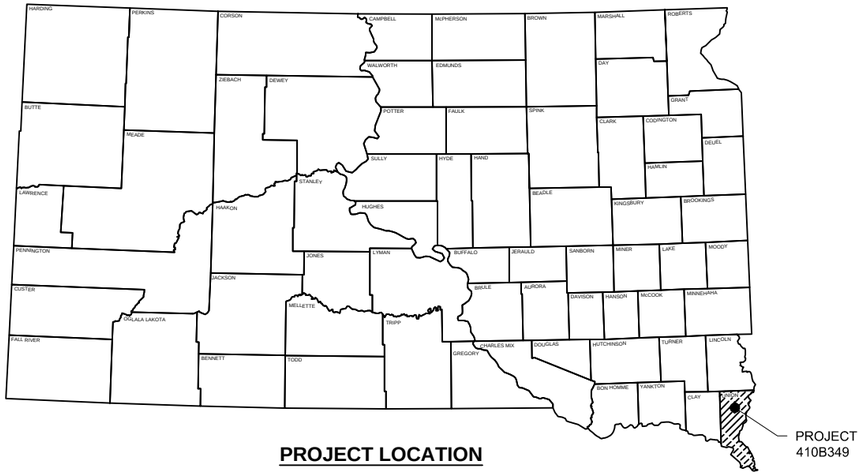
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410B349	1	20



PROJECT LOCATION

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT NO. 410B349
UNION COUNTY
HOMESTEAD REST AREA
LAGOON IMPROVEMENTS
PCN I5ER

LOCATION MAP

REGISTERED PROFESSIONAL ENGINEER
REG NO. 9603
RICHARD S. UCHERT
NORTH DAKOTA
8/17/18

INDEX OF SHEETS

STORM WATER PERMIT

MAJOR RECEIVING BODY OF WATER:		MISSOURI RIVER
AREA DISTURBED:	2.5 ACRES	
TOTAL PROJECT AREA:	2.5 ACRES	
APPROX. BEGIN LATITUDE:	42°46'57"N	
APPROX. BEGIN LONGITUDE:	96°47'13"W	

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ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	410B349	2	20

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0520	Remove Sewer Pipe	301	Ft
110E1960	Remove Valve Box	1	Each
110E1965	Remove Gate Valve	1	Each
110E7800	Remove Chain Link Fence for Reset	702	Ft
230E0100	Remove and Replace Topsoil	Lump Sum	LS
451E1006	6" PVC Sewer Pipe	62	Ft
451E1102	2" PVC Forcemain	92	Ft
451E4905	Trench Stabilization Material	20.0	Ton
451E4920	Pipe Bedding Material	60.0	Ton
621E0520	Reset Chain Link Fence	702	Ft
671E1048	48" Manhole	1	Each
700E0110	Class A Riprap	12	Ton
734E0010	Erosion Control	Lump Sum	LS
734E0602	Low Flow Silt Fence	74	Ft
734E0610	Mucking Silt Fence	5.1	CuYd
734E0620	Repair Silt Fence	19	Ft
SPECIAL	Remove Concrete Splash Block	3	Each
SPECIAL	Remove Concrete Inlet Structure	2	Each
SPECIAL	Loading Sludge Hauling Equipment	3,150	1,000 Gal
SPECIAL	Sludge Hauling	9,450	1,000Gal-Loaded Mile
SPECIAL	Repair Lagoon Clay Liner	80	CuYd
SPECIAL	Inlet Headwall Structure	1	Each
SPECIAL	Pond Level Indicator	2	Each
SPECIAL	6" MJ Plug Valve with Flange Adaptors	1	Each
SPECIAL	Prefill Stabilization Pond	1.007	MG
SPECIAL	Warning Sign	4	Each

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: http://www.sddot.com/resources/Manuals/EnvironProcManual.pdf

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Office at 605-773-3098 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

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

COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species waters within South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment to prevent and control the introduction and spread of invasive species into the project vicinity.

The Contractor will not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

Action Taken/Required:

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

Additional information and mapping of Aquatic Invasive Species in South Dakota can be accessed at: http://sdleastwanted.com/maps/default.aspx.

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance and/or work in a waterway.

Action Taken/Required:

The DENR General Permit for Storm Water Discharges Associated with Construction Activities is required for construction activity disturbing one or more acres of earth and work in a waterway. The SDDOT is the owner of this permit and will submit the NOI to DENR 15 days prior to project start in order to obtain coverage under the General Permit. Work can begin once the DENR letter of approval is received.

The Contractor must adhere to the "Special Provision Regarding Storm Water Discharges to Waters of the State."

The Contractor will complete the DENR Contractor Certification Form prior to the pre-construction meeting. The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the permit for this project. Work may not begin on this project until this form is signed and submitted to DENR.

The form can be found at:
http://denr.sd.gov/des/sw/eforms/E2110LDV1-ContractorCertification.pdf

The Contractor is advised that permit coverage may also be required for off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

Storm Water Pollution Prevention Plan

The Storm Water Pollution Prevention Plan (SWPPP) will be developed prior to the submittal of the NOI and will be implemented for all construction activities for compliance with the permit. The SWPPP must be kept on-site and updated as site conditions change. Erosion control measures and best management practices will be implemented in accordance with the SWPPP.

The Storm Water, Erosion, and Sediment Control Inspection Report Form DOT 298, will be used for site inspections and to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents and retained for a minimum of three years.

The inspection will include disturbed areas of the construction site that have not been finally stabilized, areas used for storage materials, structural control measures, and locations where vehicles enter or exit the site. These areas will be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWPPP will be observed to ensure that they are operating correctly and sediment is not tracked off of the site.

Information on storm water permits and SWPPPs are available on the following websites:

SDDOT:
http://www.sddot.com/business/environmental/stormwater/Default.aspx

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

EPA: https://www.epa.gov/npdes

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period 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.

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

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

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

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

State Historical Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

Action Taken/Required:

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

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

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

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

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

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

UTILITIES

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

SEWAGE LEAKS OR SPILLS

The Contractor shall notify SD DENR and be responsible for all cleanup costs for sewage leaks and spills. Spill reporting requirements are to the following numbers.

- National Response Center 800-424-8802
- SD Notification 605-773-3296
- After Hours 605-773-3231

SHOP DRAWINGS

The Contractor shall submit the following shop drawings to the Engineer prior to the Pre-Construction Meeting:

- Project Schedule
- List of Subcontractors
- Haul Road Agreements
- Prefill Stabilization Pond Plan
- 6” PVC Sewer Pipe and appurtenances
- 2” PVC Forcemain
- Anti-seep Collar
- Pipe Bedding Material Gradation
- Trench Stabilization Material Gradation
- 48” Manhole with Manhole Frame and Cover
- Class A Riprap
- Geotextile Fabric (Drainage Fabric and Stabilization Fabric)
- Low Flow Silt Fence
- Concrete Mix Design
- 6” MJ Plug Valve with Flange Adaptors
- Warning Sign
- Seed mixture, type of mulch, and fertilizer

TESTING

The Owner will employee the services of a geotechnical engineering firm/agronomist to complete soil and concrete testing. The Contractor shall inform the Engineer so the following tests can be completed:

- Standard Proctor Tests on Clay Liner Material
- Density Tests on Clay Liner Material
- Permeability Tests on Clay Liner
- Concrete Tests on Structures
- Soil testing at the land application site (30-day notice required)
    - Land application cannot begin until the test results are provided to the Engineer so an application rate can be calculated.

SOIL INVESTIGATION

The Owner has completed a soils investigation report for the clay liner repairs. The report can be accessed by request through Banner Associates, Inc.

SPECIAL PROVISIONS

The Contractor shall refer to the Special Provisions for specifications regarding the following items:

- PVC Sewer Pipe
- PVC Forcemain Pipe
- Plug Valve with Flange Adaptors
- Geotextile Fabric
- Clay Liner Repairs
- Bedding Material
- Trench Stabilization Material
- Manholes
- Inlet Headwall Structures
- Pond Level Indicators
- Loading Sludge Hauling Equipment
- Sludge Hauling
- Prefill Stabilization Pond

LAGOON SITE ACCESS

The Contractor is expected to keep site disturbance to a minimum. The Contractor shall not operate equipment in any drainage swales or low areas that hold water. The Contractor is allowed to remove and reset the perimeter chain link fence on the north and east sides of the site for access.

LAND APPLICATION SITE ACCESS

The Contractor shall use existing field approaches to access the land application site. The Contractor shall complete and submit the Agreement for Use and Restoration of Contractor’s Haul Road agreement with Union County and Spink Township prior to hauling sludge to the site. A copy of the permit shall be supplied to the Owner and Engineer. The Contractor shall adhere to all requirements of the permit and shall consider in their bid the requirements necessary to maintain and restore roads as stated in the Haul Road agreement. Refer to the Special Provisions for the application.

