

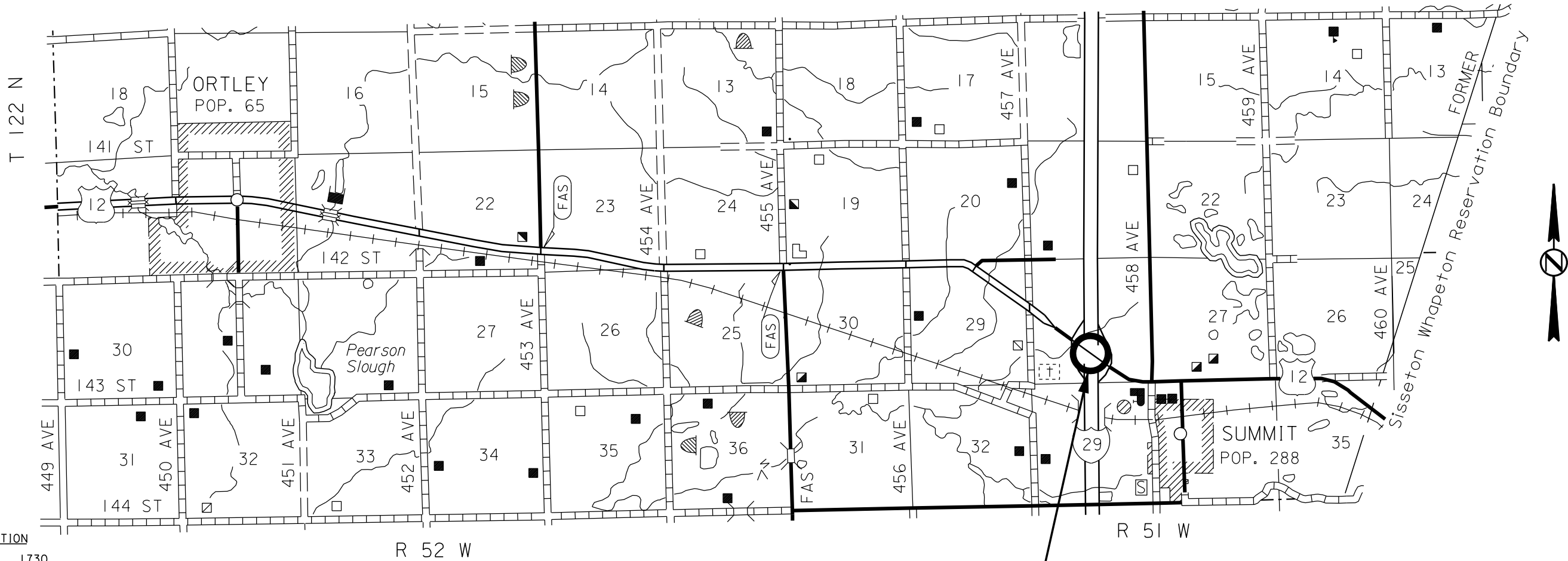
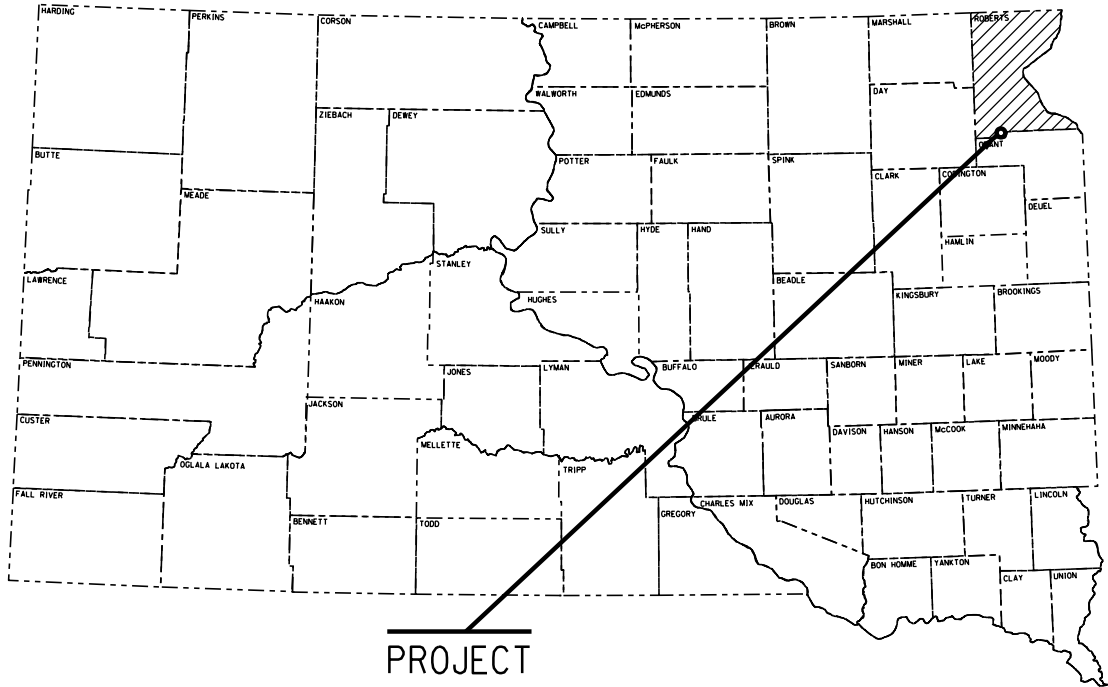
PLOT SCALE - 1:15000

PLOTTED FROM - TRAB17882

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
PROJECT 012-168
U.S. HIGHWAY 12
ROBERTS COUNTY
REPAIR CONCRETE BARRIER RAIL
PCN i5TX

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	012-168	1	14
Plotting Date: 12/02/2019			

INDEX OF SHEETS	
Sheet 1	Title Sheet & Layout Map
Sheet 2	Estimate of Quantities & Environmental Commitments
Sheet 3-6	Traffic Control
Sheet 7-14	Structure Repair Details



DESIGN DESIGNATION	
ADT (2018)	1730
ADT (2038)	1823
DHV	217
D	50%
T DHV	9.9%
T ADT	21.7%
V	45 M.P.H.

