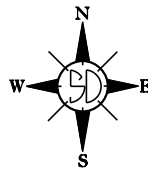


PROJECT

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
PROJECT 090W-368
INTERSTATE 90 WBL
JACKSON COUNTY
STRUCTURE REPAIR
PCN 14J0

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090W-368	1	21



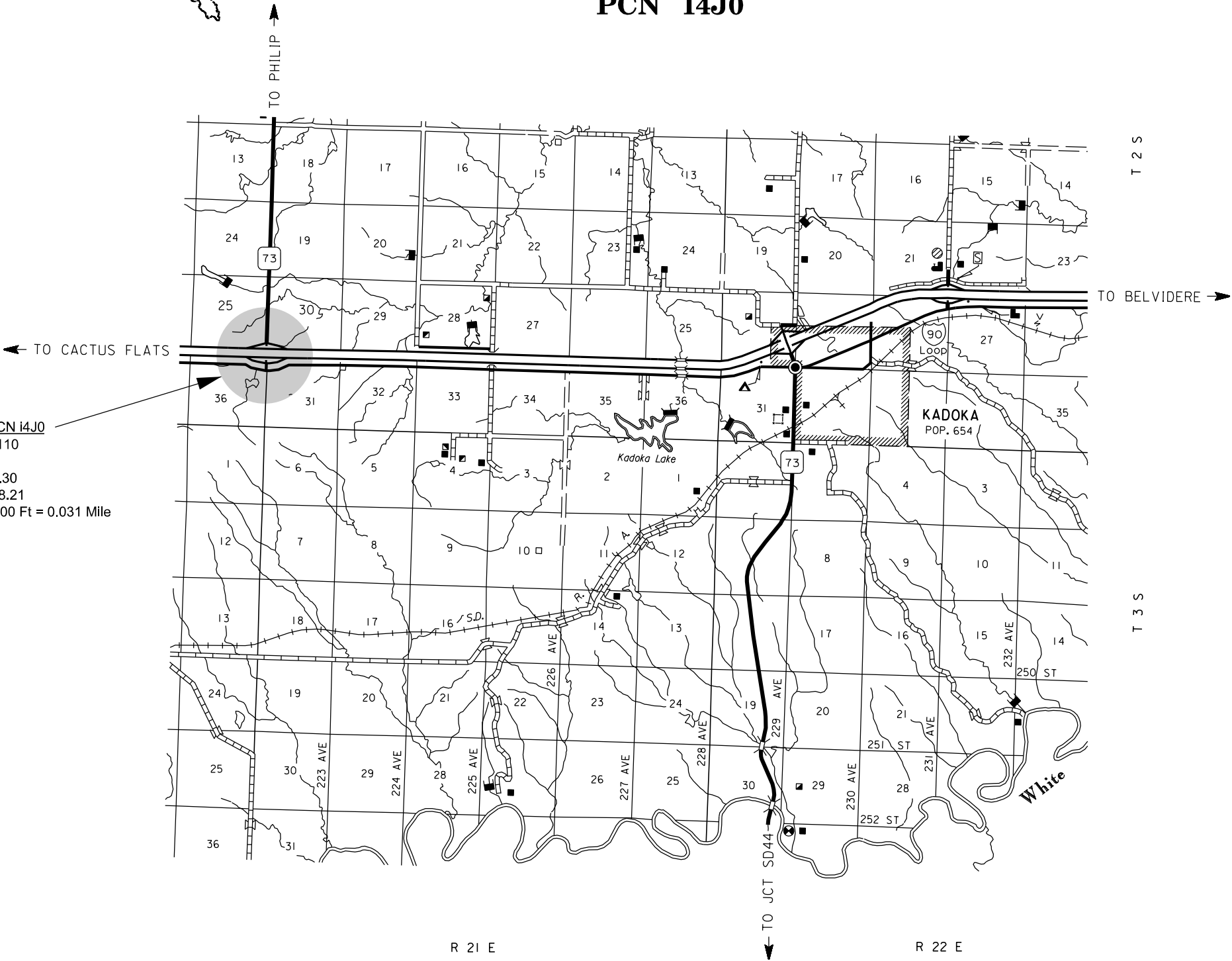
INDEX OF SECTIONS

Section A:	Estimate of Quantities
Section C:	Traffic Control Plans
Section E:	Structure Plans

DESIGN DESIGNATION
I90 - (STR. 36-240-110)

ADT (2016)	3260
ADT (2036)	3752
DHV	728
D	50%
T DHV	11.7%
T ADT	25.8%
V	80 MPH

090W-368 PCN 14J0
Str # 36-240-110
Over SD73
I90 MRM 143.30
SD73 MRM 78.21
Length = 164.00 Ft = 0.031 Mile



STORM WATER PERMIT
(None Required)

ESTIMATE OF QUANTITIES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090W-368	A1	A2

SECTION C ~ TRAFFIC CONTROL

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
634E0010	Flagging	20.0	Hour
634E0110	Traffic Control Signs	432.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	2	Each
634E0600	4" Temporary Pavement Marking Tape Type I	2,544	Ft
634E0640	Temporary Pavement Marking	960	Ft

Index of Sheets
Sheet A1: Estimate of Quantities for Sections C and E
Sheet A2: Environmental Commitment Notes

SECTION E ~ STRUCTURE # 36-240-110

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
460E0174	Concrete Patching Material, Miscellaneous	17.2	CuFt
460E0300	Breakout Structural Concrete	0.6	CuYd
460E0600	Housing and Heating Concrete	0.6	CuYd
480E0100	Reinforcing Steel	102	Lb
480E0511	No. 11 Rebar Splice	4	Each
480E5000	Galvanic Anode	7	Each

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor’s primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pit, or staging site associated with the project, cease construction activities in the affected area until the Whooping Crane departs and contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B5: NORTHERN LONG-EARED BAT

This project is within the range of suitable habitat for the Northern Long-eared Bat (NLEB) and project work will avoid conflicts with NLEB roosting habitat.

Action Taken/Required:

Project activities that include structure maintenance work should not occur within the location(s) listed below during the NLEB seasonal work restriction timeframe without approval from the SDDOT Environmental Office.

Station	NLEB Seasonal Work Restriction
Structure Site	April 1 to September 30

COMMITMENT E: STORM WATER

When a Storm Water permit is not required (typically less than 1 acre of disturbance) include the following:

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for 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 Project 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 and/or 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 and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public 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 Public 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.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

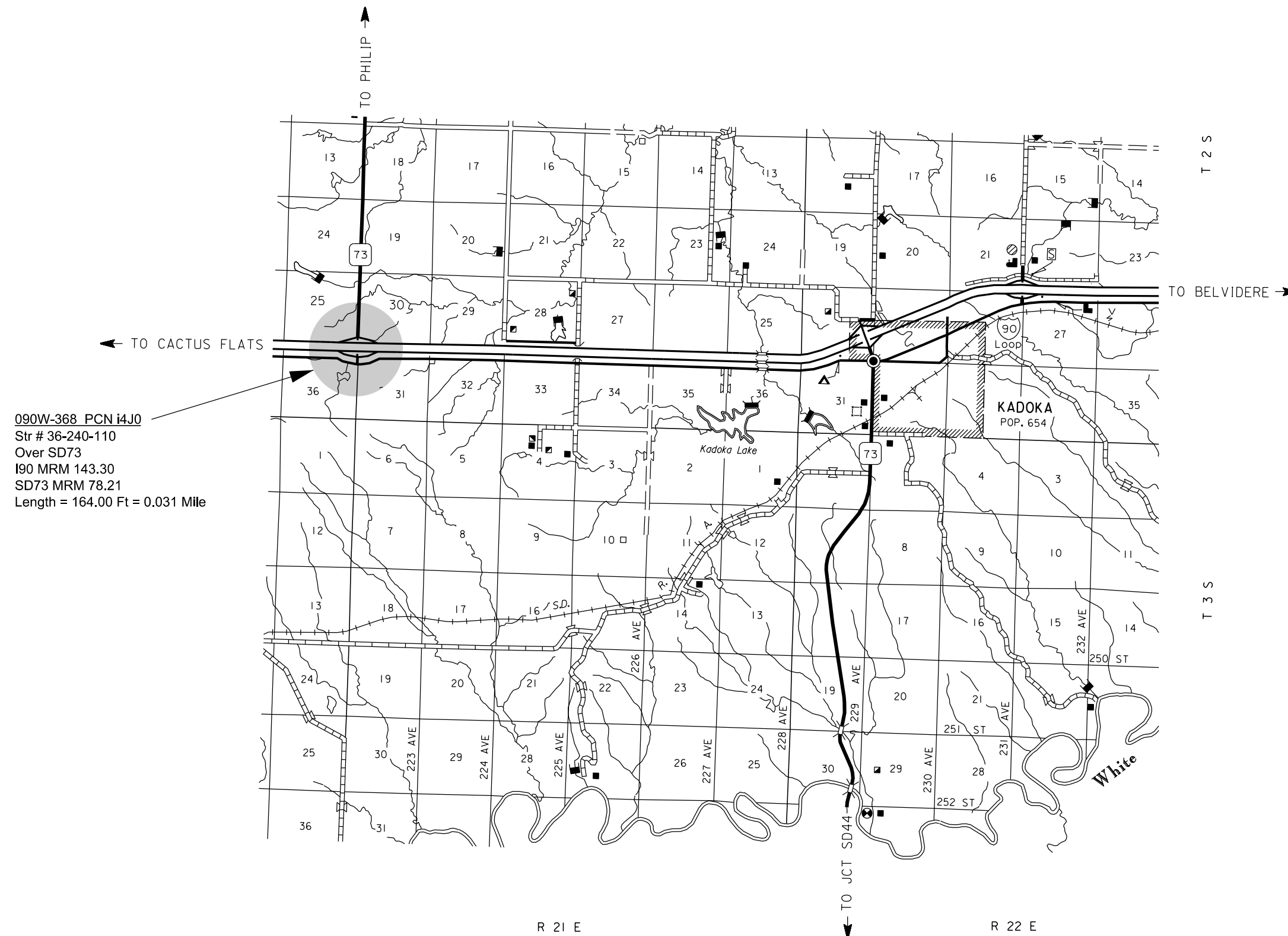
The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090W-368	C1	C6

Sheet C1	Layout Map and Index
Sheet C2	Estimate and Notes
Sheet C3	Project Sign Tabulation
Sheet C4 to C6	Standard Plates



ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
634E0010	Flagging	20.0	Hour
634E0110	Traffic Control Signs	432.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	2	Each
634E0600	4" Temporary Pavement Marking Tape Type I	2,544	Ft
634E0640	Temporary Pavement Marking	960	Ft

SEQUENCE OF OPERATIONS

The following sequence of operations will be followed unless an alternate sequence is submitted in writing prior to the preconstruction meeting to the Area Engineer for approval.

Str. # 36-240-110

1.

Install traffic control devices to close driving lane on westbound Interstate 90 structure. The driving lane shall be closed until sufficient strength has been obtained on the repair and/or as approved by the Engineer.
2.

Install traffic control devices to close one lane of traffic on SD73. This shall be accomplished using a lane closure with stop signs according to standard plates.
3.

Complete work within the limits of the closed lanes.
4.

Complete, clean up, and remove traffic control devices to open the roadway to traffic.

GENERAL MAINTENANCE OF TRAFFIC

Removing, relocating, covering, salvaging and resetting of permanent traffic control devices, including delineation, 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.

Work activities during non-daylight hours are subject to prior approval.

Traffic shall not be routed onto the shoulders on Interstate 90. Traffic control drums or 42” cones shall be placed on the roadway shoulders to discourage traffic from driving on the shoulders. Placement and spacing of these devices shall be as directed by the Engineer.

The use of interstate maintenance crossovers will not be permitted.

Lane closures shall not impede traffic on ramps. Ramps will need to remain open during the duration of the project.

Flagger(s) will be required where work activity and/or equipment may encroach into a lane open to traffic.

TEMPORARY PAVEMENT MARKING

Temporary pavement marking shall be provided in accordance with Section 634 of the Specifications.

Cost for temporary pavement markings shall be incidental to the contract unit price per foot for “Temporary Pavement Markings”.

Approximately 144 feet of 4 inch white temporary pavement marking tape, type I, (24" stop bar reduced to 4" equivalent) and 2,400 feet of 4 inch yellow temporary pavement marking tape type I, will be required for the project (see table below). The Contractor will be paid only once for tape placement. The Contractor is responsible for maintaining and cleaning the tape throughout the duration of the project and for removing all temporary pavement marking tape when it is no longer required.

TABLE OF ESTIMATED TEMPORARY PAVEMENT TAPE

Location	4" Temporary Pavement Marking Tape Type I		
	4W	4Y	Stop Bar (4W)
Structure # 36-240-110 MRM 143.30	--	2400	144
Total:	--	2400	144

TRAFFIC CONTROL

The Contractor shall designate an employee to be responsible for the maintenance of traffic. The Engineer must approve the employee selected. The name and phone number of person(s) shall be provided to the SD Department of Transportation (605-842-0810), SD Highway Patrol (Rapid City/Pennington Co. ESCC (605-393-8121)), and Jackson County Sheriff Department (605-837-2285).

All traffic control devices shall be in “like new” condition.

COORDINATION BETWEEN CONTRACTORS

A separate contract for Project IM 0903(104)153 - PCN 03W6 has been awarded to Reede Construction, Inc. for PCC Surfacing on I-90 from MRM 153.00 + 0.012 to MRM 163.32 + 0.574. Their contact information is: (Address – 5325 US-12 Aberdeen, SD 57401, Phone – (605)-225-7082).

The Contractor shall schedule the work so as not to interfere with or hinder the progress of the work performed by other Contractors on the other projects. Conflicting traffic control devices may need to be temporarily adjusted or removed as directed by the Engineer at no additional cost to the contract.

PROJECT SIGN TABULATION

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090W-368	C3	C6

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

		CONVENTIONAL ROAD				EXPRESSWAY / INTERSTATE			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	2	30"	5.2	10.4		36"	7.5	
R2-1	SPEED LIMIT ____		24" x 30"	5.0		6	36" x 48"	12.0	72.0
R2-6aP	FINES DOUBLE (plaque)		24" x 18"	3.0		1	36" x 24"	6.0	6.0
W1-3	REVERSE TURN (L or R)	1	48" x 48"	16.0	16.0		48" x 48"	16.0	
W3-1	STOP AHEAD (symbol)	2	48" x 48"	16.0	32.0		48" x 48"	16.0	
W3-5	SPEED REDUCTION AHEAD (____ MPH)		48" x 48"	16.0		3	48" x 48"	16.0	48.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)		48" x 48"	16.0		2	48" x 48"	16.0	32.0
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6.3	12.6		30" x 30"	6.3	
W16-2P	____ FEET (supplemental distance plaque)	2	30" x 24"	5.0	10.0		30" x 24"	5.0	
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0		48" x 48"	16.0	
W20-5	LEFT or RIGHT LANE CLOSED AHEAD		48" x 48"	16.0		2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0	1	48" x 24"	8.0	8.0
TRAFFIC CONTROL SIGNS TOTAL 432 SQFT		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS 186.0 SQFT				EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS 246.0 SQFT			

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	2 Each

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45	500	25
50	500	50
55	750	50
60 - 65	1000	50

- Flagger
- Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) shall be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices shall be drums or 42" cones.

