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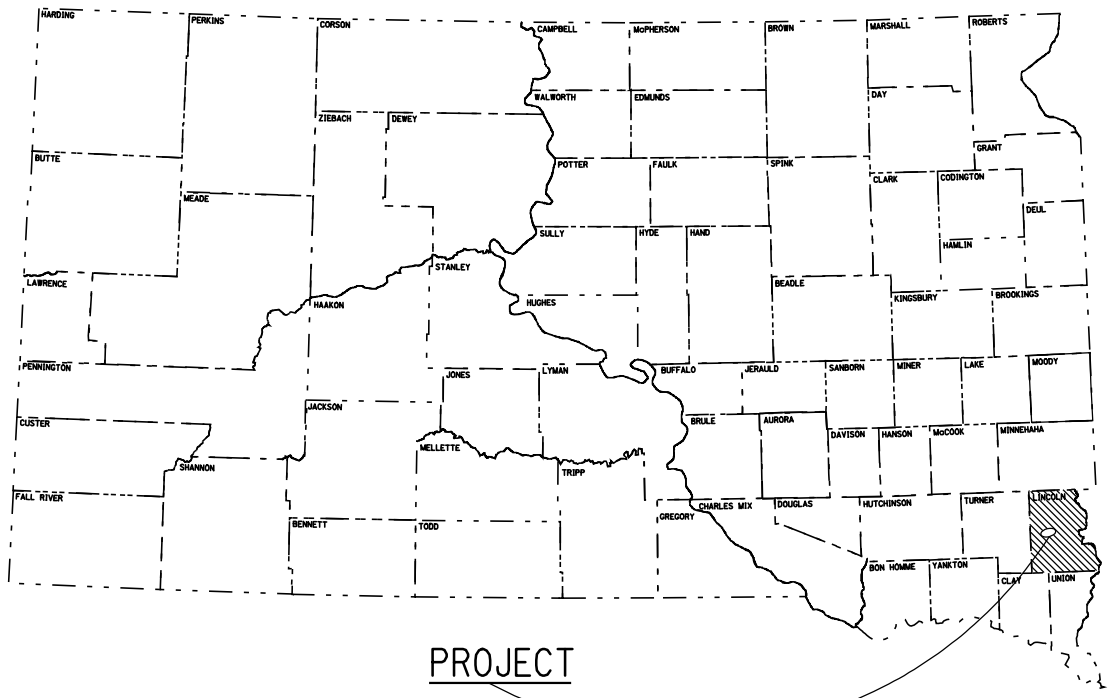
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STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
PROJECT 410B231
MAINTENANCE FACILITY
SITE GRADING
LINCOLN COUNTY
GRADING AND GRAVEL SURFACING
PCN I1KN

| | | | |
|-----------------------|--------------------|------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT 410B231 | SHEET 1 | TOTAL SHEETS 28 |
|-----------------------|--------------------|------------|--------------------|

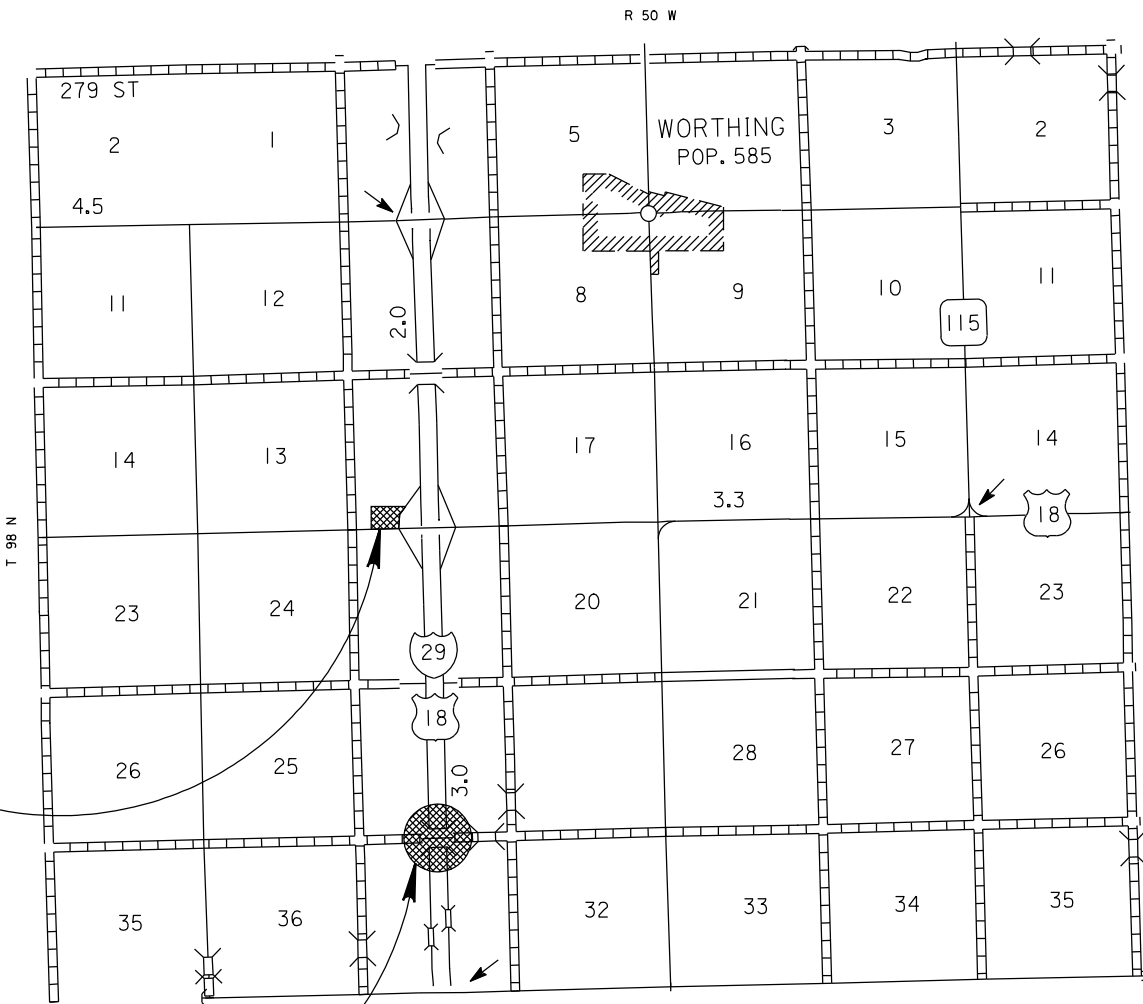
Plotting Date: 12-AUG-2009



PROJECT

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410B231
Section 18 - Township 98 North -
Range 50 West of the 5th P.M.
MRM 62.34

SDDOT Furnished Borrow
Borrow Pit #1
Sec. 30 - T98N - R50W
Sec. 31 - T98N - R50W
MRM 60.34

STORM WATER PERMIT
Major Stream: NONE
Area Disturbed: 11.23 Acres
Project Area: 11.23 Acres

SCALES

| | | | |
|----------------|-------------|----------|---------|
| | RURAL | SUBURBAN | URBAN |
| PLAN | 1"=200' | 1"=100' | 1"=40' |
| PROFILE, | HORIZONTAL: | 1"=200' | 1"=100' |
| | VERTICAL: | 1"=20' | 1"=10' |
| CROSS SECTIONS | HORIZONTAL: | 1"=40' | 1"=20' |
| | VERTICAL: | 1"=20' | 1"=10' |



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ESTIMATE OF QUANTITIES

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|-----------------|--|----------|------|
| 009E0010 | Mobilization | Lump Sum | LS |
| 110E0600 | Remove Fence | 200 | Ft |
| 120E0010 | Unclassified Excavation | 11268 | CuYd |
| 120E0300 | Borrow Unclassified Excavation | 37086 | CuYd |
| 120E6100 | Water for Embankment | 371.0 | MGal |
| 120E6200 | Water for Granular Material | 120.0 | MGal |
| 230E0010 | Placing Topsoil | 10320 | CuYd |
| 250E0020 | Incidental Work, Grading | Lump Sum | LS |
| 260E1080 | Base Course, Salvaged, State Furnished | 12950.0 | Ton |
| 260E3010 | Gravel Surfacing | 1550.0 | Ton |
| 450E5509 | 18" CMP Arch 16 Gauge, Furnish | 58 | Ft |
| 450E5510 | 18" CMP Arch, Install | 58 | Ft |
| 450E6006 | 18" CMP Arch Safety End, Furnish | 2 | Each |
| 450E6007 | 18" CMP Arch Safety End, Install | 2 | Each |
| 634E0010 | Flagging | 50 | Hour |
| 634E0100 | Traffic Control | 604 | Unit |
| 634E0120 | Traffic Control Miscellaneous | Lump Sum | LS |
| 634E0420 | Type C Advance Warning Arrow Panel | 1 | Each |
| 730E0202 | Type B Permanent Seed Mixture | 76 | Lb |
| 732E0100 | Mulching | 8.4 | Ton |
| 734E0151 | 9" Diameter Erosion Control Wattle | 108 | Ft |
| 734E0604 | High Flow Silt Fence | 1365 | Ft |
| 734E0610 | Mucking Silt Fence | 35 | CuYd |
| 734E0620 | Repair Silt Fence | 125 | Ft |

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in this proposal.

COMPLETION DATE

All work shall be completed on or before November 20, 2009.

SEQUENCE OF OPERATIONS

1. Install sediment controls at the project site and at the borrow site as directed by the Engineer.
2. Remove topsoil at the project site and place in the berms as per the provided details and notes.
3. Set up lane closures on I29 NB as per the standard plates near the SDDOT Furnished Borrow Site. Construction traffic will be limited to I29. Excavate to the limits determined by the Engineer. Haul and place the borrow material as per the specifications. The Contractor will be required to remove all of the material from the east berm before moving to the west berm.
4. Set up lane closures on I29 SB as per the standard plates near the SDDOT Furnished Borrow Site. Construction traffic will be limited to I29. Excavate to the limits determined by the Engineer. Haul and place the borrow material as per the specifications.
5. Haul and place Base Course, Salvaged, State Furnished from the stockpiles at the following locations: SDDOT Furnished Borrow Site and the SDDOT Maintenance facility in the City of Canton. The Contractor will be responsible for verifying the locations prior to bidding.
6. Haul and place Gravel Surfacing as per the provided layouts and typical sections.
7. Complete topsoil berm shaping and install erosion/sediment controls (seed, mulch, wattles, etc.) at the project site.

TRAFFIC CONTROL

Included in the estimate of quantities is sufficient signage for (1) lane closure on I29. Lane closures shall be installed as per Standard Plate 634.63.

The Contractor shall install W20-1 ROAD WORK AHEAD and G20-2 END ROAD WORK along US18 / Co. Road 128.

GENERAL MAINTENANCE OF TRAFFIC

Removing, relocating, covering, salvaging and resetting of permanent traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

Storage of vehicles and equipment shall be outside the clear zone and as near as possible to the right-of-way line. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work.

Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste.

The estimated cubic yards of excavation and/or embankment required to construct outlet ditches, ditch blocks, and approaches are included in the earthwork balance notes on the profile sheets.

Special ditch grades and other sections of the roadway different than the typical section(s) shall be constructed to the limits shown on the cross sections. If significant changes to the cross sections are necessary during construction, the Engineer shall contact the Designer for the proposed change.

WATER SOURCE

The Contractor shall not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the DOT Environmental Office, Ryan Huber (605-773-6593). This note does not relieve the Contractor of his/her responsibility to obtain the necessary permits from other agencies such as DENR (Department of Environment and Natural Resources) and COE.

UTILITIES

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

INCIDENTAL WORK, GRADING

Existing in the (2) bridge berms are remnants of concrete rubble, timber/steel pile, RCP and/or CMP left in place from the old structure. The Contractor will be required to remove all concrete piling to an elevation 1.0' below the adjacent ditch grade.

All costs associated with removing and disposing of the rubble, piling, CMP and/or RCP shall be incidental to the contract lump sum price for Incidental Work, Grading.

TABLE OF INCIDENTAL WORK, GRADING

| Location | L/R | Remarks |
|----------|-----|------------|
| I29 NB | R | MRM 60.340 |
| I29 SB | R | MRM 60.340 |

WORK AFFECTING WATERWAYS**A. WATER QUALITY****Surface Water Quality**

The Contractor is advised the South Dakota Surface Water Quality Standards, administered by the Department of Environment and Natural Resources (DENR), apply to this project.

Surface Water Discharge

If construction dewatering is required, the Contractor is required to obtain a Surface Water Discharge Permit from the DENR. Contact the DENR Surface Water Program at 605-773-3351 to apply for a permit.

Storm Water

The Contractor is advised this project is regulated under the Phase II Storm Water Regulations and must receive coverage under the DENR General Permit for Construction Activities. A Notice of Intent (NOI) will be submitted to DENR a minimum of 15 days prior to project start by the DOT Environmental Office. A letter must be received from DENR that acknowledges project coverage under this general permit before project start. The Contractor is advised that permit coverage may also be required by offsite activities, such as borrow and staging areas, which are the responsibility of the Contractor.

A major component of the storm water construction permit is development and implementation of a storm water pollution prevention plan (SWPPP). This plan is a joint effort and responsibility of the DOT and the Contractor. The SWPPP is a dynamic document and is to be available on-site at all times. Information on storm water requirements and SWPPP are available on the following websites:

DOT: http://www.sddot.com/pe/projdev/environment_stormwater.asp

DENR: <http://denr.sd.gov/des/sw/stormwater.aspx>

HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain SHPO clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. In lieu of a cultural resources survey, the Contractor could request a records search from Jim Donohue, State Archaeological Research Center (SARC). Provide SARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions are provided, project number, and PCN are shown. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that no artifacts have been found on the site. The Contractor shall arrange and pay for the cultural resource survey and/or records search.

If any earth disturbing activities occur within the current geographical or historic boundaries of any South Dakota reservation(s), the Contractor shall obtain Tribal Historical Preservation Office (THPO) clearance. If no THPO exists, the required SHPO clearance shall suffice, with documentation of Tribal contact efforts provided to SHPO.

To facilitate SHPO or THPO responses, the Contractor should submit a records search or cultural resources survey report to Tom Lehmkuhl, DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO/THPO approval. The Contractor is responsible for obtaining all required permits and clearances for staging area(s), borrow site(s), waste disposal site(s) and all material processing sites. The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.

WASTE DISPOSAL SITE

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

Construction/demolition debris may not be disposed of within the State ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the Administrative Rules of South Dakota (Solid Waste) Article 74:27 administered by the Department of Environment and Natural Resources.

The waste disposal site(s) shall 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 Engineer.

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

1. Construction/demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction/demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of 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 of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

WASTE DISPOSAL SITE (CONTINUED)

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) shall be incidental to the various contract items.

TOPSOIL

Topsoil shall be removed as per the provided layout. The Contractor will be required to remove **ALL** of the topsoil from the fill areas within the limits of the asphalt surfacing (asphalt surfacing to be completed on a future project) and 6" from the fill areas within the limits of the gravel surfacing. Field checks indicate topsoil depths of 8 inches to 15 inches. Payment shall be based on field measurement after placement.

PLACEMENT OF EMBANKMENT

Placement of embankment shall be according to 120.3.b.a Specified Density Method.

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

When plan quantities are used for payment, the Unclassified Excavation quantity shall be used for final payment. If final cross sections are taken in the field, add all of the items in the Table of Unclassified Excavation using the following procedures:

The Unstable Material Excavation quantity is included in the Excavation quantity listed in the Table of Unclassified Excavation. When finaling a project, the Unstable Material Excavation quantity shall be added to the Excavation quantity to compute the Unclassified Excavation quantity.

