

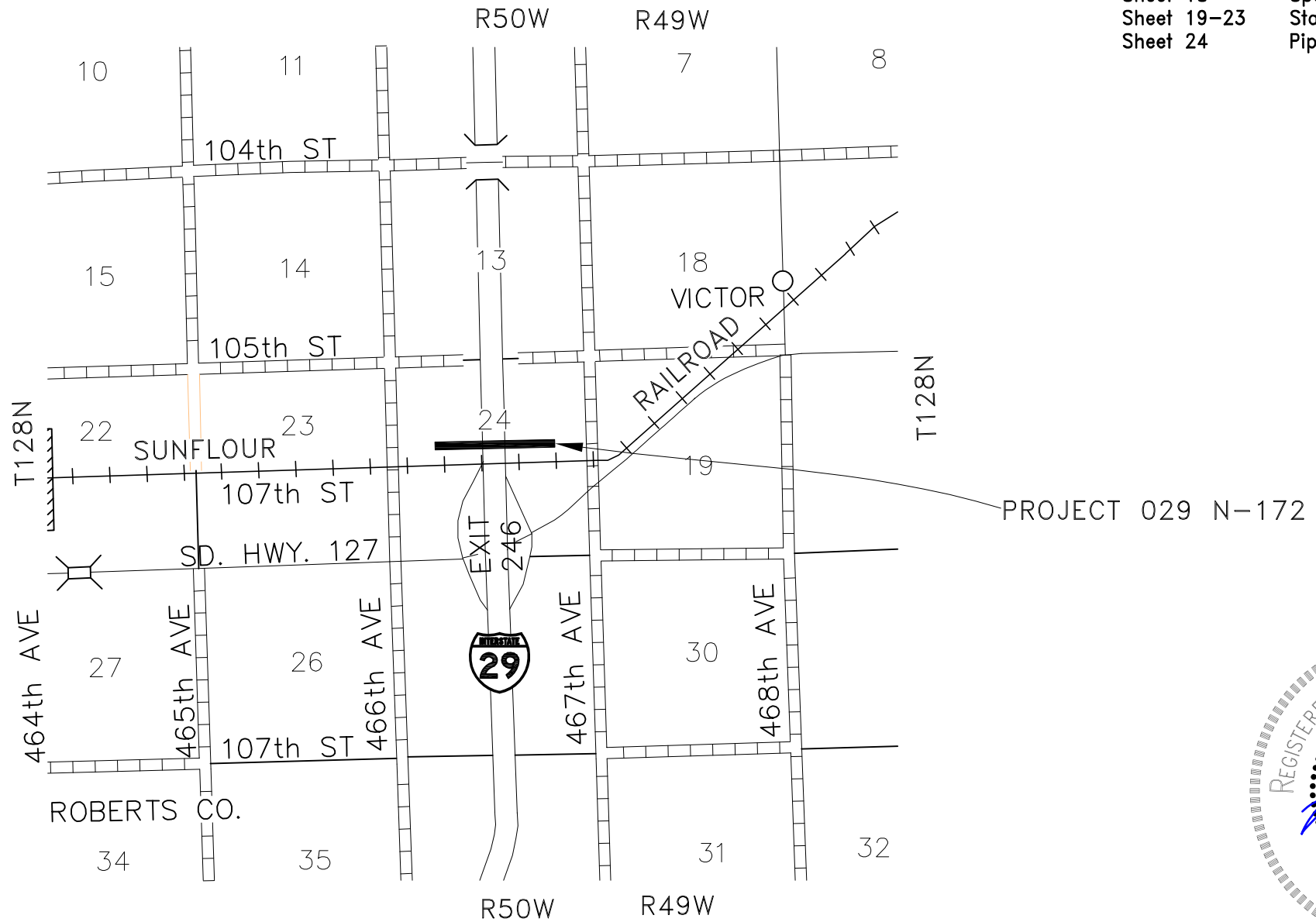
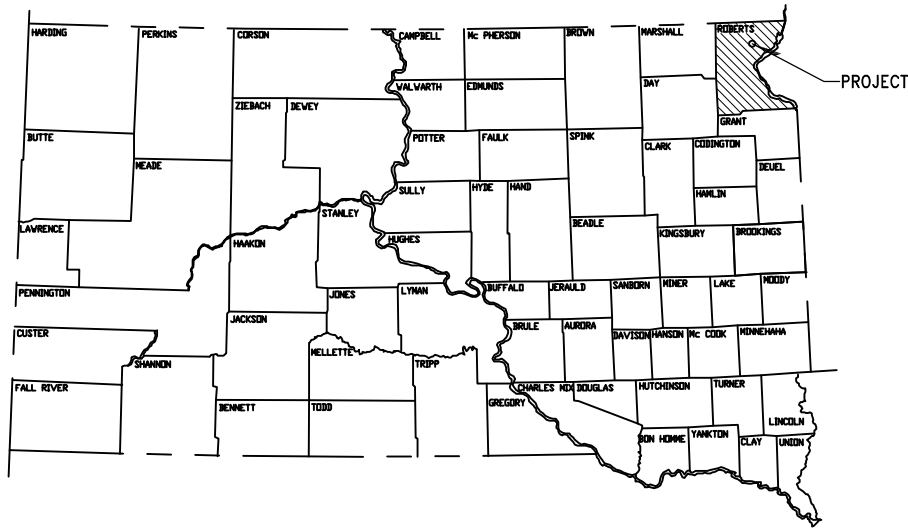
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

STATE OF SOUTH DAKOTA	PROJECT	SHEET No.	TOTAL SHEETS
	029 N-172	1	24

PLANS FOR PROPOSED
PROJECT 029 N-172
INTERSTATE 29
ROBERTS COUNTY
CULVERT INSTALLATION
PCN i1X0

INDEX OF SHEETS

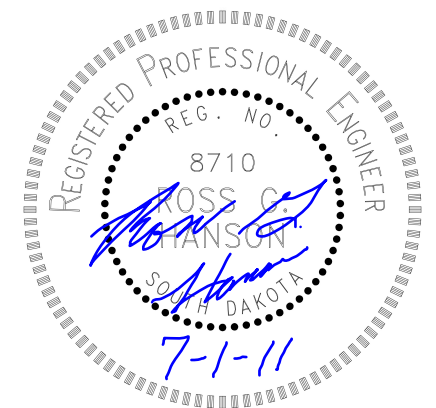
Sheet 1	Title Sheet
Sheet 2	Estimate of Quantities
Sheet 3-4	Plan Notes
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Sheet 8-9	Traffic Control Standard Plates
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STORM WATER PERMIT
MAJOR RECEIVING BODY OF WATER = UNNAMED POND
TOTAL PROJECT AREA = 0.5 ACRES
TOTAL DISTURBED AREA = 0.5 ACRES
LATITUDE = N 45.8560°
LONGITUDE = W 96.8653°

SCALES

PLAN 1 INCH = 50 FEET
PROFILE { HORIZONTAL 1 INCH = 50 FT.
 { VERTICAL 1 INCH = 10 FT.
PIPE CROSS SECTIONS { HORIZONTAL 1 INCH = 20 FT.
 { VERTICAL 1 INCH = 5 FT.



Plans Prepared By:
BANNER ASSOCIATES, INC.
CONSULTING ENGINEERS
BROOKINGS, SOUTH DAKOTA

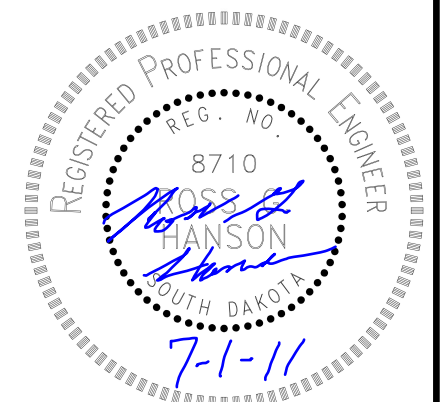
ESTIMATE OF QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	029 N-172	2	24

BID ITEM NO.	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E1700	Remove Silt Fence	104	Ft
110E7802	Remove Fence for Reset	100	Ft
120E0010	Unclassified Excavation	1068	CuYd
120E0600	Contractor Furnished Borrow	728	CuYd
120E1000	Muck Excavation	668	CuYd
230E0010	Placing Topsoil	400	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
450E4768	24" CMP 16 Gauge, Furnish	232	Ft
450E4770	24" CMP, Install	232	Ft
450E5215	24" CMP Flared End, Furnish	2	Each
450E5216	24" CMP Flared End, Install	2	Each
620E0510	Type I Temporary Fence	450	Ft
620E4100	Reset Fence	100	Ft
634E0010	Flagging	5	Hours
634E0100	Traffic Control	408	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each
700E0210	Class B Riprap	13	Ton
730E0100	Cover Crop Seeding	0.50	Bu
730E0204	Type C Permanent Seed Mixture	9	Lb
734E0604	High Flow Silt Fence	430	Ft
734E0610	Mucking Silt Fence	30	CuYd
734E5005	Dewatering	Lump Sum	LS
831E0110	Type B Drainage Fabric	10	SqYd
998E0100	Railroad Protective Insurance	Lump Sum	LS

SPECIFICATIONS

South Dakota Department of Transportation, Standard Specifications for Roads & Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.



SEQUENCE OF OPERATIONS

The Contractor shall submit a proposed sequence of operations for the Engineer's approval at least one week prior to the preconstruction meeting. At a minimum, the sequence of operations shall include the scope of work below.

SCOPE OF WORK

The work required for this project includes, but is not limited to, the following items. Items are not listed in any particular order.

1. Install traffic control
2. Mobilize
3. Access site
4. Install silt fence
5. Strip topsoil
6. Unclassified excavation
7. Muck excavation
8. Excavate for pipe
9. Place pipe bedding
10. Install pipe
11. Backfill pipe
12. Incidental work, grading
13. Seed, fertilize, and mulch
14. Replace R.O.W. Fence
15. Demobilize
16. Remove traffic control



GENERAL MAINTENANCE OF TRAFFIC

Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost of this work shall be incidental to the various contract items unless otherwise specified in the plans. 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 as near the right-of-way line as possible. 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's equipment will be required to safely enter and leave the project at the designated construction site access. Crossing of the median will not be allowed.

Work activities during non-daylight hours are subject to prior approval.

The bottom of signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the pavement in rural areas. Portable sign supports may be used as long as the duration is less than 3 days. If the duration is more than 3 days the signs shall be on fixed location, ground mounted, breakaway supports.

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

Traffic Control units, as shown in the Estimate of Quantities, are estimates. Contractor's operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

GRADING OPERATIONS

Compaction shall be by ordinary compaction method.

UTILITIES

Subsurface utility explorations were done for this project. No utilities were found in the project area. This information is provided to aid the Contractor during construction. All information provided is approximate and shall be verified by the Contractor prior to construction in those areas.

Utilities are not planned to be affected on this project. 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 shall contact the project engineer to determine modifications that will be necessary to avoid utility impacts.

CLEARING

Before clearing activities begin, the Contractor shall contact the Engineer to determine the limits of clearing for the project. If the trees or shrubs that are suppose to remain within the limits of work are damaged or destroyed by the Contractor, the Contractor shall replace them with the same size and type at the Contractor's expense.

WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the DOT Environmental Office.

The DOT Environmental Office contact is the Environmental Project Scientist, 605-773-3268. The WATER SOURCE plan note does not relieve the Contractor of his/her responsibility to obtain the necessary permits from other agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE).

