



# Department of Transportation

## Office of Project Development

700 E Broadway Avenue

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

FAX: 605/773-6608

December 8, 2014

### ADDENDUM NO. 2

**RE: Item #1, December 10, 2014 Letting – IM 0292(74)62, PCN 035A, Lincoln County - Grading, Structure (243' Prestressed Girder), PCC Surfacing**

#### **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

**BID ITEM FILE:** *Bidders must log in to retrieve the addendum bid item file that must be loaded into the SDEBS to incorporate the revisions listed here.*

**Bid Items were added:**

Bid Item 634E0755 "Remove and Reset Temporary Concrete Barrier End Protection"

**Quantities for Bid Items were changed:**

Bid Item 634E0330 "Raised Pavement Markers" from 39,500 to 42,780 Ft

Bid Item 634E0705 "Remove and Reset Traffic Control Movable Concrete Barrier" from 210 to 414 Each

**PLANS:** Please destroy sheets A1, B4, C2, C4, and F2 and replace with the enclosed sheets, dated 12/8/14. Sheet C37A was added.

**Sheet A1:** **Bid Items were added:**

Bid Item 634E0755 "Remove and Reset Temporary Concrete Barrier End Protection"

**Quantities for Bid Items were changed:**

Bid Item 634E0330 "Raised Pavement Markers" from 39,500 to 42,780 Ft

Bid Item 634E0705 "Remove and Reset Traffic Control Movable Concrete Barrier" from 210 to 414 Each

**Sheet B4:** SALVAGE AND STOCKPILE ASPHALT MIX AND GRANULAR BASE MATERIAL note was revised.

**Sheet C2:** **Bid Items were added:**

Bid Item 634E0755 "Remove and Reset Temporary Concrete Barrier End Protection"

**Quantities for Bid Items were changed:**

Bid Item 634E0330 "Raised Pavement Markers" from 39,500 to 42,780 Ft

Bid Item 634E0705 "Remove and Reset Traffic Control Movable Concrete Barrier" from 210 to 414 Each

SEQUENCE OF OPERATIONS, Phase 2 (3<sup>rd</sup> column) note was revised.

**Sheet C4:** TRAFFIC CONTROL MOVABLE CONCRETE BARRIERS & MOVABLE F  
SHAPE CONCRETE BARRIER, END SECTION note was revised.

REMOVE AND RESET TRAFFIC CONTROL MOVABLE CONCRETE  
BARRIER note was revised.

TEMPORARY CONCRETE BARRIER END PROTECTION &  
TEMPORARY CONCRETE BARRIER END PROTECTION MODULE SET  
OR REPAIR KIT note was revised.

**Sheet C37A:** Sheet was added.

**Sheet F4:** SALVAGE AND STOCKPILE ASPHALT MIX AND GRANULAR BASE  
MATERIAL TABLE note was revised.

Sincerely,

Sam Weisgram  
Engineering Supervisor

SW/ksv

CC: Craig Smith, Mitchell Region Engineer  
Travis Dressen, Sioux Falls Area Engineer

# ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0292(74)62	A1	A5

Plotting Date: 12/08/2014 Revised: 12-08-14 BTR

## Grading – Section B

Bid Item Number	Item	Quantity	Unit
004E0050	Remove Traffic Diversion(s)	Lump Sum	LS
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	8,719	Mile
009E3245	Final Cross Section Survey	3,937	Mile
009E3250	Miscellaneous Staking	3,937	Mile
009E3280	Slope Staking	3,937	Mile
009E3290	Structure Staking	1	Each
009E3300	Three Man Survey Crew	40.0	Hour
100E0100	Clearing	Lump Sum	LS
110E0400	Remove Drop Inlet	4	Each
110E0600	Remove Fence	9,427	Ft
110E0700	Remove 3 Cable Guardrail	1,157	Ft
110E0730	Remove Beam Guardrail	989.0	Ft
110E0740	Remove 3 Cable Guardrail Anchor Assembly	6	Each
110E1050	Remove Asphalt Concrete Approach Pavement	295.7	SqYd
110E1100	Remove Concrete Pavement	18,586.0	SqYd
110E1130	Remove Concrete Driveway Pavement	2,110.1	SqYd
110E7500	Remove Pipe for Reset	60	Ft
110E7510	Remove Pipe End Section for Reset	2	Each
120E0010	Unclassified Excavation	138,569	CuYd
120E0300	Borrow Unclassified Excavation	296,941	CuYd
120E0900	Contaminated Material Excavation	100	CuYd
120E1000	Muck Excavation	22,065	CuYd
120E2000	Undercutting	34,759	CuYd
120E6100	Water for Embankment	3,681.0	MGal
250E0020	Incidental Work, Grading	Lump Sum	LS
* 270E0040	Salvage and Stockpile Asphalt Mix and Granular Base Material	4,341.4	Ton
270E0040	Salvage and Stockpile Asphalt Mix and Granular Base Material	29,338.4	Ton
421E0100	Pipe Culvert Undercut	74	CuYd
450E0102	12" RCP Class 2, Furnish	108	Ft
450E0110	12" RCP, Install	108	Ft
450E0142	24" RCP Class 2, Furnish	334	Ft
450E0150	24" RCP, Install	334	Ft
450E0162	30" RCP Class 2, Furnish	156	Ft
450E0163	30" RCP Class 3, Furnish	138	Ft
450E0170	30" RCP, Install	294	Ft
450E0192	42" RCP Class 2, Furnish	228	Ft
450E0200	42" RCP, Install	228	Ft
450E2016	24" RCP Flared End, Furnish	2	Each
450E2017	24" RCP Flared End, Install	2	Each
450E2024	30" RCP Flared End, Furnish	6	Each
450E2025	30" RCP Flared End, Install	6	Each
450E2032	42" RCP Flared End, Furnish	4	Each
450E2033	42" RCP Flared End, Install	4	Each
450E2308	24" RCP Safety End, Furnish	4	Each
450E2311	24" RCP Safety End, Install	4	Each
450E4739	12" CMP 16 Gauge, Furnish	172	Ft
450E4740	12" CMP, Install	172	Ft
450E4759	18" CMP 16 Gauge, Furnish	444	Ft
450E4760	18" CMP, Install	444	Ft
450E4769	24" CMP 16 Gauge, Furnish	120	Ft
450E4770	24" CMP, Install	120	Ft
450E5000	12" CMP Elbow, Furnish	4	Each
450E5001	12" CMP Elbow, Install	4	Each
450E5203	12" CMP Flared End, Furnish	2	Each
450E5204	12" CMP Flared End, Install	2	Each
450E5406	18" CMP Safety End, Furnish	10	Each
450E5407	18" CMP Safety End, Install	10	Each
450E5410	24" CMP Safety End, Furnish	4	Each
450E5411	24" CMP Safety End, Install	4	Each
450E7999	12" RCP to CMP Transition, Furnish	2	Each

