

WKE

PROJECT ID:

1450-05-73

COUNTY:

OZAUKEE

AUGUST 2025
ORDER OF SHEETS

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

TOTAL SHEETS = 56



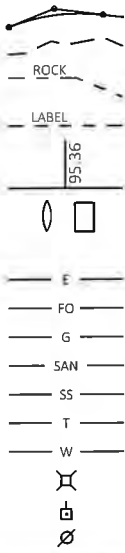
DESIGN DESIGNATION

| | | |
|--------------|------|----------|
| | | CTH LL |
| A.A.D.T. | 2023 | = 3,300 |
| A.A.D.T. | | = N/A |
| D.H.V. | | = N/A |
| D.D. | | = N/A |
| T. | | = N/A |
| DESIGN SPEED | | = 60 MPH |
| ESALS | | = N/A |

CONVENTIONAL SYMBOLS

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

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



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

IH 43 NORTH SOUTH FREEWAY

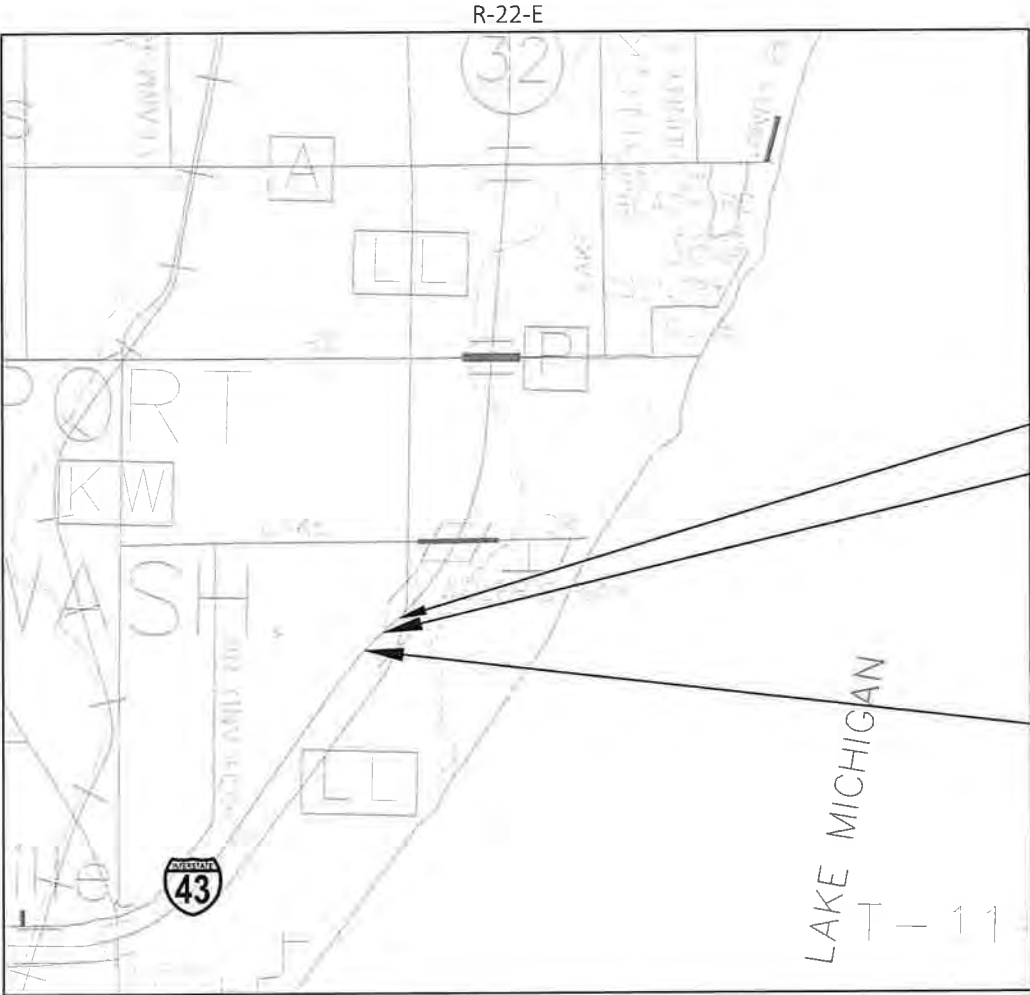
BRIDGE OVER CTH LL B-45-0048

IH 43

OZAUKEE COUNTY

STATE PROJECT NUMBER

1450-05-73



LAYOUT
SCALE 0 1.0 MI
TOTAL NET LENGTH OF CENTERLINE = 0.060 MI

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

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID G12-A.

STATE PROJECT

1450-05-73

FEDERAL PROJECT

PROJECT

WISC 2025583

CONTRACT

1

ORIGINAL PLANS PREPARED BY

GRAEF 275 W. WISCONSIN AVENUE, SUITE 300
MILWAUKEE, WI 53203



5-29-2025
(Date)

Jeffrey S. Strasser
(Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

| | |
|---------------------|------------------|
| Surveyor | WISDOT |
| Designer | GRAEF |
| Project Manager | JAMES SCHUMACHER |
| Regional Examiner | |
| Regional Supervisor | WAFA ELOAO |

APPROVED FOR THE DEPARTMENT

DATE: 6/1/2025 *James Schumacher*
(Signature)

E

GENERAL NOTES

NO TREES OR SHRUBS ARE TO BE REMOVED UNLESS INDICATED FOR REMOVAL BY THE ENGINEER.

CONTRACTOR WILL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY OPERATIONS, OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS.

EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT APPROXIMATE LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S EROSION CONTROL IMPLEMENTATION PLAN (ECIP) AND APPROVED BY THE ENGINEER. MAINTAIN EROSION CONTROL MEASURES UNTIL SUCH A TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

DO NOT DRIVE OR STORE EQUIPMENT, OR STORE CONSTRUCTION MATERIALS IN ENVIRONMENTALLY SENSITIVE AREAS, WETLANDS OR WATERWAYS.

HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112 LBS/SY/IN.

THE DEPTH OR THICKNESS OF THE LAYERS SHOWN ON THE PLAN FOR BASE AGGREGATE AND HMA PAVEMENT IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

SAWCUTS, AS SHOWN ON THE PLANS, ARE SUGGESTED LOCATIONS AND MAY BE ADJUSTED AT THE DISCRETION OF THE ENGINEER TO BETTER SUIT FIELD CONDITIONS.

RIGHT OF WAY INFORMATION SHOWN ON THE PLANS IS APPROXIMATE.

THE LOCATION OF KNOWN EXISTING UTILITIES IN THE VICINITY OF THE PROJECT ON THE PLANS IS APPROXIMATE. THERE MAY BE OTHER UTILITIES IN THE 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.

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

CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES EXCEPT WHEN PAVING OR PIPE LAYING OPERATIONS REQUIRE THE DRIVEWAY TO BE CLOSED. ACCESS TO DRIVEWAYS SHALL BE RE-ESTABLISHED IMMEDIATELY AFTER OPERATIONS ARE COMPLETED. ACCESS SHALL BE PROVIDED DURING ALL NON-WORKING HOURS.

THE LOCATIONS OF LONGITUDINAL JOINTS IN HMA PAVEMENT MUST BE APPROVED BY THE ENGINEER PRIOR TO PAVEMENT PLACEMENT.

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

PRIOR TO ORDERING DRAINAGE PIPES, THE CONTRACTOR SHALL FIELD VERIFY RELATED DRAINAGE INFORMATION IN THE PLAN WITH THE ENGINEER.

5 INCH HMA PAVEMENT: CTH LL

| HMA PAVEMENT | TOTAL PAVEMENT LAYER THICKNESS | LAYER | NOMINAL MAX AGGREGATE GRADATION |
|--------------|--------------------------------|-------|---------------------------------|
| 3 MT 58-28 S | 3-INCHES | LOWER | 19.0 mm |
| 4 MT 58-28 S | 2-INCHES | UPPER | 12.5 mm |

INDEX OF TYPICAL SECTION AND DETAIL SHEETS

- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- PLAN DETAILS/EROSION CONTROL
- STORM SEWER PLAN
- PAVEMENT MARKING
- DETOUR PLAN
- ALIGNMENT PLAN

STANDARD ABBREVIATIONS

| | |
|--------|--|
| AEW | APRON END WALL |
| AGG | AGGREGATE |
| BAD | BASE AGGREGATE DENSE |
| BM | BENCH MARK |
| C&G | CURB AND GUTTER |
| C/L | CENTER OR CONSTRUCTION LINE |
| CONC | CONCRETE |
| CP | CULVERT PIPE |
| CPCM | CULVERT PIPE CORRUGATED METAL |
| CPRC | CULVERT PIPE REINFORCED CONCRETE |
| CPRCHE | CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL |
| CSCP | CORRUGATED STEEL CULVERT PIPE |
| CSPA | CORRUGATED STEEL PIPE ARCH |
| CSD | CONCRETE SURFACE DRAIN |
| CY | CUBIC-YARD |
| D | DEGREE OF CURVE |
| Δ | DELTA |
| DISCH | DISCHARGE |
| EOP | EDGE OF PAVEMENT |
| FE | FIELD ENTRANCE |
| HERCP | HORIZONTAL ELLIPTICAL REINFORCED CONCRETE PIPE |
| HMA | HOT MIX ASPHALT |
| INV | INVERT |
| L | LENGTH OF CURVE |
| LHF | LEFT HAND FORWARD |
| LT | LEFT |
| MIN | MINIMUM |
| M/L | MATCHLINE |
| NB | NORTHBOUND |
| NC | NORMAL CROWN |
| NTS | NOT TO SCALE |
| PAVT | PAVEMENT |
| PB | PULL BOX |
| PC | POINT-OF-CURVE |
| PCC | POINT OF COMPOUND CURVE |
| PE | PRIVATE ENTRANCE |
| PI | POINT OF INTERSECTION |
| PLE | PERMANENT LIMITED EASEMENT |
| PT | POINT OF TANGENT |
| PVC | POINT OF VERTICAL CURVE |
| PVI | POINT OF VERTICAL INTERSECTION |
| PVT | POINT OF VERTICAL TANGENT |
| R | RADIUS OF CURVE |
| R/L | REFERENCE LINE |
| R/W | RIGHT OF WAY |
| RAD | RADIUS |
| RC | REVERSE CROWN |
| RCAEW | APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE |
| RCHES | REINFORCED CONCRETE HORIZONTAL ELLIPTICAL STORM SEWER |
| RCPS | REINFORCED CONCRETE PIPE - STORM SEWER |
| REOD | REQUIRED |
| RHF | RIGHT HAND FORWARD |
| RO | RUN OFF LENGTH |
| RT | RIGHT |
| SALV | SALVAGED |
| SB | SIGNAL BASE |
| SDD | STANDARD DETAIL DRAWING |
| SE | SUPER ELEVATION |
| SF | SQUARE FOOT |
| STA | STATION |
| SY | SQUARE YARD |
| T | TANGENT LENGTH |
| TC | TOP OF CURB |
| TLE | TEMPORARY LIMITED EASEMENT |

WISDOT CONTACTS

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LAUREL.RICE@WE-ENERGIES.COM

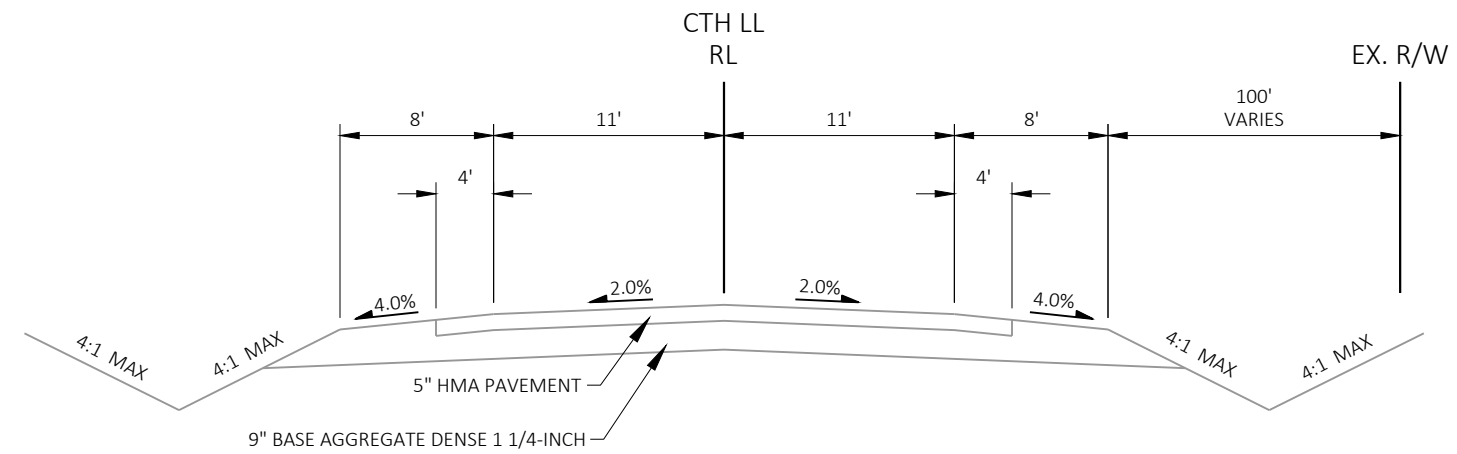


Dial 811 or (800) 242-8511

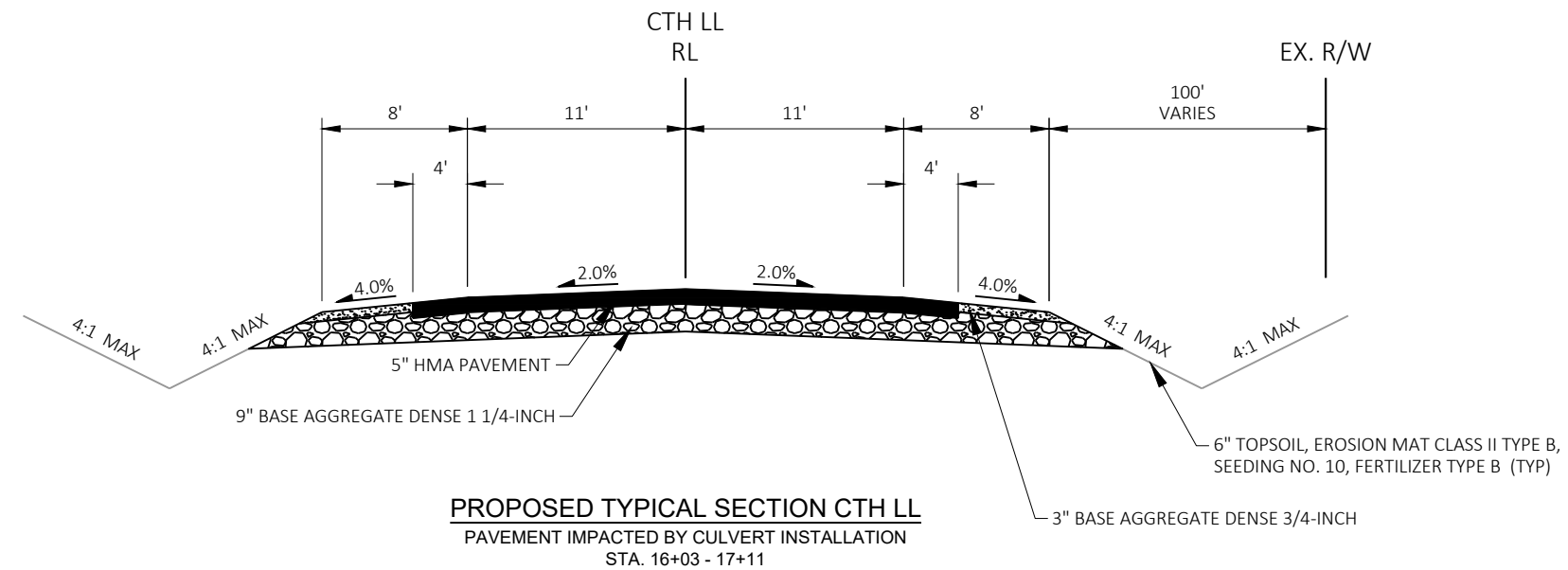
www.DiggersHotline.com



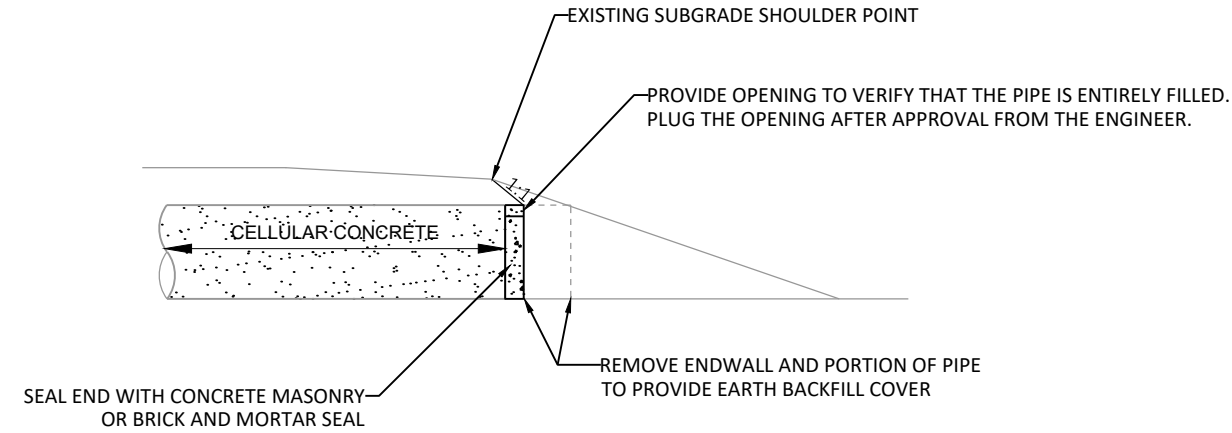
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|------------------------|------------|-----------------|------------------|-------|---|
| PROJECT NO: 1450-05-73 | HWY: IH 43 | COUNTY: OZAUKEE | PROJECT OVERVIEW | SHEET | E |
|------------------------|------------|-----------------|------------------|-------|---|



EXISTING TYPICAL SECTION CTH LL
STA. 16+03 - 17+11

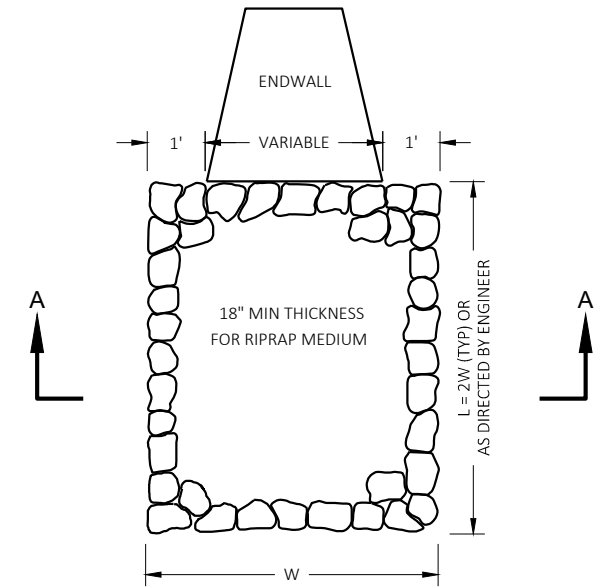
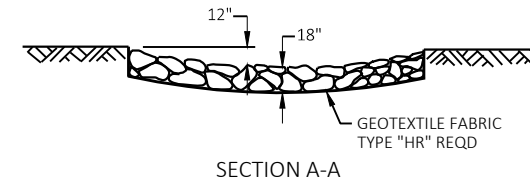


PROPOSED TYPICAL SECTION CTH LL
PAVEMENT IMPACTED BY CULVERT INSTALLATION
STA. 16+03 - 17+11

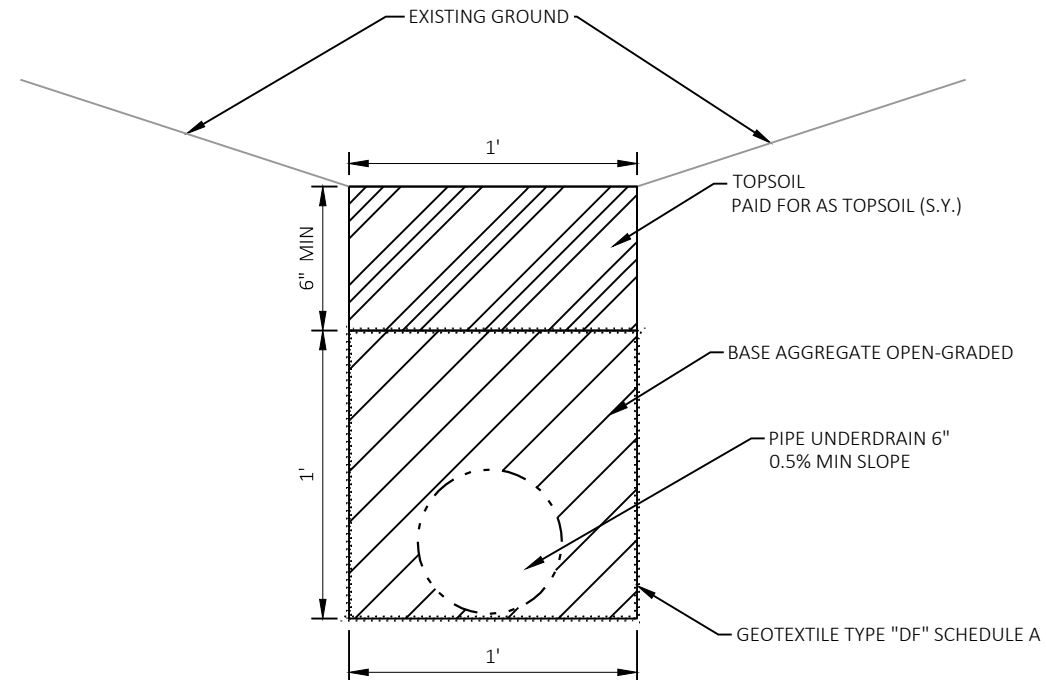


ABANDONING SEWER

SER (20180101)



RIPRAP MEDIUM TREATMENT AT CULVERTS



PIPE UNDERDRAIN AT MEDIAN DITCH

PROJECT NO: 1450-05-73

HWY: IH 43

COUNTY: OZAUKEE

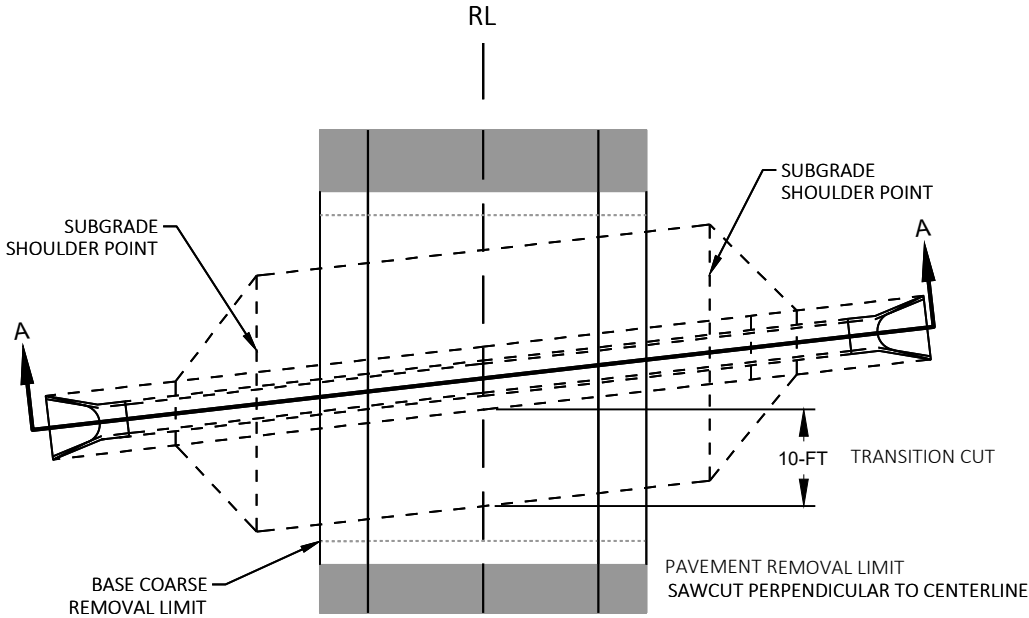
CONSTRUCTION DETAILS

SHEET

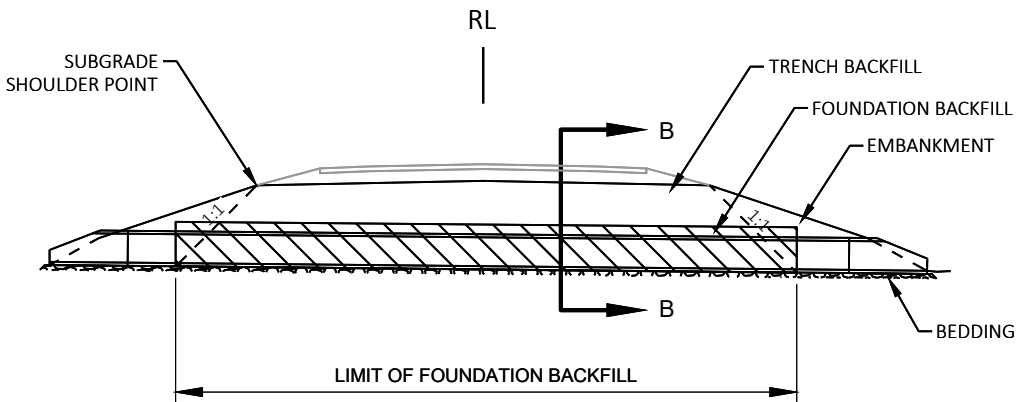
E

CONSTRUCTION NOTES

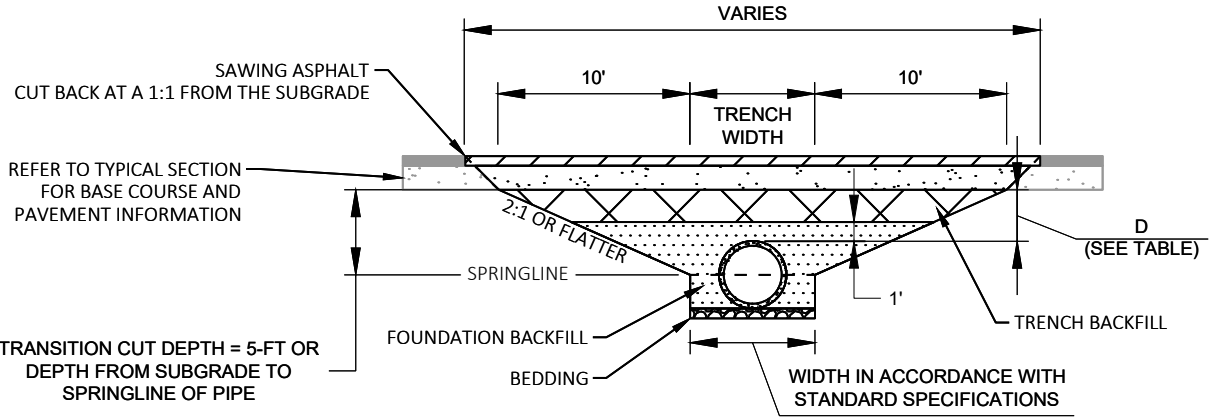
- 1. TRANSITION CUT IS PAID AS EXCAVATION COMMON
- 2. TRANSITION CUT WIDTH IS FROM SUBGRADE SHOULDER POINT TO SUBGRADE SHOULDER POINT
- 3. BACKFILL THE TRANSITION CUT AREAS WITH FOUNDATION AND TRENCH BACKFILL AS SPECIFIED IN STANDARD SPEC 520. PAYMENT FOR BACKFILLING TRANSITION CUT IS INCIDENTAL.
- 4. PAYMENT FOR TRENCH EXCAVATION IS INCIDENTAL TO THE CULVERT PIPE BID ITEMS.



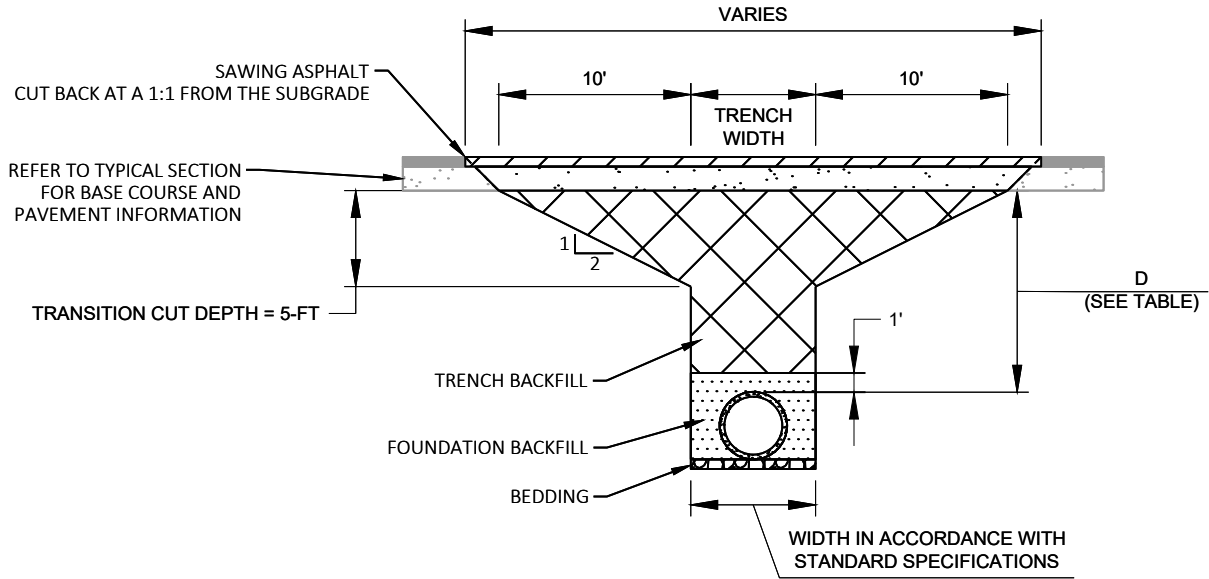
PLAN VIEW



SECTION A-A



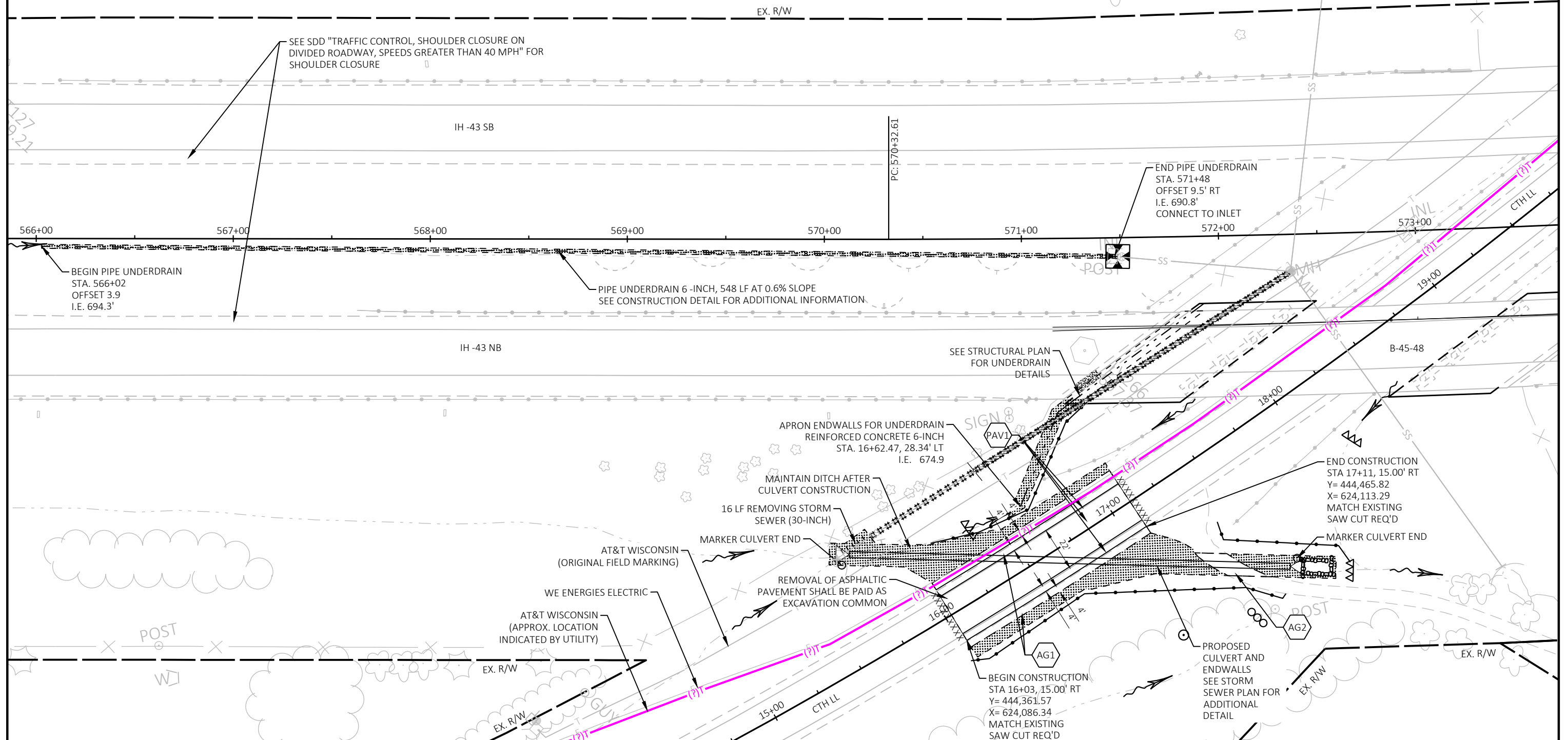
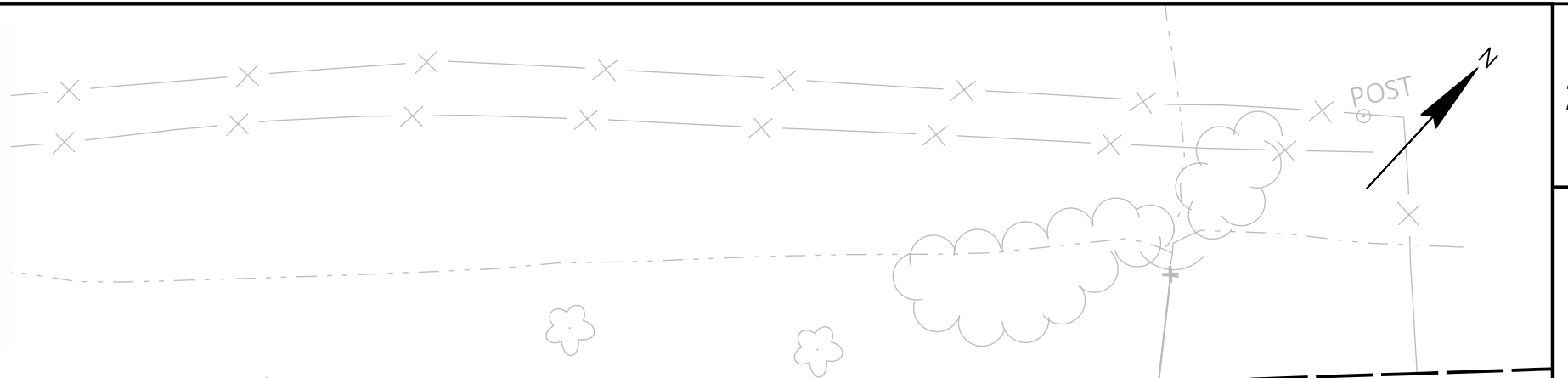
SECTION B-B
(D < 6 FT)

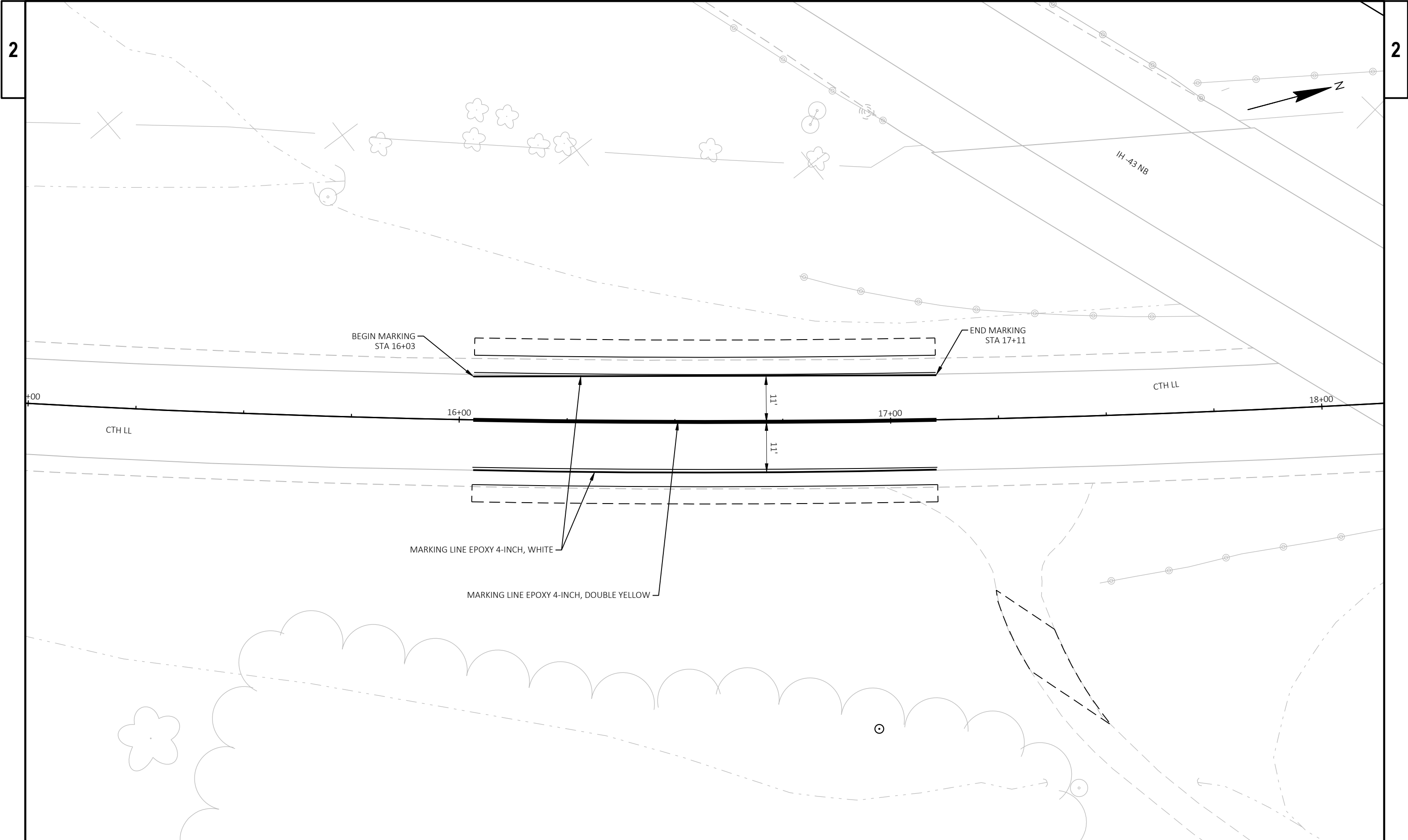


SECTION B-B
(D ≥ 6 FT)

| CULVERT PIPE TRANSITIONS | | | | |
|--------------------------|---------------------|--------------|--------------|---------|
| ROUTE | STA | DEPTH D (FT) | PIE DIA (IN) | REMARKS |
| CTH LL | 15+74.32 - 17+59.23 | 6'-0" | 30 | |
| | | | | |
| | | | | |
| | | | | |

