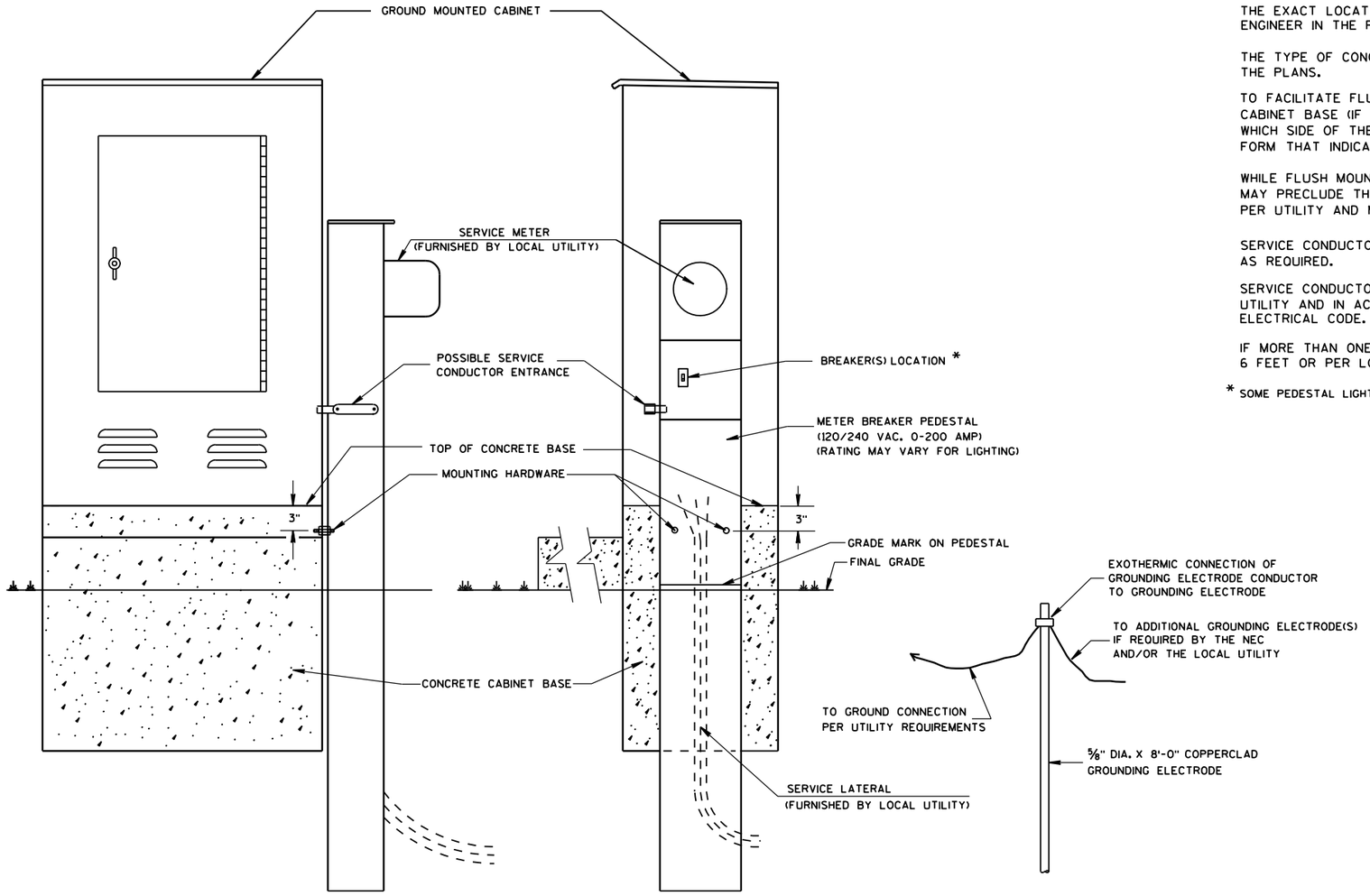


6

S.D.D. 9 C 12-2b

6

S.D.D. 9 C 12-2b




TYPICAL CABINET SERVICE INSTALLATION

## GENERAL NOTES

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

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

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

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

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

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

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

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

* SOME PEDESTAL LIGHTING PLANS SHOW MAIN LUGS ONLY.

6

6

S.D.D. 9 D 1-4

S.D.D. 9 D 1-4

CABINET SERVICE INSTALLATION
(METER BREAKER PEDESTAL)

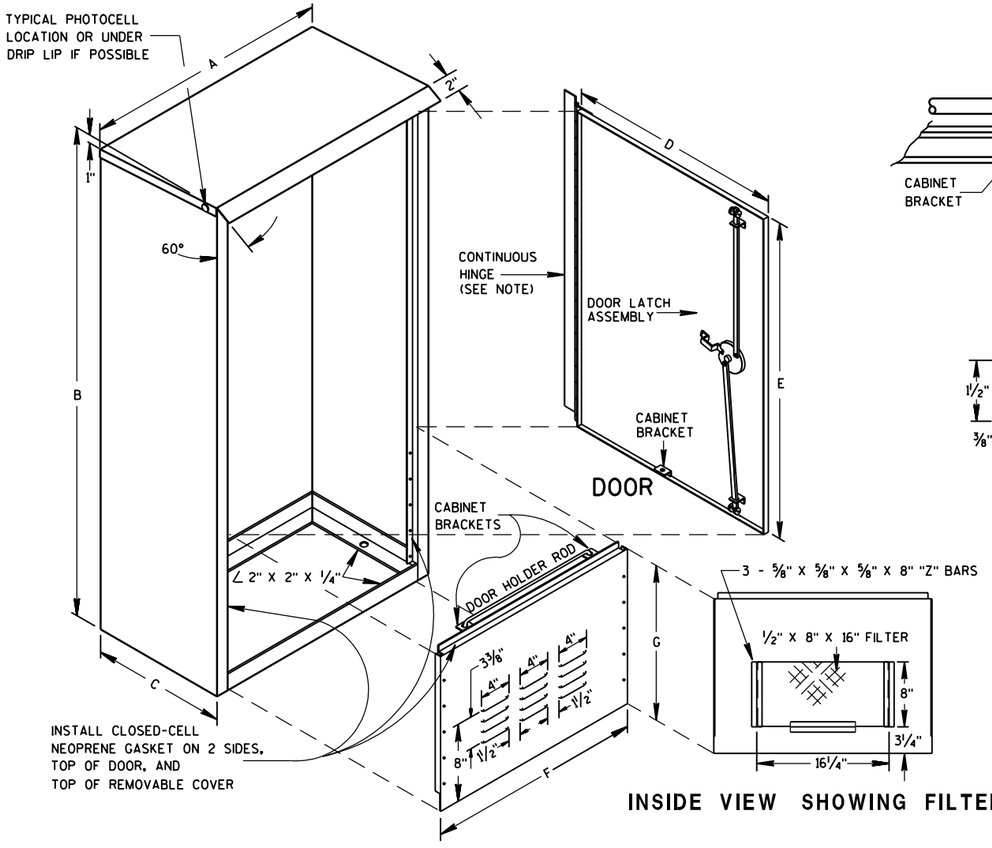
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/27/09
DATE

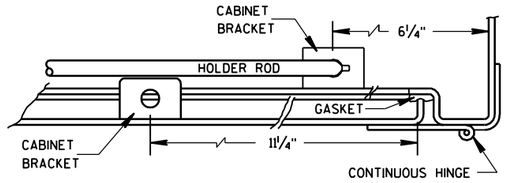
/S/ Joanna L. Bush
STATE ELECTRICAL ENGINEER FOR HIGHWAYS

FHWA

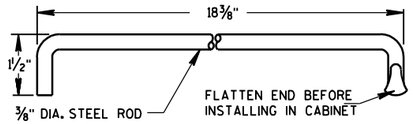



REMOVABLE COVER

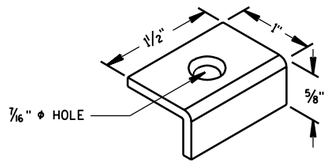
INSIDE VIEW SHOWING FILTER



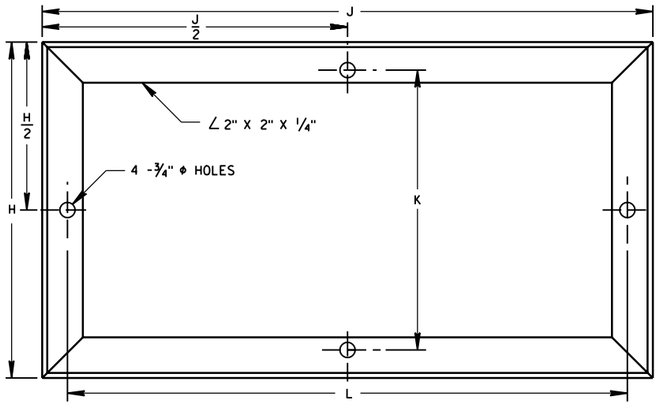

HINGE & DOOR HOLDER




HOLDER ROD



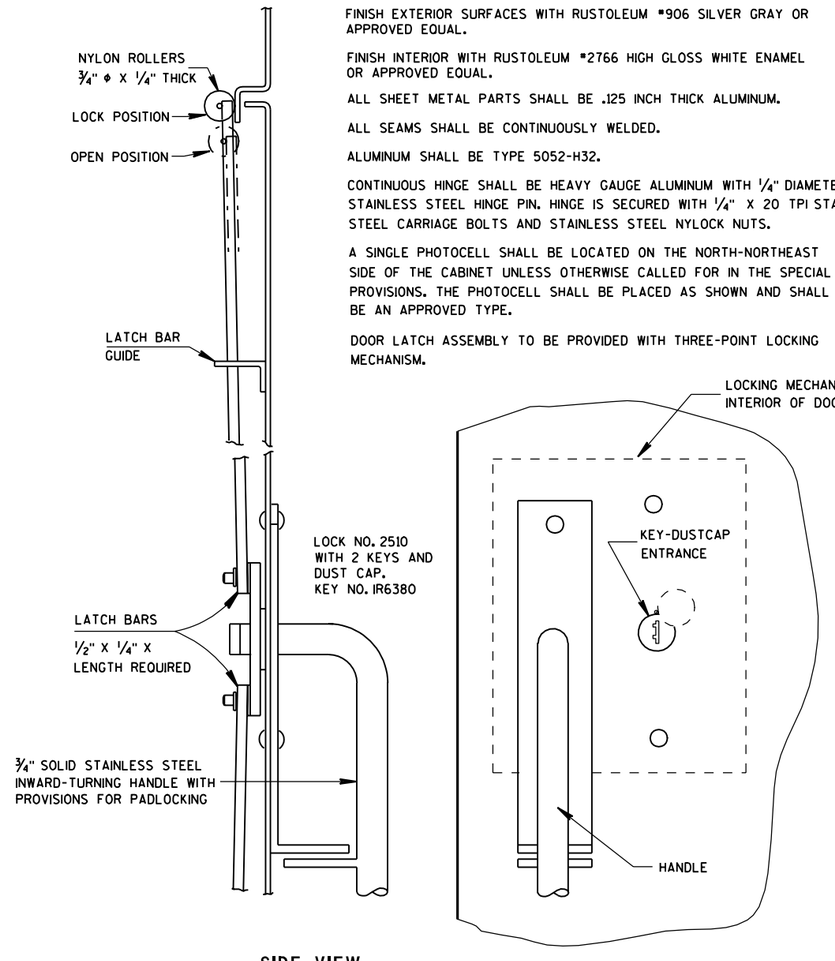

CABINET BRACKET




MOUNTING BASE

TABLE OF DIMENSIONS (INCHES)

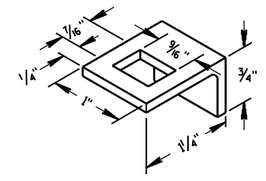
| MARK | CABINET TYPE | | |
|---|---|---|---|
| | 3060 | 3860 | 3866 |
| A | 30 | 38 | 38 |
| B | 60 | 60 | 66 |
| C | 16 1/2 | 16 1/2 | 24 |
| D | 26 1/2 | 34 3/4 | 33 3/4 |
| E | 38 3/4 | 38 3/4 | 38 3/4 |
| F | 26 1/2 | 34 3/4 | 33 3/4 |
| G | 19 | 19 | 25 |
| H | 16 1/2 | 16 1/2 | 24 |
| H/2 | 8 1/4 | 8 1/4 | 12 |
| J | 30 | 38 | 38 |
| J/2 | 15 | 19 | 19 |
| K | 13 3/4 | 13 3/4 | 21 1/4 |
| L | 27 1/2 | 35 1/2 | 35 1/2 |




SIDE VIEW

FRONT VIEW

LATCH ASSEMBLY




LATCH BAR GUIDE

## 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.

PRIME WITH PHOSPHATE TREATMENT AND PRIMER.

FINISH EXTERIOR SURFACES WITH RUSTOLEUM #906 SILVER GRAY OR APPROVED EQUAL.

FINISH INTERIOR WITH RUSTOLEUM #2766 HIGH GLOSS WHITE ENAMEL OR APPROVED EQUAL.

ALL SHEET METAL PARTS SHALL BE .125 INCH THICK ALUMINUM.

ALL SEAMS SHALL BE CONTINUOUSLY WELDED.

ALUMINUM SHALL BE TYPE 5052-H32.

CONTINUOUS HINGE SHALL BE HEAVY GAUGE ALUMINUM WITH 1/4" DIAMETER STAINLESS STEEL HINGE PIN. HINGE IS SECURED WITH 1/4" X 20 TPI STAINLESS STEEL CARRIAGE BOLTS AND STAINLESS STEEL NYLOCK NUTS.

A SINGLE PHOTOCELL SHALL BE LOCATED ON THE NORTH-NORTHEAST SIDE OF THE CABINET UNLESS OTHERWISE CALLED FOR IN THE SPECIAL PROVISIONS. THE PHOTOCELL SHALL BE PLACED AS SHOWN AND SHALL BE AN APPROVED TYPE.

DOOR LATCH ASSEMBLY TO BE PROVIDED WITH THREE-POINT LOCKING MECHANISM.

# SIGNAL OR LIGHTING CONTROL CABINET

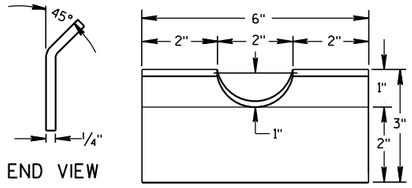
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/21/96
DATE
FHWA

STATE ELECTRICAL ENGINEER FOR HIGHWAYS

6

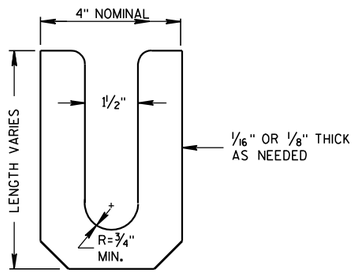
S.D.D. 9 D 2-2




FRONT VIEW

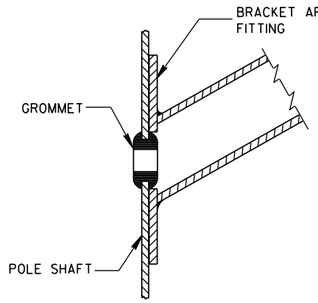
## RECTANGULAR CLAMP SHIM

(4 TO A SET)

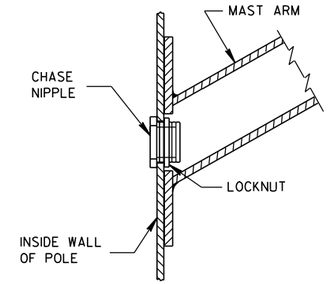



## LEVELING SHIM (15)

SHALL BE ALUMINUM




## TYPICAL APPLICATION OF GROMMET IN POLE SHAFT




## TYPICAL APPLICATION OF CHASE NIPPLE IN POLE SHAFT

## GENERAL NOTES

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

(10.) 4.5" I.D. FOR LUMINAIRE MAST ARM CLAMP.
6.625" I.D. FOR TROMBONE MAST ARM CLAMP.

(11.) INDIVIDUAL BASE PLATE ANCHOR ROD COVERS. (4 REQUIRED)

(12.) BASE PLATE SLOTTED TO ACCEPT 11" THROUGH 12" BOLT CIRCLE USING 1" DIAMETER ANCHOR RODS.

(13.) OUTSIDE SHIM DIAMETER - (4.5" O.D. FOR LUMINAIRE MAST ARM)
(6.625" O.D. FOR TROMBONE MAST ARM)

(14.) VARIABLE SHIM THICKNESS - (0.10", 0.25", 0.35", 0.53" OR 0.70")

SHIM THICKNESS FOR TROMBONE MAST ARMS MAY BE TYPICALLY 0.25", 0.35", 0.53" OR 0.70".

SHIM THICKNESS FOR LUMINAIRE MAST ARMS MAY BE TYPICALLY 0.10", 0.25" OR 0.35".

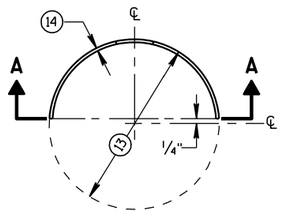
SHIM MATERIAL SHALL BE ALUMINUM ALLOY.

SHIM THICKNESS SHALL BE IMPRESSED INTO EACH SHIM. NUMERALS SHALL BE 1/4" HIGH AND LEGIBLE.

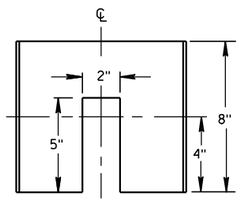
THE CONTRACTOR SHALL SUBMIT TWO COPIES OF ALL SHIM SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.

(15.) LEVELING SHIMS, DESIGNED FOR THE PURPOSE, SHALL BE USED WHEN PLUMBING POLES. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE. LEVELING SHIMS SHALL BE USED ONLY BETWEEN THE TOP OF THE CONCRETE BASE AND A METALLIC BASE PLATE.

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



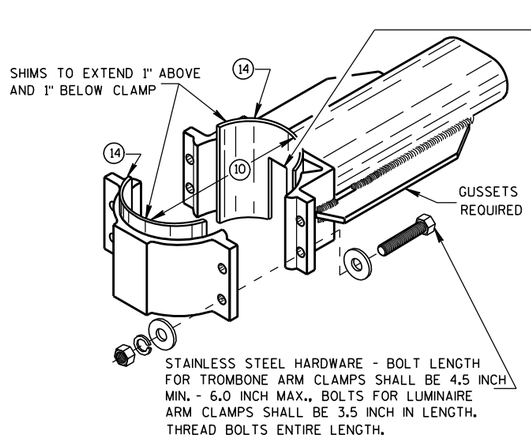

PLAN VIEW



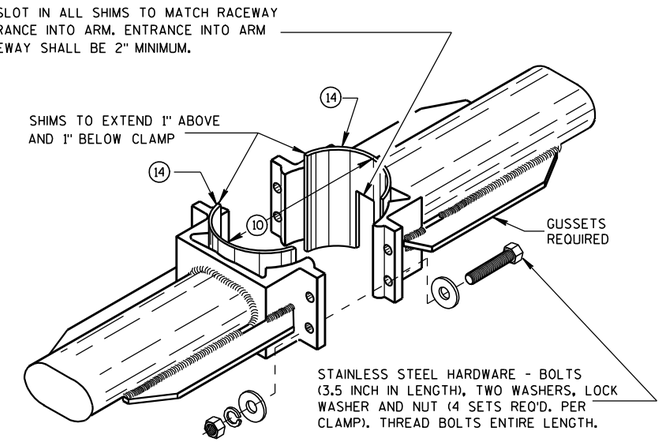

SECTION A-A

## CIRCULAR CLAMP SHIM

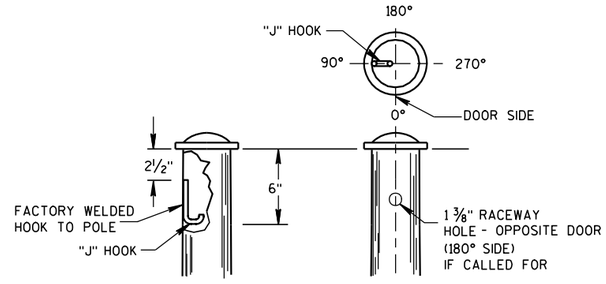
(2 TO A SET)



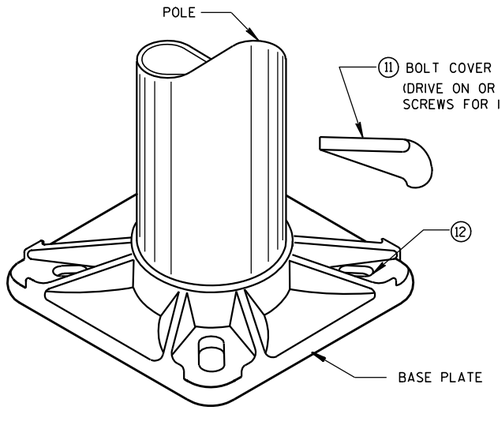

## TYPICAL TROMBONE MAST ARM AND SINGLE LUMINAIRE MAST ARM MOUNTING CLAMP



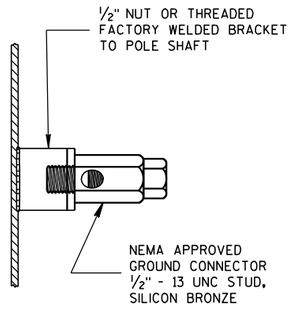

## TYPICAL LUMINAIRE MAST ARM (DOUBLE) MOUNTING BRACKETS

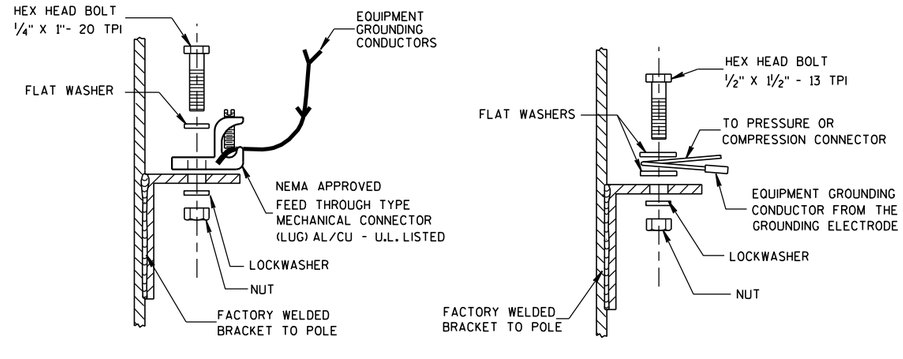



## TYPICAL "J" HOOK LOCATION




## BASE PLATE




## TYPICAL GROUNDING CONNECTIONS

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

## HARDWARE DETAILS FOR POLE MOUNTINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/2/11 — DATE

/S/ Thomas J. Gosling — STATE ELECTRICAL ENGI

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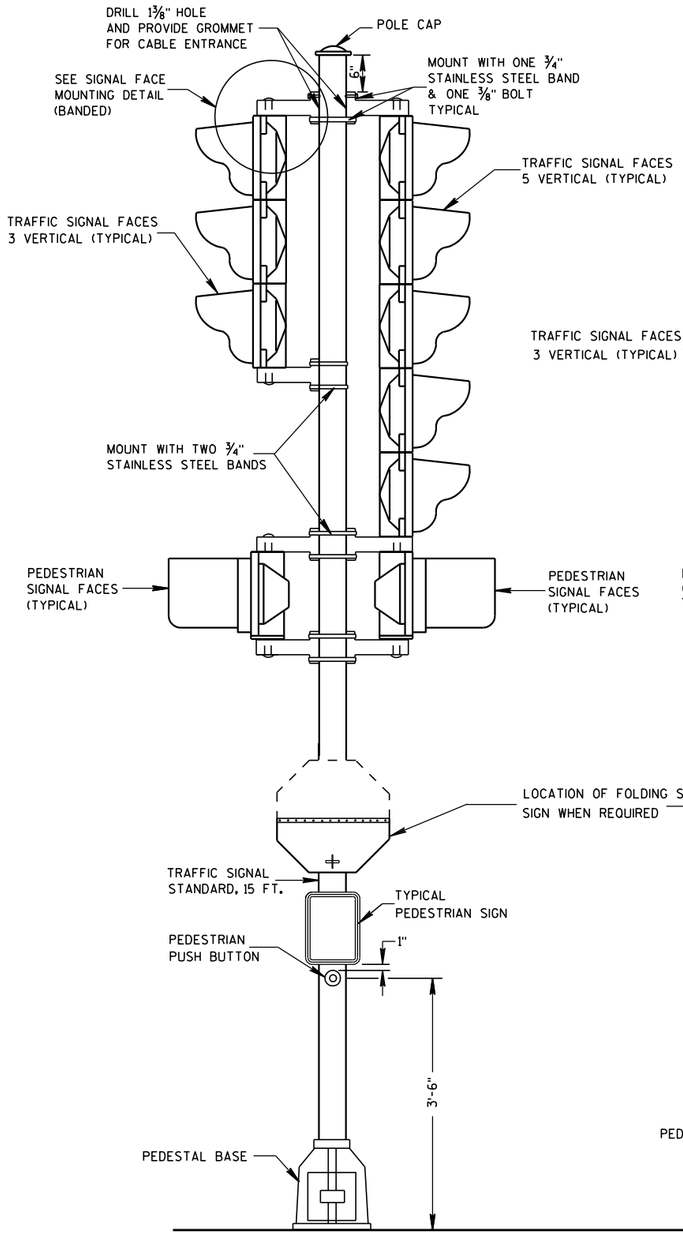
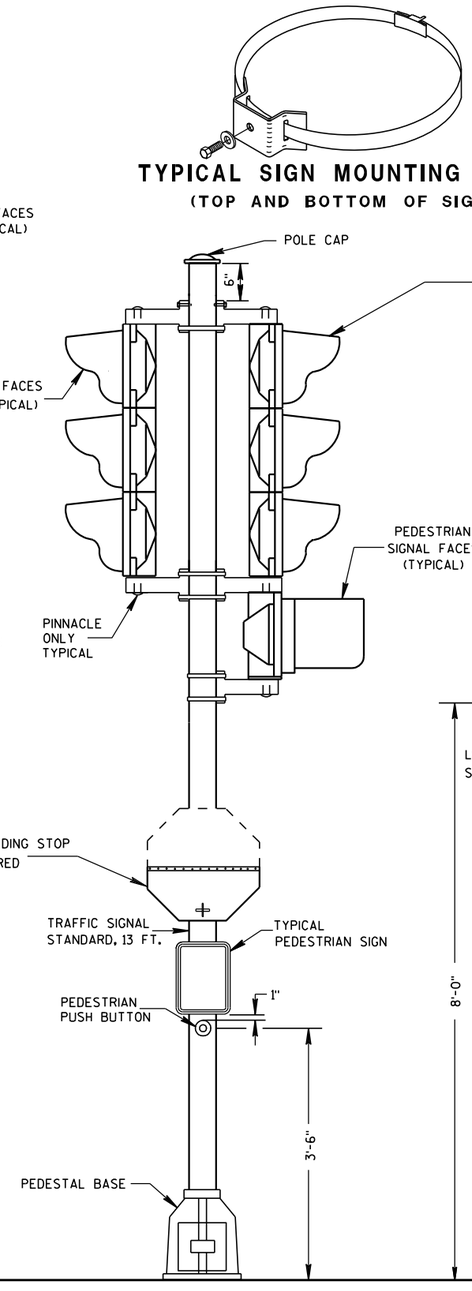


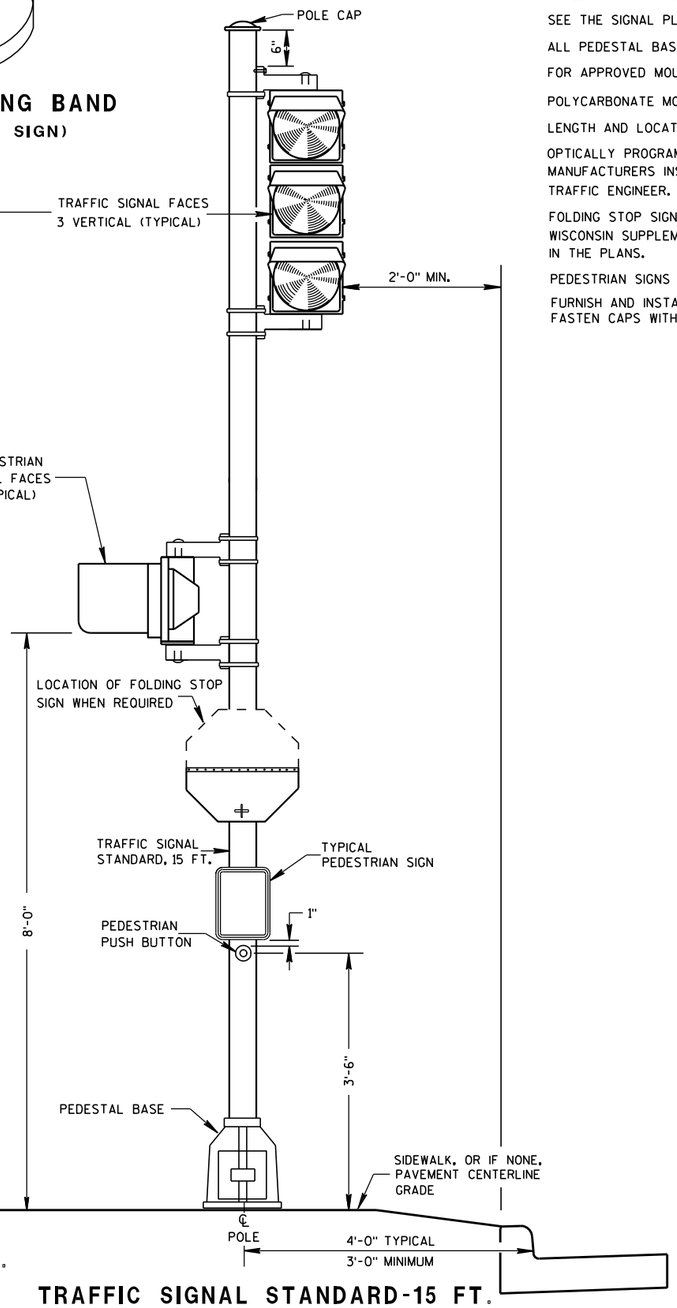

TRAFFIC SIGNAL STANDARD-15 FT.




TRAFFIC SIGNAL STANDARD-13 FT.

## TYPICAL SIGN MOUNTING BAND

**(TOP AND BOTTOM OF SIGN)**




TRAFFIC SIGNAL STANDARD-15 FT.
3M MOUNTING (TYPICAL)

## GENERAL NOTES

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

SEE THE SIGNAL PLAN FOR REQUIRED SIGNAL FACE SIZES.

ALL PEDESTAL BASES SHALL BE MOUNTED ON CONCRETE BASE - TYPE 1.

FOR APPROVED MOUNTING HARDWARE, SEE THE CONTRACT SPECIAL PROVISIONS.

POLYCARBONATE MOUNTING BRACKETS SHALL BE USED.

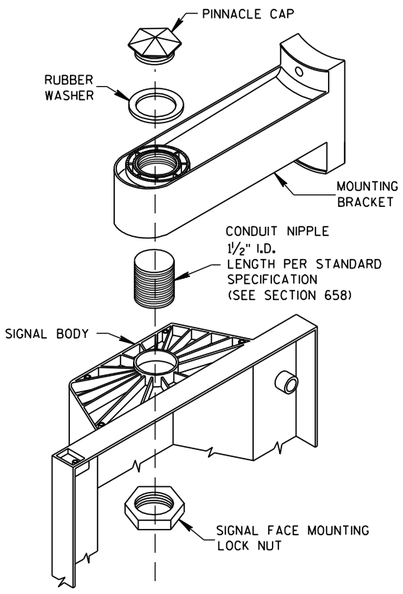
LENGTH AND LOCATION OF TRAFFIC SIGNAL STANDARDS SHALL BE AS SHOWN ON THE PLANS.

OPTICALLY PROGRAMMED SIGNAL FACES SHALL BE MASKED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, AND UNDER THE DIRECTIONS OF THE DISTRICT TRAFFIC ENGINEER.

FOLDING STOP SIGNS SHALL BE IN ACCORDANCE WITH THE MUTCD AND/OR THE LATEST WISCONSIN SUPPLEMENT. THE SIGNS SHALL BE SIZED AND LOCATED AS CALLED FOR IN IN THE PLANS.

PEDESTRIAN SIGNS SHALL BE AS DESIGNATED IN THE PLANS.

FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) 1/4" X ¾" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.



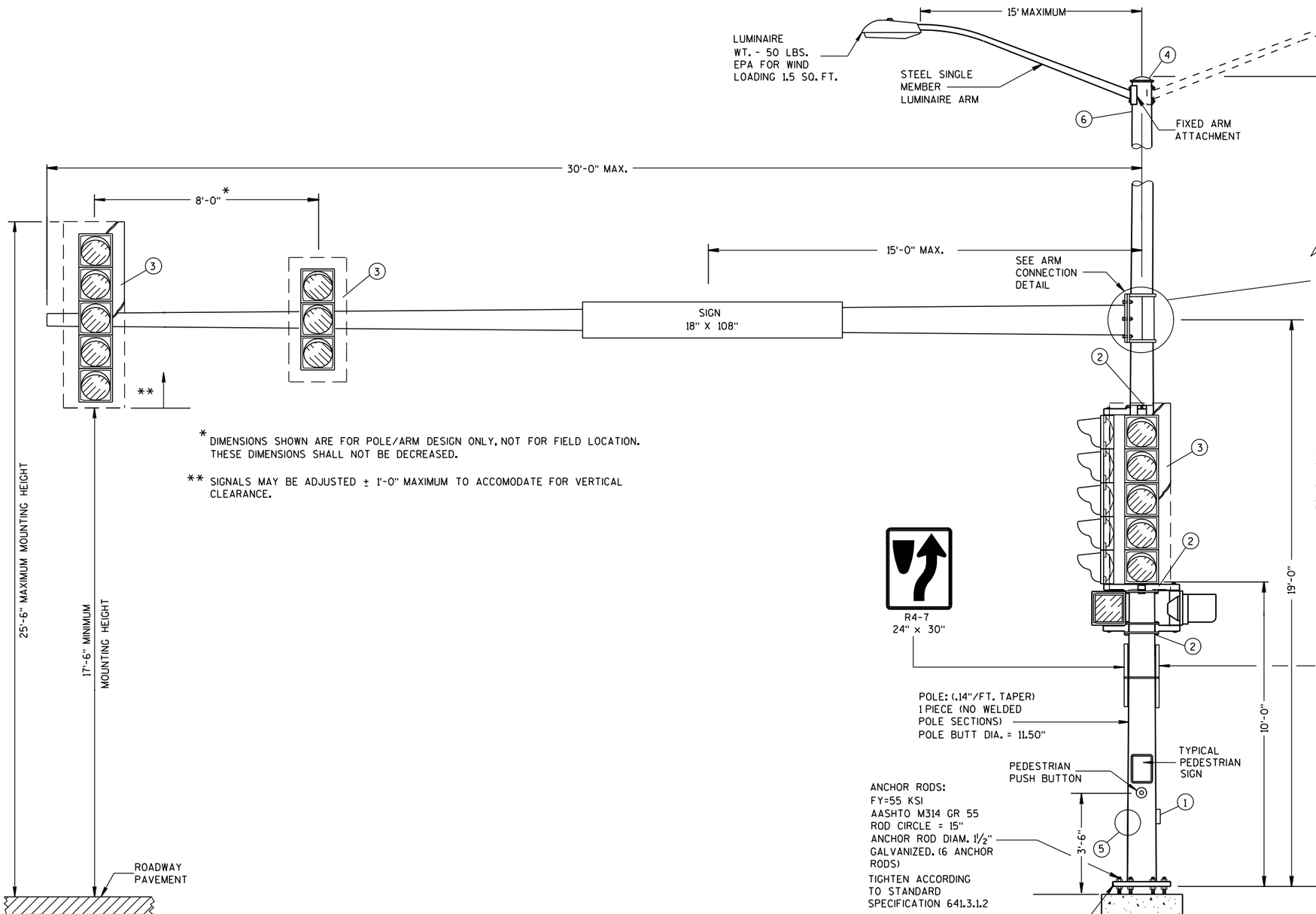

## SIGNAL FACE MOUNTING DETAIL

**(BANDED)**

**TRAFFIC SIGNAL STANDARD**
**POLY BRACKET MOUNTINGS (TYPICAL)**
**13 FT. OR 15 FT.**

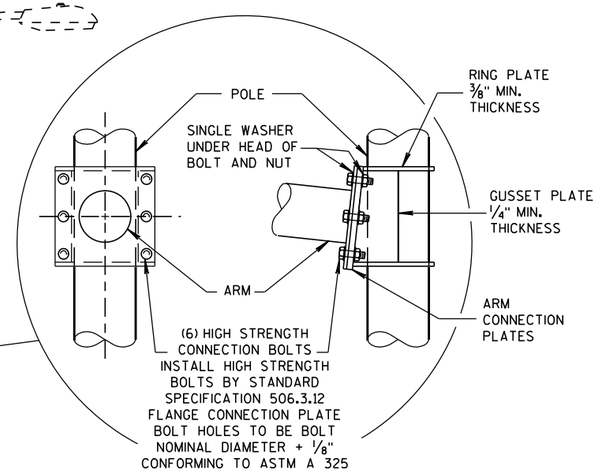
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/11/10 — DATE
/S/ John Corbin — STATE ELECTRICAL ENGINEER FOR HIGHWAYS
FHWA

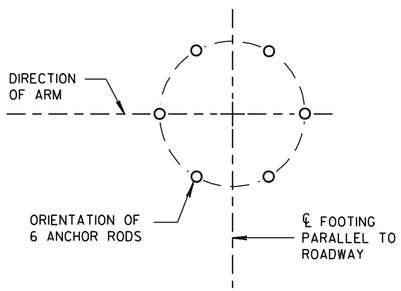



* DIMENSIONS SHOWN ARE FOR POLE/ARM DESIGN ONLY, NOT FOR FIELD LOCATION. THESE DIMENSIONS SHALL NOT BE DECREASED.

** SIGNALS MAY BE ADJUSTED ± 1'-0" MAXIMUM TO ACCOMODATE FOR VERTICAL CLEARANCE.




**6 BOLT ARM CONNECTION DETAIL**




**ANCHOR ROD LOCATION**

(MAXIMUM LOAD)

# TYPE 10 POLE
# 15'- 30' MONOTUBE ARM

## TYPE 10 POLE
## 15' - 30' MONOTUBE ARM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/2/2011 — DATE

/S/ Thomas J. Corrigan — STATE ELECTRICAL ENGI

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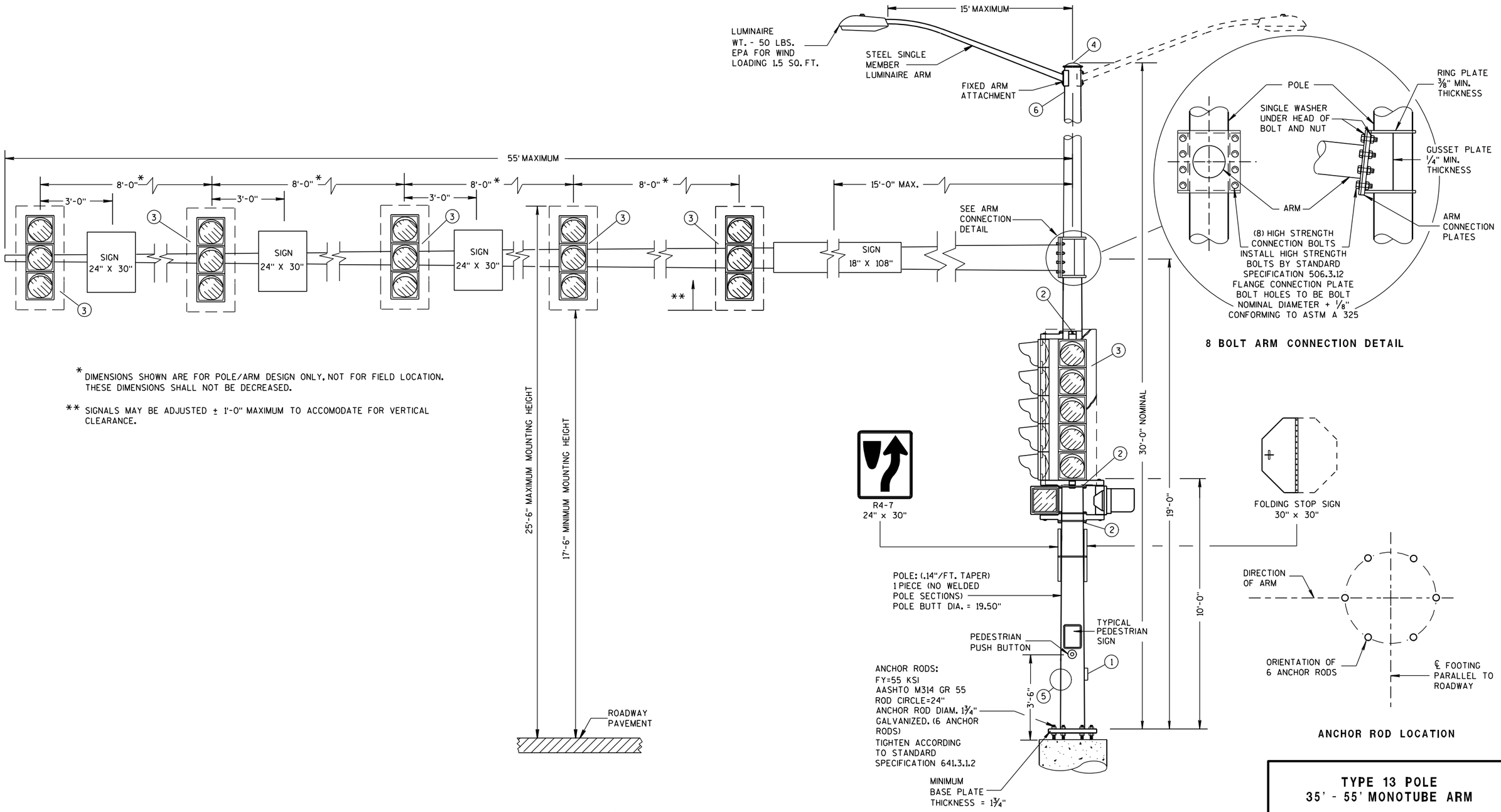


* DIMENSIONS SHOWN ARE FOR POLE/ARM DESIGN ONLY, NOT FOR FIELD LOCATION. THESE DIMENSIONS SHALL NOT BE DECREASED.