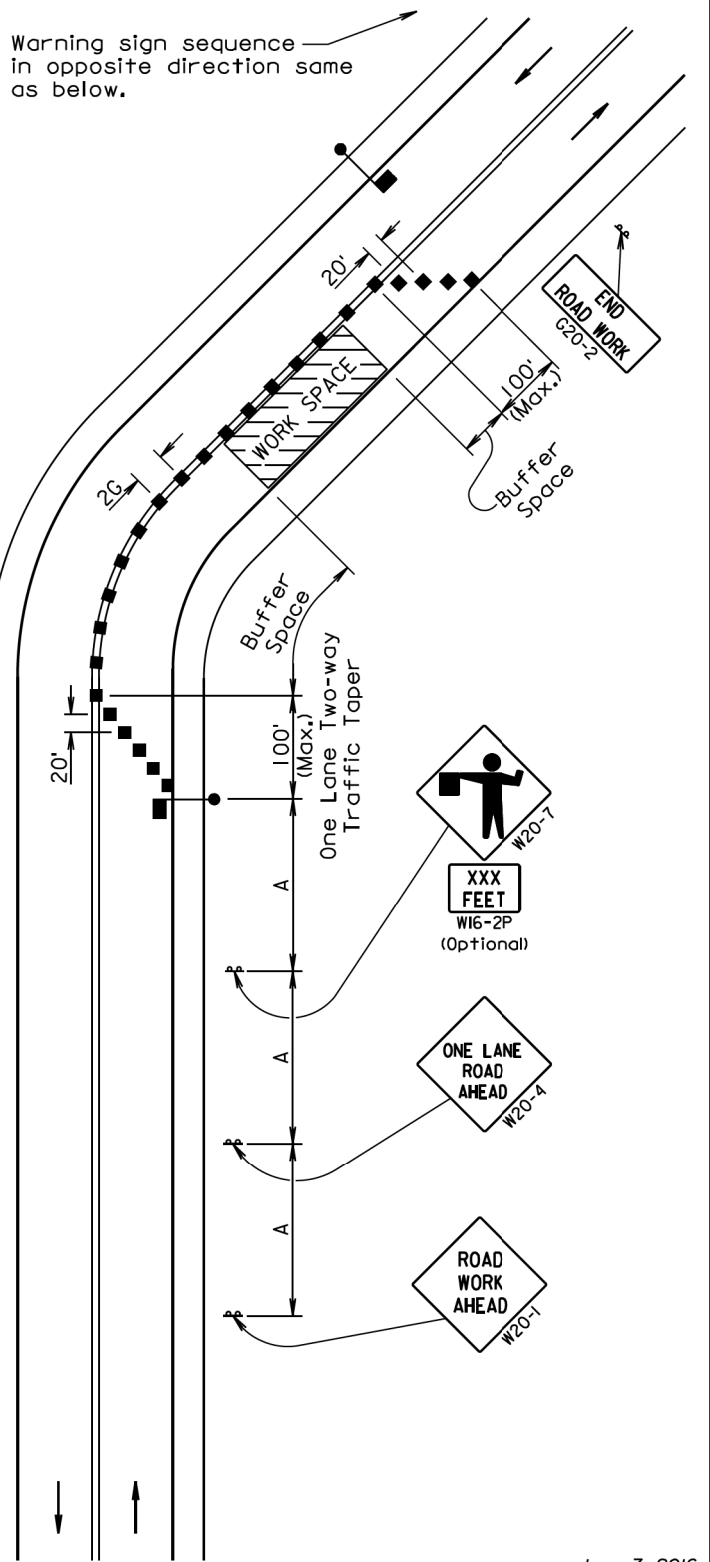
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

Channelizing devices and flaggers shall be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

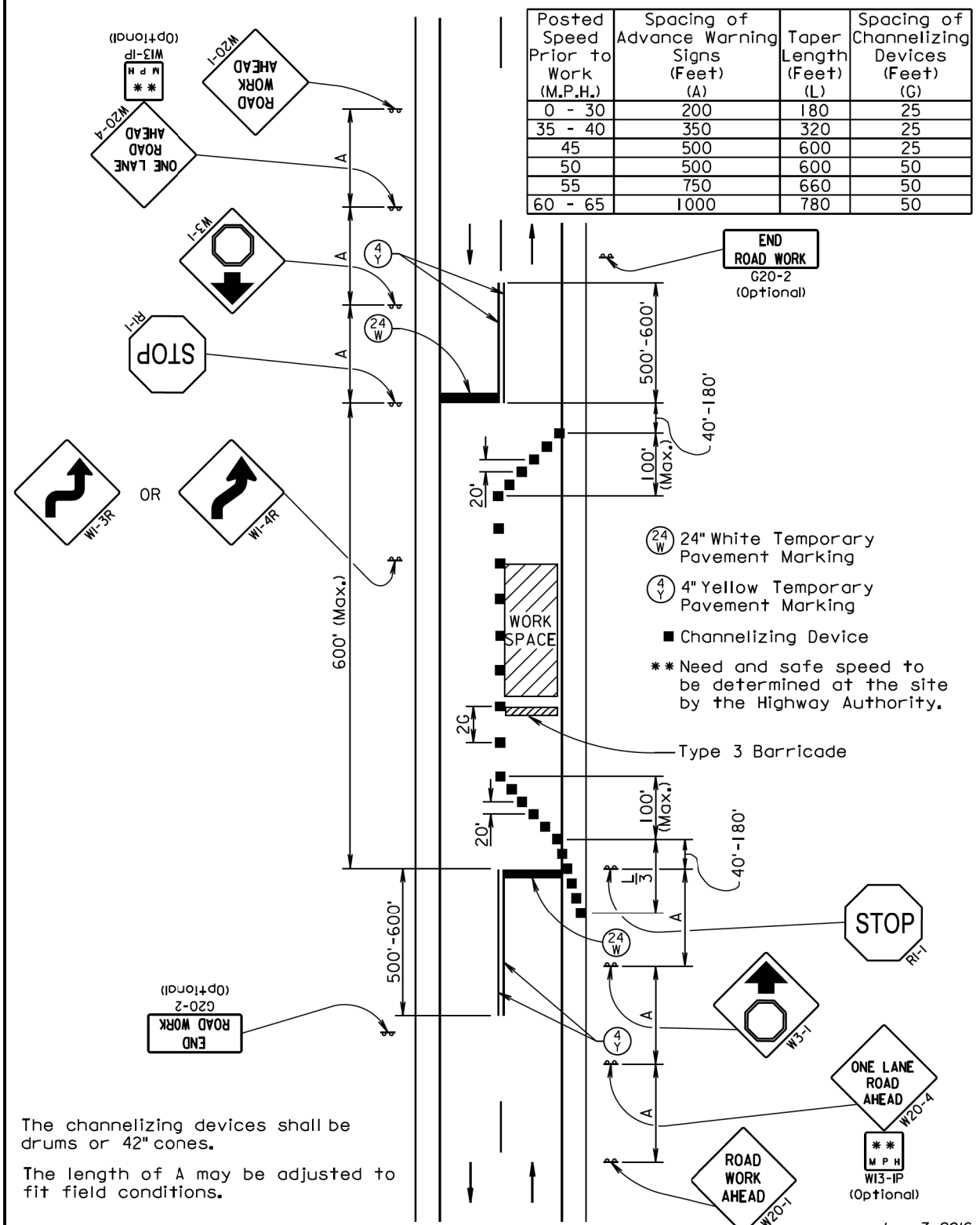
The length of A may be adjusted to fit field conditions.

Warning sign sequence in opposite direction same as below.



June 3, 2016

<i>Published Date: 4th Qtr. 2017</i>	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			<i>Sheet 1 of 1</i>



June 3, 2016

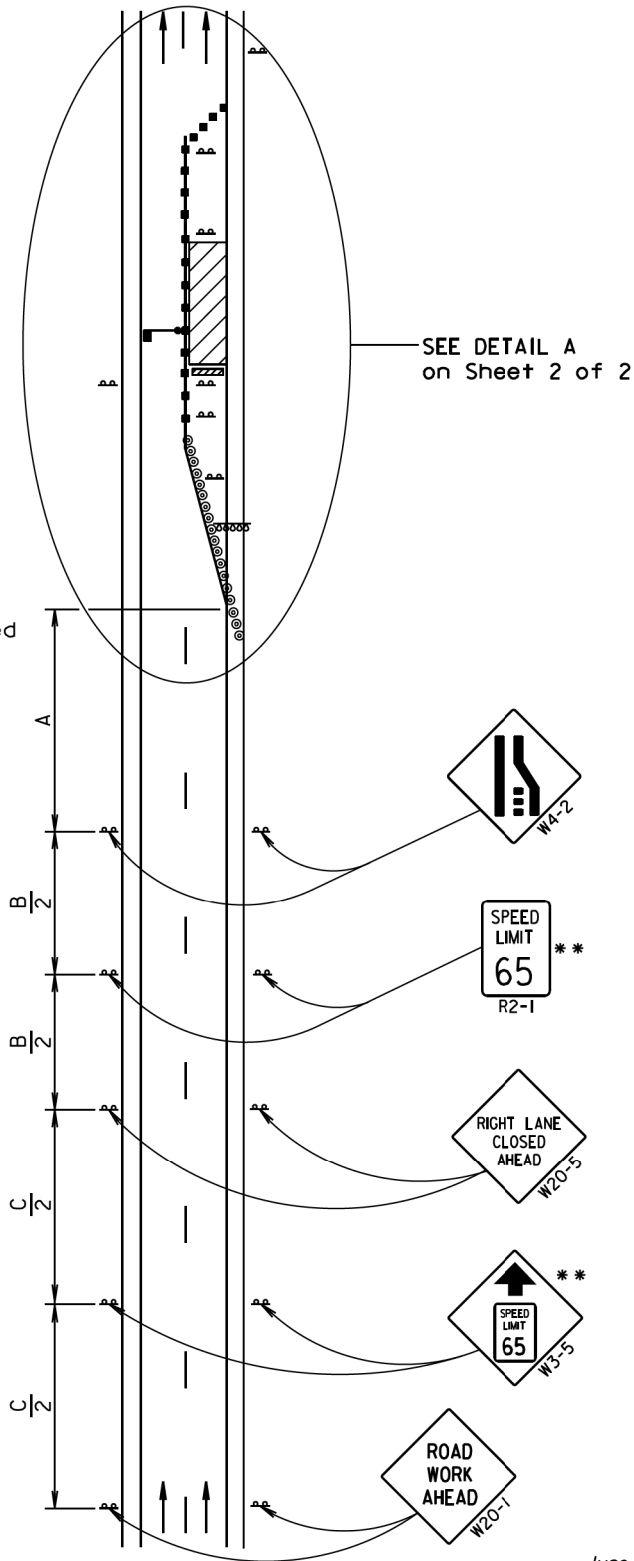
Published Date: 4th Qtr. 2017	S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE USING STOP SIGNS	PLATE NUMBER 634.25
			Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)		
0 - 30	200		
35 - 40	350		
45 - 50	500		
55	750		
60 - 65	1000		
	(A)	(B)	(C)
70 - 80	1000	1500	2640

- ** Speed appropriate for location.
- Reflectorized Drum
 - Channelizing Device

ROAD WORK AHEAD sign is only required in advance of the first lane closure.

High speed is defined as having a posted speed limit greater than 45 mph.



June 3, 2016

Published Date: 4th Qtr. 2017	S D D O T	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
		Sheet 1 of 2	

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Taper Length (Feet) (L)
0 - 30	25	180
35 - 40	25	320
45	25	600
50	50 *	600
55	50 *	660
60 - 65	50 *	780
70 - 80	50 *	960

- * Spacing is 40' for 42" cones.
- ** Speed appropriate for location.
- *** Use speed limit designated for the condition when workers are present in the work space. Signs shall be covered or removed when workers are not present.

- Flagger (As Necessary)
- Reflectorized Drum
- Channelizing Device

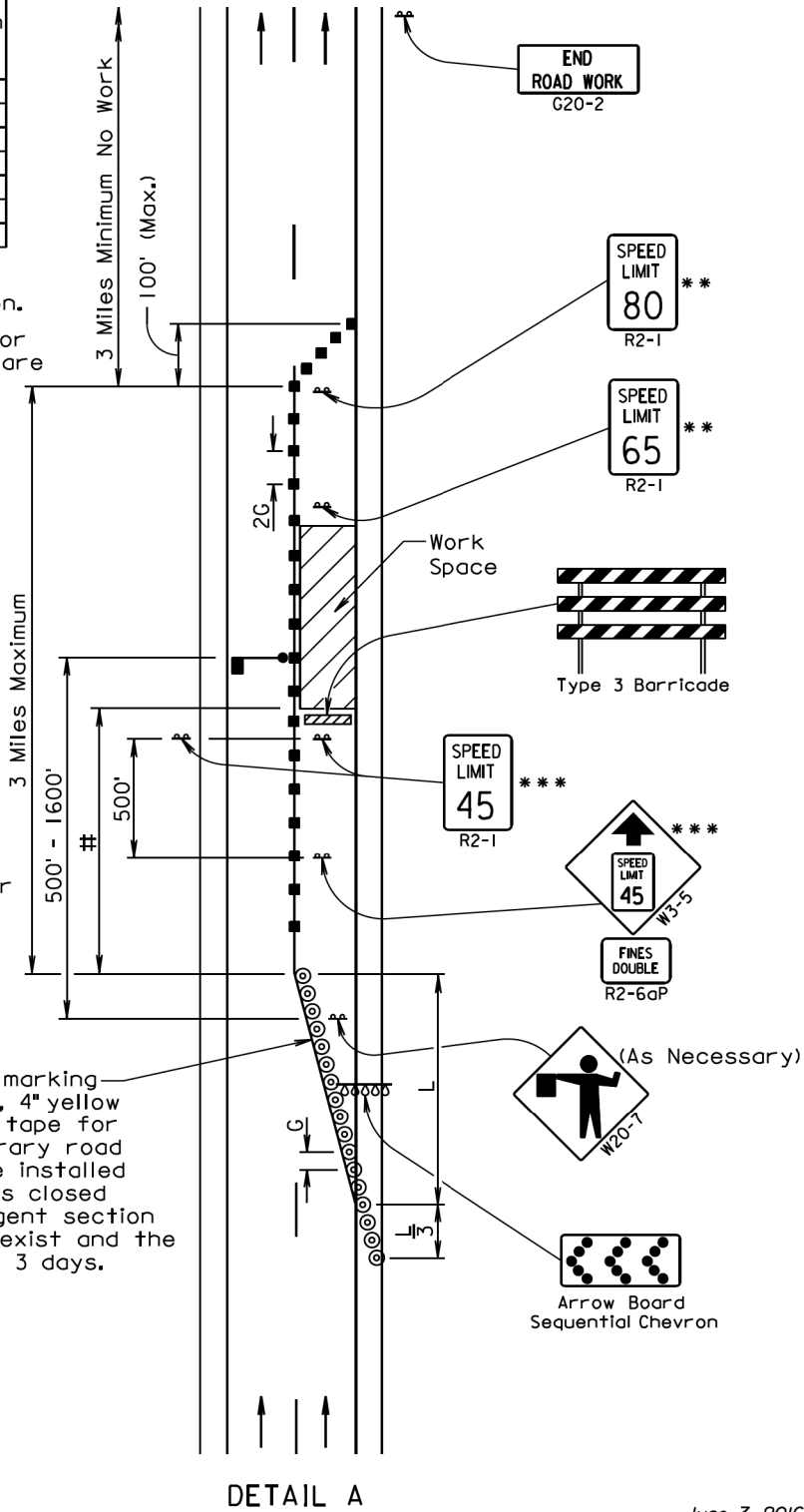
The Work Space shall be a minimum of 500' from the end of the taper.