## Grading – Section B (Continued)

Bid Item Number	Item	Quantity	Unit
450E8000	12" Pipe Transition, Install	2	Each
450E9000	Reset Pipe	60	Ft
450E9001	Reset Pipe End Section	2	Each
462E0100	Class M6 Concrete	3.2	CuYd
480E0100	Reinforcing Steel	386	Lb
600E0300	Type III Field Laboratory	1	Each
620E0020	Type 2 Right-of-Way Fence	8,293	Ft
620E1020	2 Post Panel	31	Each
620E1030	3 Post Panel	1	Each
621E0260	Special 6' Chain Link Fence	412	Ft
629E0110	NCHRP 350 Test Level 3 High Tension Cable Guardrail	928	Ft
629E0290	NCHRP 350 Test Level 3 High Tension Cable Guardrail Anchor Assembly	4	Each
* 629E1107	Furnish High Tension Cable Guardrail Post	50	Each
* 629E1109	Furnish High Tension Cable Guardrail Post and Sleeve	50	Each
* 629E8010	Cable Tension Indicator	1	Each
630E0110	Straight Double Class A Thrie Beam Guardrail with Wood Posts	50.0	Ft
630E1010	Straight Class A W Beam Guardrail with Wood Posts	275.0	Ft
630E2000	W Beam to Thrie Beam Guardrail Transition	4	Each
630E2015	W Beam Guardrail Flared End Terminal	4	Each
650E4380	Type D48 Concrete Curb and Gutter	70	Ft
670E3200	Type D Frame and Grate	4	Each
670E5400	Precast Drop Inlet Collar	4	Each
720E1015	Bank and Channel Protection Gabion	9.0	CuYd

\* - Denotes Non-Participating

## Traffic Control – Section C

Bid Item Number	Item	Quantity	Unit
110E1400	Remove Pavement Marking, 4" or Equivalent	9,500	Ft
628E1110	Movable F Shape Concrete Barrier, End Section	4	Each
632E3600	Temporary Signing	987.6	SqFt
634E0010	Flagging	400	Hour
634E0020	Pilot Car	150	Hour
634E0100	Traffic Control	9,827	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0330	Raised Pavement Markers	42,780	Ft
634E0380	Tubular Marker	896	Each
634E0390	Replace Tubular Marker	100	Each
634E0420	Type C Advance Warning Arrow Panel	4	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	218	Each
634E0610	4" Temporary Pavement Marking Tape Type 2	48	Ft
634E0640	Temporary Pavement Marking	21,430	Ft
634E0700	Traffic Control Movable Concrete Barrier	214	Each
634E0705	Remove and Reset Traffic Control Movable Concrete Barrier	414	Each
634E0750	Temporary Concrete Barrier End Protection	2	Each
634E0755	Remove and Reset Temporary Concrete Barrier End Protection	2	Each
634E0760	Temporary Concrete Barrier End Protection Module Set or Repair Kit	1	Each
634E0920	Hazard Identification Beacon	4	Site
634E1215	Contractor Furnished Portable Changeable Message Sign	3	Each

## INDEX OF SHEETS

A1 and A2 Estimate of Quantities for Sections B,C,D,E,F,G,  
L, M, and S  
A3 to A5 Environmental Commitments

## Erosion and Sediment Control – Section D

Bid Item Number	Item	Quantity	Unit
110E1690	Remove Sediment	50.0	CuYd
110E1700	Remove Silt Fence	1,413	Ft
230E0010	Placing Topsoil	20,100	CuYd
730E0100	Cover Crop Seeding	19.0	Bu
730E0202	Type B Permanent Seed Mixture	342	Lb
730E0212	Type G Permanent Seed Mixture	468	Lb
732E0100	Mulching	80.0	Ton
734E0044	Soil Stabilizer	5.0	Acre
734E0103	Type 3 Erosion Control Blanket	3,125	SqYd
734E0154	12" Diameter Erosion Control Wattle	2,750	Ft
734E0165	Remove and Reset Erosion Control Wattle	500	Ft
734E0510	Shaping for Erosion Control Blanket	1,750	Ft
734E0602	Low Flow Silt Fence	4,750	Ft
734E0604	High Flow Silt Fence	900	Ft
734E0610	Mucking Silt Fence	392	CuYd
734E0620	Repair Silt Fence	1,413	Ft
900E1320	Construction Entrance	1	Each

