

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

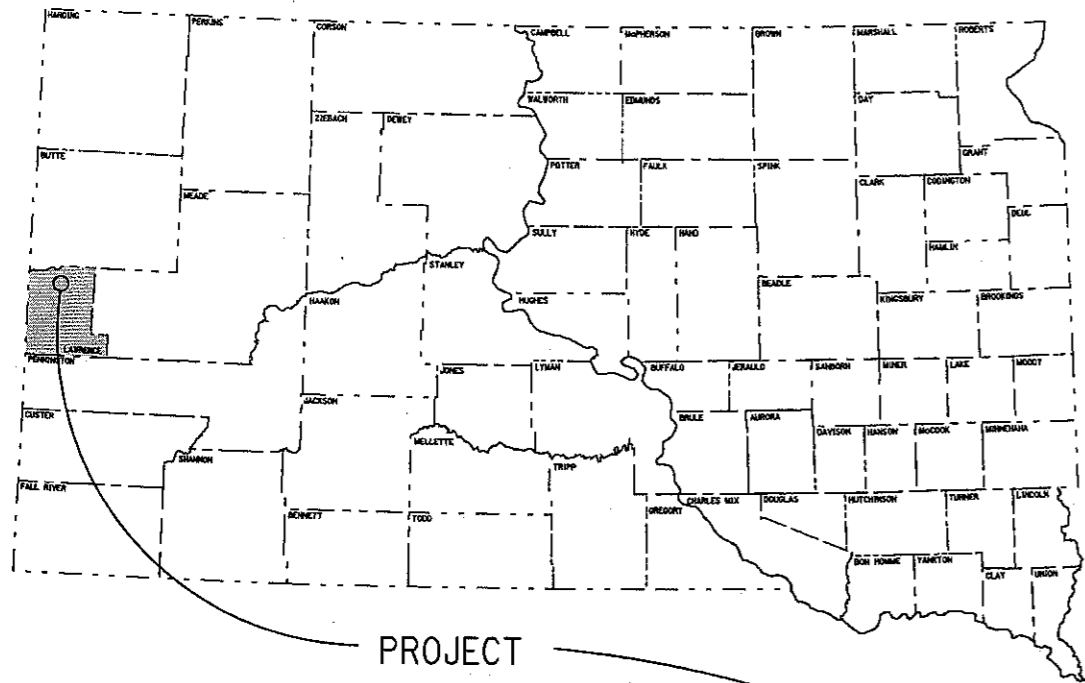
PROJECT E 090-468
INTERSTATE HIGHWAY 90
LAWRENCE COUNTY

REPAIR CONCRETE BRIDGE BARRIER
PCN IICW

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090 E-468	1	14

Plotting Date: 09-DEC-2008

PLOT SCALE - 200.00000011.000000



PROJECT

INDEX OF SHEETS

Sheet No. 1	General Layout W/Index
Sheet No. 2 - 3	Estimate With General Notes & Tables
Sheets No. 4 - 5	Traffic Control
Sheets No. 6 - 14	Bridge Sheets

DESIGN DESIGNATION

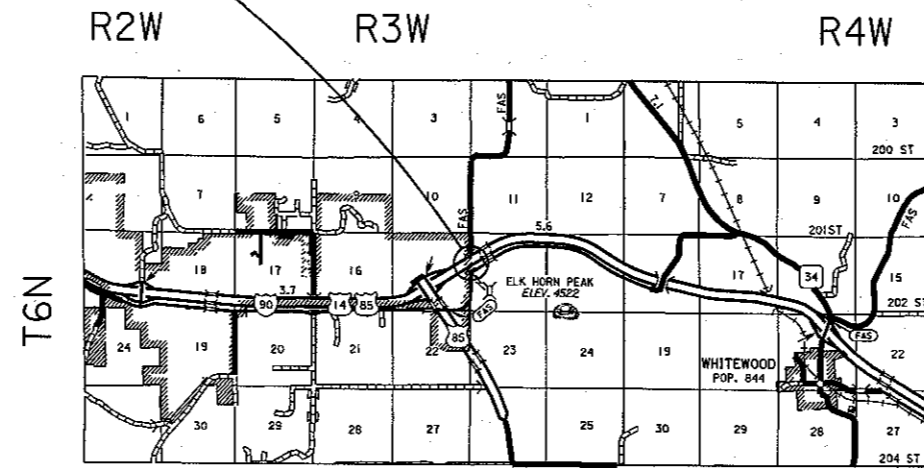
ADT (2007)	6050
ADT (2027)	9655
DHV	1305
D	100%
T DHV	8.2%
T ADT	18.1%
V	75 mph

SCALES

	RURAL	SUBURBAN	URBAN
PLAN	1"=200'	1"=100'	1"=40'
PROFILE	HORIZONTAL: 1"=200'	1"=100'	1"=40'
	VERTICAL: 1"=20'	1"=20'	1"=10'
CROSS SECTIONS	HORIZONTAL: 1"=40'	1"=20'	1"=20'
	VERTICAL: 1"=20'	1"=10'	1"=10'

LEGEND

STATE AND NATIONAL LINE	---
COUNTY LINE	----
SECTION LINE	-----
QUARTER LINE	-----
SIXTEENTH LINE	-----
PROPERTY LINE	-----
CONSTRUCTION LINE	-----
R. O. W. LINE	-----
WORK LIMITS	-----



PLOTTED FROM - TBRC12608

FILE - U:\REGION\PRJ\LAWR\IICW\TITLE.DGN PLOT NAME - TITLE

ESTMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0645	Remove Crash Cushion	1	Each
110E1400	Remove Pavement Marking, 4" or Equivalent	720	Ft
460E0300	Breakout Structural Concrete	1.5	CuYd
460E0380	Install Dowel in Concrete	17	Each
462E0100	Class M8 Concrete	1.5	CuYd
480E0200	Epoxy Coated Reinforcing Steel	127	Lb
480E5000	Galvanic Anode	6	Each
628E0100	Install State Furnished Crash Cushion	1	Each
634E0010	Flagging	120	Hour
634E0100	Traffic Control	578	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	12	Each
634E0640	Temporary Pavement Marking	720	Ft
634E0700	Traffic Control Movable Concrete Barrier	12	Each

SPECIFICATIONS

Standard Specifications for Roads & Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

SEQUENCE OF OPERATIONS - GENERAL

- All vehicles, equipment and material shall be located in the half of the roadway which is closed to traffic. Temporary parking or material storage within the half of the roadway used by traffic shall not be permitted.
- All Contractors' vehicles or equipment entering or leaving a closed work area shall display a flashing amber light.

SEQUENCE OF OPERATIONS

- Set up Traffic Control on Interstate and under bridge.
- Repair Bridge Railing
- Remove Traffic Control on Interstate and under bridge.

REMOVE EXISTING THIE BEAM AND PLYWOOD SHEATHING

A 25' length of double thickness thrie beam guardrail, with two thrie beam terminal anchors, is attached to the inside face of the concrete bridge barrier with 3/4" diameter wedge anchors. The Contractor shall remove and salvage, for the SDDOT, the thrie beam and terminal anchors prior to breaking out the concrete barrier. The salvaged thrie beam and terminal anchors shall be transported to the SDDOT maintenance yard in Sturgis for future SDDOT use. The wedge anchors that are installed in the concrete barrier that will remain in place shall be drilled out to a minimum of 1/4" below the concrete barrier surface and then grouted. All material that is removed and not salvaged shall be disposed of by the Contractor. All costs associated with removal of the thrie beam barrier and thrie beam terminal anchors, transportation to the SDDOT Sturgis maintenance yard, drilling out and grouting the anchors and disposal of other material shall be incidental to the various associated bid items.

Three sheets of plywood sheathing are attached to the backside of the concrete bridge barrier and edge of concrete bridge curb and deck with 1/4" diameter wedge anchors. Prior to breaking out the concrete barrier, the Contractor shall remove and dispose of the plywood sheathing. The wedge anchors that are installed in the concrete that will remain in place shall be drilled out to a minimum of 1/4" below the concrete surface and then grouted. All costs associated with removal and disposal of the plywood sheathing and other material and drilling out and grouting the anchors shall be incidental to the various associated contract items.

GENERAL MAINTENANCE OF TRAFFIC

Removing, relocating, covering, salvaging and resetting of existing 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.

Storage of vehicles and equipment shall be outside the clear zone and as near as possible to the right-of-way line. Contractor's employees shall mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work.

Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

All breakaway sign supports shall comply with FHWA NCHRP 350 crash-worthy requirements. The Contractor shall provide post installation details at the preconstruction meeting for all steel post breakaway sign support assemblies.

The Contractor shall not be permitted to stop Interstate traffic at any time.

INVENTORY OF TRAFFIC CONTROL DEVICES

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	4	17	68
R1-1	48" x 48"	STOP	2	34	68
W1-4	48" x 48"	REVERSE CURVE SIGN (LEFT OR RIGHT)	1	34	34
W3-1	48" x 48"	STOP AHEAD (SYMBOL)	2	34	68
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	1	34	34
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	4	34	136
W20-4	48" x 48"	ONE LANE ROAD ##### FT. OR AHEAD	2	34	68
W20-5	48" x 48"	LT. OR RT. LANE CLOSED ##### FT. OR AHEAD	1	34	34
W20-7a	48" x 48"	FLAGGER	2	34	68
TOTAL UNITS					578

MOVABLE CONCRETE BARRIERS AND END SECTIONS

Movable concrete barriers are available for use at the DOT's Maintenance Yards, south of Rapid City on Highway 79.

When barriers are no longer needed on the project they are to be hauled to the DOT's Maintenance Yard, south of Rapid City.

Barriers to be adjusted or moved shall be disconnected from adjacent barriers to minimize damage to connecting pins. Pins damaged by the Contractor shall be replaced at no cost to the Department.

Payment for TRAFFIC CONTROL MOVABLE CONCRETE BARRIER shall be full compensation for all work necessary to load the barriers at designated locations, haul, place, connect, move if necessary, load, and haul back to the South Yard. The most number of concrete barriers in place on the project at any one time will be the basis of measurement.

BARRIER MOUNTED LINEAR DELINEATION SYSTEM PANELS

White linear delineation system panels shall be attached to one side of each barrier section.

The linear delineation system shall be 34 inches long and 6 inches in height and be constructed of aluminum formed into a shape to provide retroreflective properties across a wide range of angles. It shall be sheeted with super high or very high intensity sheeting.

The Contractor shall furnish, install, and maintain one panel along the outside of the barrier. The panels shall be installed at the center of the barrier when measured along the length, with the top of the panel 4 inches below the top of the barrier. Installation shall be as per the manufacturer's recommendation using stainless steel inserts and bolts. This will allow for easy removal for replacement of damaged panels.

Replacement of damaged linear delineation system panels shall be furnished and replaced by the Contractor. All costs associated with furnishing, installing and maintaining the linear delineation system shall be included in the contract unit price per each for Linear Delineation System Panel, Barrier Mounted.

All linear delineation system panels shall remain attached to the barrier sections and shall become the property of the State of South Dakota upon completion of the project.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	090 E-468	3	14

TEMPORARY PAVEMENT MARKINGS

Temporary pavement marking tape shall be used on the existing road surface as directed by the Engineer.

