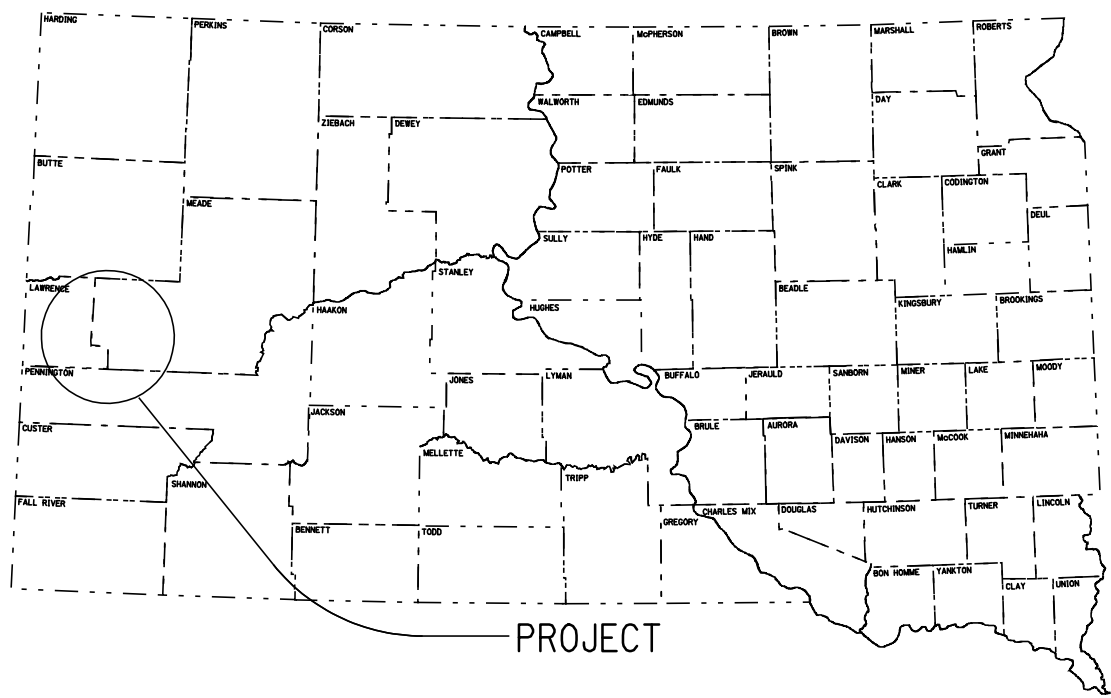


PLOT SCALE - 200,000000:1,000000

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	034-451	01	12

Plotting Date: 11-FEB-2011

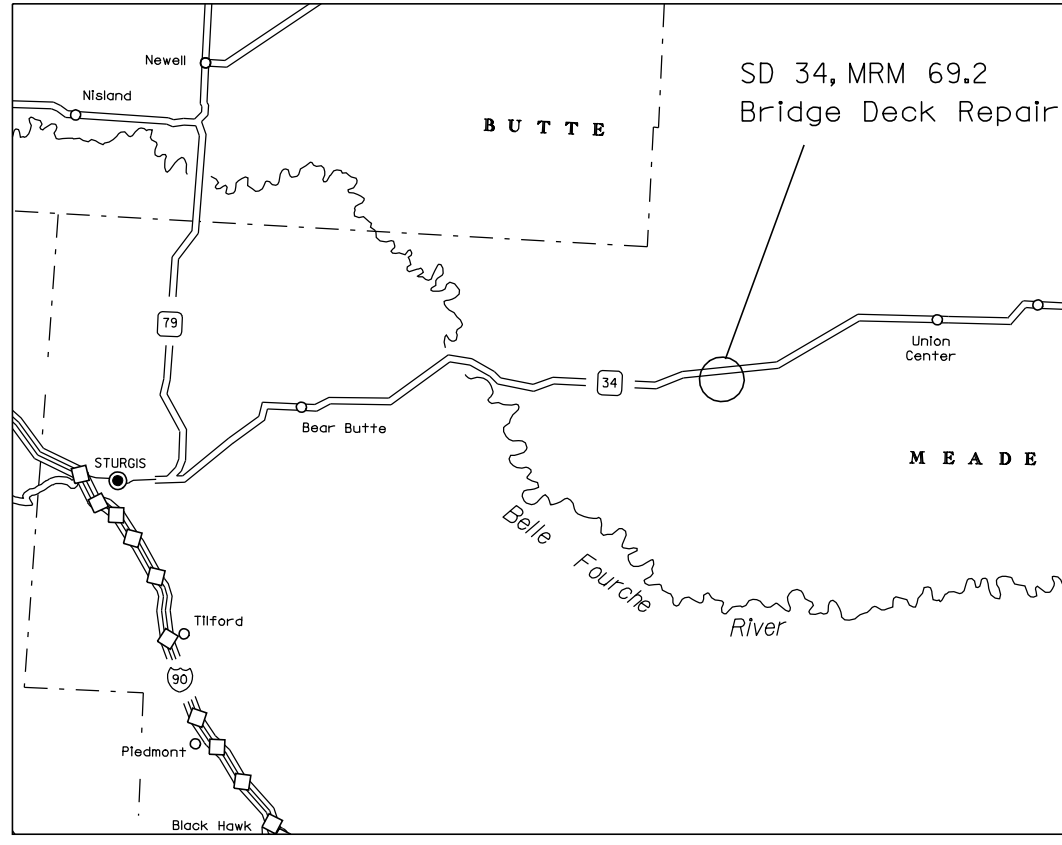
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
PROJECT 034-451
HIGHWAY SD34
MEADE COUNTY
BRIDGE DECK REPAIR
PCN i23x



INDEX OF SHEETS

- Sheets 1: Title Sheets
- Sheets 2-3: Estimate of Quantities & Plan Notes
- Sheet 4: Details for Bridge Deck Repair
- Sheets 5-12: Bridge Original Construction Plans

Storm Water Permit
No Permit Required



PLOTTED FROM - TRRC1.1951

FILE - U:\REGIONRC\PR\2011\RCREGMAINT\PLANS\034-451 BRIDGE REPAIR\123XTITLE.DWGNAME - 01

ESTIMATE OF STRUCTURE QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
320E1901	Asphalt Concrete Cold Mix	57.0 ¹	CuFt
460E0300	Breakout Structural Concrete	4.1 ²	CuYd
462E0100	Class M6 Concrete	4.3	CuYd

¹ Quantity based on average 2½" asphalt overlay.

² Quantity based on estimated 8½" concrete deck and asphalt overlay thickness (6" concrete deck and average 2½" asphalt overlay).

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.

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. The contractor must notify 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.

SCOPE OF BRIDGE WORK

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

- Remove and replace specified portions of concrete deck and asphalt overlay.
- Replace deck concrete and asphalt overlay removed for core holes.

ASPHALT AND CONCRETE BREAKOUT

- This work shall consist of breaking out and disposing of portions of the existing asphalt overlay and concrete bridge deck specified in this set of plans.
- To facilitate matching of the existing bridge deck grade, the breakout limits of the asphalt overlay and concrete deck are as specified:
 - The existing asphalt overlay shall be broken out to 6 inches beyond concrete breakout. Breakout limits shall be defined with a sawcut equal to the full depth of the asphalt overlay, where practical, as approved by the Engineer. For reference, asphalt overlay plans indicate asphalt overlay thickness of 2 to 3 inches.
 - The existing deck concrete shall be broken out to the limits shown on the plans. Breakout limits shall be defined with a ¾" deep sawcut, where practical, as approved by the Engineer.
- During asphalt and concrete removal operations, no broken out asphalt or concrete shall be allowed to fall into Elm Creek.
- All broken out asphalt and concrete shall be disposed of by the Contractor. Disposal of discarded material shall be in accordance with the Waste Disposal Site note.
- All existing reinforcing steel that will be exposed is scheduled for use in the new construction and shall be cleaned and straightened to the satisfaction of the Engineer. Care shall be taken not to damage the reinforcing steel during concrete and asphalt breakout. Any reinforcing steel that is damaged during concrete and asphalt breakout shall be replaced or repaired, as approved by the Engineer, by the Contractor at no cost to the Department.
- Extreme care shall be used not to nick, gouge, scratch, or damage in any other way, the existing steel girders when breaking out the concrete bridge deck and asphalt overlay. Prior to deck removal, the limits of the girder top flanges shall be marked on top of the bridge deck. The Contractor shall not be allowed to use any impact type breakout equipment larger than power driven hand tools for slab removal within six inches of the actual limits of the top flange. In the event that any nicks, gouges, scratches, or other damage occurs, the Office of Bridge Design shall be immediately notified. All damage shall be repaired by the Contractor as recommended by the Office of Bridge Design. All costs involved in repairing any damage, including any non-destructive testing that may be required, shall be at the expense of the Contractor. The top flanges of the girders and the shear connectors shall be cleaned to the satisfaction of the Engineer. Any shear connectors damaged due to the Contractor's operation shall be repaired by the Contractor at no cost to the Department.
- Breakout Structural Concrete will be measured to the nearest 0.1 foot and the volume computed to the nearest 0.1 cubic yard. All costs associated with breaking out the specified existing asphalt overlay and concrete deck including labor, equipment, materials necessary to complete the work, asphalt and concrete sawing, cleaning and straightening existing reinforcing steel, and disposal of all removed material shall be incidental to the contract unit price per cubic yard for Breakout Structural Concrete.

