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|-----------------------|----------------------------|-------------|---------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F1 | TOTAL SHEETS F75 |
|-----------------------|----------------------------|-------------|---------------------|

Plotting Date: 08/24/2015

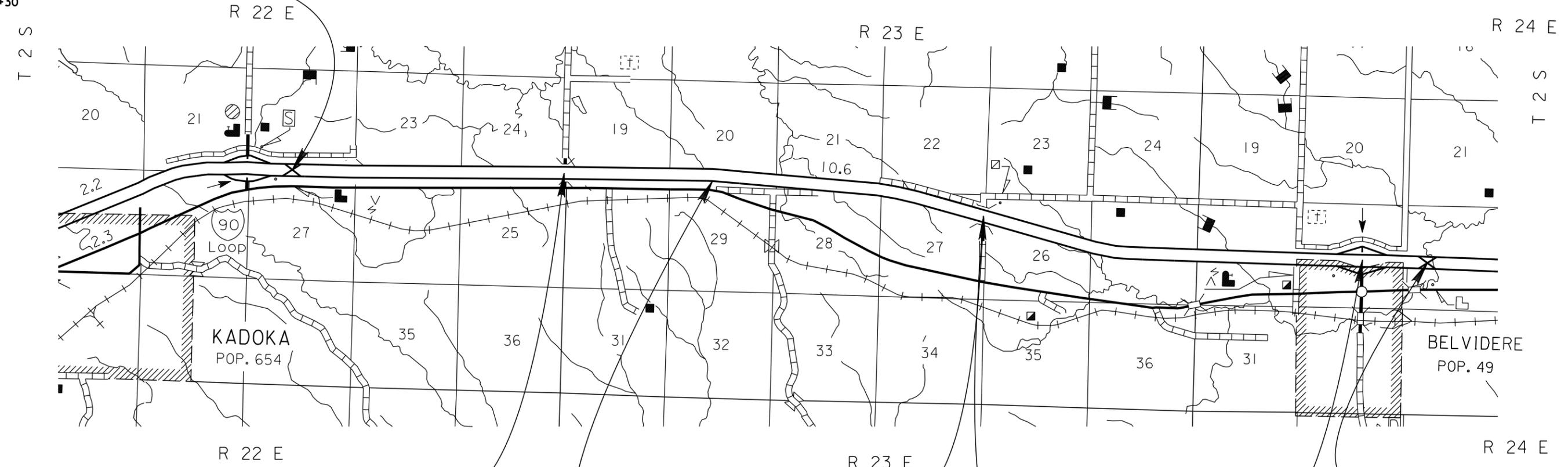
SECTION F: SURFACING PLANS

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BEGIN IM 0903(101)153
MRM 153.00+ 0.000 (EB Lanes)
Sta. 566+30



Continuous Concrete Bridge
Str. # 36-360-099
MRM 155.44

Continuous Concrete Bridge
Str. # 36-400-103
MRM 159.42

Continuous Concrete Bridge
Str. # 36-436-106
MRM 163.04

END IM 0903(101)153
MRM 163.00 +0.890 (EB Lanes)
Sta. b236+50

Equation:
Sta. a778+03.37 Bk.=
Sta. b778+35.27 Ah

Equation:
Sta. a905+10.17 Bk.=
Sta. b 0+00 Ah

PLOT SCALE - 1:15280

PLOTTED FROM - TRPR18387

PLOT NAME - 1

FILE - U:\MS\PR\1\JACK03\4\TITLE.F.DGN

RECLAIMED CONCRETE AGGREGATE

Recycled Portland cement concrete pavement (RCA) removed from within the project limits shall be crushed to a minus 2.5 inch size. Asphalt from the shoulders and from the asphalt patch areas shall be salvaged separately. All in place rebar shall be separated and removed from the RCA.

There is an estimated 55,939 tons of PCC Pavement on this project that can be crushed and reused. This quantity is based on a unit weight of 118 lbs. per cubic foot for the reclaimed concrete aggregate.

The Contractor shall dispose of the material (including existing rebar) not utilized on the project at a site approved by the Engineer.

Payment for the reclaimed concrete aggregate is included in the Select Topping Bid Item.

UNCLASSIFIED EXCAVATION, DIGOUTS

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation, Digouts for the necessary removal of unstable material on Exit 163.

The Contractor must ensure any water that collects in the digouts can escape the subgrade. The Contractor can accomplish this by ensuring the digouts daylight to the inslope or a drain tube is placed at the bottom of the digouts and the outlet is placed at the closest available point.

BACKFILLING OF DIGOUTS

Included in the Estimate of Quantities are 100 tons of Gravel Cushion, Salvaged and 1.2 Mgal of Water for Granular Material for backfilling of digouts of the existing surface at locations to be designated by the Engineer. Compaction of the Gravel Cushion, Salvaged for the digouts shall be to the satisfaction of the Engineer.

UNCLASSIFIED EXCAVATION

Unclassified Excavation quantity shall be as noted in the following table and includes the Excavation for Select Subgrade Topping (Undercut) quantity. Unclassified Excavation will not be measured for payment and the basis of payment will be plans quantity.

The Contractor shall utilize the excess material from the 1' Excavation for Select Subgrade Topping and Unclassified Excavation material for use in widening of acceleration and deceleration lane construction as required (see typical sections) and pipe related work. The Unclassified Excavation material shall be approved by the Engineer. The quantity of Unclassified Excavation is paid for once as Unclassified Excavation.

The outside shoulder inslope shall be at a 4:1 or flatter and the median shoulder inslope shall be at a 5:1 or flatter. Care shall be taken so that a minimum 4" depth of topsoil shall be placed over the entire disturbed area while proper drainage is maintained. Final acceptance of the inslopes will be at the discretion of the Engineer.

Payment is based on plans quantity for "Unclassified Excavation" in the following table.

TABLE OF UNCLASSIFIED EXCAVATION

| Station to Station | | Salvage and Stockpile Asphalt Mix & Granular Base Material (CuYd) | Salvage and Stockpile Granular Material (CuYd) | Select Subgrade Topping Exc (CuYd) | Waste (CuYd) | Total Unclassified Excavation (CuYd) |
|------------------------|-------------|--|---|---------------------------------------|-----------------|---|
| Mainline | | | | | | |
| 566+30.00 | 569+65.76 | 67 | 122 | 565 | 197 | 951 |
| 569+65.76 | 692+60.50 | 3,946 | 5,583 | 26,456 | 9,294 | 45,279 |
| 694+07.50 | 778+03.37 | 2,711 | 3,812 | 18,067 | 6,347 | 30,937 |
| * a 778+35.27 | a 904+39.84 | 4,049 | 5,723 | 27,123 | 9,528 | 55,190 |
| b 0+76.95 | b 190+29.77 | 6,077 | 10,075 | 41,177 | 14,327 | 71,656 |
| b 191+88.77 | b 233+13.91 | 1,283 | 4,256 | 9,490 | 3,118 | 18,147 |
| b 233+13.91 | b 236+50.00 | 67 | 122 | 565 | 197 | 951 |
| EB Ramp Detours | | | | | | |
| Off Ramp Detour | | 136 | --- | --- | 1,408 | 1,544 |
| On Ramp Detour | | 235 | --- | --- | 2,090 | 2,325 |
| Totals: | | 18,571 | 29,693 | 123,443 | 46,506 | 226,980 |

Mainline Unclassified Excavation quantity includes the granular materials to be salvaged for use on this project.

*Includes additional excavation for vertical curve adjustment.

TABLE OF WASTE

| Location | | | Volume – Select Subgrade Topping (Waste) (CuYd) | Volume - Waste (CuYd) |
|---------------------|----|-------------|--|--------------------------|
| Mainline | | | | |
| Station | to | Station | | |
| 566+30.00 | to | 569+65.76 | 283 | 197 |
| 569+65.76 | to | 692+60.50 | 13,228 | 9,294 |
| 694+07.50 | to | 778+03.37 | 9,034 | 6,347 |
| a 778+35.27 | to | a 904+39.84 | 13,562 | 9,528 |
| b 0+76.95 | to | b 169+78.75 | 18,184 | 14,327 |
| b 169+78.75 | to | b 179+60.49 | 1,252 | |
| b 179+60.49 | to | b 190+29.77 | 1,150 | |
| b 191+88.77 | to | b 203+00.41 | 1,196 | 3,118 |
| b 203+00.41 | to | b 221+50.74 | 2,298 | |
| b 221+50.74 | to | b 233+13.91 | 1,252 | |
| b 233+13.91 | to | b 236+50.00 | 283 | 197 |
| Totals: | | | 61,722 | 43,008 |
| Grand Total: | | | 104,730 | |

TABLE OF UNDERCUT (PLACEMENT)

| Locations | Volume (CuYd) | Water for Embankment MGal |
|--|------------------|------------------------------|
| Exit 163 EB Off Ramp Deceleration Lane | 184 | 2.4 |
| Exit 163 EB On Ramp Acceleration Lane | 992 | 12.8 |
| | 1,177 | 15.2 |

| | | | |
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Plotting Date: 09/10/2015
Revised 09-10-2015 LLA

SURFACING THICKNESS DIMENSIONS

Plans tonnage will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, plans tonnage may be varied to achieve the required elevation.

EXCAVATION FOR SELECT SUBGRADE TOPPING

After the existing PCCP and asphalt shoulders are removed, the existing base course shall be removed and stockpiled. The removed PCCP will be crushed to a minus 2.5 inch size. As the existing base course is lime treated, it may be necessary to crush it also to obtain the minus 2.5 inch material that is desired.

The exposed subgrade will be excavated to a depth of 1 foot below the top of the proposed subgrade. The top of the exposed subgrade soil will be scarified to a depth of 6 inches and recompact by the Specified Density Method. The salvaged PCCP and base course will be blended with one half of the excavated soil and used as "Select Subgrade Topping" to backfill the excavation. The blended backfill material will consist of a mix of approximately 50% excavated soil and approximately 50% salvaged PCCP surfacing and salvaged base course. The entire subgrade shall be constructed using this blended material.

A copy of the surfacing/subgrade investigation for this project is available from the Winner Area and the Pierre Region offices.

If any extremely soft or oversaturated subgrade is encountered during the excavation for select topping, contact the Geotechnical Engineering Activity for assistance with possible mitigation procedures.

It is anticipated that there will be approximately 104,730 CuYd of waste material (See Table of Waste).

Excavated material not required for the production of the "Select Subgrade Topping" shall be used for the construction of the Acceleration and Deceleration Lanes and Slope Flattening as directed by the Engineer. Material not used for this construction shall become the property of the Contractor.

The excess material may be disposed of in the State ROW to flatten inslopes as Undercut (Placement) as approved by the Engineer.

If waste material is disposed of in the State ROW, the removal and replacement of the topsoil and seeding shall be incidental to the contract unit price per cubic yard for "Unclassified Excavation".

Payment to remove the "Excavation for Select Subgrade Topping" estimated at 123,443 CuYd shall be paid for once as "Unclassified Excavation".

SELECT SUBGRADE TOPPING

Select Subgrade Topping shall be mixed using materials from the project including: ½ of the material from the Excavation for Select Topping, and all of the crushed PCC Pavement and the excavated Lime Treated Base Course.

“Select Subgrade Topping” shall be compacted with sheepsfoot or other approved rollers. Compaction shall be as per 260.3.C. Additional test strips will be made as required by changes in soil types. Moisture requirements will be determined in accordance with SD 104, except the optimum and field moisture will be determined using material passing a ¾ inch sieve.

Density testing will be performed a minimum of 1 per half mile per lift.

Moisture testing will be performed a minimum of 1 per day.

Field measurement of Select Subgrade Topping shall not be made and payment for Select Subgrade Topping will be based upon plans quantity unless changes are directed by the Engineer.

All costs associated with the crushing, mixing and placement of the “Select Subgrade Topping” material shall be incidental to the contract unit price per Cubic Yard for “Select Subgrade Topping”.

SALVAGE AND STOCKPILE ASPHALT MIX & GRANULAR BASE MATERIAL

Asphalt mix and granular base material shall be salvaged from the shoulders of the interstate mainline from Sta. 566+30 to Sta. b 236+50 and also from the EB Ramp Detours (See table below). Material from the EB Ramp Detours not used in the construction of the WB Ramp Detours will be stockpiled at Site 3962 - SE1/4 Section 27 T44N R33W, 5 miles south of Belvidere on SD63.(approx. 920 tons).

Plans quantity will be the basis of measurement and payment for the above mentioned work.

TABLE OF SALVAGE AND STOCKPILE ASPHALT MIX & GRANULAR BASE MATERIAL

| Location | Beginning Station | | Ending Station | Salvaged Asphalt Mix & Granular Base Material (ton) |
|-----------------|-------------------|----|----------------|---|
| Shoulders | 566+30.00 | to | 569+65.76 | 133.9 |
| Shoulders | 569+65.76 | to | 687+77.00 | 7,883.8 |
| Shoulders | 696+88.00 | to | 778+03.37 | 5,416.8 |
| Shoulders | a 778+35.27 | to | a 899+54.00 | 8,089.0 |
| Shoulders | b 3+54.00 | to | b 185+45.00 | 12,142.1 |
| Shoulders | b 194+75.00 | to | b 233+13.91 | 2,562.4 |
| Shoulders | b 233+13.91 | to | b 236+50.00 | 134.1 |
| | | | Subtotal: | 36,362.1 |
| EB Ramp Detours | | | | 3,246.9 |
| Total: | | | | 39,609.0 |

TABLE OF COLD MILLED ASPHALT MATERIAL

| Location of Removal Areas | Area of Milling (SqYd) |
|--|------------------------|
| Site 1 Sta. 566+30 to Sta. 569+50 | 853 |
| Site 2 Sta. 613+72 to Sta. 615+82 | 560 |
| Site 3 Sta. 619+15 to Sta. 620+45 | 347 |
| Site 4 Sta. 765+86 to Sta. 778+03.37 | 3,246 |
| Site 4 Sta. a 778+35.27 to Sta. a 781+71 | 895 |
| Site 5 Sta. b 80+30 to Sta. b 95+90 | 4,160 |
| Exit 163 Ramps | |
| EB Off Ramp D | 2,436 |
| EB On Ramp C | 2,422 |
| Total: | 14,919 |

* There are approximately 1,666 tons of Cold Milled Asphalt.

BLEND & STOCKPILE GRANULAR MATERIAL

Salvage and Stockpile Asphalt Mix Material estimated at 1,666 tons (for informational purposes only) shall be blended with 1,666 tons of Granular Material, Furnish and shall be blended and stockpiled at the contractor furnished stockpile site(s). A computerized scale along with a scale operator shall be provided by the Contractor at the stockpile site to weigh the salvaged material prior to blending.

Asphalt mix material shall be blended with Granular Material, Furnish at a rate of 50% salvaged asphalt mix material and 50% Granular Material, Furnish to obtain stockpile material. Prior to incorporation into the stockpile, cold milled asphalt material shall be run over a 1 ½” screen to remove large chunks. No further testing of the material will be required. The use of a pugmill to blend the materials will be accepted.

Calibrated conveyor(s) shall be used to provide a uniform blending of the materials. Material shall be blended prior to incorporation into the pile.

All other costs for hauling, stockpiling, and blending asphalt mix material and Granular Material, Furnish shall be incidental to the contract unit price per ton for “Blend and Stockpile Granular Material”.

An estimated 3,332 tons of blended material will be used on this project as Gravel Cushion, Salvaged.

GRANULAR MATERIAL, FURNISH

Granular Material shall be furnished by the Contractor for use in blending with the salvaged asphalt mix material from this project.

The Granular Material shall be Base Course meeting the requirements of Section 882.

GRAVEL CUSHION, SALVAGED

The Gravel Cushion, Salvaged shall be obtained from the stockpile site(s) provided by the Contractor from the blended and salvaged material and the Salvage and Stockpile Asphalt Mix and Granular Base Material produced on this project and may be used without further testing.

There are an estimated 36,362.1 tons of material available from the Salvage and Stockpile Asphalt Mix and Granular Base Material item for use as Gravel Cushion, Salvaged. Gravel Cushion, Salvaged shall be compacted according to the requirements of the Specifications.

There are an estimated 3,332 tons of material available from the Blend and Stockpile Granular Material item for use as Gravel Cushion, Salvaged. Gravel Cushion, Salvaged shall be compacted according to the requirements of the Specifications.

Gravel Cushion, Salvaged that remains after the final surfacing has been brought to the typical section may not be placed on the inslopes unless otherwise approved, and shall be disposed of by the Contractor at a site approved by the Engineer. The outside shoulder inslope shall be at a 4:1 or flatter and the median shoulder inslope shall be at a 5:1 or flatter. Care shall be taken so that a minimum 4" depth of topsoil shall be placed over the entire disturbed area while proper drainage is maintained.

Final acceptance of the inslopes will be at the discretion of the Engineer. If proper drainage cannot be obtained or the inslopes cannot be finished to the satisfaction of the Engineer, the Contractor will be required to remove the excess material to the satisfaction of the Engineer at no additional cost to the State.

The Contractor will be required to use all the Gravel Cushion, Salvaged on this project.

All other requirements for Gravel Cushion, Salvaged shall apply.

GRAVEL CUSHION, STATE FURNISHED

Granular material, estimated at 80,068 tons (for informational purposes) is stockpiled 1 mile west of Philip and ¾ miles south of Highway 14 (Part of the SW ¼ Sec. 22, T1n, R20E, Haakon County). The stockpiled material meets the requirements for Gravel Cushion and Base Course and may be used without further testing. The estimated stockpiled quantity includes the total amount available for both materials.

The Contractor is responsible to assure enough Base Course, State Furnished is reserved at the stockpile site as needed to construct the Base Course, State Furnished layers under the asphalt concrete shoulders, as shown in the typical sections. An estimated 43,930.0 tons of Base Course, State Furnished will be used on this project. The remaining stockpiled material estimated at 36,136.4 tons will be used on this project as Gravel Cushion, State Furnished.

The Gravel Cushion, State Furnished is royalty free to the Contractor.

All other requirements for Gravel Cushion shall apply.

SALVAGED MATERIAL

The Contractor will be required to use all the Gravel Cushion, Salvaged and Gravel Cushion, State Furnished on this project as directed by the Engineer.

| | | | |
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Revised 08-20-2015 LLA

GRAVEL CUSHION

The Contractor will be required to use all the Gravel Cushion, Salvaged and Gravel Cushion, State Furnished on this project by decreasing or increasing the quantity of Gravel Cushion necessary, or as directed by the Engineer.

Included in the Estimate of Quantities are 19,700.2 tons of virgin Gravel Cushion.

TABLE OF GRAVEL CUSHION

| | |
|---------------------------------------|----------|
| Gravel Cushion, State Furnished | 36,136.4 |
| Gravel Cushion, Salvaged | 36,362.1 |
| Blended Granular Material | 3,332.0 |
| Virgin Gravel Cushion Material Needed | 19,700.2 |
| Total Gravel Cushion for Project | 95,530.7 |

BASE COURSE, STATE FURNISHED

Granular material, estimated at 80,068 tons (for informational purposes) is stockpiled 1 mile west of Philip and ¾ miles south of Highway 14 (Part of the SW ¼ Sec. 22, T1n, R20E, Haakon County). The stockpiled material meets the requirements for Gravel Cushion and Base Course and may be used without further testing. The estimated stockpiled quantity includes the total amount available for both materials.

The Contractor is responsible to assure enough Base Course, State Furnished is reserved at the stockpile site as needed to construct the Base Course, State Furnished layers under the asphalt concrete shoulders, as shown in the typical sections. An estimated 43,930.0 tons of Base Course, State Furnished will be used on this project. The remaining stockpiled material estimated at 36,136.4 tons will be used on this project as Gravel Cushion, State Furnished.

The Base Course, State Furnished is royalty free to the Contractor.

Base Course, State Furnished shall be placed and compacted according to the requirements of Section 260.3.B of the Specifications.

It is anticipated that all Base Course, State Furnished material will be utilized in the construction of this project. However, if any Base Course, State Furnished remains after the final surfacing has been brought to the typical section, it may not be placed on the inslopes unless otherwise approved, and shall be disposed of by the Contractor at a site approved by the Engineer. The outside shoulder inslope shall be at a 4:1 or flatter and the median shoulder inslope shall be at a 5:1 or flatter. Care shall be taken so that a minimum 4" depth of topsoil shall be placed over the entire disturbed area while proper drainage is maintained. Final acceptance of the inslopes will be at the discretion of the Engineer. If proper drainage cannot be obtained or the inslopes cannot be finished to the satisfaction of the Engineer, the Contractor will be required to remove the excess material to the satisfaction of the Engineer at no additional cost to the State.

All other requirements for Base Course shall apply.

BASE COURSE, SALVAGED

Base Course, Salvaged shall be obtained from the stockpile site(s) provided by the Contractor from the material salvaged from the EB Ramp Detours and may be used without further testing.

There are an estimated 2,331.5 tons of material available from the salvage of EB Ramp Detours.

Base Course, Salvaged shall be placed and compacted according to the requirements of Section 260.3.D of the Specifications.

Material from the EB Ramp Detours not used in the construction of the WB Ramp Detours will be stockpiled at Site 3962 - SE1/4 Section 27 T44N R33W, 5 miles south of Belvidere on SD63.(approx. 920 tons).

All other requirements for Base Course, Salvaged shall apply.

CONSTRUCTION HAUL ROAD

Included in the Estimate of Quantities are 1,000 tons of Gravel Cushion, Salvaged per mile, and 12 MGal of Water for Granular Material per mile for the purpose of haul road construction. The use of this material will be at the discretion of the Contractor. Any additional construction and removal for the construction haul road shall be the Contractors responsibility. The Contractor shall receive no additional compensation for this work.

TRIM MATERIAL

Material removed during the trimming operation shall be either hauled ahead to be placed on the grade or hauled from the roadbed. Material hauled from the roadbed may be placed on shoulders after completion of the Non-Reinforced Concrete Pavement. No additional payment will be made for handling, stockpiling, processing, or placement of trim material. Water added by road mix or plant mix methods will be paid at the contract unit price per MGal for Water for Granular Material.

SHOULDER SHAPING

Prior to paving the asphalt shoulders, the Contractor shall remove all granular material generated from trimming and the Construction Haul Road to a separate stockpile site as directed by the Engineer. This material may be reused as Base Course, Salvaged at the discretion of the Engineer.

After removal of the material and prior to placing the Base Course, State Furnished, the existing base course on the shoulders shall be reshaped and compacted according to 260.3.D. Care shall be taken when reshaping the shoulders so that the edge drains, geotextile fabric, and Edge Drain Outlets that are in place will not be damaged.

Repair of edge drain, geotextile fabric and Edge Drain Outlets damage caused by this work shall be paid for by the Contractor.

After Shoulder Shaping is completed the granular material shall be placed as specified in the Base Course, Salvaged Plan Note.

Included in the Estimate of Quantities are 21.5 miles of Shoulder Shaping for both driving and passing lane shoulders. There are 10.8 miles of Median Shoulder Shaping and 10.7 miles of Outside Shoulder Shaping.

Included in the Estimate of Quantities is 10.7 MGal of Water for Granular Material per mile for Median Shoulders and 13.7 Mgal of Water per mile for Outside Shoulders for compaction of granular material associated with Shoulder Shaping.

All costs associated with removing, hauling & stockpiling the granular material shall be incidental to the contract unit price per mile bid for "Shoulder Shaping".

VERTICAL CURVE ADJUSTMENT

The vertical curve between Sta. a 883+52 and Sta. a 904+59 must be corrected to meet SDDOT design standards for 80 mph stopping sight distance. The Contractor shall create a vertical profile in accordance with the Special Provision for Contractor Staking to be reviewed by the Engineer.

Vertical curve information includes PVI = Sta. a 893+41, Elev. = 2473.33', and Length = 1904.00'.

The amount of additional embankment excavation between Sta. a 883+89 to Sta. a 902+93 will be approximately 8,767 cubic yards. This includes the roadway section, shoulders and ditch sections. The maximum depth the roadway will be lowered will be 2.25' tapering back to the existing grade at either end of the cut. There will also be some additional erosion control involved with the lowering of this vertical curve (approximately 2.5 acres). See Section X Cross Sections for more information.

CLASS HR ASPHALT CONCRETE

Virgin mineral aggregate for Class HR Asphalt Concrete Alternate A shall conform to the requirements for Class E, Type 1.

Virgin mineral aggregate for Class HR Asphalt Concrete Alternate B shall consist of a minimum of 80 percent crushed limestone ledgerock and shall conform to the requirements for Class E, Type 1.

Salvaged asphalt concrete material (RAP) shall be obtained from the stockpile located in the in the Kadoka Maintenance Yard - NW1/4-Sec 32-T2S-R22E Jackson County and may be used without further quality testing. The RAP has been stockpiled since the summer of 2011. RAP in the cold feed shall be crushed to meet the requirements specified in Section 884.2.C.1.

Screening or scalping of the RAP stockpile(s) will not be allowed.

The RAP material is royalty free to the Contractor.

The Class HR Asphalt Concrete shall include 30 percent RAP in the mixture. Job mix formula tolerances for the RAP shall be ± 5 % from the target value.

All other requirements for Class HR shall apply.

SUMMARY OF CLASS HR ASPHALT CONCRETE - ALTERNATE A

| Class HR Asphalt Concrete Location | With Specified Density Compaction (Tons) | Without Specified Density Compaction (Tons) |
|-------------------------------------|--|---|
| 8' EBL Outside Shoulder - 3" Lift | 9,137.0 | --- |
| 6' EBL Outside Shoulder - 3" Lift | 283.1 | --- |
| 4' EBL Median Shoulder - 3" Lift | 4,999.0 | --- |
| Exit 163 Ramps C & D | 435.1 | --- |
| Additional Embankment for Guardrail | --- | 40.9 |
| Exit 163 WB Off Ramp Detour | 376.7 | --- |
| Exit 163 WB On Ramp Detour | 538.8 | --- |
| Totals: | 15,769.7 | 40.9 |

SUMMARY OF CLASS HR ASPHALT CONCRETE – ALTERNATE B

| Class HR Asphalt Concrete Location | With Specified Density Compaction (Tons) | Without Specified Density Compaction (Tons) |
|-------------------------------------|--|---|
| 8' EBL Outside Shoulder - 3" Lift | 9,481.2 | --- |
| 6' EBL Outside Shoulder - 3" Lift | 290.7 | --- |
| 4' EBL Median Shoulder - 3" Lift | 5,128.4 | --- |
| Exit 163 Ramps C & D | 446.8 | --- |
| Additional Embankment for Guardrail | --- | 41.9 |
| Exit 163 WB Off Ramp Detour | 386.9 | --- |
| Exit 163 WB On Ramp Detour | 553.3 | --- |
| Totals: | 16,287.3 | 41.9 |

OVERWIDTH DETOUR ROUTE – SD 248

The Contractor shall be responsible for maintaining the surface at its current condition throughout the length and duration of the project to the satisfaction of the Engineer. The estimate includes 12,500 tons of Asphalt Concrete Composite, to be used for maintenance of the overwidth detour route. Locations for repair will be determined by the Engineer.

SUMMARY OF ASPHALT CONCRETE COMPOSITE

| Location | Asphalt Concrete Composite (Tons) |
|---------------------------------|-----------------------------------|
| Overwidth Detour Route – SD 248 | 12,500 |
| Total: | 12,500 |

LOCATION OF CONCRETE PAVEMENT JOINTS

The location of joints, as shown on the "PCC Pavement Layout" sheets, are only approximate locations to be used as a guide in the final location of joints and to afford bidders a basis for estimating the construction costs of the joints. The final locations of the joints are to be designated by the Engineer during construction.

TRANSVERSE CONTRACTION JOINTS

See Standard Plates 380.01 and 380.03 for placement of Dowel Bars. The 9 bar baskets shall be used in the Passing Lane only and the 12 bar baskets shall be used in the Driving Lane and Ramp Areas. See Standard Plates for joint spacing of 10.5" Nonreinforced PCC Pavement.

ALKALI SILICA REACTIVITY

Fine aggregate shall conform to Section 800.2 D. Alkali Silica Reactivity (ASR) Requirements of the Specifications.

Below is a list of known fine aggregate sources and the average corresponding 14 day expansion values:

| Source | Location | Expansion Value |
|--------------------------------|------------------------|-----------------|
| Bachman | Winner, SD | 0.335* |
| Bitterman | Delmont, SD | 0.316* |
| Concrete Materials | Corson, SD | 0.170 |
| Croell | Hot Springs, SD | 0.089 |
| Croell | Wasta, SD | 0.212 |
| Emme Sand & Gravel | Oneil, NE | 0.217 |
| Fisher S&G – Mickelson Pit | E. of Nisland, SD | 0.129 |
| Fisher S&G - Vallery Pit | Nisland, SD | 0.110 |
| Fisher S&G | Rapid City, SD | 0.092 |
| Fisher S&G | Spearfish, SD | 0.053 |
| Fisher S&G | Wasta, SD | 0.159 |
| Fuchs | Pickstown, SD | 0.275* |
| Higman | Akron, IA | 0.203 |
| Higman | Hudson, SD | 0.187 |
| Hilde | Madison, SD | 0.116 |
| Jensen | Herried, SD | 0.276* |
| L.G. Everist | Brookings, SD | 0.186 |
| L.G. Everist | Hawarden, IA | 0.166 |
| L.G. Everist | Summit, SD | 0.178 |
| Morris | Blunt, SD | 0.192 |
| Morris - Richards Pit | Onida, SD | 0.188 |
| Myrl & Roys – Ode Pit | E Sioux Falls, SD | 0.214 |
| Myrl & Roys - Nelson Pit | NE Sioux Falls, SD | 0.156 |
| Northern Concrete Agg. | Rauville, SD | 0.113 |
| Northern Concrete Agg. | Luverne, MN | 0.133 |
| Opperman - Gunvordahl Pit | Burke, SD | 0.362* |
| Opperman - Cahoy Pit | Herrick, SD | 0.307* |
| Opperman - Jones Pit | Burke, SD | 0.321* |
| Opperman - Randall Pit | Pickstown, SD | 0.239 |
| Pete Lien & Sons | Creston, SD | 0.158 |
| Pete Lien & Sons | Oral, SD | 0.129 |
| Pete Lien & Sons | Wasta, SD | 0.192 |
| Thorpe Pit | Britton, SD | 0.098 |
| Wagner Building Supplies | Pickstown (Wagner), SD | 0.241 |
| Winter Brothers- Whitehead Pit | Brookings, SD | 0.197 |

* These sources will require Type V cement in the concrete mix design and Class F (Modified) fly ash as specified.

The Department will use the running average of the last three known expansion test results or less for determining acceptability of source and the required Type of cement. These expansion results are reported in the preceding table. Additional testing, when requested by the Contractor, will be performed by the Department at the Contractor's expense.

The values listed in the table are intended for use in bidding. If a previously tested pit by SDDOT with acceptable test values (less than 0.250) is discovered after letting to require Type V cement (greater than 0.250) the Department will accept financial responsibility for the change from Type II to Type V cement.

Type II or Type V cement will not change the requirement for the fly ash. The cost for either type of cement shall be subsidiary to the contract item.

| | | | |
|-----------------------|----------------------------|-------------|---------------------|
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8" & 10.5" NONREINFORCED CONCRETE PAVEMENT

The fine aggregate shall be screened over a 1 inch square opening screen just prior to introduction into the concrete paving mix. The Contractor will screen all of the aggregate to prevent the incorporation of foreign materials (i.e.: mud balls) into the concrete mix.

The concrete mix shall conform to the special provision for Contractor Furnished Mix Design for PCC Pavement.

There will be no direct payment for trimming of the Gravel Cushion for PCC pavement. The trimming will be considered incidental to the related items required for PCC Pavement. Trimming shall be performed as required by Section 380.3 C. of the Specifications.

A construction joint will be sawed whenever new concrete pavement is placed adjacent to existing concrete pavement.

The transverse contraction joints shall be perpendicular to the centerline as detailed in the standard plates 380.01 and 380.08. In multilane areas the transverse contraction joints shall be perpendicular to the centerline and be in a straight line across the width of the pavement. In special situations the Engineer may pre-approve transverse contraction joints that do not meet these requirements. All nonconforming transverse contraction joints that are not pre-approved shall be removed at the Contractor's expense. Any method of placement that cannot produce these requirements shall not be allowed to continue.

The surface of the mainline paving shall be longitudinally tined. All other areas shall be tined as directed by the Engineer.

The following locations will be tested for smoothness in accordance with the special provision for IRI PCC Pavement Smoothness:

I 90 - Sta. 566+30 to Sta. b 236+50 through Equations (Driving and Passing Lanes)

The following locations shall be tested for smoothness with a Contractor furnished and operated 25 foot California style profilograph in accordance with the Special Provision for PI PCC Pavement Smoothness with 0.2" Blanking Band:

Exit 163 Off Ramp Deceleration Lane
Exit 163 On Ramp Acceleration Lane

Plot Scale - 1:200

Plotted From - tpr18387

File - ...ms\p\j\ack03\W\Notes\sect.dgn

TABLE OF 10.5" NONREINFORCED PCC PAVEMENT & PCC SHOULDER PAVEMENT

| Location | | | NONREINFORCED PCC PAVEMENT |
|---|----|-------------|----------------------------|
| Sta. | to | Sta. | (SqYd) |
| 10.5" Mainline PCC | | | |
| 566+30.00 | to | 692+60.50 | 36,488.0 |
| 694+07.50 | to | 778+03.37 | 24,254.7 |
| a 778+35.27 | to | a 904+39.84 | 36,413.1 |
| b 0+76.95 | to | b 190+29.77 | 54,752.5 |
| b 191+88.77 | to | b 236+50.00 | 12,888.0 |
| I-90 Ramp Gore Areas | | | |
| b 169+78.75 | to | b 179+60.49 | 1,602.1 |
| b 203+00.41 | to | b 221+50.74 | 2,444.0 |
| PCC Shoulder Pavement - 8" Concrete shoulders at Bridge Ends | | | |
| 687+60.50 | to | 692+60.50 | 666.7 |
| 694+07.50 | to | 697+07.50 | 400.0 |
| a 899+39.84 | to | a 904+39.84 | 666.7 |
| b 0+76.95 | to | b 3+76.95 | 400.0 |
| b 185+29.77 | to | b 190+29.77 | 666.7 |
| b 191+88.77 | to | b 194+88.77 | 400.0 |
| Total: | | | 172,042.3 |

See Special Details for placement of PCC Pavement Rumble Strips.

PCC OUTSIDE SHOULDER RUMBLE STRIPS

Rumble Strips for the outside shoulder shall be constructed as per Special Detail. Payment for grinding rumble strips, on the outside shoulder, including labor, materials and incidentals shall be incidental to the contract unit price per mile for "GRIND 12" RUMBLE STRIP OR STRIPE IN PCC PAVEMENT". It is estimated that 10.3 miles of PCC rumble strip will be required for the outside shoulder.

AC MEDIAN SHOULDER RUMBLE STRIPS

Rumble Strips for the median shoulder shall be constructed as per Special Detail. Payment for grinding rumble strips, on the median shoulder, including labor, materials and incidentals shall be incidental to the contract unit price per mile for "GRIND 12" RUMBLE STRIP OR STRIPE IN ASPHALT CONCRETE". It is estimated that 10.3 miles of asphalt concrete rumble strip will be required for the median shoulder.

PCC PAVEMENT RUMBLE STRIPS, for information only

| Location | PCCP Rumble Strips mile |
|------------------|----------------------------|
| Outside Shoulder | 10.3 |

TABLE OF DOWEL BARS

| Location | 1 1/2" Bars |
|--|-------------|
| Mainline | |
| Bars in Mainline Driving Lane - 12 bar | 35,113 |
| Bars in Mainline Passing Lane - 9 bar | 26,335 |
| I-90 Gore Areas | |
| Exit 163 Off Ramp Gore Area | 800 |
| Exit 163 On Ramp Gore Area | 1,262 |
| Total Dowel Bars: | 63,510 |

RAMP DETOURS

Ramp detours shall be constructed according to the layouts provided in these plans.

The maximum horizontal degree of curve shall be 6°45' and the vertical alignment shall be constructed to provide adequate stopping sight distance. The Engineer shall have final approval of the horizontal and vertical alignment of the ramp.

Existing drainage impacted by the ramp detours shall be addressed. The Contractor shall be responsible for sizing the pipes if pipes are necessary to drain the water under the ramp detours. The Contractor shall provide sloped end sections for all 30-inch and smaller diameter pipe used in ramp detours. If the Contractor provides 36-inch or larger diameter pipe in the ramp detours, then the pipe shall be extended to a minimum of 30 feet from the nearest edge of traveled lane or farther due to higher fill sections. All costs for pipe, pipe end sections, and other costs associated with the temporary modification of existing drainage shall be incidental to the various contract items needed to construct the ramp detours.

Material quantities necessary for constructing the ramp detours are as specified in the tables, ramp detour sections, and layouts.

The EB ramp detours at Exit 163 shall be removed at the conclusion of this project and the granular material shall be reused for the construction of the WB ramp detours. The materials for this construction are in the Table of Ramp Detours. The pit run material shown in the table will be a combination of salvaged and virgin material. If Non-Woven Geotextile Separator was used to construct the EB ramp detours, this used material when removed from the EB ramps shall become the property of the Contractor.

NON-WOVEN GEOTEXTILE SEPARATOR FABRIC

Non-woven Geotextile Separator Fabric has been included in the bid items for the ramp detours. This fabric is to be used as a separator between the in place Pit Run and the Base Course or Base Course, Salvaged material to prevent migration of fines from the Base Course or Base Course, Salvaged into the Pit Run. If the Pit Run Material contains enough fines as placed to prevent the loss of material from the Base Course or Base Course, Salvaged, the separator fabric may be eliminated by CCO. Nonwoven Geotextile Separator Fabric will conform to Section 831, of the Specifications.

TABLE OF NON-WOVEN GEOTEXTILE SEPARATOR

| Location | Non-woven Geotextile Separator SqYds |
|------------------------|---|
| Exit 163 – EB off Ramp | 1,761 |
| Exit 163 – EB on Ramp | 2,466 |
| TOTAL | 4,227 |

REMOVE AND RESET CROSSOVER CLOSURES

The median crossover closures at Sta. 566+30 (estimated at 224') and Sta. b 236+50 (estimated at 224') shall be removed for reset and then reset when traffic is no longer being carried on the crossovers. The 2 ramp interim crossover closures at Exit 163 (total estimated at 256') shall be removed for reset and then reset on the WB ramp detours at the conclusion of this project. The crossover closures shall be constructed according to details on Standard Plates 629.40 and 629.41.

TABLE OF CROSSOVER CLOSURES

| Location | Crossover Closure Ft | Interim Crossover Closure Ft |
|--------------------------|-------------------------|---------------------------------|
| Median Crossovers | | |
| MRM 153.00 | 224 | |
| MRM 163.89 | 224 | |
| Ramp Detours | | |
| Exit 163 – EB off Ramp | | 128 |
| Exit 163 – EB on Ramp | | 128 |
| Totals | 448 | 256 |

REMOVE AND RESET DELINEATORS

4" x 4" delineators shall be removed from the EB ramp detours and reset on the WB ramp detours. The delineators shall be constructed according to the details and ramp detour layout sheets.

TABLE OF DELINEATORS

| Location | Amber Delineators each | White Delineators each |
|------------------------|---------------------------|---------------------------|
| Exit 163 – EB Off Ramp | 12 | 6 |
| Exit 163 – EB On Ramp | 14 | 6 |
| TOTAL | 26 | 12 |

CULVERTS

The Contractor shall verify the pipe sizes prior to ordering material.

CULVERT CLEANOUT

Material in all existing culverts shall be cleaned out by water flushing or other approved methods.

It is the responsibility of the Contractor to visit the site to determine the extent of culvert cleaning work required.

Cost for this work shall be incidental to the contract unit price per each for "Cleanout Pipe Culvert".

The Contractor shall implement appropriate sediment control measures prior to water flushing in order to prevent discharges from project boundaries to comply with the Storm Water Permit.

REPROFILING DITCH

Reshaping and clearing is needed in the existing median ditch and south ditch to accommodate appropriate drainage. Longitudinal slopes must be 10:1 or flatter adjacent to reprofiling locations. This work shall be done to the satisfaction of the Engineer. All costs associated with clearing and reshaping of the existing median ditch and south ditch, including labor, excavation, equipment, and incidentals shall be paid for by the station at the contract unit price for Reprofiling Ditch. All work will be within the state's ROW. See the Table of Pipe Work for locations.

TYPE III FIELD LABORATORY

Substitution of a cellular telephone for the hard-wired touch-tone telephone is not allowed, as state personnel need the ability to download information over direct phone lines. The phone is intended for state personnel usage only. Contractor personnel are prohibited from using this phone unless pre-approved by the Project Engineer. It is the responsibility of the Contractor to contact the local telecommunications company prior to bidding to ensure the plant site area where the lab will be placed is able to have a hard wired phone connection.

The lab shall be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection shall be provided with a multi-port wireless router. The internet connection shall be a minimum speed of 512 Kb unless limited by job location and approved by the DOT. Prior to installing the wireless router the Contractor shall submit the wireless router's technical data to the Area Office to check for compatibility with the state's computer equipment. The internet connection is intended for state personnel usage only. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer.

The Contractor shall submit a copy of each monthly bill for calls charged to this phone at the completion of the project. The Project Engineer will then audit the bills to ensure all calls are legitimate and then initiate a Construction Change Order (CCO) to reimburse the Contractor for the actual phone calls made, including local and long distance calls. Reimbursement will not be made for fees associated with the purchase, installation, disconnection, monthly line charges, and incidentals involved in the installation, maintenance, and disconnection of the phone (including attachments). These items shall be incidental to the contract unit price per each for "Type III Field Laboratory".

In addition to the specifications for TYPE III FIELD LABORATORY, an extra thermostatically controlled oven shall be supplied for Testing Room II of the Laboratory.

MAINTENANCE OF DRAINAGE

All earthwork shall be completed in such a manner that drainage is continuous throughout the project. The Contractor shall coordinate embankment operations and pipe installations so that drainage is continuous, but does not damage new or existing grading sections. If necessary, temporary pipe, temporary connections, plugs, and channels may be used to avoid damage to new or existing grade or partial omission of permanent drainage features may be required. In addition, permanent drainage features may need to be installed in phases to match sequencing. The cost to install, maintain, and remove temporary items and any incidentals necessary for partial installations of permanent drainage features shall be incidental to the various pipe bid items.

INCIDENTAL WORK

The Contractor will verify all maintenance crossovers and ditch blocks have the correct inslopes, 10:1 with no culvert and 6:1 with longitudinal culvert. The Contractor shall reshape all maintenance crossovers and ditch blocks not in compliance with Specifications. See standard plates. The Contractor will ensure proper drainage to all transverse culverts. The inslope for maintenance crossovers and ditch blocks with transverse culverts located adjacent to them will be 10:1.

Costs for this work including materials shall be incidental to the contract lump sum price for "Incidental Work".

CORRUGATED METAL PIPE

Corrugated metal pipes shall have 2 3/8-inch X 1/2-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans. Corrugated metal pipes shall have 3-inch X 1-inch or 5-inch X 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

The soils within the project area are highly corrosive to steel. Corrugated metal pipe in these areas are specified in the Table of Pipe Quantities and the pipe shall be 14 gauge steel. Corrugated metal pipe in these areas including the connection bands, elbows and transitions shall be polymer coated and shall be in conformance with AASHTO M245 and AASHTO M36. The connection bands shall be 24 inches wide.

All damage to the polymer coating shall be repaired in accordance with the manufacturer's recommendations prior to installation of the pipe.

All costs associated with the polymer coating including repair of polymer coating shall be incidental to the corresponding CMP bid items.

Metal pipe end sections connected to polymer coated CMP shall be aluminum-coated (Type 2) in accordance with AASHTO M36 as specified in the Table of Pipe Quantities. All costs associated for gauge, coating, and connections shall be incidental to the corresponding CMP End Section bid items

PIPE FOR DOWNSPOUTS

Class II reinforced concrete pipe, high density polyethylene pipe, corrugated polypropylene pipe, or steel reinforced polyethylene pipe may be substituted for corrugated metal pipe at no additional cost to the State.

If corrugated metal pipes are provided, the pipes shall be as specified in the CORRUGATED METAL PIPE note.

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|-----------------------|-----------------|-------|--------------|
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High density polyethylene pipe may be substituted for 36 inch and smaller pipe downspouts at no additional cost to the State. All necessary connections, transitions, and anchoring methods shall be in accordance with the manufacturer's recommendations and be approved by the Engineer. Bedding and backfill material and installation procedures shall conform to the manufacturer's design requirements.

Acceptance of polyethylene and polypropylene pipes will be by certification.

If high density polyethylene pipe, corrugated polypropylene pipe, or steel reinforced polyethylene pipe are provided, then the end sections shall be metal, be compatible, and conform to the type of end section as shown in the plans.

2' DEEP EDGE DRAINS

At least two weeks prior to installation of the edge drain, a manufacturer's certification of material specification compliance shall be submitted to the Engineer.

The Geotextile shall be a Type A Drainage Fabric conforming to the requirements of Section 831 of the Specifications and located as shown on the plans and in accordance with the manufacturer's recommendations. Fabric will be placed no higher than 2' from the top of the trench. The top 2 inches of the trench shall be filled with Gravel Cushion, Salvaged or Gravel Cushion, State Furnished.

Two weeks prior to beginning installation, the Contractor shall furnish the Engineer with copies of the manufacturer's literature with details, specifications, and installation requirements for edge drain and outlet pipe. In addition, the Contractor shall provide information on the type of trenching equipment to be used and the proposed procedure for installation of the edge drain and outlets. Installation of edge drain and edge drain outlets, and excavation and backfill of trenches shall be in accordance with the details shown on the plans, as specified herein, and in accordance with the manufacturer's recommendations.

Each segment of edge drain shall be spliced to the adjacent segment in accordance with manufacturer's recommendations prior to installation, kept in proper alignment, and not allowed to separate during installation. The porous backfill shall be placed to the depth indicated in the edge drain details and shall be compacted by a vibratory compactor or other means, satisfactory to the Engineer, which does not result in damage to the edge drain pipe.

The Acceptance Testing Frequency for the Porous Backfill shall be a minimum of 1 per 250 tons. The Project Engineer may reduce the testing frequency to 1 per 2000 tons after the first three passing tests provided the source remains the same and provided there is no apparent change in the properties of the material. If observations by the Project Engineer cause concern that specifications compliance is questionable, he may return to the 1 per 250 ton frequency.

Trenches for outlets shall be excavated to the lines and grades shown on the plans or as directed by the Engineer and shall be backfilled with fill material. The fill material shall be placed to the depth indicated in the edge drain details and shall be compacted by a vibratory compactor or other means, satisfactory to the Engineer, which does not result in damage to the outlet pipe.

2' DEEP EDGE DRAINS - CONTINUED

Trenches shall not be left open during non-working hours.

The material removed from the edge drain trench and edge drain outlet trench, shall be disposed of by the Contractor at a site approved by the Engineer. Cost of disposal shall be incidental to the contract unit prices per foot for 2' Deep Edge Drain and Edge Drain Outlet. Material removed from the edge drain trenches may be used as Borrow Unclassified Excavation for inslope flattening.

Payment for constructing the edge drain including trench excavation, 4" slotted corrugated polyethylene drainage tubing, porous backfill material, base course or base course, salvaged at the top of the trench, Geotextile, fittings, labor, equipment, tools and incidentals necessary to satisfactorily complete the work shall be incidental to the contract unit price per foot for 2' Deep Edge Drain.

Payment for constructing the edge drain outlets including the outlet trench excavation, 4" PVC edge drain outlet pipe, 4" Standard Weight Black Steel Pipe, fill material, bends, couplers, caps, fittings, labor, equipment, tools and incidentals necessary to satisfactorily complete the work shall be incidental to the contract unit price per each for Edge Drain Outlet.

