

**CHESAPEAKE BAY BRIDGE and TUNNEL DISTRICT**

REQUEST FOR QUALIFICATIONS

FOR

**Steel Bridge Paint Project Consultant**

PROPOSAL NUMBER: M-25-002

ISSUED: July 18, 2024

**Steel Bridge Painting Project Consultant  
Request for Qualifications  
Chesapeake Bay Bridge and Tunnel District**

**Table of Contents**

1. Introduction .....	3
2. General Facility Description.....	3
3. Scope of Services.....	3
4. Submittal and Evaluation Criteria .....	8
5. Submittal Requirements .....	9
6. Schedule .....	10
7. Selection and Award of Contract.....	10
8. Insurance Requirements .....	11
9. Miscellaneous Provisions .....	11

**Tables**

Table 1 – Schedule .....	10
--------------------------	----

**Appendices**

Appendix A – Location Map

Appendix B – North Channel Bridge North Bound Drawings

Appendix C – North Channel Bridge South Bound Drawings

Appendix D – Fishermans Island Bridge North Bound Drawings

Appendix E – Fishermans Island Bridge South Bound Drawings

Appendix F – Steel Girder Trestle Abutment Drawings

Appendix G – Little Creek Pier Drawing

## 1. Introduction

The Chesapeake Bay Bridge and Tunnel District ("District") issues this request for qualifications for Steel Bridge Paint Project Development Services, for the Chesapeake Bay Bridge and Tunnel District. In addition to the development of the bridge paint, development of steel bridge repairs will also be required. The District is inviting proposals from individual Consulting Firms or Corporations having a nationwide and favorable reputation for skill and experience to perform duties associated with developing complete technical specifications for all associated tasks of steel bridge painting.

## 2. General Facility Description

The Chesapeake Bay Bridge-Tunnel (CBBT) is a 20-mile-long vehicular toll crossing of the lower Chesapeake Bay. The facility carries US 13, the main north-south highway on Virginia's Eastern Shore, and provides the only direct link between Virginia's Eastern Shore and south Hampton Roads, Virginia. The crossing consists of a series of parallel, two lane, low-level trestles and bridges that are connected by two approximately one-mile-long two-lane tunnels beneath Thimble Shoal and Chesapeake navigation channels. The manmade islands, each approximately 5.25 acres in size at the surface, are located at each end of the two tunnels. There are also high-level bridges over two other navigation channels: North Channel Bridge and Fisherman Inlet Bridge. Finally, between North Channel and Fisherman Inlet, the facility crosses at-grade over Fisherman Island, a barrier island that includes the Fisherman Island National Wildlife Refuge administered by the U. S. Fish and Wildlife Service. Toll collection facilities are located at each end of the facility.

## 3. Scope of Services

The District is seeking a firm to perform a condition assessment and prepare technical specifications for surface preparations and painting of all existing structural steel, development of steel bridge repairs and QA/QC inspection for the following structures:

1. Little Creek Finger Pier
2. ASB 1
3. ASB 204
4. BNB 1, BSB 1, BSB 202
5. CSB 1
6. North Channel Bridge Northbound
7. North Channel Bridge Southbound
8. Fishermans Inlet Bridge Northbound
9. Fishermans Inlet Bridge Southbound

These structures were last painted in a project completed in the Fall of 2013 at a total cost of \$11,160,100. For project locations, see attached Location Map in Appendix A.

### 3.1. Site Investigation

A report shall be given to the District containing the results of the following items of work. The District shall have time to review this report and provide feedback prior to the consultant developing the draft bid package.

1. Consultant shall investigate site conditions which may impact design of the coating project. Site conditions may include constraints for construction of access platforms, staging and lay down areas, identification of sensitive receptors, and other information which may potentially impact the prosecution of work.
2. Consultant shall perform a field coating condition assessment survey of the bridges to gather information that will be used to evaluate the condition of the existing coating systems. The information obtained may be used to assist in recommending alternatives/strategies for rehabilitating the existing coating system (spot coating repairs, zone coating repairs or complete removal and replacement).

The following items shall be evaluated for the field coating condition assessments, as applicable:

- Visual – A visual assessment of the percentage and distribution of corrosion across the surface shall be made. The character of such rust areas (i.e., pinpoint rust, pitting, stratified rust, metal loss) shall be noted, and recommendations made for removal to provide a satisfactory surface for painting. In addition, other visually apparent coating defects such as peeling, chalking, cracking, blistering, etc. shall be assessed.
  - Samples – The consultant shall obtain representative coating samples of the existing coating for laboratory testing to determine if toxic metals are present and what levels.
  - Photographs – Color photographs of typical coating conditions and corrosion shall be taken to be included in the report.
3. Coating Analysis – Consultant shall evaluate field coating condition assessment results, review existing surface preparation methods and coating system specifications. Consultant shall utilize the gathered technical data as a base line for recommending coating alternatives. Consideration to be given to issues of abrasive blast cleaning and coating application requirements, containment requirements, protection of adjacent work operations, sequencing of project work, access and staging requirements.
  4. Bridge Engineering - Expected steel repairs may include, but are not limited to, stiffeners that have lost their bearing due to corrosion, steel members that have significant section loss due to corrosion, girder seat repair, cracks radiating from stiffener connections, as well as rivets and/or bolts that have significant section loss.
  5. Opinion of Probable Costs – Consultant shall review project documents, calculate the paintable square footage area and develop opinions of probable cost for the bridge, based on the engineering analysis recommendations. Consideration will be given to the various coating system rehabilitation methodologies, site logistics, associated containment system strategies, work sequencing, staging,

access and other issues that will impact the construction costs to develop the opinions of probable cost for spot repair/zone repair or replacement of the existing system.

### **3.2. Draft Bid Package (60% Level)**

1. Consultant shall prepare draft documents for the District, which shall include the following two (2) categories of information:

- Draft Bid Package:
  - Draft Technical Specifications.
  - Design Drawings with elevations and typical cross sections.
  - A draft Maintenance of Traffic (MOT) plan for vehicle parking, lane closures and vehicle traffic during each construction phase at each Construction Location.
- Addition Information:
  - Verification of quantity of surfaces to be coated.
  - Verification of quantity of surfaces to be abated.
  - An updated Construction Estimate based on the draft bid package.
  - A draft construction schedule.

2. Consultant shall make a formal presentation of the draft documents to CBBT.

3. Consultant shall allow twenty (20) days for CBBT review and comment.

### **3.3. Final Design Package (90% Design Level).**

1. Consultant shall prepare and submit a Final Design Package including:

- All CBBT comments to the Draft Bid Package.
- Final Design Drawings.
- Final Technical Specification, to be packaged with the District's front end Instruction to Bidders, Contract, General Provisions and Special Provisions.
- Final MOT Plans which are inclusive of Road Closure Stipulations.
- Final Quantity Takeoff
- Final Estimate

2. Consultant shall allow twenty (20) days for CBBT review and comment.

### **3.4. Bid Documents**

1. Consultant shall prepare and deliver to CBBT a Bid Document Package consisting of:

- All comments resulting from CBBT review of the Final Design.
- Final Bid Documents, signed and sealed by a Licensed Professional Engineer, registered in the State of Virginia on Consultant title block.
- Final Design Calculations, signed and sealed by a Licensed Professional Engineer, registered in the State of Virginia.
- Final Technical Specifications to be placed with the District's front end docs, as follows:

- Provide digitally in MS Word and PDF format
- Final Design Drawings in AutoCAD and pdf:
  - Provide digitally in AutoCAD format, and pdf format.
    - Drawings shall be laid out in full-size (22" x 34" drawings).
    - Drawings shall be formatted to print in half-size (11" x 17" drawings).

### **3.5. Bid Phase Services**

1. Consultant shall, on a time and material basis, provide additional services as requested, such as:

- Attend the pre-bid conference and site tour.
- Assist in preparing responses to bidders' questions.
- Assist in preparing addenda as necessary.
- Assist in additional steel bridge repairs that arise after blasting.

### **3.6. Construction Phase Services**

1. Consultant shall review submittals for general conformance with the performance criterion as outlined in the contract documents.

- Contractor's Coatings Related Submittals – This may include, but not limited to, review of the following: Coating certifications for proposed systems, manufacture and product data sheets for proposed coating systems, soluble salt remediation procedures, and the contractor's Quality Control Plan.
  - Contractor's Environmental Compliance Plan – This will include review of the plan for the protection of air, soil, and water and including any monitoring or observations to be performed, site clean-up and evaluations.
  - Contractor's Waste Handling Plan – This may include review of the waste handling plan, transportation information, hazardous waste disposal information, wastewater disposal information, and laboratory qualifications.
  - Contractor's Detailed Drawings, Calculations, Plans and Provisions for Containment and Ventilation – This may include review of the following: detailed drawings of the containment system, wind, live and dead load analysis, data, calculations and assumptions for ventilation and loads, containment installation plan (including attachments), provisions for moving / dropping containment and preventing sag, plans for maintaining navigational lighting and removing debris from water and Coast Guard notifications.
  - Contractor's Health and Safety Compliance Plan – This may include review of the plan, CIH and competent person qualification, laboratory qualifications and respiratory protection program.
2. Consultant shall confirm the contractor's QC processes through review of QC documentation, observations, and duplicate spot testing on key hold-points.
3. Consultant shall perform hold-point QA observations of surface preparation and coating application per the specification, including, but not limited to:
- Ambient conditions;

- Compressed air cleanliness;
  - Suitability of protective coverings and containment
  - Abrasive cleanliness (SSPC-AB 1, 2);
  - Surface cleanliness and profile;
  - Soluble salt testing and removal;
  - Coating storage, mixing, and application;
  - Dry film thickness and continuity of each coat;
  - Dry time, curing, and cleanliness of each coat;
  - Touch up and repair of damaged or defective coats;
  - Daily inspection of project site for cleanliness as defined in the specification including but not limited to blast media, hazardous/non-hazardous waste, and general refuse;
  - Rust stain removal;
  - Final condition and appearance;
4. The QA coatings inspector shall have a minimum certification level of AMPP Certified Coatings Inspector.
5. Consultant shall complete daily reports documenting measurements and observations made during the shift, based upon the specification.

Deviations and non-conformances with the project specification shall be verbally reported in a timely manner to the Contractor and the District.

The Consultant shall have a non-conformance procedure in place that clearly identifies the process for the corrective action plan and remediation.

6. Project Management

The Consultant shall provide an effective management structure, such that the Consultant provides oversight and management of their personnel to verify the District is receiving the work in accordance with the contract and scope of work contained in this RFP.

## 4. Submittal and Evaluation Criteria

Responses to this Request for Qualifications will be evaluated based on the following:

### 4.1. Organizational Capability (20 Points)

Provide a description of the firm's, or the team's, organizational capability and the proposed use of sub-consultants. The Consultant is expected to provide a core team with the appropriate mix of management abilities, technical expertise, and experience. The following information will need to be provided in describing the firm's organizational capabilities.

- Prime Firm
  - Location of Office that will be responsible for the Contract
  - Year the office was opened
  - Number of employees firm-wide
  - Total years in business
  - Annual Gross Revenue (most recent year available)
  - Revenue attributed to Transportation
  
- Sub-Consultants (for each firm provide)
  - Years in business
  - Number of employees
  - Annual Gross Revenue (most recent year available)
  - Revenue attributed to Transportation

### 4.2. Firm/Team's Experience Providing Similar Types of Services (30 points)

Describe the firm/team's cumulative experience, technical expertise, and qualifications in providing comparable services to those identified in Section 3.0. Provide a minimum of five (5) and a maximum of ten (10) project examples. At a minimum, provide the following information:

- Project Name
- Project Owner/Client
- Year(s) of the contract
- Description of services provided by the firm
- Contract value
- Point of Contact
- Phone Number for Point of Contact

### 4.3. Contract Scope, Project Understanding and Project Approach (30 Points)

Provide a Scope of Work for the services described in Section 3.0, including the following:

- Describe how your firm would approach the work.



- Include Key Personnel - Key Personnel are defined as those to whom the project will be assigned and those who will be performing the actual services.

Give a description of the Key Personnel's expertise, experience, and qualifications in providing services as related to the Scope of Work. Emphasis should be focused on boots on ground personnel, not office managers. Provide a matrix, table or list of relevant project examples where the Key Personnel have performed the noted services and describe the member's involvement in the project.

Provide resumes for each Key Personnel and include a list of relevant projects focused on the Key Personnel's experience, as well as project history. Resumes and certifications will not count toward the pages allowed.

#### **4.4. Qualifications of Project Manager (20 Points)**

Provide a description of the Project Manager's expertise, experience, and qualifications in providing services, as related to the services described in Section 3.0. Provide a matrix, table or list of relevant project examples where the Project Manager held leadership positions in providing the noted services and describe the involvement in the project.

### **5. Submittal Requirements**

#### **5.1. Pre-Proposal Conference**

A **non-mandatory** pre-proposal conference will be held in the District's Commission Conference Room, located at 32386 Lankford Highway, Cape Charles, VA 23310, on August 6, 2024, starting promptly at 10:00 A.M.

#### **5.2. Interpretation of Documents**

Any comments or questions concerning this Request for Qualifications shall be directed to the Point of Contact, and be received at least ten (10) days prior to receipt of proposal. Answers will be provided at least five (5) days prior to the submittal date. The District is not responsible for any explanation, clarification or approval made or given in any manner except by addendum. A copy of each addendum will be posted on the CBBT website ([www.cbbt.com](http://www.cbbt.com)) and it shall be the responsibility of each offeror to verify that all addendums have been received and incorporated into their respective SOQ. Any addenda so issued are to be considered part of the Request for Qualifications.

#### **5.3. Submittal Format and Limitations**

Proposals shall be prepared simply and economically, providing a straightforward, concise description of the firm's (or the team's) capabilities to satisfy the requirements of the RFQ. Emphasis should be on completeness and clarity of content. Elaborate brochures and other representations beyond that sufficient to present a complete and effective proposal are neither required nor desired. Under no circumstances shall the proposal exceed a total of fifty (50) pages.

All pages shall be 8 ½" X 11" and printed on one side, with single-spaced type no smaller than 12 pitch. Graphics, organizational charts and similar material may use 11" X 17" sheets folded to 8 ½" X 11".

### 5.4. Submittal Deadline

All information must be submitted with one (1) digital and three (3) paper copies and received no later than August 26, 2024, at 4:00 pm. Responses received after this time will not be considered.

All questions, correspondence and submittals shall be directed to:

Point of Contact: Timothy R. Holloway  
 Director of Maintenance  
 Chesapeake Bay Bridge and Tunnel District  
 32386 Lankford Highway  
 Cape Charles, Virginia 23310  
 (757) 331-2960  
[tholloway@cbbt.com](mailto:tholloway@cbbt.com)

### 6. Schedule

Item	Description	Date
1	Issue Request for Qualifications	July 18, 2024
2	Non-Mandatory Pre-proposal Conference	August 6, 2024
3	Submittal of Qualifications	August 26, 2024
4	Notification to Short-Listed Firms	September 20, 2024
5	Short-List Interviews	October 14-25, 2024
6	Negotiations	October - December
7	Recommendation to Commission	January 14, 2025

*Table 1 – Schedule*

### 7. Selection and Award of Contract

The District will evaluate SOQs in accordance with the criteria outlined in Section 4.0 and short-list the most qualified firms for interviews. At a minimum, short listed firms will be expected to have the proposed Project Manager present at the interview. The District will provide guidance to the interview requirements at the time of

short-list notification. Based on the interviews, the District will select the best firm (or team) to provide the services outlined in the RFQ and will conduct negotiations with that firm for award of a contract.

## 8. Insurance Requirements

- a. The CE shall provide the District Certificates of Insurance providing the following:
  - i. Certification of insurance for a general liability policy, including products liability on an occurrence basis:
    - Combined Single Limit           \$1,000,000
    - General Aggregate Limit       \$2,000,000
  - ii. Certification of insurance for a Worker's Compensation Insurance policy, meeting the requirements of the Worker's Compensation Laws of the Commonwealth of Virginia.
  - iii. Errors and Omissions liability policy
    - Single Limit                       \$5,000,000
    - General Aggregate Limit       \$5,000,000
  - iv. Certification of Insurance for an automobile liability policy for vehicles used by the Contractor in connection with the said Contract.
    - Combined Single Limit           \$1,000,000
    - General Aggregate Limit       \$2,000,000

## 9. Miscellaneous Provisions

### 9.1. Non-Discrimination

During the performance of this Contract, Consultant agrees as follows:

- a. Consultant will not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin, except when religion, sex, or national origin in a bona fide occupational qualification reasonably necessary to the normal operation of the Consultant. The Consultant agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provision of this non-discrimination clause.
- b. The Consultant, in all solicitations or advertisements for employees placed by or on behalf of the Firm, will state that such Firm is an equal opportunity employer.
- c. Notices, advertisements, and solicitations placed in accordance with Federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.
- d. The Consultant shall include the provisions of the foregoing Paragraphs a, b, and c in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each Subcontractor vendor.

### 9.2. Drug-Free Workplace

The following shall apply for every Contract over \$10,000 in value:

- a. During the performance of this Contract, Consultant agrees to (i) provide a drug-free workplace for the Firm's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Firm's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of Consultant that Consultant maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each Sub-consultant or Vendor.
- b. For the purposes of this section, “*drug-free workplace*” means a site for the performance of work done in connection with a specific Contract awarded to Consultant in accordance with these General Provisions, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the Contract.

### **9.3. Employee Identification**

All employees that are required to access sensitive areas shall be required to sign a blanket release form provided by the District authorizing the District to conduct an in-depth background investigation on all personnel working on the project. Additionally, a photo ID and a social security card or proper immigration identification, as appropriate, shall be provided by all employees for examination upon request by the District.

### **9.4. Cost Proposals Not Accepted**

The District will not consider for award any cost proposals submitted by any consultants and will not consent to subcontracting any portions of the contract to any sub-consultants in violation of the provisions of the Federal Immigration Reform and Control Act of 1986, which prohibits employment of illegal aliens.

### **9.5. Accounting Controls to Meet FAR Audit Requirements**

All firm’s proposals must reference internal accounting systems that meet any applicable Federal requirements, including a transparent overhead calculation and acceptance of any required Federal audit requests.

### **9.6. Civil Rights Acts Compliance**

The District assures compliance with Title VI of the Civil Rights Act of 1964, as amended. The consultant and all sub-consultants selected for this project will be required to submit a Title VI Evaluation Report (EEO-D2) within ten (10) work days of notification of selection when requested by the District. This requirement applies to all consulting firms when the contract amount equals or exceeds \$10,000.