** SIGNALS MAY BE ADJUSTED ± 1'-0" MAXIMUM TO ACCOMODATE FOR VERTICAL CLEARANCE.

(MAXIMUM LOAD)

## TYPE 13 POLE 35'- 55' MONOTUBE ARM




8 BOLT ARM CONNECTION DETAIL




ANCHOR ROD LOCATION

**TYPE 13 POLE**
**35' - 55' MONOTUBE ARM**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/2/2011 — DATE

/S/ Thomas J. Corrigan — STATE ELECTRICAL ENGI

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## GENERAL NOTES

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

POLE TYPES 9 AND 10 ARE FOR ARM LENGTHS 15-FOOT TO 30-FOOT.

POLE TYPES 12 AND 13 ARE FOR ARM LENGTHS 35-FOOT TO 55-FOOT.

MONOTUBE POLE AND ARM SHALL BE GALVANIZED STEEL.

RING-STIFFENED BUILT-UP BOX TYPE OF ATTACHMENT FOR TRAFFIC SIGNAL ARM.

ONE (1) PIECE POLE CONSTRUCTION (NO WELDED POLE SECTIONS).

STANDARD STRAIGHT ARM DESIGN (3 % ± RISE).

SECTION 657, POLES OF THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS DRAWING.

PROVIDE WIREWAY THRU POLE WALL AND ARM CONNECTION PLATES. PROVIDE ROUND, SMOOTH INSIDE SURFACE.

MANUFACTURER'S SUBMITTED POLE DESIGNS AND DRAWINGS SHALL BE SIGNED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER AND CERTIFIED AS BEING IN COMPLIANCE WITH THE LATEST AASHTO AND ALL PERTINENT WISDOT SPECIFICATIONS AND DRAWINGS FOR TRAFFIC AND LIGHTING STRUCTURES AND AS FOLLOWS:

- CATEGORY III FATIGUE LOADS OF GALLOPING, TRUCK GUSTS ( AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 9 AND TYPE 10 STRUCTURES.
- CATEGORY II FATIGUE LOADS OF GALLOPING, TRUCK GUSTS ( AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 12 AND TYPE 13 STRUCTURES.
- 90 MPH (3-SECOND GUST) WIND SPEED AND A 50 YEAR DESIGN LIFE.

SECURE THE OPENING BELOW THE BASE PLATE WITH STAINLESS STEEL OR GALVANIZED STEEL MESH AND SECURE THE MESH WITH ¾" S.S. BANDING AROUND THE LEVELING NUTS.

INDENT PRINT ( NOMINAL ½" HIGH) THE POLE LENGTH AND FIRST TWO LETTERS OF THE MANUFACTURERS NAME ON TWO SIDES OF THE BASE PLATE 180 DEGREES APART, BEFORE GALVANIZING. THE ARM SHALL BE IDENTIFIED WITH THE SAME INFORMATION BY INDENT PRINT.

SIGNAL FACE SHALL BE MOUNTED 6 INCHES (NOMINAL) FROM THE END OF THE MONOTUBE ARM OR AS SHOWN ON THE PLAN CONSTRUCTION DETAIL OR AS DIRECTED BY THE PROJECT ENGINEER/ELECTRICAL OPERATIONS PERSONNEL. MOUNT ALL LIKE HEADS AT SAME ELEVATION.

SIGN MOUNTING BRACKETS SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 637 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.

(1) DESIGN FOR MAXIMUM ALLOWABLE HANDHOLE WITH COVER ASSEMBLY WITH TWO ¼" X ¾" - 20 TPI STAINLESS STEEL HEX HEAD BOLTS.

(2) SIGNAL MOUNTING BRACKETS FOR POLE MOUNTING, MOUNT WITH CAP SCREW AND BANDING, (SEE SPECIFICATIONS SEC. 658).

(3) SECURELY MOUNT BACKPLATES, PROJECTING 5" BEYOND ALL SIDES OF THE SIGNAL FACE HOUSING, PER MANUFACTURERS RECOMMENDATIONS.

(4) THE TOP OF THE POLE SHAFT AND THE END OF THE MONOTUBE ARM SHALL BE EQUIPPED WITH A REMOVABLE, VENTILATED CAP HELD SECURELY IN PLACE WITH SET SCREWS.

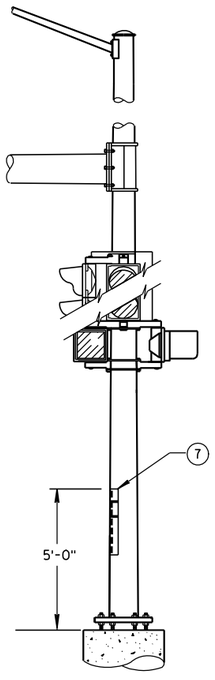
(5) FACTORY-WELDED BRACKET FOR GROUNDING LUG, OPPOSITE HANDHOLE, (LUG AND HARDWARE PAID UNDER SEPARATE ITEM). PROVIDE HOLE IN BRACKET FOR ¼" X ¾" - 20 TPI STAINLESS STEEL HEX HEAD BOLT.

(6) FACTORY-WELDED "J" HOOK FOR STRAIN RELIEF FOR POLE LUMINAIRE WIRE.

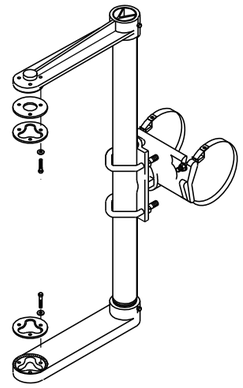
(7) INSTALL DEPARTMENT PROVIDED STRUCTURAL IDENTIFICATION PLAQUES.

STRUCTURAL IDENTIFICATION PLAQUES SHALL BE PLACED ON THE POLES IN THE SAME DIRECTION AS THE ARM.

MOUNTING HEIGHT SHALL BE 5'-0" ABOVE THE CURB OR SHOULDER . ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL BE OBSTRUCTED.

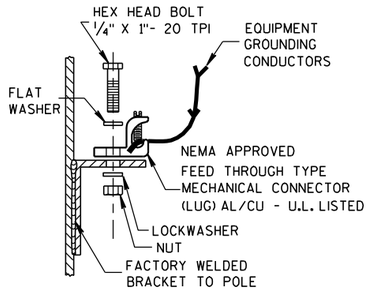



**STRUCTURAL IDENTIFICATION PLAQUE PLACEMENT**



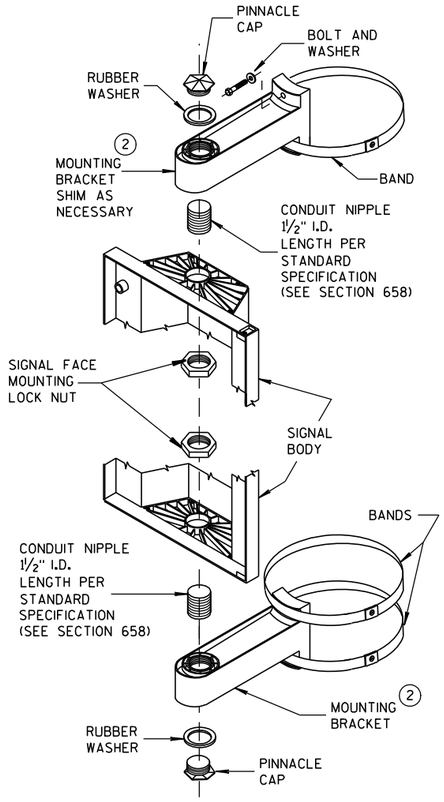
**SIGNAL FACE MOUNTING BRACKET DETAIL FOR MONOTUBE ARM**

(MOUNT PER MANUFACTURER'S RECOMMENDATION)

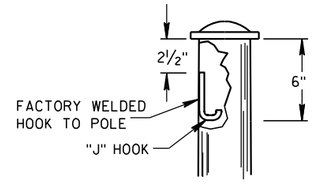



**TYPICAL GROUNDING CONNECTIONS** (5)

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL




**SIGNAL FACE VERTICAL MOUNTING DETAIL**




**"J" HOOK WIRE SUPPORT** (6)

**GENERAL NOTES AND HARDWARE DETAILS FOR TYPE 9, 10, 12 & 13 POLES WITH MONOTUBE ARMS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/2/2011 DATE

/S/ Thomas J. Corrigan
STATE ELECTRICAL ENGI

FHWA



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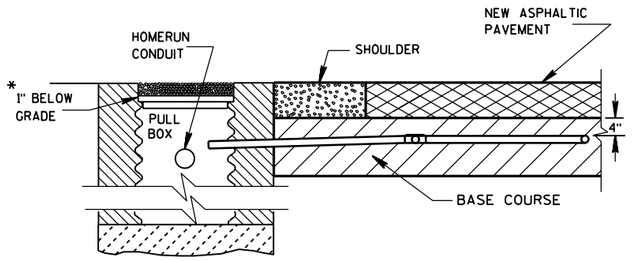
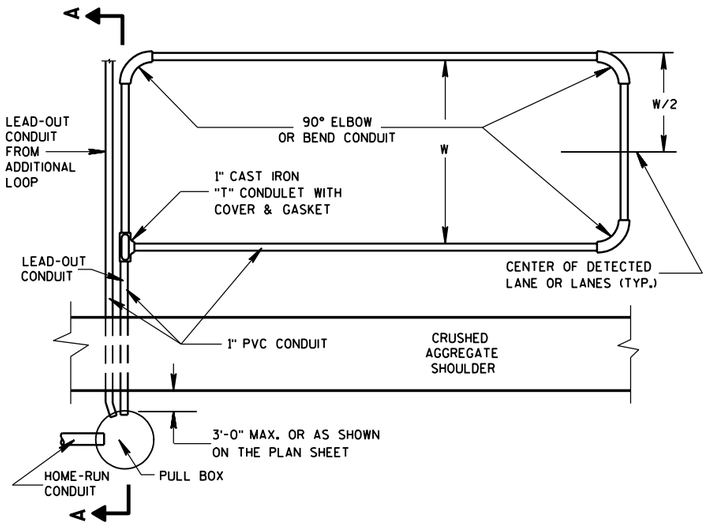



SECTION A-A
NO CURB & GUTTER

## DETECTOR LOOP INSTALLATION DETAIL

*RECESS PULL BOX SO THAT THE COVER IS 3" BELOW GRADE IN SHOULDER AREAS OF CRUSHED AGGREGATE. BACKFILL OVER COVER WITH THE CRUSHED AGGREGATE TO BRING THE AREA TO GRADE LEVEL.




## TYPICAL PLAN OF LOOP DETECTOR

## GENERAL NOTES

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

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

PITCH LEAD-OUT CONDUIT TO DRAIN TO ROADSIDE PULL BOX.

SPLICES SHALL BE INSTALLED BY USING CAST IN PLACE SPLICE KITS SUCH AS 3M TYPE 82A1 OR APPROVED EQUAL. NON-INSULATED BUTT SPLICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPLICES SHALL BE SOLDERED AND INSULATED FROM EACH OTHER AS PER INSTRUCTIONS INCLUDED IN THE SPLICE KIT.

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

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

ANTI-SIEZE LUBRICATING MATERIAL SHALL BE USED ON ALL THREADS OF THREADED ASSEMBLIES BEFORE INSTALLATION.

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

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

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

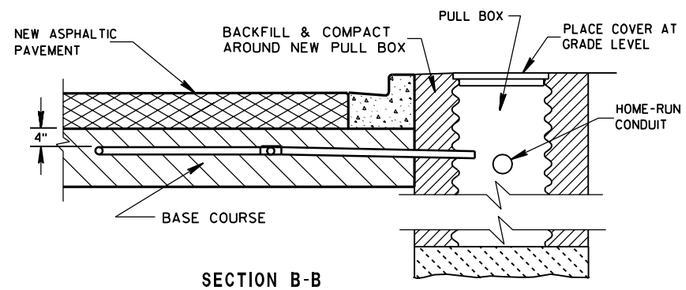
THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL BOX, THROUGH THE LOOP DUCT, BACK TO THE ROADSIDE PULL BOX, AND BE INSTALLED IN ONE, NON-SPLICED, CONTINUOUS LENGTH.

PROTECTION OF THE CONDUIT AND CONDULET SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE THE ASPHALTIC PAVEMENT IS PLACED.

WHEN MULTIPLE LAYERS OF ASPHALTIC PAVEMENT ARE TO BE PLACED, LOOPS MAY BE INSTALLED BY SAWING A TWO INCH WIDE SLOT IN THE FIRST LAYER, DIG OUT THE ASPHALTIC MATERIAL AND BASE COURSE, PLACE THE LOOP, FILL THE SLOT WITH BASE COURSE MATERIAL AND NEW ASPHALTIC MATERIAL AND TAMP THE ASPHALTIC MATERIAL IN PLACE.

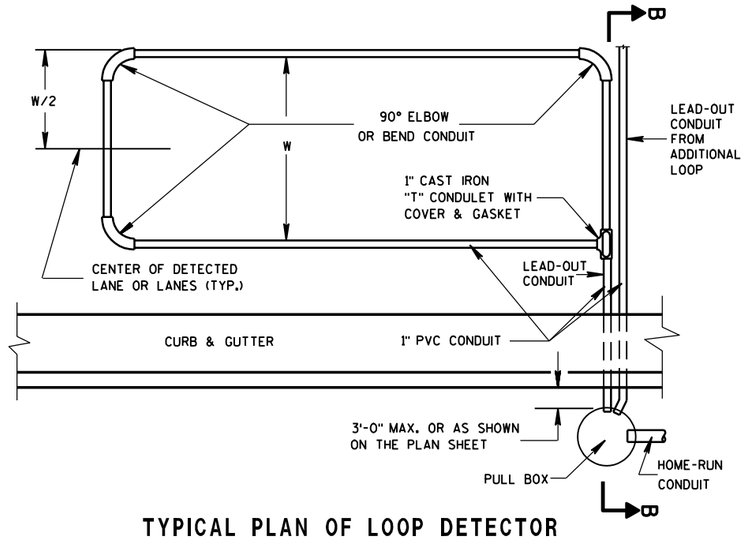
SHOULD TRAFFIC BE ALLOWED TO USE THE AREA OF ROADWAY WITH THE NEWLY INSTALLED LOOP BEFORE THE PLACEMENT OF THE NEXT LAYER OF ASPHALTIC PAVEMENT, THE SLOT/PAVEMENT OPENING SHALL BE SEALED WITH HOT POURED ELASTIC TYPE MATERIAL CONFORMING TO THE REQUIREMENTS OF THE "SPECIFICATION FOR JOINT SEALANTS, HOT POURED, FOR CONCRETE AND ASPHALT PAVEMENTS, ASTM DESIGNATION: D3405".

DRIVE A 1½" MAX. PK NAIL INTO THE NEW ASPHALTIC PAVEMENT AND DIRECTLY ABOVE THE CONDULET AFTER THE FINAL LAYER OF NEW ASPHALTIC PAVEMENT IS COMPLETELY INSTALLED, IF REQUIRED BY THE DISTRICT TRAFFIC SECTION.




SECTION B-B
CURB & GUTTER

## LOOP DETECTOR INSTALLATION DETAIL




## TYPICAL PLAN OF LOOP DETECTOR

LOOP DETECTOR PLACED
IN CRUSHED AGGREGATE BASE
(NEW ASPHALTIC PAVEMENT)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/7/06 — DATE
/S/ Balu Ananthanarayanan — STATE ELECTRICAL ENGINEER FOR HIGHWAYS
FHWA

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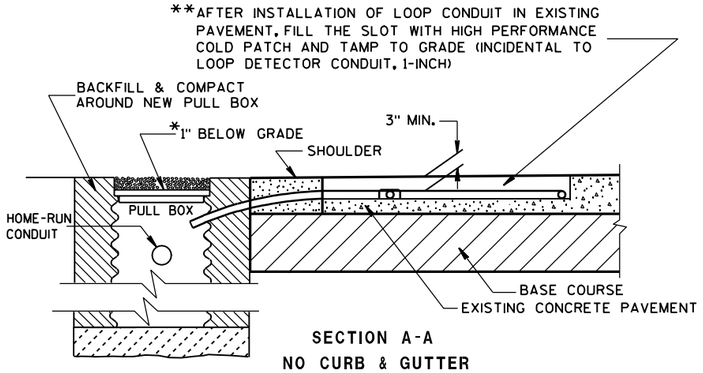
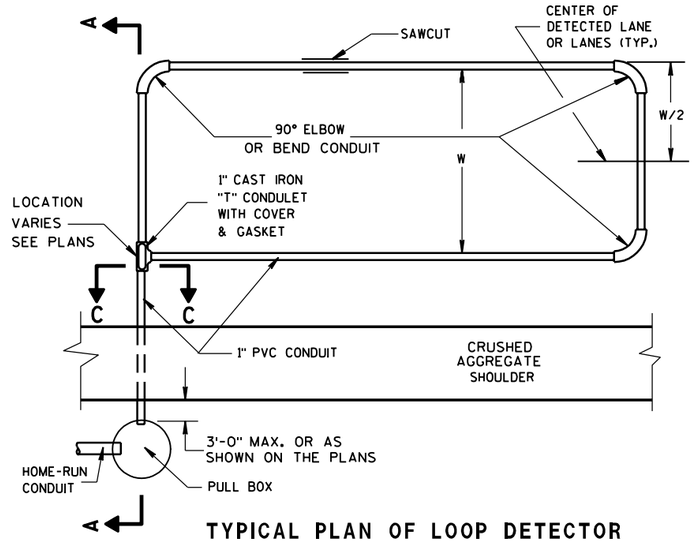



SECTION A-A
NO CURB & GUTTER

## LOOP DETECTOR INSTALLATION DETAIL

*RECESS PULL BOX SO THAT THE COVER IS 3" BELOW GRADE IN SHOULDER AREAS OF CRUSHED AGGREGATE. BACKFILL OVER COVER WITH THE CRUSHED AGGREGATE TO BRING THE AREA TO GRADE LEVEL.




## TYPICAL PLAN OF LOOP DETECTOR

## GENERAL NOTES

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

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

PITCH LEAD OUT CONDUIT TO DRAIN TO ROADSIDE PULL BOX.

SPLICES SHALL BE INSTALLED BY USING CAST IN PLACE SPLICE KITS SUCH AS 3M TYPE 82A1 OR APPROVED EQUAL. NON-INSULATED BUTT SPLICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPLICES SHALL BE SOLDERED AND INSULATED FROM EACH OTHER AS PER INSTRUCTIONS INCLUDED IN THE SPLICE KIT.

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

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

BEFORE PLACING THE 1 INCH CONDUIT IN THE CLEANED OUT SLOT, PLACE SOME OF THE TAR OR EPOXY SEALANT IN THE SLOT TO A DEPTH OF APPROXIMATELY ½ INCH.

ONCE THE 2" LOOP SLOT HAS BEEN CHIPPED OUT, THE LOOP INSTALLATION SHALL BE COMPLETED PRIOR TO OPENING THE LANE(S) TO TRAFFIC.

ANTI-SIEZE LUBRICATING MATERIAL SHALL BE USED ON ALL THREADS OF THREADED ASSEMBLIES BEFORE INSTALLATION.

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

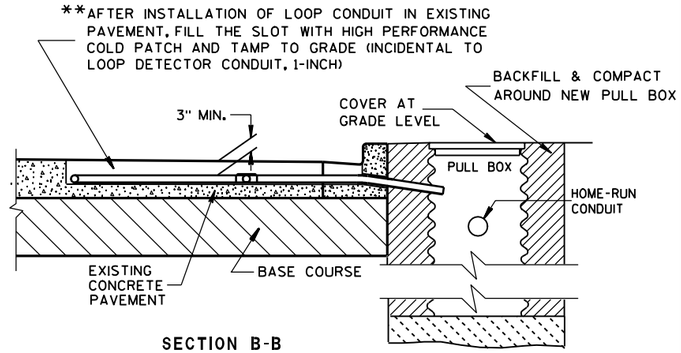
THE #12 AWG LOOP WIRE FROM THE LOOP TO THE ROADSIDE PULL BOX, SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE INSTALLATION.

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

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

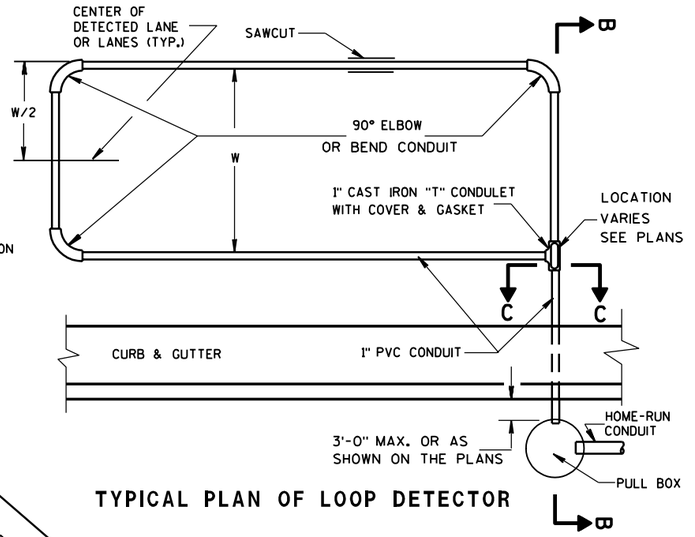
** AFTER THE HIGH PERFORMANCE COLD PATCH HAS BEEN TAMPED, SEAL THE SLOT/HIGH PERFORMANCE COLD PATCH/ PAVEMENT OPENING WITH HOT POURED ELASTIC TYPE MATERIAL CONFORMING TO THE REQUIREMENTS OF THE "SPECIFICATION FOR JOINT SEALANTS, HOT POURED, FOR CONCRETE AND ASPHALT PAVEMENTS, ASTM DESIGNATION: D3405".

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

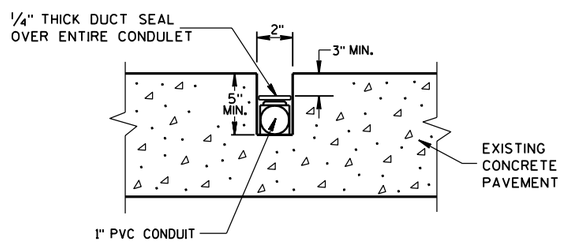



SECTION B-B
CURB & GUTTER

## LOOP DETECTOR INSTALLATION DETAIL

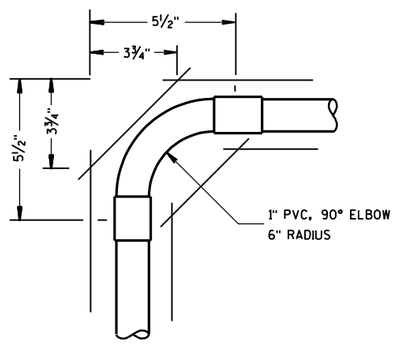



## TYPICAL PLAN OF LOOP DETECTOR



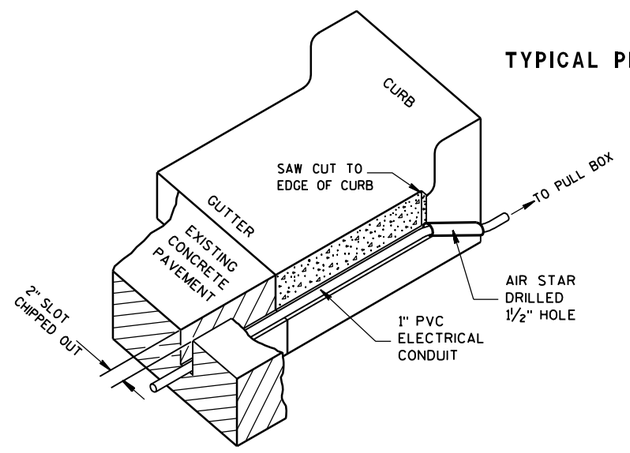

SIDE VIEW
SECTION C-C

## LOOP DETECTOR SLOT DETAIL




TOP VIEW

## CORNER SAW SLOT DETAIL




ISOMETRIC VIEW

## TYPICAL SAW CUT DETAIL FOR LEAD-IN CONDUIT

LOOP DETECTOR INSTALLED IN EXISTING CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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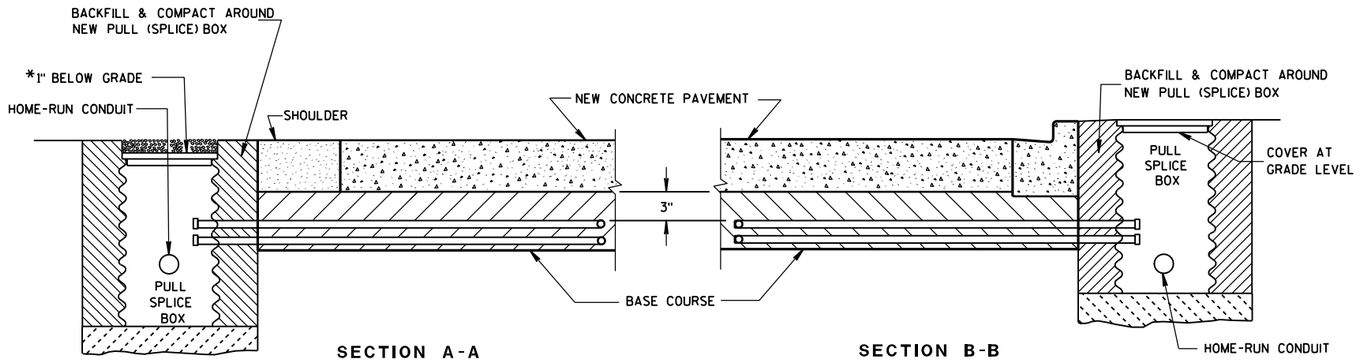
6/7/06 — DATE
/S/ Balu Ananthanarayanan — STATE ELECTRICAL ENGINEER FOR HIGHWAYS
FHWA

6

S.D.D. 9 F 12-3




**SECTION A-A**
**NO CURB & GUTTER**

**SECTION B-B**
**CURB & GUTTER**

*RECESS PULL (SPLICE) BOX SO THAT THE COVER IS 3" BELOW GRADE IN SHOULDER AREAS OF CRUSHED AGGREGATE. BACKFILL OVER COVER WITH THE CRUSHED AGGREGATE TO BRING THE AREA TO GRADE LEVEL.

# LOOP DETECTOR INSTALLATION DETAIL

## GENERAL NOTES

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

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

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

SPLICES SHALL BE INSTALLED BY USING CAST IN PLACE SPLICE KITS SUCH AS 3M TYPE 82A1 OR APPROVED EQUAL. NON-INSULATED BUTT SPLICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPLICES SHALL BE SOLDERED AND INSULATED FROM EACH OTHER AS PER INSTRUCTIONS INCLUDED IN THE SPLICE KIT.

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

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

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

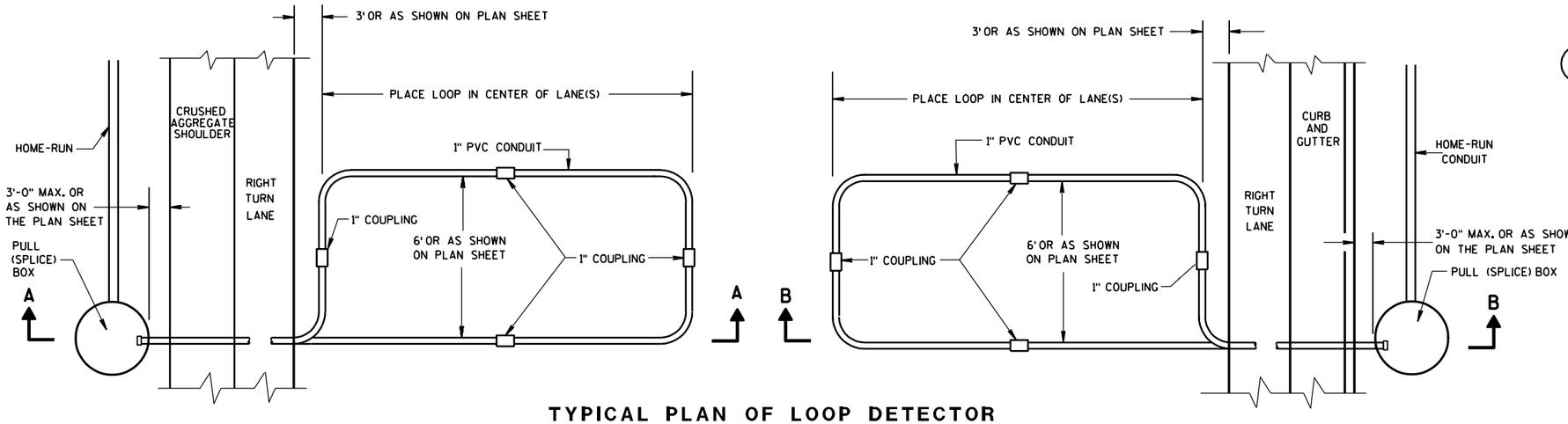
THE #12 AWG. LOOP WIRE IN THE PULL (SPLICE) BOX SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE BEING SPLICED TO THE LOOP LEAD-IN CABLE.

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

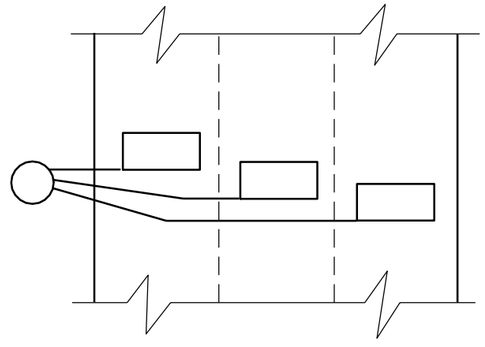
THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL (SPLICE) BOX, THROUGH THE LOOP CONDUIT, BACK TO THE ROADSIDE PULL (SPLICE) BOX, AND BE INSTALLED IN ONE, NON-SPLICED CONTINUOUS LENGTH.

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

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




# TYPICAL PLAN OF LOOP DETECTOR WITH 24" PULL (SPLICE) BOX



**MULTI-LANE INSTALLATION**

| LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2) | |
|---|---|
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | |
| APPROVED | |
| 6/7/06 DATE | /S/ Balu Ananthanarayanan STATE ELECTRICAL ENGINEER FOR HIGHWAYS |
| FHWA | |

6

S.D.D. 9 F 15-3b

6

S.D.D. 9 F 15-3b

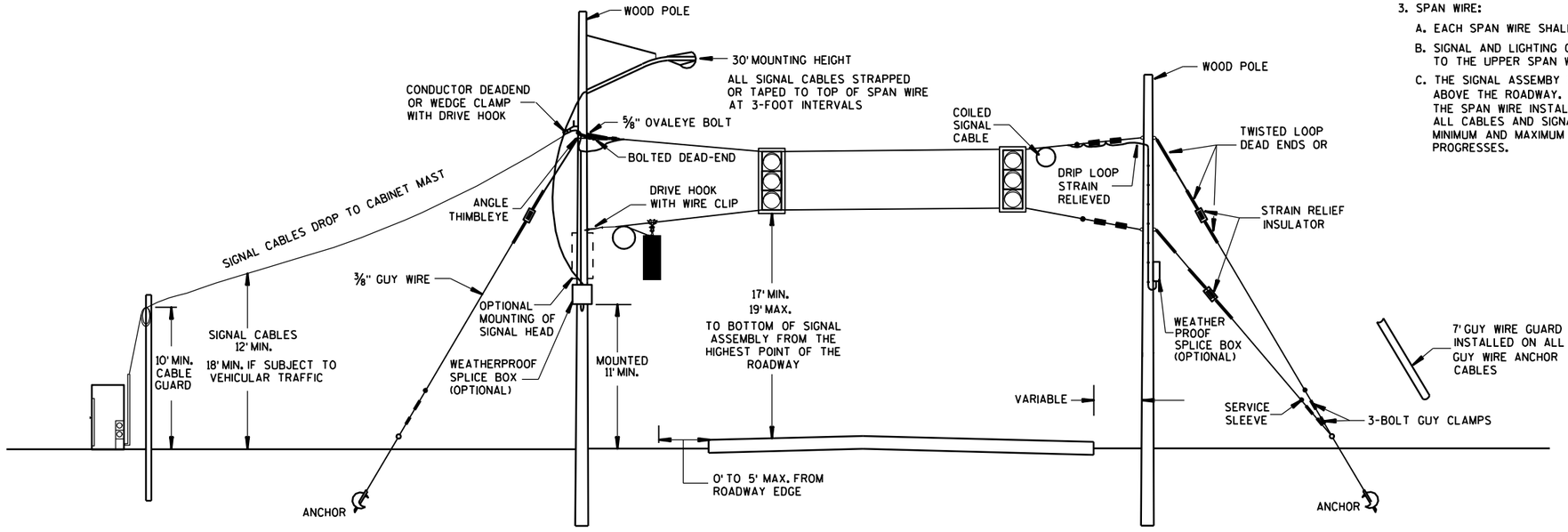
## GENERAL NOTES

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

1. WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.

2. SIGNAL FACES:
   A. ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
   B. EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
   C. EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
   D. NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.

3. SPAN WIRE:
   A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED.
   B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
   C. THE SIGNAL ASSEMBY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.




**SPAN WIRE**
**TEMPORARY SIGNALS**

| MINIMUM POLE LENGTHS | POLE BURIEL DEPTHS |
|---|---|
| 25' | 5' |
| 30' | 6' |
| 35' | 7' |
| 40' | 8' |
| 45' | 9' |

SPAN WIRE
TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
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FHWA

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S.D.D. 9 G 1-30

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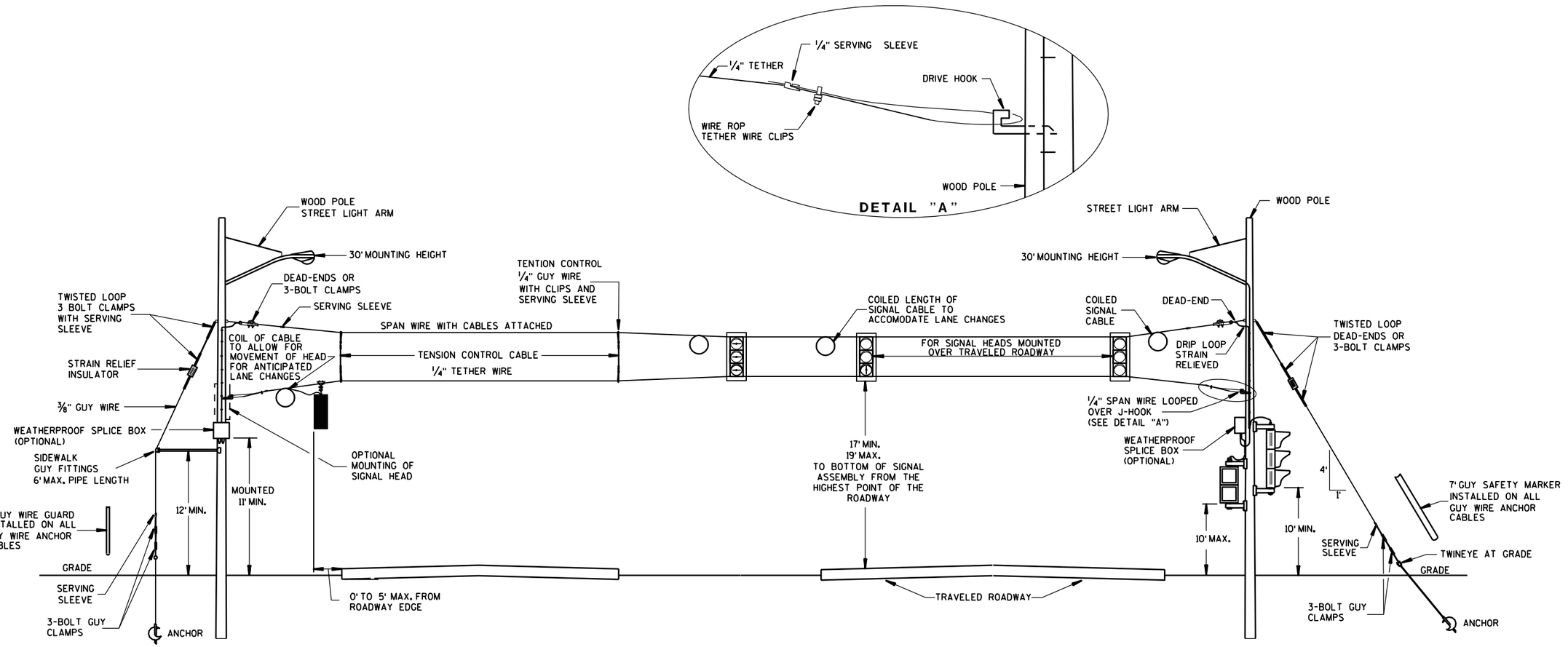
S.D.D. 9 G 1-30




## GENERAL NOTES

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

1. WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.
2. SIGNAL FACES:
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   C. EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
   D. NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.
   E. FAR INDICATION SHALL BE MAINTAINED OVER CENTER OF TRAFFIC LANE.
3. SPAN WIRE:
   A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED.
   B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
   C. THE SIGNAL ASSEMBY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.

# SPAN WIRE
# TEMPORARY SIGNALS
### 4 LANE ROADWAYS

| MINIMUM POLE LENGTHS | CLASS | MIN. BURIAL DEPTHS |
|---|---|---|
| 25' | V | 5' |
| 30' | V | 6' |
| 35' | IV | 7' |
| 40' | IV | 8' |
| 45' | IV | 9' |

**SPAN WIRE**
**TEMPORARY TRAFFIC SIGNAL**

STATE OF WISCONSIN
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S.D.D. 9 G 1-3b

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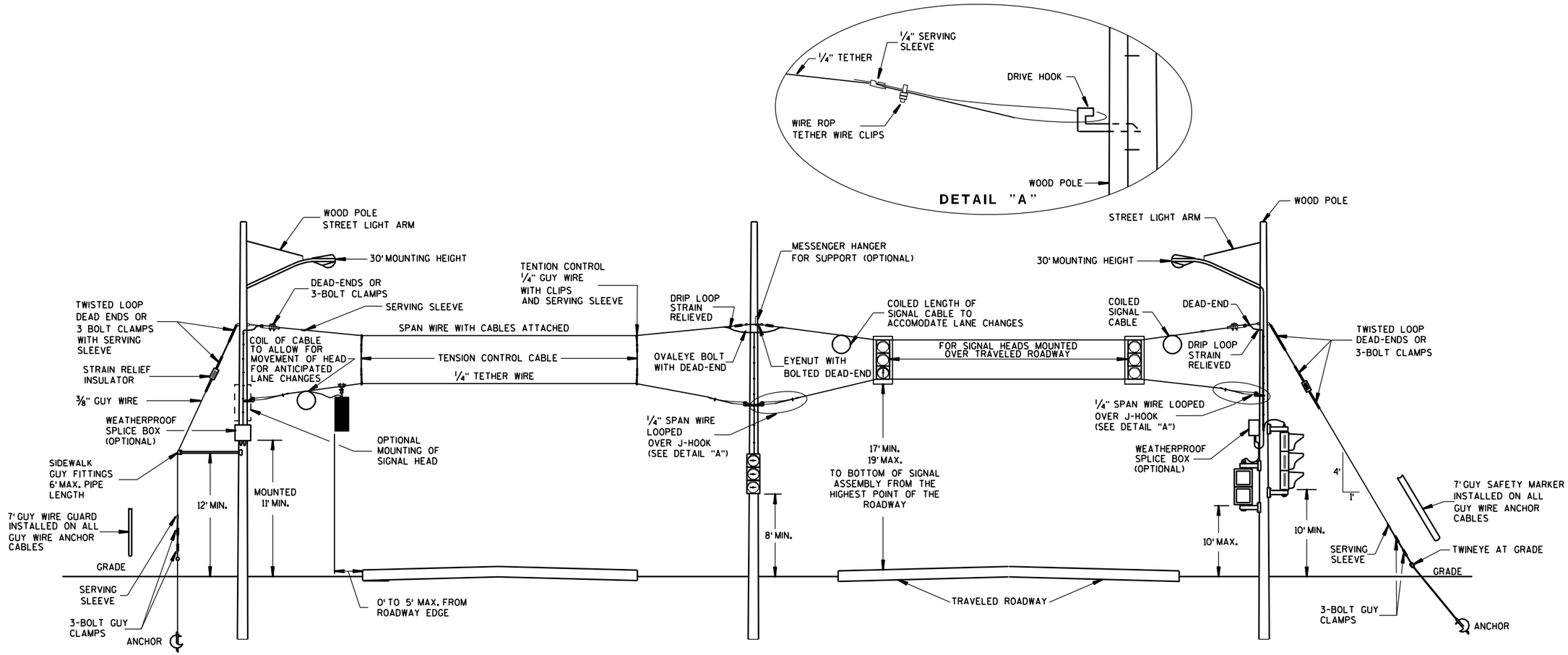
S.D.D. 9 G 1-3b




# SPAN WIRE
# TEMPORARY SIGNALS
## 4 LANE ROADWAYS

## GENERAL NOTES

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

1. WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.

2. SIGNAL FACES:
   A. ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
   B. EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
   C. EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
   D. NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.
   E. FAR INDICATION SHALL BE MAINTAINED OVER CENTER OF TRAFFIC LANE.

