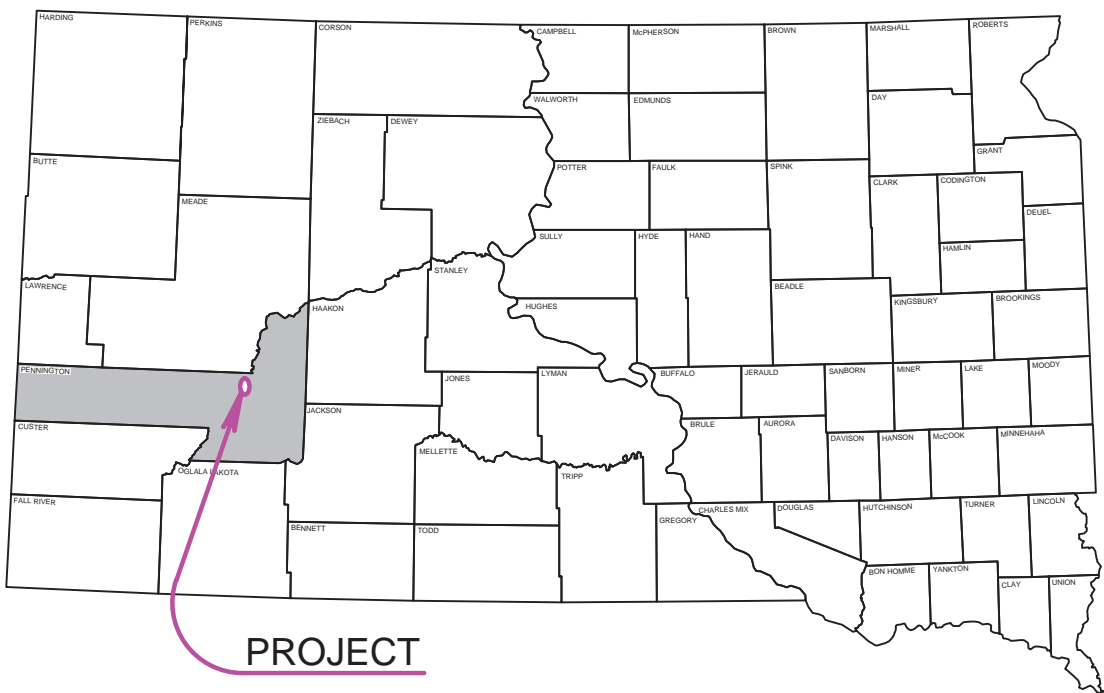


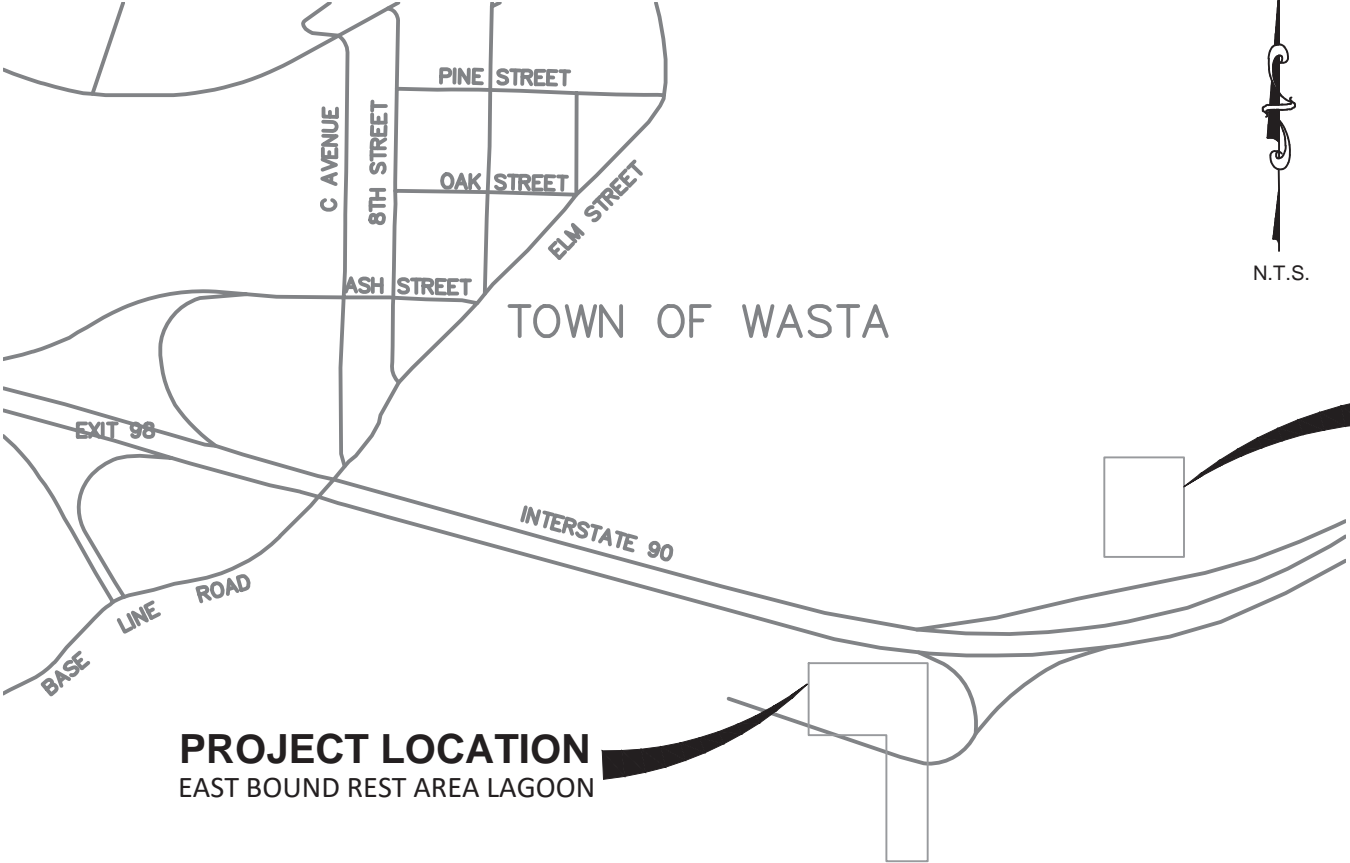
**State of South Dakota
Department of Transportation**
Plans for
Project IM 0902(189)98

FOR BIDDING PURPOSES ONLY

| | | | |
|------------------------|---------------------------|-----------------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT IM 0902(189)98 | SHEET 1 | TOTAL SHEETS 25 |
| Plotting Date: 6/17/24 | | Revised: 08-02-24 DMM | |



**Wasta Rest Area
Sanitary Sewer Repair**
PCN 09Q9



Index of Sheets

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EXISTING LEGEND

| | | | |
|--|-----------------------------|--|------------------------------------|
| | Borehole | | Power Pole |
| | Cable TV or Telephone Riser | | Type "S" Inlet |
| | Electrical Junction Box | | Type "B" Inlet |
| | Fiber Optic Vault | | Mailbox |
| | Black Hills Fiber | | Delineator |
| | Deciduous Tree | | |
| | Coniferous Tree | | |
| | Deciduous Hedge/Tree Line | | Existing Curb and Gutter |
| | Coniferous Hedge/Tree Line | | Sanitary Sewer Line |
| | Deciduous Bush | | Water Line |
| | Coniferous Bush | | Water Service Line |
| | Wetland Boundary | | Telephone Line |
| | Stump | | Overhead Lines (Power, Cable, Etc) |
| | 2 Pole Sign | | Power Line |
| | 1 Pole Sign | | Gas Line |
| | Post / Bollard | | Fiberoptic Line |
| | Fire Hydrant | | Cable TV Line |
| | Monitoring Well | | Chain Link Fence |
| | Curb Stop | | Wood Fence |
| | Sprinkler Head | | Building Line |
| | Irrigation Control Valve | | Property Line |
| | Gate Valve | | Section Line |
| | Water Manhole | | Quarter Line |
| | Storm Sewer Manhole | | Sixteenth Line |
| | Sanitary Sewer Manhole | | Easement Line |
| | Clean Out | | Major Contour |
| | Gas Meter | | Minor Contour |
| | Control Point | | |
| | Right-of-Way Marker | | |
| | Electrical Manhole | | |
| | Light Pole | | |
| | Guy Wire Anchor | | |

PROPOSED LEGEND

| | | | |
|--|-------------------------------|--|-------------------------------|
| | Sanitary Sewer Manhole | | Sanitary Sewer Line |
| | Sanitary Sewer Cleanout | | Insulated Sanitary Sewer Line |
| | Sanitary Sewer 22.5 Deg Bend | | Sanitary Sewer Service |
| | 6" Plug Valve | | Chain Link Fence |
| | Drainage Arrow | | Proposed Major Contour |
| | Sanitary Sewer Line | | Proposed Minor Contour |
| | Insulated Sanitary Sewer Line | | |
| | Sanitary Sewer Service | | |
| | Chain Link Fence | | |
| | Proposed Major Contour | | |
| | Proposed Minor Contour | | |

PROJECT LOCATION
WEST BOUND REST AREA LAGOON

PROJECT LOCATION
EAST BOUND REST AREA LAGOON



ONE CALL
BEFORE DIGGING
1-800-781-7474



- Prepared By:
- Civil Engineering
 - Water Resources
 - Transportation
 - Geospatial Solutions

3

September 18., 2024

STORM WATER PERMIT
(Non Required)

PROJECT ESTIMATE OF QUANTITIES

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|--|----------|------|
| 009E0010 | Mobilization | Lump Sum | LS |
| 100E0020 | Clear and Grub Tree | 2 | Each |
| 100E0100 | Clearing | Lump Sum | LS |
| 110E0460 | Remove Manhole | 9 | Each |
| 110E1100 | Remove Concrete Pavement | 104.1 | SqYd |
| 110E7800 | Remove Chain Link Fence for Reset | 40 | Ft |
| 230E0100 | Remove and Replace Topsoil | Lump Sum | LS |
| 250E0010 | Incidental Work | Lump Sum | LS |
| 260E2010 | Gravel Cushion | 53.9 | Ton |
| 260E3010 | Gravel Surfacing | 35.8 | Ton |
| 380E0070 | 9" Nonreinforced PCC Pavement | 104.1 | SqYd |
| 421E2020 | 2" Extruded Polystyrene Insulation Board | 303 | SqYd |
| 451E1004 | 4" PVC Sewer Pipe | 14 | Ft |
| 451E1006 | 6" PVC Sewer Pipe | 1,147 | Ft |
| 451E1504 | 4" Sanitary Sewer Service Cleanout | 2 | Each |
| 451E1506 | 6" Sanitary Sewer Service Cleanout | 5 | Each |
| 451E1550 | Sanitary Sewer Video Inspection | 1,161 | Ft |
| 451E2006 | 6"x4" Pipe Wye | 2 | Each |
| 451E4256 | 6" Plug Valve with Box | 4 | Each |
| 451E7015 | Connect Sewer Service | 2 | Each |
| 451E7016 | Connect to Existing Sewer Main | 5 | Each |
| 621E0520 | Reset Chain Link Fence | 40 | Ft |
| 633E1100 | Epoxy Pavement Marking Paint, 4" White | 35 | Ft |
| 633E1105 | Epoxy Pavement Marking Paint, 4" Yellow | 28 | Ft |
| 633E1130 | Epoxy Pavement Marking Paint, 24" White | 27 | Ft |
| 634E0110 | Traffic Control Signs | 20.0 | SqFt |
| 634E0120 | Traffic Control, Miscellaneous | Lump Sum | LS |
| 634E0275 | Type 3 Barricade | 6 | Each |
| 671E1130 | 48" Manhole 0' to 6' Deep | 3 | Each |
| 671E1131 | 48" Manhole 6' to 8' Deep | 3 | Each |
| 671E5048 | 48" Manhole Cover Slab | 2 | Each |
| 671E5510 | Extra Depth for 48" Manhole | 1.6 | Ft |
| 734E0010 | Erosion Control | Lump Sum | LS |
| 734E0151 | 9" Diameter Erosion Control Wattle | 448 | Ft |
| 734E5010 | Sweeping | 20 | Hour |
| 900E1310 | Concrete Washout Facility | 1 | Each |
| 900E1320 | Construction Entrance | 2 | Each |
| 900E5410 | Modify Sprinkler System | Lump Sum | LS |

PROJECT NOTE

This project is the reconstruction of the sanitary sewer main for both the east and west bound rest areas near Wasta on Interstate 90. The project includes excavation, installation of sanitary sewer main and manholes.

SPECIFICATIONS TO BE USED

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

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf>

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment will be power washed with hot water (≥140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Agriculture and Natural Resources (DANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at: <https://sdleastwanted.sd.gov/maps/default.aspx>

< [South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species: https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04](https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04) >

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.



COMMITMENT H: WASTE DISPOSAL SITE

The Contractor will furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Agriculture and Natural Resources.

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Environmental Office and the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements will apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating, "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period not to exceed the duration of the project. Prior to project completion, the waste will be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historic Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view in which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

The Contractor is responsible for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

COMMITMENT R: TREE REPLACEMENT

The Contractor will minimize tree removal and disturbance to vegetation to activities only designated within the plans.

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.

REMOVE & REPLACE TOPSOIL

Revised: 08-02-24 DMM

Prior to beginning work, a 6" depth of topsoil will be removed and stockpiled or windrowed to the up slope edge of the disturbance limits. Following the completion of construction, topsoil will be spread evenly over the disturbed areas. Topsoil berms are shown on the Erosion Plan sheets in this set of plans.

The estimated amount of topsoil to be removed and replaced is 390 CuYd.

All costs associated with removing and replacing topsoil along areas to be resurfaced will be incidental to the contract lump sum price for "Remove and Replace Topsoil".

CLEARING

Clearing will be in accordance with the specifications. Extreme care must be used by the Contractor to preserve all trees and other vegetation that lie outside of the actual construction limits. Any material such as trees, stumps, timbers and other debris encountered during clearing and grubbing operations will be disposed of at the direction of the Engineer. The costs for all removal will be included in the lump sum for clearing and grubbing.

IRRIGATION SYSTEMS

The Contractor must cut and cap existing irrigation systems at the project limits. The Contractor must salvage all sprinkler head and system components and will be responsible for the protection and replacement of all components. If any component is damaged during the course of construction, it will be replaced at the Contractor's expense. All equipment, labor, and materials necessary to remove, cap, salvage, and replace all components necessary to repair the irrigation system will be paid for by the lump sum bid item "Modify Sprinkler System". The system may vary in size or contain several zones.

The Contractor is responsible for documenting functionality of irrigation system prior to removal. The system must be repaired to the same or better functionality after the project. The Contractor will coordinate removal and repair directly with the Engineer and will provide the Engineer documentation.

SUBMITTALS

The Contractor will be required to submit the following items to The Engineer prior to construction:

1. Shop drawings for material furnished.
2. Written Schedule.
3. Traffic Control Plan.

FENCING

The Contractor will be responsible for the removal of existing chain link fence where called out in the plans. The chain link fence will be removed so that it can be reset. All labor, materials, equipment, and storage of salvaged fence will be incidental to the bid item "Remove Chain Link Fence for Reset". All labor, equipment, and hardware required to reset the salvaged chain link fence will be paid for at the contract unit price per lineal foot for "Reset Chain Link Fence".



STRIPING

The Contractor is responsible to replace all disturbed striping associated with the pavement removal in this project according to 2015 SDDOT Standard Specifications.

The replaced striping will match the existing width, color, and location in relation to the joints in the PCC Pavement. The minimum lane width will be 12'.

All equipment, materials, and labor required for striping will be incidental to the project.

INCIDENTAL WORK

This work includes all miscellaneous items not included under the regular items covered by unit prices listed in the proposal, but which must be performed in order to complete the Contract. Incidental work includes but is not limited to:

1. Bypass pumping.
2. Backfill manhole locations.
3. Repair disturbed utilities not called for removal.
4. Dewatering.
5. Watering for seeding.

CONSTRUCTION STAKING

All staking will be provided by the Design Engineer on behalf of the SDDOT in accordance with the Standard Specification and Special Provisions.

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Type 3 Barricades will be installed at the opening of the exit ramp as shown in the plans.



TRENCH EXCAVATION BEDDING AND BACKFILL

Trench excavation and backfill will conform to the requirements of specification section of 31 23 00.00 20. Trenches will be excavated to a minimum width of 24 inches and a maximum width of 32 inches. Trenches will be excavated to a depth of 3 inches below the pipe invert. Pipe bedding will be per the special details shown in these plans. Bedding will extend from 3 inches below the pipe invert to 3 inches above the pipe crown over the full width of the trench.

The utility trench from both sites will have approximately 115 cu. yd. of over burden. This material will cover the embankment quantities necessary to backfill removed manholes throughout the project and complete the grading at the west bound rest area.

Type 1, Type 2, Type 3, and Type 4 material will be a crushed rock having a minimum of two fractured faces and meet the following gradation requirements by dry weight:

Type 1 – Bedding Material:

| | |
|------------------------|---------|
| Passing 1-inch sieve | 100% |
| Passing 3/4-inch sieve | 90-100% |
| Passing 3/8-inch sieve | 20-55% |
| Passing #4 sieve | 0-10% |
| Passing #8 sieve | 0-8% |

Type 2 – Foundation Material

| | |
|--------------------------|--------|
| Passing a 3 inch sieve | 100% |
| Passing a 3/4 inch sieve | 50-70% |
| Passing a #4 sieve | 20-40% |
| Passing a #200 sieve | 0-8% |

Type 3 – Foundation Material

| | |
|------------------------|-------|
| Passing a 3-inch sieve | 100% |
| Passing a 1-inch sieve | 0-15% |
| Passing a #4 sieve | 0-8% |

Type 4 – Foundation Material

| | |
|--------------------------|--------|
| Passing the 8 inch sieve | 100% |
| Passing the 6 inch sieve | 65-85% |
| Passing the 3 inch sieve | 0-20% |
| Passing the #200 sieve | 0-5% |

Measurement and payment for trench excavation, pipe bedding and backfill will be incidental to the respective bid item.

SEWER MAIN ABANDONMENT & REMOVAL

Sanitary sewer main called to be abandoned in the plans will be plugged with 12" of concrete at each open end of sewer main.

All sanitary sewer manholes removed will be backfilled per Section 110 per the standard specifications.

All labor, material, and equipment necessary to properly abandon the sewer main will be incidental to the contract bid item "Remove Manhole".

GRADING AROUND MANHOLES

Minor grading may be needed around proposed manholes. The Contractor is responsible to grade around manholes so that the concrete barrel section and cover are not exposed. The rim must remain exposed and may extrude from the surface by no more than two inches. All grading associated with the manholes will be incidental to the installation of that specific manhole.

SANITARY SEWER MAIN

Installation of the sanitary sewer will be in accordance with Section 33 30 00 of the project specifications and the details shown in these plans.

All sewer main trench must be installed with check dams to prevent groundwater movement through the bedding material in the trench. Trench check dams must be constructed per the details provided with a minimum one dam between each manhole, at all laterals (tees), in service line trenches (outside of main trench), and also at locations as indicated on the plans and detailed specifications.

Payment will be at the unit price bid for the appropriate size and material of sewer pipe, furnished and installed, including, trenching, excavation, Type 1 bedding material, trench check dams, compacting, backfilling, dewatering, sheeting or shoring, compaction, and testing.

SANITARY SEWER INSULATION

Sanitary sewer main insulation must be installed per the special details provided.

Insulation will be paid at the unit bid price for insulation furnished and installed, including cushion material per the bid item "2" Extruded Polystyrene Insulation Board".

SANITARY SEWER FITTINGS

Installation of the sanitary sewer fittings including in-line wyes, cleanouts, and bends will be in accordance with Section 33 30 00 of the project specifications and the details shown in these plans.

Payment will be at the unit price bid for the appropriate size and material of fitting, furnished and installed, including, trenching, excavation, Type 1 bedding material, compacting, backfilling, dewatering, sheeting or shoring, compaction, and testing. Fittings used to connect to existing pipe will be incidental to the "Connect to Existing Sanitary Sewer" bid item.

TV INSPECTION OF SEWER LINES

All sanitary sewer installed with this project must be televised in accordance with Section 33 01 30.16 of the project specifications.

Payment for the televising of sewer mains will be made for the work done on the basis of the unit bid price per linear foot for "Sanitary Sewer Video Inspection" for total length of utility regardless of diameter.

No additional payment will be made for any cleaning required for televising of the mains.

No additional payment will be made for re-televising or re-cleaning of the mains.

SANITARY SEWER MANHOLES

Installation of the sanitary sewer manholes will be in accordance with Section 33 30 00 of the project specifications and the details shown in these plans.

Manholes 6 feet and greater in depth, measured from invert to rim, must have eccentric cone top section per details shown in these plans. This is considered a Standard Manhole herein. Payment for standard manholes will be made under the bid item "48" Manhole 6' to 8' Deep".

Manholes less than 6 feet in depth must have flat concrete covers designed for AASHTO H-20 wheel loading as per details shown in these plans. This is considered a Shallow Manhole herein. Payment for shallow manholes will be made under the bid item "48" Manhole 0' to 6' Deep".

All manholes must be installed with a frame and cover that conform to Section 33 30 00 of the project specifications. All material, labor, and equipment necessary to furnish and install the frame and cover will be incidental to the respective manhole item.

All manholes installed must be installed with X-85 Cretex External Chimney Seal or approved equal.