### **9.7. Discrimination Disclaimer**

The District does not discriminate against an offeror because of race, religion, color, sex, national origin, age,

disability, or any other basis prohibited by state law relating to discrimination in employment.

### **9.8. Lobbying**

All firm's/team's proposals must acknowledge Federal lobbying restrictions in PL 101-121, Section 319, and associated laws and regulations.

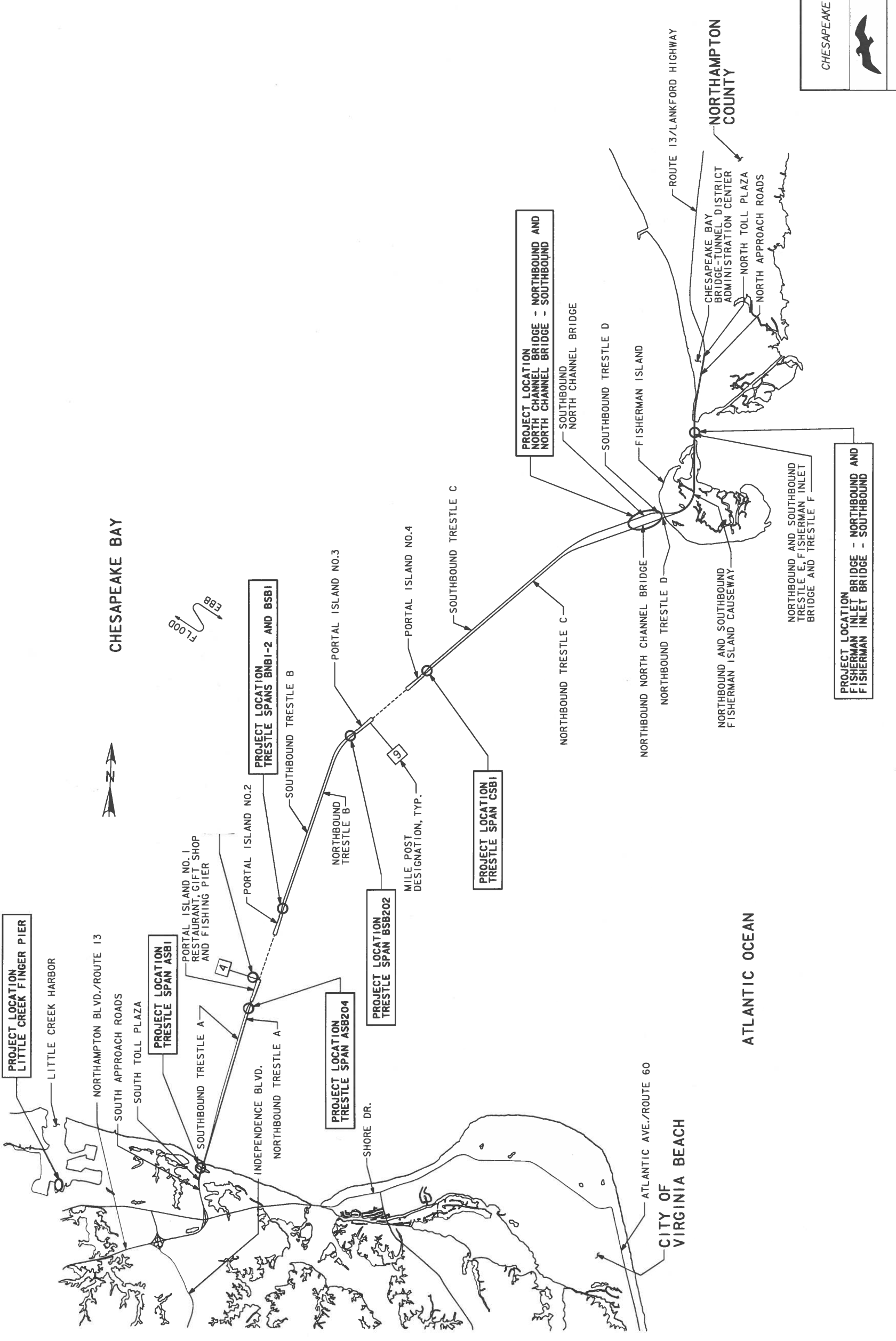
### **9.9. Critical Infrastructure Information/Sensitive Security Information (CII/SSI):**

1. Contract documents or project material containing CII/SSI in whole or in part are subject to the terms of this Section and comply with the requirements of CII/SSI Guide. This guide can be located at; <http://www.virginiadot.org/business/const/CII-CriticalStructureInformation.asp>.
2. Consultant shall be responsible for safeguarding Critical Infrastructure/Sensitive Security Information (CII/SSI) (as defined in the VDOT CII/SSI Policy) in their custody or under their control. Individuals are responsible for safeguarding CII/SSI entrusted to them. The extent of protection afforded CII/SSI shall be sufficient to reasonably foreclose the possibility of its loss or compromise.
3. Consultant shall ensure that all employees using this information are aware of the prohibition against disclosing CII/SSI in any manner (written, verbal, graphic, electronic, etc.) that permits interception by unauthorized persons.
4. Consultant shall protect CII/SSI at all times, either by appropriate storage or having it under the personal observation and control of a person authorized to receive it. Each person who works with protected CII/SSI is personally responsible for taking proper precautions to ensure that unauthorized persons do not gain access to it.
5. The use and storage of CII/SSI shall conform to the following guidelines: During working hours, reasonable steps shall be taken to minimize the risks of access to CII/SSI by unauthorized personnel. After working hours, CII/SSI shall be secured in a secure container, such as a locked desk, file cabinet or facility where contract security is provided.
6. The reproduction of CII/SSI documents or material containing CII/SSI shall be kept to the minimum extent necessary consistent with the need to carry out official duties. The reproduced CII/SSI material shall be marked and protected in the same manner as the original material.
7. Material containing CII/SSI shall be disposed of by any method that prevents unauthorized retrieval. (e.g. shredding, burning, returning to original source, etc.)
8. CII/SSI shall be transmitted only by US first class, express (US Postal, FedEx, UPS, etc.), certified or registered mail, or through secure electronic means.
9. The portions of the documents that are marked as CII/SSI are not subject to disclosure under Code of Virginia §2.2-3705.2, and may not be released except with written permission from the District. Unauthorized release or reproduction of these documents may result in civil penalty or other legal action.
10. By copying, downloading, or receiving a copy of any documentation containing CII/SSI, or any part thereof, the CM or any other recipient acknowledges and agrees to the terms of this Section and will advise any individual using these documents, or any part thereof, that they, too, shall be responsible for

safeguarding the CII/SSI in their custody or under their control. All costs associated with performing these CII/SSI requirements are the responsibility of the prime Consultant.

11. In the event of loss, suspected loss or compromise of any District CII/SSI material, the Consultant having possession of the said CII/SSI material will immediately upon having knowledge of the loss, suspected loss or compromise of any District CII/SSI material, notify the District. If the loss is a result of a theft or suspected theft, of either the actual CII/SSI material or any device containing or storing CII/SSI material, the Consultant will immediately file a report with a law enforcement agency having jurisdiction and forward a copy of the report to the District.)
12. Consultant shall include the terms of this Section and comply with the CII/SSI Guide, in any further dissemination of any contract documents or project materials containing CII/SSI in whole or in part, and in all subcontracts awarded under this contract.

**Appendix A**  
**Location Map**



COMMONWEALTH OF VIRGINIA  
CAPE CHARLES, VIRGINIA 23310-0111

**BRIDGE PAINTING**  
FOR  
LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

**JACOBS**

LOCATION MAP

CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT

SCALE: AS SHOWN  
DATE: DEC. 2010  
DRAWN BY: CLS  
CHECKED BY: CJW  
DES. NO. \_\_\_\_\_

Approved: \_\_\_\_\_

1 of 4

**CHESAPEAKE BAY BRIDGE AND TUNNEL  
LOCATION PLAN**

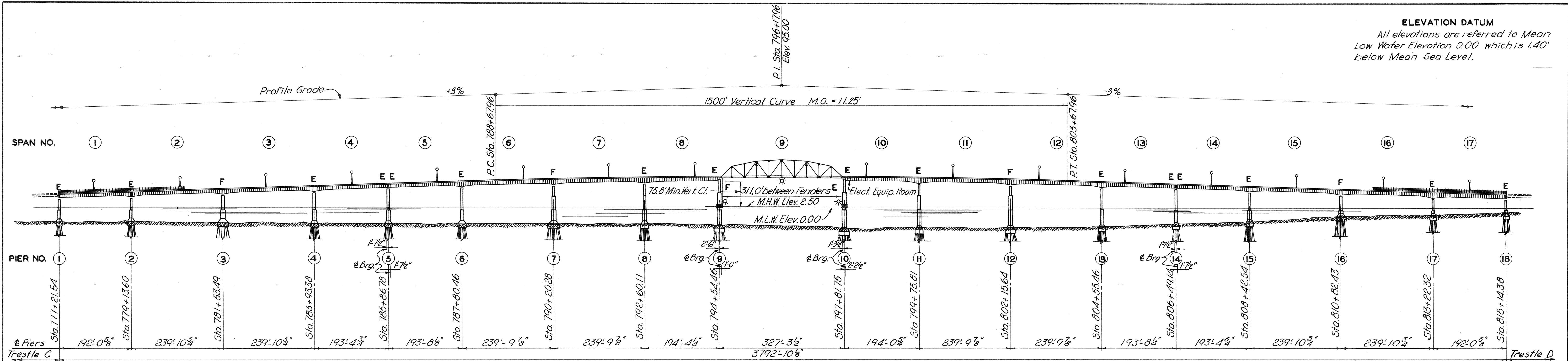
SCALE: 1" = 5,000'  
2500' 0' 2500'

NO.	DATE	BY	APP.	DESCRIPTION



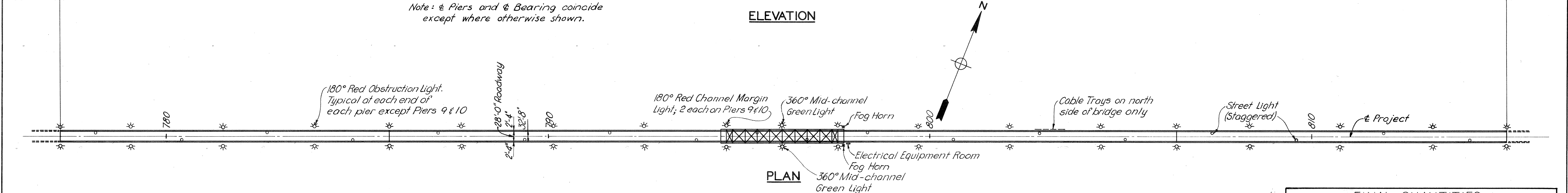
**Appendix B**  
**North Channel Bridge North Bound Drawings**

ELEVATION DATUM  
All elevations are referred to Mean Low Water Elevation 0.00 which is 1.40' below Mean Sea Level.



Note: @ Piers and @ Bearing coincide except where otherwise shown.

ELEVATION



PLAN

GENERAL NOTES

SPECIFICATIONS:

CONSTRUCTION: Construction shall be in accordance with "Virginia Department of Highways' Road and Bridge Specifications", 1958 Edition, as supplemented and amended to July 1, 1959 and Special Provisions for Section No. NC-2.

DESIGN: Except as noted herein, design shall be in accordance with Division I of the A.A.S.H.O. "Standard Specifications for Highway Bridges", 1957 Edition and American Welding Society "Standard Specifications for Welded Highway and Railway Bridges", 1956 Edition.

DESIGN LOADING: Live Load: H20-S16-44.  
Dead Load: No allowance made for future wearing surface or utilities.

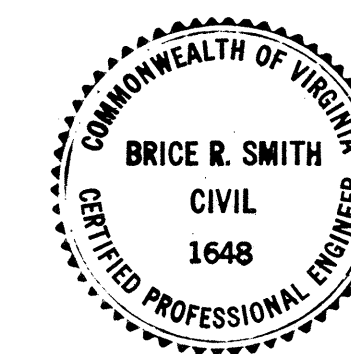
INDEX OF DRAWINGS

- 1 GENERAL PLAN AND ELEVATION
  - 2 GIRDER SPANS - FRAMING PLAN AND ELEVATION
  - 3 GIRDER SPANS - GIRDER DETAILS
  - 4 GIRDER SPANS - CROSS SECTIONS
  - 5 GIRDER SPANS - MISCELLANEOUS DETAILS
  - 6 GIRDER SPANS - SHOES
  - 7 TRUSS SPAN - STRESS SHEET
  - 8 TRUSS SPAN - TRUSS DETAILS L0 TO L2
  - 9 TRUSS SPAN - TRUSS DETAILS L3 TO L5
  - 10 TRUSS SPAN - MISCELLANEOUS DETAILS
  - 11 TRUSS SPAN - SHOES
  - 12 EXPANSION DEVICE AT PIERS 5, 9, 10 & 14
  - 13 EXPANSION DEVICE AT PIERS 1 & 18
  - 14 ELECTRICAL EQUIPMENT ROOM, LADDERS AND PLATFORMS
- E1  
E2  
1 } AMERICAN BRIDGE SHOP DRAWINGS FOR REPAIRS TO SPAN 1 STEEL  
2  
3  
4

FINAL QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
1	Structural Carbon Steel, Girders	Lbs.	3,391,101
2	Structural Carbon Steel, Trusses	Lbs.	54,5356
3	Structural Manganese Steel, Girders	Lbs.	3,654,475
4	Structural Manganese Steel, Trusses	Lbs.	249,940
5	Structural Low-Alloy Steel	Lbs.	52,780
6	Cast Steel	Lbs.	75,058

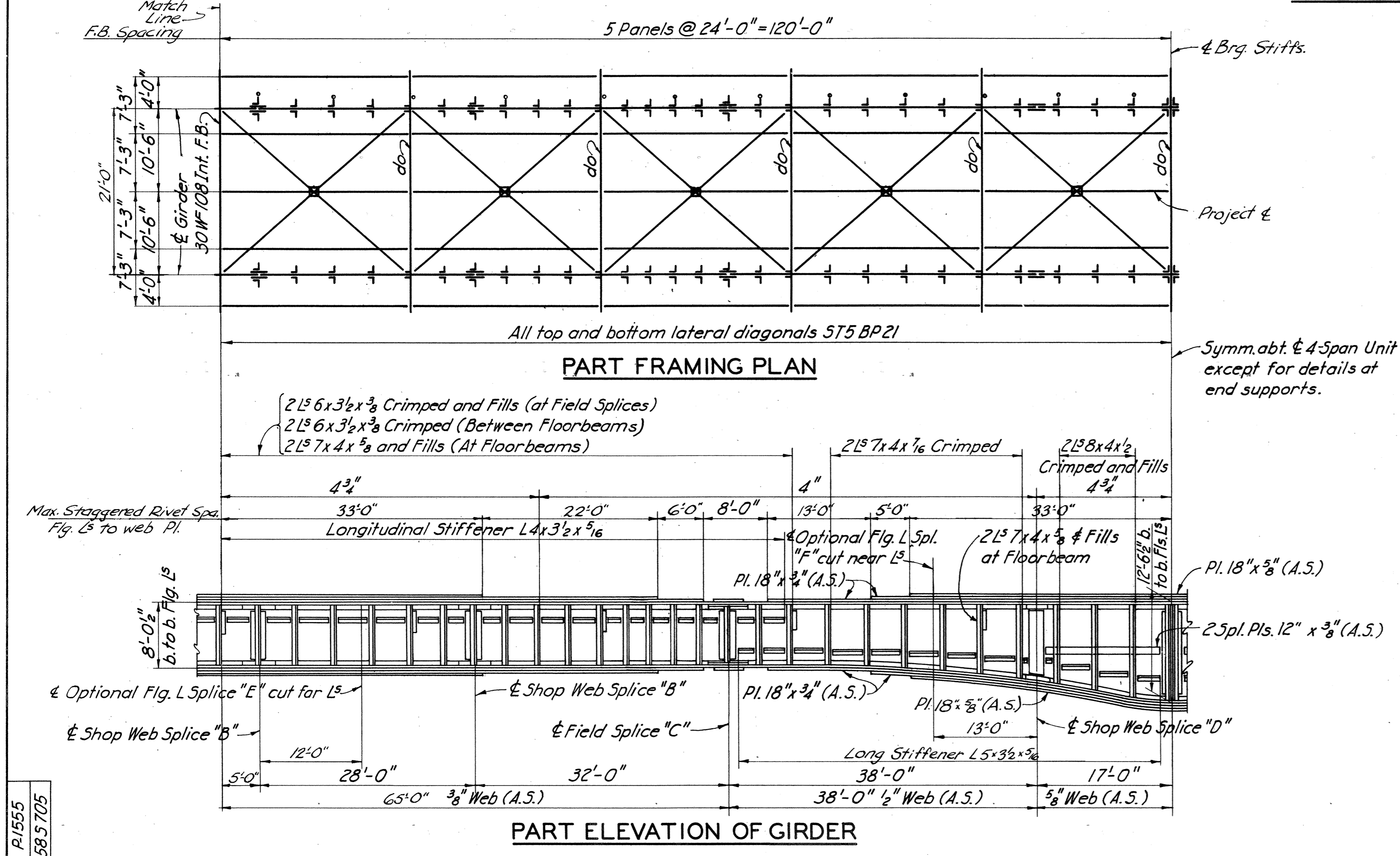
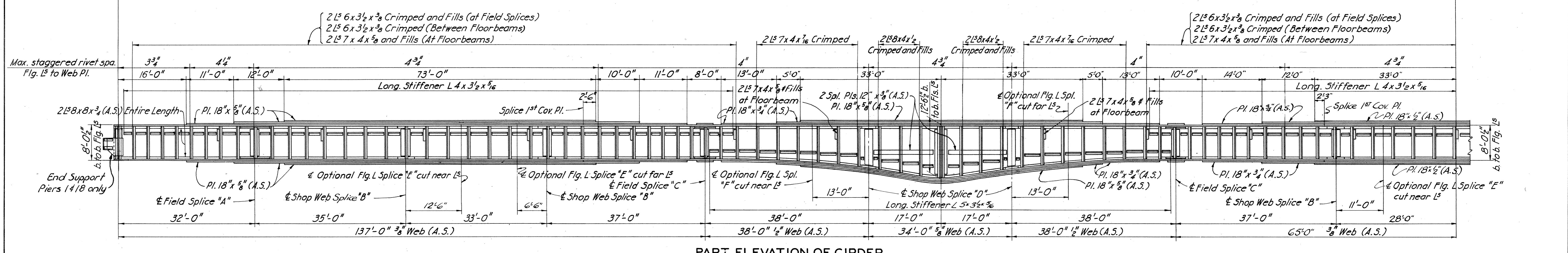
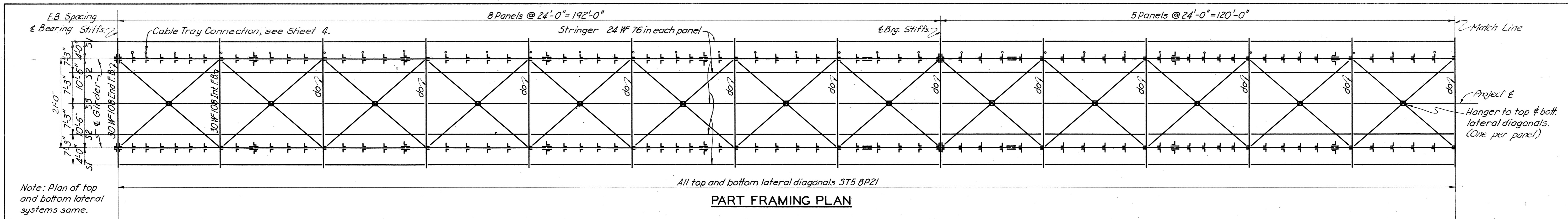
Reviewed W.L.  
P. 1555  
6/59

Note: Do not scale this drawing. Follow dimensions.