WORK AFFECTING WATERWAYS

A. WATER QUALITY

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 website:
DOT: http://www.sddot.com/pe/projdev/environment_stormwater.asp
DENR: <http://www.denr.sd.gov/des/sw/stormwater.aspx>

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 General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal under the South Dakota Waste Management Program issued 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 (cont.)

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.

TABLE OF EXCAVATION QUANTITIES BY BALANCES

Station to	Station	Excavation (CuYd)	* Muck Exc. (CuYd)	*Contractor Furnished Borrow (CuYd)	Total Excavation (CuYd)
1+10		668	668	728	2064
	Totals:	668	668	728	2064

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

TABLE OF UNCLASSIFIED EXCAVATION

Excavation	668
Topsoil	400
Total	1068

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

Plan quantity shall be the basis of payment.

MUCK EXCAVATION

Plan quantity shall be the basis of payment.

Muck excavation consists of the removal of highly organic and/or highly saturated material from the designated areas shown on the cross sections. Highly organic muck material shall not be used in the embankment but may be used as topsoil.

CONTRACTOR FURNISHED BORROW

The Contractor shall provide a suitable site for Contractor furnished borrow material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material shall be approved by the Engineer.

Restoration of the Contractor furnished borrow site shall be the responsibility of the Contractor.

INCIDENTAL WORK, GRADING

Following completion of the ditch excavation, pipe installation, and topsoil placement, the ditch shall be smooth graded to ensure positive drainage of the ditch. The right ditch slope shall tie in at the railroad embankment at an elevation below the railroad ballast. The railroad ballast shall not be disturbed.

A ditch shall be formed above the pipe culvert to provide drainage from the railroad embankment and bridge abutment embankment. This ditch invert shall be sloped at the same grade as the culvert. Refer to culvert installation detail.

The foregoing is a general description of the work to be included and shall not be construed to be complete in all details. Before preparing a bid, it is the Contractor's responsibility to make a visual inspection of the site to verify the extent of the work and material involved.

Payment for all the above described work shall be made at the the Contract Lump Sum Price for "Incidental Work, Grading".

CORRUGATED METAL PIPE

Corrugated metal pipes shall have 2 2/3-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.

TABLE OF RIPRAP AND DRAINAGE FABRIC

Station	L/R	Class B Riprap (Ton)	Type B Drainage Fabric (SqYd)
1+00	R	13	10
	Total:	13	10

HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain State Historical Preservation Office (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, 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 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, 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 the DOT Environmental engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605)-773-3268). 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 areas, borrow sites, waste disposal sites, and all material processing sites. The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.



PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements.

The amount of topsoil to be placed is as follows:

Station	to Station	Topsoil (CuYd)
1+00	390'L 1+00 370'R	400
Total:		400

FERTILIZING

Application of fertilizer will not be required on this project.

PERMANENT SEEDING

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

All permanent seed shall be planted in the topsoil at a depth of 1/4" to 1/2".

All seed broadcast must be raked or dragged in (incorporated) within the top 1/4" to 1/2" 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.

Measurement for payment will not be made. Plans quantity shall be the basis for payment.

Type C Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	16
Canada Wildrye	Mandan	2
Total:		18

COVER CROP SEEDING

Cover crop seeding shall used on this project as a temporary erosion control measure. Measurement for payment will not be made. Plans quantity shall be the basis for payment.

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://apps.sd.gov/Applications/HC54ApprovedProducts/main.asp>

High flow silt fence shall be placed at the locations noted in the table 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.

TABLE OF HIGH FLOW SILT FENCE

Station	L/R	Location	Quantity (Ft)
1+00	L	120'L	15
1+30	L	385'L to 130'L	255
1+30	R	200'R to 360'R	160
Total:			430

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.

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.

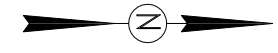
DEWATERING

If dewatering is necessary, the Contractor has the option to use sediment laden water trapped within the project limits to irrigate vegetation and seed, or the Contractor may elect to pump sediment laden water onto a densely vegetated relatively flat area. Sediment laden water shall remain within the right of way unless the Contractor receives permission from adjacent landowner's to irrigate or release sediment laden water onto their properties. Water must be released a minimum of 100 feet away from all waterways and must be pumped and released or applied in such a manner that it does not cause erosion. Dewatering and all incidentals will be paid for at the contract lump sum price for "Dewatering".



TRAFFIC CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT 029 N-172	SHEET No. 6	TOTAL SHEETS 24
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LEGEND
○ CHANNELIZING DEVICE

TEMPORARY EASEMENT TO CONSTRUCTION SITE ACCESS

CONSTRUCTION SITE ACCESS

NOTE:
TRAFFIC CONTROL SHALL FOLLOW GUIDELINES OF SDDOT STANDARD PLATE 634.64.

SPECIAL 48"x48"



SPECIAL 48"x48"

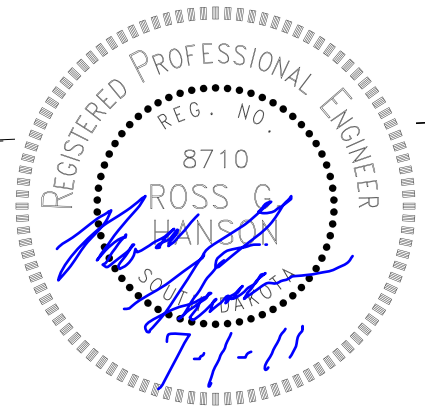


INTERSTATE 29 (SOUTH BOUND)

INTERSTATE 29 (NORTH BOUND)

SUNFLOUR RAILROAD

0+00 0+50 1+00 1+50 2+00 2+50 3+00 3+50 4+00 4+50 5+00

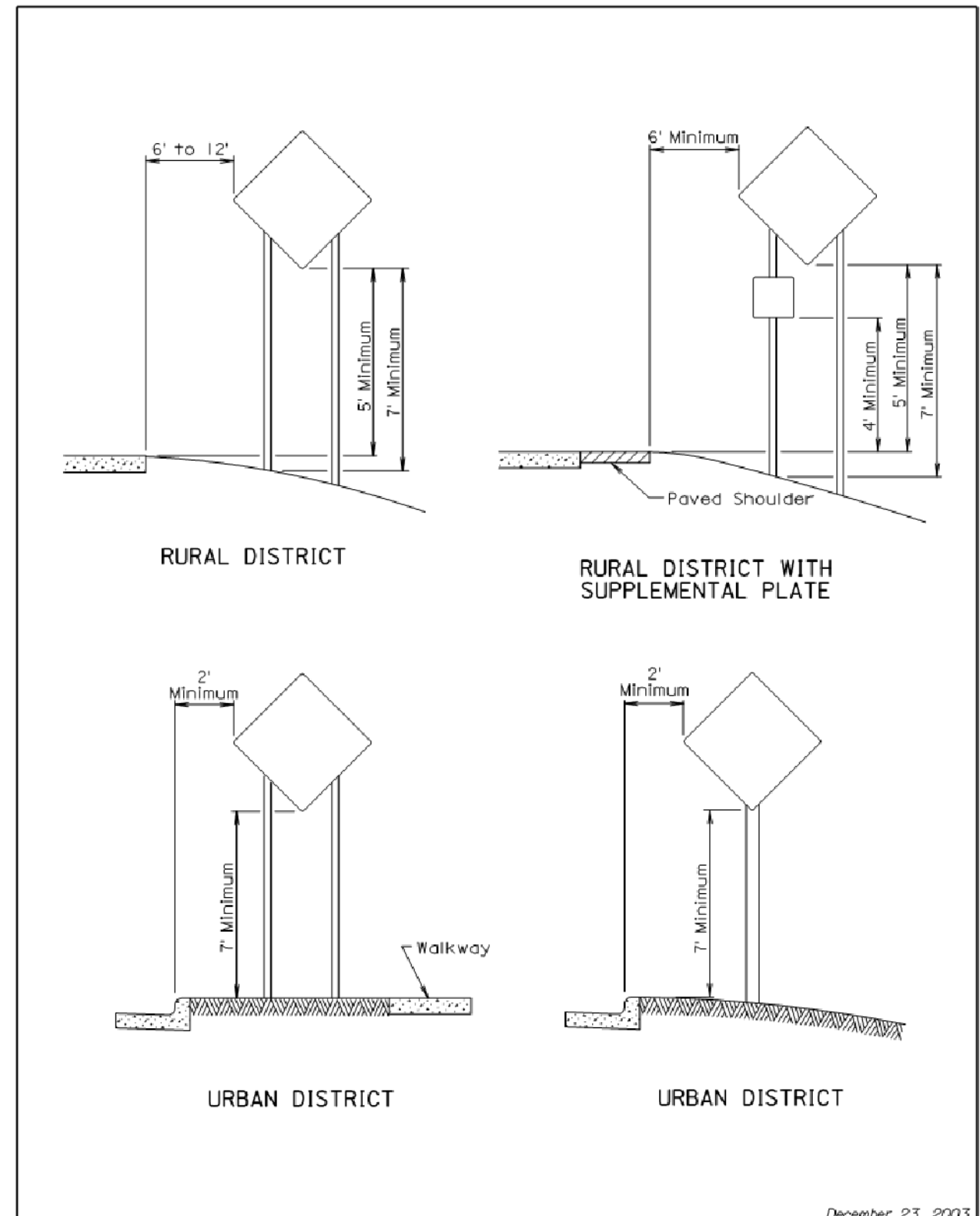
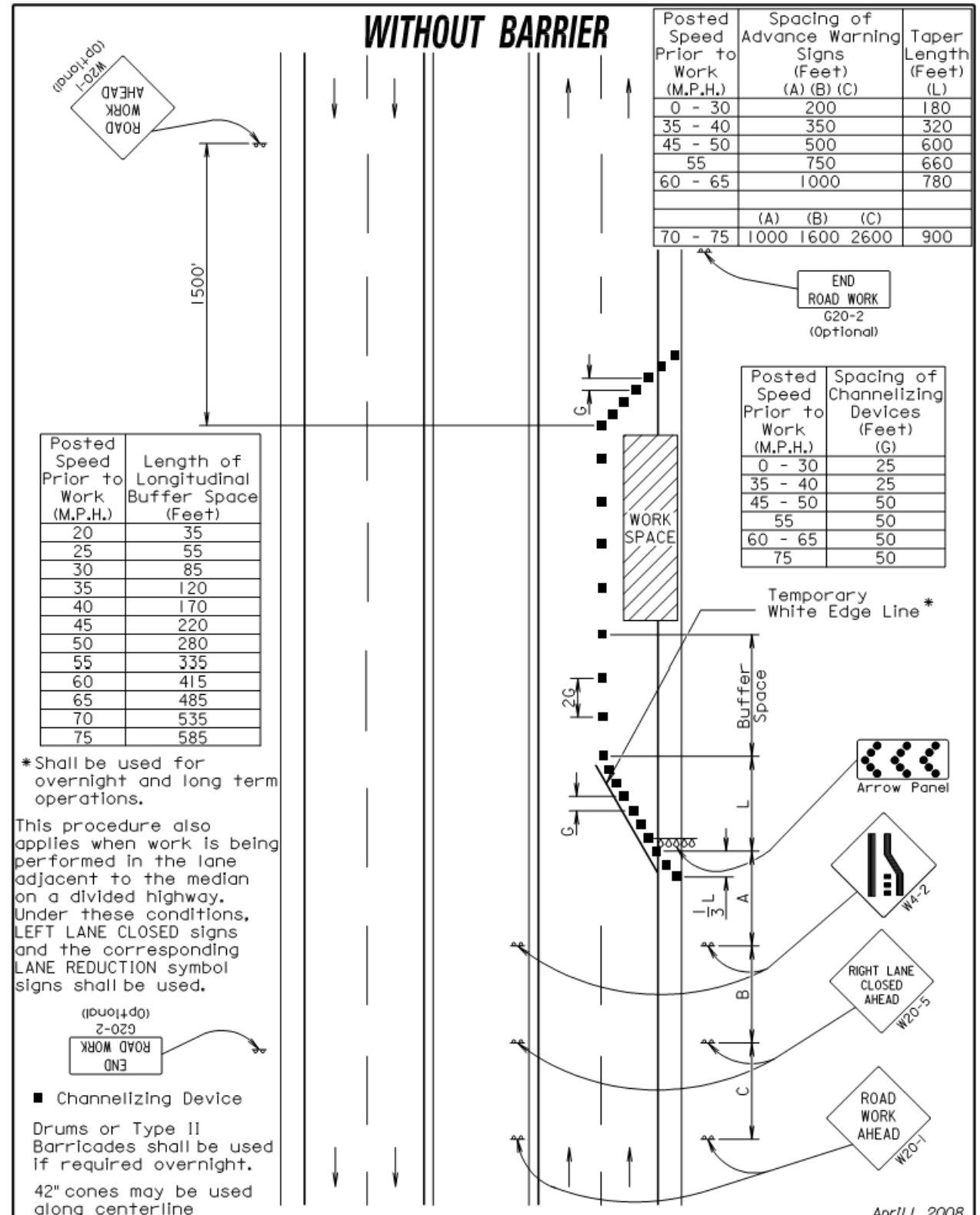