REMOVAL OF TEMPORARY PAVEMENT MARKING

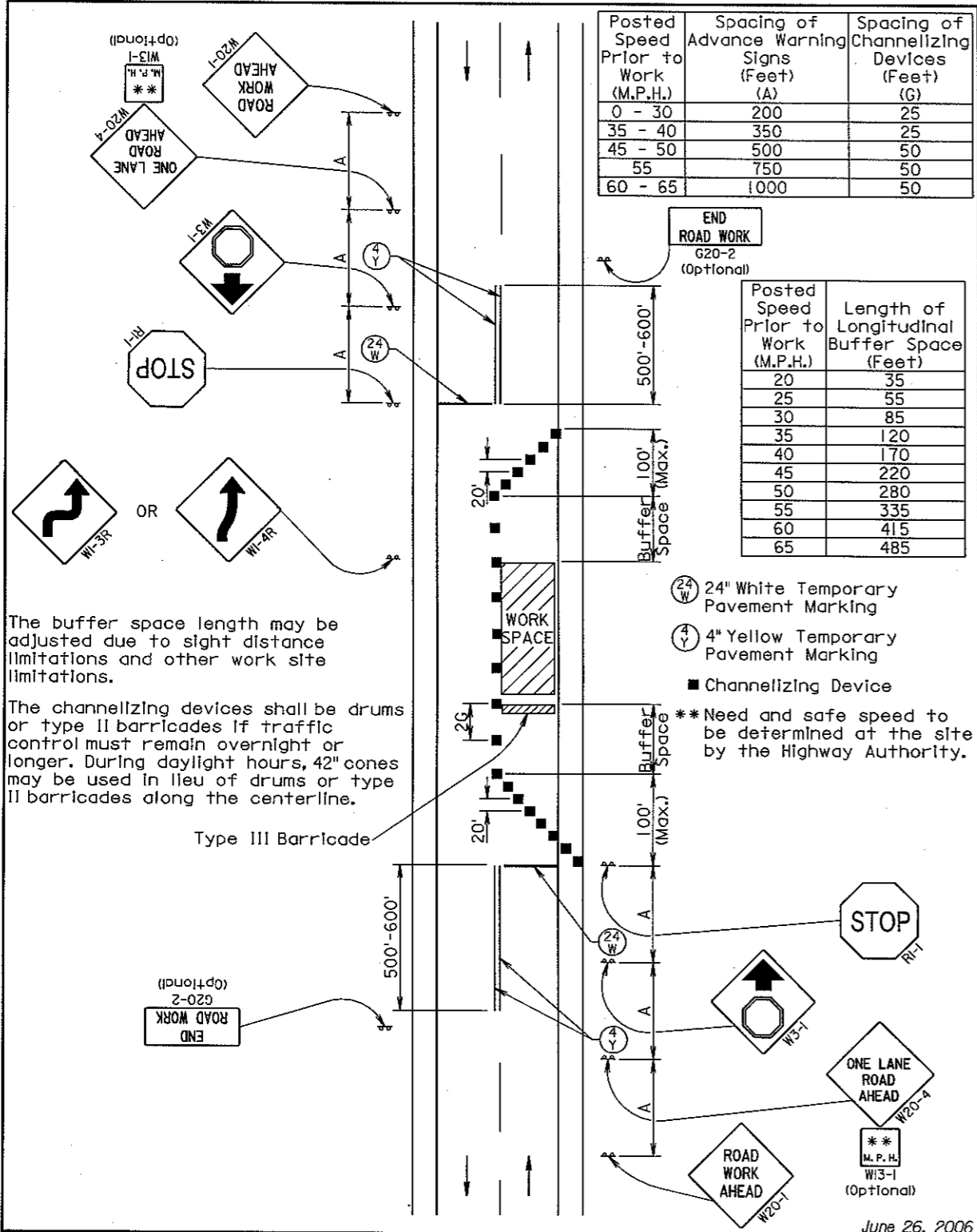
Care shall be taken not to damage the surface of any permanent pavement during pavement marking removal. Removal of pavement marking on surfaces to remain in place upon the completion of the project shall be completed by:

- Soda blasting, water blasting or burning on PCC Pavement
- A method satisfactory to the Engineer on asphalt concrete surfacing. The method will include removal and placement of a black masking agent such as black paint or a light treatment of asphaltic tack oil

Removal of pavement marking on surfaces to be removed on this project shall be completed by a method satisfactory to the Engineer. On asphalt surfaces the method will include removal and placement of a black masking agent such as black paint or a light treatment of asphaltic tack oil

Removal of pavement marking shall be paid for at the contract unit price per foot for Remove Pavement Marking, 4" or Equivalent.

Plotting Date: 09-DEC-2008



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 - 50	500	50
55	750	50
60 - 65	1000	50

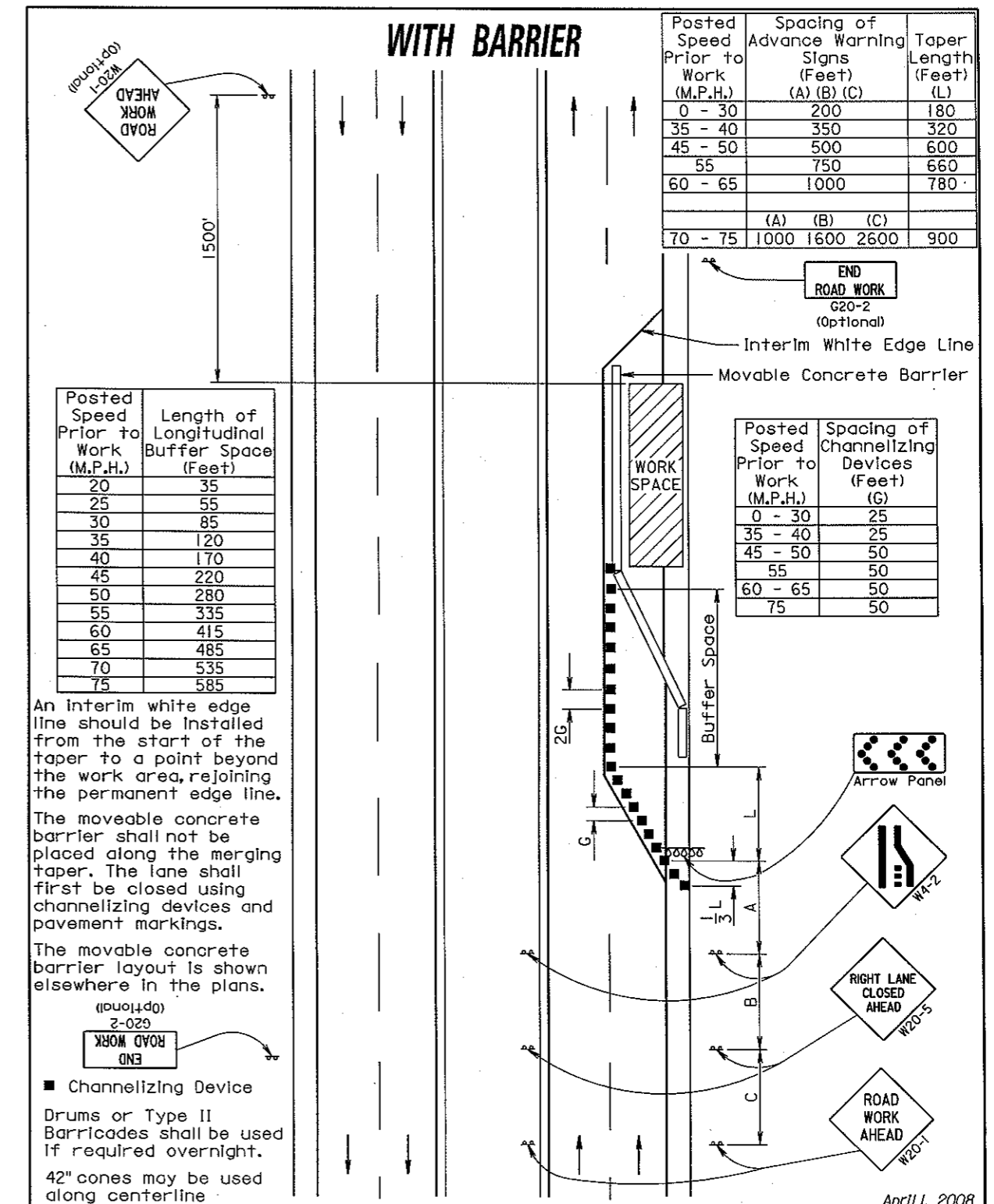
Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	35
25	55
30	85
35	120
40	170
45	220
50	280
55	335
60	415
65	485

The buffer space length may be adjusted due to sight distance limitations and other work site limitations.

The channelizing devices shall be drums or type II barricades if traffic control must remain overnight or longer. During daylight hours, 42" cones may be used in lieu of drums or type II barricades along the centerline.

- 24" White Temporary Pavement Marking
- 4" Yellow Temporary Pavement Marking
- Channelizing Device
- ** Need and safe speed to be determined at the site by the Highway Authority.

June 26, 2006



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)			Taper Length (Feet) (L)
	(A)	(B)	(C)	
0 - 30	200			180
35 - 40	350			320
45 - 50	500			600
55	750			660
60 - 65	1000			780
	(A)	(B)	(C)	
70 - 75	1000	1600	2600	900

Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	35
25	55
30	85
35	120
40	170
45	220
50	280
55	335
60	415
65	485
70	535
75	585

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.

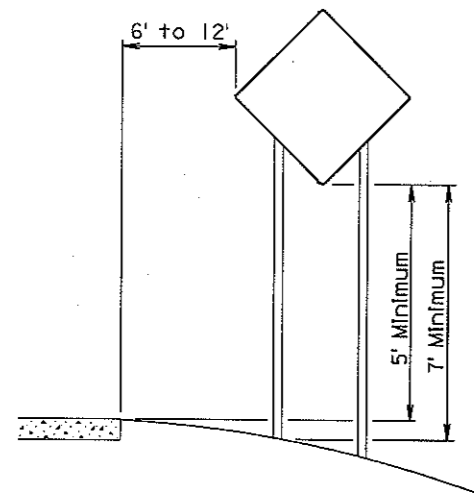
The moveable concrete barrier shall not be placed along the merging taper. The lane shall first be closed using channelizing devices and pavement markings.

The movable concrete barrier layout is shown elsewhere in the plans.