Payment for sanitary sewer manholes will be made at the unit price bid for each type and diameter, furnished and install including but not limited to the following ancillary items to the manhole: adjusting rings, frame, cover, external chimney seals, and external joint seals. Extra manhole depth will be made at the unit price bid for "Extra Depth for 48" Manhole", over and above 6 feet.

CONNECT TO EXISTING SANITARY SEWER

It is the Contractor's responsibility to verify the location of the existing sanitary sewer main at the proposed connection to existing locations. It is the Contractor's responsibility to inform the Engineer of the location and elevation prior to construction of the sanitary sewer main and manholes required to connect to the existing sanitary sewer main.

All connections to existing sanitary sewer will be made with SDR35 gasketed fittings per the details provided and install notes provided in these plans.

Payment for the appropriate size and material of fitting, furnished and installed, and concrete encasement, if necessary, will be incidental to the unit bid item "Connect to Existing Sanitary Sewer".

TEMPORARY SANITARY SEWER CONNECTION

Temporary connections to permanent sanitary sewer by fittings must be abandoned after use. In the instance of a wye or tee, the temporary fitting must be exposed and rotated such that the connect leg is rotated vertical up, end capped, and encased in concrete a minimum of 6" thick around the fitting.

Temporary connections and their abandonment are incidental to the appropriately sized main and service piping. No additional payment will be made.

Rather than making temporary sewer connections, the Contractor may choose to bypass pump sewage around the area of construction. If the

Temporary Sanitary Sewer Connection (Cont.)

Contractor chooses to bypass pump, the Contractor shall supply a bypass pumping plan to the Engineer a minimum of 10 days prior to the beginning of the bypass pumping. Bypass pumping and plan development is incidental to the sanitary sewer main installation. No additional payment will be made.

6" PLUG VALVES

The 6" Plug Valves must be Dezurik Model PEF,6,MJ,CI,NBR,CR*GS-6A-HD8 or approved equal. Valves must be coated and lined with fusion-bonded epoxy with a minimum coating thickness of 8 MDFT. Coating and lining must be in conformance with AWWA C213, AWWA C116, and AWWA C550.

The valve box must be a 2-piece screw-type construction with five and one-fourth (5 1/4) inches riser and must be adjustable from four and one half (4 1/2) feet to 6-feet, with the top section to be at least 24 inches in length. Drop lids must be marked "sanitary" and are to be of all-metal construction. Valve boxes must be Tyler 6850-666-S series heavy duty valve box with adapter or approved equal.

A valve box adaptor must be installed on the valve bonnet prior to installing the valve box. The valve box adaptor eliminates shifting of the valve box, protects the coatings, centers the valve box, and seals the valve box with a resilient material. The valve box adapter must be installed per the manufacturer's recommendations. The valve box adapter must be Valve Box Adaptor II as manufactured by Adaptor Inc. or approved equal.

At locations of plug valves, a reinforced concrete manhole collar will be constructed to contain the plug valves and the adjacent manhole cover. Payment for materials, equipment, and labor necessary to construct the collars will be paid at the unit price bid for "48" Manhole Cover Slab".

Payment for materials, equipment, and labor necessary to furnish and install the plug valve, valve box, and valve box adaptor will be incidental to the bid item "6" Plug Valve with Box".

EMBANKMENT

The sanitary sewer trench backfill material will create approximately 115 cu. yd. of over burden material. This material will be stockpiled and used for embankment on this project. If more or less material is available, the Engineer will adjust grades accordingly.

EROSION CONTROL

The estimated area requiring erosion control is 22,000 square feet. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, fertilizing, and mulching will be incidental to the contract lump sum price for "Erosion Control".

The limits of erosion control work will be determined by the Engineer during construction.

Fertilizing

A commercial fertilizer with a minimum guaranteed analysis of 13-13-13, 18-46-0, 11-52-0, or an approved alternate fertilizer sold for use as a lawn starter fertilizer will be applied to all areas designated for permanent seeding. The application rate of fertilizer will be 3 pounds per 1,000 square feet.

Permanent Seeding

Revised: 08-02-24 DMM

The areas to be seeded consist of all newly graded areas within the project limits except for the top of roadways and temporary easements under cultivation.

Lawn and turf seed, such as the Type D Permanent Seed Mixture, will be tested within 12 months prior to planting, exclusive of the calendar month in which the test was completed.

All permanent seed must be planted in the topsoil at a depth of 1/4".

All seed broadcast must be raked or dragged in (incorporated) within the top 1/4" of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

Type D Permanent Seed Mixture will consist of the following:

| Grass Species | Variety | Pure Live Seed (PLS) (Pounds/1000 SqFt) |
|---|--|--|
| Kentucky Bluegrass | Avalanche, Appalachian, Wildhorse, Blue Bonnet, Action | 1.4 |
| Perennial Ryegrass | Turf Type Varieties | 1.4 |
| Creeping Red Fescue | Epic, Boreal, Chantilly | 1.4 |
| Chewings Fescue | Ambrose, K2, Zodiac, Shadow III | 1.4 |
| Alkali Grass | Fults, Fults II, Quill, Salty | 1.4 |
| Oats or Spring Wheat: April through May; Winter Wheat: August through November | | 1.3 |
| Total: | | 8.3 |

Permanent seeding will be paid at the contract unit price per pound for "Type D Permanent Seed Mixture".

Fiber Mulching

Fiber mulching will be applied in a separate operation following permanent seeding.

An additional 2% by weight of tackifier will be added to the fiber mulch product selected from the SDDOT approved product list. If the product selected has guar gum tackifier included, the additional 2% of the tackifier will be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier will be synthetic.

Fiber mulch will be applied at a rate of 2,000 pounds per acre.

The Contractor will allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.



EROSION CONTROL WATTLES (SCW)

Erosion control wattles for restraining the flow of runoff and sediment will be installed at locations noted in the plans and at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The Contractor will provide certification that the sediment control wattles or compost socks are free from noxious weed seeds.

Erosion control wattles will remain on the project until vegetation has been established and then they will be removed in accordance with the Engineer. Removal of erosion control wattles will be incidental to the project.

The erosion control wattle provided will be from the approved product list. The approved product list for erosion control wattle may be viewed at the following internet site:

<http://apps.sd.gov/HC60ApprovedProducts/main.aspx>

Topsoil Berms

Topsoil will be stripped and stockpiled at locations shown in these plans according to the Topsoil Berm Detail provided.

Equipment and labor associated with the construction of topsoil berms will be incidental to "Remove and Replace Topsoil".

CONSTRUCTION ENTRANCE

The Contractor will install a Construction Entrance at locations where there is a potential for mud tracking and sediment flow from the construction site and work area onto a paved public roadway.

It is the Contractor's option to use the SDDOT Construction Entrance (See SDDOT Construction Entrance notes and details), a product from the list provided in these notes, or other products or processes as approved by the Engineer during construction.

If the Contractor elects to use one of the products listed in the table, then the Contractor will install the construction entrance product in accordance with the manufacturer's installation instructions or as directed by the Engineer.

The Contractor will maintain the construction entrance such that mud tracking and sediment flow will not enter the roadway or adjacent drainage areas. The construction entrance will be routinely inspected, and the Contractor will repair or replace material as deemed necessary by the Engineer.

Equipment, materials, and labor necessary to install, move, and remove construction entrances will be paid per lump sum under the bid item "Construction Entrance".



Construction Entrance (Cont.)

The following table is a list of known construction entrance products available for use:

| <u>Product</u> | <u>Manufacturer</u> |
|---|--|
| Grizzly Rumble Grate (10' width and 24' length required) | Trackout Control, LLC Tempe, AZ Phone: 1-800-761-0056 www.trackoutcontrol.com |
| Pro Grid (12' width and 24' length including combination of grids and ramps required) | Pro-Tec Equipment, Inc. Charlotte, MI Phone: 1-800-292-1225 www.pro-tecequipment.com |
| Tracking Pad (12' width and 24' length (2 – 12'x12' pads) and 2 – 4'x4' turning flares) | Tracking Pads LLC Commerce City, CO Phone: 1-303-501-5640 www.trackingpads.com |
| FODS Trackout Control Mat (12' width and 5 mats to get a 35' length) | FODS, LLC Denver, CO Phone: 1-844-200-3637 http://www.getfods.com |
| DuraDeck and MegaDeck HD An adequate quantity is needed to prevent tires from becoming muddy (does not remove mud) | Signature Systems Group, LLC Flower Mound, TX Phone: 1-800-931-7301 https://www.signature-systems.com/ |
| Track-Out Control Mat (10' width and 24' length required) | RubberForm Recycled Products, LLC Lockport, NY Phone: 1-716-478-0408 www.rubberform.com |

SDDOT CONSTRUCTION ENTRANCE

If the SDDOT Construction Entrance is utilized, then the Contractor will install the SDDOT Construction Entrance in accordance with these notes and the detail drawings.

Pit run material will be obtained from a granular source and will conform to the following gradation:

| <u>Sieve Size</u> | <u>Percent Passing</u> |
|-------------------|------------------------|
| 6" | 100% |
| #4 | 0-60% |
| #200 | 0-20% |

The pit run material will be compacted to the satisfaction of the Engineer.

SDDOT Construction Entrance (Cont)

Revised: 08-02-24 DMM

The aggregate for the granular material will conform to the following gradation requirements:

| <u>Sieve Size</u> | <u>Percent Passing</u> |
|-------------------|------------------------|
| 3" | 100% |
| 2 ½" | 90-100% |
| 1 ½" | 25-60% |
| ¾" | 0-10% |
| ½" | 0-5% |

The granular material will be placed in 6" maximum lifts.

It is anticipated that the granular material will need to be periodically removed and replaced as it becomes inundated with mud and sediment.

The Reinforcement Fabric (MSE) will be in conformance with Section 831 of the Specifications. The Reinforcement Fabric (MSE) will be on the Approved

Products List for this material or will be certified by the supplier to meet this specification prior to installation.

The Reinforcement Fabric (MSE) should be kept as taut as possible prior to placing.

Equipment will not be allowed on the Reinforcement Fabric (MSE) until the first lift of granular material is in place.

All seams in the Reinforcement Fabric (MSE) will be overlapped at least 2' and shingled.

CONCRETE WASHOUT AREA

A concrete washout area will be installed on the project site at a location approved by the Engineer. No washout area is necessary if all concrete trucks will wash out at approved site constructed by the concrete supplier.

9" NONREINFORCED PCC PAVEMENT

Concrete will meet the requirements stated in Section 380 of the specifications. New pavement will match existing cross slopes and crown. The longitudinal slope will straight grade between the replaced panels. Joint spacing must not exceed 15 feet in separation and be made perpendicular to each other. Tining will be transverse to the direction of traffic.

Dowel bar assemblies, and deformed tie bars and smooth steel bars inserted in concrete will be furnished and installed per Section 380 of the specification and the Standard Plates shown in these plans.

Cost for performing the aforementioned work including furnishing and placing concrete, furnishing and installing steel, sawing and sealing joints, labor, tools, and equipment will be included in the contract unit price per square yard for "9" Nonreinforced PCC Pavement".

FOR BIDDING PURPOSES ONLY

Traffic Control Notes

Rest Area Closure

All mainline signing associated with the rest area at the exit, one mile away, and two miles away will have a "CLOSED" sign placed over the existing destination description at the time of the rest area closure. This signing will be furnished and maintained by the Contractor.

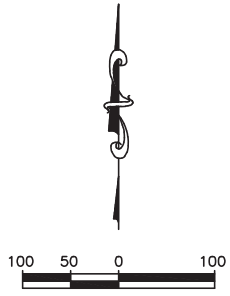
The Contractor will place a "CLOSED" placard across existing "Next Rest Area 68 Miles" advanced warning sign near the Belvidere West Bound Rest Area. Existing sign is located approximately 1.25 miles east of the west bound rest area exit.

Payment for all equipment, labor, and materials necessary to place, relocate, or remove temporary traffic control will be made per the lump sum bid item "Traffic Control".

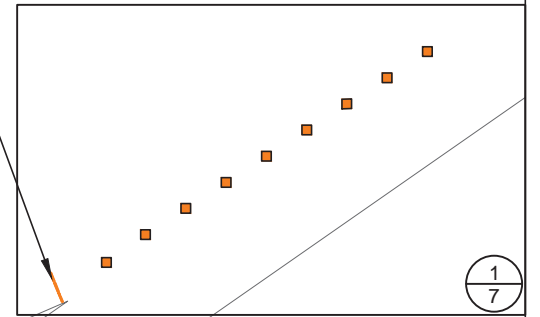
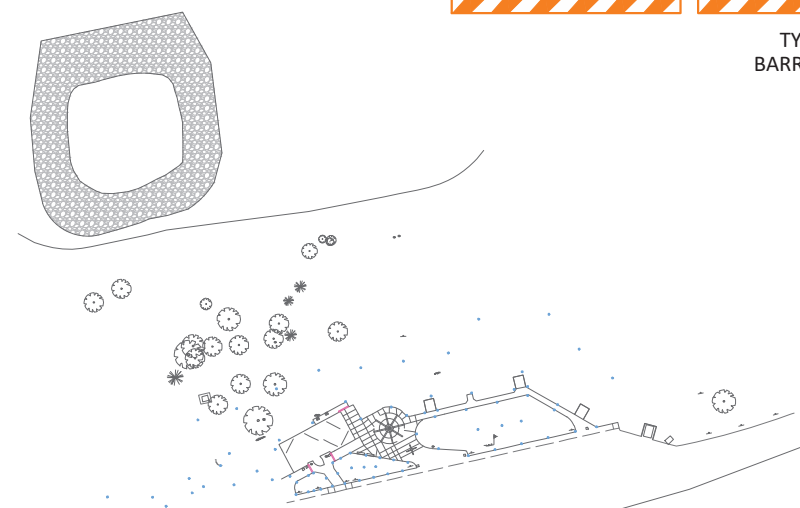
Orange Plastic Safety Fence

The Contractor will install orange plastic safety fence around all unattended excavations while the rest area is open. Pedestrian traffic will be protected from open excavations and other hazards in and around the construction site to comply with the Americans with Disabilities Act. The Contractor will maintain and make repairs to the fence until directed to remove it by the Engineer.

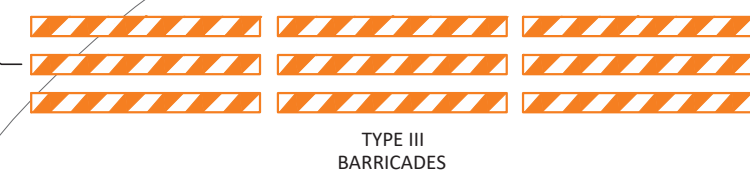
All labor, equipment, and materials necessary to furnish and install, reset, and remove orange safety fence will be incidental to the respective bid item.



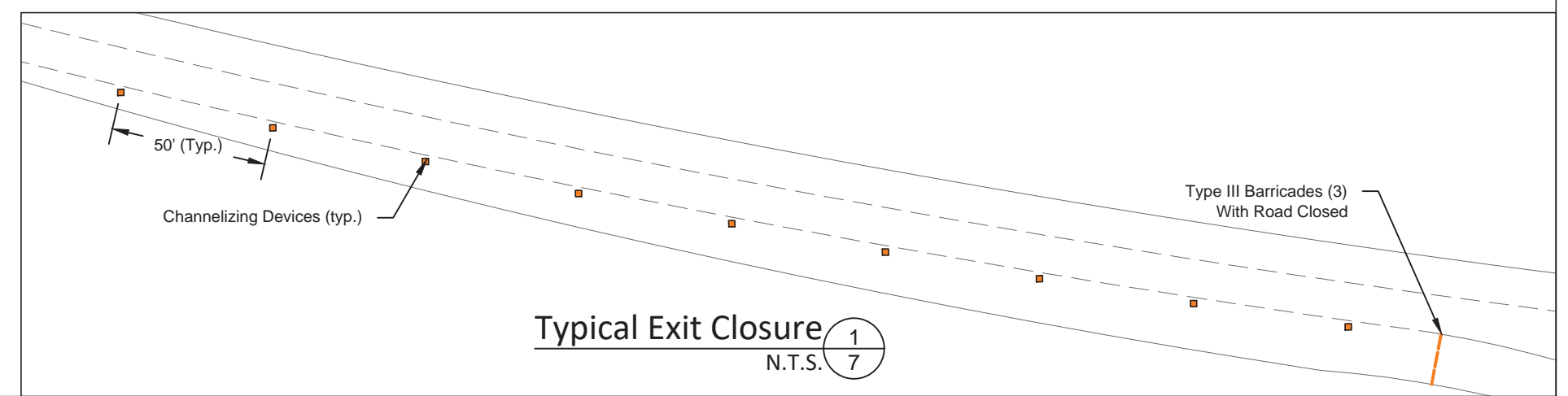
ROAD CLOSED
R11-2



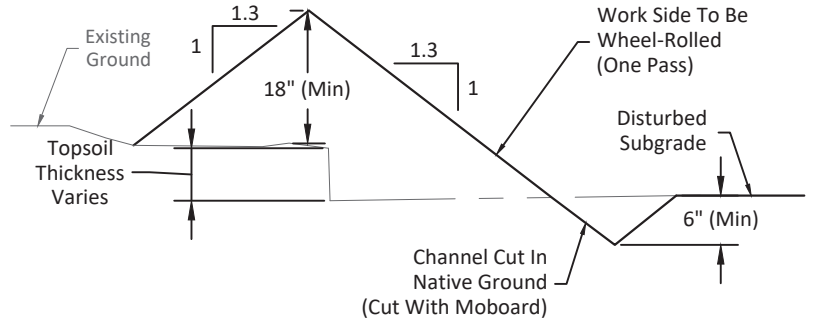
ROAD CLOSED
R11-2



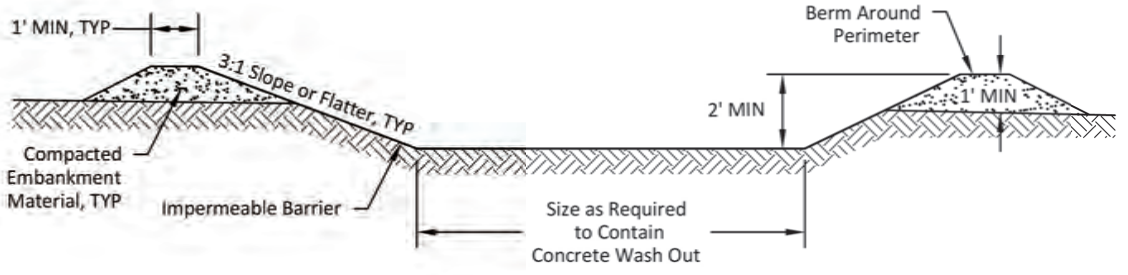
| Table of Traffic Control Devices | | | | | |
|--|------------------|----------|------------------------|------------------|-----------|
| Sign Code | Sign Description | Quantity | Sign Size (w x h, in.) | Sq. Ft. Per Sign | Sq. Ft. |
| R11-2 | Road Closed | 2 | 48 x 30 | 10 | 20 |
| - | Type 3 Barricade | 6 | Each | | |
| Total Square Footage of Traffic Control Signs | | | | | 20 |



FOR BIDDING PURPOSES ONLY



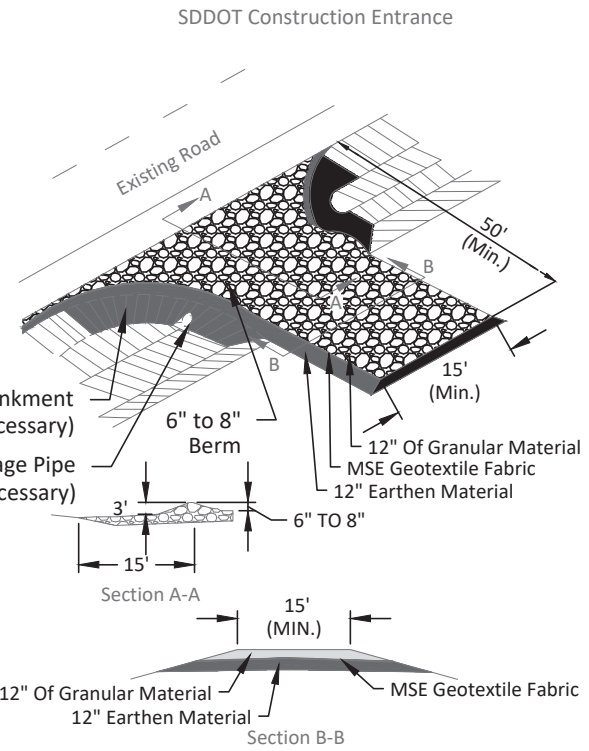
Topsoil Berm
N.T.S.



CROSS SECTIONAL VIEW

- Notes:**
1. Concrete washout area must be installed prior to any concrete placement on site. The concrete washout area must be self-contained and not connected to any storm water outlet of the site.
 2. The concrete washout area must be sized as necessary to adequately contain the concrete washout from the project. The concrete washout area shall be maintained during the entire project.
 3. At the end of construction, all concrete must be removed from the site and disposed of at an approved waste site.
 4. When the concrete washout area is removed, the disturbed area must be restored to original grade, seeded and mulched or otherwise stabilized as approved by the Engineer.
 5. The location of the of the concrete washout area must be coordinated with the Engineer prior to installation

Concrete Washout Area
N.T.S.