STORM WATER PERMIT
None Required

PROJECT LOCATION
U.S. 12 @ MRM 366.40
Str. No. 55-085-429

PLOT NAME - 1

FILE - ... \ROBTI5TX\I5TX.TITLE SHEET.DGN

ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Estimate of Quantities

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
460E0070	Class A45 Concrete, Bridge Repair	0.9	CuYd
460E0300	Breakout Structural Concrete	0.9	CuYd
460E0600	Housing and Heating Concrete	0.9	CuYd
480E0100	Reinforcing Steel	107	Lb
480E0504	No. 4 Rebar Splice	12	Each
480E5000	Galvanic Anode	7	Each
634E0010	Flagging	125.0	Hour
634E0110	Traffic Control Signs	356.6	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	3	Each
634E0420	Type C Advance Warning Arrow Board	1	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

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified 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.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf>

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Office at 605-773-3098 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor will 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) will 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) will 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 Environmental Office and the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements will apply:

- Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".
- 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) will be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

State Historical Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

Action Taken/Required:

All earth disturbing activities require a cultural resource review prior to scheduling the pre-construction meeting. 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 will arrange and pay for a record search and when necessary, a cultural resource survey. 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 if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view of 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 will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. 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.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office to determine an appropriate course of action.

The Contractor is responsible 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 will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

SEQUENCE OF OPERATIONS

Refer to the Structure Repair Plans for specific details on repair of the concrete barrier.

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting.

Contractor requests to deviate from the sequence of operations will be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department’s intent for traffic control and sequencing of the work. An alternate sequence will be submitted for review a minimum of one week prior to potential implementation.

GENERAL TRAFFIC CONTROL

Road Work Ahead (W20-1), One Lane Road (W20-4) and Flagger (W20-7) signs will be placed on the Off Ramps of I-29 as well as on US12 to control traffic during working hours. 25 MPH Advisory Speed (W13-1P) plaques will be displayed with the One Lane Road (W20-4) signs on US12. During non-working hours, traffic control will be as depicted on Standard Plate 634.03 on US12, with both lanes of US12 being fully open to traffic. During non-working hours, only Road Work Ahead (W20-1) signs will be displayed on the Off Ramps of I-29.

A lane closure on the inside Northbound lane of I-29 (as per Standard Plate 634.64) is provided for in these plans. The need for such a lane closure will be determined upon the Contractor’s operations, as directed by the Engineer. A lane closure on I-29 will be permitted only during working hours.

Equipment and material will not be stored on the project site during non-working hours. The Contractor will be permitted to store materials and equipment at the SDDOT yard located immediately to the west of the bridge on the south side of US12.

The Contractor will permit and accommodate over-width vehicles, up to 16’ wide through the lane closures at all times.

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

All construction operations will be conducted in the general direction of traffic movement.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Traffic Control Signs, 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.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

Traffic will be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor’s equipment will be repaired at no expense to the Department.

A Type 3 Barricade will be installed at the end of a lane closure taper.

FLAGGING

Operations will be conducted so that the traveling public will not have to wait longer than 5 minutes at the flagger station.

Additional flagger warning signs and flagger hours have been included in the Estimate of Quantities for use on I-29 Ramps. These flaggers will be used as directed by the Engineer and will be used primarily during daytime hours.

