

SECTION E: STRUCTURE PLANS

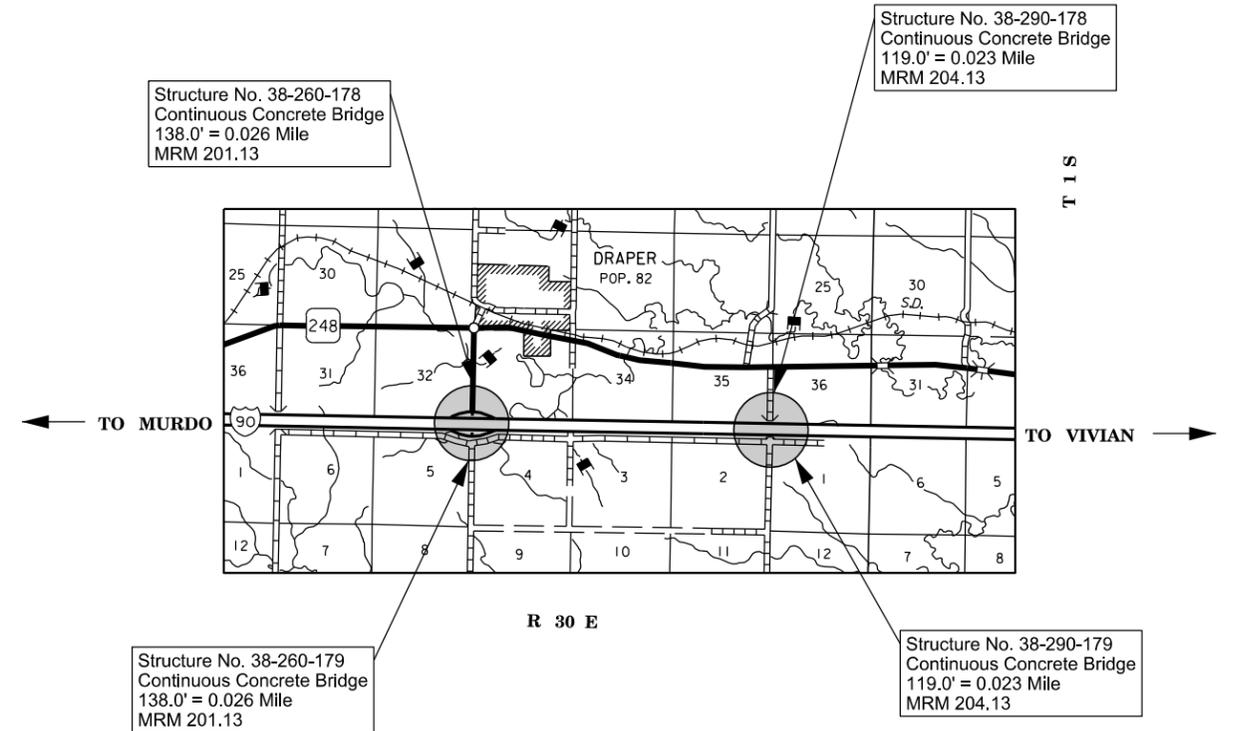
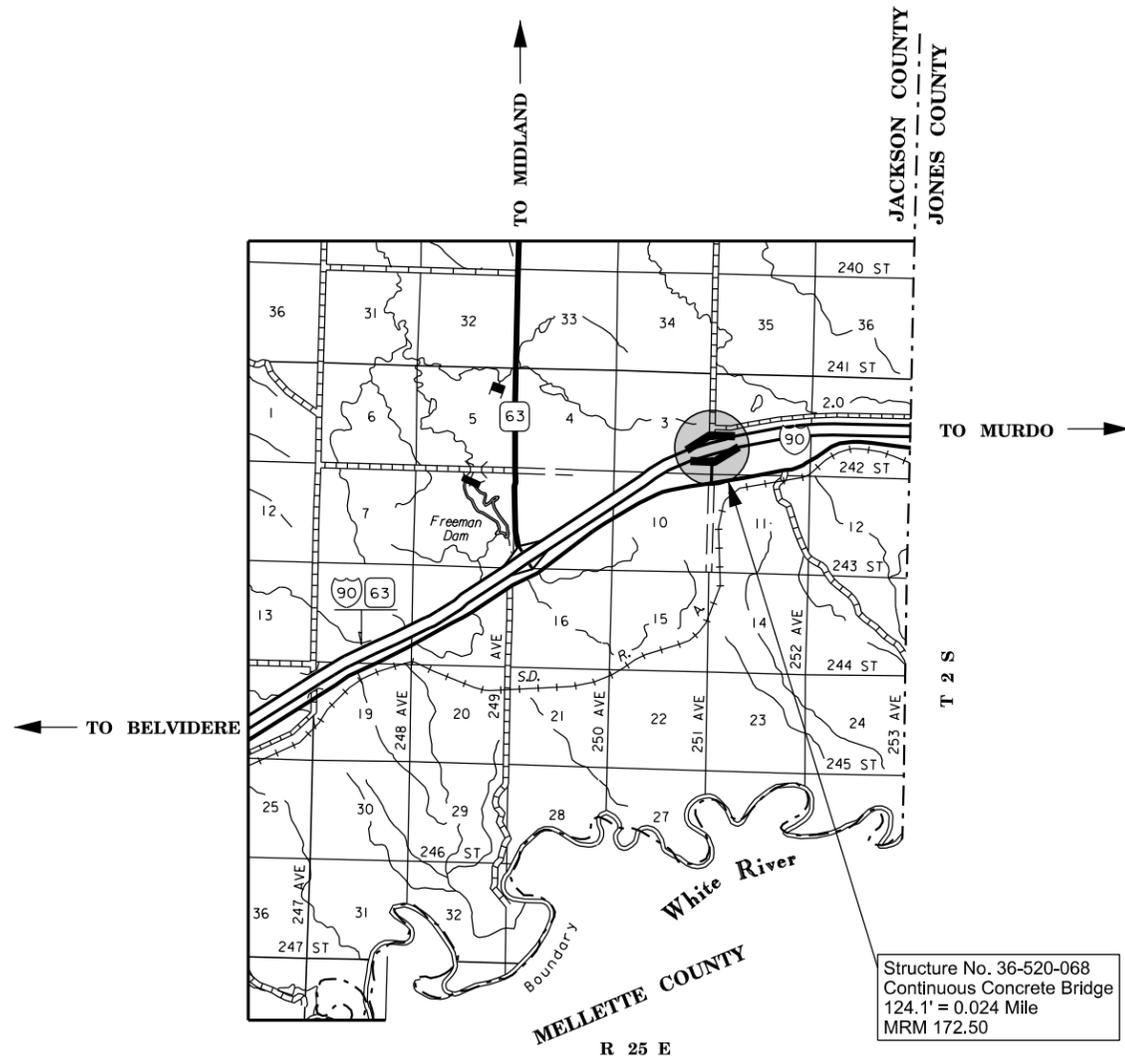
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0903(97)172	E1	E25

Plotting Date: 11/06/2015



INDEX OF SHEETS -

Sheet E1	Layout Map and Index
Sheet E2	Estimate of Structure Quantities
Sheet E3 to E6	Structure No. 36 - 520 - 068
Sheet E7 to E10	Structure No. 38 - 260 - 178
Sheet E11 to E14	Structure No. 38 - 260 - 179
Sheet E15 to E21	Structure No. 38 - 290 - 178
Sheet E22 to E25	Structure No. 38 - 290 - 179



Plot Scale - 1:0.169082

Plotted From - trp12582

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SECTION E - ESTIMATE OF STRUCTURE QUANTITIES

Section E - Structure - 38-260-178

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
480E0172	Concrete Patching Material, Bridge Deck	54.8	CuFt
491E0005	Two Coat Bridge Deck Polymer Chip Seal	578.5	SqYd
491E0110	Abrasive Blasting of Bridge Deck	578.5	SqYd
491E0120	Bridge Deck Grinding	578.5	SqYd
491E0130	Concrete Removal, Class A	4.0	SqYd
491E0140	Concrete Removal, Class B	4.0	SqYd

Section E - Structure - 38-290-179

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
480E0172	Concrete Patching Material, Bridge Deck	134.1	CuFt
491E0005	Two Coat Bridge Deck Polymer Chip Seal	498.2	SqYd
491E0110	Abrasive Blasting of Bridge Deck	498.2	SqYd
491E0120	Bridge Deck Grinding	498.2	SqYd
491E0130	Concrete Removal, Class A	10.7	SqYd
491E0140	Concrete Removal, Class B	10.7	SqYd

Section E - Structure - 38-260-179

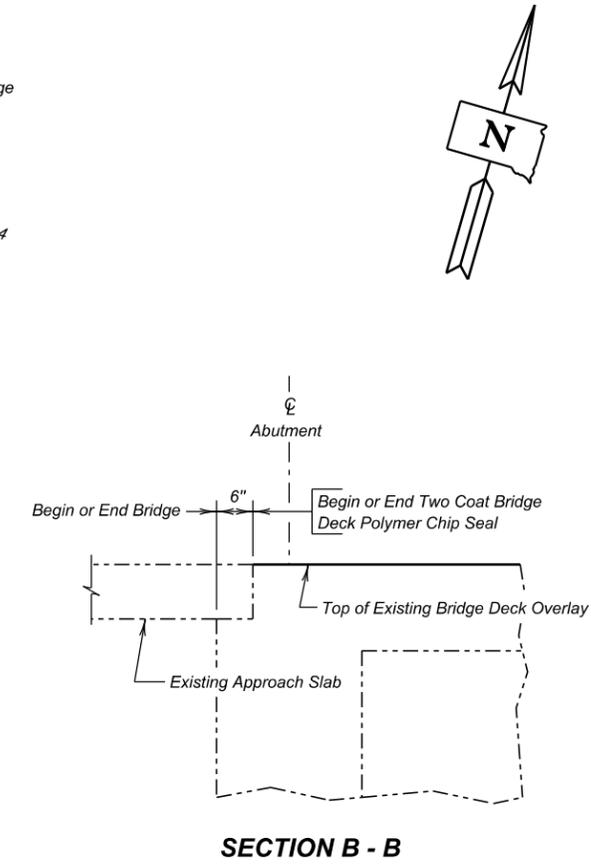
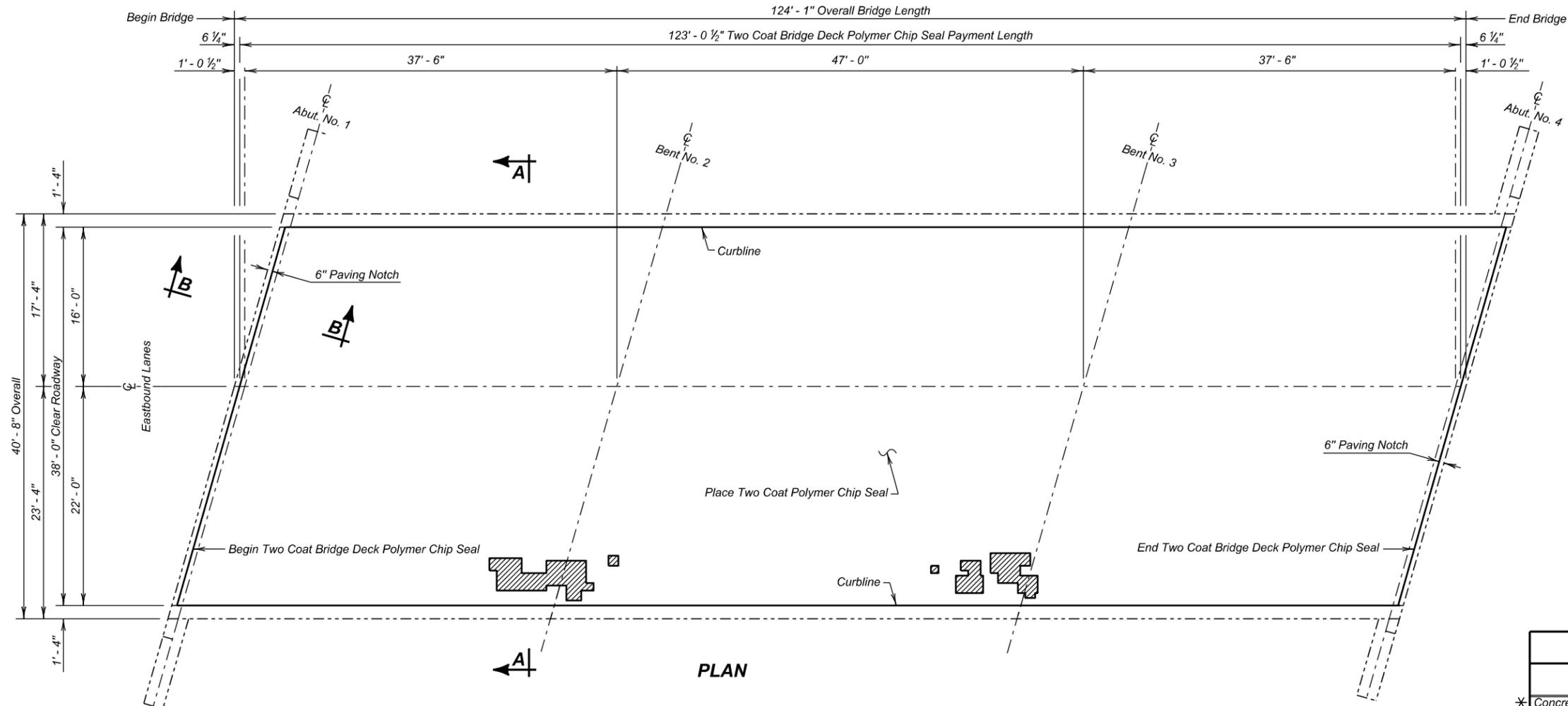
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480E0172	Concrete Patching Material, Bridge Deck	68.4	CuFt
491E0005	Two Coat Bridge Deck Polymer Chip Seal	578.5	SqYd
491E0110	Abrasive Blasting of Bridge Deck	578.5	SqYd
491E0120	Bridge Deck Grinding	578.5	SqYd
491E0130	Concrete Removal, Class A	5.0	SqYd
491E0140	Concrete Removal, Class B	5.0	SqYd

Section E - Structure- 36-520-068

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
480E0172	Concrete Patching Material, Bridge Deck	72.8	CuFt
491E0005	Two Coat Bridge Deck Polymer Chip Seal	519.5	SqYd
491E0110	Abrasive Blasting of Bridge Deck	519.5	SqYd
491E0120	Bridge Deck Grinding	519.5	SqYd
491E0130	Concrete Removal, Class A	5.4	SqYd
491E0140	Concrete Removal, Class B	5.4	SqYd

Section E - Structure - 38-290-178

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
480E0070	Class A45 Concrete, Bridge Repair	3.0	CuYd
480E0172	Concrete Patching Material, Bridge Deck	50.2	CuFt
480E0300	Breakout Structural Concrete	3.0	CuYd
480E0380	Install Dowel in Concrete	50	Each
480E0200	Epoxy Coated Reinforcing Steel	264	Lb
491E0005	Two Coat Bridge Deck Polymer Chip Seal	671.4	SqYd
491E0110	Abrasive Blasting of Bridge Deck	671.4	SqYd
491E0120	Bridge Deck Grinding	671.4	SqYd
491E0130	Concrete Removal, Class A	4.0	SqYd
491E0140	Concrete Removal, Class B	4.0	SqYd

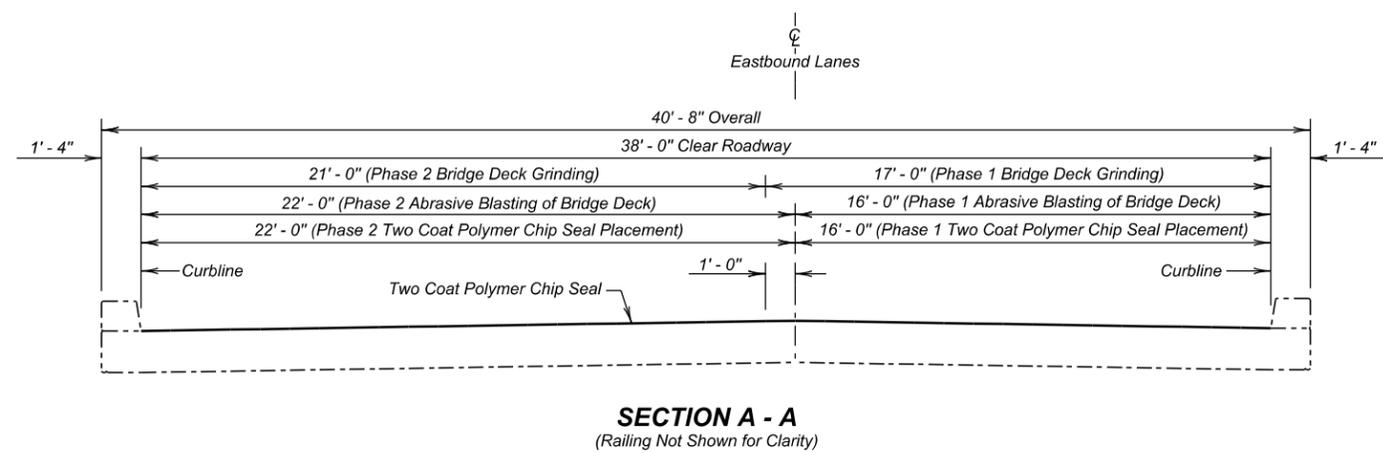


ESTIMATED QUANTITIES			
ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
* Concrete Patching Material, Bridge Deck	Cu. Ft.	32.6	40.2
Two Coat Polymer Bridge Deck Chip Seal	Sq. Yd.	218.7	300.8
Abrasive Blasting of Bridge Deck	Sq. Yd.	218.7	300.8
Bridge Deck Grinding	Sq. Yd.	232.4	287.1
* Concrete Removal, Class A	Sq. Yd.	2.4	3.0
* Concrete Removal, Class B	Sq. Yd.	2.4	3.0

* Concrete Patching Material, Bridge Deck; Concrete Removal, Class A; and Concrete Removal, Class B may not be encountered and may be removed from the project at the direction of the Engineer.

LEGEND -
 Shaded areas indicate approximate locations of unsound concrete requiring Concrete Repair

INDEX OF BRIDGE SHEETS -
 Sheet No. 1 - Polymer Chip Seal Layout
 Sheet No. 2 - Estimate of Structure Quantities and Notes
 Sheet No. 3 - Original Construction Plans
 Sheet No. 4 - Original Construction Plans (Continued)



(EAST BOUND LANES)
 POLYMER CHIP SEAL LAYOUT
 FOR
124' - 1" CONTINUOUS CONCRETE BRIDGE
 38' - 0" ROADWAY
 OVER CROSS ROAD
 STR. NO. 36-520-068
 PCN 035G

JACKSON COUNTY
 S. D. DEPT. OF TRANSPORTATION
 MARCH 2015

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
460E0172	Concrete Patching Material, Bridge Deck	72.8	CuFt
491E0005	Two Coat Polymer Bridge Deck Chip Seal	519.5	SqYd
491E0110	Abrasive Blasting of Bridge Deck	519.5	SqYd
491E0120	Bridge Deck Grinding	519.5	SqYd
491E0130	Concrete Removal, Class A	5.4	SqYd
491E0140	Concrete Removal, Class B	5.4	SqYd

SPECIFICATIONS

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

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 and are provided as information only. 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 shall 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 at the pre-construction meeting.

1. Perform Bridge Deck Grinding for the first phase of construction.
2. Repair the bridge deck by removing all loose and delaminated concrete from the bridge deck surface for the first phase of construction.
3. Clean the bridge deck surface with abrasive blasting for the first phase of construction.
4. Place the Two Coat Polymer Bridge Deck Chip Seal for the first phase of construction.
5. Switch traffic and repeat steps 1 through 4 for Phase 2 of construction.

TWO COAT BRIDGE DECK POLYMER CHIP SEAL

The Two Coat Bridge Deck Polymer Chip Seal shall be applied in accordance with the Construction Specifications.

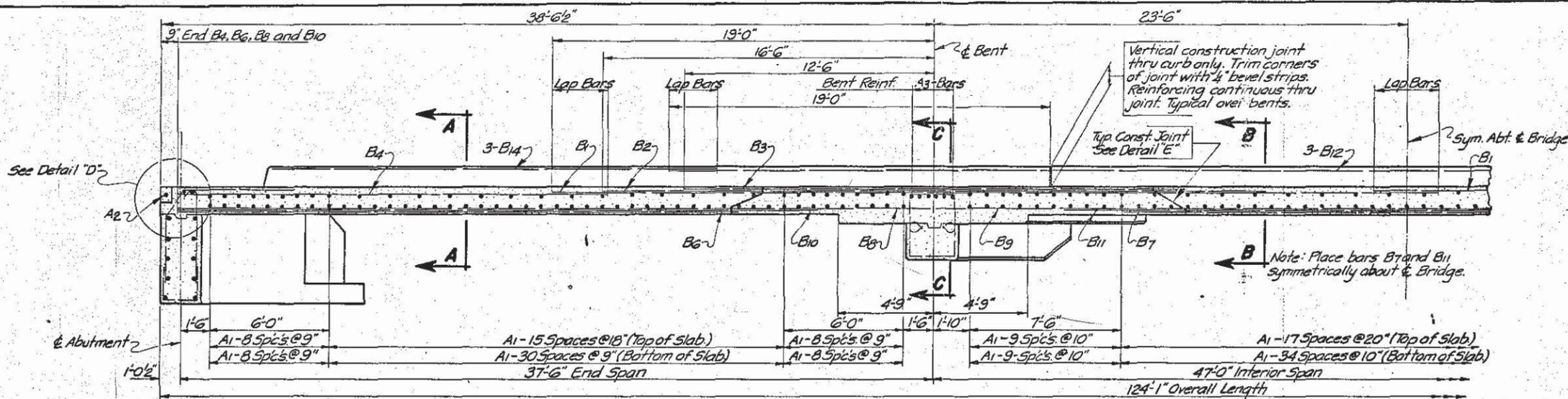
**ESTIMATE OF STRUCTURE QUANTITIES AND NOTES
FOR
124' - 1" CONTINUOUS CONCRETE BRIDGE**

STR. NO. 38-520-068

MARCH 2015

2 OF 4

DESIGNED BY MM JACK035G	CK. DES. BY KSK 035GRB01	DRAFTED BY KR	<i>Kevin N. Boeden</i> BRIDGE ENGINEER
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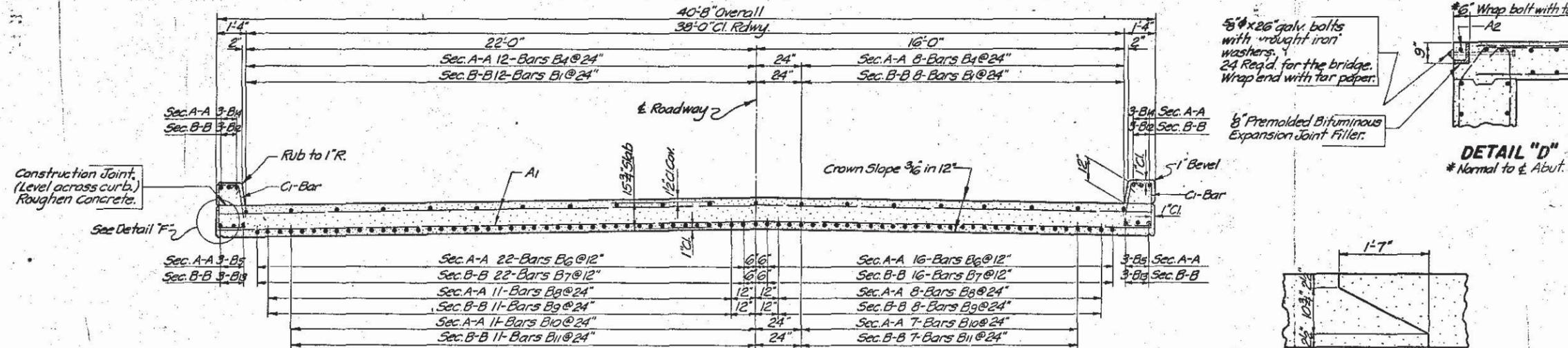


REINFORCING SCHEDULE					Bending Details	
Id.	No.	Size	Length	Usage		
A1	247	5	124'-1"	Str.	1-6" Cr.	
A2	2	5	33'-3"	Str.	2	
B1	40	11	44'-0"	Str.	12	
B2	38	11	33'-0"	Str.	Type T1	
B3	76	10	25'-0"	Str.		
B4	40	9	21'-6"	Str.		
B5	12	11	33'-3"	Str.		
B6	76	10	25'-0"	Str.		
B7	35	10	25'-0"	Str.		
B8	35	10	37'-9"	Str.		
B9	19	10	47'-9"	Str.		
B10	35	10	32'-0"	Str.		
B11	13	10	34'-0"	Str.		
B12	12	11	44'-0"	Str.		
B13	6	11	47'-0"	Str.		
B14	12	8	22'-0"	Str.		
C1	260	4	7'-3"	TI		

Note: All dimensions are out to out of bars.

