

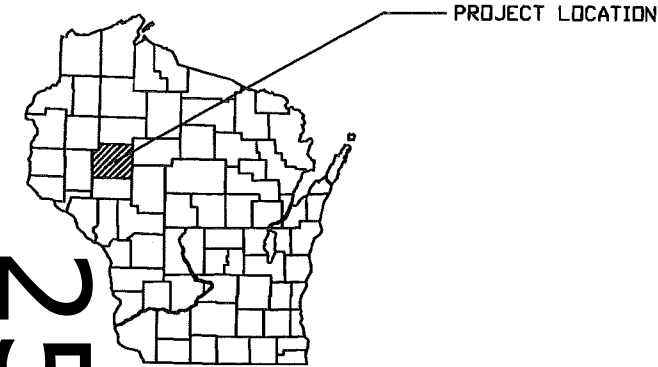
PROJECT ID: 8996-00-95  
WITH N/A

COUNTY, CHIPPEWA

# ORDER OF SHEETS

|                          |   |
|--------------------------|---|
| Section No. 1            | Title   |
| Section No. 2            | Typical Sections and Details<br>(Includes Erosion Control Sheets) |
| Section No. 3            | Estimate of Quantities  |
| Section No. 3            | Miscellaneous Quantities  |
| <del>Section No. 4</del> | <del>Right of Way Plat</del>                                      |
| Section No. 5            | Plan and Profile  |
| Section No. 6            | Standard Detail Drawings  |
| <del>Section No. 7</del> | <del>Sign Plates</del>  |
| <del>Section No. 8</del> | <del>Structure Plans</del>  |
| Section No. 9            | Computer Earthwork Data   |
| Section No. 9            | Cross Sections  |

TOTAL SHEETS = 42



## DESIGN DESIGNATION

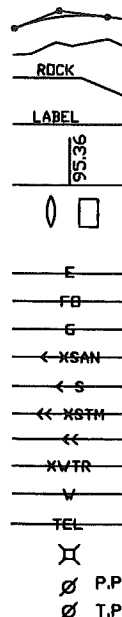
|               |   |         |
|---------------|---|---------|
| A.A.D.T. 2015 | = | 1850    |
| A.A.D.T. 2035 | = | 2050    |
| D.H.V. 2035   | = | 252     |
| D.D.          | = | 59/41   |
| T.            | = | 3.3%    |
| DESIGN SPEED  | = | 35 MPH  |
| ESALS         | = | 160,000 |

## 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<br>(Box or Pipe) | ----    |
| COMBUSTIBLE FLUIDS                | CAUTION |
| MARSH AREA                        | ----    |
| WOODED OR SHRUB AREA              | ----    |

## PROFILE

|  |           |
|--|-----------|
| GRADE LINE                                     | ----      |
| ORIGINAL GROUND                                | ----      |
| MARSH OR ROCK PROFILE<br>(To be noted as such) | ----      |
| SPECIAL DITCH                                  | ----      |
| GRADE ELEVATION                                | 95.36     |
| CULVERT (Profile View)                         | ----      |
| UTILITIES                                      | ----      |
| ELECTRIC                                       | ----      |
| FIBER OPTIC                                    | ----      |
| GAS  | ----      |
| EX. SANITARY SEWER                             | -----XSAN |
| PROP. SANITARY SEWER                           | -----S    |
| EX. STORM SEWER                                | -----XSTM |
| PROP. STORM SEWER                              | -----S    |
| EX. WATER                                      | -----XWTR |
| PROP. WATER                                    | -----W    |
| TELEPHONE                                      | -----TEL  |
| UTILITY PEDESTAL                               | ----      |
| POWER POLE                                     | ----      |
| TELEPHONE POLE                                 | ----      |



LAYOUT  
SCALE 0 0.5 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.302 MI.

\*Coordinates on this plan are referenced to the Wisconsin County Coordinate System (WCCS), Chippewa County.\*

P.P.  
T.P.

STANDARD ABBREVIATIONS

|             |                              |
|-------------|------------------------------|
| AC          | ACRE                         |
| ASPH        | ASPHALTIC                    |
| AVG         | AVERAGE                      |
| ADT         | AVERAGE DAILY TRAFFIC        |
| BM          | BENCHMARK                    |
| CE          | COMMERCIAL ENTRANCE          |
| C/L         | CENTERLINE                   |
| CL          | CLASS                        |
| Δ           | CENTRAL ANGLE OR DELTA       |
| CY          | CUBIC YARD                   |
| D           | DEGREE OF CURVE              |
| DHV         | DESIGN HOUR VOLUME           |
| ESALS       | EQUIVALENT SINGLE AXLE LOADS |
| EXIST OR EX | EXISTING                     |
| FC OR F/C   | FACE OF CURB                 |
| FE          | FIELD ENTRANCE               |
| FL OR F/L   | FLOWLINE                     |
| CWT         | HUNDREDWEIGHT                |
| HYD         | HYDRANT                      |
| IP          | IRON PIPE                    |
| INV         | INVERT                       |
| LF          | LINEAR FOOT                  |
| LS          | LUMP SUM                     |
| LT OR L     | LEFT                         |
| MH          | MANHOLE                      |
| PE          | PRIVATE ENTRANCE             |
| R/W         | RIGHT-OF-WAY                 |
| R/L         | REFERENCE LINE               |
| RT          | RIGHT                        |
| SAN         | SANITARY                     |
| SF          | SQUARE FOOT                  |
| SY          | SQUARE YARD                  |
| STA         | STATION                      |
| STM         | STORM                        |
| SS          | STORM SEWER                  |
| TC OR T/C   | TOP OF CURB                  |
| T           | TRUCKS (PERCENT OF)          |
| TYP         | TYPICAL                      |
| VAR         | VARIABLE                     |
| VC          | VERTICAL CURVE               |
| X           | EAST GRID COORDINATE         |
| Y           | NORTH GRID COORDINATE        |
| YD          | YARD                         |

RUNOFF COEFFICIENT TABLE

|                         | HYDROLOGIC SOIL GROUP |     |          |                       |     |          |                       |     |          |       |                 |          |
|-------------------------|-----------------------|-----|----------|-----------------------|-----|----------|-----------------------|-----|----------|-------|-----------------|----------|
|                         | A                     |     |          | B                     |     |          | C                     |     |          | D     |                 |          |
|                         | SLOPE RANGE (PERCENT) |     |          | SLOPE RANGE (PERCENT) |     |          | SLOPE RANGE (PERCENT) |     |          | SLOPE | RANGE (PERCENT) |          |
| LAND USE:               | 0-2                   | 2-6 | 6 & OVER | 0-2                   | 2-6 | 6 & OVER | 0-2                   | 2-6 | 6 & OVER | 0-2   | 2-6             | 6 & OVER |
| ROW CROPS               | .08                   | .16 | .22      | .12                   | .20 | .27      | .15                   | .24 | .33      | .19   | .28             | .38      |
|                         | .22                   | .30 | .38      | .26                   | .34 | .44      | .30                   | .37 | .50      | .34   | .41             | .56      |
| MEDIAN STRIP-<br>TURF   | .19                   | .20 | .24      | .19                   | .22 | .26      | .20                   | .23 | .30      | .20   | .25             | .30      |
|                         | .24                   | .26 | .30      | .25                   | .28 | .33      | .26                   | .30 | .37      | .27   | .32             | .40      |
| SIDE SLOPE-<br>TURF     |                       |     | .25      |                       |     | .27      |                       |     | .28      |       |                 | .30      |
|                         |                       |     | .32      |                       |     | .34      |                       |     | .36      |       |                 | .38      |
| PAVEMENT:               |                       |     |          |                       |     |          |                       |     |          |       |                 |          |
| ASPHALT                 |                       |     |          | .70 - .95             |     |          |                       |     |          |       |                 |          |
| CONCRETE                |                       |     |          | .80 - .95             |     |          |                       |     |          |       |                 |          |
| BRICK                   |                       |     |          | .70 - .80             |     |          |                       |     |          |       |                 |          |
| DRIVES, WALKS           |                       |     |          | .75 - .85             |     |          |                       |     |          |       |                 |          |
| ROOFS                   |                       |     |          | .75 - .95             |     |          |                       |     |          |       |                 |          |
| GRAVEL ROADS, SHOULDERS |                       |     |          | .40 - .60             |     |          |                       |     |          |       |                 |          |

TOTAL PROJECT AREA = 2.42 ACRES  
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.47 ACRES

UTILITIES

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XCEL ENERGY - DISTRIBUTION  
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DIGGERSHOTLINE

Dial 811 or (800)242-8511

www.DiggersHotline.com

GENERAL NOTES

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

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

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY ARE TO BE SEEDED, FERTILIZED, AND MULCHED AS DIRECTED BY THE ENGINEER. ALL OTHER DISTURBED AREAS ARE TO BE SEEDED, FERTILIZED AND MULCHED AT THE CONTRACTORS EXPENSE.

THE EXACT LOCATION OF DRIVEWAYS WILL BE DETERMINED BY THE ENGINEER.

THE EXACT LOCATION OF EROSION CONTROL LIMITS WILL BE LOCATED IN THE FIELD BY THE ENGINEER.

THE 4.5-INCH HMA PAVEMENT, TYPE E-3 SHALL BE PLACED WITH A 1.75-INCH UPPER LAYER AND A 2.75-INCH LOWER LAYER.

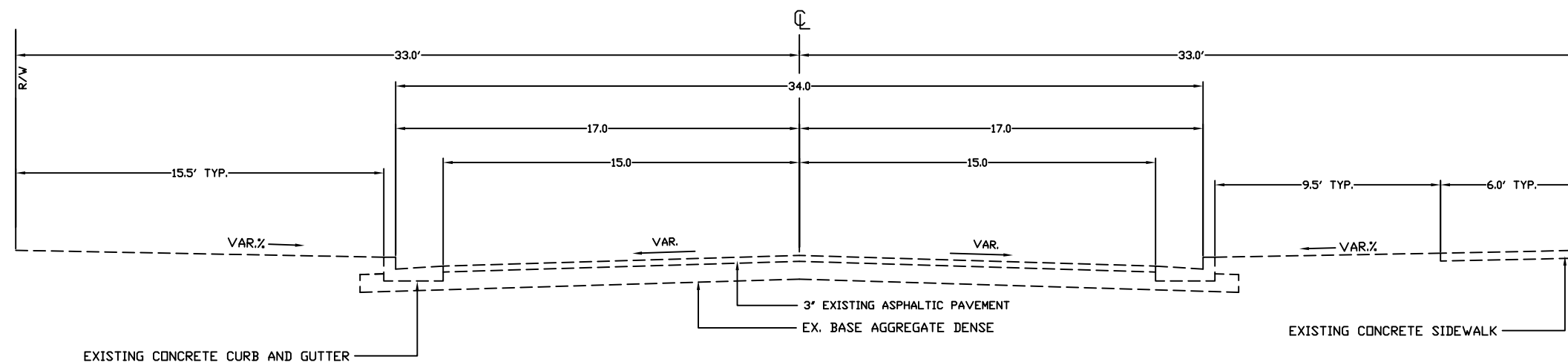
PIPE LENGTHS ILLUSTRATED ARE FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.

PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL CONTACT THE COUNTY SURVEYOR CONCERNING MONUMENT AND PROPERTY CORNER PRESERVATION.

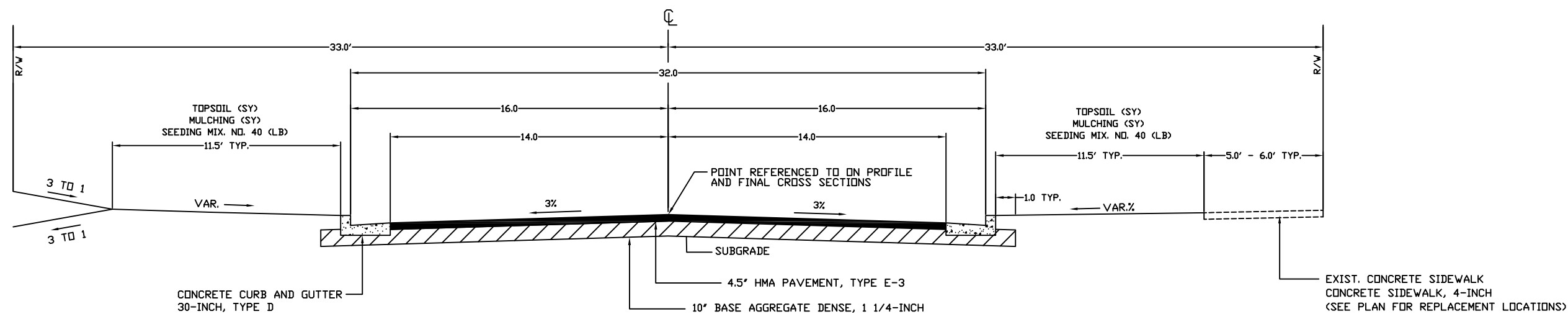
ALL ELEVATIONS ARE BASED ON USGS DATUM.

CONTROL POINTS

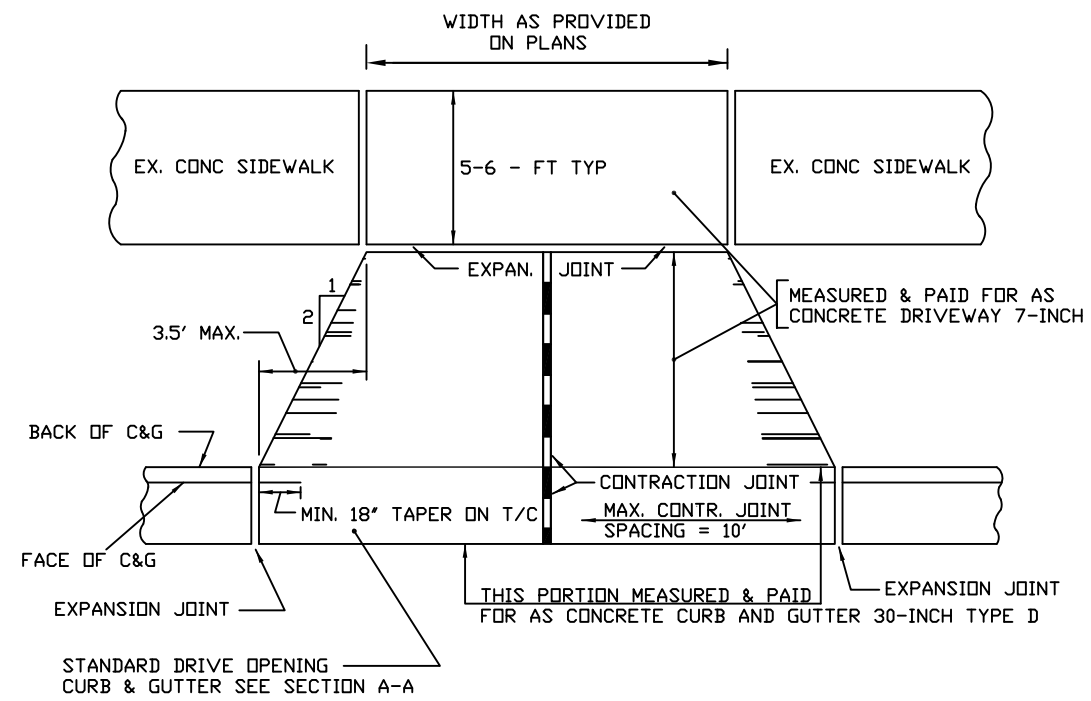
| POINT NUMBER | LOCATION        | X         | Y         | ELEVATION | DESCRIPTION |
|--------------|-----------------|-----------|-----------|-----------|-------------|
| 129          | 6+57, 8' RT     | 172627.46 | 131732.35 | 920.54    | PK - NAIL   |
| 130          | 14+14, 0' LT/RT | 172571.98 | 132487.07 | 920.06    | PK - NAIL   |
| 131          | 21+34, 24' LT   | 172555.11 | 133207.51 | 907.50    | PK - NAIL   |



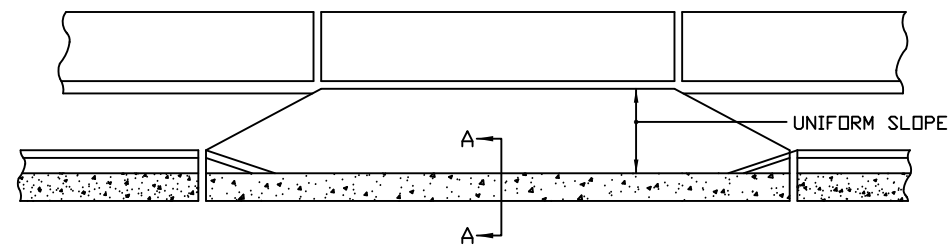
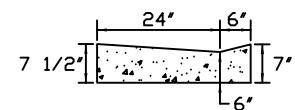
**TYPICAL EXISTING SECTION**  
5+93 - 21+90



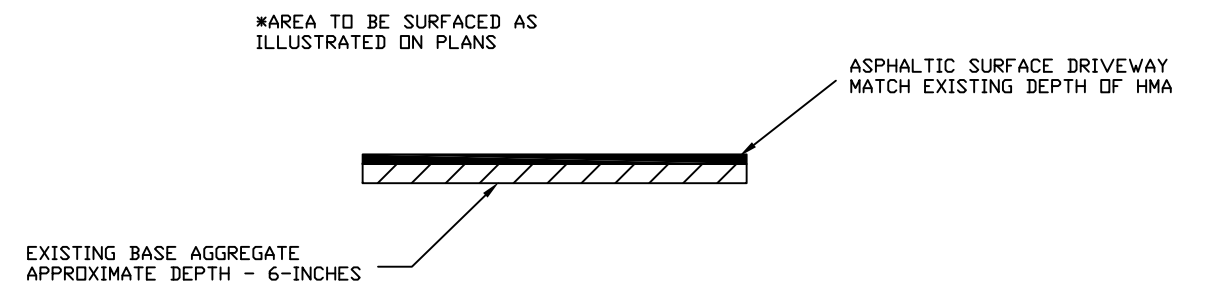
**TYPICAL FINISHED SECTION**  
5+93 - 21+90

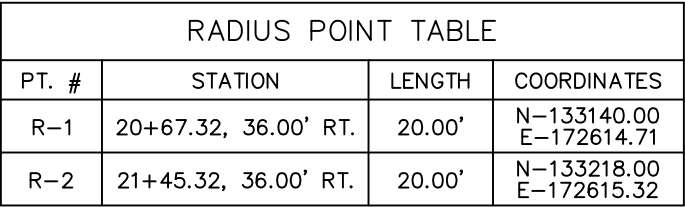


PLAN VIEW

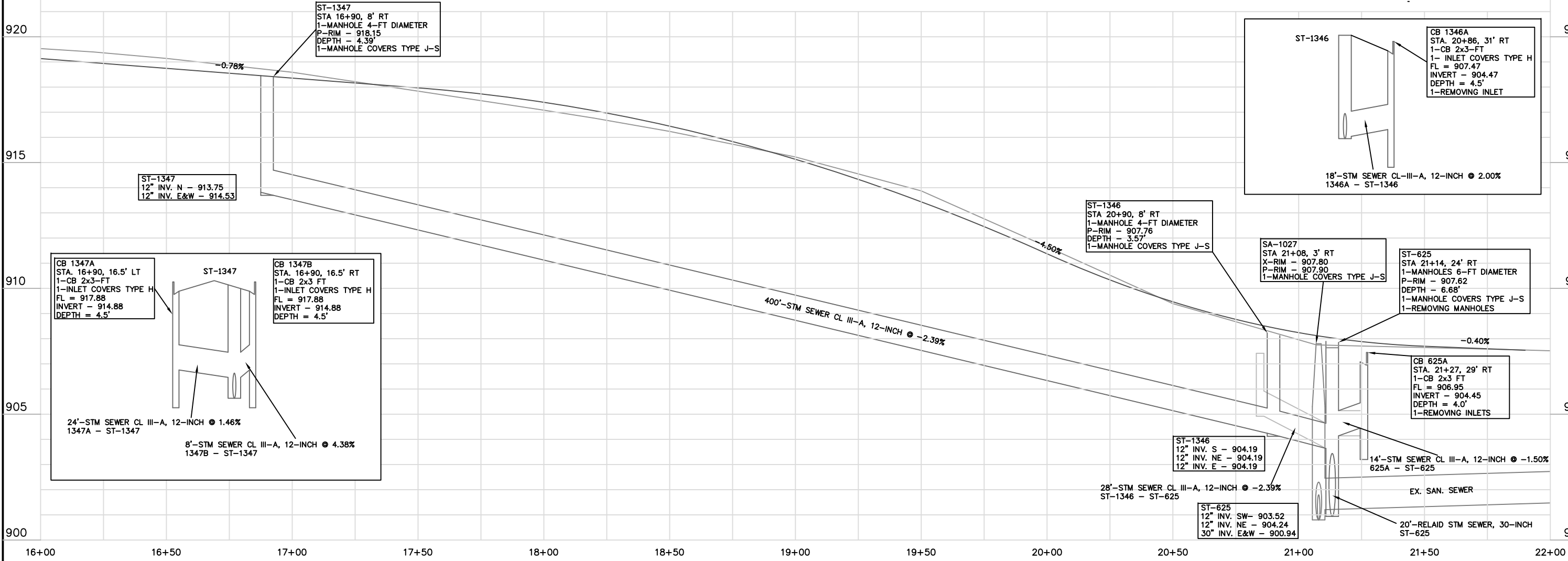
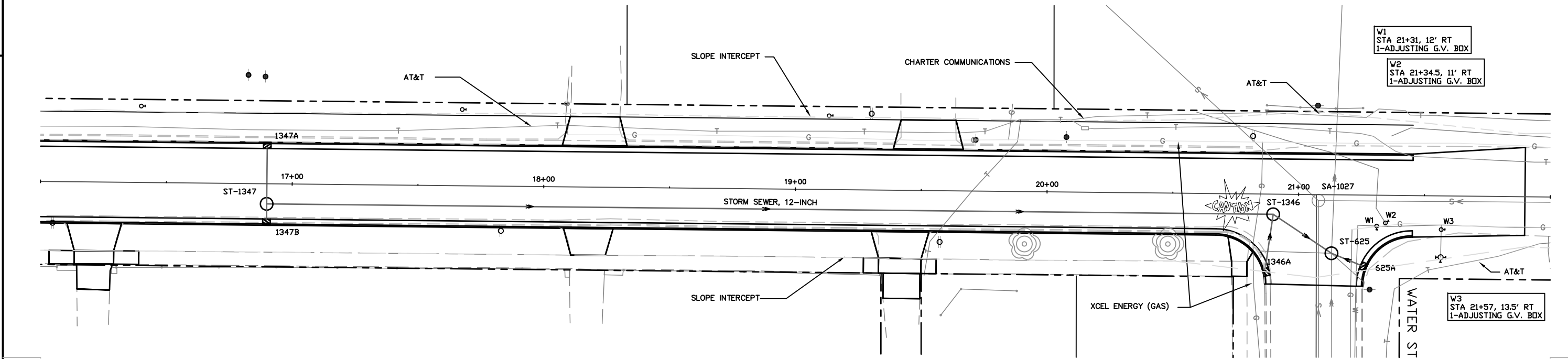
SECTION VIEW THRU GUTTER  
AT CURB FACE

SECTION A-A

PRIVATE/COMMERCIAL  
ENTRANCEASPHALTIC SURFACE DRIVEWAYS  
AND FIELD ENTRANCESSTA 16+21, RT  
STA 19+50, RT



| BENCHMARK TABLE |           |             |        |
|-----------------|-----------|-------------|--------|
| NO              | STA       | DESCRIPTION | ELEV.  |
| 1               | 5+70, RT. | TOP OF HYD. | 923.40 |



| DATE 22JAN16 |          | E S T I M A T E O F Q U A N T I T I E S                            |      |           |            |
|--------------|----------|--|------|-----------|------------|
| LINE         |          |  |      |           | 8996-00-95 |
| NUMBER       | ITEM     | ITEM DESCRIPTION   | UNIT | TOTAL     | QUANTITY   |
| 0010         | 204.0150 | Removing Curb & Gutter   | LF   | 2,992.000 | 2,992.000  |
| 0020         | 204.0155 | Removing Concrete Sidewalk   | SY   | 31.000    | 31.000     |
| 0030         | 204.0210 | Removing Manholes  | EACH | 1.000     | 1.000      |
| 0040         | 204.0220 | Removing Inlets  | EACH | 2.000     | 2.000      |
| 0050         | 205.0100 | Excavation Common  | CY   | 2,867.000 | 2,867.000  |
| 0060         | 213.0100 | Finishing Roadway (project) 01. 8996-00-95                         | EACH | 1.000     | 1.000      |
| 0070         | 305.0120 | Base Aggregate Dense 1 1/4-Inch                                    | TON  | 3,566.000 | 3,566.000  |
| 0080         | 416.0170 | Concrete Driveway 7-Inch   | SY   | 274.100   | 274.100    |
| 0090         | 455.0120 | Asphaltic Material PG64-28   | TON  | 48.000    | 48.000     |
| 0100         | 455.0122 | Asphaltic Material PG64-34   | TON  | 31.000    | 31.000     |
| 0110         | 455.0605 | Tack Coat  | GAL  | 255.000   | 255.000    |
| 0120         | 460.1103 | HMA Pavement Type E-3  | TON  | 1,297.000 | 1,297.000  |
| 0130         | 460.2000 | Incentive Density HMA Pavement                                     | DOL  | 830.000   | 830.000    |
| 0140         | 465.0120 | Asphaltic Surface Driveways and Field Entrances                    | TON  | 6.000     | 6.000      |
| 0150         | 601.0411 | Concrete Curb & Gutter 30-Inch Type D                              | LF   | 3,089.000 | 3,089.000  |
| 0160         | 602.0405 | Concrete Sidewalk 4-Inch   | SF   | 278.000   | 278.000    |
| 0170         | 602.0505 | Curb Ramp Detectable Warning Field Yellow                          | SF   | 8.000     | 8.000      |
| 0180         | 608.3012 | Storm Sewer Pipe Class III-A 12-Inch                               | LF   | 492.000   | 492.000    |
| 0190         | 609.0130 | Relaid Storm Sewer 30-Inch   | LF   | 20.000    | 20.000     |
| 0200         | 611.0535 | Manhole Covers Type J-Special                                      | EACH | 4.000     | 4.000      |
| 0210         | 611.0624 | Inlet Covers Type H  | EACH | 4.000     | 4.000      |
| 0220         | 611.1230 | Catch Basins 2x3-FT  | EACH | 4.000     | 4.000      |
| 0230         | 611.2004 | Manholes 4-FT Diameter   | EACH | 2.000     | 2.000      |
| 0240         | 611.2006 | Manholes 6-FT Diameter   | EACH | 1.000     | 1.000      |
| 0250         | 619.1000 | Mobilization   | EACH | 1.000     | 1.000      |
| 0260         | 624.0100 | Water  | MGAL | 55.000    | 55.000     |
| 0270         | 625.0100 | Topsoil  | SY   | 3,912.000 | 3,912.000  |
| 0280         | 627.0200 | Mulching   | SY   | 3,912.000 | 3,912.000  |
| 0290         | 628.1905 | Mobilizations Erosion Control                                      | EACH | 2.000     | 2.000      |
| 0300         | 628.1910 | Mobilizations Emergency Erosion Control                            | EACH | 2.000     | 2.000      |
| 0310         | 628.7015 | Inlet Protection Type C  | EACH | 4.000     | 4.000      |
| 0320         | 629.0205 | Fertilizer Type A  | CWT  | 2.500     | 2.500      |
| 0330         | 630.0140 | Seeding Mixture No. 40   | LB   | 70.000    | 70.000     |
| 0340         | 634.0612 | Posts Wood 4x6-Inch X 12-FT  | EACH | 1.000     | 1.000      |
| 0350         | 638.2102 | Moving Signs Type II   | EACH | 3.000     | 3.000      |
| 0360         | 642.5001 | Field Office Type B  | EACH | 1.000     | 1.000      |
| 0370         | 643.0100 | Traffic Control (project) 01. 8996-00-95                           | EACH | 1.000     | 1.000      |
| 0380         | 643.0420 | Traffic Control Barricades Type III                                | DAY  | 600.000   | 600.000    |
| 0390         | 643.0705 | Traffic Control Warning Lights Type A                              | DAY  | 1,200.000 | 1,200.000  |
| 0400         | 650.4000 | Construction Staking Storm Sewer                                   | EACH | 7.000     | 7.000      |
| 0410         | 650.4500 | Construction Staking Subgrade                                      | LF   | 1,600.000 | 1,600.000  |
| 0420         | 650.5000 | Construction Staking Base  | LF   | 1,600.000 | 1,600.000  |
| 0430         | 650.5500 | Construction Staking Curb Gutter and Curb & Gutter                 | LF   | 3,089.000 | 3,089.000  |
| 0440         | 650.9910 | Construction Staking Supplemental Control (project) 01. 8996-00-95 | LS   | 1.000     | 1.000      |
| 0450         | 690.0150 | Sawing Asphalt   | LF   | 253.000   | 253.000    |
| 0460         | 690.0250 | Sawing Concrete  | LF   | 30.000    | 30.000     |
| 0470         | ASP.1TOA | On-the-Job Training Apprentice at \$5.00/HR                        | HRS  | 1,200.000 | 1,200.000  |
| 0480         | ASP.1TOG | On-the-Job Training Graduate at \$5.00/HR                          | HRS  | 300.000   | 300.000    |
| 0490         | SPV.0060 | Special 01. Adjust Gate Valve Box                                  | EACH | 3.000     | 3.000      |

