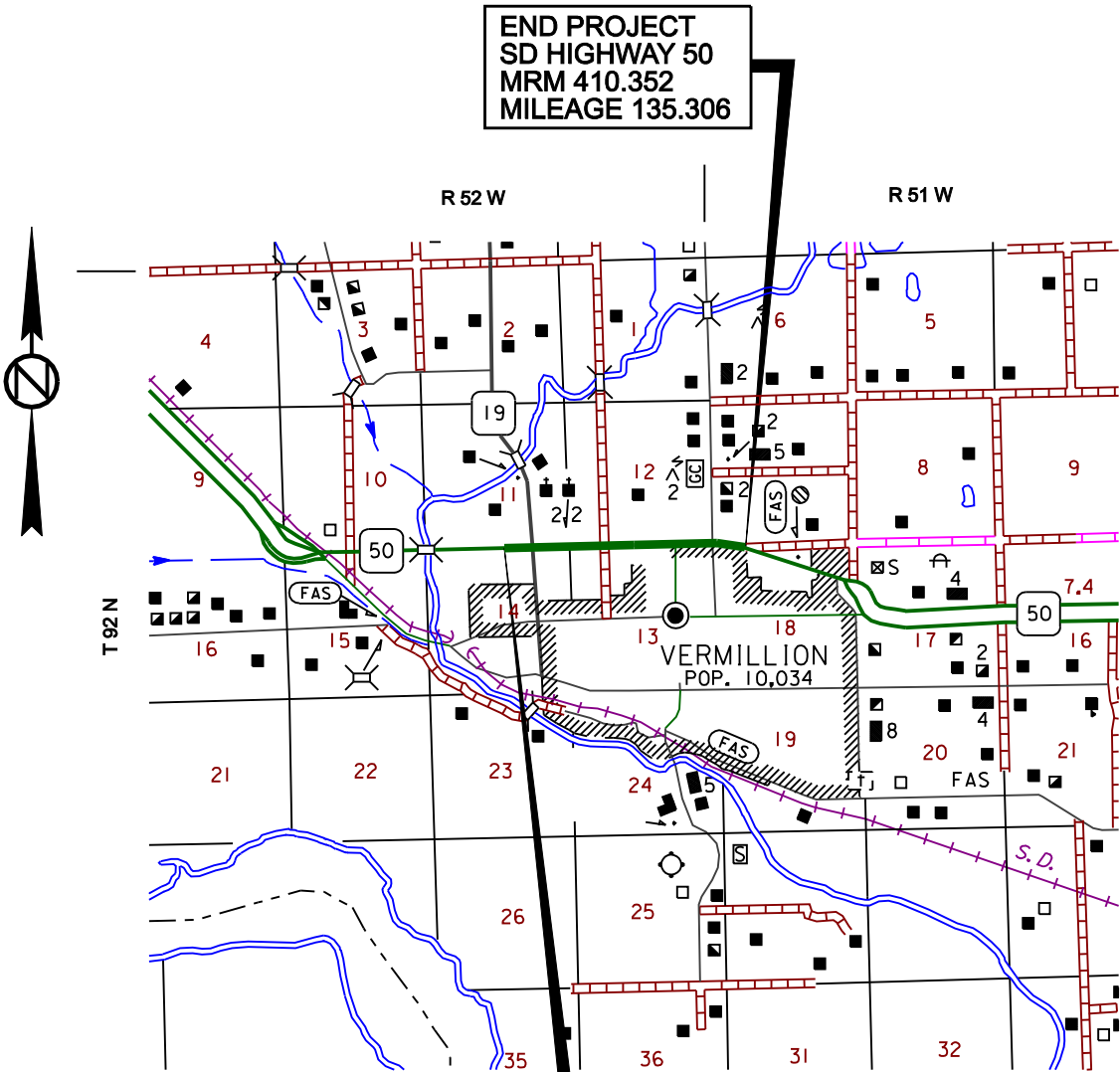


050-291
CLAY COUNTY
REPROFILING DITCH & CULVERT REPAIR
LENGTH: 1.985 MILES
PCN I2H3



STORM WATER PERMIT
 Major Receiving Body
 of Water: Vermillion River.
 Area Disturbed: 6.3 acres.
 Total Project Area: 6.3 acres.
 Approx. Begin Lat/Long: 42.7937/-96.9243

BEGIN PROJECT
 SD HIGHWAY 50
 MRM 408.367
 MILEAGE 133.321

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CLAY COUNTY**

INDEX OF SHEETS

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Sheet 14	Typical Section
Sheets 15 - 17	Table of Culvert Work
Sheets 18 - 21	Traffic Control Sheets
Sheets 22 - 24	Standard Plates

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0510	Remove Pipe End Section	6	Each
110E7500	Remove Pipe for Reset	48	Ft
110E7510	Remove Pipe End Section for Reset	11	Each
110E7540	Remove Cattle Pass End Section for Reset	1	Each
120E4100	Reprofiling Ditch	104.8	Sta
250E0010	Incidental Work	Lump Sum	LS
450E2032	42" RCP Flared End, Furnish	2	Each
450E2033	42" RCP Flared End, Install	2	Each
450E5211	18" CMP Flared End, Furnish	3	Each
450E5212	18" CMP Flared End, Install	3	Each
450E5215	24" CMP Flared End, Furnish	1	Each
450E5216	24" CMP Flared End, Install	1	Each
450E9000	Reset Pipe	48	Ft
450E9001	Reset Pipe End Section	11	Each
560E5101	Reset Reinforced Concrete Cattle Pass End Section	1	Each
634E0100	Traffic Control	119	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

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CLAY COUNTY**

SPECIFICATIONS

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

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.