Payment for supplying and installing the precast concrete headwall (See Special Detail – Precast Concrete Headwall for Drain) shall be incidental to the contract unit price per each for Precast Concrete Headwall For Drain.

Edge drains are to be installed the entire length of the project.

TABLE OF 2' DEEP EDGE DRAINS

| Beginning Station | Ending Station | Shoulder | 2' Deep Edge Drain (ft) | Edge Drain Outlets & Headwall (each) |
|-------------------|----------------|----------|-------------------------|--------------------------------------|
| 566+30.00 | 692+60.50 | Median | 12,631 | 25 |
| 694+07.50 | 778+03.37 | Median | 8,396 | 17 |
| a 778+35.27 | a 904+39.84 | Median | 12,605 | 25 |
| b 0+76.95 | b 190+29.77 | Median | 18,953 | 38 |
| b 191+88.77 | b 236+50.00 | Median | 4,461 | 9 |
| 566+30.00 | 692+60.50 | Outside | 12,631 | 25 |
| 694+07.50 | 778+03.37 | Outside | 8,396 | 17 |
| a 778+35.27 | a 904+39.84 | Outside | 12,605 | 25 |
| b 0+76.95 | b 190+29.77 | Outside | 18,953 | 38 |
| b 191+88.77 | b 236+50.00 | Outside | 4,461 | 9 |
| Totals: | | | 114,090 | 228 |

EASTBOUND TABLE OF SUPERELEVATION

| Station | to | Station | Remarks |
|-------------|----|-------------|--|
| | | | Eqn. Sta. 778+03.37 = Sta. a 778+35.27 |
| 566+30.00 | | a 844+32.32 | Normal Crown Section |
| a 844+32.32 | | a 845+70.32 | Superelevation Runoff |
| a 845+70.32 | | a 875+45.42 | 0.020 Superelevation Rate |
| | | | 0° 20'03" Curve Rt. |
| a 875+45.42 | | a 876+83.42 | Superelevation Runoff |
| | | | Eqn. Sta. a 905+10.17 = Sta. b 0+00.00 |
| a 876+83.42 | | b 48+33.01 | Normal Crown Section |
| b 48+33.01 | | b 49+84.01 | Superelevation Runoff |
| b 49+84.01 | | b 77+27.81 | 0.024 Superelevation Rate |
| | | | 0° 29'53" Curve Lt. |
| b 77+27.81 | | b 78+78.81 | Superelevation Runoff |
| b 78+78.81 | | b 236+50.00 | Normal Crown Section |

RESTORATION OF BORROW SITE

Restoration of the borrow site located 1 mile west of Philip and ¾ miles south of Highway 14 (Part of the SW ¼ Sec. 22, T1n, R20E, Haakon County) shall be the responsibility of the Contractor.

The borrow site shall be bladed smooth and shall drain properly as directed by the Engineer.

All costs involved in the restoration of the borrow site shall be incidental to the contract unit prices for the various contract items.

| | | | |
|-----------------------|----------------------------|-------------|---------------------|
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RATES OF MATERIALS

The Estimate of Surfacing Quantities is based on the following quantities of materials per mile.

I-90 MAINLINE

Sta. 569+65.76 to Sta. b 169+78.75
Sta. b 179+60.49 to Sta. b 203+00.41
Sta. b 221+50.74 to Sta. b 233+13.91

GRAVEL CUSHION, SALVAGED / GRAVEL CUSHION, STATE FURNISHED

Crushed Aggregate 7,699 Tons.

Water for Granular Material at the rate of 92 M. Gallons.

I-90 MAINLINE OUTSIDE SHOULDER

Sta. 566+30 to Sta. a 899+39.84
Sta. b 3+76.95 to Sta. b 169+78.75
Sta. b 176+64.49 to Sta. b 185+29.77
Sta. b 203+00.41 to Sta. b 205+70.47
Sta. b 221+50.74 to Sta. b 236+50

BASE COURSE, STATE FURNISHED

Crushed Aggregate 2,176 Tons.

Water for Granular Material at the rate of 26.1 M. Gallons.

MC-70 Asphalt for Prime at the rate of 7.6 ton applied 11.0 feet wide (Rate = 0.30 gallon per square yard).

| CLASS HR ASPHALT CONCRETE 3" lift | Alt A | Alt B |
|--------------------------------------|-------|----------|
| Crushed Aggregate | 591 | 609 Tons |
| Salvaged Asphalt Concrete | 253 | 261 Tons |
| PG 58-28 Asphalt Binder | 35 | 32 Tons |
| Total: | 879 | 903 Tons |

The exact proportions of this material will be determined on construction.

SS-1h or CSS-1h Asphalt for Tack at the rate of 1.3 ton applied 10.5 feet wide (Rate = 0.06 gallon per square yard).

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 1.2 ton applied 10.0 feet wide (Rate = 0.05 gallon per square yard).

I-90 GORE AREA OUTSIDE SHOULDER

Sta. b 169+78.75 to Sta. b 176+64.49
Sta. b 205+70.47 to Sta. b 221+50.74

BASE COURSE, STATE FURNISHED

Crushed Aggregate 2,176 Tons.

Water for Granular Material at the rate of 26.1 M. Gallons.

MC-70 Asphalt for Prime at the rate of 5.9 ton applied 8.5 feet wide (Rate = 0.30 gallon per square yard).

| CLASS HR ASPHALT CONCRETE 3" lift | Alt A | Alt B |
|--------------------------------------|-------|----------|
| Crushed Aggregate | 443 | 457 Tons |
| Salvaged Asphalt Concrete | 190 | 196 Tons |
| PG 58-28 Asphalt Binder | 26 | 24 Tons |
| Total: | 659 | 677 Tons |

The exact proportions of this material will be determined on construction.

SS-1h or CSS-1h Asphalt for Tack at the rate of 1.0 ton applied 8.0 feet wide (Rate = 0.06 gallon per square yard).

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.9 ton applied 7.5 feet wide (Rate = 0.05 gallon per square yard).

I-90 MEDIAN SHOULDER

Sta. 569+65.76 to Sta. 687+60.50
Sta. 697+07.50 to Sta. a 899+39.84
Sta. b 3+76.95 to Sta. b 185+29.77
Sta. b 194+88.77 to Sta. b 233+13.91

BASE COURSE, STATE FURNISHED

Crushed Aggregate 1,533 Tons.

Water for Granular Material at the rate of 18.4 M. Gallons.

MC-70 Asphalt for Prime at the rate of 4.9 ton applied 7.0 feet wide (Rate = 0.30 gallon per square yard).

| CLASS HR ASPHALT CONCRETE 3" lift | Alt A | Alt B |
|--------------------------------------|-------|----------|
| Crushed Aggregate | 328 | 338 Tons |
| Salvaged Asphalt Concrete | 141 | 145 Tons |
| PG 58-28 Asphalt Binder | 20 | 18 Tons |
| Total: | 489 | 501 Tons |

The exact proportions of this material will be determined on construction.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.8 ton applied 6.5 feet wide (Rate = 0.06 gallon per square yard).

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.7 ton applied 6.0 feet wide (Rate = 0.05 gallon per square yard).

The Estimate of Surfacing Quantities for Exit Ramps is based on the following quantities of materials per station.

EXIT 163 RAMPS

Sta. 9+91.09 to Sta. 21+34.45
Sta. 0+33.25 to Sta. 12+11.18

| CLASS HR ASPHALT CONCRETE 3" lift | Alt A | Alt B |
|--------------------------------------|-------|------------|
| Crushed Aggregate | 11.81 | 12.18 Tons |
| Salvaged Asphalt Concrete | 5.06 | 5.22 Tons |
| PG 58-28 Asphalt Binder | 0.7 | 0.65 Tons |
| Total: | 17.57 | 18.05 Tons |

The exact proportions of this material will be determined on construction.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.04 ton applied 19.0 feet wide (Rate = 0.09 gallon per square yard).

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.05 ton applied 20 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 0.8 ton applied 18.0 feet wide (Rate = 8.0 pounds per square yard).

TABLE OF CONSTRUCTION STAKING
(See Special Provision for Contractor Staking)

| Roadway and Description | Begin Station | End Station | Number of Lanes | Grade Staking | | | *Sets of Stakes | **Grade Staking Quantity (Mile) | Miscellaneous Staking Quantity (Mile) | Slope Staking Quantity (Mile) | Graded Centerline Staking Quantity (Mile) |
|----------------------------------|---------------|-------------|-----------------|---------------|---------------|-------------|-----------------|---------------------------------|---------------------------------------|-------------------------------|---|
| | | | | Length (Ft) | Length (Mile) | Lane Factor | | | | | |
| I-90 Mainline - EBL | 566+30.00 | 692+60.50 | 2 | 12,630.50 | 2.392 | 1 | 2 | 4.784 | 2.392 | --- | 2.392 |
| | 694+07.50 | 778+03.37 | 2 | 8,395.87 | 1.590 | 1 | 2 | 3.180 | 1.590 | --- | 1.590 |
| | a 778+35.27 | a 904+39.84 | 2 | 12,604.57 | 2.387 | 1 | 2 | 4.774 | 2.387 | --- | 2.387 |
| | b 0+76.95 | b 190+29.77 | 2 | 18,952.82 | 3.590 | 1 | 2 | 7.179 | 3.590 | --- | 3.590 |
| | b 191+88.77 | b 236+50.00 | 2 | 4,461.23 | 0.845 | 1 | 2 | 1.690 | 0.845 | --- | 0.845 |
| Exit 163 EB Off Ramp D Gore Area | b 169+78.75 | b 179+60.49 | 1 | 981.74 | 0.186 | 1 | 2 | 0.372 | 0.186 | 0.186 | --- |
| Exit 163 EB On Ramp C Gore Area | b 203+00.41 | b 221+50.74 | 1 | 1,850.33 | 0.350 | 1 | 2 | 0.701 | 0.350 | 0.350 | --- |
| Exit 163 EB Off Ramp D | 9+71.09 | 21+55.09 | 2 | 1,184.00 | 0.224 | 1 | 1 | 0.224 | 0.224 | 0.224 | 0.224 |
| Exit 163 EB On Ramp C | 0+12.47 | 12+31.18 | 2 | 1,218.71 | 0.231 | 1 | 1 | 0.231 | 0.231 | 0.231 | 0.231 |
| Exit 163 EB Off Ramp Detour | --- | --- | 2 | 910.00 | 0.172 | 1 | 1 | --- | 0.172 | --- | --- |
| Exit 163 EB On Ramp C Detour | --- | --- | 2 | 1,260.00 | 0.239 | 1 | 1 | --- | 0.239 | --- | --- |
| | | | | | | | Totals: | 23.136 | 12.206 | 0.991 | 11.259 |

* 1 = Paving Hub Stakes (Asphalt Concrete Pavement)
2 = Blue Top and Paving Hub Stakes (PCC Pavement)

** Grade Staking Quantity = (Length) x (Lane Factor) x (Sets of Stakes)

TABLE OF MAINTENANCE CROSSOVERS

| STATION | Gravel Cushion, Salvaged, (Ton) | Water for Granular Material (Mgal) | Slopes | Comments |
|-------------|---------------------------------|------------------------------------|--------|---------------|
| 699+50.00 | 80 | 1.0 | 10:1 | No cross pipe |
| b 13+20.00 | 80 | 1.0 | 10:1 | No cross pipe |
| b 157+05.00 | 80 | 1.0 | 10:1 | No cross pipe |
| b 217+25.00 | 80 | 1.0 | 10:1 | No cross pipe |
| Totals: | 320 | 4.0 | --- | --- |

TABLE OF RAMP DETOURS

| LOCATION | WATER FOR GRANULAR MATERIAL | BASE COURSE, SALVAGED | PIT RUN TO FILL DITCH | PIT RUN FOR UNDERCUT | CLASS HR ASPHALT CONCRETE - ALT A | | | PG 58-28 ASPHALT BINDER - ALT A | | | CLASS HR ASPHALT CONCRETE - ALT B | | | PG 58-28 ASPHALT BINDER - ALT B | | | ASPHALT FOR TACK | | |
|--------------------------|-----------------------------|-----------------------|-----------------------|----------------------|-----------------------------------|----------|----------|---------------------------------|----------|----------|-----------------------------------|----------|----------|---------------------------------|----------|----------|------------------|----------|----------|
| | | | | | 1st Lift | 2nd Lift | Top Lift | 1st Lift | 2nd Lift | Top Lift | 1st Lift | 2nd Lift | Top Lift | 1st Lift | 2nd Lift | Top Lift | 1st Lift | 2nd Lift | Top Lift |
| Station to Station | (MGal) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) |
| Exit - 163 - WB off Ramp | 71.5 | 969.5 | 2,556.8 | 2,436.0 | 203.3 | | 173.4 | 8.1 | | 6.9 | 208.8 | | 178.1 | 7.5 | | 6.4 | | | 0.2 |
| Exit - 163 - WB on Ramp | 108.0 | 1,362.0 | 3,920.0 | 3,724.0 | 289.1 | | 249.7 | 11.6 | | 10.0 | 296.9 | | 256.4 | 10.7 | | 9.2 | | | 0.3 |
| Totals | 179.5 | 2,331.5 | 6,476.8 | 6,160.0 | | 915.5 | | | 36.6 | | 940.2 | | | 33.8 | | | | | 0.5 |

Plot Scale - 1:200

Plotted From - tpr18387

File - ...ms\proj\ack03\WNotes\sect.dgn

Plotting Date: 08/24/2015
Revised 08-20-2015 LLA

ALTERNATES A & B - TABLE OF ADDITIONAL QUANTITIES

| LOCATION | WATER FOR GRANULAR MATERIAL | GRAVEL CUSHION, GRAVEL CUSHION, SALVAGED /GRAVEL CUSHION, STATE FURNISHED | BASE COURSE, STATE FURNISHED | ALTERNATE A - CLASS HR ASPHALT CONCRETE | | | ALTERNATE A - PG 58+28 ASPHALT BINDER | | | ALTERNATE B - CLASS HR ASPHALT CONCRETE | | | ALTERNATE B - PG 58+28 ASPHALT BINDER | | | ASPHALT FOR PRIME | ASPHALT FOR TACK | | | ASPHALT FOR FLUSH SEAL | SAND FOR FLUSH SEAL |
|-------------------------------------|-----------------------------|---|------------------------------|---|----------|----------|---------------------------------------|----------|----------|---|----------|----------|---------------------------------------|----------|----------|-------------------|------------------|----------|----------|------------------------|---------------------|
| | | | | 1st Lift | 2nd Lift | Top Lift | 1st Lift | 2nd Lift | Top Lift | 1st Lift | 2nd Lift | Top Lift | 1st Lift | 2nd Lift | Top Lift | | 1st Lift | 2nd Lift | Top Lift | | |
| Station | to | Station | (MGal) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | |
| Mainline | | | | | | | | | | | | | | | | | | | | | |
| 566 + | 30.00 to | 569 + | 65.76 | 2.0 | 168.0 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| b 169 + | 78.75 to | b 179 + | 60.49 | 12.4 | 1,030.6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| b 203 + | 00.41 to | b 221 + | 50.74 | 23.3 | 1,942.6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| b 233 + | 13.91 to | b 236 + | 50.00 | 4.8 | 403.8 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Gore Areas/Accel-Decel Ramps | | | | | | | | | | | | | | | | | | | | | |
| Exit 163 Off Ramp D | | | | 6.5 | 540.6 | --- | --- | 85.7 | --- | --- | 3.4 | --- | --- | 88.0 | --- | --- | 3.2 | 6.3 | --- | 0.2 | 0.1 |
| Exit 163 On Ramp C | | | | 11.0 | 918.1 | --- | --- | 197.4 | --- | --- | 7.9 | --- | --- | 202.7 | --- | --- | 7.3 | 6.3 | --- | 0.4 | 0.3 |
| Ramps | | | | | | | | | | | | | | | | | | | | | |
| Exit 163 Off Ramp D | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 + | 71.09 to | 9 + | 91.09 | --- | --- | --- | --- | 3.9 | --- | --- | 0.2 | --- | --- | 3.9 | --- | --- | 0.1 | --- | --- | --- | 0.2 |
| 21 + | 34.45 to | 21 + | 55.09 | --- | --- | --- | --- | 9.7 | --- | --- | 0.4 | --- | --- | 10.0 | --- | --- | 0.4 | --- | --- | --- | 0.6 |
| Exit 163 On Ramp C | | | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 + | 12.47 to | 0 + | 33.25 | --- | --- | --- | --- | 9.7 | --- | --- | 0.4 | --- | --- | 10.0 | --- | --- | 0.4 | --- | --- | --- | 0.6 |
| 12 + | 11.18 to | 12 + | 31.18 | --- | --- | --- | --- | 3.9 | --- | --- | 0.2 | --- | --- | 3.9 | --- | --- | 0.1 | --- | --- | --- | 0.2 |
| Mainline Median Shoulder | | | | | | | | | | | | | | | | | | | | | |
| 687 + | 60.50 to | 692 + | 60.50 | 1.2 | 103.7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 694 + | 07.50 to | 697 + | 07.50 | 0.7 | 62.2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| a 899 + | 39.84 to | a 904 + | 39.84 | 1.2 | 103.7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| b 0 + | 76.95 to | b 3 + | 76.95 | 0.7 | 62.2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| b 185 + | 29.77 to | b 190 + | 29.77 | 1.2 | 103.7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| b 191 + | 88.77 to | b 194 + | 88.77 | 0.7 | 62.2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| b 0 + | 00.00 to | b 0 + | 00.00 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Mainline Outside Shoulder | | | | | | | | | | | | | | | | | | | | | |
| a 899 + | 39.84 to | a 904 + | 39.84 | 1.8 | 152.5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.1 |
| b 0 + | 76.95 to | b 3 + | 76.95 | 1.1 | 91.5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.1 |
| b 185 + | 29.77 to | b 190 + | 29.77 | 1.8 | 152.5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.1 |
| b 191 + | 88.77 to | b 194 + | 88.77 | 1.1 | 91.5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.1 |

Plot Scale - 1:200

Plotted From - tpr18387

File - ...ms\proj\ack03\WNotes\sect.dgn

Plotting Date: 08/24/2015
Revised 08-20-2015 LLA

ALTERNATES A & B - TABLE OF ADDITIONAL QUANTITIES - CONTINUED

| LOCATION | WATER FOR GRANULAR MATERIAL | GRAVEL CUSHION, GRAVEL CUSHION, SALVAGED /GRAVEL CUSHION, STATE FURNISHED | BASE COURSE, STATE FURNISHED | ALTERNATE A - CLASS HR ASPHALT CONCRETE | | | ALTERNATE A - PG 58+28 ASPHALT BINDER | | | ALTERNATE B - CLASS HR ASPHALT CONCRETE | | | ALTERNATE B - PG 58+28 ASPHALT BINDER | | | ASPHALT FOR PRIME | ASPHALT FOR TACK | | | ASPHALT FOR FLUSH SEAL | SAND FOR FLUSH SEAL |
|------------------------------------|-----------------------------|---|------------------------------|---|----------|----------|---------------------------------------|----------|----------|---|----------|----------|---------------------------------------|----------|----------|-------------------|------------------|----------|----------|------------------------|---------------------|
| | | | | 1st Lift | 2nd Lift | Top Lift | 1st Lift | 2nd Lift | Top Lift | 1st Lift | 2nd Lift | Top Lift | 1st Lift | 2nd Lift | Top Lift | | 1st Lift | 2nd Lift | Top Lift | | |
| | (MGal) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | (Ton) | |
| Additional Surfacing for Guardrail | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Str. # 36-360-099 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Begin Bridge Median | 3.4 | --- | 275.9 | 7.9 | --- | --- | 0.3 | --- | --- | 8.0 | --- | --- | 0.3 | --- | --- | 0.1 | --- | --- | --- | --- | |
| Begin Bridge Outside | 0.4 | --- | 31.8 | 5.8 | --- | --- | 0.2 | --- | --- | 5.9 | --- | --- | 0.2 | --- | --- | 0.1 | --- | --- | --- | --- | |
| End Bridge Median | 0.5 | --- | 40.7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| End Bridge Outside | 0.5 | --- | 45.0 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Str. # 36-400-103 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Begin Bridge Median | 3.7 | --- | 307.1 | 7.9 | --- | --- | 0.3 | --- | --- | 8.0 | --- | --- | 0.3 | --- | --- | 0.1 | --- | --- | --- | --- | |
| Begin Bridge Outside | 0.4 | --- | 31.8 | 5.8 | --- | --- | 0.2 | --- | --- | 6.0 | --- | --- | 0.2 | --- | --- | 0.1 | --- | --- | --- | --- | |
| End Bridge Median | 0.4 | --- | 36.6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| End Bridge Outside | 0.8 | --- | 64.6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Str. # 36-436-106 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Begin Bridge Median | 3.4 | --- | 283.6 | 7.9 | --- | --- | 0.3 | --- | --- | 8.2 | --- | --- | 0.3 | --- | --- | 0.1 | --- | --- | --- | --- | |
| Begin Bridge Outside | 0.4 | --- | 31.0 | 5.6 | --- | --- | 0.2 | --- | --- | 5.8 | --- | --- | 0.2 | --- | --- | 0.1 | --- | --- | --- | --- | |
| End Bridge Median | 0.5 | --- | 39.8 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| End Bridge Outside | 0.6 | --- | 49.0 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Str. # 36-360-098 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Begin Bridge Median | 0.3 | --- | 27.5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Begin Bridge Outside | 0.4 | --- | 32.2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Str. # 36-400-102 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Begin Bridge Median | 0.3 | --- | 27.5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Begin Bridge Outside | 0.4 | --- | 32.3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Str. # 36-436-105 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Begin Bridge Median | 0.3 | --- | 26.9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Begin Bridge Outside | 0.4 | --- | 33.5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Haul Road Construction | 129.6 | 10,804.0 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Backfilling of Digouts | 1.2 | 100.0 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| Totals | 219.4 | 16,893.4 | 1,416.8 | | 351.2 | | | 14.0 | | | 360.4 | | | 13.0 | | 13.2 | | 0.6 | | 0.8 | 1.6 |

Plot Scale - 1:200

Plotted From - tpr18387

File - ...ms\proj\ack03\WNotes\sect.dgn

TABLE OF GUARDRAIL AND RELATED ITEMS

| Location | Remove 3 Cable Guardrail Feet | Remove 3 Cable Guardrail Anchor Assembly Each | Remove 3 Cable Guardrail Slip Base Anchor Assembly Each | Remove Beam Guardrail Feet | Remove W Beam Guardrail Breakaway Cable Terminal Each | Remove W Beam Guardrail End Terminal Each | 3 Cable Guardrail Feet | 3 Cable Guardrail Anchor Assembly Each | 3 Cable Guardrail Slip Base Anchor Assembly Each | Straight Double Class A Thrie Beam Guardrail With Wood Posts Feet | W Beam to Thrie Beam Guardrail Transition Each | Straight Class A W Beam Guardrail With Wood Posts Feet | W Beam Guardrail Breakaway Cable Terminal Each | W Beam Guardrail Tangent End Terminal Each | Comments |
|-----------------------------|--|--|--|-------------------------------------|--|--|------------------------------|--|---|--|--|--|---|---|--------------------------------|
| I-90 Eastbound Lanes | | | | | | | | | | | | | | | |
| Str. # 36-360-099 | | | | | | | | | | | | | | | |
| Begin Bridge Median | 199 | 1 | 1 | 81.25 | 1 | | 391 | 1 | 1 | 12.5 | 1 | 62.5 | 1 | | |
| Begin Bridge Outside | 254 | 2 | | 81.25 | 1 | | 375 | 1 | 1 | 12.5 | 1 | 62.5 | 1 | | |
| End Bridge Median | | | | | | | 471 | 1 | 1 | 12.5 | 1 | 62.5 | 1 | | Future Project Traffic Control |
| End Bridge Outside | | | | | | | | | | 12.5 | 1 | 62.5 | | 1 | Future Project Traffic Control |
| Str. # 36-400-103 | | | | | | | | | | | | | | | |
| Begin Bridge Median | 199 | 1 | 1 | 81.25 | 1 | | 407 | 1 | 1 | 12.5 | 1 | 62.5 | 1 | | |
| Begin Bridge Outside | 254 | 2 | | 81.25 | 1 | | 343 | 1 | 1 | 12.5 | 1 | 62.5 | 1 | | |
| End Bridge Median | | | | | | | 455 | 1 | 1 | 12.5 | 1 | 62.5 | 1 | | Future Project Traffic Control |
| End Bridge Outside | | | | | | | | | | 12.5 | 1 | 87.5 | | 1 | Future Project Traffic Control |
| Box Culvert, Sta. b 62+00 | | | | | | | | | | | | | | | |
| Outside Shoulder | 808 | 4 | | | | | | | | | | | | | |
| Str. # 36-436-106 | | | | | | | | | | | | | | | |
| Begin Bridge Median | 375 | 1 | 1 | 81.25 | 1 | | 391 | 1 | 1 | 12.5 | 1 | 62.5 | 1 | | |
| Begin Bridge Outside | 270 | 2 | | 81.25 | 1 | | 343 | 1 | 1 | 12.5 | 1 | 62.5 | 1 | | |
| End Bridge Median | | | | | | | 471 | 1 | 1 | 12.5 | 1 | 62.5 | 1 | | Future Project Traffic Control |
| End Bridge Outside | | | | | | | | | | 12.5 | 1 | 75.0 | | 1 | Future Project Traffic Control |
| Box Culvert, Sta. b 226+50 | | | | | | | | | | | | | | | |
| Outside Shoulder | 1314 | 4 | | | | | | | | | | | | | |
| I-90 Westbound Lanes | | | | | | | | | | | | | | | |
| Str. # 36-360-098 | | | | | | | | | | | | | | | |
| Begin Bridge Median | 471 | 1 | 1 | 81.25 | 1 | | 471 | 1 | 1 | 12.5 | 1 | 62.5 | 1 | | Traffic Control |
| Begin Bridge Outside | | | | 93.75 | | 1 | | | | 12.5 | 1 | 75.0 | | 1 | Traffic Control |
| Str. # 36-400-102 | | | | | | | | | | | | | | | |
| Begin Bridge Median | 455 | 1 | 1 | 81.25 | 1 | | 455 | 1 | 1 | 12.5 | 1 | 62.5 | 1 | | Traffic Control |
| Begin Bridge Outside | | | | 93.75 | | 1 | | | | 12.5 | 1 | 75.0 | | 1 | Traffic Control |
| Str. # 36-436-105 | | | | | | | | | | | | | | | |
| Begin Bridge Median | 471 | 1 | 1 | 81.25 | 1 | | 471 | 1 | 1 | 12.5 | 1 | 62.5 | 1 | | Traffic Control |
| Begin Bridge Outside | | | | 93.75 | | 1 | | | | 12.5 | 1 | 75.0 | | 1 | Traffic Control |
| TOTAL | 5,070 | 20 | 6 | 1,012.5 | 9 | 3 | 5,044 | 12 | 12 | 225.0 | 18 | 1,200.0 | 12 | 6 | |

The Traffic Control Guardrail shall be installed prior to traffic going head-to-head. Upon completion of EB lane construction and traffic restored to two lanes in each direction on the project, Traffic Control Guardrail shall be removed.

TABLE OF PIPE WORK

| Station | Approx. MRM | Culvert | Skewed Left or Right | Median | Outside | Reprofile Ditch | Undercut (Placement) | Remove Pipe End Section | Remove Pipe Culvert | Remove, Reset and Bolt Pipe | Remove, Reset and Bolt Pipe End Section | Furnish & Install 24" RCP | Furnish & Install 24" RCP Sloped End without bars | Furnish & Install 24" CMP | Furnish & Install 24" CMP Flared End | Furnish & Install 24" RCP to CMP Transition | Furnish & Install 24" CMP Elbow | Furnish & Install 36" RCP Sloped End without bars | Bank and Channel Protection Gabion | Comments | |
|-------------|-------------|---------------------------------|----------------------|--------|---------|-----------------|----------------------|-------------------------|---------------------|-----------------------------|---|---------------------------|---|---------------------------|--------------------------------------|---|---------------------------------|---|------------------------------------|----------|-----------------------|
| | | | | | | Stations | CuYds | Each | Ft | Ft | Each | Ft | Each | Each | Each | Each | Each | Each | CuYds | | |
| 568+00.00 | 153.030 | 36" RCP - 226' & 2 FE | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| 575+00.00 | 153.165 | 24" RCP - 240' & 2 FE | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| 587+00.00 | 153.450 | 18" RCP - 74' & 2 FE | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| 597+50.00 | 153.596 | 18" RCP - 98' & 2 FE | 15° skewed -Right | x | x | 1 | 5 | --- | --- | --- | 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| 597+70.00 | 153.580 | 42" RCP Arch - 212' & 2 FE | 25° skewed -Right | x | x | 1 | 10 | --- | --- | --- | 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| 597+93.00 | 153.585 | 42" RCP Arch - 212' & 2 FE | 25° skewed -Right | x | x | 1 | 10 | 1 | --- | --- | 1 | --- | 1 | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| 611+50.00 | 153.859 | 18" RCP - 74' & 2 FE | 15° skewed -Right | --- | x | 1 | 5 | --- | --- | 4 | 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| 623+00.00 | 154.075 | 18" RCP - 72' & 2 FE | 15° skewed -Right | x | x | 1 | 5 | --- | --- | --- | 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| 634+98.00 | 154.300 | 18" CMP - 96' & 2 FE downspout | 15° skewed -Right | x | x | 1 | 20 | --- | 96 | --- | --- | 52 | 1 | 24 | 1 | 1 | 2 | --- | 4.5 | --- | --- |
| 638+45.00 | 154.356 | 42" RCP - 220' & 2 FE | 15° skewed -Right | x | x | 2 | 10 | --- | --- | --- | 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| 648+50.00 | 154.556 | 18" RCP - 74' & 2 FE | --- | x | x | 1 | 10 | --- | --- | --- | 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| 658+75.00 | 154.750 | 9x8' RC - 215' Box | --- | --- | x | 1 | 10 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | box culvert clean out |
| 680+05.00 | 155.204 | 48" RCP -280' & 2 FE | 10° skewed -Right | --- | x | 2 | 15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 12.0 | --- | pipe clean out |
| 700+24.00 | 155.527 | 48" RCP -284' & 2 FE | 15° skewed -Right | --- | x | 1 | --- | --- | --- | --- | 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| 709+96.00 | 155.722 | 18" CMP - 110' & 2 FE downspout | 15° skewed -Right | x | x | 1 | 20 | --- | 110 | --- | --- | 48 | 1 | 38 | 1 | 1 | 2 | --- | 4.5 | --- | --- |
| 718+37.00 | 155.88 | 30" RCP - 182' & 2 FE | 10° skewed -Right | --- | x | 1 | --- | --- | --- | --- | 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| 740+39.00 | 156.30 | 36" RCP - 226' & 2 FE | 10° skewed -Left | --- | x | 1 | --- | --- | --- | --- | 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| 765+32.00 | 156.77 | 36" RCP - 194' & 2 FE | 10° skewed -Right | --- | x | 1 | --- | --- | --- | 4 | 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| a 786+42.00 | 157.16 | 30" RCP -182' & 2 FE | 15° skewed -Left | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |

See Pipe notes for required CMP coatings.

Plot Scale - 1:200

Plotted From - tpr18387

File - ...:\ms\proj\ack03\W\Notes\sect.dgn

TABLE OF PIPE WORK - CONTINUED

| Station | Approx. MRM | Culvert | Skewed Left or Right | Median | Outside | Reprofile Ditch | Undercut (Placement) | Remove Pipe End Section | Remove Pipe Culvert | Remove, Reset and Bolt Pipe | Remove, Reset and Bolt Pipe End Section | Furnish & Install 24" RCP | Furnish & Install 24" RCP Sloped End without bars | Furnish & Install 24" CMP | Furnish & Install 24" CMP Flared End | Furnish & Install 24" RCP to CMP Transition | Furnish & Install 24" CMP Elbow | Furnish & Install 36" RCP Sloped End without bars | Bank and Channel Protection Gabion | Comments | |
|-------------|-------------|---------------------------------|----------------------|--------|---------|-----------------|----------------------|-------------------------|---------------------|-----------------------------|---|---------------------------|---|---------------------------|--------------------------------------|---|---------------------------------|---|------------------------------------|----------|---------------------------------------|
| | | | | | | Stations | CuYds | Each | Ft | Ft | Each | Ft | Each | Each | Each | Each | Each | Each | CuYds | | |
| a 803+12.00 | 157.48 | 72" RCP - 220' & 2 FE | --- | --- | x | 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out, remove black PVC pipe |
| a 822+89.00 | 157.84 | 54" CMP - 260' & 2 FE | 40° skewed -Right | --- | x | 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| a 831+43.00 | 158.014 | 18" RCP - 76' & 2 FE | 15° skewed -Left | x | x | 1 | --- | --- | --- | 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| a 843+72.00 | 158.254 | 30" RCP -267' & 2 FE | 15° skewed -Left | --- | x | 1 | 10 | 1 | --- | 4 | --- | --- | 1 | --- | --- | --- | --- | --- | 6.0 | --- | pipe clean out |
| a 866+29.00 | 158.69 | 30" RCP -274' & 2 FE | 10° skewed -Left | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| a 870+80.00 | 158.74 | 42" RCP-306' & 2 FE | 32° skewed -Right | --- | x | 2 | 10 | --- | --- | --- | 1 | --- | --- | --- | --- | --- | --- | --- | 10.0 | --- | pipe clean out |
| a 877+73.00 | 158.90 | 30" RCP-256' & 2 FE | 15° skewed -Left | --- | x | 1 | 10 | --- | --- | --- | 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| a 880+84.00 | 158.9 | 18" CMP - 92' & 2 FE downspout | 15° skewed -Left | x | x | 1 | 20 | --- | 92 | --- | --- | 50 | 1 | 46 | 1 | 1 | 2 | --- | 4.5 | --- | --- |
| b 0+71.00 | 159.40 | 18" RCP-88' & 1 FE | --- | --- | x | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | drop inlet clean out |
| b 12+83.00 | 159.65 | 18" RCP-72' & 2 FE | 15° skewed -Right | x | x | 1 | 10 | --- | --- | --- | 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| b 24+82.00 | 159.89 | 18" RCP-76' & 2 FE | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| b 35+61.00 | 160.09 | 24" RCP - 82' & 2 FE | --- | x | x | 1 | --- | --- | --- | --- | 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | dewater & pipe clean out |
| b 35+95.00 | 160.09 | 5'x7' RC - 184' Cattle Pass | 15° skewed -Right | --- | x | 2 | 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | dewater cattle pass & clean out |
| b 56+83.00 | 160.49 | 18" CMP - 106' & 2 FE downspout | --- | x | x | 1 | 20 | --- | 106 | --- | --- | 44 | 1 | 52 | 1 | 1 | 2 | --- | 4.5 | --- | --- |
| b 56+87.00 | 160.49 | 18" CMP - 106' & 2 FE downspout | --- | x | x | 1 | 20 | --- | 106 | --- | --- | 44 | 1 | 52 | 1 | 1 | 2 | --- | 4.5 | --- | --- |
| b 58+87.00 | 160.53 | 36" RCP - 96' & 1 FE | --- | --- | x | 1 | 10 | 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1 | 6.0 | --- | dewater cattle pass & clean out |
| b 61+92.00 | 160.58 | 8'x7' RC - Box | --- | --- | x | 1 | 10 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | box culvert clean out |
| b 69+91.00 | 159.73 | 18" RCP-70' & 2 FE | 15° skewed -Left | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | pipe clean out |
| b 88+26.00 | 161.07 | 30" RCP-252' & 2 FE | 22° skewed -Right | --- | x | 1 | 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 6.0 | --- | pipe clean out |

See Pipe notes for required CMP coatings.

TABLE OF PIPE WORK - CONTINUED

| Station | Approx. MRM | Culvert | Skewed Left or Right | Median | Outside | Reprofile Ditch | Undercut (Placement) | Remove Pipe End Section | Remove Pipe Culvert | Remove, Reset and Bolt Pipe | Remove, Reset and Bolt Pipe End Section | Furnish & Install 24" RCP | Furnish & Install 24" RCP Sloped End without bars | Furnish & Install 24" CMP | Furnish & Install 24" CMP Flared End | Furnish & Install 24" RCP to CMP Transition | Furnish & Install 24" CMP Elbow | Furnish & Install 36" RCP Sloped End without bars | Bank and Channel Protection Gabion | Comments |
|----------------|-------------|---------------------------------|----------------------|--------|---------|-----------------|----------------------|-------------------------|---------------------|-----------------------------|---|---------------------------|---|---------------------------|--------------------------------------|---|---------------------------------|---|------------------------------------|-----------------------|
| | | | | | | Stations | CuYds | Each | Ft | Ft | Each | Ft | Each | Each | Each | Each | Each | Each | CuYds | |
| b 94+94.00 | 161.21 | 18" RCP - 70' & 2 FE | 15° skewed -Right | -- | x | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | pipe clean out |
| b 106+92.00 | 161.44 | 24" CMP - 102' & 2 FE downspout | -- | x | x | 1 | 20 | -- | 102 | -- | -- | 52 | 1 | 38 | 1 | 1 | 2 | -- | 4.5 | -- |
| b 109+93.00 | 161.497 | 36" RCP - 194' & 2 FE | -- | -- | x | 1 | 10 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 6.0 | pipe clean out |
| b 118+93.00 | 161.66 | 18" RCP -70' & 2 FE | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | pipe clean out |
| b 127+43.00 | 161.83 | 66" RCP -186' & 2 FE | -- | -- | x | 1 | 15 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 17.0 | pipe clean out |
| b 131+44.00 | 161.90 | 24" RCP-80' & 2 FE | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | pipe clean out |
| b 138+33.00 | 162.04 | 36" RCP-196' & 2 FE | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | pipe clean out |
| b 144+93.00 | 162.156 | 18" RCP - 72' & 2 FE | 15° skewed -Left | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | pipe clean out |
| b 163+92.00 | 162.52 | 24" RCP-88' & 2 FE | -- | -- | x | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | pipe clean out |
| b 171+38.00 | 162.63 | 42" RCP-316' & 2 FE | 45° skewed -Right | -- | x | 1 | 15 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 10.0 | pipe clean out |
| b 178+42.00 | 162.80 | 24" RCP-88' & 2 FE | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | pipe clean out |
| b 190+21.00 | 163.01 | 24" CMP - 102' & 2 FE downspout | -- | x | x | 1 | 20 | -- | 102 | -- | -- | 48 | 1 | 56 | 1 | 1 | 2 | -- | 4.5 | -- |
| b 191+85.00 | 163.02 | 18" RCP-84' & 2 FE | -- | -- | x | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | drop inlet clean out |
| b 200+00.00 | 163.17 | 30" RCP-90' & 2 FE On Ramp pipe | -- | -- | x | -- | -- | -- | -- | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | pipe clean out |
| b 204+92.00 | 163.29 | 18" RCP-84' & 2 FE | 15° skewed -Right | -- | x | 1 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | pipe clean out |
| b 211+37.00 | 163.37 | 48" RCP-212' & 2 FE | 45° skewed -Right | x | x | 1 | 15 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 12.0 | pipe clean out |
| b 226+68.00 | 163.69 | 2 - 8'x8' RC - 215' Box | 30° skewed -Right | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | box culvert clean out |
| b 227+88.00 | 163.73 | 24" CMP - 102' & 2 FE downspout | 8° skewed -Left | x | x | 1 | 20 | -- | 102 | -- | -- | 52 | 1 | 80 | 1 | 1 | 2 | -- | 4.5 | -- |
| Totals: | -- | -- | -- | -- | -- | 45 | 395 | 3 | 816 | 12 | 25 | 390 | 10 | 386 | 8 | 8 | 16 | 1 | 121.0 | -- |

See Pipe notes for required CMP coatings.

1:200

Plot Scale -

trp18387

Plotted From -

File - ...ms\proj\ack03\WNotes\sect.dgn

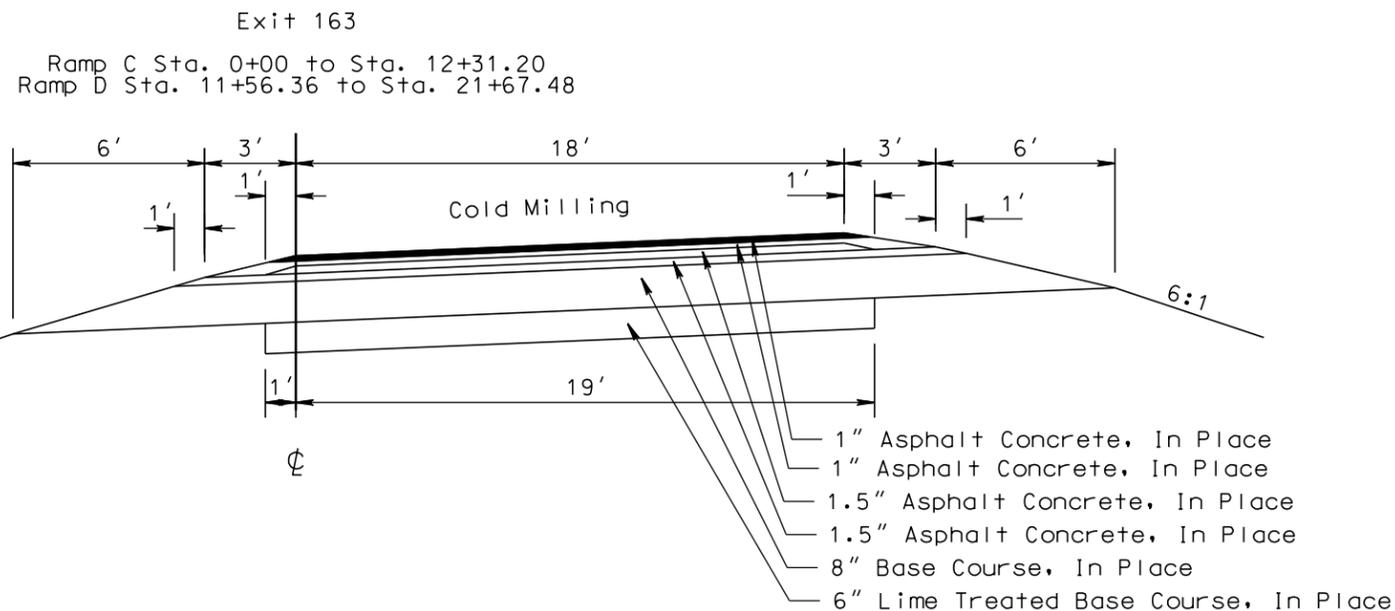
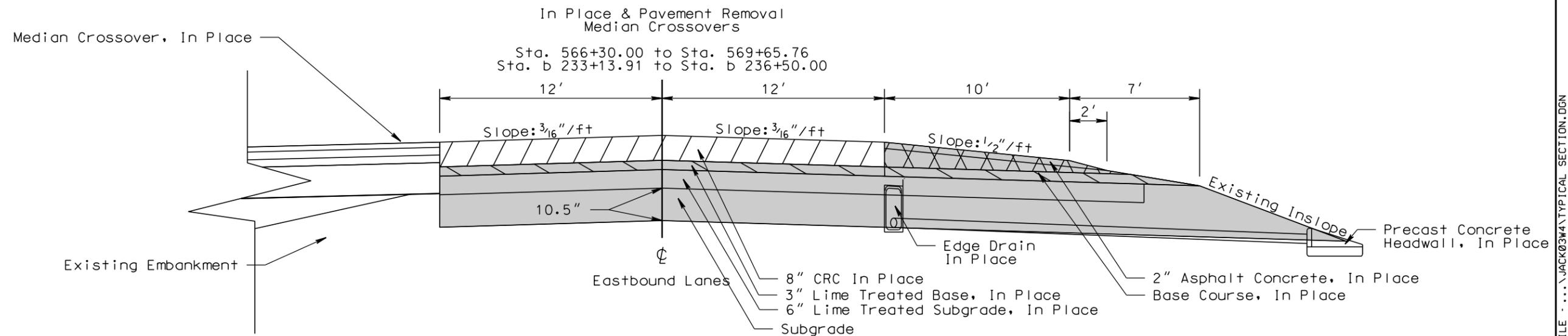
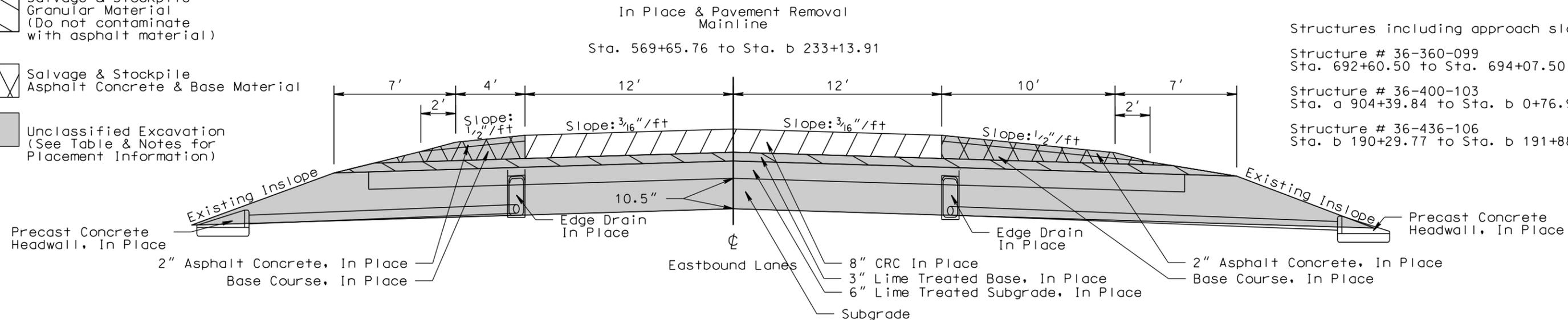
IN PLACE TYPICAL SECTIONS

| | | | |
|-----------------------|-----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | IM 0903(101)153 | F18 | F75 |

Plotting Date: 08/24/2015

-  Remove Concrete Pavement
-  Salvage & Stockpile Granular Material (Do not contaminate with asphalt material)
-  Salvage & Stockpile Asphalt Concrete & Base Material
-  Unclassified Excavation (See Table & Notes for Placement Information)

- Structures including approach slabs:
- Structure # 36-360-099
Sta. 692+60.50 to Sta. 694+07.50
 - Structure # 36-400-103
Sta. a 904+39.84 to Sta. b 0+76.95
 - Structure # 36-436-106
Sta. b 190+29.77 to Sta. b 191+88.77



PLOT SCALE - 1/8"=1'-0"

PLOTTED FROM - TRPR18387

PLOT NAME - 18

FILE - ... \JACK03W4\TYPICAL SECTION.DGN

TYPICAL SURFACING SECTIONS

| | | | |
|-----------------------|-----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | IM 0903(101)153 | F19 | F75 |

