

GRE

WITH: N/A

PROJECT ID:

4317-08-71

COUNTY:

MANITOWOC

FEBRUARY 2018

ORDER OF SHEETS

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

TOTAL SHEETS = 46

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T COOPERSTOWN, PLEASANT RD

DEVILS RIVER BRIDGE

LOC STR

MANITOWOC COUNTY

STATE PROJECT

4317-08-71

FEDERAL PROJECT

PROJECT

WISC 2018092

CONTRACT

1

PROJECT LOCATION



STATE PROJECT NUMBER

4317-08-71

R 22 E

R 23 E

BEGIN PROJECT  
STA. 8+75  
Y=376907.560  
X=197732.036

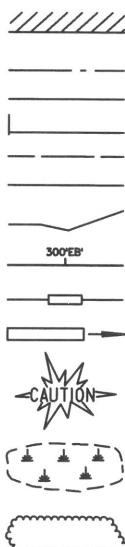
END PROJECT  
STA. 11+25

DESIGN DESIGNATION

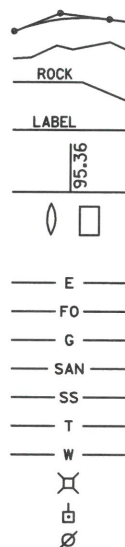
A.A.D.T. 2018 = 70  
A.A.D.T. 2038 = 80  
D.H.V. 2038 = 64  
D.D. = 60/40  
T. = 8.5%  
DESIGN SPEED = 55 MPH  
ESALS = 7300

CONVENTIONAL SYMBOLS

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



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



LAYOUT  
SCALE 0 1 MILE

TOTAL NET LENGTH OF CENTERLINE = 0.047 MI.

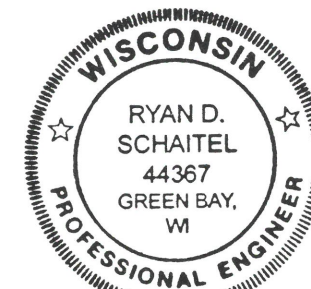
HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, MANITOWOC COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ACCEPTED FOR  
MANITOWOC COUNTY

7/20/2017  
DATE  
COUNTY HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY

AYRES  
ASSOCIATES



7/19/2017  
DATE  
SIGNATURE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY  
Surveyor  
Designer  
Management Consultant  
JT ENGINEERING

APPROVED FOR THE DEPARTMENT  
DATE: 7/31/17  
MANAGEMENT CONSULTANT SIGNATURE

E

GENERAL NOTES

FILL EXPANSION FACTOR IS 30%.

CONSTRUCT 4-INCH ASPHALTIC SURFACE WITH A 1 3/4" UPPER LAYER AND A 2 1/4" LOWER LAYER.

PROPERTY LINES AS SHOWN ARE APPROXIMATE.

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

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

ALL TIES ON THIS PLAN ARE HORIZONTAL UNLESS DESCRIBED OTHERWISE.

PLACE EROSION CONTROL MEASURES AS SHOWN ON THE EROSION CONTROL PLAN. THE EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREAS WITHIN THE FINISHED SUBGRADE SHOULDER POINTS ARE TO BE FERTILIZED, SEEDED, AND EROSION MAT AS DIRECTED BY THE ENGINEER.

ELEVATIONS SHOWN ON THE ROADWAY CROSS SECTIONS ARE SUBGRADE ELEVATIONS AT THE CENTERLINE OF THE ROADWAY.

ALL ELEVATIONS ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF NAVD 88 (2012).

WISDOT WILL FURNISH A BENCHMARK MONUMENT TO BE SET BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER IN THE FIELD.

SAW CUT LOCATIONS SHOWN ON THE PLAN ARE SUBJECT TO ADJUSTMENT BY THE ENGINEER IN THE FIELD. THE LINE OF SUCH SAW CUTS WILL BE NEATLY DELINEATED THROUGH THE ASPHALT WITHOUT ANY DAMAGE TO THE REMAINING PORTION OF THE EXISTING PAVEMENT.

THERE ARE NO KNOWN UTILITY FACILITIES WITHIN THE PROJECT AREA. HOWEVER, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THIS.

UTILITIES

NO UTILITIES WITHIN PROJECT AREA



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

DEPARTMENT OF NATURAL RESOURCES

WDNR TELEPHONE 920-366-1544

2984 SHAWANO AVE.  
GREEN BAY, WISCONSIN 54313  
ATTENTION: MATT SCHAEVE  
E-MAIL: MATTHEW.SCHAEVE@WISCONSIN.GOV

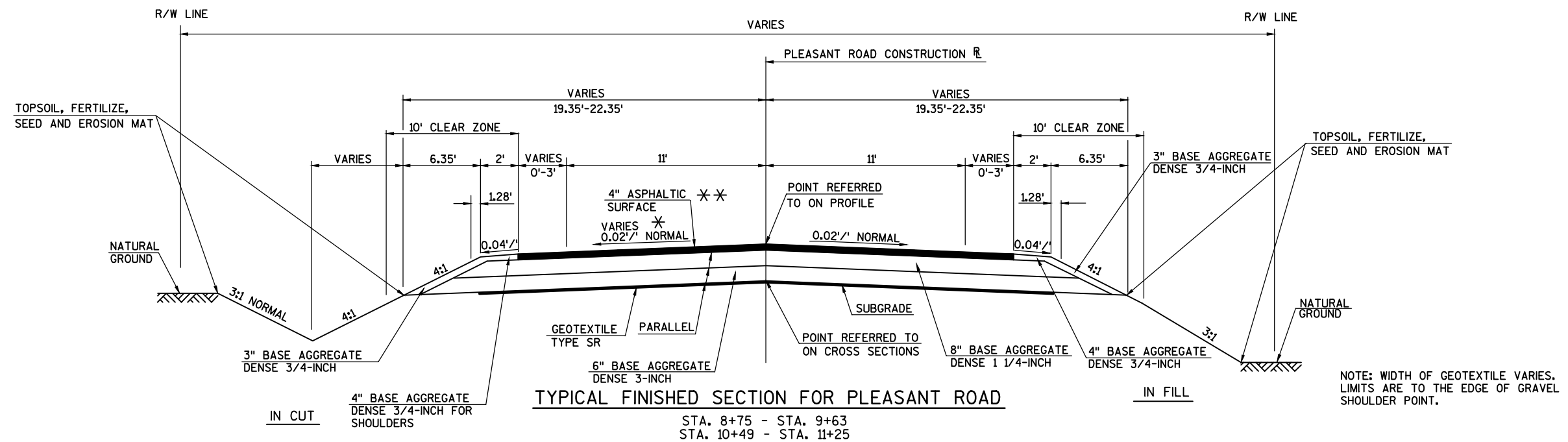
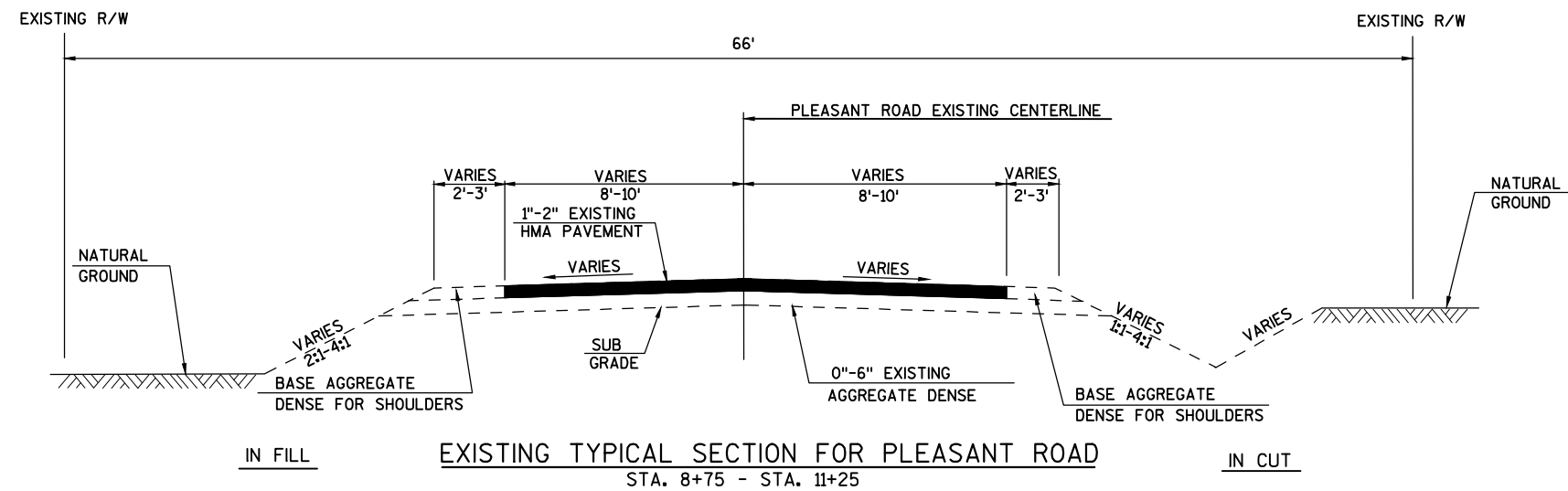
RUNOFF COEFFICIENT TABLE

|                         | 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<br>.22             | .16<br>.30 | .22<br>.38 | .12<br>.26             | .20<br>.34 | .27<br>.44 | .15<br>.30             | .24<br>.37 | .33<br>.50 | .19<br>.34             | .28<br>.41 | .38<br>.56 |
| MEDIAN STRIP-<br>TURF   | .19<br>.24             | .20<br>.26 | .24<br>.30 | .19<br>.25             | .22<br>.28 | .26<br>.33 | .20<br>.26             | .23<br>.30 | .30<br>.37 | .20<br>.27             | .25<br>.32 | .30<br>.40 |
| SIDE SLOPE-<br>TURF     |                        |            | .25<br>.32 |                        |            | .27<br>.34 |                        |            | .28<br>.36 |                        |            | .30<br>.38 |
| PAVEMENT:               |                        |            |            |                        |            |            |                        |            |            |                        |            |            |
| ASPHALT                 | .70 - .95              |            |            |                        |            |            |                        |            |            |                        |            |            |
| CONCRETE                | .80 - .95              |            |            |                        |            |            |                        |            |            |                        |            |            |
| BRICK                   | .70 - .80              |            |            |                        |            |            |                        |            |            |                        |            |            |
| DRIVES, WALKS           | .75 - .85              |            |            |                        |            |            |                        |            |            |                        |            |            |
| ROOFS                   | .75 - .95              |            |            |                        |            |            |                        |            |            |                        |            |            |
| GRAVEL ROADS, SHOULDERS | .40 - .60              |            |            |                        |            |            |                        |            |            |                        |            |            |

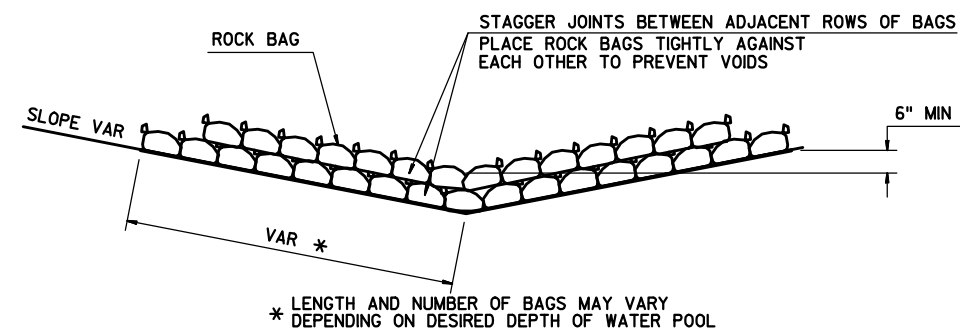
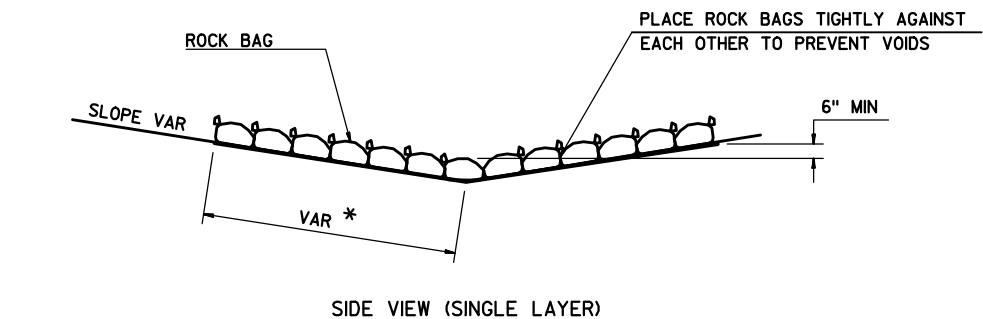
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.12 ACRES  
SOIL GROUP C

STANDARD ABBREVIATIONS

|       |                              |           |                                      |
|-------|------------------------------|-----------|--------------------------------------|
| ADT   | AVERAGE DAILY TRAFFIC        | NC        | NORMAL CROWN                         |
| AC    | ASPHALT CEMENT               | PT        | POINT OF TANGENCY                    |
| AGG   | AGGREGATE                    | PC        | POINT OF CURVATURE                   |
| ASPH  | ASPHALT                      | PI        | POINT OF INTERSECTION                |
| BM    | BENCH MARK                   | PE        | PRIVATE ENTRANCE                     |
| C/L   | CENTERLINE                   | R         | RADIUS                               |
| CONC  | CONCRETE                     | REM       | REMOVE                               |
| CMP   | CORRUGATED METAL PIPE        | R/L OR RL | REFERENCE LINE                       |
| CR.   | CREEK                        | RCCP      | REINFORCED CONCRETE CULVERT PIPE     |
| D     | DEGREE OF CURVE              | RCPSS     | REINFORCED CONCRETE PIPE STORM SEWER |
| DHV   | DESIGN HOUR VOLUME           | R.O.      | RUNOUT                               |
| ESALS | EQUIVALENT SINGLE AXIS LOADS | R/W       | RIGHT-OF-WAY                         |
| EXIST | EXISTING                     | STA       | STATION                              |
| FE    | FIELD ENTRANCE               | SE        | SUPER ELEVATION                      |
| HYD   | HYDRANT                      | SS        | STORM SEWER                          |
| IP    | IRON PIPE OR PIN             | T         | TANGENT                              |
| L     | LENGTH OF CURVE              | TEL       | TELEPHONE                            |
| LC    | LONG CHORD OF CURVE          | TLE       | TEMPORARY LIMITED EASEMENT           |
| LR    | LENGTH OF RUNOFF             | T         | TRUCKS                               |
| MH    | MANHOLE                      | VC        | VERTICAL CURVE                       |
|       |                              | W         | WELL                                 |



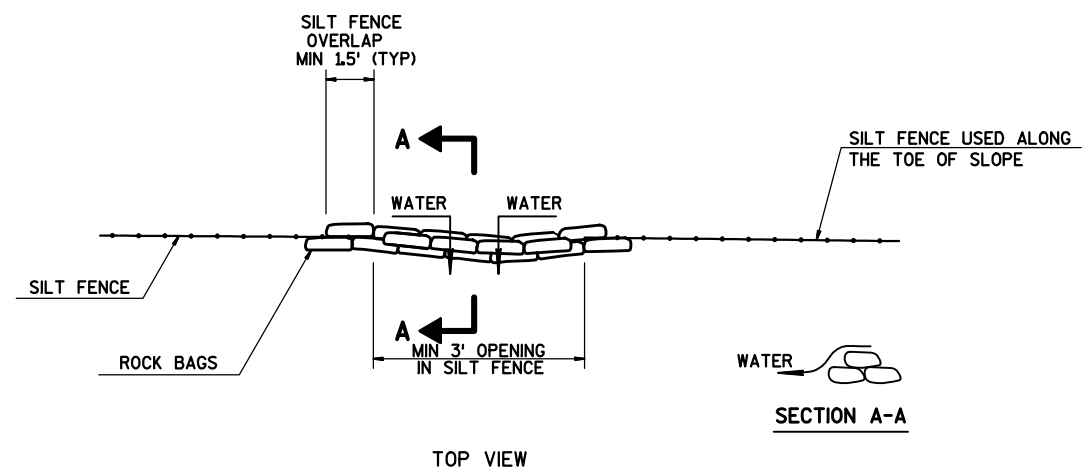
\*-SEE PLAN AND PROFILE SHEET FOR CROSS SLOPE TRANSITION.  
 \*\*-CONCRETE PAVEMENT APPROACH SLAB OVER 6" BASE AGGREGATE DENSE 1 1/4-INCH  
 STA. 9+43-STA. 9+67  
 STA. 10+45-STA. 10+69



SIDE VIEW (MULTIPLE LAYER)

**ROCK BAGS DITCH CHECK**

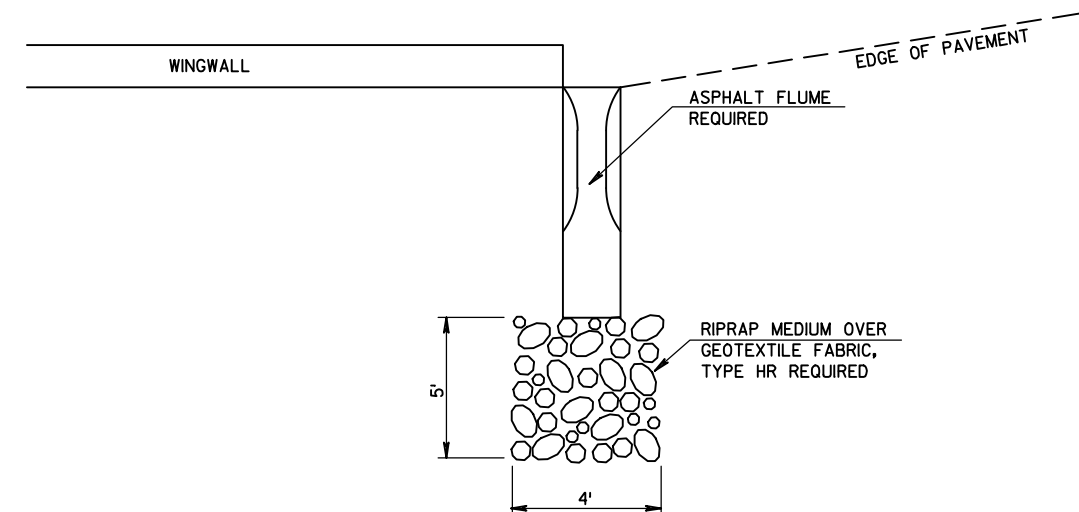
PAID AS ROCK BAGS  
(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)



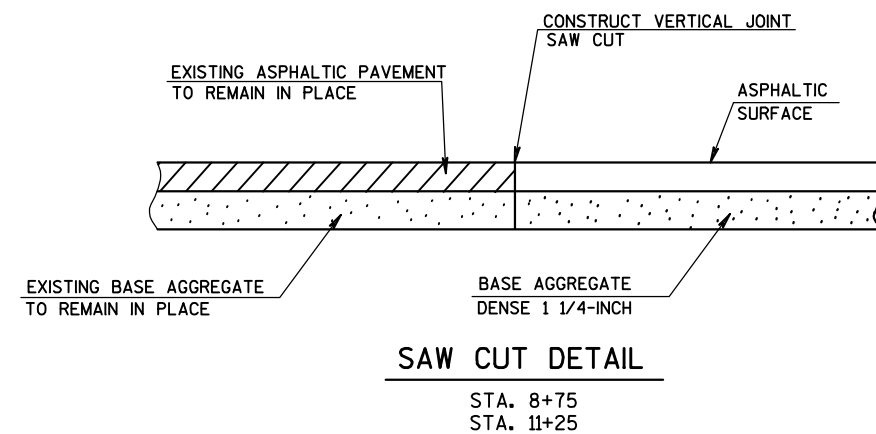
TOP VIEW

**ROCK BAGS USED FOR SILT FENCE RELIEF DETAIL**

PAID AS ROCK BAGS  
(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)

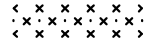

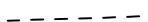
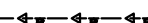




**RIPRAP MEDIUM AT ASPHALT FLUME**

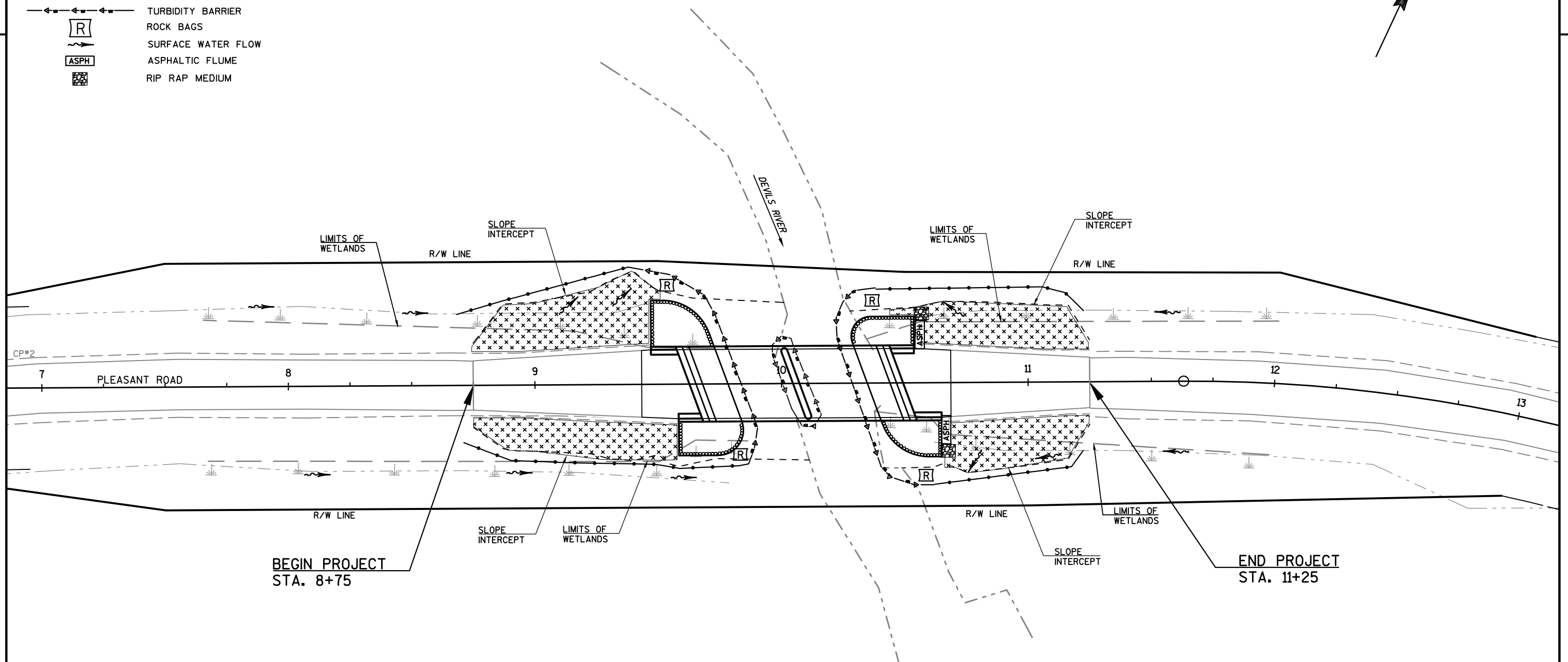
(SEE MISCELLANEOUS QUANTITIES FOR LOCATION)

**SAW CUT DETAIL**

STA. 8+75  
STA. 11+25

## LEGEND

|   |                                   |
|---|-----------------------------------|
|  | EROSION MAT URBAN CLASS I, TYPE B |
|  | SILT FENCE                        |
|  | SLOPE INTERCEPT                   |
|  | TURBIDITY BARRIER                 |
|  | ROCK BAGS                         |
|  | SURFACE WATER FLOW                |
|  | ASPHALTIC FLUME                   |
|  | RIP RAP MEDIUM                    |



Estimate Of Quantities

4317-08-71

| Line | Item       | Item Description   | Unit | Total      | Qty        |
|------|------------|--|------|------------|------------|
| 0002 | 201.0105   | Clearing   | STA  | 2.000      | 2.000      |
| 0004 | 201.0205   | Grubbing   | STA  | 2.000      | 2.000      |
| 0006 | 203.0600.S | Removing Old Structure Over Waterway With Minimal Debris (station) 01. 10+00 | LS   | 1.000      | 1.000      |
| 0008 | 205.0100   | Excavation Common **P**  | CY   | 219.000    | 219.000    |
| 0010 | 206.1000   | Excavation for Structures Bridges (structure) 01. B-36-216                   | LS   | 1.000      | 1.000      |
| 0012 | 208.0100   | Borrow **P**   | CY   | 275.000    | 275.000    |
| 0014 | 210.1500   | Backfill Structure Type A  | TON  | 140.000    | 140.000    |
| 0016 | 213.0100   | Finishing Roadway (project) 01. 4317-08-71                                   | EACH | 1.000      | 1.000      |
| 0018 | 305.0110   | Base Aggregate Dense 3/4-Inch  | TON  | 55.000     | 55.000     |
| 0020 | 305.0120   | Base Aggregate Dense 1 1/4-Inch  | TON  | 235.000    | 235.000    |
| 0022 | 305.0130   | Base Aggregate Dense 3-Inch  | TON  | 185.000    | 185.000    |
| 0024 | 415.0410   | Concrete Pavement Approach Slab  | SY   | 110.000    | 110.000    |
| 0026 | 455.0605   | Tack Coat  | GAL  | 20.000     | 20.000     |
| 0028 | 465.0105   | Asphaltic Surface  | TON  | 75.000     | 75.000     |
| 0030 | 465.0315   | Asphaltic Flumes   | SY   | 4.000      | 4.000      |
| 0032 | 502.0100   | Concrete Masonry Bridges   | CY   | 278.000    | 278.000    |
| 0034 | 502.3200   | Protective Surface Treatment   | SY   | 345.000    | 345.000    |
| 0036 | 505.0400   | Bar Steel Reinforcement HS Structures  | LB   | 5,430.000  | 5,430.000  |
| 0038 | 505.0600   | Bar Steel Reinforcement HS Coated Structures                                 | LB   | 37,180.000 | 37,180.000 |
| 0040 | 513.4061   | Railing Tubular Type M (structure) 01. B-36-216                              | LF   | 218.000    | 218.000    |
| 0042 | 516.0500   | Rubberized Membrane Waterproofing  | SY   | 18.000     | 18.000     |
| 0044 | 550.0500   | Pile Points  | EACH | 17.000     | 17.000     |
| 0046 | 550.1100   | Piling Steel HP 10-Inch X 42 Lb  | LF   | 510.000    | 510.000    |
| 0048 | 606.0200   | Riprap Medium  | CY   | 4.000      | 4.000      |
| 0050 | 606.0300   | Riprap Heavy   | CY   | 190.000    | 190.000    |
| 0052 | 612.0406   | Pipe Underdrain Wrapped 6-Inch   | LF   | 150.000    | 150.000    |
| 0054 | 619.1000   | Mobilization   | EACH | 1.000      | 1.000      |
| 0056 | 624.0100   | Water  | MGAL | 5.000      | 5.000      |
| 0058 | 625.0100   | Topsoil  | SY   | 360.000    | 360.000    |
| 0060 | 627.0200   | Mulching   | SY   | 165.000    | 165.000    |
| 0062 | 628.1504   | Silt Fence   | LF   | 570.000    | 570.000    |
| 0064 | 628.1520   | Silt Fence Maintenance   | LF   | 1,140.000  | 1,140.000  |
| 0066 | 628.1905   | Mobilizations Erosion Control  | EACH | 5.000      | 5.000      |
| 0068 | 628.1910   | Mobilizations Emergency Erosion Control                                      | EACH | 2.000      | 2.000      |
| 0070 | 628.2008   | Erosion Mat Urban Class I Type B   | SY   | 400.000    | 400.000    |
| 0072 | 628.6005   | Turbidity Barriers   | SY   | 240.000    | 240.000    |
| 0074 | 628.7570   | Rock Bags  | EACH | 75.000     | 75.000     |
| 0076 | 629.0210   | Fertilizer Type B  | CWT  | 0.500      | 0.500      |



Estimate Of Quantities

4317-08-71

| Line | Item     | Item Description   | Unit | Total     | Qty       |
|------|----------|--|------|-----------|-----------|
| 0078 | 630.0120 | Seeding Mixture No. 20   | LB   | 15.000    | 15.000    |
| 0080 | 630.0200 | Seeding Temporary  | LB   | 15.000    | 15.000    |
| 0082 | 630.0300 | Seeding Borrow Pit   | LB   | 3.000     | 3.000     |
| 0084 | 634.0612 | Posts Wood 4x6-Inch X 12-FT  | EACH | 4.000     | 4.000     |
| 0086 | 637.2230 | Signs Type II Reflective F   | SF   | 12.000    | 12.000    |
| 0088 | 638.2602 | Removing Signs Type II   | EACH | 4.000     | 4.000     |
| 0090 | 638.3000 | Removing Small Sign Supports                                       | EACH | 4.000     | 4.000     |
| 0092 | 642.5001 | Field Office Type B  | EACH | 1.000     | 1.000     |
| 0094 | 643.0420 | Traffic Control Barricades Type III                                | DAY  | 1,332.000 | 1,332.000 |
| 0096 | 643.0705 | Traffic Control Warning Lights Type A                              | DAY  | 2,072.000 | 2,072.000 |
| 0098 | 643.0900 | Traffic Control Signs  | DAY  | 962.000   | 962.000   |
| 0100 | 643.5000 | Traffic Control  | EACH | 1.000     | 1.000     |
| 0102 | 645.0111 | Geotextile Type DF Schedule A                                      | SY   | 70.000    | 70.000    |
| 0104 | 645.0120 | Geotextile Type HR   | SY   | 375.000   | 375.000   |
| 0106 | 645.0135 | Geotextile Type SR   | SY   | 500.000   | 500.000   |
| 0108 | 650.4500 | Construction Staking Subgrade                                      | LF   | 126.000   | 126.000   |
| 0110 | 650.5000 | Construction Staking Base  | LF   | 126.000   | 126.000   |
| 0112 | 650.6500 | Construction Staking Structure Layout (structure) 01. B-36-216     | LS   | 1.000     | 1.000     |
| 0114 | 650.9910 | Construction Staking Supplemental Control (project) 01. 4317-08-71 | LS   | 1.000     | 1.000     |
| 0116 | 650.9920 | Construction Staking Slope Stakes                                  | LF   | 126.000   | 126.000   |
| 0118 | 690.0150 | Sawing Asphalt   | LF   | 40.000    | 40.000    |
| 0120 | 715.0415 | Incentive Strength Concrete Pavement                               | DOL  | 500.000   | 500.000   |
| 0122 | 715.0502 | Incentive Strength Concrete Structures                             | DOL  | 1.000     | 1.000     |
| 0124 | ASP.1T0A | On-the-Job Training Apprentice at \$5.00/HR                        | HRS  | 150.000   | 150.000   |
| 0126 | ASP.1T0G | On-the-Job Training Graduate at \$5.00/HR                          | HRS  | 300.000   | 300.000   |

CLEARING AND GRUBBING

| STATION | TO | STATION | LOCATION      | 201.0105<br>CLEARING<br>STA | 201.0205<br>GRUBBING<br>STA |
|---------|----|---------|---------------|-----------------------------|-----------------------------|
| 9+00    | -  | 11+00   | PLEASANT ROAD | 2                           | 2                           |
| TOTALS  |    |         |               | 2                           | 2                           |

EARTHWORK SUMMARY

| Division          | From/To Station | Location      | Common Excavation<br>(item #205.0100) | Unusable<br>Pavement<br>Material (4) | Available<br>Material (5) | Unexpanded<br>Fill | Expanded Fill<br>(13) | Mass Ordinate<br>+/- (14) | Borrow<br><br>(item #208.0100) | Comment: |
|-------------------|-----------------|---------------|---------------------------------------|--------------------------------------|---------------------------|--------------------|-----------------------|---------------------------|--------------------------------|----------|
|                   |                 |               | Cut (2)                               |                                      |                           |                    | Factor<br>1.30        |                           |                                |          |
| 1                 | 8+75 - 11+25    | PLEASANT ROAD | 219                                   | 10                                   | 209                       | 372                | 484                   | -275                      | 275                            |          |
| Division 1 Totals |                 |               | 219                                   | 10                                   | 209                       | 372                | 484                   | -275                      | 275                            |          |

BASE AGGREGATE DENSE AND WATER

| STATION | TO | STATION | LOCATION      | 305.0110<br>3/4-INCH<br>TON | 305.0120<br>1 1/4-INCH<br>TON | 305.0130<br>3-INCH<br>TON | 624.0100<br>WATER<br>MGAL |
|---------|----|---------|---------------|-----------------------------|-------------------------------|---------------------------|---------------------------|
| 8+75    | -  | 9+44    | PLEASANT ROAD | 25                          | 100                           | 100                       | 2.0                       |
| 9+44    | -  | 9+63    | PLEASANT ROAD | 5                           | 30                            | -                         | 0.5                       |
| 10+49   | -  | 10+68   | PLEASANT ROAD | 5                           | 25                            | -                         | 0.5                       |
| 10+68   | -  | 11+25   | PLEASANT ROAD | 20                          | 80                            | 85                        | 2.0                       |
| TOTALS  |    |         |               | 55                          | 235                           | 185                       | 5                         |

CONCRETE PAVEMENT APPROACH SLAB

| STATION | TO | STATION | LOCATION      | 415.0410<br>SY |
|---------|----|---------|---------------|----------------|
| 9+44    | -  | 9+63    | PLEASANT ROAD | 55             |
| 10+49   | -  | 10+68   | PLEASANT ROAD | 55             |
| TOTAL   |    |         |               | 110            |