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.

REPROFILING DITCH

The existing ditch on the south side of the SD Highway 50 Bypass at Vermillion shall be reprofiled from MRM 408.367 to MRM 410.352.

The total estimated length of reprofiling is 10481 feet (104.81 sta.).

The ditch shall be restored to the typical ditch section as detailed in these plans.

The ditch profile will be staked by the Engineer prior to cleanout.

An estimated 615 cu. yds. of muck material shall be disposed of by the Contractor. An estimated 427 cu. yds. of topsoil shall be furnished by the Contractor. Cost to remove muck and supply topsoil material shall be incidental to the cost per Station for Reprofiling Ditch.

All disturbed areas will be restored to the satisfaction of the Engineer. All disturbed areas will be seeded by the Contractor with the following mixture:

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REPROFILING DITCH cont.

	<u>PLS (lbs./acre)</u>
Western Wheatgrass	7
Switchgrass	3
Indiangrass	3
Big Bluestem	3
Oats or Spring Wheat	<u>10</u>
April through July; Winter Wheat: August Through November	26

An approved seed mixture from another project may be substituted on this project provided it includes at least 26 pounds per acre (PLS) total with at least 7 pounds per acre of Western Wheatgrass, and includes 10 pounds per acre Oats or Spring Wheat: April through July or Winter Wheat: August through November.

All disturbed areas will be fertilized with a commercial fertilizer with a minimum guaranteed analysis of 18-46-0 at the application rate of one hundred pounds per acre.

Mulch shall be applied at a rate of 2 tons per acre on all disturbed areas.

The total area to be seeded, fertilized and mulched is estimated at 6.3 acres.

All cost for this work, including all labor and equipment necessary to remove and dispose of the silt and vegetation, shape the ditch and to seed and fertilize the disturbed areas will be included in the contract per Station for Reprofiling Ditch.

REINFORCED CONCRETE PIPE

All reinforced concrete pipe used on this project is Class II unless otherwise noted in the plans.

TIE BOLTS FOR RCP/RCP ARCH CULVERTS

Tie Bolts shall be installed at the inlet and outlet on all sections of new/reset culvert and on new/reset culvert ends (requires connection from existing culvert to new end section). Connection shall be made from the first section left in place to the first new/reset section and to all new/reset sections.

For informational purposes:

Field drilling will be required to install the tie bolts on reset culvert, on reset culvert ends and on Existing culvert when installing a new/reset end section.

Cost for removing tie bolts for reuse, drilling tie bolt holes and providing, installing and reinstalling tie bolts shall be incidental to the contract unit prices for installing or resetting RCP Culverts and End Sections.

CLEANING OF EXISTING PIPE – INCIDENTAL WORK

Material in the existing pipe culverts shall be cleaned out by water flushing or other approved methods. Excess material shall be excavated from the end of the pipe. The sites that require cleanout are listed in the pipe table. This list is intended as a guide only. Additional sites may also need to be cleaned out. The Contractor shall visit the project to determine the extent of cleanout required. No additional payment shall be made for additional cleanout sites.

The cost for cleaning the existing pipe and disposing of the excess material shall be included in the bid item for Incidental Work.

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REMOVE EXISTING APPROACHES & APPROACH PIPES

The approaches at MRM 409.271 and MRM 409.394 shall be removed. The excess material can be used as embankment material to fill low areas in the bottom of the ditch.

The Twin 100' – 36" RC Arch Pipe with 4 Safety Ends at MRM 409.271 and the Twin 80' – 36" RC Arch Pipe with 4 Safety Ends shall be removed with care and delivered to the Junction City Maintenance Shop.

The cost to remove the RC Arch Pipe, Safety Ends and haul them to the Junction City Shop and dispose of the excess material shall be included in the bid item for Incidental Work.

REMOVE AND RESET TYPE II OBJECT MARKERS

The Contractor will be required to remove prior to the work and reset after the work the Type II Object Markers delineating the pipe ends. All costs for this work shall be incidental to the various bid items.

UTILITIES

It is not anticipated that the utilities will interfere with construction however the Contractor is required to contact South Dakota One Call at 800-781-747 to verify prior to construction.

GENERAL MAINTENANCE OF TRAFFIC

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

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

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

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

Sufficient traffic control devices have been included in these plans to sign one workspace. If the Contractor elects to work on additional sites simultaneously, the cost for additional traffic control devices shall be incidental to the contract unit price per unit for Traffic Control.

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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 6.3 acres (4.2 1.b.)**
- **Total Area To Be Disturbed 6.3 acres (4.2 1.b.)**
- **Existing Vegetative Cover (%)**
- **Soil Properties: USDA-NRCS Soil Series Classification Silt and Silty Clay (4.2 1. d.)**
- **Name of Receiving Water Body/Bodies Vermillion 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.)

- **Special sequencing requirements (see sheet).**
- **Install perimeter protection where runoff sheets from the site.**
- **Install channel and ditch bottom protection.**
- **Remove and store topsoil.**
- **Stabilize disturbed areas.**
- **Complete final grading.**
- **Reseed and mulch 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:

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➤ **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.

