REHABILITATION STRUCTURE SURVEY REPORT

Wisconsin Department of Transportation
DT1696 4/2017

RECEIVED
07/02/2019
BUREAU OF STRUCTURES

☒ **Grade Separation** ☐ **Stream Crossing** ☐ **Culvert**

☐ **Railroad** ☐ **Retaining Wall** ☐ **Noise Barrier**

☐ **Sign Structure** ☐ **Other:** _____

For guidance see: **http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/strct/survey.aspx**

Design Project ID 1021-03-10	Construction Project ID	Highway (Project Name) STH 93		
Final Plan Due Date February 1, 2020	Preliminary Plan Due Date May 1, 2019	☒ Town ☐ Village ☐ City Washington		
PS&E Date May 1, 2020	Letting Date July 9, 2024	County Eau Claire		
Structure Number B-18-0034		Section 3	Town 26N	Range 9W
Station 669+79	Latitude: 44.765804 Longitude: -91.459132	☐ YES ☐ NO Structure Located on National Highway System		
For Survey and CADD Files Horizontal Coordinate System: Eau Claire County Vertical Datum: NAVD88		**Traffic Forecast Data**		
		Design Year	Average Daily Traffic (ADT)	Roadway Design Speed	Functional Class
Feature On STH 93 SB		Feature On 2042	25400	45 MPH	Principal Arterial
Feature Under IH 94		Feature Under 2042	38800	70 MPH	Principal Arterial
Region Contact: Stacie Lambelle (Area Code) Telephone Number(s): 715-577-2967 Email: stacie.lambele@dot.wi.gov		Consultant Contact: Tara Krista (Area Code) Telephone Number(s): 715-720-6291 Email: tkrista@sehinc.com		

Work To Be Performed

Field Information Required
Item Number *(see Pages 2–4)*

- ☐ A. Structural Repair 1–3, 22
- ☒ B. Overlay 1–3, 10–22, 26–28, 32, 34
  - ☐ Concrete Overlay ☐ Asphalt Overlay
  - ☒ Polymer Modified Asphalt Overlay ☒ Thin Bonded Polymer Overlay
  - ☐ Other: _____
- ☐ C. New Bearings 3, 8, 9, 22
- ☐ D. New Railings 15–17, 20–23
- ☐ E. Curb and Sidewalk Repair 2, 3, 16, 22, 23
- ☒ F. Abutment Repair 2, 3, 12, 16
- ☒ G. Pier Repair 2, 3, 12, 16
- ☐ H. New Deck 1–6, 9, 10, 13–28, 32–34
- ☐ I. Widening 1–28, 30, 32–35
- ☒ J. Joint Repair 2, 3, 8, 16, 19, 22
- ☒ K. Surface Repair 2, 3, 22
- ☐ L. Raising Bridge 3, 6, 9, 16, 20–24
- ☐ M. Slope Stabilization 1–3, 30
- ☐ N. Scour Repair ..... 1, 2 or 3, 16, 19, 21, 27, 29, 31–35
- ☐ O. Painting 16, 22, 24
- ☒ P. Other: Fence replacement, encase girder ends (bearing conversion) and NE wingwall replacement

Field Information Required

If no structure number exists provide the following: Small County Map on which the location of proposed structure is shown in red and any highway relocation in green. In addition, provide Location Map of scale not less than 1" = 2000' showing the structure location and number.

☒ 1. Most recent inspection report, brief history of bridge construction date, and description of repairs with dates.

☒ 2. Outline deficient areas on existing structure plan or drawing.

☒ 3. Photographs of details requiring repairs or modifications, such as: bearings, x-frames, joints, etc. Photograph all deficient areas. Clearly label all photographs.

☐ 4. Provide proposed typical section for roadway and structure showing dimensions and cross slopes.

☐ 5. Survey beam seat or girder elevations at both sides of bridge at all substructure units.

☐ 6. Provide cross-section elevations at 10 foot intervals extending across the structure and a minimum of 100 feet beyond each end. Sections should be normal to centerline and show elevations at centerline roadway and gutter line. Take elevations along joints and at floor drains.

☐ 7. Show and identify starting stationing on bridge.

☒ 8. Record measurement, temperature of the structure, and date taken for each of the following:
(a) Joint opening measured normal to joint at centerline of roadway and both curb lines.
(b) Clearance between girder ends at piers.
(c) Distance from front face of abutment backwall to closest point of girder end measured parallel to girder.
(d) Temperature of structure determined by averaging top and under deck (if accessible) readings.

☐ 9. Fixed and expansion bearings - condition and orientation.

☒10. Number and width of proposed pours including construction staging sequence.

☒11. Location of existing construction joints in the deck.

☒12. Estimated Quantities:

Preparation, Decks, Type 1	Sq. Yd. 126	
Preparation, Decks, Type 2	Sq. Yd. 102	
Full Depth Deck Repair	Sq. Yd. 13	Galvanic Anodes? _____
Concrete Surface Repair Superstructure	Sq. Ft. 9	Galvanic Anodes? _____
Concrete Surface Repair Substructure	Sq. Ft. 13	Galvanic Anodes? _____
Curb Repair	LF. 0	Galvanic Anodes? _____

☒13. Sufficiency number: 68.1 (obtain from HSI Bridge Inventory System)

☒14. Appraisal and Condition Rating

	Deck Condition	Superstructure Condition	Substructure Condition	Load Capacity Appraisal	Structural EVAL Appraisal
Current	5	5	5		5

☒ 15. Load Ratings

	Inventory	Operational
Current Calculated Date: 08-23-2017	HS18	HS34
After Completed by Bridge Designer		

☒ 16. Utilities on/near Structure. (WisDOT policy is to avoid placing utilities on the structure.)
☐ Yes ☒ No

Type	Owner and Contact Information	Size	Opening at Abutment	Weight	Pressure

☒ 17. Is existing bridge railing deficient?
☐ Yes ☒ No If Yes – Replacement Rail Type:

☒ 18. Drains to be:
☐ Raised ☐ Closed ☐ Downspouted ☐ New

☒ 19. Traffic maintained on bridge during work?
☒ Yes ☐ No If Yes – Include sketches

☒ 20. Will guard rail be attached?
☒ Yes ☐ No If Yes – Which corners? All four quadrants

☒ 21. Will work to be performed eliminate all deficiencies?
☒ Yes ☐ No If No – Explain:

☒ 22. Hazardous waste (asbestos) to be removed?
☐ Yes ☒ No If Yes – Explain:

☐ 23. Wing location(s) for surface drain anchors:

☐ 24. Painting?
☐ Yes ☐ No If Yes – Explain on Page 4
(all, part, railing, color system, containment, bid items)

☐ 25. Desired roadway width: *(new deck / widening)* _____ Ft.
Desired sidewalk clear width: Left: _____ Ft. Right: _____ Ft.

☒ 26. Maximum increase in grade line elevation 0.25 In.

☒ 27. Benchmark description to be shown

☒ 28. Desired final cross slopes on bridge 0.02 Ft./Ft.

☐ 29. Underwater Inspection Report including:
- Streambed Cross Section With Pier, Footing and Seal Elevations
- Pier Elevation Drawings
- Pier Layout
- Hydrographic Survey

☐ 30. Slope stabilization, provide:
Type: _____ Quantity: _____ CY.
Slope: _____ Ft./Ft. Fill: _____ CY.

☐ 31. Preliminary layout of grout bags or proposed scour repair.
C.I.P. Articulated Mats (for Scour) _____ CY.
Grout Bags (for Scour) _____ CY.
Heavy Riprap _____ CY.
Extra Heavy Riprap _____ CY.

☒ 32. Report submitted with Preliminary Plan requires **no** CADD file submittal *(See ESubmittal instructions)*.

☐ 33. Report submitted for development of Preliminary Plan to structure design engineer requires CADD file (if available) submittal and Report submittal to Soils Engineer if project involves foundation modifications.

☒ 34. Coordinate with structure design engineer **before** going into the field if existing structure has no available plans, if staged construction is planned, or if there are adjoining/adjacent structures that will remain in place.

☐ 35. If project involves substructure widening coordinate with structure and/or hydraulic design engineer to determine if information on the separation and/or stream crossing SSR will be required.

Additional Information

Elaborate on other concerns such as: DNR, Local, Utility Conflicts, Aesthetics, Railing Type and Staged Construction.
Please be as detailed and specific as possible.

1. See attachments
2. See attachments. Attachments include as-built plans with redlines of all deficient areas found during site visit are shown.
3. See photos.
16. No utilities on structure. Utility conflicts not anticipated.
18. Existing structure does not have drains.
22. No asbestos present.
27. See roadway plans for benchmark information.

Proposed work based on SEH observations:
- Apply polymer overlay to structure
- Remove and replace north and south abutment backwall
- Remove and replace NE parapet and wingwall
- Fiber wrap all columns from top to bottom on all 3 piers
- Repair ends of various concrete girders
- Eliminate the joints at each abutment and encase the ends of the girders with concrete diaphragms (bearing conversion)
- Replace all beam guard attached to the structure **
- Replace ~50' of roadway approach including concrete approach slabs, concrete pavement, 36" Curb & Gutter, and HMA shoulder will be replaced and shown on roadway plans **

Traffic control: Work is to be completed half at a time with single lane closures

WDNR concurrence received September 11, 2018. See attachment.

On Screening list for Archeology & History dated June 21, 2018.

SEH visited the site on March 25, 2019 and only reviewed items that could be physically touched without the use of a snooper.
- See zip file uploaded to WisDOT FTP site for additional pictures.
- See marked up asbuilt plans for all repairs.

**Per email from Nick Pitsch, WisDOT on 6/28/2019: WisDOT is only replacing the first panel after the approaches. For beamguard WisDOT is only replacing the bullnoses. For the other beamguard they will just remove and reinstall the thrie beam. They would like to avoid asphalt due to small quantity so anywhere asphalt removal is needed will be replaced with 8” concrete pavement.

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
1300 West Clairemont Avenue
Eau Claire, WI 54701

Scott Walker, Governor
Daniel L. Meyer, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

September 11, 2018

Nicholas Pitsch
WI-DOT NW Region
718 W Clairemont Avenue
Eau Claire, WI 54701

Subject: DNR Initial Project Review
Project I.D. 1021-03-10/80
STH 93 Bridges B-18-0034, B-18-0119
Eau Claire County
T26N, R9W, Section 3

Dear Mr. Pitsch:

The Wisconsin Department of Natural Resources (DNR) has received the information you provided for the above-referenced project. According to your proposal, the purpose of this project is bridge rehabilitation on bridges B-18-0034 & B-18-0119. Proposed improvements for structure B-18-0034 include replacing the northeast wingwall, replacing the joints at both abutments with concrete diaphragms, fiber wrapping all three piers, and applying a polymer overlay. Proposed improvements for structure B-18-0119 include replacing the northwest wingwall and fiber wrapping all three piers. Replace pavement, curb and gutter, beam guard and pavement marking on approaches to both structures as necessary.

Preliminary information has been reviewed by DNR staff for the project under the DNR/DOT (Wisconsin Department of Transportation) Cooperative Agreement. Initial comments on the project as proposed are included below, and we assume that additional information will be provided that addresses all resource concerns identified. To ensure compliance with resource protections, we are recommending that Special Provisions be developed for specific resource protections described below. DNR expects that the full range of DOT roadway standards will be applied throughout the design and construction process.

A. Project-Specific Resource Concerns

Wetlands:
There are no wetland concerns with this project, based on the information provided.

Endangered Resources:
Based upon a review of the Natural Heritage Inventory (NHI) dated September 11, 2018, there are no known Endangered Resources or suitable habitat that could be impacted by this project. With this review the following has also been determined:

- There are no known Northern Long-eared Bat (NLEB) maternity roost trees within 150 feet of the project, or known hibernacula within 0.25 miles of the proposed project area.

- This project is located outside of any High Potential Zones (HPZ) for the Rusty Patched Bumblebee (RPBB), and therefore should have no impact on this federally endangered species.

This project is covered by the Broad Incidental Take Permit/Authorization for No/Low Impact Activities. No further actions for endangered resources are required/recommended.

❖ *NHI Disclaimer: This review letter may contain NHI data, including specific locations of endangered resources, which are considered sensitive and are not subject to Wisconsin's Open Records Law. As a result, information contained in this review letter may be shared only with individuals or agencies that require this information in order to carry out specific roles in the permitting, planning and implementation of the proposed project. Specific locations of endangered resources may not be released or reproduced in any publicly disseminated documents.*

Invasive Species and Viral Hemorrhagic Septicemia (VHS):
All project equipment shall be decontaminated for removal of invasive species prior to and after each use on the project site by utilizing other best management practices to avoid the spread of invasive species as outlined in NR 40, Wis. Adm. Code. For more information, refer to http://dnr.wi.gov/topic/Invasives/bmp.html.

Storm Water Management & Erosion Control:

- For projects disturbing an acre or more of land, erosion control and storm water measures must adhere to the Wisconsin Pollutant Discharge Elimination System Transportation Construction General Permit (TCGP) for Storm Water Discharges. Coverage under TCGP is required prior to construction. DOT should apply for permit coverage just before the project goes to final PS&E. Permit coverage will be issued by the DNR after design is complete and documentation shows that the project will meet construction and post-construction performance standards. For more information regarding the TCGP you can go to the following link, and click on the "Transportation" tab: https://dnr.wi.gov/topic/Sectors/Transportation.html.

- All projects require an Erosion Control Plan (ECP) that describes best management practices that will be implemented before, during and after construction to minimize pollution from storm water discharges. Additionally, the plan should address how post-construction storm water performance standards will be met for the specific site. The project design and Erosion Control Implementation Plan (ECIP) must comply with the TCGP in order to receive "permit-coverage" from the DNR.

- Once the project contract has been awarded, the contractor will be required to outline their construction methods in the ECIP. An adequate ECIP for the project must be developed by the contractor and submitted to this office for review at least 14 days prior to the preconstruction conference. For projects regulated under the TCGP, submit the ECIP as an amendment to the ECP.

Selected Site & Commercial Non-Metallic Mines:

- The DOT Select Site process must be adhered to for clean fill or any other material that leaves the work site. The DNR liaison will review all proposed select sites and a site visit may be required. Filling of wetlands, waterways or floodplain is not allowed under the select site process, unless the site owner obtains required permits. No new impermeable surfaces can be left at a select site (including gravel roads or pads), unless the site owner obtains required

permits. Contaminated materials leaving the site need to adhere to the Hazardous Material Management Plan.

Asbestos:
A Notification of Demolition and/or Renovation and Application for Permit Exemption, DNR form 4500-113 (chapters NR 406, 410, and 447 Wis. Adm. Code) may be required. Please refer to DOT FDM 21-35-45 and the DNR's notification requirements web page: http://dnr.wi.gov/topic/Demo/Asbestos.html for further guidance on asbestos inspections and notifications. Contact Mark Davis, Air Management Specialist 262-574-2118, with questions on the form. The notification must be submitted 10 working days in advance of demolition projects.

Other Issues:
The above comments represent the DNR's initial concerns for the proposed project and do not constitute final concurrence. Final concurrence will be granted after further review of refined project plans, and additional consultation if necessary. If any of the concerns or information provided in this letter requires further clarification, please contact this office at (715) 934-9014, or email at Leah.Nicol@wisconsin.gov.

Sincerely,

Leah Nicol
Environmental Analysis & Review Specialist

cc: Nick Schaff, WisDOT Regional Environmental Coordinator

N

REPLACE BEAM GUARD

1' X 1' SURFACE REPAIR ON PARAPET

PREP TYPE 1 (TYP)

FULL DEPTH REPAIR (TYP)

PREP TYPE 2 (TYP)

HAIRLINE CRACKS ON PARAPET THROUGHOUT

REPLACE BEAM GUARD

CONCRETE REPAIR

2.5' X 1.5' SURFACE REPAIR ON PARAPET

JOINT & BACKWALL REPLACEMENT

APPLY POLYMER OVERLAY TO ENTIRE STRUCTURE

REPLACE APPROACH SLAB + 40' APPROACHES

REPLACE APPROACH SLAB + 40' APPROACHES

JOINT & BACKWALL REPLACEMENT

B-18-0034

669+00

670+00

2.5' X 1.5' SURFACE REPAIR ON PARAPET

671+00

5

5

NE WING WALL REPLACEMENT

REPLACE BULLNOSE

REPLACE BULLNOSE

1' X 1' SURFACE REPAIR ON WING

NW WING WALL REPLACEMENT

669+00

670+00

671+00

B-18-0119

APPLY POLYMER OVERLAY TO ENTIRE STRUCTURE

REPLACE APPROACH SLAB + 40' APPROACHES

REPLACE BEAM GUARD

REPLACE APPROACH SLAB + 40' APPROACHES

24' FENCE DAMAGE

2' FENCE DAMAGE

4' FENCE DAMAGE

2-1' X 1' PARAPET REPAIR

FENCE DAMAGE

47-1' X 1' SIDEWALK REPAIR AREAS THROUGHOUT DECK

6.5' X 1.5' SIDEWALK REPAIR

4' X 1.5' SIDEWALK REPAIR

9.5' X 1.5' SIDEWALK REPAIR

3.5' X 1.5' SURFACE REPAIR ON WING

PROJECT NO: 1021-03-80	HWY: STH 93	COUNTY: EAU CLAIRE	PLAN	SHEET	E

FILE NAME : \\SEHCF1\PROJECTS\UZ\W\WITNW\147076\5-FINAL-DSGN\CIVIL 3D\SHEETSOTHER\PLAN SHEET WITH SURFACE REPAIR AREAS.DWG
LAYOUT NAME - Plan 1 IN 20 FT
PLOT DATE : 4/2/2019 3:24 PM
PLOT BY : JUSTIN SHAVLIK
PLOT NAME :
PLOT SCALE : 1 IN:20 FT
WISDOT/CADDS SHEET 44

TYPE CODE = X

TE PROJECT NUMBER	SHEET NO.
1022-00-71	838

Replace beam guard

1'x1' Conc. Surface Repair on Parapet

Direction to remove joints and not replace - need clarification?