REV. NO.	DATE	APPR.
COMMONWEALTH OF VIRGINIA		
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT		
NORFOLK 1, VIRGINIA		
SVERDRUP & PARCEL, CONSULTING ENGINEERS NEW YORK, N. Y. - ST. LOUIS, MO. - NORFOLK, VA.		
CHESAPEAKE BAY BRIDGE-TUNNEL CROSSING		
NORTH CHANNEL BRIDGE - SUPERSTRUCTURE		
GENERAL PLAN AND ELEVATION		
RECOMMENDED:	DRAWN BY: F.P.N.	SCALE: 1"=120'
APPROVED:	CHECKED BY: C.C.U.	DATE: FEB. 1, 1961
DWG. NO. 1 OF 14		
SECTION NO. NC-2		

AS BUILT



**GIRDER SPAN NOTES**

DESIGN: In accordance with Division I of the A.A.S.H.O. "Standard Specifications for Highway Bridges," 1957 edition, with design loadings as given on sheet 1.

UNIT STRESSES: The normal allowable unit stresses for Structural Carbon Steel and Weldable Structural Carbon Steel shall be as given in A.A.S.H.O. Art. 1.4.2. The normal allowable unit stresses for Structural Manganese Steel and Structural Low Alloy Steel shall be as given in A.A.S.H.O. Art. 1.4.7.

MATERIALS: All material marked (A.S.) shall be Structural Manganese Steel (See Special Provisions). All material marked (H.S.) shall be Structural Low-Alloy Steel. All material on which welding is required, except WF shapes for stringers and floorbeams, shall be Weldable Structural Carbon Steel. All other material shall be Structural Carbon Steel unless otherwise noted.

RIVETS: 5/8" diameter unless otherwise noted. Except where high tensile bolts are specified on the plans, field connections may be made with either rivets or high tensile bolts, at the option of the Contractor. Where desired for convenience in erection, shop and field connections may be interchanged.

DETAILS: Top and bottom cover plates shall have the same point of cutoff. Cover plates shall have a staggered rivet spacing of 3 1/2" for at least 2'-6" at the end of the plates, gradually increasing to a maximum staggered spacing of 5". Each cover plate shall have enough rivets to develop its full strength before the end of the next outside plate is reached. In lieu of crimping stiffener angles, the Contractor may provide Fills at his own expense. Position of splices shall be substantially as shown but may be shifted slightly in either direction if desired by the Contractor. Shop web splices and shop cover plate splices may be omitted if desired by the Contractor. All cover plates, flange splice plates, and longitudinal web splice plates shall be universal mill plates.

CAMBER: Girders shall be cambered for full dead load.

ERECTION: See Special Provisions.

REPAIRS TO SPAN 1: See attached American Bridge Shop Drawings E1, E2, E3 and 4 for field repairs to span. These repairs were necessitated by erection equipment damaging the span.

Note: Gage line of longitudinal web stiffener angle shall be 1/2 D from toe of compression flange angle, where D is the clear distance between flanges. An average D between pairs of transverse stiffeners shall be used where the flange is sloping. All longitudinal dimensions are measured parallel to grade along back of top flange angles.

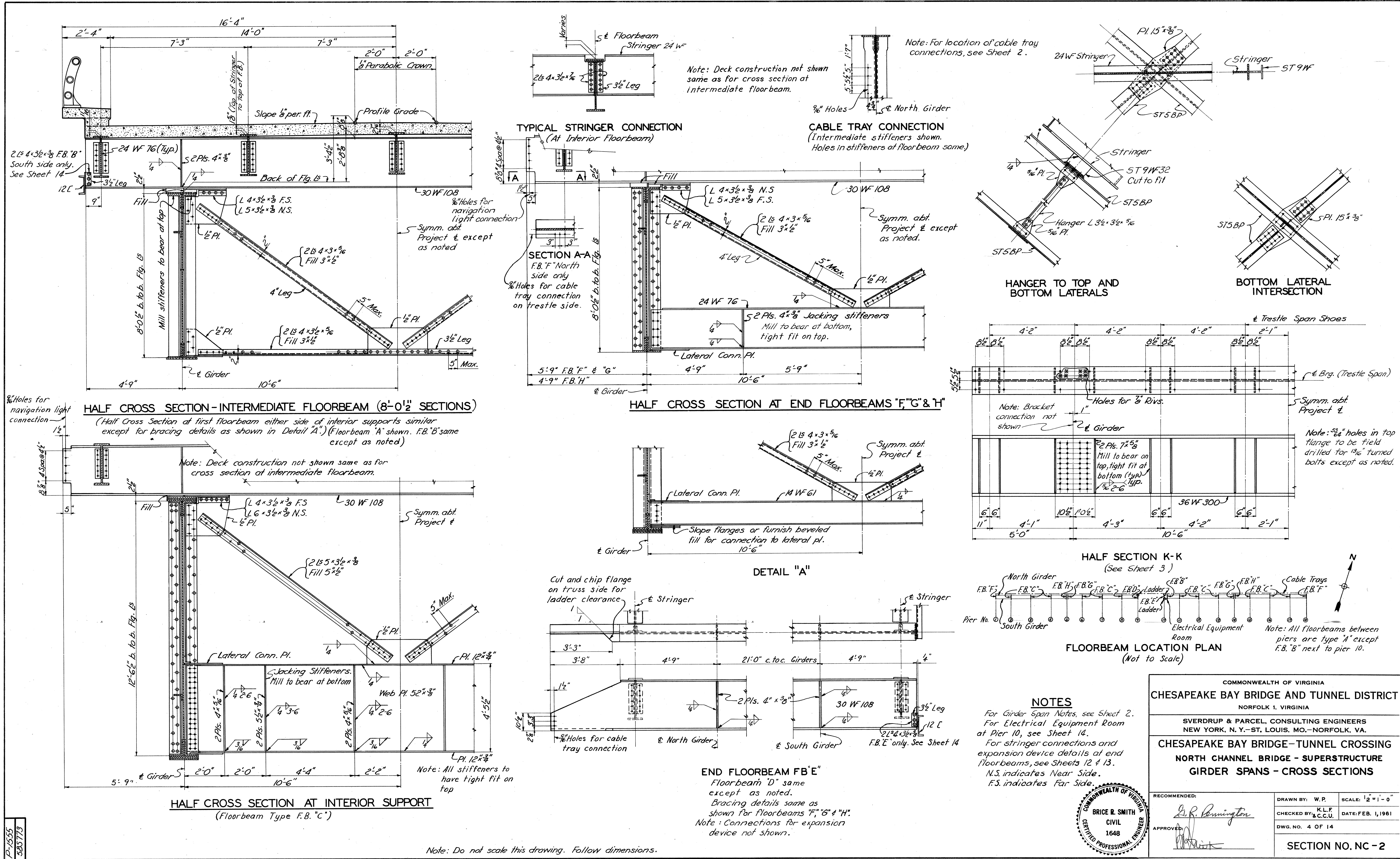
COMMONWEALTH OF VIRGINIA		
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT		
NORFOLK 1, VIRGINIA		
SVERDRUP & PARCEL, CONSULTING ENGINEERS NEW YORK, N. Y. - ST. LOUIS, MO. - NORFOLK, VA.		
CHESAPEAKE BAY BRIDGE-TUNNEL CROSSING NORTH CHANNEL BRIDGE - SUPERSTRUCTURE GIRDER SPANS-FRAMING PLAN AND ELEVATION		
RECOMMENDED:	DRAWN BY: W.R.	SCALE: 3/2" = 1'-0"
	CHECKED BY: K.L.F. & C.C.U.	DATE: FEB. 1, 1961
APPROVED:	DWG. NO. 2 OF 14	
SECTION NO. NC-2		



Note: Do not scale this drawing. Follow dimensions.

R.1555  
583705





P-1555  
565773

Note: Do not scale this drawing. Follow dimensions.

**NOTES**  
 For Girder Span Notes, see Sheet 2.  
 For Electrical Equipment Room at Pier 10, see Sheet 14.  
 For stringer connections and expansion device details at end floorbeams, see Sheets 12 & 13.  
 N.S. indicates Near Side.  
 F.S. indicates Far Side.



COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
 NORFOLK 1, VIRGINIA

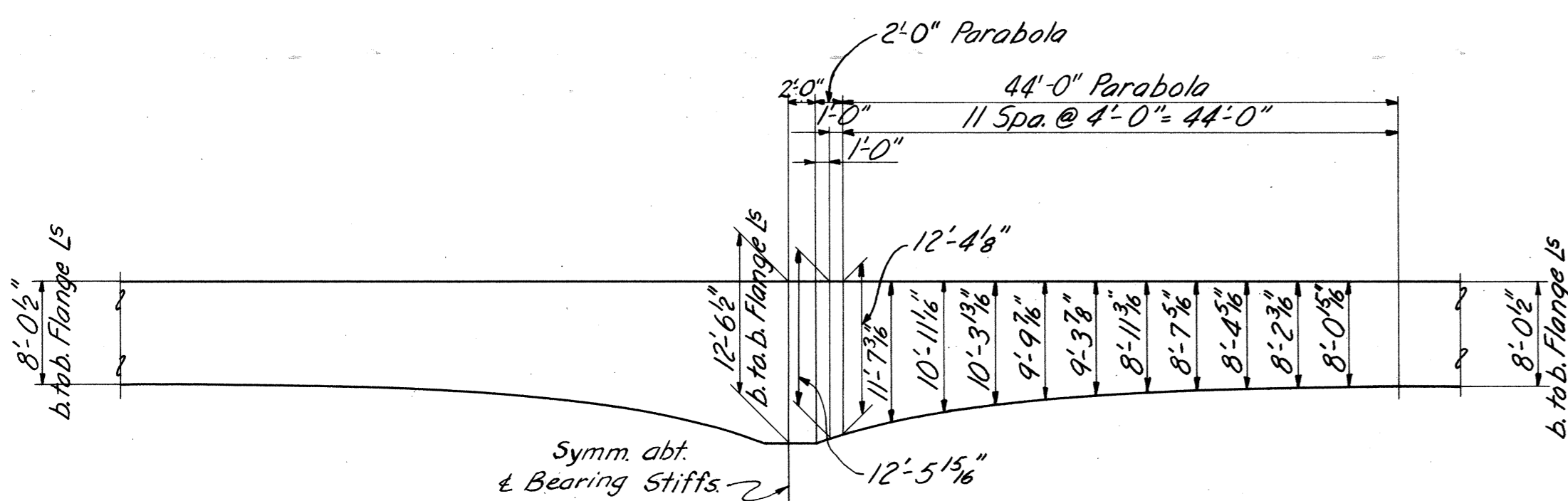
SVERDRUP & PARCEL, CONSULTING ENGINEERS  
 NEW YORK, N. Y. - ST. LOUIS, MO. - NORFOLK, VA.

**CHESAPEAKE BAY BRIDGE-TUNNEL CROSSING**  
**NORTH CHANNEL BRIDGE - SUPERSTRUCTURE**  
**GIRDER SPANS - CROSS SECTIONS**

RECOMMENDED: *G.R. Pennington*  
 DRAWN BY: W.P. SCALE: 1/2" = 1'-0"  
 CHECKED BY: K.L.F. & C.C.U. DATE: FEB. 1, 1961  
 DWG. NO. 4 OF 14  
 APPROVED: *[Signature]*  
**SECTION NO. NC - 2**

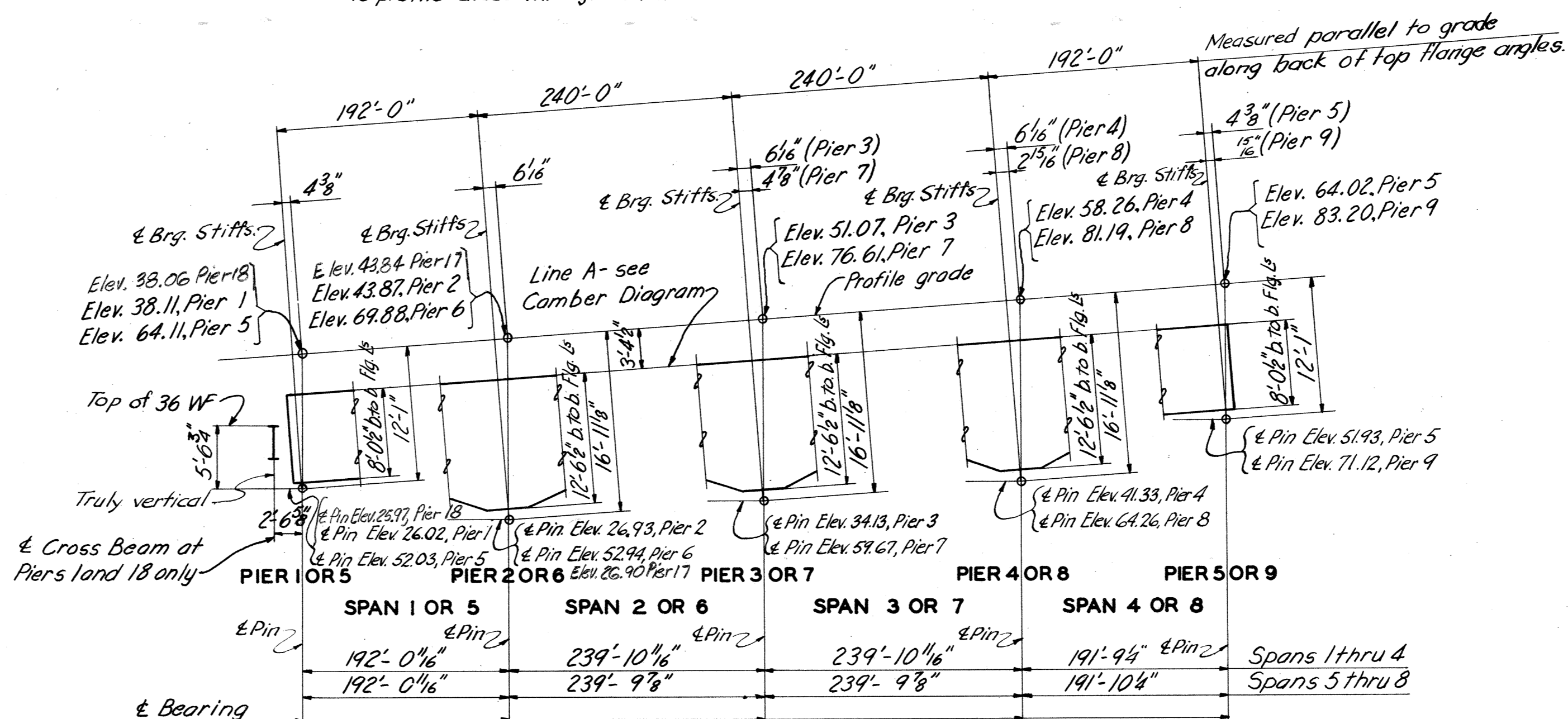
AS BUILT

2255 TRIM



SHAPE OF BOTTOM FLANGE AT INTERIOR SUPPORT

Note:  $\epsilon$  Bearing Stiffeners are normal to profile Grade through  $\epsilon$  Pin.