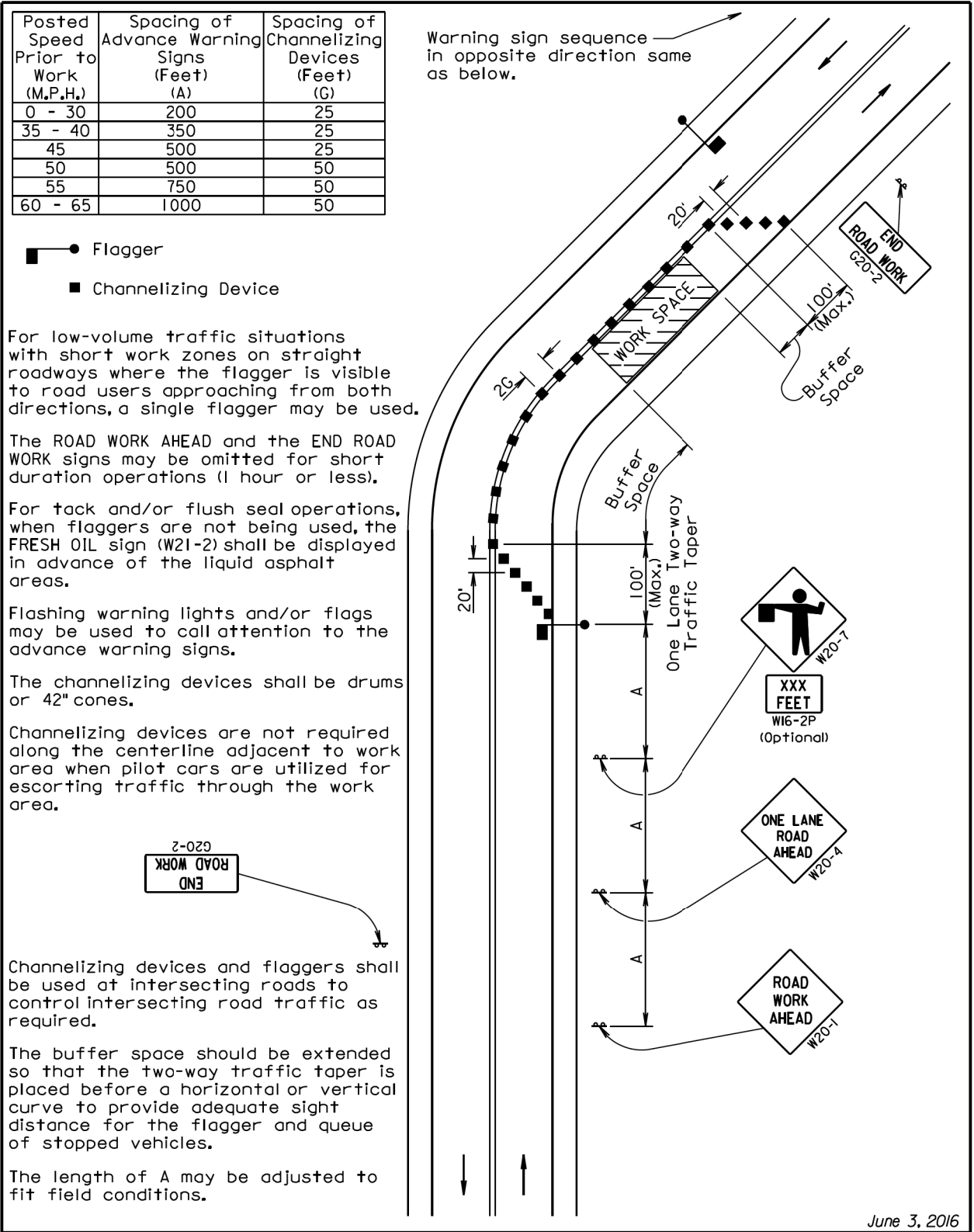
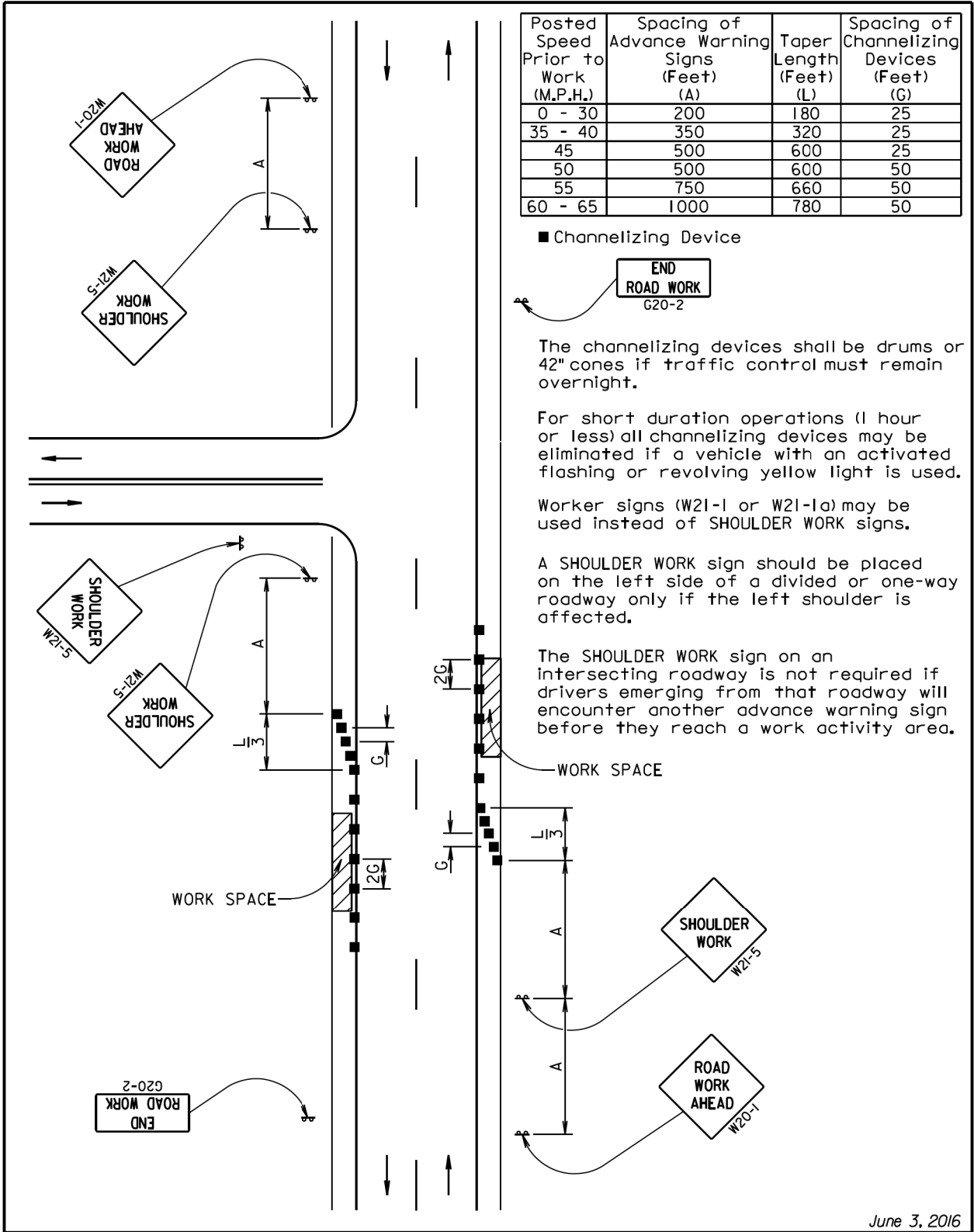
It is required that the flaggers be able to communicate with one another. If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for FLAGGING.

IN PLACE MATERIALS

A section of moveable concrete barrier is in place in front of the damaged barrier. Other traffic control devices such as cones, barrels, etc. are also in place. The Contractor will remove these devices and transport all these items to the SDDOT yard located immediately to the west of the bridge on the south side of US12. All costs associated with removal and transport of these items will be incidental to the contract lump sum price for TRAFFIC CONTROL, MISCELLANEOUS.

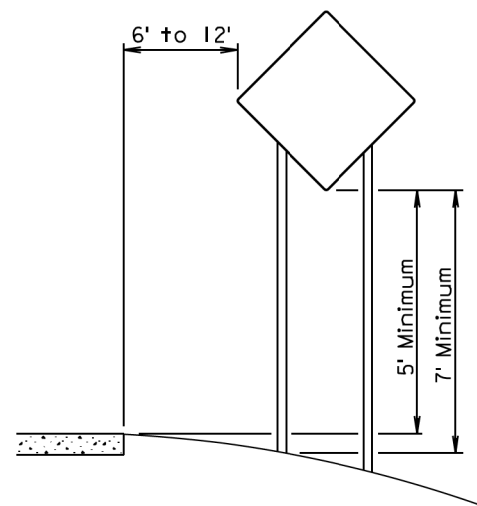
ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6.3	12.6
W20-1	ROAD WORK AHEAD	6	48" x 48"	16.0	96.0
W20-4	ONE LANE ROAD AHEAD	4	48" x 48"	16.0	64.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	3	48" x 24"	8.0	24.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			356.6

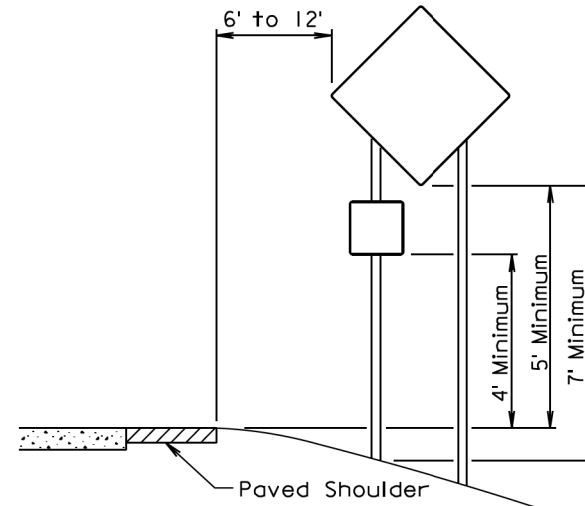


STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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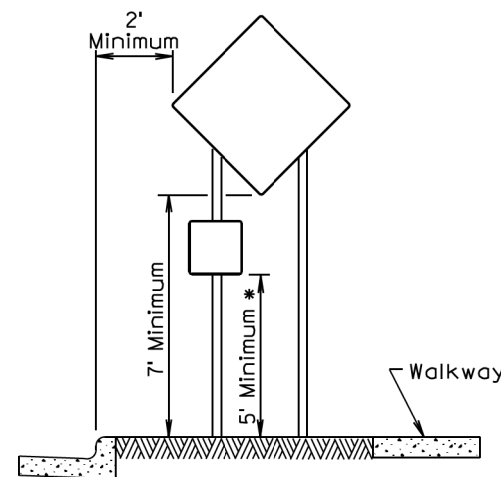
Plotting Date: 11/21/2019