3. SPAN WIRE:
   A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED.
   B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
   C. THE SIGNAL ASSEMBY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.

| MINIMUM POLE LENGTHS | CLASS | MIN. BURIAL DEPTHS |
|---|---|---|
| 25' | V | 5' |
| 30' | V | 6' |
| 35' | IV | 7' |
| 40' | IV | 8' |
| 45' | IV | 9' |

**SPAN WIRE**
**TEMPORARY TRAFFIC SIGNAL**

STATE OF WISCONSIN
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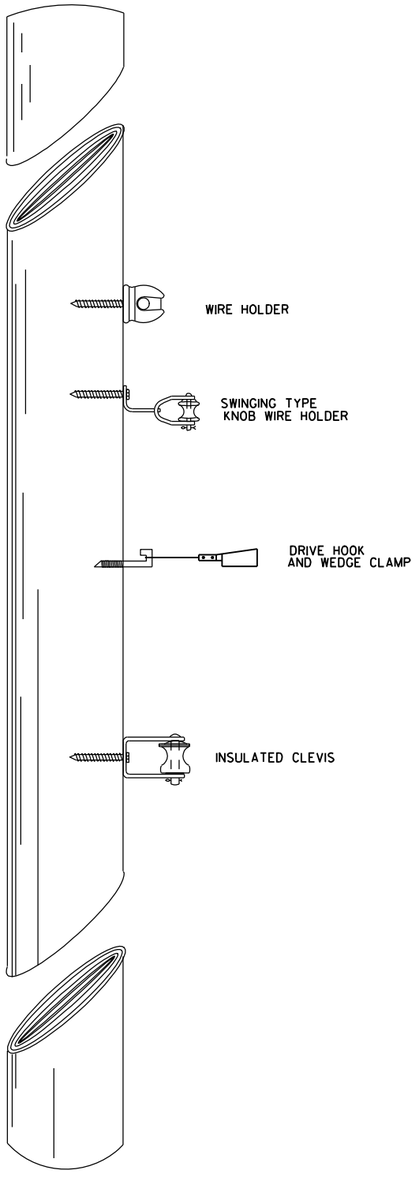
6

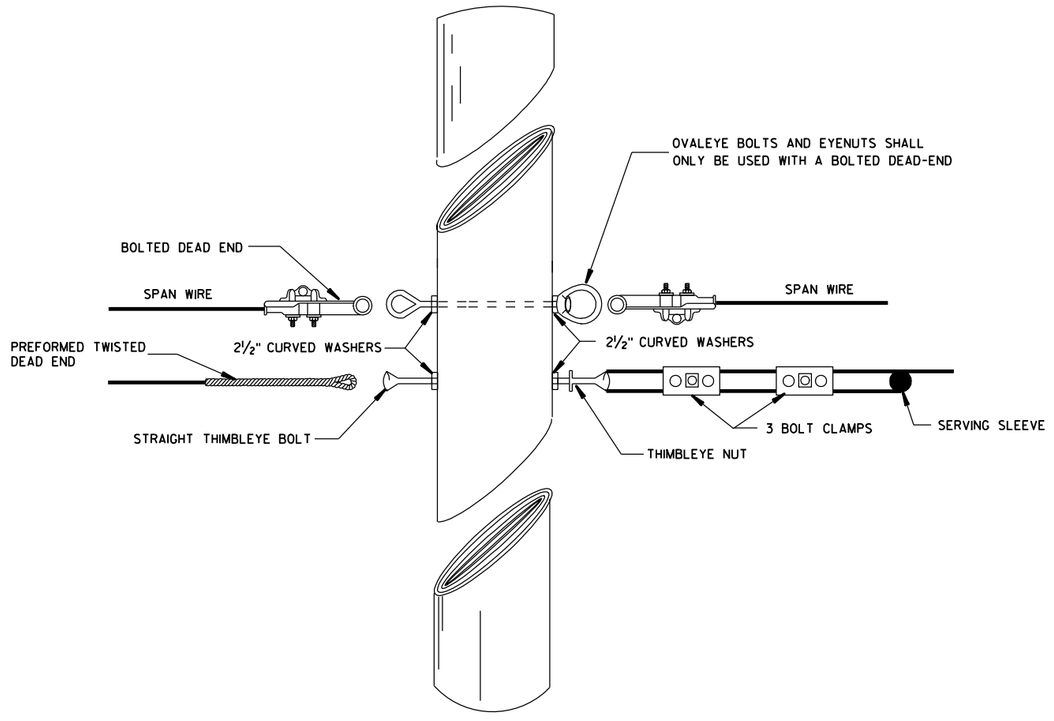
S.D.D. 9 G 1-3c

6

S.D.D. 9 G 1-3c




TYPICAL CABLE HANGERS




TYPICAL DEAD-ENDING

6

6

S.D.D. 9 G 1-3d

S.D.D. 9 G 1-3d

SPAN WIRE
TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
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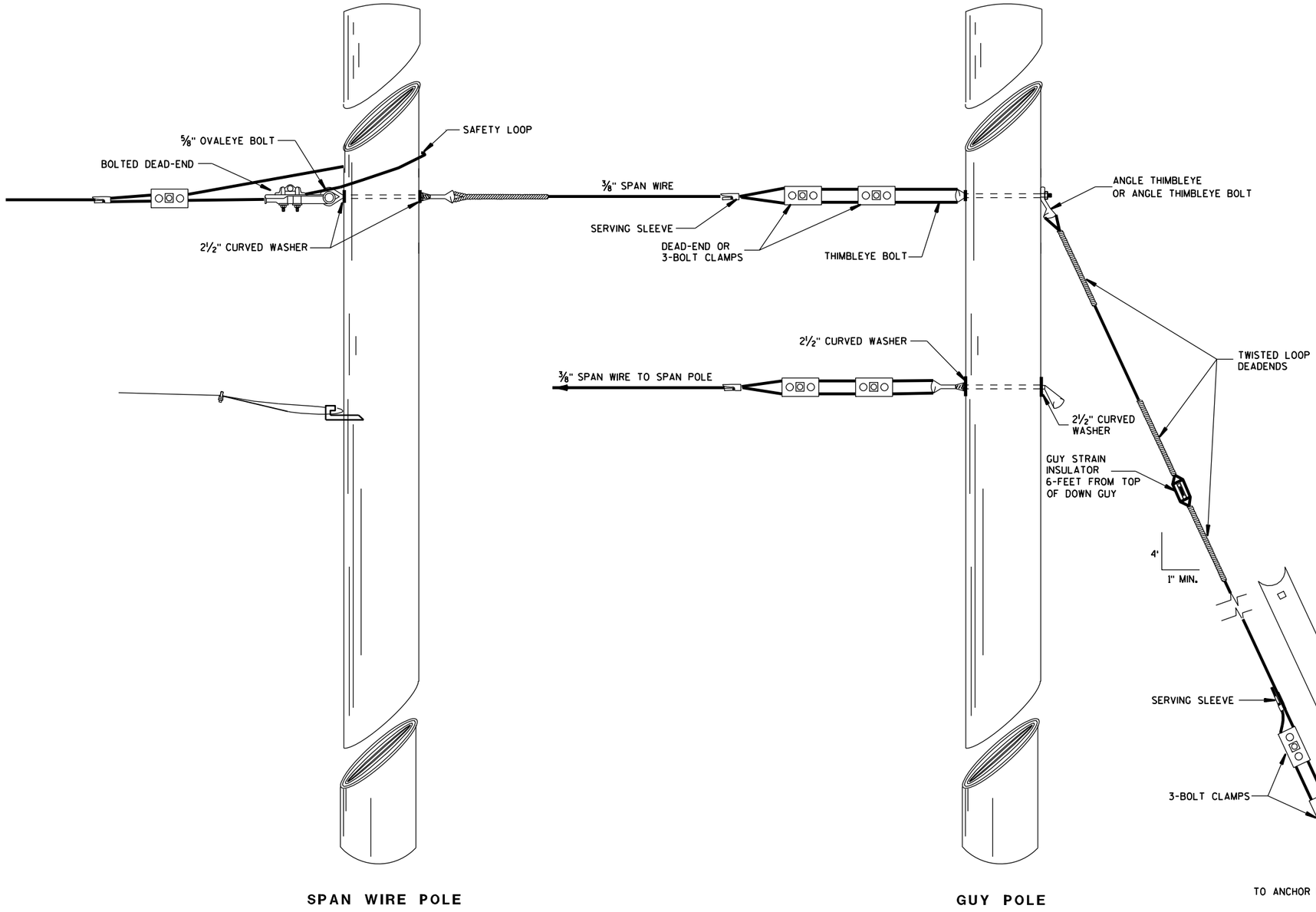
## GENERAL NOTES

1. USE ¾" DRILL IN WOOD POLE TO PROVIDE HOLE FOR ⅝" BOLTS.
2. SAFTY LOOP REQUIRED ON EACH END OF ALL SPAN WIRES.




SPAN WIRE POLE

GUY POLE

## TYPICAL DEAD-ENDINGS OR GUYING

SPAN WIRE
TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
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S.D.D. 9 G 1-3e

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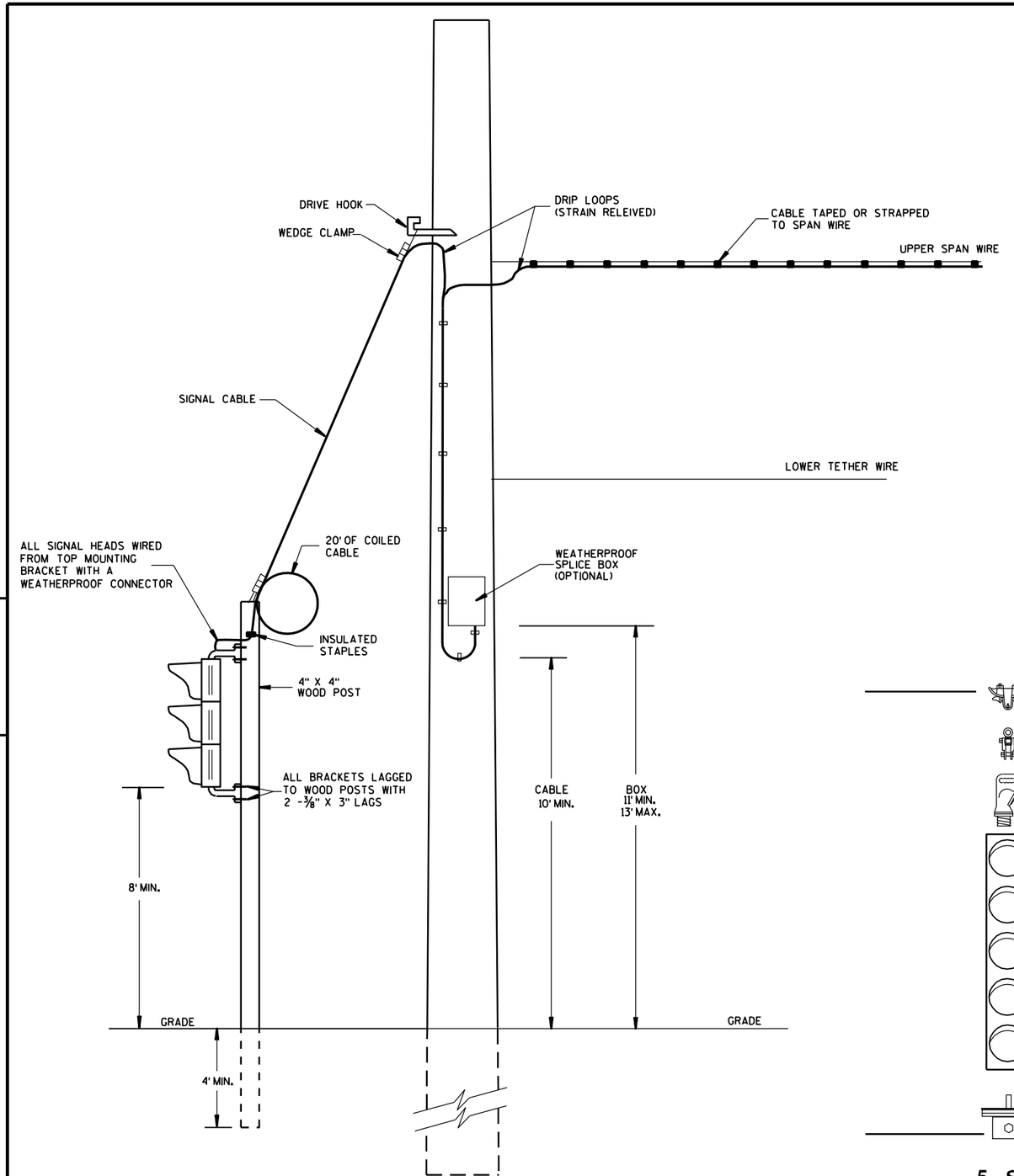
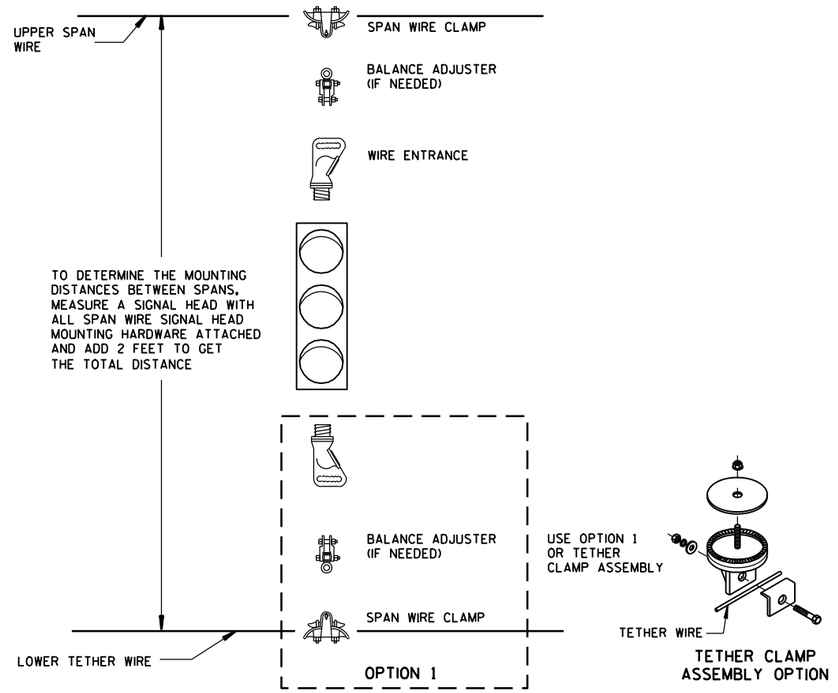
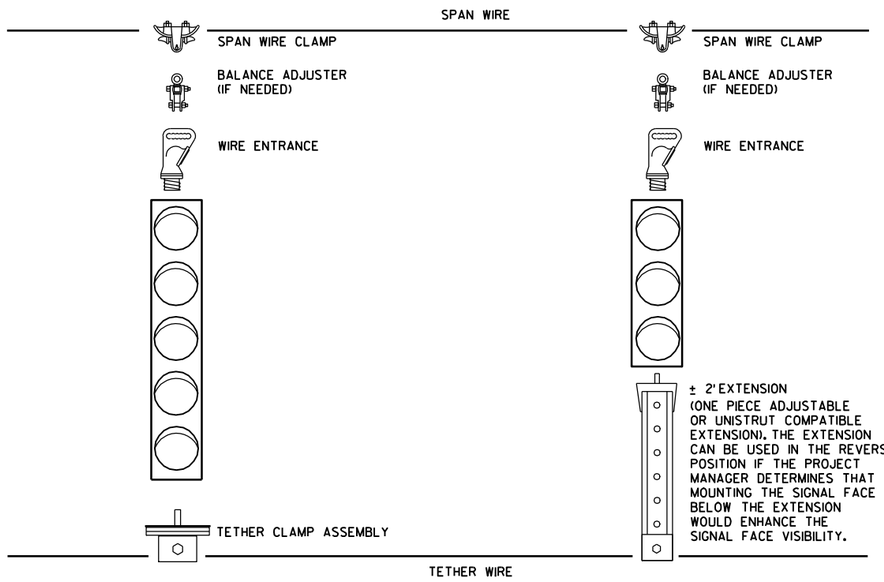
S.D.D. 9 G 1-3e




## TYPICAL DROP TO TEMPORARY MOVEABLE SIGNAL




## TYPICAL SPAN WIRE MOUNTING HARDWARE




## 5 SECTION VERTICAL WITH 3 SECTION VERTICAL ON ONE SPAN WIRE

**SPAN WIRE**
**TEMPORARY TRAFFIC SIGNAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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| 7-14-08 | /S/ Balu Ananthanarayanan |
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| DATE | CHIEF ELECTRICAL ENGINEER FOR HIGHWAYS |

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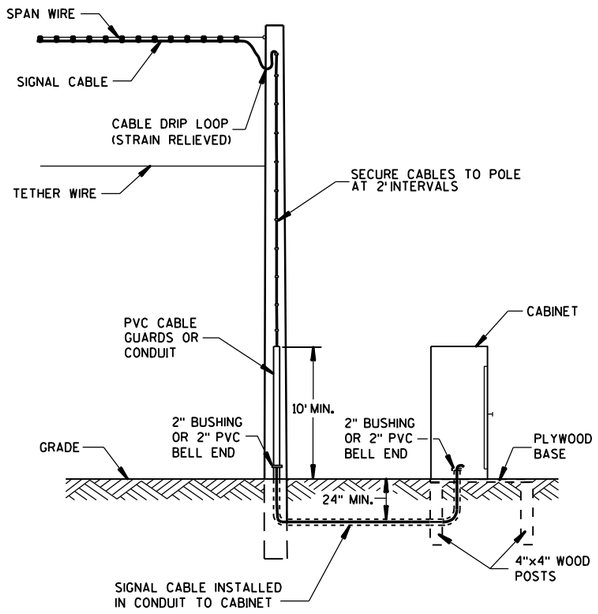
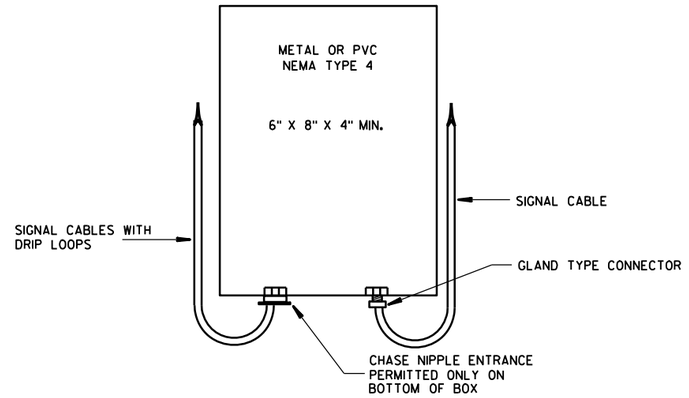
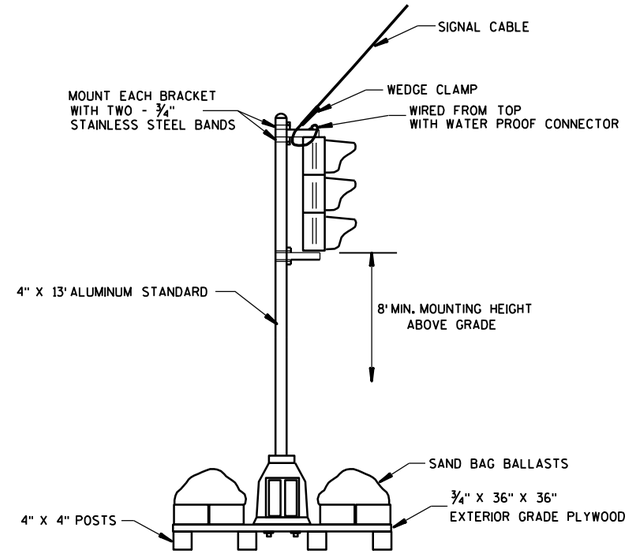
S.D.D. 9 G 1-3f

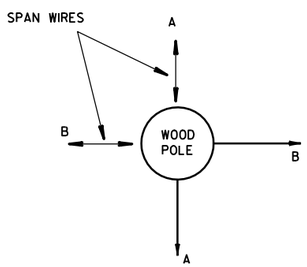



**SPLICE BOX**

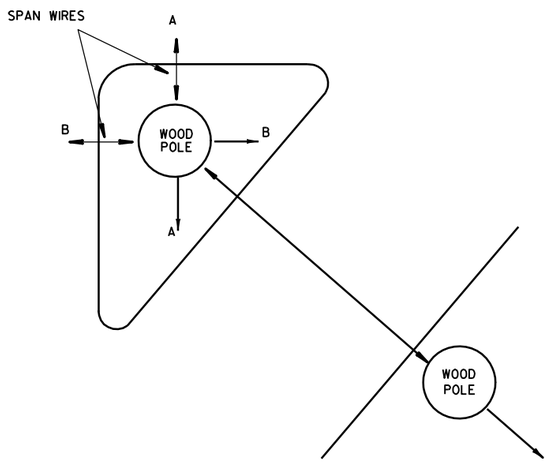



**TYPICAL SKID TYPE TEMPORARY**

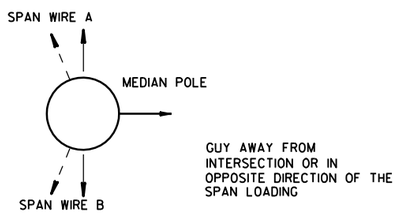



ALL DOWN OR SIDEWALK GUYS
SHALL BE INSTALLED IN THE
OPPOSITE DIRECTION OF THE
STRAIN OF THE SPAN WIRE

**CORNER POLES**




**ISLAND POLES**




**MEDIAN POLES**

**SPAN WIRE**
**TEMPORARY TRAFFIC SIGNAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7-14-08
DATE

/S/ Balu Ananthanarayanan
CHIEF ELECTRICAL ENGINEER FOR HIGHWAYS

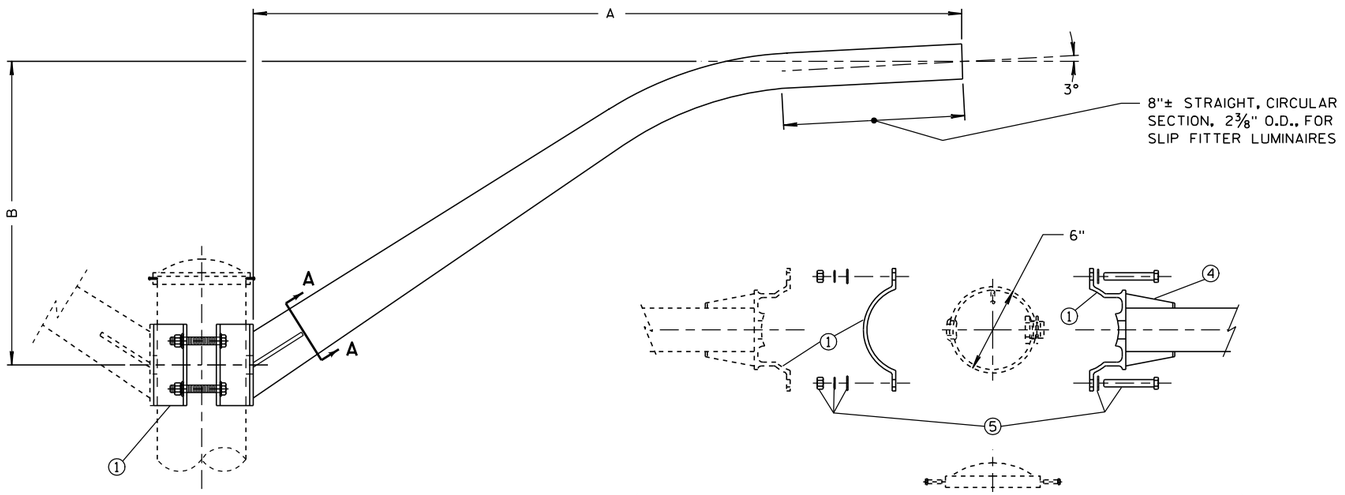
FHWA

6

S.D.D. 9 G 1-3g

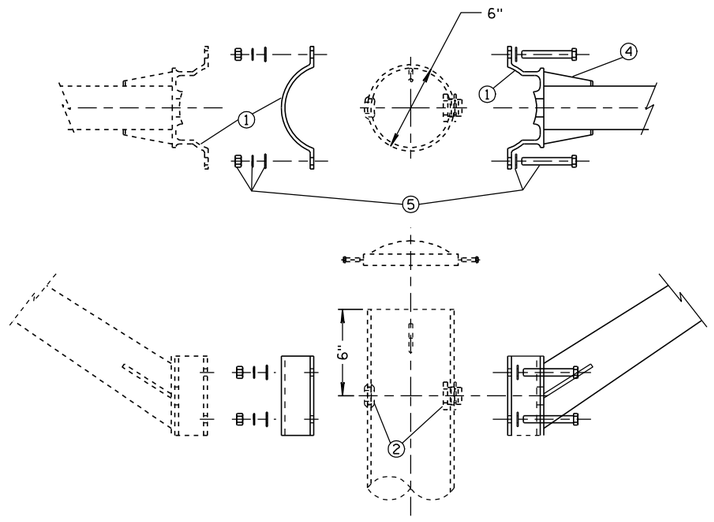
6

S.D.D. 9 G 1-3g




## LUMINAIRE ARMS, SINGLE MEMBER, 6-INCH CLAMP - FOR POLES, TYPE 7, A OR E

VARIOUS LENGTHS (SEE TABLE)




## CLAMP ASSEMBLY

SINGLE MEMBER CLAMP SHOWN

| TYPE | DIM. A NOMINAL ARM LENGTH (FT) | DIM. B APPROX. RISE (FT) |
|---|---|---|
| SINGLE MEMBER | 4.0 | 2.0 |
| SINGLE MEMBER | 8.0 | 3.0 |
| SINGLE MEMBER | 10.0 | 3.0 |
| SINGLE MEMBER | 15.0 | 3.0 |

## GENERAL NOTES

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

ARMS AND CLAMP EXTRUSIONS SHALL BE CONSTRUCTED OF NATURAL FINISH 6063-T6 ALUMINUM (OR DARK BRONZE ANODIZED IF SO STATED IN THE CONTRACT).

HEAT TREATMENT OF WELDS IN STRUCTURAL AREAS IS REQUIRED.

ALL THREADED FASTENER COMPONENTS SHALL BE STAINLESS STEEL. NUTS SHALL BE HEX NUTS. BOLTS SHALL BE HEX HEAD. ALL THREADED SURFACES SHALL BE COATED WITH ANTI-SEIZE COMPOUND PRIOR TO INSTALLATION.

LUMINAIRE LOADING FOR DESIGN CALCULATION SHALL BE 50 LBS. IN WEIGHT AND 1.5 SQ. FT. FOR E.P.A..

① CLAMPS SHALL BE EXTRUDED ALUMINUM.

② RACE WAY: 1⅜" FIELD DRILLED HOLE WITH 1" CHASE NIPPLE AND NUT (OR NEOPRENE GROMMET) PER EACH REQUIRED LUMINAIRE ARM. PROVIDE 1½" HOLE IN CLAMP EXTRUSION TO CONTINUE RACEWAY.

③ STIFFENER

④ GUSSETS REQUIRED.

⑤ CLAMP BOLT ASSEMBLY (BOLT - ½"-13 UNC, 2 EACH - FLAT WASHER, LOCK WASHER, NUT) - 4 EACH PER CLAMP.

6

S.D.D. 10 A 18-4a

6

S.D.D. 10 A 18-4a

**LUMINAIRE ARMS, SINGLE MEMBER 6-INCH CLAMP**

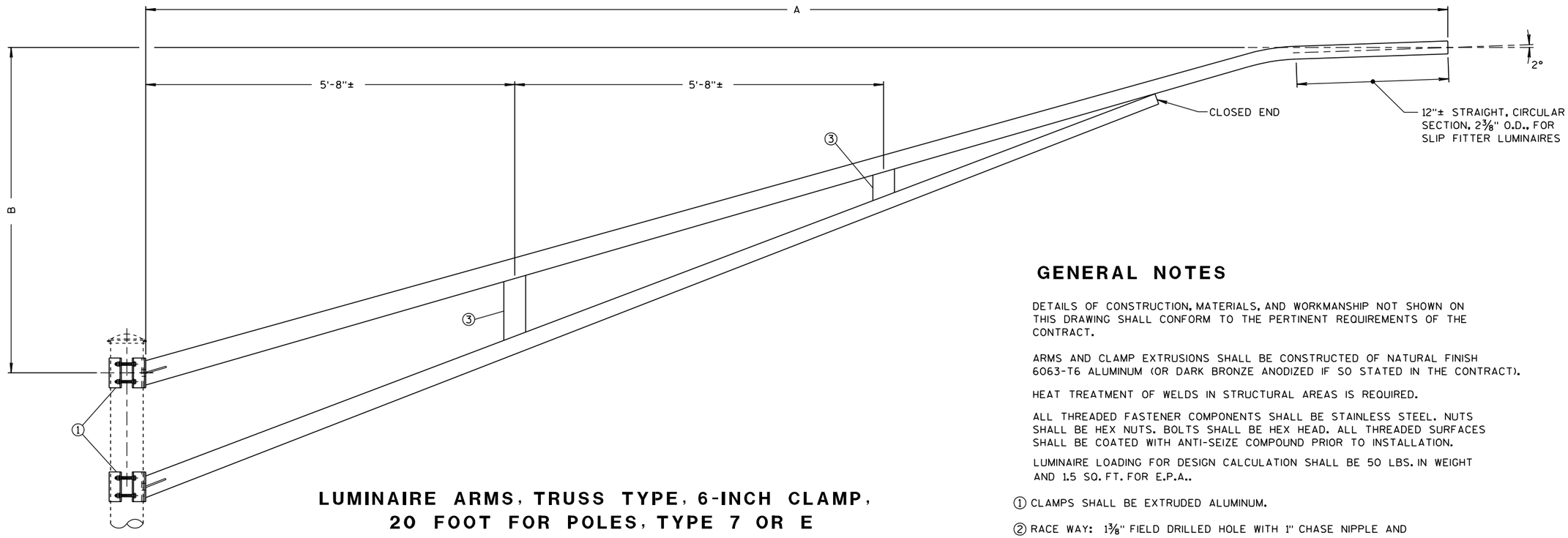
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/25/2010
DATE

/S/ John Corbin
STATE ELECTRICAL ENGINEER FOR HWYS

FHWA




# LUMINAIRE ARMS, TRUSS TYPE, 6-INCH CLAMP, 20 FOOT FOR POLES, TYPE 7 OR E

UPPER AND LOWER TRUSS CHORD CLAMPS SIMILIAR

| TYPE | DIM. A<br>NOMINAL ARM LENGTH (FT) | DIM. B<br>APPROX. RISE (FT) |
|---|---|---|
| TRUSS TYPE | 20.0 | 5.0 |

## GENERAL NOTES

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

ARMS AND CLAMP EXTRUSIONS SHALL BE CONSTRUCTED OF NATURAL FINISH 6063-T6 ALUMINUM (OR DARK BRONZE ANODIZED IF SO STATED IN THE CONTRACT).

HEAT TREATMENT OF WELDS IN STRUCTURAL AREAS IS REQUIRED.

ALL THREADED FASTENER COMPONENTS SHALL BE STAINLESS STEEL. NUTS SHALL BE HEX NUTS. BOLTS SHALL BE HEX HEAD. ALL THREADED SURFACES SHALL BE COATED WITH ANTI-SEIZE COMPOUND PRIOR TO INSTALLATION.

LUMINAIRE LOADING FOR DESIGN CALCULATION SHALL BE 50 LBS. IN WEIGHT AND 1.5 SQ. FT. FOR E.P.A..

① CLAMPS SHALL BE EXTRUDED ALUMINUM.

② RACE WAY: 1⅜" FIELD DRILLED HOLE WITH 1" CHASE NIPPLE AND NUT (OR NEOPRENE GROMMET) PER EACH REQUIRED LUMINAIRE ARM. PROVIDE 1½" HOLE IN CLAMP EXTRUSION TO CONTINUE RACEWAY. NOTE: NO RACEWAY ON LOWER TRUSS CORD CLAMP. FOR INFORMATION ONLY.

③ STIFFENER.

④ GUSSETS REQUIRED.

⑤ CLAMP BOLT ASSEMBLY (BOLT - ½"-13 UNC, 2 EACH - FLAT WASHER, LOCK WASHER, NUT) - 4 EACH PER CLAMP.

**LUMINAIRE ARMS, TRUSS TYPE 6-INCH CLAMP**

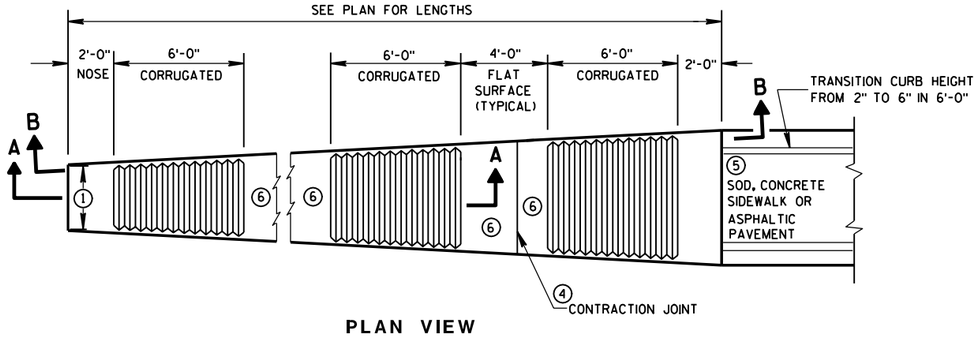
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/25/2010 — DATE

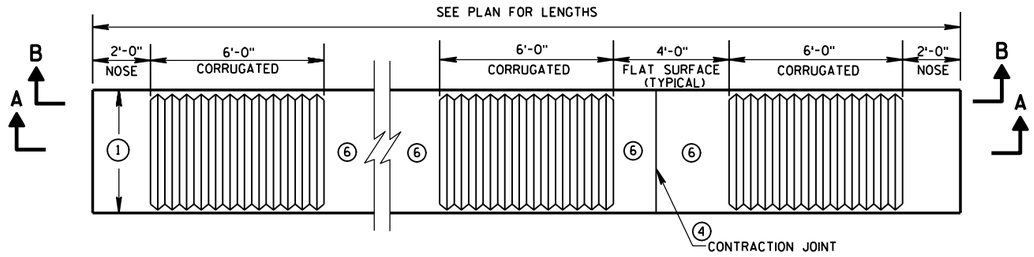
/S/ John Corbin — STATE ELECTRICAL ENGINEER FOR HWYS

FHWA



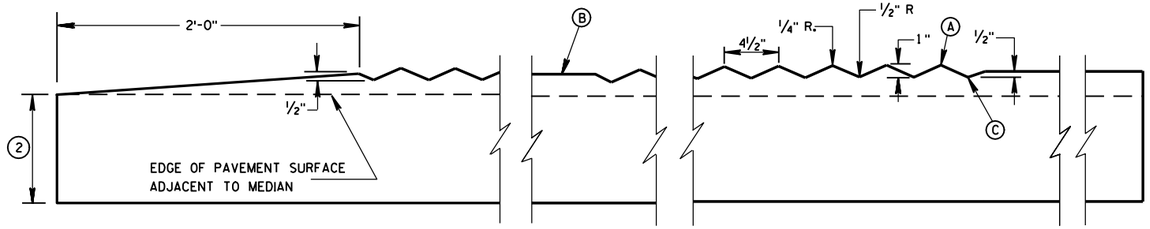

PLAN VIEW

## VARIABLE WIDTH CONCRETE CORRUGATED MEDIAN




PLAN VIEW

## UNIFORM WIDTH CONCRETE CORRUGATED MEDIAN




SECTION A-A

## LONGITUDINAL SECTION

## GENERAL NOTES

(1) SEE PLANS FOR CONSTANT OR VARIABLE WIDTH.

(2) THE DEPTH OF THE CONCRETE CORRUGATED MEDIAN SHALL BE 9-INCHES UNLESS SHOWN OTHERWISE IN THE PLAN.

ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN IN THE PLAN. TYPICAL OPTIONS ARE:

(1) NEW OR EXISTING CONCRETE PAVEMENT.

(2) ASPHALTIC CONCRETE OVER NEW OR EXISTING CONCRETE BASE COURSE, OR PAVEMENT.

(3) ASPHALTIC PAVEMENT OVER BASE AGGREGATE DENSE.

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

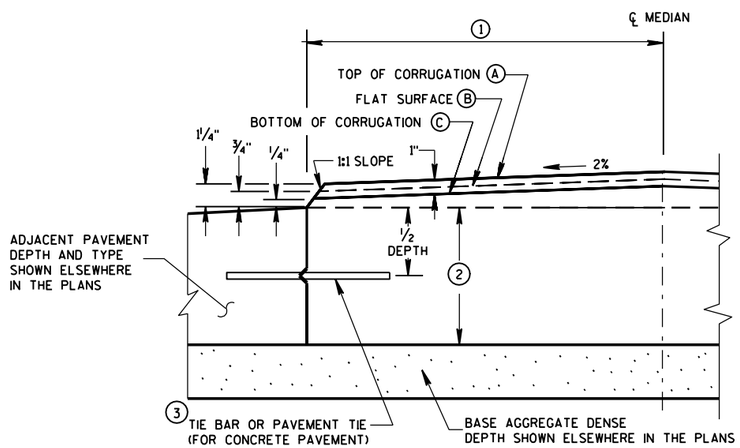
INSTALL TIE BARS TO MAINTAIN A MINIMUM OF 3-INCHES OF COVER BETWEEN THE TIE BAR AND THE CONCRETE SURFACE (BOTTOM AND TOP).

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

(4) CONCRETE CORRUGATED MEDIAN CONTRACTION JOINTS SHALL BE CONSTRUCTED TO MATCH THE JOINTS IN ADJACENT CONCRETE PAVEMENT. WHERE ADJACENT PAVEMENT IS ASPHALT WITH BASE AGGREGATE DENSE. TRANSVERSE CONTRACTION JOINTS SHALL BE PROVIDED AT 20 FOOT INTERVALS.

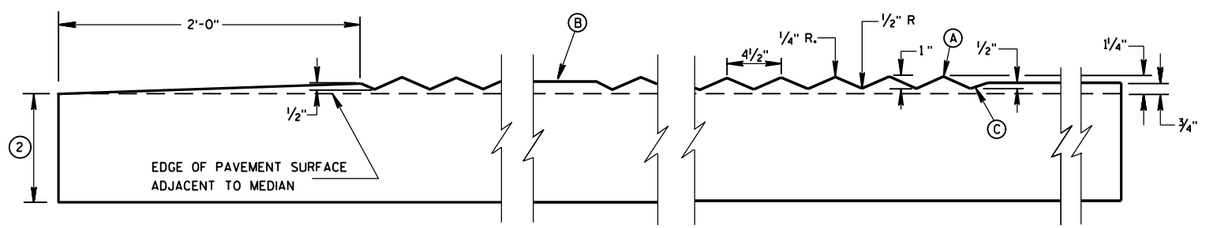
(5) SURFACE TYPE AND DETAILS ARE DEFINED ELSEWHERE IN THE PLAN.

(6) YELLOW MARKING ON FLAT SURFACE WHEN MEDIAN SEPARATES OPPOSING TRAFFIC.




HALF CROSS SECTION

## (2) CONCRETE CORRUGATED MEDIAN AND ADJACENT PAVEMENT




SECTION B-B

## LONGITUDINAL SECTION

CONCRETE CORRUGATED MEDIAN

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

12/17/07
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

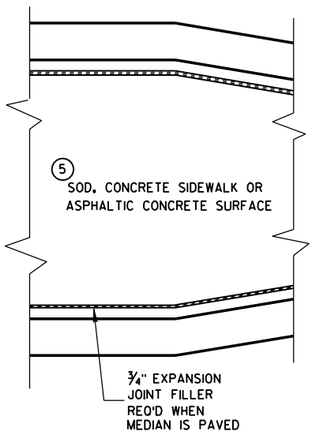
FHWA

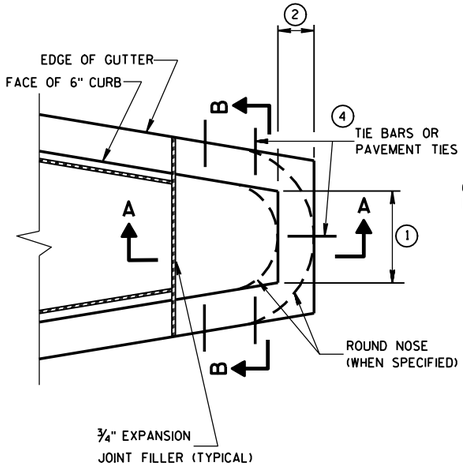
6

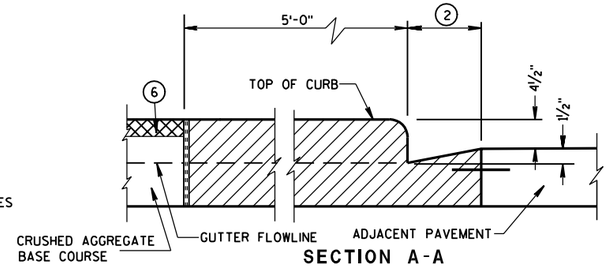
S.D.D. 11B 1-5

6

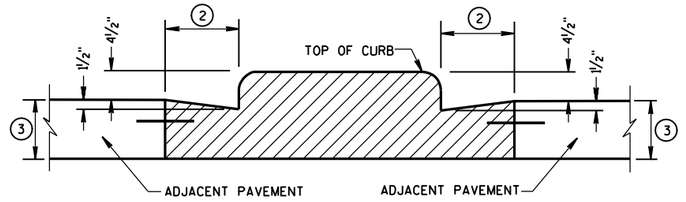
S.D.D. 11B 1-5




SECTION A-A




SECTION B-B

## CONCRETE MEDIAN BLUNT NOSE DETAIL

## GENERAL NOTES

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

(1) SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).

(2) WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.

(3) DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:

(1) NEW OR EXISTING CONCRETE PAVEMENT.

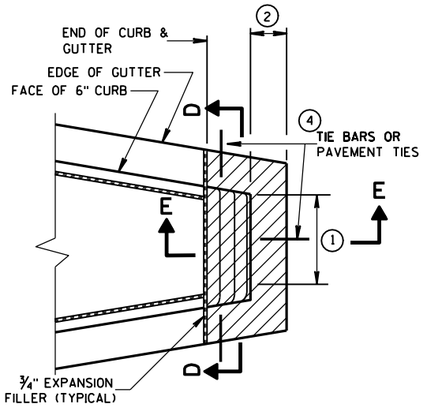
(2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.

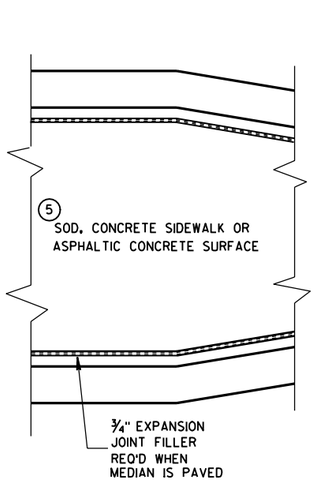
(3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.

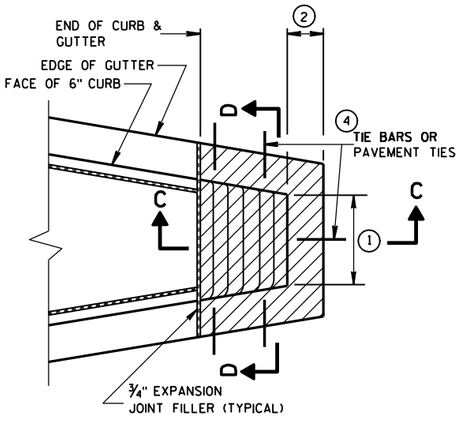
(4) TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.