The FLAGGER sign shall be used whenever there is a Flagger present.

The channelizing devices 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 night time hours.

4" white temporary pavement marking tape for right lane closures, 4" yellow temporary pavement marking tape for left lane closures, or temporary road markers at 5' spacing shall be installed in the taper when the lane is closed overnight, and along the tangent section where the skip lines do not exist and the lane is closed for more than 3 days.

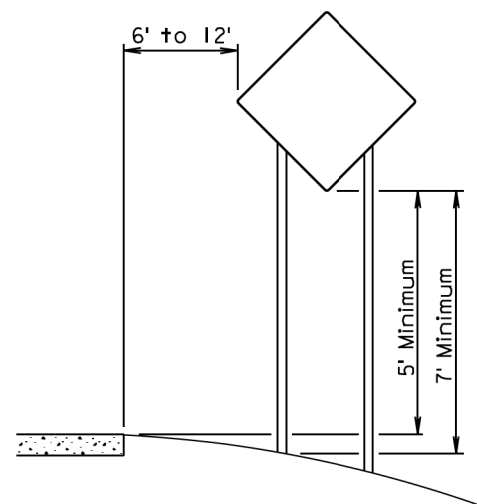


June 3, 2016

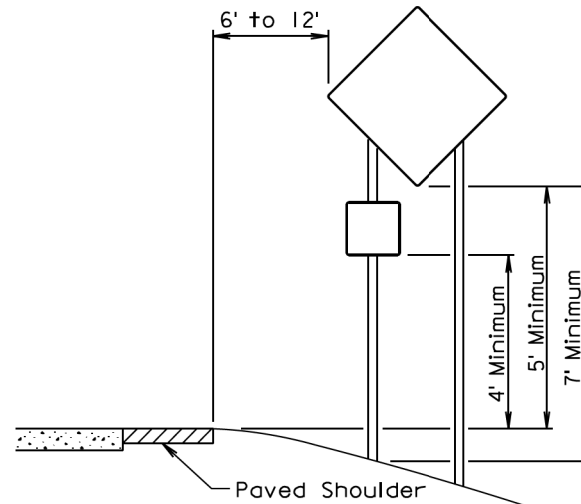
Published Date: 4th Qtr. 2017	S D D O T	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
		Sheet 2 of 2	

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090W-368	C6	C6

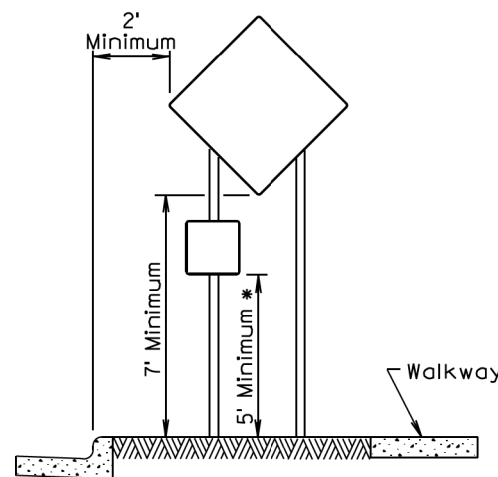
Plotting Date: 11/29/2017



RURAL DISTRICT

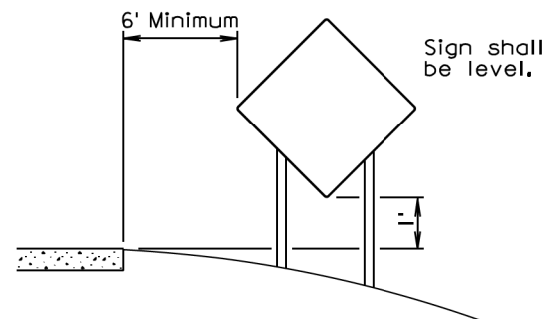


RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT

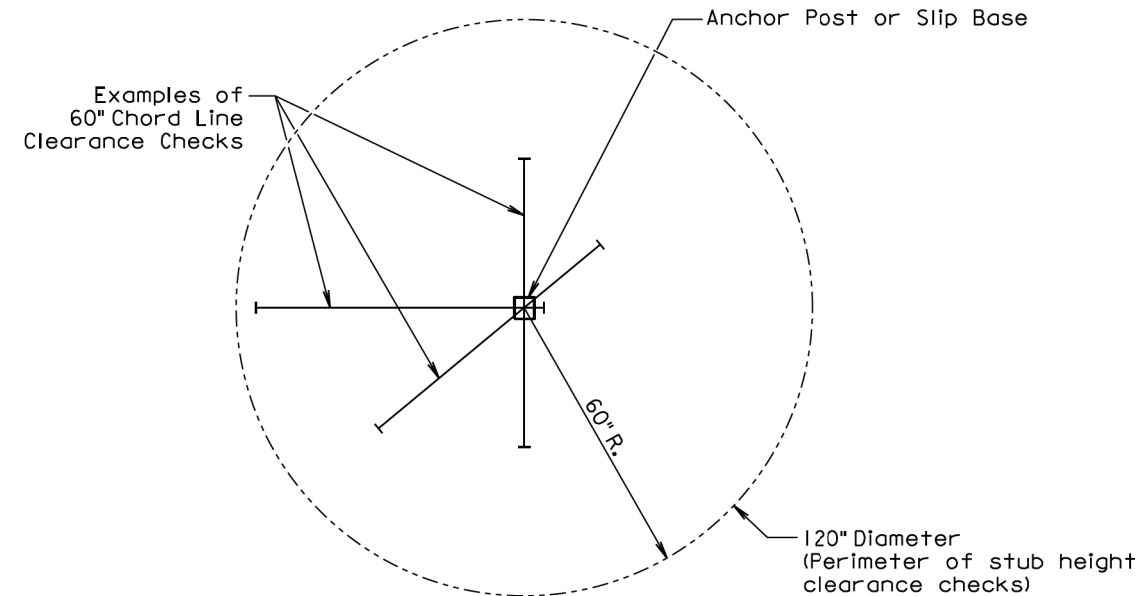
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



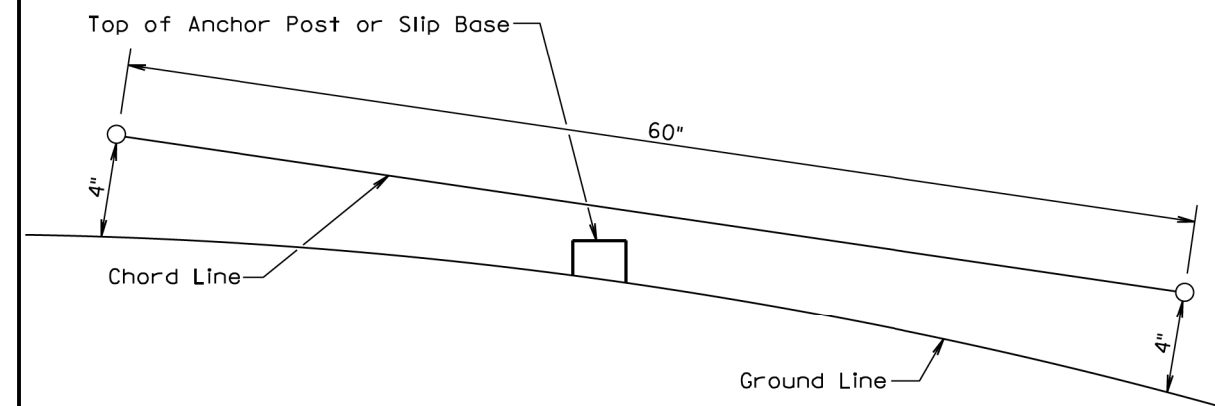
RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 4th Qtr. 2017	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



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.

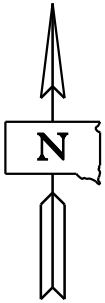
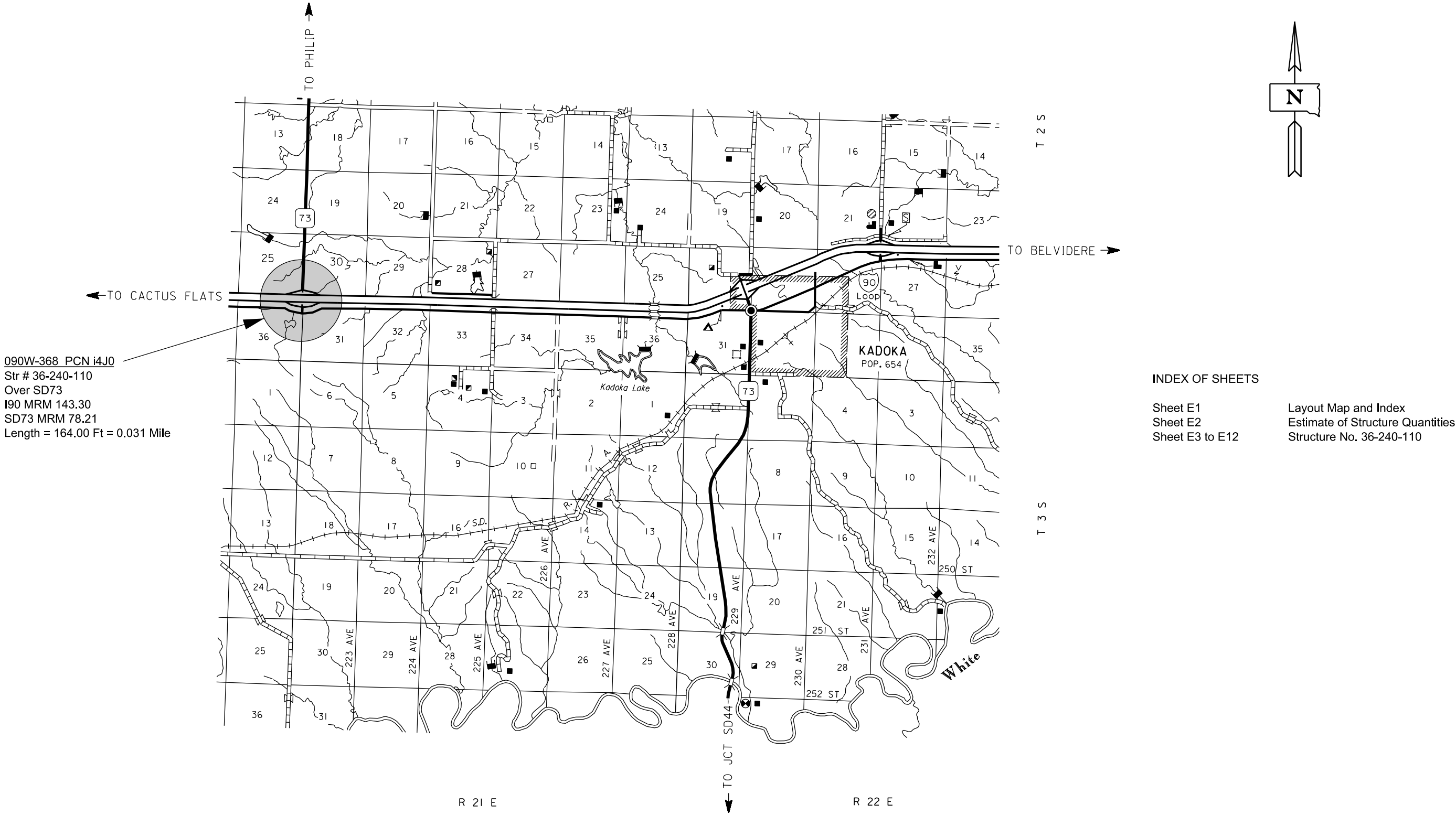
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 4th Qtr. 2017	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090W-368	E1	E12

SECTION E: STRUCTURE PLANS



INDEX OF SHEETS	
Sheet E1	Layout Map and Index
Sheet E2	Estimate of Structure Quantities
Sheet E3 to E12	Structure No. 36-240-110

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090W-368	E2	E12

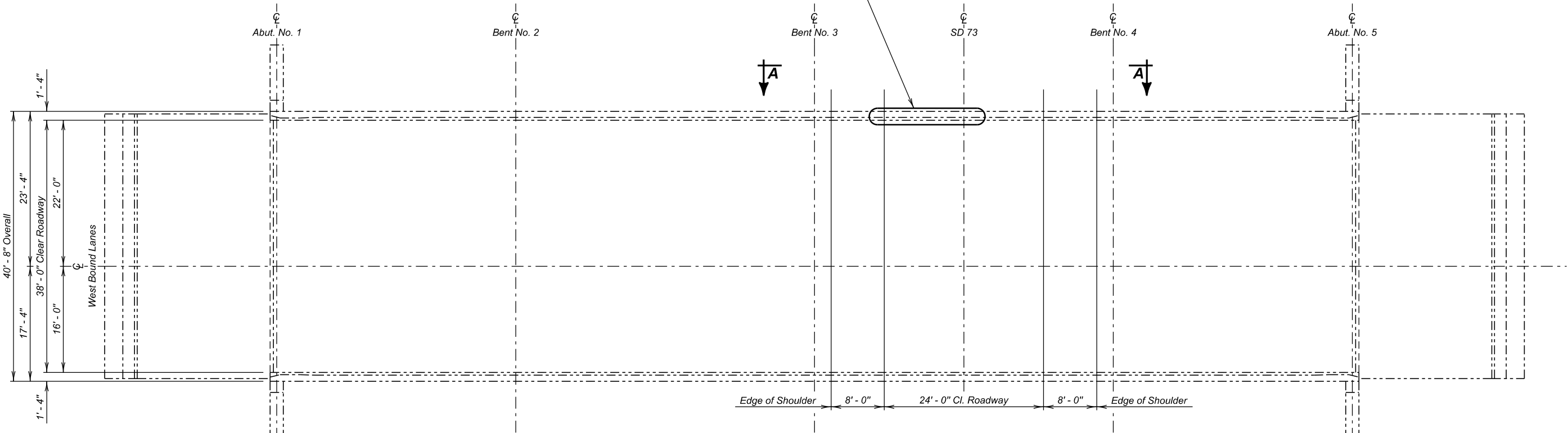
SECTION E – ESTIMATE OF STRUCTURE QUANTITES