CULVERT REPLACEMENT - HMA PAVEMENT
SER (20241212)

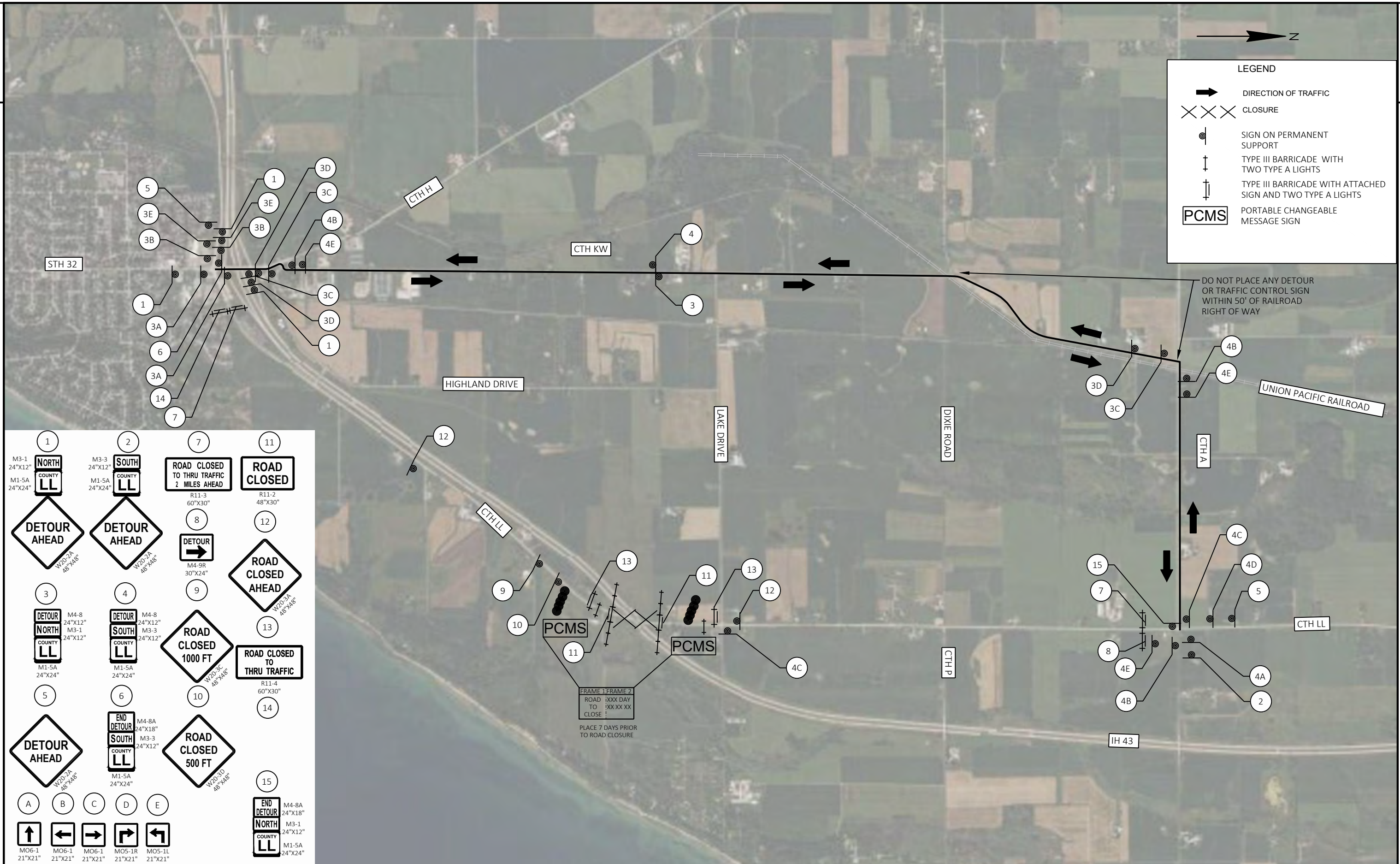




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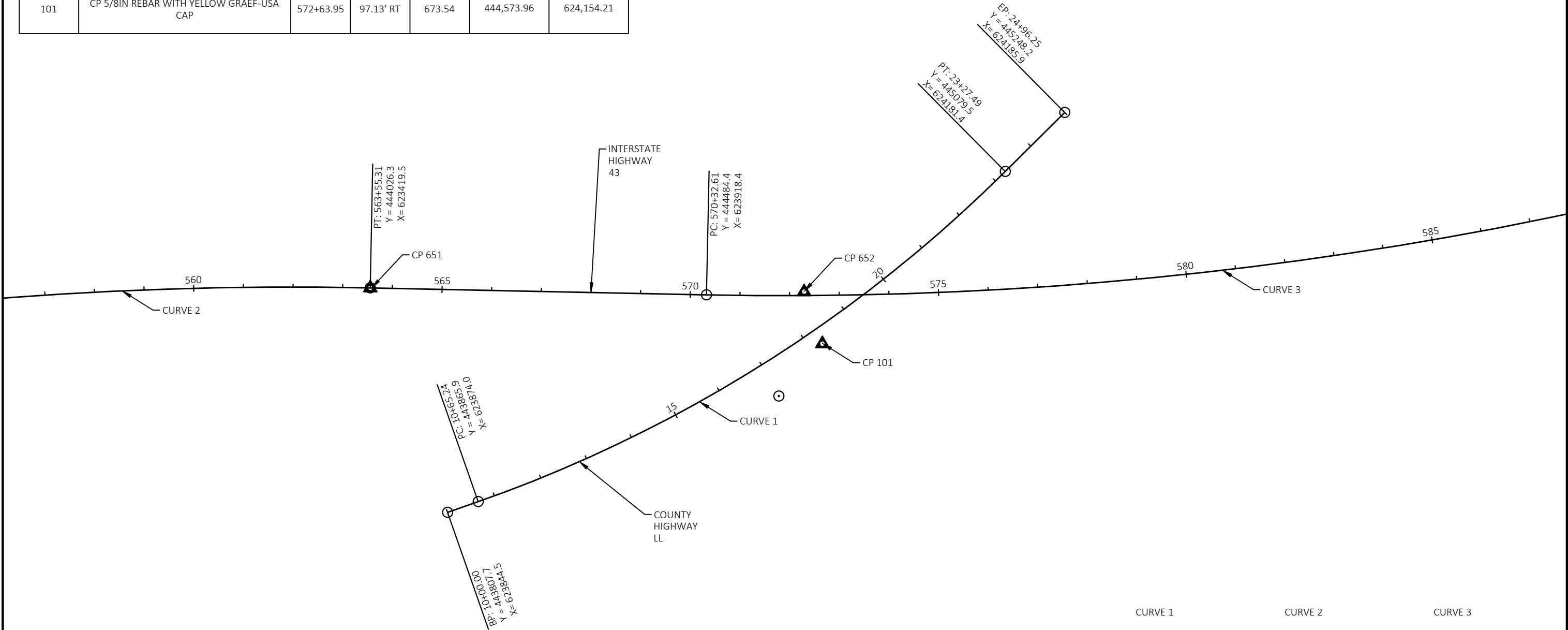
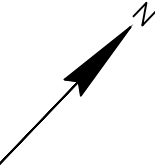
2

| | | | | | |
|------------------------|------------|-----------------|------------------|-------|---|
| PROJECT NO: 1450-05-73 | HWY: IH 43 | COUNTY: OZAUKEE | PAVEMENT MARKING | SHEET | E |
|------------------------|------------|-----------------|------------------|-------|---|



| | | | | | | | | |
|-------------|------------|------|-------|---------|--|-------------|-------|---|
| PROJECT NO: | 1450-05-73 | HWY: | IH 43 | COUNTY: | | DETOUR PLAN | SHEET | E |
|-------------|------------|------|-------|---------|--|-------------|-------|---|

| POINT | DESCRIPTION | STATION | OFFSET | ELEVATION | Y-COORDINATE | X-COORDINATE |
|-------|--|-----------|-----------|-----------|--------------|--------------|
| 651 | CP WISCONSIN DIVISION OF HIGHWAYS ALUMINUM CAP PT 563+55.31; 499' WEST OF CTH LL WEST SIDE EOP; IN CENTER OF CENTER MEDIAN OF IH 43. | 563+53.82 | 0.63' RT | 695.27 | 444,024.81 | 623,418.88 |
| 652 | CP F1000 SPK FENO WITH WISDOT GRAEF ALUMINUM CAP; 63' WEST OF CTH LL EOP; 70' NORTH OF NORTHWEST JOINT LINE OF THE SOUTHERN BRIDGE. | 572+28.29 | 7.72' LT | 696.04 | 444,624.17 | 624,055.43 |
| 101 | CP 5/8IN REBAR WITH YELLOW GRAEF-USA CAP | 572+63.95 | 97.13' RT | 673.54 | 444,573.96 | 624,154.21 |



CURVE 1

PI STA = 17+06.92
Y = 444438.052
X = 624164.518
DELTA = 25°24'42" LT
D = 2°00'48"
T = 641.68'
L = 1262.25'
R = 2846.00'
PC STA = 10+65.24
PT STA = 23+27.49

CURVE 2

PI STA = 555+29.79
Y = 443463.452
X = 622806.738
DELTA = 12°25'54" RT
D = 0°45'00"
T = 832.05'
L = 1657.57'
R = 7639.44'
PC STA = 546+97.74
PT STA = 563+55.31

CURVE 3

PI STA = 600+24.12
Y = 446507.985
X = 626121.651
DELTA = 42°46'10" LT
D = 0°45'00"
T = 2991.52'
L = 5702.60'
R = 7639.44'
PC STA = 570+32.61
PT STA = 627+35.21

Estimate Of Quantities

1450-05-73

| Line | Item | Item Description | Unit | Total | Qty |
|------|------------|---|------|-----------|-----------|
| 0002 | 204.0245 | Removing Storm Sewer (size) 01. 30-Inch | LF | 16.000 | 16.000 |
| 0004 | 204.0291.S | Abandoning Sewer | CY | 46.000 | 46.000 |
| 0006 | 205.0100 | Excavation Common | CY | 156.000 | 156.000 |
| 0008 | 209.0200.S | Backfill Controlled Low Strength | CY | 4.000 | 4.000 |
| 0010 | 209.1500 | Backfill Granular Grade 1 | TON | 53.000 | 53.000 |
| 0012 | 213.0100 | Finishing Roadway (project) 01. 1450-05-73 | EACH | 1.000 | 1.000 |
| 0014 | 305.0110 | Base Aggregate Dense 3/4-Inch | TON | 27.000 | 27.000 |
| 0016 | 305.0120 | Base Aggregate Dense 1 1/4-Inch | TON | 245.000 | 245.000 |
| 0018 | 310.0110 | Base Aggregate Open-Graded | TON | 41.000 | 41.000 |
| 0020 | 450.4000 | HMA Cold Weather Paving | TON | 104.000 | 104.000 |
| 0022 | 455.0605 | Tack Coat | GAL | 22.000 | 22.000 |
| 0024 | 460.2000 | Incentive Density HMA Pavement | DOL | 70.000 | 70.000 |
| 0026 | 460.6223 | HMA Pavement 3 MT 58-28 S | TON | 62.000 | 62.000 |
| 0028 | 460.6224 | HMA Pavement 4 MT 58-28 S | TON | 42.000 | 42.000 |
| 0030 | 522.0130 | Culvert Pipe Reinforced Concrete Class III 30-Inch | LF | 224.000 | 224.000 |
| 0032 | 522.1030 | Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch | EACH | 2.000 | 2.000 |
| 0034 | 604.9010.S | Slope Paving Repair Crushed Aggregate | CY | 7.000 | 7.000 |
| 0036 | 604.9015.S | Reseal Crushed Aggregate Slope Paving | SY | 685.000 | 685.000 |
| 0038 | 606.0200 | Riprap Medium | CY | 6.000 | 6.000 |
| 0040 | 612.0106 | Pipe Underdrain 6-Inch | LF | 548.000 | 548.000 |
| 0042 | 612.0206 | Pipe Underdrain Unperforated 6-Inch | LF | 62.000 | 62.000 |
| 0044 | 612.0406 | Pipe Underdrain Wrapped 6-Inch | LF | 86.000 | 86.000 |
| 0046 | 612.0806 | Apron Endwalls for Underdrain Reinforced Concrete 6-Inch | EACH | 1.000 | 1.000 |
| 0048 | 619.1000 | Mobilization | EACH | 1.000 | 1.000 |
| 0050 | 625.0100 | Topsoil | SY | 594.000 | 594.000 |
| 0052 | 628.1504 | Silt Fence | LF | 426.000 | 426.000 |
| 0054 | 628.1520 | Silt Fence Maintenance | LF | 426.000 | 426.000 |
| 0056 | 628.1905 | Mobilizations Erosion Control | EACH | 1.000 | 1.000 |
| 0058 | 628.1910 | Mobilizations Emergency Erosion Control | EACH | 1.000 | 1.000 |
| 0060 | 628.2023 | Erosion Mat Class II Type B | SY | 594.000 | 594.000 |
| 0062 | 628.7020 | Inlet Protection Type D | EACH | 1.000 | 1.000 |
| 0064 | 628.7504 | Temporary Ditch Checks | LF | 63.000 | 63.000 |
| 0066 | 628.7555 | Culvert Pipe Checks | EACH | 5.000 | 5.000 |
| 0068 | 629.0210 | Fertilizer Type B | CWT | 1.000 | 1.000 |
| 0070 | 630.0110 | Seeding Mixture No. 10 | LB | 16.000 | 16.000 |
| 0072 | 630.0200 | Seeding Temporary | LB | 4.000 | 4.000 |
| 0074 | 630.0500 | Seed Water | MGAL | 7.000 | 7.000 |
| 0076 | 633.5200 | Markers Culvert End | EACH | 2.000 | 2.000 |
| 0078 | 643.0300 | Traffic Control Drums | DAY | 188.000 | 188.000 |
| 0080 | 643.0420 | Traffic Control Barricades Type III | DAY | 220.000 | 220.000 |
| 0082 | 643.0705 | Traffic Control Warning Lights Type A | DAY | 360.000 | 360.000 |
| 0084 | 643.0900 | Traffic Control Signs | DAY | 1,308.000 | 1,308.000 |
| 0086 | 643.0920 | Traffic Control Covering Signs Type II | EACH | 1.000 | 1.000 |
| 0088 | 643.1050 | Traffic Control Signs PCMS | DAY | 14.000 | 14.000 |
| 0090 | 643.5000 | Traffic Control | EACH | 1.000 | 1.000 |
| 0092 | 645.0111 | Geotextile Type DF Schedule A | SY | 244.000 | 244.000 |
| 0094 | 645.0120 | Geotextile Type HR | SY | 12.000 | 12.000 |
| 0096 | 646.1020 | Marking Line Epoxy 4-Inch | LF | 460.000 | 460.000 |
| 0098 | 646.6464 | Cold Weather Marking Epoxy 4-Inch | LF | 460.000 | 460.000 |

Estimate Of Quantities

1450-05-73

| Line | Item | Item Description | Unit | Total | Qty |
|------|----------|--|------|--------|--------|
| 0100 | 650.4000 | Construction Staking Storm Sewer | EACH | 3.000 | 3.000 |
| 0102 | 690.0150 | Sawing Asphalt | LF | 62.000 | 62.000 |
| 0104 | SPV.0060 | Special 01. Connect to Existing Inlet | EACH | 1.000 | 1.000 |
| 0106 | SPV.0060 | Special 02. Utility Line Opening (ULO) | EACH | 1.000 | 1.000 |

3

| REMOVING STORM SEWER | |
|------------------------|----|
| 204.0245.01 30-INCH | |
| STATION TO STATION | LF |
| CTH LL | |
| 15+75 - 15+91 | 16 |
| TOTALS | 16 |

| ABANDONING SEWER | |
|---|----|
| 204.0291.S ABANDONING SEWER CTH LL | |
| STATION TO STATION | CY |
| CTH LL | |
| 15+88 - 18+44 | 46 |
| TOTALS | 46 |

| BASE AGGREGATE DENSE 3/4-INCH | |
|--|-----|
| 305.0110 BASE AGGREGATE DENSE 3/4-INCH | |
| STATION TO STATION | TON |
| CTH LL | |
| 16+03 - 17+11 | 27 |
| TOTALS | 27 |

3

| BASE AGGREGATE DENSE 1 1/4-INCH | |
|--|-----|
| 305.0120 BASE AGGREGATE DENSE 1 1/4-INCH | |
| STATION TO STATION | TON |
| CTH LL | |
| 16+03 - 17+11 | 245 |
| TOTALS | 245 |

| HMA PAVEMENT | | | | |
|---|-----|-----|-----|-----|
| 460.6223 460.6224 450.4000 455.0605 3 MT 58-28 S 4 MT 58-28 S HMA COLD TACK COAT WEATHER PAVING | | | | |
| STATION TO STATION | TON | TON | TON | GAL |
| CTH LL | | | | |
| 16+03 - 17+11 | 62 | 42 | 104 | 22 |
| TOTALS | 62 | 42 | 104 | 22 |

| PIPE UNDERDRAIN | | | |
|---|-----|-----|-----|
| 310.0110 612.0106 645.0111 BASE PIPE GEOTEXTILE TYPE DF AGGREGATE UNDERDRAIN 6- SCHEDULE A OPEN GRADED INCH | | | |
| STATION TO STATION | TON | LF | SY |
| I-43 | | | |
| 556+02 - 571+48 | 41 | 548 | 244 |
| TOTALS | 41 | 548 | 244 |

| DIVISION | LOCATION | 205.0100 COMMON EXCAVATION |
|---------------------|---|----------------------------------|
| | | CUT |
| DIVISION 1 | | |
| CTH LL | CULVERT TRANSITION CUT/PAVEMENT REMOVAL | 156 |
| DIVISION 1 SUBTOTAL | | 156 |
| GRAND TOTAL | | 156 |
| TOTAL COMMON EXC | | 156 |

| STORM SEWER STRUCTURES | | | | | | | | |
|---------------------------------|----------|-----------|-------------------------------|------|---------------------|------|-------------|---------------------|
| 522.1030 | | | 612.0806 | | 650.4000 | | 633.5200 | |
| APRON ENDWALLS FOR CULVERT PIPE | | | APRON ENDWALLS FOR UNDERDRAIN | | CONSTRUCTION | | MARKERS | |
| REINFORCED CONCRETE 30-INCH | | | REINFORCED CONCRETE 6-INCH | | STAKING STORM SEWER | | CULVERT END | |
| STRUCTURE | STATION* | OFFSET* | LOCATION | EACH | EACH | EACH | EACH | INVERT ELEVATION |
| 1 | 15+74.32 | 52.99' LT | CTH LL | 1 | | 1 | 1 | 667.10 |
| 3 | 17+59.23 | 72.63' RT | CTH LL | 1 | | 1 | 1 | 665.98 |
| | 16+62.47 | 28.34' LT | CTH LL | | 1 | 1 | | 674.90 |
| TOTALS | | | | 2 | 1 | 3 | 2 | |

REMARKS:
*STATIONS AND OFFSETS ARE TO CENTER OF STRUCTURE

| STORM SEWER PIPES | | | | | | |
|----------------------------|----------|-----|--------------------|------------------------|----------------|--|
| 522.0130 | | | | | | |
| CULVERT PIPE REINFORCED | | | | | | |
| CONCRETE CLASS III 30-INCH | | | | | | |
| FROM - TO | LOCATION | LF | INLET ELEVATION | DISCHARGE ELEVATION | SLOPE FT/FT | |
| 1 - 3 | CTH LL | 224 | 667.10 | 665.98 | 0.0050 | |
| TOTALS | | 224 | | | | |

| TOPSOIL | |
|---------------------|-----|
| 625.0100 TOPSOIL | |
| STATION TO STATION | SY |
| CTH LL | |
| 15+75 -17+25 | 447 |
| I-43 | |
| 566+02 - 571+48 | 147 |
| TOTALS | 594 |

| SEEDING | | | |
|---|----|----|------|
| 630.0110 630.0200 630.0500 SEEDING MIXTURE SEEDING SEED WATER NO. 10 TEMPORARY | | | |
| STATION TO STATION | LB | LB | MGAL |
| CTH LL | | | |
| 15+75 -17+25 | 12 | 4 | 5 |
| I-43 | | | |
| 566+02 - 571+48 | 4 | - | 2 |
| TOTALS | 16 | 4 | 7 |

ALL ITEMS CATEGORY 1000

3

| 606.0200 RIPRAP MEDIUM | | | 645.0120 GEOTEXTILE TYPE HR | | |
|---------------------------|--|----|--------------------------------|--|----|
| STATION TO STATION | | CY | | | SY |
| CTH LL | | | | | |
| 17+70 | | 6 | | | 12 |
| TOTALS | | 6 | | | 12 |

| SILT FENCE | | | 628.1504 SILT FENCE | | | 628.1520 SILT FENCE MAINTENANCE | | |
|--------------------|--|--|------------------------|--|--|---------------------------------------|--|--|
| STATION TO STATION | | | LF | | | LF | | |
| CTH LL | | | | | | | | |
| 15+75 -17+25 | | | 426 | | | 426 | | |
| TOTALS | | | 426 | | | 426 | | |

| EROSION CONTROL MOBILIZATIONS | | | 628.1905 MOBILIZATIONS EROSION CONTROL | | | 628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL | | |
|-------------------------------|--|--|--|--|--|---|--|--|
| STATION TO STATION | | | EACH | | | EACH | | |
| CTH LL | | | | | | | | |
| 15+75 -17+25 | | | 1 | | | 1 | | |
| TOTALS | | | 1 | | | 1 | | |

3

| EROSION MATTING | | | 628.2023 EROSION MAT CLASS II TYPE B | | |
|--------------------|--|--|--|--|--|
| STATION TO STATION | | | SY | | |
| CTH LL | | | | | |
| 15+75 -17+25 | | | 447 | | |
| I-43 | | | | | |
| 566+02 - 571+48 | | | 147 | | |
| TOTALS | | | 594 | | |

| DITCH CHECKS | | | 628.7504 TEMPORARY DITCH CHECKS | | | 628.7555 CULVERT PIPE CHECKS | | |
|--------------------|--|--|---------------------------------------|--|--|------------------------------------|--|--|
| STATION TO STATION | | | LF | | | EACH | | |
| CTH LL | | | | | | | | |
| 15+75 -17+25 | | | 63 | | | 5 | | |
| TOTALS | | | 63 | | | 5 | | |

| INLET PROTECTION | | | 628.7020 INLET PROTECTION TYPE D | | |
|--------------------|--|--|--|--|--|
| STATION TO STATION | | | EACH | | |
| I-43 | | | | | |
| 571+48 | | | 1 | | |
| TOTALS | | | 1 | | |

| FERTILIZER | | | 629.0210 FERTILIZER TYPE B | | |
|--------------------|--|--|-------------------------------|--|--|
| STATION TO STATION | | | CWT | | |
| CTH LL | | | | | |
| 15+75 -17+25 | | | 0.8 | | |
| I-43 | | | | | |
| 566+02 - 571+48 | | | 0.2 | | |
| TOTALS | | | 1 | | |

| TRAFFIC CONTROL | | | | | | | | | | | |
|--------------------------------------|---------------|------|-----|--|-----|---|-----|--------------------------------------|-------|---|-----|
| 643.0300 TRAFFIC CONTROL DRUMS | | | | 643.0420 TRAFFIC CONTROL BARRICADES TYPE III | | 643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A | | 643.0900 TRAFFIC CONTROL SIGNS | | 643.1050 TRAFFIC CONTROL SIGNS PCMS | |
| STAGE | DURATION DAYS | EACH | DAY | EACH | DAY | EACH | DAY | EACH | DAY | EACH | DAY |
| CTH LL/I-43 | | | | | | | | | | | |
| CTH LL | 10 | 10 | 100 | 22 | 220 | 36 | 360 | 126 | 1,260 | 2 | 14 |
| I-43 | 4 | 22 | 88 | - | - | - | - | 12 | 48 | - | - |
| TOTALS | 14 | 32 | 188 | 22 | 220 | 36 | 360 | 138 | 1,308 | 2 | 14 |

| TRAFFIC CONTROL | | | 643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II | | | 643.5000 TRAFFIC CONTROL | | |
|-----------------|--|--|--|--|--|-----------------------------|--|--|
| STAGE | | | EACH | | | EACH | | |
| CTH LL/I-43 | | | | | | | | |
| STAGE 1 | | | 1 | | | 1 | | |
| TOTALS | | | 1 | | | 1 | | |

| MARKING LINE | | | | 646.1020 EPOXY 4-INCH | | | | 646.1020 EPOXY 4-INCH | | | | 646.6464 COLD WEATHER MARKING EPOXY 4- INCH | | | |
|--------------------|--|---------|--|--------------------------|--|----------|--|--------------------------|--|--|--|--|--|----|--|
| | | (WHITE) | | | | (YELLOW) | | | | | | | | LF | |
| STATION TO STATION | | LF | | LF | | LF | | LF | | | | LF | | | |
| CTH LL | | | | | | | | | | | | | | | |
| 16+03 - 17+11 | | 230 | | 230 | | 460 | | | | | | 460 | | | |
| TOTAL | | | | 460 | | | | | | | | 460 | | | |

| SAWING | | 690.0150 ASPHALT | |
|--------------------|--|---------------------|--|
| STATION TO STATION | | LF | |
| CTH LL | | | |
| 16+03 - 17+11 | | 62 | |
| TOTALS | | 62 | |

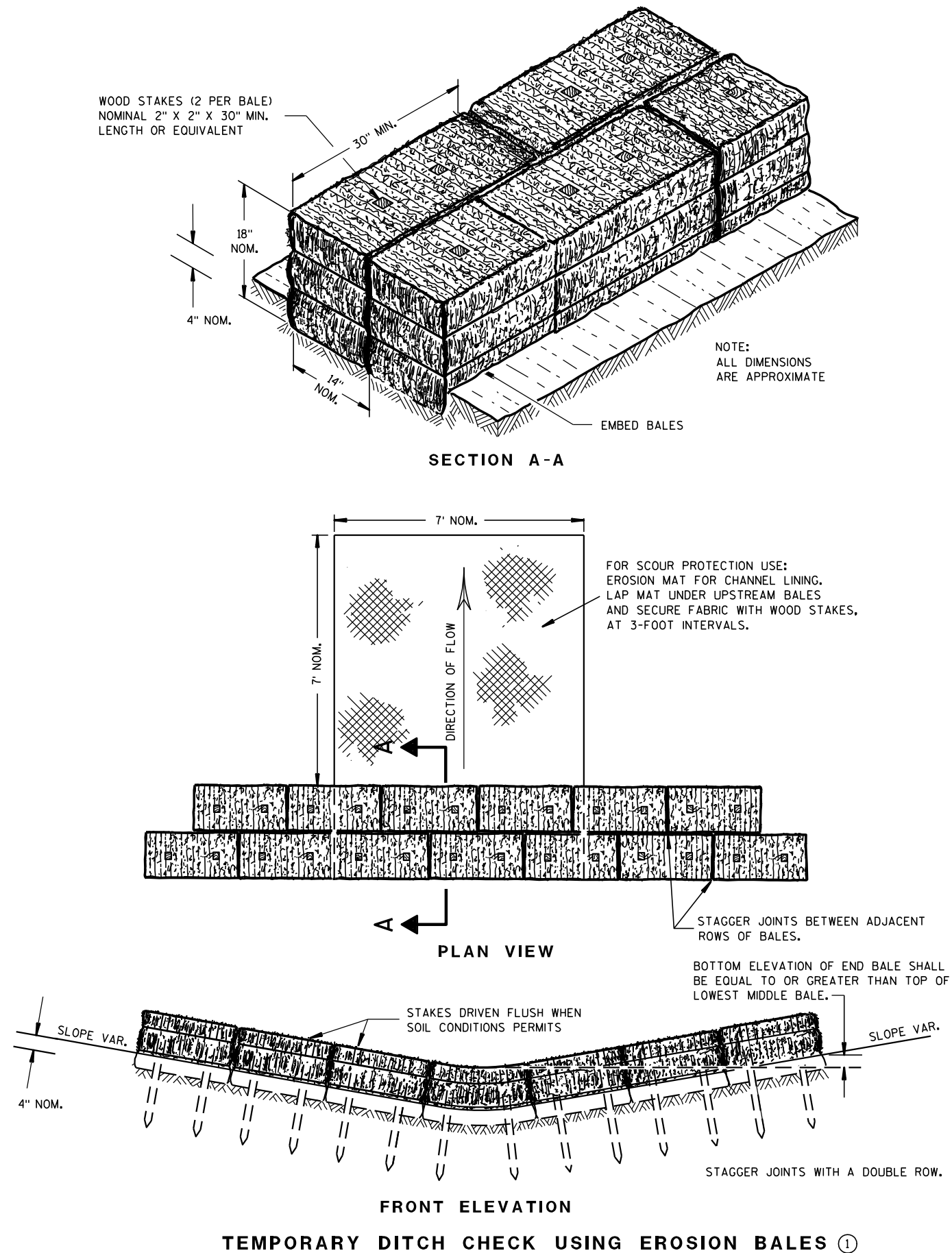
| SPV ITEMS | | SPV.0060.01 CONNECT TO EXISTING INLET | |
|--------------------|--|---|--|
| STATION TO STATION | | EACH | |
| I-43 | | | |
| 571+48 | | 1 | |
| TOTALS | | 1 | |

| SPV ITEMS | | SPV.0060.02 UTILITY LINE OPENING (ULO) | |
|--------------------|--|--|--|
| STATION TO STATION | | EACH | |
| CTH LL | | | |
| UNDISTRIBUTED | | 1 | |
| TOTALS | | 1 | |

ALL ITEMS CATEGORY 1000

Standard Detail Drawing List

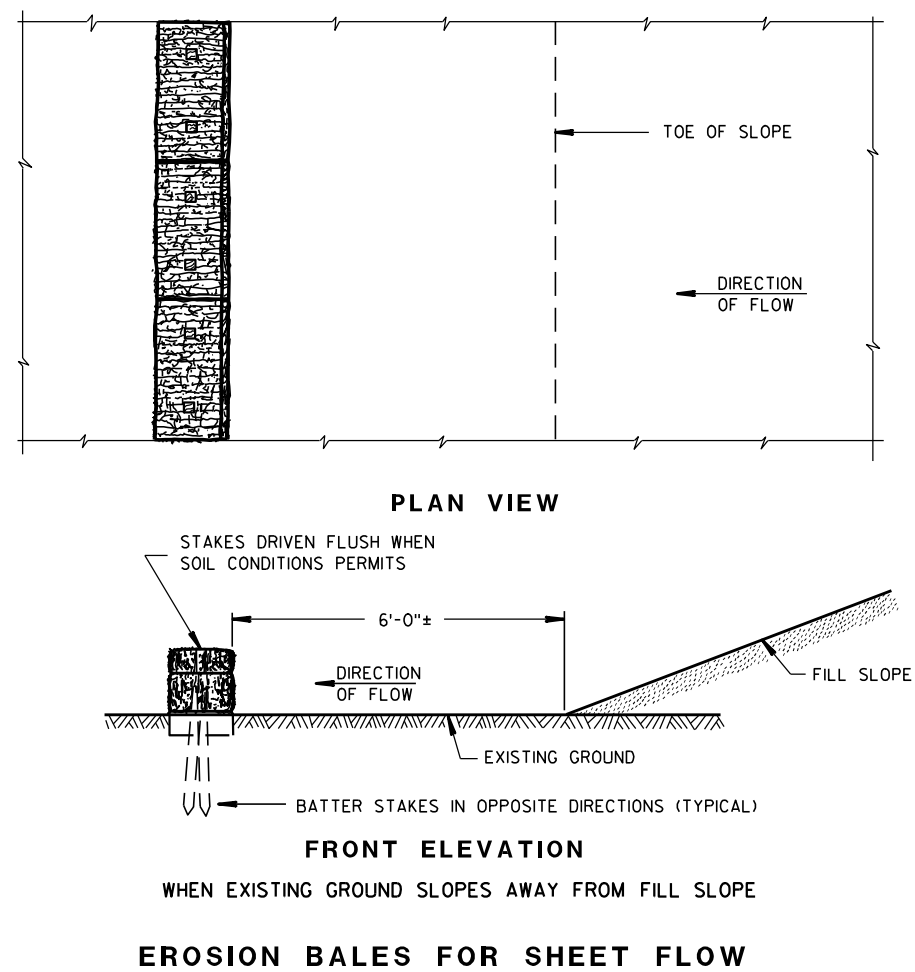
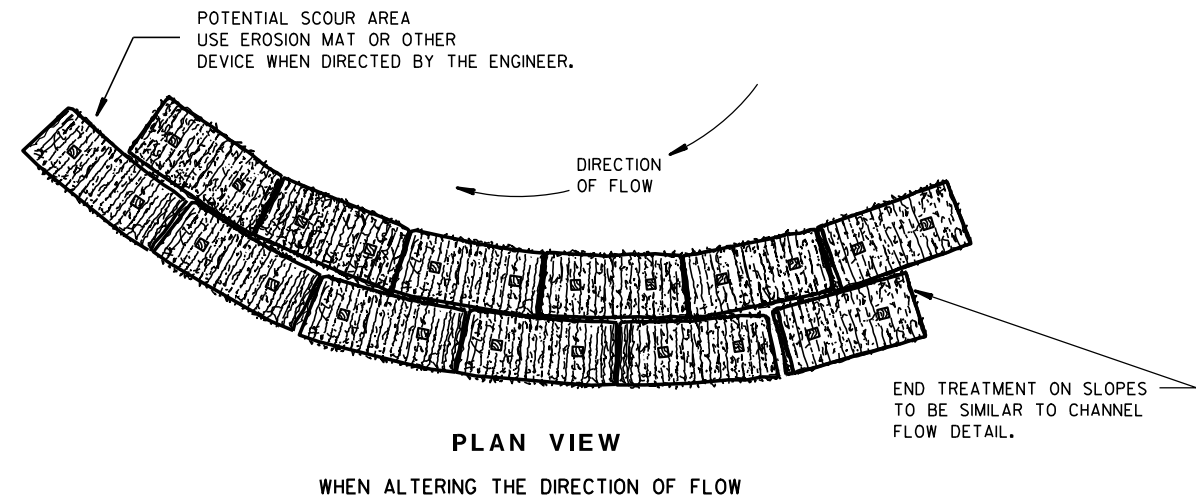
| | |
|-----------|--|
| 08E08-03 | TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS |
| 08E09-06 | SILT FENCE |
| 08E10-02 | INLET PROTECTION TYPE A, B, C AND D |
| 08E15-01 | CULVERT PIPE CHECK |
| 08F01-11 | APRON ENDWALLS FOR CULVERT PIPE |
| 08F04-08 | JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL |
| 08F06-04 | REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN |
| 13C19-03 | HMA LONGITUDINAL JOINTS |
| 15A03-02A | FLEXIBLE MARKER POST FOR CULVERT END |
| 15A03-02B | FLEXIBLE MARKER POST FOR CULVERT END |
| 15C02-09A | BARRICADES AND SIGNS FOR MAINLINE CLOSURES |
| 15C02-09B | BARRICADES AND SIGNS FOR VARIOUS CLOSURES |
| 15C02-09C | DETOUR SIGNING FOR MAINLINE CLOSURES |
| 15C08-23A | PERMANENT LONGITUDINAL PAVEMENT MARKINGS |
| 15C11-10B | CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS |
| 15D27-03 | TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH |
| 15D28-04 | TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY |



GENERAL NOTES

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

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

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

FHWA

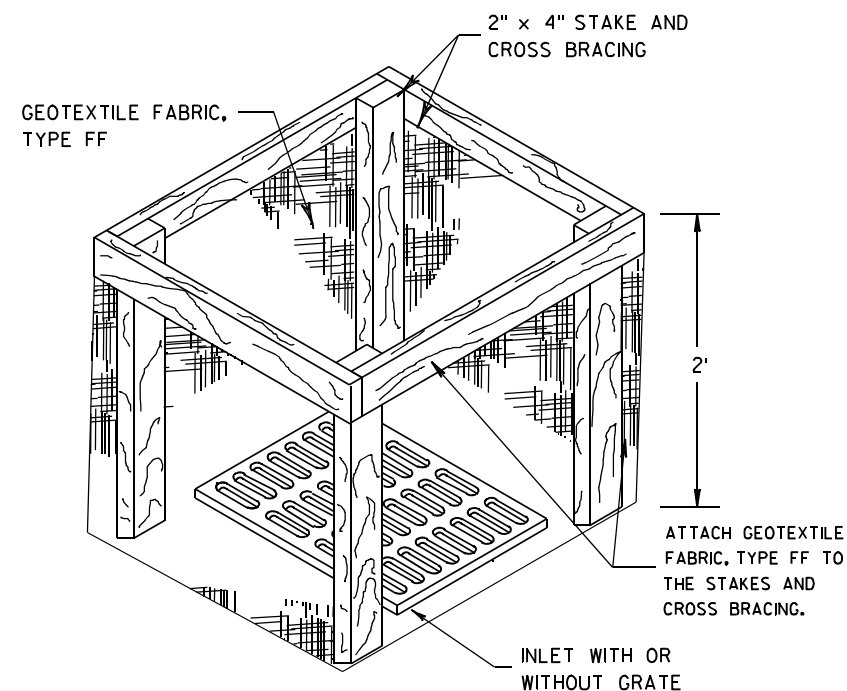
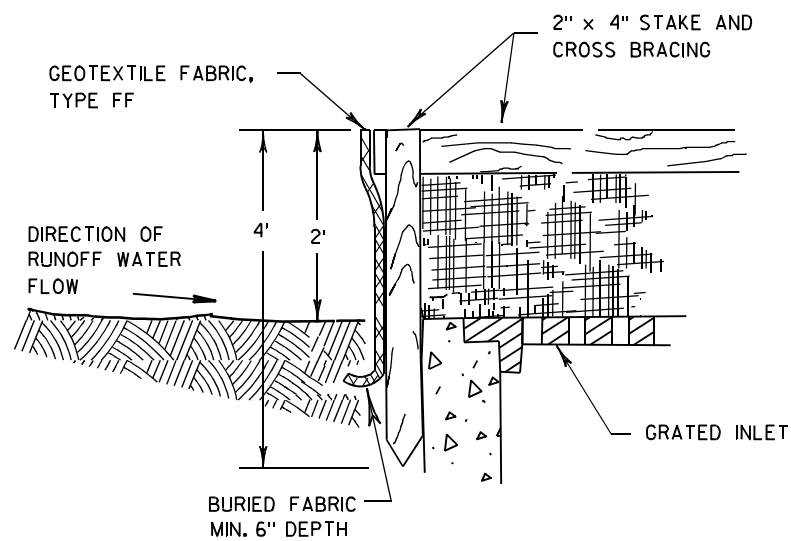
/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



| | |
|--|---|
| SILT FENCE | |
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | |
| APPROVED 4-29-05 DATE | /S/ <u>Beth Cannestra</u> CHIEF ROADWAY DEVELOPMENT ENGINEER |