PAVEMENT

| STATION | TO | STATION | LOCATION      | 455.0605<br>TACK<br>COAT<br><br>GAL | 465.0105<br>ASPHALTIC<br>SURFACE<br><br>TON |
|---------|----|---------|---------------|-------------------------------------|---|
| 8+75    | -  | 9+44    | PLEASANT ROAD | 10.8                                | 41  |
| 10+68   | -  | 11+25   | PLEASANT ROAD | 9.2                                 | 34  |
| TOTALS  |    |         |               | 20.0                                | 75  |

ASPHALTIC FLUMES

| STATION | LOCATION          | 465.0315<br>SY |
|---------|-------------------|----------------|
| 10+55   | PLEASANT ROAD, LT | 2              |
| 10+66   | PLEASANT ROAD, RT | 2              |
| TOTAL   |                   | 4              |

RIPRAP MEDIUM AND GEOTEXTILE TYPE HR

| STATION | LOCATION          | RIPRAP<br>MEDIUM<br>606.0200<br>CY | GEOTEXTILE *<br>TYPE HR<br>645.0120<br>SY |
|---------|-------------------|------------------------------------|---|
| 10+55   | PLEASANT ROAD, LT | 2                                  | 5   |
| 10+66   | PLEASANT ROAD, RT | 2                                  | 5   |
| TOTAL   |                   | 4                                  | 10  |

\* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TOPSOIL, MULCHING, FERTILIZER AND SEED

| STATION                     | TO | STATION | LOCATION      | 625.0100<br>TOPSOIL<br><br>SY | 627.0200<br>MULCHING<br><br>SY | 629.0210<br>FERTILIZER<br>TYPE B<br>CWT | 630.0120<br>SEEDING<br>MIXTURE NO. 20<br>LB | 630.0200<br>SEEDING<br>TEMPORARY<br>LB | 630.0300<br>SEEDING<br>BORROW PIT<br>LB |
|-----------------------------|----|---------|---------------|-------------------------------|--------------------------------|---|---|--|---|
| 8+75                        | -  | 9+44    | PLEASANT ROAD | 190                           | -                              | 0.1                                     | 5   | 5                                      | -                                       |
| 10+68                       | -  | 11+25   | PLEASANT ROAD | 170                           | -                              | 0.1                                     | 5   | 5                                      | -                                       |
| BORROW PIT<br>UNDISTRIBUTED |    |         |               | -                             | 165                            | 0.1                                     | -   | 3                                      | 3                                       |
|                             |    |         |               | -                             | -                              | 0.2                                     | 5   | 2                                      | -                                       |
| TOTALS                      |    |         |               | 360                           | 165                            | 0.5                                     | 15  | 15                                     | 3                                       |

SILT FENCE

| STATION                     | TO | STATION | LOCATION               | 628.1504<br>SILT FENCE<br>LF | 628.1520<br>MAINTENANCE<br>LF |
|-----------------------------|----|---------|------------------------|------------------------------|-------------------------------|
| 8+70                        | -  | 9+60    | PLEASANT ROAD, RT & LT | 180                          | 360                           |
| 10+40                       | -  | 11+30   | PLEASANT ROAD, RT & LT | 180                          | 360                           |
| BORROW PIT<br>UNDISTRIBUTED |    |         |                        | 160                          | 320                           |
|                             |    |         |                        | 50                           | 100                           |
| TOTALS                      |    |         |                        | 570                          | 1,140                         |

EROSION MAT URBAN CLASS I TYPE B

| STATION       | TO | STATION | LOCATION               | 628.2008<br>SY |
|---------------|----|---------|------------------------|----------------|
| 8+75          | -  | 9+44    | PLEASANT ROAD, LT & RT | 190            |
| 10+68         | -  | 11+25   | PLEASANT ROAD, LT & RT | 170            |
| UNDISTRIBUTED |    |         |                        | 40             |
| TOTAL         |    |         |                        | 400            |

TURBIDITY BARRIERS

| STATION       | LOCATION      | 628.6005<br>SY |
|---------------|---------------|----------------|
| WEST ABUTMENT | PLEASANT ROAD | 70             |
| PIER          | PLEASANT ROAD | 105            |
| EAST ABUTMENT | PLEASANT ROAD | 65             |
| TOTAL         |               | 240            |

ALL ITEMS ARE GROUP CODE 0010 UNLESS OTHERWISE STATED



SIGNS REFLECTIVE TYPE II AND WOOD POSTS

| STATION | LOCATION          | 634.0612                        | 637.2230       |                |
|---------|-------------------|---------------------------------|----------------|----------------|
|         |                   | WOOD POSTS<br>4"x6"x12'<br>EACH | W5-52L<br>S.F. | W5-52R<br>S.F. |
| 9+47    | PLEASANT ROAD, LT | 1                               | 3              | -              |
| 9+58    | PLEASANT ROAD, RT | 1                               | -              | 3              |
| 10+53   | PLEASANT ROAD, LT | 1                               | -              | 3              |
| 10+65   | PLEASANT ROAD, RT | 1                               | 3              | -              |
| TOTALS  |                   | 4                               | 12             |                |

REMOVING SIGNS AND SUPPORTS

| STATION | LOCATION          | 638.2602                           | 638.3000                                 |
|---------|-------------------|------------------------------------|--|
|         |                   | REMOVING<br>SIGNS<br>TYPE II<br>EA | REMOVING<br>SMALL SIGN<br>SUPPORTS<br>EA |
| 9+43    | PLEASANT ROAD, LT | 1                                  | 1  |
| 9+57    | PLEASANT ROAD, RT | 1                                  | 1  |
| 10+36   | PLEASANT ROAD, LT | 1                                  | 1  |
| 10+45   | PLEASANT ROAD, RT | 1                                  | 1  |
| TOTALS  |                   | 4                                  | 4  |

ROCK BAGS

| STATION | LOCATION          | 628.7570<br>EACH |
|---------|-------------------|------------------|
| 9+50    | PLEASANT ROAD, LT | 15               |
| 9+50    | PLEASANT ROAD, RT | 15               |
| 10+40   | PLEASANT ROAD, LT | 15               |
| 10+60   | PLEASANT ROAD, RT | 15               |
|         | UNDISTRIBUTED     | 15               |
| TOTAL   |                   | 75               |

TRAFFIC CONTROL SUMMARY

| LOCATION                    | APPROXIMATE<br>SERVICE<br>DAYS | 643.0420<br>BARRICADES<br>TYPE III |       | 643.0705<br>WARNING LIGHTS<br>TYPE A |       | 643.0900<br>SIGNS |      |  |
|-----------------------------|--------------------------------|------------------------------------|-------|--------------------------------------|-------|-------------------|------|--|
|                             |                                | NO. IN<br>SERVICE                  | DAYS  | NO. IN<br>SERVICE                    | DAYS  | NO. IN<br>SERVICE | DAYS |  |
| PLEASANT ROAD / SCHLEY ROAD | 74                             | 2                                  | 148   | 4                                    | 296   | 5                 | 370  | SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL C<br>SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL C & D<br>SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL C & D<br>SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL C |
| B.O.P                       | 74                             | 7                                  | 518   | 10                                   | 740   | 2                 | 148  |  |
| E.O.P                       | 74                             | 7                                  | 518   | 10                                   | 740   | 2                 | 148  |  |
| PLEASANT ROAD / ZANDER ROAD | 74                             | 2                                  | 148   | 4                                    | 296   | 4                 | 296  |  |
| TOTALS                      |                                |                                    | 1,332 |                                      | 2,072 |                   | 962  |  |

GEOTEXTILE TYPE SR

| STATION | TO | STATION | LOCATION      | 645.0135<br>SY |
|---------|----|---------|---------------|----------------|
| 8+75    | -  | 9+63    | PLEASANT ROAD | 270            |
| 10+49   | -  | 11+25   | PLEASANT ROAD | 230            |
| TOTAL   |    |         |               | 500            |

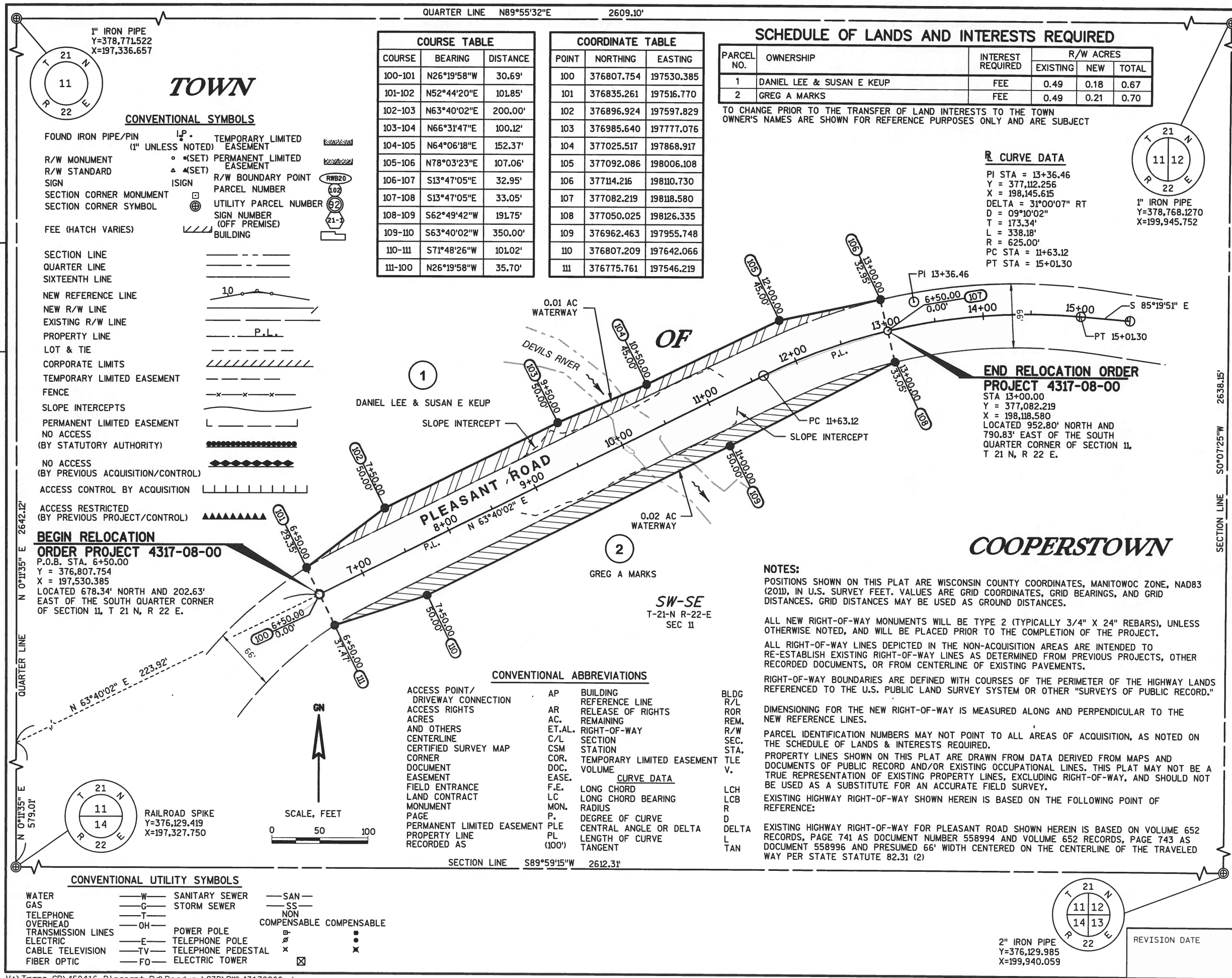
CONSTRUCTION STAKING

| STATION             | TO | STATION | LOCATION      | 650.4500       | 650.5000   | 650.6500                              | 650.9910                                    | 650.9920              | GROUP<br>CODE |
|---------------------|----|---------|---------------|----------------|------------|---------------------------------------|---|-----------------------|---------------|
|                     |    |         |               | SUBGRADE<br>LF | BASE<br>LF | STRUCTURE<br>LAYOUT<br>B-36-216<br>LS | SUPPLEMENTAL<br>CONTROL<br>4317-08-71<br>LS | SLOPE<br>STAKES<br>LF |               |
| 8+75                | -  | 9+44    | PLEASANT ROAD | 69             | 69         | -                                     | 1   | 69                    | 0010          |
| 10+69               | -  | 11+25   | PLEASANT ROAD | 57             | 57         | -                                     | -   | 57                    | 0010          |
| SUBTOTALS           |    |         |               | 126            | 126        | 0                                     | 1   | 126                   | 0010          |
| 10+00 PLEASANT ROAD |    |         |               | -              | -          | 1                                     | -   | -                     | 0020          |
| SUBTOTALS           |    |         |               | 0              | 0          | 1                                     | 0   | 0                     | 0020          |
| TOTALS              |    |         |               | 126            | 126        | 1                                     | 1   | 126                   |               |

SAWING ASPHALT

| STATION | LOCATION      | 690.0150<br>LF |
|---------|---------------|----------------|
| 8+75    | PLEASANT ROAD | 20             |
| 11+25   | PLEASANT ROAD | 20             |
| TOTAL   |               | 40             |

ALL ITEMS ARE GROUP CODE 0010 UNLESS OTHERWISE STATED



R/W PROJECT NUMBER 4317-08-00  
FEDERAL PROJECT NUMBER  
PLAT OF RIGHT-OF-WAY REQUIRED FOR  
**T COOPERSTOWN, PLEASANT ROAD  
DEVILS RIVER BRIDGE B-36-216**  
LOC STR  
MANITOWOC COUNTY  
CONSTRUCTION PROJECT NUMBER 4317-08-71

SHEET NUMBER 4.01  
TOTAL SHEETS 1

LAYOUT SCALE 0 0.5 MI  
PROJECT LOCATION NET CENTERLINE LENGTH 0.123 MI  
R-22-E

**TOWN**  
ZANDER RD  
DEVILS RIVER  
HICKORY GROVE RD  
STATE TRAIL  
ELMER DR  
PLEASANT RD  
SCHLEY RD  
RADTKE RD  
COOPERSTOWN  
Maribel

APPROVED FOR  
TOWN OF COOPERSTOWN  
9-13-14  
DATE  
(Signature)  
PLAT PREPARED BY  
**AYRES ASSOCIATES**

THE SURVEY IS PREPARED AT THE REQUEST OF THE TOWN OF COOPERSTOWN. THE TOPOGRAPHY AND UTILITY SURVEY WAS PERFORMED IN NOVEMBER 2015. THIS SURVEY IS ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

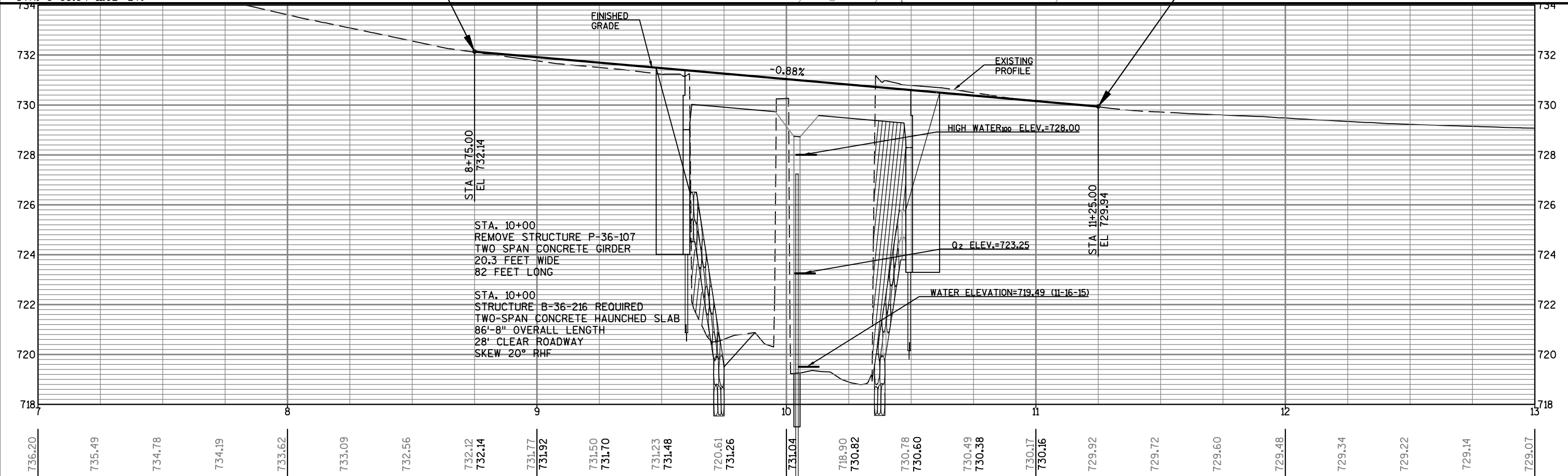
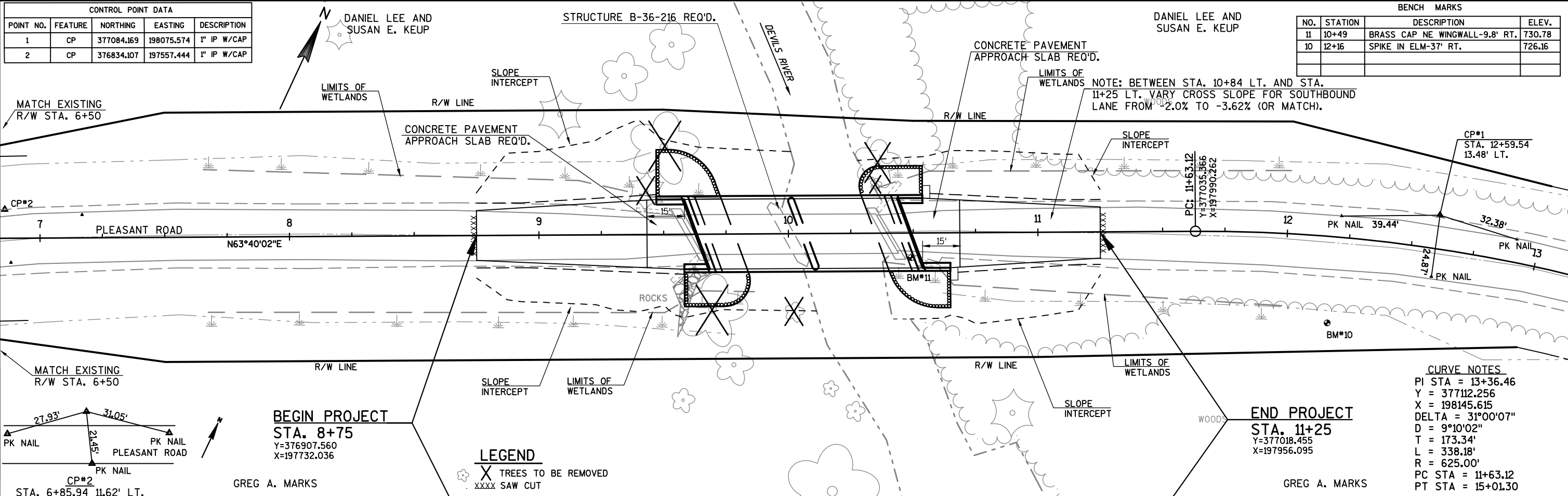
**WISCONSIN**  
James R. Cappeart  
S-3044  
Green Bay Wis.  
LAND SURVEYOR

8/30/2016  
DATE  
JAMES CAPPEART  
REGISTRATION NUMBER S-3044

PLEASANT ROAD  
4317-08-00

| CONTROL POINT DATA |         |            |            |             |
|--------------------|---------|------------|------------|-------------|
| POINT NO.          | FEATURE | NORTHING   | EASTING    | DESCRIPTION |
| 1                  | CP      | 377084.169 | 198075.574 | 1" IP W/CAP |
| 2                  | CP      | 376834.107 | 197557.444 | 1" IP W/CAP |

| BENCH MARKS |         |                                |        |
|-------------|---------|--------------------------------|--------|
| NO.         | STATION | DESCRIPTION                    | ELEV.  |
| 11          | 10+49   | BRASS CAP NE WINGWALL-9.8' RT. | 730.78 |
| 10          | 12+16   | SPIKE IN ELM-37' RT.           | 726.16 |
|             |         |                                |        |
|             |         |                                |        |



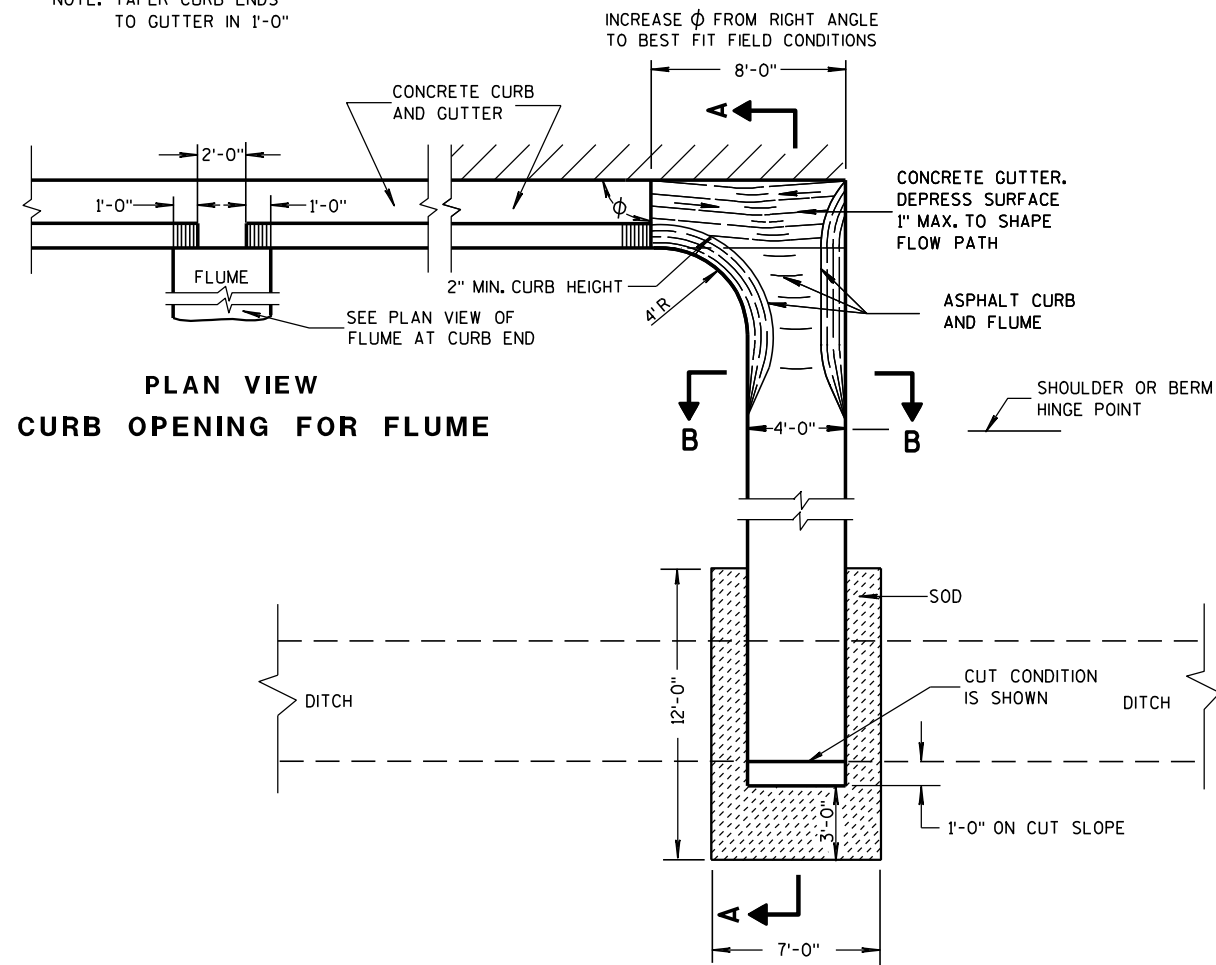
|                        |                    |                   |                                 |       |   |
|------------------------|--------------------|-------------------|---------------------------------|-------|---|
| PROJECT NO: 4317-08-71 | HWY: PLEASANT ROAD | COUNTY: MANITOWOC | PLAN AND PROFILE: PLEASANT ROAD | SHEET | E |
|------------------------|--------------------|-------------------|---------------------------------|-------|---|

Standard Detail Drawing List

|           |  |
|-----------|--|
| 08D04-05  | CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES                   |
| 08E09-06  | SILT FENCE   |
| 08E11-02  | TURBIDITY BARRIER  |
| 12A03-10  | NAME PLATE (STRUCTURES)                                      |
| 13B02-08A | CONCRETE PAVEMENT APPROACH SLAB                              |
| 13B02-08B | STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB |
| 15C02-06A | BARRICADES AND SIGNS FOR MAINLINE CLOSURES                   |
| 15C02-06B | BARRICADES AND SIGNS FOR MAINLINE CLOSURES                   |
| 15C06-09  | SIGNING & MARKING FOR TWO LANE BRIDGES                       |

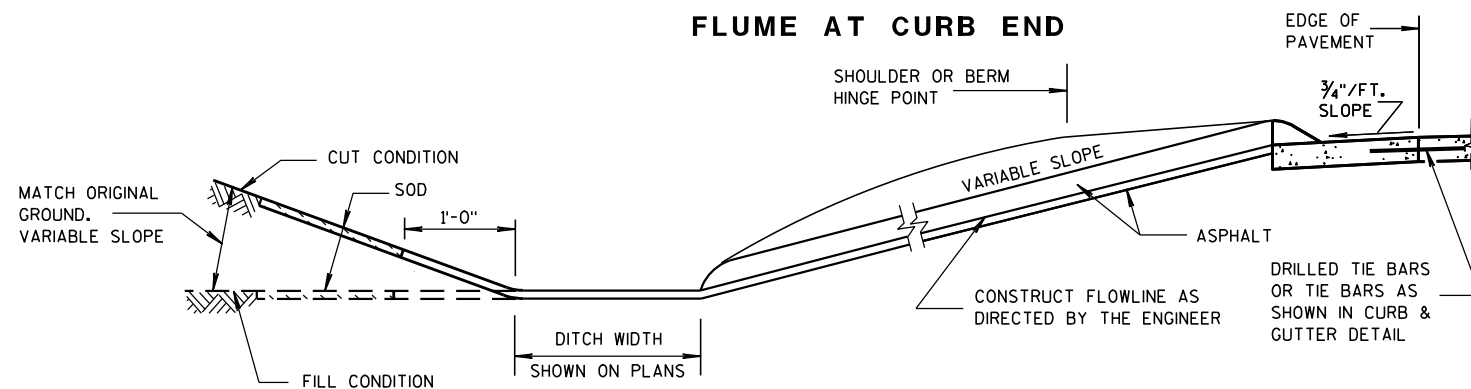
## ASPHALTIC FLUME

NOTE: TAPER CURB ENDS  
TO GUTTER IN 1'-0"

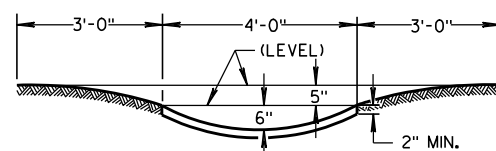


PLAN VIEW  
CURB OPENING FOR FLUME

PLAN VIEW  
FLUME AT CURB END



SECTION A-A



SECTION B-B

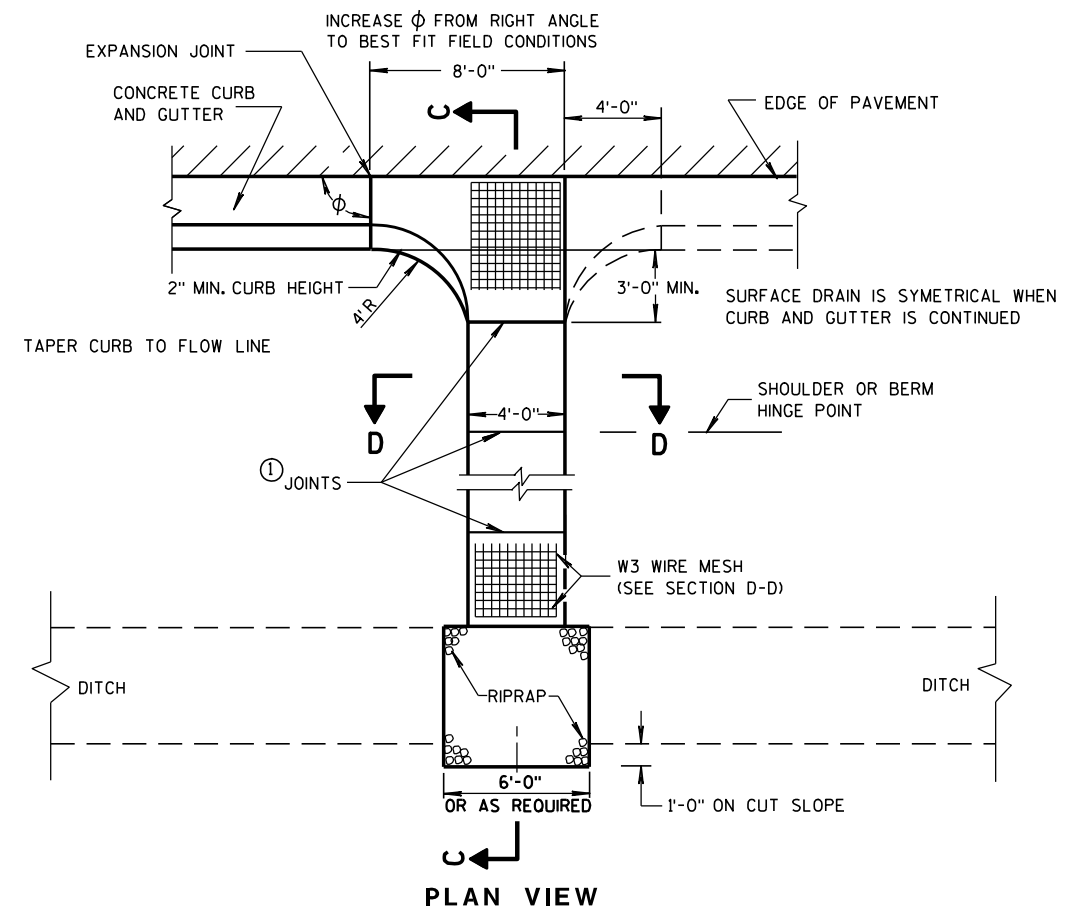
## GENERAL NOTES

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

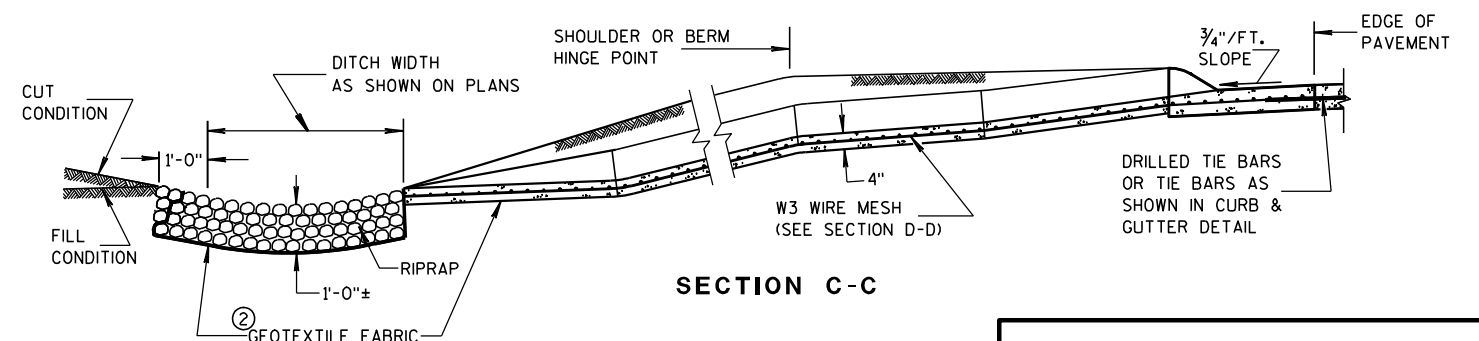
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

- ① JOINTS SHALL BE 1/8" TO 1/4" INCH WIDE BY 1 1/2" INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

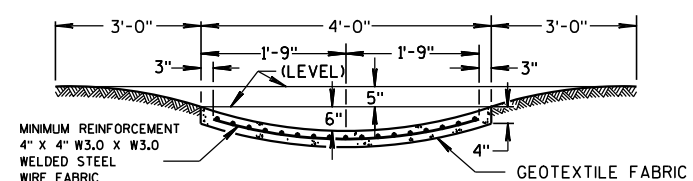
## ③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

## CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

9-4-08  
DATE

FHWA

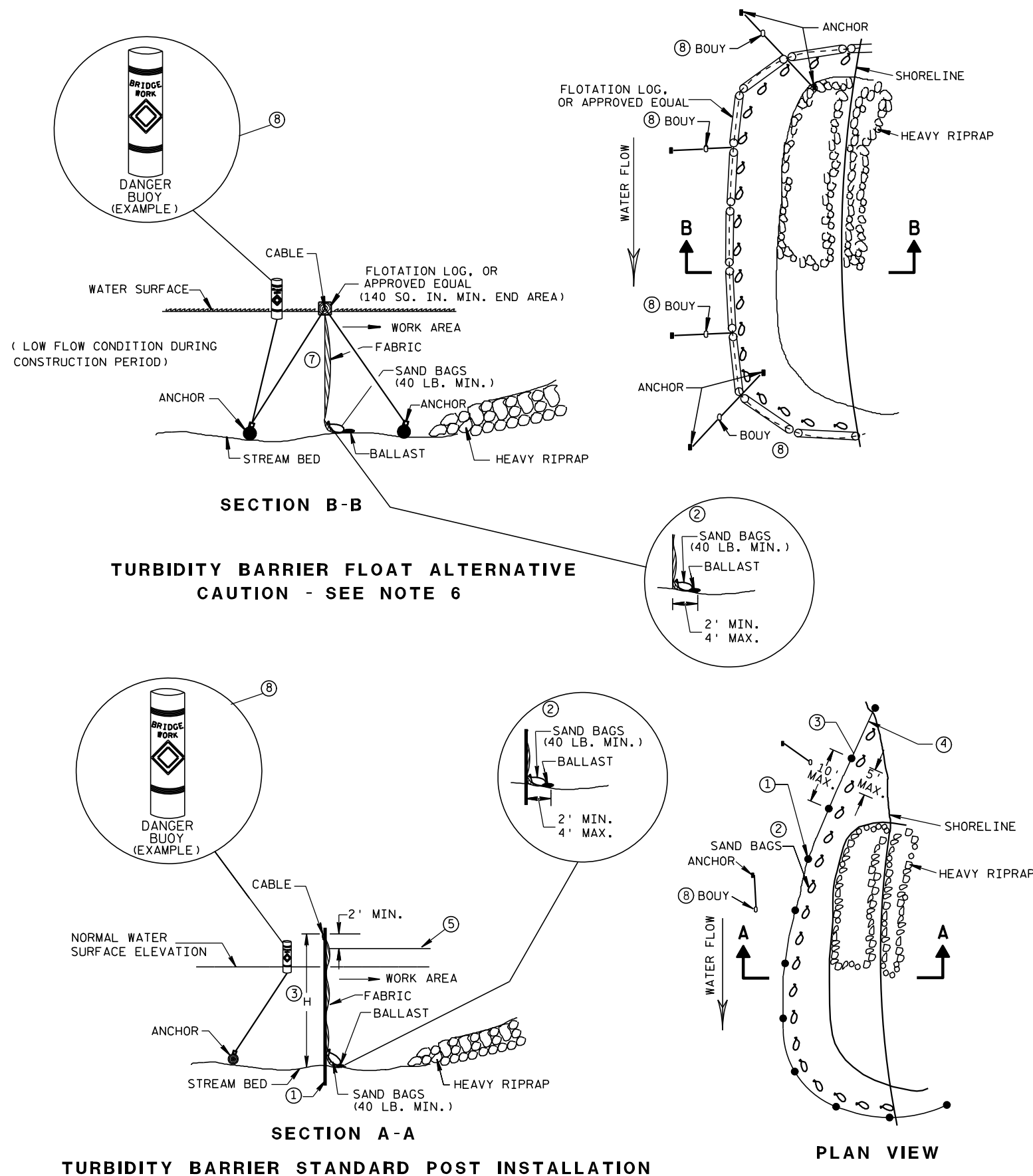
/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER



## TRENCH DETAIL



**S.D.D. 8 E 9-6**

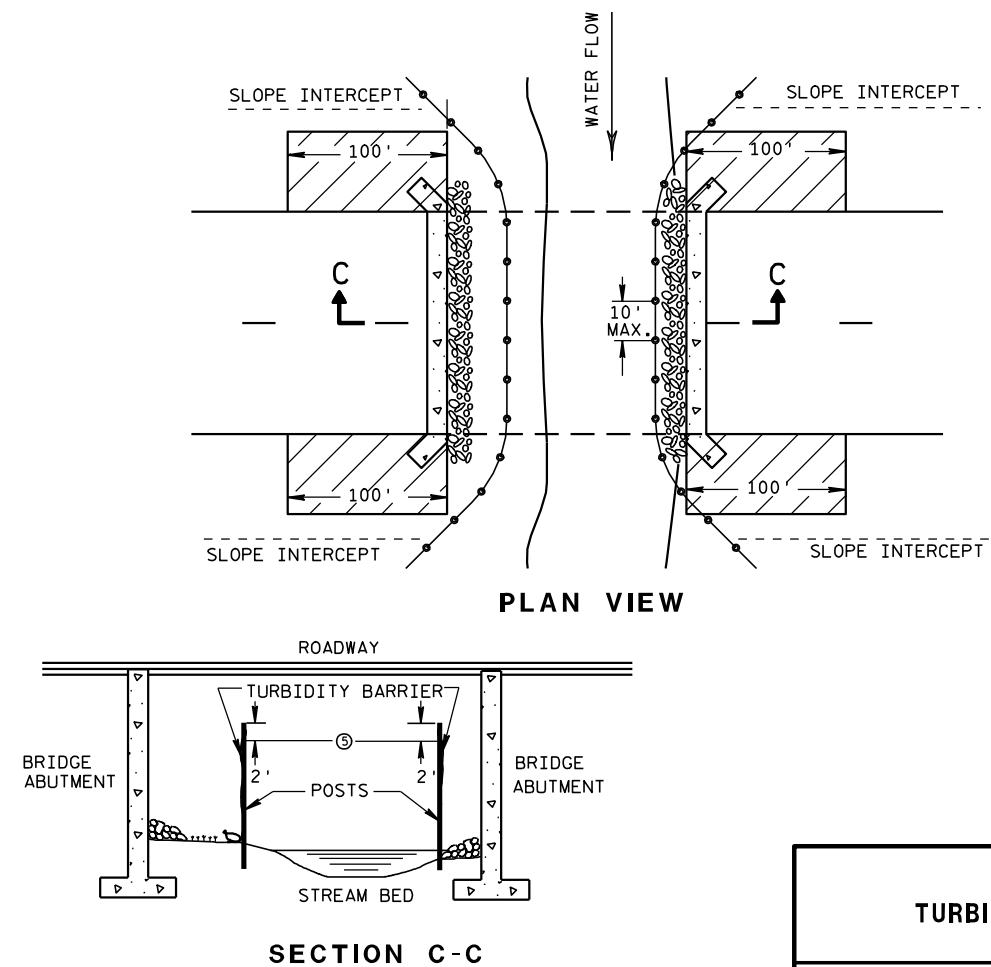


## GENERAL NOTES

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.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



## TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

### TURBIDITY BARRIER

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

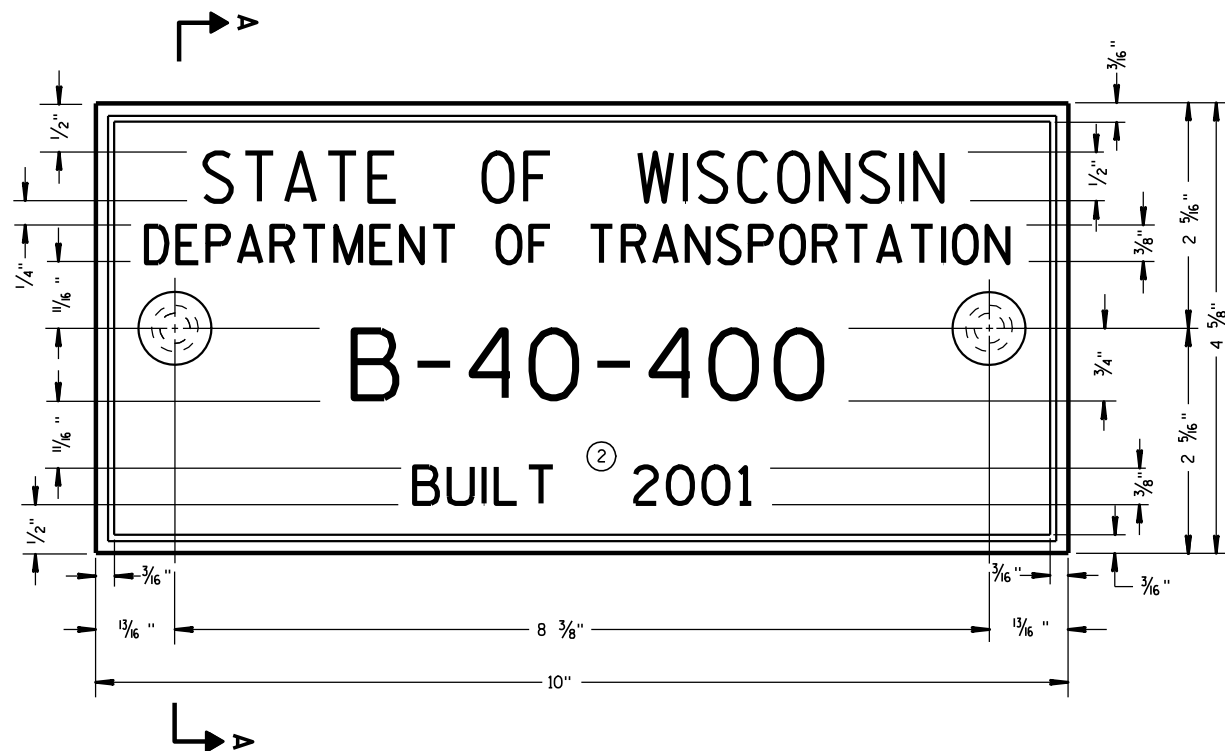
APPROVED

6/04/02  
DATE

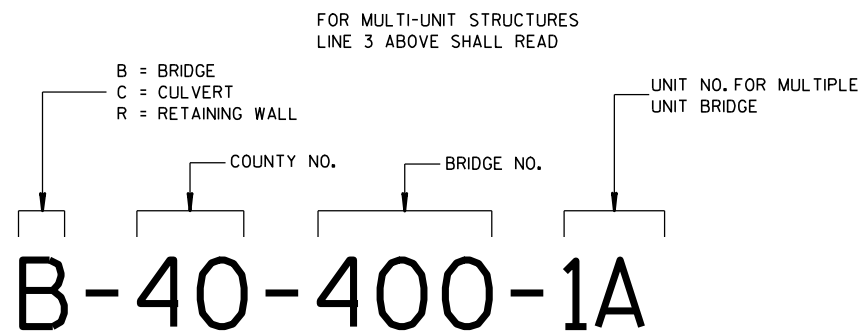
FHWA

/S/ Beth Canestra  
CHIEF ROADWAY DEVELOPMENT ENGINEER





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



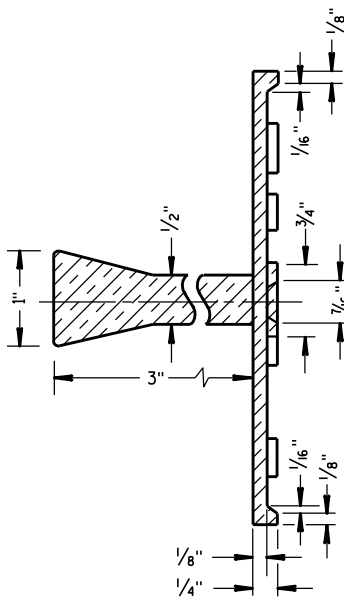
**NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES**

**GENERAL NOTES**

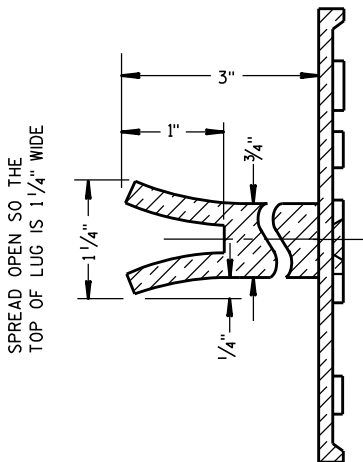
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.

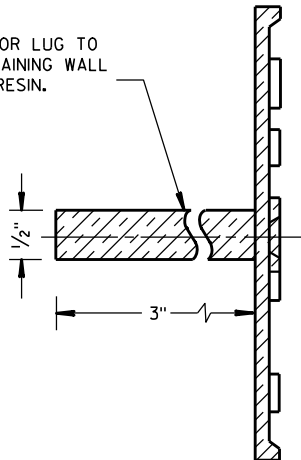


**SECTION A-A**



**ALTERNATE LUG**

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.

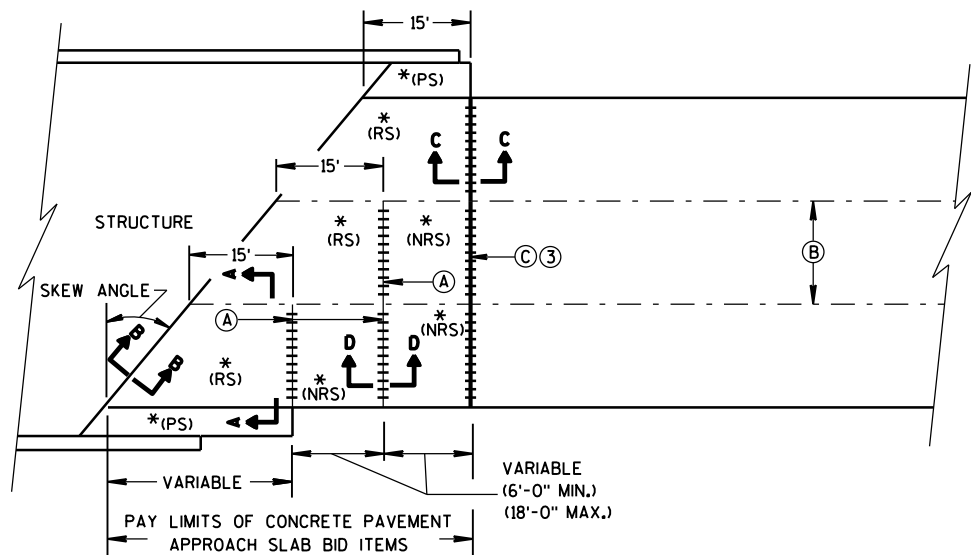


**ALTERNATE LUG**  
(FOR ATTACHMENT TO PRECAST STRUCTURES)

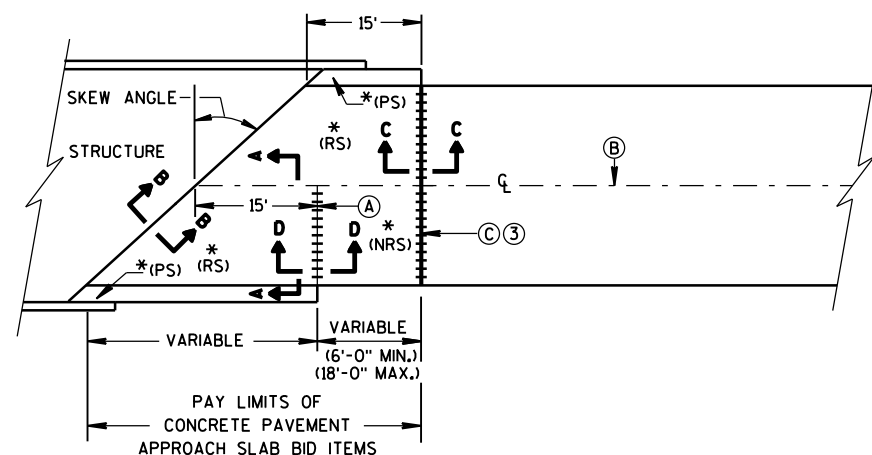
**NAME PLATE  
(STRUCTURES)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

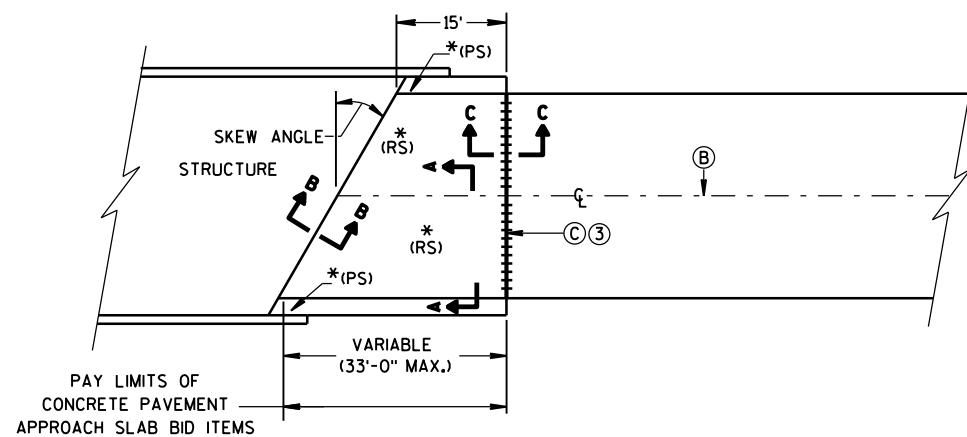
APPROVED  
3/26/10  
DATE  
/S/ Scot Becker  
CHIEF STRUCTURAL DEVELOPMENT ENGINEER  
FHWA



**SKewed APPROACH  
(PAVEMENT MORE THAN 2 LANES)**



**SKews > 20°  
(PAVEMENT WIDTH ≤ 30')**

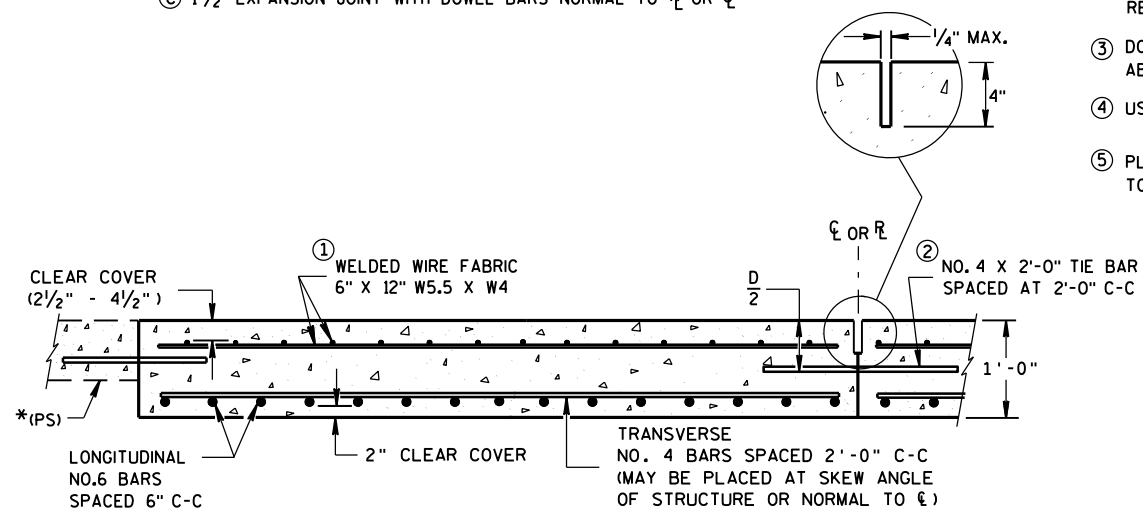


**SKews ≤ 20°  
(PAVEMENT WIDTH ≤ 30')  
APPROACH SLAB AND ADJACENT PAVEMENT**

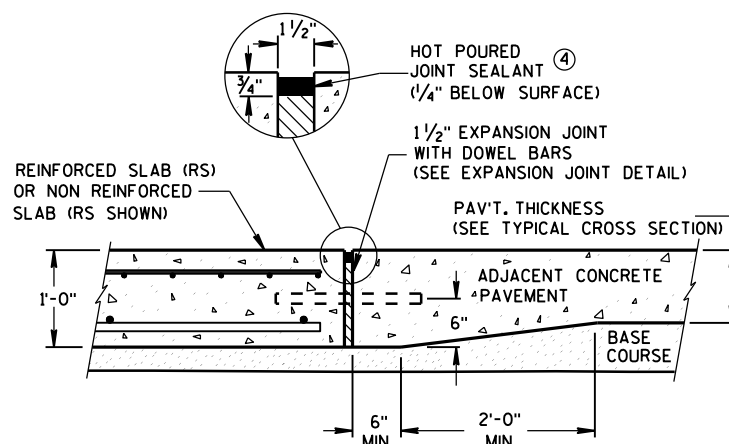
\* (RS) = REINFORCED CONCRETE SLAB  
\* (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB  
(SEE DETAILS ELSEWHERE IN THE PLAN)  
\* (NRS) = NON-REINFORCED CONCRETE SLAB

\*\*\* STANDARD DOWEL BAR DIAMETER  
(SEE SDD 13C11, & SDD 13C13)

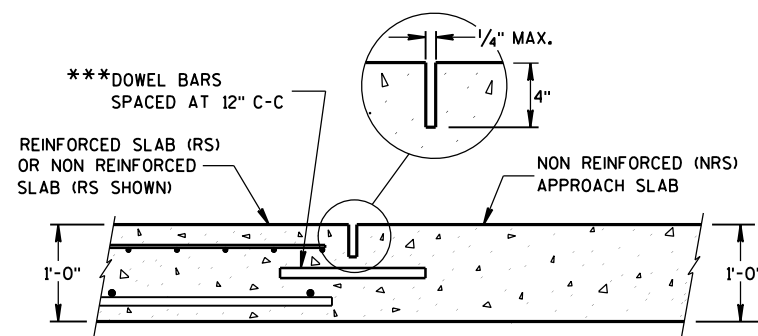
- (A) STANDARD CONTRACTION JOINT NORMAL TO  $\ell$  OR  $\ell_c$   
(B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.  
(C) 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO  $\ell$  OR  $\ell_c$



**SECTION A-A  
REINFORCEMENT POSITIONING DETAIL**



**SECTION C-C  
TRANSITION DETAIL  
APPROACH SLAB TO ADJACENT PAVEMENT**



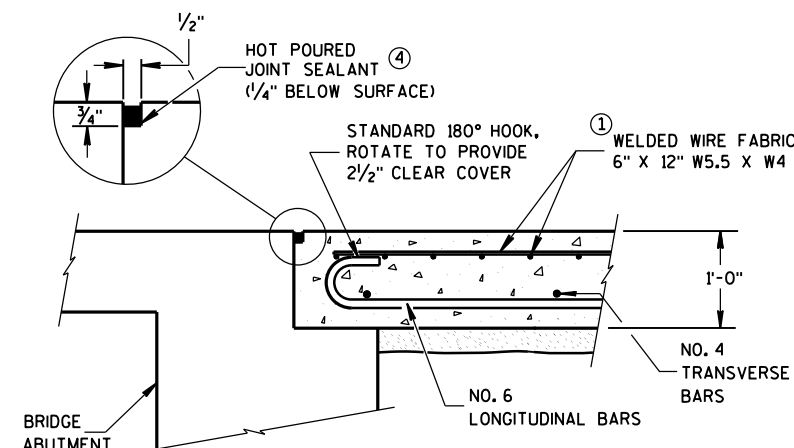
**SECTION D-D  
CONTRACTION JOINT**

## GENERAL NOTES

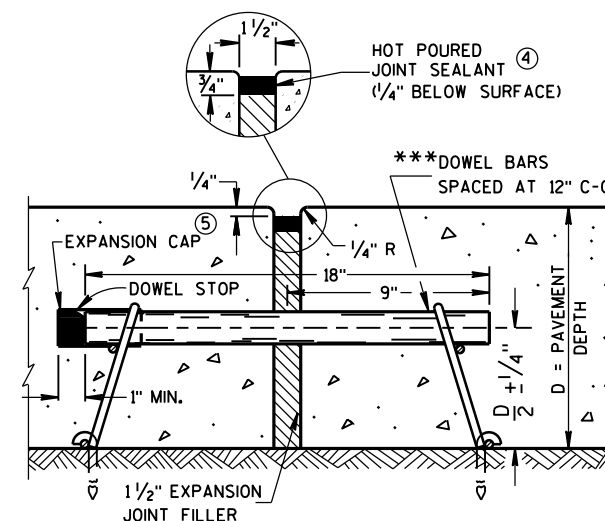
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

- THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.
- PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.



**SECTION B-B  
BEND DETAIL  
BOTTOM REINFORCEMENT**



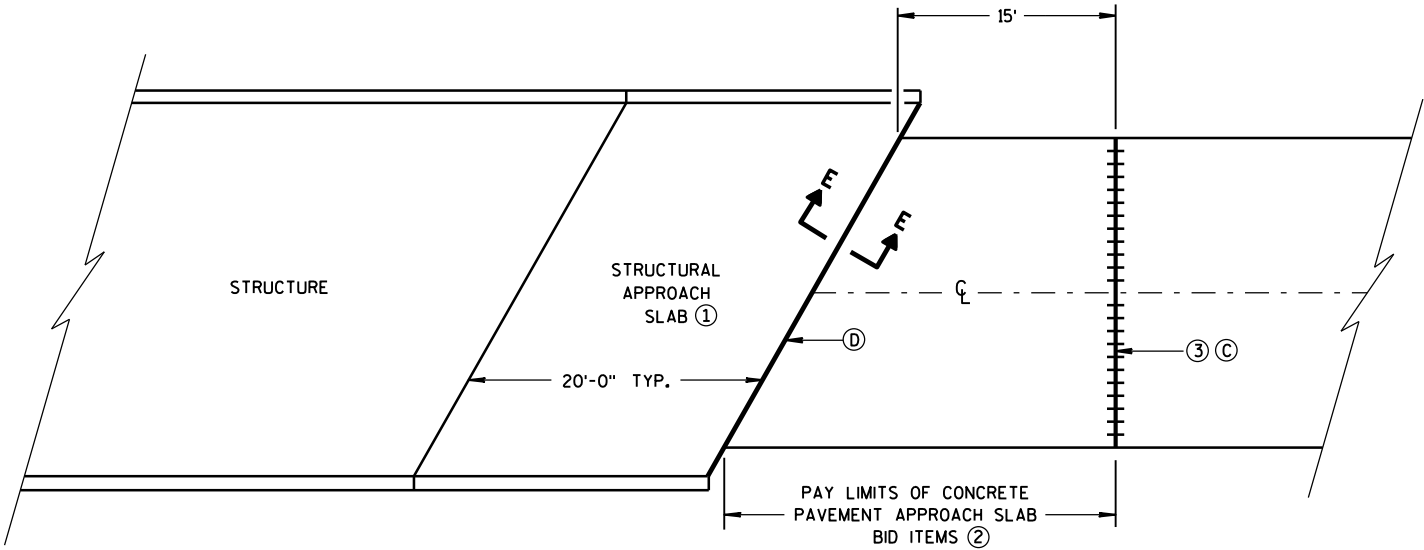
**EXPANSION JOINT DETAIL**

## CONCRETE PAVEMENT APPROACH SLAB

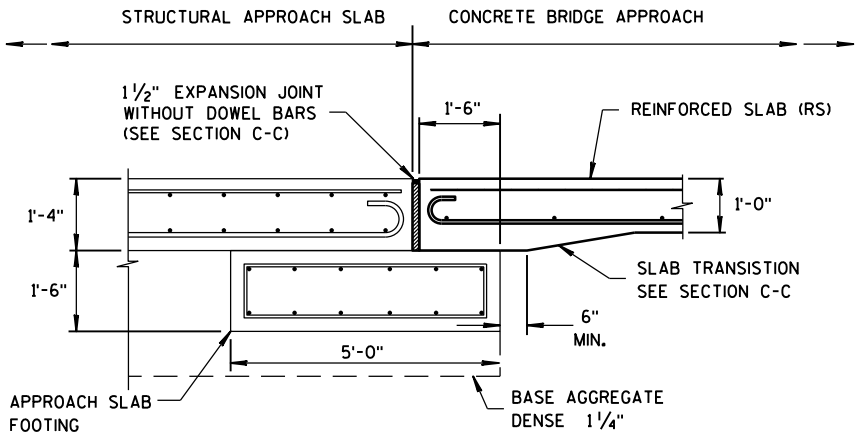
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June, 2015  
DATE  
FWHA

/S/ Peter Kemp, P.E.  
PAVEMENT SUPERVISOR



BRIDGE APPROACHES



SECTION E-E  
FOOTING DETAIL  
STRUCTURAL APPROACH SLAB TO CONCRETE BRIDGE APPROACH

GENERAL NOTES

ALL PROJECTS THAT INVOLVE A STRUCTURAL APPROACH SLAB WILL ALSO HAVE A CONCRETE PAVEMENT APPROACH SLAB.

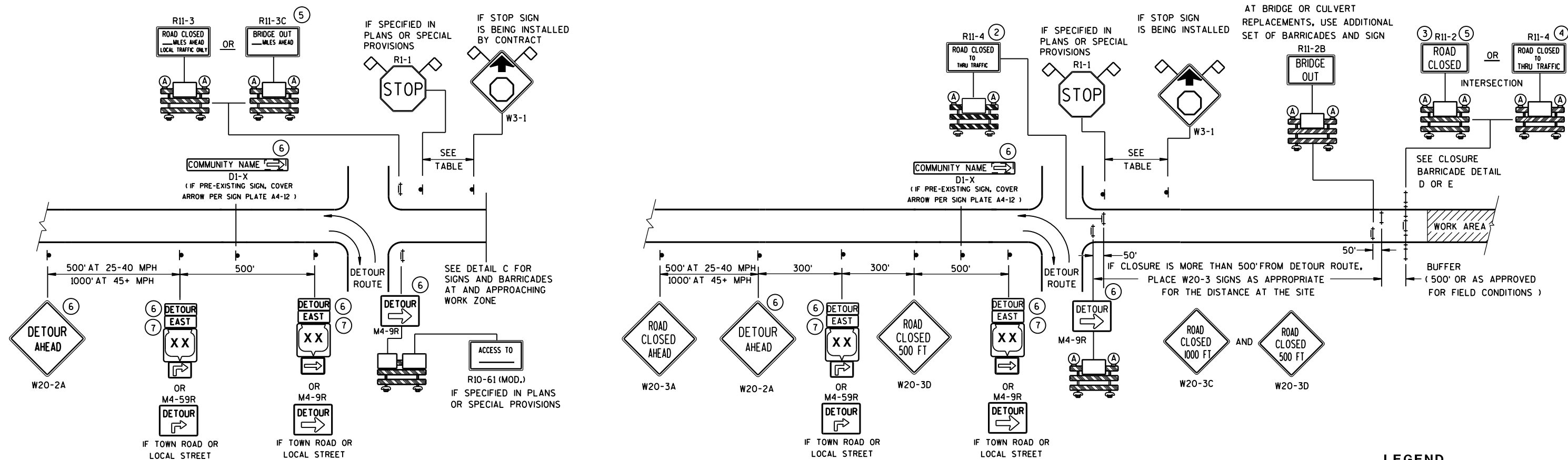
- ① SEE BRIDGE PLAN.
- ② CONFORM TO SHEET 13 B 2(A) FOR CONCRETE PAVEMENT APPROACH SLAB DETAILS.
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

- ③ 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO  $R_L$  OR  $C_L$
- ④ 1 1/2" EXPANSION JOINT (NO DOWELS)

STRUCTURAL APPROACH SLAB  
AND CONCRETE PAVEMENT  
APPROACH SLAB

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

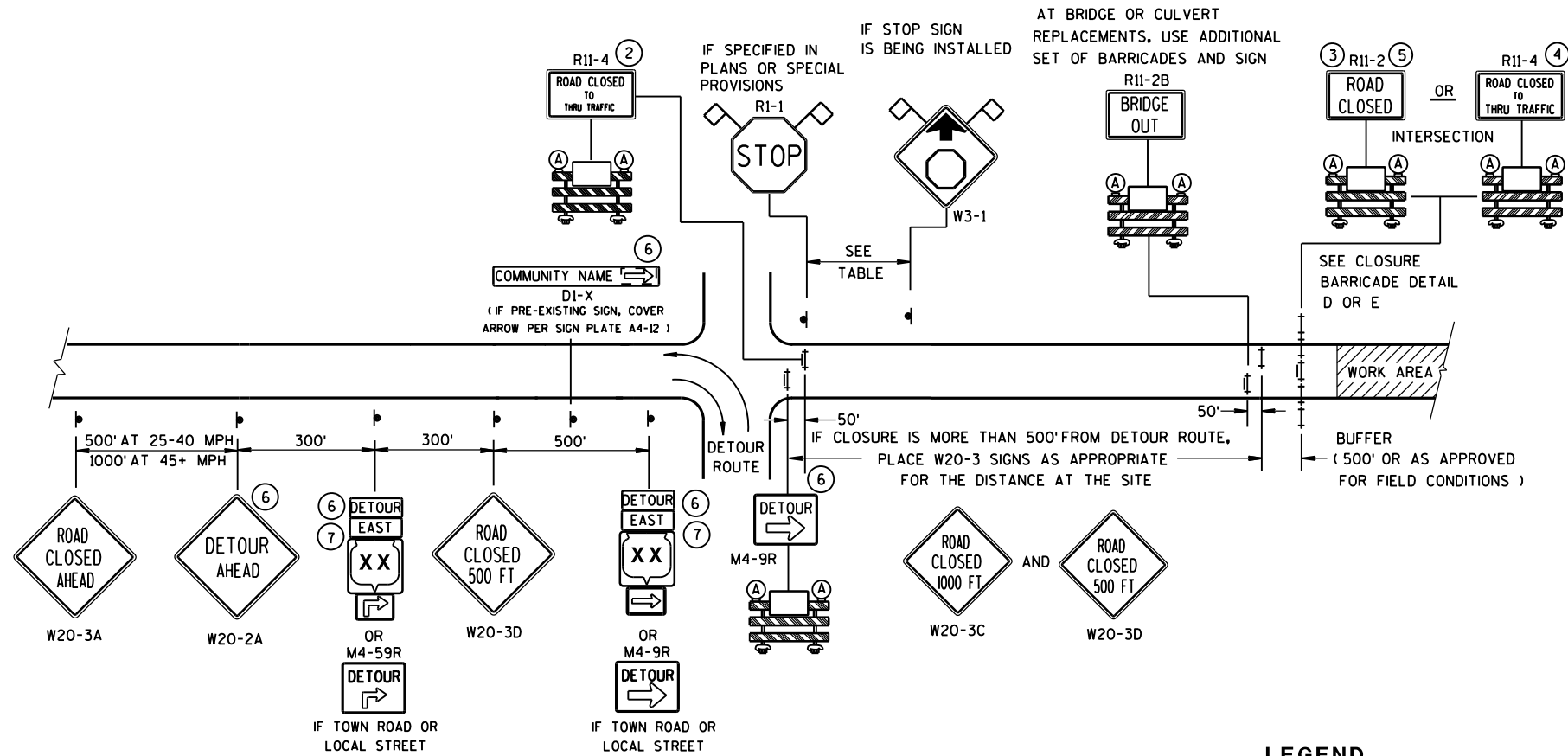
APPROVED  
June, 2015  
DATE  
/S/ Peter Kemp, P.E.  
PAVEMENT SUPERVISOR  
FHWA



