



Department of Transportation

Office of Project Development

700 E Broadway Avenue

Pierre, South Dakota 57501-2586 605/773-3268

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May 13, 2021

ADDENDUM NO. 1

RE: Item #4, May 19, 2021 Letting - P 0044(225)290, PCN 087V, Gregory County - Slide Repair

TO WHOM IT MAY CONCERN:

The following addenda to the plans shall be inserted and made a part of your proposal for the referenced project.

SPECIAL PROVISIONS: NO CHANGE

SDEBS BID PROPOSAL: *The electronic bid proposal for this contract has been revised to include the changes associated with this addendum. Bidders must log in to the SDEBS to retrieve and incorporate these changes into their bid.*

Quantities for Bid Items were changed:

Bid Item 462E0250 "Cellular Grout" changed from 96.3 to 25.1 CuYd

PLANS: Please destroy sheets A1, B2, and B6 and replace with the enclosed sheets, dated 5/13/21.

Sheets A1 & B2: Quantities for Bid Item 462E0250 "Cellular Grout" changed from 96.3 to 25.1 CuYd.

Sheet B6: TABLE OF CELLULAR GROUT was revised.

Sincerely,

Sam Weisgram
Engineering Supervisor

SW/cj

CC: Travis Dressen, Mitchell Region Engineer
Jay Peppel, Mitchell Area Engineer

ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0044(225)290	A1	A4
Plotting Date: 05/13/2021		Rev 05/13/2021(RG)	

Section B - Grading

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3220	Reestablish Right-of-Way and Property Corner	20	Each
009E3225	Reestablish Public Land Survey System Corner	1	Each
009E3230	Grade Staking	0.052	Mile
009E3245	Final Cross Section Survey	0.289	Mile
009E3250	Miscellaneous Staking	0.289	Mile
009E3280	Slope Staking	0.118	Mile
009E3301	Engineer Directed Surveying/Staking	20.0	Hour
100E0100	Clearing	Lump Sum	LS
110E0600	Remove Fence	1,682	Ft
110E1010	Remove Asphalt Concrete Pavement	821.0	SqYd
120E0010	Unclassified Excavation	118,853	CuYd
120E4100	Reprofiling Ditch	4.0	Sta
120E6100	Water for Embankment	1,782.8	MGal
250E0020	Incidental Work, Grading	Lump Sum	LS
450E0142	24" RCP Class 2, Furnish	128	Ft
450E0150	24" RCP, Install	128	Ft
450E2200	24" RCP Sloped End, Furnish	2	Each
450E2201	24" RCP Sloped End, Install	2	Each
450E4758	18" CMP 14 Gauge, Furnish	114	Ft
450E4760	18" CMP, Install	114	Ft
450E5010	18" CMP Elbow, Furnish	2	Each
450E5011	18" CMP Elbow, Install	2	Each
450E5211	18" CMP Flared End, Furnish	1	Each
450E5212	18" CMP Flared End, Install	1	Each
450E5314	30" CMP Sloped End, Furnish	2	Each
450E5315	30" CMP Sloped End, Install	2	Each
450E5406	18" CMP Safety End, Furnish	1	Each
450E5407	18" CMP Safety End, Install	1	Each
450E7630	30" Steel Pipe, Furnish	184	Ft
450E7631	30" Steel Pipe, Install	14	Ft
451E5130	Bore and Jack 30" Pipe	170	Ft
462E0250	Cellular Grout	25.1	CuYd
600E0200	Type II Field Laboratory	1	Each
620E0020	Type 2 Right-of-Way Fence	925	Ft
620E0030	Type 3 Right-of-Way Fence	1,140	Ft
620E0520	Type 2 Temporary Fence	1,440	Ft
620E1020	2 Post Panel	23	Each
620E1030	3 Post Panel	1	Each
680E0040	4" Underdrain Pipe	60	Ft
680E0440	4" Slotted Corrugated Polyethylene Drainage Tubing	712	Ft

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
680E2000	Concrete Headwall for Underdrain	2	Each
680E2500	Porous Backfill	299.0	Ton
720E1010	PVC Coated Bank and Channel Protection Gabion	15.0	CuYd
831E0110	Type B Drainage Fabric	49	SqYd