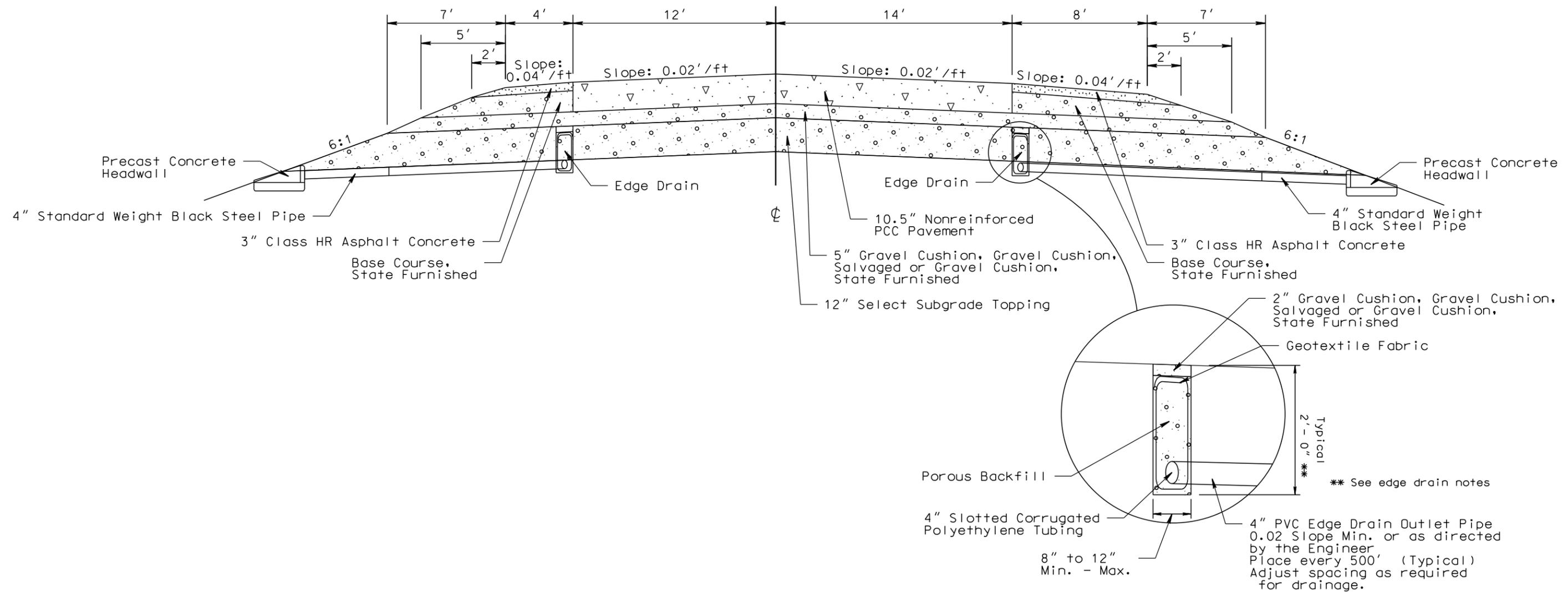
Plotting Date: 08/24/2015

Equations:

Sta. 778+03.37 = Sta. a 778+35.27
 Sta. a 905+10.17 = Sta. b 0+00.00

I-90 Eastbound Lanes
 Mainline

Sta. 569+65.76 to Sta. 687+60.50
 Sta. 697+07.50 to Sta. a 899+39.84
 Sta. b 3+76.95 to Sta. b 185+29.77
 Sta. b 194+88.77 to Sta. Sta. b 233+13.91



Note:
 See Edge Drain Layouts for details and locations

PLOT SCALE - 1+6.00001

PLOTTED FROM - TRPR18387

PLOT NAME - 19

FILE - ... \JACK03W4\TYPICAL SECTION.DGN

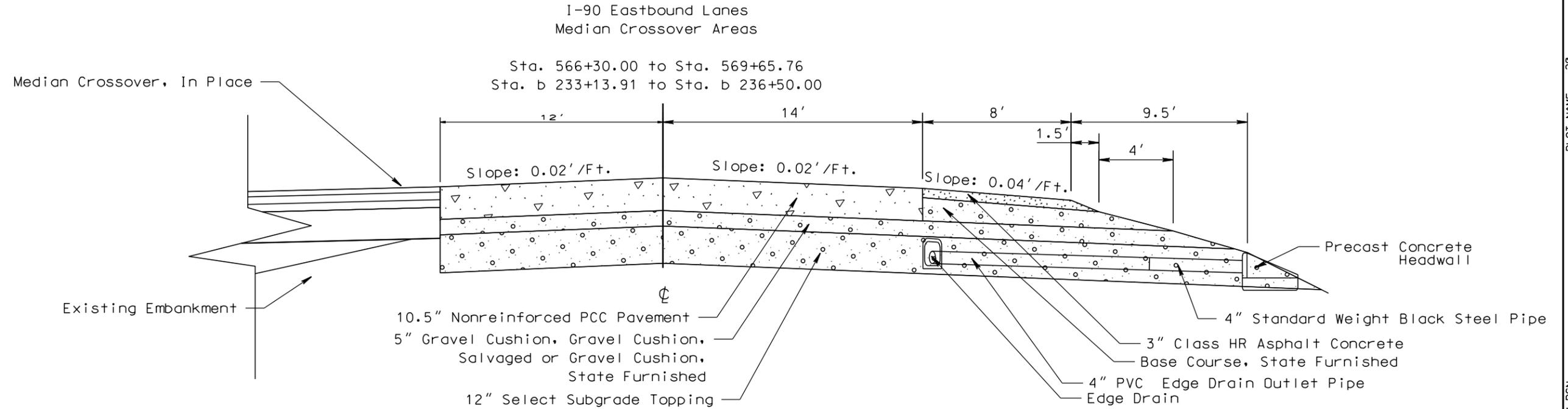
TYPICAL SURFACING SECTIONS

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| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F20 | TOTAL SHEETS F75 |
|-----------------------|----------------------------|--------------|---------------------|

Plotting Date: 08/24/2015
Revised 08-20-2015 LLA

PLOT SCALE - 1+6.00001

PLOT NAME - 20



Structures including approach slabs:

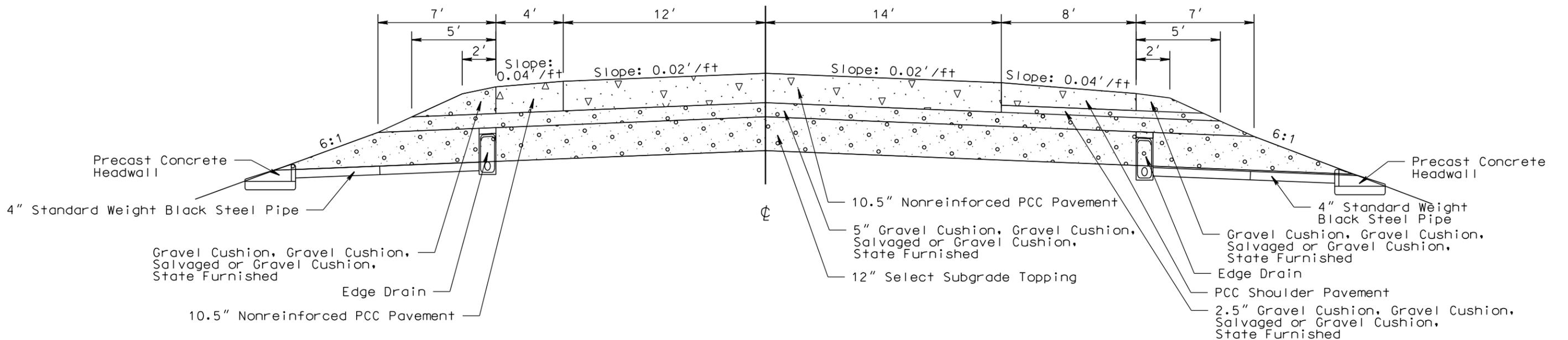
Structure # 36-360-099
Sta. 692+60.50 to Sta. 694+07.50

Structure # 36-400-103
Sta. a 904+39.84 to Sta. b 0+76.95

Structure # 36-436-106
Sta. b 190+29.77 to Sta. b 191+88.77

I-90 Eastbound Lanes
Bridge Areas

Sta. 687+60.50 to Sta. 692+60.50
Sta. 694+07.50 to Sta. 697+07.50
Sta. a 899+39.84 to Sta. a 904+39.84
Sta. b 0+76.95 to Sta. b 3+76.95
Sta. b 185+29.77 to Sta. b 190+29.77
Sta. b 191+88.77 to Sta. b 194+88.77



PLOTTED FROM - TRPR18387

FILE - ... \JACK03W4\TYPICAL SECTION.DGN

TYPICAL SURFACING SECTIONS

| | | | |
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| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | IM 0903(101)153 | F21 | F75 |

Plotting Date: 08/24/2015

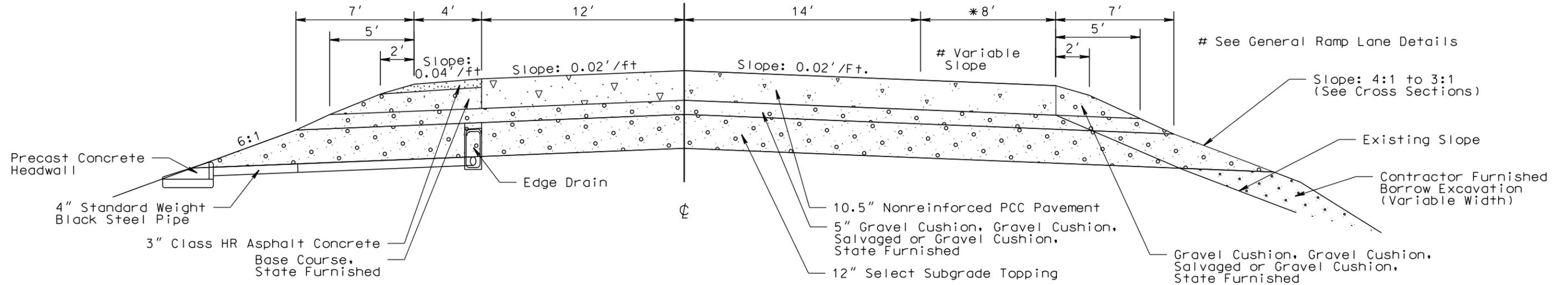
PLOT SCALE - 1+6.00001

PLOT NAME - 21

I-90 Eastbound Lanes
Acceleration/Deceleration Gore Areas

* Variable Width Gore Area

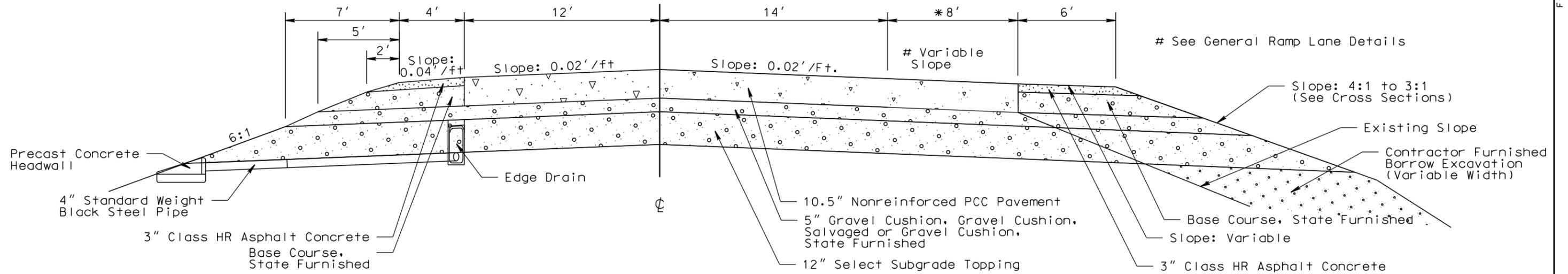
Exit 163 Deceleration Gore Area Sta. b 176+64.49 to Sta. b 179+60.49
Exit 163 Acceleration Gore Area Sta. b 203+00.41 to Sta. b 205+70.47



I-90 Eastbound Lanes
Acceleration/Deceleration Lanes

* Variable Width Gore Area

Exit 163 Deceleration Lane Sta. b 169+78.75 to Sta. b 176+64.49
Exit 163 Acceleration Lane Sta. b 205+70.47 to Sta. b 221+50.74



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FILE - ... \JACK03W4\TYPICAL SECTION.DGN

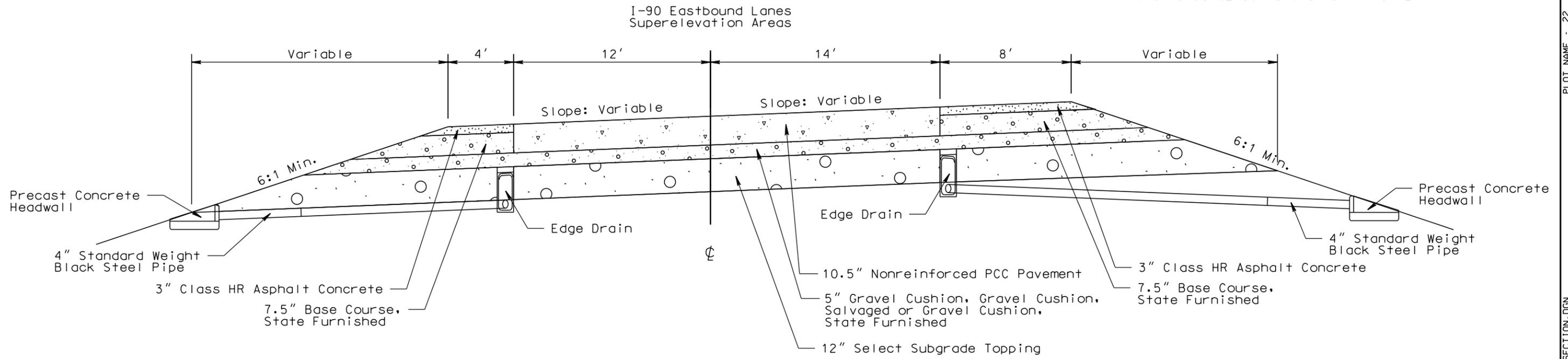
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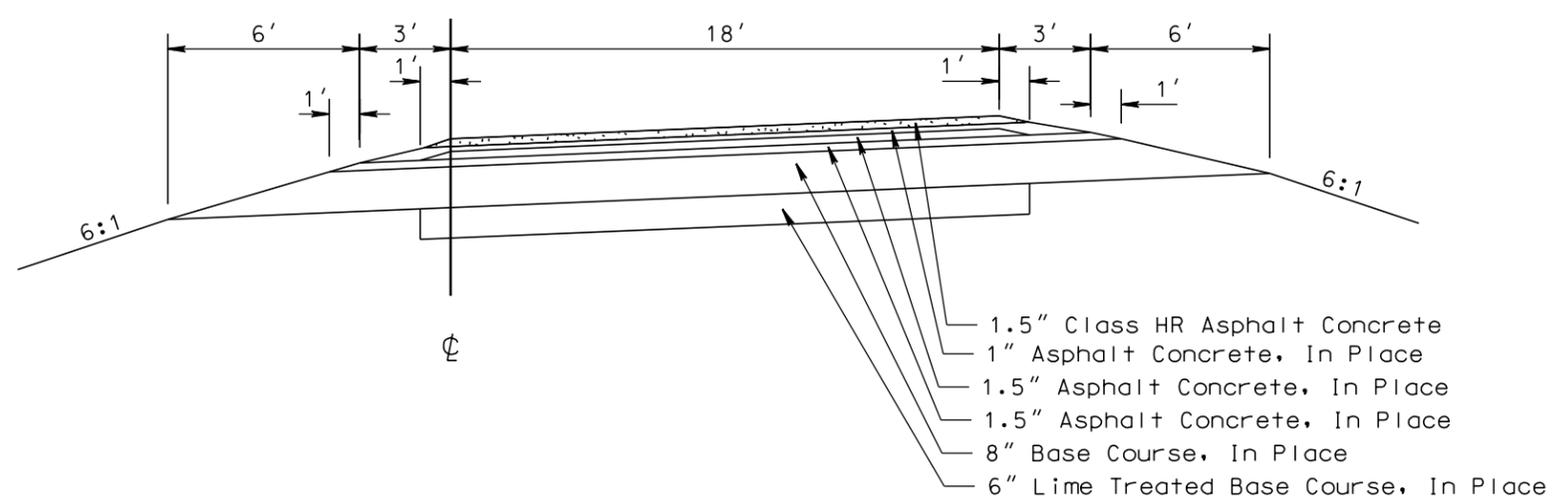
Plotting Date: 08/24/2015

Table of Full Superelevation

Sta. a 846+27.24 to Sta. a 875+13.34
 Sta. b 50+62.36 to Sta. b 77+10.42



Exit 163
 Ramp C Sta. 0+00 to Sta. 12+31.20
 Ramp D Sta. 11+56.36 to Sta. 21+67.48



PLOT SCALE - 1+6.00001

PLOT NAME - 22

FILE - ... \JACK03W4\TYPICAL SECTION.DGN

PLOTTED FROM - TRPR18387

TYPICAL SURFACING SECTIONS

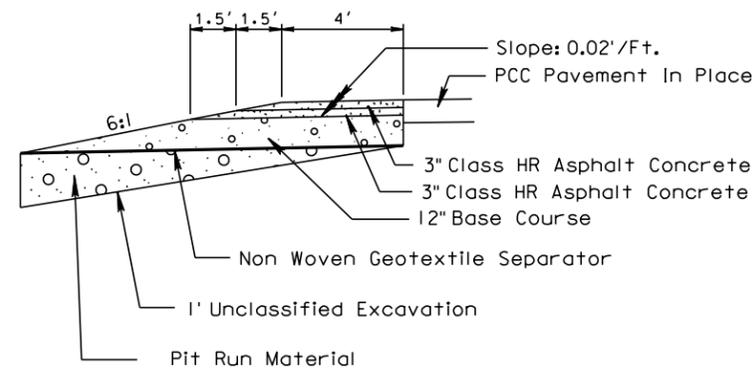
RAMP DETOURS

| | | | |
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| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F23 | TOTAL SHEETS F75 |
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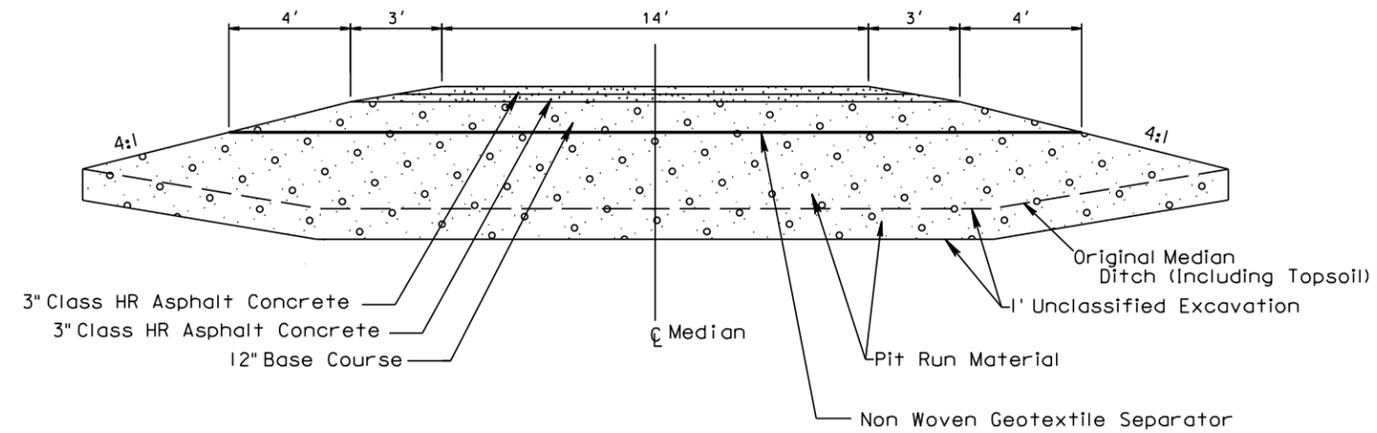
Plotting Date: 08/24/2015

Revised 08-20-2015 LLA

RAMP DETOUR TYPICAL NEXT TO PCC PAVEMENT



RAMP DETOUR TYPICAL SECTION



PLOT SCALE - 1+6.00001

PLOTTED FROM - TRPR18387

PLOT NAME - 23

FILE - ... \JACK03W4\TYPICAL SECTION.DGN

PCC PAVEMENT JOINT LAYOUT

| | | | |
|-----------------------|----------------------------|--------------|---------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F24 | TOTAL SHEETS F75 |
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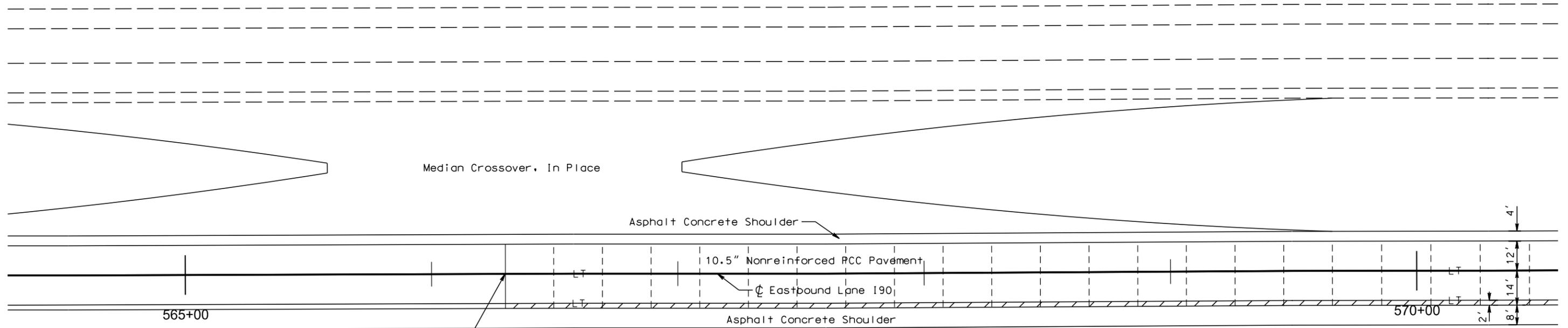
Plotting Date: 08/24/2015

Scale 1 Inch = 40 Feet
Sheet 1 of 8 Sheets

PLOT SCALE - 1:40

PLOT NAME - 24

FILE - ... \PCC PAVEMENT LAYOUTS.DGN



Sta. 566+30.00
End Existing Asphalt Concrete
Membrane Sealant Expansion Joint
Begin 10.5" Nonreinforced PCC Pavement
Begin Asphalt Concrete Shoulder

LEGEND:

- Longitudinal Joint Without Tie Bars (Construction or Sawed) ——— L ——— L ———
- Longitudinal Joint With Tie Bars (Construction or Sawed) ——— LT ——— LT ———
- Transverse Contraction Joint ——— SB ——— SB ———
- Steel Bar Installation in Longitudinal or Transverse Joint ——— SB ——— SB ———
- Areas to be poured monolithically with adjacent slab (See Detail A)
- Areas to be poured monolithically with adjacent curb and gutter (See Detail B)

Transverse contraction joints within these areas shall not have dowel bar assemblies. All other transverse contraction joints shall have dowel bar assemblies.

PLOTTED FROM - TRPR18387

PCC PAVEMENT JOINT LAYOUT

| | | | |
|-----------------------|----------------------------|--------------|---------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F25 | TOTAL SHEETS F75 |
|-----------------------|----------------------------|--------------|---------------------|

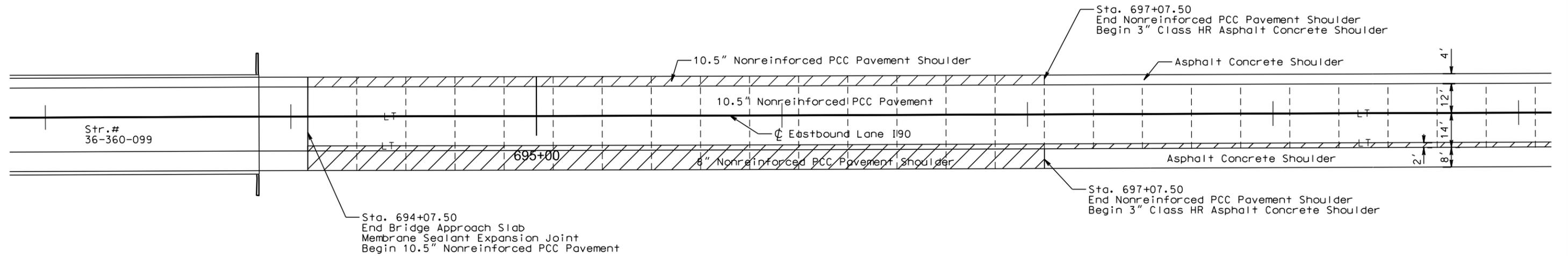
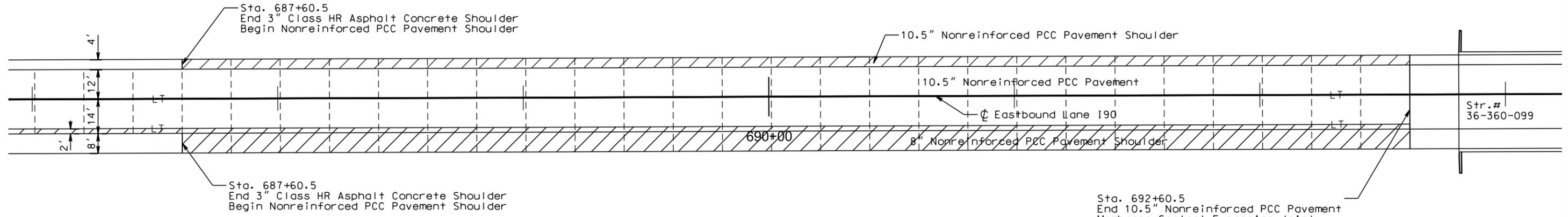
Plotting Date: 08/24/2015

Scale 1 Inch = 40 Feet
Sheet 2 of 8 Sheets



PLOT SCALE - 1:40

PLOT NAME - 25



PLOTTED FROM - TRPR18387

FILE - ... \PCC PAVEMENT LAYOUTS.DGN

PCC PAVEMENT JOINT LAYOUT

| | | | |
|-----------------------|----------------------------|--------------|---------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F26 | TOTAL SHEETS F75 |
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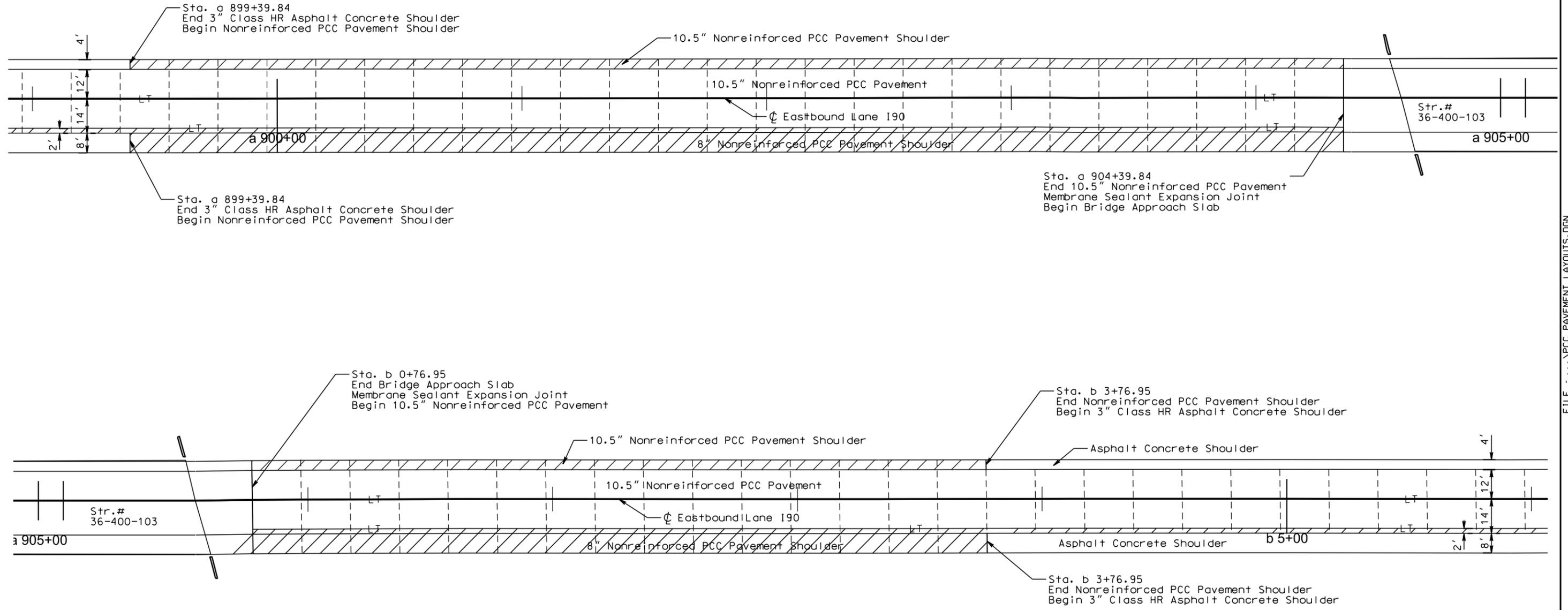
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Scale 1 Inch = 40 Feet
Sheet 3 of 8 Sheets



PLOT SCALE - 1:40

PLOT NAME - 26



PLOTTED FROM - TRPR18387

FILE - ... \PCC PAVEMENT LAYOUTS.DGN

PCC PAVEMENT JOINT LAYOUT

| | | | |
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| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
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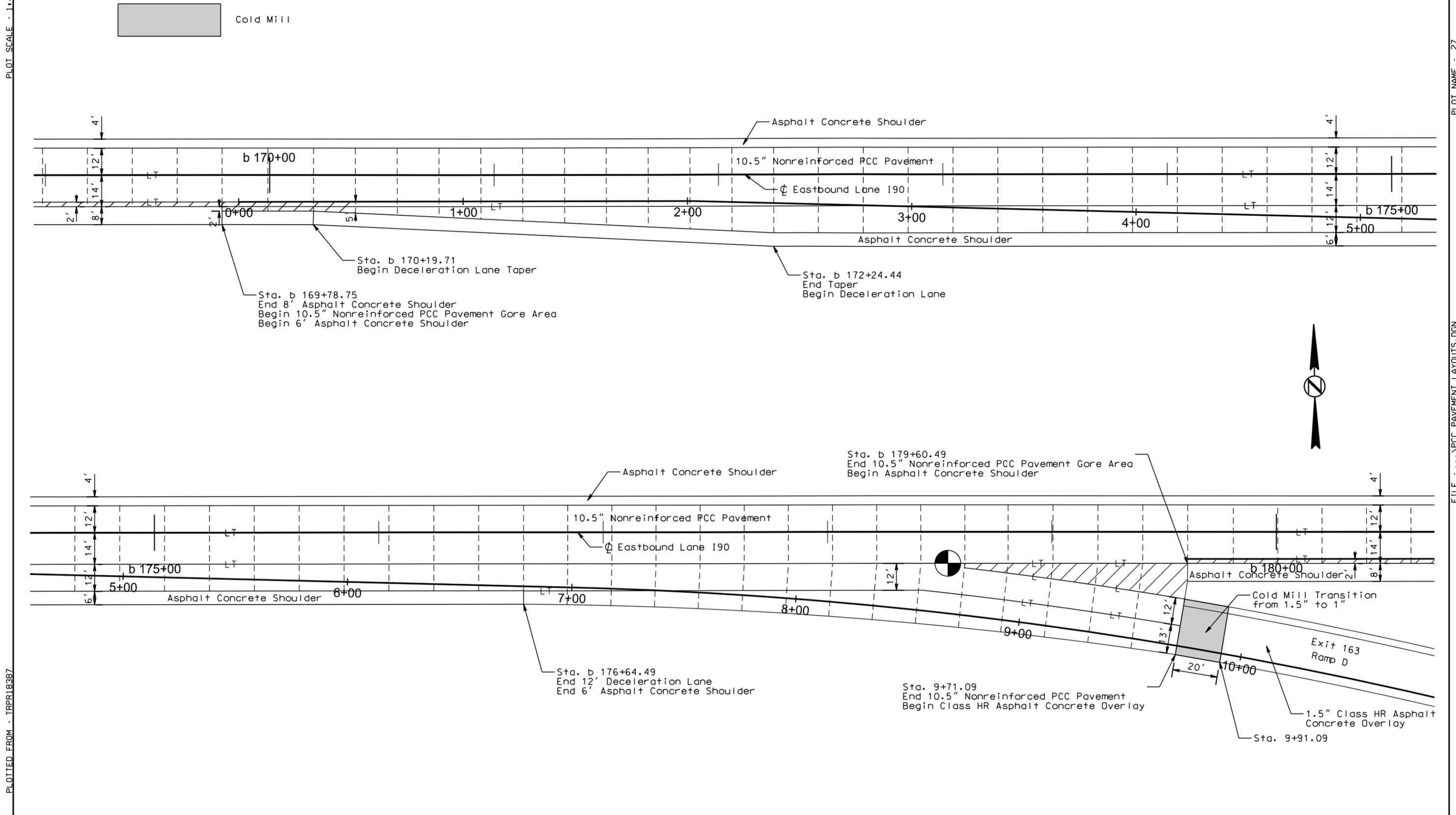
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Scale 1 Inch = 40 Feet
Sheet 4 of 8 Sheets

PLOT SCALE - 1:40

PLOT NAME - 27

FILE - ... \PCC PAVEMENT LAYOUTS.DGN



PLOTTED FROM - TRPR18387

PCC PAVEMENT JOINT LAYOUT

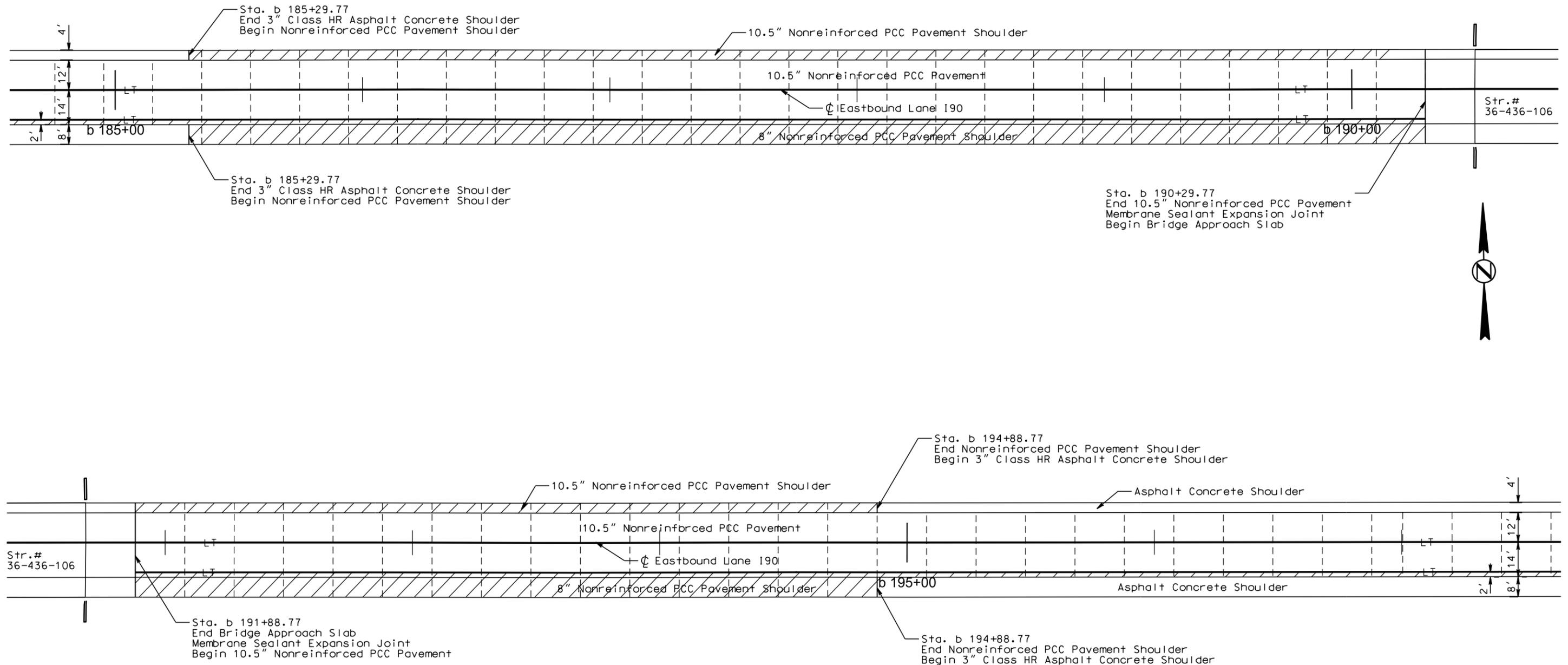
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Plotting Date: 08/24/2015

Scale 1 Inch = 40 Feet
Sheet 5 of 8 Sheets

PLOT SCALE - 1:40

PLOT NAME - 28



PLOTTED FROM - TRPR18387

FILE - ... \PCC PAVEMENT LAYOUTS.DGN

PCC PAVEMENT JOINT LAYOUT

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|-----------------------|----------------------------|--------------|---------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F29 | TOTAL SHEETS F75 |
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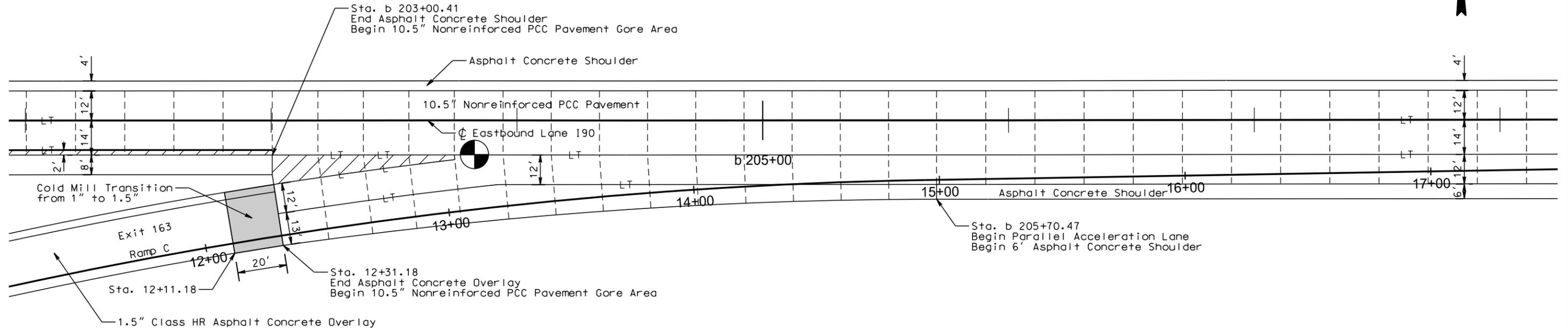
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Scale 1 Inch = 40 Feet
Sheet 6 of 8 Sheets



PLOT SCALE - 1:40

PLOT NAME - 29



PLOTTED FROM - TRPR18387

FILE - ... \PCC PAVEMENT LAYOUTS.DGN

PCC PAVEMENT JOINT LAYOUT

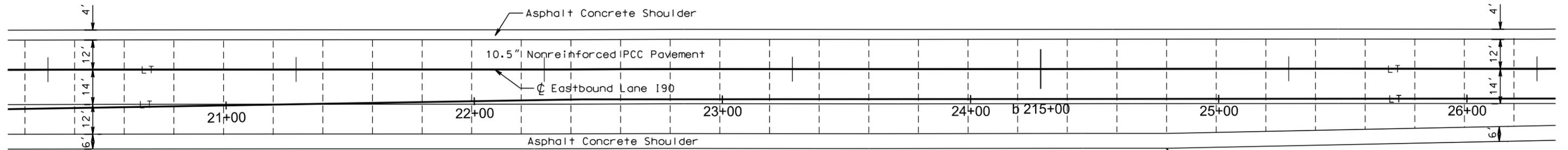
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| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
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Plotting Date: 08/24/2015

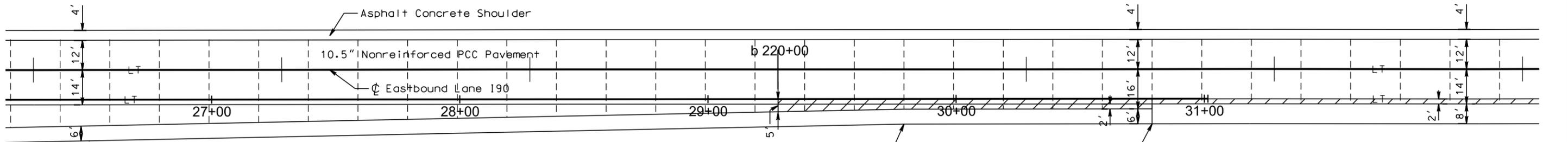
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Sheet 7 of 8 Sheets

PLOT SCALE - 1:40

PLOT NAME - 30



Sta. b 215+50.73
End Parallel Acceleration Lane
Begin Acceleration Lane Taper



Sta. b 220+50.76
End Acceleration Lane Taper

Sta. b 221+50.74
End 10.5" Nonreinforced PCC Pavement Gore Area
End 6' Asphalt Concrete Shoulder
Begin 8' Asphalt Concrete Shoulder

PLOTTED FROM - TRPR18387

FILE - ... \PCC PAVEMENT LAYOUTS.DGN

PCC PAVEMENT JOINT LAYOUT

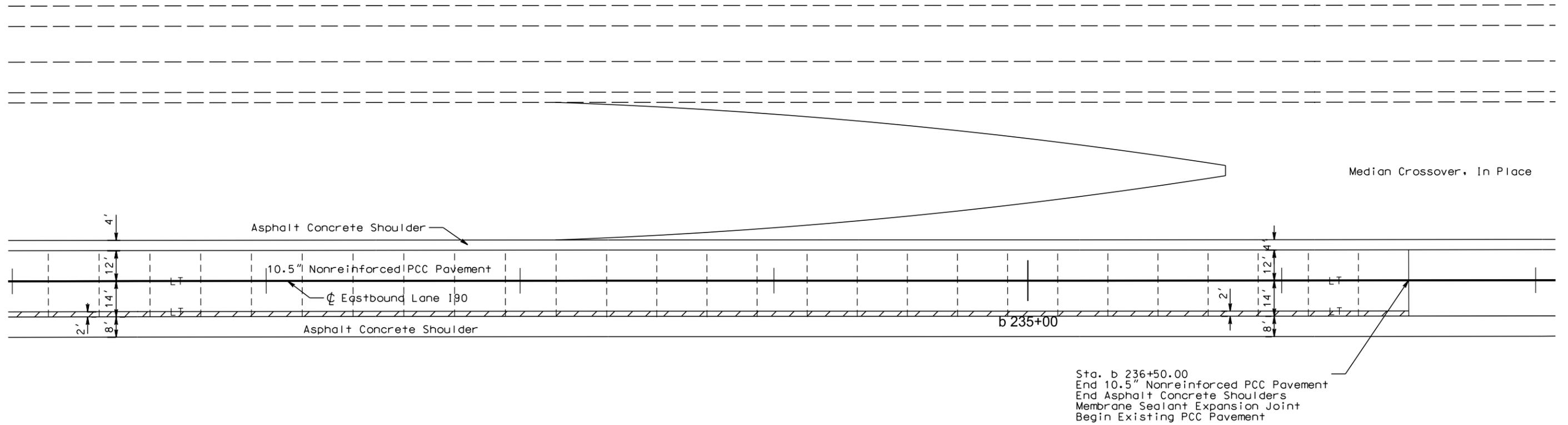
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Plotting Date: 08/24/2015

Scale 1 Inch = 40 Feet
Sheet 8 of 8 Sheets

PLOT SCALE - 1:40

PLOT NAME - 31



PLOTTED FROM - TRPR18387

FILE - ... \PCC PAVEMENT LAYOUTS.DGN

COLD MILLED / ASPHALT OVERLAY

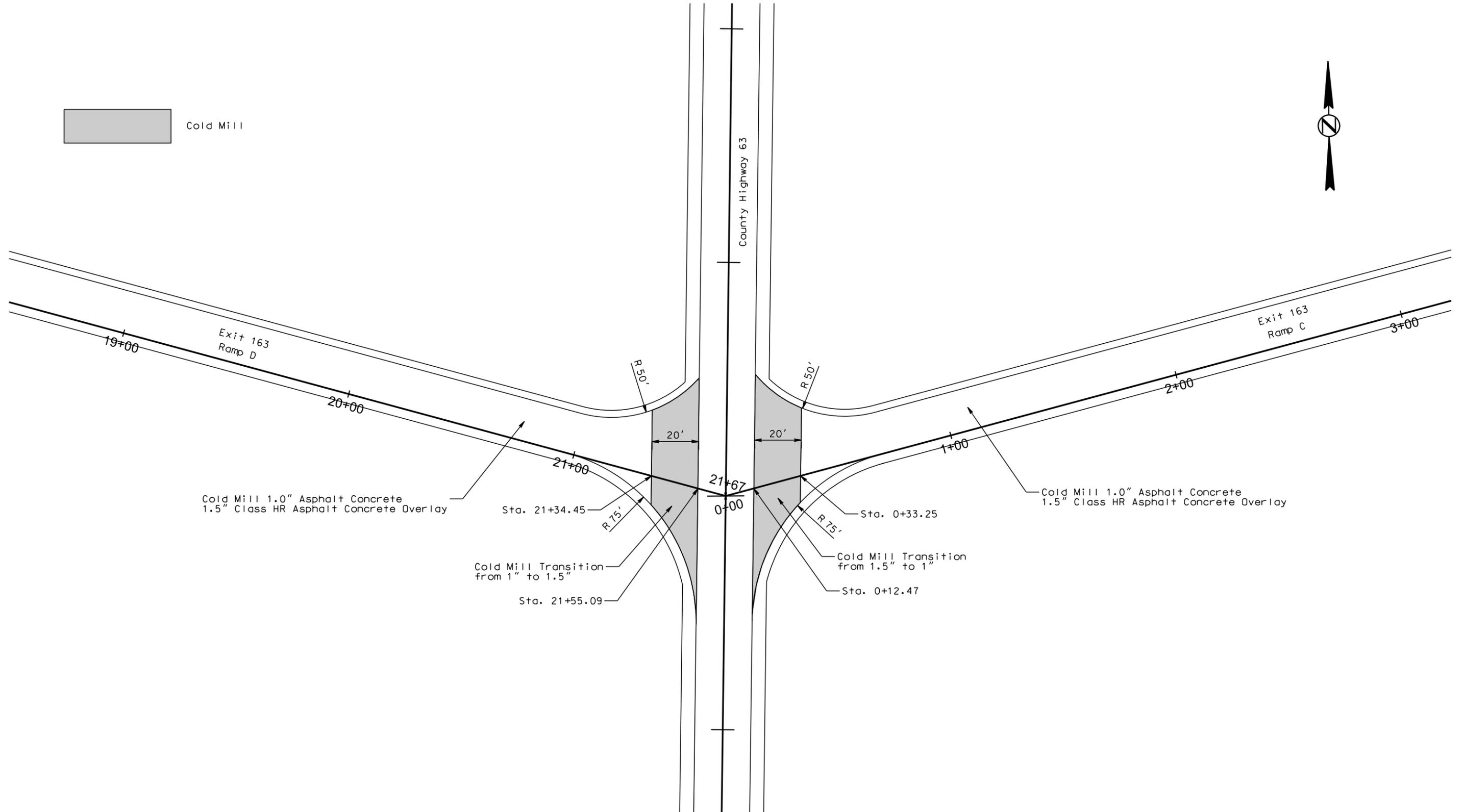
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| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F32 | TOTAL SHEETS F75 |
|-----------------------|----------------------------|--------------|---------------------|

Plotting Date: 08/24/2015

Scale 1 Inch = 40 Feet
Sheet 1 of 1 Sheets

PLOT SCALE - 1:40

PLOT NAME - 32



PLOTTED FROM - TRPR18387

FILE - ... \PCC PAVEMENT LAYOUTS.DGN

RAMP DETOUR LAYOUTS

| | | | |
|-----------------------|----------------------------|--------------|---------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F33 | TOTAL SHEETS F75 |
|-----------------------|----------------------------|--------------|---------------------|

Plotting Date: 08/24/2015
Revised 08-20-2015 LLA

Scale 1 Inch = 80 Feet
Sheet 1 of 2 Sheets

Exit 163

General Notes:

Stationing shown for the Ramp Detour is for reference only.