3

| REMOVALS |              |          |                 |                   |  |
|----------|--------------|----------|-----------------|-------------------|--|
| CATEGORY | STATION      | LOCATION | <u>204.0150</u> | <u>204.0155</u>   |  |
|          |              |          | REMOVING CURB   | REMOVING CONCRETE |  |
|          |              |          | & GUTTER LF     | SIDEWALK SY       |  |
| 0010     | 5+93 - 20+81 | LT       | 1488            | -                 |  |
| 0010     | 5+93 - 20+86 | RT       | 1504            | -                 |  |
| 0010     | 16+03        | RT       | -               | 6                 |  |
| 0010     | 16+29        | RT       | -               | 6                 |  |
| 0010     | 19+27        | RT       | -               | 4                 |  |
| 0010     | 19+50        | RT       | -               | 4                 |  |
| 0010     | 20+76        | RT       | -               | 11                |  |
| TOTAL    |              |          | 2992            | 31                |  |

| REMOVING STRUCTURES |           |         |          |                   |                 |
|---------------------|-----------|---------|----------|-------------------|-----------------|
| CATEGORY            | STRUCTURE | STATION | LOCATION | <u>204.0210</u>   | <u>204.0220</u> |
|                     |           |         |          | REMOVING MANHOLES | REMOVING INLETS |
|                     |           |         |          | EACH              | EACH            |
| 0010                | ST-625    | 21+14   | 24' RT   | 1                 | -               |
| 0010                | CB 625A   | 21+27   | 29' RT   | -                 | 1               |
| 0010                | CB-1346A  | 20+86   | 31' RT   | -                 | 1               |
| TOTALS              |           |         |          | 1                 | 2               |

| BASE AGGREGATE DENSE 1 1/4-INCH |               |              |                 |                 |
|---------------------------------|---------------|--------------|-----------------|-----------------|
| CATEGORY                        | STATION       | LOCATION     | <u>305.0120</u> | <u>624.0100</u> |
|                                 |               |              | TON             | WATER           |
| 0010                            | 5+93 - 21+90  | STATE STREET | 3546            | 55              |
| 0010                            | UNDISTRIBUTED | STATE STREET | 20              | -               |
| TOTAL                           |               |              | 3566            | 55              |

| CONCRETE CURB & GUTTER 30-INCH TYPE D |               |          |                 |  |
|---------------------------------------|---------------|----------|-----------------|--|
| CATEGORY                              | STATION       | LOCATION | <u>601.0411</u> |  |
|                                       |               |          | LF              |  |
| 0010                                  | 5+93 - 21+45  | LT       | 1554            |  |
| 0010                                  | 5+93 - 20+89  | RT       | 1503            |  |
| 0010                                  | 21+23 - 21+45 | LT       | 32              |  |
| TOTAL                                 |               |          | 3089            |  |

| CONCRETE DRIVEWAY, 7-INCH |         |          |                 |                      |
|---------------------------|---------|----------|-----------------|----------------------|
| CATEGORY                  | STATION | LOCATION | <u>416.0170</u> | ADDRESS              |
|                           |         |          | SY              |                      |
| 0010                      | 7+67    | LT       | 30.7            | CHIPPEWA CEMETERY    |
| 0010                      | 7+67    | RT       | 31.1            | FOREST HILL CEMETERY |
| 0010                      | 14+00   | LT       | 37              | CHIPPEWA CEMETERY    |
| 0010                      | 15+50   | LT       | 28.3            | HOPE CEMETERY        |
| 0010                      | 16+21   | RT       | 31.8            | HOPE CEMETERY        |
| 0010                      | 18+20   | LT       | 29.1            | HOPE CEMETERY        |
| 0010                      | 18+20   | RT       | 19.7            | HOPE CEMETERY        |
| 0010                      | 19+50   | LT       | 31.8            | HOPE CEMETERY        |
| 0010                      | 19+50   | RT       | 34.6            | PUBLIC ALLEY         |
| TOTAL                     |         |          | 274.1           |                      |

| CONCRETE SIDEWALK, 4-INCH |         |          |                           |                    |              |
|---------------------------|---------|----------|---------------------------|--------------------|--------------|
| CATEGORY                  | STATION | LOCATION | <u>602.0405</u>           | <u>602.0505</u>    |              |
|                           |         |          | CONCRETE SIDEWALK, 4-INCH | CURB RAMP          |              |
|                           |         |          | SF                        | DETECTABLE WARNING | FIELD YELLOW |
| 0010                      | 16+03   | RT       | 54                        | HOPE CEMETERY      | -            |
| 0010                      | 16+29   | RT       | 54                        | HOPE CEMETERY      | -            |
| 0010                      | 19+27   | RT       | 36                        | HOPE CEMETERY      | -            |
| 0010                      | 19+50   | RT       | 35                        | HOPE CEMETERY      | -            |
| 0010                      | 20+76   | RT       | 99                        | CROSSWALK          | 8            |
| TOTAL                     |         |          | 278                       |                    | 8            |

| RESTORATION |              |          |                 |                 |                     |                 |
|-------------|--------------|----------|-----------------|-----------------|---------------------|-----------------|
| CATEGORY    | STATION      | LOCATION | <u>625.0100</u> | <u>627.0200</u> | <u>630.0140</u>     | <u>629.0205</u> |
|             |              |          | TOPSOIL         | MULCHING        | SEEDING MIXTURE NO. | FERTILIZER      |
|             |              |          | SY              | SY              | 40 LB               | TYPE A CWT      |
| 0010        | 5+93 - 21-90 | LT       | 2045            | 2045            | 36                  | 1.3             |
| 0010        | 5+93 - 21+90 | RT       | 1867            | 1867            | 34                  | 1.2             |
| TOTAL       |              |          | 3912            | 3912            | 70                  | 2.5             |

3



|                 |                |                 | ASPHALTIC ITEMS                        |  |  |                            |  |
|-----------------|----------------|-----------------|--|--|--|----------------------------|--|
| <u>CATEGORY</u> | <u>STATION</u> | <u>LOCATION</u> | 460.1103                               | 455.0122                                     | 455.0120                                     | 455.0605                   | 465.0120   |
|                 |                |                 | HMA PAVEMENT<br>TYPE E-3<br><u>TON</u> | ASPHALTIC MATERIAL<br>PG 64-34<br><u>TON</u> | ASPHALTIC MATERIAL<br>PG 64-28<br><u>TON</u> | TACK COAT<br><u>GALLON</u> | ASPHALTIC SURFACE DRIVEWAYS<br>AND FIELD ENTRANCES<br><u>TON</u> |
| 0010            | 5+93 - 21+91   | MAINLINE        | 1297                                   | 31   | 48   | 255                        | -  |
| 0010            | 16+21          | RT              | -                                      | -  | -  | -                          | 3  |
| 0010            | 19+50          | RT              | -                                      | -  | -  | -                          | 3  |
| TOTAL           |                |                 | 1297                                   | 31   | 48   | 255                        | 6  |

| STORM SEWER |           |       |          |                  |                  |                         |                |                     |                     |                  |                |
|-------------|-----------|-------|----------|------------------|------------------|-------------------------|----------------|---------------------|---------------------|------------------|----------------|
| CATEGORY    | STRUCTURE | STA   | LOCATION | 611.2004         | 611.2006         | DOWNSTREAM<br>STRUCTURE | 611.1230       | 608.3012            | 609.0130            | 611.0535         | 611.0624       |
|             |           |       |          | MANHOLES 4-FT    | MANHOLES 6-FT    |                         | CATCH BASINS   | STM SEWER CL        | RELAID STM          | MANHOLE COVERS   | INLET COVERS   |
|             |           |       |          | DIAMETER<br>EACH | DIAMETER<br>EACH |                         | 2x3-FT<br>EACH | III-A 12-INCH<br>LF | SEWER 30-INCH<br>LF | TYPE J-S<br>EACH | TYPE H<br>EACH |
| 0010        | ST-625    | 21+14 | 24' RT   | -                | 1                | -                       | -              | -                   | 20                  | 1                | -              |
| 0010        | 625A      | 21+27 | 29' RT   | -                | -                | ST-625                  | 1              | 14                  | -                   | -                | 1              |
| 0010        | ST-1346   | 20+90 | 8' RT    | 1                | -                | ST-625                  | -              | 28                  | -                   | 1                | -              |
| 0010        | 1346A     | 20+86 | 31' RT   | -                | -                | ST-1346                 | 1              | 18                  | -                   | -                | 1              |
| 0010        | ST-1347   | 16+90 | 8' RT    | 1                | -                | ST-1346                 | -              | 400                 | -                   | 1                | -              |
| 0010        | 1347A     | 16+90 | 16.5' LT | -                | -                | ST-1347                 | 1              | 24                  | -                   | -                | 1              |
| 0010        | 1347B     | 16+90 | 16.5' RT | -                | -                | ST-1347                 | 1              | 8                   | -                   | -                | 1              |
| TOTAL       |           |       |          | 2                | 1                |                         | 4              | 492                 | 20                  | 3                | 4              |

| SAWING   |         |              |                                  |                                   |
|----------|---------|--------------|----------------------------------|-----------------------------------|
| CATEGORY | STATION | LOCATION     | 690.0150<br>SAWING ASPHALT<br>LF | 690.0250<br>SAWING CONCRETE<br>LF |
| 0010     | 5-93    | LT:RT        | 26                               | -                                 |
| 0010     | 7-67    | LT           | 24                               | -                                 |
| 0010     | 7-67    | RT           | 24                               | -                                 |
| 0010     | 14-00   | LT           | 25                               | -                                 |
| 0010     | 15-50   | LT           | 19                               | -                                 |
| 0010     | 16-04   | RT           | -                                | 6                                 |
| 0010     | 16-21   | RT           | 16                               | -                                 |
| 0010     | 16-39   | RT           | -                                | 6                                 |
| 0010     | 18-20   | LT           | 20                               | -                                 |
| 0010     | 18-20   | RT           | 14                               | -                                 |
| 0010     | 19-27   | RT           | -                                | 6                                 |
| 0010     | 19-50   | RT           | 15                               | -                                 |
| 0010     | 19-56   | RT           | -                                | 6                                 |
| 0010     | 20-76   | RT           | -                                | 6                                 |
| 0010     |         | WATER STREET | 35                               | -                                 |
| 0010     | 21-90   | LT:RT        | 35                               | -                                 |
|          | TOTAL   |              | 253                              | 30                                |

| SIGNS                |                      |   |   | DESCRIPTION   |
|----------------------|----------------------|---|---|---------------|
| EXISTING<br>LOCATION | PROPOSED<br>LOCATION | 638.2102<br>MOVING SIGNS<br>TYPE II<br>EACH | 634.0612<br>POSTS WOOD<br>4x6 x 12-FT<br>EACH |               |
| 19+71, 20.4' LT      | 19+71, 21' LT        | 1   |   | INFORMATIONAL |
| 20+07, 21.9' LT      | 20+07, 21' LT        | 1   | 1   | SPEED LIMIT   |
| 21+29, 37.5' RT      | 21+29, 37.5' RT      | 1   |   | STOP SIGN     |
| TOTALS               |                      | 3   | 1   |               |

3

| CONSTRUCTION STAKING |                |   |  |  |   |  |
|----------------------|----------------|---|--|--|---|--|
| <u>CATEGORY</u>      | <u>STATION</u> | <u>650.4000</u><br><u>CONSTRUCTION</u><br><u>STAKING STORM</u><br><u>SEWER</u><br><u>EACH</u> | <u>650.4500</u><br><u>CONSTRUCTION</u><br><u>STAKING</u><br><u>SUBGRADE</u><br><u>LF</u> | <u>650.5000</u><br><u>CONSTRUCTION</u><br><u>STAKING BASE</u><br><u>LF</u> | <u>650.5500</u><br><u>CONSTRUCTION</u><br><u>STAKING CURB AND</u><br><u>GUTTER</u><br><u>LF</u> | <u>650.9910</u><br><u>CONSTRUCTION</u><br><u>STAKING</u><br><u>SUPPLEMENTAL</u><br><u>CONTROL</u><br><u>LUMP</u> |
| 0010                 | PROJECT        | 7   | 1600   | 1600   | 3089  | 1  |
| TOTAL                |                | 7   | 1600   | 1600   | 3089  | 1  |

| FIELD OFFICE    |                |  |
|-----------------|----------------|--|
| <u>CATEGORY</u> | <u>STATION</u> | <u>642.5001</u><br><u>FIELD OFFICE TYPE</u><br><u>B</u><br><u>EACH</u> |
| 0010            | PROJECT        | 1  |
| TOTAL           |                | 1  |

3

| EROSION CONTROL |                |  |   |   |
|-----------------|----------------|--|---|---|
| <u>CATEGORY</u> | <u>STATION</u> | <u>628.7015</u><br><u>INLET</u><br><u>PROTECTION TYPE</u><br><u>C</u><br><u>EACH</u> | <u>628.1905</u><br><u>MOBILIZATION</u><br><u>EROSION CONTROL</u><br><u>EACH</u> | <u>628.1910</u><br><u>MOBILIZATION</u><br><u>EMERGENCY EROSION</u><br><u>CONTROL</u><br><u>EACH</u> |
| 0010            | 16+90 LT/RT    | 2  |   |   |
| 0010            | 20+86, 31' RT  | 1  |   |   |
| 0010            | 21+27, 29' RT  | 1  |   |   |
| 0010            | PROJECT        |  | 2   | 2   |
| TOTAL           |                | 4  | 2   | 2   |

| TRAFFIC CONTROL |                |   |   |
|-----------------|----------------|---|---|
| <u>CATEGORY</u> | <u>STATION</u> | <u>643.0420</u><br><u>BARRICADES TYPE</u><br><u>III</u><br><u>DAY</u> | <u>643.0705</u><br><u>WARNING LIGHTS</u><br><u>TYPE A</u><br><u>DAY</u> |
| 0010            | PROJECT        | 600   | 1200  |
| TOTAL           |                | 600   | 1200  |

| SANITARY UTILITY |                  |                |                 |  |
|------------------|------------------|----------------|-----------------|--|
| <u>CATEGORY</u>  | <u>STRUCTURE</u> | <u>STATION</u> | <u>LOCATION</u> | <u>611.0535</u><br><u>MANHOLE COVERS</u><br><u>TYPE J-S</u><br><u>EACH</u> |
| 0020             | SA-1027          | 21+07          | 3' RT           | 1  |
| TOTALS           |                  |                |                 | 1  |

| WATER UTILITY   |                |                 |   |
|-----------------|----------------|-----------------|---|
| <u>CATEGORY</u> | <u>STATION</u> | <u>LOCATION</u> | <u>SPV.0060.01</u><br><u>ADJUST GATE</u><br><u>VALVE BOX</u><br><u>EACH</u> |
| 0020            | 21+31          | 12' RT          | 1   |
| 0020            | 21+35          | 11' RT          | 1   |
| 0020            | 21+57          | 13.5' RT        | 1   |
| TOTAL           |                |                 | 3   |

EARTHWORK SUMMARY

| Division            | From/To Station | Location         | Common Excavation (item # 205.0100) |                    | Salvaged/Unusable Pavement Material (4) | Available Material (5) | Unexpanded Fill | Expanded Fill (13) | Mass Ordinate +/- (14) | Comment: |
|---------------------|-----------------|------------------|-------------------------------------|--------------------|---|------------------------|-----------------|--------------------|------------------------|----------|
|                     |                 |                  | Cut (2)                             | EBS Excavation (3) |   |                        |                 | Factor 1.25        |                        |          |
| 1                   | 5+93 - 21+90    | Mainline stage 1 | 2867                                | 0                  | 634                                     | 2233                   | 107             | 134                | 2099                   |          |
| Division 1 Subtotal |                 |                  | 2867                                | 0                  | 634                                     | 2233                   | 107             | 134                | 2099                   |          |
|                     |                 |                  |                                     |                    |   |                        |                 |                    |                        |          |
| Grand Total         |                 |                  | 2867                                | 0                  | 634                                     | 2233                   | 107             | 134                | 2099                   |          |
| Total Common Exc    |                 |                  | 2867                                |                    |   |                        |                 |                    |                        |          |

- 1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100

2) Salvaged/Unusable Pavement Material is included in Cut.

3) EBS Excavation to be backfilled with Select Borrow material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well.

4) Salvaged/Unusable Pavement Material

5) Available Material = Cut - Salvaged/Unusable Pavement Material

6) Marsh Excavation - to be backfilled with Select Borrow Material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well. Item number 205.0500

7) Rock Excavation item number 205.0200

8) Reduced Marsh in Fill - Excavated Marsh material is usable in Fills outside the 1:1 slope. Marsh in Fill Reduction factor = 0.6

9) Reduced EBS in Fill - Excavated EBS material is usable in Fills outside the 1:1 slope. EBS in Fill Reduction factor = 0.8

10) Expanded Marsh Backfill - This is to be filled with Select Borrow material. Marsh Backfill Factor = 1.5. Item number 208.11

11) Expanded EBS Backfill - This is to be filled with Select Borrow material. EBS Backfill Factor = 1.3. Item number 208.11

12) Expanded Rock - Factor = 1.1.

13) Expanded Fill. Factor = 1.25

Depending on selections:

Or

Or

Or

Expanded Fill = (Unexpanded Fill - Rock\* Rock Factor - Reduced Marsh - Reduced EBS) \* Fill Factor

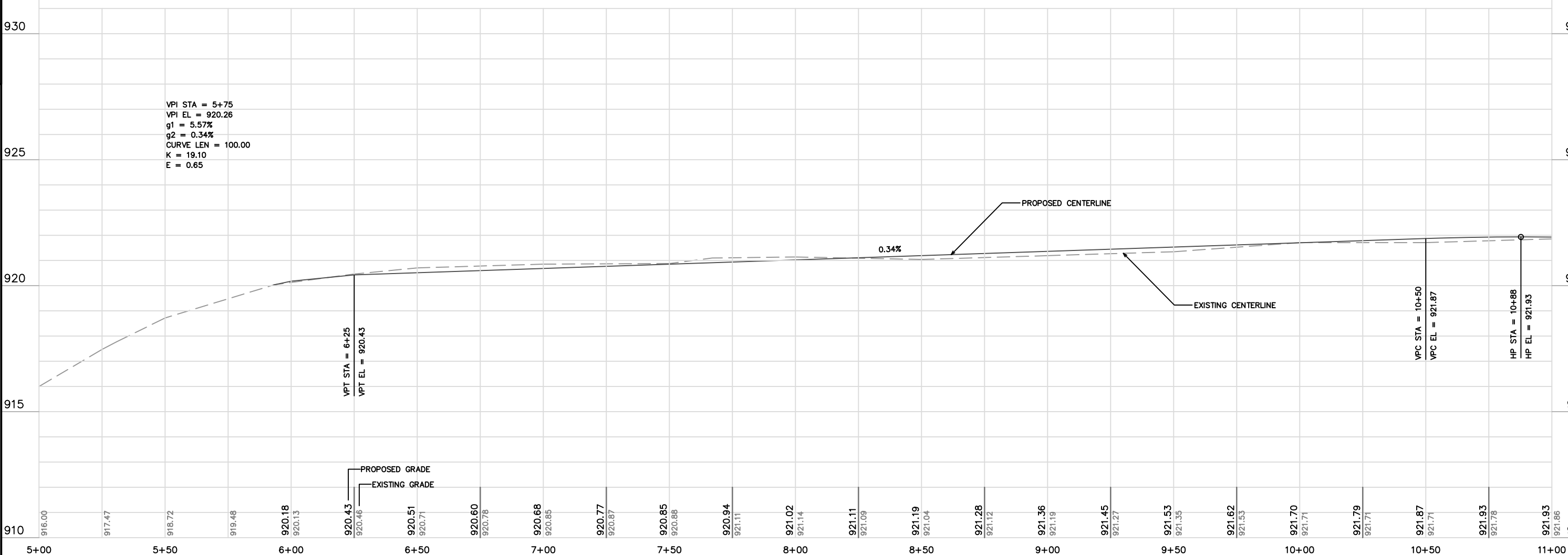
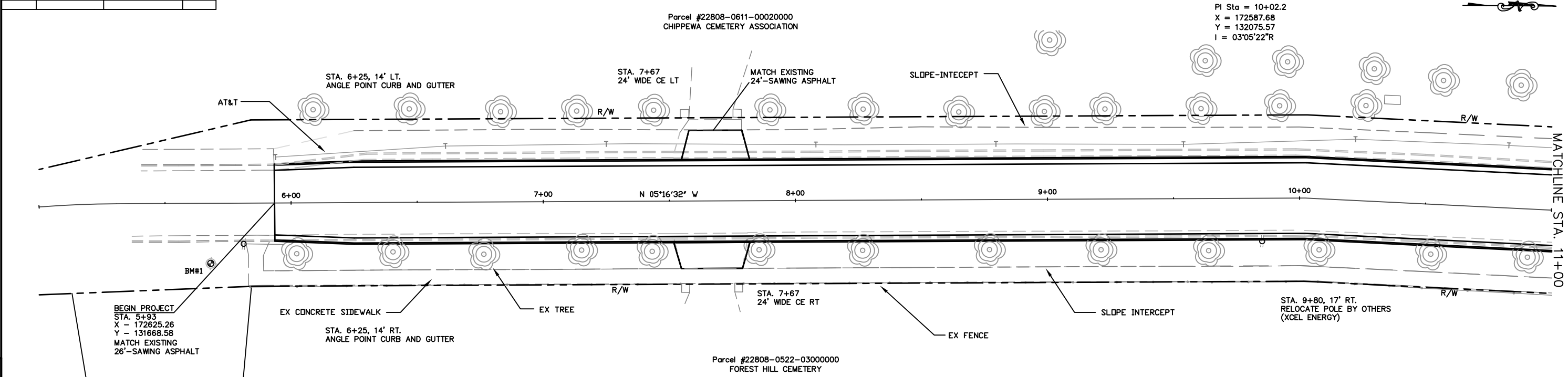
Expanded Fill = (Unexpanded Fill - Rock\* Rock Factor - Reduced EBS) \* Fill Factor

Expanded Fill = (Unexpanded Fill - Rock\* Rock Factor - Reduced Marsh) \* Fill Factor

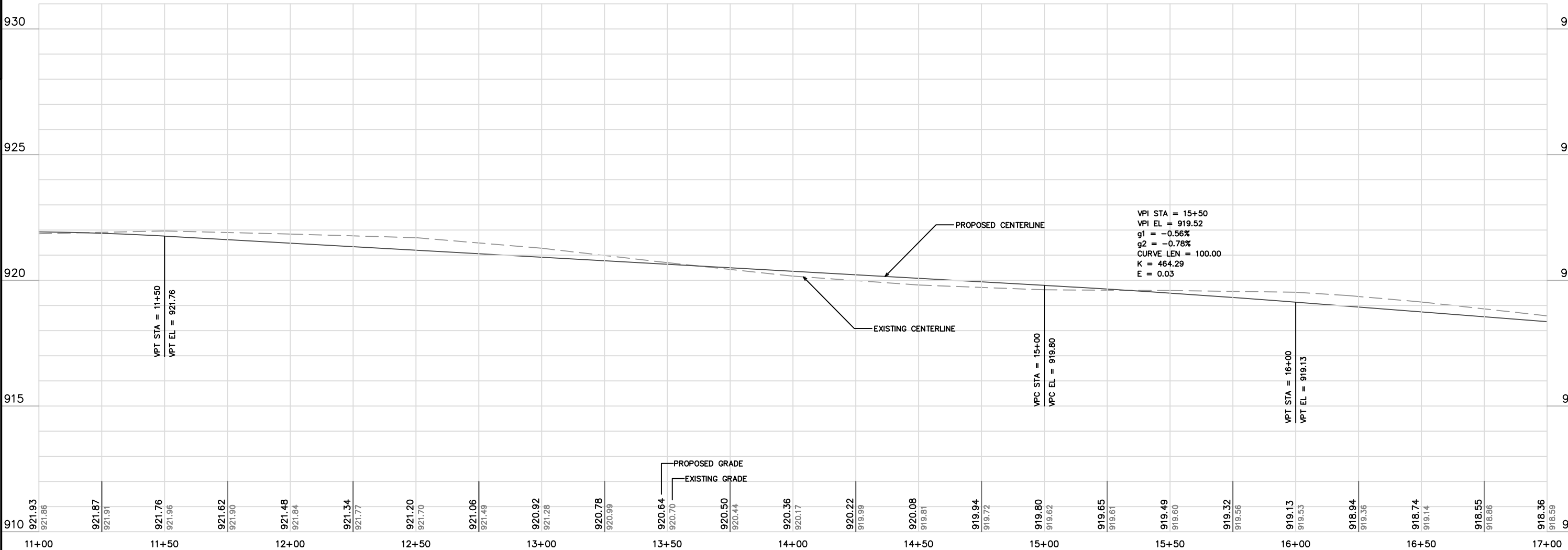
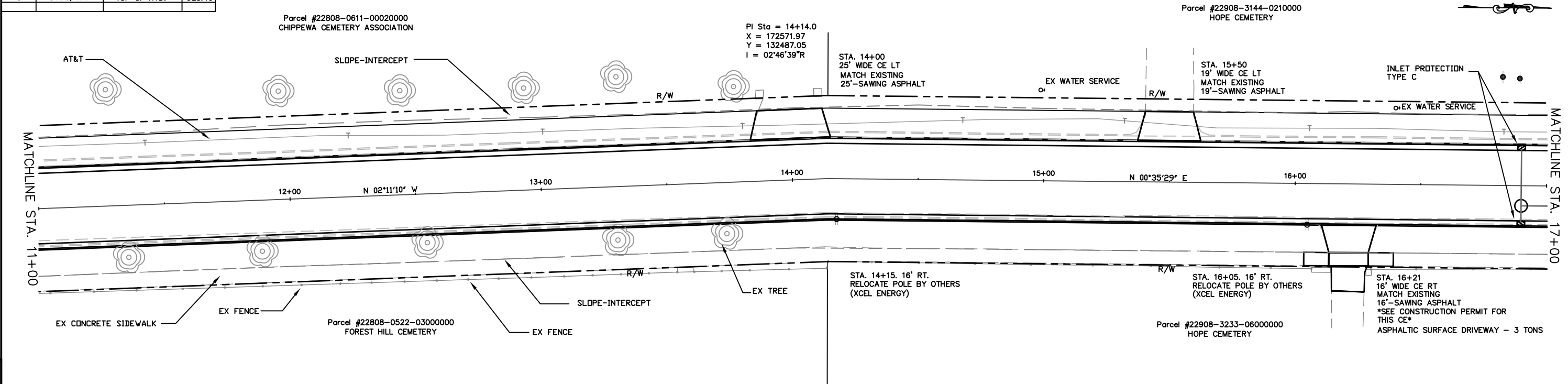
Expanded Fill = (Unexpanded Fill - Rock\* Rock Factor) \* Fill Factor

14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

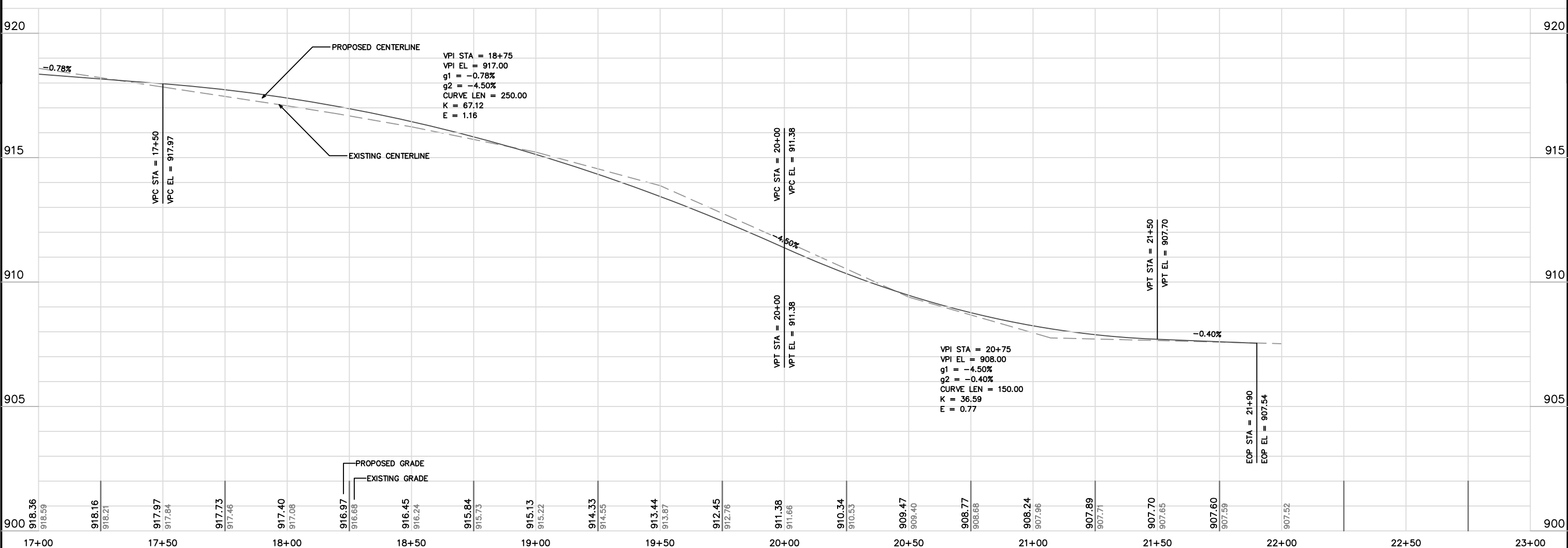
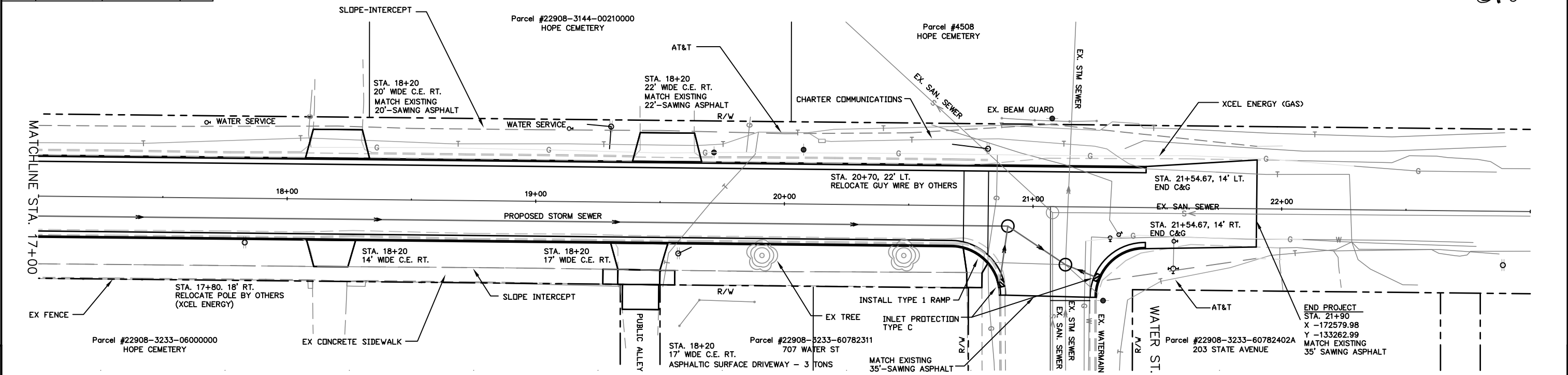
| BENCHMARK TABLE |           |             |        |
|-----------------|-----------|-------------|--------|
| NO              | STA       | DESCRIPTION | ELEV.  |
| 1               | 5+70, RT. | TOP OF HYD. | 923.40 |



| BENCHMARK TABLE |           |             |        |
|-----------------|-----------|-------------|--------|
| NO              | STA       | DESCRIPTION | ELEV.  |
| 1               | 5+70, RT. | TOP OF HYD. | 923.40 |



| BENCHMARK TABLE |           |             |        |
|-----------------|-----------|-------------|--------|
| NO              | STA       | DESCRIPTION | ELEV.  |
| 1               | 5+70, RT. | TOP OF HYD. | 923.40 |