REMOVE CHAINLINK FENCE FOR RESET

The Contractor shall salvage the existing chain link fence and gates as shown on the plans and store in a safe location. Upon completion of seeding, the Contractor shall reset the fence in the existing location to the satisfaction of the Owner. All work necessary to remove and salvage the chain link fence and gates including labor, equipment, and incidentals shall be incidental to the contract unit price per foot for “Remove Chain link Fence for Reset.”

REMOVAL OF STRUCTURES

Included in these plans is the removal and disposal of several structures. The locations and types of buildings are as follows:

Station	L/R/CL	Type
1+63	L	Concrete Splash Block
2+22	L	Concrete Splash Block
2+34	CL	Concrete Splash Block
4+27	R	Concrete Inlet Structure
5+03	L	Concrete Inlet Structure

Refer to the Inlet Structure Details sheet for reference to the details regarding these structures. These details are based off the as-built information provided by the Owner from the original construction of the Homestead Rest Area. There is no record of the structure installed at Sta. 5+03 and it is assumed it is of similar nature to the structure at Sta. 4+27.

All work necessary to remove the structure from its existing location and remove it from the site including labor, equipment, and incidentals shall be incidental to the contract unit price per each for “Remove Concrete Splash Block” or “Remove Concrete Inlet Structure.”

SALVAGE AND REINSTALL RIPRAP

Prior to completing work on the lagoon dikes where pipe removal is necessary, the Contractor shall salvage the existing riprap and store on-site. The Contractor shall reinstall the salvaged riprap on the lagoon dikes upon completion of the clay liner repairs after testing has been completed. No separate measurement and payment will be made for this work. All work necessary to remove, salvage, store and install the riprap including labor, equipment, and incidentals shall be incidental to other project costs.

The estimated amount of riprap to be salvaged and reinstalled is 68 CuYd.

REMOVE AND REPLACE TOPSOIL

Topsoil shall be salvaged and stockpiled prior to constructing forcemain and transfer piping. Following completion of construction, topsoil shall be spread evenly over the disturbed areas.

The estimated amount of topsoil to be removed and replaced is 45 CuYd.

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

EROSION CONTROL

The estimated area requiring erosion control is 3,000 square feet. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, fertilizing, and mulching shall be incidental to the contract lump sum price for “Erosion Control”.

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

Permanent Seeding

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

Type B Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Switchgrass	Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer	3
Indiangrass	Holt, Tomahawk, Chief, Nebraska 54	3
Big Bluestem	Bison, Bonilla, Champ, Sunnyview, Rountree, Bonanza	3
Canada Wildrye	Mandan	2
	Total:	18

Mycorrhizal Inoculum

Mycorrhizal inoculum shall consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier shall provide certification of the fungal species claimed and the live propagule count. The inoculum shall include the following fungal species:

25% *Glomus intraradices*
25% *Glomus aggregatum or deserticola*
25% *Glomus mosseae*
25% *Glomus etunicatum*

All seed shall be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed shall be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

Fertilizing

The Contractor shall apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer shall have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (P_2O_5) available phosphate, a minimum of 4% (K_2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer shall be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer shall have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer shall also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The fertilizer shall be applied at a rate of 1,000 pounds per acre in accordance with the manufacturer’s recommended method of application.

The all-natural slow release fertilizer shall be as shown below or an approved equal:

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 www.sustane.com
Perfect Blend	Perfect Blend, LLC Bellevue, WA Phone: 1-866-456-8890 www.perfect-blend.com

Hydraulic Straw Mulch

Hydraulic straw mulch shall be applied to the areas shown on the plans to be seeded. Hydraulic straw mulch shall not be placed in channels. Hydraulic straw mulch shall be applied after hydroseeding and before water for vegetation. Areas designated for hydraulic straw mulch application do not require a grass hay or straw mulch application. The application rate is 3,000 pounds per acre.

All costs for furnishing and applying the hydraulic straw mulch including the manufacturer recommended soil stabilizer or tackifier, hauling, materials, equipment, labor, and incidentals necessary shall be paid for at the contract unit price per pound for “Hydraulic Straw Mulch”.

The hydraulic straw mulch shall be from the list below or an approved equal:

Product	Manufacturer
HydroStraw, HydroStraw FiberPlus, HydroStraw Guar Plus, or HydroStraw BFM	HydroStraw, LLC Manteno, IL Phone: 1-800-545-1755 hydrostraw.com
HydroGold	Verdyol Riverton, Manitoba Canada Phone: 1-866-280-7327 www.bioticearth.com

Soil Stabilizer

Soil stabilizer shall be applied on the areas shown on the plans to be seeded. The soil stabilizer limits shall be adjusted as necessary by the Engineer during construction.

The Contractor shall apply soil stabilizer in accordance with the manufacturer’s application instructions and at the rate specified in the list of approved soil stabilizers.

Wood fiber mulch that contains a green dye shall be mixed with the soil stabilizer to be used as a tracer when the soil stabilizer is applied hydraulically. Wood fiber mulch shall be added at a rate of 300 pounds per acre to all of the approved soil stabilizers listed in the table except for the Pam-12 Plus product. The wood fiber mulch shall be a 100% wood fiber product and does not need to contain a tackifier.

EROSION CONTROL (continued)

The soil stabilizer shall be from the list below or an approved equal:

Product	Manufacturer
StarTak 600 Applied at a rate of 150 Lb/Acre	Chemstar Products Company Minneapolis, MN Phone: 1-800-328-5037 www.chemstar.com
Pam-12 Plus Applied at a rate of: Slope — None to 4:1: 1000 Lb/Acre; 4:1 to 3:1: 1000 to 2000 Lb/Acre; 3:1 to 2:1: 2000 to 3000 Lb/Acre	ENCAP, LLC Green Bay, WI Phone: 1-877-405-5050 http://professional.encap.net/
M-Binder Applied at a rate of 150 Lb/Acre	Ecology Controls Carpinteria, CA Phone: 1-805-684-0436 www.ssseeds.com
FiberRX Applied at a rate of: Slope — None to 4:1: 50 Lb/Acre; 3:1: 60 Lb/Acre; 2:1: 70 Lb/Acre; 1:1 or steeper: 80 Lb/Acre	Hydrostraw, LLC Manteno, IL Phone: 1-800-545-1755 hydrostraw.com
Enviropam Applied at a rate of 9 Lb/Acre	Innovative Turf Solutions, LLC Cincinnati, OH Phone: 1-513-317-8311 www.innovativeturfsolutions.com
HydraTack, Tack Plus, Tack-P, or Tack-P Plus Applied at a rate of 30 Lb/Acre	Innovative Turf Solutions, LLC Cincinnati, OH Phone: 1-513-317-8311 www.innovativeturfsolutions.com
Fl-1045 Hydrobond or Fl-1046 Hydrobond Applied at a rate of 15 Lb/Acre	JRM Chemical, Inc. Cleveland, OH Phone: 1-216-475-8488 www.soilmoist.com
HF5000 Tack Applied at a rate of 60 Lb/Acre	Rantec Corporation Ranchester, WY Phone: 1-307-655-9565 www.ranteccorp.com
R-Tack Applied at a rate of 150 Lb/Acre	Rantec Corporation Ranchester, WY Phone: 1-307-655-9565 www.ranteccorp.com
SpecTac Applied at a rate of: Slope — None: 30 to 80 Lb/Acre; 4:1: 50 to 100 Lb/Acre; 3:1: 80 to 120 Lb/Acre; 2:1: 100 to 170 Lb/Acre	Rantec Corporation Ranchester, WY Phone: 1-307-655-9565 www.ranteccorp.com
Super Tack Applied at a rate of 60 Lb/Acre	Rantec Corporation Ranchester, WY Phone: 1-307-655-9565 www.ranteccorp.com
EarthGuard SFM Applied at a rate of 60 LB/Acre (approx. 6 Gallons/Acre)	Terra Novo Inc. Bakersfield, CA Phone: 1-661-747-5956 www.terranovo.com

LOW FLOW SILT FENCE

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

http://sddot.com/business/certification/products/Default.aspx

Low flow silt fence shall be placed at the locations noted in the drawings 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 734.04 for details.

WARNING SIGN

The signs shall display the following information:

WASTEWATER
TREATMENT FACILITY
CONTAMINATED WATER
KEEP OUT

The warning signs shall be 16" by 24" minimum dimensions, constructed of sixteen (16) gauge zinc coated steel or 0.081 inch thick aluminum sheeting. The letters shall be black on white with minimum size letter of 2 inches. The white background shall be hot spray painted with a weather resistant flexible enamel. The letters shall be silk screened with sharp, clear lines painted with a weather resistant flexible enamel. The signs shall be the product of a company regularly engaged in the manufacturing of exterior metal signs.