CONCRETE AND ASPHALT REPLACEMENT

- Concrete used in the bridge deck repair shall be in accordance with the requirements for Class M6 Concrete as specified in the South Dakota Standard Specification except as noted below.
 - Type III cement may be used.
 - The minimum 7 day compressive strength shall be 4000 psi.
 - The slump at time of placement shall be maintained between 1 and 3½ inches.
- Six - 3⁵/₁₆" ± diameter core holes shall be filled with 6" depth of Class M6 Concrete and overlaid with asphalt to match the existing asphalt overlay.
- The bridge deck concrete shall be overlaid with asphalt to match the thickness of existing asphalt overlay. For reference, asphalt overlay plans indicate asphalt overlay thickness of 2"-3". Perma-Patch, or an approved equivalent as approved by the Area Office, shall be used. Perma-Patch is manufactured by:

The National Paving and Contracting Company
6123 Oakleaf Ave.
Baltimore, MD 21215
Telephone: (800) 847-5744
- All costs associated with replacing the portion of bridge deck concrete including labor, equipment, materials and incidentals shall be included in the concrete unit price per cubic yard for Class M6 Concrete.
- All costs associated with replacing the portion of bridge deck asphalt overlay including labor, equipment, materials and incidentals shall be included in the asphalt unit price per cubic foot for Asphalt Concrete Cold Mix.
- Asphalt Concrete Cold Mix will be measured and paid to the nearest cubic foot.

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 Engineer for approval at least two days 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.
 - 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 may 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.

FALSEWORK

1. Falsework plans shall be in accordance with Section 423 of the Standard Specifications.
2. No holes will be allowed in girders for falsework placement.
3. The Contractor shall be required to include with his Falsework Plans, details for the construction of an adequate "Walk-Way" including railing.
4. Falsework plans shall be submitted a minimum of two days prior to erection of superstructure falsework.

WASTE DISPOSAL SITE

The Contractor will be required to furnish a site(s) for the disposal of construction/demolition debris generated by this project.

Construction/demolition debris may not be disposed of within the State ROW

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	034-451	3	12

TRAFFIC CONTROL

DOT Traffic Control is in place and will remain in place for the duration of construction. Contractor may adjust centerline delineation to reduce lane width to 15 feet during working hours but must restore to 17 feet during non-working hours. In-place barricades that are moved to accomplish work shall be restored to protect public during non-working hours.

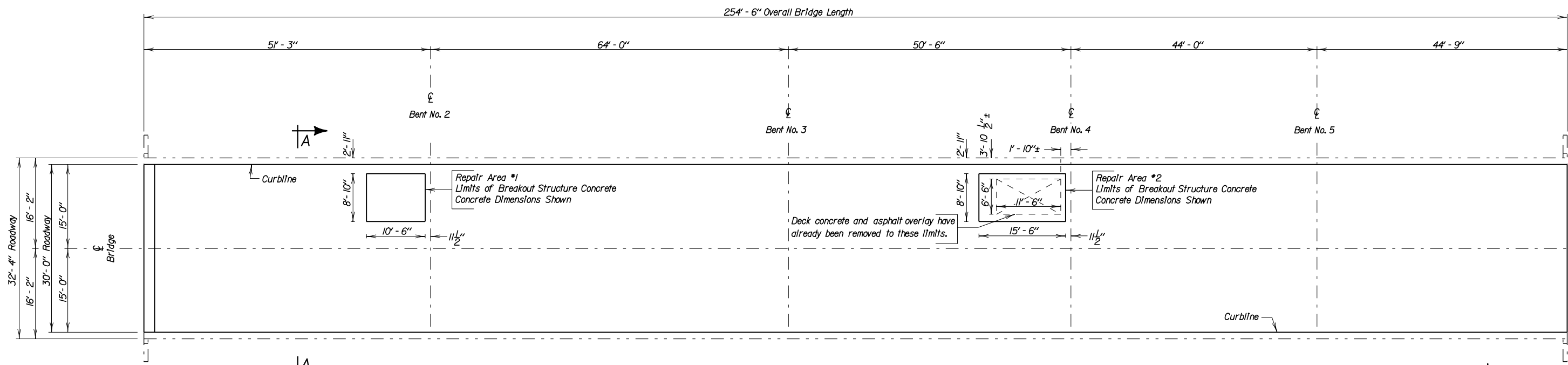
All traffic control, materials and equipment shall be moved to a minimum distance of 30 feet from the edge of the traveled lanes during nights, weekends, and other non-working hours.

Indiscriminate driving 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.

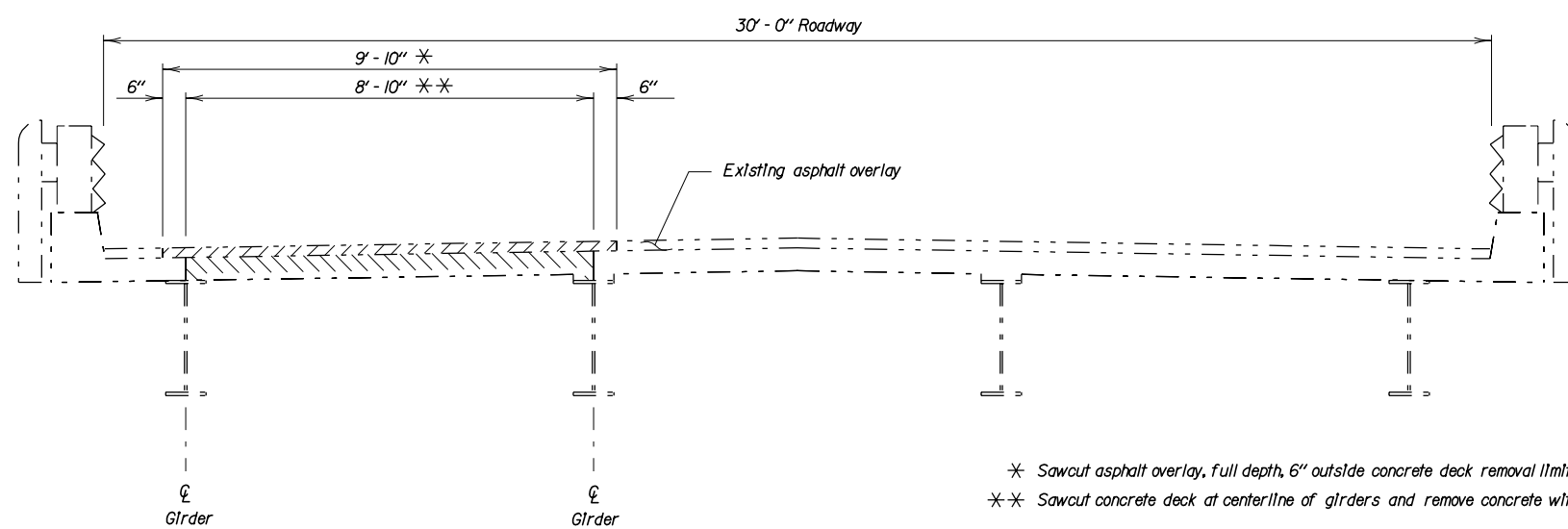
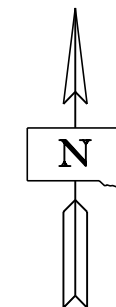
All Contractor's vehicles or equipment entering or leaving a closed work area shall display a flashing amber light.

No additional payment will be made for traffic control.

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	034-451	4	12



PLAN



SECTION A-A

- * Sawcut asphalt overlay, full depth, 6" outside concrete deck removal limits and remove and replace asphalt.
- ** Sawcut concrete deck at centerline of girders and remove concrete without damaging reinforcing steel and replace.

DETAILS OF DECK REPAIR
254' - 6" I-BEAM BRIDGE

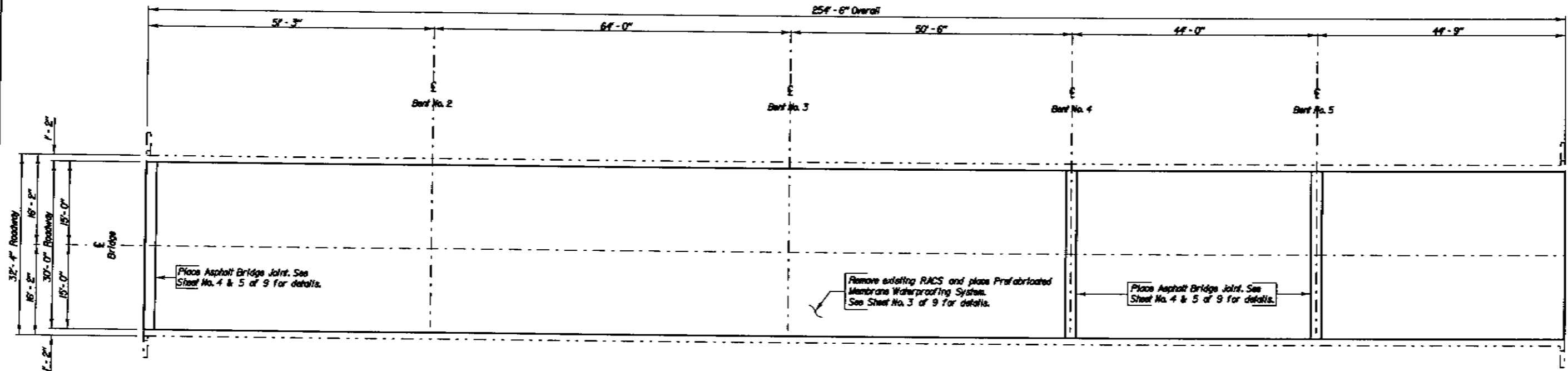
30' - 0" ROADWAY
STR. NO. 47-338-361
OVER ELM CREEK

0° SKEW
SEC. 3-T6N-RIOE
034-451

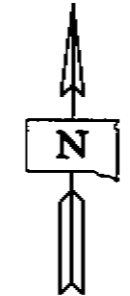
MEADE COUNTY
S. D. DEPT. OF TRANSPORTATION
FEBRUARY 2011

DESIGNED BY RS/SN MEAD123x	DRAWN BY RS/SN	CHECKED BY RS/SN
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	034-451	5	12



PLAN



INDEX OF BRIDGE SHEETS-

- Sheet No. 1 - Layout of Bridge Repairs
- Sheet No. 2 - Quantities and notes
- Sheet No. 3 - Details of Prefabricated Membrane Waterproofing System
- Sheet No. 4 - Details of Asphalt Bridge Joint at Abutment No. 1 & Bent Nos. 4 & 5
- Sheet No. 5 - Details of Asphalt Bridge Joint of Abutment No. 1 & Bent Nos. 4 & 5
- Sheet No. 6 - As Built Elevation Survey
- Sheet Nos. 7 through 9 - Original Construction Plans