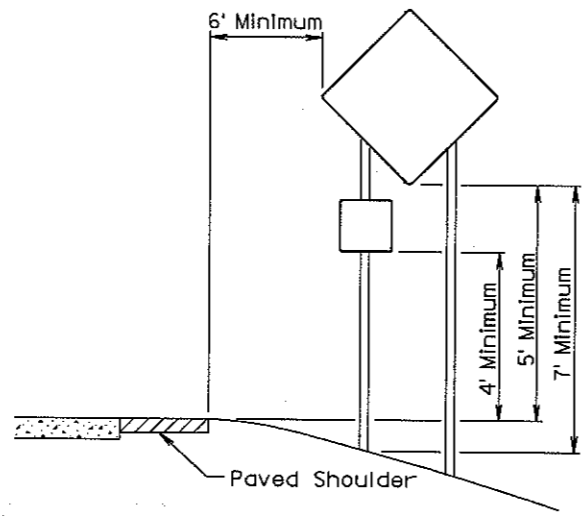
- Channelizing Device
- Drums or Type II Barricades shall be used if required overnight.
- 42" cones may be used along centerline

April 1, 2008

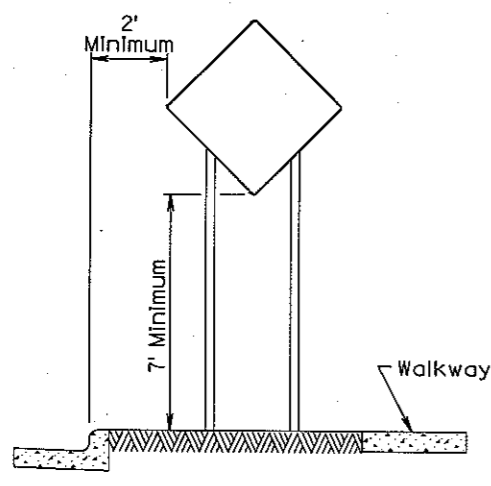
Username - trrc12608



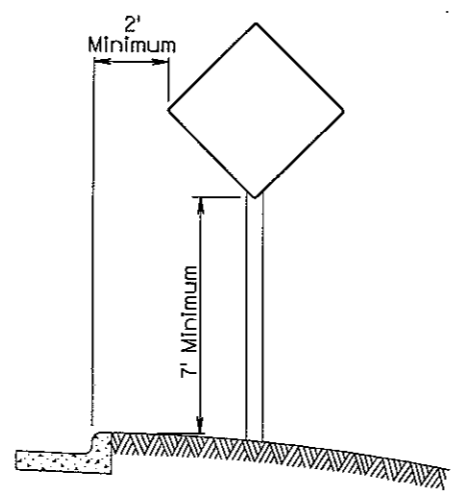
RURAL DISTRICT



RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



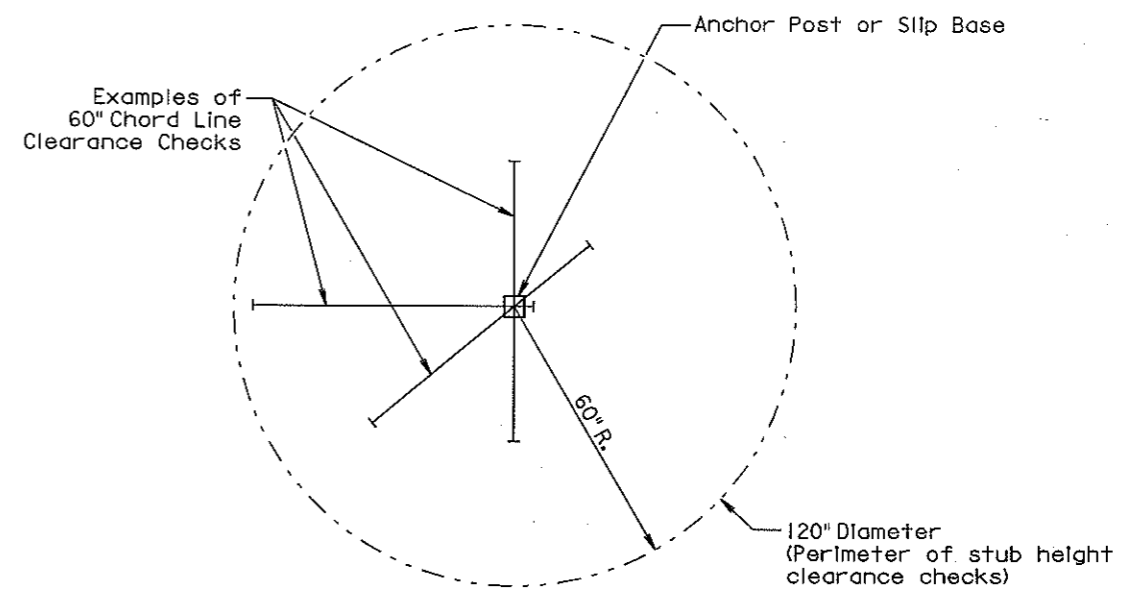
URBAN DISTRICT



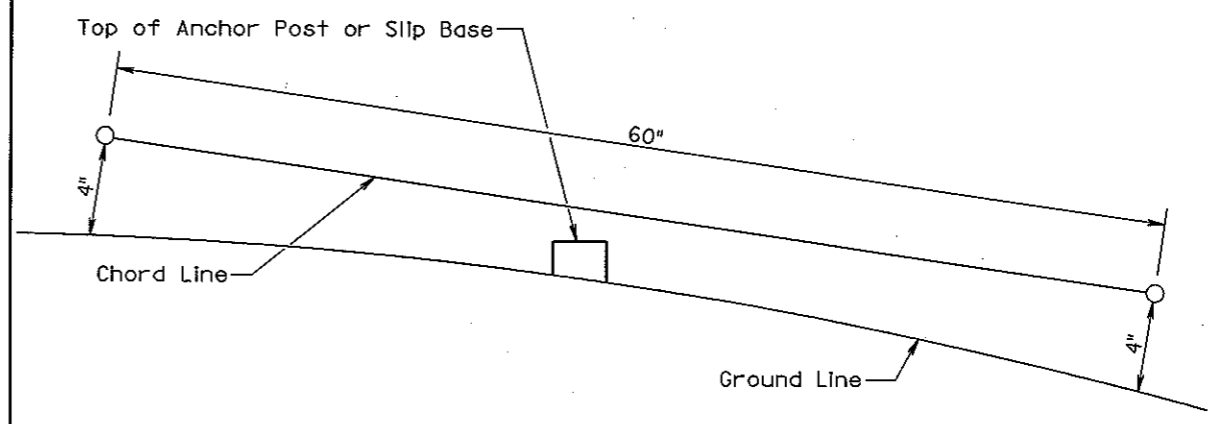
URBAN DISTRICT

December 23, 2003

Published Date: 4th Qtr. 2008	S D D O T	BREAKAWAY 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.

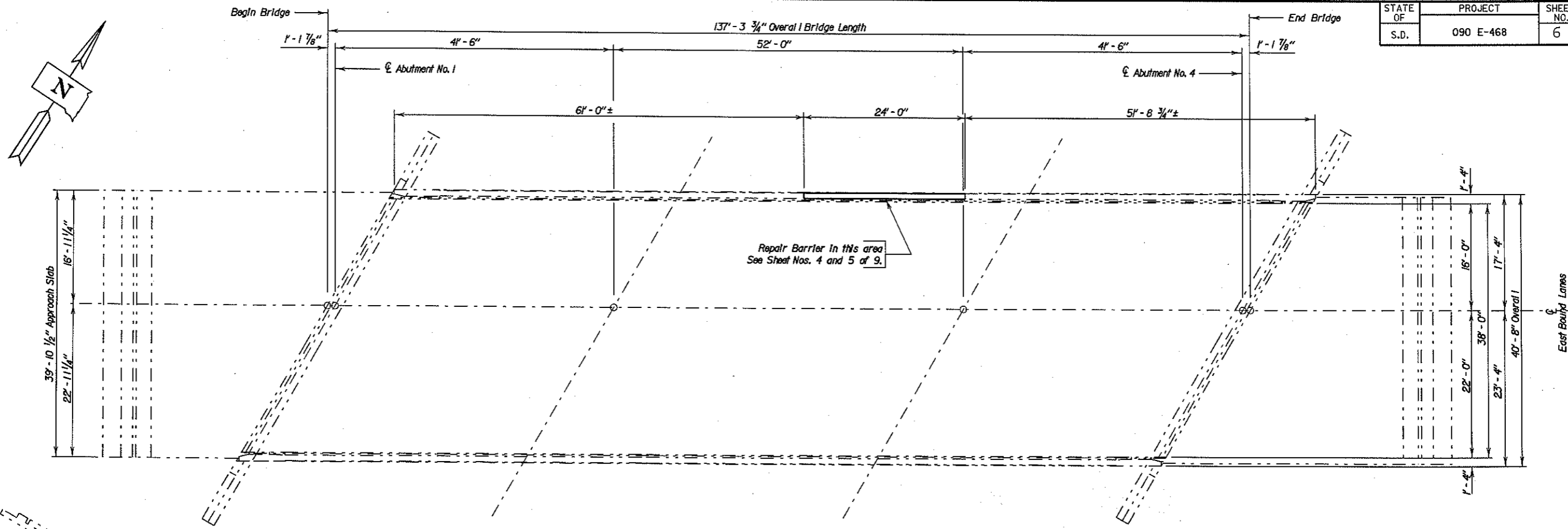
At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

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

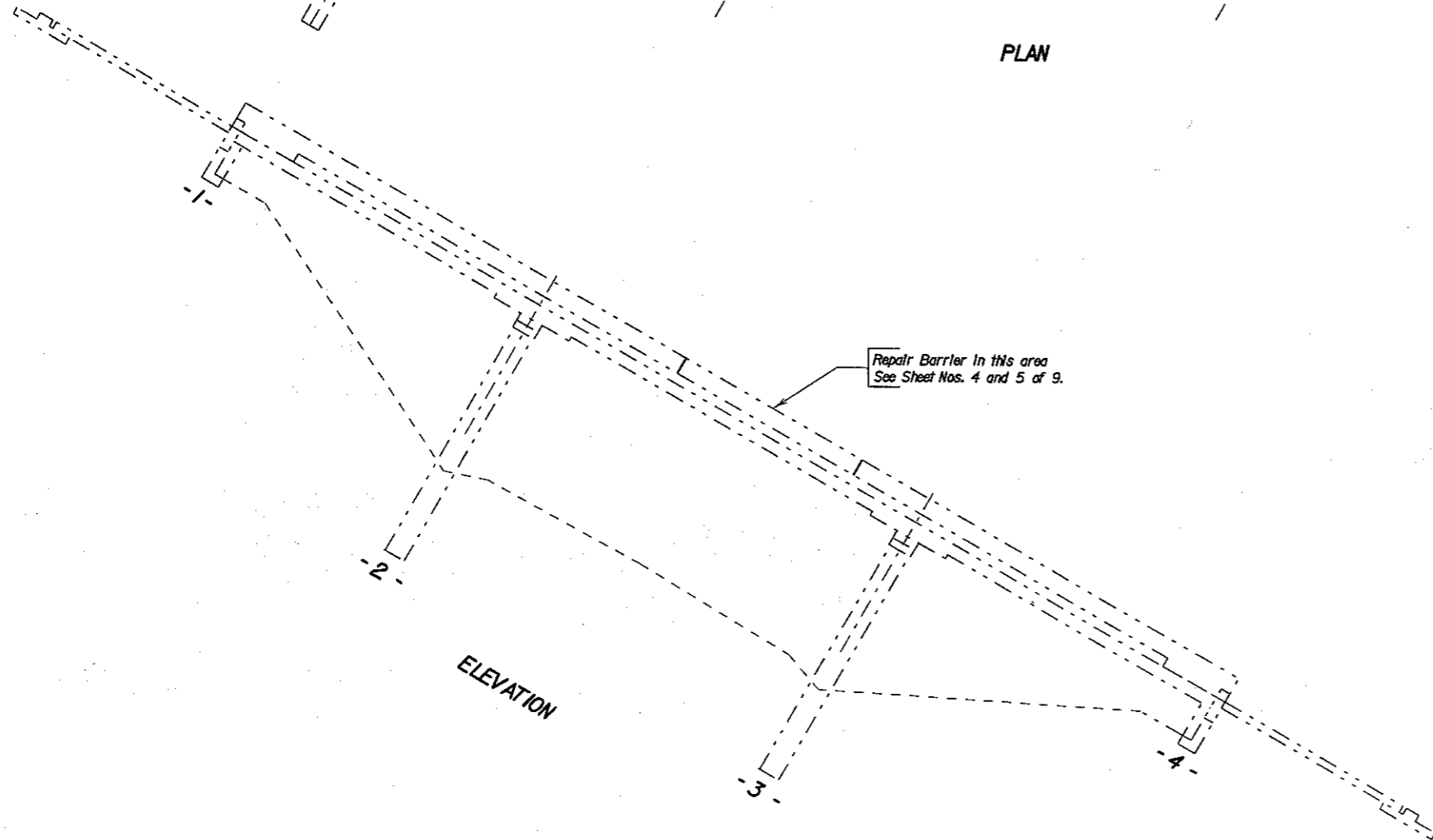
Published Date: 4th Qtr. 2008	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090 E-468	6	14



