



LIST OF STANDARD ABBREVIATIONS

|             |                              |              |                                  |             |                            |
|-------------|------------------------------|--------------|----------------------------------|-------------|----------------------------|
| ABUT        | Abutment                     | INV          | Invert                           | SALV        | Salvaged                   |
| AC          | Acre                         | IP           | Iron Pipe or Pin                 | SAN S       | Sanitary Sewer             |
| AGG         | Aggregate                    | IRS          | Iron Rod Set                     | SEC         | Section                    |
| AH          | Ahead                        | JT           | Joint                            | SHLDR       | Shoulder                   |
| <           | Angle                        | JCT          | Junction                         | SHR         | Shrinkage                  |
| ASPH        | Asphaltic                    | LHF          | Left–Hand Forward                | SW          | Sidewalk                   |
| AVG         | Average                      | L            | Length of Curve                  | S           | South                      |
| ADT         | Average Daily Traffic        | LIN FT or LF | Linear Foot                      | SQ          | Square                     |
| BAD         | Base Aggregate Dense         | LC           | Long Chord of Curve              | SF or SQ FT | Square Feet                |
| BK          | Back                         | MH           | Manhole                          | SY or SQ YD | Square Yard                |
| BF          | Back Face                    | MB           | Mailbox                          | STD         | Standard                   |
| BM          | Bench Mark                   | ML or M/L    | Match Line                       | SDD         | Standard Detail Drawings   |
| BR          | Bridge                       | N            | North                            | STH         | State Trunk Highways       |
| C or C/L    | Center Line                  | Y            | North Grid Coordinate            | STA         | Station                    |
| CC          | Center to Center             | OD           | Outside Diameter                 | SS          | Storm Sewer                |
| CTH         | County Trunk Highway         | PLE          | Permanent Limited Easement       | SG          | Subgrade                   |
| CR          | Creek                        |              |                                  | SE          | Superelevation             |
| CR          | Crushed                      | PT           | Point                            | SL or S/L   | Survey Line                |
| CY or CU YD | Cubic Yard                   | PC           | Point of Curvature               | SV          | Septic Vent                |
| CP          | Culvert Pipe                 | PI           | Point of Intersection            | T           | Tangent                    |
| C & G       | Curb and Gutter              | PRC          | Point of Reverse Curvature       | TEL         | Telephone                  |
| D           | Degree of Curve              | PT           | Point of Tangency                | TEMP        | Temporary                  |
| DHV         | Design Hour Volume           | POC          | Point On Curve                   | TI          | Temporary Interest         |
| DIA         | Diameter                     | POT          | Point on Tangent                 | TLE         | Temporary Limited Easement |
| E           | East                         | PVC          | Polyvinyl Chloride               |             | Ton                        |
| X           | East Grid Coordinate         | PCC          | Portland Cement Concrete         | t           | Town                       |
| ELEC        | Electric (al)                | LB           | Pound                            | T or TN     | Transition                 |
| EL or ELEV  | Elevation                    | PSI          | Pounds Per Square Inch           | TRANS       | Transit Line               |
| ESALS       | Equivalent Single Axle Loads | PE           | Private Entrance                 | TL or T/L   | Trucks (percent of)        |
|             |                              | R            | Radius                           | T           | Typical                    |
| EBS         | Excavation Below Subgrade    | RR           | Railroad                         | TYP         | Unclassified               |
| FF          | Face to Face                 | R            | Range                            | UNCL        | Underground Cable          |
| FE          | Field Entrance               | RL or R/L    | Reference Line                   | UG          | United States Highway      |
| F           | Fill                         | RP           | Reference Point                  | USH         | Variable                   |
| FG          | Finished Grade               | RCCP         | Reinforced Concrete Culvert Pipe | VAR         | Velocity or Design Speed   |
| FL or F/L   | Flow Line                    |              |                                  | V           | Vertical                   |
| FT          | Foot                         | REQ'D        | Required                         | VERT        | Vertical Curve             |
| FTG         | Footing                      | RES          | Residence or Residential         | VC          | Volume                     |
| GN          | Grid North                   | RW           | Retaining Wall                   | VOL         | Water Main                 |
| HT          | Height                       | RT           | Right                            | WM          | Water Valve                |
| CWT         | Hundredweight                | RHF          | Right–Hand Forward               | WV          | West                       |
| HYD         | Hydrant                      | R/W          | Right–of–Way                     | W           | Westbound                  |
| INL         | Inlet                        | R            | River                            | WB          | Yard                       |
| ID          | Inside Diameter              | RD           | Road                             | YD          |                            |
|             |                              | RDWY         | Roadway                          |             |                            |

GENERAL NOTES

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

NO TREES OR SHRUBS ARE TO BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE FIRST BEEN INDICATED FOR REMOVAL BY THE ENGINEER IN THE FIELD.

EXCAVATION BELOW SUBGRADE (EBS) IS NOT USED TO BALANCE YARDAGE, AND IS NOT SHOWN ON THE CROSS SECTIONS BUT IS MEASURED AND PAID FOR AS COMMON EXCAVATION. EXACT LOCATIONS OF EBS WILL BE DETERMINED BY THE ENGINEER.

DISTURBED AREAS SHOWN WITHIN THE RIGHT–OF–WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS ARE TO BE FERTILIZED (TYPE B), SEEDED (USE SEED MIX NO. 20), AND MULCHED AS DIRECTED BY THE ENGINEER. ALL POST CONSTRUCTION WET AREAS SHALL BE SEEDED WITH SEEDING MIXTURE NO. 60.

WHEN THE QUANTITY OF THE ITEM OF BASE AGGREGATE DENSE OR ASPHALTIC SURFACE IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE COURSE SHOWN ON THE PLANS IS APPROXIMATE, AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER IN THE FIELD.

SILT FENCE, TEMPORARY DITCH CHECKS, AND CULVERT PIPE CHECKS SHALL BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER IN THE FIELD. SILT FENCE SHALL BE PLACED PRIOR TO CONSTRUCTION AND IN PLACE PRIOR TO STRUCTURE REMOVAL.

MULCH ALL MAINLINE SLOPES AS DIRECTED BY THE ENGINEER IN THE FIELD.

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

FILL EXPANSION IS VARIABLE AND IS ESTIMATED AT 25%.

ADJUST DITCH GRADING AS NECESSARY TO FIT FIELD CONDITIONS AND AS DIRECTED BY THE ENGINEER.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

ASPHALTIC SURFACE QUANTITIES WERE CALCULATED USING 115 LB/SY/IN. 4–INCHES OF ASPHALTIC SURFACE SHALL BE CONSTRUCTED WITH A 1 3/4–INCH UPPER LAYER AND 2 1/4–INCH LOWER LAYER.

TACK COAT QUANTITIES WERE CALCULATED USING A 0.050 GAL/SY APPLICATION RATE.

CURVE DATA IS BASED ON THE ARC DEFINITION.

THE EXACT LOCATION OF PRIVATE ENTRANCES TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

CURB AND GUTTER ELEVATIONS ARE GIVEN TO THE FLANGE LINE UNLESS OTHERWISE NOTED.

REMOVAL OF ASPHALTIC SURFACES WHERE AN ABUTTING ASPHALTIC SURFACE IS TO REMAIN IN PLACE SHALL REQUIRE A SAWCUT MEETING THE APPROVAL OF THE ENGINEER IN THE FIELD.

INLET & OUTLET ELEVATIONS FOR CULVERT PIPES AS SHOWN ON THE PLAN MAY BE ADJUSTED TO FIT EXISTING FIELD CONDITIONS.

ALL RADII DIMENSIONS ARE MEASURED TO EDGE OF ASPHALT.

THE LOCATION OF ALL PERMANENT SIGNING SHALL BE VERIFIED BY THE ENGINEER IN THE FIELD PRIOR TO PLACEMENT.

ELEVATIONS ON THE PLAN ARE REFERENCED TO GLENCOE EAST GPS STATION (PID DK 5105). THE STATION IS A 40 CM DIAMETER CONCRETE POST LOCATED 29.9 FT. EAST OF THE CENTERLINE OF COUNTY HIGHWAY C, LOCATED 118.1 FT. SOUTH OF A FIELD ENTRANCE, 87.3 FEET NORTHEAST OF A POWER POLE (NO. 5E25W16), 3.3 FEET WEST OF AN AGRICULTURAL FIELD AND SURROUNDED BY 3 4X4 WITNESS POSTS. STATION GLENCOE EAST GPS IS LOCATED IN THE NORTHWEST QUARTER OF SECTION 25, TOWN 21 NORTH, RANGE 10 WEST, TOWN OF GLENCOE, BUFFALO COUNTY, WI.

WETLANDS ARE PRESENT IN THE PROJECT LIMITS. THE CONTRACTOR SHALL NOT OPERATE EQUIPMENT BEYOND THE SLOPE INTERCEPTS FROM STA. 10+00 – STA. 12+04, LT. AND STA. 12+51 – STA. 16+50, RT.

CONTACTS

DESIGN CONSULTANT

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DNR LIAISON

STATE OF WISCONSIN  
DNR SERVICE CENTER  
3550 MORMON COULEE RD  
LACROSSE, WI 54601  
ATTN: KAREN KALVELAGE  
PHONE: (608) 785-9115  
EMAIL: Karen.Kalvelage@wisconsin.gov

BUFFALO COUNTY HIGHWAY DEPARTMENT

DAVID BREVICK, COUNTY HIGHWAY COMMISSIONER  
407 SOUTH SECOND STREET  
ALMA, WI 54610  
PH: (608) 685–6226  
EMAIL: dave.brevick@buffalocounty.com

UTILITIES

ELECTRIC

RIVERLAND ENERGY COOPERATIVE  
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TELEPHONE

CENTURYLINK  
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LA CROSSE, WI 54601  
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EMAIL: brian.stelplugh@centurylink.com

DIGGERS

HOTLINE

Dial 811

or (800) 242-8511

www.DiggersHotline.com

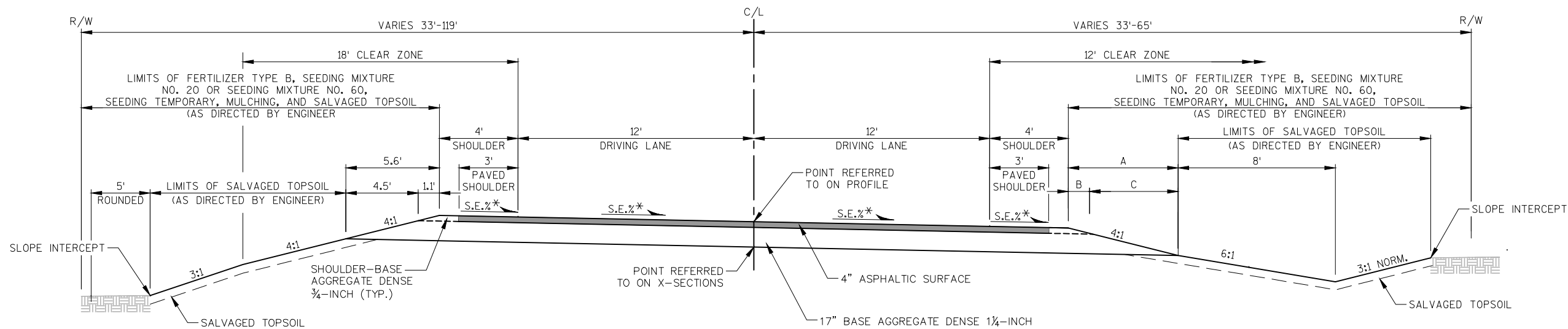
\* DENOTES UTILITY IS NOT A MEMBER OF DIGGERS HOTLINE



TYPICAL EXISTING SECTION

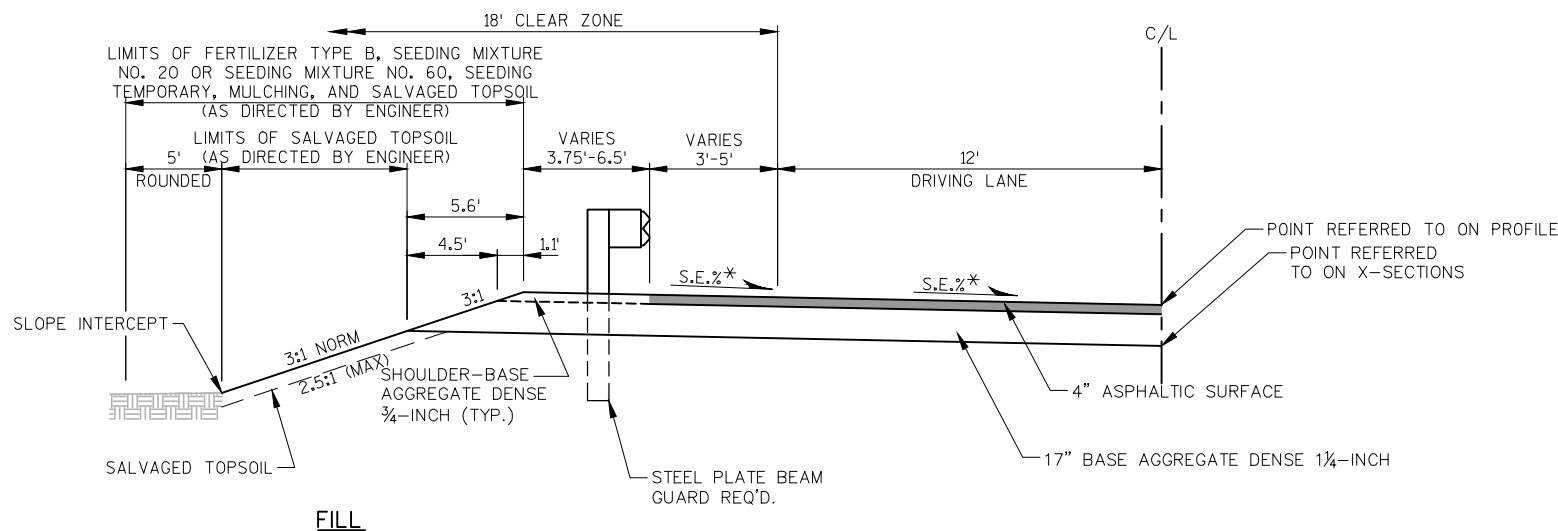
TYPICAL EXISTING SECTION

11



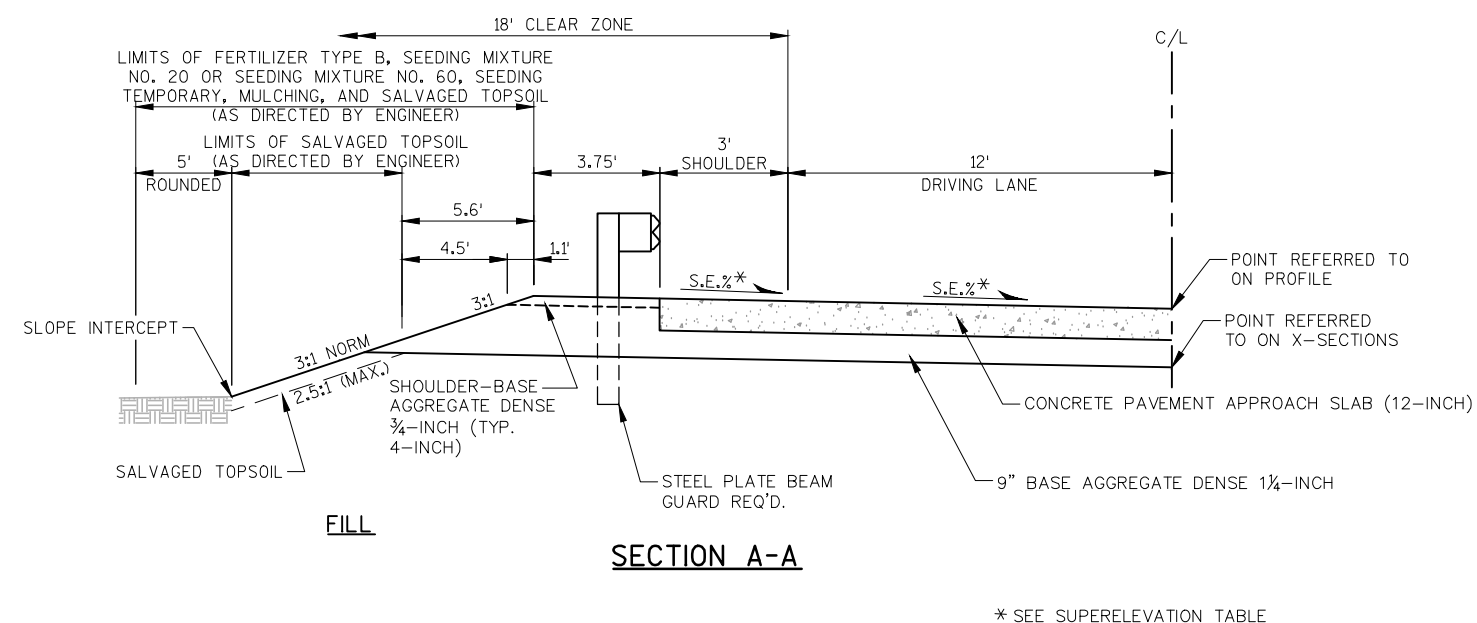
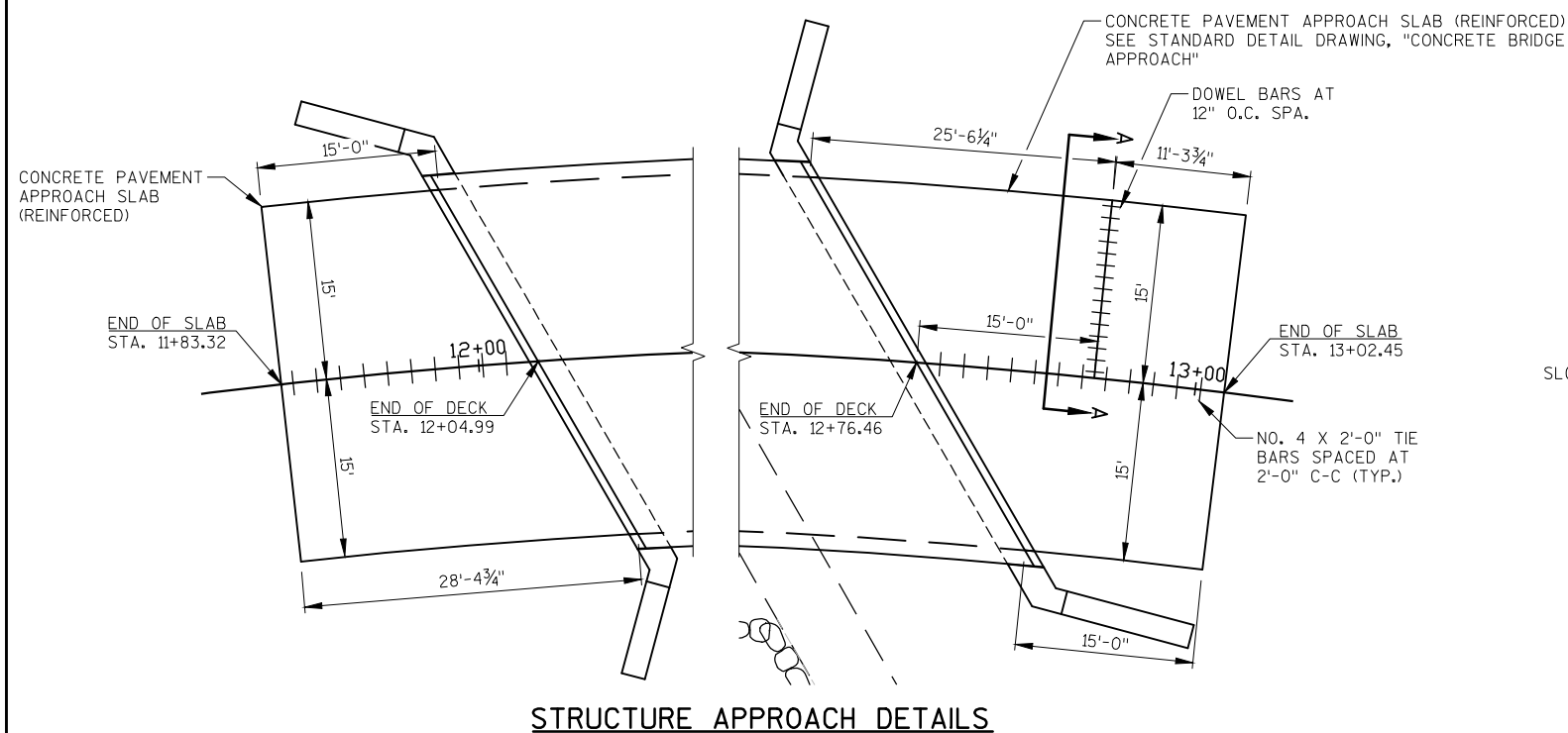
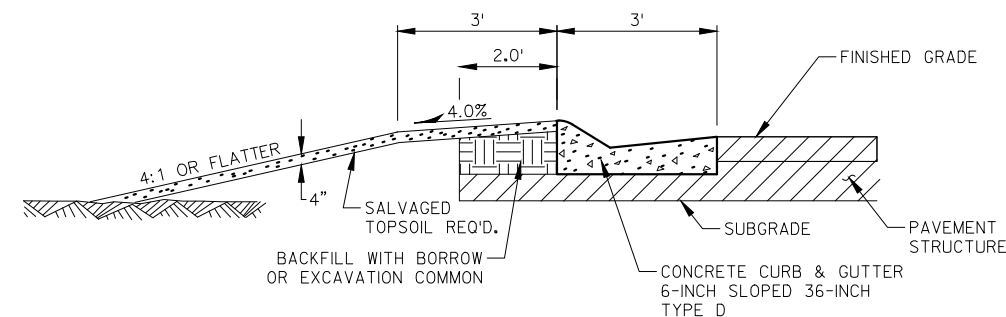
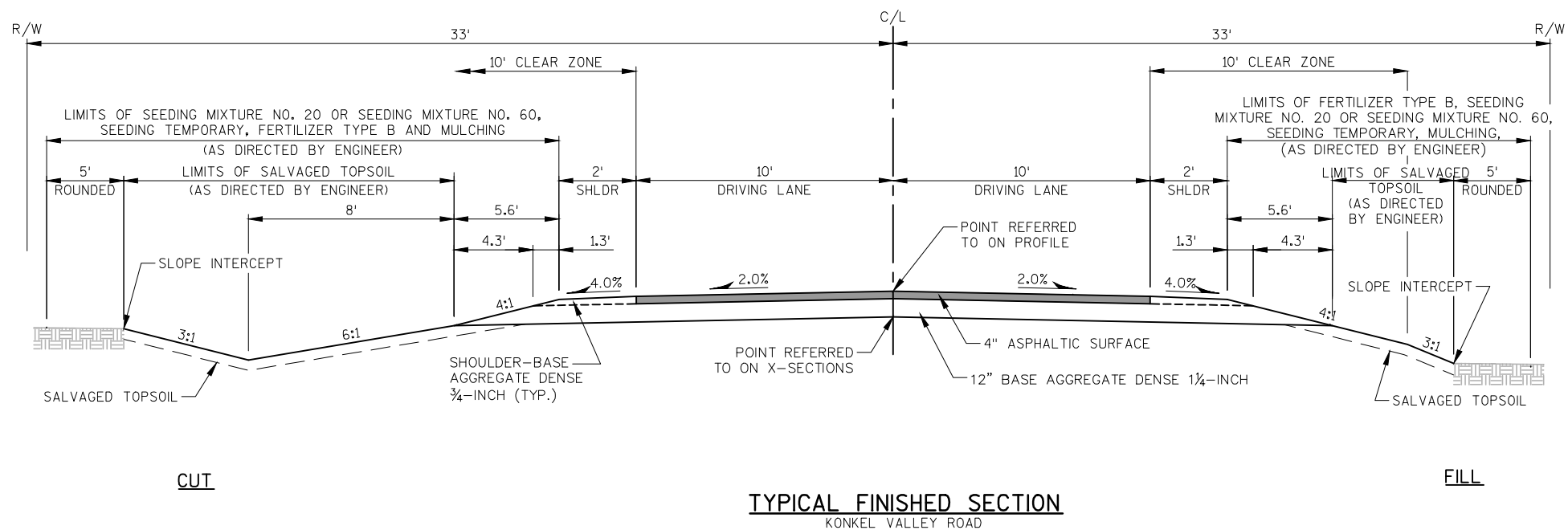
THE LOW SIDE SHOULDER SLOPE ON SUPERELEVATED SECTIONS EQUALS THE SUPERELEVATION WHEN THE SUPERELEVATION IS GREATER THAN 0.04 FT./FT. IF THE SUPERELEVATION IS LESS THAN OR EQUALS 0.04 FT./FT., THEN THE LOW SIDE SHOULDER SLOPE IS 0.04 FT./FT. THE HIGH SIDE SHOULDER SLOPE ON THE SUPERELEVATED SECTIONS EQUALS THE SUPERELEVATION.

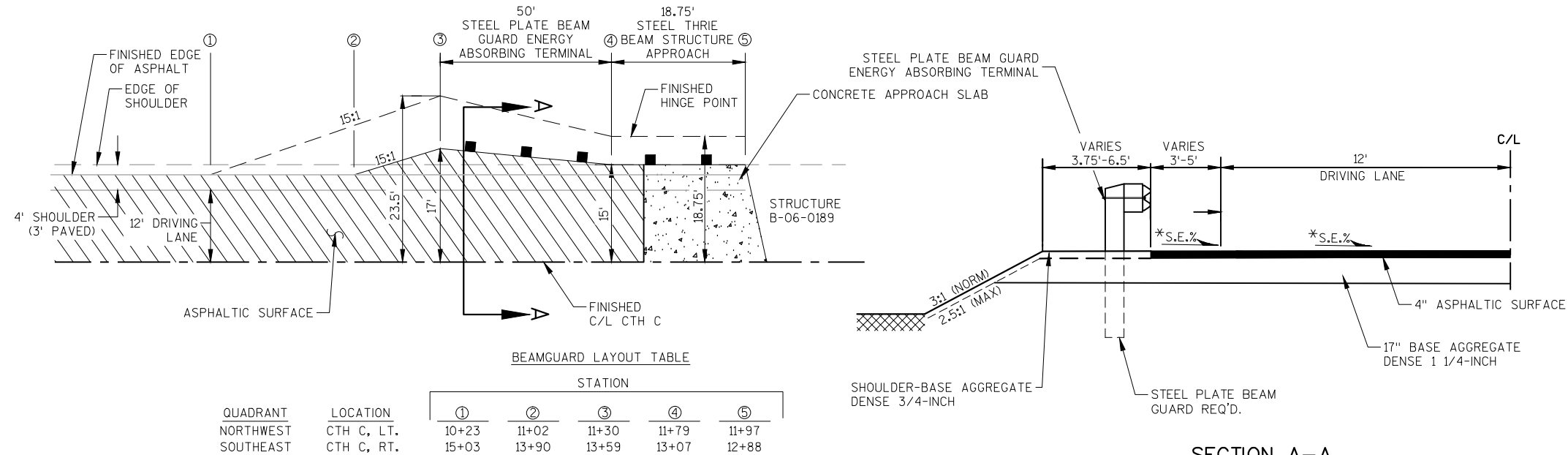
\* SEE SUPERELEVATION TABLE



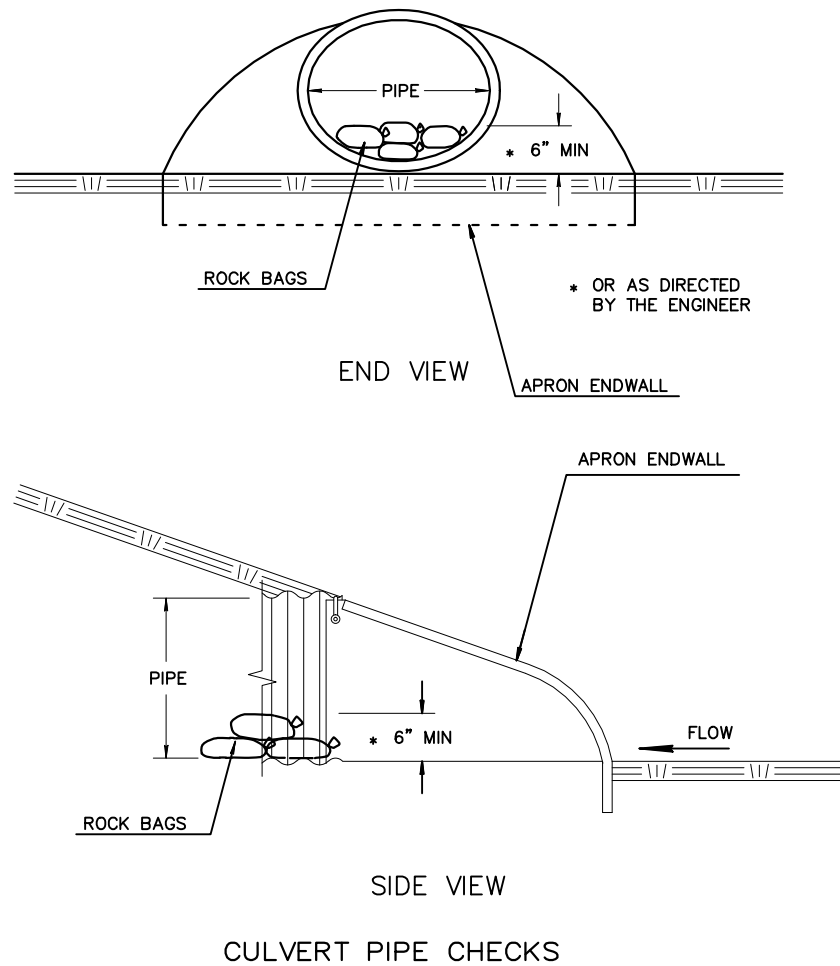
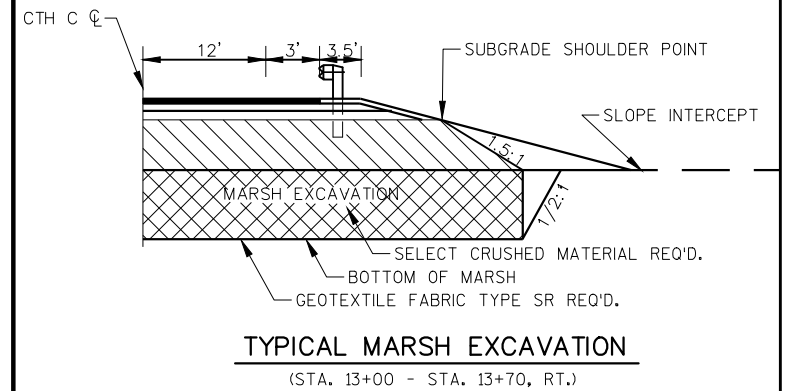
**SUPERELEVATION TABLE**

| STATION  | LEFT           | RIGHT          | "A" "B" "C" |       |       |
|----------|----------------|----------------|-------------|-------|-------|
|          |                |                | (FT.)       | (FT.) | (FT.) |
| 10+00    | MATCH EXISTING | MATCH EXISTING | 7.5         | 1.3   | 6.2   |
| 10+50    | 0.40           | 2.00           | 7.5         | 1.3   | 6.2   |
| 11+00    | 2.38           | 2.38           | 7.7         | 1.5   | 6.2   |
| 11+50    | 5.16           | 5.16           | 9.2         | 1.7   | 7.5   |
| 11+65    | 6.00           | 6.00           | 9.2         | 1.7   | 7.5   |
| 12+00    | 6.00           | 6.00           | 9.2         | 1.7   | 7.5   |
| 12+04.99 | 6.00           | 6.00           | 9.2         | 1.7   | 7.5   |
| 12+76.46 | 6.00           | 6.00           | 9.2         | 1.7   | 7.5   |
| 12+50    | 6.00           | 6.00           | 9.2         | 1.7   | 7.5   |
| 13+00    | 6.00           | 6.00           | 9.2         | 1.7   | 7.5   |
| 13+50    | 6.00           | 6.00           | 9.2         | 1.7   | 7.5   |
| 14+00    | 6.00           | 6.00           | 9.2         | 1.7   | 7.5   |
| 14+50    | 6.00           | 6.00           | 9.2         | 1.7   | 7.5   |
| 14+85    | 6.00           | 6.00           | 9.2         | 1.7   | 7.5   |
| 15+00    | 5.33           | 5.33           | 9.2         | 1.7   | 7.5   |
| 15+50    | 3.12           | 3.12           | 8.0         | 1.5   | 6.5   |
| 16+00    | 0.91           | 2.00           | 7.5         | 1.3   | 6.2   |
| 16+50    | MATCH EXISTING | MATCH EXISTING | 7.5         | 1.3   | 6.2   |

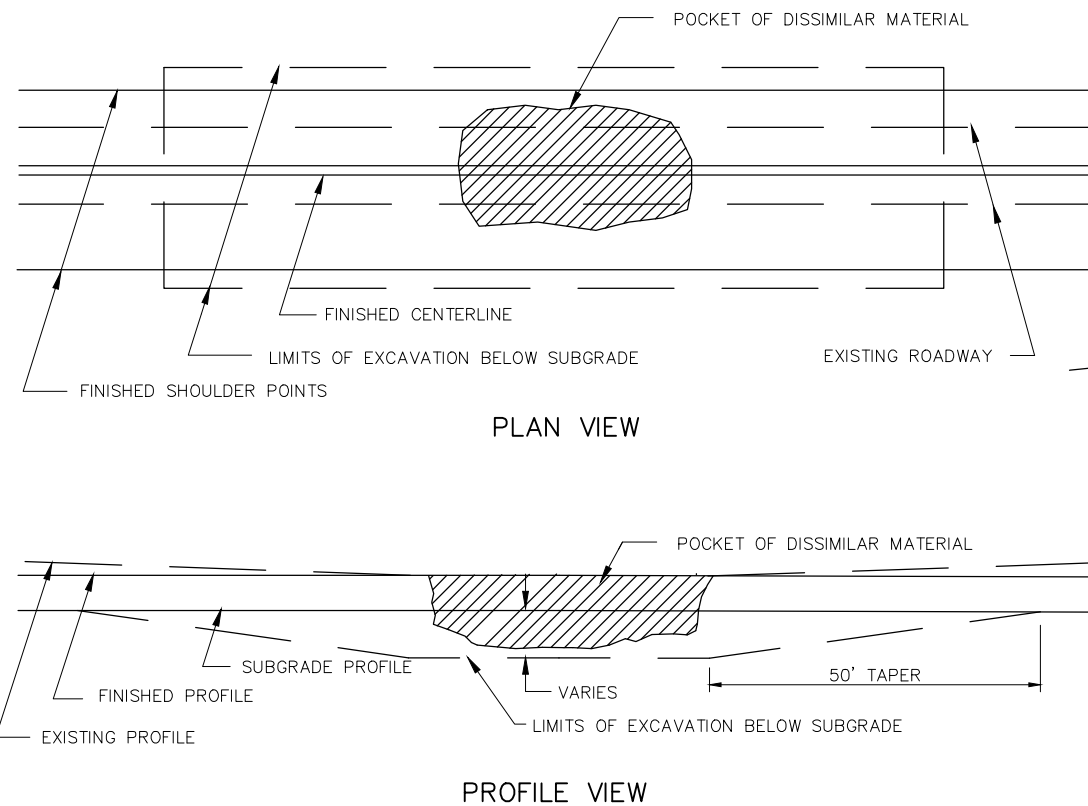




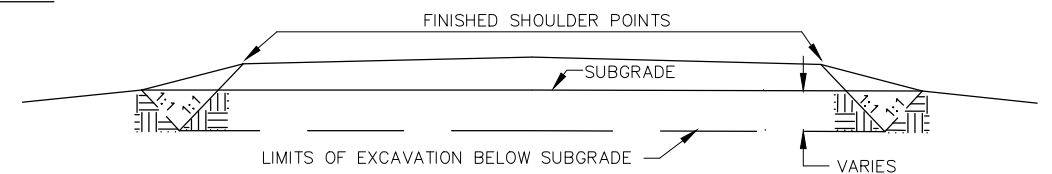
BEAMGUARD LAYOUT DETAIL



CULVERT PIPE CHECKS

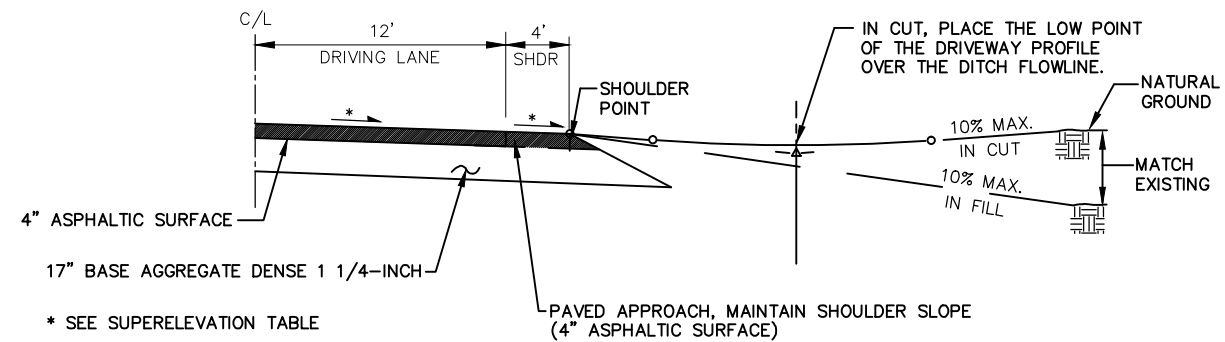


EXCAVATION BELOW SUBGRADE (E.B.S.)

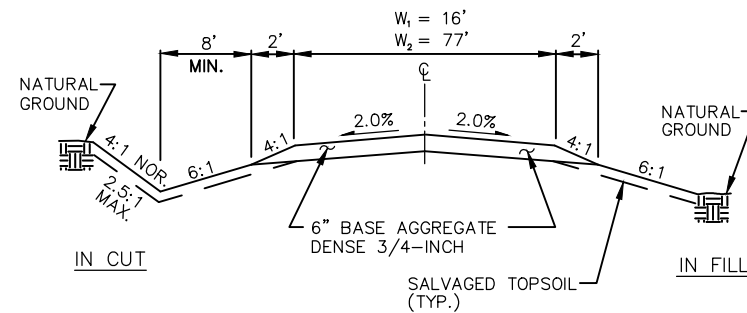


CROSS SECTION VIEW

1. EXACT LOCATION OF E.B.S. (EXCAVATION BELOW SUBGRADE) SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
2. E.B.S. AREA TO BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE ENGINEER. BACKFILL MUST BE HOMOGENEOUS WITH ADJOINING FILL MATERIAL.
3. THE FILL SECTION WITHIN 100' OF THE MOUTH OF THE CUT MUST BE KEPT 2' BELOW SUBGRADE UNTIL E.B.S. IS COMPLETED. LATERAL LIMITS OF EXCAVATION SHALL BE THE SUBGRADE SHOULDER POINTS.

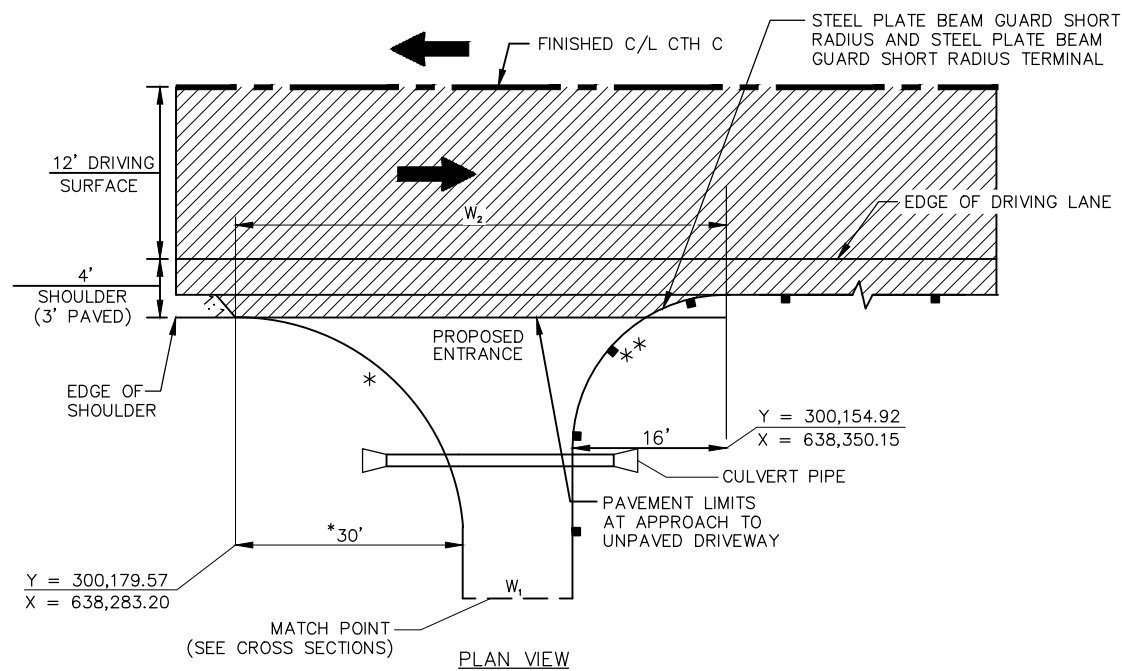


TYPICAL P.E. PROFILE



TYPICAL CROSS-SECTION FOR P.E.

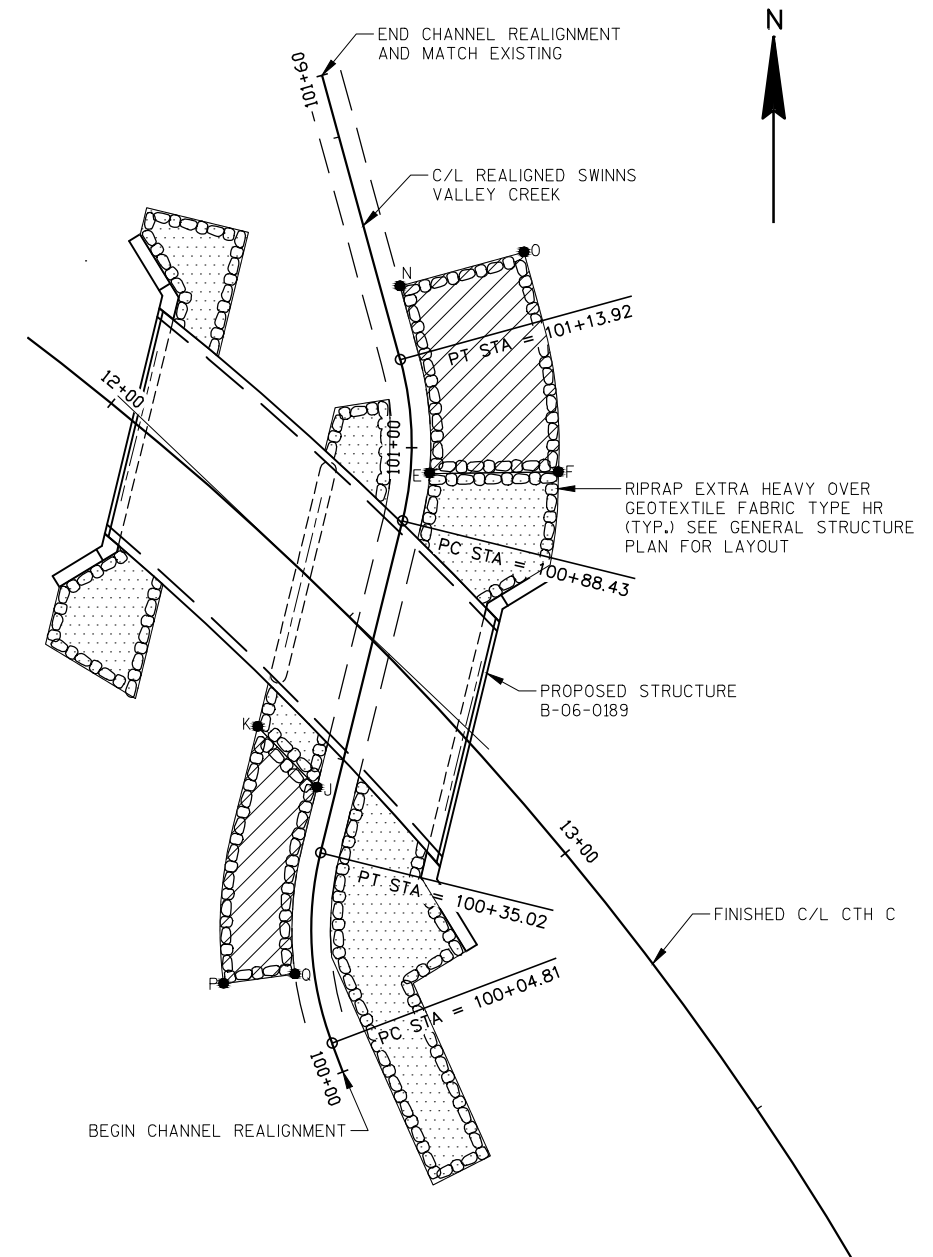
P.E. - STA. 11+44, RT.



APPROACH AT P.E.

TYPICAL PRIVATE ENTERANCE (P.E.) DETAILS

LIMITS OF ASPHALTIC SURFACE

\* RADIUS = 30' W<sub>1</sub> = 16'\*\* RADIUS = 16' W<sub>2</sub> = 77'

RIPRAP LAYOUT DETAIL

CATEGORY 010 RIPRAP-EXTRA HEAVY OVER GEOTEXTILE FABRIC TYPE HR (TYP.)

CATEGORY 020 RIPRAP-EXTRA HEAVY OVER GEOTEXTILE FABRIC TYPE HR (TYP.)

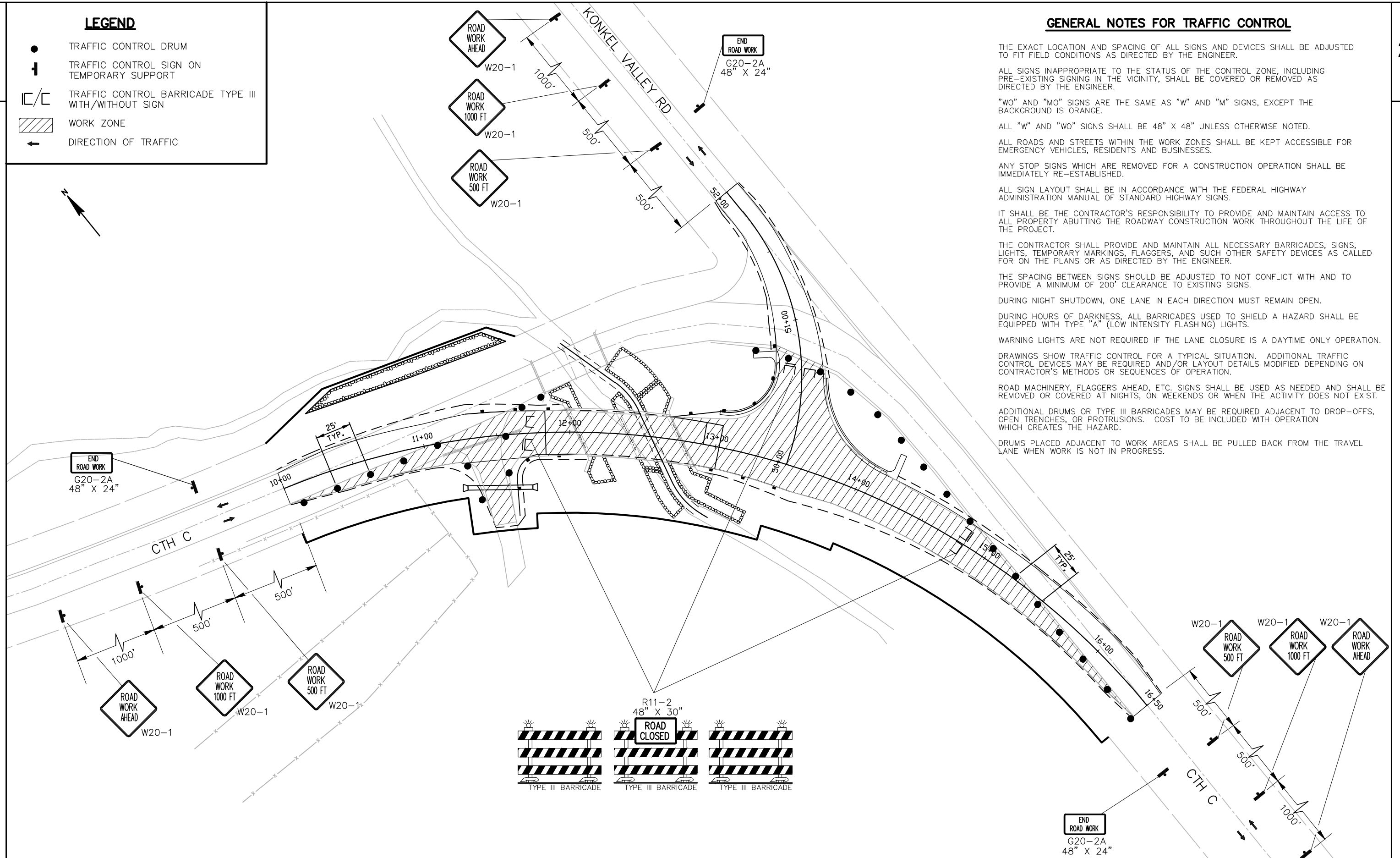
RIPRAP HEAVY LAYOUT

| POINT | STATION | OFFSET  |
|-------|---------|---------|
| E     | 12+43   | 25' LT. |
| F     | 12+57   | 39' LT. |
| J     | 12+66   | 22' RT. |
| K     | 12+52   | 22' RT. |
| N     | 12+22   | 43' LT. |
| O     | 12+31   | 60' LT. |
| P     | 12+80   | 54' RT. |
| Q     | 12+86   | 44' RT. |

NOTE: SEE STRUCTURE CONSTRUCTION DETAIL SHEET FOR CHANNEL REALIGNMENT LAYOUT

**LEGEND**

- TRAFFIC CONTROL DRUM
- 1 TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT
- IC/C TRAFFIC CONTROL BARRICADE TYPE III WITH/WITHOUT SIGN
- WORK ZONE
- ← DIRECTION OF TRAFFIC

**GENERAL NOTES FOR TRAFFIC CONTROL**

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

ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE, INCLUDING PRE-EXISTING SIGNING IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.

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

ALL "W" AND "WO" SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED.

ALL ROADS AND STREETS WITHIN THE WORK ZONES SHALL BE KEPT ACCESSIBLE FOR EMERGENCY VEHICLES, RESIDENTS AND BUSINESSES.

ANY STOP SIGNS WHICH ARE REMOVED FOR A CONSTRUCTION OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED.

ALL SIGN LAYOUT SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL OF STANDARD HIGHWAY SIGNS.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE AND MAINTAIN ACCESS TO ALL PROPERTY ABUTTING THE ROADWAY CONSTRUCTION WORK THROUGHOUT THE LIFE OF THE PROJECT.

THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL NECESSARY BARRICADES, SIGNS, LIGHTS, TEMPORARY MARKINGS, FLAGGERS, AND SUCH OTHER SAFETY DEVICES AS CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200' CLEARANCE TO EXISTING SIGNS.

DURING NIGHT SHUTDOWN, ONE LANE IN EACH DIRECTION MUST REMAIN OPEN.

DURING HOURS OF DARKNESS, ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH TYPE "A" (LOW INTENSITY FLASHING) LIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

DRAWINGS SHOW TRAFFIC CONTROL FOR A TYPICAL SITUATION. ADDITIONAL TRAFFIC CONTROL DEVICES MAY BE REQUIRED AND/OR LAYOUT DETAILS MODIFIED DEPENDING ON CONTRACTOR'S METHODS OR SEQUENCES OF OPERATION.

ROAD MACHINERY, FLAGGERS AHEAD, ETC. SIGNS SHALL BE USED AS NEEDED AND SHALL BE REMOVED OR COVERED AT NIGHTS, ON WEEKENDS OR WHEN THE ACTIVITY DOES NOT EXIST.

ADDITIONAL DRUMS OR TYPE III BARRICADES MAY BE REQUIRED ADJACENT TO DROP-OFFS, OPEN TRENCHES, OR PROTRUSIONS. COST TO BE INCLUDED WITH OPERATION WHICH CREATES THE HAZARD.

DRUMS PLACED ADJACENT TO WORK AREAS SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

PROJECT NO: 7310-00-70

HWY: CTH C

COUNTY: BUFFALO

TRAFFIC CONTROL - STAGE 1

SHEET

E

FILE NAME : S:\PROJECTS\K49010 CTH C BRIDGE, BUFFALO COUNTY\SHEETSPLAN\DETAILS\TRAFFIC CONTROL.DWG  
LAYOUT : STAGE 1

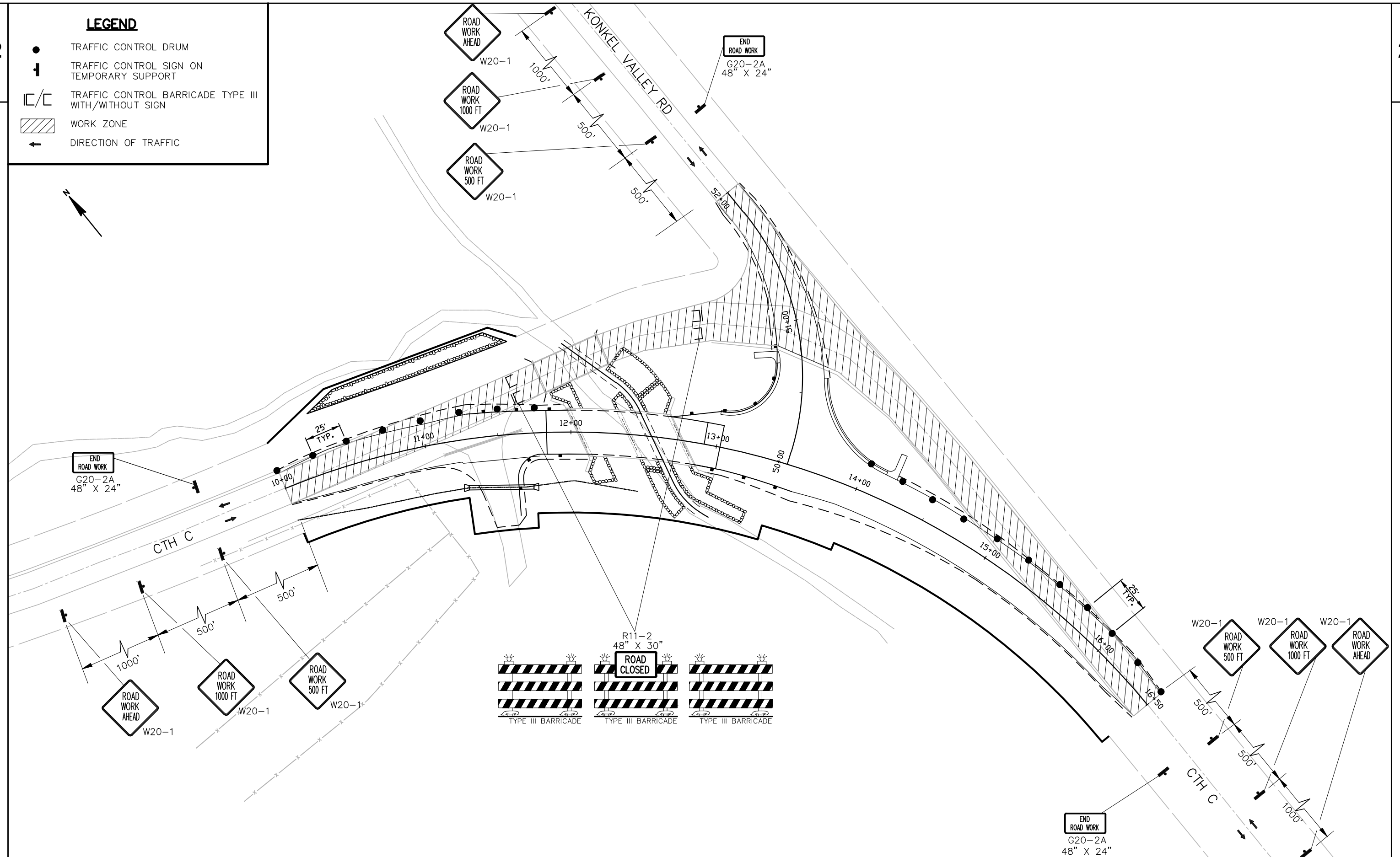
PLOT DATE : 1/23/2015  
PLOT TIME : 9:49:31 AM

PLOT BY : STRINE, THERESA

PLOT SCALE : 1" = 1'

**LEGEND**

- TRAFFIC CONTROL DRUM
- ⌋ TRAFFIC CONTROL SIGN ON TEMPORARY SUPPORT
- ⌋/⌋ TRAFFIC CONTROL BARRICADE TYPE III WITH/WITHOUT SIGN
- ▨ WORK ZONE
- ← DIRECTION OF TRAFFIC



PROJECT NO: 7310-00-70

HWY: CTH C

COUNTY: BUFFALO

TRAFFIC CONTROL - STAGE 2

SHEET

E

FILE NAME : S:\PROJECTS\K49010 CTH C BRIDGE, BUFFALO COUNTY\SHEETSP\DETAILS\TRAFFIC CONTROL.DWG  
LAYOUT : STAGE 2

PLOT DATE : 1/23/2015  
PLOT TIME : 9:48:44 AM

PLOT BY : STRINE, THERESA

PLOT SCALE : 1" = 1'



CTH C STATION LAYOUT

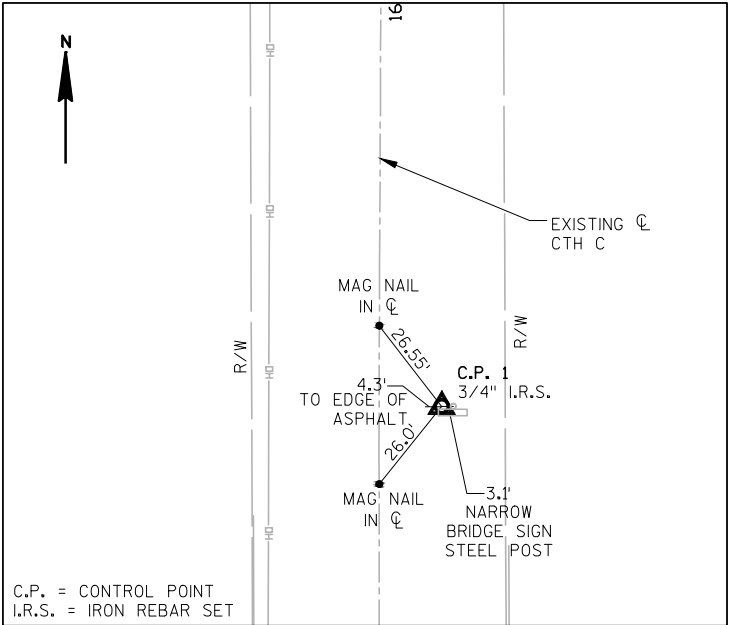
| STATION  | Y          | X          | COMMENTS       |
|----------|------------|------------|----------------|
| 10+00    | 300,259.59 | 638,209.53 | BEGIN PROJECT  |
| 10+50    | 300,242.92 | 638,256.65 | —              |
| 11+00    | 300,221.73 | 638,301.91 | —              |
| 11+50    | 300,196.21 | 638,344.89 | —              |
| 12+00    | 300,166.60 | 638,385.15 | —              |
| 12+04.99 | 300,163.43 | 638,389.01 | END OF DECK    |
| 12+50    | 300,133.19 | 638,422.33 | —              |
| 12+76.46 | 300,114.09 | 638,440.63 | END OF DECK    |
| 13+00    | 300,096.31 | 638,456.06 | —              |
| 13+50    | 300,056.30 | 638,486.01 | —              |
| 14+00    | 300,013.55 | 638,511.91 | —              |
| 14+50    | 299,968.47 | 638,533.49 | —              |
| 15+00    | 299,921.50 | 638,550.56 | —              |
| 15+50    | 299,873.08 | 638,562.95 | —              |
| 16+00    | 299,823.68 | 638,570.55 | —              |
| 16+50    | 299,773.77 | 638,573.27 | END OF PROJECT |

KONKEL VALLEY ROAD STATION LAYOUT

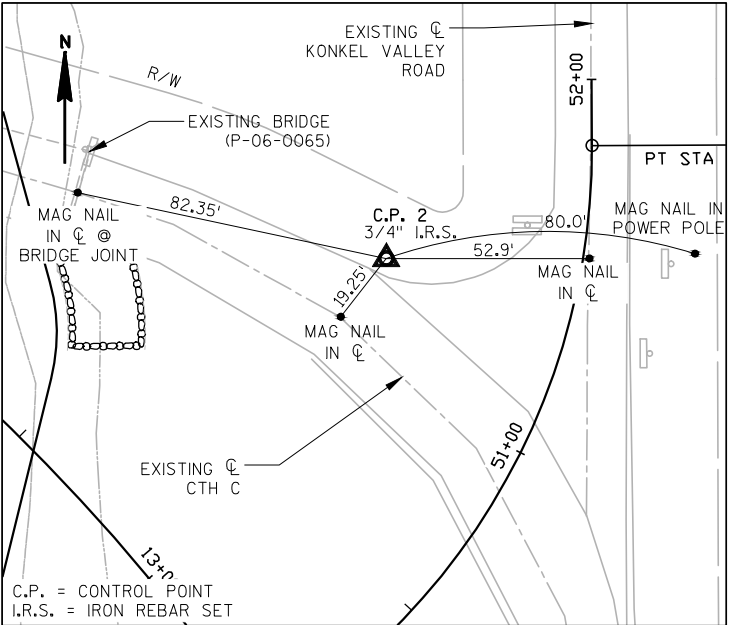
| STATION | Y          | X          | COMMENTS            |
|---------|------------|------------|---------------------|
| 50+17   | 300,065.96 | 638,500.00 | BEGIN CONSTRUCTION  |
| 50+00   | 300,056.30 | 638,486.01 | —                   |
| 50+50   | 300,088.01 | 638,524.49 | —                   |
| 51+00   | 300,129.03 | 638,552.78 | —                   |
| 51+50   | 300,176.32 | 638,568.51 | —                   |
| 52+00   | 300,226.15 | 638,571.27 | END OF CONSTRUCTION |

CONTROL POINTS

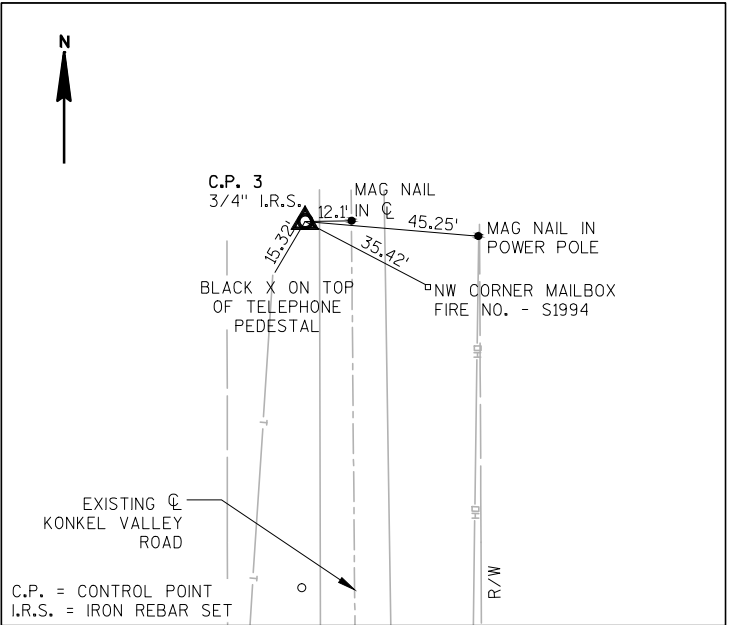
| NO. | STA.  | DESCRIPTION                   | Y          | X          |
|-----|-------|-------------------------------|------------|------------|
| 1   | 17+57 | ¾" IRON REBAR SET, 16.3' LT.  | 299,666.95 | 638,589.42 |
| 2   | 12+79 | ¾" IRON REBAR SET, 101.1' LT. | 300,179.49 | 638,517.84 |
| 3   | 54+69 | ¾" IRON REBAR SET, 12.1' LT.  | 300,494.91 | 638,557.24 |
| 4   | 7+59  | ¾" IRON REBAR SET, 14.8' RT.  | 300,320.52 | 637,976.67 |



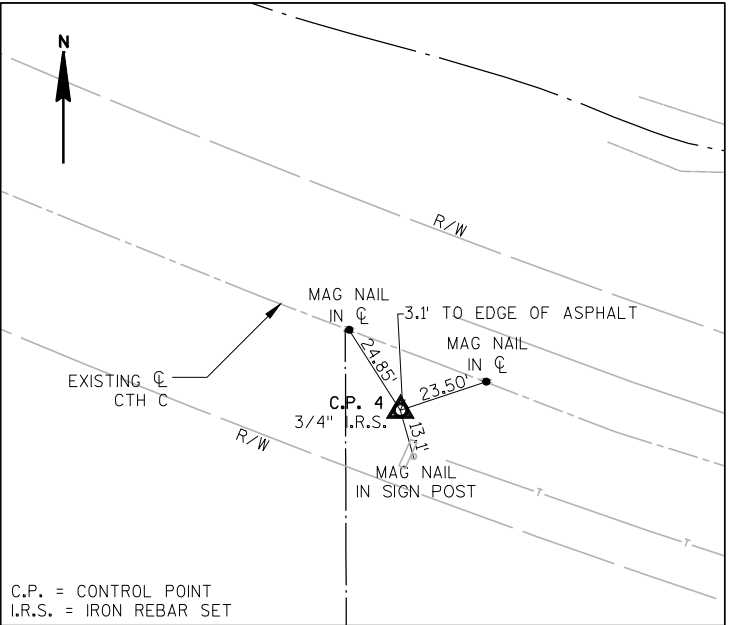
TIES TO C.P.#1  
STA. 17+57; 16.3' LT.  
Y = 299,666.95  
X = 638,589.42



TIES TO C.P.#2  
STA. 12+79; 101.1' LT.  
Y = 300,179.49  
X = 638,517.84



TIES TO C.P.#3  
STA. 54+69; 12.1' LT.  
Y = 300,494.91  
X = 638,557.24



TIES TO C.P.#4  
STA. 7+59; 14.8' RT.  
Y = 300,320.52  
X = 637,976.67

| DATE 04DEC15 |            | E S T I M A T E O F Q U A N T I T I E S   |      |            |            |
|--------------|------------|---|------|------------|------------|
| LINE         |            |   |      |            | 7310-00-70 |
| NUMBER       | ITEM       | ITEM DESCRIPTION  | UNIT | TOTAL      | QUANTITY   |
| 0010         | 201.0120   | Clearing  | ID   | 70.000     | 70.000     |
| 0020         | 201.0220   | Grubbing  | ID   | 70.000     | 70.000     |
| 0030         | 203.0100   | Removing Small Pipe Culverts  | EACH | 1.000      | 1.000      |
| 0040         | 203.0600.S | Removing Old Structure Over Waterway With Minimal Debris (station) 01. Sta. 12+00 | LS   | 1.000      | 1.000      |
| 0050         | 205.0100   | Excavation Common   | CY   | 4,700.000  | 4,700.000  |
| 0060         | 205.0400   | Excavation Marsh  | CY   | 60.000     | 60.000     |
| 0070         | 206.1000   | Excavation for Structures Bridges (structure) 01. B-06-0189                       | LS   | 1.000      | 1.000      |
| 0080         | 208.0100   | Borrow  | CY   | 1,850.000  | 1,850.000  |
| 0090         | 210.0100   | Backfill Structure  | CY   | 350.000    | 350.000    |
| 0100         | 211.0100   | Prepare Foundation for Asphaltic Paving (project) 01. 7310-00-70                  | LS   | 1.000      | 1.000      |
| 0110         | 213.0100   | Finishing Roadway (project) 01. 7310-00-70  | EACH | 1.000      | 1.000      |
| 0120         | 305.0110   | Base Aggregate Dense 3/4-Inch   | TON  | 180.000    | 180.000    |
| 0130         | 305.0120   | Base Aggregate Dense 1 1/4-Inch   | TON  | 3,000.000  | 3,000.000  |
| 0140         | 312.0110   | Select Crushed Material   | TON  | 180.000    | 180.000    |
| 0150         | 415.0410   | Concrete Pavement Approach Slab   | SY   | 160.000    | 160.000    |
| 0160         | 455.0605   | Tack Coat   | GAL  | 130.000    | 130.000    |
| 0170         | 465.0105   | Asphaltic Surface   | TON  | 600.000    | 600.000    |
| 0180         | 465.0315   | Asphaltic Flumes  | SY   | 25.000     | 25.000     |
| 0190         | 502.0100   | Concrete Masonry Bridges  | CY   | 273.000    | 273.000    |
| 0200         | 502.3200   | Protective Surface Treatment  | SY   | 300.000    | 300.000    |
| 0210         | 505.0400   | Bar Steel Reinforcement HS Structures   | LB   | 8,190.000  | 8,190.000  |
| 0220         | 505.0600   | Bar Steel Reinforcement HS Coated Structures                                      | LB   | 34,180.000 | 34,180.000 |
| 0230         | 513.4061   | Railing Tubular Type M (structure) 01. B-06-0189                                  | LF   | 145.000    | 145.000    |
| 0240         | 516.0500   | Rubberized Membrane Waterproofing   | SY   | 15.000     | 15.000     |
| 0250         | 521.0735   | Pipe Arch Corrugated Steel 35x24-Inch   | LF   | 44.000     | 44.000     |
| 0260         | 521.1235   | Apron Endwalls for Pipe Arch Steel 35x24-Inch                                     | EACH | 2.000      | 2.000      |
| 0270         | 550.1100   | Piling Steel HP 10-Inch X 42 Lb   | LF   | 880.000    | 880.000    |
| 0280         | 601.0557   | Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D                               | LF   | 140.000    | 140.000    |
| 0290         | 606.0400   | Riprap Extra-Heavy  | CY   | 595.000    | 595.000    |
| 0300         | 612.0406   | Pipe Underdrain Wrapped 6-Inch  | LF   | 180.000    | 180.000    |
| 0310         | 614.0200   | Steel Thrie Beam Structure Approach   | LF   | 84.000     | 84.000     |
| 0320         | 614.0305   | Steel Plate Beam Guard Class A  | LF   | 13.000     | 13.000     |
| 0330         | 614.0345   | Steel Plate Beam Guard Short Radius   | LF   | 119.000    | 119.000    |
| 0340         | 614.0370   | Steel Plate Beam Guard Energy Absorbing Terminal                                  | EACH | 2.000      | 2.000      |
| 0350         | 614.0390   | Steel Plate Beam Guard Short Radius Terminal                                      | EACH | 2.000      | 2.000      |
| 0360         | 619.1000   | Mobilization  | EACH | 1.000      | 1.000      |
| 0370         | 625.0500   | Salvaged Topsoil  | SY   | 4,550.000  | 4,550.000  |
| 0380         | 627.0200   | Mulching  | SY   | 7,650.000  | 7,650.000  |
| 0390         | 628.1504   | Silt Fence  | LF   | 1,850.000  | 1,850.000  |
| 0400         | 628.1520   | Silt Fence Maintenance  | LF   | 5,550.000  | 5,550.000  |
| 0410         | 628.1905   | Mobilizations Erosion Control   | EACH | 5.000      | 5.000      |
| 0420         | 628.1910   | Mobilizations Emergency Erosion Control   | EACH | 3.000      | 3.000      |
| 0430         | 628.2006   | Erosion Mat Urban Class I Type A  | SY   | 1,000.000  | 1,000.000  |
| 0440         | 628.7504   | Temporary Ditch Checks  | LF   | 60.000     | 60.000     |
| 0450         | 628.7555   | Culvert Pipe Checks   | EACH | 3.000      | 3.000      |

| DATE 04DEC15 |          | E S T I M A T E O F Q U A N T I T I E S                            |      |           |            |
|--------------|----------|--|------|-----------|------------|
| LINE         |          |  |      |           | 7310-00-70 |
| NUMBER       | ITEM     | ITEM DESCRIPTION   | UNIT | TOTAL     | QUANTITY   |
| 0460         | 629.0210 | Fertilizer Type B  | CWT  | 6.000     | 6.000      |
| 0470         | 630.0120 | Seeding Mixture No. 20   | LB   | 160.000   | 160.000    |
| 0480         | 630.0160 | Seeding Mixture No. 60   | LB   | 6.000     | 6.000      |
| 0490         | 630.0200 | Seeding Temporary  | LB   | 80.000    | 80.000     |
| 0500         | 630.0300 | Seeding Borrow Pit   | LB   | 18.000    | 18.000     |
| 0510         | 633.5100 | Markers Row  | EACH | 23.000    | 23.000     |
| 0520         | 634.0612 | Posts Wood 4x6-Inch X 12-FT  | EACH | 4.000     | 4.000      |
| 0530         | 634.0616 | Posts Wood 4x6-Inch X 16-FT  | EACH | 5.000     | 5.000      |
| 0540         | 637.2210 | Signs Type II Reflective H   | SF   | 5.180     | 5.180      |
| 0550         | 637.2230 | Signs Type II Reflective F   | SF   | 30.500    | 30.500     |
| 0560         | 638.2602 | Removing Signs Type II   | EACH | 14.000    | 14.000     |
| 0570         | 638.3000 | Removing Small Sign Supports                                       | EACH | 11.000    | 11.000     |
| 0580         | 642.5001 | Field Office Type B  | EACH | 1.000     | 1.000      |
| 0590         | 643.0100 | Traffic Control (project) 01. 7310-00-70                           | EACH | 1.000     | 1.000      |
| 0600         | 643.0300 | Traffic Control Drums  | DAY  | 2,210.000 | 2,210.000  |
| 0610         | 643.0420 | Traffic Control Barricades Type III                                | DAY  | 1,000.000 | 1,000.000  |
| 0620         | 643.0705 | Traffic Control Warning Lights Type A                              | DAY  | 1,250.000 | 1,250.000  |
| 0630         | 643.0900 | Traffic Control Signs  | DAY  | 1,200.000 | 1,200.000  |
| 0640         | 645.0120 | Geotextile Fabric Type HR  | SY   | 1,000.000 | 1,000.000  |
| 0650         | 645.0135 | Geotextile Fabric Type SR  | SY   | 100.000   | 100.000    |
| 0660         | 650.4500 | Construction Staking Subgrade                                      | LF   | 760.000   | 760.000    |
| 0670         | 650.5000 | Construction Staking Base  | LF   | 1,340.000 | 1,340.000  |
| 0680         | 650.5500 | Construction Staking Curb Gutter and Curb & Gutter                 | LF   | 120.000   | 120.000    |
| 0690         | 650.6000 | Construction Staking Pipe Culverts                                 | EACH | 1.000     | 1.000      |
| 0700         | 650.6500 | Construction Staking Structure Layout (structure) 01. B-06-0189    | LS   | 1.000     | 1.000      |
| 0710         | 650.9910 | Construction Staking Supplemental Control (project) 01. 7310-00-70 | LS   | 1.000     | 1.000      |
| 0720         | 650.9920 | Construction Staking Slope Stakes                                  | LF   | 760.000   | 760.000    |
| 0730         | 690.0150 | Sawing Asphalt   | LF   | 70.000    | 70.000     |
| 0740         | 715.0415 | Incentive Strength Concrete Pavement                               | DOL  | 500.000   | 500.000    |
| 0750         | 715.0502 | Incentive Strength Concrete Structures                             | DOL  | 1,638.000 | 1,638.000  |

EARTHWORK SUMMARY

| CATEGORY | FROM/TO STA     | LOCATION                      | (1)<br>205.0100<br>COMMON EXCAVATION | AVAILABLE<br>MATERIAL<br>(CY) (3) | 205.0400<br>MARSH<br>EXCAVATION<br>(CY) (4) | REDUCED<br>MARSH<br>IN FILL<br>(CY)<br>FACTOR | EXPANDED<br>MARSH<br>BACKFILL<br>(CY)<br>FACTOR | UNEXPANDED<br>FILL<br>(CY) | EXPANDED<br>FILL<br>(CY)<br>FACTOR | MASS<br>ORDINATE<br>+/-<br>(CY) (8) | WASTE<br>(CY) | 208.0100<br>BORROW<br>(CY) |
|----------|-----------------|-------------------------------|--------------------------------------|-----------------------------------|---|---|---|----------------------------|------------------------------------|-------------------------------------|---------------|----------------------------|
|          |                 |                               | CUT (2)<br>(CY)                      |                                   |   | 0.6 (5)                                       | 1.5 (6)   |                            |                                    |                                     |               |                            |
| 010      | 10+00 - 16+50   | MAINLINE, STAGE 1             | 185                                  | 185                               | 60  | 36  | 90  | 1023                       | 1234                               | -1049                               | -             | 1049                       |
| 010      | 10+00 - 16+50   | MAINLINE, STAGE 2             | 805                                  | 805                               | -   | -   | -   | 25                         | 30                                 | 775                                 | 775           | -                          |
| 010      | 50+17 - 52+00   | KONKEL VALLEY RD, STAGE 1     | 0                                    | 0                                 | -   | -   | -   | 649                        | 811                                | -811                                | -             | 811                        |
| 010      | 50+17 - 52+00   | KONKEL VALLEY RD, STAGE 2     | 2900                                 | 2900                              | -   | -   | -   | 0                          | 0                                  | 2900                                | 2900          | -                          |
| 010      | 100+00 - 101+60 | CHANNEL REALIGNMENT, STAGE 1  | 800                                  | 800                               | -   | -   | -   | 125                        | 155                                | 645                                 | 645           | -                          |
| 010      | 11+50           | MAINLINE, RT. - P.E., STAGE 1 | 10                                   | 10                                | -   | -   | -   | 0                          | 0                                  | 10                                  | -             | -10                        |
| TOTALS = |                 |                               | 4700                                 | 4700                              | 60  | 36  | 90  | 1822                       | 2230                               |                                     | 4320          | 1850                       |

NOTES:  
1.) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100  
2.) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT  
3.) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL  
4.) MARSH EXCAVATION - TO BE BACKFILLED WITH SELECT CRUSHED MATERIAL. ITEM 205.0400  
5.) REDUCED MARSH IN FILL - EXCAVATED MARSH MATERIAL IS USABLE IN FILLS OUTSIDE THE 1:1 SLOPE. MARSH IN FILL REDUCTION FACTOR = 0.6  
6.) EXPANDED MARSH BACKFILL - THIS IS TO BE FILLED WITH SELECT CRUSHED MATERIAL. MARSH BACKFILL FACTOR = 1.5. ITEM NUMBER 312.0110  
7.) EXPANDED FILL FACTOR 1.25: EXPANDED FILL = (UNEXPANDED FILL - REDUCED MARSH IN FILL)\*1.25  
8.) THE MASS ORDINATE+ OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE CATEGORY. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE CATEGORY.