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

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

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

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

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

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

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

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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.

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➤ **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 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.

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❖ **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.)

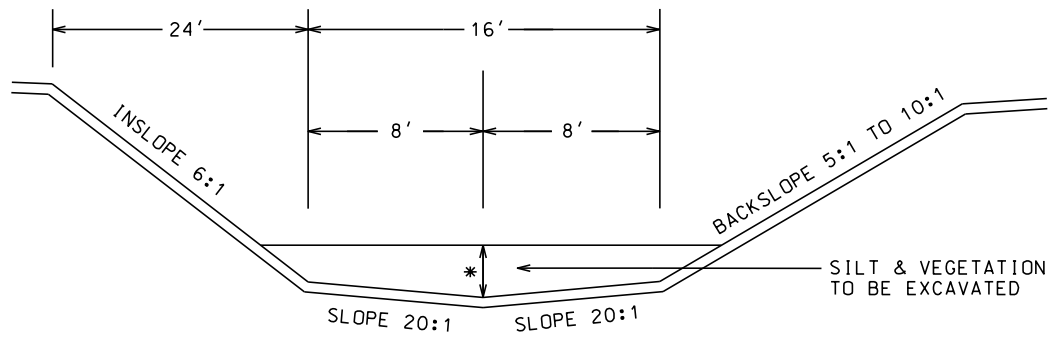
➤ **Prime Contractor**

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

TYPICAL DITCH SECTION



* 0.1' to 1.0' Depth

TABLE OF CULVERT WORK

MILEAGE REFERENCE MARKER	SIZE AND TYPE	REMOVE PIPE END SECTION (EACH)	REMOVE PIPE FOR RESET (FT)	REMOVE PIPE SECTION FOR RESET (EACH)	REMOVE CATTLE PASS END SECTION FOR RESET (EACH)	18" CMP FLARED END (EACH)	24" CMP FLARED END (EACH)	42" RCP FLARED END (EACH)	RESET PIPE (FT)	RESET PIPE END SECTION (EACH)	RESET CATTLE PASS END SECTION (EACH)	CLEAN CULVERT
408.352 - Rt.	18" RCP											Yes
408.352 - Lt.	18" RCP											Yes
408.352 - Rt.	24" RCP											Yes
408.408 - Lt.	24" RCP											Yes
408.472 - Rt.	18" CMP											Yes
408.485 - Rt.	Cattle Pass				1						1	
408.51 - Rt.	Twin 42" RCP	1		1				1		1		
408.655 - Rt.	Twin 42" RCP			2						2		
408.713 - Rt.	18" CMP											Yes
408.774 - Rt.	18" CMP											Yes
408.774 - Lt.	18" CMP											Yes
408.836 - Rt.	18" CMP	No Work										
408.836 - Lt.	18" RCP											Yes
408.884 - Rt.	18" CMP	No Work										
408.887 - Rt.	24" CMP	1										
408.902 - Rt.	Twin 42" RCP	1		2				1		2		
408.940 - Rt.	18" CMP	1				1						
408.940 - Lt.	24" CMP	No Work										
409.035 - Rt.	18" CMP	No Work										
409.035 - Lt.	18" RCP	No Work										Yes
409.108 - Rt.	18" CMP	No Work										
409.108 - Lt.	18" RCP											Yes
409.158 - Lt.	24" RCP	No Work										
409.171 - Rt.	Twin 42" Arch RCP		32	4					32	4		
409.185 - Lt.	18" RCP											Yes
409.271 - Rt.	Twin 36" Arch RCP	Remove Approach										
409.298 - Rt.	18" CMP											Yes
409.298 - Lt.	18" RCP											Yes
409.356 - Rt.	18" CMP	No Work										
409.356 - Lt.	18" RCP											Yes

TABLE OF CULVERT WORK

MILEAGE REFERENCE MARKER	SIZE AND TYPE	REMOVE PIPE END SECTION (EACH)	REMOVE PIPE FOR RESET (FT)	REMOVE PIPE END SECTION FOR RESET (EACH)	18" CMP FLARED END (EACH)	24" CMP FLARED END (EACH)	42" RCP FLARED END (EACH)	RESET PIPE (FT)	RESET PIPE END SECTION (EACH)	RESET CATTLE PASS END SECTION (EACH)	CLEAN CULVERT
409.394 - Rt.	Twin 36" Arch RCP	Remove Approach									
409.413 - Rt.	18" CMP	No Work									Yes
409.413 - Lt.	18" RCP										Yes
409.470 - Rt.	18" CMP										Yes
409.470 - Lt.	18" RCP										Yes
409.504 - Rt.	18" CMP										Yes
409.518 - Lt.	18" RCP										Yes
409.528 - Rt.	Twin 36" RCP	No Work									Yes
409.565 - Rt.	18" CMP										Yes
409.565 - Lt.	18" RCP										Yes
409.622 - Rt.	18" CMP										Yes
409.622 - Lt.	18" RCP										Yes
409.672 - Rt.	Twin 36" RCP										Yes
409.689 - Rt.	18" RCP		16	1				16	1		Yes
409.689 - Lt.	18" RCP										Yes
409.744 - Rt.	18" CMP										Yes
409.744 - Lt.	18" RCP										Yes
409.794 - Rt.	18" CMP	1			1						Yes
409.794 - Lt.	18" RCP										Yes
409.860 - Rt.	18" CMP										Yes
409.860 - Lt.	18" RCP										Yes
409.920 - Rt.	Twin 30" RCP			1					1		Yes
409.936 - Rt.	18" CMP										Yes
409.936 - Lt.	18" RCP										Yes
410.007 - Rt.	18" CMP										Yes
410.007 - Lt.	18" RCP										Yes
410.044 - Rt.	18" CMP	No Work									Yes
410.044 - Lt.	18" RCP										Yes
410.120 - Rt.	18" CMP										Yes
410.166 - Rt.	Twin 30" RCP										Yes