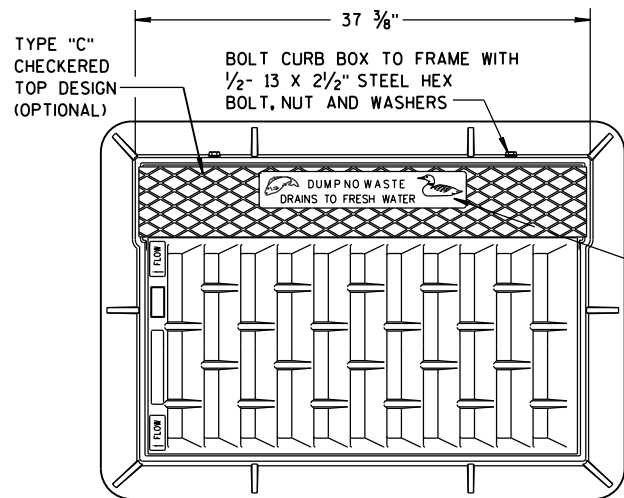


|                        |                   |                  |                  |             |       |   |
|------------------------|-------------------|------------------|------------------|-------------|-------|---|
| PROJECT NO: 8996-00-95 | HWY: STATE STREET | COUNTY: CHIPPEWA | PLAN AND PROFILE | SCALE, FEET | SHEET | E |
|------------------------|-------------------|------------------|------------------|-------------|-------|---|

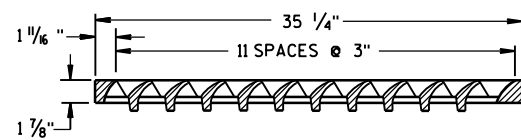
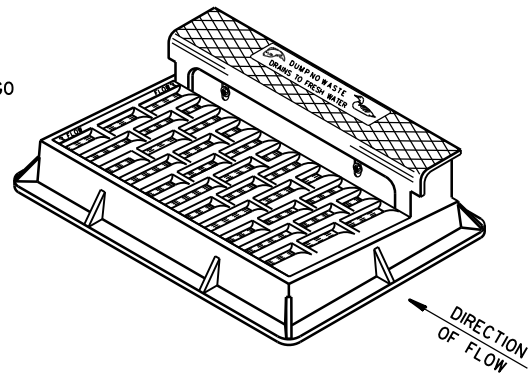
FILE NAME: \\Engineering\Project File\State Street 2015\RCP03002.dwg PLOT DATE: 10/2014 PLOT BY: TMB PLOT NAME: N/A PLOT SCALE: 1/4"=1'

Standard Detail Drawing List

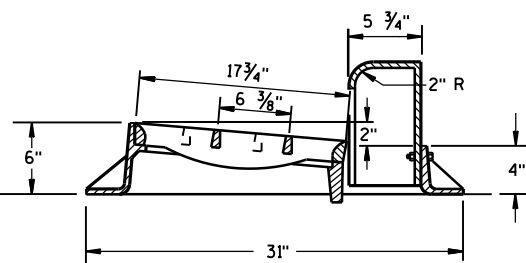
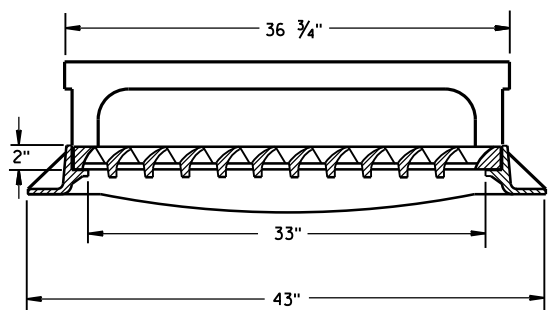
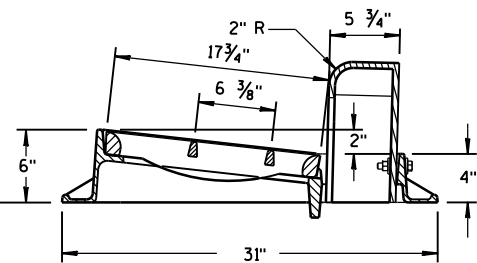
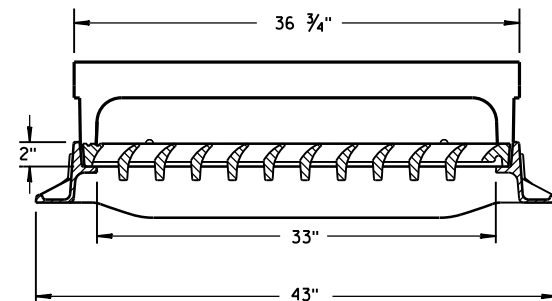
|           |  |
|-----------|--|
| 08A05-19A | INLET COVERS TYPE A, H, A-S, H-S & Z                       |
| 08A05-19D | INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M |
| 08A09-01  | CATCH BASINS 2X3-FT AND 2.5X3-FT                           |
| 08B09-01  | MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER    |
| 08D01-18  | CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES           |
| 08D05-16A | CURB RAMPS TYPES 1 AND 1-A                                 |
| 08D05-16B | CURB RAMPS TYPES 2 AND 3                                   |
| 08D05-16C | CURB RAMPS TYPES 4A AND 4A1                                |
| 08D05-16D | CURB RAMPS TYPE 4B AND 4B1                                 |
| 08D05-16E | CURB RAMPS TYPES 5, 6, 7A, 7B & 8                          |
| 08E10-02  | INLET PROTECTION TYPE A, B, C AND D                        |
| 15C02-05A | BARRICADES AND SIGNS FOR MAINLINE CLOSURES                 |
| 15C02-05B | BARRICADES AND SIGNS FOR MAINLINE CLOSURES                 |
| 15C03-02  | BARRICADES AND SIGNS FOR SIDEROAD CLOSURES                 |
| 15C05-02  | TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M. P. H. OR LESS |



**NOTE:  
GRATE IS REVERSIBLE.**

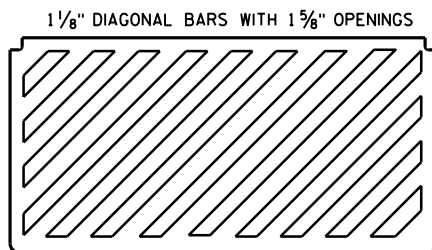


**NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"**



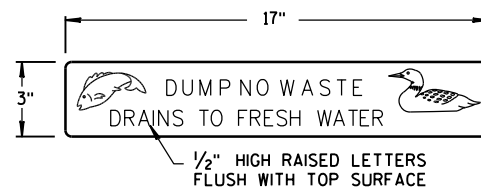
**TYPE "H"**

**NOTE: EITHER CASTING IS ACCEPTABLE**

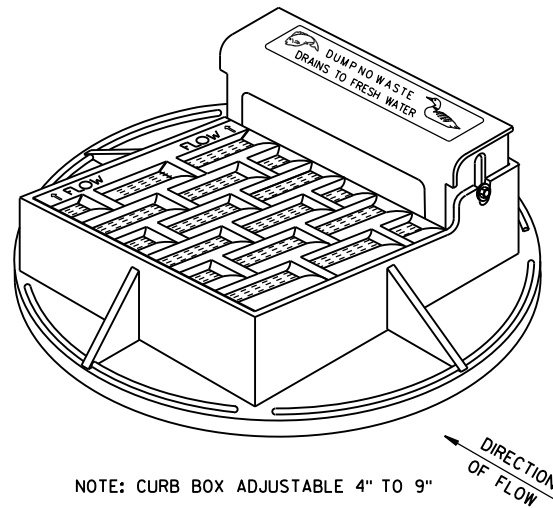


**SPECIAL GRATE FOR  
TYPE "H" COVER**

(MEASURES 35 1/4" X 17 3/4" X 2")  
(NOTED AS TYPE H-S ON DRAINAGE TABLE)

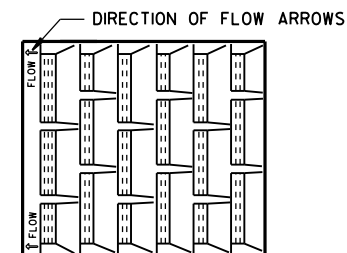


**LOGO DETAIL**

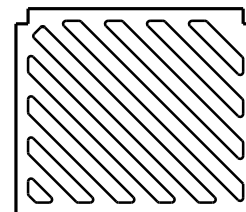


**NOTE: CURB BOX ADJUSTABLE 4" TO 9"**

**NOTE:  
GRATE IS REVERSIBLE.**

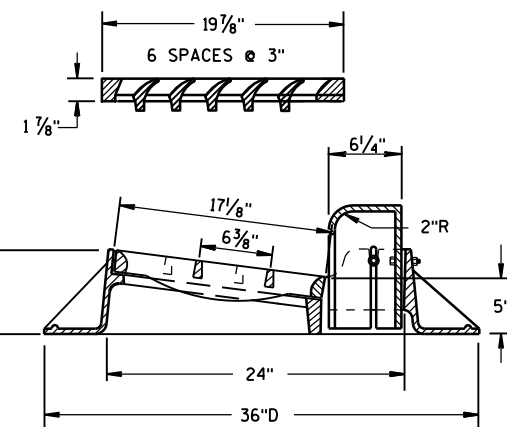
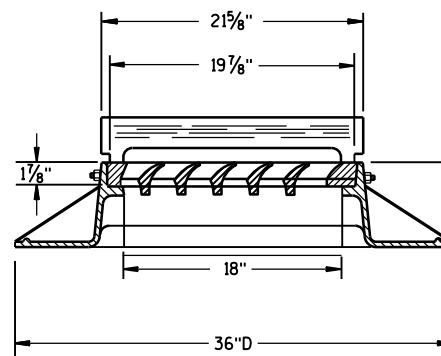


1" DIAGONAL BARS  
WITH 1 1/2" OPENINGS

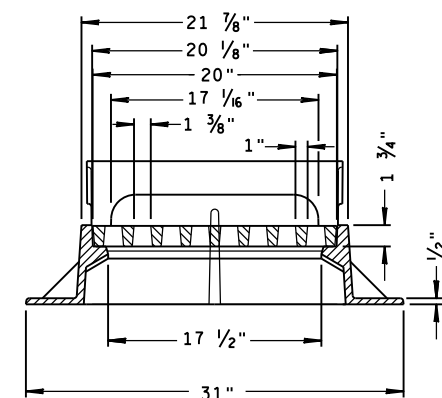
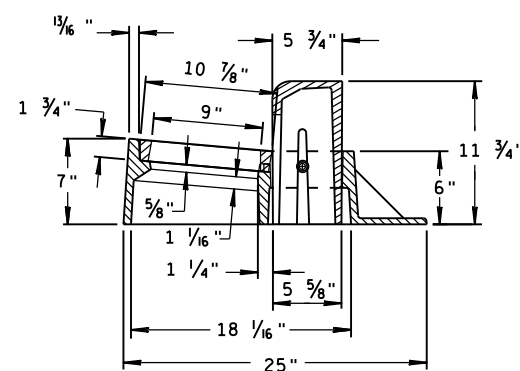


**SPECIAL GRATE FOR  
TYPE "A" COVER**

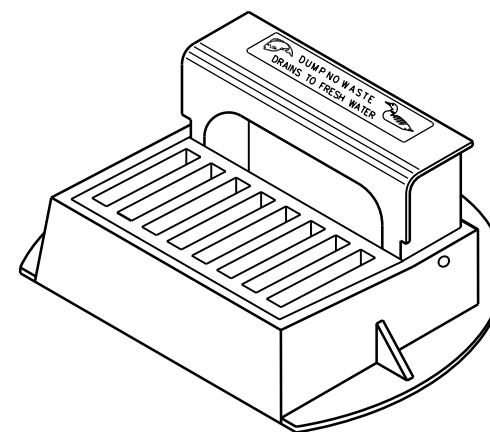
(MEASURES 19 3/4" X 17" X 1 1/8")  
(NOTED AS TYPE A-S ON DRAINAGE TABLE)



**TYPE "A"**



**TYPE "Z"**



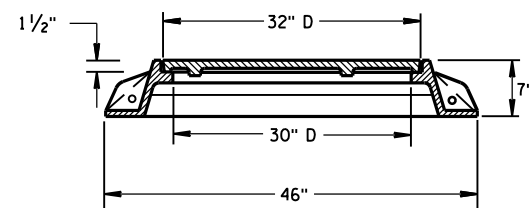
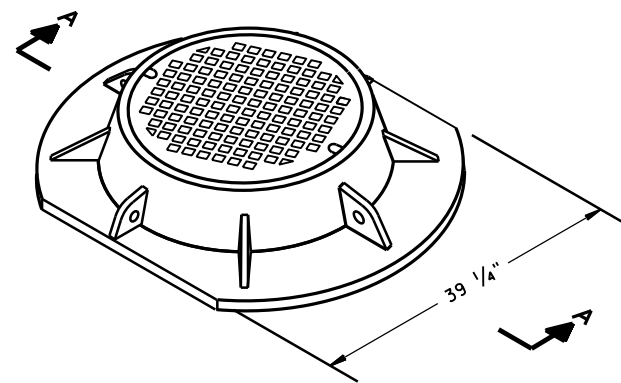
**INLET COVERS  
TYPE A, H, A-S, H-S & Z**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

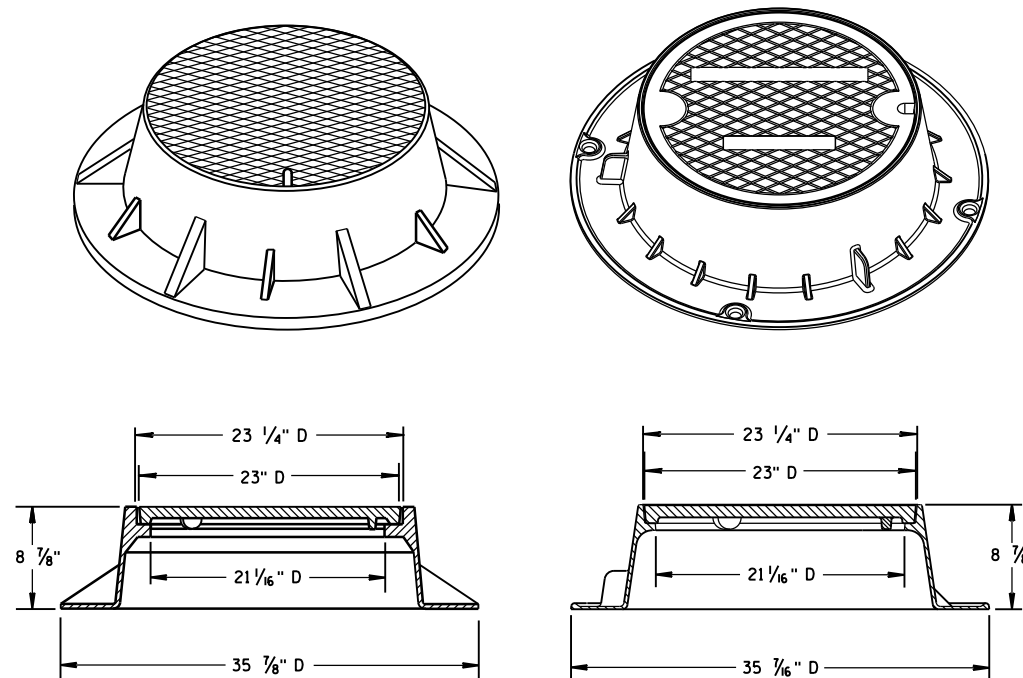
APPROVED  
11-27-13  
DATE  
FHWA

/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER



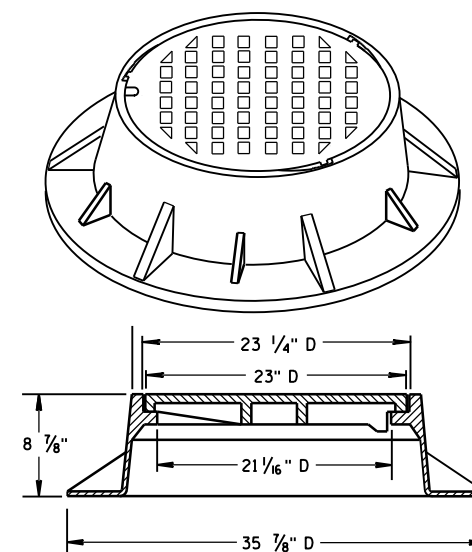
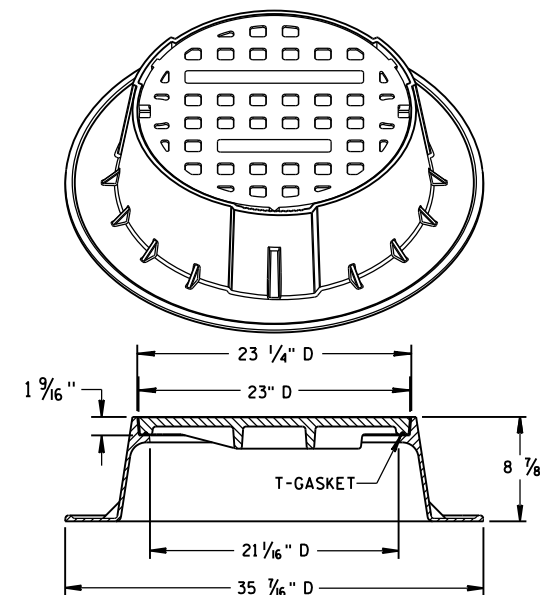


SECTION A-A  
TYPE "K"



TYPE "J"

NOTE: EITHER CASTING IS ACCEPTABLE

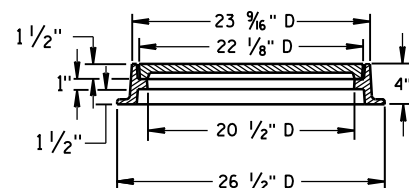
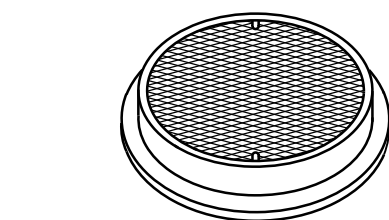


TYPE "J" SPECIAL

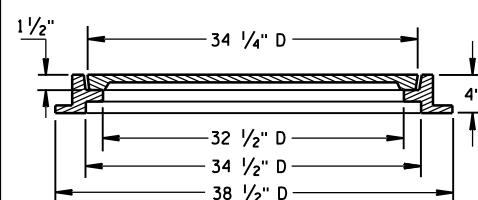
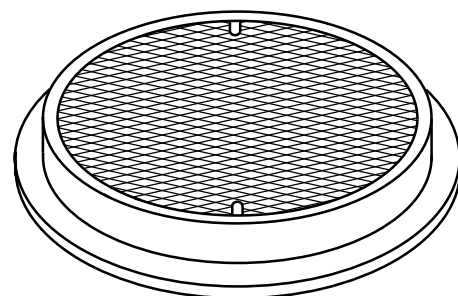
TYPE "B" NON-ROCKING SELF-SEAL LID

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

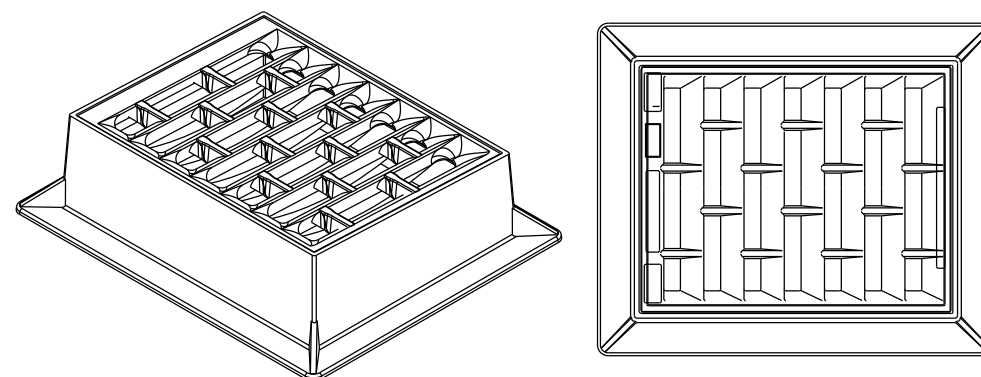
NOTE: EITHER CASTING IS ACCEPTABLE



TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"

## GENERAL NOTES

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

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

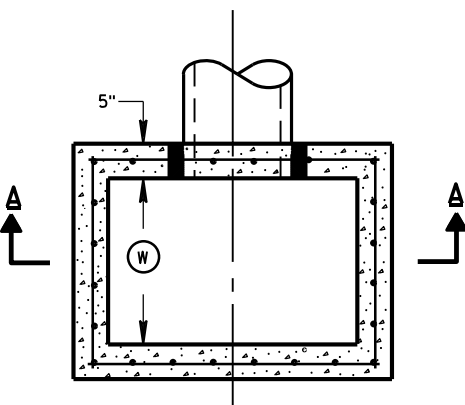
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

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

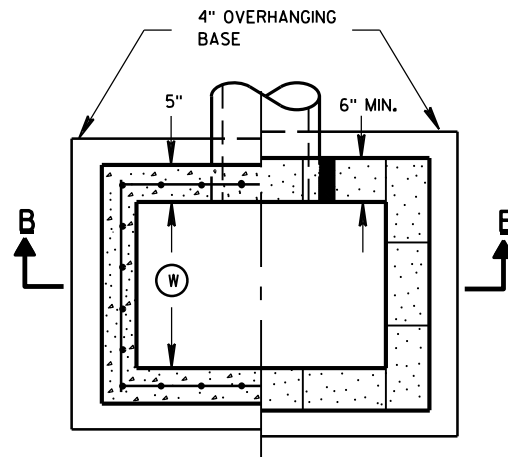
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
11/27/2013  
DATE  
FHWA

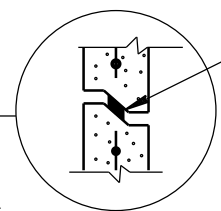
/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER



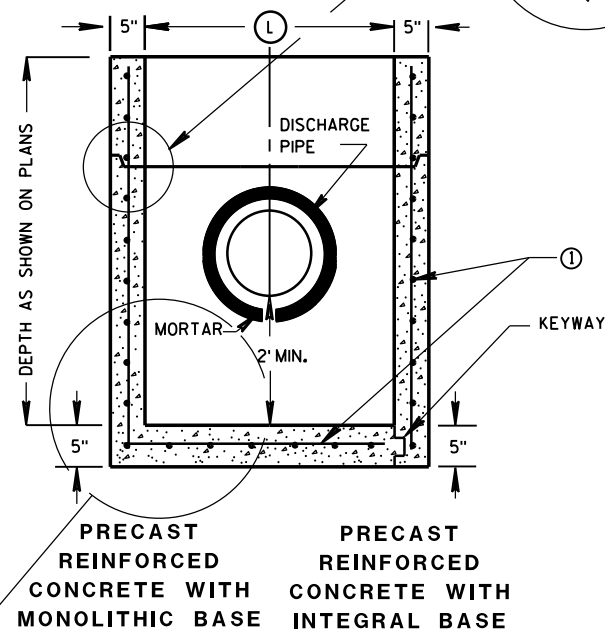
PLAN VIEW



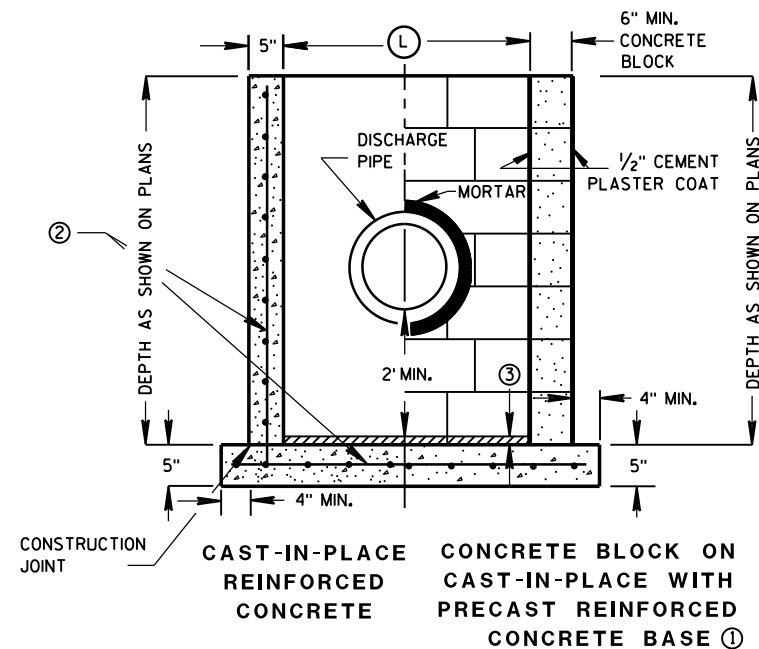
PLAN VIEW



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



SECTION A-A



SECTION B-B

SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

CATCH BASINS 2X3-FT AND 2.5X3-FT

## GENERAL NOTES

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

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST CATCH BASIN UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

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

ALL PRECAST CATCH BASIN UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

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

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

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

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

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3" CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

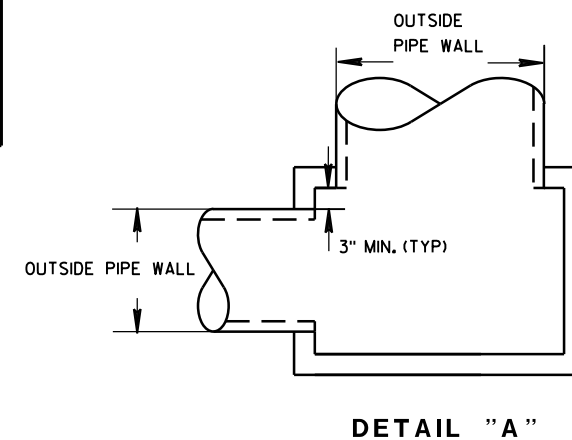
- ① FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.
- ③ 1" CONCRETE KEY POURED AFTER INSTALLATION. 2' SUMP MEASURED FROM TOP OF KEY.