PLAN

- INDEX OF BRIDGE SHEETS-**
- Sheet No. 1 - Layout for Upgrading
 - Sheet Nos. 2 and 3 - Estimates of Quantities and Notes
 - Sheet No. 4 - Details of Concrete Breakout
 - Sheet No. 5 - Concrete Barrier Repair Details
 - Sheet Nos. 6 through 9 - Original Construction Plans



ELEVATION

(EAST BOUND LANES)
 LAYOUT FOR UPGRADING
137'-3 3/4" CONTINUOUS CONCRETE BRIDGE
 38'-0" ROADWAY OVER LOCAL ROAD
 STR. NO. 4I-160-084
 PCN 11cw

LAWRENCE COUNTY
 S. D. DEPT. OF TRANSPORTATION
 NOVEMBER 2008 **1 OF 9**

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

DESIGNED BY BB LAWRI lcw	DRAWN BY JL TlcwL AOl	CHECKED BY NP Kevin J. Goeden BRIDGE ENGINEER
--------------------------------	-----------------------------	--

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
460E0300	Breakout Structural Concrete	1.5	CuYd
460E0380	Install Dowel in Concrete	17	Each
462E0100	Class M6 Concrete	1.5	CuYd
480E0200	Epoxy Coated Reinforcing Steel	127	Lb
480E5000	Galvanic Anode	6	Each

SPECIFICATIONS

- Design Specifications: AASHTO Standard Specifications for Highway Bridges 2002 Edition with 2003 Interim Specifications using Working Stress Design.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

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 OPERATION

Work on the structure shall be accomplished under the traffic control shown in the plans.

- Remove and replace damaged portion of concrete barrier.

GENERAL CONSTRUCTION - BRIDGE

- All mild reinforcing steel shall conform to ASTM A615, Grade 60.
- All exposed concrete corners and edges shall be chamfered 3/4" unless noted otherwise. Match existing chamfer if the existing chamfer differs.
- Use 2" clear cover on all reinforcing steel except as shown.
- Barrier Curbs shall be built normal to the grade.
- Snap ties, if used in the barrier curb formwork, shall be epoxy coated. The epoxy coating shall be inert in concrete and compatible with the coating applied to the new epoxy coated reinforcing steel.
- The concrete barriers shall be cured in accordance with Section 460.3.N. of the Construction Specifications except that no curing compounds shall be allowed.

INSTALLING DOWELS IN CONCRETE

- Holes drilled in the existing concrete shall be true and normal or as shown in the plans. Care shall be taken not to damage the existing reinforcing steel. The Contractor can still expect to encounter and have to drill through reinforcing steel or shift the dowel spacing as approved by the Engineer to miss the existing reinforcing steel. If the Contractor shifts the dowel spacing, the unused drill holes shall be completely filled with the epoxy resin specified in note number 2 under "Installing Dowels in Concrete" as approved by the Engineer.
- The epoxy resin mixture shall be of a type for bonding steel to hardened concrete and shall conform to AASHTO M235 Type IV (Equivalent to ASTM C881, Type IV). The Class of the epoxy resin mixture shall be in accordance with the range of temperatures during construction.
- The diameter of the drilled holes shall not be less than 1/8 inch greater, nor more than 3/8 inch greater than the diameter of the dowels or as per the Manufacturer's recommendations. The drilled holes shall be blown out with compressed air using a device that will reach the back of the hole to ensure that all debris or loose material has been removed prior to epoxy injection.
- Mix epoxy resin as recommended by the Manufacturer and apply by an injection method as approved by the Engineer. Beginning at the bottom of the drilled holes, fill the holes 1/3 to 1/2 full of epoxy, or as recommended by the Manufacturer, prior to insertion of the steel bar. Rotate the steel bar during installation to eliminate voids and ensure complete bonding of the bar. Insertion of the bars by the dipping or painting method will not be allowed.
- No loads shall be applied to the epoxy grouted dowel bars until the epoxy resin has had sufficient time to cure as specified by the epoxy resin manufacturer.
- The cost of epoxy resin, dowels, installation and other incidental items shall be incidental to the contract unit price per each for "Install Dowel in Concrete".

CONCRETE BREAKOUT

- The existing concrete barrier shall be broken out to the limits shown on the plans. Breakout limits shall be defined with a 3/4" deep sawcut (unless specified otherwise in these plans), where practical, as approved by the Engineer.
- All broken out concrete and discarded reinforcing bars shall be disposed of by the Contractor. Any disposal of discarded material shall be in accordance with the Construction Specifications.
- During concrete removal operations, no broken out concrete shall be allowed to fall onto the roadway below.
- The contract unit price per cubic yard for "Breakout Structural Concrete" shall include breaking out concrete, cleaning,

straightening existing reinforcing steel and disposal of all broken out material.

- The existing reinforcing steel in the concrete barrier is epoxy coated. Reinforcing steel that is exposed and is scheduled for use in the new construction shall be cleaned of all adhering concrete and rust (if present) with a wire brush and straightened to the satisfaction of the Engineer. 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. After all concrete removal and rebar straightening, the Contractor shall visually inspect the epoxy coating on the salvaged reinforcing steel with the Engineer and repair all areas of damaged epoxy coating as approved by the Engineer. The damaged coating areas shall be repaired with a touch up coating material supplied by an epoxy coating manufacturer who supplies coating material for new epoxy coated reinforcing steel. This coating shall be inert in concrete and compatible with the existing coating on the reinforcing steel. The coating shall be allowed to cure for 24 hours or as per the manufacturer's recommendations, whichever is more stringent, before concrete can be placed. These bars shall be clean and free from all surface contaminants before coating. The cost of cleaning and placing the epoxy touch up coating to the existing reinforcing steel shall be incidental to the various bid items.

CLASS M6 CONCRETE

The contract item Class M6 Concrete shall conform to the requirements of Section 462 of the Construction Specification except as noted below.

- The minimum 28 day compressive strength shall be 4500 psi (31MPa).
- Coarse Aggregate to be used in concrete shall consist of either crushed quartzite or other crushed ledge rock. If crushed ledge rock other than quartzite is to be used, it shall be from a source approved by the Engineer.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES FOR

137' - 3 3/4" CONT. CONCRETE BRIDGE

38'-0" ROADWAY
STR. NO. 41-160-084
OVER LOCAL ROAD

30° SKEW L.H.F.
SEC. 14/15-T6N-R3E
090 E-468

LAWRENCE COUNTY
S.D. DEPARTMENT OF TRANSPORTATION

NOVEMBER 2008

2 OF 9

DESIGNED BY: NP KING01BK	DRAWN BY: NP 01BKNOTA	CHECKED BY: BB <i>Kevin N. Goeden</i>	BRIDGE ENGINEER
--------------------------------	-----------------------------	---	-----------------

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090 E-468	8	14

GALVANIC ANODES

1. The Contractor shall place galvanic anodes in the patched areas of the curb. Galvashield XP+, or an approved equivalent as approved by the Office of Bridge Design, shall be used. Galvashield XP+ is manufactured by:

Vector Corrosion Technologies
 474 Dovercourt Drive
 Winnipeg, MB, Canada R3Y 1G4
 Phone: (204) 489-6300

2. The anodes shall be placed in accordance with manufacturer's recommendations and as approved by the Engineer. The anodes shall provide the corrosion prevention level of protection per Vector Corrosion Technologies or an approved equivalent. The maximum spacing of the anodes shall be 30". The anodes have not been shown on the drawings.

3. The anodes shall be placed with a minimum 3/4" cover. The anodes shall be fully encased in the concrete repair material. The reinforcing steel at the connection location shall be cleaned per the manufacturer's recommendations to provide sufficient electrical connection and mechanical bond.

4. The electrical continuity of the electrical connections and reinforcing steel shall be confirmed per the manufacturer's recommendations.

5. 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".

COLD WEATHER CONCRETE REQUIREMENTS

1. A cold weather concrete protection plan shall be required for this project. The Contractor shall submit a Cold Weather Protection Plan to the Bridge Construction Engineer through the proper channels for approval at least one week prior to any concrete placement.

2. At a minimum, the following items need to be addressed in the Cold Weather Protection Plan.

a. Details of the enclosure used to maintain temperature and permit free circulation of the applied heat. Include the attachment details and materials with the plans. Attachments should be designed to keep the enclosure in position for normal winter weather conditions.

b. Method for monitoring the concrete temperature within the enclosure for the entire time the enclosure is in place. Include the proposed time intervals for temperature monitoring.

c. Proposed method of cure including any applications of curing compounds.

COLD WEATHER CONCRETE REQUIREMENTS (CONTINUED)

d. Type of heat source to be used including position and number. 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 the fresh concrete.

3. The surface temperature or anything which will come into contact with the fresh concrete shall be above freezing prior to placement, including forms, reinforcing steel, and adjacent concrete.

4. The minimum concrete temperature at placement shall be 50 degrees F.

5. Formwork and cold weather concrete protection shall remain in place for at least 7 days from initial concrete placement.

6. Concrete temperatures below 35 degrees F or above 100 degrees F during the protection period shall be cause for rejection.

7. All costs associated with the cold weather concreting shall be incidental to contract unit price per cubic yard for Class M6 Concrete. No measurement shall be required for this item.

SURFACE FINISH

All surfaces of the new concrete barrier curb in the area of the barrier reconstruction shall be given a Class A Commercial Texture Finish in accordance with Section 460.3.M.1.c. of the Construction Specifications.