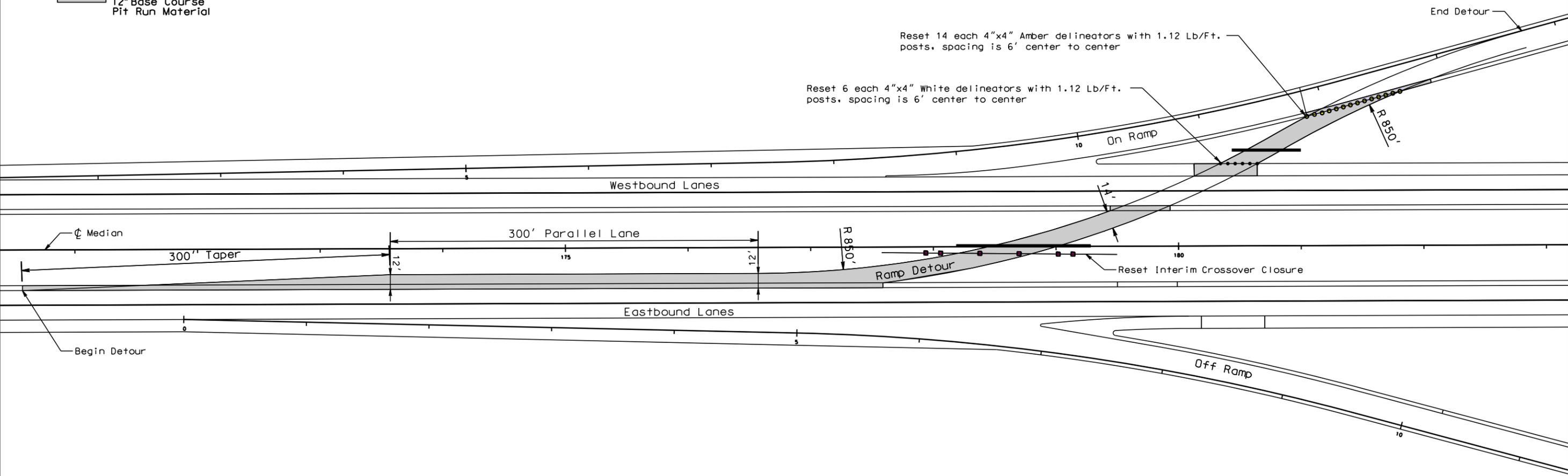
The Ramp Detour shall be constructed with a maximum horizontal degree of curve of 6° 45' and the vertical alignment shall be adequate for stopping sight distance.

— Pipe shall be installed if needed and sized appropriately for adequate drainage. Length, size and type of pipe will be determined in the field by the Project Engineer during construction. Payment for the pipe and installation shall be incidental to the various contract items.

█ Surfacing for Ramp Detour:
6" Class HR Asphalt Concrete
12" Base Course
Pit Run Material

PLOT SCALE - 1:80

PLOT NAME - 33



PLOTTED FROM - TRPR18387

FILE - ... \PRJ\JACK03\4\RAMP DETOURS.DGN

RAMP DETOUR LAYOUTS

| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|-----------------------|-----------------|-------|--------------|
| | IM 0903(101)153 | F34 | F75 |

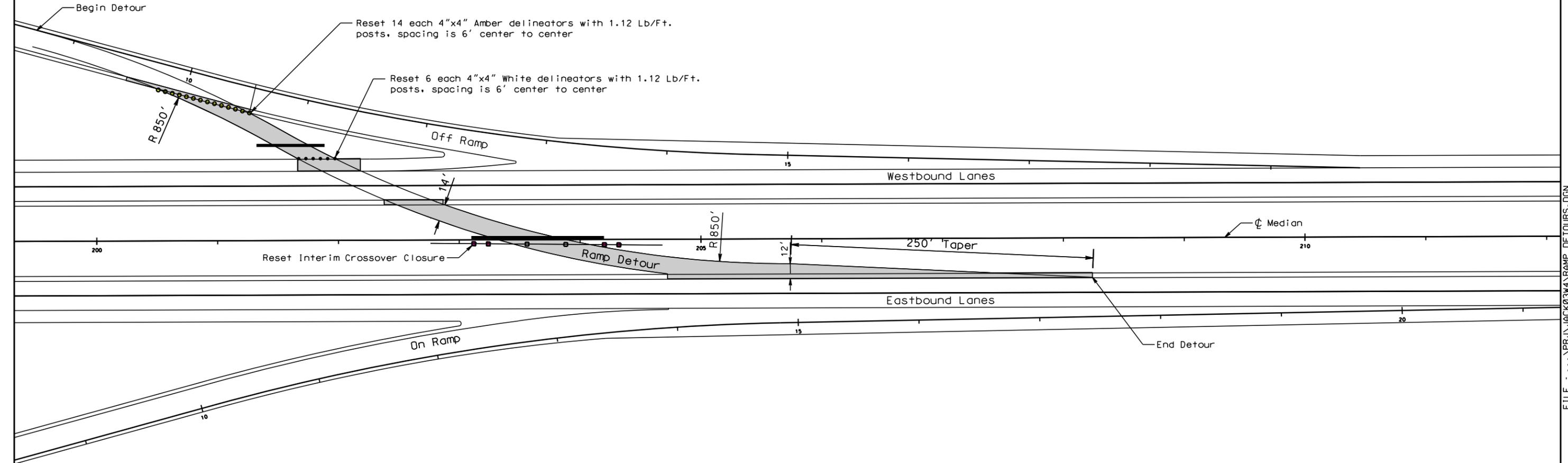
Plotting Date: 08/24/2015

Scale 1 Inch = 80 Feet
Sheet 2 of 2 Sheets

Exit 163

PLOT SCALE - 1:80

PLOT NAME - 34



PLOTTED FROM - TRPR18387

FILE - ... \PRJ\JACK03\4\RAMP DETOURS.DGN

GUARDRAIL LAYOUT

| | | | |
|-----------------------|----------------------------|--------------|---------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F35 | TOTAL SHEETS F75 |
|-----------------------|----------------------------|--------------|---------------------|

Plotting Date: 08/24/2015

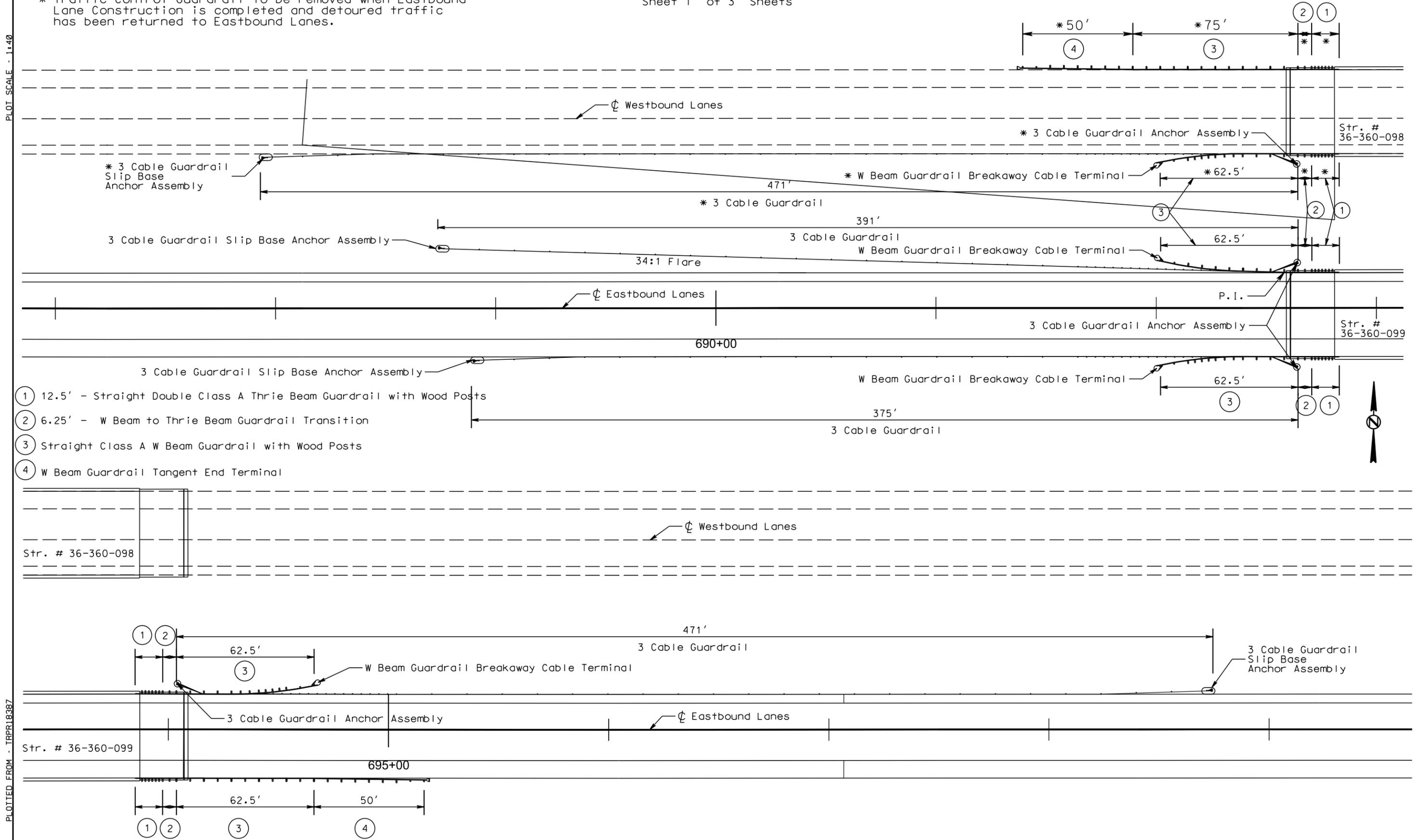
* Traffic Control Guardrail to be removed when Eastbound Lane Construction is completed and detoured traffic has been returned to Eastbound Lanes.

Scale 1 Inch = 40 Feet
Sheet 1 of 3 Sheets

PLOT SCALE - 1:40

PLOT NAME - 35

FILE - ... \JACK03W4\GUARDRAIL LAYOUTS.DGN



PLOTTED FROM - TRPR18387

GUARDRAIL LAYOUT

| | | | |
|-----------------------|----------------------------|--------------|---------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F36 | TOTAL SHEETS F75 |
|-----------------------|----------------------------|--------------|---------------------|

Plotting Date: 08/24/2015

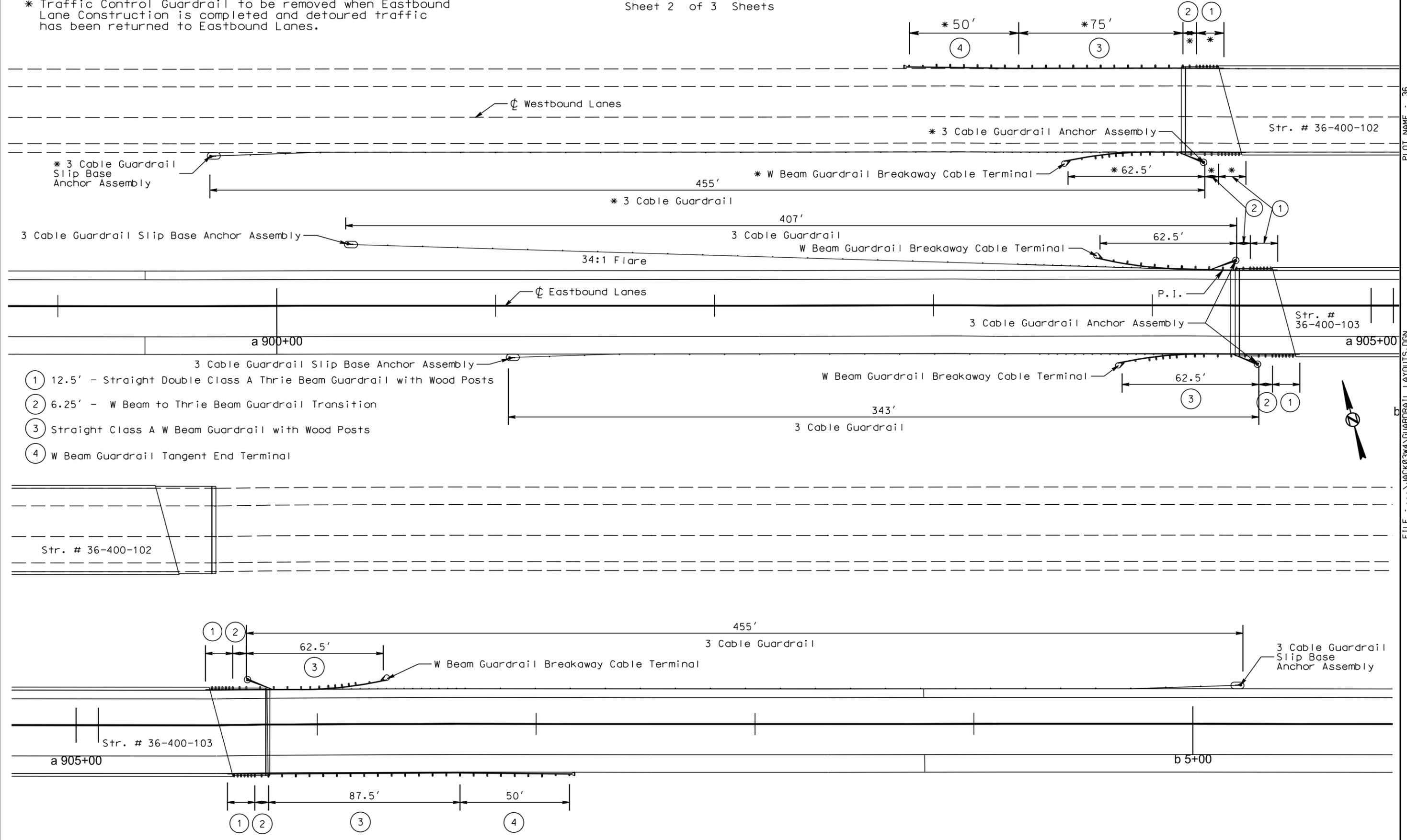
* Traffic Control Guardrail to be removed when Eastbound Lane Construction is completed and detoured traffic has been returned to Eastbound Lanes.

Scale 1 Inch = 40 Feet
Sheet 2 of 3 Sheets

PLOT SCALE - 1:40

PLOT NAME - 36

FILE - ... \JACK03\4\GUARDRAIL LAYOUTS.DGN



- ① 12.5' - Straight Double Class A Thrie Beam Guardrail with Wood Posts
- ② 6.25' - W Beam to Thrie Beam Guardrail Transition
- ③ Straight Class A W Beam Guardrail with Wood Posts
- ④ W Beam Guardrail Tangent End Terminal



PLOTTED FROM - TRPR18387

GUARDRAIL LAYOUT

| | | | |
|-----------------------|----------------------------|--------------|---------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F37 | TOTAL SHEETS F75 |
|-----------------------|----------------------------|--------------|---------------------|

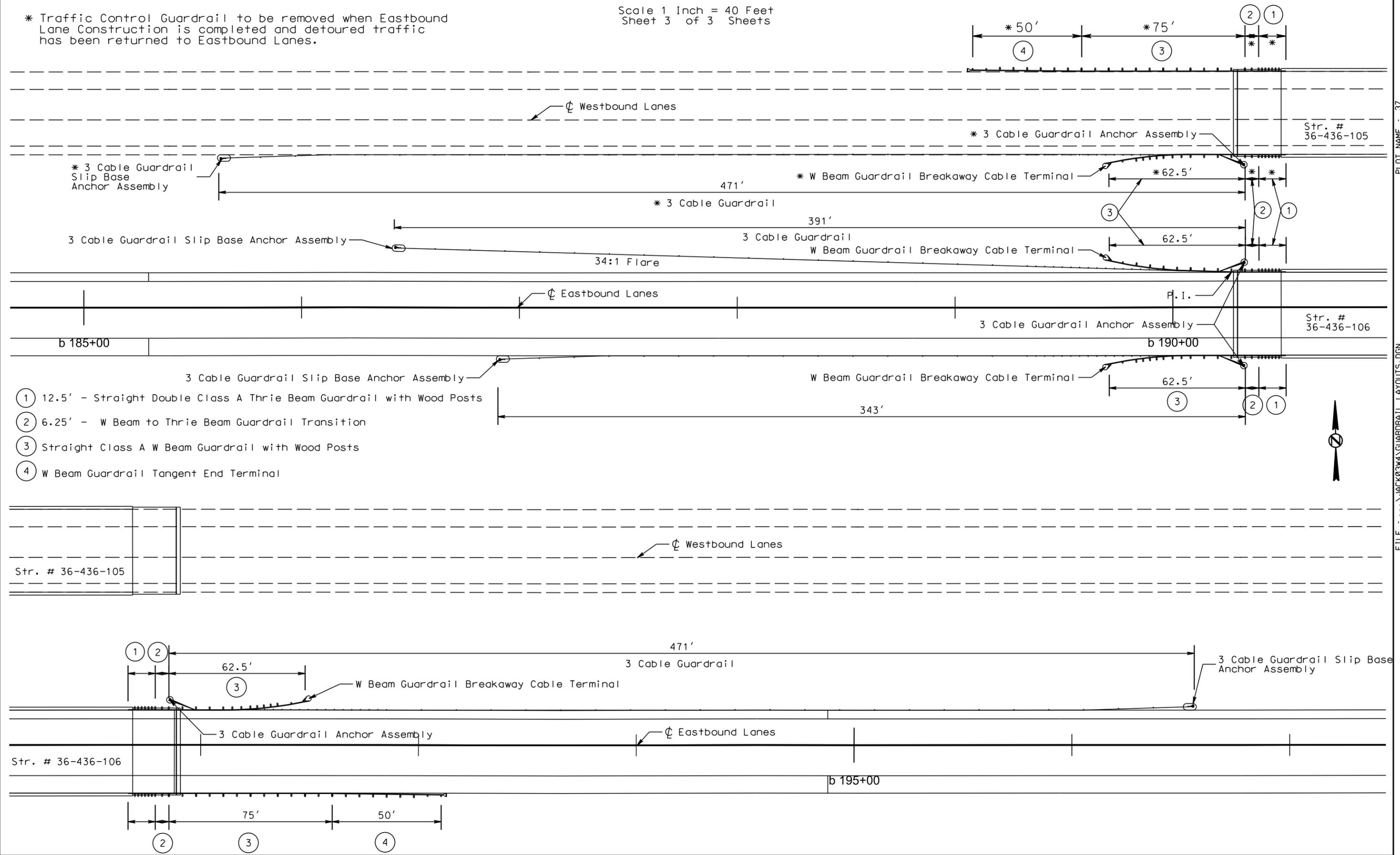
Plotting Date: 08/24/2015

* Traffic Control Guardrail to be removed when Eastbound Lane Construction is completed and detoured traffic has been returned to Eastbound Lanes.

Scale 1 Inch = 40 Feet
Sheet 3 of 3 Sheets

PLOT SCALE - 1:40

PLOT NAME - 37

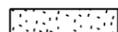
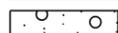


- (1) 12.5' - Straight Double Class A Thrie Beam Guardrail with Wood Posts
- (2) 6.25' - W Beam to Thrie Beam Guardrail Transition
- (3) Straight Class A W Beam Guardrail with Wood Posts
- (4) W Beam Guardrail Tangent End Terminal



PLOTTED FROM - TRP18387

FILE - ... \JACK03W4\GUARDRAIL LAYOUTS.DGN

-  2" Asphalt Concrete & 11.5" Base Course, State Furnished
-  2" Asphalt Concrete & 12.5" Base Course, State Furnished
-  14.5" Base Course, State Furnished adjacent to edge of shoulder. Minimum depth = 6"
-  10" Base Course, State Furnished
-  8.5" Base Course, State Furnished
-  Contractor Furnished Borrow Excavation
Maximum Cross Slope = 10:1

GUARDRAIL LAYOUT

Scale 1 Inch = 40 Feet
Sheet 1 of 3 Sheets

| | | | |
|-----------------------|----------------------------|--------------|---------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F38 | TOTAL SHEETS F75 |
|-----------------------|----------------------------|--------------|---------------------|

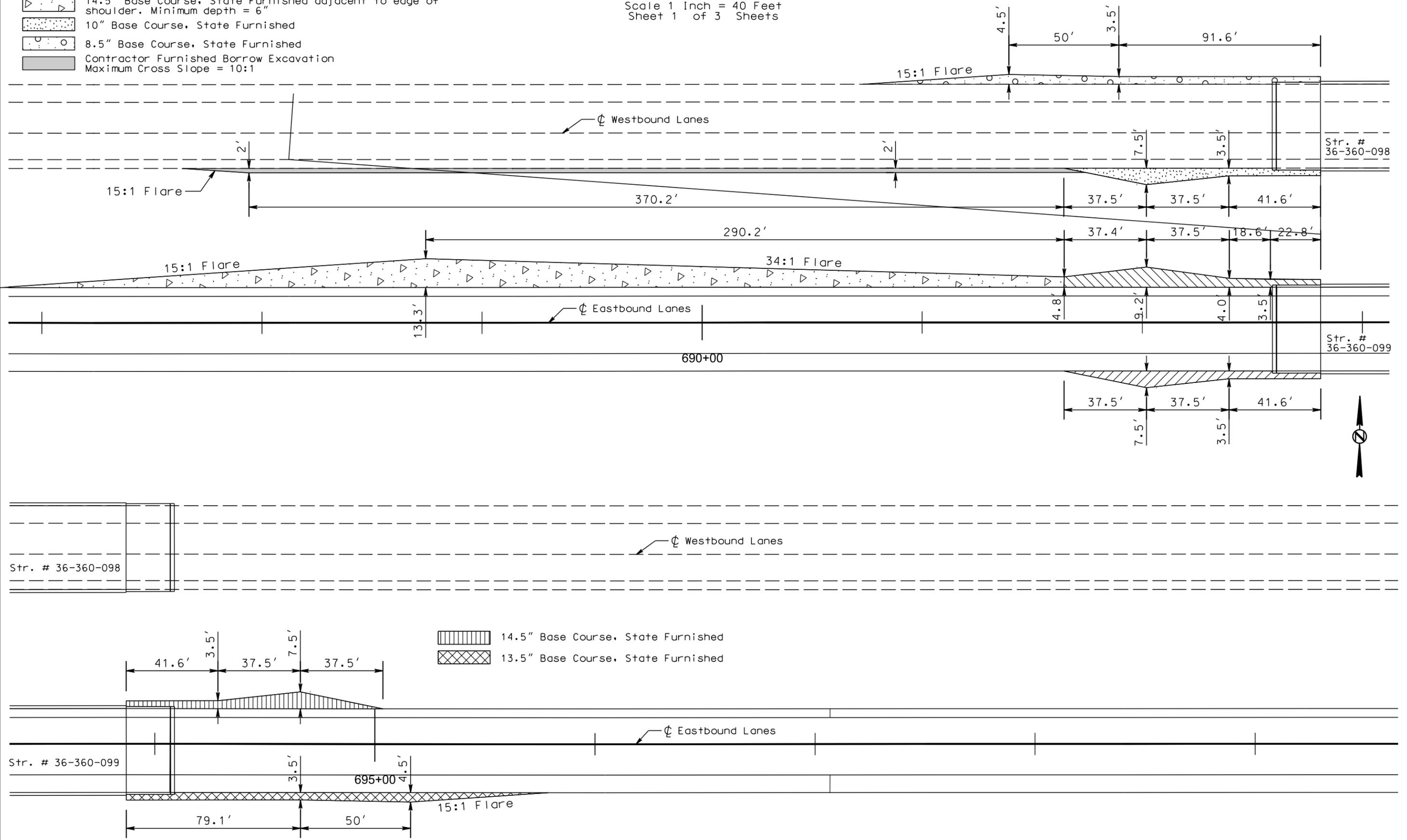
Plotting Date: 08/24/2015

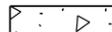
PLOT SCALE - 1:40

PLOT NAME - 38

PLOTTED FROM - TRPR18387

FILE - ...ADDITIONAL SURFACING FOR GUARDRAIL.DGN



-  2" Asphalt Concrete & 11.5" Base Course, State Furnished
-  2" Asphalt Concrete & 12.5" Base Course, State Furnished
-  14.5" Base Course, State Furnished adjacent to edge of shoulder. Minimum depth = 6"
-  10" Base Course, State Furnished
-  8.5" Base Course, State Furnished
-  Contractor Furnished Borrow Excavation
Maximum Cross Slope = 10:1

GUARDRAIL LAYOUT

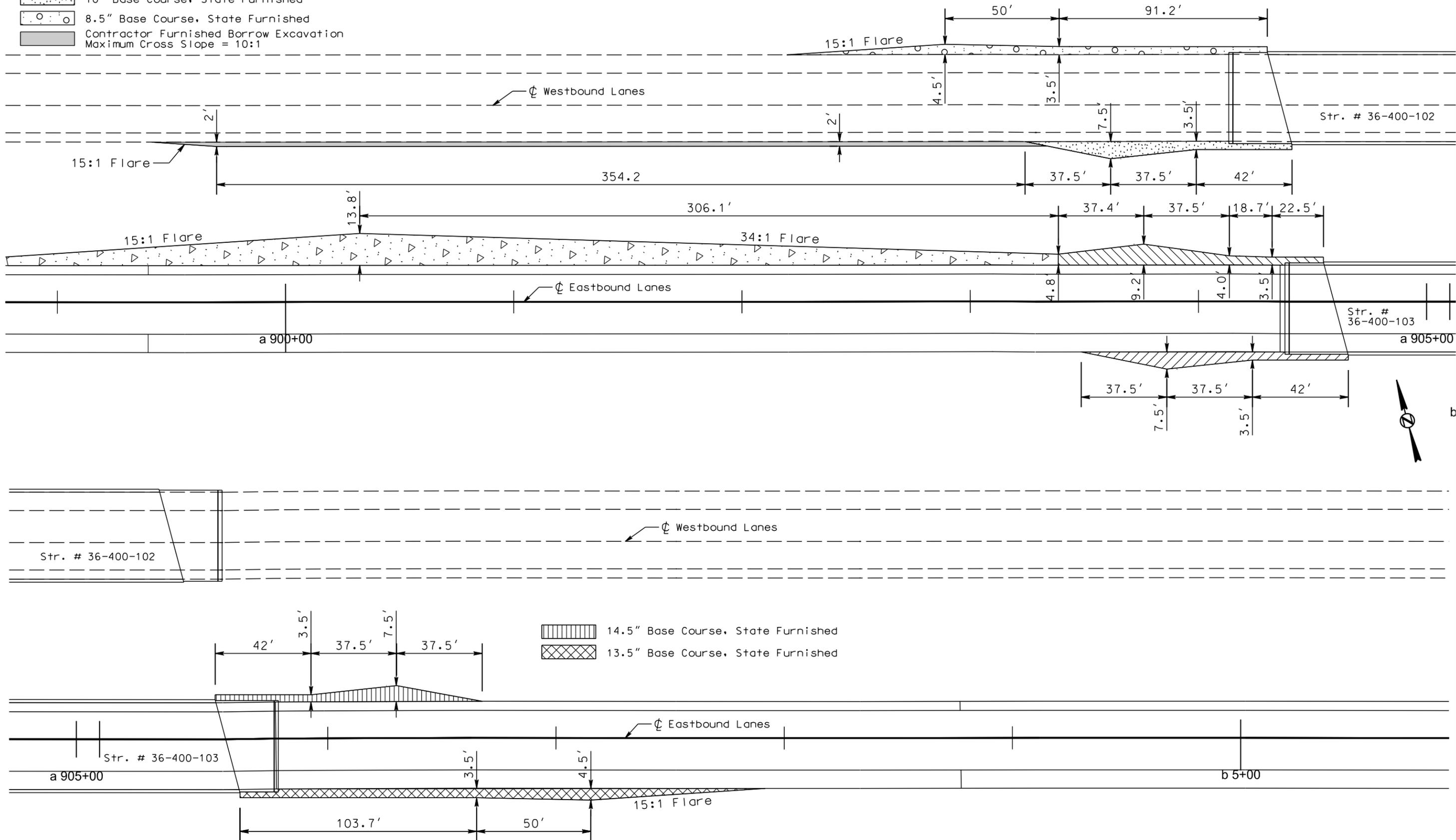
Scale 1 Inch = 40 Feet
Sheet 2 of 3 Sheets

| | | | |
|-----------------------|----------------------------|--------------|---------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F39 | TOTAL SHEETS F75 |
|-----------------------|----------------------------|--------------|---------------------|

Plotting Date: 08/24/2015

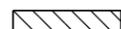
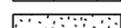
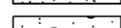
PLOT SCALE - 1:40

PLOT NAME - 39



FILE - ... ADDITIONAL SURFACING FOR GUARDRAIL.DGN

PLOTTED FROM - TRPR18387

-  2" Asphalt Concrete & 11.5" Base Course, State Furnished
-  2" Asphalt Concrete & 12.5" Base Course, State Furnished
-  14.5" Base Course, State Furnished adjacent to edge of shoulder. Minimum depth = 6"
-  10" Base Course, State Furnished
-  8.5" Base Course, State Furnished
-  Contractor Furnished Borrow Excavation
Maximum Cross Slope = 10:1

GUARDRAIL LAYOUT

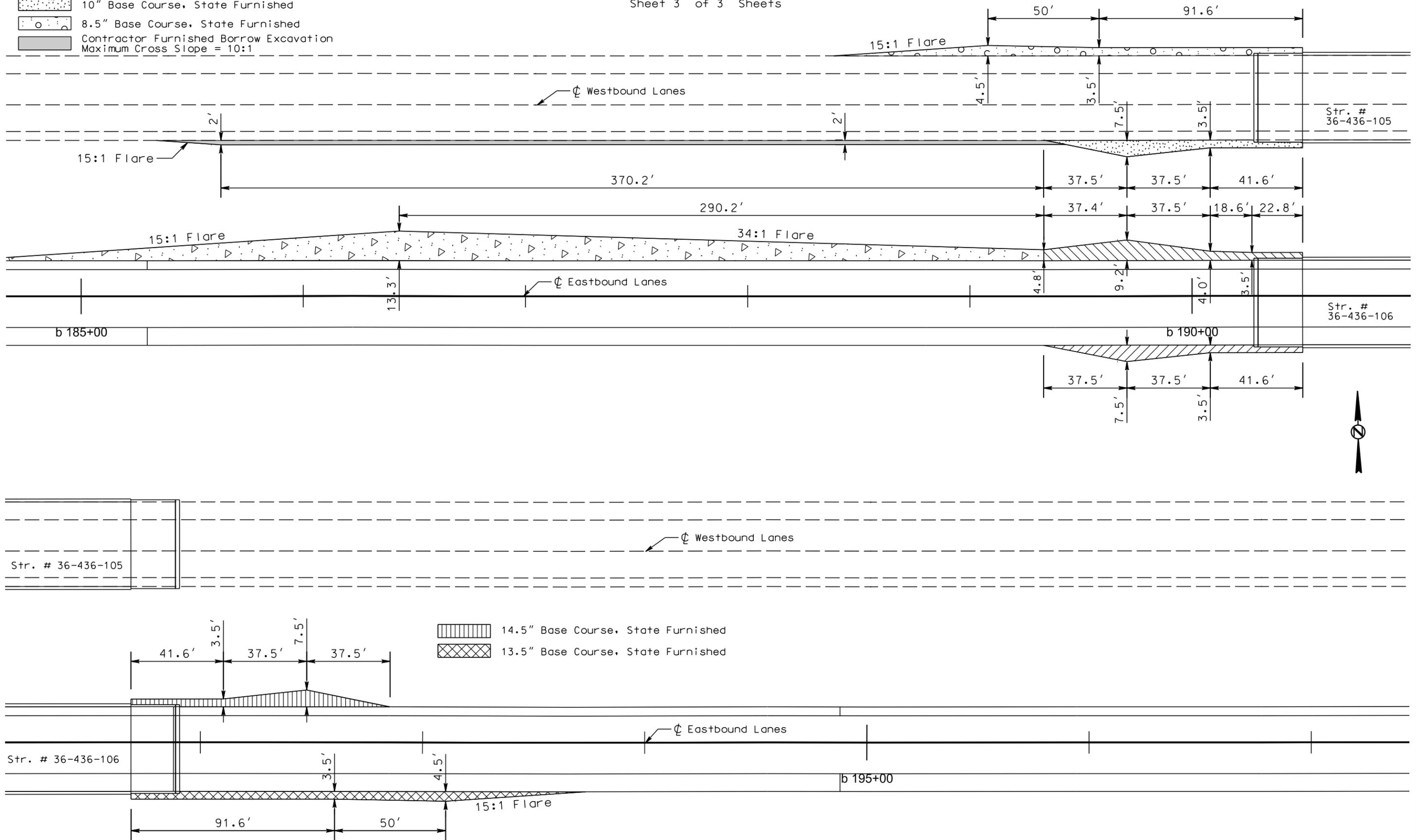
Scale 1 Inch = 40 Feet
Sheet 3 of 3 Sheets

| | | | |
|-----------------------|----------------------------|--------------|---------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F40 | TOTAL SHEETS F75 |
|-----------------------|----------------------------|--------------|---------------------|

Plotting Date: 08/24/2015

PLOT SCALE - 1:40

PLOT NAME - 40



PLOTTED FROM - TRPR18387

FILE - ... \ADDITIONAL SURFACING FOR GUARDRAIL.DGN

-  14.5" Base Course, State Furnished
-  13.5" Base Course, State Furnished



| | | | |
|-----------------------|-----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | IM 0903(101)153 | F41 | F75 |

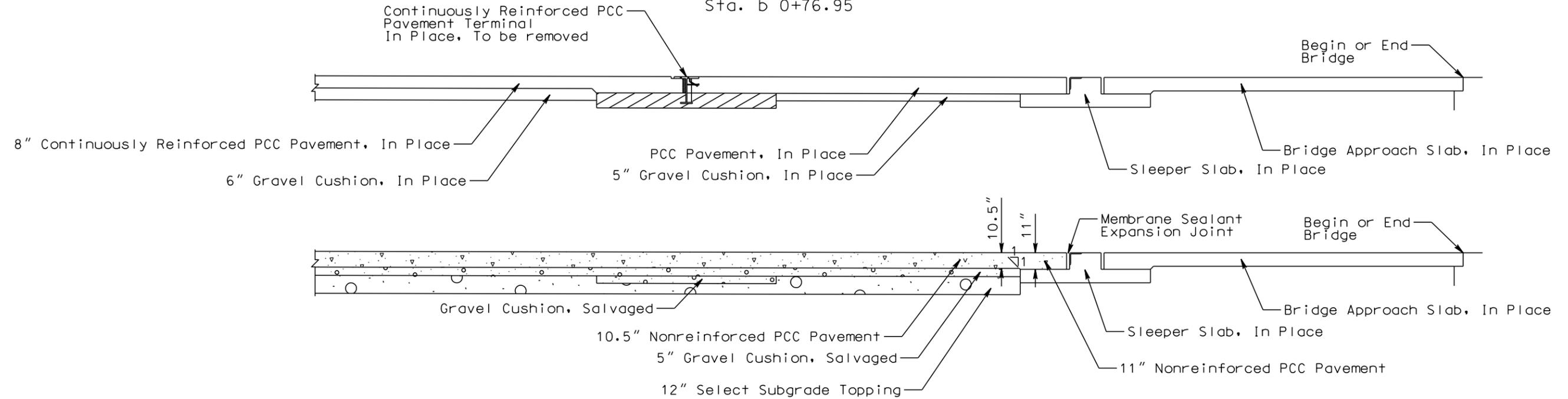
Plotting Date: 08/24/2015

TERMINAL ANCHOR REMOVAL DETAILS

 Remove Terminal Anchor Base

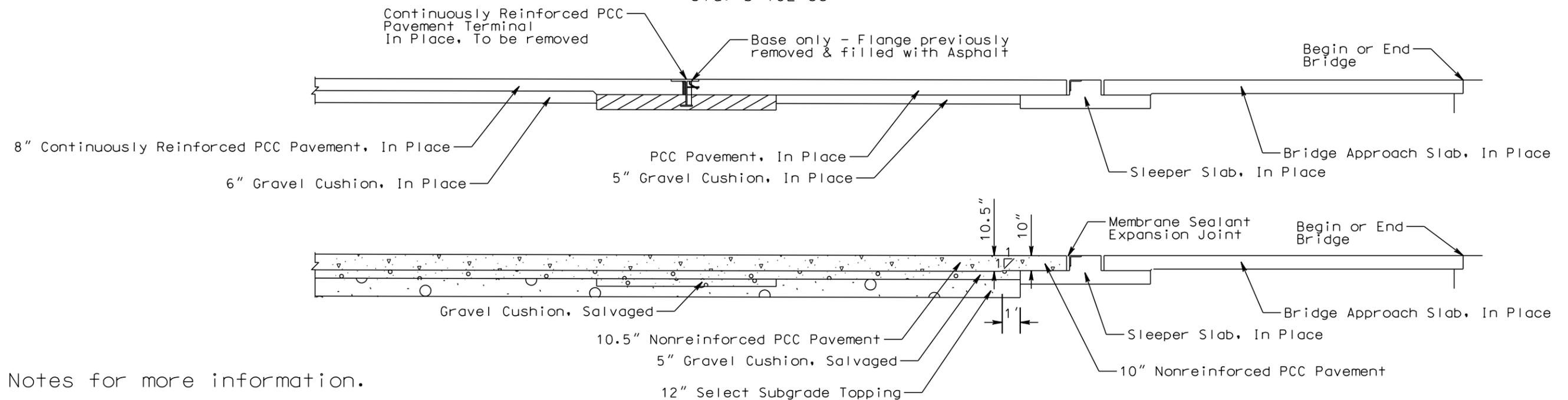
Structure No. 36-360-099 and 36-400-103

Sta. 692+60.50
Sta. 694+07.50
Sta. a 904+39.84
Sta. b 0+76.95



Structure No. 36-436-106

Sta. b 189+50
Sta. b 192+55



See Notes for more information.

PLOT SCALE - 1:6

PLOTTED FROM - TRPR18387

PLOT NAME - 41

FILE - ... \JACK03W4\TERMINAL ANCHOR.DGN

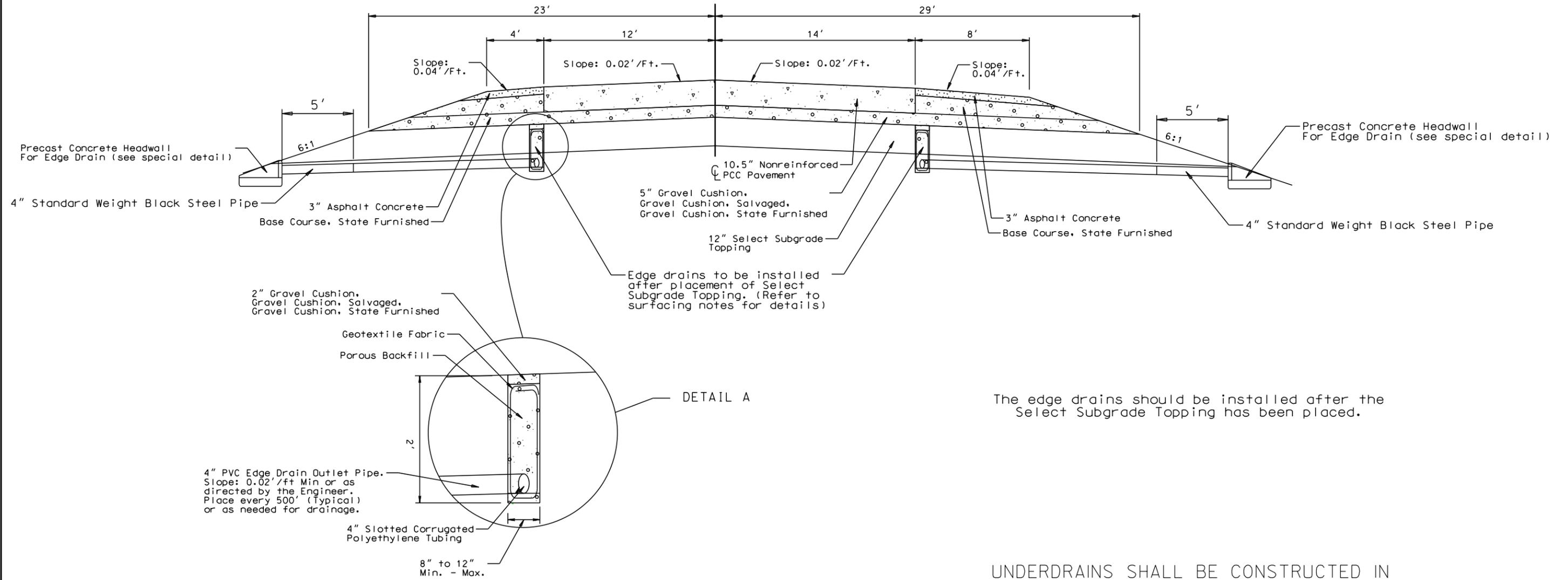
TYPICAL EDGE DRAIN LAYOUT

Sheet 1 of 1

| | | | |
|-----------------------|----------------------------|--------------|---------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F42 | TOTAL SHEETS F75 |
|-----------------------|----------------------------|--------------|---------------------|

Plotting Date: 08/24/2015

TYPICAL SECTION SHOWING 2' DEEP EDGE DRAIN PLACEMENT



Detail for 2' Deep Edge Drain

The edge drains should be installed after the Select Subgrade Topping has been placed.

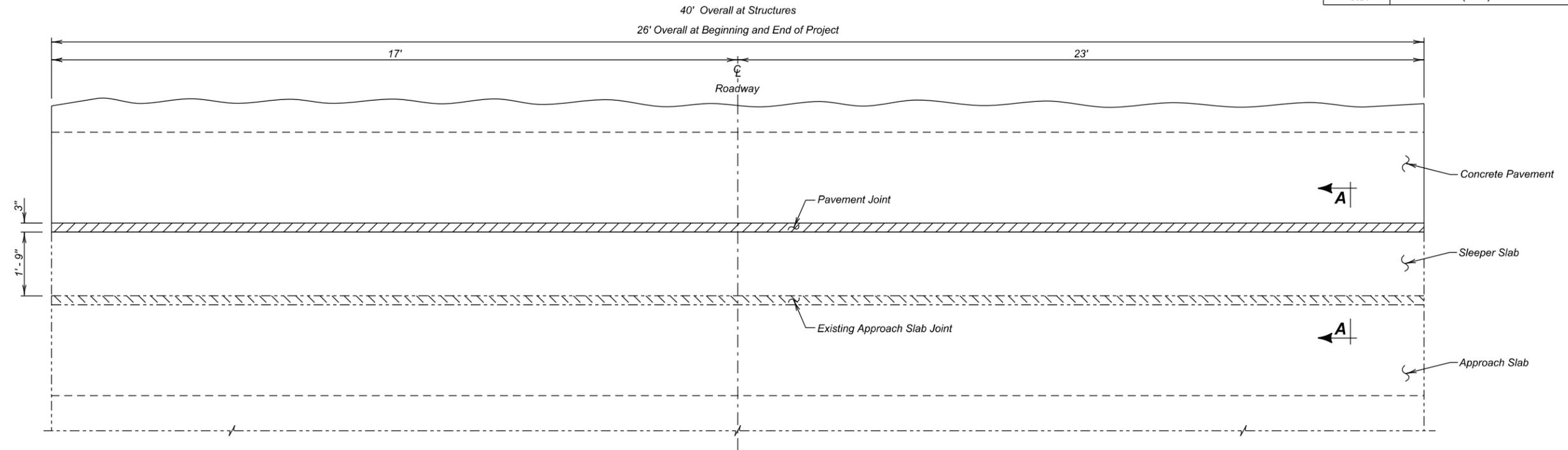
UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 680 OF THE SPECIFICATIONS

PLOT SCALE - 1/4\"/>

PLOTTED FROM - TRPR18387

PLOT NAME - 42

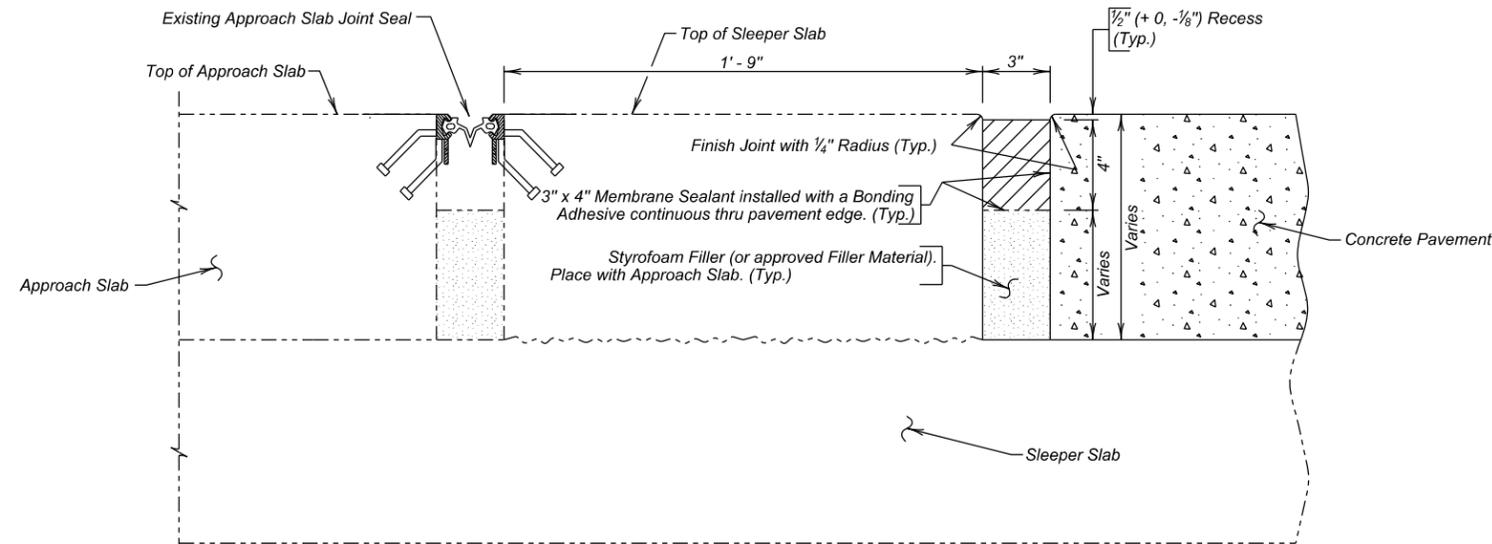
FILE - ... \DEEP & LATERAL DRAINS.DGN



GENERAL NOTES

- The Membrane Sealant shall be on the approved product list for Membrane Sealant Expansion Joints.
- The manufacturer shall supply the membrane sealant in packaging that precompresses the membrane sealant. The precompressed dimension shall be as recommended by the sealant manufacturer, however, in no case shall the precompressed dimension exceed 75% of the joint opening width. The foam sealant shall be slowly self expanding to permit workers ample time to install the membrane sealant before the membrane sealant exceeds the joint opening width.
- The membrane sealant shall provide a water tight seal throughout a joint movement range of + 25% (minimum) from the specified joint opening dimension.
- The membrane sealant shall be supplied in pieces a minimum of 5 feet in length. The foam sealant shall be ultra-violet and ozone resistant.
- The bonding adhesive used to attach the membrane sealant to the adjacent concrete shall be approved by the membrane sealant manufacturer.
- Adhesive used to join adjacent pieces of the membrane sealant shall be as recommended by the manufacturer.
- If Styrofoam filler material is used in the construction, it shall be closed cell and water-tight as approved by the Engineer.
- The minimum concrete air temperature at the time of joint installation and adhesive curing shall be 40° F.
- A technical representative of the membrane sealant manufacturer shall be present at the jobsite during installation. The technical representative shall be knowledgeable in the correct procedures for the preparation and installation of the joint material to ensure the Contractor installs the joint to the Manufacturers recommendations.
- Surfaces that will be in contact with the membrane sealant shall be thoroughly cleaned by abrasive blasting to remove all laitance and contaminants (such as oil, curing compounds, etc.) from the surface. At a minimum, two passes of abrasive blasting with the nozzle held at an angle to within 1 to 2 inches of the surface will be required. Galvanized metal surfaces shall be cleaned without damaging the galvanizing. Cleaning of the surfaces with solvents, wire brushing, or grinding shall not be permitted.
- After abrasive blasting, but immediately prior to membrane joint installation, the entire joint contact surface shall be air blasted. The air compressor used for joint cleaning shall be equipped with trap devices capable of providing moisture-free and oil-free air at a recommended pressure of 90 psi. To obtain complete bonding with the adhesive, the adjacent surfaces must be dry and clean. The contact surfaces for the joint shall be visually inspected by the Engineer immediately prior to joint installation to verify the surface is dry and clean.
- Individual spliced sections shall be installed as per the manufacturers' recommendations. The membrane joint sealant manufacturer shall submit a detailed installation procedure to the Engineer at least 5 days prior to joint installation for his review.
- Traffic shall not be allowed on the joint until the bonding adhesive has had time to cure, as recommended by the manufacturer.
- Use plywood or other material to protect concrete adjacent to the joint from spalling before any equipment is moved across the joint. Any spall areas will be repaired at the Contractor's expense by breaking out and replacing adjacent concrete, as approved by the Engineer.
- The Membrane Sealant Expansion Joint will be measured in feet to the nearest one-tenth foot, complete in place. Measurement will be made of the overall horizontal length. The Membrane Sealant Expansion Joint will be paid for at the contract unit price per foot complete in place. Payment for this item shall be full compensation for furnishing all the required materials in place, including labor, equipment and incidentals necessary to complete the work in accordance with the plans and the foregoing specifications.