## CATCH BASIN COVER MATRIX

| CATCH BASIN SIZE | WIDTH (W) (FT) | LENGTH (L) (FT) | F | ALL H'S |
|------------------|----------------|-----------------|---|---------|
| 2X3-FT           | 2              | 3               |   | X       |
| 2.5X3-FT         | 2.5            | 3               | X |         |

## PIPE MATRIX

| CATCH BASIN SIZE | MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES |             |
|------------------|--|-------------|
|                  | WIDTH (IN)                                 | LENGTH (IN) |
| 2X3-FT           | 12   | 24          |
| 2.5X3-FT         | 18   | 24          |



DETAIL "A"

CATCH BASINS 2X3-FT  
AND 2.5X3-FT

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

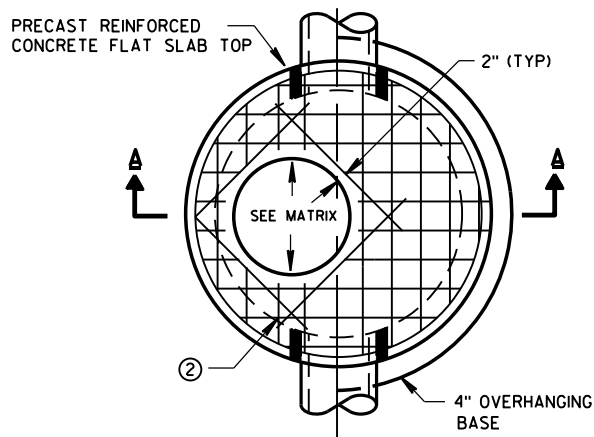
APPROVED

6/5/2012

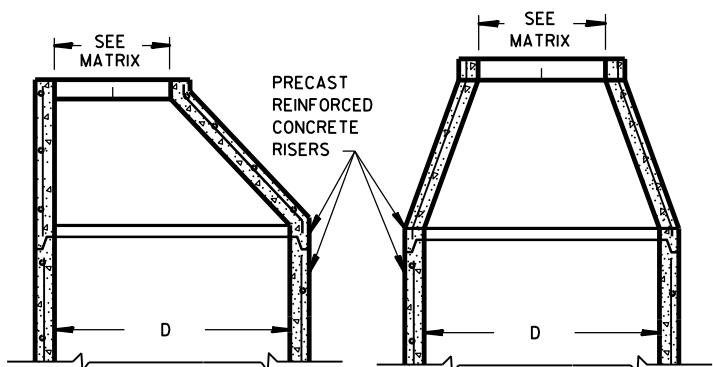
DATE

FHWA

/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

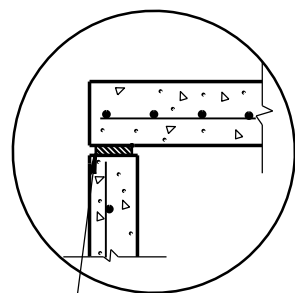


PLAN VIEW CIRCULAR OPENING

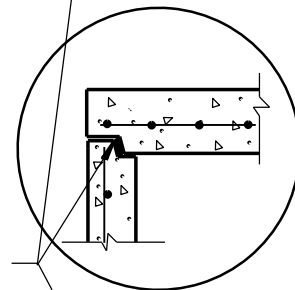


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

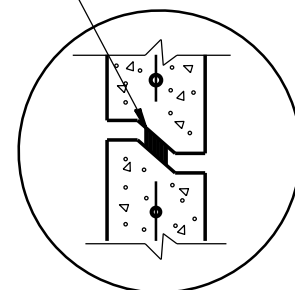
OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP



TOP WITH PLAIN END JOINT



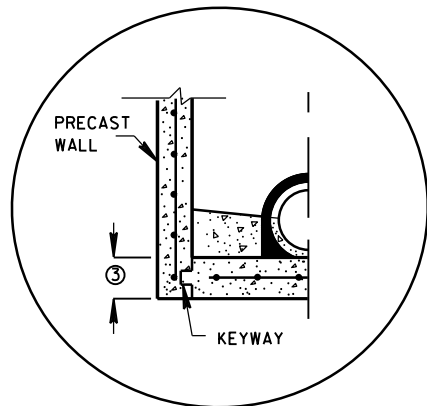
TOP WITH TONGUE AND GROOVE JOINT



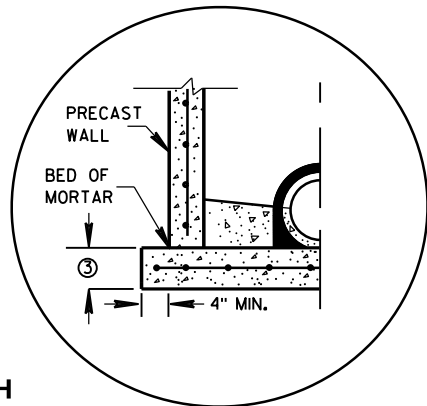
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

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

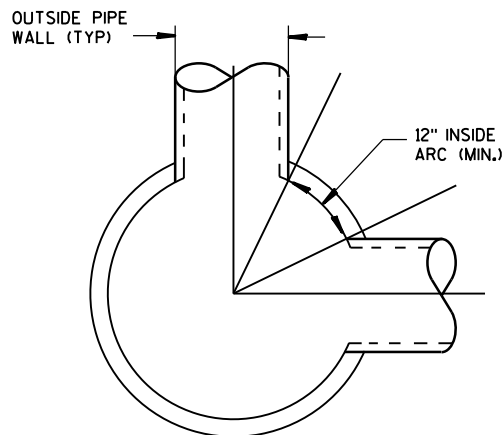


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

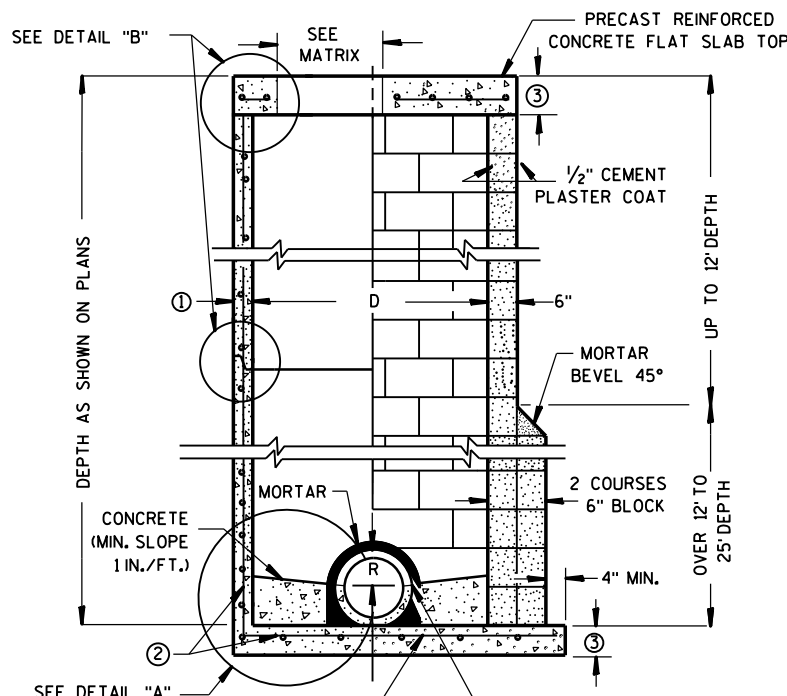


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"



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

SPLIT PIPE OR FORM CONCRETE TO FIT

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

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED. CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

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

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

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

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

① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES FOR 6-FT, 8 INCHES FOR 7-FT AND 9 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.

② FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

MANHOLE COVER OPENING MATRIX

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

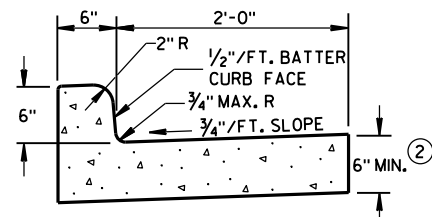
PIPE MATRIX

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

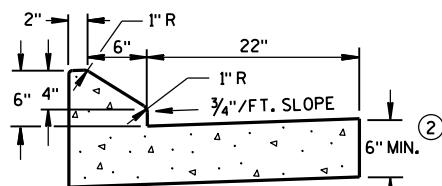
MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

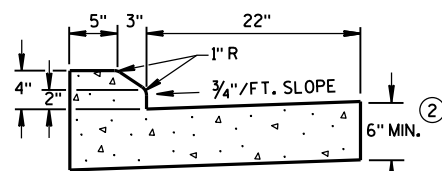
APPROVED  
6/5/2012 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA ENGINEER



TYPES A & D ①

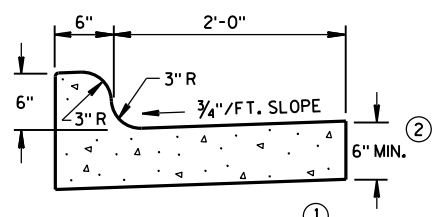


6" SLOPED CURB TYPES G & J ①



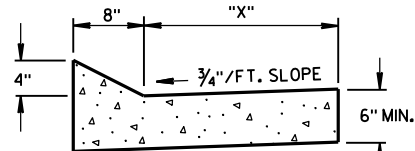
4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"



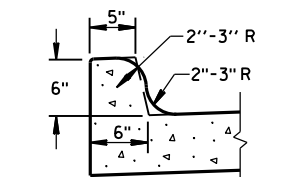
TYPES K & L ①

CONCRETE CURB & GUTTER 30"

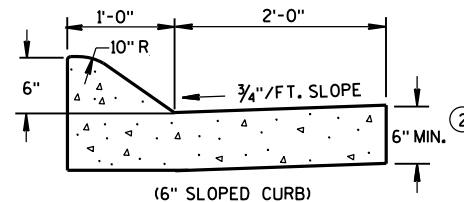


TYPES TBT & TBT  
CONCRETE CURB & GUTTER

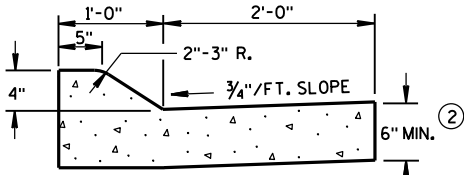
| TBT & TBT | "X" |
|-----------|-----|
| 30"       | 22" |
| 36"       | 28" |



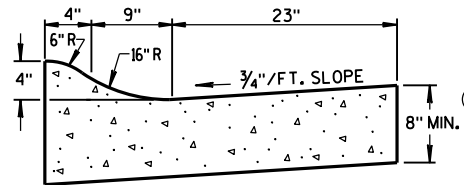
OPTIONAL CURB SHAPE  
FOR TYPES K & L ①



(6" SLOPED CURB)

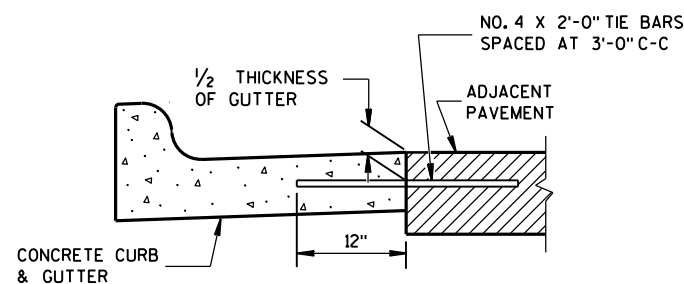


TYPES A & D ①

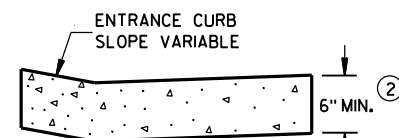


4" SLOPED CURB TYPES R & T ① ④

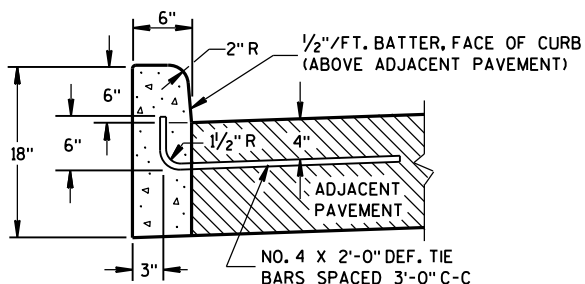
CONCRETE CURB & GUTTER 36"



TYPICAL TIE BAR LOCATION ①

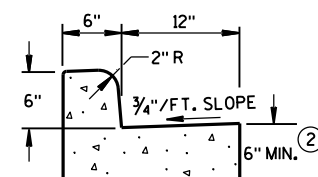


DRIVEWAY ENTRANCE CURB  
(WHEN DIRECTED BY THE ENGINEER)

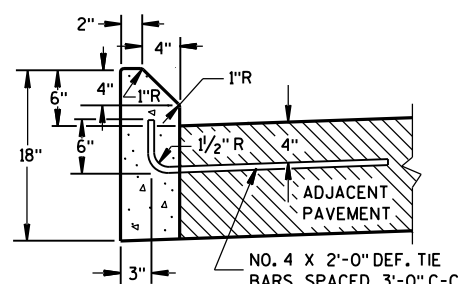


TYPES A & D ①

CONCRETE CURB



TYPES A & D  
CONCRETE CURB & GUTTER 18"



TYPES G & J ①

## GENERAL NOTES

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

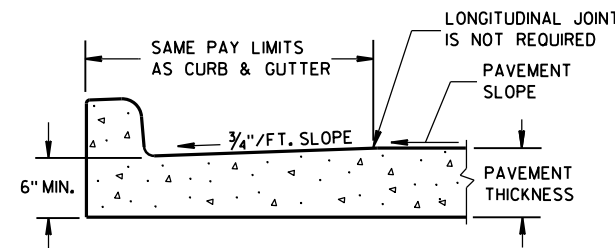
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

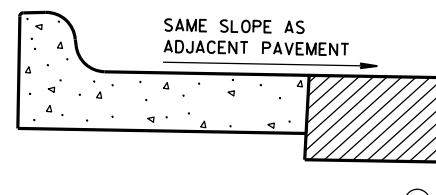
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

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

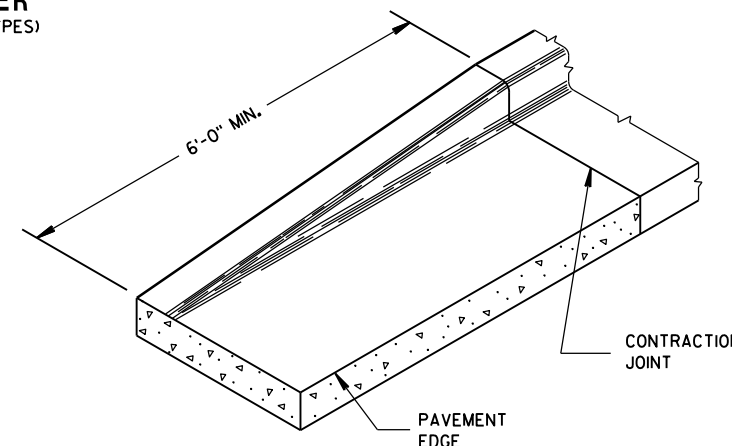
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ④ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑤ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



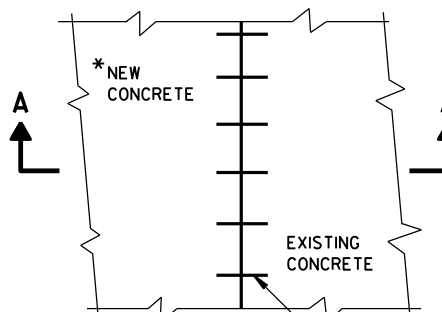
PARTIAL SECTION OF PAVEMENT  
WITH INTEGRAL CURB & GUTTER



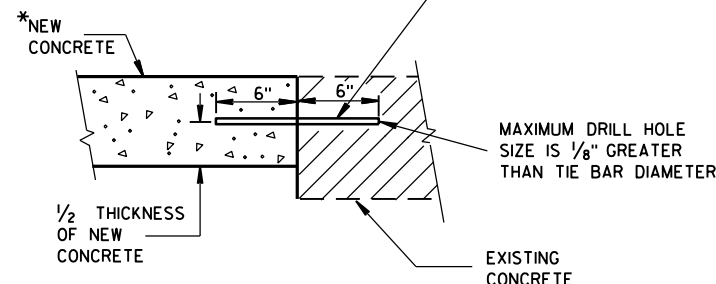
REVERSE SLOPE GUTTER  
(TYPICAL FOR ALL CURB & GUTTER TYPES)



END SECTION CURB & GUTTER



PLAN VIEW



SECTION A-A  
TIE BARS DRILLED  
INTO EXISTING PAVEMENT

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

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

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

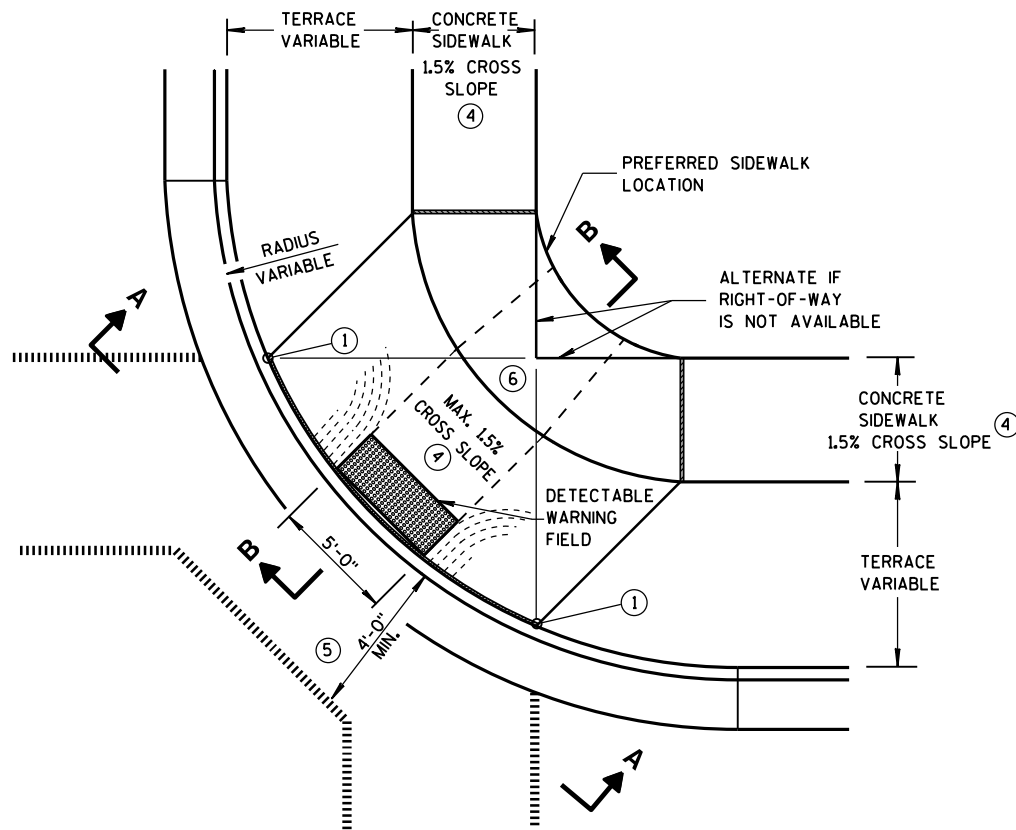
EXISTING  
CONCRETE

CONCRETE CURB, CONCRETE  
CURB & GUTTER AND TIES

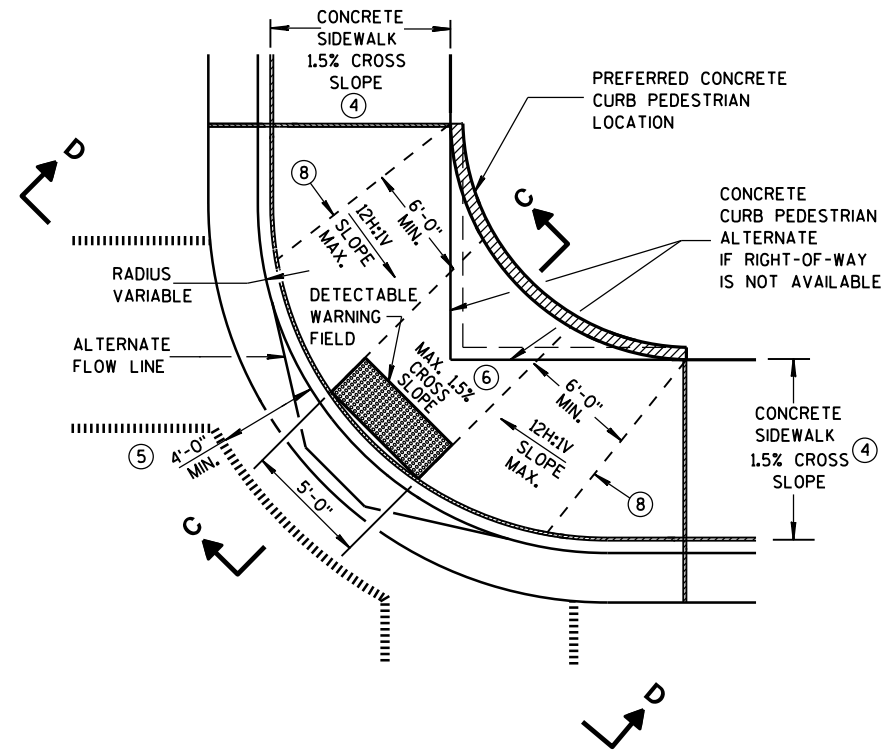
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June, 2015  
DATE  
FHWA

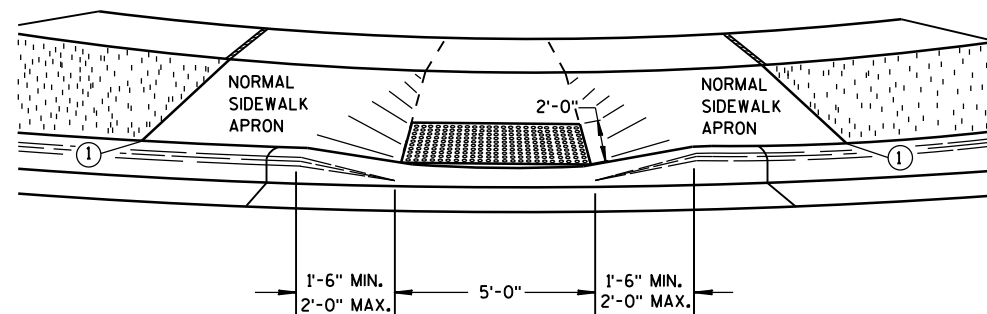
/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER



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

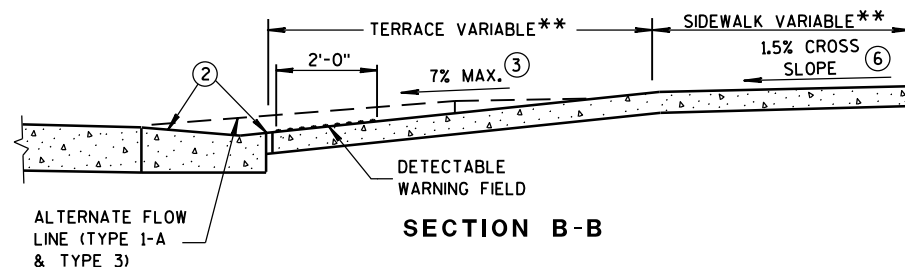


**PLAN VIEW  
TYPE 1-A RAMP**  
(NO TERRACE)

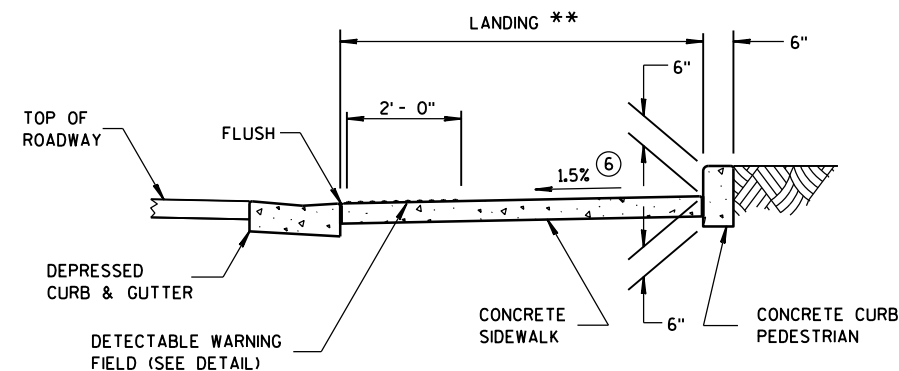


**VIEW A-A**

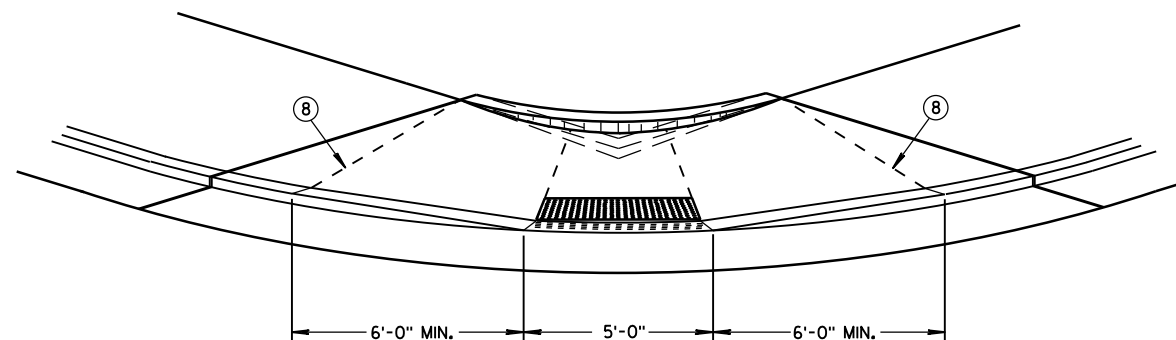
\*\* WIDTH SHOWN ELSEWHERE  
IN THE PLANS



**SECTION B-B**



**SECTION C-C**



**VIEW D-D**

## GENERAL NOTES

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

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

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

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

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

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

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

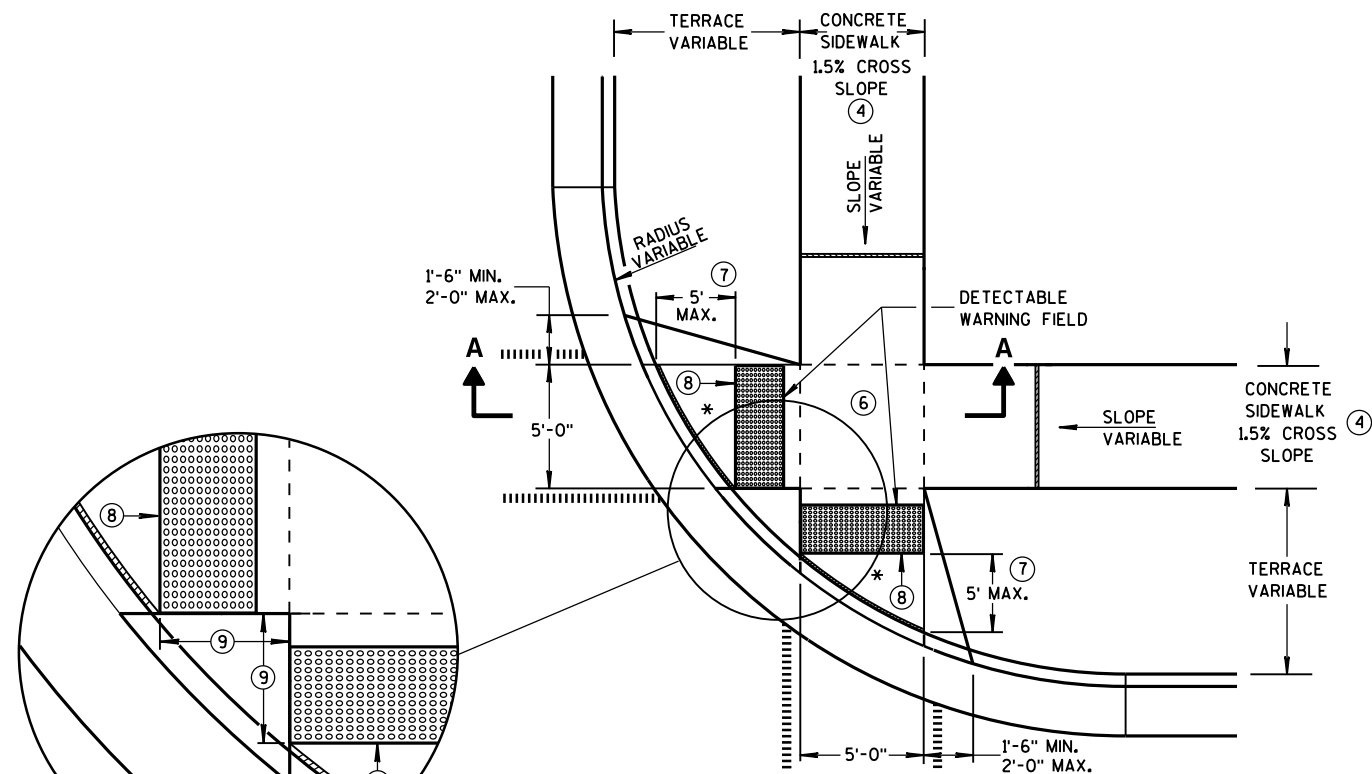
- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.
- ③ ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑤ PROVIDE A LEVEL LANDING IN THE STREET AND GUTTER AREA. (2% MAXIMUM SLOPE IN ANY DIRECTION). WHEN THE GUTTER SLOPE EXCEEDS 2%, CONSTRUCT THE LEVEL LANDING IN THE STREET AREA.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).
- ⑦ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

## LEGEND

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

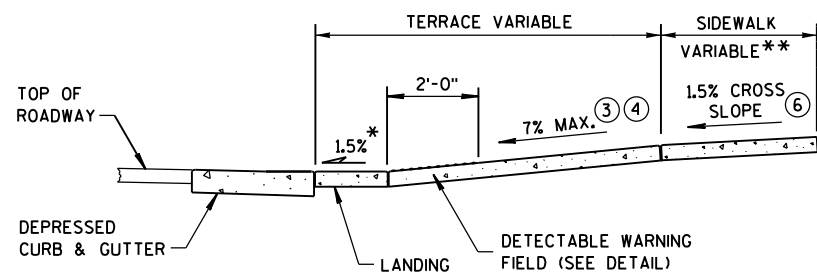
**CURB RAMPS  
TYPES 1 AND 1-A**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



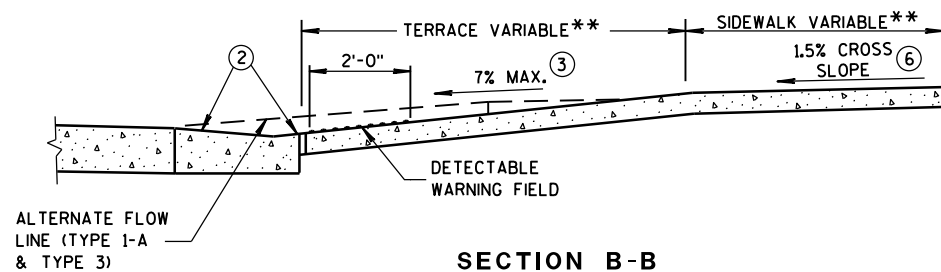
**PLAN VIEW  
TYPE 2 RAMP**  
(ON LINE WITH SIDEWALK)

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



**SECTION A-A**

\*\* WIDTH SHOWN ELSEWHERE  
IN THE PLANS



**SECTION B-B**

## GENERAL NOTES

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

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

② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.

③ ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).

