# SECTION F: SURFACING PLANS

FOR BIDDING PURPOSES ONLY

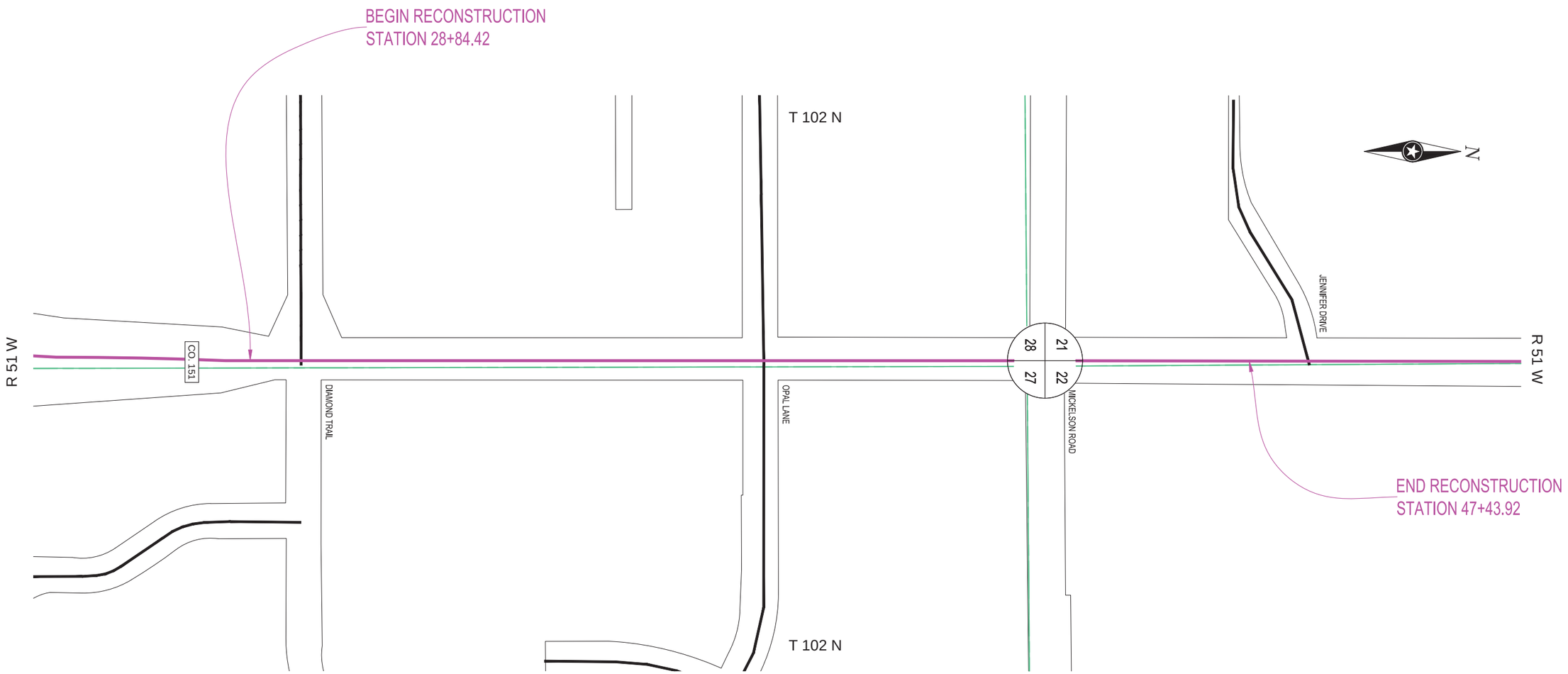
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
|---|---|---|---|
| | P 6353(00) | F1 | F17 |

Plotting Date: 1/7/2025

REGISTERED PROFESSIONAL ENGINEER
REG. NO 15778
JUSTIN DAVID HEIM
SOUTH DAKOTA
1/13/2025

## INDEX OF SHEETS






## SECTION F – ESTIMATE OF QUANTITIES

| SBI NBR | SBI DESC | ITEM QTY | UNITS |
|---|---|---|---|
| 260E3010 | Gravel Surfacing | 100.0 | Ton |
| 320E5020 | Saw Joint in Asphalt Concrete | 273.3 | Ft |
| 320E6000 | Temporary Asphalt | 488.0 | Ton |
| 380E0050 | 8" Nonreinforced PCC Pavement | 12,499.0 | SqYd |
| 380E6000 | Dowel Bar | 6,012 | Each |
| 380E6110 | Insert Steel Bar in PCC Pavement | 78 | Each |
| 380E6450 | Saw Joint in PCC Pavement | 102.1 | Ft |
| 380E9010 | Temporary Gravel Crossing | 10 | Each |
| 831E0210 | Non-woven Separator Fabric | 13,559 | SqYd |

## SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

## UTILITIES

The Contractor will contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It will be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor will contact the Engineer to determine modifications that will be necessary to avoid utility impacts.

The Contractor will be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor will contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

## SCALE

The Contractor will provide a computerized scale with the capability of printing weigh tickets for weighing the Aggregate Base Course and Salvage and Stockpile Asphalt Mix Material material. Cost for providing the computerized scale with printouts will be incidental to various contract items.

## WORK DURING CALENDAR YEAR 2025

Project IM 0909(92)387 which is the Removal, Grading, Structures and Interim Surfacing of Exit 387 south of Hartford, SD,

The Contractor will be responsible to coordinate phasing, traffic control, and construction operations between the two projects to limit disruptions to the maximum extent feasible. The Contractor shall coordinate with project engineers on each project when proposing modifications to traffic control, phasing, and traffic patterns.

## BUSINESS ENTRANCE CLOSURES

It is anticipated that there are 3 intersecting streets, and 5 driveways that may require a blockout to maintain access. The business entrances designated by the Engineer will not be closed for more than 24 consecutive hours with no alternate entrance into the business. The Contractor may use Fast Track Concrete, paving during nonbusiness hours, or any option approved by the Engineer to achieve this requirement. Failure to comply with this requirement will necessitate liquidated damages being assessed at a rate of $1,650.00 for each calendar day per each intersecting street or business entrance that remains closed pass the aforementioned time limit.

## TEMPORARY GRAVEL CROSSINGS

Included in the Estimate of Quantities are temporary gravel crossings to be used if required and placed as directed by the Engineer.

Salvaged granular base material may be utilized for temporary gravel crossings. If utilized, cost to salvage, stockpile, and place existing granular material shall be considered incidental to bid item.

Gravel Crossings shall be a minimum 6" thick. Item includes all materials, labor, and equipment to construct, compact, and maintain temporary crossings.

## STOCKPILE SITE

Prior to stockpiling of materials, topsoil will be salvaged from and stockpiled within the City-owned area. Topsoil will be considered to consist of the upper 6 inches of natural soil which normally supports vegetation.

Payment for stockpile site preparation will be incidental to the various contract items.

Location of Salvaged Asphalt Mix material is the Swenson Sports Complex in Hartford. The site is located approximately 1.9 miles north of the project location.

## GRAVEL SURFACING

The gravel surfacing will be placed on the project as closely following completion paving operations. Gravel shall be graded and to ensure a smooth transition to paved areas in locations shown on the plans.

## SAW JOINT IN ASPHALT CONCRETE AND PCC PAVEMENT

Prior to the removal of in place asphalt concrete and/or PCC Pavement, the existing pavement will be sawed full depth to a true line with a vertical face. See typical sections. If approved by the Engineer, the Contractor may elect to use a different method to create this vertical face. All costs to saw joint will be incidental to the contract unit price per foot for Saw Joint in Asphalt Concrete and Saw Joint in PCC Pavement.

## JOINT SAWING TABLE

| Station | | Station | Asphalt Concrete Joint (feet) | PCC Pavement Joint (feet) |
|---|---|---|---|---|
| Diamond Trail | | | | |
| 29+60 83' R | to | 29+63 83' R | | 2.5 |
| 29+63 83' R | to | 29+98 83' R | 36.2 | |
| 29+98 83' R | to | 30+01 83' R | | 2.5 |
| 29+60 121' L | To | 30+01 121' L | | 41.0 |
| Ace Hardware Driveway | | | | |
| 34+85 52' L | to | 35+16 51' L | | 31.1 |
| DQ Driveway | | | | |
| 34+90 50' R | to | 34+92 50' R | | 2.5 |
| 34+92 50' R | to | 35+18 50' R | 26.3 | |
| 35+18 50' R | to | 35+20 50' R | | 2.5 |
| Opal Lane | | | | |
| 38+9 91' L | to | 38+12 91' L | | 2.5 |
| 38+12 91' L | to | 38+48 90' L | 36.0 | |
| 38+48 90' L | to | 38+50 90' L | | 2.5 |
| 38+12 77' R | to | 38+14 77' R | | 2.5 |
| 38+14 77' R | to | 38+47 77' R | 34.3 | |
| 38+47 77' R | to | 38+51 77' R | | 2.5 |
| Mickelson Road | | | | |
| 43+45 124' R | to | 43+47 123' R | | 2.5 |
| 43+47 123' R | to | 43+83 123' R | 35.9 | |
| 43+83 123' R | to | 43+85 123' R | | 2.5 |
| St. George Catholic Church | | | | |
| 46+46 51' R | to | 46+71 50' R | 25.0 | |
| 48+86 19' R | to | 49+45 19' R | 79.6 | 5.0 |
| | | Total = | 273.3 | 102.1 |

## TEMPORARY ASPHALT

An estimated 476 tons of asphalt concrete is to be produced and placed by the Contractor on Western Avenue at locations given on Sheets C-4 through C-8

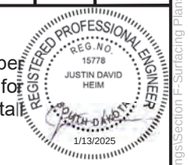
The Contractor Furnished Asphalt Concrete will meet the requirements of the Specifications for Class D Hot Mixed Asphalt Concrete.