RURAL DISTRICT

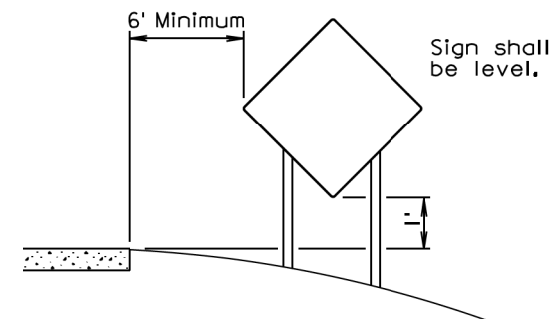


RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT

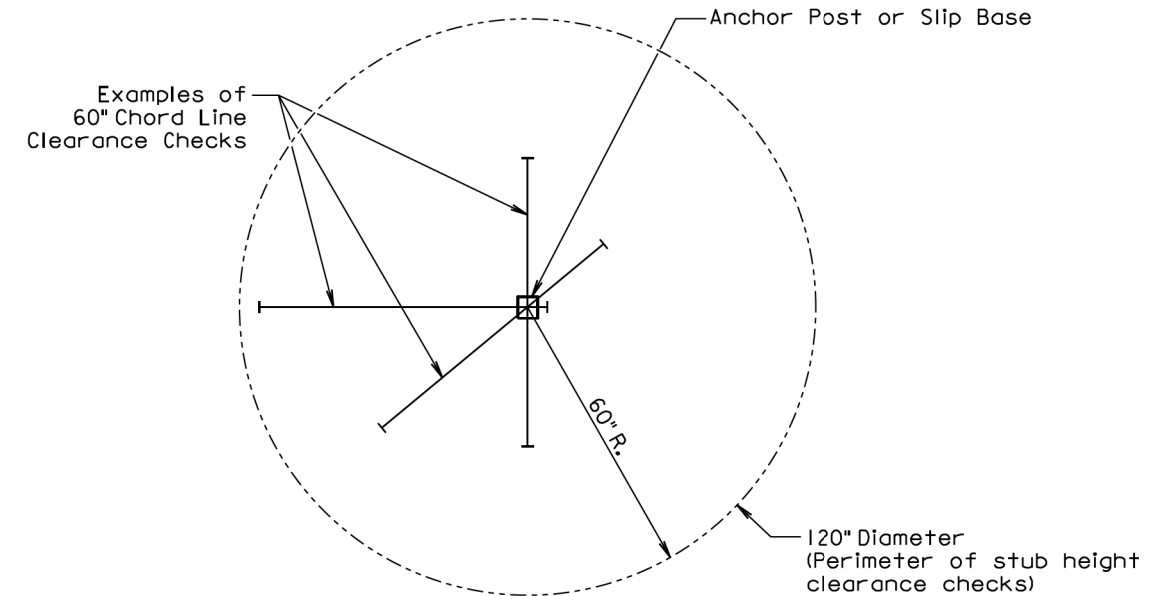
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



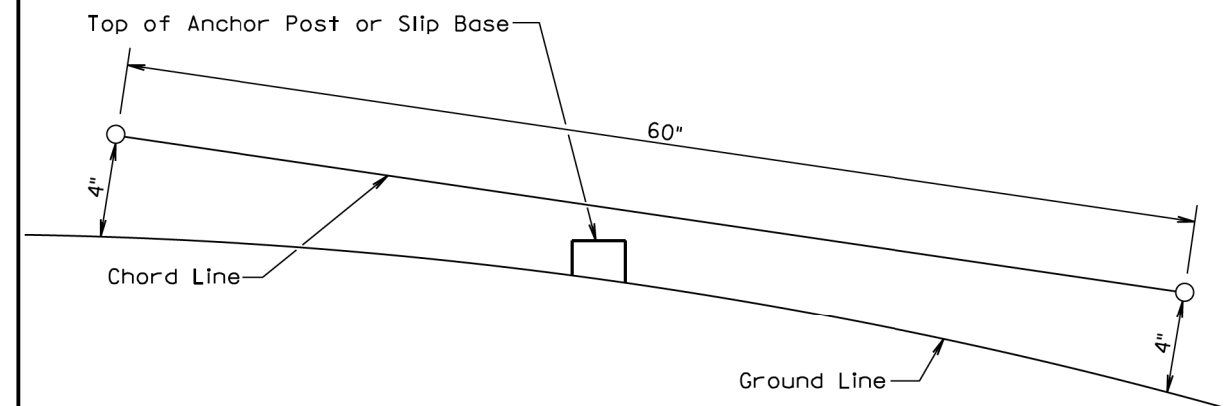
RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 4th Qtr. 2019	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:

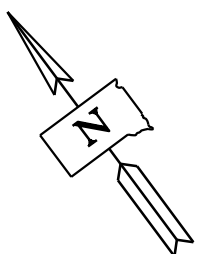
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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.