MASS ORDINATE DOES NOT INCLUDE MARSH EXCAVATION VOLUME. WASTE MARSH EXCAVATION MATERIAL

NOTE: EXCAVATION MARSH LOCATED STA. 13+00 TO STA. 13+70, RT.  
WASTE EXCESS CHANNEL REALIGNMENT MATERIAL. DO NOT USE EXCESS EXCAVATED MATERIAL FROM CHANNEL REALIGNMENT ACTIVITIES IN ROADWAY APPROACH CONSTRUCTION.

3

|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|---|---------------|----------|----------|------------------------------|----------------------|----------|---------|---|--|----------|-------------------|--|----------------|------------------|----------------|-----|--|--|
| ALL BID ITEMS ARE CATEGORY 010 UNLESS OTHERWISE NOTED |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
| CLEARING & GRUBBING                                   |               |          |          | REMOVING SMALL PIPE CULVERTS |                      |          |         | PREPARE FOUNDATION FOR ASPHALTIC PAVING |  |          |                   | BASE AGGREGATE DENSE / SELECT CRUSHED MATERIAL |                |                  |                |     |  |  |
|   |               | 201.0120 | 201.0220 |                              |                      | 203.0100 | REMARKS |   |  | 211.0100 | STATION - STATION | LOCATION                                       | 305.0110       | 305.0120         | 312.0110       |     |  |  |
|   |               | CLEARING | GRUBBING |                              |                      | (EACH)   |         |   |  | (LS)     |                   |  | BASE AGGREGATE | BASE AGGREGATE   | SELECT CRUSHED |     |  |  |
|   |               | (ID)     | (ID)     |                              |                      |          |         |   |  |          |                   |  | DENSE 3/4-INCH | DENSE 1 1/4-INCH | MATERIAL       |     |  |  |
|   |               | (ID)     | (ID)     |                              |                      |          |         |   |  |          |                   |  | (TON)          | (TON)            | (TON)          |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
| STATION   | LOCATION      |          |          | STATION                      | LOCATION             |          |         | LOCATION                                |  |          | 10+00 - 16+50     | MAINLINE                                       | 90             | 2393             | 171            |     |  |  |
| 11+04   | MAINLINE, RT. | 70       | 70       | 11+44                        | P.E. - MAINLINE, RT. | 1        |         | 7310-00-70                              |  | 1        | 50+17 + 52+00     | KONKEL VALLEY ROAD                             | 25             | 440              | -              |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          | 11+50             | P.E., - MAINLINE, RT.                          | 55             | -                | -              |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          | -                 | UNDISTRIBUTED                                  | 10             | 167              | 9              |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  | TOTALS =       | 180              | 3000           | 180 |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |
|   |               |          |          |                              |                      |          |         |   |  |          |                   |  |                |                  |                |     |  |  |

3

# CONVENTIONAL ABBREVIATIONS

|                                      |       |                            |        |
|--------------------------------------|-------|----------------------------|--------|
| ACCESS POINT/<br>DRIVEWAY CONNECTION | AP    | PROPERTY LINE              | PL     |
| ACCESS RIGHTS                        | AR    | RECORDED AS                | (100') |
| ACRES                                | AC.   | REFERENCE LINE             | R/L    |
| AND OTHERS                           | ET.AL | RELEASE OF RIGHTS          | ROR    |
| BARN                                 | B.    | REMAINING                  | REM.   |
| CENTERLINE                           | C/L   | RIGHT-OF-WAY               | R/W    |
| CERTIFIED SURVEY MAP                 | CSM   | SECTION                    | SEC.   |
| CORNER                               | COR.  | SHED                       | S.     |
| CONVEYANCE OF RIGHTS                 | OR    | STATION                    | STA.   |
| DOCUMENT                             | DOC.  | TEMPORARY LIMITED EASEMENT | TLE    |
| EASEMENT                             | EASE. | VOLUME                     | V.     |
| GARAGE                               | G.    |                            |        |
| HIGHWAY EASEMENT                     | H.E.  |                            |        |
| HOUSE                                | H.    |                            |        |
| HOUSE TRAILER                        | H.T.  |                            |        |
| LAND CONTRACT                        | LC    |                            |        |
| MONUMENT                             | MON.  |                            |        |
| PAGE                                 | P.    |                            |        |
| PERMANENT LIMITED EASEMENT           | PLE   |                            |        |

## CURVE DATA

|                        |       |
|------------------------|-------|
| LONG CHORD             | LC    |
| LONG CHORD BEARING     | LCB   |
| RADIUS                 | R     |
| DEGREE OF CURVE        | D     |
| CENTRAL ANGLE OR DELTA | DELTA |
| LENGTH OF CURVE        | L     |
| TANGENT                | TAN   |

# CONVENTIONAL SYMBOLS

|  |         |  |     |
|--|---------|--|-----|
| FOUND SURVEY MONUMENT<br>(WITH POINT NUMBER) | 1040    | PROPOSED R/W LINE                              | --- |
| R/W MONUMENT                                 | • (SET) | EXISTING H.E. LINE                             | --- |
| R/W STANDARD                                 | Δ (SET) | PROPERTY LINE                                  | --- |
| SIGN   | ISIGN   | LOT & TIE LINES                                | --- |
| SECTION CORNER MONUMENT                      | ⊙       | SLOPE INTERCEPTS                               | --- |
| SECTION CORNER SYMBOL                        | ⊙       | CORPORATE LIMITS                               | --- |
| FEE (HATCH VARIES)                           | ///     | NO ACCESS<br>(BY PREVIOUS ACQUISITION/CONTROL) | --- |
| TEMPORARY LIMITED<br>EASEMENT                | ---     | NO ACCESS<br>(BY ACQUISITION)                  | --- |
| PERMANENT LIMITED<br>EASEMENT                | ---     | NO ACCESS<br>(BY STATUTORY AUTHORITY)          | --- |
| R/W BOUNDARY POINT                           | ⊙       | SECTION LINE                                   | --- |
| PARCEL NUMBER                                | 8       | QUARTER LINE                                   | --- |
| UTILITY PARCEL NUMBER                        | 92      | SIXTEENTH LINE                                 | --- |
| SIGN NUMBER<br>(OFF PREMISE)                 | 21      | EXISTING CENTERLINE                            | --- |
| BUILDING                                     | ---     | PROPOSED REFERENCE LINE                        | --- |
|  |         | PARALLEL OFFSET                                | --- |
|  |         | ENCROACHMENT                                   | --- |

# CONVENTIONAL UTILITY SYMBOLS

|                    |     |                    |     |
|--------------------|-----|--------------------|-----|
| WATER              | W   | SANITARY SEWER     | SAN |
| GAS                | G   | STORM SEWER        | SS  |
| TELEPHONE          | T   |                    |     |
| OVERHEAD           | OH  |                    |     |
| TRANSMISSION LINES | --- |                    |     |
| ELECTRIC           | E   | POWER POLE         | --- |
| CABLE TELEVISION   | TV  | TELEPHONE POLE     | --- |
| FIBER OPTIC        | FO  | TELEPHONE PEDESTAL | --- |
|                    |     | ELECTRIC TOWER     | --- |

# NOTES

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATES, BUFFALO COUNTY, NAD 83 (2011) IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

RIGHT-OF-WAY MONUMENTS ARE TYPE 2 MONUMENTS (TYPICALLY 3/4" X 24" REBAR) AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

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

# BEGIN RELOCATION ORDER

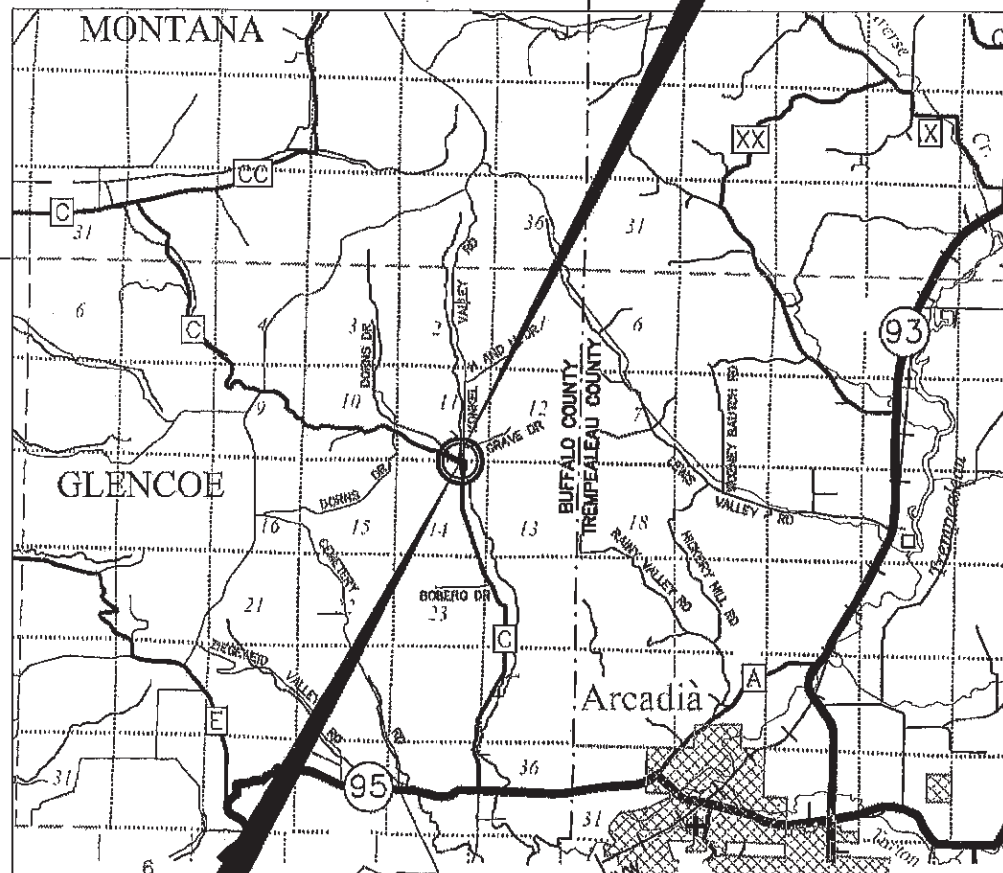
STA. 10+00

143.07' NORTH AND 912.25' EAST OF THE S $\frac{1}{4}$  CORNER OF SECTION 11, T.21N., R.10W., TOWN OF GLENCOE, BUFFALO COUNTY, WI  
Y = 300,258.59  
X = 638,208.53



LAYOUT  
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.123 MI.



# END RELOCATION ORDER

STA. 16+50

342.74' SOUTH AND 1275.99' EAST OF THE S $\frac{1}{4}$  CORNER OF SECTION 11, T.21N., R.10W., TOWN OF GLENCOE, BUFFALO COUNTY, WI  
Y = 299,773.77  
X = 638,573.27

|  |                         |                      |
|--|-------------------------|----------------------|
| R/W PROJECT NUMBER<br>7310-00-00   | SHEET<br>NUMBER<br>4.01 | TOTAL<br>SHEETS<br>2 |
| FEDERAL PROJECT NUMBER   |                         |                      |
| PLAT OF RIGHT-OF-WAY REQUIRED FOR<br>STH 95 - CTH CC<br>(SWINNS VALLEY CREEK BRIDGE B-06-0189) |                         |                      |
| CTH C  |                         | BUFFALO COUNTY       |
| CONSTRUCTION PROJECT NUMBER<br>7310-00-70  |                         |                      |

**JEWELL**  
associates engineers, inc.

Engineers - Surveyors - Architects

560 SUNRISE DRIVE  
SPRING GREEN, WI 53588  
PHONE : 608.588.7484  
FAX : 608.588.9322

I HEREBY CERTIFY THAT THIS PLAT WAS MADE FOR BUFFALO COUNTY, WISCONSIN AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



*Frederick G. Ormer*  
11/18/14

APPROVED FOR BUFFALO COUNTY

DATE: 11/20/14

NAME/TITLE

E

| COORDINATE TABLE - NEW R/W POINTS |          |           |           |           |
|-----------------------------------|----------|-----------|-----------|-----------|
| PT.#                              | STATION  | OFFSET    | Y         | X         |
| 1                                 | 10+00.00 | 40.00 RT  | 300221.27 | 638198.06 |
| 2                                 | 10+00.00 | 32.96 RT  | 300228.01 | 638200.08 |
| 3                                 | 10+00.00 | 33.05 LT  | 300291.25 | 638219.01 |
| 4                                 | 10+45.00 | 55.00 LT  | 300295.89 | 638272.36 |
| 5                                 | 11+50.00 | 74.00 LT  | 300257.91 | 638385.74 |
| 6                                 | 11+67.00 | 66.40 LT  | 300240.69 | 638397.38 |
| 7                                 | 12+19.98 | 91.86 LT  | 300222.64 | 638461.09 |
| 8                                 | 12+48.09 | 105.34 LT | 300209.63 | 638494.84 |
| 9                                 | 12+78.40 | 118.72 LT | 300192.18 | 638530.06 |
| 10                                | 51+68.38 | 33.05 LT  | 300197.08 | 638537.88 |
| 11                                | 52+00.00 | 33.48 LT  | 300225.98 | 638537.77 |
| 12                                | 52+00.00 | 32.52 RT  | 300226.32 | 638603.77 |
| 13                                | 16+50.00 | 32.27 LT  | 299773.95 | 638605.52 |
| 14                                | 16+50.00 | 33.73 RT  | 299773.59 | 638539.52 |
| 15                                | 16+50.00 | 40.00 RT  | 299773.56 | 638533.25 |
| 16                                | 14+00.00 | 40.00 RT  | 299994.53 | 638476.70 |
| 17                                | 14+00.00 | 45.00 RT  | 299992.15 | 638472.30 |
| 18                                | 13+45.00 | 45.00 RT  | 300034.89 | 638446.12 |
| 19                                | 13+45.00 | 55.00 RT  | 300029.22 | 638437.89 |
| 20                                | 11+75.00 | 55.00 RT  | 300137.59 | 638332.78 |
| 21                                | 11+75.00 | 65.00 RT  | 300129.53 | 638326.86 |
| 22                                | 11+24.65 | 65.00 RT  | 300153.76 | 638290.24 |
| 23                                | 11+24.65 | 40.00 RT  | 300175.27 | 638302.99 |

| R/W COURSE TABLE |             |          |
|------------------|-------------|----------|
| PT. TO PT.       | DIRECTION   | DISTANCE |
| 1 TO 2           | N16°39'54"E | 7.04'    |
| 2 TO 3           | N16°39'54"E | 66.01'   |
| 3 TO 4           | N85°01'21"E | 53.56'   |
| 4 TO 5           | S71°28'32"E | 119.57'  |
| 5 TO 6           | S34°04'17"E | 20.78'   |
| 6 TO 7           | S74°10'37"E | 66.22'   |
| 7 TO 8           | S63°39'10"E | 39.30'   |
| 8 TO 9           | N00°13'16"W | 28.92'   |
| 9 TO 10          | N89°42'17"E | 66.00'   |
| 10 TO 11         | S00°13'16"E | 452.37'  |
| 11 TO 12         | S89°41'20"W | 66.00'   |
| 12 TO 13         | S89°41'20"W | 6.27'    |
| 13 TO 14         | S61°36'10"W | 5.00'    |
| 14 TO 15         | S55°25'26"W | 10.00'   |
| 15 TO 16         | S36°19'31"W | 10.00'   |
| 16 TO 17         | N30°40'07"E | 25.00'   |

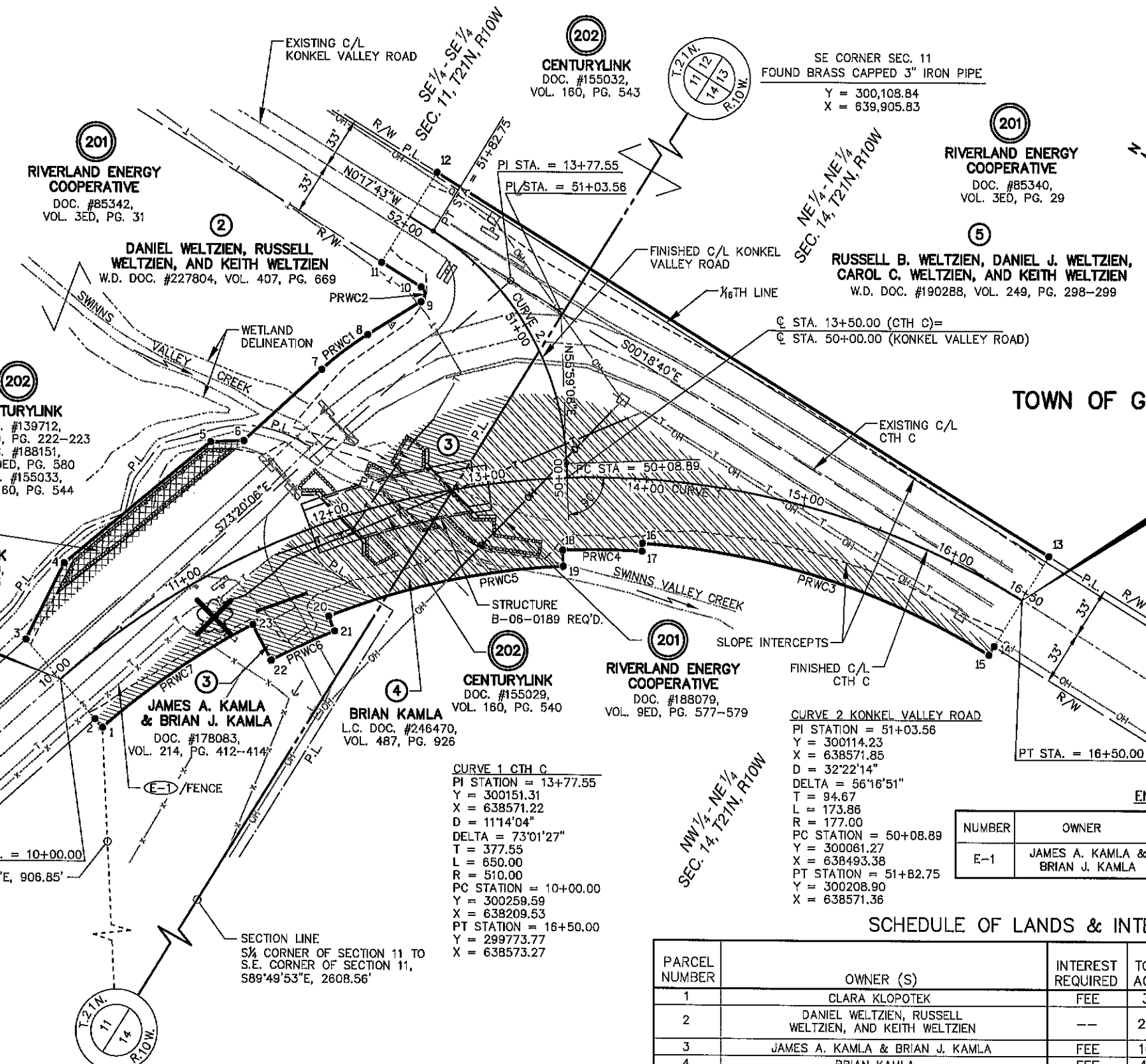
# **BEGIN RELOCATION ORDER** **STA. 10+00**

143.07' NORTH AND 912.25' EAST OF THE S¼ CORNER OF SECTION 11, T.21N., R.10W., TOWN OF GLENCOE, BUFFALO COUNTY, WI  
Y = 300,259.59  
X = 638,209.53

# **END RELOCATION ORDER** **STA. 16+50**

342.74' SOUTH AND 1275.99' EAST OF THE S¼ CORNER OF SECTION 11, T.21N., R.10W., TOWN OF GLENCOE, BUFFALO COUNTY, WI  
Y = 299,773.77  
X = 638,573.27

| PROPOSED RIGHT-OF-WAY CURVE TABLE |            |         |             |               |              |         |
|-----------------------------------|------------|---------|-------------|---------------|--------------|---------|
| CURVE                             | ARC LENGTH | RADIUS  | DELTA ANGLE | CHORD BEARING | CHORD LENGTH | TANGENT |
| PRWC1                             | 36.22'     | 197.20' | 10°31'27"   | S68°54'54"E   | 36.17'       | 18.16'  |
| PRWC2                             | 11.03'     | 5.42'   | 116°34'06"  | N58°03'47"E   | 9.22'        | 8.77'   |
| PRWC3                             | 230.39'    | 470.00' | 28°05'10"   | N14°21'15"W   | 228.09'      | 117.56' |
| PRWC4                             | 50.15'     | 465.00' | 6°10'44"    | N31°29'12"W   | 50.12'       | 25.10'  |
| PRWC5                             | 151.67'    | 455.00' | 19°05'55"   | N44°07'32"W   | 150.97'      | 76.54'  |
| PRWC6                             | 43.93'     | 445.00' | 5°39'23"    | N56°30'11"W   | 43.91'       | 21.98'  |
| PRWC7                             | 114.87'    | 470.00' | 14°00'14"   | N66°19'59"W   | 114.59'      | 57.72'  |

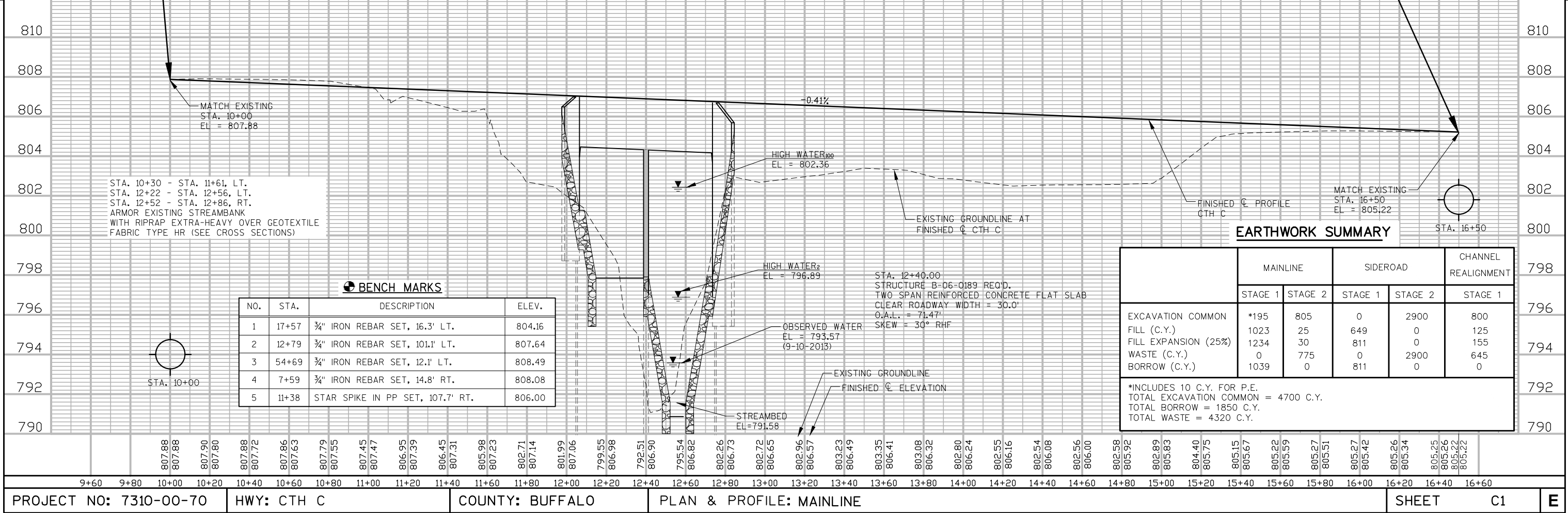
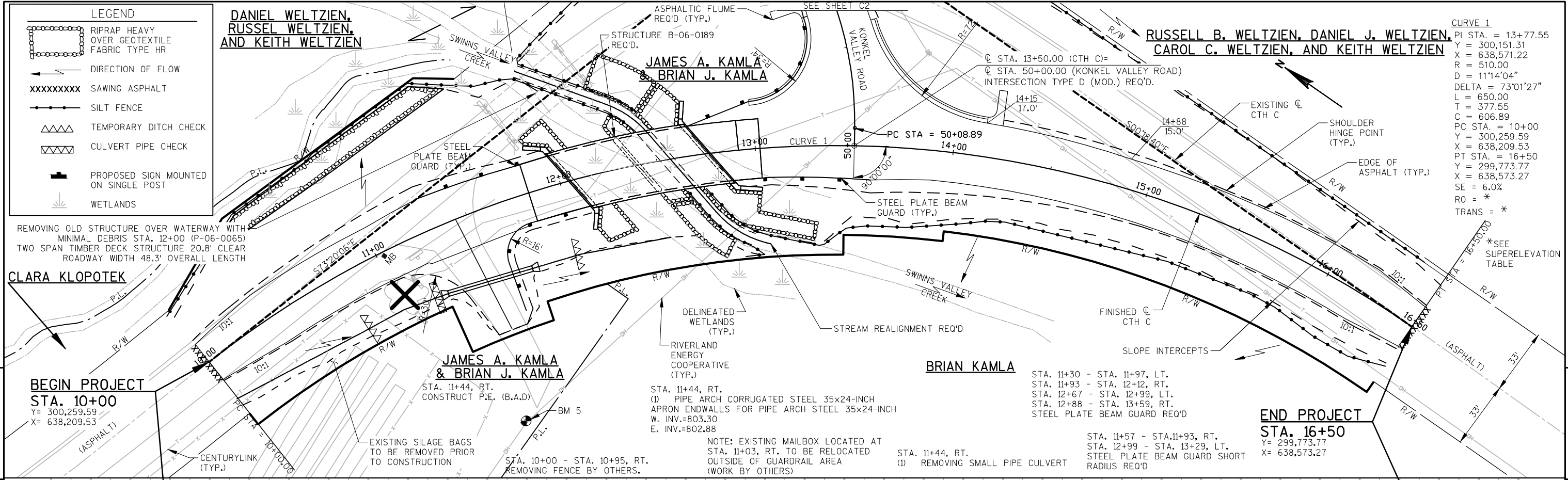


NOTE: EXISTING C/L OF CTH C AND KONKOL VALLEY ROAD BASED ON CENTERLINE OF EXISTING PAVEMENT.  
BASIS OF EXISTING RIGHT-OF-WAY FOR CTH C AND KONKOL VALLEY ROAD WAS BASED ON THE CENTERLINE OF EXISTING PAVEMENT AND WIS. STATUTE 82.31(2).

| PARCEL NUMBER | OWNER (S)  | INTEREST REQUIRED | TOTAL ACRES | R/W ACRES REQUIRED |          |       | TOTAL ACRES REM. | T.L.E. ACRES |
|---------------|--|-------------------|-------------|--------------------|----------|-------|------------------|--------------|
|               |  |                   |             | NEW                | EXISTING | TOTAL |                  |              |
| 1             | CLARA KLOPOTEK   | FEE               | 3.75        | 0.06               | 0.16     | 0.22  | 3.53             | --           |
| 2             | DANIEL WELTZIEN, RUSSELL WELTZIEN, AND KEITH WELTZIEN                          | --                | 24.30       | --                 | 0.19     | 0.19  | 24.11            | --           |
| 3             | JAMES A. KAMLA & BRIAN J. KAMLA  | FEE               | 10.95       | 0.19               | 0.27     | 0.46  | 10.49            | --           |
| 4             | BRIAN KAMLA  | FEE               | 41.00       | 0.51               | 0.50     | 1.01  | 39.99            | --           |
| 5             | RUSSELL B. WELTZIEN, DANIEL J. WELTZIEN, CAROL C. WELTZIEN, AND KEITH WELTZIEN | --                | 79.92       | --                 | 0.03     | 0.03  | 79.89            | --           |
| 201           | RIVERLAND ENERGY COOPERATIVE   | RELEASE OF RIGHTS |             |                    |          |       |                  |              |
| 202           | CENTURYLINK  | RELEASE OF RIGHTS |             |                    |          |       |                  |              |

NOTE: AREAS SHOWN IN THE TOTAL ACRES COLUMN MAY BE APPROXIMATE AND ARE DERIVED FROM THE TAX ROLLS OR OTHER AVAILABLE SOURCES AND MAY NOT INCLUDE LANDS OF THE OWNER WHICH ARE NOT CONTIGUOUS TO THE AREA TO BE ACQUIRED. OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE COUNTY OF BUFFALO.

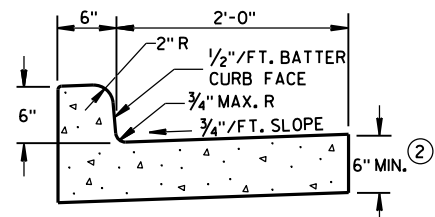
|                 |               |                      |                 |   |                 |
|-----------------|---------------|----------------------|-----------------|---|-----------------|
| REVISION DATE   | DATE 11/20/14 | SCALE, FEET<br>0 100 | CTH C           | STATE R/W PROJECT NUMBER: 7310-00-00    | PLAT SHEET 4.02 |
| GRID FACTOR N/A |               |                      | COUNTY: BUFFALO | CONSTRUCTION PROJECT NUMBER: 7310-00-70 | PS&E SHEET E    |



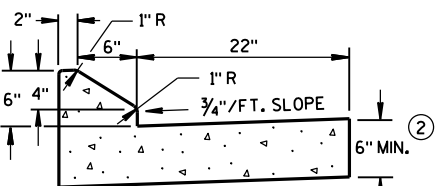


Standard Detail Drawing List

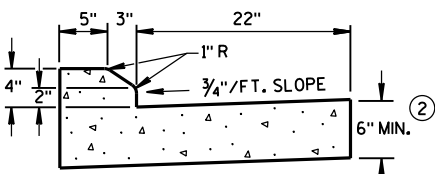
|           |  |
|-----------|--|
| 08D01-18  | CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES   |
| 08D04-05  | CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES   |
| 08E08-03  | TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS                                      |
| 08E09-06  | SILT FENCE   |
| 08F02-01  | APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE   |
| 09A01-13A | AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE        |
| 12A03-10  | NAME PLATE (STRUCTURES)  |
| 13B02-08A | CONCRETE PAVEMENT APPROACH SLAB  |
| 14B15-08A | STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS  |
| 14B15-08B | STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS  |
| 14B15-08C | STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS   |
| 14B18-06A | STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)                    |
| 14B20-11A | STEEL THRIE BEAM STRUCTURE APPROACH  |
| 14B20-11F | STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"                           |
| 14B24-08A | STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL   |
| 14B24-08B | STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL   |
| 14B24-08C | STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL   |
| 14B27-01A | STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL   |
| 14B27-01B | STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL   |
| 14B27-01C | STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL   |
| 15A01-12A | MARKER POST FOR RIGHT-OF-WAY   |
| 15C02-05A | BARRICADES AND SIGNS FOR MAINLINE CLOSURES   |
| 15C02-05B | BARRICADES AND SIGNS FOR MAINLINE CLOSURES   |
| 15C04-02  | TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M. P. H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC |
| 15C06-07  | SIGNING & MARKING FOR TWO LANE BRIDGES   |
| 15C12-04  | TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)                                    |



TYPES A & D ①

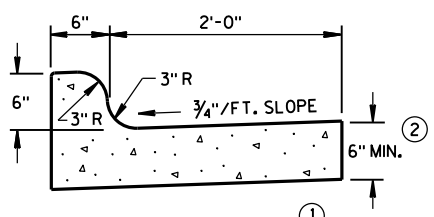


6" SLOPED CURB TYPES G & J ①



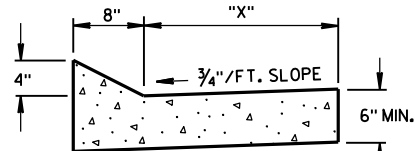
4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"



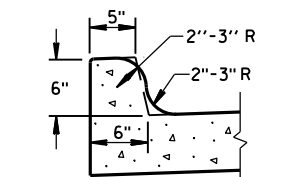
TYPES K & L ①

CONCRETE CURB & GUTTER 30"

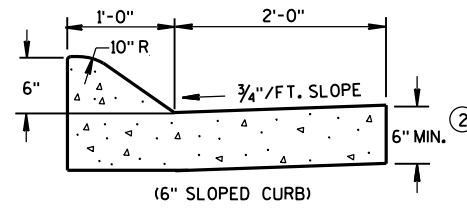


TYPES TBT & TBT ①  
CONCRETE CURB & GUTTER

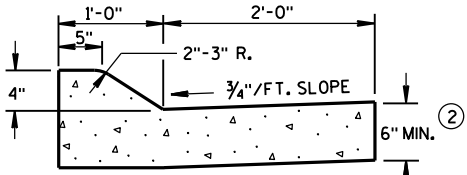
| TBT & TBT | "X" |
|-----------|-----|
| 30"       | 22" |
| 36"       | 28" |



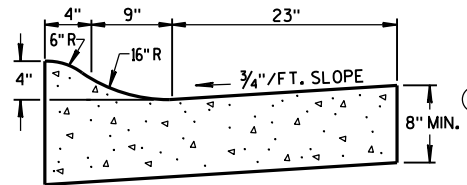
OPTIONAL CURB SHAPE  
FOR TYPES K & L ①



(6" SLOPED CURB)

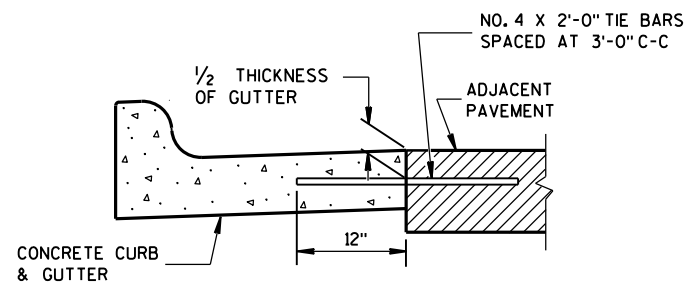


TYPES A & D ①

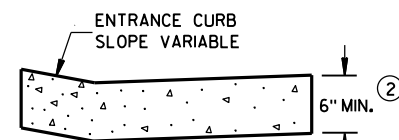


4" SLOPED CURB TYPES R & T ① ④

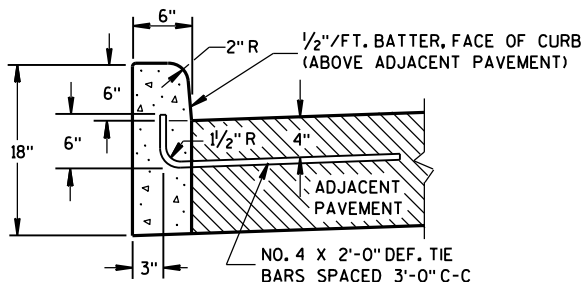
CONCRETE CURB & GUTTER 36"



TYPICAL TIE BAR LOCATION ①

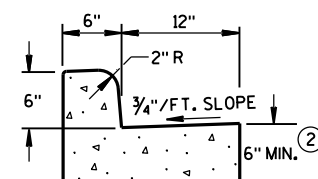


DRIVEWAY ENTRANCE CURB  
(WHEN DIRECTED BY THE ENGINEER)

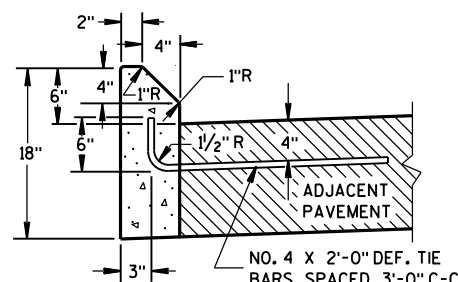


TYPES A & D ①

CONCRETE CURB



TYPES A & D  
CONCRETE CURB & GUTTER 18"



TYPES G & J ①

## GENERAL NOTES

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

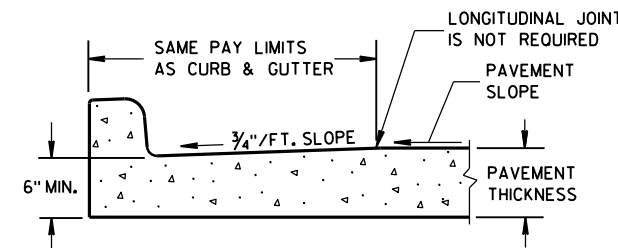
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

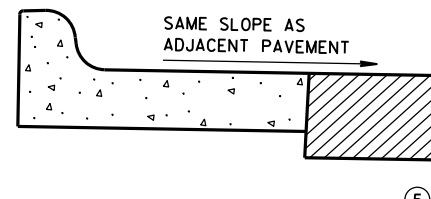
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

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

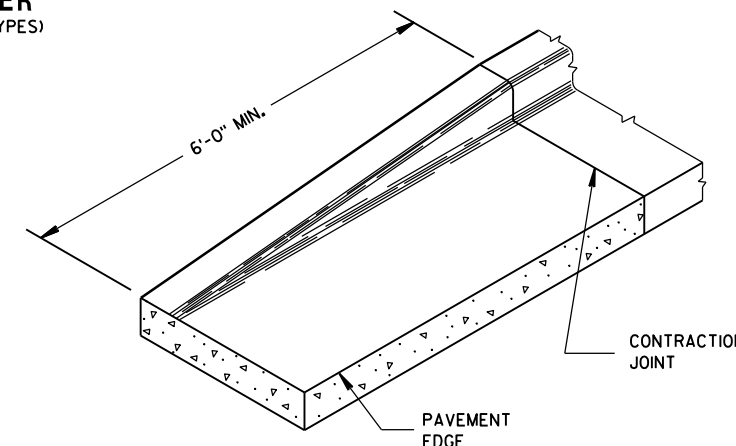
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED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



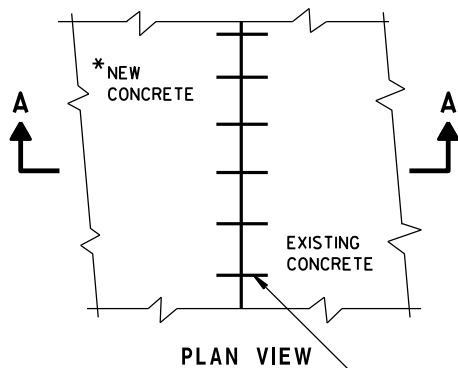
PARTIAL SECTION OF PAVEMENT  
WITH INTEGRAL CURB & GUTTER



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

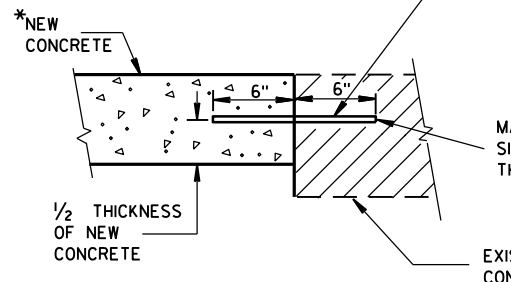


END SECTION CURB & GUTTER



PLAN VIEW

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



SECTION A-A  
TIE BARS DRILLED  
INTO EXISTING PAVEMENT

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

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

EXISTING  
CONCRETE

CONCRETE CURB, CONCRETE  
CURB & GUTTER AND TIES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June, 2015  
DATE  
FHWA

/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

## 6



PLAN VIEW  
FLUME AT CURB END



## 6

S.D.D. 8 D 4-5

- ① JOINTS SHALL BE  $\frac{1}{8}$  TO  $\frac{1}{4}$  INCH WIDE BY  $1\frac{1}{2}$  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

EXPANSION JOINT

CONCRETE CURB AND GUTTER

8'-0"

4'-0"

EDGE OF PAVEMENT

2" MIN. CURB HEIGHT

4" R

3'-0" MIN.

SURFACE DRAIN IS SYMETRICAL WHEN CURB AND GUTTER IS CONTINUED

TAPER CURB TO FLOW LINE

JOINTS

SHOULDER OR BERM HINGE POINT

W3 WIRE MESH (SEE SECTION D-D)

RIPRAP

6'-0"

OR AS REQUIRED

1'-0" ON CUT SLOPE

DITCH

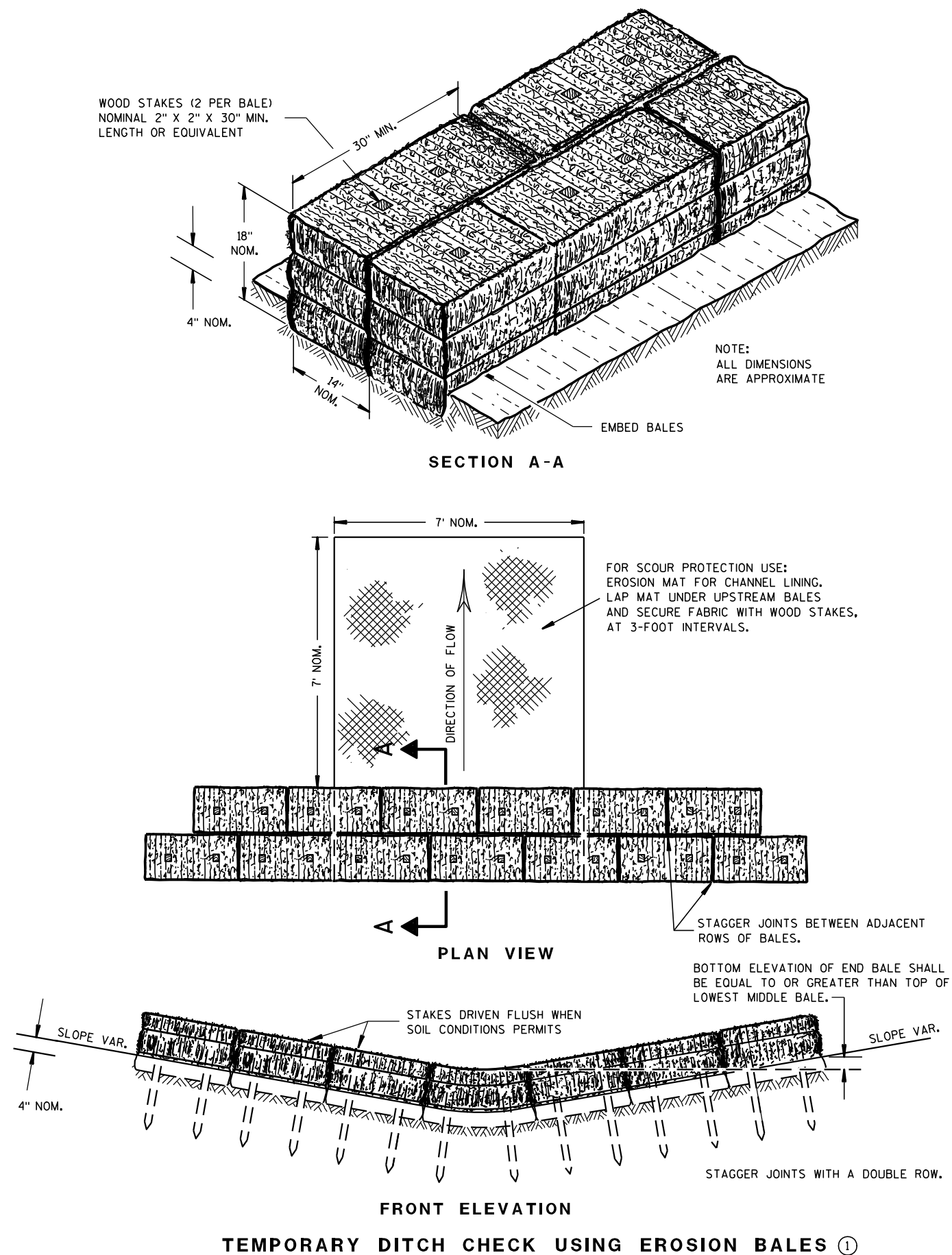
PLAN VIEW

### PLAN VIEW



STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

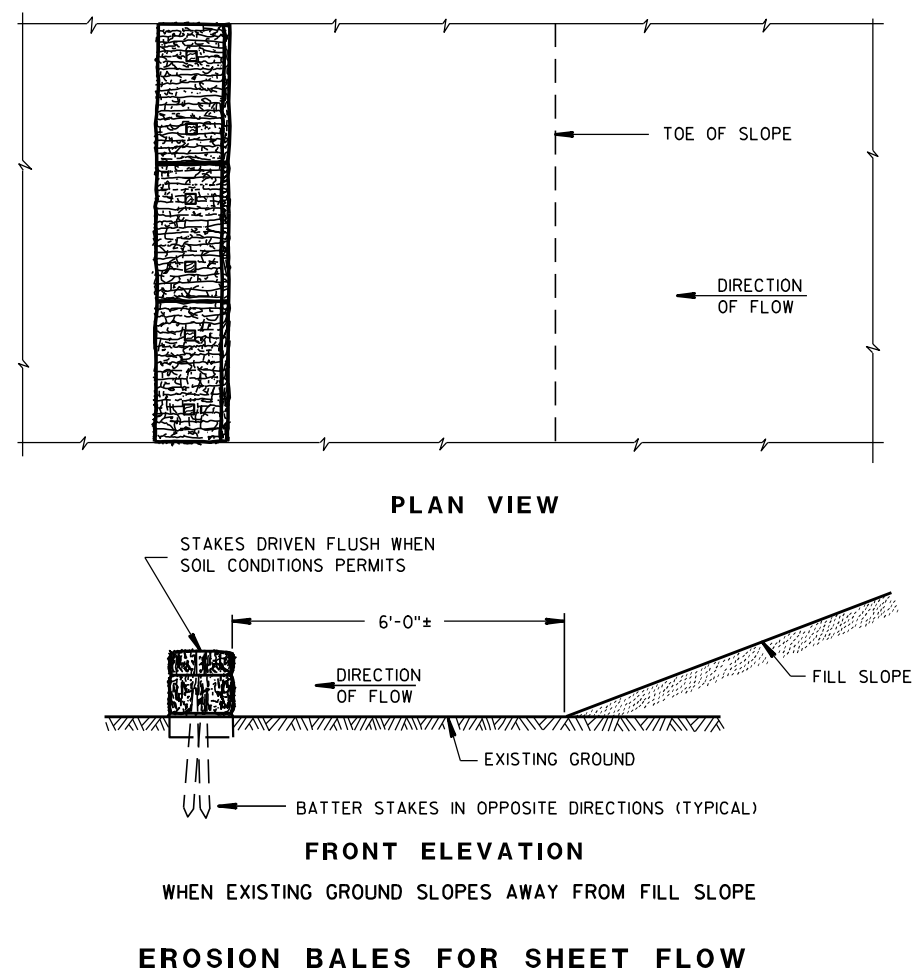
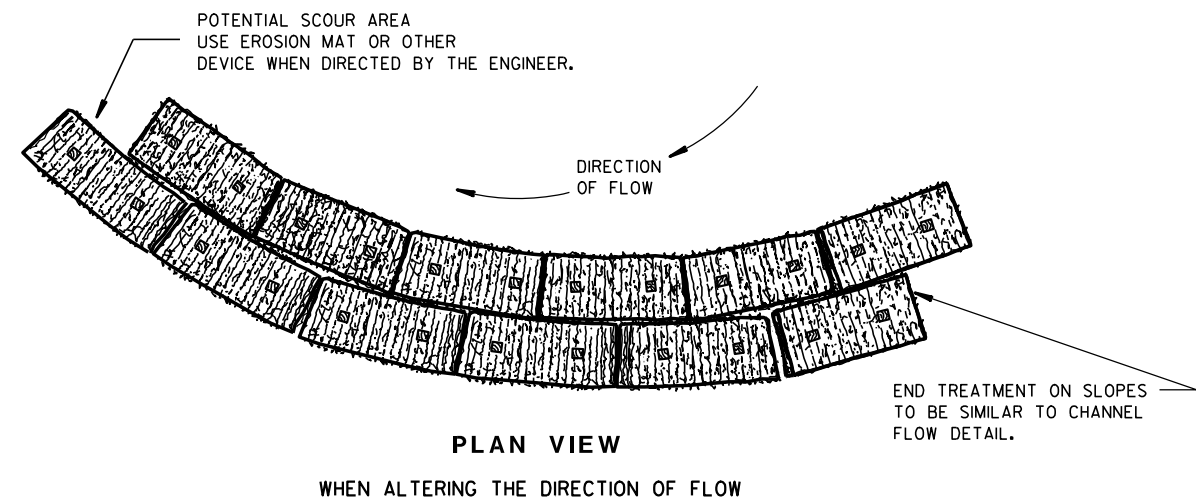
APPROVED  
9-4-08 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER



## GENERAL NOTES

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

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

TYPICAL INSTALLATIONS OF  
EROSION BALES / TEMPORARY  
DITCH CHECKS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

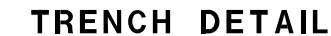
APPROVED

6/04/02  
DATE/S/ Beth Canestra  
CHIEF ROADWAY DEVELOPMENT ENGINEER

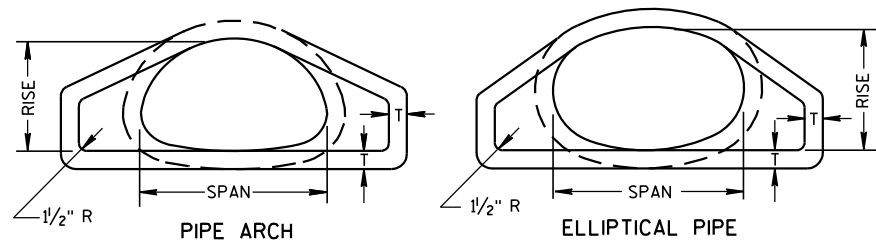
FHWA



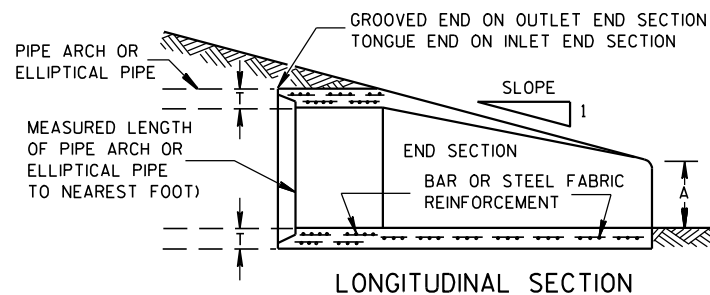
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



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

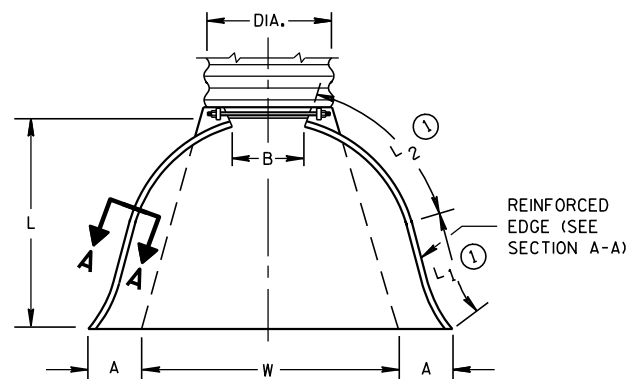


END VIEW



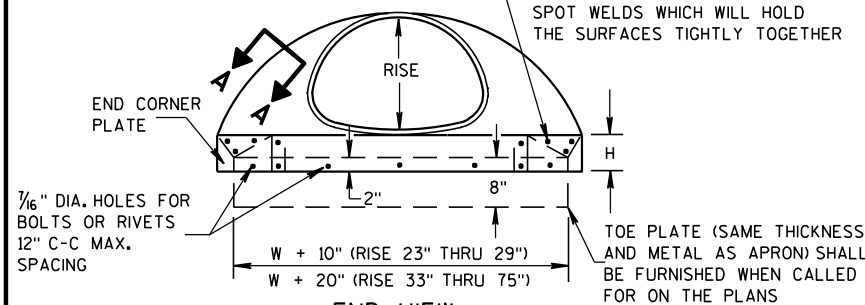
LONGITUDINAL SECTION

## CONCRETE ENDWALLS

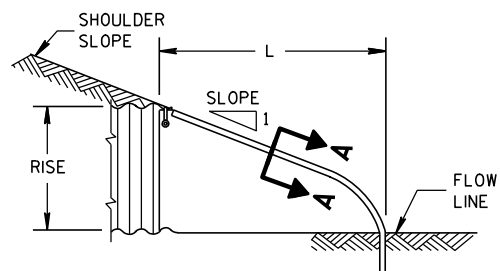
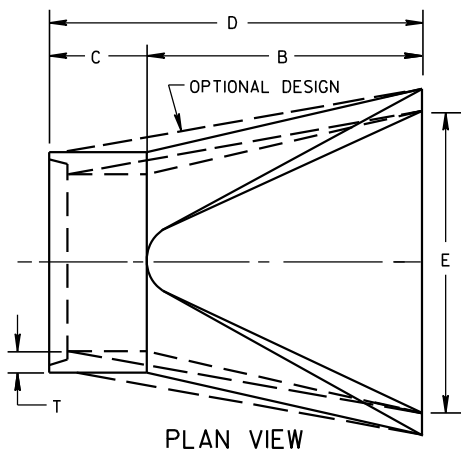


PLAN VIEW

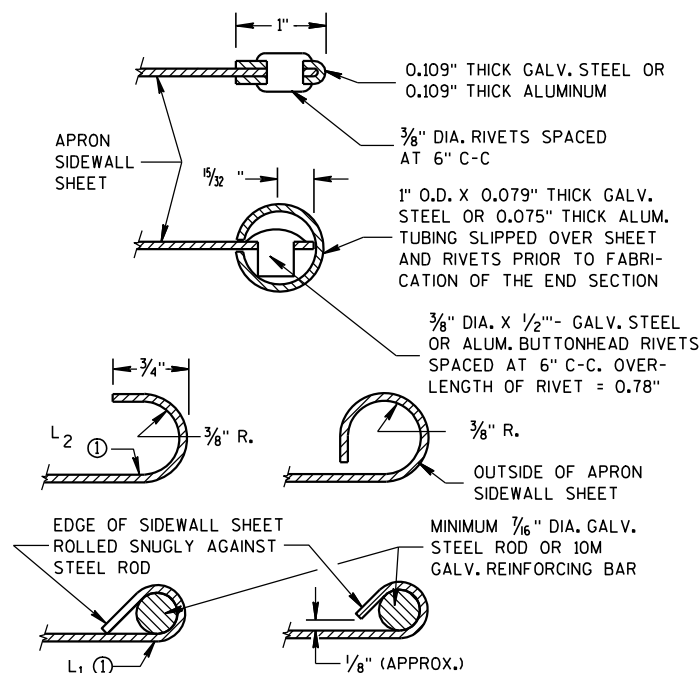
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



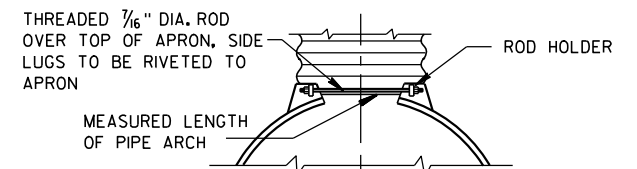
END VIEW

SIDE ELEVATION  
METAL ENDWALLS

PLAN VIEW

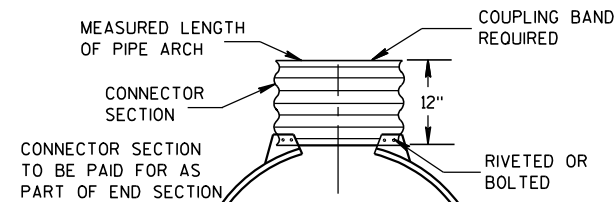


SECTION A-A



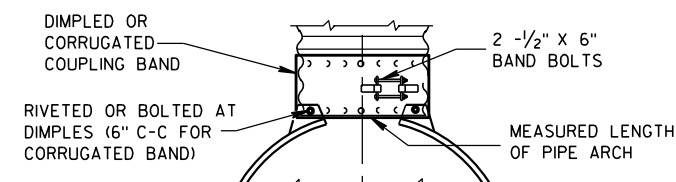
TYPE 2

FOR 17" X 13" THRU 112" X 75" PIPE ARCH



TYPE 3

FOR 64" X 43" THRU 112" X 75" PIPE ARCH



TYPE 5

ALTERNATE FOR:  
ALL SIZES CORRUGATED PIPE ARCHESNOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,  
AND CORRUGATED BAND FITS INSIDE ENDWALL.