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

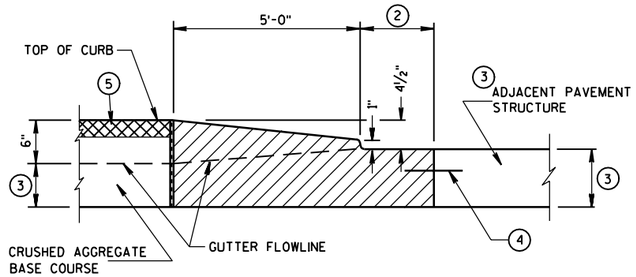
(5) SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.



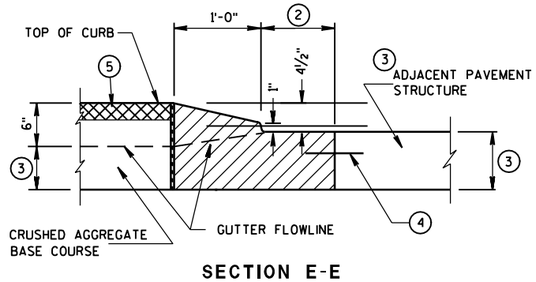




## CONCRETE MEDIAN SLOPED NOSE TYPE 1

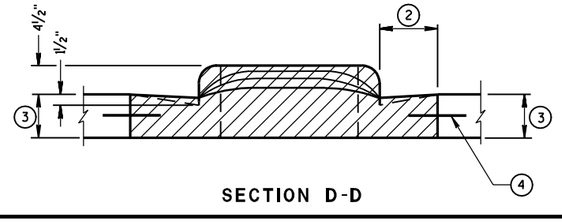



SECTION C-C




SECTION E-E

## CONCRETE MEDIAN SLOPED NOSE TYPE 2




SECTION D-D

CONCRETE MEDIAN NOSE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/8/06
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

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S.D.D. 11B 2-2

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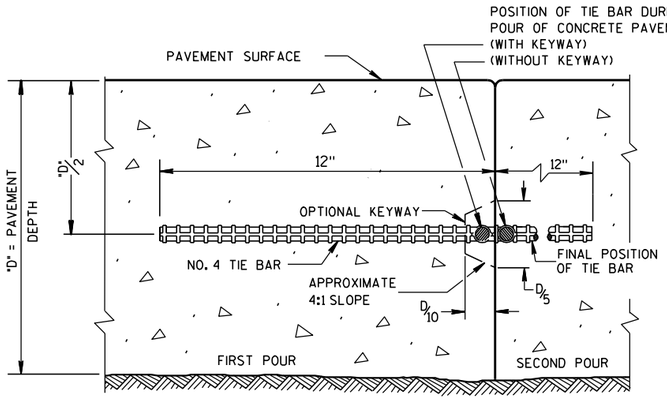
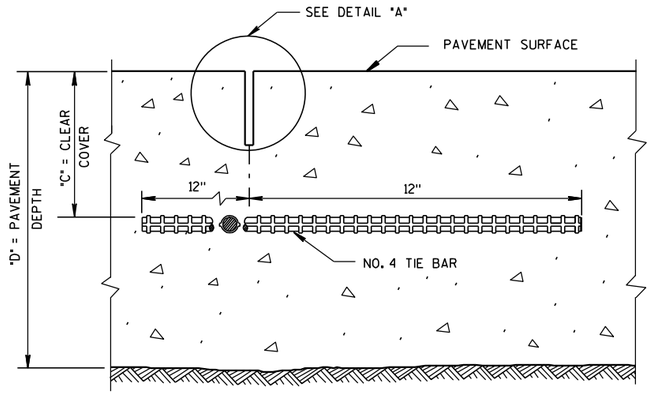
S.D.D. 11B 2-2




## CONSTRUCTION JOINT




## SAWED JOINT

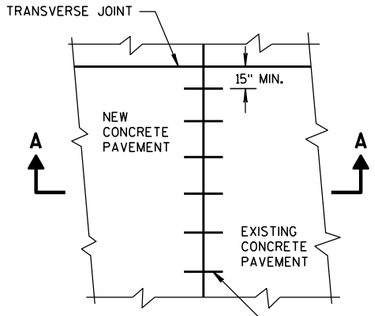
## GENERAL NOTES

DO NOT SEAL OR FILL LONGITUDINAL JOINTS.

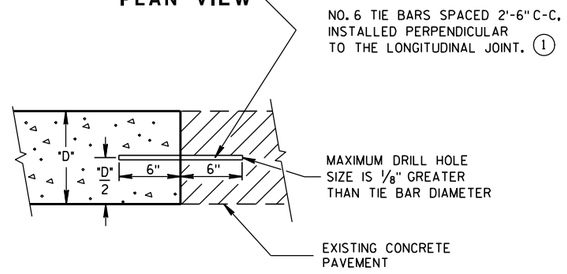
CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

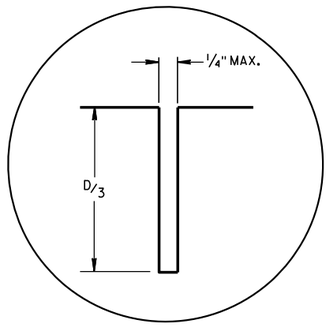
(1) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.




## PLAN VIEW

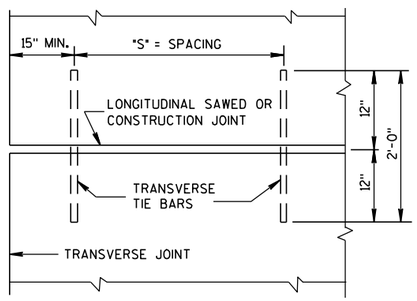



## SECTION A-A
## LONGITUDINAL CONSTRUCTION JOINT TIE BARS ANCHORED INTO EXISTING PAVEMENT




## DETAIL "A"

| PAVEMENT DEPTH "D" | CLEAR COVER "C" | MAXIMUM TIE BAR SPACING "S" | |
|---|---|---|---|
| | | PAVEMENT WIDTH | |
| | | 24' OR 26' | ≥ 30' |
| 6, 6 ½" | 3" ± ½" | 48" | 42" |
| 7, 7 ½" | 3 ¼" ± 1" | 45" | 36" |
| 8, 8 ½" | 3 ¾" ± 1" | 39" | 30" |
| 9, 9 ½" | 4 ¼" ± 1" | 33" | 27" |
| 10, 10 ½" | 4 ¾" ± 1" | 30" | 24" |
| 11, 11 ½" | 5 ¼" ± 1" | 27" | 21" |
| 12" | 5 ¾" ± 1" | 24" | 21" |




## PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT
LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10-5-2010 — DATE

/S/ Deb Bischoff — PAVEMENT POLICY & DESIGN ENGINEER

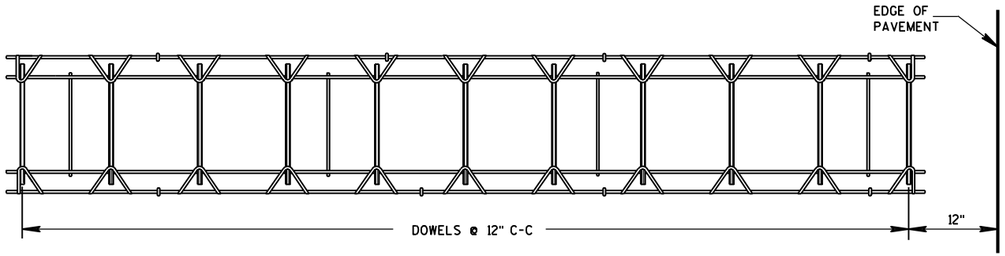
FHWA

6

S.D.D. 13 C 1-15

6

S.D.D. 13 C 1-15



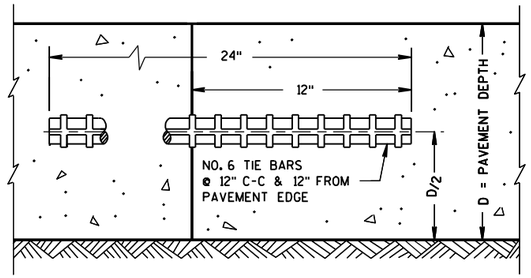

PLAN VIEW


SIDE VIEW

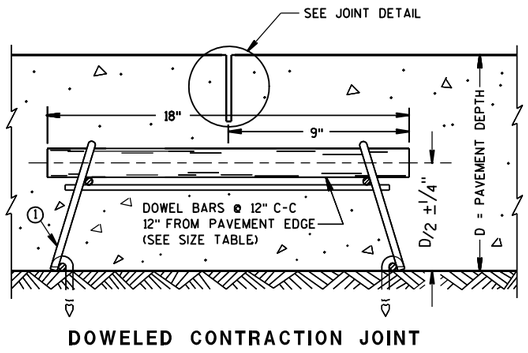
CONTRACTION JOINT DOWEL ASSEMBLY ①

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

| PAVEMENT DEPTH (D) | DOWEL BAR DIAMETER | CONTRACTION JOINT SPACING |
|---|---|---|
| 5 ½", 6", 6 ½" | NONE | 12' |
| 7", 7 ½" | 1" | 14' |
| 8", 8 ½" | 1 ¼" | 15' |
| 9", 9 ½" | 1 ¼" | 15' |
| 10" & ABOVE | 1 ½" | 15' |




TRANSVERSE CONSTRUCTION JOINT




DOWELED CONTRACTION JOINT

## GENERAL NOTES

CONTRACTION JOINTS

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

DO NOT SEAL OR FILL CONTRACTION JOINTS.

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

FOR PAVEMENT SLABS OF VARYING WIDTHS, CENTER THE DOWEL ASSEMBLY ACROSS THE LANES. LOCATE THE INNER AND OUTER MOST DOWEL BARS SO THAT THE CENTER OF THE BARS ARE A MINIMUM OF 6 INCHES AND A MAXIMUM OF 12 INCHES FROM THE LONGITUDINAL JOINT AND THE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 4 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

THE CONTRACTOR MAY INSERT TIE BARS THROUGH THE HEADER BOARD AFTER THE CONCRETE HAS BEEN PLACED.

① THE ENGINEER MAY APPROVE THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. THE CONTRACTOR MAY USE MECHANICAL DOWEL BAR INSERTERS INSTEAD OF DOWEL ASSEMBLIES.

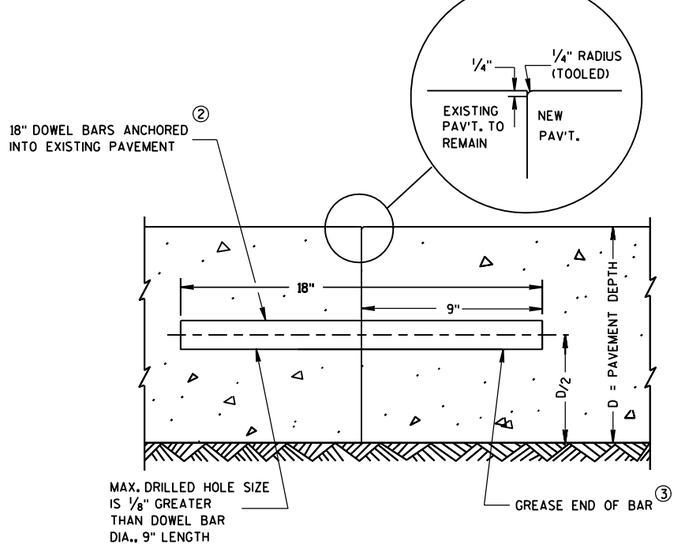
② ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY.

③ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

④ SPACE DOWEL BARS INSTALLED BY DRILLING 1'-3" ON CENTER. CENTER THE GROUPING OF DOWEL BARS INSIDE THE SLAB BASED ON ALL THE FOLLOWING SITUATIONS:

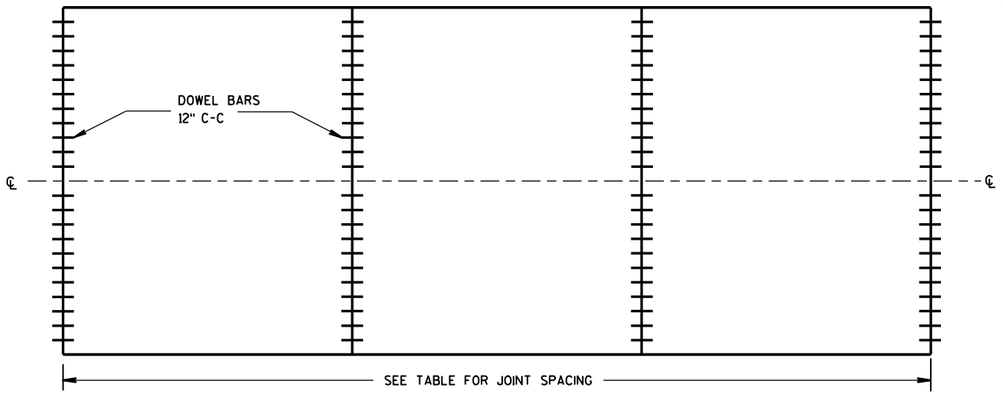
BETWEEN THE EDGES OF PAVEMENTS WITHOUT LONGITUDINAL JOINTS OR
BETWEEN THE EDGE OF PAVEMENT AND NEAREST LONGITUDINAL JOINT OR
BETWEEN TWO ADJACENT LONGITUDINAL JOINTS.

⑤ 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.

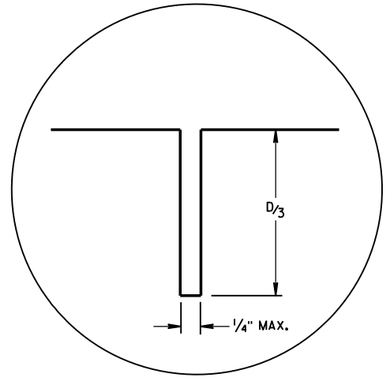



TRANSVERSE CONTRACTION JOINTS ABUTTING EXISTING PAVEMENT

④ DOWEL BAR DETAIL




CONTRACTION JOINT LOCATIONS




JOINT DETAIL

URBAN DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/11/2009 — DATE
/S/ Deb Bischoff — PAVEMENT POLICY & DESIGN ENGINEER
FHWA



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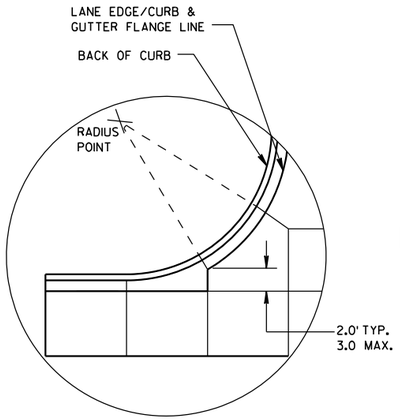
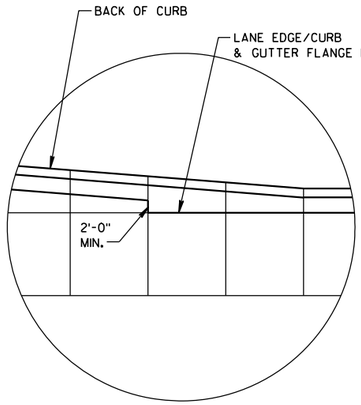
S.D.D. 13 C 13-7




DETAIL "A"

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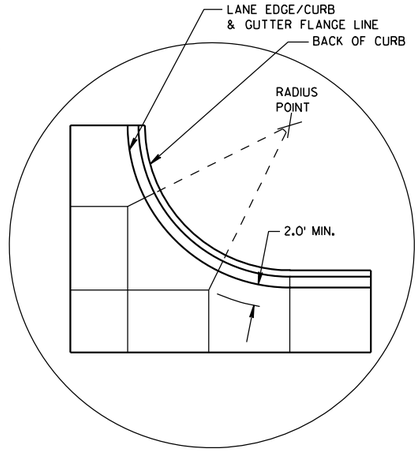


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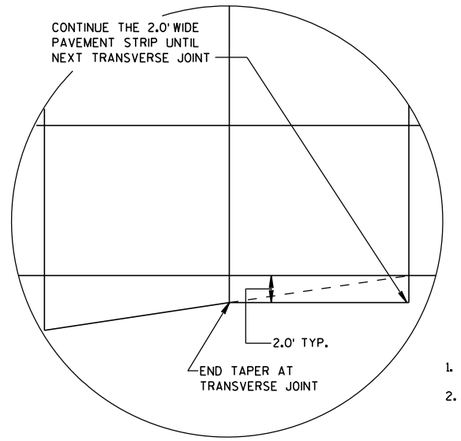



DETAIL "D"

## GENERAL NOTES

THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.

ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.

CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.

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

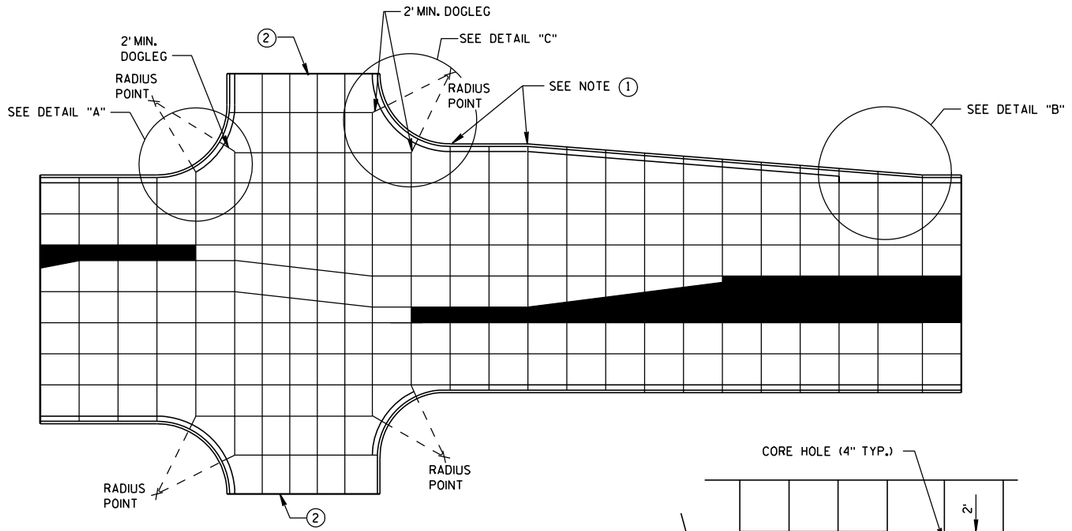
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

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

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

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

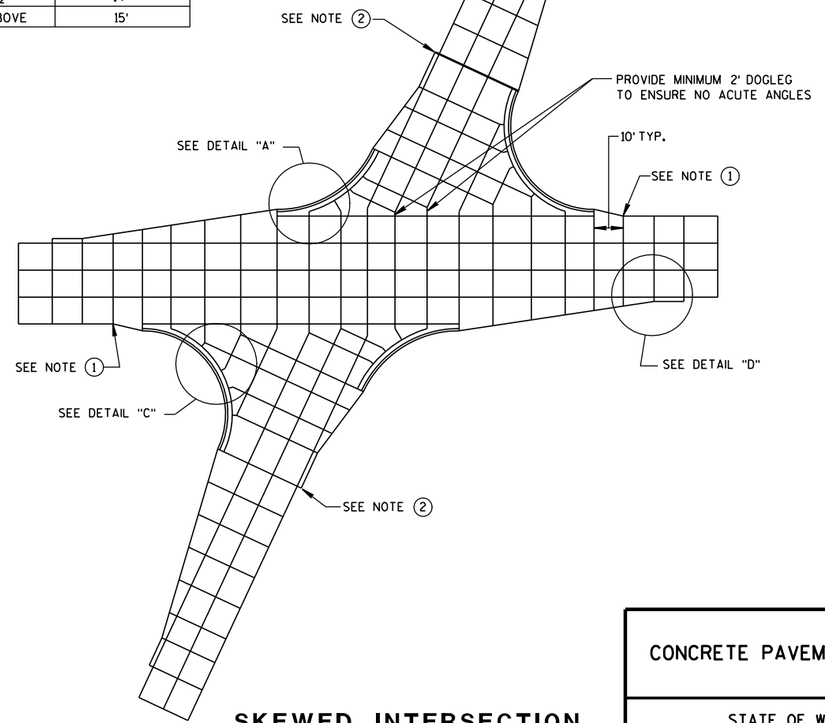
1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM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



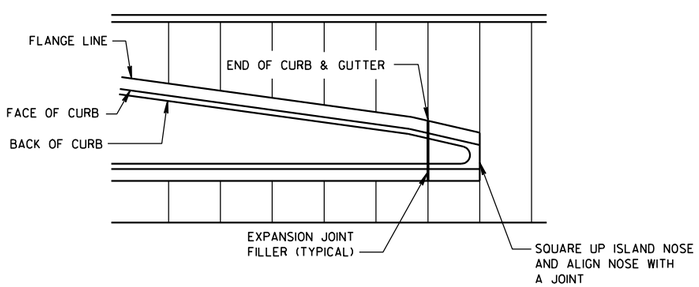

STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

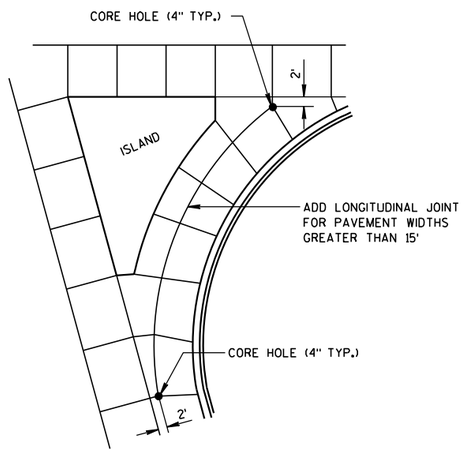
| PAVEMENT DEPTH (D) | CONTRACTION JOINT SPACING |
|---|---|
| 6", 6½" | 12' |
| 7", 7½" | 14' |
| 8" & ABOVE | 15' |




SKEWED INTERSECTION




APPROACH TO MEDIAN




LARGE RIGHT TURN

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

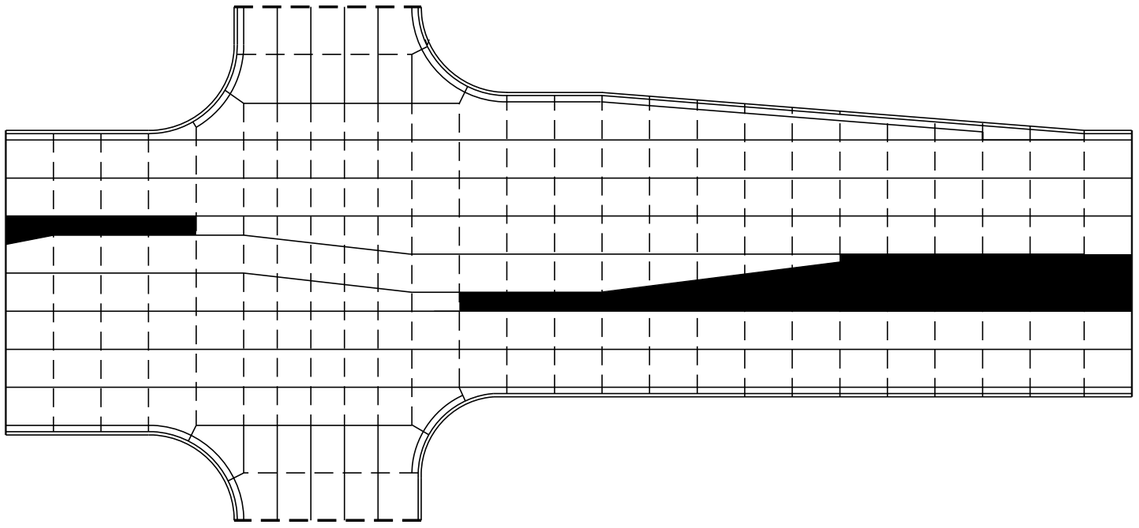
S.D.D. 13C18-1a

## LEGEND

POTENTIAL DOWELED EXPANSION JOINT

DOWELED JOINT

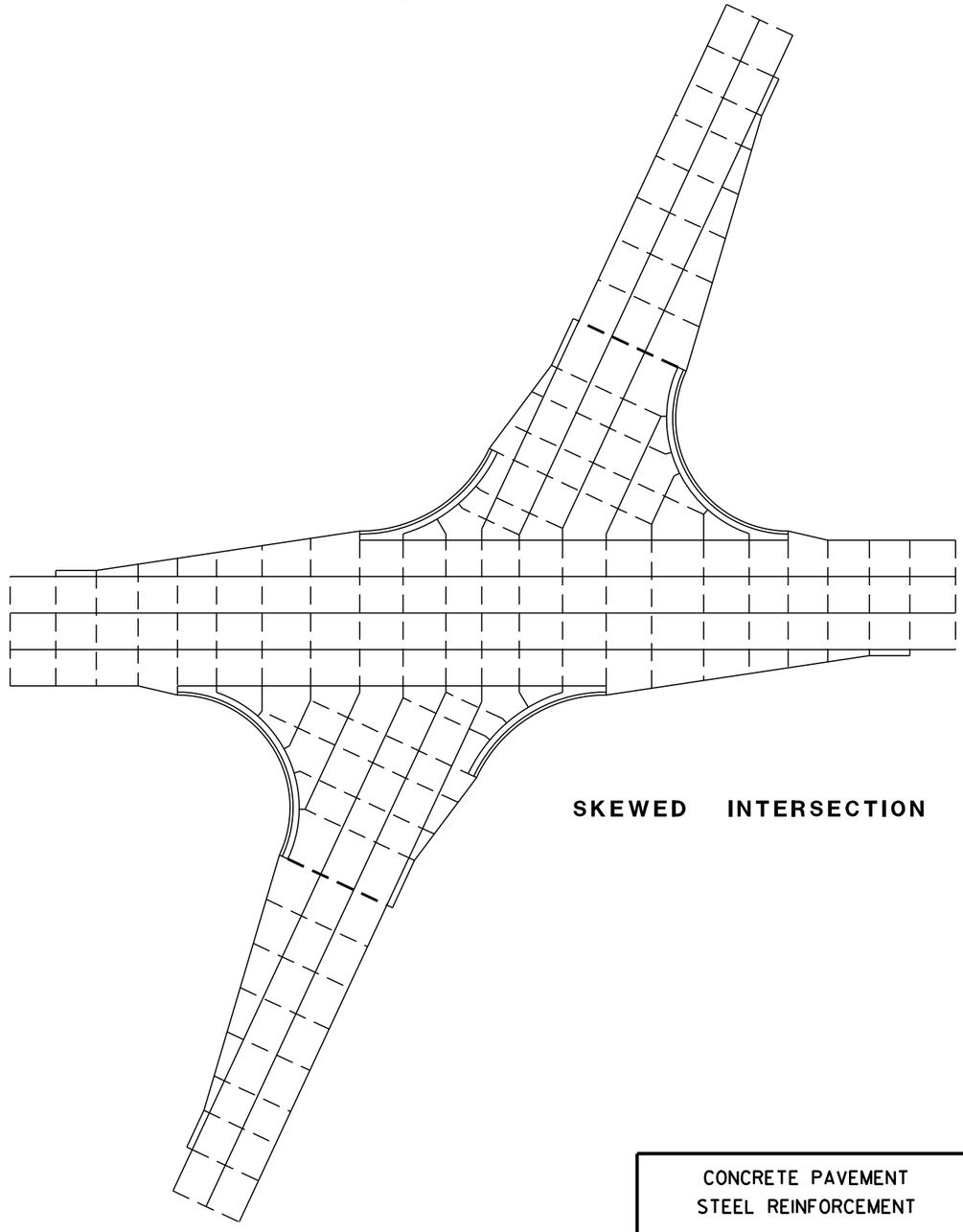
TIED JOINT



STANDARD INTERSECTION

## GENERAL NOTES

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



SKEWED INTERSECTION

6

S.D.D. 13C18-1b

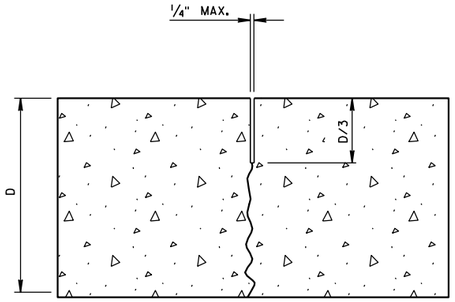
CONCRETE PAVEMENT
STEEL REINFORCEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATIO

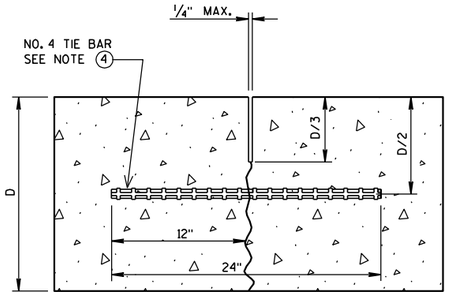


6

S.D.D. 13C18-1b



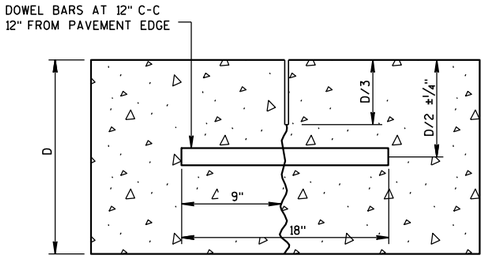

UNDOWELED-TRANSVERSE



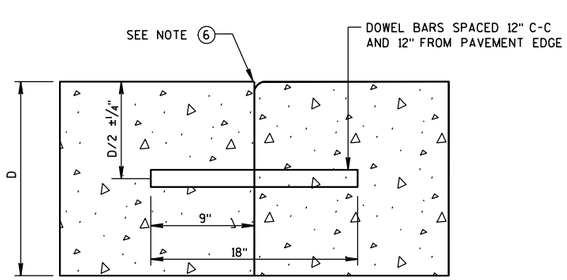

TIED LONGITUDINAL

## GENERAL NOTES

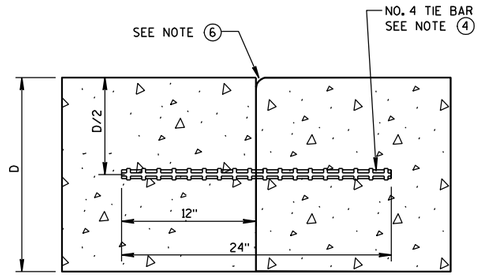
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF 4 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.
4. SPACE TIE BARS AT LONGITUDINAL CONSTRUCTION OR CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C1.
5. CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
6. IF JOINT IS FORMED, PROVIDE A 1/4-INCH RADIUS.




DOWELED-TRANSVERSE



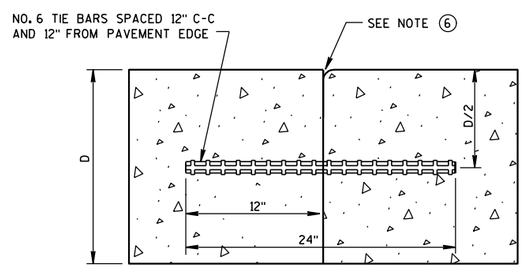

DOWELED TRANSVERSE



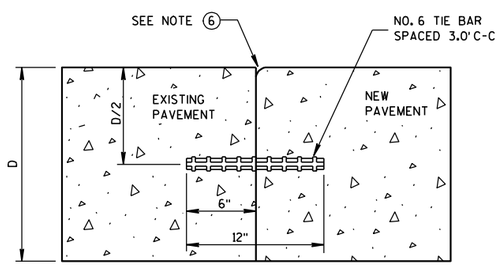

TIED LONGITUDINAL

## CONTRACTION JOINTS

SEE NOTE (2)



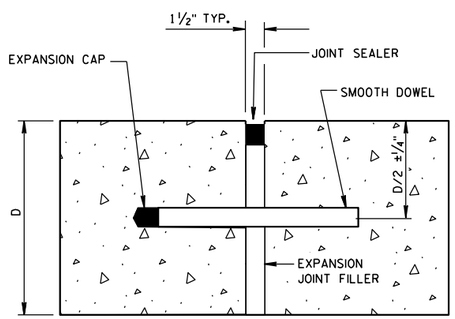

TIED TRANSVERSE
SEE NOTE (3)



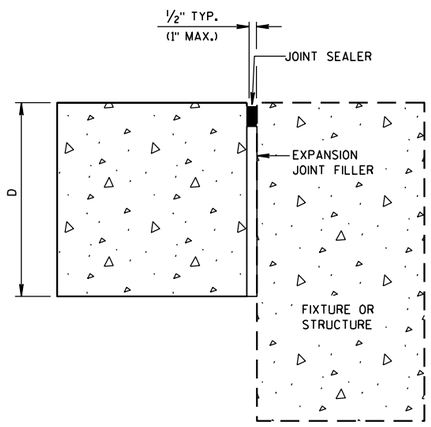

TIED LONGITUDINAL TO EXISTING

## CONSTRUCTION JOINTS

SEE NOTE (5)




DOWELED-TRANSVERSE
SEE NOTE (1)




UNTIED-LONGITUDINAL

## EXPANSION JOINTS

CONCRETE PAVEMENT
JOINT TYPES

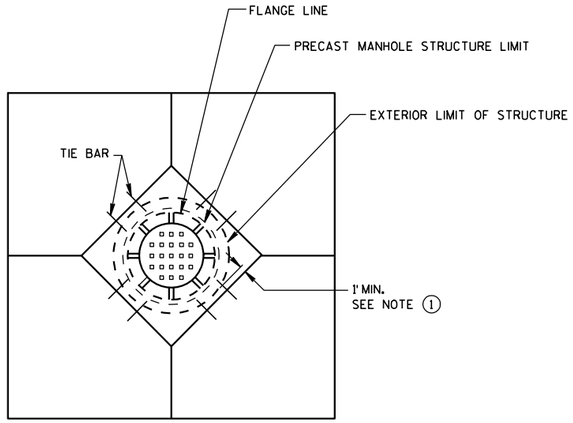
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

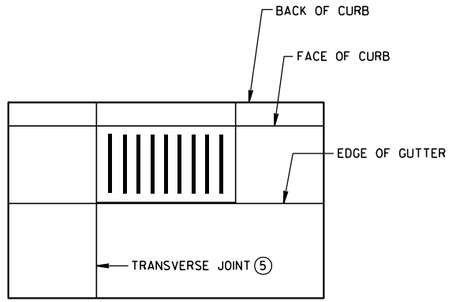
S.D.D. 13 C 18-1c

6

S.D.D. 13 C 18-1c



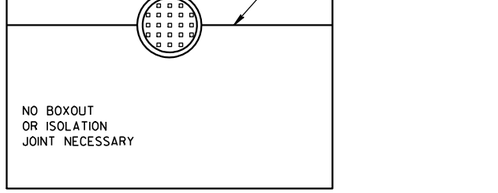

## DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS



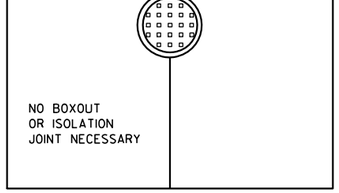

## INLET WITH TRANSVERSE JOINT

## GENERAL NOTES

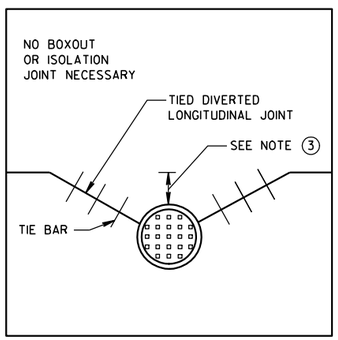
1. USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1 FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.
2. ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.
3. IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF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



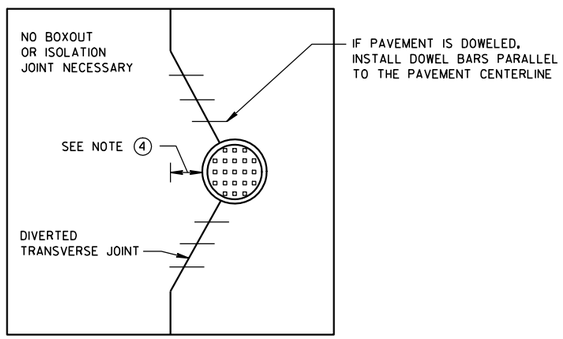

## MANHOLE WITH LONGITUDINAL JOINT




## MANHOLE WITH TRANSVERSE JOINT




## MANHOLE WITH DIVERTED LONGITUDINAL CONTRACTION JOINT




## MANHOLE WITH DIVERTED TRANSVERSE CONTRACTION JOINT

CONCRETE PAVEMENT
JOINTING AT UTILITY FIXTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10-5-2010
DATE
FHWA

/S/ Deb Bischoff
PAVEMENT POLICY & DESIGN ENGINEER

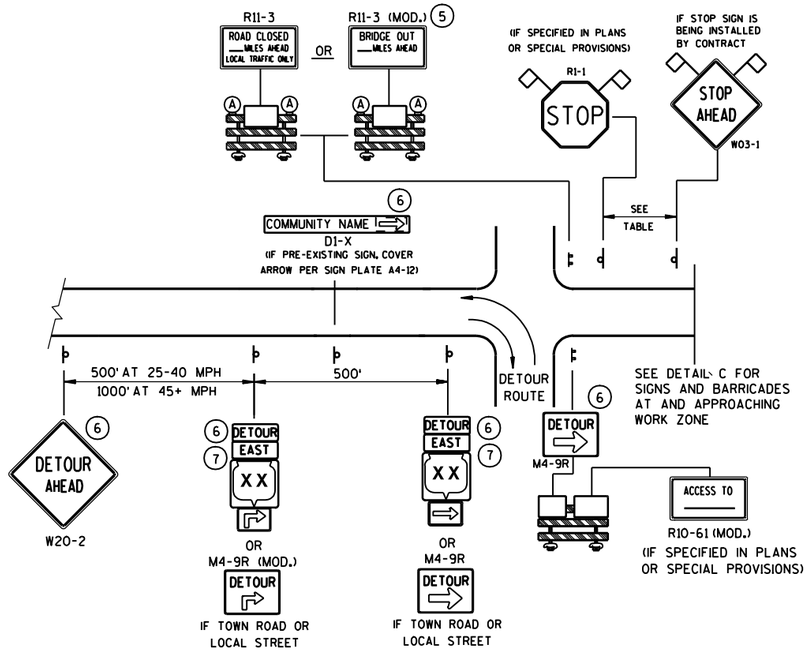


6

S.D.D. 13C18-1d

6

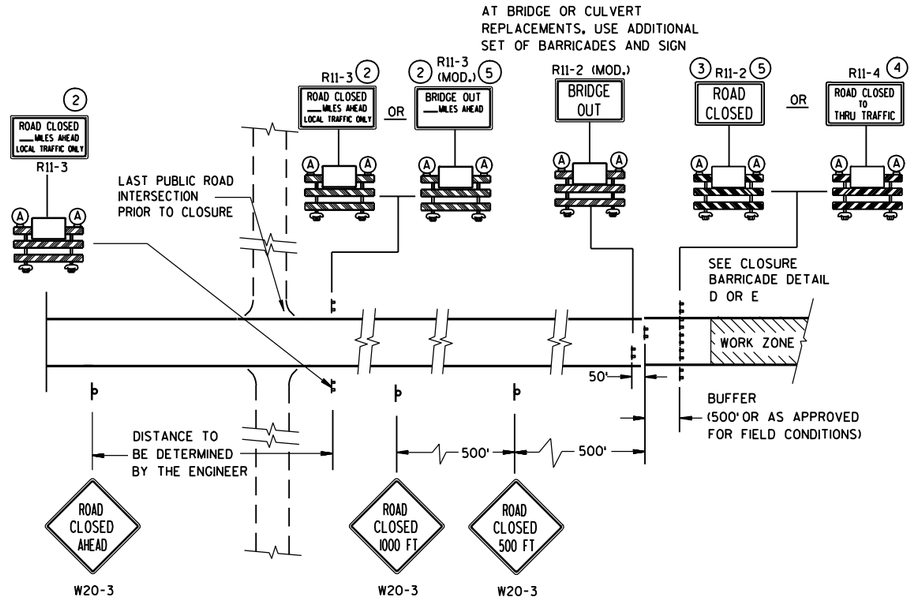
S.D.D. 13C18-1d




**DETAIL A**

## MAINLINE CLOSURE WITH POSTED DETOUR

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

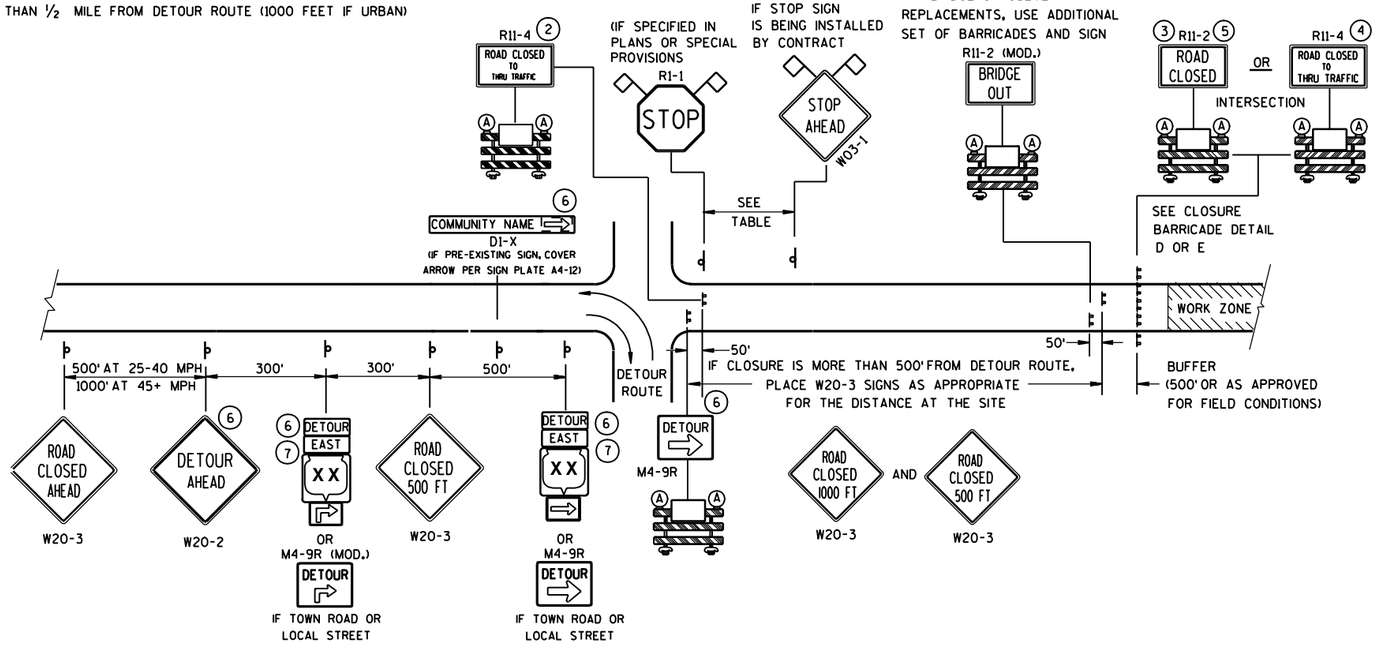



**DETAIL C**

## 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 15C2-4b
FOR GENERAL NOTES
AND FOOTNOTES (1) THROUGH (7)




**DETAIL B**

## MAINLINE CLOSURE WITH POSTED DETOUR

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

### LEGEND

- POST MOUNTED SIGN
- TYPE III BARRICADES
- (A) TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
- WORK ZONE
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1 OR M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