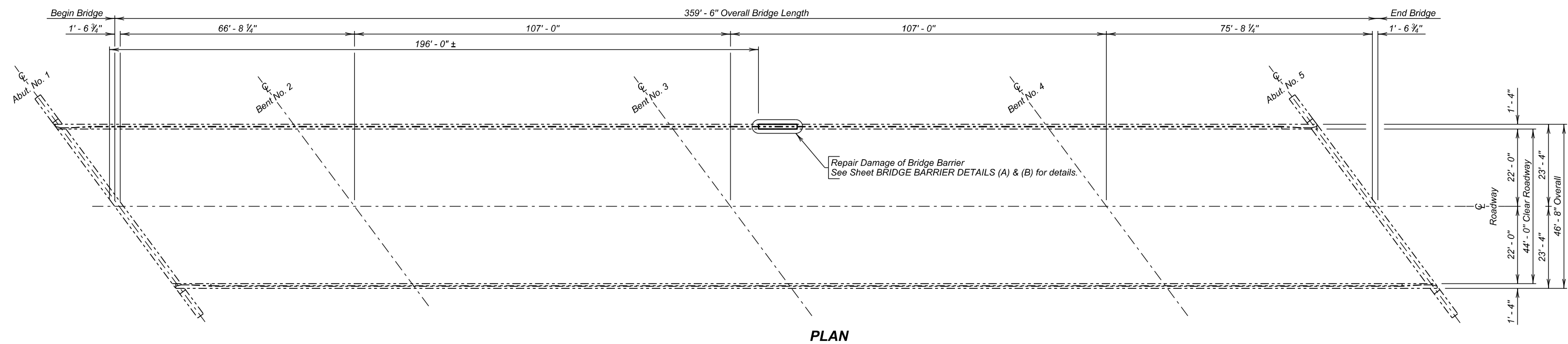
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 4th Qtr. 2019	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1



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INDEX OF BRIDGE SHEETS -

- Sheet No. 1 - Layout for Upgrading
- Sheet No. 2 - Estimate of Structure Quantities and Notes
- Sheet No. 3 - Notes
- Sheet No. 4 - Bridge Barrier Details (A)
- Sheet No. 5 - Bridge Barrier Details (B)
- Sheet No. 6 thru 8 - Original Construction Plans

LAYOUT FOR UPGRADING
FOR
359' - 6" CONT. COMPOSITE GIRDER BRIDGE
44' - 0" ROADWAY 36° 39' 25" SKEW R.H.F
OVER I29 SEC. 28-T122N-R51W
STR. NO. 55-085-429 012-160
PCN i5TX

ROBERTS COUNTY
S. D. DEPT. OF TRANSPORTATION
NOVEMBER 2019

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
460E0070	Class A45 Concrete, Bridge Repair	0.9	CuYd
460E0300	Breakout Structural Concrete	0.9	CuYd
460E0600	Housing and Heating Concrete	0.9	CuYd
480E0100	Reinforcing Steel	107	Lb
480E0504	No. 4 Rebar Splice	12	Each
480E5000	Galvanic Anode	7	Each

SPECIFICATIONS

- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.
- Design Specifications: AASHTO Standard Specifications for Highway Bridges 17th Edition using Working Stress Design.

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

All details and dimensions of the existing bridge, contained in these plans, are based on the original construction plans and shop plans. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary as-built dimensions affecting the satisfactory completion of the work required for this project.

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure will be accomplished with the traffic control shown in the plans. Alternate sequence of operations may be submitted by the Contractor for approval by the Engineer.

A portion of the bridge barrier was damaged due to vehicle impact. The damaged items are to be repaired.

- Breakout Structural Concrete to the extent shown on the plans. Trim the existing D1 bars to the length required for splicing.
- Place new reinforcing steel and splice the existing D1 bars.
- Repair the broken out concrete section. Protect concrete as required due to temperature.

GENERAL CONSTRUCTION - BRIDGE

- All reinforcing steel will conform to ASTM A615, Grade 60.
- All exposed concrete corners and edges will be chamfered 3/4-inch unless noted otherwise in the plans. Match existing chamfer if the existing chamfer differs.
- Use 2-inch clear cover on all reinforcing steel except as shown otherwise.
- Barrier curbs will be built normal to the grade.
- Requests for construction joints or reinforcing steel 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.
- Snap ties, if used in the barrier curb formwork, will be corrosion resistant. The corrosion resistant ties will be inert in concrete and compatible with reinforcing steel.
- All lap splices are contact lap splices unless noted otherwise.

CONCRETE BREAKOUT

- The existing barrier will be broken out to the limits shown on the plans. Breakout limits will be defined with a 3/4" deep saw-cut (unless specified otherwise in these plans), where practical, as approved by the Engineer. Reinforcing steel that is exposed and is scheduled for use in the new construction will be cleaned and straightened to the satisfaction of the Engineer. Care will be taken not to damage the existing reinforcing steel that is to be reused in the new construction during concrete breakout. Any reinforcing steel that is damaged during concrete breakout will be replaced or repaired, as approved by the Engineer, by the Contractor at no cost to the Department.
- All broken out concrete will be disposed of by the Contractor. Any disposal of discarded material will be in accordance with the Environmental Commitments.
- The contract unit price per cubic yard for Breakout Structural Concrete will include breaking out concrete, cleaning and straightening existing reinforcing steel, and disposal of all broken out material.
- During concrete removal operations, no broken out concrete will be allowed to fall on to the interstate below.

MECHANICAL REBAR SPLICES

Mechanical splice devices will be required for the barrier repair. The mechanical rebar splices will be in accordance with Section 480 of the Construction Specifications.

SURFACE FINISH

A Class B commercial surface finish will be applied to the finished surface of the new barrier. The Class B finish will match the existing barrier.

GALVANIC ANODE

- The Contractor will furnish and place galvanic anodes in the concrete repair areas specified in this plan set.
- The galvanic anodes will be supplied as one of the following:
 - Galvashield XP2
Vector Corrosion Technologies
65114 140th Ave.
Wabasha, MN 55981
Phone: (507) 259-2481
Website: www.vector-corrosion.com
 - Sentinel Silver
Euclid Chemical Company
19218 Redwood Road
Cleveland, OH 44110
Phone: (800) 321-7628
Website: www.euclidchemical.com
 - Sika FerroGard 670
Sika Corporation US
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: (800) 933-7452
Website: <http://usa.sika.com>

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES
FOR
359' - 6" CONT. COMPOSITE GIRDER BRIDGE

STR. NO. 55-085-429 012-160

ROBERTS COUNTY
S. D. DEPT. OF TRANSPORTATION
NOVEMBER 2019

2 OF 8

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
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GALVANIC ANODE (CONTINUED)

- The anodes will 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 will provide shop drawings of the galvanic anode installation including locations of the individual anodes to the Office of Bridge Design.
- The anodes will be placed with a minimum ¾" cover and will be set in embedding mortar per the manufacturer's recommendations. The anodes will be fully encased in the concrete repair material. Where adequate cover does not exist, a concrete pocket will 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 will be cleaned per the manufacturer's recommendations to provide sufficient electrical connection and mechanical bond.
- The electrical continuity of the connections and reinforcing steel will be confirmed per the manufacturer's recommendations.
- The Contractor will provide manufacturer's product literature and installation instructions to the Engineer 10 days prior to installation.
- All costs associated with placing anodes including labor, equipment, materials and incidentals will be included in the contract unit price per each for Galvanic Anode.