DETAIL A

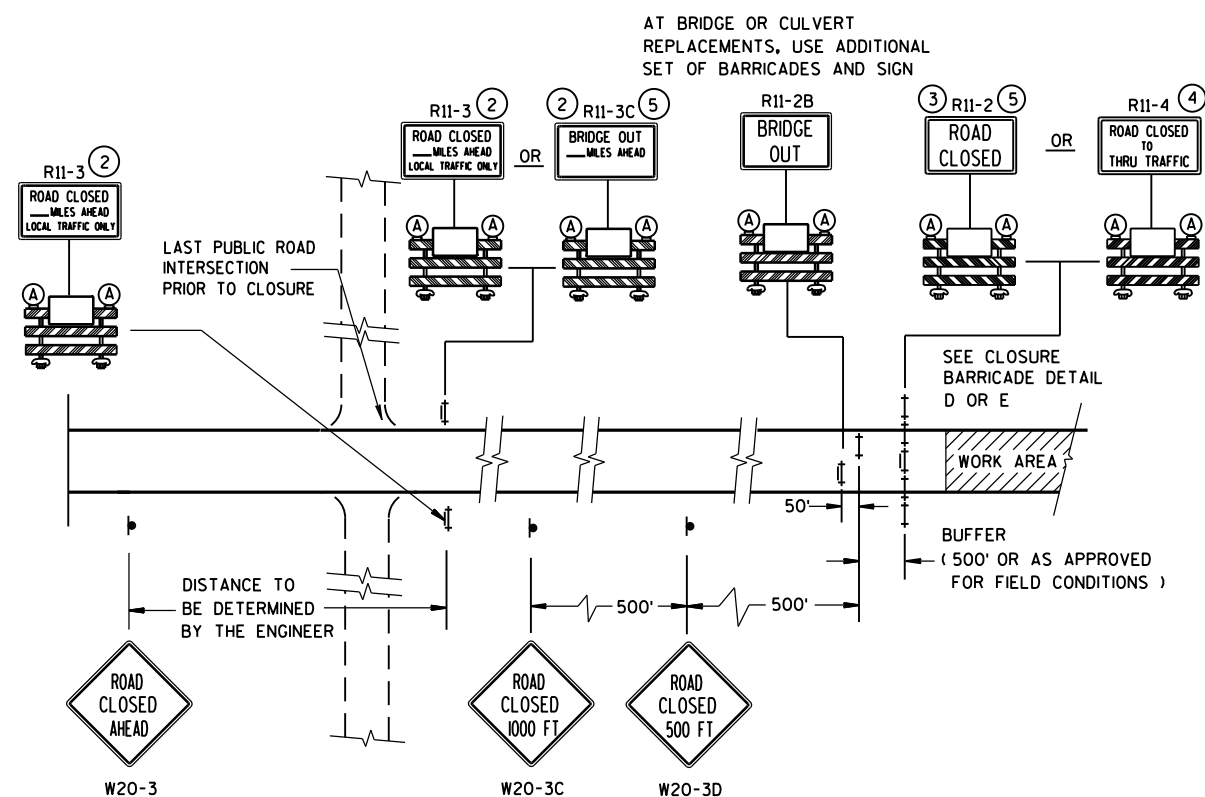
**MAINLINE CLOSURE WITH POSTED DETOUR**

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<br>LIMIT<br>(MPH) | "STOP<br>AHEAD"<br>ADVANCE<br>WARNING<br>DISTANCE<br>(F T) |
|-------------------------|--|
| 25                      | 200  |
| 30                      | 200  |
| 35                      | 350  |
| 40                      | 350  |
| 45                      | 500  |
| 50                      | 550  |
| 55                      | 750  |

- ### LEGEND

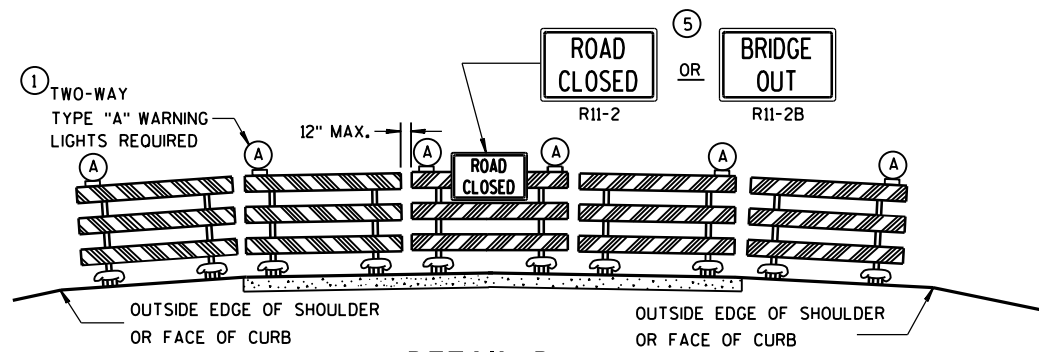
-  SIGN ON PERMANENT SUPPORT  
 TYPE III BARRICADE  
 TYPE III BARRICADE WITH ATTACHED SIGN  
 TYPE "A" WARNING LIGHT (FLASHING)  
 WORK AREA  
 M4-8  
 M3-X  
 M1-4  
OR  
 M1-5A  
OR  
 M1-6  
 M05-1  
OR  
 M06-1  
 FLAGS, 16" X 16" MIN., (ORANGE)

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

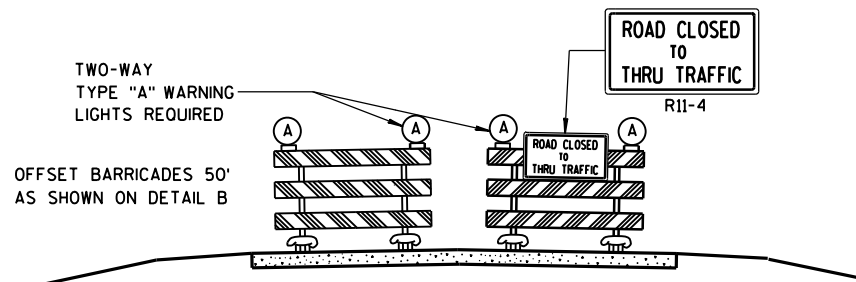
## BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

|            |                             |
|------------|-----------------------------|
| Sept. 2015 | /S/ Peter Amakobe Atepe     |
| DATE       | STATEWIDE WORK ZONE TRAFFIC |
| FHWA       | SAFETY ENGINEER             |



DETAIL D  
ROAD CLOSURE BARRICADE DETAIL  
APPROACH VIEW



DETAIL E  
LANE CLOSURE BARRICADE DETAIL  
APPROACH VIEW

SEE SDD 15C2-SHEET "a" FOR LEGEND

### GENERAL NOTES

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

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

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

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

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

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

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

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

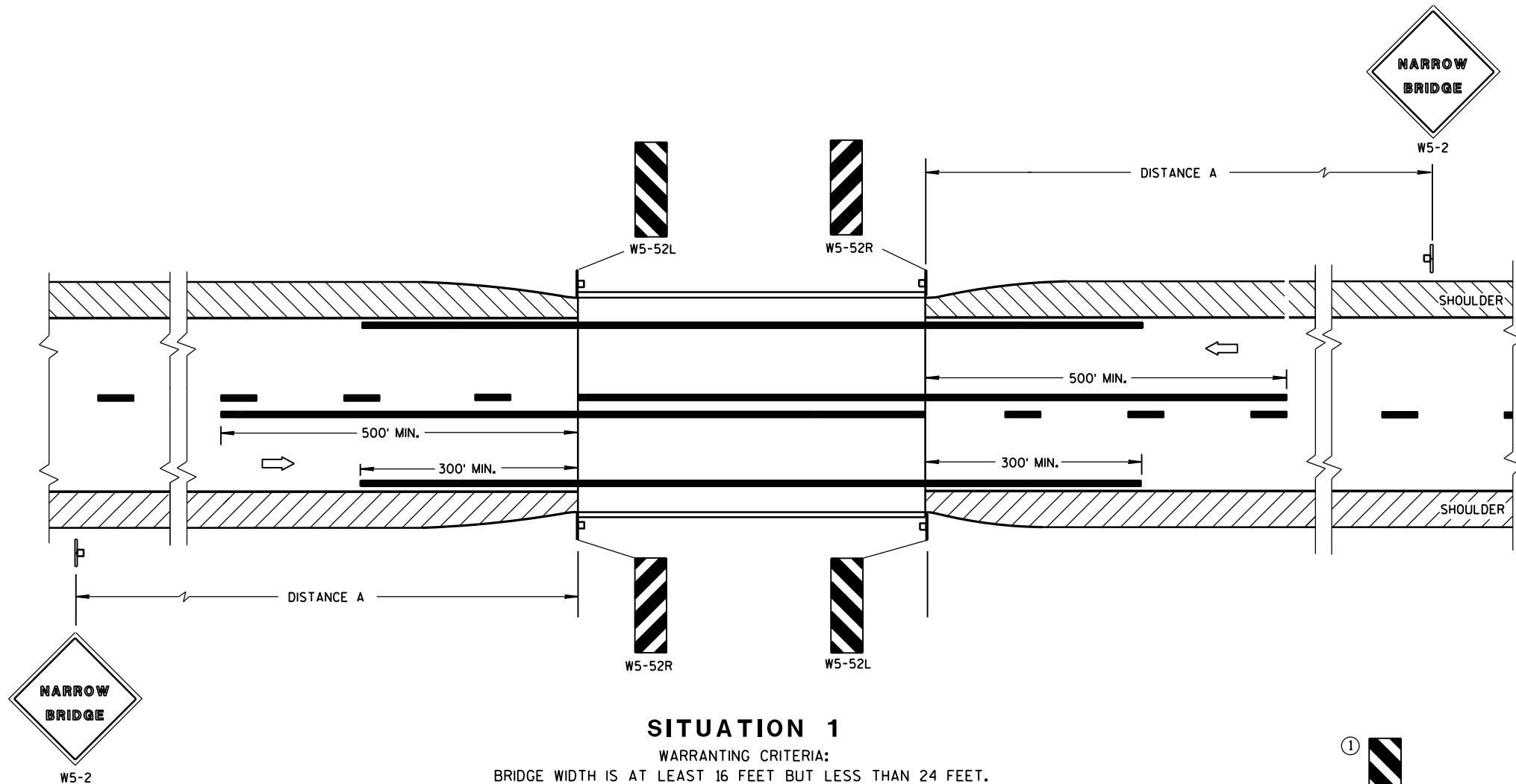
"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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 |   |
| Sept. 2015<br>DATE                                 | /S/ Peter Amokobe Atepe<br>STATEWIDE WORK ZONE TRAFFIC<br>SAFETY ENGINEER |
| FHWA   |   |



### SITUATION 1

WARRANTING CRITERIA:  
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.

DISTANCE TABLE

| POSTED OR 85th PERCENTILE SPEED | DISTANCE "A " |
|---------------------------------|---------------|
| 25                              | 150'          |
| 30                              | 200'          |
| 35                              | 250'          |
| 40                              | 300'          |
| 45                              | 400'          |
| 50                              | 550'          |
| 55                              | 750'          |

### GENERAL NOTES

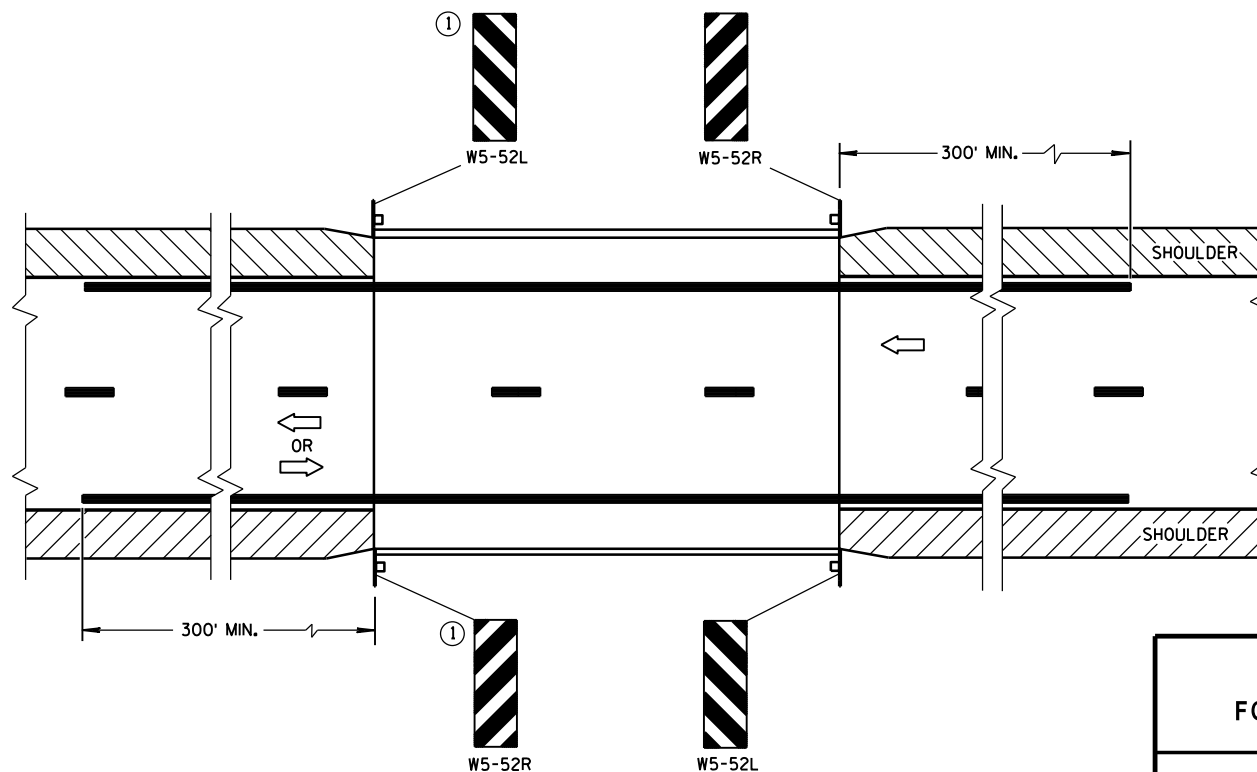
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



### SITUATION 2

WARRANTING CRITERIA:  
1. BRIDGE WIDTH IS AT LEAST 24 FEET AND  
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET.

### SIGNING & MARKING FOR TWO LANE BRIDGES

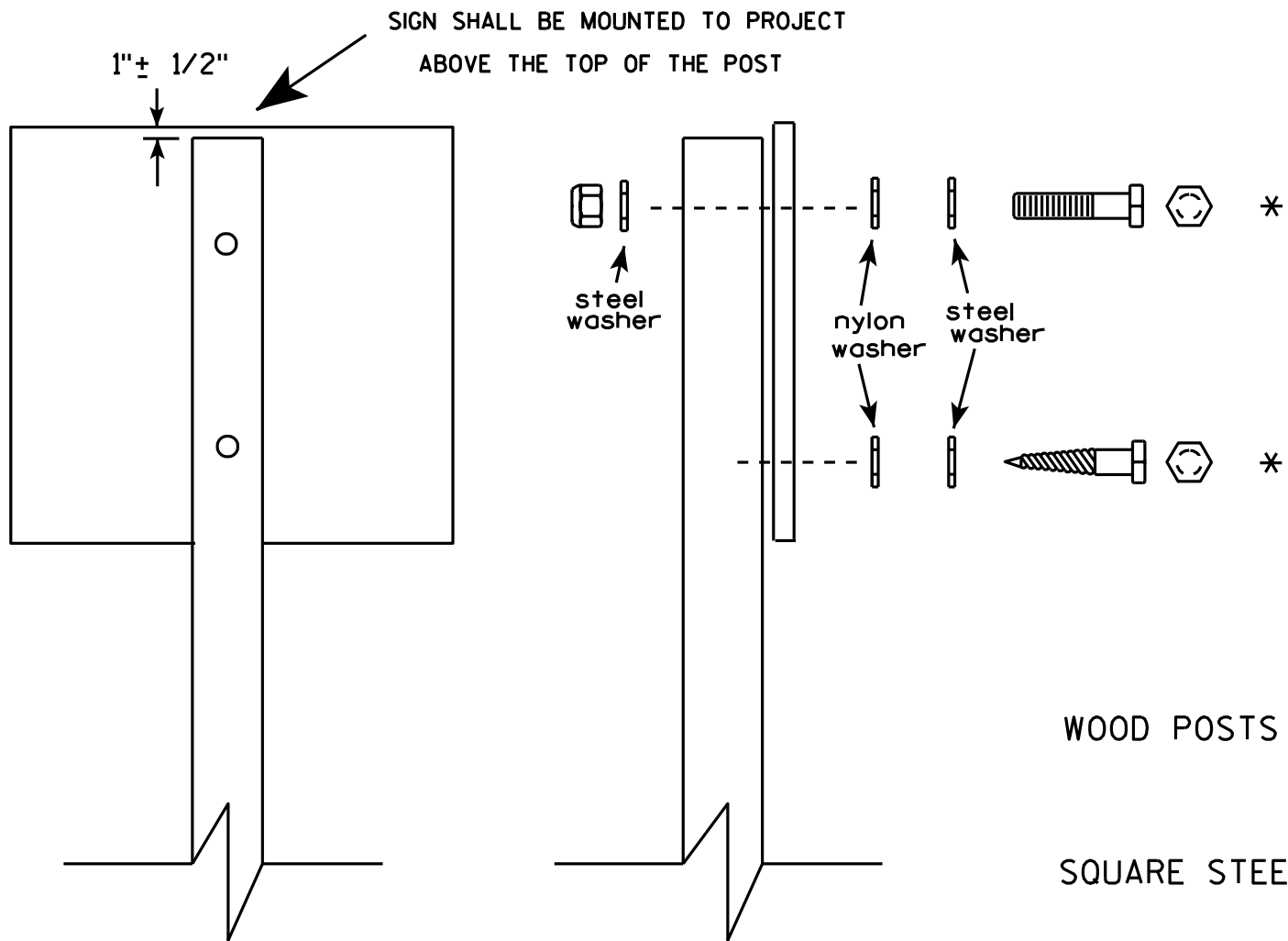
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017  
DATE

/S/ Matthew R. Rauch  
STATE SIGNING AND MARKING ENGINEER

FHWA

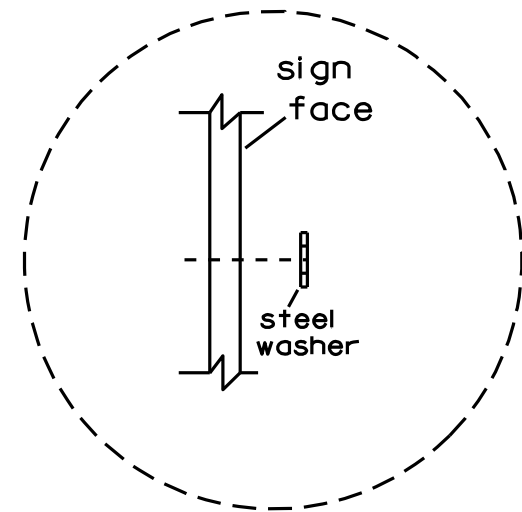


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

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

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

- WOOD POSTS (4" x 4" or 4" x 6")  
LAG SCREWS - 3/8" X 3"  
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")  
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts  
RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL  
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -  
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL  
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



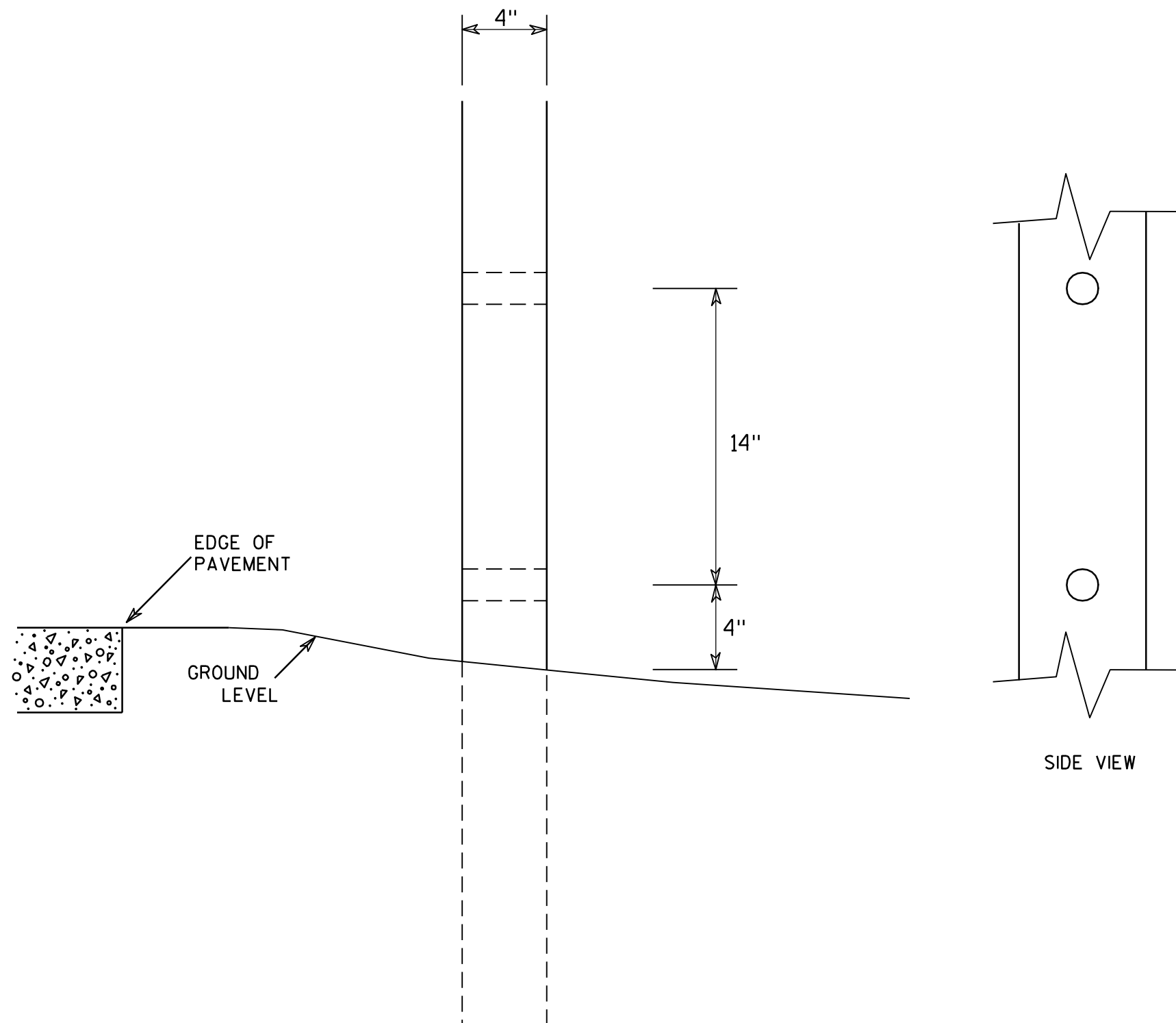
Washer Placement when Sign Has Other Than Type H or Type F Face

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

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



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:

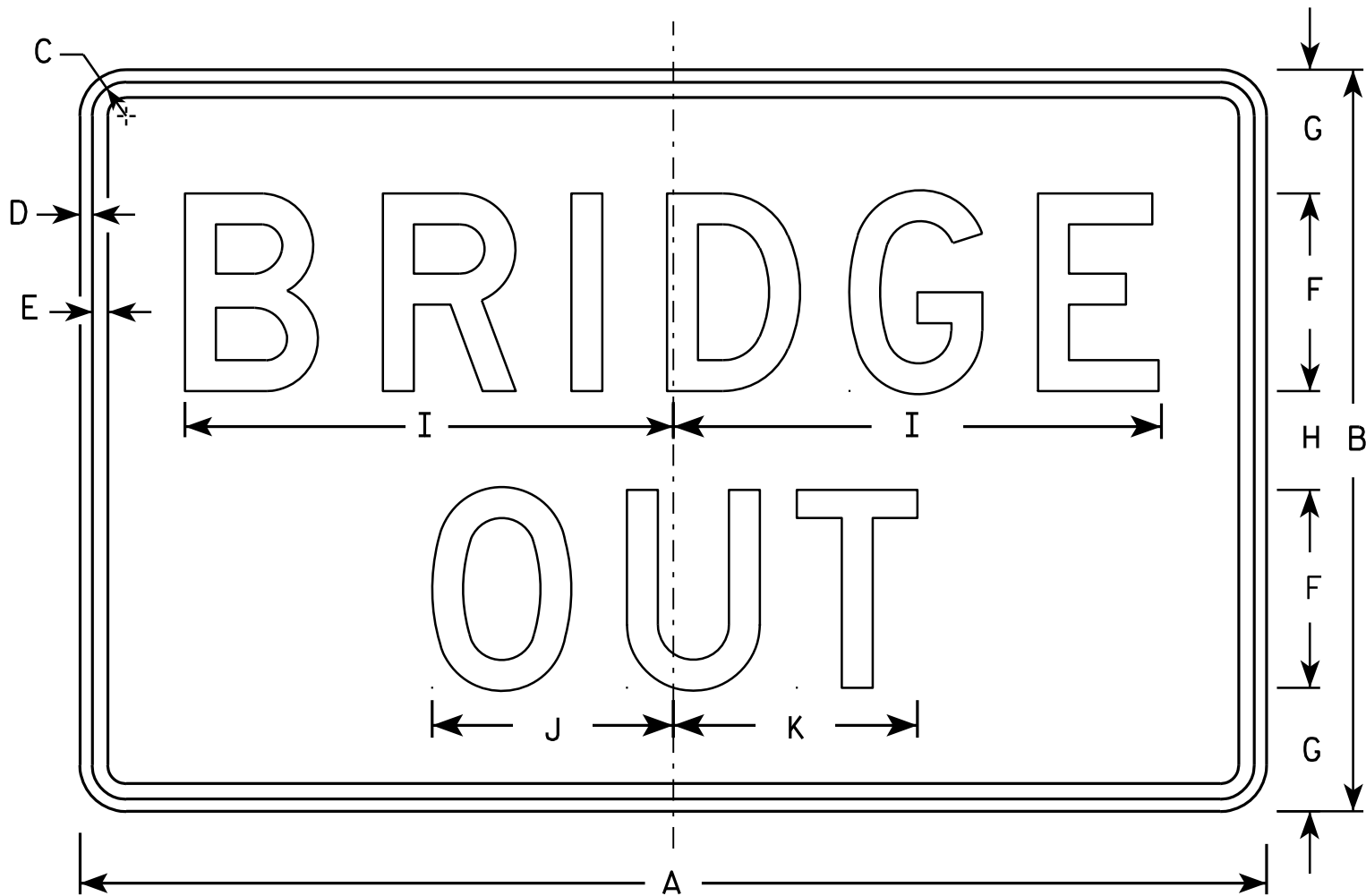
COUNTY:

SHEET NO:

E

NOTES

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



R11-2B

| SIZE | A  | B  | C     | D   | E   | F | G | H | I      | J     | K     | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|---|---|---|--------|-------|-------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    |    |    |       |     |     |   |   |   |        |       |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 2S   | 48 | 30 | 1 3⁄8 | 1⁄2 | 5⁄8 | 8 | 5 | 4 | 19 3⁄4 | 9 3⁄4 | 9 7⁄8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 10.0            |
| 2M   | 48 | 30 | 1 3⁄8 | 1⁄2 | 5⁄8 | 8 | 5 | 4 | 19 3⁄4 | 9 3⁄4 | 9 7⁄8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 10.0            |
| 3    | 48 | 30 | 1 3⁄8 | 1⁄2 | 5⁄8 | 8 | 5 | 4 | 19 3⁄4 | 9 3⁄4 | 9 7⁄8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 10.0            |
| 4    | 48 | 30 | 1 3⁄8 | 1⁄2 | 5⁄8 | 8 | 5 | 4 | 19 3⁄4 | 9 3⁄4 | 9 7⁄8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 10.0            |
| 5    | 48 | 30 | 1 3⁄8 | 1⁄2 | 5⁄8 | 8 | 5 | 4 | 19 3⁄4 | 9 3⁄4 | 9 7⁄8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 10.0            |

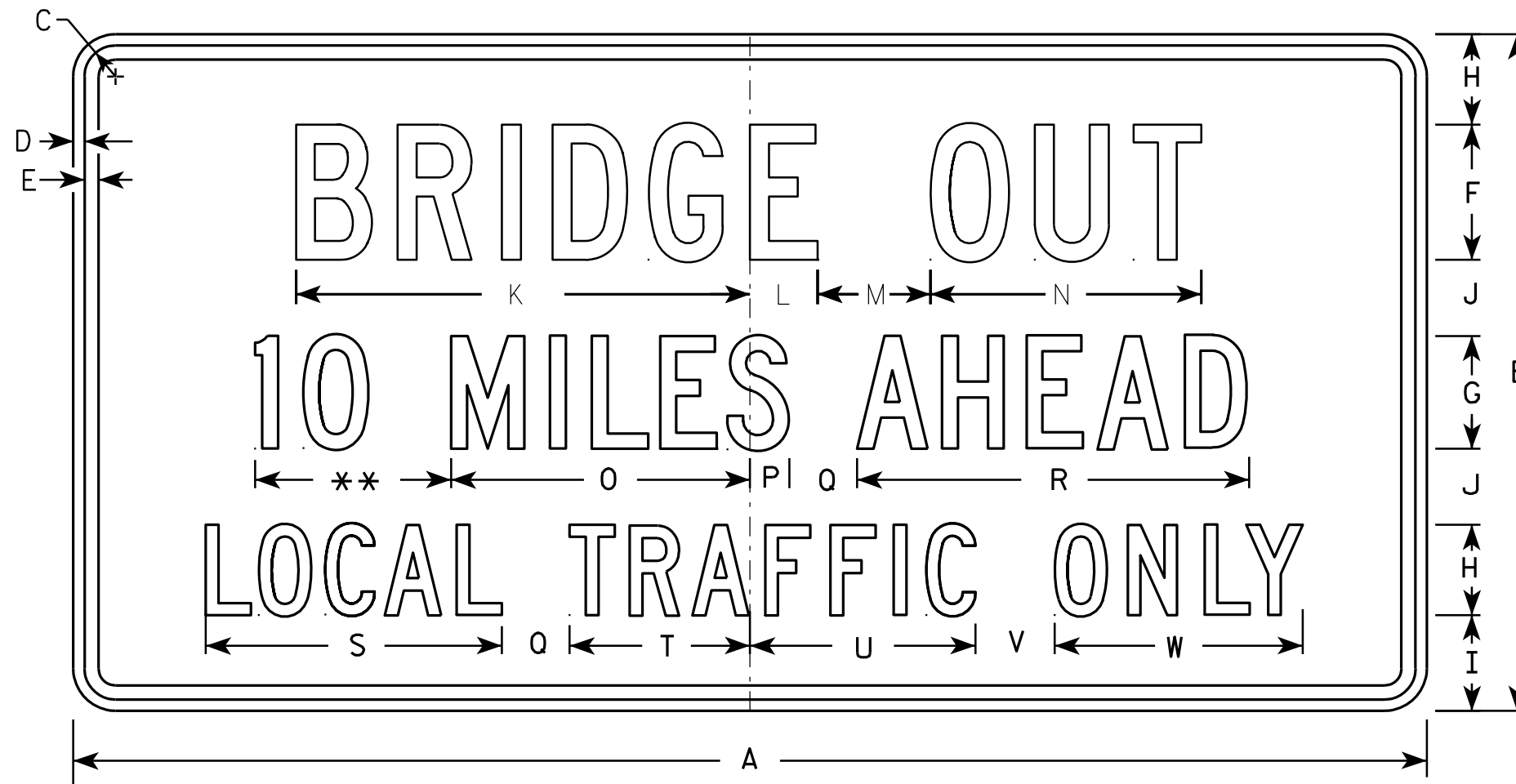
STANDARD SIGN

R11-2B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2B.2



R11-3B

NOTES

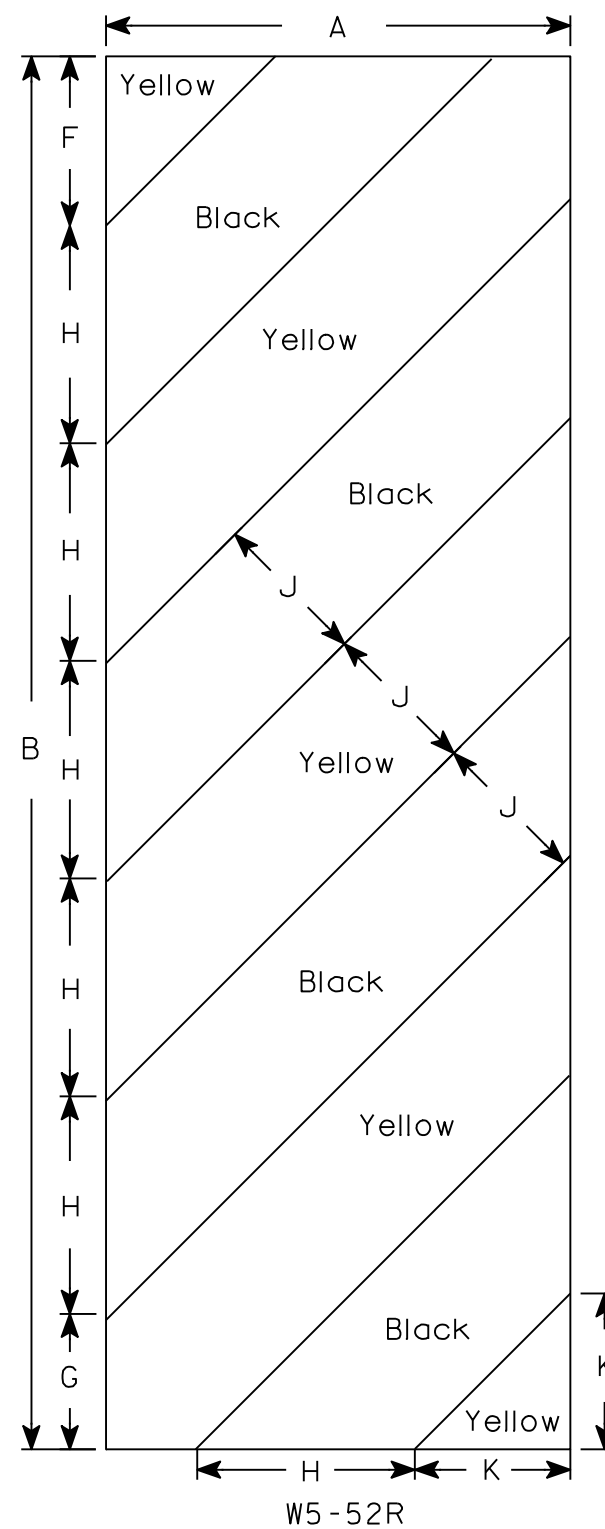
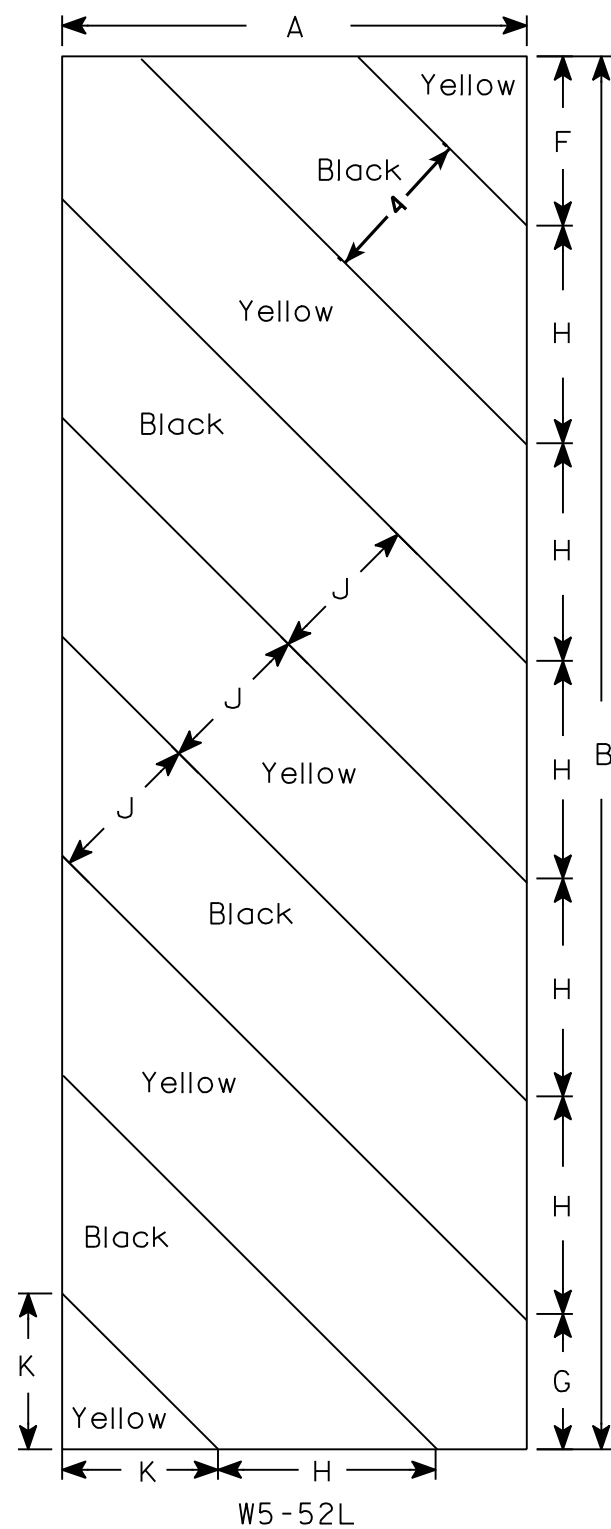
1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded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