**BARRICADES AND SIGNS FOR MAINLINE CLOSURES**

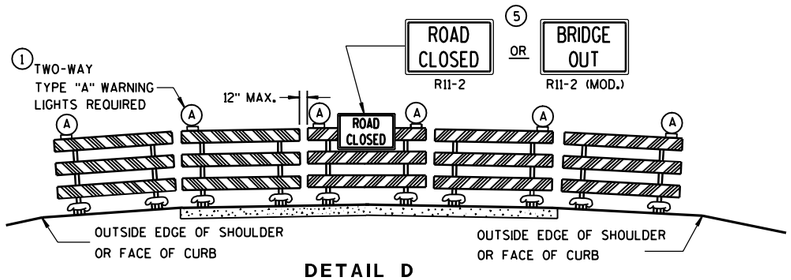
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 15 C 2-4a

6

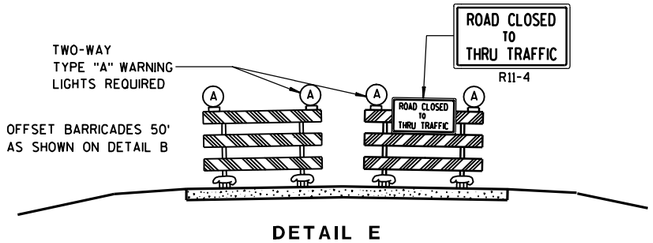
S.D.D. 15 C 2-4a




**DETAIL D**

## ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW




**DETAIL E**

## LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-4a FOR LEGEND

## GENERAL NOTES

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

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

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

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

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

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

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

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

THE REFLECTIVE SHEETING USED ON R11-2, R11-3, R11-4, R10-61 AND R1-1 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X AND M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

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

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

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

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

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

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

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

**BARRICADES AND SIGNS FOR MAINLINE CLOSURES**

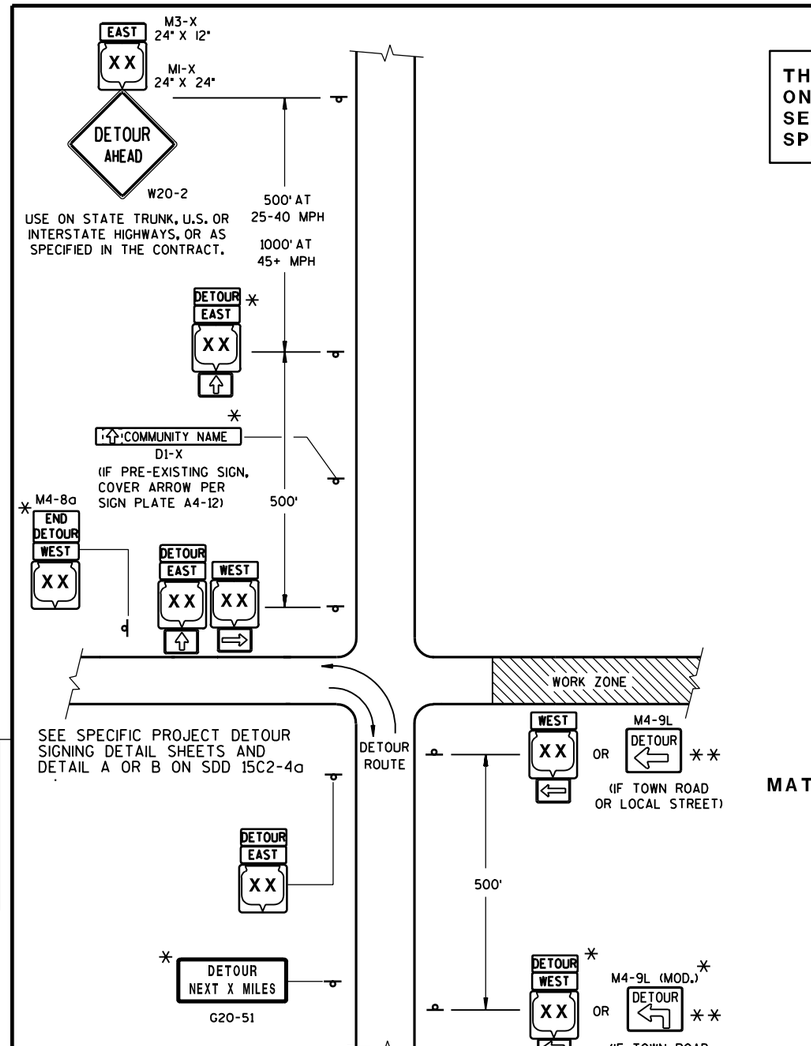
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

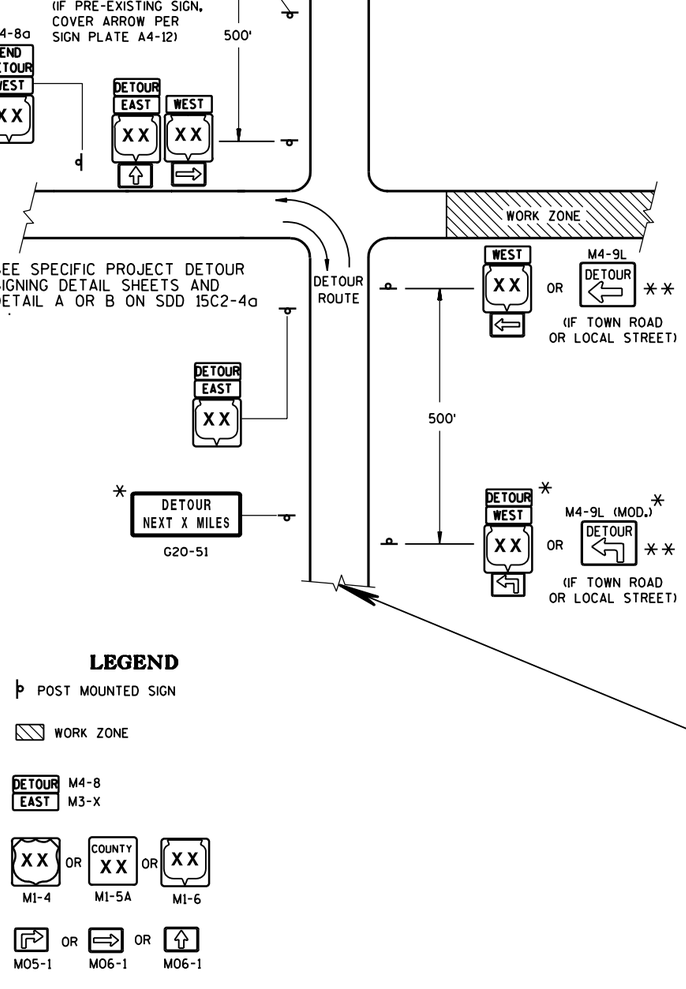
APPROVED
9/16/03
DATE
Thomas N. Nottbohm for
CHIEF SIGNS AND MARKING ENGINEER
FHWA

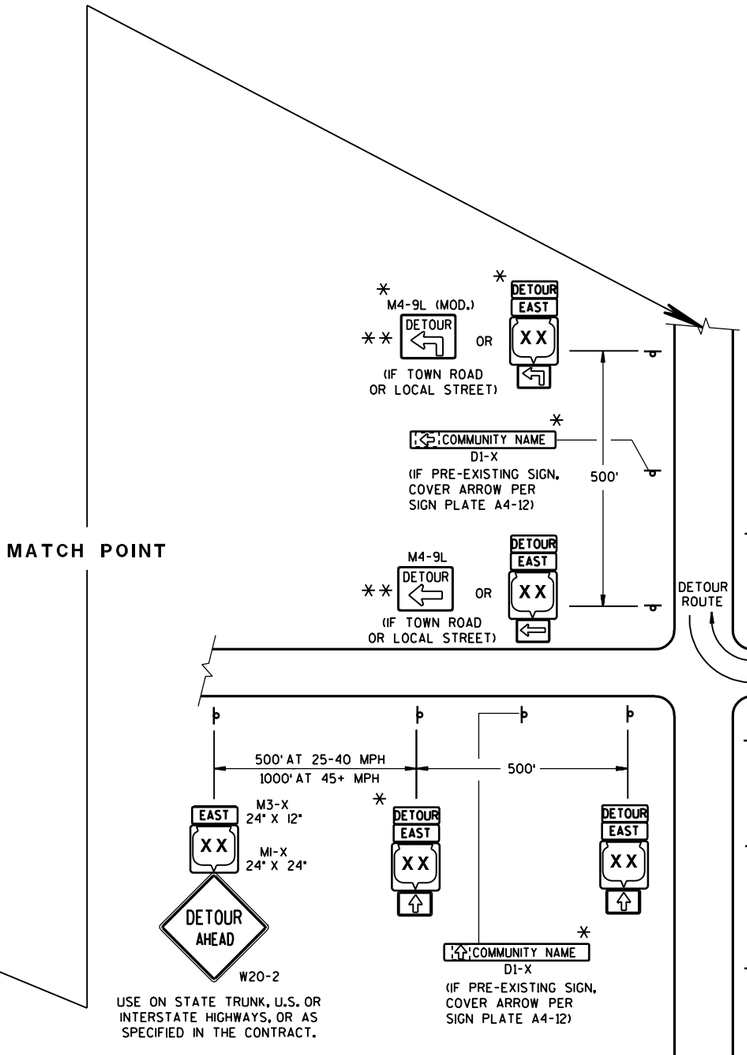


6
S.D.D. 15 C 2-4b

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




DETAIL F

**DETOUR SIGNING**

## 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.

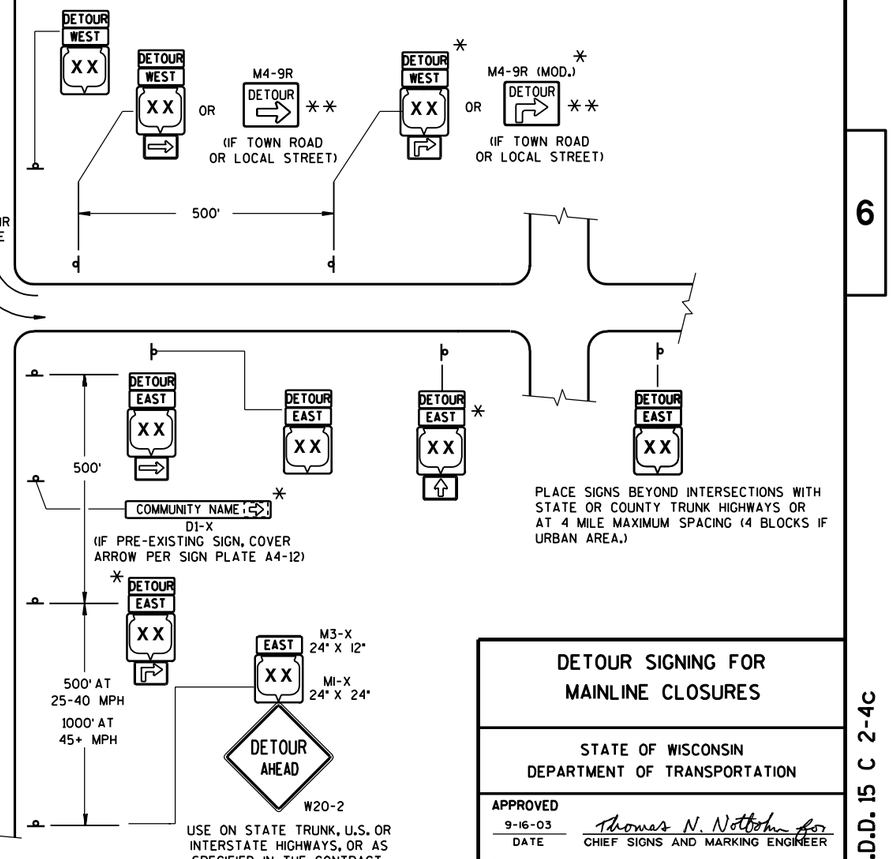
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

M3-X AND M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
M4-9 SHALL BE 30" X 24".
M4-8a SHALL BE 24" X 18".
G20-51 SHALL BE 60" X 24".
W20-2 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.




**DETOUR SIGNING FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9-16-03
DATE

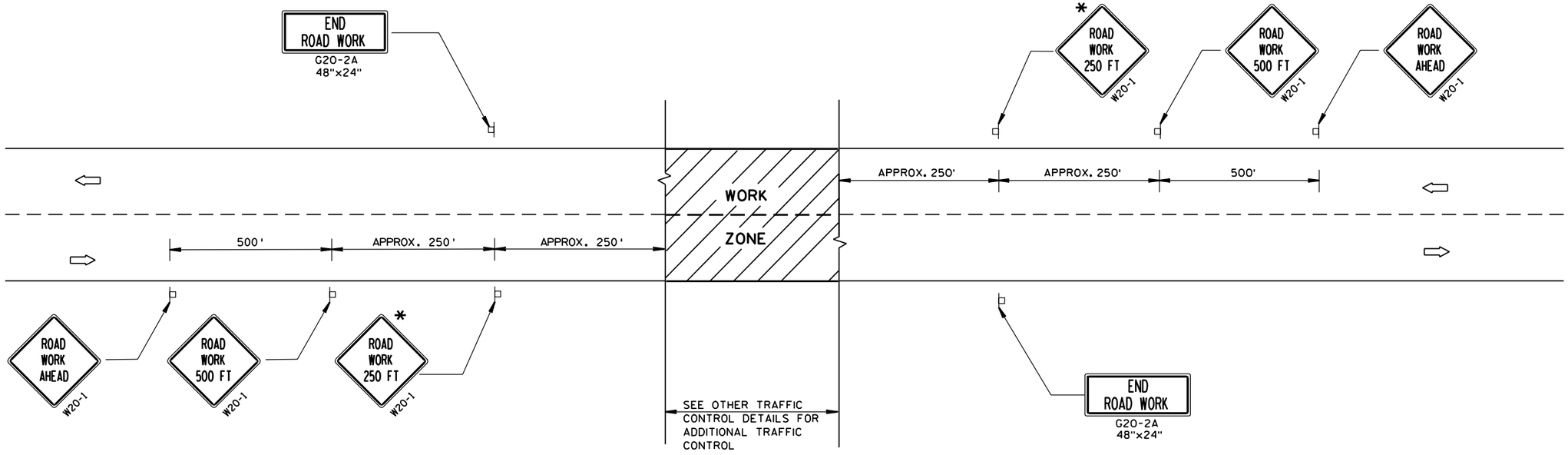
Thomas N. Notbohm for
CHIEF SIGNS AND MARKING ENGINEER

FHWA



6

S.D.D. 15 C 2-4c




## GENERAL NOTES

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

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

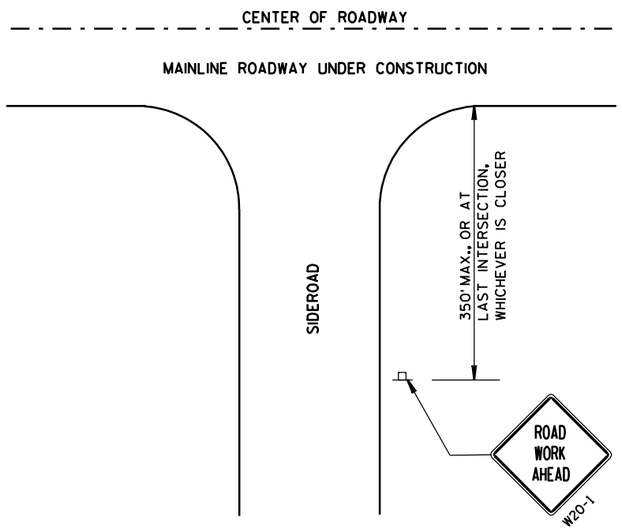
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS, IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

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

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

## TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL




## LEGEND

POST MOUNTED SIGN

DIRECTION OF TRAFFIC FLOW

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/23/00
DATE

Chester J. Sprang
CHIEF SIGNS AND MARKING ENGINEER

FHWA

S.D.D. 15 C 5-1

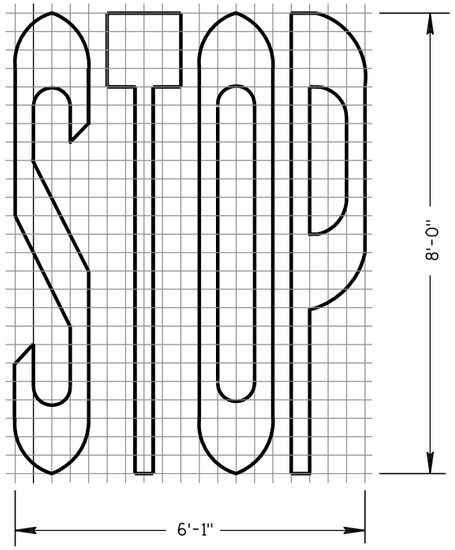
6

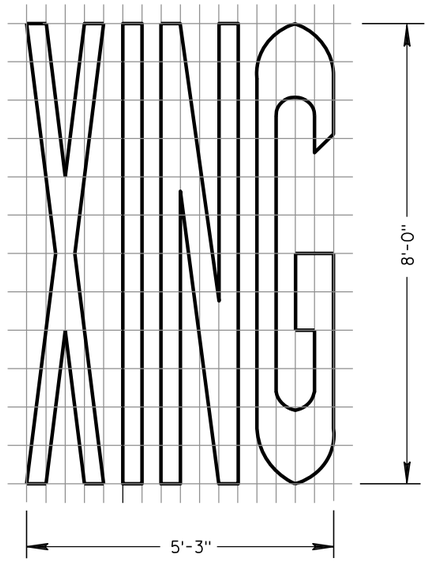
S.D.D. 15 C 5-1

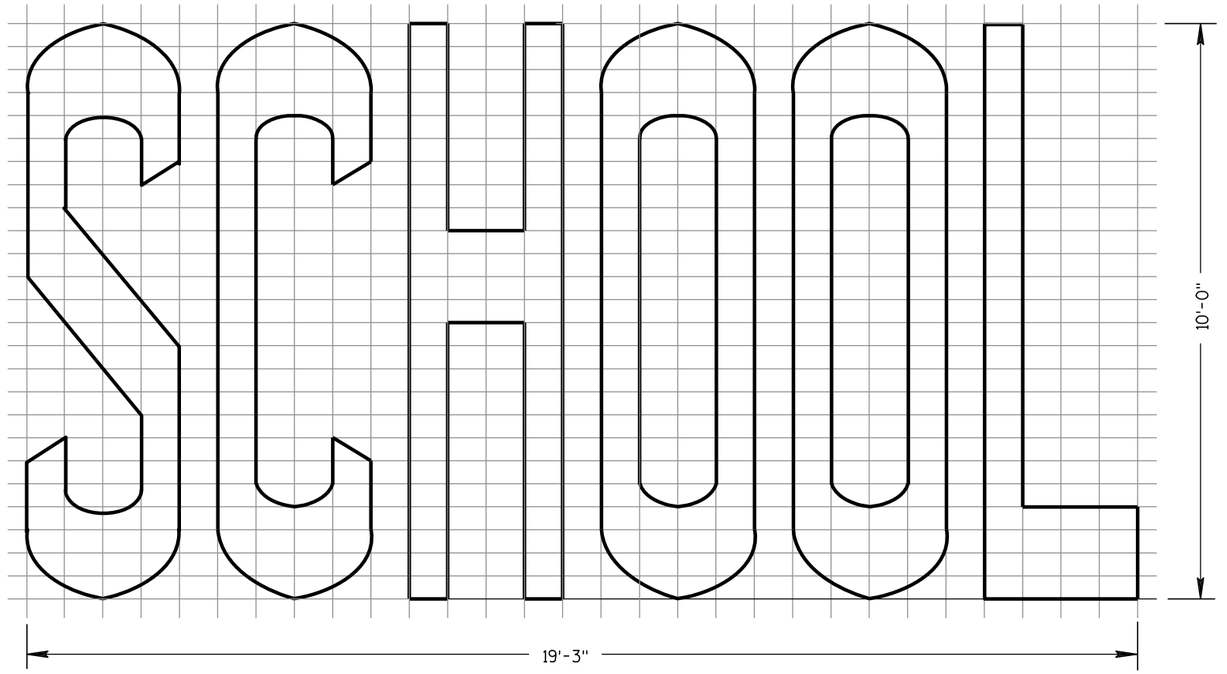
## GENERAL NOTES

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

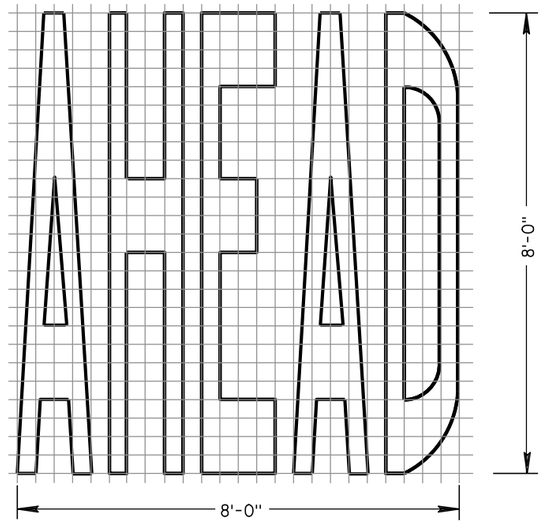
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES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

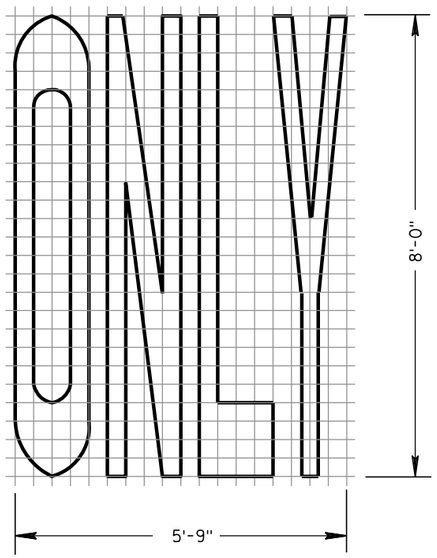


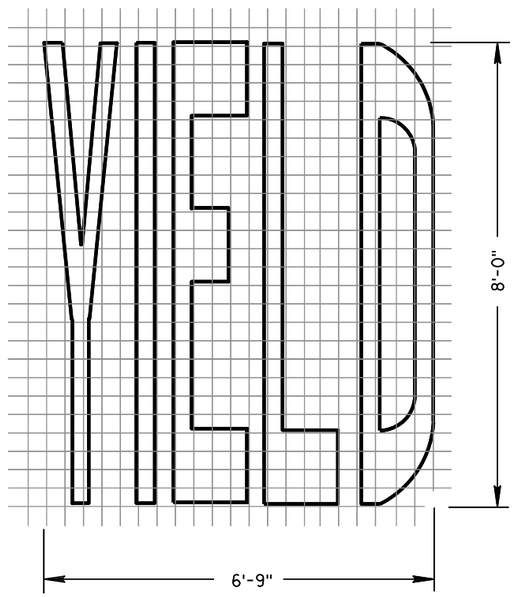



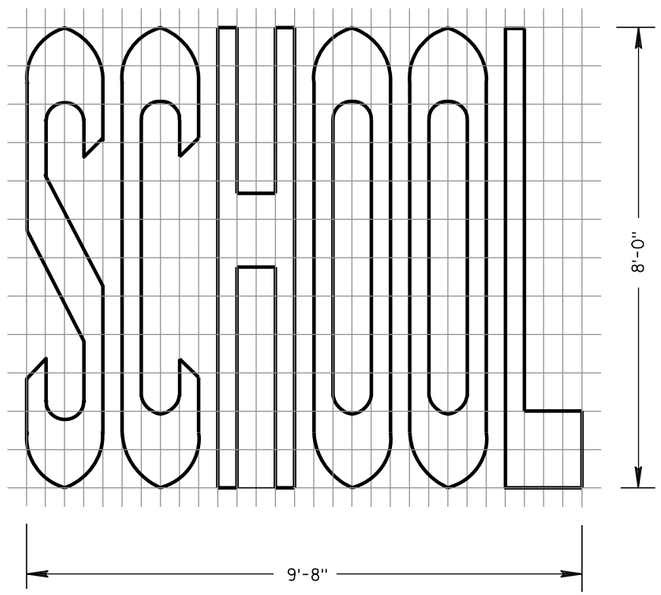




**TWO-LANE**




**SINGLE-LANE**

**PAVEMENT MARKING WORDS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7-1-11 — DATE

/S/ Thomas N. Nathaham — STATE TRAFFIC ENGINEER

FHWA

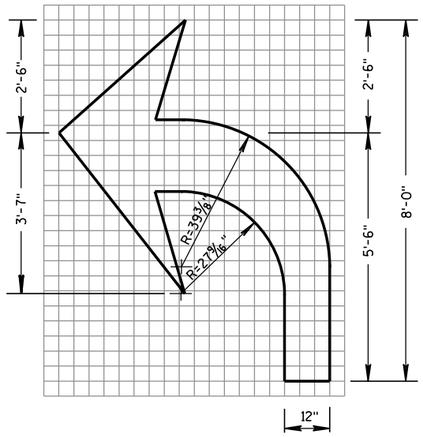


6

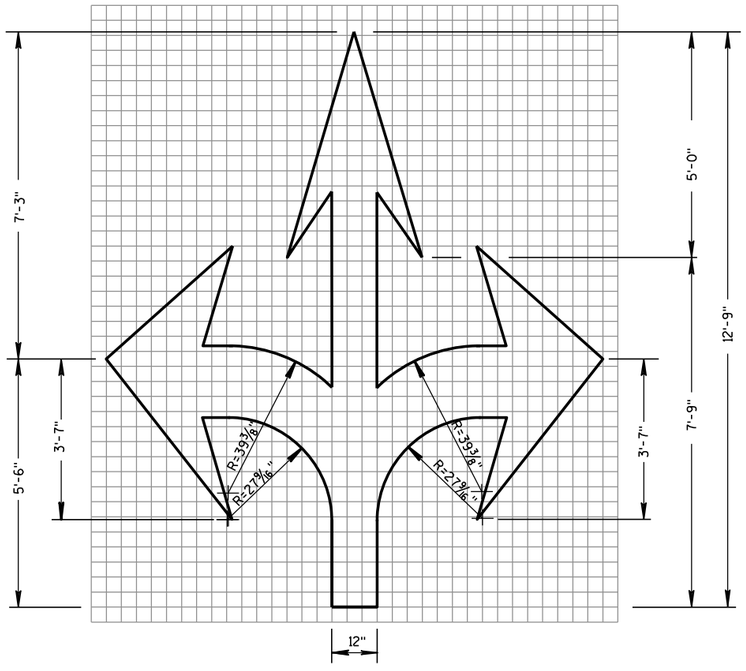
S.D.D. 15 C 7-12b

6

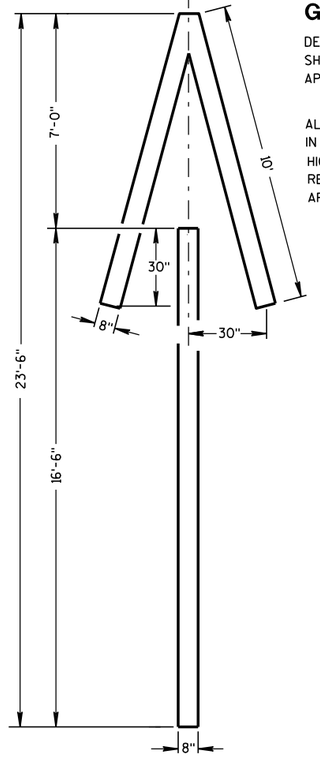
S.D.D. 15 C 7-12b




TYPE 2




TYPE 6

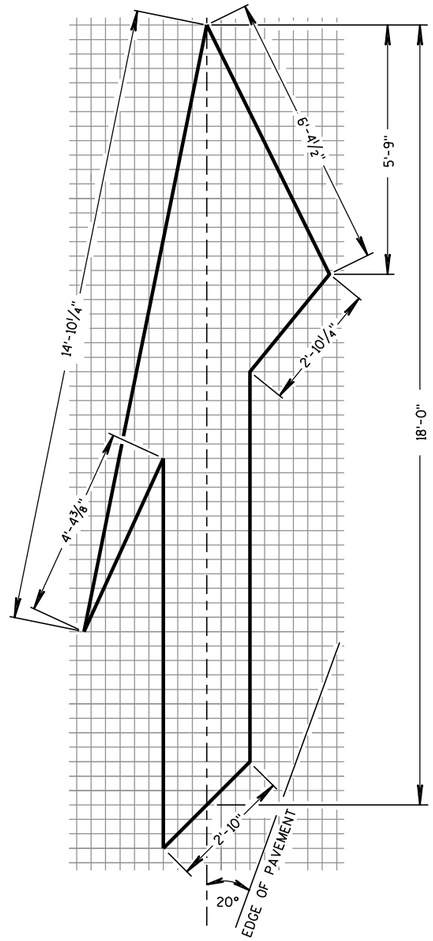



TYPE 4

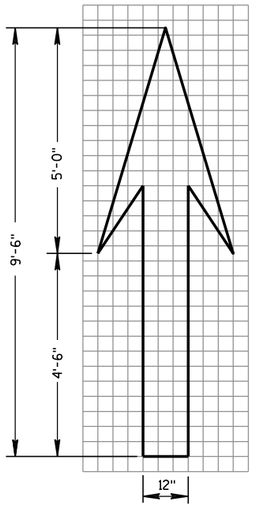
## GENERAL NOTES

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

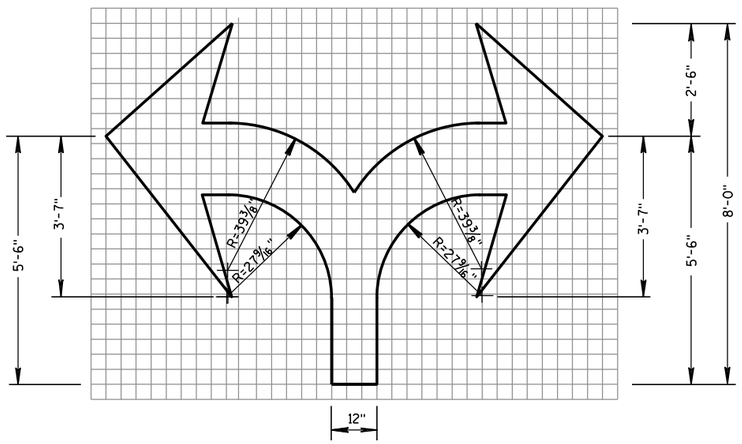
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES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




TYPE 5 LANE DROP ARROW




TYPE 1

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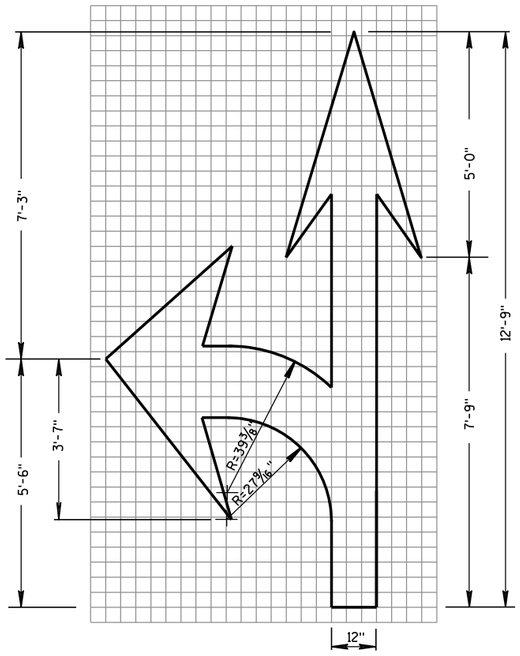



TYPE 3

| | |
|---|---|
| PAVEMENT MARKING ARROWS | |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION | |
| APPROVED | |
| 7/1/11<br>DATE | /S/ Thomas N. Nothdurm<br>STATE TRAFFIC ENGINEER |
| FHWA | |

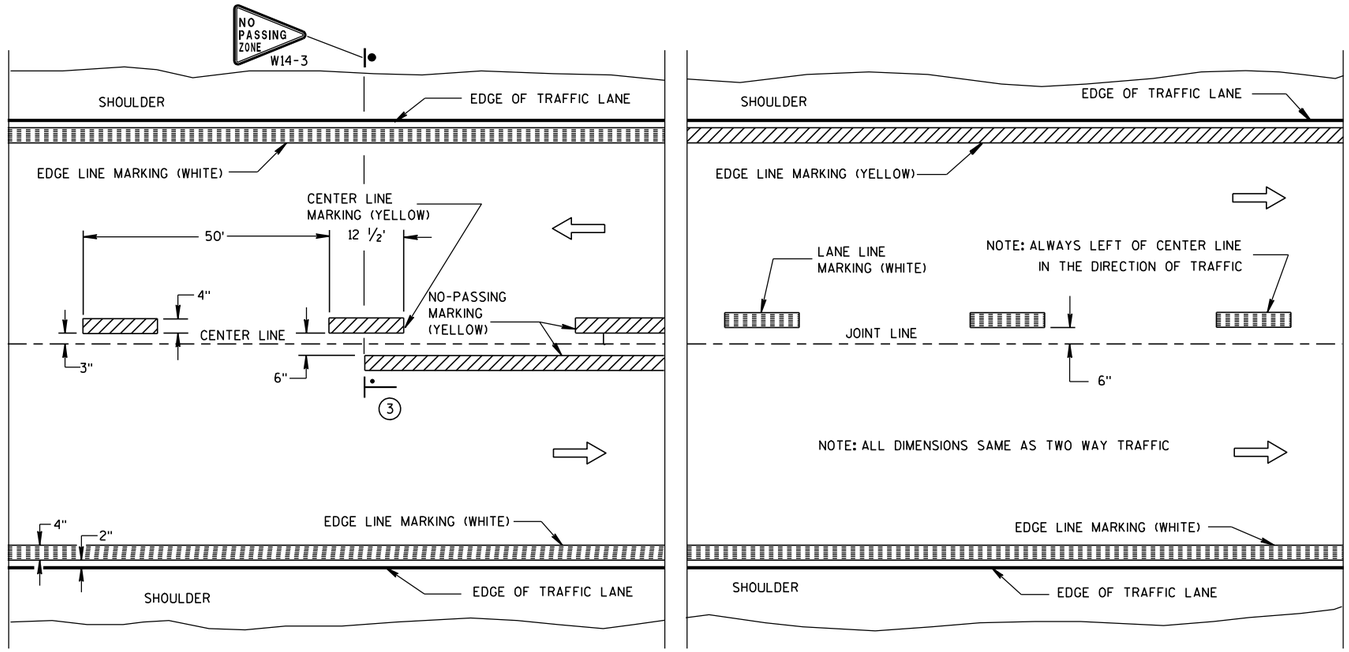


6

S.D.D. 15 C 7-12c

6

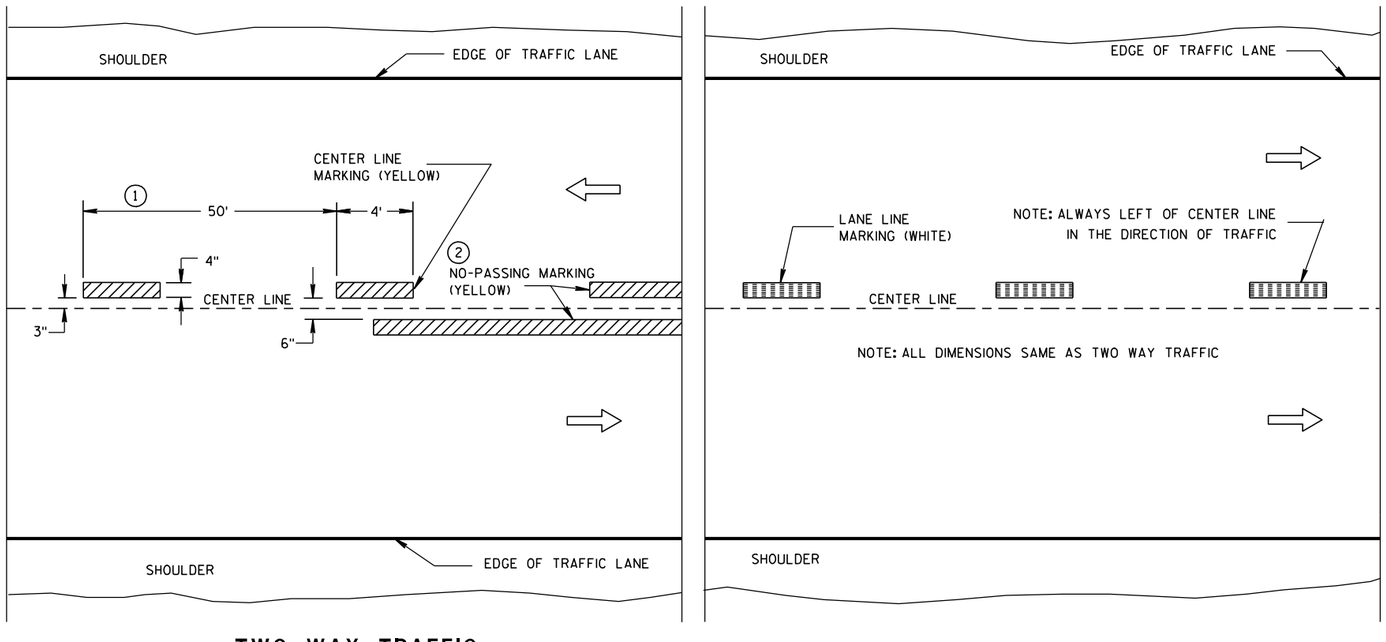
S.D.D. 15 C 7-12c




TWO WAY TRAFFIC

ONE WAY TRAFFIC

## PERMANENT PAVEMENT MARKING




TWO WAY TRAFFIC

ONE WAY TRAFFIC

## TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

## GENERAL NOTES

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

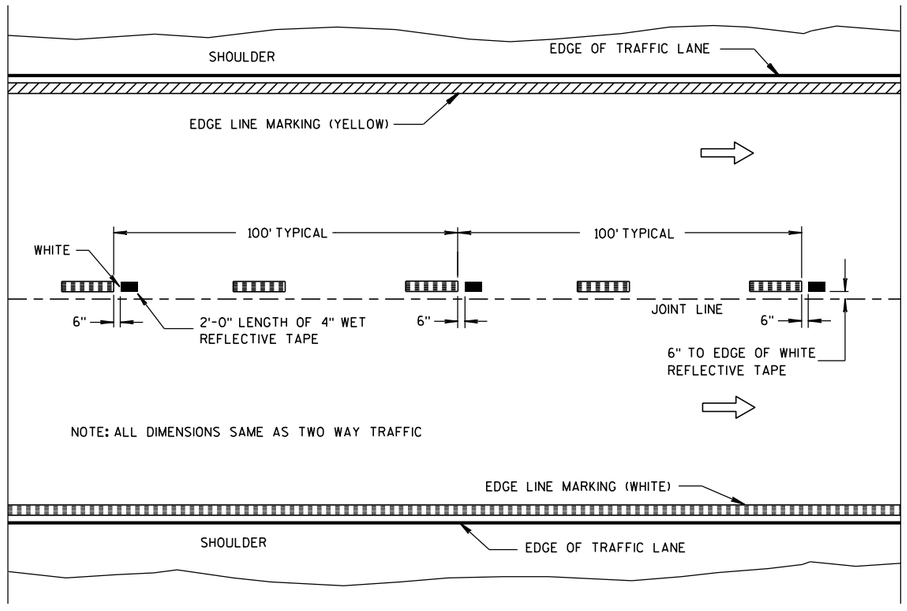
1. HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.

2. NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.

3. NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.

## NOTE

ARROW SYMBOL ( ⇨ ) SHOWS DIRECTION OF TRAVEL




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

**LEGEND**

"T" MARKING

POST MOUNTED SIGN

**PAVEMENT MARKING (MAINLINE)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6-23-11 DATE
/S/ Thomas N. Notbohm
STATE TRAFFIC ENGINEER
FHWA

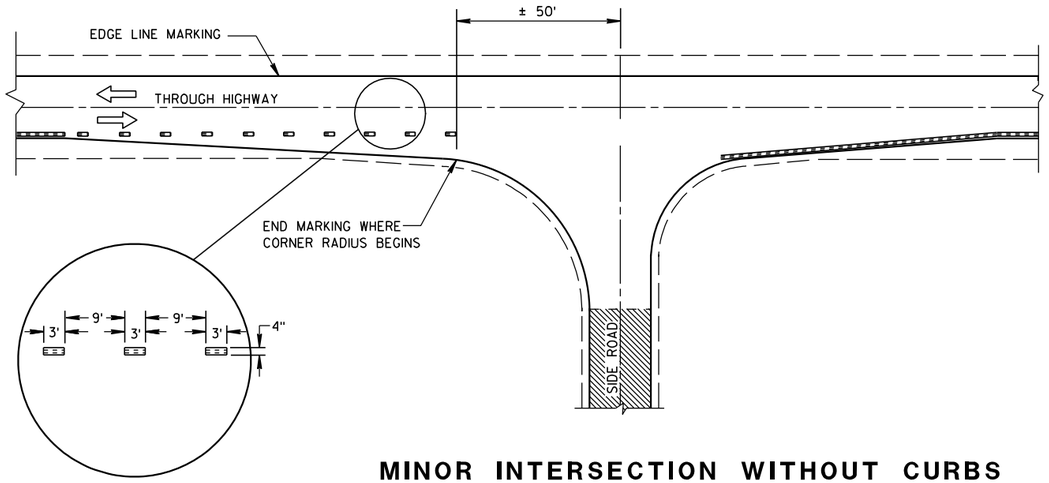


6

S.D.D. 15 C 8-14a

6

S.D.D. 15 C 8-14a




## MINOR INTERSECTION WITHOUT CURBS

## GENERAL NOTES

EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.