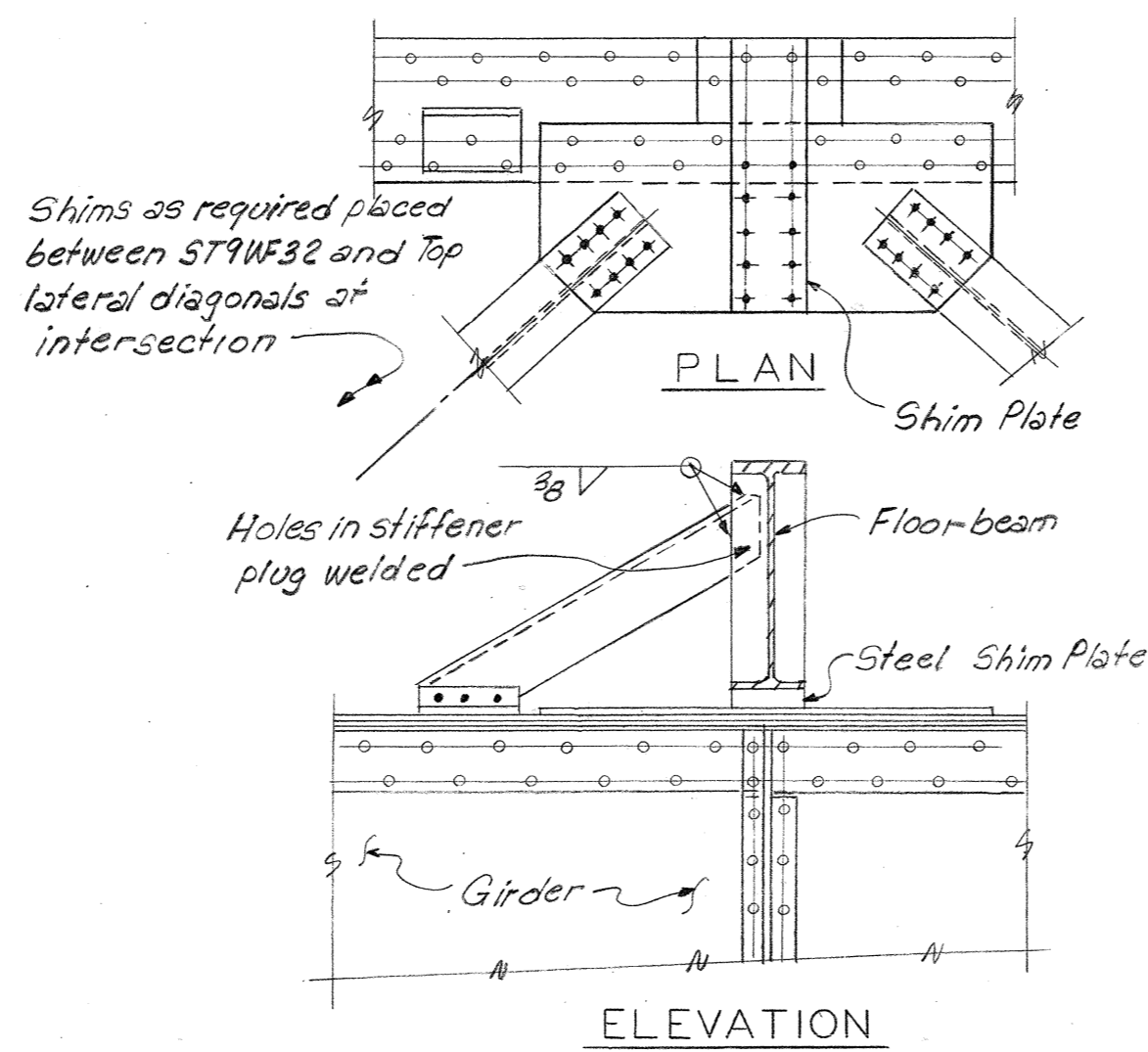
GIRDER LAYOUT

Layout for Spans 10 thru 13 is opposite hand to Spans 5 thru 8.  
Layout for Spans 14 thru 17 is opposite hand to Spans 1 thru 4, except as noted.

TABLE OF MAXIMUM MOMENTS AND REACTIONS									
	A	D	B	E	C	E	B	D	A
Span	80'-0"	112'-0"	120'-0"	120'-0"	120'-0"	120'-0"	112'-0"	80'-0"	
Loading	Max. Reactions		Max. Pos. Moments		Max. Neg. Moments				
	A	B	C	D	E	B	C		
Dead Load	168	607	592	5512	4556	13446	13028		
Unit. Live Load	67	205	211	2925	3001	3002	5310		
Conc. Live Load	31	31	31	828	802	1000	1024		
Impact	16	35	33	593	521	882	867		
Total	282*	878	867	9858	8880	20,330	20,224		

Note: Reactions are given in Kips.  
Moments are given in Ft. Kips.

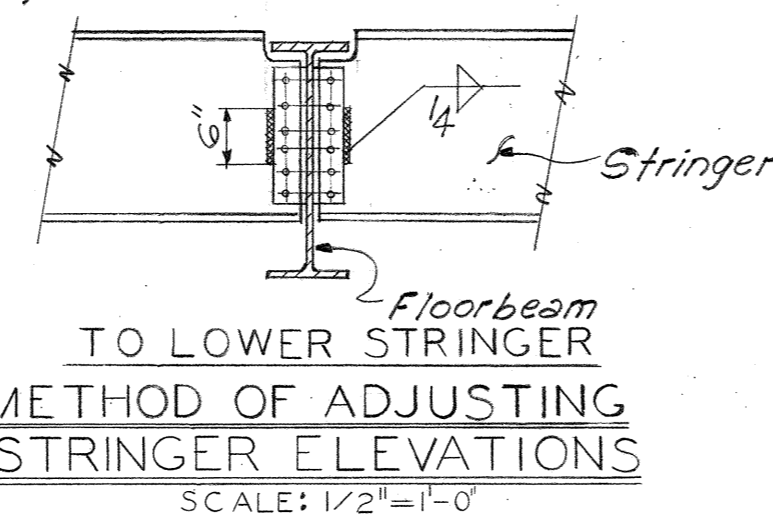
\* Reaction does not include loads from Trestle Spans for Spans 1 and 17.



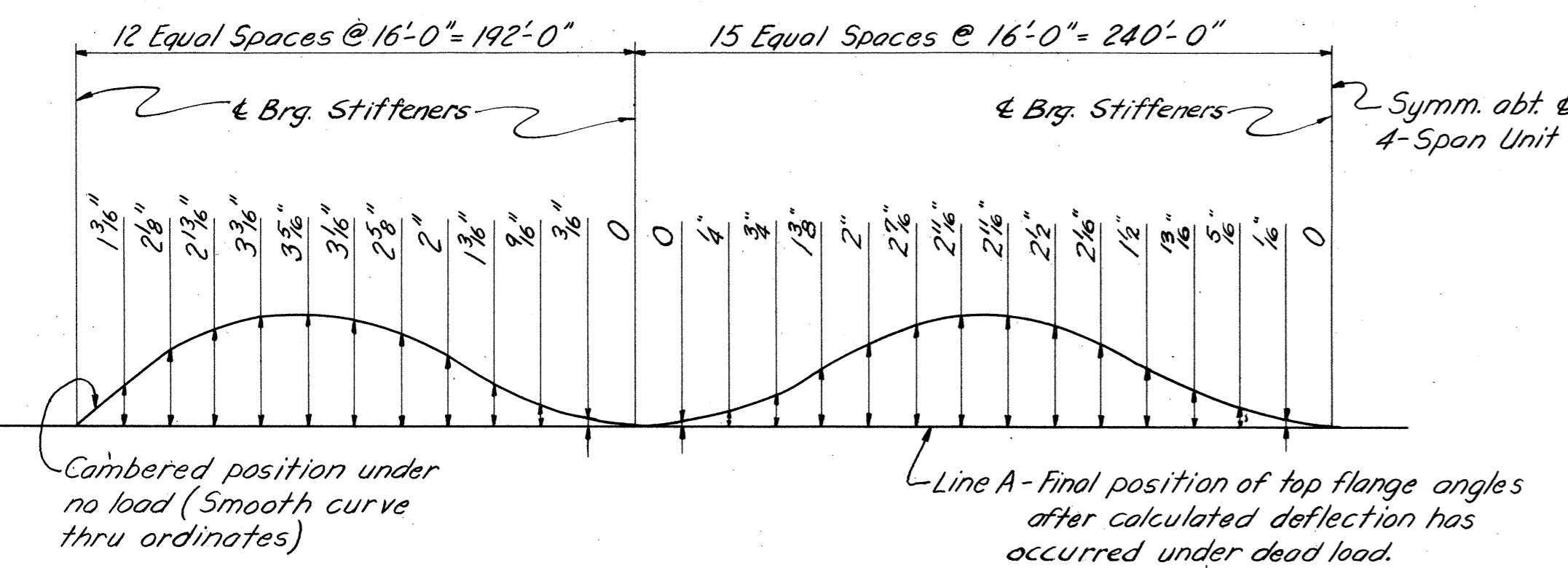
FLOOR BEAM SHIMS

SCALE: 1/2" = 1'-0"

Stringers lowered by removing bolts, dropping stringer, drilling new holes, & replacing bolts. Stringer webs were welded to connection angles in lieu of plug welding original bolt holes in stringer webs.



Note: Do not scale this drawing. Follow dimensions.



DEAD LOAD CAMBER DIAGRAM

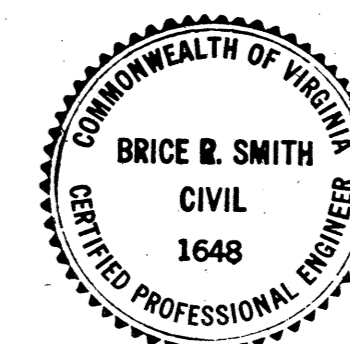
The deflection for steel only equals about 40% of the camber.

Note: Line A is parallel to Profile Grade.

TABLE OF STRINGER ELEVATION CORRECTIONS					
Location	Left	Right	Location	Left	Right
Pier 1	0	0	F86	-2"	0
F82	+14"	+3/4"	F87	-2 1/2"	+3/4"
F85	0	-3/4"	F88	-2"	+1 1/2"
F87	-2"	0	Pier 9	0	0
Pier 2	0	0	Note: No stringer corrections made in Truss span but roadway slab was thickened an average of 3/8" at L3 and 1/8" at L1 to compensate for low stringers.		
F82	+3/4"	0	Pier 10	0	0
F83	+14"	0	F82	+2"	0
F84	+14"	+2"	F83	+2"	0
F85	+1/2"	0	F84	+4"	0
F89	-2"	0	F85	+2"	0
Pier 3	0	0	F86	+3/4"	0
F82	+3/4"	0	F87	+1"	+3/4"
F83	+1 1/2"	0	F88	+3/4"	+3/4"
F84	+2"	0	F89	0	+14"
F86	0	+2"	Pier 11	0	0
F88	0	+2"	F810	+1"	-3/4"
F89	0	+14"	Pier 12	+1"	+1"
Pier 4	0	0	F82	+14"	+1 1/2"
F82	+1"	0	F83	+1"	+1 1/4"
F83	+1"	0	F84	0	+1"
F84	+3/4"	-3/4"	F85	+2"	+1 1/4"
F85	+3/4"	-3/4"	F86	+2"	+1"
F86	+14"	0	F87	0	+3/4"
F87	+14"	+2"	F88	0	+1"
F88	+14"	+1"	F89	0	+1"
Pier 5 (W)	+1"	+1"	F810	0	+3/4"
Pier 5 (E)	+1"	+1"	Pier 13	0	0
F82	+1 1/2"	+14"	F83	0	-3/4"
F83	+1"	+14"	F84	0	-3/4"
F84	0	+3/4"	F85	0	-1"
F88	+3/4"	+1"	F86	0	-3/4"
Pier 6	+14"	+1 1/2"	Pier 14 (W)	0	0
F82	+1 3/4"	+2"	Pier 14 (E)	0	0
F83	+2 3/4"	+1 3/4"	Pier 15	0	0
F84	+2 1/4"	+1 1/2"	F82	+2"	0
F85	+1 3/4"	+1"	F83	+3/4"	0
F86	+1"	0	F84	+2"	0
F87	+3/4"	0	F89	+2"	+3/4"
F88	+1 1/4"	0	F810	+1"	+1"
F89	+2"	0	Pier 16	+3/4"	+3/4"
F810	+2 1/4"	+1 1/2"	F82	+3/4"	+3/4"
Pier 7	+1 3/4"	+2"	F85	+4"	0
F82	+1 3/4"	+2 1/2"	F86	0	+4"
F83	0	+1 3/4"	F88	0	+4"
F84	-3/4"	+1 1/4"	F89	+3/4"	+1"
F85	-3/4"	+1 1/4"	F810	+14"	+1 1/4"
F86	-1"	+2"	Pier 17	+14"	+1"
F87	-3/4"	+2 3/4"	F82	+14"	+1 1/4"
F88	0	+2 3/4"	F83	+3/4"	+4"
F89	0	+2 1/2"	F84	+3/4"	0
F810	+1"	+1 3/4"	F85	+2"	0
Pier 8	+1 1/2"	+1 1/2"	F86	+4"	0
F82	+2"	+1 1/2"	F87	+4"	0
F83	+1"	+1 1/2"	Pier 18	0	0
F84	0	+3/4"			

NOTES

For Girder Span Notes, see Sheet 2.



REV. NO. DATE APPR.

COMMONWEALTH OF VIRGINIA  
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
NORFOLK 1, VIRGINIA

SVERDRUP & PARCEL CONSULTING ENGINEERS  
NEW YORK, N. Y. - ST. LOUIS, MO. - NORFOLK, VA.

CHESAPEAKE BAY BRIDGE-TUNNEL CROSSING  
NORTH CHANNEL BRIDGE - SUPERSTRUCTURE  
GIRDER SPANS - MISCELLANEOUS DETAILS

RECOMMENDED:  
DRAWN BY: V. L. S. SCALE: NONE  
CHECKED BY: K. L. F. & C. C. U. DATE: FEB. 1, 1961  
DWG. NO. 5 OF 14

APPROVED:  
BRICE R. SMITH  
CIVIL  
1648  
REGISTERED PROFESSIONAL ENGINEER

SECTION NO. NC-2

AS BUILT

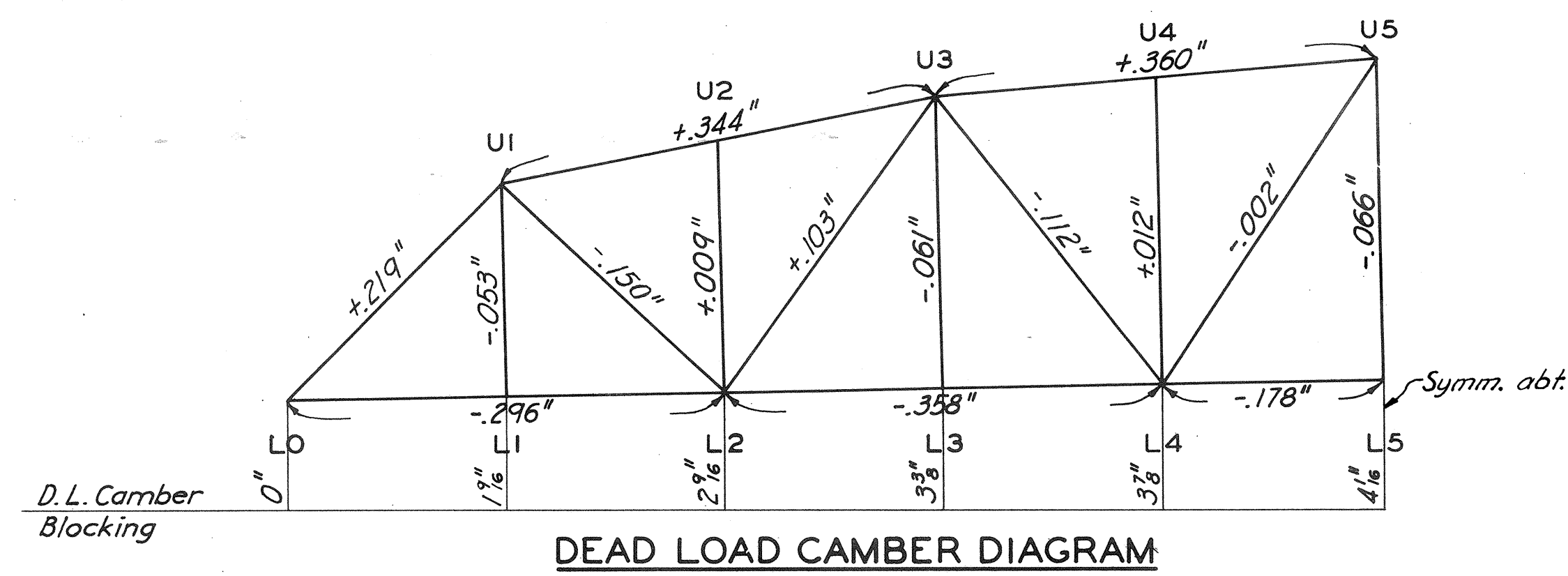
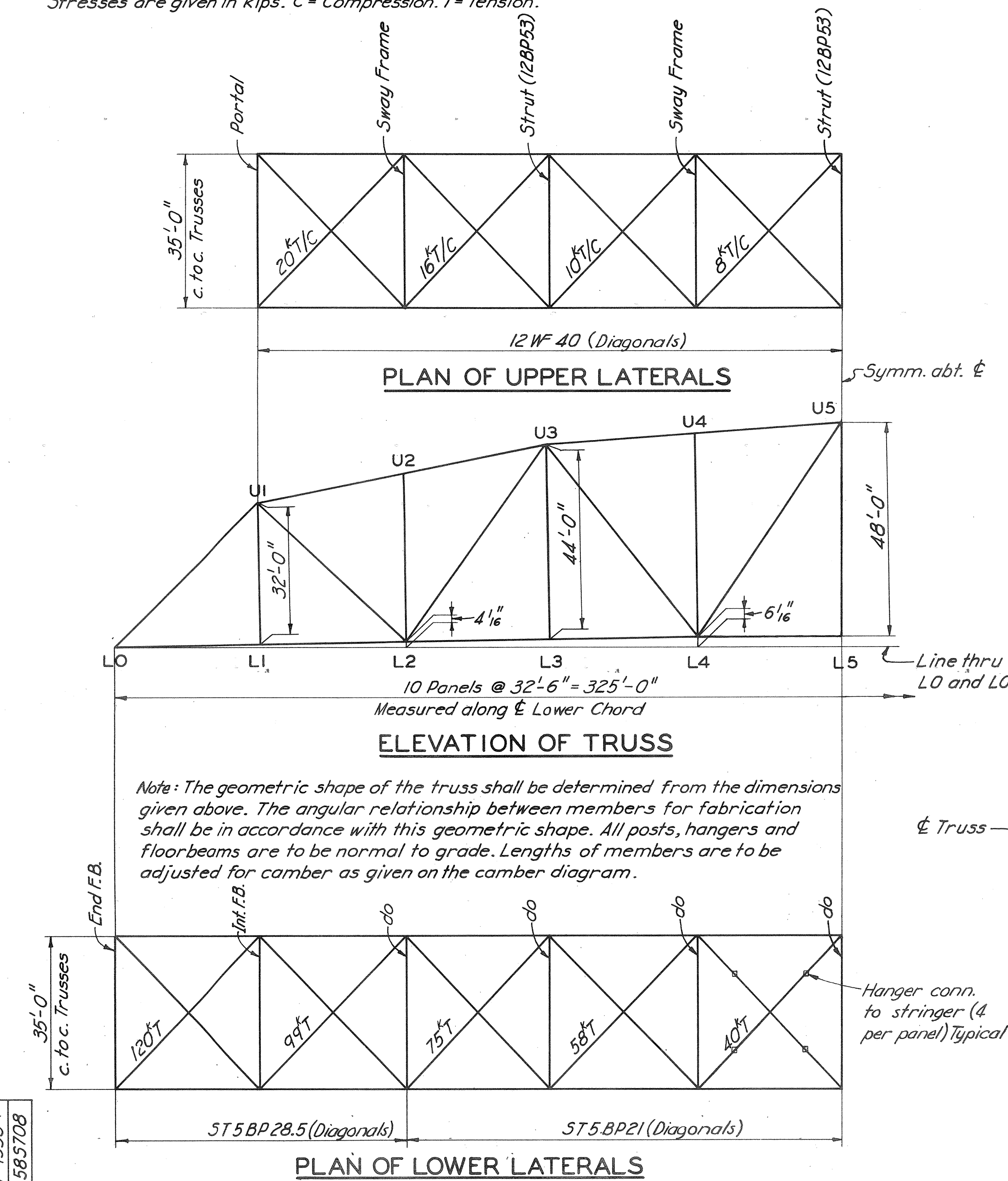
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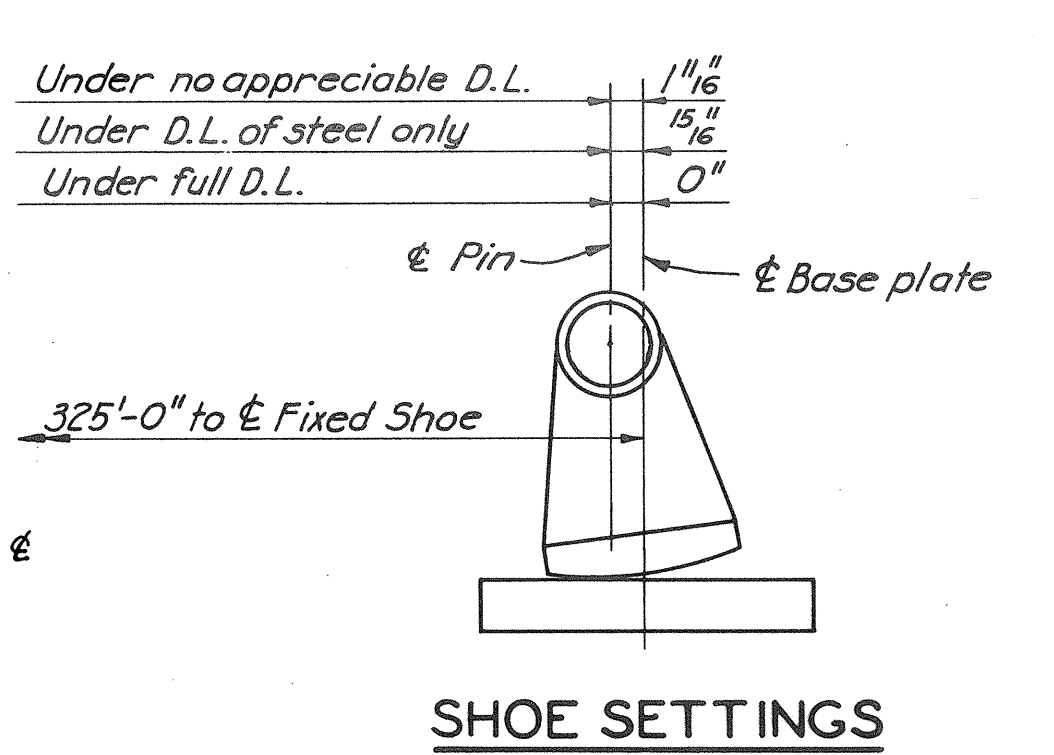
TABLE OF TRUSS MEMBERS AND STRESSES