BRIDGE AREA PLAN



SEC. A - A

| Location | Membrane Sealant Expansion Joint |
|---------------------------------------|----------------------------------|
| Begin Project MRM 153.00 + 0.000 | |
| Sta. 566+30.00 | 26 |
| End Project MRM 163.00 + 0.890 | |
| Sta. b 236+50.00 | 26 |
| Structures | |
| EBL Structure # 36-360-099 MRM 155.44 | |
| Begin Bridge Sta. 692+60.50 | 40 |
| End Bridge Sta. 694+07.50 | 40 |
| EBL Structure # 36-400-103 MRM 159.42 | |
| Begin Bridge Sta. a 904+39.84 | 40 |
| End Bridge Sta. b 0+76.95 | 40 |
| EBL Structure # 36-436-106 MRM 163.04 | |
| Begin Bridge Sta. b 190+29.77 | 40 |
| End Bridge Sta. b 191+88.77 | 40 |
| TOTAL: | 292 |

MEMBRANE SEALANT EXPANSION JOINT
 DETAILS FOR
 JOINT BETWEEN SLEEPER SLAB
 OR APPROACH SLAB
 AND PCC PAVEMENT
 JACKSON COUNTY
 S. D. DEPT. OF TRANSPORTATION

Acceleration Lane will be lengthened if ramp speed of 50 mph is not achieved at the beginning of Acceleration Lane.

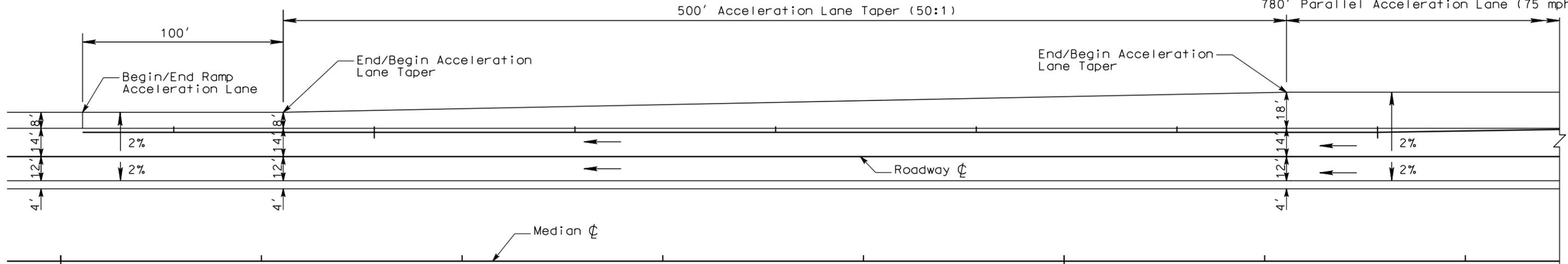
On Ramp Acceleration Lane Details

| | | | |
|-----------------------|-----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | IM 0903(101)153 | F44 | F75 |

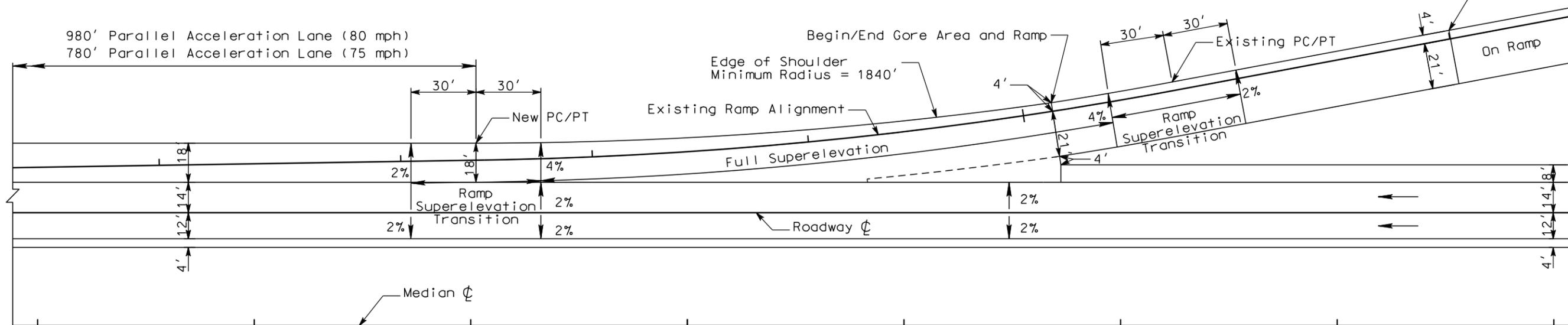
Plotting Date: 08/24/2015
Revised 08-20-2015 LLA

Notes:
 Stationing for existing ramp is for reference only.
 2% Crown Slope for interstate may vary depending on horizontal geometrics.
 See P.C.C. Pavement Joint Layout Sheets for Concrete Joint Pavement Details.

980' Parallel Acceleration Lane (80 mph)
 780' Parallel Acceleration Lane (75 mph)



Begin/End of work. Match Existing Ramp Cross Slope. See Pavement Layout sheets for location of cross slope transition End/Start point.



PLOT SCALE - 1:49,8506

PLOTTED FROM - TRPR18387

PLOT NAME - 44

FILE - ... \RAMP ACCEL DECEL DETAILS.DGN

Deceleration Lane will be lengthened if ramp speed of 50 mph or less can not be achieved at the end of Deceleration Lane.

Off Ramp Deceleration Lane Details

| | | | |
|-----------------------|----------------------------|--------------|---------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F45 | TOTAL SHEETS F75 |
|-----------------------|----------------------------|--------------|---------------------|

Plotting Date: 08/24/2015
Revised 08-20-2015 LLA

Notes:

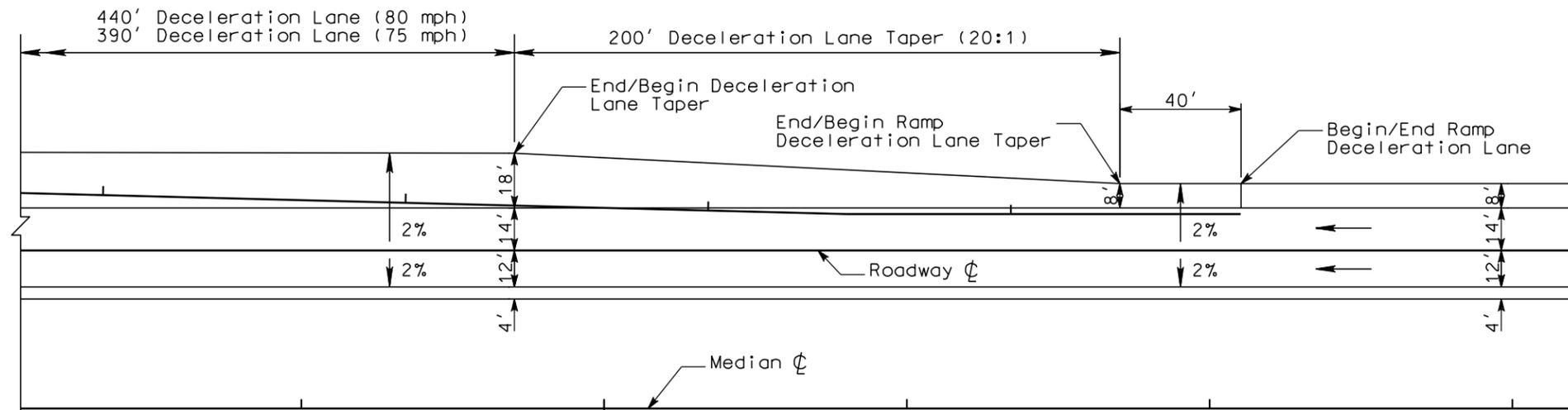
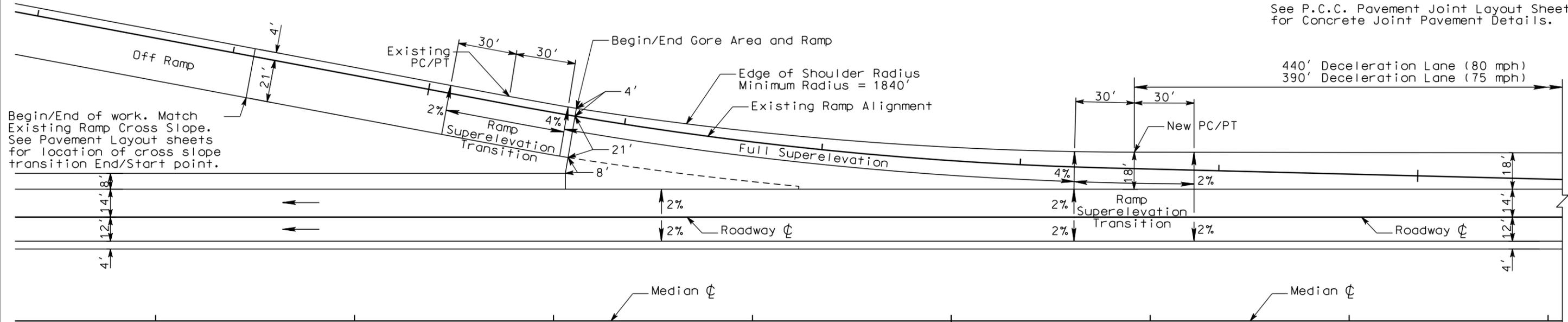
Stationing for existing ramp is for reference only.

2% Crown Slope for interstate may vary depending on horizontal geometrics.

See P.C.C. Pavement Joint Layout Sheets for Concrete Joint Pavement Details.

PLOT SCALE - 1:49,8506

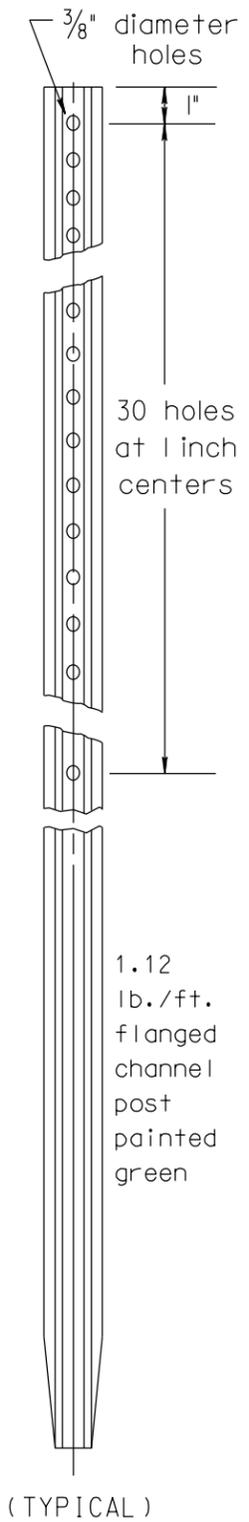
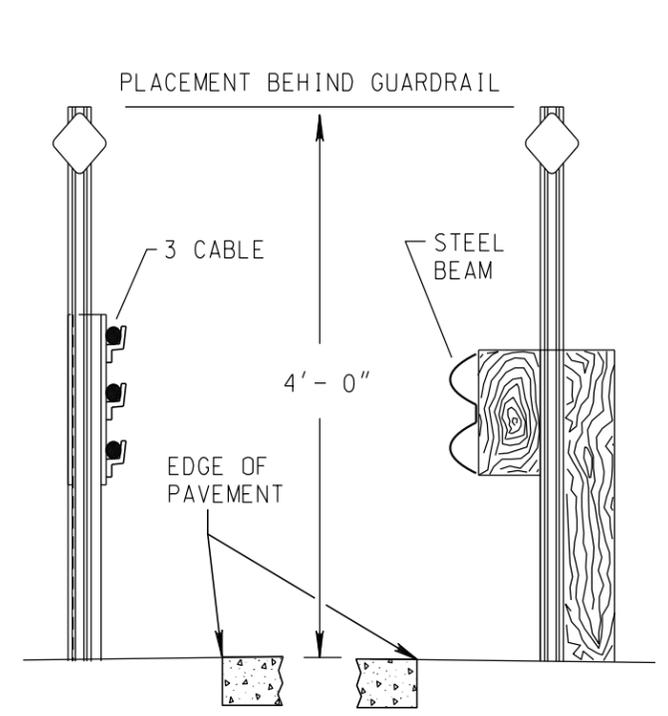
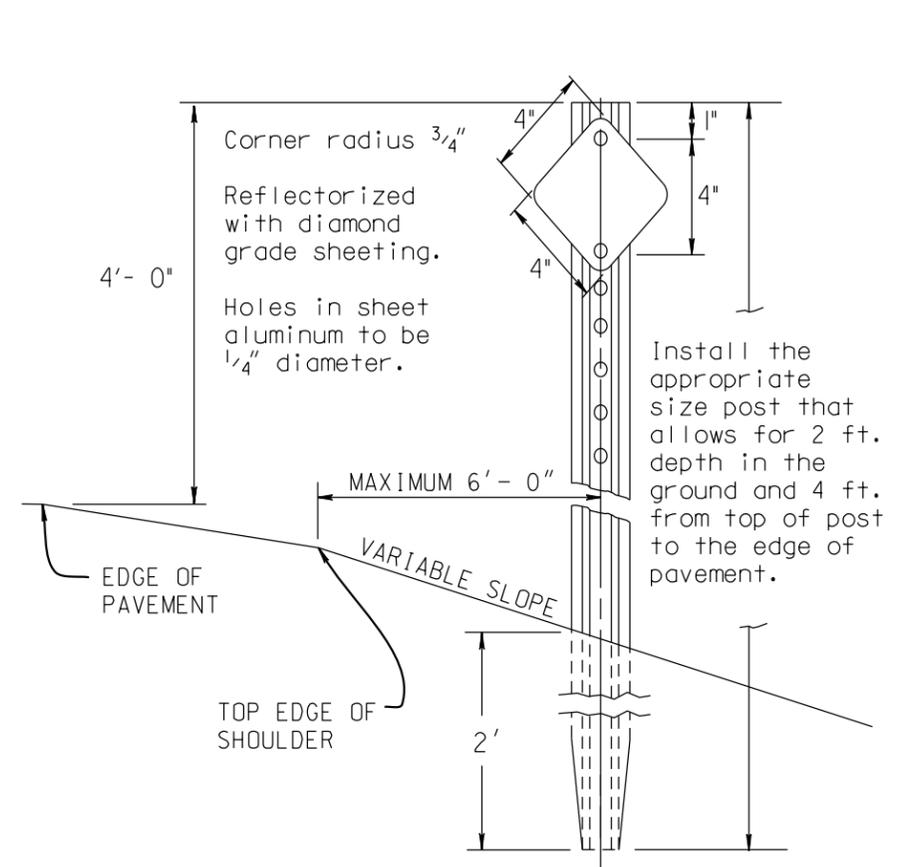
PLOT NAME - 45



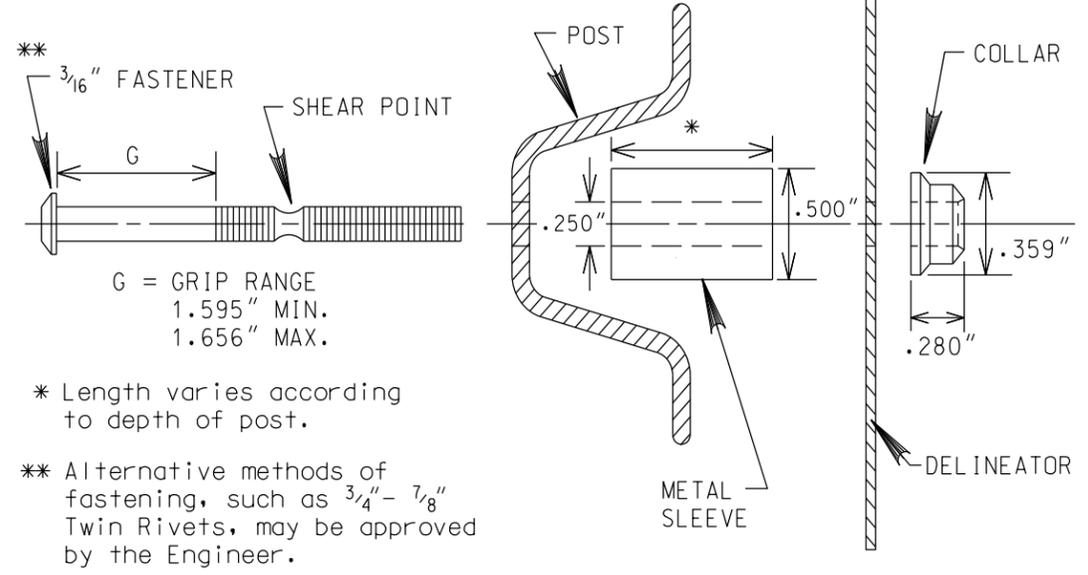
PLOTTED FROM - TRPR18387

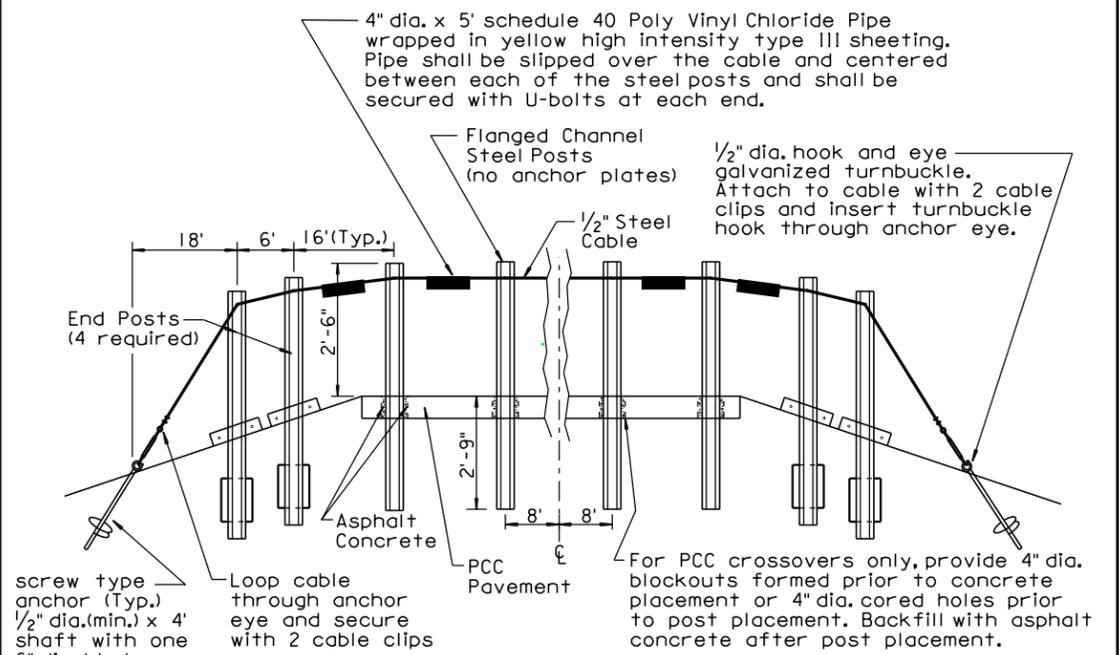
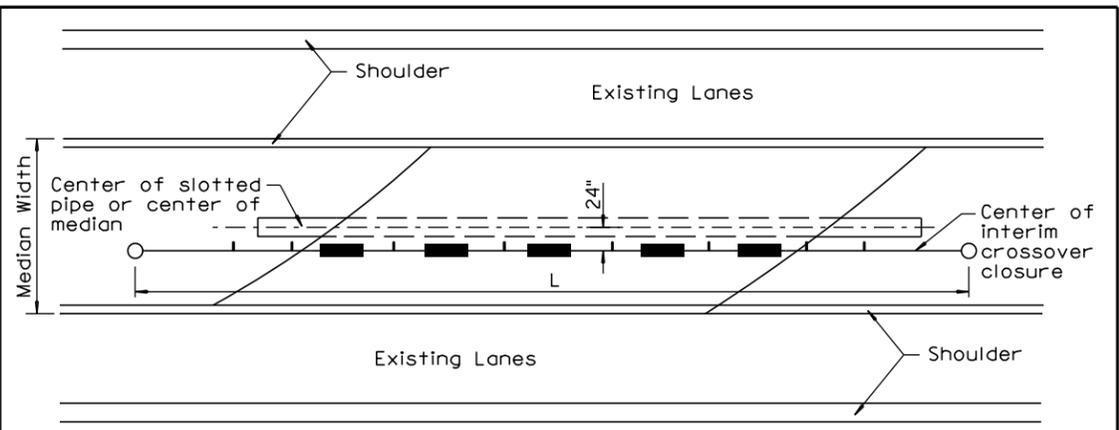
FILE - ... \RAMP ACCEL DECEL DETAILS.DGN

INSTALLATION DETAILS FOR 4" x 4" DELINEATORS (DIVIDED HIGHWAY)



DETAIL FOR SINGLE MOUNTING 4" x 4" DELINEATORS ON POST





| NO. OF PVC PIPES | NO. OF U-BOLTS | NO. OF FLANGED CHANNEL STEEL POSTS | PAY LENGTH L |
|------------------|----------------|------------------------------------|--------------|
| 5 | 10 | 4 | 128' |
| 3 | 8 | 2 | 96' |

GENERAL NOTES:

All costs for materials, backfilling holes with asphalt concrete, labor, equipment, and incidentals necessary to construct the interim crossover closure shall be incidental to the contract unit price per Ft for "Interim Crossover Closure". The costs of coring holes or providing blockouts in the surfacing shall be incidental to the surfacing bid item(s).

The Interim Crossover Closure shall be constructed using 3 cable guardrail posts with hook bolts. For specific details of the 3 cable guardrail hardware and installation, see Standard Plate 629.01 sheets 1 through 6.

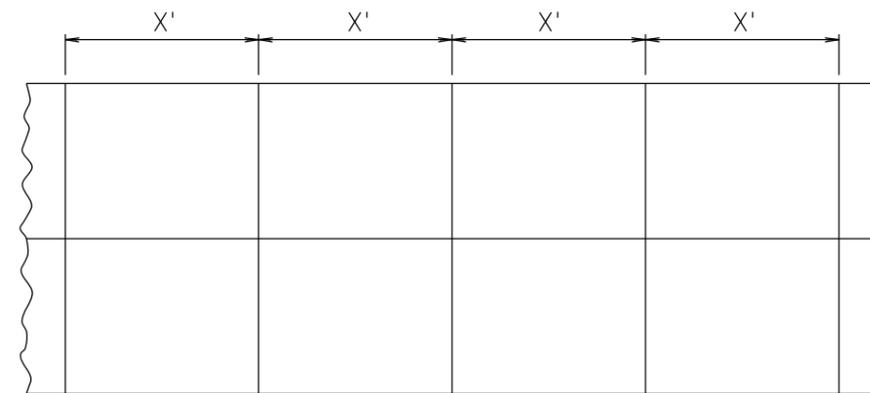
INTERIM CROSSOVER CLOSURE FOR RAMP DETOURS

SPECIAL DETAILS

| | | | |
|-----------------------------|----------------------------|--------------|------------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0903(101)153 | SHEET F49 | TOTAL SHEETS F75 |
|-----------------------------|----------------------------|--------------|------------------------|

Plotting Date: 08/24/2015

PCC PAVEMENT TYPICAL CONTRACTION JOINT SPACING



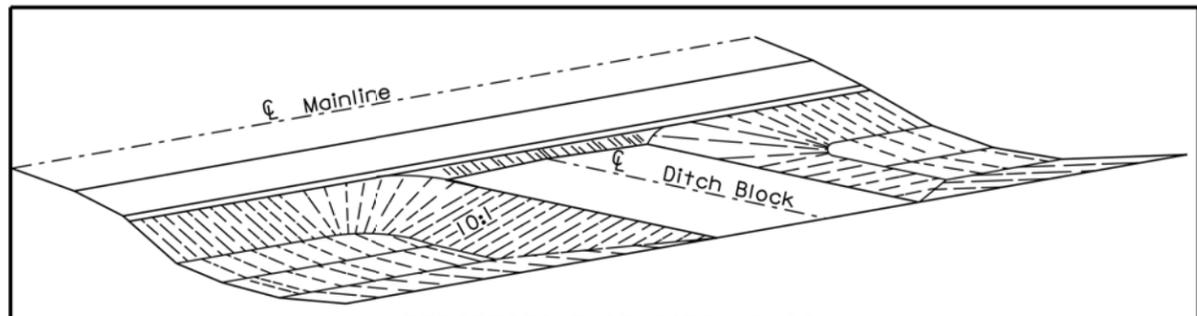
| PCCP Thickness | Transverse Contraction Joint Spacing (X) |
|-----------------|--|
| 7" | 14' |
| 8" to 9.5" | 15' |
| 10" and Thicker | 20' |

Plotting Date: 08/24/2015

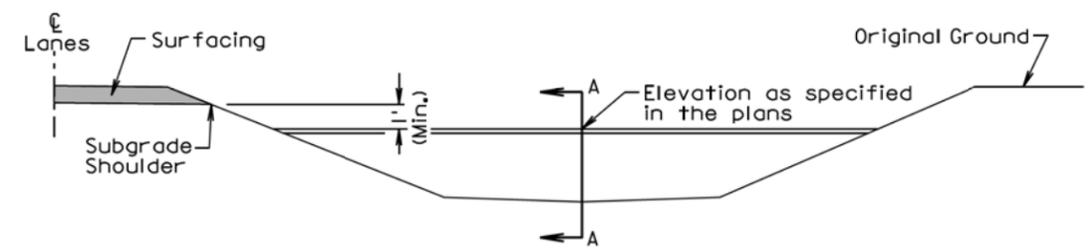
PLOT SCALE - 1:200

PLOT NAME - 50

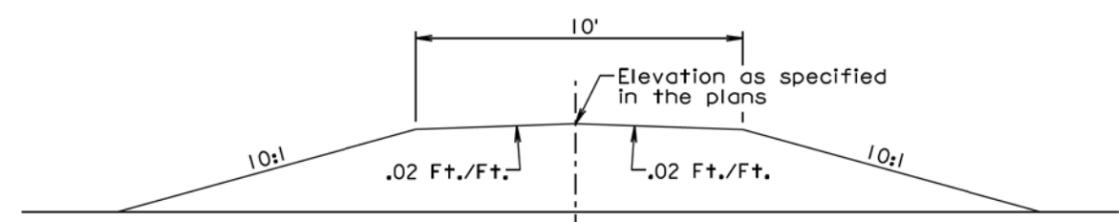
FILE - ... \STANDARD PLATES\SPI.DGN



PERSPECTIVE OF DITCH BLOCK



ELEVATION VIEW



SECTION A-A

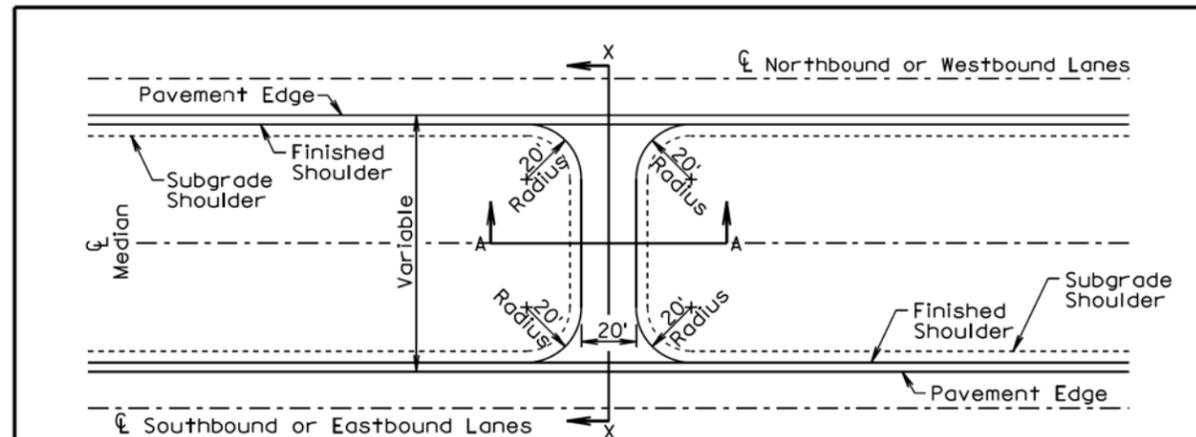
GENERAL NOTES:

The ditch section shown above in the perspective and elevation view is only for illustrative purposes.
 The inslopes of the ditch block shall be 10:1 or as specified in the plans.
 The transition area between the mainline inslope and the ditch block inslope shall be rounded to eliminate an abrupt transition.

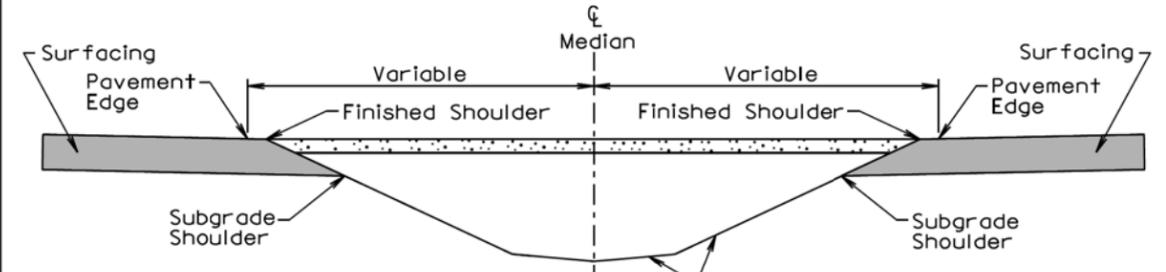
February 14, 2011

| | | |
|----------------------------------|--------------------|------------------------|
| S D D O T | DITCH BLOCK | PLATE NUMBER 120.02 |
| | | Sheet 1 of 1 |

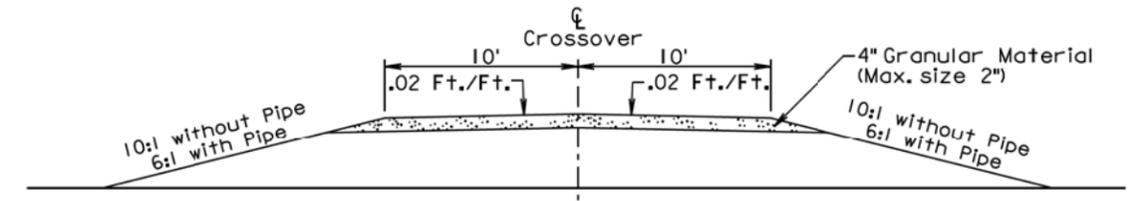
Published Date: 3rd Qtr. 2015



PLAN VIEW



SECTION X-X



SECTION A-A

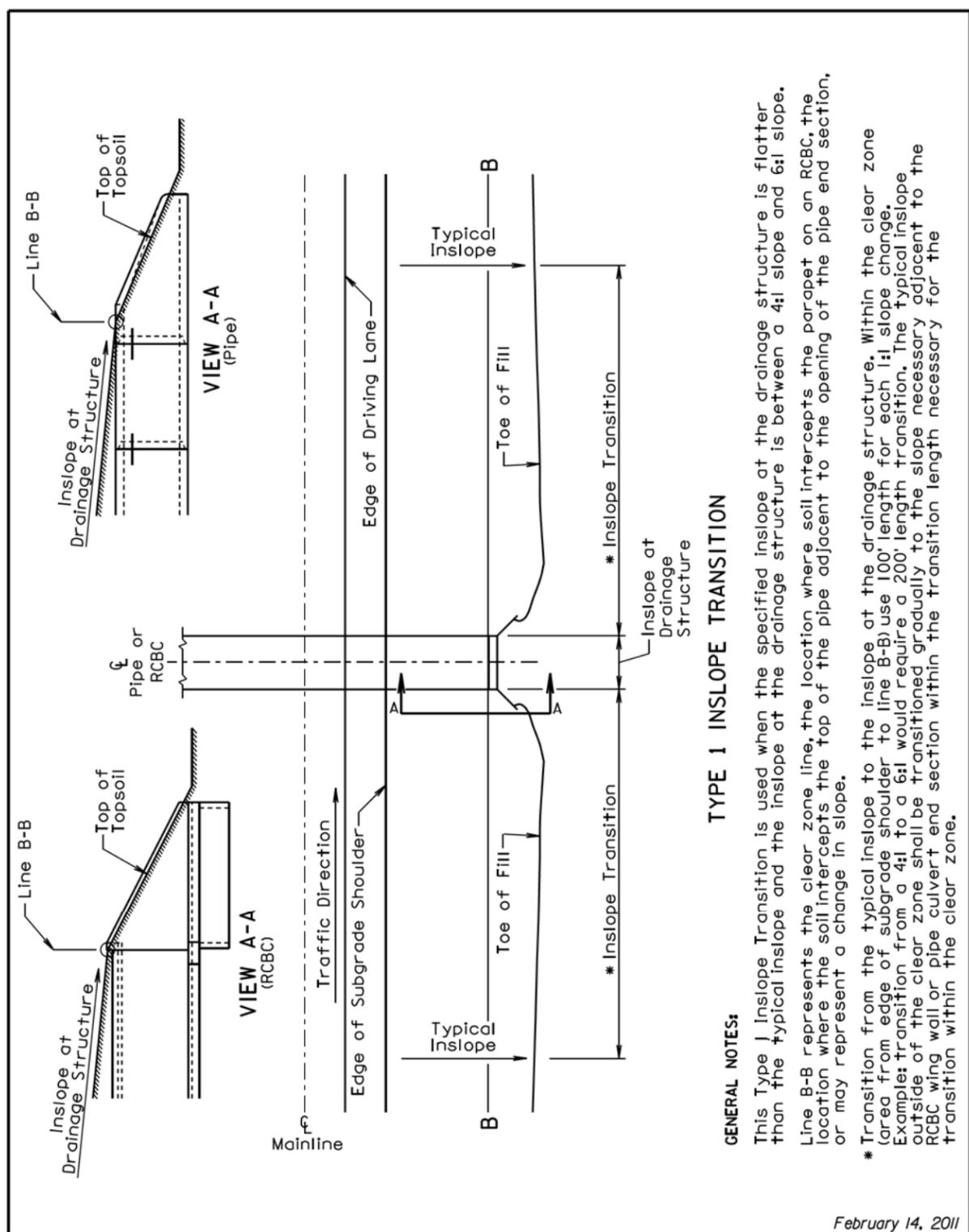
GENERAL NOTES:

The inslopes of the maintenance crossovers shall be 6:1 when there is a pipe, 10:1 without pipe, or as specified in the plans.
 The quantities of materials necessary for construction of the maintenance crossovers are as provided in the plans and shall be paid for at their respective contract unit prices for the various materials used.

February 14, 2011

| | | |
|----------------------------------|---|------------------------|
| S D D O T | STANDARD MAINTENANCE CROSSOVER FOR INTERSTATE HIGHWAYS | PLATE NUMBER 120.04 |
| | | Sheet 1 of 1 |

Published Date: 3rd Qtr. 2015



TYPE 1 INSLOPE TRANSITION

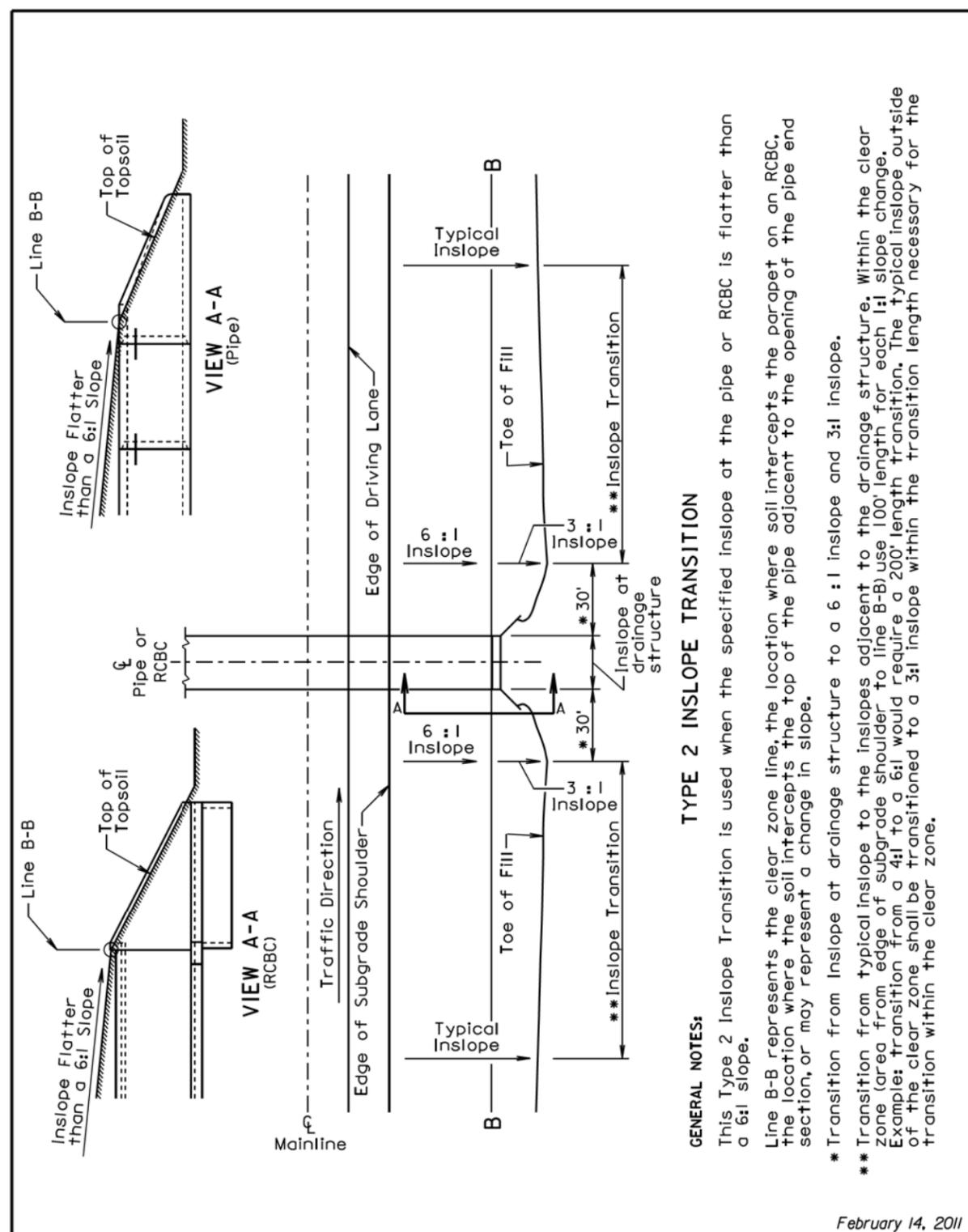
GENERAL NOTES:

This Type 1 Inslope Transition is used when the specified inslope at the drainage structure is flatter than the typical inslope and the inslope at the drainage structure is between a 4:1 slope and 6:1 slope. Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from the typical inslope to the inslope at the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone shall be transitioned gradually to the slope necessary adjacent to the RCBC wing wall or pipe culvert end section within the transition length necessary for the transition within the clear zone.

February 14, 2011

| | | |
|-------------|---|-------------------------------|
| SDOT | INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS | PLATE NUMBER 120.05 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 2 |



TYPE 2 INSLOPE TRANSITION

GENERAL NOTES:

This Type 2 Inslope Transition is used when the specified inslope at the pipe or RCBC is flatter than a 6:1 slope. Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from inslope at drainage structure to a 6:1 inslope and 3:1 inslope.

** Transition from typical inslope to the inslopes adjacent to the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone shall be transitioned to a 3:1 inslope within the transition length necessary for the transition within the clear zone.

February 14, 2011

| | | |
|-------------|---|-------------------------------|
| SDOT | INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS | PLATE NUMBER 120.05 |
| | Published Date: 3rd Qtr. 2015 | Sheet 2 of 2 |

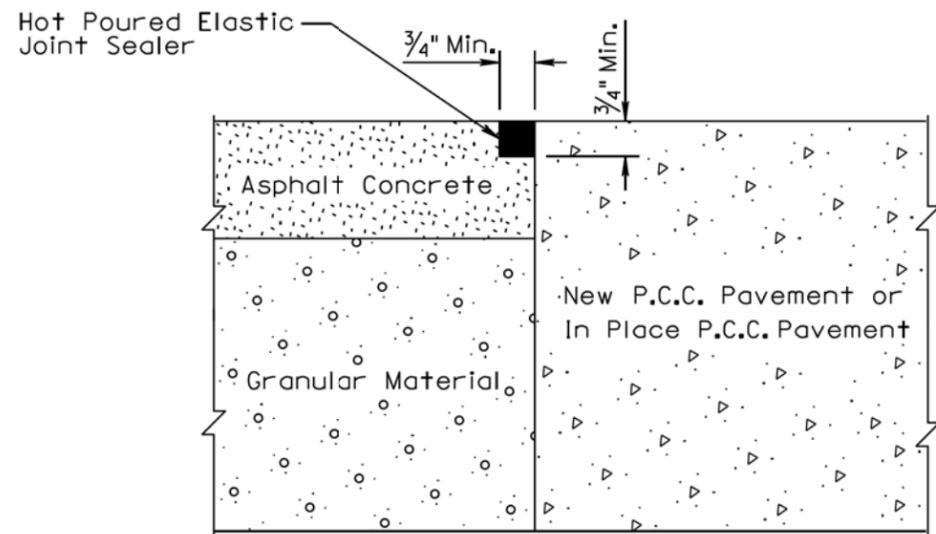
| | | | |
|-----------------------|-----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | IM 0903(101)153 | F52 | F75 |

Plotting Date: 08/24/2015

PLOT SCALE - 1:200

PLOT NAME - 52

FILE - ... \STANDARD PLATES\SP3.DGN



March 31, 2000

Published Date: 3rd Qtr. 2015

**S
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O
T**

**ASPHALT CONCRETE SHOULDER JOINT
ADJACENT TO PCC PAVEMENT**

PLATE NUMBER
320.15

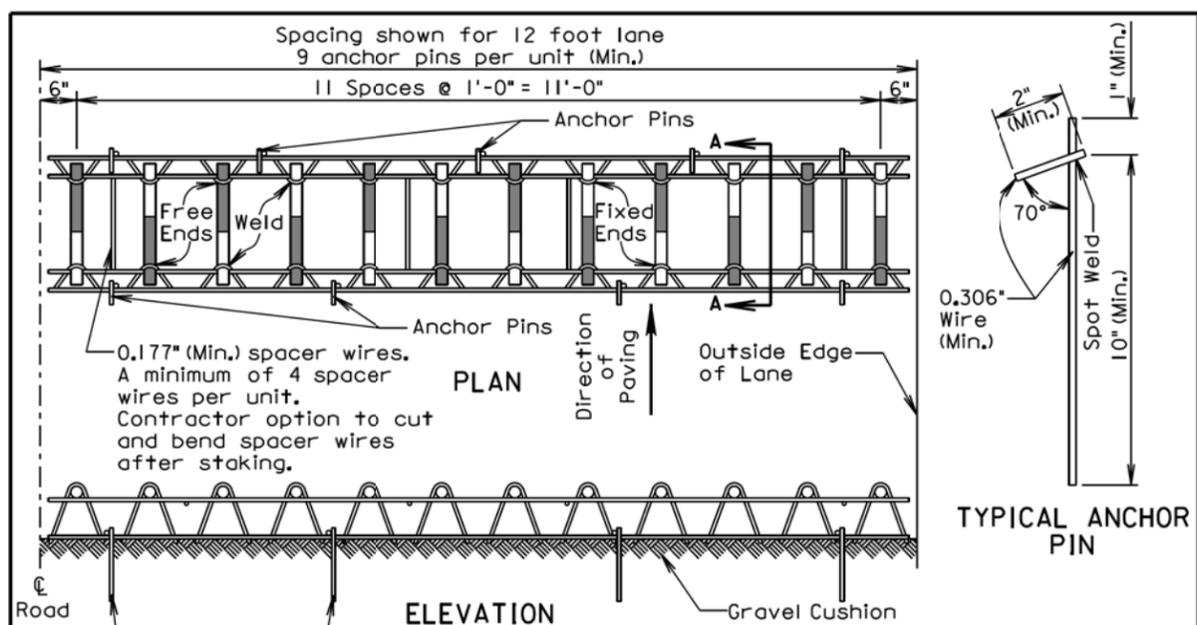
Sheet 1 of 1

Plotting Date: 08/24/2015

PLOT SCALE - 1:200

PLOT NAME - 53

FILE - ... \STANDARD PLATES\SP4.DGN



| PAVEMENT THICKNESS | EPOXY COATED DOWEL BAR SIZE | HEIGHT TO CENTER |
|--------------------|-----------------------------|------------------|
| 7" to 7 1/2" | 1" x 18" | 3.0" |
| 8" to 10" | 1 1/4" x 18" | 4.0" |
| 10 1/2" to 12" | 1 1/2" x 18" | 5.0" |

GENERAL NOTES:

Longitudinal joint tie bars shall be placed a minimum of 15 inches from the transverse contraction joint.

Centerline of individual dowel bars shall be parallel to top of subgrade $\pm 1/8$ inch in 18 inches and to all other dowel bars in the assembly $\pm 1/16$ inch in 18 inches.