Section C - Traffic Control

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
633E1220	High Build Waterborne Pavement Marking Paint, 4" White	600	Ft
633E1222	High Build Waterborne Pavement Marking Paint, 4" Yellow	300	Ft
634E0010	Flagging	1,000.0	Hour
634E0020	Pilot Car	500.0	Hour
634E0110	Traffic Control Signs	201.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

Section D - Erosion and Sediment Control

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E1690	Remove Sediment	1.0	CuYd
110E1693	Remove Erosion Control Wattle	63	Ft
110E1700	Remove Silt Fence	915	Ft
230E0010	Placing Topsoil	5,485	CuYd
730E0100	Cover Crop Seeding	2.0	Bu
730E0210	Type F Permanent Seed Mixture	216	Lb
731E0200	Fertilizing	6.23	Ton
732E0100	Mulching	18.6	Ton
732E0300	Bonded Fiber Matrix	17.0	Ton
734E0103	Type 3 Erosion Control Blanket	3,240	SqYd
734E0104	Type 4 Erosion Control Blanket	390	SqYd
734E0154	12" Diameter Erosion Control Wattle	250	Ft
734E0165	Remove and Reset Erosion Control Wattle	63	Ft
734E0325	Surface Roughening	8.3	Acre
734E0510	Shaping for Erosion Control Blanket	620	Ft
734E0602	Low Flow Silt Fence	3,500	Ft
734E0604	High Flow Silt Fence	154	Ft
734E0610	Mucking Silt Fence	253	CuYd
734E0620	Repair Silt Fence	915	Ft
900E1320	Construction Entrance	1	Each

INDEX OF SHEETS

A1 Estimate of Quantities for Sections B, C, D, and F
A2 to A4 Environmental Commitments

Section F - Surfacing

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
260E1010	Base Course	690.4	Ton
320E1200	Asphalt Concrete Composite	246.8	Ton

SPECIFICATIONS

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

SECTION B ESTIMATE OF QUANTITIES

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GRADING OPERATIONS

Water for Embankment is estimated at the rate of 15 gallons of water per cubic yard of Embankment minus Waste.

The estimated cubic yards of excavation and/or embankment required to construct outlet ditches, ditch blocks, and regrading of ditches are included in the earthwork balance notes on the profile sheets.

Special ditch grades and other sections of the roadway different than the typical section(s) will be constructed to the limits shown on the cross sections. If significant changes to the cross sections are necessary during construction, the Engineer will contact the Designer for the proposed change.

Generally, all shallow inlet and outlet ditches as noted on the plan sheets will be cut with a 10-foot wide bottom with 5:1 backslopes. However, the Engineer may direct the Contractor to adjust the ditch width for proper alignment with the drainage structure.

Temporary fence and/or permanent fence will be placed ahead of the grading operation unless otherwise directed by the Engineer.

TYPE II FIELD LABORATORY

The lab will be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection will be provided with a multi-port wireless router. The internet connection will be a minimum speed of 5 Mbps unless limited by job location and approved by the DOT. Prior to installing the wireless router, the Contractor will submit the wireless router's technical data to the Area Office to check for compatibility with the state's computer equipment. The internet connection is intended for state personnel usage only. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. These items will be incidental to the contract unit price per each for "Type II Field Laboratory".

UTILITIES

The Contractor will 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 will 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.

LANDSLIDE DEBRIS EXCAVATION

Landslide Debris Excavation will be required at each site as shown on the cross sections. It is anticipated that most of the excavated Landslide Debris can be used in the construction of embankment. The Landslide Debris Excavation limits will not exceed those shown on the cross sections unless directed by the Engineer. Temporary 3:1 backslopes are required to excavate the Landslide Debris and reconstruct the inslopes. The temporary slopes will be unstable over the long-term. However, the slopes should remain globally stable over the short-term during construction if measures are taken to divert runoff away from the slopes and construction activities are sequenced to minimize the amount of time the temporary backslopes are left exposed and unsupported. Regular monitoring of temporary slopes is required during construction. If temporary slopes become unstable, excavation will cease, and the slope will be evaluated by the Engineer. Landslide Debris Excavation will be paid for at the contract unit price per cubic yard for "Unclassified Excavation".