INLET PROTECTION, TYPE A

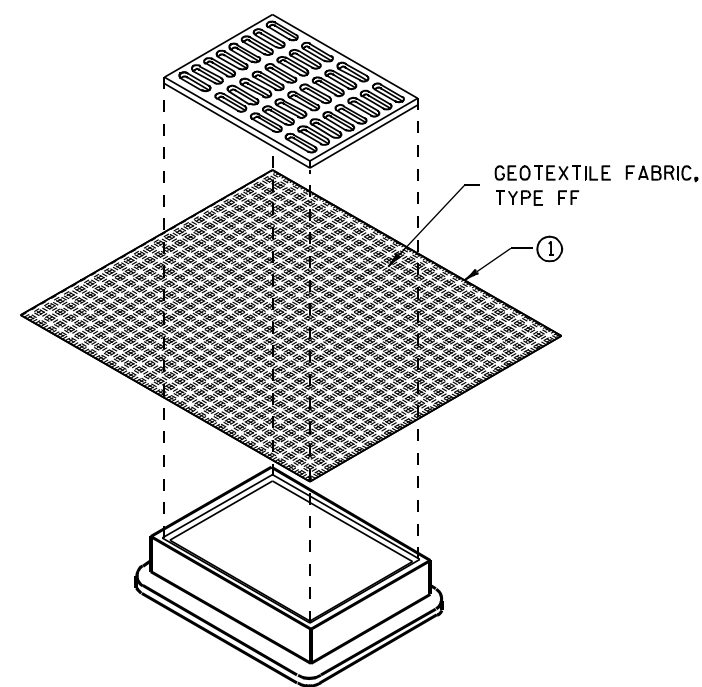
GENERAL NOTES

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

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

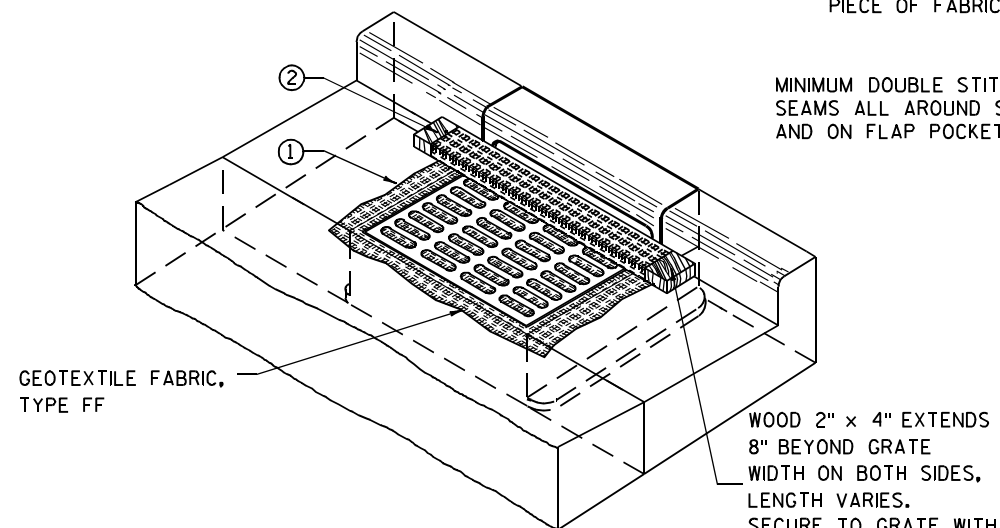
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

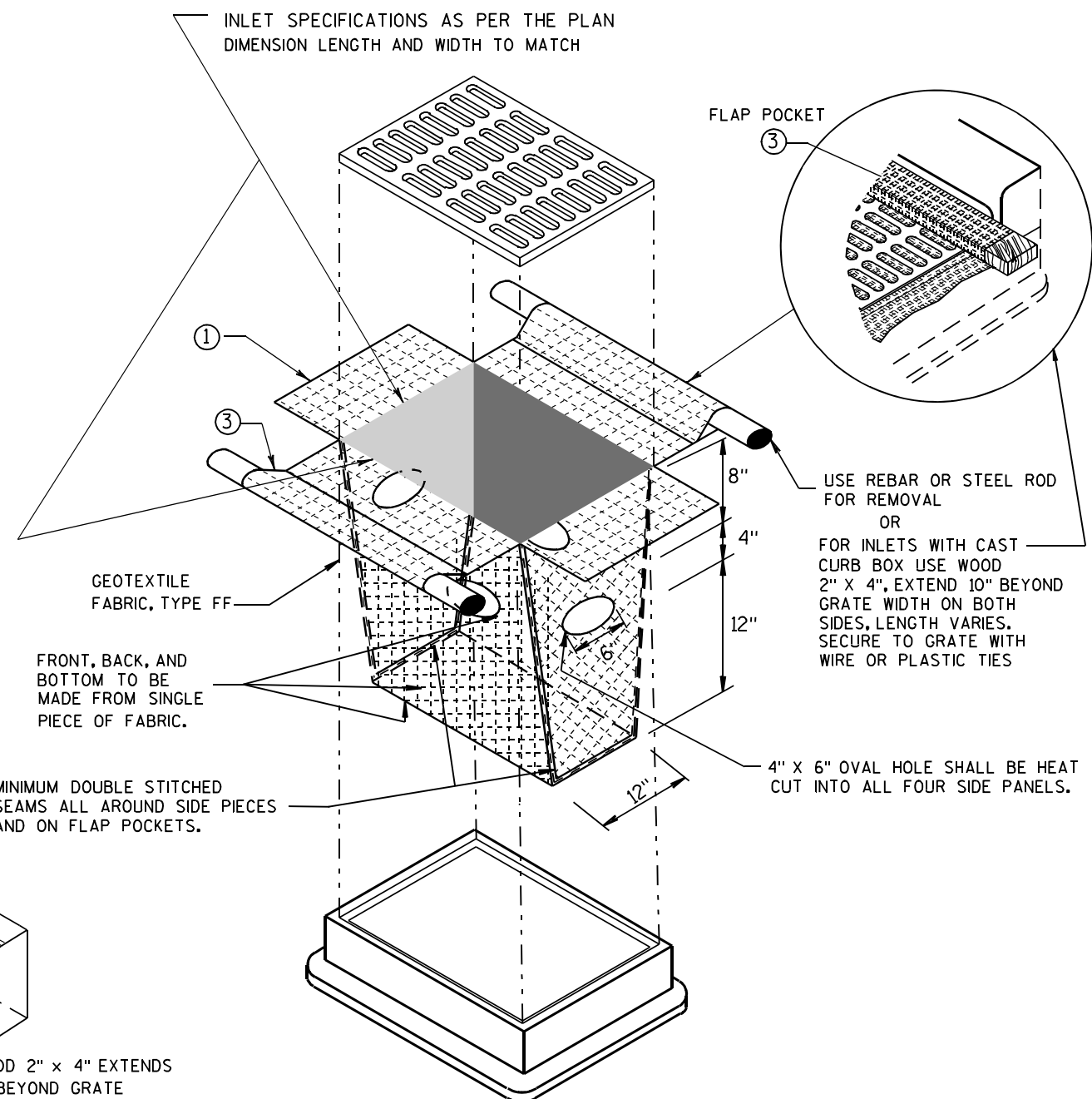
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

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



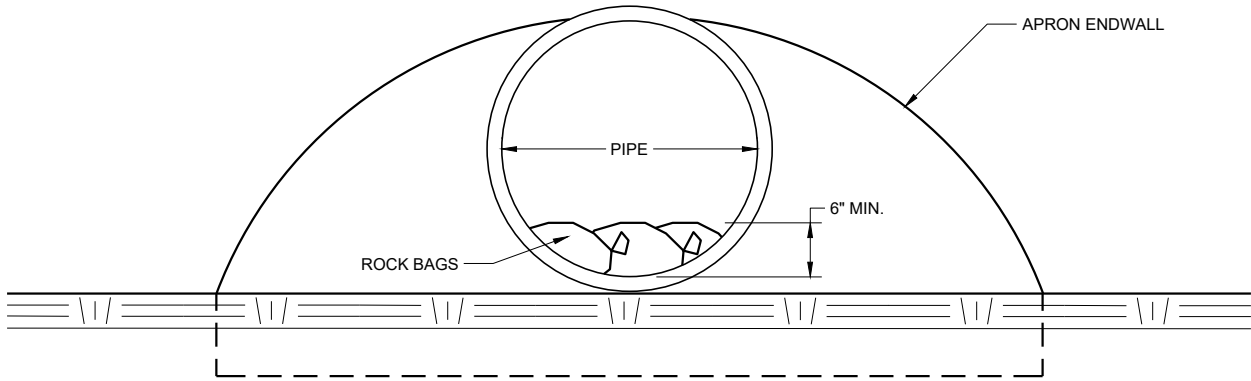
INLET PROTECTION, TYPE D

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

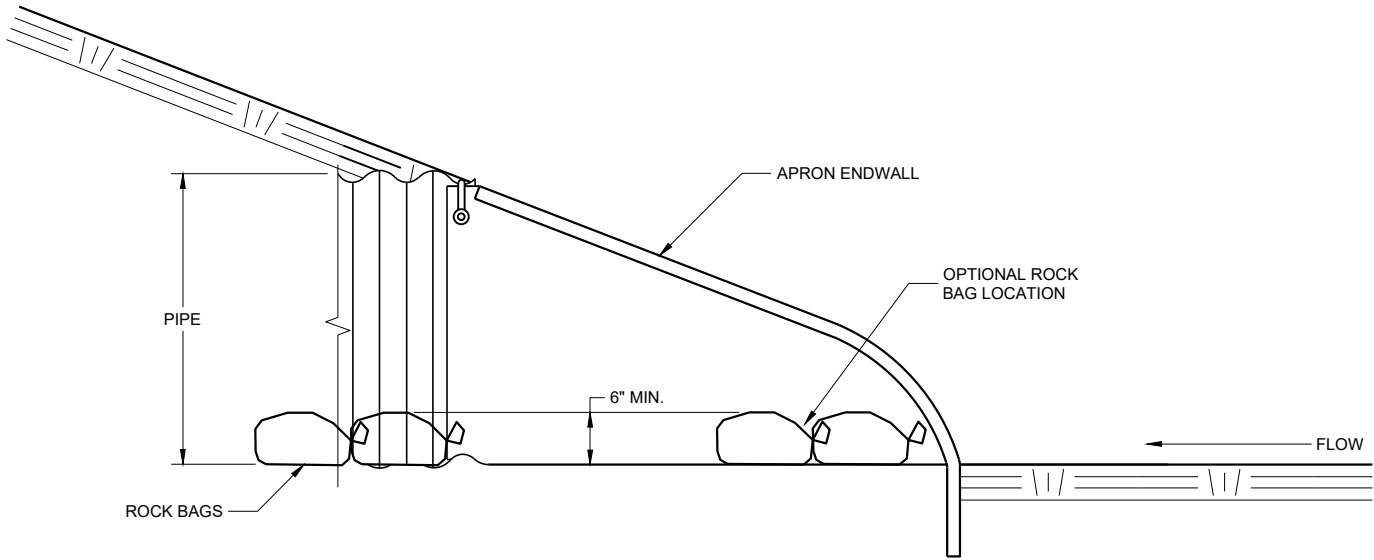
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



END VIEW



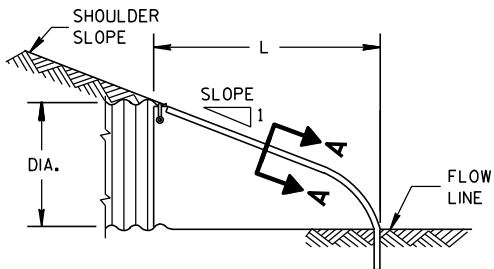
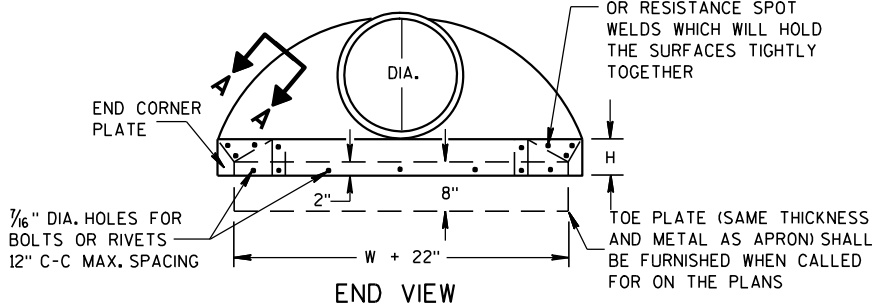
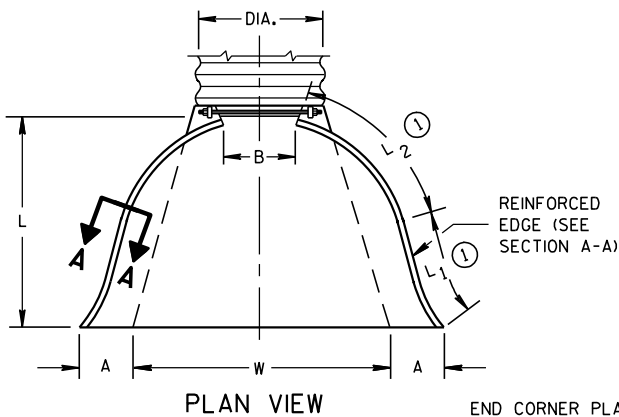
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

| | |
|--|---|
| CULVERT PIPE CHECK | |
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | |
| APPROVED May 2019 DATE | /S/ Daniel Schave EROSION CONTROL ENGINEER |
| FHWA | |

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

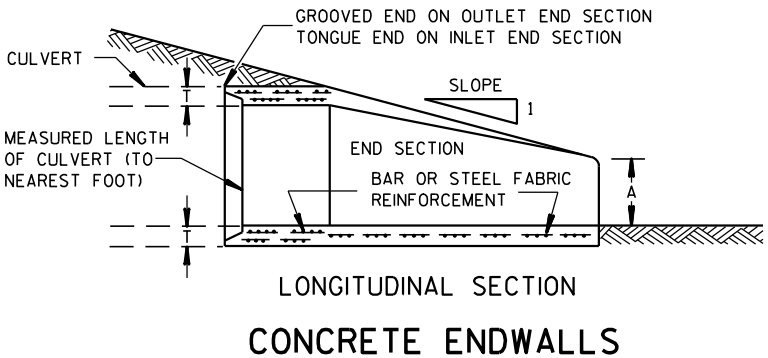
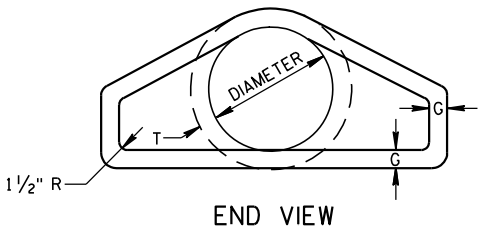
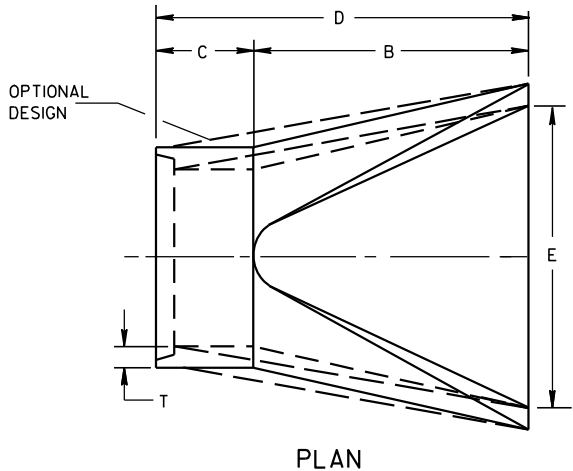
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



SIDE ELEVATION
METAL ENDWALLS

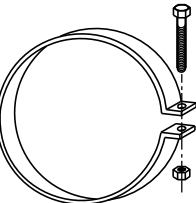
| REINFORCED CONCRETE APRON ENDWALLS | | | | | | | | | | | |
|------------------------------------|---------------------|--------|--------|-----------|------------|-----|-------|---------------|--|--|--|
| PIPE DIA. (IN.) | DIMENSIONS (Inches) | | | | | | | APPROX. SLOPE | | | |
| | T | A | B | C | D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

* MINIMUM
** MAXIMUM

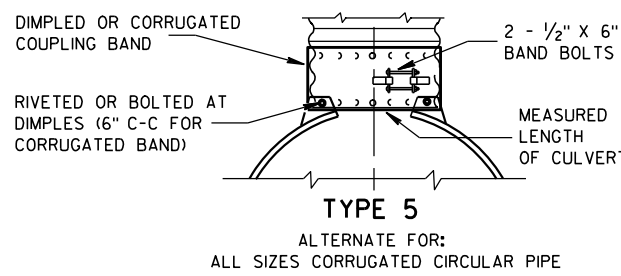
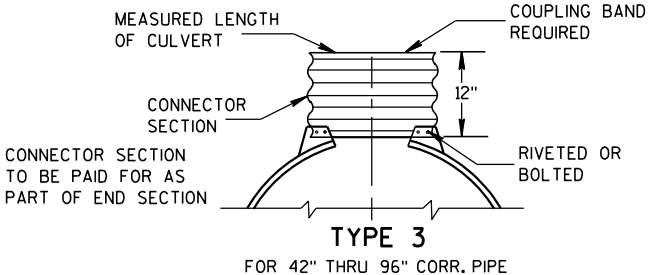
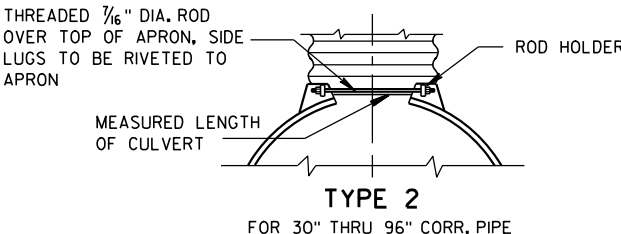
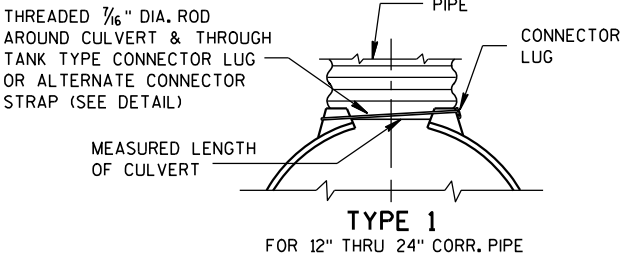


LONGITUDINAL SECTION
CONCRETE ENDWALLS

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



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



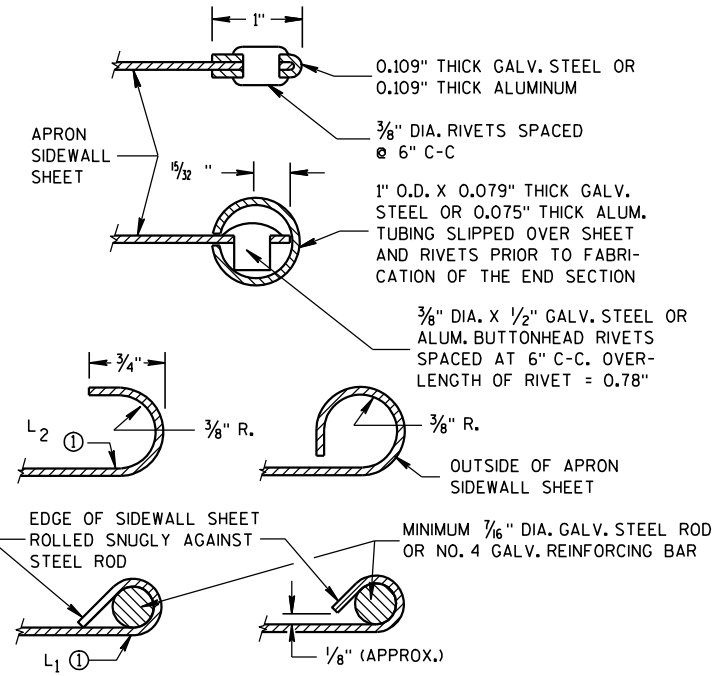
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

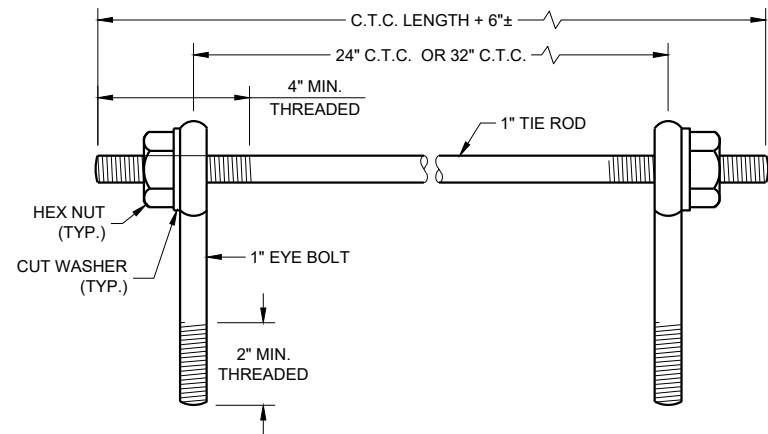
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR
CULVERT PIPE

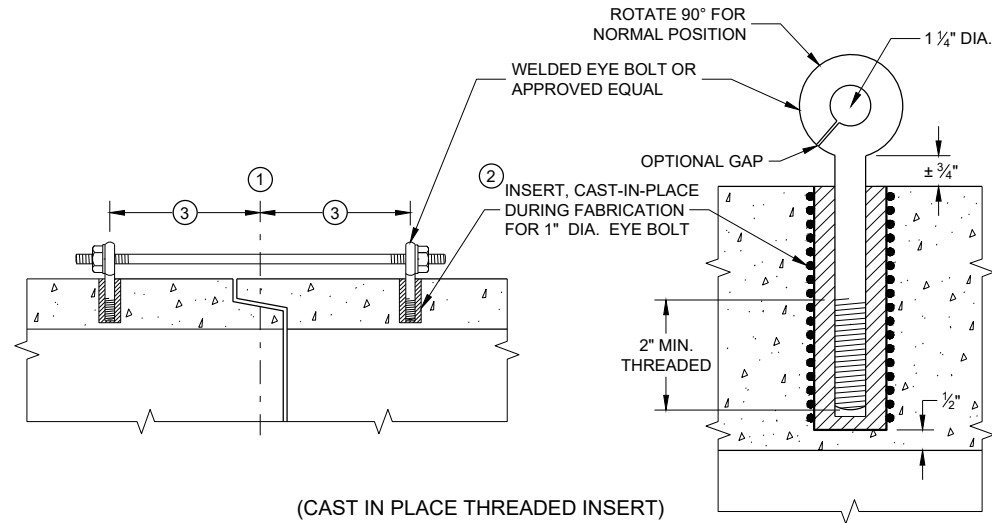
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94
DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

GENERAL NOTES

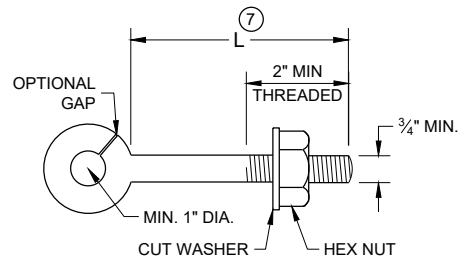
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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

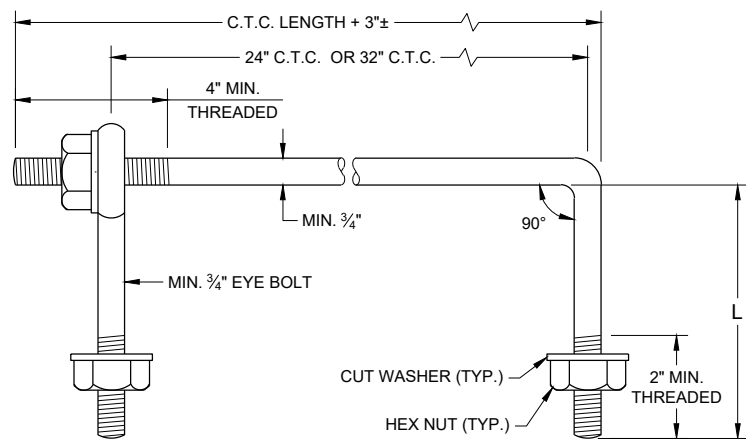
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- 1 CENTER LINE OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- 2 THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- 3 HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.
- 4 BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- 5 OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- 6 LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.
- 7 EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.

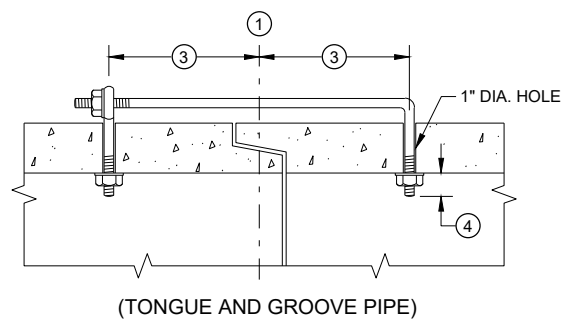


EYE BOLT 7

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



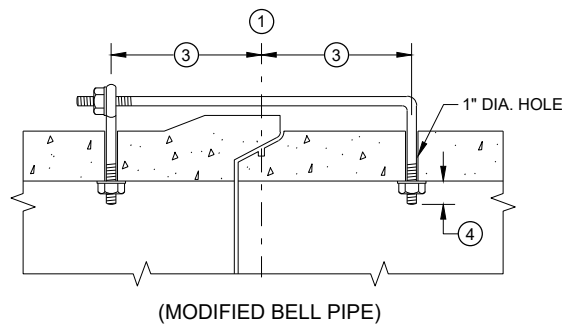
EYE BOLT AND TIE ROD



(TONGUE AND GROOVE PIPE)

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

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

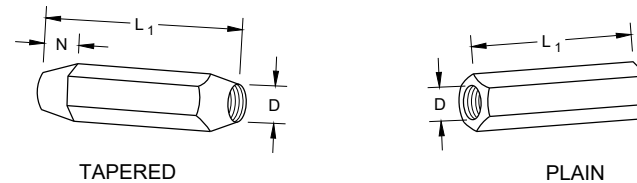


(MODIFIED BELL PIPE)

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 - 144 | 1 | 1 | 7 | 1 1/16 |

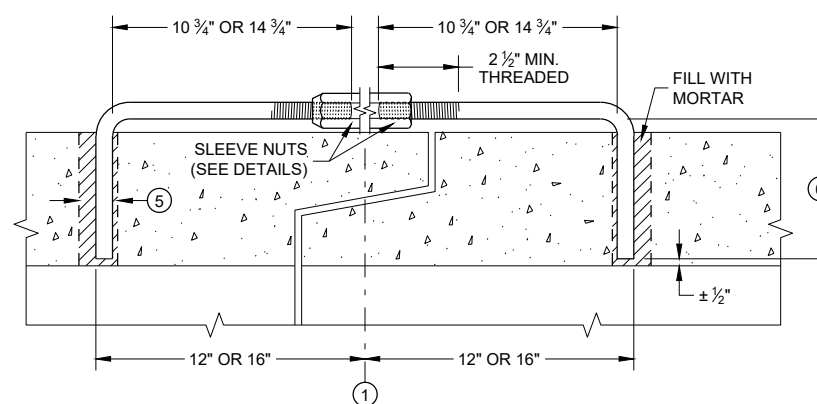
DIMENSIONS SHOWN ARE IN INCHES



TAPERED

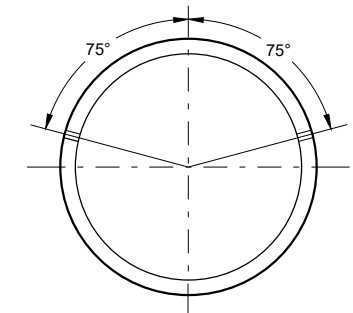
PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



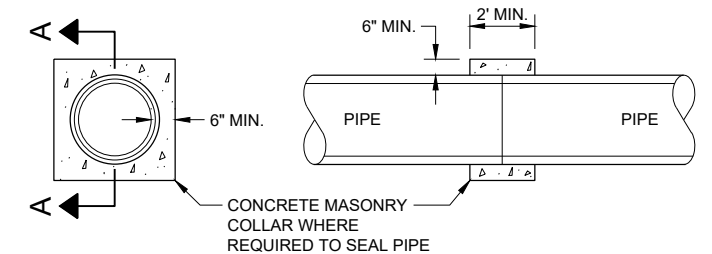
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



SECTION A - A
CONCRETE COLLAR DETAIL

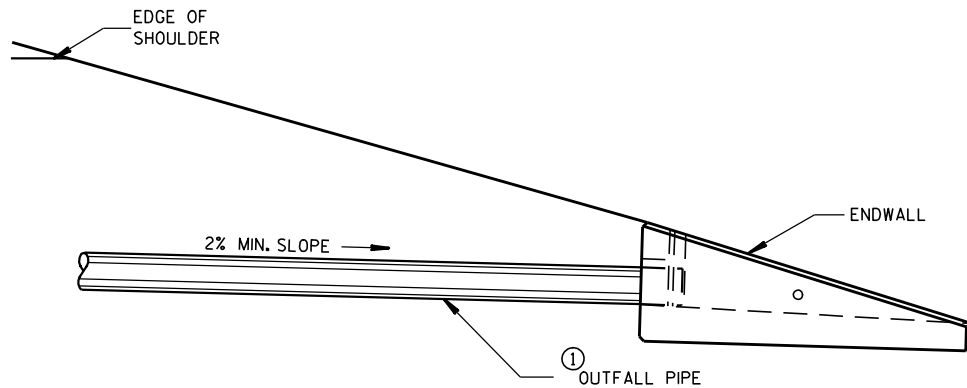
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

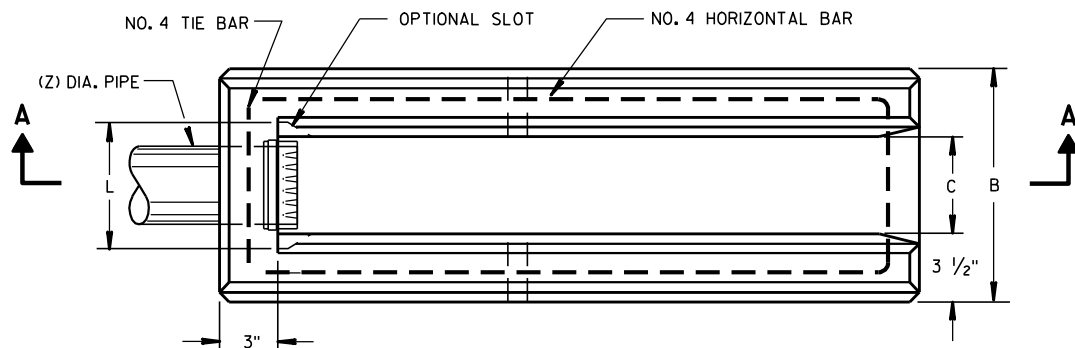
APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA ENGINEER

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

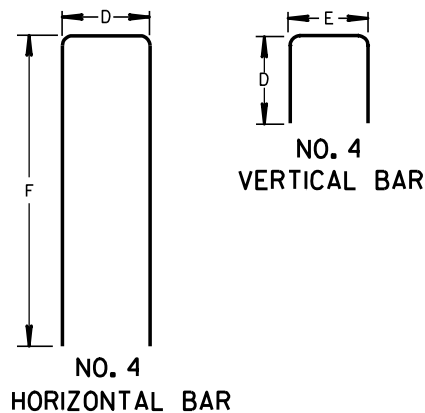
** APRON ENDWALL FOR 6 INCH DIAMETER PIPE MAY BE SUBSTITUTED FOR THIS SIZE PROVIDED THE HOLE IN THE HEADWALL IS SIZED AND LOCATED TO CONFORM TO THE 4 INCH DIAMETER PIPE DIMENSIONS (C & J)



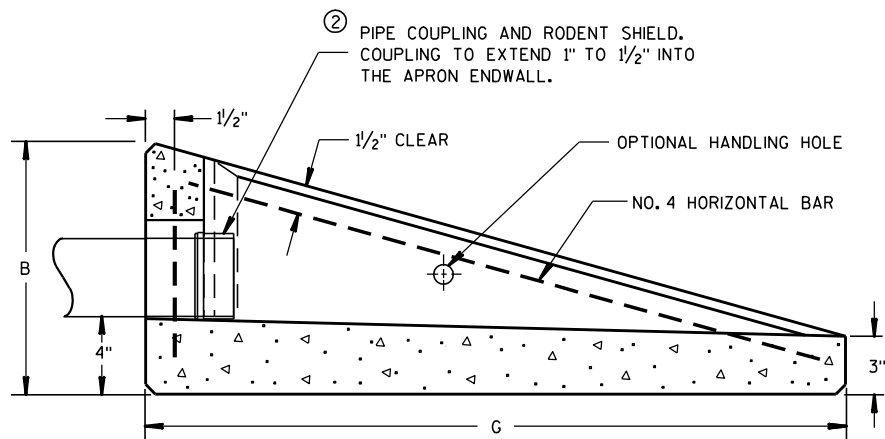
INSTALLATION DETAIL



PLAN VIEW

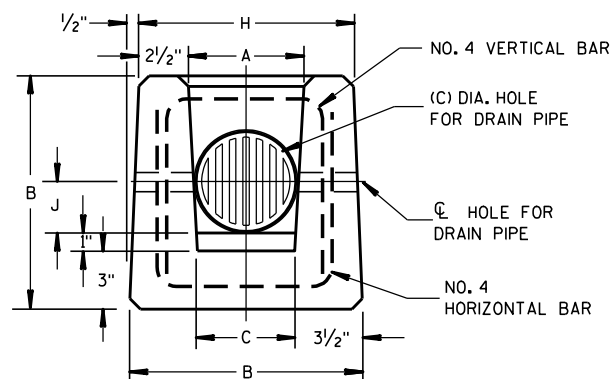


BAR STEEL REINFORCEMENT DETAILS



SECTION A-A

CONCRETE APRON ENDWALL FOR UNDERDRAIN



END VIEW

GENERAL NOTES

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

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

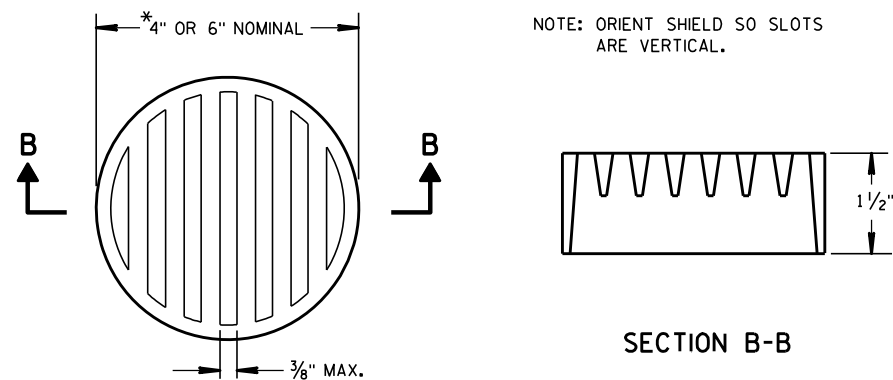
THE UNDERDRAIN PIPE SHALL BE FULLY INSERTED AND SEALED INTO THE ENDWALL WITH CEMENT MORTAR PRIOR TO BACKFILLING AROUND THE STRUCTURE.

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

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

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

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



② RODENT SHIELD

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

REINFORCED CONCRETE APRON ENDWALL FOR PIPE UNDERDRAIN

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

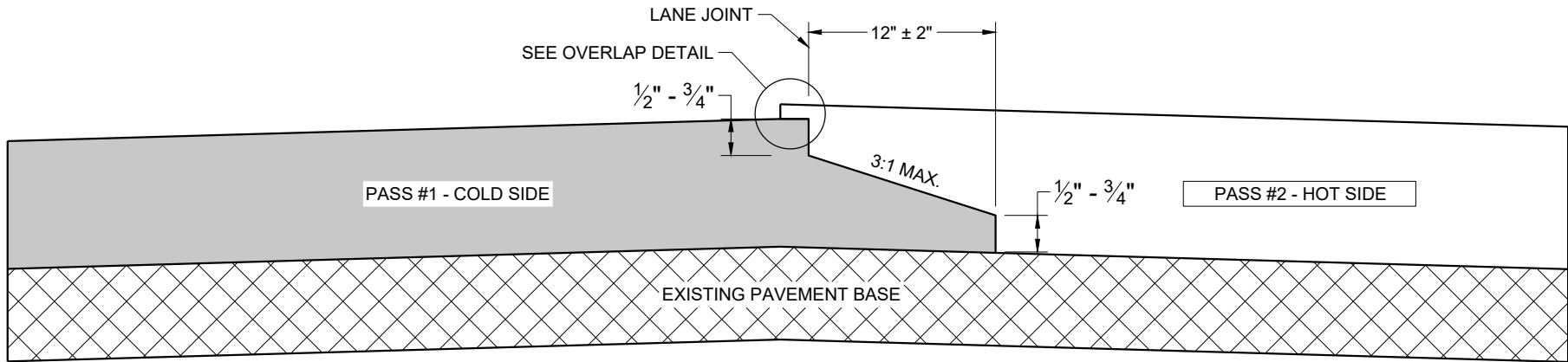
3/10/98

DATE

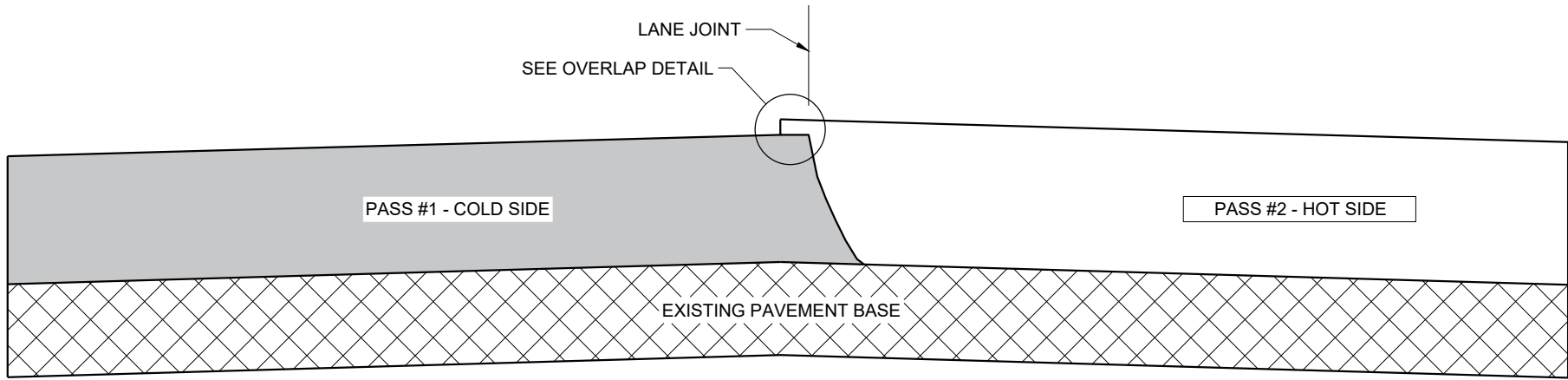
/S/ Rory L. Rhinesmith

CHIEF ROADWAY DEVELOPMENT ENGINEER

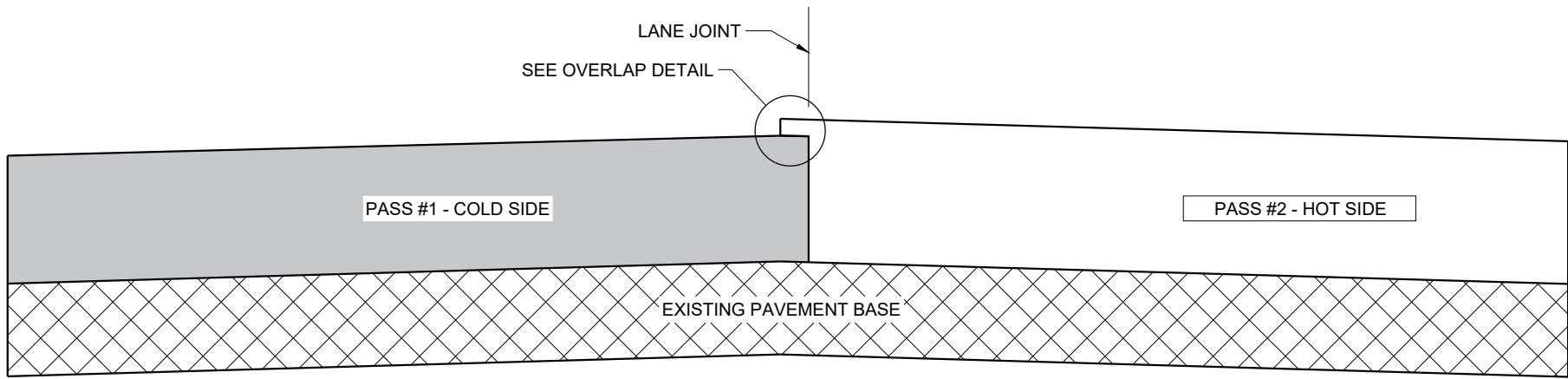
FHWA



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

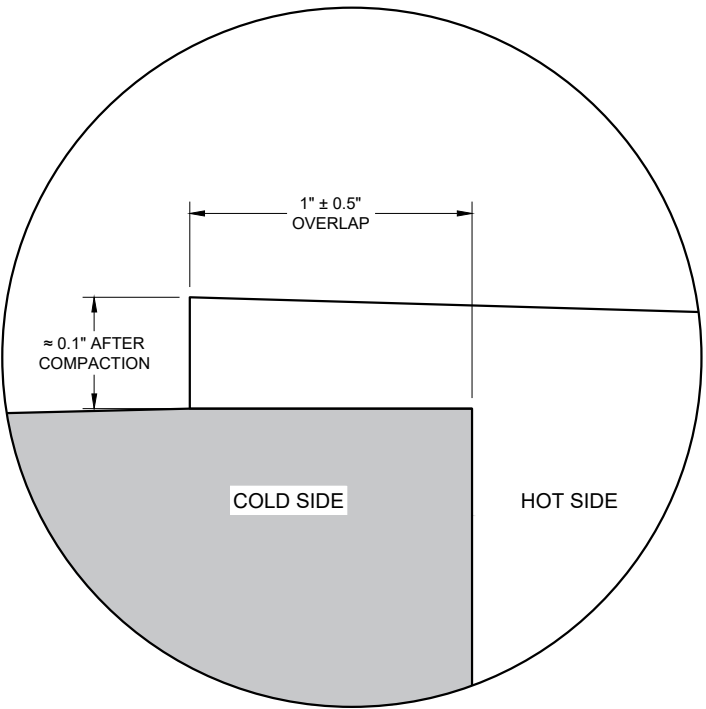
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY $1" \pm 0.5"$ AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY $0.1"$ AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO $2"$ FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.