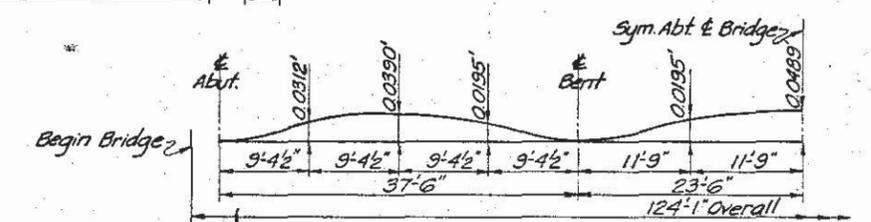
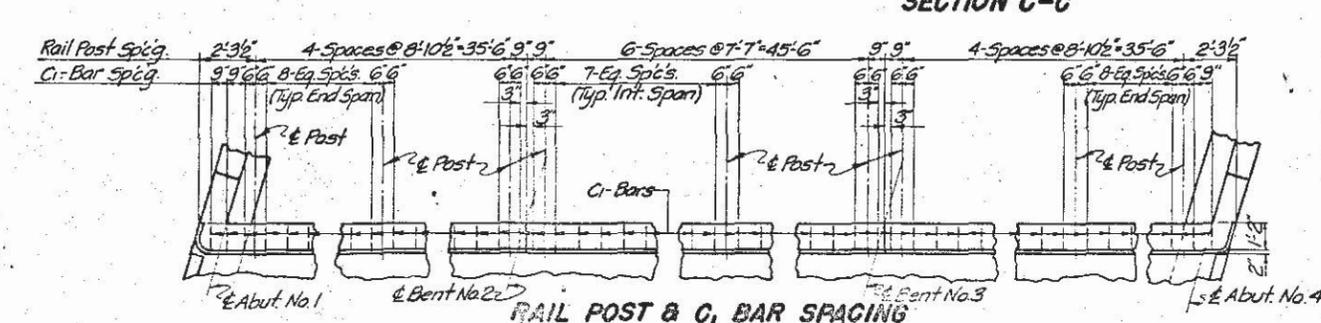
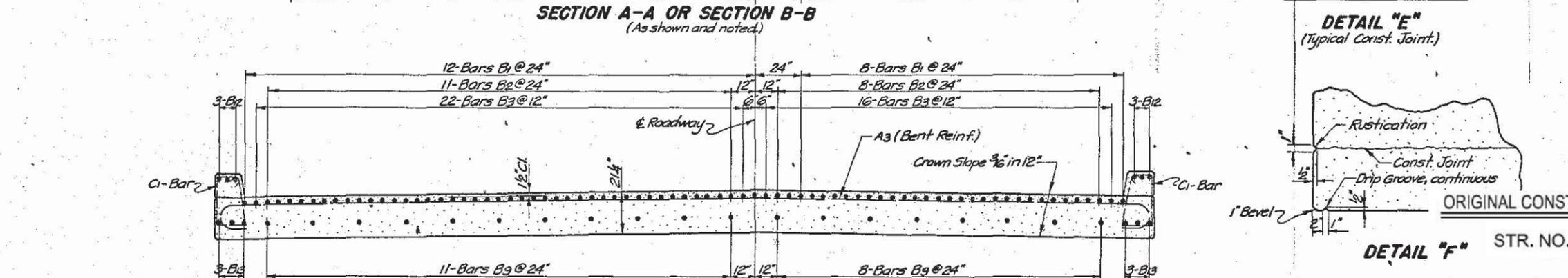
ESTIMATED QUANTITIES		
ITEM	UNIT	Quantity
Class A Concrete	Cu. Yds.	231.4
Reinforcing Steel	Lbs.	73,000
Structural Steel	Lbs.	60
Type RT-3 Steel Railing	Lin. Ft.	243.0

Φ Wt. of 24-5/8" Bolts and Washers



NOTES:

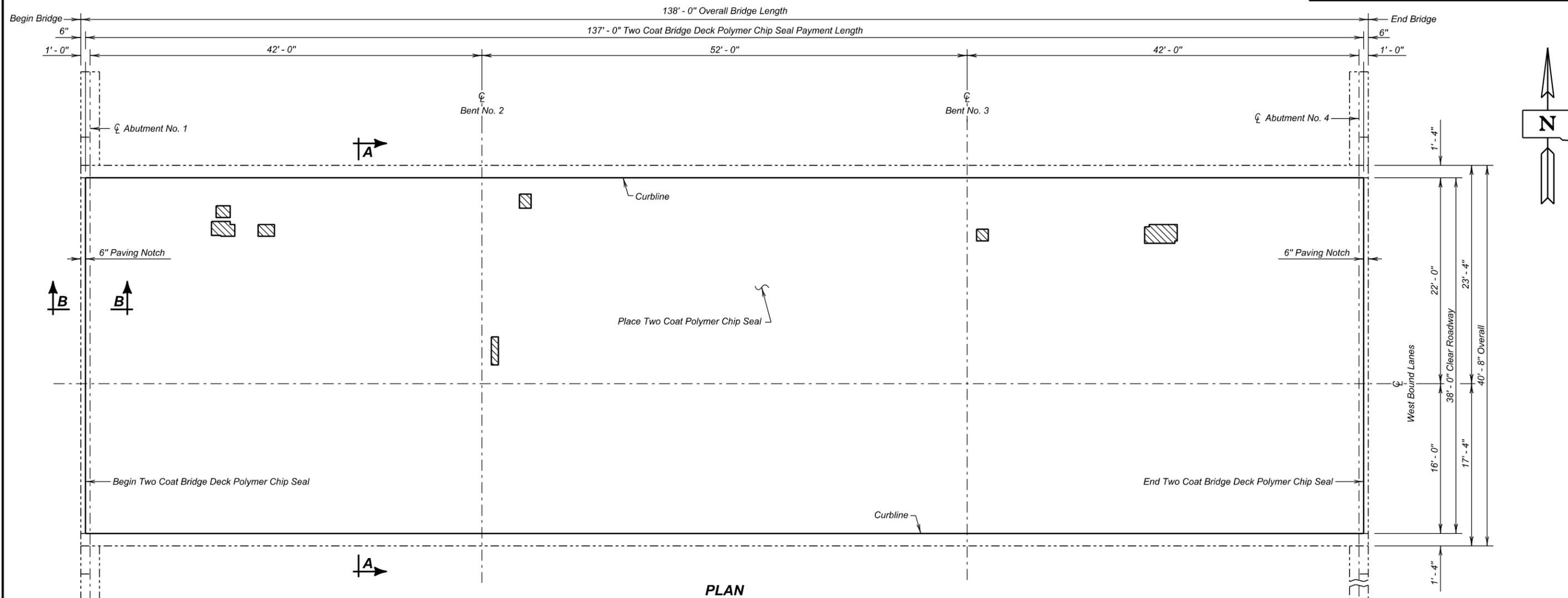
These notes cover Abutments, Bents, Superstructure and Railing Details. The General Drawing will show other necessary notes and details. DESIGN SPECIFICATIONS: A.A.S.H.O. Specifications for Highway Bridges, 1961, with interim Specifications for 1961, 1962, 1963, and 1964. PILING: See General Drawing for length of piling. STRUCTURAL STEEL: All 5/8" Bolts including washers, and all pile connections in Abutments, shall be paid for as Structural Steel. REINFORCING STEEL: All reinforcing steel shall conform to A.S.T.M. Specifications A305 and A15 (Intermediate Grade). CONCRETE: Class A Concrete shall develop a minimum allowable compressive strength of 4,000 p.s.i. at 28 days. All exposed concrete corners and edges shall be chamfered to a 1" bevel unless otherwise noted. If necessary to facilitate construction, transverse construction joints may be made at the quarter points of each and any span adjacent to interior bents. If these joints are used, submit a concrete pouring sequence to the District Engineer for approval. All costs for expansion joint filler and tar paper shall be included in the unit price bid for Class A Concrete. DESIGN DATA: Design Loading: HS 20-44 A.A.S.H.O. and the Alternate Loading as designated F.H.M. 20-4, Section 4c. Unit Stresses: Concrete $f_c = 1600$ p.s.i. $n = 8$. R_s Steel $f_s = 20,000$ p.s.i. Equivalent Fluid pressure of earth at 40 Lbs./sq. ft. Minimum Pile Loading = 24 Tons for Timber Piling. Bearing Pressure for belled base or footing = 5 Tons per sq. ft.



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

ORIGINAL CONSTRUCTION PLANS
(EAST BOUND LANES)
SUPERSTRUCTURE DETAILS
FOR
124'-1" CONTINUOUS CONCRETE BRIDGE
33'-0" ROADWAY 16° SKEW L.H.F.
OVER CROSS ROAD SEC. 2/3-T 2S-R25E
STA. 358+15.956 TO 359+40.039 190-3(2)168
JACKSON COUNTY
SOUTH DAKOTA HS 20-44
DEPARTMENT OF HIGHWAYS (BALT.)
APR. 1965 4 OF 4

DESIGNED BY	DRAWN BY R.M.	CHECKED BY C.H.U.	APPROVED
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PLAN

INDEX OF SHEETS -

- Sheet No. 1 - Polymer Chip Seal Layout
- Sheet No. 2 - Estimate of Structure Quantities and Notes
- Sheet No. 3 - Original Construction Plans
- Sheet No. 4 - Original Construction Plans (Continued)

LEGEND -

Shaded areas indicate approximate locations of unsound concrete requiring concrete repair

ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
* Concrete Patching Material, Bridge Deck	Cu. Ft.	27.4	27.4
Two Coat Bridge Deck Polymer Chip Seal	Sq. Yd.	243.6	334.9
Abrasive Blasting of Bridge Deck	Sq. Yd.	243.6	334.9
Bridge Deck Grinding	Sq. Yd.	258.8	319.7
* Concrete Removal, Class A	Sq. Yd.	2.0	2.0
* Concrete Removal, Class B	Sq. Yd.	2.0	2.0

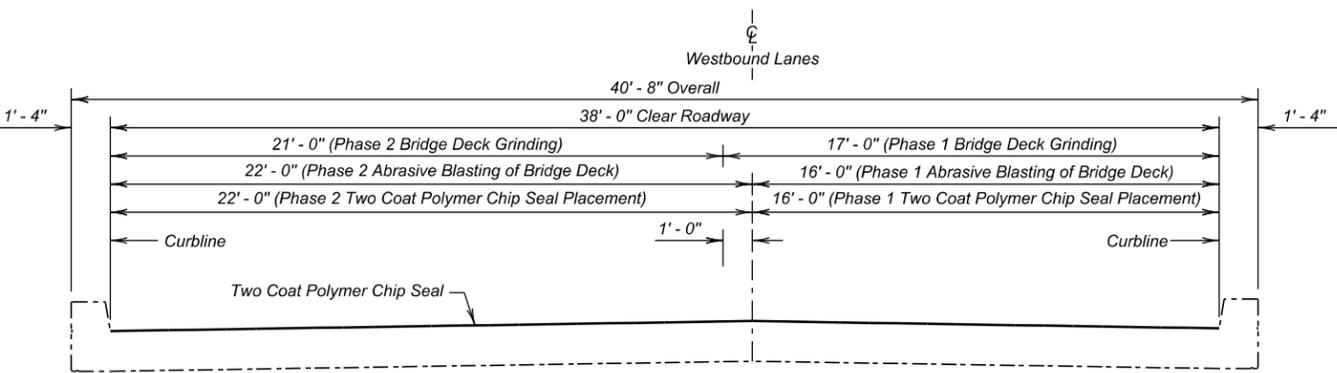
* Concrete Patching Material, Bridge Deck; Concrete Removal, Class A; and Concrete Removal, Class B may not be encountered and may be removed from the project at the direction of the Engineer.

(WEST BOUND LANES)
POLYMER CHIP SEAL LAYOUT

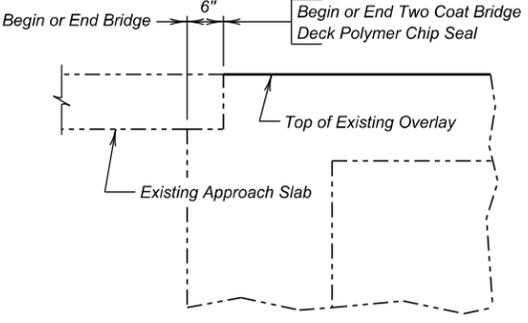
FOR
138' - 0" CONTINUOUS CONCRETE BRIDGE
38' - 0" ROADWAY 0° SKEW
OVER LOCAL ROAD SEC. 32 / 33-TIS-R30E
STR. NO. 38-260-178 IM 0903(97)172
PCN 035G

JONES COUNTY
S. D. DEPT. OF TRANSPORTATION

MARCH 2015 1 OF 4



SECTION A - A
(Railing Not Shown for Clarity)



SECTION B - B

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

DESIGNED BY MM JACK035G	CK. DES. BY KSK 035GRC01	DRAFTED BY KR	 BRIDGE ENGINEER
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ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
460E0172	Concrete Patching Material, Bridge Deck	54.8	CuFt
491E0005	Two Coat Polymer Bridge Deck Chip Seal	578.5	SqYd
491E0110	Abrasive Blasting of Bridge Deck	578.5	SqYd
491E0120	Bridge Deck Grinding	578.5	SqYd
491E0130	Concrete Removal, Class A	4.0	SqYd
491E0140	Concrete Removal, Class B	4.0	SqYd

SPECIFICATIONS

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

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 and are provided as information only. 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 shall 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 at the pre-construction meeting.

1. Perform Bridge Deck Grinding for the first phase of construction.
2. Repair the bridge deck by removing all loose and delaminated concrete from the bridge deck surface for the first phase of construction.
3. Clean the bridge deck surface with abrasive blasting for the first phase of construction.
4. Place the Two Coat Polymer Bridge Deck Chip Seal for the first phase of construction.
5. Switch traffic and repeat steps 1 through 4 for Phase 2 of construction.

TWO COAT BRIDGE DECK POLYMER CHIP SEAL

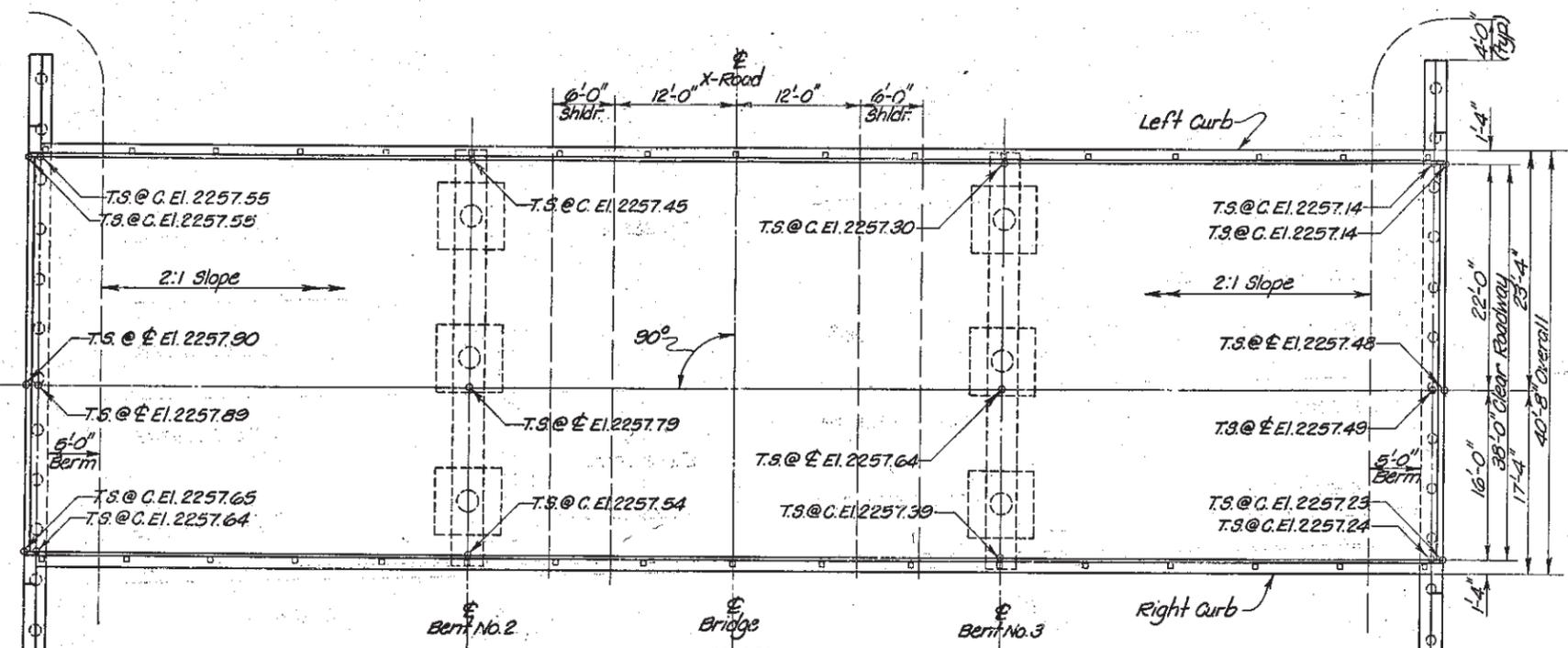
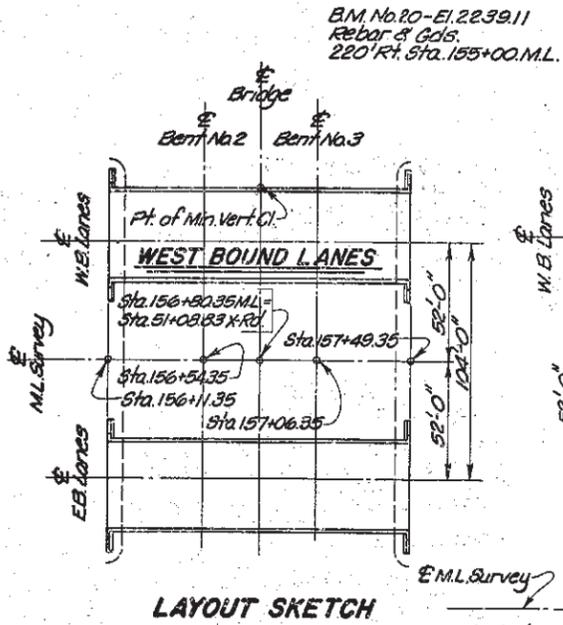
The Two Coat Bridge Deck Polymer Chip Seal shall be applied in accordance with the Construction Specifications.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES
 FOR
138' - 0" CONTINUOUS CONCRETE BRIDGE
 STR. NO. 38-260-178
 MARCH 2015

INDEX OF BRIDGE SHEETS -

- Sheet No.1 - General Drawing, Layout and Quantities
- Sheet No.2 - Subsurface Investigations
- Sheet No.3 - Details of Superstructure
- Sheet No.4 - Details of Abutment
- Sheet No.5 - Bent Details
- Sheet No.6 - Details of RT-3A Steel Railing

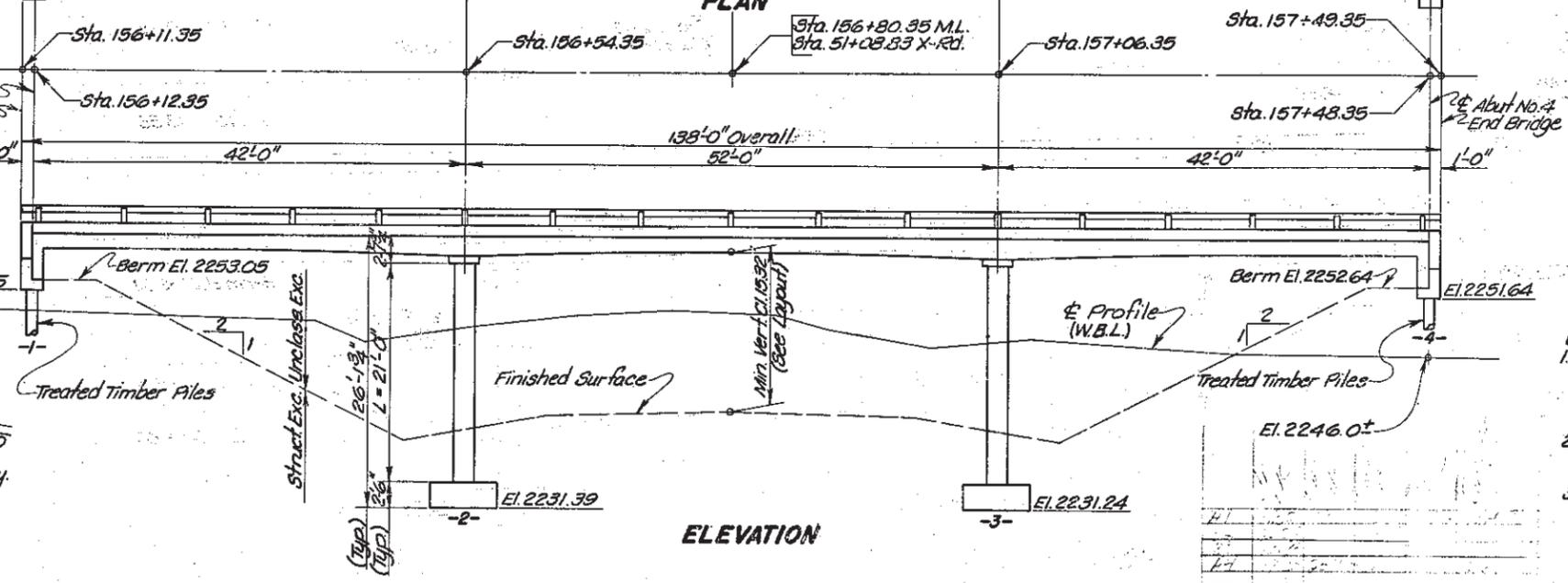
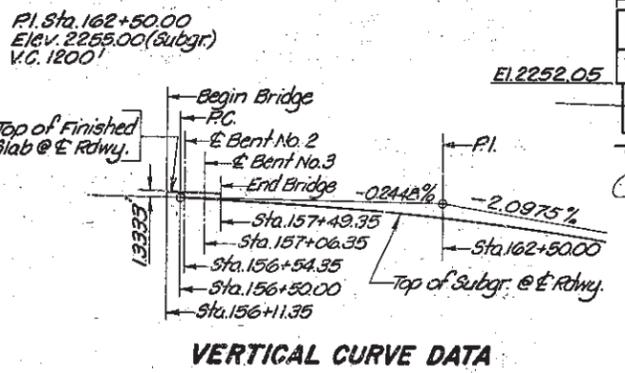
B.M. No.21 - El. 2248.49
 Rebar & Gds.
 225' Lt. Sta. 158+00 M.L.