Each sign shall be wired to the chain link fence at approximately mid-span of the fence length at the same height as in the existing condition.

All work necessary to remove, construct, and install the warning signs including equipment, labor and incidentals shall be incidental to the contract unit price per each for “Warning Sign.”

CONCRETE WASHOUT AREA

The Contractor shall use the concrete washout area that exists on the site for the construction of the Homestead Rest Area facility.

SLUDGE REMOVAL

The Contractor shall remove all sludge and liquid from the lagoons in a manner approved by the SD DENR. The Contractor shall make every effort to remove all material while keeping the existing clay liner intact and avoiding disturbance to the liner. If the Contractor causes damage to the liner, the Contractor shall repair the liner at no cost to the Owner per the recommendations of the geotechnical engineer.

Contractor shall coordinate with Banner Associates during sludge removal activities so proper permitting and documentation can be completed for SD DENR.

SLUDGE LAND APPLICATION

The Contractor shall land apply sludge in accordance with the Owner’s Sludge Application Permit and the EPA Part 503 Biosolids Rule.

The Contractor shall contact the landowner prior to application. Landowner information will be provided to the low bidder by the SD DOT. Land application must be applied after 2018 crop is harvested. The existing 2018 crop is soybeans.

Contractor shall coordinate with Banner Associates during all land application activities so proper permitting and documentation can be completed for SD DENR.

REGISTERED PROFESSIONAL ENGINEER
REG NO. 9603
RICHARD S. UCKERT
SOUTH DAKOTA
8/17/18

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	410B349	7	20

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: Removal sludge from wastewater lagoons
- **Total Project Area** 2.5 acres **(4.2 1.b.)**
- **Total Area To Be Disturbed** 1.3 acres **(4.2 1.b.)**
- **Existing Vegetative Cover (%)** 20%
- **Soil Properties:** AASHTO Soil A-7-6 **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Missouri River **(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.**
- **Remove sludge from lagoons.**
- **Remove and store topsoil.**
- **Stabilize disturbed areas.**
- **Install forcemain, site piping, and control structures.**
- **Repair damaged clay liner areas.**
- **Install salvaged topsoil.**
- **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)
  - ☐ Fiber Mulching (Wood Fiber Mulch)
  - ☒ Soil Stabilizer
  - ☐ Bonded Fiber Matrix
  - ☐ Fiber Reinforced Matrix
  - ☐ Erosion Control Blankets
  - ☐ Vegetation Buffer Strips
  - ☐ Surface Roughening (e.g. tracking)
  - ☐ Dust Control
  - ☒ Other: Hydraulic Straw Mulch
- **Structural Temporary Erosion and Sediment Controls**
  - ☒ Silt Fence
  - ☐ Floating Silt Curtain
  - ☐ Erosion Bales
  - ☐ Temporary Berm (Windrow)
  - ☐ Temporary Slope Drain
  - ☐ Erosion Control Wattles
  - ☐ Temporary Sediment Barriers
  - ☐ Turf Reinforcement Mat
  - ☒ Riprap
  - ☐ Gabions
  - ☐ Rock Check Dams
  - ☐ Sediment Traps/Basins
  - ☐ Culvert Inlet Protection
  - ☐ Transition Mats
  - ☐ Median/Area Drain Inlet Protection
  - ☐ Curb Inlet Protection
  - ☐ Stabilized Construction Entrances
  - ☐ Entrance/Exit Equipment Tire Wash
  - ☐ Interceptor Ditch
  - ☒ Concrete Washout Facility
  - ☐ 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 ⅓ 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 ½ 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 Erosion Control Supervisor 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:

REGISTERED PROFESSIONAL ENGINEER
REG NO.
RICHARD L. UCKERT
SOUTH DAKOTA
8/17/18

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 facilities on the site. These areas must be self-contained and not connected to any storm water outlet of the site. Upon completion of construction, the area at the washout facility 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 cleanup 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 cleanup 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.

REGISTERED PROFESSIONAL ENGINEER
REG NO. 9603
RICHARD L. ECKERT
SOUTH DAKOTA
8/17/18

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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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.

Tom Wahlstrom

_____

Authorized Signature (See the General Permit, Section 6.9.1.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: _____
  - _____
  - City: _____State: _____Zip: _____
  - Office Phone: _____Field: _____
  - Cell Phone: _____Fax: _____
- **Erosion Control Supervisor**
  - Name: _____
  - 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.

REGISTERED PROFESSIONAL ENGINEER
REG NO. 9603
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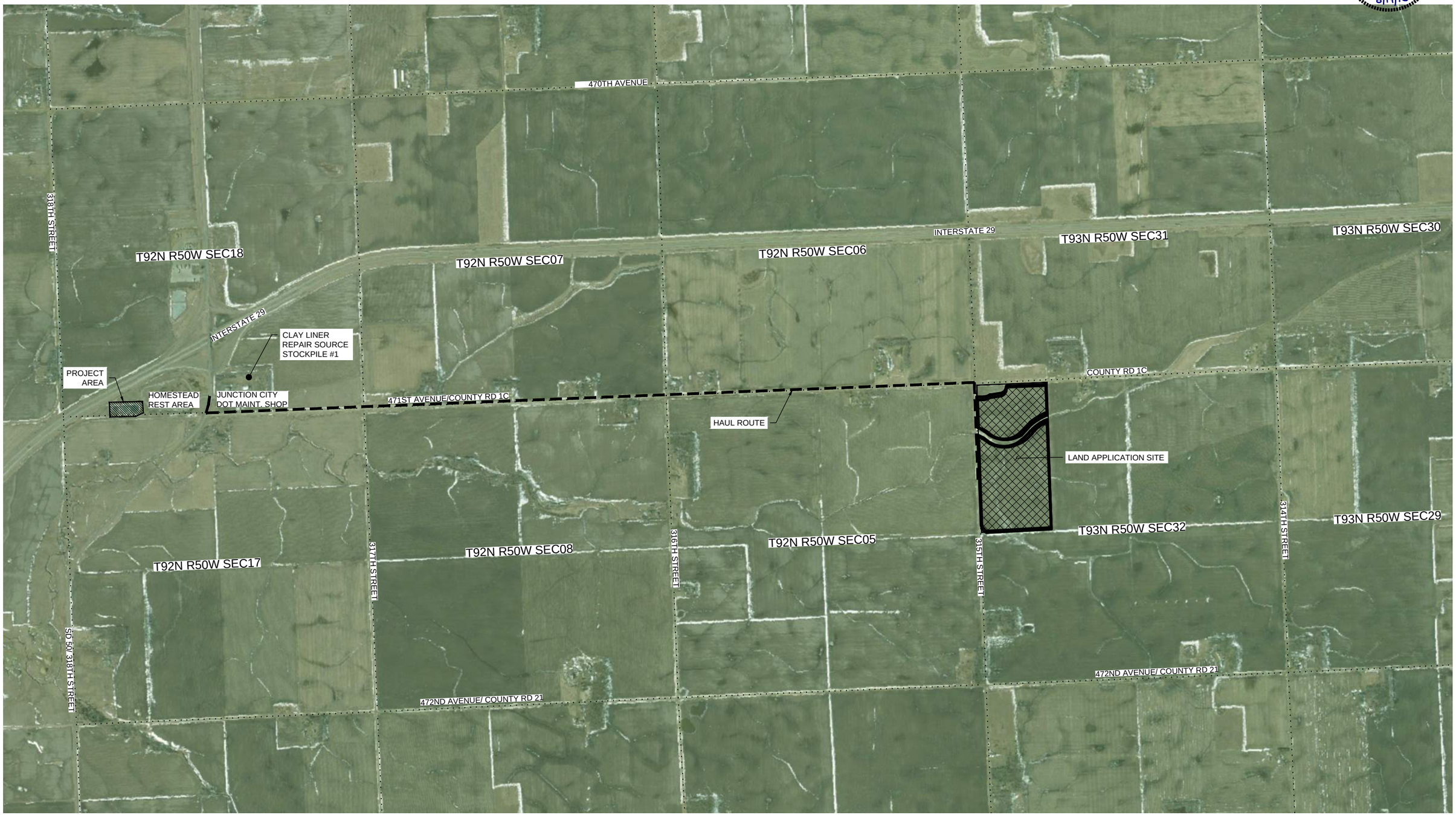
SOUTH DAKOTA
Richard Uckert
8/17/18

PROJECT VICINITY MAP

800' 0 1600'

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410B349	10	20

REGISTERED PROFESSIONAL ENGINEER
REG NO. 9603
RICHARD S. UCHERT
SOUTH DAKOTA
8/17/18



LAND APPLICATION SITE MAP

100' 0 200'