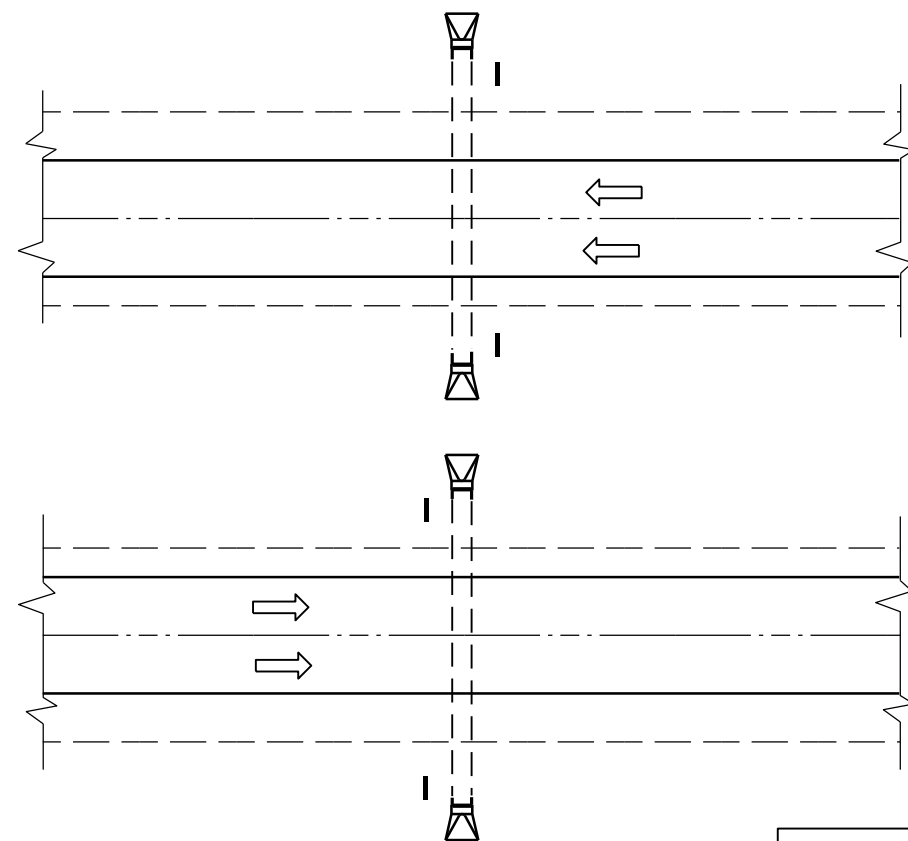


OVERLAP DETAIL (TYPICAL)

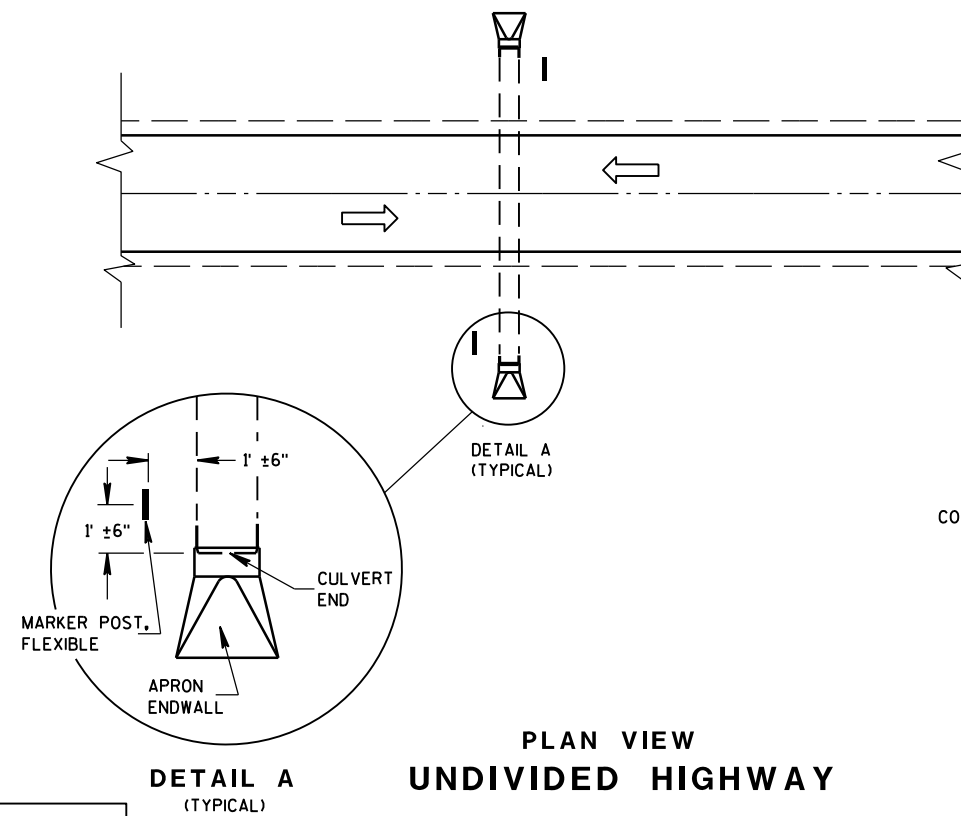
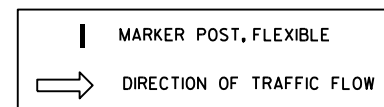
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGINEER
FHWA



PLAN VIEW
DIVIDED HIGHWAY

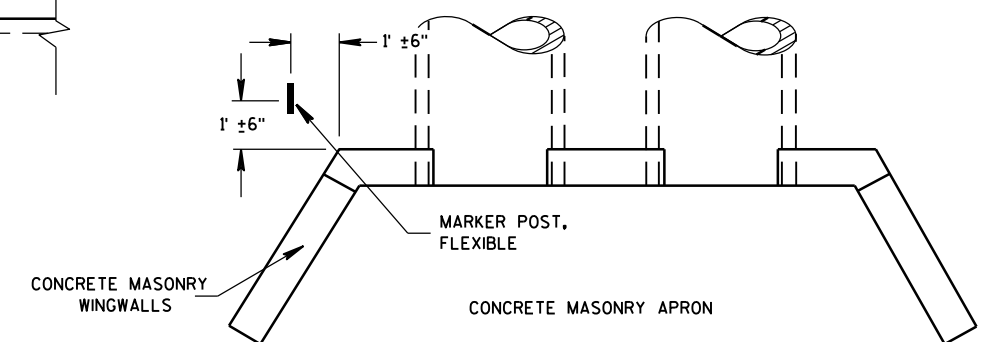


PLAN VIEW
UNDIVIDED HIGHWAY

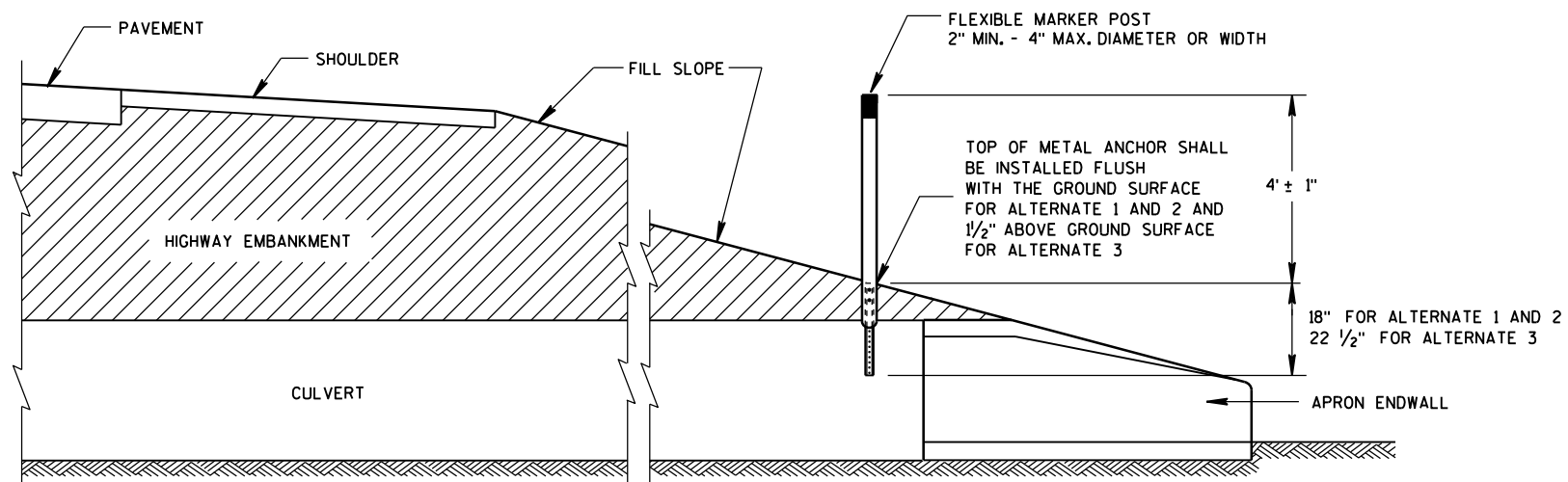
FLEXIBLE MARKER POST LOCATION

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.



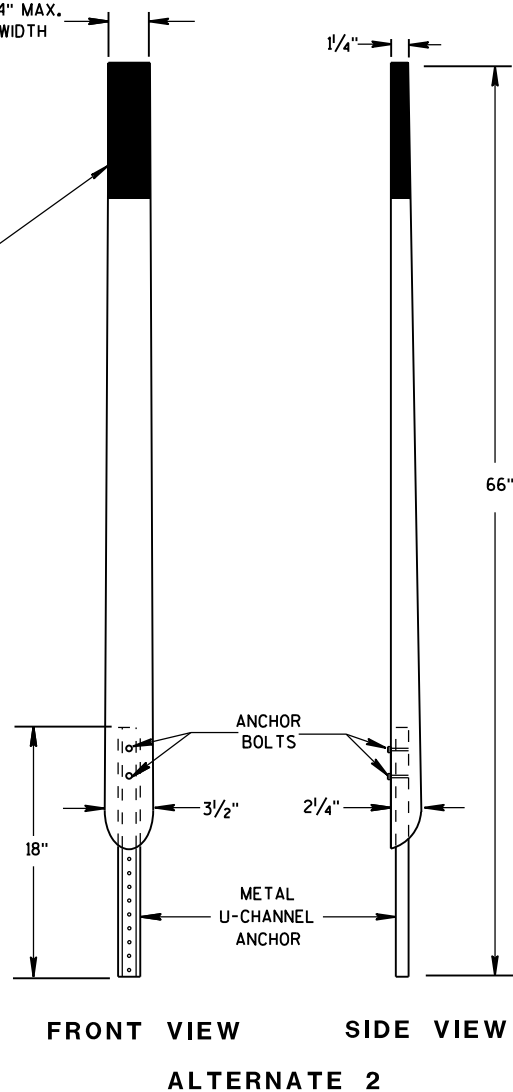
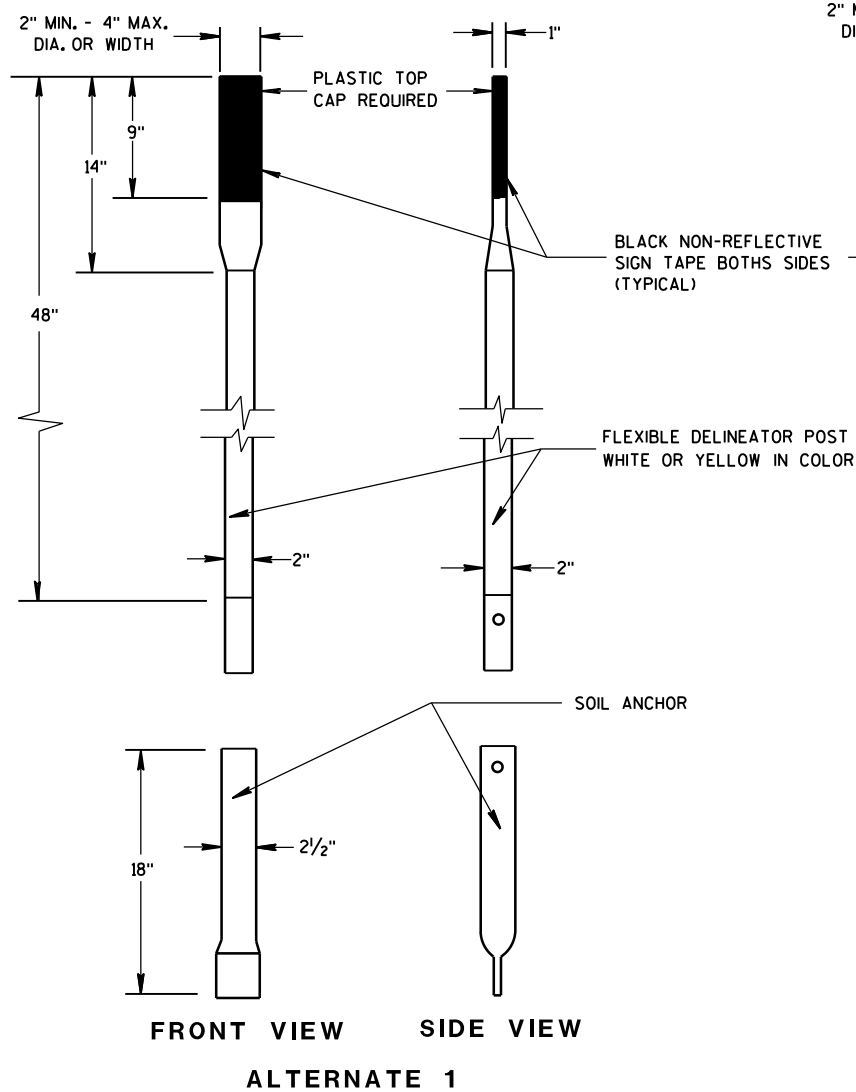
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



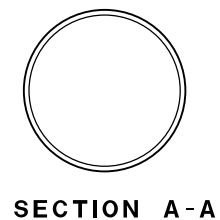
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

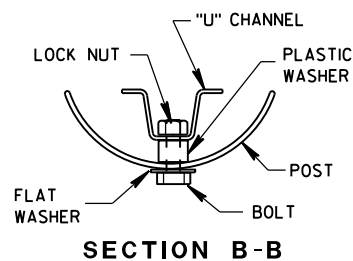
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



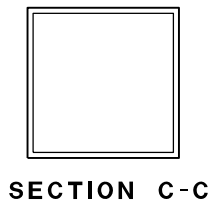
FLEXIBLE MARKER POSTS



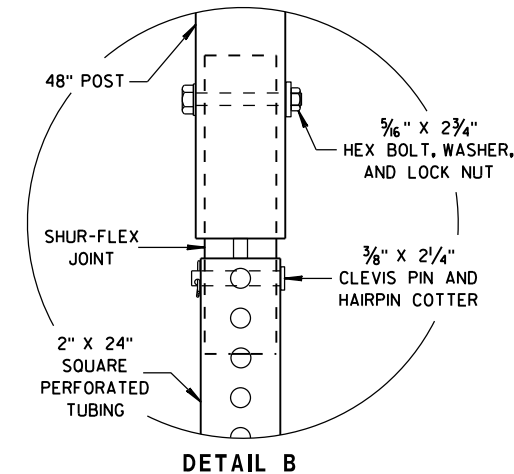
SECTION A-A



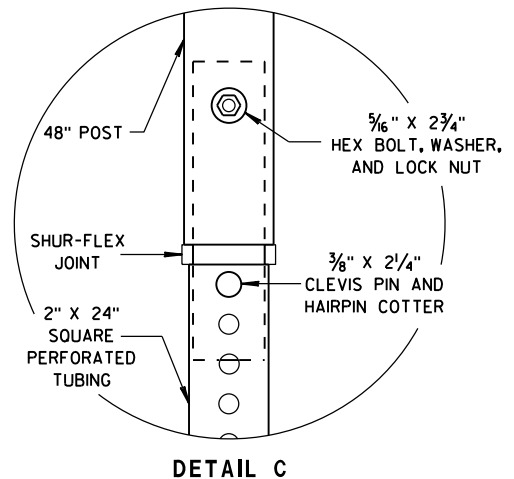
SECTION B-B



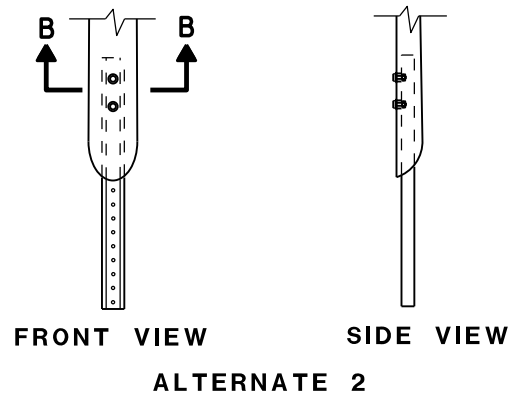
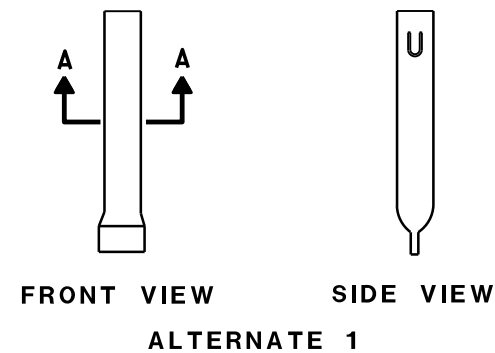
SECTION C-C



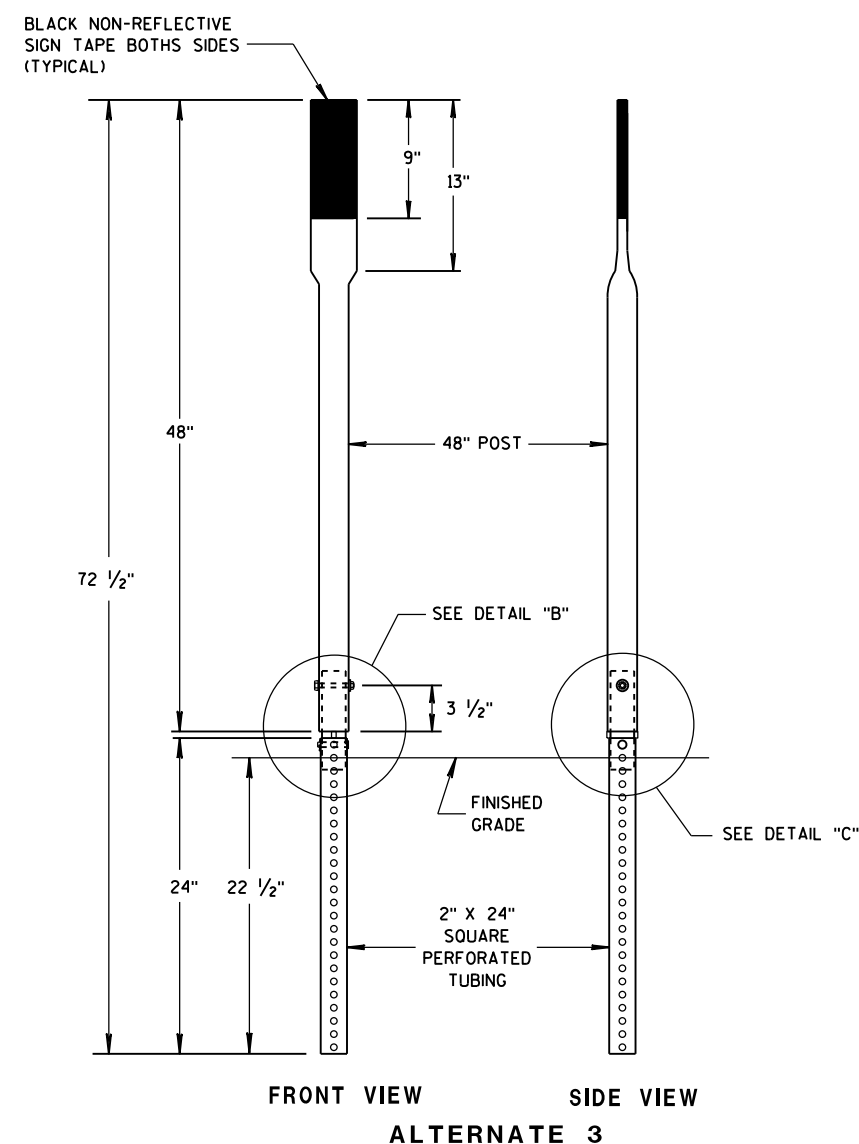
DETAIL B



DETAIL C

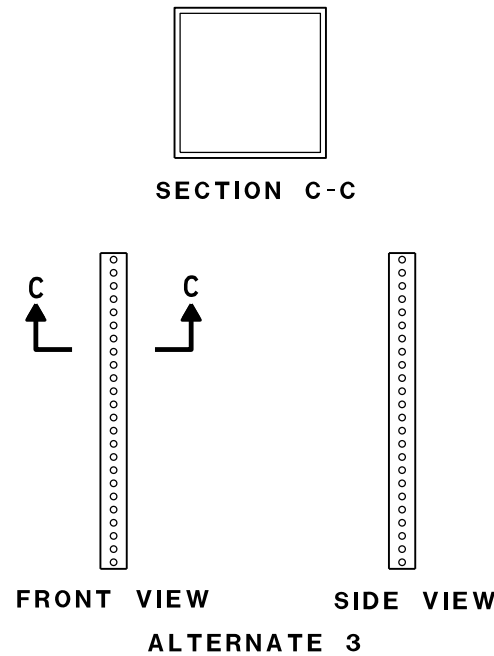


FLEXIBLE MARKER POST ANCHORS



FRONT VIEW SIDE VIEW

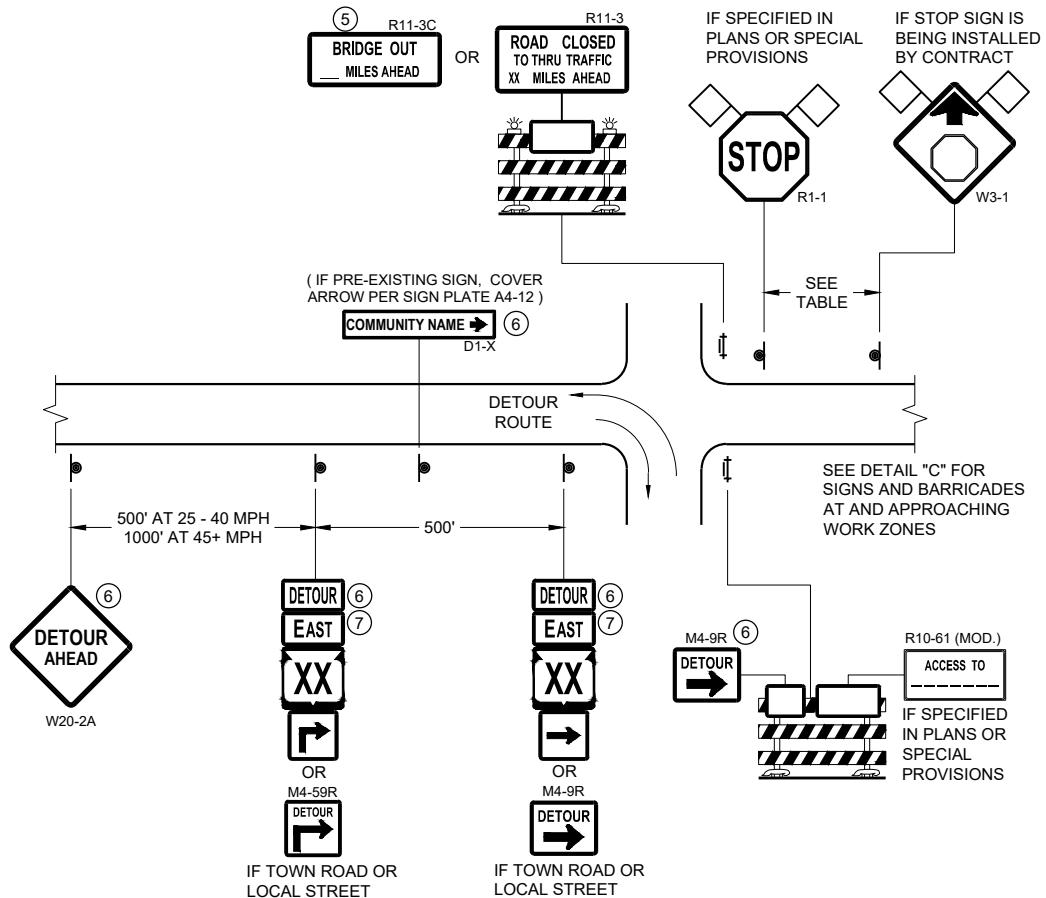
ALTERNATE 3



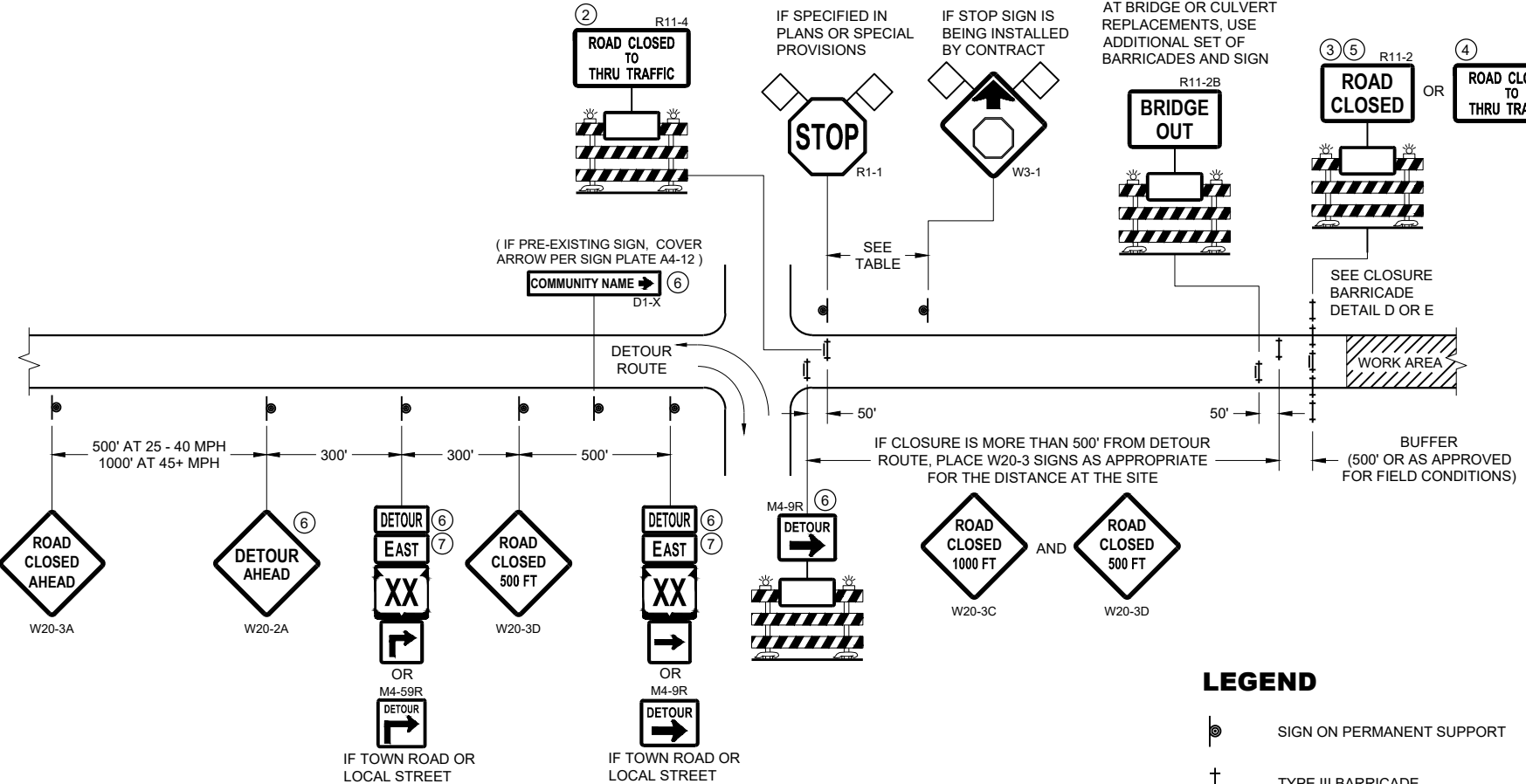
FRONT VIEW SIDE VIEW

ALTERNATE 3

| | |
|--|---|
| FLEXIBLE MARKER POST FOR CULVERT END | |
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | |
| APPROVED 10/1/2012 DATE | /S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN |
| FHWA | |



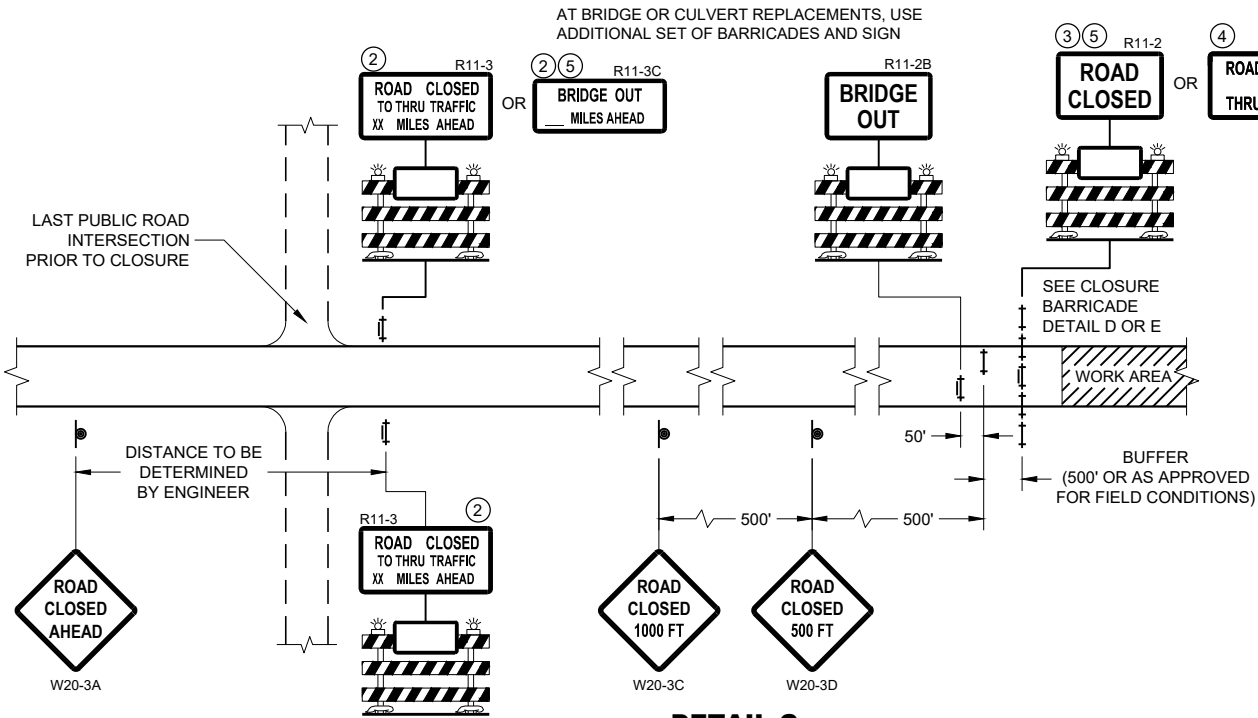
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

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

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



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



SEE SDD 15C2 - SHEET "a" FOR LEGEND

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

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

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

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

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

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

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

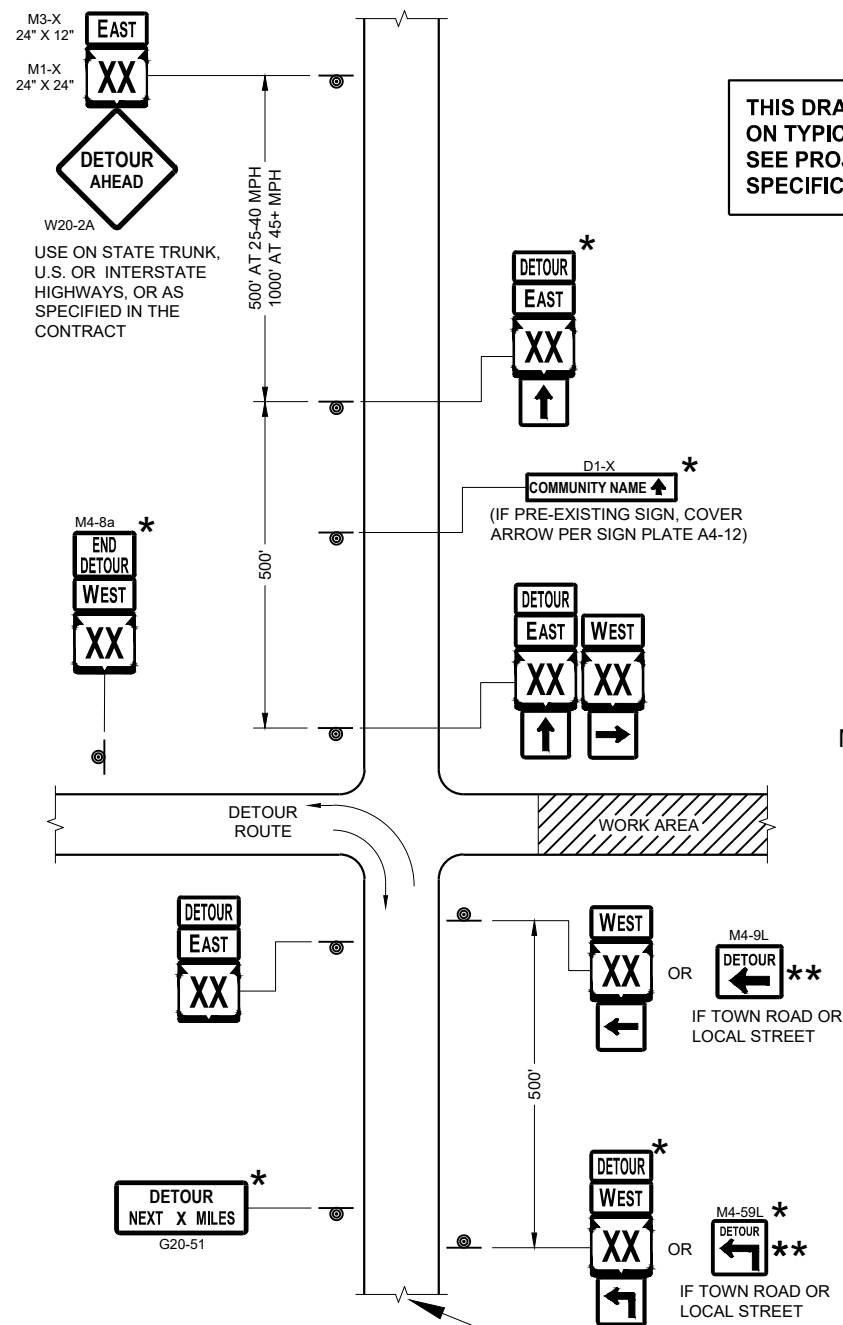
THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

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

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

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

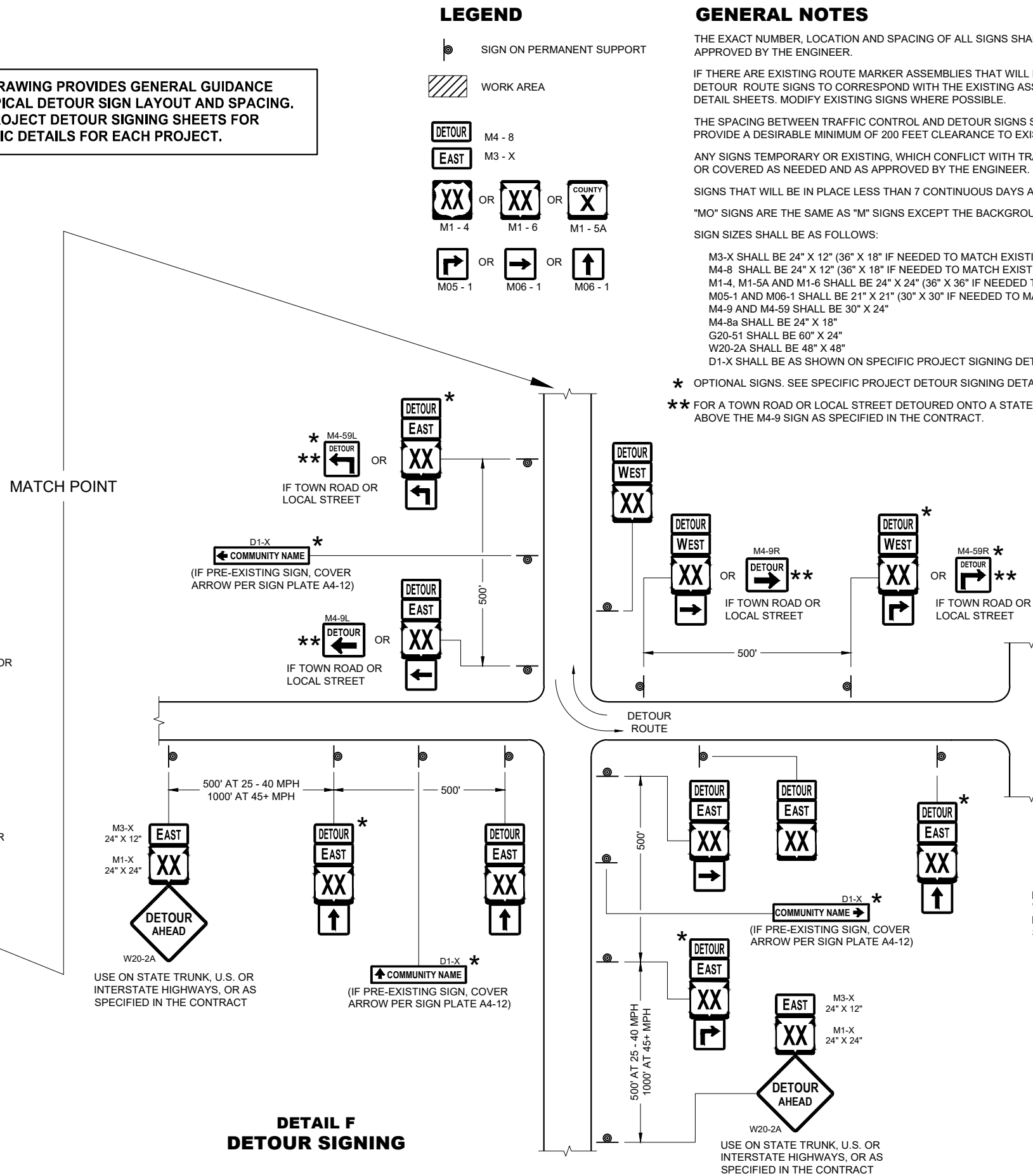
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.
- ③ FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".
- ④ FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".
- ⑤ FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.
- ⑥ INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- ⑦ "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.



