

DETAILED SPECIFICATIONS FOR REINFORCED CONCRETE BOX CULVERTS

SCOPE

Furnish reinforced concrete box culverts for incorporation into Hawthorne Avenue Street and Utilities Reconstruction Project, Phase One--Grading, Surfacing, Curb & Gutter, Storm Sewer, Water Main and Sanitary Sewer Main, City of Rapid City Project No. SS98-806. These box culverts will be used as a portion of the main new storm sewer line for the project. Additional box culvert sections will be required and bid in the construction project. The box culverts are to be stored by South Dakota Concrete Products and delivered to the construction site when needed for construction.

TECHNICAL SPECIFICATIONS

- 1) South Dakota Concrete Products shall furnish 600' of 8' X 4' reinforced concrete box culvert, one standard 8' X 4' end section, one 9" X 12" parapet and one 2' deep cutoff wall meeting all the requirements of the design and all the requirements of the City of Rapid City Standard Specifications for Public Works Construction, 1994 edition, especially Section 58, Precast Concrete Box Culverts.
- 2) Box culverts, end section, parapet and cutoff wall shall be purchased, for this project, from South Dakota Concrete Products under the South Dakota Concrete Products/Pennington County contract dated February 20, 2001 and signed March 7, 2001.
- 3) Precast box culverts shall be designed to satisfy the following load conditions:
 - Depth of fill over box culvert: 0.5'± to 3.0'± including surfacing.
 - Live load: HS20-44 and Alternate.
 - Lateral earth loads: FMG, Inc. report entitled "Geotechnical Evaluation for Utility Reconstruction Hawthorne Avenue and East Oakland Street Between Meade Street and Ivy Avenue, Rapid City, South Dakota," January 12, 1999, recommends designing for at-rest earth pressure with values equivalent to a fluid with a unit weight of at least one hundred thirty (130) pcf. A copy of this report is available for review at the City of Rapid City Engineering Division.
- 4) South Dakota Concrete Products shall store the box culverts, end section, parapet and cutoff wall at their site until they are needed for construction. It is anticipated that construction project will be let on May 31, 2001 and construction could begin by June 25, 2001. However, construction may be delayed until easements are secured from the property owners. South Dakota Concrete Products shall be required to provide storage until time of construction. Cost of storage will be included in the contract price for concrete box culverts, end section, parapet and cutoff wall. If construction has not been initiated by October 1, 2001, the City agrees to negotiate additional costs for storage or for an alternative storage site. Payments for materials stored will be provided per the Rapid City Standard Specifications.

5) At the time of construction, South Dakota Concrete Products shall transport the box culverts, end section, parapet and cutoff wall to the construction site. South Dakota Concrete Products shall coordinate delivery with the project Contractor. The box culverts will have to be furnished as construction progresses. Storage space for the box culverts will not be available at the construction site. Cost of transportation will be included in the contract price for box culverts, end section, parapet and cutoff wall.

6) The box culverts, end section, parapet and cutoff wall shall be ready for delivery by June 25, 2001, as coordinated with the installing Contractor to meet project schedule. One hundred percent of the box culvert sections shall be ready for delivery by August 15, 2001.

| TABULATION OF BOX CULVERT ITEMS TO BE PURCHASED UNDER SOUTH DAKOTA CONCRETE PRODUCTS/PENNINGTON CO. CONTRACT | | | | |
|---|---|-----------------|-----------------------|---------------------------|
| April, 2001 | | | | |
| Department: Engineering Division | | | | |
| Item No. | Description | Quantity | Unit Price | Extended Price |
| 1 | 8' X 4' Reinforced Box Culverts, per lineal foot | 600 | \$254.00 | \$152,400.00 |
| 2 | 8' X 4' End Section, per each | 1 | \$2,545.00 | \$2,545.00 |
| 3 | 2' Deep Cutoff Wall, per each | 1 | \$417.00 | \$417.00 |
| 4 | 9" X 12" Parapet, per each | 1 | \$220.00 | \$220.00 |
| | Total | | | \$155,582.00 |