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410B349	11	20

REGISTERED PROFESSIONAL ENGINEER
REG NO. 9603
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NORTH DAKOTA
8/13/18

BIOSOLID APPLICATION SETBACK REQUIREMENTS ARE AS FOLLOWS:

- 100 FEET FROM WATERS OF THE STATE
- THE SLOPE MUST BE <6%
- 100 FEET FROM PRIVATE WELL OWNED BY THE PRODUCER IF THE AQUIFER IS >100 FEET DEEP
- 150 FEET FROM PRIVATE WELL OWNED BY THE PRODUCER IF THE AQUIFER IS <100 FEET DEEP
- 250 FEET FROM PRIVATE WELL NOT OWNED BY THE PRODUCER
- 1,000 FEET FROM ANY PUBLIC SUPPLY WELL

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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EXISTING INLET STRUCTURE DETAILS

REGISTERED PROFESSIONAL ENGINEER
REG NO. 9603
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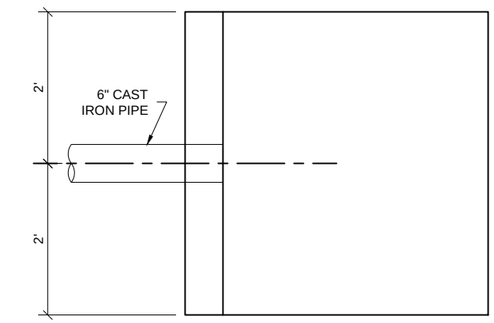
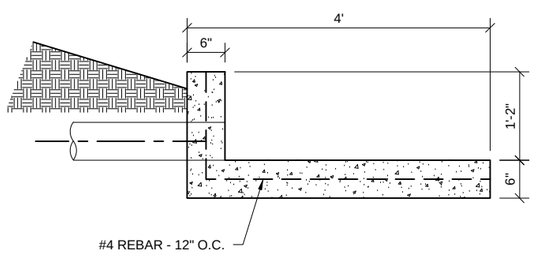
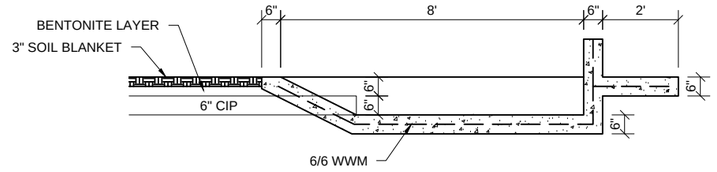
SOUTH DAKOTA
8/17/18

NOTE:
INLET STRUCTURE DETAILS ARE SHOWN PER THE AS-BUILT DRAWINGS. DETAILS ARE SHOWN TO ASSIST CONTRACTOR IN BIDDING STRUCTURE REMOVAL ONLY.

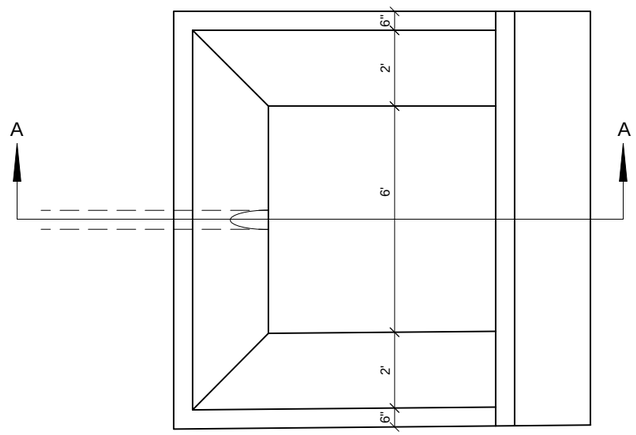




SPLASH BLOCK DETAILS
SCALE: NONE



SECTION A-A



PLAN VIEW

INLET STRUCTURE DETAILS
SCALE: NONE

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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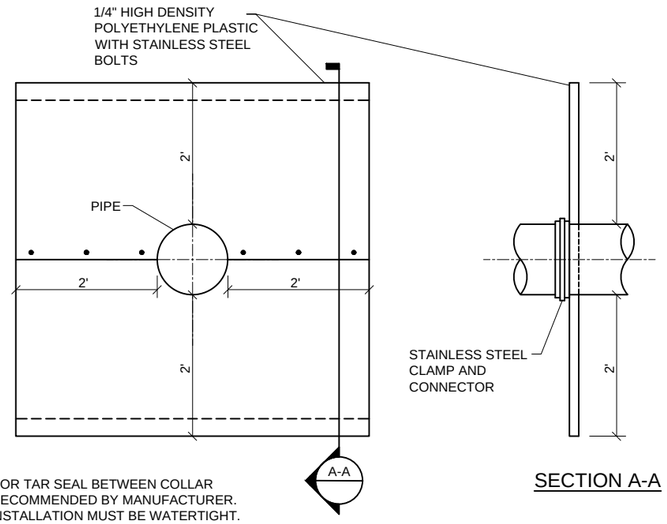
GENERAL DETAILS



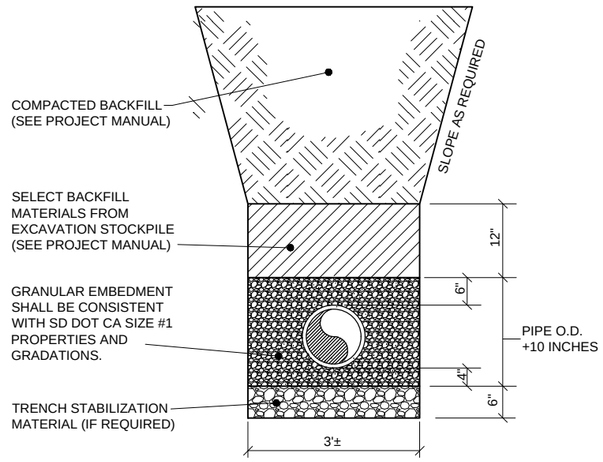
SECTION A-A

NOTES:
1. USE A MASTIC OR TAR SEAL BETWEEN COLLAR AND PIPE AS RECOMMENDED BY MANUFACTURER.
2. COMPLETED INSTALLATION MUST BE WATERTIGHT.
3. INSTALL A STAINLESS STEEL CLAMP AROUND PIPE OVER HDPE COLLAR AND TIGHTEN UNTIL SEALER IS FORCED OUT.
4. SHALL BE MADE TO FIT APPROPRIATE SIZE, CLASS, AND TYPE OF PIPE. SEE POND PIPING PROFILES AND DETAILS.

ANTI-SEEP COLLAR DETAIL

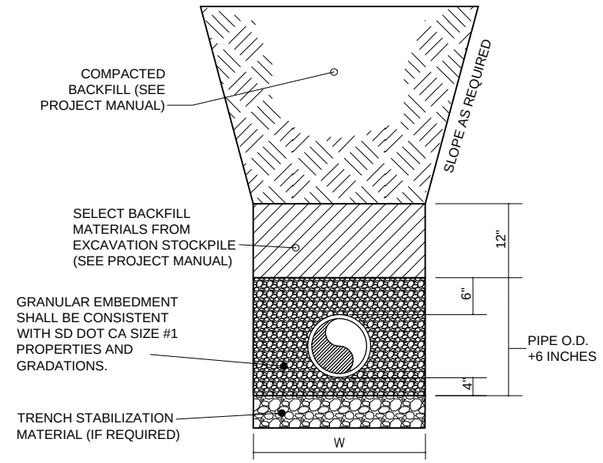
SCALE: NONE

NOTES:
1. TRENCH STABILIZATION MATERIAL WILL BE REQUIRED IF SOFT, SPONGY, UNSTABLE OR OTHER SIMILAR MATERIAL IS ENCOUNTERED WHERE THE PIPE IS TO BE PLACED. ENGINEER SHALL DETERMINE IN THE FIELD IF NECESSARY.
2. MINIMUM TRENCH WIDTHS SHALL BE NOT LESS THAN THE GREATER OF EITHER THE PIPE O.D. PLUS 16" OR PIPE O.D. TIMES 1.25 PLUS 12". PROVIDE A SUFFICIENT WIDTH BUT NOT WIDER TO PROPERLY INSTALL AND COMPACT PIPE EMBEDMENT, THE SPACE BETWEEN THE PIPE AND TRENCH WALL MUST BE WIDER THAN COMPACTION EQUIPMENT USED BELOW THE CROWN OF THE PIPE.
3. PIPE BEDDING TO BE HAND TAMPED OR SHOVEL SLICED AROUND HAUNCHES.