**LAYOUT OF BRIDGE REPAIRS FOR
254' - 6" I-BEAM BRIDGE**

30' - 0" ROADWAY 0° SKEW
 STR. NO. 47-338-361 SEC. 3-T6N-R10E
 OVER ELM CREEK P 0034(76)69
 PCN 6949 MEADE COUNTY
 S. D. DEPT. OF TRANSPORTATION
 AUGUST 2005 (5) of (12)

ORIGINAL CONSTRUCTION PLANS

PLANS BY: EJA MEAD6949	OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION	DRAWN BY: SMS 6949SAOI	CHECKED BY: CJD	APPROVED: <i>John C. Cole</i> BRIDGE ENGINEER
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ESTIMATE OF STRUCTURE QUANTITIES

ITEM	QUANTITY	UNIT	REMARKS
Bridge Elevation Survey	Lump Sum	LS	
Asphalt Concrete Bridge Deck Overlay	848.4	SqYd	
Prefabricated Membrane Strip for Deck Overlay	848.4	SqYd	
Asphalt Bridge Joint	90	Ft	
Remove and Replace Deteriorated Concrete	85	SqYd	
Concrete Removal Type 1A	848.4	SqYd	

SPECIFICATIONS

- Design Specifications: AASHTO Standard Specifications for Highway Bridges 2002 Edition 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 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.

NOTICE - LEAD BASED PAINT

Be advised that the paint on the steel surfaces of the existing structure is a paint containing lead. The Contractor should plan his/her operations accordingly, and inform his/her employees of the hazards of lead exposure.

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

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

- Remove the existing rubberized asphalt chip seal and visibly loose concrete for the first phase of construction in accordance with the special provision and plan notes.
- Place a prefabricated membrane waterproofing system on the bridge deck for the first phase of construction in accordance with the special provision.
- Install Asphalt Bridge Joint at Abutment No. 1, Bent No. 4 and Bent No. 5.
- Repeat steps 1 through 3 for the second phase of construction.

ASPHALT CONCRETE BRIDGE DECK OVERLAY

- A prefabricated membrane waterproofing system (with an asphalt concrete bridge deck overlay) shall be placed on the bridge deck in phases while allowing for one way traffic through the bridge. The Contractor shall submit his plan for placing the prefabricated membrane waterproofing system and asphalt concrete bridge deck overlay in phases to the Bridge Construction Engineer, through the proper channels, at least 14 days prior to the start of installation for approval. The system shall be installed in accordance with the Special Provision for "Prefabricated Membrane Waterproofing for Bridge Deck".
- All of the existing Rubberized Asphalt Chip Seal (RACS) on the deck shall be removed by milling. The milling shall be in accordance with the Special Provision for "Prefabricated Membrane Waterproofing for Bridge Deck".

ASPHALT BRIDGE JOINT

- The joints in the deck at abutment number 1 and bent numbers 4 & 5 as shown on the plans will be sealed with an asphalt and aggregate joint system. The asphalt and aggregate joint system shall conform to the requirements of Section 463 of the Construction Specifications.
- The Prefabricated Membrane waterproofing system (with an asphalt concrete bridge deck overlay) will be completed prior to the placing of the Asphalt Bridge Joints.
- To place the Asphalt Bridge Joints, the asphalt concrete bridge deck overlay placed over the prefabricated membrane waterproofing system shall be removed within the limits of the Asphalt Bridge Joint. To aid in removal of the asphalt material, a bond breaker material shall be placed on the prefabricated membrane within the limits of the Asphalt Bridge Joint. The asphalt shall be sawed to the limits of the joint (which is also the limits of the bond breaker) in order to create a joint blockout area. The asphalt on the bond breaker material shall then be removed from the joint blockout area. Do not remove the prefabricated membrane strips. The prefabricated membrane strips shall remain under the new asphalt bridge joints. It will not be an option to stop the prefabricated membrane strips at the limits of the new asphalt bridge joint.
- The cost of furnishing and placing all material for the joint system including sawing and removing overlaid material, furnishing and placing the bond breaker for the joint blockout and all labor, equipment, tools, materials and any incidentals necessary to complete the work satisfactorily shall be paid for at the contract price per foot for "Asphalt Bridge Joint".

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
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AS - BUILT ELEVATION SURVEY

The Contractor shall be responsible for recording the As-built deck elevations at the locations shown by the Table of As-Built Elevations shown in the plans. The elevations to be recorded in these tables shall be based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88). The Engineer shall provide the Contractor with a description, elevation and location of the nearest benchmark that has a NAVD88 established elevation for the Contractor's use. The benchmark shown in the plans has not been tied to the NAVD88. The Contractor shall be responsible for establishing a NAVD88 elevation for the benchmark provided in the plans. All costs associated with obtaining the NAVD88 elevations at the locations shown in the table and for the benchmark shown in the plans, including all equipment, labor and any incidentals required shall be incidental to the contract lump sum price for Bridge Elevation Survey.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES FOR 254' - 6" I BEAM BRIDGE

30' - 0" ROADWAY
OVER ELM CREEK
STR. NO. 47-338-361

SEC. 3-T6N-R10E
0° SKEW
P 0034(76)69

MEADE COUNTY
S.D. DEPARTMENT OF TRANSPORTATION

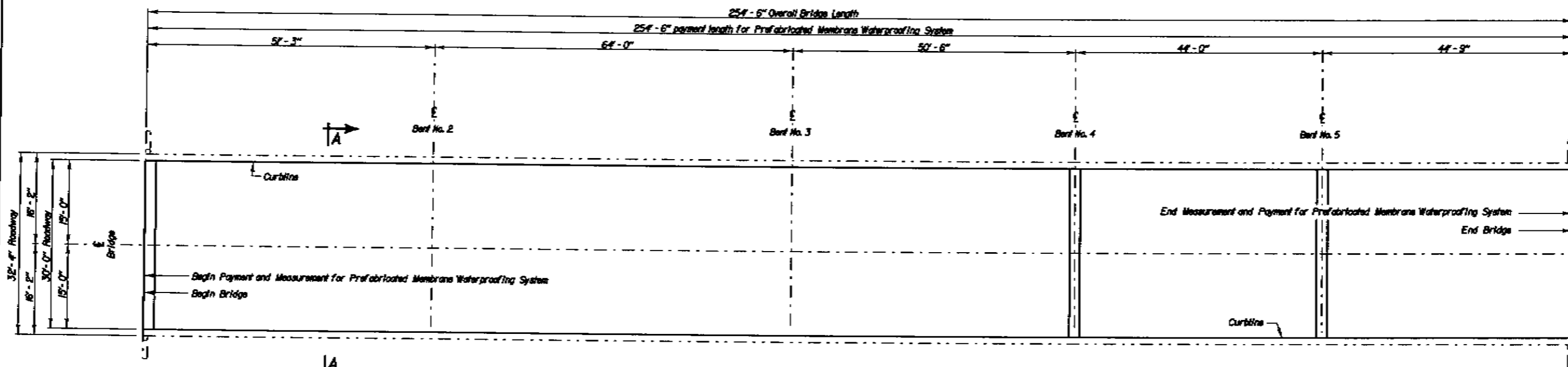
AUGUST 2005

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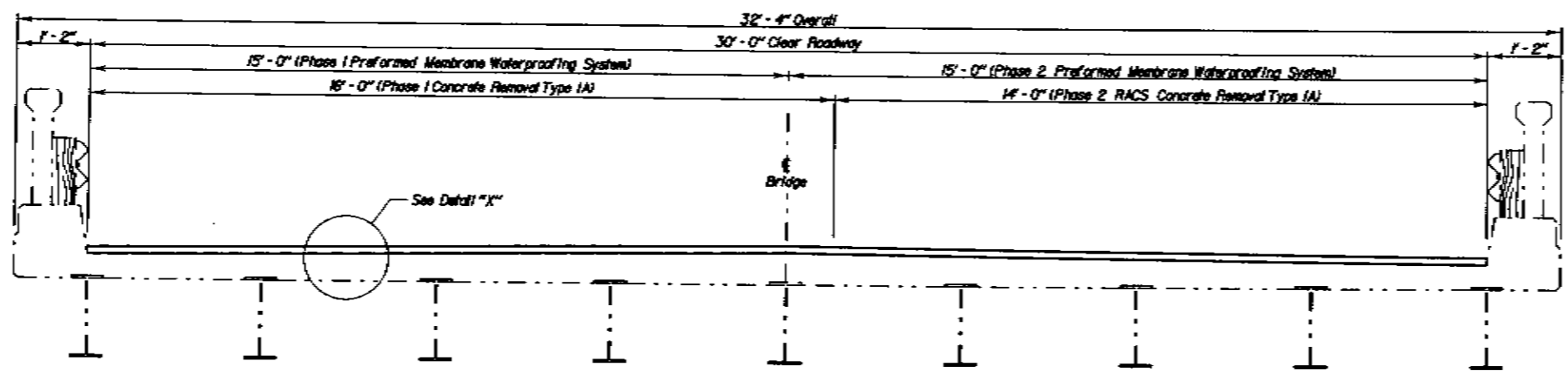
ORIGINAL CONSTRUCTION PLANS

DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
EJA MEAD8949	EJA 6949NOTA	CJD	<i>[Signature]</i>

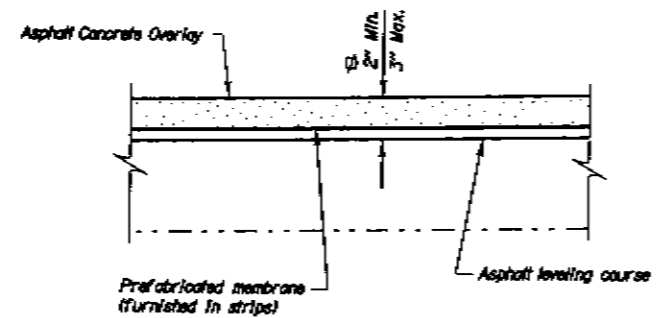
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	034-451	7	12



PLAN

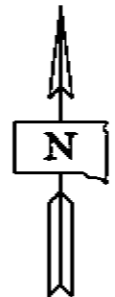


SECTION A-A



DETAIL "X"

The intent is place an asphalt membrane overlay system with a smooth ride while maintaining a minimum thickness of 2 inches. The Contractor is allowed to vary the thickness of the leveling course to improve the ride while not exceeding the 3 inch maximum for the system.