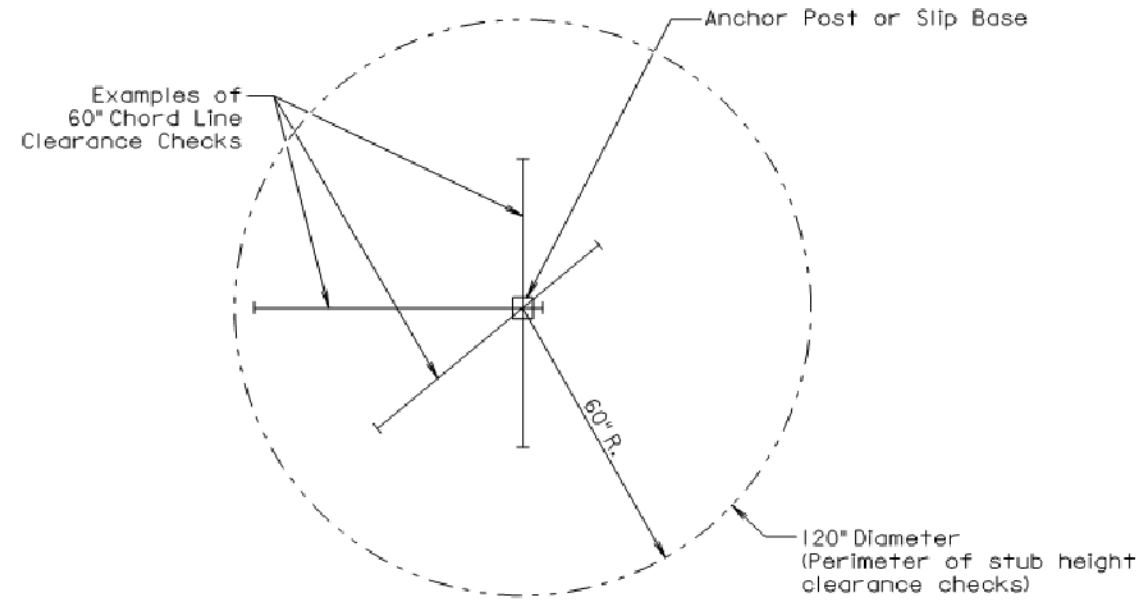
TRAFFIC CONTROL UNIT QUANTITY TABLE

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W20-1	48" x 48"	ROAD WORK ### FT. OR AHEAD	3	34	102
W20-5	48" x 48"	LT. OR RT. LANE CLOSED ### FT. OR AHEAD	2	34	68
Special	48" x 48"	TRUCKS LEAVING HIGHWAY	2	34	68
Special	48" x 48"	TRUCKS ENTERING HIGHWAY	2	34	68
				TOTAL UNITS	408

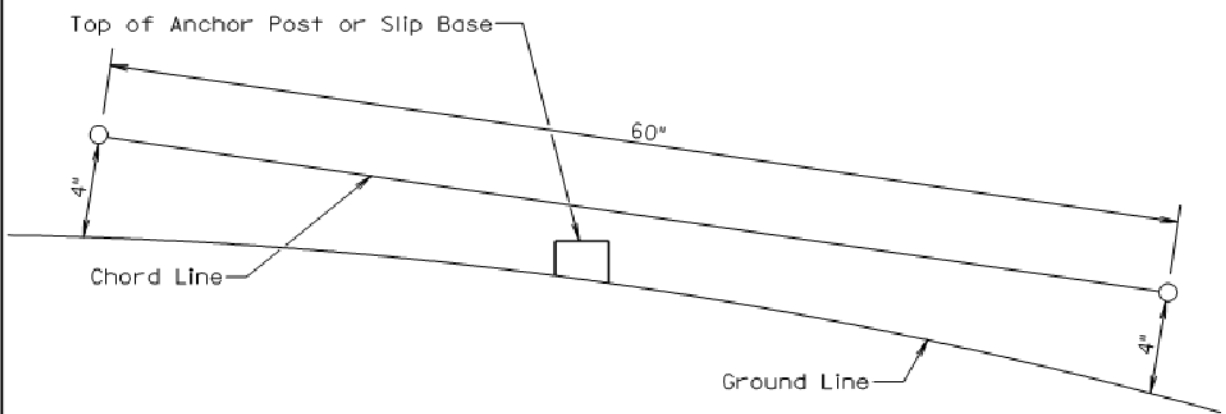
If a sign is required on a project and not listed in the above inventory, the units per sign will be determined as follows:
 Signs 36" x 36" will be measured at 27 units each and signs 48" x 48" will be measured at 34 units each, otherwise:
 If a sign measures less than 25" high and 25" wide the units per sign will be computed as sign size (sq ft) x 3.
 If a sign measures between 23H" and 37H" the units per sign will be computed as sign size (sq ft) x 1.2 +15.







PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases SHALL 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 shall 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.

July 1, 2005

S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
		Sheet 1 of 1

Published Date: 1st Qtr. 2011

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 0.5 acre (4.2 1.b.)**
- **Total Area To Be Disturbed 0.5 acre (4.2 1.b.)**
- **Existing Vegetative Cover (%) 80%**
- **Soil Properties:** AASHTO Soil or USDA-NRCS Soil Series Classification S_wB, Hydrologic Soil Group B **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Unnamed **(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 stabilized construction entrance(s).**
- **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 culvert.**
- **Install inlet protection after completing storm drainage and other utility installations.**
- **Complete final grading.**
- **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 Seeding (Cover Crop Seeding)
 - Permanent Seeding
 - Sodding
 - Planting (Woody Vegetation for Soil Stabilization)
 - Mulching (Grass Hay or Straw)
 - Hydraulic Mulch (Wood Fiber Mulch)
 - Soil Stabilizer
 - Bonded Fiber Matrix
 - Erosion Control Blankets or Mats
 - Vegetation Buffer Strips
 - Roughened Surface (e.g. tracking)
 - Dust Control
 - Other

➤ Structural Temporary Erosion and Sediment Controls

- Silt Fence
- Floating Silt Curtain
- Straw Bale Check
- Temporary Berm
- Temporary Slope Drain
- Straw Wattles or Rolls
- Turf Reinforcement Mat
- Rip Rap
- Gabions
- Rock Check Dams
- Sediment Traps/Basins
- Inlet Protection
- Outlet Protection
- Surface Inlet Protection (Area Drain)
- Curb Inlet Protection
- Stabilized Construction Entrances
- Entrance/Exit Equipment Tire Wash
- Interceptor Ditch
- Concrete Washout Area
- Temporary Diversion Channel
- Work Platform
- Temporary Water Barrier
- Temporary Water Crossing
- 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.
- 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 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 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)

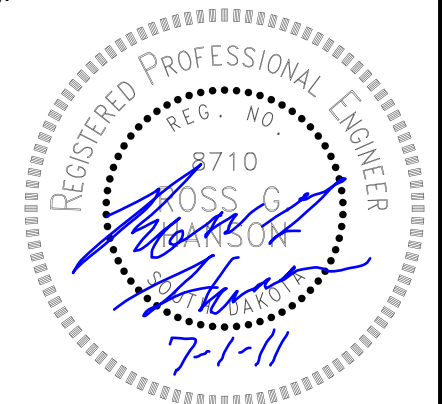
The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- 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, de-greasing 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, residuals from concrete saw cutting (either wet or dry), 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**

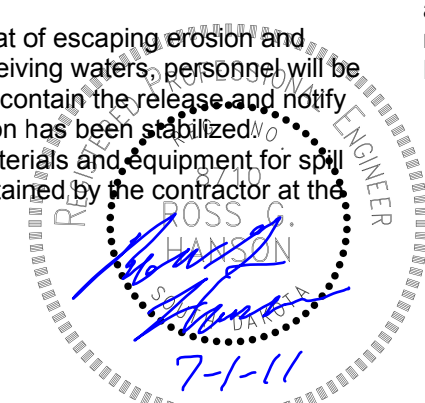
In the event of a spill, the contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately if **any one of the following** conditions exists:
 - The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
 - The discharge causes an immediate danger to human health or safety.
 - The discharge exceeds 25 gallons.
 - The discharge causes a sheen on surface water.
 - The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:51:01.
 - The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:51:01.
 - The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
 - The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

To report a release or spill, call DENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

❖ **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.



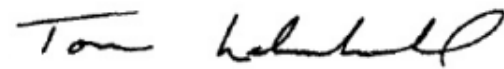
❖ **CERTIFICATIONS**

➤ **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 Phone: Fax:

➤ **Erosion Control Supervisor**

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

➤ **SDDOT Project Engineer**

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

➤ **SD DENR Contact Spill Reporting**

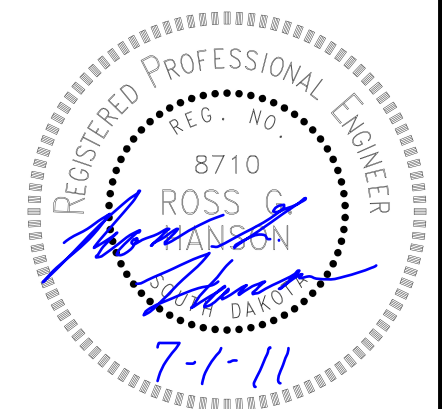
- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

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

- (605) 773-3153

➤ **National Response Center Hotline**



- (800) 424-8802.