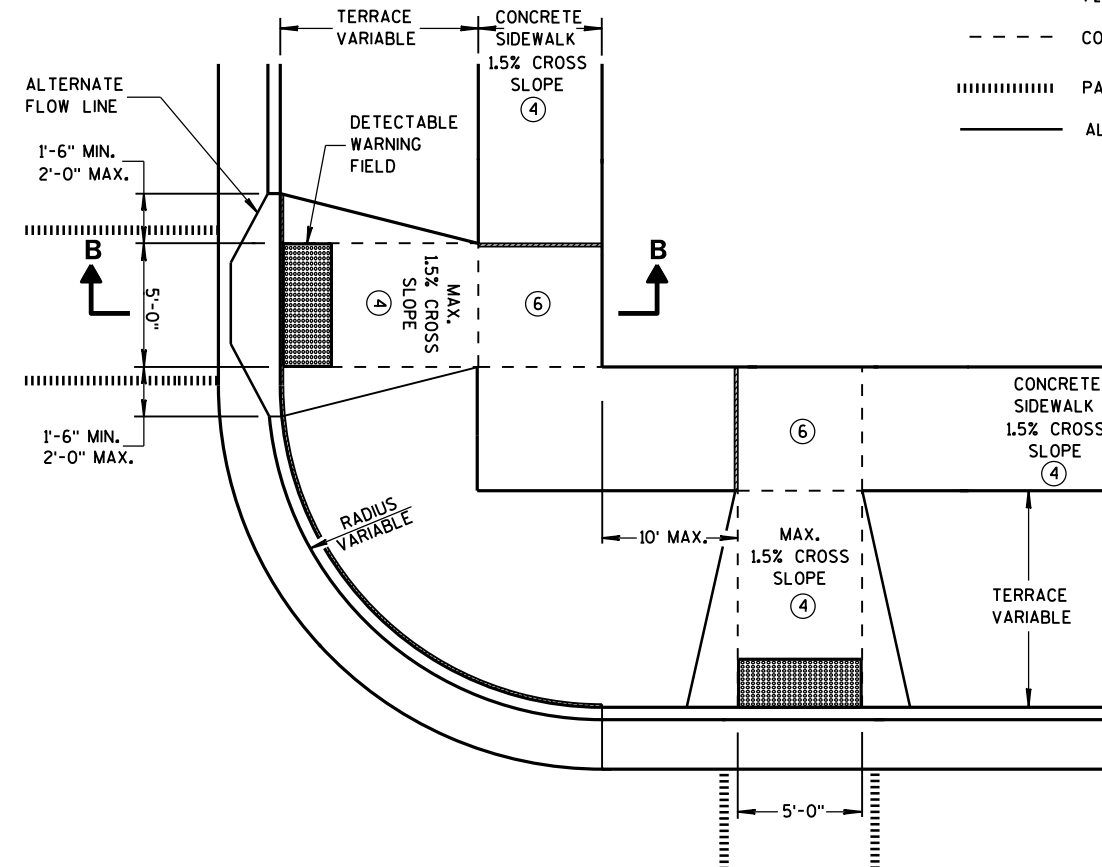
⑦ WHEN THIS DISTANCE EXCEEDS 5 FEET, USE MULTIPLE DETECTABLE WARNING PANELS ACROSS THE RAMP AND STAGGER ADDITIONAL DETECTABLE WARNING PANEL(S) FORWARD TO REDUCE THIS DISTANCE.

⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

⑨ WHEN THIS DISTANCE IS LESS THAN 6'-0", IT MAY BE DIFFICULT TO ACHIEVE A 7% SLOPE OR FLATTER ALONG THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 7% SLOPE OR FLATTER ON RAMP. 2" MINIMUM CURB HEIGHT.

## LEGEND

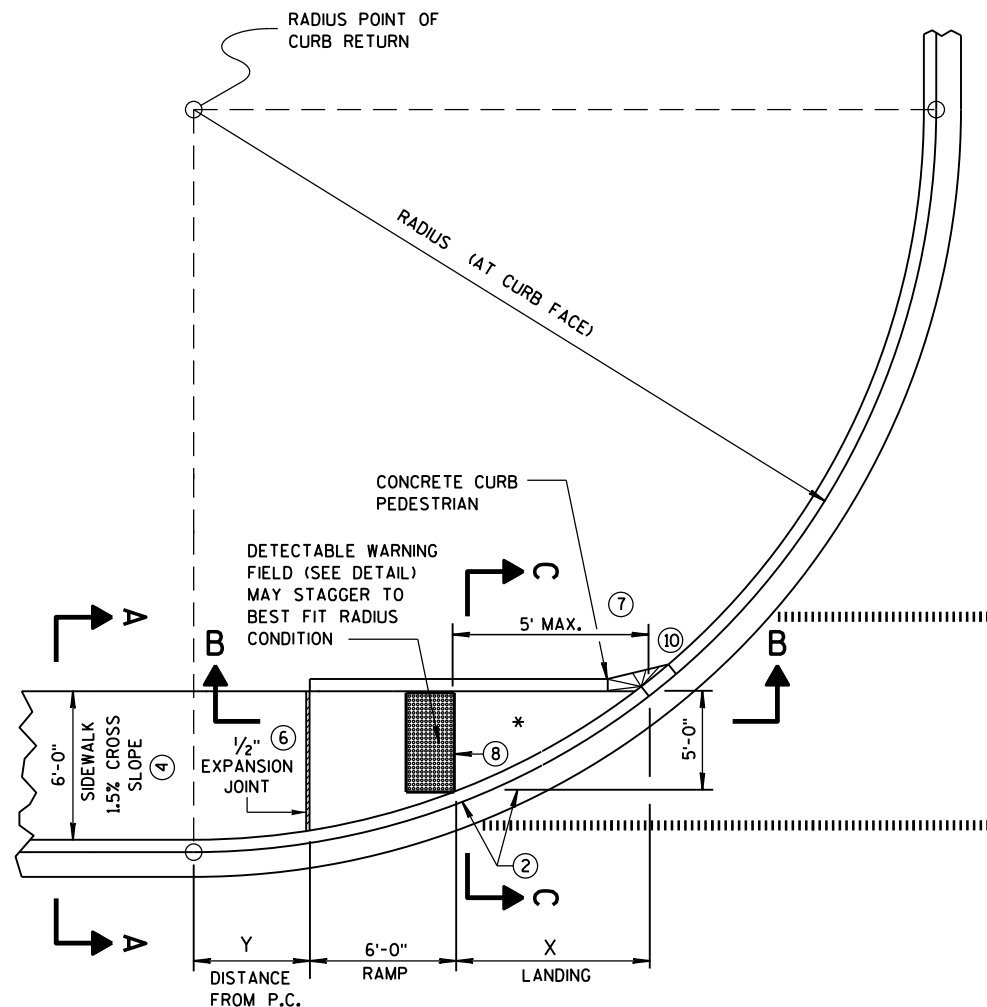
- 1/2" EXPANSION JOINT-SIDEWALK
- - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



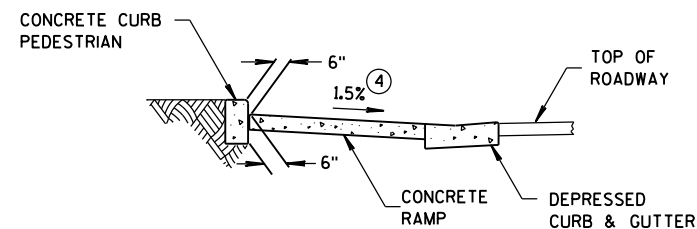
**PLAN VIEW  
TYPE 3 RAMP**  
(OUTSIDE OF CROSSWALK AREA)

**CURB RAMPS  
TYPES 2 AND 3**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

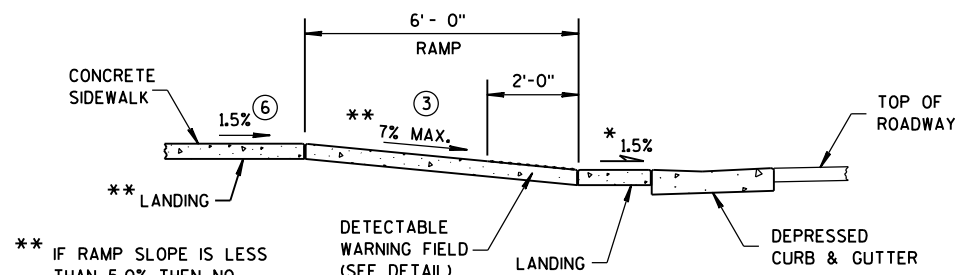


**CURB RAMP TYPE 4A**  
PLAN VIEW



**SECTION C-C FOR TYPE 4A**

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

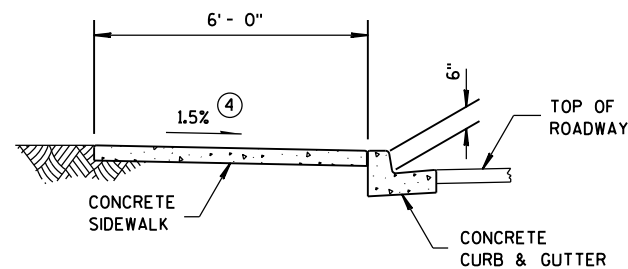


**SECTION B-B FOR TYPE 4A**

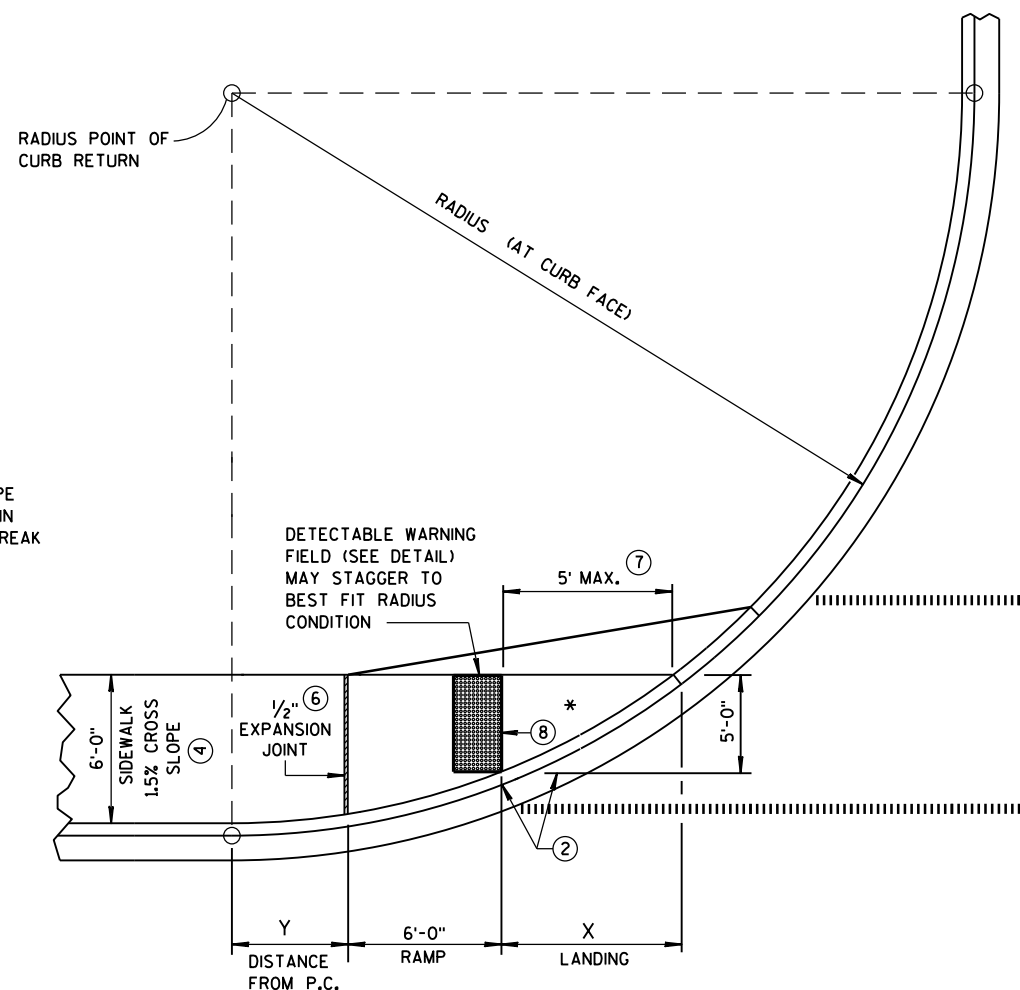
\*\* IF RAMP SLOPE IS LESS  
THAN 5.0%, THEN NO  
ADJACENT UPHILL LANDING  
IS REQUIRED

| RADIUS<br>(AT CURB FACE) | X                      | Y                     |
|--------------------------|------------------------|-----------------------|
| 20 FEET                  | 6'-1 $\frac{3}{4}$ "   | 2'-7 $\frac{1}{4}$ "  |
| 30 FEET                  | 7'-11 $\frac{3}{4}$ "  | 4'-8 $\frac{1}{4}$ "  |
| 40 FEET                  | 9'-5 $\frac{1}{4}$ "   | 6'-5"                 |
| 50 FEET                  | 10'-8 $\frac{3}{4}$ "  | 7'-11 $\frac{1}{4}$ " |
| 60 FEET                  | 11'-10 $\frac{1}{4}$ " | 9'-3 $\frac{1}{2}$ "  |

INTERMEDIATE RADII CAN BE INTERPOLATED



**SECTION A-A FOR TYPE 4A**



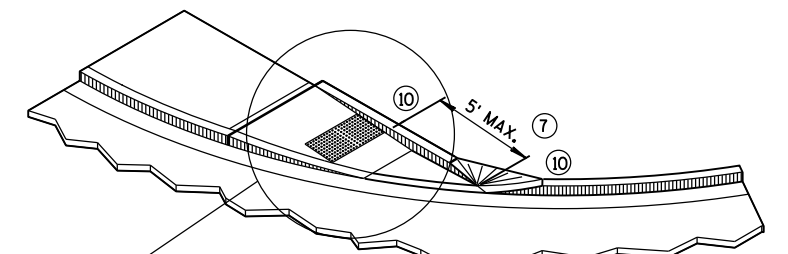
**CURB RAMP TYPE 4A1**  
PLAN VIEW

## GENERAL NOTES

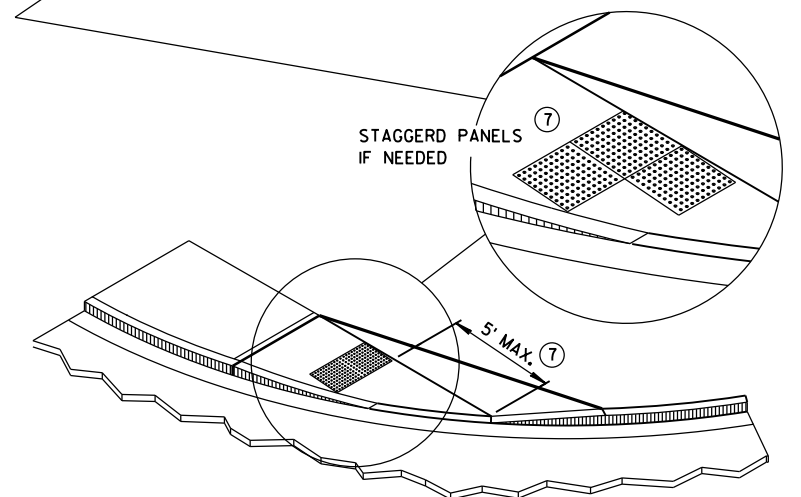
AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

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

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



**ISOMETRIC VIEW FOR TYPE 4A**



**ISOMETRIC VIEW FOR TYPE 4A1**

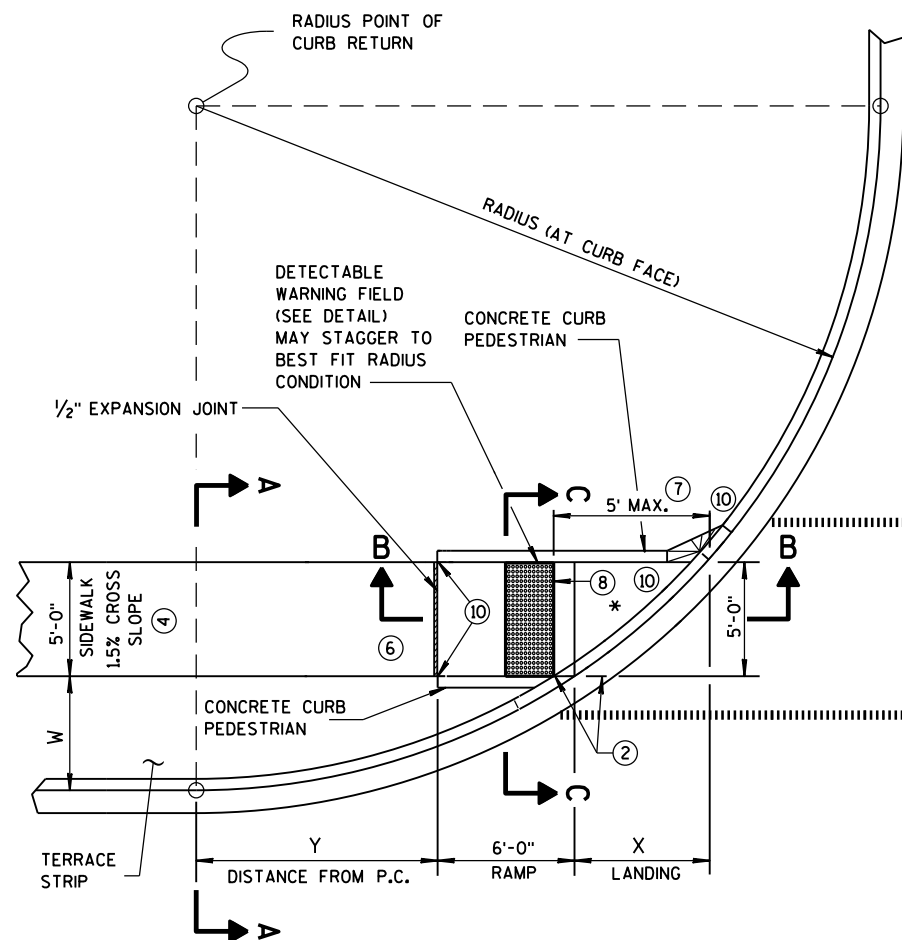
## LEGEND

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

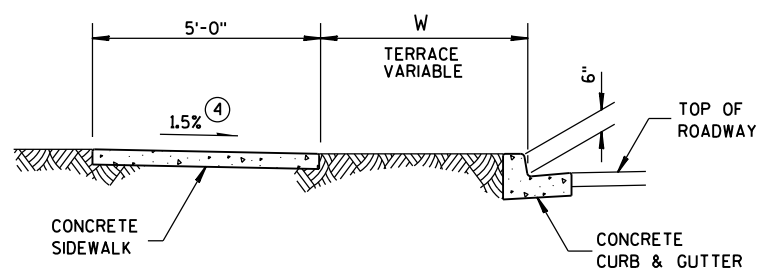
**CURB RAMPS**  
**TYPES 4A AND 4A1**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

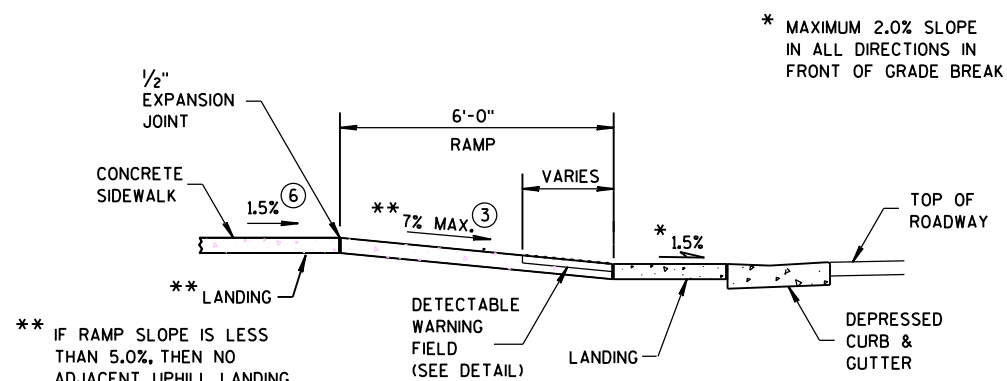




**CURB RAMP TYPE 4B**  
PLAN VIEW

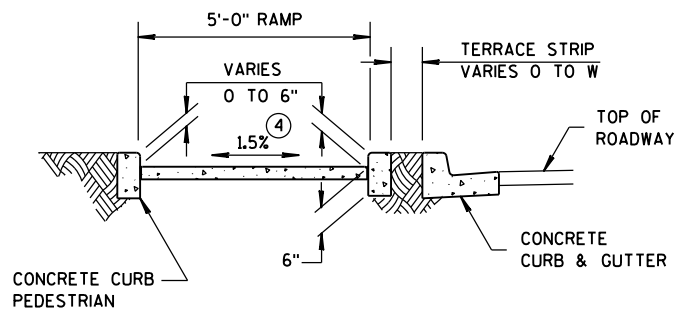


**SECTION A-A FOR TYPE 4B**

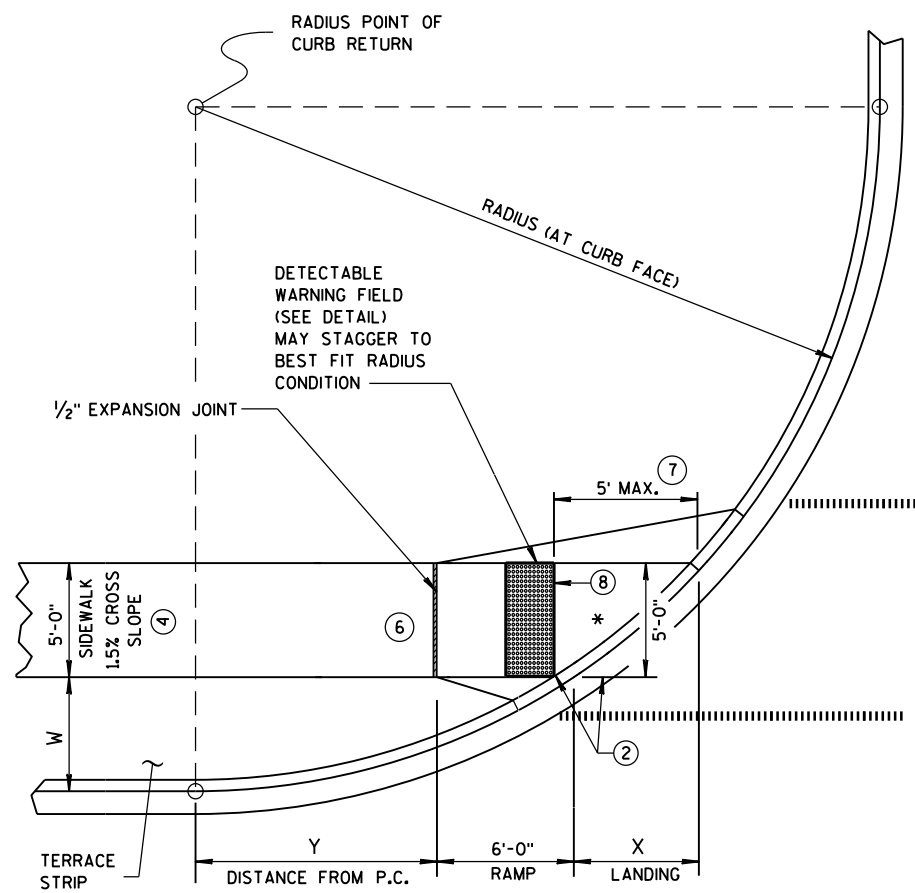


**SECTION B-B FOR TYPE 4B**

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



**SECTION C-C FOR TYPE 4B**



**CURB RAMP TYPE 4B1**  
PLAN VIEW

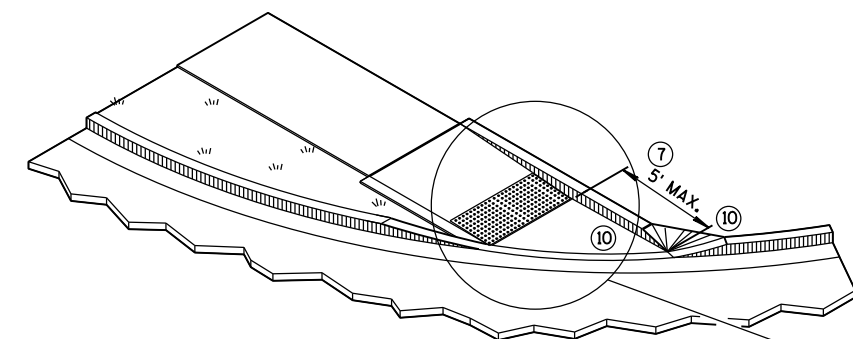
| RADIUS<br>(AT CURB FACE) | W = 3' - 0" |            | W = 4' - 0" |            | W = 5' - 0" |             | W = 6' - 0" |            | W = 7' - 0" |            |
|--------------------------|-------------|------------|-------------|------------|-------------|-------------|-------------|------------|-------------|------------|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

## GENERAL NOTES

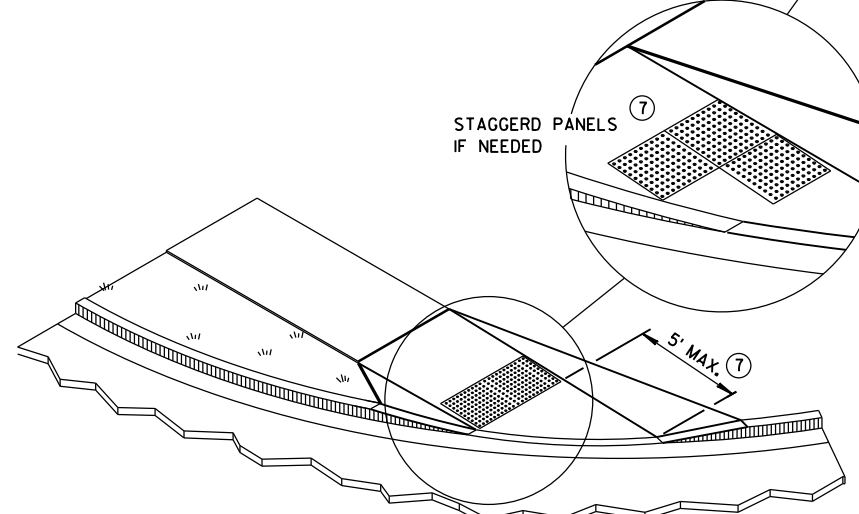
INTERMEDIATE RADII CAN BE INTERPOLATED

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.  
DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

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



**ISOMETRIC VIEW FOR TYPE 4B**

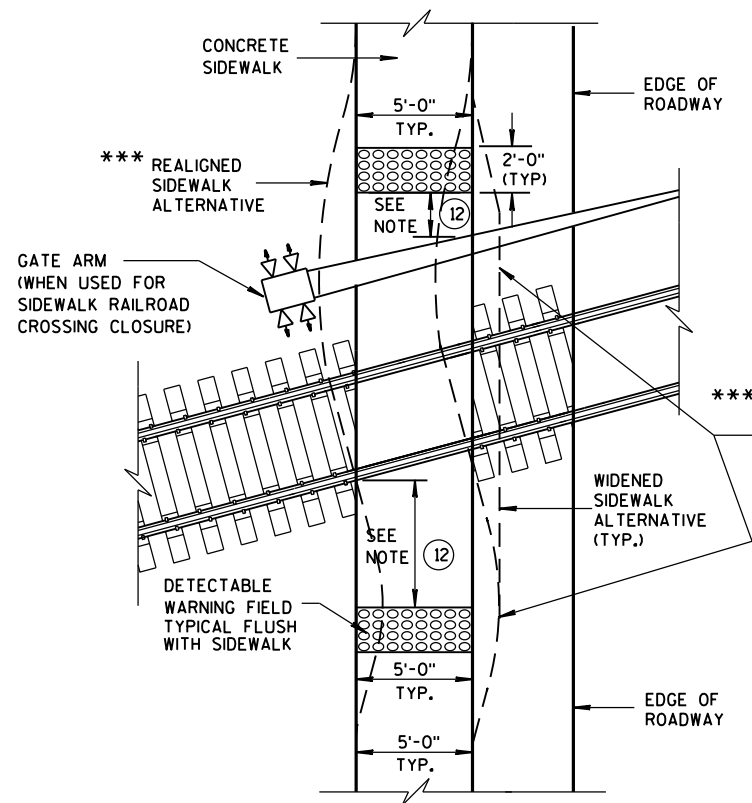


**ISOMETRIC VIEW FOR TYPE 4B1**

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

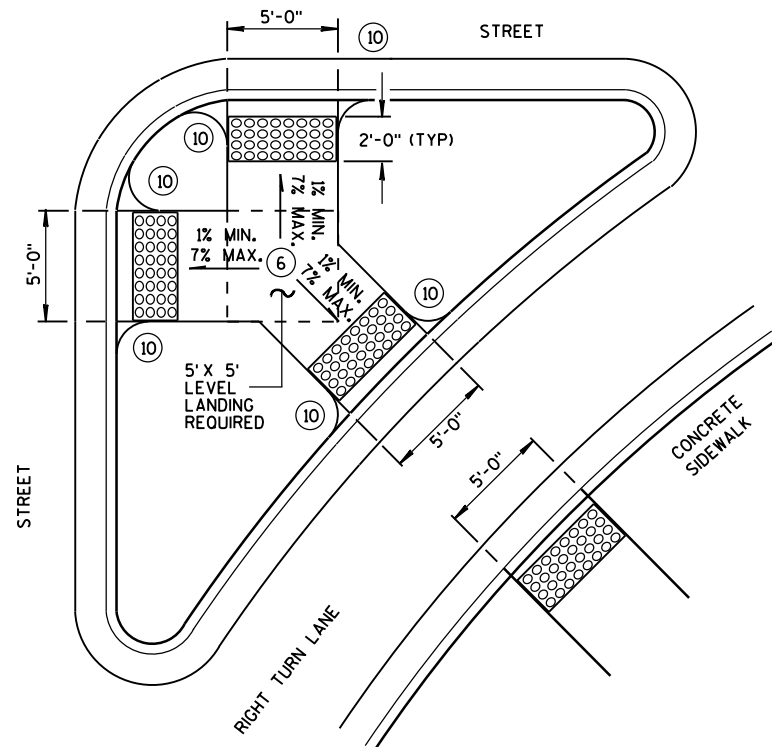
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



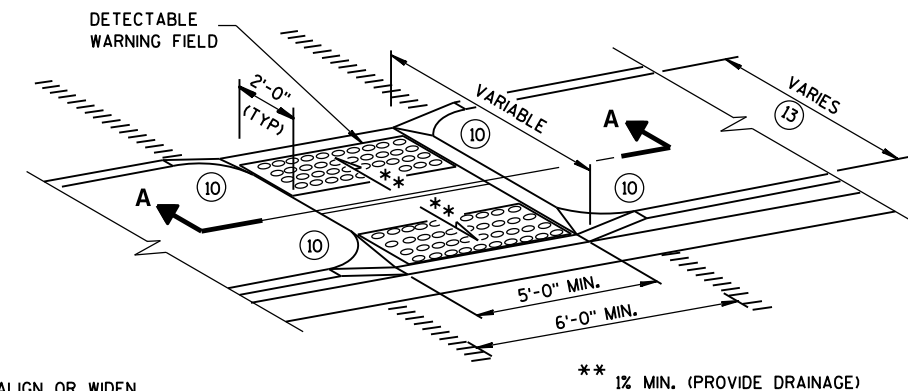


**TYPE 8**  
**DETECTABLE WARNINGS**  
**AT RAILROAD CROSSING**

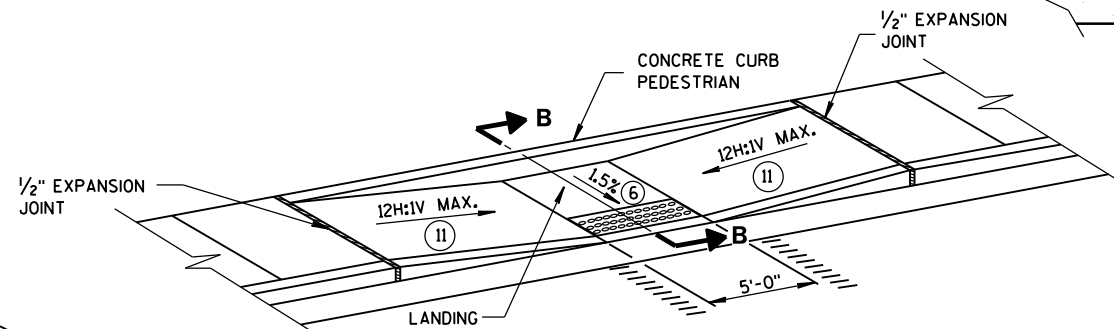
REFER TO GENERAL NOTES ② AND ③  
FOR ALL ISLAND CURB RAMPS



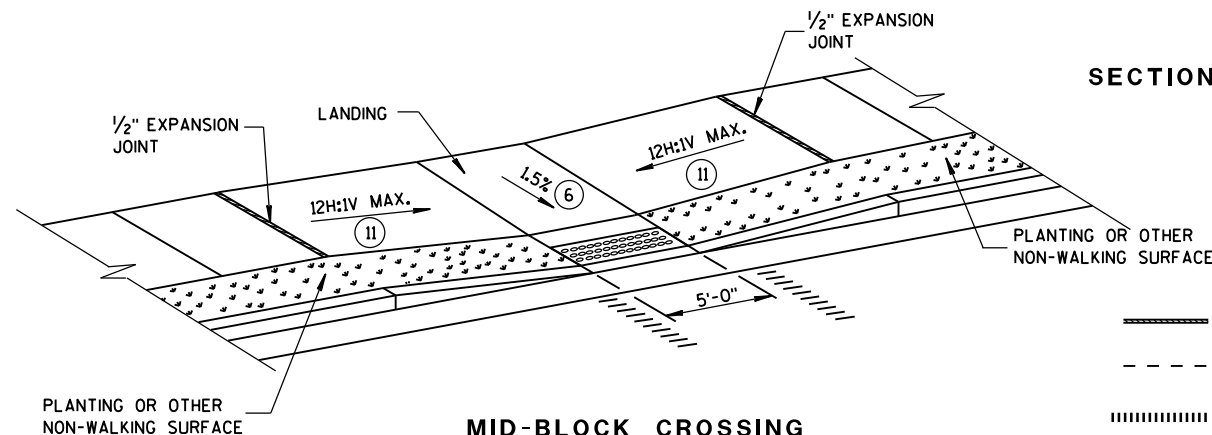
**TYPE 6**  
**DETECTABLE WARNING AT ISLANDS**



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



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

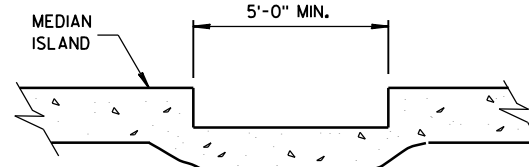


**MID-BLOCK CROSSING**  
**TYPE 7B**

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

**GENERAL NOTES**

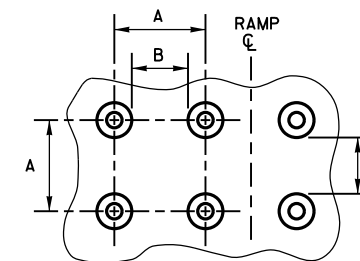
- SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.
- ③ ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).
- ⑩ INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.
- ⑪ SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.
- ⑫ THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET ± 0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.
- ⑬ DO NOT INSTALL DETECTABLE WARNING FIELDS IF MEDIAN WIDTH BETWEEN BACK OF CURBS IS LESS THAN 6 FEET.