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

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

SDD 15C02 - 09c



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

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

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

DETOUR SIGNING FOR MAINLINE CLOSURES

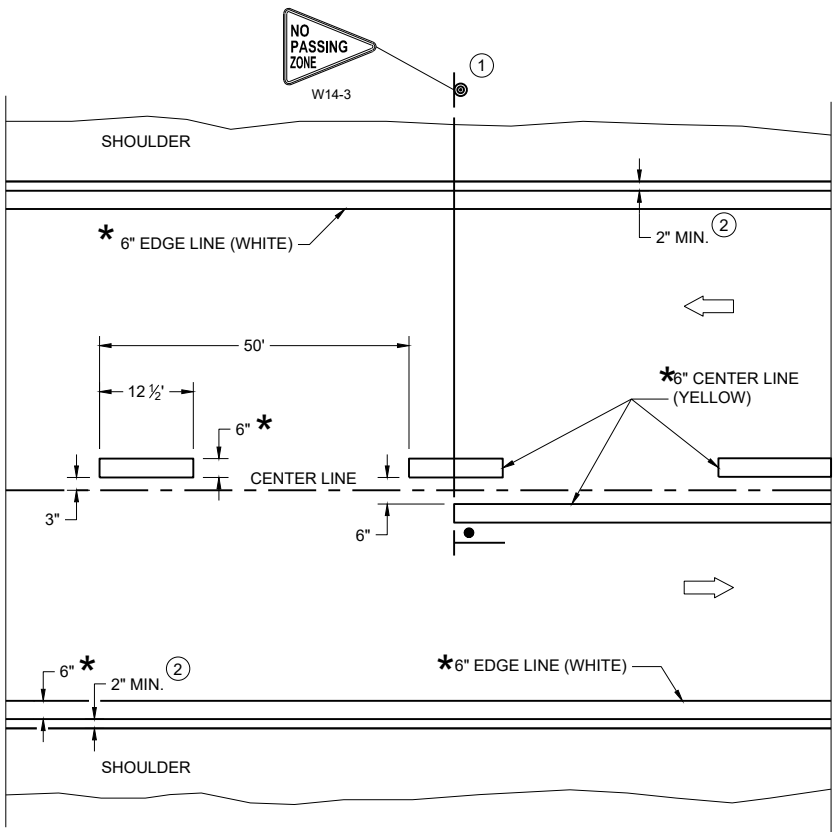
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE

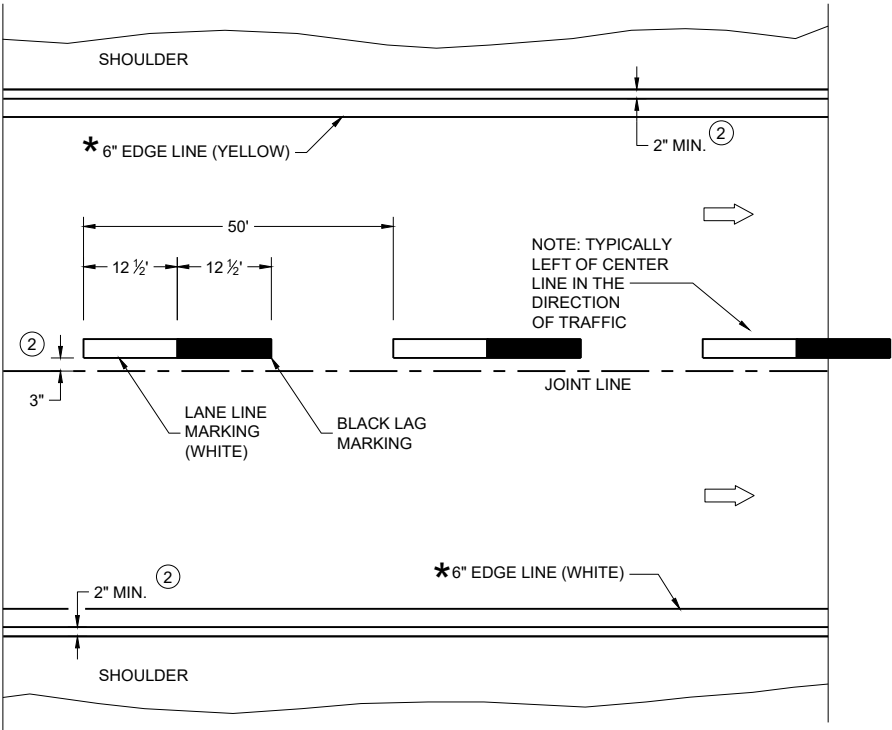
/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

SDD15C02 - 09c



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

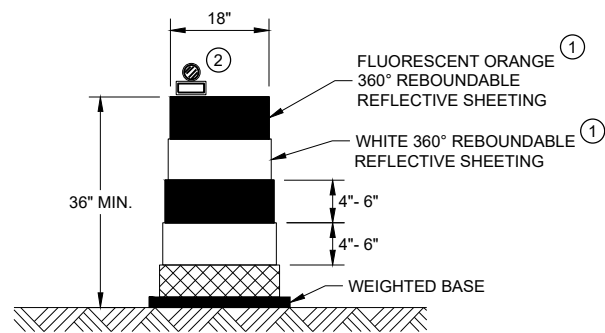
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

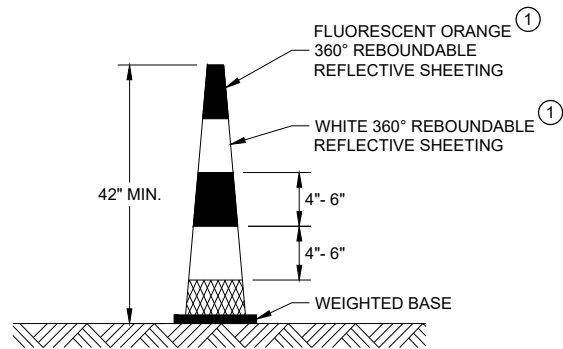
- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

| PERMANENT LONGITUDINAL PAVEMENT MARKINGS | |
|--|---|
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | |
| APPROVED May 2023 DATE | /S/ Jeannie Silver Statewide Pavement Marking Engineer |



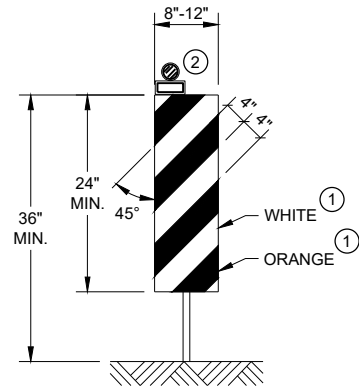
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



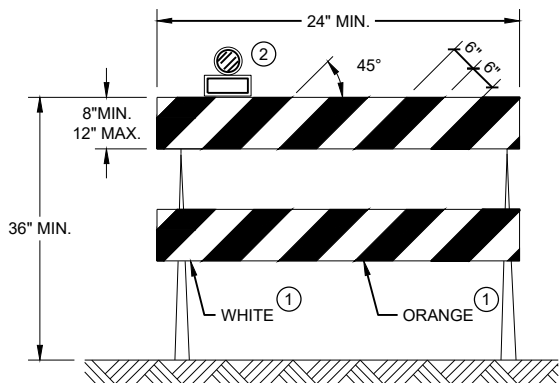
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS
BALLAST WIDTHS
RANGE FROM 14"-20"



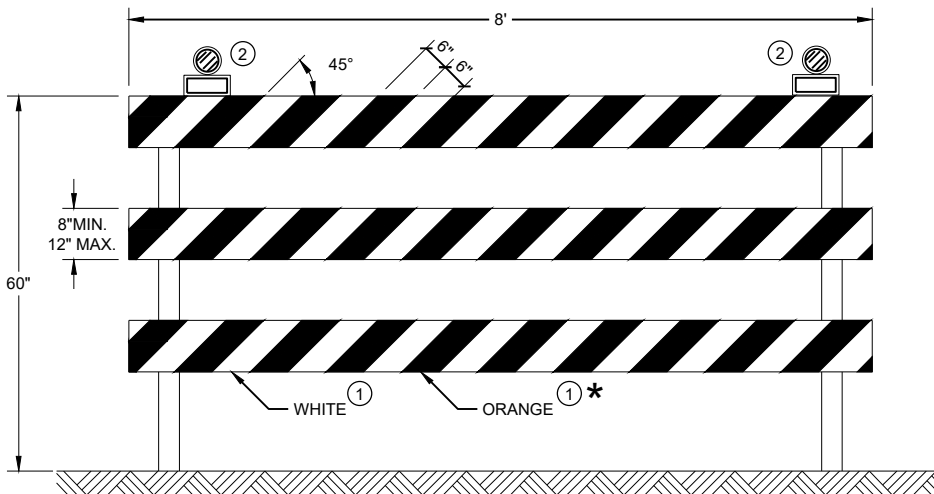
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

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

**CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

GENERAL NOTES

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

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

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

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

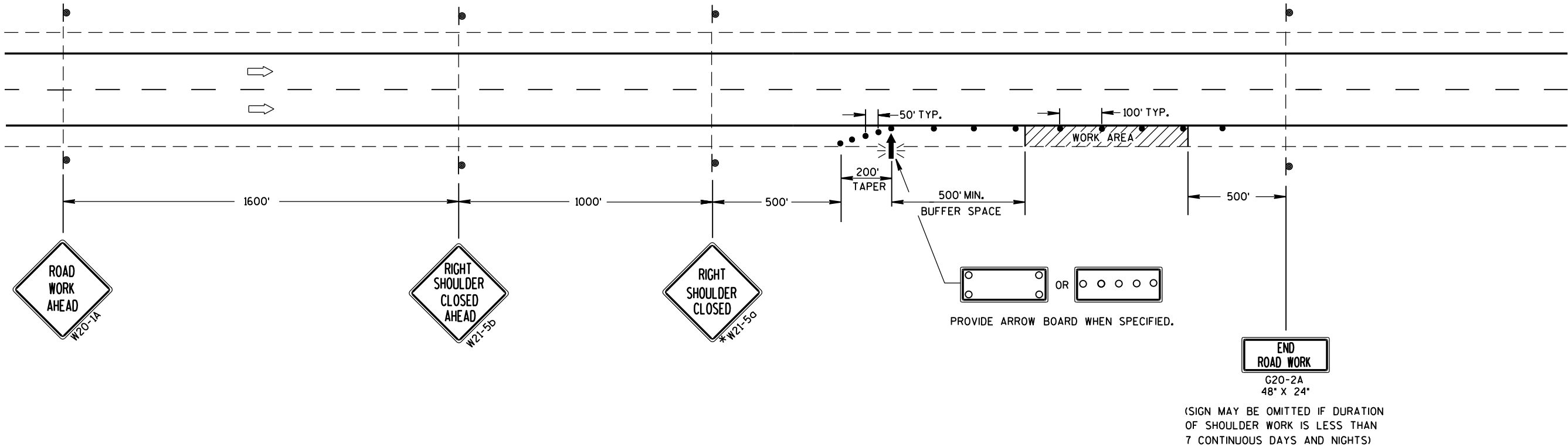
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

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

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

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.







TRAFFIC CONTROL
SHOULDER CLOSURE ON DIVIDED
ROADWAY, SPEEDS GREATER
THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  DIRECTION OF TRAFFIC
-  WORK ZONE

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY THE REGIONAL TRAFFIC UNIT.

"WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.

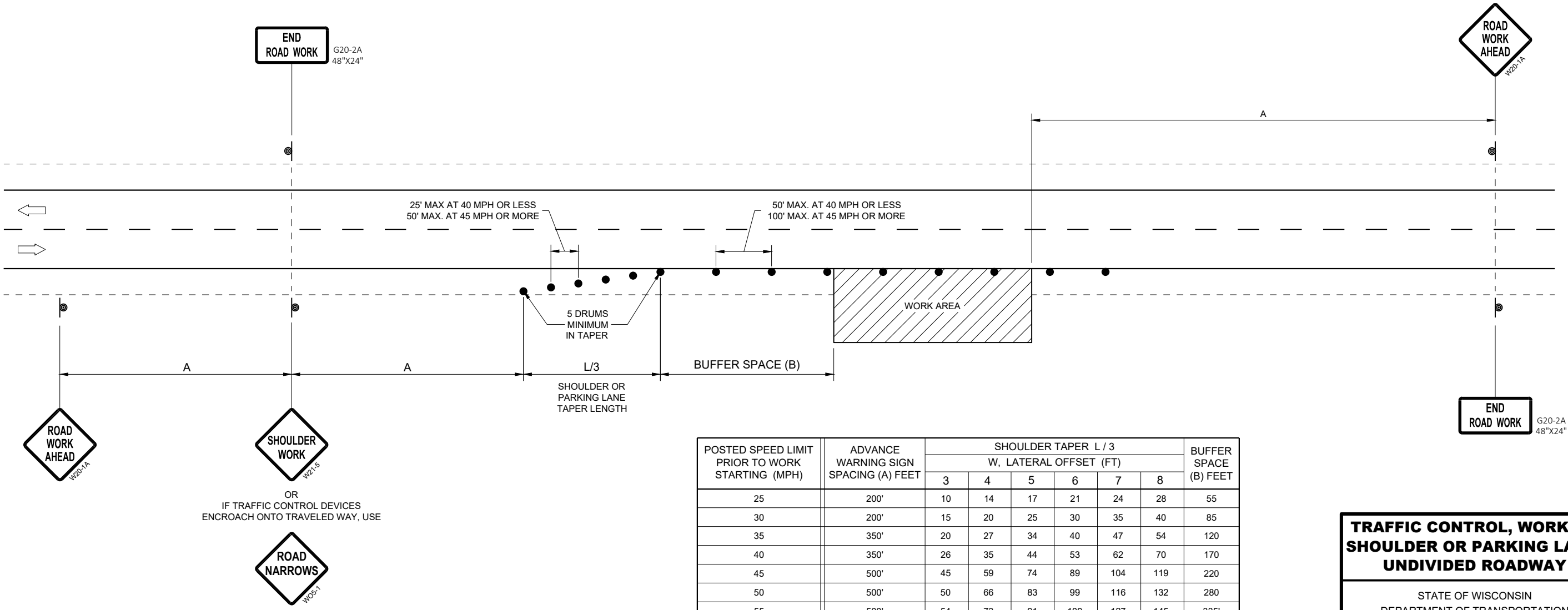
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

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

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

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

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



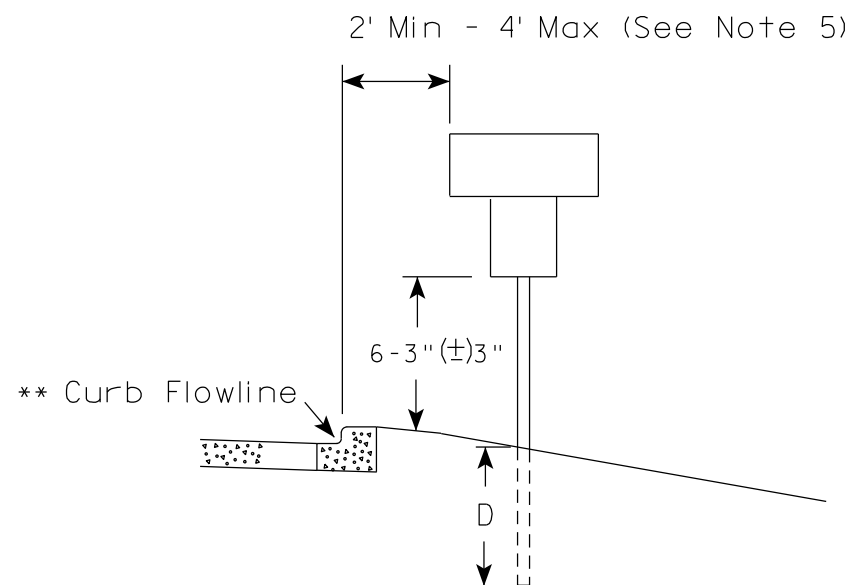
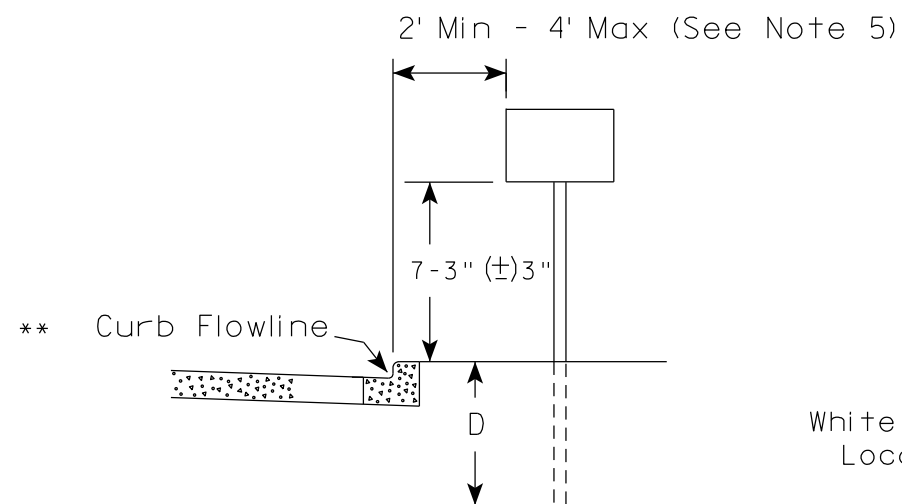
| POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH) | ADVANCE WARNING SIGN SPACING (A) FEET | SHOULDER TAPER L / 3 W, LATERAL OFFSET (FT) | | | | | | BUFFER SPACE (B) FEET |
|---|---|--|----|----|-----|-----|-----|-----------------------------|
| | | 3 | 4 | 5 | 6 | 7 | 8 | |
| 25 | 200' | 10 | 14 | 17 | 21 | 24 | 28 | 55 |
| 30 | 200' | 15 | 20 | 25 | 30 | 35 | 40 | 85 |
| 35 | 350' | 20 | 27 | 34 | 40 | 47 | 54 | 120 |
| 40 | 350' | 26 | 35 | 44 | 53 | 62 | 70 | 170 |
| 45 | 500' | 45 | 59 | 74 | 89 | 104 | 119 | 220 |
| 50 | 500' | 50 | 66 | 83 | 99 | 116 | 132 | 280 |
| 55 | 500' | 54 | 73 | 91 | 109 | 127 | 145 | 335' |

TRAFFIC CONTROL, WORK ON
SHOULDER OR PARKING LANE,
UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

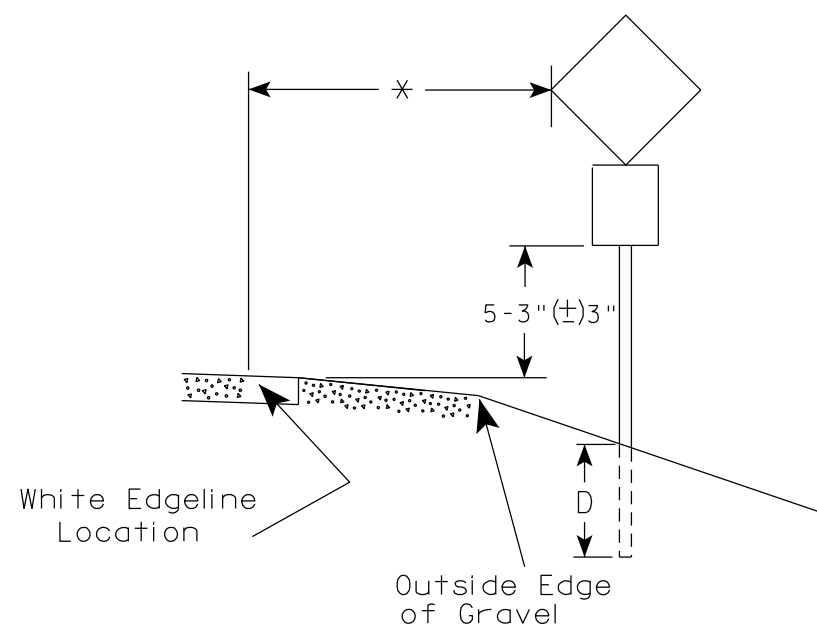
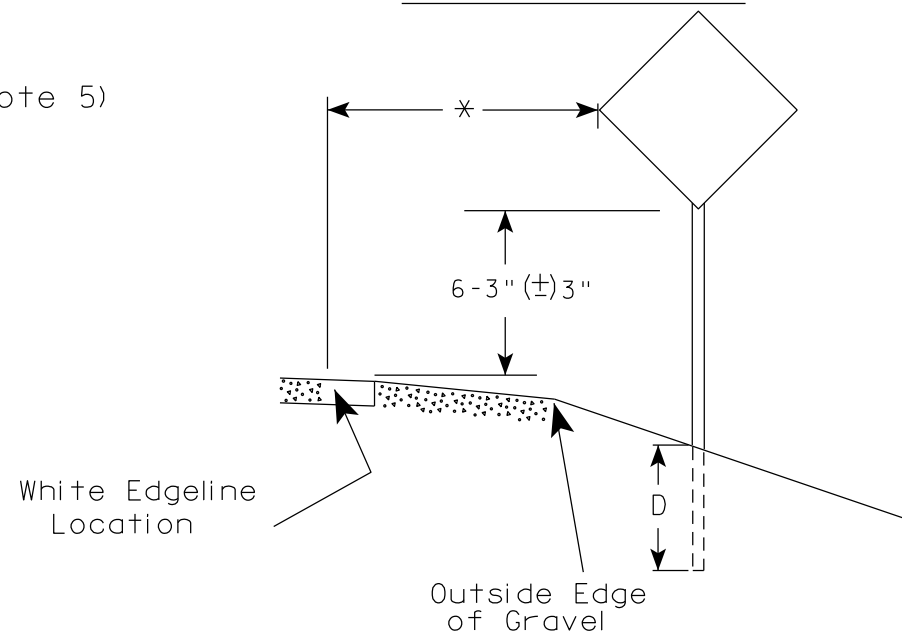
APPROVED
May 2020 /S/ Andrew Heidtke
DATE STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER
FHWA

URBAN AREA



* * 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.

RURAL AREA (See Note 2)



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

GENERAL NOTES

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

POST EMBEDMENT DEPTH

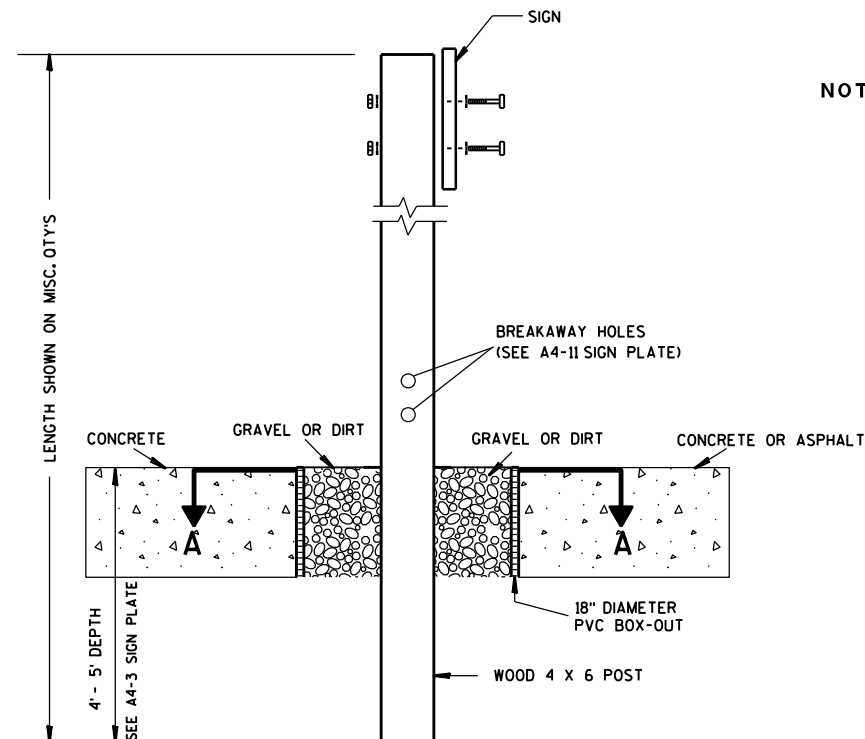
| Area of Sign Installation (Sq. Ft.) | D (Min) |
|---------------------------------------|-----------|
| 20 or Less | 4' |
| Greater than 20 | 5' |

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

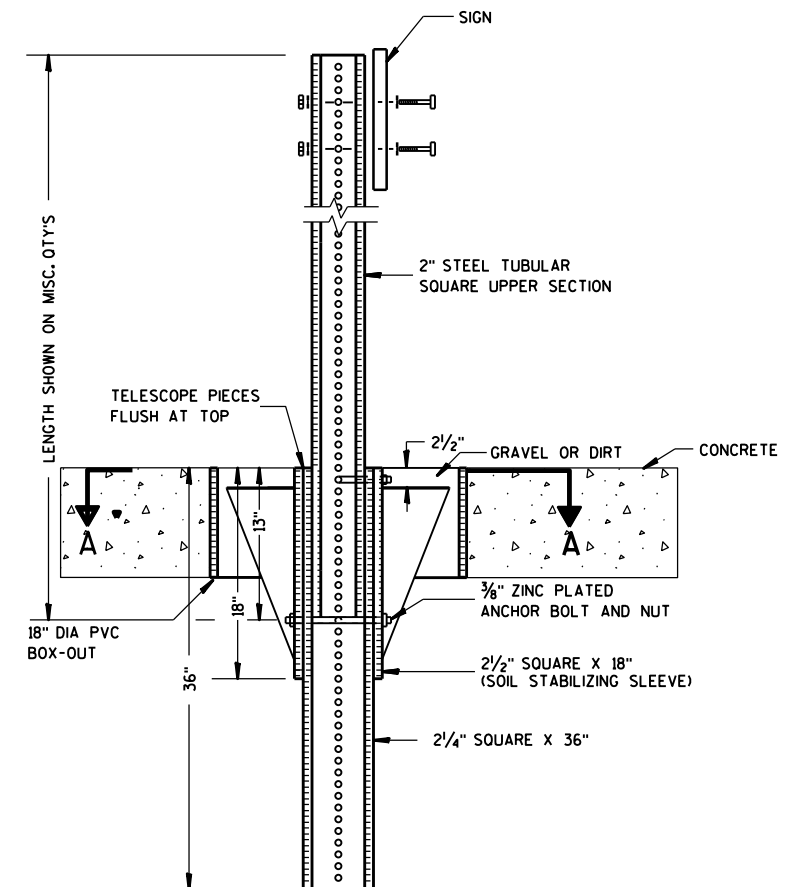
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

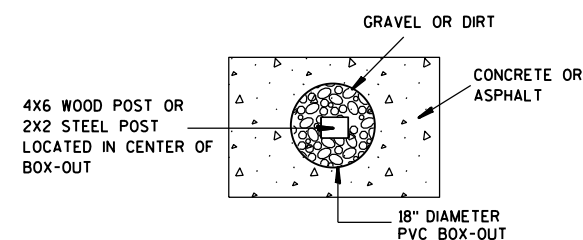
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

PROJECT NO:

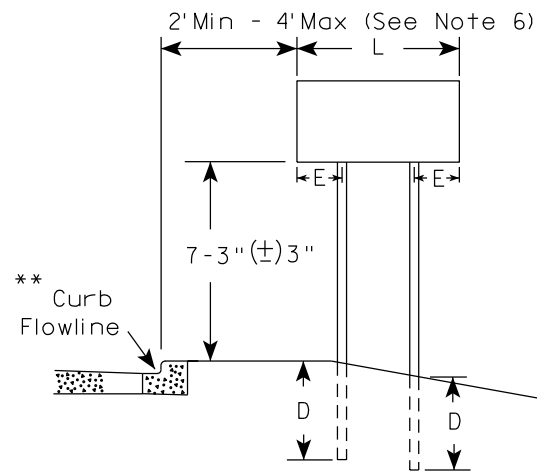
HWY:

COUNTY:

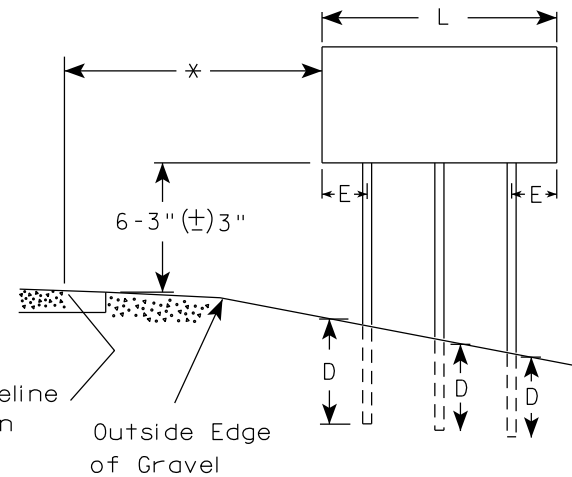
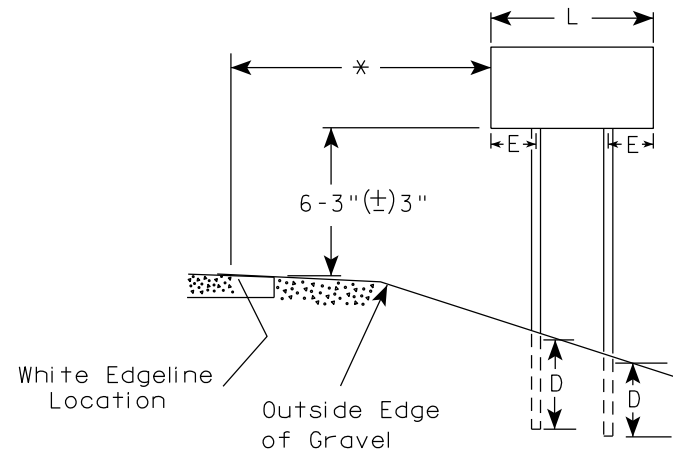
SHEET NO:

E

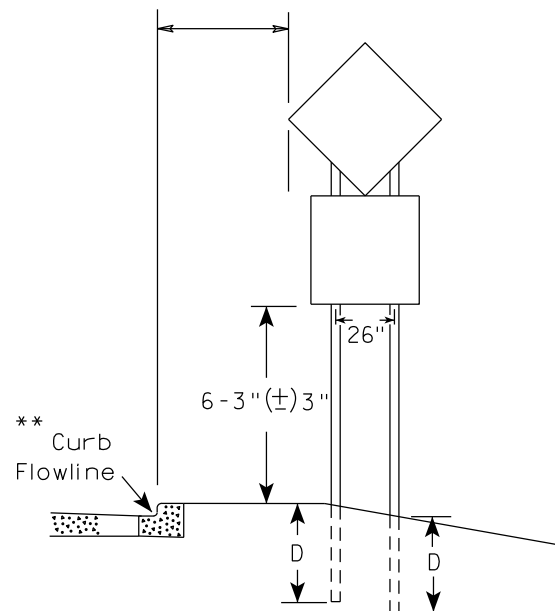
URBAN AREA



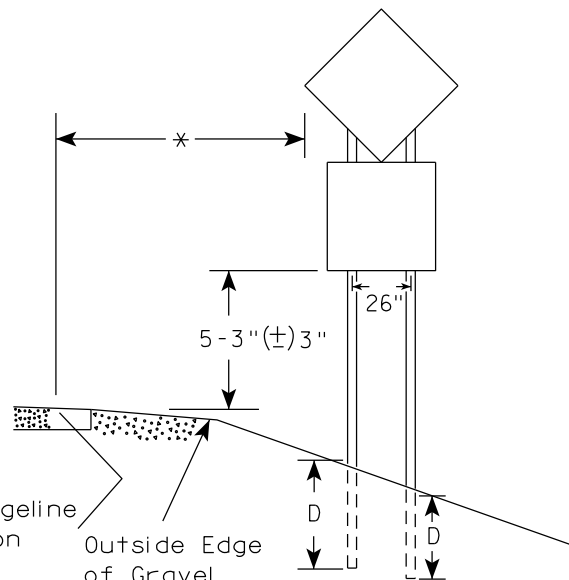
RURAL AREA (See Note 3)



2' Min - 4' Max (See Note 6)



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 108" | L/5 |

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

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

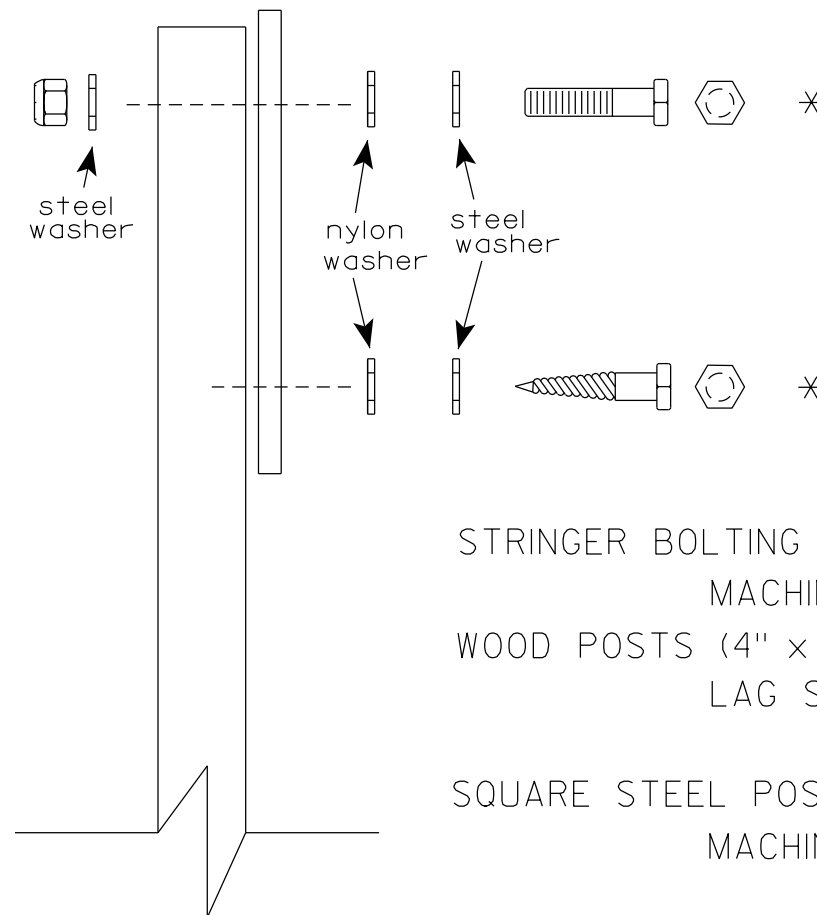
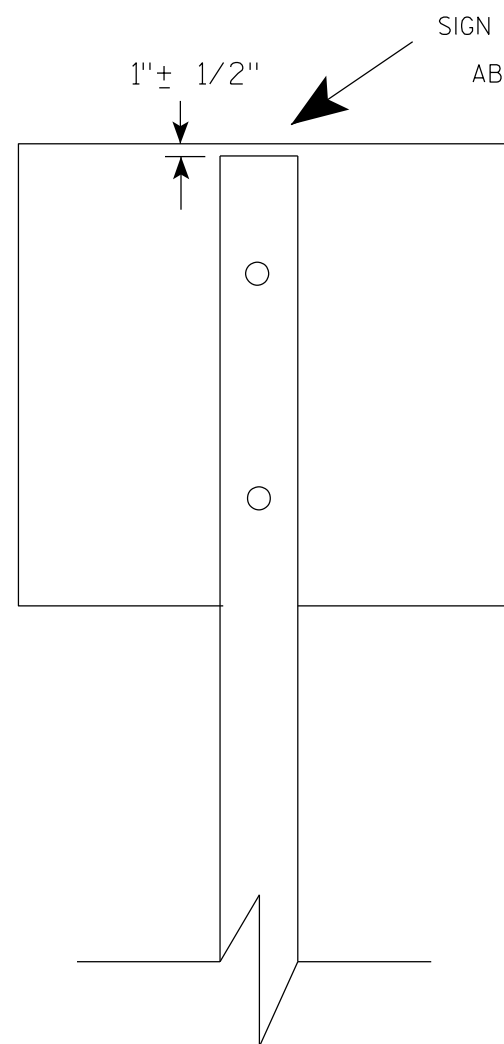
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