General Notes:

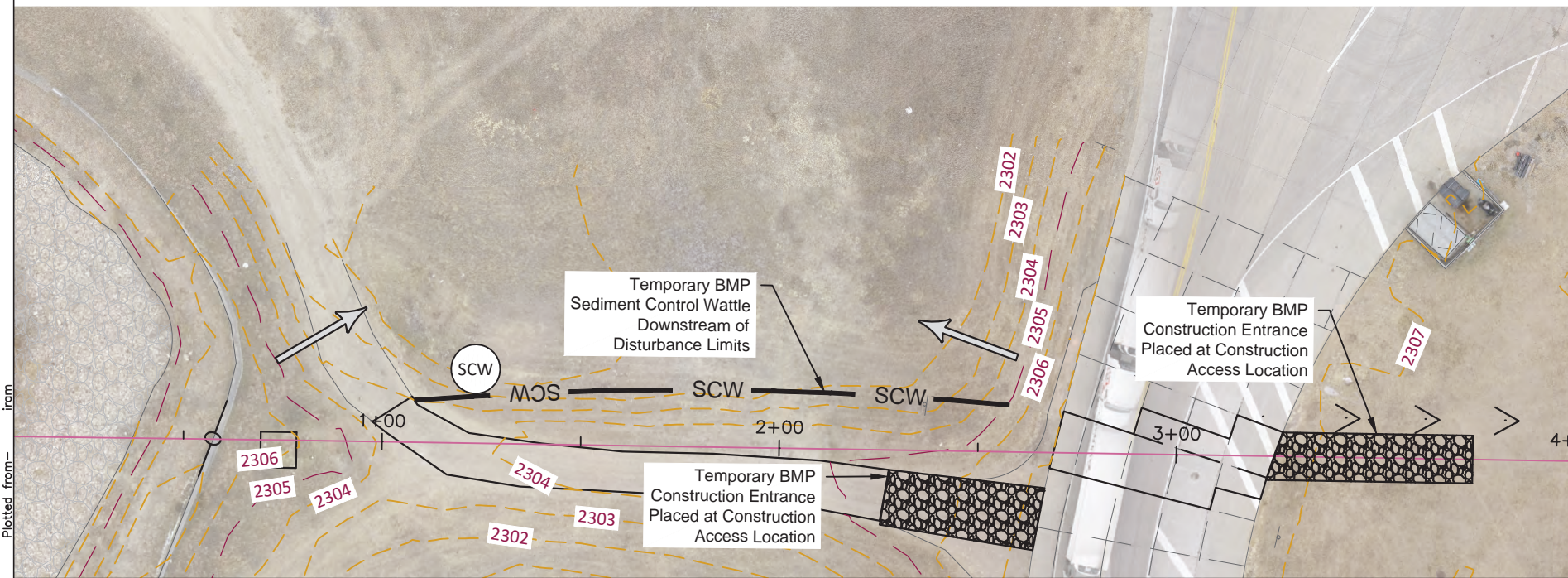
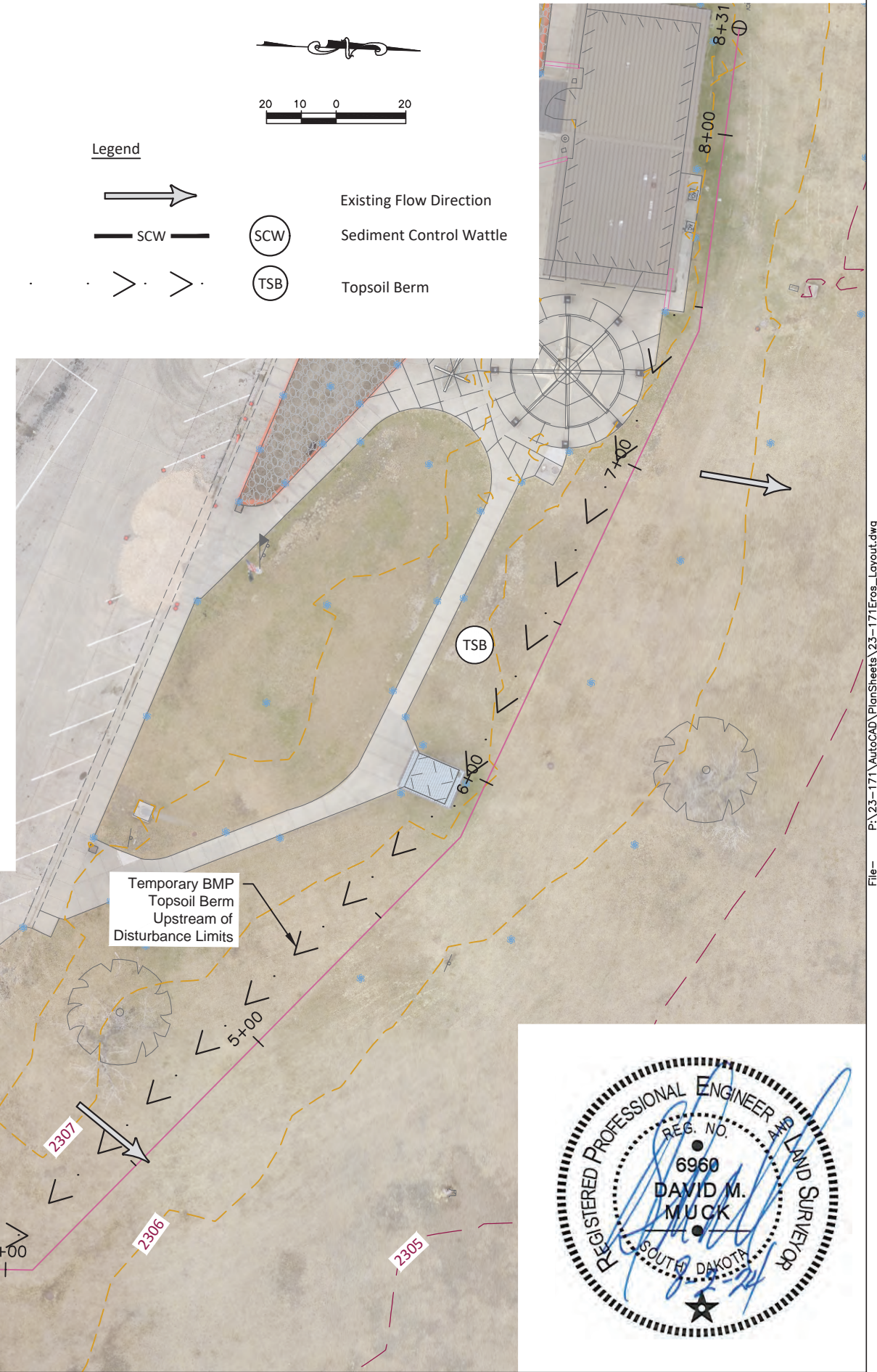
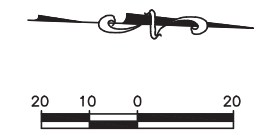
If the grade of the entrance slopes down to the roadway, a berm of extra rock will be used to prevent sediment or mud from being deposited on the roadway. (See section A-A).

If a drainage pipe is necessary, the size and type will be determined by the Contractor to meet field conditions. All cost will be incidental to the various bid items.

If embankment is necessary it must be pit run material.

Legend

- Existing Flow Direction
- SCW
- SCW
- TSB
- Topsoil Berm

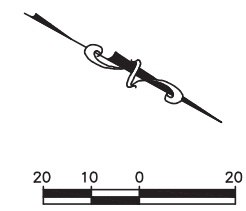


Plotted from -

P:\23-171\AutoCAD\PlanSheets\23-171Eros_Layout.dwg File -

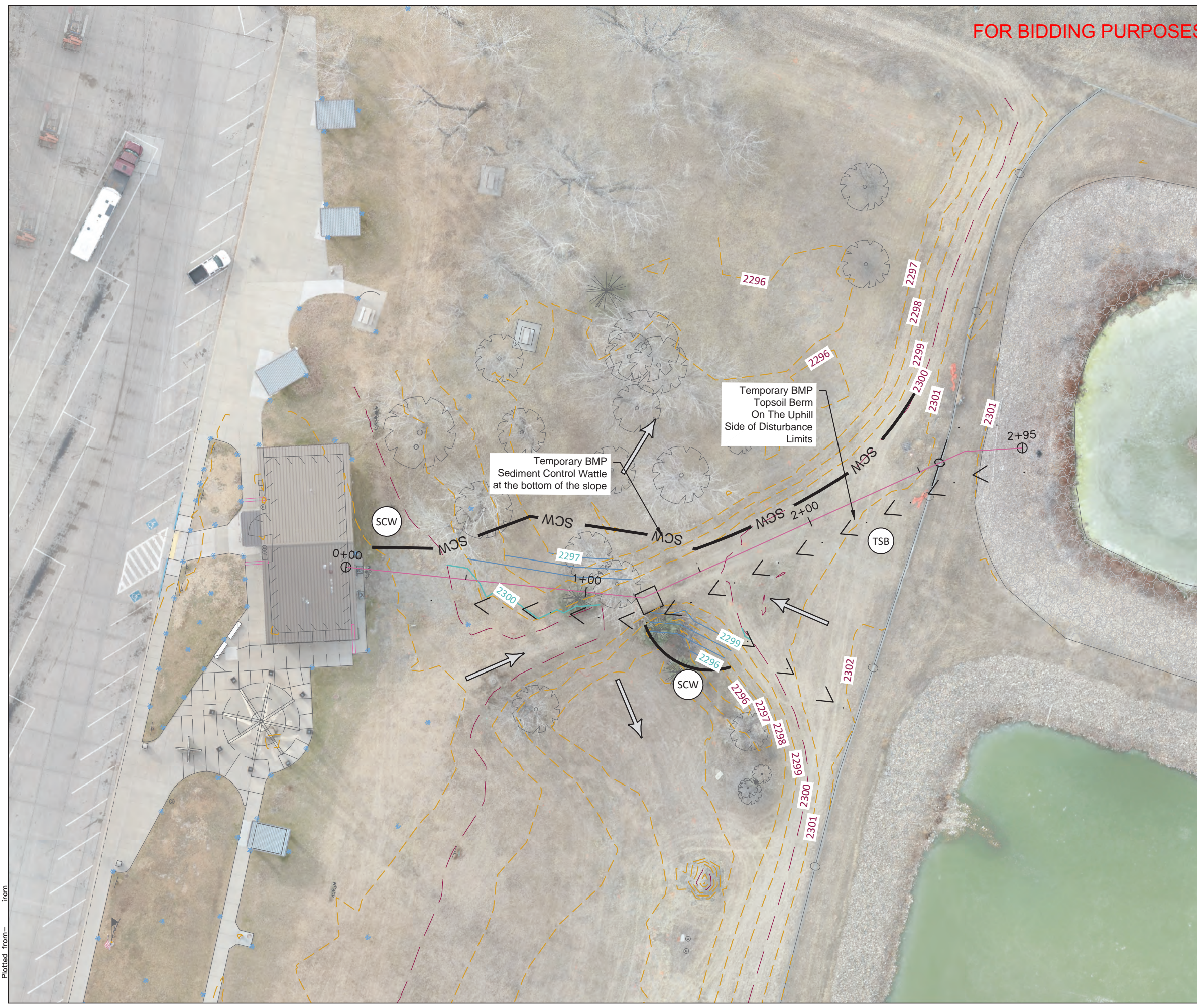
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| | | | |
|------------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | IM 0902(189)98 | 9 | 25 |
| Plotting Date: 6/17/24 | | | |



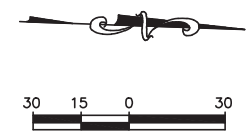
Legend

| | |
|--|-------------------------|
| | Existing Flow Direction |
| | Sediment Control Wattle |
| | Topsoil Berm |



Plotted from - .iam

FOR BIDDING PURPOSES ONLY

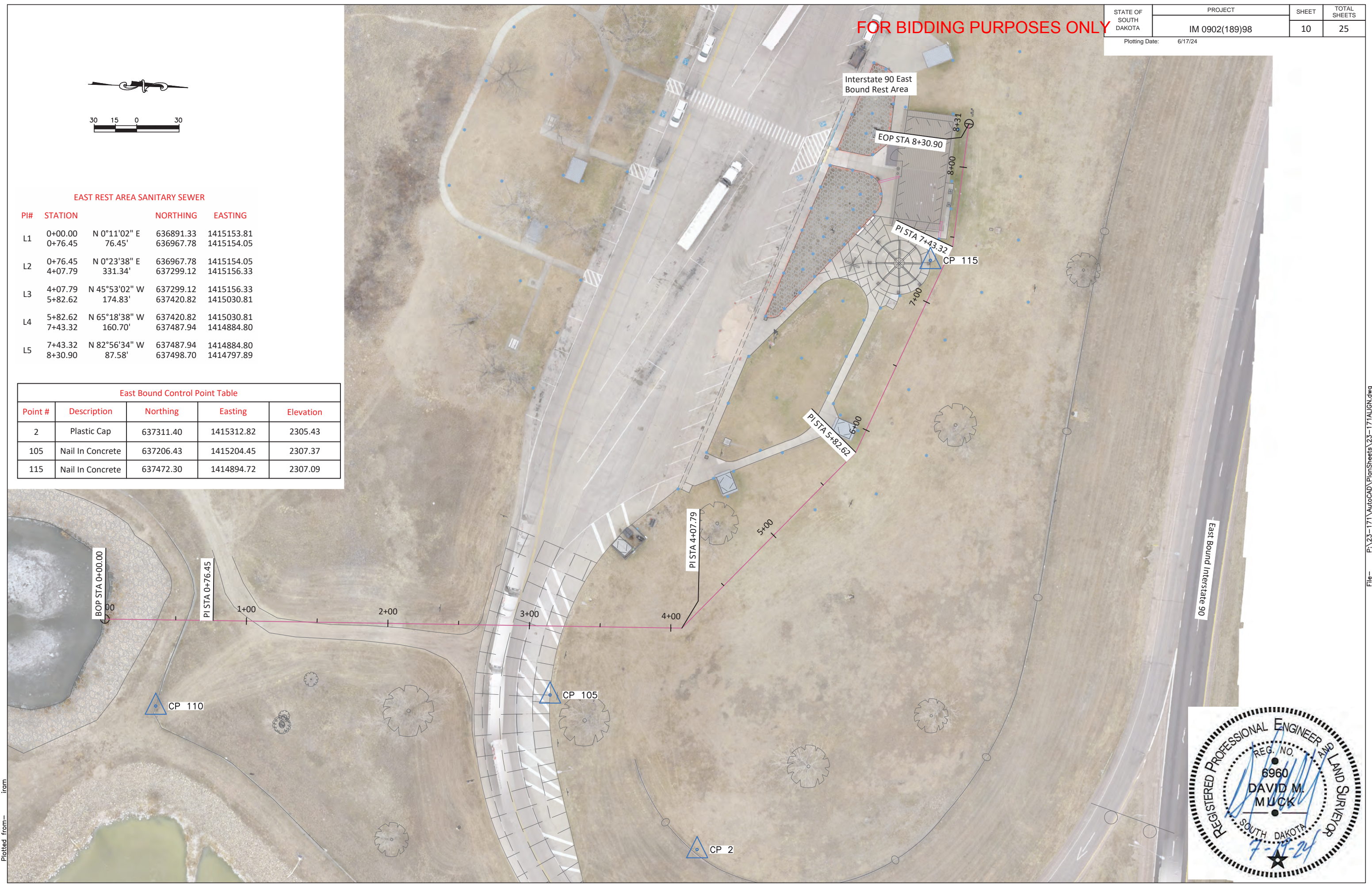


EAST REST AREA SANITARY SEWER

| PI# | STATION | | NORTHING | EASTING |
|-----|---------|---------------|-----------|------------|
| L1 | 0+00.00 | N 0°11'02" E | 636891.33 | 1415153.81 |
| | 0+76.45 | 76.45' | 636967.78 | 1415154.05 |
| L2 | 0+76.45 | N 0°23'38" E | 636967.78 | 1415154.05 |
| | 4+07.79 | 331.34' | 637299.12 | 1415156.33 |
| L3 | 4+07.79 | N 45°53'02" W | 637299.12 | 1415156.33 |
| | 5+82.62 | 174.83' | 637420.82 | 1415030.81 |
| L4 | 5+82.62 | N 65°18'38" W | 637420.82 | 1415030.81 |
| | 7+43.32 | 160.70' | 637487.94 | 1414884.80 |
| L5 | 7+43.32 | N 82°56'34" W | 637487.94 | 1414884.80 |
| | 8+30.90 | 87.58' | 637498.70 | 1414797.89 |

East Bound Control Point Table

| Point # | Description | Northing | Easting | Elevation |
|---------|------------------|-----------|------------|-----------|
| 2 | Plastic Cap | 637311.40 | 1415312.82 | 2305.43 |
| 105 | Nail In Concrete | 637206.43 | 1415204.45 | 2307.37 |
| 115 | Nail In Concrete | 637472.30 | 1414894.72 | 2307.09 |



Plotted from -

FOR BIDDING PURPOSES ONLY

| | | | |
|-----------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | IM 0902(189)98 | 11 | 25 |

Plotting Date: 6/17/24



| Point # | Description | Northing | Easting | Elevation |
|---------|------------------|-----------|------------|-----------|
| 200 | Plastic Cap | 638299.70 | 1416629.22 | 2297.12 |
| 205 | Plastic Cap | 638299.41 | 1416020.03 | 2302.10 |
| 210 | Nail In Concrete | 638123.54 | 1416227.65 | 2301.56 |

| PI# | STATION | | NORTHING | EASTING |
|-----|---------|---------------|-----------|------------|
| L1 | 0+00.00 | N 19°27'57" W | 638106.42 | 1416209.68 |
| | 1+23.82 | 123.82' | 638223.16 | 1416168.41 |
| L2 | 1+23.82 | N 49°51'13" W | 638223.16 | 1416168.41 |
| | 2+70.41 | 146.58' | 638317.67 | 1416056.37 |
| L3 | 2+70.41 | N 28°53'48" W | 638317.67 | 1416056.37 |
| | 2+94.51 | 24.10' | 638338.77 | 1416044.72 |



Plotted from: iram

FOR BIDDING PURPOSES ONLY

Sanitary Sewer Manhole Notes:

- 0+76.5 - 0.0' Install MH E40. $\frac{3}{15}$
- 4+07.8 - 0.0' Install MH E30.

Sanitary Sewer Fitting Notes:

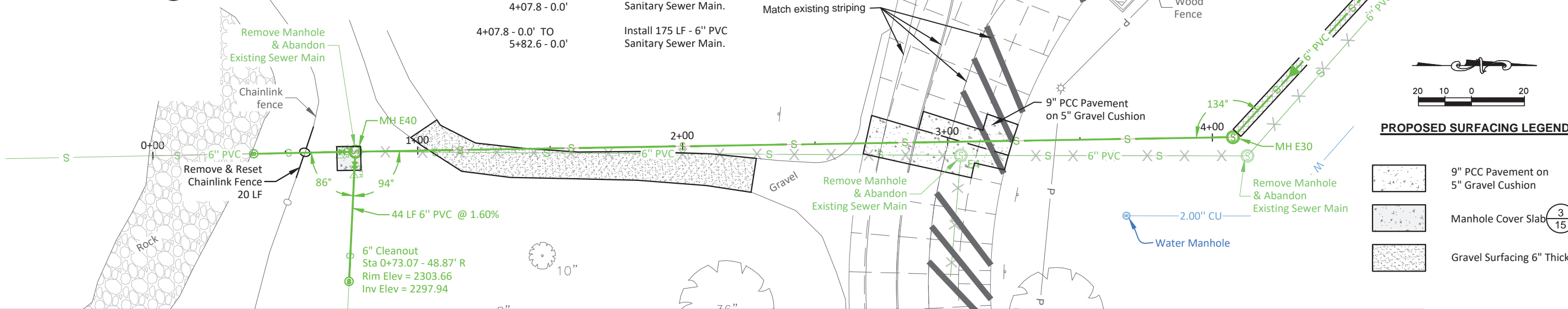
- 0+38.1 - 0.0' Install 6" Cleanout $\frac{2}{15}$
- 0+71.5 - 0.0' Install 6" Plug Valve $\frac{2}{15}$
- 0+73.1 - 48.9' R Install 6" Cleanout
- 0+76.1 - 5.0' R Install 6" Plug Valve $\frac{2}{15}$



Sanitary Sewer Main:

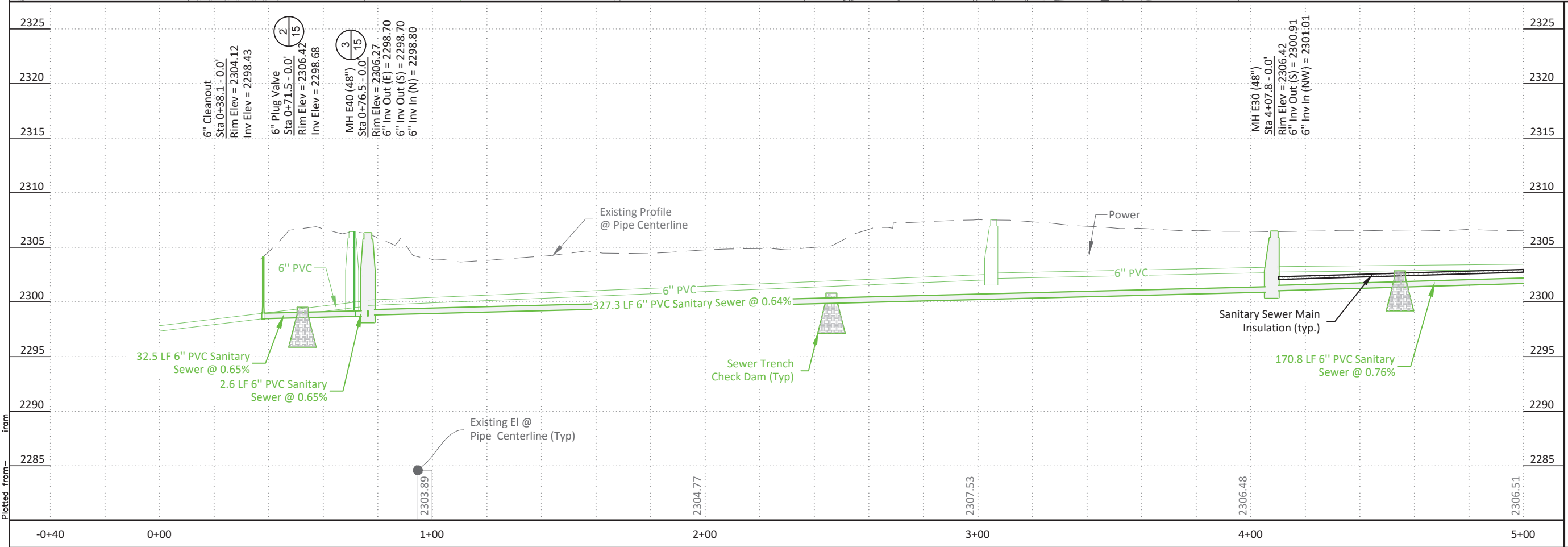
- 0+38.1 - 0.0' TO 0+71.5 - 0.0' Install 34 LF - 6" PVC Sanitary Sewer Main.
- 0+71.5 - 0.0' TO 0+76.5 - 0.0' Install 5 LF - 6" PVC Sanitary Sewer Main.
- 0+76.1 - 5.0' R TO 0+73.1 - 48.9' R Install 44 LF - 6" PVC Sanitary Sewer Main.
- 0+76.5 - 0.0' TO 0+76.1 - 5.0' R Install 5 LF - 6" PVC Sanitary Sewer Main.
- 0+76.5 - 0.0' TO 4+07.8 - 0.0' Install 332 LF - 6" PVC Sanitary Sewer Main.
- 4+07.8 - 0.0' TO 5+82.6 - 0.0' Install 175 LF - 6" PVC Sanitary Sewer Main.