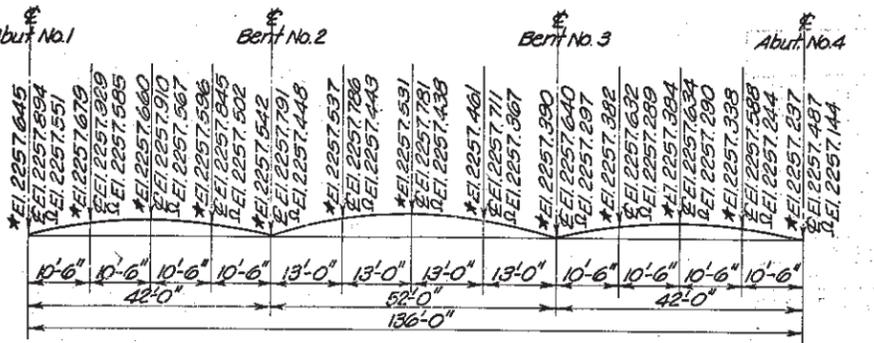
NOTE: -
 T.S. @ C. El. = Top of Slab at Curb Elevation
 T.S. @ E. El. = Top of Slab at Centerline Elevation

SPECIFICATION NOTE -
 Use South Dakota Standard Specifications for Roads and Bridges, 1963 Edition, approved as Standard Sept. 21, 1964, and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal. All concrete shall be Class "A" (Type II Cement) with air entrainment.

- GENERAL NOTES -**
- Design Specification: A.A.S.H.O. Specifications for Highway Bridges, 1965.
 - See NOTES on Sheet No. 2 thru No. 6.
 - Railing posts shall be built vertical.
 - Omit all floor drains.
 - Unit Stresses: Concrete $f_c = 1600$ p.s.i.
Reinf. Steel $f_s = 20,000$ p.s.i.
 - Design Loading: HS20-44 and Alternate Loading as designated in P.P.M. 20-4, section 4c.
 - Prebored holes for piles shall be backfilled with granular material acceptable to the ENGINEER and compacted as specified by the ENGINEER. The cost of granular material in place shall be included in the unit price bid for the piles.
 - The contractor shall have sufficient pile splice material on hand before pile driving is started. See Standard Plate No. 303.1 as included in Special Provisions for Piling dated Nov. 19, 1966.
 - Longitudinal elements of the slab shall conform to the vertical curve.
 - In the event pile shoes are used, see standard Plate No. 301 for details.
 - Bridge Contractor shall furnish and install 1/8" x 7/8" sleeve nut units in Wing Walls as shown on Std. Plate No. 304.



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



Elevations indicated with Ω are Top of Finished Slab at Left Curb with \oplus are Top of Finished Slab at Centerline Roadway, and with \star are Top of Finished Slab at Right Curb. Camber for Dead Load Deflection, PLUS Plastic Flow, shown on Sheet No. 3 of Bridge Plans, have been included in the elevations shown above.

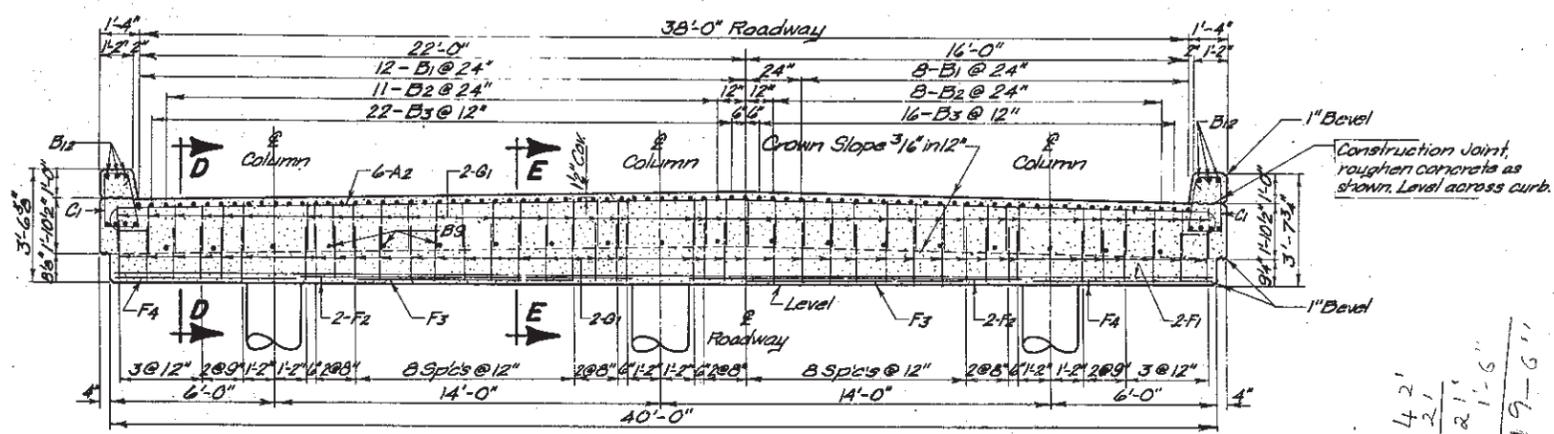
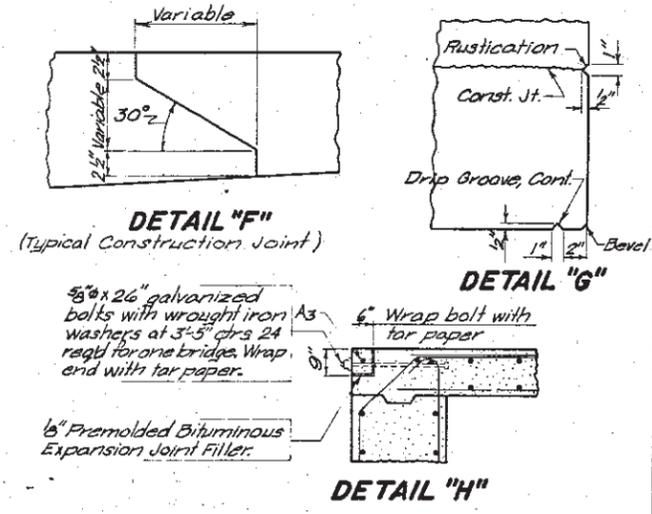
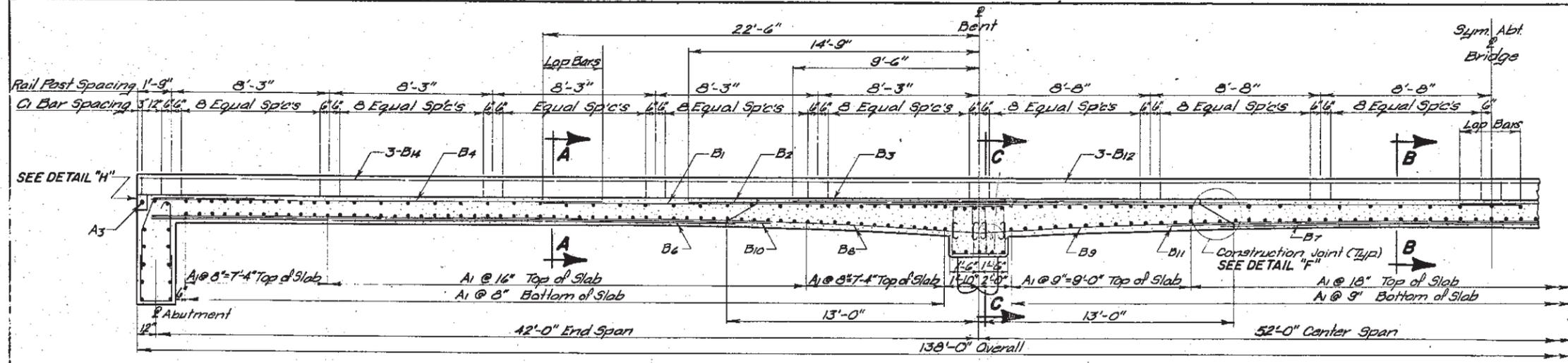
ITEM	4 1/2" Conc.		Steel - Lbs.		Type RT-3A Steel Railing Lin. Ft.	Timber Piles - Lin. Ft.	Excavation - Cu. Yds.	
	Qu. Yds.	Reinf.	Struct.	Unclass.			Struct.	Unclass.
Superstructure	323.1	94,325	40	276.0				
Abutment No. 1	21.3	2,465	560		11 @ 25' = 275'	1 @ 30' = 30'	17	
Bent No. 2	19.1	2,690					67	
Bent No. 3	19.1	2,690					69	
Abutment No. 4	21.3	2,465	560		11 @ 25' = 275'	1 @ 30' = 30'	17	
Totals	403.9	104,635	1,180	276.0		550	170	

1 One Treated Timber Test Pile shall be driven at Abutments No. 1 and No. 4 before remaining piles are ordered.
 2 Unclassified excavation to be done by others.

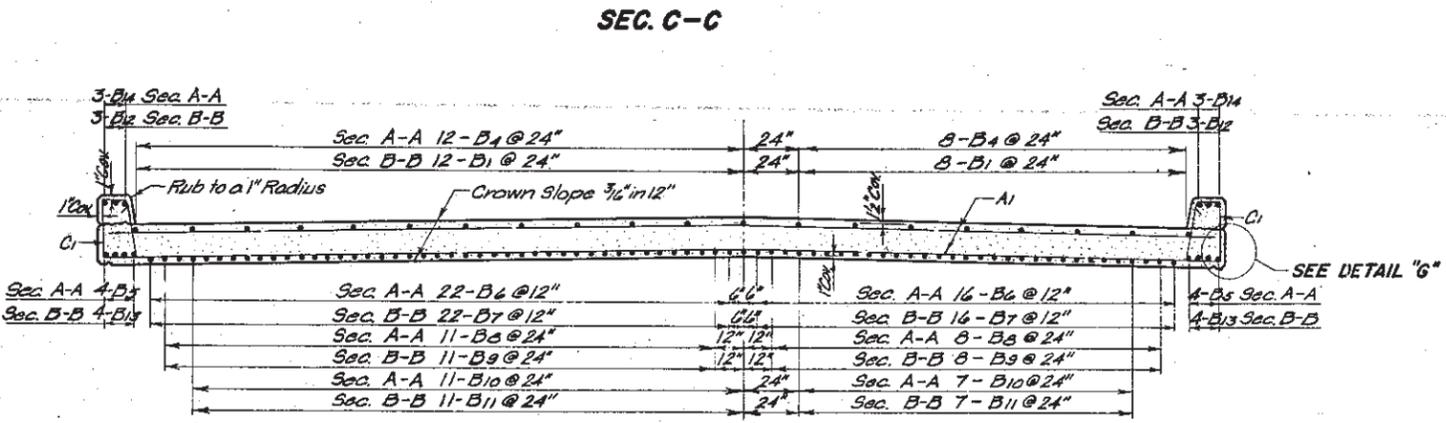
(WEST BOUND LANES)
 GENERAL DRAWING, LAYOUT AND QUANTITIES
 FOR
138'-0" CONTINUOUS CONCRETE BRIDGE
 38'-0" ROADWAY 0° SKEW
 OVER LOCAL ROAD SEC. 32/33-TIS-R30E
 STA. 156+11.35 TO 157+49.35 M.L. I 90-4(11)201
 JONES COUNTY
 SOUTH DAKOTA HS20-44 (8 ALT.)
 DEPARTMENT OF HIGHWAYS

ORIGINAL CONSTRUCTION PLANS

STR. NO. 38-260-178



MARK	No	Size	Length	Type	MARK	No	Size	Length	Type	MARK	No	Size	Length	Type
A1	510	5	40'-3"	Str.	B7	38	10	27'-0"	Str.	F1	4	9	39'-9"	Str.
A2	12	11	42'-6"	1	B8	38	11	42'-3"	Str.	F2	8	9	12'-0"	Str.
A3	2	5	37'-9"	Str.	B9	19	11	52'-0"	Str.	F3	4	9	8'-0"	Str.
B1	40	11	50'-0"	Str.	B10	36	11	33'-3"	Str.	F4	4	4	6'-6"	Str.
B2	38	11	29'-6"	Str.	B11	18	11	34'-0"	Str.	G1	336	4	5'-6"	St.
B3	76	11	19'-0"	Str.	B12	12	11	50'-6"	Str.					
B4	40	9	22'-6"	Str.	B13	8	11	52'-0"	Str.					
B8	16	11	42'-9"	Str.	B14	12	8	23'-0"	Str.					
B6	76	10	30'-3"	Str.	C1	296	4	7'-6"	Ti					



NOTES

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

DESIGN SPECIFICATION: AASHTO Specifications for Highway Bridges, 1965.

FILING: See General Drawing for type and length of Filing.

STRUCTURAL STEEL: All 5/8" bolts including washers, and all pile connections in Abutments shall be paid for as Structural Steel.

REINFORCING STEEL: All Reinforcing steel shall conform to A.S.T.M. Specifications A305 and A15 (Intermediate Grade).

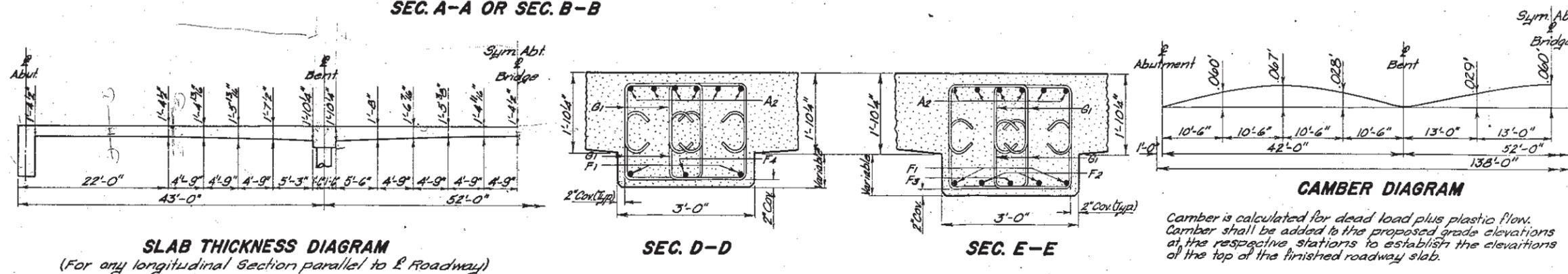
CONCRETE: Class "A" Concrete shall develop a minimum allowable compressive strength of 4000 p.s.i. at 28 days. All exposed concrete corners and edges shall be chamfered to a 3/4" bevel unless noted otherwise. If necessary to facilitate construction, transverse construction joints may be made at the points shown in each and any span. If these joints are used, submit a Concrete Pouring Sequence to the BRIDGE SECTION for approval. All costs for expansion joint filler and tar paper shall be included in the unit price bid per cu. yd. for Class "A" Concrete.

DESIGN DATA: Design Loading: HS20-44 AASHTO and the Alternate Loading as designated in F.P.M. 20-4, Section 4c. Unit Stresses: Concrete f_c = 1600 p.s.i., n = 8, Reinforcing Steel: f_s = 20,000 p.s.i. Equivalent fluid pressure of earth at 40° 1 sq. ft. Minimum Filing Loading = 24 tons for Timber Piling.

ORIGINAL CONSTRUCTION PLANS
STR. NO. 38-260-178

ITEM	UNIT	QUANTITY
Class "A" Concrete	Cu. Yds.	323.1
Reinforcing Steel	Lbs.	94,325
Structural Steel	Lbs.	86

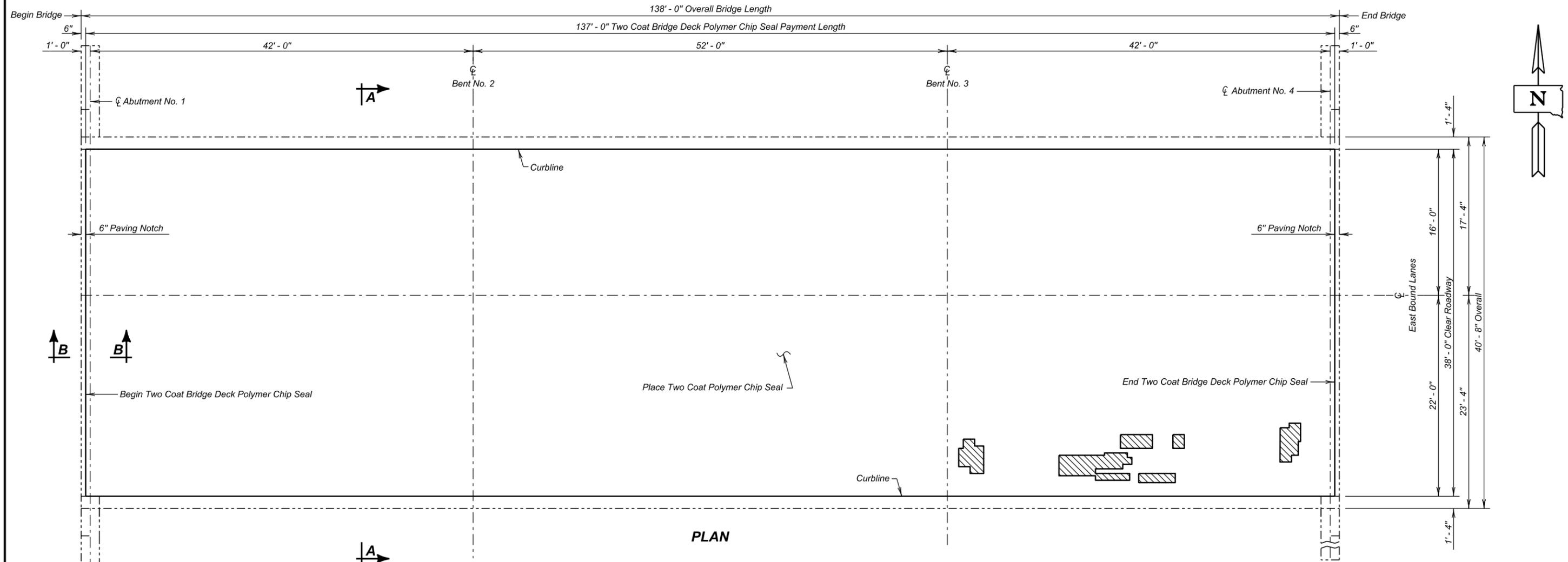
* Weight of 5/8" Bolts and Washers only.
(WEST BOUND LANES)



DETAILS OF SUPERSTRUCTURE FOR
138'-0" CONTINUOUS CONCRETE BRIDGE
38'-0" ROADWAY 0° SKEW
OVER LOCAL ROAD SEC. 32/33-TIS-R30E
STA. 156+11.35 TO 157+49.35 M.L. 190-4(11)201

JONES COUNTY
SOUTH DAKOTA HS20-44 (BALT.)
DEPARTMENT OF HIGHWAYS
NOV. 1967 4 OF 4

DESIGNED BY: L.F.M. DRAWN BY: M.B.S. CHECKED BY: APPROVED: [Signature] BRIDGE ENGINEER



INDEX OF SHEETS -

- Sheet No. 1 - Polymer Chip Seal Layout
- Sheet No. 2 - Estimate of Structure Quantities and Notes
- Sheet No. 3 - Original Construction Plans
- Sheet No. 4 - Original Construction Plans (Continued)

LEGEND -

Shaded areas indicate approximate locations of unsound concrete requiring concrete repair

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
* Concrete Patching Material, Bridge Deck	Cu. Ft.	30.6	37.8
Two Coat Polymer Bridge Deck Chip Seal	Sq. Yd.	243.6	334.9
Abrasive Blasting of Bridge Deck	Sq. Yd.	243.6	334.9
Bridge Deck Grinding	Sq. Yd.	258.8	319.7
* Concrete Removal, Class A	Sq. Yd.	2.2	2.8
* Concrete Removal, Class B	Sq. Yd.	2.2	2.8

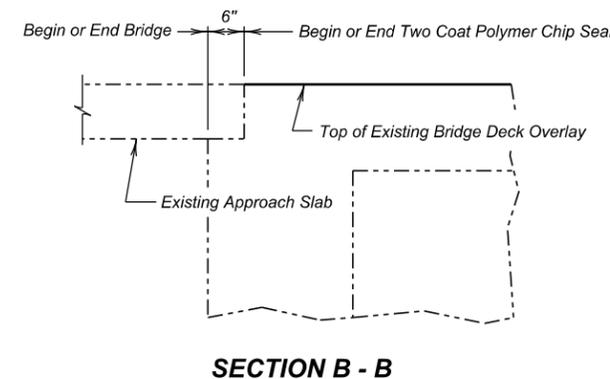
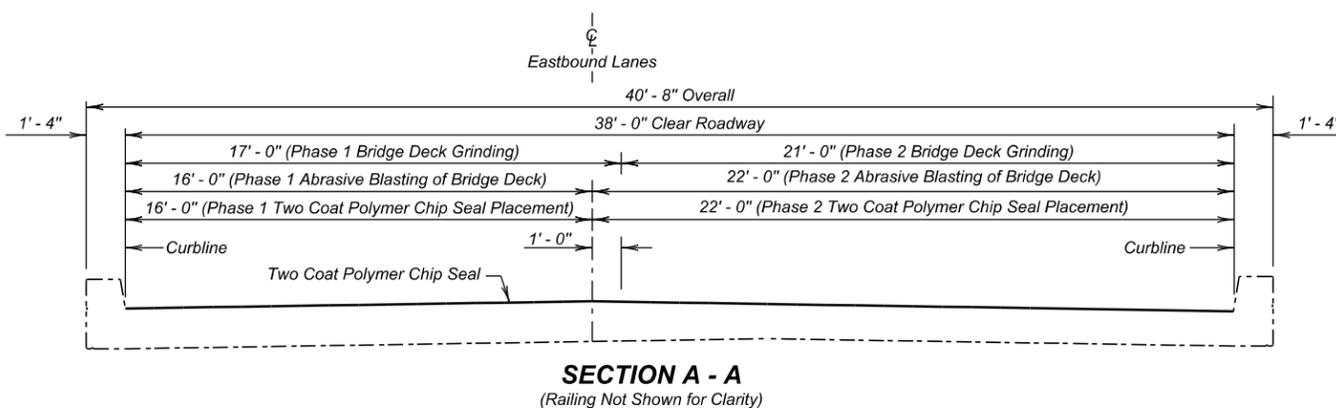
* Concrete Patching Material, Bridge Deck; Concrete Removal, Class A; and Concrete Removal, Class B may not be encountered and may be removed from the project at the direction of the Engineer.