Member	D.L.	L.L.	I.	Trans. Wind on Struct. (Tor.C.)		22.5*Wind on Struct. at L.W. (Tor.C.)		D.+L.+I.	D.+75*W	D.+L.+I.+22.5*W+L.L.W.	Area in sq. in. Furnished		f/r	Material	
				75* 22.5*	75* 22.5*	Eff. Gr.	Net								
L0-L2	411T	132T	20T	104T	31T	49T	563T	515T	612T	32.10	25.10	—	—	4L <sup>s</sup> 4x4x <sup>5</sup> / <sub>16</sub> ; 2 Pls. 20"x <sup>3</sup> / <sub>8</sub> "; 2 Cov. Pls. 18"x <sup>3</sup> / <sub>8</sub> "	A.S.
L2-L4	698T	225T	34T	215T	65T	104T	957T	913T	1061T	46.75	36.25	—	—	4L <sup>s</sup> 4x4x <sup>5</sup> / <sub>16</sub> ; 2 Pls. 20"x <sup>3</sup> / <sub>8</sub> "; 2 Cov. Pls. 17"x <sup>3</sup> / <sub>8</sub> "	A.S.
L4-L4'	762T	245T	37T	244T	73T	117T	1044T	1006T	1161T	51.75	40.25	—	—	4L <sup>s</sup> 4x4x <sup>5</sup> / <sub>16</sub> ; 2 Pls. 20"x <sup>3</sup> / <sub>8</sub> "; 2 Cov. Pls. 17"x <sup>3</sup> / <sub>8</sub> "	A.S.
L0-U1	578C	186C	28C	31C	9C	15C	792C	609C	807C	46.20	—	70	—	4L <sup>s</sup> 4x4x <sup>5</sup> / <sub>16</sub> ; 2 Pls. 20"x <sup>3</sup> / <sub>8</sub> "; 2 Cov. Pls. 17"x <sup>3</sup> / <sub>8</sub> "	A.S.
U1-U3	626C	201C	30C	—	—	—	857C	—	—	46.20	—	51	—	4L <sup>s</sup> 4x4x <sup>5</sup> / <sub>16</sub> ; 2 Pls. 20"x <sup>3</sup> / <sub>8</sub> "; 2 Cov. Pls. 17"x <sup>3</sup> / <sub>8</sub> "	A.S.
U3-U5	764C	246C	37C	—	—	—	1047C	—	—	53.20	—	49	—	4L <sup>s</sup> 4x4x <sup>5</sup> / <sub>16</sub> ; 2 Pls. 20"x <sup>3</sup> / <sub>8</sub> "; 2 Cov. Pls. 17"x <sup>3</sup> / <sub>8</sub> "	A.S.
U1-L2	286T	105T	16T	—	—	—	407T	—	—	30.90	24.82	—	—	2-15 B 40; 2 Cov. Pls. 18"x <sup>3</sup> / <sub>8</sub> "	
L2-U3	138C	72C	11C	—	—	—	221C	—	—	26.05	—	106	—	2-15 B 33.9; 2 Cov. Pls. 18"x <sup>3</sup> / <sub>8</sub> "	
U3-L4	110T	68T	10T	—	—	—	188T	—	—	18.31	13.94	—	—	2-12 B 20.7; 2 Cov. Pls. 18"x <sup>3</sup> / <sub>8</sub> "	
L4-U5	2T	50C	8C	—	—	—	**84C	—	—	26.05	20.70	113	—	2-15 B 33.9; 2 Cov. Pls. 18"x <sup>3</sup> / <sub>8</sub> "	
	(27)	53T	8T	—	—	—	**91T	—	—	—	—	—	—	—	
U1-L1	75T	61T	18T	—	—	—	154T	—	—	15.38	12.25	161	—	4L <sup>s</sup> 6x3 <sup>1</sup> / <sub>2</sub> x <sup>5</sup> / <sub>16</sub> ; Pl. 18 <sup>1</sup> / <sub>2</sub> x <sup>5</sup> / <sub>16</sub> "	
U3-L3	75T	61T	18T	—	—	—	154T	—	—	19.86	16.23	181	—	4L <sup>s</sup> 7x4x <sup>3</sup> / <sub>8</sub> ; Pl. 18 <sup>1</sup> / <sub>2</sub> x <sup>5</sup> / <sub>16</sub> "	
U5-L5	75T	61T	18T	—	—	—	154T	—	—	19.86	16.23	198	—	4L <sup>s</sup> 7x4x <sup>3</sup> / <sub>8</sub> ; Pl. 18 <sup>1</sup> / <sub>2</sub> x <sup>5</sup> / <sub>16</sub> "	
U2-L2	16C	—	—	—	—	—	16C	—	—	18.31	—	88	—	2-12 B 20.7; 2 Cov. Pls. 18"x <sup>3</sup> / <sub>8</sub> "	
U4-L4	17C	—	—	—	—	—	17C	—	—	18.31	—	106	—	2-12 B 20.7; 2 Cov. Pls. 18"x <sup>3</sup> / <sub>8</sub> "	
Ro *	450	145	22	48	14	19	617	498	636	—	—	—	—	—	

\* At & Lower Chord.  
 \*\* Includes reversal due to passage of live load for which 100% of dead load is assumed effective.  
 \*\*\* Member proportioned for bending stresses in combination with the stresses indicated in the above table.  
 Allowable stresses for combination of loadings:  
 D.+L.+I. = 100% normal unit stress.  
 D.L.+75\*Trans. Wind = 125% normal unit stress.  
 D.L.+L.L.+I.+22.5\*Trans. Wind + L.L.Wind = 125% normal unit stress.  
 Stresses are given in kips. C = Compression, T = Tension.



Note: Lengths of members to be computed from geometric shape of truss and the corrections indicated are to be applied to these lengths.  
 + indicates lengthening; - indicates shortening. The blocking dimensions given are the position of the lower chord joints above the geometric shape to provide for dead load deflection.

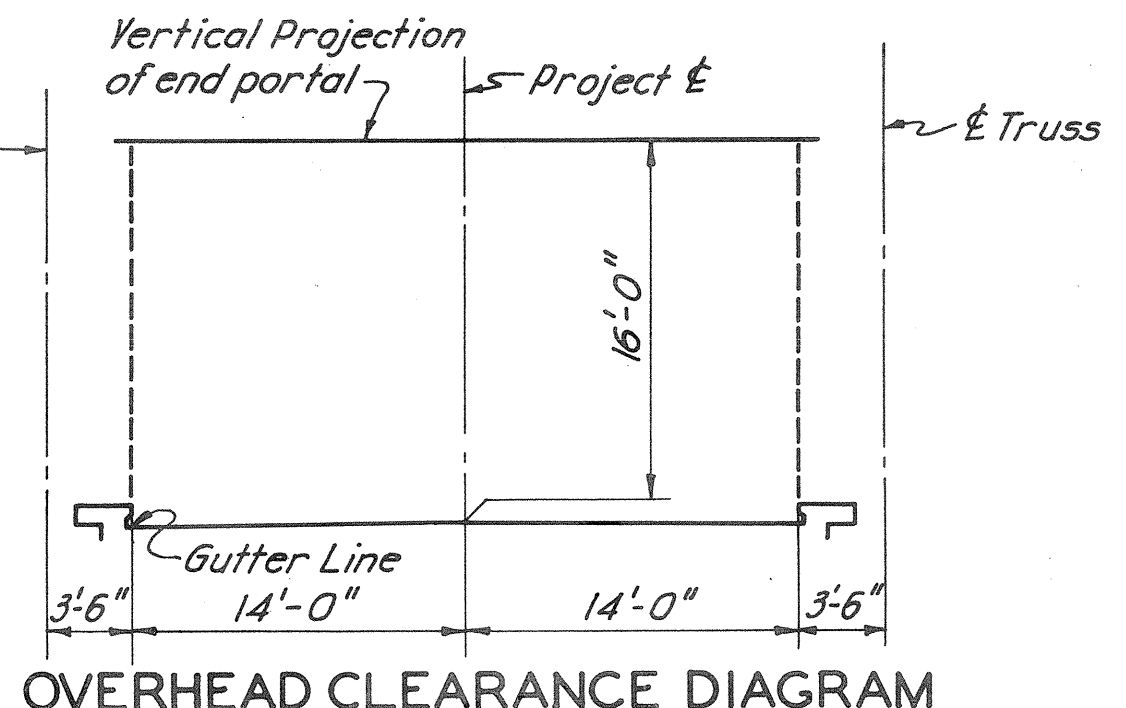
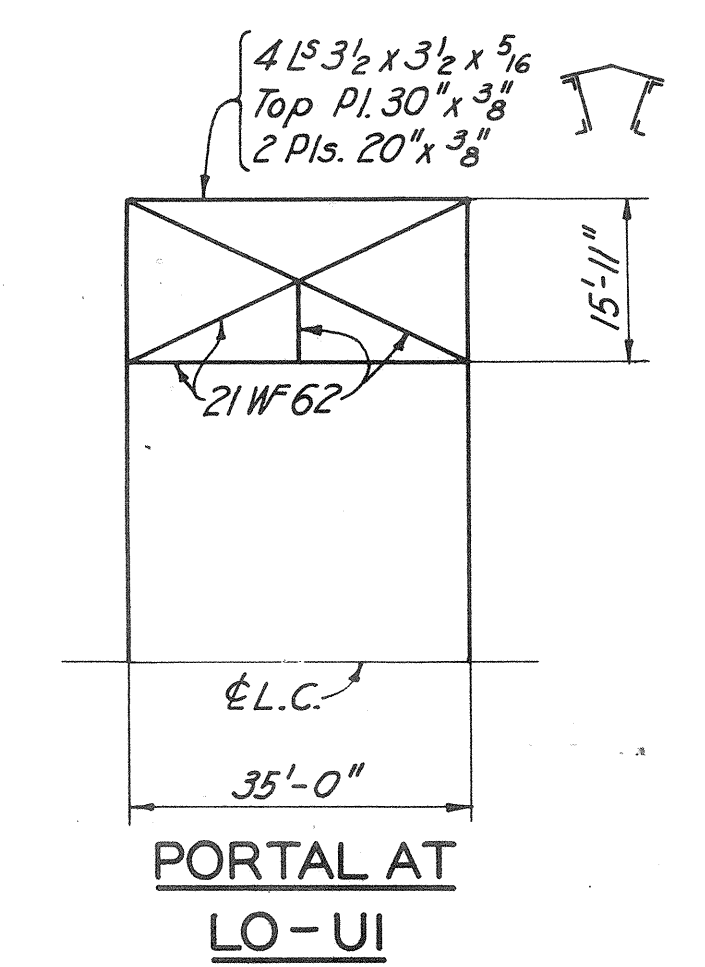
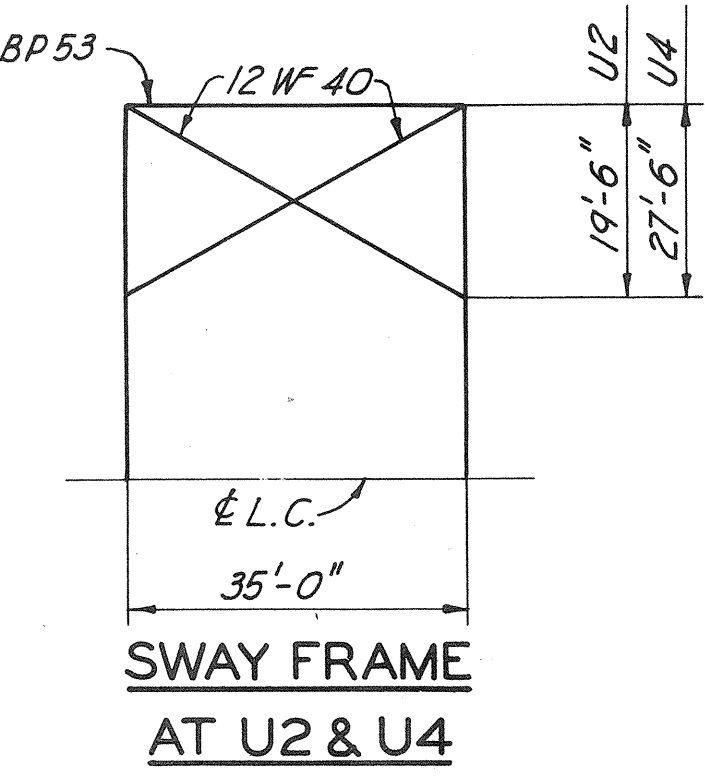


Note: Set shoes as shown at median temperature of 68°F. For temperatures above and below median temperature, increase or decrease the offsets shown by using coefficient of expansion = .0000065.

SHOE REACTIONS	
Dead Load	452K
75* Struct. Wind	± 52K
22.5* Struct. + L.L. Wind	± 21K
Live Load + Imp.	See Table

TRUSS SPAN NOTES

**DESIGN:** In accordance with Division I of the A.A.S.H.O. Standard Specifications for Highway Bridges, 1957 Edition, with the following exceptions and interpretations:  
**DESIGN LOADING:** Roadway Live Load: H20-S16-44 except for the design of stringers and floorbeams a special loading of 2-24,000 lbs. axles at 4'-0" centers is used where this loading governs over the standard H20-S16-44 truck loadings. For lone loads the standard loading is used. The concentrated load used in combination with a lane load is taken as 26,000 lbs. for both shear and moment calculations.  
 Safety Curb Live Load: None.  
 Impact: Stringers, floorbeams and Hangers = 30%  
 Main Members = 15%  
**UNIT STRESSES:** The normal allowable unit stresses for Structural Carbon Steel and Weldable Structural Carbon Steel shall be as given in A.A.S.H.O. Art. 1.4.2. The normal allowable unit stresses for Structural Manganese Steel shall be as given in A.A.S.H.O. Art. 1.4.7.  
**MATERIALS:** All members and materials marked (A.S.) shall be Structural Manganese Steel (See Special Provisions); all material except WF stringers, on which welding is required shall be Weldable Structural Carbon Steel; all other material shall be Structural Carbon Steel unless otherwise noted on detail drawings.  
**DETAILS:** All field connections may be made with either rivets or high tensile bolts, at the option of the Contractor. Where desired for convenience in erection, shop and field rivets may be interchanged. All web plates and cover plates for truss members shall be universal mill plates. All gusset plates and splice plates shall be cut back not more than 1/4" from the back of chord angles except as otherwise noted on the detail drawings. Access holes may be flame-cut provided exposed edges are ground smooth.  
**RIVETS:** All rivets shall be of the sizes as noted on the detail drawings.  
**CAMBER:** Trusses shall be cambered for the design dead load.  
**ERECTION:** Before ordering material the Contractor shall submit to the Engineer for approval, complete plans showing the method of erection he proposes to use, and showing erection stresses in all truss members. Erection stresses shall be composed of the dead load stress of the structure and erection equipment plus the stress of a 45 pound wind on the structure, as defined in the A.A.S.H.O. Standard Specifications, and on erection equipment. Erection stresses shall not exceed the normal unit stresses by more than 33%. No payment will be made for any extra material required due to erection conditions.



Note: Do not scale this drawing. Follow dimensions.