The Topsoil quantity in the Table of Unclassified Excavation is an estimate. When finaling a project, the total quantity of field measured Topsoil shall be used in place of the estimated Topsoil quantity. The quantity of Topsoil from the cuts will be paid for twice as Unclassified Excavation, as it will be in both the Excavation and Topsoil quantities. This will be full compensation for Excavation, which includes necessary undercutting to provide space for placement of topsoil.

HAUL

Included in the Table of Excavation Quantities by Balances are Dead Haul and Haul. They are not pay items and are for informational purposes only.

Dead Haul: Estimated quantity (CuYdSta) for moving borrow excavation material or option borrow excavation material from the borrow or option borrow site to the centerline mainline station listed in the Table of Borrow Pits.

SDDOT FURNISHED BORROW

The SDDOT borrow is located at the intersection of I29 (MRM 60.340) and 284th St. Borrow material shall be obtained from the old bridge berms located on the east and west sides of I29. The Contractor will be responsible for visiting the site prior to bidding to review the extent of the work to be completed. Plan quantity shall be the basis of payment. No further measurements shall be taken.

TABLE OF BORROW UNCLASSIFIED EXCAVATION

| Site | Location | L/R | Dead Haul Distance (Sta) | Borrow Exc. (CuYd) | Dead Haul (CuYdSta) |
|------|----------|-----|--------------------------|--------------------|---------------------|
| 1 | I29 NB | R | 122.0 | 30690 | 3744180 |
| 2 | I29 SB | R | 232.7 | 6396 | 1488349 |
| | | | Totals: | 37086 | 5232529 |

The quantities listed in the above table for Dead Haul are for information only. The Dead Haul quantities are also included in the Table of Excavation Quantities by Balances.

The quantity listed in the above table for Borrow Excavation is also included in the Table of Excavation Quantities by Balances.

CORRUGATED METAL PIPE

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

PIPE FOR APPROACHES

Class II reinforced concrete pipe and high density polyethylene pipe may be substituted for corrugated metal pipe at approaches at no additional cost to the State.

Acceptance of high density polyethylene pipe will be by certification.

The end sections for the high density polyethylene pipe shall be metal, conform to the type of end section as shown in the plans, and be compatible with the high density polyethylene pipe.

SHRINKAGE FACTOR: Embankment 35%

TABLE OF EXCAVATION QUANTITIES BY BALANCES

| Location | Excavation (CuYd) | * Borrow Unclass. Exc. (CuYd) | Total Excavation (CuYd) | ** Dead Haul (CuYdSta) |
|----------------------|----------------------|--|-------------------------------|------------------------------|
| Exit 62 Project Site | 948 | 37086 | 38034 | 5232529 |
| Totals: | 948 | 37086 | 38034 | 5232529 |

* The quantities for these items are in the Estimate of Quantities under their respective bid items.

** The quantities for these items are for information only.

TABLE OF UNCLASSIFIED EXCAVATION

| | |
|------------|-------|
| Excavation | 948 |
| Topsoil | 10320 |
| Total | 11268 |

BASE COURSE, SALVAGED, STATE FURNISHED

The existing stockpiles of salvaged material shall be hauled from the respective piles to the project site. Placement shall be as per the typical sections, plan notes and standard specifications. Base Course, State Furnished will be measured to the nearest 0.1 ton at the time it is hauled to the project.

For tax purposes, the Base Course, State Furnished material is valued at \$38,850.

TABLE OF BASE COURSE, SALVAGED, STATE FURNISHED

| Location | (Ton) |
|--------------------------|---------|
| SDDOT Yard in Canton, SD | 11655.0 |
| I29 NB MRM 60.34 | 1295.0 |
| Total: | 12950.0 |

TABLE OF GRAVEL SURFACING

| Location | (Ton) |
|----------------------|--------|
| Contractor Furnished | 1550.0 |
| Total: | 1550.0 |

PLACING TOPSOIL

The topsoil shall be used to construct permanent berms/mounds at the perimeter of the project site as per the provided details.

The estimated amount of topsoil to be placed is as follows:

| Location | Topsoil (CuYd) |
|----------------------|-------------------|
| Exit 62 Project Site | 10320 |
| Total: | 10320 |

PERMANENT SEEDING

The areas to be seeded comprise of all newly graded areas within the project limits except for the areas of granular material.

All permanent seed shall be planted in the topsoil at a depth of ¼" to ½".

All seed broadcast must be raked or dragged in (incorporated) within the top ¼" to ½" 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 B Permanent Seed Mixture shall consist of the following:

| Grass Species | Variety | Pure Live Seed (PLS) (Pounds/Acre) |
|--------------------|---|--|
| Western Wheatgrass | Flintlock, Rodan, Rosana | 7 |
| Switchgrass | Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer | 3 |
| Indiangrass | Holt, Tomahawk | 3 |
| Big Bluestem | Bison, Bonilla, Champ, Pawnee, Sunnyview | 3 |
| Canada Wildrye | Mandan | 2 |
| Total: | | 18 |

EROSION CONTROL WATTLE

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

The Contractor shall provide certification that the erosion control wattles do not contain noxious weed seeds.

The erosion control wattle provided shall be from the list shown below:

| Product | Manufacturer |
|--|---|
| Curlex Sediment Log | American Excelsior Company Arlington, TX Phone: 1-800-777-7645 www.amerexcel.com |
| Aspen Excelsior Logs | Western Excelsior Corporation Mancos, CO Phone: 1-800-833-8573 www.westernexcelsior.com |
| Amber Waves Straw Wattles | Limpert Environmental Litchfield, MN Phone: 1-320-693-2565 www.limpertenvironmental.com |
| Bio Logs | Flaxtech, LLC Rock Lake, ND Phone: 1-866-444-3529 |
| Winters Wattles | Winters Excelsior Company Birmingham, AL Phone: 1-800-248-7237 www.wintersexcelsior.com |
| Patriot Wood Fiber Logs and Patriot Straw Wattles | Patriot Environmental Products, Inc. Mesa, AZ Phone: 1-480-345-7293 www.digitaldesigncore.com/patriot/WattleSpecs.pdf |

MULCHING (GRASS HAY OR STRAW)

Bales with noxious weed contamination will be rejected and the Contractor will be required to remove the contaminated bales from the project.

HIGH FLOW SILT FENCE

The high flow silt fence fabric provided shall be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

<http://www.state.sd.us/Applications/HC54ApprovedProducts/main.asp>

High flow silt fence shall be installed at locations determined by the Engineer during construction and at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

REMOVE SILT FENCE

Silt fence shall be removed when vegetation is established. Some or all of the silt fence may be left on the project until vegetation is established.

MUCKING SILT FENCE

Mucking silt fence shall consist of removing muck trapped by the silt fence and spreading the material evenly over the adjacent area to conform to the existing grade.

STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

(The numbers right of the title headings are reference numbers to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES)

❖ **SITE DESCRIPTION (4.2 1)**

- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
 - Clearing and grubbing
 - Excavation/borrow
 - Grading and shaping
 - Filling
 - Cutting and filling
 - Other (describe):
- **Total Project Area** 11.23 **(4.2 1.b.)**
- **Total Area To Be Disturbed** 11.23 **(4.2 1.b.)**
- **Existing Vegetative Cover (%)** 0.0 (Cultivated farm field)
- **Soil Properties:** AASHTO Soil Classification A-4 & A-5 **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** **(4.2 1.e.)**

❖ **ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)**

(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)

- **Install perimeter protection where runoff sheets from the site.**
- **Install channel and ditch bottom protection.**
- **Clearing and grubbing.**
- **Remove and store topsoil.**
- **Stabilize disturbed areas.**
- **Install inlet and culvert protection after completing storm drainage and other utility installations.**
- **Complete final grading.**
- **Complete traffic control installation and protection devices.**
- **Reseed areas disturbed by removal activities.**

❖ **EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))**

(Check all that apply)

- **Stabilization Practices (See Detail Plan Sheets)**
 - Temporary or Permanent Seeding
 - Sodding
 - Planting
 - Mulching (Straw or Cellulose Fiber)
 - Erosion Control Blankets or Mats
 - Vegetation Buffer Strips
 - Roughened Surface (e.g. tracking)
 - Gabions-Gabion Mattress
 - Other

➤ **Structural Temporary Erosion and Sediment Controls**

- Silt Fence
- Straw Bale Check
- Temporary Berm
- Temporary Slope Drain
- Straw Wattles or Rolls
- Diversion Channels/Swales
- Channel Liners (TRM)
- Stone Rip Rap Sheet
- Rock Check Dams
- Sediment Traps/Basins
- Inlet Protection
- Outlet Protection
- Surface Inlet Protection
- Curb Inlet Protection
- Stabilized Construction Entrances
- Other

➤ **Wetland Avoidance**

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes No If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

➤ **Storm Water Management (4.2 2.b., (1) and (2))**

Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.

➤ **Other Storm Water Controls (4.2 2.c., (1) and (2))**

- **Waste Disposal**
All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.
- **Hazardous Waste**
All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the contractor's on-site representative will be responsible for seeing that these practices are followed.
- **Sanitary Waste**
Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management contractor or as required by any local regulations.

❖ **Maintenance and Inspection (4.2 3. and 4.2 4.)**

- **Maintenance and Inspection Practices**
 - Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
 - All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.

➤ **Maintenance and Inspection Practices(Continued)**

- Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches $\frac{1}{3}$ of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches $\frac{1}{2}$ the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and contractor's site superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

❖ **Non-Storm Water Discharges (3.0)**

The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- Discharges from water line flushing.
- Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- Uncontaminated ground water associated with dewatering activities.

❖ **Materials Inventory (4.2. 2.c.(2))**

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION" (check all that apply).

- Concrete and Portland Cement
- Detergents
- Paints
- Metals
- Bituminous Materials
- Petroleum Based Products
- Cleaning Solvents
- Wood
- Cure
- Texture
- Chemical Fertilizers
- Other

❖ **Spill Prevention (4.2 2.c.(2))**

➤ **Material Management**

▪ **Housekeeping**

- Only needed products will be stored on-site by the contractor.
- Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
- Products must be stored in original containers and labeled.
- Material mixing will be conducted in accordance with the manufacturer's recommendations.
- When possible, all products will be completely used before properly disposing of the container off site.
- The manufacturer's directions for disposal of materials and containers will be followed.
- The contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
- Dust generated will be controlled in an environmentally safe manner.
- Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.

▪ **Hazardous Materials**

- Products will be kept in original containers unless the container is not resealable.
- Original labels and material safety data sheets will be retained in a safe place to relay important product information.
- If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, degreasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
- Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
- Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

➤ **Product Specific Practices (6.8)**

▪ **Petroleum Products**

All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

▪ **Fertilizers**

Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

▪ **Paints**

All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.

▪ **Concrete Trucks**

Contractors will provide designated truck washout areas on the site. These areas must be self contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.

➤ **Spill Control Practices (4.2 2 c.(2))**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill clean up will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for clean up purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

➤ **Spill Response (4.2 2 c.(2))**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the contractor at the site.

- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean up will receive training by the contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

❖ **Spill Notification**

In the event of a spill, the contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- A reportable spill is a quantity of 25 gallons or more or any spill of oil which: 1) violates water quality standards, 2) produces a "sheen" on a surface water, or 3) causes a sludge or emulsion must be reported immediately to the National Response Center .
- Any spill of oil or hazardous substance to waters of the state must be reported immediately by telephone to the SD DENR.

❖ **Construction Changes (4.4)**

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP plan (DOT 298) and drawings to reflect the needed changes. Copies of changes will be routed per DOT 298. Copies of forms and the SWPPP will be retained in a designated place for review over the course of the project.


❖ **CERTIFICATIONS**

➤ **Certification of Compliance with Federal, State, and Local Regulations**

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

➤ **South Dakota Department of Transportation**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Authorized Signature (See the General Permit, Section 6.7.1.C.)

➤ **Prime Contractor**

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Authorized Signature

❖ **CONTACT INFORMATION**

➤ **Contractor Information:**

- Prime Contractor Name:
- Contractor Contact Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell: Fax:

➤ **Erosion Control Supervisor**

- Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell: Fax:

➤ **SDDOT Project Engineer**

- Name:
- Business Address:
- Job Office Location:
- City: State: Zip:
- Office Phone: Field: Cell:
- Fax:

➤ **SD DENR Contact Spill Reporting**

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➤ **SD DENR Contact for Hazardous Materials.**

- (605) 773-3153

➤ **National Response Center Hotline**

- (800) 424-8802

08/12/2009

| | | | |
|--------------------------------|-----------|-------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | C 410B231 | 9 | 28 |

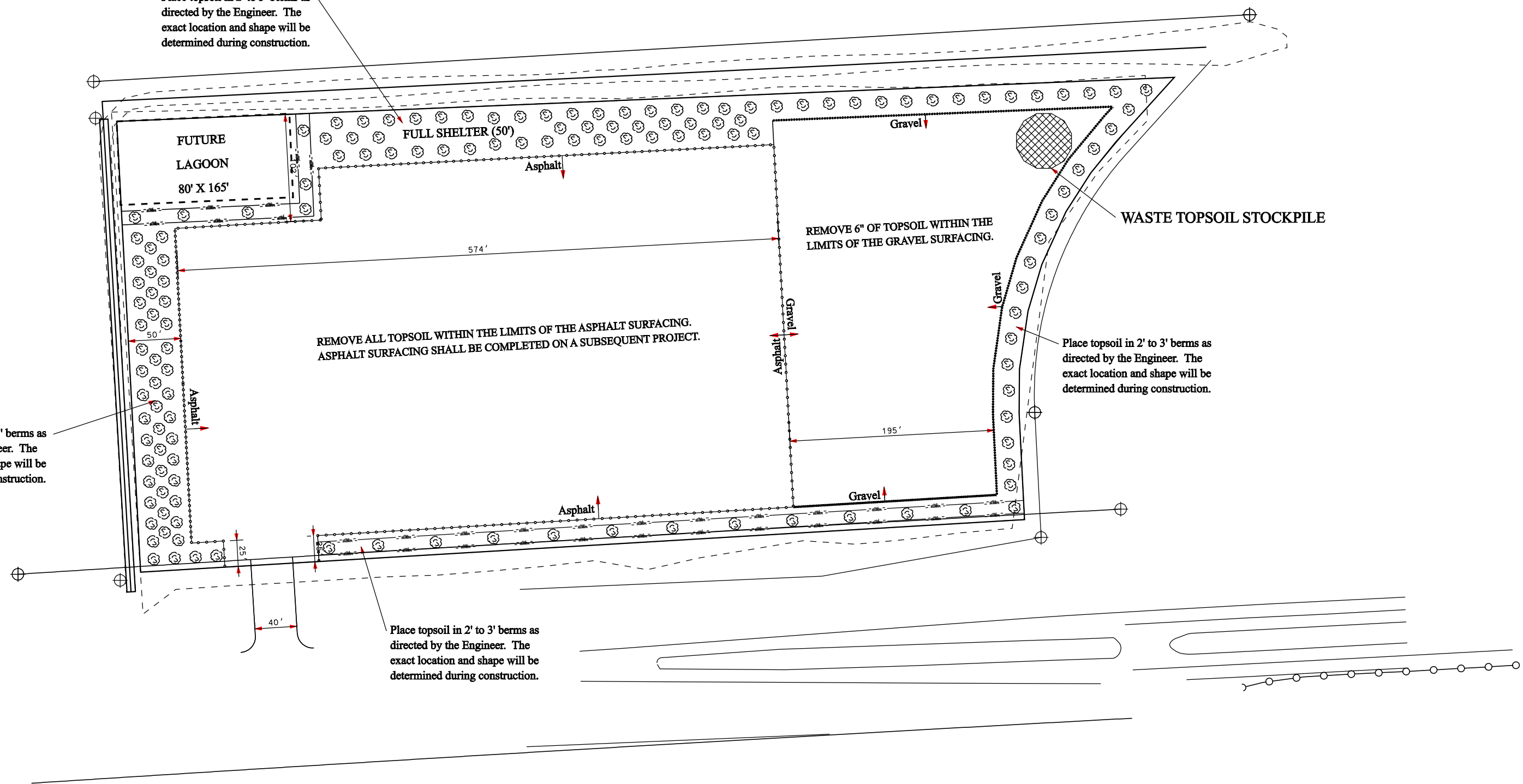
ITEMIZED LIST FOR TRAFFIC CONTROL

| SIGN CODE | SIGN SIZE | DESCRIPTION | NUMBER REQUIRED | UNITS PER SIGN | UNITS |
|--------------------|-----------|----------------------------------|--------------------|-------------------|-------|
| G20-2 | 36" x 18" | END ROAD WORK | 2 | 17 | 34 |
| R2-1 | 30" x 36" | SPEED LIMIT 65 | 2 | 23 | 46 |
| R2-1 | 30" x 36" | SPEED LIMIT 75 | 1 | 23 | 23 |
| R2-1 | 30" x 36" | SPEED LIMIT 45 | 1 | 23 | 23 |
| W3-5 | 48" x 48" | SPEED REDUCTION (___ MPH) | 2 | 34 | 68 |
| W4-2 | 48" x 48" | LEFT OR RIGHT LANE ENDS (SYMBOL) | 2 | 34 | 68 |
| W8-6 | 48" x 48" | TRUCK CROSSING | 2 | 34 | 68 |
| W20-1 | 48" x 48" | ROAD WORK AHEAD | 4 | 34 | 136 |
| W20-5 | 48" x 48" | LT. OR RT. LANE CLOSED AHEAD | 2 | 34 | 68 |
| W20-7a | 48" x 48" | FLAGGER | 1 | 34 | 34 |
| SPECIAL | 30" x 24" | FINES DOUBLED | 2 | 18 | 36 |
| TOTAL UNITS | | | 604 | | |

TOPSOIL AND SURFACING DETAILS



Place topsoil in 2' to 3' berms as directed by the Engineer. The exact location and shape will be determined during construction.