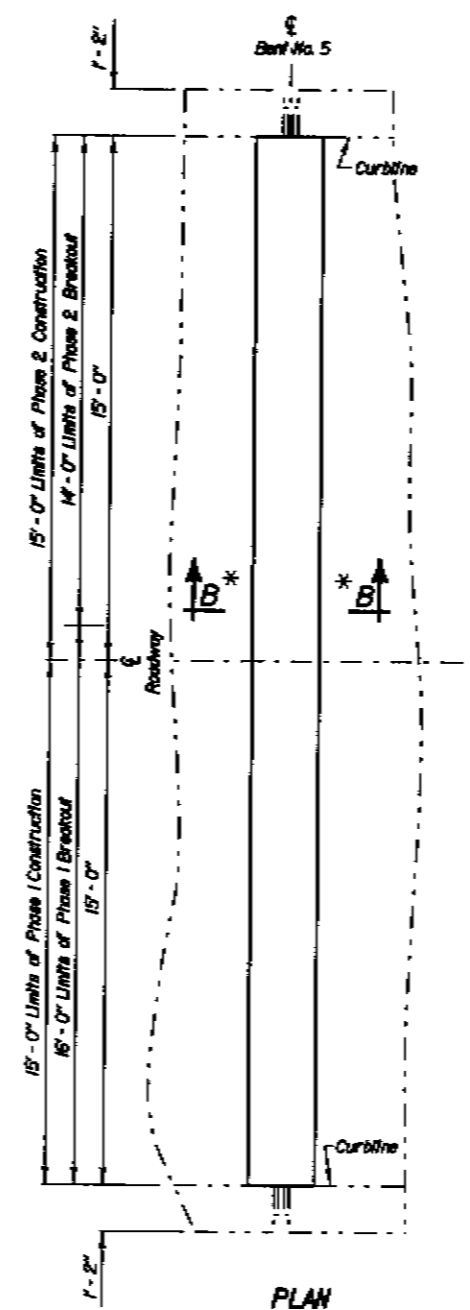
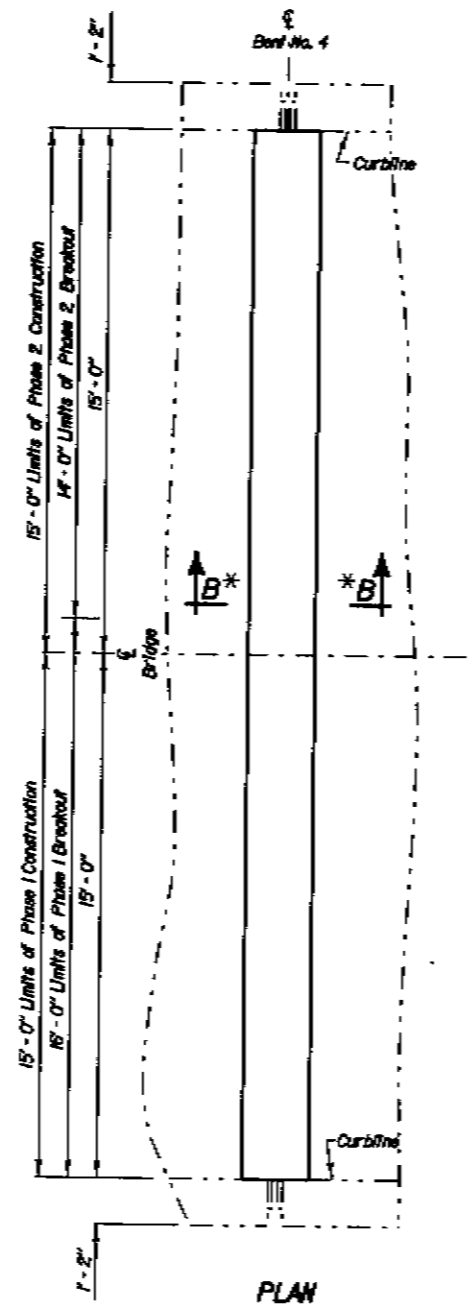
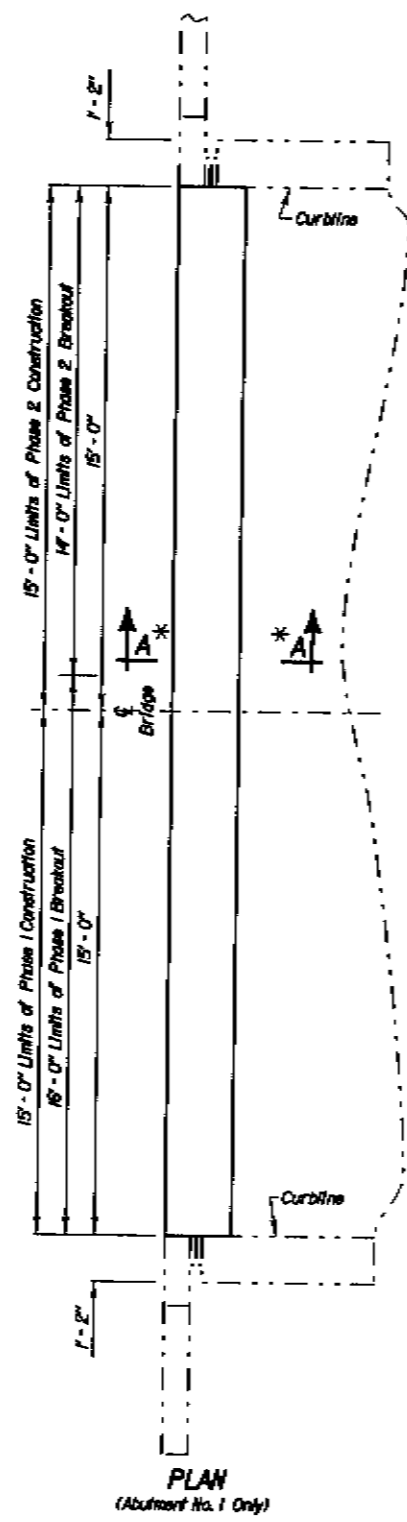
ITEM	UNIT	QUANTITY	
		PHASE 1	PHASE 2
Asphalt Concrete Bridge Deck Overlay	Sq.Yd.	424.2	424.2
Prefabricated Membrane Strip for Deck Overlay	Sq.Yd.	424.2	424.2
Remove and Replace Deteriorated Concrete	Sq.Yd.	45	40
Concrete Removal Type IA	Sq.Yd.	452.4	395.9

DETAILS OF PREFABRICATED
MEMBRANE WATERPROOFING SYSTEM FOR
254' - 6" I-BEAM BRIDGE
30' - 0" ROADWAY
STR. NO. 47-338-361
OVER ELM CREEK
0° SKEW
SEC. 3-T6N-RIOE
P 0034(76)69

ORIGINAL CONSTRUCTION PLANS

MEADE COUNTY
S. D. DEPT. OF TRANSPORTATION
AUGUST 2005

DESIGNED BY EJA MEAD6949	DRAWN BY SMS 6949SA03	CHECKED BY CJD	APPROVED <i>John C. Cole</i> BRIDGE ENGINEER
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* For Sections A-A and B-B see Sheet No. 5 of 9.

ESTIMATED QUANTITIES			
ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
Asphalt Bridge Joint	Ft.	45	45

For informational purposes the quantity for each location is as follows:

	Phase 1	Phase 2
Abutment No. 1	15 Ft.	15 Ft.
Bent No. 4	15 Ft.	15 Ft.
Bent No. 5	15 Ft.	15 Ft.

DETAILS OF ASPHALT BRIDGE JOINT AT
ABUTMENT NO. 1 & BENT NOS. 4 & 5

FOR
254' - 6" I-BEAM BRIDGE

30' - 0" ROADWAY 0° SKEW
OVER ELM CREEK SEC. 3-T6N-R10E
STR. NO. 47-338-361 P 0034(76)69

MEADE COUNTY

S. D. DEPT. OF TRANSPORTATION

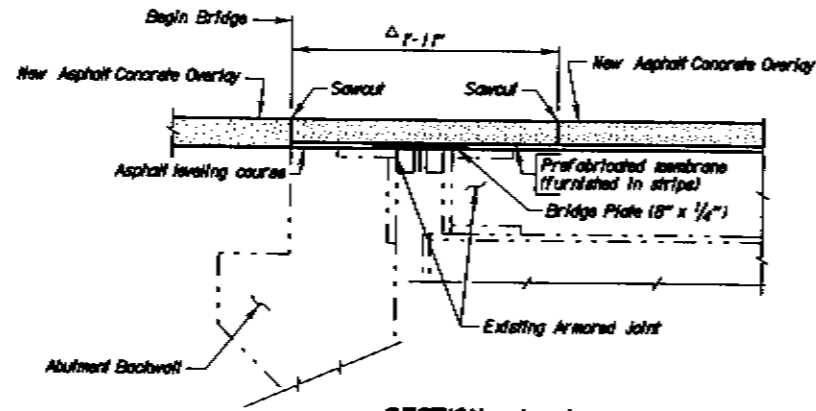
AUGUST 2005

(8) of (12)