## CONNECTION DETAILS

## 2- 2/3" X 1/2" CORRUGATIONS

| EQUIV. DIA.<br>(Inches) | (Inches) |      | MIN. THICK.<br>(Inches) |       | DIMENSIONS (Inches) |             |            |                |         |         |            | APPROX. SLOPE | BODY  |
|-------------------------|----------|------|-------------------------|-------|---------------------|-------------|------------|----------------|---------|---------|------------|---------------|-------|
|                         | SPAN     | RISE | STEEL                   | ALUM. | A<br>(±1")          | B<br>(MAX.) | H<br>(±1") | L<br>(±1 1/2") | L1<br>① | L2<br>① | W<br>(±2") |               |       |
| 15                      | 17       | 13   | .064                    | .060  | 7                   | 9           | 6          | 19             | 14      | 16      | 30         | 2 1/2 to 1    | 1 Pc. |
| 18                      | 21       | 15   | .064                    | .060  | 7                   | 10          | 6          | 23             | 14      | 19 3/8  | 36         | 2 1/2 to 1    | 1 Pc. |
| 21                      | 24       | 18   | .064                    | .060  | 8                   | 12          | 6          | 28             | 18      | 21 3/4  | 42         | 2 1/2 to 1    | 1 Pc. |
| 24                      | 28       | 20   | .064                    | .060  | 9                   | 14          | 6          | 32             | 18      | 27 1/2  | 48         | 2 1/2 to 1    | 1 Pc. |
| 30                      | 35       | 24   | .079                    | .075  | 10                  | 16          | 6          | 39             | 18      | 37 5/8  | 60         | 2 1/2 to 1    | 1 Pc. |
| 36                      | 42       | 29   | .079                    | .075  | 12                  | 18          | 8          | 46             | 24      | 45 3/8  | 75         | 2 1/2 to 1    | 1 Pc. |
| 42                      | 49       | 33   | .109                    | .105  | 13                  | 21          | 9          | 53             | 24      | 54 3/4  | 85         | 2 1/2 to 1    | 2 Pc. |
| 48                      | 57       | 38   | .109                    | .105  | 18                  | 26          | 12         | 63             | 24      | 68      | 90         | 2 1/2 to 1    | 3 Pc. |
| 54                      | 64       | 43   | .109                    | .105  | 18                  | 30          | 12         | 70             | 24      | 72 3/4  | 102        | 2 1/4 to 1    | 3 Pc. |
| 60                      | 71       | 47   | .109*                   | .105* | 18                  | 33          | 12         | 77             | 30      | 82 1/4  | 114        | 2 1/4 to 1    | 3 Pc. |
| 66                      | 77       | 52   | .109*                   | .105* | 18                  | 36          | 12         | 77             | —       | —       | 126        | 2 to 1        | 3 Pc. |
| 72                      | 83       | 57   | .109*                   | .105* | 18                  | 39          | 12         | 77             | —       | —       | 138        | 2 to 1        | 3 Pc. |

## 3" X 1" CORRUGATIONS

| EQUIV. DIA.<br>(Inches) | (Inches) |      | MIN. THICK.<br>(Inches) |       | DIMENSIONS (Inches) |             |            |                |         |         |            | APPROX. SLOPE | BODY  |
|-------------------------|----------|------|-------------------------|-------|---------------------|-------------|------------|----------------|---------|---------|------------|---------------|-------|
|                         | SPAN     | RISE | STEEL                   | ALUM. | A<br>(±1")          | B<br>(MAX.) | H<br>(±1") | L<br>(±1 1/2") | L1<br>① | L2<br>① | W<br>(±2") |               |       |
| 48                      | 53       | 41   | .109                    | .105  | 18                  | 26          | 12         | 63             | 24      | 72 3/4  | 90         | 2 1/2 to 1    | 2 Pc. |
| 54                      | 60       | 46   | .109                    | .105  | 18                  | 30          | 12         | 70             | 30      | 82 1/4  | 102        | 2 to 1        | 2 Pc. |
| 60                      | 66       | 51   | .109*                   | .105* | 18                  | 33          | 12         | 77             | —       | —       | 114        | 1 1/2 to 1    | 3 Pc. |
| 66                      | 73       | 55   | .109*                   | .105* | 18                  | 36          | 12         | 77             | —       | —       | 126        | 1 1/2 to 1    | 3 Pc. |
| 72                      | 81       | 59   | .109*                   | .105* | 18                  | 39          | 12         | 77             | —       | —       | 138        | 2 to 1        | 3 Pc. |
| 78                      | 87       | 63   | .109*                   | .105* | 22                  | 38          | 12         | 77             | —       | —       | 148        | 1 1/2 to 1    | 3 Pc. |
| 84                      | 95       | 67   | .109*                   | .105* | 22                  | 34          | 12         | 77             | —       | —       | 162        | 1 1/2 to 1    | 3 Pc. |
| 90                      | 103      | 71   | .109*                   | .105* | 22                  | 38          | 12         | 77             | —       | —       | 174        | 1 1/2 to 1    | 3 Pc. |
| 96                      | 112      | 75   | .109*                   | .105* | 24                  | 40          | 12         | 77             | —       | —       | 174        | 1 1/2 to 1    | 3 Pc. |

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

\* EXCEPT CENTER PANEL  
SEE GENERAL NOTES

## REINFORCED CONCRETE PIPE ARCH

| EQUIV. DIA.<br>(Inches) | DIMENSIONS (Inches) |         |       |         |    |    |     |     | APPROX. SLOPE |
|-------------------------|---------------------|---------|-------|---------|----|----|-----|-----|---------------|
|                         | ** SPAN             | ** RISE | T     | A       | B  | C  | D   | E   |               |
| 24                      | 29                  | 18      | 3     | 8 1/2   | 39 | 33 | 72  | 48  | 3 to 1        |
| 30                      | 36                  | 22      | 3 1/2 | 9 1/2   | 50 | 46 | 96  | 60  | 3 to 1        |
| 36                      | 44                  | 27      | 4     | 11 1/8  | 60 | 36 | 96  | 72  | 3 to 1        |
| 42                      | 51                  | 31      | 4 1/2 | 15 1/16 | 60 | 36 | 96  | 78  | 3 to 1        |
| 48                      | 58                  | 36      | 5     | 21      | 60 | 36 | 96  | 84  | 3 to 1        |
| 54                      | 65                  | 40      | 5 1/2 | 25 1/2  | 60 | 36 | 96  | 90  | 3 to 1        |
| 60                      | 73                  | 45      | 6     | 31      | 60 | 36 | 96  | 96  | 3 to 1        |
| 72                      | 88                  | 54      | 7     | 31      | 60 | 39 | 99  | 120 | 2 to 1        |
| 84                      | 102                 | 62      | 8     | 28 1/2  | 83 | 19 | 102 | 144 | 2 to 1        |

## REINFORCED CONCRETE ELLIPTICAL PIPE

| EQUIV. DIA.<br>(Inches) | DIMENSIONS (Inches) |         |       |        |    |    |    |    | APPROX. SLOPE |
|-------------------------|---------------------|---------|-------|--------|----|----|----|----|---------------|
|                         | ** SPAN             | ** RISE | T     | A      | B  | C  | D  | E  |               |
| 24                      | 30                  | 19      | 3 1/4 | 8 1/2  | 39 | 33 | 72 | 48 | 3 to 1        |
| 30                      | 38                  | 24      | 3 3/4 | 9 1/2  | 54 | 18 | 72 | 60 | 3 to 1        |
| 36                      | 45                  | 29      | 4 1/2 | 11 1/8 | 60 | 24 | 84 | 72 | 2 1/2 to 1    |
| 42                      | 53                  | 34      | 5     | 15 1/4 | 60 | 36 | 96 | 78 | 2 1/2 to 1    |
| 48                      | 60                  | 38      | 5 1/2 | 21     | 60 | 36 | 96 | 84 | 2 1/2 to 1    |
| 54                      | 68                  | 43      | 6     | 25 1/2 | 60 | 36 | 96 | 90 | 2 1/2 to 1    |
| 60                      | 76                  | 48      | 6 1/2 | 30     | 60 | 36 | 96 | 96 | 2 1/2 to 1    |

\*\*NOMINAL SIZE

## GENERAL NOTES

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

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE ARCH PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 77" X 52" THROUGH 112" X 75" APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

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

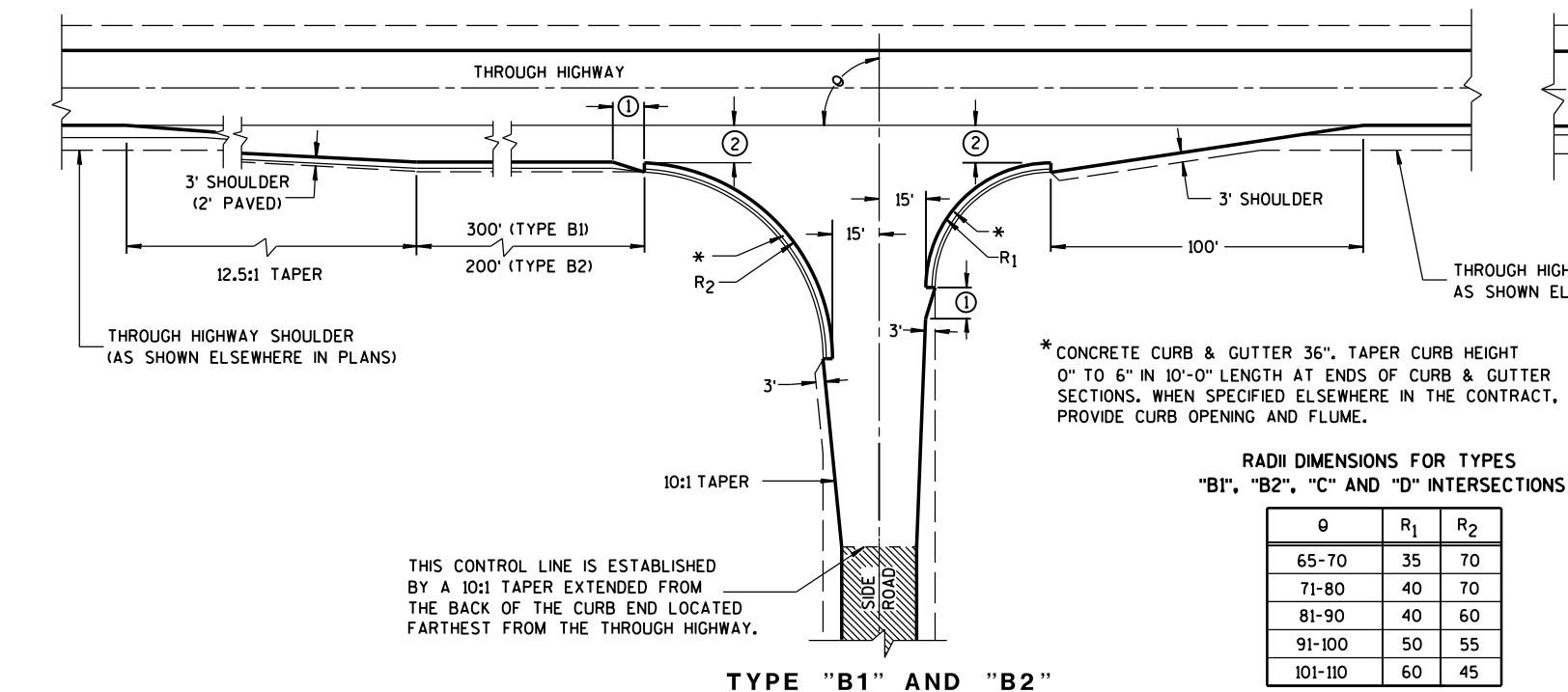
① FOR PIPE ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR  
PIPE ARCH AND  
ELLIPTICAL PIPESTATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

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

FHWA



## GENERAL NOTES

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

### SIDE ROAD SURFACING NOTE

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

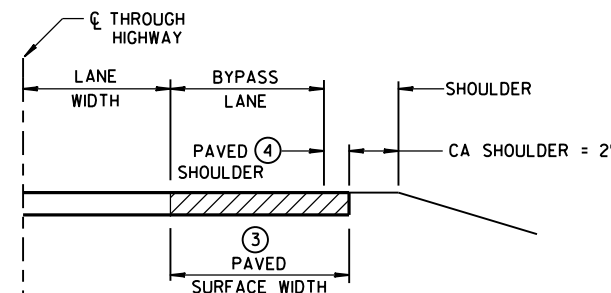
WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

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

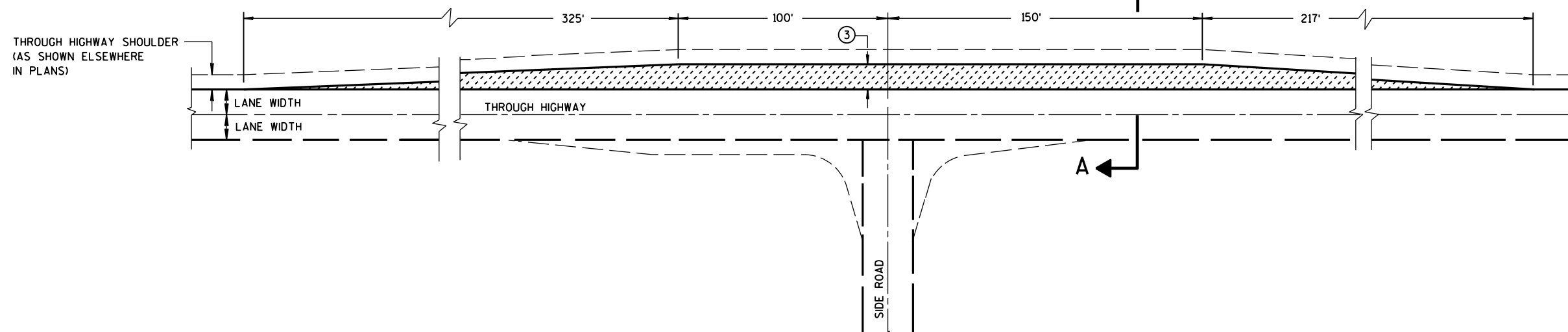
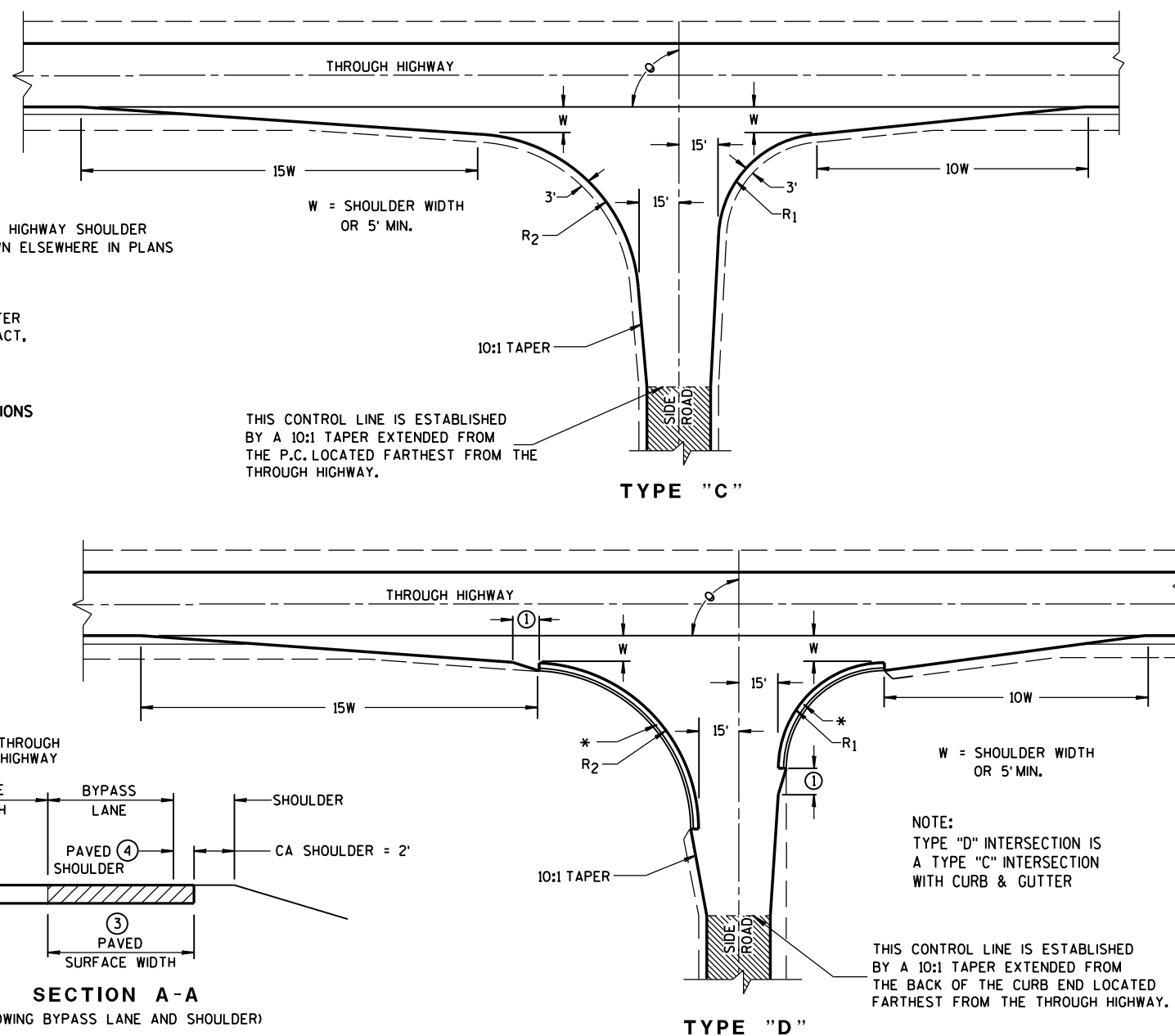
EXISTING PAVED SURFACE

BYPASS LANE

- ① 10-FT TYPICAL.
- ② 12-FT\*\* PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLAN.
- \*\*10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.
- ③ BYPASS LANE PAVED SURFACE WIDTH OUTSIDE OF TRAVEL LANE  
-ASPHALT = 12-FT PLUS PAVED SHOULDER WIDTH.  
-PC CPNCRETE = 13-FT PLUS PAVED SHOULDER WIDTH.
- ④ BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.



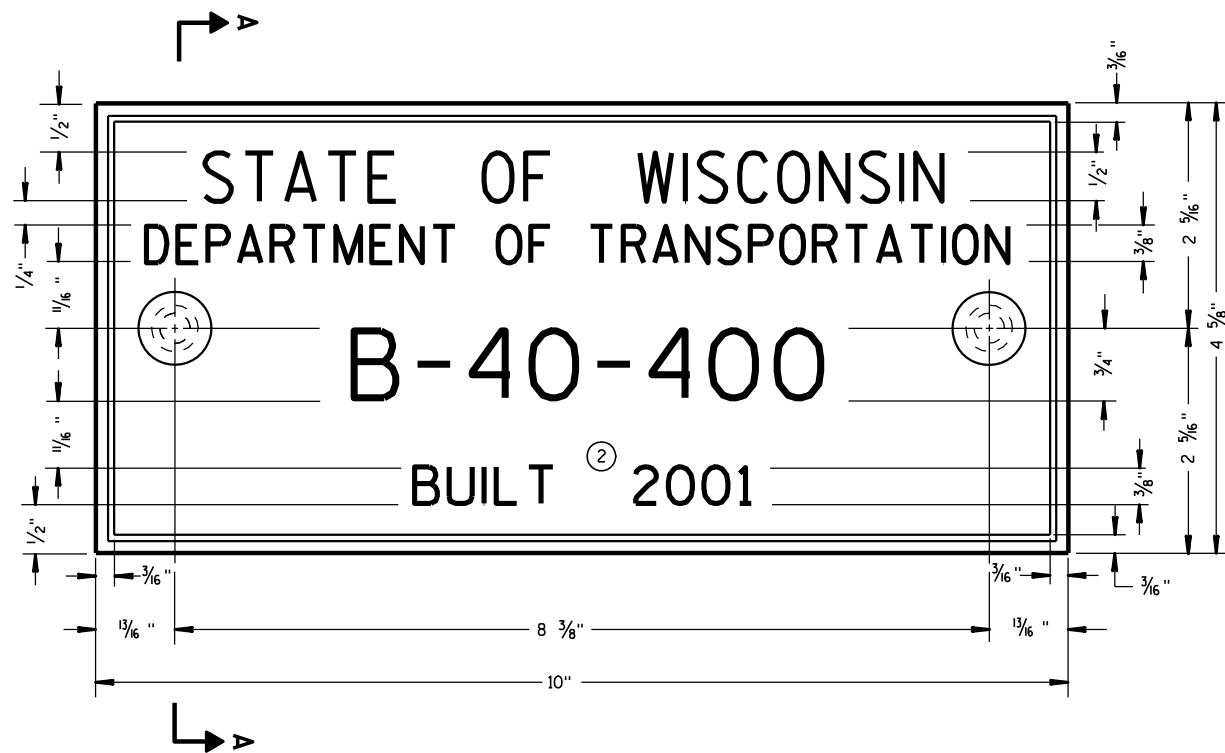
SECTION A-A  
(SHOWING BYPASS LANE AND SHOULDER)



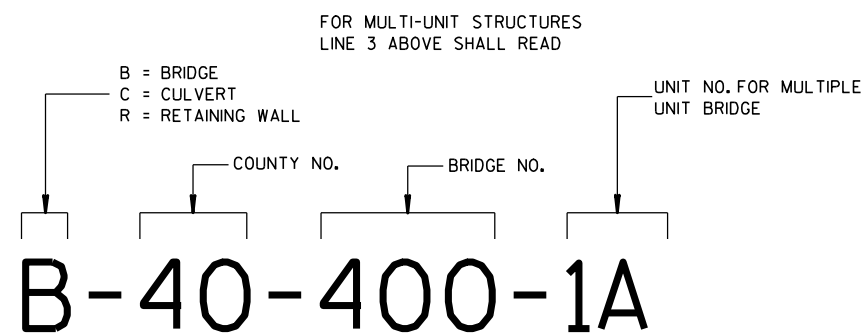
TEE INTERSECTION BYPASS LANE DETAIL

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



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



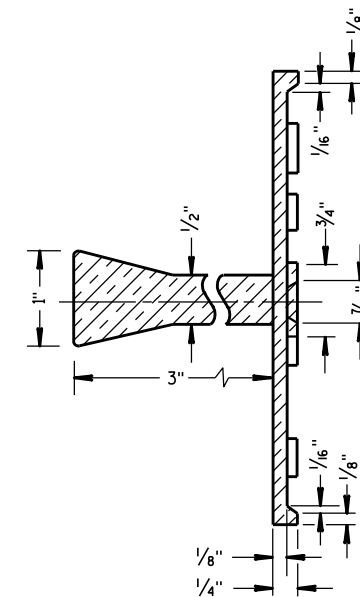
**NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES**

## GENERAL NOTES

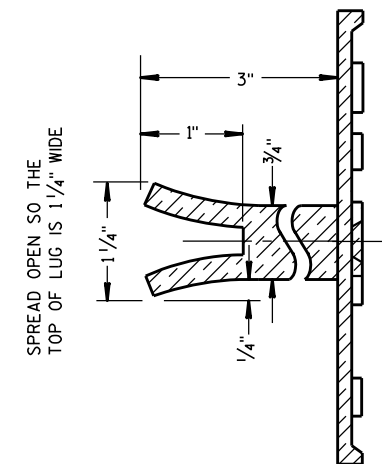
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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.



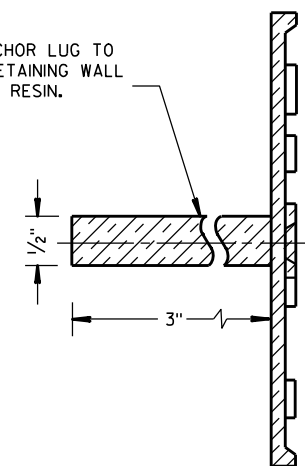
**SECTION A-A**



SPREAD OPEN SO THE  
TOP OF LUG IS 1 1/4" WIDE

**ALTERNATE LUG**

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



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

**NAME PLATE  
(STRUCTURES)**

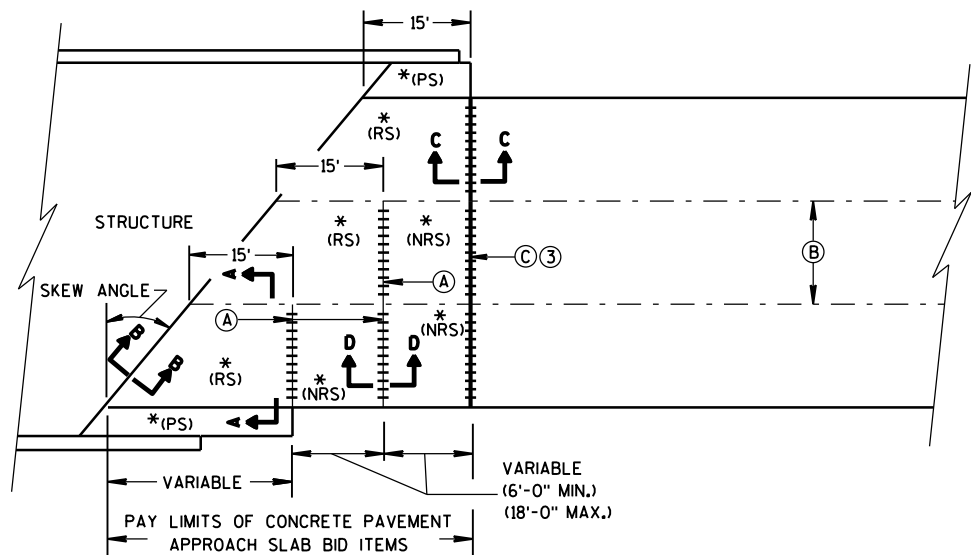
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

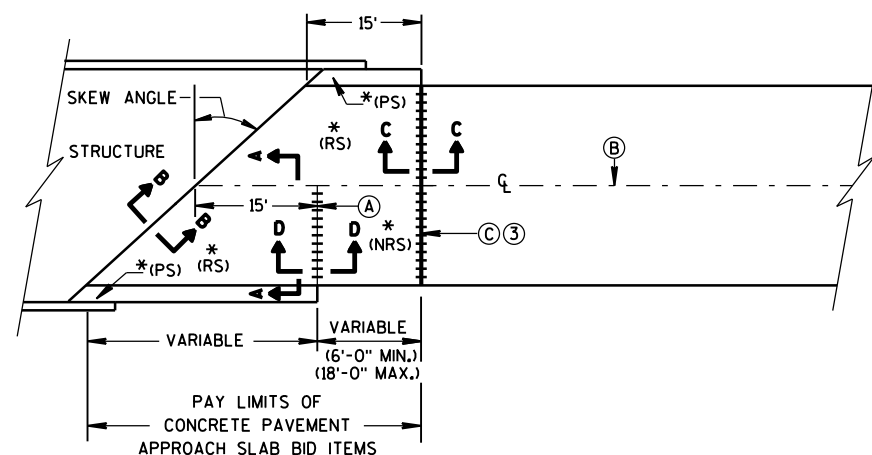
3/26/10  
DATE

FHWA

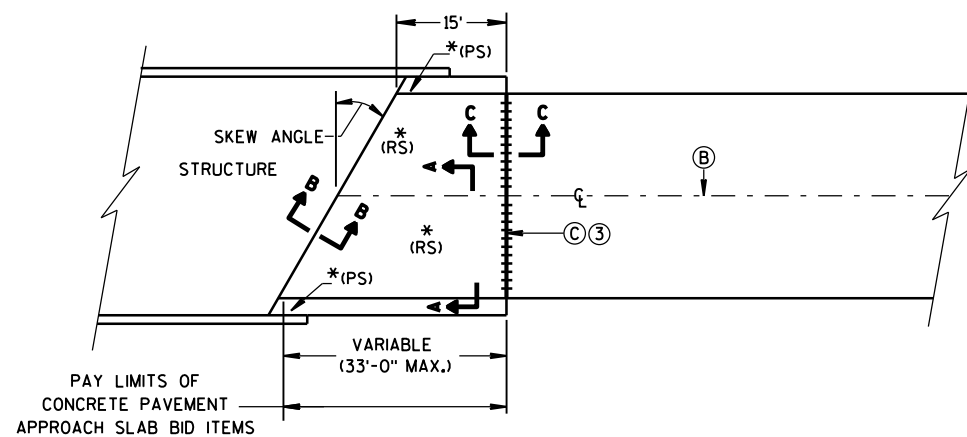
/S/ Scot Becker  
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



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



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

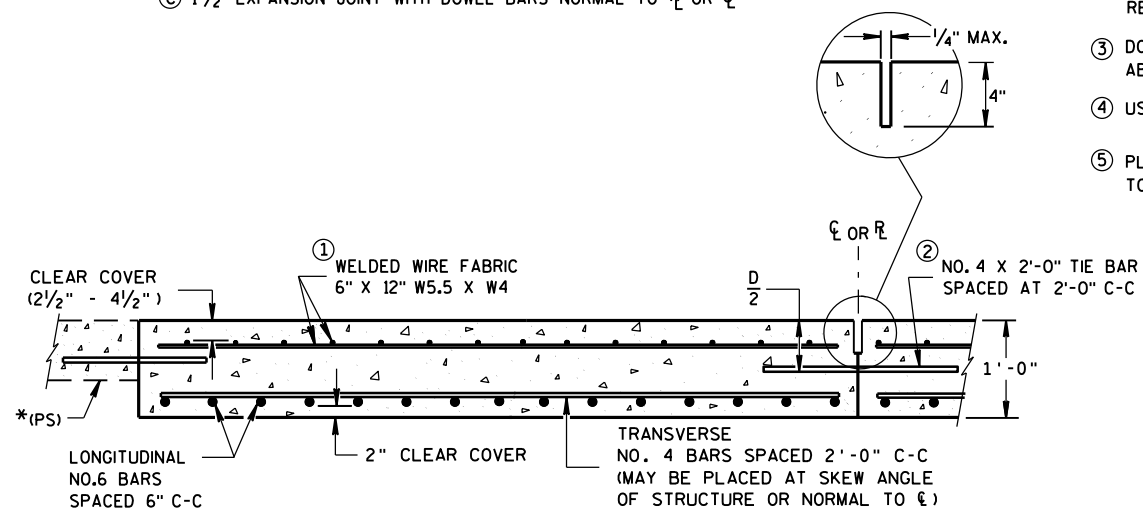


**SKews ≤ 20°  
(PAVEMENT WIDTH ≤ 30')  
APPROACH SLAB AND ADJACENT PAVEMENT**

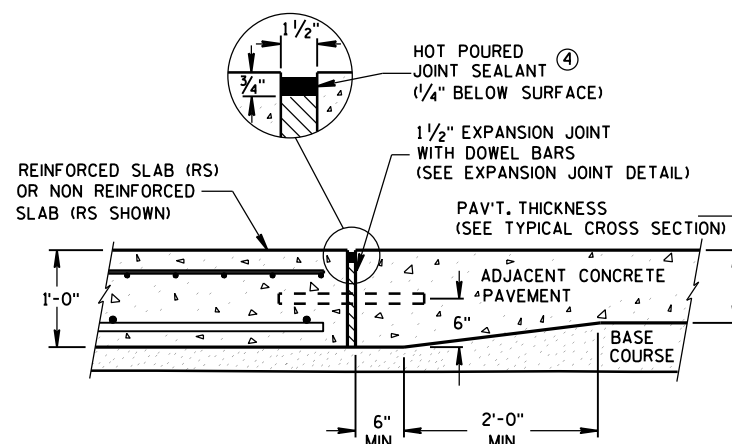
\* (RS) = REINFORCED CONCRETE SLAB  
\* (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB  
(SEE DETAILS ELSEWHERE IN THE PLAN)  
\* (NRS) = NON-REINFORCED CONCRETE SLAB

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

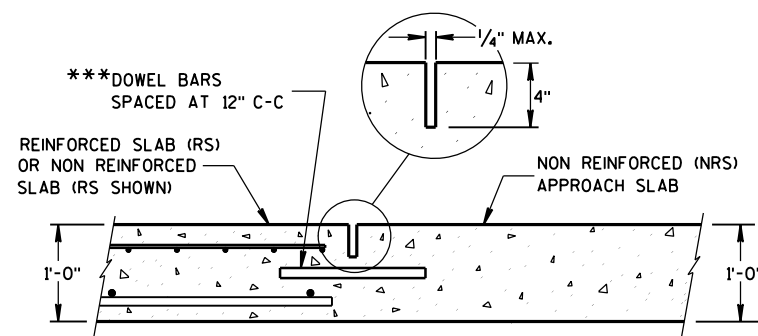
- (A) STANDARD CONTRACTION JOINT NORMAL TO  $\ell$  OR  $\ell_c$   
(B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.  
(C) 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO  $\ell$  OR  $\ell_c$



**SECTION A-A  
REINFORCEMENT POSITIONING DETAIL**



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



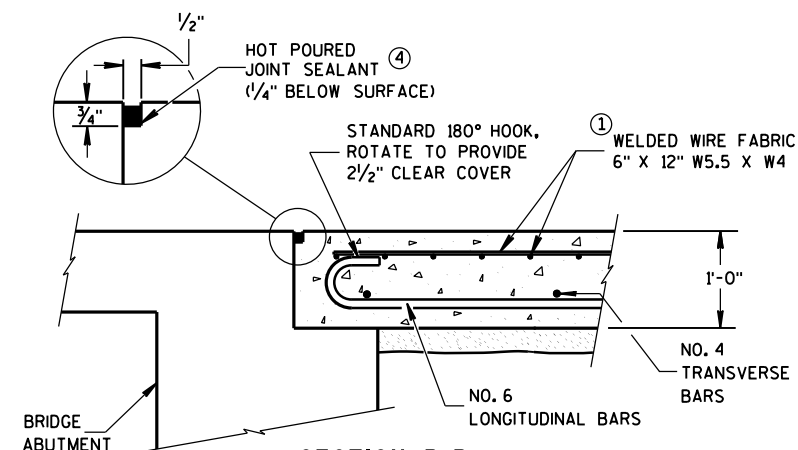
**SECTION D-D  
CONTRACTION JOINT**

## GENERAL NOTES

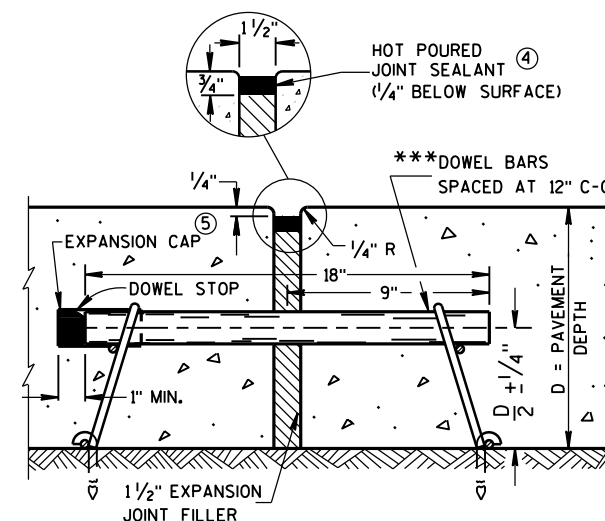
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

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

## 6

S.D.D. 14 B 15-8a

- 6

S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a

S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a

S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a



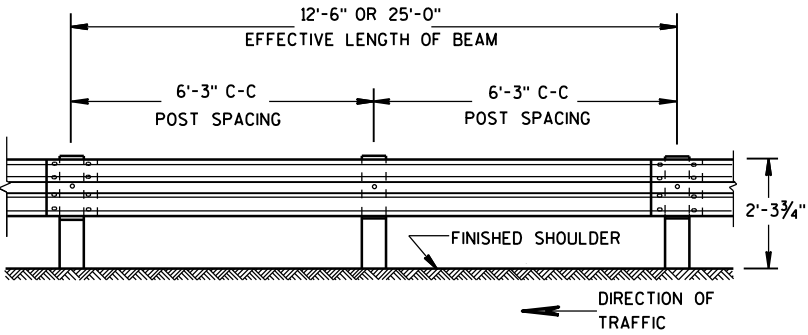
S.D.D. 14 B 15-8a



S.D.D. 14 B 15-8a

S.D.D. 14 B 15-8a

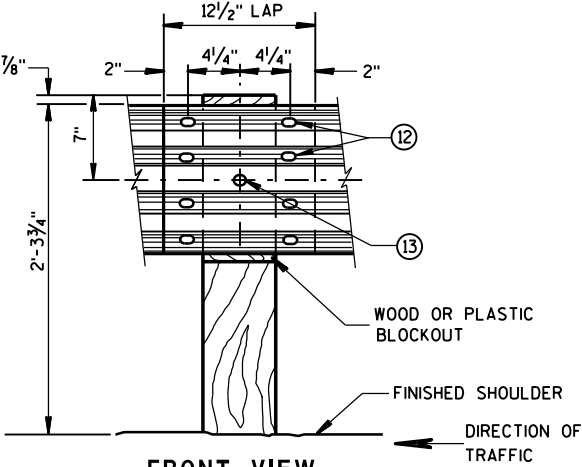
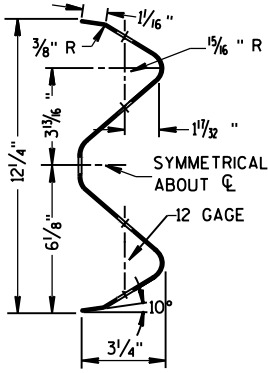
S.D.D. 14 B 15-8a



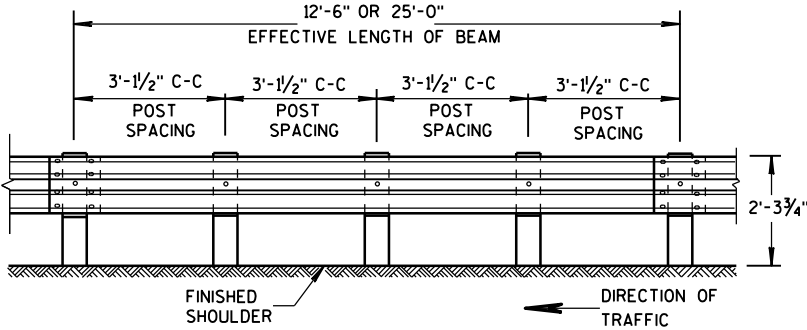
FRONT VIEW

### POST SPACING STANDARD INSTALLATION

### SECTION THRU W BEAM

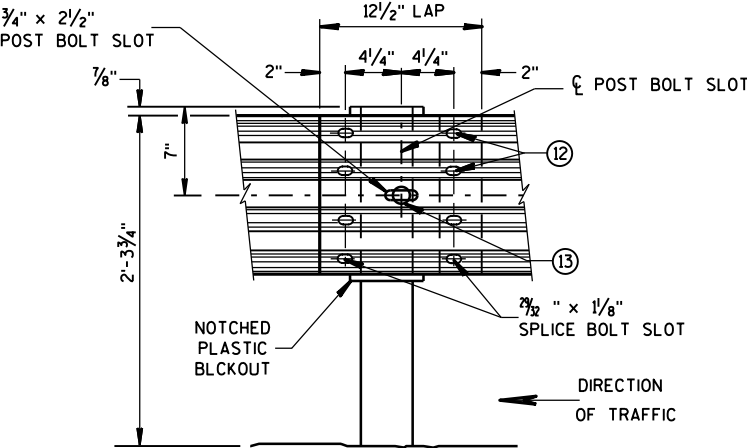


FRONT VIEW  
BEAM SPLICE AT WOOD POST  
AND POST MOUNTING DETAIL



FRONT VIEW

### POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)

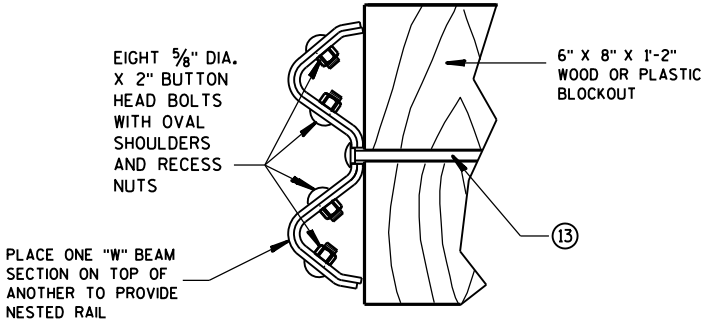


FRONT VIEW  
BEAM SPLICE AT STEEL POST

### TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD

### GENERAL NOTES

- ⑧ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.
- ⑨ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- ⑩ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ⑪ PROVIDE AN ANGLE OF BEND OF  $90^\circ \pm 1^\circ$  FOR TWO-SIDED REFLECTORS.
- ⑫ 8 - 5/8"  $\phi$  X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑬ 5/8" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH 5/8" DIA. F844 FLAT WASHER UNDER NUT.

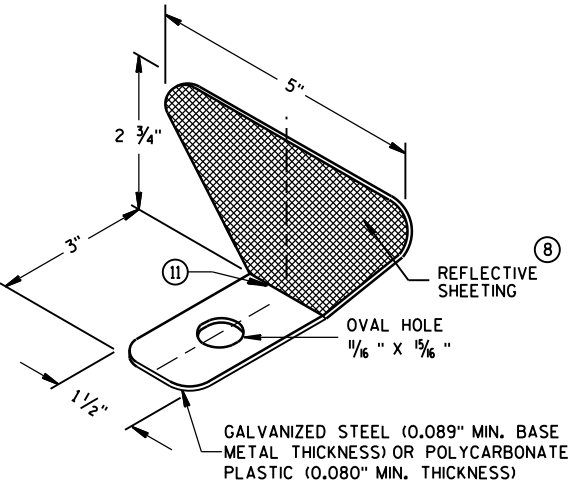
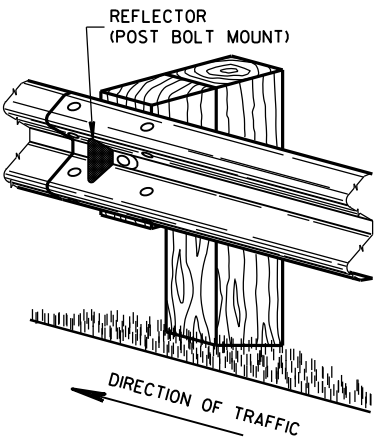


NESTED W BEAM (NW)

USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR CONSTRUCTING NESTED W BEAM (NW)

REFLECTOR SPACING ⑨

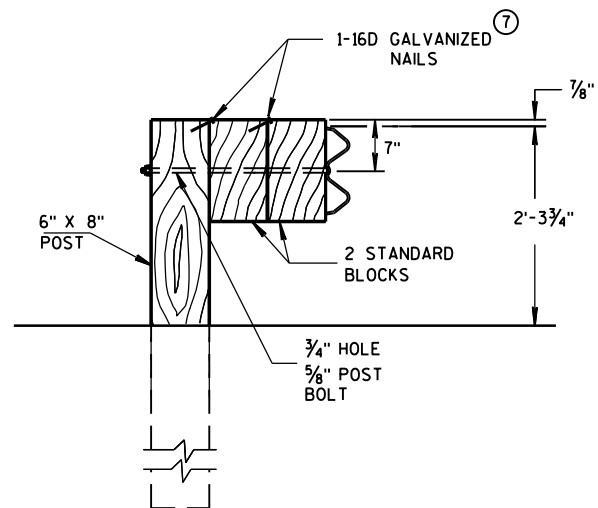
|                 | BEAM GUARD LENGTH | REFLECTOR SPACING | NO. SURFACES REFLECTORIZED | MIN. NO. REFLECTORS |
|-----------------|-------------------|-------------------|----------------------------|---------------------|
| ONE WAY TRAFFIC | < 200'            | 50' C-C           | 1                          | 3                   |
|                 | > 200'            | 100' C-C          | 1                          |                     |
| TWO WAY TRAFFIC | < 200'            | 25' C-C           | 1 ⑩                        | 6                   |
|                 | > 200'            | 50' C-C           | 1 ⑩                        |                     |
| TWO WAY TRAFFIC | < 200'            | 50' C-C           | 2 ⑪                        | 3                   |
|                 | > 200'            | 100' C-C          | 2 ⑪                        |                     |



### ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

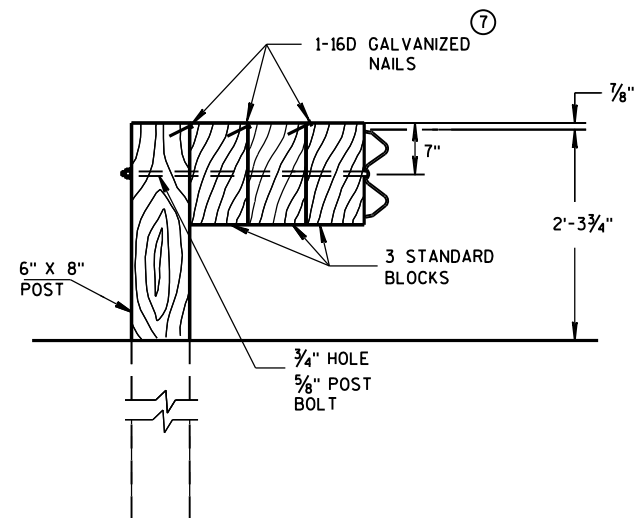
STEEL PLATE BEAM GUARD,  
CLASS "A",  
INSTALLATION & ELEMENTS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



#### DETAIL FOR DOUBLE BLOCKS

THE NUMBER OF DOUBLE BLOCK POSTS  
WITHIN A BARRIER RUN IS UNLIMITED

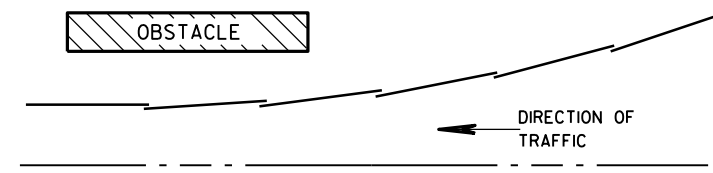


#### DETAIL FOR TRIPLE BLOCKS

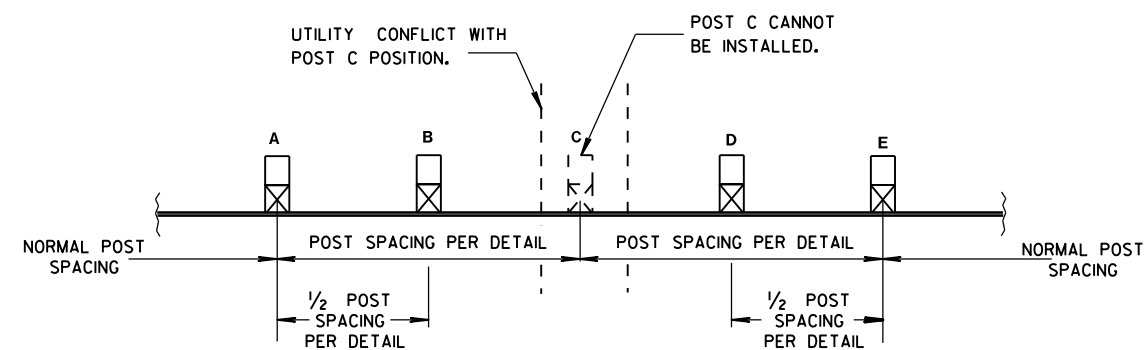
TRIPLE BLOCK DETAIL IS LIMITED TO ONE  
LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES  
PREVENT THE POST FROM BEING INSTALLED.

DO NOT USE EXTRA BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND  
SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION  
DISTANCE OF THE BARRIER.



#### PLAN VIEW BEAM LAPPING DETAIL



#### POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

STEEL PLATE BEAM GUARD,  
CLASS "A",  
INSTALLATION & ELEMENTS

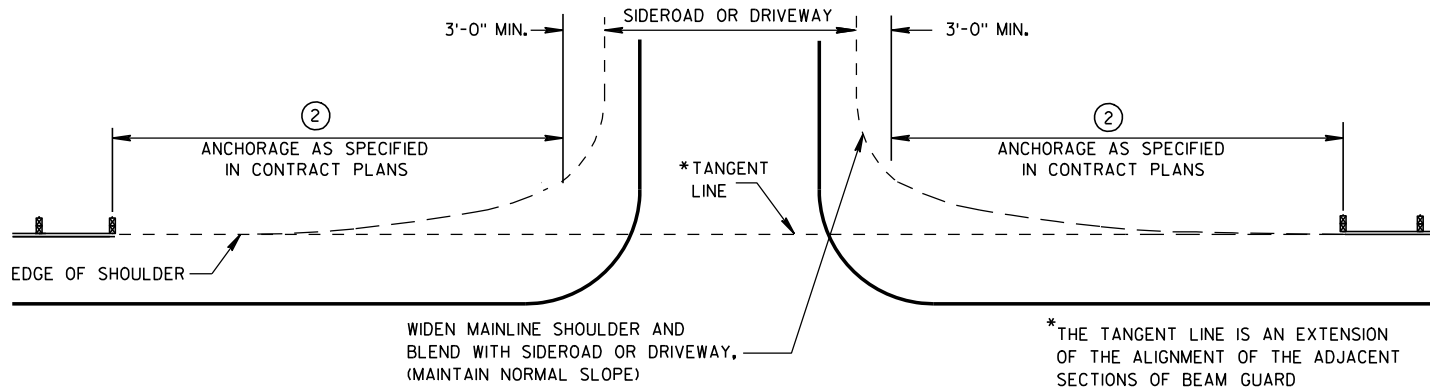
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

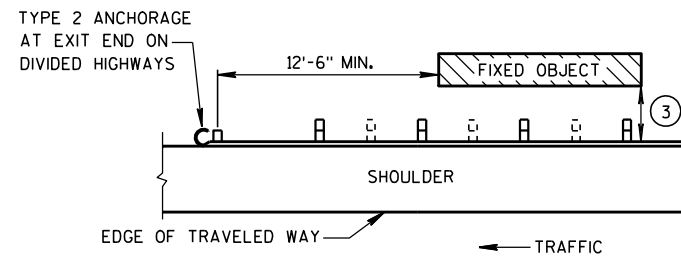
June 2014  
DATE

FHWA

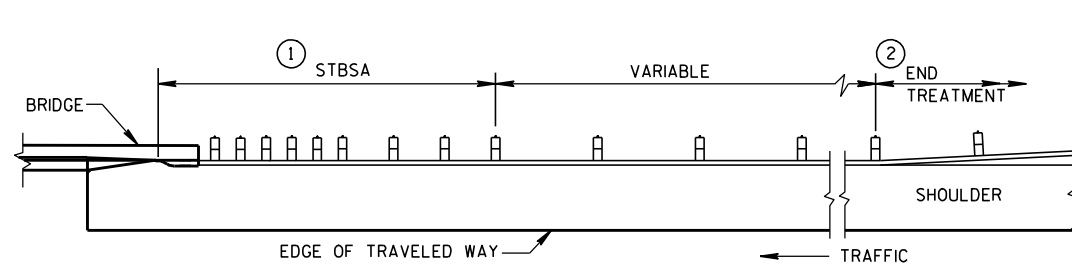
/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER



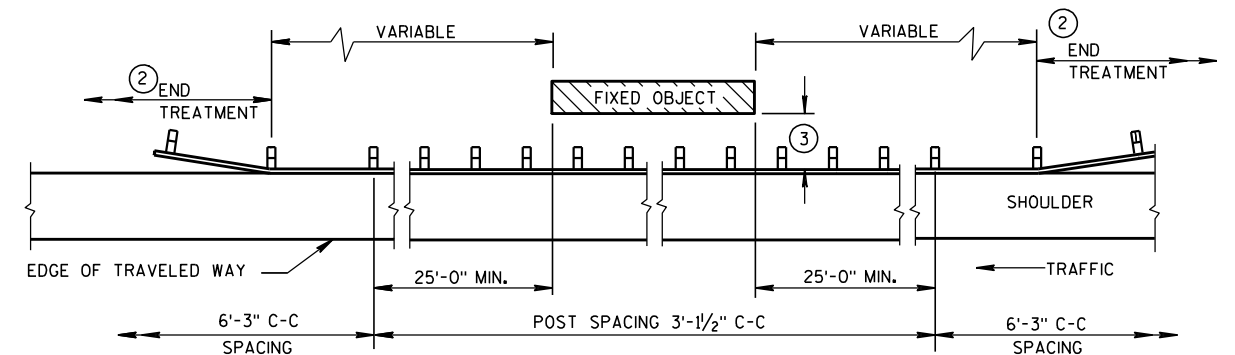
### BEAM GUARD AT SIDEROADS OR DRIVEWAYS



### BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC



### BEAM GUARD AT FULL WIDTH BRIDGES



### BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")

TABLE 1  
FLARE RATES FOR BEAM  
GUARD AT NARROW BRIDGES

| POSTED SPEED (MPH) | FLARE RATE |
|--------------------|------------|
| 25                 | 13:1       |
| 30                 | 15:1       |
| 35                 | 16:1       |
| 40                 | 18:1       |
| 45                 | 21:1       |
| 50                 | 24:1       |
| 55                 | 26:1       |
| 65                 | 30:1       |

### GENERAL NOTES

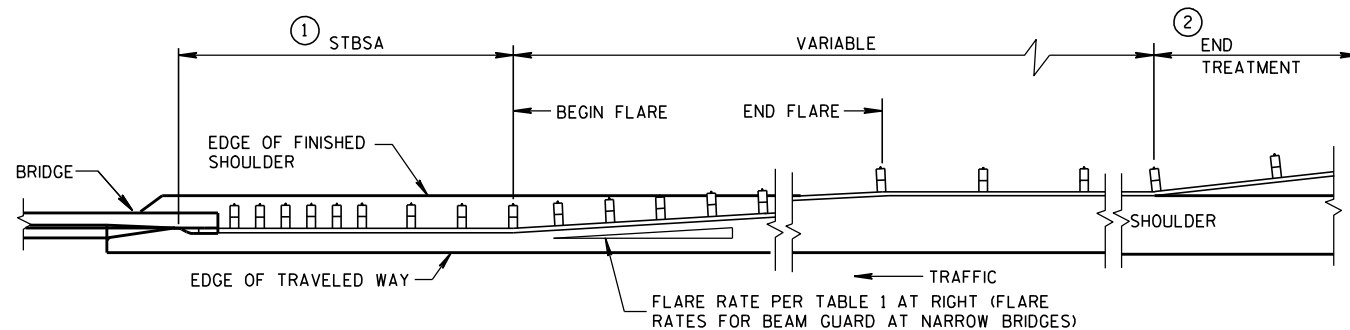
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

- STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

| MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT | POST SPACING |
|--|--------------|
| 3'-6"  | 3' - 1 1/2"  |
| 4'-6"  | 6' - 3"      |



### BEAM GUARD AT NARROW BRIDGES (FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

STEEL PLATE BEAM GUARD  
CLASS "A"  
AT BRIDGES, OBSTACLES  
AND SIDEROADS/DRIVEWAYS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
8-21-07  
DATE  
/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA

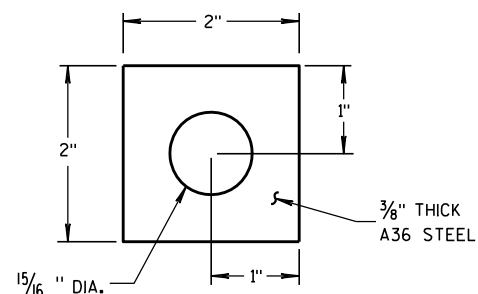
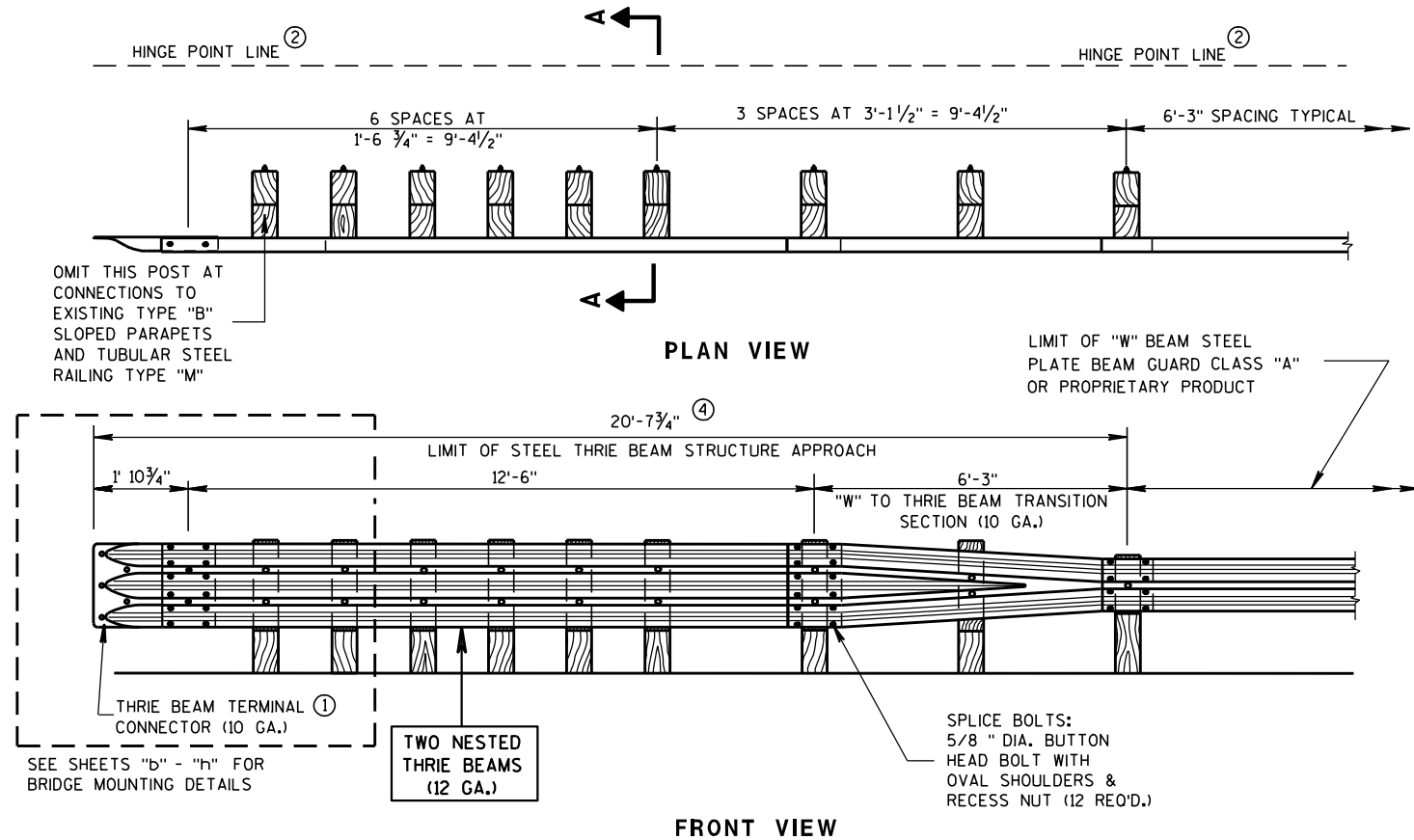


PLATE WASHER DETAIL

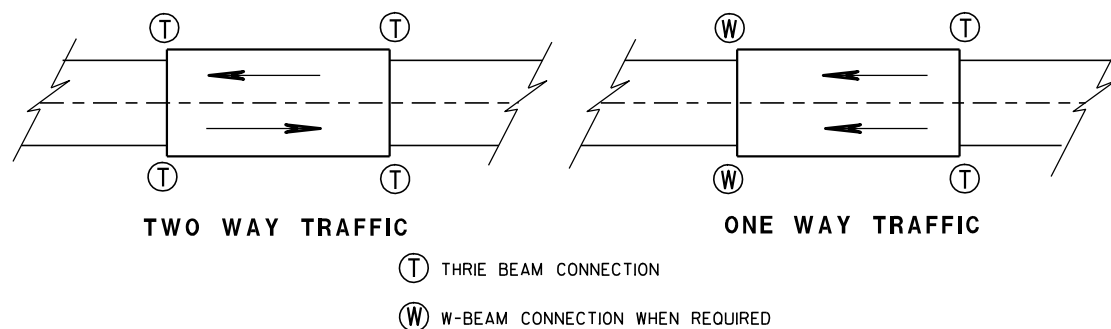
## GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

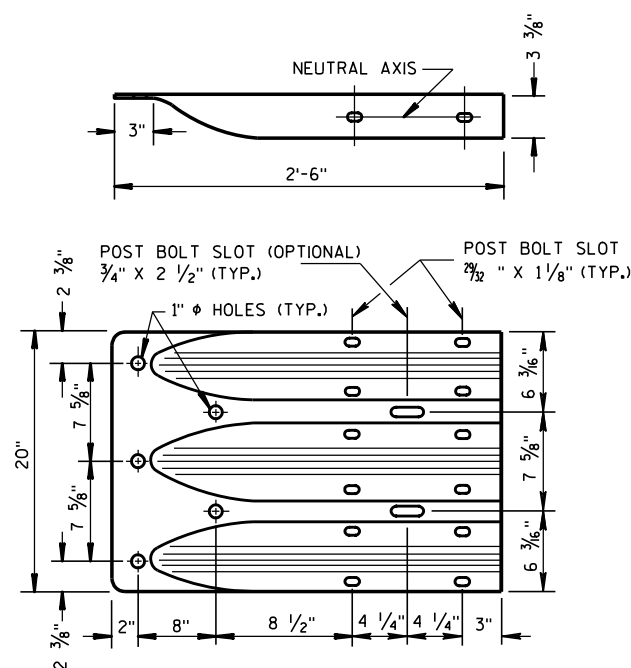
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

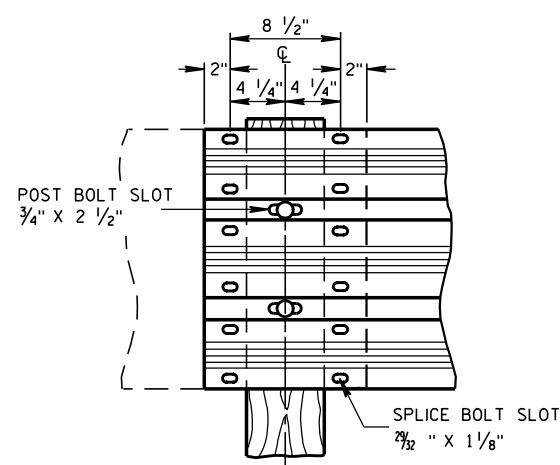
- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



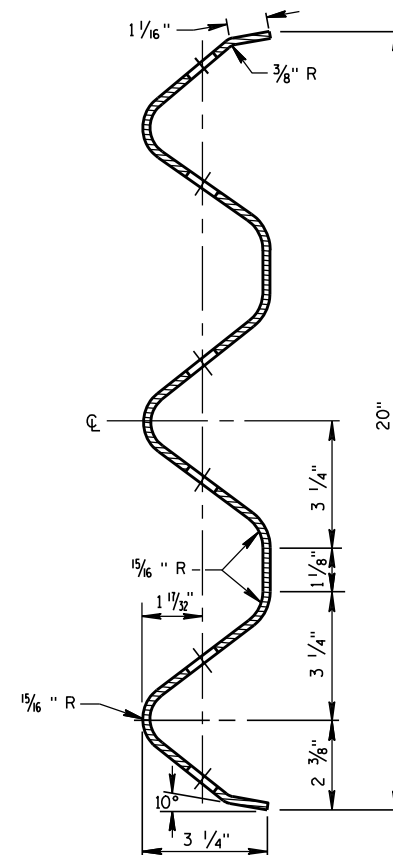
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE



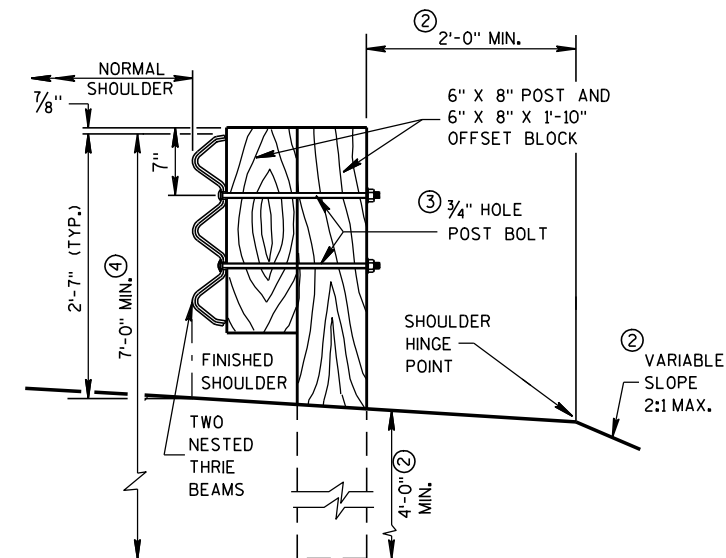
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION A-A

## STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012

DATE

FHWA

/s/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT

ENGINEER

## 6

- S.D.D. 14 B 20-111**



6



**S.D.D. 14 B 20-111**



6



**S.D.D. 14 B 20-11f**

/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

BILL OF MATERIALS

| NOTE NO. | QTY. | DESCRIPTION   |
|----------|------|---|
| ①        | 4    | WOOD BREAKAWAY TERMINAL POST: 5 1/2" X 7 1/2" X 3'-9"   |
| ②        | **   | STEEL TUBE: OPTION 1 - QUANTITY OF 4 TS 8" X 6" X 0.188", 4'-6" LONG OR OPTION 2 - QUANTITY OF 2 TS 8" X 6" X 0.188", 6'-0" AND 2 TS 8" X 6" X 0.188", 4'-6" LONG |
| ③        | 2    | SOIL PLATE: 2'-0" X 1'-6" X 1/4" **   |
| ④        | 4    | WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"  |
| ⑤        | 6    | WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"   |
| ⑥        | 1    | PIPE SLEEVE: 2" X 5 1/2" STANDARD PIPE  |
| ⑦        | 1    | BEARING PLATE   |
| ⑧        | 1    | BCT CABLE ASSEMBLY  |
| ⑨        | 1    | CABLE ANCHOR BOX  |
| ⑩        | 1    | STRUT & YOKE  |
| ⑪        | 1    | STEEL PLATE BEAM, END PANEL 12 GA. 13'-6 1/2" LONG FOR SKT-350, ET-2000 AND ET-2000 PLUS  |
| ⑫        | 3    | STEEL PLATE BEAM: 12 GA. 13'-6 1/2"   |
| ⑬        | 1    | ET-2000/ET-2000 PLUS GUARDRAIL EXTRUDER OR SKT-350 IMPACT HEAD: AS FURNISHED BY MANUFACTURER  |
| ⑭        | 1    | 0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS  |
| ⑮        | 1    | E.A.T. MARKER POST  |

GENERAL NOTES

FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS, IF NONE ARE AVAILABLE, INSTALL 3/8"  $\phi$  X 1'-6" BUTTON HEAD BOLTS AT ALL POSTS EXCEPT FOR POST 1.

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

(C) THE 13 SLOT FIRST RAIL PANEL MAY BE USED IN LIEU OF THE 3 SLOT RAIL PANEL ON SKT-350 ONLY.

(D) THE TOP OF THE STEEL TUBE ON POSTS 1 THROUGH 4 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

(E) THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST 5 THROUGH 8 SHALL BE 3/4" ABOVE THE FINISHED GROUND LINE.

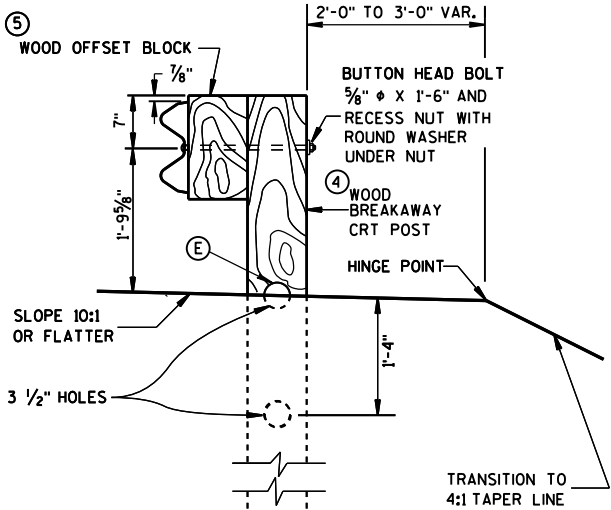
(F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.

STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

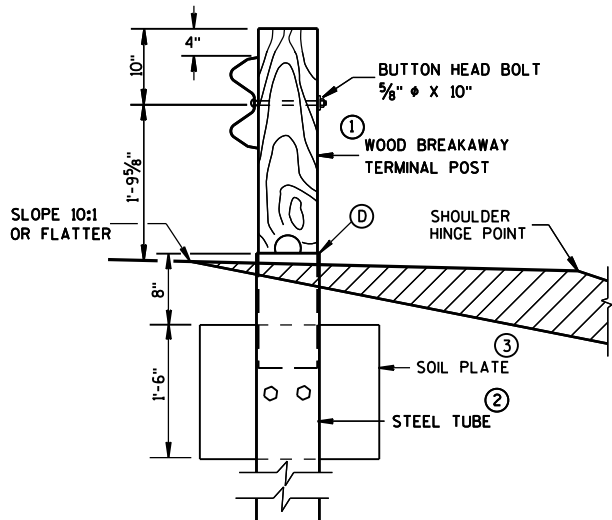
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

\* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

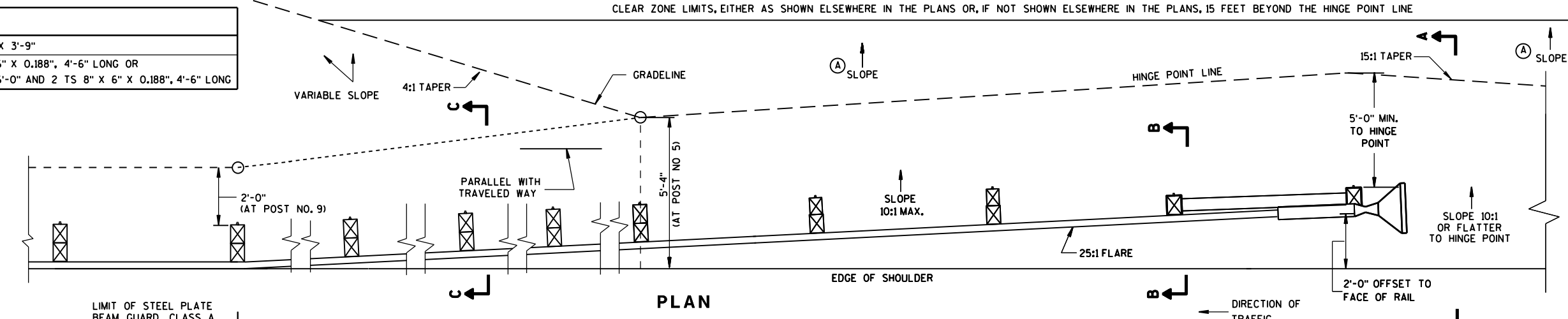
\*\* SDD SHOWS 4 - 54 INCH STEEL TUBES WITH SOIL PLATES INSTALLED ON POST 1 AND POST 2. POST 3 AND 4 DO NOT NEED SOIL PLATES. AN ALTERNATIVE INSTALLATION WOULD CONSIST OF 2 - 72 INCH STEEL TUBES ON POST 1 AND POST 2 AND 54 INCH SOIL TUBES ON POSTS 3 AND 4. THE ALTERNATIVE INSTALLATION DOES NOT REQUIRE SOIL PLATES.