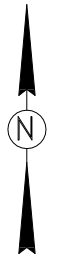


EROSION AND SEDIMENT CONTROL PLAN

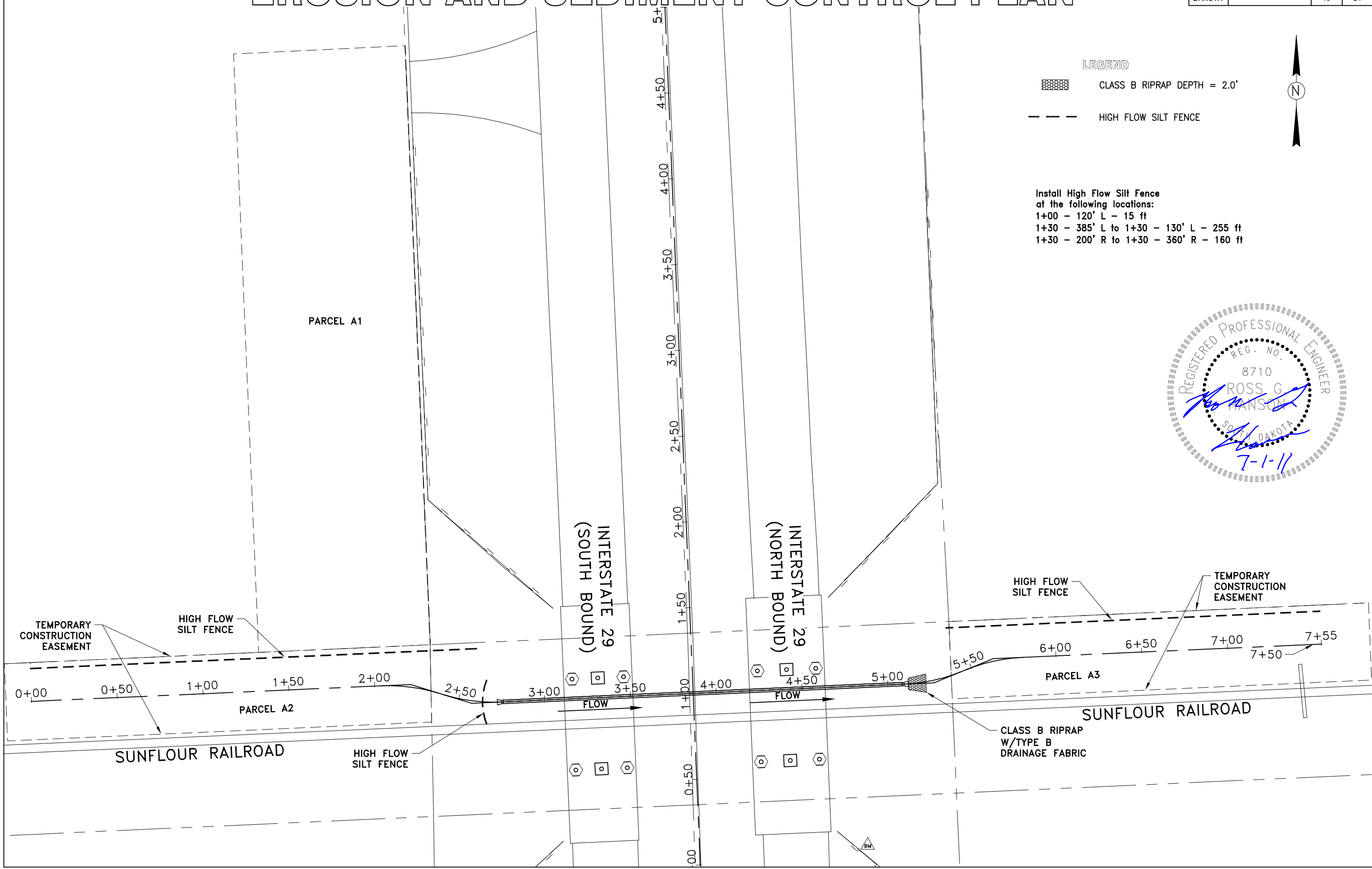
STATE OF SOUTH DAKOTA	PROJECT 029 N-172	SHEET No. 13	TOTAL SHEETS 24
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LEGEND

-  CLASS B RIPRAP DEPTH = 2.0'
-  HIGH FLOW SILT FENCE



Install High Flow Silt Fence
at the following locations:
1+00 - 120' L - 15 ft
1+30 - 385' L to 1+30 - 130' L - 255 ft
1+30 - 200' R to 1+30 - 360' R - 160 ft

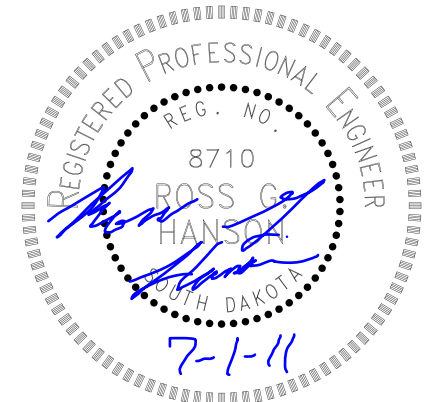


CONTROL DATA

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	029 N-172	14	24

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
BM #1	0+07	97.9' RT	6 FT. SMOOTH 5/8" REBAR WITH PLASTIC CAP LABELED "CONTROL POINT" SET LEVEL WITH THE GROUND NEAR THE SE CORNER OF I-29 BRIDGE. LOCATED 5 FT. NE OF 3 RD WOOD FENCE POST FROM BEGINNING OF FENCE AT BRIDGE WALL.	752858.757	2767175.240	1109.60
CP			TO REACH TO THE MARK GO 3 MI (4.8 KM) EAST OF NEW EFFINGTON STORM DRAIN, 3.95 MI (6.4 KM) NORTH ON TRUNK HIGHWAY 75 FROM NORTH JUNCTION OF TRUNK HIGHWAY 75 AND TRUNK HIGHWAY 27 IN WHEATON MN THEN 6.65 MI (10.7 KM) WEST ON COUNTY ROAD 10 THEN 11.55 MI (18.6 KM) WEST ON TRUNK HIGHWAY 127 THEN 0.4 MI (0.6 KM) NORTH ON INTERSTATE HIGHWAY 29, AT INTERSTATE HIGHWAY 29 MILE POINT 246.9, 93.5 FT (28.5 M) WEST OF SOUTHBOUND INTERSTATE HIGHWAY 29, 93.8 FT (28.6 M) SOUTHWEST OF THE SOUTHWEST CORNER OF SOUTHBOUND INTERSTATE HIGHWAY 29 BRIDGE OVER RAILROAD, 87.9 FT (26.8 M) SOUTHWEST OF MILEPOST 247, 6.9 FT (2.1 M) EAST OF A FENCE, 5.3 FT (1.6 M) SOUTHEAST OF A FENCE, 1.1 FT (0.3 M) NORTHEAST OF METAL POST, 1.3 FT (0.4 M) NORTHEAST OF A WITNESS POST, MARK IS PUNCH MARK ON AN IRON PIPE CAP ATTACHED TO A 1-1/2 INCH (4 CM) IRON PIPE, ACCESS TO THE DATUM POINT IS THROUGH AN 8 INCH (20 CM) BY 8 INCH (20 CM) METAL PLATE, STATION WAS SET BY SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION, FILLS WITH WATER CHISEL OUT ICE.	752794.170	2766934.030	1100.40

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System.
 North Zone (NAD 83/Conus) SF = 1.0000123722
 The elevations shown on this sheet are based on NAVD 88.



HORIZONTAL ALIGNMENT DATA

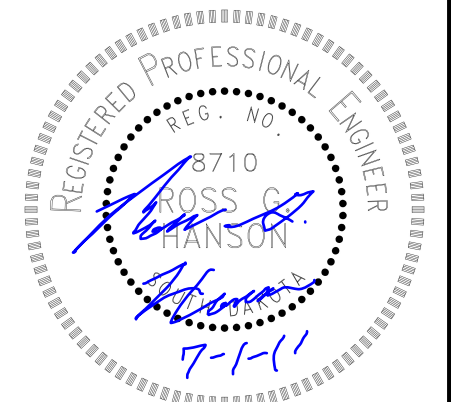
MAINLINE

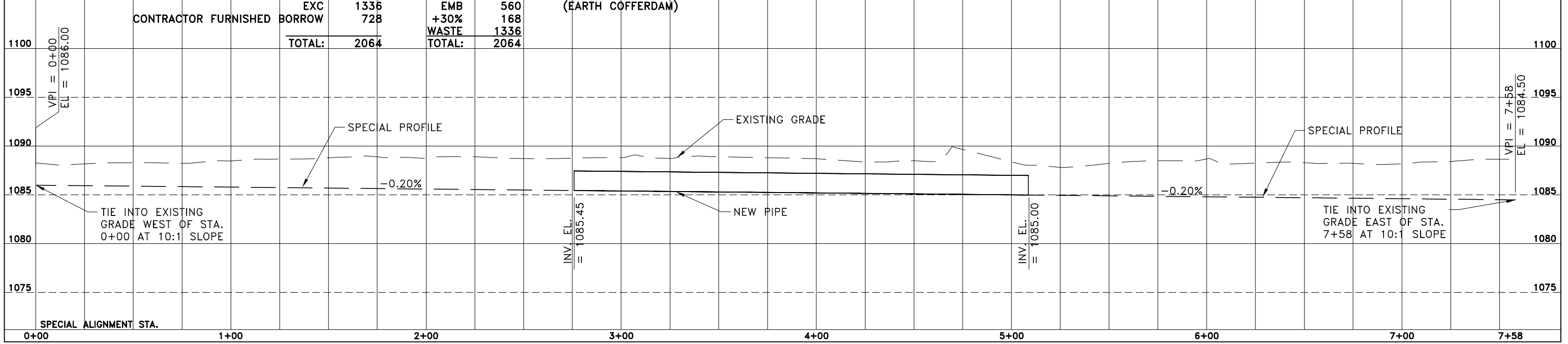
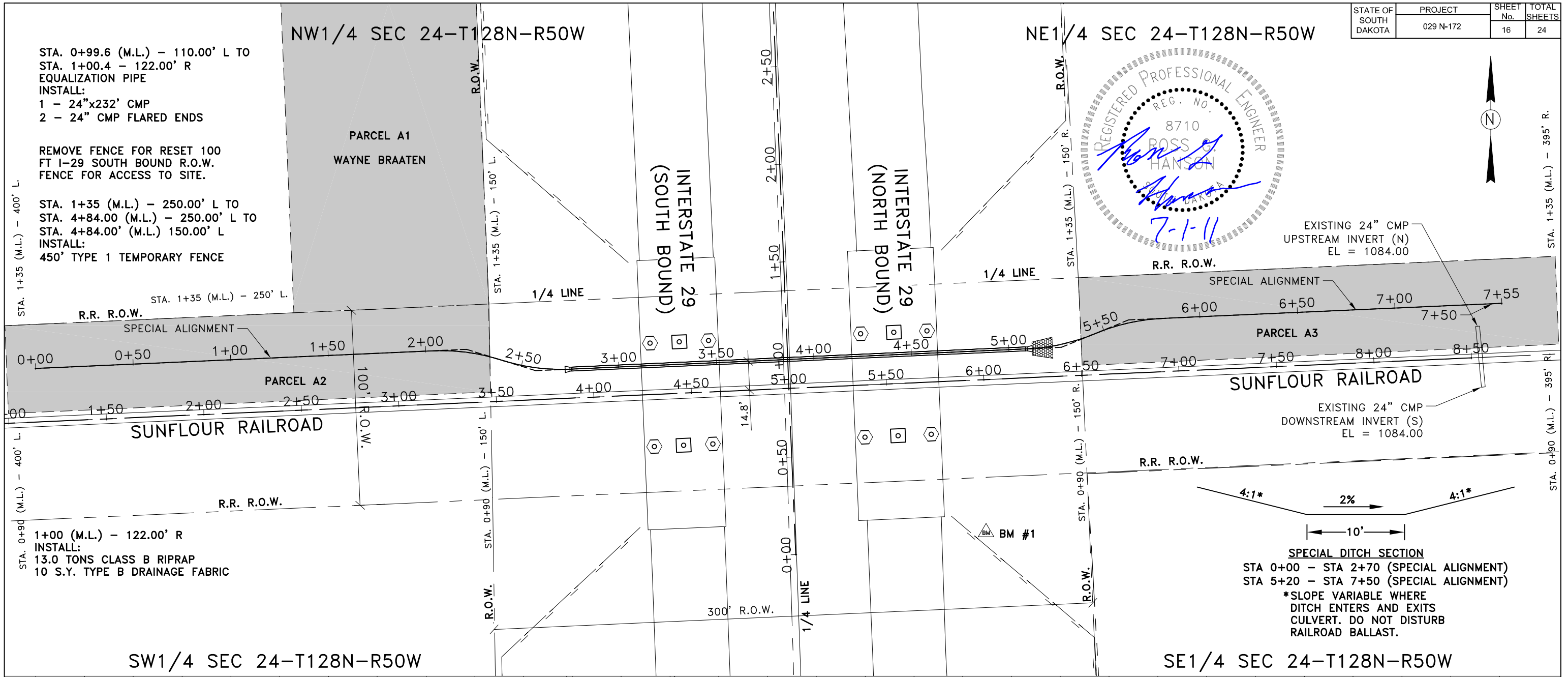
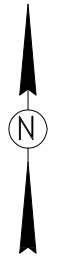
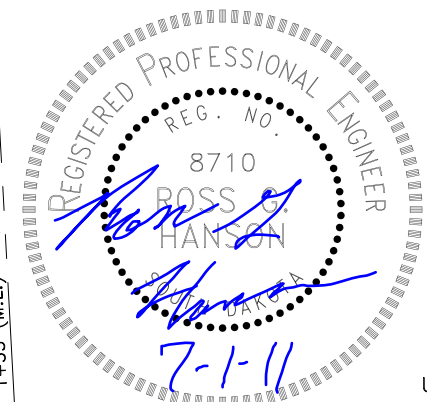
<u>Type</u>	<u>Station</u>	<u>Northing</u>	<u>Easting</u>
POB	0+00.00	752847.317	2767077.719
POE	5+00.00	753346.897	2767057.211