The asphalt concrete will be compacted to 92% of the maximum specific gravity of the test specimens prepared in the field in accordance with SD 312.

All costs involved in producing and placing the asphalt concrete will be measured and paid for at the contract unit price per ton for Temporary Asphalt.

There will be no increase in the contract unit price per ton for Temporary Asphalt for any increases or decreases in either the quantity or the haul.

Asphalt binder and tack is considered incidental to the bid item. A maximum 20% RAP may be incorporated to the mix.




## 8" NONREINFORCED PCC PAVEMENT

The fine aggregate will 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 will conform to the special provision for Contractor Furnished Mix Design for PCC Pavement.

A minimum of 3 pavement blockouts may be required at various locations on this project to facilitate traffic during the paving activity.

A construction joint will be sawed whenever new concrete pavement is placed adjacent to existing concrete 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 will be performed as required by Section 380.3 C of the Specifications.

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

The location of joints, as shown and designated on the PCC Pavement Joint Layout(s) are only approximate locations to be used as a guide and to afford bidders a basis for estimating the construction cost of the joints. The final locations of the joints are to be designated by the Engineer during construction.

The mainline pavement Sta. 28+84 to Sta. 47+44 will 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.

## TRANSVERSE CONTRACTION JOINTS

Unless specified otherwise in the PCC Pavement Joint Layout Sheets or elsewhere in the plans, the typical joint spacing for the 8" Nonreinforced PCC Pavement will be 16'.

See Standard Plate 380.01 for placement of Dowel Bars. The transverse construction joints will be handled in accordance with Standard Plate 380.15.

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

## CURING OF CONCRETE

Portland Cement Concrete Pavement, Concrete Curb & Gutter, and Concrete Walks will be cured with Linseed Oil Base Emulsion Compound. All costs for Curing of Concrete will be incidental to the contract unit price per various Portland Cement Concrete bid items.

## TABLE OF DOWEL BARS

| Location | 12 Bar Assembly Dowel Bar (Size 1 ¼") Each | 11 Bar Assembly Dowel Bar (Size 1 ¼") Each |
|---|---|---|
| Mainline – Western Avenue | | |
| Sta. 28+84 to Sta. 47+44 | 307 | 106 |
| | | |
| Diamond Trail | | |
| Sta. 29+81 L/R | 17 | 10 |
| Opal Lane | | |
| Sta. 38+30 L/R | 10 | 5 |
| Mickelson Road | | |
| Sta. 43+65 L/R | 46 | 11 |
| | | |
| Total Assemblies: | 380 | 132 |
| Total Dowel Bars | 4,560 | 1,452 |

## MANHOLE BOX-OUT DETAILS

The Contractor will construct box-outs for all manholes where the edge of casting is within 12" of a concrete joint according to the Box-Out Detail. See Section B for locations of proposed manholes and water valve boxes. Boxout concrete and reinforcement is considered incidental to related pavement bid items.

## STEEL BAR INSERTION

The Contractor will insert the Steel Bars (No. 10 x 18-inch epoxy coated deformed tie bars) into drilled holes in the existing concrete pavement. Anchoring of the steel bars in the drilled holes will conform to the Specifications.

The steel bars will be cut to the specified length by sawing or shearing and will be free from burring or other deformations.

Epoxy coated deformed steel bars will be inserted on 12-inch centers in the transverse joint and will be placed a minimum of 6 inches from the existing longitudinal joint.

## TABLE OF STEEL BAR INSERTION

| LOCATION | QUANTITY OF BARS No. 10 |
|---|---|
| Diamond Trail | 27 |
| Ace Hardware Driveway | 19 |
| Curb and Gutter Connections | 32 |

## NON-WOVEN SEPARATOR FABRIC

Non-woven Separator Fabric has been included in the Estimate of Quantities for the proposed pavement. This fabric is to be used as a separator between the Base Course and prepared subgrade to prevent migration of aggregate into the prepared subgrade.

Minimum fabric overlap at joints shall be 18". Fabric overlap shall be considered incidental to the bid item.

Non-woven Separator Fabric will be paid for at the contract unit price per square yard of fabric placed. Payment for this item will be full payment for furnishing all equipment, labor and incidentals required to furnish and install the fabric.

## WATER FOR DUST CONTROL

Water for Dust Control and will be applied as ordered by the Engineer. Water for dust control is considered incidental to related grading operations.

## POLY-ALPHA METHYLSTYRENE (AMS) MEMBRANE CURING COMPOUND

Provide poly-alpha methylstyrene liquid membrane curing compounds for spray application on portland cement concrete surfaces exposed to the air.

The AMS membrane curing compound will conform to section 821 of the Specifications and the following requirements:

1. The AMS membrane curing compound will be successfully reviewed by the Department before use.
2. Meets the requirements of ASTM C 309 for white pigmented Type 2, Class B.
3. The Engineer will not allow the use of curing compound that is over 1 year from the manufacture date.
4. Resin is 100 percent poly-alpha methylstyrene and formulated to maintain the specified properties of the following Table.

| REQUIREMENTS FOR AMS MEMBRANE CURING COMPOUND | |
|---|---|
| **Properties** | **Range** |
| Total solids, % by weight of compound | ≥ 42 |
| % reflectance in 72 h (ASTM E 1247) | ≥ 65 |
| Loss of Water, kg/sq. m in 24 h (AASHTO T 155) | ≤ 0.15 |
| Loss of Water, kg/sq. m in 72 h (AASHTO T 155) | ≤ 0.40 |
| Settling Test, ml/100 ml in 72 h * | ≤ 2 |
| V.O.C. Content, g/L | ≤ 350 |
| Infrared Spectrum, vehicle | 100% α methylstyrene |
| *Test in accordance with MNDOT method. | |

The application will be in accordance with section 380.3 M plus the following:

Before application, agitate the curing compound as received in the shipping container to obtain a homogenous mixture. Protect membrane curing compounds from freezing before application. Handle and apply the membrane curing compound in accordance with the manufacturer's recommendations.


**POLY-ALPHA METHYLSTYRENE (AMS) MEMBRANE CURING COMPOUND, continued**

1. Apply curing compound homogeneously to provide a uniform, solid, white opaque coverage on all exposed concrete surfaces (equal to a white sheet of typing paper) at the time of application.

2. If the Engineer determines that the initial or corrective spraying result in unsatisfactory curing, the Engineer may require the Contractor to use the blanket curing method, at no additional cost to the Department.

Use the fully-automatic, self-propelled mechanical power sprayer to apply the curing compound:

1. Operate the equipment to direct the curing compound to the surface from two different lateral directions.

2. If puddling, dripping, or non-uniform application occurs, suspend the operation to perform corrections as approved by the Engineer.

3. A re-circulating bypass system that provides for continuous agitation of the reservoir material.

4. Separate filters for the hose and nozzle.

5. Check valve nozzles.

6. Multiple or adjustable nozzle system that provides for variable spray patterns.

7. A spray-bar drive system that operates independently of the wheels or track drive system.

Equipment for hand spraying of odd width or shapes and surfaces exposed by form removal will be:

1. Used from two directions to ensure coverage equal to a white sheet of typing paper as visible from any direction immediately after spraying.

2. A re-circulating bypass system that provides for continuous agitation of the reservoir material.

3. Separate filters for the hose and nozzle.

4. Multiple or adjustable nozzle system that provides for variable spray patterns.

A recommended practice for using AMS membrane curing compound is to clean out the sprayer including tank and nozzles each day after use.

Payment for AMS membrane curing compound, including labor, materials and incidentals will be incidental to the contract unit price of related concrete bid items.