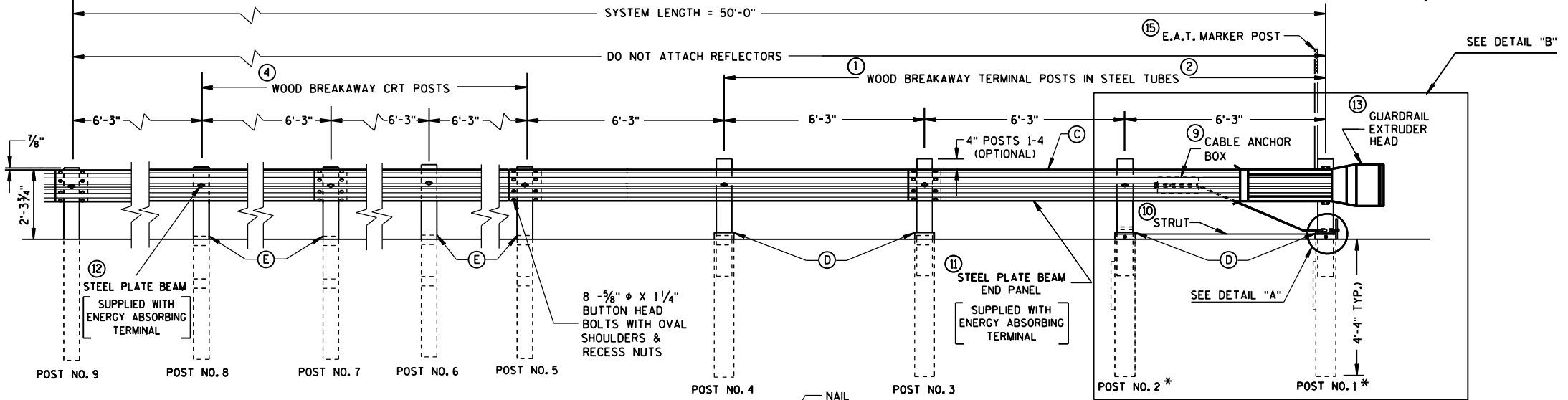
SECTION C-C  
TYPICAL AT POST NOS. 6, 8



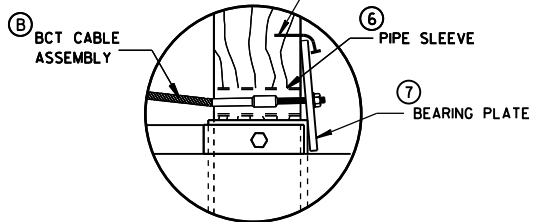
SECTION B-B  
TYPICAL AT POST NO. 2 \*



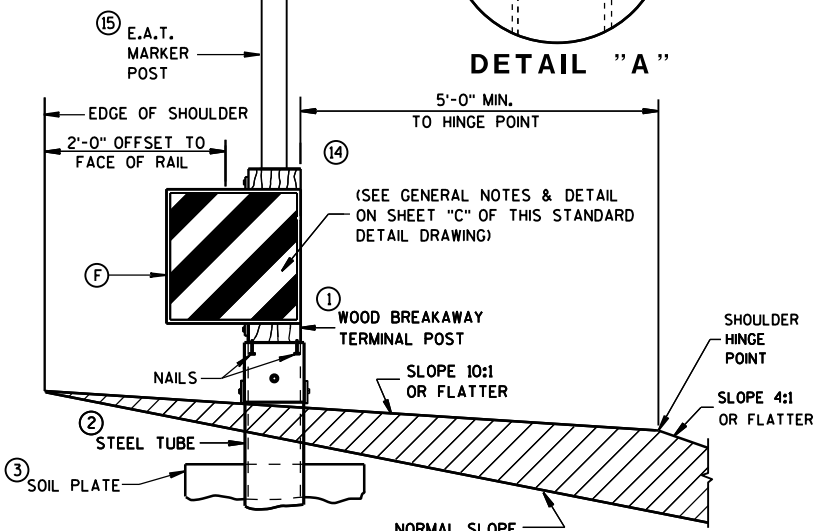
PLAN



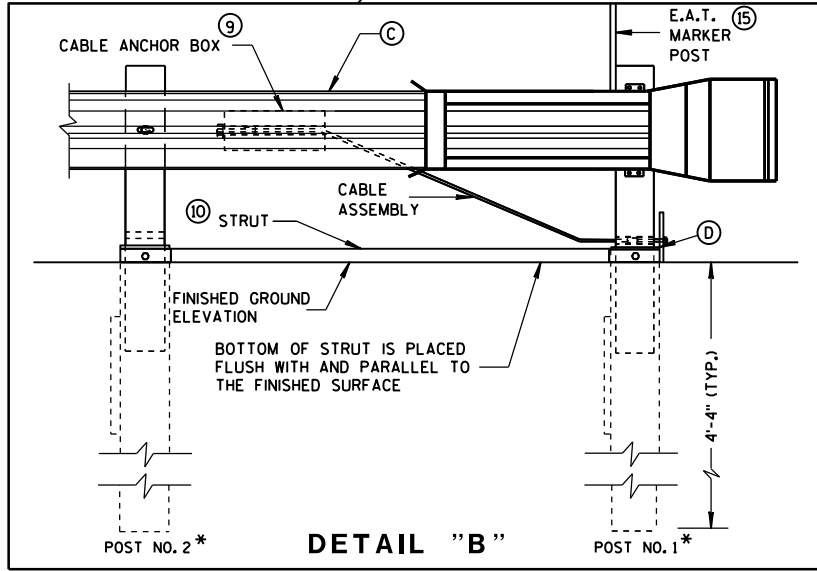
ELEVATION



DETAIL "A"



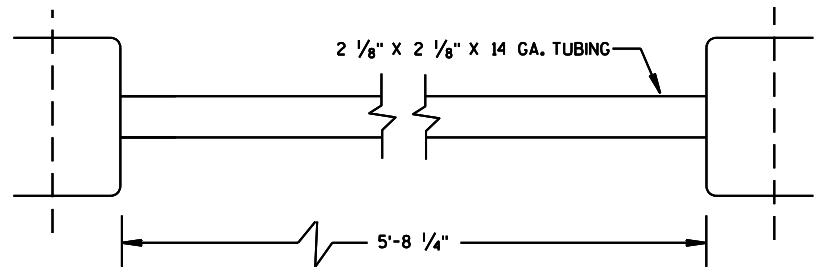
SECTION A-A  
TYPICAL AT POST NO. 1 \*



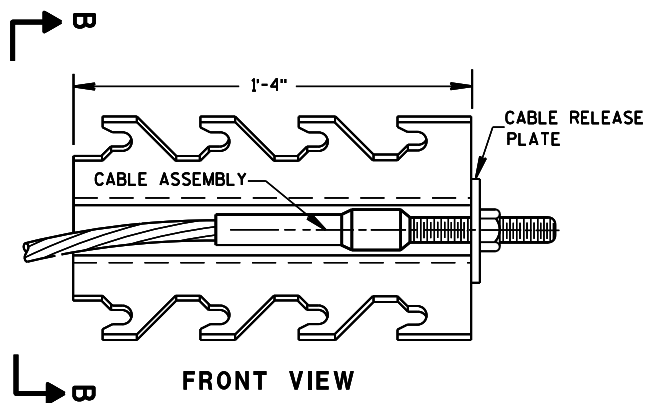
DETAIL "B"

STEEL PLATE BEAM GUARD  
ENERGY ABSORBING TERMINAL

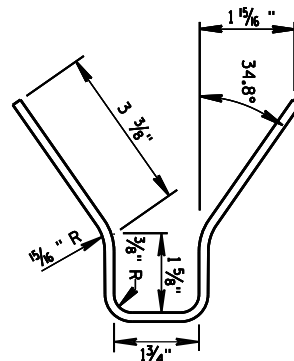
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



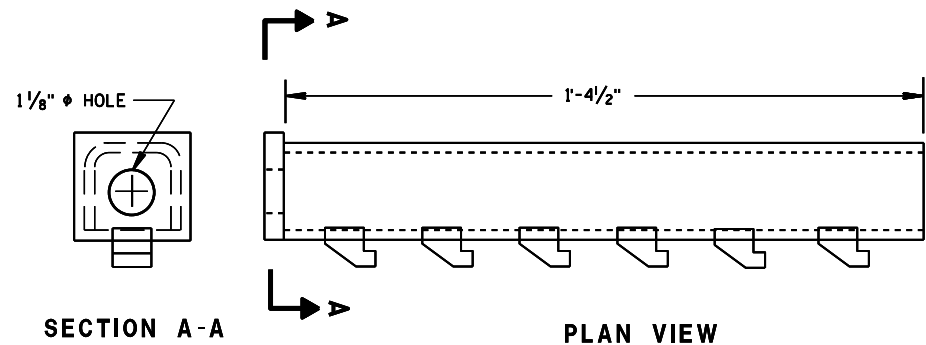
⑩ STRUT DETAIL (SKT-350)



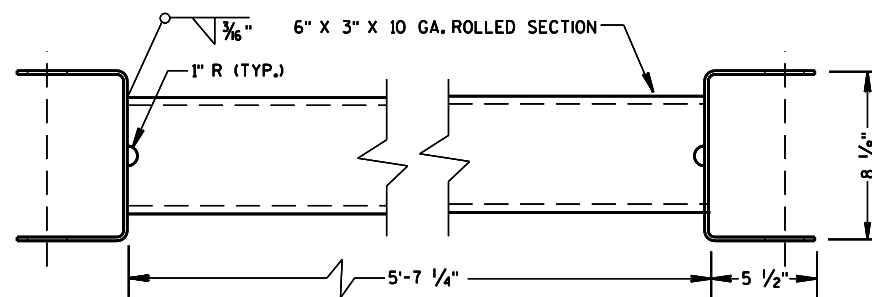
⑨ CABLE ANCHOR BOX (SKT-350)  
(SKT-350)



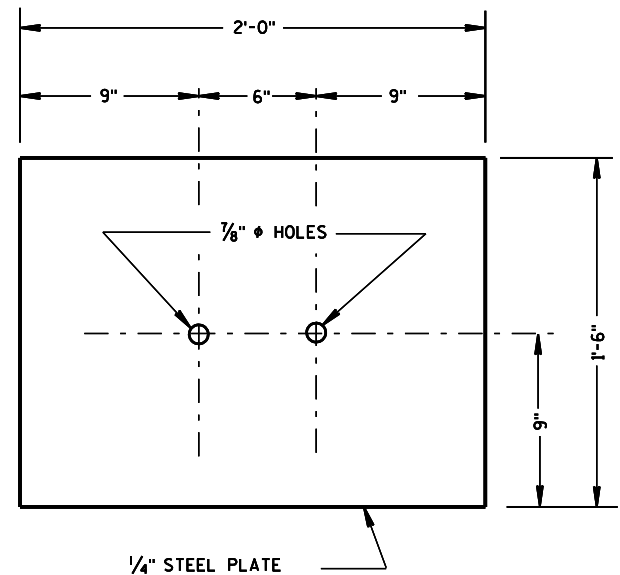
SECTION B-B



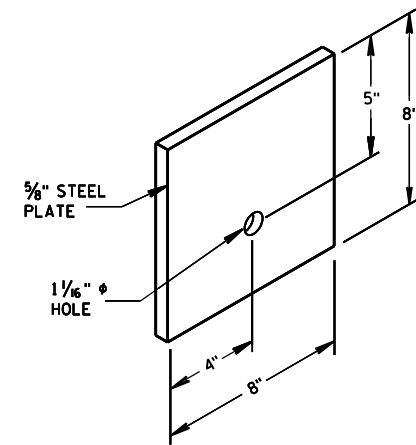
⑨ CABLE ANCHOR BOX (ET-2000/ET-2000 PLUS)



⑩ STRUT DETAIL (ET-2000/ET-2000 PLUS)  
(ET-2000/ET-2000 PLUS)



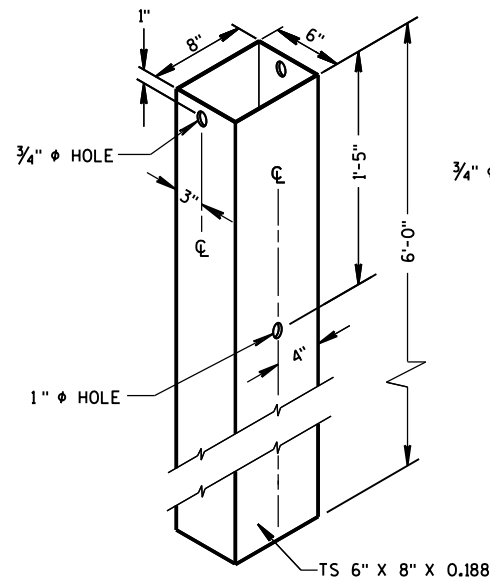
③ SOIL PLATE  
(SKT-350, ET-2000/ET-2000 PLUS)



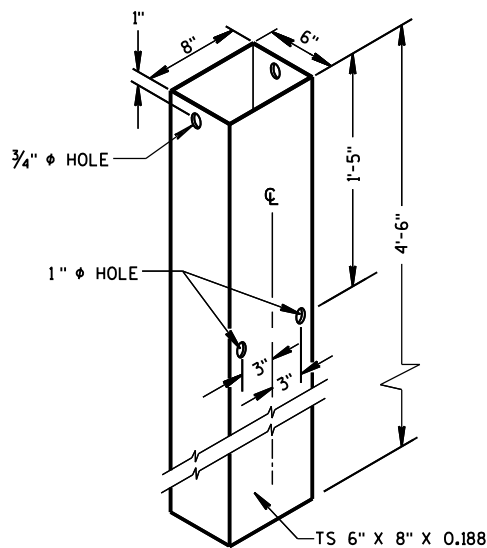
⑦ STEEL BEARING PLATE  
(SKT-350, ET-2000/ET-2000 PLUS)

STEEL PLATE BEAM GUARD  
ENERGY ABSORBING TERMINAL

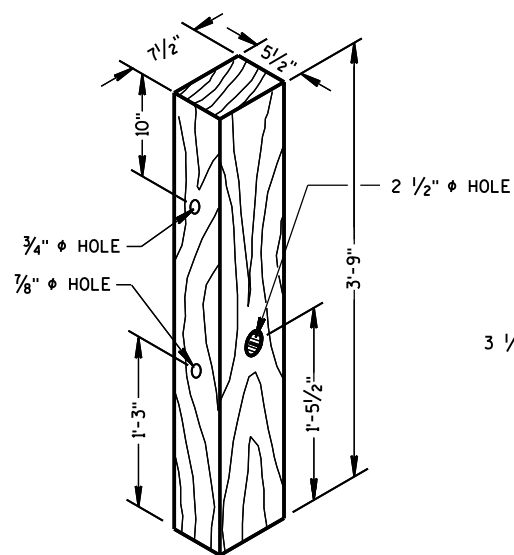
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



② 72" STEEL TUBE  
(POSTS NO. 1-4)

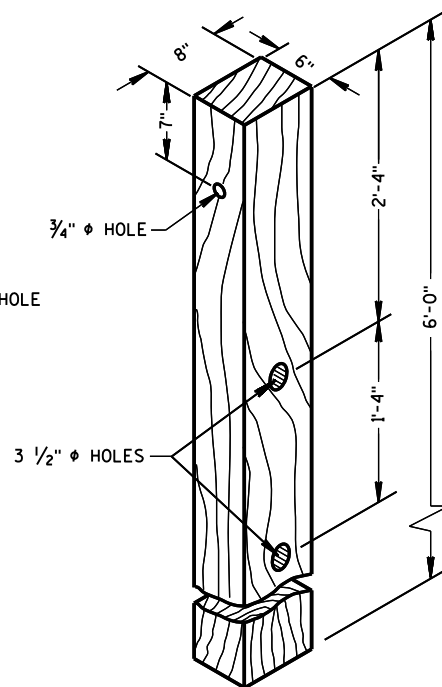


② 54" STEEL TUBE  
(POSTS NO. 1-4)

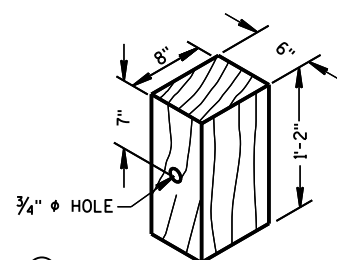


① TERMINAL POST  
(POSTS NO. 1-4)

### WOOD BREAKAWAY POSTS

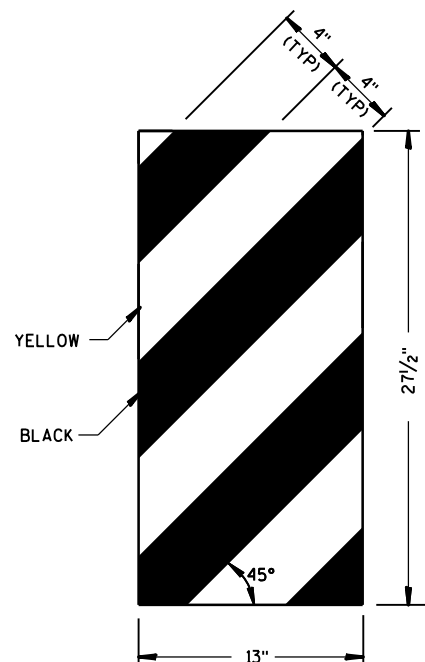


④ CRT POST  
(POSTS NO'S 5-8)

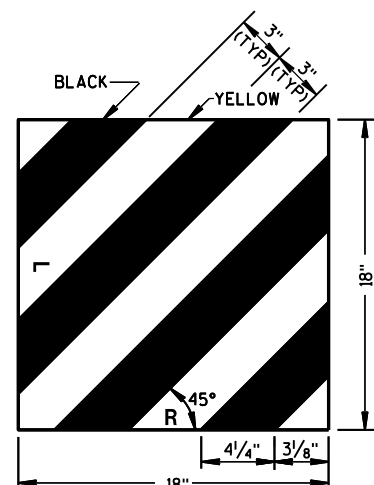


⑤ WOOD OFFSET BLOCK  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

TYPE H  
YELLOW REFLECTIVE  
SHEETING 3" X 9"  
SEE STANDARD  
SPECIFICATION 637

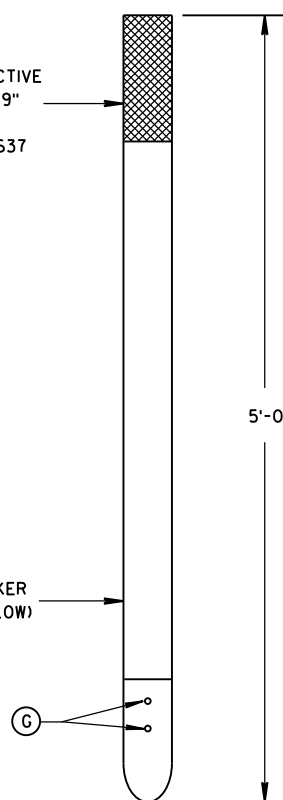


ET-2000 PLUS ONLY

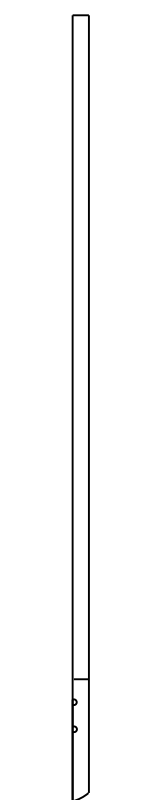


ET-2000 AND SKT-350

E.A.T. MARKER  
POST (YELLOW)



FRONT VIEW



SIDE VIEW

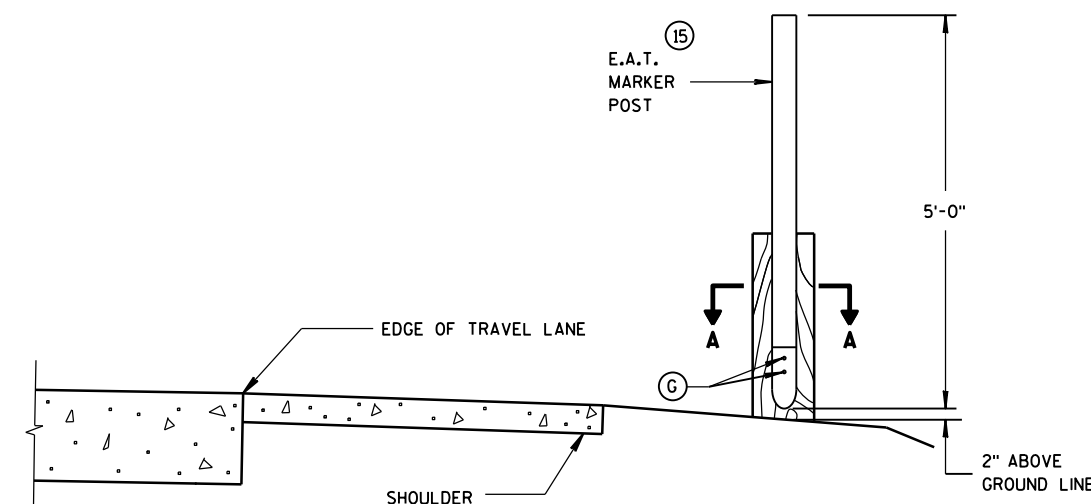
⑮ E.A.T. MARKER POST

### GENERAL NOTES

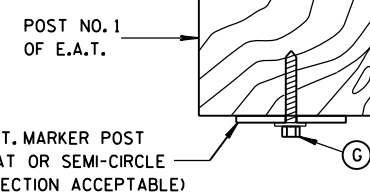
WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.

SEE APPROVED PRODUCTS LIST FOR ACCEPTABLE E. A. T. MARKER POST.

⑮ 1/2" DIA. X 3" LAG BOLT WITH WASHER.



TYPICAL INSTALLATION OF E.A.T.  
MARKER POST BACKSIDE OF POST NO. 1  
(E.A.T. AND RAIL REMOVED FOR CLARITY)



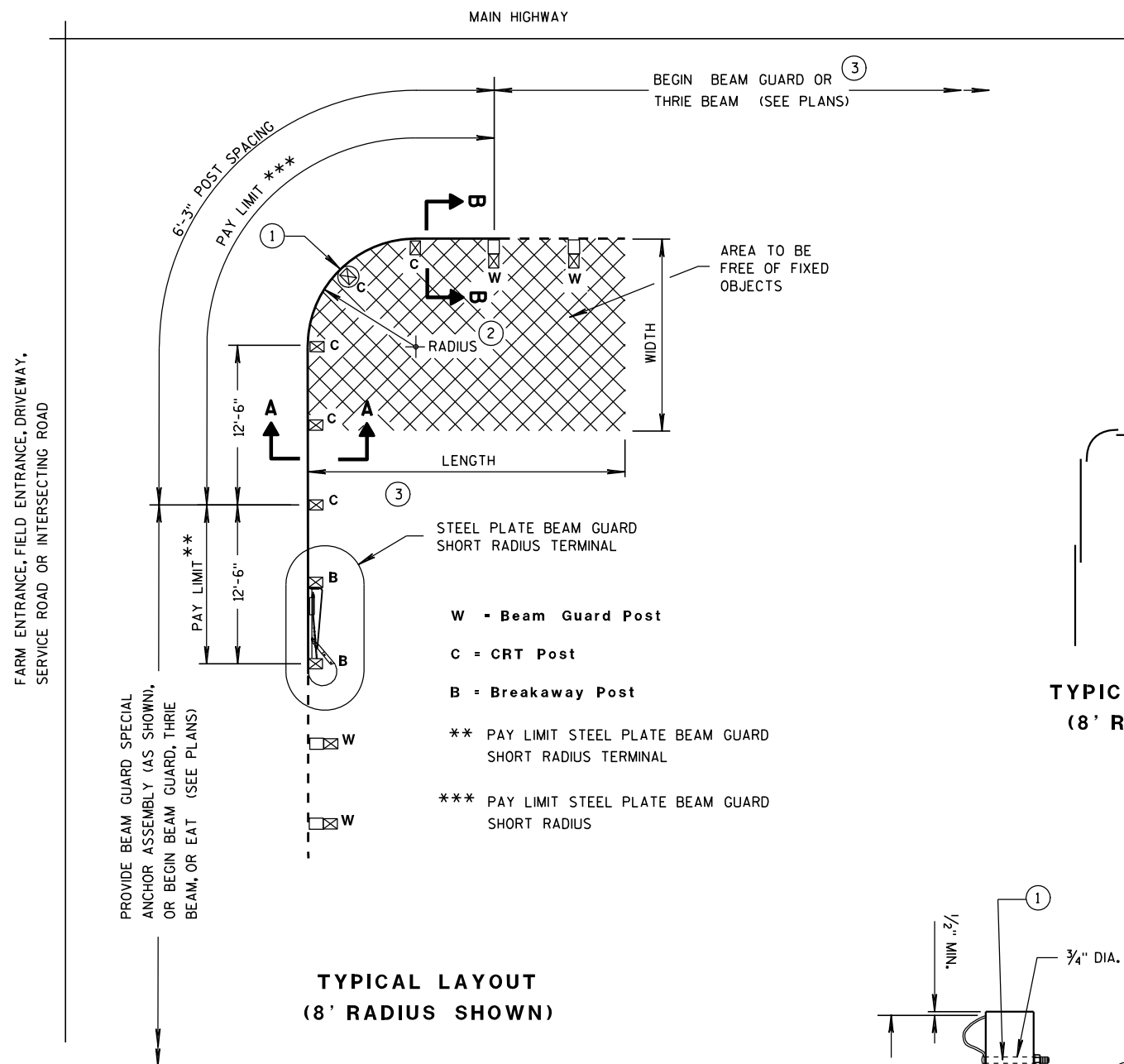
SECTION A-A

STEEL PLATE BEAM GUARD  
ENERGY ABSORBING TERMINAL

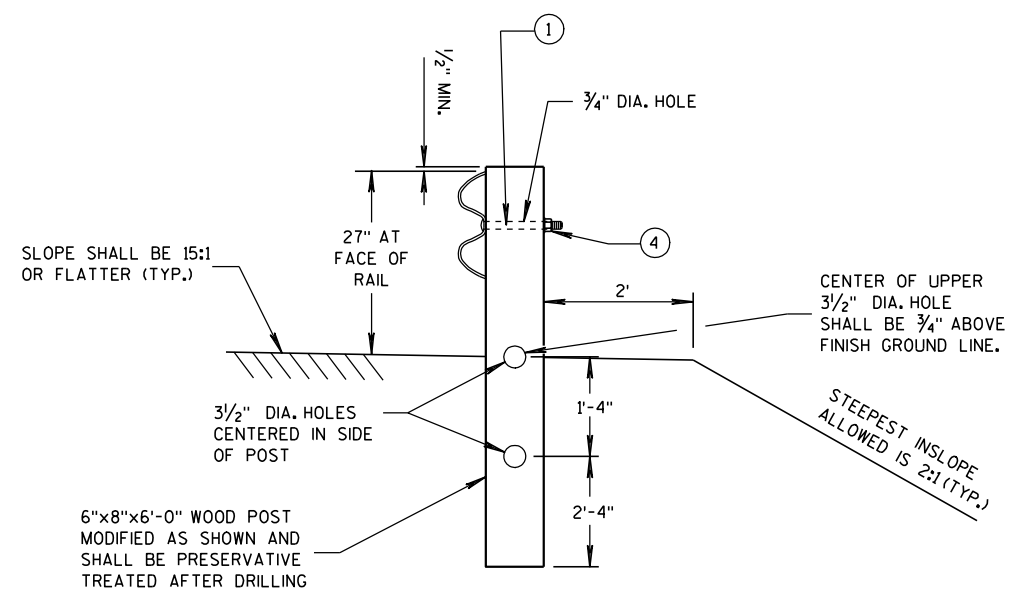
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2014  
DATE  
FHWA

/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER



**TYPICAL LAP SPLICES  
(8' RADIUS SHOWN)**



**STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL**

**GENERAL NOTES**

ALL ANGLES, CHANNELS, AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 AND THE STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123. PUNCHING, DRILLING, CUTTING, OR WELDING WILL NOT BE PERMITTED AFTER GALVANIZING. FURNISH AND INSTALL HARDWARE PER STANDARD SPECIFICATION 614.2, UNLESS NOTED OTHERWISE.

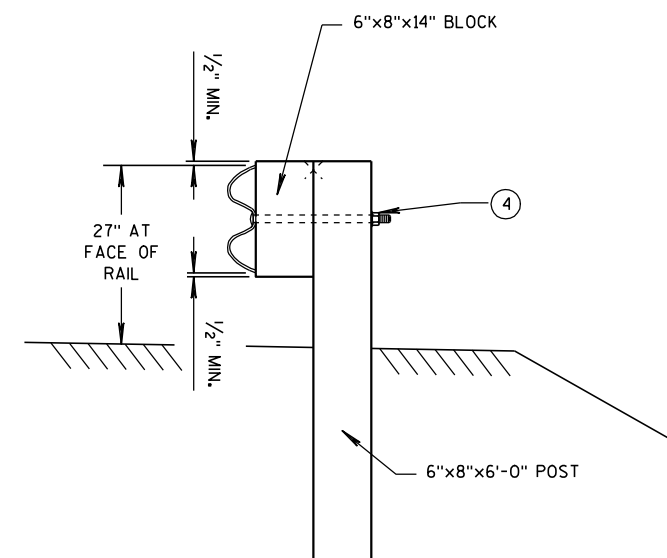
SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

- ① ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.
- ② RADIUS FROM 8' - 36'. SEE PLAN.
- ③ HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.
- ④ 5/8"  $\phi$  X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

| RADIUS | NUMBER OF<br>CRT POSTS | *NUMBER AND LENGTH<br>OF CURVED RAILS | REQUIRED AREA FREE<br>OF FIXED OBJECTS<br>(LENGTH X WIDTH) |
|--------|------------------------|---------------------------------------|--|
| 8'     | 5                      | 1 at 12.5'                            | 25' x 15'  |
| 16'    | 7                      | 1 at 25'                              | 30' x 15'  |
| 24'    | 9                      | 1 at 25' and 1 at 12.5'               | 40' x 20'  |
| 32'    | 11                     | 2 at 25'                              | 50' x 20'  |

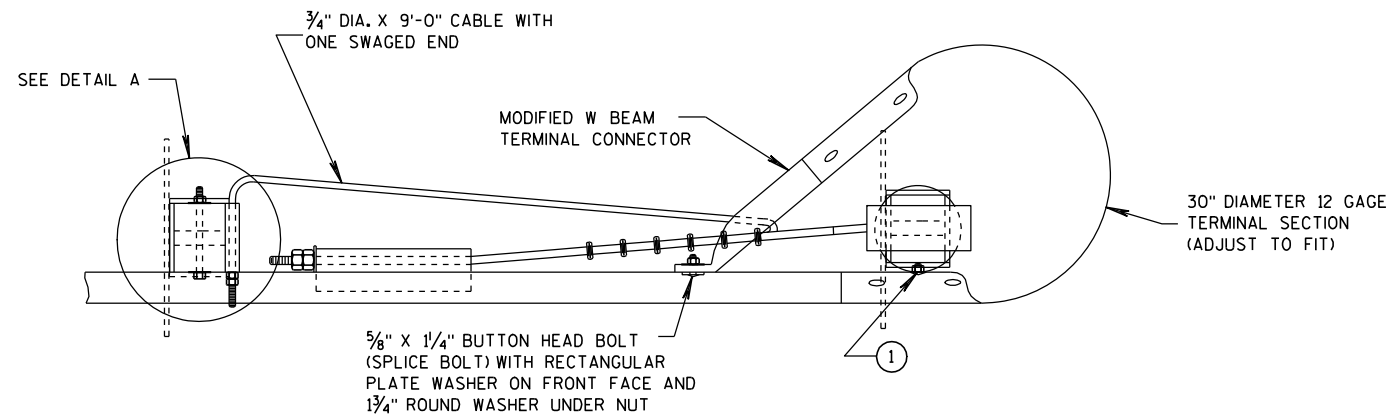
\* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



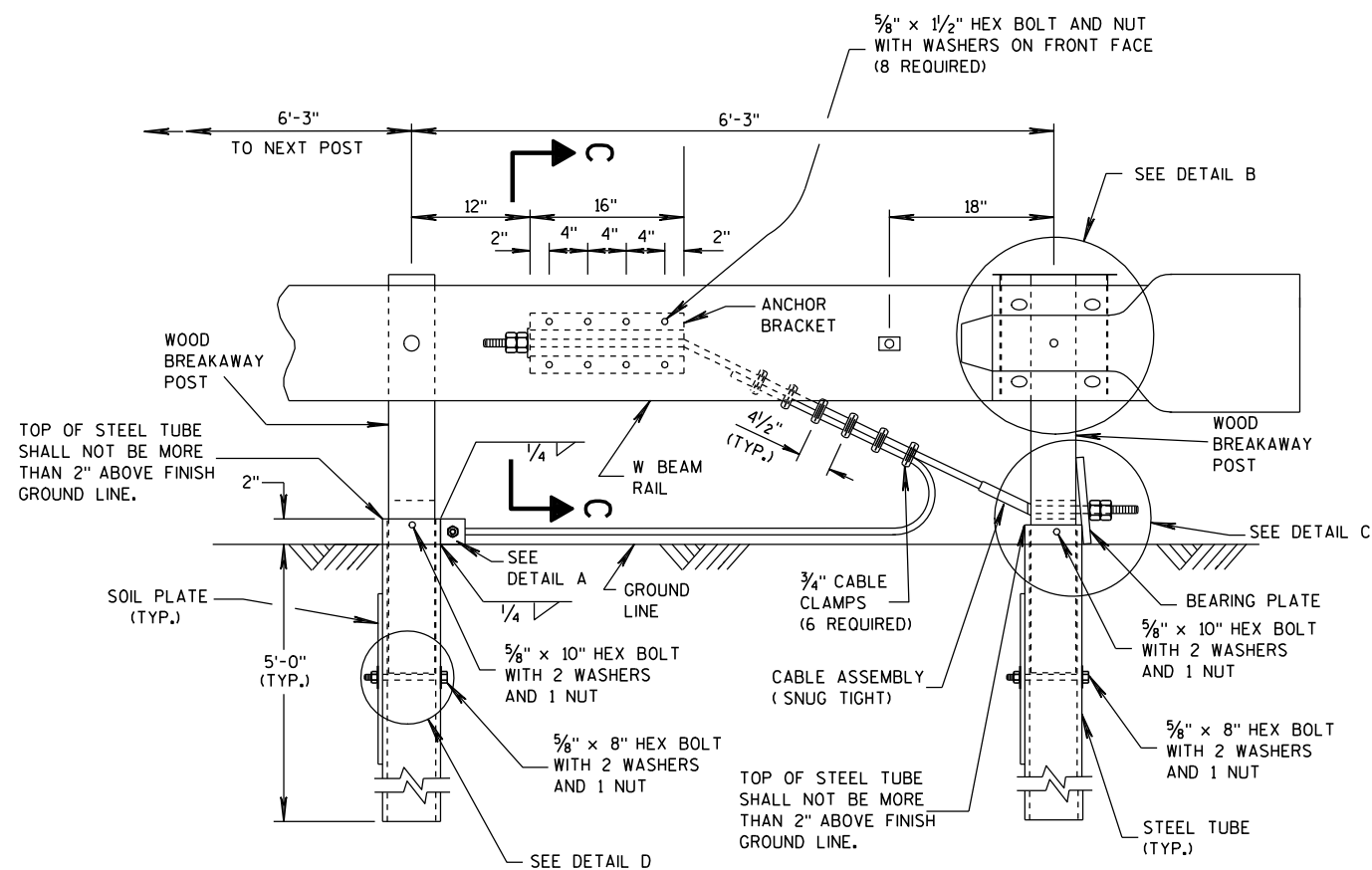
**SECTION B-B  
(BEAM GUARD POST)**

**STEEL PLATE BEAM GUARD  
SHORT RADIUS TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



PLAN VIEW

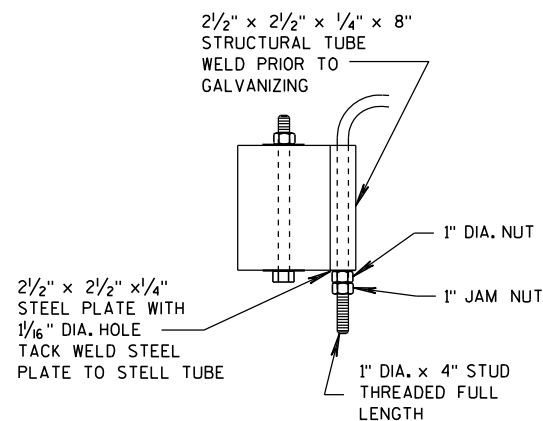


ELEVATION VIEW

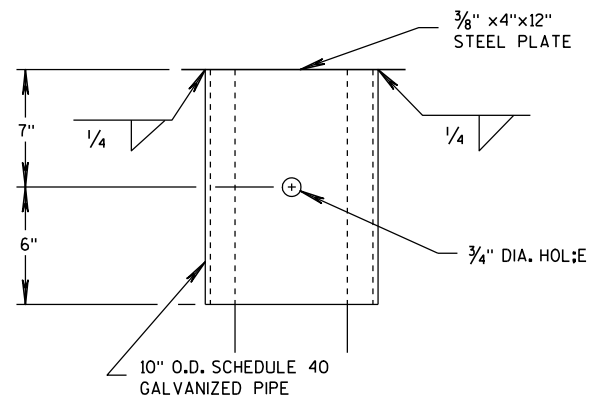
# STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

## GENERAL NOTES

- 1 ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A 5/8" X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.
- INSTALL GALVANIZED 3/4" (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



DETAIL A

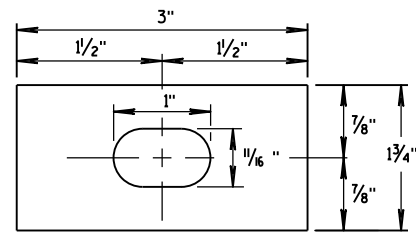


DETAIL B

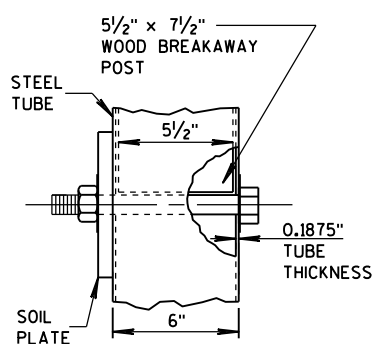
(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD  
SHORT RADIUS TERMINAL

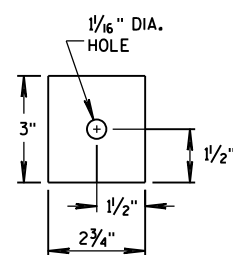
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



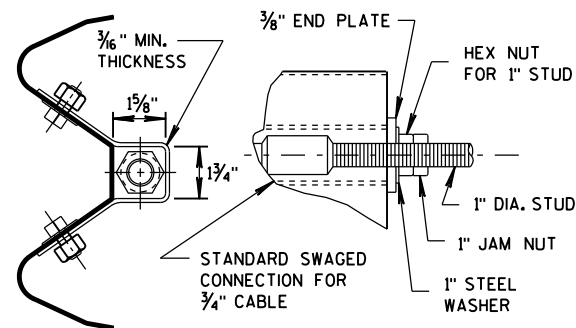
**RECTANGULAR  
PLATE WASHER**



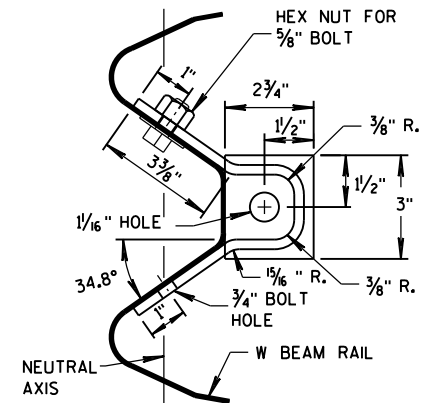
**DETAIL D**



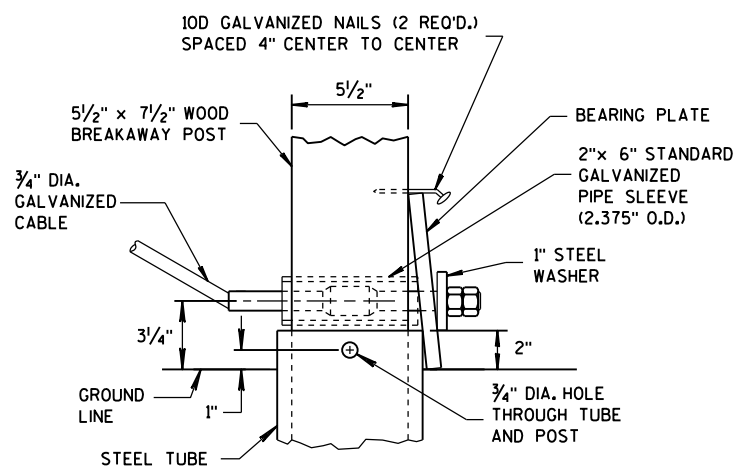
**END PLATE**



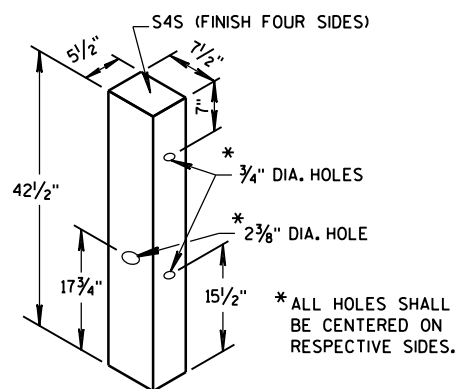
**SECTION C-C  
(END PLATE REMOVED)**



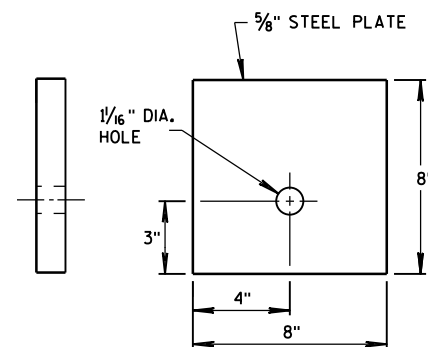
**ANCHOR BRACKET**



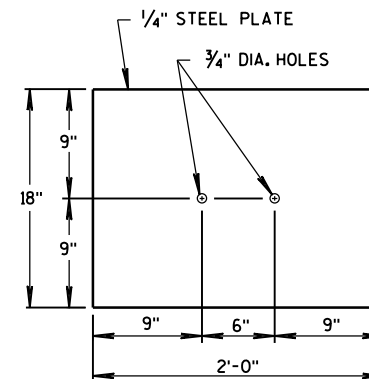
**DETAIL C**



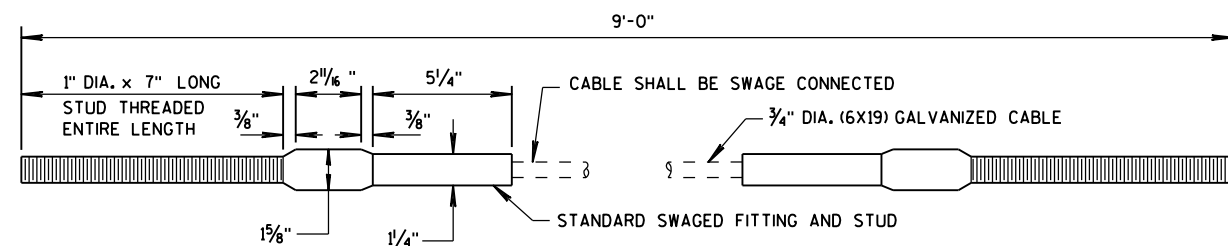
**WOOD BREAKAWAY POST**



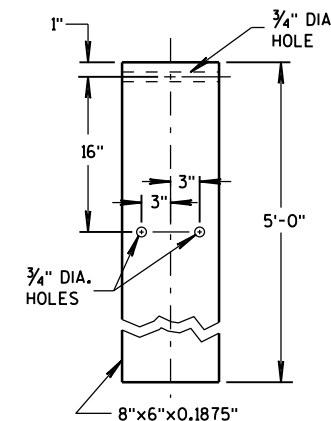
**BEARING PLATE**



**SOIL PLATE**



**CABLE ASSEMBLY**

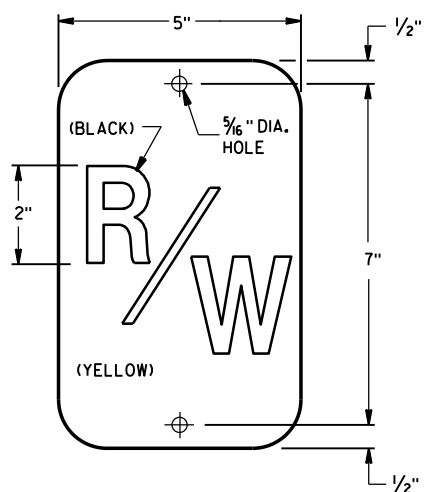
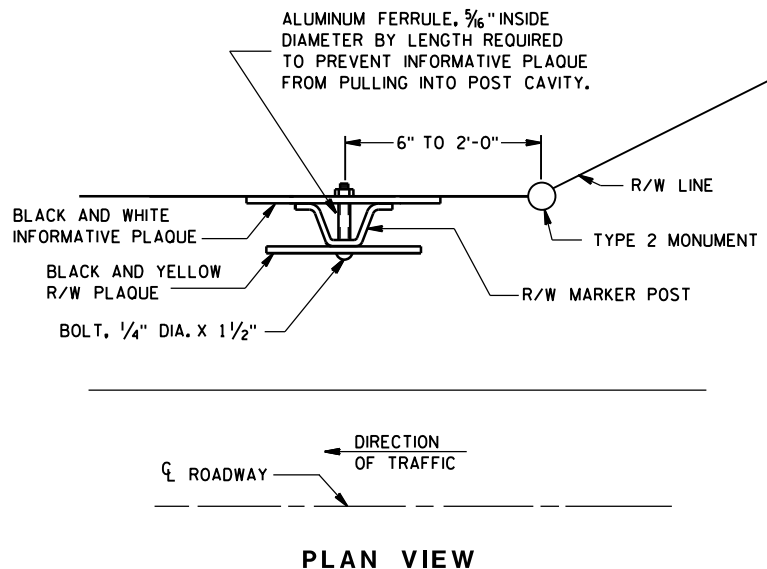


**STEEL TUBE**

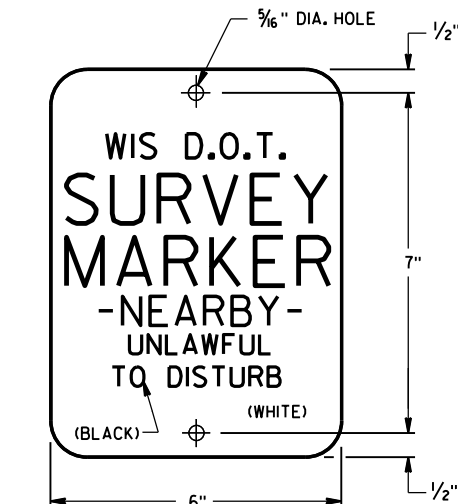
**STEEL PLATE BEAM GUARD  
SHORT RADIUS TERMINAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 12/18/08  
DATE 12/18/08  
/S/ Jerry H. Zogg  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA



THE RIGHT-OF-WAY PLAQUE AND INFORMATIVE PLAQUE WILL BE FURNISHED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.



## GENERAL NOTES

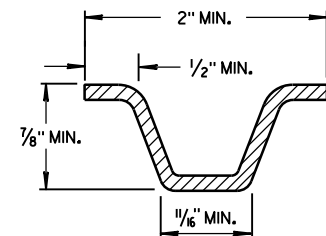
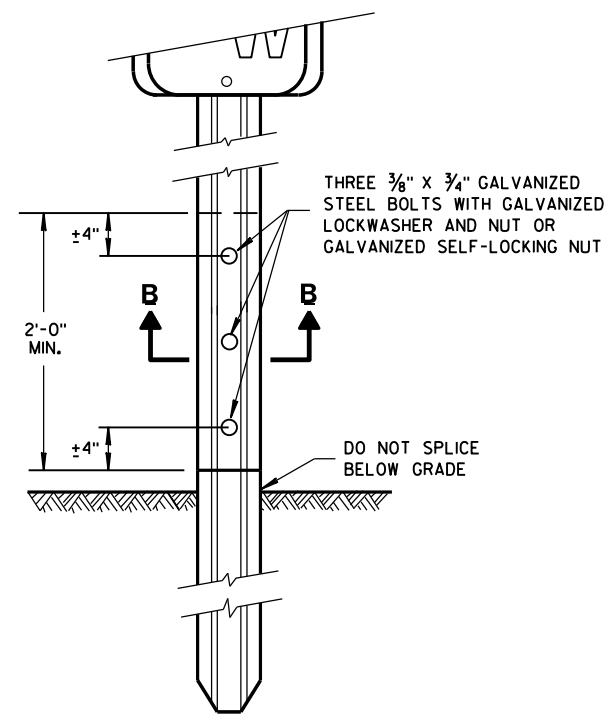
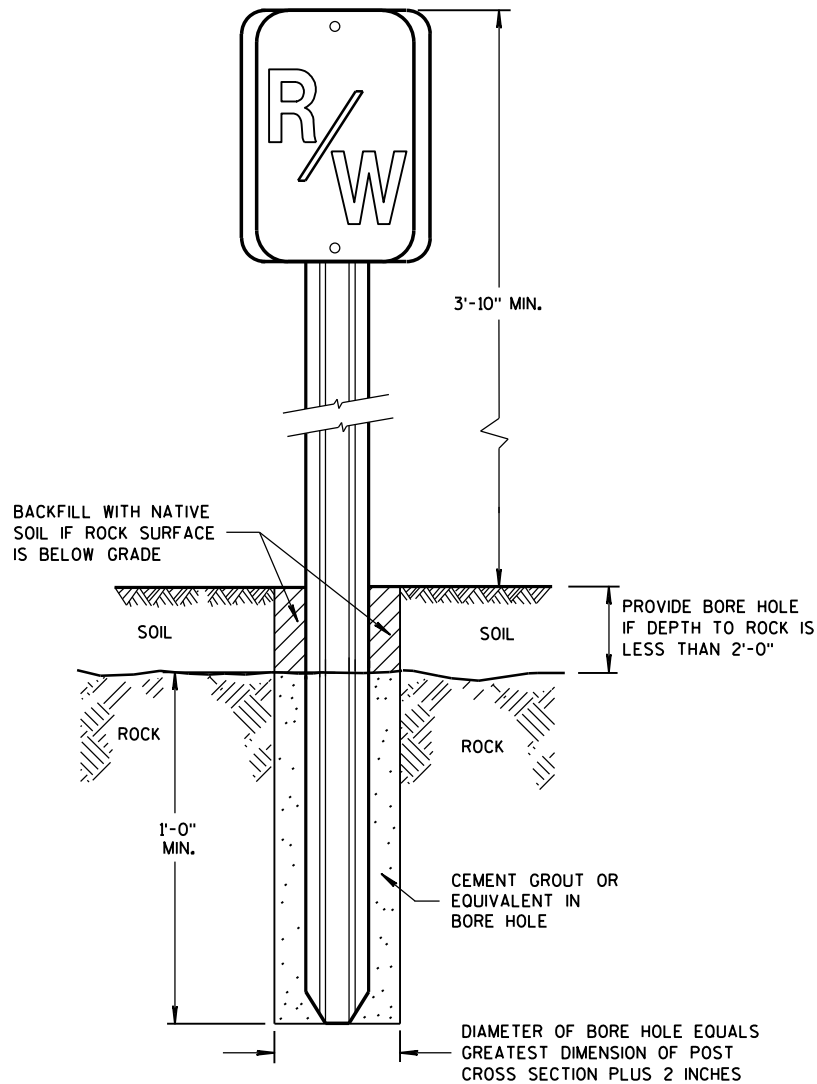
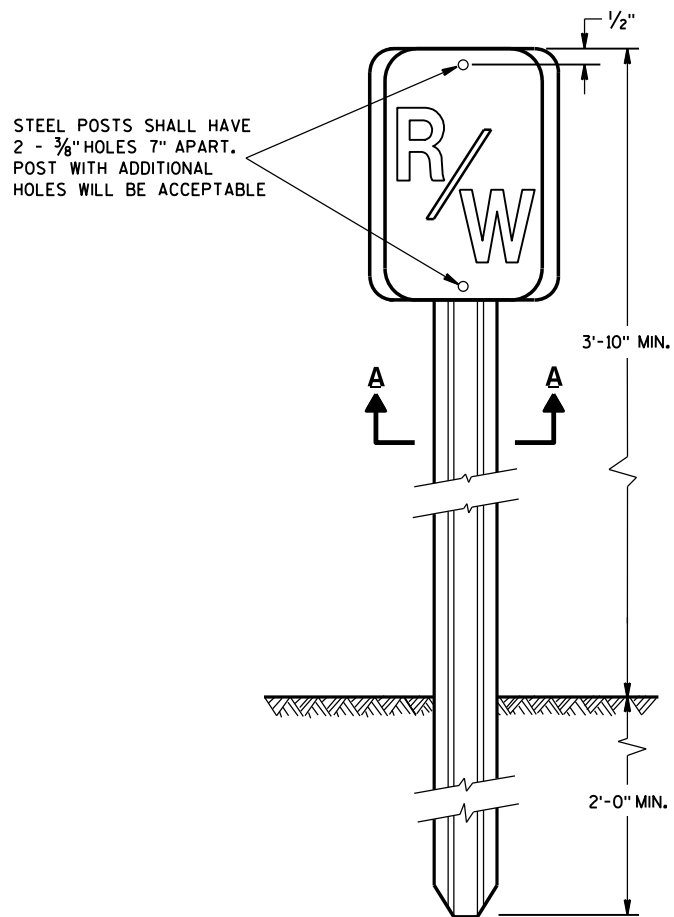
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

A STEEL MARKER POST FOR RIGHT-OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY, WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

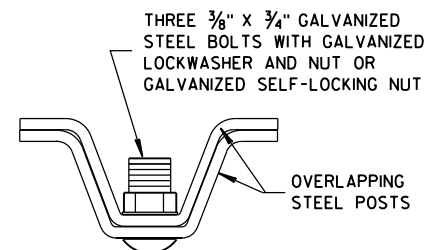
THE "R/W" PLAQUE SHALL FACE THE ROADWAY AND THE INFORMATIVE PLAQUE SHALL FACE AWAY FROM THE ROADWAY. R/W AND INFORMATIVE PLAQUES WILL BE FURNISHED BY THE DEPARTMENT OF TRANSPORTATION.

STEEL MARKER POSTS SHALL MEET THE MINIMUM MATERIAL REQUIREMENTS FOR STEEL DELINEATOR POSTS; EXCEPT POSTS PAINTED WITH FEDERAL YELLOW ENAMEL NEED NOT BE ZINC COATED.

- ① IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK TO A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 3' 10" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR. FILL THE BORE HOLE WITH CEMENT GROUT, OR EQUIVALENT, DEPENDING ON THE STABILITY OF THE ROCK.



MIN. WEIGHT 1.12 LB./FT.  
**SECTION A-A**

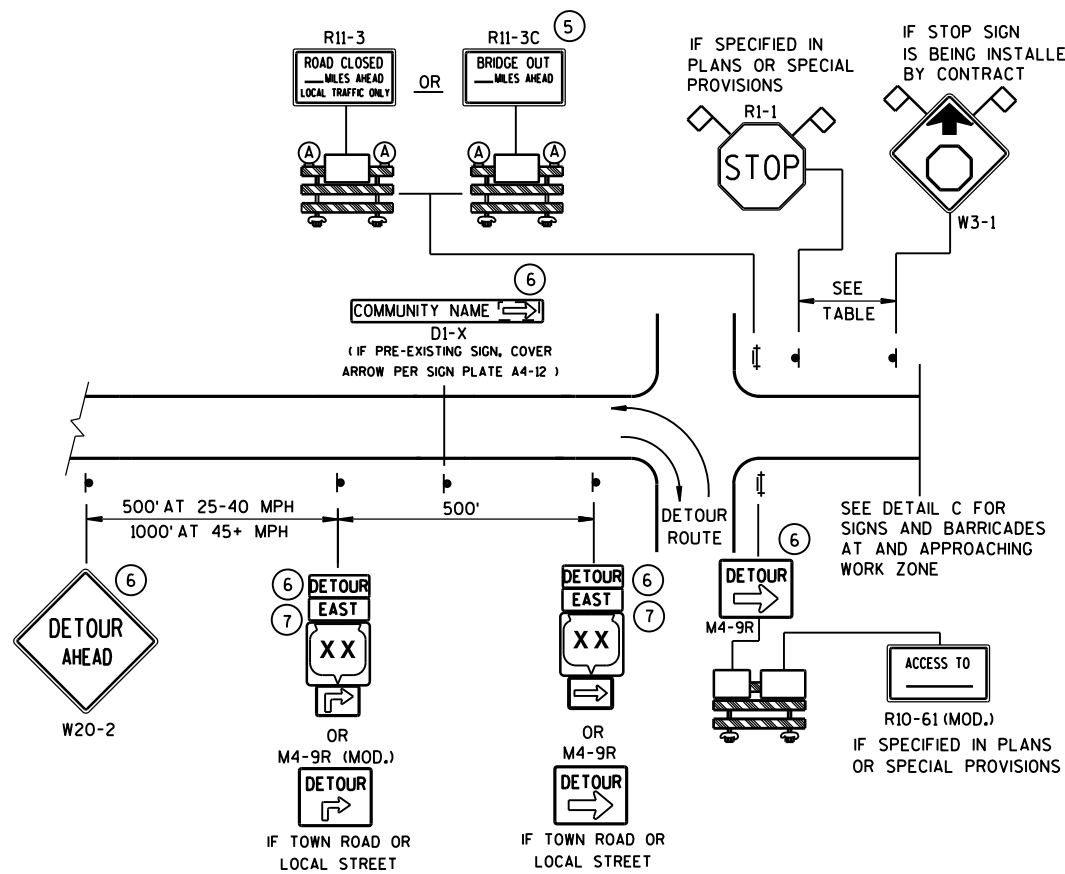


**SECTION B-B**

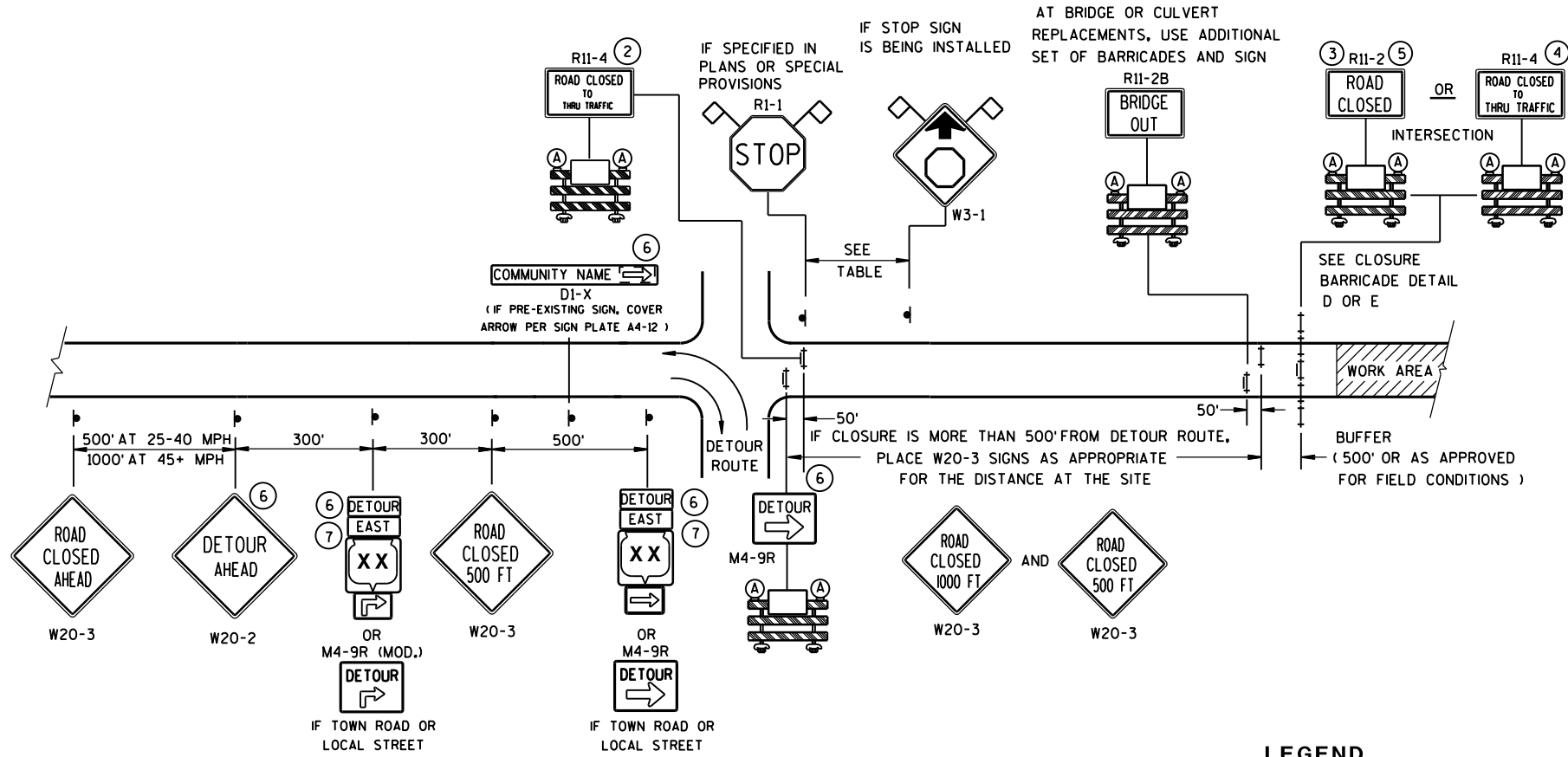
**MARKER POST  
FOR RIGHT-OF-WAY**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

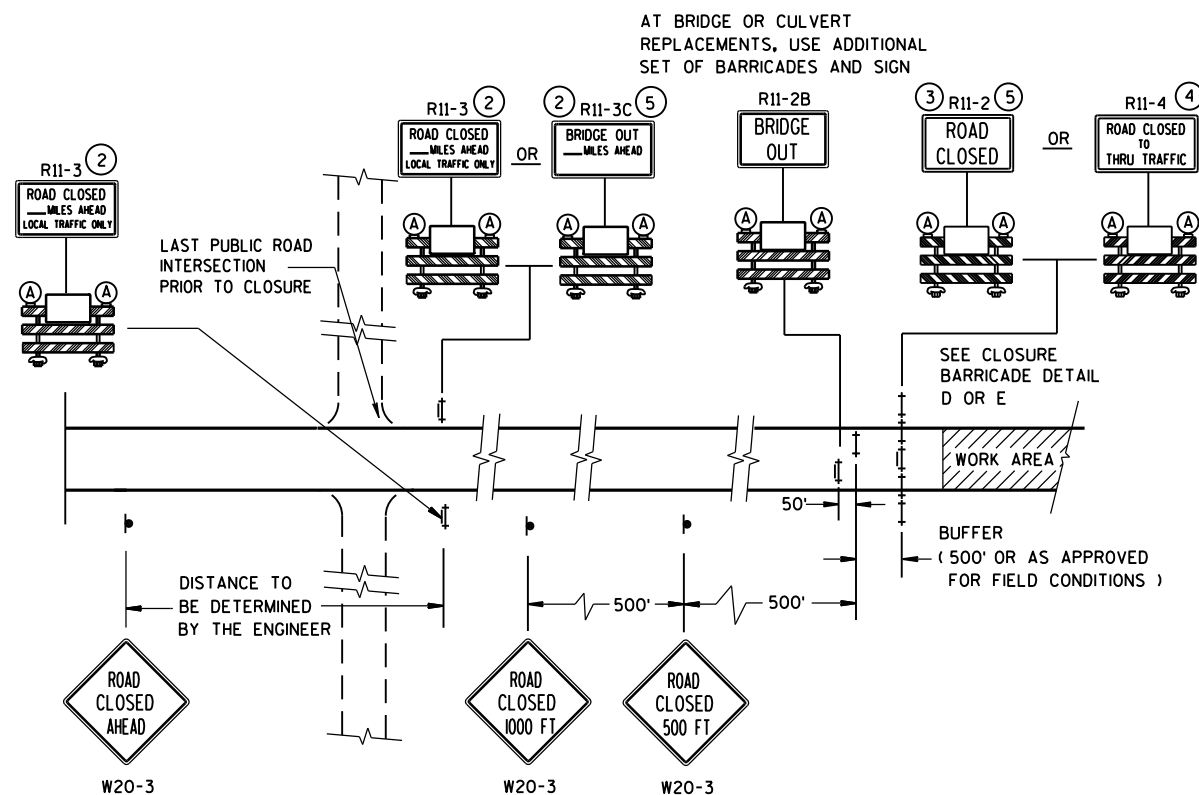
APPROVED  
June, 2015 /S/ Ray Kumapayi  
DATE CHIEF SURVEYING AND MAPPING ENGINEER  
FHWA



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

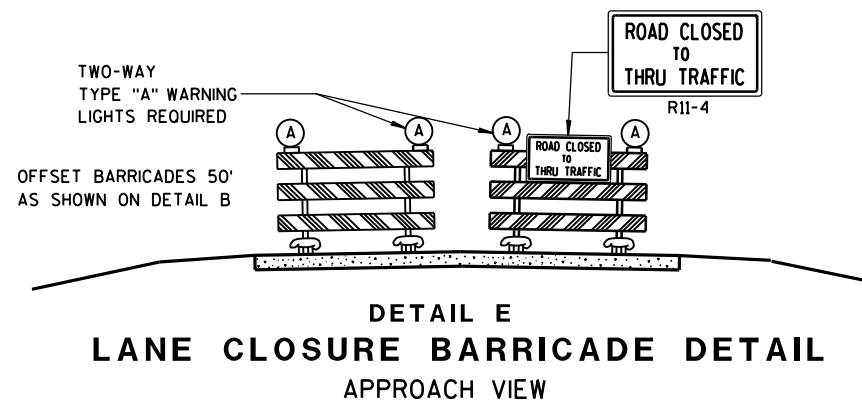
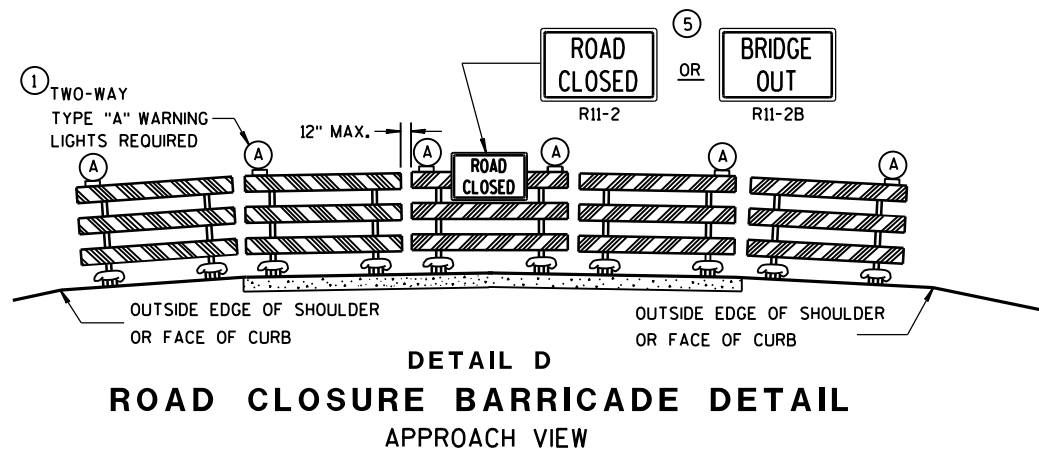
LEGEND

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

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

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

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



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.

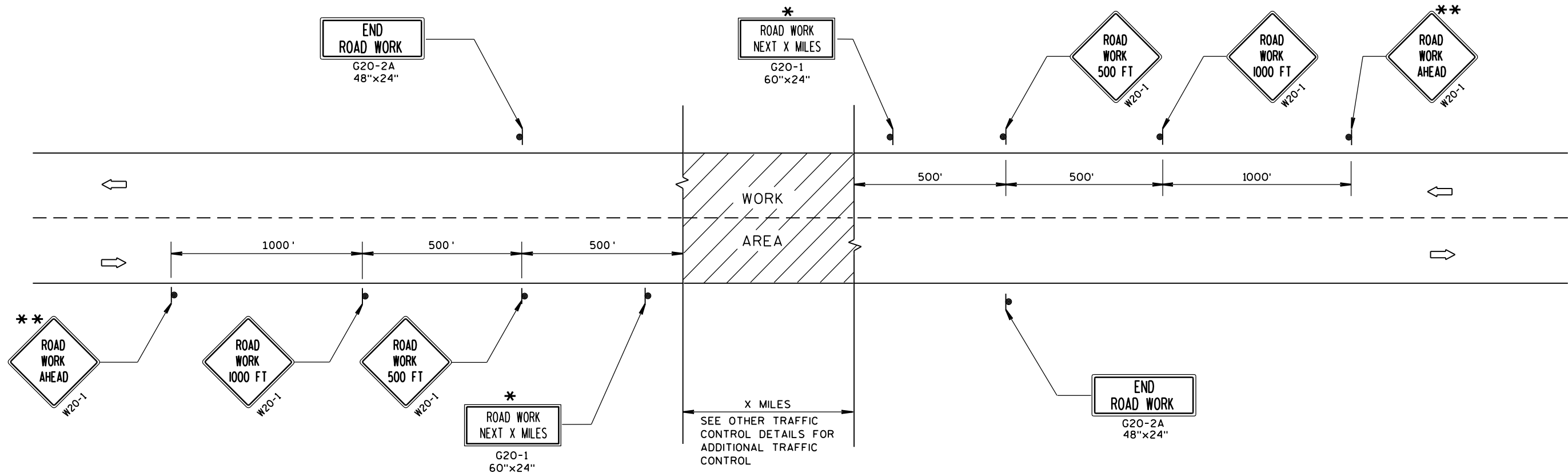
R1-1 SHALL BE 36" X 36".