## Structure – Section E

Bid Item Number	Item	Quantity	Unit
009E3310	Bridge Elevation Survey	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	1,401.0	SqYd
120E3100	Bridge End Embankment	2,887	CuYd
250E0030	Incidental Work, Structure	Lump Sum	LS
410E0030	Structural Steel, Miscellaneous	Lump Sum	LS
410E2600	Membrane Sealant Expansion Joint	107.8	Ft
420E0100	Structure Excavation, Bridge	170	CuYd
430E0300	Granular Bridge End Backfill	148.0	CuYd
430E0510	Approach Slab Underdrain Excavation	5.1	CuYd
460E0030	Class A45 Concrete, Bridge Deck	441.8	CuYd
460E0050	Class A45 Concrete, Bridge	238.8	CuYd
460E0150	Concrete Approach Slab for Bridge	243.6	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	86.8	SqYd
480E0100	Reinforcing Steel	34,712	Lb
480E0200	Epoxy Coated Reinforcing Steel	85,943	Lb
480E0507	No. 7 Rebar Splice	138	Each
510E0300	Preboring Pile	160	Ft
510E3421	HP 12x74 Steel Test Pile, Furnish and Drive	395	Ft
510E3425	HP 12x74 Steel Bearing Pile, Furnish and Drive	5,080	Ft
560E8072	72" Minnesota Shape Prestressed Concrete Beam	1,446	Ft
680E0040	4" Underdrain Pipe	306	Ft
680E2010	Precast Concrete Headwall for Drain	4	Each
680E2500	Porous Backfill	36.1	Ton
734E2020	Bridge Berm Slope Protection, Crushed Aggregate	594.4	SqYd
831E0100	Type A Drainage Fabric	616	SqYd

Plot Scale - 1:200

Plotted From - trst12145

File - ...:\proj\inc035A\Notes\SectionA.dgn

### HAUL

Included in the Table of Excavation Quantities by Balances are Dead Haul, Borrow Haul, and Haul. They are not pay items and are for informational purposes only.

**Dead Haul:** Estimated quantity (CuYdSta) for moving borrow excavation material or option borrow excavation material from the borrow or option borrow site to the centerline mainline station listed in the Table of Borrow Pits.

**Borrow Haul:** Estimated quantity (CuYdSta) for moving borrow excavation material from the centerline mainline station listed in the Table of Borrow Pits to the locations where it is needed throughout the earthwork balance.

**Haul:** Estimated quantity (CuYdSta) for moving unclassified excavation material to the locations where it is needed throughout the earthwork balance.

For Purpose of Extra Haul Computations:

$$\text{Average Haul} = \text{Haul/Unclassified Excavation} = 49,642/167,419 = 0.3 \text{ Sta.}$$

$$\text{Average Borrow Haul} = (\text{Borrow Haul} + \text{Dead Haul})/\text{Total Borrow Excavation} = 8,391,979/267,477 = 31.4 \text{ Sta.}$$

### UNDERCUTTING

In all cut sections the earthen subgrade shall be undercut 3 feet below the earthen subgrade surface. The undercut material or other suitable material, as directed by the Engineer, shall then be replaced and compacted to the density specified for the section being constructed.

Shallow embankment sections, fills less than 3 feet in height measured at the finished subgrade shoulders, shall be undercut to ensure a minimum 3 foot height of earth embankment for the entire width of roadbed. The upper 6 inches of undercut material that consists of topsoil with a high humus content shall be used as topsoil, placed in the fill slopes outside the shoulders of the earthen subgrade, or placed in the lower portion (below 4 foot depth) in fills which are greater than 4 feet in height. The remaining undercut soil and soil obtained from adjacent excavation (excluding the upper 6 inches) shall then be replaced and compacted to the density specified for the section being constructed.

The plan shown quantity will be the basis of payment. However, if there are additional areas of undercut other than what is shown in the plans, the Engineer shall direct removal of these areas and the additional areas will be measured according to the Engineer.

### TABLE OF UNDERCUTTING

	Station	to	Station	Quantity (CuYd)
Mainline	23+93		40+95	1,659
Mainline	43+38		70+90	11,567
Ramp A	0+00		29+59	7,948
Ramp B	0+00		40+74	3,019
Ramp C	1+05		32+35	4,801
Ramp D	0+00		22+86	5,765
Total:				34,759

### UNSTABLE MATERIAL EXCAVATION

The areas of unstable material excavation are drawn on the cross sections with a normal depth of 2 feet. The estimated quantity of 8,015 cubic yards of unstable material excavation shall be paid for at the contract unit price per cubic yard for "Unclassified Excavation".

All areas designated as Unstable shall be excavated. The unstable material excavated on this project shall be placed outside the subgrade shoulder in fill sections or stockpiled and used as topsoil.

Field measurement of unstable material excavation shall not be made. However, if there are additional areas of unstable material excavation other than what is shown in the plans, the Engineer shall direct removal of these areas and the additional areas will be measured according to the Engineer.

### TABLE OF UNSTABLE MATERIAL EXCAVATION

Station	to	Station	L/R	Depth (Ft)	Quantity (CuYd)
44+00		45+00	L	2	285
52+00		53+00	L	2	163
54+00		57+00	L	2	814
58+50		60+00	L	2	379
59+50		61+50	R	2	248
Ramp A					
0+50		2+00	R	2	437
6+00		14+50	L/R	2	1,737
Ramp B					
11+00		18+50	R	2	693
35+00		37+00	R	2	795
38+75		39+25	L	2	12
Ramp C					
1+05		3+00	L	2	201
Ramp D					
4+00		4+50	L	2	85
12+00		22+00	L/R	2	2,166
Total:					8,015

### MUCK EXCAVATION

The areas of muck excavation are drawn on the cross sections with a normal depth of 3 feet. The estimated quantity of 22,065 cubic yards of muck excavation shall be paid for at the contract unit price per cubic yard for "Muck Excavation".

Muck excavation consists of the removal of highly organic and/or highly saturated material from the designated areas shown on the cross sections. Highly organic muck material shall not be used in the embankment but may be used as topsoil. Non-organic muck material may be used as embankment outside of the fill subgrade shoulder if it is properly handled and dried prior to placement in the embankment.

Field measurement of muck excavation will not be made unless the Engineer orders additional excavation, or when the Engineer determines, in accordance with Section 120.3.A.1 of the Specifications, that the classification of excavation be changed.