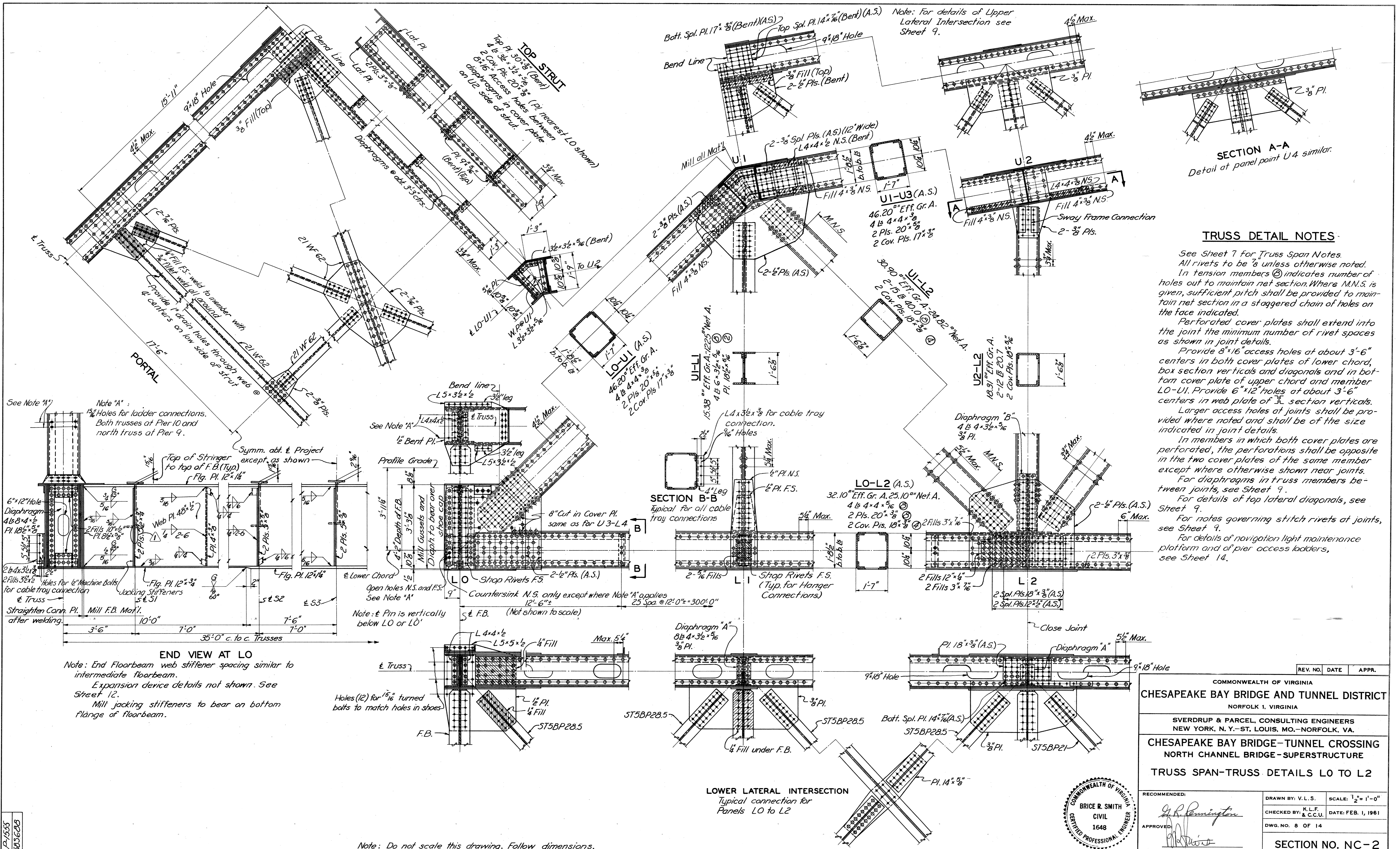
COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
 NORFOLK 1, VIRGINIA  
 SVERDRUP & PARCEL, CONSULTING ENGINEERS  
 NEW YORK, N. Y.-ST. LOUIS, MO.-NORFOLK, VA.  
**CHESAPEAKE BAY BRIDGE-TUNNEL CROSSING**  
 NORTH CHANNEL BRIDGE-SUPERSTRUCTURE  
**TRUSS SPAN-STRESS SHEET**

RECOMMENDED: *G.R. Pennington*  
 DRAWN BY: V.L.S. SCALE: 1"=20'  
 CHECKED BY: R.L.F. & C.C.U. DATE: FEB. 1, 1961  
 DWG. NO. 7 OF 14  
 SECTION NO. NC-2



AS BUILT





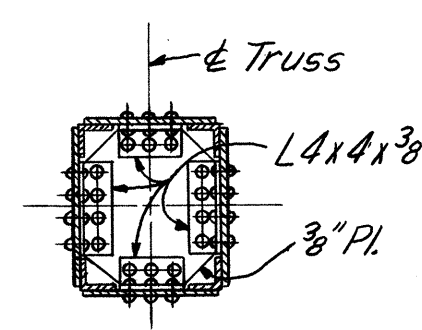
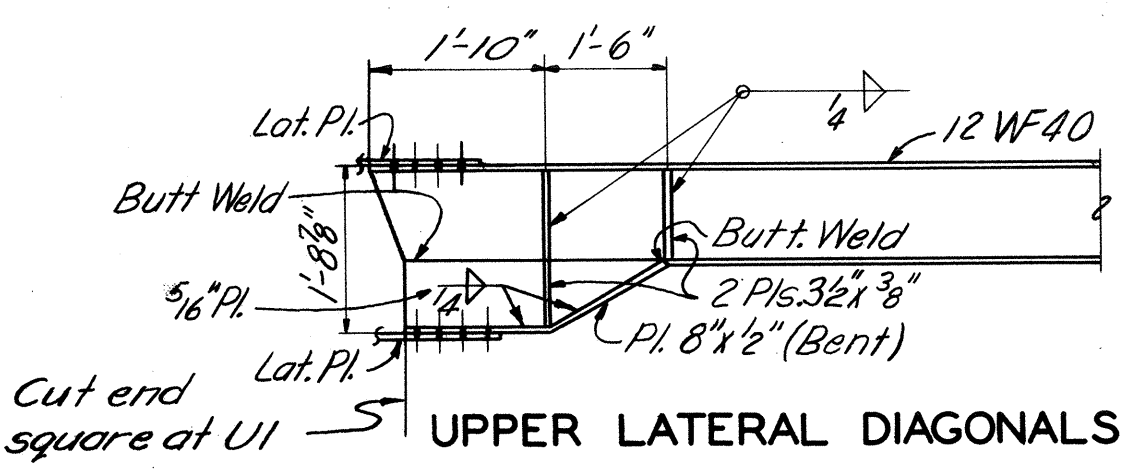
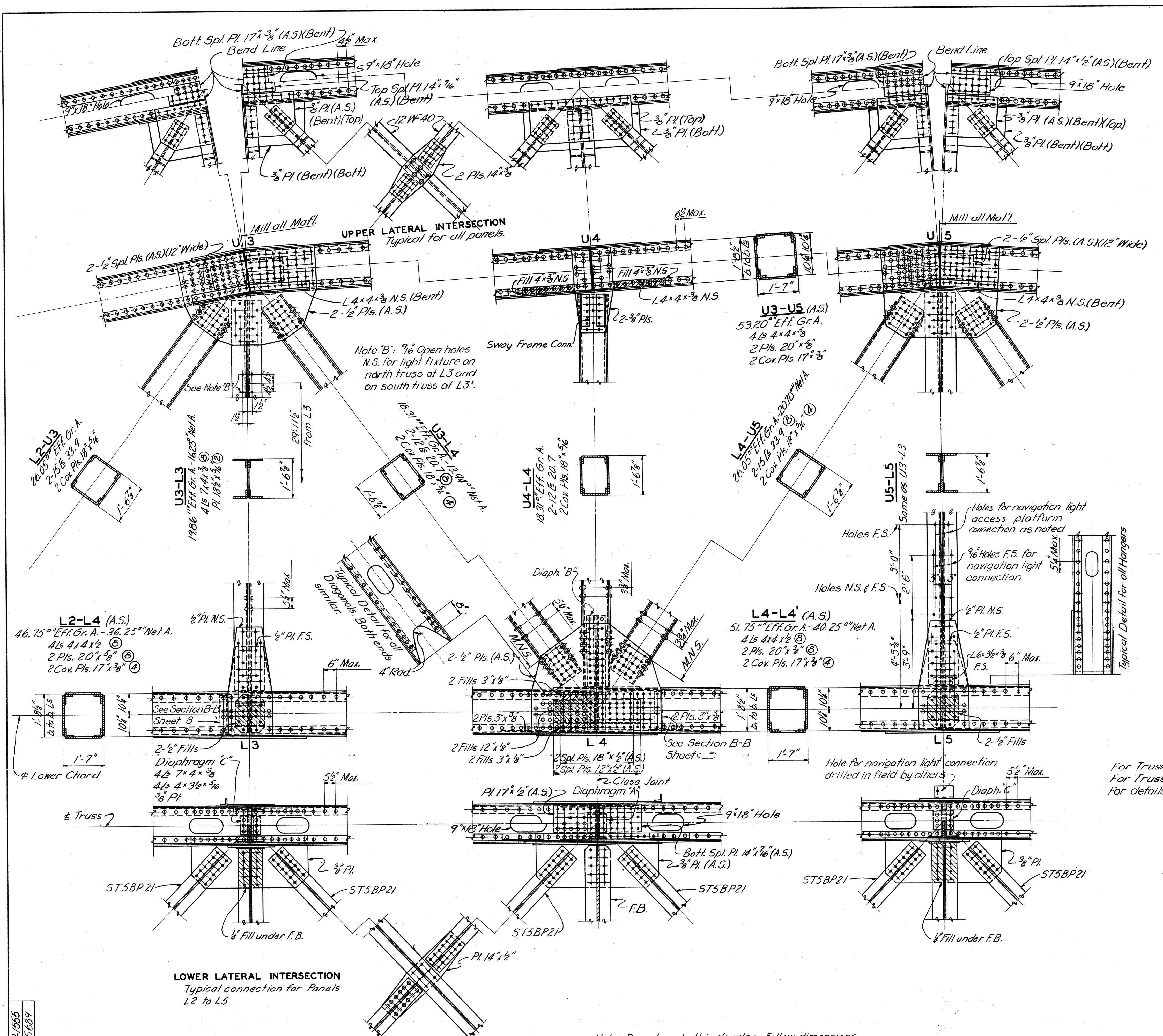
REV. NO.	DATE	APPR.
COMMONWEALTH OF VIRGINIA		
<b>CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT</b>		
NORFOLK 1, VIRGINIA		
SVERDRUP & PARCEL, CONSULTING ENGINEERS NEW YORK, N. Y. - ST. LOUIS, MO. - NORFOLK, VA.		
<b>CHESAPEAKE BAY BRIDGE-TUNNEL CROSSING</b>		
<b>NORTH CHANNEL BRIDGE-SUPERSTRUCTURE</b>		
<b>TRUSS SPAN-TRUSS DETAILS LO TO L2</b>		
RECOMMENDED:	DRAWN BY: V. L. S.	SCALE: $\frac{1}{2}$ " = 1'-0"
	CHECKED BY: K. L. F. & C. C. U.	DATE: FEB. 1, 1961
APPROVED:	DWG. NO. 8 OF 14	
SECTION NO. NC-2		



AS BUILT

Note: Do not scale this drawing. Follow dimensions.

P-1533  
303628



Typical chord diaphragm shown. Diaphragms for other members similar. Provide two diaphragms per panel at approximately third points in upper chord from U1 to U5. Provide noted numbers of diaphragms approximately equally spaced in the following members:

- L0-U1 2 reqd. (at 3 points)
- L2-U3 and L4-U5 3 reqd.

In members in which the net section is limited, rivets connecting diaphragm to segments are to be arranged to maintain the net section.

**STITCH RIVETS AT TRUSS JOINTS**

For all chord members at splice points, the pitch of stitch rivets in the web plates of the member outside of the gusset plates shall gradually increase from the spacing used at the edge of the gusset plate to the maximum spacing indicated on the member in a distance of not less than 1/2 times the depth of the member.

For all chord members at splice points, the pitch of stitch rivets in the cover plates shall not exceed 4 spacing within the length of the gusset plate and shall gradually increase to the maximum pitch indicated on the member in a distance not less than the width of the member.

At the ends of diagonal and post members the stitch rivets in the cover plates within the gusset plates shall be as shown on the joint details and the spacing shall gradually increase to the maximum spacing shown on the member in a distance not less than the width of the member.

At non-splice panel points, the stitch rivets in the chords shall be as shown on joint details.

**NOTES**

For Truss Span Notes, see Sheet 7.  
For Truss Detail Notes, see Sheet 8.  
For details of Navigation Light Platform, see Sheet 14.

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
NORFOLK 1, VIRGINIA

SVERDRUP & PARCEL, CONSULTING ENGINEERS  
NEW YORK, N. Y. - ST. LOUIS, MO. - NORFOLK, VA.

**CHESAPEAKE BAY BRIDGE-TUNNEL CROSSING**  
NORTH CHANNEL BRIDGE-SUPERSTRUCTURE  
**TRUSS SPAN-TRUSS DETAILS L3 TO L5**

RECOMMENDED:  
APPROVED: *[Signature]*

DRAWN BY: V.L.S. SCALE: 1/2" = 1'-0"  
CHECKED BY: K.L.F. DATE: FEB. 1, 1961  
DWG. NO. 9 OF 14

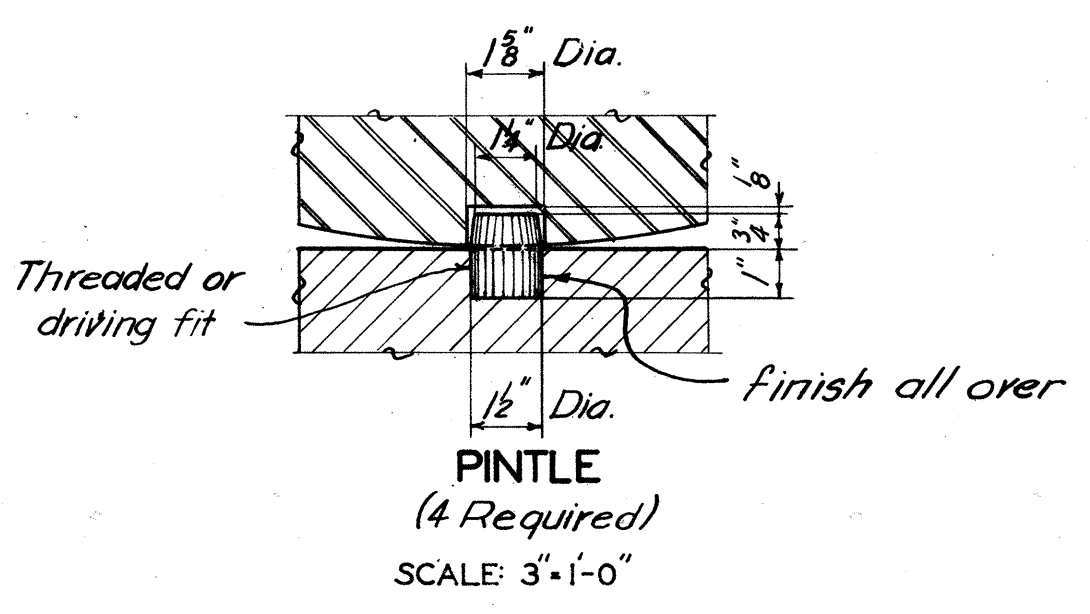
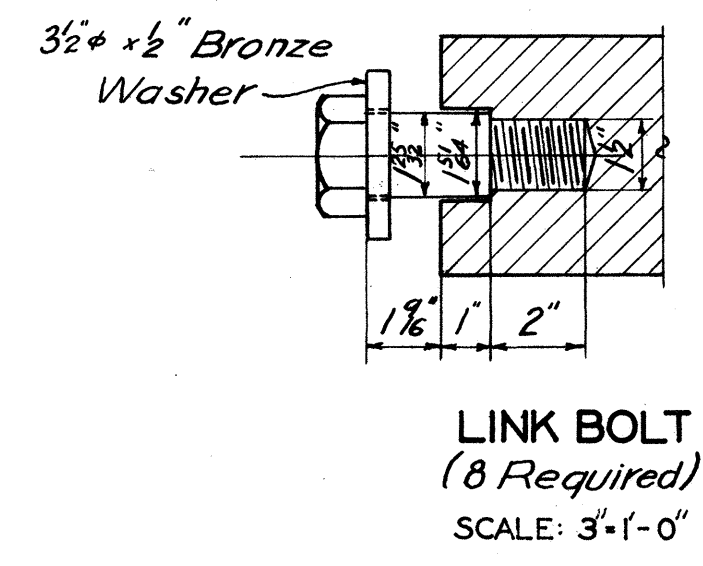
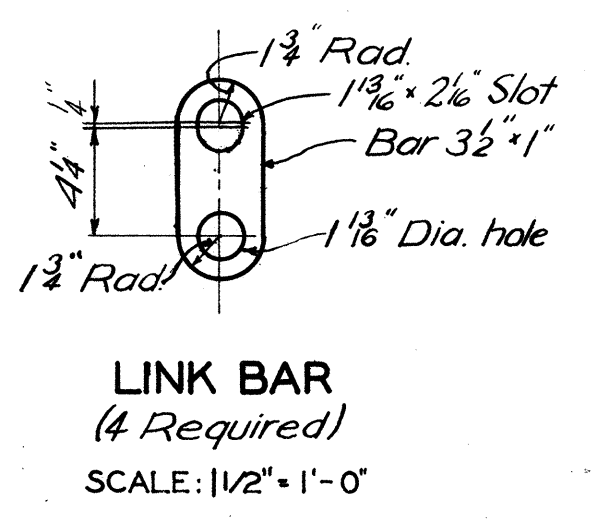
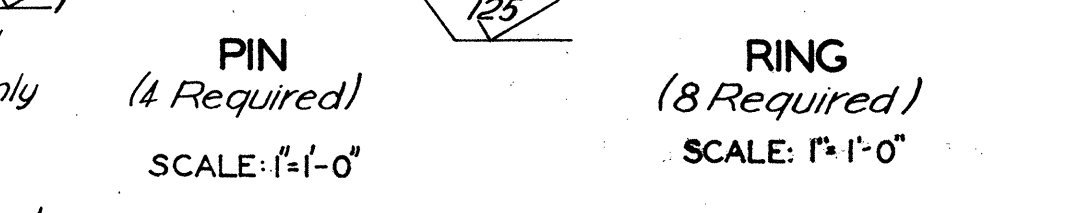
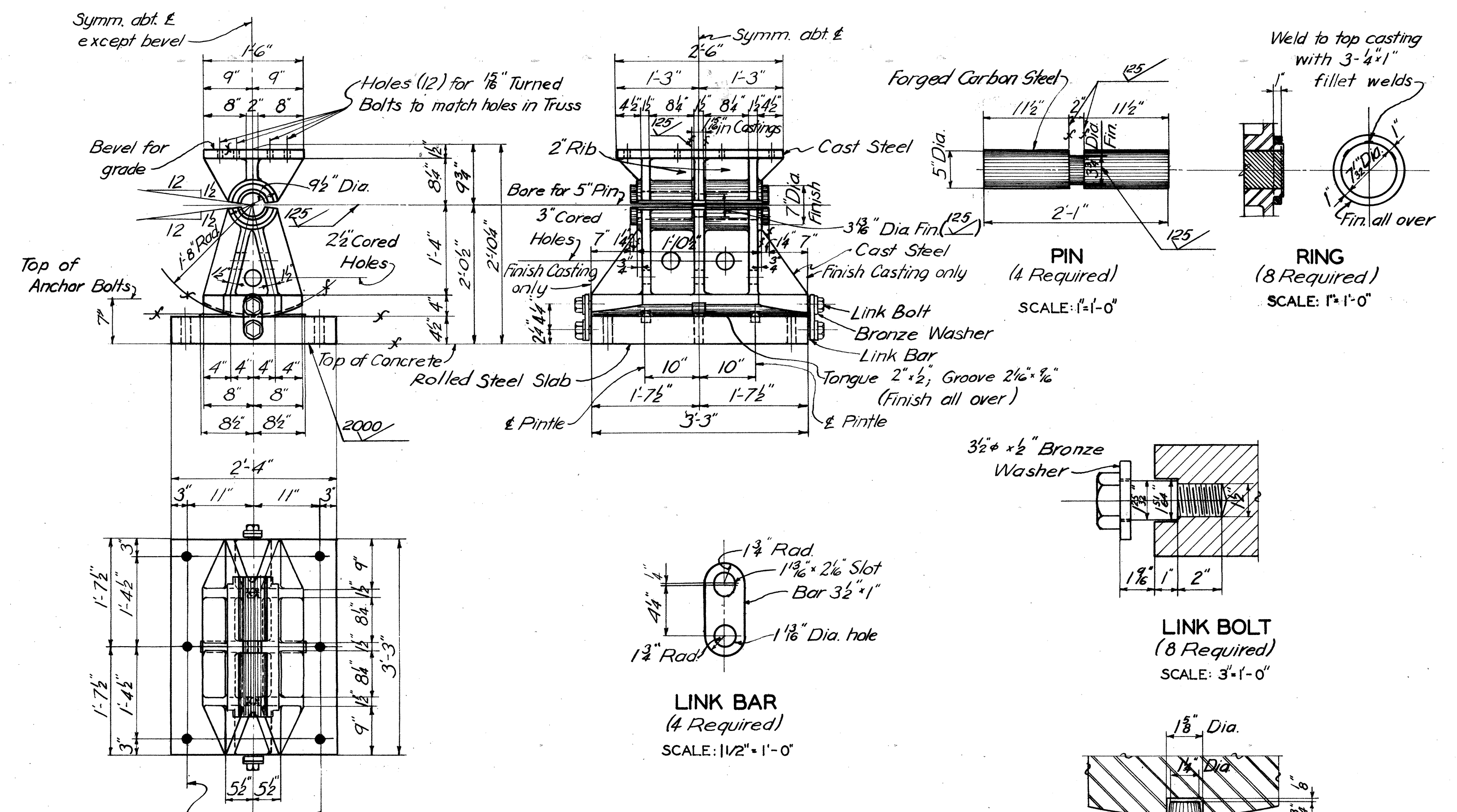
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AS BUILT