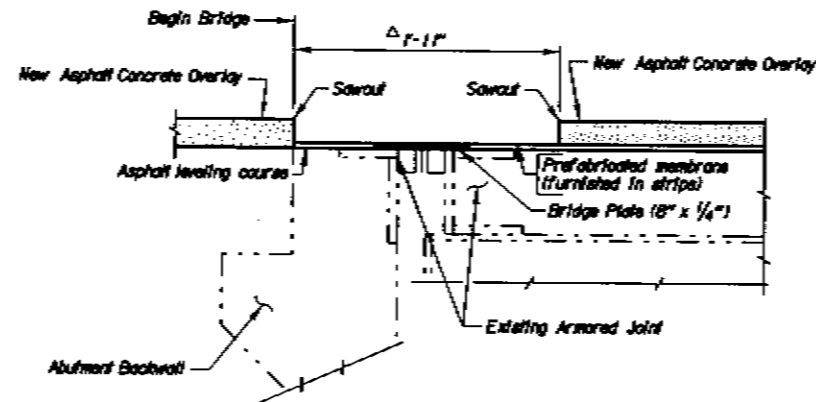
ORIGINAL CONSTRUCTION PLANS

DESIGNED BY EJA	DRAWN BY CJD	CHECKED BY EJA	APPROVED <i>John C. Cole</i> BRIDGE ENGINEER
MEAD69449	69495A04		

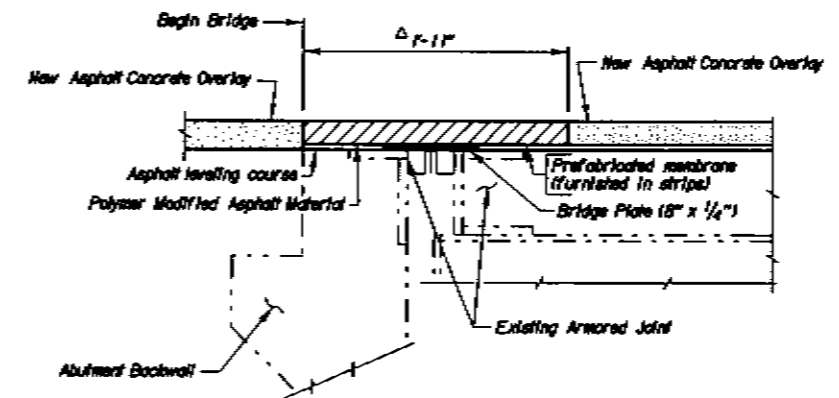
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	034-451	9	12



SECTION A - A
(After placement of Asphalt overlay)
(Before placement of Polymer Modified Asphalt Material)

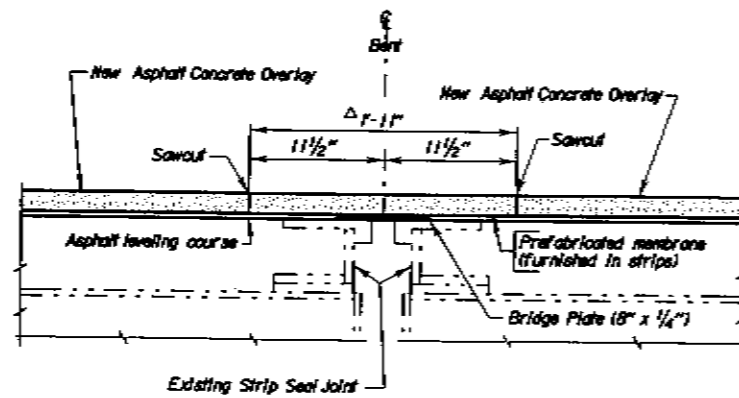


SECTION A - A
(After placement of Asphalt overlay and
removal of asphalt within joint area)

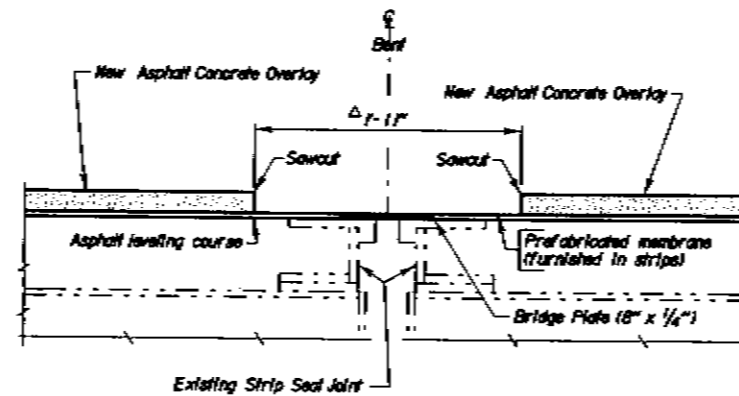


SECTION A - A
(After Polymer Modified Asphalt material is installed)

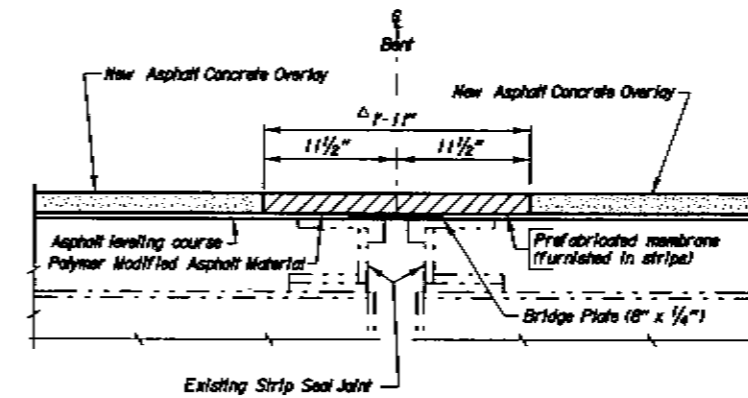
Δ Place Bond Breaker between Asphalt Concrete Overlay and the Prefabricated membrane strips in the $F-11'$ length shown



SECTION B - B
(After placement of Asphalt overlay)
(Before placement of Polymer Modified Asphalt Material)



SECTION B - B
(After placement of Asphalt overlay and
removal of asphalt within joint area)



SECTION B - B
(After Polymer Modified Asphalt material is installed)

**DETAILS OF ASPHALT BRIDGE JOINT
AT ABUTMENT NO. 1 & BENT NOS. 4 & 5
FOR
254' - 6" I-BEAM BRIDGE**

30' - 0" ROADWAY
OVER ELM CREEK
STR. NO. 47-338-361

0° SKEW
SEC. 3-T6N-RIOE
P 0034(76)69

MEADE COUNTY

S. D. DEPT. OF TRANSPORTATION

AUGUST 2005

9 of 12

ORIGINAL CONSTRUCTION PLANS

DESIGNED BY EJA MFAD6949	DRAWN BY CJD 6949SA05	CHECKED BY EJA	APPROVED <i>John C. Cole</i> BRIDGE ENGINEER
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F.E. 12-31-49 R.W.

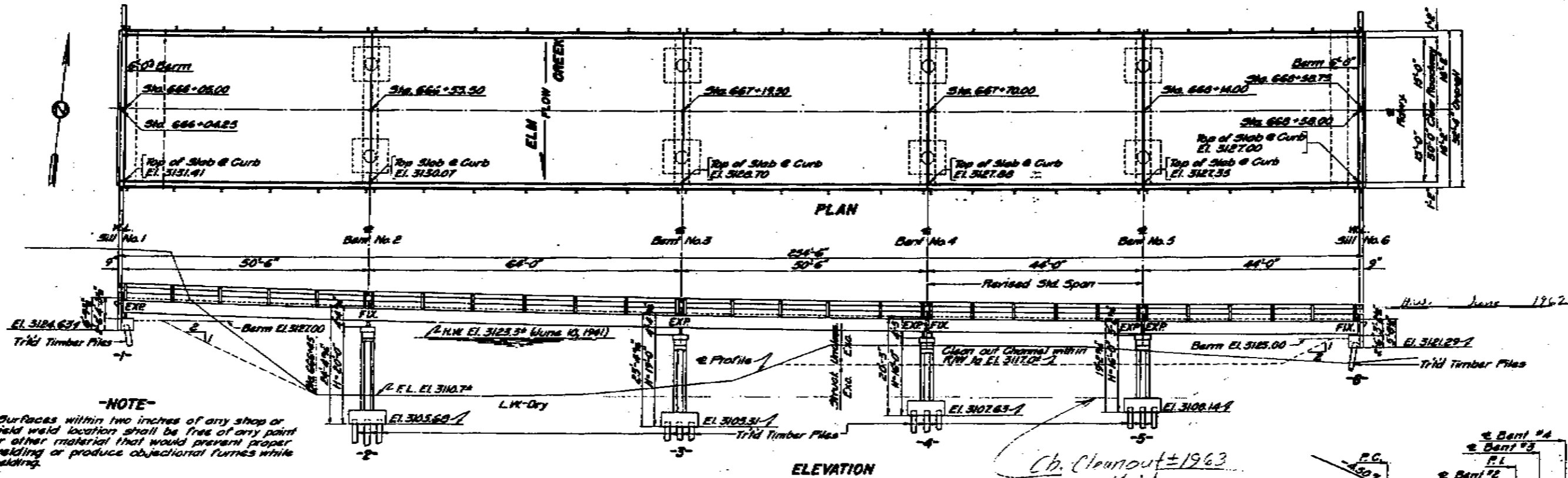
**-X031-
INDEX OF BRIDGE SHEETS**

Sheet No.1-General Drawing and Quantities
 Sheet No.2-Details for Std. Reinf. Conc. Sill-WP-3-165-30-00
 Sheet No.3-Details for Std. Reinf. Conc. Sill-WP-4-30-00
 Sheet No.4-Details for Std. Reinf. Conc. Bent-CB-30-00-0
 Sheet No.5&6-Details for Std. 165' Conn. I-Brrz Unit-3018-165-30-00
 Sheet No.7-Details for Std. I-Brrz Unit-SIB-44-30-00
 Sheet No.8-Std. Tying and Drain Details for Std. I-Brrz Units-RA-1
 Sheet No.9-Special Details
 Sheet No.10-Erection Diagrams

-SPECIFICATION NOTE-
 Use current South Dakota Standard Specifications for Roads and Bridges.