(EAST BOUND LANES)
POLYMER CHIP SEAL LAYOUT
FOR

138' - 0" CONTINUOUS CONCRETE BRIDGE
38' - 0" ROADWAY
OVER LOCAL ROAD
STR. NO. 38-260-179
PCN 035G

0° SKEW
SEC. 32 / 33-TIS-R30E
IM 0903(97)172

JONES COUNTY
S. D. DEPT. OF TRANSPORTATION
MARCH 2015



STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0903(97)172	E12	E25

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
460E0172	Concrete Patching Material, Bridge Deck	68.4	CuFt
491E0005	Two Coat Polymer Bridge Deck Chip Seal	578.5	SqYd
491E0110	Abrasive Blasting of Bridge Deck	578.5	SqYd
491E0120	Bridge Deck Grinding	578.5	SqYd
491E0130	Concrete Removal, Class A	5.0	SqYd
491E0140	Concrete Removal, Class B	5.0	SqYd

SPECIFICATIONS

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

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 and are provided as information only. 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 shall 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 at the pre-construction meeting.

1. Perform Bridge Deck Grinding for the first phase of construction.
2. Repair the bridge deck by removing all loose and delaminated concrete from the bridge deck surface for the first phase of construction.
3. Clean the bridge deck surface with abrasive blasting for the first phase of construction.
4. Place the Two Coat Polymer Bridge Deck Chip Seal for the first phase of construction.
5. Switch traffic and repeat steps 1 through 4 for Phase 2 of construction.

TWO COAT BRIDGE DECK POLYMER CHIP SEAL

The Two Coat Bridge Deck Polymer Chip Seal shall be applied in accordance with the Construction Specifications.

**ESTIMATE OF STRUCTURE QUANTITIES AND NOTES
FOR
138' - 0" CONTINUOUS CONCRETE BRIDGE**

STR. NO. 38-260-179

MARCH 2015

2 OF 4

DESIGNED BY MM JACK035G	CK. DES. BY KSK 035GRD01	DRAFTED BY KR	<i>Kevin N. Boeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0903(97)172	E13	E25

-X220-
INDEX OF BRIDGE SHEETS
 Sheet No.1 - General Drawing, Layout and Quantities
 Sheet No.2 - Subsurface Investigations
 Sheet No.3 - Details of Superstructure
 Sheet No.4 - Details of Abutment
 Sheet No.5 - Bent Details
 Sheet No.6 - Details of RT-3A Steel Railing

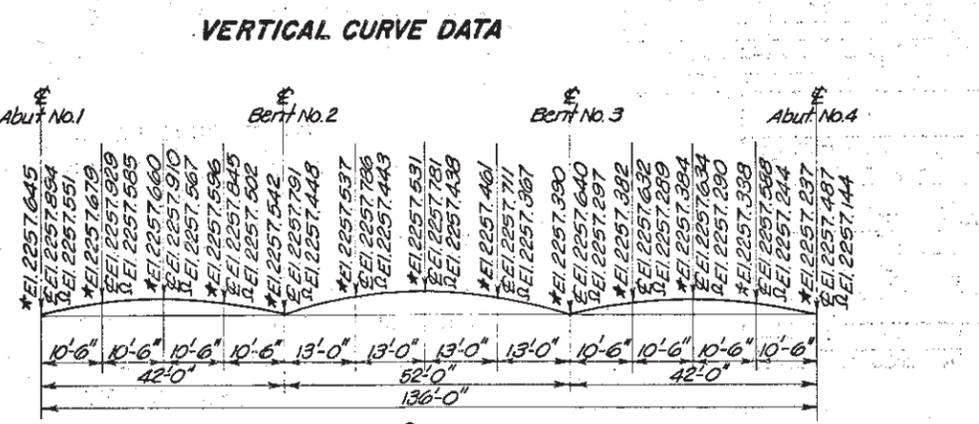
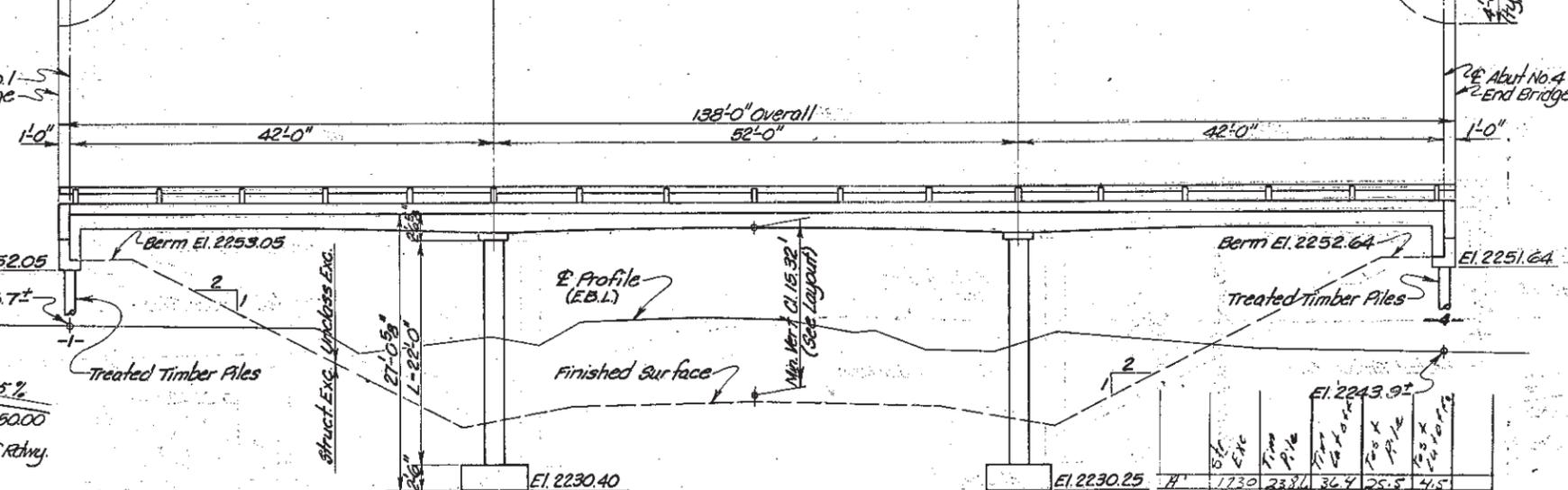
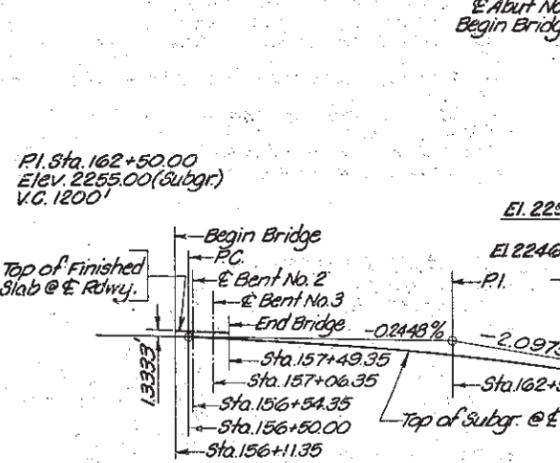
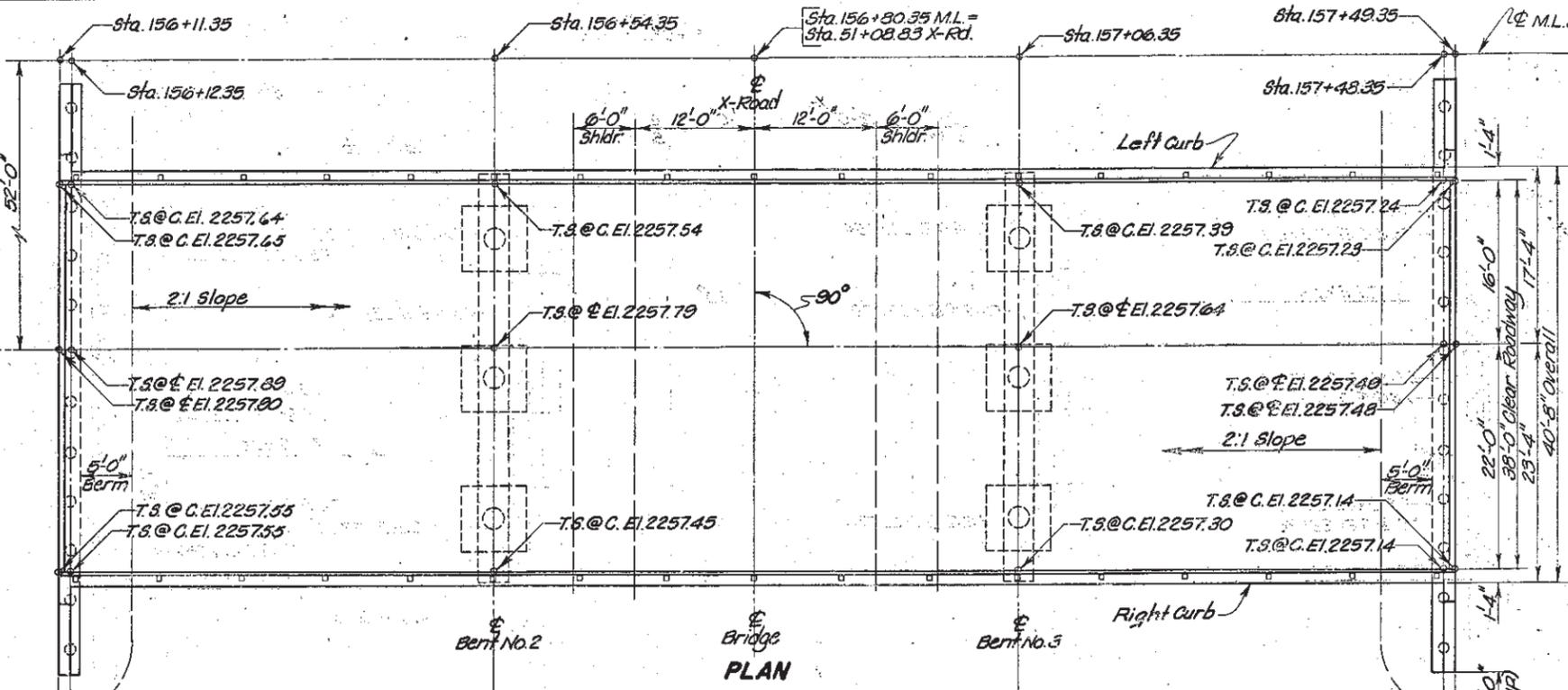
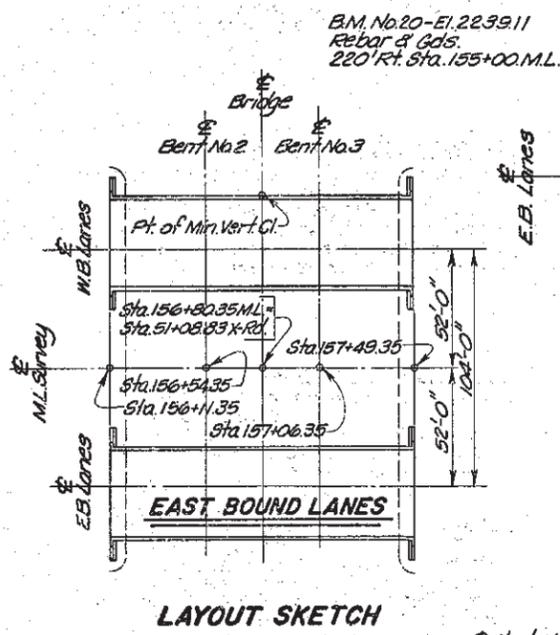
B.M. No. 21 - El. 2248.49
 Rebar & Gds.
 225' Lt. Sta. 158+00 M.L.

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

SPECIFICATION NOTE
 Use South Dakota Standard Specifications for Roads and Bridges, 1963 Edition, approved as Standard Sept. 21, 1964, and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal. All concrete shall be Class 'A' (Type II Cement) with air entrainment.

GENERAL NOTES
 1. Design Specification: A.A.S.H.O. Specifications for Highway Bridges, 1965.
 2. See NOTES on Sheet No. 2 thru No. 6.
 3. Railing posts shall be built vertical.
 4. Omit all floor drains.
 5. Unit Stresses: Concrete $f_c = 1600$ p.s.i.; Reinf. Steel $f_s = 20,000$ p.s.i.
 6. Design Loading: HS 20-44 and Alternate Loading as designated in PPM, 20-4, section 4.C.
 7. Prebored holes for piles shall be back-filled with granular material acceptable to the ENGINEER and compacted as specified by the ENGINEER. The cost of granular material in place shall be included in the unit price bid for the piles.
 8. The contractor shall have sufficient pile splice material on hand before pile driving is started. See Standard Plate No. 303.1 as included in Special Provisions for Piling dated Nov. 19, 1966.
 9. Longitudinal elements of the slab shall conform to the vertical curve.
 10. In the event pile shoes are used, see Standard Plate No. 301 for details.
 11. Bridge Contractor shall furnish and install 1 1/2" x 1 1/2" sleeve nut units in Wing Walls as shown on Std. Plate No. 304.

EXCAVATION NOTES
 1. Footings for Bents No. 2 and No. 3 shall be cast upon solid undisturbed shale and carried into same to elevation shown. Limits of shale excavation, below top of footings, shall be bound as nearly as practicable by the neat lines as shown in details of footings for Bents No. 1 and No. 2 on Sheet No. 5 of 6.
 2. Shale shall develop a value of 4 to 7.5 per sq. ft. If the bearing value is less than 4 tons per sq. ft. at elevations shown, communicate with the BRIDGE SECTION.
 3. Final footing elevations for Bents No. 2 and No. 3 shall be established before ordering column reinforcing steel for respective Bents. If final footing elevations must differ from those shown, communicate with BRIDGE SECTION.



ITEM	ESTIMATED QUANTITIES		Type RT-3A Steel Railing - Lin. Ft.	Timber Piles - Lin. Ft. Treated Timber @ Test	Excavation - Cu. Yds. Struct. 4Unclass.
	Cu. Yds.	Steel - Lbs.			
Superstructure	323.1	94,325	60	2760	
Abutment No. 1	21.3	2,465	560	11 @ 25'-275' @ 30'-30'	17
Bent No. 2	19.4	2,770			65
Bent No. 3	18.4	2,770			66
Abutment No. 4	21.3	2,465	560	11 @ 25'-275' @ 30'-30'	17
Totals	404.5	104,795	1,180	2760	550

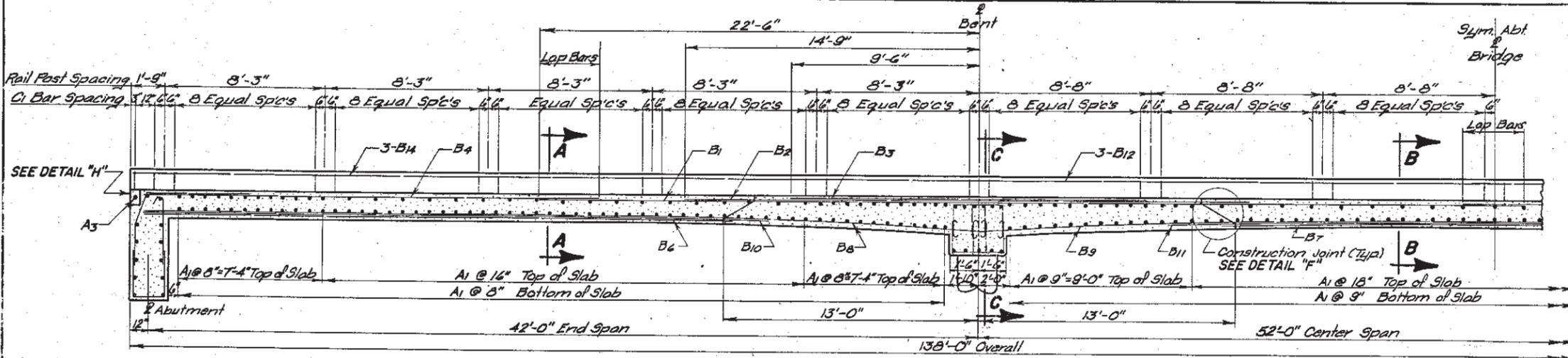
One Treated Timber Test Pile shall be driven at Abutments No. 1 and No. 4 before remaining piles are ordered.
 Unclassified Excavation to be done by others.

(EAST BOUND LANES)
GENERAL DRAWING, LAYOUT AND QUANTITIES
 FOR
138'-0" CONTINUOUS CONCRETE BRIDGE
 38'-0" ROADWAY 0° SKEW
 OVER LOCAL ROAD SEC. 32/33-TIS-R30E
 STA. 156+11.35 TO 157+49.35 M.L. 190-4(11)201
 JONES COUNTY
 SOUTH DAKOTA HS20-44 (8 ALT.)
 DEPARTMENT OF HIGHWAYS
 JAN. 1968 ③ OF ④

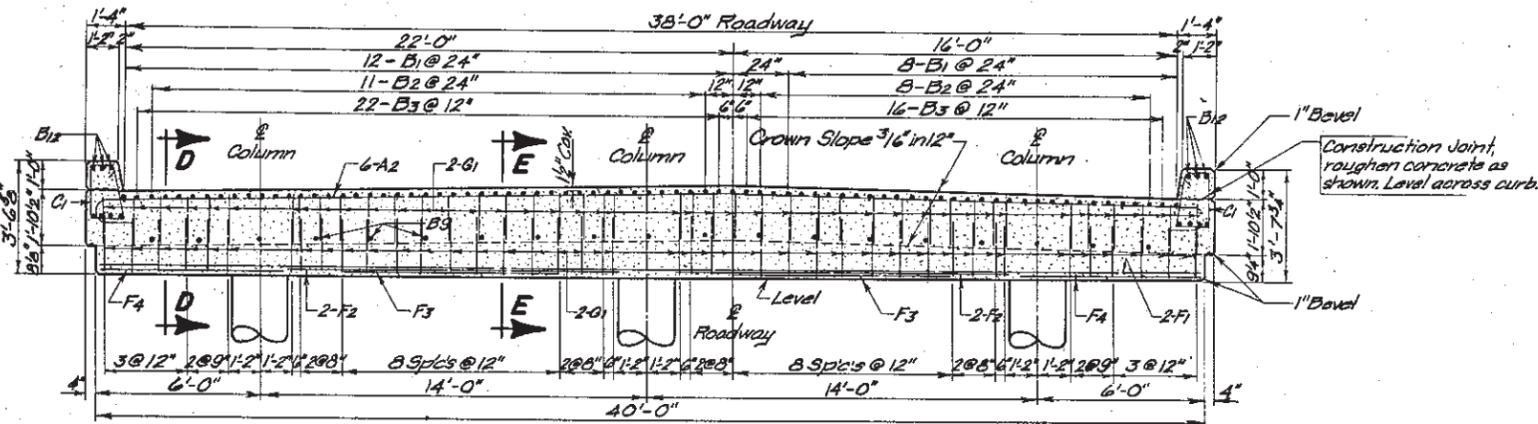
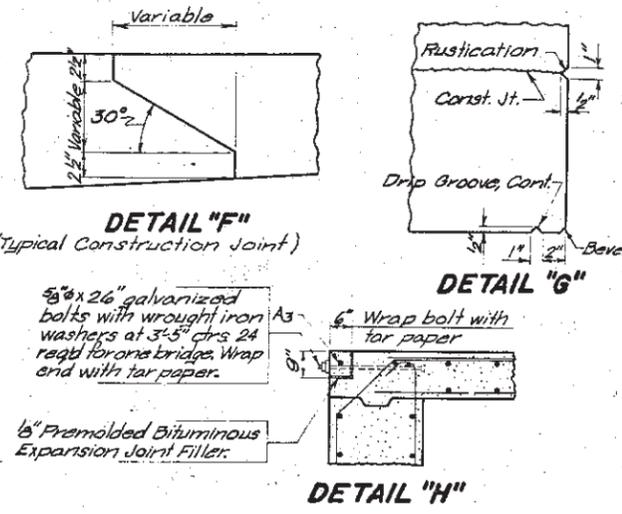
ORIGINAL CONSTRUCTION PLANS
 STR. NO. 38-260-179

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	GA	MBS	<i>[Signature]</i> BRIDGE ENGINEER

STATE OF S.D.	PROJECT 1M 09031971172	SHEET NO. E14	TOTAL SHEETS E25
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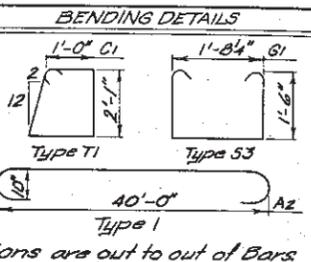
HALF LONGITUDINAL SECTIONAL VIEW



SEC. C-C

REINFORCING SCHEDULE

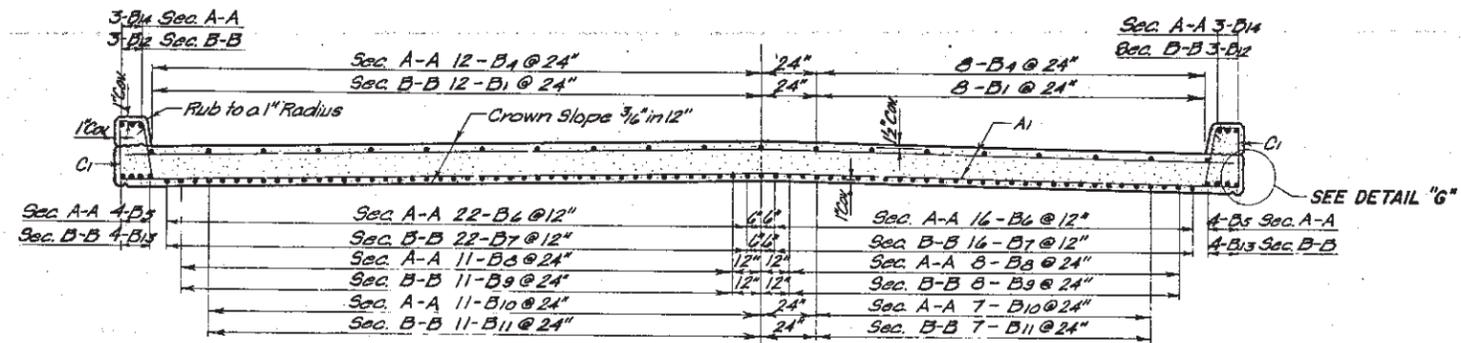
MK	No	Size	Length	Type	MK	No	Size	Length	Type	MK	No	Size	Length	Type
A1	310	5	40'-3"	Str.	B7	38	10	27'-0"	Str.	F1	4	9	39'-9"	Str.
A2	12	11	42'-6"	Str.	B8	38	11	42'-3"	Str.	F2	8	9	12'-0"	Str.
A3	2	5	37'-9"	Str.	B9	19	11	52'-0"	Str.	F3	4	9	8'-0"	Str.
B1	40	11	50'-0"	Str.	B10	36	11	33'-3"	Str.	F4	4	4	6'-6"	Str.
B2	38	11	29'-6"	Str.	B11	18	11	34'-0"	Str.	G1	336	4	5'-6"	St.
B3	76	11	19'-0"	Str.	B12	12	11	50'-6"	Str.					
B4	40	9	22'-6"	Str.	B13	8	11	52'-0"	Str.					
B5	16	11	42'-9"	Str.	B14	12	8	23'-0"	Str.					
B6	76	10	30'-3"	Str.	C1	296	4	7'-6"	T1					



NOTE: All dimensions are out to out of Bars.