SPECIAL ALIGNMENT

<u>Type</u>	<u>Station</u>		<u>Northing</u>	<u>Easting</u>
POB	0+00.00		752942.636	2766688.330
		TL= 220.96 N 87°27'E		
PI	2+20.96		752952.439	2766909.076
		TL= 37.17 N 72°53'E		
PI	2+57.79		752941.504	2766944.596
		TL= 269.52 N 87°27'E		
PI	5+26.97		752953.461	2767213.853
		TL= 37.17 N 67°48'E		
PI	5+63.79		752967.501	2767248.264
		TL= 191.38 N 87°27'E		
POE	7+54.84		752975.991	2767439.457

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone (NAD 83/CONUS) SF = 1.0000123722

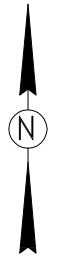




STATE OF SOUTH DAKOTA	PROJECT 029 N-172	SHEET No. 17	TOTAL SHEETS 24
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NW1/4 SEC 24-T128N-R50W

NE1/4 SEC 24-T128N-R50W



PARCEL A1
TEMPORARY EASEMENT FOR
WORK SITE ACCESS
CONTAINING 0.80 ACRES
MORE OR LESS

WAYNE BRAATEN
NW $\frac{1}{4}$ - 24-128-50
BOOK 81, PAGE 22

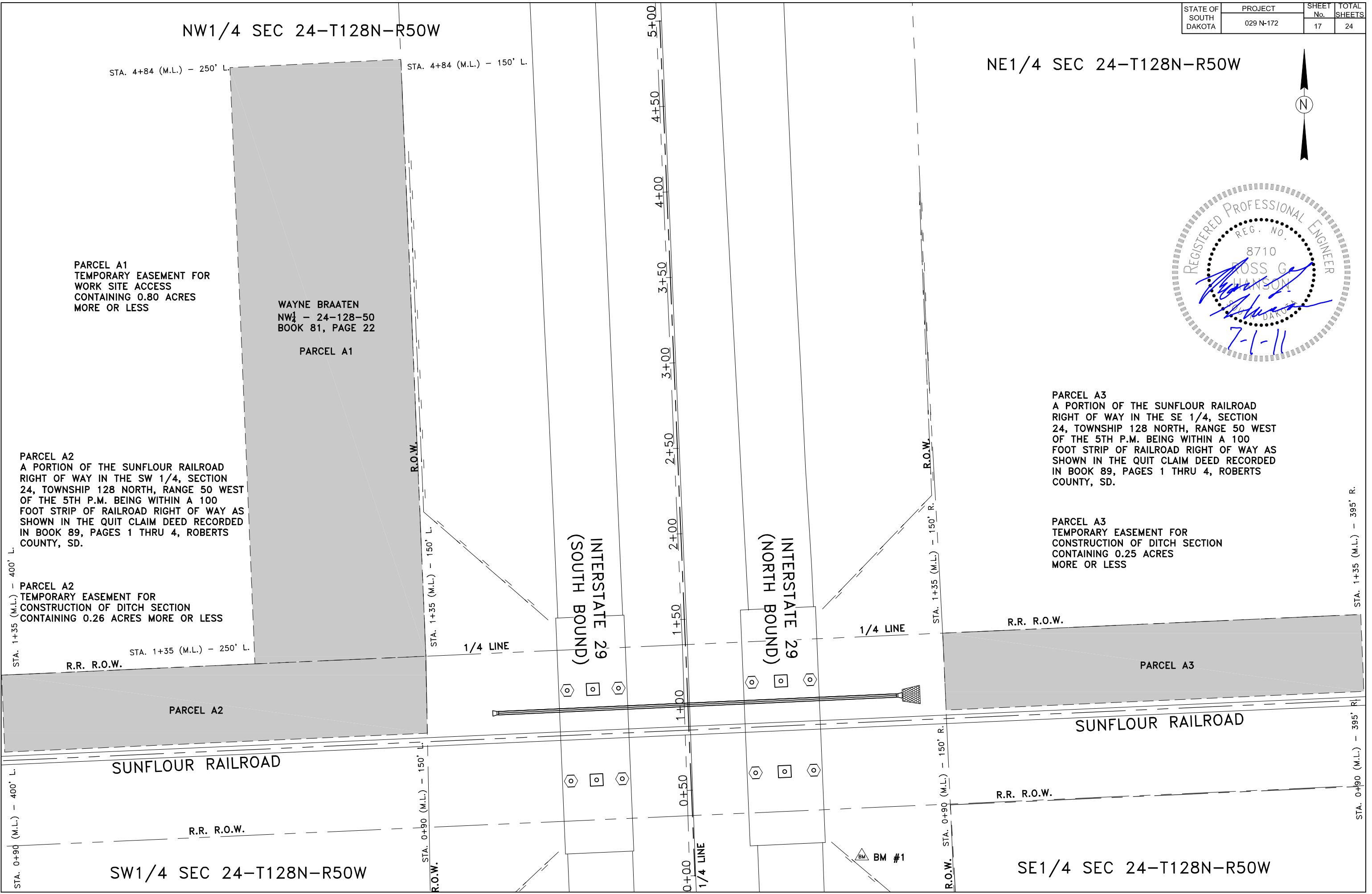
PARCEL A1

PARCEL A2
A PORTION OF THE SUNFLOUR RAILROAD
RIGHT OF WAY IN THE SW 1/4, SECTION
24, TOWNSHIP 128 NORTH, RANGE 50 WEST
OF THE 5TH P.M. BEING WITHIN A 100
FOOT STRIP OF RAILROAD RIGHT OF WAY AS
SHOWN IN THE QUIT CLAIM DEED RECORDED
IN BOOK 89, PAGES 1 THRU 4, ROBERTS
COUNTY, SD.

PARCEL A2
TEMPORARY EASEMENT FOR
CONSTRUCTION OF DITCH SECTION
CONTAINING 0.26 ACRES MORE OR LESS

PARCEL A3
A PORTION OF THE SUNFLOUR RAILROAD
RIGHT OF WAY IN THE SE 1/4, SECTION
24, TOWNSHIP 128 NORTH, RANGE 50 WEST
OF THE 5TH P.M. BEING WITHIN A 100
FOOT STRIP OF RAILROAD RIGHT OF WAY AS
SHOWN IN THE QUIT CLAIM DEED RECORDED
IN BOOK 89, PAGES 1 THRU 4, ROBERTS
COUNTY, SD.

PARCEL A3
TEMPORARY EASEMENT FOR
CONSTRUCTION OF DITCH SECTION
CONTAINING 0.25 ACRES
MORE OR LESS



STA. 1+35 (M.L.) - 400' L.

STA. 0+90 (M.L.) - 400' L.

STA. 4+84 (M.L.) - 250' L.

STA. 4+84 (M.L.) - 150' L.

STA. 1+35 (M.L.) - 250' L.

STA. 1+35 (M.L.) - 150' L.

STA. 0+90 (M.L.) - 150' L.

5+00
4+50
4+00
3+50
3+00
2+50
2+00
1+50
1+00
0+50
0+00

STA. 1+35 (M.L.) - 150' R.

STA. 0+90 (M.L.) - 150' R.

STA. 1+35 (M.L.) - 395' R.

STA. 0+90 (M.L.) - 395' R.

1/4 LINE

1/4 LINE

PARCEL A2

PARCEL A3

SUNFLOUR RAILROAD

SUNFLOUR RAILROAD

SW1/4 SEC 24-T128N-R50W

SE1/4 SEC 24-T128N-R50W

BM #1

R.R. R.O.W.

R.R. R.O.W.

R.O.W.

R.O.W.

R.O.W.

R.O.W.