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

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

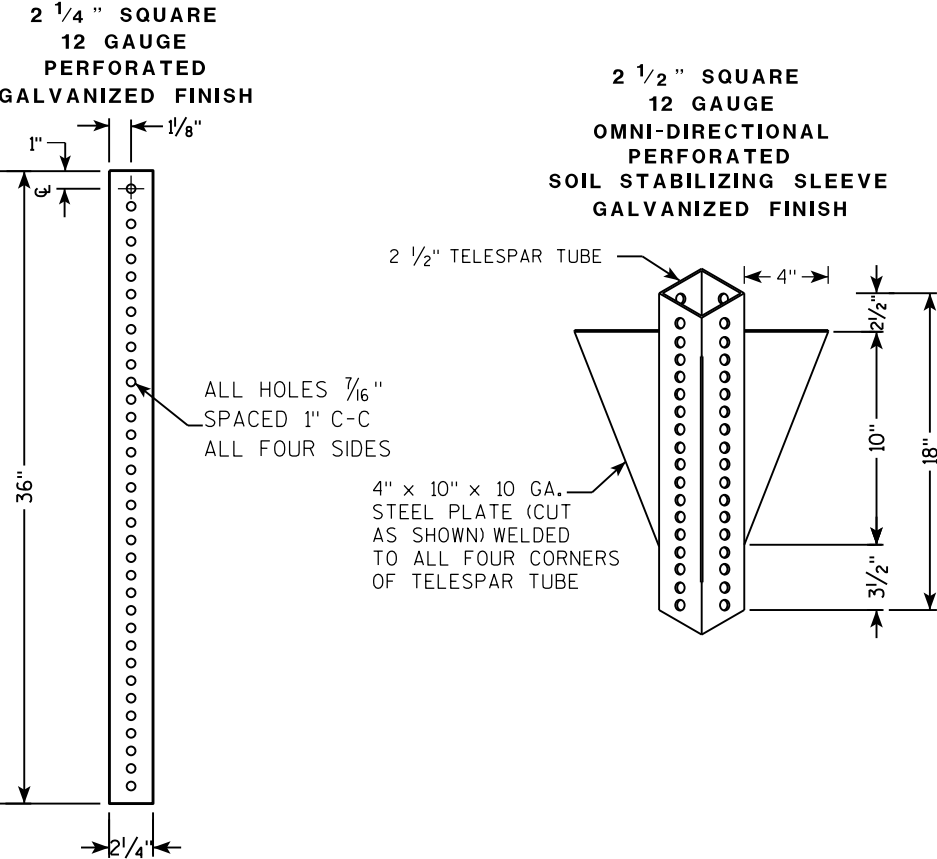
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (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 $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

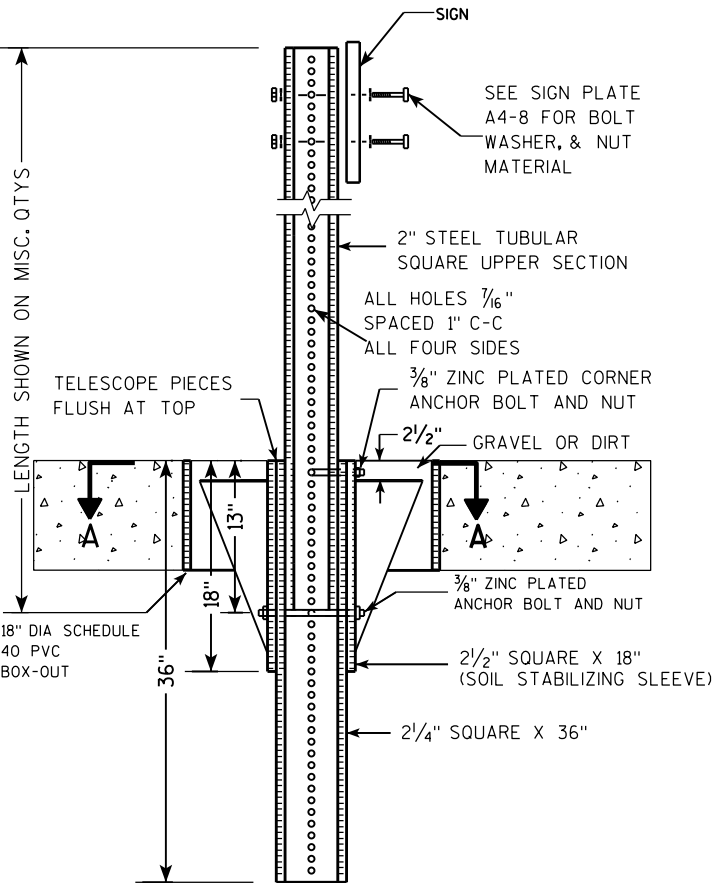
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

| | |
|----------------------------------|---|
| ATTACHMENT OF SIGNS TO POSTS | |
| WISCONSIN DEPT OF TRANSPORTATION | |
| APPROVED | <i>Matthew R. Rauch</i> For State Traffic Engineer |
| DATE 4/1/2020 | PLATE NO. A4-8.9 |

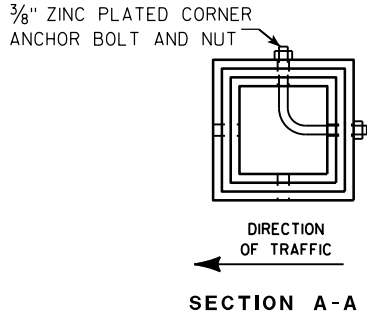
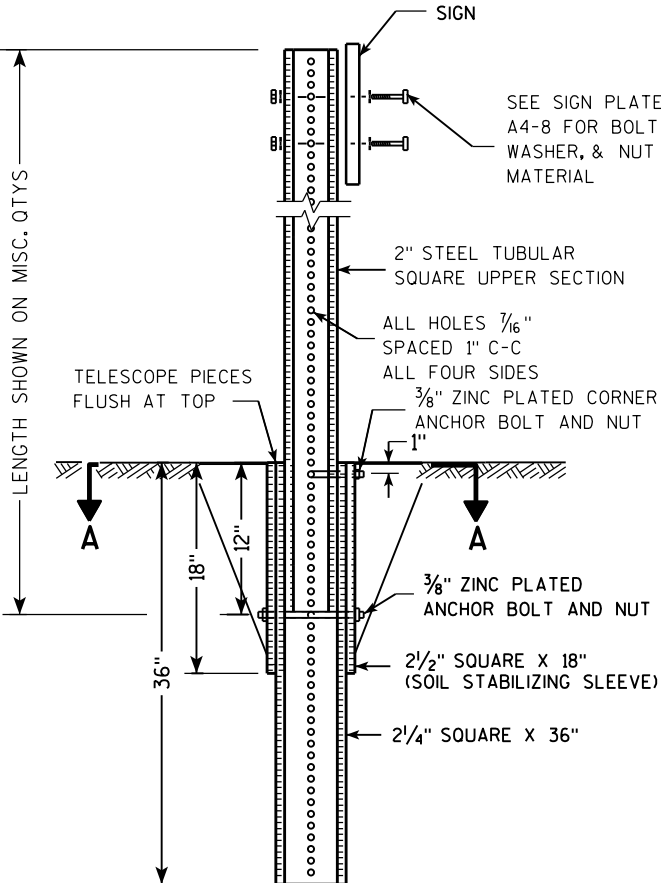
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



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



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



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

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

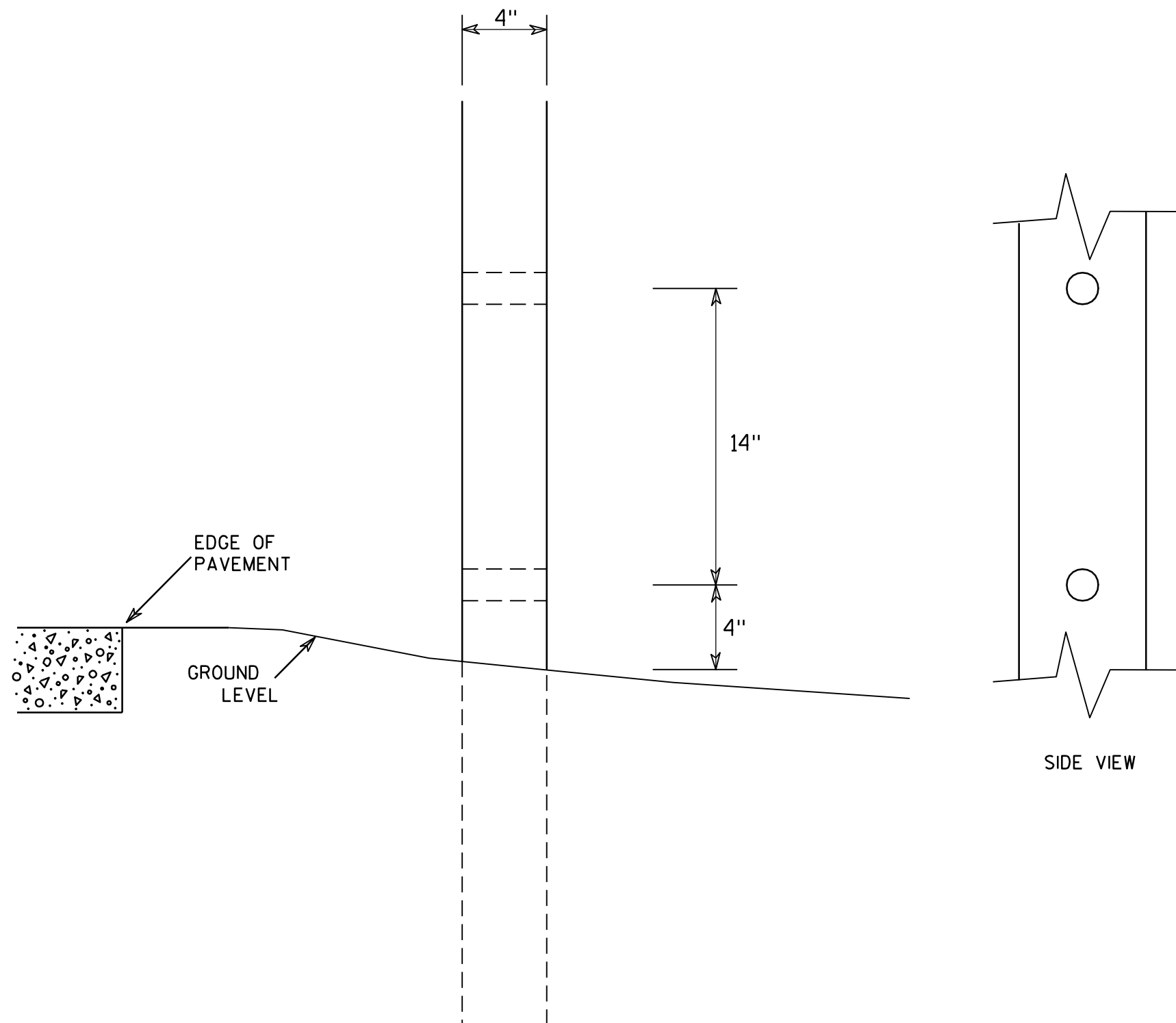
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9

7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

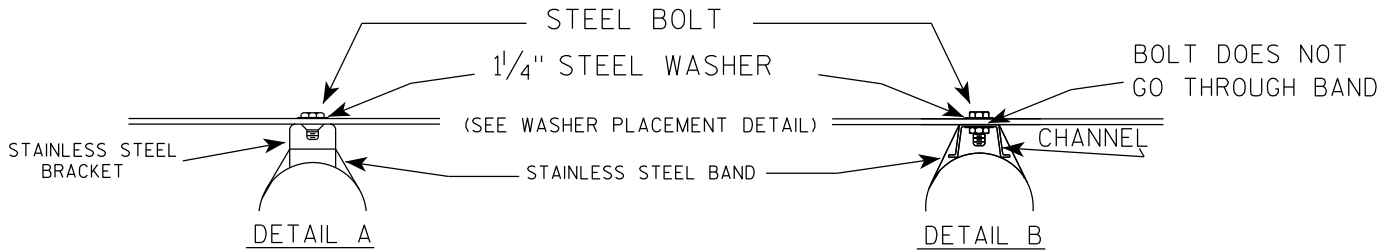
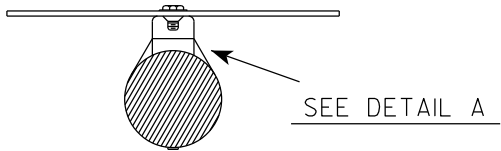
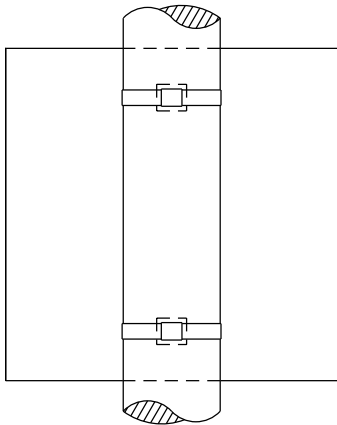
COUNTY:

SHEET NO:

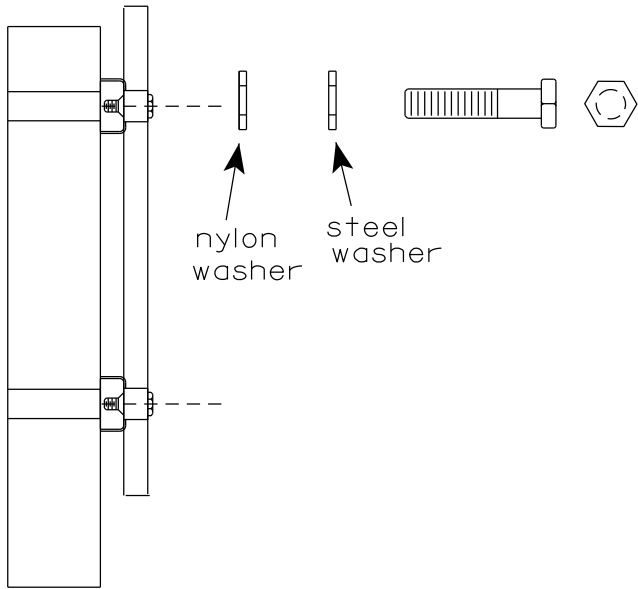
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

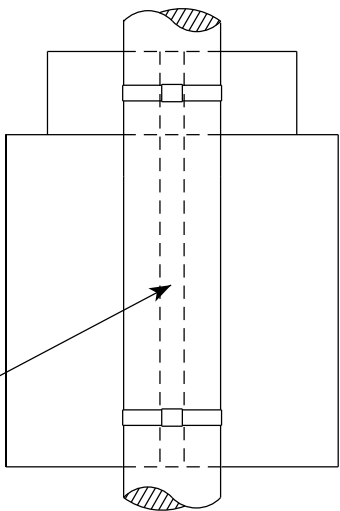


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

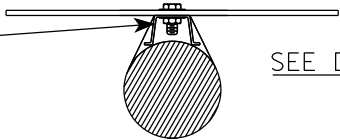
GENERAL NOTES

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

"J" ASSEMBLY



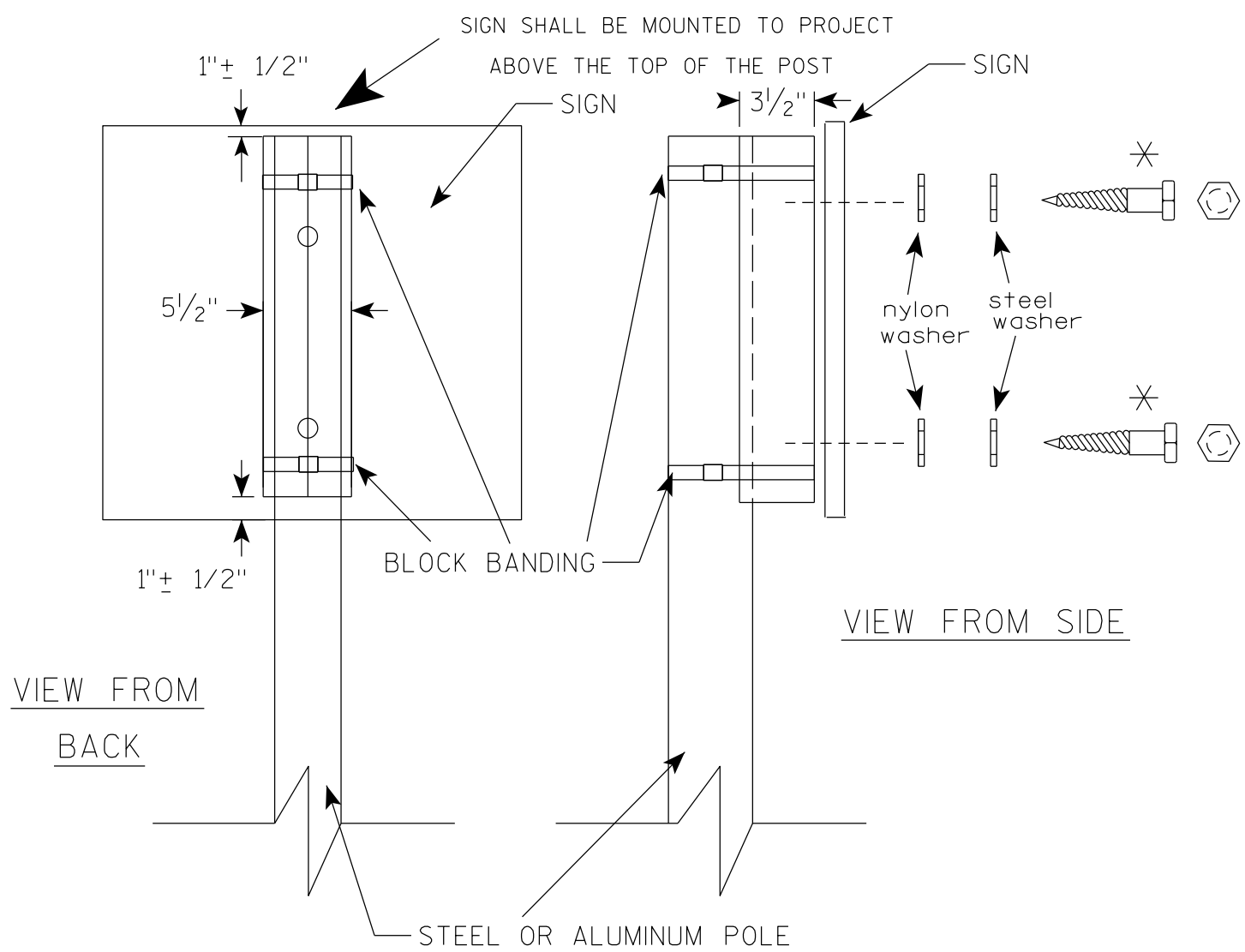
CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



STANDARD SIGN
SIGN BANDING DETAILS

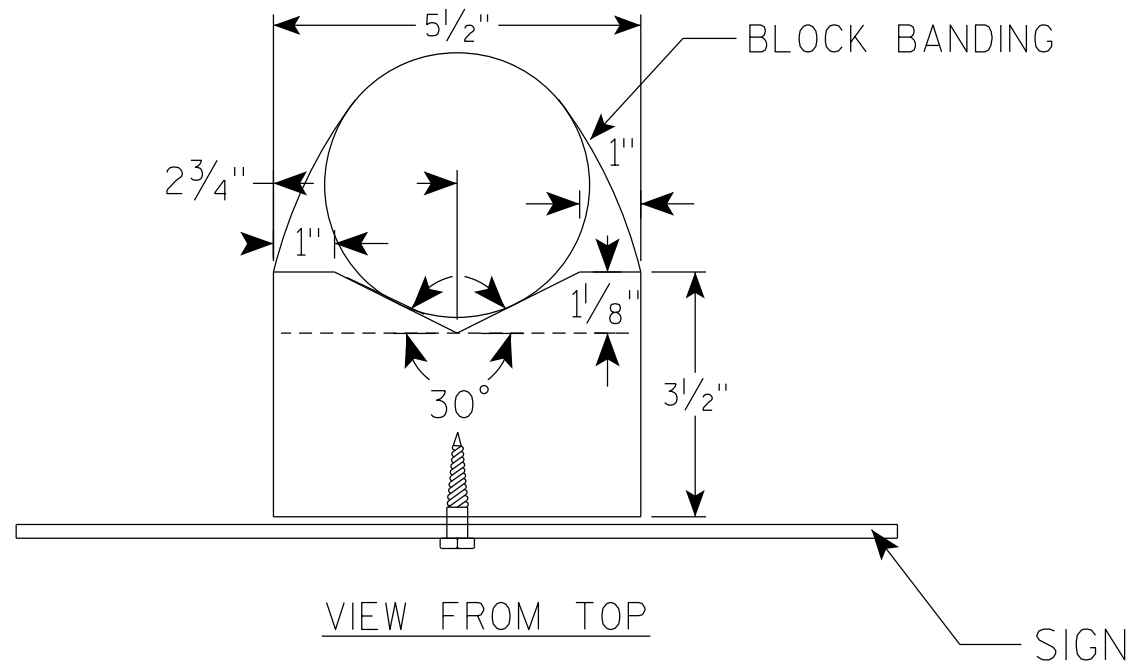
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 6/10/19 PLATE NO. A5-9.4



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

GENERAL NOTES

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

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

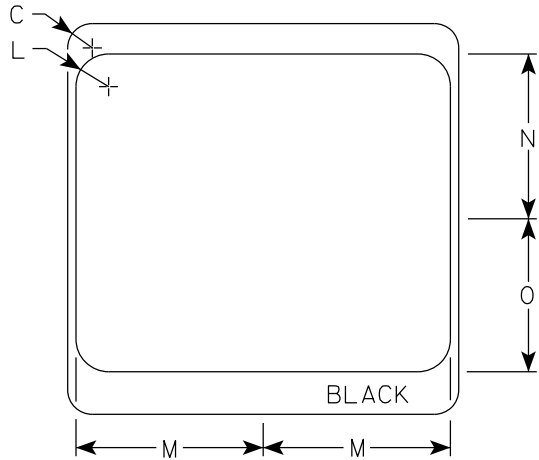
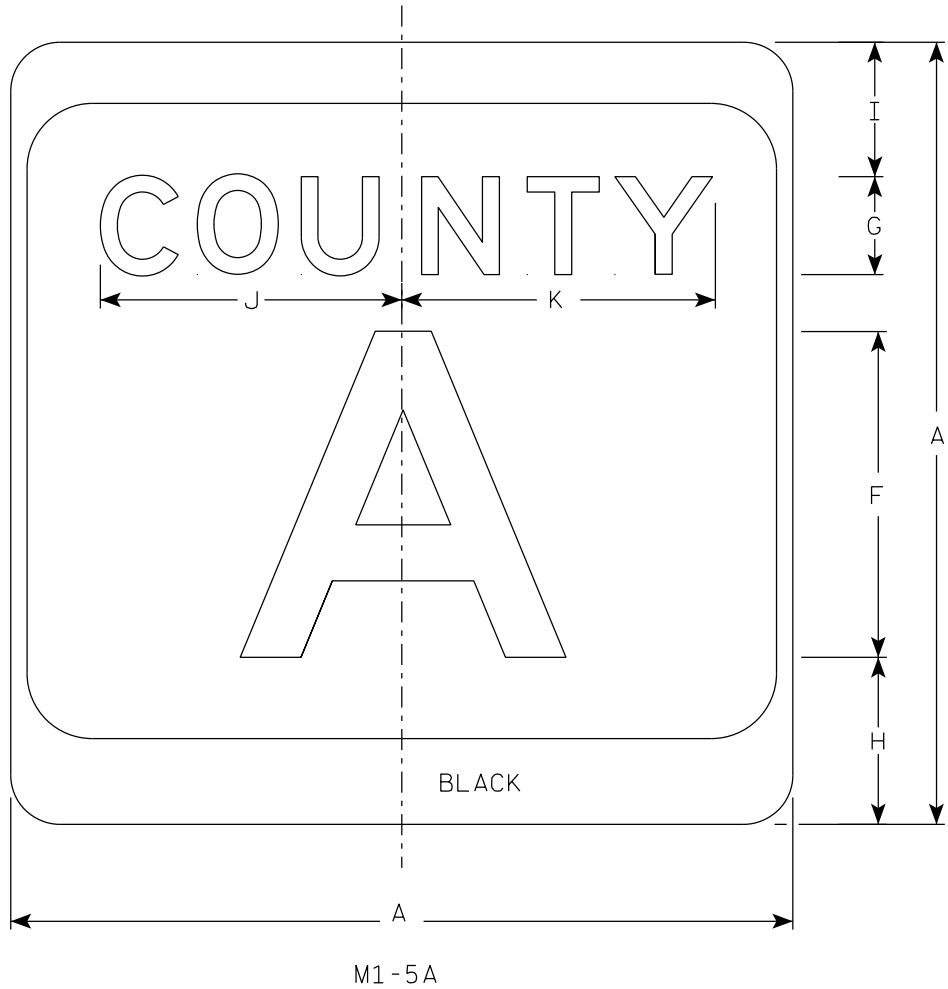
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

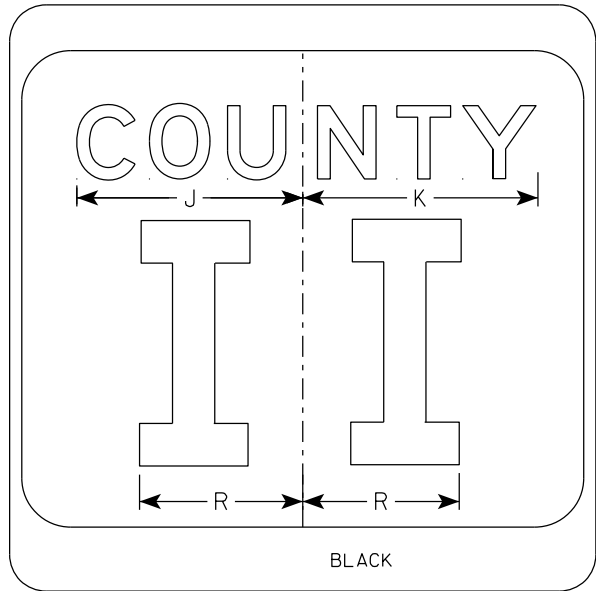
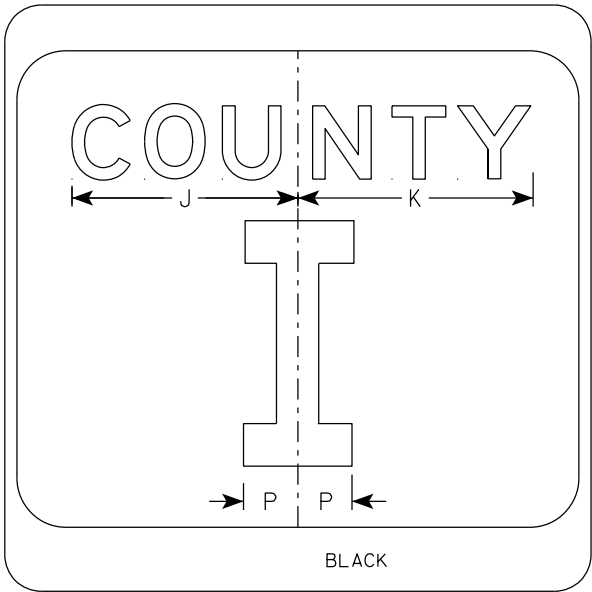
SHEET NO:

E

7



- NOTES
- Sign is Type II - Type H Reflective
 - Color:
Background - White & Black
Message - Black
 - Message Series - see Note 4
 - Message Series E for 1 letter.
Message Series D for 2 letters unless message is too big then Series C.
Message Series C for 3 letters unless message is too big then Series B.
 - Substitute appropriate letters & optically center 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 24 | | 1 1/2 | | | 10 | 3 | 5 1/8 | 4 1/8 | 9 1/4 | 9 5/8 | 2 | 11 1/2 | 10 1/8 | 9 3/8 | 2 1/4 | | 6 5/8 | | | | | | | | | 4.0 |
| 2M | 24 | | 1 1/2 | | | 10 | 3 | 5 1/8 | 4 1/8 | 9 1/4 | 9 5/8 | 2 | 11 1/2 | 10 1/8 | 9 3/8 | 2 1/4 | | 6 5/8 | | | | | | | | | 4.0 |
| 3 | 36 | | 2 1/4 | | | 16 | 4 | 7 5/8 | 5 5/8 | 12 1/4 | 12 7/8 | 3 | 17 1/8 | 15 1/4 | 14 | 3 3/8 | | 10 | | | | | | | | | 9.0 |
| 4 | 36 | | 2 1/4 | | | 16 | 4 | 7 5/8 | 5 5/8 | 12 1/4 | 12 7/8 | 3 | 17 1/8 | 15 1/4 | 14 | 3 3/8 | | 10 | | | | | | | | | 9.0 |
| 5 | 36 | | 2 1/4 | | | 16 | 4 | 7 5/8 | 5 5/8 | 12 1/4 | 12 7/8 | 3 | 17 1/8 | 15 1/4 | 14 | 3 3/8 | | 10 | | | | | | | | | 9.0 |

CTH MARKER

M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/8/2022 PLATE NO. M1-5A.9

PROJECT NO:

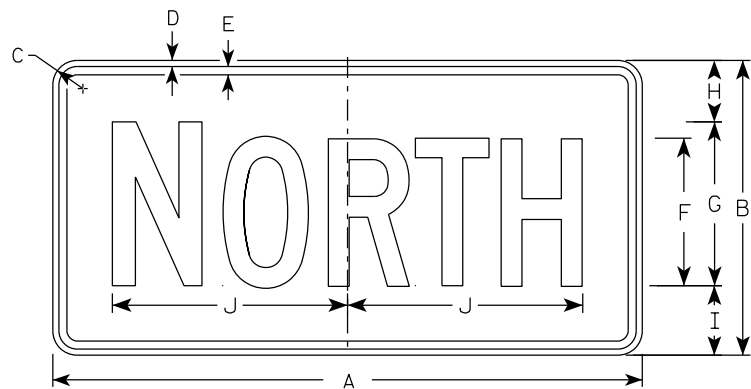
HWY:

COUNTY:

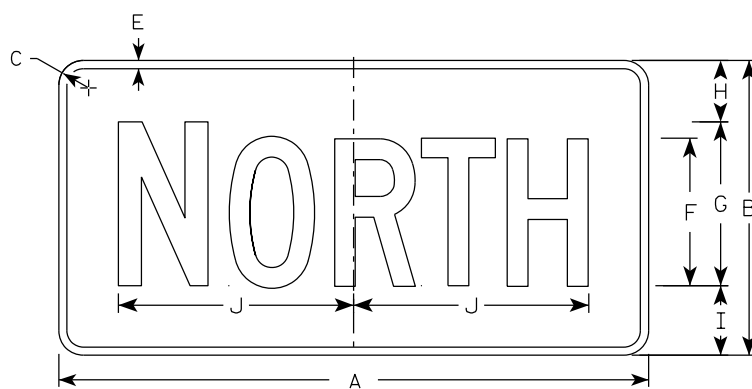
SHEET NO:

E

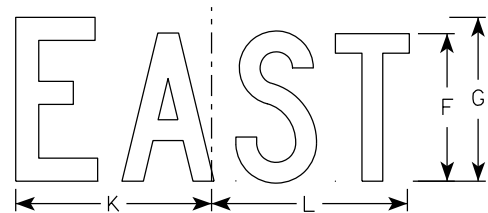
7



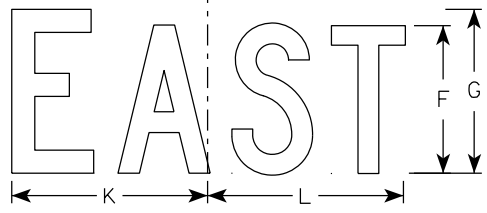
M3-1
MM3-1
MP3-1



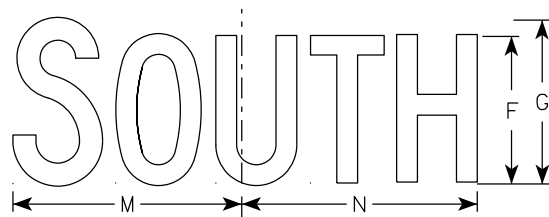
MB3-1
MK3-1
MN3-1



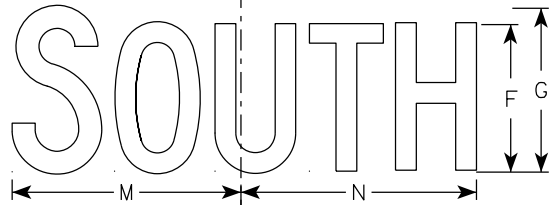
M3-2
MM3-2
MP3-2



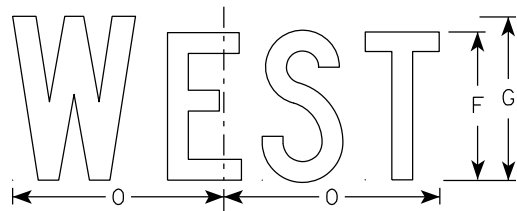
MB3-2
MK3-2
MN3-2



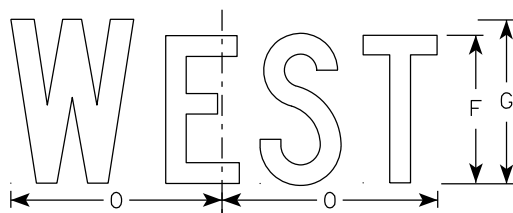
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

- All Signs Type II - Type H Reflective
- Color:
 - Background - See note 5
 - Message - See note 5
- Message Series - C
- 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.
- M3-1 thru M3-4 Background - White
Message - Black
MB3-1 thru MB3-4 Background - Blue
Message - White
MK3-1 thru MK3-4 Background - Green
Message - White
MM3-1 thru MM3-4 Background - White
Message - Green
MN3-1 thru MN3-4 Background - Brown
Message - White
MP3-1 thru MP3-4 Background - White
Message - Blue
- Note the first letter of each direction is larger than the remainder of the message.

7

7

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

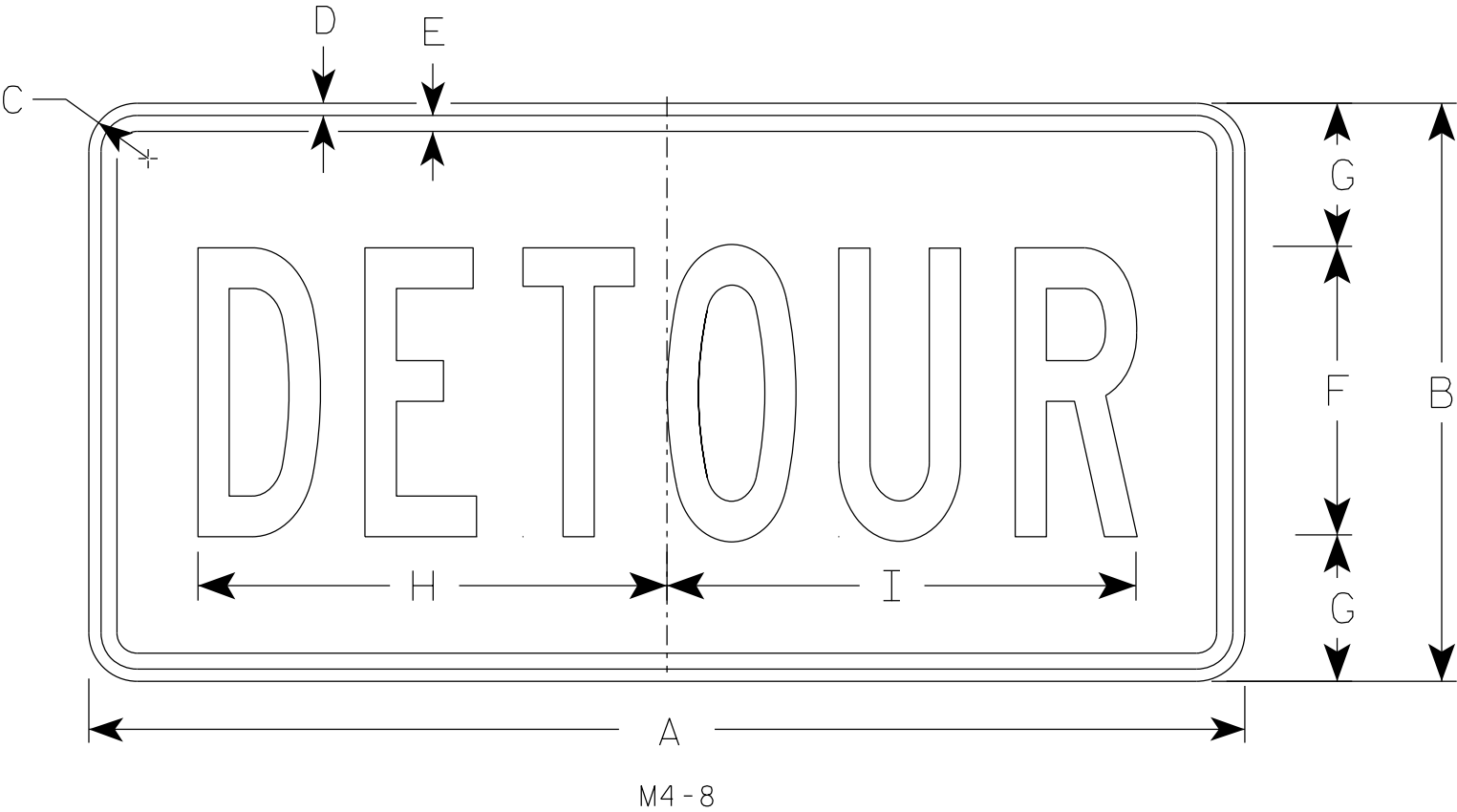
| | | | | |
|-------------|------|---------|-----------|---|
| PROJECT NO: | HWY: | COUNTY: | SHEET NO: | E |
|-------------|------|---------|-----------|---|

7

7

NOTES

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



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

STANDARD SIGN

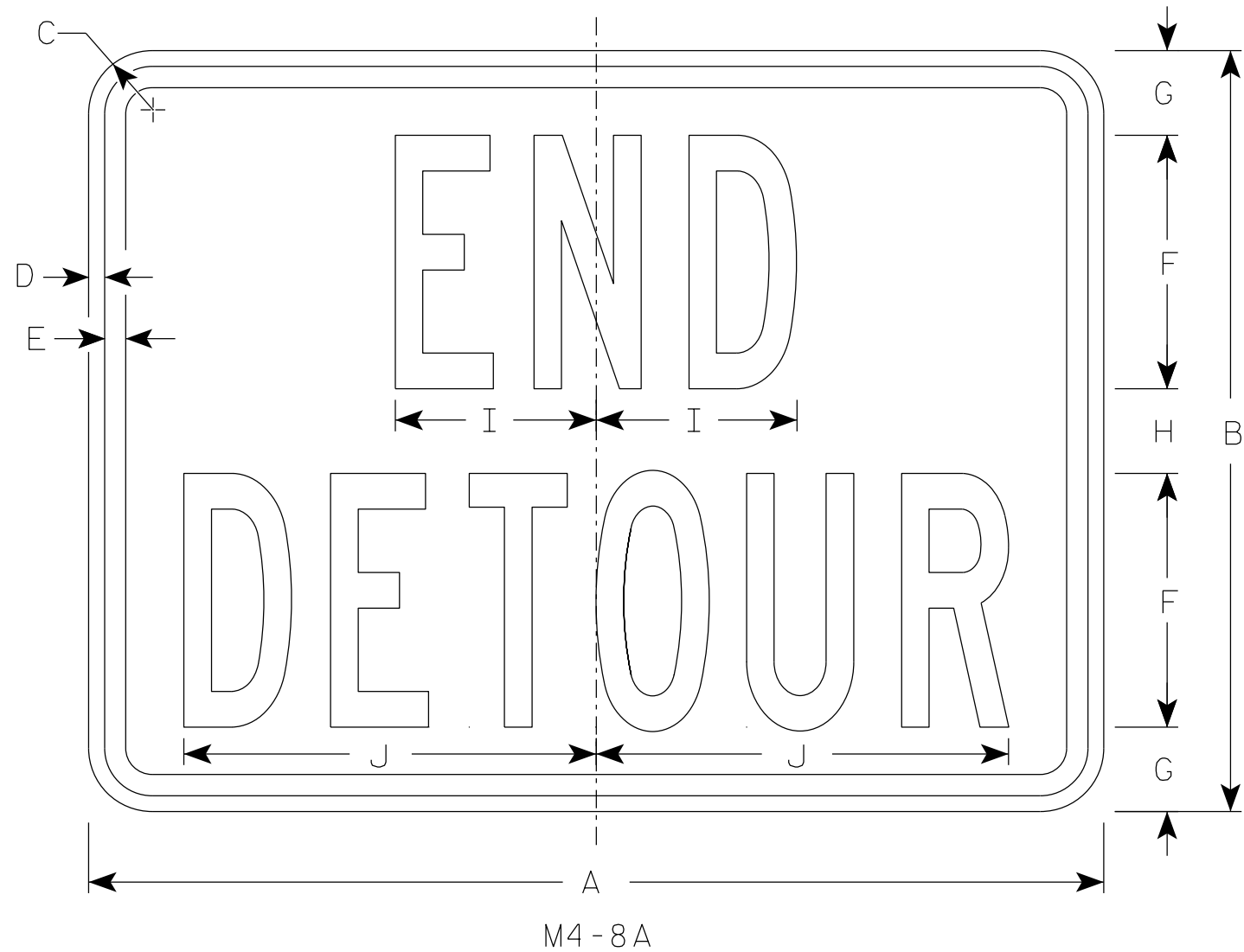
M4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