\*\* See Note 5

| SIZE | A  | B  | C     | D   | E   | F | G | H     | I     | J     | K      | L     | M | N  | O      | P     | Q | R      | S      | T     | U     | V     | W     | X | Y | Z | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|---|---|-------|-------|-------|--------|-------|---|----|--------|-------|---|--------|--------|-------|-------|-------|-------|---|---|---|-----------------|
| 1    | 36 | 18 | 1 3/8 | 1/2 | 5/8 | 4 | 3 | 2 1/2 | 2     | 2     | 13 1/4 | 2 1/4 | 3 | 8  | 8      | 1 1/2 | 2 | 10 3/4 | 8 3/8  | 4 3/4 | 6 1/2 | 2     | 6 3/4 |   |   |   | 4.5             |
| 2S   | 60 | 30 | 1 3/8 | 1/2 | 5/8 | 6 | 5 | 4     | 4 1/4 | 3 3/8 | 20 1/8 | 3     | 5 | 12 | 13 1/4 | 1 3/4 | 3 | 17 3/8 | 13 1/8 | 8     | 10    | 3 1/2 | 11    |   |   |   | 12.5            |
| 2M   | 60 | 30 | 1 3/8 | 1/2 | 5/8 | 6 | 5 | 4     | 4 1/4 | 3 3/8 | 20 1/8 | 3     | 5 | 12 | 13 1/4 | 1 3/4 | 3 | 17 3/8 | 13 1/8 | 8     | 10    | 3 1/2 | 11    |   |   |   | 12.5            |
| 3    |    |    |       |     |     |   |   |       |       |       |        |       |   |    |        |       |   |        |        |       |       |       |       |   |   |   |                 |
| 4    |    |    |       |     |     |   |   |       |       |       |        |       |   |    |        |       |   |        |        |       |       |       |       |   |   |   |                 |
| 5    |    |    |       |     |     |   |   |       |       |       |        |       |   |    |        |       |   |        |        |       |       |       |       |   |   |   |                 |

|                                  |   |
|----------------------------------|---|
| STANDARD SIGN<br>R11-3B          |   |
| WISCONSIN DEPT OF TRANSPORTATION |   |
| APPROVED                         | <i>Matthew R. Rauch</i><br>for State Traffic Engineer |
| DATE 4/1/11                      | PLATE NO. R11-3B.2                                    |

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



## NOTES

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

[illegible]

STANDARD SIGN  
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch  
for State Traffic Engineer  
DATE 5/29/12 PLATE NO. W5-52.9

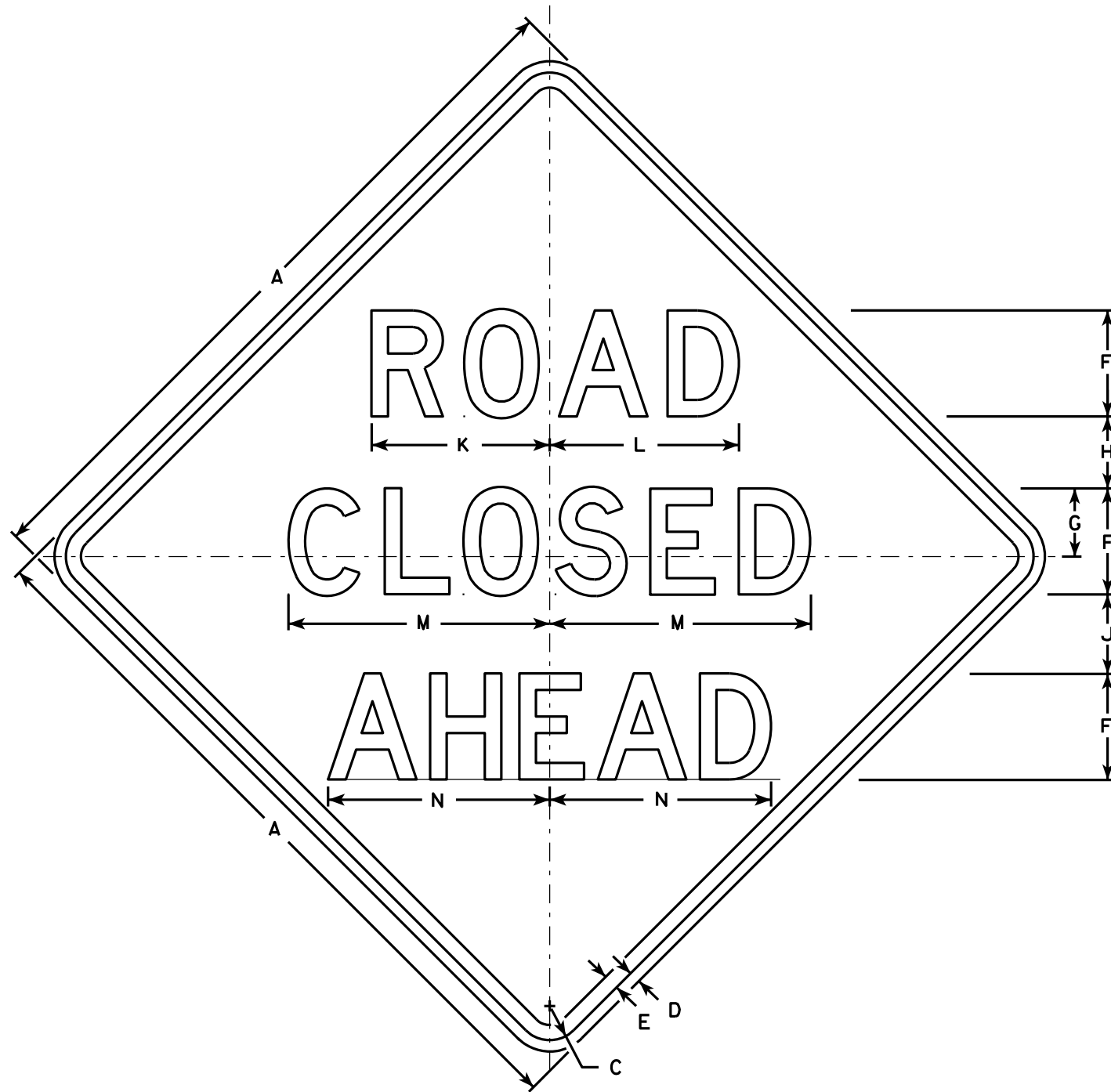
PROJECT NO:

HWY:

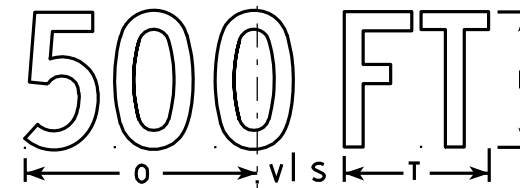
COUNTY:

SHEET NO:

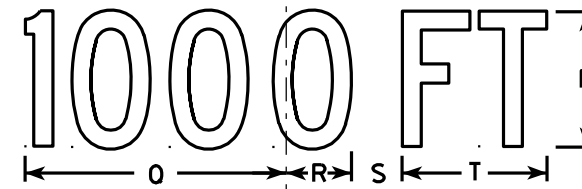
E



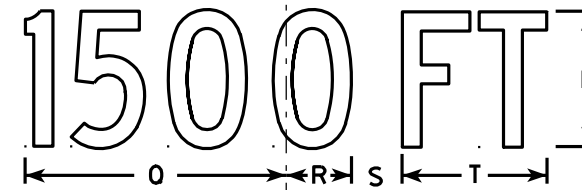
W20-3A



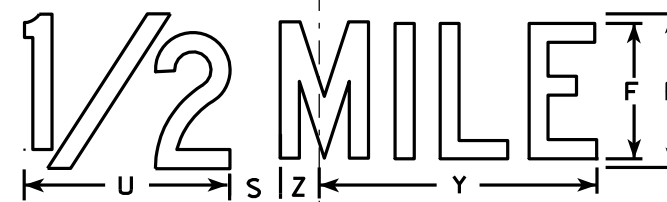
W20-3D



W20-3C



W20-3B



W20-3G



W20-3F

# NOTES

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

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

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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

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

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

DESIGN DATA

LIVE LOAD:  
DESIGN LOADING: HL-93  
INVENTORY RATING FACTOR: 1.11  
OPERATING RATING FACTOR: 1.44  
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20" S.F.

MATERIAL PROPERTIES:

CONCRETE MASONRY { SUPERSTRUCTURE  $f'_c$  = 4,000 p.s.i.  
ALL OTHER  $f'_c$  = 3,500 p.s.i.  
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60)  $f_y$  = 60,000 p.s.i.

HYDRAULIC DATA:

100 YEAR FREQUENCY

$Q_{100}$  = 3,500 c.f.s.  
VEL. = 9.4 f.p.s.  
HW<sub>100</sub> = EL. 727.9  
WATERWAY AREA = 371 sq. ft.  
DRAINAGE AREA = 35.9 sq. mi.  
ROADWAY OVERTOPPING = N/A  
SCOUR CRITICAL CODE = 8  
DATUM = NAVD 88 (2012)

2 YEAR FREQUENCY

$Q_2$  = 450 c.f.s.  
VEL. = 4.5 f.p.s.  
HW<sub>2</sub> = EL. 723.3

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 140 TONS ± PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 30'-0" FOR EACH ABUTMENT.

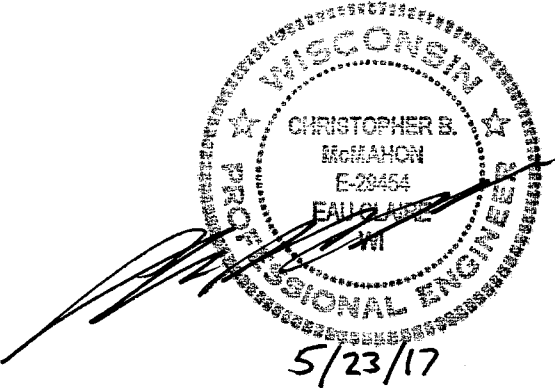
PIER TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS ± PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 30'-0".

± THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

TRAFFIC DATA:

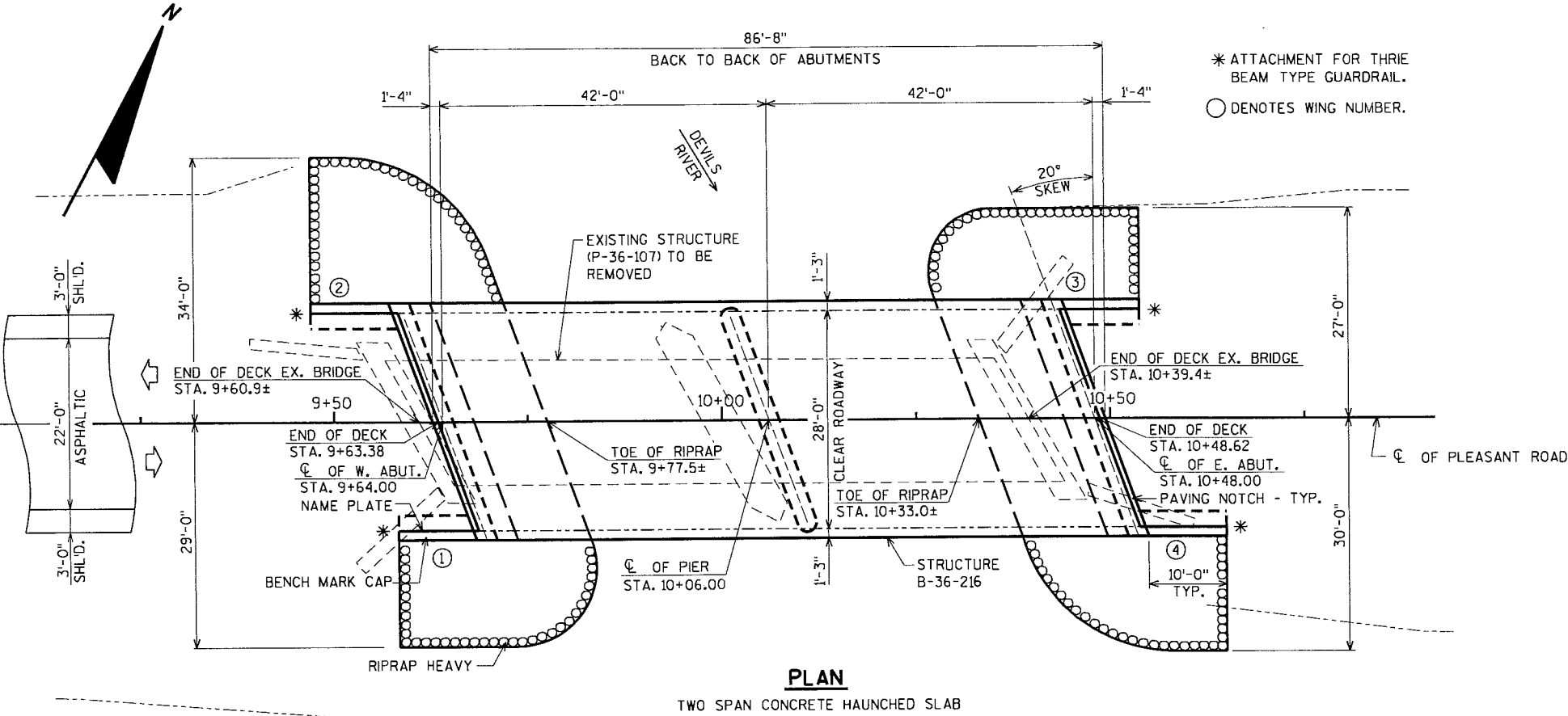
A.A.D.T. = 70 (2018)  
A.A.D.T. = 80 (2038)  
R.D.S. = 55 M.P.H.

FOR TYPICAL SECTION AND GENERAL NOTES, SEE SHEET 2



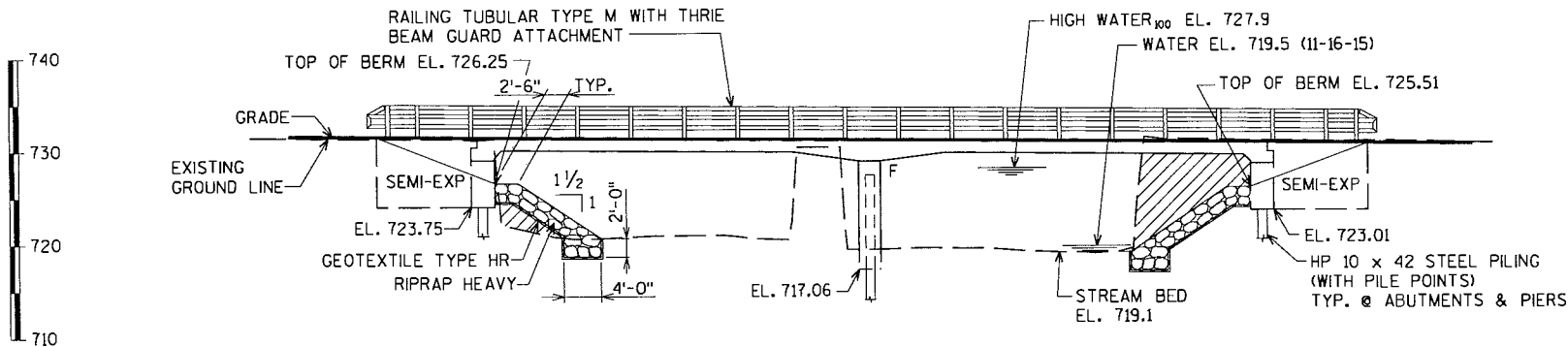
BRIDGE OFFICE CONTACT:  
WILLIAM DREHER  
(608)-266-8489  
CONSULTANT CONTACT:  
CHRIS MCMAHON  
(715)-834-3161

| NO.  | DATE                                     | REVISION          | BY            |
|--|--|-------------------|---------------|
| ORIGINAL PLANS PREPARED BY<br><b>AYRES ASSOCIATES</b><br>3433 Oakwood Hills Parkway<br>Eau Claire, WI 54701<br>www.AyresAssociates.com                         |  |                   |               |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION<br>ACCEPTED <i>William C. Dreher</i> <sup>SR</sup> <b>08/28/17</b><br>CHIEF STRUCTURES DESIGN ENGINEER DATE |  |                   |               |
| <b>STRUCTURE B-36-216</b>  |  |                   |               |
| PLEASANT ROAD OVER THE DEVILS RIVER  |  |                   |               |
| COUNTY   | MANITOWOC                                | TOWN/CITY/VILLAGE | COOPERSTOWN   |
| DESIGN SPEC.   | AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS |                   |               |
| DESIGNED BY  | CJM                                      | DESIGN CKD.       | JWZ           |
| DRAWN BY   | CJM/CLS                                  | PLANS CKD.        | CBM           |
| GENERAL PLAN   |  |                   | SHEET 1 OF 13 |



PLAN

TWO SPAN CONCRETE HAUNCHED SLAB



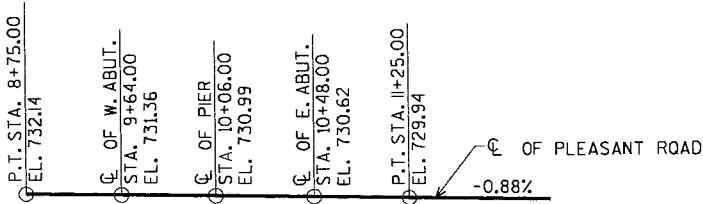
ELEVATION

(NORMAL TO C OF RIVER)

COST OF EXCAVATION OR FILL IN THE HATCHED AREAS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR "EXCAVATION FOR STRUCTURES BRIDGES B-36-216".

LIST OF DRAWINGS

1. GENERAL PLAN
2. QUANTITIES AND NOTES
3. SUBSURFACE EXPLORATION
4. WEST ABUTMENT
5. WEST ABUTMENT WINGS 1 & 2 DETAILS
6. WEST ABUTMENT DETAILS & BILL OF BARS
7. EAST ABUTMENT
8. EAST ABUTMENT WINGS 3 & 4 DETAILS
9. EAST ABUTMENT DETAILS & BILL OF BARS
10. PIER
11. SUPERSTRUCTURE
12. SUPERSTRUCTURE PLAN
13. RAILING TUBULAR TYPE M



PROFILE GRADE LINE  
(PLEASANT ROAD)

BENCH MARK:  
BRASS CAP IN NE WINGWALL  
STA. 10+49.9.8' RT.  
EL. 730.78

\$PRNAME\$  
U:\45-0416.00 - Manitowoc Co., Pleasant Road\BRIDGE\450416 gp.dgn

CHECKED BY:  
BACK CHECKED BY:  
DATE:  
DATE:  
DATE:

\$PRNAME\$  
U:\45-0416.00 - Manitowoc Co., Pleasant Road\BRIDGE\450416 gp.dgn

STATE PROJECT NUMBER

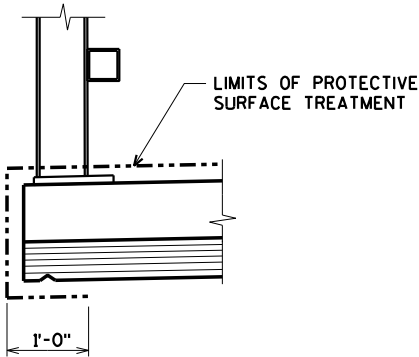
4317-08-71

**TOTAL ESTIMATED QUANTITIES**

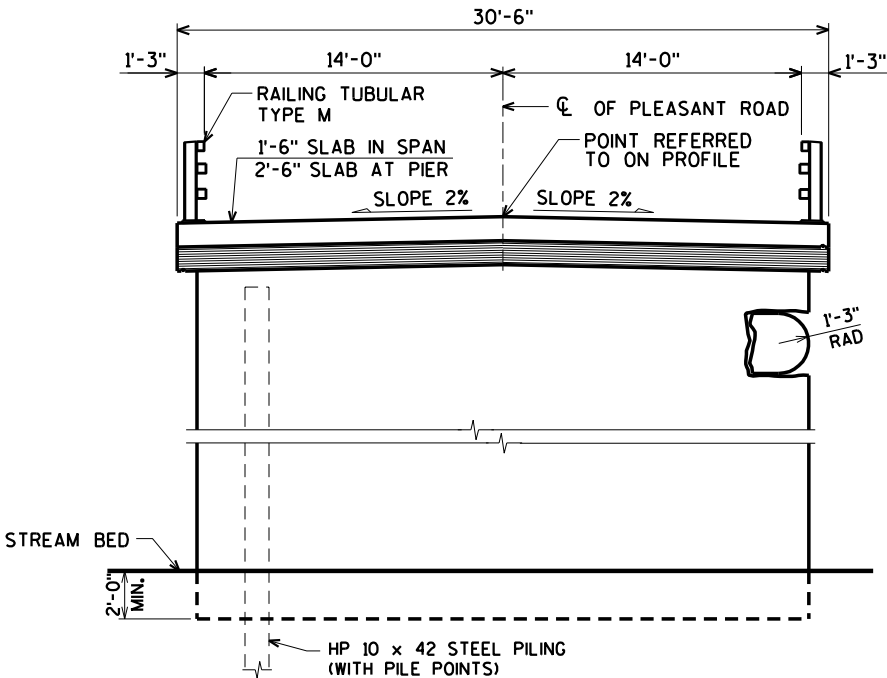
| BID ITEM NUMBER | BID ITEMS  | UNIT | W. ABUT. | PIER  | E. ABUT. | SUPER. | TOTAL       |
|-----------------|--|------|----------|-------|----------|--------|-------------|
| 203.0600.S      | REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 10+00 | LS   | -----    | ----- | -----    | -----  | 1           |
| 206.1000        | EXCAVATION FOR STRUCTURES BRIDGES B-36-216                             | LS   | -----    | ----- | -----    | -----  | 1           |
| 210.1500        | BACKFILL STRUCTURE TYPE A  | TON  | 70       | ----- | 70       | -----  | 140         |
| 502.0100        | CONCRETE MASONRY BRIDGES   | CY   | 30       | 32    | 30       | 186    | 278         |
| 502.3200        | PROTECTIVE SURFACE TREATMENT   | SY   | -----    | ----- | -----    | 345    | 345         |
| 505.0400        | BAR STEEL REINFORCEMENT HS STRUCTURES                                  | LB   | 1,970    | 1,490 | 1,970    | -----  | 5,430       |
| 505.0600        | BAR STEEL REINFORCEMENT HS COATED STRUCTURES                           | LB   | 1,280    | 60    | 1,270    | 34,570 | 37,180      |
| 513.4061        | RAILING TUBULAR TYPE M B-36-216  | LF   | 22       | ----- | 22       | 174    | 218         |
| 516.0500        | RUBBERIZED MEMBRANE WATERPROOFING                                      | SY   | 9        | ----- | 9        | -----  | 18          |
| 550.0500        | PILE POINTS  | EACH | 5        | 7     | 5        | -----  | 17          |
| 550.1100        | PILING STEEL HP 10-INCH x 42 LB  | LF   | 150      | 210   | 150      | -----  | 510         |
| 606.0300        | RIPRAP HEAVY   | CY   | 100      | ----- | 90       | -----  | 190         |
| 612.0406        | PIPE UNDERDRAIN WRAPPED 6-INCH   | LF   | 75       | ----- | 75       | -----  | 150         |
| 645.0111        | GEOTEXTILE TYPE DF SCHEDULE A  | SY   | 35       | ----- | 35       | -----  | 70          |
| 645.0120        | GEOTEXTILE TYPE HR   | SY   | 190      | ----- | 175      | -----  | 365         |
| NON-BID ITEMS   |  |      |          |       |          |        |             |
| FILLER          |  | SIZE | -----    | ----- | -----    | -----  | 1/2" & 3/4" |

**GENERAL NOTES**

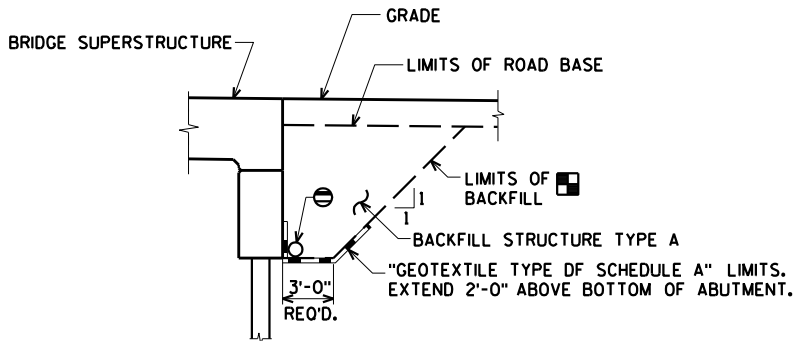
DRAWINGS SHALL NOT BE SCALED.  
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.  
THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.  
JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.  
THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.  
SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS OTHERWISE APPROVED BY THE ENGINEER.  
THE EXISTING GROUND LINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.  
THE EXISTING STRUCTURE, P-36-107, TO BE REMOVED, IS A TWO SPAN CONCRETE DECK GIRDER BRIDGE, 73.5 FT. LONG WITH A 16.2 FT. CLEAR ROADWAY WIDTH ON VERTICAL CONCRETE ABUTMENTS AND A CONCRETE PIER.  
AT THE BACK FACE OF ABUTMENTS, ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.  
PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.  
BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS NOTED OTHERWISE.  
EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.



**PROTECTIVE SURFACE TREATMENT DETAIL**

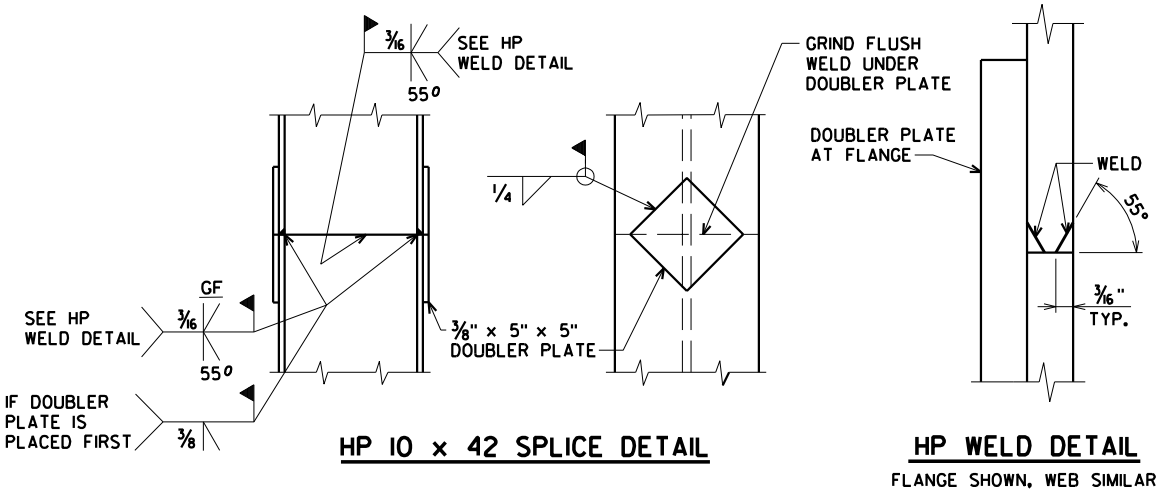


**TYPICAL SECTION THRU BRIDGE**



**BACKFILL STRUCTURE LIMITS**

- BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 6.



**HP 10 x 42 SPLICE DETAIL**

**HP WELD DETAIL**

FLANGE SHOWN, WEB SIMILAR

| NO.  | DATE | REVISION        | BY            |
|--|------|-----------------|---------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                 |               |
| STRUCTURE B-36-216                                 |      |                 |               |
| DRAWN BY CJM/CLS                                   |      | PLANS CK'D. CJM |               |
| QUANTITIES AND NOTES                               |      |                 | SHEET 2 OF 13 |

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com



The diagram illustrates a cross-section of a bridge structure with three borings and the existing ground line at the center profile. The vertical axis represents elevation in feet, ranging from 670 to 760. The horizontal axis represents the center profile.

**Boring #1:** Located at STA. 9+55.9±, 9' RT. OF C. It shows a gravel layer at the top, followed by a layer of asphalt. The pile is 30'-0" LG. HP 10 x 42 STEEL PILING (WITH PILE POINTS). The pile tip is at EL. 723.75. The pile is labeled with REF.

**Boring #2:** Located at STA. 10+07.1±, 2' LT. OF C. It shows a gravel layer at the top, followed by a layer of asphalt. The pile is 30'-0" LG. HP 10 x 42 STEEL PILING (WITH PILE POINTS). The pile tip is at EL. 717.06. The pile is labeled with REF.