(1) WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.

(2) WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.

(3) ALTERNATIVE MARKING SHALL BE PROVIDED WHEN SPECIFIED IN THE CONTRACT. TYPICAL SITUATIONS WHERE THIS MARKING MAY BE REQUIRED ARE WHERE THE INTERSECTION IS ON A SHARP HORIZONTAL CURVE OR CREST VERTICAL CURVE IN AN UNLIGHTED AREA SUCH THAT THE EDGE LINE MAY BE MISLEADING TO THE MOTORIST OR DISAPPEAR FROM SIGHT.

(4) THE EDGE LINE IN THE TAPER AREAS OF THE BYPASS LANE AND THE BYPASS LANE SHALL BE LOCATED 1-FOOT FROM EDGE OF PAVEMENT TO THE OUTSIDE EDGE OF EDGE LINE.

(5) BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.

(6) BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.

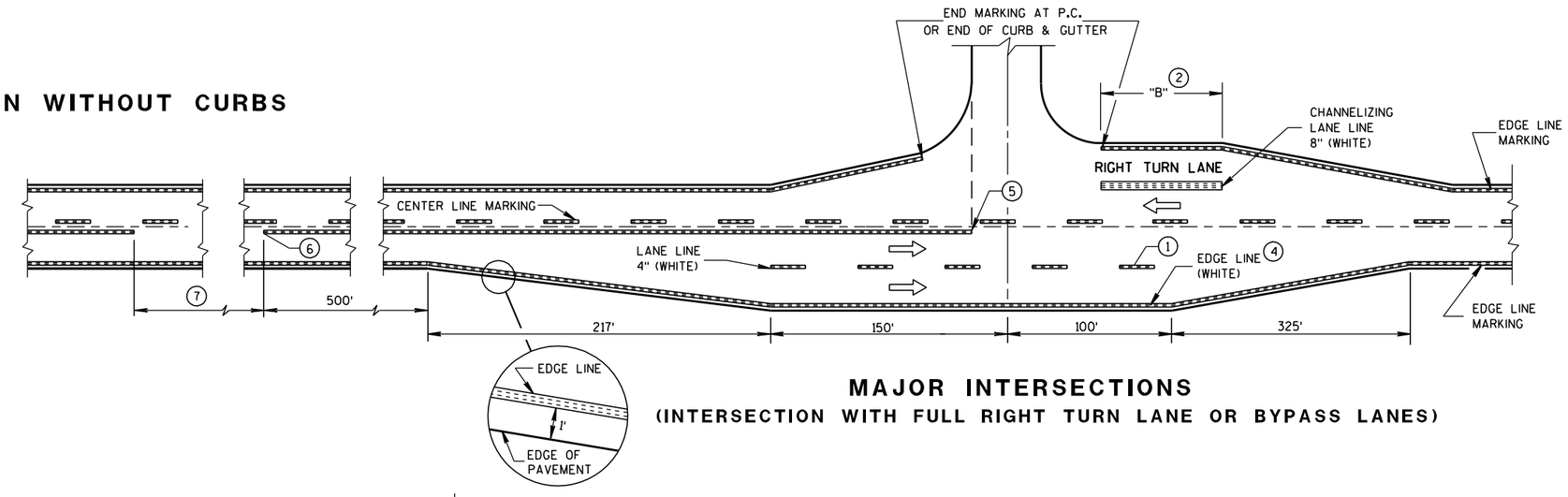
(7) IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.

(8) 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.

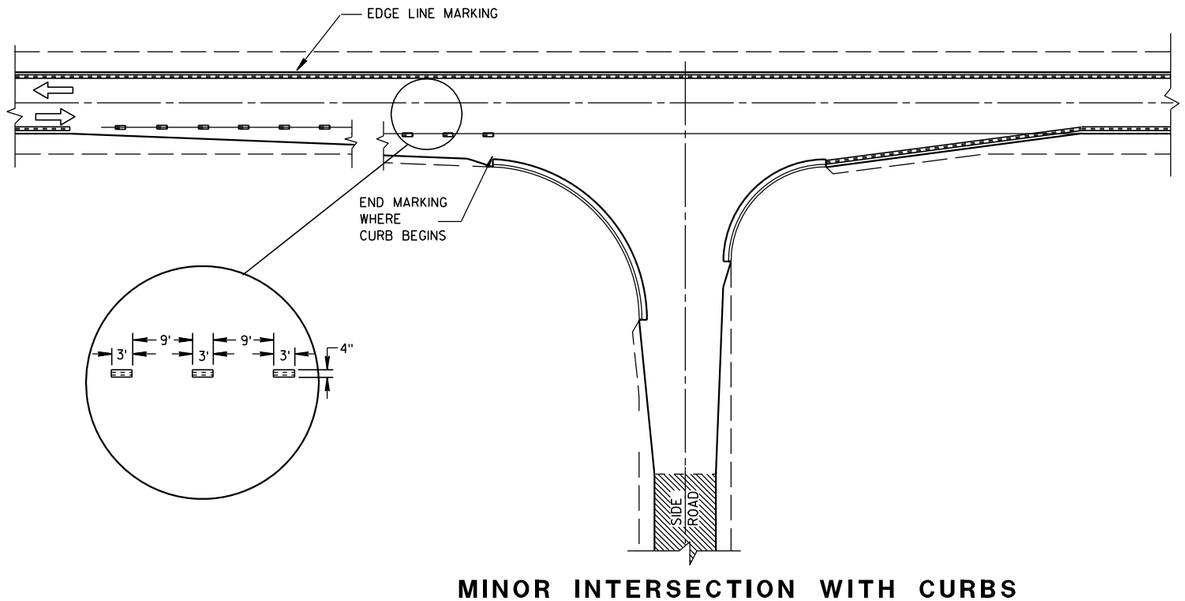
ARROW SYMBOL ( ⇨ ) SHOWS DIRECTION OF TRAVEL

(7)

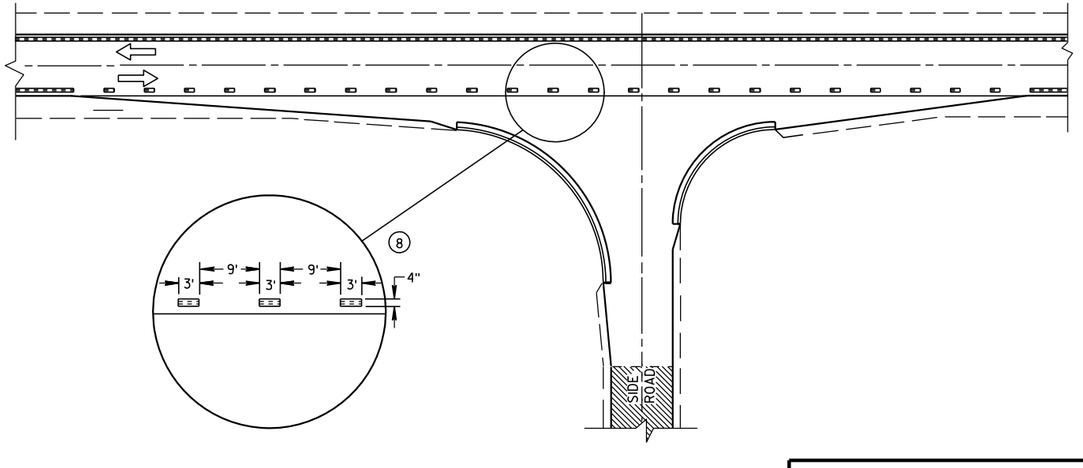
| POSTED SPEED (MPH) | MINIMUM DISTANCE BETWEEN ZONES (FEET) |
|---|---|
| 25 - 30 | 528 |
| 35 - 40 | 528 |
| 45 - 50 | 686 |
| 55 | 792 |




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




## MINOR INTERSECTION WITH CURBS
(TYPICAL MARKING)




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

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

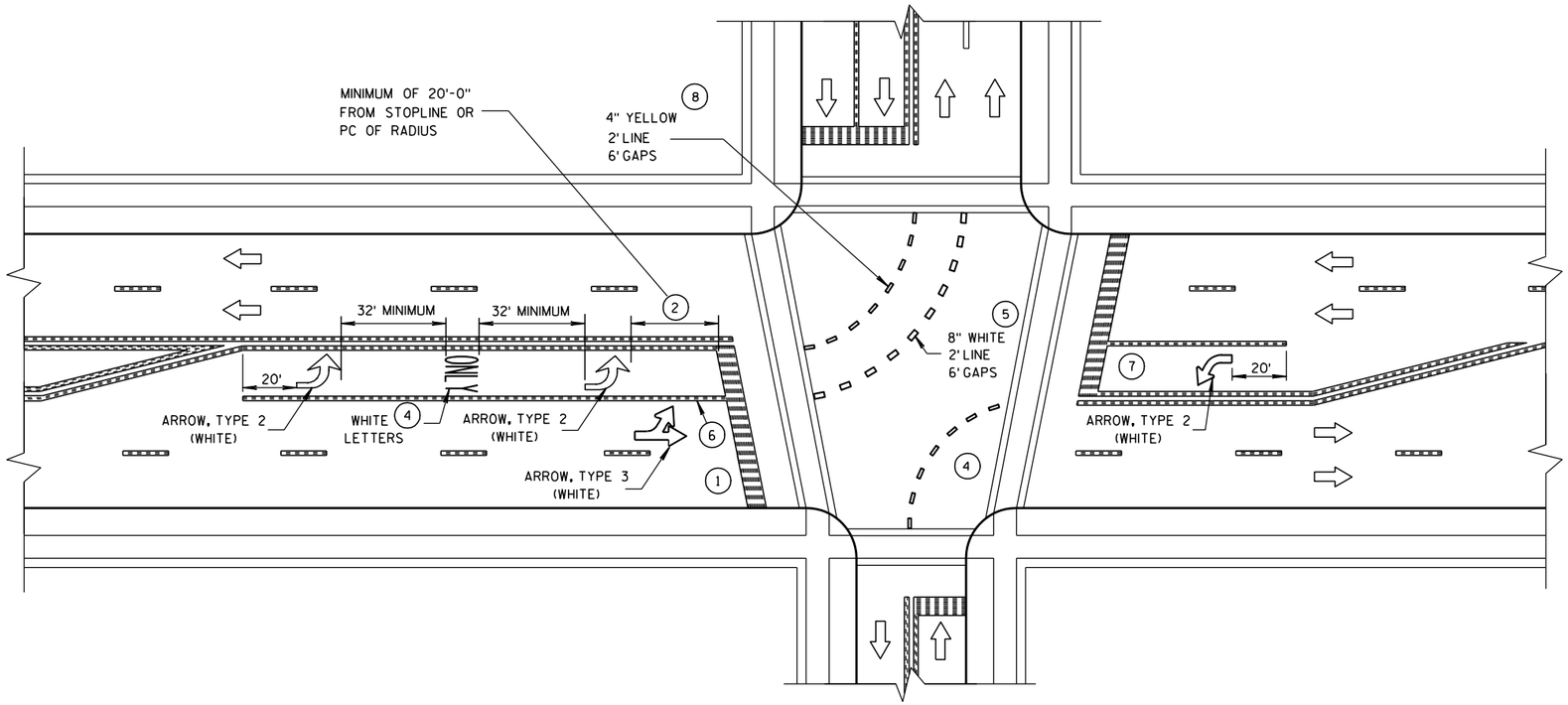


6

S.D.D. 15 C 8-14b

6

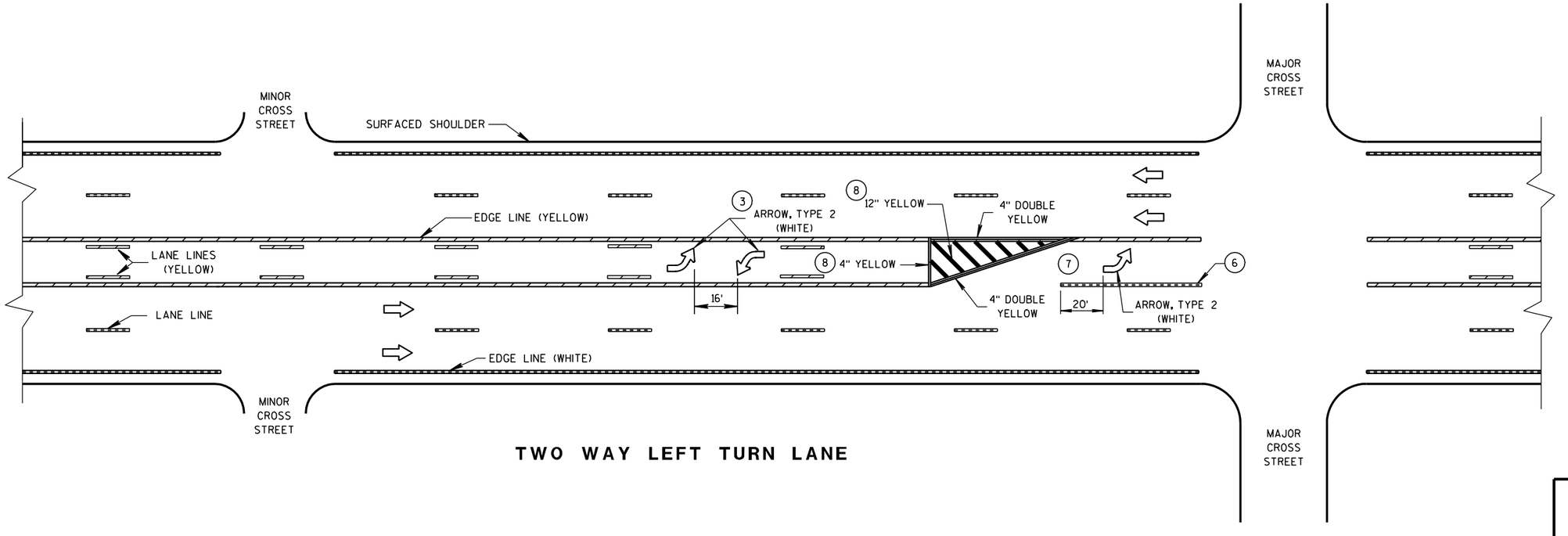
S.D.D. 15 C 8-14b




## GENERAL NOTES

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

NOTE:
ARROW SYMBOL ( ⇨ )
SHOWS DIRECTION OF TRAVEL




## TWO WAY LEFT TURN LANE

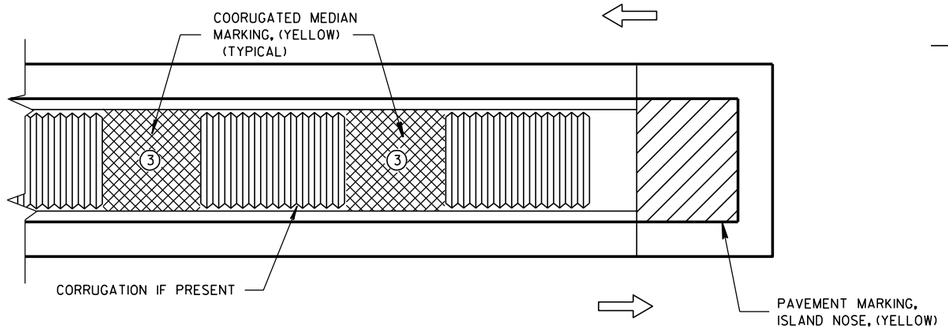
**PAVEMENT MARKING**
**(LEFT TURN LANE)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

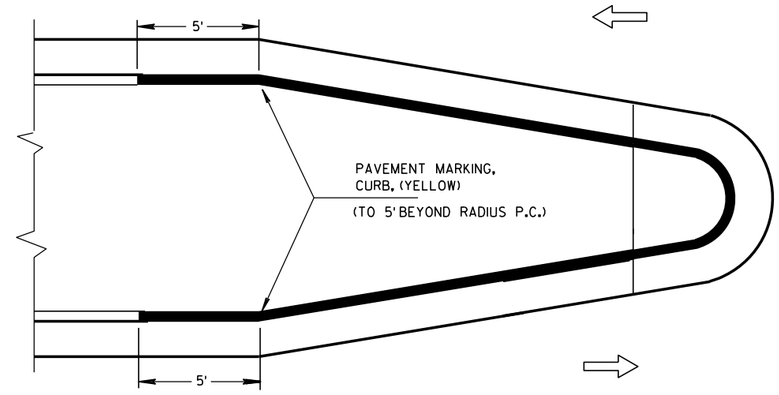



6

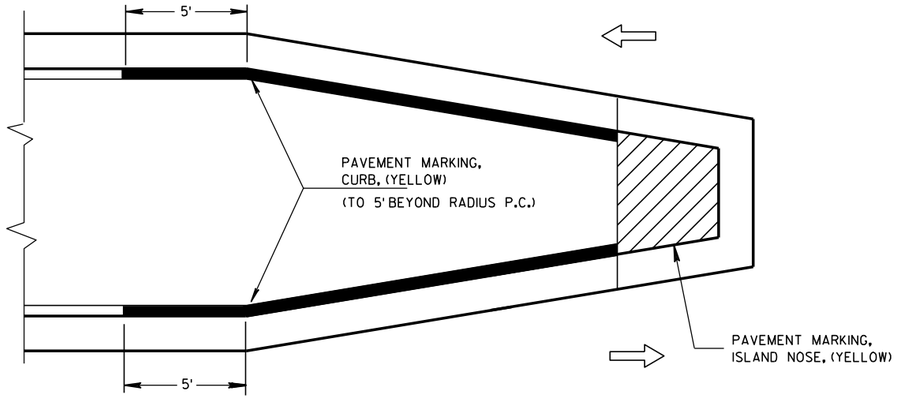
S.D.D. 15 C 8-14e




**MEDIAN ISLAND WITH SQUARE BLUNT NOSE**

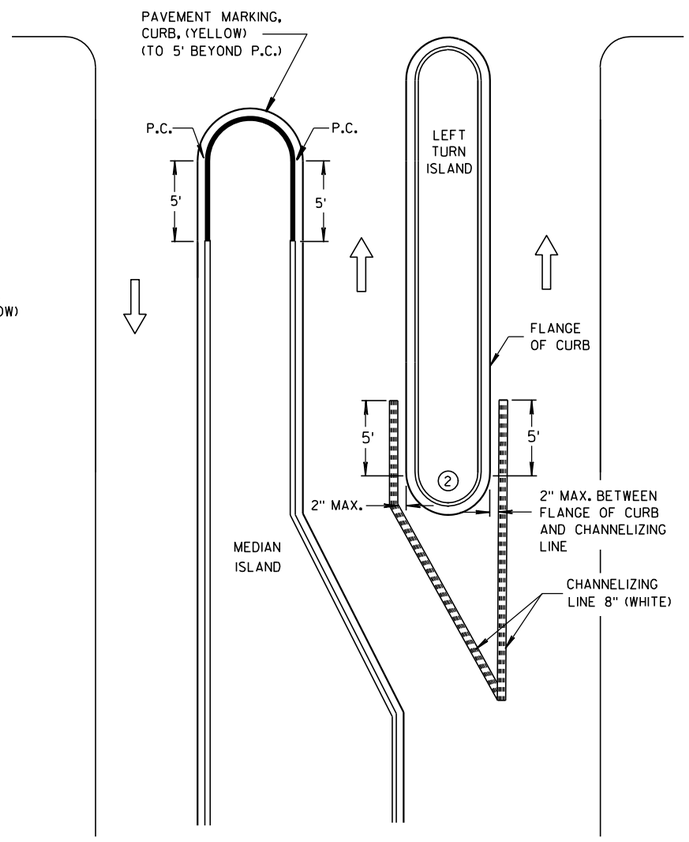



**MEDIAN ISLAND WITH ROUND BLUNT NOSE**




**MEDIAN ISLAND WITH SLOPED NOSE**

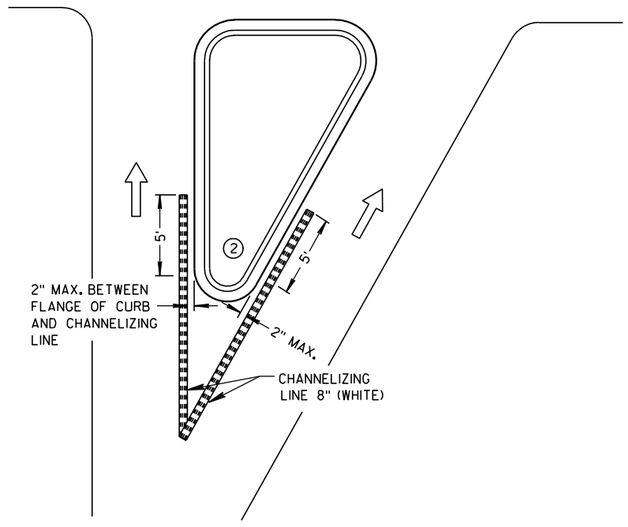
## TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS



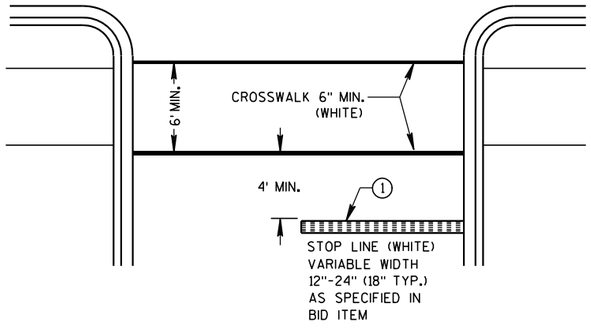

**LEFT TURN & MEDIAN ISLAND**

## GENERAL NOTES

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




**RIGHT TURN ISLAND**




**STOP LINE AND CROSSWALK**

**LEGEND**

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

**PAVEMENT MARKING (ISLANDS, STOP LINE & CROSS WALK)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

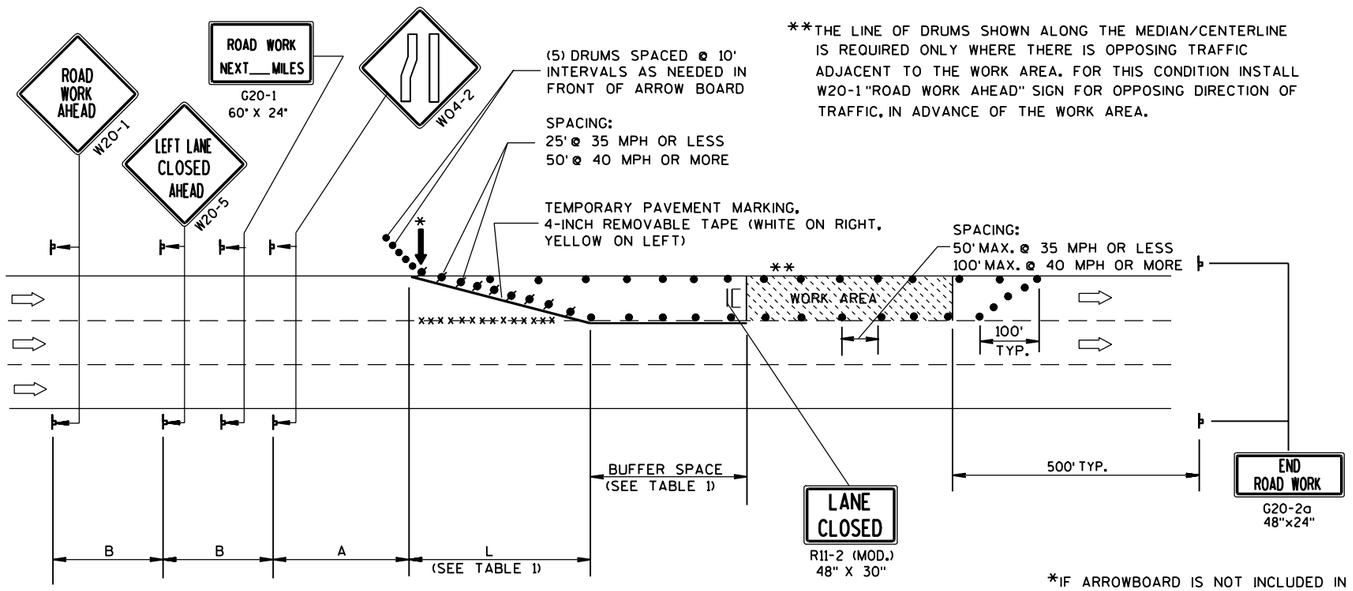


6

S.D.D. 15 C 8-14f

6

S.D.D. 15 C 8-14f




**THE LINE OF DRUMS SHOWN ALONG THE MEDIAN/CENTERLINE IS REQUIRED ONLY WHERE THERE IS OPPOSING TRAFFIC ADJACENT TO THE WORK AREA. FOR THIS CONDITION INSTALL W20-1 "ROAD WORK AHEAD" SIGN FOR OPPOSING DIRECTION OF TRAFFIC, IN ADVANCE OF THE WORK AREA.

B=400' AT 25-30 MPH
700' AT 35-40 MPH
1000' AT 45-55 MPH

A=200' AT 25-30 MPH
350' AT 35-40 MPH
500' AT 45-55 MPH

(PLACE BARRICADE AND SIGN APPROX. EVERY 1000' ACROSS THE CLOSED LANE)

*IF ARROWBOARD IS NOT INCLUDED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE A TYPE III BARRICADE WITH W01-6 SIGN IN THE LANE CLOSURE TAPER.

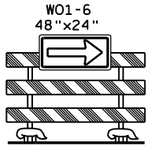



TABLE 1
TAPER AND BUFFER SPACE
FOR 12' LANE WIDTH

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

FOR LANE WIDTH OTHER THAN 12':

L = WS AT 45 MPH OR GREATER

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

L = TAPER LENGTH IN FEET

S = NON-CONSTRUCTION SPEED LIMIT (MPH)

W = WIDTH OF LANE CLOSURE

## LEGEND

- DRUM WITH/WITHOUT WARNING LIGHT, TYPE C (STEADY-BURN)
- POST MOUNTED SIGN
- ARROW BOARD
- TYPE III BARRICADE (8' EQUIVALENT) AND WARNING LIGHTS, TYPE A (FLASHING) WITH/WITHOUT SIGN
- DIRECTION OF TRAFFIC FLOW
- xxxx REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)

## GENERAL NOTES

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

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

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 7 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

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

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

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

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

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

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

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

**TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/23/00
DATE

Chester J. Sparg
CHIEF SIGNS AND MARKING ENGINEER

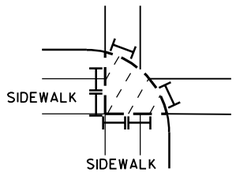
FHWA

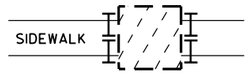
S.D.D. 15 D 20-1

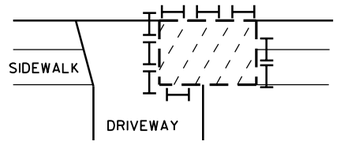
6

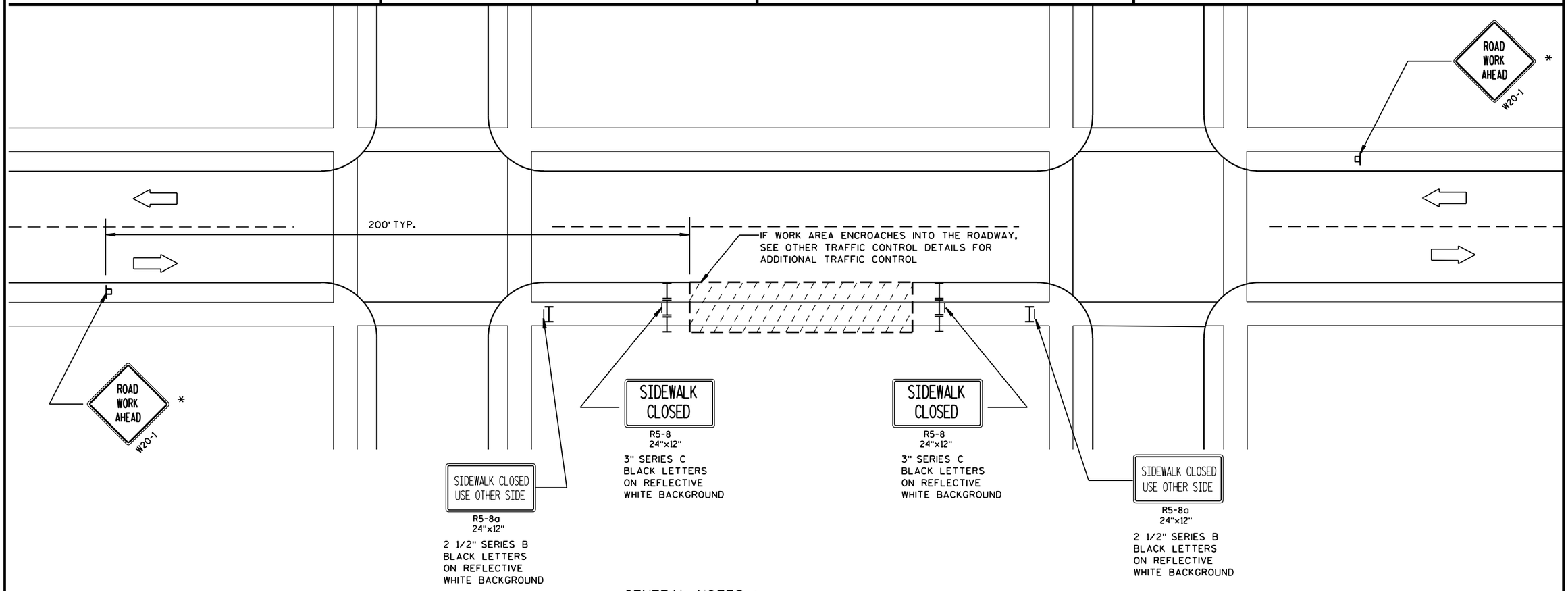
S.D.D. 15 D 20-1

# WARNING OF LOCALIZED SIDEWALK WORK AREAS




## LEGEND

- POST MOUNTED SIGN
- TYPE II BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)
- WORK AREA
- DIRECTION OF TRAFFIC FLOW

## GENERAL NOTES :

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

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

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

* "ROAD WORK AHEAD" SIGNS ARE NOT REQUIRED IF THE SIDEWALK CLOSURE OCCURS WITHIN A LARGER WORK ZONE WHERE ADVANCE WARNING SIGNS ARE ALREADY PRESENT, OR IF THE WORK AREA AND EQUIPMENT ARE MORE THAN 2 FEET BEHIND THE CURB.

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

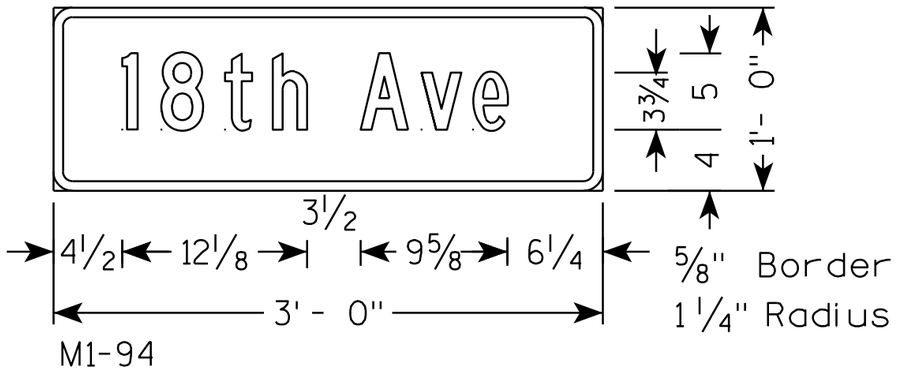
**TRAFFIC CONTROL, SIDEWALK CLOSURE**

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

APPROVED
5/23/00
DATE
Chester J. Seas
CHIEF SIGNS AND MARKING ENGINEER
FHWA

S.D.D. 15 D 30-1

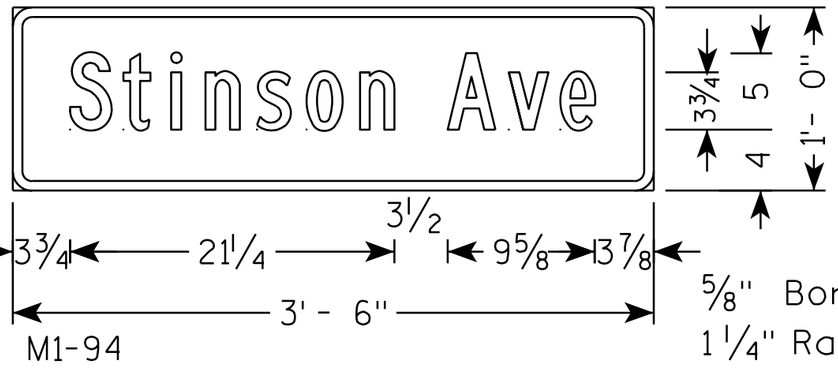
6
S.D.D. 15 D 30-1



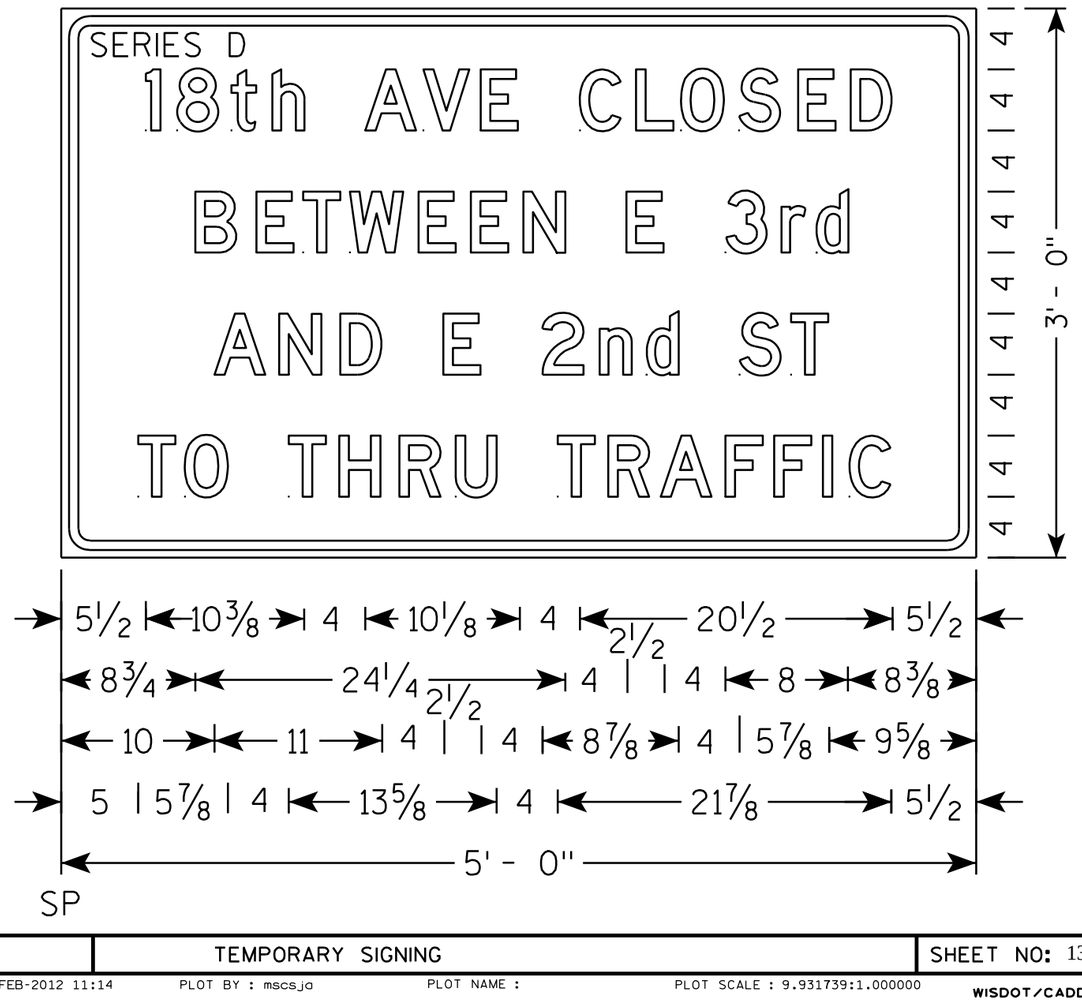

M1-94

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - ORANGE
   Message - BLACK
3. Message Series - C except as Shown




M1-94




SP

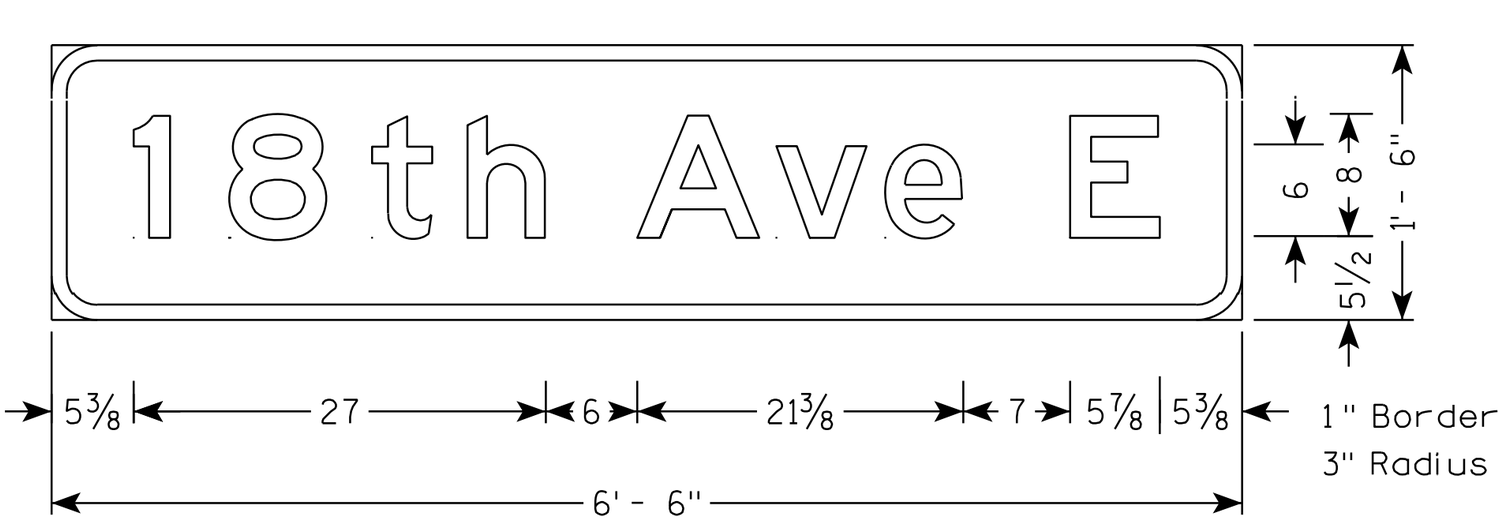
7

7

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | TEMPORARY SIGNING | SHEET NO: 131 | E |
|---|---|---|---|---|---|

NOTES

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




M1-94H

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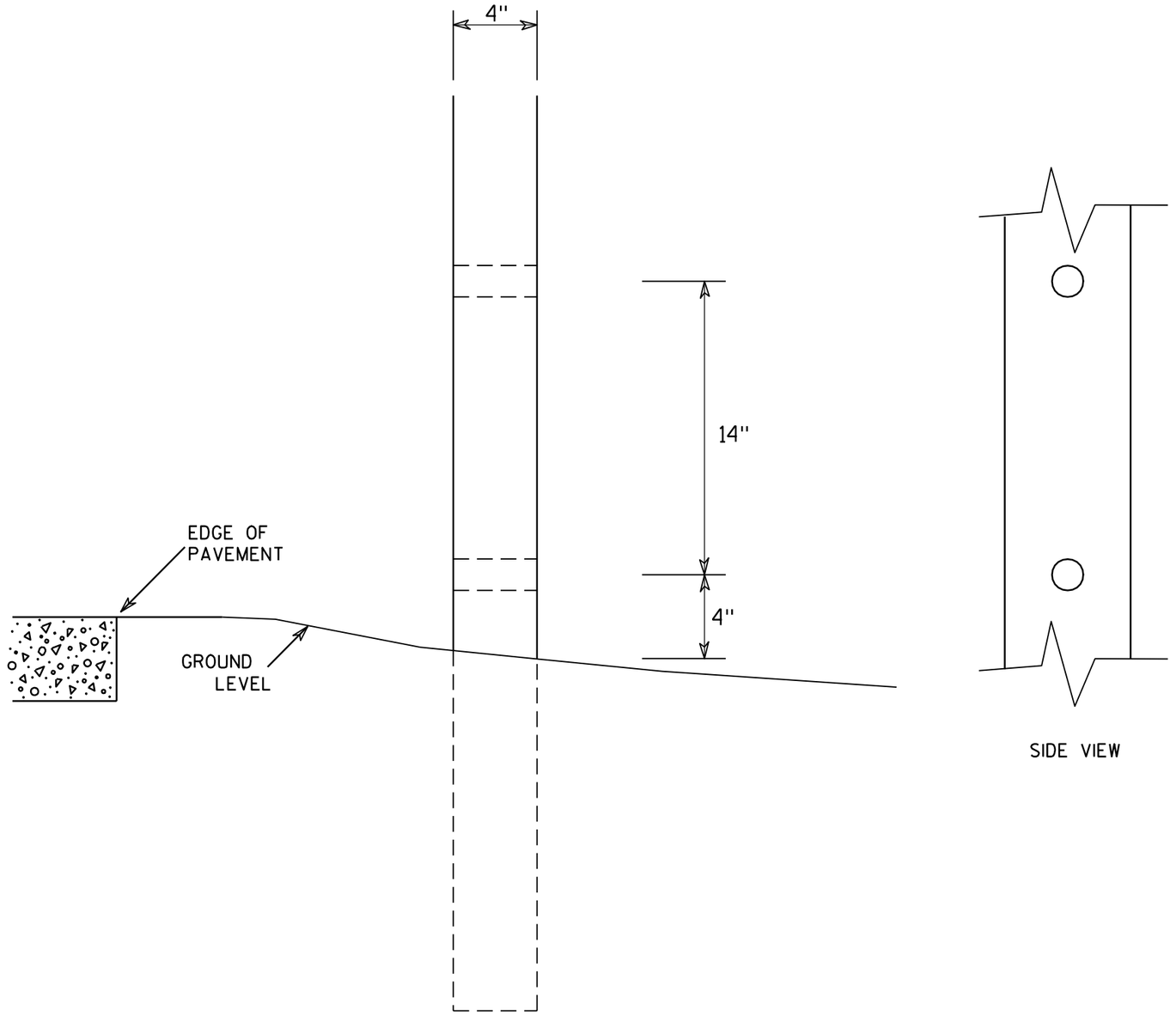
| PROJECT NO: 1195-00-73 | HWY: | COUNTY: DOUGLAS | PERMANENT SIGNING | SHEET NO: 132 | E |
|---|---|---|---|---|---|






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.