EL.M. No.71-EL.312.60
 Iron Pile & Cd.
 75' Lt. Sta. 666+00

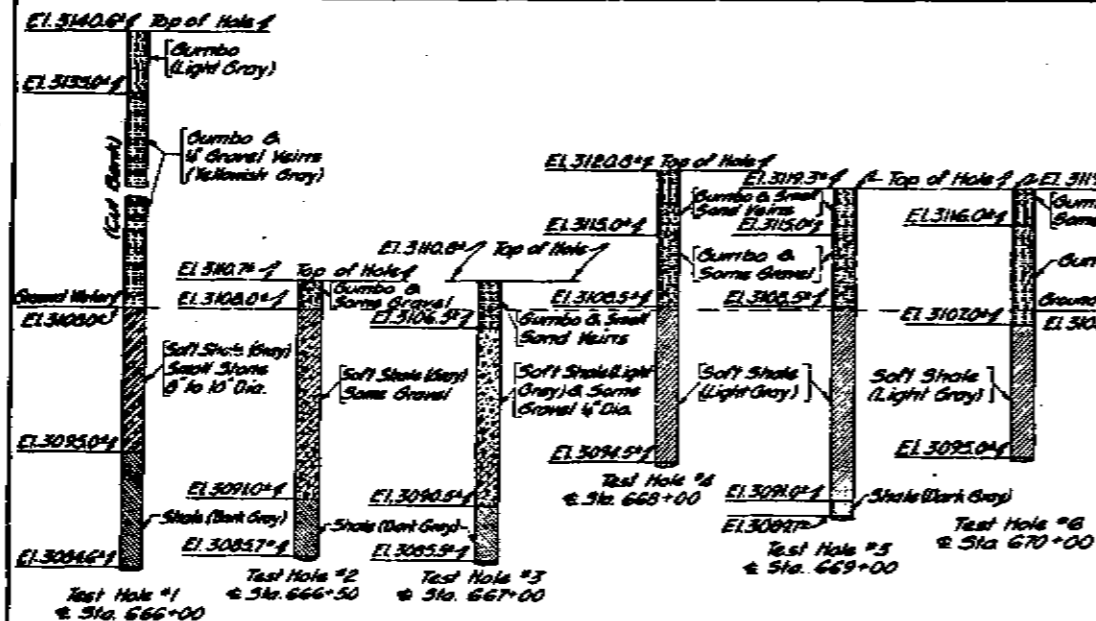
EL.M. No.72-EL.312.54
 Iron Pile & Cd.
 75' Lt. Sta. 676+00



-NOTE-
 Surfaces within two inches of any shop or field weld location shall be free of any paint or other material that would prevent proper welding or produce objectional fumes while welding.

Ch. Cleanout ± 1963
 Maint.

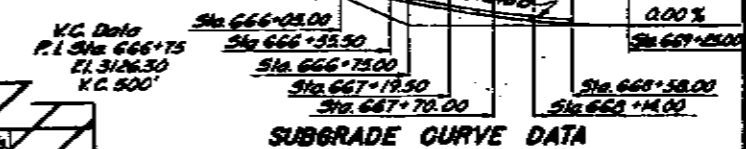
TEST HOLE DATA



ITEM	CONECRETE		STEEL		TIMBER		EXCAVATION	
	CU Yds.	CU Yds.	Lineal Ft.	Lineal Ft.	Lineal Ft.	Lineal Ft.	CU Yds.	CU Yds.
Superstr. - 165' Conn. Unit	113.7	97,900	25,236	750.0				
Superstr. - 44' Brrz. Span	24.9	67,020	13,540	17,246				
Substr. - Sill No.1	16.0	730	1,792		1 @ 30	7 @ 20 @ 140	7	
Substr. - Sill No.7	14.0	1,670			1 @ 30	7 @ 20 @ 140	12	
Substr. - Bent No.2	25.4	5,715			1 @ 20	16 @ 15 @ 240	10	
Substr. - Bent No.3	25.1	5,880			1 @ 20	16 @ 15 @ 225	45	
Substr. - Bent No.4	25.3	5,425			1 @ 20	15 @ 15 @ 225	20	
Substr. - Bent No.5	23.9	5,170			1 @ 20	16 @ 15 @ 240	55	
Totals	336.3	145,624	63,940	508.6	7	1210	220	

* One 30' Trial Timber Test Pile shall be driven at Sills No. 1 & 6 and one 20' Trial Timber Pile shall be driven at Bents No. 3 & 4 before remaining piles are ordered.
 † Class A shall be 4000# concrete.

ORIGINAL CONSTRUCTION PLANS



GENERAL DRAWING AND QUANTITIES

FOR
254'-6" I-BEAM VIADUCT
 30'-0" ROADWAY

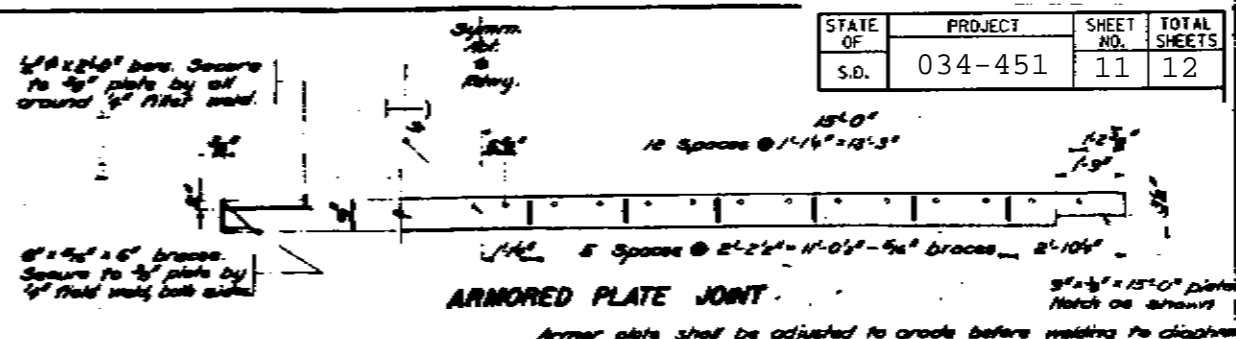
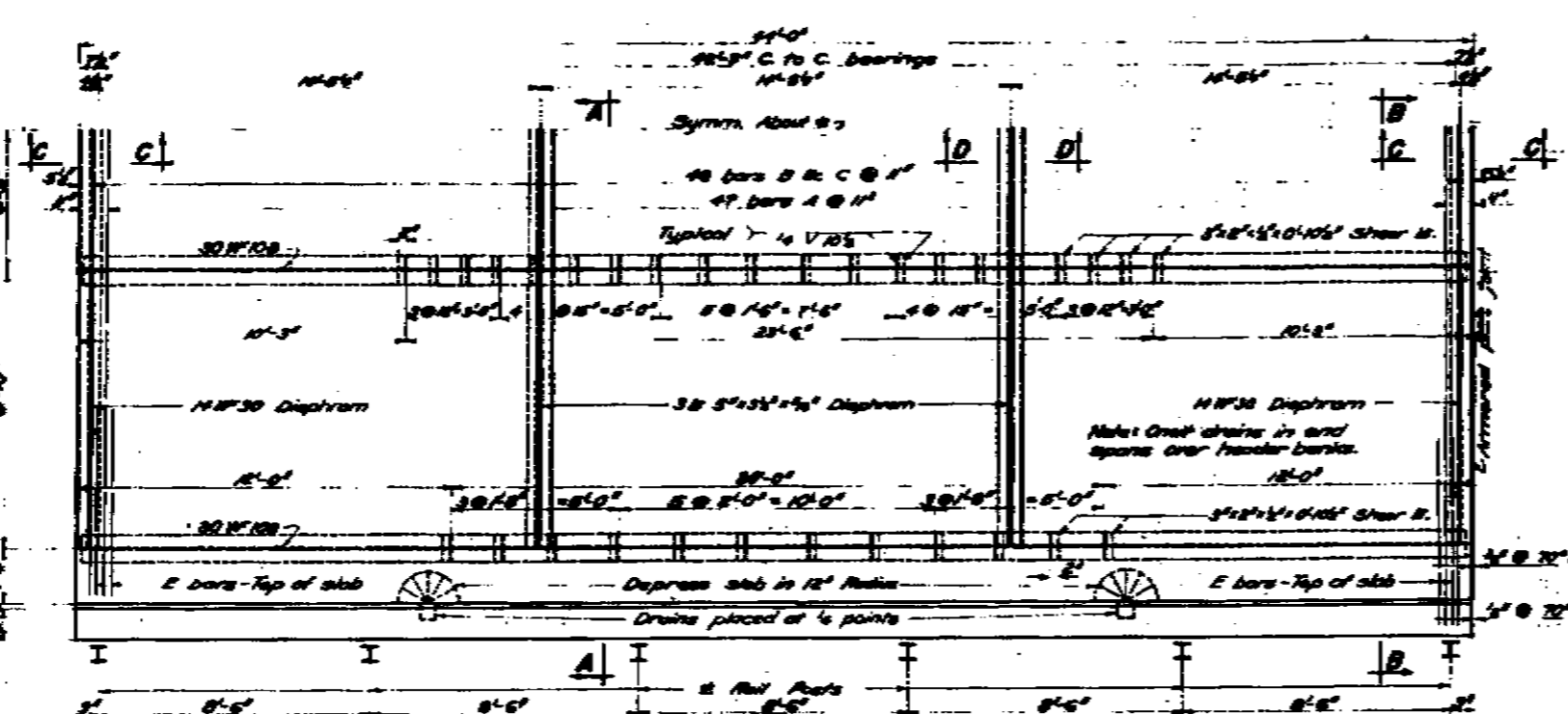
OVER ELM CREEK SEG. 3-T6N-R10E
 STA. 666+04.25 TO 668+58.75 F 242 (10)