# TYPICAL SURFACING SECTIONS

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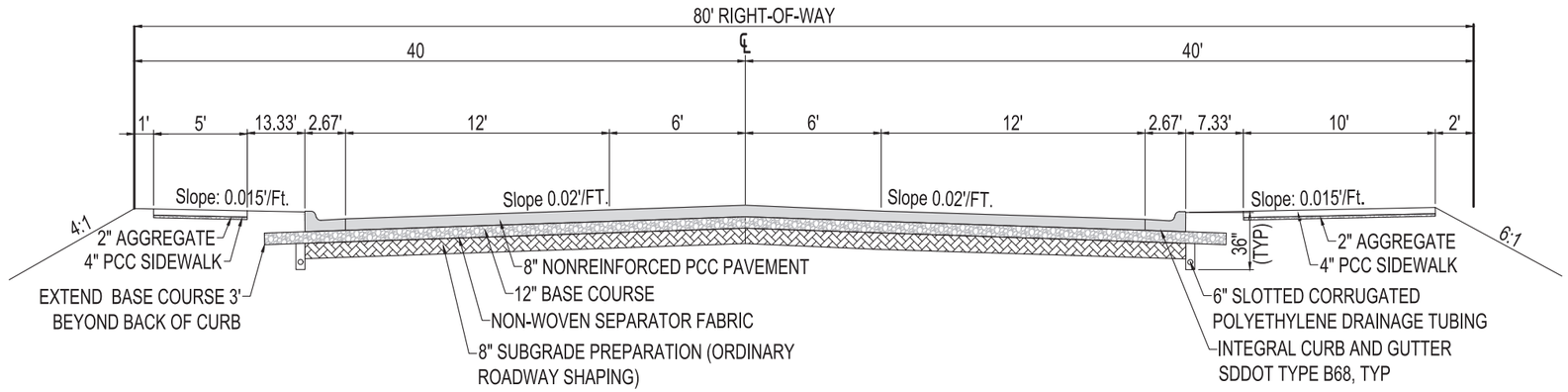


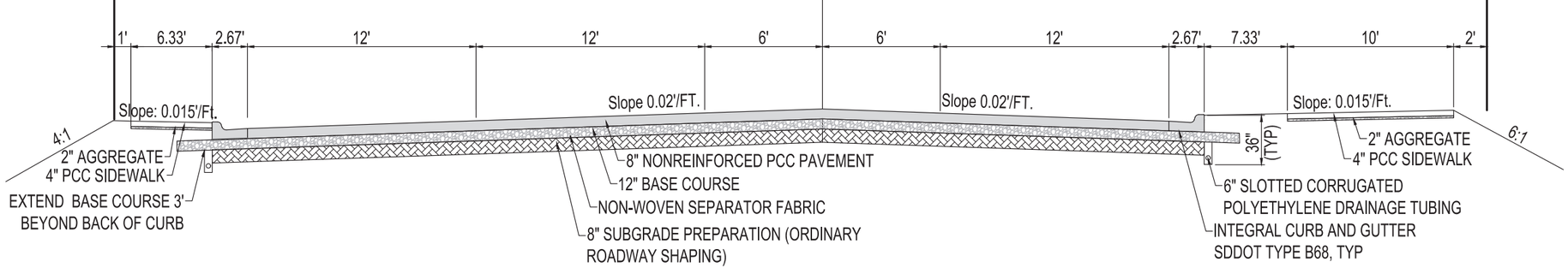


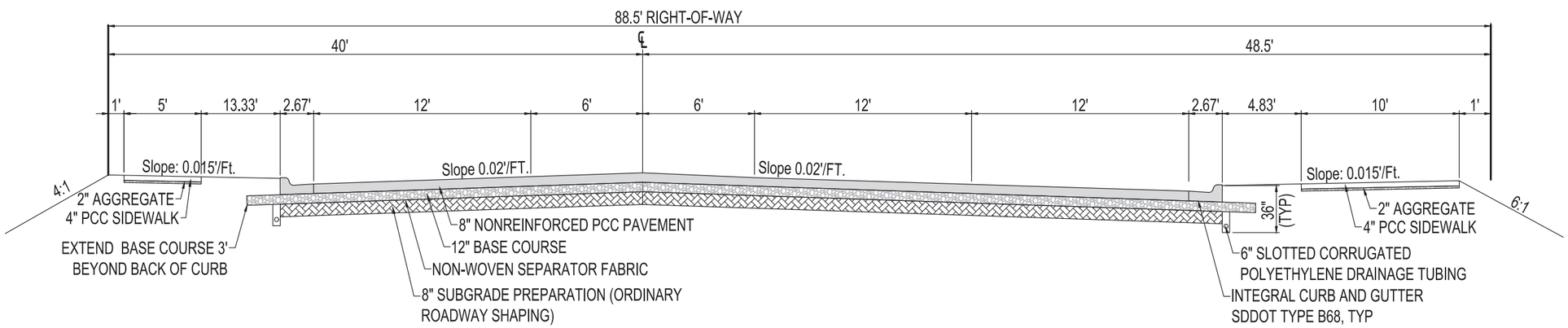

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LEGEND

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LD - LONGITUDINAL JOINT WITH DRILLED TIE BAR, PER SDDOT PLATE 380.14
B - BOXOUT JOINT WITH TIE BAR, PER SDDOT PLATE 380.14
T - TRANSVERSE CONTRACTION JOINT WITH DOWEL BAR ASSEMBLY, PER SDDOT PLATE 380.04 – – – – –

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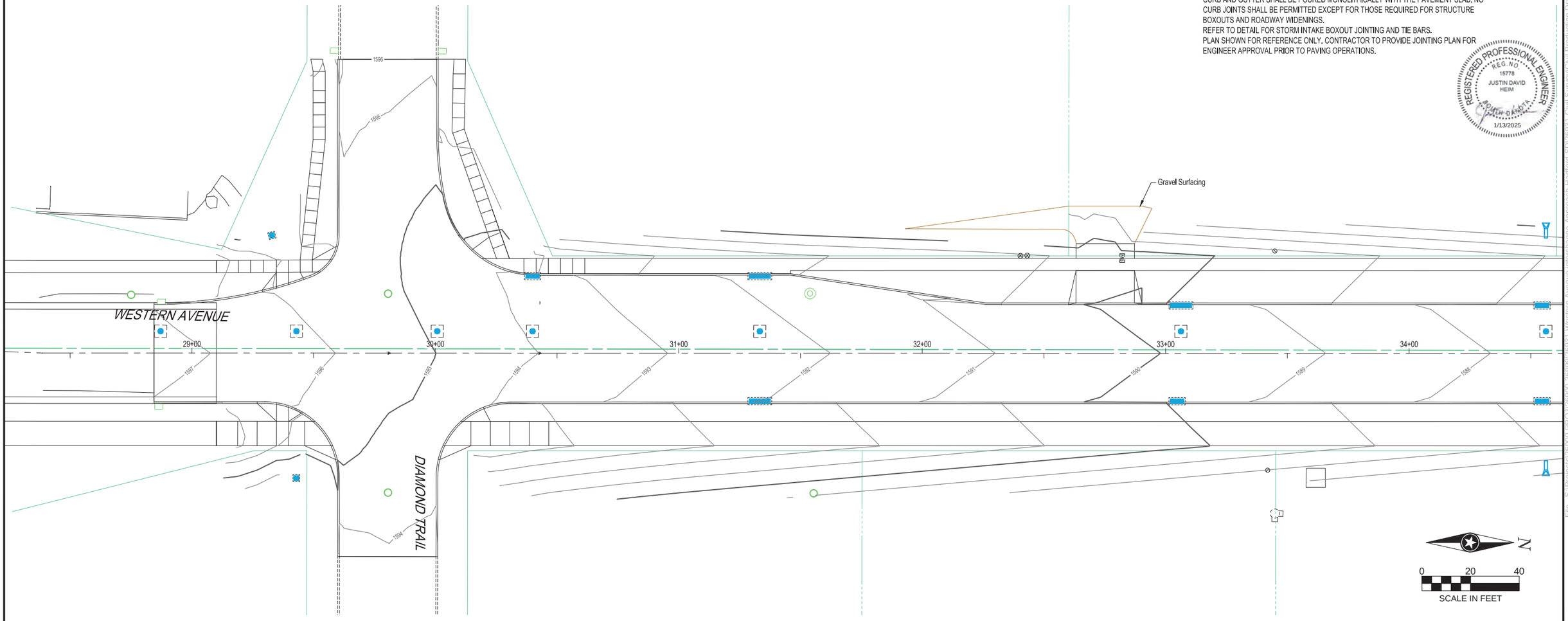

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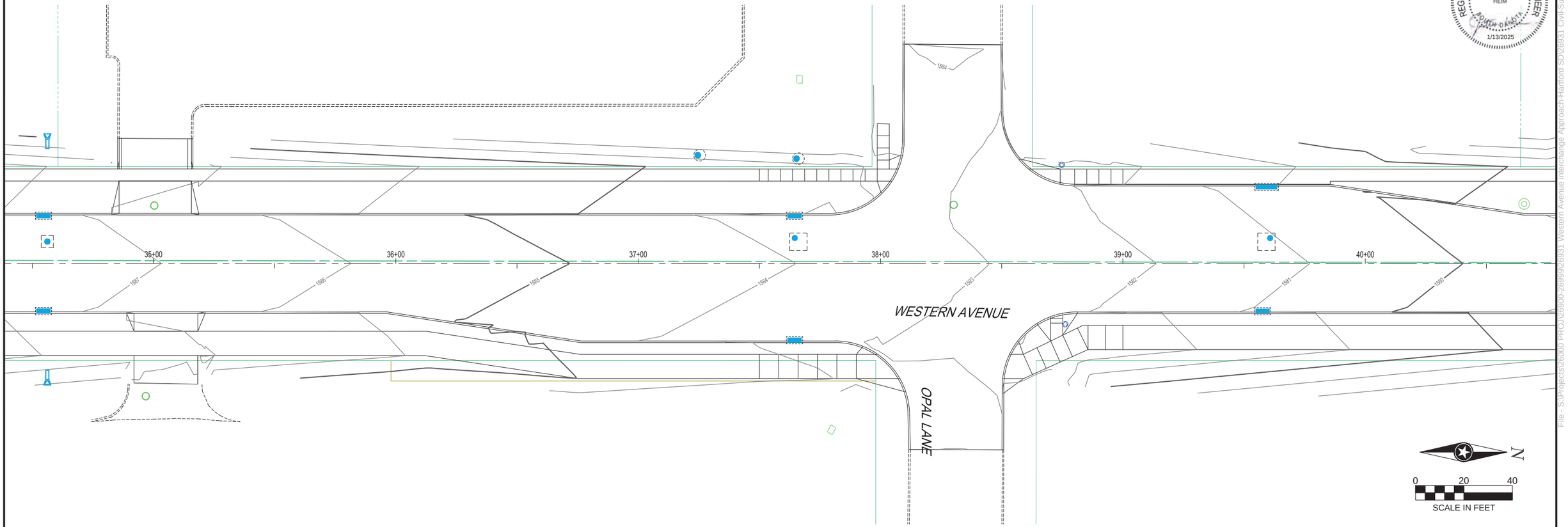