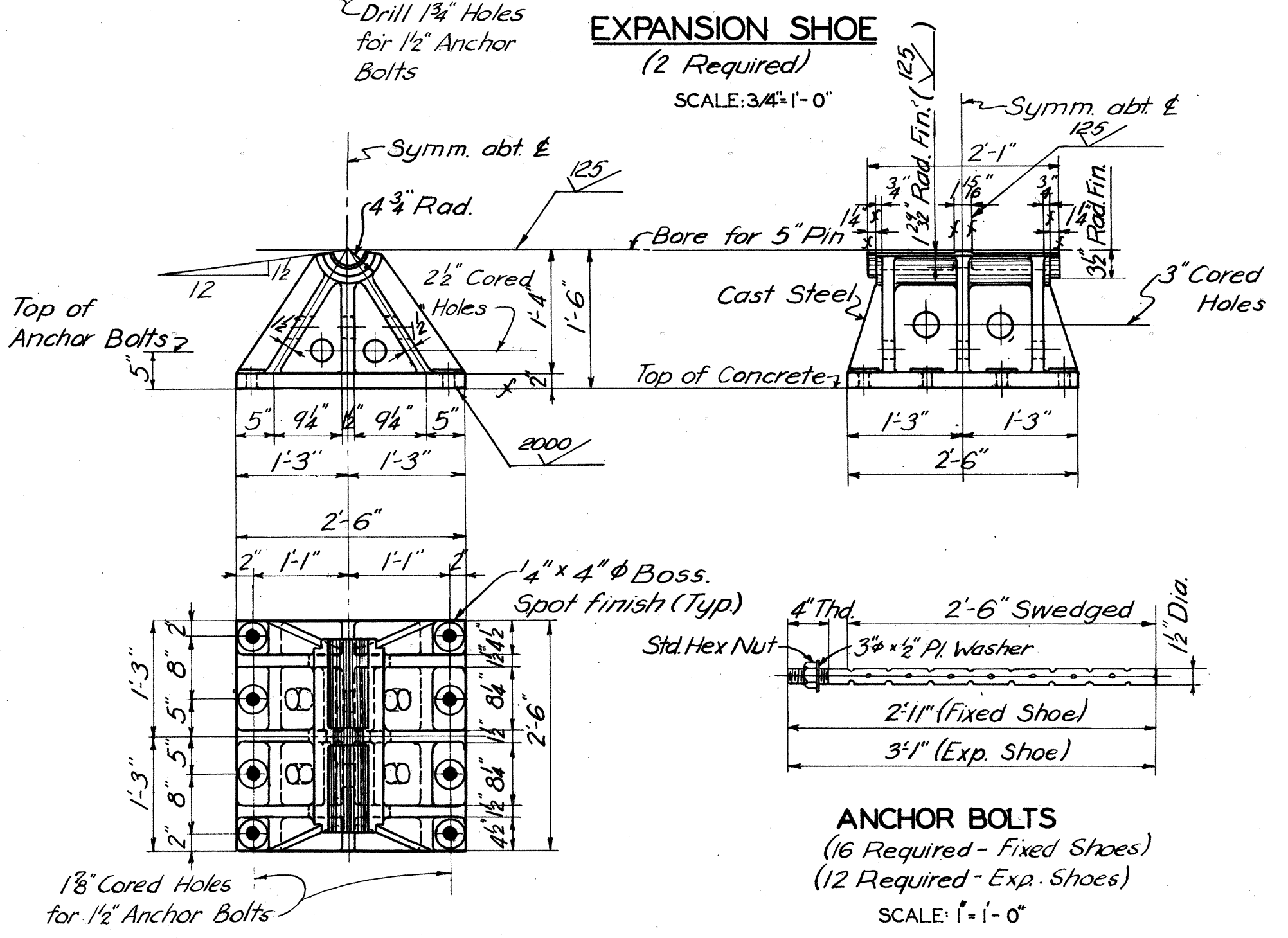


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585689





**EXPANSION SHOE**  
(2 Required)  
SCALE: 3/4'-1'-0"



**ANCHOR BOLTS**  
(16 Required - Fixed Shoes)  
(12 Required - Exp. Shoes)  
SCALE: 1'-1'-0"

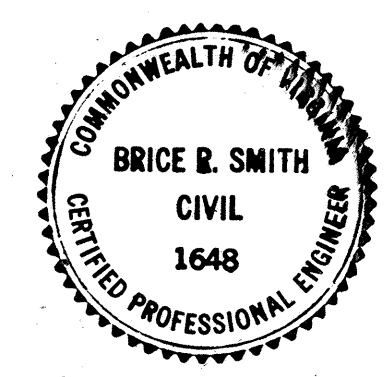
**FIXED SHOE**  
(2 Required)  
Note: Top casting same as for expansion shoe. Bevel for grade.  
SCALE: 3/4'-1'-0"

**NOTES**

For Truss Details, see Sheet 8.  
All fillets on Castings to be 3/4" radius.  
The tongues in base slabs of the expansion shoes shall be machined from the parent rolled slab.

For Truss Span Notes, see Sheet 7.  
Cast steel shall conform to A.S.T.M. A27, Grade 65-35, Fully annealed.  
All pins to be forged carbon steel conforming to A.S.T.M. A235, Class C1.  
Bronze washers shall conform to A.S.T.M. B100, Alloy No. 1.  
All surfaces marked f shall have a 250 roughness finish except as noted.  
The roughness finish number indicated on the details is the average deviation from the mean surface.

COMMONWEALTH OF VIRGINIA		
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT		
NORFOLK 1, VIRGINIA		
SVERDRUP & PARCEL, CONSULTING ENGINEERS NEW YORK, N. Y. - ST. LOUIS, MO. - NORFOLK, VA.		
CHESAPEAKE BAY BRIDGE-TUNNEL CROSSING NORTH CHANNEL BRIDGE-SUPERSTRUCTURE		
TRUSS SPAN-SHOES		
RECOMMENDED:	DRAWN BY: R.W.H.	SCALE: AS SHOWN
CHECKED BY: C.C.U.	DATE: FEB. 1, 1961	
APPROVED:	DWG. NO. 11 OF 14	
SECTION NO. NC-2		

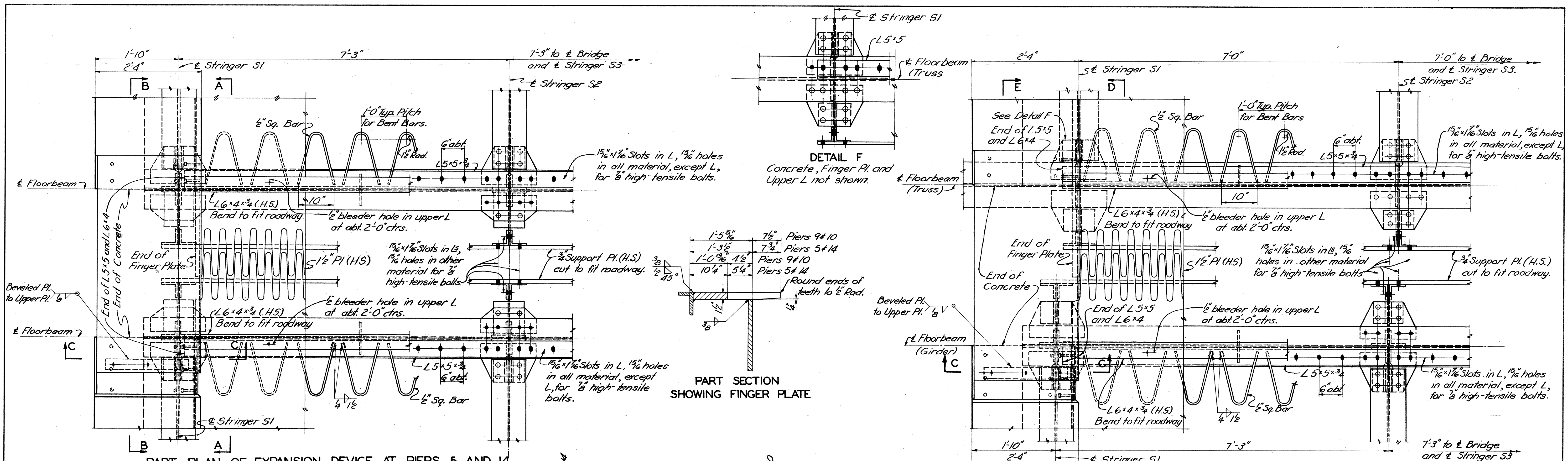


Note: Do not scale this drawing. Follow dimensions.