MEADE COUNTY
 SOUTH DAKOTA H20-44

STATE HIGHWAY COMMISSION
 MARCH 1948 10 of 12

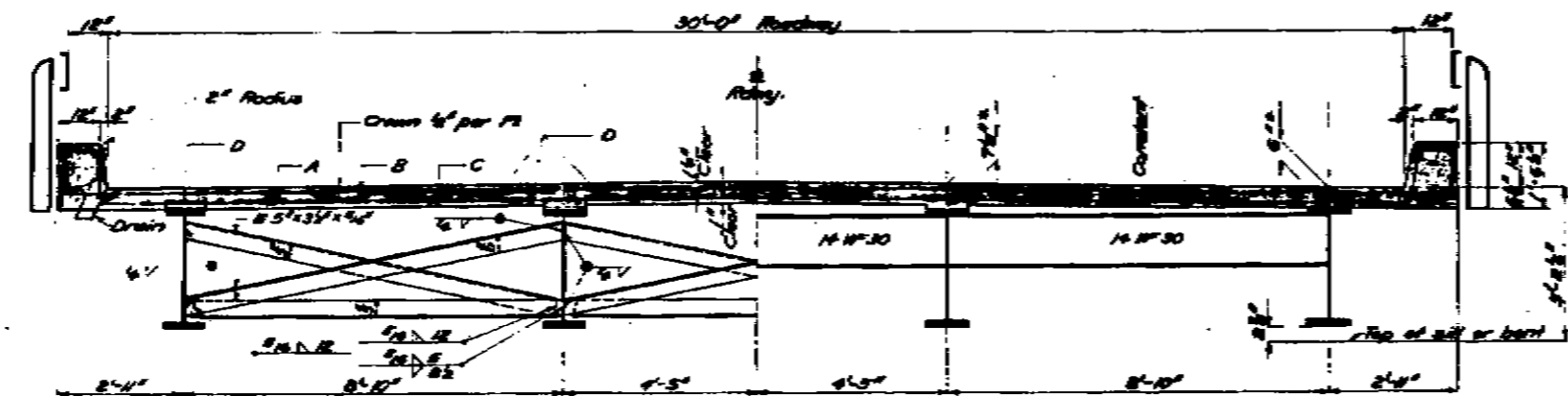
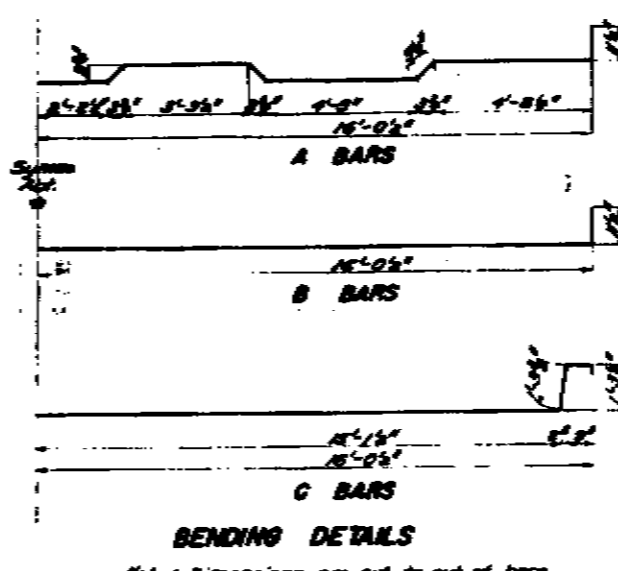
DESIGNED BY: [Signature] DRAWN BY: [Signature] CHECKED BY: [Signature] APPROVED: [Signature]
 REX 5-20-48
 BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	034-451	11	12



REIN. STEEL		
MARK No.	SIZE	LENGTH
A	47	5'-6" 31'-3"
B	48	5'-0" 30'-2"
C	49	4'-0" 24'-9"
D	32	4'-0" 18'-6"
E	3	4'-0" 6'-0"

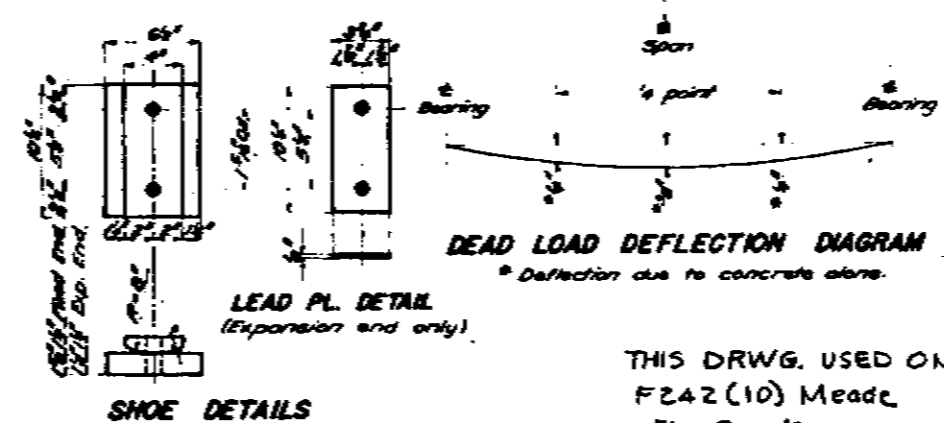
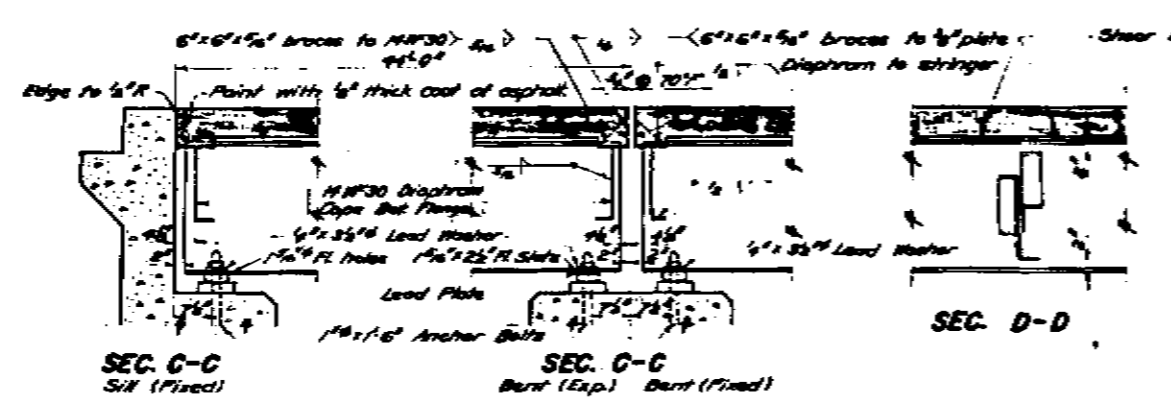
ESTIMATED QUANTITIES			
ITEM	1 SPAN	1 INTRM. SPAN	1 INTRM. SPAN
Concrete (C.I.)	CU Yds.	50.3	38.3
Steel Reinforcing	Lbs.	6,570	6,570
Steel Structural	Lbs.	22,900	23,300
Rolling	Sq. Ft.	90.6	88.9



* Dimensions shown apply only to 4' of bearing. Intermediate points must be increased for ordinates shown in DEAD LOAD DEFLECTION DIAGRAM plus or minus any irregularity or deflection in beam when erected.

ORIGINAL CONSTRUCTION PLANS

GENERAL NOTES:
 Cost of welding shall be absorbed in the unit price bid for structural steel.
 Lead plates and lead washers shall be paid for under the item of structural steel.
 All exposed steel surfaces shall be painted one shop coat of red lead paint and two field coats of aluminum or other approved paint.
 Beams do not require mill cambering.
 Cost of camber and red lead under bearing plates shall be absorbed in the unit price bid for C. I. Concrete.
 All exposed concrete edges shall be chamfered if unless otherwise noted.
 See Standard Rolling Steel for details of hardware and drains.
 Design Loading: 120-TT (T-3-45) A.S.H.O.
 Unit stresses: f_s steel = 20,000 p.s.i. (Informed, & steel.)
 f_c concrete = 1,850 p.s.i.
 Class $\frac{3}{4}$ Concrete shall develop a minimum allowable compressive strength of 4,000 p.s.i. at 28 days.

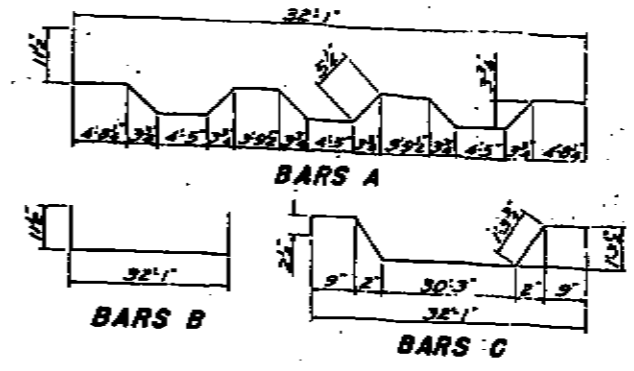
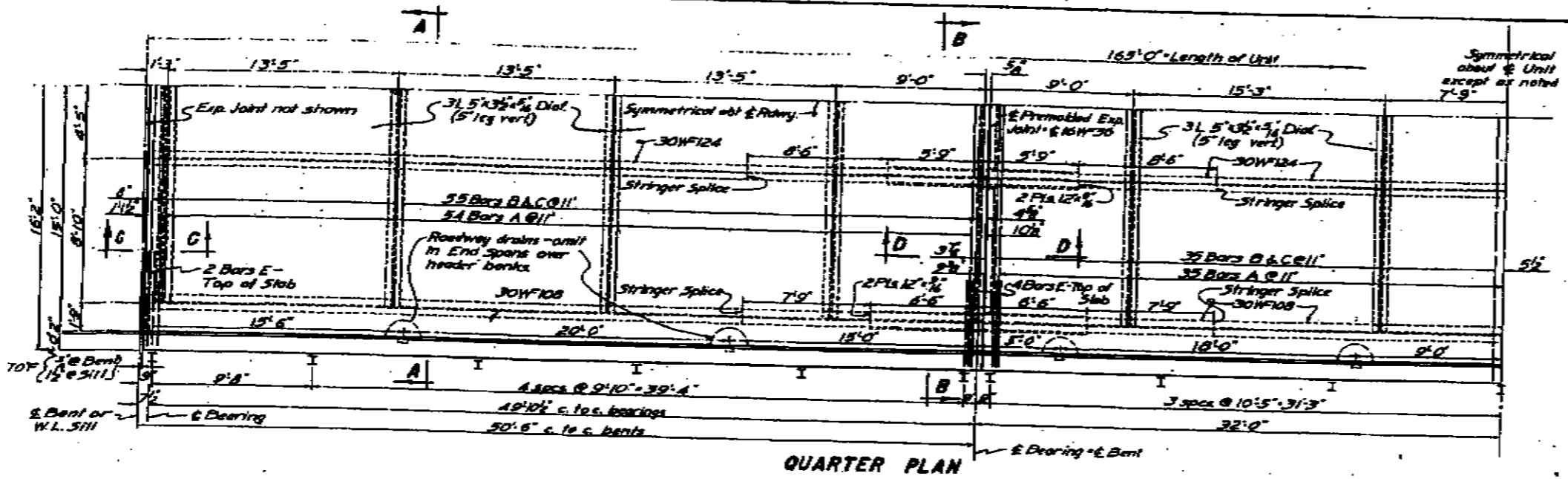