NOTES

These notes cover Abutments, Bents, Superstructure, and Piling Details. The General Drawing will show other necessary notes and details.
 DESIGN SPECIFICATION: A.A.S.H.O. Specifications for Highway Bridges, 1965.
 PILING: See General Drawing for type and length of Piling.
 STRUCTURAL STEEL: All 5/8" bolts including washers, and all pile connections in Abutments shall be paid for as Structural Steel.
 REINFORCING STEEL: All Reinforcing steel shall conform to A.S.T.M. Specifications A305 and A15 (Intermediate Grade).
 CONCRETE: Class A Concrete shall develop a minimum allowable compressive strength of 4000 p.s.i. at 28 days. All exposed concrete corners and edges shall be chamfered to a 3/4" bevel unless noted otherwise. If necessary to facilitate construction, transverse construction joints may be made at the points shown in each and any span. If these joints are used, submit a Concrete Pouring Sequence to the BRIDGE SECTION for approval. All costs for expansion joint filler and tar paper shall be included in the unit price bid per cu. yd. for Class A Concrete.
 DESIGN DATA: Design Loading: HS20-44 AASHTO and the Alternate Loading as designated in FRM 20-4, Section 4c. Limit Stresses: Concrete $f_c = 1600$ p.s.i., $m = 8$; Reinforcing Steel: $f_s = 20,000$ p.s.i. Equivalent fluid pressure of earth at 40° 1 sq. ft. Minimum Pile Loading = 24 tons for Timber Piling.



SEC. A-A OR SEC. B-B

ORIGINAL CONSTRUCTION PLANS

STR. NO. 38-260-179

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class A Concrete	Cu. Yds.	323.1
Reinforcing Steel	Lbs.	94,325
Structural Steel	Lbs.	60

* Weight of 5/8" Bolts and Washers only.

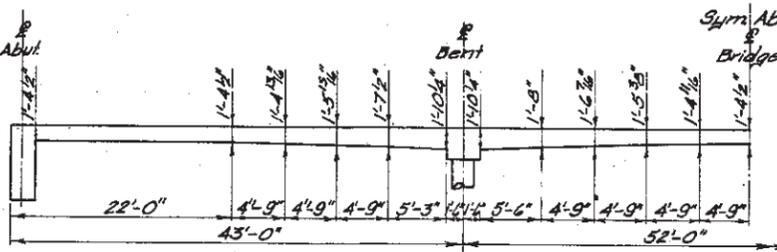
DETAILS OF SUPERSTRUCTURE FOR

138'-0" CONTINUOUS CONCRETE BRIDGE
 38'-0" ROADWAY
 OVER LOCAL ROAD
 STA. 156+11.35 TO 157+49.35 M.L.
 190-4(11)201

JONES COUNTY
 SOUTH DAKOTA
 DEPARTMENT OF HIGHWAYS
 NOV. 1967

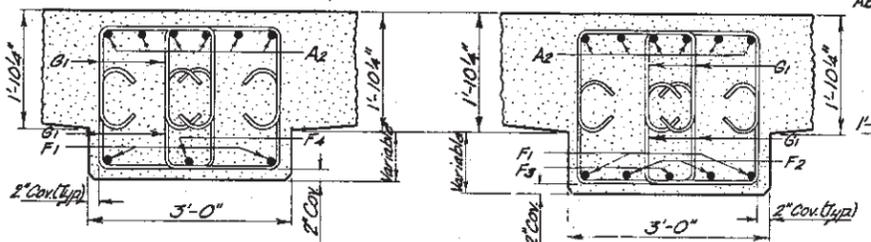
HS20-44 (8 ALT.)

4 OF 4



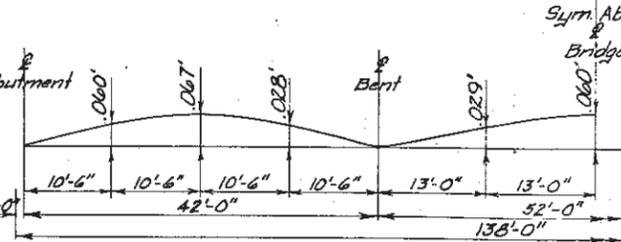
SLAB THICKNESS DIAGRAM

(For any longitudinal section parallel to R Roadway)



SEC. D-D

SEC. E-E

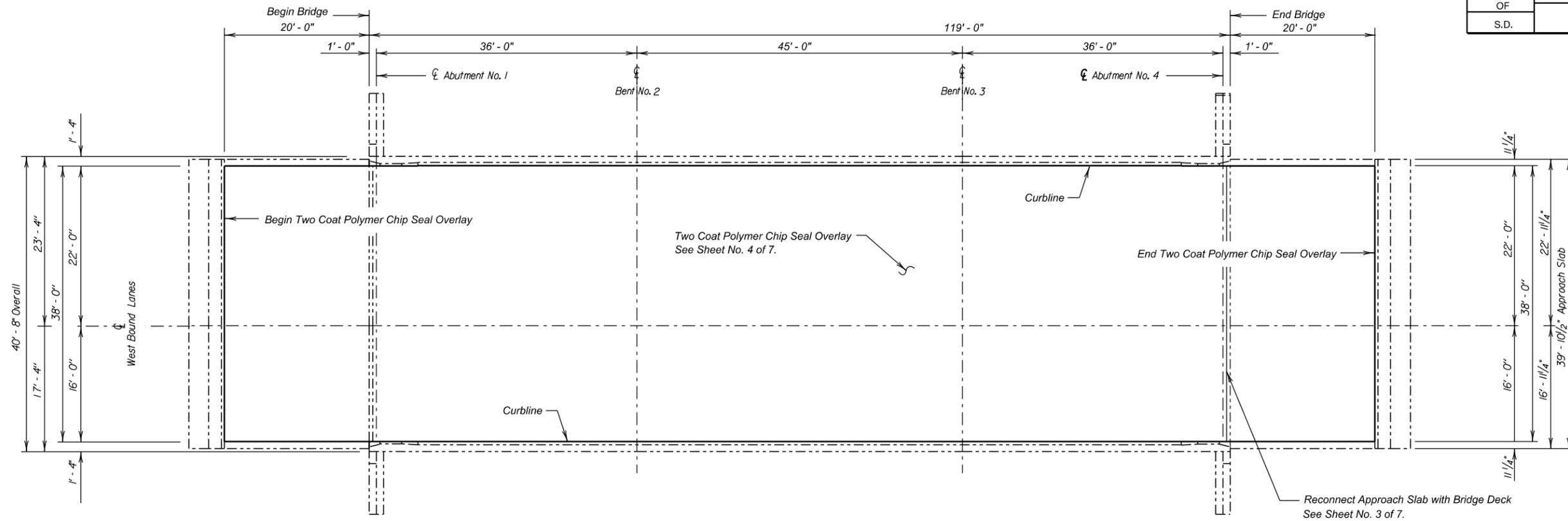


CAMBER DIAGRAM

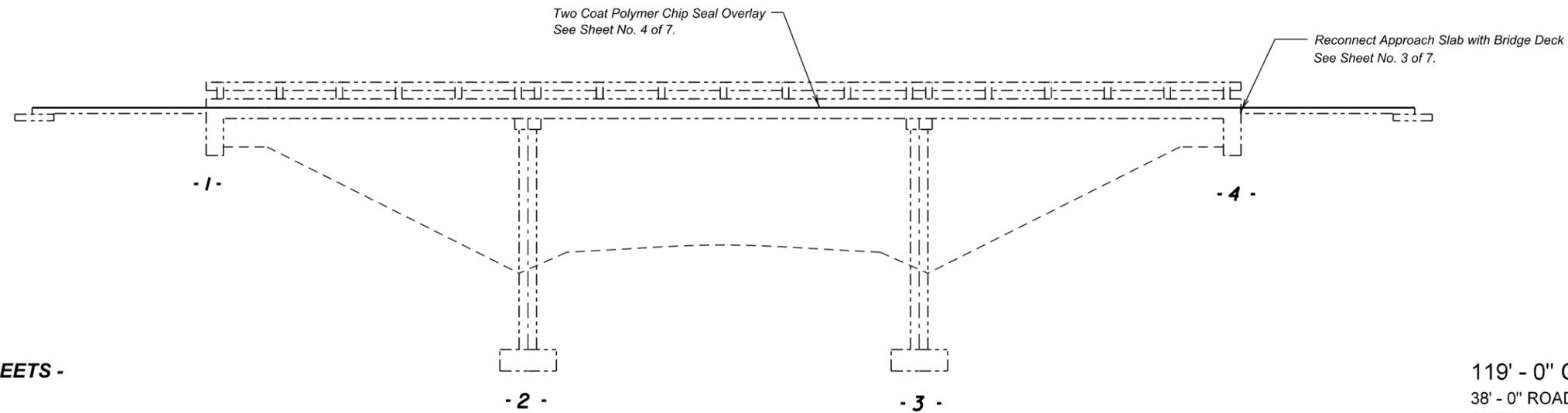
Camber is calculated for dead load plus plastic flow. Camber shall be added to the proposed grade elevations at the respective stations to establish the elevations of the top of the finished roadway slab.

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	L.E.M.	M.B.S.	[Signature]

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0903(97)172	E15	E25



PLAN



ELEVATION

INDEX OF BRIDGE SHEETS -

- Sheet No. 1 - General Layout
- Sheet No. 2 - Estimate of Structure Quantities and Notes
- Sheet No. 3 - Approach Slab Joint Details
- Sheet No. 4 - Polymer Chip Seal Layout
- Sheet No. 5 - Original Construction Plans
- Sheet No. 6 - Original Construction Plans (Continued)
- Sheet No. 7 - Original Construction Plans (Continued)

**(WEST BOUND LANES)
GENERAL DRAWING, LAYOUT
FOR**

119' - 0" CONTINUOUS CONCRETE BRIDGE
 38' - 0" ROADWAY 0° SKEW
 OVER LOCAL ROAD SEC. 35 / 36-TIS-R30E
 STR. NO. 38-290-178 IM 0903(97)172

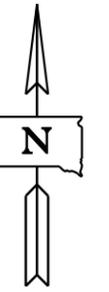
JONES COUNTY
 S. D. DEPT. OF TRANSPORTATION

FEBRUARY 2016

1 OF 7

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

DESIGNED BY MM JACK035G	DRAFTED BY KR 035GRE01	CK. DES. BY KSK	<i>Kevin N. Coeden</i> BRIDGE ENGINEER
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ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
460E0070	Class A45 Concrete, Bridge Repair	3.0	CuYd
460E0172	Concrete Patching Material, Bridge Deck	50.2	CuFt
460E0300	Breakout Structural Concrete	3.0	CuYd
460E0380	Install Dowel in Concrete	50	Each
480E0200	Epoxy Coated Reinforcing Steel	264	Lb
491E0005	Two Coat Polymer Bridge Deck Chip Seal	671.4	SqYd
491E0110	Abrasive Blasting of Bridge Deck	671.4	SqYd
491E0120	Bridge Deck Grinding	671.4	SqYd
491E0130	Concrete Removal, Class A	4.0	SqYd
491E0140	Concrete Removal, Class B	4.0	SqYd

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, 2015 Edition and Required Provisions, Supplemental Specifications and 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 and are provided as information only. 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 shall 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 at the pre-construction meeting.

- Reconnect the approach slab with the bridge deck at Abut. No. 4 by removing a portion of the approach slab and inserting dowels for the first phase of construction.
- Perform Bridge Deck Grinding for the first phase of construction.
- Repair the bridge deck by removing all loose and delaminated concrete from the bridge deck surface for the first phase of construction.
- Clean the bridge deck surface with abrasive blasting for the first phase of construction.
- Place the Two Coat Polymer Bridge Deck Chip Seal for the first phase of construction.

- Switch traffic and repeat steps 1 through 5 for Phase 2 of construction.

TWO COAT BRIDGE DECK POLYMER CHIP SEAL

The Two Coat Bridge Deck Polymer Chip Seal shall be applied in accordance with the Construction Specifications.

BREAKOUT STRUCTURAL CONCRETE

- The existing approach slab at Abut. No. 4 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. Reinforcing steel that is exposed and is scheduled for use in the new construction shall be cleaned and straightened to the satisfaction of the Engineer. Care shall 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 shall be replaced or repaired, as approved by the Engineer, by the Contractor at no cost to the Department.
- All broken out concrete, discarded reinforcing bars shall be disposed of by the Contractor. Any disposal of discarded material shall be in accordance with the Environmental Commitments.
- 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.

DESIGN MIX OF CONCRETE

- Class A45 Concrete shall be used for Class A45 Concrete, Bridge Repair
- The type of cement, concrete strength requirements, aggregate requirements, slump and air requirements for the contract item Class A45 Concrete Bridge Repair, shall conform to the requirements of Section 460 of the Construction Specification.

INSTALLING DOWELS IN CONCRETE

- Holes drilled into the existing concrete shall be true and normal or as shown the plans. Drilling holes using a core drill shall not be allowed. Care shall be taken not damage the existing reinforcing steel. It is likely that some of the existing reinforcing steel shown in the original construction plans may have been placed out of position during original construction. Therefore, prior to the start of drilling any holes in the concrete, an effort will be made by Department forces to mark on the concrete surface, where practical, any locations of the in-place reinforcing steel. In spite of this precaution, 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 epoxy resin as approved by the Engineer.
- The epoxy resin mixture shall be in accordance with 380.2L of the Specifications
- 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 back 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. Care shall be taken to prevent epoxy from running out of the horizontal holes prior to steel bar insertion. 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.
- Dowel bars shall be deformed bars conforming to ASTM A615 Grade 60.
- 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".

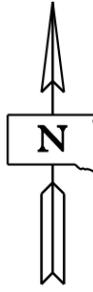
ESTIMATE OF STRUCTURE QUANTITIES AND NOTES FOR 119' - 0" CONTINUOUS CONCRETE BRIDGE

STR. NO. 38-290-178

MARCH 2015

2 OF 7

DESIGNED BY MM JACK035G	CK. DES. BY KSK 035GRE01	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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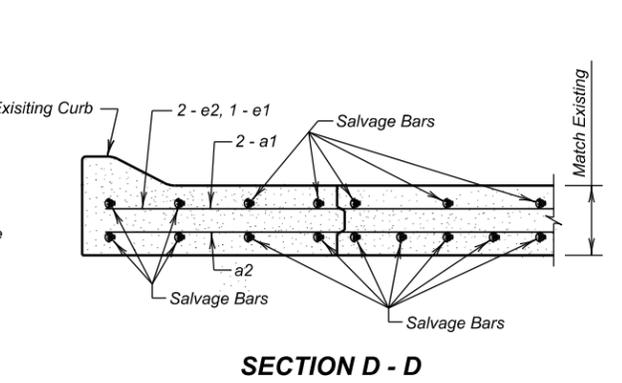
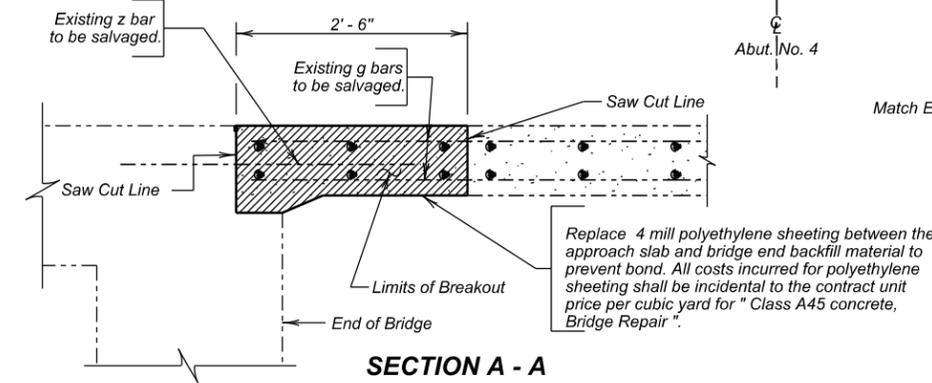
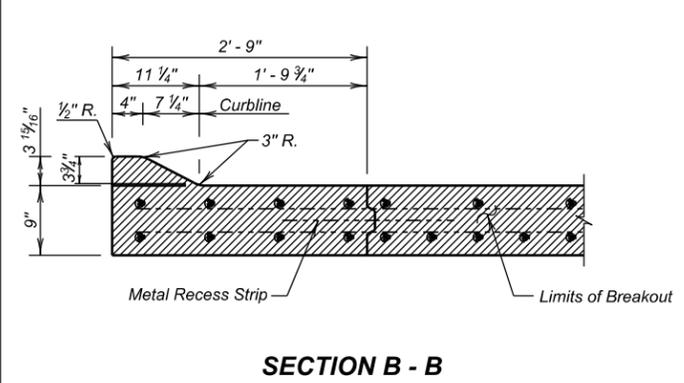
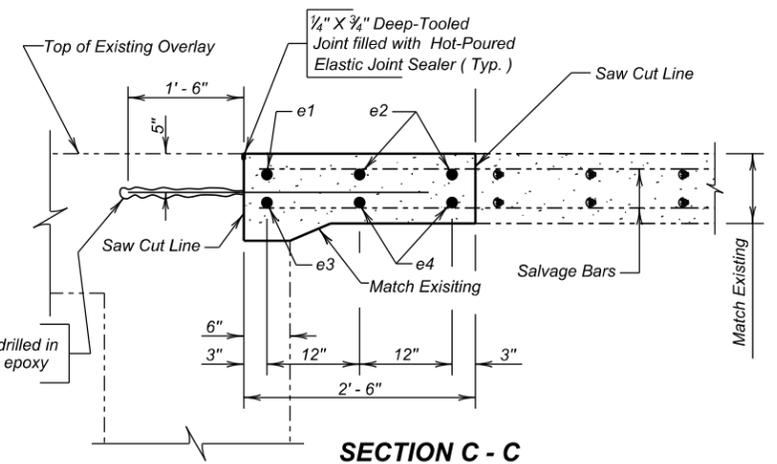
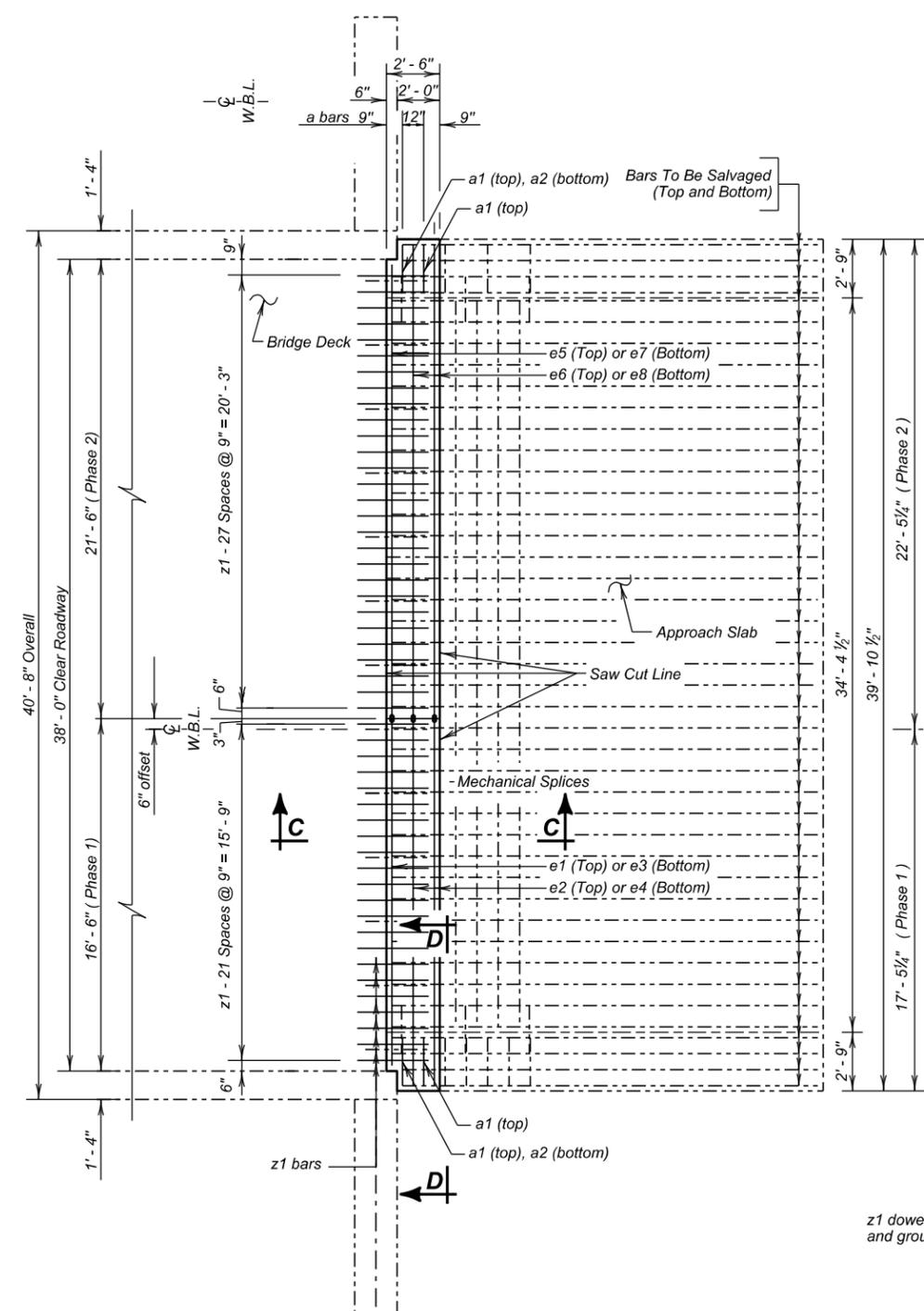
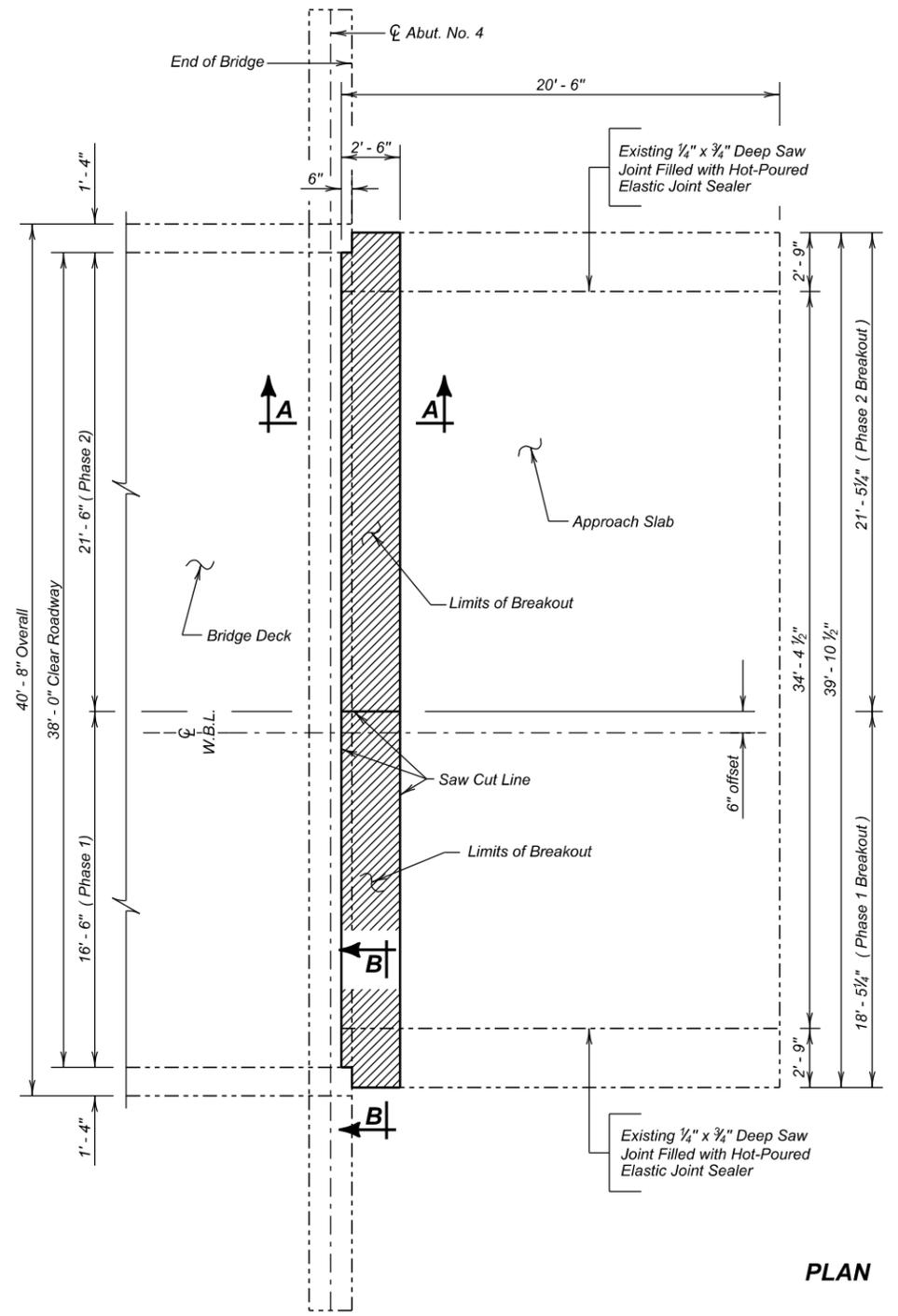


REINFORCING SCHEDULE						
Mk.	No.	Size	Length	Type	Bending Details	
PHASE 1	a1	2	4	2'-5"	Str.	These bars shall be spliced with mechanical splice devices Equivalent Splice Lengths No. 4 - 2'-0" No. 6 - 3'-0"
	a2	1	5	2'-5"	Str.	
	e1	1	4	16'-3"	Str.	
	e2	2	4	17'-3"	Str.	
	e3	1	6	16'-3"	Str.	
	e4	2	6	17'-3"	Str.	
	Δz1	22	6	3'-6"	Str.	
PHASE 2	a1	2	4	2'-5"	Str.	
	a2	1	5	2'-5"	Str.	
	e5	1	4	21'-3"	Str.	
	e6	2	4	22'-3"	Str.	
	e7	1	6	21'-3"	Str.	
	e8	2	6	22'-3"	Str.	
	Δz1	28	6	3'-6"	Str.	