Hairline Cracks on Parapet Throughout

Replace beam guard

2.5'x1.5' Conc. Surface Repair on Parapet

Remove and replace joint and abutment back wall

Apply Polymer overlay to structure

Remove and replace concrete approach slab + 40' of approaches

See plan sheet for deck repair areas

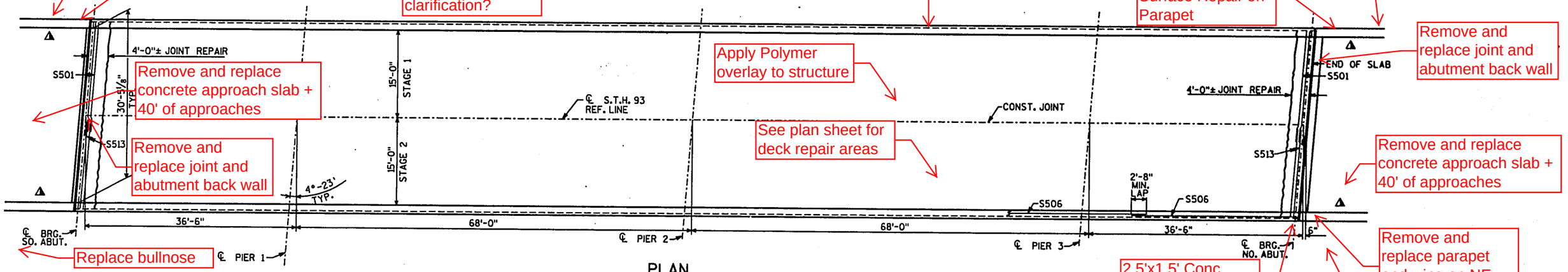
Remove and replace concrete approach slab + 40' of approaches

Remove and replace parapet and wing on NE side

Replace bullnose

2.5'x1.5' Conc. Surface Repair on Parapet

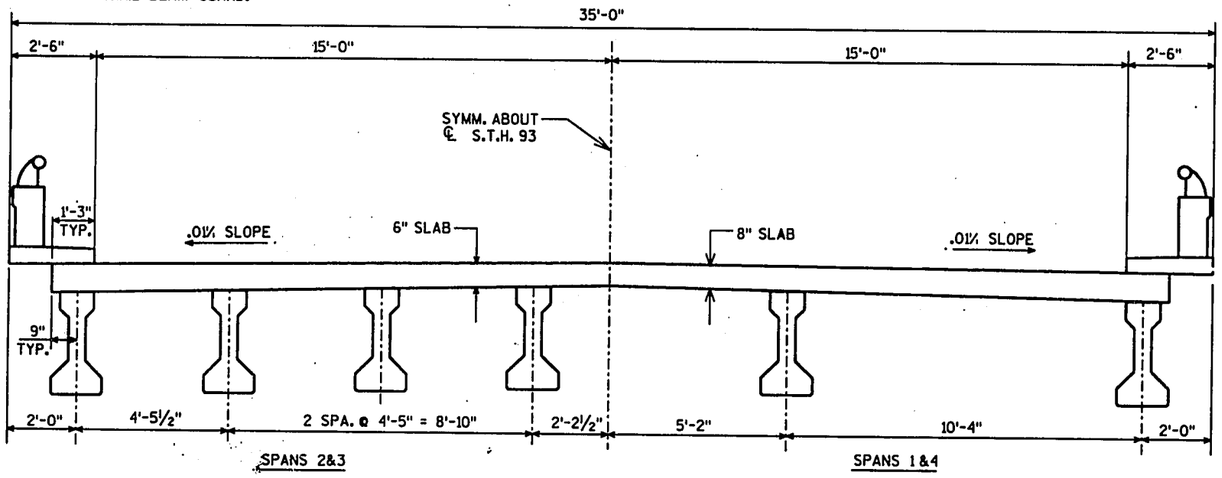
Replace bullnose



ATTACH ANCHOR ASSEMBLY FOR THRIE BEAM GUARD.

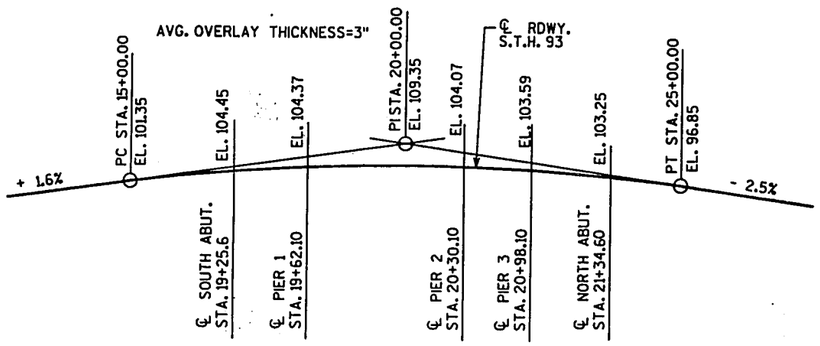
PLAN

4 SPAN 36" PRESTRESSED GIRDERS



EXISTING CROSS SECTION THRU ROADWAY

(LOOKING NORTH)



PROFILE GRADE LINE

PROPOSED BENCH MARK: KEEL MARK ON S.W. ABUT. EL. 100.00

NOTE: FIELD MODIFICATIONS TO PROFILE GRADE LINE WHICH INCREASE OVERLAY THICKNESS BY MORE THAN ½" MUST BE REPORTED TO BRIDGE OFFICE. THIS INFORMATION IS REQUIRED TO RECALCULATE VEHICLE CAPACITY RATINGS.

LIST OF DRAWINGS

1. OVERLAY
2. SUPERSTRUCTURE
3. EXPANSION DEVICE
4. PRESTRESSED GIRDER BEARINGS
5. SLOPED FACE PARAPET 'B'

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

CONTRACTOR SHALL VERIFY DIMENSIONS IN FIELD.

PROTECTIVE SURFACE TREATMENT SHALL BE 150 S.F. PER GALLON OR PER MANUFACTURERS RECOMMENDATIONS.

BAR STEEL REINFORCEMENT SHALL BE IMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.

ALUMINUM RAILINGS AND POSTS SHALL BE CAREFULLY REMOVED AND STOCKPILED AT A LOCATION ON THE RIGHT OF WAY, OUTSIDE THE CONST. LIMITS, FOR DISPOSAL BY THE STATE OF WIS. DEPT. OF TRANS.

TOTAL ESTIMATED QUANTITIES

BID ITEMS	UNIT	TOTAL
REMOVING OLD BRIDGE, STA. 30+30.10	L.S.	1
EXCAVATION FOR STRUCTURES, BRIDGES B-18-34	L.S.	1
CONCRETE MASONRY, OVERLAY, DECKS	C.Y.	115
CLEANING, DECKS	S.Y.	707
PREPARATION, DECKS	S.Y.	60
PROTECTIVE SURFACE TREATMENT	GAL.	53
FULL DEPTH DECK REPAIR	S.Y.	5
CONCRETE SURFACE REPAIR **	S.F.	8
EXPANSION DEVICE, STRUCTURE B-18-34	L.S.	1
CONCRETE MASONRY ANCHORS, TYPE L, NO. 5 BARS	EACH	648
COATED HIGH-STRENGTH BAR STEEL REINFORCEMENT, BRIDGES	LB.	8,020
CONCRETE MASONRY, BRIDGES	C.Y.	42
LAMINATED ELASTOMERIC BEARING PADS	EACH	8
REMOVING BEARINGS	EACH	8
ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4
JOINT REPAIR	S.Y.	32

DESIGN DATA

LIVE LOAD:

INVENTORY RATING; HS-18
OPERATIONAL RATING; HS-33
MAXIMUM STANDARD PERMIT VEHICLE LOAD = 237 Kips.

ALLOWABLE DESIGN STRESSES:

CONCRETE MASONRY SLAB f'c = 4,000 P.S.I.

** AREA TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

BRIDGE OFFICE CONTACT - R.L. REESE (608)266-8488
K.A. BAHLER (608)266-8490

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-18-34

S.T.H. 93 (SB) OVER I-94

COUNTY EAU CLAIRE		TOWN/VILLAGE WASHINGTON	
DESIGN SPEC. AASHTO 1989		LOAD —	CONST. SPEC. 1989
DESIGNED BY JSH	DESIGN CKD. VT	DRAWN BY C.M.F.	PLANS CKD. MJK

APPROVED Harold W. Anderson CHIEF BRIDGE DESIGN ENGINEER 11-22-89 DATE

OVERLAY

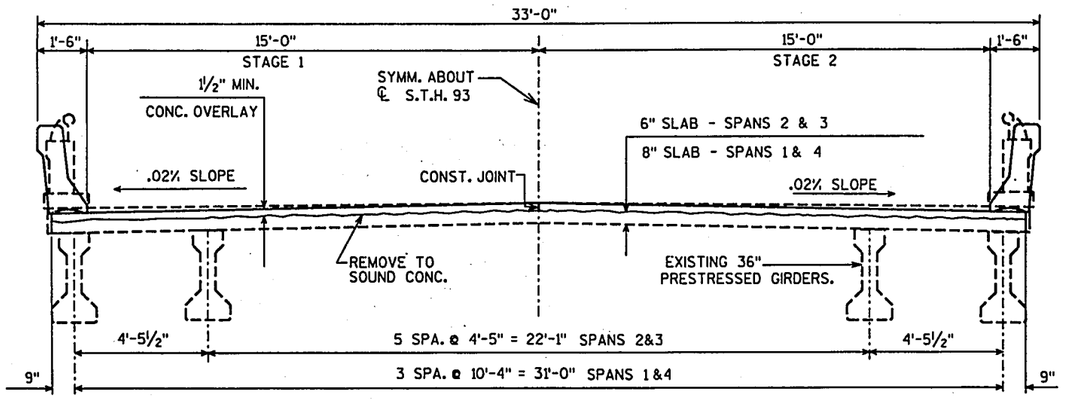
SHEET 1

DATE:

BRB1834_GP.DGN

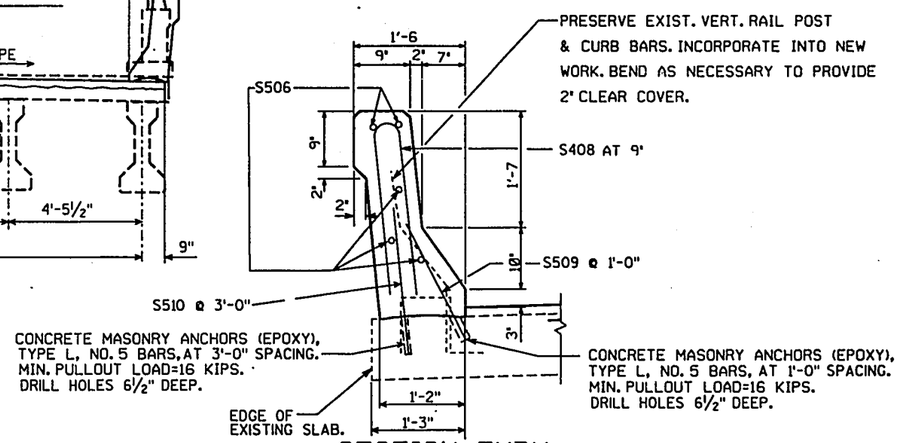
I.D. 1022-00-71

STATE PROJECT NUMBER	SHEET NO.
1022-00-71	839



PROPOSED CROSS SECTION THRU ROADWAY

(LOOKING NORTH)

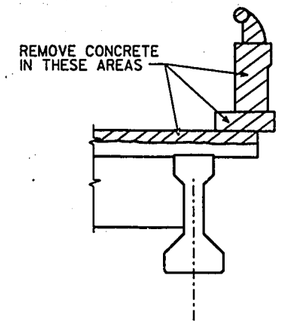


SECTION THRU PARAPET ON BRIDGE

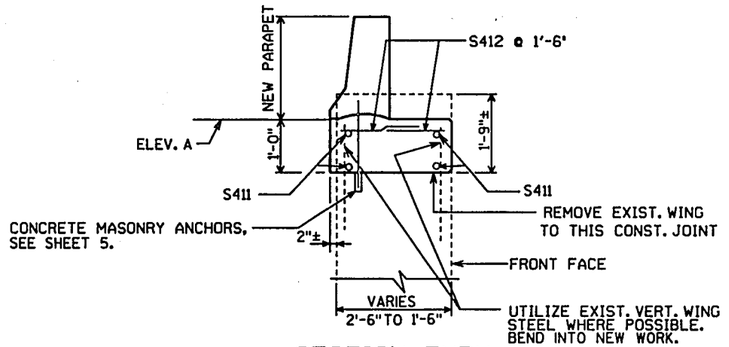
BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	CUT. DIAG.	BUN-DLE	LOCATION
S501	X	6	16-9				AT ABUTS. HORIZ.
S402	X	12	9-0				AT EXPANSION DEVICE HORIZ.
S403	X	60	3-4	X			AT ABUTS. VERT.
S404	X	72	4-6	X			AT EXPANSION DEVICE VERT.
S705	X	36	9-0				AT EXPANSION DEVICE HORIZ.
S506	X	50	44-1				PARAPET B HORIZ.
S408	X	556	5-2	X			PARAPET B VERT.
S509	X	420	2-6				PARAPET B VERT.
S510	X	140	2-6				PARAPET B VERT.
S411	X	16	9-6				AT WINGS HORIZ.
S412	X	28	1-10				AT WINGS HORIZ.
S513	X	6	14-10				AT ABUTS. HORIZ.



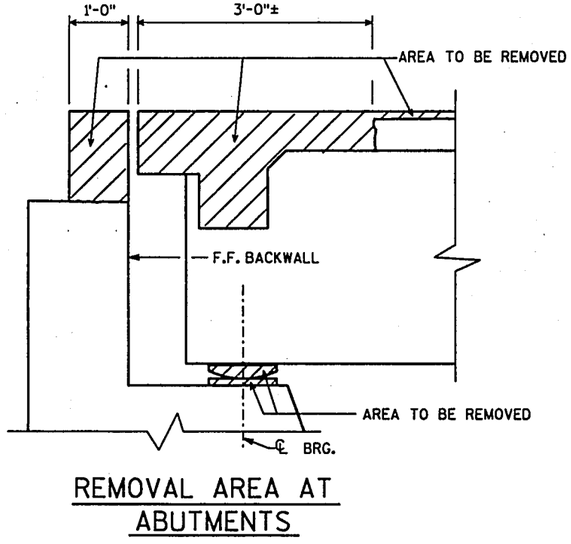
REMOVAL AREA AT PARAPET & RAILING



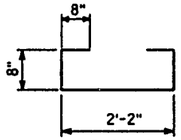
SECTION THRU PARAPET ON WING

ELEV. A

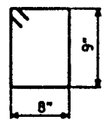
WINGTIP	BACKWALL OF ABUT.
EL. 104.16 (S.W.)	EL. 104.14 (S.W.)
EL. 104.16 (S.E.)	EL. 104.15 (S.E.)
EL. 102.82 (N.W.)	EL. 102.93 (N.W.)
EL. 102.85 (N.E.)	EL. 102.95 (N.E.)



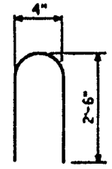
REMOVAL AREA AT ABUTMENTS



S404



S403



S408

NO.	DATE	REVISION	BY

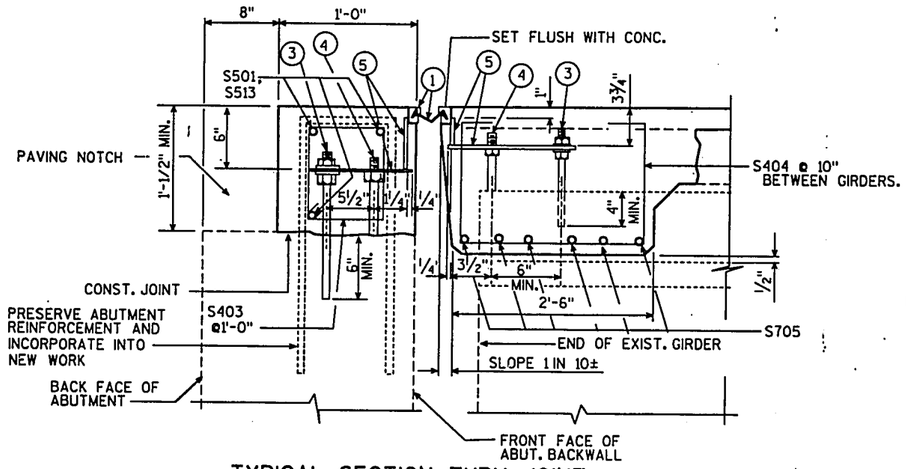
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-18-34

CONST. SPEC. 1989	DRAWN BY C.M.F.	PLANS CHKD. MCM
SUPERSTRUCTURE	SHEET 2	

BR_B1834_SUPER.DGN

STATE PROJECT NUMBER	SHEET NO.
1022-00-71	840



TYPICAL SECTION THRU JOINT

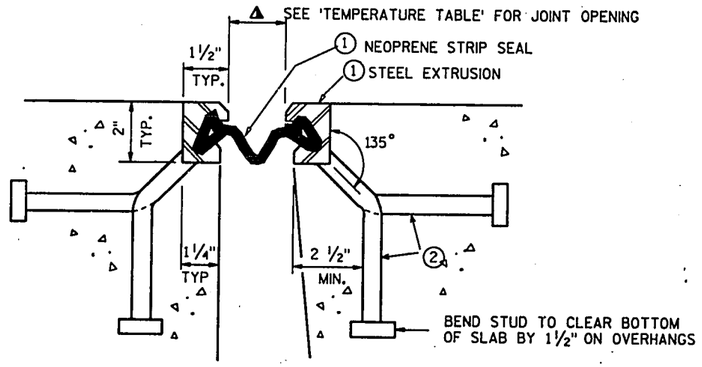
NORMAL TO ℄ SUBSTRUCTURE.