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# 4 X 6 WOOD POST MODIFICATIONS

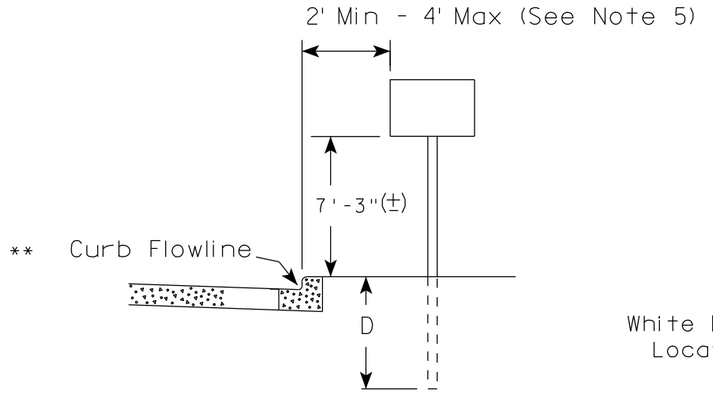
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang
for State Traffic Engineer

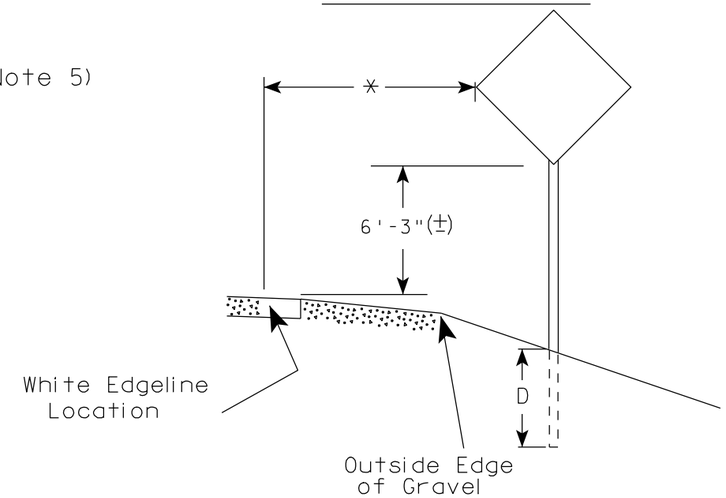
DATE 3/27/97 PLATE NO. A4-11.2

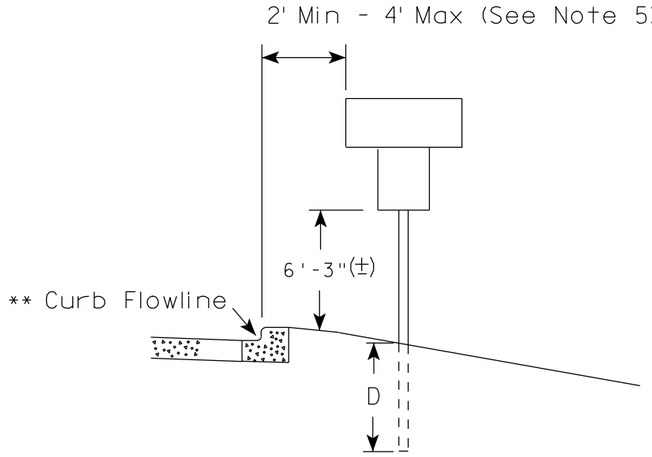
| PROJECT NO: | HWY: | COUNTY: | | SHEET NO: 133 | E |
|---|---|---|---|---|---|

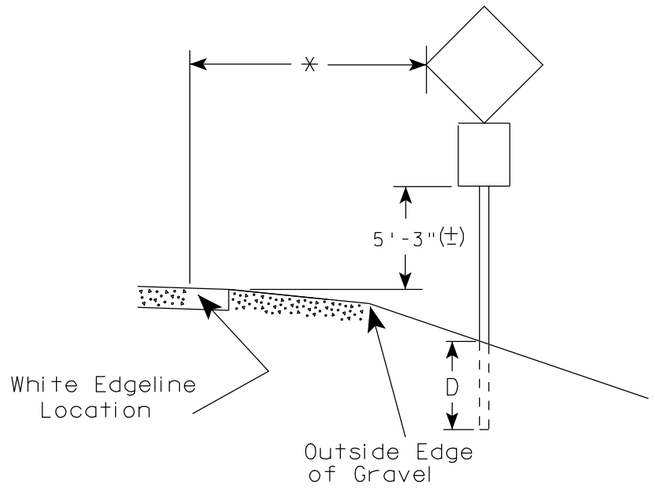
## URBAN AREA




## 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.

## GENERAL NOTES

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

## POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

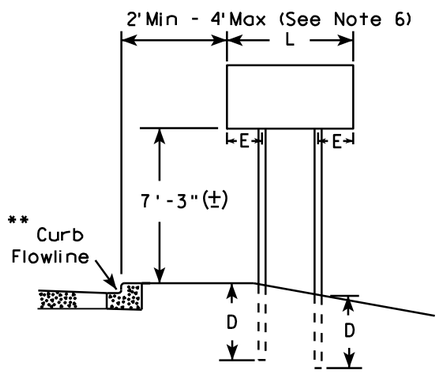
DATE 9/21/2011 PLATE NO. A4-3.16

7

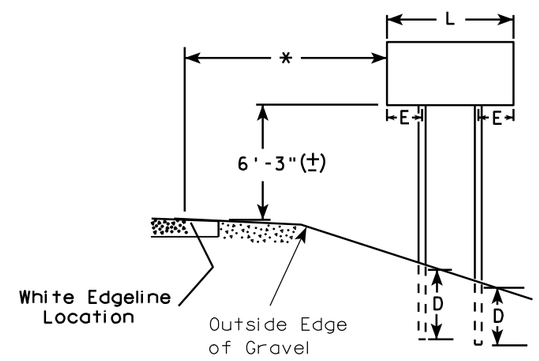
7

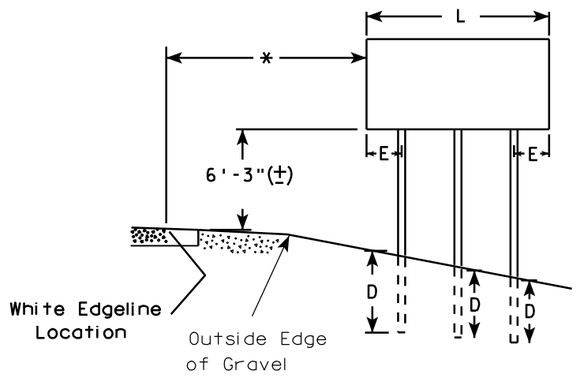
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 134 | E

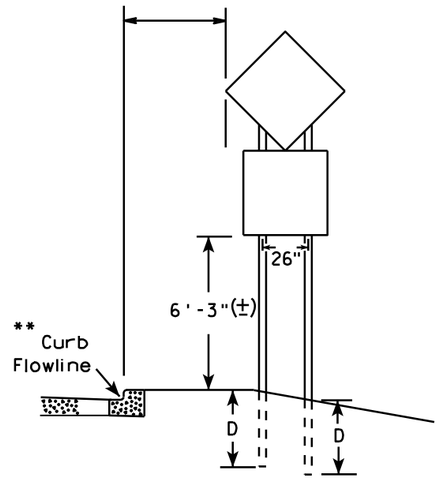
## URBAN AREA



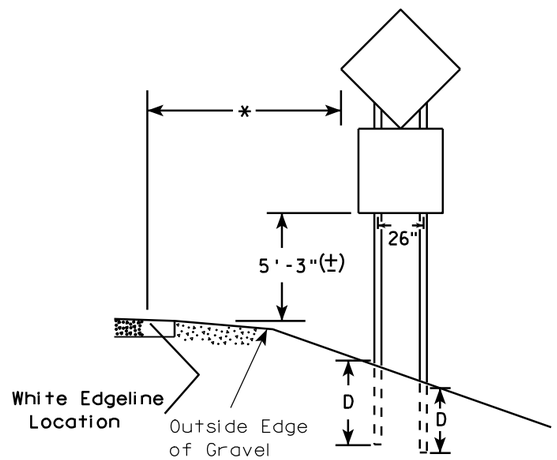

## RURAL AREA (See Note 3)




48" DIAMOND WARNING SIGN




48" DIAMOND WARNING SIGN

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

*** 

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

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

## POST EMBEDMENT DEPTH

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

## GENERAL NOTES

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

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

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

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

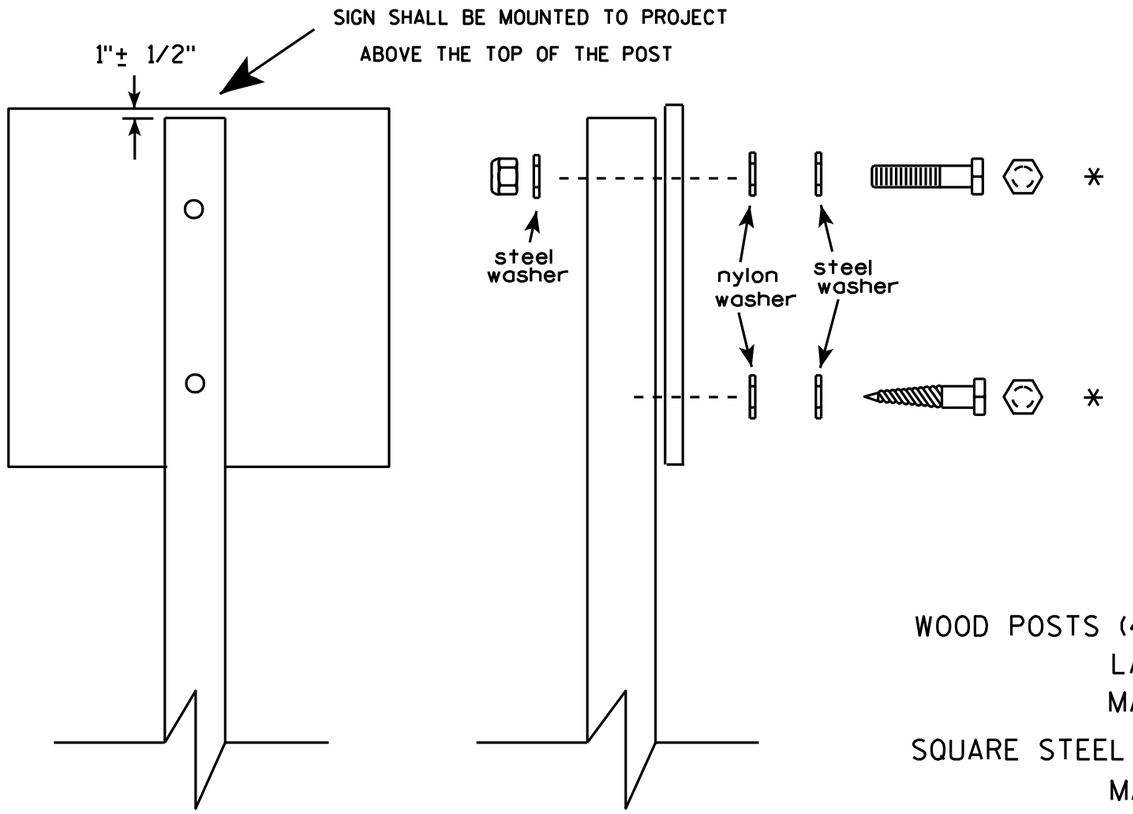
# TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

| PROJECT NO: | HWY: | COUNTY: | | SHEET NO: 135 | 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

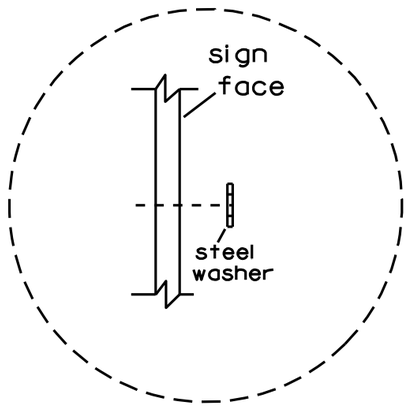
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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.

WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts

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

WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.




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

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/23/10 PLATE NO. A4-8.7

7

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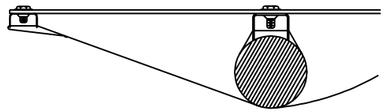
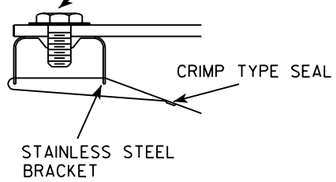
PROJECT NO:

SHEET NO: 136 E

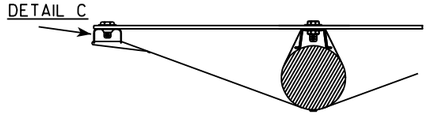
## BRACE BANDING

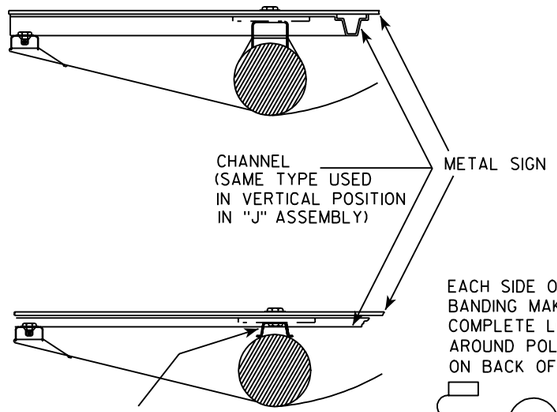


DETAIL C
CADMIUM PLATED STEEL BOLT
THROUGH BLACK BORDER

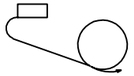



DETAIL C



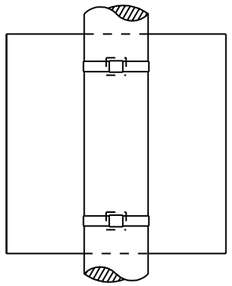


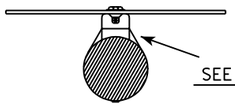

EACH SIDE OF BRACE
BANDING MAKES ONE
COMPLETE LOOP
AROUND POLE-SEAL
ON BACK OF POLE



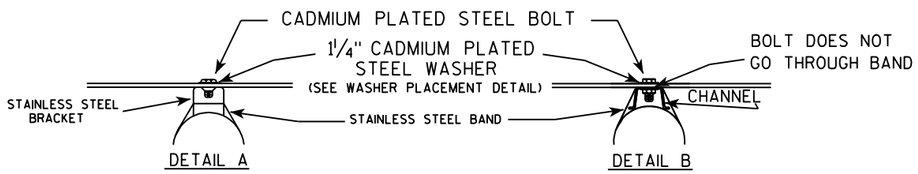
## BRACKET BANDING

SINGLE SIGN

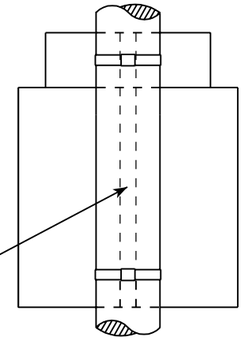




SEE DETAIL A




"J" ASSEMBLY

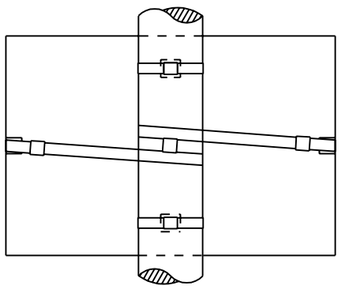


CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET

SEE DETAIL B

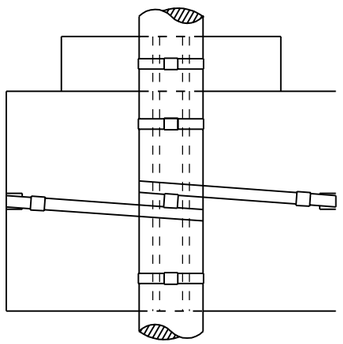
## GENERAL NOTES

1. Signs 4' or greater in width shall have one brace band installed at the center of the sign.
2. Signs 3' or greater in height shall have three bracket bands installed. Signs less than 3' 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.

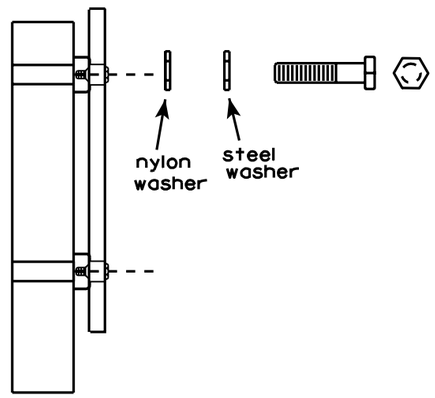


### BRACE BANDING

BRACE BANDING SHALL BE TIGHTENED FIRMLY BUT NOT SO TIGHT AS TO APPRECIABLY CURVE FACE OF 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

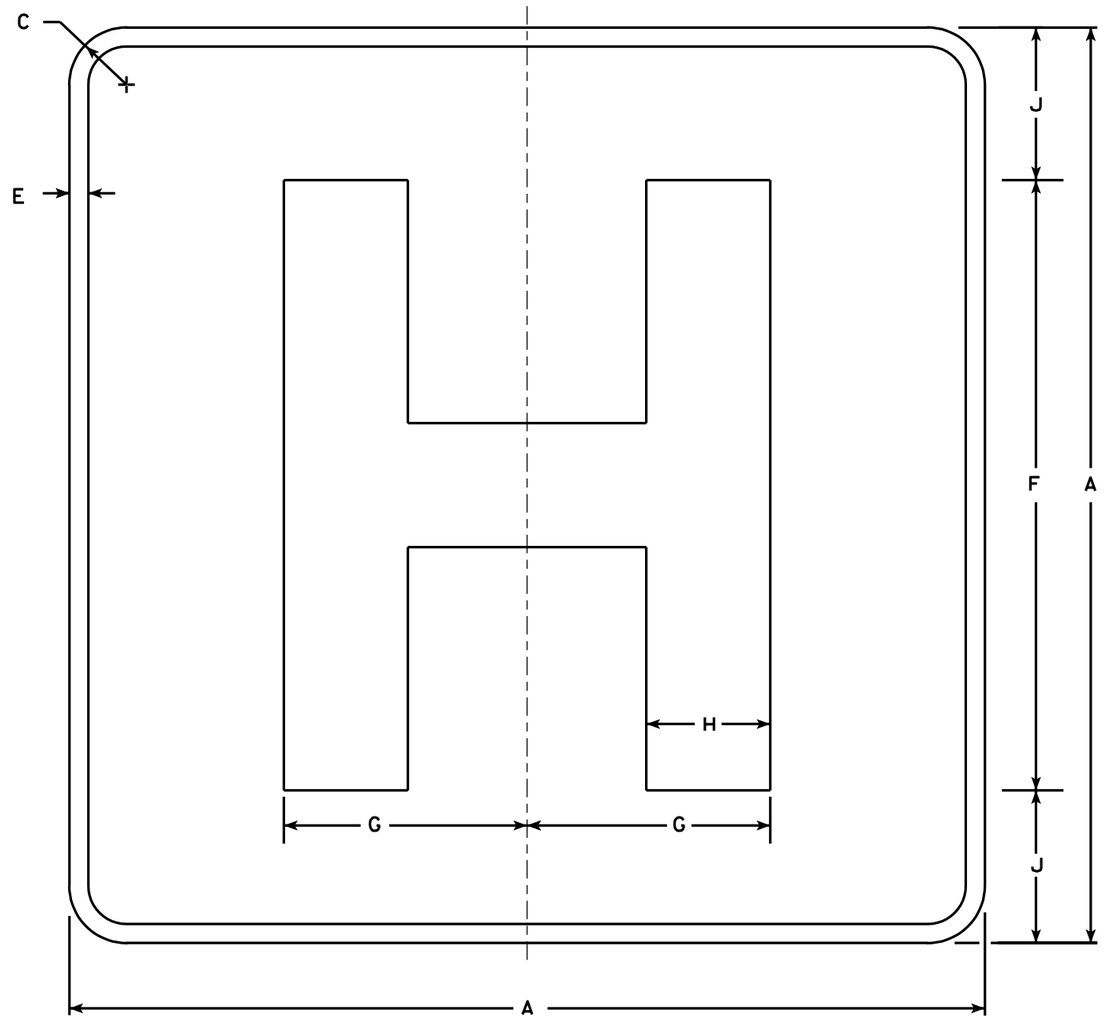
# STANDARD SIGN
# SIGN BANDING DETAILS

*WISCONSIN DEPT OF TRANSPORTATION*

APPROVED *Matthew R Rauch*
*for* State Traffic Engineer

DATE 11/08/05 PLATE NO. A5-9.2

| PROJECT NO: | HWY: | COUNTY: | | SHEET NO: 137 | E |
|---|---|---|---|---|---|




D9-2

NOTES

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

Metric equivalent for this sign is:

| SIZE | |
|---|---|
| 1 | 450 mmX 450 mm |
| 2 | 600 mmX 600 mm |
| 3 | 900 mmX 900 mm |
| 4 | X |
| 5 | X |

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

STANDARD SIGN
D9-2

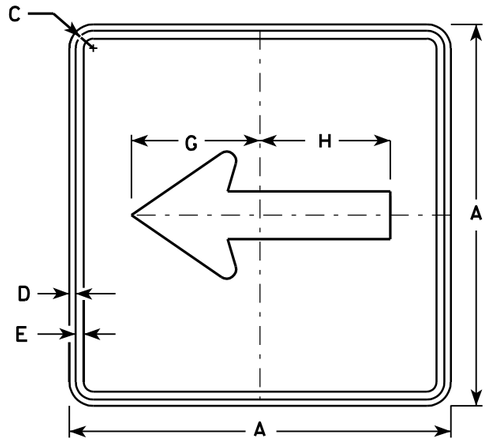
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spong for State Traffic Engineer

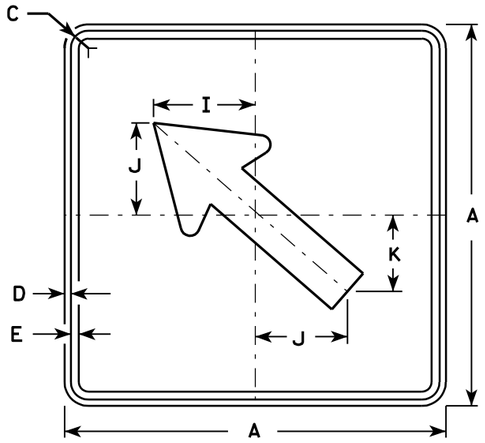
DATE 1/15/02 PLATE NO. D9-2.4

PROJECT NO:

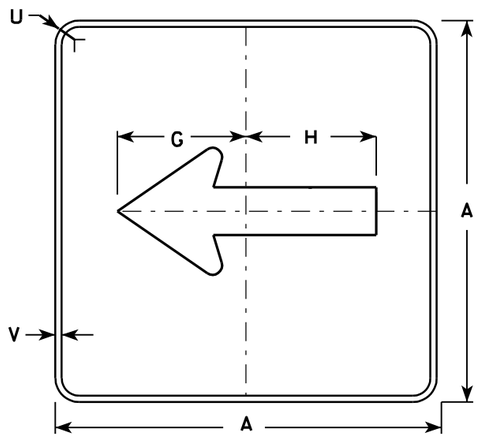
SHEET NO: 138 E



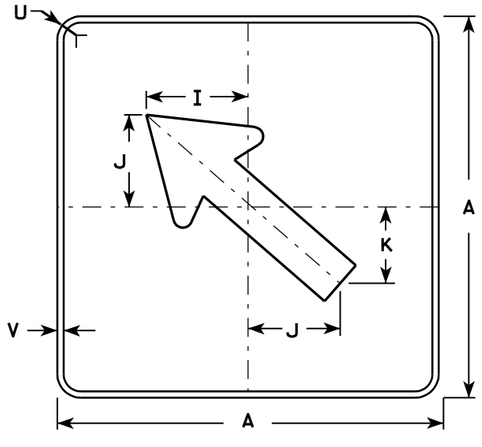

M6-1
MK6-1
MM6-1
MO6-1
MR6-1




M6-2
MK6-2
MM6-2
MO6-2
MR6-2



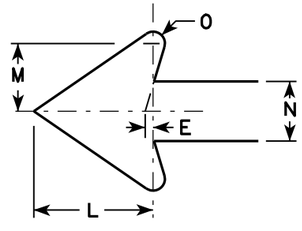

MB6-1
MG6-1
MN6-1




MB6-2
MG6-2
MN6-2

## NOTES

1. Signs are Type II - See Note 4 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
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 - Type H Reflective (Detour or temporary Signs - Reflective) Message - Black
   MB6-1 and MB6-2 Background - Blue Message - White - Type H Reflective (Detour or temporary Signs - Reflective)
   MG6-1 and MG6-2 Background - Green Message - White - Type H Reflective
   MK6-1 and MK6-2 Background - Green Message - White - Type H Reflective
   MM6-1 and MM6-2 Background - White - Type H Reflective Message - Green
   MN6-1 and MN6-2 Background - Brown Message - White - Type H Reflective
   MO6-1 and MO6-2 Background - Orange - Reflective Message - Black
   MR6-1 and MR6-2 Background - Brown Message - Yellow - Type H Reflective




Metric equivalent for this sign is:

| SIZE | |
|---|---|
| 1 | |
| 2 | 525 mm X 525 mm |
| 3 | 750 mm X 750 mm |
| 4 | 750 mm X 750 mm |
| 5 | 750 mm X 750 mm |

| SIZE | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area sq. ft. | Area m2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 21 | | 1 1/8 | 3/8 | 3/8 | | 7 1/2 | 7 1/8 | 5 5/8 | 5 | 4 1/4 | 5 1/4 | 3 | 2 5/8 | 1/2 | | | | | | 1 1/2 | 1/2 | | | | | 3.06 | 0.28 |
| 3 | 30 | | 1 3/8 | 1/2 | 5/8 | | 10 3/4 | 10 1/4 | 8 | 7 1/4 | 6 | 7 1/2 | 4 1/4 | 3 3/4 | 3/4 | | | | | | 1 7/8 | 1/2 | | | | | 6.25 | 0.56 |
| 4 | 30 | | 1 3/8 | 1/2 | 5/8 | | 10 3/4 | 10 1/4 | 8 | 7 1/4 | 6 | 7 1/2 | 4 1/4 | 3 3/4 | 3/4 | | | | | | 1 7/8 | 1/2 | | | | | 6.25 | 0.56 |
| 5 | 30 | | 1 3/8 | 1/2 | 5/8 | | 10 3/4 | 10 1/4 | 8 | 7 1/4 | 6 | 7 1/2 | 4 1/4 | 3 3/4 | 3/4 | | | | | | 1 7/8 | 1/2 | | | | | 6.25 | 0.56 |

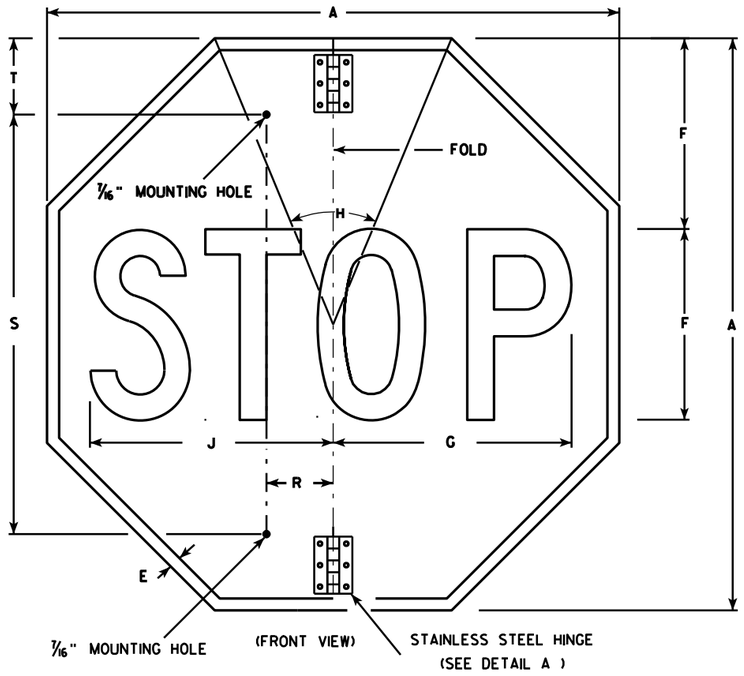
# STANDARD SIGN M6-1 & M6-2 SERIES

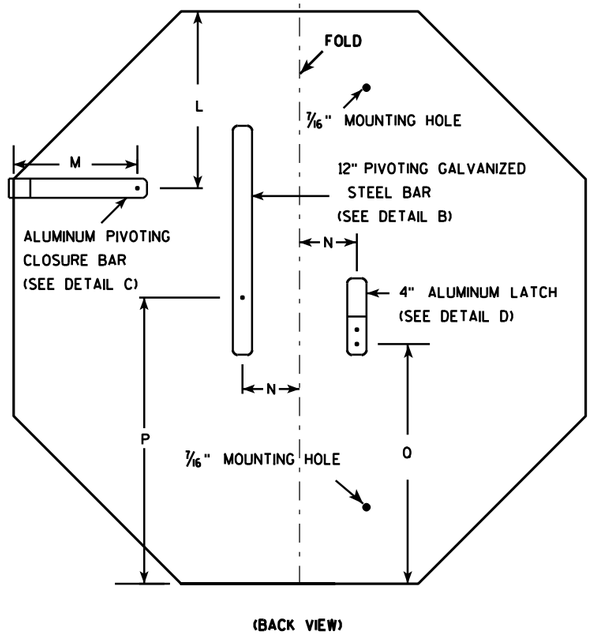
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/16/10 PLATE NO. M6-1.12

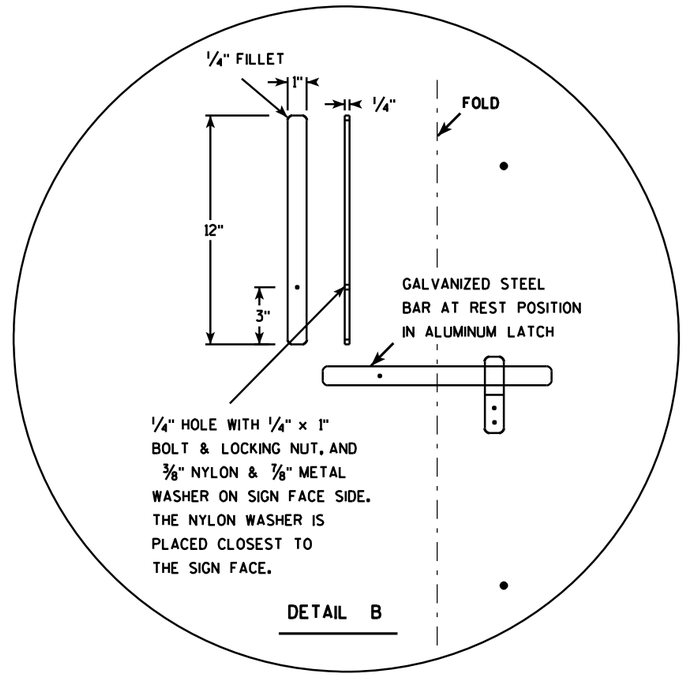
| PROJECT NO: | HWY: | COUNTY: | | SHEET NO: 139 | E |
|---|---|---|---|---|---|

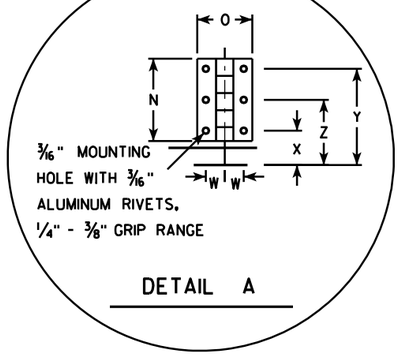


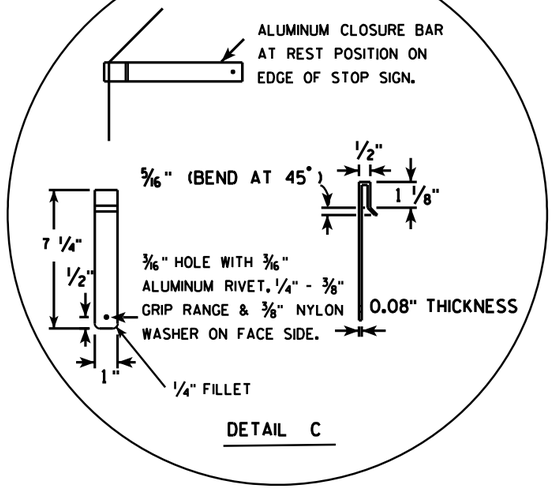



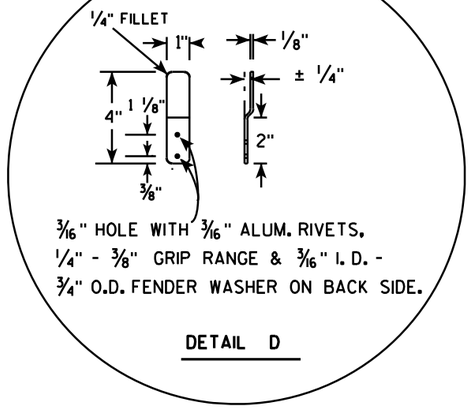

## NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Red
   Message - White
3. Message Series - C
4. All hardware used on the folding STOP sign installation shall conform to 637.2.4 of the WIS DOT Standard Specification.




| SIZE | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | O | R | S | T | U | V | W | X | Y | Z | Area sq. ft. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2S | 30 | | | | 5/8 | 10 | 12 1/2 | 45 | | 12 3/4 | | 9 1/4 | 6 1/2 | 3 | 2 | 15 | 12 3/8 | 2 1/2 | 22 | 5 | | | 11/16 | 1 1/4 | 3 1/2 | 2 3/8 | 5.18 |
| 2M | 36 | | | | 3/4 | 12 | 15 | 45 | | 15 3/8 | | 11 | 6 1/2 | 3 | 2 | 18 | 15 3/8 | 2 1/2 | 26 | 5 | | | 11/16 | 1 1/4 | 3 1/2 | 2 3/8 | 7.46 |
| 3 | 36 | | | | 3/4 | 12 | 15 | 45 | | 15 3/8 | | 11 | 6 1/2 | 3 | 2 | 18 | 15 3/8 | 2 1/2 | 26 | 5 | | | 11/16 | 1 1/4 | 3 1/2 | 2 3/8 | 7.46 |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

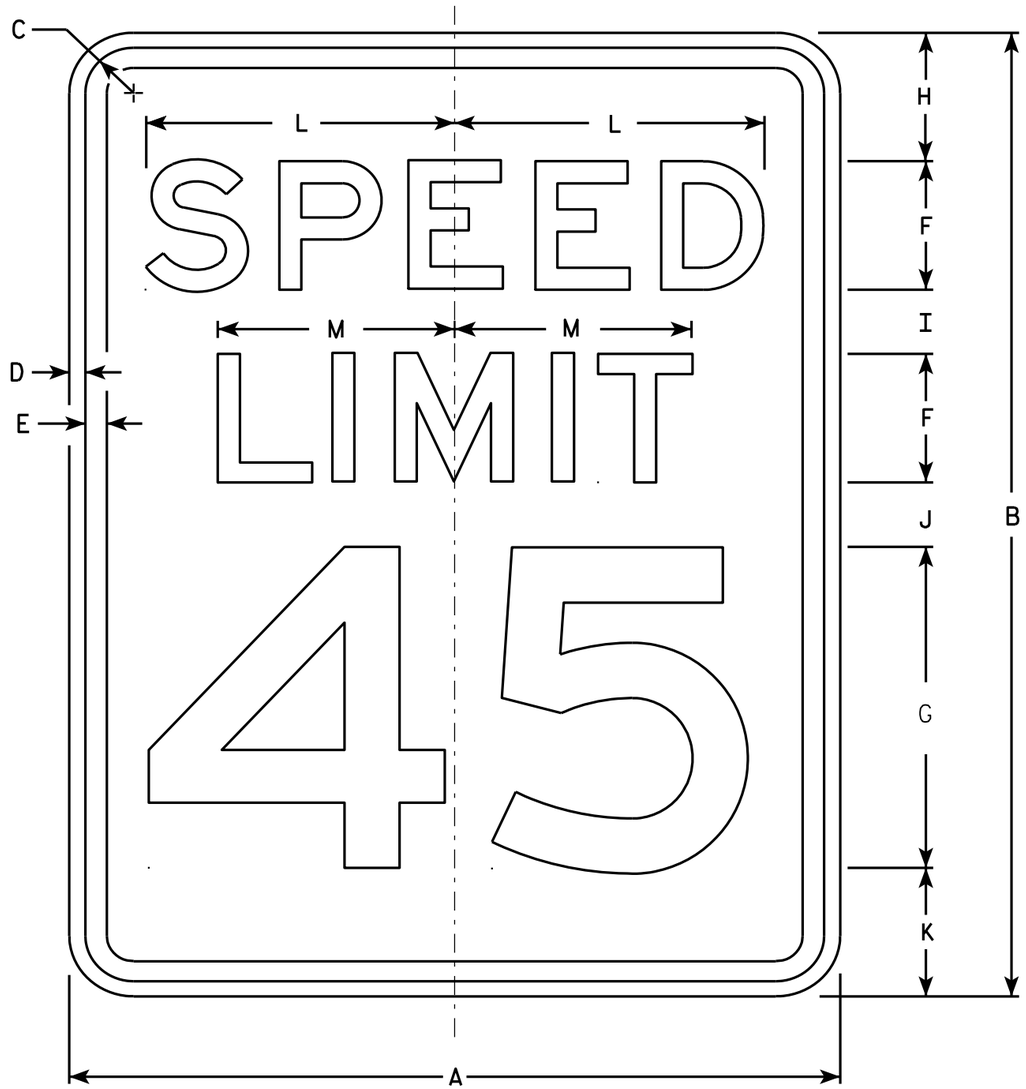
# STANDARD SIGN
# R1-1F

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/03/10 PLATE NO. R1-1F.3

| PROJECT NO: | HWY: | COUNTY: | | SHEET NO: 140 | E |
|---|---|---|---|---|---|




R2-1

NOTES

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

| SIZE | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area sq. ft. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18 | 24 | 1 1/8 | 3/8 | 1/2 | 3 | 8 | 3 | 2 | 2 | 3 | 7 1/4 | 5 1/2 | | | | | | | | | | | | | | 3.0 |
| 2S | 24 | 30 | 1 1/8 | 3/8 | 1/2 | 4 | 10 | 3 | 2 1/4 | 3 3/8 | 3 3/8 | 9 5/8 | 7 3/8 | | | | | | | | | | | | | | 5.0 |
| 2M | 30 | 36 | 1 3/8 | 1/2 | 5/8 | 5 | 12 | 5 | 2 1/2 | 2 1/2 | 4 | 12 | 9 1/4 | | | | | | | | | | | | | | 7.5 |
| 3 | 36 | 48 | 1 3/8 | 1/2 | 5/8 | 6 | 14 | 6 | 5 | 5 | 6 | 14 3/8 | 11 | | | | | | | | | | | | | | 12.0 |
| 4 | 36 | 48 | 1 3/8 | 1/2 | 5/8 | 6 | 14 | 6 | 5 | 5 | 6 | 14 3/8 | 11 | | | | | | | | | | | | | | 12.0 |
| 5 | 48 | 60 | 2 1/4 | 3/4 | 1 | 8 | 20 | 6 | 4 1/2 | 6 3/4 | 6 3/4 | 19 1/4 | 14 5/8 | | | | | | | | | | | | | | 20.0 |

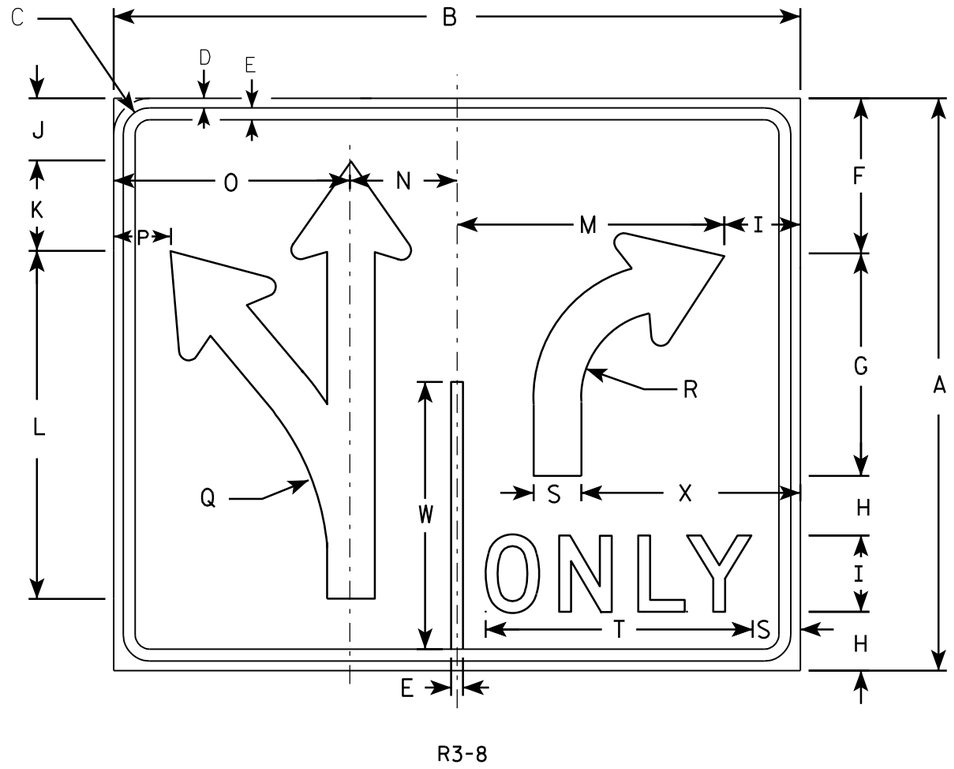
STANDARD SIGN
R2-1

WISCONSIN DEPT OF TRANSPORTATION

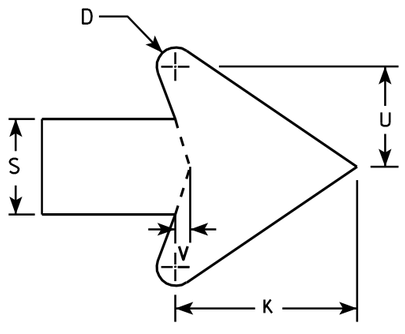
APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 141 | E