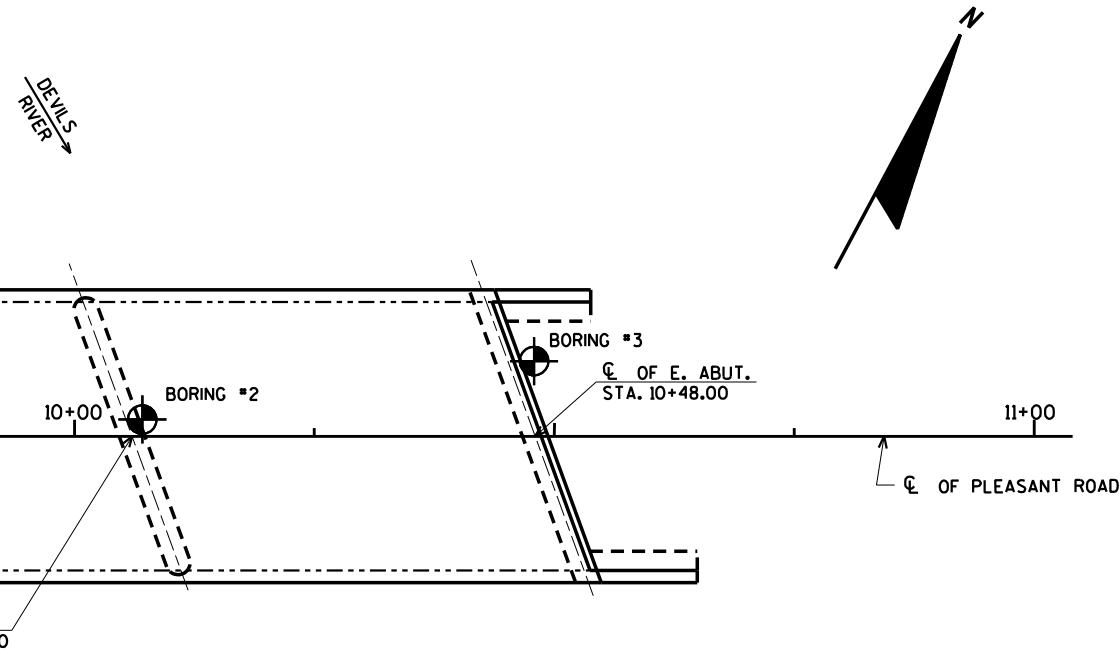
**Boring #3:** Located at STA. 10+46.4±, 8' LT. OF C. It shows a gravel layer at the top, followed by a layer of asphalt. The pile is 30'-0" LG. HP 10 x 42 STEEL PILING (WITH PILE POINTS). The pile tip is at EL. 723.01. The pile is labeled with REF.
















**Existing Ground Line at C Profile:** The ground line is shown as a dashed line. The existing ground line at the center profile is at EL. 723.01.

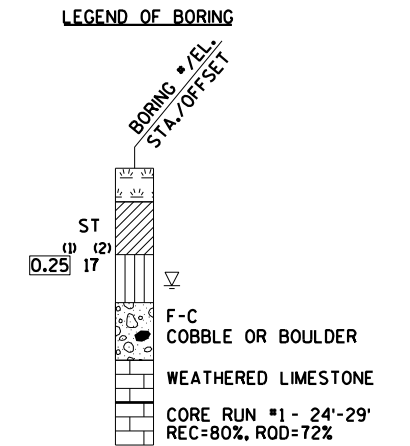
**Soil Types:** The soil types are Gravel and Asphalt.

**Pile Details:** The piles are 30'-0" LG. HP 10 x 42 STEEL PILING (WITH PILE POINTS). The pile tip is at EL. 723.75 for Boring #1, EL. 717.06 for Boring #2, and EL. 723.01 for Boring #3.

**Other Labels:** The diagram includes labels for "GRADE", "EXISTING GROUND LINE AT C PROFILE", "GRAVEL", and "ASPHALT".



| STATE PROJECT NUMBER  |                                    |   |                              |
|---|------------------------------------|---|------------------------------|
| <b>4317-08-71</b>   |                                    |   |                              |
| <b><u>MATERIAL SYMBOLS</u></b>  |                                    |   |                              |
|  | <b>ASPHALT</b>                     |  | <b>TOPSOIL</b>               |
|  | <b>CONCRETE</b>                    |  | <b>FILL</b>                  |
|  | <b>SAND</b>                        |  | <b>CLAY</b>                  |
|  | <b>BOULDERS<br/>OR<br/>COBBLES</b> |  | <b>LIMESTONE</b>             |
|  | <b>SHALE</b>                       |  | <b>SANDSTONE</b>             |
|   |                                    |  | <b>PEAT</b>                  |
|   |                                    |  | <b>GRAVEL</b>                |
|   |                                    |  | <b>SILT</b>                  |
|   |                                    |  | <b>BEDROCK<br/>(UNKNOWN)</b> |
|   |                                    |  | <b>IGNEOUS/<br/>META</b>     |



<sup>(1)</sup> UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

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

GROUND WATER ELEVATION

       AT TIME OF DRILLING

**▼ END OF DRILLING**

**AFTER DRILLING**

## ABBREVIATIONS

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

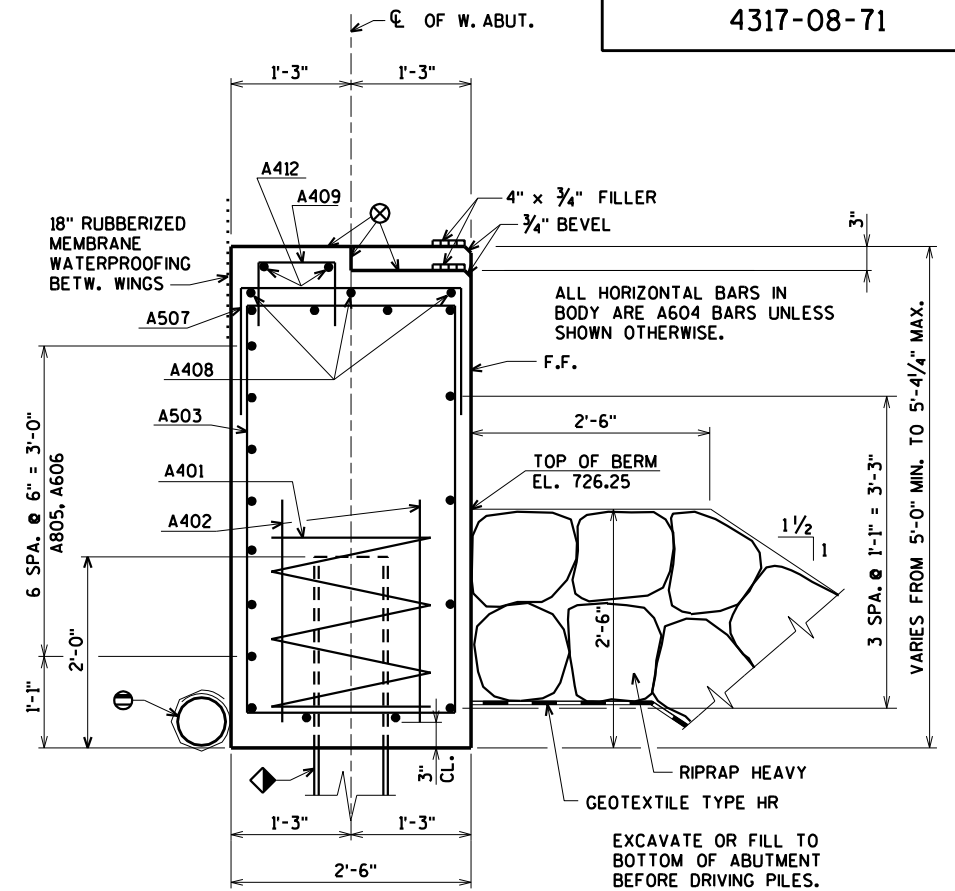
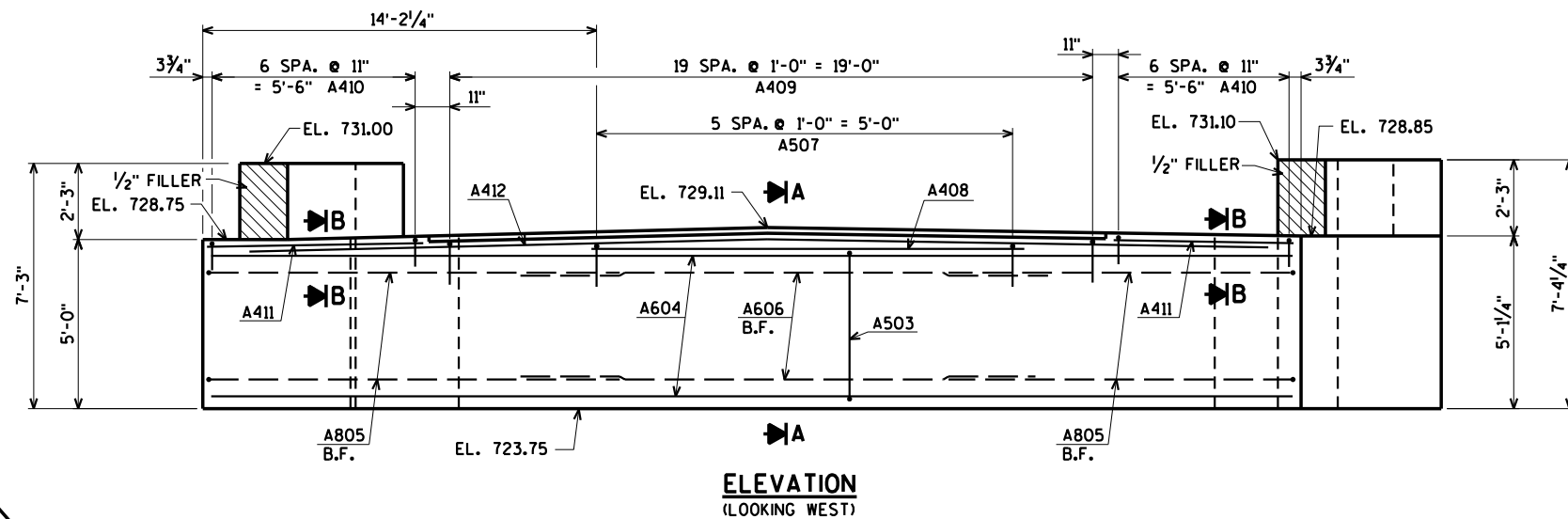
## SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

|  |      |             |         |                |     |
|--|------|-------------|---------|----------------|-----|
|  |      |             |         |                |     |
| NO.  | DATE | REVISION    |         |                | BY  |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |             |         |                |     |
| STRUCTURE B-36-216                                 |      |             |         |                |     |
|  |      | DRAWN<br>BY | CJM/CLS | PLANS<br>CK'D. | CJM |
| SUBSURFACE<br>EXPLORATION                          |      |             |         | SHEET 3 OF 13  |     |
|  |      |             |         |                |     |

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NOTE:  
SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF  
1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT  
SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).

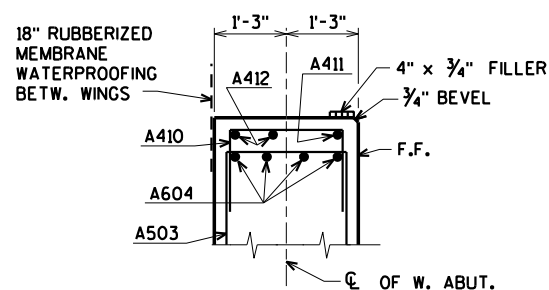
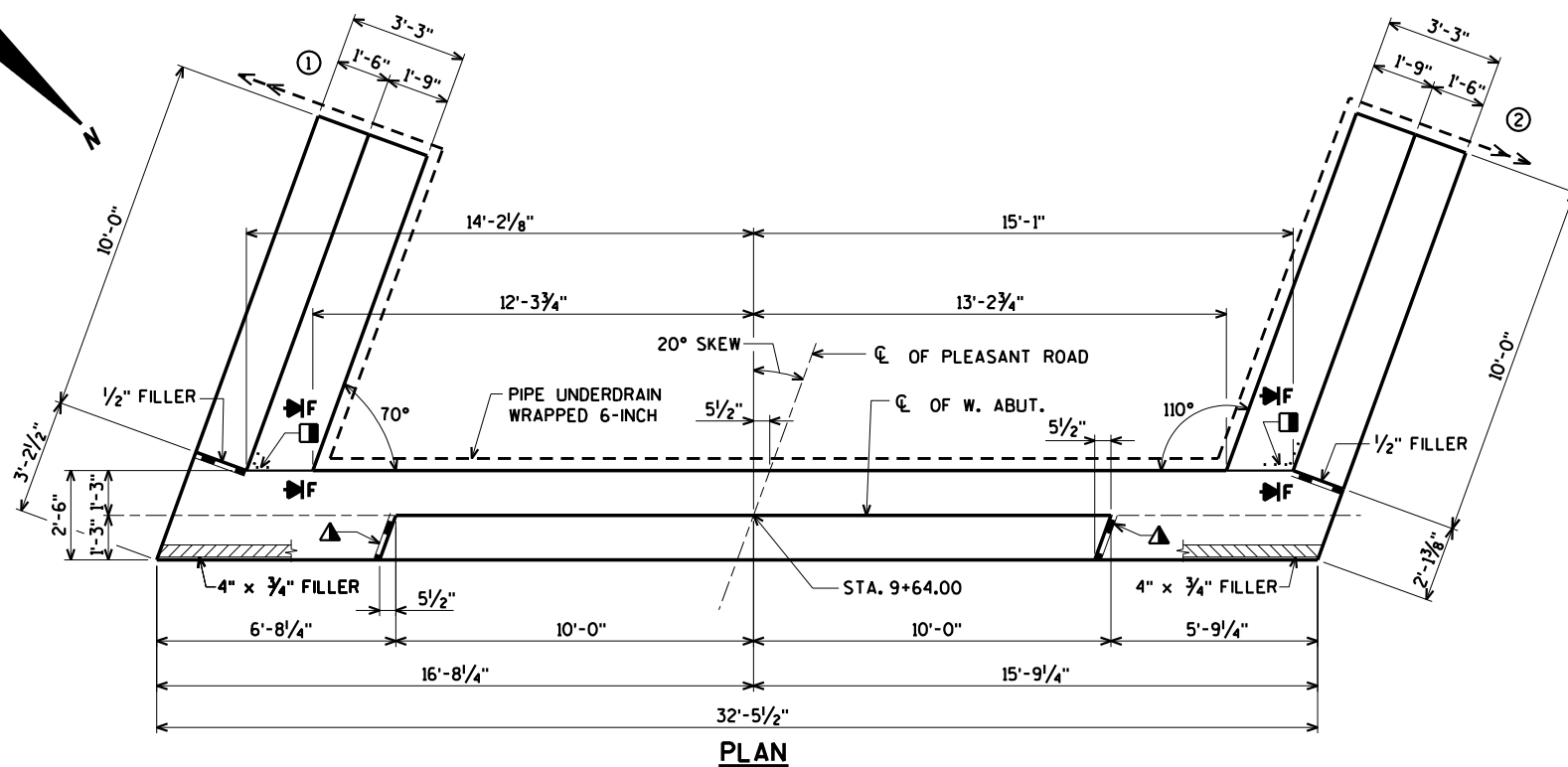


- SECTION A**
- ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQ'D. DRIVING RESISTANCE OF 140 TONS PER PILE ESTIMATED LENGTH 30'-0\"/>

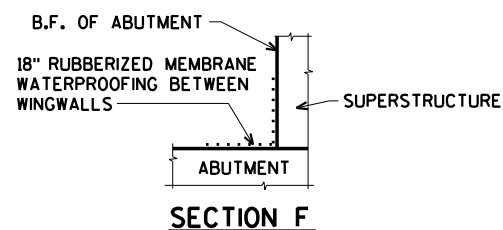
- VERTICAL 18\"/>
- 3/4\"/>
- STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING FILLER AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03\"/>
- PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 6. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF \"PIPE UNDERDRAIN WRAPPED 6-INCH\".

FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE  
F.F. DENOTES FRONT FACE



**SECTION B**



**SECTION F**

STATE PROJECT NUMBER

4317-08-71

8

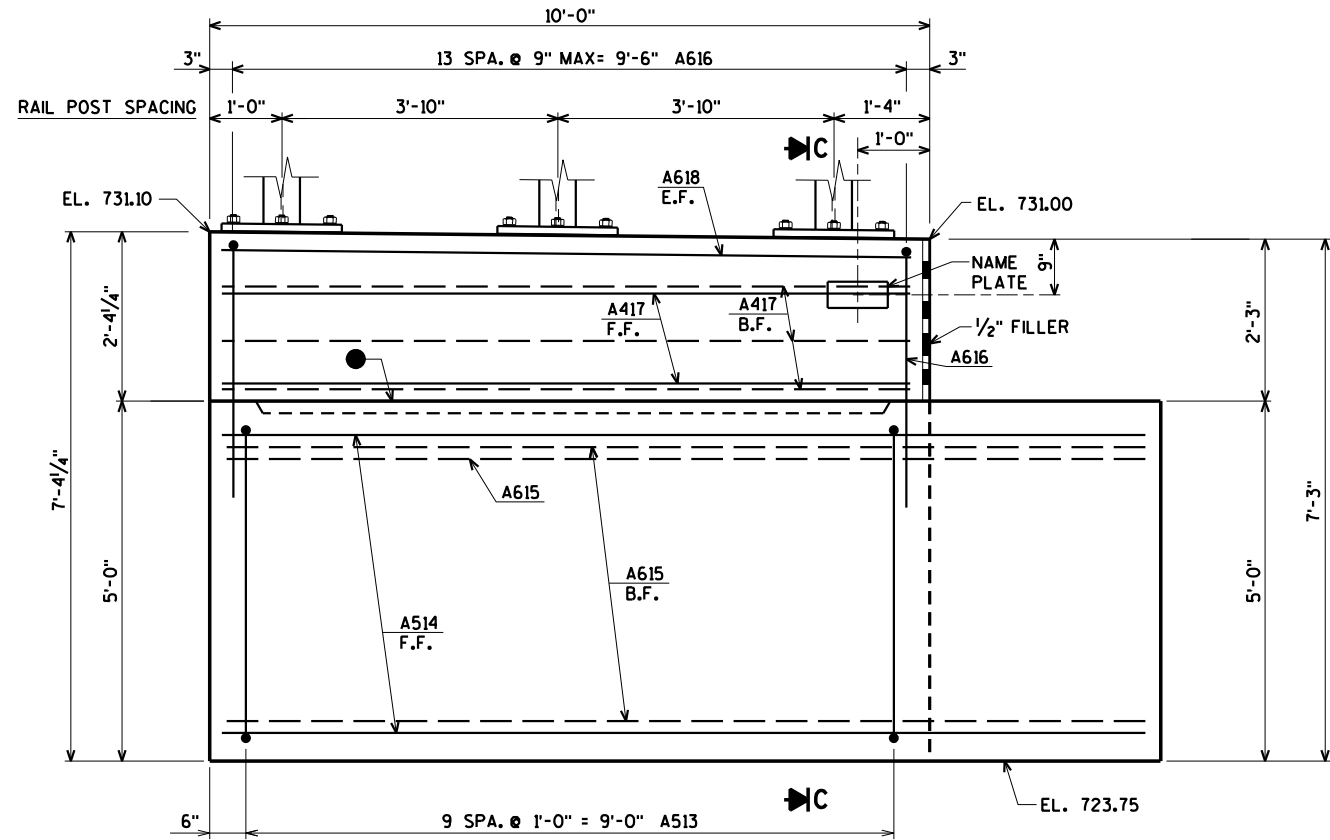
8

| NO.  | DATE | REVISION | BY              |
|--|------|----------|-----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |          |                 |
| STRUCTURE B-36-216                                 |      |          |                 |
| DRAWN BY   |      | CLS      | PLANS CK'D. CJM |
| WEST ABUTMENT                                      |      |          | SHEET 4 OF 13   |

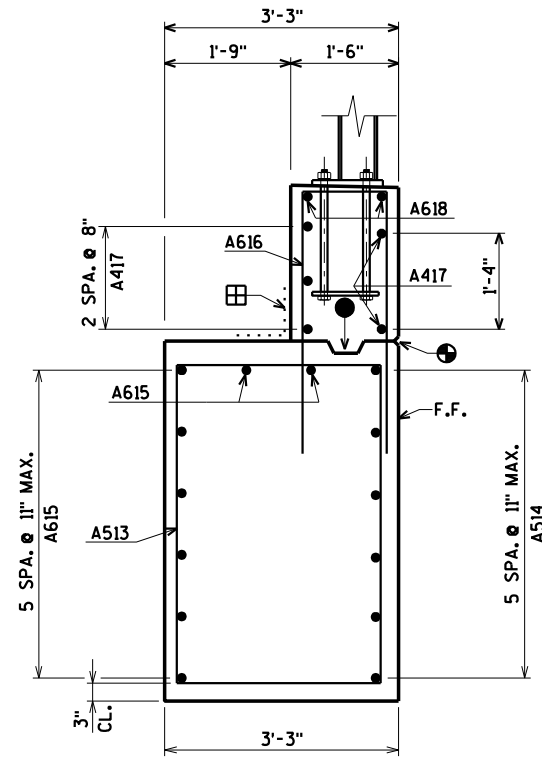
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STATE PROJECT NUMBER

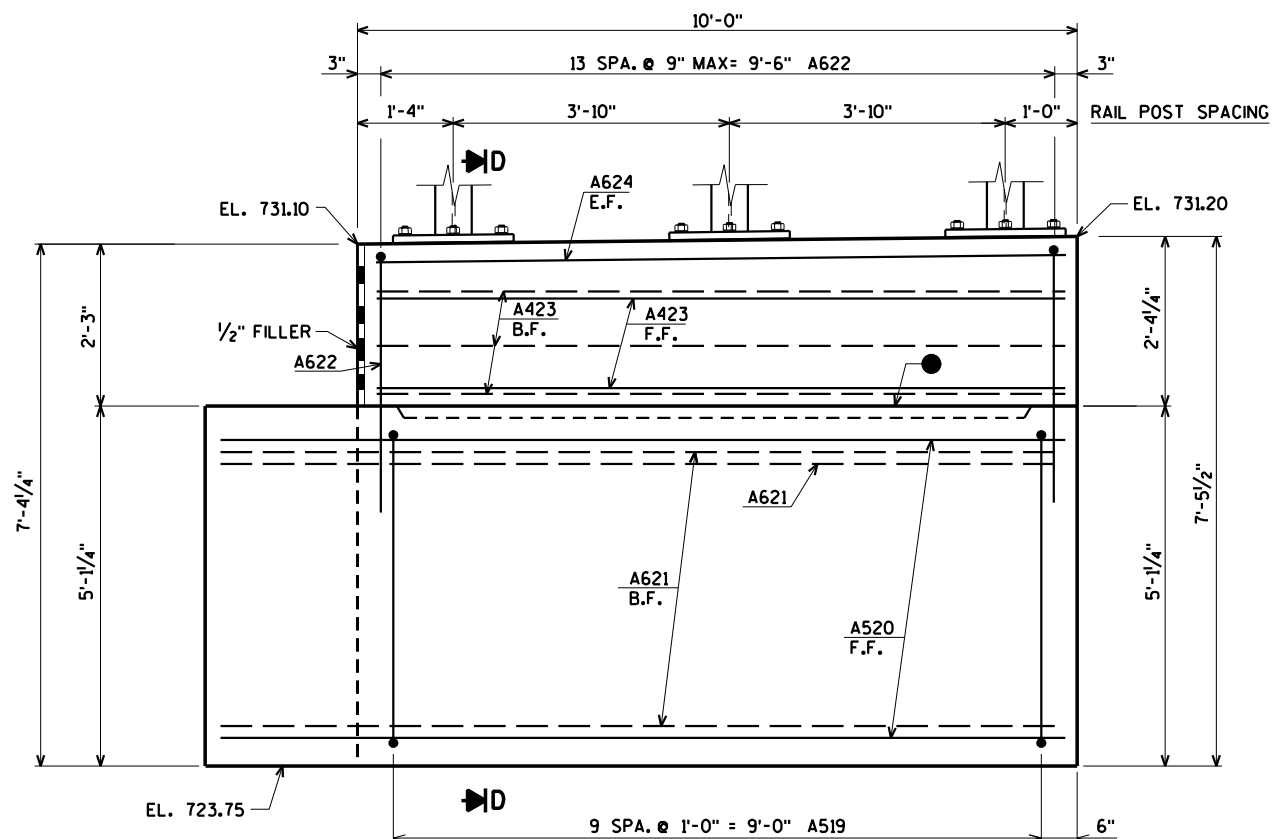
4317-08-71



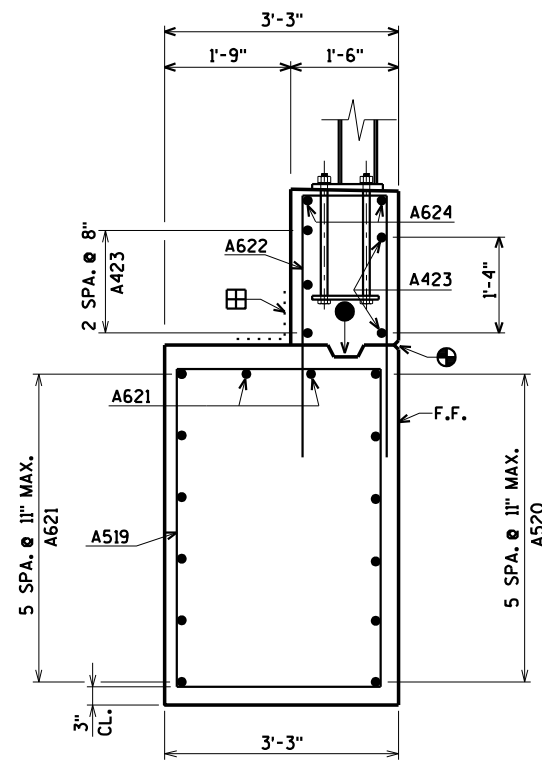
ELEVATION - WING 1



SECTION C



ELEVATION - WING 2



SECTION D

3/4" "V" GROOVE ON FRONT FACE OF WINGWALL.

OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" x 6".

18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

E.F. DENOTES EACH FACE.

| NO.  | DATE | REVISION | BY              |
|--|------|----------|-----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |          |                 |
| STRUCTURE B-36-216                                 |      |          |                 |
| DRAWN BY   |      | CLS      | PLANS CK'D. CJM |
| WEST ABUTMENT<br>WINGS 1 & 2<br>DETAILS            |      |          | SHEET 5 OF 13   |

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
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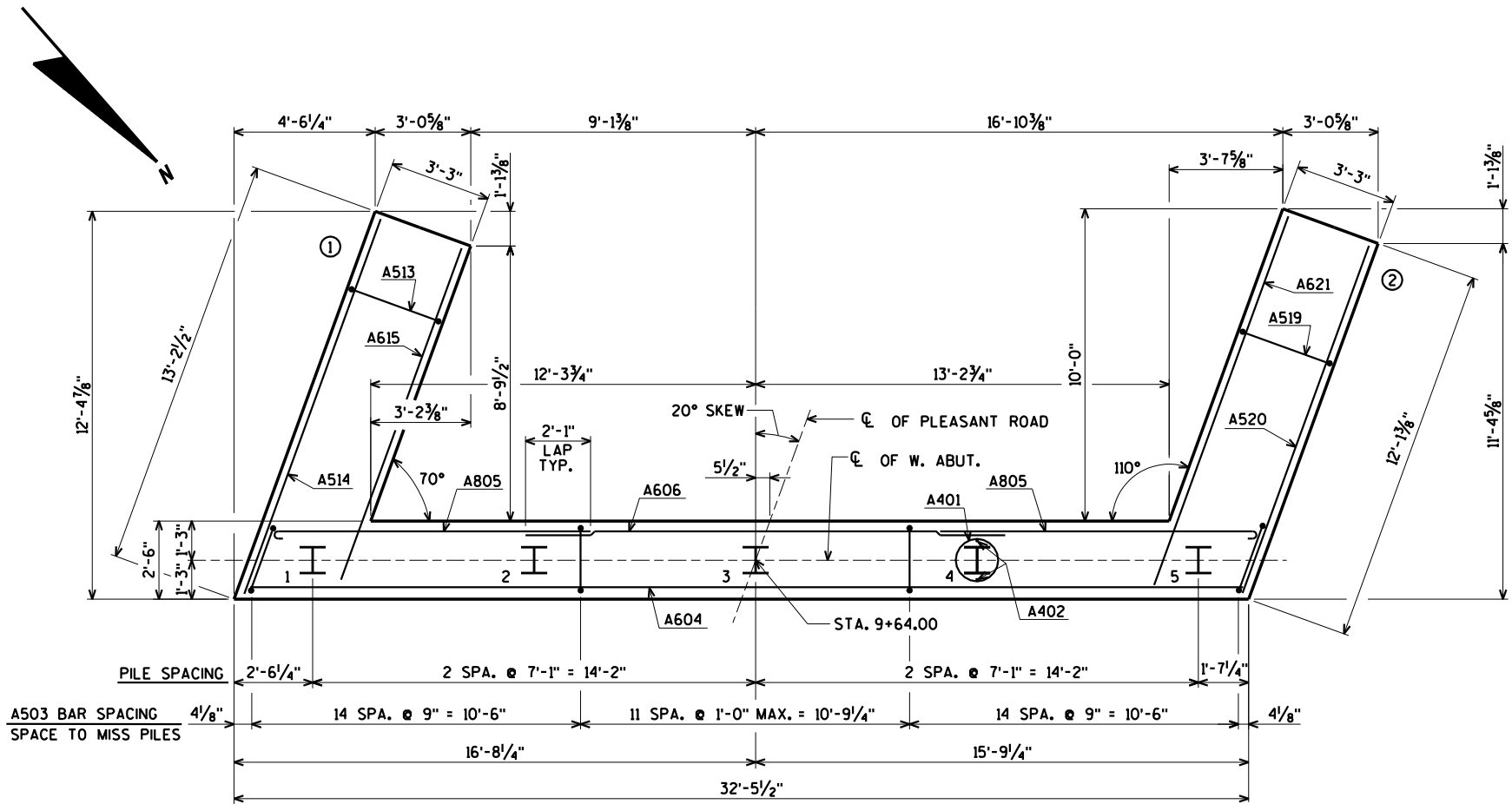
STATE PROJECT NUMBER

4317-08-71

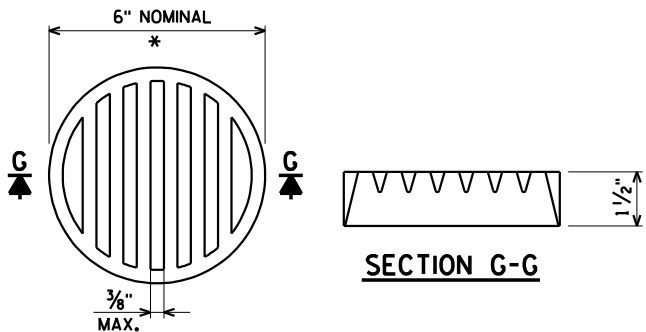
BILL OF BARS

| BAR. NO. | COATED BAR | NO. REQ'D. | LENGTH | BENT BAR | BUNDLED BAR SERIES | 1,280# COATED<br>1,970# UNCOATED |
|----------|------------|------------|--------|----------|--------------------|----------------------------------|
|          |            |            |        |          |                    | LOCATION                         |
| A401     |            | 5          | 28-0   | X        |                    | BODY @ PILES                     |
| A402     |            | 10         | 2-3    |          |                    | BODY @ PILES                     |
| A503     |            | 40         | 13-10  | X        |                    | BODY VERT.                       |
| A604     |            | 11         | 32-0   |          |                    | BODY HORIZ.                      |
| A805     |            | 14         | 10-11  |          |                    | BODY HORIZ. @ WING B.F.          |
| A606     |            | 7          | 16-3   |          |                    | BODY HORIZ. BETW. WINGS B.F.     |
| A507     |            | 6          | 4-8    | X        |                    | BODY VERT. TOP                   |
| A408     |            | 3          | 6-9    |          |                    | BODY HORIZ. TOP                  |
| A409     |            | 20         | 3-3    | X        |                    | BODY VERT. TOP                   |
| A410     |            | 14         | 4-6    | X        |                    | BODY VERT. TOP @ WINGS           |
| A411     |            | 2          | 5-9    |          |                    | BODY HORIZ. TOP F.F. @ WINGS     |
| A412     |            | 2          | 32-0   |          |                    | BODY HORIZ. TOP                  |
| A513     | X          | 10         | 15-6   | X        |                    | WING 1 VERT.                     |
| A514     | X          | 6          | 12-9   |          |                    | WING 1 HORIZ. F.F.               |
| A615     | X          | 8          | 11-11  |          |                    | WING 1 HORIZ. B.F. & BODY TOP    |
| A616     | X          | 14         | 9-3    | X        |                    | WING 1 VERT.                     |
| A417     | X          | 5          | 9-7    |          |                    | WING 1 HORIZ. E.F.               |
| A618     | X          | 2          | 9-7    |          |                    | WING 1 HORIZ. E.F.               |
| A519     | X          | 10         | 15-8   | X        |                    | WING 2 VERT.                     |
| A520     | X          | 6          | 11-10  |          |                    | WING 2 HORIZ. F.F.               |
| A621     | X          | 8          | 11-11  |          |                    | WING 2 HORIZ. B.F. & BODY TOP    |
| A622     | X          | 14         | 9-3    | X        |                    | WING 2 VERT.                     |
| A423     | X          | 5          | 9-7    |          |                    | WING 2 HORIZ. E.F.               |
| A624     | X          | 2          | 9-7    |          |                    | WING 2 HORIZ. E.F.               |

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



PILE LAYOUT

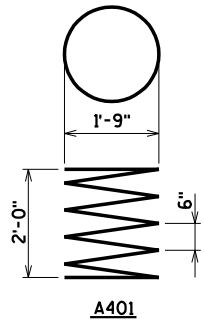


\* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

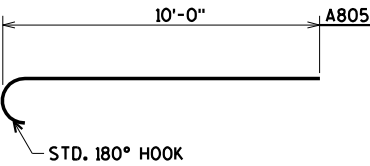
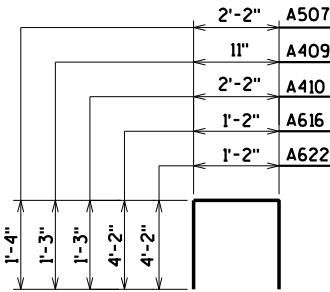
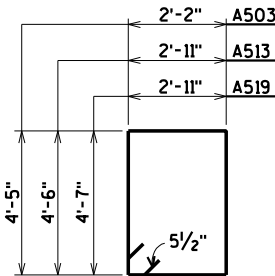
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