TEMPERATURE TABLE

90	1⅛"
80	2"
70	2⅛"
60	2⅛"
50	2¼"
45	2¼"
40	2¼"
30	2⅜"
20	2½"
10	2½"

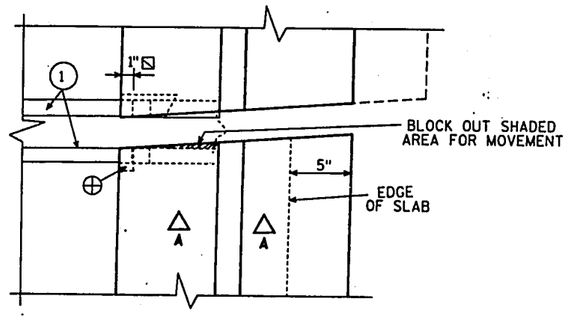
DIM. MEASURED NORMAL TO JOINT OPENING

SHADED UNDERSIDE DECK TEMPERATURE (°F)

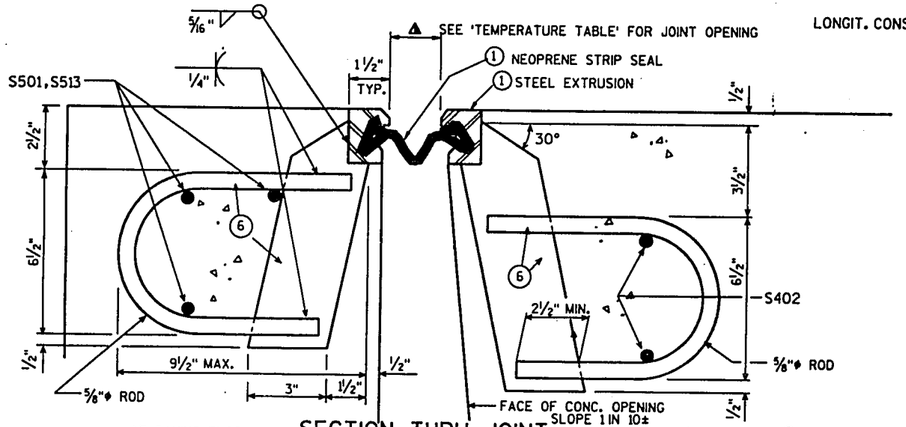


SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF SLAB & AT PARAPETS, MEDIANS & SIDEWALKS



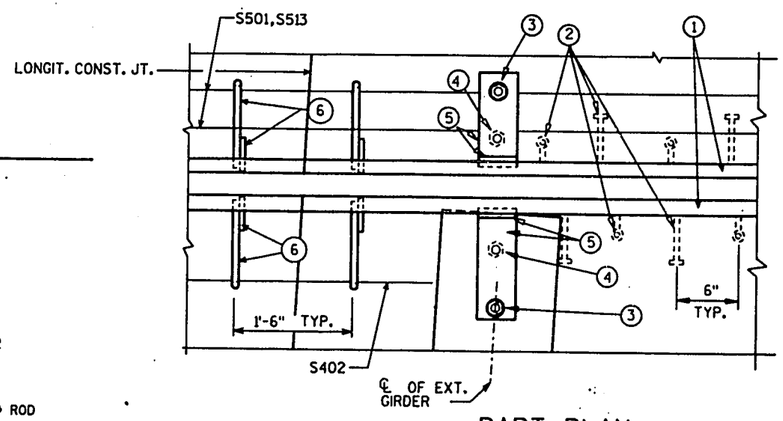
PLAN AT PARAPET 'B'



SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED



PART PLAN

LEGEND

1. NEOPRENE STRIP SEAL & STEEL EXTRUSIONS D.S. BROWN SSA2-400AZ, LEWIS ENGINEERING W-400L, STRUCTURAL ACCESSORIES SA2-=40SS, WATSON-BOWMAN-ACME COMPANIES A3-400SE. EXTRUSIONS TO BE A.S.T.M. A36.
2. STUDS ⅝"ø X 6⅜" LONG AT 6" ALTERNATE CENTERS WELD TO EXTRUSIONS & BEND AS SHOWN AFTER WELDING.
3. ¾"ø THREADED ROD WITH 2 NUTS AND WASHERS. FOR PRESTRESSED GIRDERS FIELD SET ON CL OF GIRDER A MINIMUM OF 4" FROM END OF GIRDER. FOR STEEL GIRDERS WELD THREADED ROD TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE, ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
4. ¾"ø THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
5. FABRICATE SUPPORT FROM 3" X½" BAR AS SHOWN OR EQUIVALENT. ONE PER GIRDER PER SIDE. WELD TO NO. 1. PROVIDE 1½" HOLE FOR NO. 3 & 1" HOLE FOR NO. 4.
6. 3" X½" ANCHOR PLATE WITH ⅝" ø ROD. WELD ROD TO ANCHOR PLATE. WELD ANCHOR PLATE TO #1 AT 1'-6" CTRS. BTWEEN GIRDERS.

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST & SWEEP.

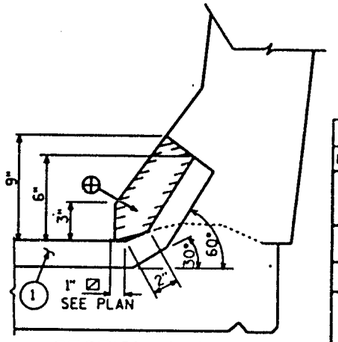
AFTER FABRICATION, SAND BLAST CLEAN STEEL EXTRUSION SURFACES TO SSPC SP. 10. SAND BLAST CLEAN ANCHORAGE COMPONENTS TO SSPC SP. 6. PRIME ALL SURFACES INCLUDING ANCHORAGE COMPONENTS WITH 3 MILS OF ORGANIC ZINC RICH PRIMER.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING COATED EXTRUSIONS CLEAN DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

MATERIAL FOR #2A SHALL CONFORM TO ASTM A36 STEEL.
MATERIAL SHALL BE FLAME CUT OR SHEARED. REMOVE ALL SLAG OR SHEARED EDGES BY GRINDING TO A SMOOTH UNIFORM SQUARE SURFACE. PRIOR TO BENDING CHECK PLATES FOR FLATNESS TO WITHIN A TOLERANCE OF 1/16" IN ANY DIRECTION.
BEND LINE MUST BE PERPENDICULAR TO PLATE GRAIN.
SANDBLAST PLATES AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 IF GALVANIZING OR SSPC SP. #10 IF PAINTING.
THE PLATES SHALL BE HOT DIPPED GALVANIZED OR SHOP PRIMED WITH 3 MILS. MINUMIN OF ORGANIC ZINC RICH PRIMER.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS & HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE"

⊕ BLOCK OUT CONCRETE 2" EACH SIDE FOR JOINT OPENING



SECTION A-A

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-18-34

CONST. SPEC.	DRAWN BY	PLANS CHD.
1989	C.M.F.	MGM

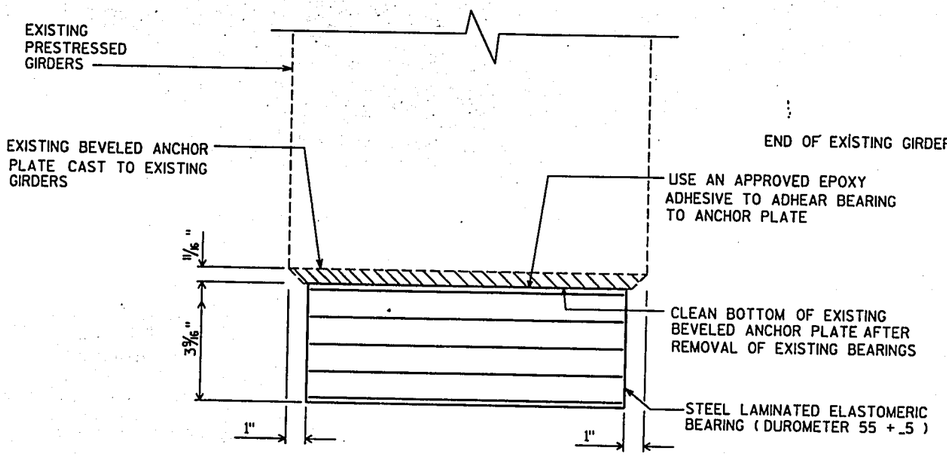
EXPANSION DEVICE

SHEET 3

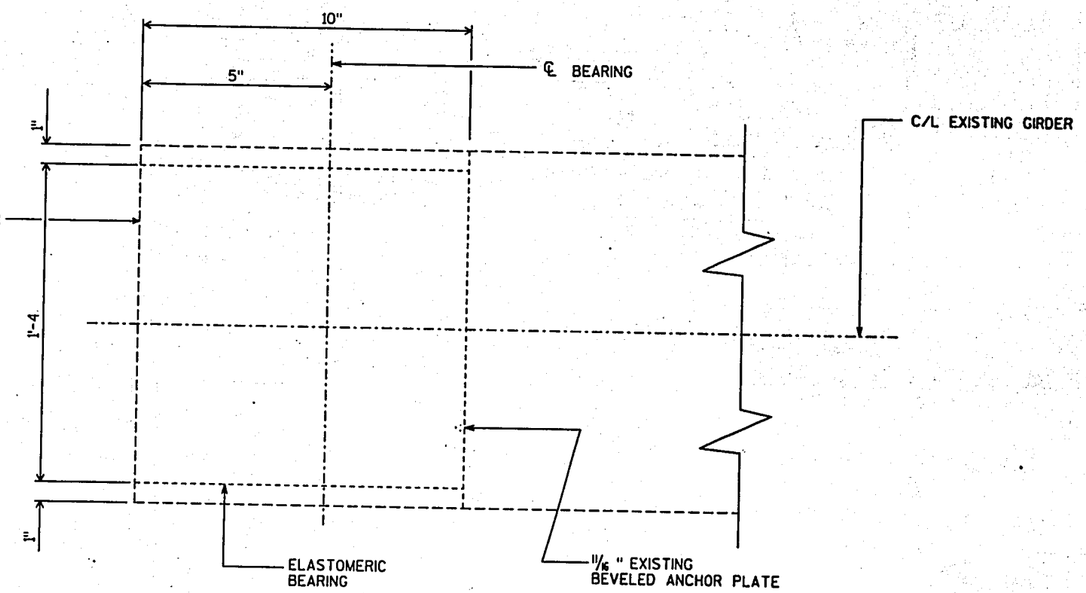
SCALE 1

BR_B1834_EXPJT.DFN

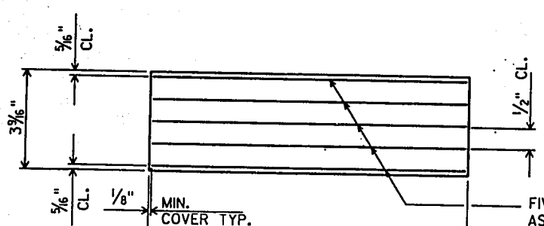
STATE PROJECT NUMBER	SHEET NO.
1022-00-71	8.41



END VIEW



PLAN VIEW



SECTION THRU ELASTOMERIC BEARING

(8 REQ'D.)

NOTE:

BEARINGS SHALL NOT BE PLACED AT A TEMPERATURE GREATER THAN 70° F.

ALL MATERIAL USED FOR BEARINGS SHALL BE PAID AT THE UNIT PRICE BID FOR "LAMINATED ELASTOMERIC BEARING PAD."

PLACE NEW BEARINGS PRIOR TO PLACING OVERLAY.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-18-34

CONST. SPEC.	DRAWN BY	PLANS CKD.
1989	C.M.F.	MGH

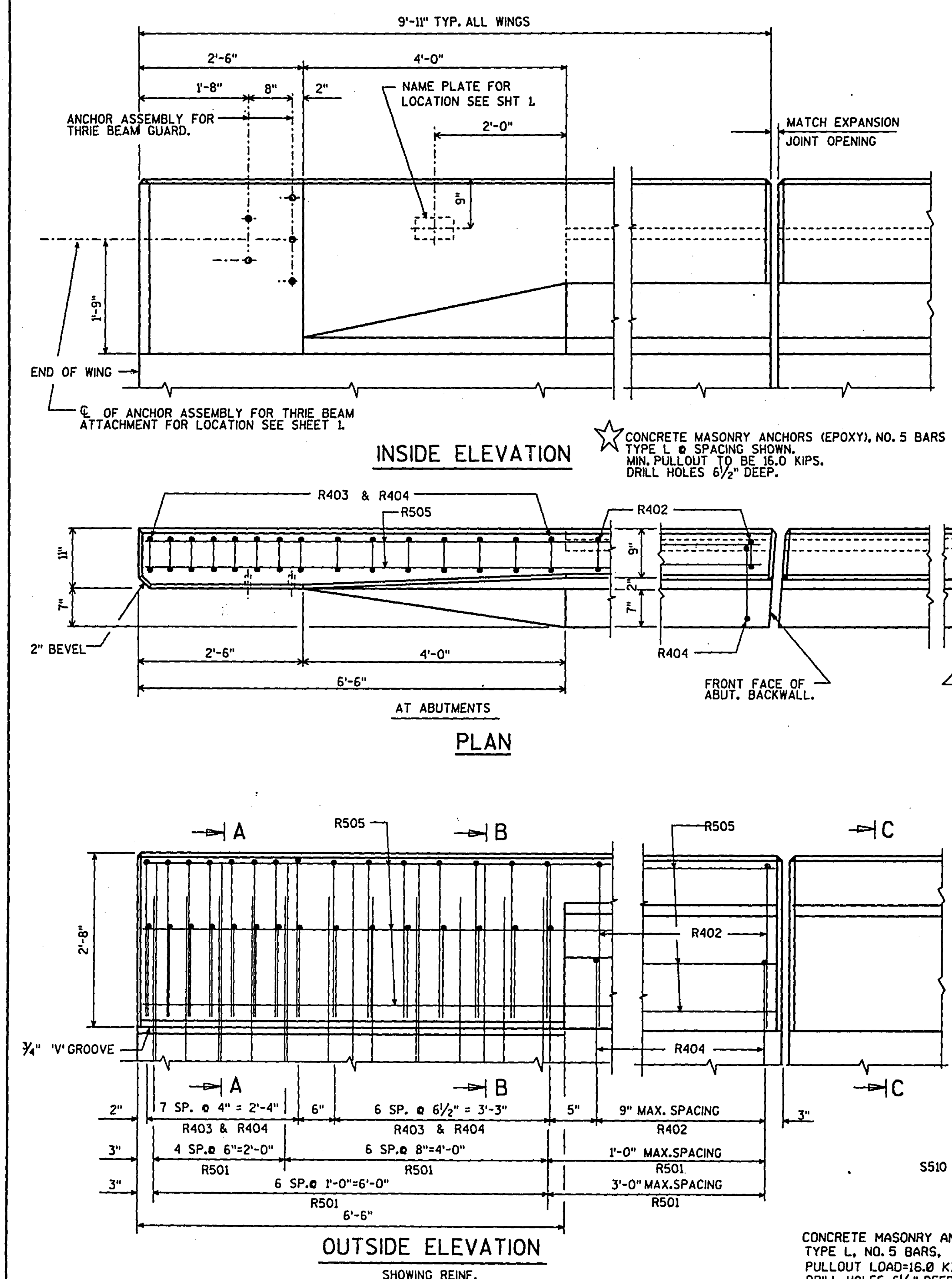
PRESTRESSED GIRDER BEARINGS

SHEET 4

BR_B18025: BRELASPG

FT 55

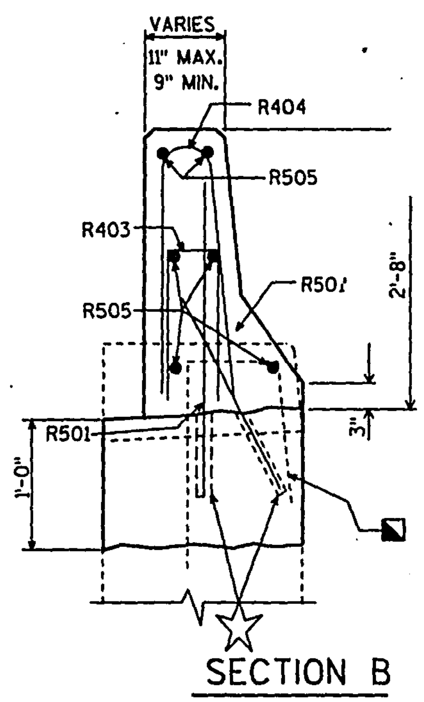
STATE PROJECT NUMBER	SHEET NO.
1022-00-71	842

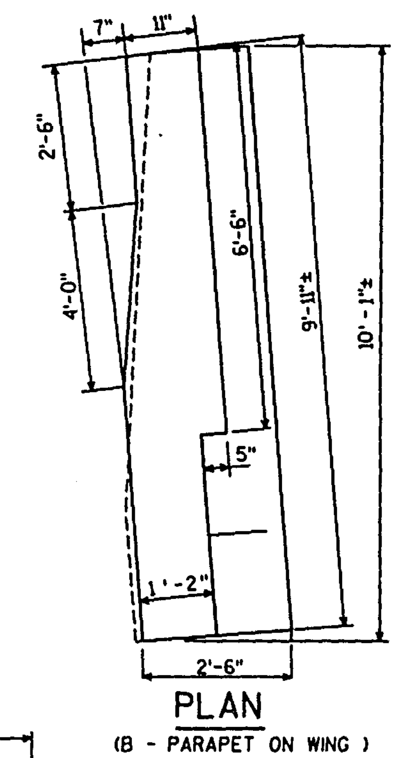


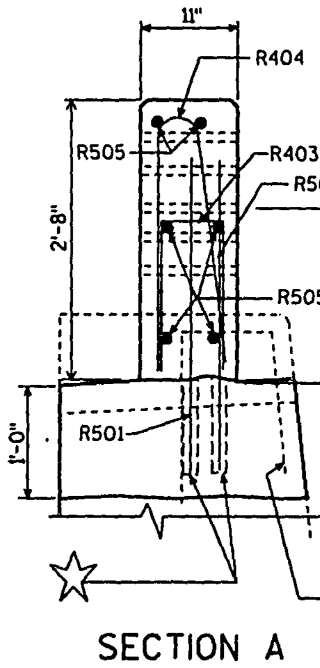
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 1" 'V' GROOVE.