East Bound Rest Area



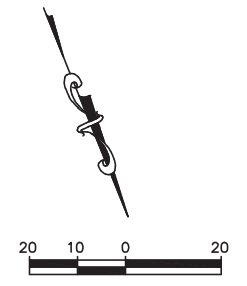
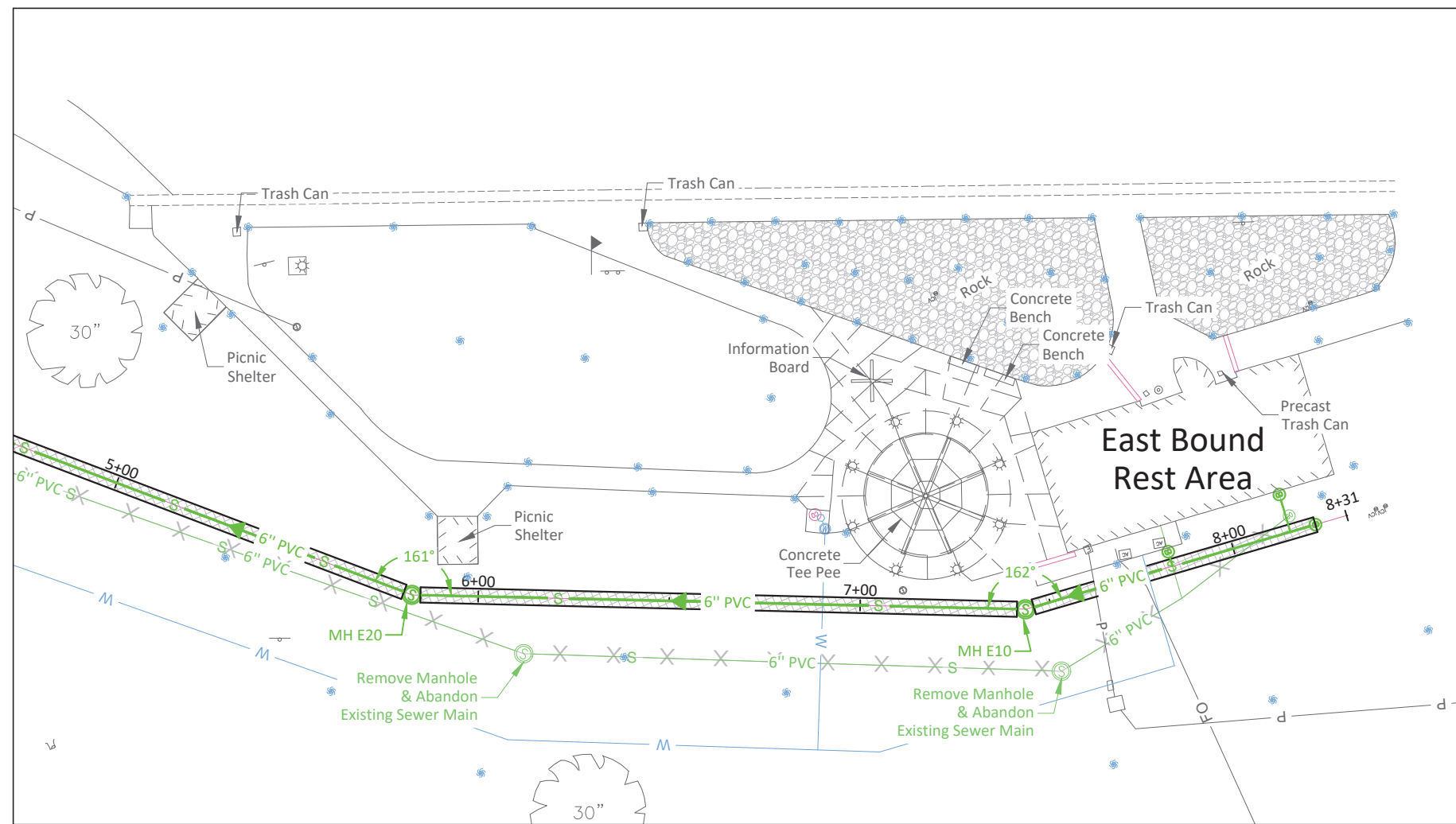
PROPOSED SURFACING LEGEND

- 9" PCC Pavement on 5" Gravel Cushion
- Manhole Cover Slab $\frac{3}{15}$
- Gravel Surfacing 6" Thick



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| | | | |
|------------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | IM 0902(189)98 | 13 | 25 |
| Plotting Date: 6/17/24 | | | |



Sanitary Sewer Manhole Notes:

- 5+82.6 - 0.0' Install Shallow MH E20.
- 7+43.3 - 0.0' Install Shallow MH E10.

Sanitary Sewer Fitting Notes:

- 7+83.4 - 4.0' L Install 4" Cleanout
- 8+15.5 - 10.2' L Install 4" Cleanout
- 8+22.4 - 0.0' Install 6" Cleanout

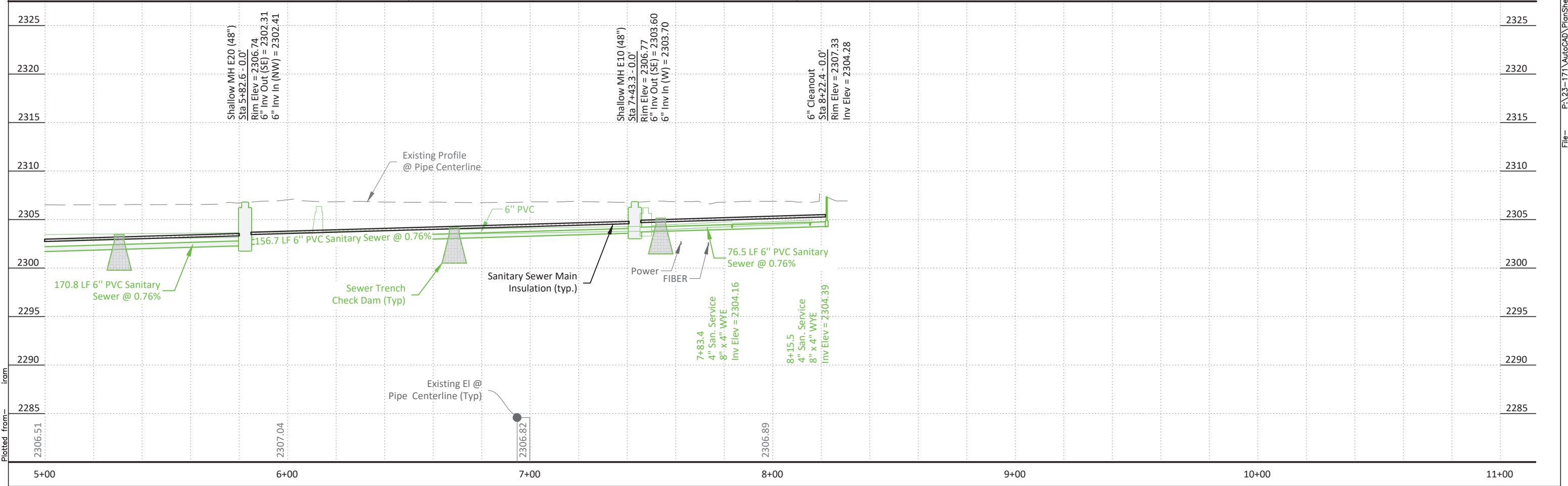
Sanitary Sewer Service Notes:

Install PVC sanitary sewer service, sanitary sewer service saddle, cleanout and reconnect sanitary sewer service at the locations identified.

Sanitary Sewer Main:

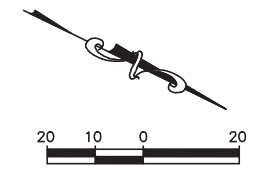
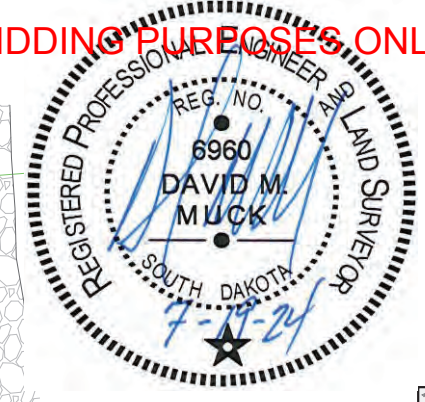
- 5+82.6 - 0.0' TO 7+43.3 - 0.0' Install 161 LF - 6" PVC Sanitary Sewer Main.
- 7+43.3 - 0.0' TO 8+22.4 - 0.0' Install 80 LF - 6" PVC Sanitary Sewer Main.

| STATION | TO | STATION | LF | SIZE |
|------------------|----|---------------|----|------|
| 7+83.4 - 4.0' L | | 7+83.4 - 0.0' | 4 | 4" |
| 8+15.5 - 10.2' L | | 8+15.5 - 0.0' | 10 | 4" |

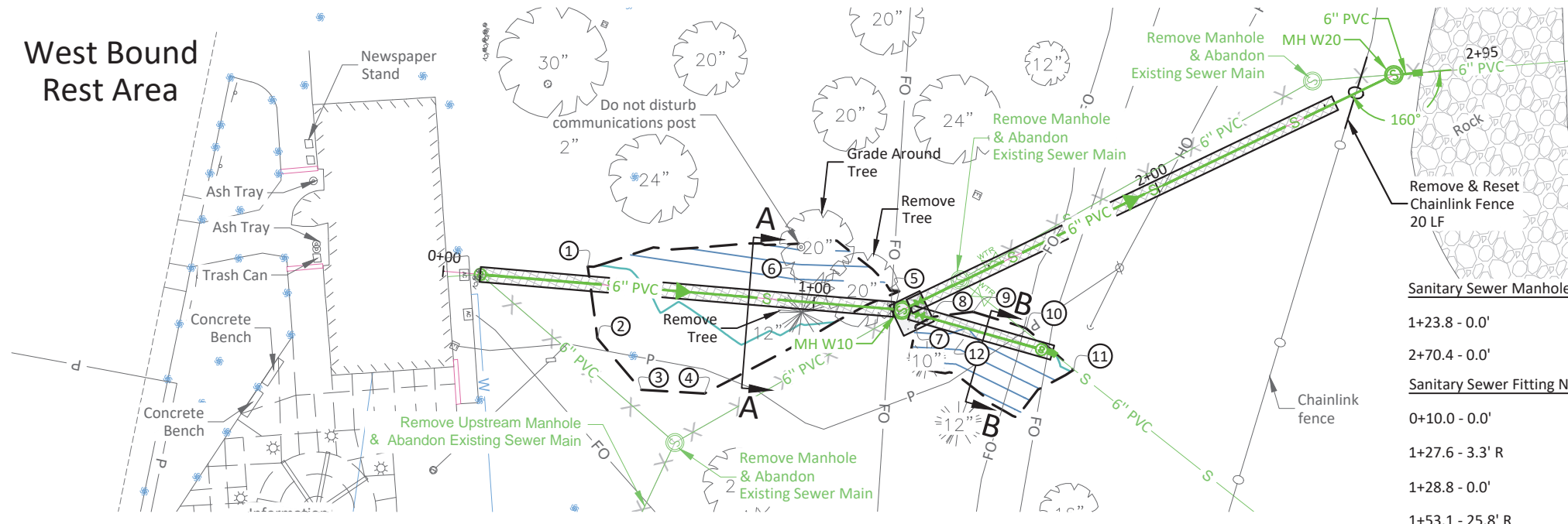


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| | | | |
|------------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | IM 0902(189)98 | 14 | 25 |
| Plotting Date: 6/17/24 | | | |



West Bound Rest Area



PROPOSED SURFACING LEGEND



Sanitary Sewer Manhole Notes:

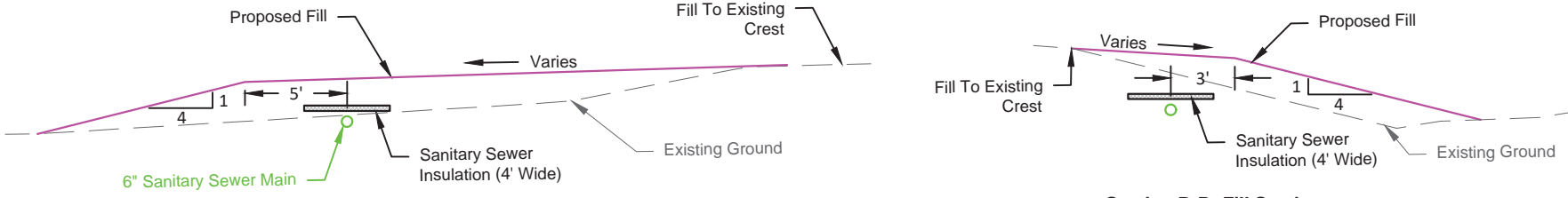
- 1+23.8 - 0.0' Install Shallow MH W10. (3/15)
- 2+70.4 - 0.0' Install MH W20.

Sanitary Sewer Fitting Notes:

- 0+10.0 - 0.0' Install 6" Cleanout
- 1+27.6 - 3.3' R Install 6" Plug Valve (2/15)
- 1+28.8 - 0.0' Install 6" Plug Valve (2/15)
- 1+53.1 - 25.8' R Install 6" Cleanout
- 1+55.3 - 27.7' R Install 22.5 Deg Bend (Connect to Existing)
- 2+76.9 - 0.0' L Install Repair Coupling (Connect to Existing) (1/15)

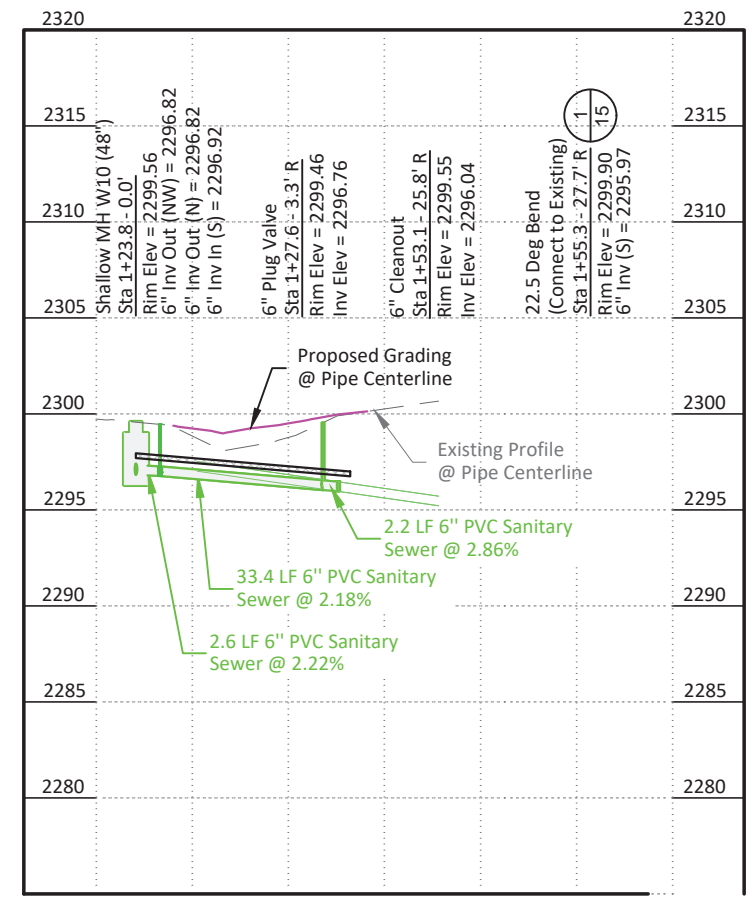
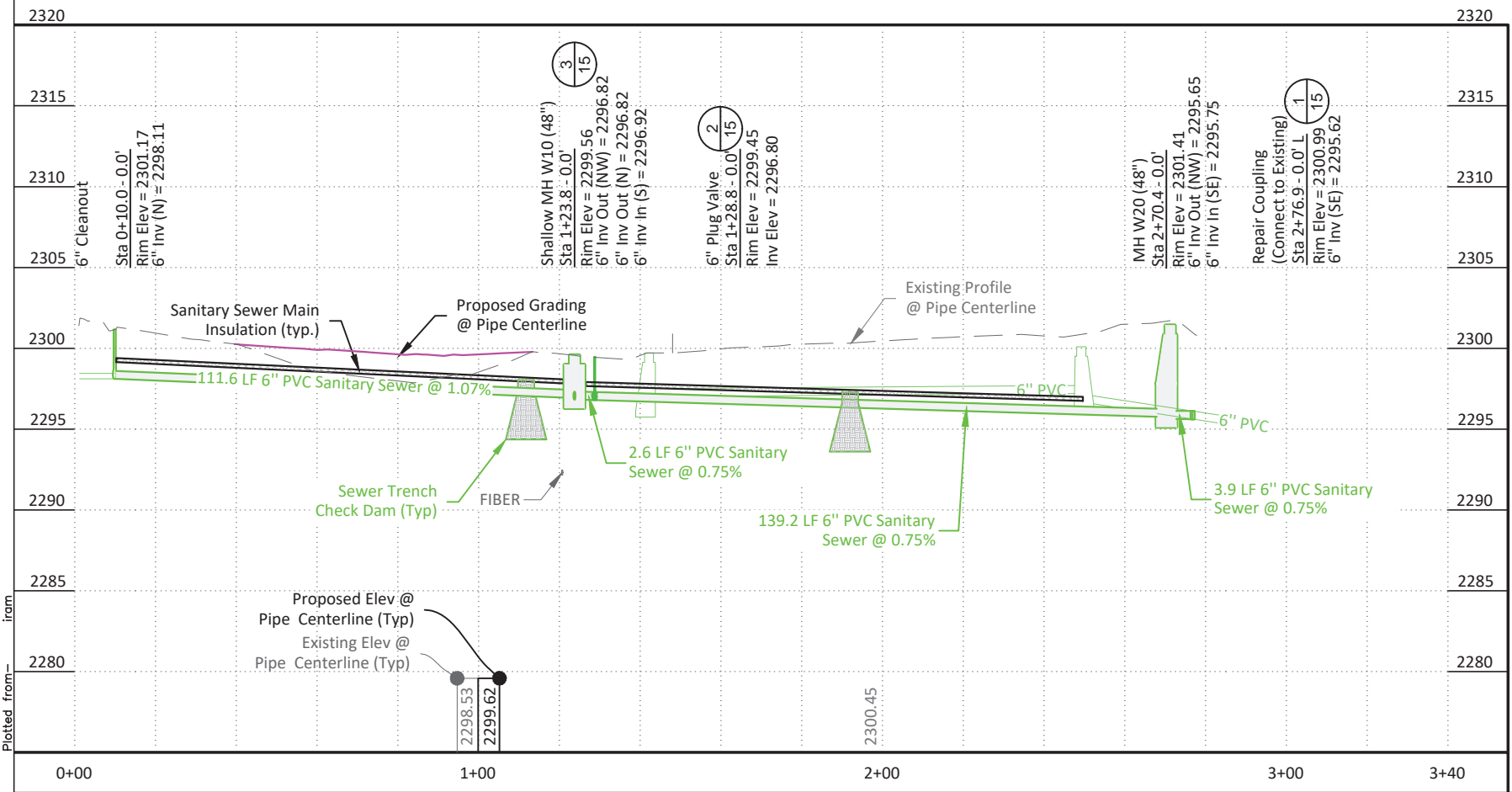
Sanitary Sewer Main:

- 0+10.0 - 0.0' TO 1+23.8 - 0.0' Install 114 LF - 6" PVC Sanitary Sewer Main.
- 1+23.8 - 0.0' TO 1+27.6 - 3.3' R Install 5 LF - 6" PVC Sanitary Sewer Main.
- 1+23.8 - 0.0' TO 1+28.8 - 0.0' Install 5 LF - 6" PVC Sanitary Sewer Main.
- 1+27.6 - 3.3' R TO 1+53.1 - 25.8' R Install 34 LF - 6" PVC Sanitary Sewer Main.
- 1+28.8 - 0.0' TO 2+70.4 - 0.0' Install 142 LF - 6" PVC Sanitary Sewer Main.
- 1+53.1 - 25.8' R TO 1+55.3 - 27.7' R Install 4 LF - 6" PVC Sanitary Sewer Main.
- 2+70.4 - 0.0' TO 2+76.9 - 0.0' L Install 7 LF - 6" PVC Sanitary Sewer Main.