7



NOTES

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

7

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

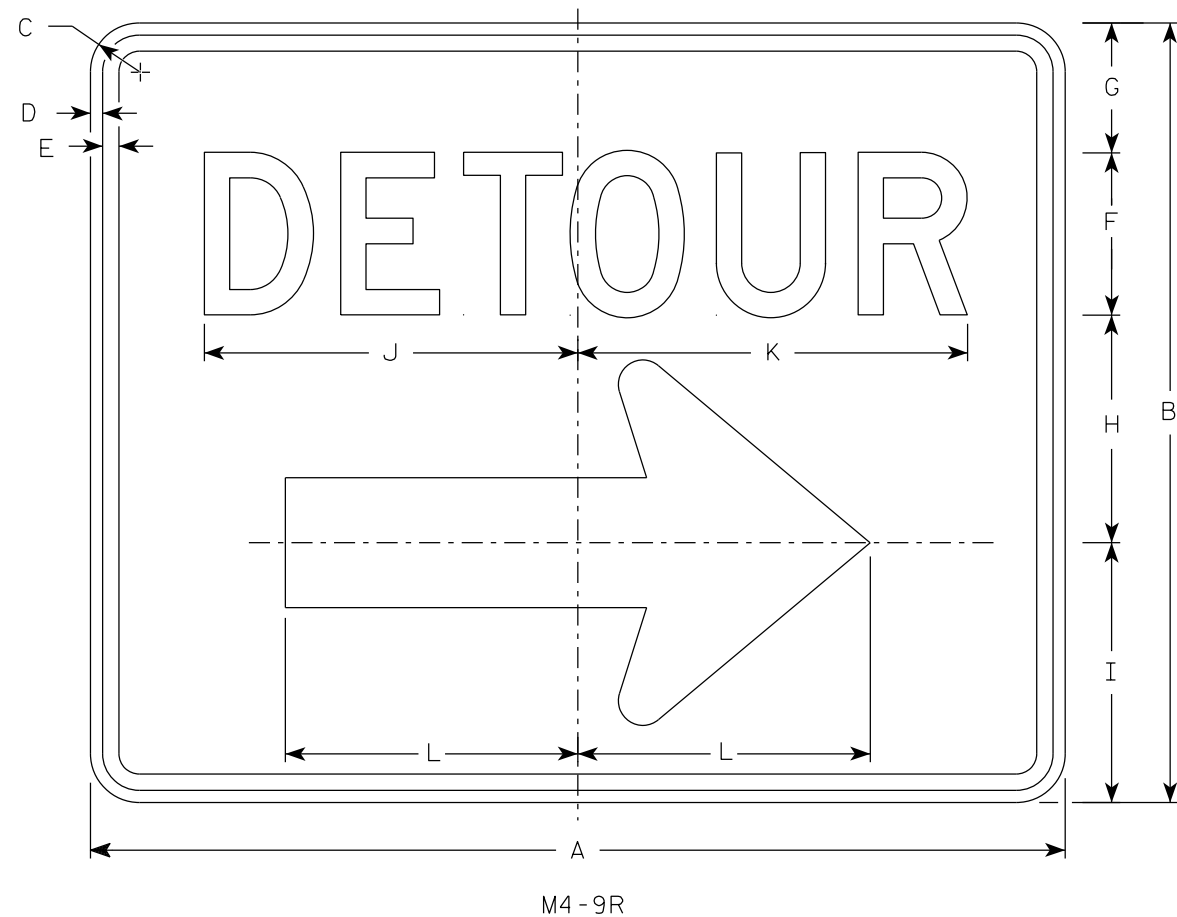
STANDARD SIGN

M4-8A

WISCONSIN DEPT OF TRANSPORTATION

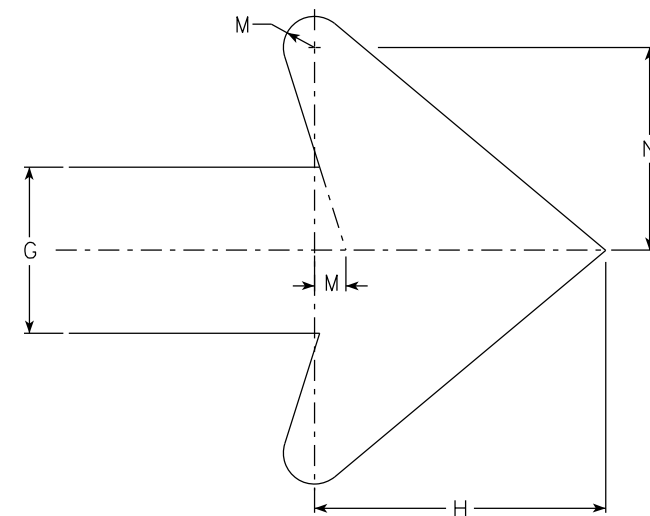
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M4-9L is the same as M4-9R except the arrow is reversed.



Arrow Detail

| SIZE | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area sq. ft. |
|------|----|----|-------|-----|-----|---|---|--------|--------|--------|--------|--------|-------|-------|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 30 | 24 | 1 1/2 | 3/8 | 1/2 | 5 | 4 | 7 | 8 | 11 1/2 | 12 | 9 | 3/4 | 4 7/8 | | | | | | | | | | | | | 5.00 |
| 2M | 30 | 24 | 1 1/2 | 3/8 | 1/2 | 5 | 4 | 7 | 8 | 11 1/2 | 12 | 9 | 3/4 | 4 7/8 | | | | | | | | | | | | | 5.00 |
| 3 | 30 | 24 | 1 1/2 | 3/8 | 1/2 | 5 | 4 | 7 | 8 | 11 1/2 | 12 | 9 | 3/4 | 4 7/8 | | | | | | | | | | | | | 5.00 |
| 4 | 48 | 36 | 1 7/8 | 1/2 | 5/8 | 8 | 6 | 10 1/2 | 11 5/8 | 20 5/8 | 20 1/2 | 13 1/4 | 1 1/8 | 6 7/8 | | | | | | | | | | | | | 12.0 |
| 5 | 48 | 36 | 1 7/8 | 1/2 | 5/8 | 8 | 6 | 10 1/2 | 11 5/8 | 20 5/8 | 20 1/2 | 13 1/4 | 1 1/8 | 6 7/8 | | | | | | | | | | | | | 12.0 |

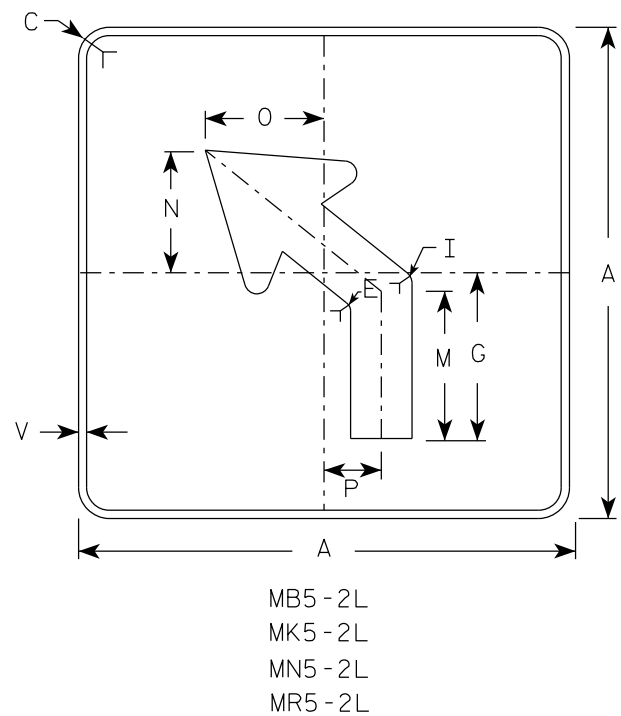
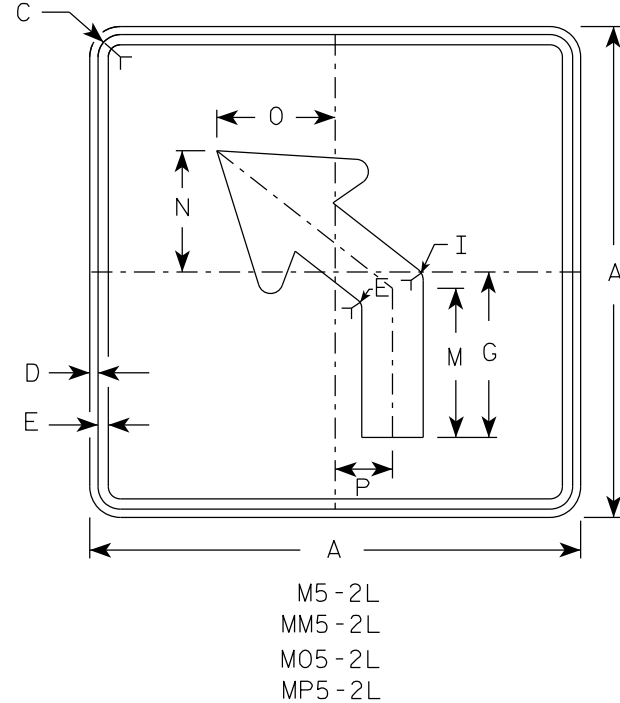
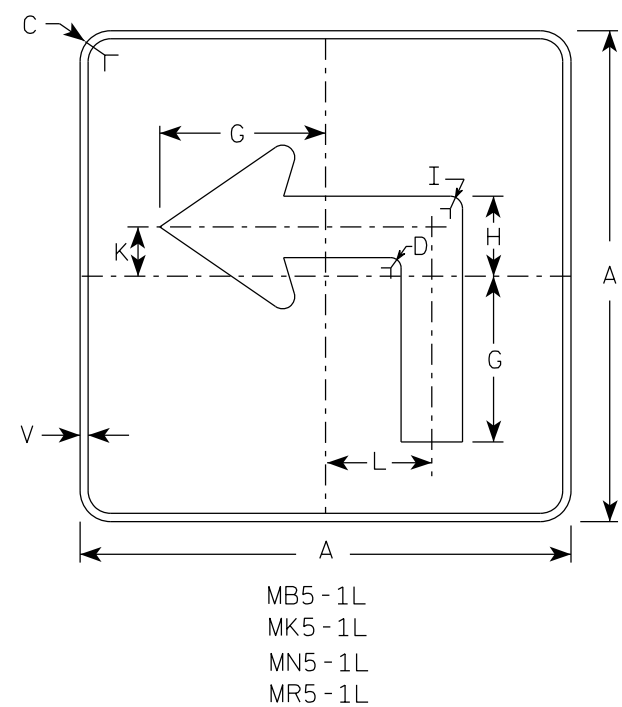
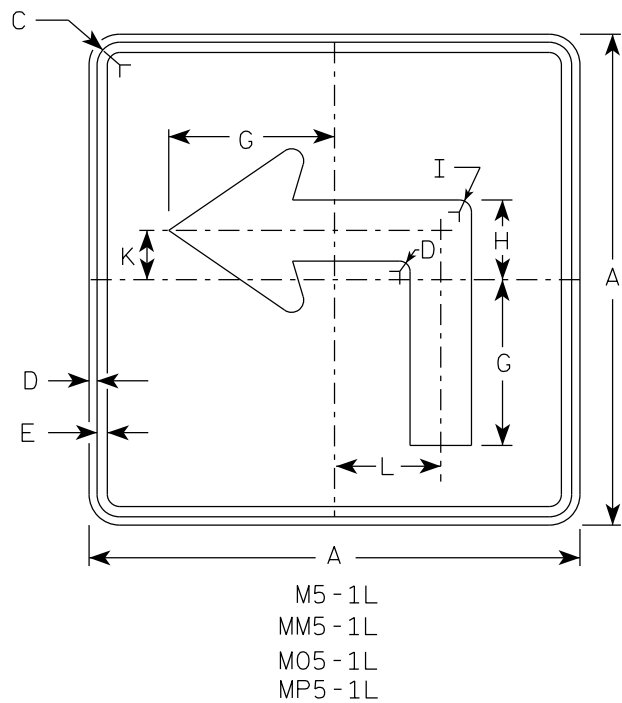
STANDARD SIGN
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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

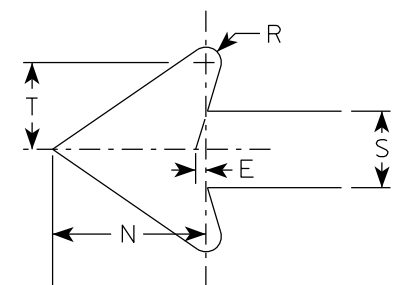
| | | | | |
|-------------|------|---------|-----------|---|
| PROJECT NO: | HWY: | COUNTY: | SHEET NO: | E |
|-------------|------|---------|-----------|---|



NOTES

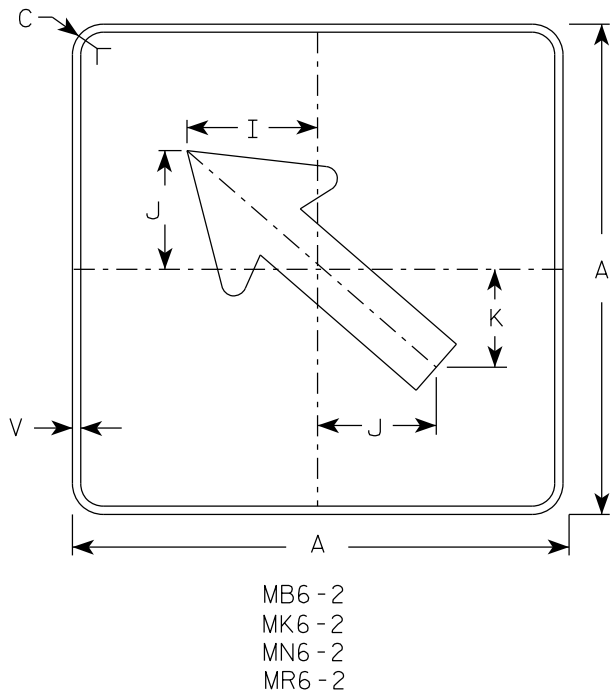
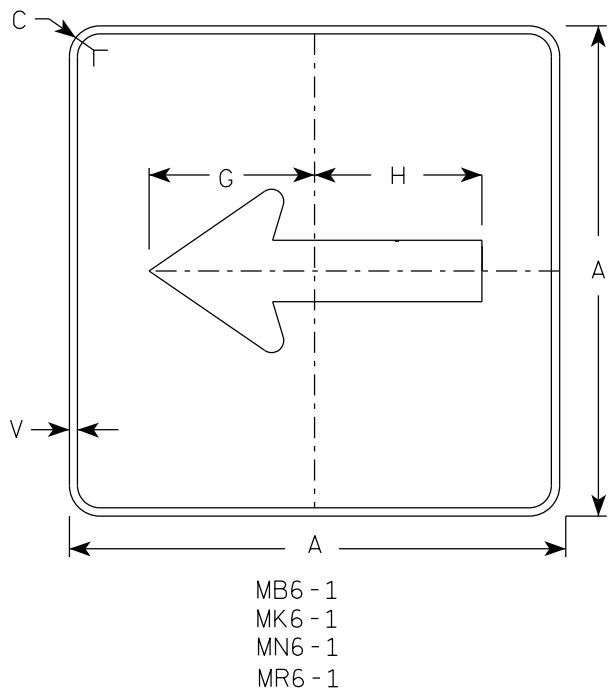
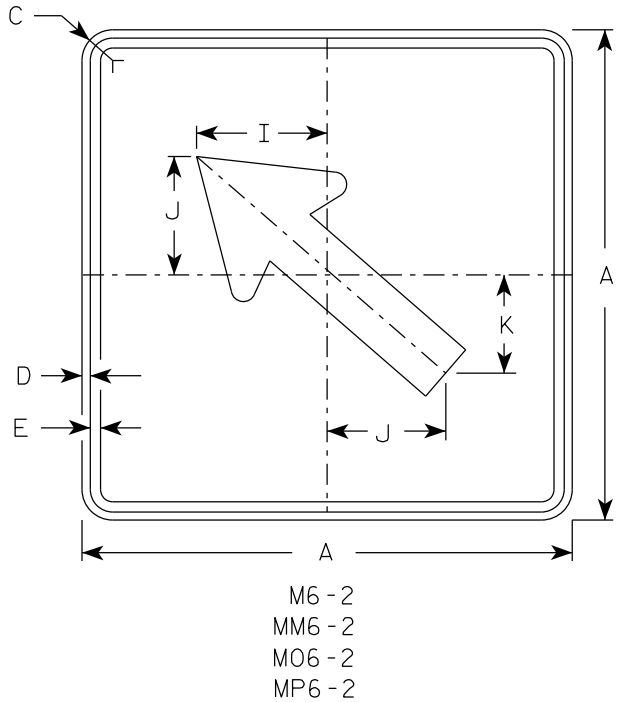
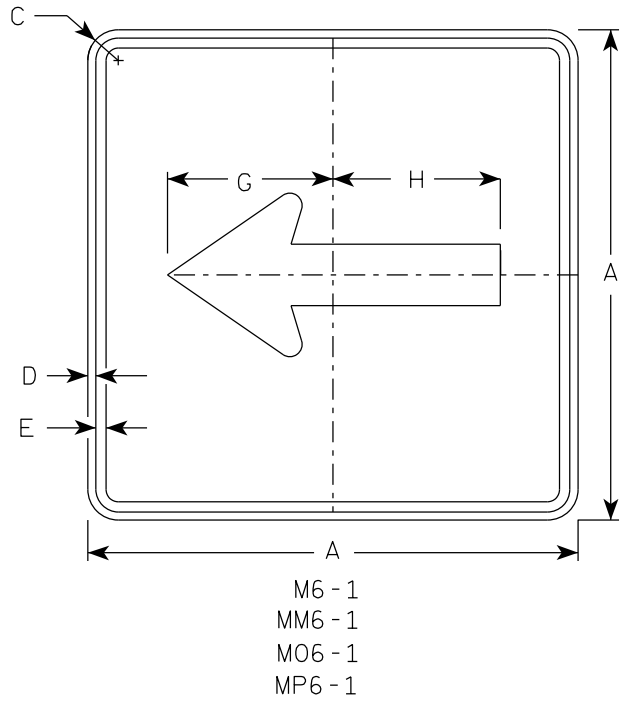
- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | | |
|-----------|-------|---|
| M5-1 and | M5-2 | Background - White |
| | | Message - Black |
| MB5-1 and | MB5-2 | Background - Blue |
| | | Message - White |
| MK5-1 and | MK5-2 | Background - Green |
| | | Message - White |
| MM5-1 and | MM5-2 | Background - White |
| | | Message - Green |
| MN5-1 and | MN5-2 | Background - Brown |
| | | Message - White |
| M05-1 and | M05-2 | Background - Orange - Type F Reflective |
| | | Message - Black |
| MP5-1 and | MP5-2 | Background - White |
| | | Message - Blue |
| MR5-1 and | MR5-2 | Background - Brown |
| | | Message - Yellow |
- M5-1R same as M5-1L except arrow points right.
- M5-2R same as M5-2L except arrow tilts right.

ARROW DETAIL

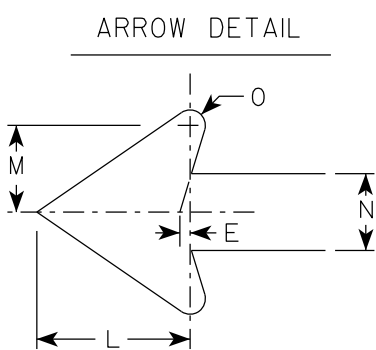


| SIZE | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area sq. ft. |
|------|----|---|-------|-----|-----|---|--------|-------|-----|---|-------|-------|-------|-------|-------|-------|---|-----|-------|-------|---|-----|---|---|---|---|-----------------|
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2S | 21 | | 1 1/2 | 3/8 | 3/8 | | 7 | 3 3/8 | 5/8 | | 2 1/8 | 4 1/2 | 6 3/8 | 5 1/4 | 5 | 2 1/2 | | 1/2 | 2 5/8 | 3 | | 1/2 | | | | | 3.06 |
| 2M | 21 | | 1 1/2 | 3/8 | 3/8 | | 7 | 3 3/8 | 5/8 | | 2 1/8 | 4 1/2 | 6 3/8 | 5 1/4 | 5 | 2 1/2 | | 1/2 | 2 5/8 | 3 | | 1/2 | | | | | 3.06 |
| 3 | 30 | | 1 7/8 | 1/2 | 5/8 | | 10 1/8 | 4 7/8 | 7/8 | | 3 | 6 1/2 | 9 1/8 | 7 1/2 | 7 1/4 | 3 1/2 | | 3/4 | 3 3/4 | 4 1/4 | | 1/2 | | | | | 6.25 |
| 4 | 30 | | 1 7/8 | 1/2 | 5/8 | | 10 1/8 | 4 7/8 | 7/8 | | 3 | 6 1/2 | 9 1/8 | 7 1/2 | 7 1/4 | 3 1/2 | | 3/4 | 3 3/4 | 4 1/4 | | 1/2 | | | | | 6.25 |
| 5 | 30 | | 1 7/8 | 1/2 | 5/8 | | 10 1/8 | 4 7/8 | 7/8 | | 3 | 6 1/2 | 9 1/8 | 7 1/2 | 7 1/4 | 3 1/2 | | 3/4 | 3 3/4 | 4 1/4 | | 1/2 | | | | | 6.25 |

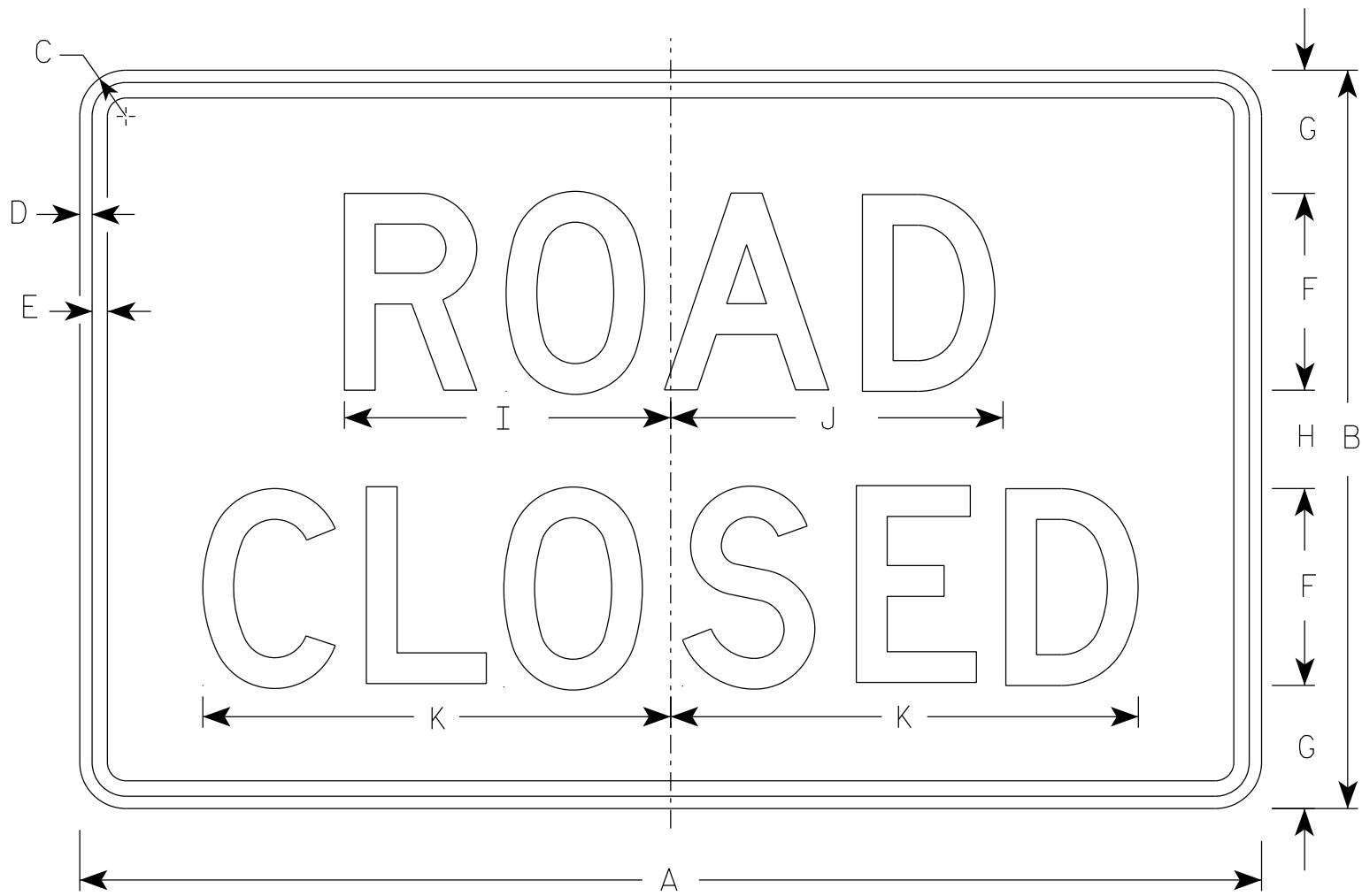
| | | | | |
|-------------|------|---------|-----------|---|
| PROJECT NO: | HWY: | COUNTY: | SHEET NO: | E |
|-------------|------|---------|-----------|---|



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

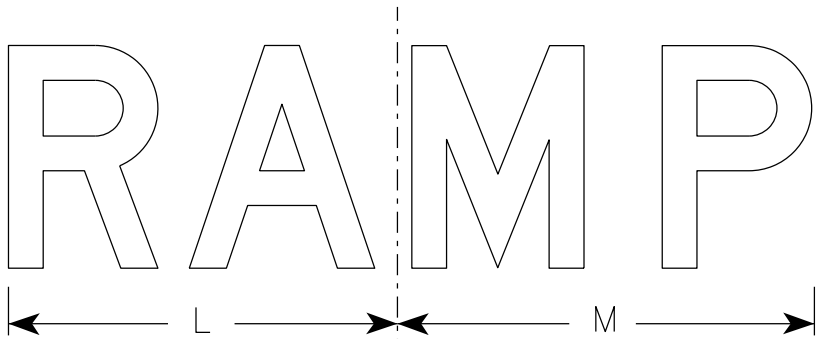


| SIZE | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area sq. ft. |
|------|----|---|-------|-----|-----|---|--------|--------|-------|-------|-------|-------|-------|-------|-----|---|---|---|---|---|---|-----|---|---|---|---|-----------------|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

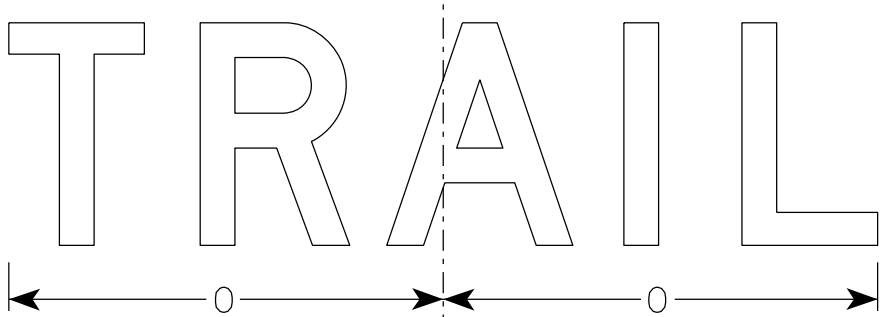


R11-2

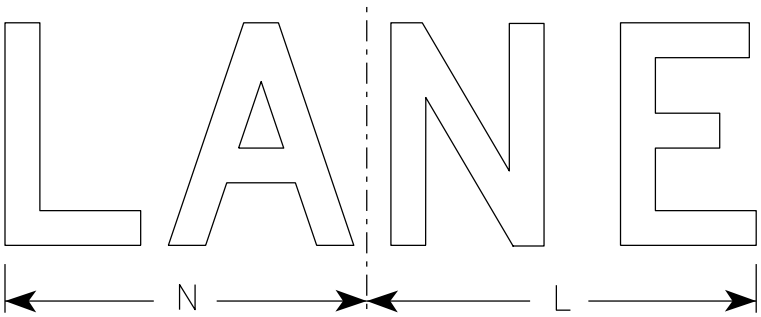
- NOTES
1. Sign is Type II - Type H Reflective
 2. Color:
Background - White
Message - Black
 3. Message Series - D
 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 5. Modify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



R11-2R



R11-2T



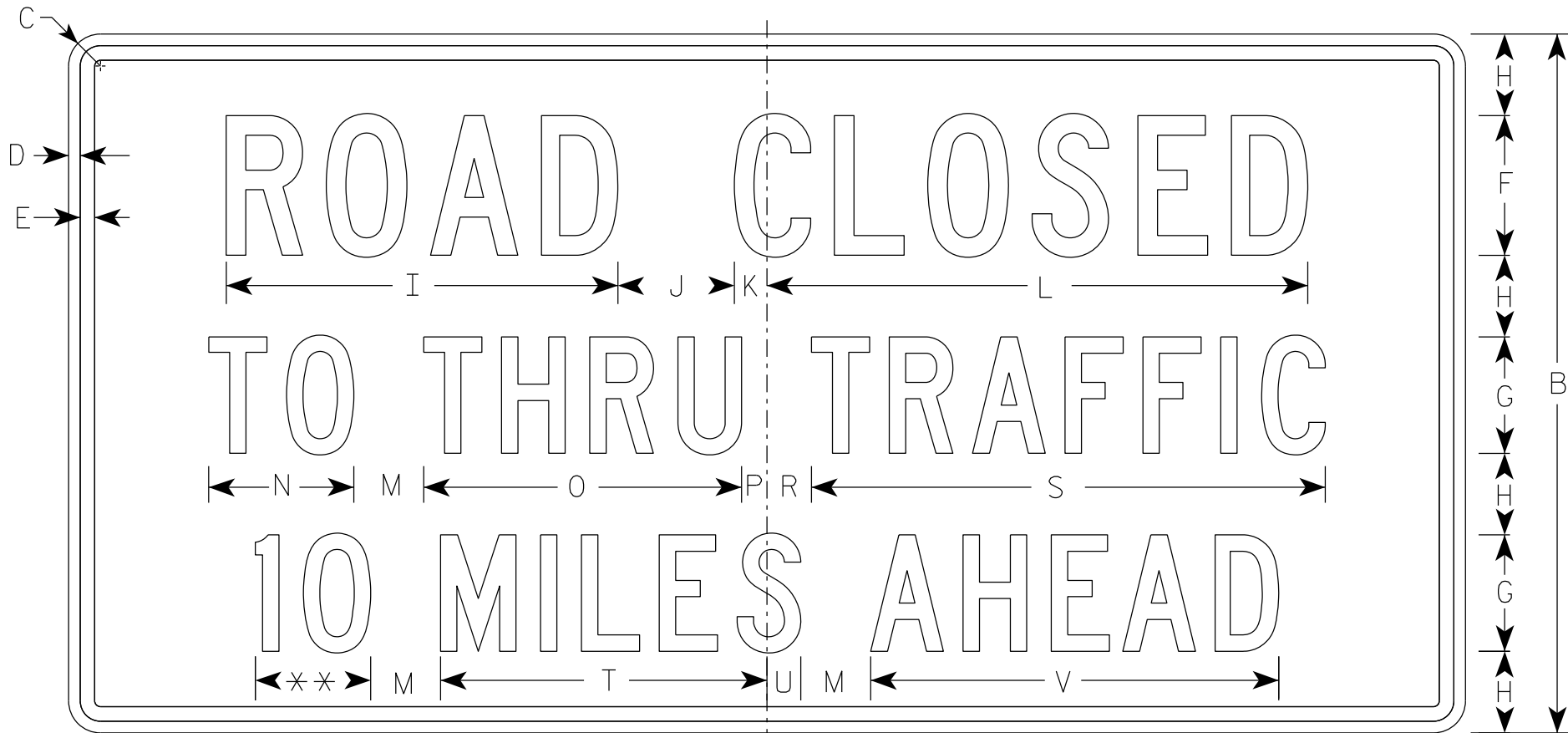
R11-2L

| SIZE | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area sq. ft. |
|------|----|----|-------|-----|-----|---|---|---|--------|--------|----|----|----|----|--------|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2S | 48 | 30 | 1 7/8 | 1/2 | 5/8 | 8 | 5 | 4 | 13 1/4 | 13 1/2 | 19 | 14 | 15 | 13 | 15 5/8 | | | | | | | | | | | | 10.0 |
| 2M | 48 | 30 | 1 7/8 | 1/2 | 5/8 | 8 | 5 | 4 | 13 1/4 | 13 1/2 | 19 | 14 | 15 | 13 | 15 5/8 | | | | | | | | | | | | 10.0 |
| 3 | 48 | 30 | 1 7/8 | 1/2 | 5/8 | 8 | 5 | 4 | 13 1/4 | 13 1/2 | 19 | 14 | 15 | 13 | 15 5/8 | | | | | | | | | | | | 10.0 |
| 4 | 48 | 30 | 1 7/8 | 1/2 | 5/8 | 8 | 5 | 4 | 13 1/4 | 13 1/2 | 19 | 14 | 15 | 13 | 15 5/8 | | | | | | | | | | | | 10.0 |
| 5 | 48 | 30 | 1 7/8 | 1/2 | 5/8 | 8 | 5 | 4 | 13 1/4 | 13 1/2 | 19 | 14 | 15 | 13 | 15 5/8 | | | | | | | | | | | | 10.0 |

| | |
|----------------------------------|---|
| STANDARD SIGN R11-2 | |
| WISCONSIN DEPT OF TRANSPORTATION | |
| APPROVED | <i>Matthew R. Rauch</i> For State Traffic Engineer |
| DATE 2/5/24 | PLATE NO. R11-2.12 |

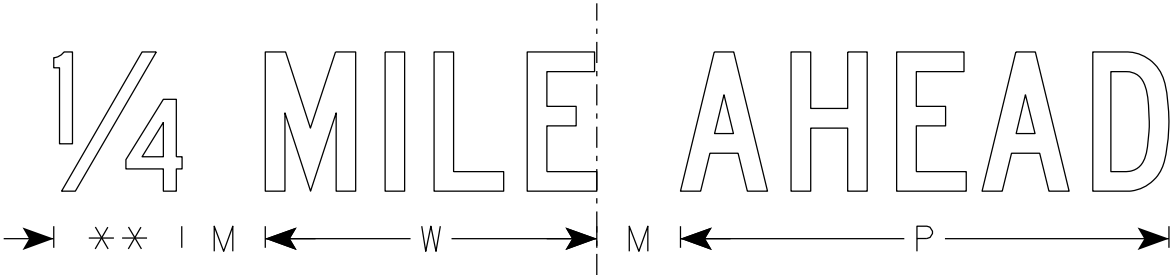
| | | | | |
|-------------|------|---------|-----------|---|
| PROJECT NO: | HWY: | COUNTY: | SHEET NO: | E |
|-------------|------|---------|-----------|---|

7



R11-3

** See Note 5



NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals to nearest quarter mile and optically adjust spacing to achieve proper balance.