TABLE OF CULVERT WORK

MILEAGE REFERENCE MARKER	SIZE AND TYPE	REMOVE PIPE END SECTION (EACH)	REMOVE PIPE FOR RESET (FT)	REMOVE PIPE SECTION FOR RESET (EACH)	REMOVE CATTLE PASS SECTION FOR RESET (EACH)	18" CMP FLARED END (EACH)	24" CMP FLARED END (EACH)	42" RCP FLARED END (EACH)	RESET PIPE (FT)	RESET PIPE END SECTION (EACH)	RESET CATTLE PASS END SECTION (EACH)	CLEAN CULVERT
410.243 - Rt.	18" CMP											Yes
410.299 - Rt.	18" CMP	1				1						
410.299 - Rt.	18" RCP	No Work										
410.299 - Lt.	18" RCP	No Work										
		6	48	11	1	3	1	2	48	11	1	

**050-291
CLAY COUNTY**

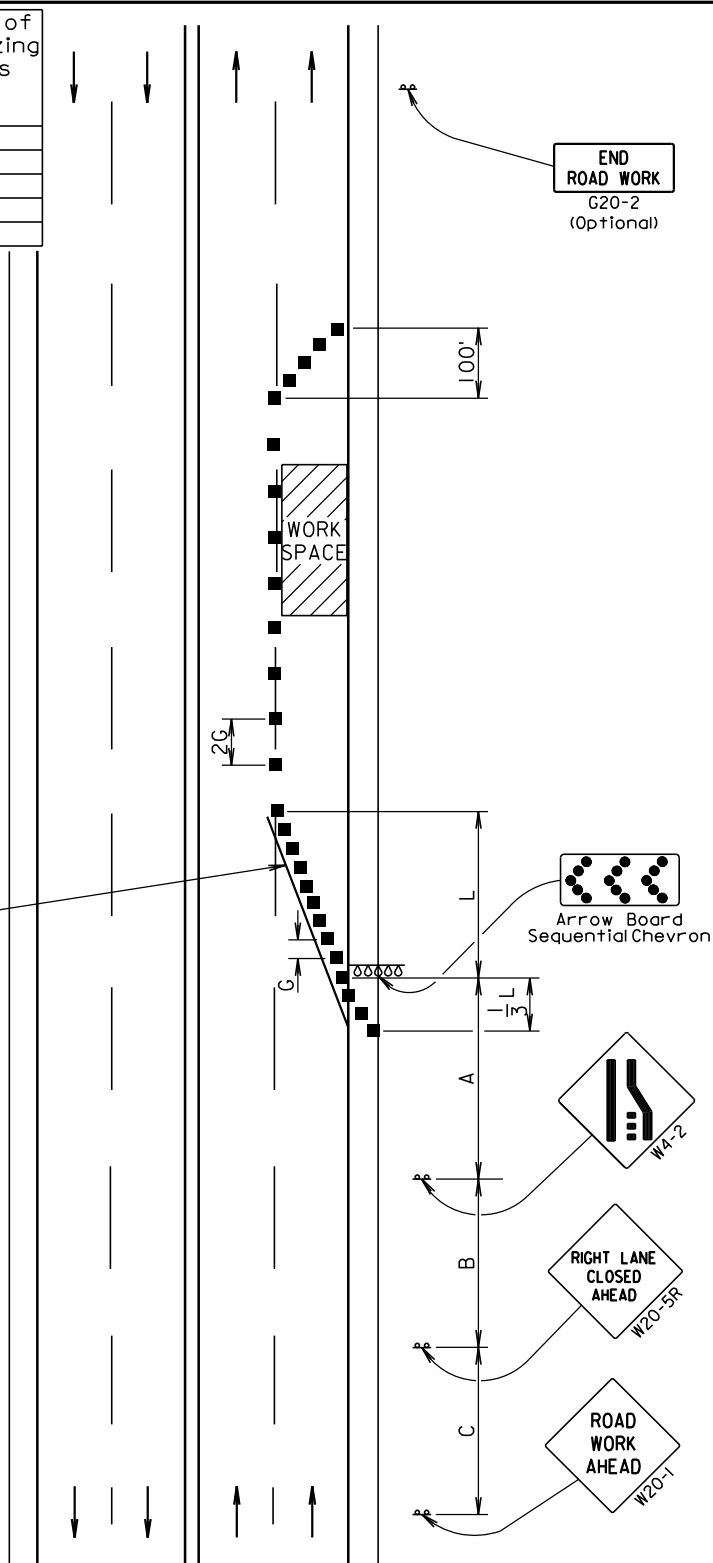
Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)			Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
	(A)	(B)	(C)		
0 - 30	200			180	25
35 - 40	350			320	25
45 - 50	500			600	50
55	750			660	50
60 - 65	1000			780	50

■ Channelizing Device

The channelizing devices shall be drums or 42" cones if traffic control must remain overnight or longer. During daylight hours, 42" cones may be used in lieu of drums along the centerline.