Str. No. 36-240-110

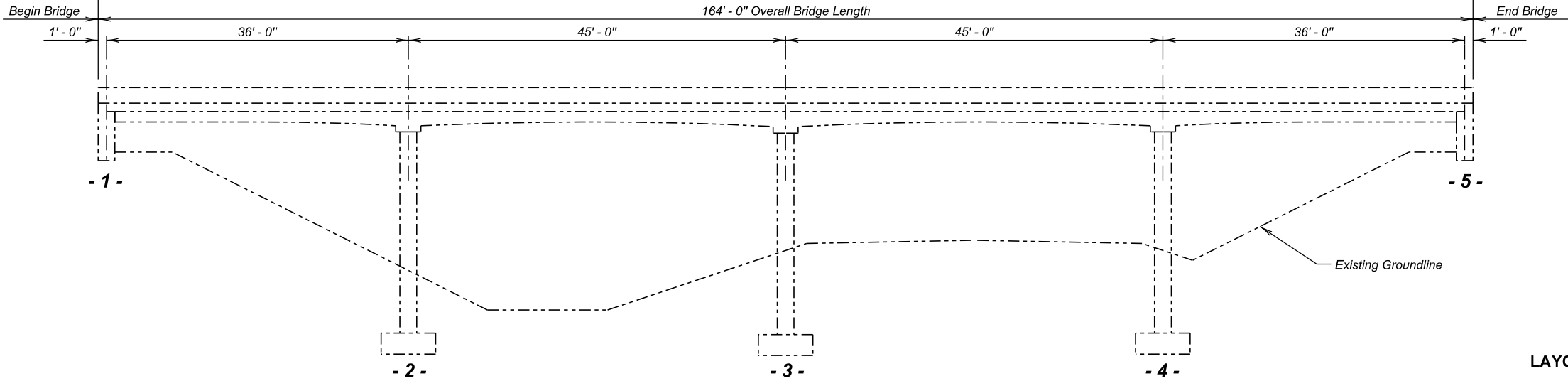
ITEM NO.	DESCRIPTION	QUANTITY	UNIT
460E0174	Concrete Patching Material, Miscellaneous	17.2	Cu. Ft.
460E0300	Breakout Structural Concrete	0.6	Cu. Yd.
460E0600	Housing and Heating Concrete	0.6	Cu. Yd.
480E0100	Reinforcing Steel	102	Lb.
480E0511	No. 11 Rebar Splice	4	Each
480E5000	Galvanic Anode	7	Each

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090 W-368	E3	E12

Location of Repair (Northside of Bridge)
See View A - A on Sheet No. 5 of 10.



PLAN



ELEVATION

INDEX OF BRIDGE SHEETS -

- Sheet No. 1 - Layout for Upgrading
- Sheet No. 2 - Estimate of Structure Quantities and Notes
- Sheets No. 3 & 4 - Notes (Continued)
- Sheet No. 5 - Bridge Repair Details
- Sheets No. 6 thru 8 - Bridge Repair Details (Continued)
- Sheets No. 9 & 10 - Original Construction Plans

LAYOUT FOR UPGRADING
FOR

164' - 0" CONTINUOUS CONCRETE BRIDGE

38' - 0" ROADWAY
OVER CREEK & S.D. NO. 73
STR. NO. 36-240-110
PCN 14J0

JACKSON COUNTY
S. D. DEPT. OF TRANSPORTATION

OCTOBER 2017

1 OF 10

PLANS BY:
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY RS JACK14J0	CK. DES. BY CM 14J0RA01	DRAFTED BY KR	Steve A. Johnson BRIDGE ENGINEER
-------------------------------	-------------------------------	------------------	-------------------------------------

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
460E0174	Concrete Patching Material, Miscellaneous	17.2	Cu. Ft.
460E0300	Breakout Structural Concrete	0.6	Cu. Yd.
460E0600	Housing and Heating Concrete	0.6	Cu. Yd.
480E0100	Reinforcing Steel	102	Lb.
480E0511	No. 11 Rebar Splice	4	Each
480E5000	Galvanic Anode	7	Each

SPECIFICATIONS

1. Design Specifications: AASHTO Standard Specifications for Highway Bridges 17th Edition using working stress design.
2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

PRE-CONSTRUCTION MEETING

A pre-construction meeting is required prior to beginning the repair work. The purpose of the meeting is to review the plans and procedures because of the specialty work involved. At a minimum, a representative from the Contractor and all Subcontractors shall attend this meeting along with Department personnel from the Area Office and Bridge Office. The contractor must notify the Bridge Construction Engineer and the Area Office at least three days prior to the meeting.

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

All details and dimensions of the existing bridge, contained in these plans, are provided as information only. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary dimensions affecting the satisfactory completion of the work required for this project.

SHOP PLANS

Shop plans shall be required as specified by Section 410.3 A of the Specifications.

SCOPE OF BRIDGE WORK

All work on this structure shall be accomplished under traffic with the traffic control as shown elsewhere in the plans.

1. Saw cut into sound concrete around repair area. Remove loose and broken concrete and sound concrete to the limits shown in the plans.
2. Salvage, clean, straighten and modify existing reinforcing steel.
3. Place new reinforcing steel with mechanical rebar splices.
4. Place galvanic anodes.
5. Clean and prep patch area.
6. Place patching material.
7. Cure and protect repairs.

GENERAL CONSTRUCTION

1. All mild reinforcing steel shall conform to ASTM A615, Grade 60.
2. All exposed corners and edges shall be chamfered ¾" unless noted otherwise in the plans.
3. Use 2" clear cover on all reinforcing except as otherwise shown.
4. Request for construction joints or resteel splices at points other than those shown, must be submitted to the Engineer for prior approval. If additional splices are approved, no payment will be allowed for the added quantity of reinforcing steel.

CONCRETE REPAIR

1. This work shall consist of breaking out and patching a portion of the underside and edge of the concrete bridge slab.
2. The underside of the existing concrete bridge slab shall be broken out to the limits shown on the plans. Remove all loose or broken concrete and breakout to sound concrete in spalled and delaminated areas, as approved by the Engineer. Use 3/4 inch deep saw cuts (except at the edge of slab rustication), to be made in sound concrete, to define the limits of breakout surrounding the damaged area. The minimum depth of concrete patch shall be 3/4 inch. Use extreme care not to damage any rebar during concrete breakout. Use chipping hammers not heavier than 15 pound class for concrete removal around rebar.
3. The existing reinforcing steel that will be exposed, except as noted in the plans, is scheduled for use in the new construction and shall be cleaned, straightened and modified per the plans to the satisfaction of the Engineer. Care shall be taken not to damage the reinforcing steel during concrete breakout. Any reinforcing steel that is damaged during concrete breakout shall be replaced or repaired, as approved by the Engineer, by the Contractor at no cost to the Department.

4. The concrete patching material shall be an approved product. The concrete patching material shall be extended with aggregate of the quality, size and gradation specified in the manufacturer's technical literature. Concrete patching material used in overhead and vertical patching applications shall consist of one of the following products, or equal as approved by the Office of Bridge Design:

HD 25 VO
Dayton Superior
1125 Byers Road
Miamisburg, OH 45342
Phone: (800) 745-3700
Web site: www.daytonsuperior.com

MasterEmaco N400RS
BASF Building Systems
889 Valley Park Drive
Shakopee, MN 55379
Phone: (800) 433-9517
Web site: www.buildingsystems.basf.com

MasterEmaco ® N 426
BASF Building Systems
889 Valley Park Drive
Shakopee, MN 55379
Phone: (800) 433-9517
Web site: www.buildingsystems.basf.com

Meadow-Patch 20
W.R.Meadows, Inc.
P.O. Box 338
Hampshire, IL 60140-0338
Phone: (847) 214-2100
Web site: www.wrmeadows.com

Speed Crete Red Line
The Euclid Chemical Company
19218 Redwood Rd.
Cleveland, OH 44110
Phone: (800) 321-7628
Web site: www.euclidchemical.com

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES

FOR
164' - 0" CONTINUOUS CONCRETE BRIDGE

STR. NO. 36-240-110

OCTOBER 2017

CONCRETE REPAIR (CONTINUED)

- Whichever concrete patching product is chosen, the Contractor shall provide technical literature to the Engineer prior to its use.
- The concrete patch material shall be applied and cured as recommended by the manufacturer and as approved by the Engineer.
- All of the manufacturer's specifications will be followed for the final surface preparation, addition of aggregate, mixing, placement, curing, and temperature limits of the surrounding material and the concrete patch material. Curing shall be in accordance with note 6 unless the manufacturer's requirements are more stringent.
 - Concrete repairs shall be cured by the wet cure method for a minimum of 7 days or until 70% of the 28 day compressive strength has been reached, whichever is less. The 28 day compressive strength shall be that listed in the manufacturer's technical literature.
 - Areas to be patched must be sand blasted and cleaned immediately prior to priming and patching. All loose materials must be removed by sweeping and blowing out with clean, dry, oil free compressed air at 90 psi. After the clean and dry areas have been approved by the Engineer, they must be prepared in accordance with the concrete patching material manufacturer's recommendations. Forms may be required by the Engineer on the bottom of the slab and elsewhere depending on the amount of concrete to be placed. The forms shall permit packing the concrete patch material into the repair area.
 - Due to the size of the spalled areas, additional 3/8 inch ledge rock will be required in patching material. Care shall be taken to follow the manufacturer's specifications.
 - All broken out concrete and other removed material shall be disposed of by the Contractor. Disposal of discarded material shall be in accordance with the Environmental Commitment notes.
 - The concrete patching repairs shall meet the requirements of the Concrete Patching Material Cold Weather Protection Requirements notes.
 - All costs associated with breaking out the existing concrete and cleaning, straightening and plans modifications of the existing reinforcing steel including labor, equipment and materials necessary to complete the work shall be incidental to the contract unit price per cubic yard for BREAKOUT STRUCTURAL CONCRETE.
 - All costs associated with concrete patching material repairs including labor, equipment and materials necessary to complete the work shall be incidental to the contract unit price per cubic foot for CONCRETE PATCHING MATERIAL, MISCELLANEOUS.

CONCRETE PATCHING MATERIAL COLD WEATHER PROTECTION REQUIREMENTS

Concrete patching material shall conform to the following requirements unless the manufacturer's requirements are more stringent:

- Concrete Patching Material Mix: Maximum temperature of mixing water, 160 degrees F.; of aggregates, 100 degrees F. Aggregates shall be free of frozen lumps, ice or snow.
- The surface temperature or anything which will come into contact with the fresh concrete patching material shall be above freezing prior to placement, including forms, reinforcing steel, and adjacent concrete.
- The minimum concrete patching material temperature at placement shall be 50 degrees F.
- The minimum concrete patching material temperature shall be 50 degrees F. for the first 72 hours and 40 degrees F. for the next 48 hours or manufacturer's recommendations. Concrete patching material temperatures below 35 degrees F. during the protection period shall be cause for rejection.
- The maximum concrete patching material temperature during the protection period shall be 100 degrees F.
- At the end of the protection period, the concrete patching material temperature shall not be permitted to fall more than 40 degrees F. for each 24 hour period.
- Enclosures for the protection of the concrete patching material must be in place before any part of the concrete patching material falls below 50 degrees F.
- Enclosures shall be capable of maintaining the specified temperature and permit free circulation of artificial heat.
- No artificial heat source shall be used which uses an open flame or introduces carbon dioxide into the enclosure where it can come into contact with fresh concrete patching material.
- The Contractor shall provide remote reading indoor/outdoor type thermometers for monitoring the concrete patching material temperature during the protection period. The number and spacing of thermometers shall be determined by the Engineer. Thermometers shall generally be installed to measure the internal concrete patching material temperature at a location approximately one inch from the exterior surface of the concrete patching material.
- During the protection period, the Contractor shall be responsible for monitoring the enclosure at intervals acceptable to the Engineer. The Contractor shall monitor concrete patching material temperature, humidity (if required), and the structural integrity of the enclosure.

- Falsework shall remain in place until the end of the protection period.
- The Contractor shall submit a Cold Weather Protection Plan to the Engineer for approval, a minimum of 14 days prior to any concrete patching material placement. Such a plan shall contain, at a minimum, information on the number and type of heat source to be used; a sketch detailing the enclosure to be used, including information on the enclosure materials; and any other information that is appropriate.
- All costs associated with housing and heating of the concrete patching material repairs including any incidentals, labor, equipment and materials necessary to complete the construction outlined by these plans shall be included in the contract unit price per cubic yard for HOUSING AND HEATING CONCRETE. Payment shall be for the plan quantity shown in the Estimate of Quantities.

MECHANICAL REBAR SPLICES

- Mechanical rebar splices shall be in accordance with Section 480 of the Construction Specifications and shall be the following or an approved equal:

ZAP SCREWLOK "SL" SERIES COUPLERS
BarSplice Products, Inc.
4900 Webster Street
Dayton, OH 45414
Phone: (937) 275-8700
www.barsplice.com

- The mechanical rebar splices shall be installed in accordance with the manufacturer's recommendations and as approved by the Engineer.
- The mechanical rebar splices will connect each end of the B13 replacement bars to existing salvaged B13 bars. The splices therefore are between two fixed points. The new B13 bars are to be field measured to fit. The coupler sleeves, without center stops, are to be slipped entirely onto each end of each replacement bar. The replacement bars are then to be placed in position between the ends of the existing salvaged bars. The coupler sleeves at each end are then to be repositioned over the two bar ends being spliced. The mechanical rebar splice installation shall then be completed per the manufacturer's recommendations.