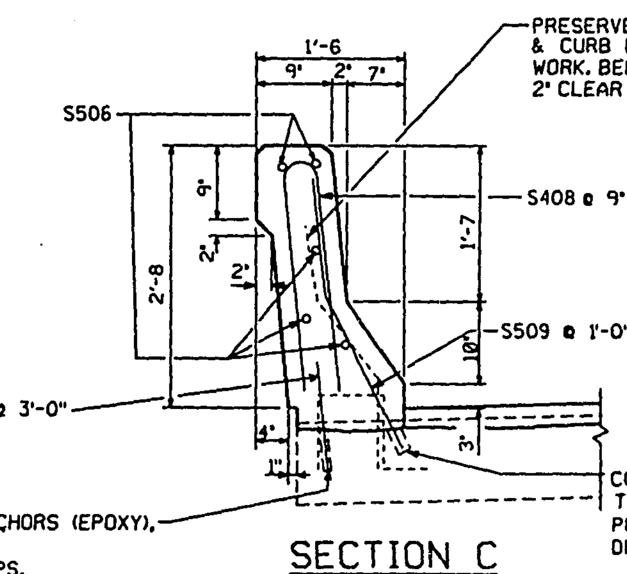
☆ CONCRETE MASONRY ANCHORS (EPOXY), NO. 5 BARS TYPE L @ SPACING SHOWN. MIN. PULLOUT TO BE 16.0 KIPS. DRILL HOLES 6½" DEEP.

◪ PRESERVE EXIST. BARS & INCORPORATE INTO NEW WORK - CUT & BEND AS REQ'D. TO PROVIDE 2" CLEAR.









PRESERVE EXIST. VERT. RAIL POST & CURB BARS. INCORPORATE INTO NEW WORK. BEND AS NECESSARY TO PROVIDE 2" CLEAR COVER.

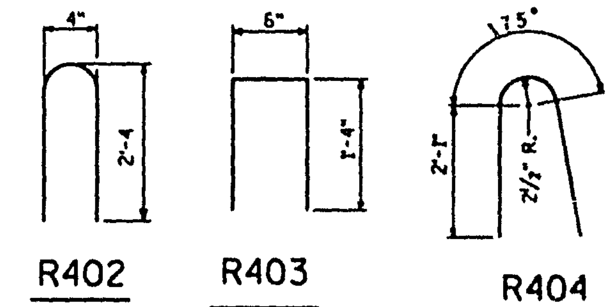
CONCRETE MASONRY ANCHORS (EPOXY), TYPE L, NO. 5 BARS, PULLOUT LOAD=16.0 KIPS. DRILL HOLES 6½" DEEP.

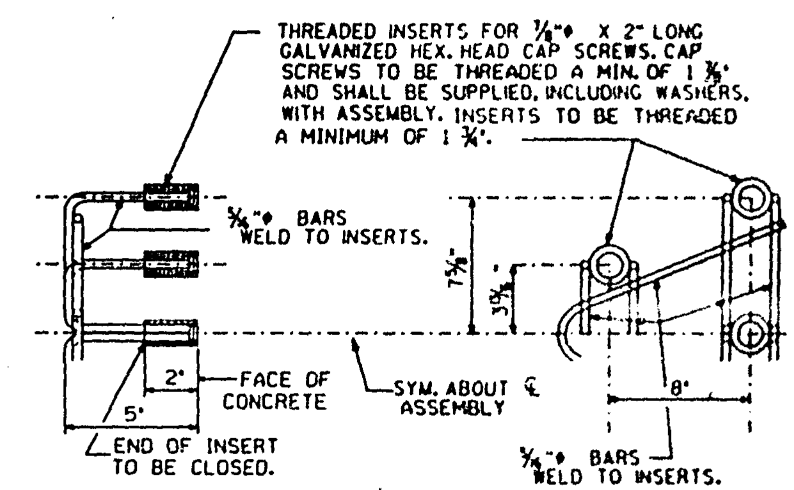
CONCRETE MASONRY ANCHORS (EPOXY), TYPE L, NO. 5 BARS, PULLOUT LOAD=16.0 KIPS. DRILL HOLES 6½" DEEP.

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
R501	X	88	3-6		WINGS
R402	X	16	4-10	X	WINGS
R403	X	60	3-0	X	WINGS
R404	X	60	4-9	X	WINGS
R505	X	24	9-7		WINGS





DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX. HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

SEE SHEET 1 FOR LOCATION.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-18-34

CONST. SPEC. 1989 | DRAWN BY C.M.F. | PLANS CK'D. HOK

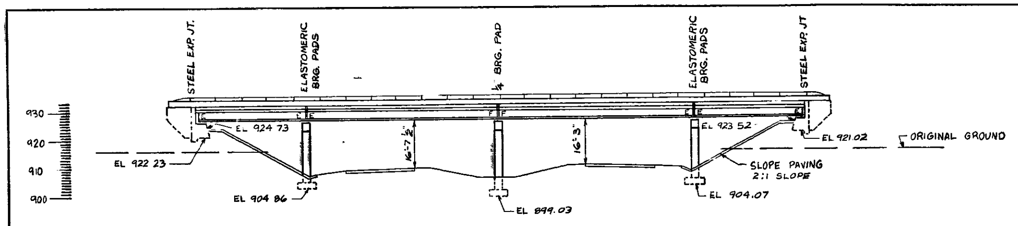
SLOPED FACE PARAPET "B"

SHEET 5

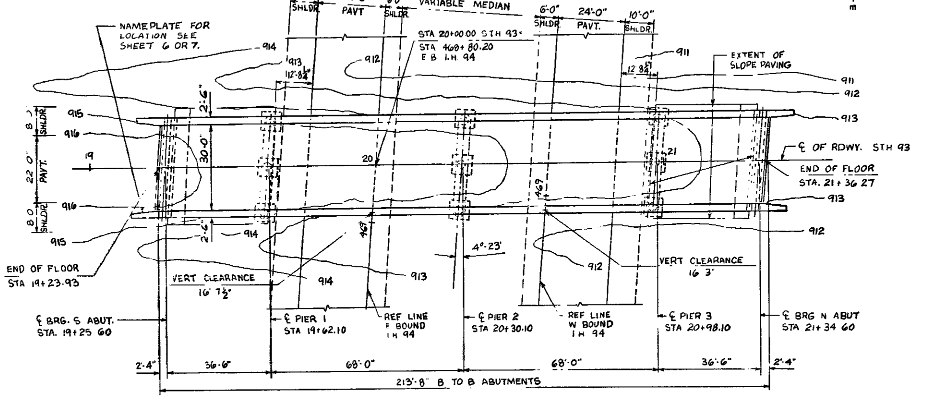
SCALE 1

BR B1834_PPT.D.DGN

COUNTY & HIGHWAY	ROUTE & SECTION	CLASS & AGREEMENT STATE	CLASS & AGREEMENT FEDERAL	B P R DIVISION	PROJECT	SHEET NO	TOTAL SHEETS
72.3	94.2		11.1	4	I-94-2(24) 67	42	142

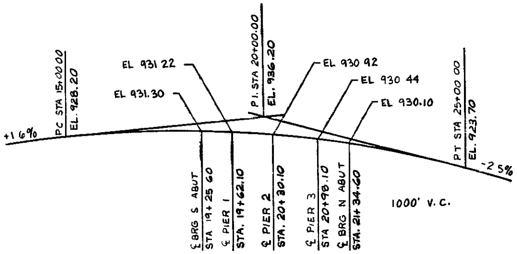


ELEVATION

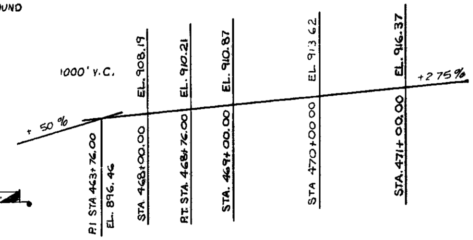


PLAN

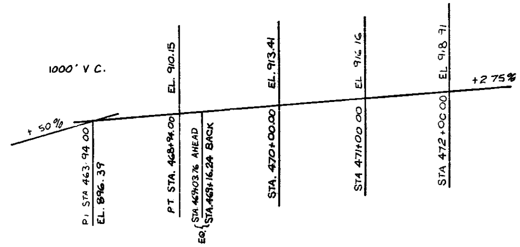
4 SPAN PRE TENSION GIRDER WITH R C PEDESTAL PIERS AND R C SILL ABUTMENTS. (36'-6" 68'-0" 68'-0" 36'-6")



GRADE LINE S.T.H. 93

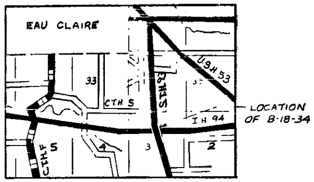


GRADE LINE E.B. LANE I.H. 94



GRADE LINE W.B. LANE I.H. 94

LOCALITY MAP



GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED

BEVEL EXPOSED EDGES OF CONCRETE 1" UNLESS OTHERWISE SHOWN OR NOTED.

IMBED ALL BAR STEEL 2" UNLESS OTHERWISE SHOWN.

ALL CONCRETE MASONRY SHALL BE GRADE "A-A" fc - 1400 P S I

EXPANSION JOINT FILLER SHALL CONFORM TO A A S H.O DESIGNATION M 153 TYPE III

THE SLOPE IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH "SLOPE PAVING" AS SHOWN IN PLAN ON THIS SHEET AND IN SECTION A A" ON SHEET 8 .

ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE

HOT POURED ELASTIC TYPE JOINT SEALER SHALL CONFORM TO ASTM DESIGNATION D1190

UPPER LIMITS OF "EXCAVATION FOR STRUCTURES" SHALL BE BOTTOM OF SLOPE PAVING ON BERM AT ABUTMENTS AND FINISHED GRADED SECTION AT PIERS.

ALL EXCAVATED VOLUME NOT OCCUPIED BY THE ABUTMENTS SHALL BE BACKFILLED WITH GRANULAR BACKFILL TO THE LIMITS SPECIFIED FOR "EXCAVATION FOR STRUCTURES". PAYMENT WILL BE MADE ONLY FOR MATERIAL ACTUALLY PLACED WITHIN LIMITS SPECIFIED FOR "EXCAVATION FOR STRUCTURES."

TOTAL ESTIMATED QUANTITIES

BID ITEMS	UNIT	SUPER	S ABUT	PIER 1	PIER 2	PIER 3	N ABUT	TOTAL
EXCAVATION FOR STRUCTURES	C.Y.	—	35	65	50	65	35	250
GRANULAR BACKFILL	C.Y	—	15	—	—	—	15	30
CONCRETE MASONRY	C.Y	221 3	52 4	40 7	41 9	40.7	52 4	449 4
BAR STEEL REINFORCEMENT	LB	58,650	1,840	5,210	6,050	5,210	1,840	78 800
STRUCTURAL LOW-ALLOY STEEL	LB	6,440	—	—	—	—	—	6,440
TUBULAR RAILING TYPE-G	L F	458	—	—	—	—	—	458
SLOPE PAVING - CONCRETE	S.Y.	—	190	-	- -	—	185	375
LUBRICATED BRONZE PLATES	LB	102.4	—	—	—	—	- - -	102 4
BEARING PADS	S F	27	—	—	—	—	—	27
ELASTOMERIC BEARING PADS	S.F	18	—	—	—	—	—	18
PRESTRESSED GIRDER I TYPE 36"	L.F	1,380	—	—	—	—	—	1,380
NON BID ITEMS								
ALUMINUM OR ZINC PLATE	S.F	34	—	—	—	—	—	34
FILLER	SIZE	¼	—	—	—	—	—	¼

LIST OF DRAWINGS

1 GENERAL PLAN — X27935
2 SUPERSTRUCTURE — X27936
3 LONG SECTION & BEARINGS — X27937
4 PRE TENSION GIRDER DETAILS — X27938
5 EXPANSION JOINT — X27939
6 TUBULAR ALUMINUM RAILING - TYPE G — X27940
7 TUBULAR STEEL RAILING - TYPE G' — X27941
8 ABUTMENTS — X27942
9 PIER 1 — X27943
10 PIER 2 — X27944
11 PIER 3 — X27945
12 SUBSURFACE EXPLORATION — X27946

STATE HIGHWAY COMMISSION OF WISCONSIN

GENERAL PLAN

CO. EAU CLAIRE TN. WASHINGTON STA 20+30 10
SECTION 3 | TOWN 26 N | RANGE 9 W
DESIGN SPEC AASHO '61 | LOADING H20 S16 | CONST SPEC 1963
DATE 11-7-63 DESIGN VGH | DRAWN DB | CKD [illegible]
RECOMMENDED H. B. Schultz ENGINEER OF BRIDGES
APPROVED E. C. Roettiger STATE HIGHWAY ENGINEER
REVISED

STRUCTURE B - 18 - 34 | SHEET 1 OF 12

X27935

FORM E-B-12-82

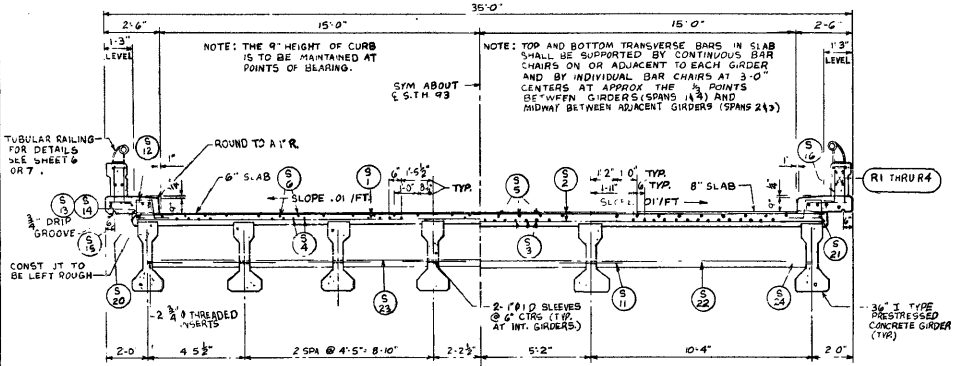
S.P.'S DIVISION	PROJECT	SHEET NO.	TOTAL SHEETS
A	I-99-2(24) 67	43	142

BILL OF BARS 58,050#

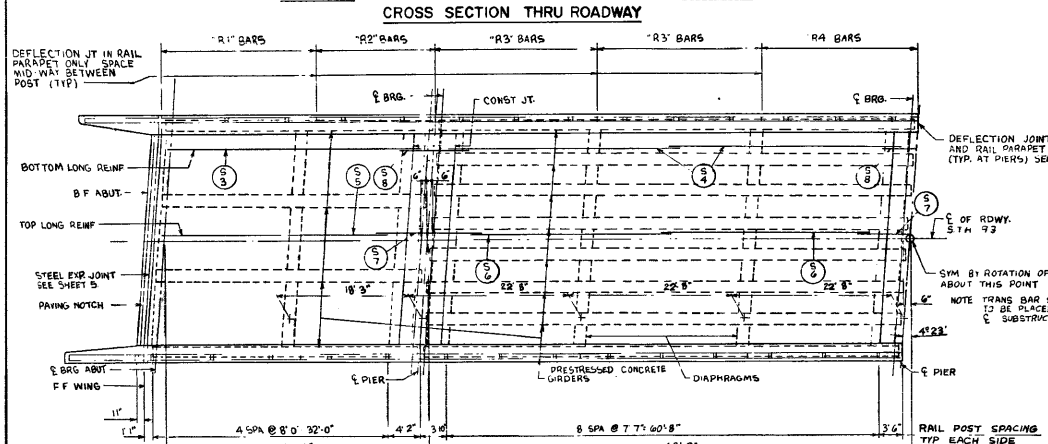
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

PUR	MARK	NO	SIZE	LENGTH	SPACING	LOCATION	DET
SUPERSTRUCTURE	S1	528	5	32-3	6	FLOOR - TOP & BOTTOM TRANS. SPAN 2&3	
	S2	280	6	32-3	"	" " " " 1&4	
	S3	84	5	34-6	"	" - BOTTOM - SPAN 1&4	
	S4	112	4	32-6	"	" BOTTOM SPAN 2&3	
	S5	54	5	30-6	1-0	" TOP SPAN 1&4	
	S6	112	5	28-6	"	" - TOP - SPAN 2&3	
	S7	84	8	15-0	"	HAUNCH - SYM ABT. & PIER3	
	S8	54	5	11-0	"	"	A
	S9	21	5	7-9	"	" AT PIER 2	B
	S10	24	4	9-0	SHOWN	" - SPANS 1&4	
	S11	56	6	3-0	"	DIAPHRAGMS	
	S12	420	6	2-6	1-0	CURB - TRANS.	D
	S13	20	6	36-6	SHOWN	" - SPAN 1&4 - LONG.	
	S14	40	6	34-3	"	" - SPAN 2&3 - LONG.	
	S15	420	5	4-0	1-0	" - TRANS	C
	S16	420	5	5-0	"	CURB & RAIL PARAPET	E
	S17	18	6	9-6	SHOWN	STRUT @ ABUTS BOTTOM	
	S18	12	4	9-6	"	" @ ABUT TOP	
	S19	60	3	4-9	1-0	" @ ABUT BEND IN FIELD	
	S20	4	4	36-3	"	FLOOR BOTTOM - LONG. SPANS 1&4	
	S21	8	5	34-6	"	FLOOR BOTTOM LONG. SPANS 2&3	
	S22	12	6	9-6	"	DIAPH - SPANS 1&4	
	S23	56	6	3-6	"	" " 2&3	
	*S24	24	6	1-6	SHOWN	" AT EXT GIRDERS	
	S25	126	4	3-0	"	HAUNCH SPANS 2&3	
	S26	40	5	5-6	"	" AT PIERS 1&4	B
RAIL PARAPET	R1	16	5	21-3	SHOWN	RAIL PARAPET	
	R2	16	5	15-9	"	" "	
	R3	32	5	22-3	"	" "	
	R4	16	5	22-0	"	" "	

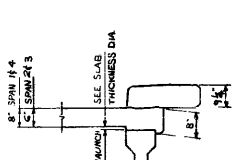
* #6 PLAIN BAR - THREAD ONE END 3"



CROSS SECTION THRU ROADWAY

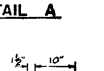


PLAN

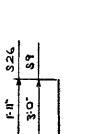


SLAB DETAIL AT CURBS

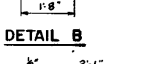
DETAIL A



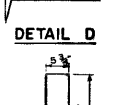
DETAIL C



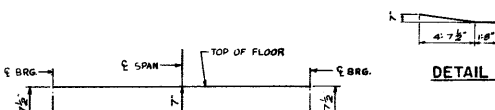
DETAIL B



DETAIL D



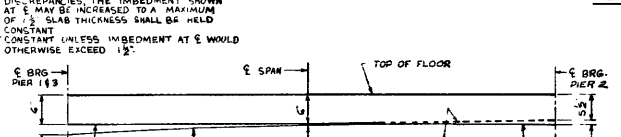
DETAIL E



\# TO COMPENSATE FOR VARIATION IN PRE STRESS CAMBER AND OTHER MINOR CONSTRUCTION DISCREPANCIES, THE IMBEDMENT SHOWN AT ℄ MAY BE INCREASED TO A MAXIMUM OF 1½ SLAB THICKNESS SHALL BE HELD CONSTANT

* CONSTANT UNLESS IMBEDMENT AT ℄ WOULD OTHERWISE EXCEED 1½".