Longitudinal dimensions may be adjusted to fit project conditions such as horizontal curves, vertical curves, and other site restrictions.

Four inch white temporary pavement marking shall be used if traffic control must remain overnight or longer.



February 14, 2011

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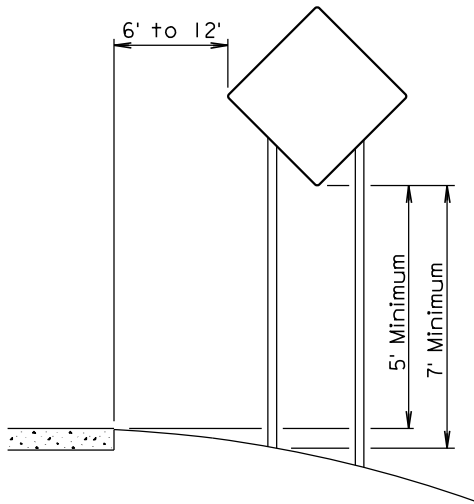
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**GUIDES FOR TRAFFIC CONTROL DEVICES
4-LANE UNDIVIDED, RIGHT LANE CLOSED**

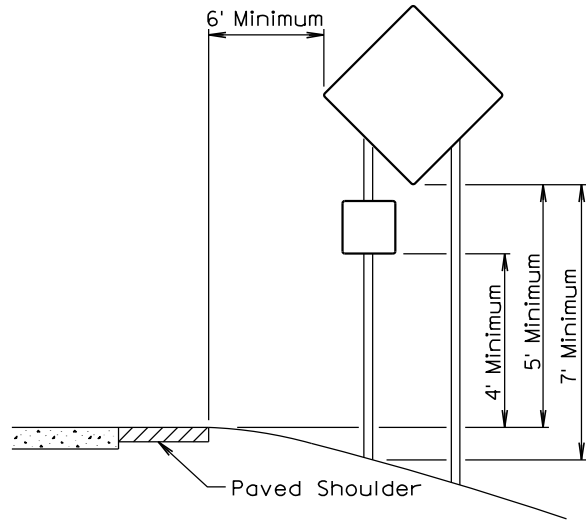
PLATE NUMBER
634.47

Sheet 1 of 1

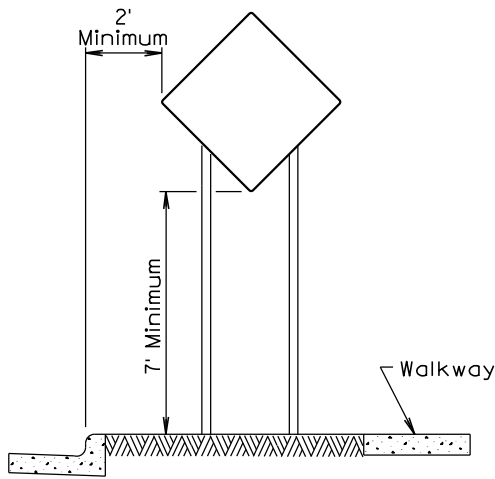
050-291
CLAY COUNTY



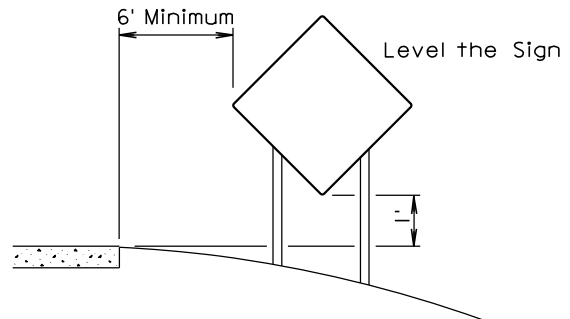
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT



RURAL DISTRICT
3 DAY MAXIMUM

February 14, 2011

Published Date: 1st Qtr. 2012

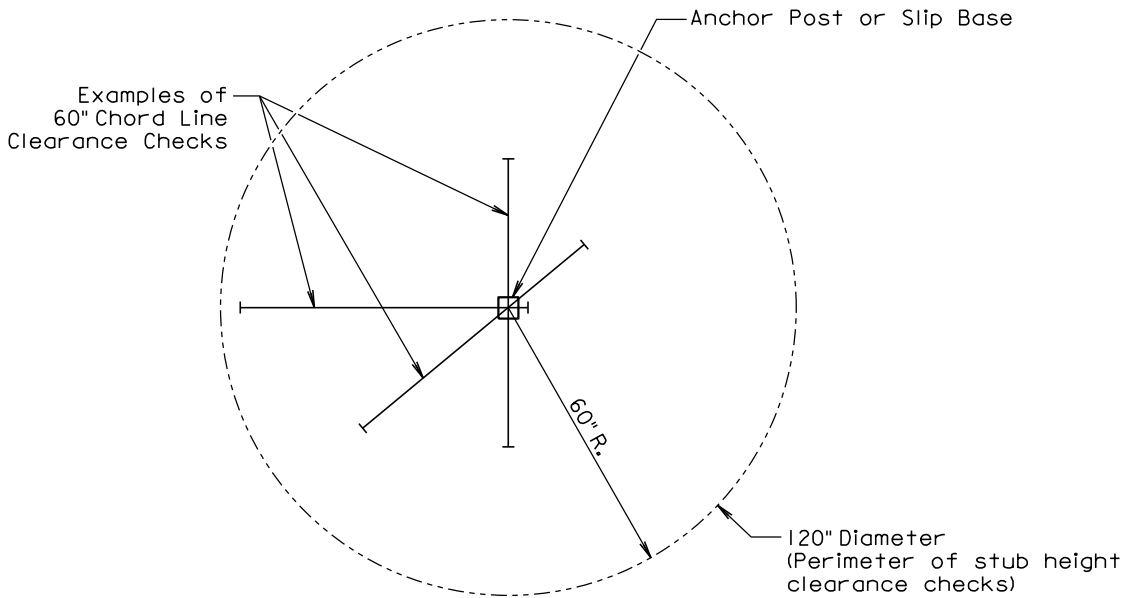
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CRASHWORTHY SIGN SUPPORTS
(Typical Construction Signing)