If the areas designated as muck excavation can be removed with similar equipment and procedures as used for unclassified excavation, the material shall be measured and paid for as "Unclassified Excavation".

### TABLE OF MUCK EXCAVATION

Station	to	Station	L/R	Depth (Ft)	Quantity (CuYd)
39+50		40+75	L	3	600
Ramp B					
0+48		11+00	R	3	1,755
18+50		35+00	R	3	5,349
Ramp C					
3+00		31+00	L/R	3	14,361
Total:					22,065

### SALVAGE AND STOCKPILE ASPHALT MIX AND GRANULAR BASE MATERIAL

An estimated 29,338.4 tons (15,523.0 Cubic Yards) of asphalt mix and granular base material shall be salvaged from the entire length of the existing highway (including ramps) and stockpiled at a site furnished by the Contractor and satisfactory to the Engineer.

An estimated 4,341.4 tons (2,297.0 Cubic Yards) of asphalt mix and granular base material (non-participating) shall be salvaged and stockpiled at the SDDOT maintenance shop near Lennox, SD. This material will be salvaged near the completion of the project (detours and shoulder widening) and will be unavailable for the Contractor to use on this project.

The quantity of salvage asphalt mix and granular base material may vary from the plans. No adjustment will be made to the contract unit price for variations of the quantity of "Salvage and Stockpile Asphalt Mix and Granular Base Material."

### BORROW PIT

The borrow pit is being used for wetland mitigation and must be used as a borrow source. The borrow pit shall be constructed as shown in Section G. The intent is to construct the borrow pit to mimic a natural wetland with variations in elevation, shape, and slope. Excavation quantities shown in Section G are estimations only based on proposed wetland design. Actual excavation quantities will be based on amount of borrow needed to complete the project.

### TABLE OF PIPE CULVERT UNDERCUT

The Table of Pipe Culvert Undercut is intended to be used to establish an estimated quantity of Pipe Culvert Undercut for bidding purposes only. The table includes undercut for 36 inch and larger pipe culverts. The depth of undercut is an estimate and the actual depth necessary shall be determined during construction. Pipes shown may or may not require undercutting and pipes not shown may require undercutting. The Engineer will determine which pipe shall be undercut in accordance with Section 421 of the Specifications.

Station	Undercut Depth (Ft)	Quantity (CuYd)
59+73	1	74

**SECTION C: ESTIMATE OF QUANTITIES**

Bid Item Number	Item	Quantity	Unit
110E1400	Remove Pavement Marking, 4" or Equivalent	9,500	Ft
628E1110	Movable F Shape Concrete Barrier, End Section	4	Each
632E3600	Temporary Signing	987.6	SqFt
634E0010	Flagging	400	Hour
634E0020	Pilot Car	150	Hour
634E0100	Traffic Control	9,827	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0330	Raised Pavement Markers	42,780	Ft
634E0380	Tubular Marker	896	Each
634E0390	Replace Tubular Marker	100	Each
634E0420	Type C Advance Warning Arrow Panel	4	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	218	Each
634E0610	4" Temporary Pavement Marking Tape Type 2	48	Ft
634E0640	Temporary Pavement Marking	21,430	Ft
634E0700	Traffic Control Movable Concrete Barrier	214	Each
634E0705	Remove and Reset Traffic Control Movable Concrete Barrier	414	Each
634E0750	Temporary Concrete Barrier End Protection	2	Each
634E0755	Remove and Reset Temporary Concrete Barrier End Protection	2	Each
634E0760	Temporary Concrete Barrier End Protection Module Set or Repair Kit	1	Each
634E0920	Hazard Identification Beacon	4	Site
634E1215	Contractor Furnished Portable Changeable Message Sign	3	Each

**SCOPE OF WORK**

Work on this project includes, but is not limited to the following: Structure Removal, Pavement Removal, PCCP, Structure Replacement, Construction of Temporary Ramps, Construction of Permanent Ramps, Grading, Erosion Control, Guardrail, Permanent Signing, Interchange Lighting, and Permanent Pavement Markings.

**CONTRACTOR WORK SCHEDULE**

The Contractor shall notify businesses owners a minimum of two weeks prior to any upcoming construction and again a minimum of 72 hours prior to any construction activities that will conflict with access (including closure of SD Hwy 18) to make appropriate arrangements.

A minimum of two working days prior to any closures on US Hwy 18 for the removal of bridge decks, setting of girders, or the reconstruction of 23+93 to 28+85 the Contractor shall submit a detailed sequence of work activities showing the work to be accomplished within the time restraints as per the Special Provision for Contract Time.

**SEQUENCE OF OPERATIONS**

The Contractor shall notify the SD DOT Region Traffic Engineer (605-995-8129) in Mitchell a minimum of two weeks prior to installation of the permanent signing to give adequate time for marking locations.

In the event the Contractor can furnish to the Engineer an alternate sequence of operations or traffic control plan which meets the approval of all parties involved, the sequence may be changed. An alternate sequence of operations or traffic control plan must be submitted to the Engineer a minimum of two (2) weeks prior to the Preconstruction Meeting. It is understood that if the sequence as provided in these plans is used, approved changes may be made due to unforeseen conditions.

**SEQUENCE OF OPERATIONS (CONTINUED)**

Traffic shall be maintained on US Hwy 18 and I-29 during all phases of construction except for as listed in the Special Provision for Contract Time.

Erosion and sediment control measures shall be installed, as required, on a continuous basis as the project progresses as per section D, the SWPPP, the storm water discharge permit, and as directed by the Engineer.

Any permanent signing that is scheduled to be removed as per section S, that conflict with the different phases of construction shall be removed throughout the project as needed.

The section of US Hwy 18 from station 23+93 to 28+85 may be completed at any phase of construction that best fits in with the Contractor's schedule as long as it adheres to the Special Provision for Contract time. The Contractor is advised shoulder drop offs will not be permitted for extended periods as directed by the Engineer and granular material on the shoulders may need to be sloped temporarily to prevent this.