FORCEMAIN BEDDING DETAIL

SCALE: NONE



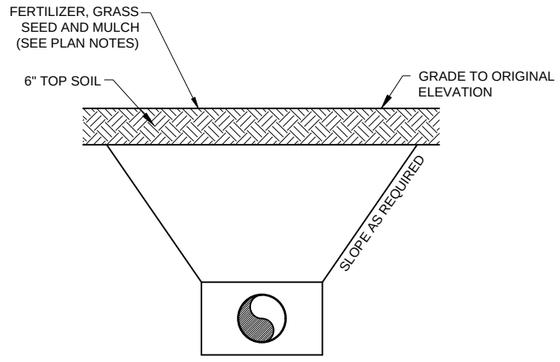
SANITARY SEWER BEDDING DETAIL

SCALE: NONE

WARNING SIGN DETAIL

SCALE: NONE

NOTE:
WARNING SIGNS SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH THE DRAWINGS AND PROJECT MANUAL.

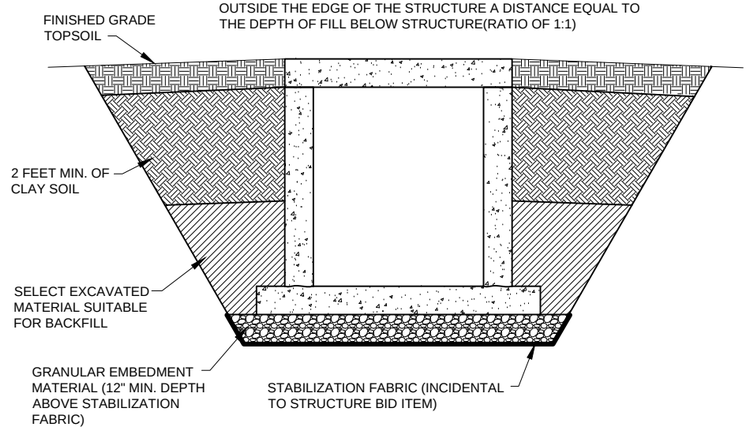


TRENCH CROSS-SECTION FOR TURF RESTORATION

SCALE: NONE

NOTES REGARDING EXCAVATION

LATERAL OVERSIZING OF THE EXCAVATION SHALL EXTEND OUTSIDE THE EDGE OF THE STRUCTURE A DISTANCE EQUAL TO THE DEPTH OF FILL BELOW STRUCTURE(RATIO OF 1:1)

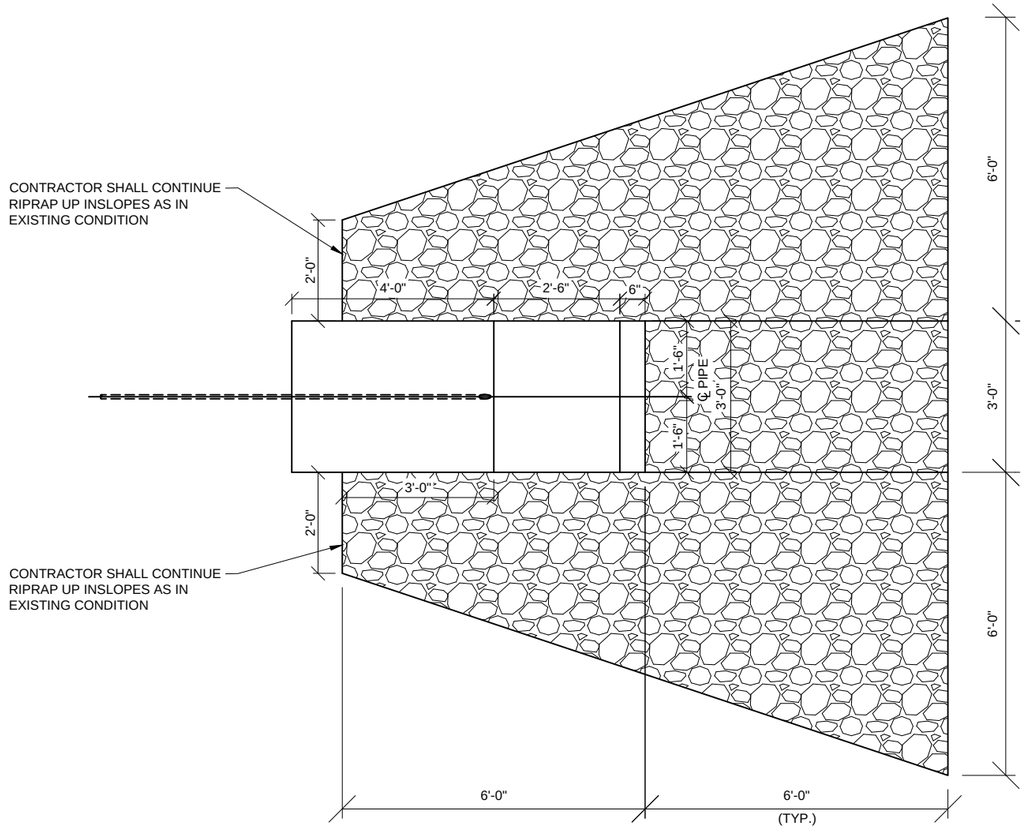


STRUCTURE & MANHOLE BACKFILL DETAIL

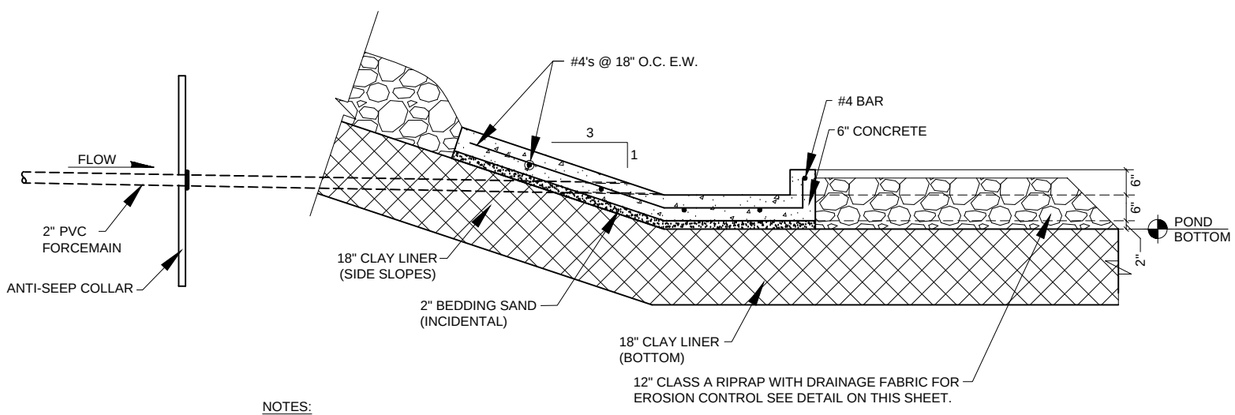
SCALE: NONE

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410B349	14	20

STRUCTURE DETAILS

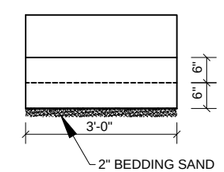


PLAN VIEW



NOTES:
THE INTEGRITY AND DEPTH OF THE POND CLAY LINER SHALL BE MAINTAINED UNDER ALL POND STRUCTURES.