UNSTABLE MATERIAL EXCAVATION

Prior to embankment construction, Unstable Material Excavation will be required to excavate displaced or weak compressible soils and other organic materials. A nominal 5 ft. depth of compressible material is anticipated to be removed from the embankment footprint prior to construction of the embankment. The depth of unstable material excavation may be adjusted by the Engineer to ensure a solid foundation free of organic, soft, unstable material is prepared. Unstable and/or highly organic material will be stockpiled for use as topsoil or wasted at a site approved by the Engineer.

The areas of unstable material excavation are drawn on the cross sections. The estimated quantity of unstable material excavation will be paid for at the contract unit price per cubic yard for "Unclassified Excavation".

EMBANKMENT CONSTRUCTION

Embankment construction will not begin until all unstable compressible materials have been excavated from the embankment footprint to the satisfaction of the Engineer. A suitable embankment foundation consists of compacted soil which does not pump, rut, or otherwise displace when traveled over with construction equipment. Each embankment will be benched into the existing slopes in accordance with Section 120.3.B.2 of the Specifications.

EXCAVATION LEFT

The excavation from A 853+25 to A 855+64 – L will be excavated as shown on the cross sections or as directed by the Engineer. Excavation from station A 856+00 to A 862+00 will have a 5:1 slope with a variable height cut and a bench daylighting to the existing backslope. If the amount of exaction that is needed to complete the embankment changes the height of the cut will be adjusted in this area, but the 5:1 slope will stay the same.

CELLULAR GROUT

The Contractor will submit a proposed grouting procedure to the Engineer at least two weeks prior to beginning this work.

Bulkheads will be constructed at each end of the pipe. Each bulkhead will be constructed to withstand the pressure of the grouting operation. The bulkhead will extend from the end of the existing pipe inward a minimum depth of 18 inches and will be free from leaks.

Pressure grouting will be done to ensure all the voids are filled including all breaks or holes in and around the existing pipe.

The grout will be a cellular grout (grout with pre-generated foam) with a minimum 28-day compressive strength of 100 pounds per square inch. If water is not present within the pipe a low-density grout with a minimum of 30 pounds per cubic foot wet density may be used. When it is not possible to dewater the existing pipe, a high-density grout with a minimum of 70 pounds per cubic foot will be used which may include approved sand. The foaming agent used will meet the requirements of ASTM C869 when tested in accordance with ASTM C796.

Both of the cellular grout mix designs will be submitted to the SDDOT Concrete Engineer for approval prior to use. The mix design submittal will include the base cement slurry mix per cubic yard, expansion factor from the foaming agent, and the cellular grout wet density (pounds per cubic foot).

The Contractor will install a bypass valve adjacent to the location where the pressure grouting hose is attached for obtaining samples to be checked for wet density. The wet density of the cellular grout will be checked by the Contractor to verify the proper minimum wet density before the cellular grout filling operations begin and at a minimum once every two hours during production. The SDDOT will document the results of the density checks.

Cellular grout will be wasted until the cellular grout meets the minimum wet density required; however, if 0.5 cubic yards or more of base cement slurry is wasted trying to meet density requirements, then that quantity will not be included for payment.

If grout holes are utilized, cylindrical wooden plugs or other approved plugs will be inserted to plug holes until the grout has set. After the plugs are removed the holes will be filled with concrete.

The quantity of cellular grout was estimated based on volume of the existing pipe and voids outside the existing pipe.

The quantity of base cement slurry ordered will be approved by the Engineer. The quantity of base cement slurry needed will be calculated to the nearest tenth of a cubic yard using the approved mix design, expansion factor of the foaming agent, and estimated amount of cellular grout. The quantity for payment to the nearest tenth of a cubic yard of "Cellular Grout" is a calculated quantity based on the amount of base cement slurry used on the project to the nearest tenth of a cubic yard, expansion factor of the foaming agent, and approved mix design.

All costs for furnishing and installing the cellular grout including bulkhead construction, inlet bevel construction, and incidentals necessary to satisfactorily complete the work will be included in the contract unit price per cubic yard for "Cellular Grout".

TABLE OF CELLULAR GROUT

Station	Quantity (CuYd)
856+07	25.1
Total:	25.1

The quantity at each location includes an additional 15% to account for void volume outside the existing pipe.

BORE AND JACK STEEL PIPE

The Contractor will install steel pipe at station 856+20 by boring and jacking the pipe through the existing highway embankment. The pipe will be installed by boring and jacking methods as specified herein unless an alternate plan is submitted in writing and approved by the Engineer.