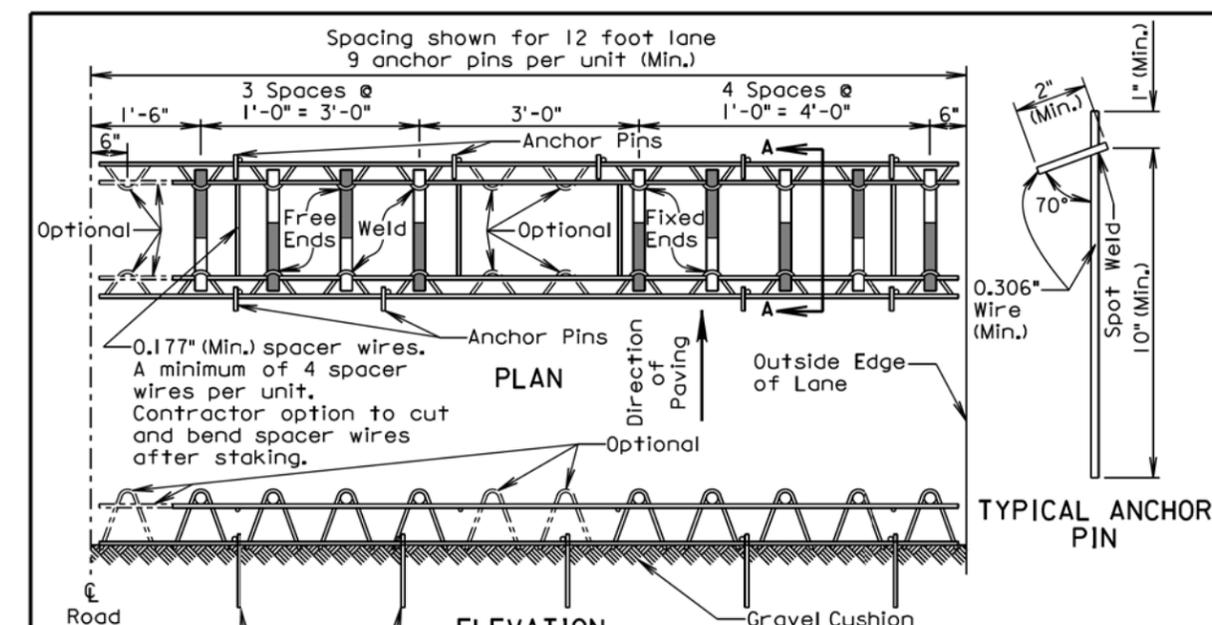
Centerline of individual dowel bars shall be parallel to the centerline of the roadway $\pm 1/2$ inch in 18 inches.

The transverse contraction joints shall be sawed perpendicular to the centerline of the roadway and the dowel bars shall be centered on the sawed joint ± 1 inch.

Supporting devices as shown on this sheet, or equivalent as approved by the Engineer, shall be used to maintain proper horizontal and vertical alignment of the dowel bars.

August 30, 2013

| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 12 Bar Assembly on Granular Base Material | PLATE NUMBER 380.01 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |



| PAVEMENT THICKNESS | EPOXY COATED DOWEL BAR SIZE | HEIGHT TO CENTER |
|--------------------|-----------------------------|------------------|
| 7" to 7 1/2" | 1" x 18" | 3.0" |
| 8" to 10" | 1 1/4" x 18" | 4.0" |
| 10 1/2" to 12" | 1 1/2" x 18" | 5.0" |

GENERAL NOTES:

Longitudinal joint tie bars shall be placed a minimum of 15 inches from the transverse contraction joint.

Centerline of individual dowel bars shall be parallel to top of subgrade $\pm 1/8$ inch in 18 inches and to all other dowel bars in the assembly $\pm 1/16$ inch in 18 inches.

Centerline of individual dowel bars shall be parallel to the centerline of the roadway $\pm 1/2$ inch in 18 inches.

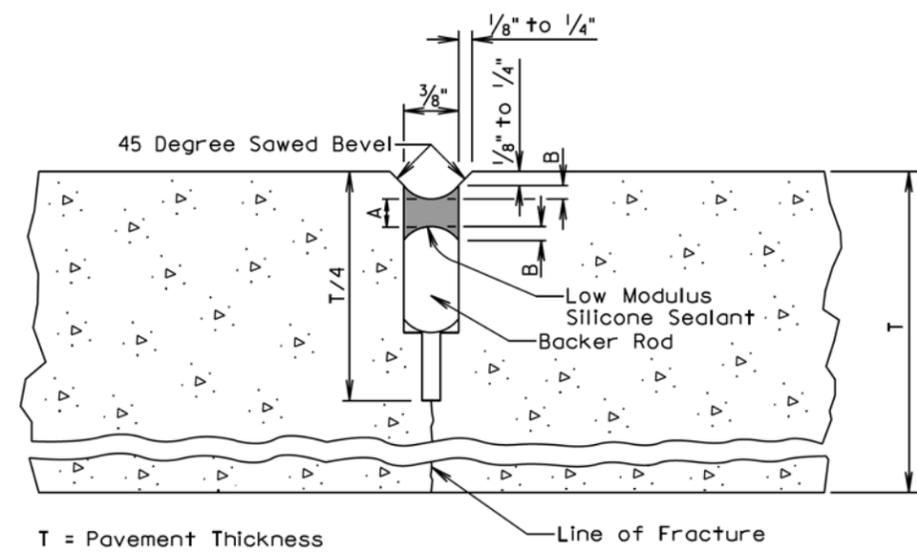
The transverse contraction joints shall be sawed perpendicular to the centerline of the roadway and the dowel bars shall be centered on the sawed joint ± 1 inch.

Supporting devices as shown on this sheet, or equivalent as approved by the Engineer, shall be used to maintain proper horizontal and vertical alignment of the dowel bars.

August 30, 2013

| | | |
|----------------------------------|---|-------------------------------|
| S D D O T | PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 9 Bar Assembly on Granular Base Material | PLATE NUMBER 380.03 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |

PLOTTED FROM - TRPR18387



T = Pavement Thickness

| LOW MODULUS SILICONE SEALANT ALLOWABLE CONSTRUCTION TOLERANCES | | | |
|--|----------------|----------------|----------------|
| A (Min.) (In.) | A (Max.) (In.) | B (Min.) (In.) | B (Max.) (In.) |
| 3/16 | 5/16 | 1/8 | 1/4 |

GENERAL NOTES:

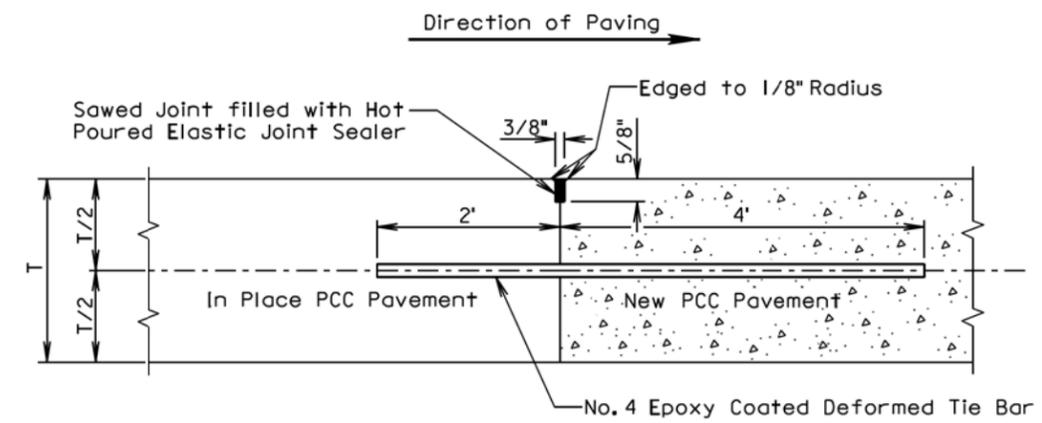
The first saw cut to control cracking shall be a minimum of 1/4 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the low modulus silicone joint sealant will be necessary.

The backer rod shall be a nonmoisture absorbing resilient material approximately 25% larger in diameter than the width of the joint to be sealed.

June 26, 2013

| | | |
|----------------------------------|---|-------------------------------|
| S D D O T | PCC PAVEMENT BEVELED TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY | PLATE NUMBER 380.06 |
| | | Sheet 1 of 1 |

Published Date: 3rd Qtr. 2015



T = Pavement Thickness

GENERAL NOTES:

No. 4 epoxy coated deformed tie bars shall be spaced 12 inches center to center and shall be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

The minimum distance between a transverse construction joint with tie bars and an adjacent transverse contraction joint shall be 5 feet.

When a transverse construction joint is made, paving will not be allowed in this area for 12 hours.

A transverse construction joint may be placed in lieu of the transverse contraction joint when shown in the plans.

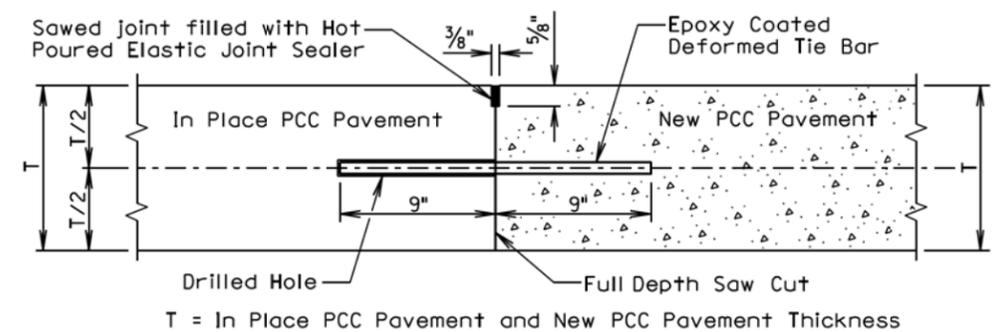
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on the current project.

June 26, 2013

| | | |
|----------------------------------|---|-------------------------------|
| S D D O T | PCC PAVEMENT MID PANEL TRANSVERSE CONSTRUCTION JOINT | PLATE NUMBER 380.07 |
| | | Sheet 1 of 1 |

Published Date: 3rd Qtr. 2015

**DETAIL A
TRANSVERSE CONSTRUCTION JOINT WITH TIE BARS**



GENERAL NOTES:

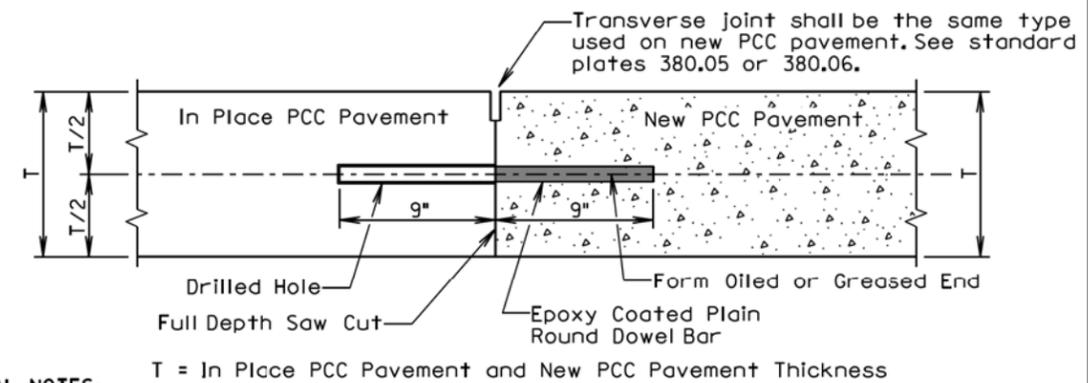
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

See sheet 2 of 2 of this standard plate to determine if Detail A shall be used.

The tie bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

No. 9 epoxy coated deformed tie bars shall be used in 10 inch thickness and less PCC Pavement and No. 11 epoxy coated deformed tie bars shall be used in 10.5 inch thickness and greater PCC Pavement. The tie bar spacing shall be 18 inches center to center and shall be a minimum of 3 inches and a maximum of 9 inches from the pavement edges.

**DETAIL B
TRANSVERSE CONSTRUCTION JOINT WITH DOWEL BARS**



GENERAL NOTES:

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project or current project.

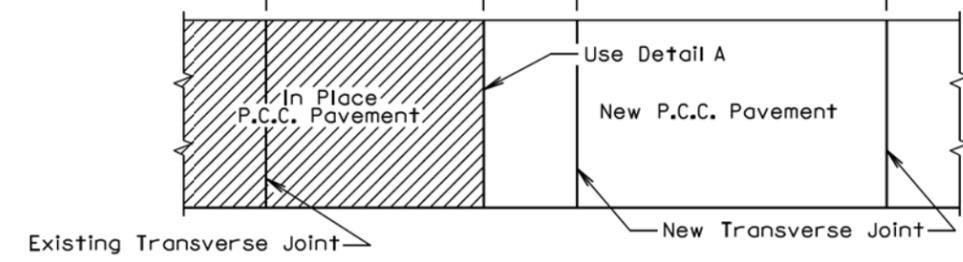
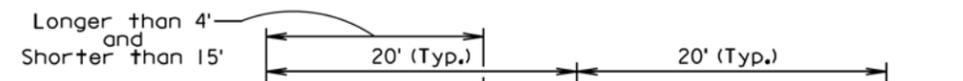
See sheet 2 of 2 of this standard plate to determine if Detail B shall be used.

The plain round dowel bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

The epoxy coated plain round dowel bar size, number, and spacing shall be the same as detailed on the corresponding dowel bar assembly standard plate (380.01, 380.02, 380.03, or 380.04). The epoxy coated plain round dowel bars shall be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

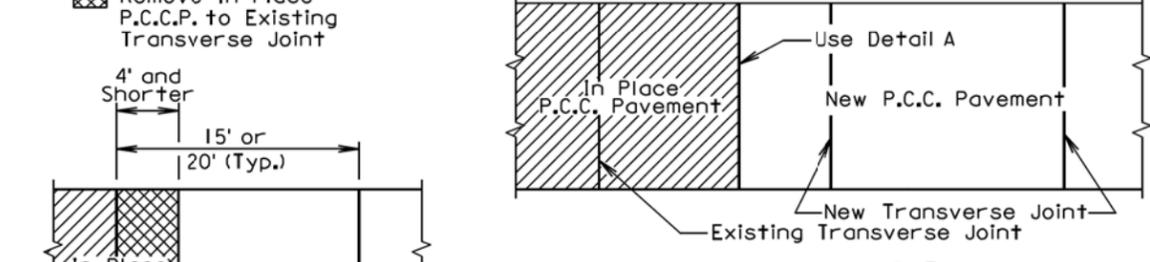
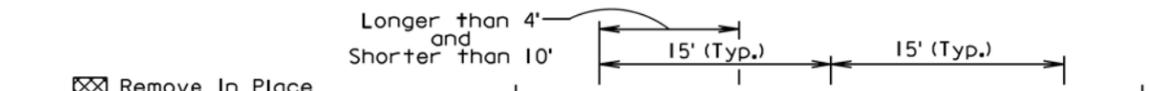
September 6, 2013

| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS | PLATE NUMBER 380.08 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 2 |



PLAN VIEW

(For typical transverse joint spacing of 20' on the current project)



PLAN VIEW

(For typical transverse joint spacing of 15' or 20' on the current project)

PLAN VIEW

(For typical transverse joint spacing of 15' on the current project)

September 6, 2013

| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS | PLATE NUMBER 380.08 |
| | Published Date: 3rd Qtr. 2015 | Sheet 2 of 2 |

PLOT SCALE - 1:200

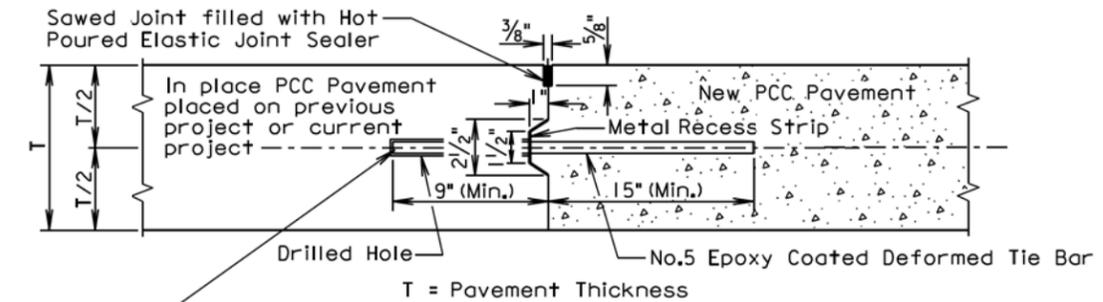
PLOT NAME - 55

FILE - ... \STANDARD PLATES\SP6.DGN

-PLOTTED FROM - TRPR18387

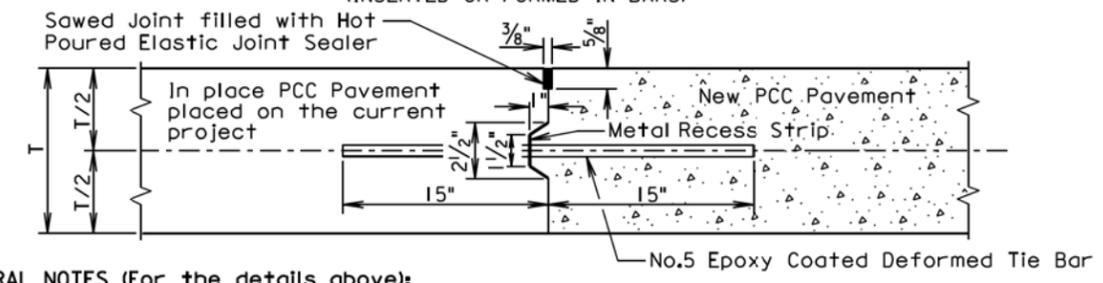
Plotting Date: 08/24/2015

**LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(DRILLED IN BARS)**



T = Pavement Thickness
The tie bars shall be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

**LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(INSERTED OR FORMED IN BARS)**



GENERAL NOTES (For the details above):

The epoxy coated deformed tie bars shall be spaced in accordance with the following tables:

| Tie Bar Spacing 48" Maximum | |
|--------------------------------------|--------------------|
| Transverse Contraction Joint Spacing | Number of Tie Bars |
| 6.5' to 10' | 2 |
| 10.5' to 14' | 3 |
| 14.5' to 18' | 4 |
| 18.5' to 22' | 5 |

| Tie Bar Spacing 30" Maximum | |
|--------------------------------------|--------------------|
| Transverse Contraction Joint Spacing | Number of Tie Bars |
| 5' to 7' | 2 |
| 7.5' to 9.5' | 3 |
| 10' to 12' | 4 |
| 12.5' to 14.5' | 5 |
| 15' to 17' | 6 |
| 17.5' to 19.5' | 7 |
| 20' to 22' | 8 |

The tie bars shall be placed a minimum of 15 inches from transverse contraction joints.

The required number of tie bars as shown in the table shall be uniformly spaced within each panel. The uniformly spaced tie bars shall be spaced a maximum of 48 inches center to center for a female keyway and shall be spaced a maximum of 30 inches center to center for a vertical face and male keyway. The maximum tie bar spacing shall apply to tie bars within each panel.

The keyway illustrated in the above details depict a female keyway.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

August 31, 2013

| | | |
|---|---|--------------------------------|
| S D D O T Published Date: 3rd Qtr. 2015 | PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS | PLATE NUMBER 380.10 |
| | Sheet 1 of 2 | |

PLOT SCALE - 1:200

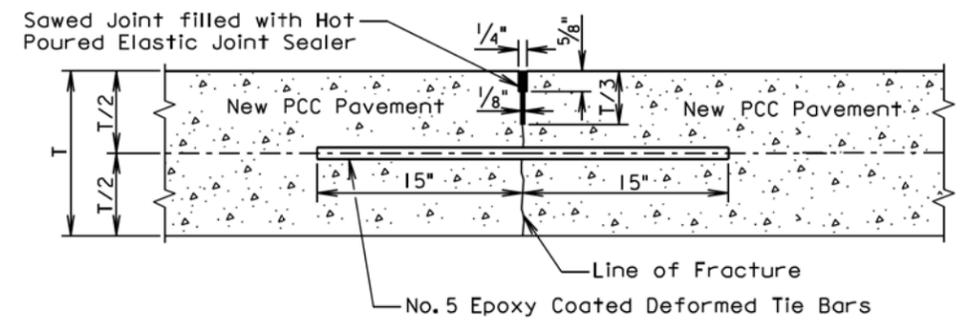
-PLOTTED FROM - TRPR18387

PLOT NAME - 56

FILE - ... \STANDARD PLATES\SP7.DGN

PLOT SCALE - 1:200

SAWED LONGITUDINAL JOINT WITH TIE BARS (POURED MONOLITHICALLY)



T = Pavement Thickness

GENERAL NOTES (For the detail above):

The epoxy coated deformed tie bars shall be spaced in accordance with the following table:

| Tie Bar Spacing 48" Maximum | |
|--------------------------------------|--------------------|
| Transverse Contraction Joint Spacing | Number of Tie Bars |
| 6.5' to 10' | 2 |
| 10.5' to 14' | 3 |
| 14.5' to 18' | 4 |
| 18.5' to 22' | 5 |

The tie bars shall be placed a minimum of 15 inches from the transverse contraction joints.

The required number of tie bars as shown in the table shall be uniformly spaced within each panel with a maximum space of 48 inches center to center. The maximum tie bar spacing shall apply to tie bars within each panel.

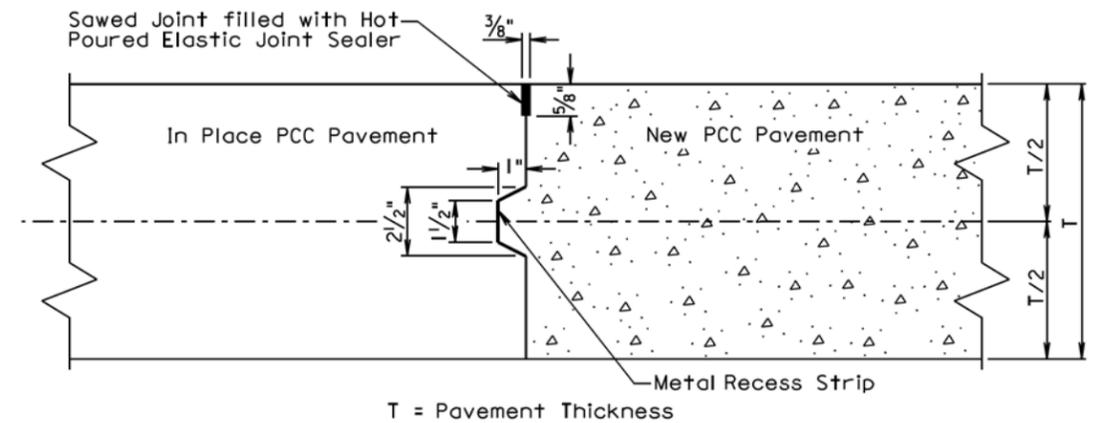
The first saw cut to control cracking shall be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer is necessary.

August 31, 2013

| | | |
|----------------------------------|---|-------------------------------|
| S D D O T | PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS | PLATE NUMBER 380.10 |
| | | Sheet 2 of 2 |

Published Date: 3rd Qtr. 2015

LONGITUDINAL CONSTRUCTION JOINT WITHOUT TIE BARS



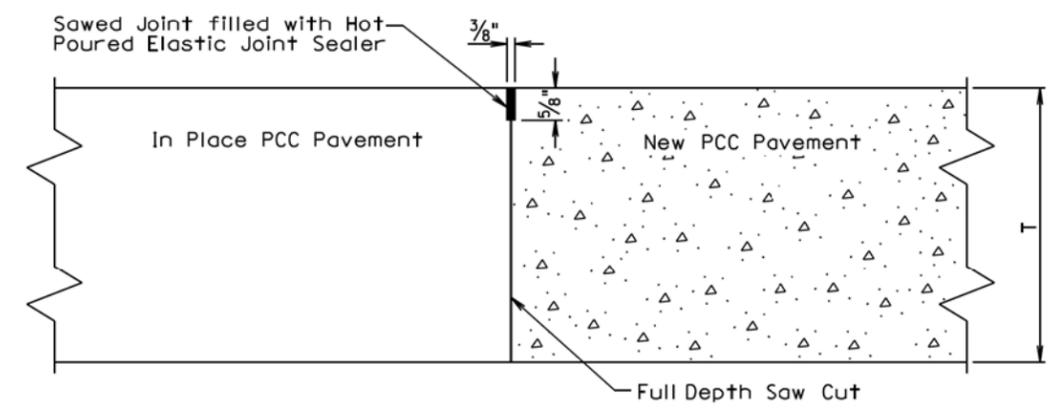
T = Pavement Thickness

GENERAL NOTES:

When concrete pavement is formed and a keyway is provided, a metal recess strip shall be used. When concrete pavement is slip formed, a metal recess strip is not required.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on the current project.

LONGITUDINAL CONSTRUCTION JOINT WITHOUT TIE BARS



T = Pavement Thickness

GENERAL NOTE:

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

September 14, 2001

| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS | PLATE NUMBER 380.12 |
| | | Sheet 1 of 2 |

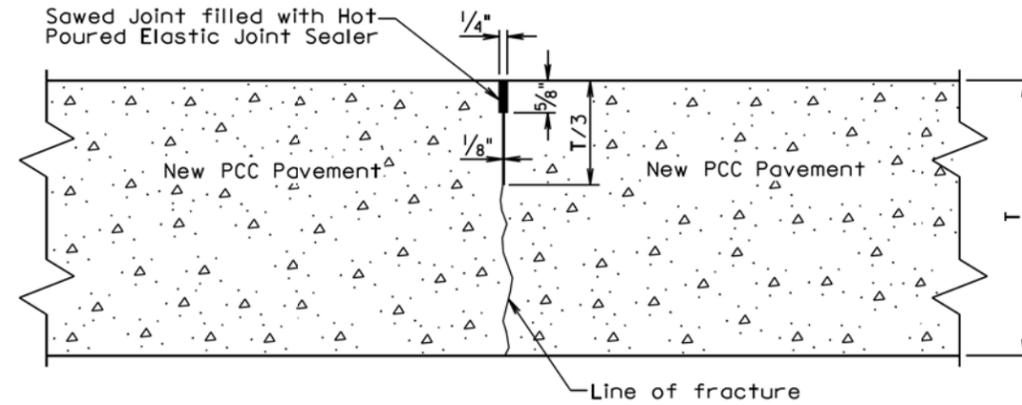
Published Date: 3rd Qtr. 2015

-PLOTTED FROM - TRPR18387

PLOT NAME - 57

FILE - ... \STANDARD PLATES\SP8.DGN

SAWED LONGITUDINAL JOINT WITHOUT TIE BARS



T = Pavement Thickness

GENERAL NOTE:

The first saw cut to control cracking shall be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer will be necessary.

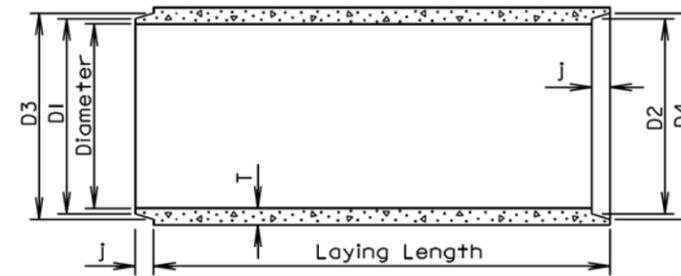
September 14, 2001

| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS | PLATE NUMBER 380.12 |
| | | Sheet 2 of 2 |

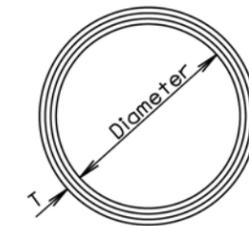
Published Date: 3rd Qtr. 2015

TOLERANCES IN DIMENSIONS

Diameter: $\pm 1.5\%$ for 24" Dia. or less and $\pm 1\%$ or $3/8"$ whichever is more for 27" Dia. or greater.
 Diameters at joints: $\pm 3/16"$ for 30" Dia. or less and $\pm 1/4"$ for 36" or greater.
 Length of joint (J): $\pm 1/4"$.
 Wall thickness (T): not less than design T by more than 5% or $3/16"$, whichever is greater.
 Laying length: shall not underrun by more than $1/2"$.



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

Construction of R.C.P. shall conform to the requirements of Section 990 of the Specifications.

Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

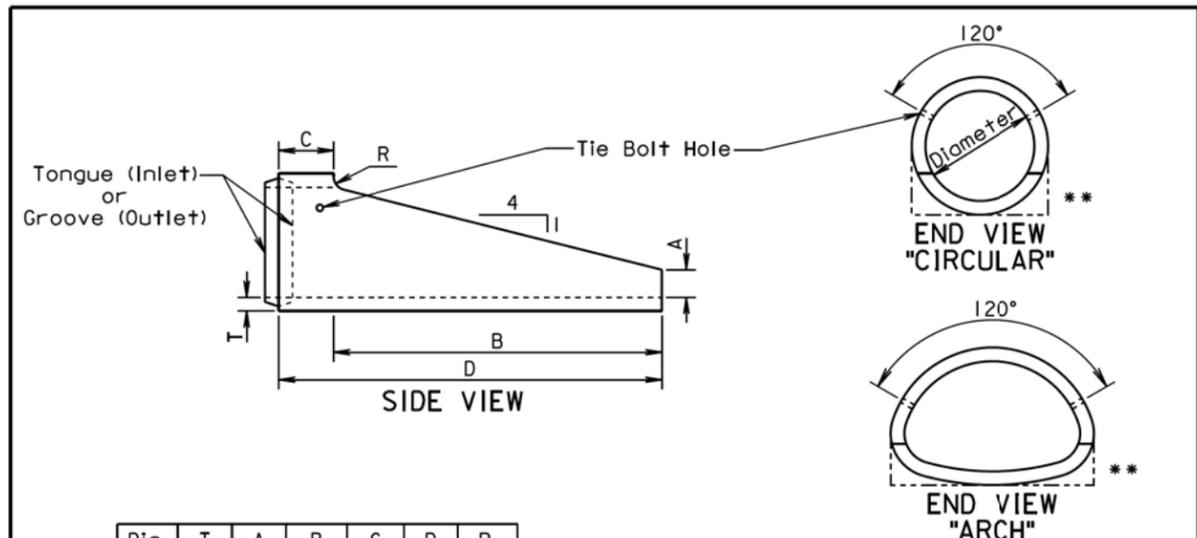
| Diam. (in.) | Approx. Wt. /Ft. (lb.) | T (in.) | J (in.) | D1 (in.) | D2 (in.) | D3 (in.) | D4 (in.) |
|-------------|------------------------|---------|---------|----------|----------|----------|----------|
| 12 | 92 | 2 | 1 3/4 | 13 1/4 | 13 5/8 | 13 7/8 | 14 1/4 |
| 15 | 127 | 2 1/4 | 2 | 16 1/2 | 16 7/8 | 17 1/4 | 17 5/8 |
| 18 | 168 | 2 1/2 | 2 1/4 | 19 5/8 | 20 | 20 3/8 | 20 3/4 |
| 21 | 214 | 2 3/4 | 2 1/2 | 22 7/8 | 23 1/4 | 23 3/4 | 24 1/8 |
| 24 | 265 | 3 | 2 3/4 | 26 | 26 3/8 | 27 | 27 3/8 |
| 27 | 322 | 3 1/4 | 3 | 29 1/4 | 29 5/8 | 30 1/4 | 30 5/8 |
| 30 | 384 | 3 1/2 | 3 1/4 | 32 3/8 | 32 3/4 | 33 1/2 | 33 7/8 |
| 36 | 524 | 4 | 3 3/4 | 38 3/4 | 39 1/4 | 40 | 40 1/2 |
| 42 | 685 | 4 1/2 | 4 | 45 1/8 | 45 5/8 | 46 1/2 | 47 |
| 48 | 867 | 5 | 4 1/2 | 51 1/2 | 52 | 53 | 53 1/2 |
| 54 | 1070 | 5 1/2 | 4 1/2 | 57 7/8 | 58 3/8 | 59 3/8 | 59 7/8 |
| 60 | 1296 | 6 | 5 | 64 1/4 | 64 3/4 | 66 | 66 1/2 |
| 66 | 1542 | 6 1/2 | 5 1/2 | 70 5/8 | 71 1/8 | 72 1/2 | 73 |
| 72 | 1810 | 7 | 6 | 77 | 77 1/2 | 79 | 79 1/2 |
| 78 | 2098 | 7 1/2 | 6 1/2 | 83 3/8 | 83 7/8 | 85 5/8 | 86 1/8 |
| 84 | 2410 | 8 | 7 | 89 3/4 | 90 1/4 | 92 1/8 | 92 5/8 |
| 90 | 2740 | 8 1/2 | 7 | 95 3/4 | 96 1/4 | 98 1/8 | 98 5/8 |
| 96 | 2950 | 9 | 7 | 102 1/8 | 102 5/8 | 104 1/2 | 105 |
| 102 | 3075 | 9 1/2 | 7 1/2 | 109 | 109 1/2 | 111 1/2 | 112 |
| 108 | 3870 | 10 | 7 1/2 | 115 1/2 | 116 | 118 | 118 1/2 |

June 26, 2015

| | | |
|----------------------------------|---------------------------------|-------------------------------|
| S D D O T | REINFORCED CONCRETE PIPE | PLATE NUMBER 450.01 |
| | | Sheet 1 of 1 |

Published Date: 3rd Qtr. 2015

Plotting Date: 08/24/2015

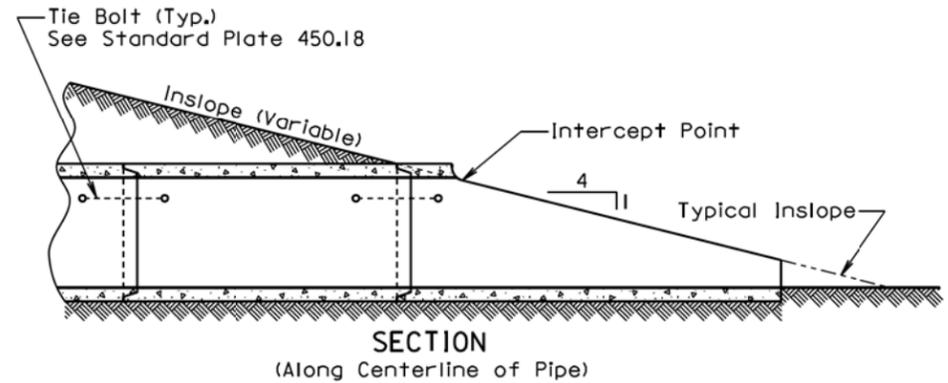


| Dia. (in.) | T (in.) | A (in.) | B (in.) | C (in.) | D (in.) | R (in.) |
|-------------------|---------|---------|---------|---------|---------|---------|
| FOR CIRCULAR PIPE | | | | | | |
| 24 | 3 | 6 | 72 | 12 | 84 | 3 |
| 30 | 3 1/2 | 7 1/2 | 90 | 12 | 102 | 3 1/2 |
| FOR ARCH PIPE | | | | | | |
| * 24 | 3 | 6 | 48 | 12 | 60 | 3 |
| * 30 | 3 1/2 | 7 1/2 | 60 | 12 | 72 | 3 1/2 |
| * 36 | 4 1/2 | 8 5/8 | 66 | 30 | 96 | 0 |
| * 42 | 4 1/2 | 10 | 77 1/4 | 18 3/4 | 96 | 0 |

* Equivalent Diameter of Circular R.C.P.
 ** Acceptable Flat Bottom Alternate.

ALTERNATE

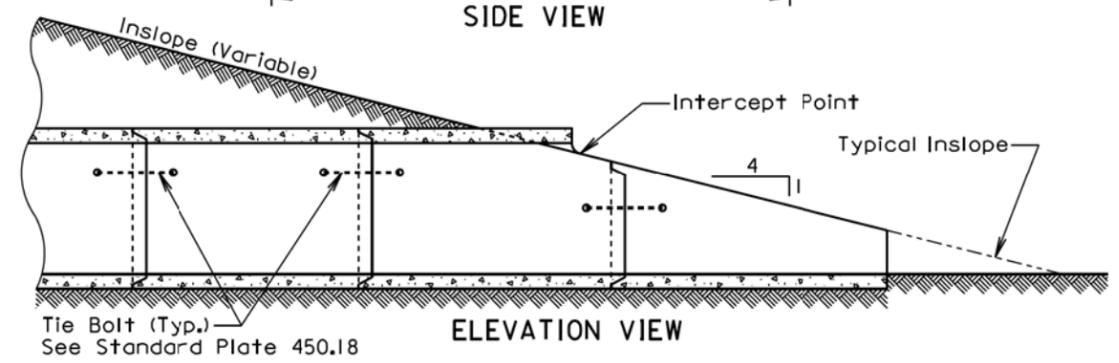
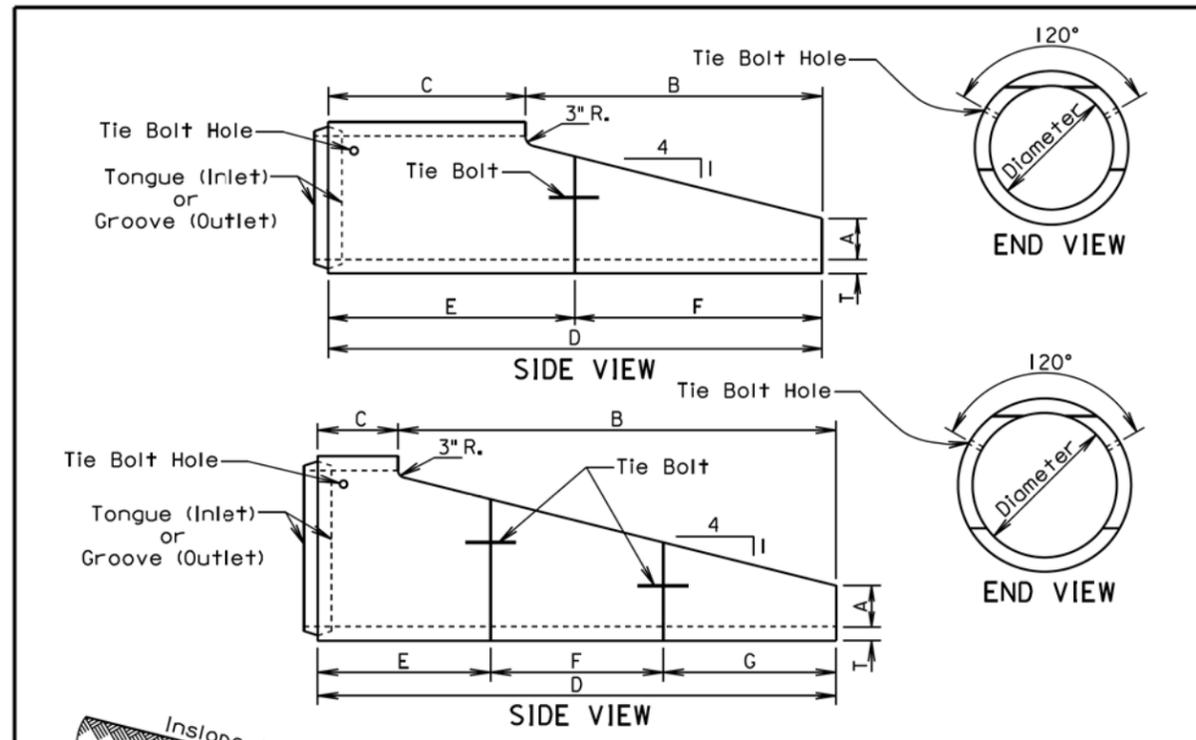
| Dia. (in.) | T (in.) | A (in.) | B (in.) | C (in.) | D (in.) | R (in.) |
|-------------------|---------|---------|---------|---------|---------|---------|
| FOR CIRCULAR PIPE | | | | | | |
| 24 | 3 | 9 | 72 | 12 | 84 | 0 |
| 30 | 3 1/2 | 11 | 90 | 12 | 102 | 0 |
| FOR ARCH PIPE | | | | | | |
| * 24 | 3 | 9 | 48 | 12 | 60 | 0 |
| * 30 | 3 1/2 | 11 | 60 | 12 | 72 | 0 |



GENERAL NOTE:
 The length of concrete pipe shown in the construction plans is between sloped ends.

September 22, 2006

| | | |
|----------------------------------|-------------------------------|-------------------------------|
| S D D O T | R. C. P. SLOPED ENDS | PLATE NUMBER 450.13 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |



| Dia. (in.) | T (in.) | A (in.) | B (in.) | C (in.) | D (in.) | E (in.) | F (in.) | G (in.) |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|
| 36 | 4 | 12 | 86.5 | 57.5 | 144 | 72 | 72 | |
| 42 | 4.5 | 12 | 110.5 | 33.5 | 144 | 72 | 72 | |
| 48 | 5 | 12 | 134.5 | 33.5 | 168 | 96 | 72 | |
| 54 | 5.5 | 12 | 158.5 | 33.5 | 192 | 96 | 96 | |
| 60 | 6 | 12 | 182.5 | 33.5 | 216 | 72 | 72 | 72 |

GENERAL NOTE:
 The length of concrete pipe shown in the construction plans is between sloped ends.
 If bars are specified in the plans, then the bar assemblies shall be constructed in accordance with Standard Plate 450.15.

August 31, 2013

| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | R. C. P. SLOPED ENDS WITH OR WITHOUT BARS | PLATE NUMBER 450.14 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |

PLOT SCALE - 1:200

-PLOTTED FROM - TRPR18387

PLOT NAME - 59

FILE - ... \STANDARD PLATES\SP11.DGN

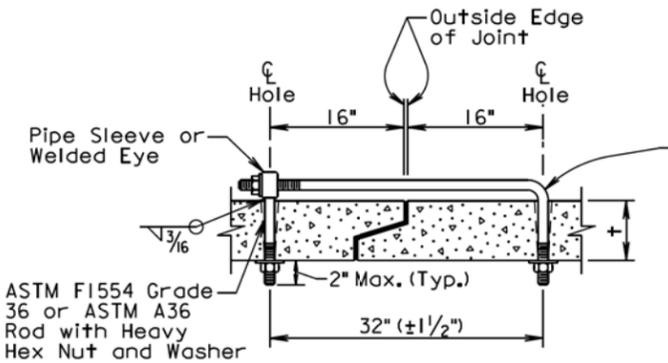
| Wall "t" (in.) | Rod Dia. (in.) | Pipe Sleeve Dia. (nominal) |
|----------------|----------------|----------------------------|
| ≤ 3/4 | 5/8 | 3/4 |
| 3/2-6/2 | 3/4 | 1 |
| ≥ 7 | 1 | 1 1/4 |

GENERAL NOTES:

Tie bolts shall conform to ASTM F1554 Grade 36 or ASTM A36. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Pipe Sleeve shall conform to ASTM A500 or A53, Grade B.

Galvanize adjustable eye bolt tie assembly in accordance with ASTM A153.



ADJUSTABLE EYE BOLT TIE

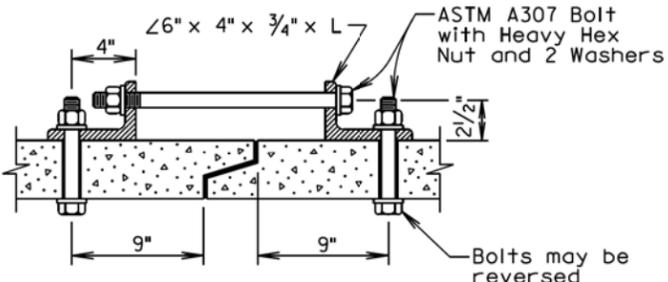
| Pipe Dia. (in.) | "L" (in.) | Bolt Dia. (in.) |
|-----------------|-----------|-----------------|
| ≤ 48 | 4 | 3/4 |
| > 48 | 6 | 1 |

GENERAL NOTES:

Angles shall conform to ASTM A36.

Bolts shall conform to ASTM A307. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



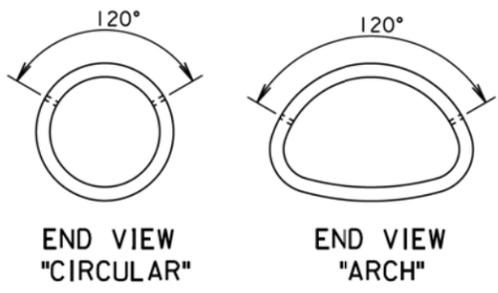
ANGLE AND BOLT TIE

GENERAL NOTES:

In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

All pipe sections of R.C.P. and R.C.P. Arch shall be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manhole, and junction boxes shall be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.



END VIEW "CIRCULAR" END VIEW "ARCH"

February 28, 2013

| | | |
|----------------------------------|---|-------------------------------|
| S D D O T | TIE BOLTS FOR R.C.P. AND R.C.P. ARCH | PLATE NUMBER 450.18 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |

GENERAL NOTES:

Either flanged channel steel posts or S3x5.7 steel I beam posts shall be used, but post type shall be consistent throughout the project. The S3x5.7 Steel I Beam post shall be used for the end posts.

All costs associated with furnishing and constructing the 3 cable guardrail anchor assembly including the concrete anchor, cable anchor bracket, compensating device, steel turnbuckle cable assembly, and necessary hardware shall be incidental to the contract unit price per each for "3 Cable Guardrail Anchor Assembly".

All costs associated with furnishing and constructing the 3 cable guardrail including posts, cable, cable splices, and hardware shall be incidental to the contract unit price per foot for "3 Cable Guardrail".

The following table and criteria shall apply to the arrangement of the Spring Cable End Assemblies (Compensation Devices) and Turnbuckle Cable End Assemblies:

| LENGTH OF CABLE RUN | CRITERIA FOR ARRANGEMENT OF THE SPRING CABLE END ASSEMBLIES (COMPENSATION DEVICES) AND TURNBUCKLE CABLE END ASSEMBLIES |
|----------------------------|--|
| Less than 500' | Use turnbuckle on the approaching traffic end and compensating device on the other end of each individual cable, except in the W Beam to 3 Cable Transition where all compensating devices shall be provided at the bridge ends. |
| Greater than 500' to 1000' | Use compensating device on each end of each individual cable. |
| Greater than 1000' | Start new run by interlacing at last parallel post as shown on sheet 2 of 6. |

All Compensating Devices shall be attached to the cable anchor bracket when one end of the run is attached to a bridge.

Compensating Devices must have a spring rate of 450 ± 50 pounds per inch and shall have a total available travel of 6 inches minimum.