ESTIMATED QUANTITIES (Abutment No. 4)			
ITEM	UNIT	PHASE 1 QUANTITY	PHASE 2 QUANTITY
Install Dowel In Concrete	Each	22	28
Epoxy Coated Reinforcing Steel	Lb.	116	148
Breakout Structural Concrete	Cu. Yd.	1.4	1.6
Class A45 Concrete, Bridge Repair	Cu. Yd.	1.3	1.7

* Does not include the following quantities for z1 bars as these are paid at the contract unit price per each for "Bid Item "Install Dowel in Concrete".

	PHASE 1	PHASE 2
	116 Lb.	147 Lb.



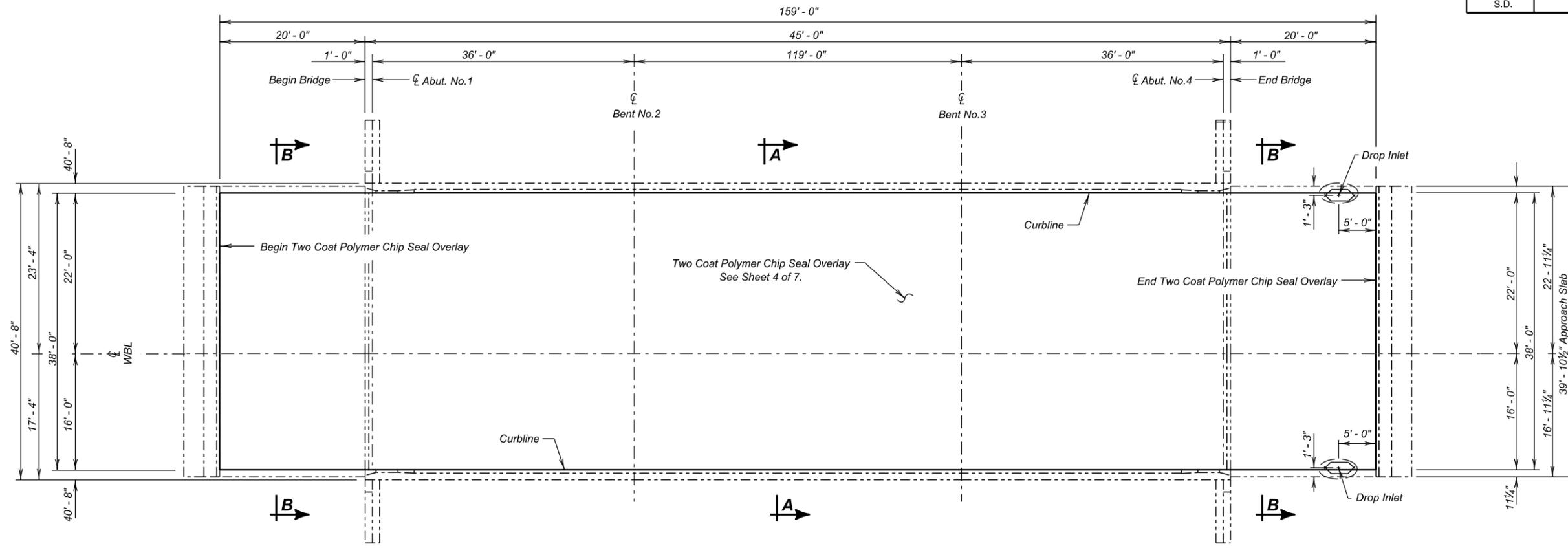
(WEST BOUND LANES)
 APPROACH SLAB JOINT DETAILS @ ABUT. No. 4
 FOR
119' - 0" CONTINUOUS CONCRETE BRIDGE
 38' - 0" ROADWAY
 OVER LOCAL ROAD
 STR. NO. 38-290-178

0° SKEW
 SEC. 35 / 36-TIS-R30E
 IM 0903(97)172

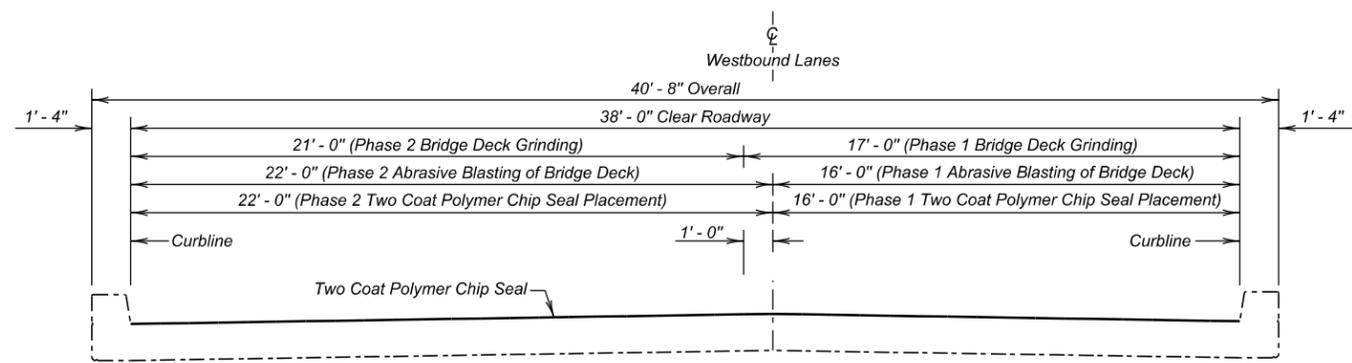
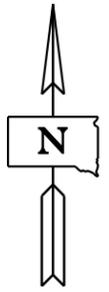
JONES COUNTY
 S. D. DEPT. OF TRANSPORTATION
 MARCH 2015

DESIGNED BY: MM JACK035G
 CK. DES. BY: KSK 035GRE03
 DRAFTED BY: KR

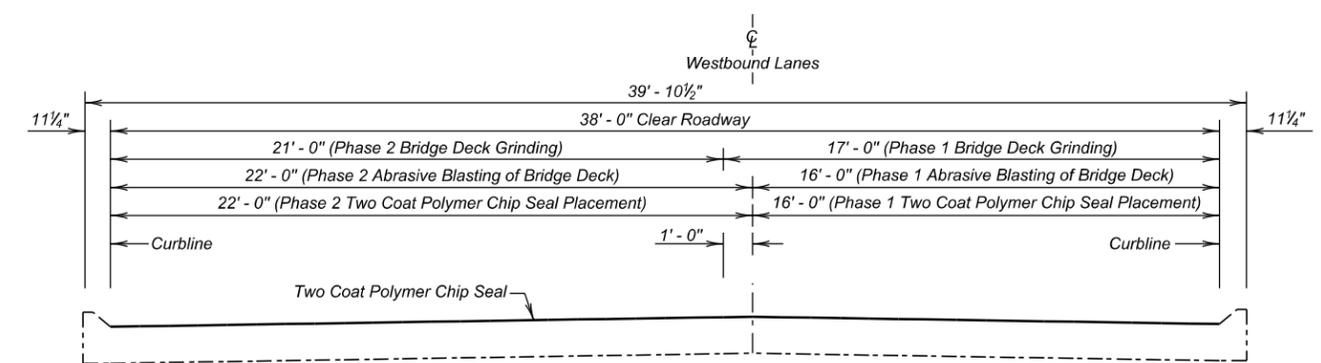
Kevin N. Coeden
 BRIDGE ENGINEER



PLAN



SECTION A - A
(Railing Not Shown for Clarity)



SECTION B - B

* Concrete Patching Material, Bridge Deck; Concrete Removal, Class A; and Concrete Removal, Class B may not be encountered and may be removed from the project at the direction of the Engineer.

ESTIMATED QUANTITIES			
ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
* Concrete Patching Material, Bridge Deck	Cu. Ft.	25.1	25.1
* Two Coat Polymer Bridge Deck Chip Seal	Sq. Yd.	282.7	388.7
Abrasive Blasting of Bridge Deck	Sq. Yd.	282.7	388.7
Bridge Deck Grinding	Sq. Yd.	300.3	371.1
* Concrete Removal, Class A	Sq. Yd.	2.0	2.0
* Concrete Removal, Class B	Sq. Yd.	2.0	2.0

(WEST BOUND LANES)
POLYMER CHIP SEAL LAYOUT
FOR

119' - 0" CONTINUOUS CONCRETE BRIDGE
38' - 0" ROADWAY 0° SKEW
OVER LOCAL ROAD SEC. 35 / 36-TIS-R30E
STR. NO. 38-290-178 IM 0903(97)172

JONES COUNTY
S. D. DEPT. OF TRANSPORTATION
FEBRUARY 2016

INDEX OF BRIDGE SHEETS—

- Sheet No.1 - General Drawing, Layout and Quantities
- Sheet No.2 - Subsurface Investigations
- Sheet No.3 - Details of Standard Superstructure 3PGCS-38-119-1-3 (7-6-67)
- Sheet No.4 - Details of Standard Abutment 3PGCS-38-119-2-3 (1-3-68)
- Sheet No.5 - Details of Standard Bent 3PGCS-38-119-3-3 (10-27-64)
- Sheet No.6 - Standard Type RT-3A Steel Railing, Drain and Curb Details RT-3A

CURB NOTE—

The curb ends at Begin Bridge and End Bridge shall be built vertical, rather than beveled 2 in 12 as indicated elsewhere in Plans.

B.M. No. 98-EI 2169.48
Rebar & Gds.
245' Rt. Sta. 313+00 M.L.

B.M. No. 39-EI 2168.26
Rebar & Gds.
248' Rt. Sta. 317+00 M.L.

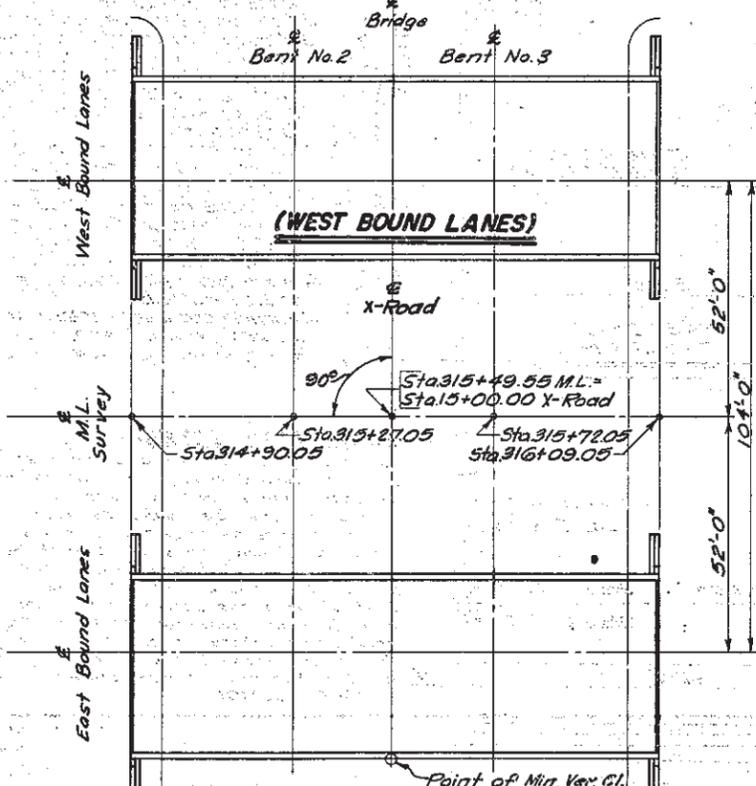
NOTE:
T.S.@C.EI. = Top of Slab at Curb Elevation.
T.S.@E.EI. = Top of Slab at Roadway Elevation.

GENERAL NOTES—

- Design Specifications: A.A.S.H.O. Specifications for Highway Bridges, 1965
- See Notes on Sheet No. 1 thru No. 6.
- Omit all floor drains.
- Longitudinal elements of the slab shall conform to the vertical curve.
- Rail Posts shall be built vertical.
- Prebored holes for piles at the Abutments shall be backfilled with granular material acceptable to the ENGINEER, and compacted as specified by the ENGINEER. The cost of granular material in place shall be included in the unit price bid for the piles.
- The contractor shall have sufficient pile splice material on hand before pile driving is started. See Std. Plate No. 303.1 as included in Special Provisions for Piling dated Nov. 19, 1960.
- Bridge Contractor shall furnish and install 18"x72" sleeve nut units in Wing Walls as shown on Std. Plate No. 304.
- In the event pile shoes are used, see Std. Plate No. 301 for details.
- Furnish and install inserts and eyebolts in accordance with Standard Plate No. 305, except that eyebolts shall have a diameter of 3/8".

EXCAVATION NOTES—

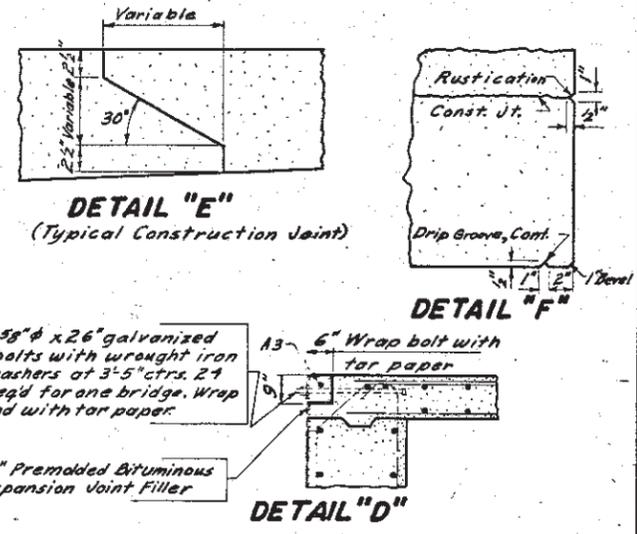
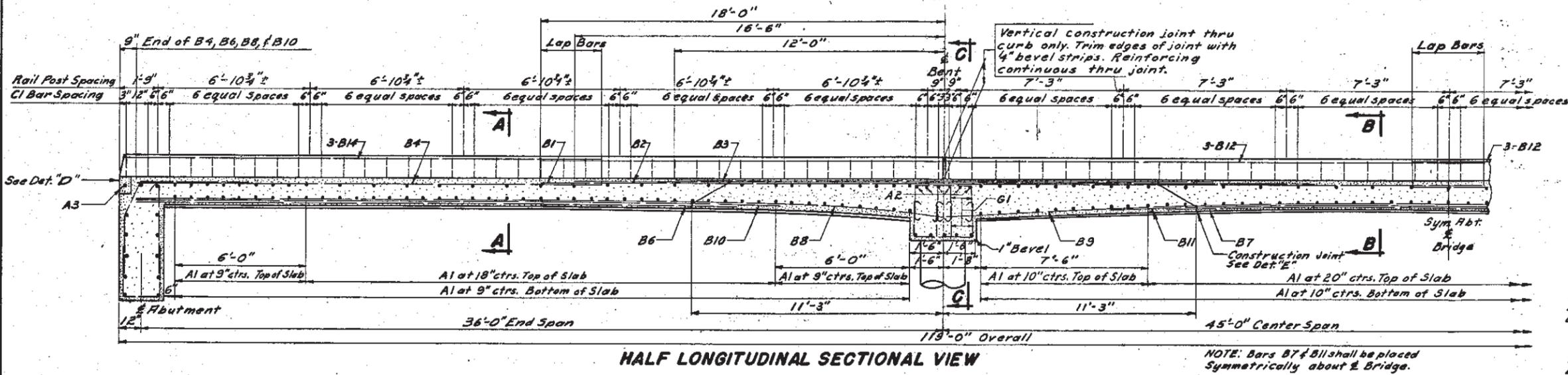
- Footings for Bents No. 2 and No. 3 shall be cast upon solid undisturbed shale and carried into same to the elevation shown. Limits of shale excavation, below top of footings, shall be bound as nearly as practicable by the neat lines as shown in details of footings for Bents No. 2 and No. 3 on Sheet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



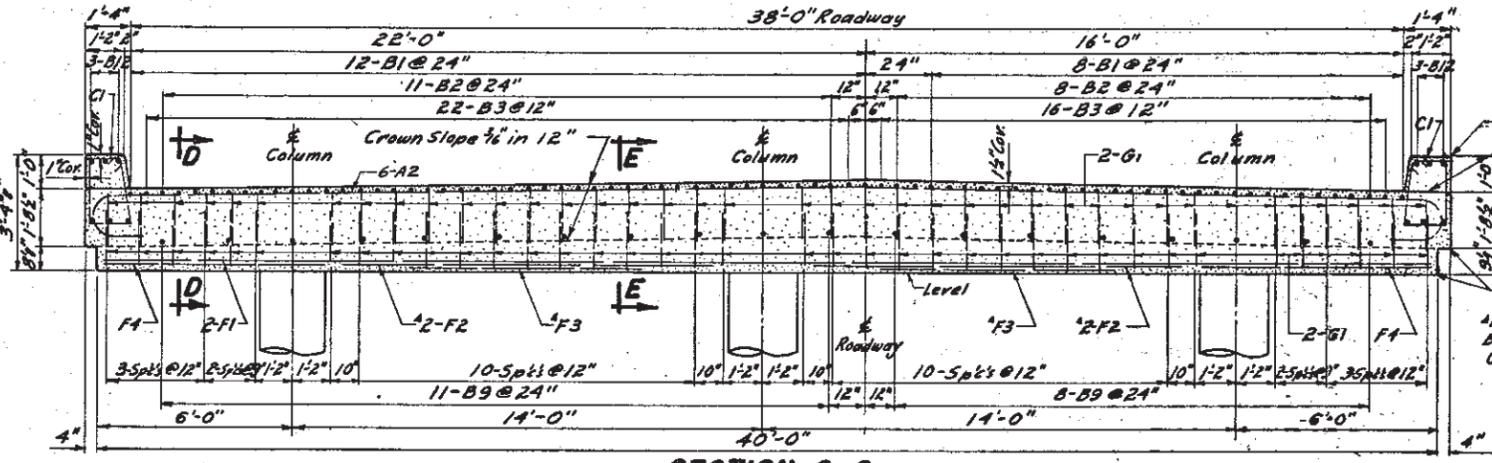
CURB AND E ELEVATIONS

Note: Elevations indicated with * are top of finished slab at left curb and with & are top of finished slab at right curb and with † are top of finished slab at centerline of roadway. Corbar for dead load deflection PLUS plastic flow, shown on Sheet No. 3 of Bridge Plans have been included in the elevations shown above.