As shown on the appropriate pipe cross section, some excavation of the existing roadway embankment is anticipated in order to reduce the length of the bore and jack pipe installation.

Steel pipe for boring and jacking will meet or exceed the requirements of ASTM A53 Grade B, ASTM A139 Grade B or ASTM A252 Grade 2. Hydrostatic testing will not be required for this application. The pipe will be required to have the minimum wall thickness as shown in the following table:

Pipe Diameter	Wall Thickness
48" & below	1/2"
54"	5/8"
60"	5/8"
66"	3/4"
72"	3/4"

The exterior of the steel pipe will be coated with a fusion bonded epoxy coating and an abrasion resistant overcoat or a two-component coal tar epoxy. The coal tar will meet the requirements of Sherwin-Williams Targuard, Tnemec Hi-Build Tnemec-Tar, or an approved equal. Applications of the coatings will be in conformance with the manufacturer's recommendations.

The pipe joints will be welded by a certified welder in accordance with Section 410.3 D of the Specifications. After the welding has been completed, the exposed area will be coated with 3M Scotchkote Liquid Epoxy 328 or a two-component coal tar epoxy meeting the requirements of Sherwin-Williams Targuard, Tnemec Hi-Build Tnemec-Tar, or an approved equal.

The jacking pit will be constructed of sufficient size to accommodate equipment and workmen. The pit walls will be sloped or shored to comply with all applicable State and Federal regulations. The Contractor will be responsible for the design of the pit floor and jacking thrust restraint wall to carry the cyclic loads and thrust applied by the Contractor's operation. Water will not be allowed to accumulate in the jacking pit. All components of the jacking pit will be removed after installation of the pipe unless otherwise allowed by the Engineer.

The pipe will be pushed into position from a jacking pit with hydraulic jacks while simultaneously excavating at the forward end of the pipe. Each pipe section will be jacked from the jacking pit as the excavation at the boring head progresses so that the excavation is supported by the boring head or the pipe at all points.

Jacking thrust will be applied to the pipe by means of a yoke or frame designed to distribute the thrust uniformly around the pipe joint. The thrust will be applied to the pipe joint only in the location and only to the maximum force recommended by the pipe manufacturer. The pipe will be jacked into place without visible damage to the pipe or joint.

The boring head excavation will be circular with a maximum diameter equal to the outside diameter of the jacking pipe plus 1 inch. The Contractor will take whatever corrective action is necessary to prevent running, flowing, or squeezing ground conditions at the cutting face from causing large voids or significant loss of soil that may cause surface settlement.

The Contractor will control the alignment and grade of the pipe installation to meet the following tolerances:

1. Maximum horizontal deviation from plan shown alignment will be less than 0.15% of pipe length from the downstream end of pipe to the point of measurement.
2. Maximum vertical deviation from plan shown alignment will be less than 0.075% of pipe length from the downstream end of pipe to the point of measurement.

All material excavated by the boring head for the pipe installation will be disposed of by the Contractor. The excavated material from the boring pit will be used as backfill for the pit and compacted into place to the satisfaction of the Engineer.

Steel casing will be installed horizontally through 170' +/- of embankment. The pipe will be placed through an approximate 25' vertical depth of silt clay material. The parent formation from which the embankment material was excavated consists of shale and may contain minor sandstone and concretions. Large boulders are not anticipated to be encountered within the bore and jack envelope.

Installation of CMP ends on the steel pipe will require the placement of a minimum of 2 welded stops at each pipe end to prevent the end from slipping off the steel pipe. The location and size will be determined in the field by the Engineer and installed by a certified welder. Stops will be coated with a coal tar epoxy. All costs, including labor and materials for the installation of the stops will be incidental to the contract unit price per foot for the corresponding steel pipe furnish contract item. Alternative methods of attachment may be allowed with the approval of the Engineer.

Payment for furnishing the pipe will be incidental to the contract unit price per foot for the corresponding steel pipe furnish contract item.

All costs involved with boring and jacking the pipe including labor, equipment, welding, materials, disposal of waste material, constructing and backfilling the jacking pit, and excavating and backfilling the roadway embankment will be incidental to the contract unit price per foot for the corresponding bore and jack pipe contract item.