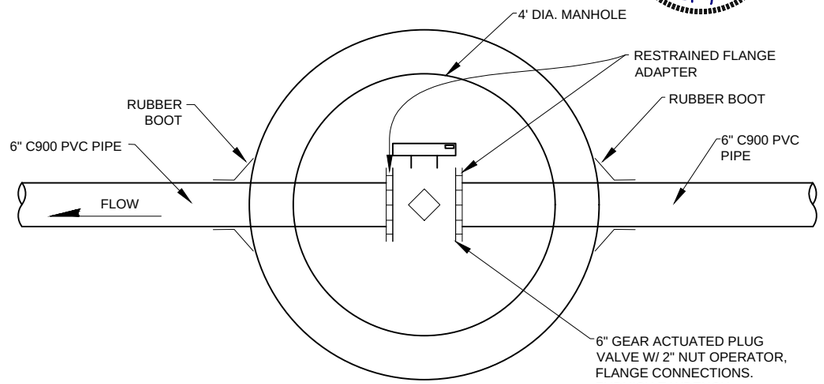
PRIMARY ELEVATION - SECTION



ELEVATION - END VIEW

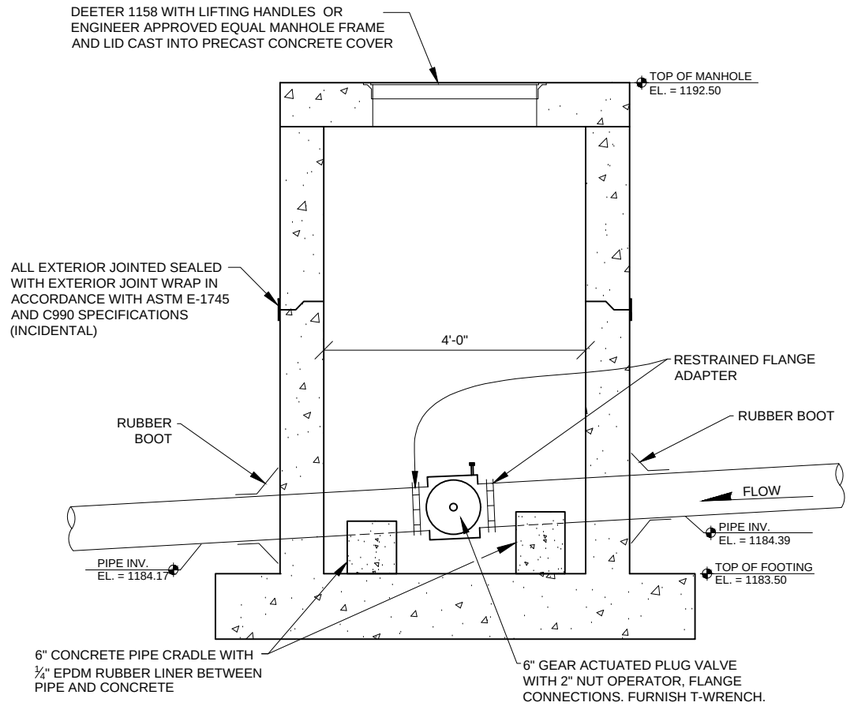
INLET HEADWALL STRUCTURE

SCALE: NONE



TRANSFER MANHOLE PLAN

SCALE: NONE

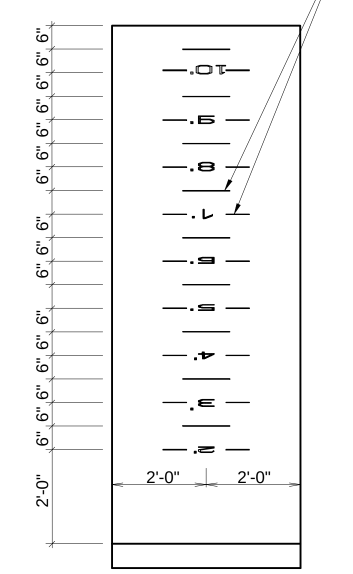


TRANSFER MANHOLE SECTION

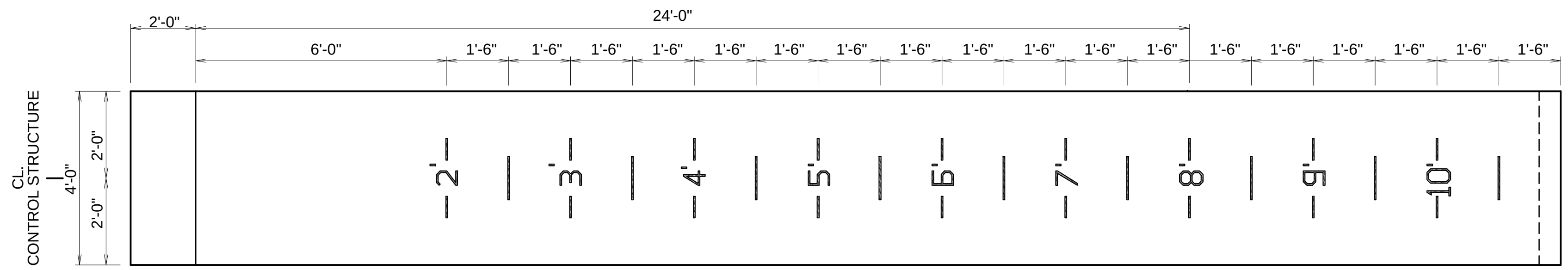
SCALE: NONE

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410B349	15	20

STRUCTURE DETAILS



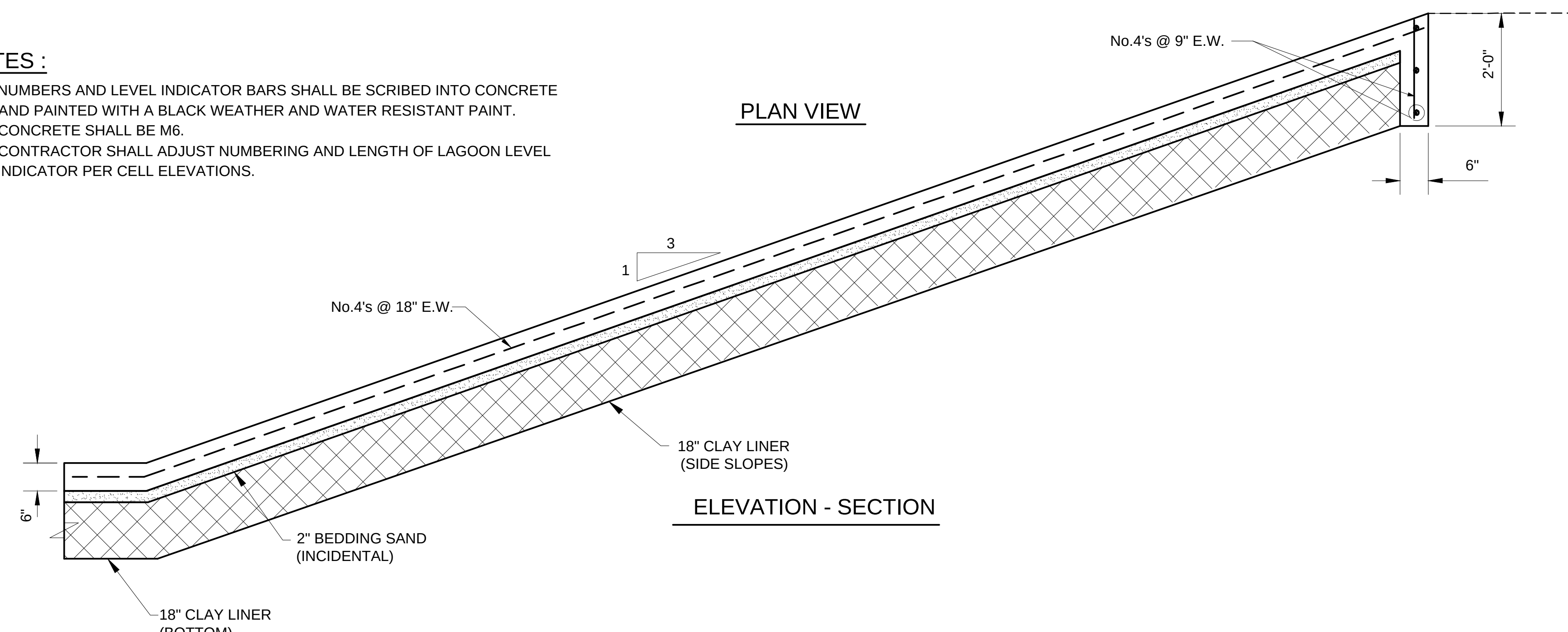
ELEVATION - END VIEW



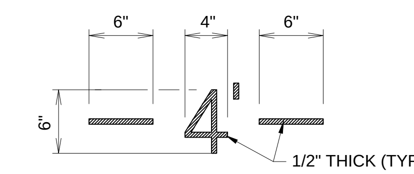
PLAN VIEW

NOTES :

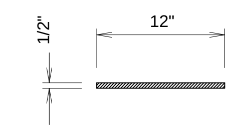
1. NUMBERS AND LEVEL INDICATOR BARS SHALL BE SCRIBED INTO CONCRETE AND PAINTED WITH A BLACK WEATHER AND WATER RESISTANT PAINT.
2. CONCRETE SHALL BE M6.
3. CONTRACTOR SHALL ADJUST NUMBERING AND LENGTH OF LAGOON LEVEL INDICATOR PER CELL ELEVATIONS.