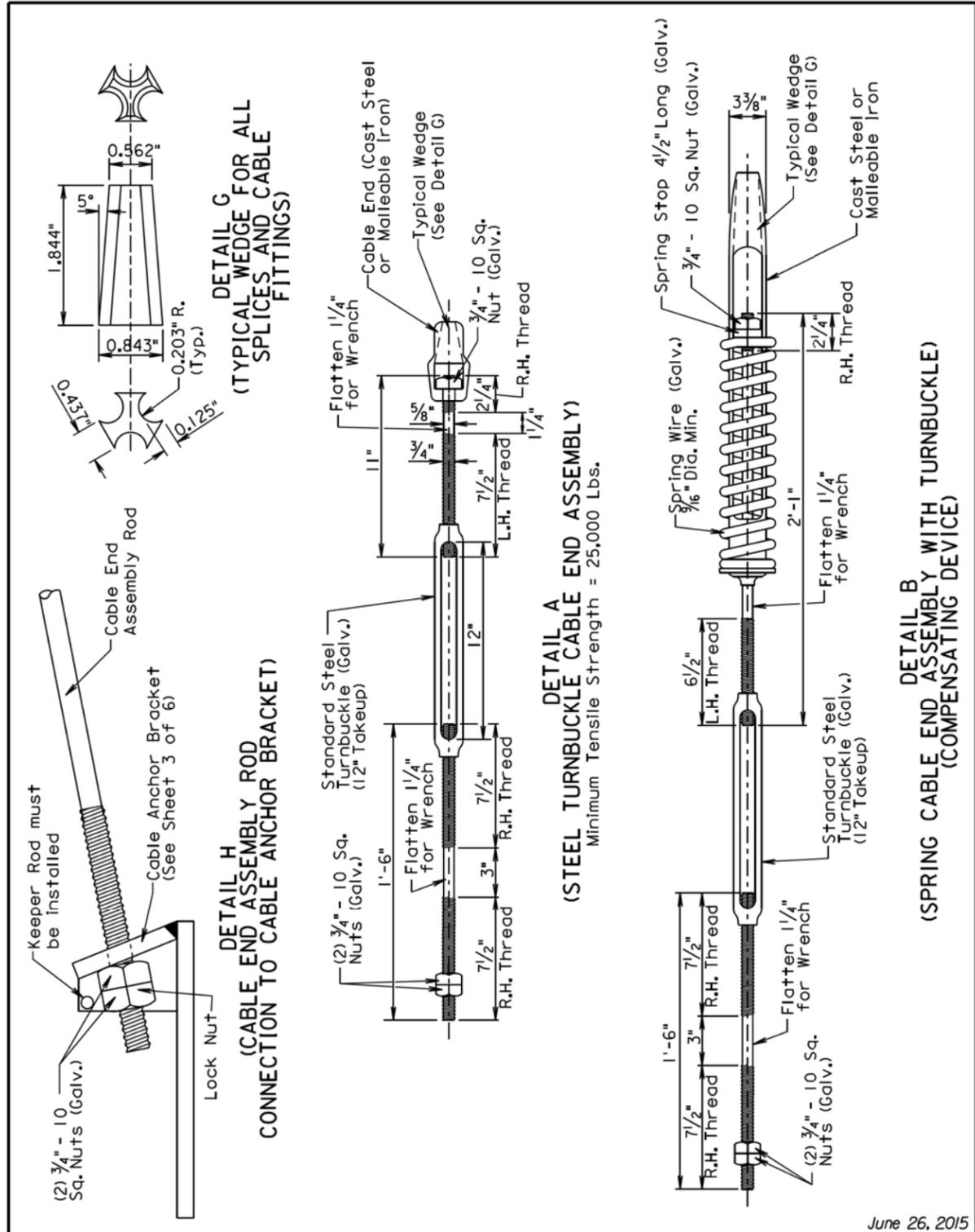
The cable shall be retensioned after the initial 2 week pretension period in accordance with the following table:

| CABLE TENSIONING SPECIFICATIONS | | | | | | | | | | | | | | |
|---------------------------------|------------|-----------|--------|----------|----------|----------|----------|----------|----------|----------|----------|----------|------------|------------|
| Temperature Range (Degree F) | -20 to -11 | -10 to -1 | 0 to 9 | 10 to 19 | 20 to 29 | 30 to 39 | 40 to 49 | 50 to 59 | 60 to 69 | 70 to 79 | 80 to 89 | 90 to 99 | 100 to 109 | 110 to 120 |
| Spring Compression (Inch) | 4 1/4 | 4 | 3 3/4 | 3 1/2 | 3 1/4 | 3 | 2 3/4 | 2 1/2 | 2 1/4 | 2 | 1 3/4 | 1 1/2 | 1 1/4 | 1 |

| POST SPACING FOR HORIZONTAL CURVES | |
|------------------------------------|---------------------------|
| Roadway ϕ Curvature | Maximum Post Spacing (Ft) |
| 1° and Less | 16' |
| Greater than 1° to 8° | 12' |
| Greater than 8° to 13° | 8' |
| Greater than 13° | NOT ALLOWED |

June 26, 2015

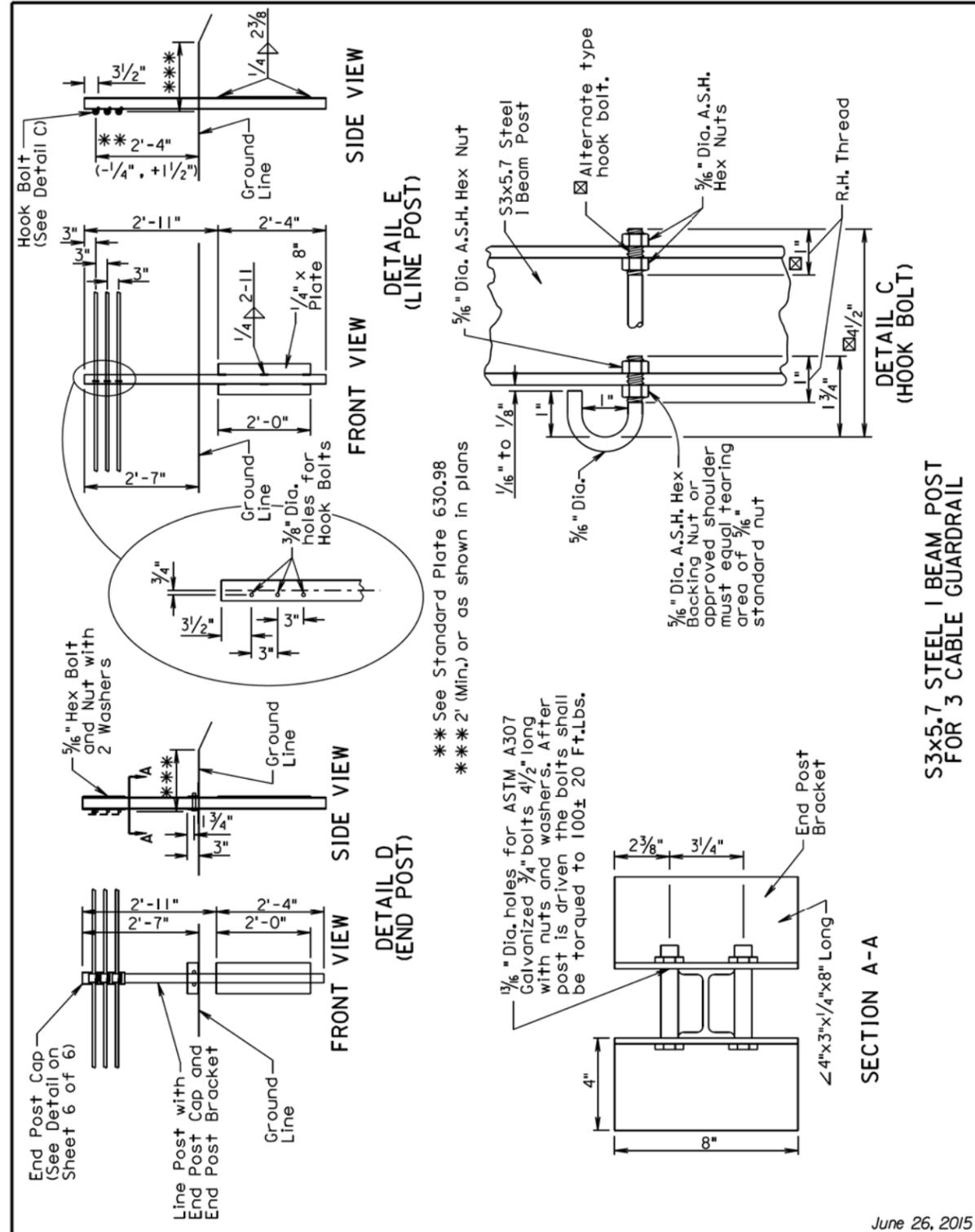
| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | 3 CABLE GUARDRAIL (LOW TENSION) | PLATE NUMBER 629.01 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 6 |



June 26, 2015

| | | |
|-------------|--|------------------------|
| SDOT | 3 CABLE GUARDRAIL (LOW TENSION) | PLATE NUMBER 629.01 |
| | | Sheet 4 of 6 |

Published Date: 3rd Qtr. 2015



June 26, 2015

| | | |
|-------------|--|------------------------|
| SDOT | 3 CABLE GUARDRAIL (LOW TENSION) | PLATE NUMBER 629.01 |
| | | Sheet 5 of 6 |

Published Date: 3rd Qtr. 2015

S3x5.7 STEEL I BEAM POST FOR 3 CABLE GUARDRAIL

SECTION A-A

END POST CAP

HOOK BOLT

ALTERNATE ANCHOR PLATE

ANCHOR PLATE

FLANGED CHANNEL STEEL POST FOR 3 CABLE GUARDRAIL

GENERAL NOTES:

Flanged channel steel posts shall be produced from high strength steel in accordance with ASTM A499, Grade 60. Anchor plates shall be in conformance with ASTM A709, Grade 36. Bolt shall be in conformance with ASTM A354 Grade BD or BC. Nut shall be in conformance with ASTM A563 Grade DH. Bolt shall be galvanized in accordance with ASTM F2329. Finish for the post and anchor plate shall be a baked on high quality dark green enamel. Alternate anchor plate may be unfinished.

June 26, 2015

| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | 3 CABLE GUARDRAIL (LOW TENSION) | PLATE NUMBER 629.01 |
| | Published Date: 3rd Qtr. 2015 | Sheet 6 of 6 |

PLAN

ELEVATION

GENERAL NOTES:

Flanged channel steel posts are shown on this standard plate, however, S3 X 5.7 steel I beam posts may be substituted for the flanged channel steel posts.

All costs associated with furnishing and installing the W Beam to 3 Cable Transition Bracket shall be incidental to the contract unit price per Ft. for "3 Cable Guardrail", "Reset 3 Cable Guardrail", or "Reset 3 Cable Guardrail, Cable Only".

See Standard Plates 630.31, 630.32, and 630.33 for details and payment information for W Beam Guardrail.

See Standard Plate 629.01 for details and payment information for 3 Cable Guardrail.

December 16, 2014

| | | |
|----------------------------------|-------------------------------------|-------------------------------|
| S D D O T | W BEAM TO 3 CABLE TRANSITION | PLATE NUMBER 629.05 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |

ELEVATION VIEW (Anchor Assembly)

PLAN VIEW (Anchor Assembly)

ISOMETRIC VIEW

ANCHOR CONSTRUCTION NOTES:

1. Auger two 3' diameter by 3'-9" deep holes tangent to each other.
2. Clean out the top 6 inches of the holes.
3. Place concrete in holes with anchor bolts and slip base stub post in place.
4. For informational purposes the neat line concrete volume of the anchor is 1.9 cubic yards.

June 26, 2015

| | | |
|--------------|--|-------------------------------|
| SDDOT | 3 CABLE GUARDRAIL SLIP BASE ANCHOR ASSEMBLY | PLATE NUMBER 629.10 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 3 |

EXTERNAL STIFFENER PLATE

INTERNAL STIFFENER PLATE

CABLE ANCHOR BRACKET

CABLE END ASSEMBLY ROD CONNECTION TO CABLE ANCHOR BRACKET

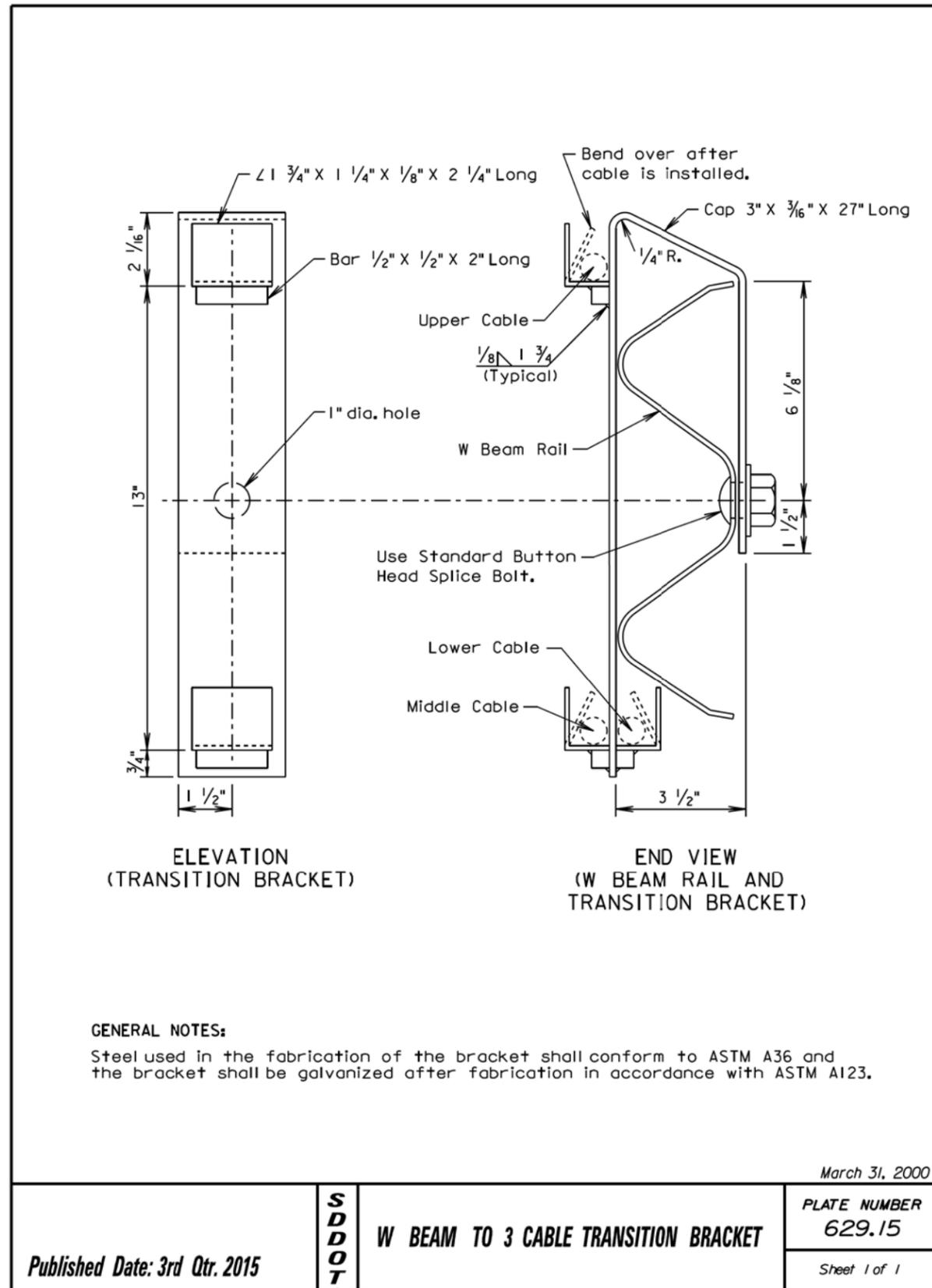
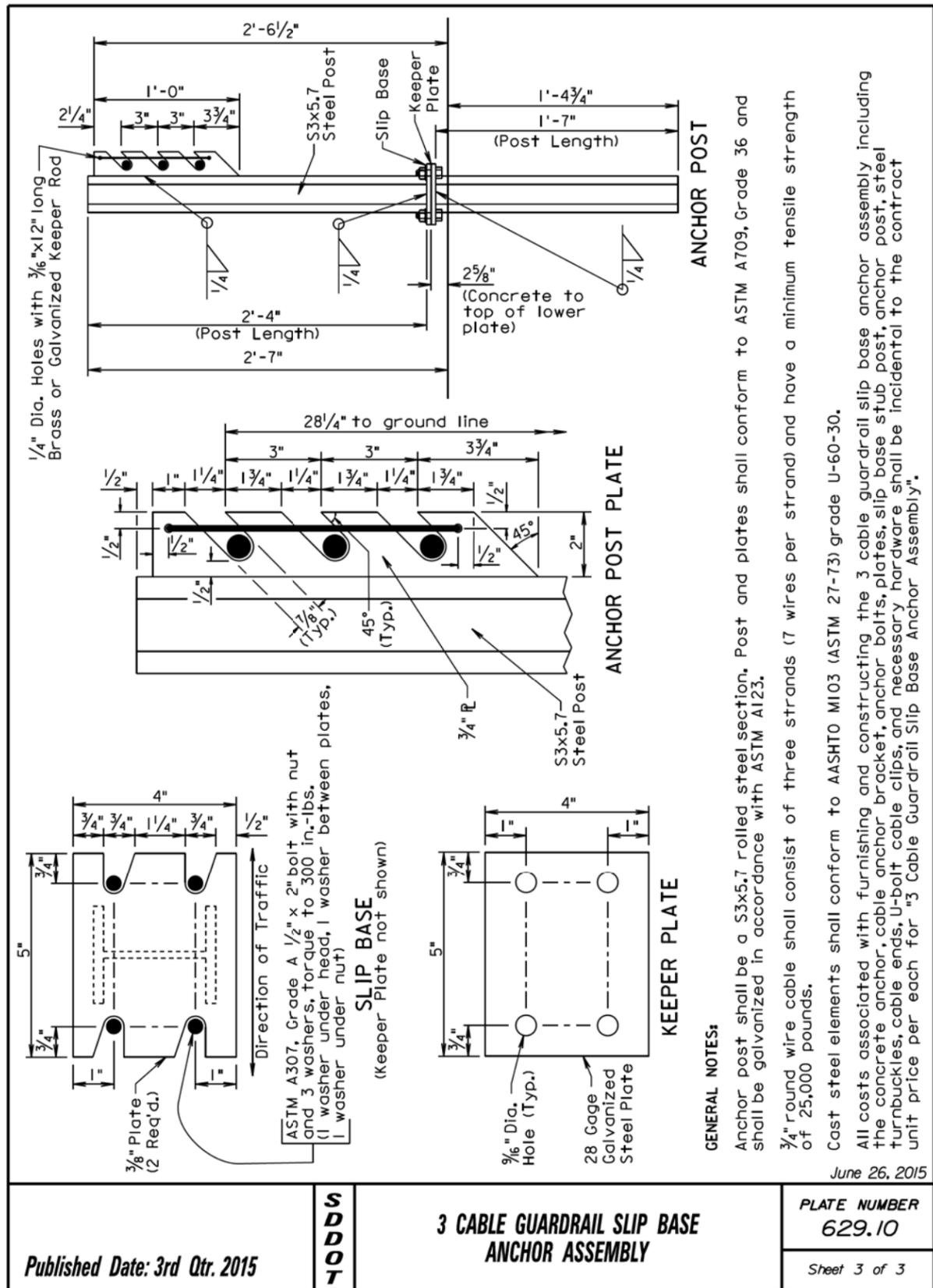
DETAIL B
(Typical Wedge for All Splices and Cable Fittings)

ANCHOR CONSTRUCTION NOTES:

1. Auger two 3' diameter by 3'-9" deep holes tangent to each other.
2. Clean out the top 6 inches of the holes.
3. Place concrete in holes with anchor bolts and slip base stub post in place.
4. For informational purposes the neat line concrete volume of the anchor is 1.9 cubic yards.

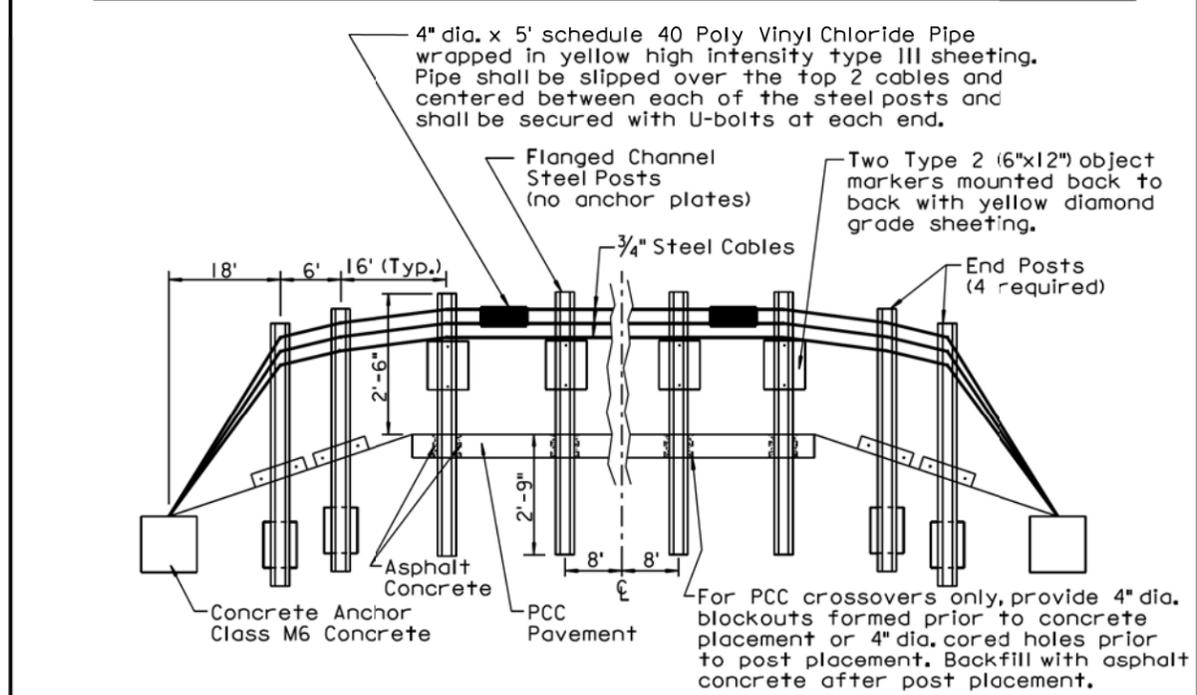
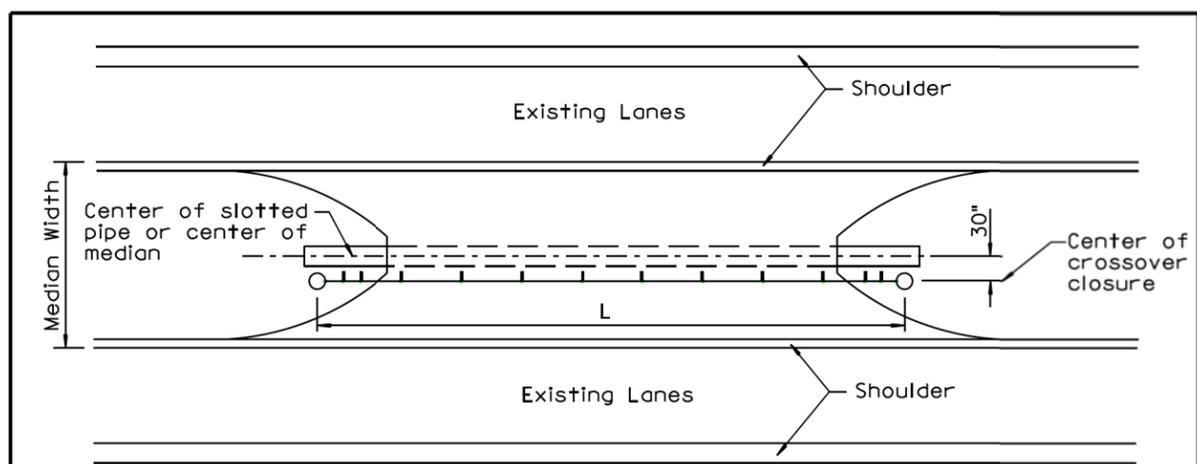
June 26, 2015

| | | |
|--------------|--|-------------------------------|
| SDDOT | 3 CABLE GUARDRAIL SLIP BASE ANCHOR ASSEMBLY | PLATE NUMBER 629.10 |
| | Published Date: 3rd Qtr. 2015 | Sheet 2 of 3 |



Plotting Date: 08/24/2015

PLOT SCALE - 1:200

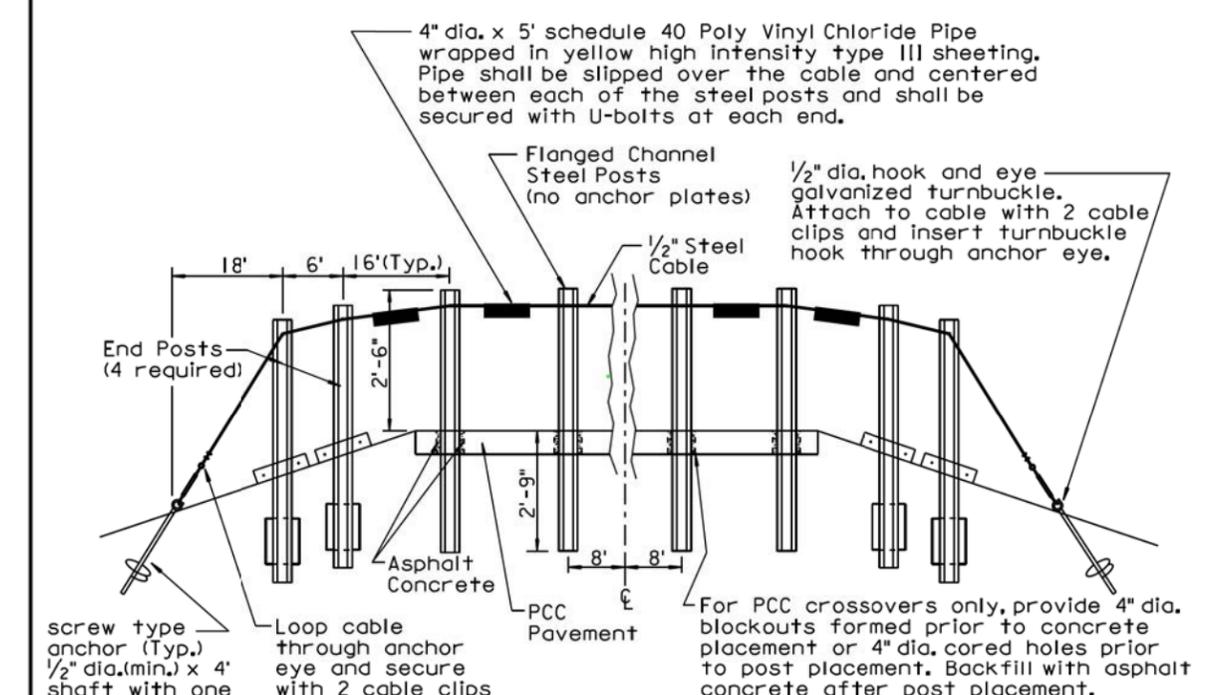
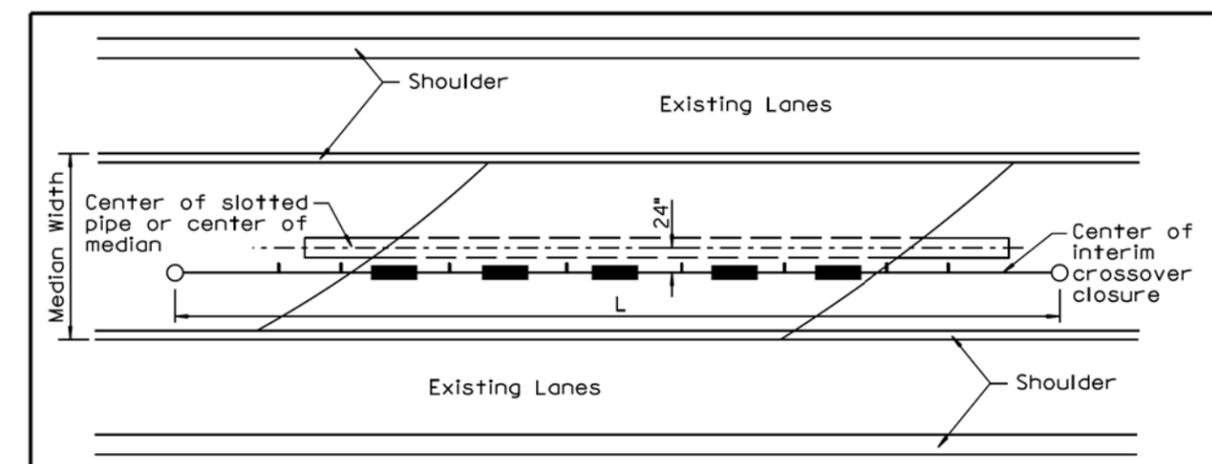


| MEDIAN WIDTH | NO. OF PVC PIPES | NO. OF U-BOLTS | NO. OF FLANGED CHANNEL STEEL POSTS | NO. OF TYPE 2 OBJECT MARKERS | NO. OF BLOCKOUTS OR CORED HOLES (PCC CROSSOVERS) | PAY LENGTH L |
|--------------|------------------|----------------|------------------------------------|------------------------------|--|--------------|
| 60' and 66' | 9 | 18 | 10 | 20 | 10 | 224' |
| 80' | 7 | 14 | 8 | 16 | 8 | 192' |

GENERAL NOTES:
 All costs for materials, backfilling holes with asphalt concrete, labor, equipment, and incidentals necessary to construct the crossover closure shall be incidental to the contract unit price per Ft for "Crossover Closure". The costs of coring holes or providing blockouts in the surfacing shall be incidental to the surfacing bid item(s).
 The Crossover Closure shall be constructed using 3 cable guardrail hardware. For specific details of the 3 cable guardrail hardware and installation, see Standard Plate 629.01 sheets 1 through 6.

March 31, 2000

| | | |
|----------------------------------|-------------------------------|-------------------------------|
| S D D O T | CROSSOVER CLOSURE | PLATE NUMBER 629.40 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |



| MEDIAN WIDTH | NO. OF PVC PIPES | NO. OF U-BOLTS | NO. OF FLANGED CHANNEL STEEL POSTS | PAY LENGTH L |
|--------------|------------------|----------------|------------------------------------|--------------|
| 60' | 5 | 10 | 4 | 128' |

GENERAL NOTES:
 All costs for materials, backfilling holes with asphalt concrete, labor, equipment, and incidentals necessary to construct the interim crossover closure shall be incidental to the contract unit price per Ft for "Interim Crossover Closure". The costs of coring holes or providing blockouts in the surfacing shall be incidental to the surfacing bid item(s).
 The Interim Crossover Closure shall be constructed using 3 cable guardrail posts with hook bolts. For specific details of the 3 cable guardrail hardware and installation, see Standard Plate 629.01 sheets 1 through 6.

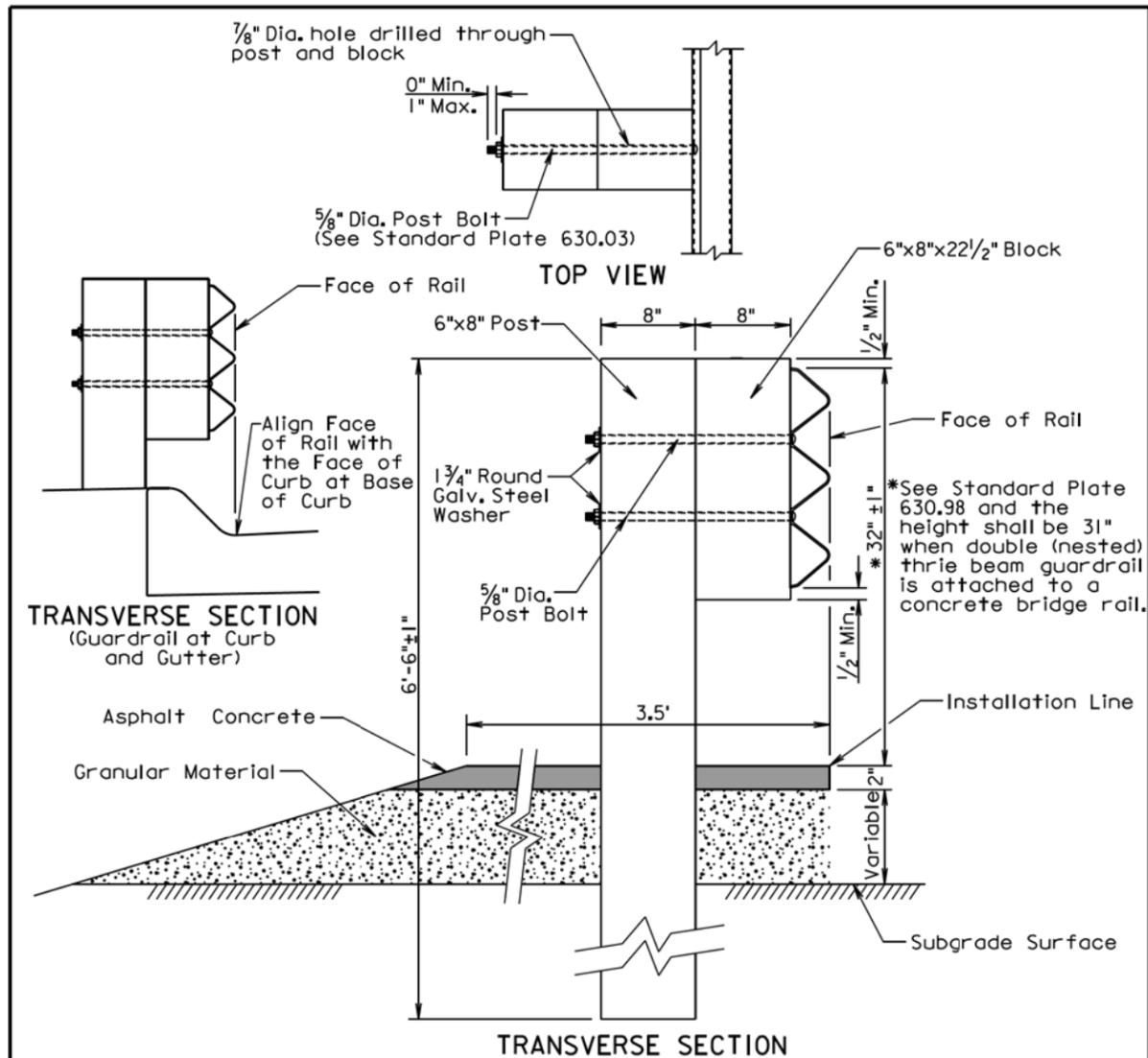
March 31, 2000

| | | |
|----------------------------------|----------------------------------|-------------------------------|
| S D D O T | INTERIM CROSSOVER CLOSURE | PLATE NUMBER 629.41 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |

PLOTTED FROM - TRPR18387

PLOT NAME - 66

FILE - ... \STANDARD PLATES\SP19.DGN



GENERAL NOTES:

Asphalt concrete shall be the same type used elsewhere on the project or shall be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete shall conform to the Specifications for "Asphalt Concrete Composite." For informational purposes, the Rate of Materials for the 3.5' wide section of asphalt concrete as shown above shall be 4.80 Tons per Station.

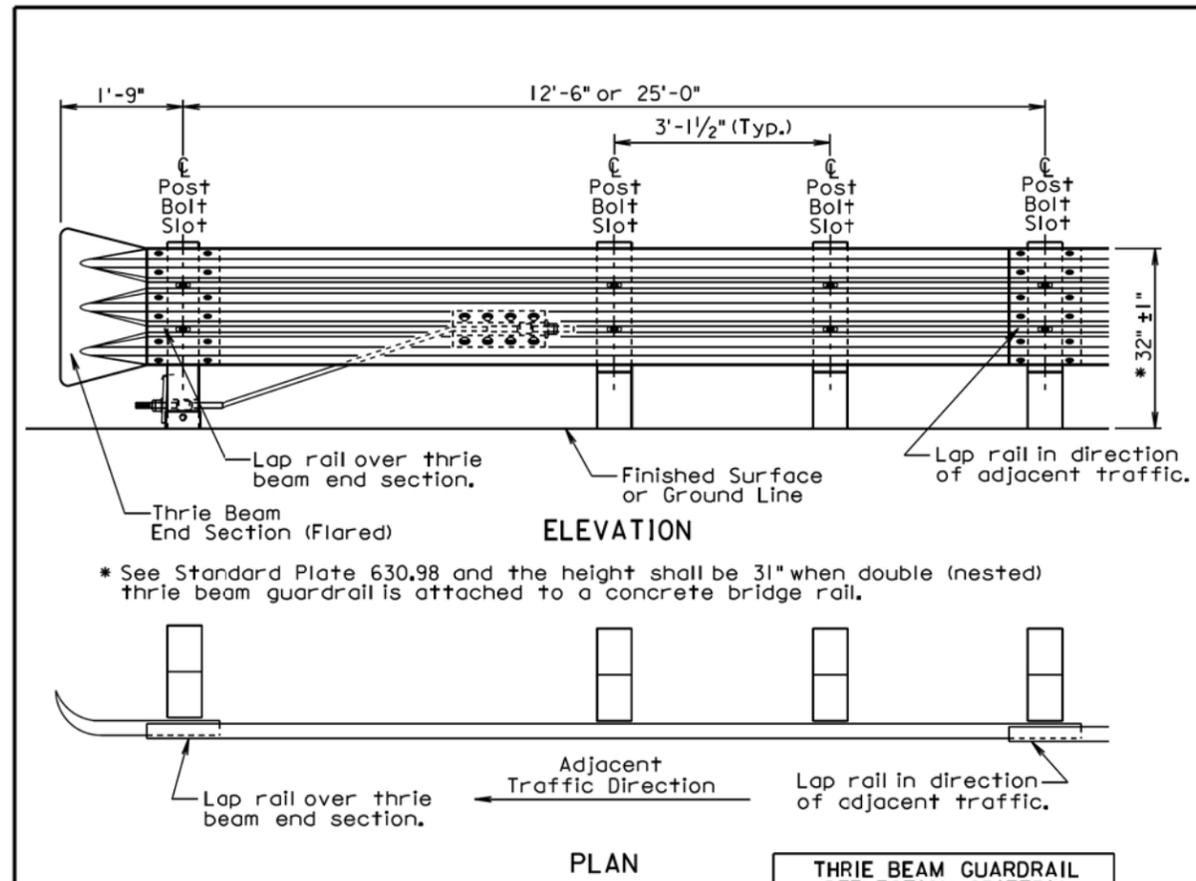
Granular material shall be the same type used elsewhere on the project or shall be as specified in the plans. If granular material type is not specified in the plans, the material shall conform to the Specifications for "Base Course". The granular material shall be placed the same thickness as the mainline surfacing or as specified in the plans.

The cross slope for the surfacing and subgrade surface shall be as specified in the plans (See Typical Sections and/or Cross Sections).

The top of post and top of block shall have a true square cut. The top of block shall be ±1 inch from the top of the post.

June 26, 2015

| | | |
|----------------------------------|---|-------------------------------|
| S D D O T | THRIE BEAM GUARDRAIL POST INSTALLATION | PLATE NUMBER 630.01 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |



THRIE BEAM GUARDRAIL DEFLECTION CRITERIA

| POST SPACING | MAXIMUM DEFLECTION |
|--------------|--------------------|
| 6'-3" | 2'-6" |
| 3'-1/2" | 1'-9" |

For Informational Purposes Only

GENERAL NOTES:

All thrie beam rail shall be Type I.

There will be no separate payment for furnishing and installing Thrie Beam End Sections (Flared) and Thrie Beam Terminal Connectors. All costs for the Thrie Beam End Sections (Flared) and Thrie Beam Terminal Connectors shall be incidental to the contract unit price per foot for the respective "Thrie Beam Guardrail" bid item.

Thrie beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used shall be compatible with the total length of rail per site as shown in the plans.

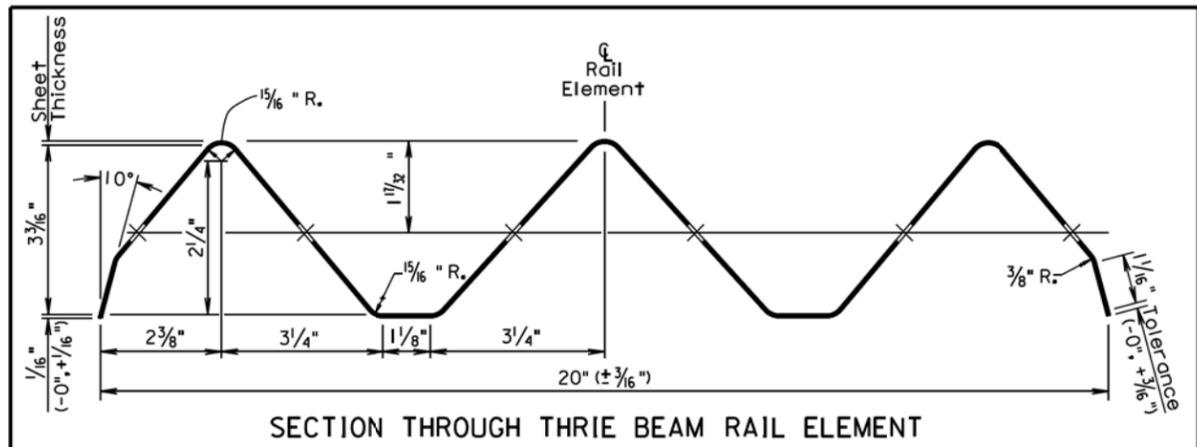
Thrie Beam End Sections (Flared) shall only be used in a one-way traffic situation. See Standard Plate 630.80 for Thrie Beam End Section (Flared) in the Beam Guardrail Trailing End Terminal.

All costs for constructing thrie beam guardrail including labor, equipment, and materials including all posts, blocks, steel beam rail, and hardware shall be incidental to the contract unit price per foot for the respective "Thrie Beam Guardrail" bid item.

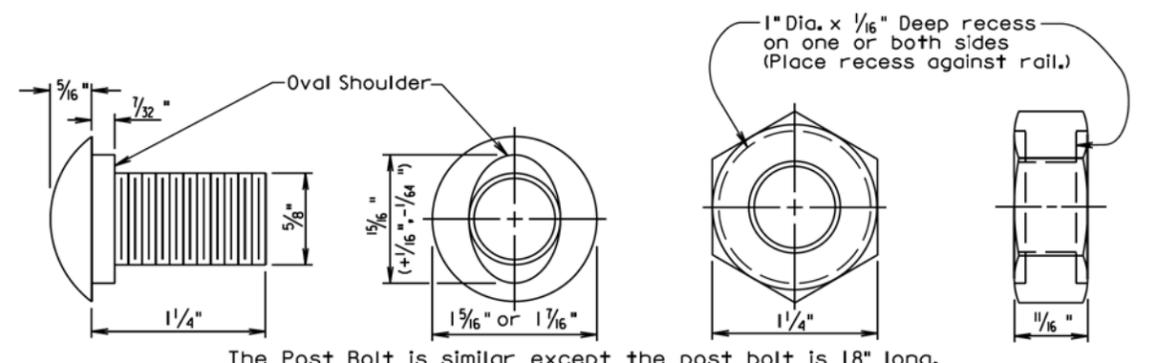
June 26, 2015

| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | THRIE BEAM GUARDRAIL INSTALLATION | PLATE NUMBER 630.02 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |

Plotting Date: 08/24/2015

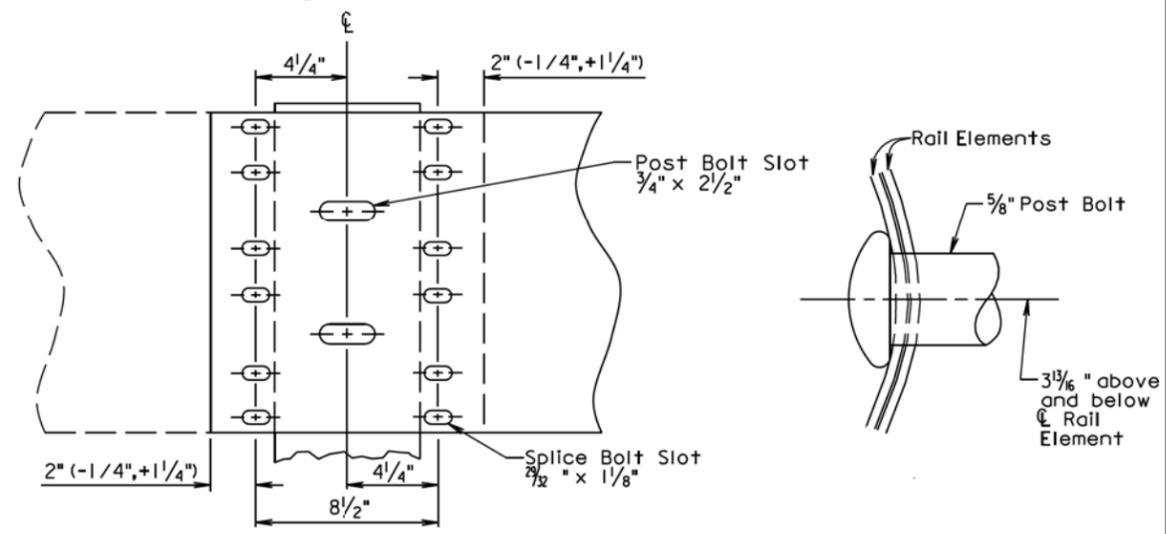


SECTION THROUGH THRIE BEAM RAIL ELEMENT



The Post Bolt is similar except the post bolt is 18" long.

SPLICE BOLT
(5/8" BUTTON HEAD BOLT AND RECESS NUT)

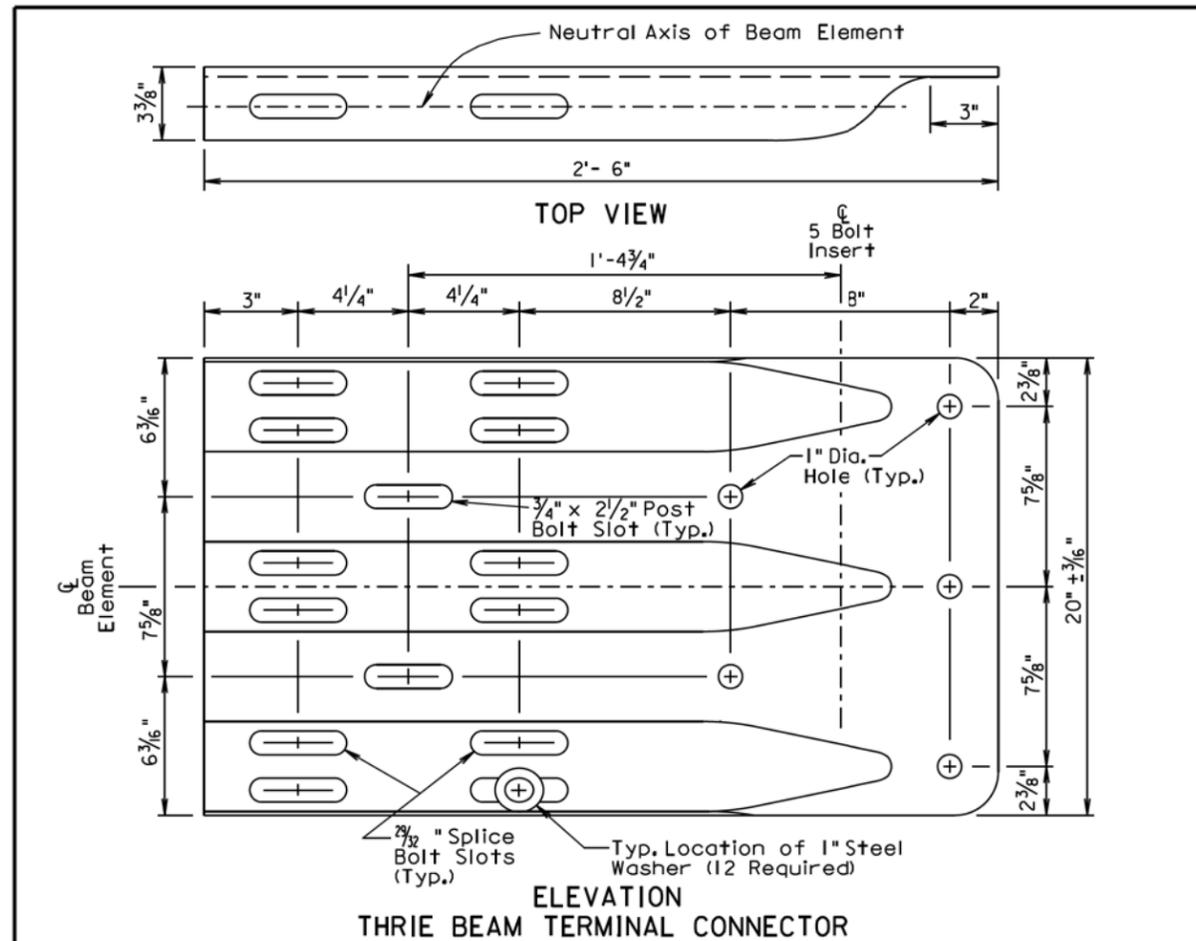


Lap in direction of traffic.