PLOT SCALE - 100,000,000:1,000,000


PLOTTED FROM - TRSE12113

FILE - N:\EMPLOYEE\FOLDERS\KURT\CANTON MAINTENANCE SHOP\TOPSOILREMOVAL\A\OBLD\NAME - 11


PLOT SCALE - 1/8" = 100.000000' 1.000000'

PLOTTED FROM - TRSE12113

TABLE OF EROSION AND SEDIMENT CONTROLS

Install 9" Erosion Control Wattles in the Ditch Channel Bottom at the Following Locations: 

- 01+00 Lt. -- Across Ditch = 12'
- 03+00 Lt. -- Across Ditch = 12'
- 05+00 Lt. -- Across Ditch = 12'
- 07+00 Lt. -- Across Ditch = 12'
- 09+00 Lt. -- Across Ditch = 12'
- 11+00 Lt. -- Across Ditch = 12'
- 00+79 -- Across Ditch = 12'
- 00+79 Lt. -- Across Ditch = 12'
- 00+79 Rt. -- Across Ditch = 12'

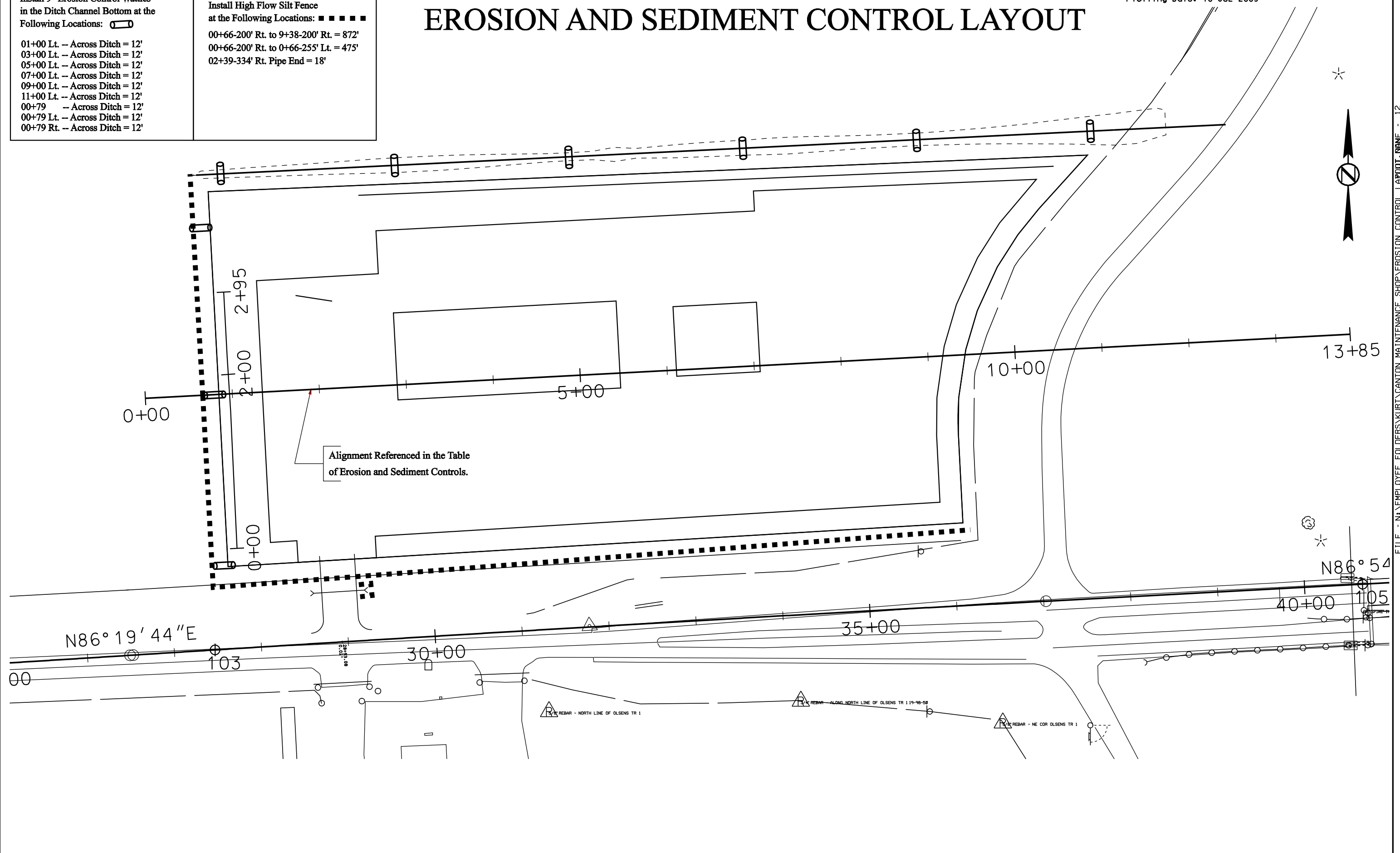
Install High Flow Silt Fence at the Following Locations: 

- 00+66-200' Rt. to 9+38-200' Rt. = 872'
- 00+66-200' Rt. to 0+66-255' Lt. = 475'
- 02+39-334' Rt. Pipe End = 18'

EROSION AND SEDIMENT CONTROL LAYOUT

| | | | |
|-----------------------|----------------------|-------------|--------------------|
| STATE OF SOUTH DAKOTA | PROJECT C 410B231 | SHEET 12 | TOTAL SHEETS 28 |
|-----------------------|----------------------|-------------|--------------------|

Plotting Date: 10-JUL-2009



FILE - N:\EMPLOYEE\FOLDERS\KURT\CANTON MAINTENANCE SHOP\EROSION CONTROL LAYOUT.DWG - 12

N86° 19' 44" E

N86° 54'

REBAR - NORTH LINE OF OLSENS TR 1

REBAR - ALONG NORTH LINE OF OLSENS TR 119-98-58

REBAR - NE COR OLSENS TR 1

PLOT SCALE - 200,000000:1,000000

PLOTTED FROM - TRSE12113

BORROW PIT INFORMATION SHEET

| | | | |
|-----------------------------|-----------|-------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | C 410B231 | 13 | 28 |

Plotting Date: 10-JUL-2009

PIT NO. BORROW Pit #1

PROJECT NO. C 410B231 COUNTY Lincoln

LOCATION S30-T98N-R50W and S31-T98N-R50W

PIT OWNER State of South Dakota ADDRESS _____

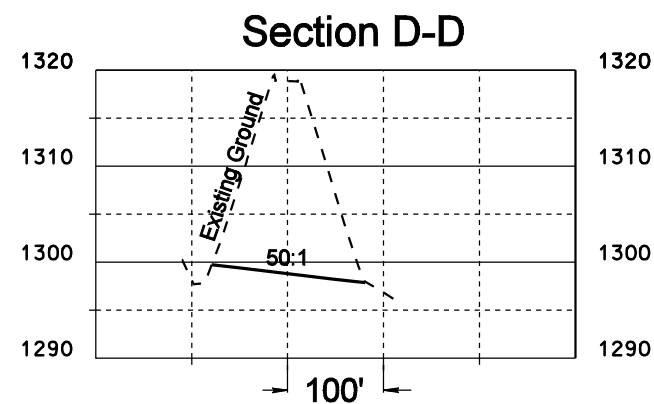
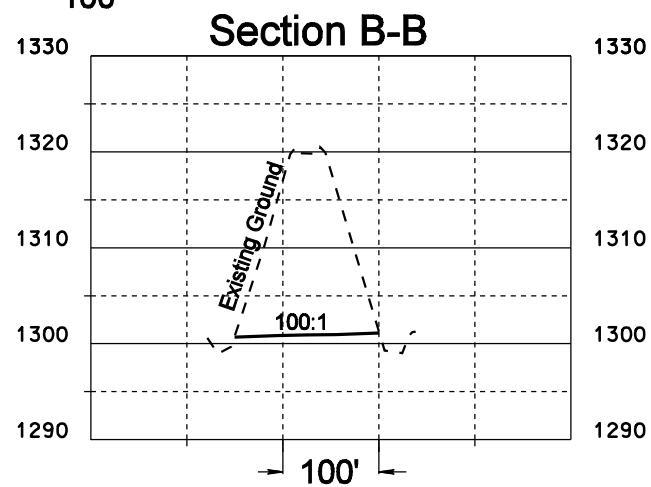
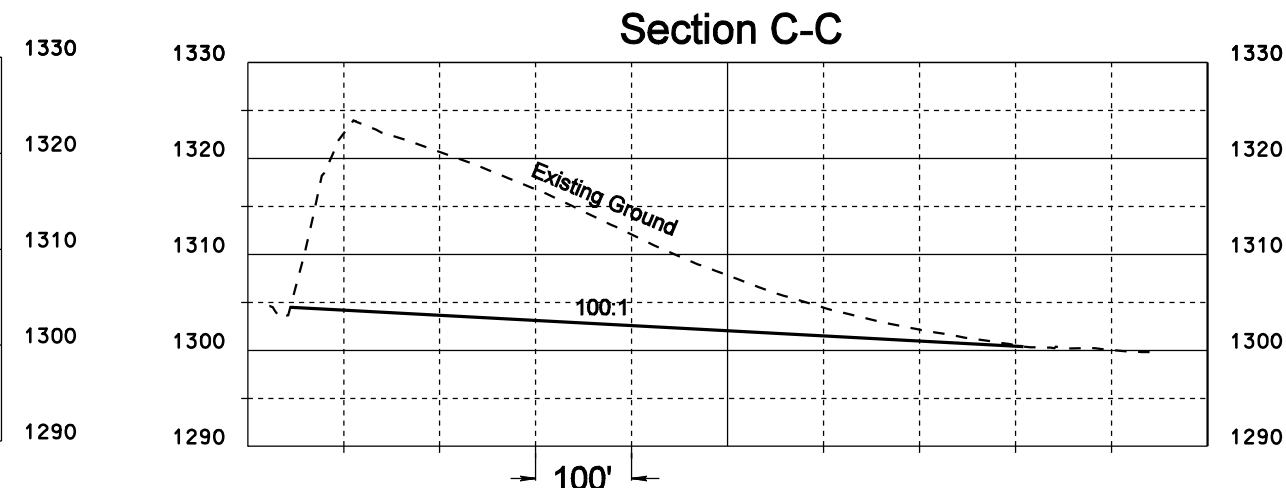
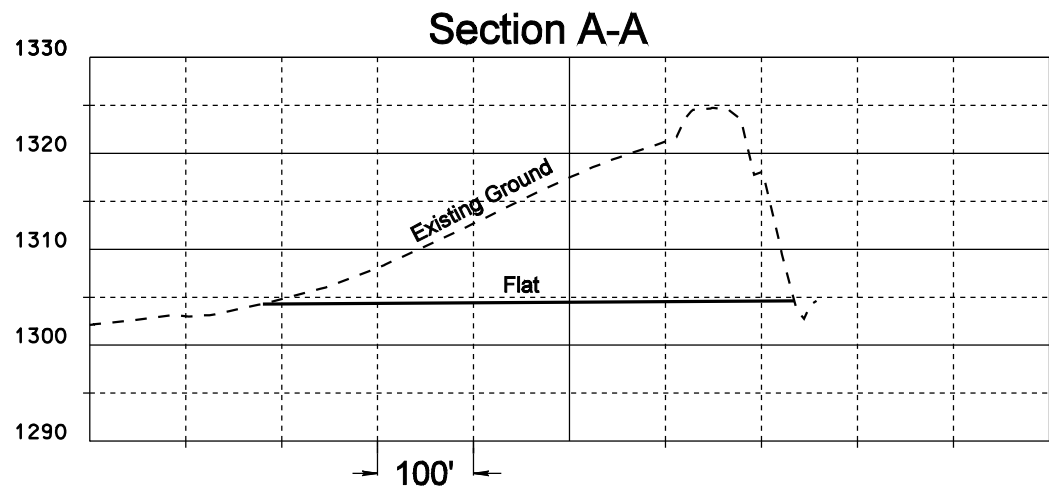
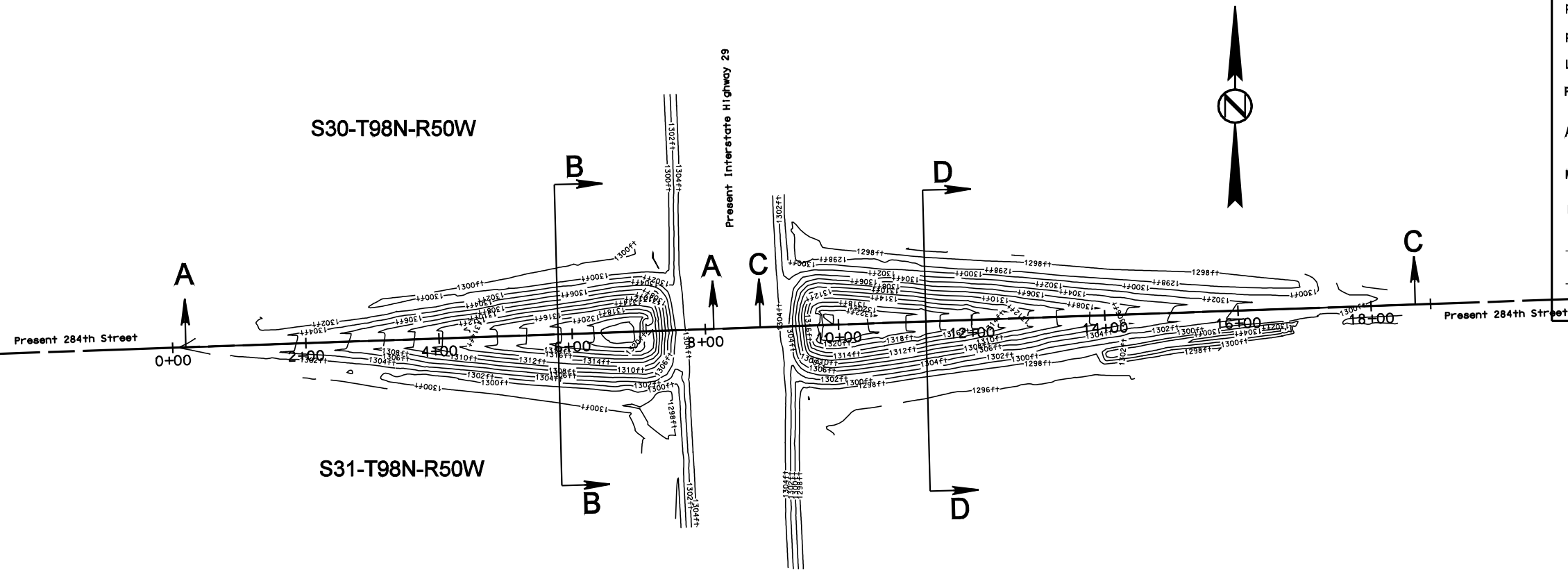
AVERAGE DEPTH OF MATERIAL _____ AVERAGE DEPTH OF TOPSOIL 4"

MATERIAL AVAILABLE 50,000+ CU.YDS.