Section A-A: Fill Section

Section B-B: Fill Section



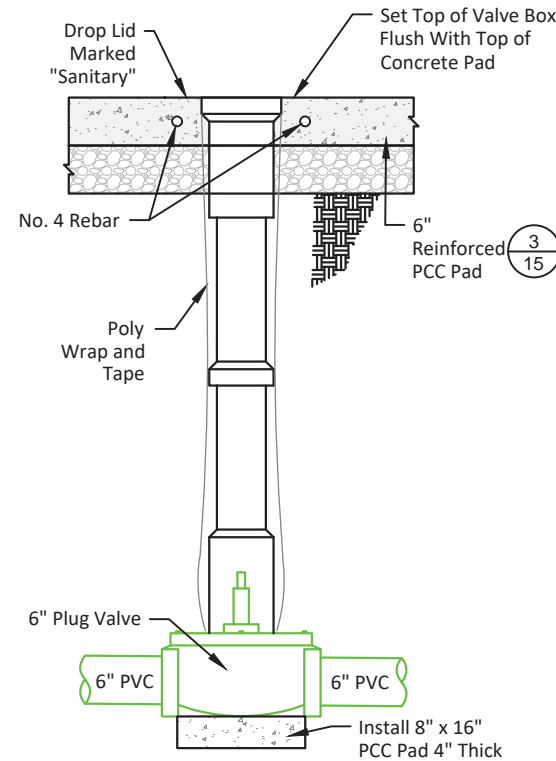
Second Outfall Profile

Grading Callouts

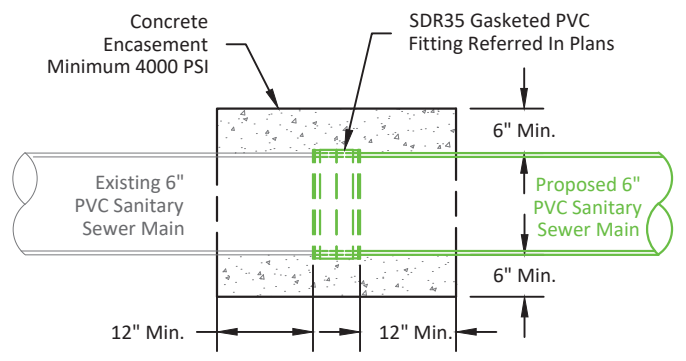
- Sta 0+38.64 - 4.54' L Crest Elev = 2300.20
- Sta 0+42.84 - 14.47' R Crest Elev = 2300.46
- Sta 0+55.65 - 27.33' R Crest Elev = 2300.35
- Sta 0+72.75 - 26.86' R Crest Elev = 2300.58
- Sta 1+25.37 - 4.89' L Crest Elev = 2299.56
- Sta 0+94.50 - 4.84' L Crest Elev = 2299.25
- Sta 1+25.39 - 5.38' R Crest Elev = 2299.48
- Sta 1+30.16 - 5.12' R Crest Elev = 2299.38
- Sta 1+40.84 - 8.65' R Crest Elev = 2299.34
- Sta 1+51.79 - 18.76' R Crest Elev = 2299.73
- Sta 1+58.37 - 34.44' R Crest Elev = 2300.16
- Sta 1+35.30 - 14.10' R Crest Elev = 2298.76

Plotted from

FOR BIDDING PURPOSES ONLY



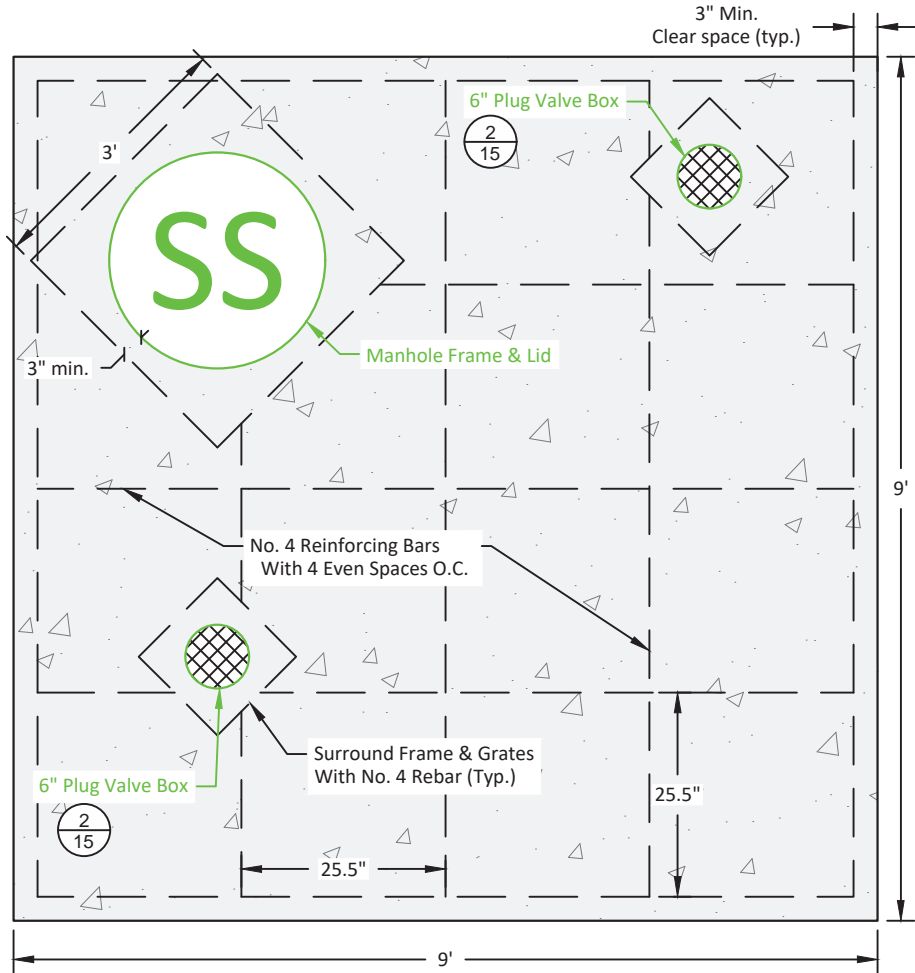
Connect To Existing Sanitary Main Coupling 1 / 15
N.T.S.



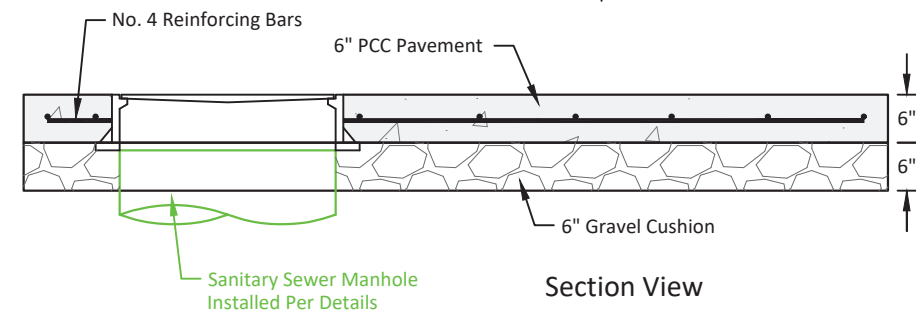
Note:
Valve boxes must be Tyler 6850-666-S series heavy duty valve box or approved equal.

All valve boxes must be installed straight and plumb directly over the valve stem and placed over a valve box adaptor.

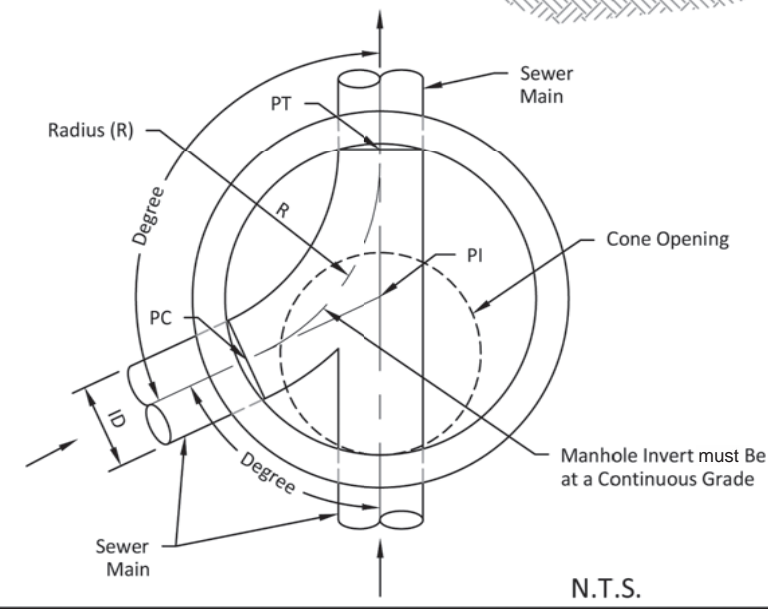
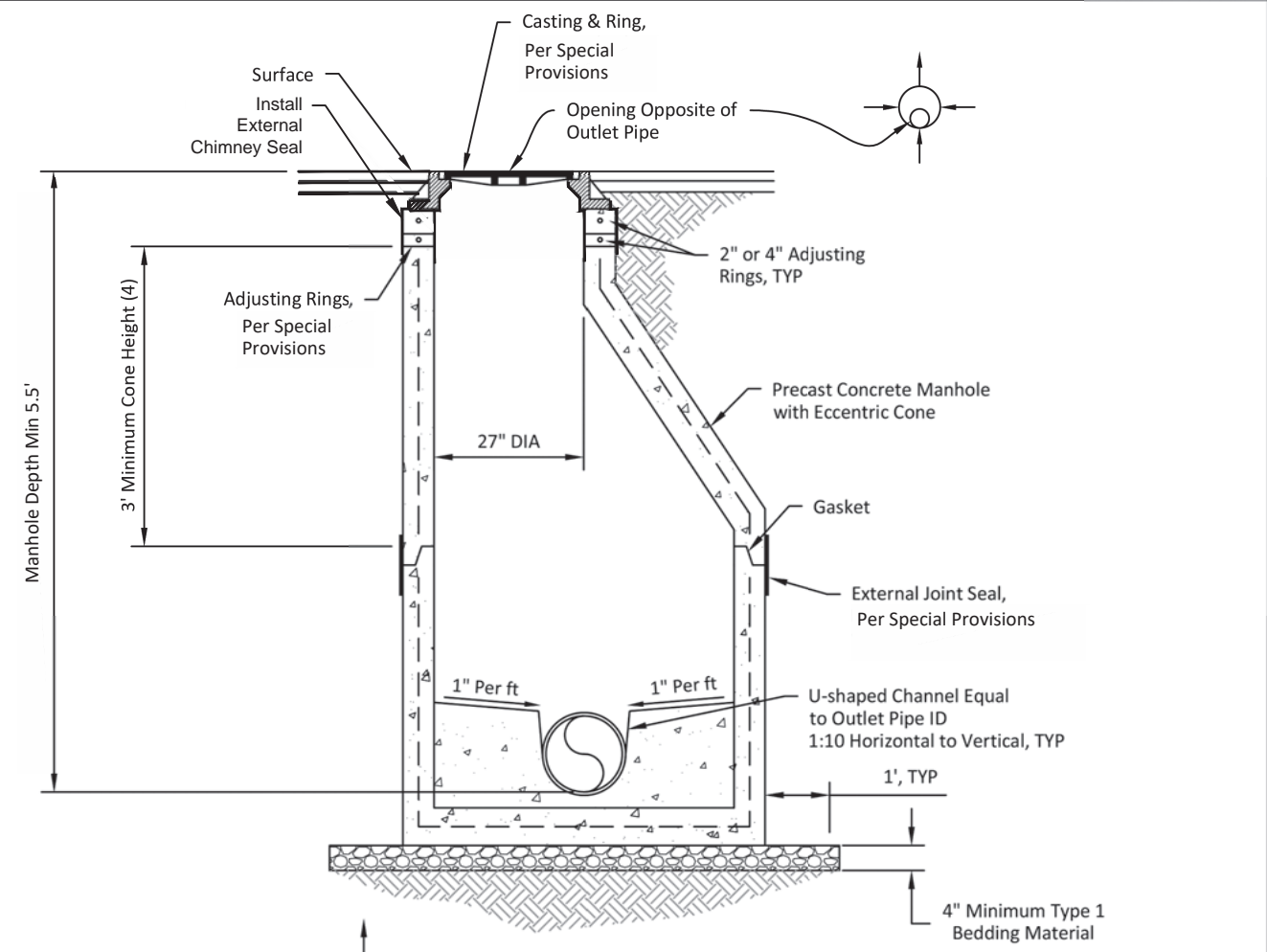
Plug Valve Installation Detail 2 / 15
N.T.S.



Plan View



Concrete Manhole Collar 3 / 15
N.T.S.



N.T.S.

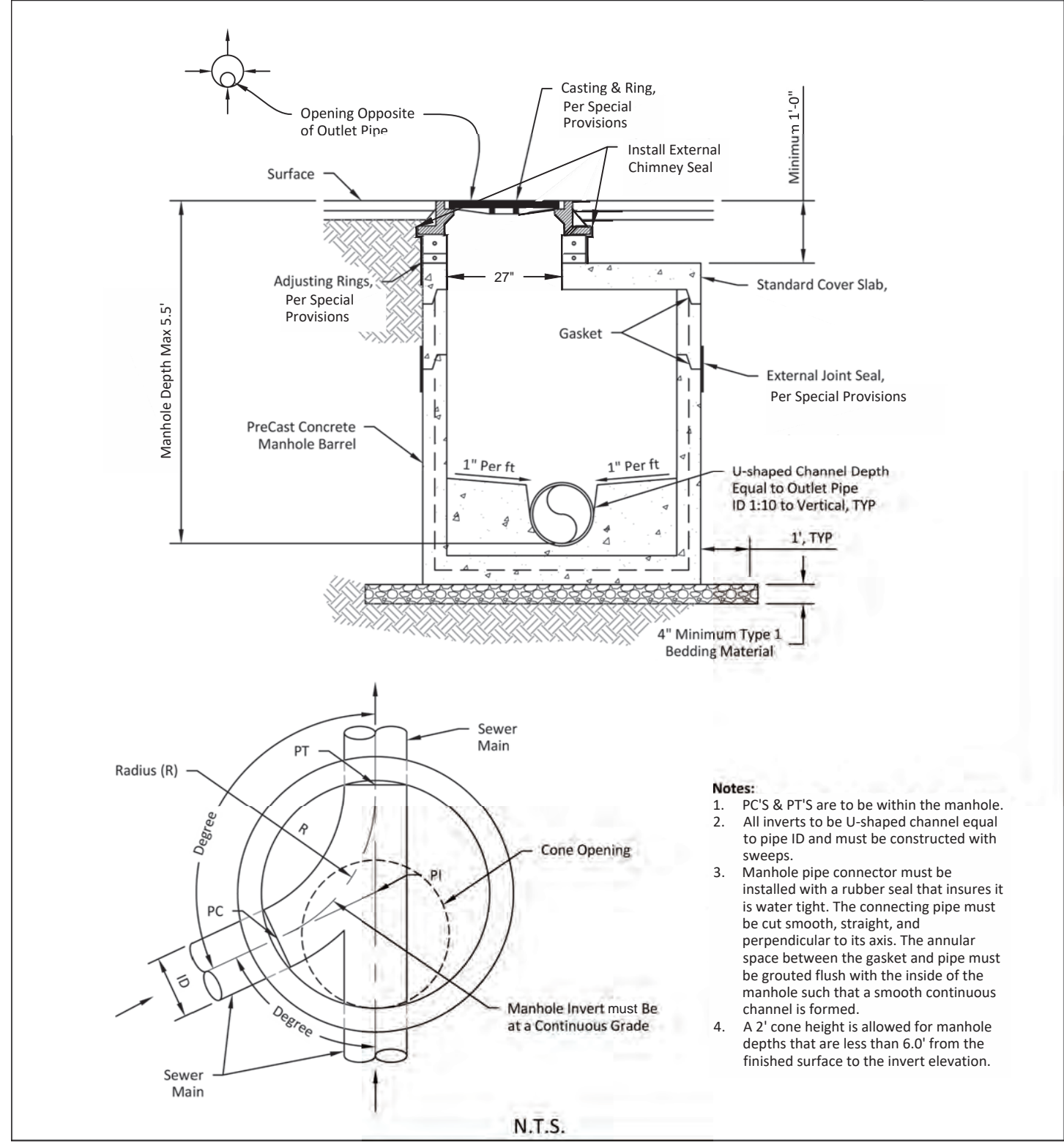
Standard Manhole Detail

- Notes:**
1. PC'S & PT'S are to be within the manhole.
 2. All inverts to be U-shaped channel equal to pipe ID and must be constructed with sweeps.
 3. Manhole pipe connector must be installed with a rubber seal that insures it is water tight. The connecting pipe must be cut smooth, straight, and perpendicular to its axis. The annular space between the gasket and pipe must be grouted flush with the inside of the manhole such that a smooth continuous channel is formed.
 4. A 2' cone height is allowed for manhole depths that are less than 6.0' from the finished surface to the invert elevation.