- 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 FOR MAINLINE CLOSURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

8/2013 /S/ Travis Feltes  
DATE STATE TRAFFIC ENGINEER OF DESIGN  
FHWA



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

## GENERAL NOTES

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

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

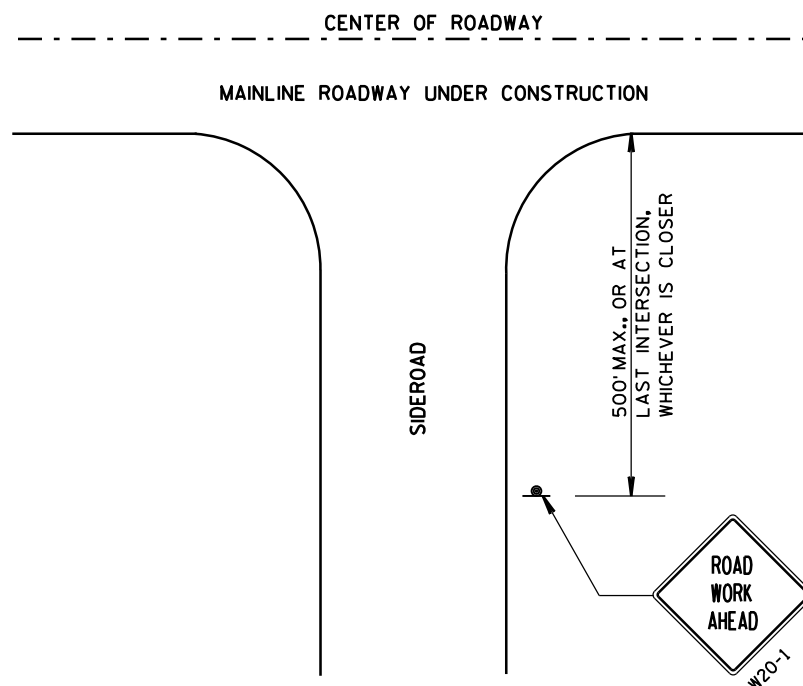
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

\* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.

\*\* PLACE ADDITIONAL W20-1 "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.



## LEGEND

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

TRAFFIC CONTROL, ADVANCE  
WARNING SIGNS 45 M.P.H.  
OR GREATER TWO-WAY  
UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

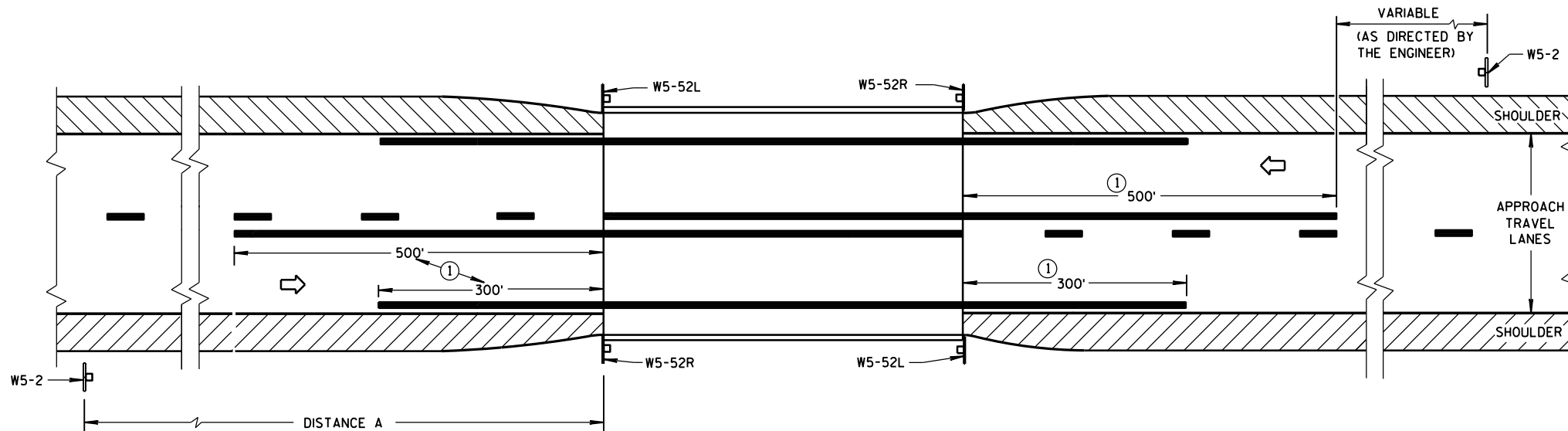
APPROVED

8/2013

DATE

FHWA

/S/ Travis Feltes  
STATE TRAFFIC ENGINEER OF DESIGN



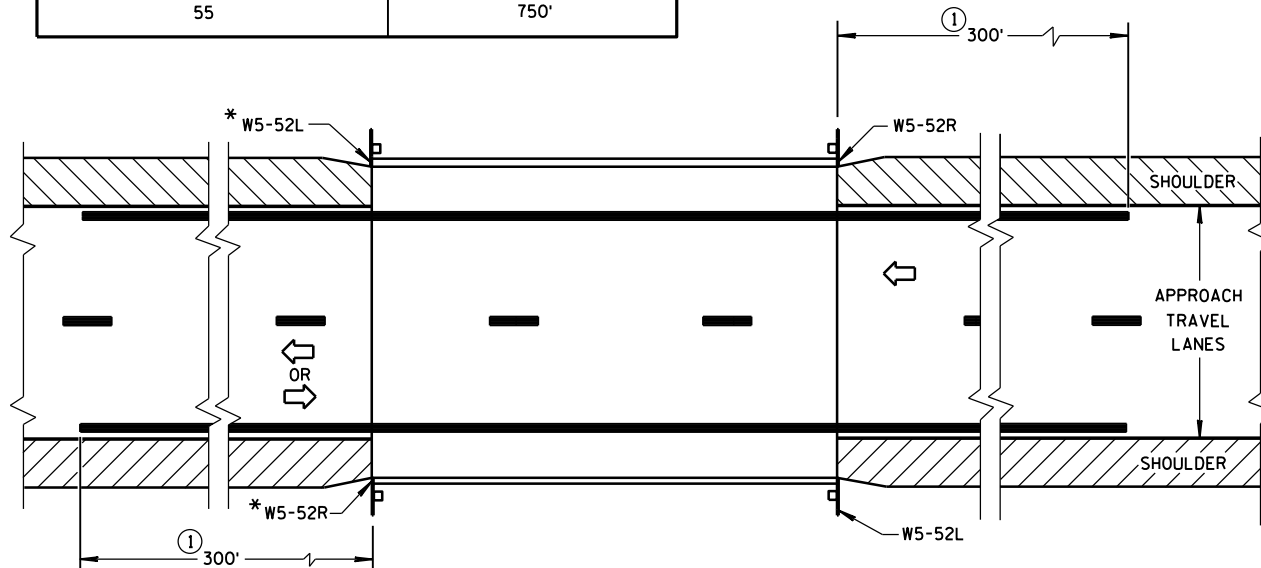
### SITUATION 1

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'         |

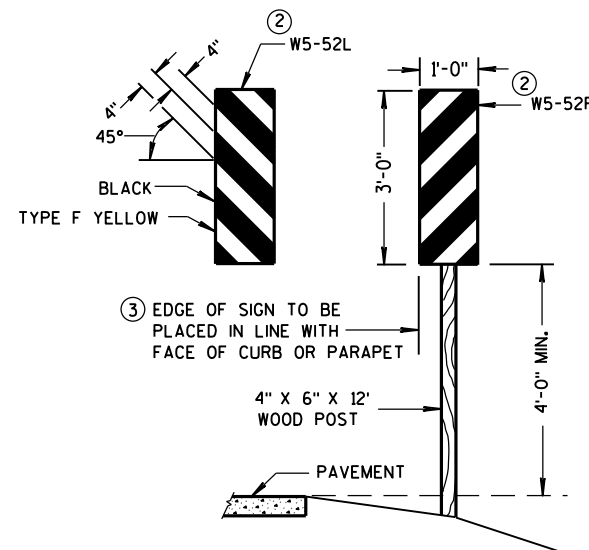


\*OMIT ON ONE-WAY TRAVELLED WAYS

### SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.



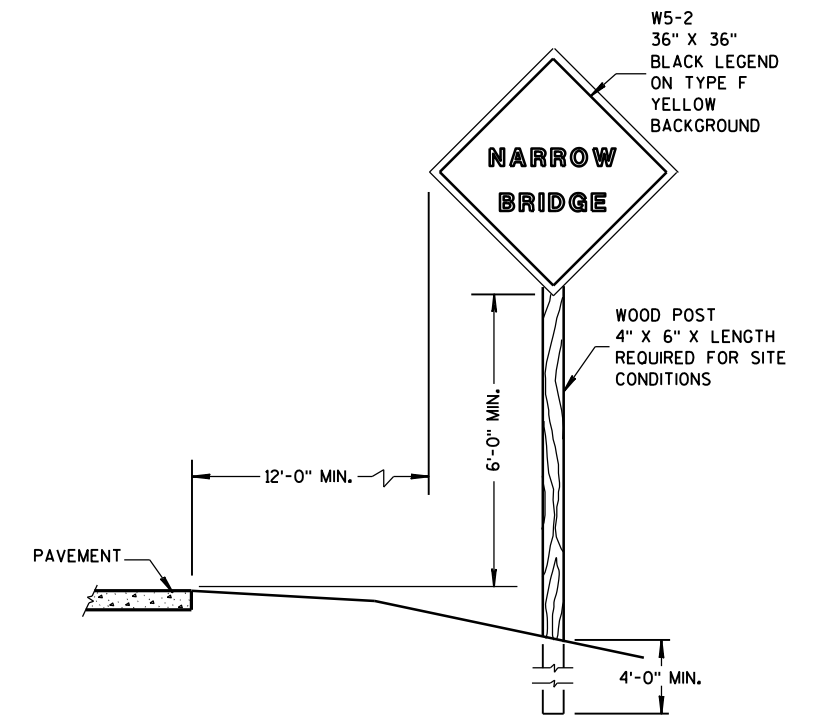
### OBJECT MARKER PLACEMENT

### 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.

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

- ① MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.
- ② FACE OF OBJECT MARKERS W5-52R, AND W5-52L SHALL BE COVERED WITH TYPE F REFLECTIVE SHEETING.
- ③ LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.







### SIGN PLACEMENT

#### SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
3-2014 DATE /S/ Travis Fettes  
STATE TRAFFIC ENGINEER OF DESIGN  
FHWA

LEGEND

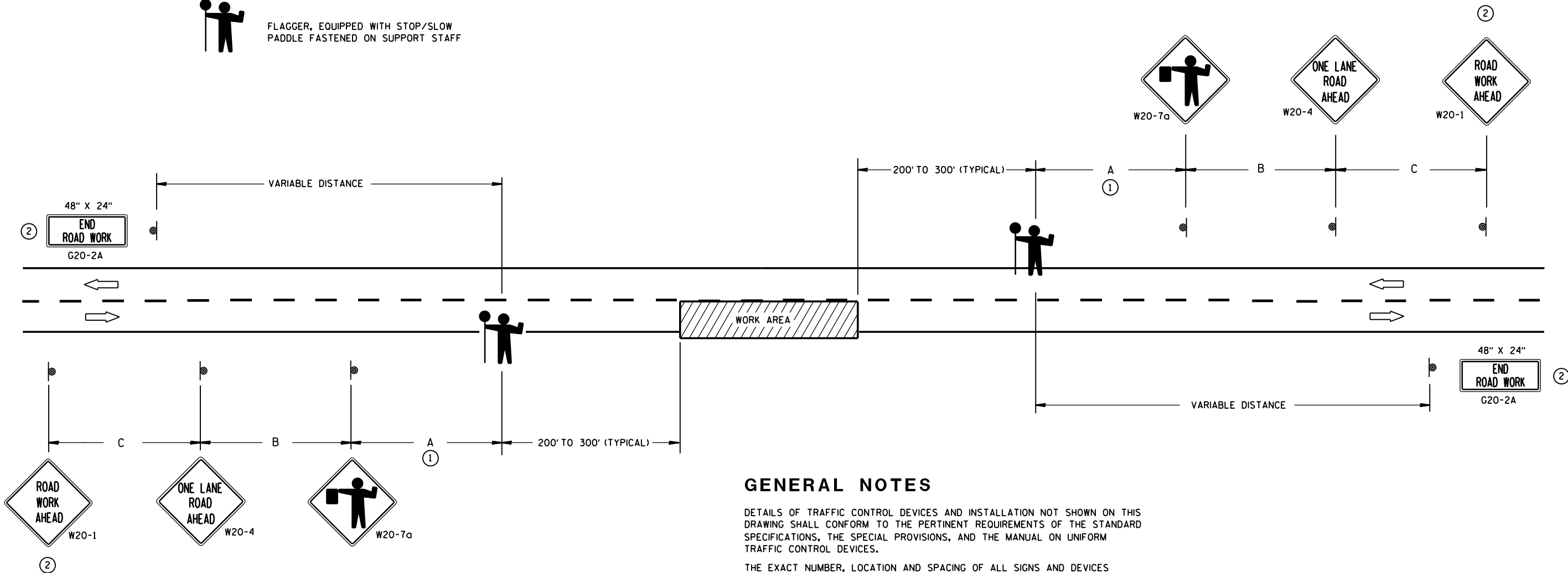
-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN SPACING TABLE

| SPEED LIMIT | SIGN SPACING<br>A,B,C |
|-------------|-----------------------|
| 25-35 MPH   | 200'                  |
| 35-40 MPH   | 350'                  |
| 45-55 MPH   | 500'                  |



USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



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.

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

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

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

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, COVER OR REMOVE ALL TEMPORARY TRAFFIC CONTROL SIGNS.

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

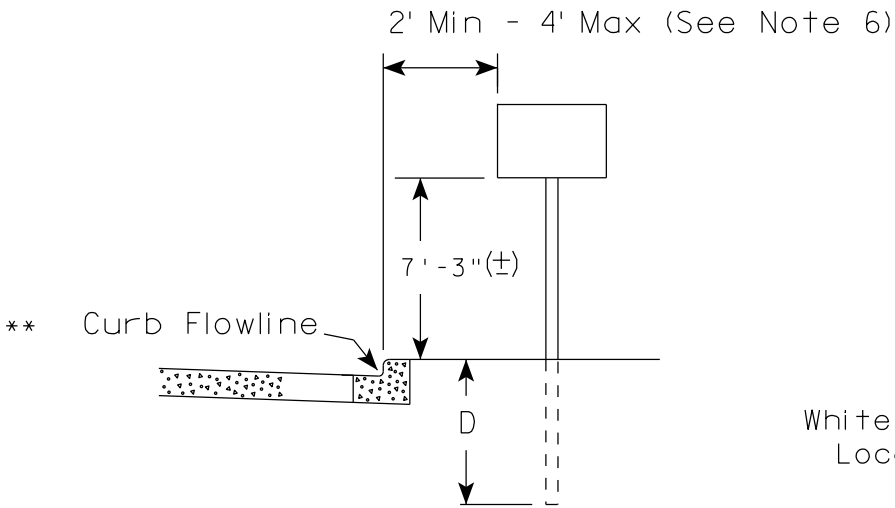
- ① FOR A MOVING WORK OPERATION, SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)

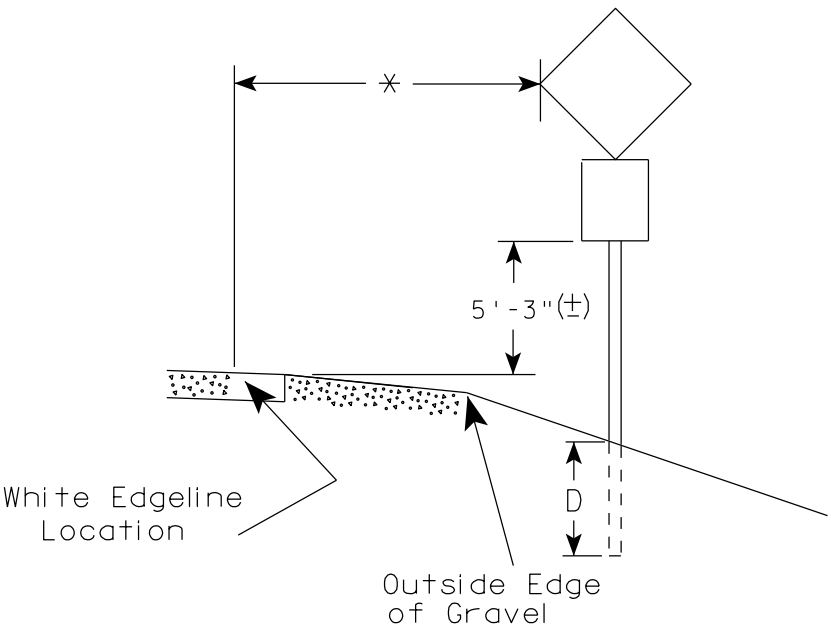
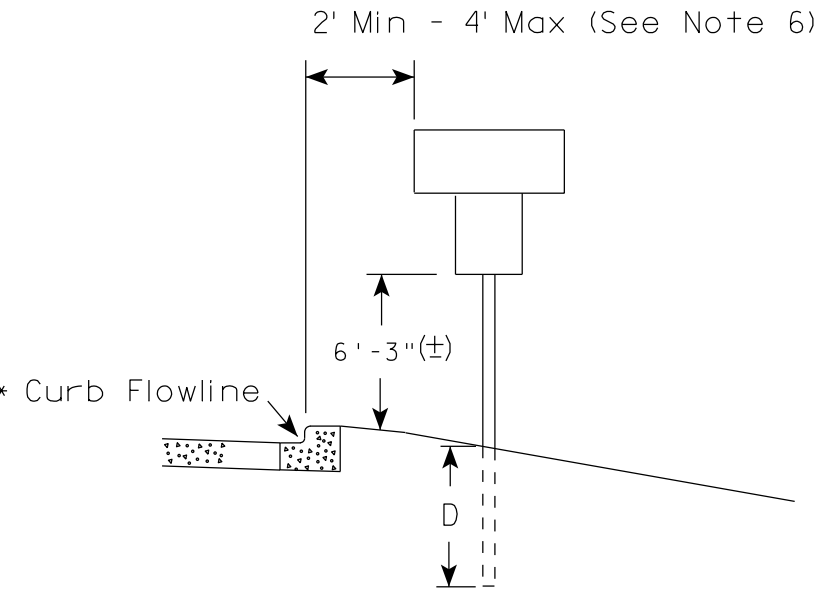
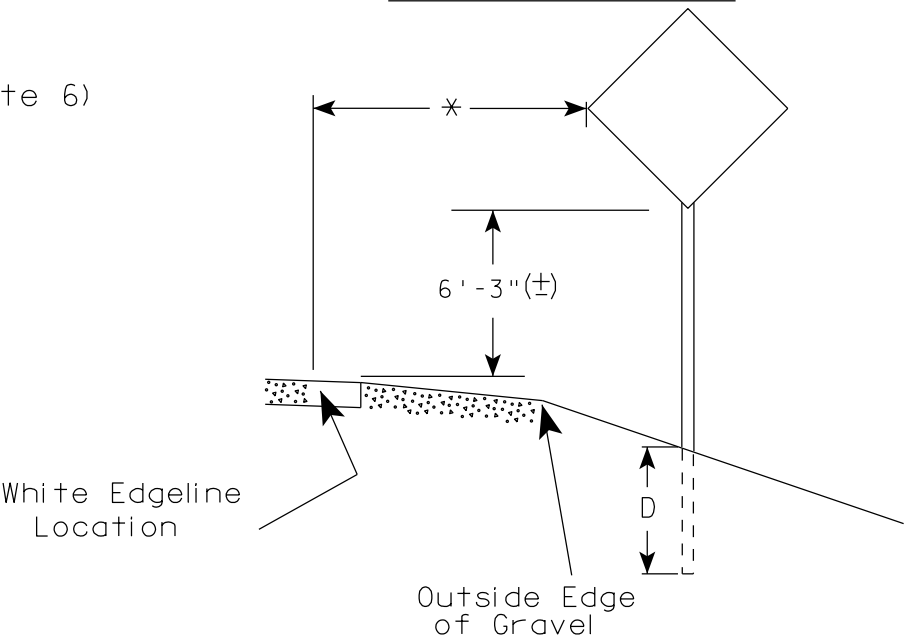
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
8/2013 /S/ Travis Feltes  
DATE STATE TRAFFIC ENGINEER OF DESIGN  
FHWA

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet, 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series) & End of Rod Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (+).

POST EMBEDMENT DEPTH

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

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

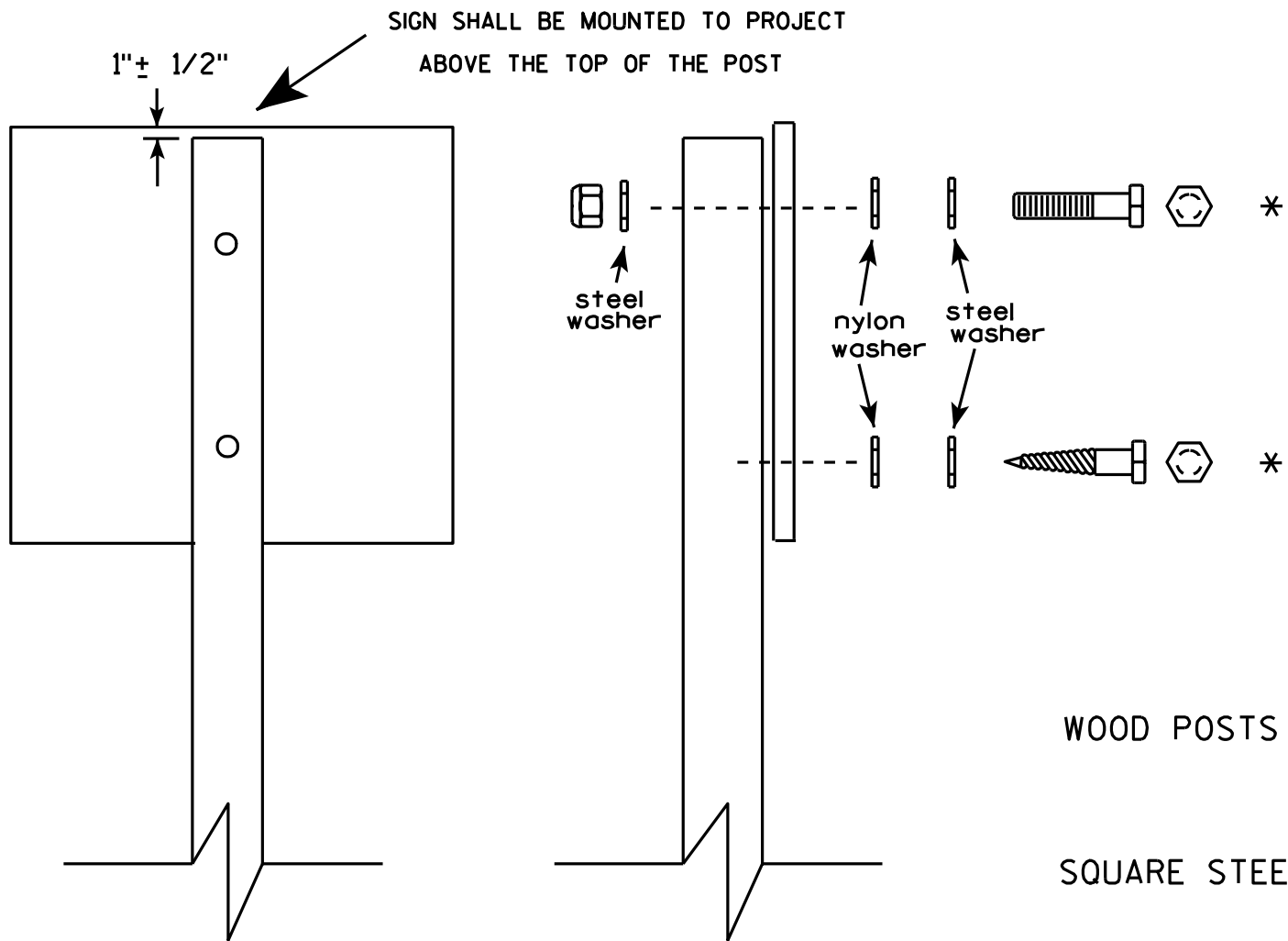
\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION  
OF PERMANENT TYPE II  
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED  
*Matthew R. Rauch*  
for State Traffic Engineer

DATE 9/30/13 PLATE NO. A4-3.18

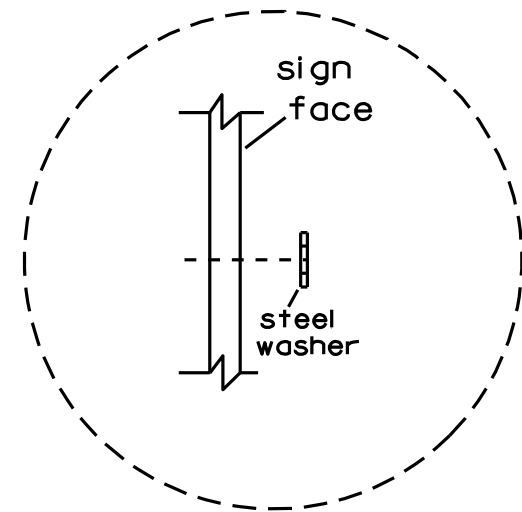


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- 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.

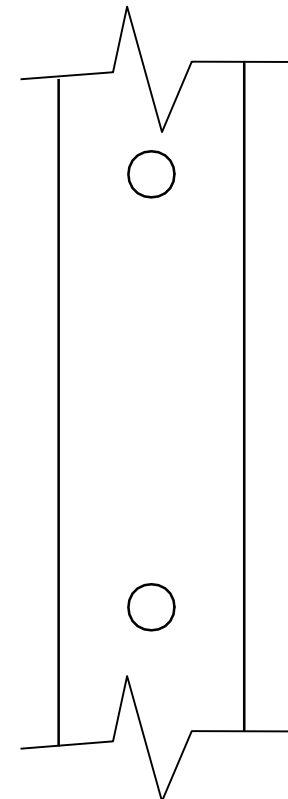
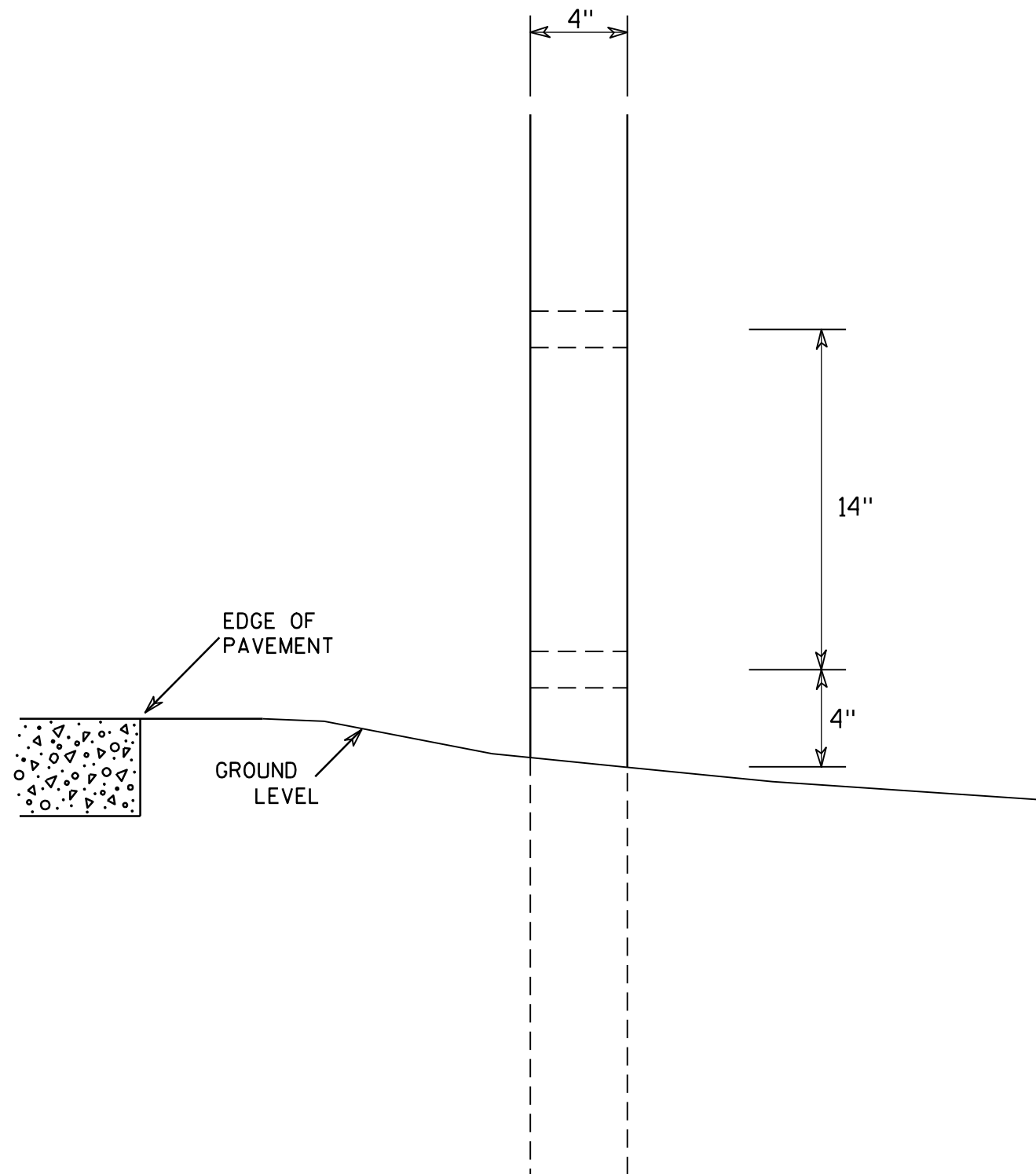
- WOOD POSTS (4" x 4" or 4" x 6")  
LAG SCREWS - 3/8" X 3"  
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")  
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts  
RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL  
O.D. FLANGE .720-.765 INCH, GRIP RANGE .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                                      |



SIDE VIEW

### GENERAL NOTES

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

### 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

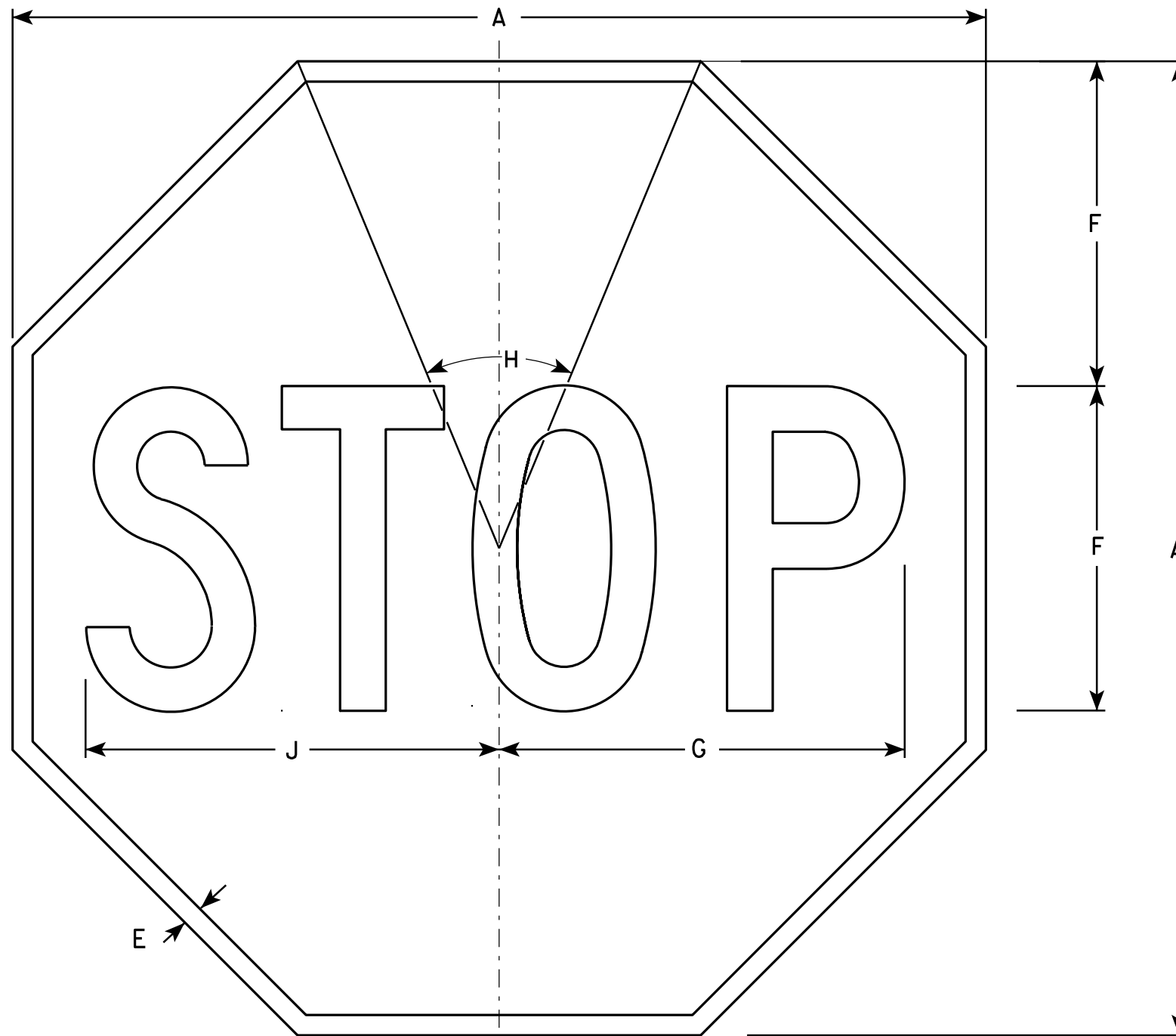
PROJECT NO:

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 - Red  
Message - White
3. Message Series - C

R1-1

| 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    | 24 |   |   |   | $\frac{3}{8}$ | 8  | 10               | 45° |   | 10 $\frac{1}{4}$ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 3.31            |
| 2S   | 30 |   |   |   | $\frac{5}{8}$ | 10 | 12 $\frac{1}{2}$ | 45° |   | 12 $\frac{3}{4}$ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 5.18            |
| 2M   | 36 |   |   |   | $\frac{3}{4}$ | 12 | 15               | 45° |   | 15 $\frac{3}{8}$ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 7.46            |
| 3    | 36 |   |   |   | $\frac{3}{4}$ | 12 | 15               | 45° |   | 15 $\frac{3}{8}$ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 7.46            |
| 4    | 48 |   |   |   | 1             | 16 | 20               | 45° |   | 20 $\frac{1}{2}$ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 13.25           |
| 5    | 48 |   |   |   | 1             | 16 | 20               | 45° |   | 20 $\frac{1}{2}$ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 13.25           |
| 6    | 18 |   |   |   | $\frac{3}{8}$ | 6  | 7 $\frac{3}{4}$  | 45° |   | 7 $\frac{3}{4}$  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 1.86            |
| 7    | 12 |   |   |   | $\frac{1}{4}$ | 4  | 5                | 45° |   | 5 $\frac{1}{8}$  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 0.78            |

STANDARD SIGN  
R1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 12/03/10 PLATE NO. R1-1.12

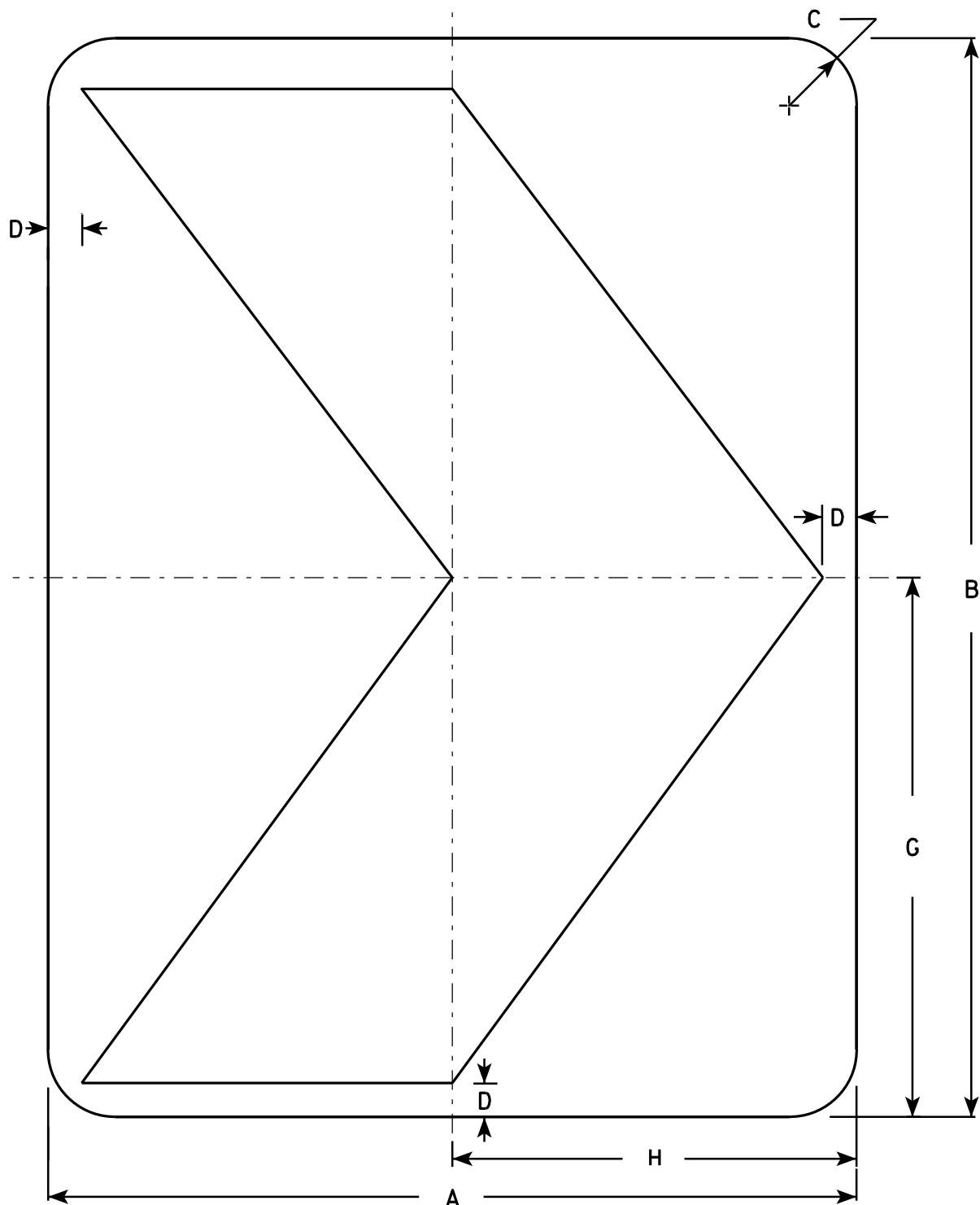
PROJECT NO:

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.

W1-8

| SIZE | A  | B  | C     | D     | E | F | G  | H  | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|----|-------|-------|---|---|----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    | 12 | 18 | 1 1/2 | 1/2   |   |   | 9  | 6  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 1.5             |
| 2S   | 18 | 24 | 1 1/2 | 3/4   |   |   | 12 | 9  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 3.0             |
| 2M   | 18 | 24 | 1 1/2 | 3/4   |   |   | 12 | 9  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 3.0             |
| 3    | 24 | 30 | 1 1/2 | 1     |   |   | 15 | 12 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 5.0             |
| 4    | 30 | 36 | 1 7/8 | 1 1/4 |   |   | 18 | 15 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 7.5             |
| 5    | 36 | 48 | 2 1/4 | 1 1/2 |   |   | 24 | 18 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 12.0            |

### STANDARD SIGN

W1-8

WISCONSIN DEPT OF TRANSPORTATION

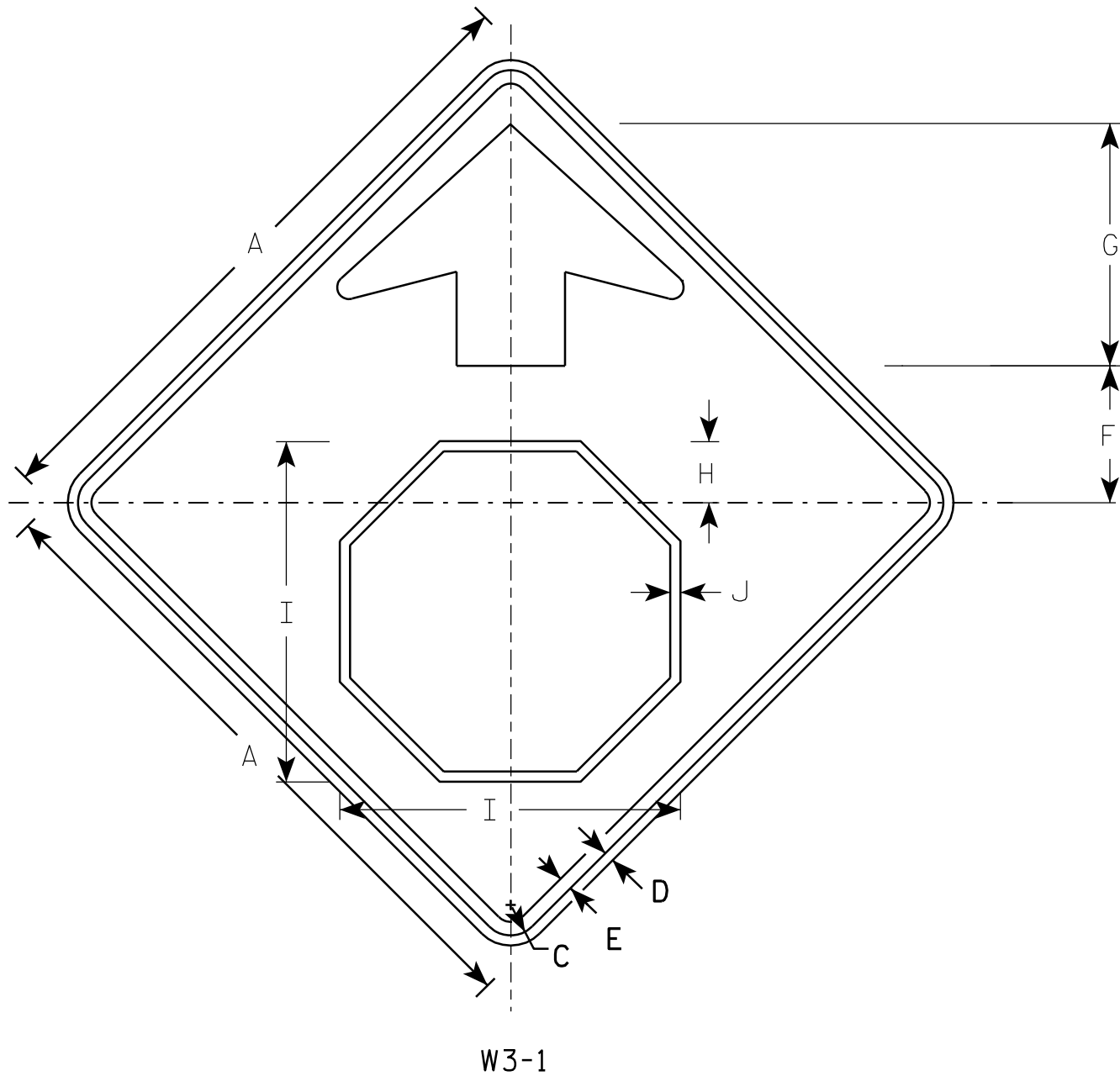
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W1-8.6

PROJECT NO:

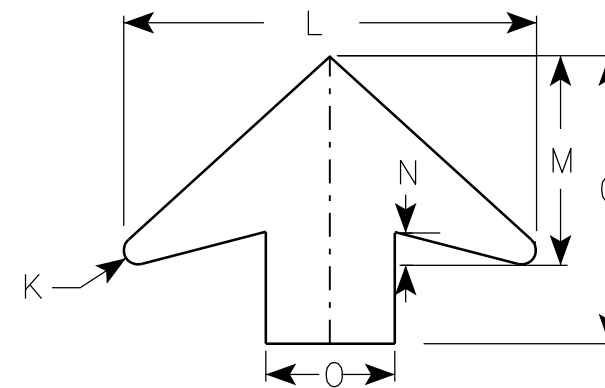
SHEET NO:

E



### NOTES

1. All Signs Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - YELLOW  
Arrow & Border - BLACK  
Stop Symbol - WHITE BORDER ON RED BACKGROUND



ARROW DETAIL

| SIZE | A  | B | C     | D   | E   | F     | G      | H     | I      | J   | K   | L      | M     | N     | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|---|-------|-----|-----|-------|--------|-------|--------|-----|-----|--------|-------|-------|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    | 30 |   | 1 3/8 | 1/2 | 5/8 | 6 1/4 | 11 1/4 | 2 7/8 | 15 3/4 | 1/2 | 1/2 | 16     | 8     | 1 1/4 | 5 |   |   |   |   |   |   |   |   |   |   |   | 6.25            |
| 2S   | 36 |   | 1 5/8 | 5/8 | 3/4 | 7 1/2 | 13 1/2 | 3 1/2 | 19     | 5/8 | 5/8 | 19 1/4 | 9 3/4 | 1 5/8 | 6 |   |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 2M   | 36 |   | 1 5/8 | 5/8 | 3/4 | 7 1/2 | 13 1/2 | 3 1/2 | 19     | 5/8 | 5/8 | 19 1/4 | 9 3/4 | 1 5/8 | 6 |   |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 3    | 36 |   | 1 5/8 | 5/8 | 3/4 | 7 1/2 | 13 1/2 | 3 1/2 | 19     | 5/8 | 5/8 | 19 1/4 | 9 3/4 | 1 5/8 | 6 |   |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 4    | 48 |   | 2 1/4 | 3/4 | 1   | 10    | 17 7/8 | 4 1/2 | 25 1/8 | 3/4 | 7/8 | 25 5/8 | 13    | 2     | 8 |   |   |   |   |   |   |   |   |   |   |   | 16.0            |
| 5    | 48 |   | 2 1/4 | 3/4 | 1   | 10    | 17 7/8 | 4 1/2 | 25 1/8 | 3/4 | 7/8 | 25 5/8 | 13    | 2     | 8 |   |   |   |   |   |   |   |   |   |   |   | 16.0            |

PROJECT NO:

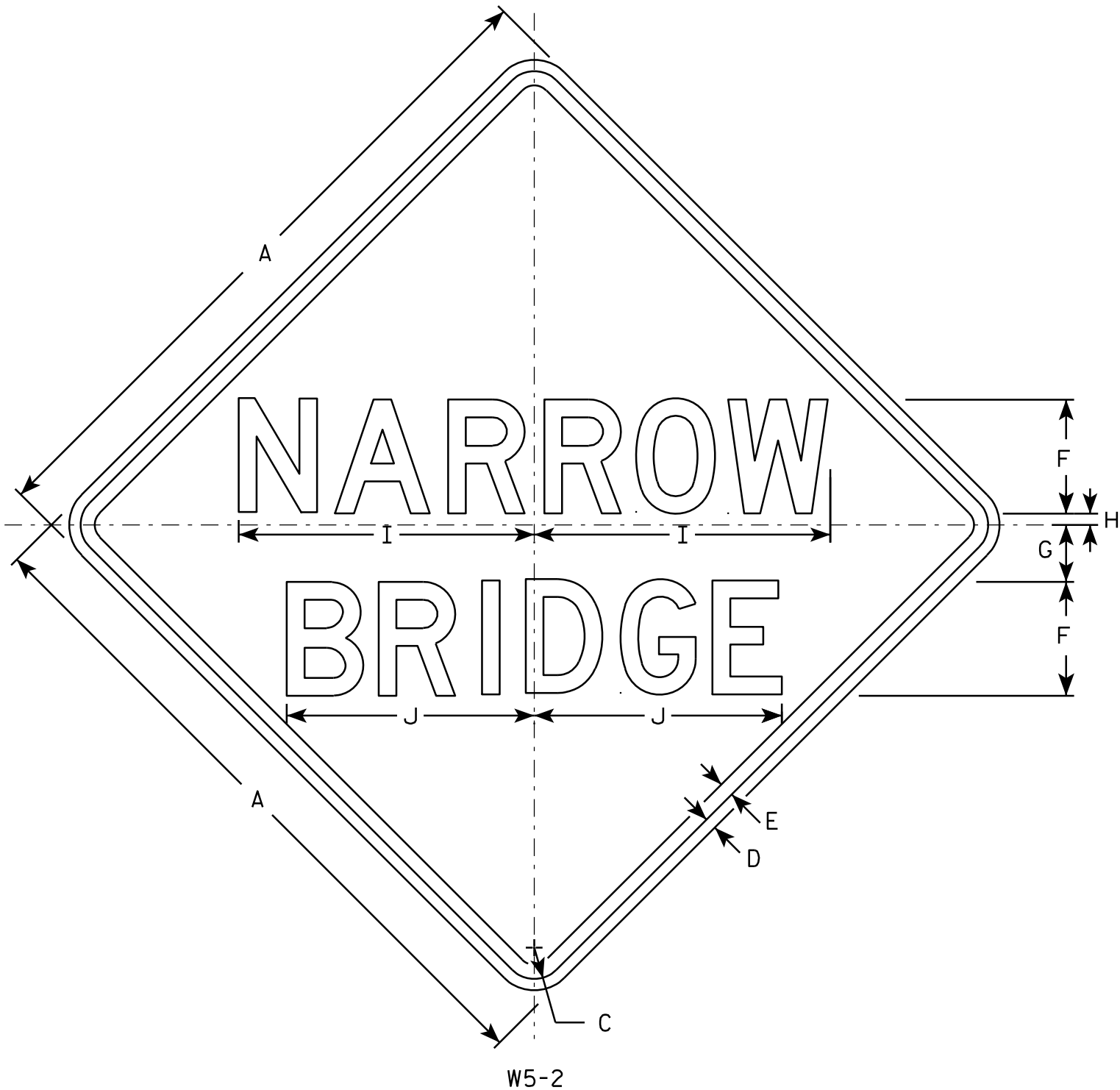
STANDARD SIGN  
W3-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer  
DATE 6/7/10 PLATE NO. W3-1.12

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. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

| SIZE | A  | B | C     | D   | E   | F | G     | H   | I      | J      | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|---|-------|-----|-----|---|-------|-----|--------|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    | 30 |   | 1 3/8 | 1/2 | 5/8 | 5 | 2 1/2 | 1/2 | 13     | 10 7/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 6.25            |
| 2S   | 36 |   | 1 5/8 | 5/8 | 3/4 | 6 | 3     | 3/4 | 15 5/8 | 13 1/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 2M   | 36 |   | 1 5/8 | 5/8 | 3/4 | 6 | 3     | 3/4 | 15 5/8 | 13 1/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 3    | 36 |   | 1 5/8 | 5/8 | 3/4 | 6 | 3     | 3/4 | 15 5/8 | 13 1/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 4    | 48 |   | 2 1/4 | 3/4 | 1   | 8 | 4     | 3/4 | 20 3/4 | 17 3/8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 16.0            |
| 5    |    |   |       |     |     |   |       |     |        |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |

### STANDARD SIGN

W5-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 03/12/13 PLATE NO. W5-2.8

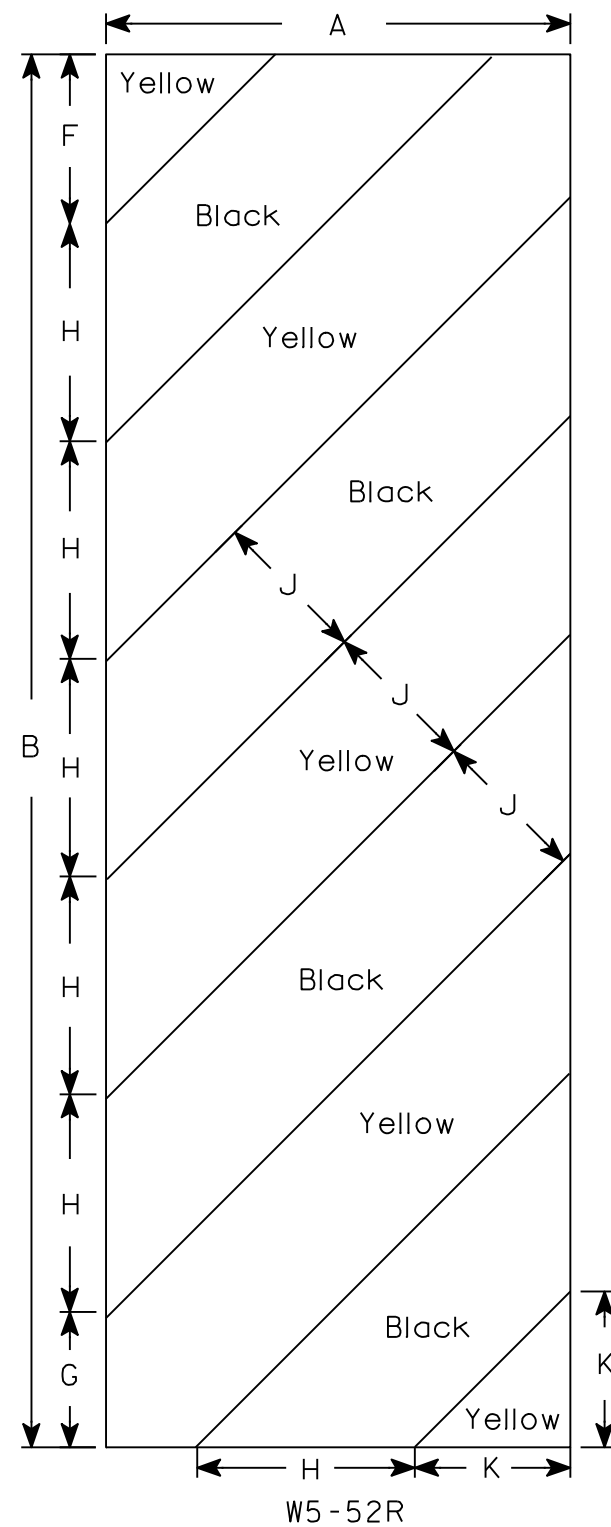
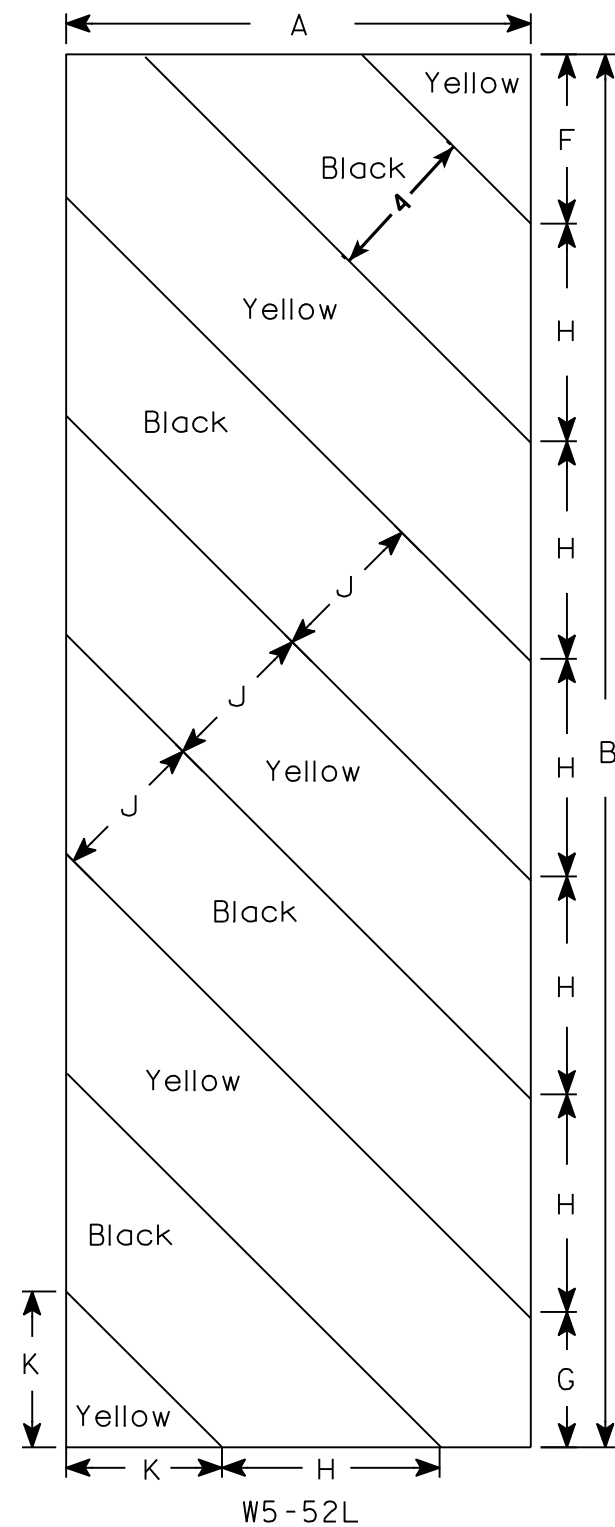
PROJECT NO:

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.

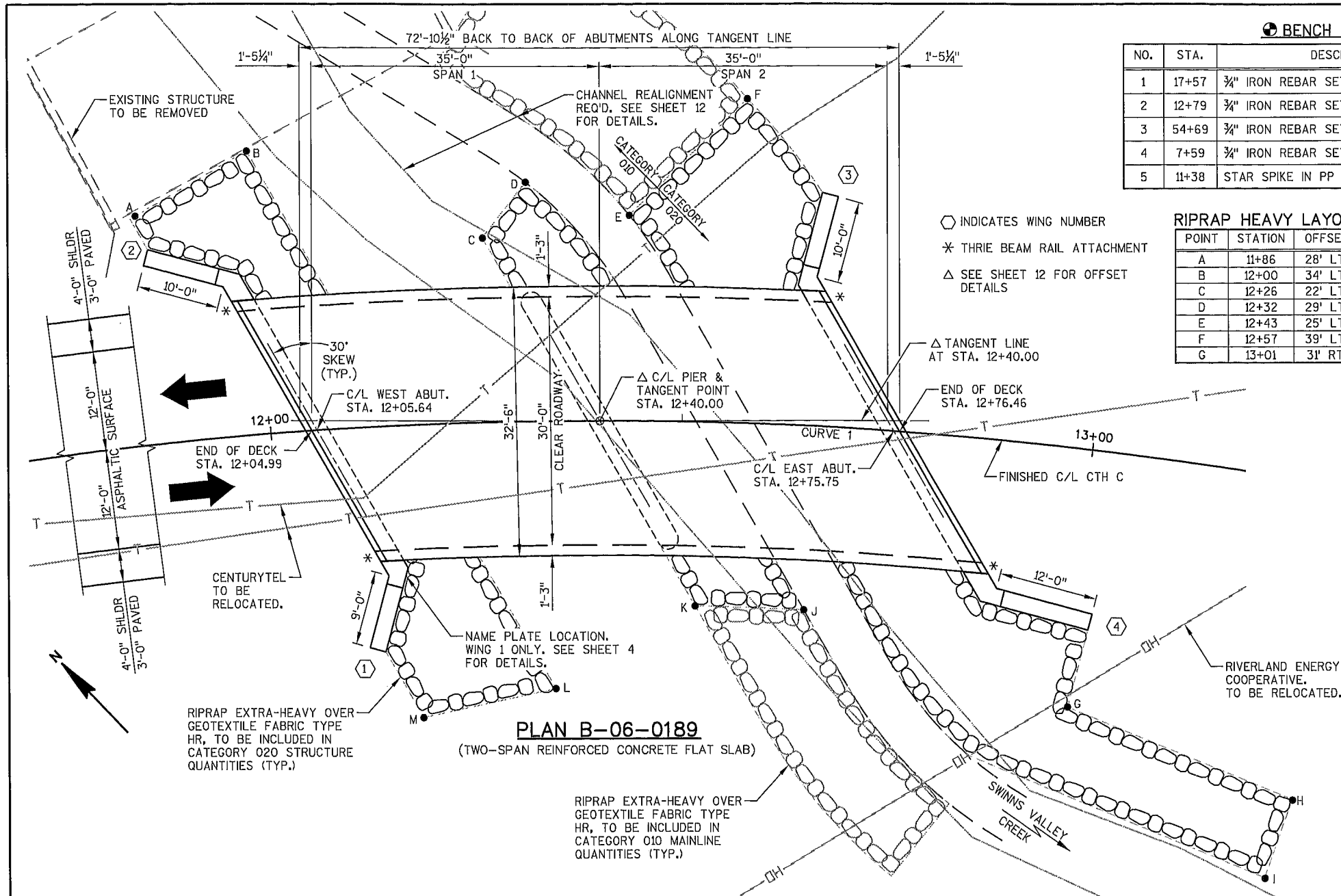
| SIZE | A  | B  | C | D | E | F     | G     | H     | I   | J | K      | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|----|---|---|---|-------|-------|-------|-----|---|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    |    |    |   |   |   |       |       |       |     |   |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 2S   | 12 | 36 |   |   |   | 4 3⁄8 | 3 1⁄2 | 5 5⁄8 | 45° | 4 | 4      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 3.0             |
| 2M   | 12 | 36 |   |   |   | 4 3⁄8 | 3 1⁄2 | 5 5⁄8 | 45° | 4 | 4      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 3.0             |
| 3    | 18 | 54 |   |   |   | 6     | 5 1⁄2 | 8 1⁄2 | 45° | 6 | 6 5⁄16 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 6.75            |
| 4    |    |    |   |   |   |       |       |       |     |   |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 5    |    |    |   |   |   |       |       |       |     |   |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |

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



**BENCH MARKS**

| NO. | STA.  | DESCRIPTION                      | ELEV.  |
|-----|-------|----------------------------------|--------|
| 1   | 17+57 | ¾" IRON REBAR SET, 16.3' LT.     | 804.16 |
| 2   | 12+79 | ¾" IRON REBAR SET, 101.1' LT.    | 807.64 |
| 3   | 54+69 | ¾" IRON REBAR SET, 12.1' LT.     | 808.49 |
| 4   | 7+59  | ¾" IRON REBAR SET, 14.8' RT.     | 808.08 |
| 5   | 11+38 | STAR SPIKE IN PP SET, 107.7' RT. | 806.00 |

**RIPRAP HEAVY LAYOUT**

| POINT | STATION | OFFSET  | POINT | STATION | OFFSET  |
|-------|---------|---------|-------|---------|---------|
| A     | 11+86   | 28' LT. | H     | 13+31   | 38' RT. |
| B     | 12+00   | 34' LT. | I     | 13+30   | 48' RT. |
| C     | 12+26   | 22' LT. | J     | 12+66   | 22' RT. |
| D     | 12+32   | 29' LT. | K     | 12+52   | 22' RT. |
| E     | 12+43   | 25' LT. | L     | 12+34   | 32' RT. |
| F     | 12+57   | 39' LT. | M     | 12+17   | 35' RT. |
| G     | 13+01   | 31' RT. |       |         |         |

**CURVE 1**  
PI STA. = 13+77.55  
Y = 300,151.31  
X = 638,571.22  
R = 510.00  
D = 11'14'04"  
DELTA = 73°01'27"  
L = 650.00  
T = 377.55  
C = 606.89  
PC STA. = 10+00  
Y = 300,259.59  
X = 638,209.53  
PT STA. = 16+50  
Y = 299,773.77  
X = 638,573.27  
S.E. = 6.0%  
R.O. = SEE S.E. TABLE  
TRANS. = SEE S.E. TABLE

**PLAN B-06-0189**  
(TWO-SPAN REINFORCED CONCRETE FLAT SLAB)



STATE PROJECT NUMBER  
**7310-00-70**

**DESIGN DATA**

**LIVE LOAD:**  
DESIGN LOADING \_\_\_\_\_ HL-93  
INVENTORY RATING FACTOR \_\_\_\_\_ RF=1,300  
OPERATING RATING FACTOR \_\_\_\_\_ RF=1,685  
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) \_\_\_\_\_ 250 KIPS

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

**ULTIMATE DESIGN STRESSES:**

CONCRETE MASONRY, SLAB \_\_\_\_\_ f'c = 4,000 P.S.I.  
ALL OTHER \_\_\_\_\_ f'c = 3,500 P.S.I.  
HIGH-STRENGTH BAR STEEL \_\_\_\_\_ fy = 60,000 P.S.I.  
REINFORCEMENT, GRADE 60 \_\_\_\_\_

**FOUNDATION DATA**

ABUTMENTS TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 110 TONS\*\* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATE 40 FT PILE LENGTHS AT BOTH ABUTMENTS.

PIER TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS\*\* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATE 40 FT PILE LENGTHS AT PIER.

\*\*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**

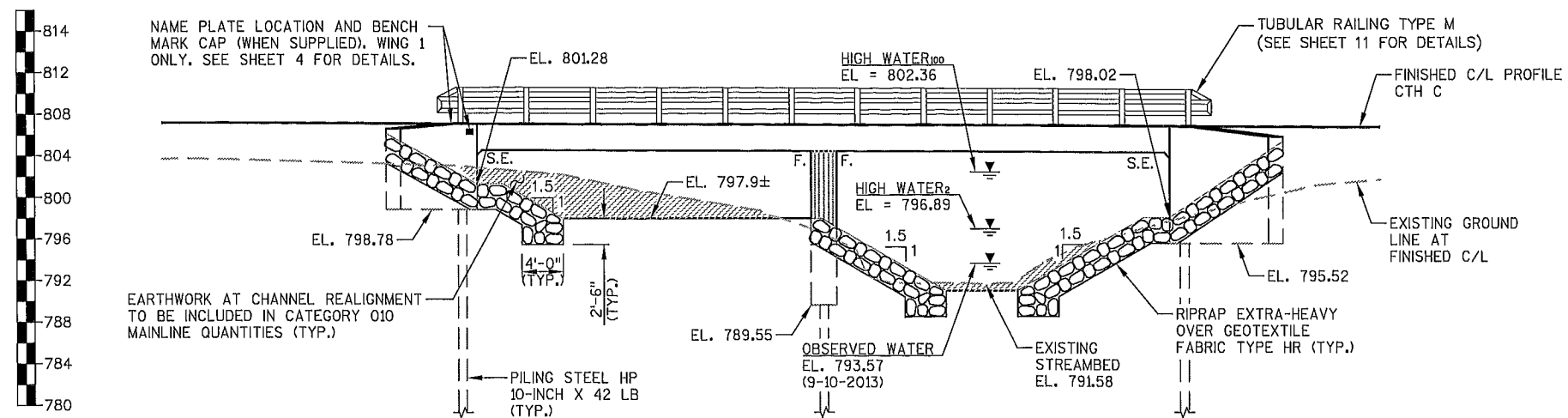
A.D.T. (2015) \_\_\_\_\_ 850  
A.D.T. (2035) \_\_\_\_\_ 1060  
DESIGN SPEED \_\_\_\_\_ 40 M.P.H.

**HYDRAULIC DATA**

100 YEAR FREQUENCY  
DRAINAGE AREA \_\_\_\_\_ 7.3 SQ. MI.  
Q<sub>100</sub> TOTAL \_\_\_\_\_ 1,930 C.F.S.  
THROUGH STRUCTURE \_\_\_\_\_ 1,930 C.F.S.  
OVERTOPPING ROADWAY \_\_\_\_\_ N/A  
VELOCITY - THROUGH STRUCTURE \_\_\_\_\_ 7.4 F.P.S.  
WATERWAY AREA - THROUGH STRUCTURE \_\_\_\_\_ 261.7 SQ. FT.  
HIGH WATER<sub>100</sub> ELEVATION \_\_\_\_\_ 802.36  
SCOUR CRITICAL CODE \_\_\_\_\_ 5

EROSION CONTROL  
Q<sub>2</sub> \_\_\_\_\_ 280 C.F.S.  
HIGH WATER<sub>2</sub> ELEVATION \_\_\_\_\_ 796.89

**DESIGN CONSULTANT** **BRIDGE OFFICE CONTACT**  
PATRICK BOLAND, PE WILLIAM DREHER, PE  
(608) 588-7484 (608) 266-8489



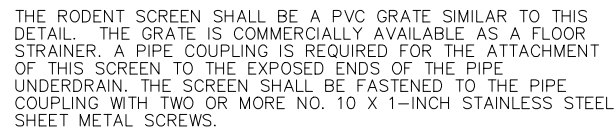
**ELEVATION**  
(NORMAL TO SWINNS VALLEY CREEK)

**LIST OF DRAWINGS**

- GENERAL PLAN
- CROSS SECTION AND QUANTITIES
- SUBSURFACE EXPLORATION
- WEST ABUTMENT
- WEST ABUTMENT DETAILS
- EAST ABUTMENT
- EAST ABUTMENT DETAILS
- PIER
- SUPERSTRUCTURE
- SUPERSTRUCTURE DETAILS
- TUBULAR RAILING TYPE M
- CONSTRUCTION DETAILS

|   |         |              |         |
|---|---------|--------------|---------|
| NO.   | DATE    | REVISION     | BY      |
| <b>JEWELL</b><br>associates engineers, inc.<br>Engineers - Surveyors - Architects           |         |              |         |
| 560 SUNRISE DRIVE<br>SPRING GREEN, WI 53588<br>PHONE: (608) 588-7484<br>FAX: (608) 588-9322 |         |              |         |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION  |         |              |         |
| ACCEPTED <i>William C. Dreher</i> <b>08/24/15</b><br>CHIEF STRUCTURES DESIGN ENGINEER DATE  |         |              |         |
| <b>STRUCTURE B-06-0189</b>  |         |              |         |
| CTH C OVER SWINNS VALLEY CREEK  |         |              |         |
| COUNTY  | BUFFALO | TOWN/VILLAGE | GLENCOE |
| DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS                                       |         |              |         |
| DESIGNED BY   | PTB     | CHECKED BY   | RBH     |
| <b>GENERAL PLAN</b>   |         |              |         |
| SHEET 1 OF 12   |         |              |         |

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATIVE METHOD IS APPROVED BY THE ENGINEER IN THE FIELD.