ESTIMATED CU. YDS. OF TOPSOIL 2,132 (BY OTHERS)

2.3 mile DEADHAUL FOR EAST BERM

4.4 mile DEADHAUL FOR WEST BERM



200 FT

STANDARD PIT INFORMATION SHEET
SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

FILE - N:\EMPLOYEE\FOLDERS\KURT\CANTON MAINTENANCE SHOP\284TH STREET BRIDGE\BRM\BEGN 13

HORIZONTAL ALIGNMENT DATA

FUTURE US18 ALIGNMENT

| TYPE | Station | | Northing (Y) | Easting (X) |
|------|-----------|---------------|-----------------|--------------|
| POB | 0+00.00 | | 372677.4527 | 2905551.1138 |
| | | TL= 1500.0000 | | |
| | | N 87°33'40" E | | |
| PI | 15+00.00 | | 372741.2866 | 2907049.7549 |
| | | TL= 97.0256 | | |
| | | N 87°33'27" E | | |
| PC | 15+97.03 | | 372745.4217 | 2907146.6924 |
| PI | 21+23.88 | Dc= 0°07'00"L | Delta= 1°13'43" | 372767.8753 |
| PT | 26+50.70 | | 372801.6106 | 2908198.8473 |
| | | TL= 0.0045 | | |
| | | N 86°19'44" E | | |
| PC | 26+50.70 | | 372801.6108 | 2908198.8518 |
| PI | 31+77.54 | Dc= 0°03'19"R | Delta= 0°34'57" | 372835.3449 |
| PT | 37+04.37 | | 372863.7317 | 2909250.6831 |
| | | TL= 763.4638 | | |
| | | N 86°54'41" E | | |
| PC | 44+67.84 | | 372904.8682 | 2910013.0379 |
| PI | 50+12.62 | Dc= 0°14'34"R | Delta= 2°38'45" | 372934.2220 |
| PT | 55+57.22 | | 372938.4323 | 2911101.8038 |
| | | TL= 0.0022 | | |
| | | N 89°33'26" E | | |
| PC | 55+57.22 | | 372938.4323 | 2911101.8061 |
| PI | 61+04.45 | Dc= 0°10'18"L | Delta= 1°52'43" | 372942.6615 |
| PT | 66+51.59 | | 372964.8275 | 2912195.8087 |
| | | TL= 5435.6117 | | |
| | | N 87°40'43" E | | |
| PC | 120+87.20 | | 373184.9991 | 2917626.9595 |
| PI | 126+12.30 | Dc= 0°15'21"L | Delta= 2°41'14" | 373206.2684 |
| PT | 131+37.20 | | 373252.1115 | 2918674.7160 |
| | | TL= 356.4865 | | |
| | | N 84°59'29" E | | |
| PC | 134+93.69 | | 373283.2343 | 2919029.8414 |
| PI | 140+18.79 | Dc= 0°15'31"R | Delta= 2°43'01" | 373329.0777 |
| PT | 145+43.69 | | 373350.0751 | 2920077.6132 |
| | | TL= 2216.8092 | | |
| | | N 87°42'30" E | | |
| PC | 167+60.50 | | 373438.7199 | 2922292.6493 |
| PI | 172+85.50 | Dc= 0°04'15"R | Delta= 0°44'36" | 373459.7136 |
| PT | 178+10.50 | | 373473.8993 | 2923342.0525 |
| | | TL= 4216.6619 | | |
| | | N 88°27'06" E | | |
| PC | 220+27.16 | | 373587.8333 | 2927557.1748 |
| PI | 225+52.17 | Dc= 0°05'13"L | Delta= 0°54'48" | 373602.0191 |
| PT | 230+77.16 | | 373624.5680 | 2928606.5209 |
| | | TL= 1584.7485 | | |
| | | N 87°32'18" E | | |
| PC | 246+61.91 | | 373692.6320 | 2930189.8071 |
| PI | 251+86.91 | Dc= 0°02'20"L | Delta= 0°24'26" | 373715.1805 |
| PT | 257+11.91 | | 373741.4564 | 2931238.6691 |
| | | TL= 1809.3080 | | |
| | | N 87°07'52" E | | |
| PC | 275+21.21 | | 373832.0108 | 2933045.7096 |
| PI | 282+86.45 | Dc= 0°22'35"R | Delta= 5°45'21" | 373870.3101 |
| PT | 290+50.39 | | 373831.7668 | 2934574.2466 |
| | | TL= 0.0050 | | |
| | | S 87°06'46" E | | |
| PC | 290+50.40 | | 373831.7666 | 2934574.2516 |
| PI | 297+98.18 | Dc= 0°22'01"L | Delta= 5°28'59" | 373794.1026 |
| PT | 305+44.81 | | 373827.9724 | 2936068.0866 |
| | | TL= 2067.3281 | | |
| | | N 87°24'14" E | | |
| PC | 326+12.14 | | 373921.6102 | 2938133.2930 |
| PI | 331+37.14 | Dc= 0°02'23"R | Delta= 0°25'06" | 373945.3897 |
| PT | 336+62.14 | | 373965.3401 | 2939182.3797 |
| | | TL= 1889.2439 | | |
| | | N 87°49'20" E | | |
| PC | 355+51.38 | | 374037.1325 | 2941070.2590 |
| PI | 362+00.02 | Dc= 0°01'09"L | Delta= 0°14'54" | 374061.7810 |

SITE BASELINE

| TYPE | Station | | Northing (Y) | Easting (X) |
|------|----------|---------------|--------------|--------------|
| POB | 0+00.00 | | 373096.7439 | 2908214.6461 |
| | | TL= 1385.3787 | | |
| | | N 86°57'48" E | | |
| POE | 13+85.38 | | 373170.1334 | 2909598.0796 |

284th Street Alignment

| TYPE | Station | | Northing (Y) | Easting (X) |
|------|----------|---------------|--------------|--------------|
| POB | 0+00.00 | | 362256.9930 | 2909367.6424 |
| | | TL= 1889.3208 | | |
| | | N 88°00'10" E | | |
| POE | 18+89.32 | | 362322.8370 | 2911255.8155 |

TYPICAL GRADING SECTIONS

| | | | |
|-----------------------------|-----------|--------------|-----------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | C 410B231 | 15 | 28 |

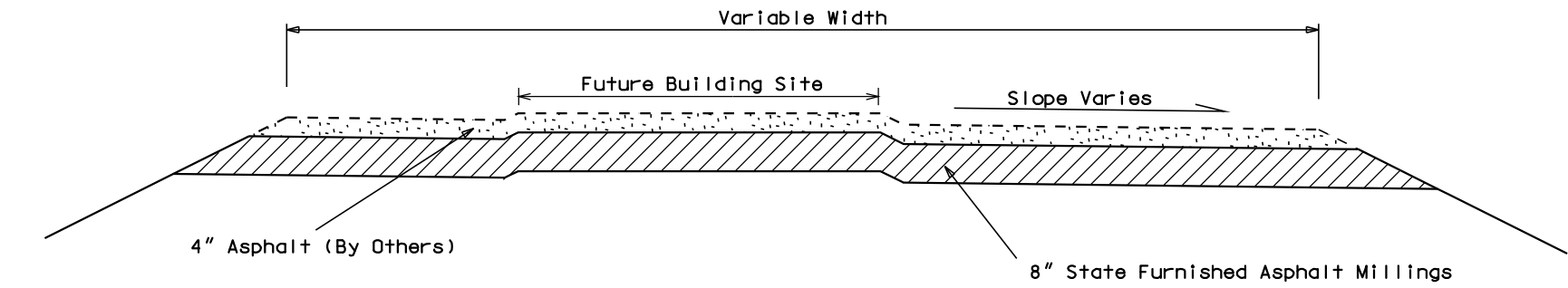
Plotting Date: 10-JUL-2009

PLOT SCALE - 200,000,000:1,000,000

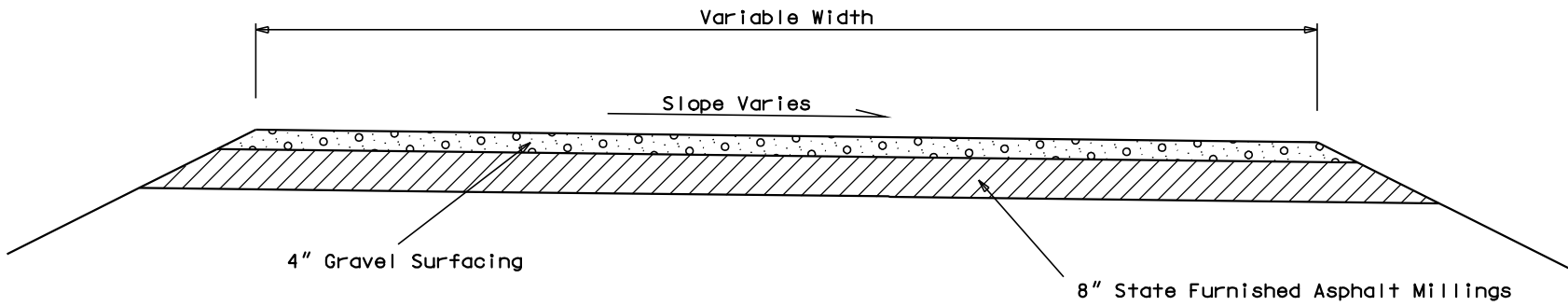
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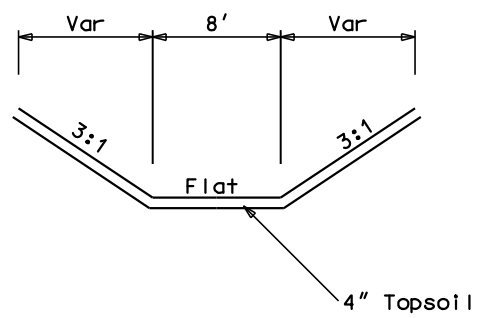
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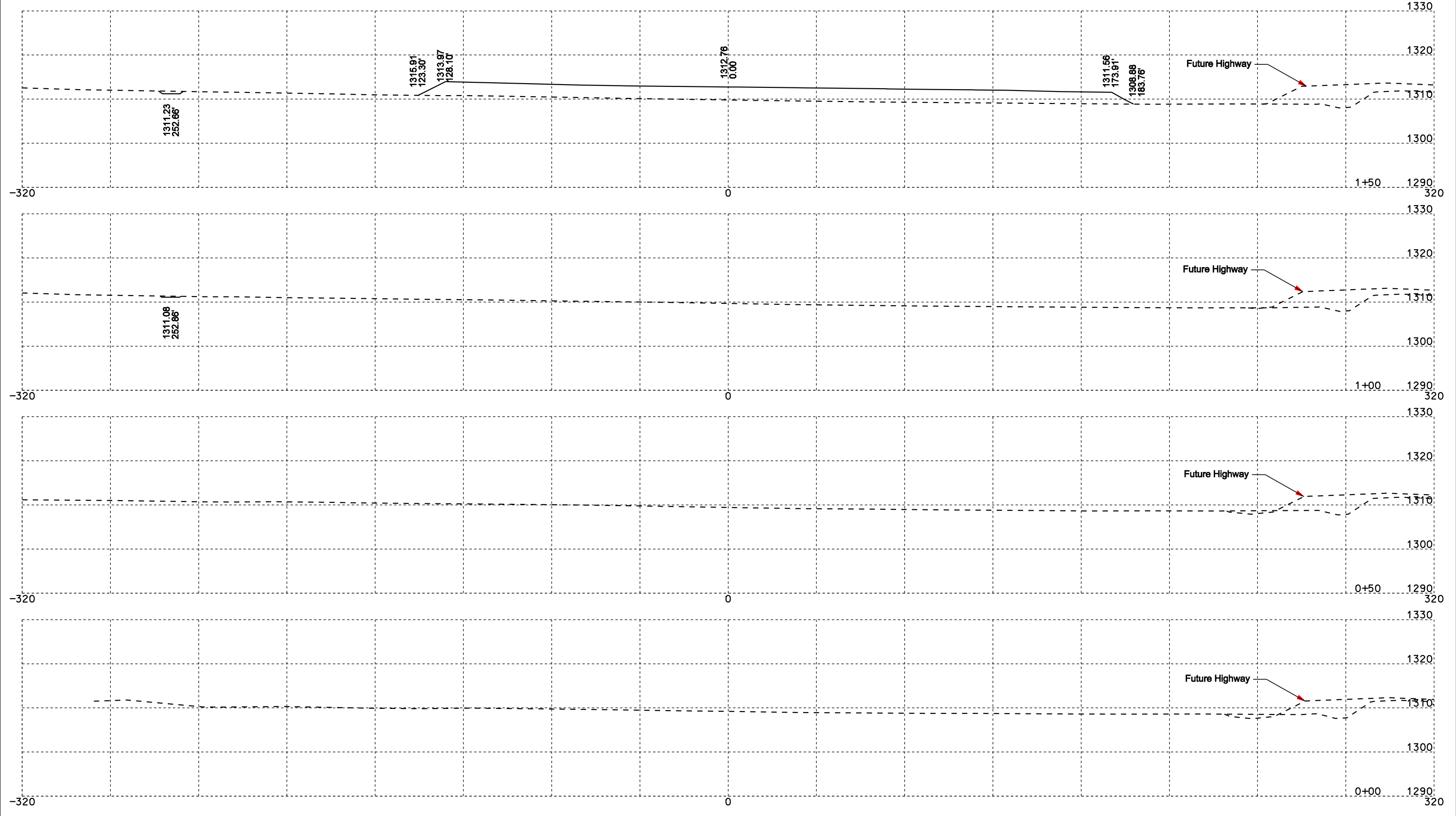
Typical Section for Gravel Area