The concrete surfaces requiring the application of the Commercial Texture Finish shall be prepared in accordance with the manufacturer's recommendations. The Contractor shall submit a product data sheet, or an approved equal, documenting all pertinent information with regard to preparation of the concrete surfaces, materials and equipment required, mixing requirements, and application procedures to the Engineer in advance of the application of the Commercial Texture Finish for review and approval.

For informational purposes the amount of surface area requiring the Class A Commercial Texture Finish is 117 square feet.

The cost of the commercial texture finish shall be included in the contract price per cubic yard for "Class M6 Concrete". This payment shall be full compensation for furnishing all materials, labor, tools and equipment necessary or incidental to the application of this finish.

**NOTES (CONTINUED)
FOR**

137' - 3 3/4" CONT. CONCRETE BRIDGE

38'-0" ROADWAY
 STR. NO. 41-160-084
 OVER LOCAL ROAD

30° SKEW L.H.F.
 SEC. 14/15-T6N-R3E
 090 E-468

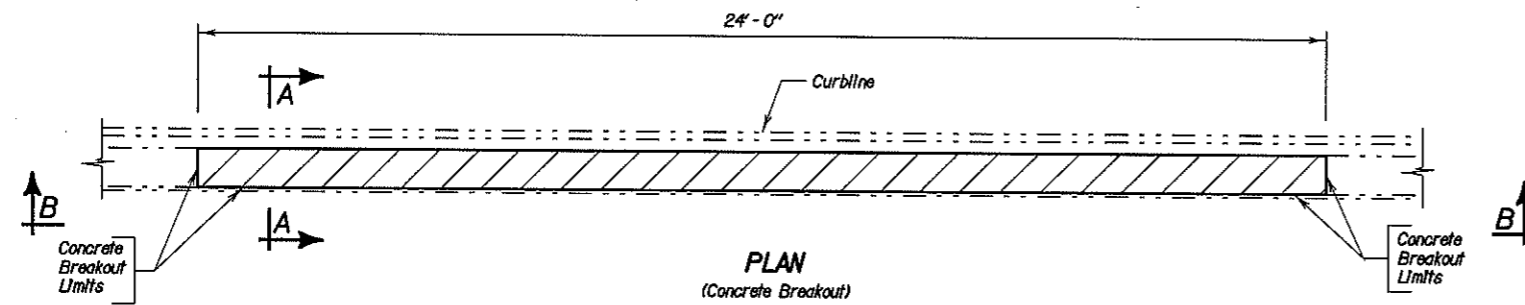
**LAWRENCE COUNTY
 S.D. DEPARTMENT OF TRANSPORTATION**

NOVEMBER 2008

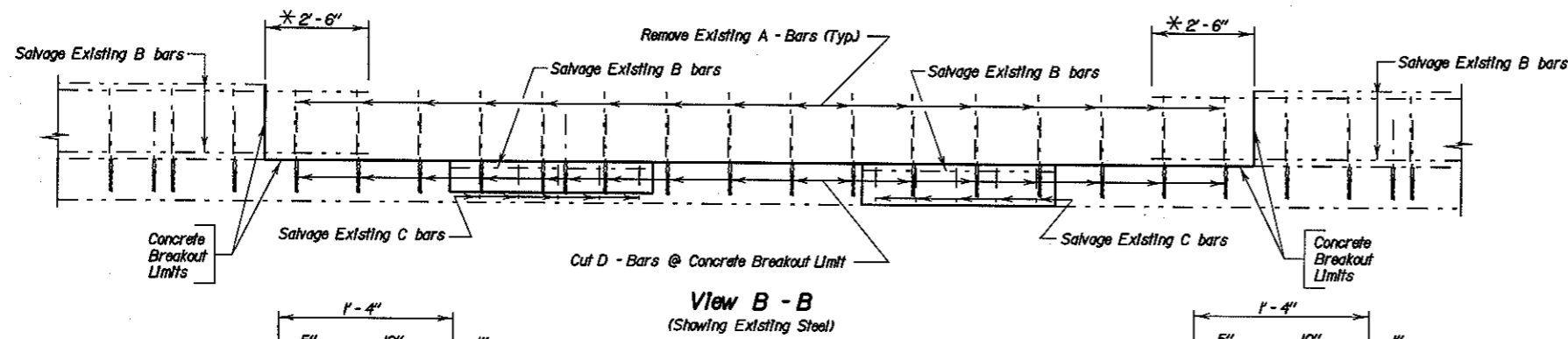
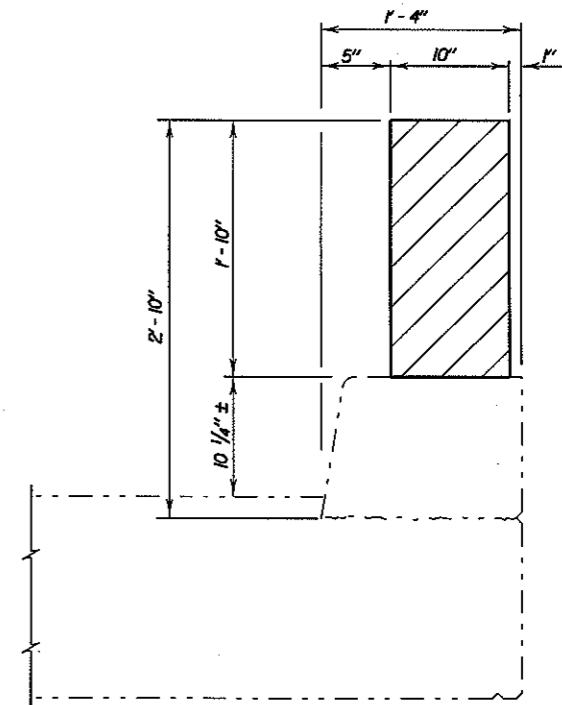
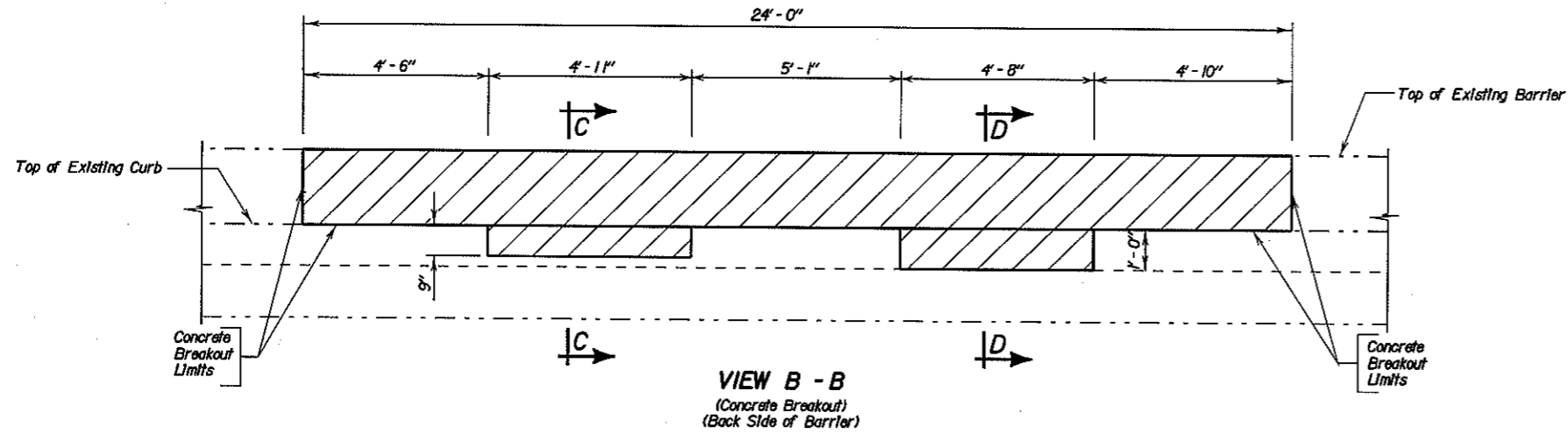
3 OF 9

DESIGNED BY: NP KING01BK	DRAWN BY: NP 01BKNOTA	CHECKED BY: BB	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
--------------------------------	-----------------------------	-------------------	---

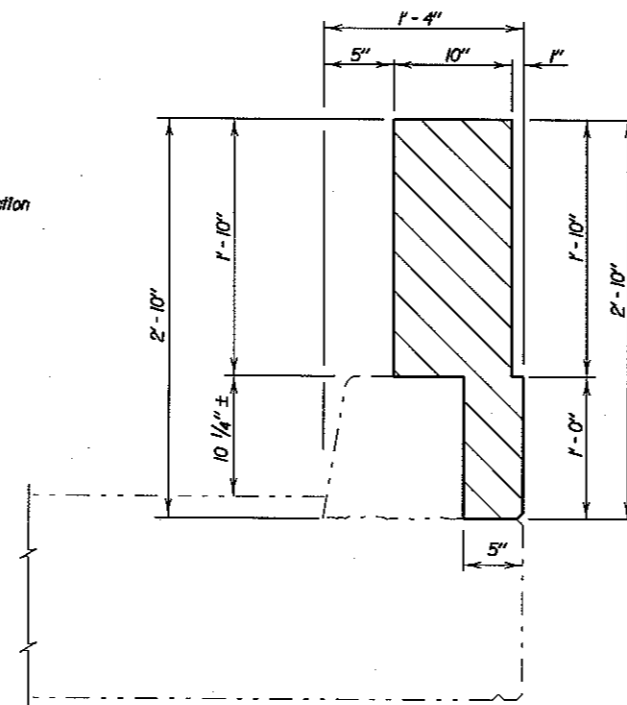
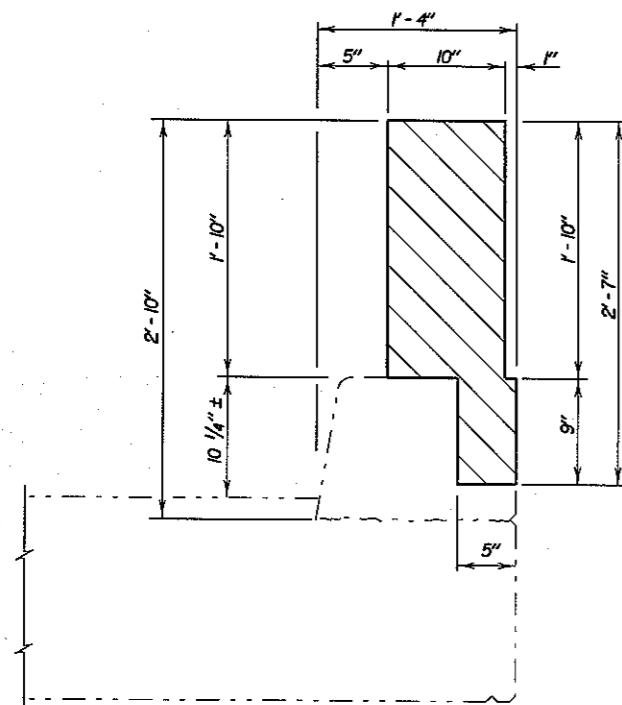
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090 E-468	9	14