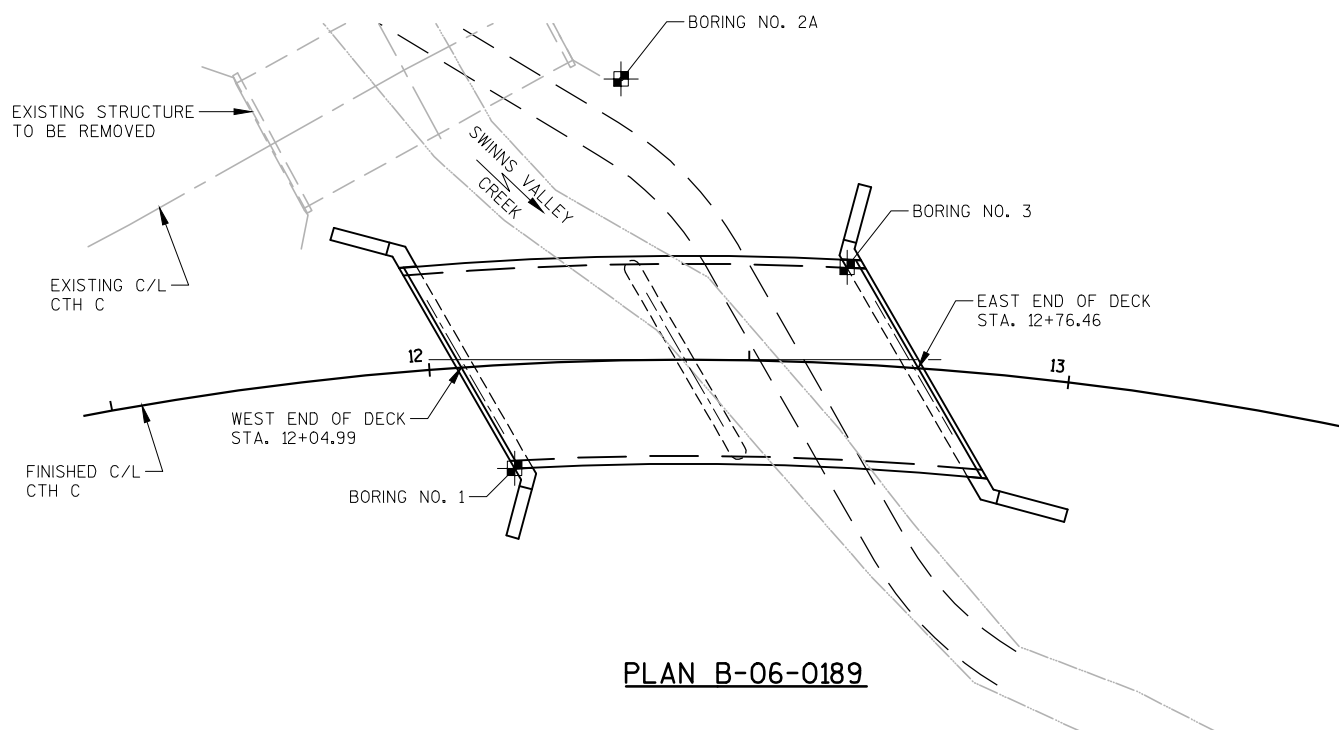
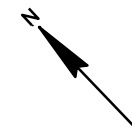


| ITEM<br>NUMBER | ITEM DESCRIPTION   | UNIT | W. ABUT. | PIER  | E. ABUT. | SUPER. | TOTALS  |
|----------------|--|------|----------|-------|----------|--------|---------|
| 203.0600.S     | REMOVING OLD STRUCTURE OVER WATERWAY WITH MIN. DEBRIS STA. 12+00 | LS   | --       | --    | --       | --     | 1       |
| 206.1000       | EXCAVATION FOR STRUCTURES BRIDGES B-06-0189                      | LS   | --       | --    | --       | --     | 1       |
| 210.0100       | BACKFILL STRUCTURE   | CY   | 115      | --    | 235      | --     | 350     |
| 502.0100       | CONCRETE MASONRY BRIDGES   | CY   | 35.0     | 51.2  | 55.0     | 131.8  | 273     |
| 502.3200       | PROTECTIVE SURFACE TREATMENT                                     | SY   | --       | --    | --       | 300    | 300     |
| 505.0400       | BAR STEEL REINFORCEMENT HS STRUCTURES                            | LB   | 2,700    | 2,330 | 3,160    | --     | 8,190   |
| 505.0600       | BAR STEEL REINFORCEMENT HS COATED STRUCTURES                     | LB   | 1,380    | --    | 1,670    | 31,130 | 34,180  |
| 513.4061       | RAILING TUBULAR TYPE M B-06-0189                                 | LF   | --       | --    | --       | 145    | 145     |
| 516.0500       | RUBBERIZED MEMBRANE WATERPROOFING                                | SY   | 7.2      | --    | 7.8      | --     | 15      |
| 550.1100       | PIILING STEEL HP 10-INCH X 42 LB                                 | LF   | 320      | 240   | 320      | --     | 880     |
| 606.0400       | RIPRAP EXTRA-HEAVY   | CY   | 96       | 68    | 191      | --     | 355     |
| 612.0406       | PIPE UNDERDRAIN WRAPPED 6-INCH                                   | LF   | 85       | --    | 95       | --     | 180     |
| 645.0120       | GEOTEXTILE FABRIC TYPE HR  | SY   | 150      | 110   | 290      | --     | 550     |
|                |  |      |          |       |          | --     |         |
|                | NON-BID ITEMS  |      |          |       |          |        |         |
|                | FILLER   | SIZE | --       | --    | --       | --     | ½" & ¾" |
|                | NAME PLATE   |      |          |       |          |        |         |
|                |  |      |          |       |          |        |         |



STEEL "HP" PILE MATERIAL SHALL BE ASTM A 572 GRADE 50.

|  |      |          |                |     |    |
|--|------|----------|----------------|-----|----|
|  |      |          |                |     |    |
| NO.  | DATE | REVISION |                |     | BY |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |          |                |     |    |
| STRUCTURE B-06-0189                                |      |          |                |     |    |
| DRAWN<br>BY  |      | RBH      | PLANS<br>CK'D. | PTE |    |
| CROSS SECTION<br>AND QUANTITIES                    |      |          | SHEET 2 OF 12  |     |    |
|  |      |          |                |     |    |



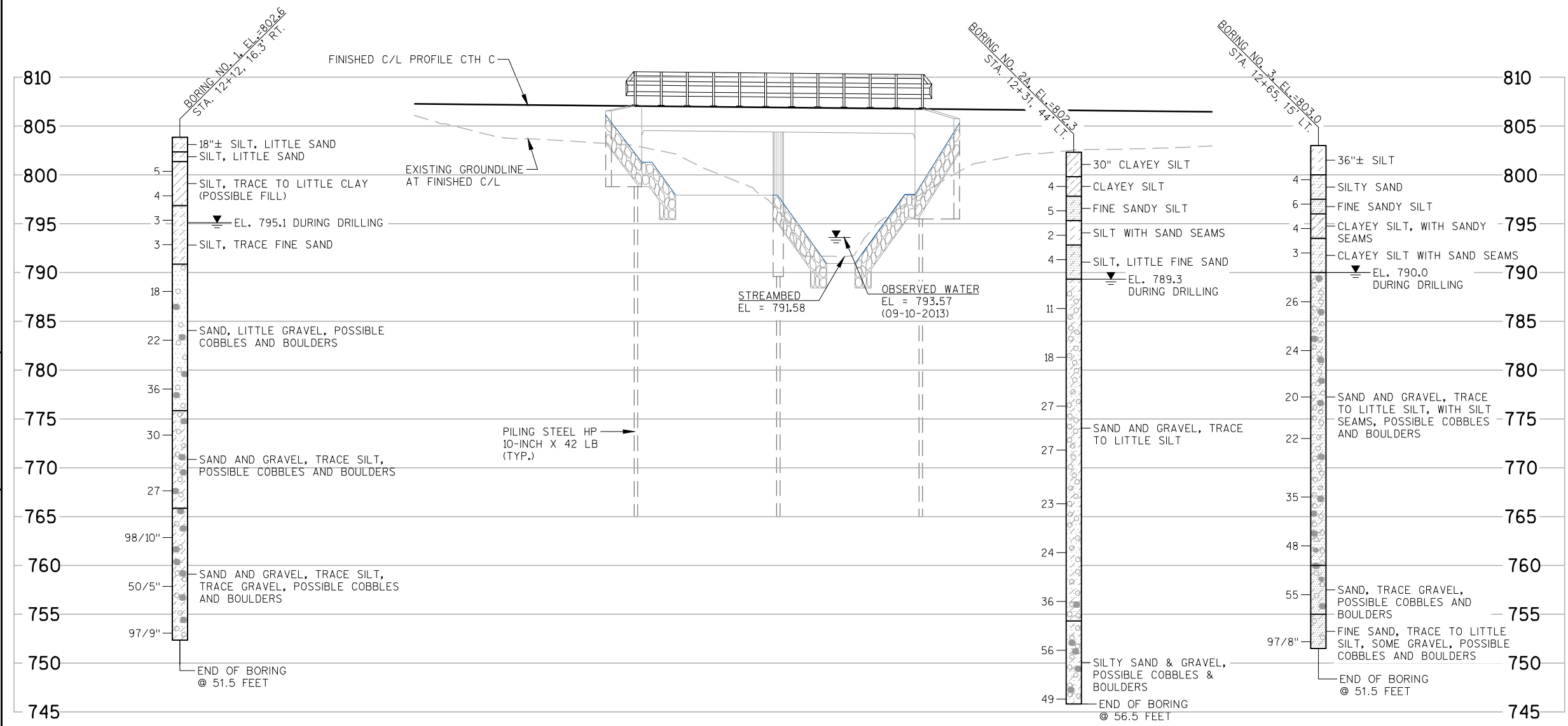
**SOIL BORINGS**

BY: MIDWEST ENGINEERING SERVICES  
821 CORPORATE COURT, STE 102  
WAUKESHA, WI 53189

ON: FEBRUARY 19, 2014

ABUTMENTS TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 110 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATE 40 FT PILE LENGTHS AT BOTH ABUTMENTS.

PIER TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATE 40 FT PILE LENGTHS AT PIER.



STATE PROJECT NUMBER

7310-00-70

ABBREVIATIONS

F—Fine M—Medium C—Course  
Ws—Weathered So—Sound

MATERIAL SYMBOLS

Asphalt

Sand

Gravel

Silt

Peat

Clay

Sandstone

Limestone

Igneous Rock

LEGEND OF PROBING

PROBING No.: Elevation Station

95/6 = 96 Blows for 6" Penetration. Probing Taken with a 350\* Weight Falling 18" on a 2" O.D. Point.

7 Average Blows Per Foot

Refusal 95/6

LEGEND OF BORING

Boring No.: Elevation Station

Unconfined Strength—7.7 8 \*

Blows Per Ft. Using 140\* Wt. Falling 30"

Wash Sample

Shelby Tube — S.T.

No Ground Water Observed Above This Elevation

Ground Water Elevation

Sandy Gravel

Boulders or Cobbles

F. Sand

Silty Clay

So. Limestone

UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140\* HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

| NO. | DATE | REVISION | BY |
|-----|------|----------|----|
|     |      |          |    |

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-06-0189

DRAWN BY

TMS

PLANS CK'D.

PTB

SUBSURFACE EXPLORATION

SHEET 3 OF 12



1,380 LB (COATED)  
2,700 LB (UNCOATED)

NOTES

SOME BARS HAVE BEEN OMITTED FOR CLARITY.  
SEE THIS SHEET FOR BILL OF BARS.

BILL OF BARS  
WEST ABUTMENT

| BAR MARK | NO. REQ'D. | LENGTH | BENT | COAT | BAR SERIES | LOCATION                      |
|----------|------------|--------|------|------|------------|-------------------------------|
| A501     | 82         | 6-0    | X    |      |            | BODY - VERT. - F.F. & B.F.    |
| A502     | 41         | 8-11   | X    |      |            | BODY - VERT. - TOP            |
| A403     | 30         | 2-8    | X    |      |            | TIE BARS                      |
| A504     | 9          | 40-9   |      |      |            | BODY - HORIZ. - F.F.          |
| A805     | 18         | 26-5   | X    |      |            | BODY - HORIZ. - B.F.          |
| A406     | 24         | 3-1    | X    |      |            | BODY - VERT. - TOP            |
| A407     | 2          | 38-6   |      |      |            | BODY - HORIZ. - TOP           |
| A408     | 22         | 8-4    | X    | X    | *          | WING 1 - VERT. - F.F. & B.F.  |
| A409     | 6          | 6-10   |      | X    |            | WING 1 - VERT.                |
| A410     | 2          | 3-2    |      | X    |            | WING 1 & 2 - VERT. - TOP      |
| A511     | 9          | 11-8   | X    | X    |            | WING 1 - HORIZ. - F.F.        |
| A812     | 9          | 13-2   | X    | X    |            | WING 1 - HORIZ. - B.F.        |
| A413     | 2          | 7-3    |      | X    |            | WING 1 - HORIZ. - F.F. & B.F. |
| A414     | 2          | 4-3    |      | X    |            | WING 1 - HORIZ. - F.F. & B.F. |
| A415     | 2          | 9-1    | X    | X    |            | WING 1 - HORIZ. - F.F. & B.F. |
| A416     | 3          | 7-11   | X    | X    |            | WING 1 - HORIZ. - TOP         |
| A417     | 24         | 10-10  | X    | X    | *          | WING 2 - VERT. - F.F. & B.F.  |
| A418     | 10         | 8-10   |      | X    |            | WING 2 - VERT.                |
| A519     | 9          | 12-9   | X    | X    |            | WING 2 - HORIZ. - F.F.        |
| A820     | 9          | 14-3   | X    | X    |            | WING 2 - HORIZ. - B.F.        |
| A421     | 2          | 9-10   |      | X    |            | WING 2 - HORIZ. - F.F. & B.F. |
| A422     | 2          | 8-3    |      | X    |            | WING 2 - HORIZ. - F.F. & B.F. |
| A423     | 2          | 9-10   | X    | X    |            | WING 2 - HORIZ. - F.F. & B.F. |
| A424     | 3          | 10-4   | X    | X    |            | WING 2 - HORIZ. - TOP         |

NOTES: THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.

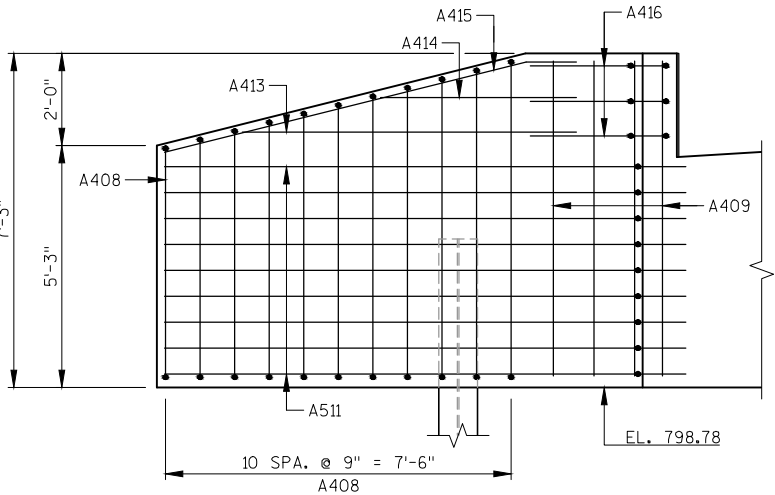
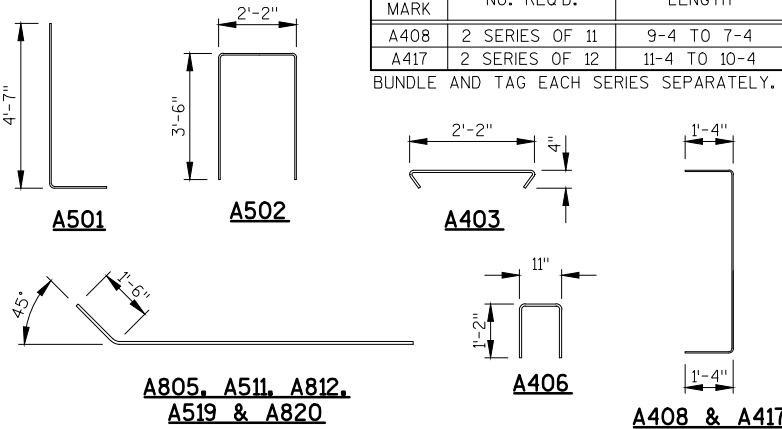
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

\* LENGTH SHOWN IS AN AVERAGE LENGTH ONLY. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

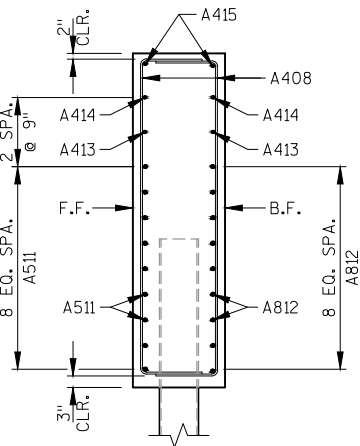
BAR SERIES TABLE

| BAR MARK | NO. REQ'D.     | LENGTH       |
|----------|----------------|--------------|
| A408     | 2 SERIES OF 11 | 9-4 TO 7-4   |
| A417     | 2 SERIES OF 12 | 11-4 TO 10-4 |

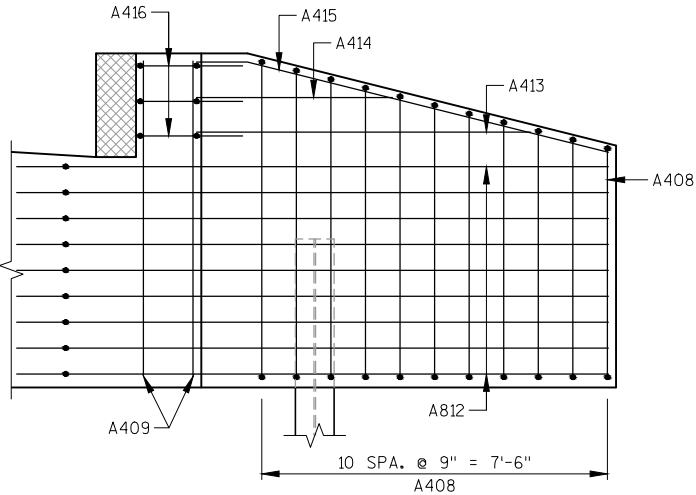
BUNDLE AND TAG EACH SERIES SEPARATELY.



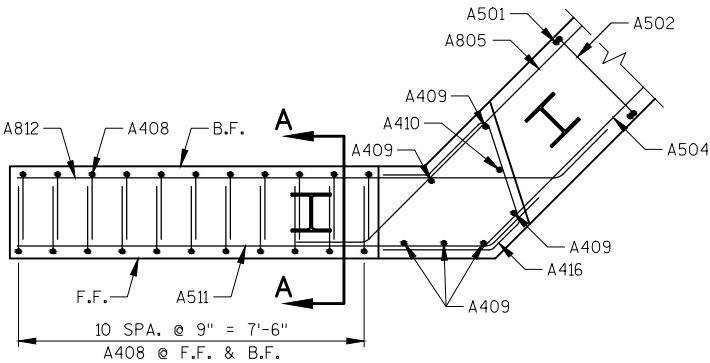
F.F. ELEVATION - WING 1



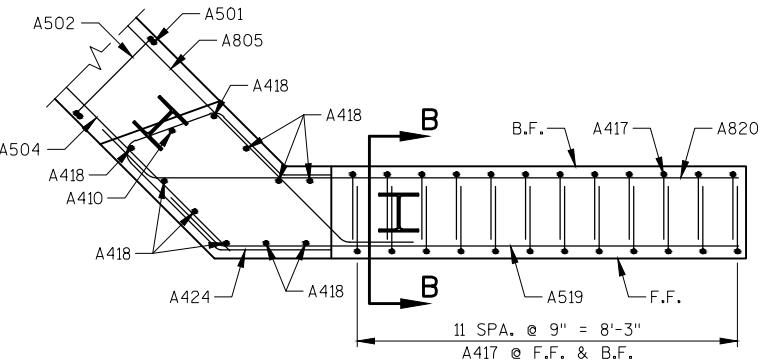
SECTION A-A



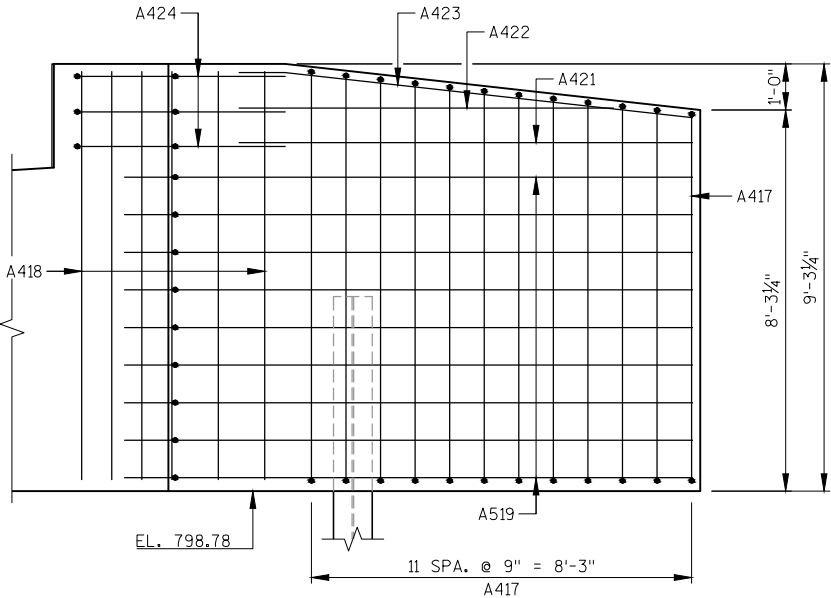
B.F. ELEVATION - WING 1



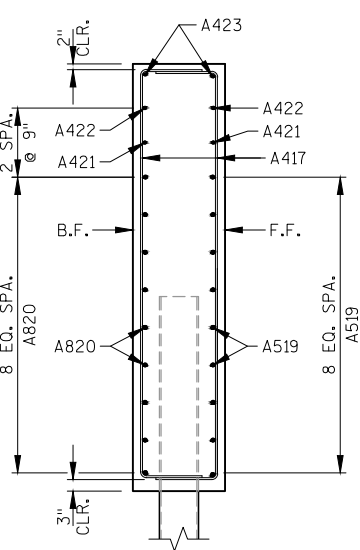
PLAN VIEW - WING 1



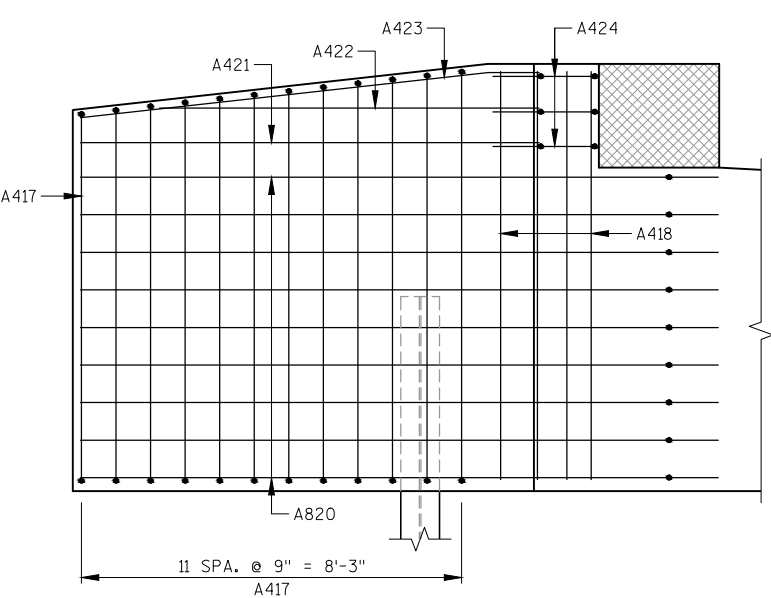
PLAN VIEW - WING 2



F.F. ELEVATION - WING 2



SECTION B-B



B.F. ELEVATION - WING 2

| NO.  | DATE | REVISION | BY              |
|--|------|----------|-----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |          |                 |
| STRUCTURE B-06-0189                                |      |          |                 |
| DRAWN BY   |      | PTB      | PLANS CK'D. RBH |
| WEST ABUTMENT DETAILS                              |      |          | SHEET 5 OF 12   |

NOTES

SEE SHEET 12 FOR OFFSET DETAILS.

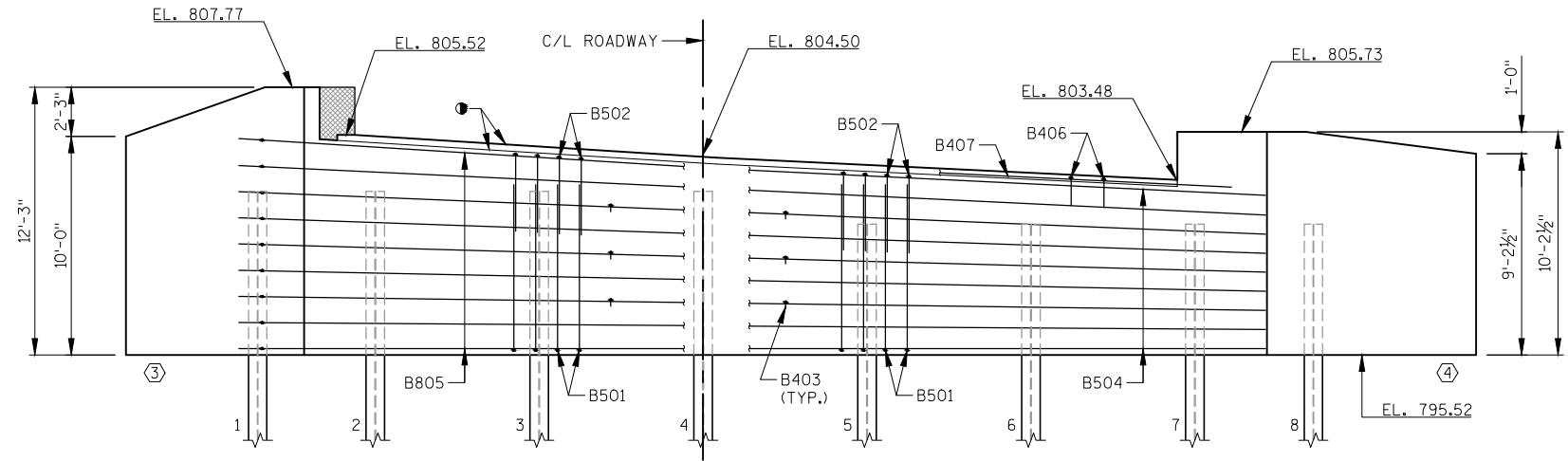
SOME BARS HAVE BEEN OMITTED FOR CLARITY.  
SEE SHEET 7 FOR BILL OF BARS.

DO NOT PLACE FILL HIGHER THAN 3 FEET FROM  
BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE  
IS IN PLACE.

SPACE REINFORCEMENT TO MISS PILING

F.F. - FRONT FACE

B.F. - BACK FACE

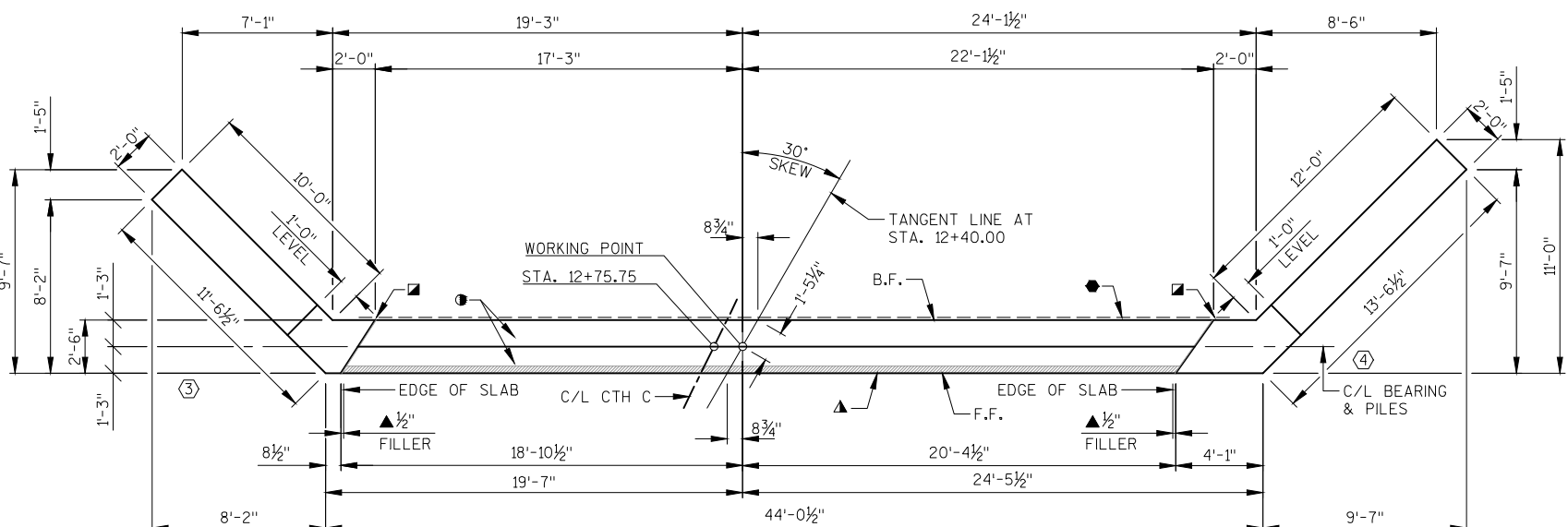


BACK FACE BAR STEEL REINF.

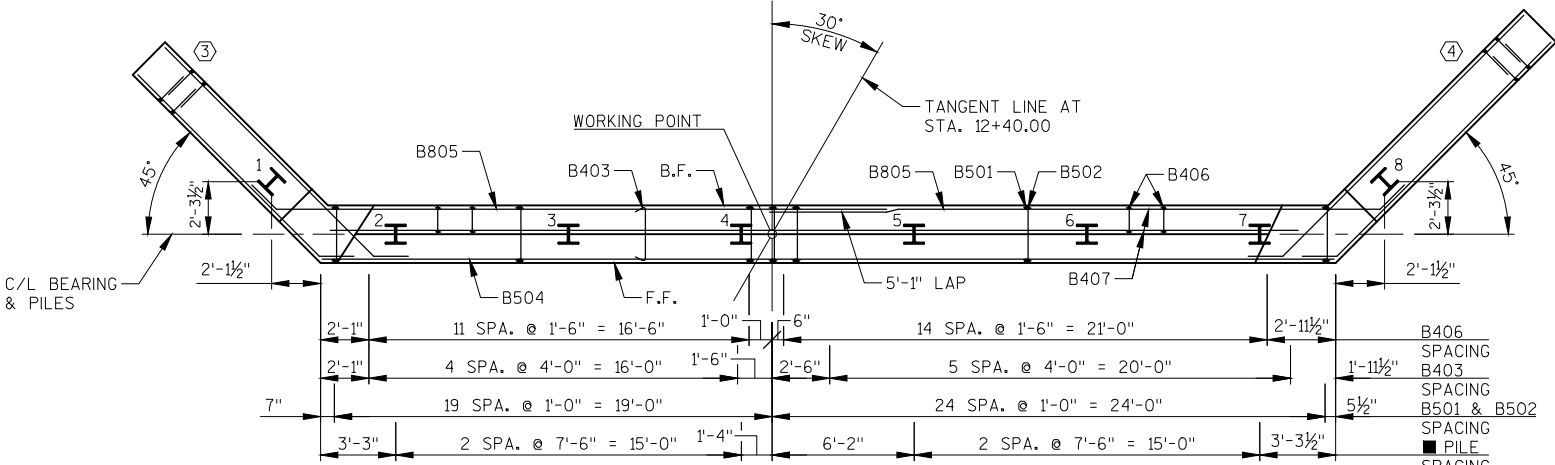
FRONT FACE BAR STEEL REINF.

ELEVATION

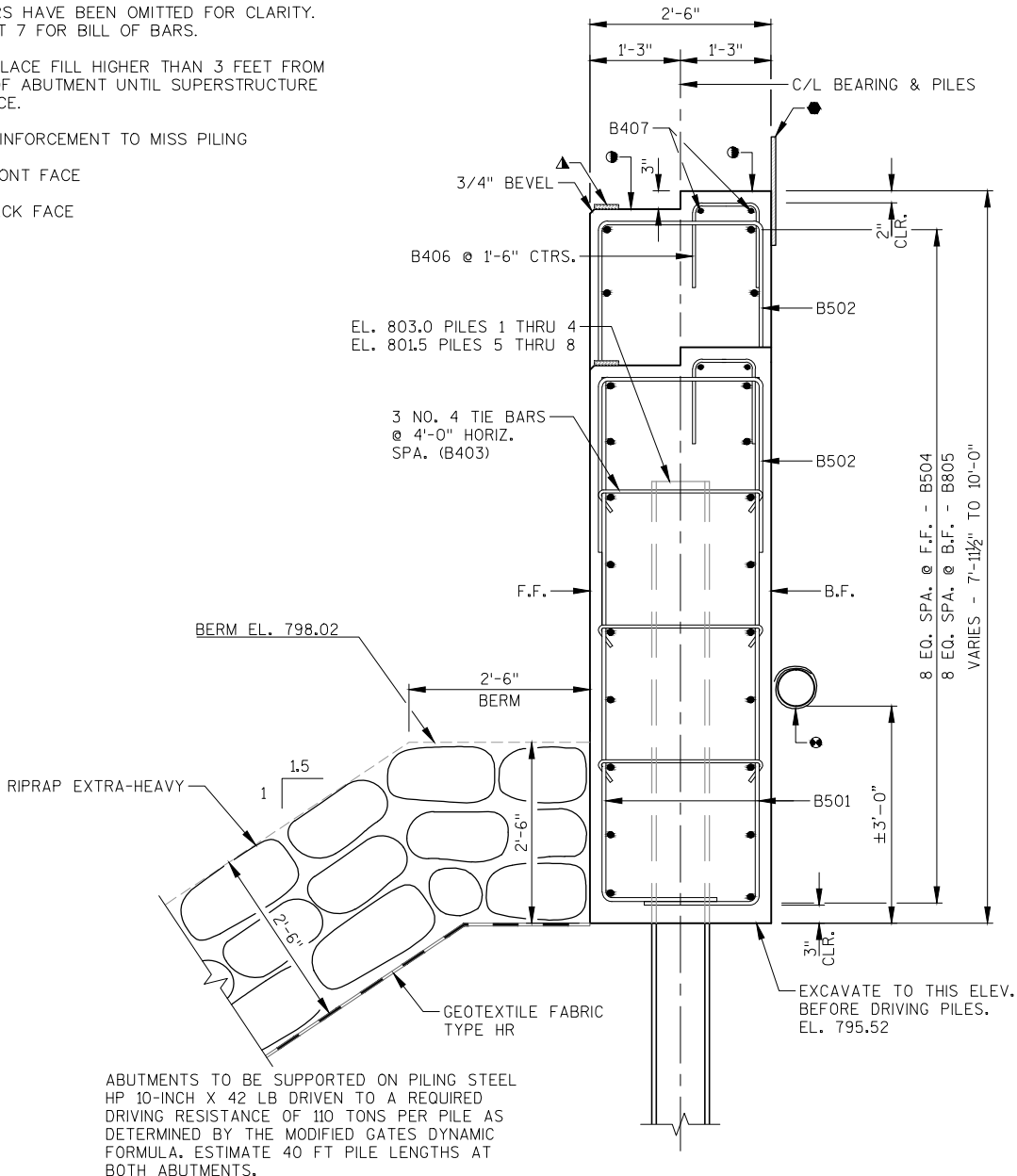
(EAST ABUTMENT LOOKING EAST)



PLAN



LAYOUT

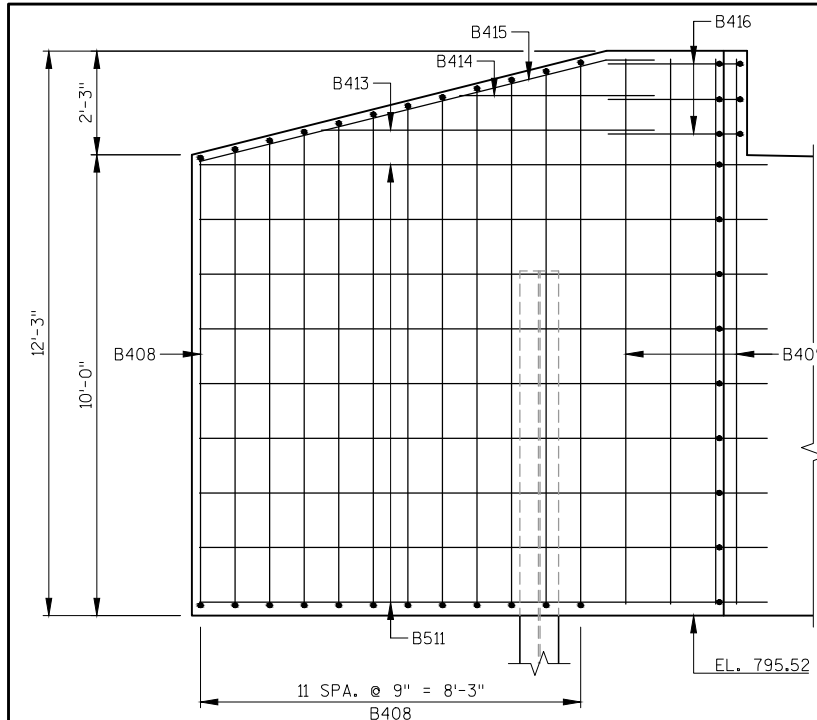


TYPICAL SECTION THROUGH ABUTMENT BODY

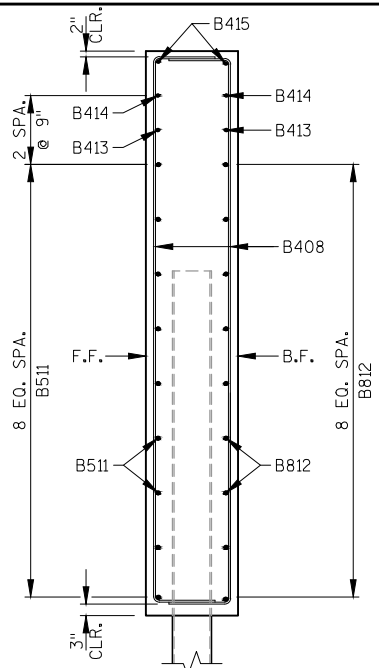
LEGEND

- STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
- VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING EXTEND FROM 9" BELOW BRIDGE SEAT TO 1" BELOW TOP OF WINGS.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. (HORIZONTAL)
- ▲ 1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE)
- ▲ 3/4" x 4" PREFORMED FILLER, EXTEND FULL LENGTH OF ABUTMENTS BETWEEN EDGES OF SLAB.
- PILE SPACING MEASURED AT BASE OF SHAFT.
- PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPED 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SCREEN AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON THIS SHEET. RODENT SCREEN TO BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH."

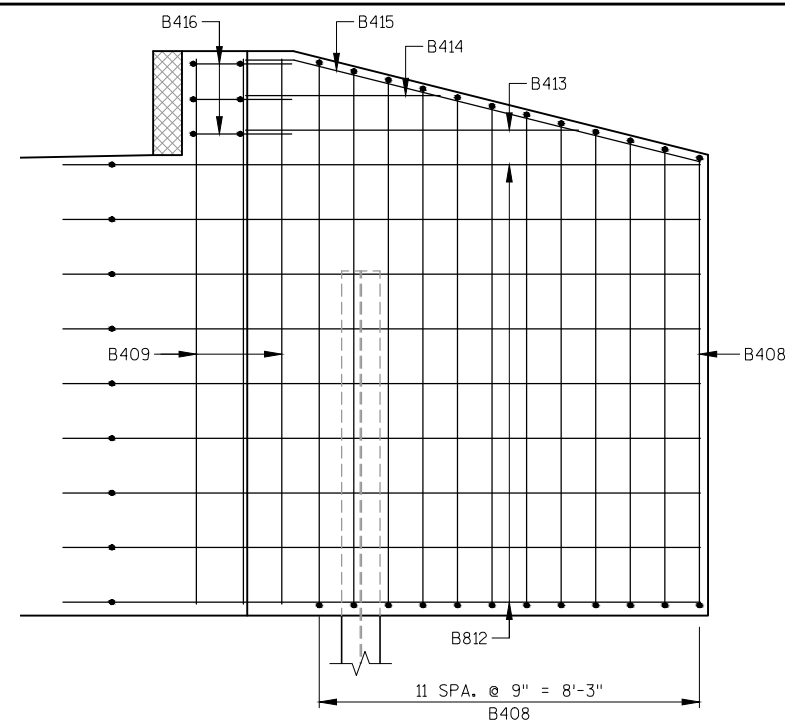
| NO.  | DATE | REVISION | BY            |
|--|------|----------|---------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |          |               |
| STRUCTURE B-06-0189                                |      |          |               |
| DRAWN BY   |      | PTB      | PLANS         |
| BY   |      | CKD      | RBH           |
| EAST ABUTMENT                                      |      |          | SHEET 6 OF 12 |



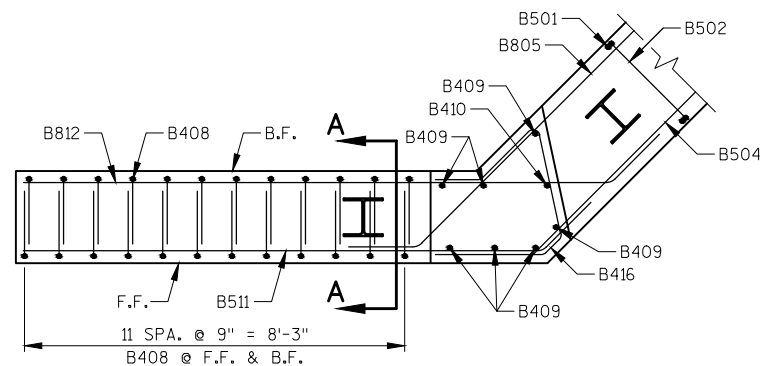
F.F. ELEVATION - WING 3



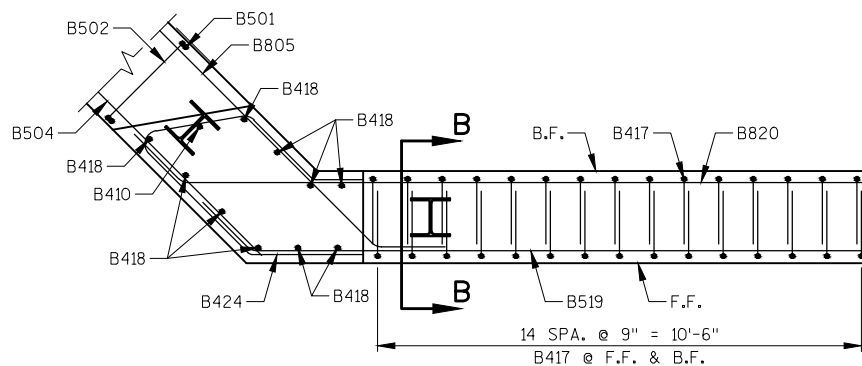
SECTION A-A



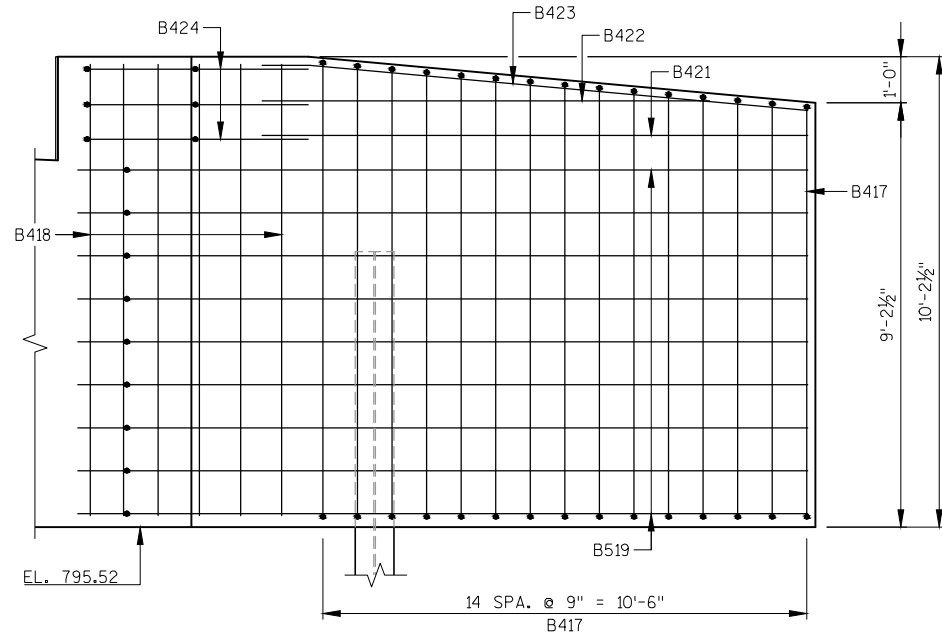
B.F. ELEVATION - WING 3



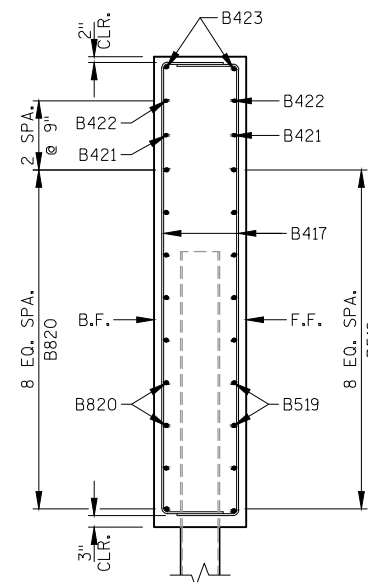
PLAN VIEW - WING 3



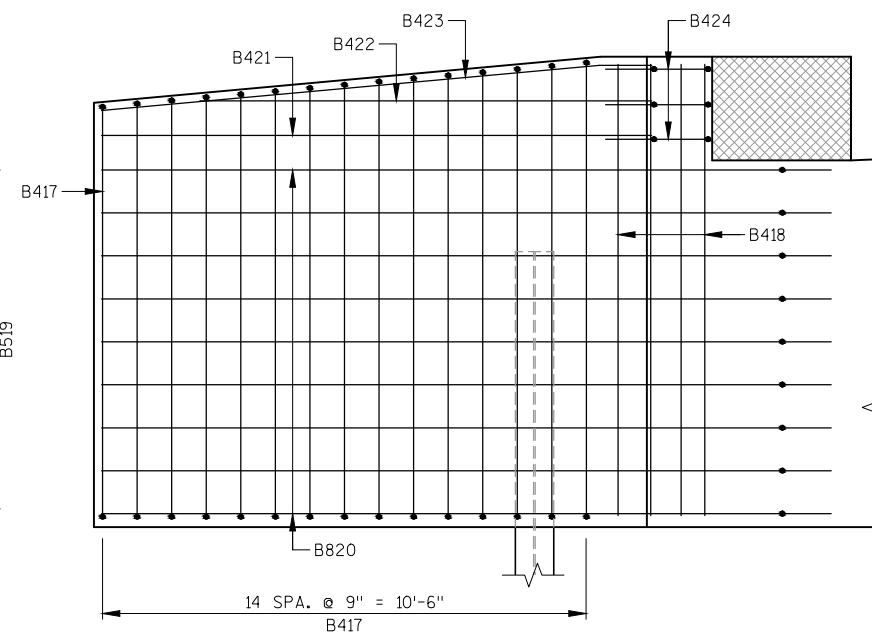
PLAN VIEW - WING 4



F.F. ELEVATION - WING 4



SECTION B-B



B.F. ELEVATION - WING 4

NOTES

SOME BARS HAVE BEEN OMITTED FOR CLARITY.  
SEE THIS SHEET FOR BILL OF BARS.

BILL OF BARS  
EAST ABUTMENT

| BAR MARK | NO. REQ'D. | LENGTH | BENT | COAT | BAR SERIES | LOCATION                      |
|----------|------------|--------|------|------|------------|-------------------------------|
| B501     | 88         | 9-0    | X    |      |            | BODY - VERT. - F.F. & B.F.    |
| B502     | 44         | 8-11   | X    |      |            | BODY - VERT. - TOP            |
| B403     | 33         | 2-8    | X    |      |            | TIE BARS                      |
| B504     | 9          | 43-10  |      |      |            | BODY - HORIZ. - F.F.          |
| B805     | 18         | 28-0   | X    |      |            | BODY - HORIZ. - B.F.          |
| B406     | 27         | 3-1    | X    |      |            | BODY - VERT. - TOP            |
| B407     | 2          | 42-0   |      |      |            | BODY - HORIZ. - TOP           |
| B408     | 24         | 13-2   | X    | X    | *          | WING 3 - VERT. - F.F. & B.F.  |
| B409     | 7          | 11-10  |      | X    |            | WING 3 - VERT.                |
| B410     | 2          | 3-2    |      | X    |            | WING 3 & 4 - VERT. - TOP      |
| B511     | 9          | 12-9   | X    | X    |            | WING 3 - HORIZ. - F.F.        |
| B812     | 9          | 14-3   | X    | X    |            | WING 3 - HORIZ. - B.F.        |
| B413     | 2          | 7-3    |      | X    |            | WING 3 - HORIZ. - F.F. & B.F. |
| B414     | 2          | 4-3    |      | X    |            | WING 3 - HORIZ. - F.F. & B.F. |
| B415     | 2          | 10-1   | X    | X    |            | WING 3 - HORIZ. - F.F. & B.F. |
| B416     | 3          | 7-9    | X    | X    |            | WING 3 - HORIZ. - TOP         |
| B417     | 30         | 11-9   | X    | X    | *          | WING 4 - VERT. - F.F. & B.F.  |
| B418     | 10         | 9-9    |      | X    |            | WING 4 - VERT.                |
| B519     | 9          | 14-9   | X    | X    |            | WING 4 - HORIZ. - F.F.        |
| B820     | 9          | 16-3   | X    | X    |            | WING 4 - HORIZ. - B.F.        |
| B421     | 2          | 11-10  |      | X    |            | WING 4 - HORIZ. - F.F. & B.F. |
| B422     | 2          | 9-9    |      | X    |            | WING 4 - HORIZ. - F.F. & B.F. |
| B423     | 2          | 11-10  | X    | X    |            | WING 4 - HORIZ. - F.F. & B.F. |
| B424     | 3          | 11-0   | X    | X    |            | WING 4 - HORIZ. - TOP         |

NOTES: THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.

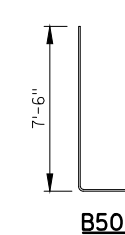
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

\* LENGTH SHOWN IS AN AVERAGE LENGTH ONLY. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

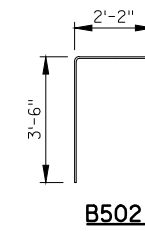
BAR SERIES TABLE

| BAR MARK | NO. REQ'D.     | LENGTH       |
|----------|----------------|--------------|
| B408     | 2 SERIES OF 12 | 14-4 TO 12-0 |
| B417     | 2 SERIES OF 15 | 12-3 TO 11-3 |

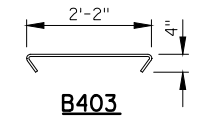
BUNDLE AND TAG EACH SERIES SEPARATELY.



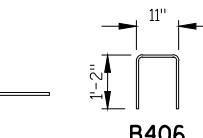
B501



B502

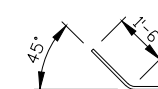


B403

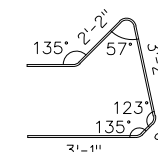


B406

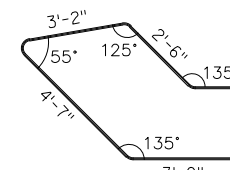
B408 & B417



B805, B511, B812,  
B519 & B820



B416



B424

| MARK | 'A'     |
|------|---------|
| B415 | 165'58' |
| B423 | 174'48' |

B415 & B423

| NO.  | DATE | REVISION      | BY              |
|--|------|---------------|-----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |               |                 |
| STRUCTURE B-06-0189                                |      |               |                 |
| DRAWN BY   |      | PTB           | PLANS CK'D. RBH |
| EAST ABUTMENT DETAILS                              |      | SHEET 7 OF 12 |                 |

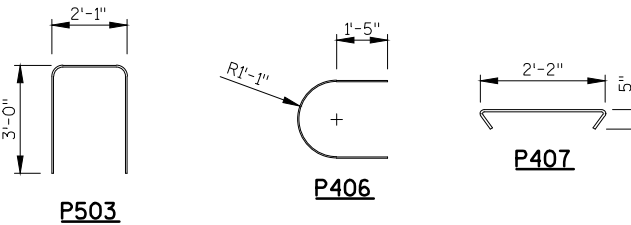
BILL OF BARS

PIER

2.330 LB (UNCOATED)

| BAR MARK | NO. REQ'D. | LENGTH | BENT | LOCATION              |
|----------|------------|--------|------|-----------------------|
| P501     | 69         | 14'-2" |      | BODY - VERT. - E.F.   |
| P502     | 5          | 16'-0" |      | BODY - VERT. - END    |
| P503     | 18         | 7'-10" | X    | BODY - TOP            |
| P404     | 32         | 33'-0" |      | BODY - HORIZ. - E.F.  |
| P405     | 2          | 18'-6" |      | BODY - HORIZ. - E.F.  |
| P406     | 32         | 6'-2"  | X    | BODY - HORIZ. - ENDS  |
| P407     | 78         | 2'-10" |      | BODY - TIES           |
| P508     | 34         | 2'-0"  |      | BODY - VERT. - DOWELS |

NOTES: THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.  
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.



NOTES

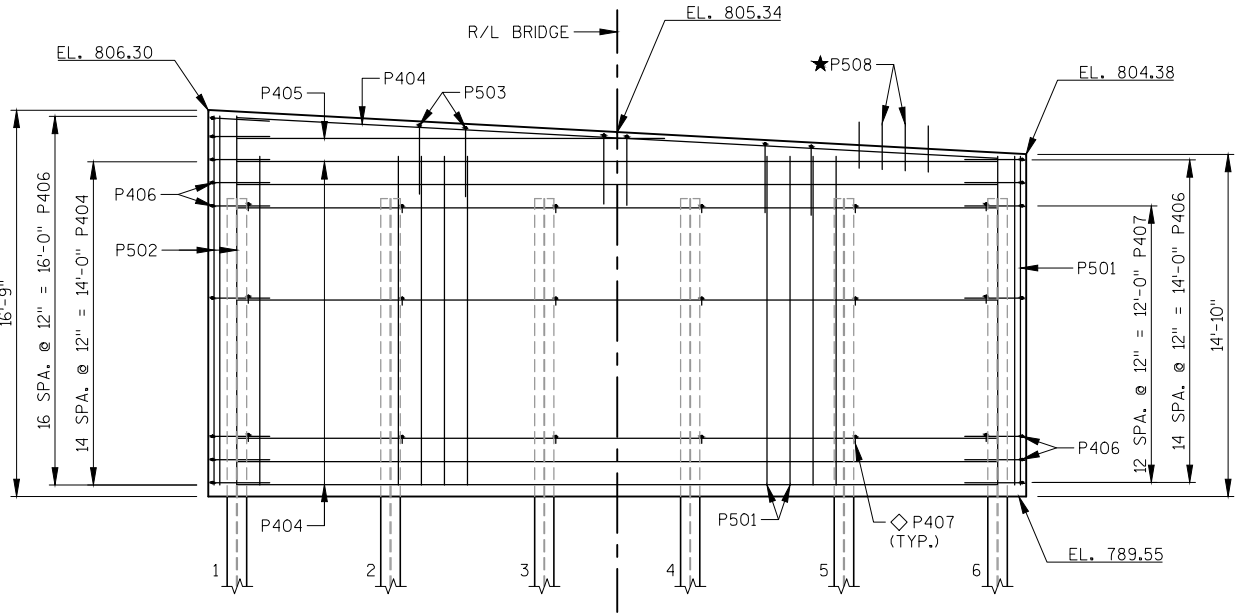
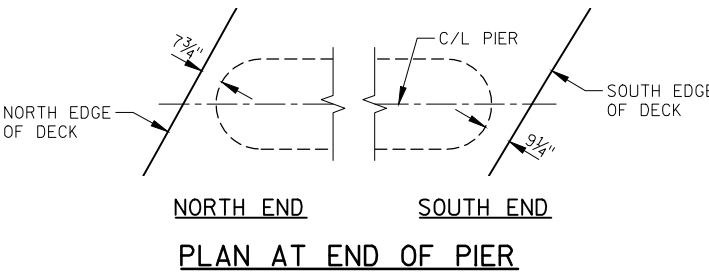
SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE THIS SHEET FOR BILL OF BARS.

TOP OF PIER ELEVATIONS ARE 3/4" BELOW BOTTOM OF DECK TO ALLOW FOR FILLER.

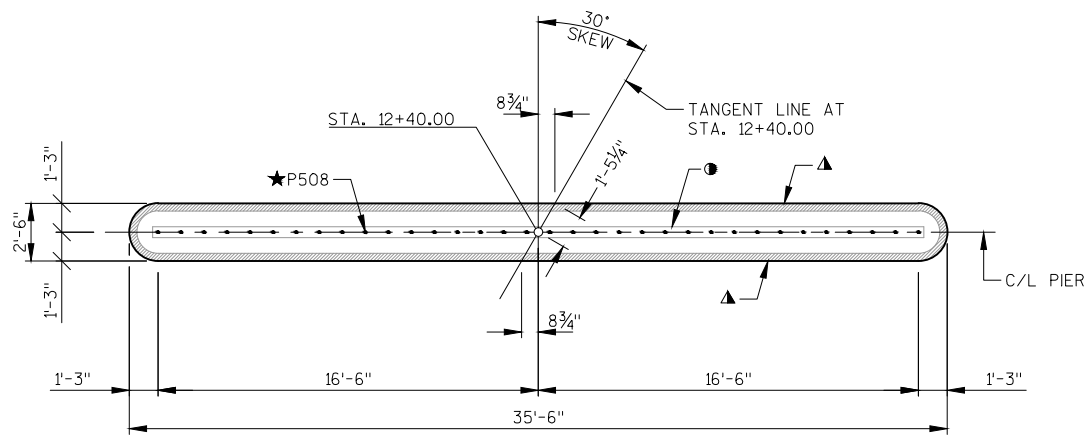
E.F. - EACH FACE

LEGEND

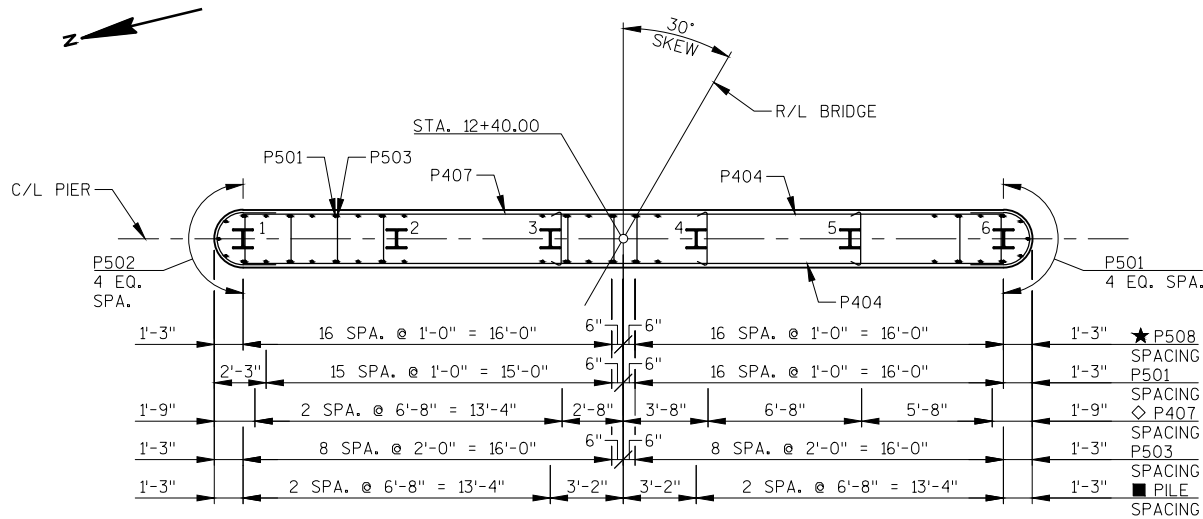
- KEYED CONSTRUCTION JOINT FORMED BY SURFACED & BEVELED 2x6.
- 3/4"x4" PREFORMED FILLER, EXTEND FULL LENGTH OF PIER AS SHOWN.
- P508 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE IT HAS TAKEN ITS INITIAL SET. EMBED BAR 1'-0".
- PILE SPACING MEASURED AT BASE OF SHAFT.
- PLACE P407 BARS ADJACENT TO PILING @ 12" VERTICAL SPACING FROM BASE OF SHAFT TO TOP OF PILING.



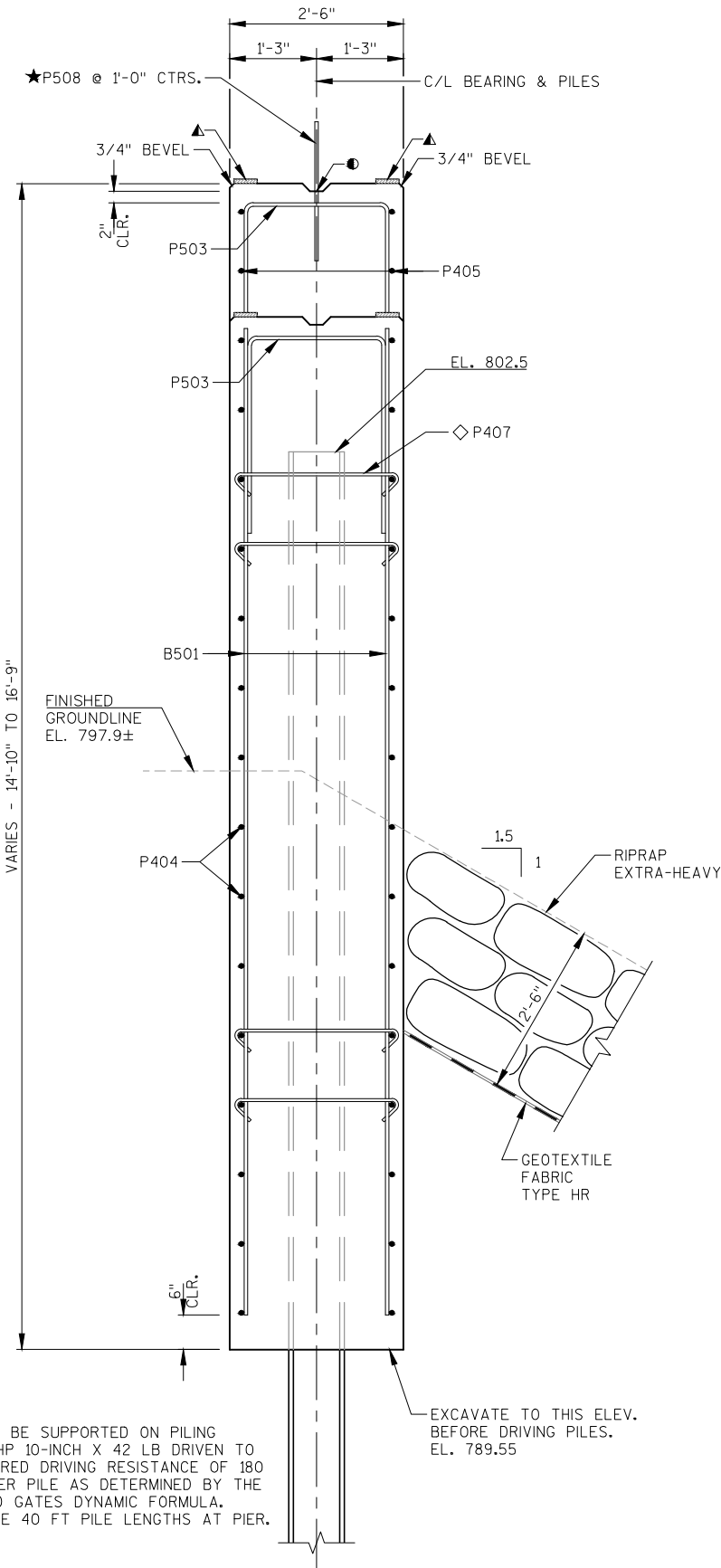
ELEVATION  
(PIER LOOKING EAST)



PLAN



LAYOUT



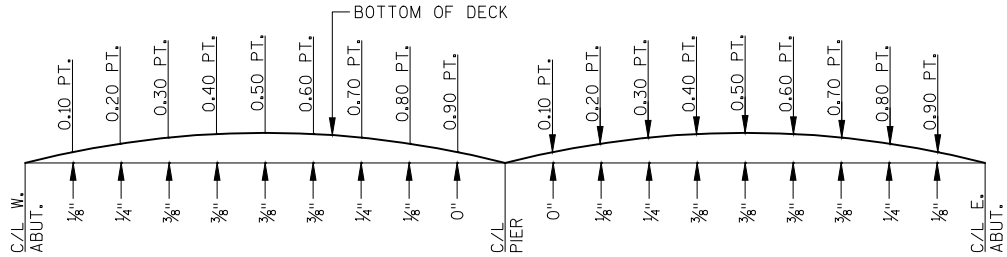
PIER TO BE SUPPORTED ON PILING  
STEEL HP 10-INCH X 42 LB DRIVEN TO  
A REQUIRED DRIVING RESISTANCE OF 180  
TONS PER PILE AS DETERMINED BY THE  
MODIFIED GATES DYNAMIC FORMULA.  
ESTIMATE 40 FT PILE LENGTHS AT PIER.