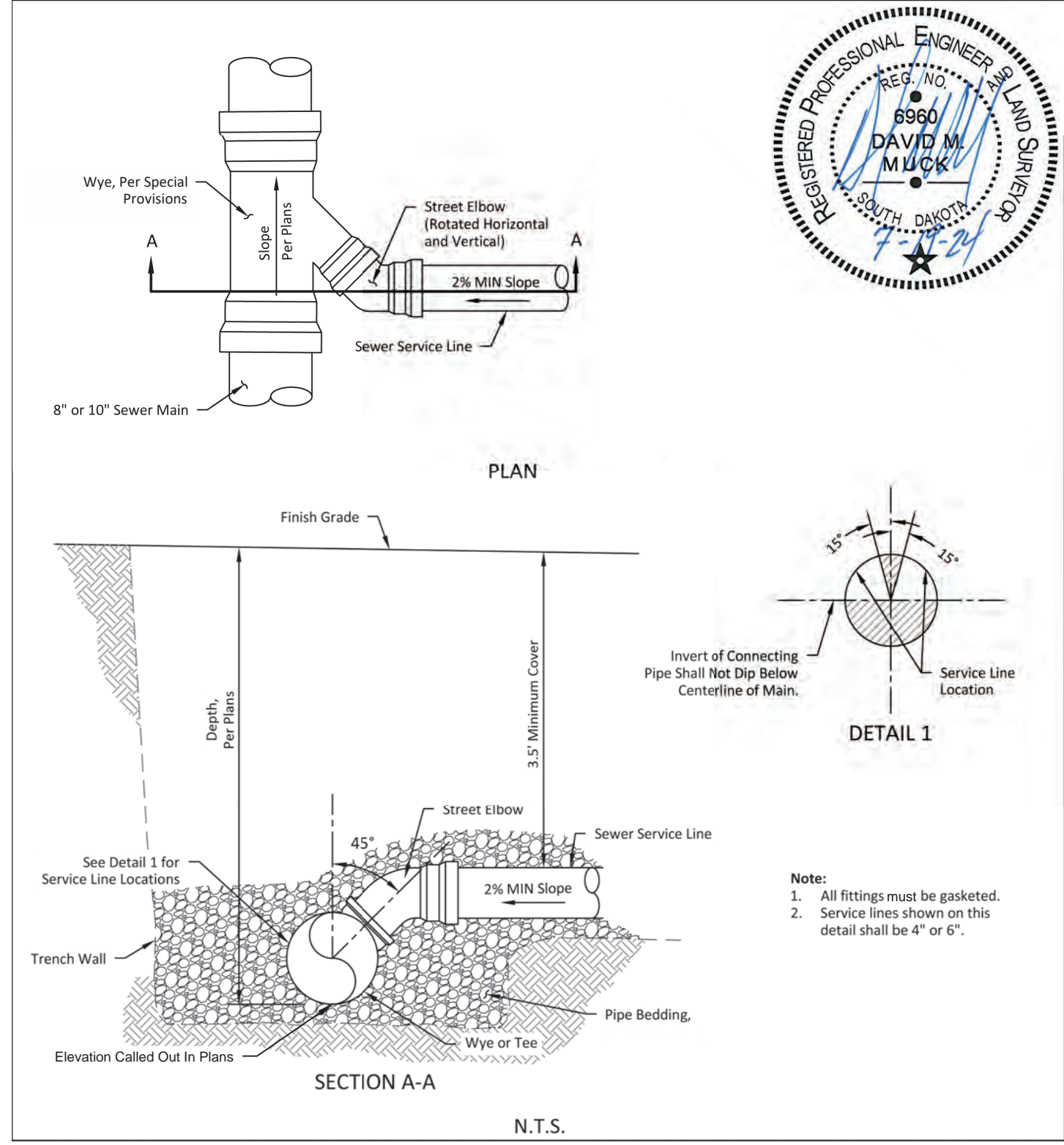
Plotted from

File: P:\23-171\AutoCAD\PlanSheets\23-171Det.dwg

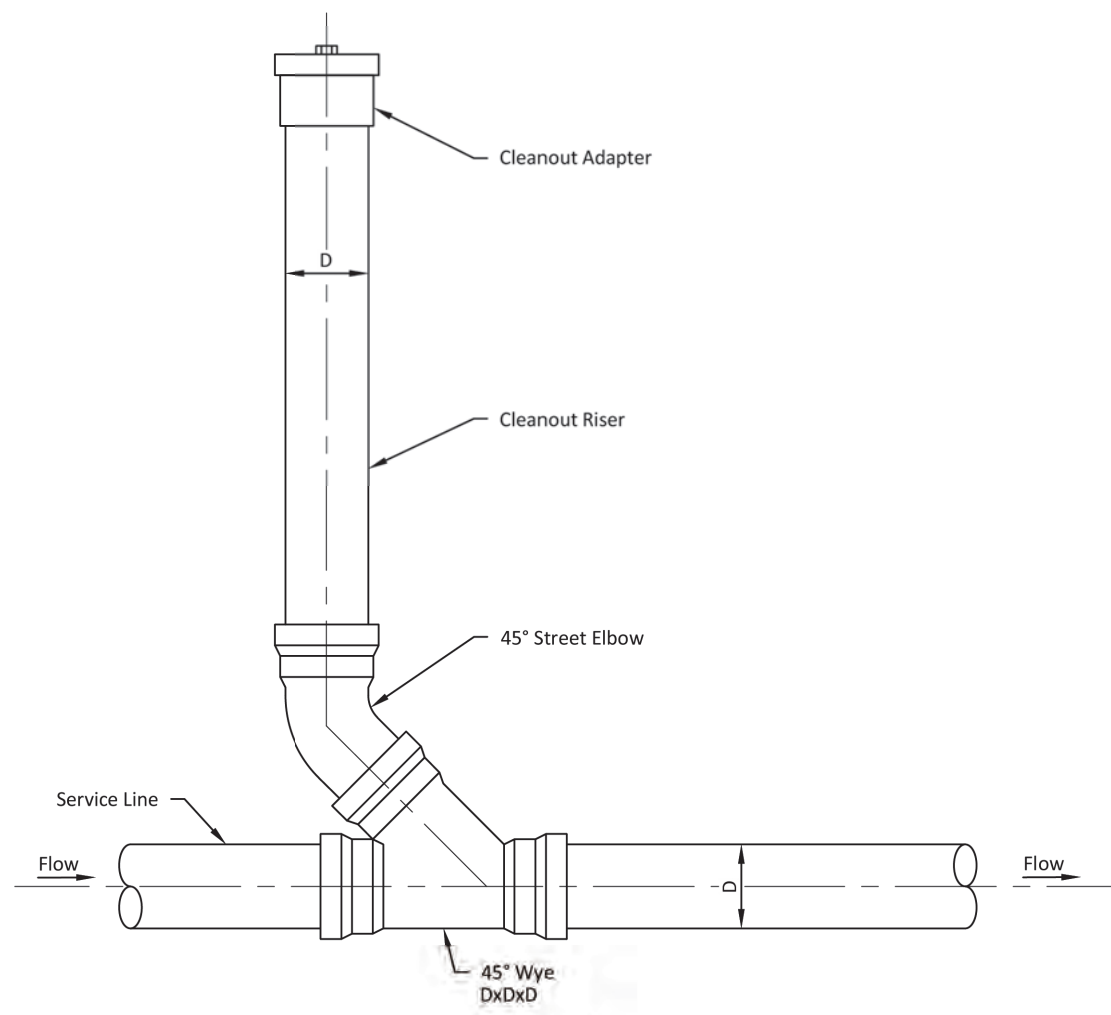
| | | | |
|------------------------|----------------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | IM 0902(189)98 | 16 | 25 |
| Plotting Date: 6/17/24 | | | |



Flat Top Manhole Detail



Sanitary Service Connection Detail

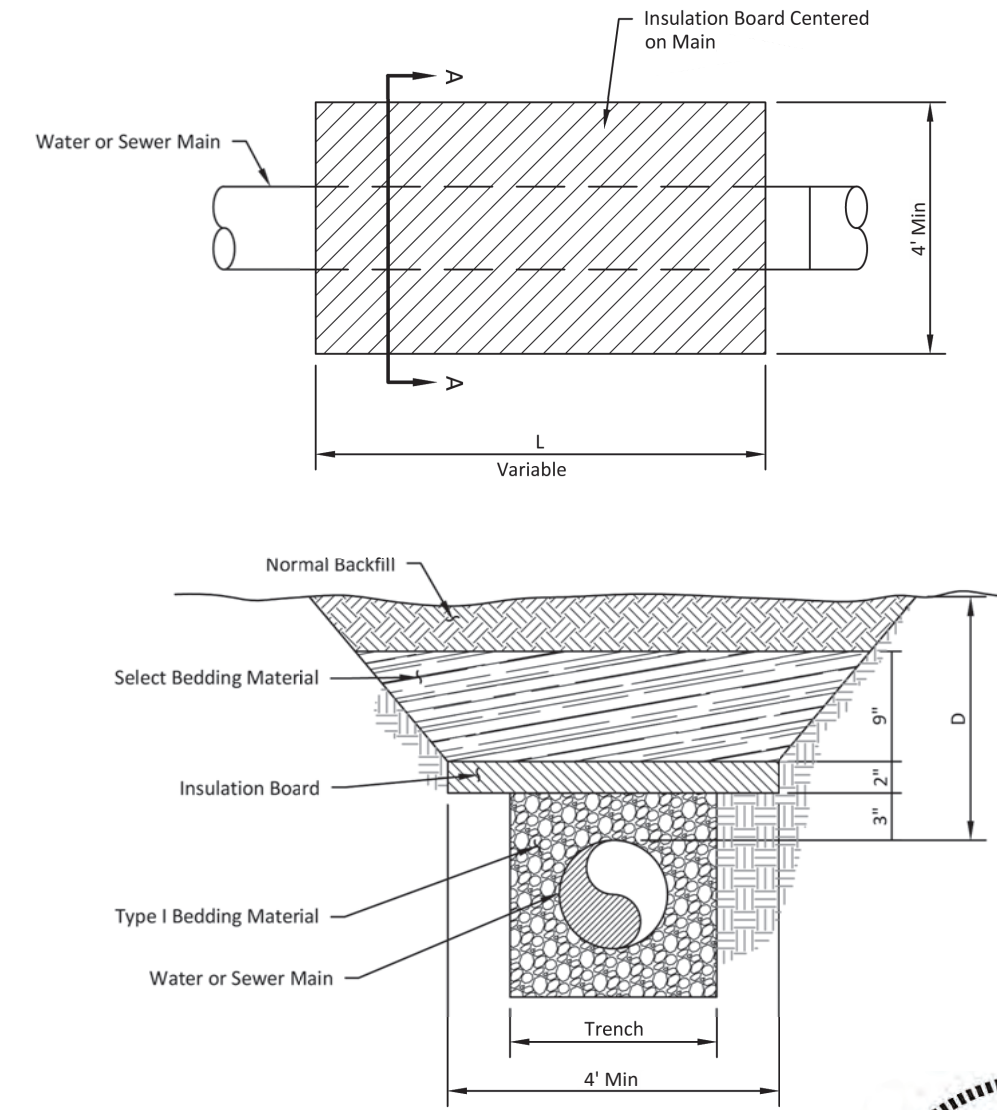


ELEVATION

- Notes:**
1. All fittings must be gasketed.
 2. Cleanouts must be the same diameter (D) as service line.
 3. Cleanouts must be installed at all changes in horizontal alignment of greater than 45 degrees and at distances not to exceed 75 feet for 4 inch diameter pipe and 100 feet for 6 inch diameter pipe.
 4. Cleanouts must be installed when the summation of the horizontal degree of change in a service line exceeds 135 degrees.
 5. Service lines shown on this detail must be 4" or 6".

N.T.S.

Sanitary Sewer Cleanout Detail

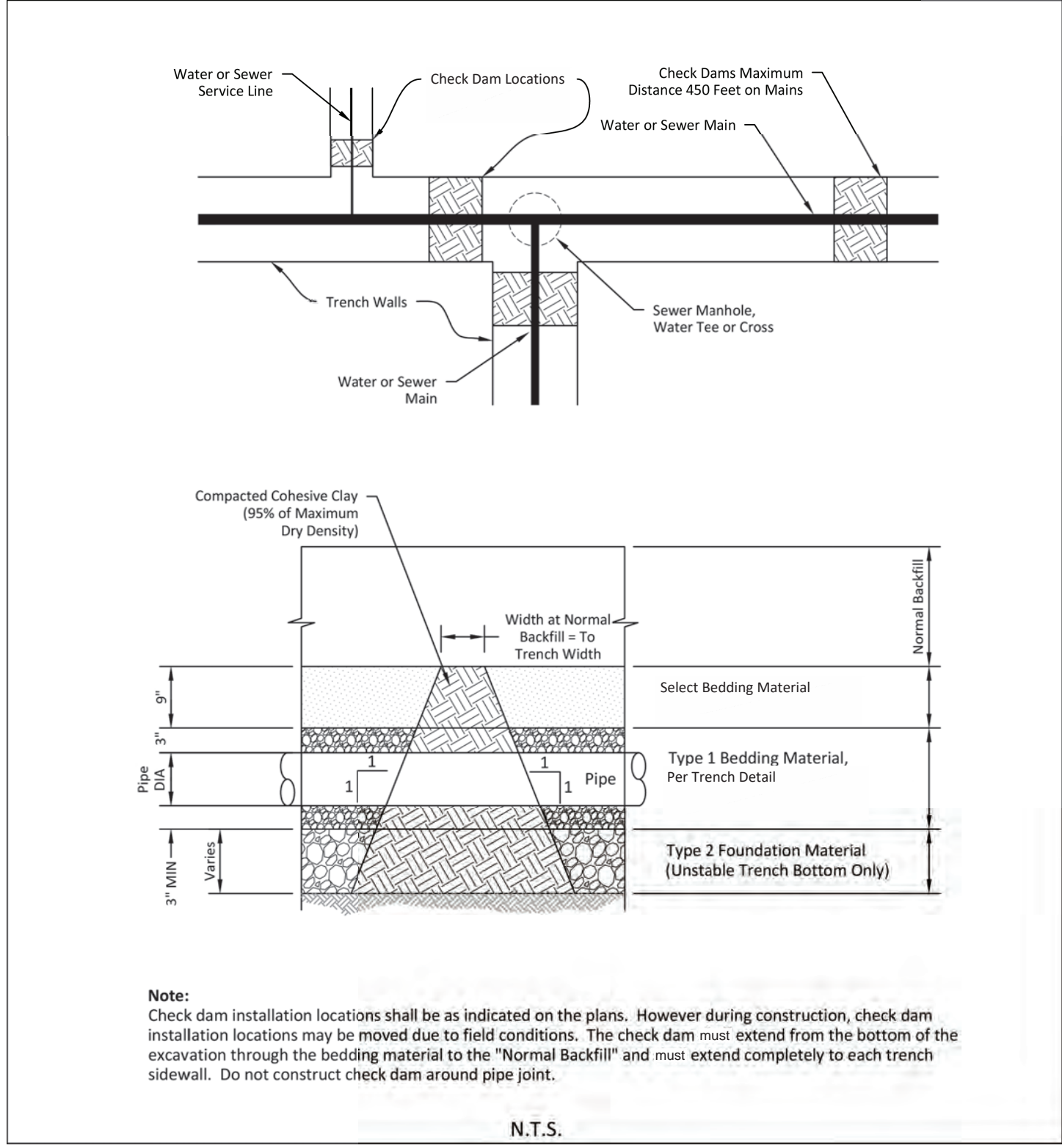


Note:
Sewer main insulation shall be 2" thick Extruded-Polystyrene Board Insulation formed from polystyrene base resin by an extrusion process using hydrochloro-fluorocarbons as blowing agent to comply with ASTM C578, Type IV, with 1.60 lb./cu.ft. minimum density and a compressive strength of 25 lb./sq. in. as specified in ASTM D1622 and ASTM 1621 respectively. The maximum thermal conductivity of the insulation shall conforming to ASTM C518, C177, and C578. The maximum water absorption percentage by volume shall be 1% in accordance with ASTM D2842. The range of water vapor permeance shall be 0.4 to 1.0 perm in accordance with ASTM E96.

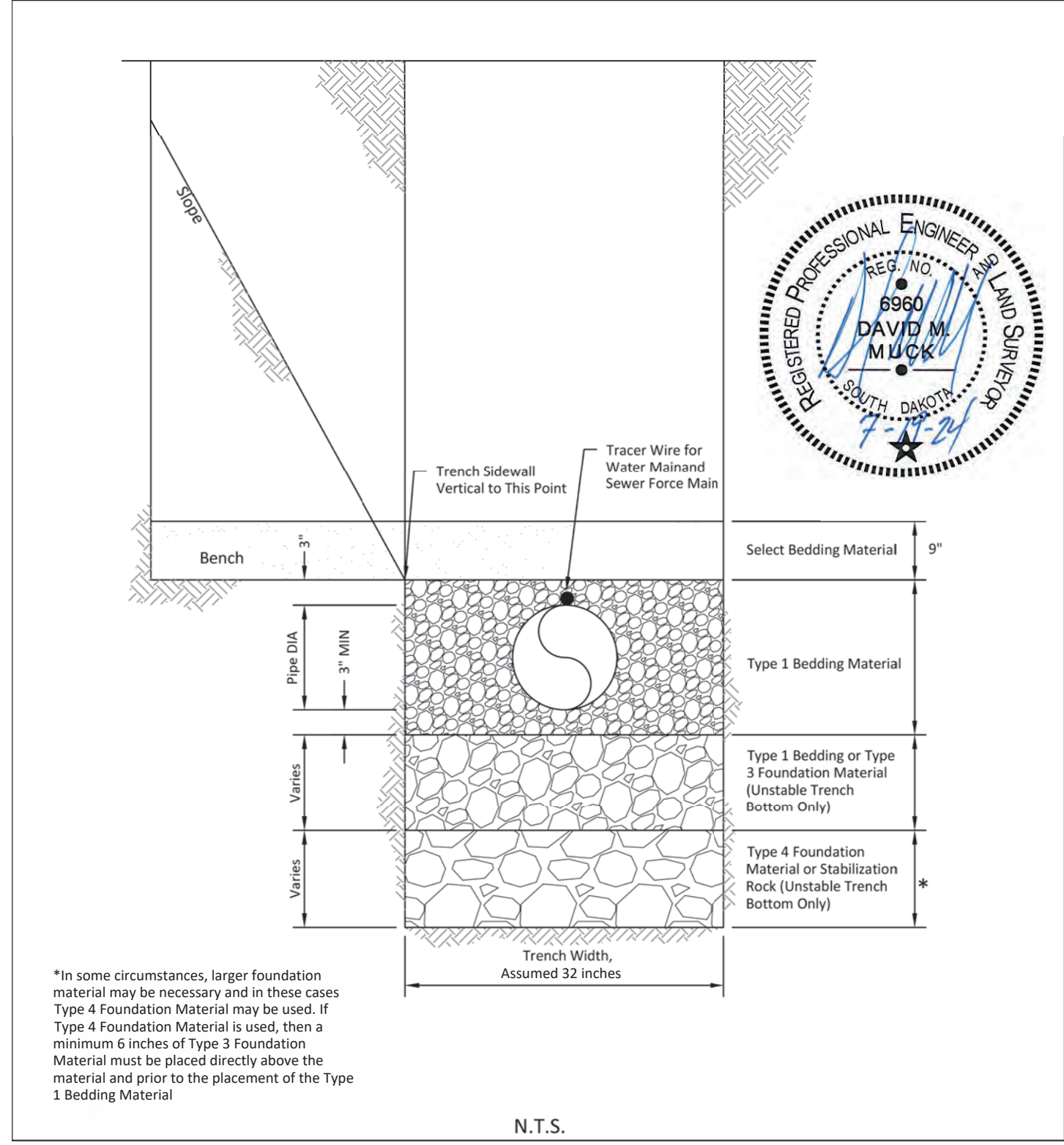
N.T.S.