LEGEND :
 Shaded areas Indicate Limits of Concrete Breakout



* Extend Existing B bars Into new section

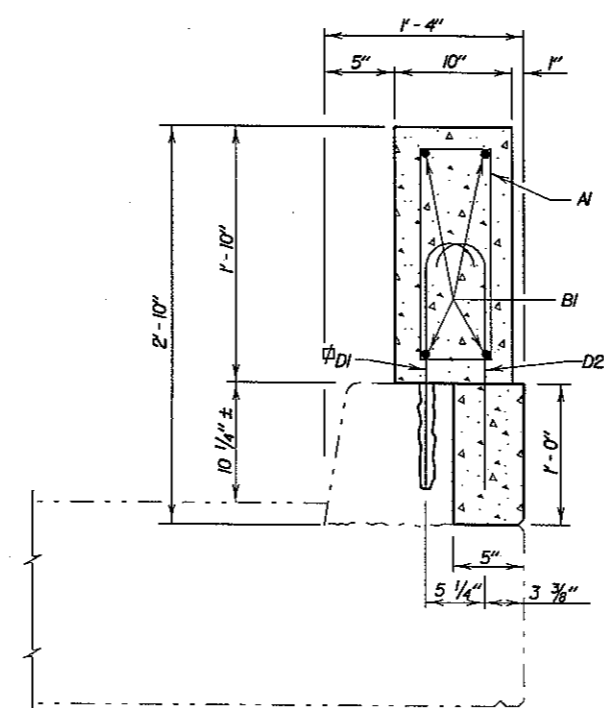
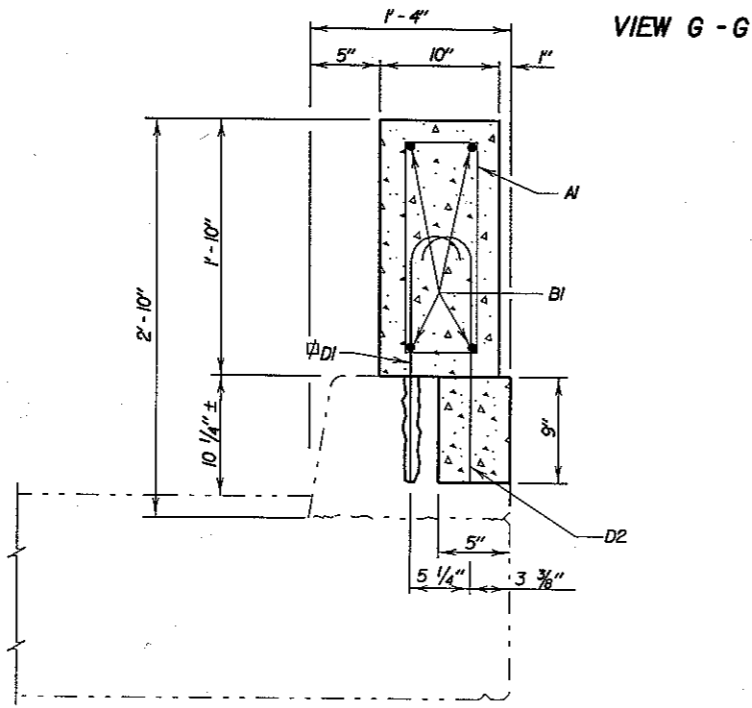
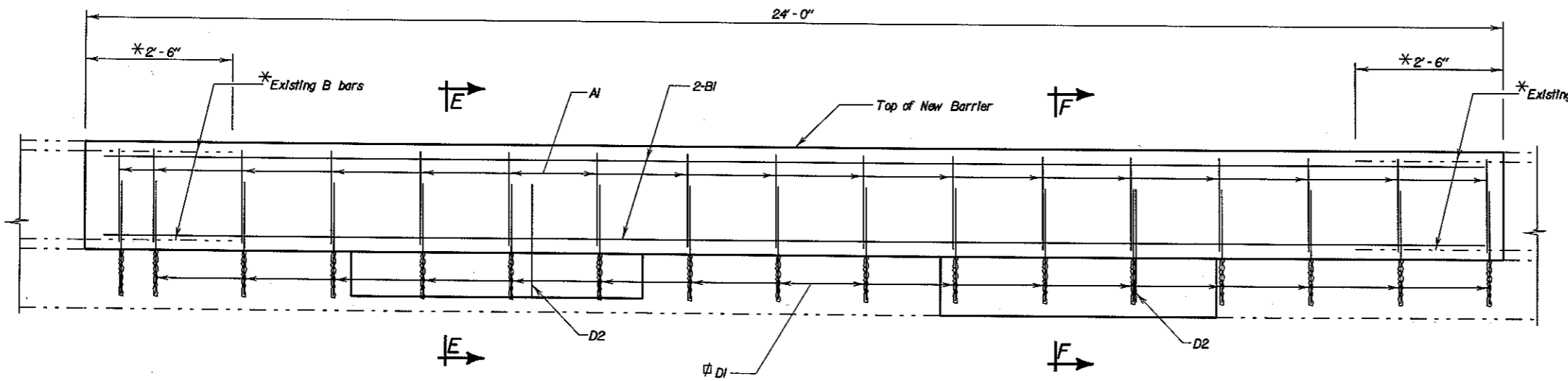
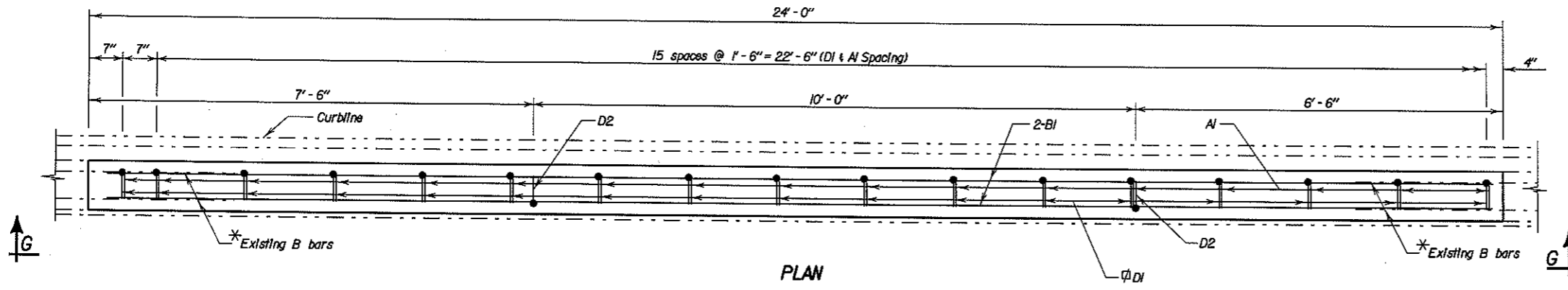


(EAST BOUND LANES)
 DETAILS OF CONCRETE BREAKOUT
 137'-3 3/4" CONTINUOUS CONCRETE BRIDGE
 38'-0" ROADWAY
 OVER LOCAL ROAD
 STR. NO. 4I-160-084

SEC. 14/15-T6N-R3E
 090 E-468
 30° SKEW L. H. F.

LAWRENCE COUNTY
 S. D. DEPT. OF TRANSPORTATION
 NOVEMBER 2008 (4) OF (9)

DESIGNED BY BB LAWRI:gw	DRAWN BY JL TICW:LA04	CHECKED BY NP	Kevin N. Coeden BRIDGE ENGINEER
-------------------------------	-----------------------------	------------------	------------------------------------



REINFORCING SCHEDULE					
Mk.	No.	Size	Length	Type	Bending Details
A1	17	4	4'-11"	T2	
B1	4	4	23'-8"	Str.	
D1	17	6	2'-6"	IA	
D2	2	6	2'-6"	IA	

NOTES:
 Δ Dowels
 All bars are epoxy coated.
 All dimensions are out to out of bars.

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class M6 Concrete	C.Y.	1.5
*Epoxy Coated Reinforcing Steel	Lb.	127
Install Dowel In Concrete	Each	17
Breakout Structural Concrete	C.Y.	1.5
Galvanic Anode	Each	6

* Does not include the following quantities for D1 bars as these are paid for in the Bid Item "Install Dowel In Concrete". 64 Lb.

NOTES:
 If existing steel is struck while drilling holes for D1 dowels, the spacing can be shifted 2" longitudinally, 1" transversely, or as approved by the Engineer to miss existing steel.

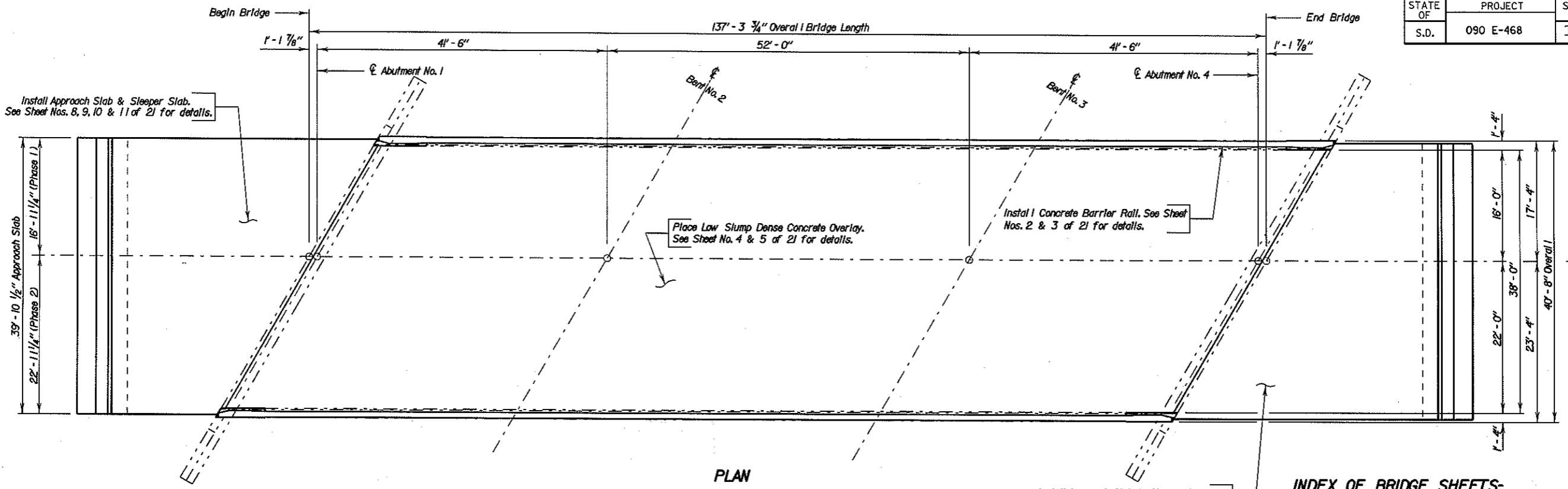
(EAST BOUND LANES)
 CONCRETE BARRIER REPAIR DETAILS
 137'-3 3/4" CONTINUOUS CONCRETE BRIDGE
 38'-0" ROADWAY OVER LOCAL ROAD
 STR. NO. 4I-160-084

SEC. 14/15-T6N-R3E
 090 E-468
 30° SKEW L. H. F.