SPANS 1 & 4

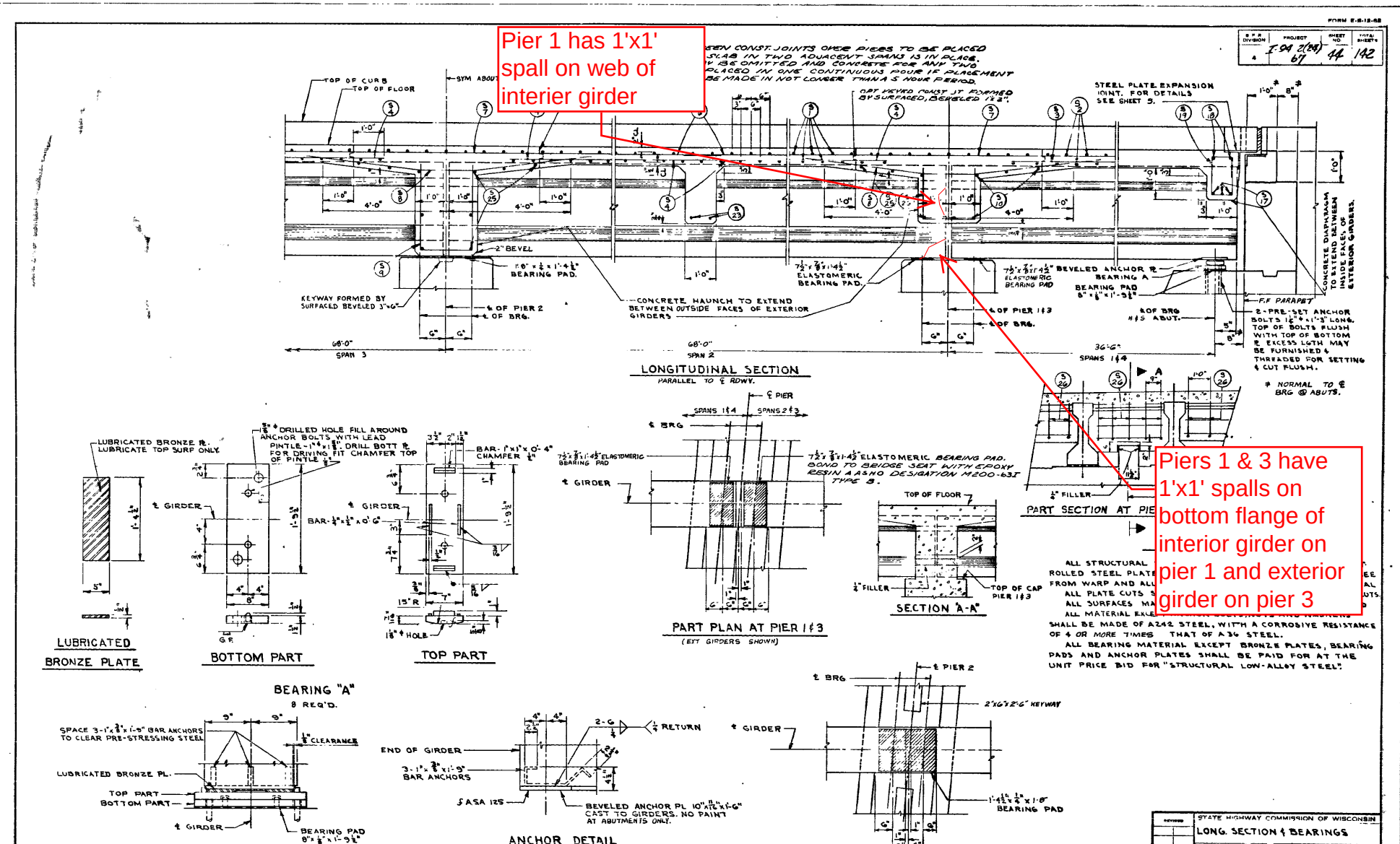


SPANS 2 & 3

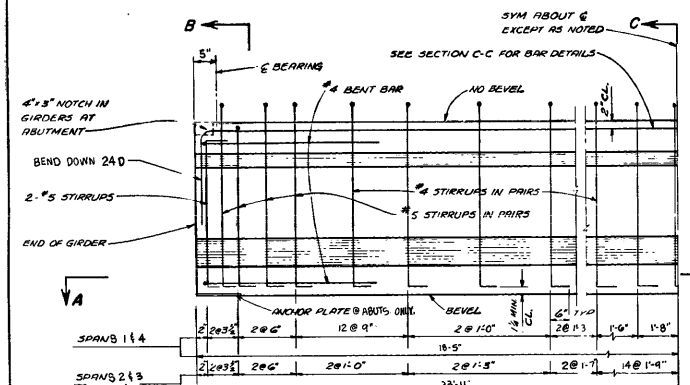
SLAB THICKNESS DIAGRAM

REVISED	STATE HIGHWAY COMMISSION OF WISCONSIN
	SUPERSTRUCTURE
	DESIGN SPEC. AASHO '61 | LOADING H20-S16 | CONST SPEC 1963
	DATE 1-1-63 | DESIGN VGH | DRAWN DB | CKD JWL
	STRUCTURE B - 18 - 34 | SHEET 2 OF 12

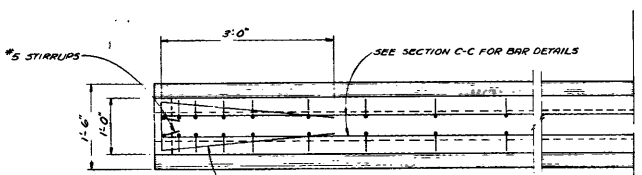
X27936



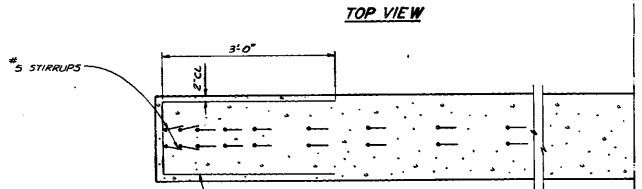
S H D DIVISION	PROJECT	SHEET NUMBER	TOTAL SHEETS
4	I-94-2(24) 67	45	142



SIDE VIEW



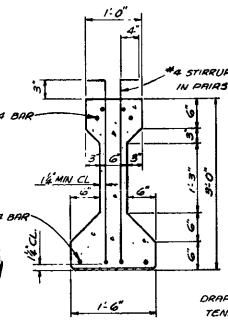
TOP VIEW



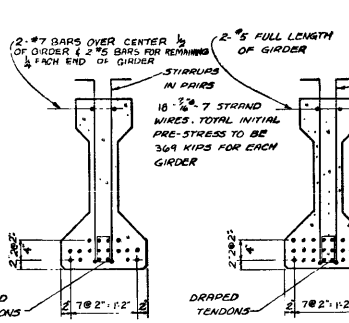
SECTION A-A

MINIMUM CYLINDER STRENGTH OF CONCRETE AT TIME OF TRANSFER OF PRE-STRESS FORCE (f'ci)

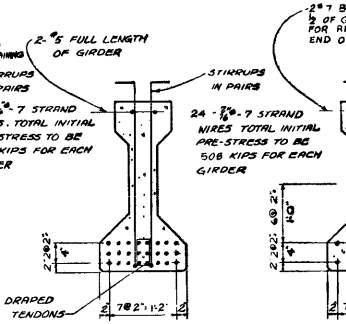
GIRDER TYPE	SPAN 1 & 4	SPAN 2 & 3
DRAPED PATTERN	4000	4100
SPREAD PATTERN	4000	—



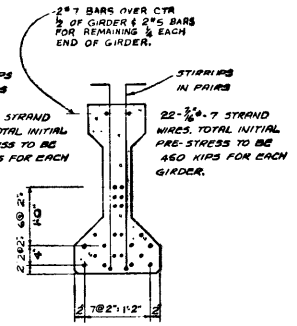
SECTION B-B
TYPICAL ALL SPANS
(PRE-STRESSED TENDONS NOT SHOWN)



SECTION C-C
SPAN 1 & 4 DRAPED

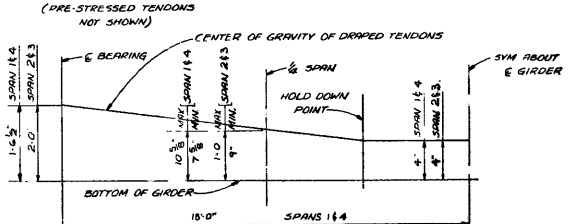


SECTION C-C
SPAN 2 & 3 DRAPED

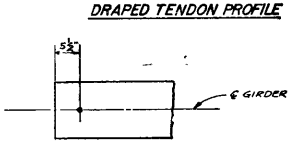


SECTION C-C
SPAN 1 & 4 SPREAD

NOTE: 270,000 P.S.I. ULTIMATE TENSILE STRENGTH STRAND STEEL SHALL BE USED. IF THE CONTRACTOR WISHES TO USE OTHER GRADE OF STRAND STEEL HE SHALL SUBMIT DETAILED PLANS FOR APPROVAL.



DRAPED TENDON PROFILE



EXPANSION PLATE ANCHOR BOLT LAYOUT

NOTES:

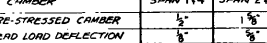
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN WIRES SHALL BE FLUSH WITH END OF GIRDER AND PAINTED. SEE NOTE 'A' ON SHEETS X27940 & X27941.

TOPS OF GIRDERS SHALL BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BONDING TO SLAB.

THE GIRDER MANUFACTURER SHALL PROVIDE A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. DETAILS OF THE LIFTING DEVICE TO BE USED SHALL BE SUBMITTED FOR APPROVAL.

DEFLECTION DATA

CAMBER	SPAN 1 & 4	SPAN 2 & 3
*A = PRE-STRESSED CAMBER	½"	1⅝"
*B = DEAD LOAD DEFLECTION	⅜"	⅝"
*C = RESIDUAL CAMBER	⅛"	1"



* PRE-STRESS CAMBER AND DEAD LOAD DEFLECTION DATA SHOWN ARE THEORETICAL AND MAY VARY WITH CONCRETE STRENGTH, VARIABLE PRE-STRESSING CONDITIONS AND PRE-STRESS LOSSES.

REVISED	STATE HIGHWAY COMMISSION OF WISCONSIN
	PRE-TENSIONED GIRDER DETAILS
DESIGN SPEC AASHO '61	PROJ. M20-516 UNIT NO. 1963
DATE 11-7-63 DES. IN VGM	DRAWN DB CAD JWL
STRUCTURE B-18-34	SHEET 4 OF 12

X27938

D.S.R. DIVISION	PROJECT	SHEET NO.	TOTAL SHEETS
4	I-94-2(21) 67	16	142

LEGEND

- ‡ 1 ST 6" WF 39.5# × RDWY. WIDTH. PROVIDE $\frac{13}{16}$"Φ VENT HOLES "D" AT 2'-0" CTRS.
- ‡ 2 ∠ 8" × 4" × $\frac{7}{16}$" × RDWY WIDTH. PROVIDE $\frac{13}{16}$"Φ VENT HOLES "D" AT 2'-0" CTRS.
- ‡ 3 BAR 2" × $\frac{3}{4}$" × RDWY WIDTH. WELD TO ∠ #2 WITH 2 LINES OF $\frac{1}{4}$" FILLET WELD 2@6.
- ‡ 4 BAR 2$\frac{1}{2}$" × 1$\frac{1}{2}$" × RDWY WIDTH. WELD TO ∠ #2 WITH 2 LINES OF $\frac{1}{4}$" FILLET WELD 2@6.
- 5 ∠ 3$\frac{1}{2}$" × 3" × $\frac{3}{8}$" × 1'-0" LG. PROVIDE 1$\frac{3}{8}$"Φ HOLE IN 3$\frac{1}{2}$" LEG FOR #6 FIELD DRILL HOLE. FILLET WELD TO FLANGE AND STEM OF ST #1 N.S. AND F.S.
- 6 $\frac{3}{4}$"Φ × 0'-8" LG BOLT. THREAD 4". IMBED ON ℄ INTERIOR GIRDER 9" FROM END. PROVIDE 2 PLATE WASHERS AND 2 HEX NUTS.
- 7 ∠ 2$\frac{1}{2}$" × 3" × $\frac{3}{8}$" × 0'-3". SPACE AT 3'-0" CTRS. WELD TO ∠ #2. PROVIDE $\frac{5}{8}$" HOLE IN 2$\frac{1}{2}$" LEG FOR BOLT #8.
- 8 $\frac{1}{2}$"Φ BOLT WITH NUT. BOLT 0'-9" LG. TACK WELD NUT TO ∠ #7.
- 9 $\frac{3}{4}$"Φ BOLT WITH SQ. NUT AT 2'-0" CTRS. TACK WELD NUT TO ∠ #2. GREASE FOR EASY REMOVAL. $\frac{13}{16}$" × 1$\frac{3}{4}$" SLOTTED HOLE IN ST #1. LONG DIMENSION OF SLOTTED HOLE TO BE PARALLEL TO ℄ RDWY. $\frac{13}{16}$"Φ HOLE IN BAR #3 AND ∠ #2.
- 10 APPLY ± $\frac{1}{16}$" COAT OF BITUMASTIC TO METAL SURFACES FORMING THE JOINT AND FILL JOINT WITH HOT POURED ELASTIC TYPE JOINT SEALER.
- 11 AFTER CONCRETE HAS SET THE JOINT OPENING SHALL BE THOROUGHLY CLEANED.
- 12. $\frac{5}{8}$"Φ × 2'-6" LG BENT BAR AT 0'-9" CTRS BETWEEN GIRDERS. WELD TO ST #1 WITH $\frac{1}{4}$" FILLET WELD ALL AROUND.
- 13 $\frac{5}{8}$"Φ × 2'-0" LG. BENT BAR AT 1'-0" CTRS. WELD TO ∠ #2.
- ‡ 14 $\frac{3}{8}$" PLATE. CUT TO LIMITS SHOWN.
- ‡ 15. 12$\frac{1}{8}$" × $\frac{3}{8}$" PLATE. BEND DOWN FLUSH WITH FACE OF CURB AS SHOWN. WELD TO PL #14 AS SHOWN. FIELD WELD TO ST #1. PROVIDE $\frac{13}{16}$"Φ VENT HOLES "D" @ 9" CTRS.
- ‡ 16 6" × $\frac{3}{8}$" PLATE. CUT TO CURB LIMITS AS SHOWN.
- ‡ 17 8" × $\frac{3}{8}$" PLATE. BEND DOWN FLUSH WITH FACE OF CURB AS SHOWN. WELD TO PL #16 AS SHOWN. PROVIDE $\frac{3}{8}$"Φ VENT HOLES "D" @ 9" CTRS.
- ‡ 18 2$\frac{1}{2}$" × $\frac{3}{8}$" PLATE. BEND DOWN FLUSH WITH FACE OF CURB AS SHOWN. WELD TO PL #17 WITH 1 LINE OF $\frac{3}{16}$" FILLET WELD. FIELD WELD TO BAR #4.
- 19 $\frac{3}{4}$"Φ BOLT SAME AS #9 EXCEPT FOR LENGTH.
- 20 $\frac{5}{8}$"Φ BENT BAR 1'-6" LG. WELD TO PLS #14 & #15 AND PLS #16 & #17 WITH $\frac{3}{16}$" FILLET WELD ALL AROUND.
- 21. ANCHOR BAR 2$\frac{1}{2}$" × $\frac{3}{8}$" × 1'-0" ⌐ WELD TO PLS #15 & #17.
- 22 ∠ 6" × 4" × $\frac{3}{8}$" × 0'-4" LG. PROVIDE 1$\frac{3}{8}$"Φ HOLE IN 8" LEG FOR #23. WELD TO PL #15.
- 23 $\frac{3}{4}$"Φ THREADED BOLT × 0'-8" LG. PROVIDE 2 PLATE WASHERS AND 2 HEX NUTS.
- 24 $\frac{3}{4}$" MALLEABLE HEX NUT × 0'-3" LG.
- 25 $\frac{3}{4}$"Φ × 1'-0" LG BOLT. THREAD 8".
- 26 BLOCK AND BOLT FOR SHIPMENT WITH PIPE SLEEVE AND $\frac{1}{2}$"Φ BOLT. PROVIDE $\frac{9}{16}$"Φ HOLES AS SHOWN IN ST #1 AND ∠ #2 AT 3'-0" CTRS. FOR $\frac{1}{2}$"Φ BOLT.