PLATE NUMBER
634.85

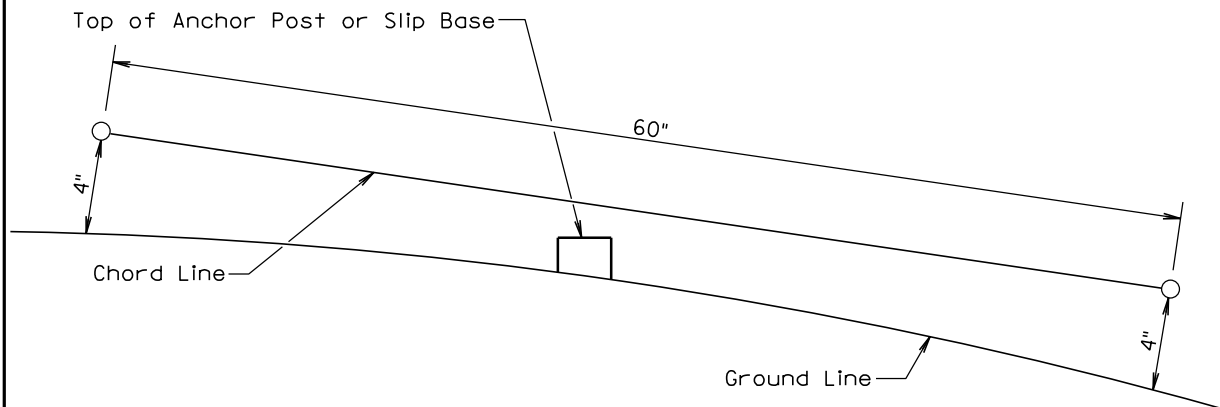
Sheet 1 of 1

**050-291
CLAY COUNTY**



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

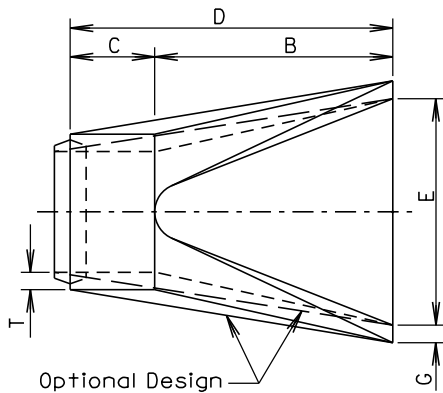
<i>Published Date: 1st Qtr. 2012</i>	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

050-291
CLAY COUNTY

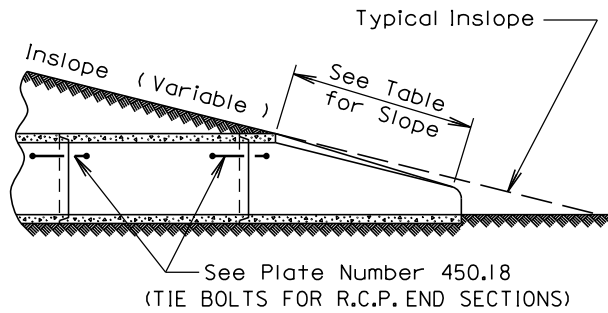
ITEMIZED LIST FOR TRAFFIC CONTROL

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	1	17	17
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	1	34	34
W20-1	48" x 48"	ROAD WORK AHEAD	1	34	34
W20-5	48" x 48"	LT. OR RT. LANE CLOSED AHEAD	1	34	34
TOTAL UNITS					119

**050-291
CLAY COUNTY**



TOP VIEW

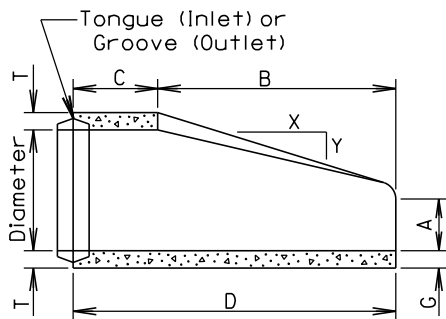


SLOPE DETAIL

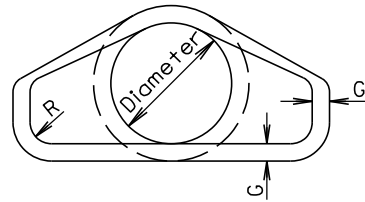
GENERAL NOTES:

Lengths of concrete pipe shown on Plan Sheets are between flared Ends only.