DETAILS FOR STANDARD I-BEAM VIADUCT COMPOSITE SECTION 30'-0" ROADWAY 44'-0" SPAN SOUTH DAKOTA

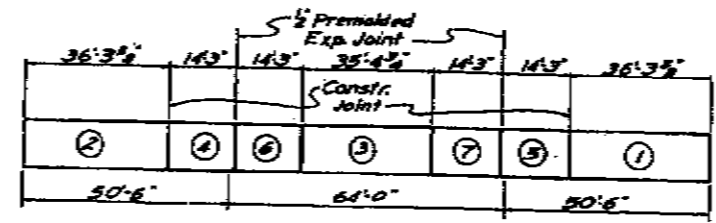
THIS DRWG. USED ONLY ON F242(10) Meade Elm Creek

STATE HIGHWAY COMMISSION 1947 11 of 12 H20-44
 DESIGNED BY L.S.H. & P.M.T. DRAWN BY R.M.L. CHECKED BY J.G.H. APPROVED J. J. Neer BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	034-451	12	12

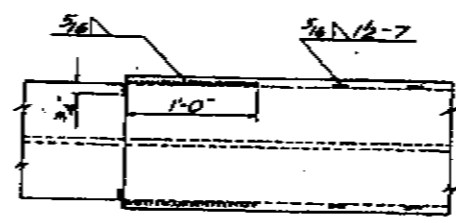
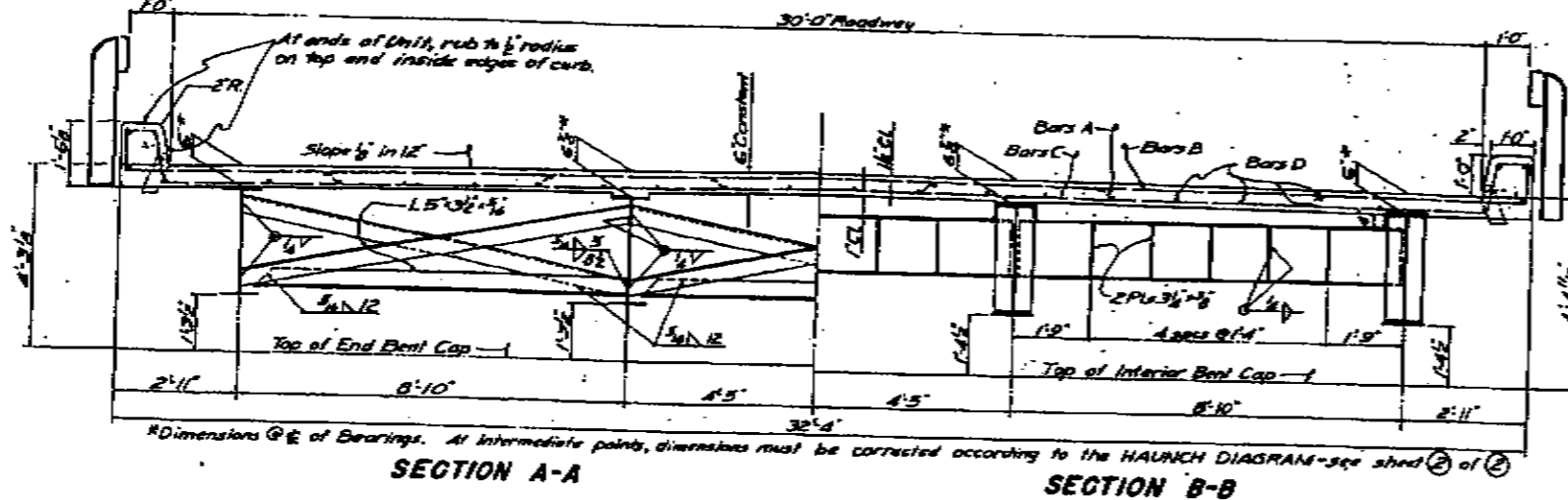


BAR	SIZE	NO.	LENGTH
A	3/4"	177	34'-9"
B	3/4"	180	34'-0"
C	3/4"	180	34'-9"
D	3/4"	64	26'-3"
E	3/4"	24	6'-0"



ITEM	UNIT	QUANTITY
Class 'A' Concrete	Cu Yd.	113.7
Reinforcing Steel	Lb.	25,480
Structural steel	Lb.	97,800
Rolling	Lin. Ft.	8,330

*Add 2.6 ft. at each sill.



GENERAL NOTES.-

- Cost of Welding shall be absorbed in the unit price bid for structural steel.
- Cost of Canvas and Red Lead shall be absorbed in the unit price bid for Class 'A' Concrete.
- All exposed steel surfaces shall be painted with one shop coat of Red Lead Paint and two field coats of Aluminum or other approved paint.
- All exposed concrete edges shall be chamfered and ch. unless otherwise noted.
- Decks do not require mill cambering.
- Reinforcing steel dimensions are out to out of bar.
- Design Loading: H20-44 (T-3-45) A.A.S.H.O.
- Unit Stresses: Concrete 1, 1350 p.s.i.
- Re-Steel 1/2, 20,000 p.s.i. (Intermediate Grade)
- Class 'A' Concrete shall develop a minimum allowable compressive strength of 4000 p.s.i. at 28 days.
- See Standard Rolling Steel for details of Rolling, Rolling Anchors, and Roadway Drains.

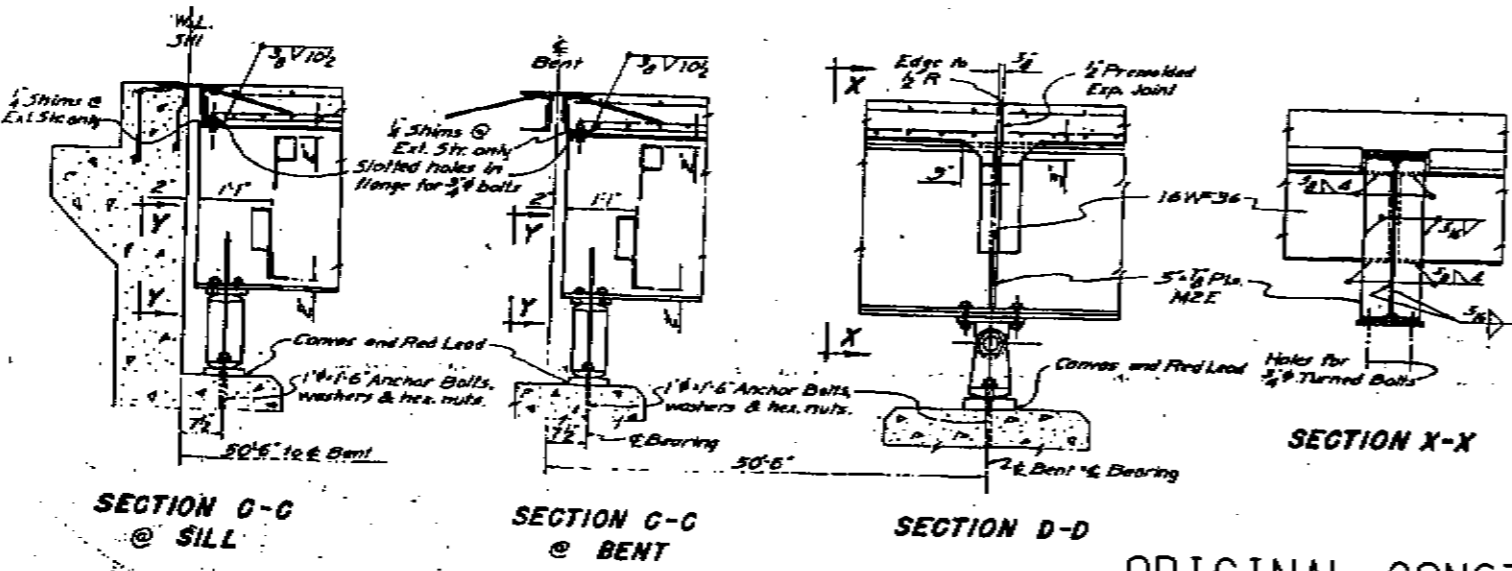
ORIGINAL CONSTRUCTION PLANS

254-6 I-BEAM VIADUCT
DETAILS FOR

STANDARD 165' CONT. I-BEAM UNIT

OVER ELM CREEK - 30'-0" ROADWAY - S.E. 3-TGN-RIDE
MEADE COUNTY - SOUTH DAKOTA - H20-44
STATE HIGHWAY COMMISSION - 1947

STA. 666+01.50 TO 666+51.50 (12) of (12)



ORIGINAL CONSTRUCTION PLANS

Sr. No. 48-338-361

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
[Signature]	[Signature]	[Signature]	[Signature]