INTERSTATE 29
(SOUTH BOUND)

INTERSTATE 29
(NORTH BOUND)

○ □ ○

○ □ ○

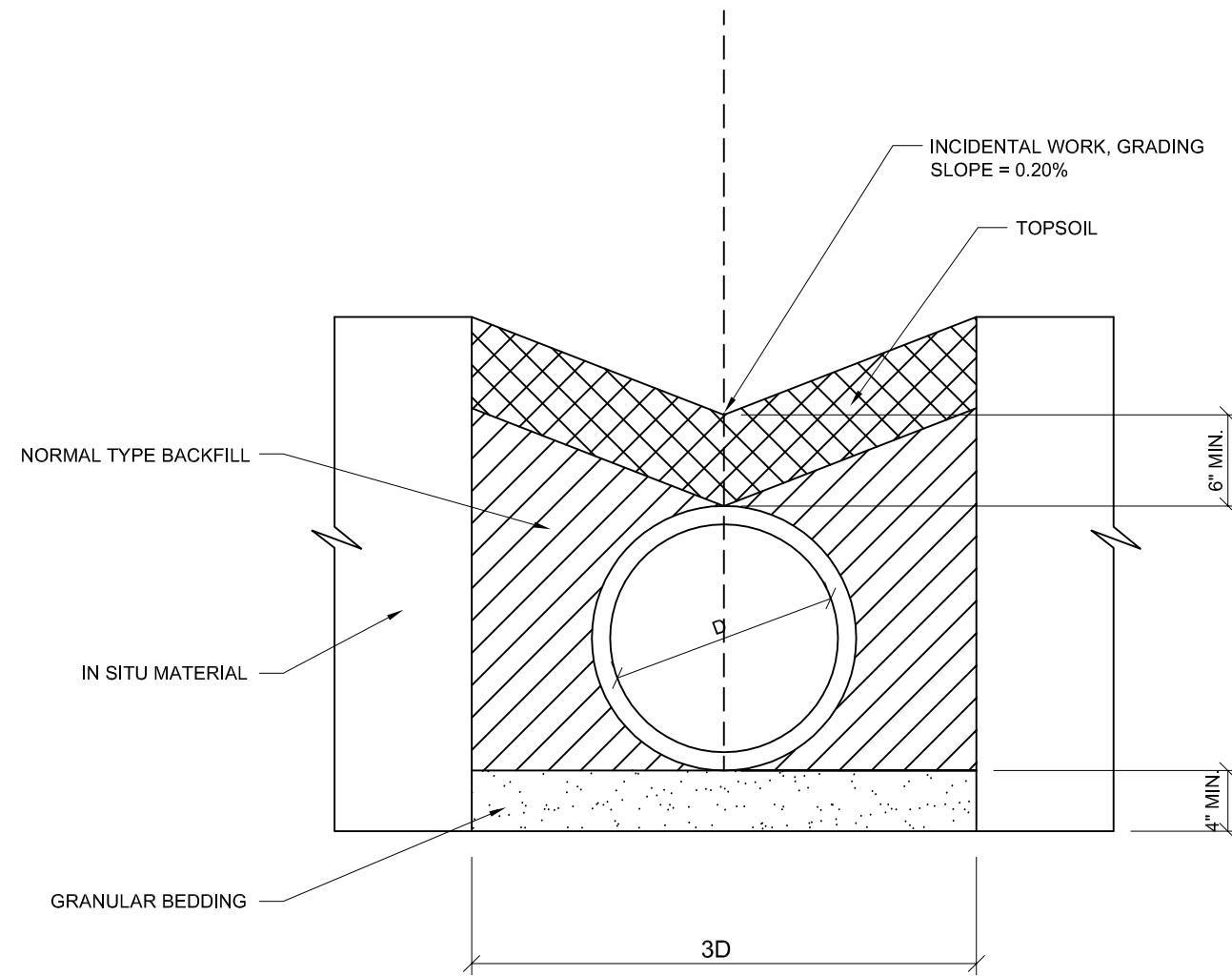
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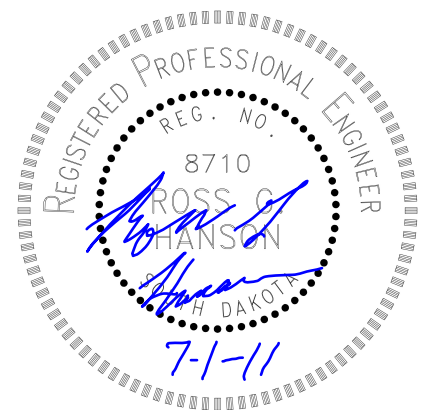
1/4 LINE

SPECIAL DETAIL — CULVERT INSTALLATION

STA 2+76 — STA 5+08 (SPECIAL ALIGNMENT)



CLASS C BEDDING
SCALE: NONE



Alternate Type Connector Sections may be used with approval of the Engineer.

Dia. D (in.)	Ga.	DIMENSIONS (in.)					Approx. Slope	Body
		A	B	H	L	W		
12	16	6	6	6	21	24	2 1/2:1	1 Pc.
15	16	7	8	6	26	30	2 1/2:1	1 Pc.
18	16	8	10	6	31	36	2 1/2:1	1 Pc.
21	16	9	12	6	36	42	2 1/2:1	1 Pc.
24	16	10	13	6	41	48	2 1/2:1	1 Pc.
30	14	12	16	8	46	60	2 1/2:1	1 Pc.
36	14	14	19	9	51	72	2 1/2:1	2 Pc.
42	12	16	22	11	60	84	2 1/2:1	2 Pc.
48	12	18	27	12	69	90	2 1/4:1	2 Pc.
54	12	18	30	12	78	102	2:1	3 Pc.
60	12	18	33	12	84	114	1 3/4:1	3 Pc.
66	12	18	36	12	87	120	1 1/2:1	3 Pc.
72	12	18	39	12	87	126	1 1/3:1	3 Pc.
78	12	18	42	12	87	132	1 1/4:1	3 Pc.
84	12	18	45	12	87	138	1 1/6:1	3 Pc.

STANDARD CONNECTIONS

NOTE: Tubing is slipped over the sheet and rivets or lugs prior to forming operations of the apron.

TUBING ATTACHMENT DETAILS SECTION A-A

TYPICAL CROSS-SECTION

SECTION A-A (alternate)

GENERAL NOTES:
 All 3 pc. bodies shall have 12 Ga. sides and 10 Ga. center panels. Width of center panels shall be greater than 20% of the pipe periphery. Multiple panel bodies to have lap seams tightly joined by 3/8" Dia. galvanized rivets or bolts.
 For 60" through 84" sizes, reinforced edges shall be supplemented with galvanized stiffener angles. The angles will be 2" x 2" x 1/4" for 60" through 72" diameters and 2 1/2" x 2 1/2" x 1/4" for 78" and 84" diameters. The angles shall be attached by 3/8" diameter galvanized nuts and bolts.
 Rivets and Bolts shall be 3/8" Dia. Min. for 10 Ga. and 12 Ga. sheet, and 5/16" Dia. Min. for 14 Ga. and 16 Ga. sheets. Tighten nuts with torque wrench to 25 lbs. torque.

March 31, 2000

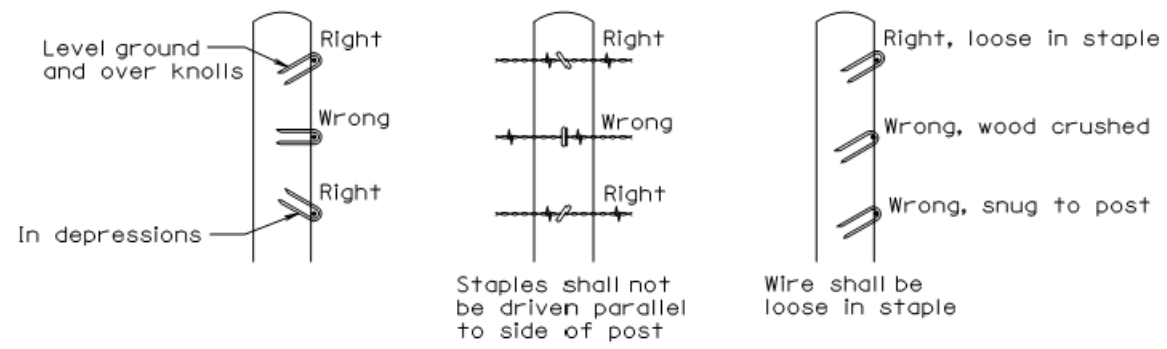
ALL WOOD POSTS

ALTERNATE WOOD AND STEEL POSTS

TYPE OF FENCE	LINE POST SPACING	BARBED WIRE		WOVEN WIRE	
		WIRE GAGE	NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.	
1	3 Barbed Wires	16'-6"	12 1/2	2 Point Round	---
2	4 Barbed Wires	16'-6"	12 1/2	2 Point Round	---
3	5 Barbed Wires	16'-6"	12 1/2	2 Point Round	---
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12 1/2	2 Point Round	726-6-12 1/2
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12 1/2	2 wires with 2 Pt. Rd., 2 wires with 4 Pt. Rd.	726-6-12 1/2
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12 1/2	2 wires with 2 Pt. Rd., 1 wire with 4 Pt. Rd.	832-6-12 1/2

GENERAL NOTES:
 Fence types designated on the plans that are followed by the letter S shall have smooth (barbless) wires.
 When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.
 All degrees of curvature stated for fence are at centerline of roadway.

September 14, 2009



STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence shall consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire shall be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts shall be used for brace panels. Gates shall be of the type designated in the plans or as otherwise directed by the Engineer. Fence shall be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

Right-of-Way fence on Interstate Projects shall be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Right-of-Way fence other than on Interstate Projects shall be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

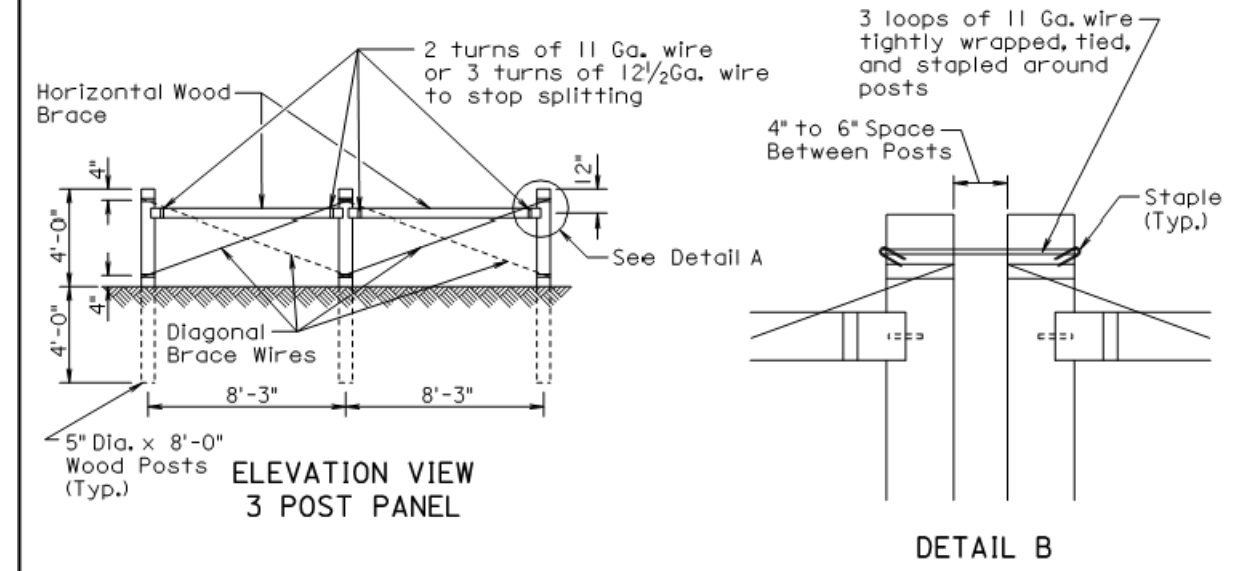
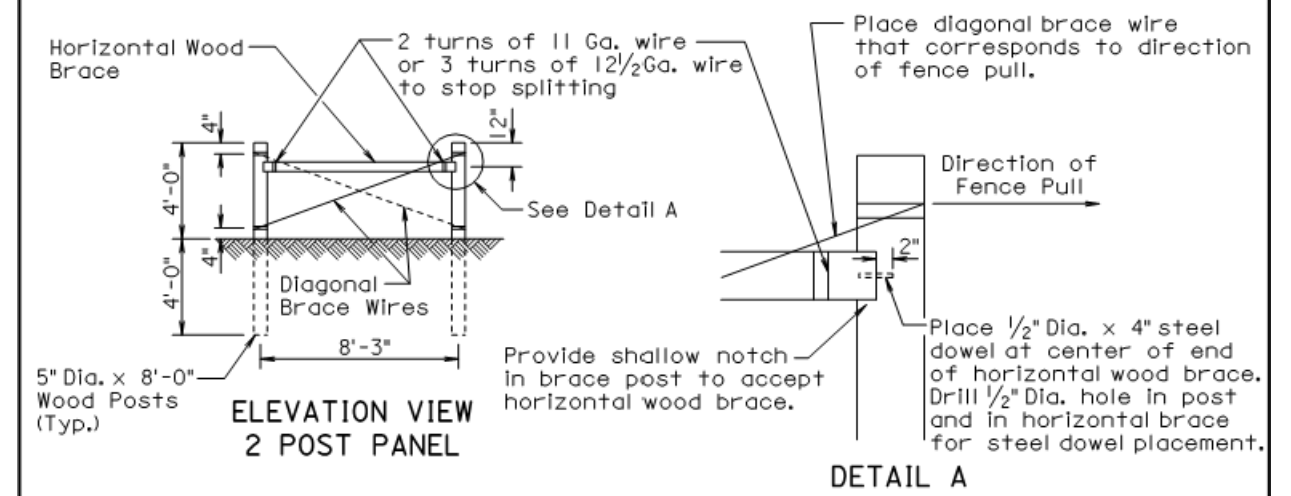
Barbs shall be fabricated from zinc coated 14 ga. wire. Two point barbs shall be wrapped twice around one main strand at 4" spacings and the four point barbs shall be interlocked and wrapped around both main strands at 5" spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts shall be as stated in AASHTO M281. Woven wire shall conform to design and specifications of ASTM A116 and barbed wire shall conform to ASTM A121.