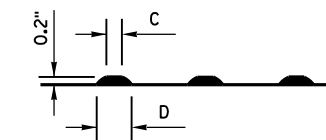
**SECTION A-A**

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

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

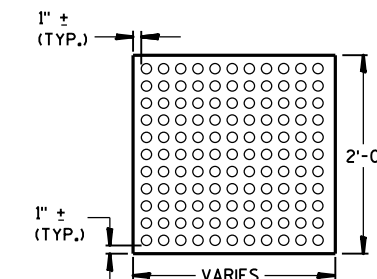


**PLAN VIEW**



**ELEVATION VIEW**

**TRUNCATED DOMES**  
**DETECTABLE WARNING PATTERN DETAIL**



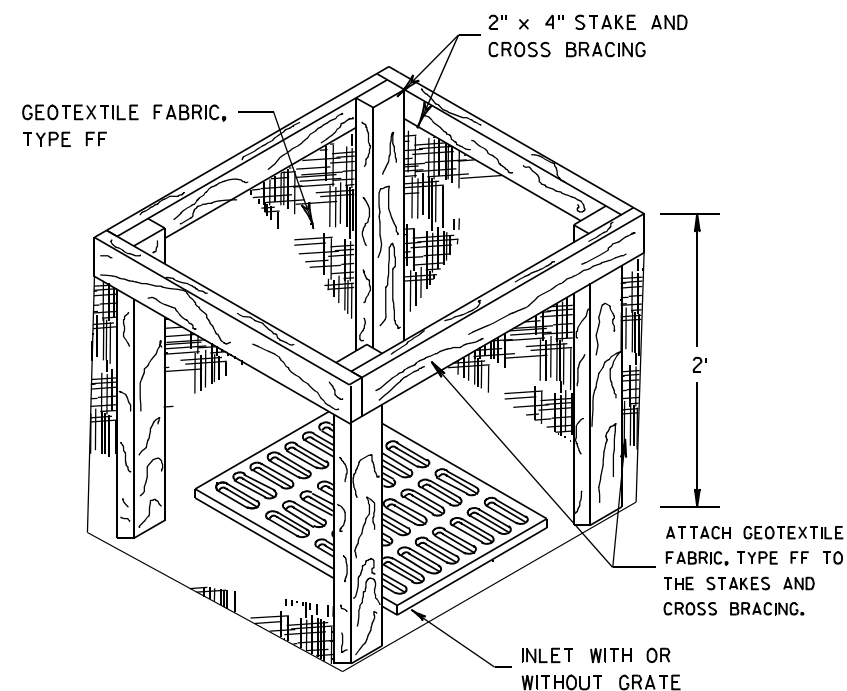
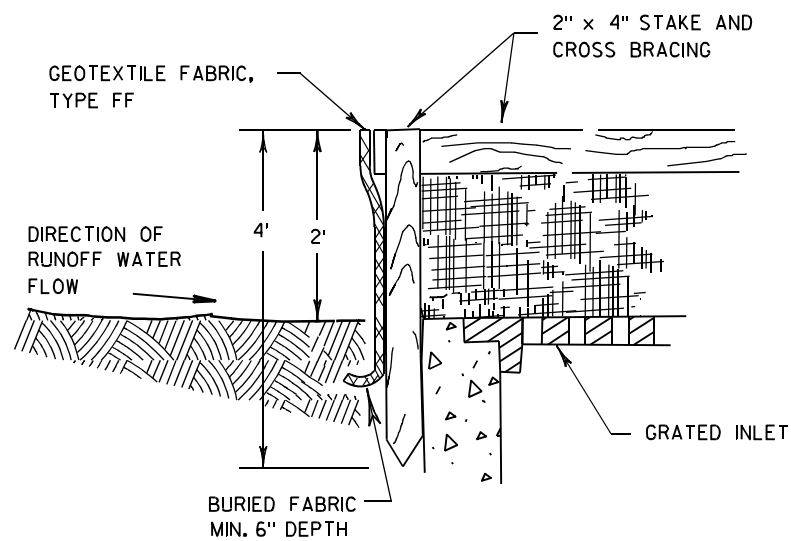
**PLAN VIEW**  
**DETECTABLE WARNING**  
**FIELD (TYPICAL)**

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

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

**STATE OF WISCONSIN**  
**DEPARTMENT OF TRANSPORTATION**

**APPROVED**  
June, 2015 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA



**INLET PROTECTION, TYPE A**

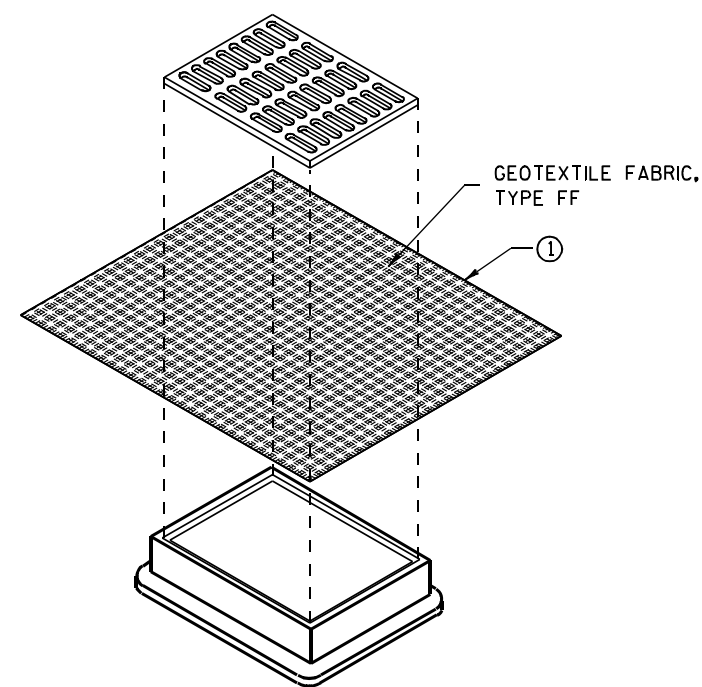
**GENERAL NOTES**

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

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

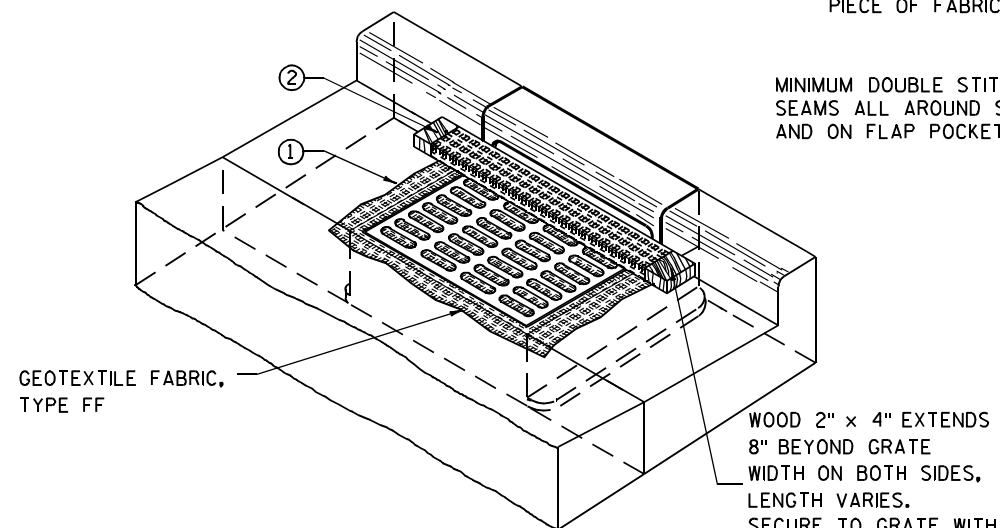
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



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

**INSTALLATION NOTES**

**TYPE B & C**

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

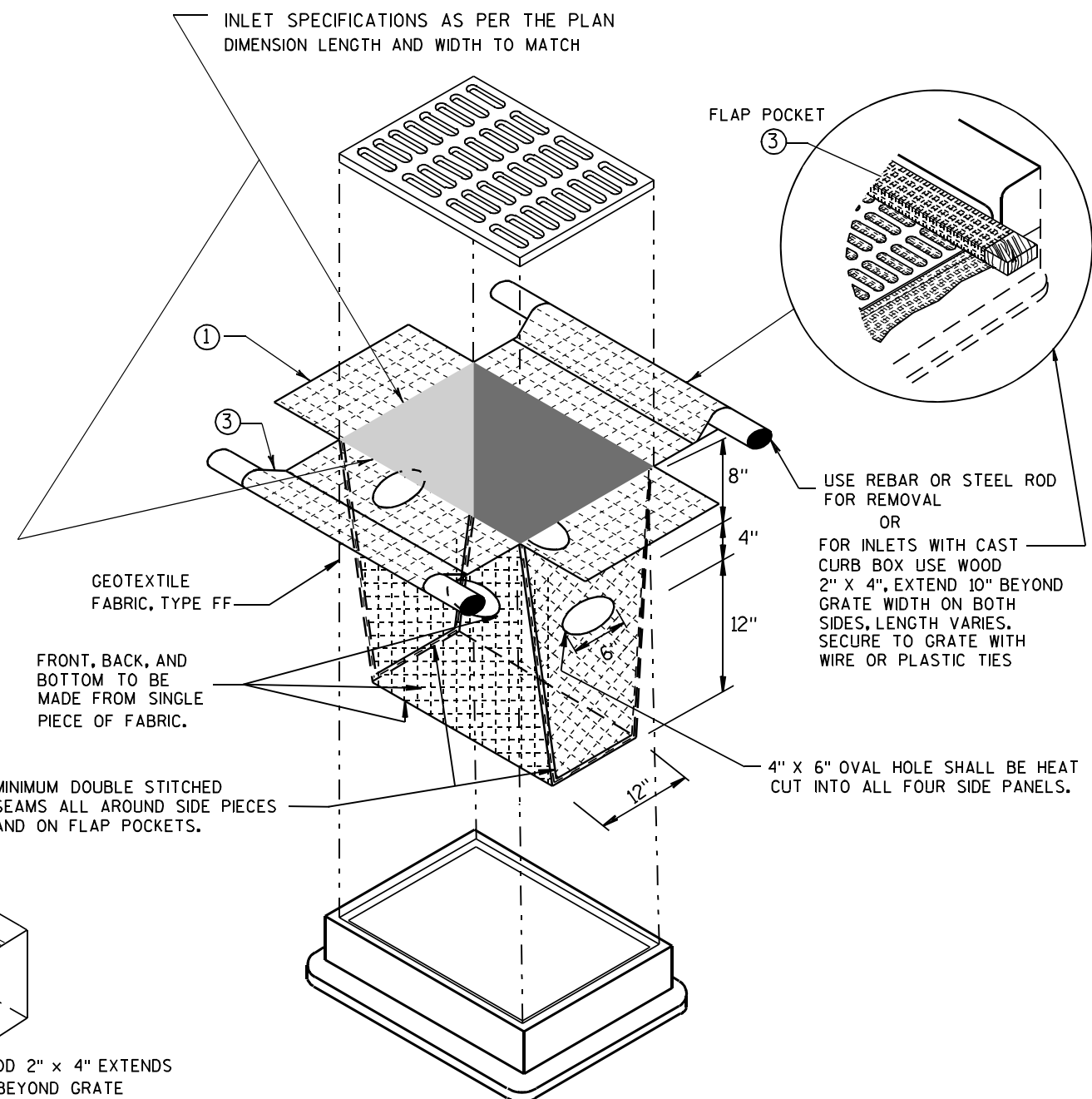
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

**TYPE D**

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

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

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



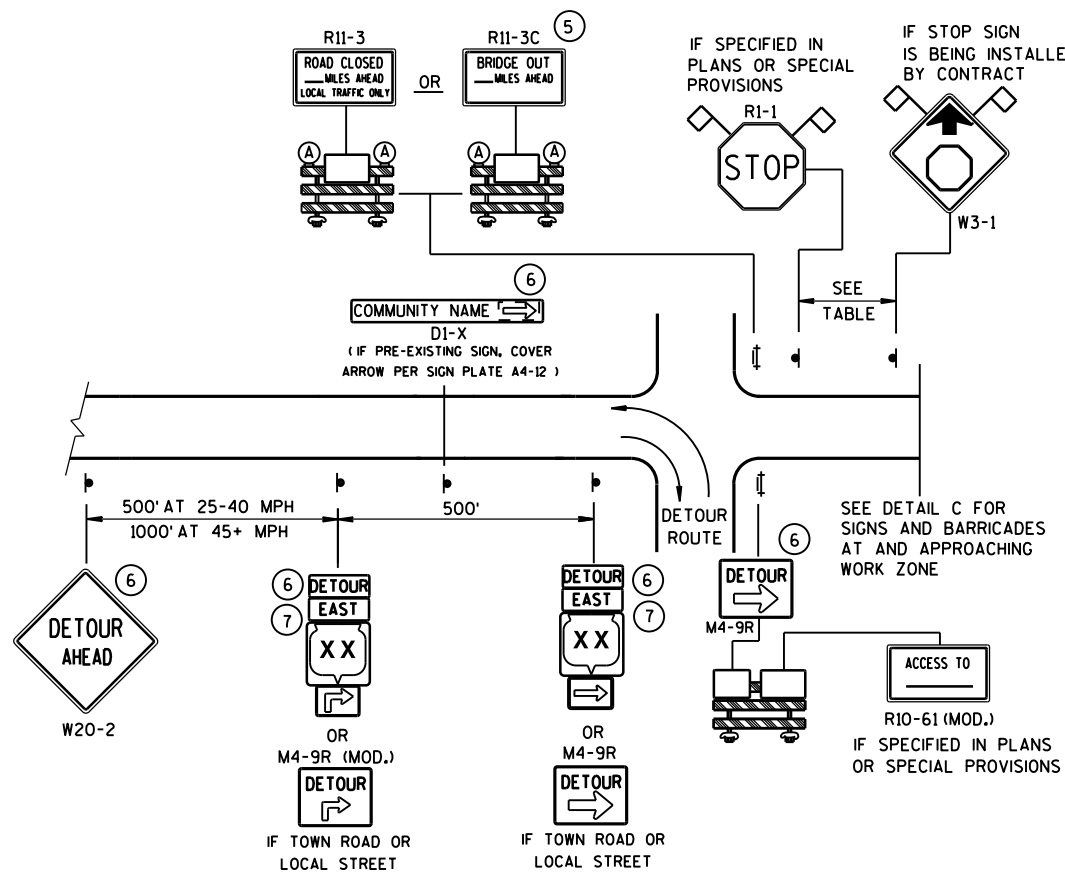
**INLET PROTECTION, TYPE D**

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

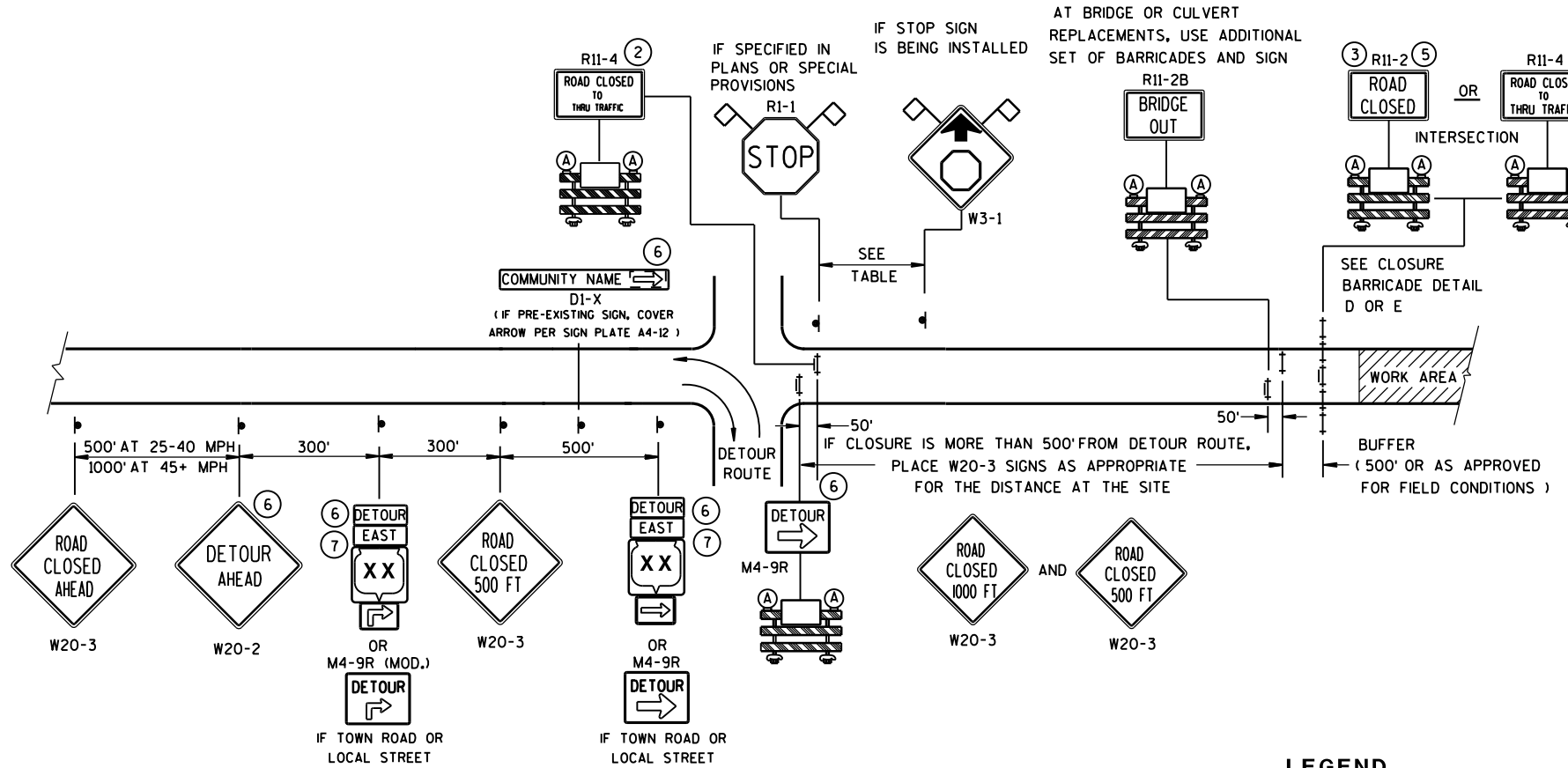
**INLET PROTECTION  
TYPE A, B, C, AND D**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

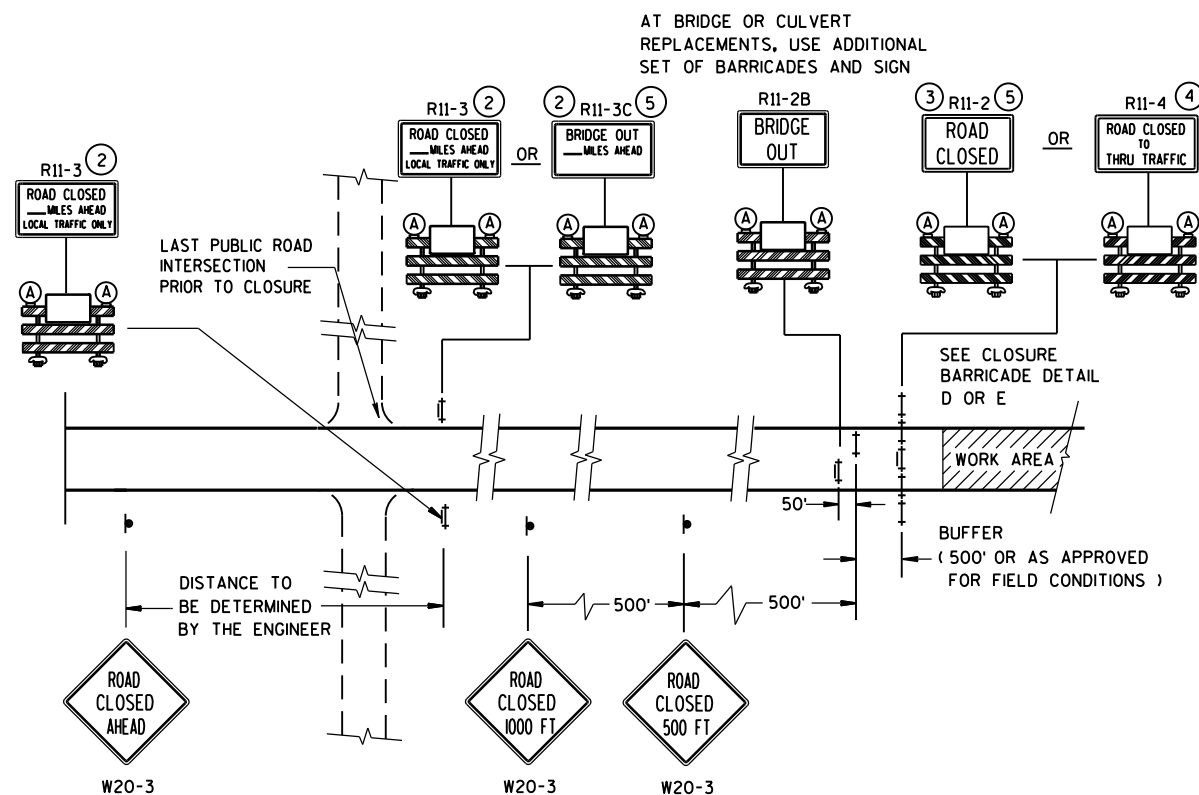
APPROVED  
10/16/02 /S/ Beth Cannestra  
DATE  
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER



**DETAIL A**  
**MAINLINE CLOSURE WITH POSTED DETOUR**  
WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



**DETAIL B**  
**MAINLINE CLOSURE WITH POSTED DETOUR**  
WORK ZONE LESS THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

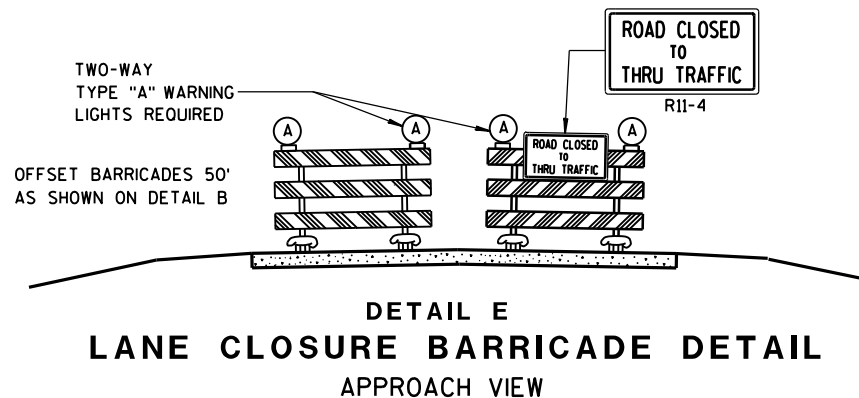
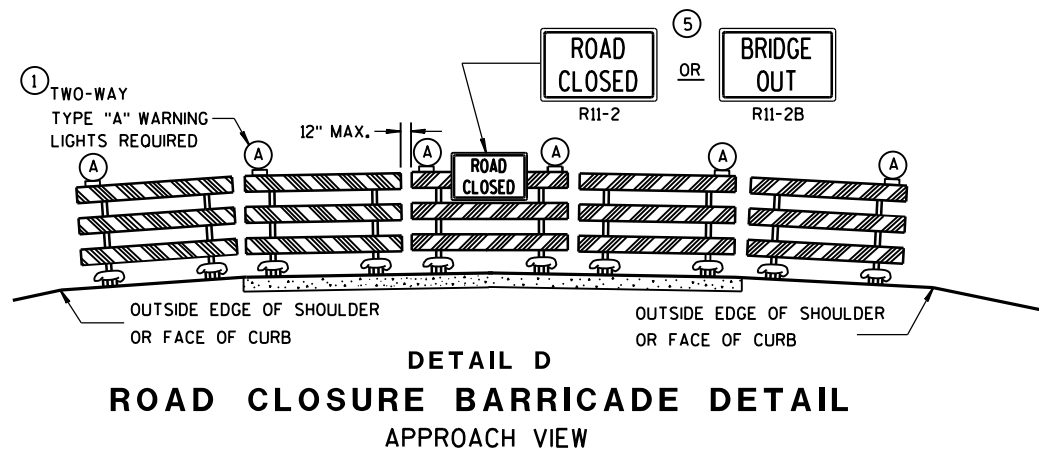


**DETAIL C**  
**MAINLINE CLOSURE, NO POSTED DETOUR**

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

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

|   |   |
|---|---|
| <b>BARRICADES AND SIGNS<br/>FOR<br/>MAINLINE CLOSURES</b> |   |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION        |   |
| 8/2013<br>DATE  | /S/ Travis Feltes<br>STATE TRAFFIC ENGINEER OF DESIGN |
| FHWA  |   |



SEE SDD 15C2-SHEET "a" FOR LEGEND

### GENERAL NOTES

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

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

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

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

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

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

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

THE R11-2, R11-3, M4-9, R11-4 AND R10-61 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE 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, 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". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)

M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)

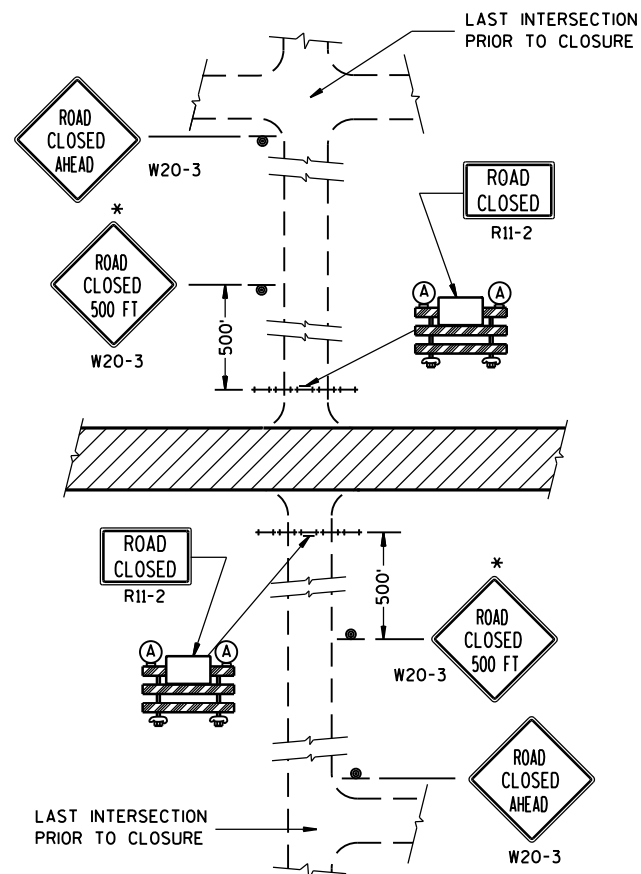
M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)

D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

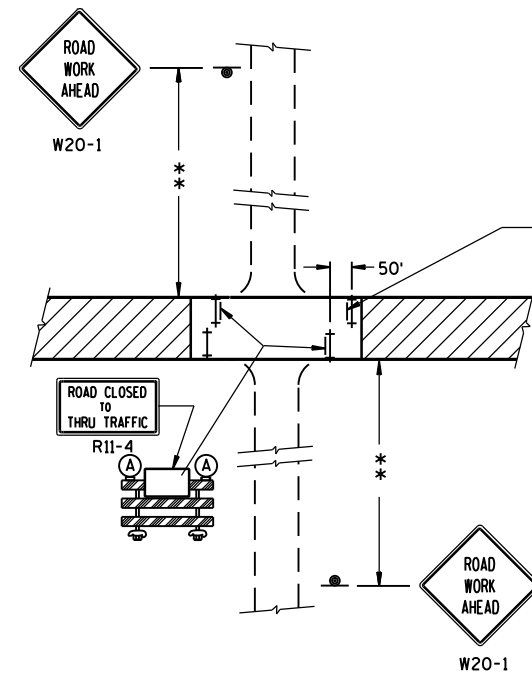
R1-1 SHALL BE 36" X 36".