NOTES (CONTINUED)
FOR

164' - 0" CONTINUOUS CONCRETE BRIDGE

STR. NO. 36-240-110
OCTOBER 2017

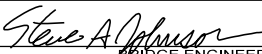
3 OF 10

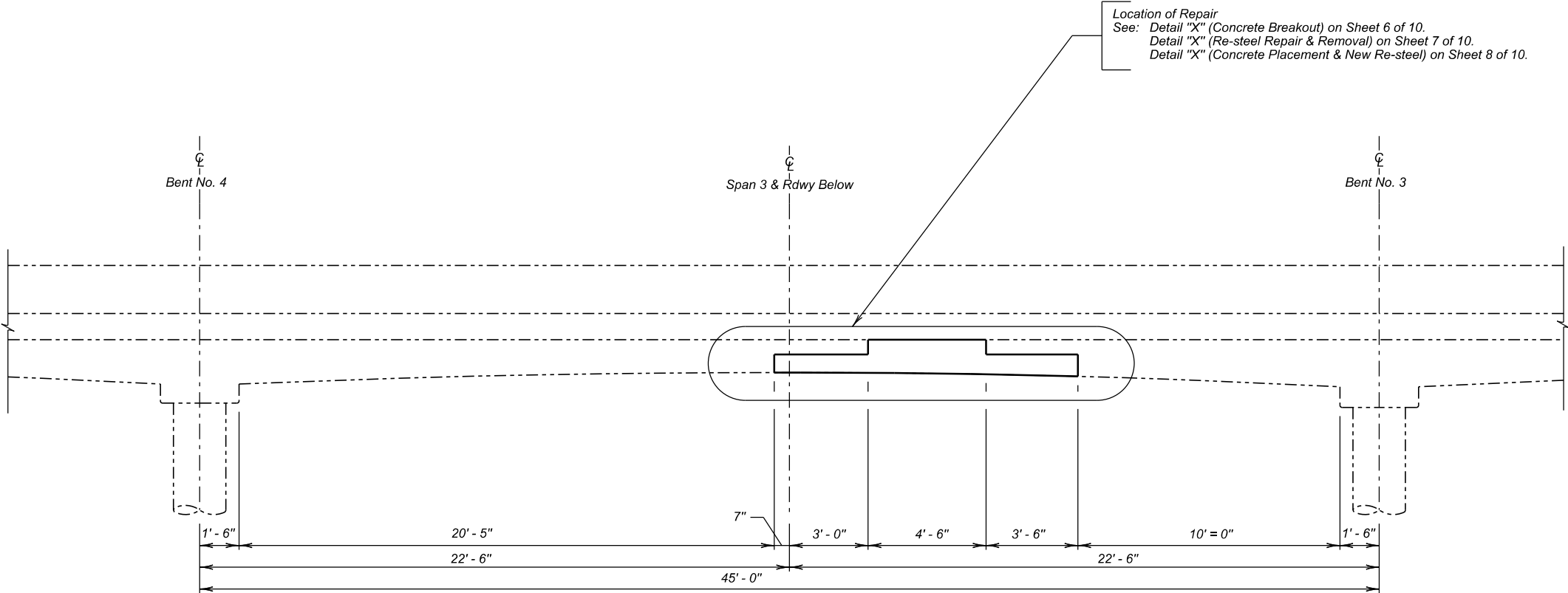
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090 W-368	E6	E12

GALVANIC ANODE

1. The Contractor shall furnish and place Galvanic anodes in the concrete repair areas specified in this plan set.
2. The galvanic anodes shall be supplied as one of the following:
 - a. Galvashield XP2
Vector Corrosion Technologies
13312 N 56th St, Suite 102
Tampa, FL 33617
Phone: (813) 830-7566
Website: www.vector-corrosion.com
 - b. Sentinel Silver
Euclid Chemical Company
19218 Redwood Road
Cleveland, OH 44110
Phone: (800) 321-7628
Website: www.euclidchemical.com
 - c. Sika Galvashield XP+
Sika Corporation US
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: (800) 933-7452
Website: <http://usa.sika.com>
3. The anodes shall be placed in accordance with manufacturer's recommendations and as approved by the Engineer. The anodes have not been shown on the drawings. The Contractor shall provide shop drawings of the galvanic anode installation including locations of the individual anodes to the Office of Bridge Design.
4. The anodes shall be placed with a minimum ¾" cover and shall be set in Embedding Mortar per the manufacturer's recommendations. The anodes shall be fully encased in the concrete repair material. Where adequate cover does not exist, a concrete pocket shall be chipped out behind the anode to provide sufficient cover. The Contractor may need to chip around the reinforcing bar locally at the anode installation to make the electrical connection. The reinforcing steel at the connection location shall be cleaned per the manufacturer's recommendations to provide sufficient electrical connection and mechanical bond.
5. The electrical continuity of the electrical connections and reinforcing steel shall be confirmed per the manufacturer's recommendations.
6. The Contractor shall provide manufacturer's product literature and installation instructions to the Engineer 10 days prior to installation.
7. All costs associated with placing anodes including labor, equipment, materials and incidentals shall be included in the contract unit price per each for GALVANIC ANODE.

NOTES (CONTINUED)
FOR
164' - 0" CONTINUOUS CONCRETE BRIDGE
STR. NO. 36-240-110
OCTOBER 2017

DESIGNED BY RS JACKI4J0	CK. DES. BY CM I4J0RA04	DRAFTED BY RS	 BRIDGE ENGINEER
-------------------------------	-------------------------------	------------------	--



View A - A

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Concrete Patching Material, Miscellaneous	Cu. Ft.	17.2
Breakout Structural Concrete	Cu. Yd.	0.6
Housing and Heating Concrete	Cu. Yd.	0.6
Reinforcing Steel	Lb.	102
No. 11 Rebar Splice	Each	4
Galvanic Anode	Each	7

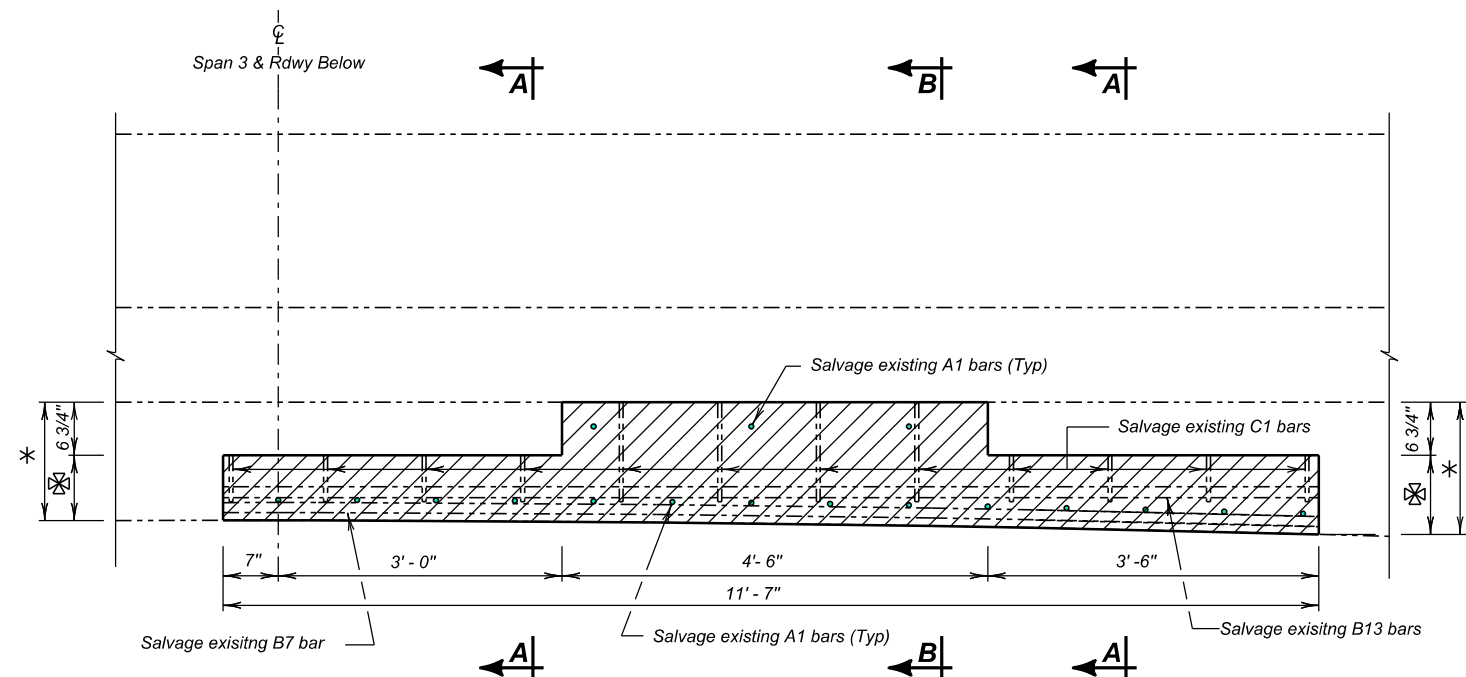
Field verify all dimensions and adjust as directed by the Engineer.

NOTE :
This sheet is to be used in conjunction
with Sheets 6, 7 & 8 of 10.

BRIDGE REPAIR DETAILS
FOR
164' - 0" CONTINUOUS CONCRETE BRIDGE
38' - 0" ROADWAY 0° SKEW
OVER CREEK & S.D. NO. 73 SEC. 25/30-T2S-R20/21E
STR. NO. 36-240-110 090 W-368

JACKSON COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2017


STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090 W-368	E8	E12



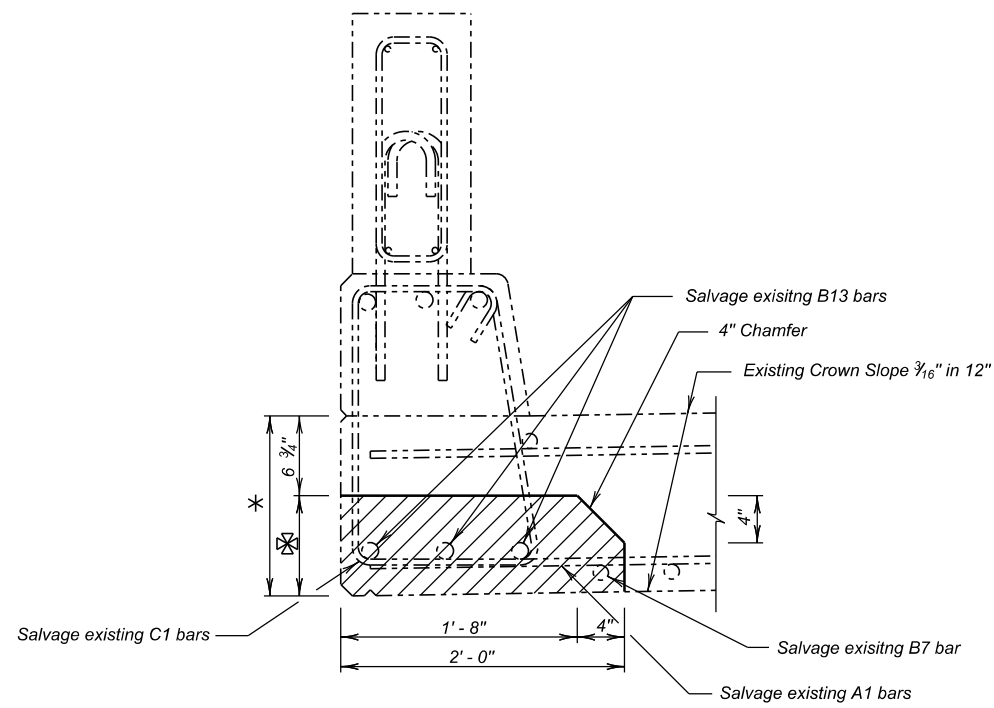
DETAIL "X"
(Concrete Breakout)

Re-steel is shown in plan locations and not in damaged/deformed locations.
Field verify all dimensions and adjust as directed by the Engineer.

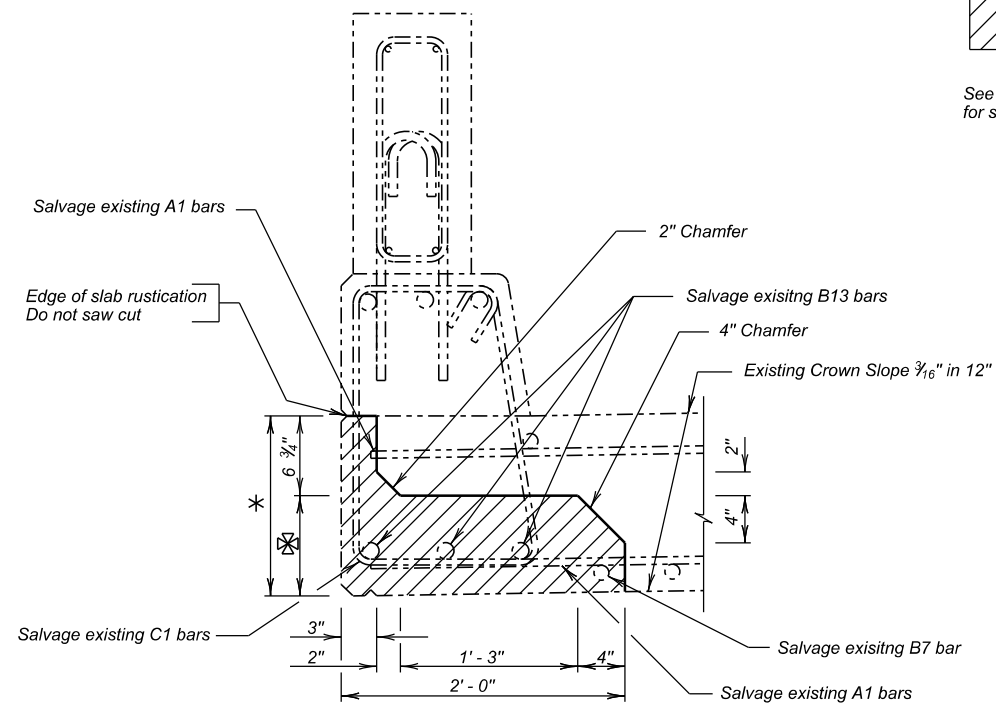
- * Varies from 15" to 16 3/4" ±
- ✱ Varies from 8 1/4" to 10" ±

 Concrete Breakout (Area includes original spalled area)

See DETAIL "X" (Re-steel Repair and Removal) on Sheet 7 of 10 for salvaged bars that require repair and/or partial removal.