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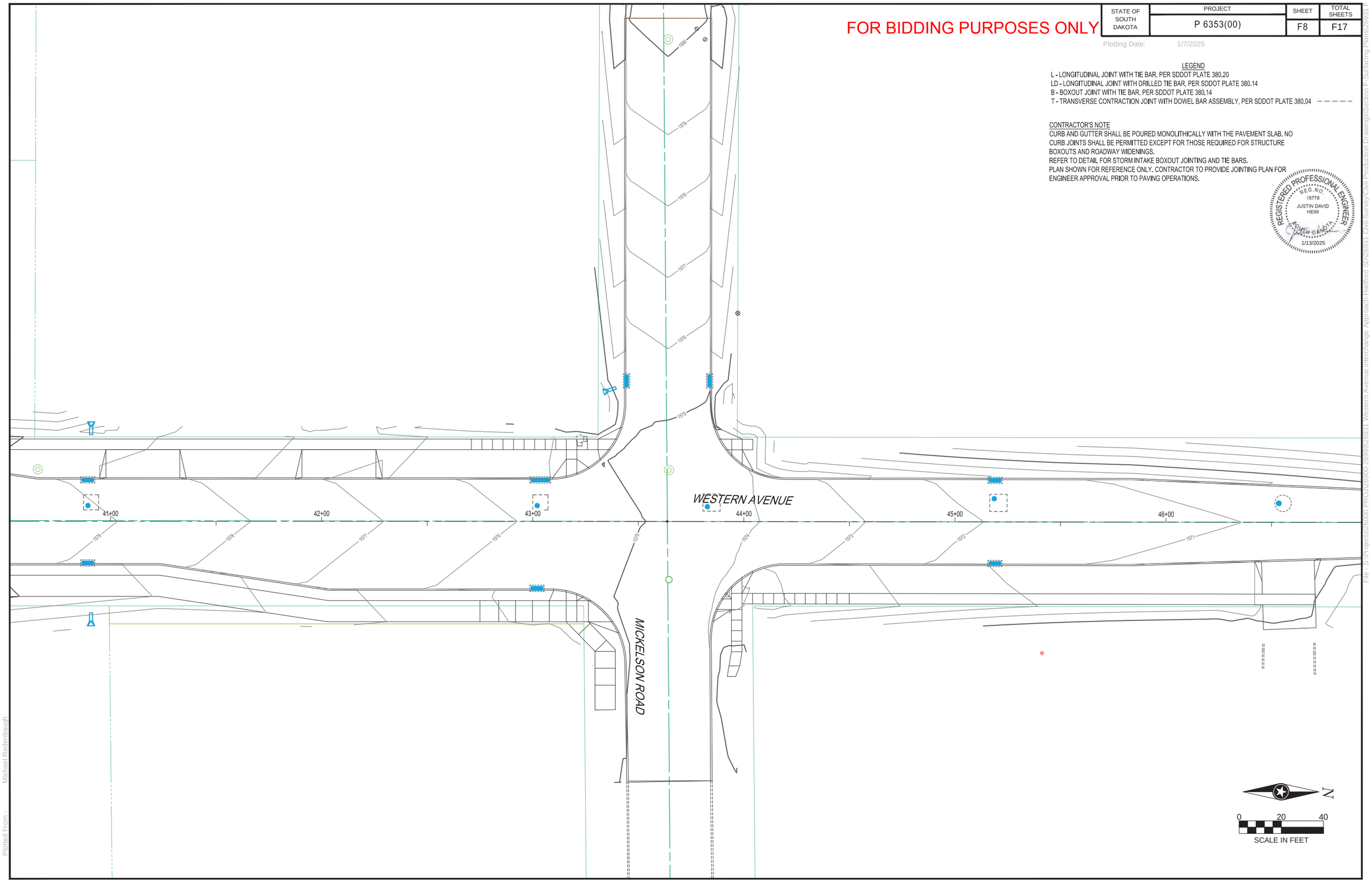

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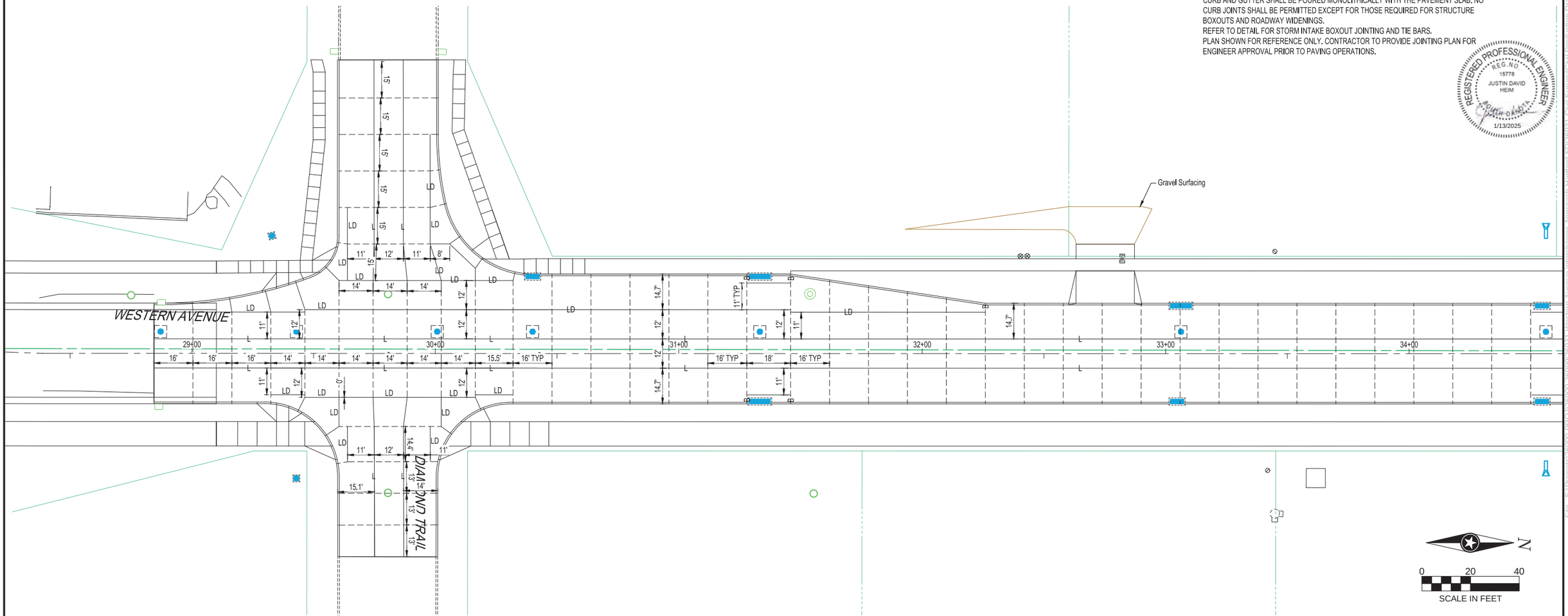