TYPICAL SECTION THROUGH PIER

| NO.  | DATE | REVISION      | BY        |
|--|------|---------------|-----------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |               |           |
| STRUCTURE B-06-0189                                |      |               |           |
| DRAWN BY   |      | PTB           | PLANS RBH |
| PIER   |      | SHEET 8 OF 12 |           |

TOP OF DECK ELEVATIONS

|         | C/L W.<br>ABUT. | 0.10<br>PNT. | 0.20<br>PNT. | 0.30<br>PNT. | 0.40<br>PNT. | 0.50<br>PNT. | 0.60<br>PNT. | 0.70<br>PNT. | 0.80<br>PNT. | 0.90<br>PNT. | C/L<br>PIER | 0.10<br>PNT. | 0.20<br>PNT. | 0.30<br>PNT. | 0.40<br>PNT. | 0.50<br>PNT. | 0.60<br>PNT. | 0.70<br>PNT. | 0.80<br>PNT. | 0.90<br>PNT. | C/L E.<br>ABUT. |
|---------|-----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-----------------|
| N. EDGE | 808.05          | 808.04       | 808.02       | 808.01       | 808.00       | 807.98       | 807.97       | 807.96       | 807.94       | 807.93       | 807.91      | 807.90       | 807.89       | 807.87       | 807.86       | 807.84       | 807.83       | 807.82       | 807.80       | 807.79       | 807.77          |
| C/L     | 807.04          | 807.02       | 807.01       | 807.00       | 806.98       | 806.97       | 806.95       | 806.94       | 806.93       | 806.91       | 806.90      | 806.88       | 806.87       | 806.85       | 806.84       | 806.82       | 806.81       | 806.80       | 806.78       | 806.77       | 806.75          |
| S. EDGE | 806.03          | 806.02       | 806.01       | 805.99       | 805.98       | 805.96       | 805.95       | 805.93       | 805.92       | 805.90       | 805.89      | 805.87       | 805.86       | 805.84       | 805.83       | 805.81       | 805.80       | 805.78       | 805.77       | 805.75       | 805.73          |



CAMBER DIAGRAM

CAMBER SPAN AS SHOWN TO PROVIDE FOR THEORETICAL DEADLOAD DEFLECTION AND FUTURE PLASTIC FLOW. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

TANGENT LINE OFFSETS  
AT EDGE OF DECK

| TANGENT<br>OFFSET<br>LOCATION | NORTH EDGE<br>OF DECK<br>TAN. OFFSET | SOUTH EDGE<br>OF DECK<br>TAN. OFFSET |
|-------------------------------|--------------------------------------|--------------------------------------|
| -40                           | 14'-8 $\frac{3}{4}$ "                | --                                   |
| -30                           | 15'-4 $\frac{3}{4}$ "                | --                                   |
| -20                           | 15'-10 $\frac{1}{2}$ "               | 16'-7 $\frac{1}{8}$ "                |
| -10                           | 16'-1 $\frac{1}{8}$ "                | 16'-4 $\frac{1}{4}$ "                |
| 0                             | 16'-3"                               | 16'-3"                               |
| +10                           | 16'-1 $\frac{1}{8}$ "                | 16'-4 $\frac{1}{4}$ "                |
| +20                           | 15'-10 $\frac{1}{2}$ "               | 16'-7 $\frac{1}{8}$ "                |
| +30                           | --                                   | 17'-2"                               |
| +40                           | --                                   | 17'-10 $\frac{1}{2}$ "               |

NOTES

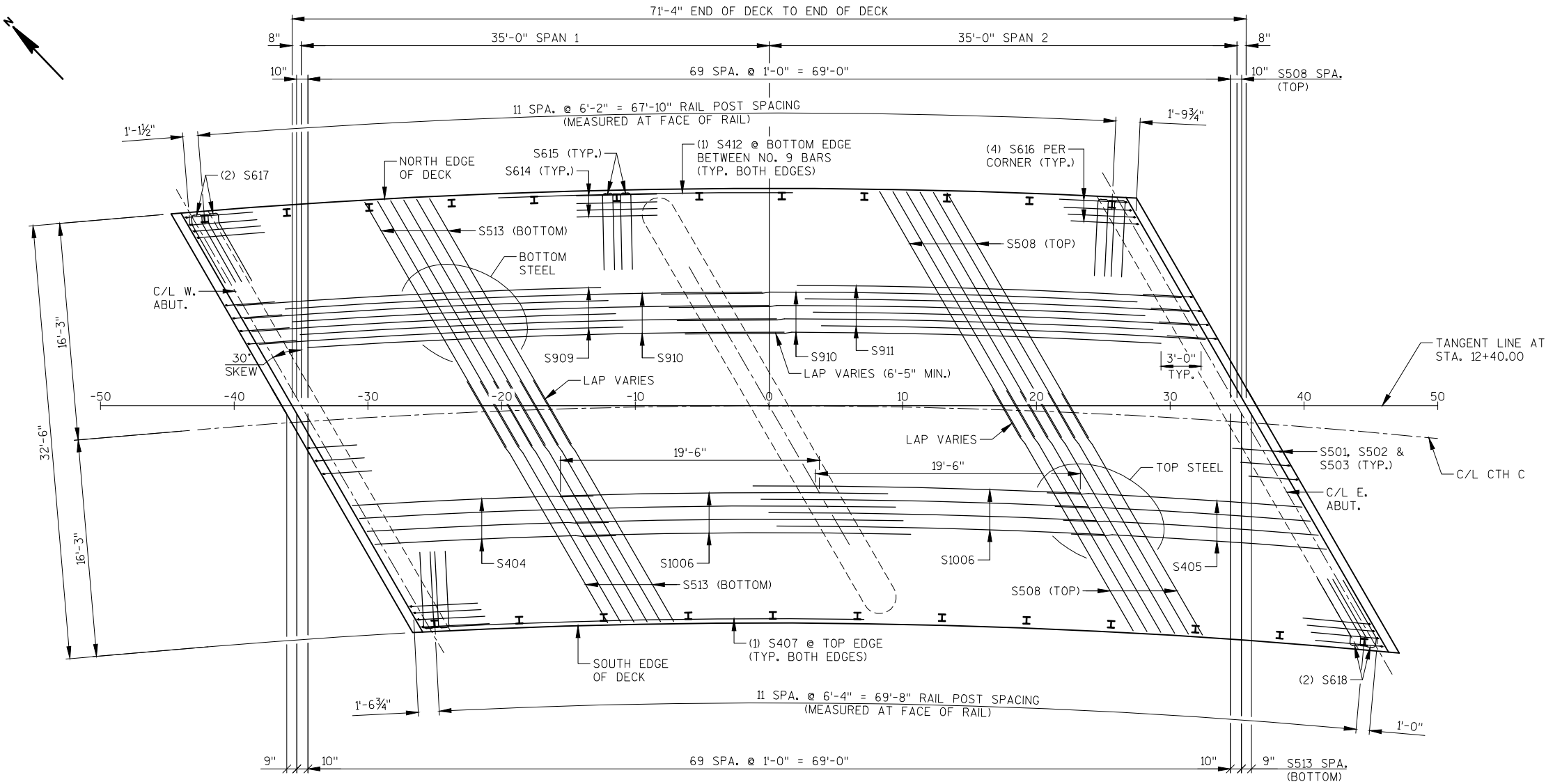
SOME BARS HAVE BEEN OMITTED FOR CLARITY. SEE SHEET 10 FOR BILL OF BARS.

SEE SUPERSTRUCTURE DETAILS SHEET (SHEET 10) FOR BAR SPACINGS NOT SHOWN ON THIS SHEET.

SUPPORT ALTERNATE TOP TRANSVERSE BARS IN SLAB BY INDIVIDUAL BAR CHAIRS AT APPROX. 3'-0" CENTERS. SUPPORT BOTTOM LONGITUDINAL BARS BY CONTINUOUS BAR CHAIRS AT APPROX. 4'-0" CENTERS.

PLACE TRANSVERSE BARS PARALLEL TO THE CENTERLINE OF SUBSTRUCTURE UNITS.

THE SLAB THICKNESS DIMENSION IS MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).



PLAN

| NO.  | DATE | REVISION | BY                 |
|--|------|----------|--------------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |          |                    |
| STRUCTURE B-06-0189                                |      |          |                    |
| DRAWN<br>BY  |      | PTB      | PLANS<br>CK'D. RBH |
| SUPERSTRUCTURE                                     |      |          | SHEET 9 OF 12      |

LEGEND

- 18" RUBBERIZED MEMBRANE WATERPROOFING. (HORIZONTAL)
- \* DIMENSION IS NORMAL TO THE C/L OF SUBSTRUCTURE UNITS.
- ▲ ¾"x4" PREFORMED FILLER, EXTEND FULL LENGTH OF ABUTMENT BETWEEN EDGES OF SLAB.

BILL OF BARS  
SUPERSTRUCTURE

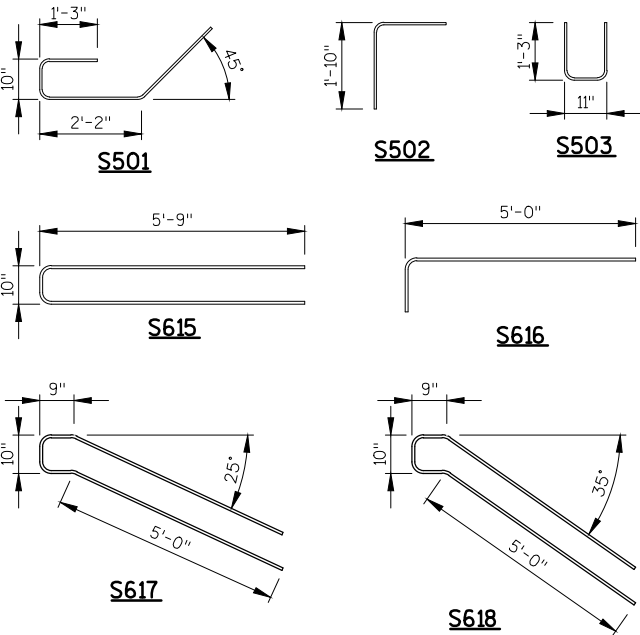
31,130 LB (COATED)

| BAR MARK | NO. REQ'D. | LENGTH | BENT | COAT | LOCATION                       |
|----------|------------|--------|------|------|--------------------------------|
| S501     | 66         | 6'-3"  | X    | X    | END OF DECK                    |
| S502     | 66         | 3'-3"  | X    | X    | END OF DECK                    |
| S503     | 66         | 3'-2"  | X    | X    | END OF DECK                    |
| S404     | 32         | 18'-0" |      | X    | SLAB - TOP - LONGIT.           |
| S405     | 33         | 19'-2" |      | X    | SLAB - TOP - LONGIT.           |
| S1006    | 65         | 24'-6" |      | X    | SLAB - TOP - LONGIT.           |
| S407     | 2          | 33'-0" |      | X    | SLAB - TOP - LONGIT. - EDGE    |
| S508     | 144        | 21'-0" |      | X    | SLAB - TOP - TRANS.            |
| S909     | 33         | 27'-3" |      | X    | SLAB - BOTTOM - LONGIT.        |
| S910     | 64         | 35'-8" |      | X    | SLAB - BOTTOM - LONGIT.        |
| S911     | 33         | 28'-9" |      | X    | SLAB - BOTTOM - LONGIT.        |
| S412     | 2          | 22'-0" |      | X    | SLAB - BOTTOM - LONGIT. - EDGE |
| S513     | 164        | 21'-0" |      | X    | SLAB - BOTTOM - TRANS.         |
| S614     | 80         | 6'-0"  |      | X    | RAIL POSTS - INTERIOR          |
| S615     | 44         | 12'-0" | X    | X    | RAIL POSTS - INTERIOR          |
| S616     | 16         | 6'-0"  | X    | X    | RAIL POSTS - CORNERS           |
| S617     | 2          | 12'-0" | X    | X    | RAIL POST - NW CORNER          |
| S618     | 2          | 12'-0" | X    | X    | RAIL POST - SE CORNER          |

NOTES: THE FIRST DIGIT OF A 3 DIGIT BAR MARK AND THE FIRST 2 DIGITS OF A 4 DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

SOME BARS HAVE BEEN OMITTED FOR CLARITY.

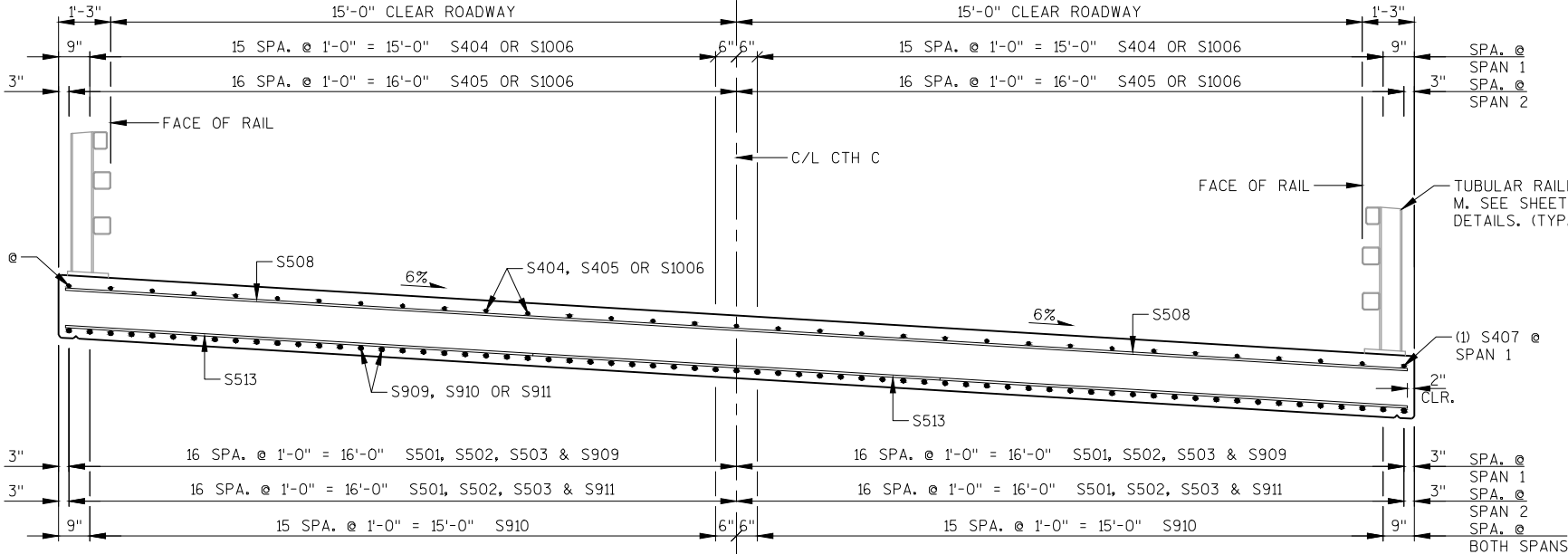


NOTES

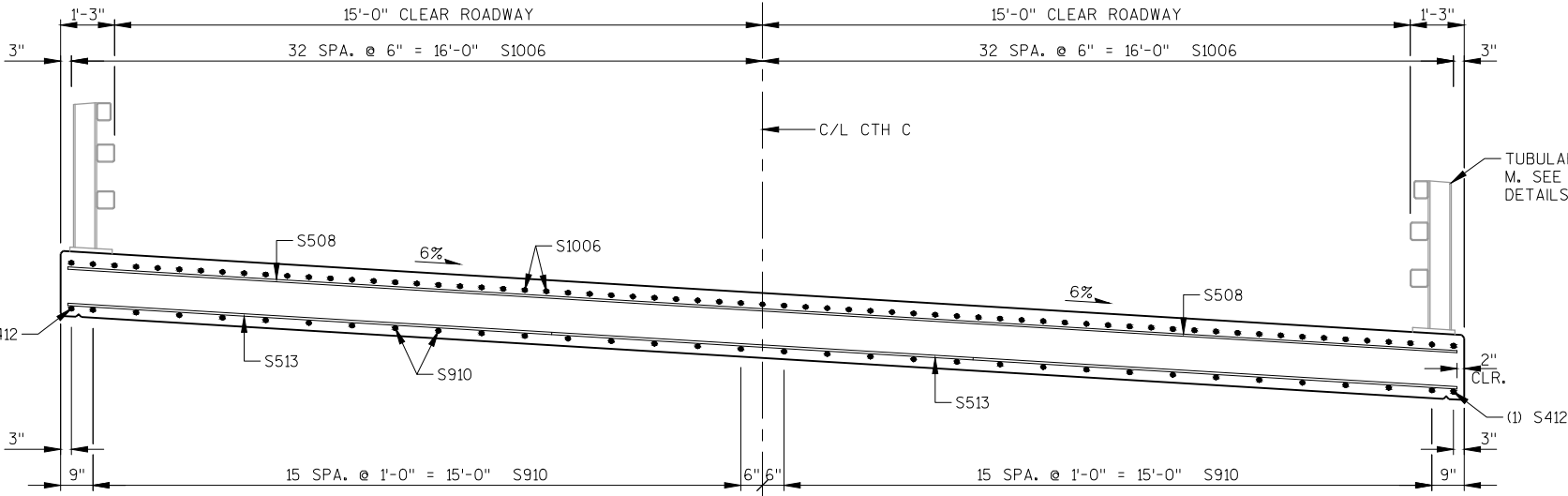
SUPPORT ALTERNATE TOP TRANSVERSE BARS IN SLAB BY INDIVIDUAL BAR CHAIRS AT APPROX. 3'-0" CENTERS. SUPPORT BOTTOM LONGITUDINAL BARS BY CONTINUOUS BAR CHAIRS AT APPROX. 4'-0" CENTERS.

PLACE TRANSVERSE BARS PARALLEL TO THE CENTERLINE OF SUBSTRUCTURE UNITS.

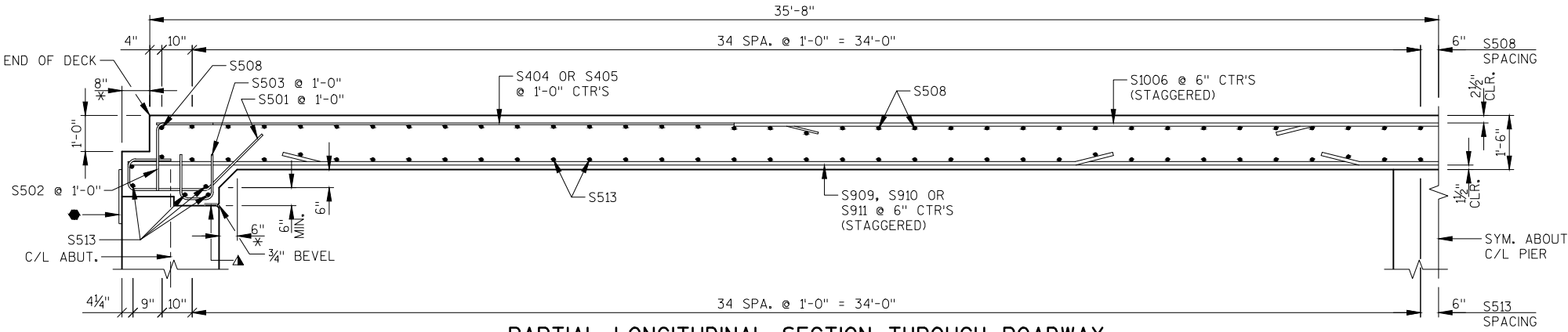
THE SLAB THICKNESS DIMENSION IS MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).



CROSS SECTION THROUGH ROADWAY  
IN SPAN LOOKING EAST

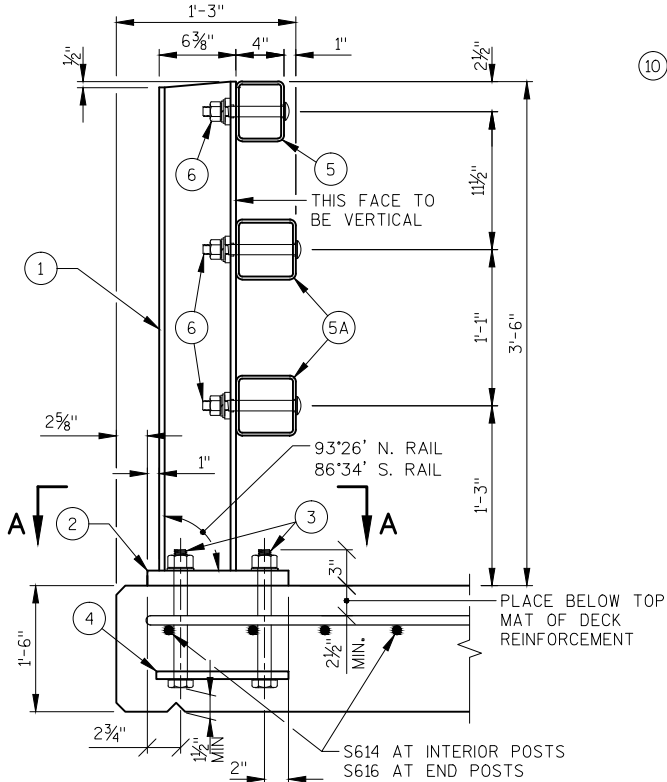


CROSS SECTION THROUGH ROADWAY  
AT PIER LOOKING EAST

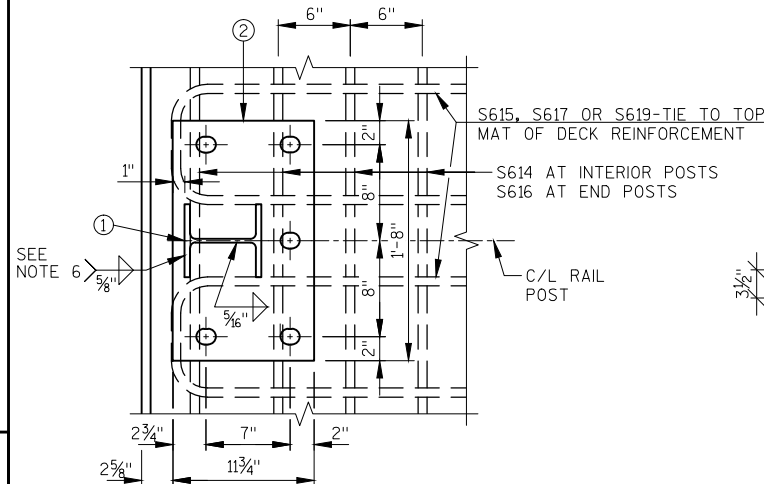


PARTIAL LONGITUDINAL SECTION THROUGH ROADWAY

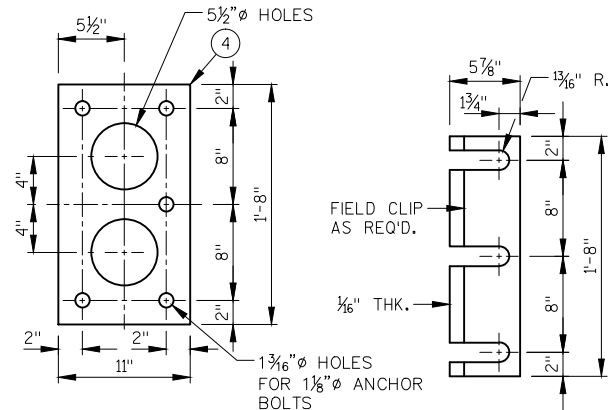
| NO.  | DATE | REVISION       | BY              |
|--|------|----------------|-----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |                 |
| STRUCTURE B-06-0189                                |      |                |                 |
| DRAWN BY   |      | PTB            | PLANS CK'D. RBH |
| SUPERSTRUCTURE DETAILS                             |      | SHEET 10 OF 12 |                 |



SECTION THROUGH RAILING ON DECK

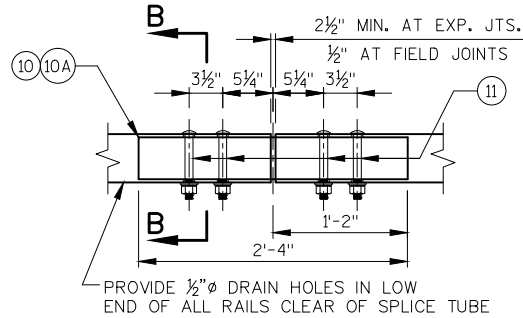


SECTION A-A

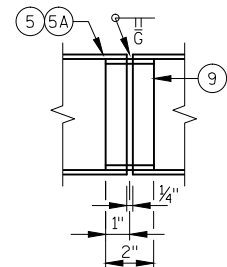


ANCHOR PLATE AT RAIL TO DECK CONNECTION

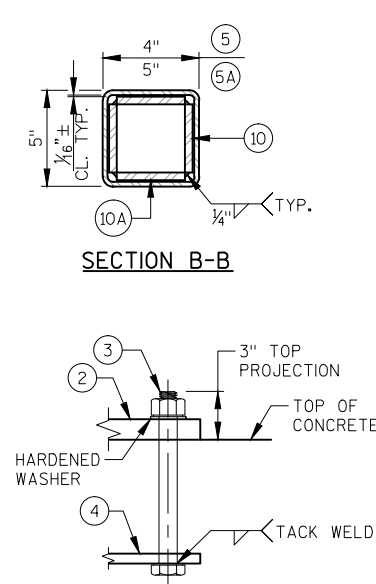
POST SHIM DETAIL



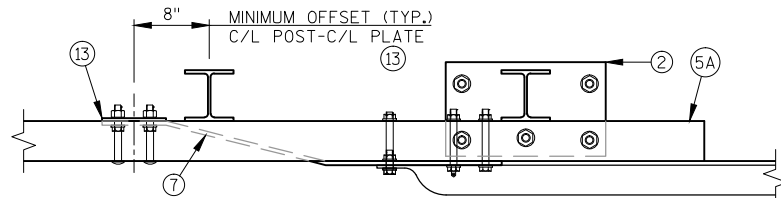
FIELD ERECTION JOINT DETAIL



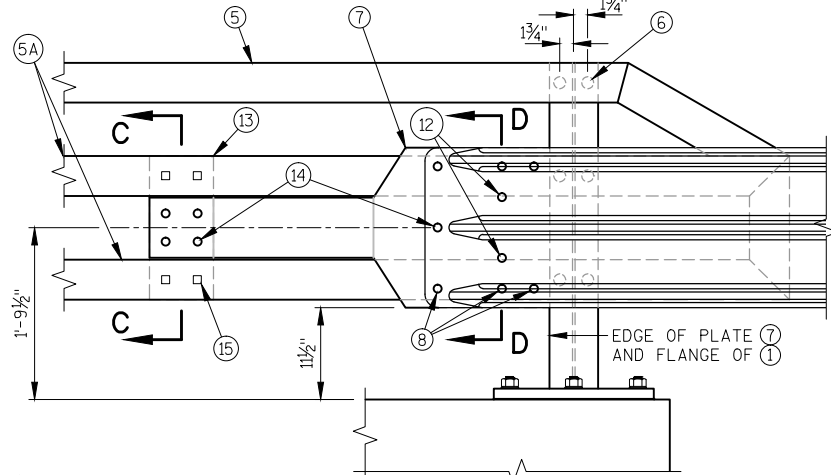
SHOP RAIL SPLICE DETAIL (LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



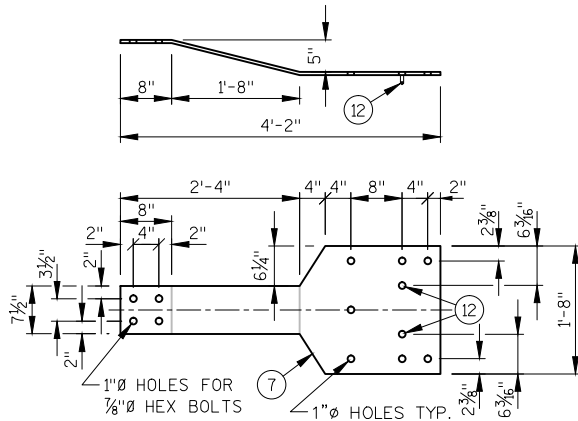
ANCHOR BOLTS



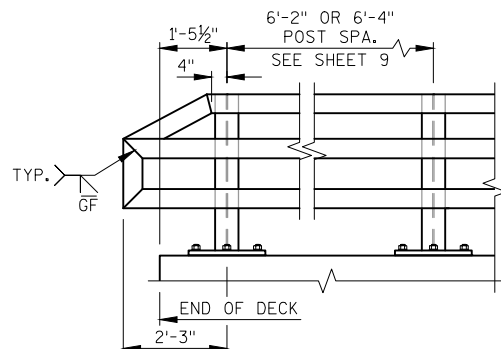
TOP VIEW AT END POST (THRIE BEAM RAIL ATTACHMENT)



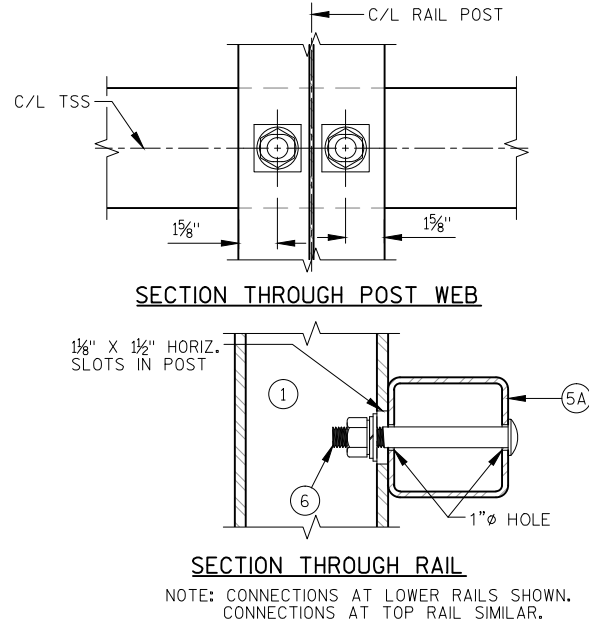
DETAIL AT END POST (THRIE BEAM RAIL ATTACHMENT)



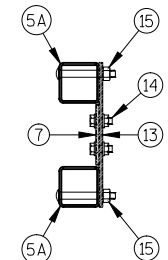
BACK-UP PLATE DETAIL AT BEAM GUARD ATTACHMENT



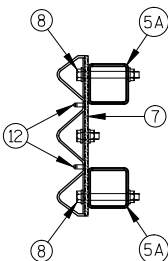
PART ELEVATION OF RAILING



TYPICAL RAIL TO POST CONNECTIONS



SECTION C-C



SECTION D-D

STATE PROJECT NUMBER

7310-00-70

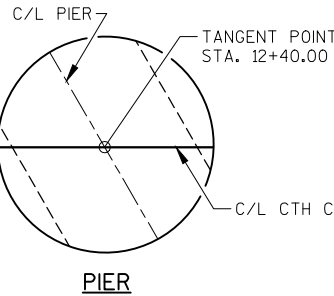
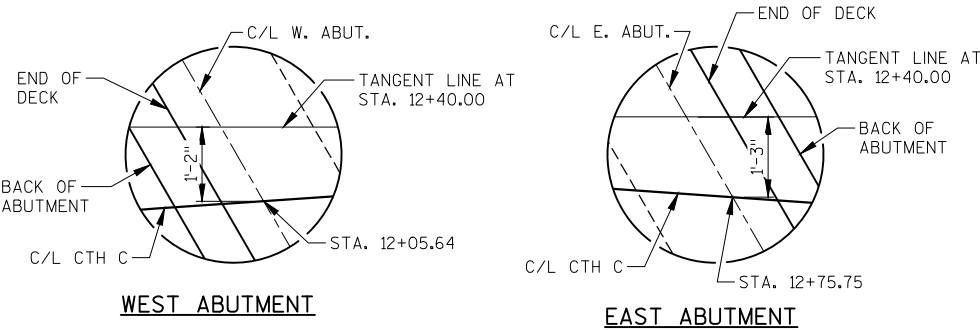
## LEGEND

- W6x25 WITH 1 1/4" x 1 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 1/4"x11 3/4"x1'-8" WITH 1 1/4"x1 1/2" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
- ASTM A449 - 1 1/4" 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. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 1'-4" USE 1'-3" LONG. USE 10 3/4" LONG AT ALL OTHER LOCATIONS.
- 3/8"x11"x1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 1/4" DIA. HOLES FOR ANCHOR BOLTS NO. 3
- TSS 5x4x1/4 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- 5A TSS 5x5x1/4 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/8"x1 1/2"x1 1/2" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION).
- 1/2" THK. BACK-UP PLATE WITH 2 - 7/8"x1 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 3/4" PLATE. PROVIDE "SLIDING FIT".
- 3/8"x3 3/8"x2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- 10A 3/8"x2 3/8"x2'-4" PLATE USED IN NO. 5, 3/8"x3 3/8"x2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 1/4"x1 1/2" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 1 1/2"x2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
- 7/8" DIA. BY 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D.).
- 3/8"x8"x1'-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" DIA. HOLES IN TUBES NO. 5A FOR 3/8" A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

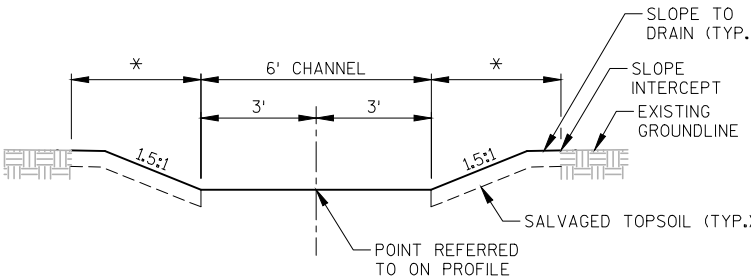
## GENERAL NOTES

- BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-06-0189" 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 1/4 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.
- THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).

| NO.  | DATE | REVISION | BY              |
|--|------|----------|-----------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |          |                 |
| STRUCTURE B-06-0189                                |      |          |                 |
| DRAWN BY   |      | PTB      | PLANS CK'D. RBH |
| TUBULAR RAILING<br>TYPE M                          |      |          | SHEET 11 OF 12  |

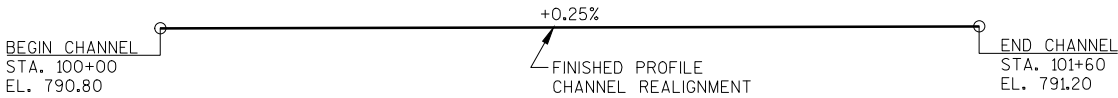


TANGENT OFFSET DETAILS



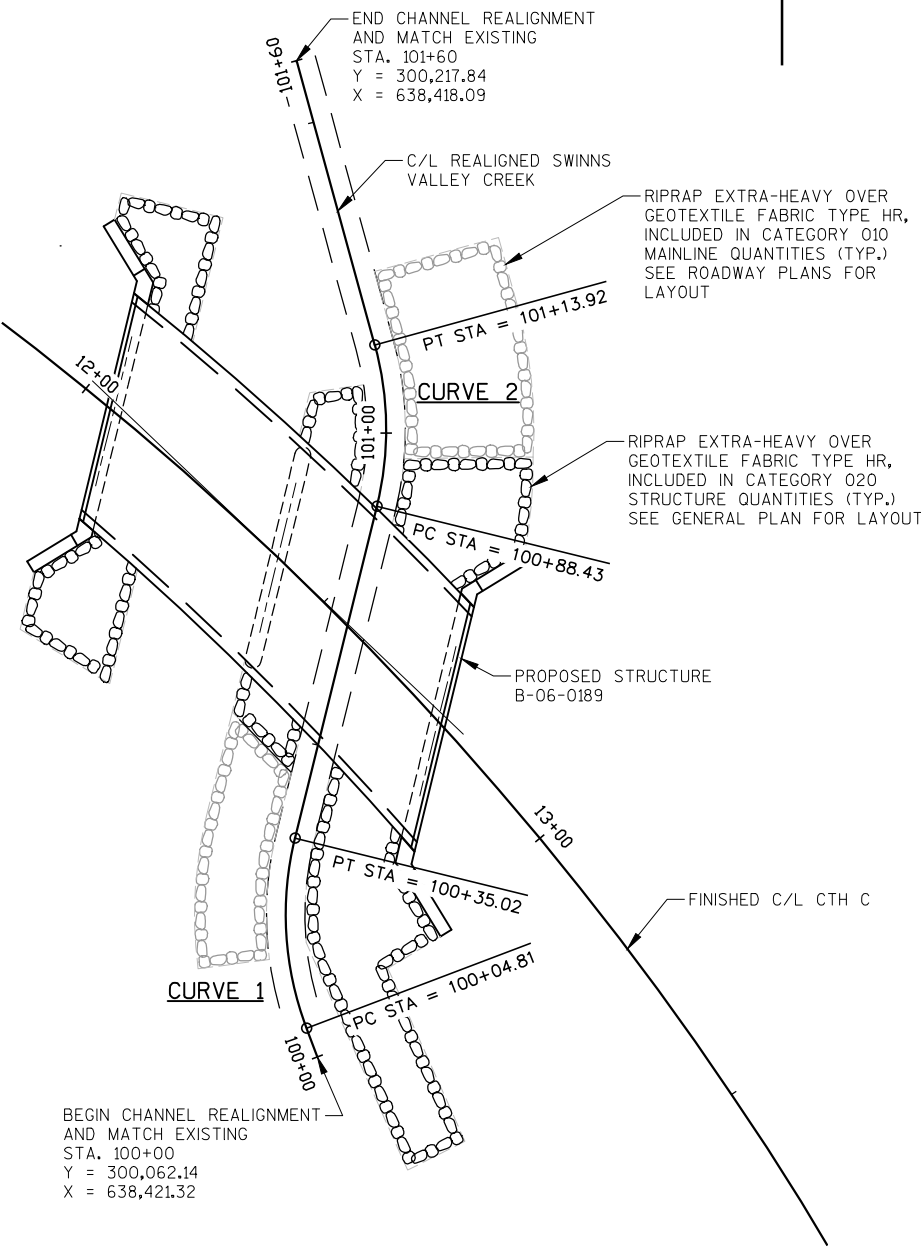
\* LIMITS OF SEEDING MIXTURE NO. 60, SEEDING TEMPORARY, FERTILIZER TYPE B AND MULCH (INCLUDED IN CATEGORY 010 MAINLINE QUANTITIES)

TYPICAL CHANNEL REALIGNMENT SECTION



CHANNEL REALIGNMENT - PROFILE GRADE LINE

CHANNEL REALIGNMENT DETAILS



CHANNEL REALIGNMENT - PLAN VIEW

EARTHWORK AT CHANNEL REALIGNMENT TO BE INCLUDED IN CATEGORY 010 MAINLINE QUANTITIES

CURVE 1

PI STA. = 100+20.39  
Y = 300,081.21  
X = 638,414.09  
R = 50.00  
D = 114°35'30"  
DELTA = 34°37'23"  
L = 30.21  
T = 15.58  
C = 29.76  
PC STA. = 100+04.81  
Y = 300,066.63  
X = 638,419.62  
PT STA. = 100+35.02  
Y = 300,096.34  
X = 638,417.82

CURVE 2

PI STA. = 101+01.46  
Y = 300,160.84  
X = 638,433.73  
R = 50.00  
D = 114°35'30"  
DELTA = 29°12'32"  
L = 25.49  
T = 13.03  
C = 25.21  
PC STA. = 100+88.43  
Y = 300,148.19  
X = 638,430.61  
PT STA. = 101+13.92  
Y = 300,173.40  
X = 638,430.29

| NO.  | DATE | REVISION       | BY  |
|--|------|----------------|-----|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |      |                |     |
| STRUCTURE B-06-0189                                |      |                |     |
| DRAWN BY   |      | PTB            | RBH |
| CONSTRUCTION DETAILS                               |      | SHEET 12 OF 12 |     |

EARTHWORK-MAINLINE - STAGE 1

| STATION            | AREA (SF)             |                |      |          |     | INCREMENTAL VOL (CY) |                |      |          |                        |               |                                     | CUMMULATIVE VOLUME (CY) |     |      |             |                        |               |                                     | MASS<br>ORDINATE |       |
|--------------------|-----------------------|----------------|------|----------|-----|----------------------|----------------|------|----------|------------------------|---------------|-------------------------------------|-------------------------|-----|------|-------------|------------------------|---------------|-------------------------------------|------------------|-------|
|                    | SALVAGED/<br>UNUSABLE |                |      |          |     | REDUCED              |                |      |          |                        |               |                                     | REDUCED                 |     |      |             |                        |               |                                     |                  |       |
|                    | CUT                   | PAV'T MATERIAL | FILL | MARSH EX | EBS | CUT                  | PAV'T MATERIAL | FILL | MARSH EX | MARSH IN FILL<br>(0.6) | FILL<br>(25%) | SELECT CRUSHED<br>MATERIAL<br>(1.5) | EBS                     | CUT | FILL | MARSH<br>EX | MARSH IN FILL<br>(0.6) | FILL<br>(25%) | SELECT CRUSHED<br>MATERIAL<br>(1.5) |                  | EBS   |
| 10+00              | 0                     | 0              | 0    | 0        | 0   | 0                    | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0                       | 0   | 0    | 0           | 0                      | 0             | 0                                   | 0                | 0     |
| 10+50              | 6                     | 0              | 5    | 0        | 0   | 5                    | 0              | 4    | 0        | 0                      | 6             | 0                                   | 0                       | 5   | 4    | 0           | 0                      | 6             | 0                                   | 0                | -1    |
| 11+00              | 8                     | 0              | 10   | 0        | 0   | 12                   | 0              | 13   | 0        | 0                      | 17            | 0                                   | 0                       | 17  | 17   | 0           | 0                      | 23            | 0                                   | 0                | -6    |
| 11+50              | 83                    | 0              | 0    | 0        | 0   | 84                   | 0              | 9    | 0        | 0                      | 11            | 0                                   | 0                       | 101 | 26   | 0           | 0                      | 34            | 0                                   | 0                | 67    |
| 12+00              | 6                     | 0              | 81   | 0        | 0   | 83                   | 0              | 75   | 0        | 0                      | 93            | 0                                   | 0                       | 184 | 101  | 0           | 0                      | 127           | 0                                   | 0                | 57    |
| 12+04.99           | 5                     | 0              | 42   | 0        | 0   | 1                    | 0              | 10   | 0        | 0                      | 12            | 0                                   | 0                       | 185 | 111  | 0           | 0                      | 139           | 0                                   | 0                | 46    |
| 12+04.99           | 0                     | 0              | 0    | 0        | 0   | 0                    | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0                       | 185 | 111  | 0           | 0                      | 139           | 0                                   | 0                | 46    |
| 12+50              | 0                     | 0              | 0    | 0        | 0   | 0                    | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0                       | 185 | 111  | 0           | 0                      | 139           | 0                                   | 0                | 46    |
| 12+76.46           | 0                     | 0              | 0    | 0        | 0   | 0                    | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0                       | 185 | 111  | 0           | 0                      | 139           | 0                                   | 0                | 46    |
| 12+76.46           | 0                     | 0              | 166  | 0        | 0   | 0                    | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0                       | 185 | 111  | 0           | 0                      | 139           | 0                                   | 0                | 46    |
| 13+00              | 0                     | 0              | 212  | 0        | 0   | 0                    | 0              | 159  | 0        | 0                      | 199           | 0                                   | 0                       | 185 | 270  | 0           | 0                      | 338           | 0                                   | 0                | -153  |
| 13+04              | 0                     | 0              | 212  | 0        | 0   | 0                    | 0              | 31   | 0        | 0                      | 39            | 0                                   | 0                       | 185 | 301  | 0           | 0                      | 377           | 0                                   | 0                | -192  |
| 13+04              | 0                     | 0              | 84   | 0        | 0   | 0                    | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0                       | 185 | 301  | 0           | 0                      | 377           | 0                                   | 0                | -192  |
| 13+50              | 0                     | 0              | 84   | 50       | 0   | 0                    | 0              | 144  | 60       | 36                     | 134           | 90                                  | 0                       | 185 | 445  | 60          | 36                     | 511           | 90                                  | 0                | -326  |
| 14+00              | 0                     | 0              | 182  | 0        | 0   | 0                    | 0              | 247  | 0        | 0                      | 309           | 0                                   | 0                       | 185 | 692  | 60          | 36                     | 820           | 90                                  | 0                | -635  |
| 14+08              | 0                     | 0              | 182  | 0        | 0   | 0                    | 0              | 54   | 0        | 0                      | 68            | 0                                   | 0                       | 185 | 746  | 60          | 36                     | 888           | 90                                  | 0                | -703  |
| 14+08              | 0                     | 0              | 81   | 0        | 0   | 0                    | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0                       | 185 | 746  | 60          | 36                     | 888           | 90                                  | 0                | -703  |
| 14+50              | 0                     | 0              | 81   | 0        | 0   | 0                    | 0              | 126  | 0        | 0                      | 157           | 0                                   | 0                       | 185 | 872  | 60          | 36                     | 1045          | 90                                  | 0                | -860  |
| 15+00              | 0                     | 0              | 25   | 0        | 0   | 0                    | 0              | 98   | 0        | 0                      | 123           | 0                                   | 0                       | 185 | 970  | 60          | 36                     | 1168          | 90                                  | 0                | -983  |
| 15+50              | 0                     | 0              | 12   | 0        | 0   | 0                    | 0              | 34   | 0        | 0                      | 43            | 0                                   | 0                       | 185 | 1004 | 60          | 36                     | 1211          | 90                                  | 0                | -1026 |
| 16+00              | 0                     | 0              | 4    | 0        | 0   | 0                    | 0              | 15   | 0        | 0                      | 18            | 0                                   | 0                       | 185 | 1019 | 60          | 36                     | 1229          | 90                                  | 0                | -1044 |
| 16+50              | 0                     | 0              | 0    | 0        | 0   | 0                    | 0              | 4    | 0        | 0                      | 5             | 0                                   | 0                       | 185 | 1023 | 60          | 36                     | 1234          | 90                                  | 0                | -1049 |
| COLUMN SUBTOTALS = |                       |                |      |          |     | 185                  | 0              | 1023 | 60       | 36                     | 1234          | 90                                  | 0                       | 185 | 1023 | 0           | 0                      | 1234          | 90                                  | 0                | -1049 |

EARTHWORK-KONKEL VALLEY ROAD - STAGE 1

| STATION            | AREA (SF)             |                |      |          |     | INCREMENTAL VOL (CY)  |                |      |          |                          |               |       |     | CUMMULATIVE VOLUME (CY)  |      |             |       |                            |       |      |      |                  |
|--------------------|-----------------------|----------------|------|----------|-----|-----------------------|----------------|------|----------|--------------------------|---------------|-------|-----|--------------------------|------|-------------|-------|----------------------------|-------|------|------|------------------|
|                    | SALVAGED/<br>UNUSABLE |                |      |          |     | SALVAGED/<br>UNUSABLE |                |      |          | REDUCED<br>MARSH IN FILL |               |       |     | REDUCED<br>MARSH IN FILL |      |             |       | SELECT CRUSHED<br>MATERIAL |       |      |      | MASS<br>ORDINATE |
|                    | CUT                   | PAV'T MATERIAL | FILL | MARSH EX | EBS | CUT                   | PAV'T MATERIAL | FILL | MARSH EX | (0.6)                    | FILL<br>(25%) | (1.5) | EBS | CUT                      | FILL | MARSH<br>EX | (0.6) | FILL<br>(25%)              | (1.5) | EBS  |      |                  |
| 50+17              | 0                     | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                        | 0             | 0     | 0   | 0                        | 0    | 0           | 0     | 0                          | 0     | 0    |      |                  |
| 50+17              | 0                     | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                        | 0             | 0     | 0   | 0                        | 0    | 0           | 0     | 0                          | 0     | 0    |      |                  |
| 50+50              | 0                     | 0              | 327  | 0        | 0   | 0                     | 0              | 0    | 0        | 0                        | 469           | 0     | 0   | 0                        | 0    | 0           | 0     | 469                        | 0     | -469 |      |                  |
| 50+75              | 0                     | 0              | 287  | 0        | 0   | 0                     | 0              | 375  | 0        | 0                        | 342           | 0     | 0   | 0                        | 375  | 0           | 0     | 811                        | 0     | -811 |      |                  |
| 50+75              | 0                     | 0              | 287  | 0        | 0   | 0                     | 0              | 274  | 0        | 0                        | 0             | 0     | 0   | 0                        | 649  | 0           | 0     | 811                        | 0     | -811 |      |                  |
| 51+00              | 0                     | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                        | 0             | 0     | 0   | 0                        | 649  | 0           | 0     | 811                        | 0     | -811 |      |                  |
| 51+50              | 0                     | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                        | 0             | 0     | 0   | 0                        | 649  | 0           | 0     | 811                        | 0     | -811 |      |                  |
| 52+00              | 0                     | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                        | 0             | 0     | 0   | 0                        | 649  | 0           | 0     | 811                        | 0     | -811 |      |                  |
| COLUMN SUBTOTALS = |                       |                |      |          |     | 0                     | 0              | 649  | 0        | 0                        | 811           | 0     | 0   | 0                        | 649  | 0           | 0     | 811                        | 0     | 0    | -811 |                  |

EARTHWORK-MAINLINE - CHANNEL REALIGNMENT

| STATION            | AREA (SF)             |                |      |          |     | INCREMENTAL VOL (CY) |                |      |          |                        |               |                                     | CUMMULATIVE VOLUME (CY) |     |      |             |                        |               |                                     |     |                  |
|--------------------|-----------------------|----------------|------|----------|-----|----------------------|----------------|------|----------|------------------------|---------------|-------------------------------------|-------------------------|-----|------|-------------|------------------------|---------------|-------------------------------------|-----|------------------|
|                    | SALVAGED/<br>UNUSABLE |                |      |          |     | REDUCED              |                |      |          |                        |               |                                     | REDUCED                 |     |      |             |                        |               |                                     |     |                  |
|                    | CUT                   | PAV'T MATERIAL | FILL | MARSH EX | EBS | CUT                  | PAV'T MATERIAL | FILL | MARSH EX | MARSH IN FILL<br>(0.6) | FILL<br>(25%) | SELECT CRUSHED<br>MATERIAL<br>(1.5) | EBS                     | CUT | FILL | MARSH<br>EX | MARSH IN FILL<br>(0.6) | FILL<br>(25%) | SELECT CRUSHED<br>MATERIAL<br>(1.5) | EBS | MASS<br>ORDINATE |
| 100+00             | 14                    | 0              | 0    | 0        | 0   | 0                    | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0                       | 0   | 0    | 0           | 0                      | 0             | 0                                   | 0   | 0                |
| 100+50             | 14                    | 0              | 1    | 0        | 0   | 26                   | 0              | 1    | 0        | 0                      | 1             | 0                                   | 0                       | 26  | 1    | 0           | 0                      | 1             | 0                                   | 0   | 25               |
| 101+00             | 376                   | 0              | 65   | 0        | 0   | 361                  | 0              | 61   | 0        | 0                      | 77            | 0                                   | 0                       | 387 | 62   | 0           | 0                      | 78            | 0                                   | 0   | 309              |
| 101+50             | 35                    | 0              | 2    | 0        | 0   | 381                  | 0              | 62   | 0        | 0                      | 77            | 0                                   | 0                       | 768 | 124  | 0           | 0                      | 155           | 0                                   | 0   | 613              |
| 101+60             | 0                     | 0              | 0    | 0        | 0   | 32                   | 0              | 1    | 0        | 0                      | 0             | 0                                   | 0                       | 800 | 125  | 0           | 0                      | 155           | 0                                   | 0   | 645              |
| COLUMN SUBTOTALS = |                       |                |      |          |     | 800                  | 0              | 125  | 0        | 0                      | 155           | 0                                   | 0                       | 800 | 125  | 0           | 0                      | 155           | 0                                   | 0   | 645              |

PROJECT NO: 7310-00-70

HWY: CTH C

COUNTY: BUFFALO

EARTHWORK

SHEET

E

EARTHWORK-MAINLINE - STAGE 2

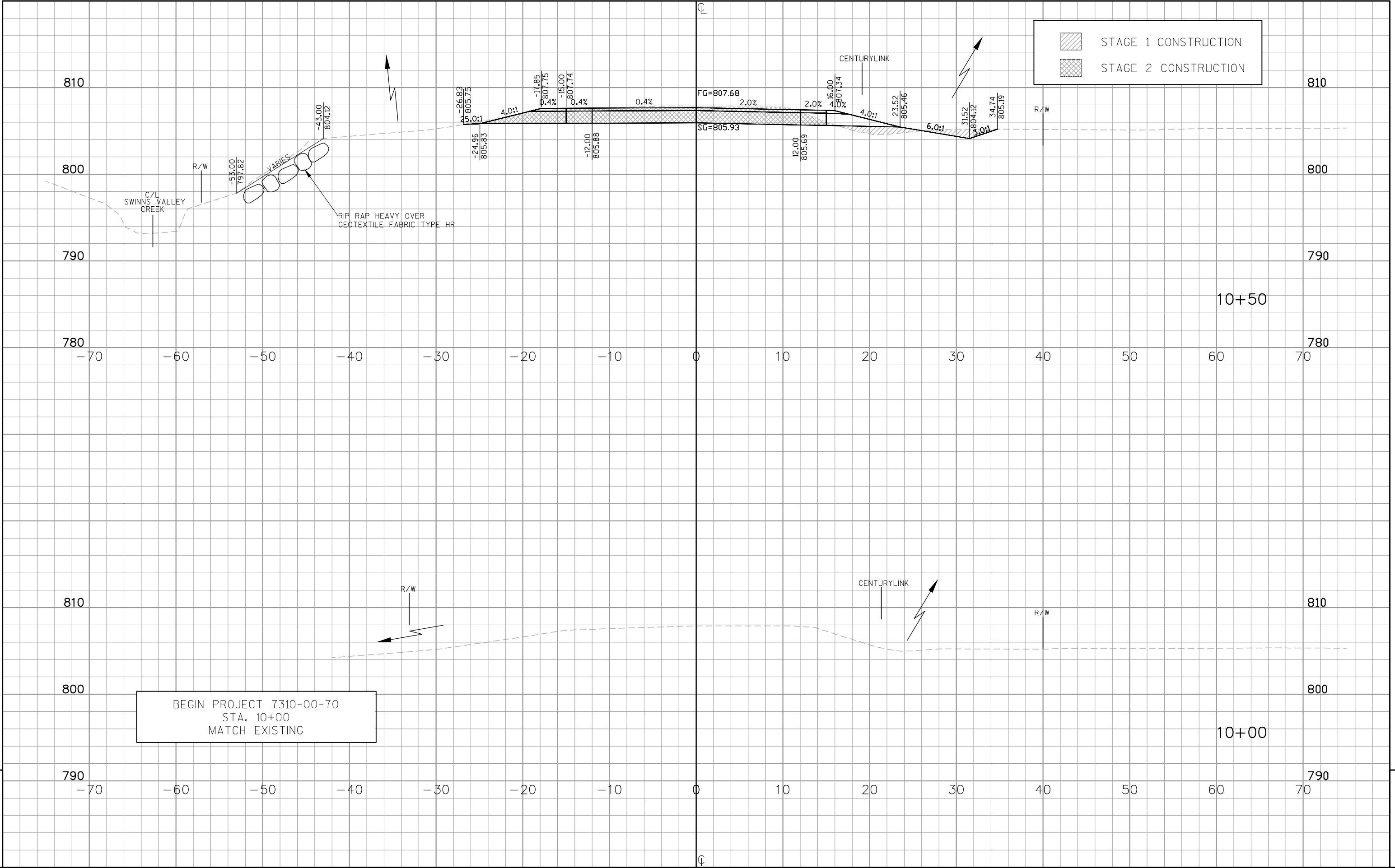
| STATION            | AREA (SF)             |                |      |          |     | INCREMENTAL VOL (CY)  |                |      |          |                        |               |                                     |     | CUMMULATIVE VOLUME (CY) |      |             |                        |               |                                     |     |          |
|--------------------|-----------------------|----------------|------|----------|-----|-----------------------|----------------|------|----------|------------------------|---------------|-------------------------------------|-----|-------------------------|------|-------------|------------------------|---------------|-------------------------------------|-----|----------|
|                    | SALVAGED/<br>UNUSABLE |                |      |          |     | SALVAGED/<br>UNUSABLE |                |      |          | REDUCED                |               |                                     |     | REDUCED                 |      |             |                        | MASS          |                                     |     |          |
|                    | CUT                   | PAV'T MATERIAL | FILL | MARSH EX | EBS | CUT                   | PAV'T MATERIAL | FILL | MARSH EX | MARSH IN FILL<br>(0.6) | FILL<br>(25%) | SELECT CRUSHED<br>MATERIAL<br>(1.5) | EBS | CUT                     | FILL | MARSH<br>EX | MARSH IN FILL<br>(0.6) | FILL<br>(25%) | SELECT CRUSHED<br>MATERIAL<br>(1.5) | EBS | ORDINATE |
| 10+00              | 59                    | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 0                       | 0    | 0           | 0                      | 0             | 0                                   | 0   | 0        |
| 10+50              | 66                    | 0              | 0    | 0        | 0   | 115                   | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 115                     | 0    | 0           | 0                      | 0             | 0                                   | 0   | 115      |
| 11+00              | 50                    | 0              | 0    | 0        | 0   | 107                   | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 222                     | 0    | 0           | 0                      | 0             | 0                                   | 0   | 222      |
| 11+50              | 23                    | 0              | 0    | 0        | 0   | 68                    | 0              | 22   | 0        | 0                      | 26            | 0                                   | 0   | 290                     | 22   | 0           | 0                      | 26            | 0                                   | 0   | 264      |
| 12+00              | 0                     | 0              | 23   | 0        | 0   | 22                    | 0              | 3    | 0        | 0                      | 4             | 0                                   | 0   | 312                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 282      |
| 12+04.99           | 0                     | 0              | 13   | 0        | 0   | 0                     | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 312                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 282      |
| 12+04.99           | 0                     | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 312                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 282      |
| 12+50              | 0                     | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 312                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 282      |
| 12+76.46           | 0                     | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 312                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 282      |
| 12+76.46           | 48                    | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 312                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 282      |
| 13+00              | 22                    | 0              | 0    | 0        | 0   | 29                    | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 341                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 311      |
| 13+04              | 22                    | 0              | 0    | 0        | 0   | 3                     | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 344                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 314      |
| 13+04              | 0                     | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 344                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 314      |
| 13+50              | 0                     | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 344                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 314      |
| 14+00              | 19                    | 0              | 0    | 0        | 0   | 18                    | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 362                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 332      |
| 14+08              | 19                    | 0              | 0    | 0        | 0   | 5                     | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 367                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 337      |
| 14+08              | 55                    | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 367                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 337      |
| 14+50              | 55                    | 0              | 0    | 0        | 0   | 83                    | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 450                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 420      |
| 15+00              | 35                    | 0              | 0    | 0        | 0   | 83                    | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 533                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 503      |
| 15+50              | 43                    | 0              | 0    | 0        | 0   | 75                    | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 608                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 578      |
| 16+00              | 57                    | 0              | 0    | 0        | 0   | 94                    | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 702                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 672      |
| 16+50              | 55                    | 0              | 0    | 0        | 0   | 103                   | 0              | 0    | 0        | 0                      | 0             | 0                                   | 0   | 805                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 775      |
| COLUMN SUBTOTALS = |                       |                |      |          |     | 805                   | 0              | 25   | 0        | 0                      | 30            | 0                                   | 0   | 805                     | 25   | 0           | 0                      | 30            | 0                                   | 0   | 775      |

EARTHWORK-KONKEL VALLEY ROAD - STAGE 2

| STATION            | AREA (SF) |                |      |          |     | INCREMENTAL VOL (CY)  |                |      |          |                          |       |       |     | CUMMULATIVE VOLUME (CY)  |      |             |       |                            |       |     |      |                  |
|--------------------|-----------|----------------|------|----------|-----|-----------------------|----------------|------|----------|--------------------------|-------|-------|-----|--------------------------|------|-------------|-------|----------------------------|-------|-----|------|------------------|
|                    |           |                |      |          |     | SALVAGED/<br>UNUSABLE |                |      |          | REDUCED<br>MARSH IN FILL |       |       |     | REDUCED<br>MARSH IN FILL |      |             |       | SELECT CRUSHED<br>MATERIAL |       |     |      | MASS<br>ORDINATE |
|                    | CUT       | PAV'T MATERIAL | FILL | MARSH EX | EBS | CUT                   | PAV'T MATERIAL | FILL | MARSH EX | (0.6)                    | (25%) | (1.5) | EBS | CUT                      | FILL | MARSH<br>EX | (0.6) | (25%)                      | (1.5) | EBS |      |                  |
| 50+17              | 0         | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                        | 0     | 0     | 0   | 0                        | 0    | 0           | 0     | 0                          | 0     | 0   | 0    |                  |
| 50+17              | 0         | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                        | 0     | 0     | 0   | 0                        | 0    | 0           | 0     | 0                          | 0     | 0   | 0    |                  |
| 50+50              | 0         | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                        | 0     | 0     | 0   | 0                        | 0    | 0           | 0     | 0                          | 0     | 0   | 0    |                  |
| 50+75              | 0         | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                        | 0     | 0     | 0   | 0                        | 0    | 0           | 0     | 0                          | 0     | 0   | 0    |                  |
| 50+75              | 773       | 0              | 0    | 0        | 0   | 0                     | 0              | 0    | 0        | 0                        | 0     | 0     | 0   | 0                        | 0    | 0           | 0     | 0                          | 0     | 0   | 0    |                  |
| 51+00              | 773       | 0              | 0    | 0        | 0   | 716                   | 0              | 0    | 0        | 0                        | 0     | 0     | 0   | 716                      | 0    | 0           | 0     | 0                          | 0     | 0   | 716  |                  |
| 51+50              | 770       | 0              | 0    | 0        | 0   | 1415                  | 0              | 0    | 0        | 0                        | 0     | 0     | 0   | 2131                     | 0    | 0           | 0     | 0                          | 0     | 0   | 2131 |                  |
| 52+00              | 60        | 0              | 0    | 0        | 0   | 769                   | 0              | 0    | 0        | 0                        | 0     | 0     | 0   | 2900                     | 0    | 0           | 0     | 0                          | 0     | 0   | 2900 |                  |
| COLUMN SUBTOTALS = |           |                |      |          |     | 2900                  | 0              | 0    | 0        | 0                        | 0     | 0     | 0   | 2900                     | 0    | 0           | 0     | 0                          | 0     | 0   | 2900 |                  |

|                              |      |   |      |    |    |      |    |      |      |      |      |    |      |    |   |
|------------------------------|------|---|------|----|----|------|----|------|------|------|------|----|------|----|---|
| MAINLINE - STAGE 1           | 185  | 0 | 1023 | 60 | 36 | 1234 | 90 | 0    | 185  | 1023 | 60   | 36 | 1234 | 90 | 0 |
| MAINLINE - STAGE 2           | 805  | 0 | 25   | 0  | 0  | 30   | 0  | 0    | 990  | 1048 | 60   | 36 | 1264 | 90 | 0 |
| KONKEL VALLEY ROAD - STAGE 1 | 0    | 0 | 649  | 0  | 0  | 811  | 0  | 0    | 990  | 1697 | 60   | 36 | 2075 | 90 | 0 |
| KONKEL VALLEY ROAD - STAGE 2 | 2900 | 0 | 0    | 0  | 0  | 0    | 0  | 0    | 3890 | 1697 | 60   | 36 | 2075 | 90 | 0 |
| CHANNEL REALIGNMENT          | 800  | 0 | 125  | 0  | 0  | 155  | 0  | 0    | 4690 | 1822 | 60   | 36 | 2230 | 90 | 0 |
| P.E. - STAGE 1               | 10   | 0 | 0    | 0  | 0  | 0    | 0  | 0    | 4700 | 1822 | 60   | 36 | 2230 | 90 | 0 |
| COLUMN TOTALS =              |      |   |      |    |    | 4700 | 0  | 1822 | 0    | 0    | 2230 | 90 | 0    |    |   |

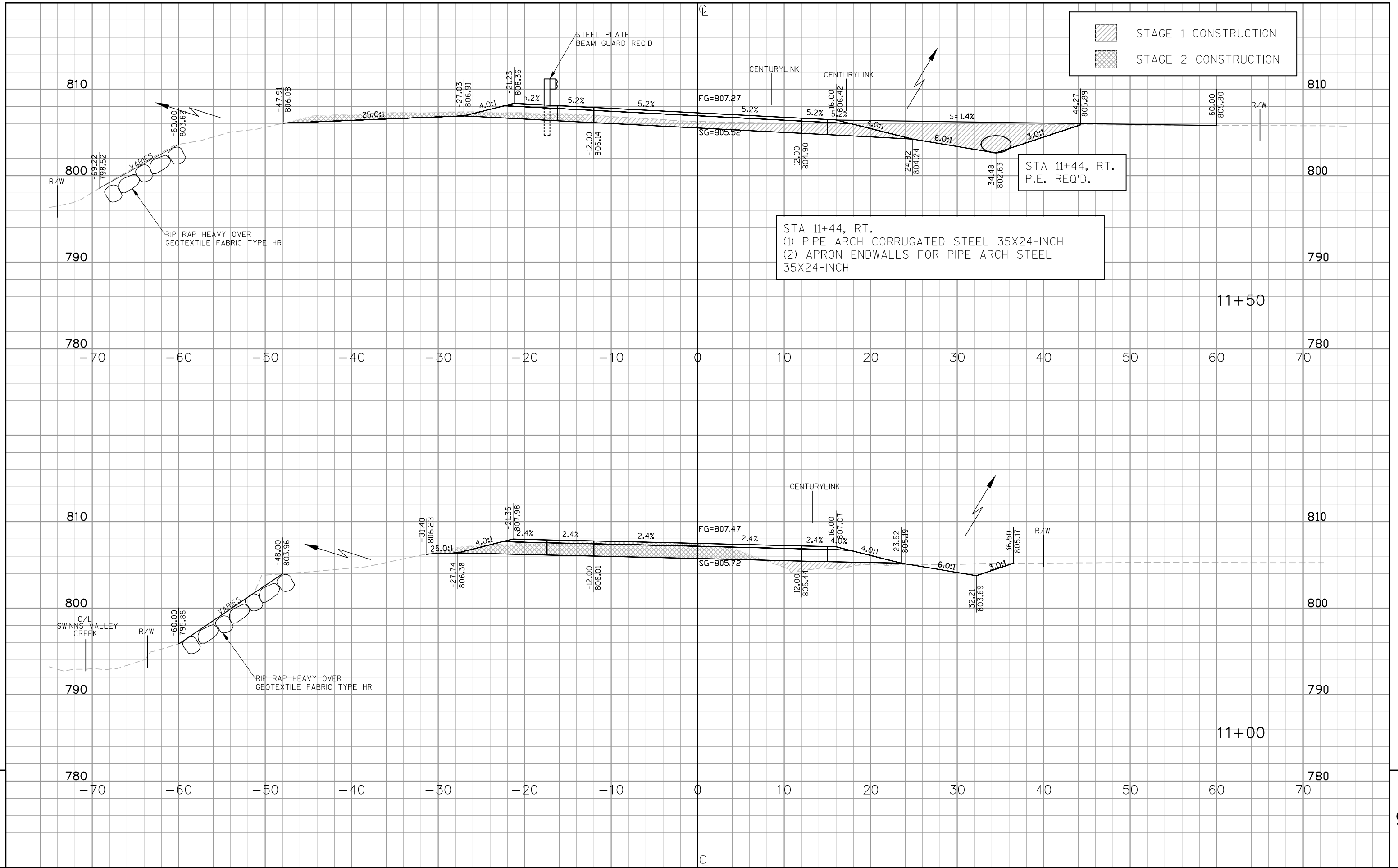
NOTE: STAGE 1 BORROW = 1850 CY  
STAGE 1 WASTE = 645 CY (WASTE EXCESS CHANNEL REALIGNMENT MATERIAL. DO NOT USE EXCESS EXCAVATED MATERIAL FROM CHANNEL REALIGNMENT ACTIVITIES IN ROADWAY APPROACH CONSTRUCTION.)  
STAGE 2 WASTE = 3675 CY