SECTION A - A



SECTION B - B

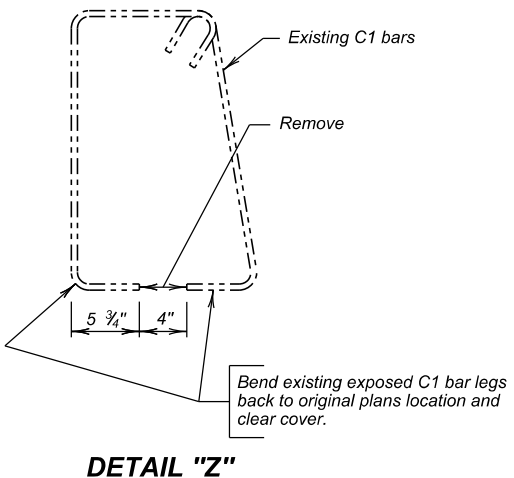
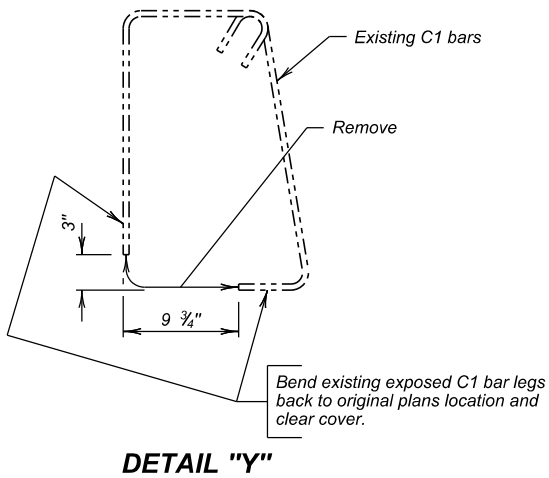
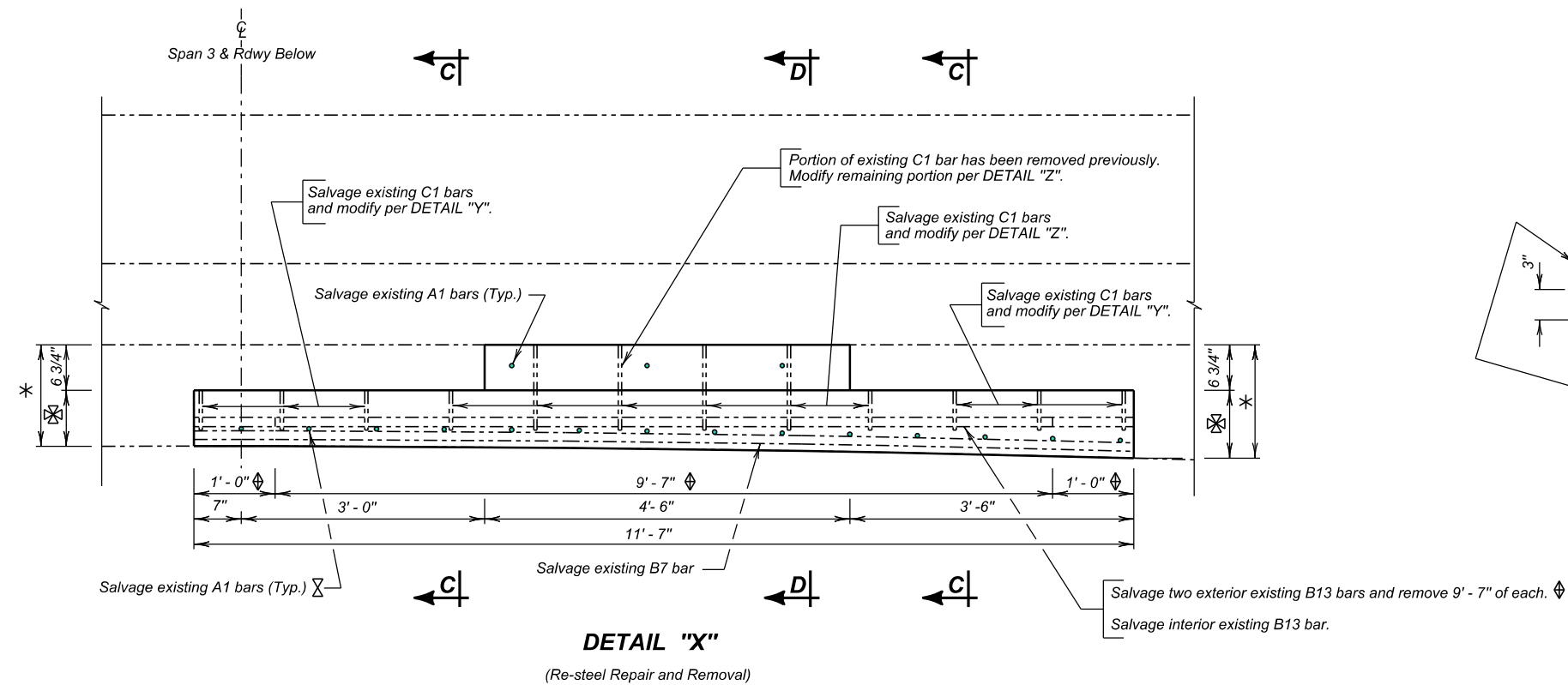
NOTE :
This sheet is to be used in conjunction with Sheets 5, 7 & 8 of 10.

BRIDGE REPAIR DETAILS (CONTINUED)
FOR
164' - 0" CONTINUOUS CONCRETE BRIDGE
38' - 0" ROADWAY
OVER CREEK & S.D. NO. 73
STR. NO. 36-240-110

0° SKEW
SEC. 25/30-T2S-R20/21E
090 W-368

JACKSON COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2017

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090 W-368	E9	E12

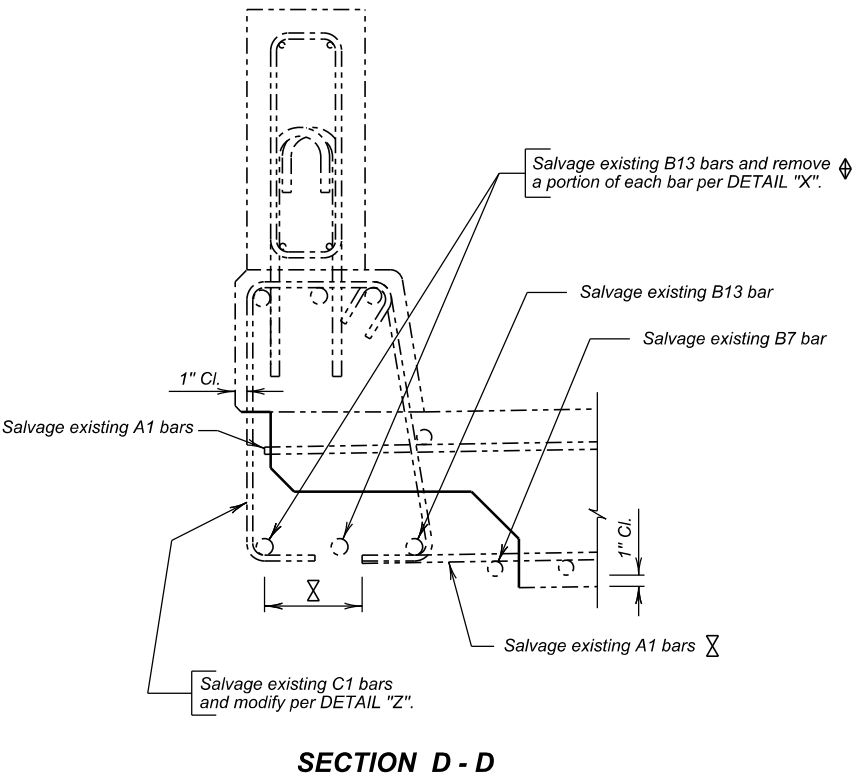
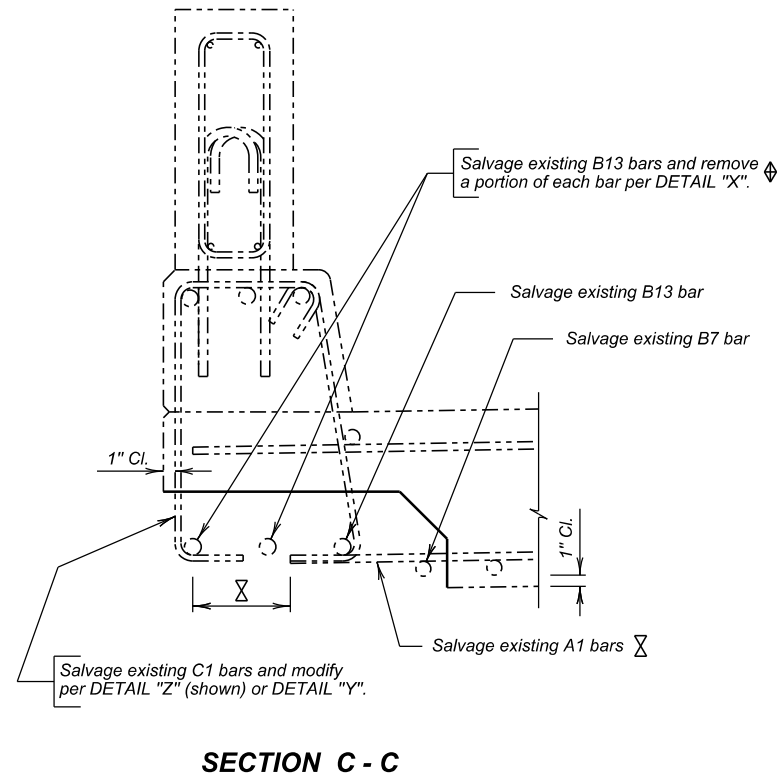


Re-steel is shown in plan locations and not in damaged/deformed locations.
Field verify all dimensions and adjust as directed by the Engineer.

* Varies from 15" to 16 3/4" ±
✱ Varies from 8 1/4" to 10" ±

✂ Salvage existing A1 bars and remove 8 1/4" of end. Many of the A1 bars have had a portion removed previously. If the length of bar previously removed is less than 8 1/4", remove the additional length. Bend the remaining exposed lengths of A1 bars to provide original clear cover.

⬢ Salvage two exterior existing B13 bars and remove 9' - 7" in the middle leaving 1' - 0" exposed at each end of both.



NOTE :
This sheet is to be used in conjunction with Sheets 5, 6 & 8 of 10.

BRIDGE REPAIR DETAILS (CONTINUED)
FOR

164' - 0" CONTINUOUS CONCRETE BRIDGE
38' - 0" ROADWAY
OVER CREEK & S.D. NO. 73
STR. NO. 36-240-110

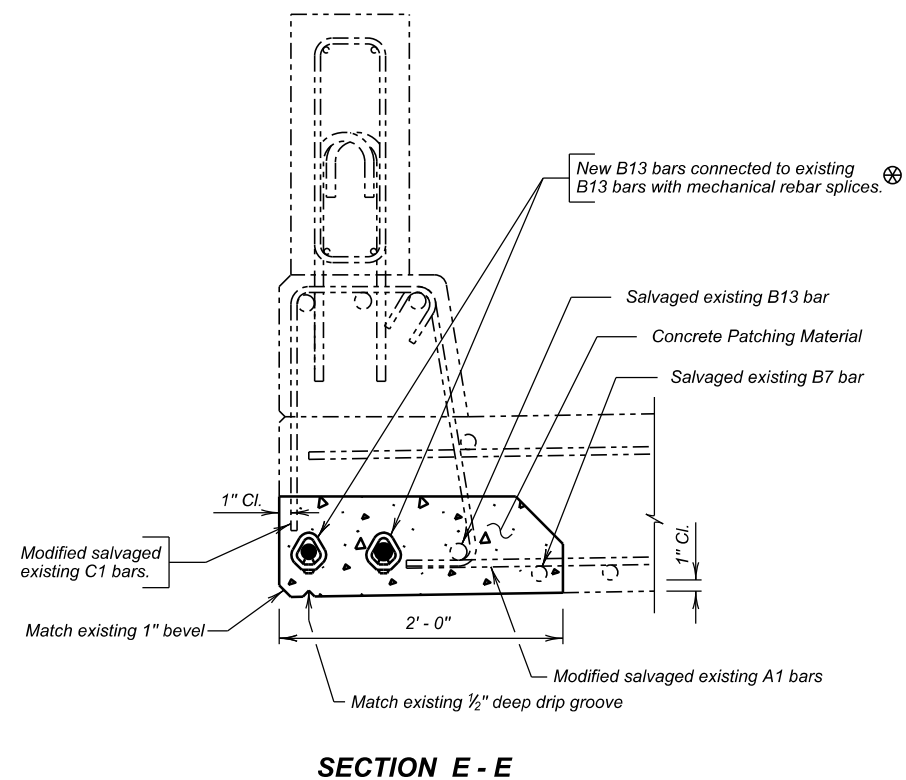
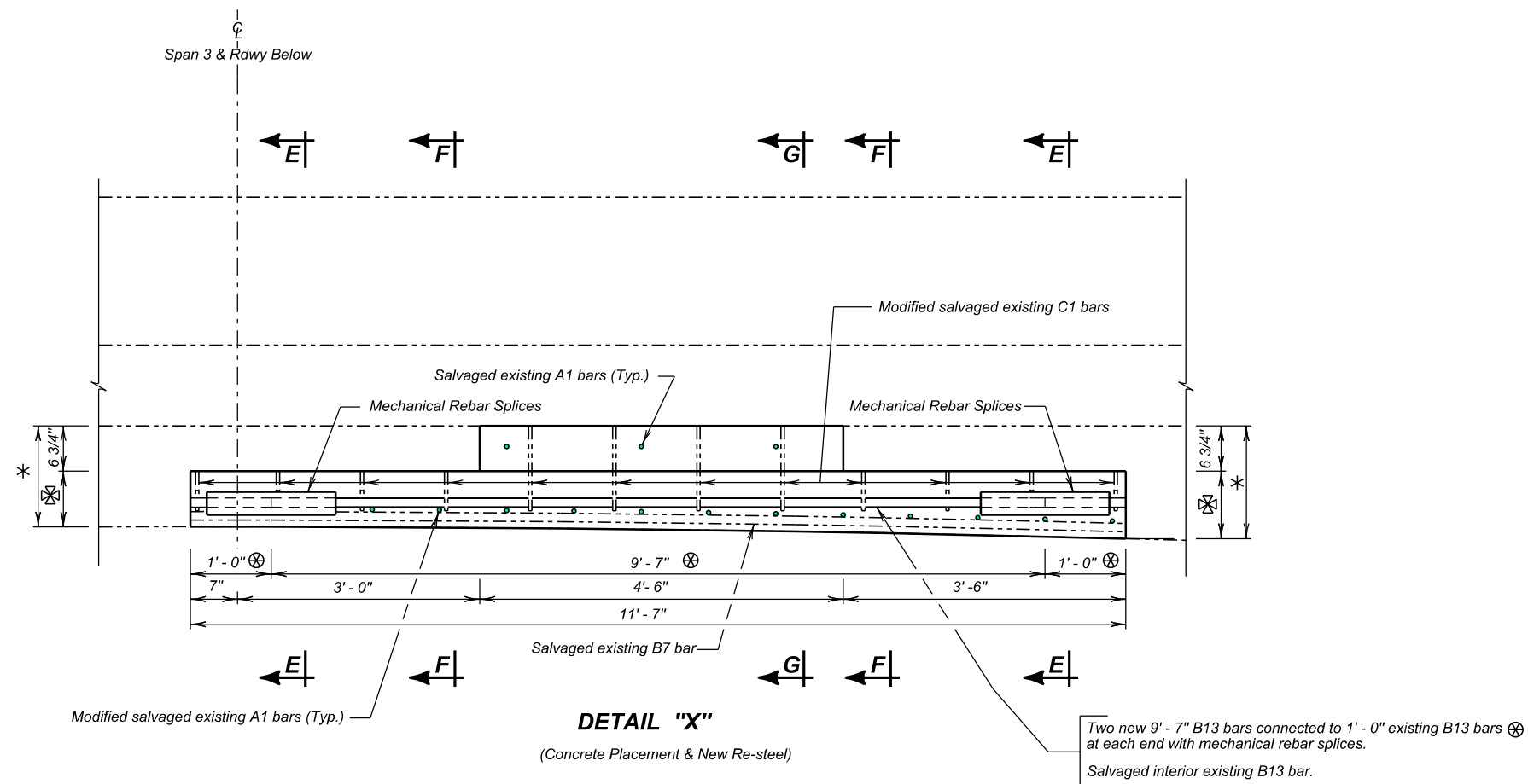
0° SKEW
SEC. 25/30-T2S-R20/21E
090 W-368