Station	Left Curb (Elev.)	Right Curb (Elev.)	Centerline (Elev.)
Sta. 314+90.05	† 2192.95	† 2192.95	† 2192.95
Sta. 315+27.05	† 2192.96	† 2192.96	† 2192.96
Sta. 316+09.05	† 2192.97	† 2192.97	† 2192.97
Sta. 317+00.00	† 2192.98	† 2192.98	† 2192.98
Sta. 318+09.05	† 2192.99	† 2192.99	† 2192.99
Sta. 319+00.00	† 2193.00	† 2193.00	† 2193.00
Sta. 320+00.00	† 2193.01	† 2193.01	† 2193.01
Sta. 321+00.00	† 2193.02	† 2193.02	† 2193.02
Sta. 322+00.00	† 2193.03	† 2193.03	† 2193.03
Sta. 323+00.00	† 2193.04	† 2193.04	† 2193.04
Sta. 324+00.00	† 2193.05	† 2193.05	† 2193.05
Sta. 325+00.00	† 2193.06	† 2193.06	† 2193.06
Sta. 326+00.00	† 2193.07	† 2193.07	† 2193.07
Sta. 327+00.00	† 2193.08	† 2193.08	† 2193.08
Sta. 328+00.00	† 2193.09	† 2193.09	† 2193.09
Sta. 329+00.00	† 2193.10	† 2193.10	† 2193.10
Sta. 330+00.00	† 2193.11	† 2193.11	† 2193.11
Sta. 331+00.00	† 2193.12	† 2193.12	† 2193.12
Sta. 332+00.00	† 2193.13	† 2193.13	† 2193.13
Sta. 333+00.00	† 2193.14	† 2193.14	† 2193.14
Sta. 334+00.00	† 2193.15	† 2193.15	† 2193.15
Sta. 335+00.00	† 2193.16	† 2193.16	† 2193.16
Sta. 336+00.00	† 2193.17	† 2193.17	† 2193.17
Sta. 337+00.00	† 2193.18	† 2193.18	† 2193.18
Sta. 338+00.00	† 2193.19	† 2193.19	† 2193.19
Sta. 339+00.00	† 2193.20	† 2193.20	† 2193.20
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Sta. 350+00.00	† 2193.31	† 2193.31	† 2193.31
Sta. 351+00.00	† 2193.32	† 2193.32	† 2193.32
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Sta. 463+00.00	† 2194.44	† 2194.44	† 2194.44
Sta. 464+00.00	† 2194.45	† 2194.45	† 2194.45
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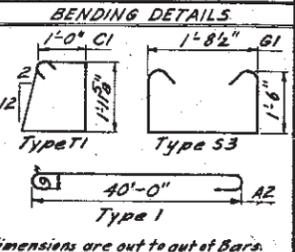


HALF LONGITUDINAL SECTIONAL VIEW



SECTION C-C

REINFORCING SCHEDULE														
MK.	NO.	SIZE	LENGTH	TYPE	MK.	NO.	SIZE	LENGTH	TYPE	MK.	NO.	SIZE	LENGTH	TYPE
A1	23B	5	40'-3"	Str.	B7	38	10	25'-9"	Str.	F1	4	9	39'-9"	Str.
A2	12	10	42'-3"	1	B8	38	10	36'-3"	Str.	F2	8	9	11'-0"	Str.
A3	2	5	37'-9"	Str.	B9	19	10	45'-0"	Str.	F3	4	9	7'-0"	Str.
B1	40	10	42'-0"	Str.	B10	36	9	29'-0"	Str.	F4	4	4	6'-6"	Str.
B2	38	11	33'-0"	Str.	B11	18	9	30'-0"	Str.	G1	30A	4	5'-6"	S3
B3	76	10	24'-0"	Str.	B12	12	11	42'-6"	Str.					
B4	40	9	21'-0"	Str.	B13	6	11	45'-0"	Str.					
B5	12	11	36'-9"	Str.	B14	12	8	21'-6"	Str.					
B6	76	10	27'-0"	Str.	C1	240	4	7'-3"	T1					



NOTES

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

DESIGN SPECIFICATIONS: A.A.S.H.O. Specifications for Highway Bridges, 1965.

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

STRUCTURAL STEEL: All 5/8" bolts including washers, and all pile connections in Abutments, and all floor drains shall be paid for as Structural Steel.

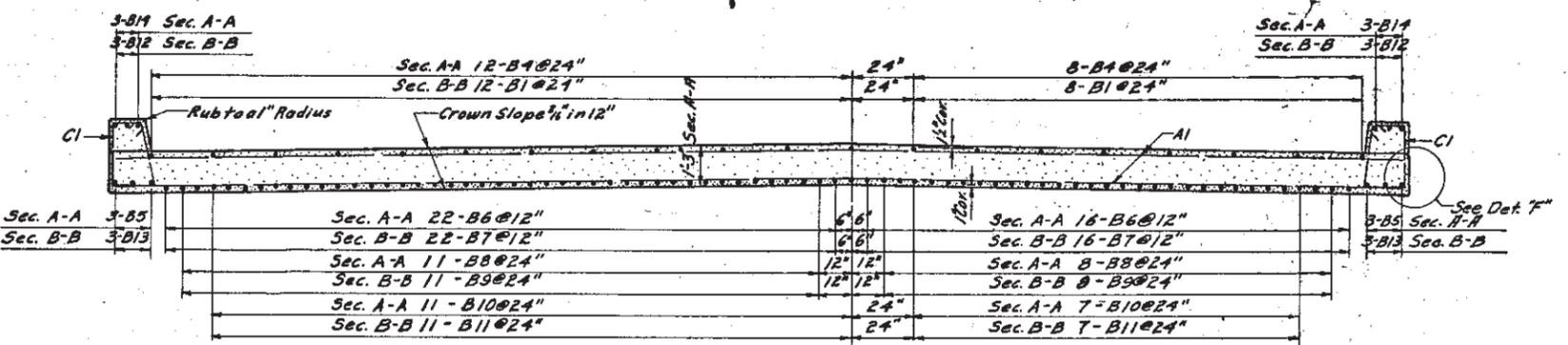
REINFORCING STEEL: All reinforcing steel shall conform to A.S.T.M. Specifications A305 and A15 (Intermediate Grade).

CONCRETE: Class "A" Concrete shall develop a minimum allowable compressive strength of 4000 p.s.i. at 28 days. All exposed concrete corners and edges shall be chamfered to a 4" bevel unless noted otherwise. If necessary to facilitate construction, transverse construction joints may be made at the points shown in each and any span. If these joints are used, submit a Concrete Pouring Sequence to the BRIDGE SECTION for approval. All costs for expansion joint filler and tar paper shall be included in the unit price bid per cu. yd. for Class "A" Concrete.

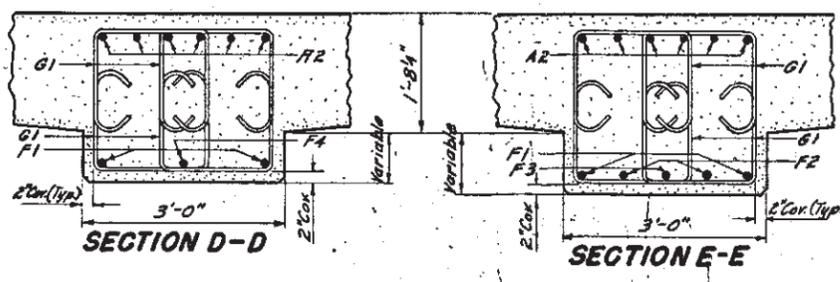
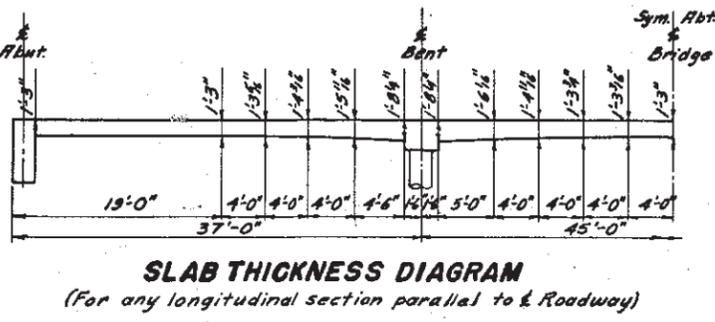
DESIGN DATA: Design Loading: HS20-44, A.A.S.H.O. and the Alternate Loading as designated in P.P.M. 20-4, Section 4c.

Unit Stresses: Concrete $f_c = 1600$ p.s.i., $n = 8$, Reinforcing Steel: $f_s = 20,000$ p.s.i. Equivalent fluid pressure of earth at 40' / sq. ft.

Minimum Pile Loading: 24 tons for Timber Piling and 45 tons for 8 BP36 Steel Bearing Piles. (values for one pile). Minimum Soil Bearing Pressure for Spread Footings = 4 Tons per Sq. Ft.



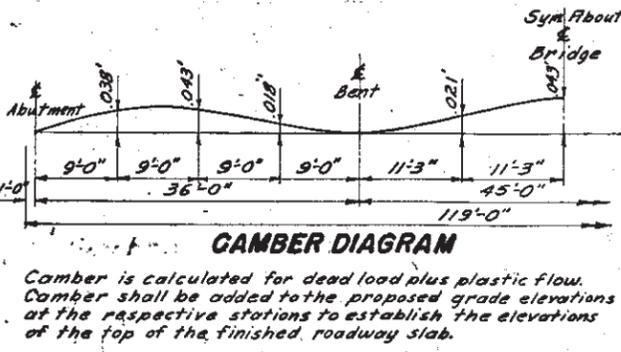
SECTION A-A OR SECTION B-B (As Shown and Noted)



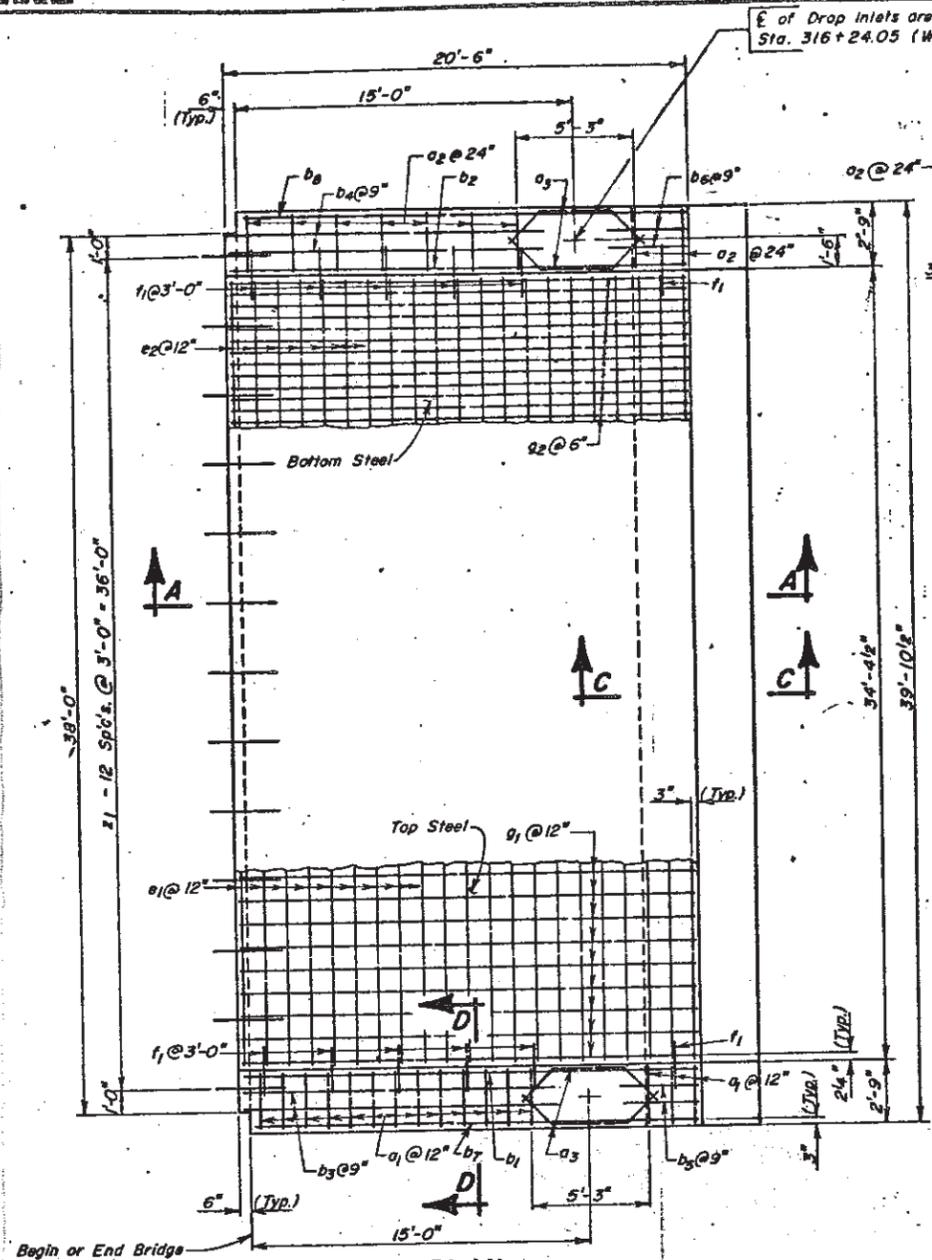
ORIGINAL CONSTRUCTION PLANS
STR. NO. 38-290-178

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class "A" Concrete	Cu. Yds.	255.5
Reinforcing Steel	Lbs.	75,290
Structural Steel	Lbs.	80

*Weight of 5/8" Bolts and washers only.

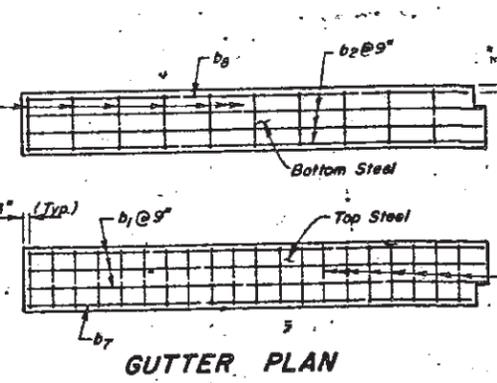


DETAILS OF STANDARD SUPERSTRUCTURE FOR
3-SPAN 119'-0" CONTINUOUS
CONCRETE SLAB BRIDGE
WITH
ROUND COLUMN BENTS
38'-0" ROADWAY (22'-0" R_L & 16'-0" R_L OF C_R RDWY.)
SOUTH DAKOTA
DEPARTMENT OF HIGHWAYS
APRIL 1964 HS20-44 6 OF 7



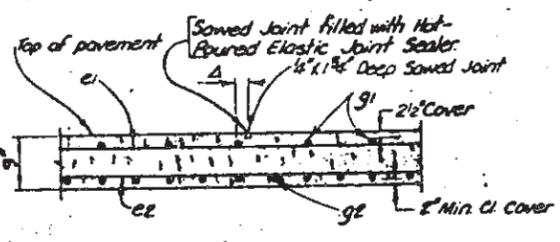
PLAN
For location of sawed Longitudinal Joints, See Sheet No. 1 of H. (Shown adjacent to Abut. No. 3, Abut. No. 1 will be opposite hand except as shown.)

E of Drop Inlets are located at Sta. 316+24.05 (W.B.L. & E.B.L.)

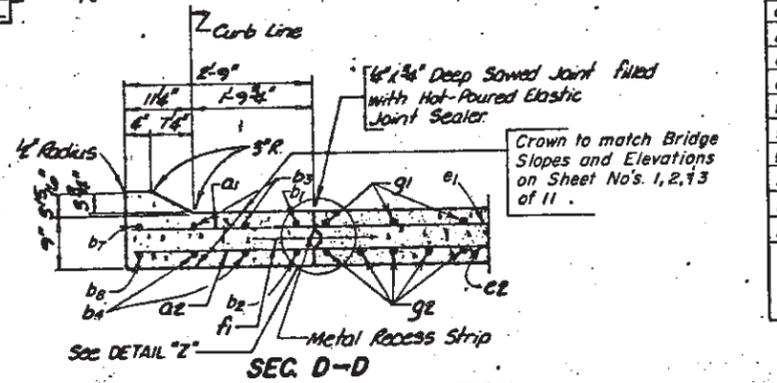


GUTTER PLAN
Note: No Drop Inlet at Abut. No 1 end.

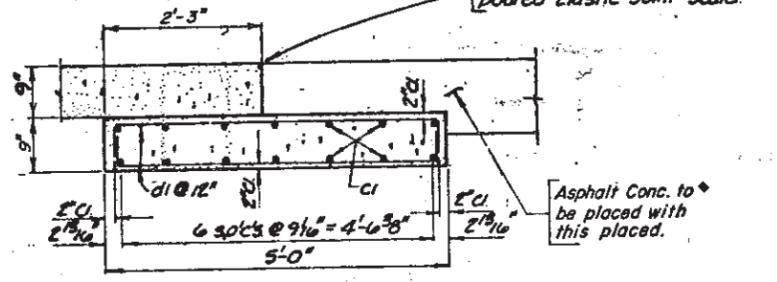
Shift g1 bars if necessary to provide 3" offset with Sawed Joints.



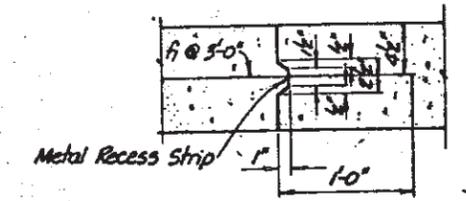
SAWED LONGITUDINAL JOINT



SEC. D-D LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS



SEC. C-C



DETAIL 'Z'

NOTE: If proposed, approval of alternate designs of Metal Strips will be considered by the ENGINEER.

(For One Bridge)

AK	No.	Size	Length	Type
a1	72	3	2'-5"	Str.
a2	38	5	2'-5"	Str.
a3	8	3	7'-4"	19A
b1	8	3	20'-2"	Str.
b2	8	7	20'-2"	
b3	4	3	13'-0"	
b4	4	7	13'-0"	
b5	4	3	2'-9"	
b6	4	7	2'-9"	
c1	28	5	39'-6"	Str.
d1	160	4	5'-5"	2
e1	42	3	34'-0"	Str.
e2	42	6	34'-0"	
f1	26	4	2'-0"	
g1	70	3	20'-2"	
g2	138	8	20'-2"	Str.
z1	26	6	3'-0"	Str.
b7	4	3	19'-8"	Str.
b8	4	7	19'-8"	Str.

Bending Details

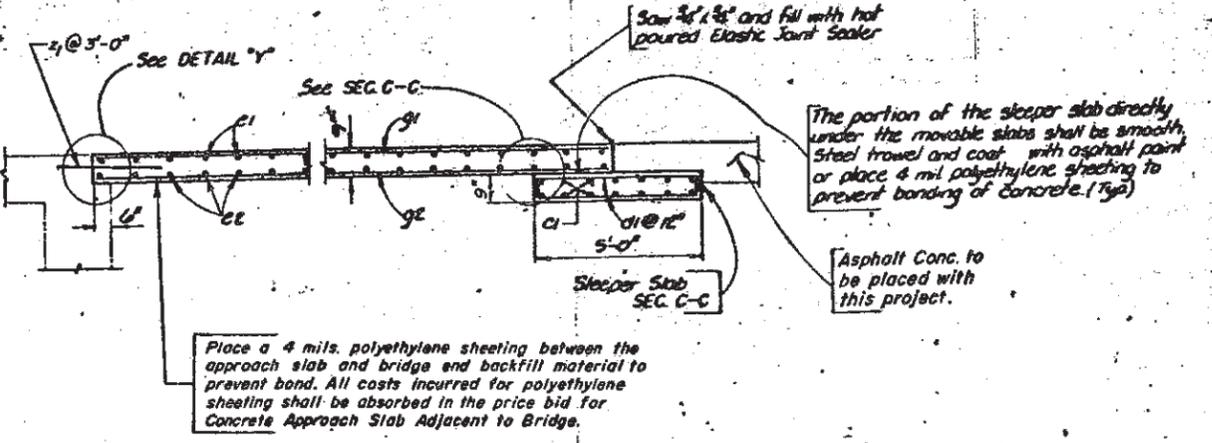
NOTE: All dimensions are out to out of bars.

ESTIMATED QUANTITIES
(For One Bridge)

ITEM	UNIT	QUANTITY
Conc. Appr. Slab Adj. to Bridge	Sq. Yd.	156.6
Bridge Approach Sleeper Slab	Sq. Yd.	44.3
Conc. Gutter Type 20'-Straight	F.	82.0
Install Dowels in Concrete	Each	26

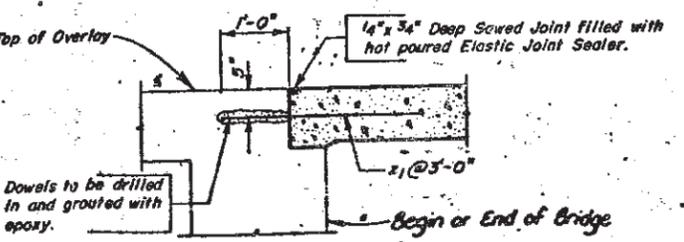
39.7 Cu. Yds. concrete in Approach Slabs.
 2,10,000 Lbs. re-steel in Approach Slabs (includes f1 bars).
 3,111 Cu. Yds. concrete in Sleeper Slabs.
 4,1,733 Lbs. re-steel in Sleeper Slabs.
 5,7.0 Cu. Yds. concrete in gutter.
 6,917 Lbs. re-steel in gutter.

Item 1 thru 6 are approximate quantities contained in the above Bid Items and are for information only.
 *Does not include 117 lbs. for Z1 Dowels as these are paid for under the item "Install Dowels in Concrete".



SEC. A-A

Place a 4 mils. polyethylene sheeting between the approach slab and bridge end backfill material to prevent bond. All costs incurred for polyethylene sheeting shall be absorbed in the price bid for Concrete Approach Slab Adjacent to Bridge.