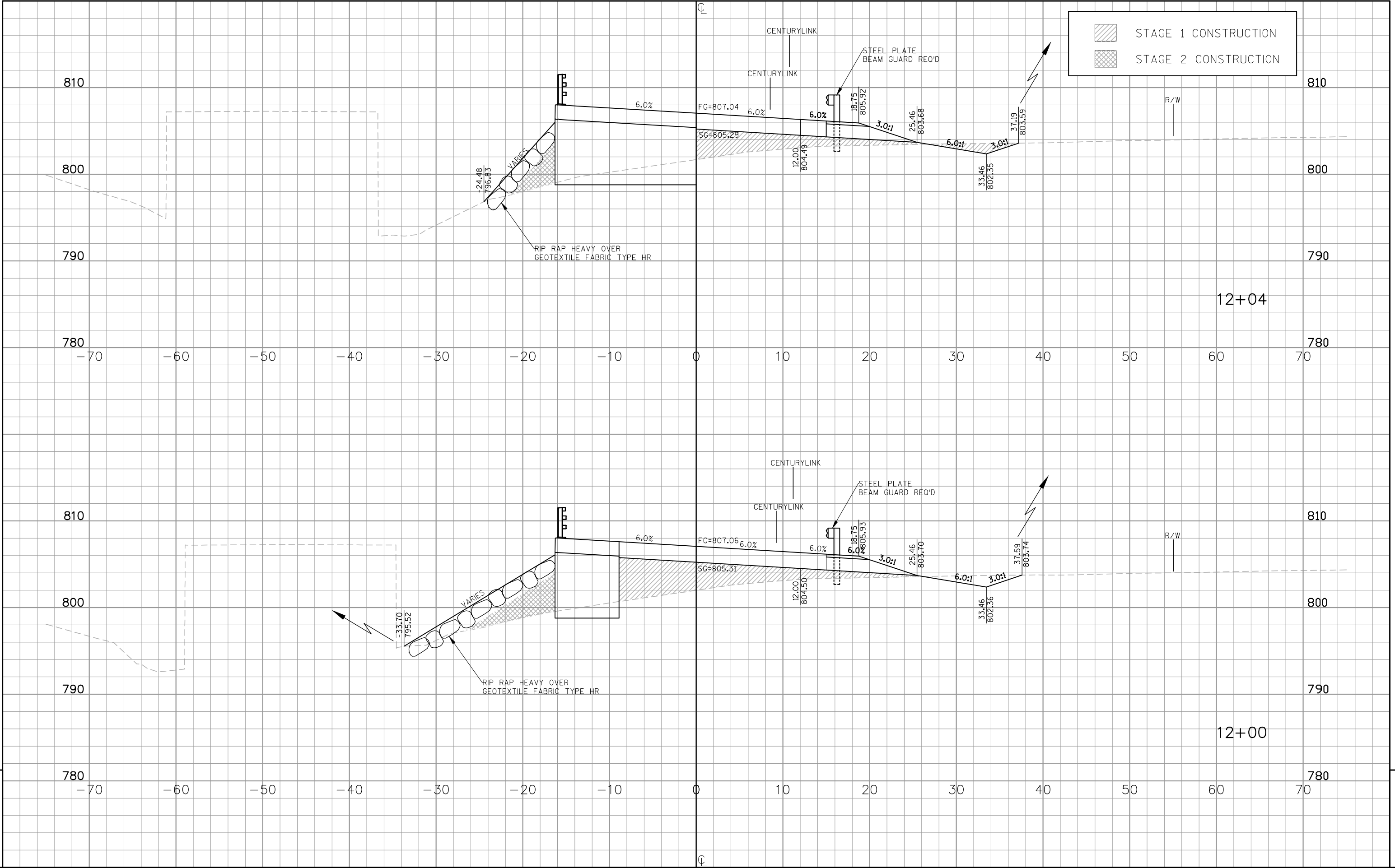


BEGIN PROJECT 7310-00-70  
STA. 10+00  
MATCH EXISTING

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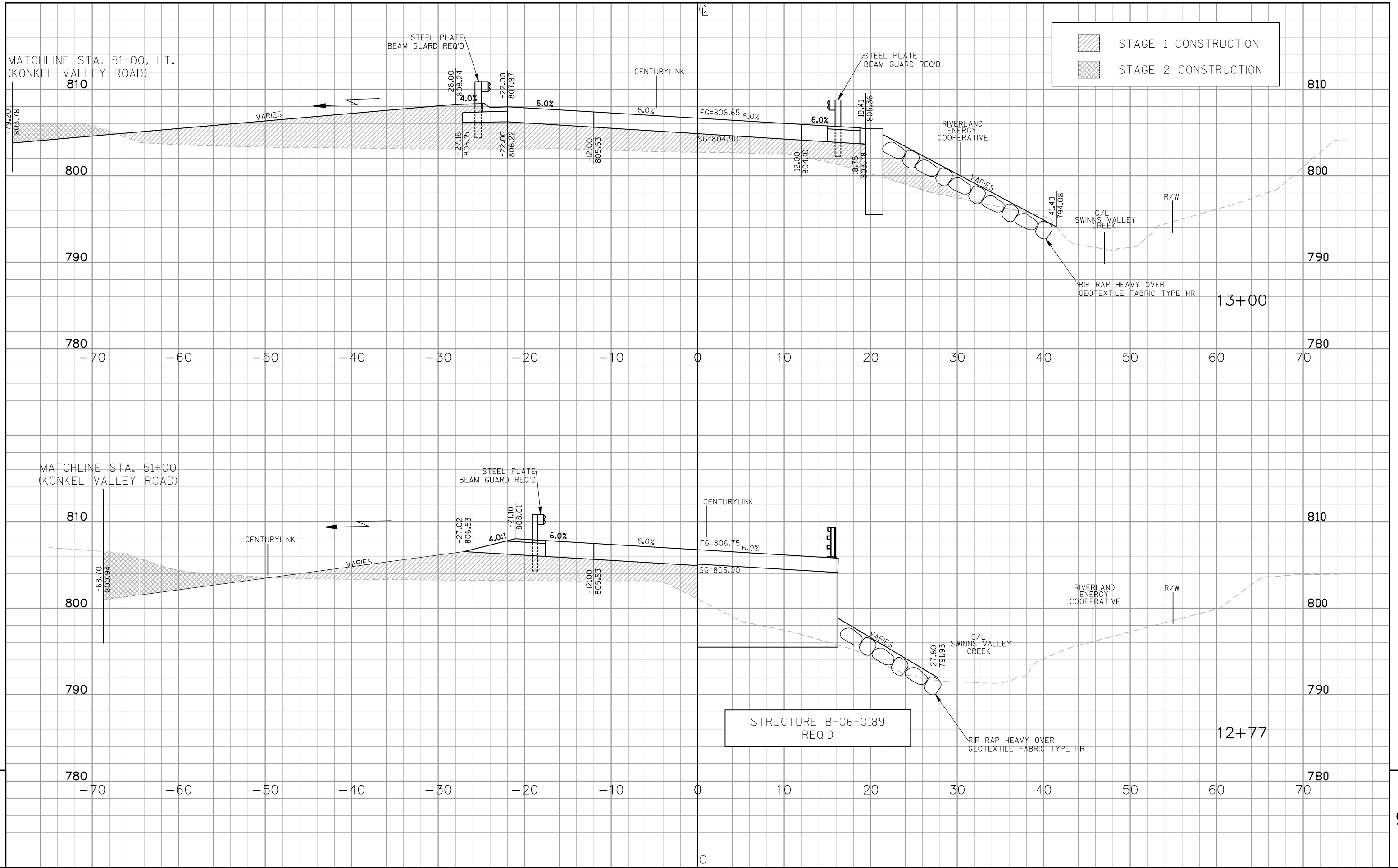
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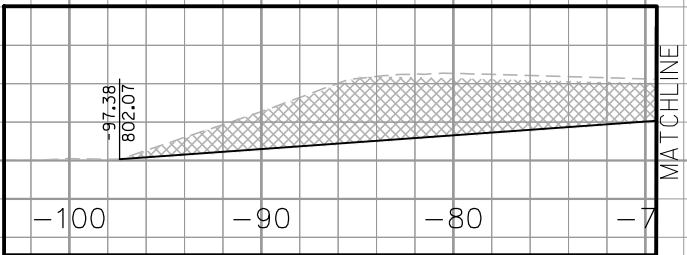
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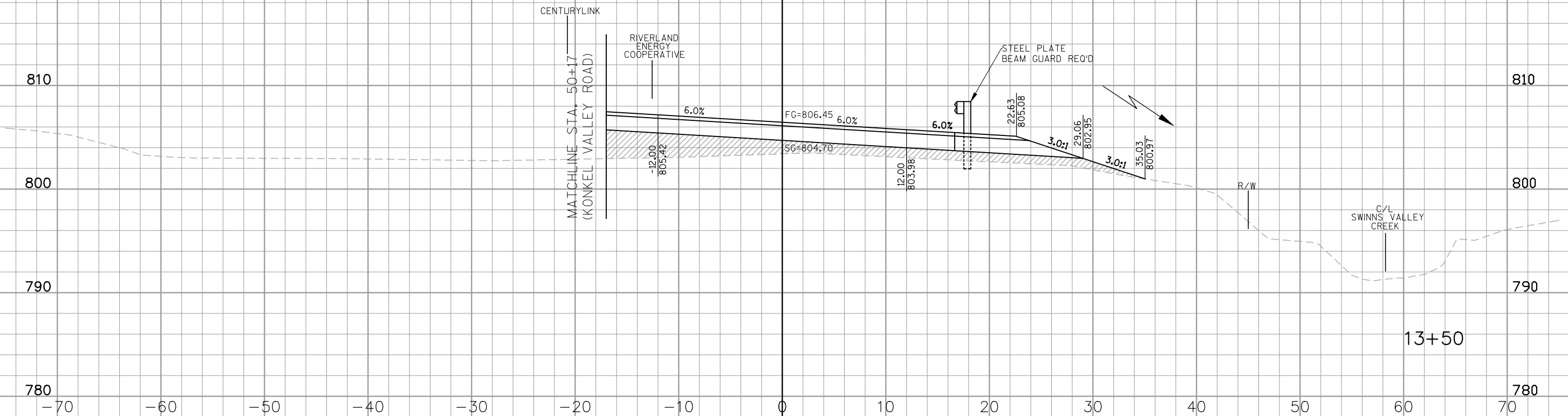
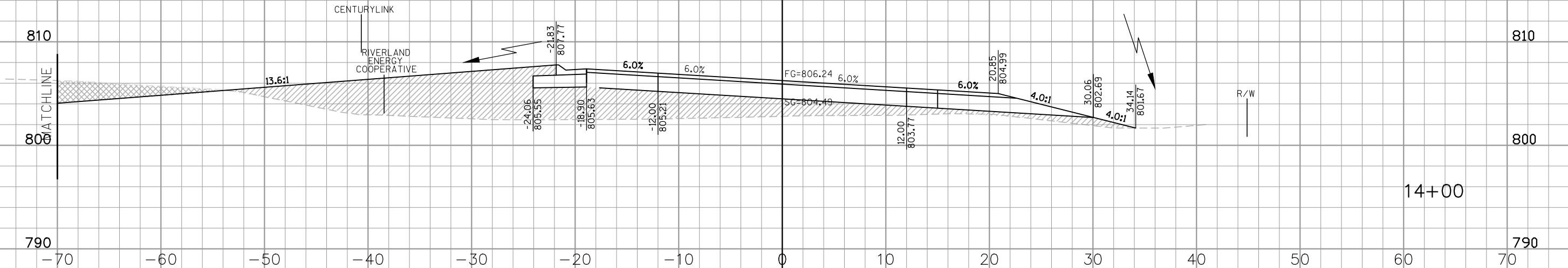
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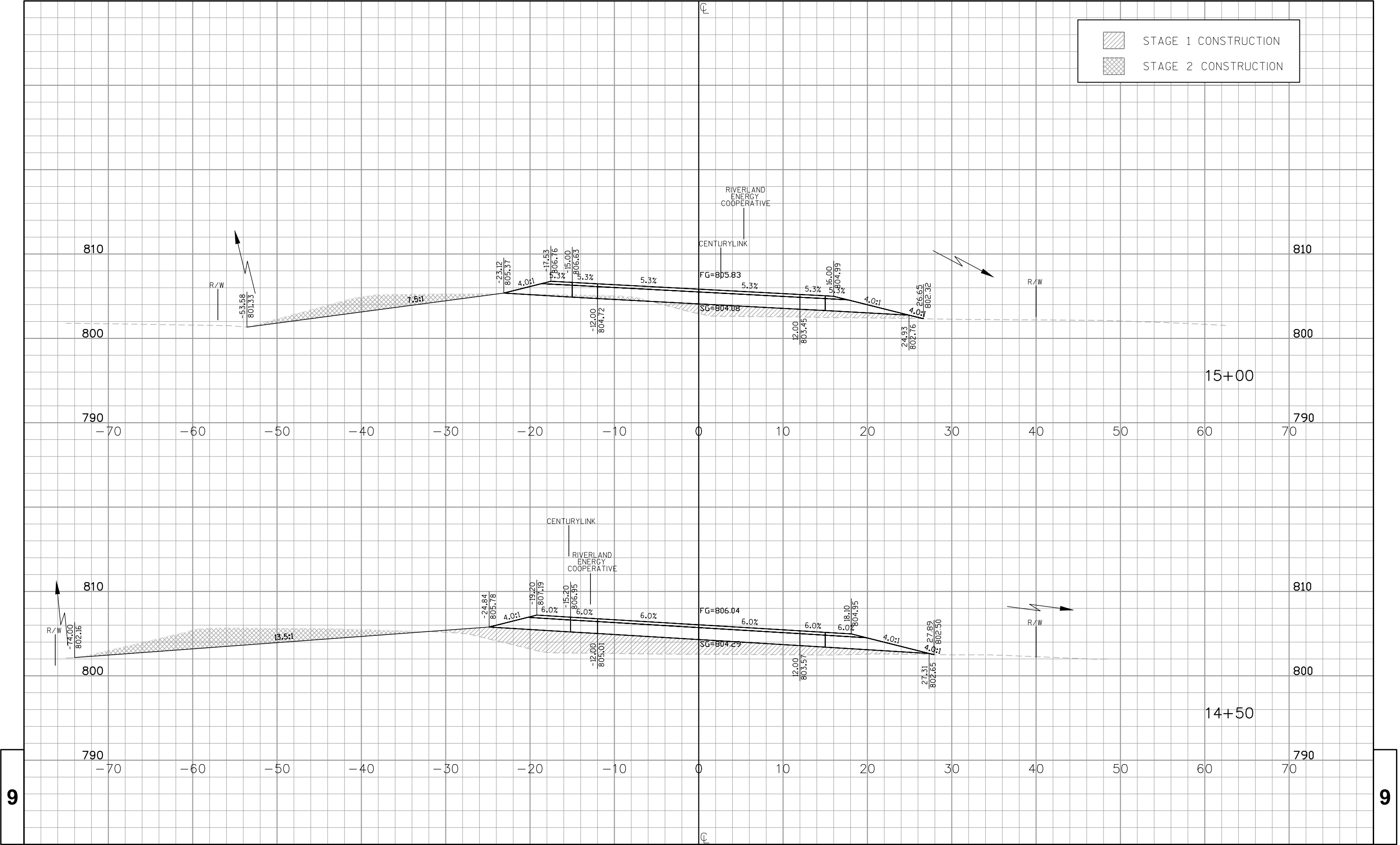
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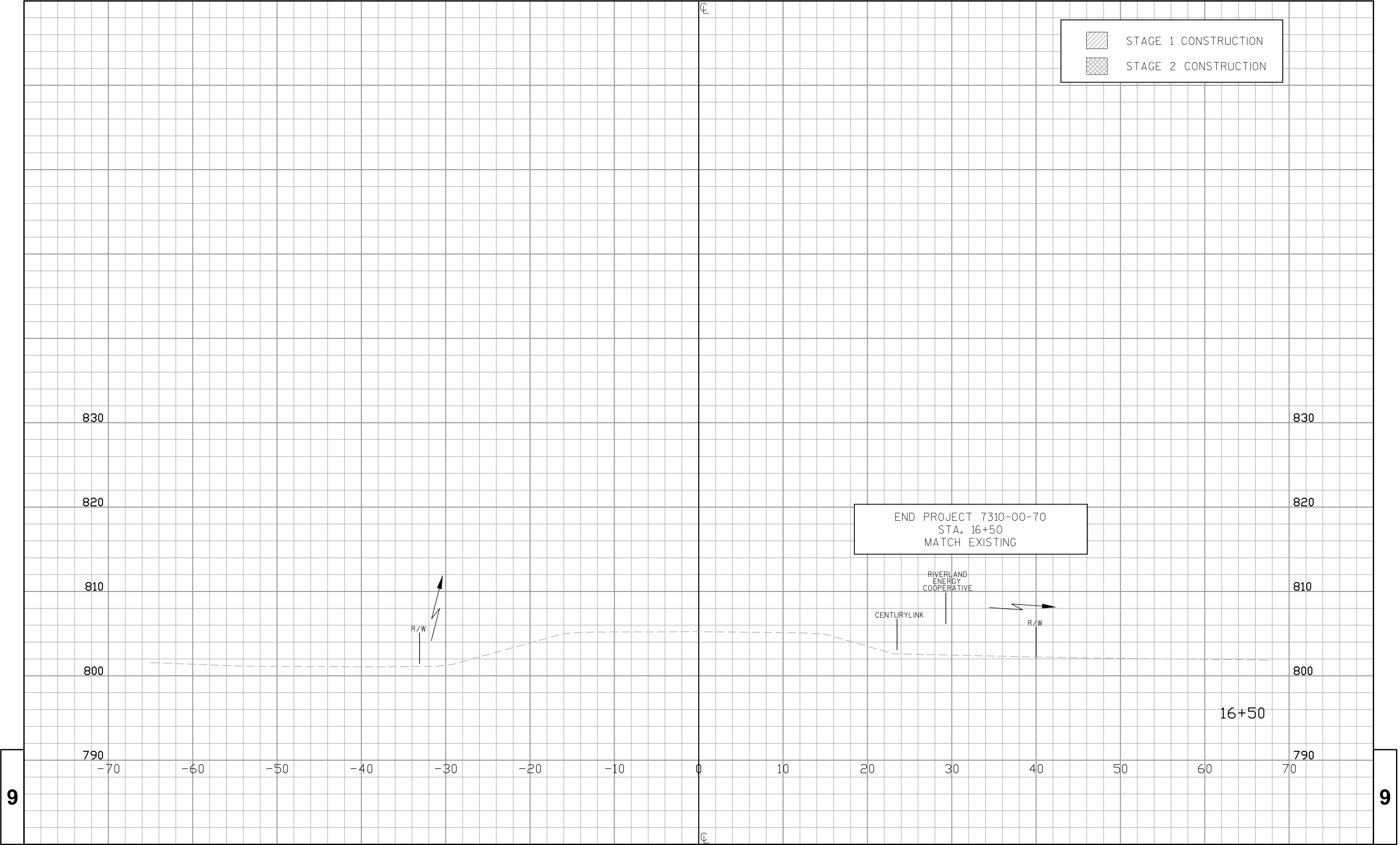
STAGE 1 CONSTRUCTION

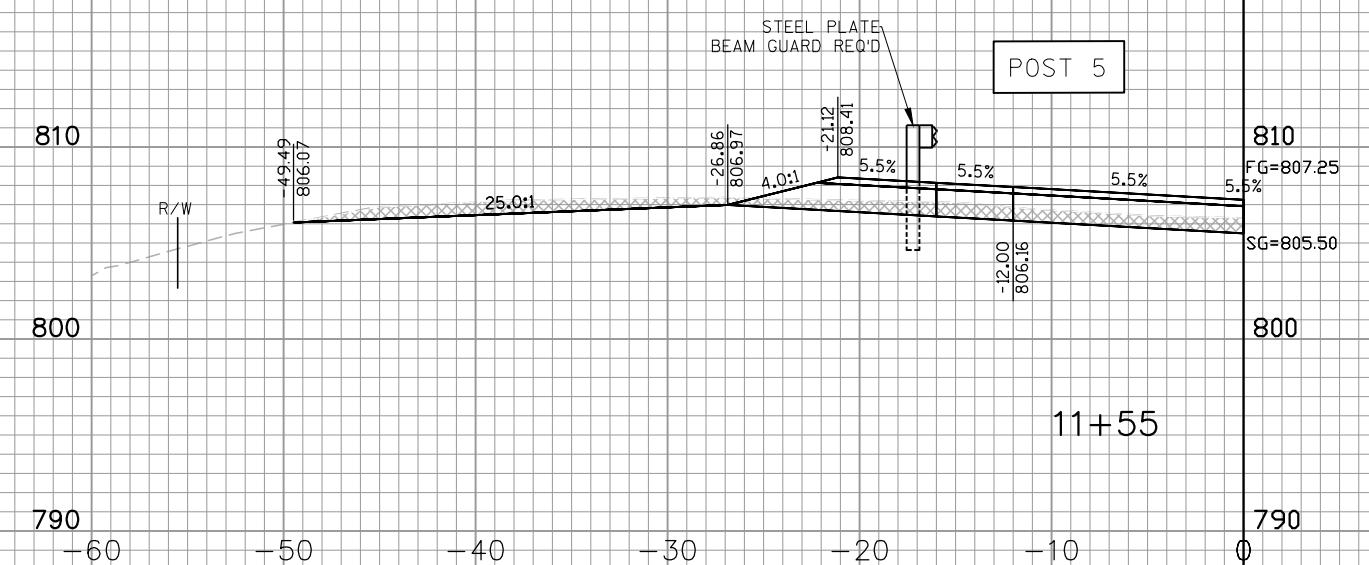
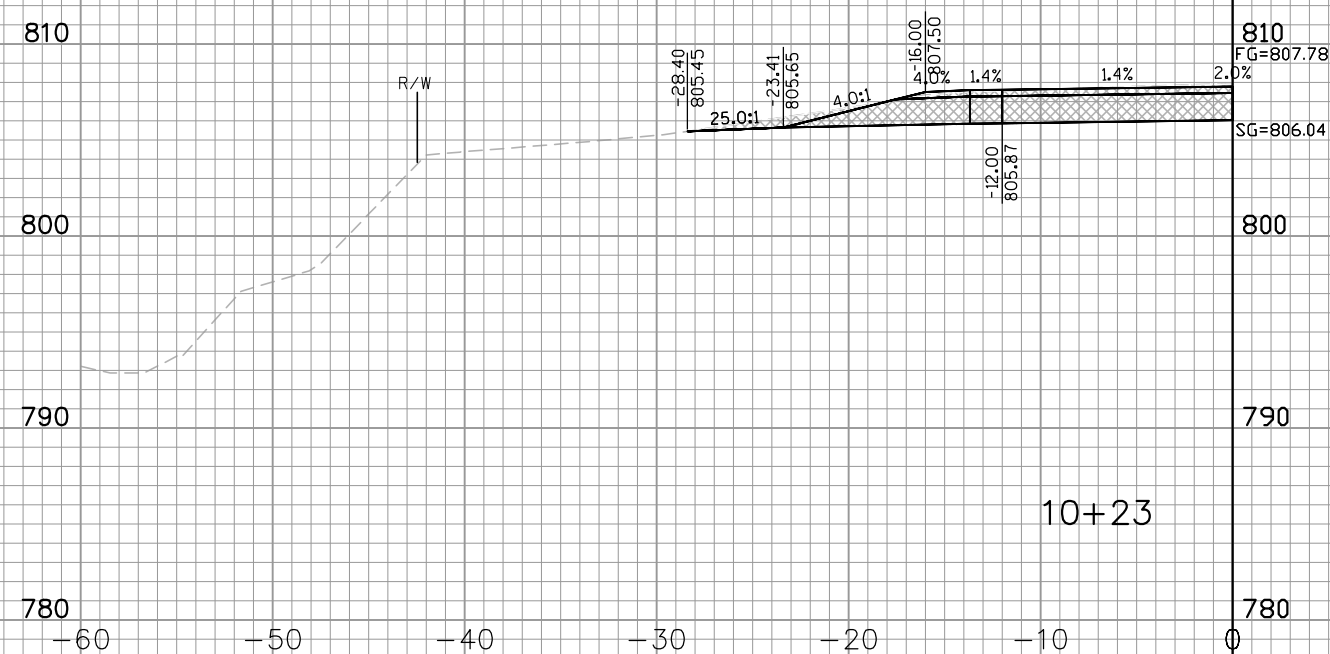
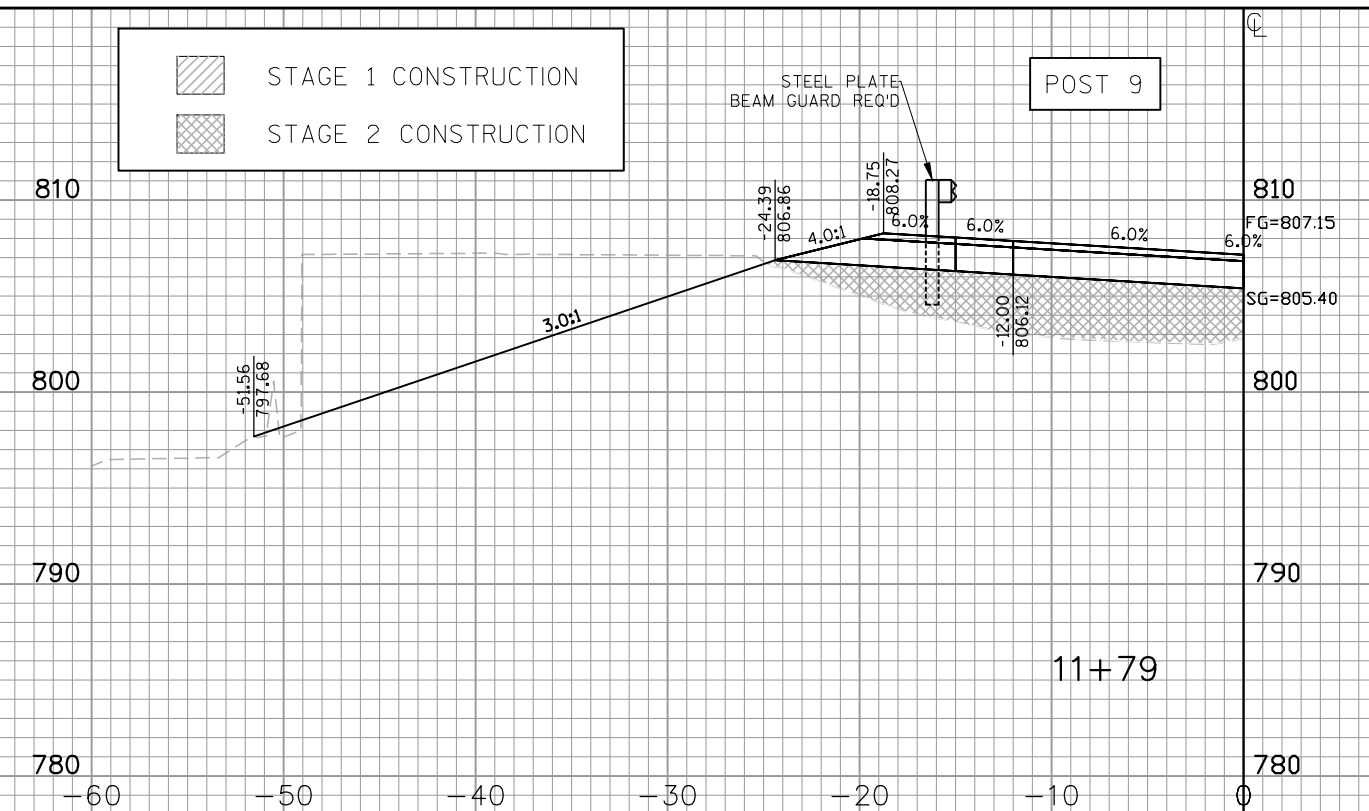
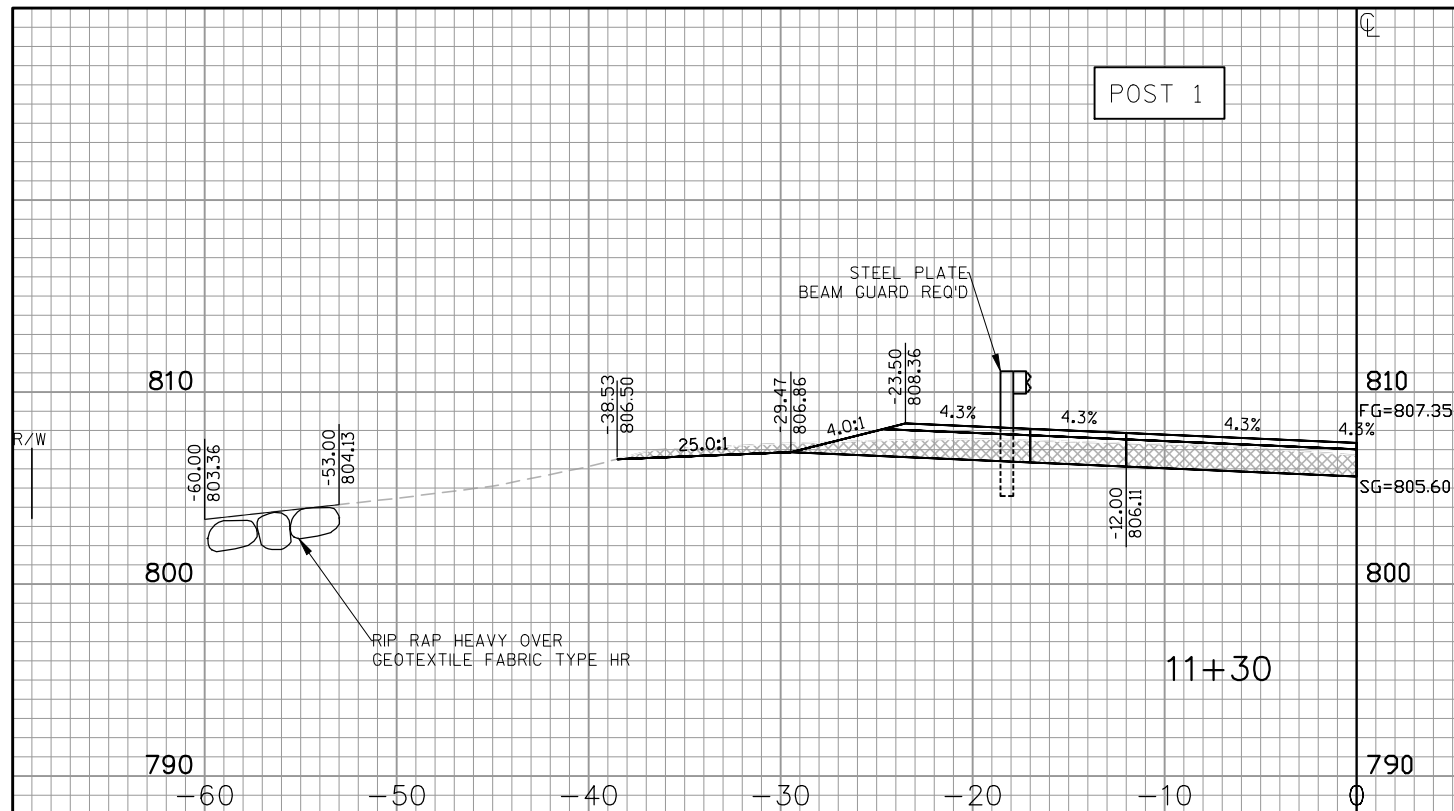
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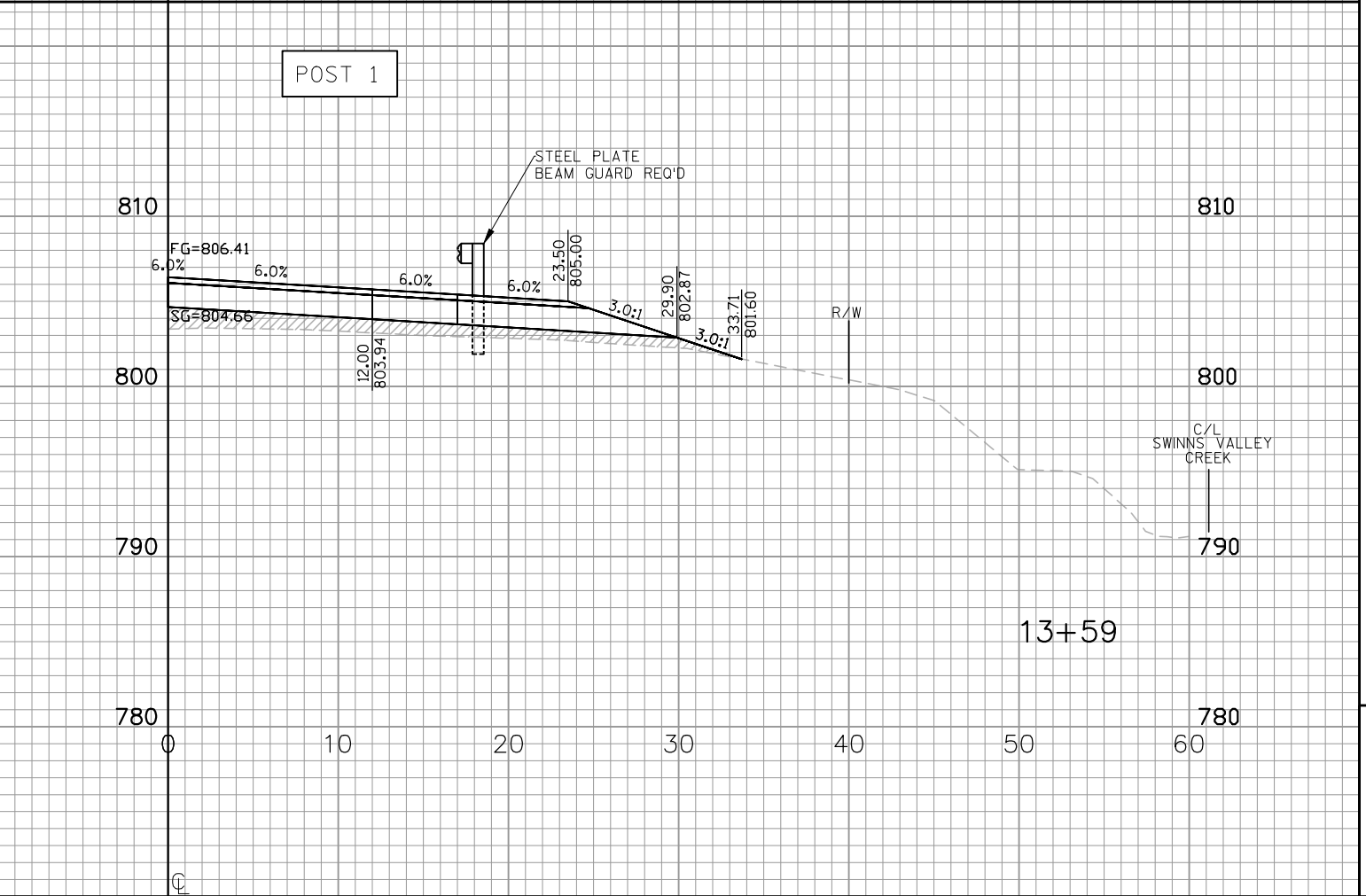
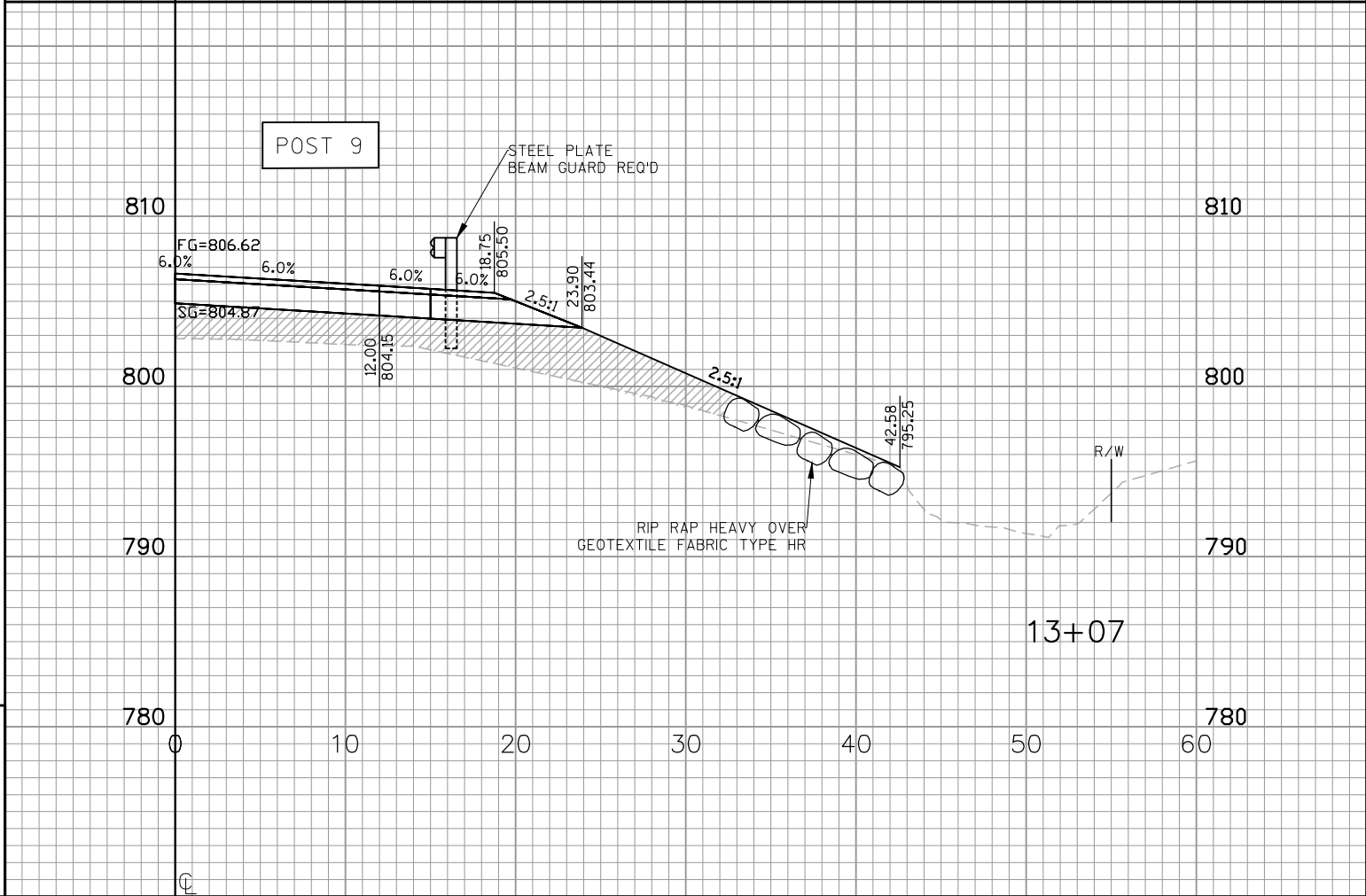
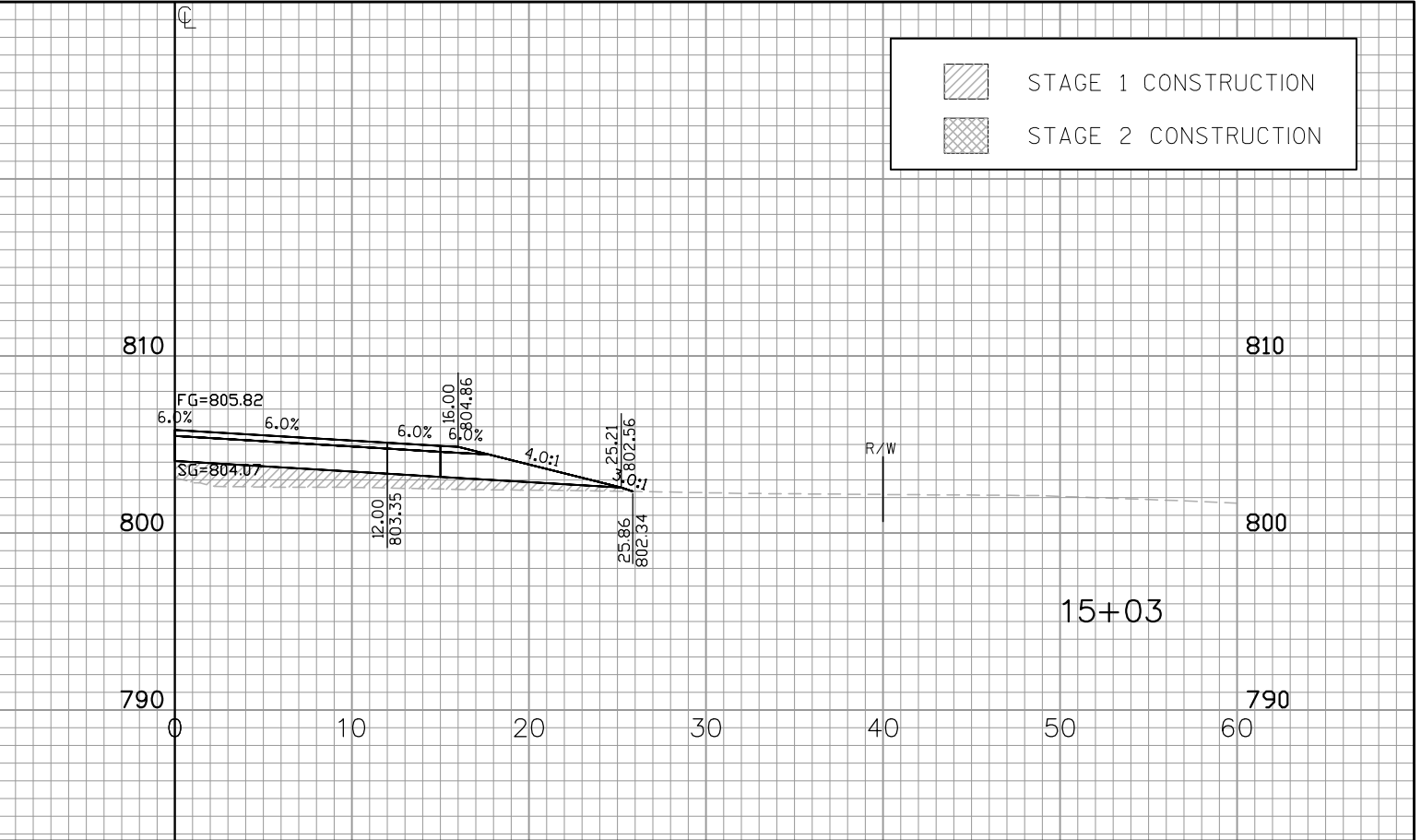
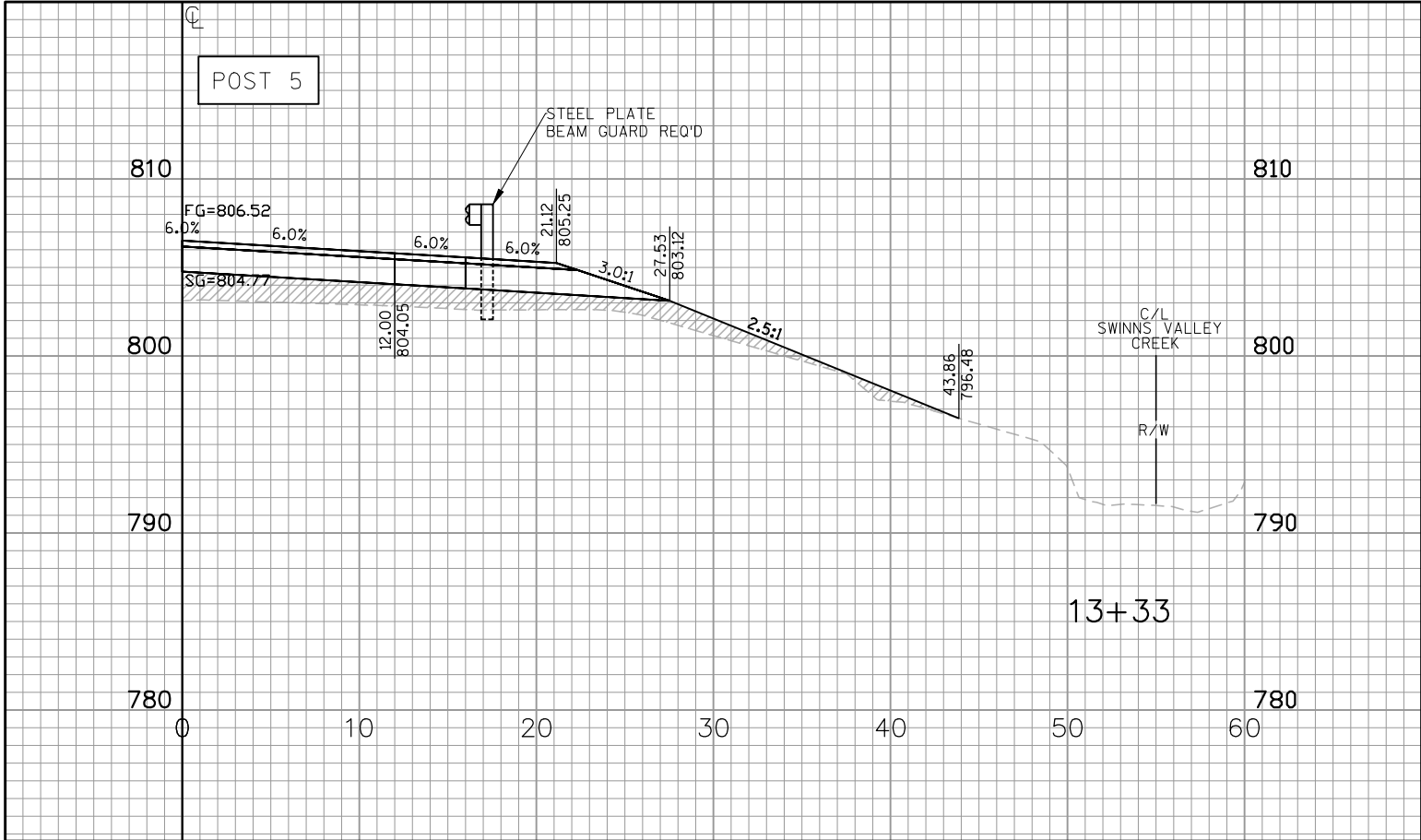


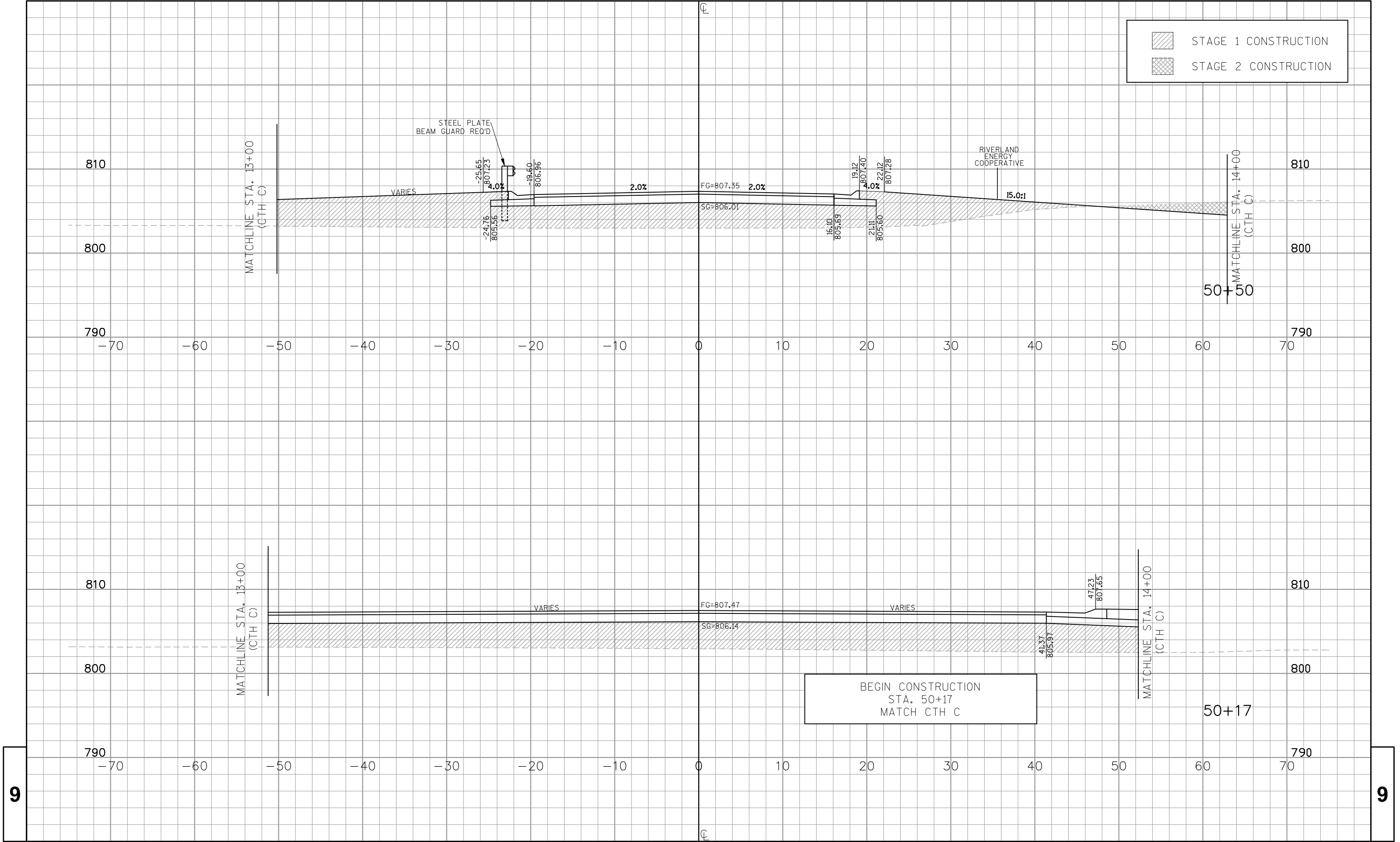


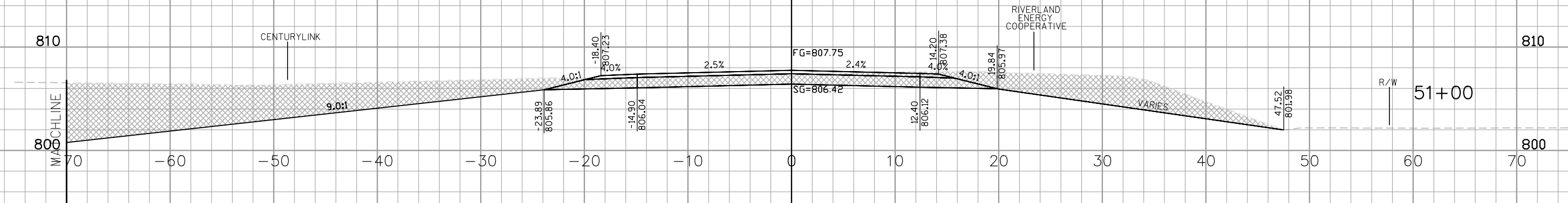
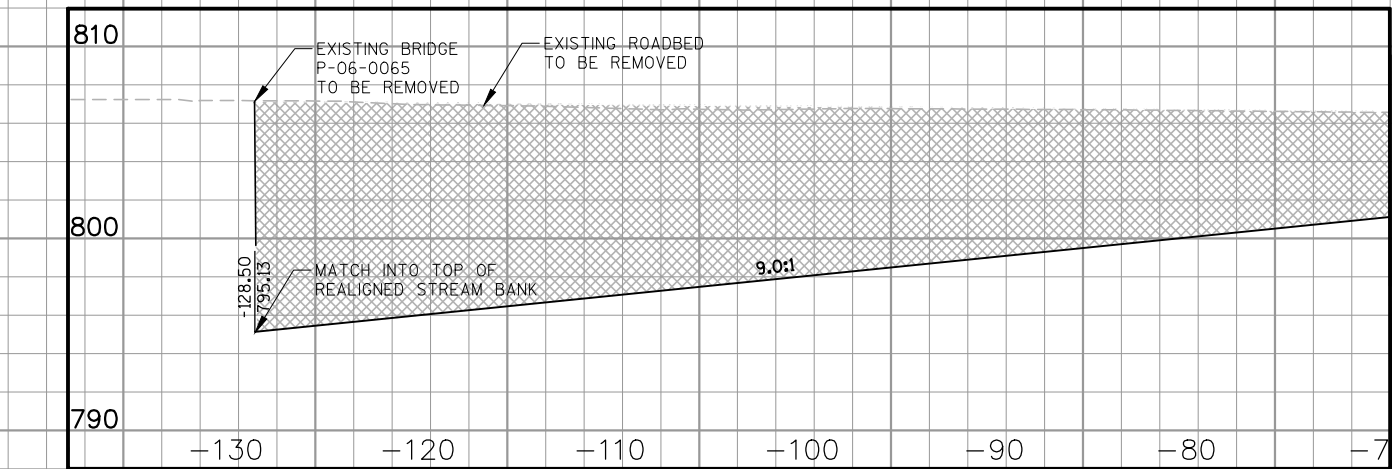
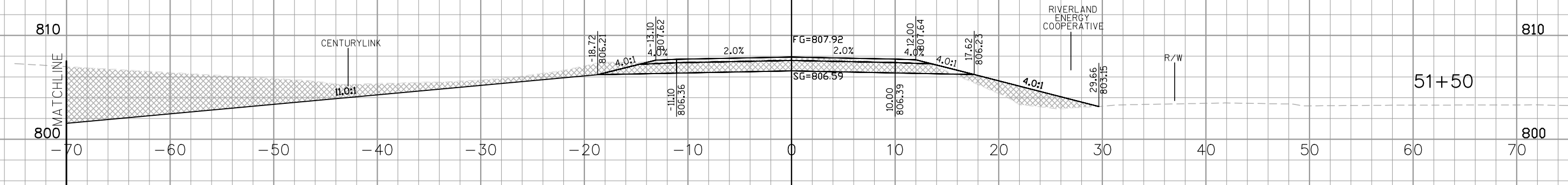
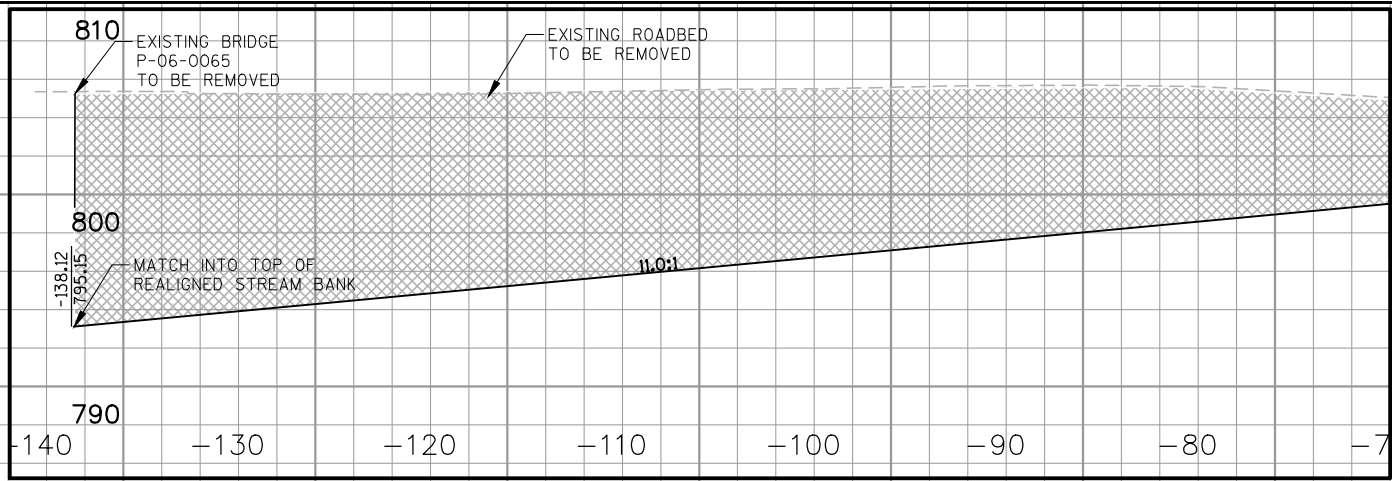








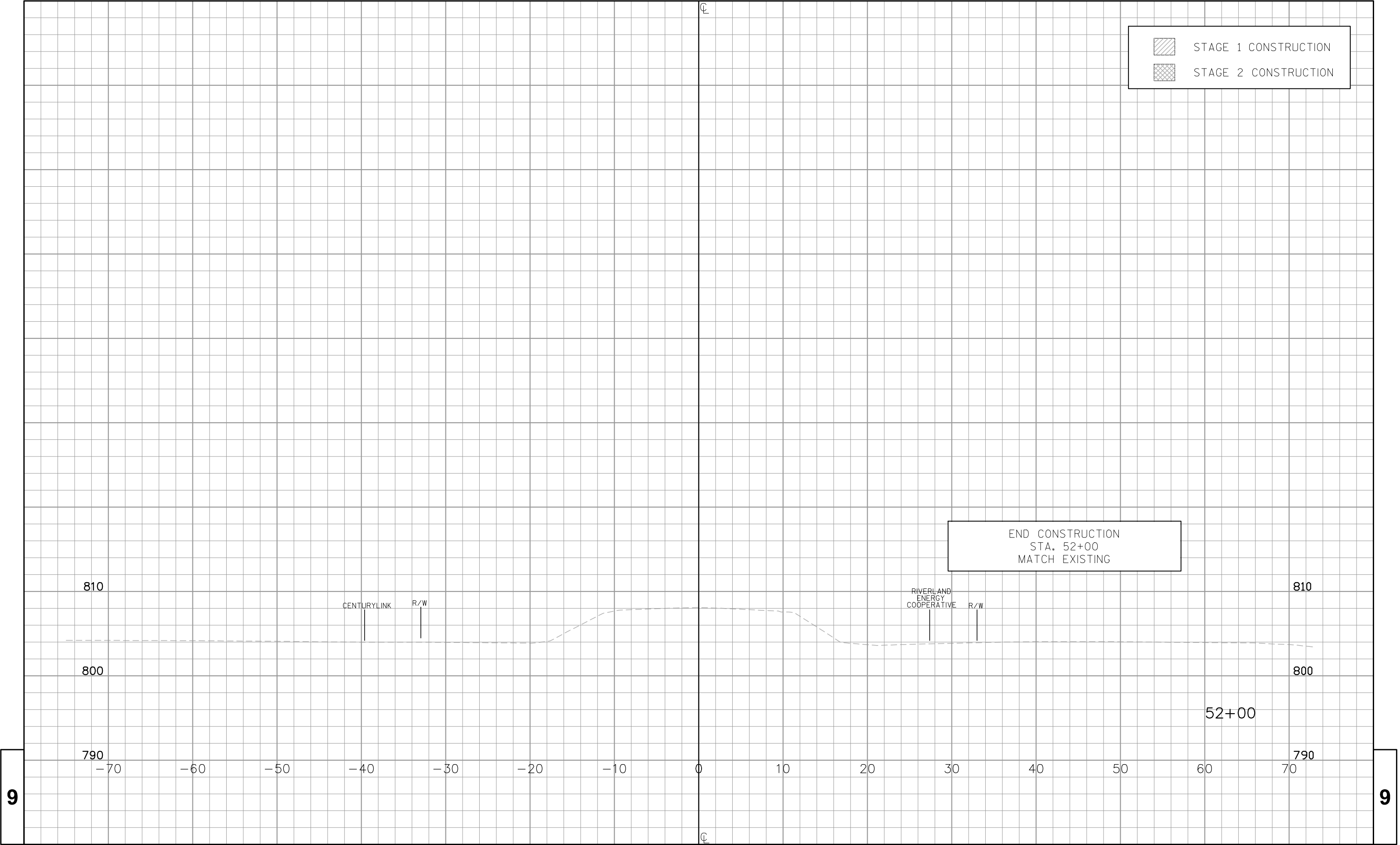




STAGE 1 CONSTRUCTION  
STAGE 2 CONSTRUCTION

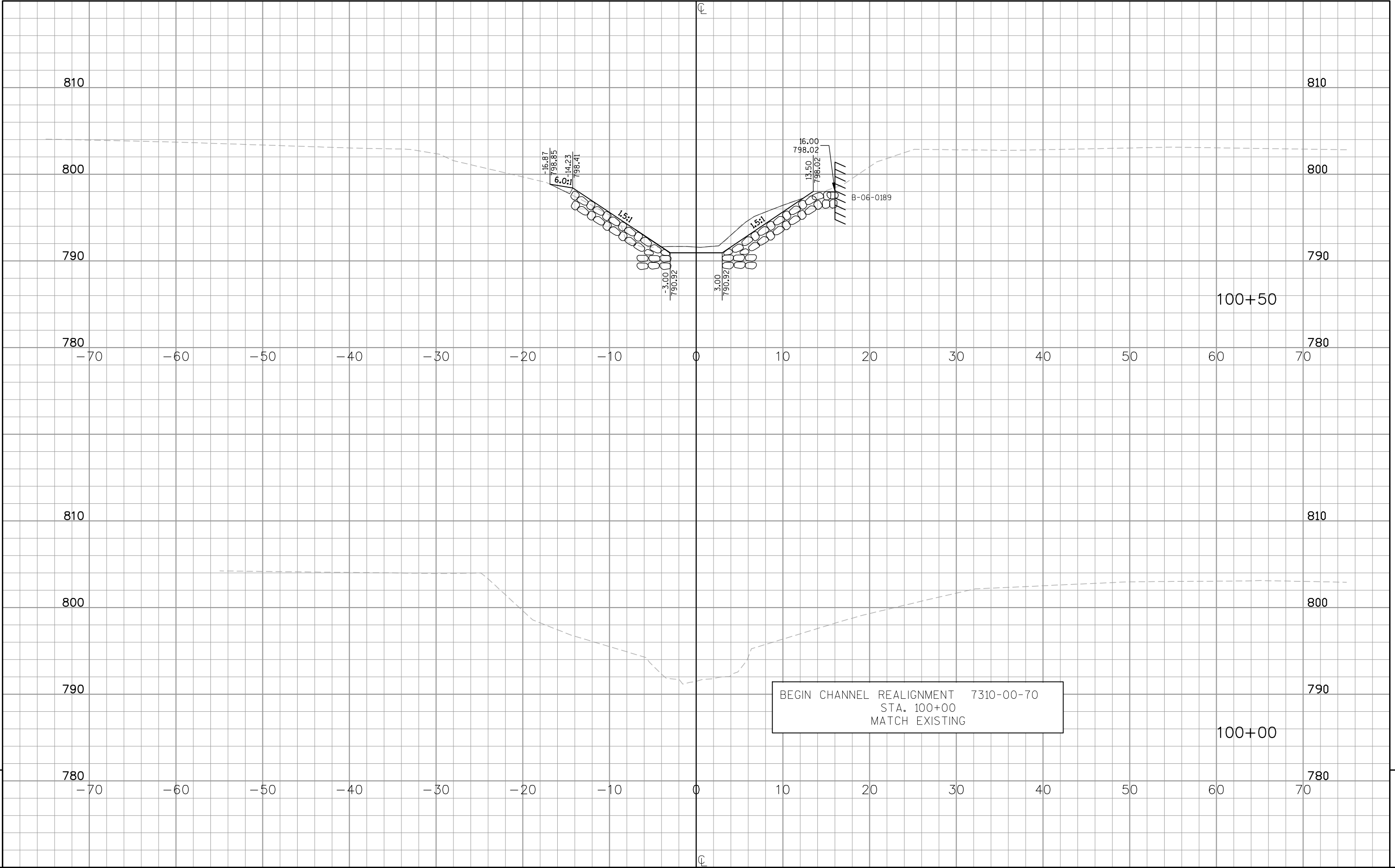
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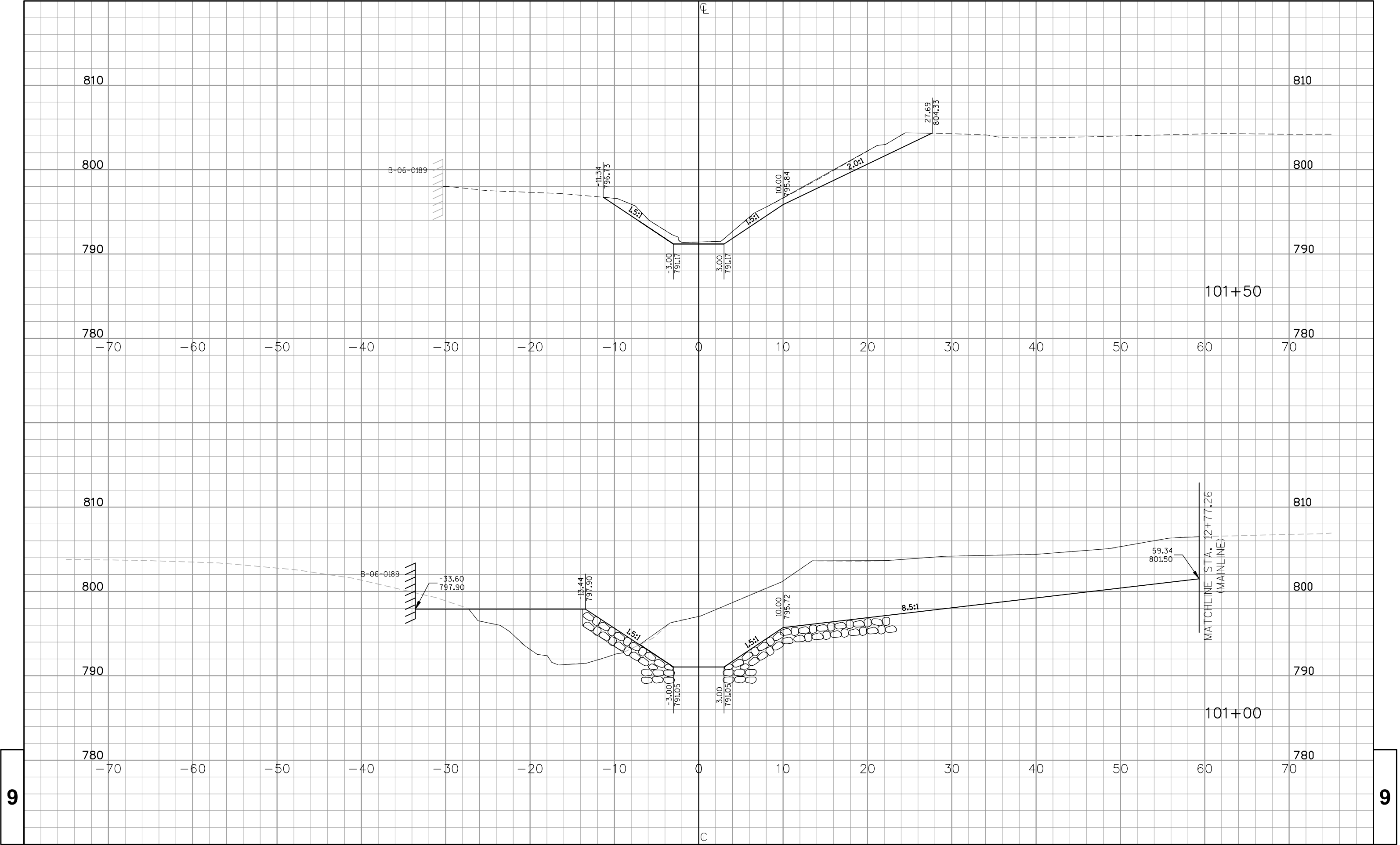
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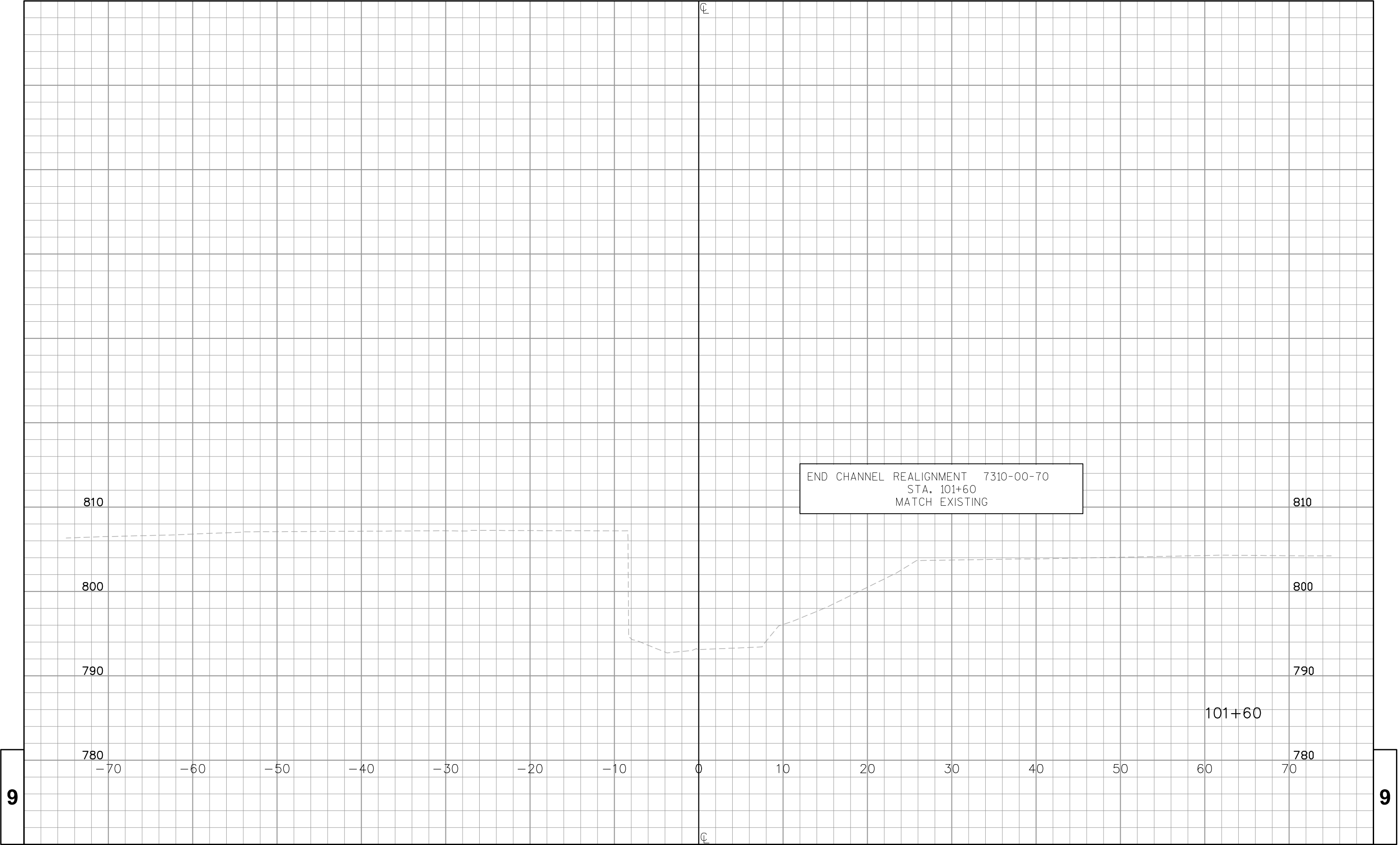


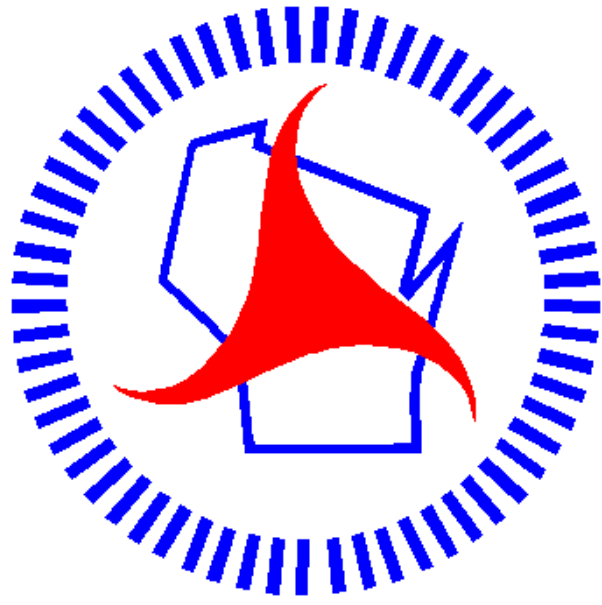
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|                        |            |                 |                       |       |   |
|------------------------|------------|-----------------|-----------------------|-------|---|
| PROJECT NO: 7310-00-70 | HWY: CTH C | COUNTY: BUFFALO | CROSS SECTIONS: CTH C | SHEET | E |
|------------------------|------------|-----------------|-----------------------|-------|---|

FILE NAME : S:\PROJECTS\K49010 CTH C BRIDGE, BUFFALO COUNTY\DESIGN\CORRIDORS\CORRIDOR-CTH C (40 MPH W 2-SPAN FLAT SLAB).DWG  
LAYOUT : MODEL  
PLOT DATE : 1/16/2015  
PLOT TIME : 2:26:15 PM  
PLOT BY : STRINE, THERESA  
PLOT SCALE : 1 IN:10 FT





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

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