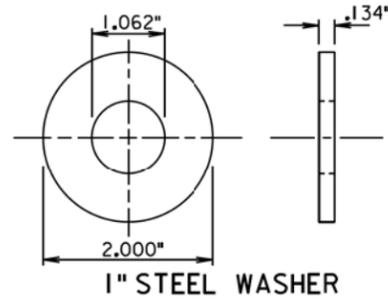
RAIL SPLICE

March 31, 2000

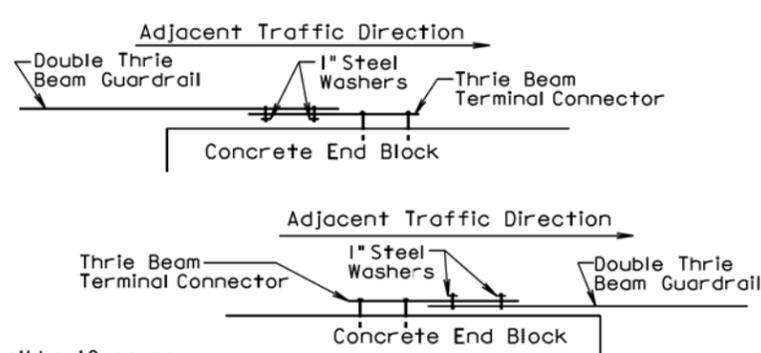
| | | |
|----------------------------------|---|-------------------------------|
| S D D O T | THRIE BEAM RAIL, RAIL SPLICE, AND HARDWARE | PLATE NUMBER 630.03 |
| | | Sheet 1 of 1 |
| | | Published Date: 3rd Qtr. 2015 |



THRIE BEAM TERMINAL CONNECTOR



1" STEEL WASHER



GENERAL NOTES:
Thrie Beam Terminal Connectors shall be 10 gauge.
When the thrie beam terminal connector is used to connect the rail to the bridge, 1" steel washers shall be used at the lap splice and the washers shall be in direct contact with the 3" slots of the thrie beam terminal connector. See the drawings above for the typical locations of the 1" steel washers.
There will be no separate payment for furnishing and installing the Thrie Beam Terminal Connector. All costs for the Thrie Beam Terminal Connector shall be incidental to the contract unit price per foot for the respective "Thrie Beam Guardrail" bid item.

September 14, 2001

| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | THRIE BEAM TERMINAL CONNECTOR AND 1" STEEL WASHER | PLATE NUMBER 630.05 |
| | | Sheet 1 of 1 |
| | | Published Date: 3rd Qtr. 2015 |

PLOT SCALE - 1:200

PLOTTED FROM - TRPR18387

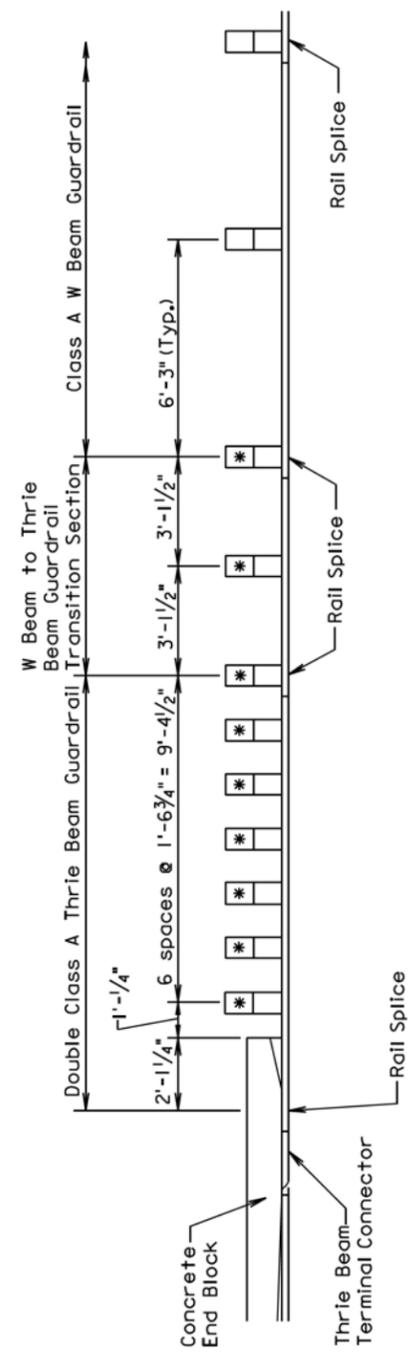
PLOT NAME - 68

FILE - ... \STANDARD PLATES\SP21.DGN

Plotting Date: 08/24/2015

PLOT SCALE - 1:200

PLOTTED FROM - TRPR18387

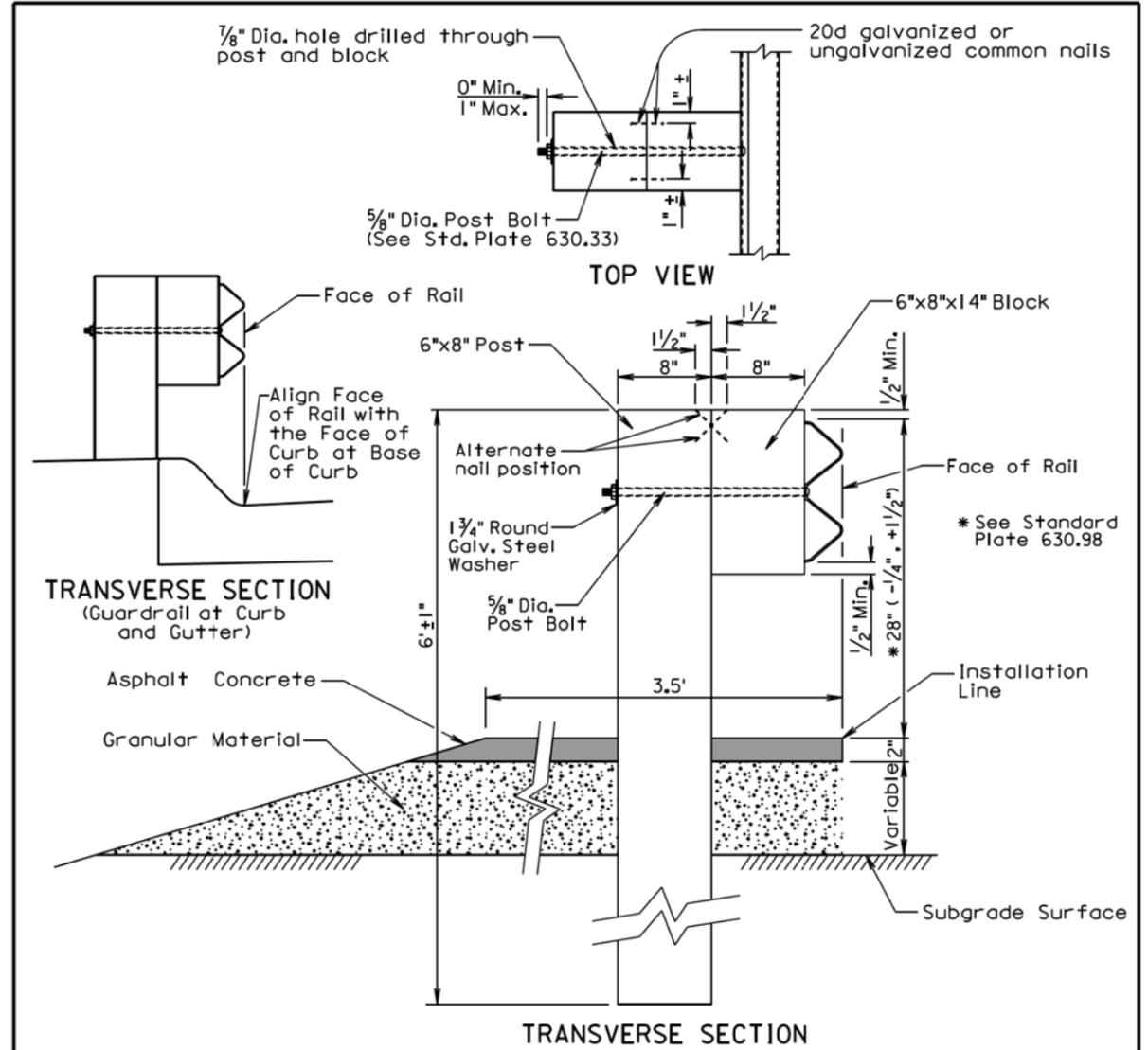


* 6" x 8" x 7' posts shall be used at these locations.

POST SPACING ARRANGEMENT FOR THRIE BEAM GUARDRAIL AT BRIDGE END

December 23, 2002

| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | POST SPACING ARRANGEMENT FOR THRIE BEAM GUARDRAIL AT BRIDGE END | PLATE NUMBER 630.15 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |



GENERAL NOTES:

Asphalt concrete shall be the same type used elsewhere on the project or shall be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete shall conform to the Specifications for "Asphalt Concrete Composite." For informational purposes, the Rate of Materials for the 3.5' wide section of asphalt concrete as shown above shall be 4.80 Tons per Station.

Granular material shall be the same type used elsewhere on the project or shall be as specified in the plans. If granular material type is not specified in the plans, the material shall conform to the Specifications for "Base Course". The granular material shall be placed the same thickness as the mainline surfacing or as specified in the plans.

The cross slope for the surfacing and subgrade surface shall be as specified in the plans (See Typical Sections and/or Cross Sections).

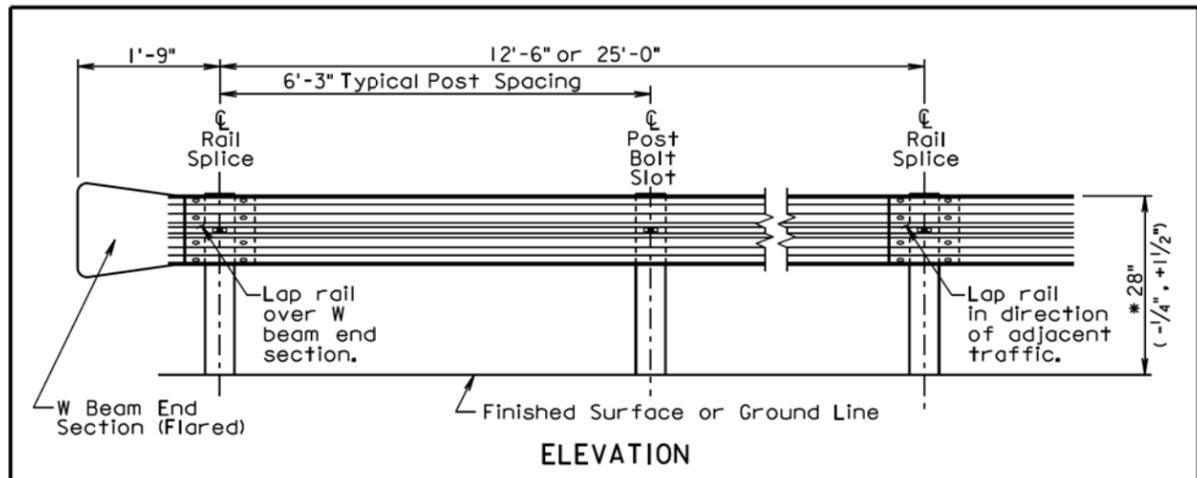
The top of post and top of block shall have a true square cut. The top of block shall be ±1 inch from the top of the post.

June 26, 2015

| | | |
|----------------------------------|---|-------------------------------|
| S D D O T | W BEAM GUARDRAIL POST INSTALLATION | PLATE NUMBER 630.31 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |

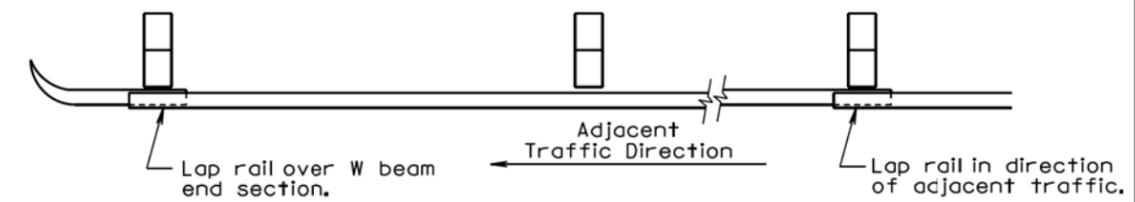
PLOT NAME - 69

FILE - ... \STANDARD PLATES\SP22.DGN



ELEVATION

*See Standard Plate 630.98



PLAN

| W BEAM GUARDRAIL DEFLECTION CRITERIA | |
|--------------------------------------|--------------------|
| POST SPACING | MAXIMUM DEFLECTION |
| 6'-3" | 5'-0" |
| 3'-1 1/2" | 3'-9" |

For Informational Purposes Only

GENERAL NOTES:

All W beam rail shall be Type I.

There will be no separate payment for furnishing and installing W Beam End Sections (Flared) and W Beam Terminal Connectors. All costs for the W Beam End Sections (Flared) and W Beam Terminal Connectors shall be incidental to the contract unit price per foot for the respective "W Beam Guardrail" bid item.

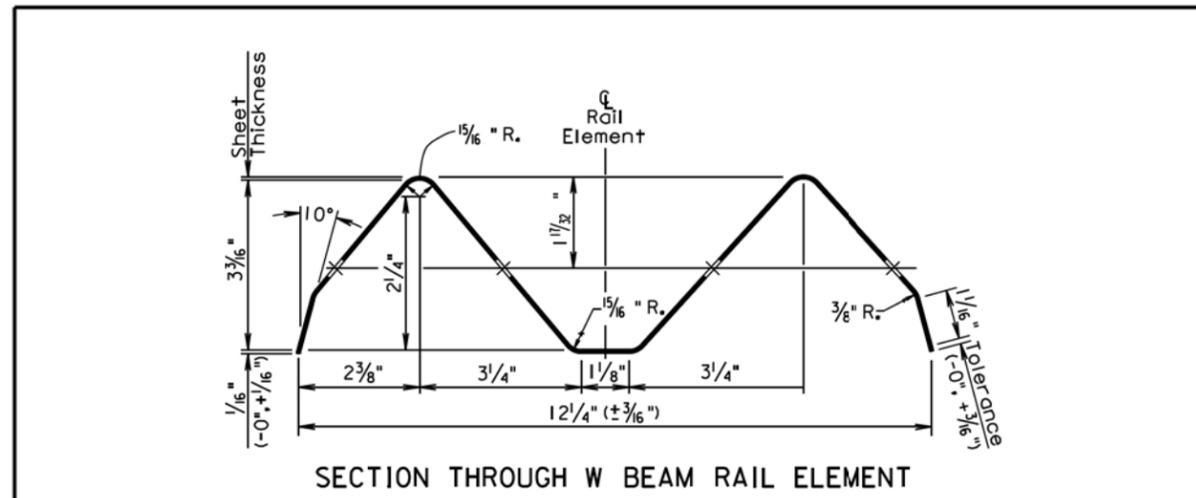
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used shall be compatible with the total length of rail per site as shown in the plans.

W Beam End Sections (Flared) shall only be used in a one way traffic situation. See Standard Plate 630.80 for W Beam End Section (Flared) in the Beam Guardrail Trailing End Terminal.

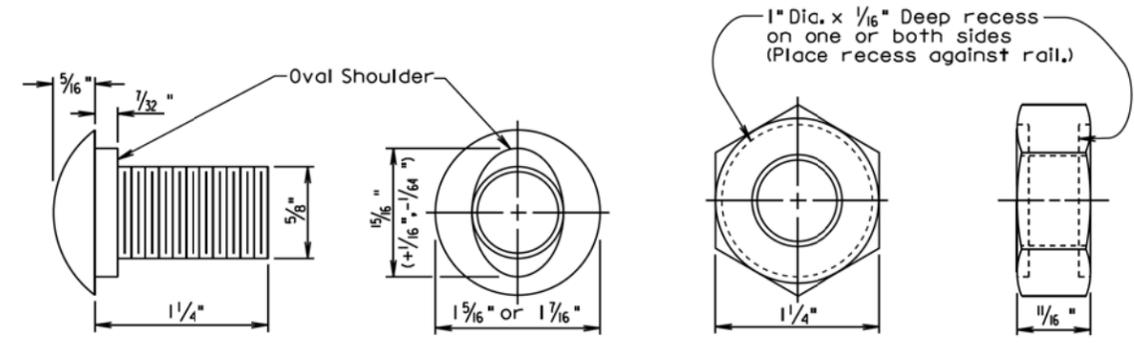
All costs for constructing W beam guardrail including labor, equipment, and materials including all posts, blocks, steel beam rail, and hardware shall be incidental to the contract unit price per foot for the respective "W Beam Guardrail" bid item.

June 26, 2015

| | | |
|----------------------------------|--------------------------------------|-------------------------------|
| S D D O T | W BEAM GUARDRAIL INSTALLATION | PLATE NUMBER 630.32 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |

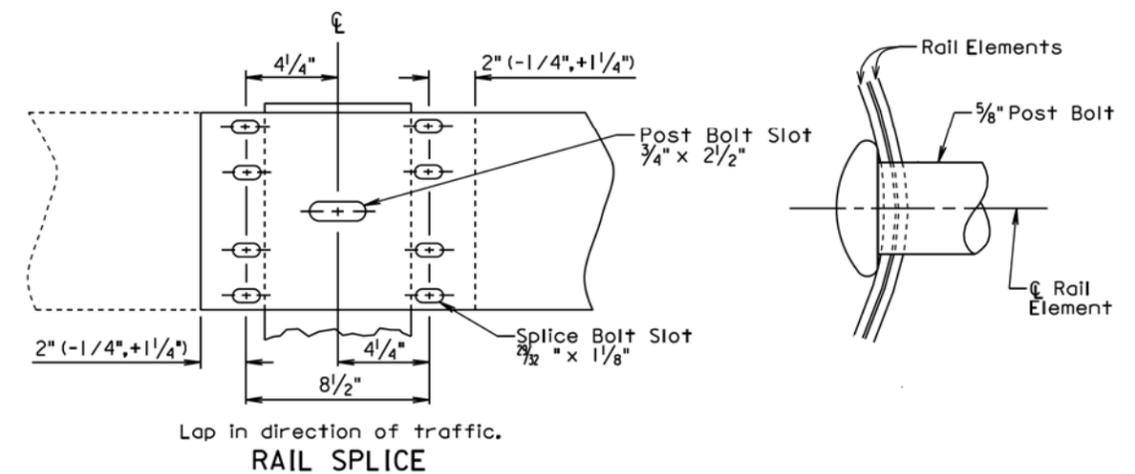


SECTION THROUGH W BEAM RAIL ELEMENT



The Post Bolt is similar except the post bolt is 18" long.

SPLICE BOLT
(5/8" BUTTON HEAD BOLT AND RECESS NUT)



RAIL SPLICE

December 23, 2004

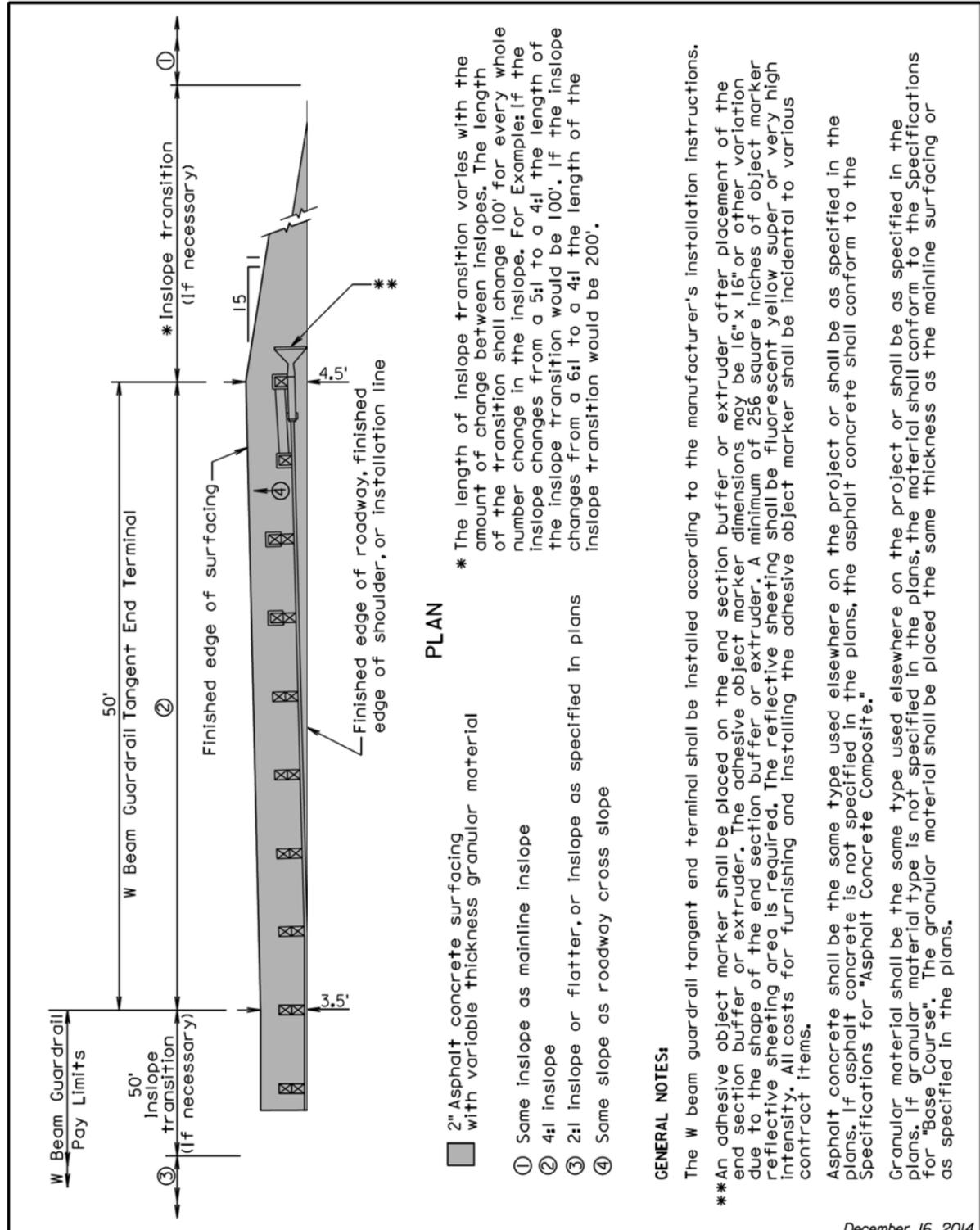
| | | |
|----------------------------------|---|-------------------------------|
| S D D O T | W BEAM RAIL, RAIL SPLICE, AND HARDWARE | PLATE NUMBER 630.33 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |

PLOT SCALE - 1:200

PLOTTED FROM - TRPR18387

PLOT NAME - 70

FILE - ... \STANDARD PLATES\SP23.DGN



PLAN

* The length of inslope transition varies with the amount of change between inslopes. The length of the transition shall change 100' for every whole number change in the inslope. For Example; If the inslope changes from a 5:1 to a 4:1 the length of the inslope transition would be 100'. If the inslope changes from a 6:1 to a 4:1 the length of the inslope transition would be 200'.

- 2" Asphalt concrete surfacing with variable thickness granular material
- ① Same inslope as mainline inslope
- ② 4:1 inslope
- ③ 2:1 inslope or flatter, or inslope as specified in plans
- ④ Same slope as roadway cross slope

GENERAL NOTES:

The W beam guardrail tangent end terminal shall be installed according to the manufacturer's installation instructions.

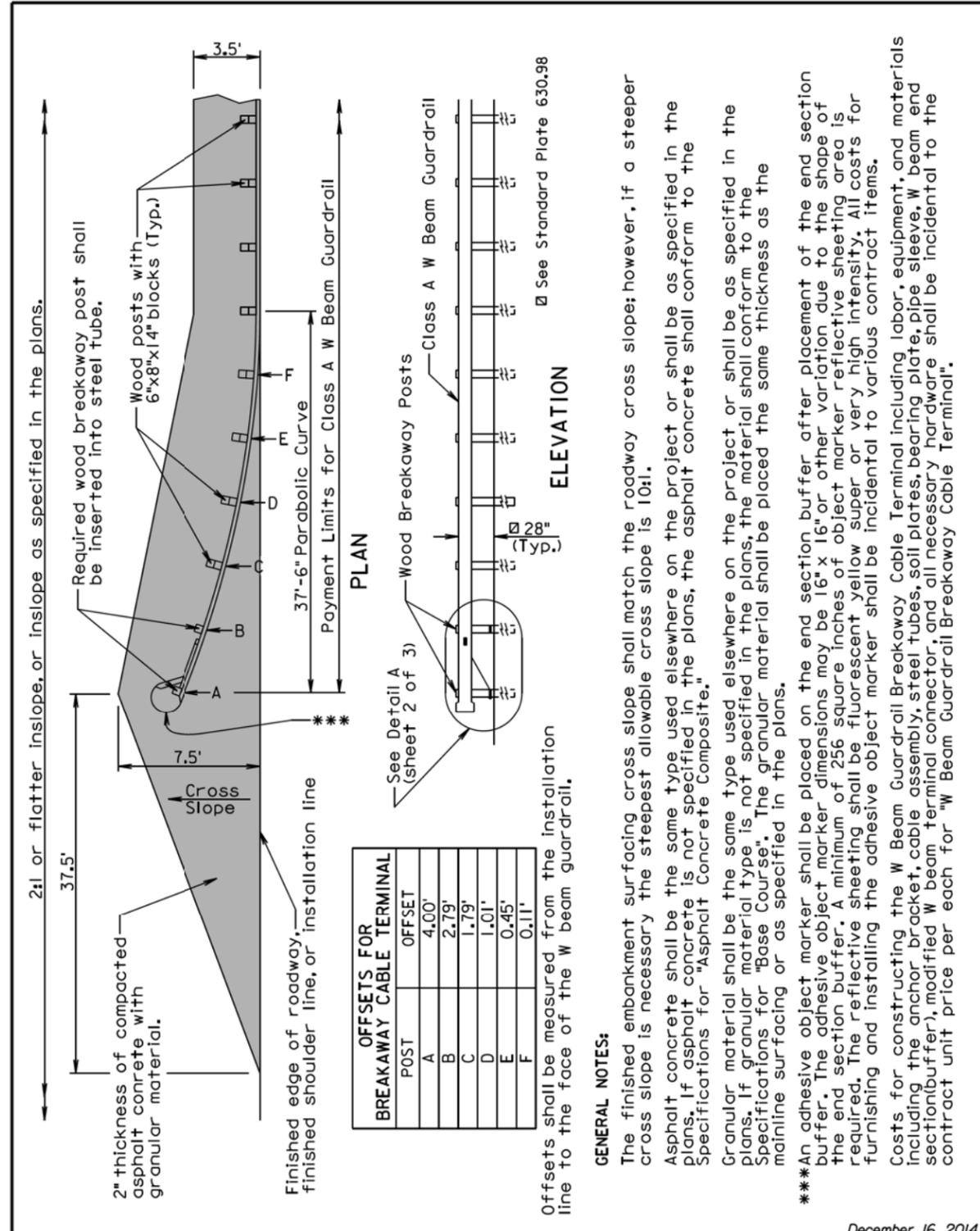
**An adhesive object marker shall be placed on the end section buffer or extruder. The adhesive object marker dimensions may be 16" x 16" or other variation due to the shape of the end section buffer or extruder. A minimum of 256 square inches of object marker reflective sheeting area is required. The reflective sheeting shall be fluorescent yellow super or very high intensity. All costs for furnishing and installing the adhesive object marker shall be incidental to various contract items.

Asphalt concrete shall be the same type used elsewhere on the project or shall be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete shall conform to the Specifications for "Asphalt Concrete Composite."

Granular material shall be the same type used elsewhere on the project or shall be as specified in the plans. If granular material type is not specified in the plans, the material shall conform to the Specifications for "Base Course". The granular material shall be placed the same thickness as the mainline surfacing or as specified in the plans.

December 16, 2014

| | | |
|--|---|---------------------------------------|
| <p>S D D O T</p> <p>Published Date: 3rd Qtr. 2015</p> | <p>EMBAKMENT AND SURFACING FOR W BEAM GUARDRAIL TANGENT END TERMINAL</p> | <p>PLATE NUMBER 630.46</p> |
| | | <p>Sheet 1 of 1</p> |



PLAN

| OFFSETS FOR BREAKAWAY CABLE TERMINAL | |
|--------------------------------------|--------|
| POST | OFFSET |
| A | 4.00' |
| B | 2.79' |
| C | 1.79' |
| D | 1.01' |
| E | 0.45' |
| F | 0.11' |

Offsets shall be measured from the installation line to the face of the W beam guardrail.

ELEVATION

GENERAL NOTES:

The finished embankment surfacing cross slope shall match the roadway cross slope; however, if a steeper cross slope is necessary the steepest allowable cross slope is 10:1.

Asphalt concrete shall be the same type used elsewhere on the project or shall be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete shall conform to the Specifications for "Asphalt Concrete Composite."

Granular material shall be the same type used elsewhere on the project or shall be as specified in the plans. If granular material type is not specified in the plans, the material shall conform to the Specifications for "Base Course". The granular material shall be placed the same thickness as the mainline surfacing or as specified in the plans.

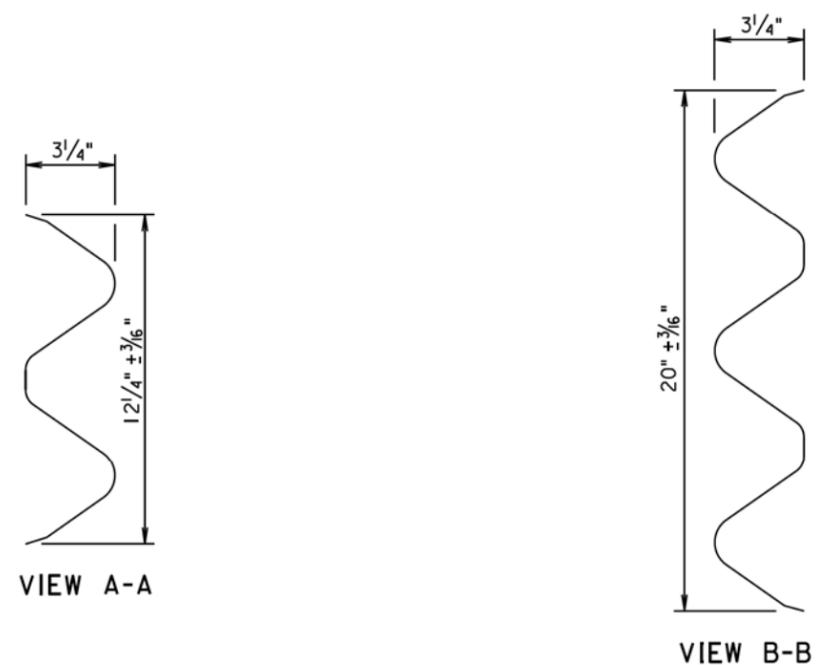
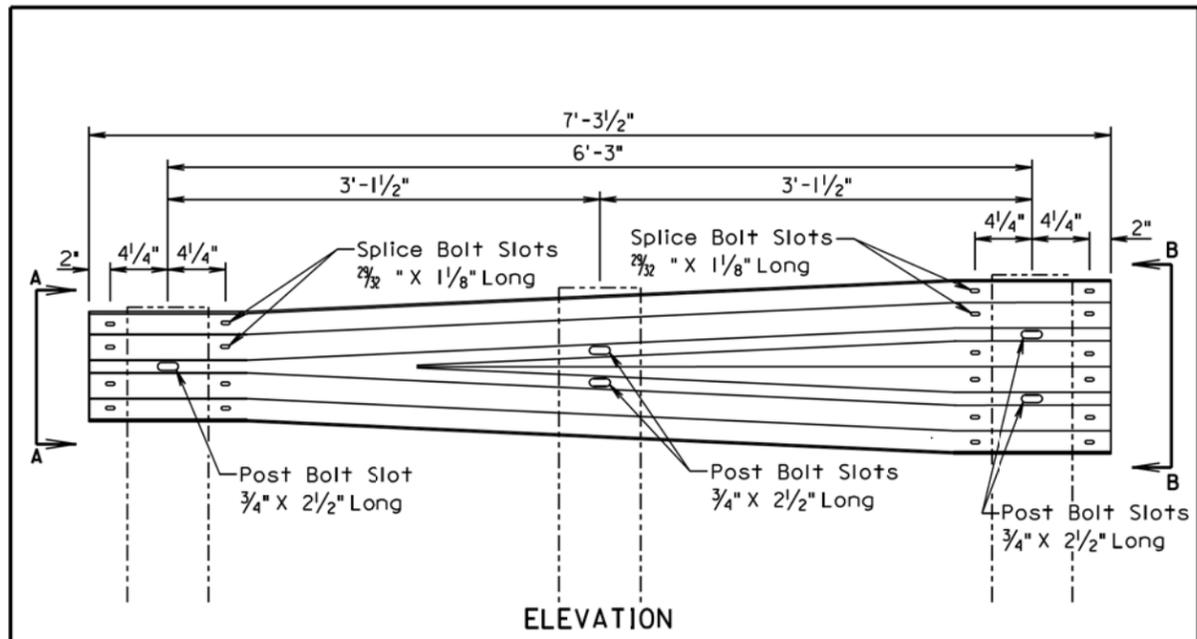
***An adhesive object marker shall be placed on the end section buffer after placement of the end section buffer. The adhesive object marker dimensions may be 16" x 16" or other variation due to the shape of the end section buffer. A minimum of 256 square inches of object marker reflective sheeting area is required. The reflective sheeting shall be fluorescent yellow super or very high intensity. All costs for furnishing and installing the adhesive object marker shall be incidental to various contract items.

Costs for constructing the W Beam Guardrail Breakaway Cable Terminal including labor, equipment, and materials including the anchor bracket, cable assembly, steel tubes, soil plates, bearing plate, pipe sleeve, W beam end section(buffer), modified W beam terminal connector, and all necessary hardware shall be incidental to the contract unit price per each for "W Beam Guardrail Breakaway Cable Terminal".

December 16, 2014

| | | |
|--|---|---------------------------------------|
| <p>S D D O T</p> <p>Published Date: 3rd Qtr. 2015</p> | <p>W BEAM GUARDRAIL BREAKAWAY CABLE TERMINAL</p> | <p>PLATE NUMBER 630.47</p> |
| | | <p>Sheet 1 of 3</p> |

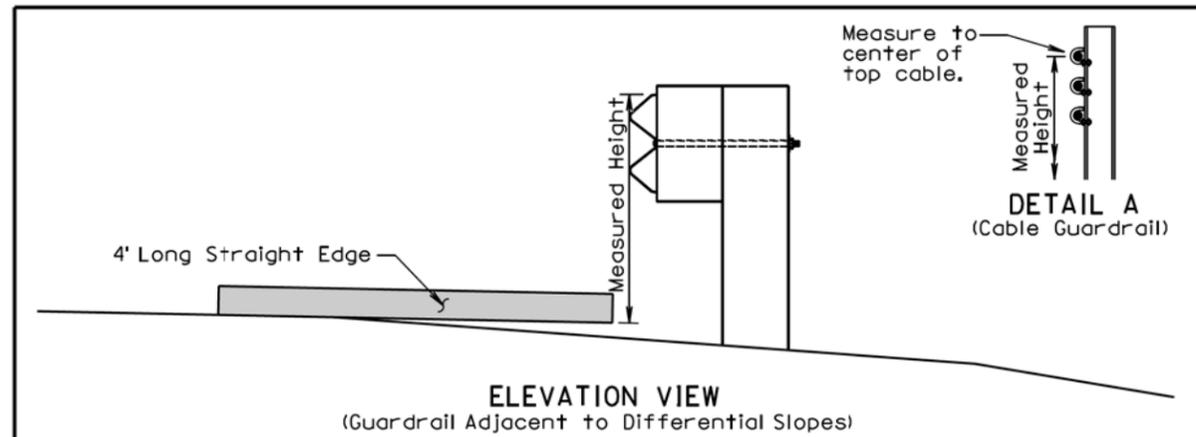
Plotting Date: 08/24/2015



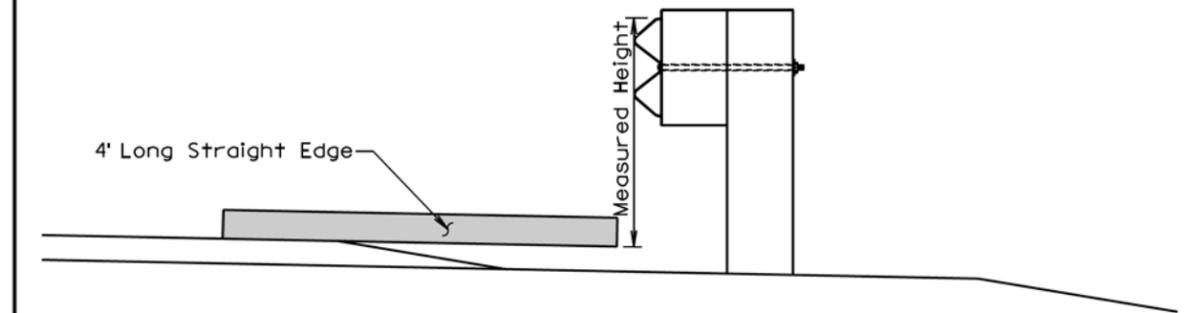
GENERAL NOTE:
All costs for constructing the W Beam to Thrie Beam Guardrail Transition including labor, equipment, and materials including two posts, two blocks, W beam to thrie beam transition section, and hardware shall be incidental to the contract unit price per each for "W Beam to Thrie Beam Guardrail Transition".

March 31, 2000

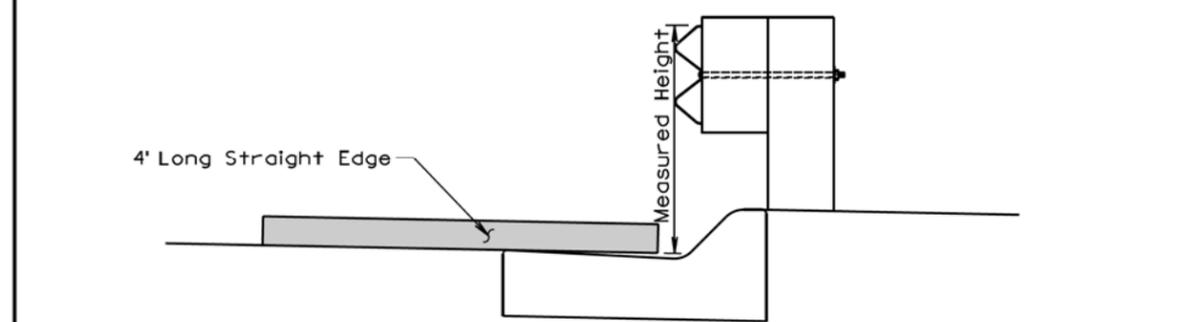
| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | W BEAM TO THRIE BEAM GUARDRAIL TRANSITION SECTION | PLATE NUMBER 630.82 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |



ELEVATION VIEW
(Guardrail Adjacent to Differential Slopes)



ELEVATION VIEW
(Guardrail Adjacent to Differential Surfacing Elevations)



ELEVATION VIEW
(Guardrail at Curb and Gutter)

GENERAL NOTES:
The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems shall be measured in accordance with this standard plate.
When measuring height of cable guardrail or cable barrier the height shall be measured to the center of the top cable. See Detail A.

June 26, 2010

| | | |
|----------------------------------|-----------------------------------|-------------------------------|
| S D D O T | MEASURING GUARDRAIL HEIGHT | PLATE NUMBER 630.98 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |

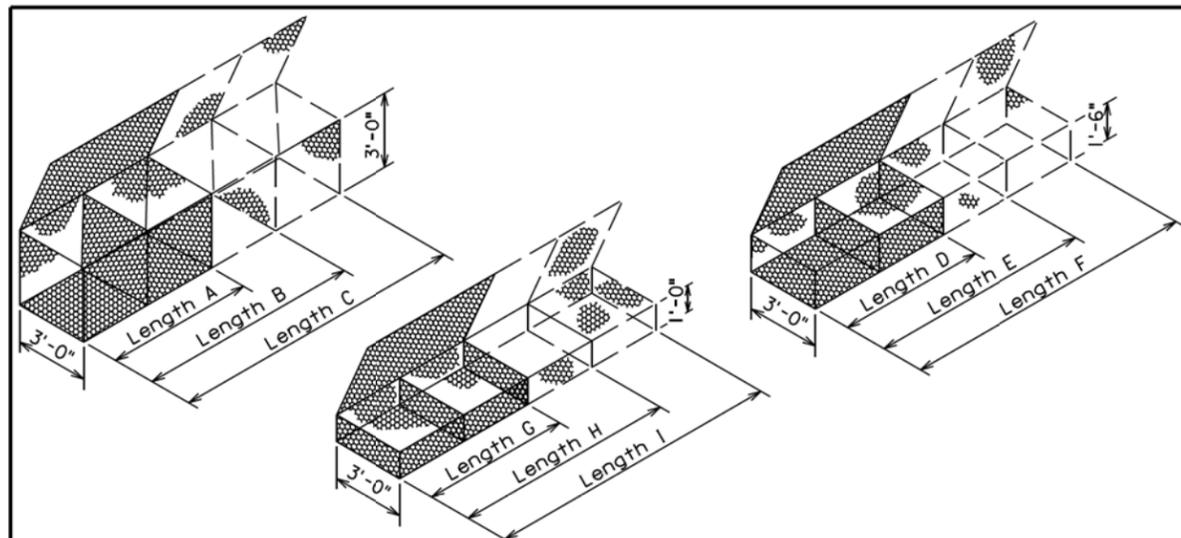
PLOT SCALE - 1:200

-PLOTTED FROM - TRPR18387

PLOT NAME - 73

FILE - ... \STANDARD PLATES\SP26.DGN

Plotting Date: 08/24/2015



**GABION DETAILS
STANDARD SIZES**

| SIZE | LENGTH | WIDTH | HEIGHT | NUMBER OF CELLS | CAPACITY, Cu. Yd. |
|------|--------|-------|--------|-----------------|-------------------|
| A | 6'-0" | 3'-0" | 3'-0" | 2 | 2.0 |
| B | 9'-0" | 3'-0" | 3'-0" | 3 | 3.0 |
| C | 12'-0" | 3'-0" | 3'-0" | 4 | 4.0 |
| D | 6'-0" | 3'-0" | 1'-6" | 2 | 1.0 |
| E | 9'-0" | 3'-0" | 1'-6" | 3 | 1.5 |
| F | 12'-0" | 3'-0" | 1'-6" | 4 | 2.0 |
| G | 6'-0" | 3'-0" | 1'-0" | 2 | 0.7 |
| H | 9'-0" | 3'-0" | 1'-0" | 3 | 1.0 |
| I | 12'-0" | 3'-0" | 1'-0" | 4 | 1.3 |

Above Dimensions subject to mill tolerances.

GENERAL NOTES:

Lacing and internal connecting wire shall be 0.0866 inch diameter steel wire ASTM A641 Class 3 soft temper measured after galvanizing and for PVC coated gabions shall be 0.0865 inch diameter steel wire measured after galvanizing but before PVC coating.

The lacing procedure is as follows:

1. Cut a length of lacing wire approximately 1 1/2 times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.
4. Securely fasten the other lacing wire terminal.

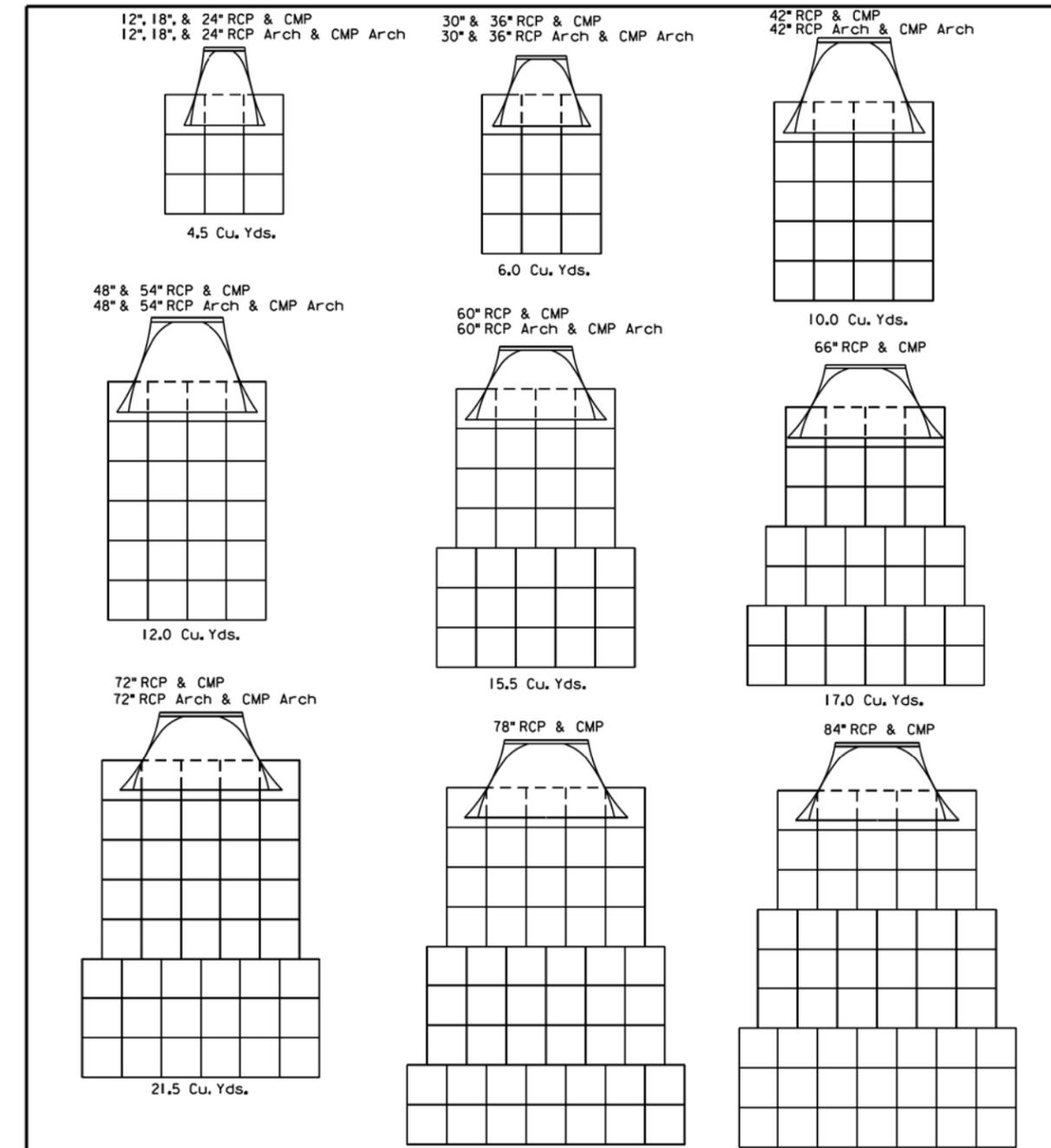
Wire lacing or interlocking type fasteners shall be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions shall be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing shall conform to ASTM A641-92 Class 3 coating. Fasteners shall also be in accordance with ASTM A764, Class II, Type III.

Interlocking fasteners for PVC coated gabions shall be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class I. The spacing of the interlocking fasteners during all phases of assembly and construction shall not exceed 6 inches.

All fasteners shall be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

June 26, 2001

| | | |
|----------------------------------|--|-------------------------------|
| S D D O T | BANK AND CHANNEL PROTECTION GABIONS | PLATE NUMBER 720.01 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |



GENERAL NOTES:

Gabions at outlets of C.M. pipe and R.C. pipe shall be placed under the end section a distance of 2' from the outlet end of the section. For C.M. pipe end section installations, the upper fabric of the gabions shall be modified to accommodate the metal end section in a manner approved by the Engineer.

Quantities shown on this standard plate are based on standard gabion sizes D, E, and F (See Standard Plate 720.01).

June 26, 2001

| | | |
|----------------------------------|---|-------------------------------|
| S D D O T | BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS | PLATE NUMBER 720.03 |
| | Published Date: 3rd Qtr. 2015 | Sheet 1 of 1 |

PLOT SCALE - 1:200

PLOT NAME - 75

FILE - ... \STANDARD PLATES\SP28.DGN

-PLOTTED FROM - TRPR18387