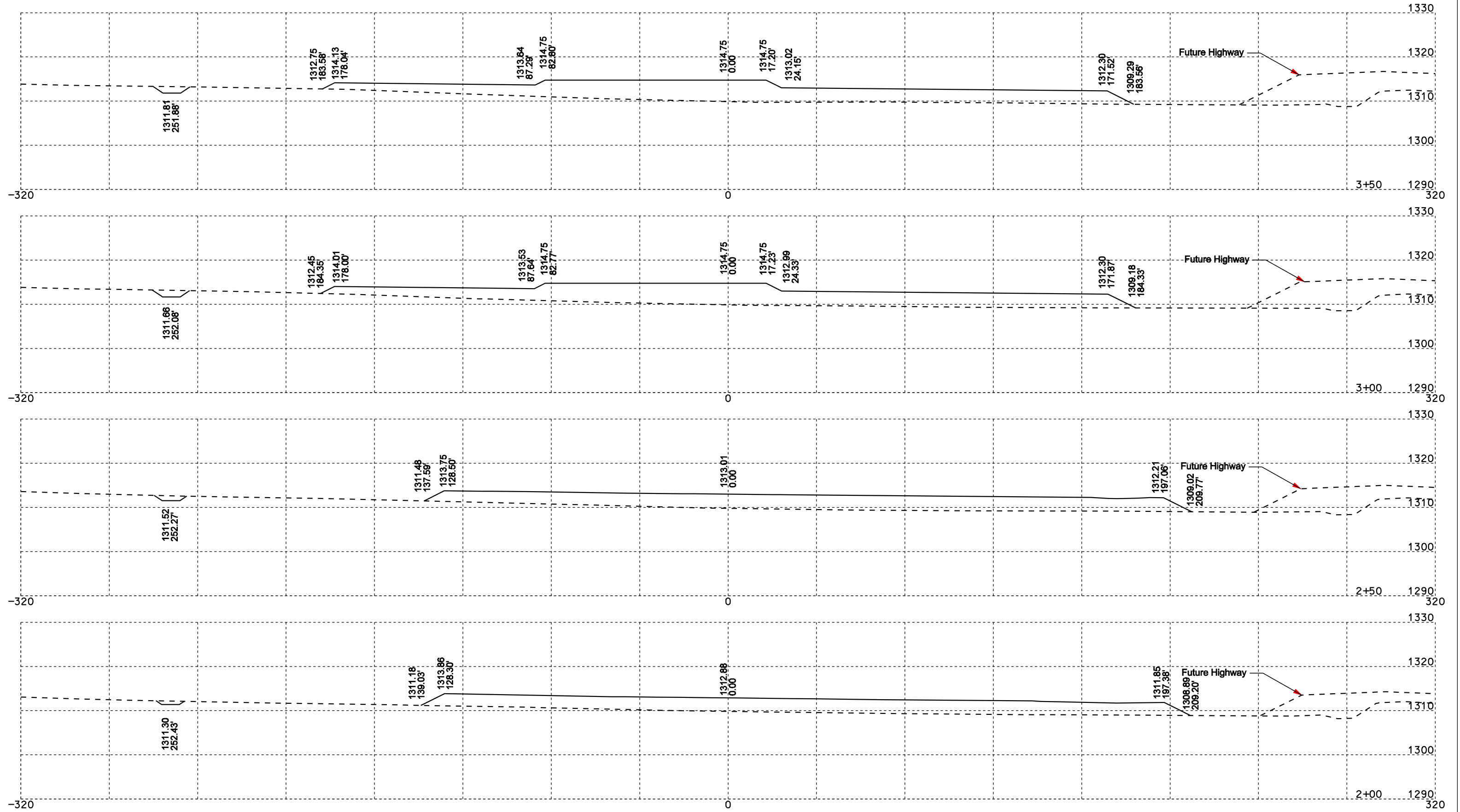
Typical Ditch Section



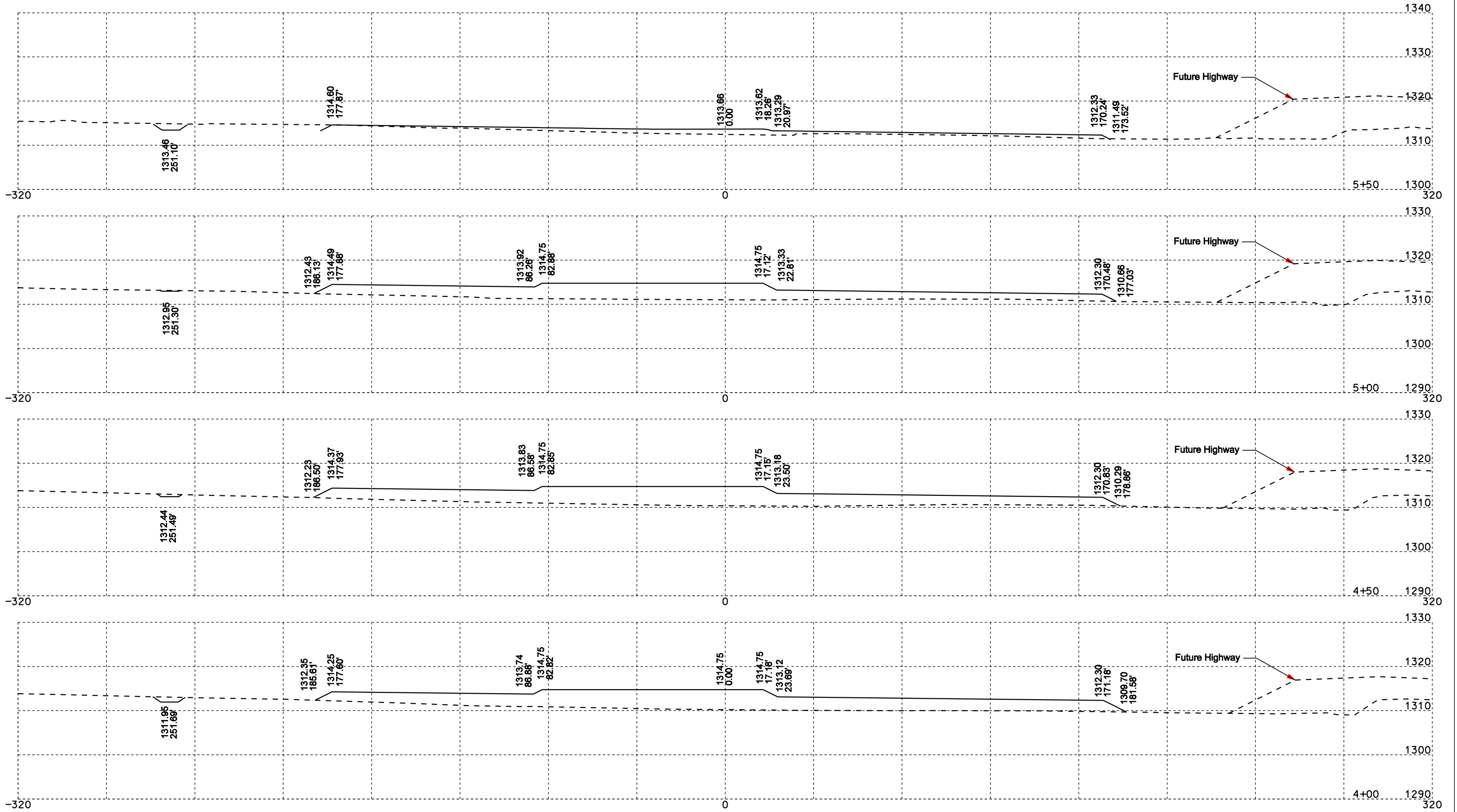
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| | C 410B231 | 16 | 28 |



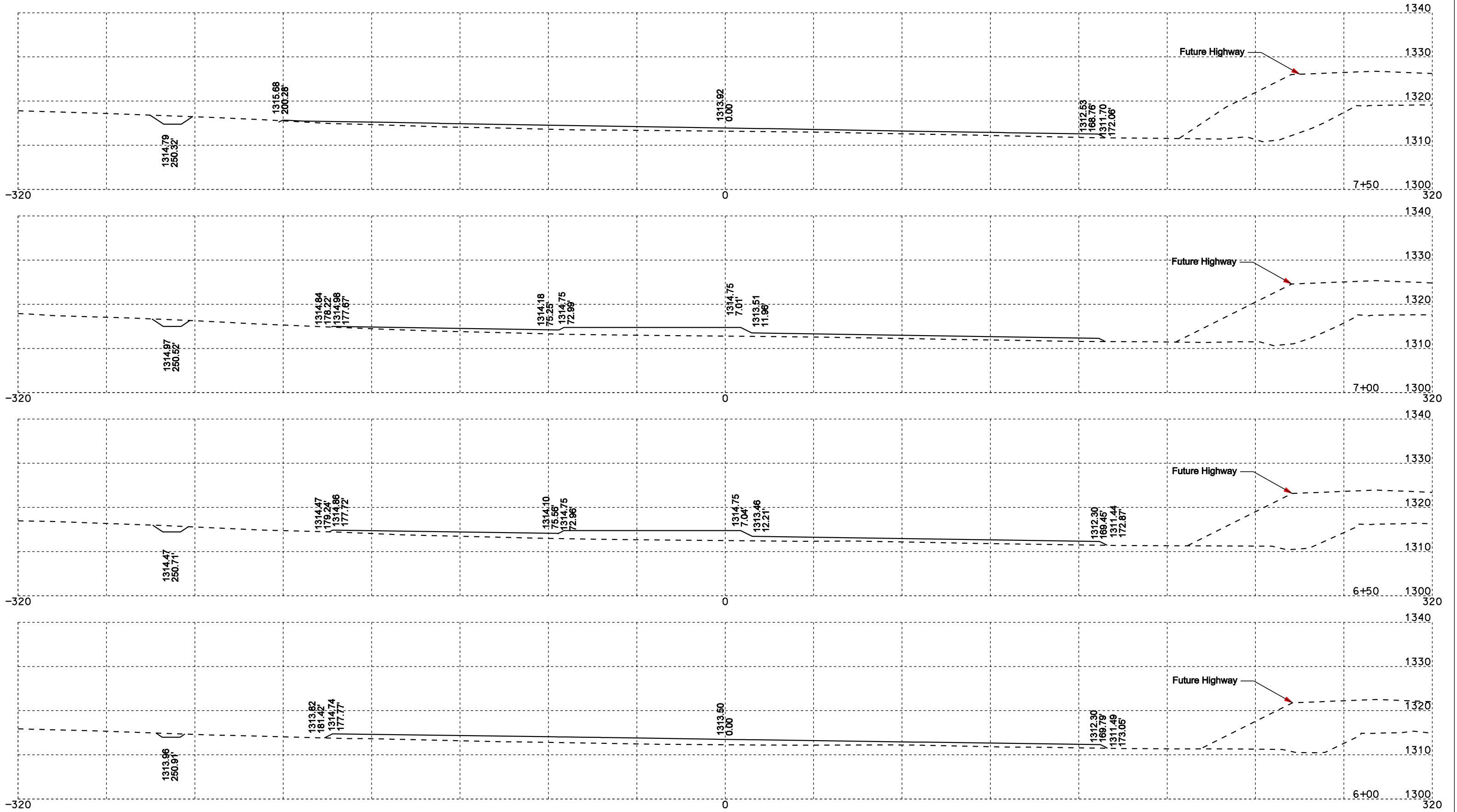
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| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
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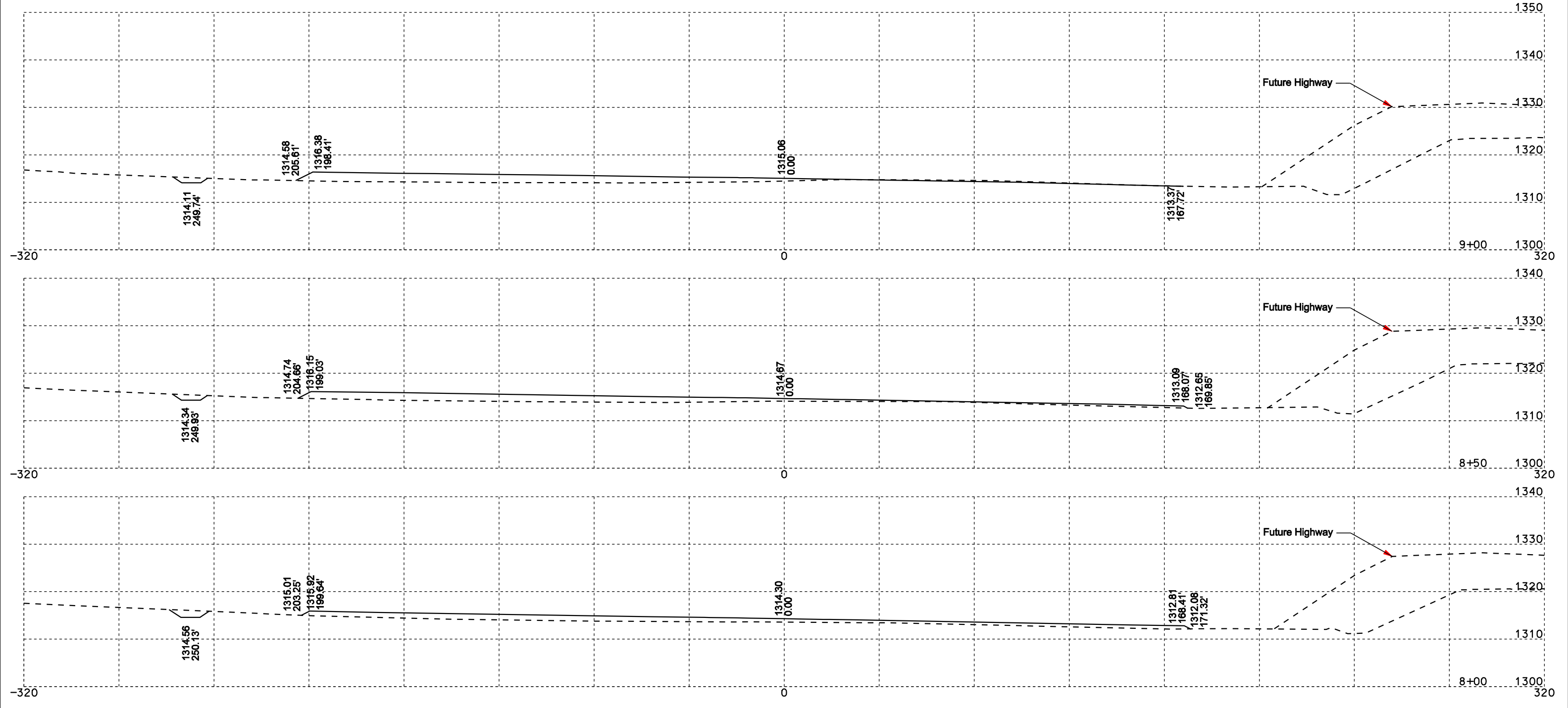