JACKSON COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2017

7 OF 10

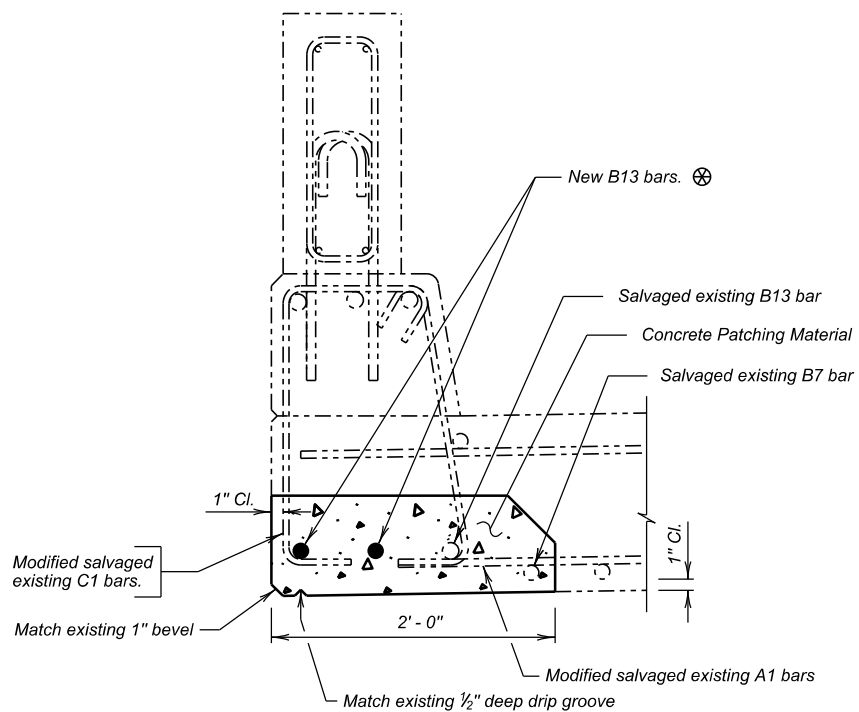
PLANS BY :
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY RS JACKI4J0	CK. DES. BY CM 14J0RA07	DRAFTED BY RS Steve A. Johnson	BRIDGE ENGINEER
-------------------------------	-------------------------------	--------------------------------------	-----------------

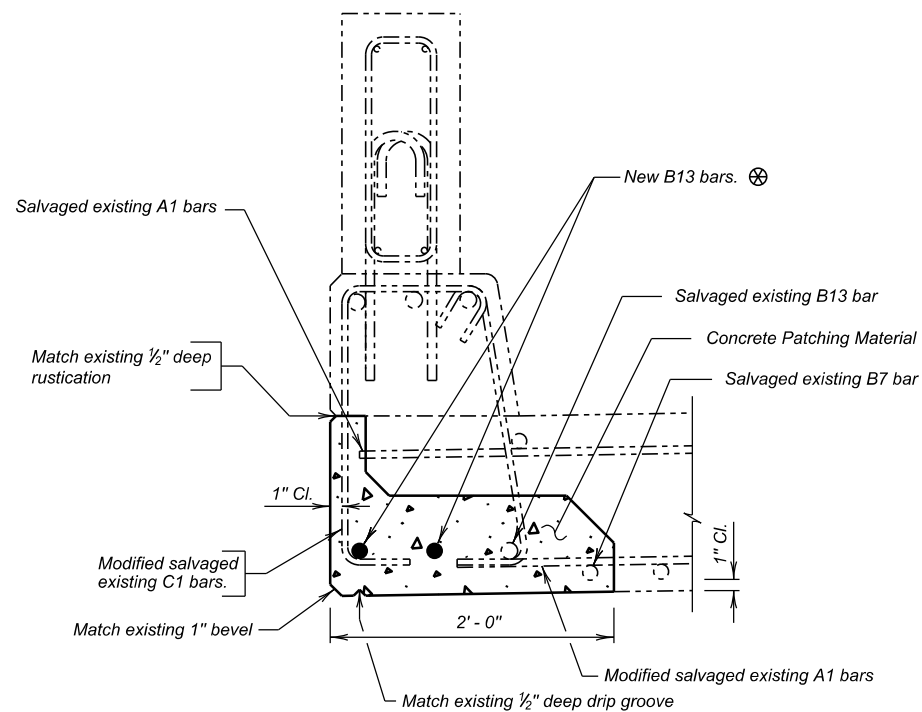


REINFORCING SCHEDULE				
Mk.	No.	Size	Length	Type
B13	2	11	9' - 7"	Str.

NOTE-
All dimensions are out to out of bars.



SECTION F - F



SECTION G - G

NOTE :
This sheet is to be used in conjunction
with Sheet 5, 6 & 7 of 10.

Field verify all dimensions and adjust as directed by the Engineer.

- * Varies from 15" to 16 3/4" ±
- ✱ Varies from 8 1/4" to 10" ±
- ⊗ Two new 9' - 7" B13 bars connected to 1' - 0" existing B13 bars at each end with mechanical rebar splices.

BRIDGE REPAIR DETAILS (CONTINUED)

FOR
164' - 0" CONTINUOUS CONCRETE BRIDGE
38' - 0" ROADWAY
OVER CREEK & S.D. NO. 73
STR. NO. 36-240-110

0° SKEW
SEC. 25/30-T2S-R20/21E
090 W-368

JACKSON COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2017

-X420- INDEX OF BRIDGE SHEETS-

Sheet No.1 - General Drawing and Quantities
Sheet No.2 - Subsurface Investigations
Sheet No.3 - Details of Superstructure
Sheet No.4 - Details of Abutment
Sheet No.5 - Details of Bent
Sheet No.6 - Type RT-3 Steel Railing
Sheet No.7 - Insert and Eyebolt Details

B.M. No. 7 - Elev. 2475.22
Rebar 8 Gds.
200' Lt. Sta. 58+00

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090 W-368	E11	E12

NOTE -
T.S. at E = Top of Slab at Centerline
T.S. at C = Top of Slab at Curb

SPECIFICATION NOTE -
Use South Dakota Standard Specifications for Roads and Bridges, 1963 Edition, approved as Standard September 2, 1964, and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

GENERAL NOTES -
1. Design Specifications: AASHTO Specifications for Highway Bridges, 1961, with Interim Specifications for 1961, 1962, 1963 and 1964.
2. See NOTES on Sheet No. 1 thru 6.
3. Omit all floor drains.
4. Longitudinal elements of the slab shall conform to the vertical curve.
5. Rail piers shall be built vertical.
6. The Contractor shall have sufficient pile splice material on hand before pile driving is started. See Standard Plate No. 303 for splice details.
7. Prebored holes for piles at abutments shall be backfilled with granular material acceptable to the ENGINEER and compacted as specified by the ENGINEER. The cost of granular material in place shall be included in the unit price bid for the piles.
8. Bridge Contractor shall furnish and install 18" x 72" sleeve nut units in wing walls as shown on Standard Plate No. 304.

EXCAVATION NOTES -
1. Footings for Bents No. 2 thru 4 shall be cast against solid undisturbed clay and carried into same to the elevation shown. Limits of clay excavation below top of footings shall be bound as nearly as practicable by the next lines as shown in details of footings for Bents No. 2 thru No. 4 on Sheet No. 5 of 6.
2. Clay shall develop a minimum bearing value of 4 tons per sq. ft. If the bearing value is less than 4 tons per sq. ft. at elevations shown, communicate with the BRIDGE SECTION.
3. Final footing elevations for Bents No. 2 thru No. 4 shall be established before ordering column reinforcing steel. For the respective Bents if final footing elevations must differ from those shown, communicate with BRIDGE SECTION.

ORIGINAL CONSTRUCTION PLANS

	ESTIMATED QUANTITIES					
	C/A Conc. Cu. Yds.	Steel - lbs.	Type RT-3 Steel Piling - Lin. Ft.	Timber Piles - Lin. Ft.	Excavation - Cu. Yds.	Pile Shoes
Superstructure	362.2	105,810	325			
Abutment No. 1	21.8	2,465	525	10 @ 35' = 350'	17	11
Bents No. 2, 3 & 4	60.35	12,195		10 @ 35' = 350'	296	
Abutment No. 5	21.3	2,465	525	10 @ 35' = 350'	11	11
Totals	465.65	122,930	1,110	700'	330	22

One Treated Timber Test Pile shall be driven at Abutments No. 1 and No. 5 before remaining piles are ordered.
All Unclassified Excavation to be done by others.
All STEEL Pile shots shall be as shown on Standard Plate No. 301.

Item	Qty	Unit	Price	Total
1. Steel Piling	1,110	Lin. Ft.	22.50	24,975.00
2. Timber Piles	700	Lin. Ft.	10.00	7,000.00
3. Excavation	330	Cu. Yds.	12.00	3,960.00
4. Pile Shoes	22	No.	100.00	2,200.00
5. Concrete	465.65	Cu. Yds.	12.00	5,587.80
6. Steel Reinforcement	122,930	Lbs.	0.05	6,146.50
7. Treated Timber	10	Lin. Ft.	100.00	1,000.00
8. Miscellaneous				1,000.00
Total				44,869.30

(WEST BOUND LANES)

GENERAL DRAWING
FOR

164'-0" CONT. CONC. BRIDGE
38'-0" ROADWAY

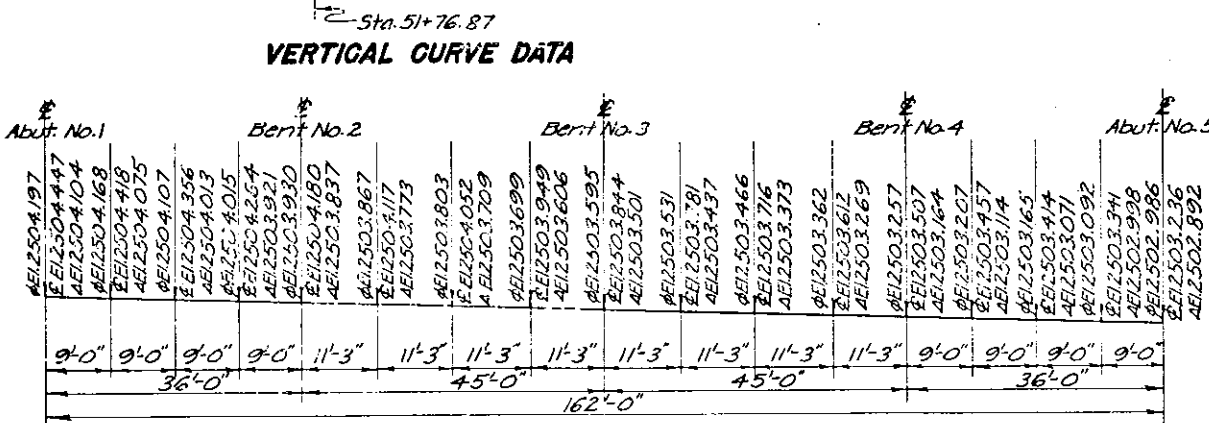
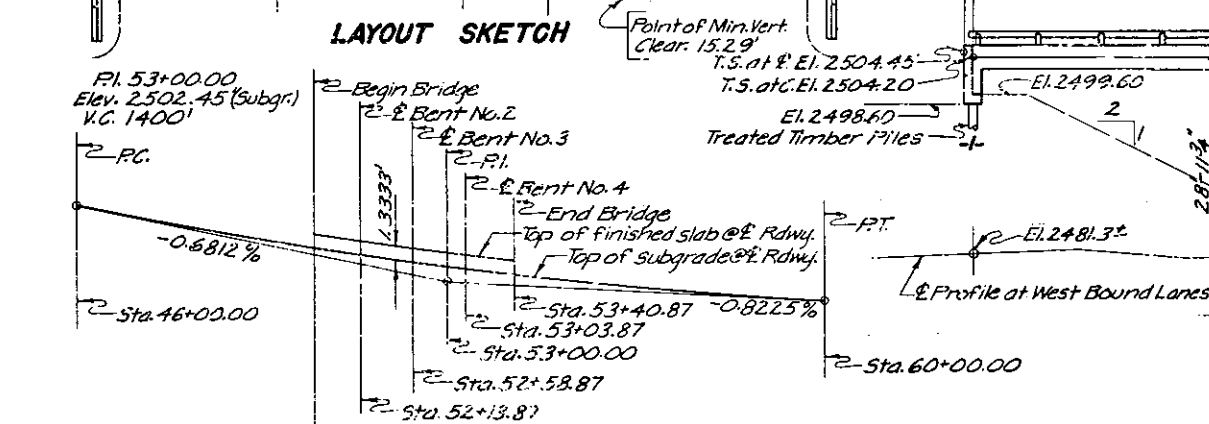
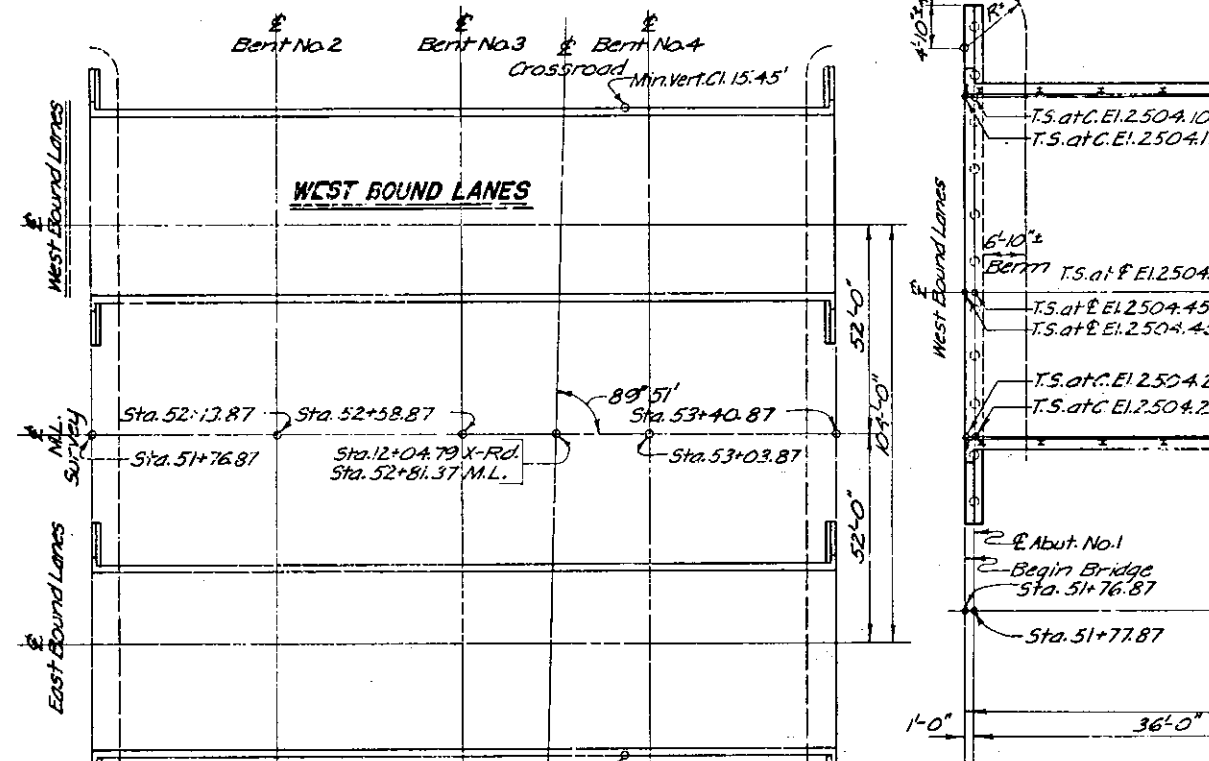
OVER CREEK & S.D. NO. 73 SEC. 29/30-T2S-R21E
STA. 51+76.87 TO 53+40.87 190-3(16)144

JACKSON COUNTY
SOUTH DAKOTA HS20-44
DEPARTMENT OF HIGHWAYS (& ALT.)