NOTES:

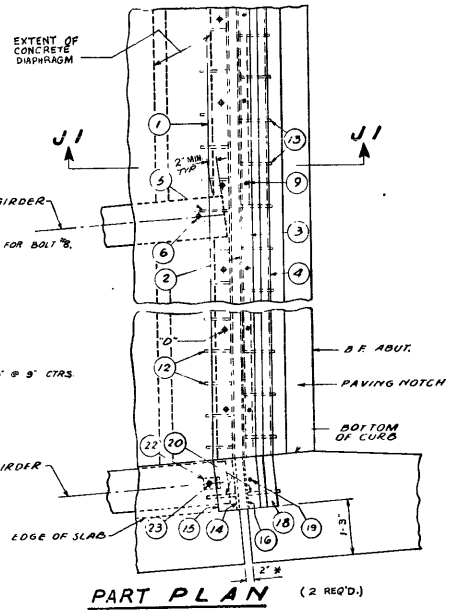
ALL ITEMS, MARKED ‡, SHALL BE MADE OF A242 STEEL WITH A CORROSIVE RESISTANCE OF 4 OR MORE TIMES THAT OF A36 STEEL.

EXPANSION JOINT SHALL BE BUILT TO CONFORM TO RDWY CROWN AND GRADE. AND CURB SLOPES

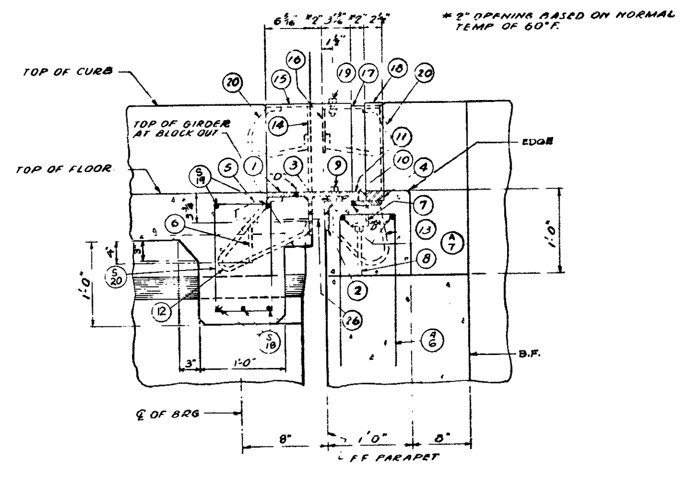
ALL MATERIAL IN EXPANSION JOINT TO BE PAID FOR AS STRUCTURAL LOW ALLOY STEEL.

AFTER CONCRETE HAS SET REMOVE BOLTS NO 9 & NO 19 AND FILL HOLES WITH HOT POURED ELASTIC TYPE JOINT SEALER.

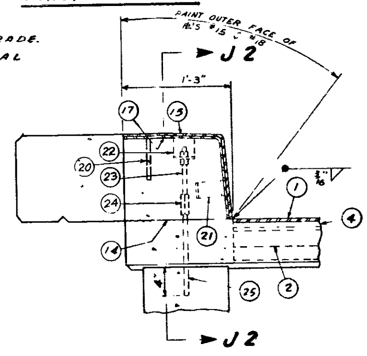
NO PAINT SHALL BE APPLIED TO EXPANSION JOINT EXCEPT AS NOTED.



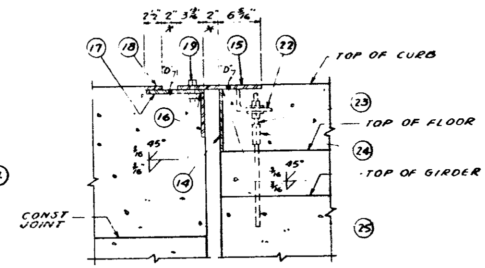
PART PLAN (2 REQ'D.)



SECTION J1



SECTION THRU JOINT AT CURB



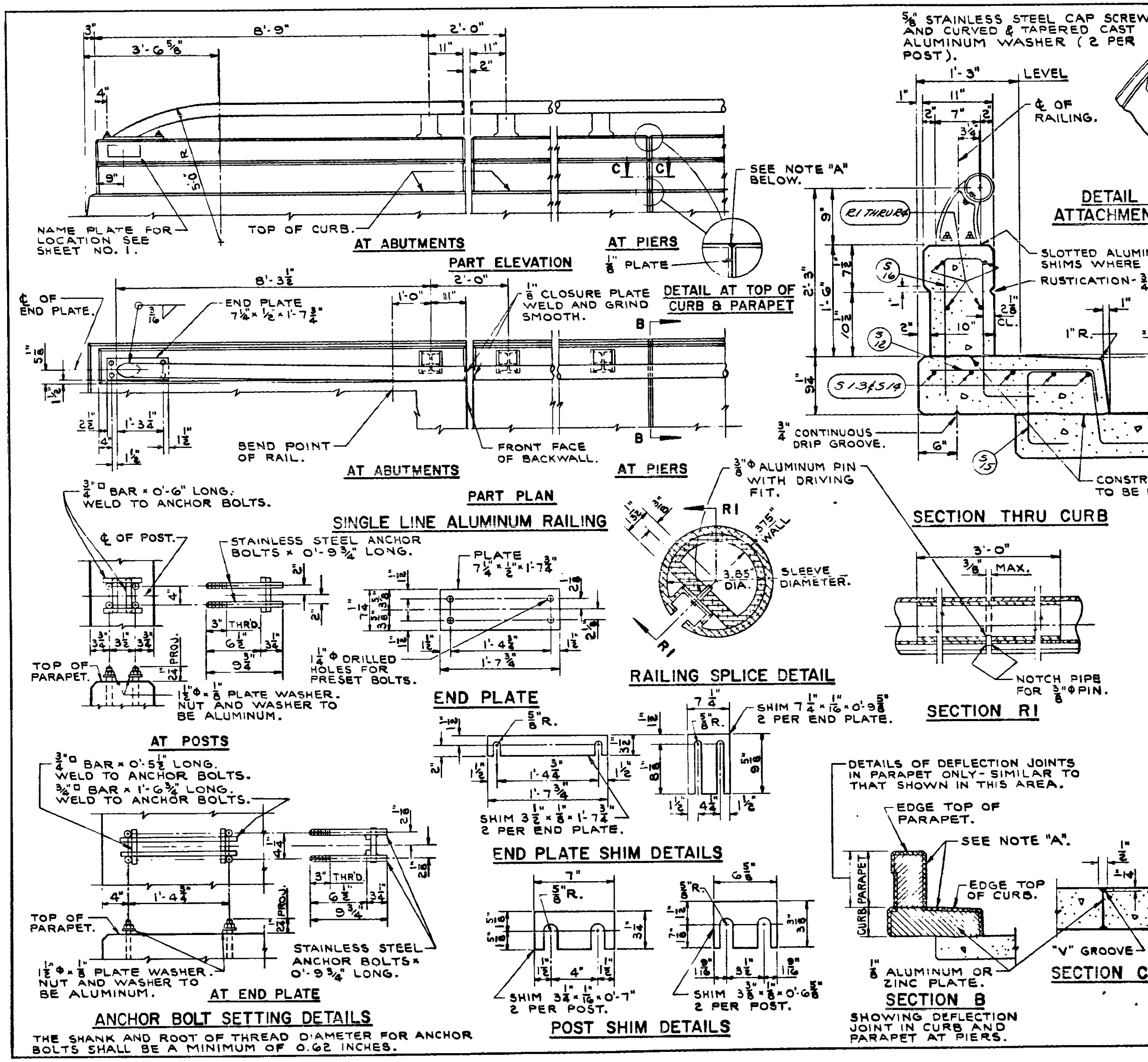
SECTION J2

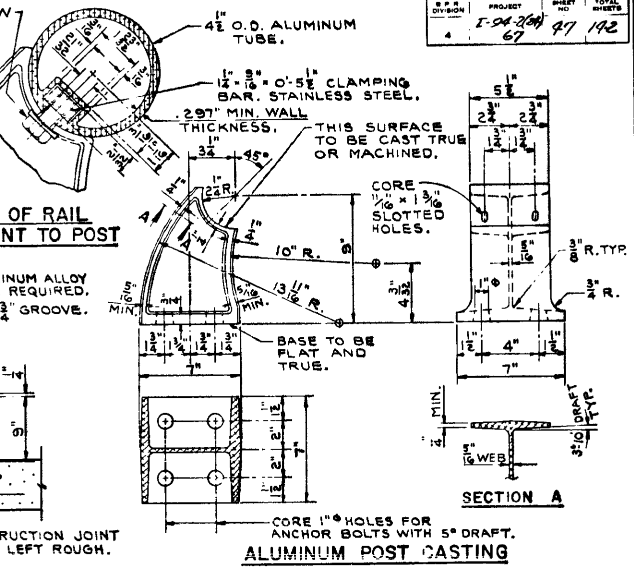
STATE HIGHWAY COMMISSION OF WISCONSIN	
EXPANSION JOINT	
AASHO '61	H20-S16 · 1963
11-7-63 · JTD	DB ·
STRUCTURE B - 18 - 34	SHEET 5 OF 12

27939

FORM E 8-12 65

B.P.R. DIVISION	PROJECT	SHEET NO.	TOTAL SHEETS
4	I-94-2(34) 67	47	192





GENERAL NOTES

1. WHEN PARAPETS AND CURBS ARE POURED CONTINUOUSLY FROM END TO END THEY SHALL BE SEPARATED AT THE DEFLECTION JOINTS BY A PIECE OF $\frac{1}{8}$" ZINC OR ALUMINUM PLATE CUT AS SHOWN IN SECTION "B" BY SHADED AREA. IF CONSTRUCTION JOINTS IN PARAPETS AND CURBS ARE USED AT THE DEFLECTION JOINTS ONE SIDE OF JOINT SHALL BE COATED WITH BITUMINOUS PAINT AND PLATE SEPARATORS MAY BE OMITTED.
2. ALL POST SPACINGS ARE TAKEN HORIZONTALLY ALONG ¢ OF RAILING AT BASE OF POSTS.
3. RAILING SPLICES SHALL BE LOCATED APPROXIMATELY AT $\frac{1}{4}$ POINTS BETWEEN POSTS.
4. ALUMINUM SHIMS SHALL BE USED UNDER POSTS AND END PLATES WHERE REQUIRED FOR ALIGNMENT.
5. RAILING SHALL BE FABRICATED IN TWO AND THREE PANEL LENGTHS.

NOTE "A": FILL WITH NON-STAINING GRAY TWO COMPONENT POLYSULFIDE LIQUID POLYMER (GUN GRADE) WITH SURFACE PRIMER, MEETING APPROVAL OF THE ENGINEER.

STATE HIGHWAY COMMISSION OF WISCONSIN

TUBULAR ALUMINUM RAILING TYPE "G"

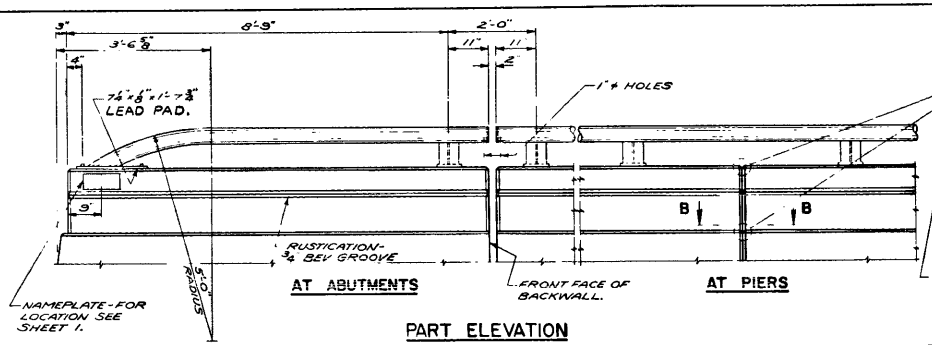
DESIGN SPEC. A.A.S.H.O. GI — LOADING — CURRENT SPEC. 1963
DATE 11/1/65 — DES. BY STD — DRAWN DB — CKD. [illegible]

STRUCTURE B-18-34 — SHEET 6 OF 12

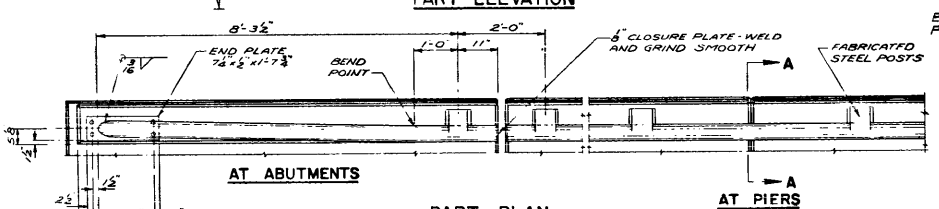
X27940

FORM E 8-15-68

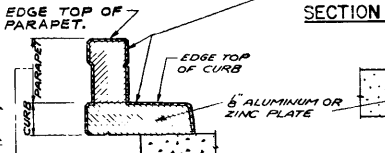
STATE HIGHWAY DIVISION	PROJECT	SHEET NO.	TOTAL SHEETS
4	I-94-2(20) 67	18	142



PART ELEVATION

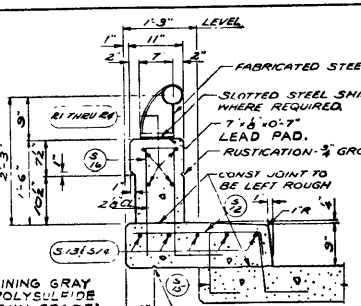


PART PLAN



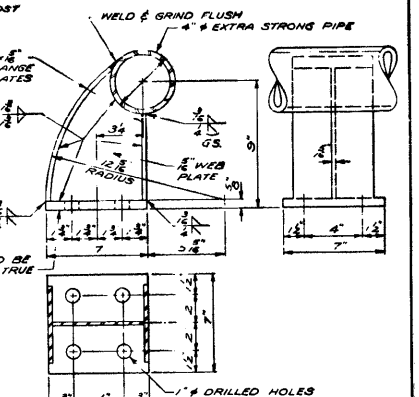
SECTION A

DETAILS OF DEFLECTION JOINTS IN PARAPET ONLY-SIMILAR TO THAT SHOWN IN THIS AREA

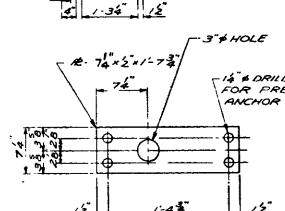


SECTION THRU CURB

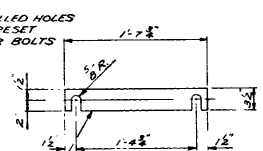
FILL WITH NON-STAINING GRAY TWO COMPONENT POLYSULFIDE LIQUID POLYMER (GUN GRADE) WITH SURFACE PRIMER, MEETING APPROVAL OF THE ENGINEER.

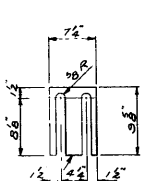


POST DETAILS

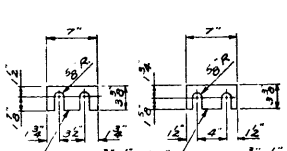


END PLATE

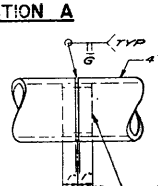




END PLATE SHIM DETAILS

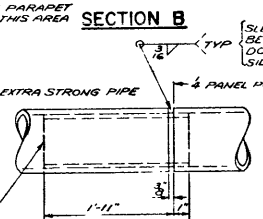


POST SHIM DETAILS



SHOP RAIL SPLICE DETAIL

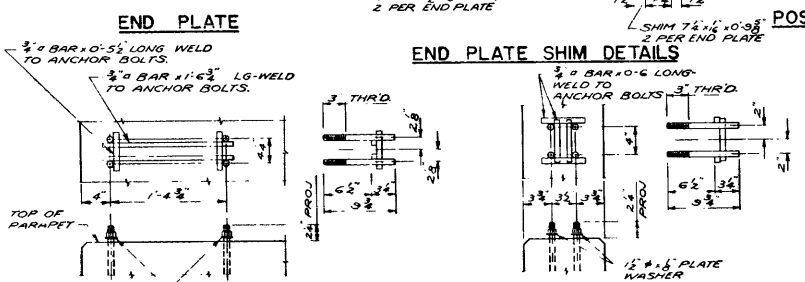
THE LOCATION OF THE SHOP SPLICE SHALL BE SHOWN ON THE SHOP DRAWINGS



FIELD ERECTION JOINT DETAIL

NOTES

1 STEEL RAIL POSTS SHALL BE SET NORMAL TO GRADE
2 RAILING SHALL BE FABRICATED IN 2 & 3 PANEL LENGTHS.
3 STEEL SHIMS SHALL BE USED UNDER POSTS AND UNDER END PLATES WHERE REQUIRED FOR ALIGNMENT
4 WHEN PARAPETS AND CURBS ARE POURED CONTINUOUSLY FROM END TO END THEY SHALL BE SEPARATED AT THE DEFLECTION JOINTS BY A PIECE OF ⅜ ZINC OR ALUMINUM PLATE CUT AS SHOWN IN SECTION A BY SHADED AREA IF CONSTRUCTION JOINTS IN PARAPETS AND CURBS ARE USED AT THE DEFLECTION JOINTS ONE SIDE OF JOINT SHALL BE COATED WITH BITUMINOUS PAINT AND PLATE SEPARATORS MAY BE OMITTED
5 THE FOLLOWING MATERIALS SHALL BE USED:
RAILING SHALL BE 4" ϕ EXTRA STRONG PIPE CONFORMING TO ASTM DESIGNATION A53, GRADE B
SLEEVES SHALL BE 3½" ϕ O.D. x ½2" THICK SEAMLESS MECHANICAL TUBING MADE OF STEEL WITH A MINIMUM ULTIMATE TENSILE STRENGTH OF 60,000 PSI AND A MINIMUM ELONGATION OF 10%
POSTS SHALL BE FABRICATED FROM MATERIAL CONFORMING TO ASTM DESIGNATION A 36
ANCHOR BOLTS TO BE MADE FROM MATERIAL CONFORMING TO ASTM A307.
6 CAULK EXPOSED OPENINGS BETWEEN SHIMS WITH LEAD WOOL
7 GALVANIZE ENTIRE RAILING AFTER FABRICATION INCLUDING NUTS, WASHERS, SHIMS AND TOP 3½" OF ANCHOR BOLTS



AT END PLATE AT POSTS

ANCHOR BOLT SETTING DETAILS

THE SHANK AND ROOT OF THREAD DIAMETER FOR ANCHOR BOLTS SHALL BE A MINIMUM OF 0.62 INCHES.