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S D D O T	STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES	PLATE NUMBER 620.02
		Sheet 1 of 1

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GENERAL NOTES:

Two Post Panels shall be installed at least every 1320' between corners.

Two Post Panels shall be installed at any sharp vertical angle crest points and as directed by the Engineer.

Horizontal wood braces shall consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.

Diagonal brace wires shall be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires shall be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

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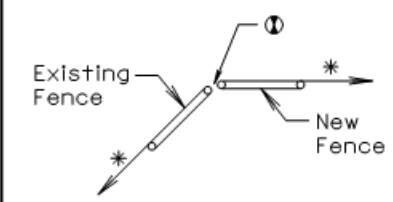
S D D O T	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
		Sheet 1 of 3

Published Date: 1st Qtr. 2011

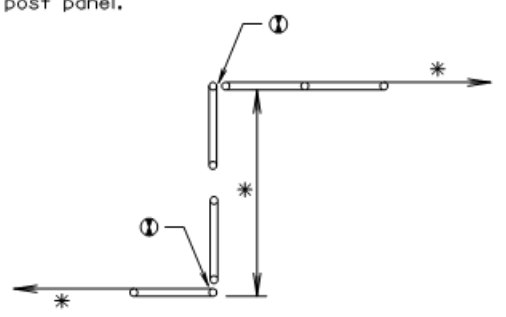
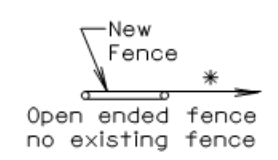
SPACING OF 2 POST PANELS WITHIN CURVES	
DEGREE OF CURVE	SPACING OF 2 POST PANEL
less than 3°15'	** 1320'
3°15' and greater	**At P.C., P.T., and at every 1320' between P.C. and P.T.

GENERAL NOTE:
All degrees of curvature stated for fence are at centerline of roadway.

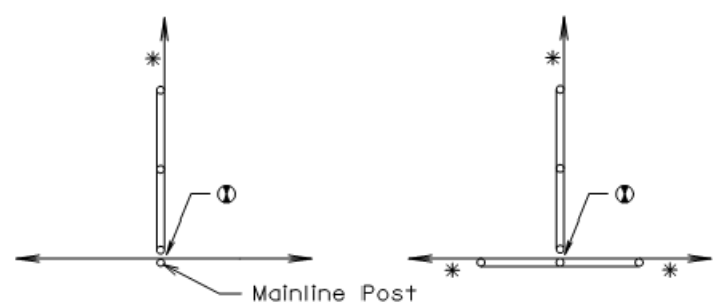
- * If fence length is less than 600' to next corner use a 2 post panel. If fence length is greater than 600' to next corner use a 3 post panel.
- ** Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.
- ① See Detail B on Sheet 1 of 3.



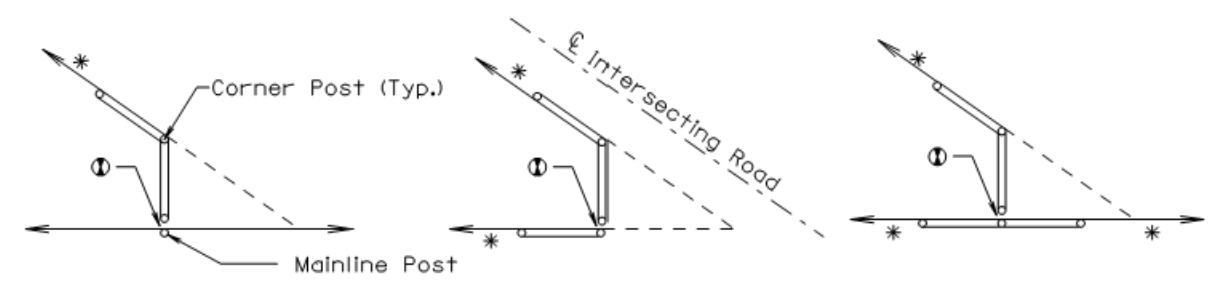
BEGIN OR END FENCE
(where new fence ties into existing fence)



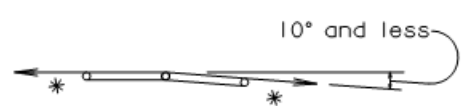
SHORT JOGS IN FENCE



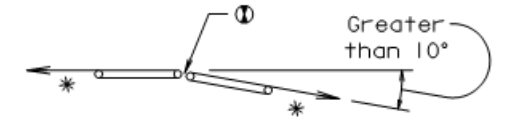
CROSS FENCE



SHARP ANGLES IN CROSS FENCE



Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.



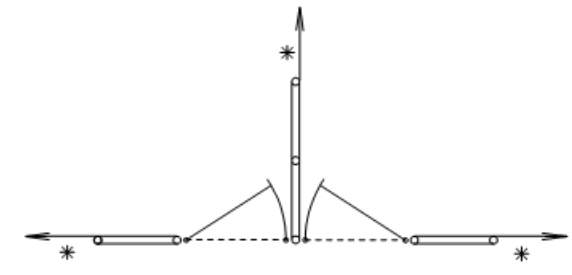
Additional fence panel is required when an angle in the mainline fence is greater than 10°.

ANGLES IN MAINLINE FENCE

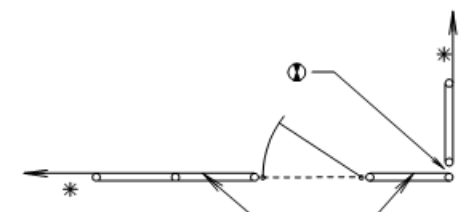
December 23, 2004



**ENTRANCE
(NOT ON CORNER)**

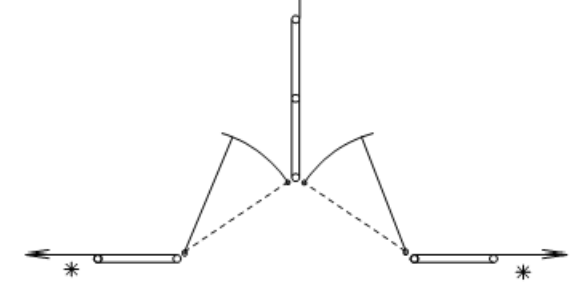


DOUBLE ENTRANCES

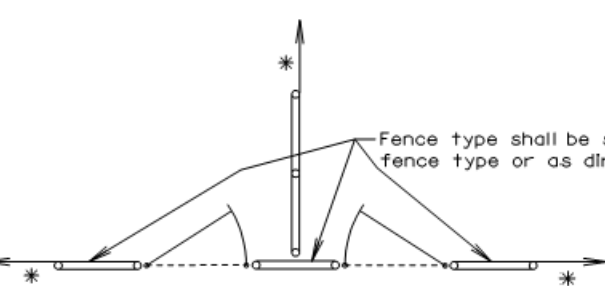


ENTRANCES AT CORNERS

Fence type shall be same as adjacent fence type or as directed by the Engineer.



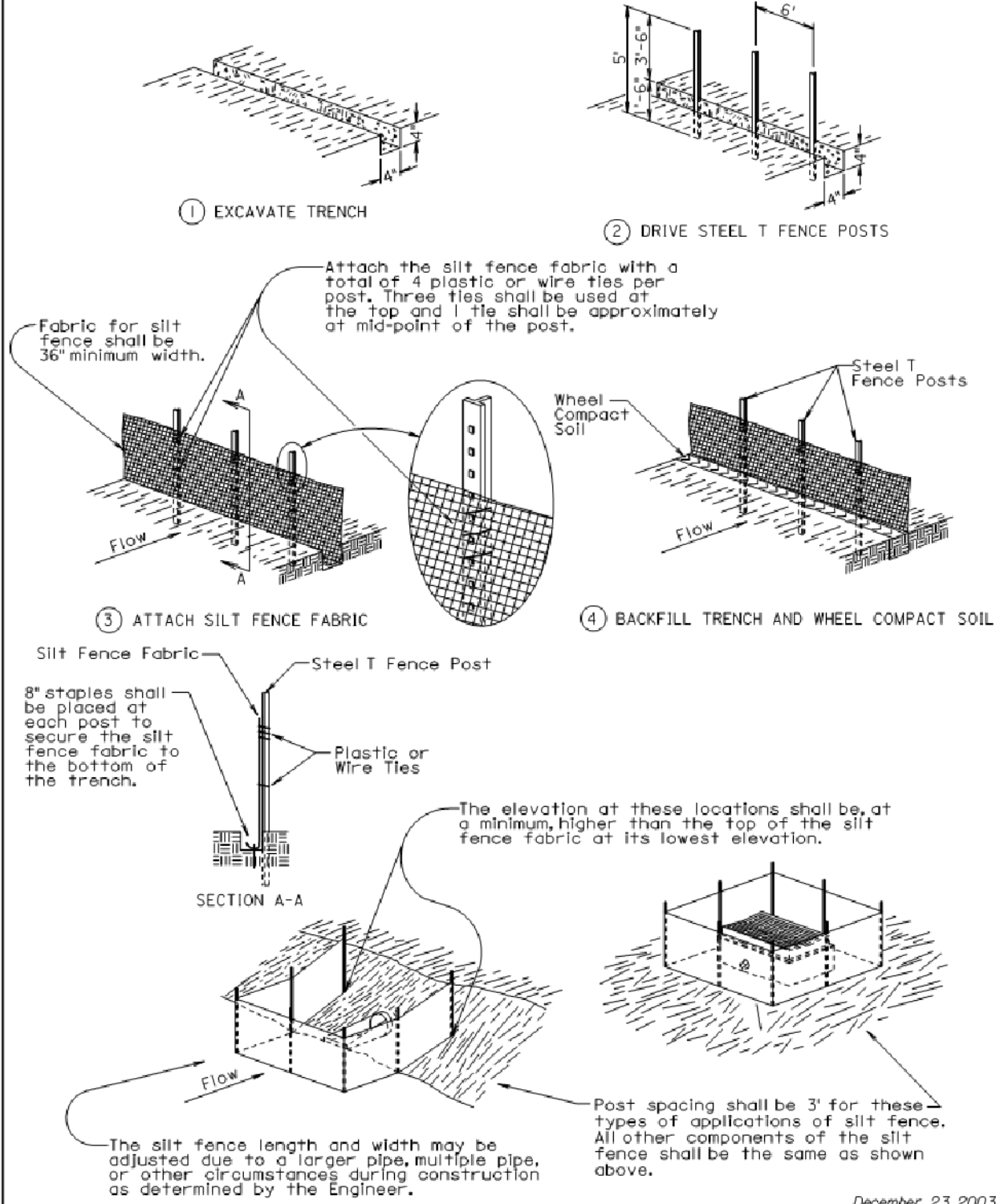
GATES



- * If fence length is less than 600' to next corner use a 2 post panel. If fence length is greater than 600' to next corner use a 3 post panel.
- ① See Detail B on Sheet 1 of 3.