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

RODENT SHIELD DETAIL



A401



STD. 180° HOOK

FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

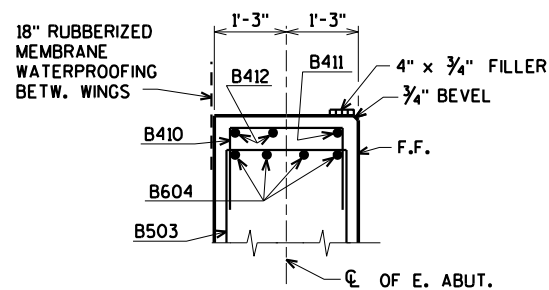
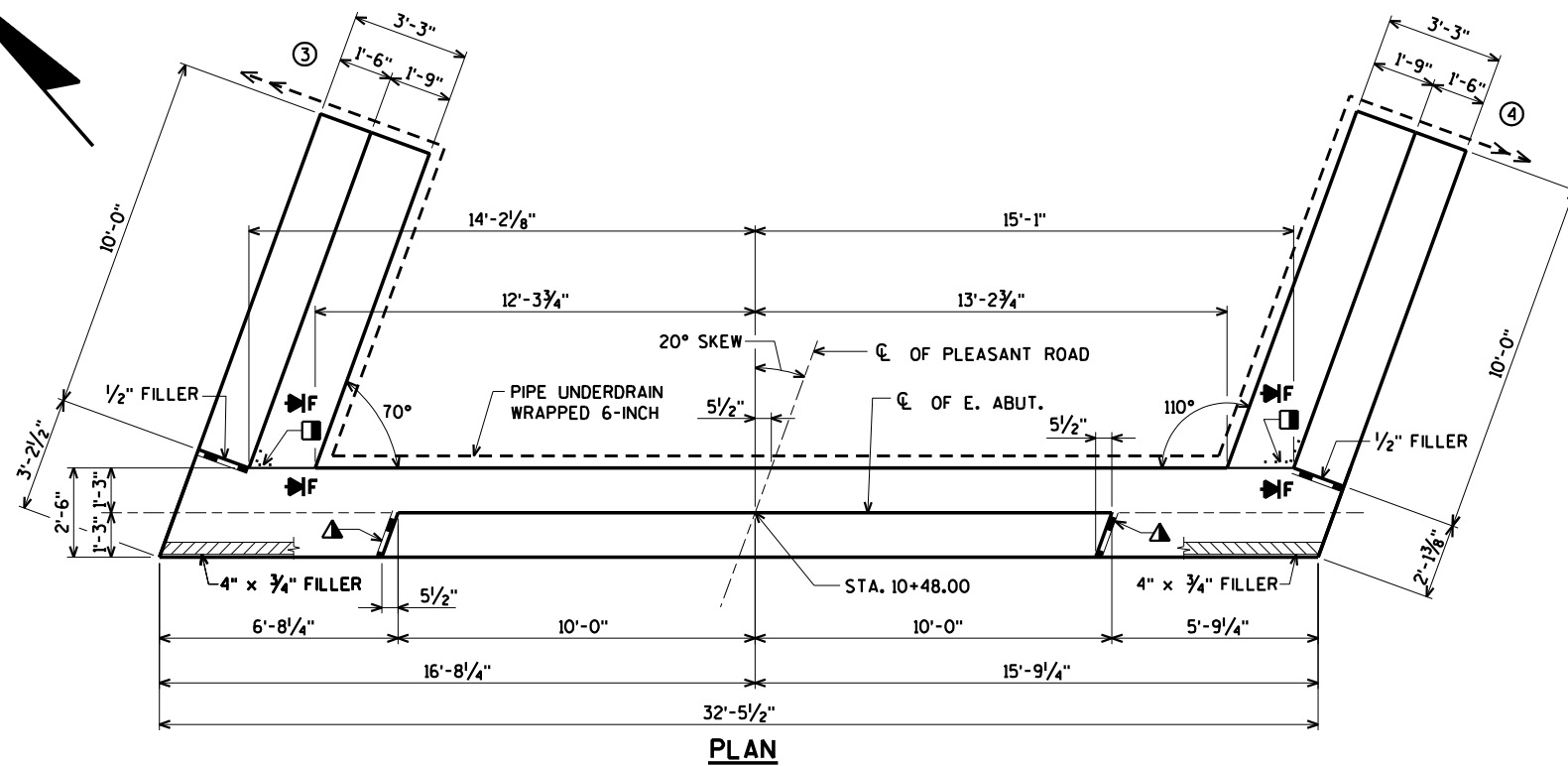
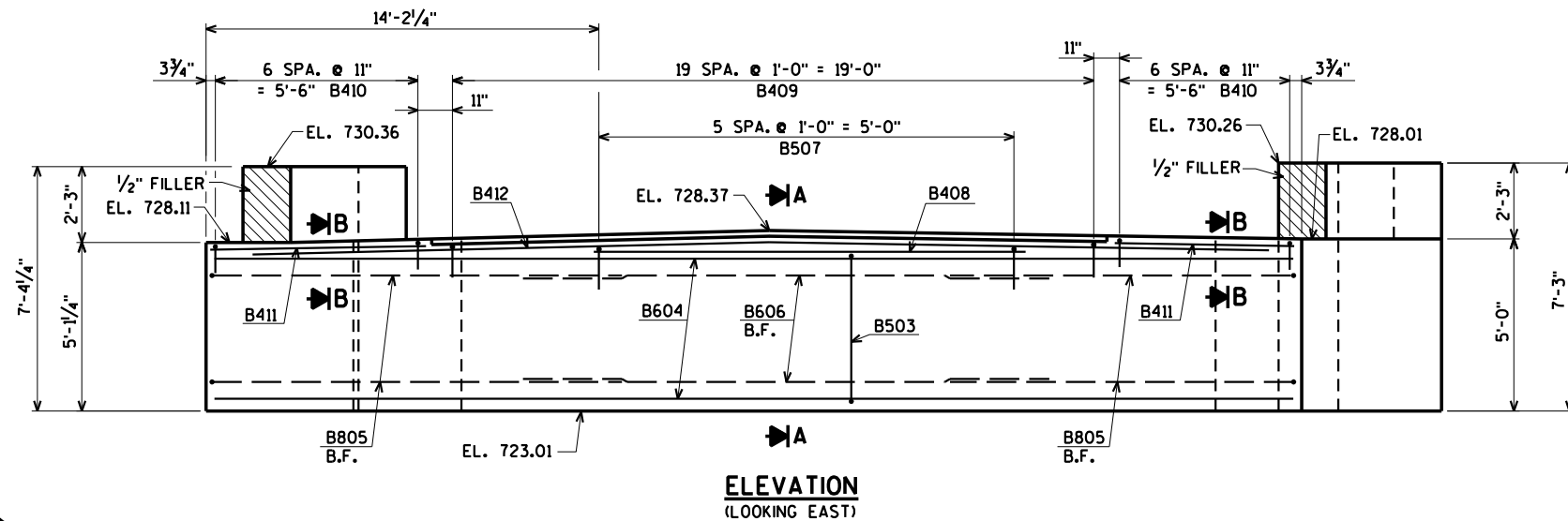
F.F. DENOTES FRONT FACE

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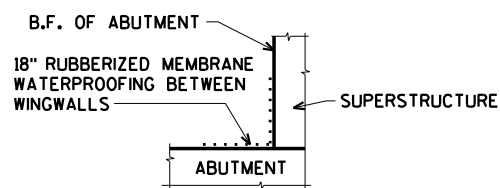
| NO.  | DATE | REVISION | BY              |
|--|------|----------|-----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |          |                 |
| STRUCTURE B-36-216                                 |      |          |                 |
| DRAWN BY   |      | CLS      | PLANS CK'D. CJM |
| WEST ABUTMENT<br>DETAILS &<br>BILL OF BARS         |      |          | SHEET 6 OF 13   |

\$PRNAME\$  
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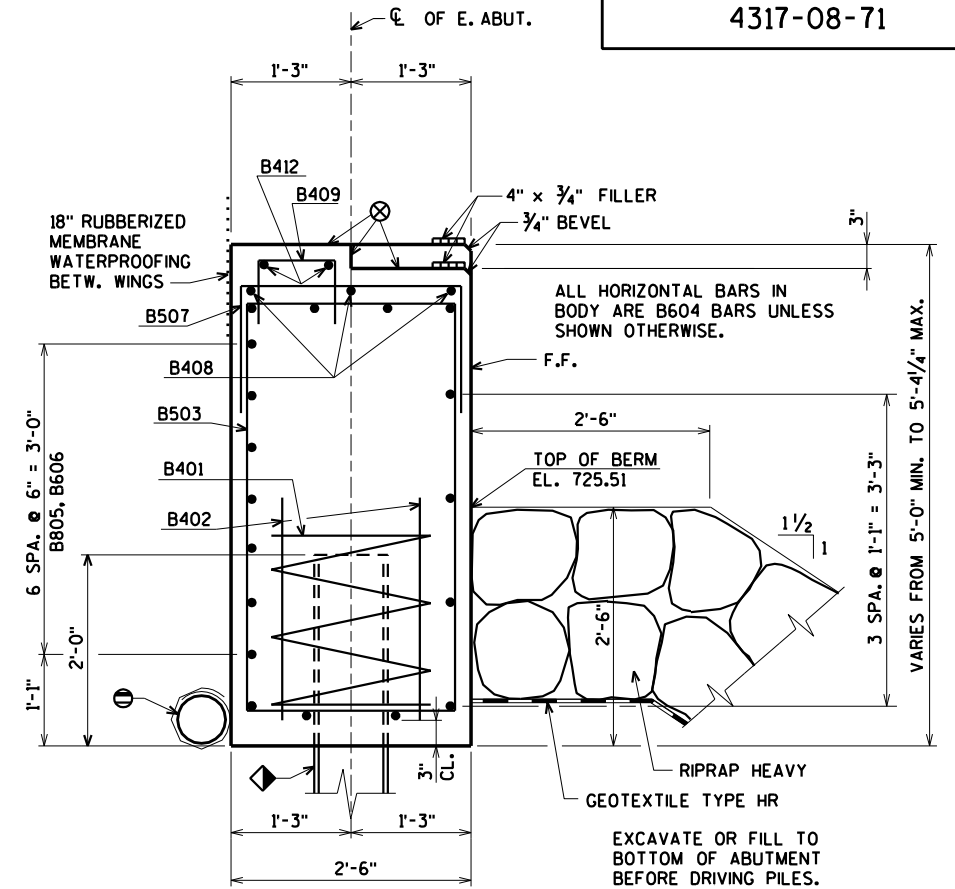
NOTE:  
SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF  
1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT  
SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).



SECTION B



SECTION F



SECTION A

ABUTMENT TO BE SUPPORTED  
ON HP 10 x 42 STEEL PILING (WITH PILE  
POINTS) DRIVEN TO A REQ'D. DRIVING  
RESISTANCE OF 140 TONS PER PILE  
ESTIMATED LENGTH 30'-0\"/>

18\"/>

3/4\"/>

STEEL TROWEL TOP SURFACE OF ABUTMENT.  
PLACE MULTIPLE LAYERS OF POLYETHYLENE  
SHEETS OVER ENTIRE ABUTMENT TOP BEFORE  
PLACING FILLER AND SUPERSTRUCTURE.  
TOTAL THICKNESS OF SHEETS SHALL BE  
AT LEAST 0.03\"/>

PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5%  
MIN. TO SUITABLE DRAINAGE. ATTACH RODENT  
SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED  
ON SHEET 6. RODENT SHIELD TO BE INCIDENTAL TO  
BID PRICE OF \"PIPE UNDERDRAIN WRAPPED 6-INCH\".

FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE

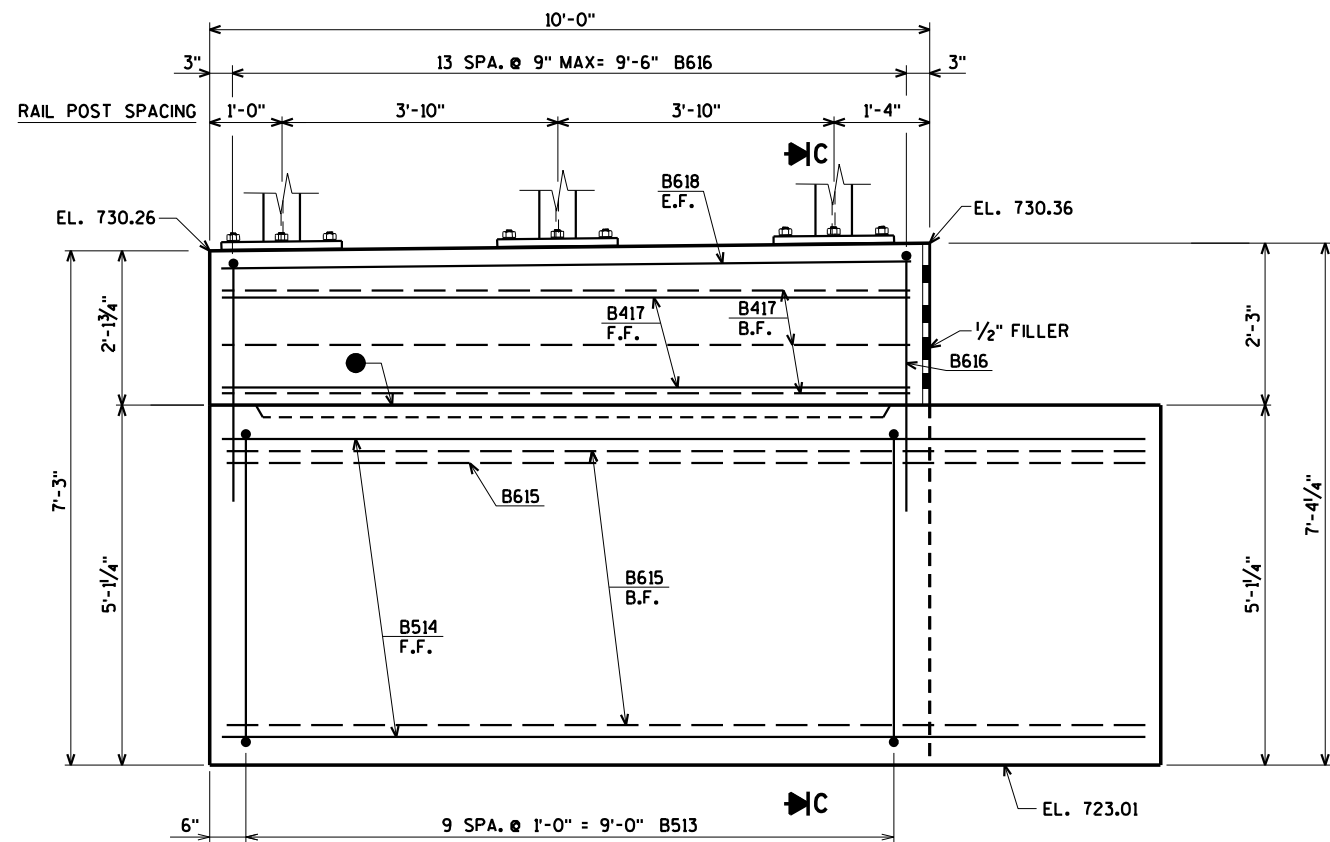
F.F. DENOTES FRONT FACE

STATE PROJECT NUMBER

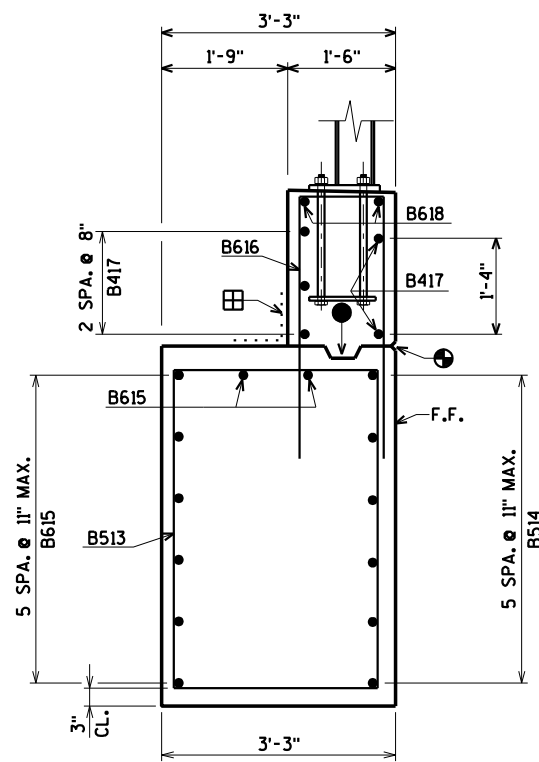
4317-08-71

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|--|------|----------|-----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |          |                 |
| STRUCTURE B-36-216                                 |      |          |                 |
| DRAWN BY   |      | CLS      | PLANS CK'D. CJM |
| EAST ABUTMENT                                      |      |          | SHEET 7 OF 13   |

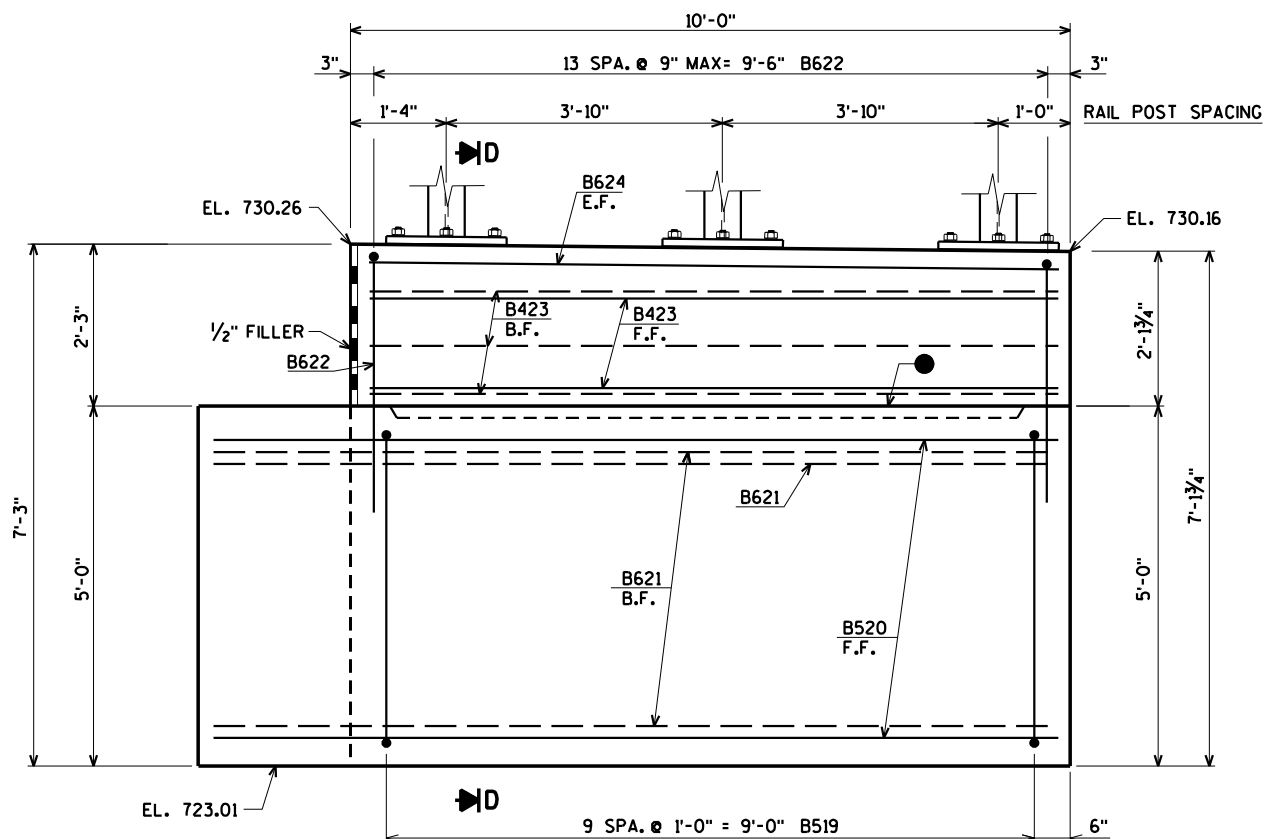
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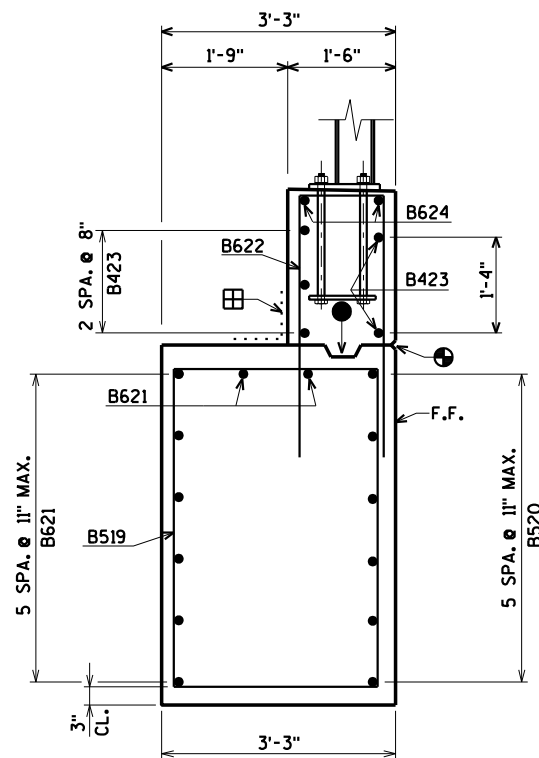
ELEVATION - WING 3



SECTION C



ELEVATION - WING 4



SECTION D

⊕ 3/4" "V" GROOVE ON FRONT FACE OF WINGWALL.

● OPT. KEYED CONST. JOINT - FORMED BY A SURFACED BEVELED 2" x 6".

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

E.F. DENOTES EACH FACE.

| NO.  | DATE | REVISION | BY              |
|--|------|----------|-----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |          |                 |
| STRUCTURE B-36-216                                 |      |          |                 |
| DRAWN BY   |      | CLS      | PLANS CK'D. CJM |
| EAST ABUTMENT<br>WINGS 3 & 4<br>DETAILS            |      |          | SHEET 8 OF 13   |

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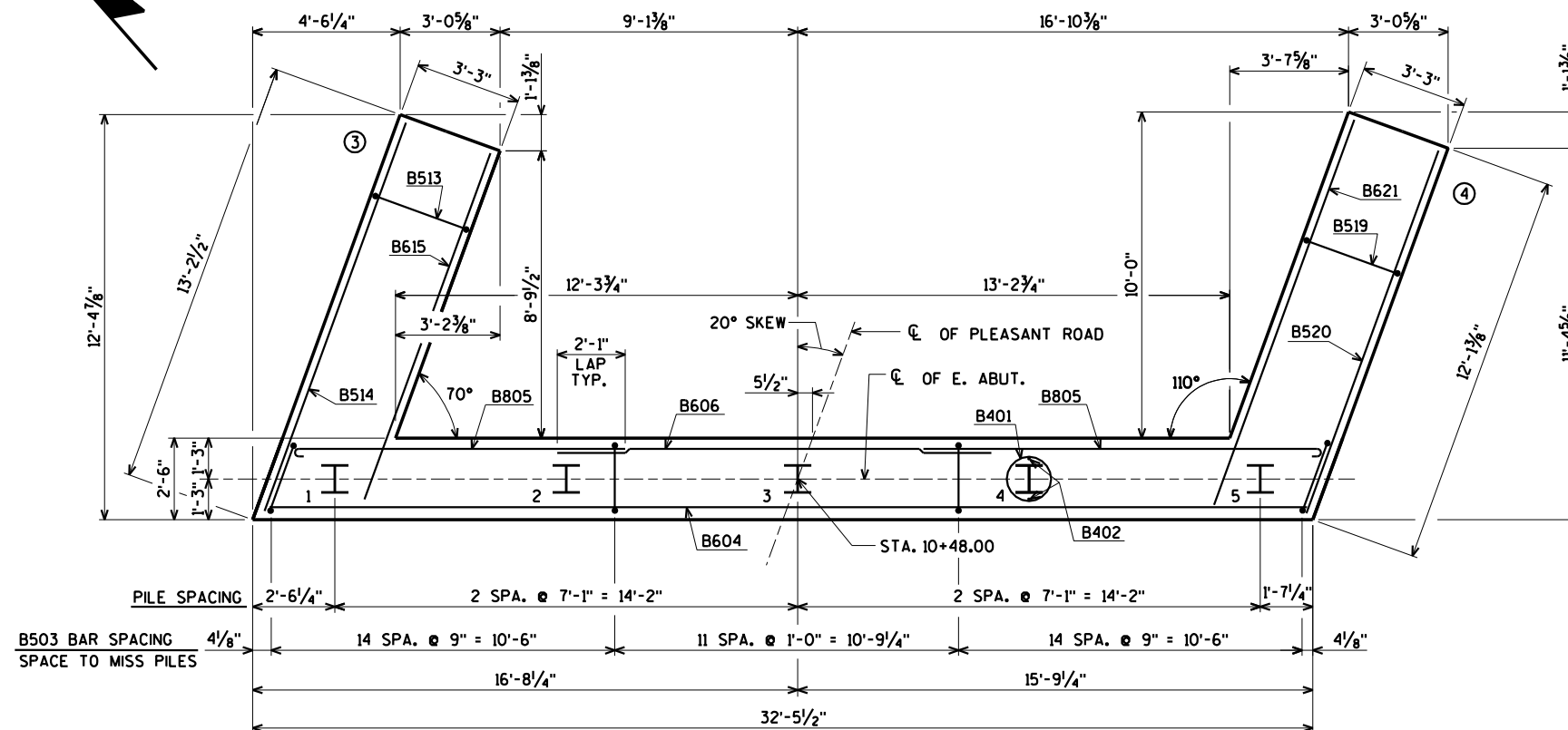
STATE PROJECT NUMBER

4317-08-71

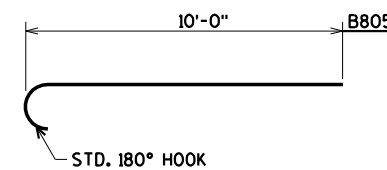
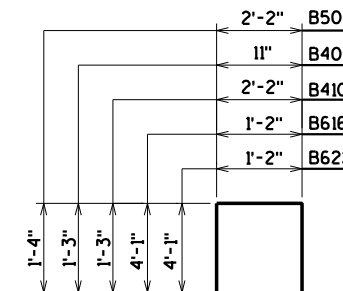
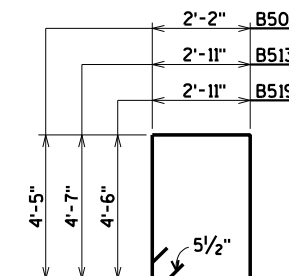
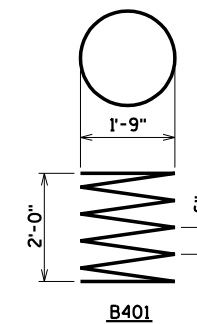
BILL OF BARS

| BAR NO. | COATED BAR | NO. REQ'D. | LENGTH | BENT BAR | BUNDLED BAR SERIES | 1,270# COATED<br>1,970# UNCOATED |
|---------|------------|------------|--------|----------|--------------------|----------------------------------|
|         |            |            |        |          |                    | LOCATION                         |
| B401    |            | 5          | 28-0   | X        |                    | BODY @ PILES                     |
| B402    |            | 10         | 2-3    |          |                    | BODY @ PILES                     |
| B503    |            | 40         | 13-10  | X        |                    | BODY VERT.                       |
| B604    |            | 11         | 32-0   |          |                    | BODY HORIZ.                      |
| B805    |            | 14         | 10-11  |          |                    | BODY HORIZ. @ WING B.F.          |
| B606    |            | 7          | 16-3   |          |                    | BODY HORIZ. BETW. WINGS B.F.     |
| B507    |            | 6          | 4-8    | X        |                    | BODY VERT. TOP                   |
| B408    |            | 3          | 5-9    |          |                    | BODY HORIZ. TOP                  |
| B409    |            | 20         | 3-3    | X        |                    | BODY VERT. TOP                   |
| B410    |            | 14         | 4-6    | X        |                    | BODY VERT. TOP @ WINGS           |
| B411    |            | 2          | 5-9    |          |                    | BODY HORIZ. TOP F.F. @ WINGS     |
| B412    |            | 2          | 32-0   |          |                    | BODY HORIZ. TOP                  |
| B513    | X          | 10         | 15-8   | X        |                    | WING 3 VERT.                     |
| B514    | X          | 6          | 12-9   |          |                    | WING 3 HORIZ. F.F.               |
| B615    | X          | 8          | 11-11  |          |                    | WING 3 HORIZ. B.F. & BODY TOP    |
| B616    | X          | 14         | 9-0    | X        |                    | WING 3 VERT.                     |
| B417    | X          | 5          | 9-7    |          |                    | WING 3 HORIZ. E.F.               |
| B618    | X          | 2          | 9-7    |          |                    | WING 3 HORIZ. E.F.               |
| B519    | X          | 10         | 15-6   | X        |                    | WING 4 VERT.                     |
| B520    | X          | 6          | 11-10  |          |                    | WING 4 HORIZ. F.F.               |
| B621    | X          | 8          | 11-11  |          |                    | WING 4 HORIZ. B.F. & BODY TOP    |
| B622    | X          | 14         | 9-0    | X        |                    | WING 4 VERT.                     |
| B423    | X          | 5          | 9-7    |          |                    | WING 4 HORIZ. E.F.               |
| B624    | X          | 2          | 9-7    |          |                    | WING 4 HORIZ. E.F.               |

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



PILE LAYOUT



FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE

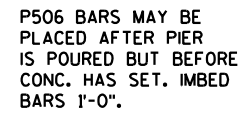
E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

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| STRUCTURE B-36-216                                 |      |             |               |
| DRAWN BY   | CLS  | PLANS CK'D. | CJM           |
| EAST ABUTMENT<br>DETAILS &<br>BILL OF BARS         |      |             | SHEET 9 OF 13 |



[illegible]

1'-0 1/2" RAD.