ELEVATION - SECTION



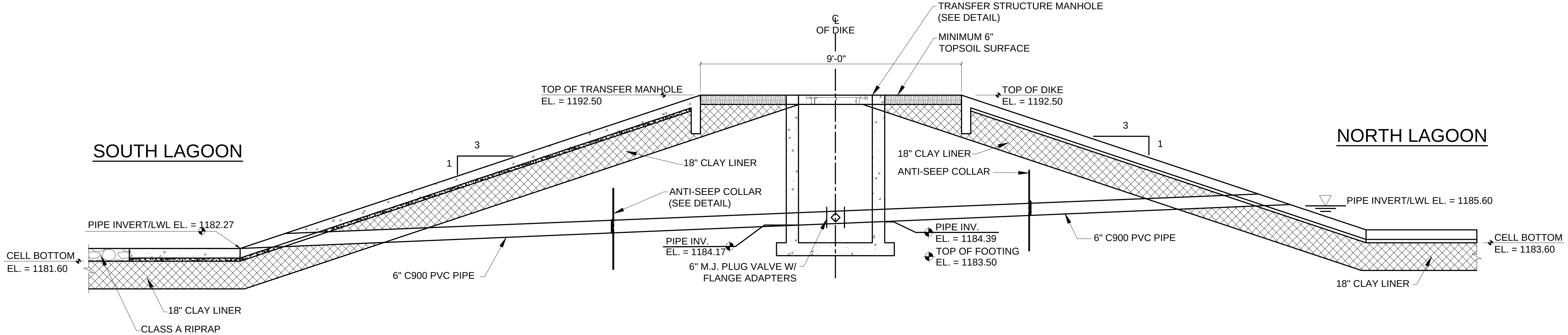
NUMBER AND LEVEL INDICATOR DETAIL



INTERMEDIATE LEVEL INDICATOR DETAIL

STABILIZATION POND LEVEL INDICATOR STRUCTURE

SCALE: NONE



INTERIOR DIKE SECTION AT TRANSFER MANHOLE STRUCTURE

SCALE: NONE

REMOVAL PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410B349	16	20

25' 0 50'

SYMBOLS LEGEND:

SYMBOL	DESCRIPTION
x x	EXISTING FENCE
	EXISTING CHAINLINK FENCE
1140	EXISTING CONTOURS
UGE UGE	UNDERGROUND ELECTRIC
UGT UGT	UNDERGROUND TELEPHONE
UGF UGF	UNDERGROUND FIBER OPTIC
E	ELECTRICAL PEDESTAL
	EXISTING TREE(S)
	MANHOLE

INTERSTATE 29 (NB LANE)

LEGEND

SALVAGE RIPRAP AREA

SANITARY SEWER LAGOON SYSTEM - SOUTH LAGOON

LAGOON BOTTOM ELEVATION: 1181.60

SANITARY SEWER LAGOON SYSTEM - NORTH LAGOON

LAGOON BOTTOM ELEVATION: 1183.60

LAGOON BOTTOM ELEVATION: 1181.60

0+00 1+00 2+00 3+00 4+00 5+00 6+00

3:1

S

471ST AVENUE (MINIMUM MAINTENANCE)

SANITARY SEWER
1+63 - 1' LT. TO 2+34 - CL
REMOVE:
71 LF - GRAVITY SEWER PIPE
1 EA - GATE VALVE
1 EA - VALVE BOX
2 EA - CONCRETE SPLASH BLOCK

SANITARY SEWER
1+79 - CL TO 2+22 - 8' LT.
REMOVE:
53 LF - GRAVITY SEWER PIPE
1 EA - CONCRETE SPLASH BLOCK

SANITARY SEWER
STA. 4+27 - 3' RT.
REMOVE:
1 EA - CONCRETE INLET STRUCTURE

SANITARY SEWER
STA. 4+27 - 3' RT. TO 5+03 - 44' LT.
REMOVE:
89 LF - GRAVITY SEWER PIPE

SANITARY SEWER
STA. 5+03 - 44' LT. TO 5+76 - 93' LT.
REMOVE:
88 LF - GRAVITY SEWER PIPE

SANITARY SEWER
STA. 5+03 - 45' LT.
REMOVE:
1 EA - CONCRETE INLET STRUCTURE

CHAINLINK FENCE
STA. 0+24 - 96' RT. TO STA. 5+56 - 81' LT.
REMOVE FOR RESET:
702 LF - CHAINLINK FENCE (2 GATES INCLUDED)

RIPRAP
SALVAGE:
33 CY - CLASS A RIPRAP (INCIDENTAL)

REGISTERED PROFESSIONAL ENGINEER
REG NO. 9603
RICHARD S. UCHERT
NORTH DAKOTA
8/17/18

LAGOON LINER REPAIR PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410B349	17	20

25' 0 50'

SYMBOLS LEGEND:

SYMBOL	DESCRIPTION
x——x	EXISTING FENCE
——/——/——/——	EXISTING CHAINLINK FENCE
1140	EXISTING CONTOURS
UGE UGE	UNDERGROUND ELECTRIC
UGT UGT	UNDERGROUND TELEPHONE
UGF UGF	UNDERGROUND FIBER OPTIC
E	ELECTRICAL PEDESTAL
	EXISTING TREE(S)
	MANHOLE

REGISTERED PROFESSIONAL ENGINEER
REG NO. 9603
RICHARD S. UCHERT
SOUTH DAKOTA
8/17/18

LAGOON LINER REPAIR
STA. 1+63 TO 2+34
40 CU YD - CLAY LINER REPAIR

LAGOON LINER REPAIR
STA. 4+27 TO 5+40
40 CU YD - CLAY LINER REPAIR

NOTES:
1. REFER TO GEOTECHNICAL REPORT AND SPECIAL PROVISIONS FOR SPECIFICATION REGARDING CLAY LINER REPAIR WORK.
2. ANY DAMAGE DONE TO THE CLAY LINER OUTSIDE THE WORK LIMITS SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.
3. CLAY LINER SOURCE MATERIAL PILE IS LOCATED THE THE JUNCTION CITY DOT MAINTENANCE SHOP.

LEGEND
CLAY LINER REPAIR AREA (18" DEPTH)

INTERSTATE 29 (NB LANE)

SANITARY SEWER LAGOON SYSTEM - SOUTH LAGOON
LAGOON BOTTOM ELEVATION: 1181.60

SANITARY SEWER LAGOON SYSTEM - NORTH LAGOON
LAGOON BOTTOM ELEVATION: 1183.60

LAGOON BOTTOM ELEVATION: 1181.60

0+00 1+00 2+00 3+00 4+00 5+00 6+00

3:1 3:1 3:1 3:1 3:1

471ST AVENUE (MINIMUM MAINTENANCE)

INSTALLATION PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410B349	18	20

25' 0 50'

SYMBOLS LEGEND:

SYMBOL	DESCRIPTION
x x	EXISTING FENCE
	EXISTING CHAINLINK FENCE
1140	EXISTING CONTOURS
UGE UGE	UNDERGROUND ELECTRIC
UGT UGT	UNDERGROUND TELEPHONE
UGF UGF	UNDERGROUND FIBER OPTIC
E	ELECTRICAL PEDESTAL
	EXISTING TREE(S)
	MANHOLE

REGISTERED PROFESSIONAL ENGINEER
REG NO. 9603
RICHARD S. UCHERT
8/17/18

INTERSTATE 29 (NB LANE)

LEGEND
CLASS A RIPRAP

SANITARY SEWER
STA. 1+63 - 1' LT. TO STA. 2+34 - CL
FURNISH AND INSTALL:
62 LF - 6" DIA. PVC C900 GRAVITY SEWER PIPE
1 EA - 48" DIA. TRANSFER STRUCTURE MANHOLE
1 EA - 6" M.J. PLUG VALVE WITH FLANGE ADAPTORS
2 EA - POND LEVEL INDICATOR
2 EA - ANTI-SEEP COLLAR (INCIDENTAL)
25 CY - SALVAGED CLASS A RIPRAP (INCIDENTAL)

SANITARY SEWER
STA. 5+09 - LT.
FURNISH AND INSTALL:
1 EA - INLET HEADWALL STRUCTURE
8 CY - SALVAGED CLASS A RIPRAP (INCIDENTAL)
12 TON - CLASS A RIPRAP

SANITARY SEWER
STA. 5+09 - 44' LT. TO STA. 5+83 - 97' LT.
FURNISH AND INSTALL:
92 LF - 2" DIA. PVC FORCEMAIN
1 EA - ANTI-SEEP COLLAR (INCIDENTAL)
CONNECT TO EXISTING CURB STOP AND BOX (INCIDENTAL)

SANITARY SEWER LAGOON
SYSTEM - SOUTH LAGOON

LAGOON BOTTOM
ELEVATION: 1181.60

SANITARY SEWER LAGOON
SYSTEM - NORTH LAGOON

LAGOON BOTTOM
ELEVATION: 1183.60

LAGOON BOTTOM
ELEVATION: 1181.60

0+00 1+00 2+00 3+00 4+00 5+00 6+00

3:1 3:1 3:1 3:1 3:1

8" FM

UGE UGE

471ST AVENUE (MINIMUM MAINTENANCE)

EROSION CONTROL PLAN

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410B349	19	20

SYMBOLS LEGEND:

SYMBOL	DESCRIPTION
x x	EXISTING FENCE
	EXISTING CHAINLINK FENCE
1140	EXISTING CONTOURS
UGE UGE	UNDERGROUND ELECTRIC
UGT UGT	UNDERGROUND TELEPHONE
UGF UGF	UNDERGROUND FIBER OPTIC
E	ELECTRICAL PEDESTAL
	EXISTING TREE(S)
	MANHOLE

25' 0 50'

REGISTERED PROFESSIONAL ENGINEER
REG NO. 9603
RICHARD S. UCHERT
SOUTH DAKOTA
8/17/18

LEGEND
- CLASS A RIPRAP
- EROSION CONTROL SEEDING
- EROSION CONTROL SILT FENCE

EROSION CONTROL
STA. 0+27 - 96' LT. TO 112' LT.
FURNISH AND INSTALL:
16 L.F. - SILT FENCE

EROSION CONTROL
STA. 5+47 - 88' LT. TO STA. 5+90 125' LT.
FURNISH AND INSTALL:
58 L.F. - SILT FENCE

NOTES:
1. CONTRACTOR SHALL MAKE EVERY EFFORT TO AVOID EXISTING DRAINAGE SWALES.
2. ANY AREAS DAMAGED BY CONTRACTOR SHALL BE REPAIRED TO THE ORIGINAL CONDITION AT NO COST TO THE OWNER.

INTERSTATE 29 (NB LANE)

SILT FENCE

SANITARY SEWER LAGOON
SYSTEM - SOUTH LAGOON

LAGOON BOTTOM
ELEVATION: 1181.60

SANITARY SEWER LAGOON
SYSTEM - NORTH LAGOON

LAGOON BOTTOM
ELEVATION: 1183.60

LAGOON BOTTOM
ELEVATION: 1181.60

0+00 1+00 2+00 3+00 4+00 5+00 6+00

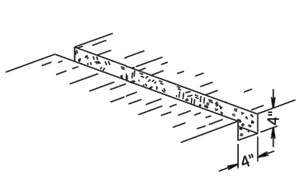
3:1

SILT FENCE

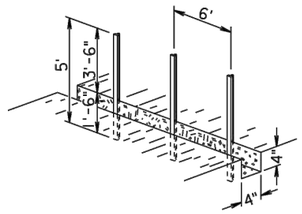
471ST AVENUE (MINIMUM MAINTENANCE)

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	410B349	20	20

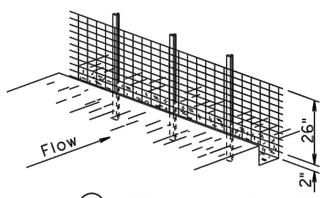
MANUAL LOW FLOW SILT FENCE INSTALLATION



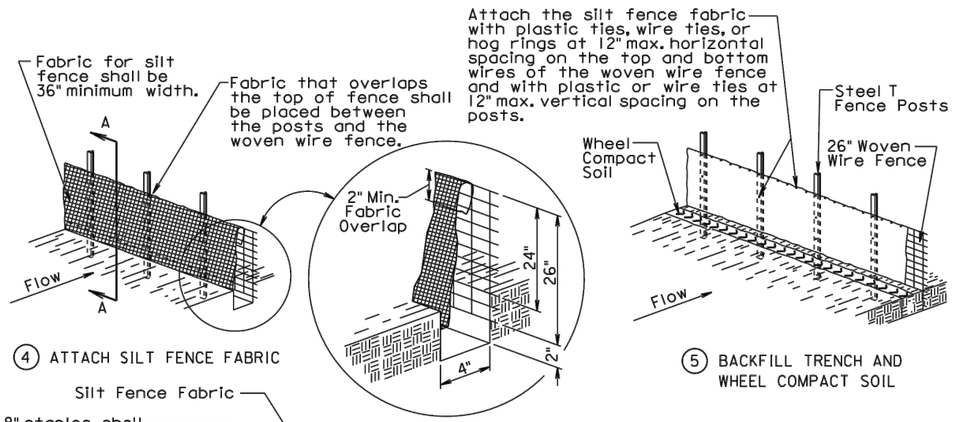
(1) EXCAVATE TRENCH



(2) DRIVE STEEL T FENCE POSTS

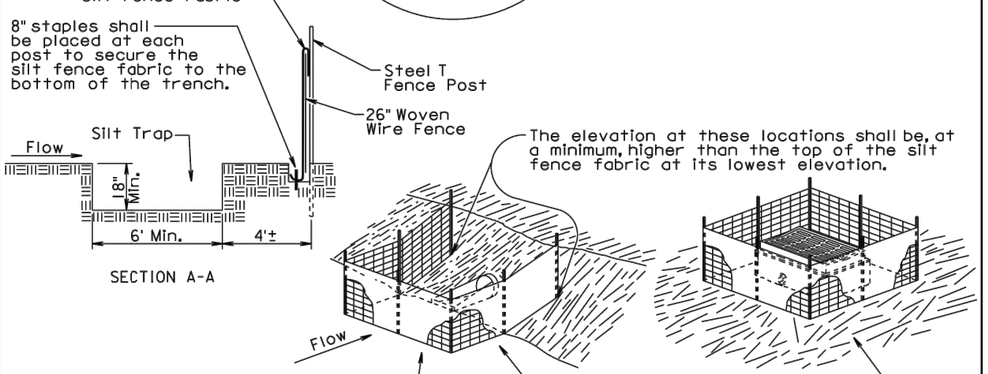


(3) ATTACH 26" WOVEN WIRE FENCE TO POSTS



(4) ATTACH SILT FENCE FABRIC

(5) BACKFILL TRENCH AND WHEEL COMPACT SOIL



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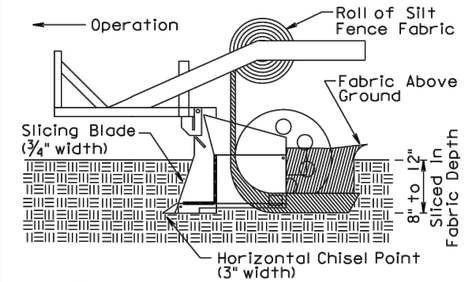
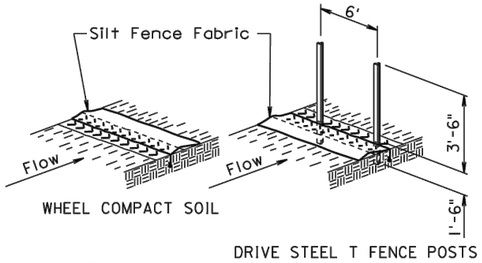
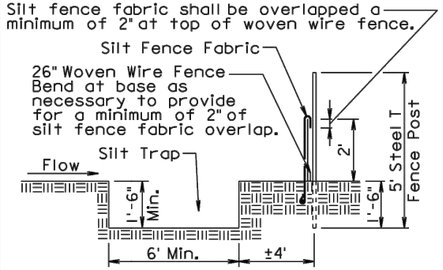
MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION

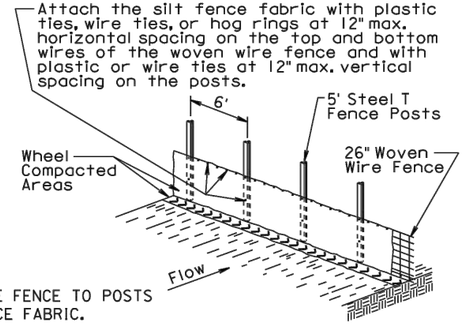


(1) INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

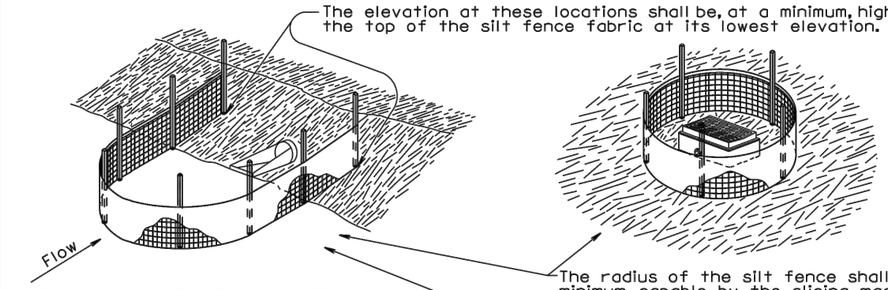


(2) WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.





(3) ATTACH 26" WOVEN WIRE FENCE TO POSTS AND ATTACH SILT FENCE FABRIC.



GENERAL NOTES:

A silt trap shall be provided when specified by a plan note. All costs for constructing the silt trap shall be incidental to the contract unit price per cubic yard for "Silt Trap".

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.

December 23, 2003

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			Sheet 2 of 2