The project shall be divided into 4 phases:

- Phase 1
  - Widening of US Hwy 18 and ramps to maintain traffic during reconstruction of North half of US Hwy 18.
  - Removal of the bridge deck from structure 42-065-140 (west bound).
  - Construction of temporary ramps F and G for maintaining traffic during phase 2.
- Phase 2 (construction on the north half of the project)
  - Removal of the remaining structure 42-065-140 (west bound)
  - Construction of the new structure 42-065-140
  - Removal of the existing ramps A and D
  - Construction of the new permanent ramps A & D
  - Construction of the temporary ramps E & H
  - Reconstruction north half of US Hwy 18 from station 28+85 to 70+90.
- Phase 3 (Construction on the south half of the project)
  - Removal of existing ramps B & C
  - Removal of the temporary ramps F and G
  - Construction of the remaining portions of US Hwy 18
  - Construction of permanent ramps B & C
- Phase 4
  - Removal of structure 42-065-141 (east bound)
  - All other grading operation
  - All remaining work on the project including but not limited to erosion control, permanent signing, interchange lighting, and pavement markings.

**SEQUENCE OF OPERATIONS (CONTINUED)**

Phase 1

1. Install fixed location signing on the project.
2. Construct the temporary widening on US Hwy 18 as well as on the temporary ramps F and G as per Sections B & F. Traffic will be maintained with use of flagger stations or other traffic control standard plates as directed by the Engineer.
3. Remove the bridge deck from structure 42-065-140 (west bound). Traffic shall be diverted off I-29 onto the exit/off ramps as per traffic control details. US Hwy 18 will be closed for removal of the bridge deck as per the Special Provision for Contract Time.

Phase 2

1. Traffic shall be maintained as two-way traffic on structure 42-065-141 (east bound) and ramp traffic shall be maintained on the existing ramps as per the traffic control details.
2. Traffic on I-29 shall be shifted to the driving lanes with use of barriers and standard plate 634.65 as needed for the removal of the median structure and construction of the median column.
3. The remainder of structure 42-065-140 shall be removed and the new structure 42-065-140 shall be constructed. Traffic shall be diverted off I-29 onto the exit/on ramps as per traffic control details for setting of the girders. US Hwy 18 will be closed for only setting of the girders as per the Special Provision for Contract Time for setting of the girders.
4. After construction is completed in the median, the traffic control barriers shall be removed from I-29 to be used on US Hwy 18. The High Tension Cable Guardrail shall be in place prior to removing the barriers to protect the new median column.
5. Traffic control barriers shall be placed throughout the project on US Hwy 18 and traffic shall be directed to the temporary widening and the temporary ramps F and G. Traffic may not be diverted until after setting of the girders for the new structure. Overheight traffic detour shall be implemented prior to closing any permanent ramps.
6. The northern portion (west bound lane, shoulder, & a portion of the east bound lane) of existing US Hwy 18 shall be removed as necessary. Material shall be salvaged for use elsewhere on the project.
7. Existing permanent ramps A and D shall be removed. Material shall be salvaged for use elsewhere on the project.
8. Permanent ramps A and D shall be constructed.
9. The northern portion (west bound lanes, turning lane & shoulder) of US Hwy 18 shall be constructed. Asphalt concrete shall be placed on shoulder areas as necessary to maintain traffic during phase 3.
10. Temporary ramps E and H shall be constructed.
11. Install guardrail on the north half of new structure 42-065-140.
12. Apply temporary pavement markings.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0292(74)62	C4	C39

Plotting Date: 01/21/2014 Rev 12/08/14 JAP

**TRAFFIC CONTROL (CONTINUED)**

Payment for signs and barricades will be for the maximum number in use at any one time. Reuse of the same sign or barricade at different locations will not constitute additional payment.

Traffic Control units, as shown in the Estimate of Quantities, are estimates. Contractor's operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

Quantities for LOOSE GRAVEL signs (W8-7), BUMP signs (W8-1), and TRUCK CROSSING signs (W8-6) have been included in the itemized list for traffic control to be placed as directed by the Engineer.

**SPECIAL CONDITIONS**

Access must be maintained at all times during construction for the following business entrances:

- 1) SD DOT Maintenance Shop
- 2) Sioux Falls Regional Livestock
- 3) Shell Truck Stop / RV Park Hotel
- 4) Ward Miller Auto Sales / ATV Sales / Etc.

It should be understood that the pouring sequence shall correspond with the joint details shown on the pavement layouts. Each phased construction area may require two or more pours.

Included in the Estimate of Quantities in section F is 500 tons of granular material for the purpose of maintaining accesses throughout the project.

The Shell Truck Stop and Ward Miller Auto Sales locations do have multiple entrances/approaches; however approval must first be obtained from the Engineer before closing any of these entrances/approaches for construction.

Access to residences and fields shall be maintained at all times. Intersecting streets are to remain open or closed as indicated in the details for intersection roads (471<sup>st</sup> St) as included in Section C.

**REMOVE PAVEMENT MARKING, 4" OR EQUIVALENT**

Removal of existing pavement markings shall precede the switching of traffic to phase 2 of construction as the markings will conflict with traffic control.

Included in the Estimate of Quantities are 9,500 ft of REMOVE PAVEMENT MARKING, 4" OR EQUIVALENT to remove any existing white edge lines or yellow centerlines on US Hwy 18 that will conflict with the included traffic control details. Areas of removal shall be marked by the Engineer.

All costs associated with removal of the existing pavement markings including labor, equipment, and disposal of waste materials shall be included in the contract unit price per foot for REMOVE PAVEMENT MARKING, 4" OR EQUIVALENT.