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| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
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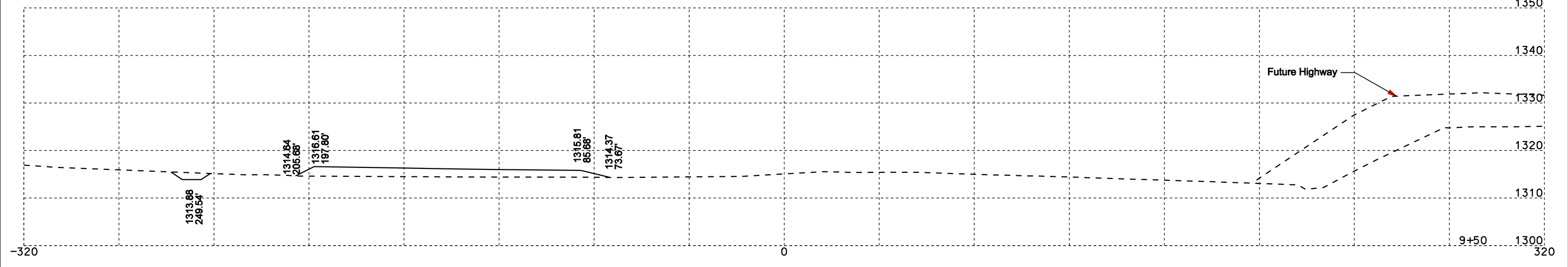
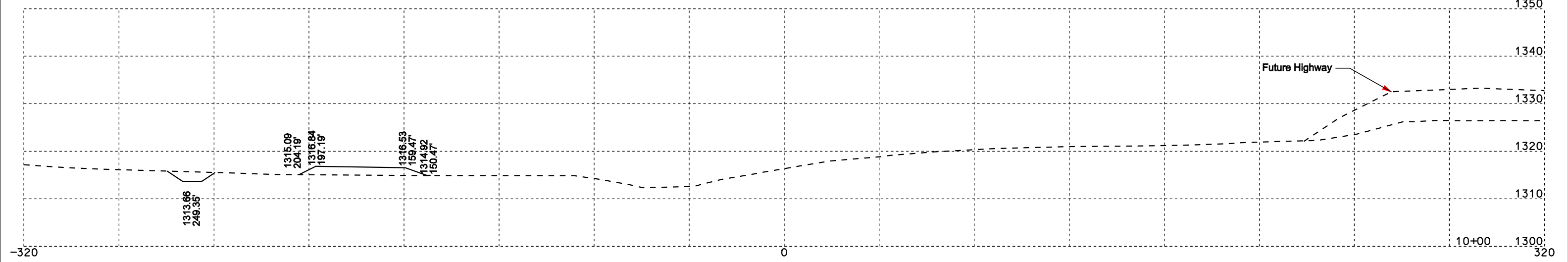
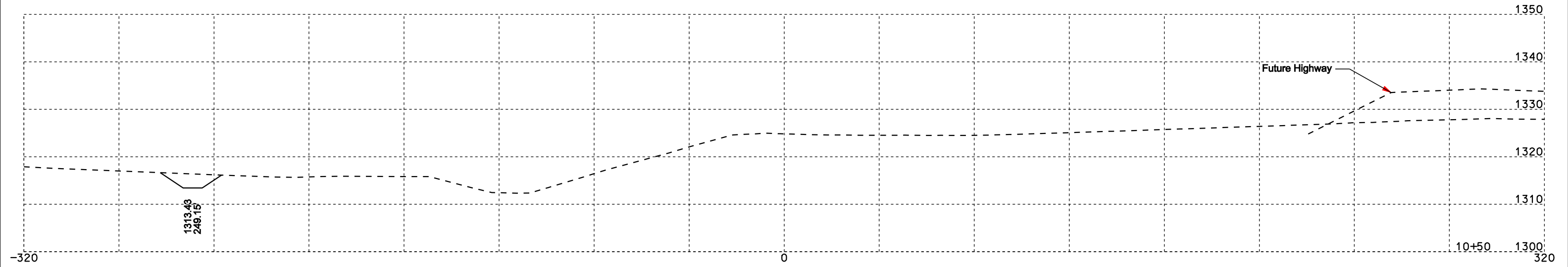


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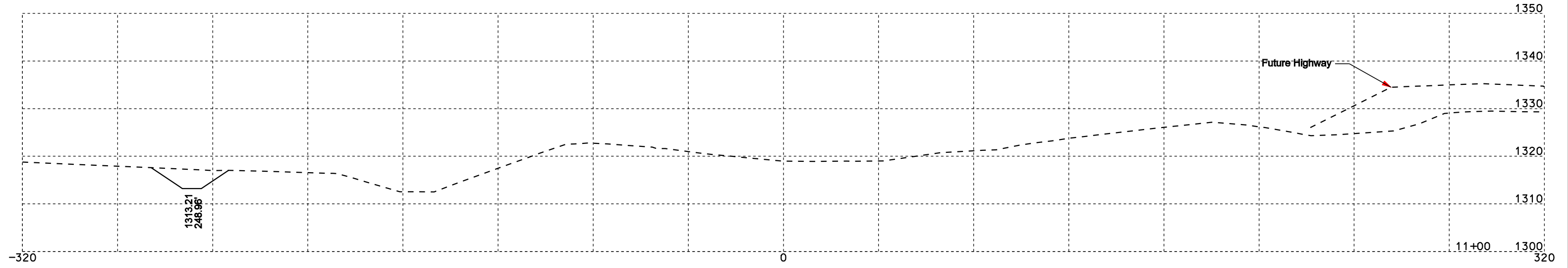
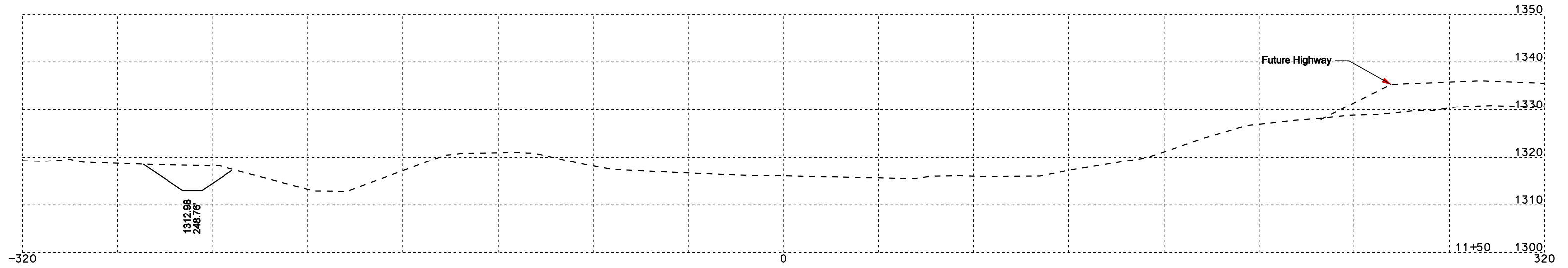




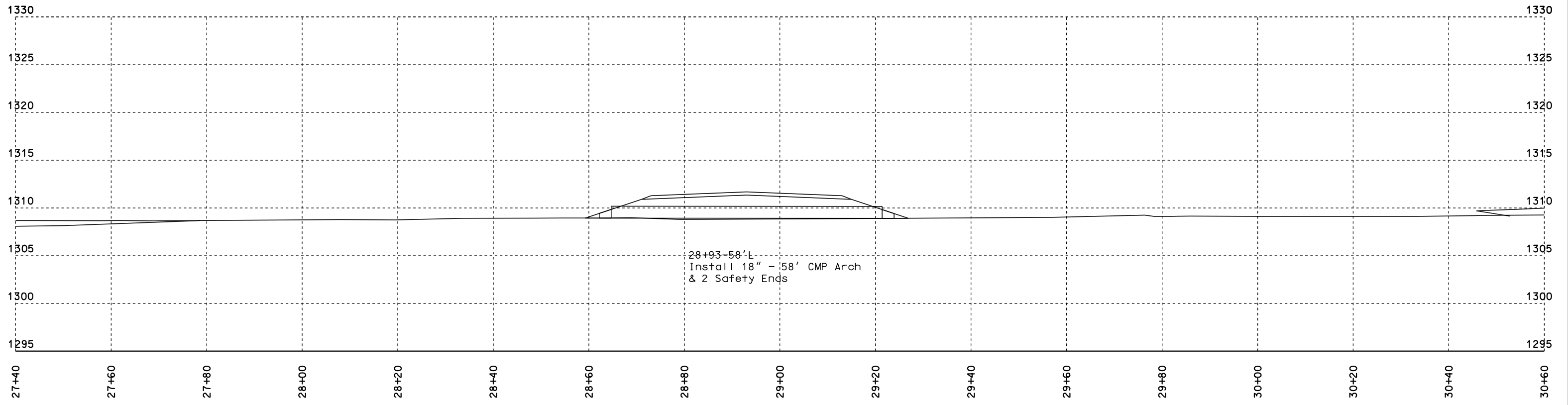
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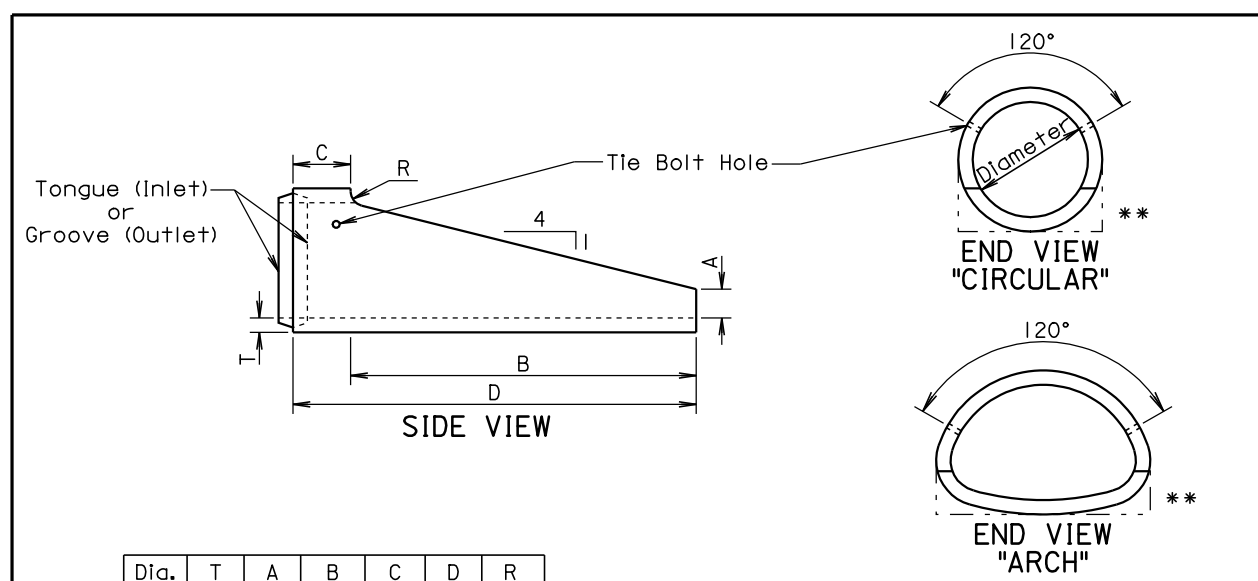
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| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | C 410B231 | 22 | 28 |



| | | | |
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| STATE OF SOUTH DAKOTA | PROJECT | SHEET NO. | TOTAL SHEETS |
| | C 410B231 | 23 | 28 |



Plotting Date: 10-JUL-2009

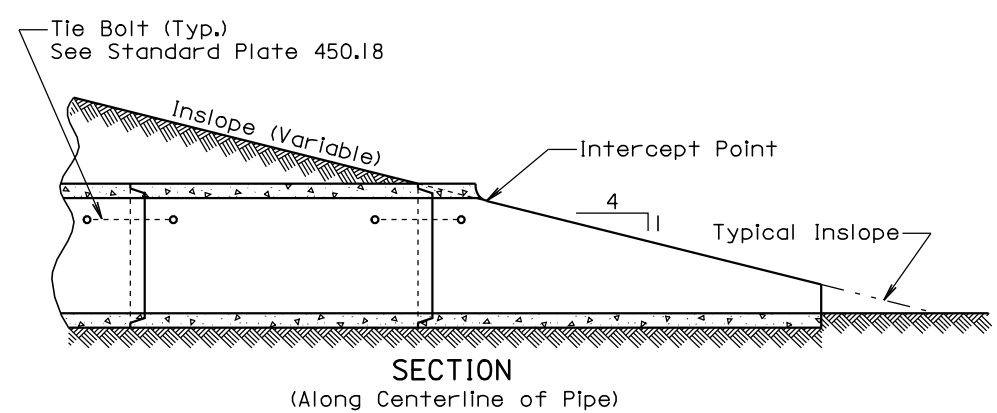


| Dia. (In.) | T (In.) | A (In.) | B (In.) | C (In.) | D (In.) | R (In.) |
|-------------------|------------|------------|------------|------------|------------|------------|
| FOR CIRCULAR PIPE | | | | | | |
| 24 | 3 | 6 | 72 | 12 | 84 | 3 |
| 30 | 3 1/2 | 7 1/2 | 90 | 12 | 102 | 3 1/2 |
| FOR ARCH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

ALTERNATE

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

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



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

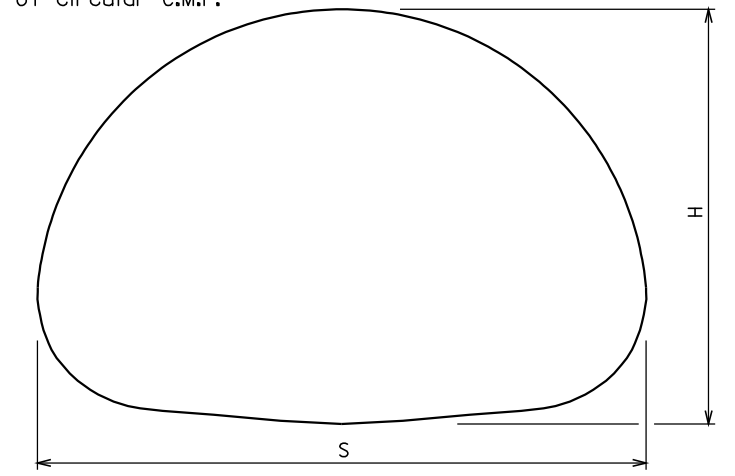
September 22, 2006

| | | |
|----------------------------------|-----------------------------|------------------------|
| S D D O T | R. C. P. SLOPED ENDS | PLATE NUMBER 450.13 |
| | | Sheet 1 of 1 |

Published Date: 2nd Qtr. 2009

| * Dia. (In.) | 2 2/3" x 1/2" CORRUGATIONS | | | 3" X 1" CORRUGATIONS | | |
|-----------------|----------------------------|-----------------|-------------------|----------------------|-----------------|-------------------|
| | S Span (In.) | H Rise (In.) | Area (Sq. Ft.) | S Span (In.) | H Rise (In.) | Area (Sq. Ft.) |
| 15 | 17 | 13 | 1.1 | | | |
| 18 | 21 | 15 | 1.6 | | | |
| 21 | 24 | 18 | 2.2 | | | |
| 24 | 28 | 20 | 2.8 | | | |
| 30 | 35 | 24 | 4.4 | | | |
| 36 | 42 | 29 | 6.4 | 40 | 31 | 7.0 |
| 42 | 49 | 33 | 8.7 | 46 | 36 | 9.4 |
| 48 | 57 | 38 | 11.4 | 53 | 41 | 12.3 |
| 54 | 64 | 43 | 14.3 | 60 | 46 | 15.6 |
| 60 | 71 | 47 | 17.6 | 66 | 51 | 19.3 |
| 66 | 77 | 52 | 21.3 | 73 | 55 | 23.2 |
| 72 | 83 | 57 | 25.3 | 81 | 59 | 27.4 |
| 78 | | | | 87 | 63 | 32.1 |
| 84 | | | | 95 | 67 | 37.0 |
| 90 | | | | 103 | 71 | 42.4 |
| 96 | | | | 112 | 75 | 48.0 |
| 102 | | | | 117 | 79 | 54.2 |
| 108 | | | | 128 | 83 | 60.8 |
| 114 | | | | 137 | 87 | 67.4 |
| 120 | | | | 142 | 91 | 74.5 |

* Equivalent diameter of circular C.M.P.



GENERAL NOTE:
 All dimensions measured from inside crest.