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

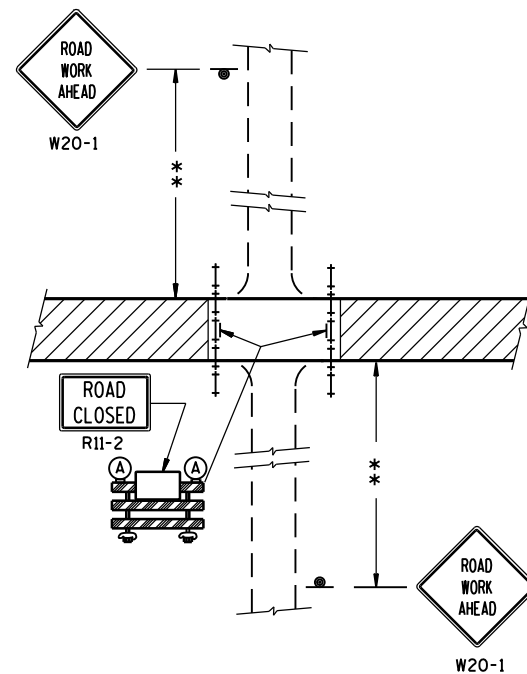
| BARRICADES AND SIGNS<br>FOR<br>MAINLINE CLOSURES   |   |
|--|---|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |   |
| 8/2013<br>DATE                                     | /S/ Travis Feltes<br>STATE TRAFFIC ENGINEER OF DESIGN |
| FHWA   |   |



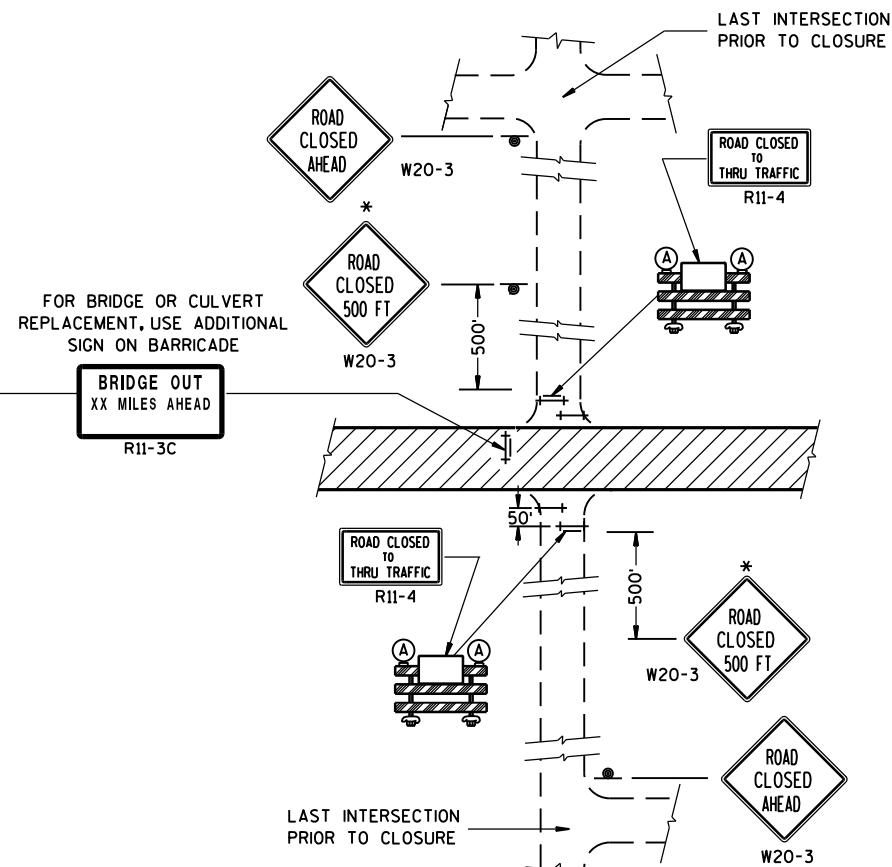
**DETAIL 1**  
(NO ACCESS TO PROJECT)



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



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



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

## GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

R11-2 SHALL BE 48" X 30".

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

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

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

## LEGEND

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

## BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

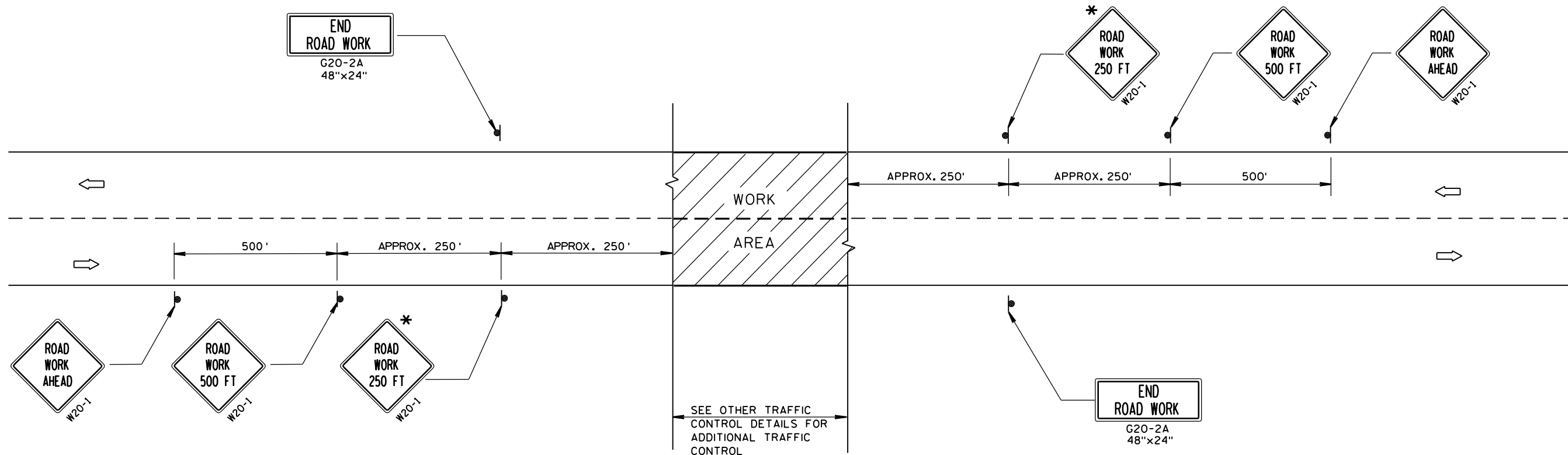
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 /S/ Travis Feltes

DATE STATE TRAFFIC ENGINEER OF DESIGN

FHWA



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

## GENERAL NOTES

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

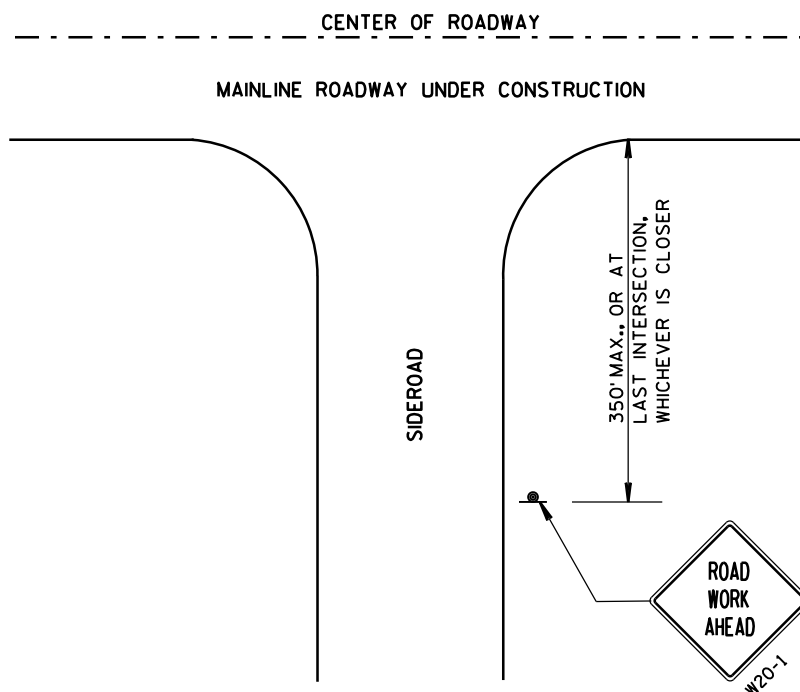
THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS.

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

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

\* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FT" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.



## LEGEND

- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA

TRAFFIC CONTROL, ADVANCE  
WARNING SIGNS 40 M.P.H.  
OR LESS TWO-WAY UNDIVIDED  
ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013

DATE

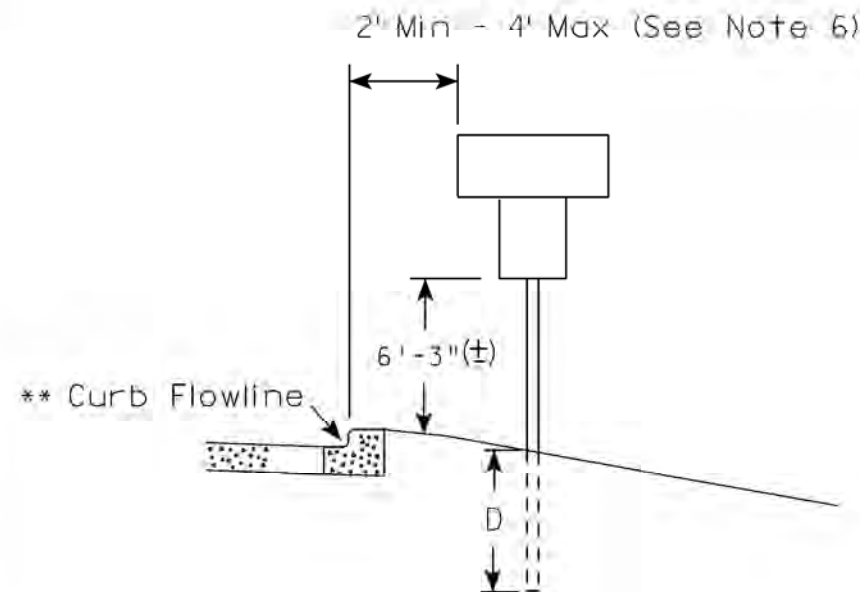
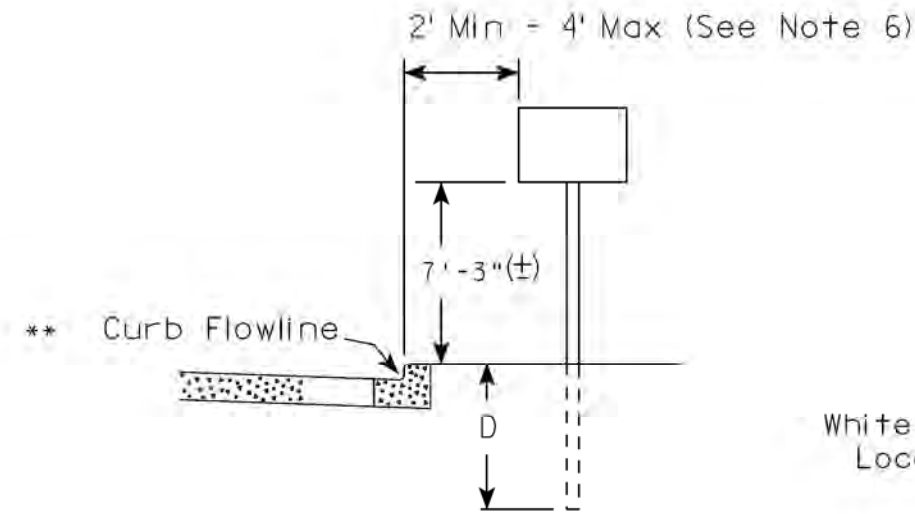
FHWA

/S/ Travis Feltes

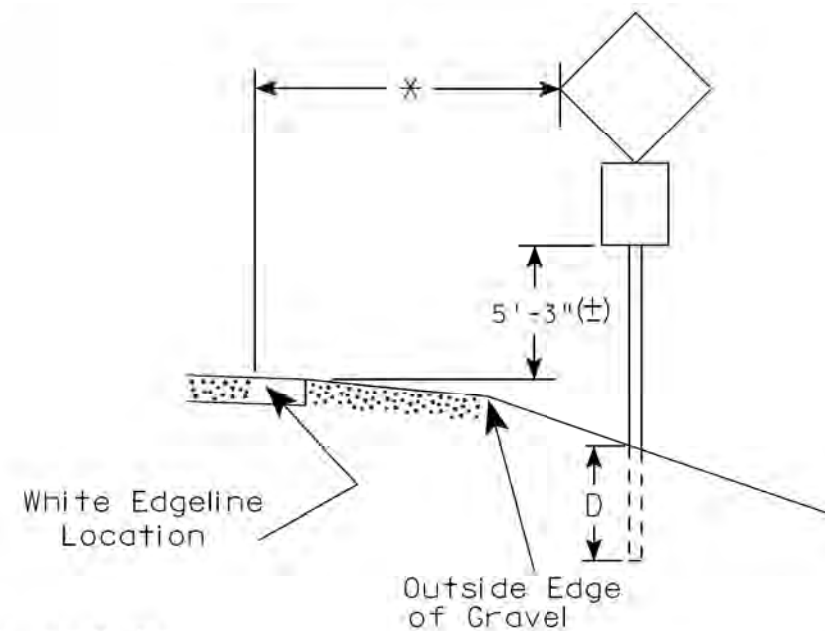
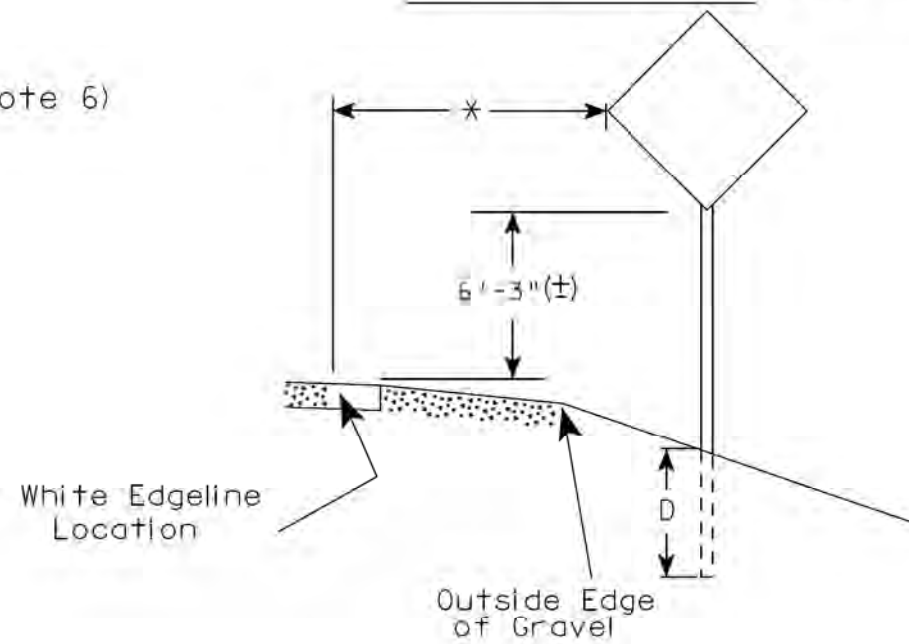
STATE TRAFFIC ENGINEER OF DESIGN



## URBAN AREA



## RURAL AREA (See Note 2)



## GENERAL NOTES

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

## POST EMBEDMENT DEPTH

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

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

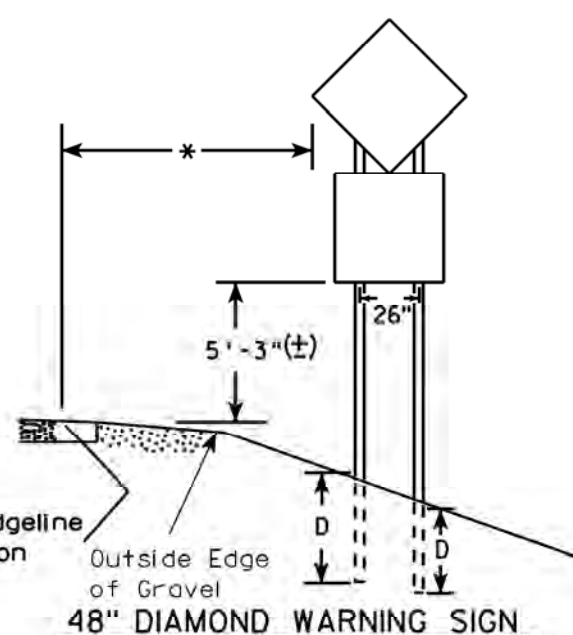
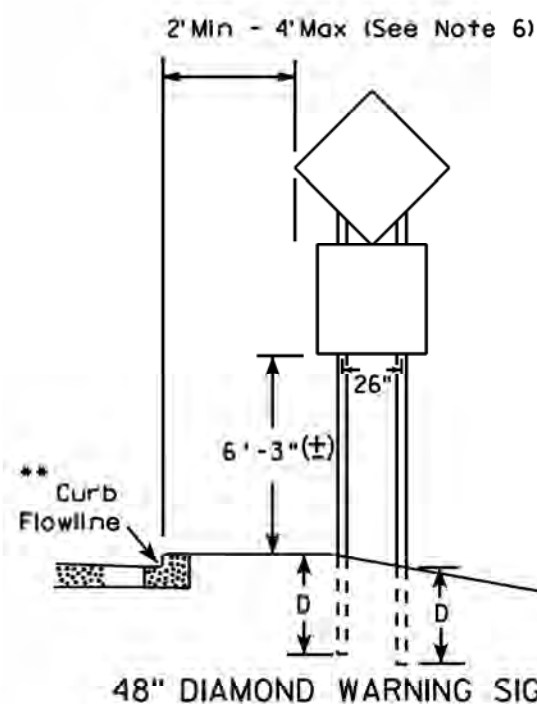
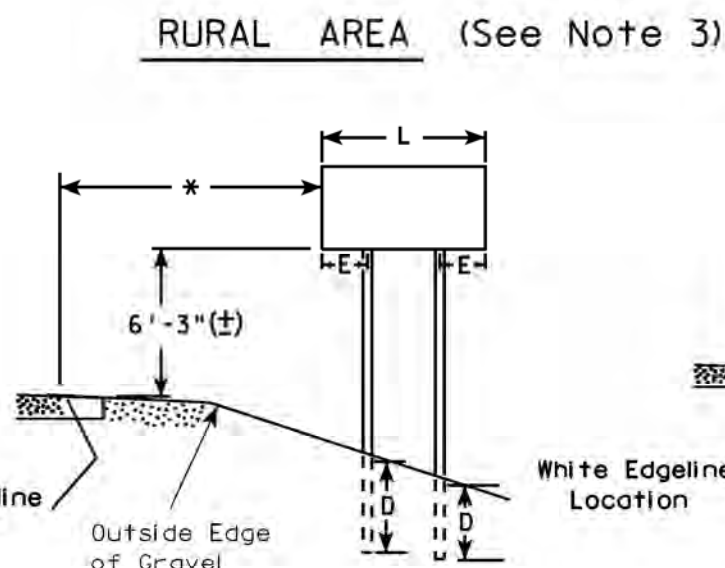
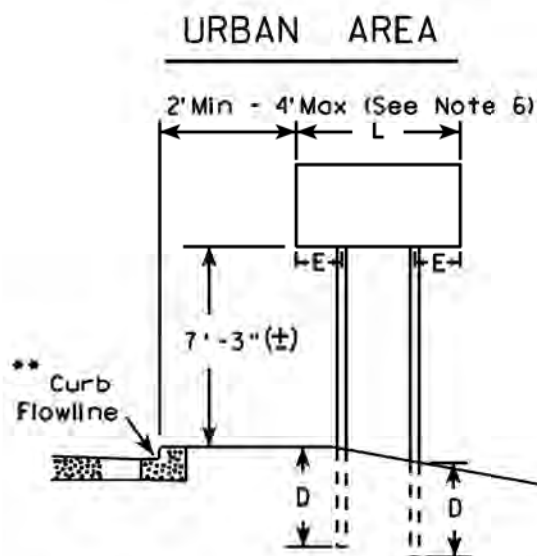
\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION  
OF PERMANENT TYPE II  
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Raush*  
For State Traffic Engineer

DATE 11/12/14 PLATE NO. A4-3.19



GENERAL NOTES

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

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

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

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

\*\*\*

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

| SIGN SHAPE OTHER THAN DIAMOND<br>(THREE POSTS REQUIRED) |     |
|---|-----|
| L   | E   |
| Greater than 120"                                       | 12" |
| less than 168"  |     |

| SIGN SHAPE OTHER THAN DIAMOND<br>(FOUR POSTS REQUIRED) |     |
|--|-----|
| L  | E   |
| 168" and greater                                       | 12" |

POST EMBEDMENT DEPTH

| Area of Sign Installation<br>( Sq. Ft. ) | D<br>( 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 11/12/14 PLATE NO. A4-4.13

PROJECT NO:

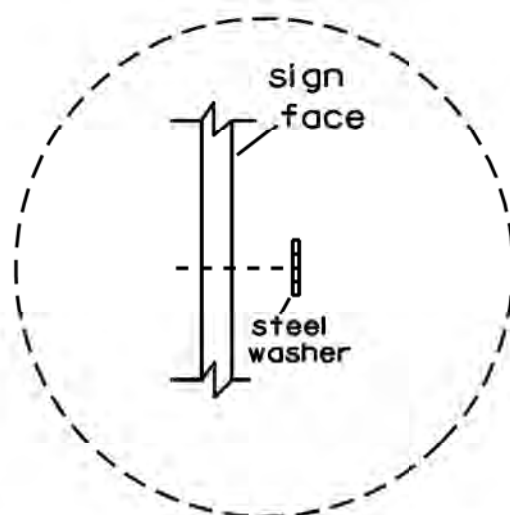
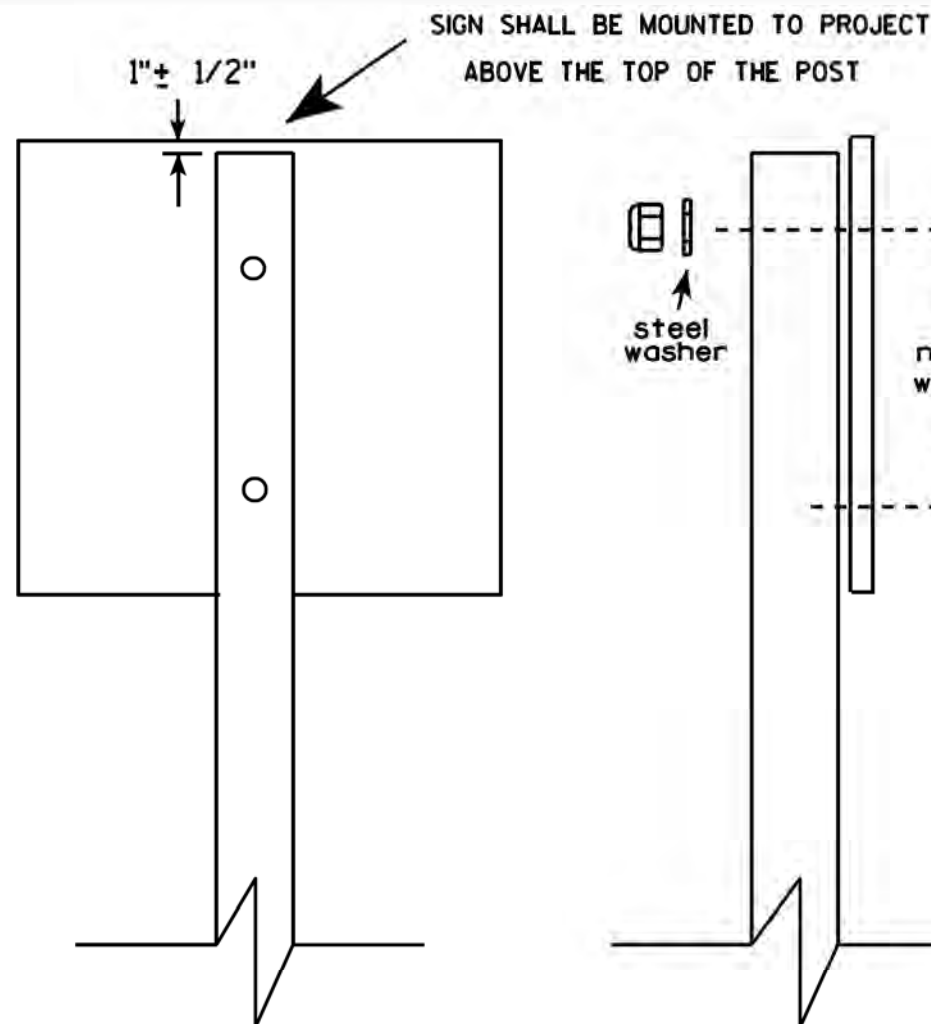
HWY:

COUNTY:

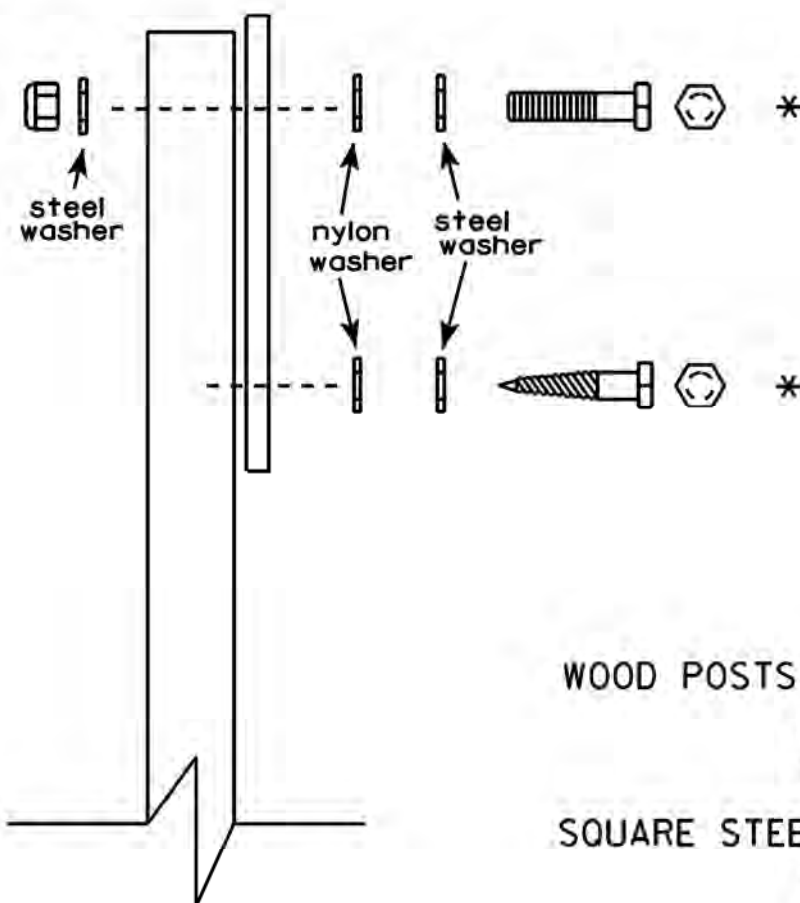
SHEET NO:

E





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



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

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

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

WOOD POSTS (4" x 4" or 4" x 6")

LAG SCREWS -  $\frac{3}{8}$ " X 3"

MACHINE BOLTS -  $\frac{5}{16}$ " X 6-1/2" or 7" Length w/ nuts

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS -  $\frac{3}{8}$ " X 3-1/4" Length w/ nuts

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 for all Type H signs.