**MOVABLE F SHAPE CONCRETE BARRIER, END SECTION**

The Contractor shall furnish 4 Movable F Shape Concrete Barrier End Sections for use along US Hwy 18. Refer to Standard Plate 628.11 for concrete barrier end section requirements. Upon completion of the project, the concrete barrier end sections shall remain the property of the SD DOT. The Contractor shall transport the end sections to the stockpile site located at the intersection of S Solberg Ave and W 69<sup>th</sup> St in Sioux Falls, SD.

All costs associated with furnishing, maintaining, adjusting, and transporting the concrete barrier end sections shall be incidental to the contract unit price per each for MOVABLE F SHAPE CONCRETE BARRIER, END SECTION.

**TRAFFIC CONTROL MOVABLE CONCRETE BARRIERS & MOVABLE F SHAPE CONCRETE BARRIER, END SECTION**

In phase 2 during removal and construction of the median column the Contractor will be required to place 204 Traffic Control Movable Concrete Barriers (102 South Bound & 102 North Bound) in order to close the passing lane as per standard plate 634.65. This should allow enough barriers for the taper and a 500' work zone. The Contractor shall also post a 65 mph speed zone on I-29 prior to this work. The exact location of the barriers shall be determined by the Engineer upon construction. These barriers shall be removed and reset for later use on the project.

In phase 2 when shifting traffic on US Hwy 18 to the widened sections, the Contractor will be required to place 208 Traffic Control Movable Concrete Barriers (Type F Shape) and 4 Movable Concrete Barrier End Sections (Type F Shape) from approximately station 28+50 to station 55+50. These barriers shall be placed adjacent to the traveling public to protect them from construction. Prior to this, 7 of the barriers (including one end section) will also be used for bridge end protection on structure 42-065-141 as per the traffic control details. Two of the Movable Concrete Barrier End Sections (Type F Shape) will not be required until phase 3 when traffic is shifted to the new structure.

In addition to the 208 barriers used on US Hwy 18, 6 Traffic Control Movable Concrete Barriers (Type F Shape) will also be used to protect the traveling public on I-29 from the in-place concrete columns during phases 2 & 3 as detailed in these plans.

The SDDOT has 214 Traffic Control Movable Concrete Barriers (Type F Shape) which are stockpiled at the intersection of S Solberg Ave and W 69<sup>th</sup> St in Sioux Falls, SD.

If connecting pins are not available with the barrier sections, the Contractor shall furnish new pins as shown on Standard Plate 628.01. All new connecting pins shall meet the requirements of NCHRP 350 TL-3. The connecting pins assemblies shall become the property of the SD DOT and remain with the barrier sections upon completion of the project.

Upon completion of the reconstruction of US Hwy 18, the Contractor shall return concrete barrier sections (along with the connecting pins) to the location from where they were obtained.

All costs associated with furnishing, installing, and maintaining the connecting pins and with obtaining, maintaining, adjusting, and returning the barrier sections and connecting pins shall be incidental to the contract unit price per each for TRAFFIC CONTROL MOVABLE CONCRETE BARRIER.

Payment shall only be made for the most concrete barrier sections/end sections which were obtained and used at the same time.

**REMOVE AND RESET TRAFFIC CONTROL MOVABLE CONCRETE BARRIER**

When barriers are moved for traffic control from I-29 to US Hwy 18 in phase 2 and from phase 2 to phase 3, the moving and resetting of the barriers shall be paid for by utilizing the bid item REMOVE AND RESET TRAFFIC CONTROL MOVABLE CONCRETE BARRIER. This will include approximately 412 type F barriers and 2 type F end sections. Other small shifts in the placement of the barrier will not constitute the use of this bid item.

Prior to the moving and resetting of barriers between phases 2 & 3 a temporary gravel edge will also need to be constructed per the Traffic Control Typical Section for Phase 3, to place the barriers on. This will prevent a shoulder drop-off and will allow enough room to maintain traffic. In areas where there is enough room to maintain traffic on the new pavement and room to have the barriers set on the new concrete, the gravel edge will not be necessary. The estimated stationing where the gravel edge will be necessary is from station 28+50 to 35+50 but will be determined during construction by the Engineer. Payment for construction of the temporary gravel edge shall be incidental to the material used to construct it. All material shall then be salvaged to be used elsewhere on the project.

**TEMPORARY CONCRETE BARRIER END PROTECTION & TEMPORARY CONCRETE BARRIER END PROTECTION MODULE SET OR REPAIR KIT**

The Contractor shall furnish crash tested and approved end protection on movable concrete barriers installed on I-29 to protect the traveling public from the existing bridge columns as detailed in these plans and when the passing lane is closed for construction of the median column. This will require 2 Temporary Concrete Barrier Protection used at different points during construction.

End protection shall be installed parallel to the roadway and a minimum of two concrete barriers shall be installed in line with and behind the end protection. The end protection shall be attached to the concrete barrier as specified by the manufacturer.

Costs for furnishing, installing, maintaining, and removing the end protection will be paid for at the contract unit price per each for Temporary Concrete Barrier End Protection. The concrete barrier end protection shall meet the requirements of NCHRP 350 TL-3.

When Concrete Barrier End Protection is required to be moved from the barriers closing the passing lane to the barriers protecting the outside columns this work shall be paid for with the bid item Remove and Reset Temporary Concrete Barrier End Protection. No payment will be made for slight movements or adjustments of the temporary concrete barrier end protections from phase to phase. All costs for this work shall be included in the contract unit price per each for Temporary Concrete Barrier End Protection.

The Contractor will be required to have immediately available replacement parts for the end protection. The Contractor will be expected to repair the end protection within 24 hours after impact or damage. Costs for replacement modules shall be paid for at the contract unit price per each Temporary Concrete Barrier End Module Set or Repair Kit.