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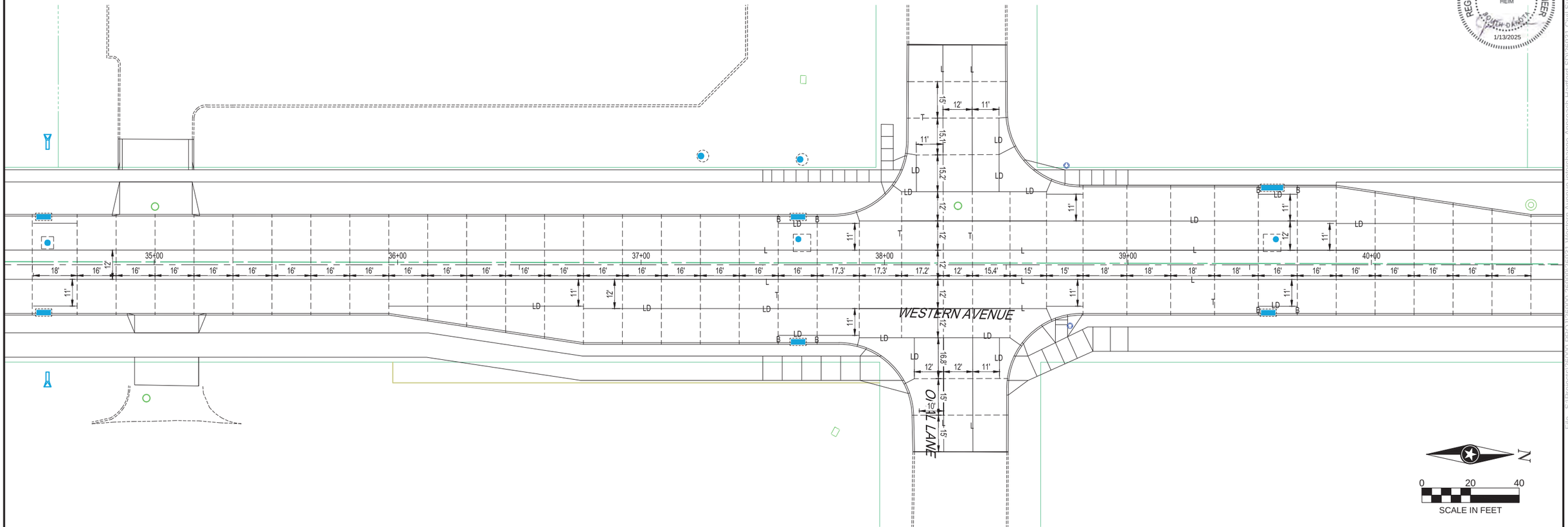

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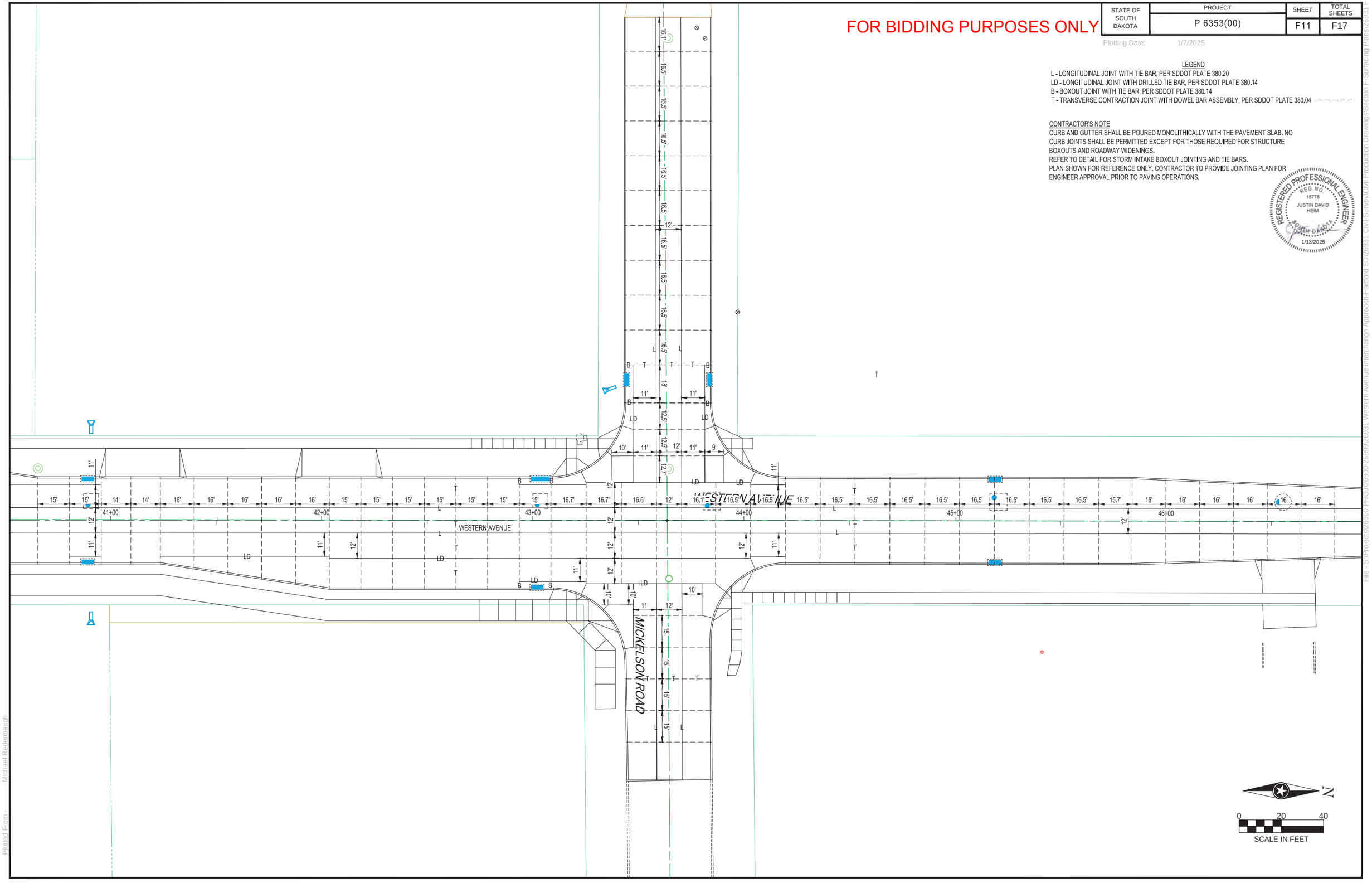

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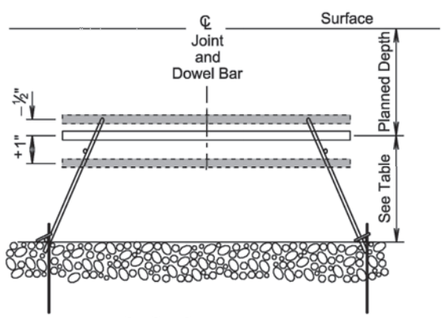
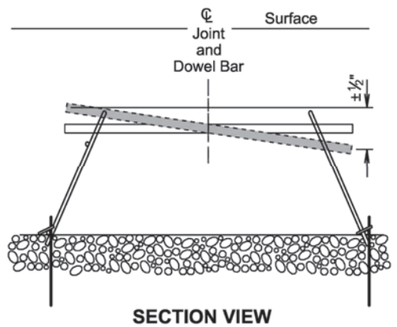


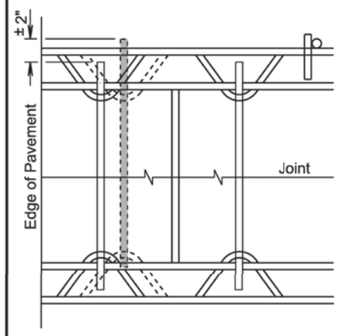

**SECTION VIEW**
**VERTICAL TRANSLATION**

Depth: mid-depth + 1 inch or – ½ inch



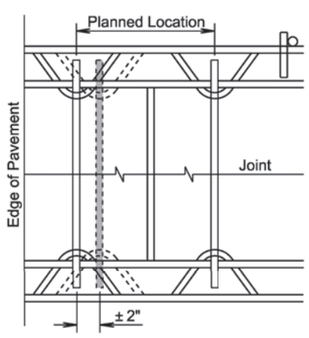

**SECTION VIEW**
**VERTICAL TILT**

Vertical rotational alignment: ½ inch over 18 inch



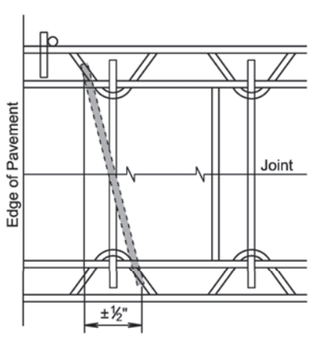

**PLAN VIEW**
**LONGITUDINAL TRANSLATION**

Longitudinal side shift: ± 2 inch for 18 inch bars




**PLAN VIEW**
**HORIZONTAL TRANSLATION**

Side shift ± 2 inch




**PLAN VIEW**
**HORIZONTAL SKEW**

Horizontal rotational alignment: ½ inch over 18 inch

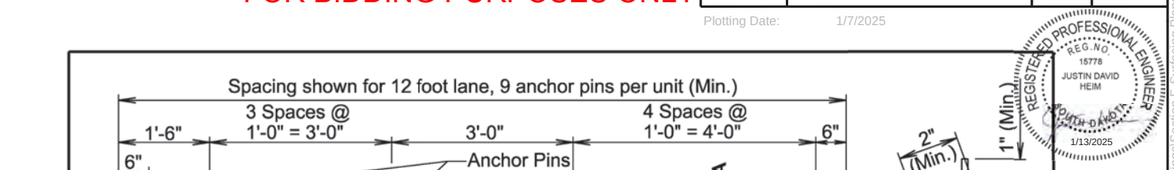
| PAVEMENT THICKNESS | EPOXY COATED DOWEL BAR SIZE | HEIGHT TO CENTER |
|---|---|---|
| 7" to 7½" | 1" x 18" | 3.0" |
| 8" to 10" | 1¼" x 18" | 4.0" |
| 10½" to 13" | 1½" x 18" | 5.0" |

