



# Department of Transportation

## Aberdeen Region Office

West Highway 12

PO Box 1767

Aberdeen, South Dakota 57402-1767 605/626-2244

FAX: 605/626-7875

May 15, 2017

### **ADDENDUM NO. 1**

**P 0012(00), PCN 063A**

**Deuel and Hamlin Counties**

**Pipe Culvert Cleaning, Joint Repair and Void Filling**

### **TO WHOM IT MAY CONCERN:**

**PROPOSAL:** No Changes

**PLANS:** Please destroy sheet 11 and replace with the enclosed sheet, dated 05/15/17.

**Sheet 11:** An additional option was added in lieu of 3 prior job references.

**When sending in your sealed bid please state on the front of the envelope that Addendum No. 1 was received.**

Sincerely,

DEPARTMENT OF TRANSPORTATION

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Jeff Senst, P.E.  
Region Engineer

cc: **M. Brey** J. Humphrey J. Steen File

# REINFORCED CONCRETE PIPE JOINT REPAIR AND VOID GROUTING

|                             |            |       |                 |
|-----------------------------|------------|-------|-----------------|
| STATE OF<br>SOUTH<br>DAKOTA | PROJECT    | SHEET | TOTAL<br>SHEETS |
|                             | P 0012(00) | 11    | 18              |

Rev. 5-15-17 SLS

## DUAL COMPONENT CHEMICAL GROUT FOR VOID FILLING FOR CIRCULAR RCP UNDER 36” AND ARCH RCP UNDER 42”

Void filling shall be completed at joints between sections of pipe culverts, where CCTV camera inspection indicates open joints, or where evidence of roadway distress would indicate a void under the pavement surface.

The external voids surrounding the culvert will be filled with an injected high expansion chemical grout compound. Holes shall be strategically drilled as required and grout injected throughout the structure to effectively fill all voids that have developed outside of the structure due to the infiltration of external soils and materials into the culvert and “piping” (water running outside and under the structure due to separated joints). All grout shall be injected under such pressure so as not to damage the existing drainage structure or roadway structure. All joints shall be appropriately cleaned and sealed, with appropriate recommended cure time, prior to the injection of the void grouting. After completion of the void filling, all holes shall be properly sealed.

The typical method consists of placing a layer of chemical grout behind or around the structure. The Contractor shall submit for approval by the Engineer a detailed grouting plan showing the spacing, orientation and depth of the grout holes, as well as type of polyurethane grout to be used, range of gel times, equipment, mixing procedures, recommended injection pressure, technique for monitoring grout travel and any other pertinent information. The grouting plan should address the prevention of overfilling and prevention of damage to structures or roadway. The Contractor shall submit this detailed procedure for the installation of the expansion grout to the Engineer for approval. The injection holes through the pavement shall be a maximum diameter of 5/8 inch. Care must be taken to prevent holes from causing damage to the pipe culvert or utility conduits. Use injection grout and methods as recommended by Manufacturer. The injection holes shall be sealed on the surface using materials compatible with the chemical grout and the surface drilled through. The sealing of the injection holes shall leave the surface flush and smooth.

## DUAL COMPONENT CHEMICAL GROUT FOR VOID FILLING FOR ALL CULVERTS

The Contractor must supply the Engineer with three (3) prior job references of projects where they have successfully injected urethane resin for subgrade void filling applications, or soil stabilization.

In lieu of three (3) prior job references the Contractor shall:

- a) Obtain hands on training from the supplier on the installation procedures, and
- b) Have the supplier on site to provide training to Contractor's staff. Supplier shall be present for at least two complete pipe culvert repairs and until the Engineer is satisfied that Contractor's staff is competent in performing this work.

The chemical grout shall be a dual component hydrophobic polyurethane grout compound which is non-flammable and non-toxic when cured.

The chemical grout mixture shall have expansion properties listed in the data sheets of greater than twenty (20) times its original volume and cure to rigid closed cell polyurethane foam. The grout shall expand to fill any voids and must bond to the exterior surface of the structure. The chemical grout shall be VF dual component polyurethane grouts as manufactured by Green Mountain International LLC or equal.

All costs for equipment, material, and labor required to fill external voids surrounding the culvert shall be incidental to the contract unit price per gallon for Chemical Grout Void Fill. Any overfilling of voids that results in damage to overlying pavement, highway user ride quality, or drainage structure integrity shall be corrected and paid for by the Contractor. All corrections shall be approved by the Engineer. Payment shall be to the 0.1 gallon of chemical grout used, prior to expansion of the material.

A calibrated metering device shall be used to measure the chemical grout and to assure proper mixing ratio of components.

After the grout cures, excess material shall be removed flush with the pipe interior wall and the pipe left clean.