CONCRETE PATCHING MATERIAL COLD WEATHER PROTECTION REQUIREMENTS

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

- Concrete Patching Material Mix: Maximum temperature of mixing water: 160 °F, maximum temperature of aggregates: 100 °F, and aggregates will be free of frozen lumps, ice or snow.
- The surface temperature or anything which will come into contact with the fresh concrete patching material will be above freezing prior to placement, including forms, reinforcing steel, and adjacent concrete.
- The minimum concrete patching material temperature at placement will be 50 °F.
- The minimum concrete patching material temperature will be 50 °F. for the first 72 hours and 40 °F. for the next 48 hours or manufacturer's recommendations. Concrete patching material temperatures below 35 °F. during the protection period will be cause for rejection.

- The maximum concrete patching material temperature during the protection period will be 100 °F.
- At the end of the protection period, the concrete patching material temperature will not be permitted to fall more than 40 °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 °F.
- Enclosures will be capable of maintaining the specified temperature and permit free circulation of artificial heat.
- No artificial heat source which uses an open flame or introduces carbon dioxide into the enclosure where it can come into contact with fresh concrete patching material will be used.
- The Contractor will provide remote reading indoor/outdoor type thermometers for monitoring the concrete patching material temperature during the protection period. The number and spacing of thermometers will be determined by the Engineer. Thermometers will 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 will be responsible for monitoring the enclosure at intervals acceptable to the Engineer. The Contractor will monitor concrete patching material temperature, humidity (if required), and the structural integrity of the enclosure.
- Falsework will remain in place until the end of the protection period.
- The Contractor will 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 will 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 will be per the contract unit price per cubic yard for Housing and Heating Concrete. Payment will be for the plan quantity shown in the Estimate of Quantities.

NOTES

FOR

359' - 6" CONT. COMPOSITE GIRDER BRIDGE

STR. NO. 55-085-429


012-160

ROBERTS COUNTY

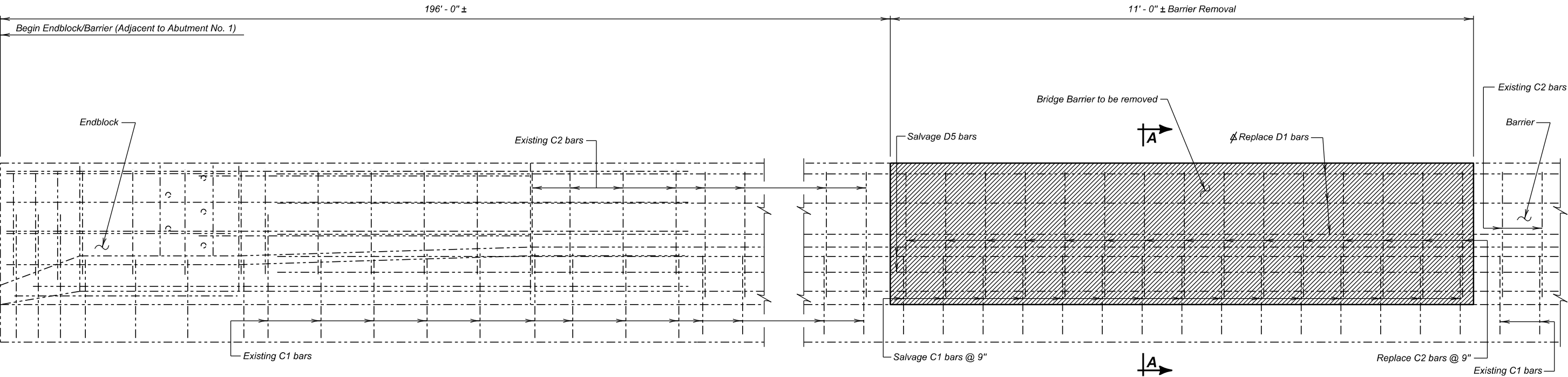
S. D. DEPT. OF TRANSPORTATION

NOVEMBER 2019

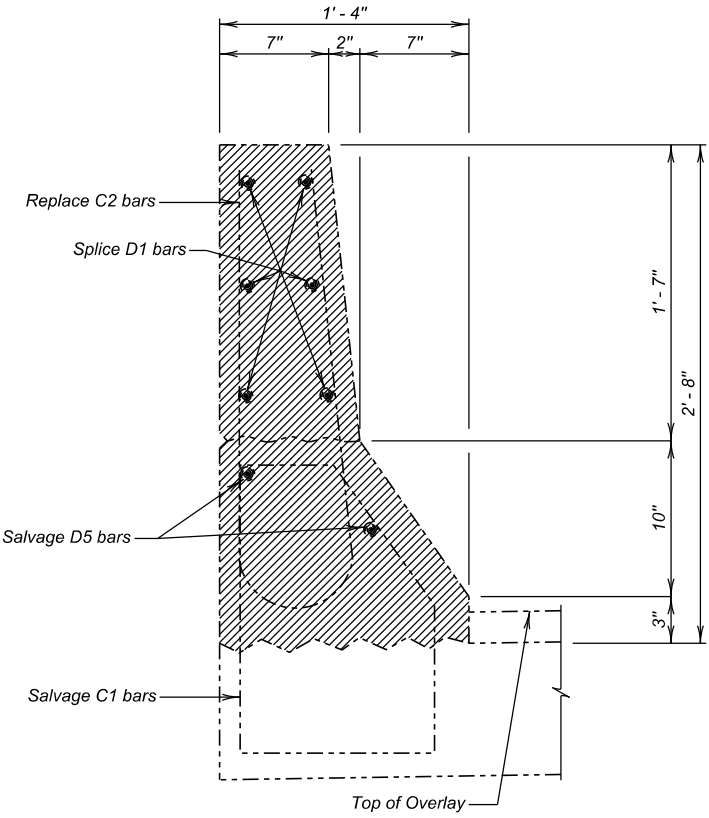
3 OF 8

DESIGNED BY SMV ROBT15TX	CK. DES. BY TJM 15TXRA03	DRAFTED BY SMV	 BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	012-160	10	14




ELEVATION
(Northwest Endblock and Barrier Shown)



SECTION A - A

LEGEND:

 Removal Limits

 Salvage sufficient length of existing D1 bar to accommodate Mechanical Splice.