Construction of R.C.P. Flared End shall conform to the requirements of Section 990 of the Standard Specifications for Roads and Bridges.



LONGITUDINAL SECTION



END VIEW

Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4: 1	2	4	24	48 ⁷ / ₈	72 ⁷ / ₈	24	2	1 ¹ / ₂
15	740	2.4: 1	2 ¹ / ₄	6	27	46	73	30	2 ¹ / ₄	1 ¹ / ₂
18	990	2.3: 1	2 ¹ / ₂	9	27	46	73	36	2 ¹ / ₂	1 ¹ / ₂
21	1280	2.4: 1	2 ³ / ₄	9	36	37 ¹ / ₂	73 ¹ / ₂	42	2 ³ / ₄	1 ¹ / ₂
24	1520	2.5: 1	3	9 ¹ / ₂	43 ¹ / ₂	30	73 ¹ / ₂	48	3	1 ¹ / ₂
27	1930	2.5: 1	3 ¹ / ₄	10 ¹ / ₂	49 ¹ / ₂	24	73 ¹ / ₂	54	3 ¹ / ₄	1 ¹ / ₂
30	2190	2.5: 1	3 ¹ / ₂	12	54	19 ³ / ₄	73 ³ / ₄	60	3 ¹ / ₂	1 ¹ / ₂
36	4100	2.5: 1	4	15	63	34 ³ / ₄	97 ³ / ₄	72	4	1 ¹ / ₂
42	5380	2.5: 1	4 ¹ / ₂	21	63	35	98	78	4 ¹ / ₂	1 ¹ / ₂
48	6550	2.5: 1	5	24	72	26	98	84	5	1 ¹ / ₂
54	8240	2: 1	5 ¹ / ₂	27	65	33 ¹ / ₄	98 ¹ / ₄	90	5 ¹ / ₂	1 ¹ / ₂
60	8730	1.9: 1	6	35	60	39	99	96	5	1 ¹ / ₂
66	10710	1.7: 1	6 ¹ / ₂	30	72	27	99	102	5 ¹ / ₂	1 ¹ / ₂
72	12520	1.8: 1	7	36	78	21	99	108	6	1 ¹ / ₂
78	14770	1.8: 1	7 ¹ / ₂	36	90	21	111	114	6 ¹ / ₂	1 ¹ / ₂
84	18160	1.6: 1	8	36	90 ¹ / ₂	21	111 ¹ / ₂	120	6 ¹ / ₂	1 ¹ / ₂
90	20900	1.5: 1	8 ¹ / ₂	41	87 ¹ / ₂	24	111 ¹ / ₂	132	6 ¹ / ₂	6

March 31, 2000

Published Date: 1st Qtr. 2012

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R. C. P. FLARED ENDS

**PLATE NUMBER
450.10**

Sheet 1 of 1

**050-291
CLAY COUNTY**

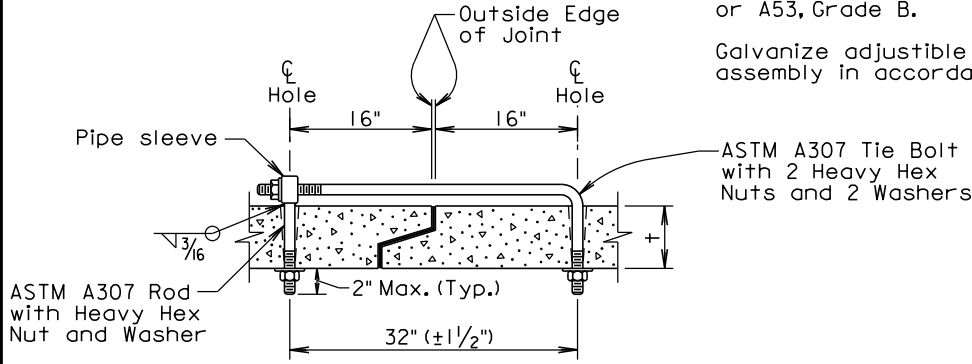
Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3 1/4	5/8	3/4
3 1/2 - 6 1/2	3/4	1
≥ 7	1	1 1/4

GENERAL NOTES:

Tie bolts shall conform to ASTM A307, Grade C. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Pipe Sleeve shall conform to ASTM A500 or A53, Grade B.

Galvanize adjustable eye bolt tie assembly in accordance with ASTM A153.



ADJUSTABLE EYE BOLT TIE

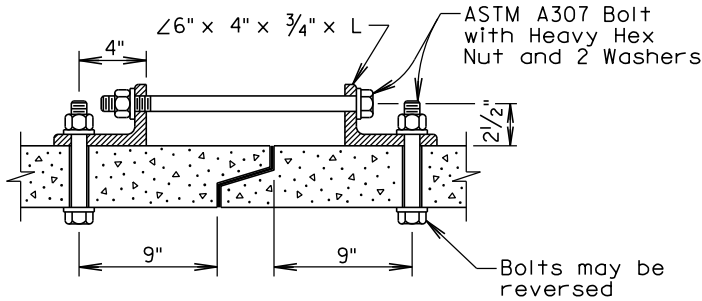
Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	3/4
> 48	6	1

GENERAL NOTES:

Angles shall conform to ASTM A36.