PLOT SCALE - 1:800

PLOTTED FROM - TRSE12114

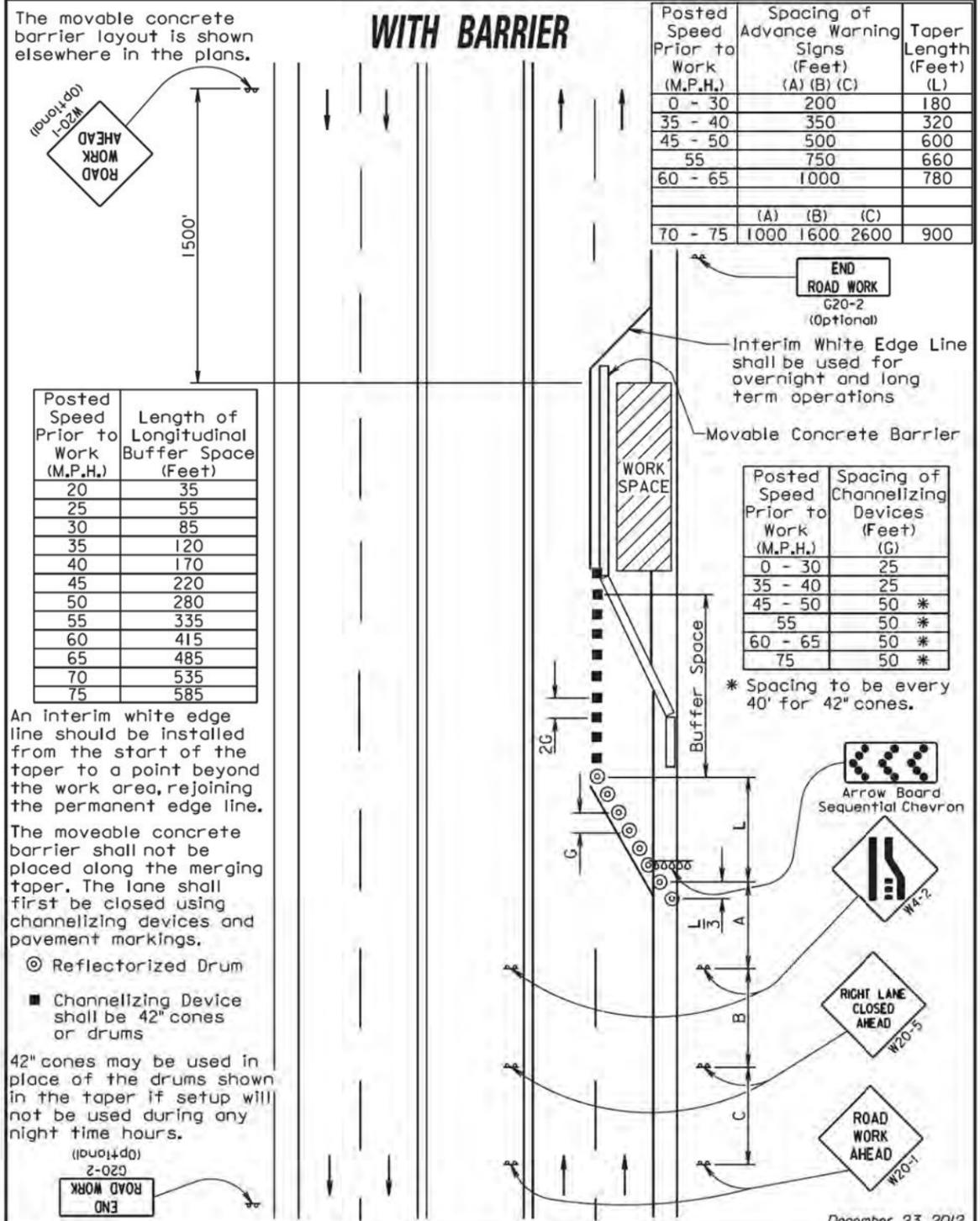
PLOT NAME - 1

FILE - ... \SECTION C DESIGN\BLANK.DGN

PLOT SCALE - 1:0.0858704

PLOT NAME - 9

FILE - ... \035A\_TRAFFICCONTROL\PLATES.DGN



An interim white edge line should be installed from the start of the taper to a point beyond the work area, rejoining the permanent edge line.

The moveable concrete barrier shall not be placed along the merging taper. The lane shall first be closed using channelizing devices and pavement markings.

⊙ Reflectorized Drum

■ Channelizing Device shall be 42" cones or drums

42" cones may be used in place of the drums shown in the taper if setup will not be used during any night time hours.

(Optional) G20-2

END ROAD WORK

**SECTION F ESTIMATE OF QUANTITIES**

Bid Item Number	Item	Quantity	Unit
120E6200	Water for Granular Material	390.2	MGal
260E1010	Base Course	3,116.0	Ton
260E1030	Base Course, Salvaged	7,456.4	Ton
260E2030	Gravel Cushion, Salvaged	18,948.5	Ton
260E2060	Gravel Cushion, Modified	2,990.7	Ton
320E1200	Asphalt Concrete Composite	5,603.9	Ton
320E5010	Saw and Seal Shoulder Joint	6,049	Ft
380E0050	8" Nonreinforced PCC Pavement	48,377.6	SqYd
380E1120	Miscellaneous PCC Pavement	65.4	SqYd
380E6000	Dowel Bar	27,186	Each
380E6110	Insert Steel Bar in PCC Pavement	3,972	Each
380E6510	Grinding PCC Pavement	1,646.1	SqYd
410E2600	Membrane Sealant Expansion Joint	104.0	Ft

**SURFACING THICKNESS DIMENSIONS**

Plans tonnage will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, plans tonnage may be varied to achieve the required elevation.

**SAWING IN EXISTING SURFACING**

Where new asphalt concrete or new PCC Pavement is placed adjacent to existing asphalt concrete or existing PCC Pavement (end of project, end of ramps, ramp detours, crossovers), the existing pavement shall be sawed full depth to a true, straight vertical face. No separate payment shall be made for sawing.