STATE HIGHWAY COMMISSION OF WISCONSIN

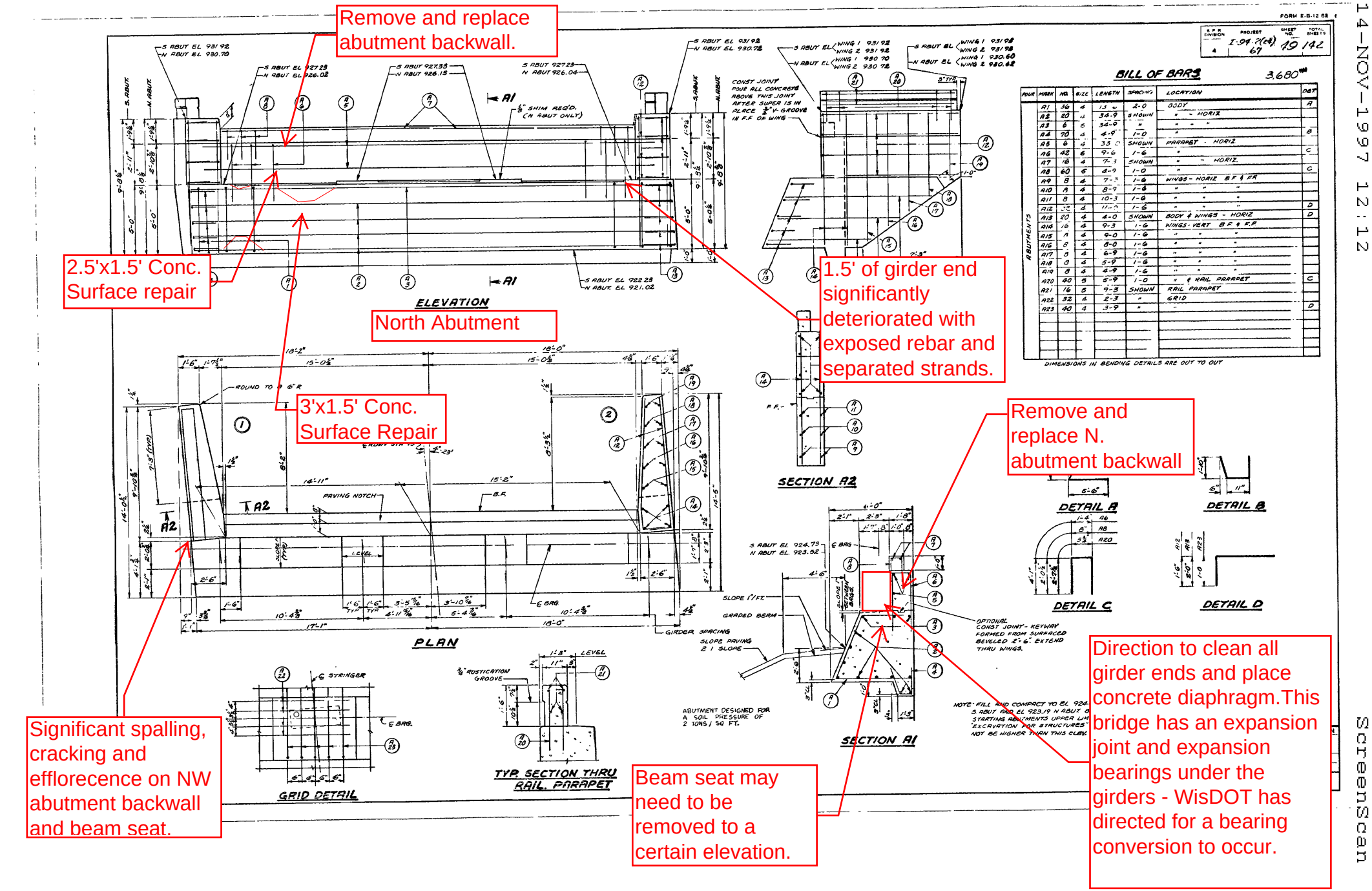
TUBULAR STEEL RAILING TYPE 'G'

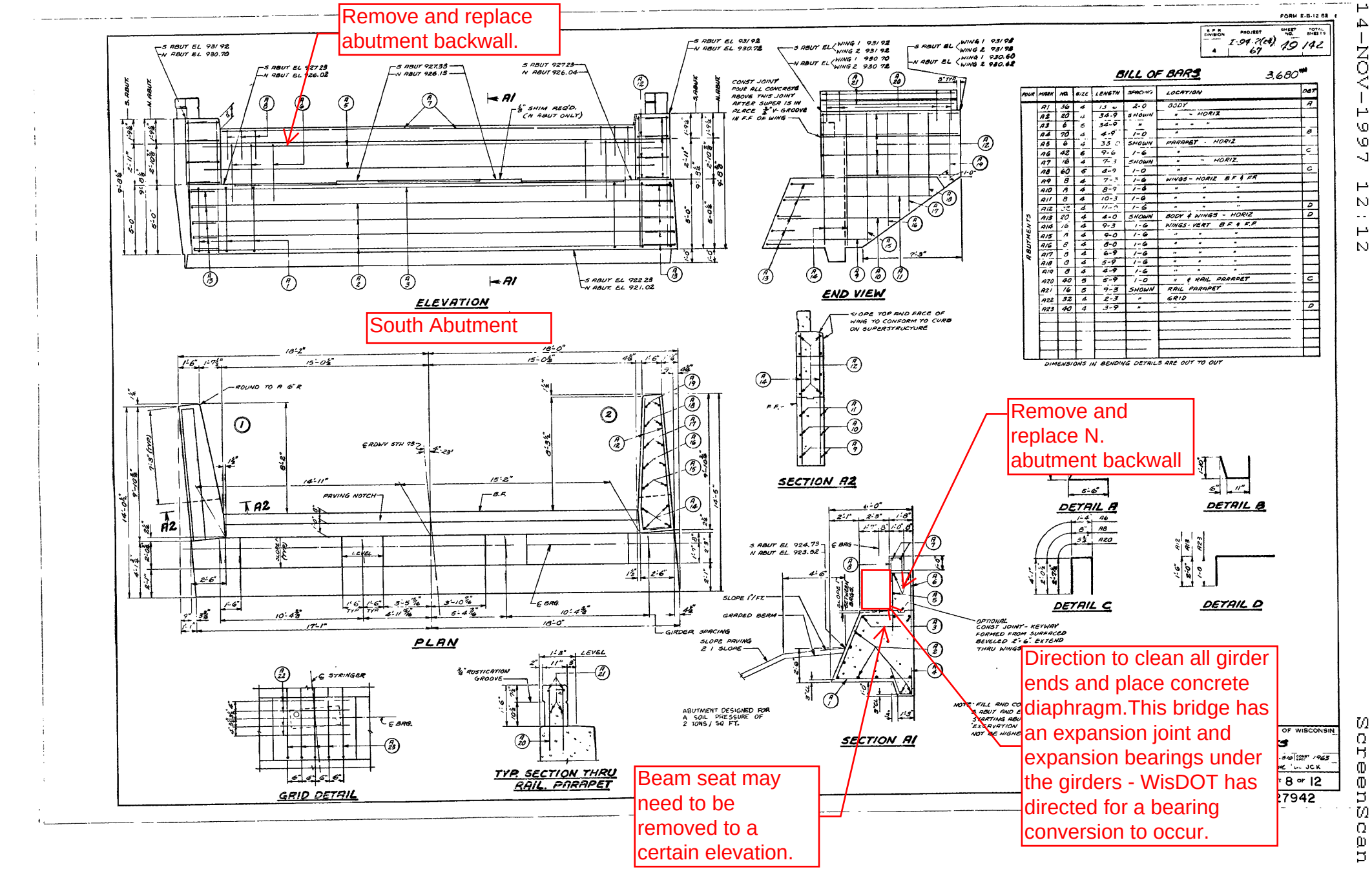
DESIGN SPEC. A.A.S.H.T.O. '61 | LOADING | CORRECT 1963

DATE 11/1/63 | DES. BY STD | DRAWN DB | CKD. MM

STRUCTURE B-18-34 | SHEET 7 OF 12

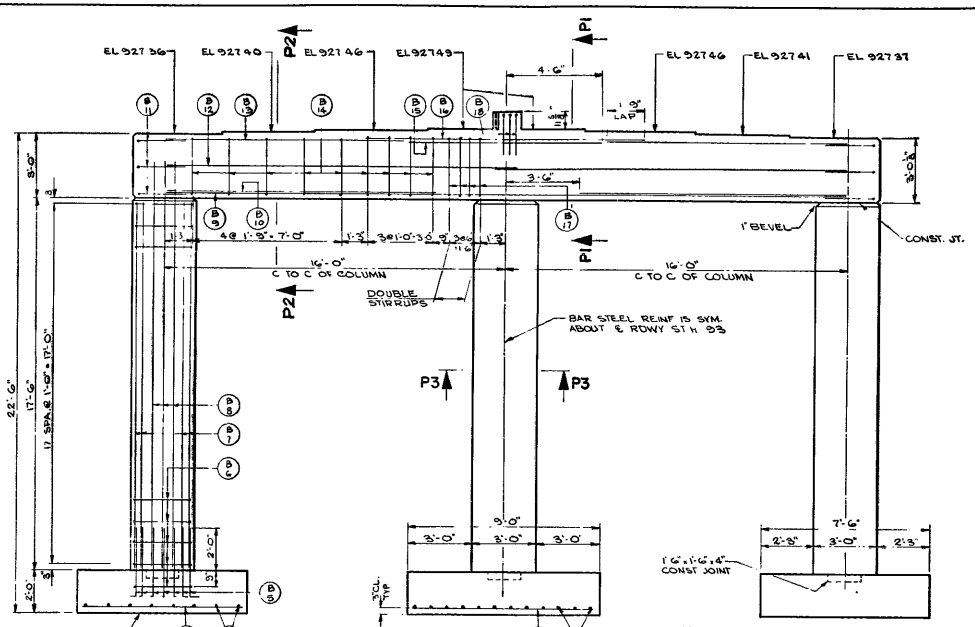
X27941


Remove and replace abutment backwall.
2.5'x1.5' Conc. Surface repair
3'x1.5' Conc. Surface Repair
1.5' of girder end significantly deteriorated with exposed rebar and separated strands.
Remove and replace N. abutment backwall
Significant spalling, cracking and efflorecence on NW abutment backwall and beam seat.
Beam seat may need to be removed to a certain elevation.
Direction to clean all girder ends and place concrete diaphragm.This bridge has an expansion joint and expansion bearings under the girders - WisDOT has directed for a bearing conversion to occur.
ELEVATION
North Abutment
PLAN
SECTION A2
SECTION A1
DETAIL A
DETAIL B
DETAIL C
DETAIL D
GRID DETAIL
TYP. SECTION THRU RAIL, PARAPET
BILL OF BARS
14-NOV-1997 12:12
ScreenScan



FORM E B 12 68

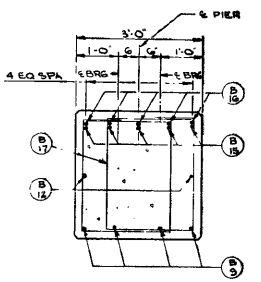
S.P.R. DIVISION	PROJECT	SHEET NO.	TOT. SHEETS
4	F 09.2(64) 67	50	142



ELEVATION
LOOKING NORTH

NOTE. FOOTINGS DESIGNED FOR A SOIL PRESSURE OF 2½ TONS / SQ FT.

Fiber wrap all 3 piers

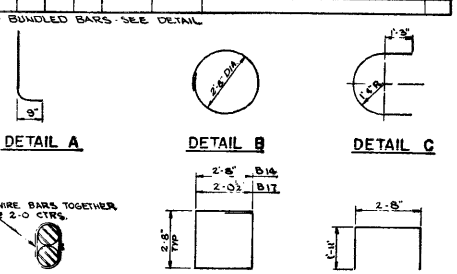


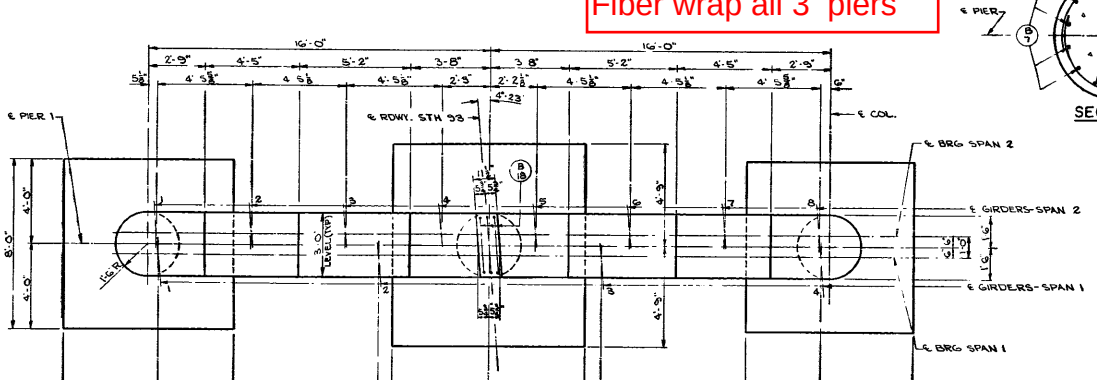
BILL OF BARS 5,210#

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT

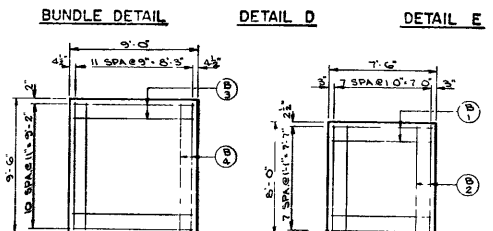
POUR	MARK	NO.	SIZE	LENGTH	SPACING	LOCATION	DET.
FOOTINGS	B1	16	5	7 - 0	SHOWN	FOOTINGS - EXTERIOR	
	B2	16	5	7 - 6	"	" - "	
	B3	11	7	8 - 6	"	" - INTERIOR	
	B4	12	7	9 - 0	"	" - "	
	B5	42	8	4 - 0	"	" - DOWELS	A
	B6	3	4	9 - 6	"	" - HOOPS	B
COLUMNS & CAP	B6	54	4	9 - 6	1 - 0	COLUMNS - HOOPS	B
	B7	24	8	17 - 3	SHOWN	"	
	B8	16	8	19 - 6	"	" ℄ CAP	
	B9	8	9	16 - 0	"	CAP - HORIZ.	
	B10	8	9	12 - 6	"	" - "	
	B11	6	4	6 - 9	"	" - ENDS	C
	B12	4	4	16 - 6	"	" - HORIZ.	
	B13	4	5	11 - 3	"	" - "	
	B14	18	4	11 - 9	"	" - STIRRUPS	D
	B15	5	10	9 - 0	"	" - HORIZ. M	
	B16	5	10	13 - 0	"	" - " *	
	B17	16	5	15 - 6	"	" - DOUBLE STIRRUPS	D
	B18	3	5	6 - 6	"	CAP @ SHEAR KEY	E

* BUNDLED BARS - SEE DETAIL





PLAN



FOOTING PLAN

CONCRETE MASONRY

FOOTINGS	152 C.Y.
COLUMNS	137 C.Y.
CAP	118 C.Y.
TOTAL	407 C.Y.

STATE HIGHWAY COMMISSION OF WISCONSIN

PIER 1

DESIGN SPEC AASHO '61 | LOADING H20 S16 | CONST SPEC 1963

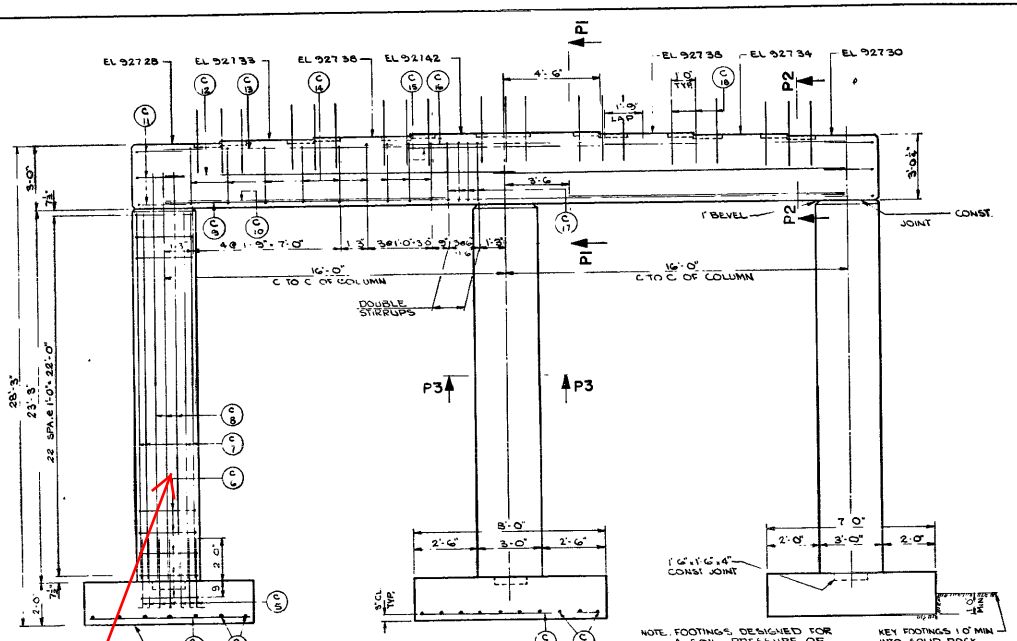
DATE 11-7-63 | DES. V.G.H. | DRAWN J.C.K. | CKD.