March 31, 2000

| | | |
|----------------------------------|---|------------------------|
| S D D O T | CORRUGATED METAL PIPE ARCH CULVERT | PLATE NUMBER 450.30 |
| | | Sheet 1 of 1 |

Published Date: 2nd Qtr. 2009

Username - TRSF12113

ARCH C.M.P. SAFETY ENDS

| Equiv. Dia. (In.) | (Inches) | | Min. Thick. | | Dimensions (Inches) | | | | L Dimensions | |
|-------------------|----------|------|-------------|------|---------------------|----|----|---------------|--------------|--------------|
| | Span | Rise | In. | Gage | A | H | W | Overall Width | Slope | Length (In.) |
| 18 | 21 | 15 | .064 | 16 | 8 | 6 | 27 | 43 | 6:1 | 30 |
| 21 | 24 | 18 | .064 | 16 | 8 | 6 | 30 | 46 | 6:1 | 48 |
| 24 | 28 | 20 | .064 | 16 | 8 | 6 | 34 | 50 | 6:1 | 60 |
| 30 | 35 | 24 | .079 | 14 | 12 | 9 | 41 | 65 | 6:1 | 84 |
| 36 | 42 | 29 | .109 | 12 | 12 | 9 | 48 | 72 | 6:1 | 114 |
| 42 | 49 | 33 | .109 | 12 | 16 | 12 | 55 | 87 | 6:1 | 138 |
| 48 | 57 | 38 | .109 | 12 | 16 | 12 | 63 | 95 | 6:1 | 168 |
| 54 | 64 | 43 | .109 | 12 | 16 | 12 | 70 | 102 | 6:1 | 198 |
| 60 | 71 | 47 | .109 | 12 | 16 | 12 | 77 | 109 | 6:1 | 222 |
| 72 | 83 | 57 | .109 | 12 | 16 | 12 | 89 | 121 | 6:1 | 282 |

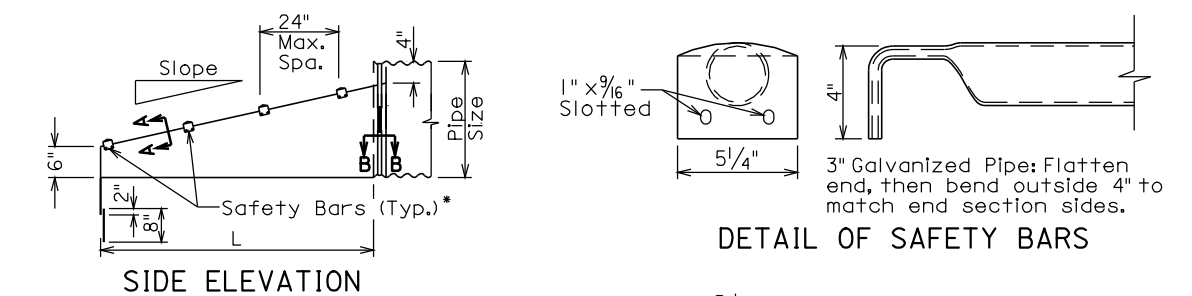
CIRCULAR C.M.P. SAFETY ENDS

| Pipe Dia. (In.) | Min. Thick. | | Dimensions (Inches) | | | | L Dimensions | |
|-----------------|-------------|------|---------------------|----|----|---------------|--------------|--------------|
| | In. | Gage | A | H | W | Overall Width | Slope | Length (In.) |
| 15 | .064 | 16 | 8 | 6 | 21 | 37 | 6:1 | 30 |
| 18 | .064 | 16 | 8 | 6 | 24 | 40 | 6:1 | 48 |
| 21 | .064 | 16 | 8 | 6 | 27 | 43 | 6:1 | 66 |
| 24 | .064 | 16 | 8 | 6 | 30 | 46 | 6:1 | 84 |
| 30 | .109 | 12 | 12 | 9 | 36 | 60 | 6:1 | 120 |
| 36 | .109 | 12 | 12 | 9 | 42 | 66 | 6:1 | 156 |
| 42 | .109 | 12 | 16 | 12 | 48 | 80 | 6:1 | 192 |
| 48 | .109 | 12 | 16 | 12 | 54 | 86 | 6:1 | 228 |
| 54 | .109 | 12 | 16 | 12 | 60 | 92 | 6:1 | 264 |
| 60 | .109 | 12 | 16 | 12 | 66 | 98 | 6:1 | 300 |

GENERAL NOTES:

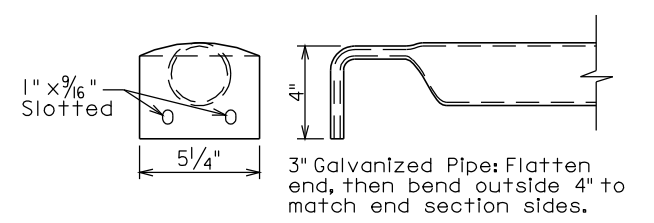
- Safety bars shall be attached to safety ends over 24" in diameter only.
- Safety ends shall be fabricated from galvanized steel conforming to the requirements of the Standard Specifications.
- Safety bars shall be fabricated from steel pipe conforming to the requirements of ASTM A-53 Schedule 40 Specifications.
- Slotted holes for safety bar attachment shall be provided for all end sections.
- Attachment to circular pipes 15" through 24" diameter shall be made with Type #1 straps. All other sizes shall be attached with Type #2 rods and lugs.
- When stated in the plans, optional toe plate extension shall be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension shall be same gauge as end section. Dimensions shall be overall width less 6" by 8" high.
- Installation shall be performed in accordance with the Standard Specifications.
- All work and materials required for fabrication and installation of safety ends shall be incidental to the bid items for the various sizes of safety ends.

March 31, 2000

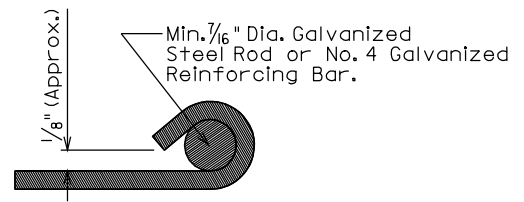


SIDE ELEVATION

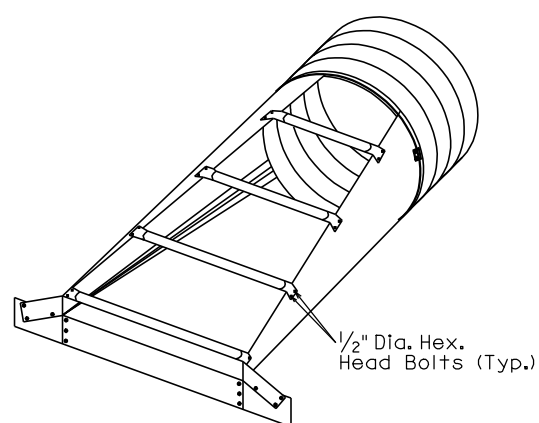
* Number of bars required will vary depending on the length of the End Section.



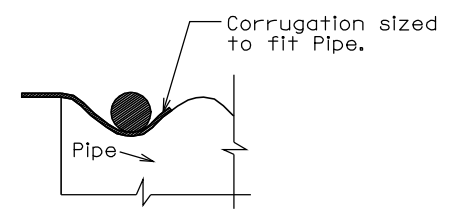
DETAIL OF SAFETY BARS



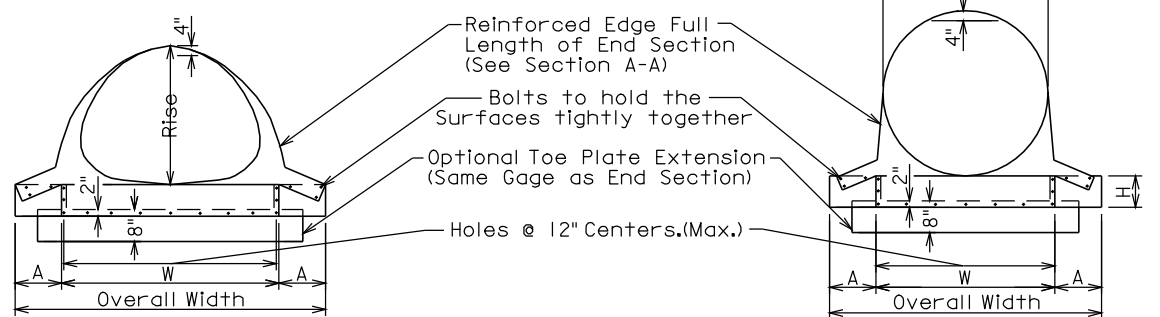
SECTION A-A



ISOMETRIC VIEW

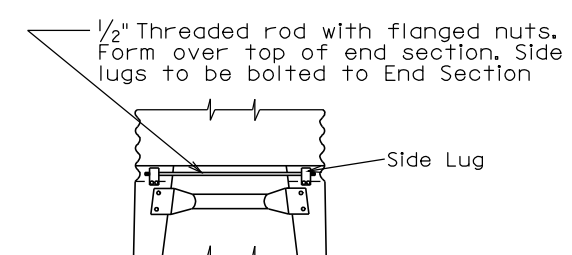


SECTION B-B

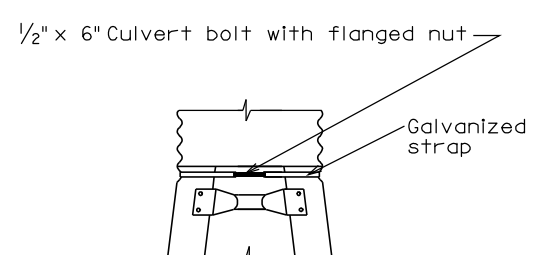


FRONT VIEW

FRONT VIEW



TYPE #2 CONNECTOR DETAIL
For 30" and Larger
21" x 15" and Larger



TYPE #1 CONNECTOR DETAIL
15" Through 24"

March 31, 2000

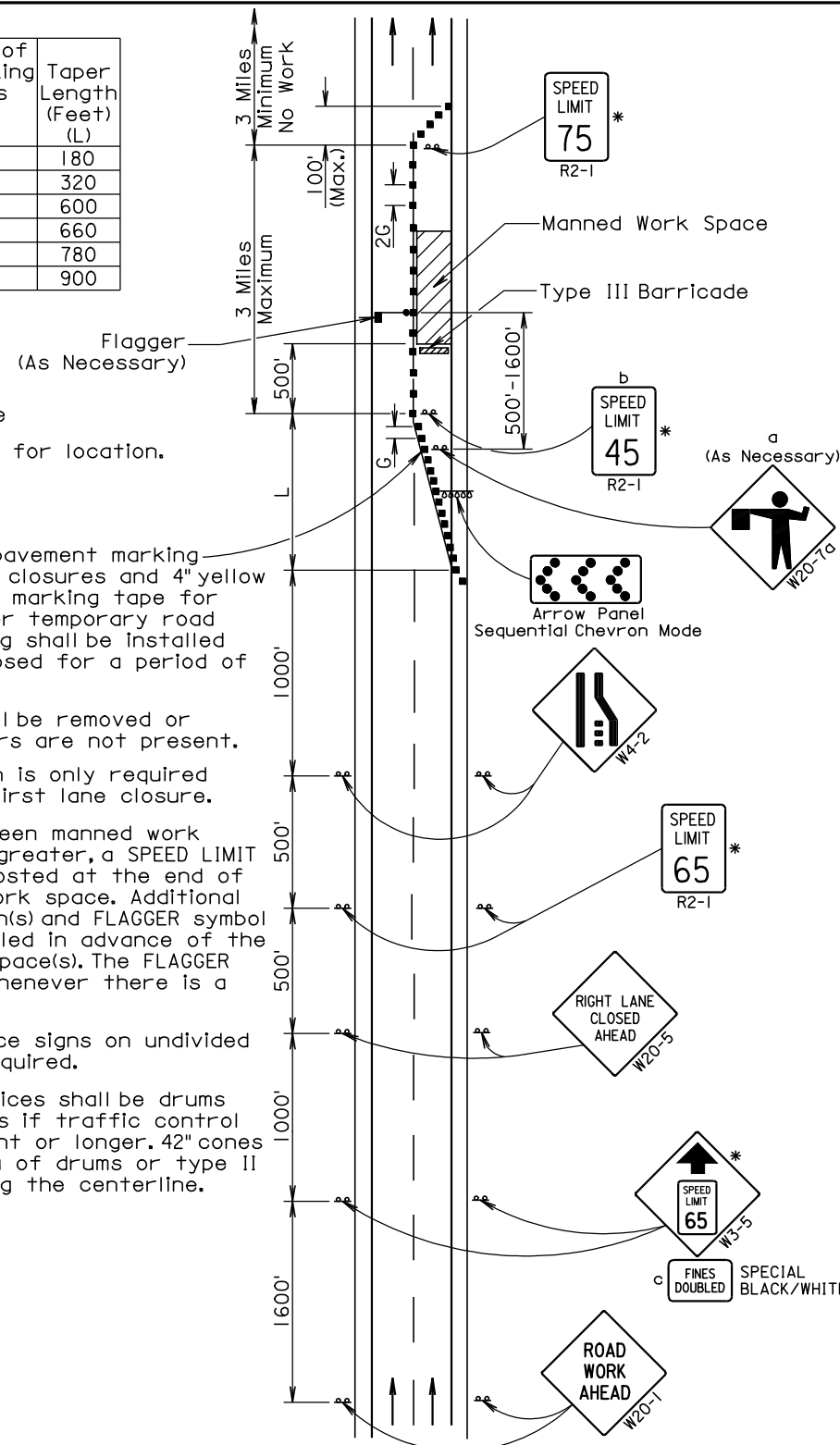
| | | |
|----------------------------------|-----------------------------|------------------------|
| S D D O T | C. M. P. SAFETY ENDS | PLATE NUMBER 450.38 |
| | | Sheet 1 of 2 |

Published Date: 2nd Qtr. 2009

| | | |
|----------------------------------|-----------------------------|------------------------|
| S D D O T | C. M. P. SAFETY ENDS | PLATE NUMBER 450.38 |
| | | Sheet 2 of 2 |

Published Date: 2nd Qtr. 2009

| Posted Speed Prior to Work (M.P.H.) | Spacing of Channelizing Devices (Feet) (G) | Taper Length (Feet) (L) |
|-------------------------------------|--|-------------------------|
| 0 - 30 | 25 | 180 |
| 35 - 40 | 25 | 320 |
| 45 - 50 | 50 | 600 |
| 55 | 50 | 660 |
| 60 - 65 | 50 | 780 |
| 70 - 75 | 50 | 900 |



■ Channelizing Device

* Speed appropriate for location.

4" white temporary pavement marking tape for right lane closures and 4" yellow temporary pavement marking tape for left lane closures or temporary road markers at 5' spacing shall be installed when the lane is closed for a period of 24 hours or more.

Signs a, b, and c shall be removed or covered when workers are not present.

ROAD WORK AHEAD sign is only required in advance of the first lane closure.

If the spacing between manned work spaces is 1 mile or greater, a SPEED LIMIT 65(*) sign shall be posted at the end of the first manned work space. Additional SPEED LIMIT 45(*) sign(s) and FLAGGER symbol sign(s) shall be installed in advance of the next manned work space(s). The FLAGGER sign shall be used whenever there is a Flagger present.

Left mounted advance signs on undivided highways are not required.

The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer. 42" cones may be used in lieu of drums or type II barricades only along the centerline.