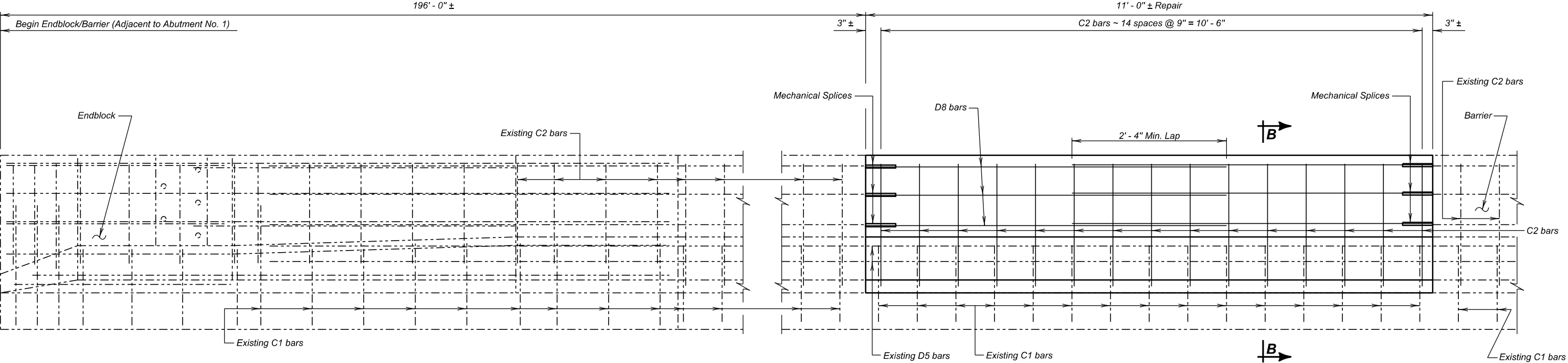
BRIDGE BARRIER DETAILS (A)

FOR

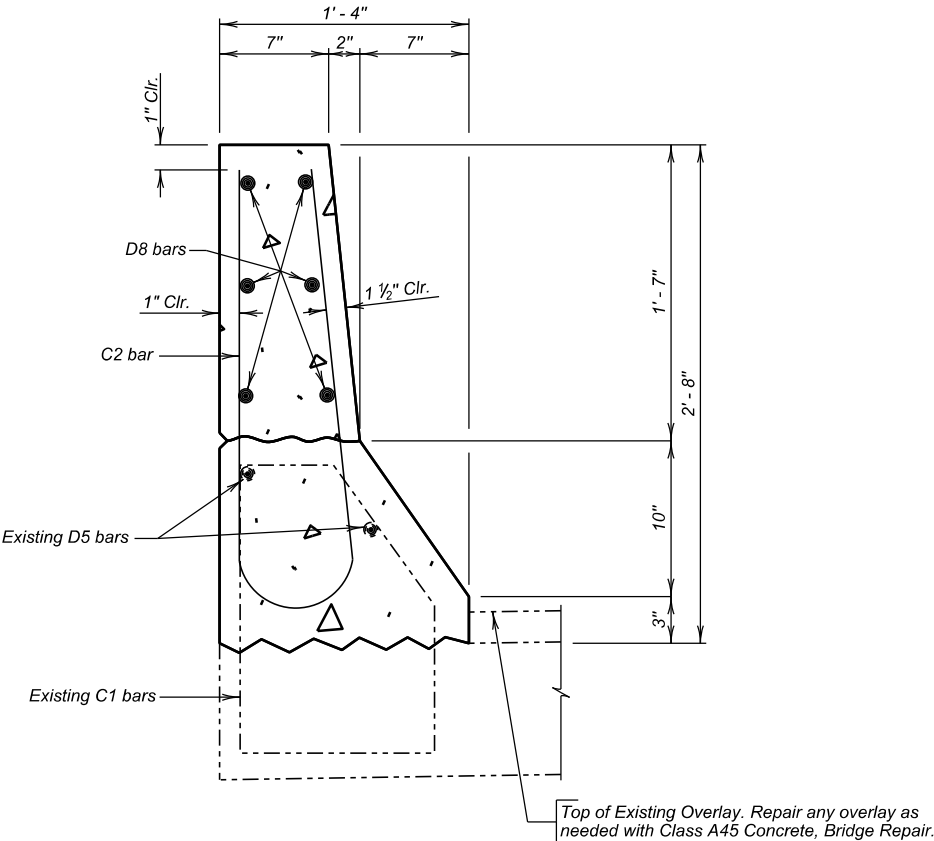
359' - 6" CONT. COMPOSITE GIRDER BRIDGE
44' - 0" ROADWAY 36° 39' 25" SKEW R.H.F
OVER I29 SEC. 28-T122N-R51W
STR. NO. 55-085-429 012-160

ROBERTS COUNTY
S. D. DEPT. OF TRANSPORTATION
NOVEMBER 2019

DESIGNED BY SMV ROBT15TX	CK. DES. BY TJM I5TXRA04	DRAFTED BY KR	 BRIDGE ENGINEER
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ELEVATION
(Northwest Endblock and Barrier Shown)



SECTION B - B

Note:
Minimum cover at the splice locations can be reduced by 1/4", transition bar back to cover shown beyond the splice.

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class A45 Concrete, Bridge Repair	Cu. Yd.	0.9
Breakout Structural Concrete	Cu. Yd.	0.9
Housing and Heating Concrete	Cu. Yd.	0.9
Reinforcing Steel	Lb.	107
#4 Rebar Splice	Each	12
Galvanic Anode	Each	7

REINFORCING SCHEDULE				
(For NB Bridge Barrier)				
Mk.	No.	Size	Length	Type
C2	15	4	5'-1"	S11
D8	12	4	7'-0"	Str.

NOTE-
All dimensions are out to out of bars.

BRIDGE BARRIER DETAILS (B)
FOR
359' - 6" CONT. COMPOSITE GIRDER BRIDGE
44' - 0" ROADWAY 36° 39' 25" SKEW R.H.F
OVER I29 SEC. 28-T122N-R51W
STR. NO. 55-085-429 012-160