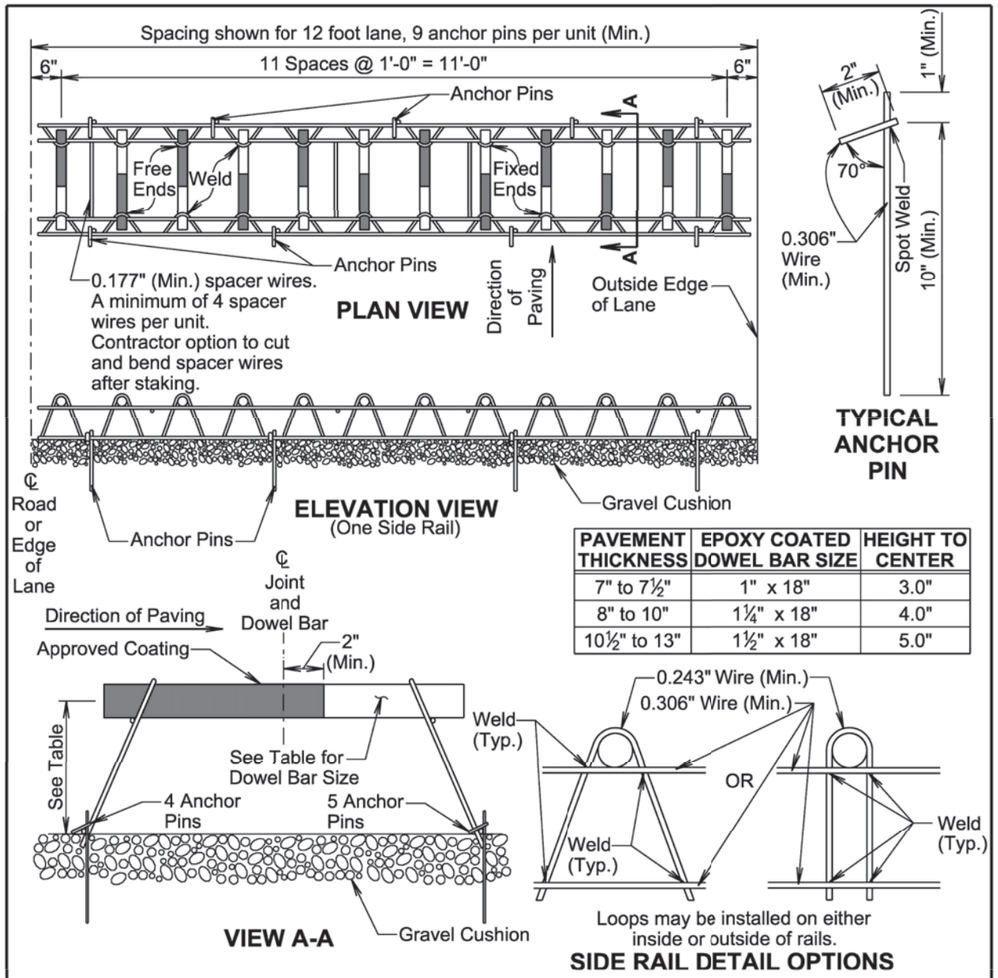
**GENERAL NOTE:**

The tolerances shown above represent the maximum deviation for acceptance of dowel bar placement.

November 19, 2022

| | | | |
|---|---|---|---|
| Published Date: 2024 | SDDOT | PCC PAVEMENT DOWEL BAR ALIGNMENT TOLERANCES | PLATE NUMBER 380.01<br>Sheet 1 of 1 |




| PAVEMENT THICKNESS | EPOXY COATED DOWEL BAR SIZE | HEIGHT TO CENTER |
|---|---|---|
| 7" to 7½" | 1" x 18" | 3.0" |
| 8" to 10" | 1¼" x 18" | 4.0" |
| 10½" to 13" | 1½" x 18" | 5.0" |

GENERAL NOTES:

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

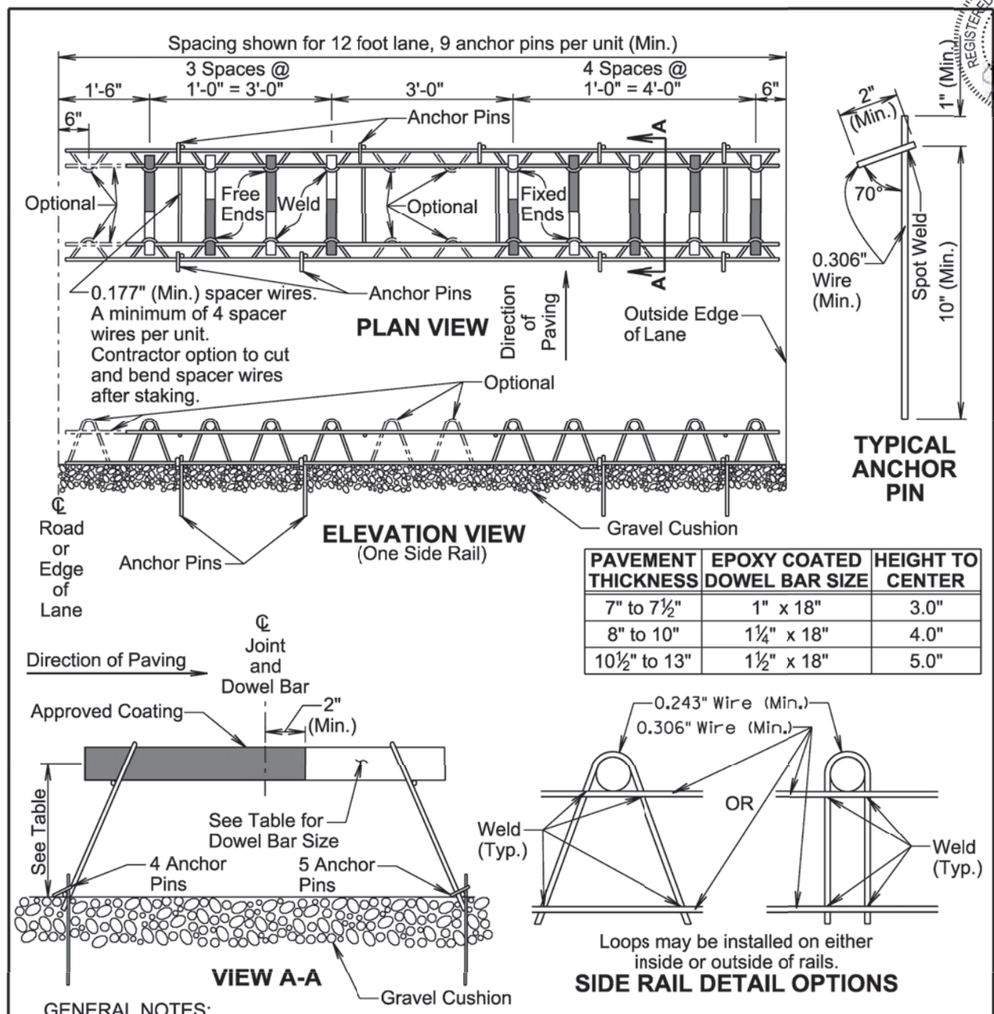
The transverse contraction joints will be sawed perpendicular to the centerline of the roadway. The transverse sawed joint will be centered over the dowel bars.

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

All dowel bar alignment tolerances will be as shown in the PCC Pavement Dowel Bar Alignment Tolerances standard plate.

November 19, 2022

| Published Date: 2024 | SDDOT | PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 12 Bar Assembly on Granular Base Material | PLATE NUMBER 380.04 |
|---|---|---|---|
| | | | Sheet 1 of 1 |




| PAVEMENT THICKNESS | EPOXY COATED DOWEL BAR SIZE | HEIGHT TO CENTER |
|---|---|---|
| 7" to 7½" | 1" x 18" | 3.0" |
| 8" to 10" | 1¼" x 18" | 4.0" |
| 10½" to 13" | 1½" x 18" | 5.0" |

GENERAL NOTES:

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

The transverse contraction joints will be sawed perpendicular to the centerline of the roadway. The transverse sawed joint will be centered over the dowel bars.

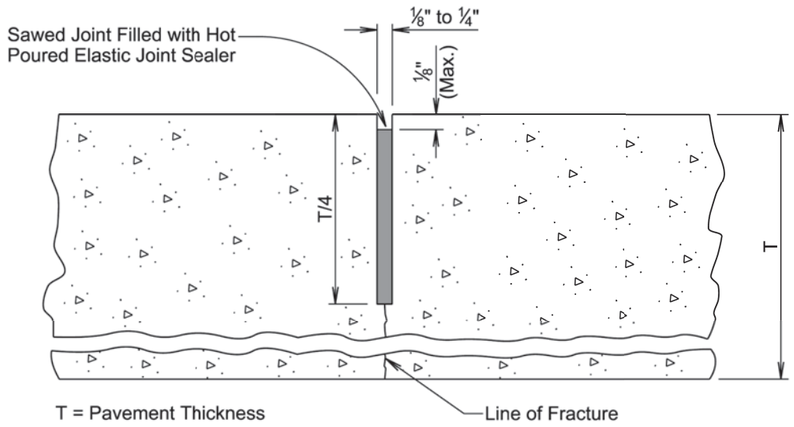
Supporting devices as shown on this sheet, or equivalent as approved by the Engineer, will be used to maintain proper horizontal and vertical alignment of the dowel bars.