1'-5"

4 1/2"

1'-5"

2'-0"

2'-1"

P403

P404

P505



ORIGINAL PLANS PREPARED BY

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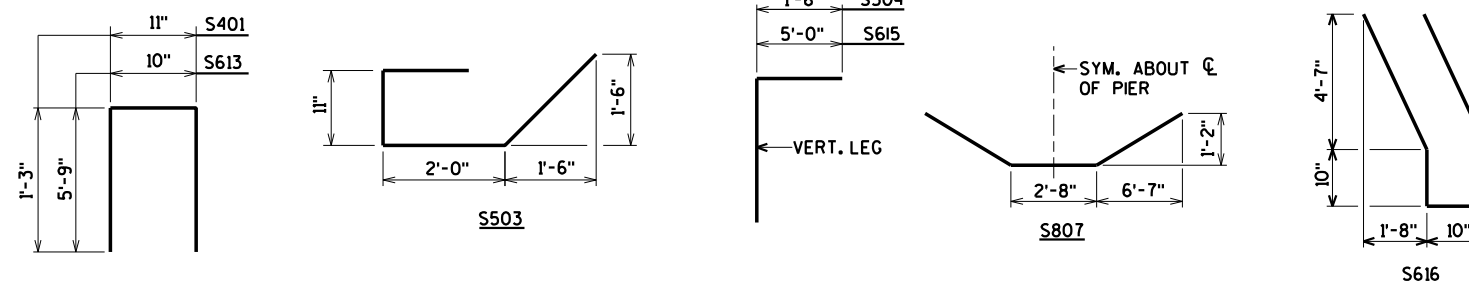
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| NO.  | DATE        | REVISION       | BY                 |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |             |                |                    |
| STRUCTURE B-36-216                                 |             |                |                    |
|  | DRAWN<br>BY | CLS            | PLANS<br>CK'D. CJM |
| PIER   |             | SHEET 10 OF 13 |                    |
|  |             |                |                    |



ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM.  
ANY TOLERANCES NECESSARY TO CORRECT  
CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

| BILL OF MATERIALS |            |            |        |          |         |            |                        |
|-------------------|------------|------------|--------|----------|---------|------------|------------------------|
| BAR. NO.          | COATED BAR | NO. REQ'D. | LENGTH | BENT BAR | BUNDLED | BAR SERIES | 34,570# COATED         |
|                   |            |            |        |          |         |            | LOCATION               |
| S401              | X          | 64         | 3-3    | X        |         |            | SLAB @ ABUT. NOTCH     |
| S402              | X          | 4          | 32-1   |          |         |            | SLAB @ ABUT. NOTCH     |
| S503              | X          | 62         | 6-1    | X        |         |            | SLAB @ ABUT.           |
| S504              | X          | 62         | 3-3    | X        |         |            | SLAB @ ABUT.           |
| S1005             | X          | 54         | 41-4   |          |         |            | SLAB LONG. BOT.        |
| S1006             | X          | 52         | 27-0   |          |         |            | SLAB LONG. BOT.        |
| S807              | X          | 27         | 16-0   | X        |         |            | SLAB LONG. BOT. @ PIER |
| S408              | X          | 52         | 32-1   |          |         |            | SLAB TRANS. BOT.       |
| S509              | X          | 44         | 32-1   |          |         |            | SLAB TRANS. BOT.       |
| S510              | X          | 87         | 32-1   |          |         |            | SLAB TRANS. TOP        |
| S511              | X          | 54         | 18-7   |          |         |            | SLAB LONG. TOP         |
| S912              | X          | 61         | 40-5   |          |         |            | SLAB LONG. TOP @ PIER  |
| S613              | X          | 52         | 12-0   | X        |         |            | SLAB @ RAIL POSTS      |
| S614              | X          | 96         | 6-0    |          |         |            | SLAB @ INT. RAIL POSTS |
| S615              | X          | 16         | 6-0    | X        |         |            | SLAB @ END RAIL POSTS  |
| S616              | X          | 4          | 12-0   | X        |         |            | SLAB @ END RAIL POSTS  |
|                   |            |            |        |          |         |            |                        |
|                   |            |            |        |          |         |            |                        |
|                   |            |            |        |          |         |            |                        |

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



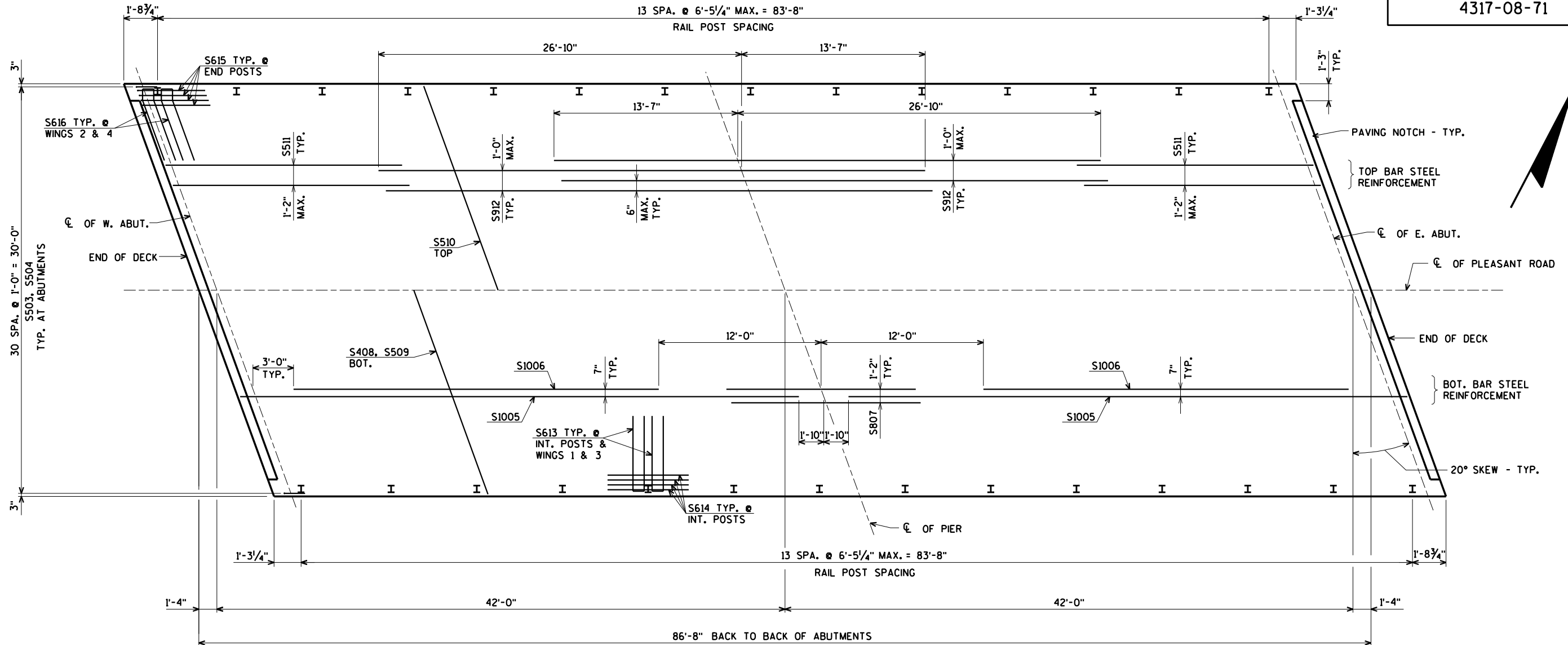
▲ DIMENSIONS MEASURED ALONG  $\mathbb{C}$  PLEASANT ROAD

|  |      |                |                    |
|--|------|----------------|--------------------|
|  |      |                |                    |
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| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |                    |
| STRUCTURE B-36-216                                 |      |                |                    |
| DRAWN BY   |      | CLS            | PLANS CK'D. C.J.M. |
| SUPERSTRUCTURE                                     |      | SHEET 11 OF 13 |                    |

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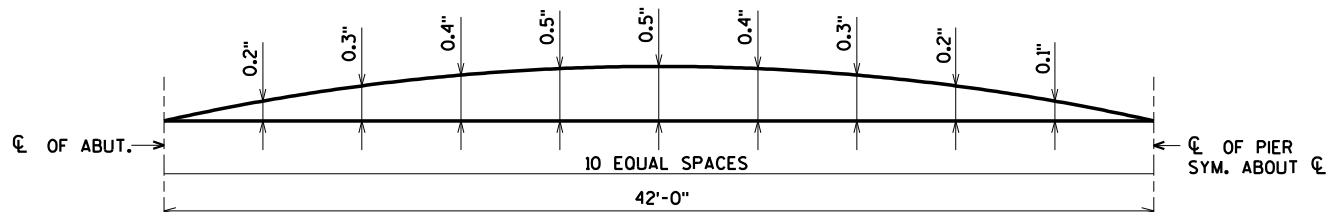


PLAN

TOP OF DECK ELEVATIONS

ELEVATIONS SHOWN ARE FINISHED DECK AND DO NOT INCLUDE ALLOWANCES OF DEAD LOAD DEFLECTION AND FUTURE CREEP.

| LOCATION        | CL OF W. ABUT. | 0.1    | 0.2    | 0.3    | 0.4    | 0.5    | 0.6    | 0.7    | 0.8    | 0.9    | CL OF PIER | 0.1    | 0.2    | 0.3    | 0.4    | 0.5    | 0.6    | 0.7    | 0.8    | 0.9    | CL OF E. ABUT. |
|-----------------|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|
| N. EDGE OF SLAB | 731.10         | 731.06 | 731.03 | 730.99 | 730.95 | 730.92 | 730.88 | 730.84 | 730.80 | 730.77 | 730.73     | 730.69 | 730.66 | 730.62 | 730.58 | 730.55 | 730.51 | 730.47 | 730.44 | 730.40 | 730.36         |
| CL OF STRUCTURE | 731.36         | 731.32 | 731.28 | 731.25 | 731.21 | 731.17 | 731.14 | 731.10 | 731.06 | 731.02 | 730.99     | 730.95 | 730.91 | 730.88 | 730.84 | 730.80 | 730.77 | 730.73 | 730.69 | 730.65 | 730.62         |
| S. EDGE OF SLAB | 731.00         | 730.97 | 730.93 | 730.89 | 730.86 | 730.82 | 730.78 | 730.74 | 730.71 | 730.67 | 730.63     | 730.60 | 730.56 | 730.52 | 730.49 | 730.45 | 730.41 | 730.37 | 730.34 | 730.30 | 730.26         |



CAMBER DIAGRAM

CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION & FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

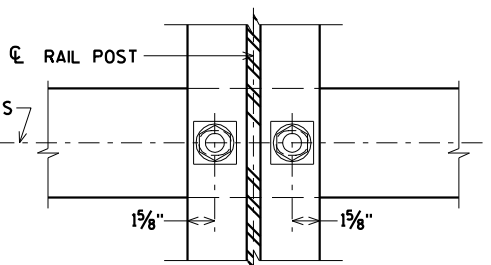
PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE CL OF ABUTMENTS AND 5/10 POINTS TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND CROWN OR CL.

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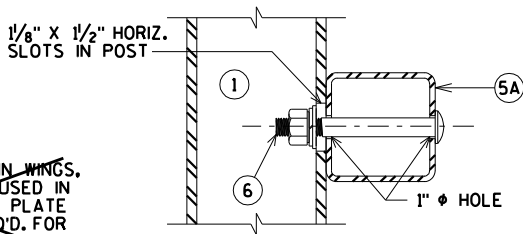
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| STRUCTURE B-36-216                                 |      |          |                 |
| DRAWN BY   |      | CLS      | PLANS CK'D. CJM |
| SUPERSTRUCTURE PLAN                                |      |          | SHEET 12 OF 13  |

LEGEND

- W6 x 25 WITH 1/8" x 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- PLATE 1/4" x 11 3/4" x 1'-8" WITH 1 5/8" x 1 5/8" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
- ASTM A449 - 1/6" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. ~~USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10 3/4" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)~~
- 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 5/8" DIA. HOLES FOR ANCHOR BOLTS NO. 3
- TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/8" x 1 5/8" x 1 5/8" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" x 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- 3/8" x 3 5/8" x 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- 3/8" x 2 5/8" x 2'-4" PLATE USED IN NO. 5. 3/8" x 3 5/8" x 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- 7/8" A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 5/8" x 1/4" LONGIT. SLOTTED HOLES AT FIELD JOINTS ~~AND 5/8" x 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.~~
- 7/8" DIA. x 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
- 3/8" x 8" x 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- 7/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- 1" HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.



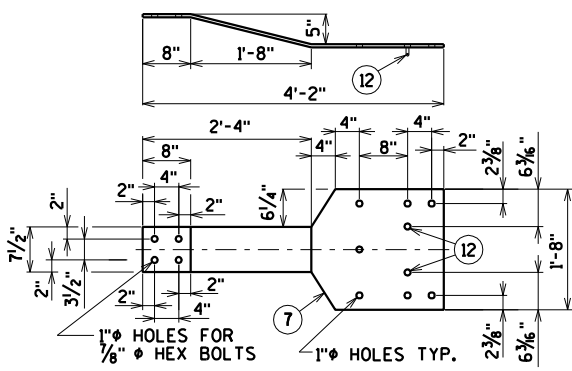
SECTION THRU POST WEB



SECTION THRU RAIL

NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

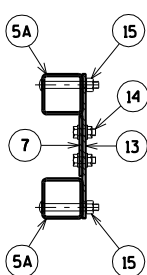
TYPICAL RAIL TO POST CONNECTIONS



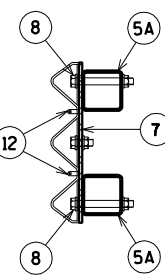
BACK-UP PLATE DETAIL  
(AT BEAM GUARD ATTACHMENT)

GENERAL NOTES

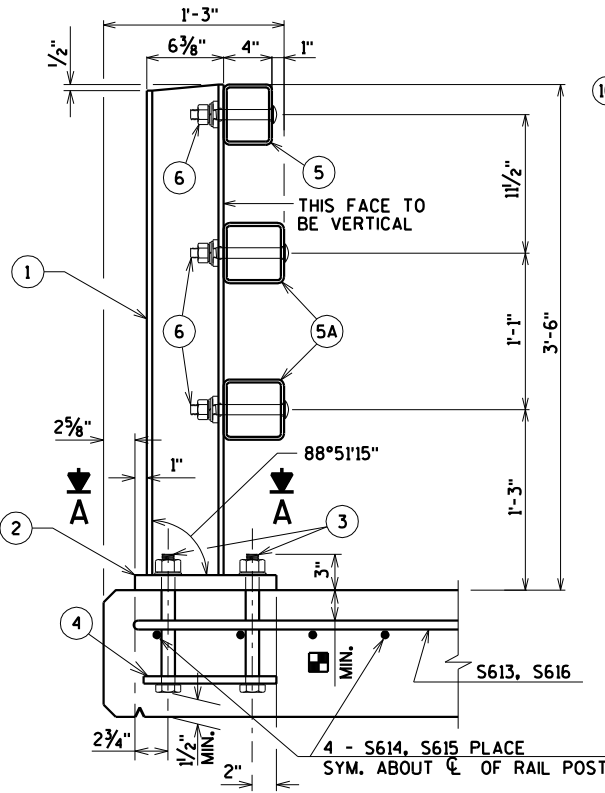
- BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-36-216" WHICH INCLUDES ALL ITEMS SHOWN.
- RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
- THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
- RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
- ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
- WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
- FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
- POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
- ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.
- WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.
- THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).
- PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.



SECTION C

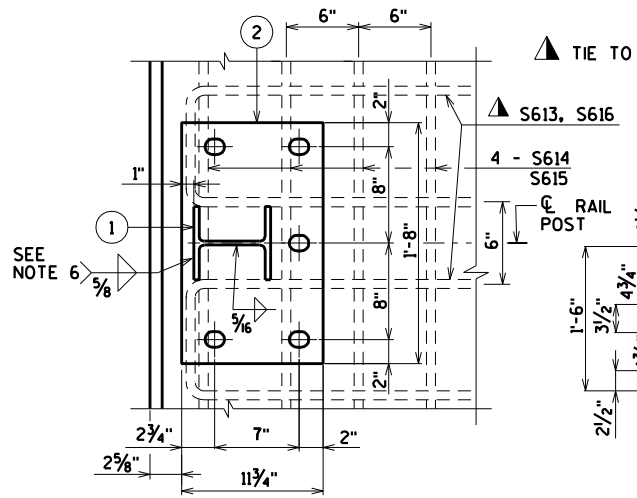


SECTION D

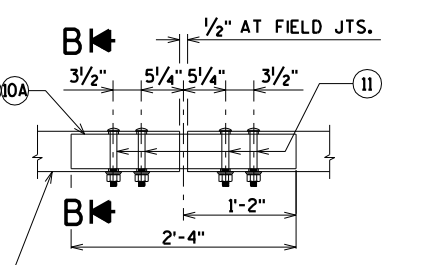


SECTION THRU RAILING ON DECK

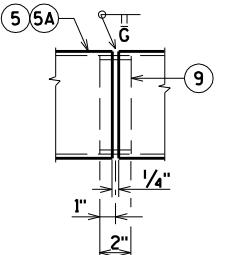
PLACE BELOW TOP MAT SLAB REINFORCEMENT.



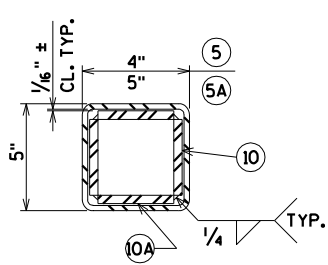
SECTION A



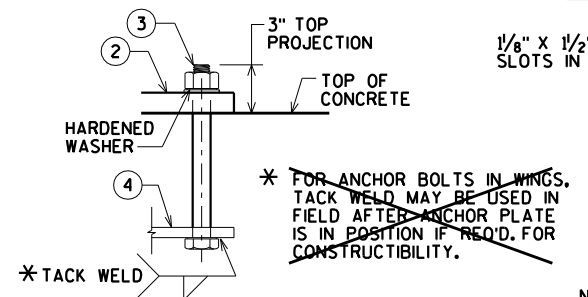
FIELD ERECTION JOINT DETAIL



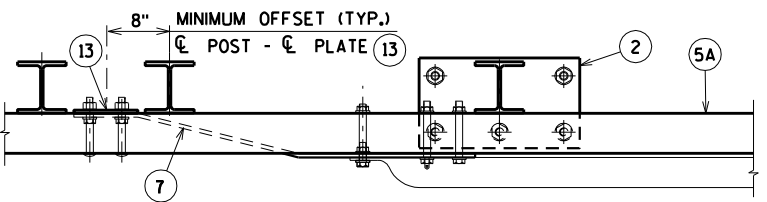
SHOP RAIL SPLICE DETAIL  
(LOCATION MUST BE SHOWN ON THE SHOP DRAWINGS)



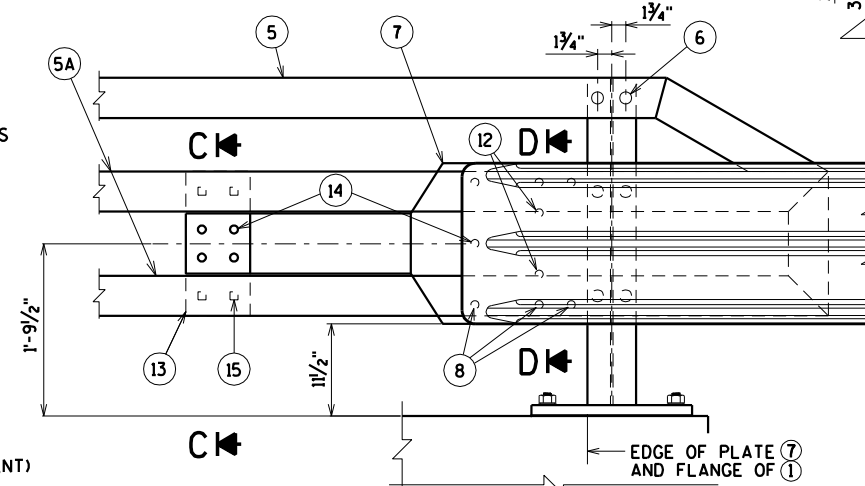
SECTION B



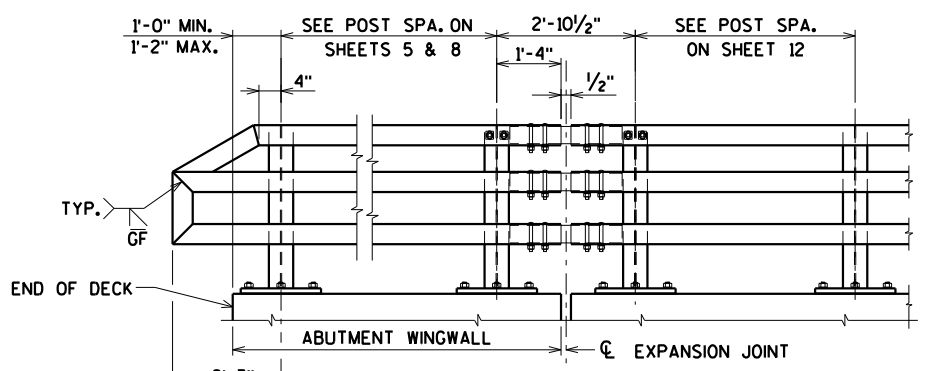
ANCHOR BOLTS



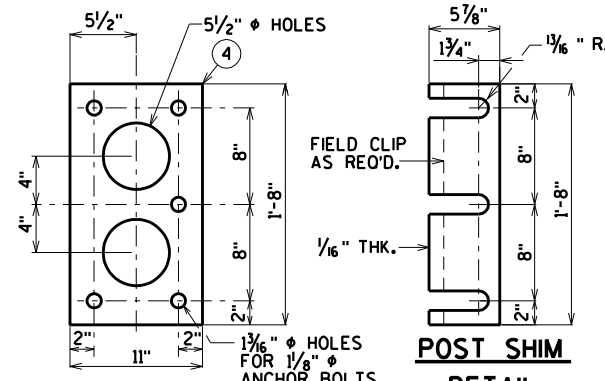
TOP VIEW AT END POST  
(THRIE BEAM RAIL ATTACHMENT)



DETAIL AT END POST  
(THRIE BEAM RAIL ATTACHMENT)



PART ELEVATION OF RAILING



ANCHOR PLATE  
(AT RAIL TO DECK CONNECTION)

POST SHIM  
DETAIL

ORIGINAL PLANS PREPARED BY  
**AYRES ASSOCIATES**  
3433 Oakwood Hills Parkway  
Eau Claire, WI 54701  
www.AyresAssociates.com

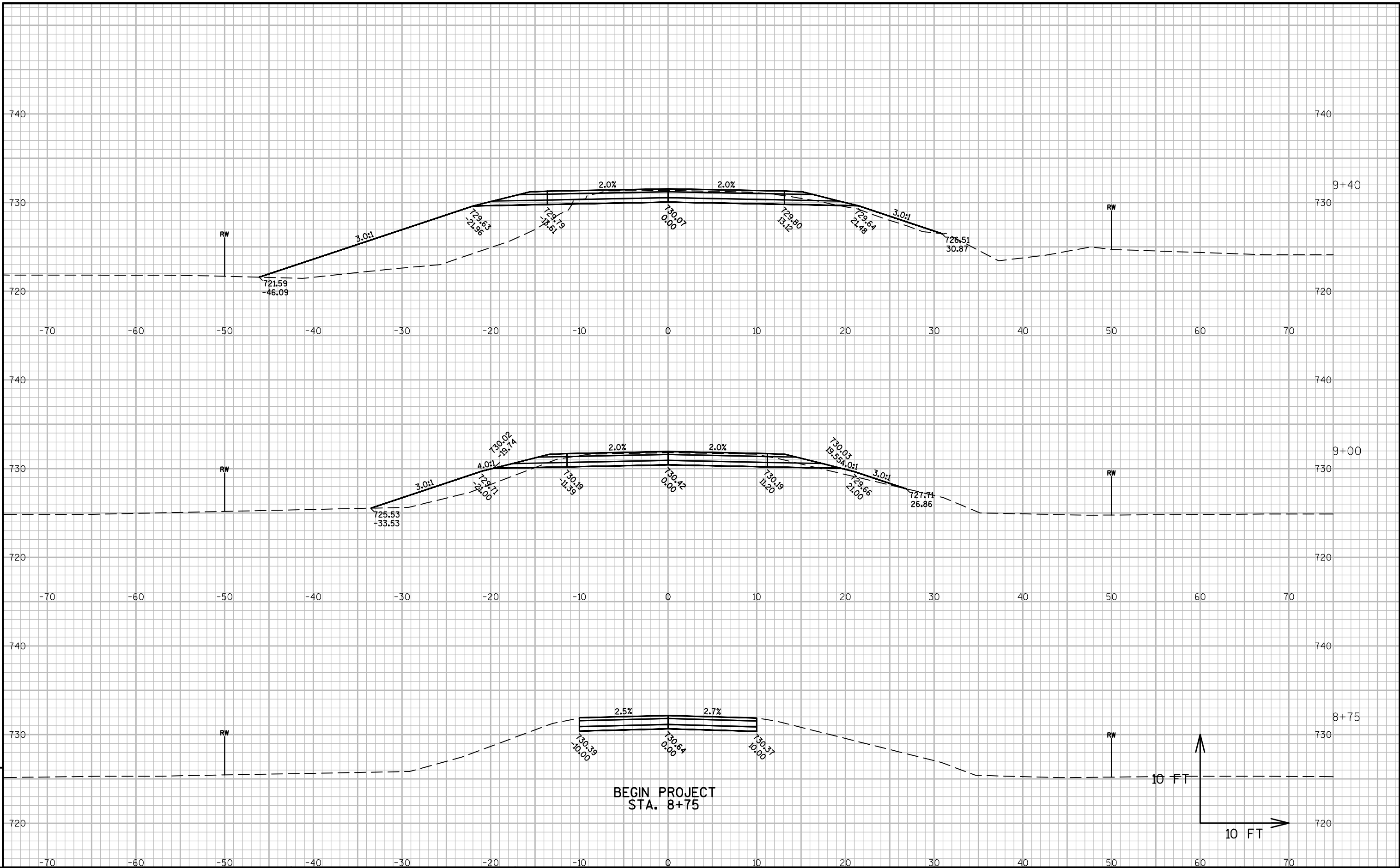
| NO.  | DATE | REVISION        | BY             |
|--|------|-----------------|----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                 |                |
| STRUCTURE B-36-216                                 |      |                 |                |
| DRAWN BY CLS                                       |      | PLANS CK'D. CJM |                |
| RAILING TUBULAR<br>TYPE M                          |      |                 | SHEET 13 OF 13 |

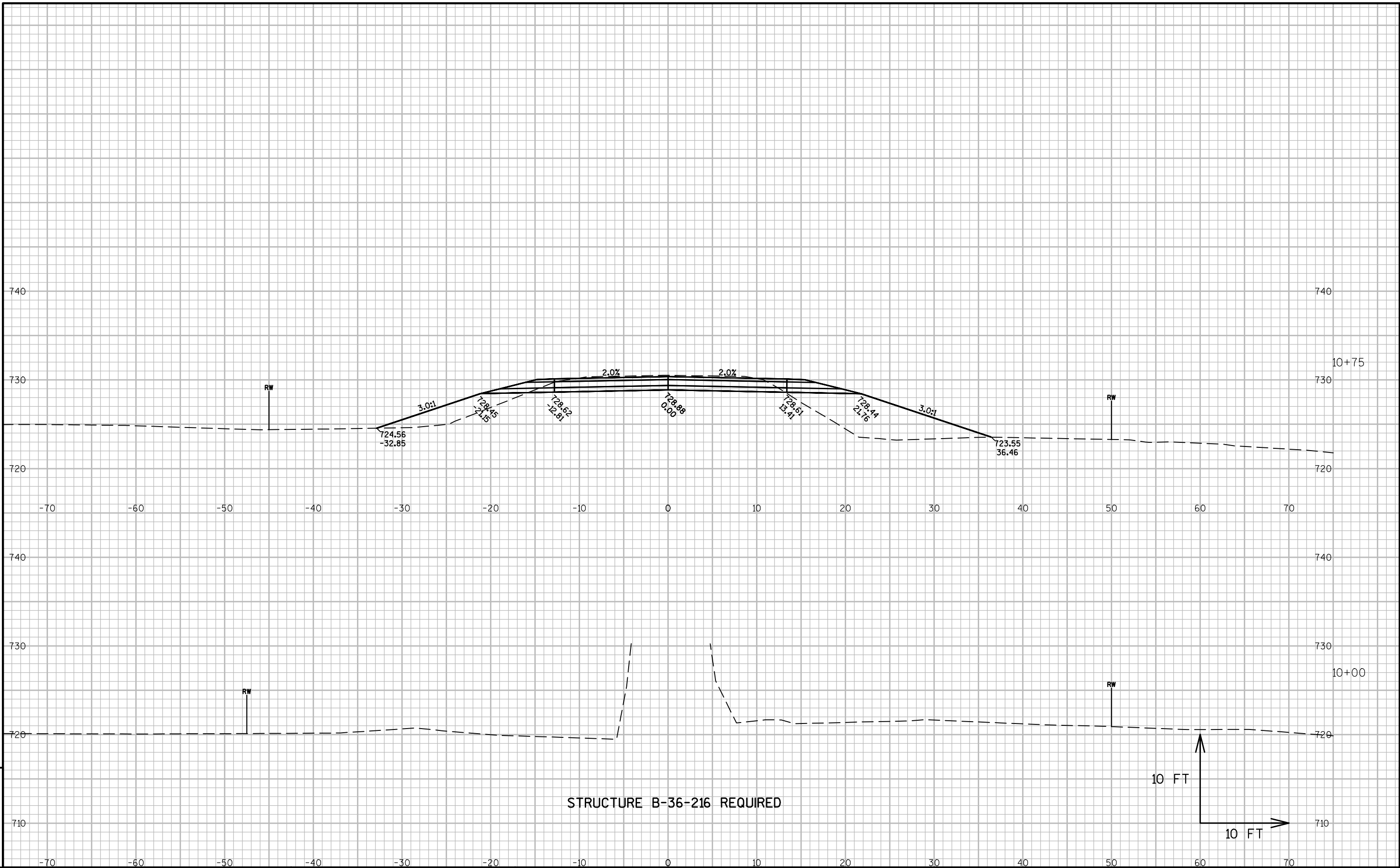
EARTHWORK - PLEASANT ROAD

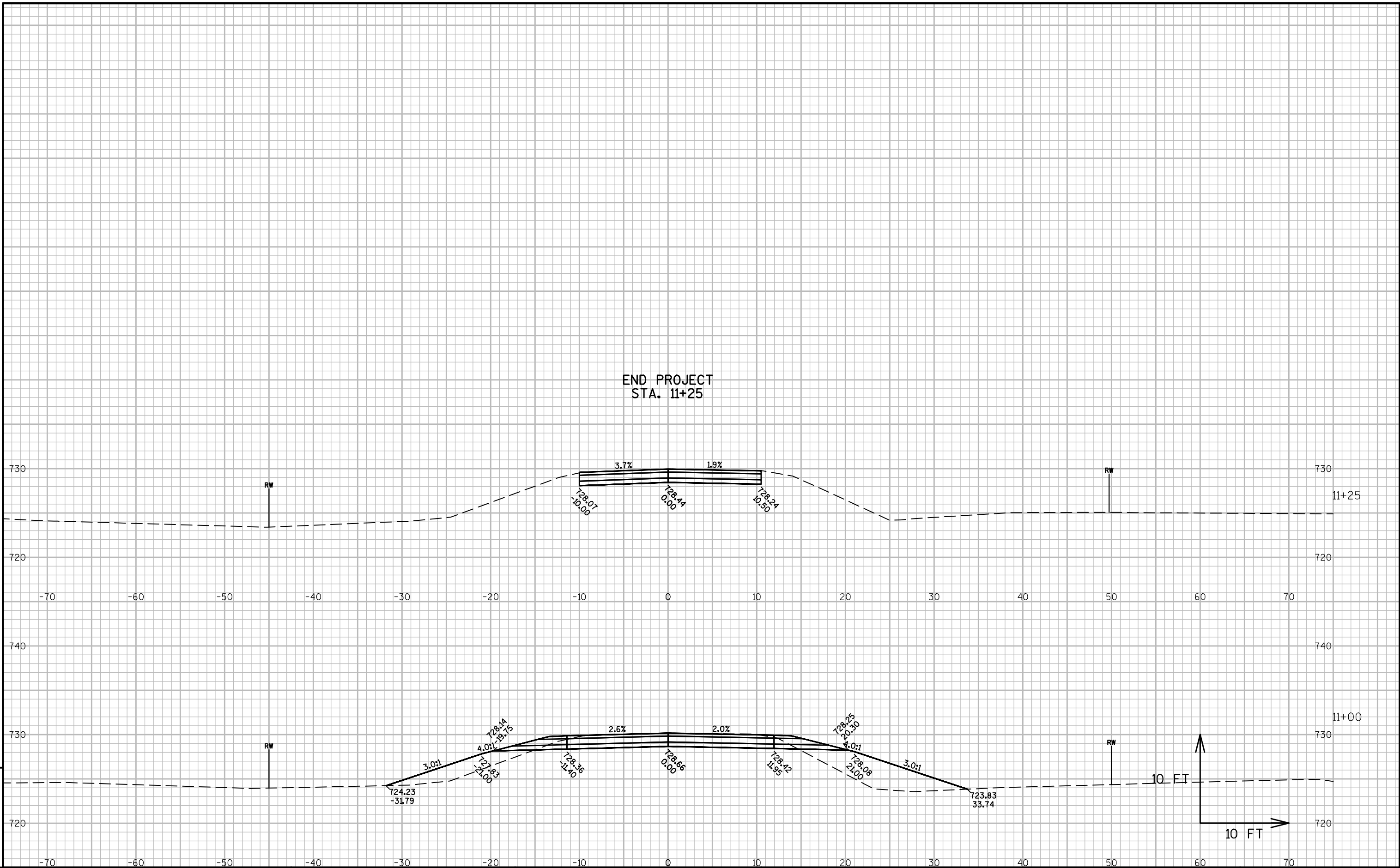
| STATION  | AREA (SF) |                               |        | Incremental Vol (CY) (Unadjusted) |                               |        | Cumulative Vol (CY) |                       | Mass Ordinate |
|----------|-----------|-------------------------------|--------|-----------------------------------|-------------------------------|--------|---------------------|-----------------------|---------------|
|          | Cut       | Unusable<br>Pavement Material | Fill   | Cut                               | Unusable<br>Pavement Material | Fill   | Cut<br>1.00         | Expanded Fill<br>1.30 |               |
|          | Note 1    | Note 2                        | Note 3 | Note 1                            | Note 2                        | Note 3 | Note 1              | Note 1                | Note 8        |
| 8+75.00  | 30.0      | 1.7                           | 0.0    | 0                                 | 0                             | 0      | 0                   | 0                     | 0             |
| 9+00.00  | 36.3      | 1.7                           | 26.3   | 31                                | 2                             | 12     | 31                  | 16                    | 13            |
| 9+40.00  | 32.6      | 1.7                           | 104.8  | 51                                | 3                             | 97     | 82                  | 142                   | -64           |
| 9+63.38  | 33.0      | 1.7                           | 104.0  | 28                                | 1                             | 89     | 110                 | 258                   | -154          |
| B-36-216 |           |                               |        |                                   |                               |        |                     |                       |               |
| 10+48.62 | 41.0      | 1.7                           | 83.2   | 0                                 | 0                             | 0      | 110                 | 258                   | -154          |
| 10+75.00 | 41.3      | 1.7                           | 83.6   | 40                                | 2                             | 82     | 150                 | 364                   | -221          |
| 11+00.00 | 39.0      | 1.7                           | 57.8   | 37                                | 2                             | 65     | 187                 | 449                   | -271          |
| 11+25.00 | 30.9      | 1.7                           | 0.0    | 32                                | 2                             | 27     | 219                 | 484                   | -275          |

21910372

|                                |   |
|--------------------------------|---|
| Notes:                         |   |
| 1 - Cut                        | Cut includes existing asphalt and base material         |
| 2 - Unusable Pavement Material | Does not show up in cross sections                      |
| 3 - Fill                       | Does not include Unusable Pavement Material Volume      |
| 8 - Mass Ordinate              | Cut - Unusable Pavement Material - (Fill * Fill Factor) |

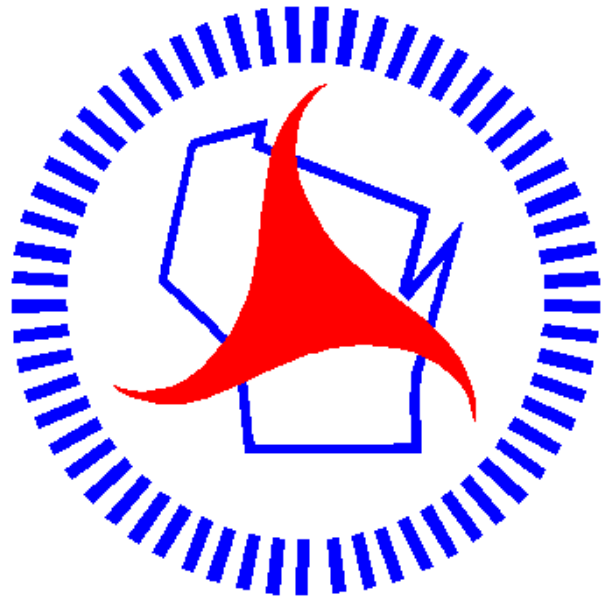








## Notes



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

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