Sanitary Sewer Insulation Detail



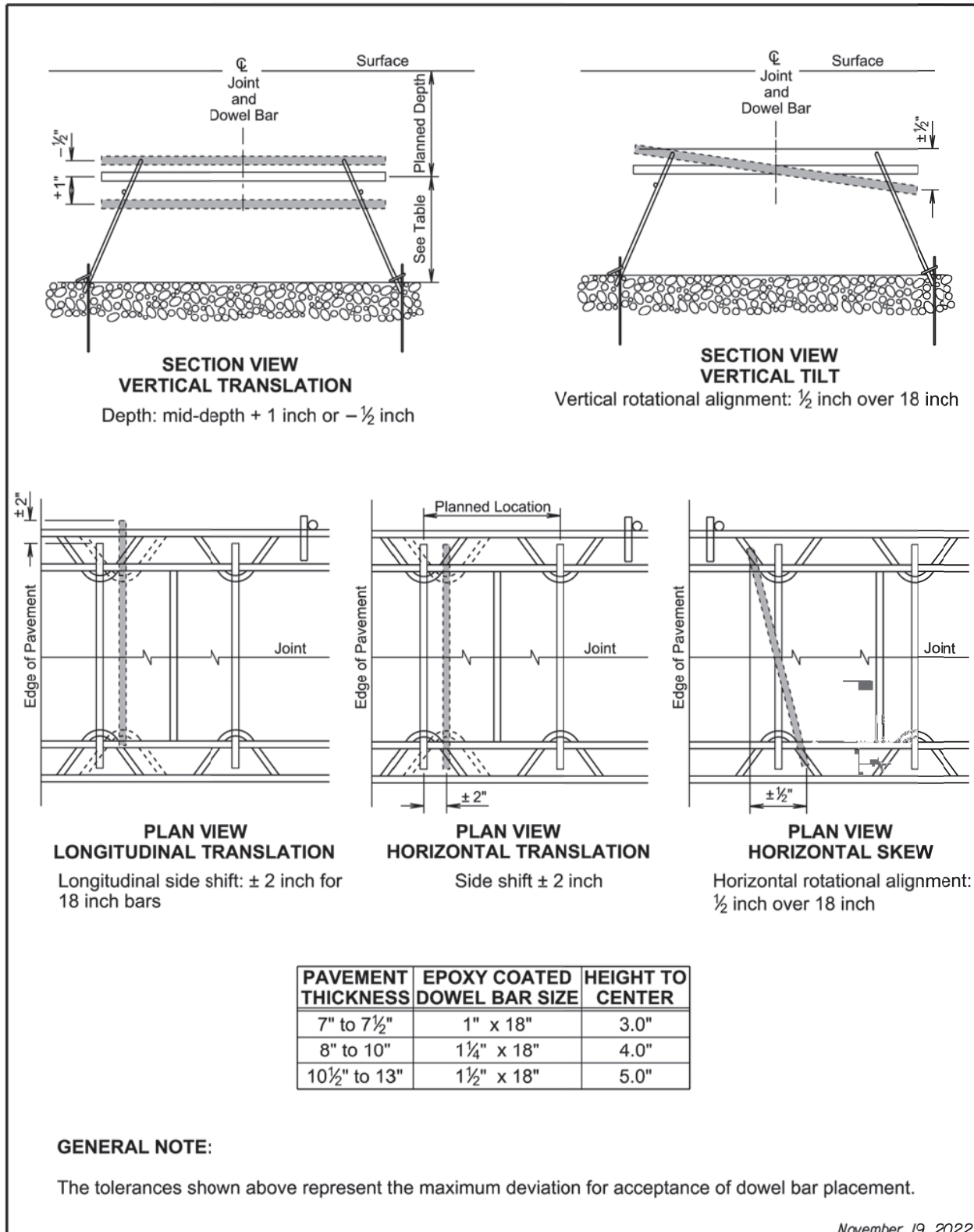


Trench Check Dam Detail



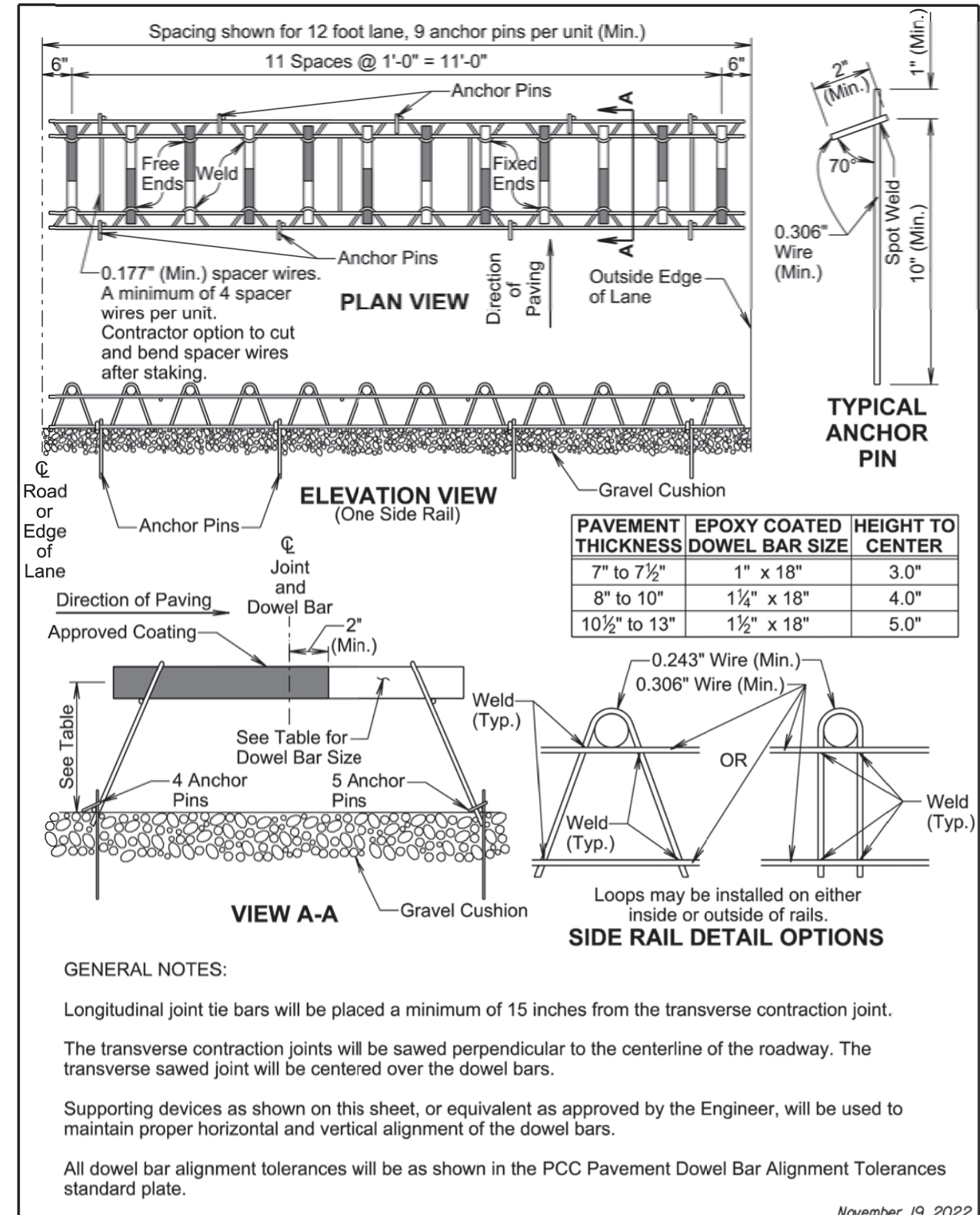
PVC Sewer Main Trench Detail





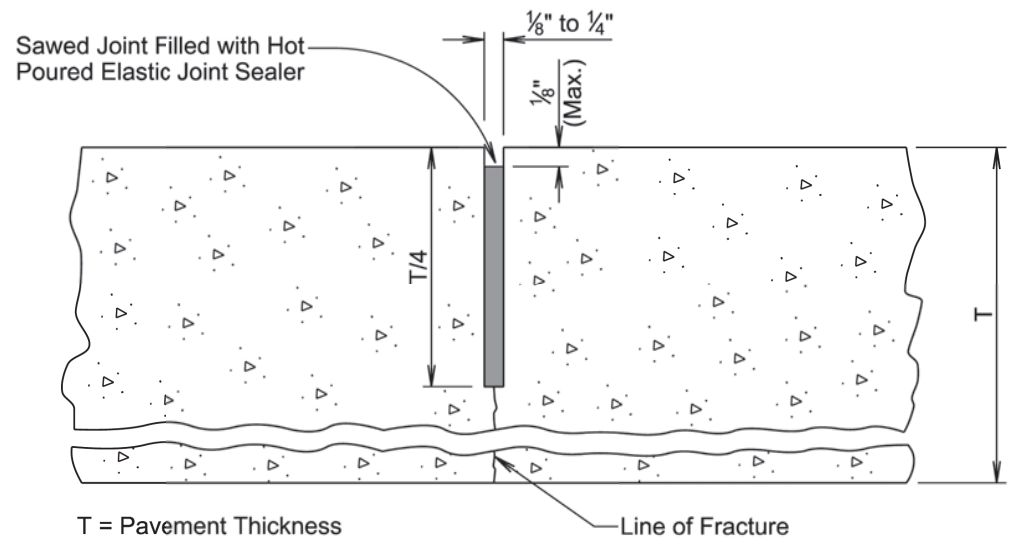
| | | |
|----------------------------------|--|------------------------|
| S D D O T | PCC PAVEMENT DOWEL BAR ALIGNMENT TOLERANCES | PLATE NUMBER 380.01 |
| | | Sheet 1 of 1 |

Published Date: 2025



| | | |
|----------------------------------|--|------------------------|
| S D D O T | PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 12 Bar Assembly on Granular Base Material | PLATE NUMBER 380.04 |
| | | Sheet 1 of 1 |

Published Date: 2025



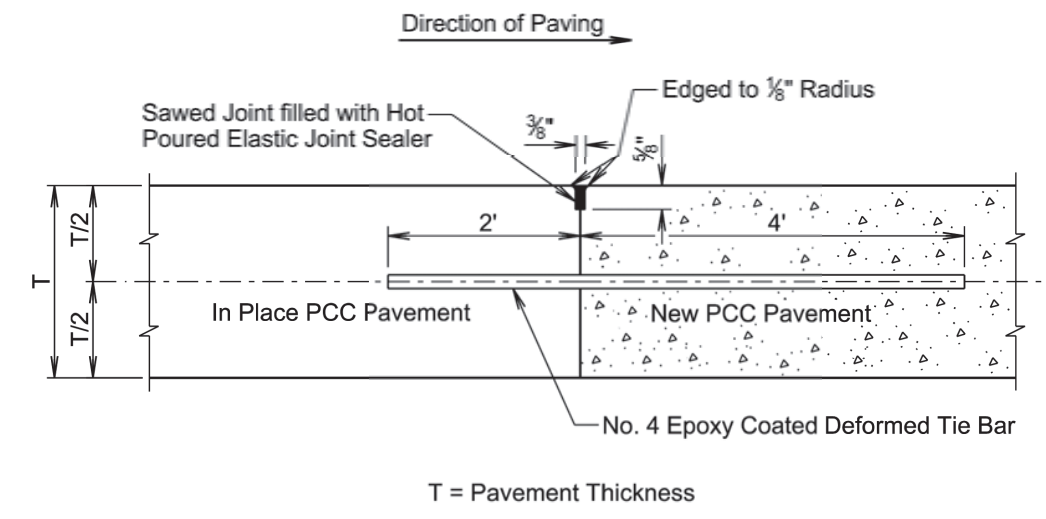
GENERAL NOTES:

If an early entrance saw cut does not develop the full transverse crack, then the saw cut to control cracking will be a minimum $\frac{1}{4}$ 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: 2025 | S D D O T | PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY | PLATE NUMBER 380.12 |
| | | | Sheet 1 of 1 |



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.

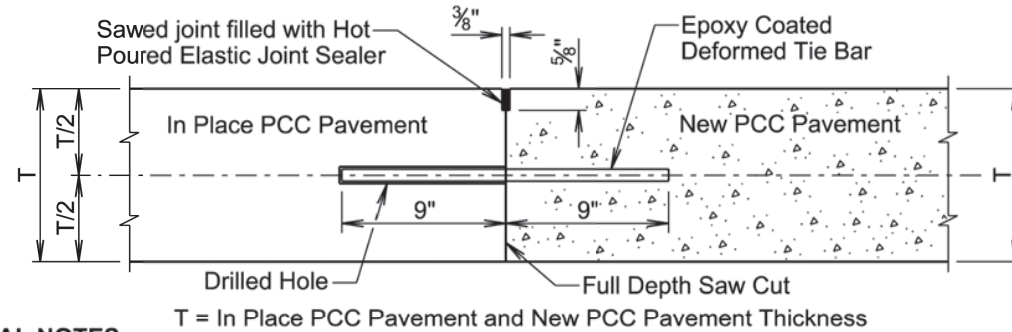
When a transverse construction joint is made, paving will not be allowed in this area for 12 hours.

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

March 31, 2024

| | | | |
|----------------------|-----------------------|---|------------------------|
| Published Date: 2025 | S D D O T | PCC PAVEMENT MID PANEL TRANSVERSE CONSTRUCTION JOINT | PLATE NUMBER 380.14 |
| | | | Sheet 1 of 1 |

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



GENERAL NOTES:

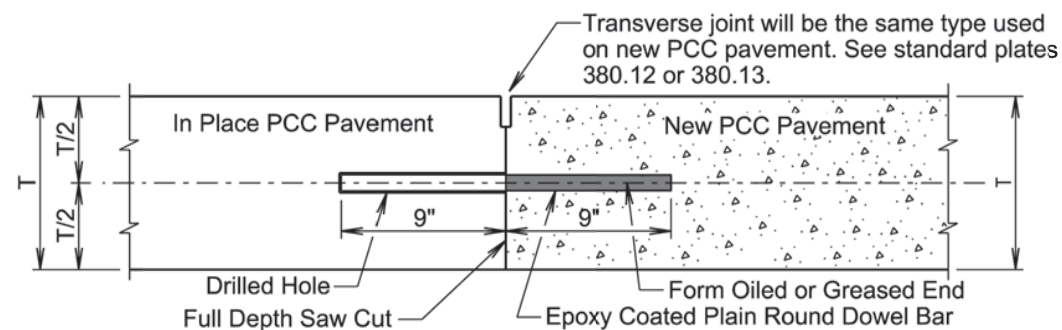
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

See sheet 2 of 2 of this standard plate to determine if Detail A 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:

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

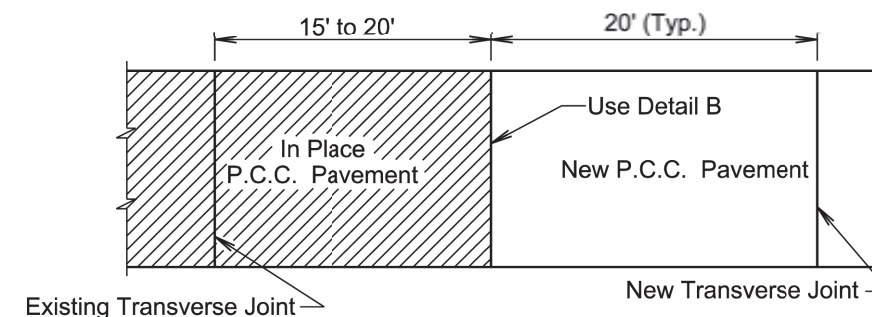
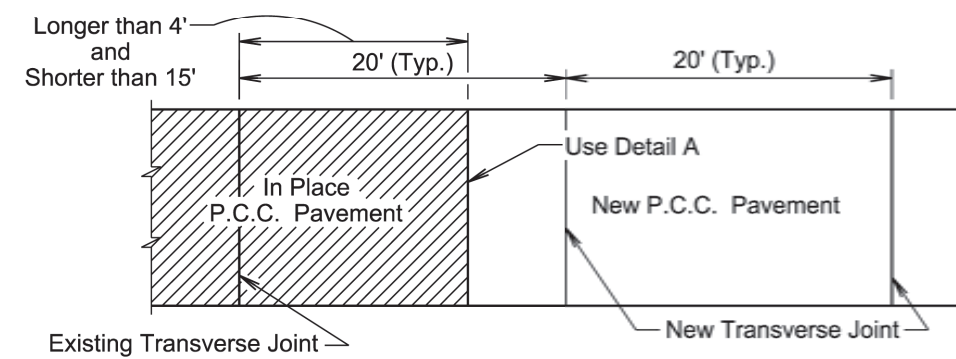
Published Date: 2025

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PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS

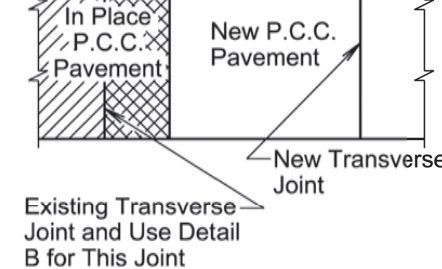
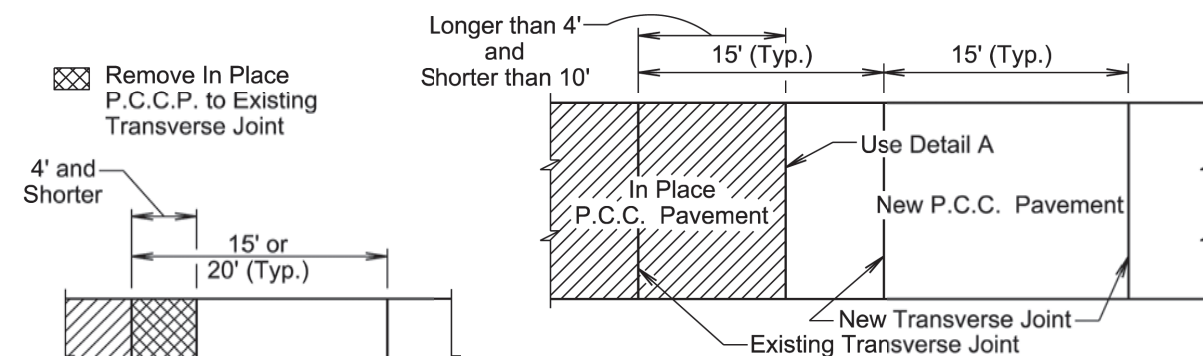
PLATE NUMBER
380.15

Sheet 1 of 2



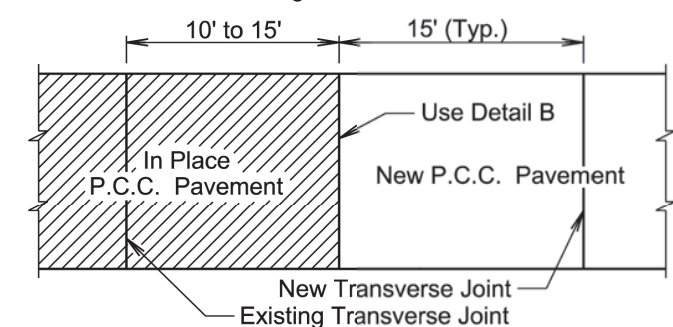
PLAN VIEW

(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: 2025

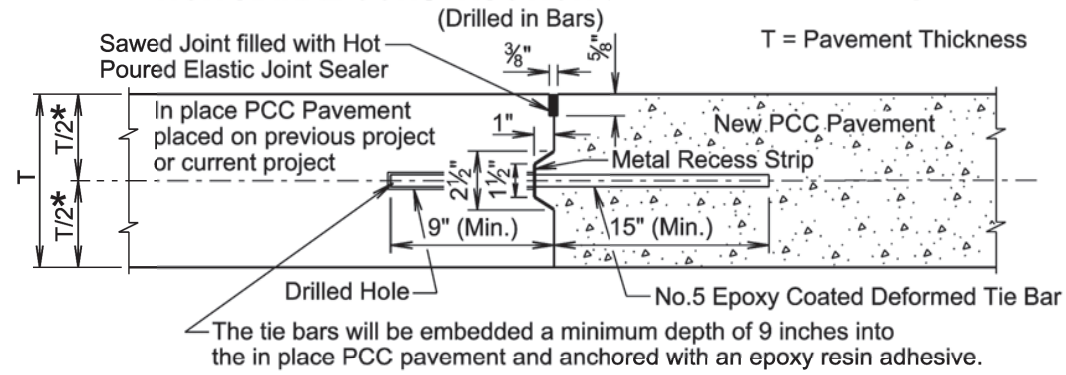
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PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS

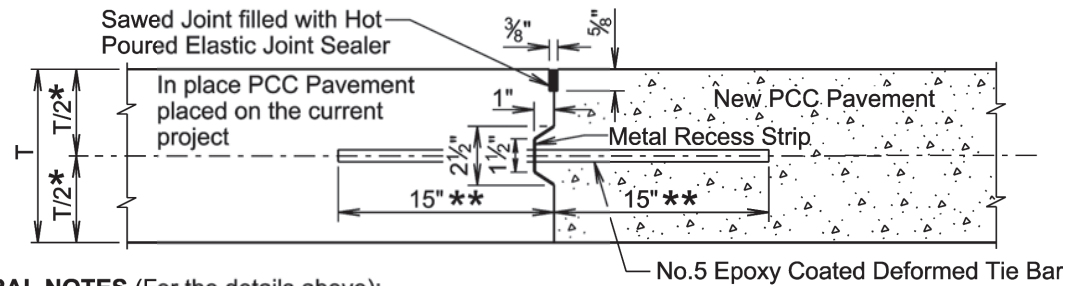
PLATE NUMBER
380.15

Sheet 2 of 2

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS



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.

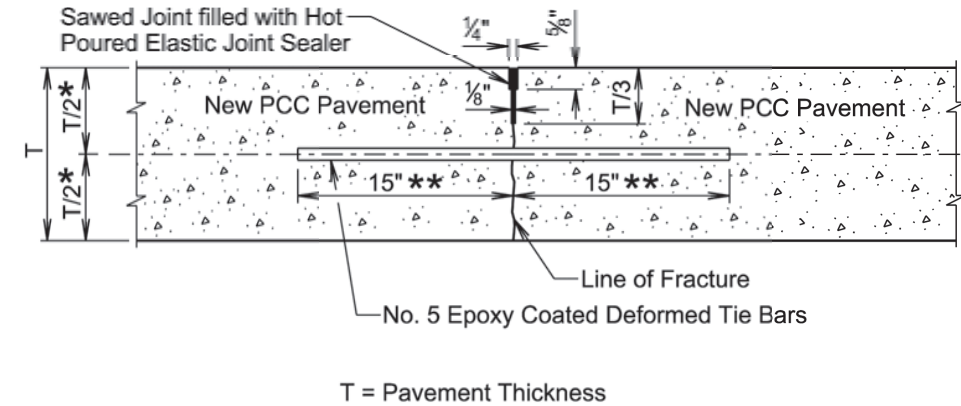
The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip will be used. When concrete pavement is slip formed, a metal recess strip is not required.

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

November 19, 2022

| | | | |
|-----------------------------|----------------------------------|---|------------------------|
| Published Date: 2025 | S D D O T | PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS | PLATE NUMBER 380.20 |
| | | | Sheet 1 of 2 |

SAWED LONGITUDINAL JOINT WITH TIE BARS
(Poured Monolithically)



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.

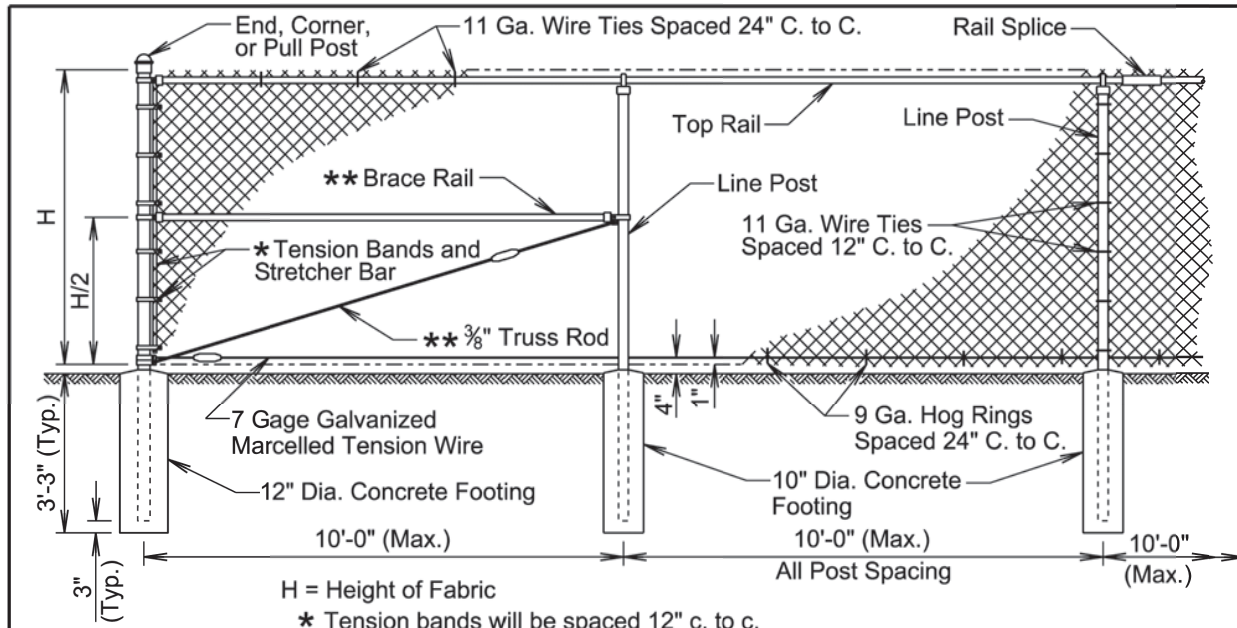
The required number of tie bars as shown in the table will be uniformly spaced within each panel with a maximum space of 48 inches center to center. The maximum tie bar spacing will apply to tie bars within each panel.