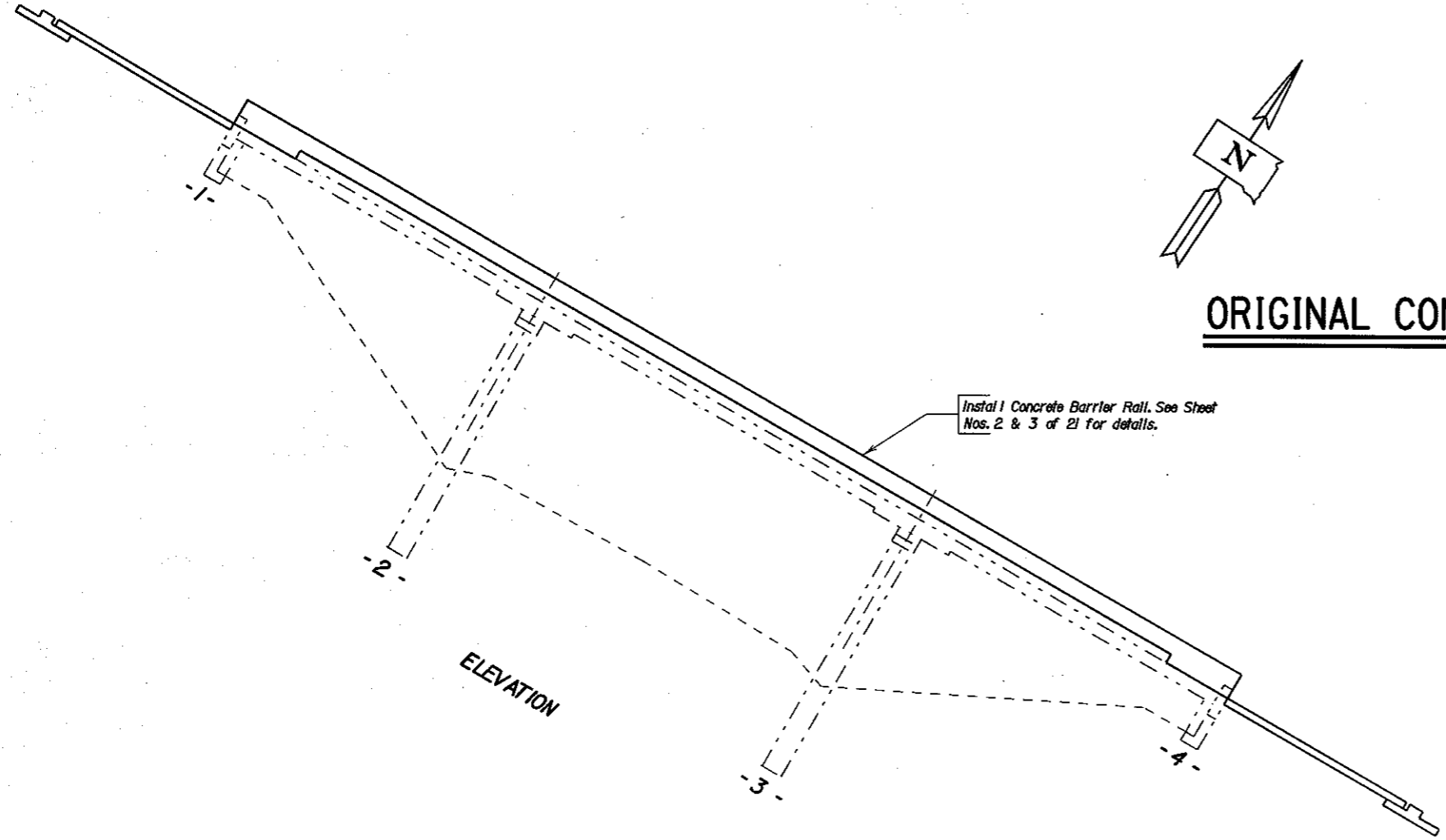
LAWRENCE COUNTY
 S. D. DEPT. OF TRANSPORTATION
 NOVEMBER 2008

* Extend Existing B bars into new section
 φ D1 bars to be drilled in and grouted with epoxy

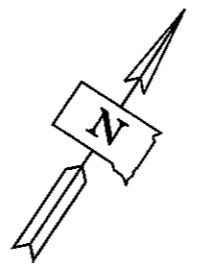
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090 E-468	11	14



PLAN



ELEVATION



ORIGINAL CONSTRUCTION PLANS

INDEX OF BRIDGE SHEETS-

- Sheet No. 1 - Layout For Upgrading
- Sheet No. 2 - Bridge Rail Replacement Details
- Sheet No. 3 - Bridge Rail Replacement Details (Continued)
- Sheet No. 4 - Deck Profiles for Low Slump Dense Concrete Overlay
- Sheet No. 5 - Deck Profiles for Low Slump Dense Concrete Overlay
- Sheet No. 6 - As - Built Elevation Survey
- Sheet No. 7 - As - Built Elevation Survey (Continued)
- Sheet No. 8 - Approach Slab Layout
- Sheet No. 9 - Details of Approach Slab Adjacent to Abutment No. 1
- Sheet No. 10 - Details of Approach Slab Adjacent to Abutment No. 4
- Sheet No. 11 - Details of Approach Slab Adjacent to Abutments
- Sheet No. 12 - Details of Approach Slab Joint
- Sheet No. 13 - Details of Standard Plate Nos. 460.03 & 630.79
- Sheet Nos. 14 through 21 - Original Construction Plans

THE CONTRACTOR HAS THE OPTION OF BUILDING THE APPROACH SLABS FOR THE FULL WIDTH OF THE ROADWAY AT ONE TIME OR BUILDING THE APPROACH SLABS IN TWO PHASES USING THE PLAN SHOWN OPTIONAL CONSTRUCTION JOINT. ALL REFERENCES TO PHASE 1 AND PHASE 2 CONSTRUCTION ARE GIVEN IN THE EVENT THE CONTRACTOR ELECTS TO BUILD THE APPROACH SLABS IN TWO PHASES.

(EAST BOUND LANES)
 LAYOUT FOR UPGRADING
137'-3 3/4" CONTINUOUS CONCRETE BRIDGE
 38'-0" ROADWAY
 OVER LOCAL ROAD
 STR. NO. 41-160-084
 PCEMS NO. 5584

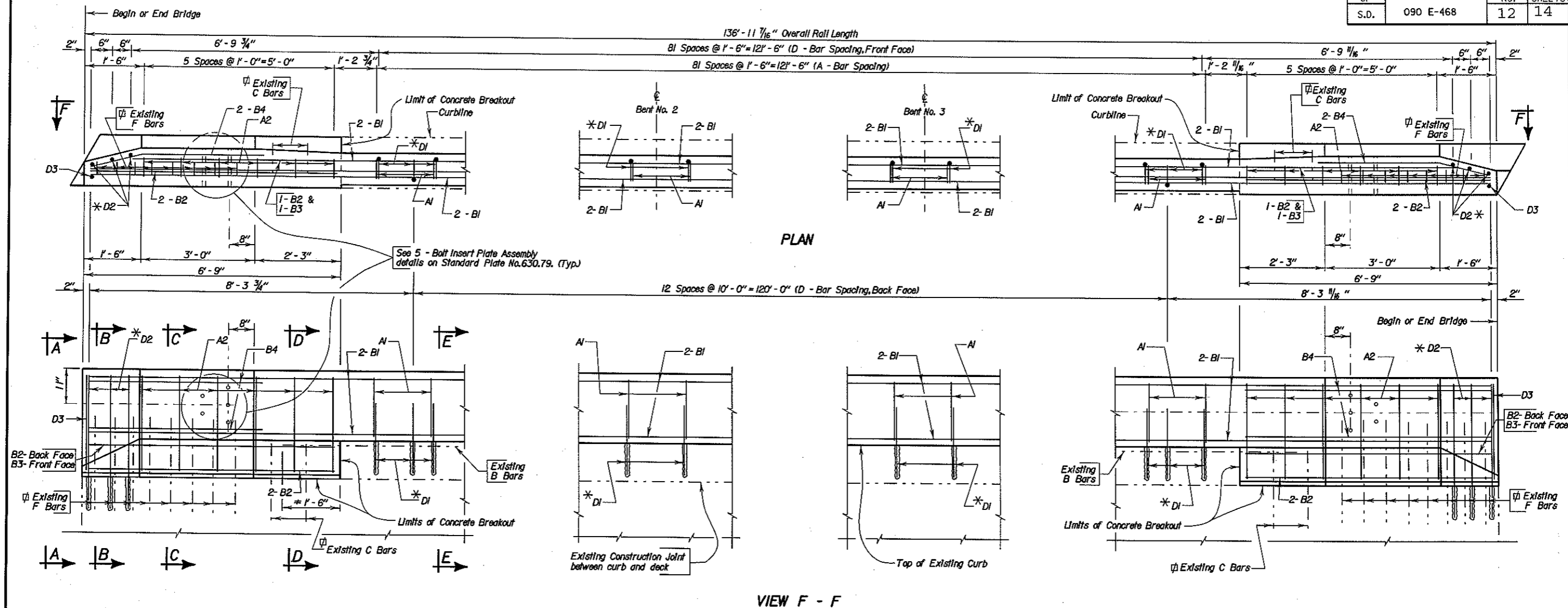
SEC. 14/15-T6N-R3E
 1M 90-1(45) 18
 30° SKEW L. H. F.

LAWRENCE COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JUNE 2000 **6 OF 9**

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

DESIGNED BY EJA LAWR5584	DRAWN BY TB 5584SA01	CHECKED BY CJD	APPROVED <i>John C. Cole</i> BRIDGE ENGINEER
--------------------------------	----------------------------	-------------------	--

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090 E-468	12	14



- Bend Existing Bars where necessary to maintain 2" clear cover.
 * D1 and D2 are to be drilled in and grouted with epoxy.
 = Extend existing B bars into new section.

- NOTES -**
 1. For location of View and Sections, see Sheet No. 3 of 21.
 2. If existing resteel is struck while drilling holes for Dowels the spacing can be shifted 2" longitudinally, 1" transversely or as approved by the Engineer to miss existing resteel.

ORIGINAL CONSTRUCTION PLANS

(EAST BOUND LANES)
 RAIL REPLACEMENT
 FOR
137' - 3 3/4" CONTINUOUS CONCRETE BRIDGE
 38'-0" ROADWAY SEC. 14/15-T6N-R3E
 OVER LOCAL ROAD IM 90-1(45) 18
 STR. NO. 41-160-084 30° SKEW L. H. F.