All dowel bar alignment tolerances will be as shown in the PCC Pavement Dowel Bar Alignment Tolerances standard plate.

November 19, 2022

| Published Date: 2024 | SDDOT | PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 9 Bar Assembly on Granular Base Material | PLATE NUMBER 380.06 |
|---|---|---|---|
| | | | Sheet 1 of 1 |

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15778
JUSTIN DAVID HEIM
SOUTH DAKOTA
1/13/2025



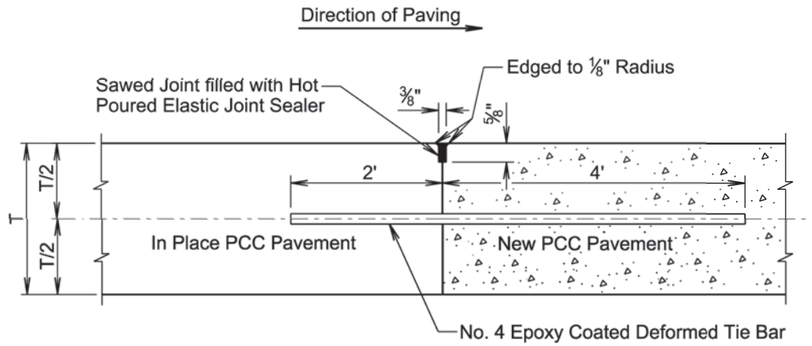

**GENERAL NOTES:**

If an early entrance saw cut does not develop the full transverse crack, then the saw cut to control cracking will be a minimum ¼ of the thickness of the pavement.

All hot poured elastic joint sealer material spilled on the surface of the concrete pavement will be removed as soon as the material has cooled. The extent of removal of material will be to the satisfaction of the Engineer. All costs for removal of the spilled joint sealer material will be borne by the Contractor.

November 19, 2022

| | | | |
|---|---|---|---|
| Published Date: 2024 | SDDOT | PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY | PLATE NUMBER 380.12<br>Sheet 1 of 1 |




T = Pavement Thickness

**GENERAL NOTES:**

No. 4 epoxy coated deformed tie bars will be spaced 12 inches center to center and will 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 will be 5 feet.

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

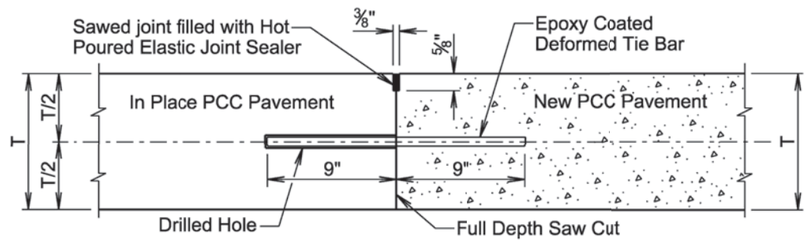
A transverse construction joint may be placed in lieu of the transverse contraction joint when shown in the plans.

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

November 19, 2022

| | | | |
|---|---|---|---|
| Published Date: 2024 | SDDOT | PCC PAVEMENT MID PANEL TRANSVERSE CONSTRUCTION JOINT | PLATE NUMBER 380.14<br>Sheet 1 of 1 |

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




T = In Place PCC Pavement and New PCC Pavement Thickness

**GENERAL NOTES:**

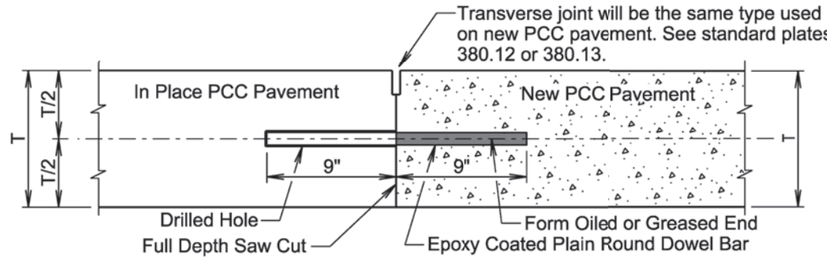
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

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

The tie bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive or a non-shrink grout.

No. 9 epoxy coated deformed tie bars will be used in 10 inch thickness and less PCC Pavement and No. 11 epoxy coated deformed tie bars will be used in 10.5 inch thickness and greater PCC Pavement. The tie bar spacing will be 18 inches center to center and will 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:** T = In Place PCC Pavement and New PCC Pavement Thickness

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.

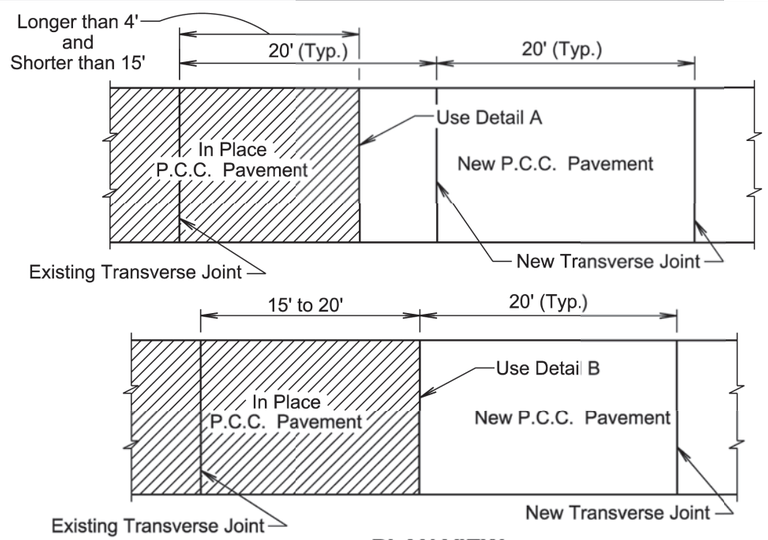
See sheet 2 of 2 of this standard plate to determine if Detail B will be used.

The plain round dowel bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive or a non-shrink grout.

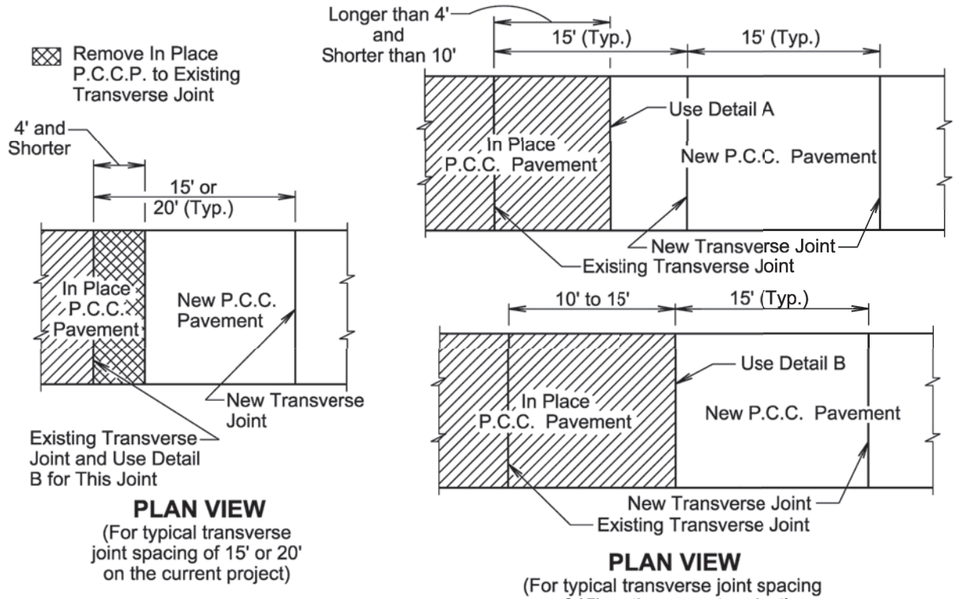
The epoxy coated plain round dowel bar size, number, and spacing will be the same as detailed on the corresponding dowel bar assembly standard plate (380.04, 380.05, 380.06, or 380.07). The epoxy coated plain round dowel bars will be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

January 22, 2023

| Published Date: 2024 | SDDOT | PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS | PLATE NUMBER 380.15 |
|---|---|---|---|
| | | | Sheet 1 of 2 |