7

| SIZE | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area sq. ft. |
|------|----|----|-------|-----|-----|---|---|-------|--------|---|-------|--------|---|-------|--------|-------|---|-------|--------|-------|-------|--------|--------|---|---|---|-----------------|
| 1 | 36 | 18 | 1 1/2 | 3/8 | 3/8 | 4 | 3 | 2 | 11 1/4 | 3 | 1 1/8 | 15 3/8 | 2 | 3 3/4 | 8 1/4 | 5/8 | | 1 3/8 | 13 1/4 | 8 3/8 | 7/8 | 10 1/2 | 7 1/8 | | | | 4.5 |
| 2S | 60 | 30 | 1 7/8 | 1/2 | 5/8 | 6 | 5 | 3 1/2 | 16 7/8 | 5 | 1 3/8 | 23 1/4 | 3 | 6 1/4 | 13 5/8 | 1 1/8 | | 1 7/8 | 22 1/8 | 14 | 1 1/2 | 17 1/2 | 11 7/8 | | | | 12.5 |
| 2M | 60 | 30 | 1 7/8 | 1/2 | 5/8 | 6 | 5 | 3 1/2 | 16 7/8 | 5 | 1 3/8 | 23 1/4 | 3 | 6 1/4 | 13 5/8 | 1 1/8 | | 1 7/8 | 22 1/8 | 14 | 1 1/2 | 17 1/2 | 11 7/8 | | | | 12.5 |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

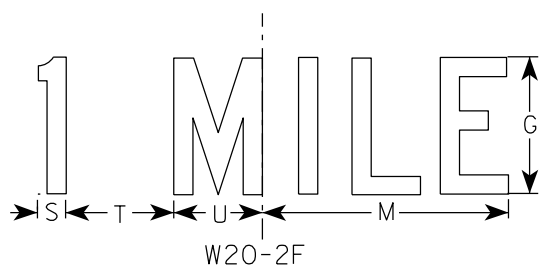
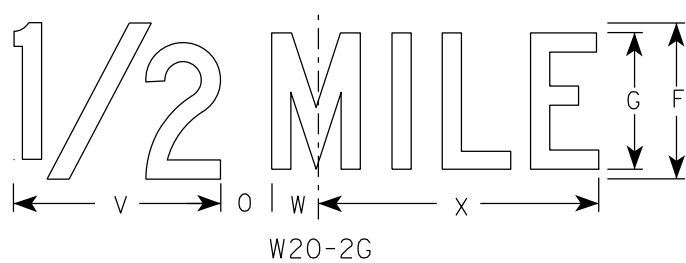
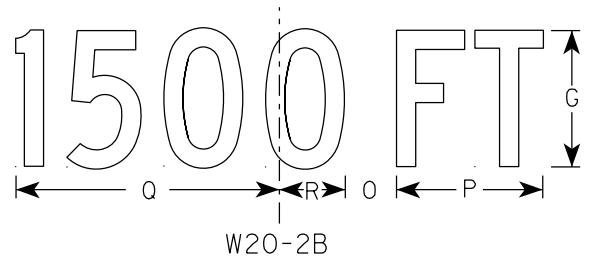
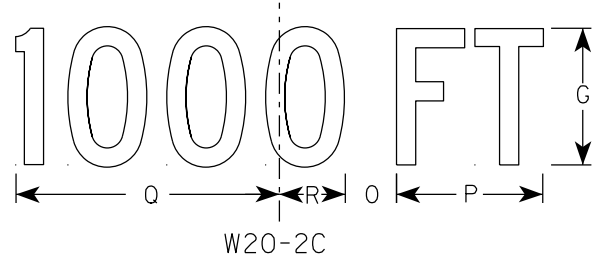
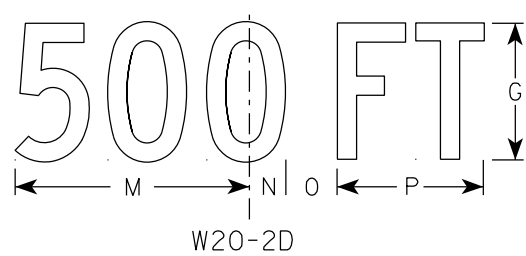
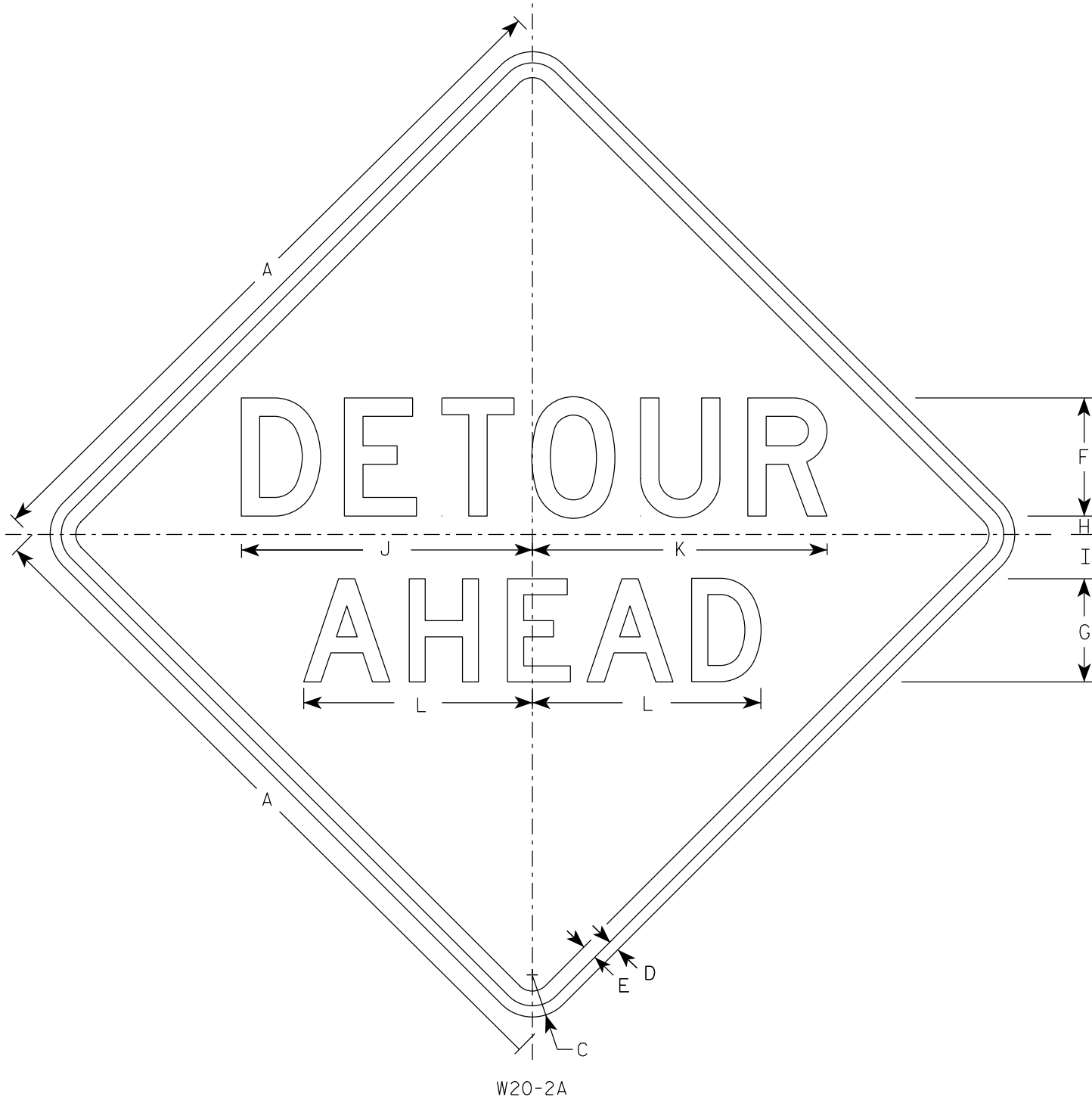
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - See note 5
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. Line 1 is Series D.
Line 2 is Series D for AHEAD and Series C for all other distances.

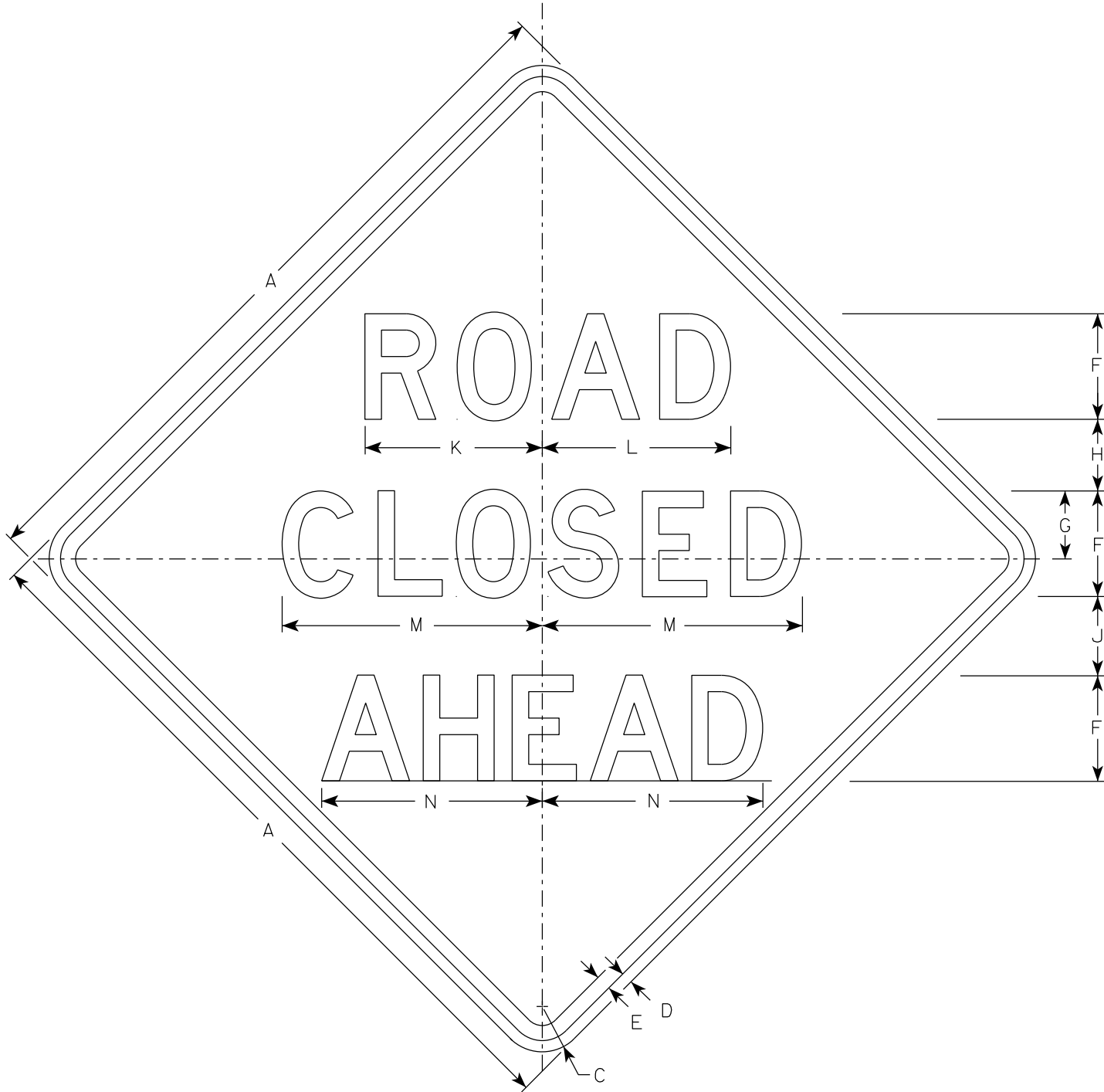
| SIZE | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area sq. ft. |
|------|----|---|-------|-----|-----|---|---|-------|-------|--------|----|--------|----|-------|-------|-------|--------|-------|-------|-------|-------|--------|-------|--------|---|---|-----------------|
| 1 | 36 | | 2 1/4 | 5/8 | 3/4 | 6 | 5 | 1 | 2 1/4 | 14 3/4 | 15 | 11 5/8 | 9 | 1 3/8 | 1 7/8 | 5 5/8 | 10 1/8 | 2 1/2 | 1 1/8 | 4 1/2 | 3 1/2 | 8 | 1 3/4 | 10 3/4 | | | 9.0 |
| 2S | 48 | | 3 | 3/4 | 1 | 8 | 7 | 1 1/4 | 3 | 19 3/4 | 20 | 15 1/2 | 12 | 1 7/8 | 2 5/8 | 7 1/2 | 13 1/2 | 3 3/8 | 1 1/2 | 6 | 4 5/8 | 10 5/8 | 2 3/8 | 14 3/8 | | | 16.0 |
| 2M | 48 | | 3 | 3/4 | 1 | 8 | 7 | 1 1/4 | 3 | 19 3/4 | 20 | 15 1/2 | 12 | 1 7/8 | 2 5/8 | 7 1/2 | 13 1/2 | 3 3/8 | 1 1/2 | 6 | 4 5/8 | 10 5/8 | 2 3/8 | 14 3/8 | | | 16.0 |
| 3 | 48 | | 3 | 3/4 | 1 | 8 | 7 | 1 1/4 | 3 | 19 3/4 | 20 | 15 1/2 | 12 | 1 7/8 | 2 5/8 | 7 1/2 | 13 1/2 | 3 3/8 | 1 1/2 | 6 | 4 5/8 | 10 5/8 | 2 3/8 | 14 3/8 | | | 16.0 |
| 4 | 48 | | 3 | 3/4 | 1 | 8 | 7 | 1 1/4 | 3 | 19 3/4 | 20 | 15 1/2 | 12 | 1 7/8 | 2 5/8 | 7 1/2 | 13 1/2 | 3 3/8 | 1 1/2 | 6 | 4 5/8 | 10 5/8 | 2 3/8 | 14 3/8 | | | 16.0 |
| 5 | 48 | | 3 | 3/4 | 1 | 8 | 7 | 1 1/4 | 3 | 19 3/4 | 20 | 15 1/2 | 12 | 1 7/8 | 2 5/8 | 7 1/2 | 13 1/2 | 3 3/8 | 1 1/2 | 6 | 4 5/8 | 10 5/8 | 2 3/8 | 14 3/8 | | | 16.0 |

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

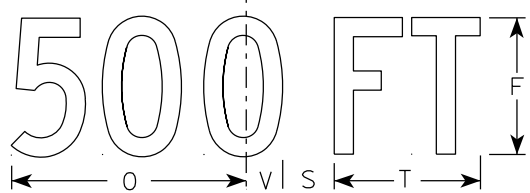
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

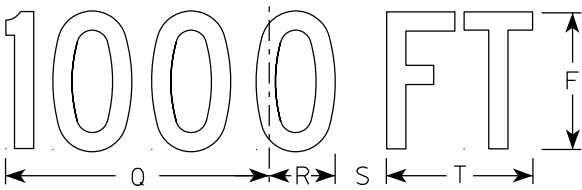
DATE 1/10/2024 PLATE NO. W20-2.7



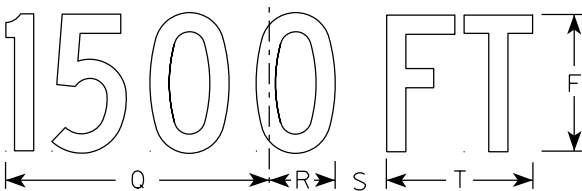
W20-3A



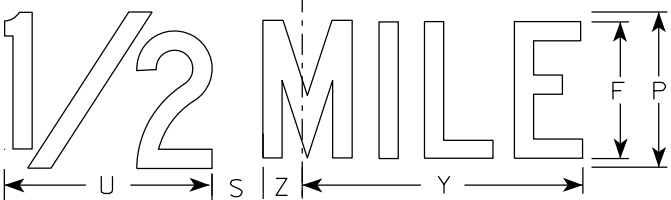
W20-3D



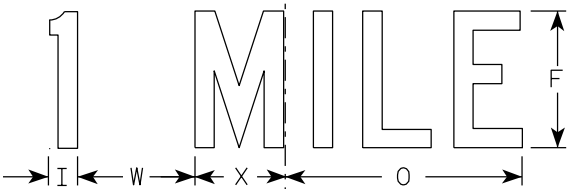
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

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

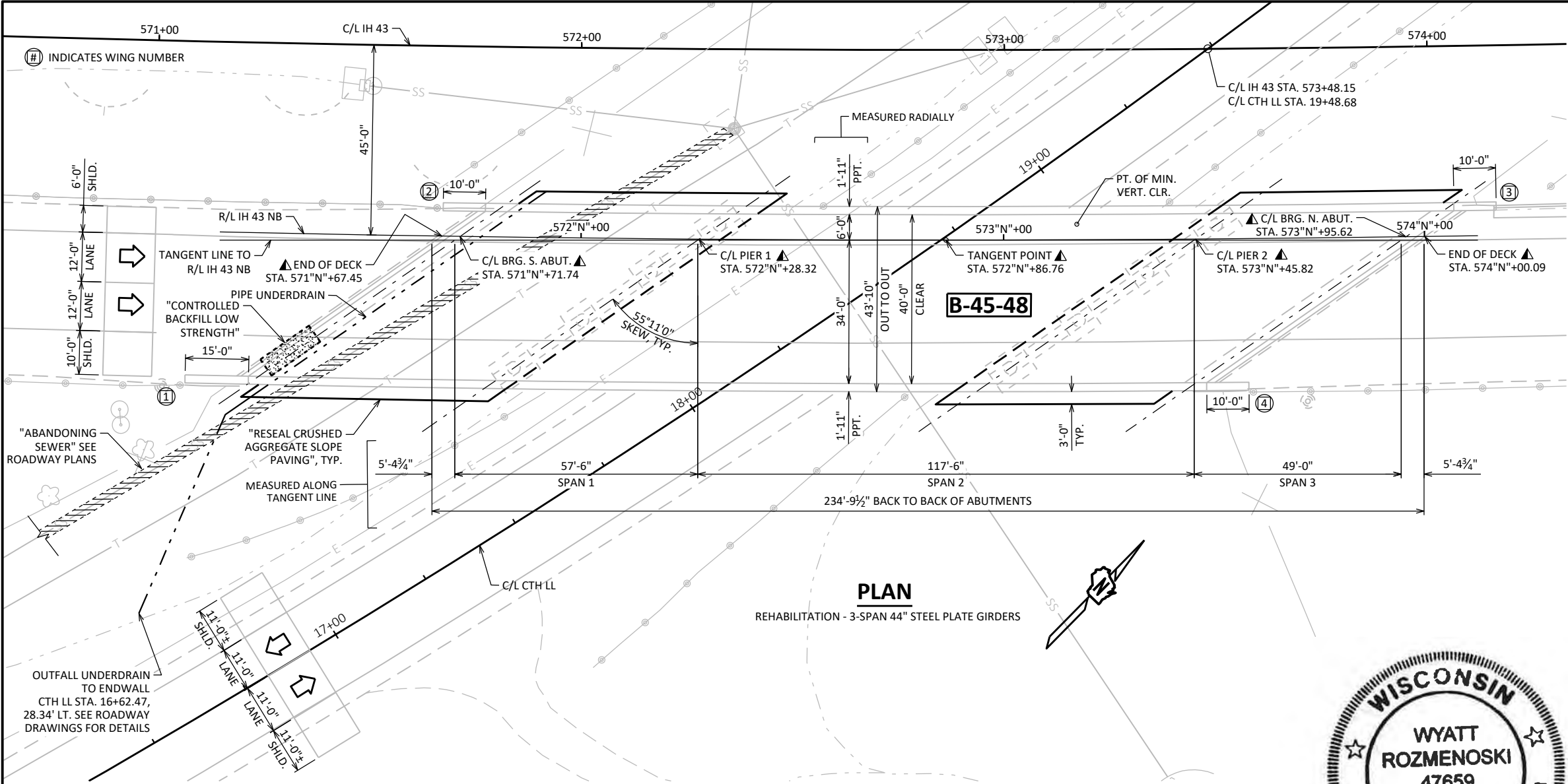
| SIZE | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | v | W | X | Y | Z | Area sq. ft. |
|------|----|---|-------|-----|-----|---|-------|-------|-------|-------|--------|--------|--------|--------|----|---|--------|-------|-------|-------|--------|-------|-------|-------|--------|-------|-----------------|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

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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-3.8

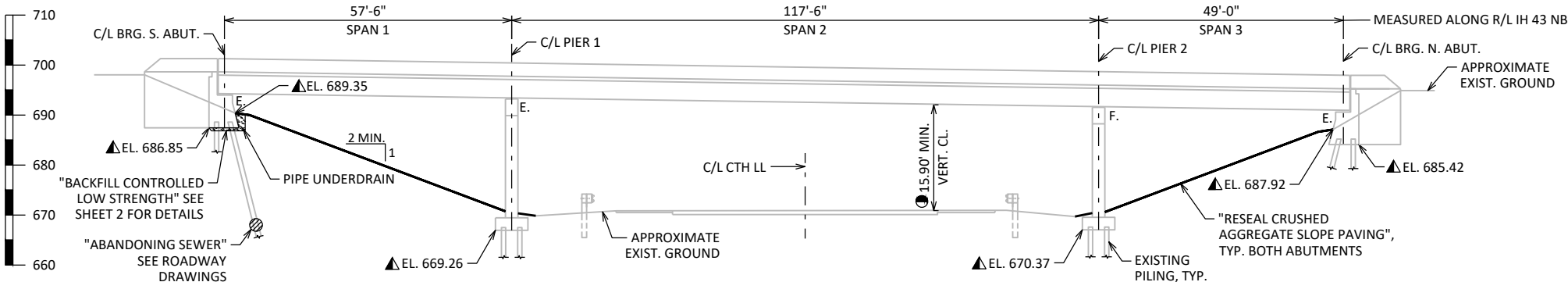


PLAN

REHABILITATION - 3-SPAN 44" STEEL PLATE GIRDERS



Wyatt Q. Rozmenoski
5/19/2025



ELEVATION

LOOKING WEST

STATE PROJECT NUMBER

1450-05-73

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HS20
INVENTORY RATING: HS20
OPERATING RATING: HS34
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 200 (KIPS)
(RATINGS TAKEN FROM HSI, 11/19/24)

TRAFFIC DATA

FEATURE ON: IH 43 NB
ADT = 13,300 (2023)
R.D.S. = 80 MPH

FEATURE UNDER: CTH LL
ADT = 3,300 (2023)
R.D.S. = 60 MPH

SCOPE OF WORK: B-45-48


- PIPE UNDERDRAIN INSTALLATION
- SLOPE PAVING REPAIR/RESEAL

LIST OF DRAWINGS:

- GENERAL PLAN
- DETAILS & QUANTITIES
- SLOPE REPAIR DETAILS

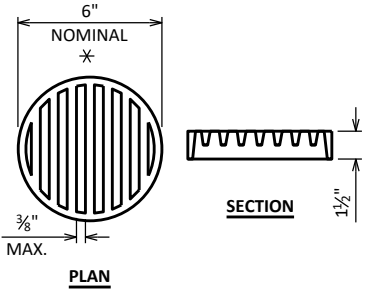
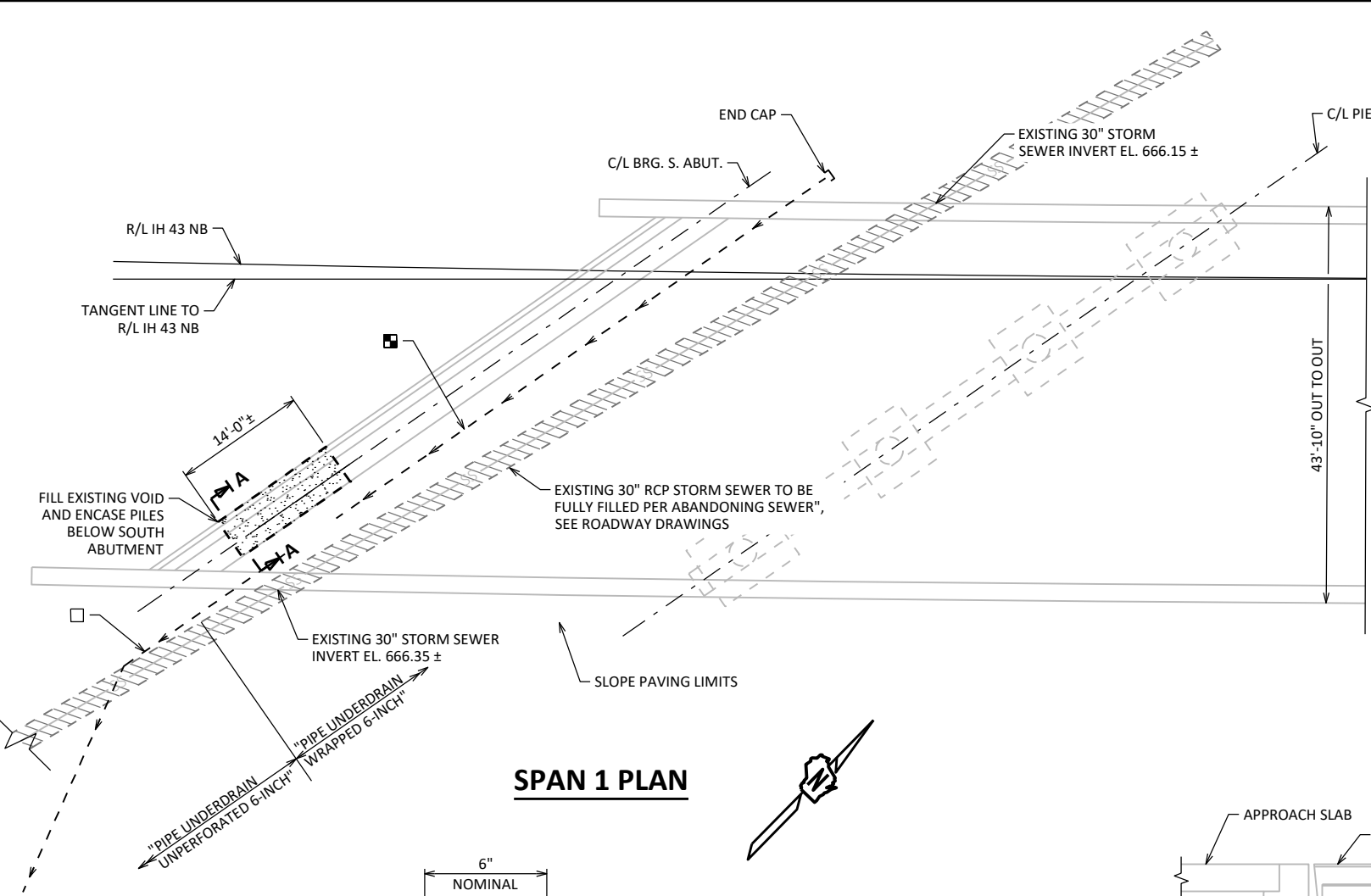
LEGEND

- ▲ PER 1974 ORIGINAL DESIGN DRAWINGS
- PER HSI (DIMENSION DATE 08-24-2018)

| | | | |
|---|---|-------------|-----------------|
| NO. | DATE | REVISION | BY |
| <div><div>GRÄEF</div><div>275 W. Wisconsin Avenue Suite 300 Milwaukee, WI 53203 414 / 259 1500 414 / 259 0037 fax www.graef-usa.com</div></div> | | | |
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | | | |
| ACCEPTED |  CMK | | 05/27/25 |
| CHIEF STRUCTURES DESIGN ENGINEER | | DATE | |
| STRUCTURE B-45-48 | | | |
| IH 43 NB OVER CTH LL | | | |
| COUNTY | OZAUKEE | TOWN | PORT WASHINGTON |
| DESIGN SPEC. N/A REHABILITATION | | | |
| DESIGNED BY | WAR | DESIGN CK'D | KGW |
| DRAWN BY | KJS | PLANS CK'D | KGW |
| GENERAL PLAN | | | SHEET 1 OF 3 |

I.D.

DATE:



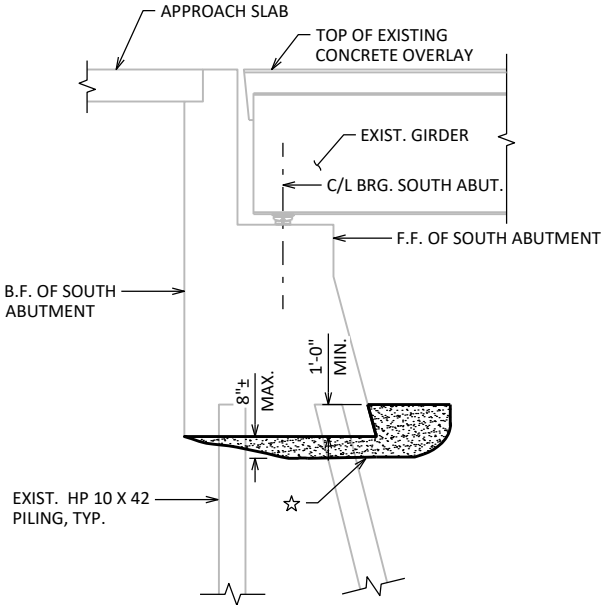
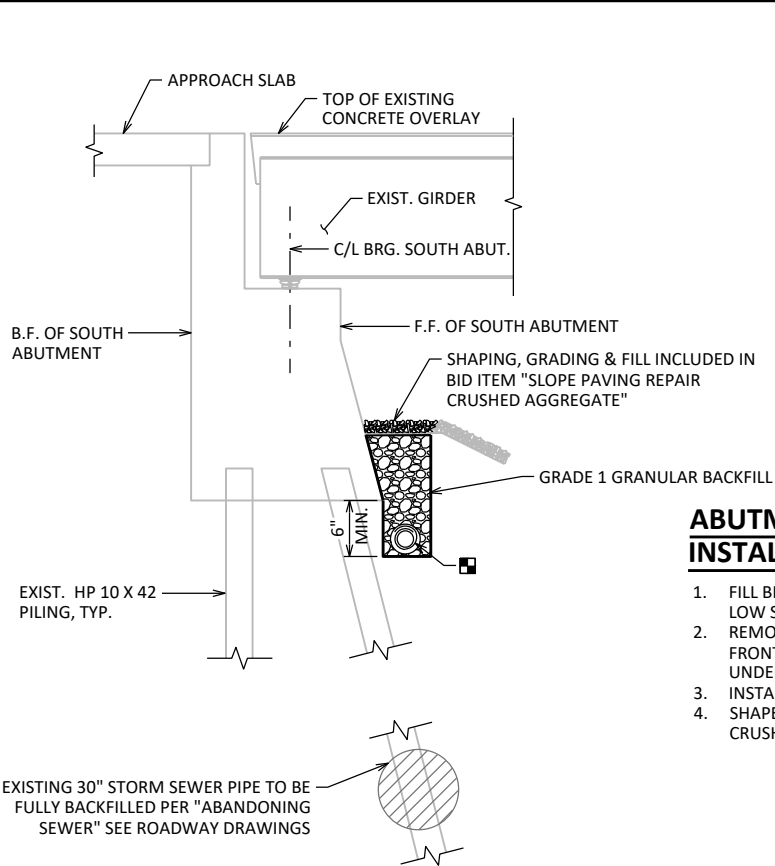
✱ DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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

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

TOTAL ESTIMATED QUANTITIES

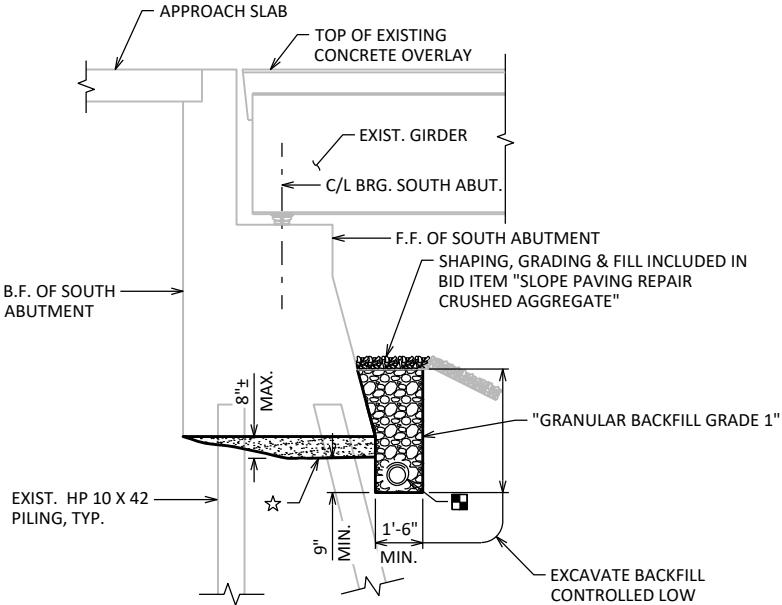
| BID ITEM NUMBER | BID ITEMS | UNIT | SUPER | S. ABUT. | PIER 1 | PIER 2 | N. ABUT. | TOTALS |
|-----------------|---------------------------------------|------|-------|----------|--------|--------|----------|--------|
| 209.0200.S | BACKFILL CONTROLLED LOW STRENGTH | CY | -- | 4 | -- | -- | -- | 4 |
| 209.1500 | BACKFILL GRANULAR GRADE 1 | TON | -- | 53 | -- | -- | -- | 53 |
| 604.9010.S | SLOPE PAVING REPAIR CRUSHED AGGREGATE | CY | -- | 5 | -- | -- | 2 | 7 |
| 604.9015.S | RESEAL CRUSHED AGGREGATE SLOPE PAVING | SY | -- | 365 | -- | -- | 320 | 685 |
| 612.0206 | PIPE UNDERDRAIN UNPERFORATED 6-INCH | LF | -- | 62 | -- | -- | -- | 62 |
| 612.0406 | PIPE UNDERDRAIN WRAPPED 6-INCH | LF | -- | 86 | -- | -- | -- | 86 |
| | | | | | | | | |
| | | | | | | | | |



SECTION A-A STAGE 1

LEGEND

- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. ATTACH PERMANENT CAP TO WEST END OF PIPE UNDERDRAIN .
- PIPE UNDERDRAIN UNPERFORATED (6-INCH) TO CTH LL STA. 16+64.47, 28.34' LT. ATTACH RODENT SHIELD AT PIPE OUTLET.
- ☆ FILL VOID BELOW EXISTING ABUTMENT WITH "BACKFILL CONTROLLED LOW STRENGTH". FORM AROUND VOID IN FRONT OF ABUTMENT TO CREATE PRESSURE HEAD AS REQUIRED TO ENSURE MATERIAL FILLS ENTIRE VOID. AFTER BACKFILL MATERIAL SETS, REMOVE BACKFILL MATERIAL IN FRONT OF ABUTMENT AS REQUIRED FOR PLACEMENT OF PIPE UNDERDRAIN.



SECTION A-A STAGE 2

STATE PROJECT NUMBER

1450-05-73

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

STATIONING SHOWN IS BASED ON 1974 ORIGINAL DESIGN DRAWINGS.

SLOPE PAVING REPAIRS SHALL BE MADE ONLY AS DIRECTED BY THE ENGINEER.

THE EXISTING STRUCTURE, B-45-48, IS A 3 SPAN STEEL GIRDER BRIDGE WITH AN OVERALL WIDTH OF 43'-10" AND A BACK-TO-BACK OF ABUTMENT LENGTH OF 234'-9 1/2".

ABUTMENT VOID REPAIR/UNDERDRAIN INSTALLATION CONSTRUCTION SEQUENCE

1. FILL BELOW EXISTING ABUTMENT PER "BACKFILL CONTROLLED LOW STRENGTH".
2. REMOVE "BACKFILL CONTROLLED LOW STRENGTH" MATERIAL IN FRONT OF ABUTMENT AS REQUIRED FOR INSTALLATION OF UNDERDRAIN.
3. INSTALL PIPE UNDERDRAIN AND GRADE 1 GRANULAR BACKFILL.
4. SHAPE, GRADE AND FILL BERM PER "SLOPE PAVING REPAIR CRUSHED AGGREGATE".

| NO. | DATE | REVISION | BY |
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| | | | |
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | | | |
| STRUCTURE B-45-48 | | | |
| DRAWN BY | | PLANS CK'D | WAR |
| | | KJS | |
| DETAILS & QUANTITIES | | | SHEET 2 OF 3 |

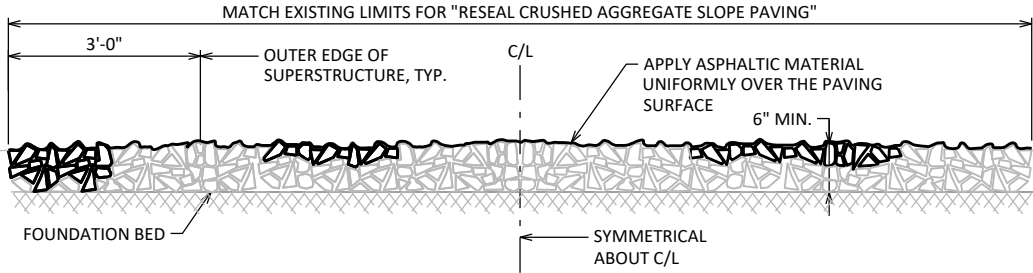
SLOPE PAVING NOTES

BID ITEM SHALL BE "SLOPE PAVING REPAIR CRUSHED AGGREGATE" & "RESEAL CRUSHED AGGREGATE SLOPE PAVING".

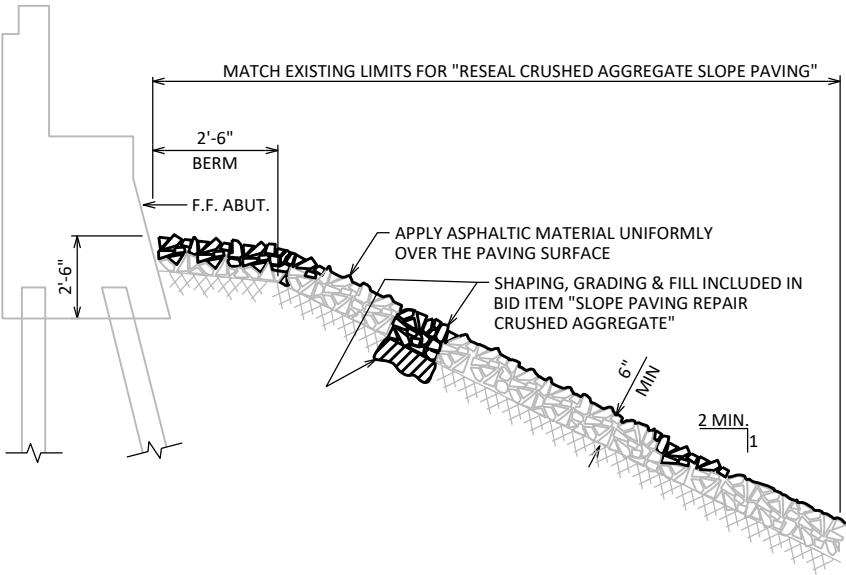
ENTIRE LIMITS OF SLOPE PAVING SHALL BE RESEALED.

WOOD FORMS MAY BE LEFT IN PLACE WHEN OF A QUALITY ACCEPTABLE TO THE ENGINEER.

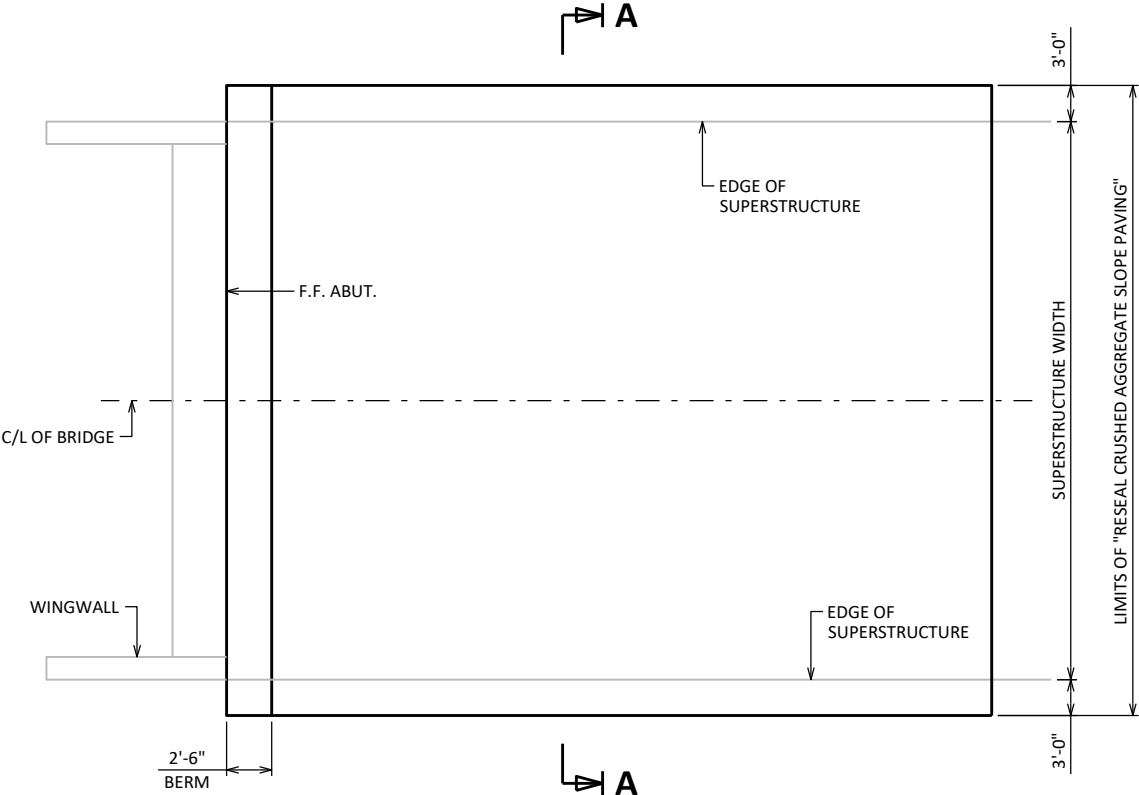
SLOPE PAVING REPAIRS SHALL BE MADE ONLY AS DIRECTION OF THE ENGINEER.



SECTION A-A



SLOPE PAVING TYPICAL SECTION



SLOPE PAVING PLAN

| | | | |
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| NO. | DATE | REVISION | BY |
| STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION | | | |
| STRUCTURE B-45-48 | | | |
| DRAWN BY | | KJS | PLANS CK'D KGW |
| SLOPE REPAIR DETAILS | | SHEET 3 OF 3 | |
| | | | |



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