DETAIL 'Y'

ORIGINAL CONSTRUCTION PLANS

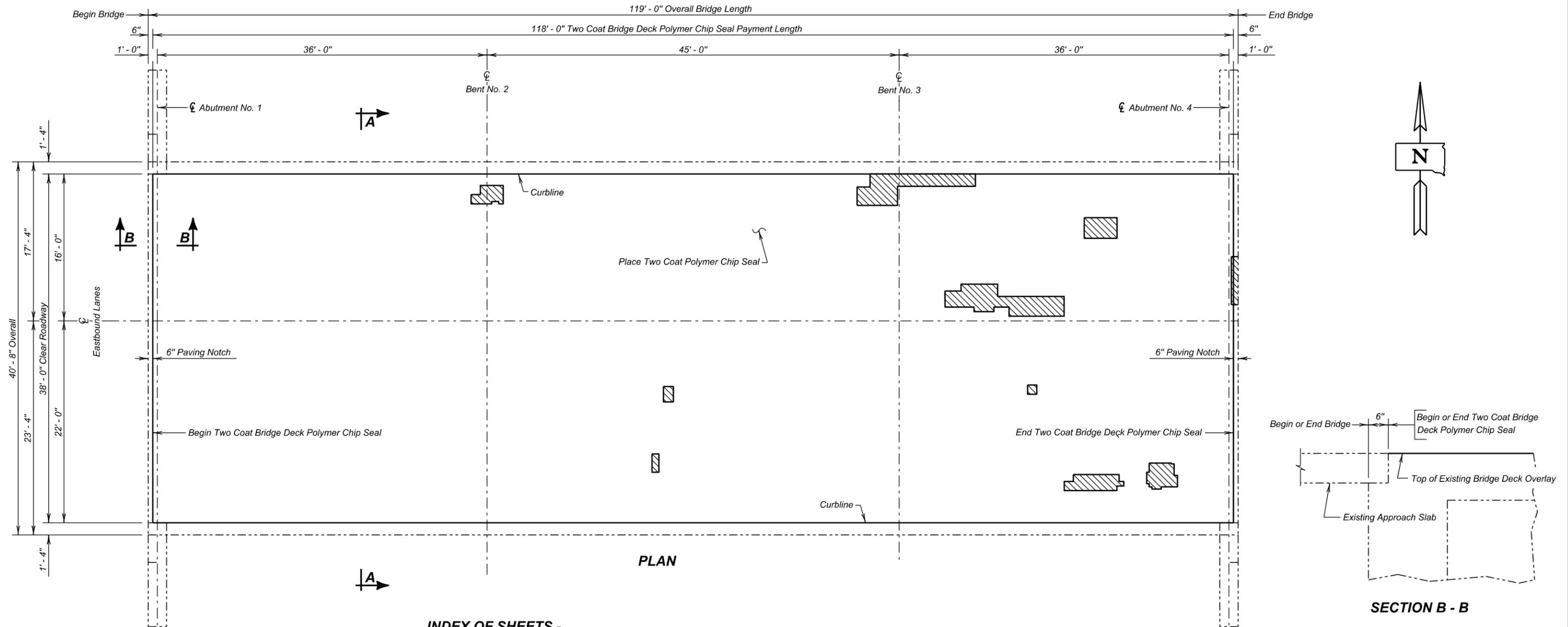
STR. NO. 38-290-178

DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE FOR UPGRADING OF TWIN-119'-0" CONT. CONG. BRIDGE 38'-0" ROADWAY

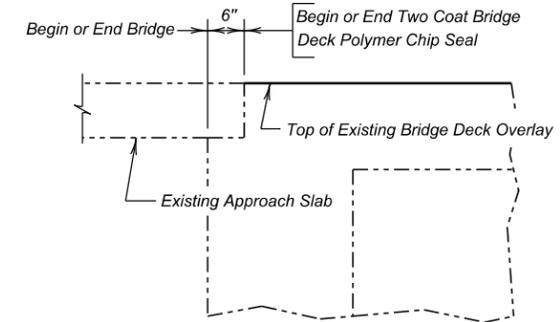
OVER LOCAL ROAD SEC.35/36-TIS-R30 E
 STA. 314+90.05 TO 316+09.05 M.L. I90-4(29)199 & IR90-4(29)199
 STR. NO. 38-290-178/38-290-179

JONES COUNTY
 MARCH 1981

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	C.A.S.	C.D.	BRIDGE ENGINEER



PLAN



SECTION B - B

- INDEX OF SHEETS -**
- Sheet No. 1 - Polymer Chip Seal Layout
 - Sheet No. 2 - Estimate of Structure Quantities and Notes
 - Sheet No. 3 - Original Construction Plans
 - Sheet No. 4 - Original Construction Plans (Continued)

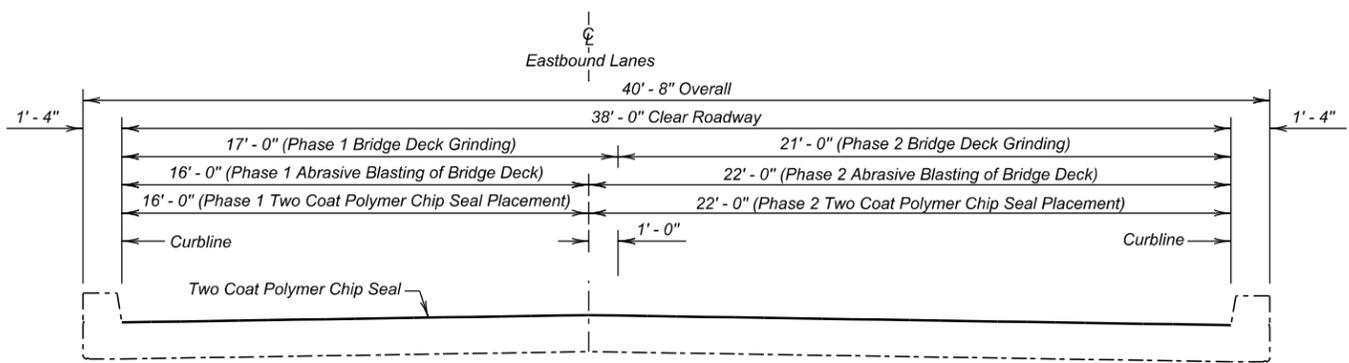
- LEGEND -**
- Shaded areas indicate approximate locations of unsound concrete requiring concrete repair

* Concrete Patching Material, Bridge Deck; Concrete Removal, Class A; and Concrete Removal, Class B may not be encountered and may be removed from the project at the direction of the Engineer.

ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
* Concrete Patching Material, Bridge Deck	Cu. Ft.	60.0	74.1
Two Coat Bridge Deck Polymer Chip Seal	Sq. Yd.	209.8	288.4
Abrasive Blasting of Bridge Deck	Sq. Yd.	209.8	288.4
Bridge Deck Grinding	Sq. Yd.	222.9	275.3
* Concrete Removal, Class A	Sq. Yd.	4.8	5.9
* Concrete Removal, Class B	Sq. Yd.	4.8	5.9

(EAST BOUND LANES)
POLYMER CHIP SEAL LAYOUT FOR
119' - 0" CONTINUOUS CONCRETE BRIDGE
38' - 0" ROADWAY 0° SKEW
OVER LOCAL ROAD SEC. 35 / 36-TIS-R30E
STR. NO. 38-290-179 IM 0903(97)172

JONES COUNTY
S. D. DEPT. OF TRANSPORTATION
MARCH 2015



SECTION A - A
(Railing Not Shown for Clarity)

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
460E0172	Concrete Patching Material, Bridge Deck	134.1	CuFt
491E0005	Two Coat Polymer Bridge Deck Chip Seal	498.2	SqYd
491E0110	Abrasive Blasting of Bridge Deck	498.2	SqYd
491E0120	Bridge Deck Grinding	498.2	SqYd
491E0130	Concrete Removal, Class A	10.7	SqYd
491E0140	Concrete Removal, Class B	10.7	SqYd

SPECIFICATIONS

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

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 and are provided as information only. 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 shall 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 at the pre-construction meeting.

1. Perform Bridge Deck Grinding for the first phase of construction.
2. Repair the bridge deck by removing all loose and delaminated concrete from the bridge deck surface for the first phase of construction.
3. Clean the bridge deck surface with abrasive blasting for the first phase of construction.
4. Place the Two Coat Polymer Bridge Deck Chip Seal for the first phase of construction.
5. Switch traffic and repeat steps 1 through 4 for Phase 2 of construction.

TWO COAT BRIDGE DECK POLYMER CHIP SEAL

The Two Coat Bridge Deck Polymer Chip Seal shall be applied in accordance with the Construction Specifications.

**ESTIMATE OF STRUCTURE QUANTITIES AND NOTES
FOR
119' - 0" CONTINUOUS CONCRETE BRIDGE**

STR. NO. 38-290-179

MARCH 2015

2 OF 4

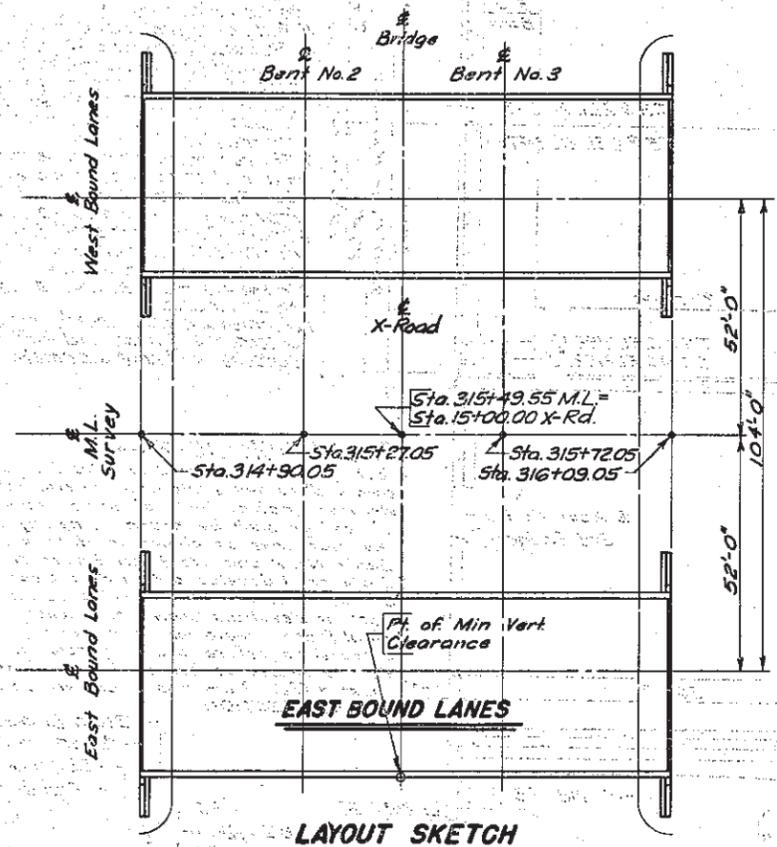
DESIGNED BY MM JACK035G	CK. DES. BY KSK 035GRF01	DRAFTED BY KR	<i>Kevin N. Boeden</i> BRIDGE ENGINEER
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INDEX OF BRIDGE SHEETS—

- Sheet No. 1 ~ General Drawing, Layout and Quantities
- Sheet No. 2 ~ Subsurface Investigations
- Sheet No. 3 ~ Details of Standard Superstructure **3PGCS-38-119-1-3 (17-6-67)**
- Sheet No. 4 ~ Details of Standard Abutment **3PGCS-38-119-2-3 (1-3-68)**
- Sheet No. 5 ~ Details of Standard Bent **3PGCS-38-119-3-3 (10-27-62)**
- Sheet No. 6 ~ Standard Type RT-3A Steel Railing, Drain and Curb detail **RT-3A**

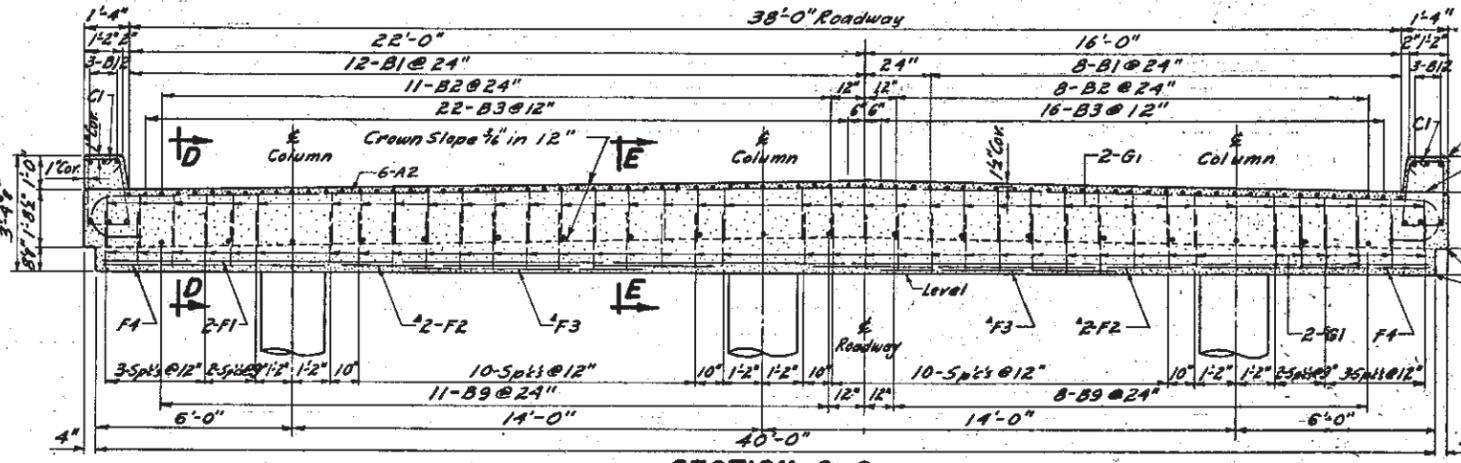
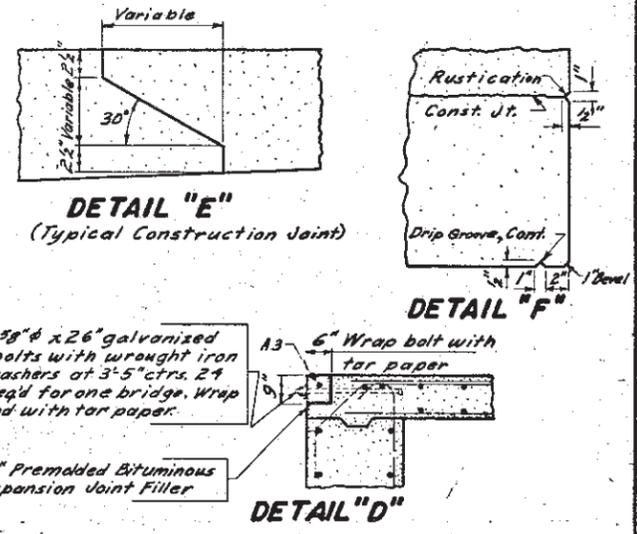
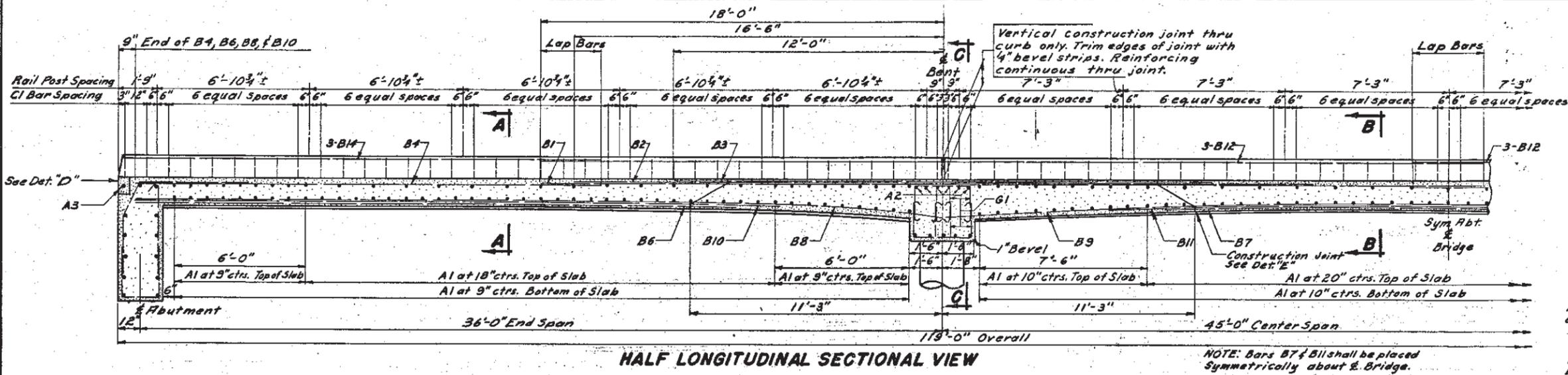
CURB NOTE—

The curb ends at Begin Bridge and End Bridge shall be built vertical rather than beveled 2 in 12 as indicated elsewhere in Plans.



CURB AND ELEVATIONS

Station	Elevation
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Abut. No. 1	El. 2168.687
Abut. No. 1	El. 2168.591
Abut. No. 1	El. 2168.495
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Abut. No. 1	El. 2167.439
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Abut. No. 1	El. 2167.151
Abut. No. 1	El. 2167.055
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Abut. No. 1	El. 2166.767
Abut. No. 1	El. 2166.671
Abut. No. 1	El. 2166.575
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Abut. No. 1	El. 2166.383
Abut. No. 1	El. 2166.287
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Abut. No. 1	El. 2166.095
Abut. No. 1	El. 2165.999
Abut. No. 1	El. 2165.903
Abut. No. 1	El. 2165.807
Abut. No. 1	El. 2165.711
Abut. No. 1	El. 2165.615
Abut. No. 1	El. 2165.519
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Abut. No. 1	El. 2165.039
Abut. No. 1	El. 2164.943
Abut. No. 1	El. 2164.847
Abut. No. 1	El. 2164.751
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Abut. No. 1	El. 2163.503
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Abut. No. 1	El. 2161.103
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Abut. No. 1	El. 2160.335
Abut. No. 1	El. 2160.239
Abut. No. 1	El. 2160.143
Abut. No. 1	El. 2160.047
Abut. No. 1	El. 2159.951
Abut. No. 1	El. 2159.855
Abut. No. 1	El. 2159.759
Abut. No. 1	El. 2159.663
Abut. No. 1	El. 2159.567
Abut. No. 1	El. 2159.471
Abut. No. 1	El. 2159.375
Abut. No. 1	El. 2159.279
Abut. No. 1	El. 2159.183
Abut. No. 1	El. 2159.087
Abut. No. 1	El. 2158.991
Abut. No. 1	El. 2158.895
Abut. No. 1	El. 2158.799
Abut. No. 1	El. 2158.703
Abut. No. 1	El. 2158.607
Abut. No. 1	El. 2158.511
Abut. No. 1	



REINFORCING SCHEDULE														
MK.	NO.	SIZE	LENGTH	TYPE	MK.	NO.	SIZE	LENGTH	TYPE	MK.	NO.	SIZE	LENGTH	TYPE
A1	238	5	40'-3"	Str.	B7	38	10	25'-9"	Str.	F1	4	9	39'-9"	Str.
A2	12	10	42'-3"	1	B8	38	10	36'-3"	Str.	F2	8	9	11'-0"	Str.
A3	2	5	37'-9"	Str.	B9	19	10	45'-0"	Str.	F3	4	9	7'-0"	Str.
B1	40	10	42'-0"	Str.	B10	36	9	29'-0"	Str.	F4	4	4	6'-6"	Str.
B2	38	11	33'-0"	Str.	B11	18	9	30'-0"	Str.	G1	304	4	5'-6"	S3
B3	76	10	24'-0"	Str.	B12	12	11	42'-6"	Str.					
B4	40	9	21'-0"	Str.	B13	6	11	45'-0"	Str.					
B5	12	11	36'-9"	Str.	B14	12	8	21'-6"	Str.					
B6	76	10	27'-0"	Str.	C1	240	4	7'-3"	T1					

NOTES

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

DESIGN SPECIFICATIONS: A.A.S.H.O. Specifications for Highway Bridges, 1965.

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

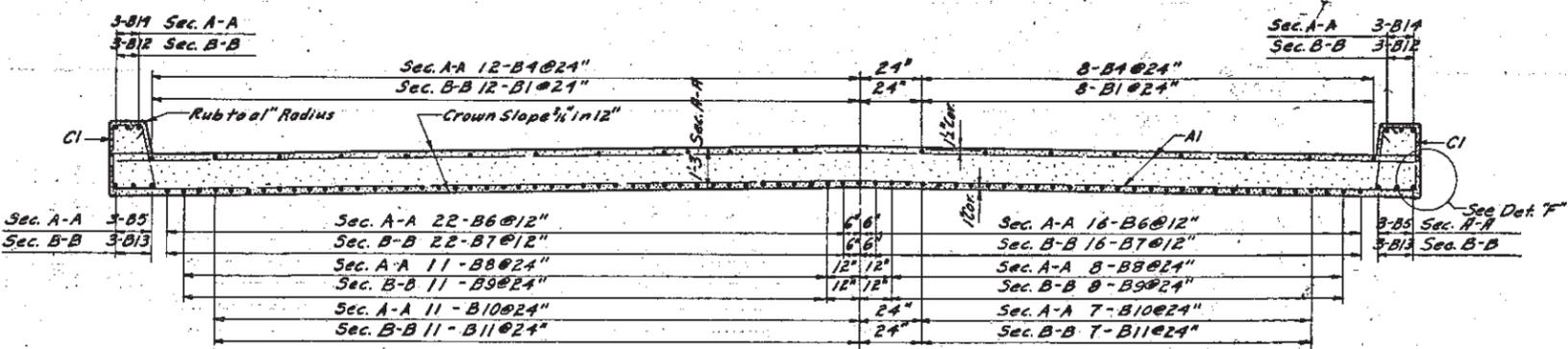
STRUCTURAL STEEL: All 5/8" bolts including washers, and all pile connections in Abutments, and all floor drains shall be paid for as Structural Steel.

REINFORCING STEEL: All Reinforcing steel shall conform to A.S.T.M. Specifications A305 and A15 (Intermediate Grade).

CONCRETE: Class "A" Concrete shall develop a minimum allowable compressive strength of 4000 p.s.i. at 28 days. All exposed concrete corners and edges shall be chamfered to 1/4" bevel unless noted otherwise. If necessary to facilitate construction, transverse construction joints may be made at the points shown in each and any span. If these joints are used, submit a Concrete Pouring Sequence to the BRIDGE SECTION for approval. All costs for expansion joint filler and tar paper shall be included in the unit price bid per cu. yd. for Class "A" Concrete.

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

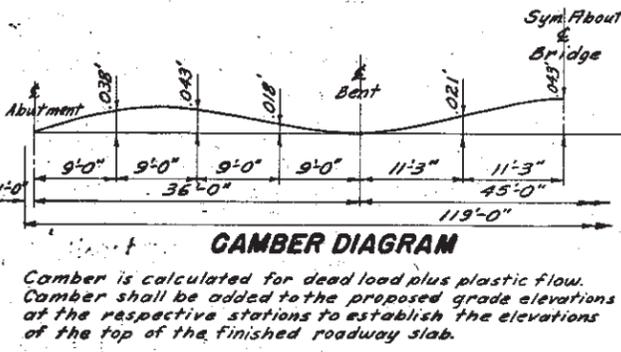
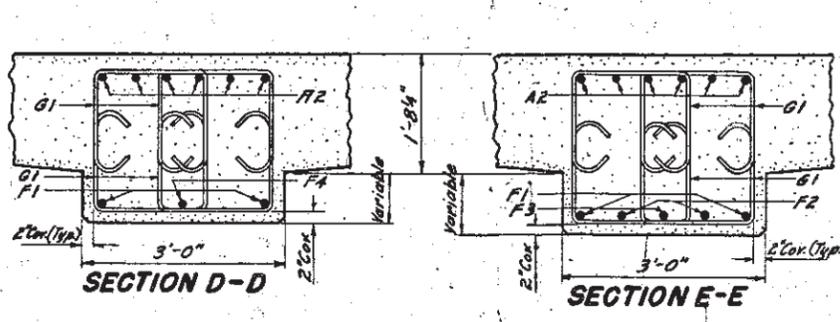
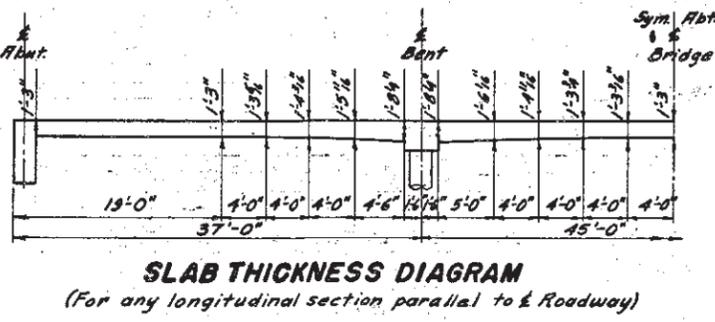
Unit Stresses: Concrete $f_c = 1600$ p.s.i., $n = 8$, Reinforcing Steel: $f_s = 20,000$ p.s.i. Equivalent fluid pressure of earth at 40' / sq. ft. Minimum Pile Loading = 24 tons for Timber Piling and 45 tons for 8BP36 Steel Bearing Piles. (values for one pile) Minimum Soil Bearing Pressure for Spread Footings = 4 Tons per Sq. Ft.



ORIGINAL CONSTRUCTION PLANS
STR. NO. 38-290-179

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class "A" Concrete	Cu. Yds.	2,555.5
Reinforcing Steel	Lbs.	75,290
Structural Steel	Lbs.	60

*Weight of 5/8" bolts and washers only.



DETAILS OF STANDARD SUPERSTRUCTURE FOR
3-SPAN 119'-0" CONTINUOUS CONCRETE SLAB BRIDGE
WITH
ROUND COLUMN BENTS
38'-0" ROADWAY (22'-0" R_L & 16'-0" R_L OF & RDWY.)
SOUTH DAKOTA
DEPARTMENT OF HIGHWAYS
APRIL 1964 HS20-44 4 OF 4