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 $\pm T/6$.
- ** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

November 19, 2022

| | | | |
|-----------------------------|----------------------------------|---|------------------------|
| Published Date: 2025 | S D D O T | PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS | PLATE NUMBER 380.20 |
| | | | Sheet 2 of 2 |



H = Height of Fabric
 * Tension bands will be spaced 12" c. to c.
 ** Are not required for 3' through 5' height fences.
 ○ Tightening device such as shown on standard plate 621.03

| COMPONENT | END, CORNER, and PULL POST | | LINE POST | | | TOP and BRACE RAIL | |
|---------------------|----------------------------|-------------------|--------------------|---------------|--------------|--------------------|-------------------|
| | Round Pipe Nominal | Roll Formed Steel | Round Pipe Nominal | "C" Section | H Beam Steel | Round Pipe Nominal | Roll Formed Steel |
| Type of Fabrication | | | | | | | |
| Size | 3.00" O. D. | 3.5"x3.5" | 2.50" O. D. | 1.875"x1.625" | 2.25"x1.70" | 1.625" O. D. | 1.625"x1.25" |
| Weight (lb. / Ft.) | 5.79 or 4.64 | 5.14 | 3.65 or 3.12 | 2.34 | 3.43 | 2.27 or 1.84 | 1.35 |

GENERAL NOTES:

Specific details of the component parts of the fence will be approved by the Engineer. Commercially available items produced specifically for the use intended will be used wherever possible in the construction of the fence.

Height of the fabric will be as shown in the plans. Fabric is available at the following heights: 36", 42", 48", 60", 72", 84", 96", 108", 120", and 144". Fabric heights 60 inches and less will be knuckled at both selvages. Fabric heights 72 inches and higher will be knuckled at one selvage and twisted at the other selvage.

Chain link fabric will be 2-inch mesh, No. 9 gage galvanized wire securely fastened to tension wire, line post, rails, braces, and stretcher bars.

Fence may be constructed with either round pipe, "C" section, "H" beam, or roll formed steel components as shown in the table above. Line posts may be round pipe, "C" section, or "H" beam. The corner post and rails will be either round pipe or roll formed steel. The type of components used must be approved by the Engineer prior to installation.

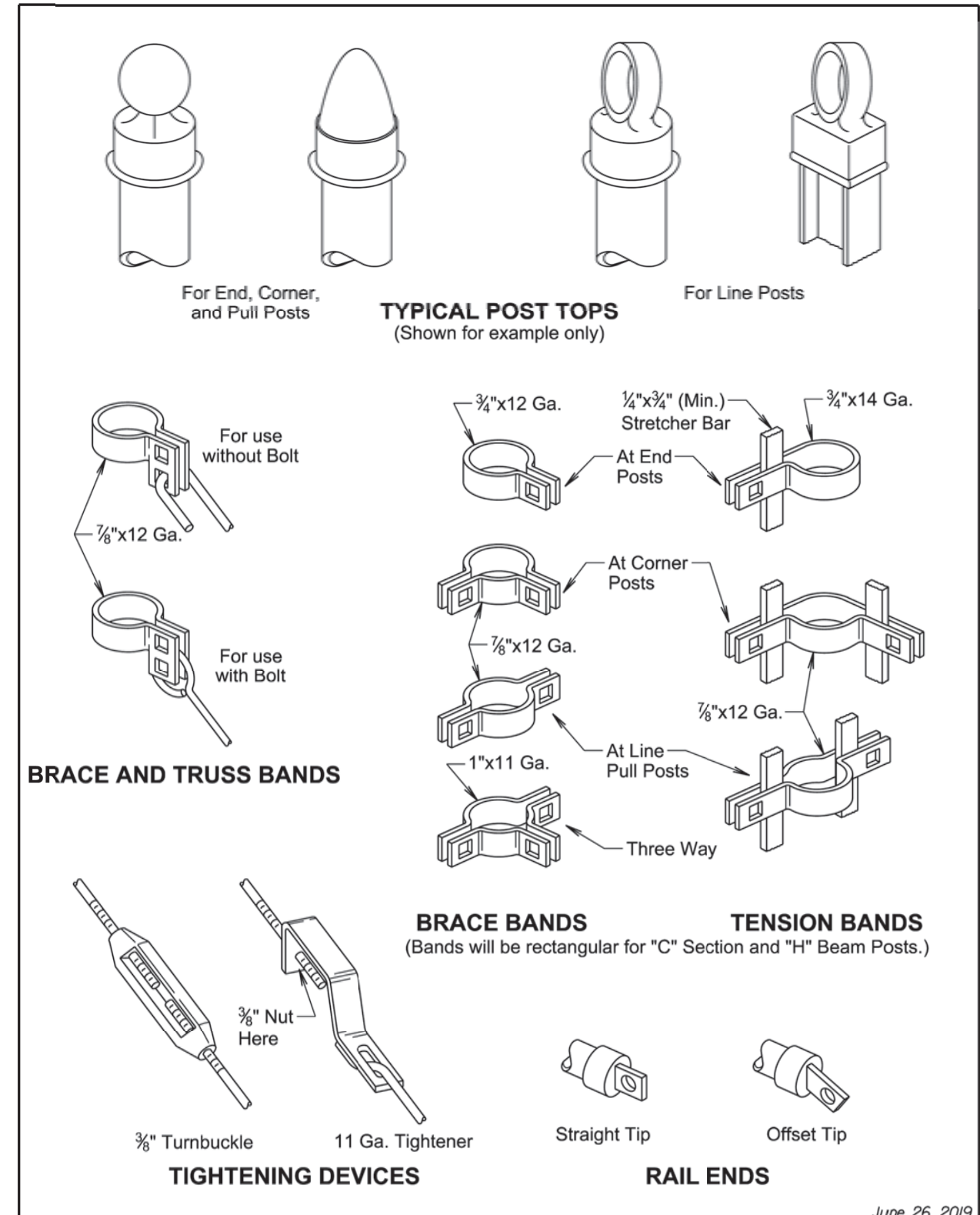
Where fence must cross small bodies of water such as drainage areas or ponds that could freeze during the winter, use 11 gage hog rings. Provide only two ties per tension wire and top rail between line posts.

A suitable method of rail splicing will be used to allow for expansion and contraction while maintaining proper position of the top rail.

Fence grounding will be as shown on standard plate 620.11.

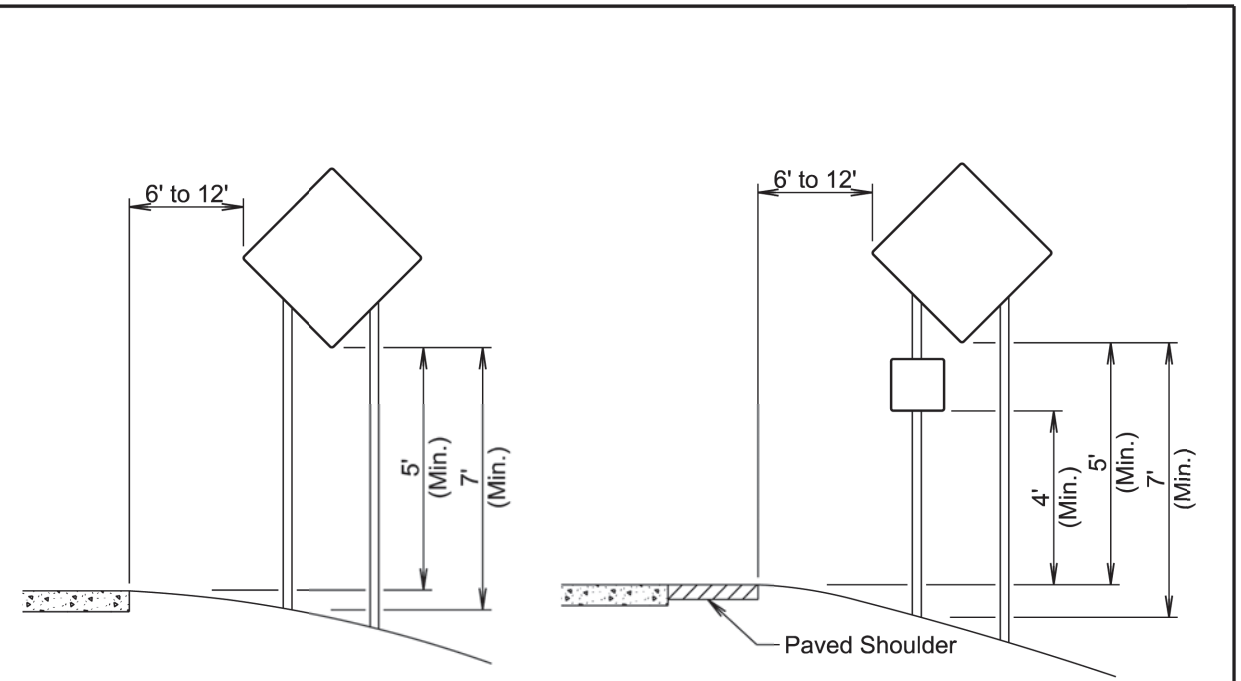
November 19, 2022

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| Published Date: 2025 | S D D O T | CHAIN LINK FENCE WITH TOP RAIL | PLATE NUMBER 621.01 |
| | | | Sheet 1 of 1 |



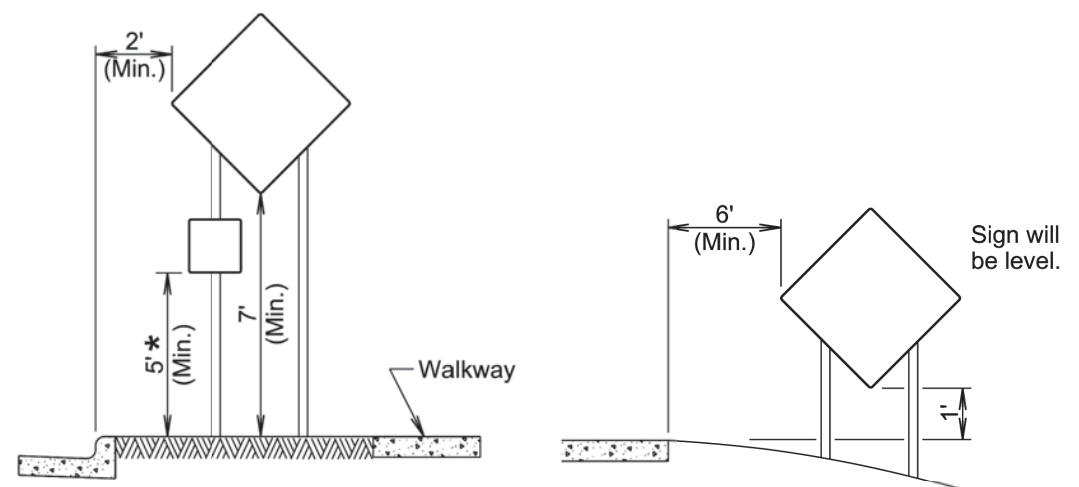
June 26, 2019

| | | | |
|----------------------|-----------------------|-------------------------------|------------------------|
| Published Date: 2025 | S D D O T | HARDWARE FOR CHAIN LINK FENCE | PLATE NUMBER 621.03 |
| | | | Sheet 1 of 1 |



RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



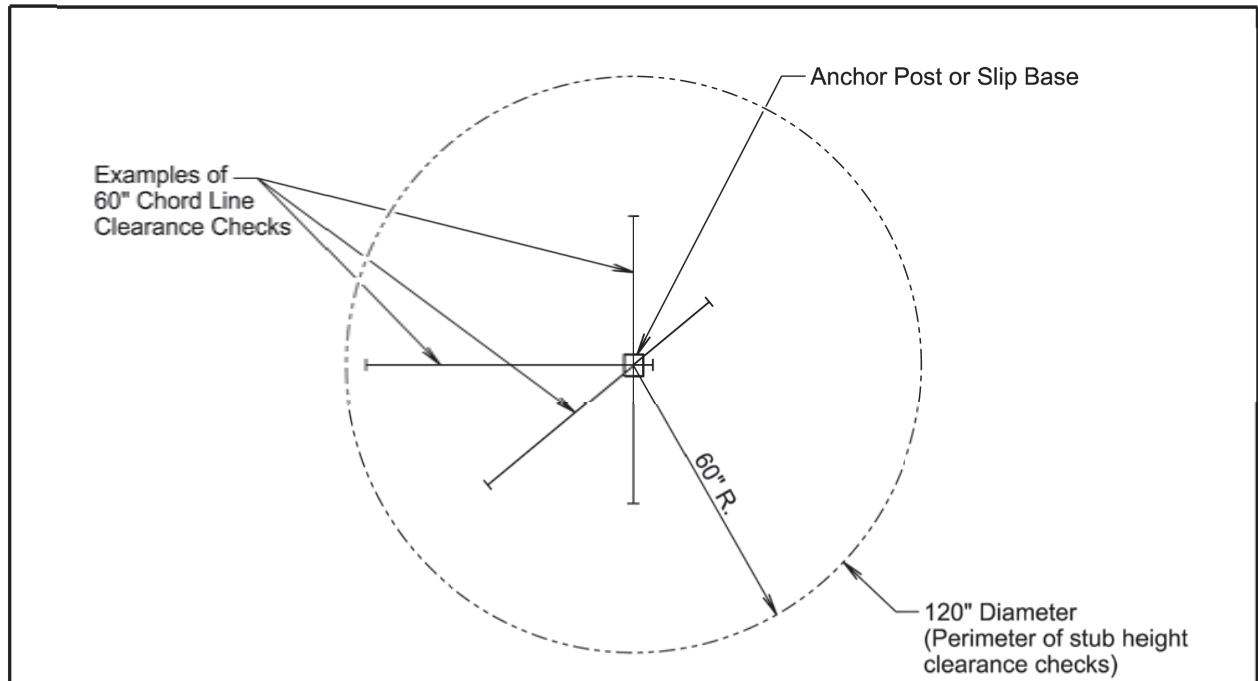
URBAN DISTRICT

RURAL DISTRICT 3 DAY MAXIMUM

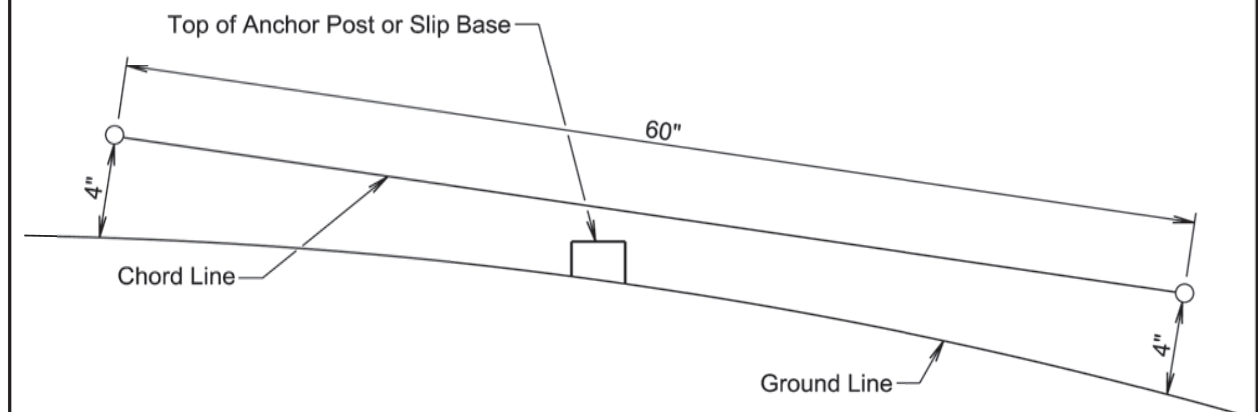
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

| | | | |
|----------------------|-----------------------|---|------------------------|
| Published Date: 2025 | S D D O T | CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing) | PLATE NUMBER 634.85 |
| | | | Sheet 1 of 1 |



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

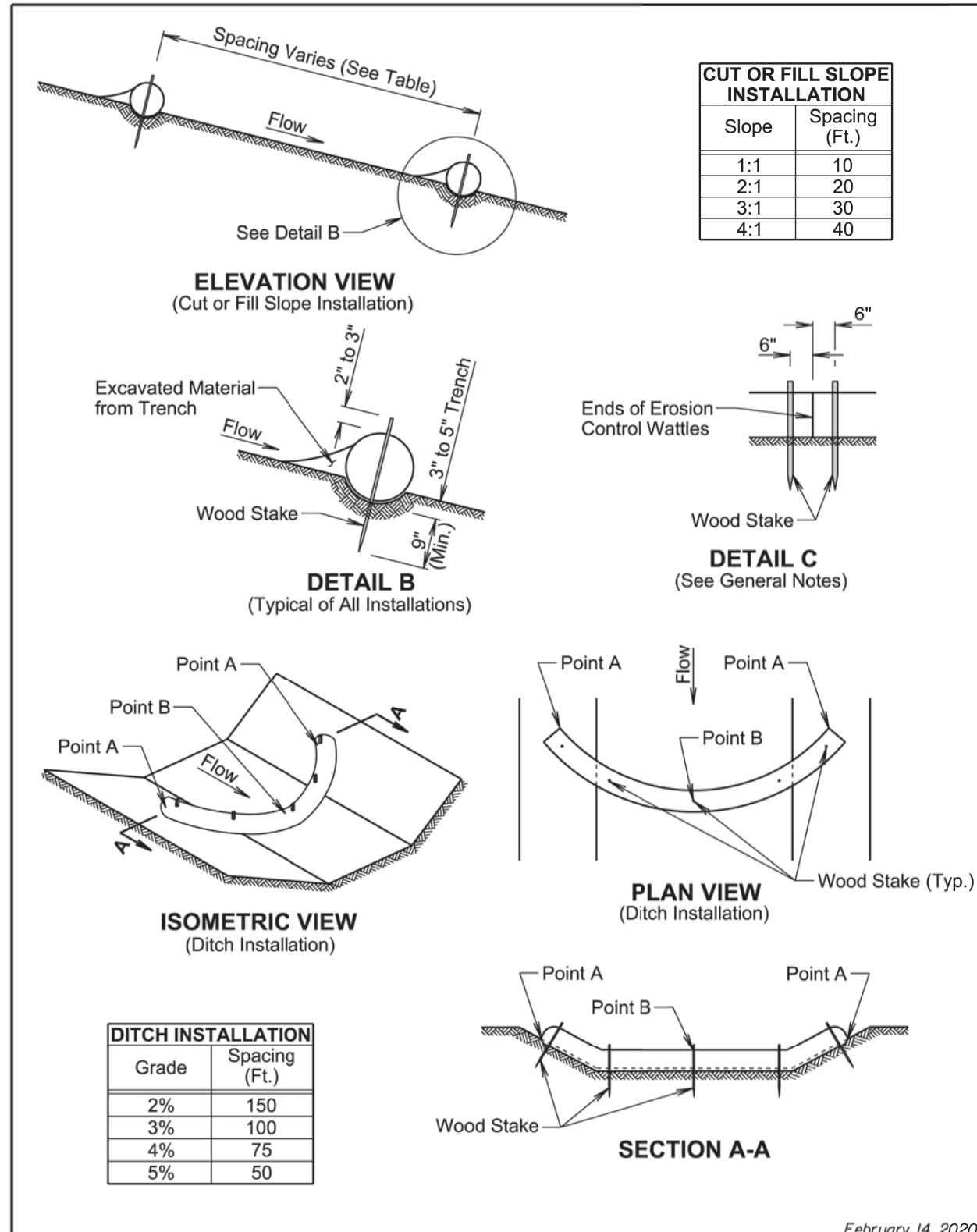
The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

January 22, 2021

| | | | |
|----------------------|-----------------------|----------------------------------|------------------------|
| Published Date: 2025 | S D D O T | BREAKAWAY SUPPORT STUB CLEARANCE | PLATE NUMBER 634.99 |
| | | | Sheet 1 of 1 |



February 14, 2020

| | | | |
|----------------------|-----------------------|------------------------|--------------|
| Published Date: 2025 | S D D O T | EROSION CONTROL WATTLE | PLATE NUMBER |
| | | | 734.06 |
| | | | Sheet 1 of 2 |

GENERAL NOTES:

At cut or fill slope installations, wattles will be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor will dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes will be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes will be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles will be 3' to 4'.

Where installing running lengths of wattles, the Contractor will butt the second wattle tightly against the first and will not overlap the ends. See Detail C.

The Contractor and Engineer will inspect the erosion control wattles in accordance with the storm water permit. The Contractor will remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping will be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping will be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials will be incidental to the contract unit price per foot for the corresponding erosion control wattle contract item.

All costs for removing the erosion control wattle from the project including labor, equipment, and materials will be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

February 14, 2020

| | | | |
|----------------------|-----------------------|------------------------|--------------|
| Published Date: 2025 | S D D O T | EROSION CONTROL WATTLE | PLATE NUMBER |
| | | | 734.06 |
| | | | Sheet 2 of 2 |