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

## ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

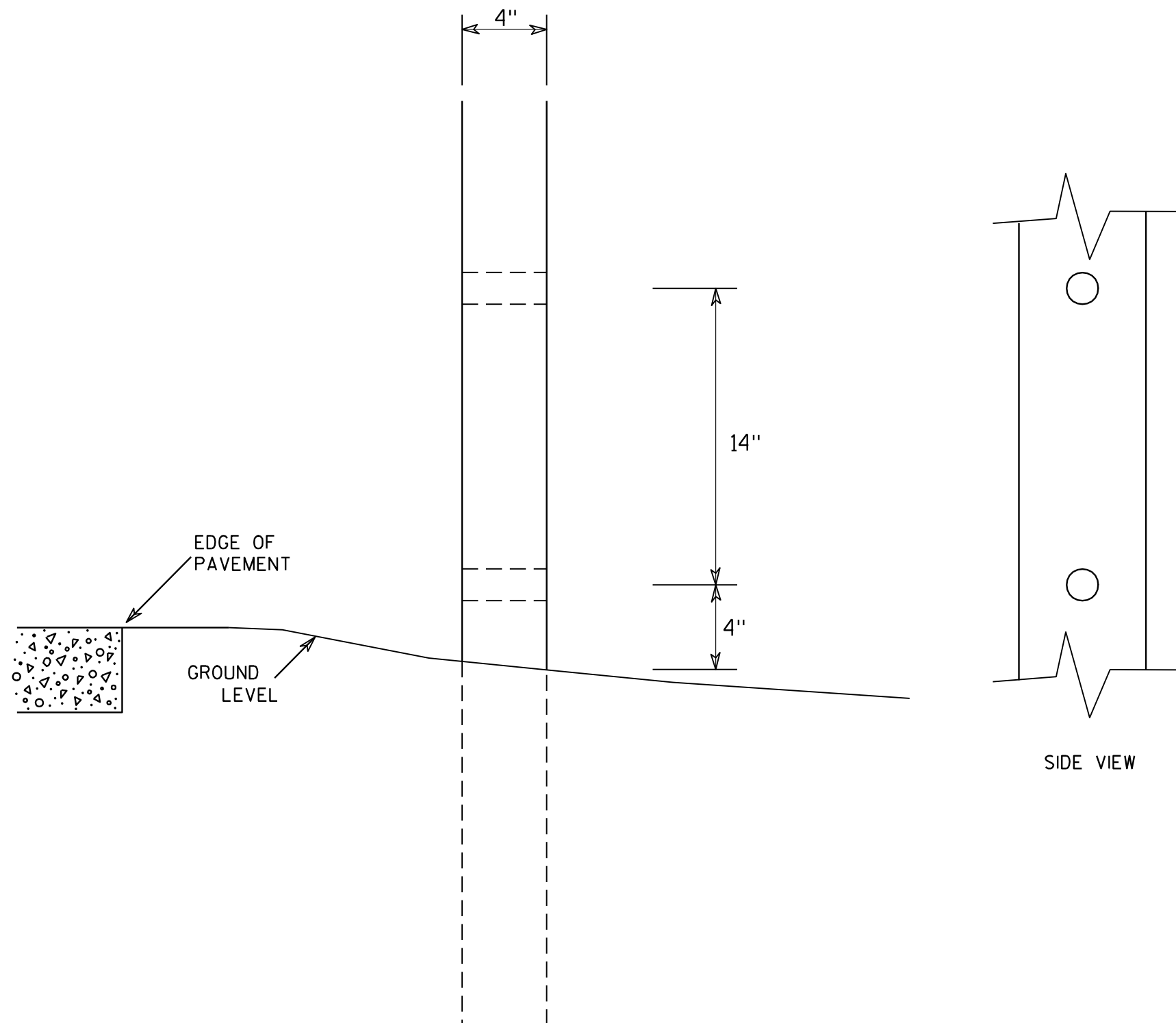
DATE 3/23/10 PLATE NO. A4-8.7

PROJECT NO:

SHEET NO:

E

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:

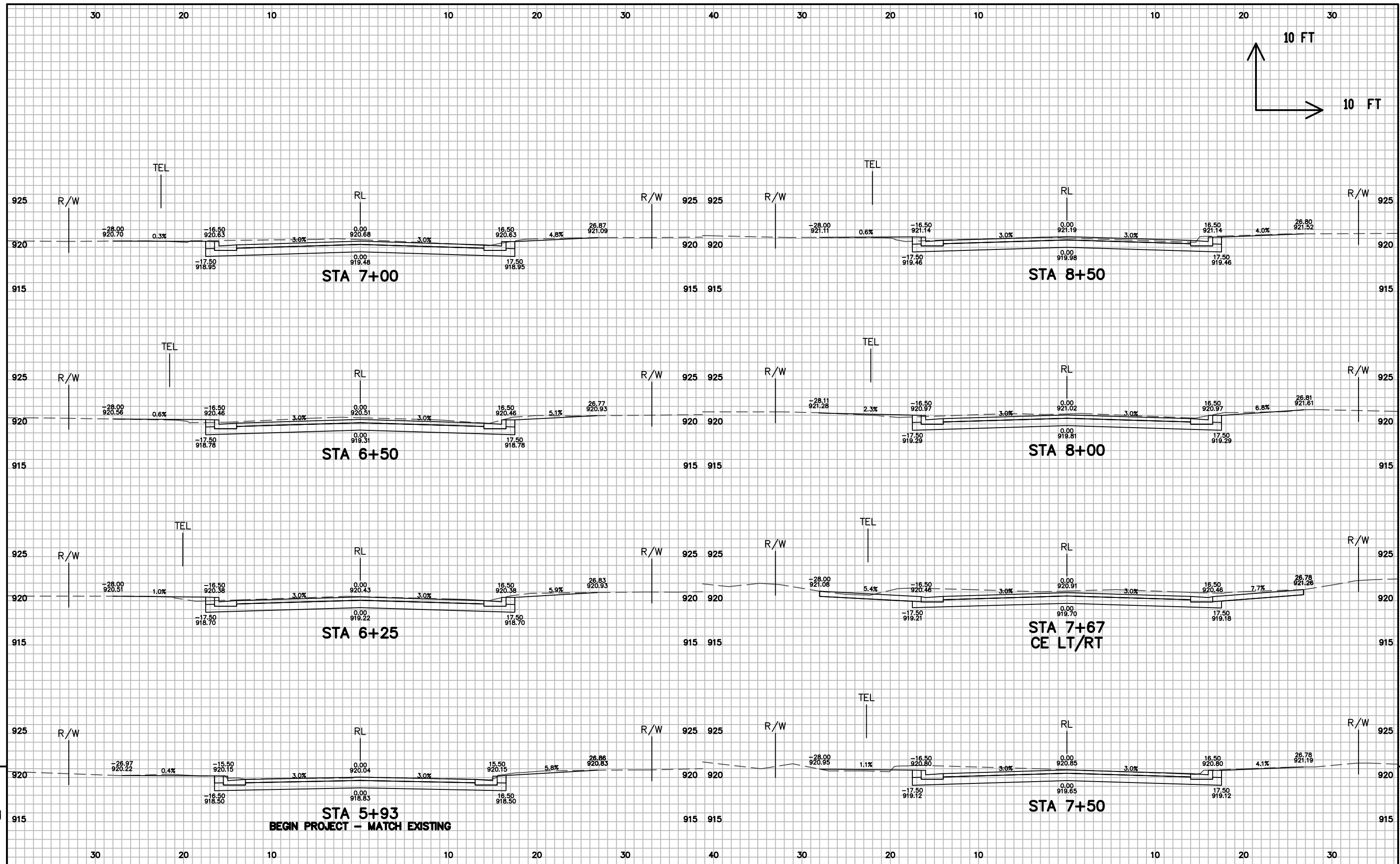
SHEET NO:

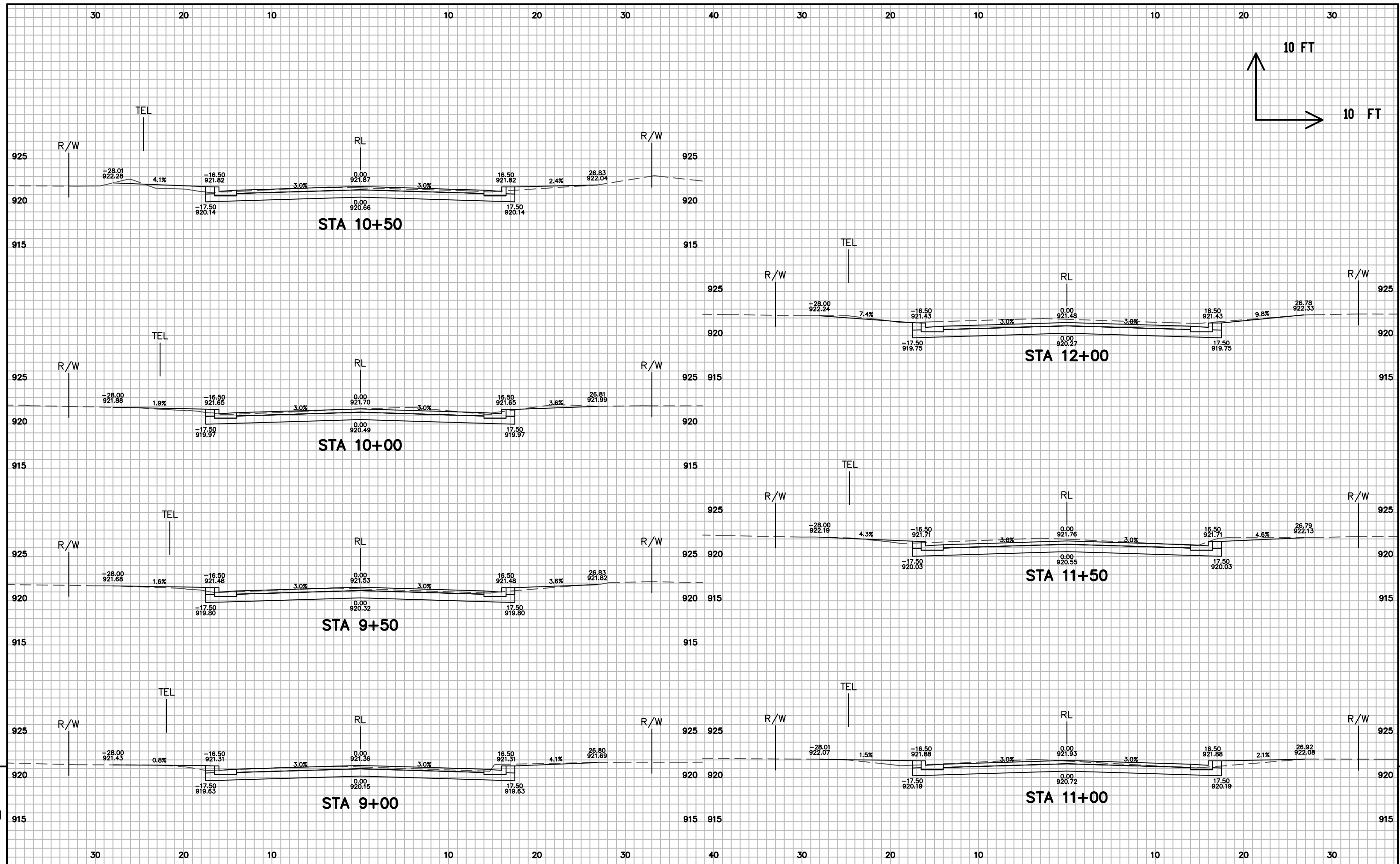
E

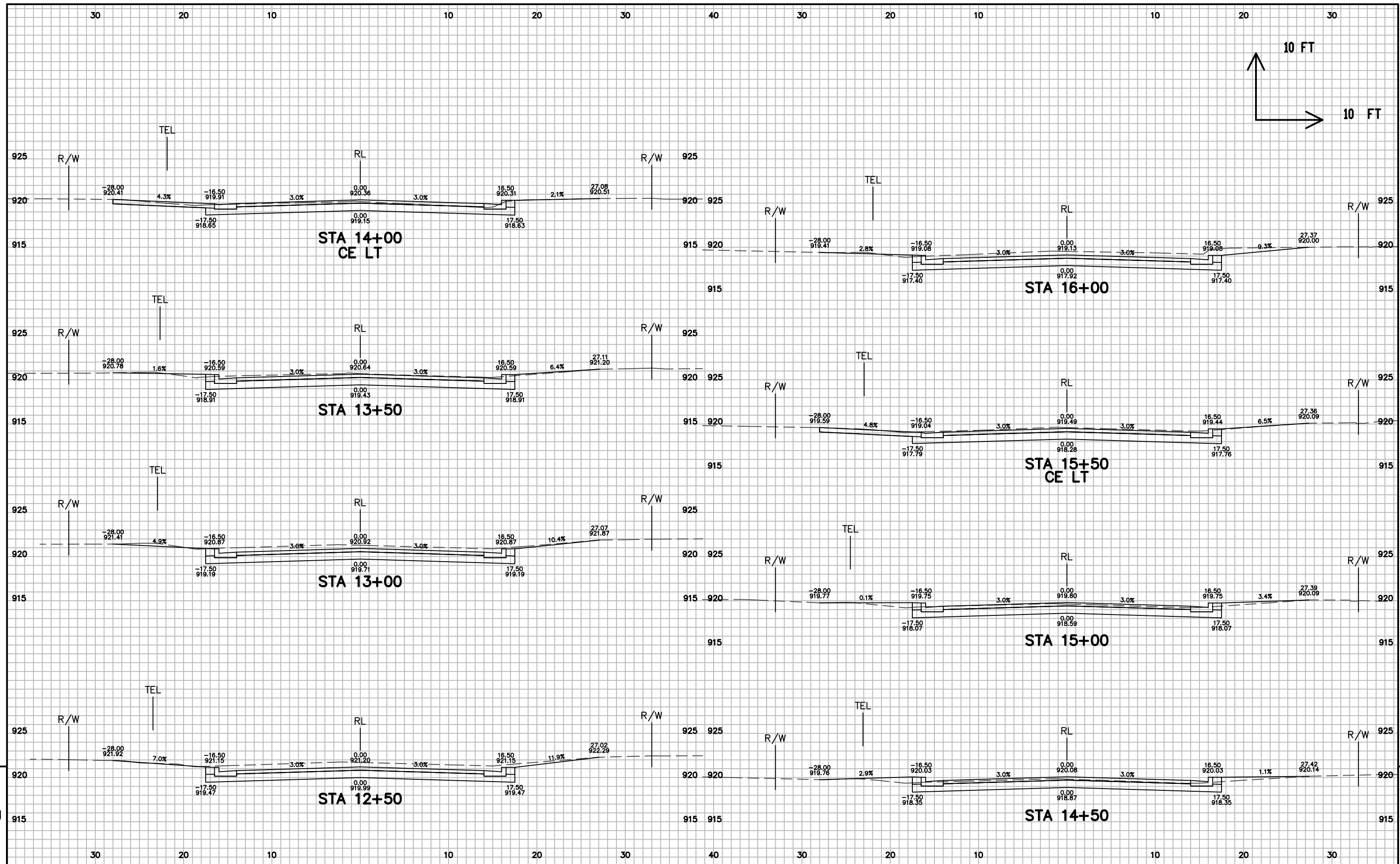
| STATION       | Real Station | Distance | AREA (SF) |  |        | Incremental Vol (CY) (Unadjusted) |  |        | Cumulative Vol (CY) |                       | Mass Ordinate |
|---------------|--------------|----------|-----------|--|--------|-----------------------------------|--|--------|---------------------|-----------------------|---------------|
|               |              |          | Cut       | Salvaged/Unusable<br>Pavement Material | Fill   | Cut                               | Salvaged/Unusable<br>Pavement Material | Fill   | Cut<br>1.00         | Expanded Fill<br>1.25 |               |
|               |              |          | Note 1    | Note 2                                 | Note 3 | Note 1                            | Note 2                                 | Note 3 | Note 1              | Note 8                |               |
| 5+93          | 593          |          | 44        | 11                                     | 0      | 0                                 | 0                                      | 0      | 0                   | 0                     | 0             |
| 6+25          | 625          | 32       | 48        | 11                                     | 1      | 54                                | 13                                     | 1      | 54                  | 1                     | 41            |
| 6+50          | 650          | 25       | 52        | 11                                     | 1      | 46                                | 10                                     | 1      | 100                 | 2                     | 75            |
| 7+00          | 700          | 50       | 53        | 11                                     | 0      | 97                                | 20                                     | 1      | 197                 | 4                     | 151           |
| 7+50          | 750          | 50       | 54        | 11                                     | 1      | 99                                | 20                                     | 1      | 296                 | 5                     | 229           |
| 8+00          | 800          | 50       | 51        | 11                                     | 1      | 97                                | 20                                     | 2      | 394                 | 7                     | 303           |
| 8+50          | 850          | 50       | 42        | 11                                     | 1      | 86                                | 20                                     | 2      | 480                 | 10                    | 367           |
| 9+00          | 900          | 50       | 42        | 11                                     | 1      | 78                                | 20                                     | 2      | 558                 | 12                    | 423           |
| 9+50          | 950          | 50       | 38        | 11                                     | 3      | 74                                | 20                                     | 4      | 632                 | 17                    | 472           |
| 10+00         | 1000         | 50       | 45        | 11                                     | 1      | 77                                | 20                                     | 4      | 708                 | 21                    | 524           |
| 10+50         | 1050         | 50       | 40        | 11                                     | 4      | 79                                | 20                                     | 5      | 787                 | 27                    | 577           |
| 11+00         | 1100         | 50       | 40        | 11                                     | 5      | 74                                | 20                                     | 8      | 861                 | 37                    | 621           |
| 11+50         | 1150         | 50       | 53        | 11                                     | 1      | 86                                | 20                                     | 6      | 947                 | 44                    | 680           |
| 12+00         | 1200         | 50       | 60        | 11                                     | 0      | 105                               | 20                                     | 1      | 1052                | 46                    | 763           |
| 12+50         | 1250         | 50       | 65        | 11                                     | 0      | 116                               | 20                                     | 0      | 1168                | 46                    | 859           |
| 13+00         | 1300         | 50       | 60        | 11                                     | 0      | 116                               | 20                                     | 0      | 1283                | 46                    | 955           |
| 13+50         | 1350         | 50       | 47        | 11                                     | 2      | 99                                | 20                                     | 2      | 1383                | 49                    | 1031          |
| 14+00         | 1400         | 50       | 40        | 11                                     | 0      | 81                                | 20                                     | 2      | 1463                | 51                    | 1089          |
| 14+50         | 1450         | 50       | 35        | 11                                     | 5      | 69                                | 20                                     | 5      | 1533                | 57                    | 1133          |
| 15+00         | 1500         | 50       | 39        | 11                                     | 4      | 69                                | 20                                     | 8      | 1601                | 67                    | 1171          |
| 15+50         | 1550         | 50       | 52        | 11                                     | 0      | 84                                | 20                                     | 4      | 1685                | 72                    | 1230          |
| 16+00         | 1600         | 50       | 63        | 11                                     | 1      | 106                               | 20                                     | 1      | 1792                | 73                    | 1316          |
| 16+50         | 1650         | 50       | 63        | 11                                     | 0      | 117                               | 20                                     | 1      | 1908                | 74                    | 1411          |
| 17+00         | 1700         | 50       | 52        | 11                                     | 1      | 106                               | 20                                     | 1      | 2015                | 76                    | 1496          |
| 17+50         | 1750         | 50       | 39        | 11                                     | 4      | 84                                | 20                                     | 5      | 2099                | 82                    | 1555          |
| 18+00         | 1800         | 50       | 32        | 11                                     | 5      | 66                                | 20                                     | 8      | 2165                | 92                    | 1590          |
| 18+50         | 1850         | 50       | 35        | 11                                     | 6      | 62                                | 20                                     | 10     | 2227                | 105                   | 1619          |
| 19+00         | 1900         | 50       | 46        | 11                                     | 2      | 75                                | 20                                     | 7      | 2302                | 114                   | 1665          |
| 19+50         | 1950         | 50       | 87        | 11                                     | 0      | 123                               | 20                                     | 2      | 2425                | 116                   | 1766          |
| 20+00         | 2000         | 50       | 53        | 11                                     | 1      | 130                               | 20                                     | 1      | 2555                | 117                   | 1875          |
| 20+50         | 2050         | 50       | 39        | 11                                     | 4      | 85                                | 20                                     | 4      | 2640                | 123                   | 1935          |
| 21+07         | 2107         | 57       | 51        | 11                                     | 4      | 95                                | 23                                     | 8      | 2735                | 133                   | 1996          |
| 21+90         | 2190         | 83       | 43        | 8                                      | 0      | 132                               | 29                                     | 1      | 2128                | 134                   | 2099          |
| COLUMN TOTALS |              |          |           |  |        | 2867                              | 634                                    | 107    |                     |                       |               |

## Notes:

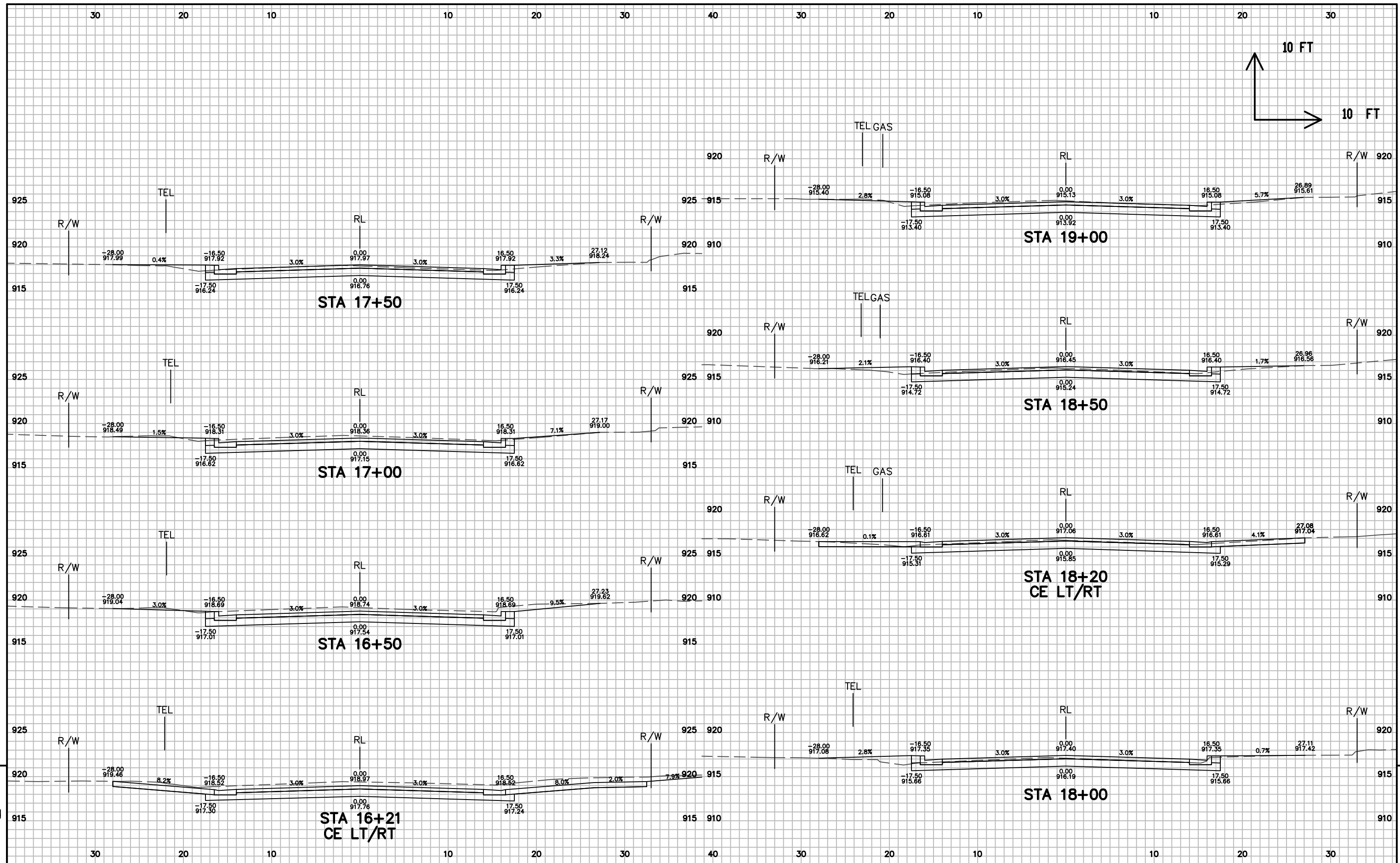
|                                      |   |   |
|--------------------------------------|---|---|
| 1 - Cut                              | Cut includes Salvaged/Unusable Pavement material  |   |
| 2 - Salvaged/Unusable Pavement Mater | This does not show up in cross sections   |   |
| 3 - Fill                             | Does not include Unusable Pavement Exc volume   |   |
| 4 - Expanded Marsh Backfill          | Will be backfilled with Granular Backfill (or Cut, or Borrow)   | Note 4 - Select one based on input dialog   |
| 5 - Expanded EBS                     | Will be backfilled with Granular Backfill (or Cut, or Borrow)   | Note 5 - Select one based on input dialog   |
| 6 - Reduced Marsh in Fill            | Reduced Marsh Excavation that can be used in Fill   | Note 6 - If excavated Marsh can be used in Fill   |
| 7 - Reduced EBS in Fill              | Reduced EBS Excavation that can be used in Fill   | Note 7 - If excavated EBS can be used in Fill   |
| 8 - Mass Ordinate                    | If Marsh or EBS to be backfilled with Cut or Borrow: $[(\text{Cut} + \text{Marsh Exc} + \text{EBS}) - ((\text{Fill} - \text{Reduced Marsh in Fill}) - (\text{Reduced EBS in Fill}) - \text{Expanded Rock}) * \text{Fill Factor}]$ | Note 8 - Select one based on mass haul input dialog selection. EBS and Marsh Exc used outside |
| 8 - Mass Ordinate                    | If Marsh and EBS to be backfilled with Granular: $[(\text{Cut} + \text{EBS} + \text{Marsh Exc}) - ((\text{Fill} - (\text{Reduced Marsh in Fill}) - (\text{Reduced EBS in Fill}) - (\text{Expanded Rock})) * \text{Fill Factor})]$ | EBS and Marsh Exc used outside 1:1 in fill slopes   |
| 8 - Mass Ordinate                    | If Marsh and EBS to be backfilled with Granular: $[(\text{Cut}) - ((\text{Fill} - \text{Expanded Rock}) * \text{Fill Factor})]$   | Marsh and EBS are not usable outside the 1:1  |
| 8 - Mass Ordinate                    | If Marsh and EBS to be backfilled with Cut or Borrow: $[(\text{Cut}) - ((\text{Fill} - \text{Expanded Rock}) * \text{Fill Factor})]$  | Marsh and EBS are not usable outside the 1:1  |

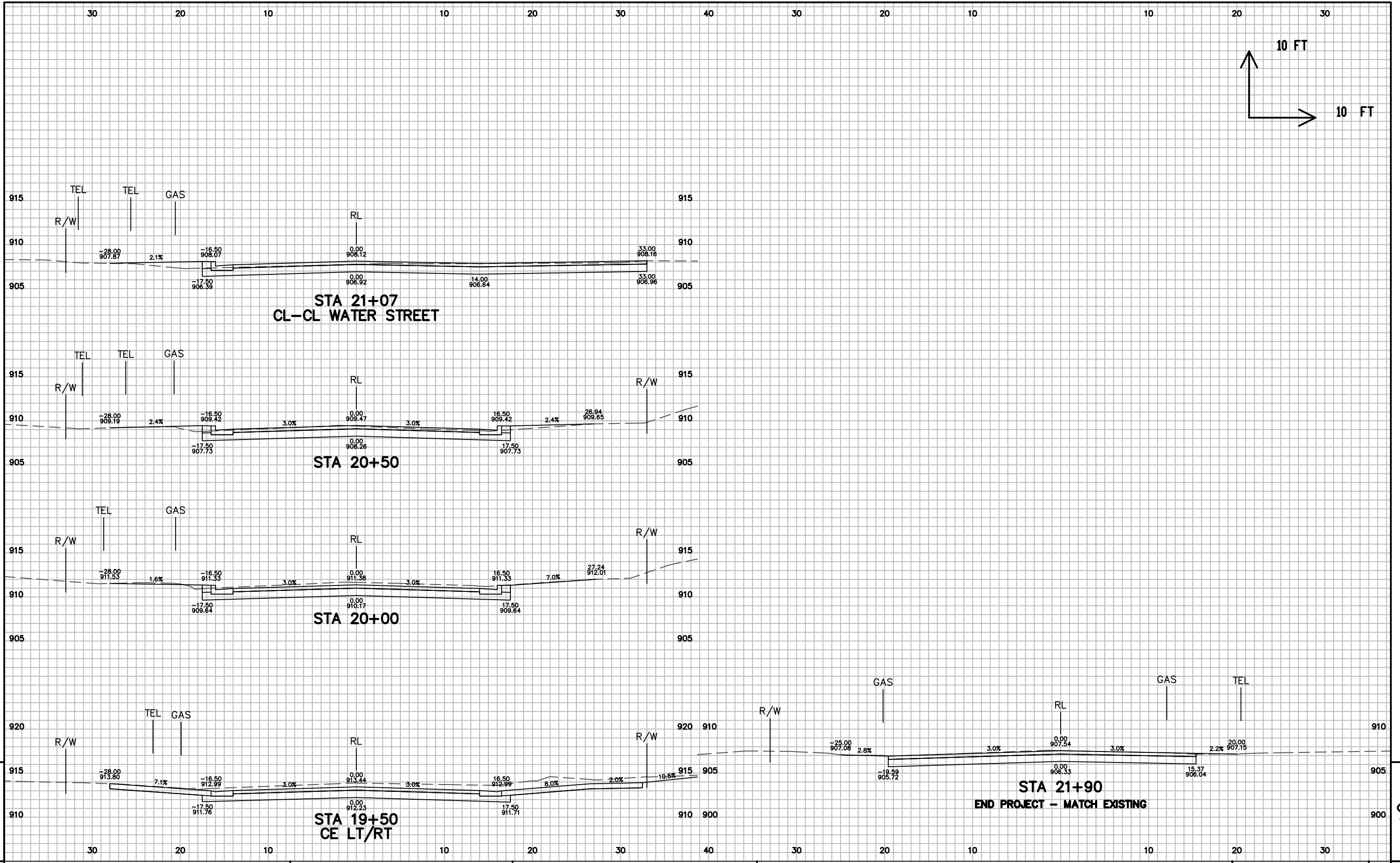














## Notes



## ***Wisconsin Department of Transportation***

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