LAWRENCE COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JUNE 2000

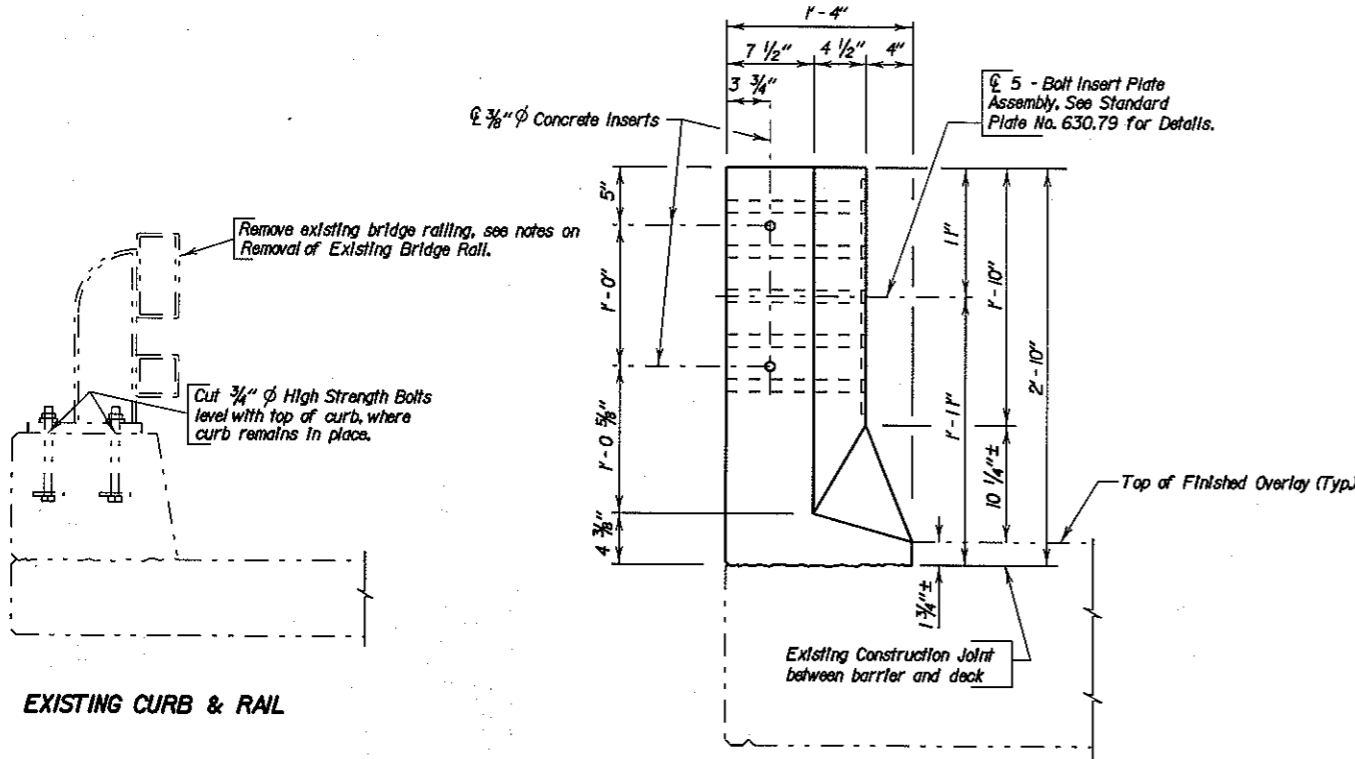
DESIGNED BY EJA LAWR5584	DRAWN BY TB 5584SA02	CHECKED BY CJD	APPROVED <i>John C. Cole</i> BRIDGE ENGINEER
--------------------------------	----------------------------	-------------------	--

ORIGINAL CONSTRUCTION PLANS

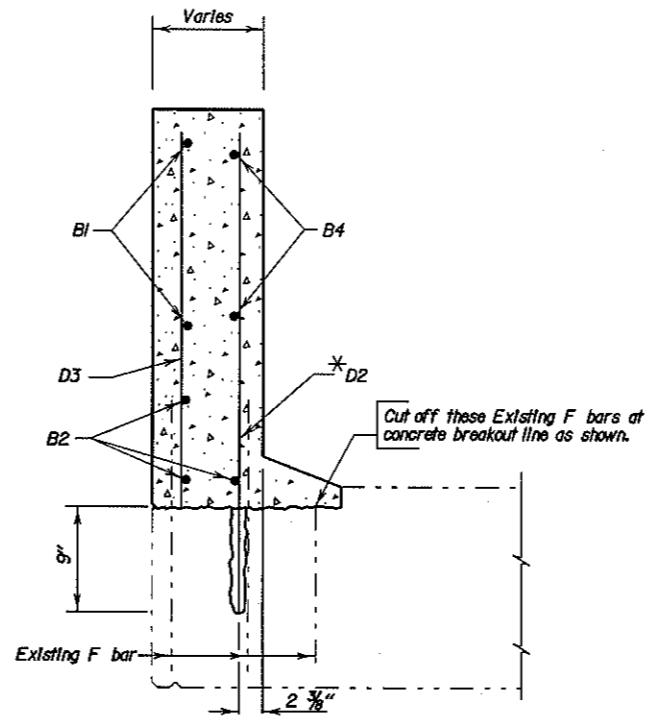
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	090 E-468	13	14

REINFORCING SCHEDULE				Banding Details	
Mk. No.	Size	Length	Type		
A1	164	4	4'-11"	T2	A2 6 1/2"
A2	24	4	7'-0"	T2	
B1	24	4	46'-6"	Str.	A1 6"
B2	12	4	6'-7"	Str.	
B3	4	4	5'-3"	Str.	
B4	8	4	4'-10"	19A	
D1	190	6	2'-6"	1A	A1 6"
D2	12	6	3'-5"	Str.	
D3	4	6	2'-7"	Str.	

NOTES:
 ≠ Min. Lap = 1'-3"
 Δ Dowels
 All bars are epoxy coated.
 All dimensions are out to out of bars.



VIEW A - A



SEC. B - B

EXISTING CURB & RAIL

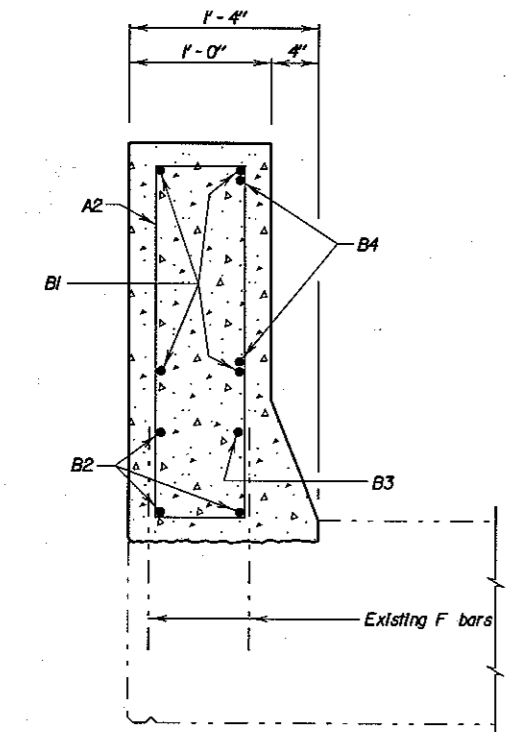
- Bend existing C bars where necessary to maintain 2" clear cover.
- * D1 and D2 Dowels are to be drilled in and grouted with epoxy.
- * Extend existing B bars into new section. (1'-6")

ITEM	UNIT	QUANTITY	
		PHASE 1	PHASE 2
Class AAS Concrete, Bridge Repair	C.Y.	8.5	8.5
*Epoxy Coated Reinforcing Steel	Lb.	752	752
Install Dowel In Concrete	Each	101	101
Breakout Structural Concrete	C.Y.	1.2	1.2
Remove Bridge Railing	L.F.	1300	1300

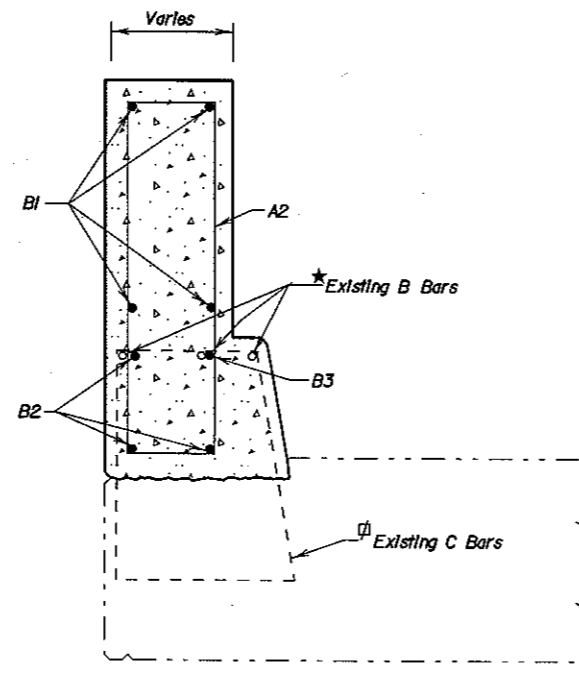
* Does not include the following quantities for D1 & D2 bars as these are paid for in the Bid Item "Install Dowel In Concrete".

PHASE 1	PHASE 2
388 Lb.	388 Lb.

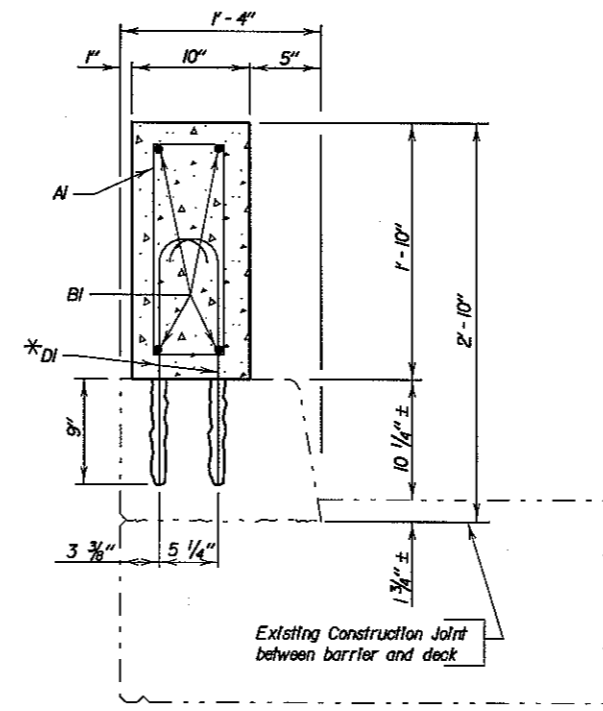
NOTES:
 Use this sheet in conjunction with Sheet No. 2 of 21.
 If existing steel is struck while drilling holes for D1 or D2 dowels, the spacing can be shifted 2" longitudinally, 1" transversely, or as approved by the Engineer to miss existing steel.



SEC. C - C
(5 - bolt Insert Plate Assembly not shown)



SEC. D - D



SEC. E - E

(EAST BOUND LANES)
 RAIL REPLACEMENT
 FOR
 137' - 3 3/4" CONTINUOUS CONCRETE BRIDGE
 38'-0" ROADWAY
 OVER LOCAL ROAD
 STR. NO. 41-160-084

SEC. 14/15-T6N-R3E
 1M 90-K(45) 18
 30° SKEW L. H. F.

LAWRENCE COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JUNE 2000

DESIGNED BY EJA LAWR5584	DRAWN BY TB 5584SA03	CHECKED BY CJD	APPROVED John C. Cole BRIDGE ENGINEER
--------------------------------	----------------------------	-------------------	---