Bolts shall conform to ASTM A307. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



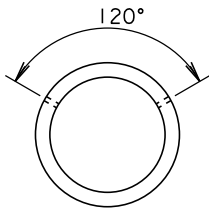
ANGLE AND BOLT TIE

GENERAL NOTES:

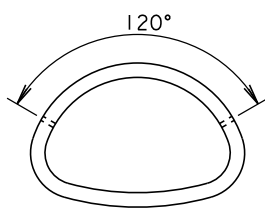
In lieu of tie bolts detailed above, tecktonius fasteners or other type tie bolt connections may be installed if approved by the Engineer.

The first three sections (both inlet and outlet) of R.C.P. and R.C.P. Arch up to and including the 78" diameter or equivalent pipe shall be tied with tie bolts. Pipe sizes larger than 78" diameter or equivalent diameter shall have all sections tied. Each end section is considered as one section.

There will be no separate measurement or payment for tie bolts. The cost of the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.



**END VIEW
"CIRCULAR"**



**END VIEW
"ARCH"**

September 14, 2011

Published Date: 1st Qtr. 2012

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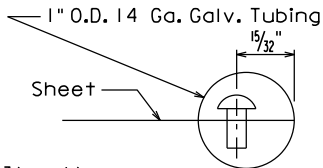
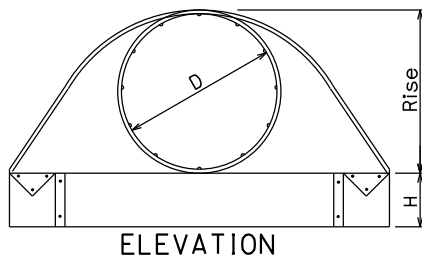
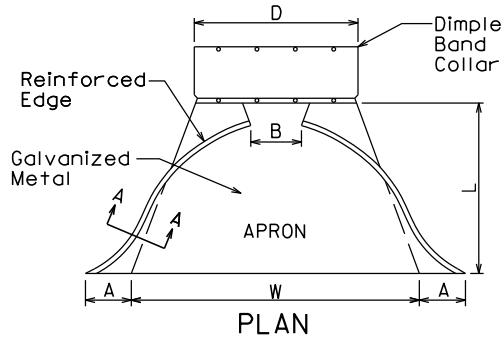
**TIE BOLTS FOR
R.C.P. END SECTIONS**

**PLATE NUMBER
450.18**

Sheet 1 of 1

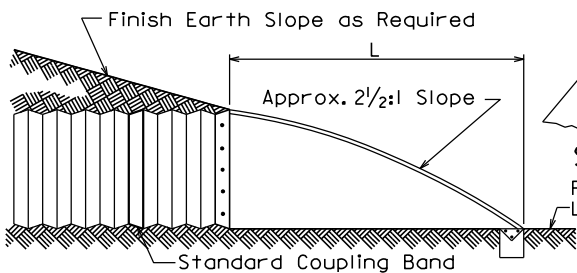
**050-291
CLAY COUNTY**

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



3/8" x 1/2" Gal. Buttonhead Rivets spaced 6" C. to C. Overall length of rivets=0.78"

TUBING ATTACHMENT DETAILS SECTION A-A



TYPICAL CROSS-SECTION

GENERAL NOTES:

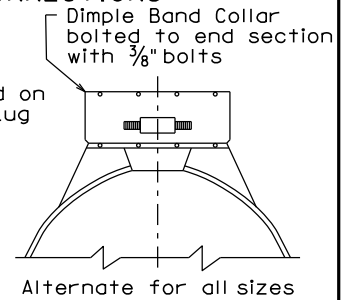
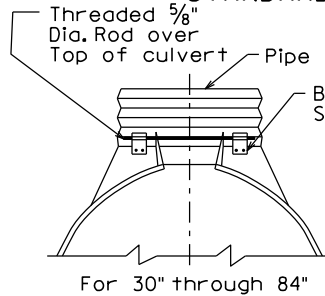
All 3 pc. bodies shall have 12 Ga. sides and 10 Ga. center panels. Width of center panels shall be greater than 20% of the pipe periphery. Multiple panel bodies to have lap seams tightly joined by 3/8" Dia. galvanized rivets or bolts.

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.

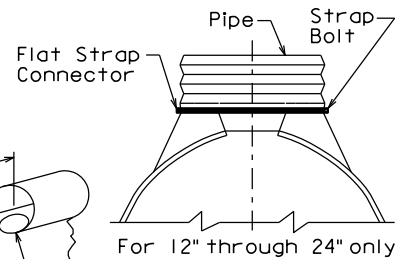
Rivets and Bolts shall be 3/8" Dia. Min. for 10 Ga. and 12 Ga. sheet, and 5/16" Dia. Min. for 14 Ga. and 16 Ga. sheets. Tighten nuts with torque wrench to 25 lbs. torque.

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

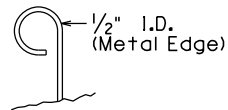


NOTE: Tubing is slipped over the sheet and rivets or lugs prior to forming operations of the apron.



SECTION A-A (alternate)

SECTION A-A (alternate)



March 31, 2000

Published Date: 1st Qtr. 2012

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C.M.P. FLARED ENDS

PLATE NUMBER
450.35

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