**REMOVE CONCRETE PAVEMENT**

For informational purposes only, there is an estimated 7401.9 tons of PCC Pavement on this project that may be crushed and reused as Base Course or Gravel Cushion, Modified. Refer to Section B for location of Concrete Pavement Removal. This quantity is based on a unit weight of 118 lbs. per cubic foot for the reclaimed concrete aggregate.

**SALVAGE AND STOCKPILE ASPHALT MIX AND GRANULAR BASE MATERIAL, (For informational purposes only)**

See Section B for total quantity of Unclassified Excavation and Salvaged Asphalt Mix and Granular Base Material. See typical sections for located of Salvaged Asphalt Mix and Granular Base Material. This quantity is based on a unit weight of 1.89 tons per cubic yard salvaged material. Salvaged material will be reused as Base Course, Salvaged or Gravel Cushion, Salvaged.

**SALVAGE AND STOCKPILE ASPHALT MIX AND GRANULAR BASE MATERIAL TABLE**

Location of Removal Areas	Salvaged Asphalt Mix and Granular Base Material
	Tons
<b>In Place Shoulder Removal for Traffic Control</b>	
Sta. 29+10.0 to Sta. 33+72.9 Lt. (US18)	106.8
Sta. 53+87.9 to Sta. 72+82.9 Lt. (US18)	1,087.7
Sta. 70+90.0 to Sta. 71+83.0 Rt. (US18)	55.2
Sta. 728+54.3 to Sta. 732+31.8 NBL (I-29)	273.5
Sta. 727+79.3 to Sta. 732+08.3 SBL (I-29)	310.7
<b>US18 Mainline</b>	0
Sta. 23+93.0 to Sta. 31+17.1	2,262.5
Sta. 31+17.1 to Sta. 36+37.1	839.0
Sta. 36+37.1 to Sta. 40+70.4	1,052.9
Sta. 43+63.7 to Sta. 49+17.1	1,344.7
Sta. 49+17.1 to Sta. 55+17.1	1,625.6
Sta. 55+17.1 to Sta. 70+90.0	2,319.8
<b>Gore Areas</b>	0
NB On Ramp	507.5
NB Off Ramp	460.8
SB Off Ramp	152.9
SB On Ramp	566.4
<b>I-29 Shoulders</b>	0
Sta. 700+66.6 to Sta. 715+45.6 NBL (I-29)	1,071.4
Sta. 743+48.4 to Sta. 750+10.4 NBL (I-29)	479.5
Sta. 708+73.4 to Sta. 715+07.6 SBL (I-26)	459.5
Sta. 745+48.3 to Sta. 760+20.0 SBL (I-29)	1,066.1
<b>In Place Ramps</b>	0
NB On Ramp	2,305.3
NB Off Ramp	1,351.9
SB Off Ramp	2,632.0
SB On Ramp	2,411.1
<b>Detours &amp; Shoulder Widening/Strengthening for Traffic Control</b>	0
Ramp E	* 1,737.9
Ramp F	1,603.9
Ramp G	1,969.0
Ramp H	* 2,326.0
Sta. 29+10.0 to Sta. 33+72.9 Lt. (US18)	237.1
Sta. 53+87.9 to Sta. 72+82.9 Lt. (US18)	714.2
Sta. 29+22.0 to Sta. 34+75.0 Rt. (US18)	* 170.9
Sta. 68+00.0 to Sta. 71+83.0 Rt. (US18)	* 106.2
Movable Concrete Barriers	71.8
<b>TOTAL</b>	<b>33,679.8</b>

\* Material will be salvaged near the completion of the project, estimated at 4,341.0 tons (2,296.8 cu.yds.). Any salvaged material unavailable to be used by the Contractor on the project will be stockpiled at the SDDOT maintenance shop near Lennox, SD.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0292(74)62	F2	F60

Revised: 8 Dec 14, RML

**SALVAGED MATERIAL**

An estimated 33,679.8 tons (17,820.0 cu.yds.) will be salvaged during this operation. The salvaged material will be reused as Base Course, Salvaged or Gravel Cushion, Salvaged. An estimated 26,404.9 tons of salvaged material will be available for construction of the project due to an estimated 10 percent loss during the removal/replacement operation and salvaging operation near the completion of the project.

The quantity of salvaged material may vary from the plans. The Contractor will be required to construct the roadway according to the depths shown in typical sections. The Contractor will be required to use all available Base Course, Salvaged and Gravel Cushion, Salvaged on this project by decreasing or increasing the quantity of Base Course and Gravel Cushion, Modified necessary, or as directed by the Engineer.

No adjustment in the contract unit price for salvage material will be made because of a variation in salvaged material quantities, see Section B.

**PLACEMENT OF SALVAGED MATERIAL TABLE**

	Gravel Cushion, Modified and Gravel Cushion, Salvaged (tons)	Base Course and Base Course, Salvaged (tons)
Salvaged Material (tons)	18,948.5	7,456.4
Virgin Material (tons)	2,990.7	3116.0
<b>Total (tons)</b>	<b>21,939.2</b>	<b>10,572.4</b>

**MAINTENANCE PATCHING OF EXISTING ROADWAY**

The Contractor shall place Asphalt Concrete Composite on the mainline, shoulders, ramps, and gore areas, at the Engineers discretion. The Contractor will remove loose and broken pavement from the mainline and shoulders.

After Initial Patching is complete, the Contractor shall be responsible for maintaining the surface, throughout the length and duration of the project.

Cost for maintaining the mainline surface and shoulders for the length and duration of the project shall be incidental to the contract unit price per ton for Asphalt Concrete Composite.

**TRIM MATERIAL**

Material removed during the trimming operation may be hauled ahead to be placed on the grade, or hauled from the roadbed. Material hauled from the roadbed may be placed on shoulders. No additional payment will be made for handling, stockpiling, processing, or placement of trim material. Water added by road mix or plant mix methods will be paid at the contract unit price per MGal for Water for Granular Material.