July 1, 2005

Published Date: 2nd Qtr. 2009

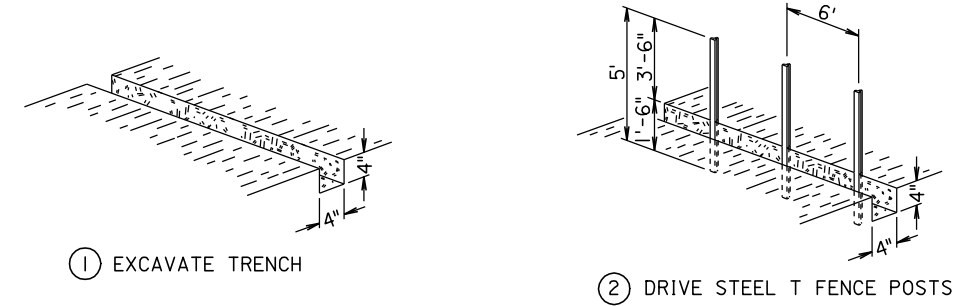
**S
D
D
O
T**

**MANNED WORK SPACE SIGNING
FOR DIVIDED AND UNDIVIDED HIGHWAYS**

PLATE NUMBER
634.63

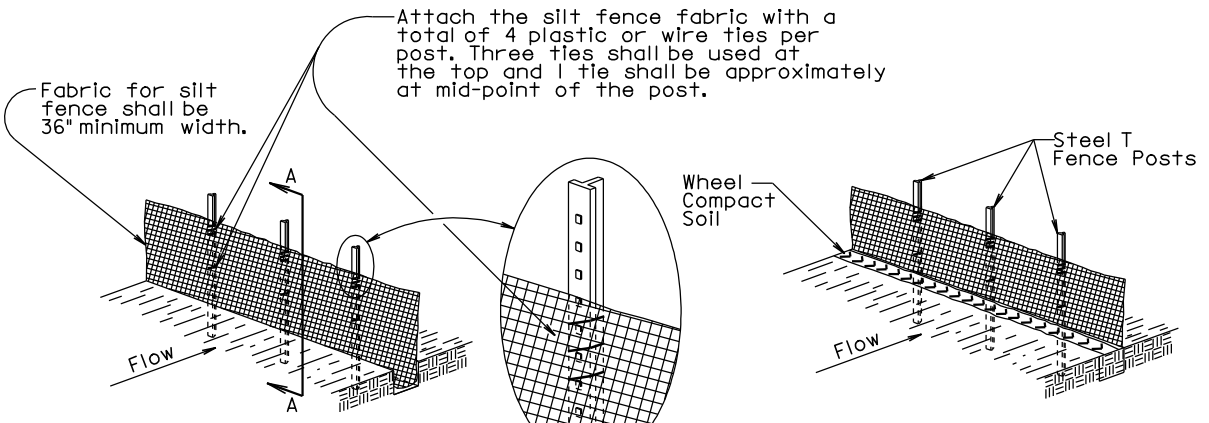
Sheet 1 of 1

MANUAL HIGH FLOW SILT FENCE INSTALLATION



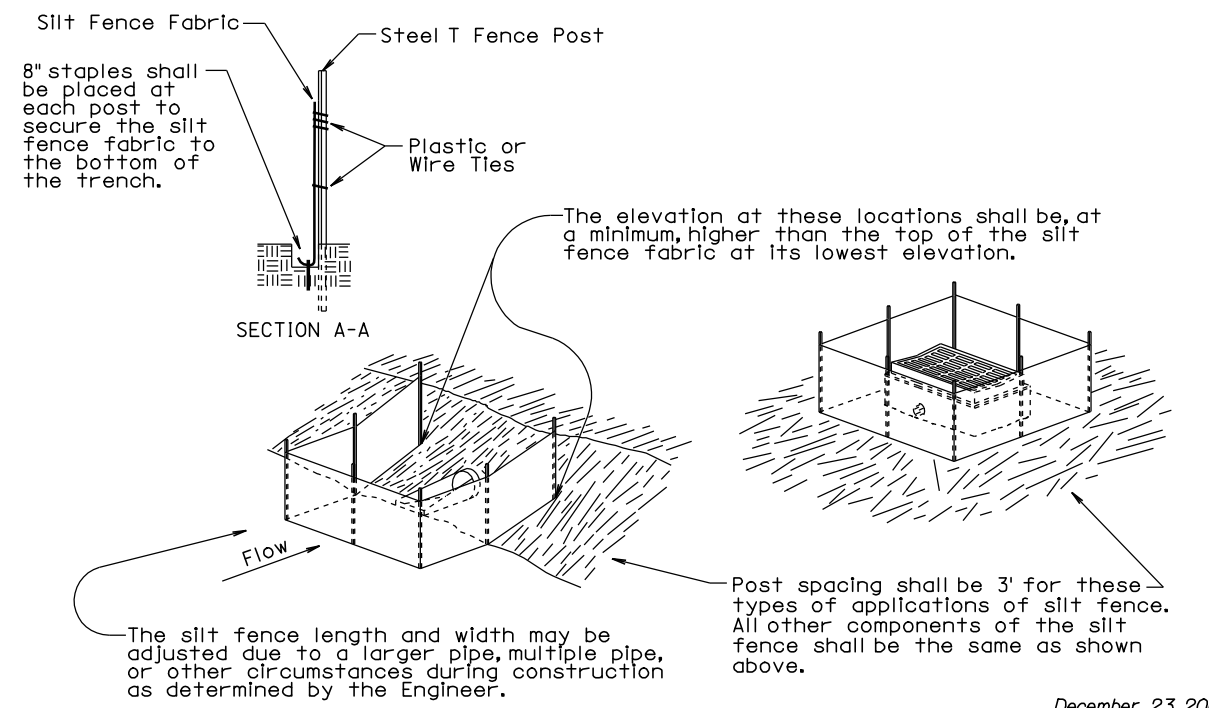
① EXCAVATE TRENCH

② DRIVE STEEL T FENCE POSTS



③ ATTACH SILT FENCE FABRIC

④ BACKFILL TRENCH AND WHEEL COMPACT SOIL



SECTION A-A

SECTION A-A

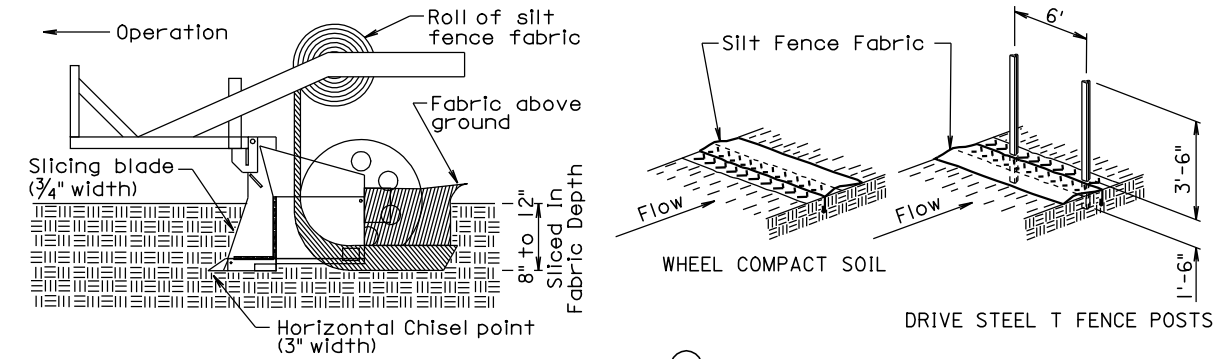
Post spacing shall be 3' for these types of applications of silt fence. All other components of the silt fence shall be the same as shown above.

The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

December 23, 2003

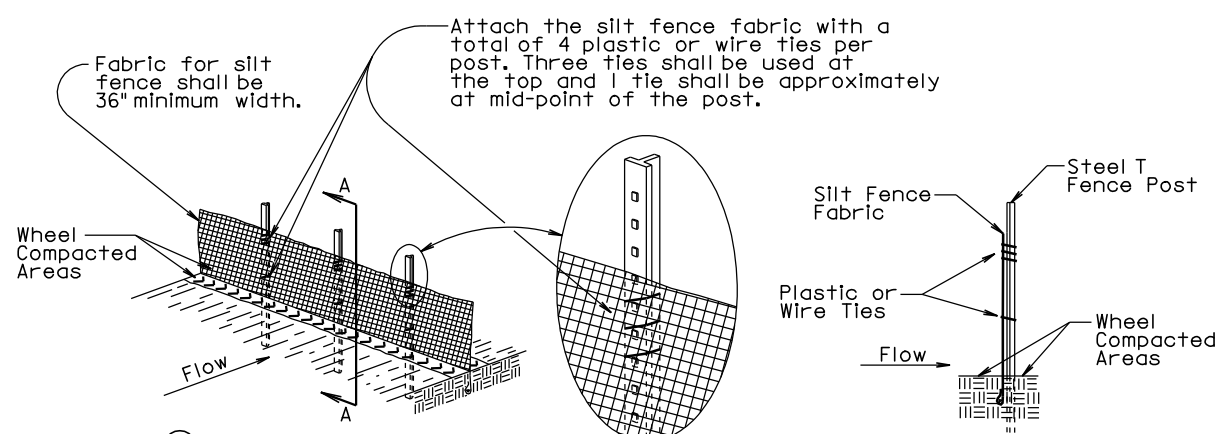
| | | |
|----------------------------------|--------------------------------------|------------------------|
| S D D O T | HIGH FLOW SILT FENCE | PLATE NUMBER 734.05 |
| | | Sheet 1 of 2 |
| | <i>Published Date: 2nd Qtr. 2009</i> | |

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION

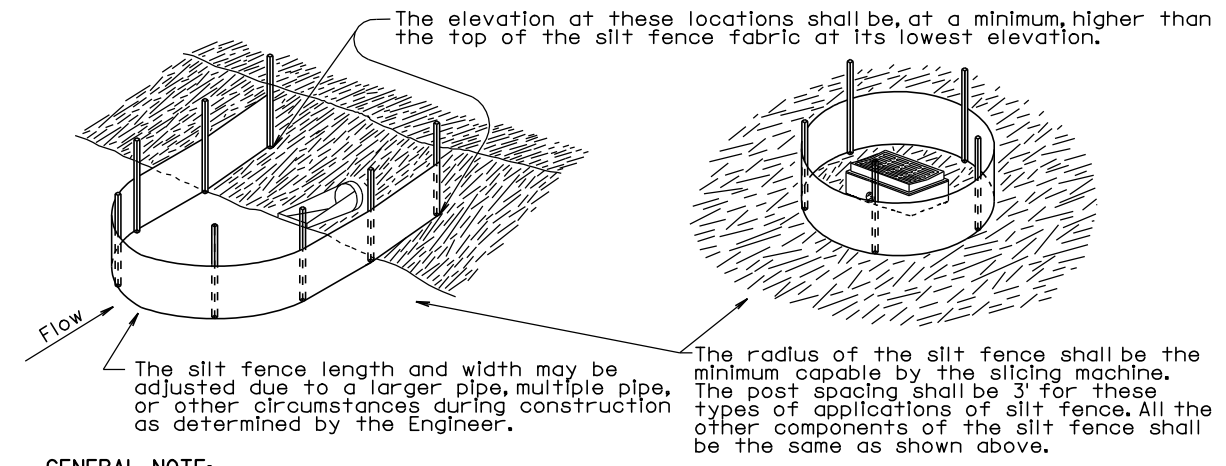


① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.



③ ATTACH SILT FENCE FABRIC



GENERAL NOTE:

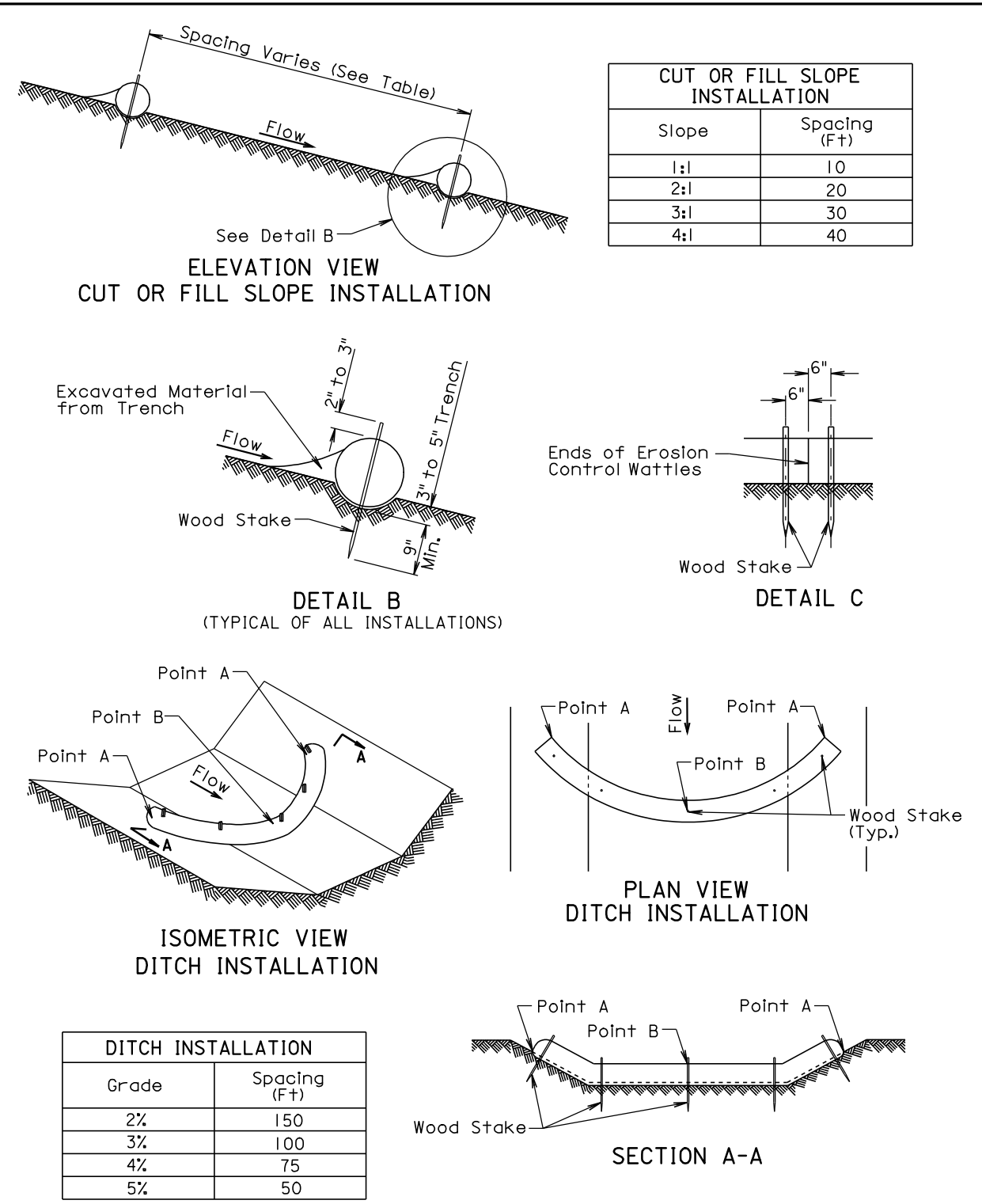
If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end shall be provided on top of the extra length of silt fence fabric to prevent underflow.

The radius of the silt fence shall be the minimum capable by the slicing machine. The post spacing shall be 3' for these types of applications of silt fence. All the other components of the silt fence shall be the same as shown above.

The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

December 23, 2003

| | | |
|----------------------------------|--------------------------------------|------------------------|
| S D D O T | HIGH FLOW SILT FENCE | PLATE NUMBER 734.05 |
| | | Sheet 2 of 2 |
| | <i>Published Date: 2nd Qtr. 2009</i> | |



December 23, 2004

GENERAL NOTES:

At cut or fill slope installations, wattles shall 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 shall 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 shall 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 shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' to 4'.

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

The Contractor and Engineer shall inspect the erosion control wattles once every week and within 24 hours after every rainfall event greater than 1/2". The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping shall 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 shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

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

December 23, 2004