ROBERTS COUNTY
S. D. DEPT. OF TRANSPORTATION
NOVEMBER 2019

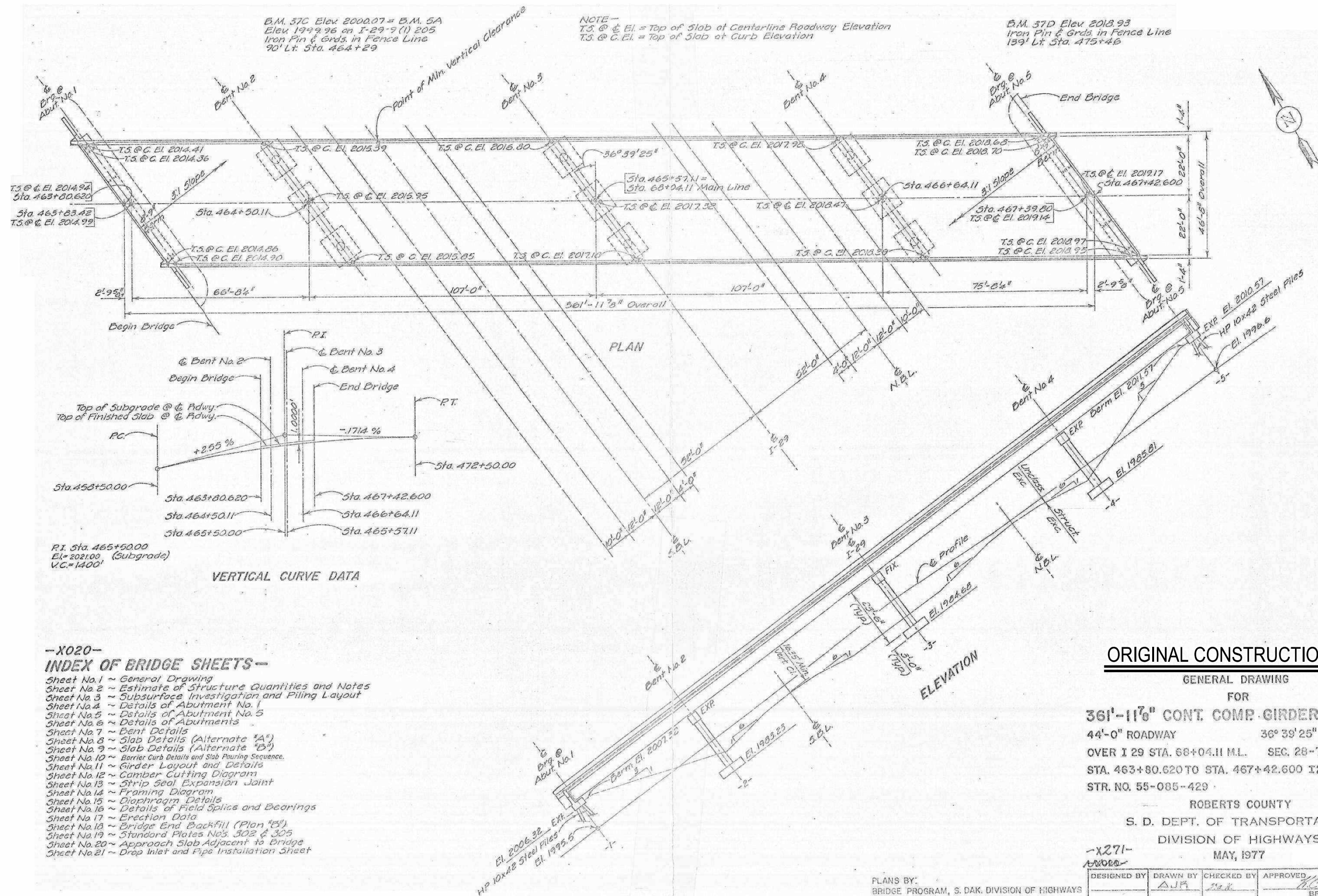
DESIGNED BY
SMV
ROBT15TX

CK. DES. BY
TJM
I5TXRA05

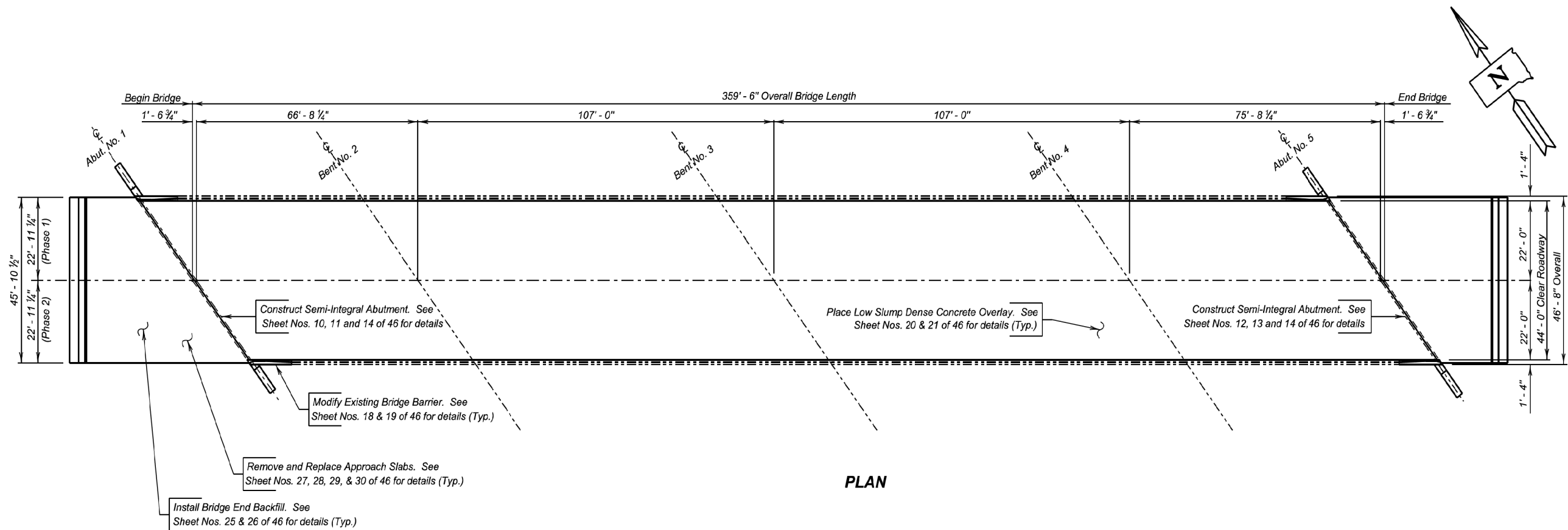
DRAFTED BY
KR

Steve A. Johnson
BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	012-168	12	14



STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	012-168	14	14



PLAN

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ORIGINAL CONSTRUCTION PLANS

LAYOUT FOR UPGRADING
FOR
359' - 6" CONTINUOUS COMP. GIRDER BRIDGE
44' - 0" ROADWAY **36° 39' 25" SKEW R.H.F.**
STR. NO. 55-085-429 **SEC. 28-T122N-R51W**
OVER I29 **IM 0298(15)197**
PCN 0226

ROBERTS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2010

8 OF 8

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

DESIGNED BY DJS	DRAWN BY JWL	CHECKED BY BB	Kevin J. Boeden BRIDGE ENGINEER
ROBT0226	0226LE01		