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



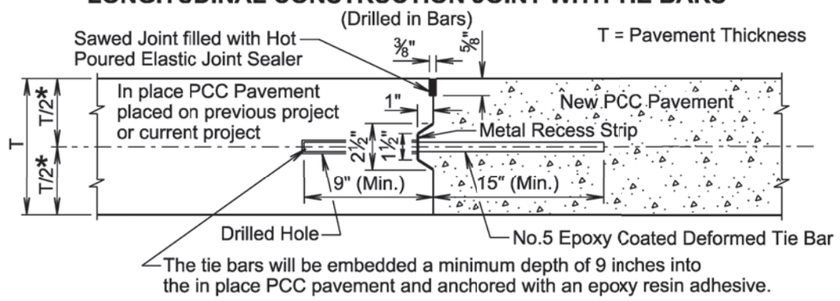

**PLAN VIEW**
(For typical transverse joint spacing of 15' or 20' on the current project)

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

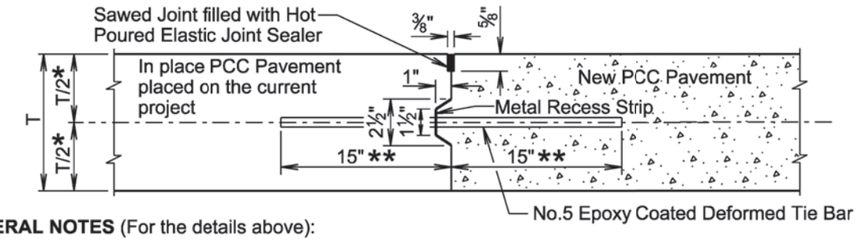
January 22, 2023

| Published Date: 2024 | SDDOT | PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS | PLATE NUMBER 380.15 |
|---|---|---|---|
| | | | Sheet 2 of 2 |

## LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(Drilled in Bars)




## LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(Inserted or Formed in Bars)




**GENERAL NOTES** (For the details above):

The epoxy coated deformed tie bars will 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 will be placed a minimum of 15 inches from transverse contraction joints.

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

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

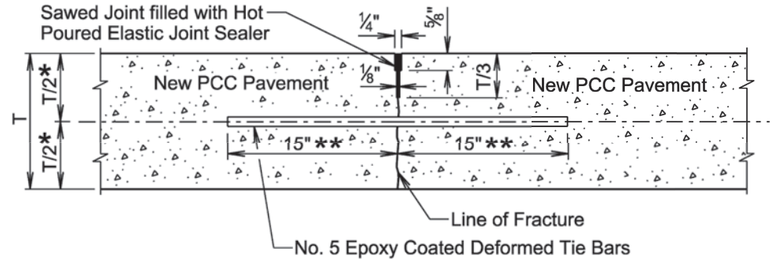
The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip will be used. When concrete pavement is slip formed, a metal recess strip is not required.

* The vertical placement tolerance for any part of the tie bar will be ± T/6.
** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

November 19, 2022

| | | | |
|---|---|---|---|
| Published Date: 2024 | SDDOT | PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS | PLATE NUMBER 380.20 |
| | | | Sheet 1 of 2 |

## SAWED LONGITUDINAL JOINT WITH TIE BARS
(Poured Monolithically)




T = Pavement Thickness

**GENERAL NOTES** (For the detail above):

The epoxy coated deformed tie bars will 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 will be placed a minimum of 15 inches from the transverse contraction joints.

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

The first saw cut to control cracking will 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.

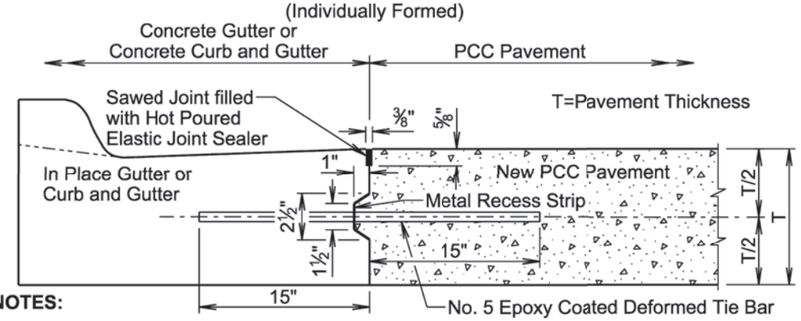
* The vertical placement tolerance for any part of the tie bar will be ± T/6.
** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

November 19, 2022

| | | | |
|---|---|---|---|
| Published Date: 2024 | SDDOT | PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS | PLATE NUMBER 380.20 |
| | | | Sheet 2 of 2 |

## LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(Individually Formed)




**GENERAL NOTES:**

No. 5 epoxy coated deformed tie bars will be spaced 48 inches center to center. The keyway shown above is a female keyway.

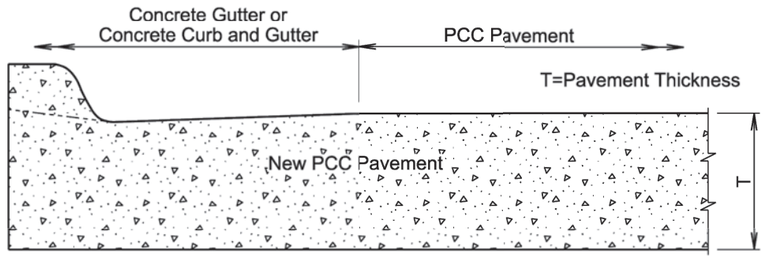
The tie bars will be placed a minimum of 15 inches from existing transverse contraction joints.

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

The transverse contraction joints in the concrete gutter or concrete curb and gutter will be placed at each mainline PCC pavement transverse contraction joint. The transverse contraction joints in the concrete gutter or the concrete curb and gutter will be 1½ inches deep if formed in fresh concrete using a suitable grooving tool. If a saw is used to cut the transverse contraction joints, then the depth of the joint will be at least ¼ the thickness of the concrete gutter or concrete curb and gutter.

The term "In Place Gutter or Curb and Gutter" in the above drawing indicates that the in place concrete gutter and concrete curb and gutter was placed on the current project.

## POURED MONOLITHICALLY




**GENERAL NOTES:**

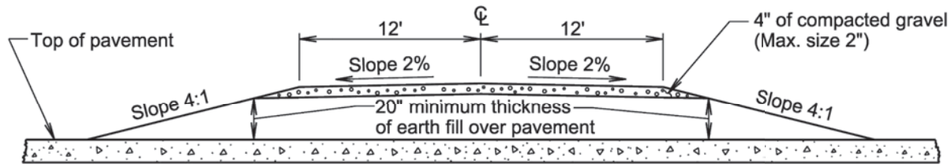
The mainline curb and gutter may be placed monolithically with the PCC pavement if the mainline lane width is less than or equal to 12 feet. If this method of construction is used, the tie bars and the sawed joint between the curb and gutter and the PCC pavement will be eliminated.

The gutter or curb and gutter will be sawed transversely at each mainline transverse contraction joint. The transverse contraction joints in the gutter or curb and gutter will be sawed and sealed same as the transverse contraction joints in the PCC pavement.

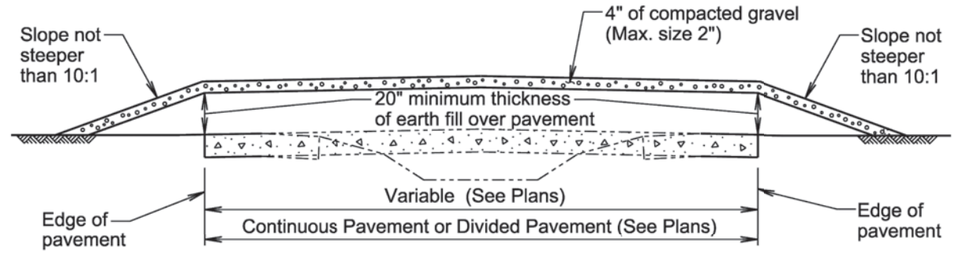
The slope of the gutter will be the slope designated for the type of gutter or curb and gutter to be constructed. The bottom slope of the gutter or curb and gutter will be constructed at the same slope as the mainline concrete pavement.

November 19, 2022

| | | | |
|---|---|---|---|
| Published Date: 2024 | SDDOT | PCC PAVEMENT LONGITUDINAL CONSTRUCTION JOINTS WITH CONCRETE GUTTER OR CONCRETE CURB AND GUTTER | PLATE NUMBER 380.21<br>Sheet 1 of 1 |




## TRANSVERSE SECTION OF CROSSING




## LONGITUDINAL SECTION ALONG CENTERLINE OF CROSSING

**GENERAL NOTES:**

Temporary earth crossing will be constructed and satisfactorily maintained in accordance with the details shown above. When the need for the crossing no longer exists the Contractor will, at the direction of the Engineer, remove the crossing and dispose of the materials to the satisfaction of the Engineer.

All costs for furnishing and placing all materials, labor, and equipment necessary for constructing and removing the temporary earth crossing will be incidental to the contract unit price per each for "Temporary Earth Crossing."

When the plans specify that the fill over the pavement be entirely of gravel, instead of earth and gravel as shown by the details above, all except the upper 4 inches of the gravel may be pit run material. In these cases the item becomes "Temporary Gravel Crossing" instead of "Temporary Earth Crossing", but otherwise the requirements stated above for "Temporary Earth Crossing" will apply.

November 19, 2022

| | | | |
|---|---|---|---|
| Published Date: 2024 | SDDOT | TEMPORARY EARTH OR GRAVEL CROSSING | PLATE NUMBER 380.70<br>Sheet 1 of 1 |