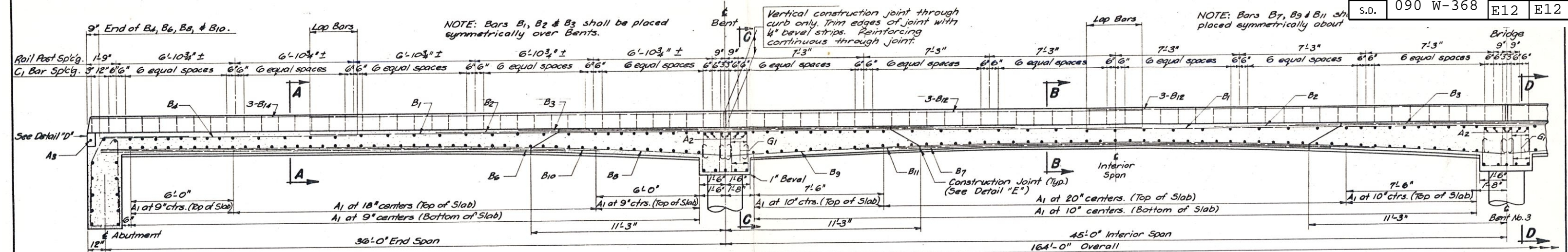
NOV. 1964 9 OF 10

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	W.C.D.	R.C.M.	R.H. Schmitt

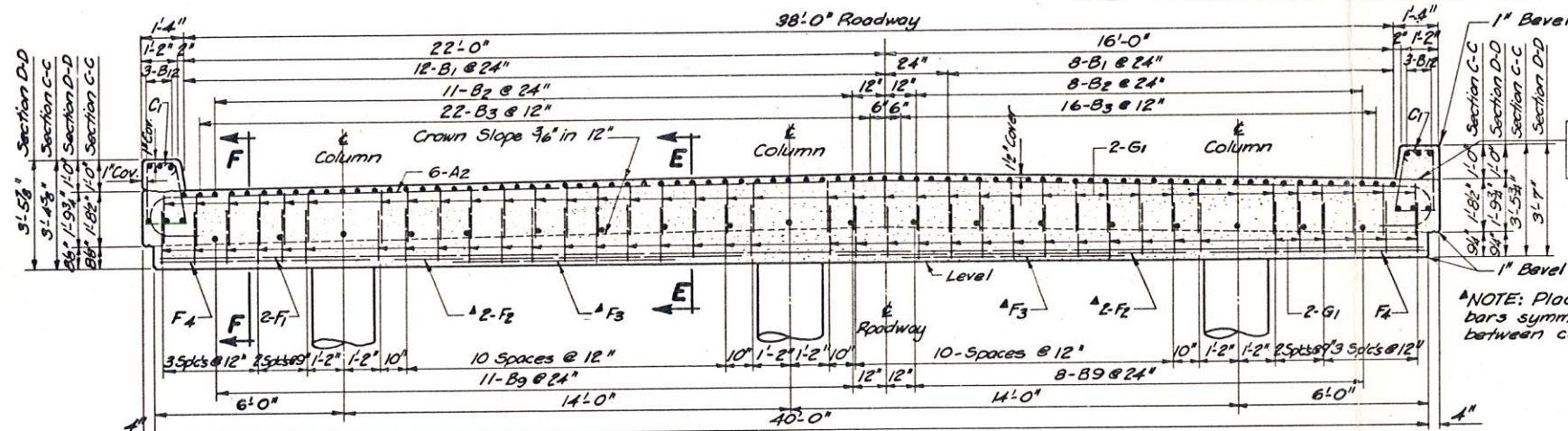
BRIDGE ENGINEER



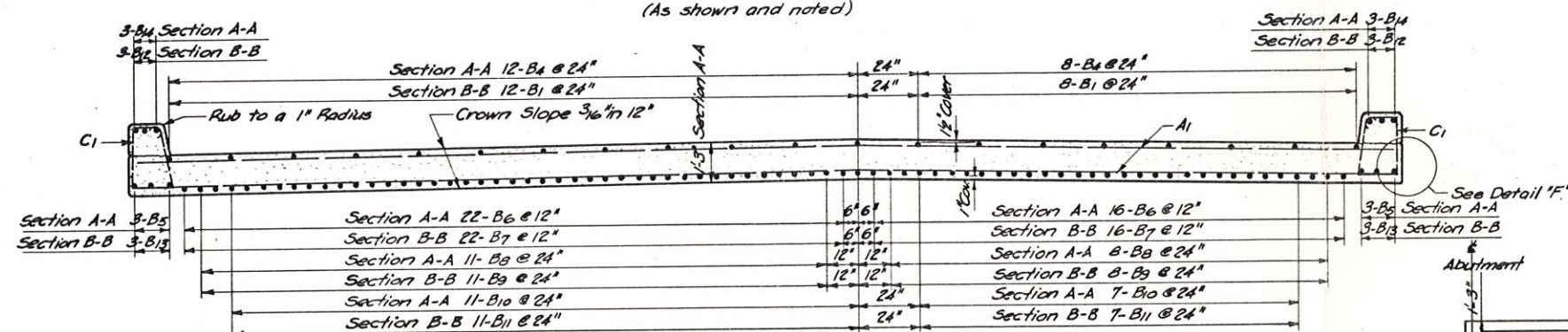
NOTE: E = Top of Slab at Right Curb, C = Top of Slab at Centerline Roadway, A = Top of Slab at Left Curb. Camber for Dead Load Deflection PLUS Plastic Flow, shown on Sheet No. 3 of 6 Bridge Plans have been included in the elevations shown above.



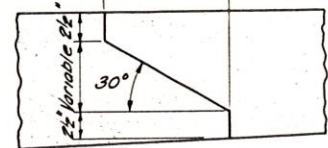
HALF LONGITUDINAL SECTIONAL VIEW



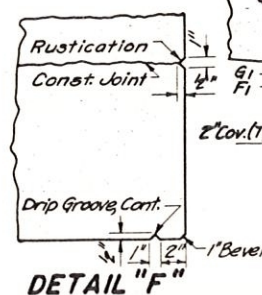
SECTION C-C OR SECTION D-D
(As shown and noted)



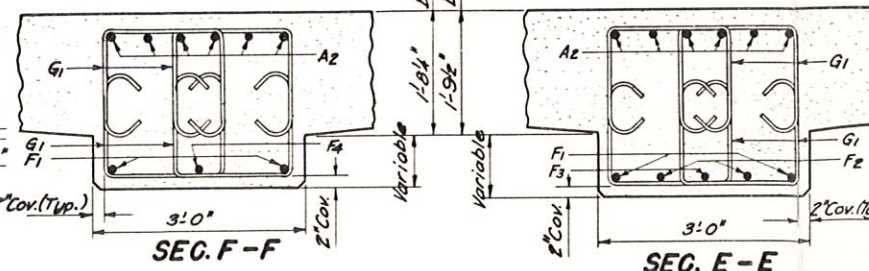
SECTION A-A OR SECTION B-B
(As shown and noted)



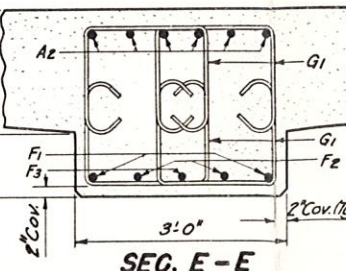
DETAIL "E"
(Typical Construction Joint)



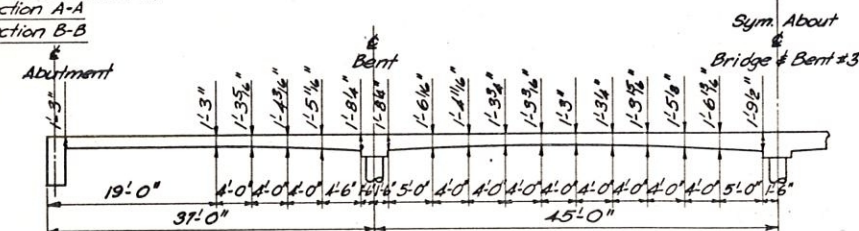
DETAIL "F"



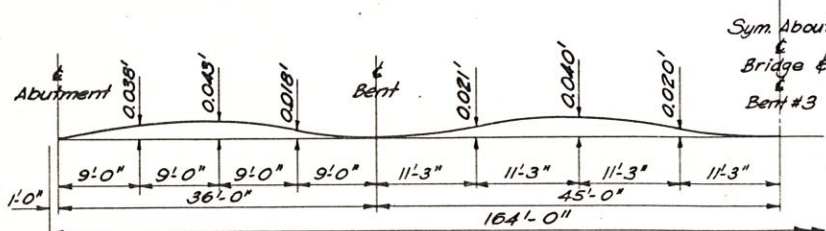
SEC. F-F



SEC. E-E


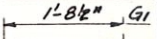
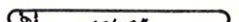


SLAB THICKNESS DIAGRAM
(For any longitudinal section parallel to & Roadway)



CAMBER DIAGRAM

Camber is calculated for dead load plus plastic flow. Camber shall be added to the proposed grade elevations at the respective stations to establish the elevations of the top of the finished roadway slab.

REINFORCING SCHEDULE																
NK.	No.	Size	Length	Type	NK.	No.	Size	Length	Type	NK.	No.	Size	Length	Type	Bending Details	
A1	324	5	40'-3"	Str.	B7	76	10	25'-0"	Str.	F1	6	9	39'-9"	Str.		
A2	18	10	42'-3"	1	B8	38	10	36'-3"	Str.	F2	12	9	11'-0"	Str.		
A3	2	5	37'-9"	Str.	B9	38	10	45'-0"	Str.	F3	6	9	7'-0"	Str.		
B1	60	10	48'-0"	Str.	B10	36	9	29'-0"	Str.	F4	6	4	6'-6"	Str.		
B2	57	11	33'-6"	Str.	B11	36	9	30'-0"	Str.	G1	436	4	5'-6"	53		
B3	114	10	24'-0"	Str.	B12	18	11	48'-0"	Str.							
B4	40	9	15'-0"	Str.	B13	12	11	45'-0"	Str.							
B5	12	11	36'-9"	Str.	B14	12	8	15'-6"	Str.							
B6	76	10	27'-0"	Str.	C1	328	4	7'-3"	T1							

NOTE: All dimensions are out to out of bars.

ORIGINAL CONSTRUCTION PLANS

5. **NOTES.—**

NOTES:- These notes cover Abutments, Bents, Superstructure and Railing Details. The General Drawing will show other necessary notes and details.

DESIGN SPECIFICATIONS: A.A.S.H.O. Specifications for Highway Bridges, 1961, with Interim Specifications for 1961, 1962, 1963, and 1964.

PILING: See General Drawing for type and length of piling.

STRUCTURAL STEEL: All $\frac{3}{8}$ " bolts including washers, all pile connections in Abutments, and all floor drains shall be paid for as Structural Steel.

REINFORCING STEEL: All reinforcing steel shall conform to ASTM Specifications A305 and A15 (Intermediate Grade).

CONCRETE: Class "A" Concrete shall develop a minimum allowable compressive strength of 4000 psi at 28 days. All exposed concrete corners and edges shall be chamfered to a $\frac{3}{4}$ " bevel unless noted otherwise. If necessary to facilitate construction, transverse construction joints may be made at the points shown in each and any span. If these joints are used, submit a concrete pouring sequence to the BRIDGE SECTION for approval. All costs for expansion joint filler and tar paper shall be included in the unit price bid per cubic yard for Class "A" Concrete.

DESIGN DATA: Design Loading: HS20-44 A.A.S.H.O. and the Alternate Loading as designated in R.P.M. 20-4, Section 4c.

Unit Stresses: Concrete: $f_c = 16000$ psi, $n = 8$, Reinforcing Steel: $f_s = 20000$ psi. Equivalent fluid pressure of earth at 40 lbs/sq. ft.

Minimum Pile Loading = 24 tons per pile. Minimum Soil bearing pressure for Spread Footings = 4 tons per sq. ft.

ESTIMATED QUANTITIES		
Item	Unit	Quantity
Class 'A' Concrete	Cu Yds.	362.2
Reinforcing Steel	Lbs.	105,810
Structural Steel	Lbs.	60
Type RT-3 Railings	Lin. Ft.	325

^bWeight of 5/8" ϕ bolts and washers only.

(WEST BOUND LANES)

DETAILS OF SUPERSTRUCTURE FOR

164'-0" CONT. CONC. BRIDGE

38'-0" ROADWAY

OVER CREEK & S.D. 73 SEC. 29/30-T2S-R21E
STA. 51+76.87 TO 53+40.87 1 90 -3(16)144

JACKSON COUNTY

SOUTH DAKOTA

DEPARTMENT OF HIGHWAYS (8ALT.)

NOV. 1964

10 OF 10

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	J.L.H.	C.H.V.	<i>[Signature]</i> BRIDGE ENGINEER