STRUCTURE B - 18 - 34 | SHEET 9 OF 12

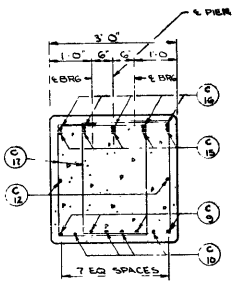
X27943

FORM E B 12-62

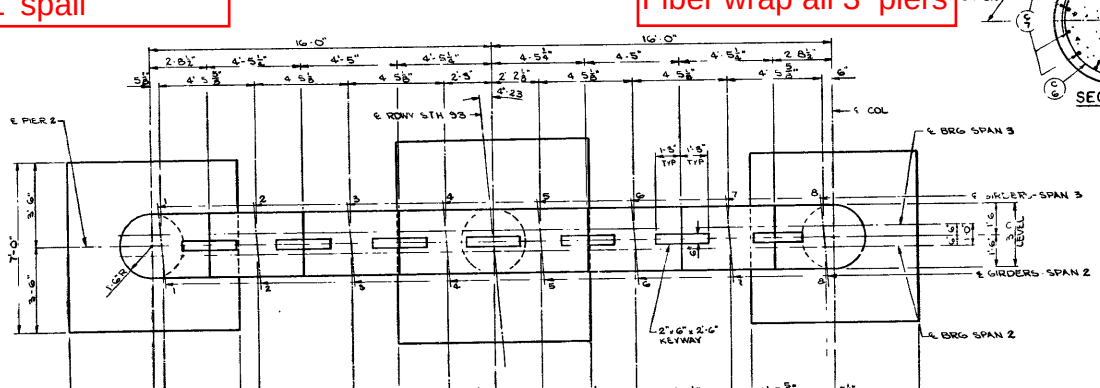
B P R DIVISION	PROJECT	SHEET NO	TOTAL SHEETS
4	I-94-2(74) 67	51	142



1'x1' spall



Fiber wrap all 3 piers



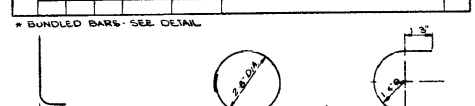
BILL OF BARS

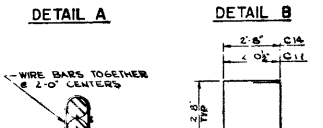
6,050#

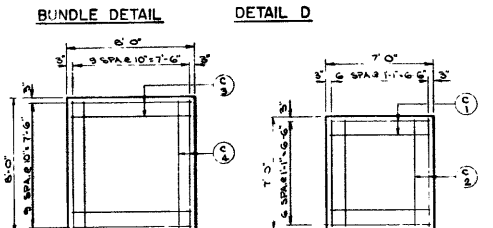
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT

POUR	MARK	NO	SIZE	LENGTH	SPACING	LOCATION	DET
FOOTINGS	C1	14	6	6 - 6	SHOWN	FOOTINGS - EXTERIOR	B
	C2	14	6	6 - 6	"	" "	
	C3	10	7	7 - 6	"	" - INTERIOR	
	C4	10	7	7 - 6	"	" "	
	C5	42	8	4 - 0	"	" - DOWELS	
	C6	3	4	3 - 6	"	" - HOOPS	
COLUMNS & CAP	C6	69	4	3 - 6	1 - 0	COLUMNS - HOOPS	B
	C7	24	8	25 - 0	SHOWN	"	
	C8	18	8	25 - 3	"	" & CAP	
	C9	8	5	16 - 0	"	CAP - HORIZ.	
	C10	8	5	12 - 6	"	" "	
	C11	6	4	6 - 9	"	" - ENDS	C
	C12	4	4	16 - 6	"	" - HORIZ.	
	C13	4	5	11 - 3	"	" "	
	C14	18	4	11 - 9	"	" - STIRRUPS	D
	C15	5	10	9 - 0	"	" - HORIZ. *	
	C16	5	10	13 - 0	"	" " *	
	C17	6	5	10 - 6	"	" - DOUBLE STIRRUPS	D
	C18	42	6	3 - 0	"	" - KEYWAY - VERT.	

* BUNDLED BARS - SEE DETAIL







FOOTING PLAN

CONCRETE MASONRY

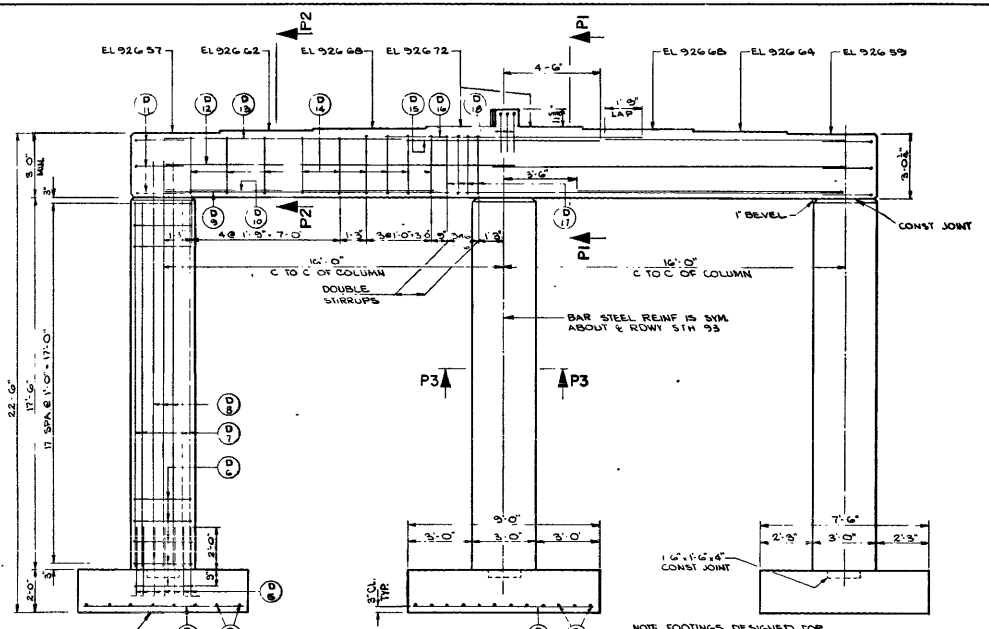
FOOTINGS	12.0 C.Y.
COLUMNS	16.3 C.Y.
CAP	11.6 C.Y.
TOTAL	41.9 C.Y.

REVISED	STATE HIGHWAY COMMISSION OF WISCONSIN
	PIER 2
	DESIGN SPEC AASHO '61 LOADING H20 S16 DATE 1963
	DATE 7-63 DES. BY V.G.H. DRAWN J.C.K. CHK.
STRUCTURE B-18-34	SHEET 10 OF 12

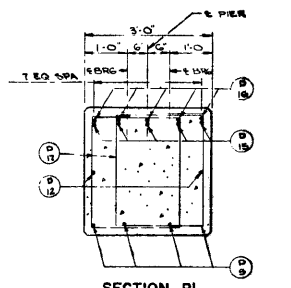
X 27944

FORM E B 12-68

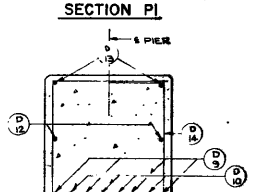
B F R DIVISION	PROJECT	SHEET NO.	TOTAL SHEETS
4	I-94-2(24) 67	52	142



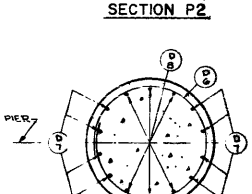
ELEVATION
LOOKING NORTH



SECTION P1

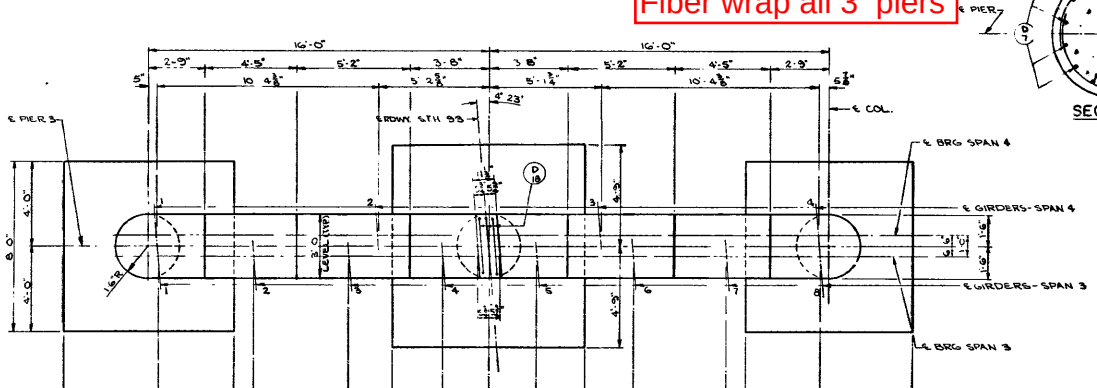


SECTION P2



SECTION P3

Fiber wrap all 3 piers



PLAN

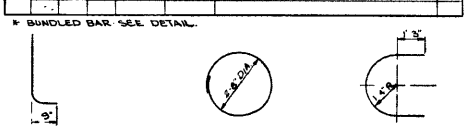
BILL OF BARS

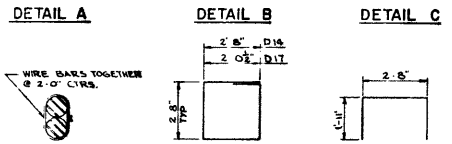
5,210 lbs

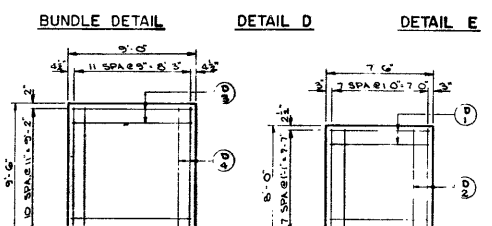
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT

	BAR MARK	NO	SIZE	LENGTH	SPACING	LOCATION	DET.
FOOTINGS	D1	16	5	7-0	SHOWN	FOOTINGS - EXTERIOR	
	D2	16	5	7-6	"	" "	
	D3	11	7	8-6	"	" - INTERIOR	
	D4	12	7	9-0	"	" "	
	D5	42	8	4-0	"	" - DOWELS	A
	D6	3	4	9-6	"	" - HOOPS	B
COLUMNS & CAP	D6	54	4	9-6	1-0	COLUMNS - HOOPS	B
	D7	24	8	17-3	SHOWN	"	
	D8	18	8	19-6	"	" & CAP	
	D9	8	9	16-0	"	CAP - HORIZ.	
	D10	8	9	12-6	"	" "	
	D11	6	4	6-9	"	" - ENDS	C
	D12	4	4	16-6	"	" - HORIZ.	
	D13	4	5	11-3	"	" "	
	D14	18	4	11-9	"	" - STIRRUPS	D
	D15	5	10	9-0	"	" - HORIZ. #	
	D16	5	10	13-0	"	" " #	
	D17	16	5	10-6	"	" - DOUBLE STIRRUPS	D
	D18	3	5	6-6	"	CAP @ SHEAR KEY	E

℄ BUNDLED BAR SEE DETAIL.







FOOTING PLAN

CONCRETE MASONRY

FOOTINGS	152 C.Y.
COLUMNS	137 C.Y.
CAP	118 C.Y.
TOTAL	407 C.Y.

STATE HIGHWAY COMMISSION OF WISCONSIN

PIER 3

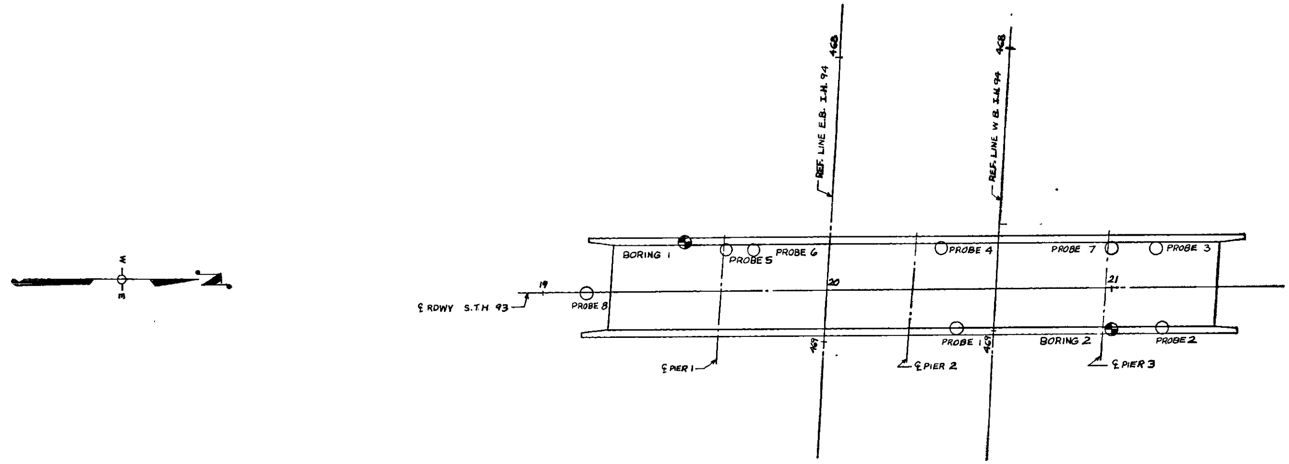
DESIGN SPEC A A S H O '61 LOADING H20 S16 CONST SPEC 1963

DATE 11 '65 DES. VGH DRAWN J.C.K. CKD

STRUCTURE B - 18 - 34 SHEET 11 OF 12

X 27945

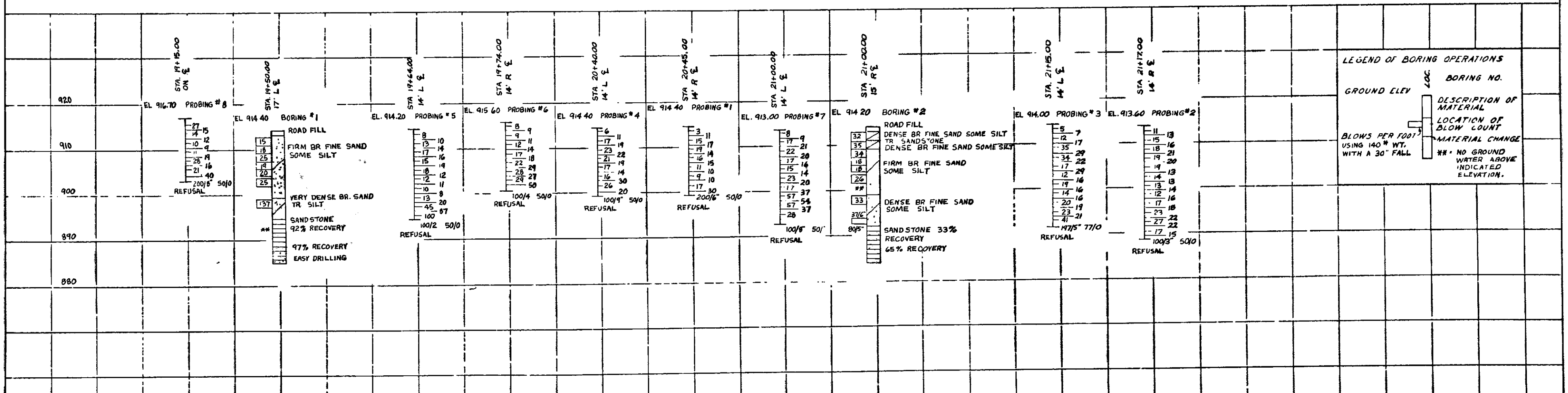
W.P.H. DIVISION	PROJECT	SHEET NO.	TOTAL SHEETS
4	I-94-2(24) 67	53	142



SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN

FOR THE DESIGN OF THE STRUCTURE FOUNDATION, TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING WITH THE LOG OF SUCH EXPLORATION DATA AS INTERPRETED FOR SUCH DESIGN PURPOSE AS SHOWN. THE EXPLORATIONS WERE MADE BY ORDINARY AND CONVENTIONAL METHODS AND CARE DEEMED ADEQUATE FOR SUCH PURPOSE. HOWEVER, SINCE IT IS A MATTER OF COMMON KNOWLEDGE THAT THE EXACT CHARACTER OF ANY MATERIAL AND ITS REACTION IS DIFFICULT TO DETERMINE FROM SUCH SUBSURFACE EXPLORATION AND THAT THE KIND AND CHARACTER OF MATERIAL AT THE SITE WHERE THE FOUNDATIONS ARE BUILT MAY VARY SUBSTANTIALLY FROM THAT INDICATED BY THE LOG THEY ARE MADE AVAILABLE TO THE BIDDERS SIMPLY FOR WHAT THEY ARE WORTH, WITHOUT ANY WARRANTY, EXPRESSED OR IMPLIED THAT THE MATERIAL TO BE ENCOUNTERED IN BUILDING THE FOUNDATION WILL CONFORM THEREWITH. IF THE LOG IS USED BY THE CONTRACTOR IN MAKING HIS BID, IT IS HEREBY EXPRESSLY STIPULATED THAT THE COMMISSION ACCEPTS NO RESPONSIBILITY FOR SAID USE.

UNLESS OTHERWISE SPECIFIED THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" OD x 1.4" ID SPLIT SPOON SAMPLER WITH A 140 LB. HAMMER HAVING A FREE FALL OF 30 INCHES. THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.



STATE HIGHWAY COMMISSION OF WISCONSIN				
SUBSURFACE EXPLORATION				
63	DB	UK	1963	H20 S16
STRUCTURE B - 18 - 34			SHEET 12 OF 12	

X27946