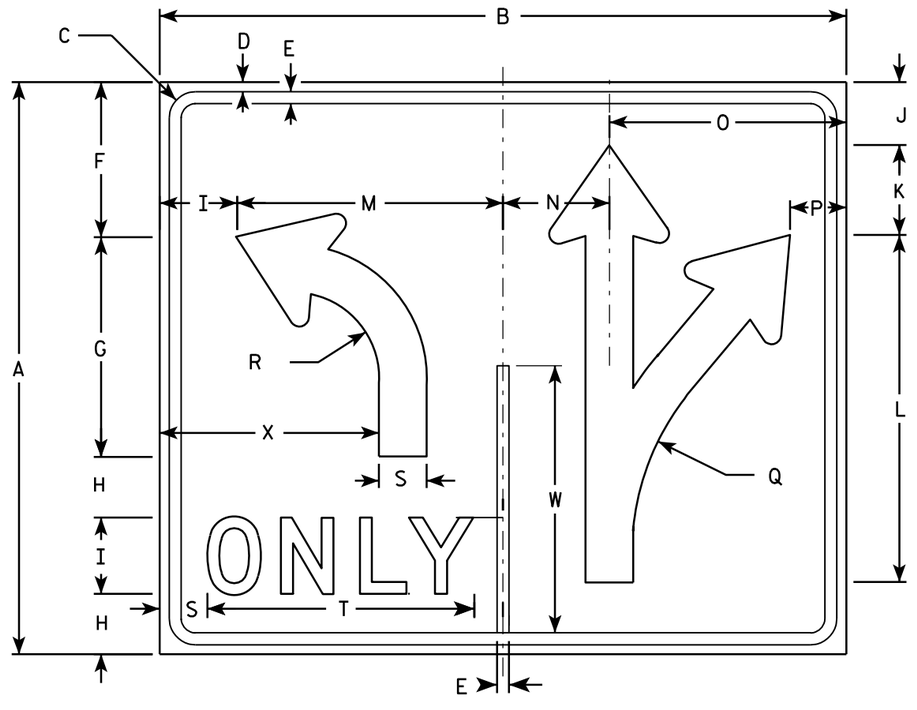

R3-8




ARROW DETAIL

## NOTES

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




R3-8A

| 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 | 36 | 1 3/8 | 1/2 | 5/8 | 8 1/8 | 11 5/8 | 3 1/8 | 4 | 3 1/4 | 4 3/4 | 18 1/4 | 14 | 5 5/8 | 12 3/8 | 3 | 13 1/4 | 4 1/2 | 2 1/2 | 14 | 2 5/8 | 3/8 | 14 | 11 1/2 | | | 7.5 |
| 2M | 30 | 36 | 1 3/8 | 1/2 | 5/8 | 8 1/8 | 11 5/8 | 3 1/8 | 4 | 3 1/4 | 4 3/4 | 18 1/4 | 14 | 5 5/8 | 12 3/8 | 3 | 13 1/4 | 4 1/2 | 2 1/2 | 14 | 2 5/8 | 3/8 | 14 | 11 1/2 | | | 7.5 |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 48 | 54 | 2 1/4 | 3/4 | 1 | 13 1/4 | 18 1/2 | 5 1/8 | 6 | 5 1/4 | 7 1/8 | 29 1/8 | 21 | 8 3/8 | 18 5/8 | 4 3/8 | 21 7/8 | 7 1/4 | 3 3/4 | 20 5/8 | 4 | 5/8 | 22 3/8 | 17 1/4 | | | 18.0 |
| 5 | 48 | 54 | 2 1/4 | 3/4 | 1 | 13 1/4 | 18 1/2 | 5 1/8 | 6 | 5 1/4 | 7 1/8 | 29 1/8 | 21 | 8 3/8 | 18 5/8 | 4 3/8 | 21 7/8 | 7 1/4 | 3 3/4 | 20 5/8 | 4 | 5/8 | 22 3/8 | 17 1/4 | | | 18.0 |

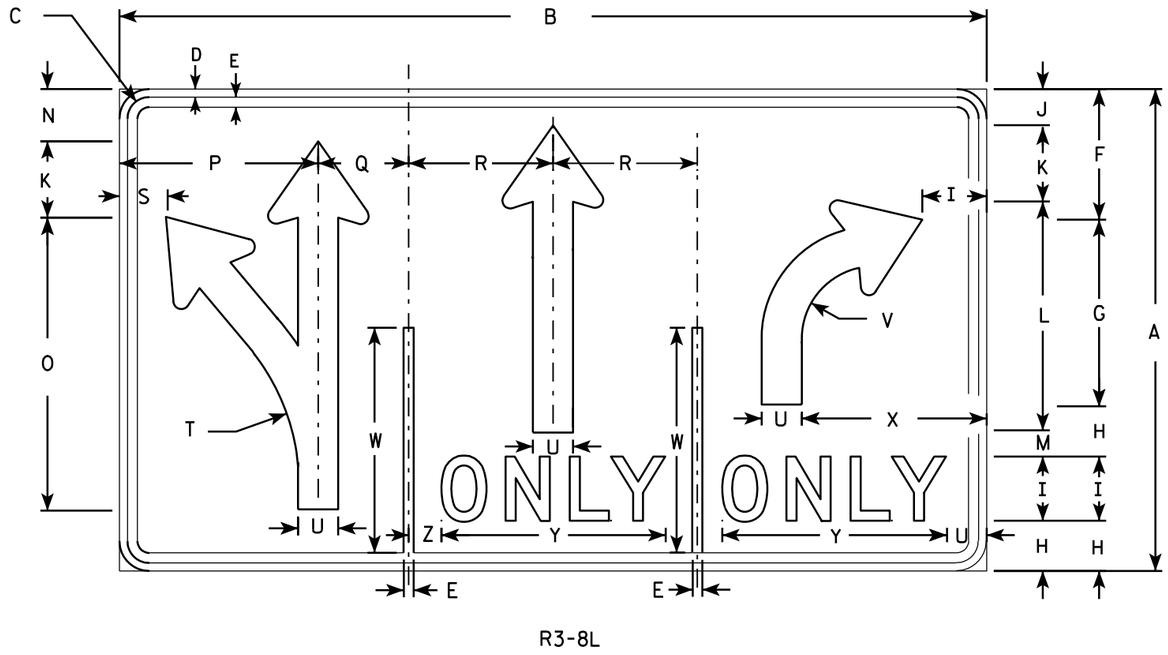
# STANDARD SIGN
# R3-8 & R3-8A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/2011 PLATE NO. R3-8.5

| PROJECT NO: | HWY: | COUNTY: | | SHEET NO: 142 | E |
|---|---|---|---|---|---|

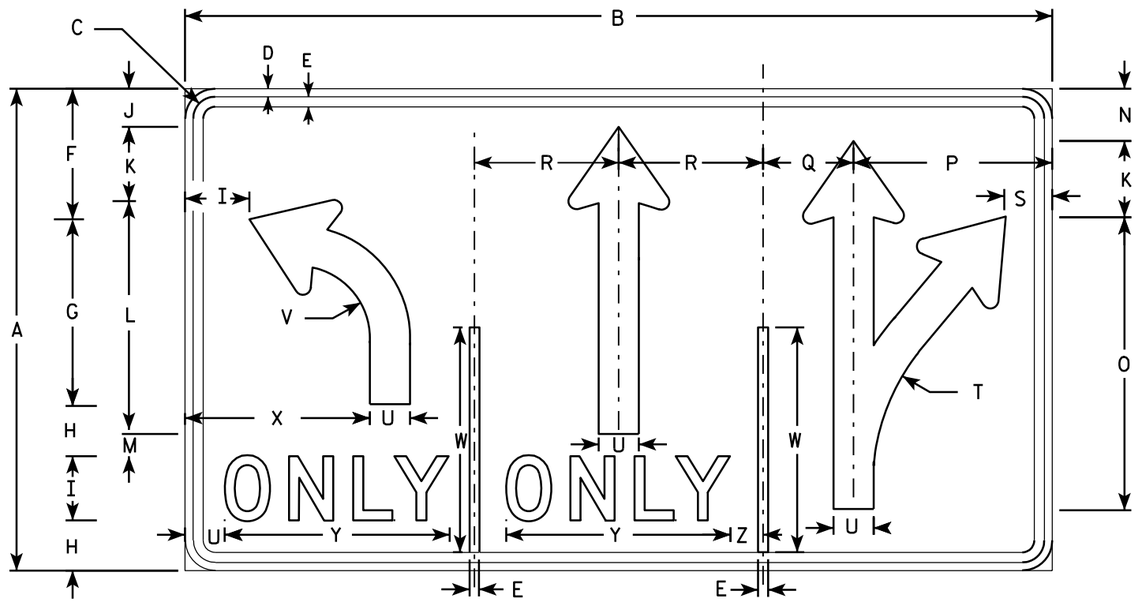



R3-8L

SEE R3-8 FOR ARROW DETAIL

NOTES

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




R3-8M

| SIZE | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | O | R | S | T | U | V | W | X | Y | Z | Area sq. ft. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2S | 30 | 54 | 1 3/8 | 1/2 | 5/8 | 8 1/8 | 11 5/8 | 3 1/8 | 4 | 2 1/4 | 4 3/4 | 14 1/4 | 1 5/8 | 3 1/4 | 18 1/4 | 12 3/8 | 5 5/8 | 9 | 3 | 13 1/4 | 2 1/2 | 4 1/2 | 14 | 11 1/2 | 14 | 2 | 11.25 |
| 2M | 30 | 54 | 1 3/8 | 1/2 | 5/8 | 8 1/8 | 11 5/8 | 3 1/8 | 4 | 2 1/4 | 4 3/4 | 14 1/4 | 1 5/8 | 3 1/4 | 18 1/4 | 12 3/8 | 5 5/8 | 9 | 3 | 13 1/4 | 2 1/2 | 4 1/2 | 14 | 11 1/2 | 14 | 2 | 11.25 |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 48 | 84 | 2 1/4 | 3/4 | 1 | 13 1/4 | 18 1/2 | 5 1/8 | 6 | 3 1/2 | 7 | 29 1/8 | 2 7/8 | 5 1/4 | 29 1/8 | 18 5/8 | 8 3/4 | 14 | 4 3/8 | 21 7/8 | 3 3/4 | 7 1/4 | 22 3/8 | 17 1/4 | 20 5/8 | 3 1/4 | 28.0 |
| 5 | 48 | 84 | 2 1/4 | 3/4 | 1 | 13 1/4 | 18 1/2 | 5 1/8 | 6 | 3 1/2 | 7 | 29 1/8 | 2 7/8 | 5 1/4 | 29 1/8 | 18 5/8 | 8 3/4 | 14 | 4 3/8 | 21 7/8 | 3 3/4 | 7 1/4 | 22 3/8 | 17 1/4 | 20 5/8 | 3 1/4 | 28.0 |

# STANDARD SIGN
# R3-8L & R3-8M

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/21/2011 PLATE NO. R3-8L.2

PROJECT NO:

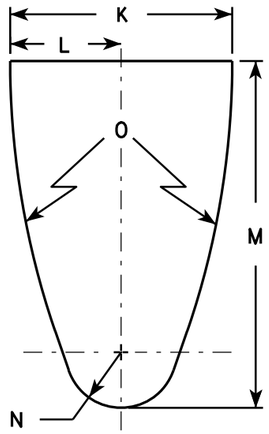
SHEET NO: 143 E

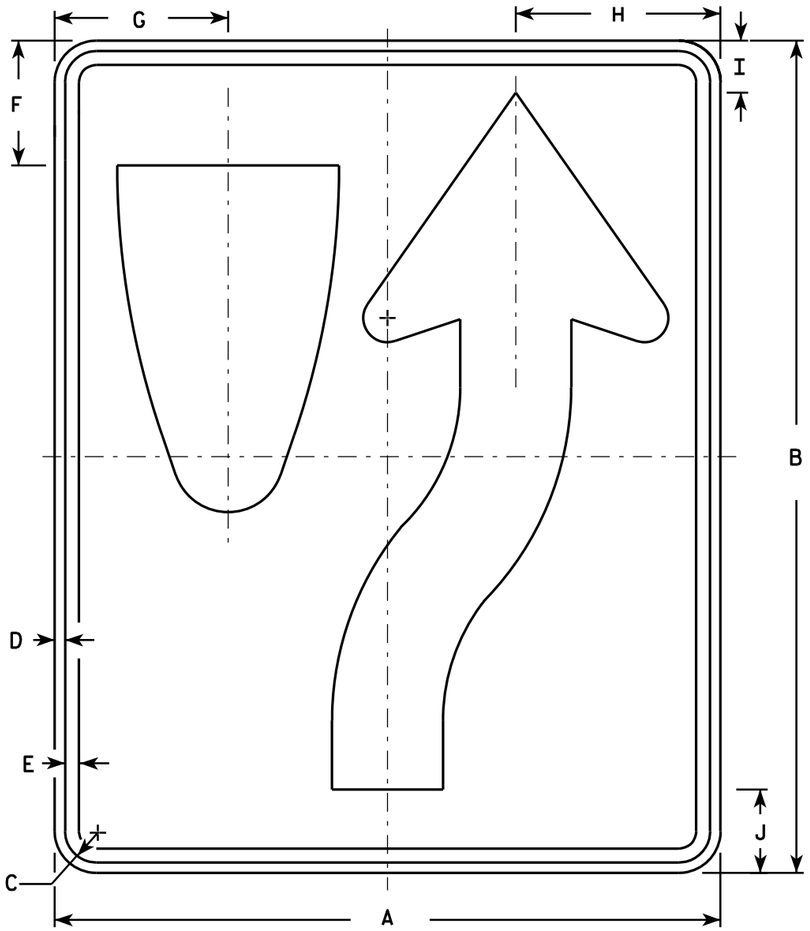
7

7

FILE NAME : C:\Users\PROJECTS\tr_stdplate\R38L.DGN PLOT DATE : 21-MAR-2011 14:39 PLOT BY : mscsja PLOT NAME :

WISDOT/CADDS SHEET 42

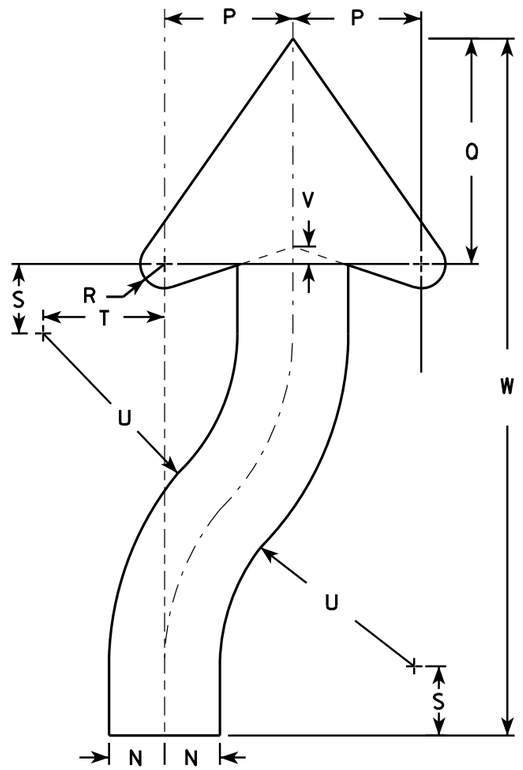



R4-7

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition. material is plywood but borders shall be rounded
2. Color:
   Background - White
   Message - Black
3. Corners may be square or rounded when base as shown. When base material is metal, the corners and borders shall be rounded.
4. R4-8 is the same as R4-7 except Legend 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 | 18 | 24 | 1 1/8 | 3/8 | 1/2 | 3 3/8 | 4 3/4 | 5 1/2 | 1 3/8 | 2 1/4 | 6 | 3 | 9 3/8 | 1 1/2 | 22 1/2 | 3 1/2 | 6 1/8 | 5/8 | 1 7/8 | 3 1/4 | 6 3/4 | 1/2 | 20 3/8 | | | | 3.0 |
| 2S | 24 | 30 | 1 1/8 | 3/8 | 1/2 | 4 1/2 | 6 1/4 | 7 3/8 | 1 7/8 | 3 | 8 | 4 | 12 1/2 | 2 | 30 | 4 5/8 | 8 1/8 | 7/8 | 2 1/2 | 4 3/8 | 9 | 5/8 | 25 1/8 | | | | 5.0 |
| 2M | 24 | 30 | 1 1/8 | 3/8 | 1/2 | 4 1/2 | 6 1/4 | 7 3/8 | 1 7/8 | 3 | 8 | 4 | 12 1/2 | 2 | 30 | 4 5/8 | 8 1/8 | 7/8 | 2 1/2 | 4 3/8 | 9 | 5/8 | 25 1/8 | | | | 5.0 |
| 3 | 36 | 48 | 1 3/4 | 1/2 | 5/8 | 6 3/4 | 9 3/8 | 11 1/8 | 2 7/8 | 4 1/2 | 12 | 6 | 18 3/4 | 3 | 45 | 6 7/8 | 12 1/4 | 1 1/4 | 3 3/4 | 6 5/8 | 13 1/2 | 1 | 40 3/4 | | | | 12.0 |
| 4 | 36 | 48 | 1 3/4 | 1/2 | 5/8 | 6 3/4 | 9 3/8 | 11 1/8 | 2 7/8 | 4 1/2 | 12 | 6 | 18 3/4 | 3 | 45 | 6 7/8 | 12 1/4 | 1 1/4 | 3 3/4 | 6 5/8 | 13 1/2 | 1 | 40 3/4 | | | | 12.0 |
| 5 | 48 | 60 | 2 1/4 | 3/4 | 1 | 9 | 12 1/2 | 14 3/4 | 3 3/4 | 6 | 16 | 8 | 25 | 4 | 60 | 9 1/4 | 16 1/4 | 1 5/8 | 5 | 8 3/4 | 18 | 1 1/4 | 50 1/4 | | | | 20.0 |

STANDARD SIGN
R4-7 & R4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 3/25/2011 PLATE NO. R4-7.8

| PROJECT NO: | HWY: | COUNTY: | | SHEET NO: 144 | E |
|---|---|---|---|---|---|

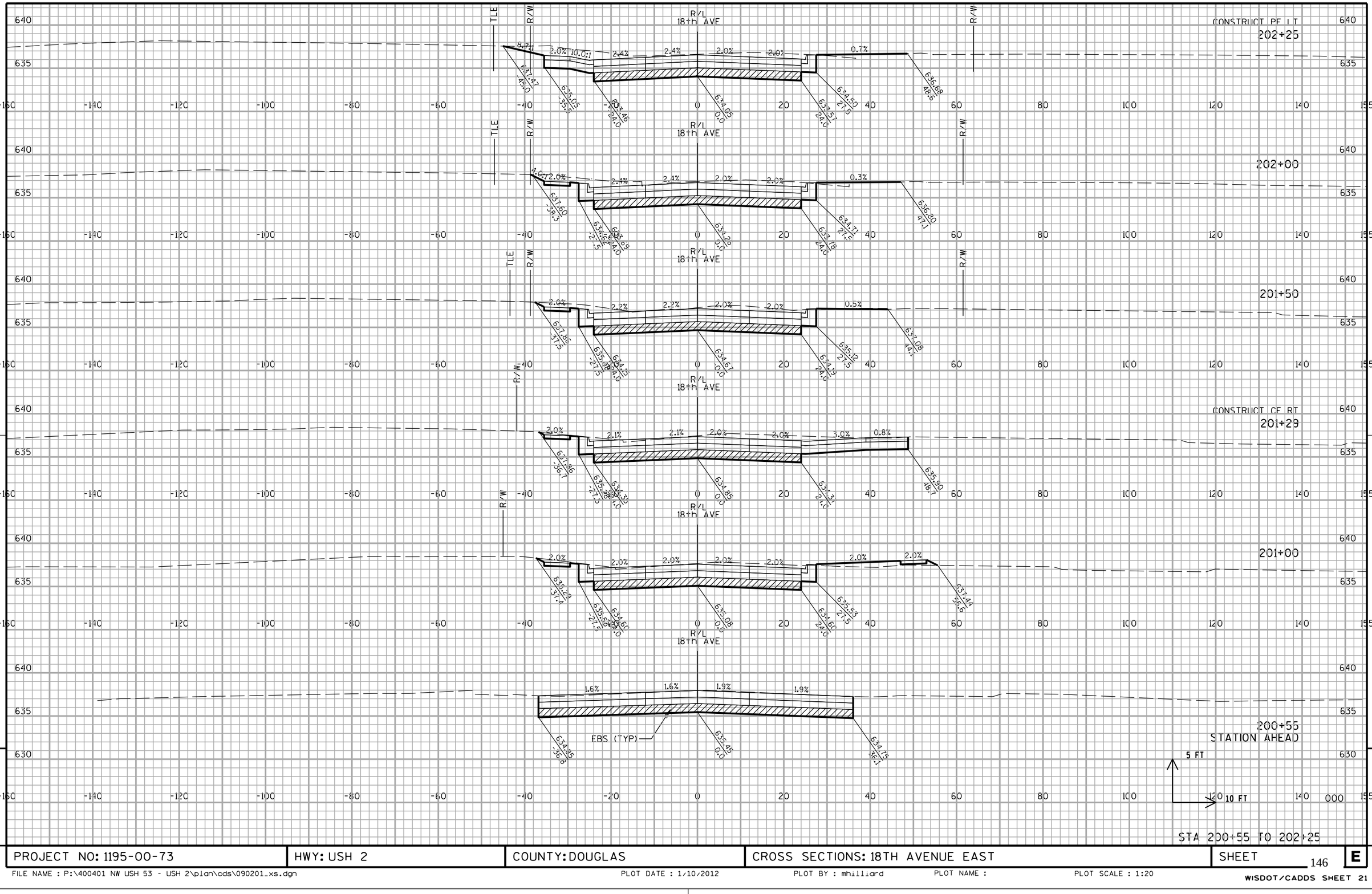
## 18TH AVE

| STATION | AREA (SF) Cut | Salvaged/ Unusable Pavement Material | Fill | Marsh Exc | Rock Exc | EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged/Unusable Pavement Material Note 2 | Fill Note 3 | Marsh Exc | Rock Exc | EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Expanded Fill 1.2 | Expanded Marsh Backfill 1.50 Note 4 | Expanded Rock 1.10 | Expanded EBS Backfill 1.30 Note 5 | Reduced Marsh in Fill 0.60 Note 6 | Reduced EBS In Fill 0.80 Note 7 | Mass Ordinate Note 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 200+55 AH | 180.9 | 36.0 | 0.0 | 0.0 | 0.0 | 48.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 201+00 | 145.7 | 36.0 | 10.6 | 0.0 | 0.0 | 48.0 | 272.2 | 60.0 | 8.8 | 0.0 | 0.0 | 80.0 | 272.2 | -66.2 | 0.0 | 0.0 | 104.0 | 0.0 | 64.0 | 278.4 |
| 201+50 | 155.9 | 36.0 | 0.3 | 0.0 | 0.0 | 48.0 | 279.3 | 66.7 | 10.0 | 0.0 | 0.0 | 88.9 | 551.5 | -139.5 | 0.0 | 0.0 | 219.6 | 0.0 | 135.1 | 564.4 |
| 202+00 | 163.3 | 36.0 | 2.3 | 0.0 | 0.0 | 48.0 | 295.6 | 66.7 | 2.4 | 0.0 | 0.0 | 88.9 | 847.1 | -222.0 | 0.0 | 0.0 | 335.1 | 0.0 | 206.2 | 875.8 |
| 202+50 | 166.4 | 36.0 | 1.5 | 0.0 | 0.0 | 48.0 | 305.3 | 66.7 | 3.5 | 0.0 | 0.0 | 88.9 | 1152.4 | -303.2 | 0.0 | 0.0 | 450.7 | 0.0 | 277.3 | 1195.6 |
| 203+00 | 170.5 | 36.0 | 2.3 | 0.0 | 0.0 | 48.0 | 311.9 | 66.7 | 3.5 | 0.0 | 0.0 | 88.9 | 1464.3 | -384.3 | 0.0 | 0.0 | 566.2 | 0.0 | 348.4 | 1522.0 |
| 203+50 | 226.6 | 36.0 | 1.1 | 0.0 | 0.0 | 0.0 | 367.7 | 66.7 | 3.1 | 0.0 | 0.0 | 44.4 | 1832.0 | -423.3 | 0.0 | 0.0 | 624.0 | 0.0 | 384.0 | 1861.9 |
| 203+63 BK | 183.7 | 36.0 | 2.4 | 0.0 | 0.0 | 0.0 | 98.8 | 17.3 | 0.8 | 0.0 | 0.0 | 0.0 | 1930.8 | -422.2 | 0.0 | 0.0 | 624.0 | 0.0 | 384.0 | 1942.3 |
| | | | | | Column totals | | 1930.78 | 410.67 | 32.14 | 0.00 | 0.00 | 480.00 | | | | | | | | |

## USH 2

| STATION | AREA (SF) Cut | Salvaged/ Unusable Pavement Material | Fill | Marsh Exc | Rock Exc | EBS | Incremental Vol (CY) (Unadjusted) Cut Note 1 | Salvaged/Unusable Pavement Material Note 2 | Fill Note 3 | Marsh Exc | Rock Exc | EBS | Cumulative Vol (CY) Cut 1.00 Note 1 | Expanded Fill 1.2 | Expanded Marsh Backfill 1.50 Note 4 | Expanded Rock 1.10 | Expanded EBS Backfill 1.30 Note 5 | Reduced Marsh in Fill 0.60 Note 6 | Reduced EBS In Fill 0.80 Note 7 | Mass Ordinate Note 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 102+00 AH | 9.3 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 102+50 | 18.9 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 26.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 26.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 26.0 |
| 103+00 | 28.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 43.5 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 69.7 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 69.4 |
| 103+50 | 40.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 63.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 133.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 133.1 |
| 104+00 | 45.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 80.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 213.4 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 213.2 |
| 104+50 | 49.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 87.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 301.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 301.0 |
| 105+00 | 46.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 88.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 389.8 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 389.5 |
| 105+50 BK | 42.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 82.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 472.5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 472.2 |
| | | | | | Column totals | | 472.46 | 0.00 | 0.22 | 0.00 | 0.00 | 0.00 | | | | | | | | |

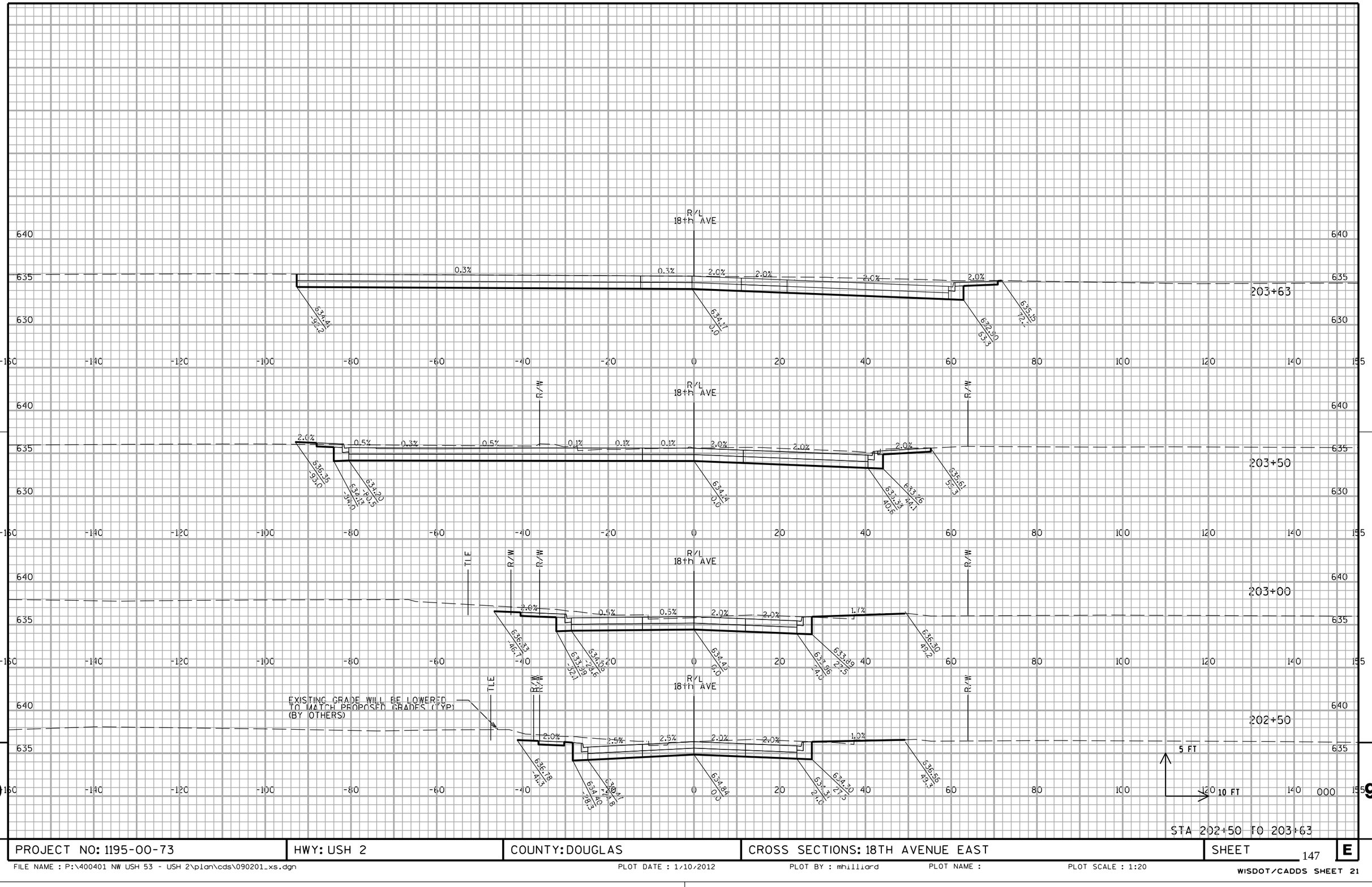
| Notes: | | |
|---|---|---|
| 1 - Cut | Cut includes Salvaged/Unusable Pavement material | |
| 2 - Salvaged/Unusable Pavement Material | This does not show up in cross sections | |
| 3 - Fill | Does not include Unusable Pavement Exc volume | |
| 4 - Expanded Marsh Backfill | Will be backfilled with Granular Backfill (or Cut, or Borrow) | Note 4 - Select one based on input dialog selection |
| 5 - Expanded EBS | Will be backfilled with Granular Backfill (or Cut, or Borrow) | Note 5 - Select one based on input dialog selection |
| 6 - Reduced Marsh in Fill | Reduced Marsh Excavation that can be used in Fill | Note 6 - If excavated Marsh can be used in Fill |
| 7 - Reduced EBS in Fill | Reduced EBS Excavation that can be used in Fill | Note 7 - If excavated EBS can be used in Fill |
| 8 - Mass Ordinate | If Marsh or EBS to be backfilled with Cut or Borrow: [(Cut + Marsh Exc + EBS) - ((Fill - Reduced Marsh in Fill) - (Reduced EBS in Fill) - Expanded Rock) * Fill Factor)] | Note 8 - Select one based on mass haul input dialog selection. EBS and Marsh Exc used outside 1:1 in fill slopes |
| 8 - Mass Ordinate | If Marsh and EBS to be backfilled with Granular: [(Cut + EBS + Marsh Exc) - ((Fill - (Reduced Marsh in Fill) (Reduced EBS in Fill) - (Expanded Rock)) * Fill Factor))] | EBS and Marsh Exc used outside 1:1 in fill slopes |
| 8 - Mass Ordinate | If Marsh and EBS to be backfilled with Granular: [(Cut + EBS + Marsh Exc) - ((Fill - (Reduced Marsh in Fill) (Reduced EBS in Fill) - (Expanded Rock)) * Fill Factor))] | EBS and Marsh Exc used outside 1:1 in fill slopes |
| 8 - Mass Ordinate | If Marsh and EBS to be backfilled with Granular: [(Cut) - ((Fill - Expanded Rock) * Fill Factor))] | Marsh and EBS are not usable outside the 1:1 slopes |
| 8 - Mass Ordinate | If Marsh and EBS to be backfilled with Cut or Borrow: [(Cut) - ((Fill - Expanded Rock) * Fill Factor))] | Marsh and EBS are not usable outside the 1:1 slopes |




| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CROSS SECTIONS: 18TH AVENUE EAST | SHEET 146 | E |
|---|---|---|---|---|---|

FILE NAME : P:\400401 NW USH 53 - USH 2\plan\cds\090201_xs.dgn PLOT DATE : 1/10/2012 PLOT BY : mhilliard PLOT NAME : PLOT SCALE : 1:20

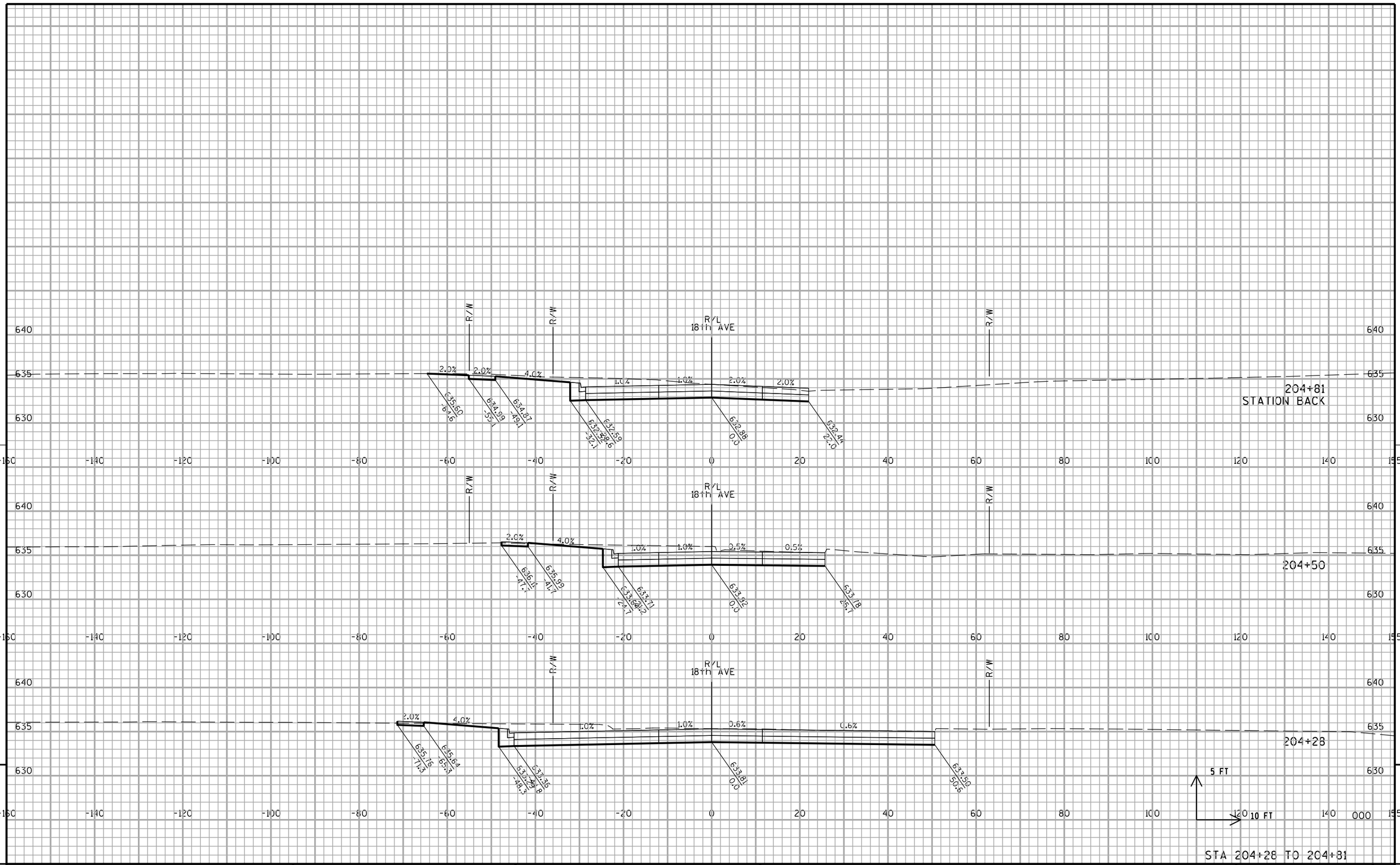
WISDOT/CADDS SHEET 21




| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CROSS SECTIONS: 18TH AVENUE EAST | SHEET 147 E |
|---|---|---|---|---|

FILE NAME : P:\400401 NW USH 53 - USH 2\plan\cds\090201_xs.dgn PLOT DATE : 1/10/2012 PLOT BY : mhilliard PLOT NAME : PLOT SCALE : 1:20

WISDOT/CADDS SHEET 21




| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CROSS SECTIONS: 18TH AVENUE EAST | SHEET 148 | E |
|---|---|---|---|---|---|

FILE NAME : P:\400401 NW USH 53 - USH 2\plan\cds\090201_xs.dgn PLOT DATE : 1/10/2012 PLOT BY : mhilliard PLOT NAME : PLOT SCALE : 1:20

WISDOT/CADDS SHEET 21

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CROSS SECTIONS: USH 2 | SHEET 149 | E |
|---|---|---|---|---|---|

FILE NAME : P:\400401 NW USH 53 - USH 2\plan\cds\090201_xs.dgn PLOT DATE : 1/10/2012 PLOT BY : mhilliard PLOT NAME : PLOT SCALE : 1:20

WISDOT/CADDS SHEET 21

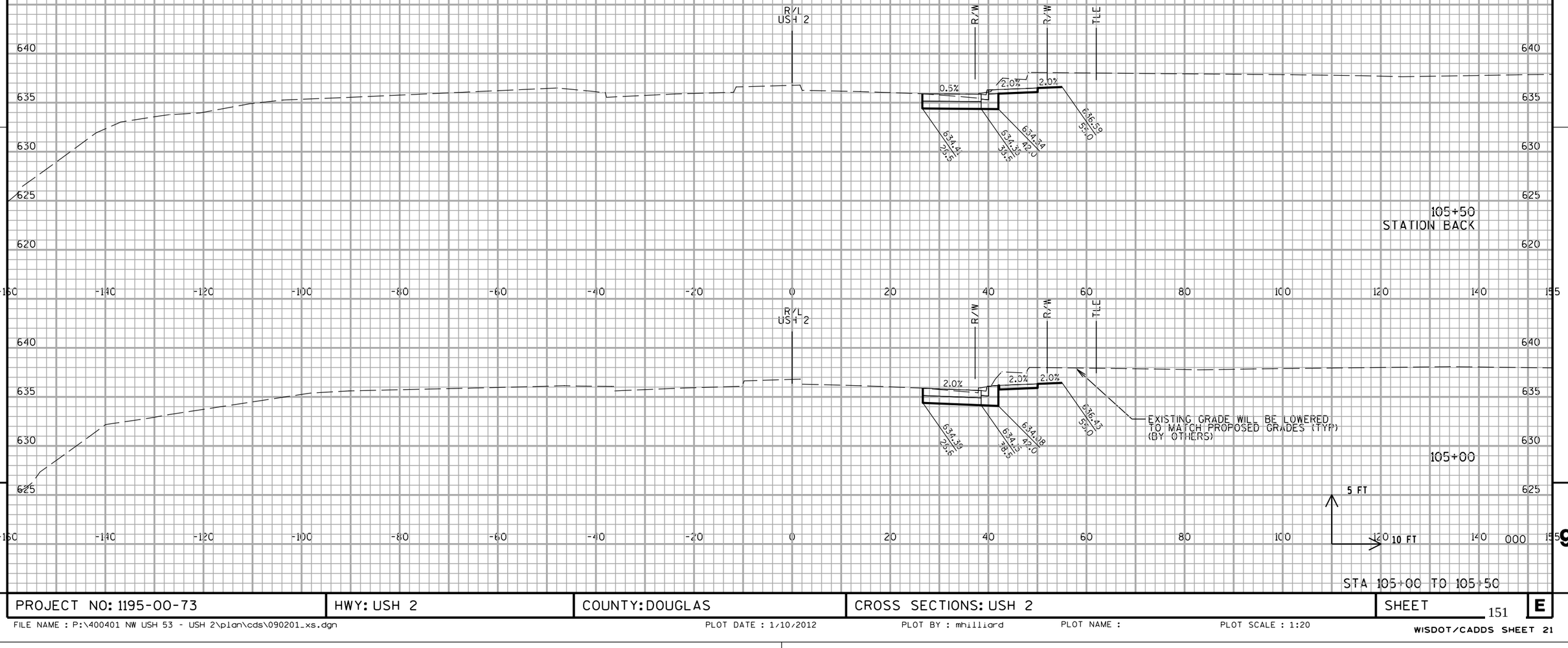
EXISTING GRADE WILL BE LOWERED TO MATCH PROPOSED GRADES (TYP) (BY OTHERS)


STA 103+50 TO 104+50

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CROSS SECTIONS: USH 2 | SHEET 150 | E |
|---|---|---|---|---|---|

FILE NAME : P:\400401 NW USH 53 - USH 2\plan\cds\090201_xs.dgn PLOT DATE : 1/10/2012 PLOT BY : mhilliard PLOT NAME : PLOT SCALE : 1:20

WISDOT/CADDS SHEET 21




STA 105+00 TO 105+50

| PROJECT NO: 1195-00-73 | HWY: USH 2 | COUNTY: DOUGLAS | CROSS SECTIONS: USH 2 | SHEET 151 | E |
|---|---|---|---|---|---|

FILE NAME : P:\400401 NW USH 53 - USH 2\plan\cds\090201_xs.dgn PLOT DATE : 1/10/2012 PLOT BY : mhilliard PLOT NAME : PLOT SCALE : 1:20

WISDOT/CADDS SHEET 21

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