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MANUAL HIGH FLOW SILT FENCE INSTALLATION

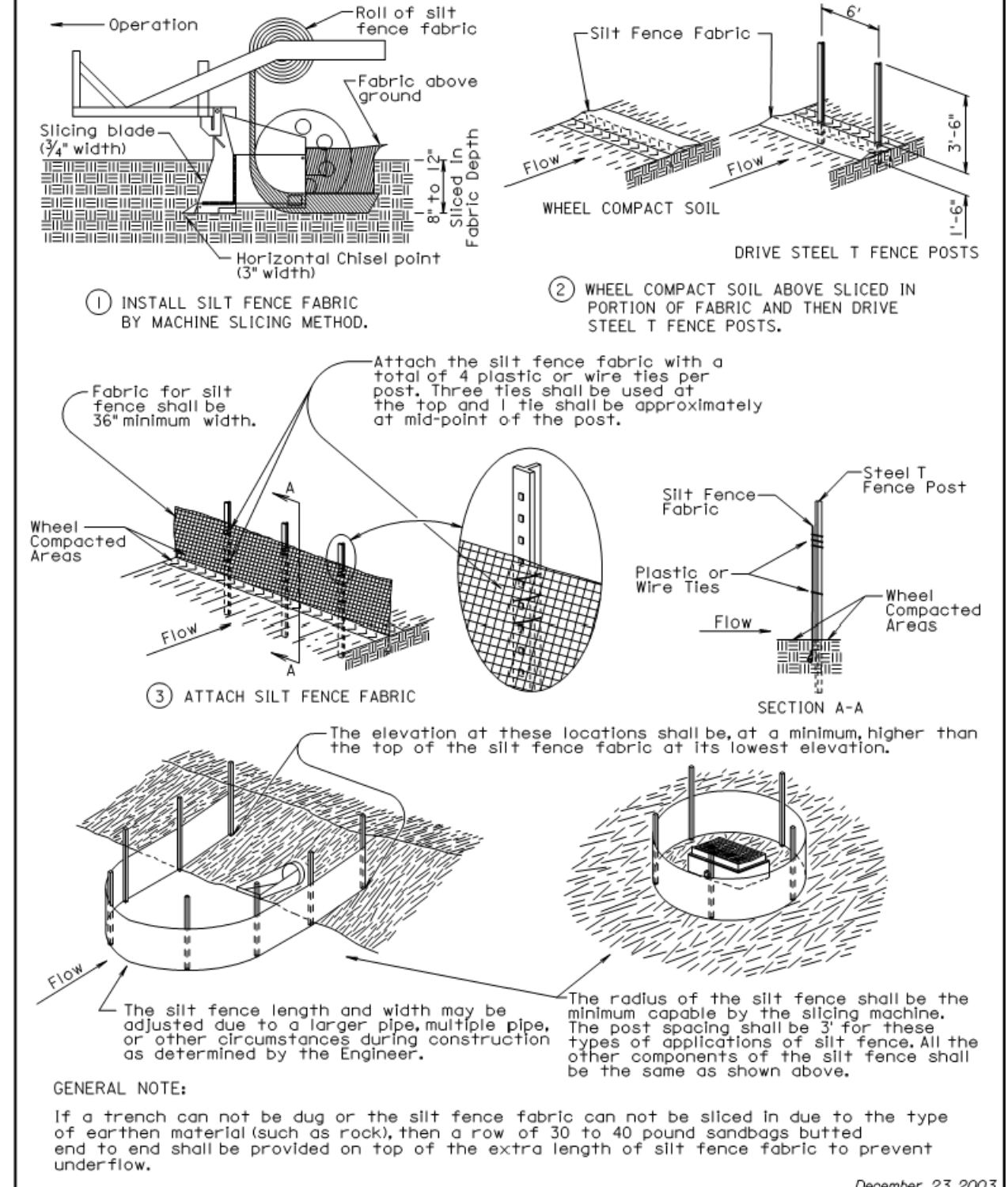


December 23, 2003

S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
		Sheet 1 of 2

Published Date: 1st Qtr. 2011

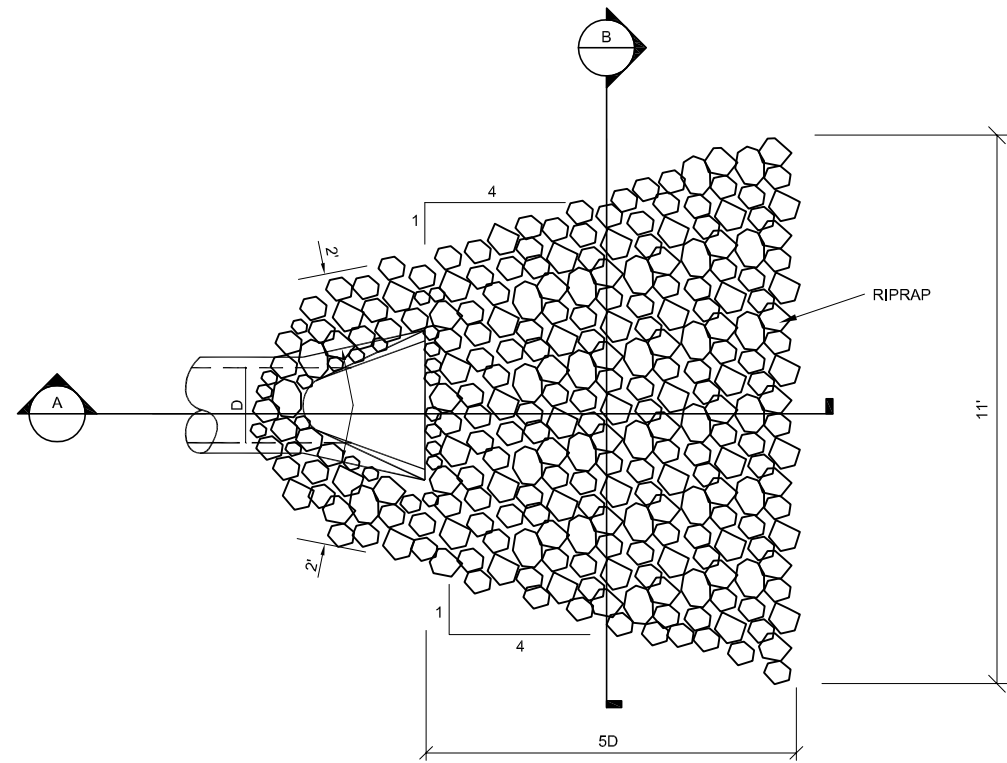
MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



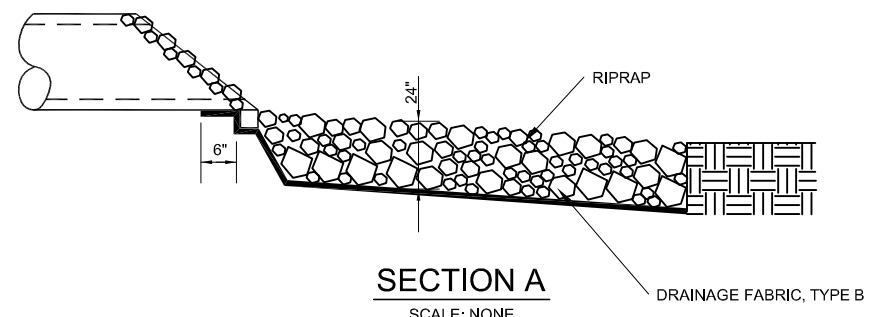
December 23, 2003

S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
		Sheet 2 of 2

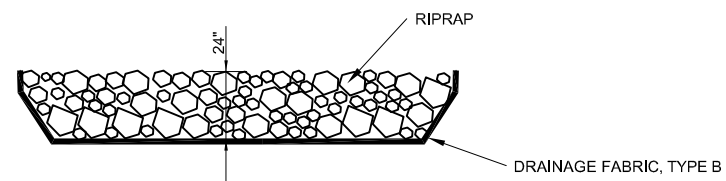
Published Date: 1st Qtr. 2011



PLAN
RIPRAP AT FLARED END SECTION
SCALE: NONE



SECTION A
SCALE: NONE



SECTION B
SCALE: NONE

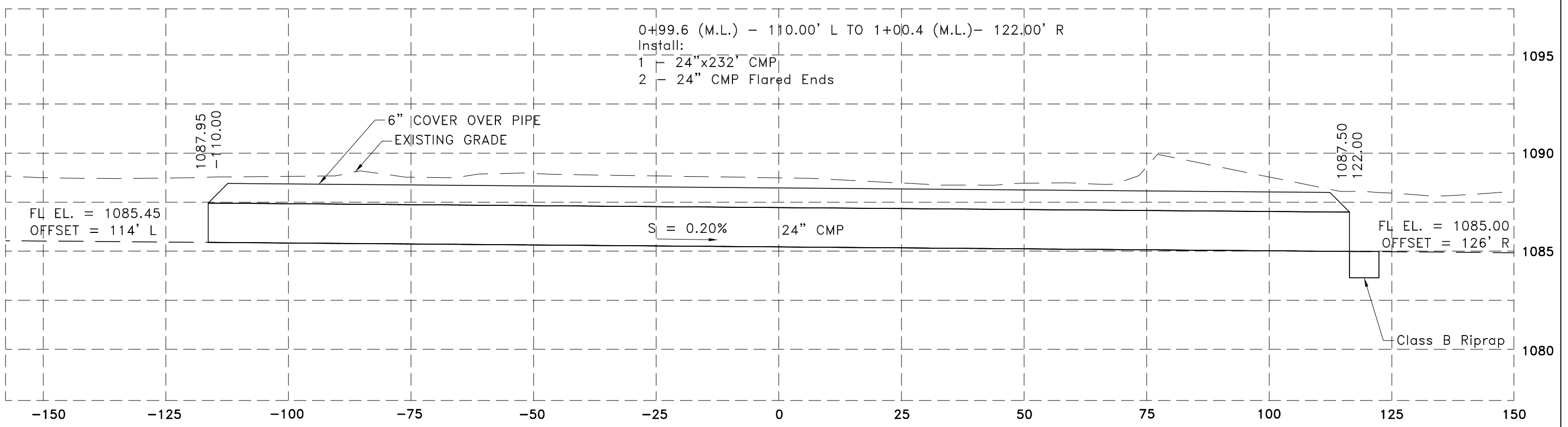


PIPE SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET No.	TOTAL SHEETS
	029 N-172	24	24

0+99.6 (M.L.) - 110.00' L TO 1+00.4 (M.L.)- 122.00' R

- Install:
1 - 24"x232' CMP
2 - 24" CMP Flared Ends



FL EL. = 1085.45
OFFSET = 114' L

S = 0.20% 24" CMP

FL EL. = 1085.00
OFFSET = 126' R

Class B Riprap