P-1555

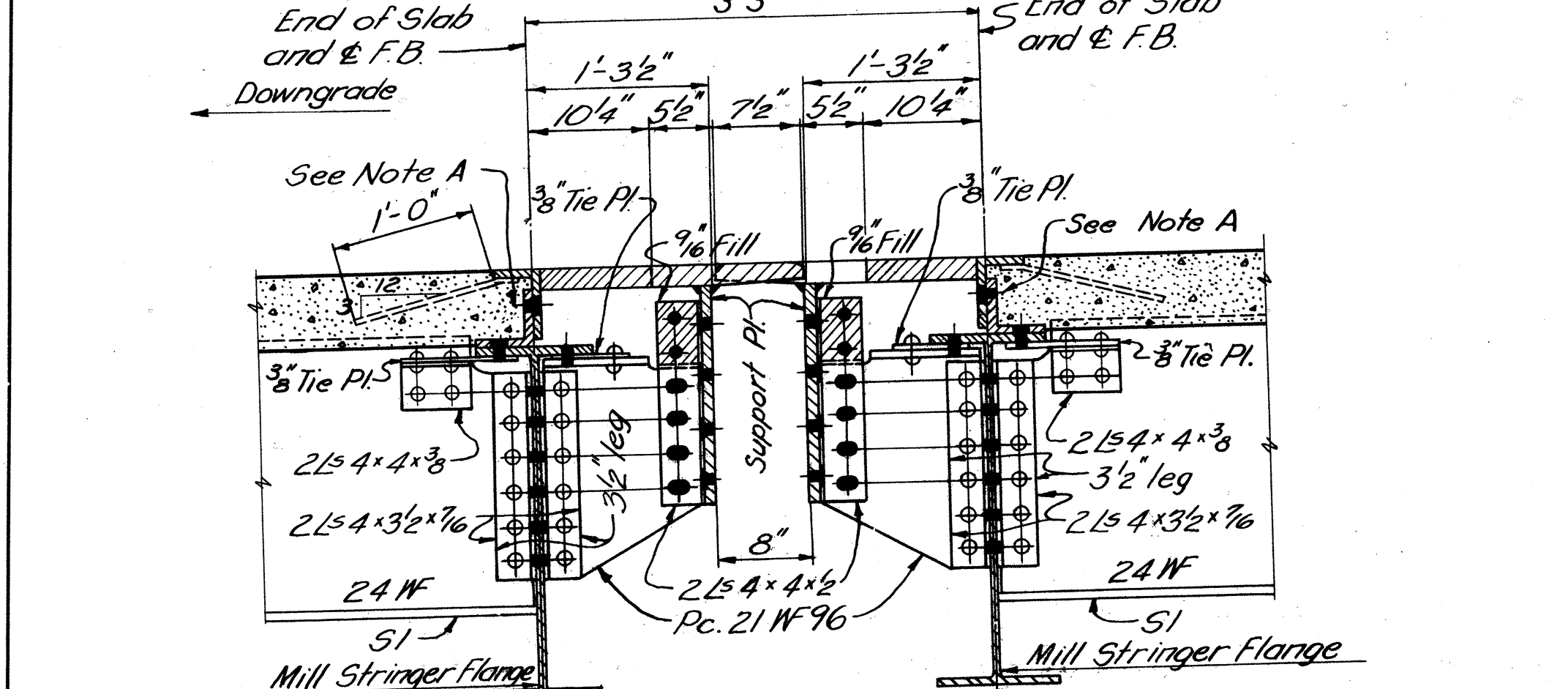
AS BUILT

22x36 TRIM

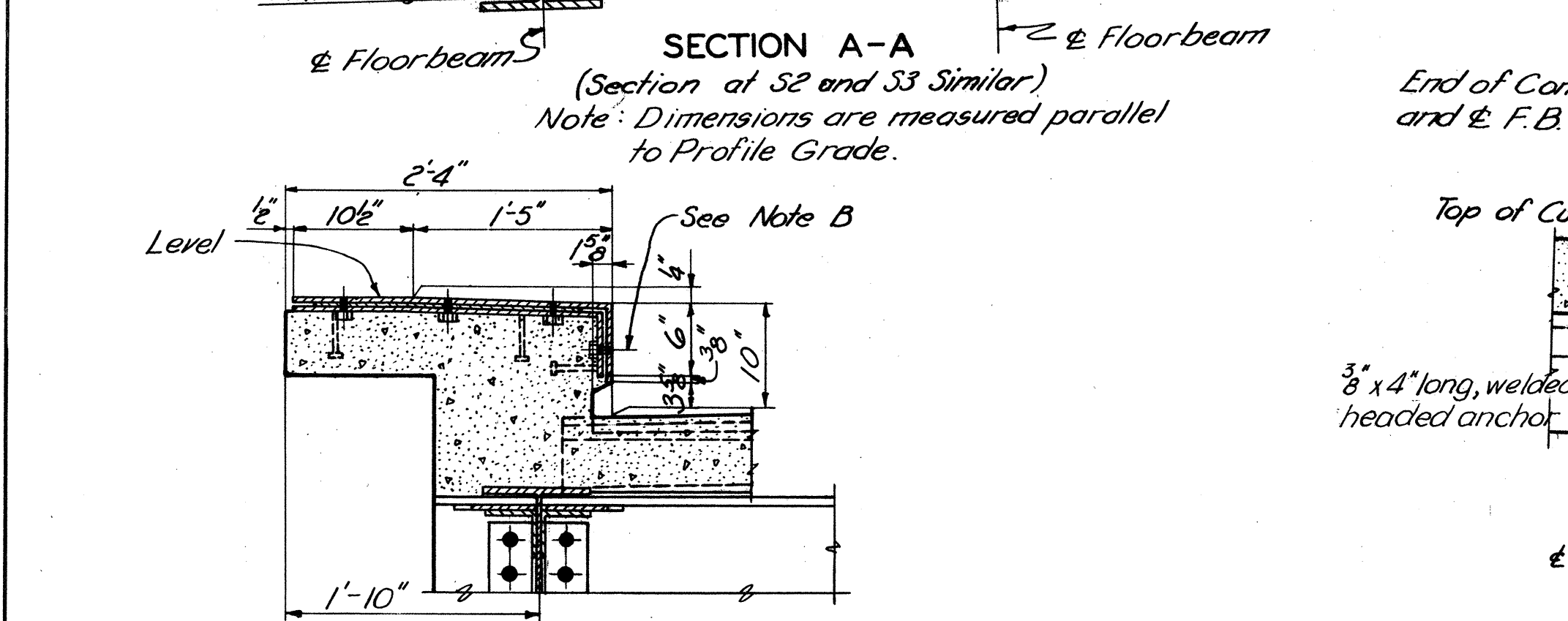


PART PLAN OF EXPANSION DEVICE AT PIERS 5 AND 14

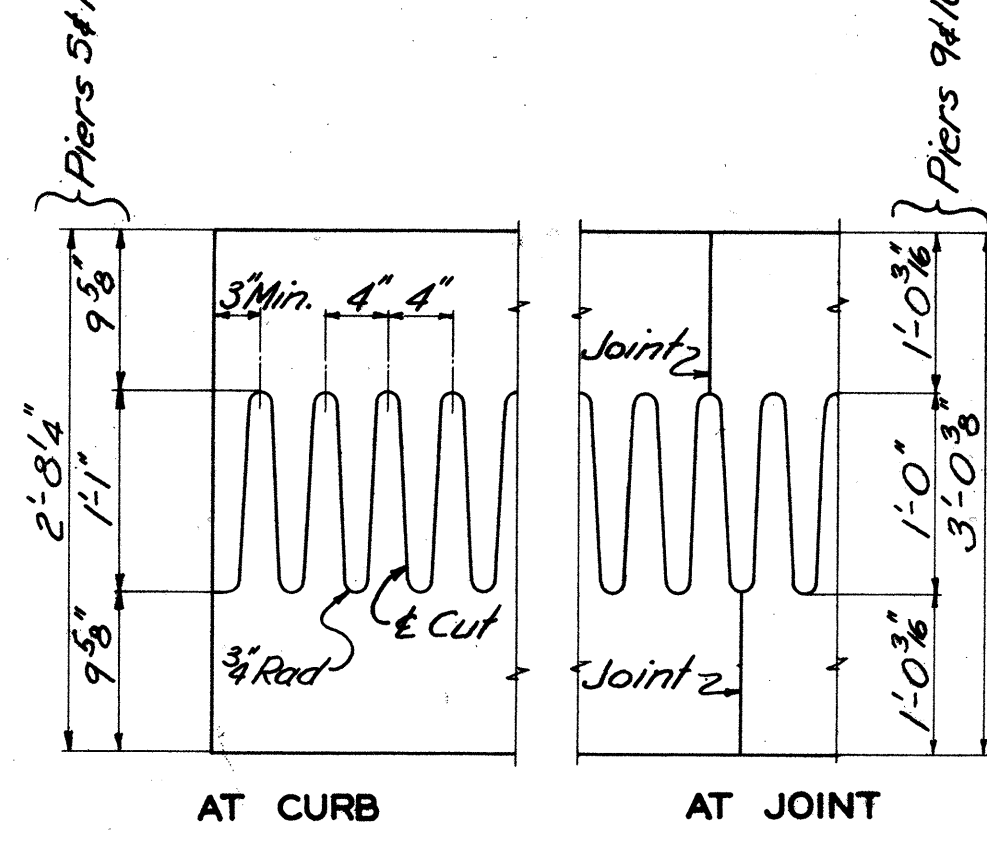
PART PLAN OF EXPANSION DEVICE AT PIERS 9 AND 10



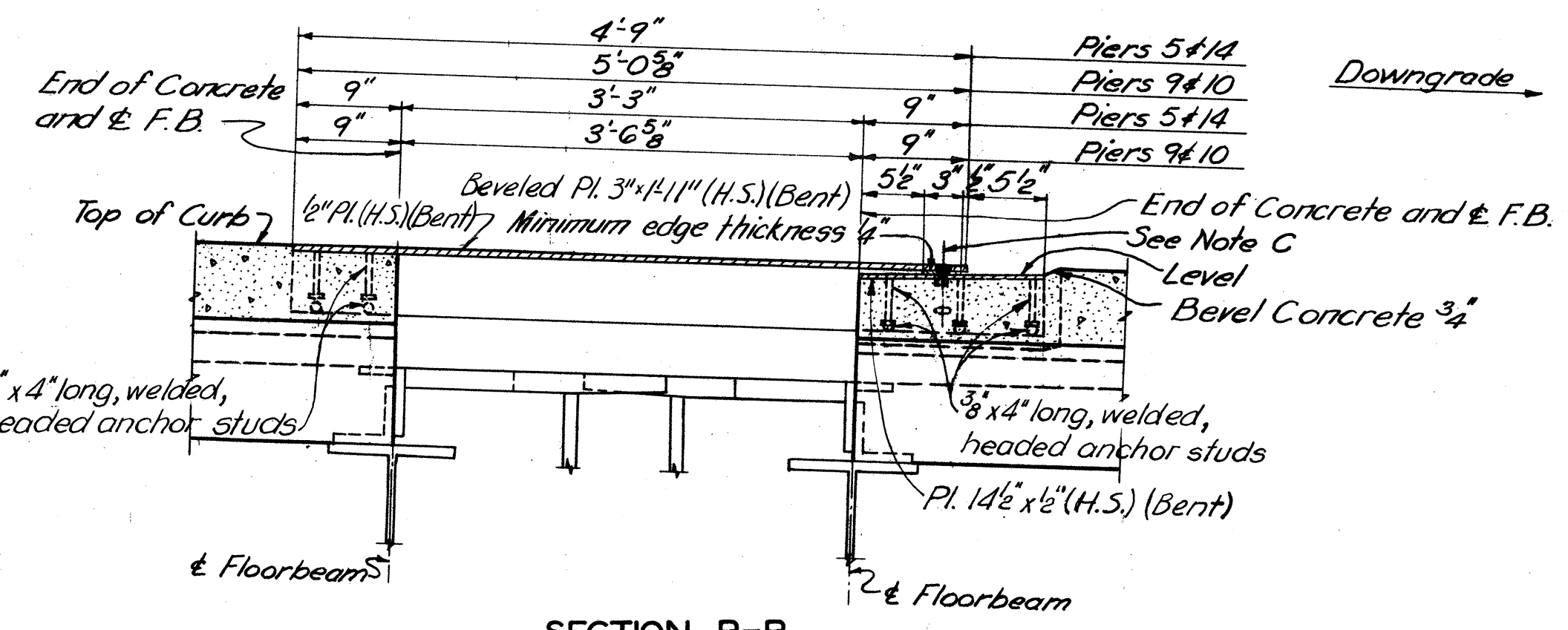
SECTION A-A  
(Section at S2 and S3 Similar)  
Note: Dimensions are measured parallel to Profile Grade.



SECTION C-C

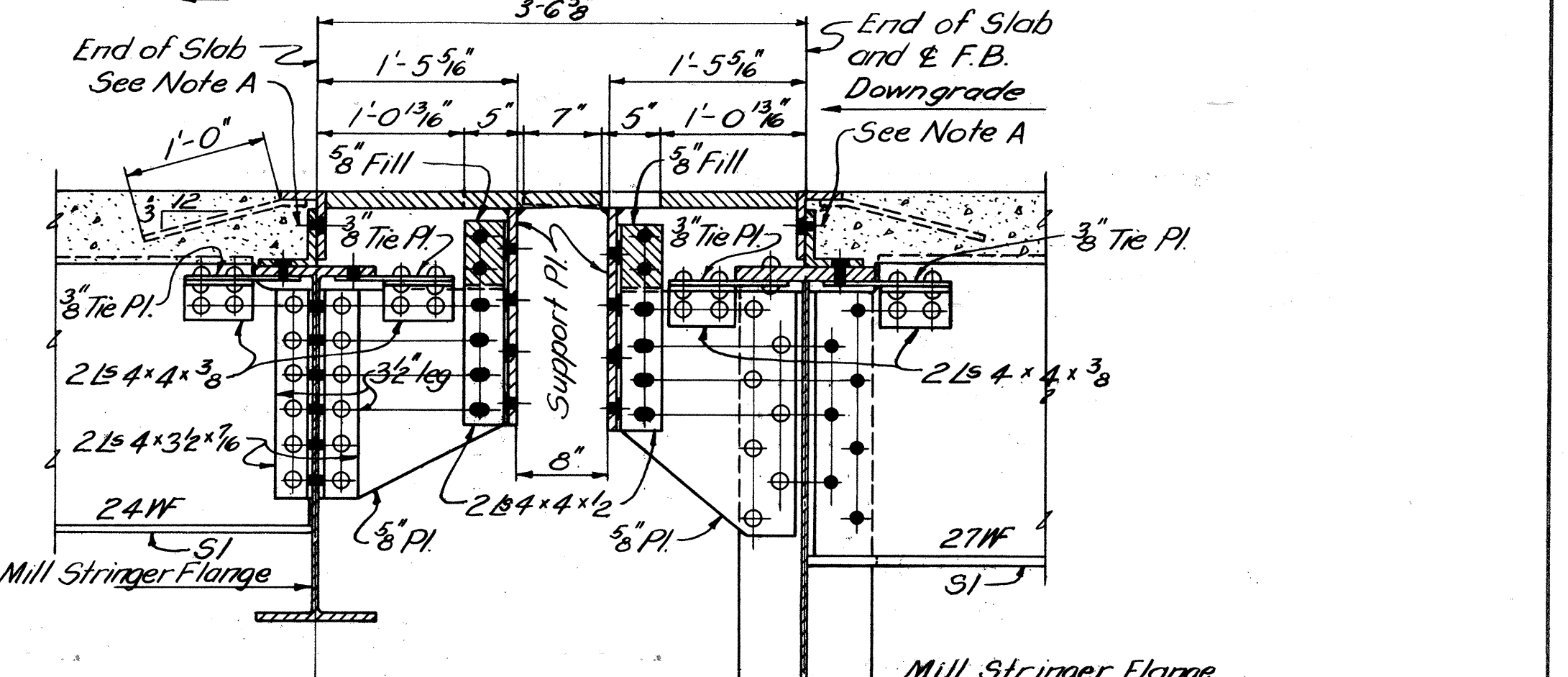


FINGER PLATES  
(Bend to fit crown of roadway)



SECTION B-B  
Section E-E Similar

Note A: 1 1/2" holes in lower L, 1 1/2" x 1 1/2" slots in upper L for 3/8 high-tensile bolts at abt. 6" ctrs.  
 Note B: 1/2 x 1/2 slot in outside pl. 1/8 hole in side pl. for 3/8 bolt. Weld 3/8 sq. nut to inside pl. Remove bolt after concrete has set.  
 Note C: 1/2 x 1/2 slots in top and beveled pl. 1/8 holes in bottom pl. for 3/8 bolts. Weld 3/8 sq. nuts to bottom pl. Remove after concrete has set.

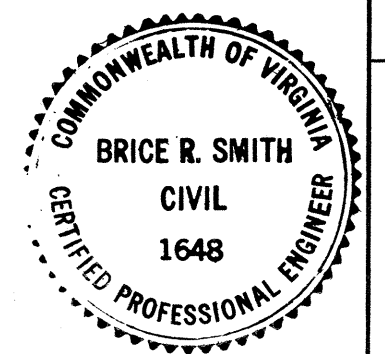


SECTION D-D  
(Section at S2 and S3 Similar)  
Note: Dimensions are measured parallel to Profile Grade.

NOTES  
For Expansion Device Notes, see Sheet 13.

P. 1555  
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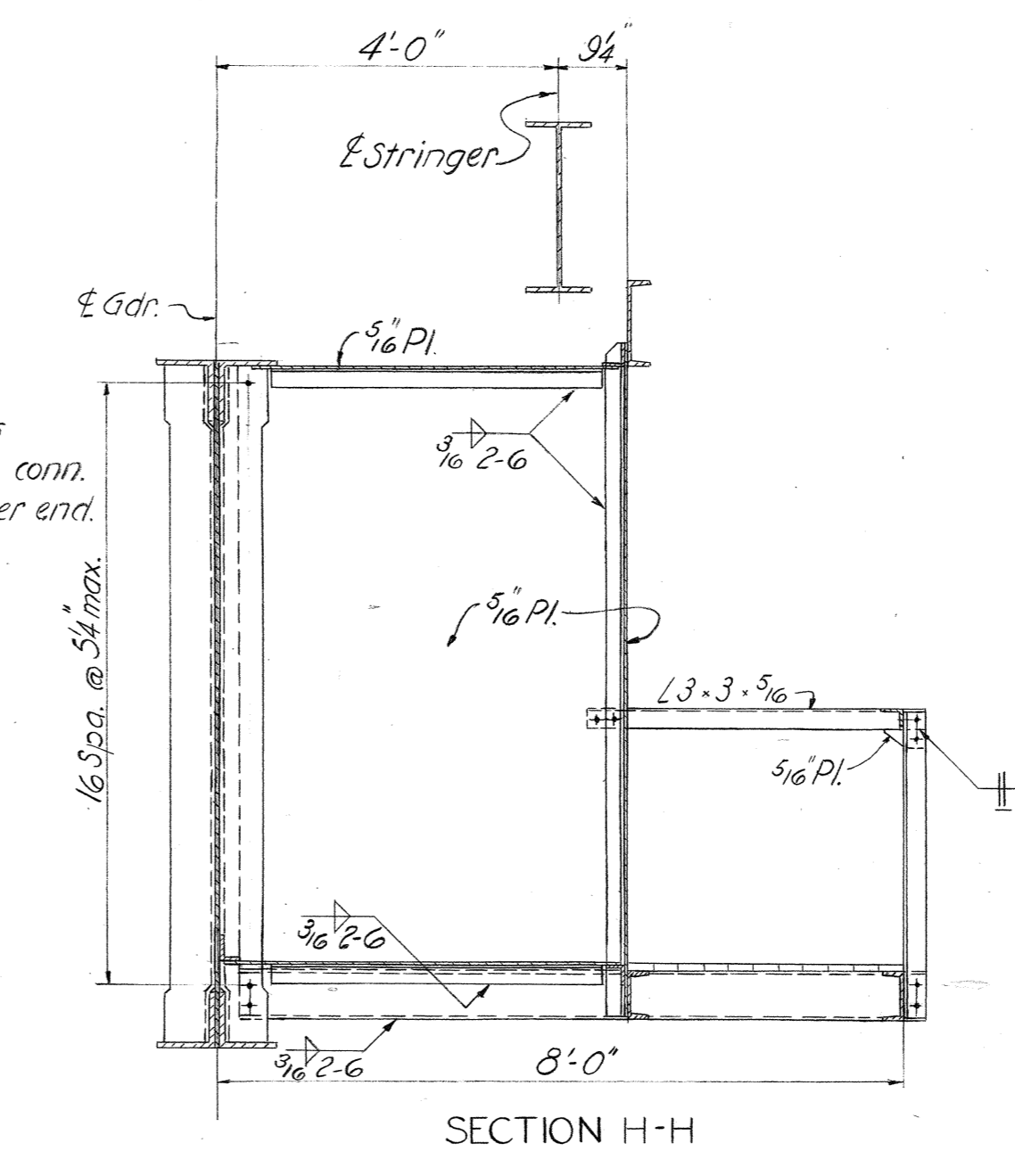
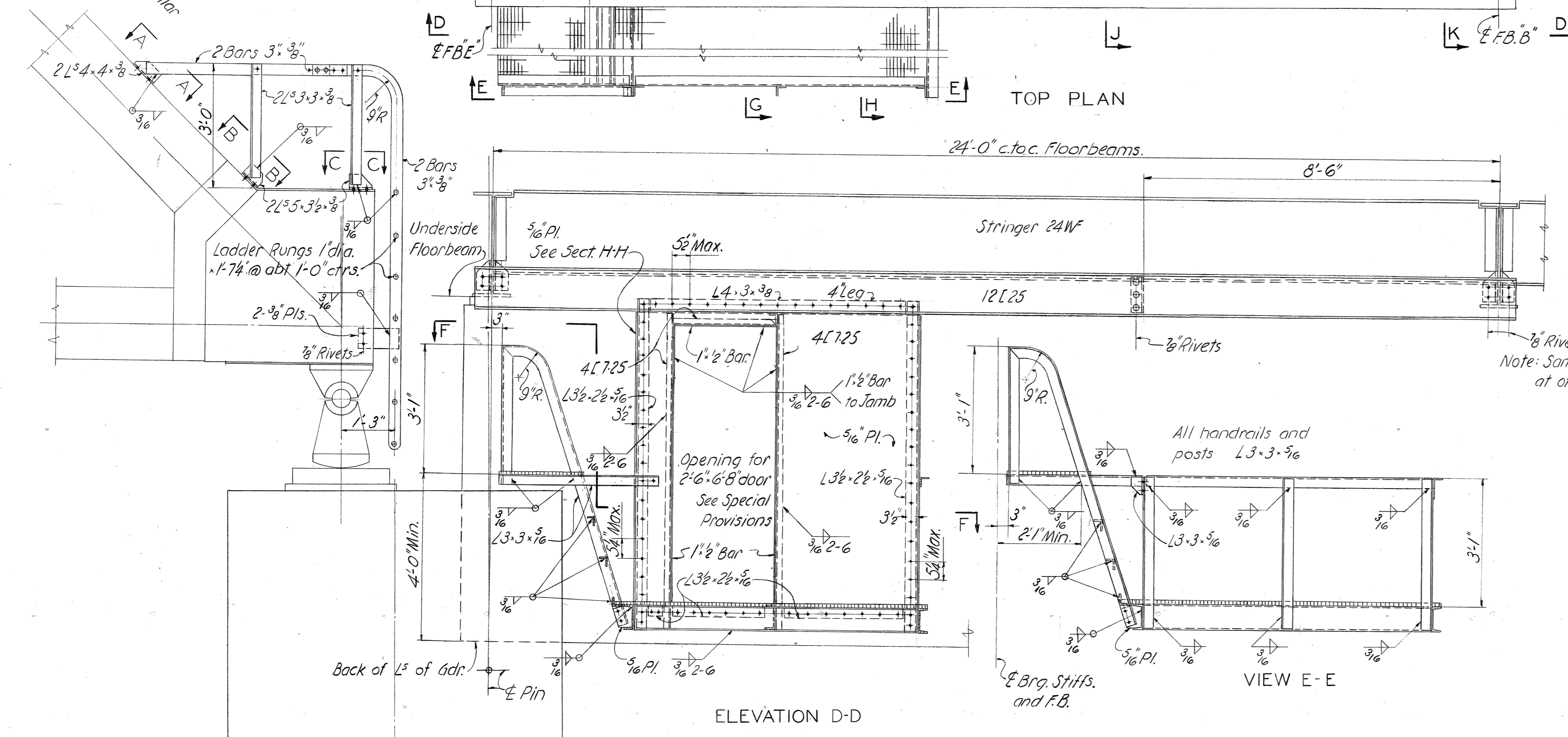
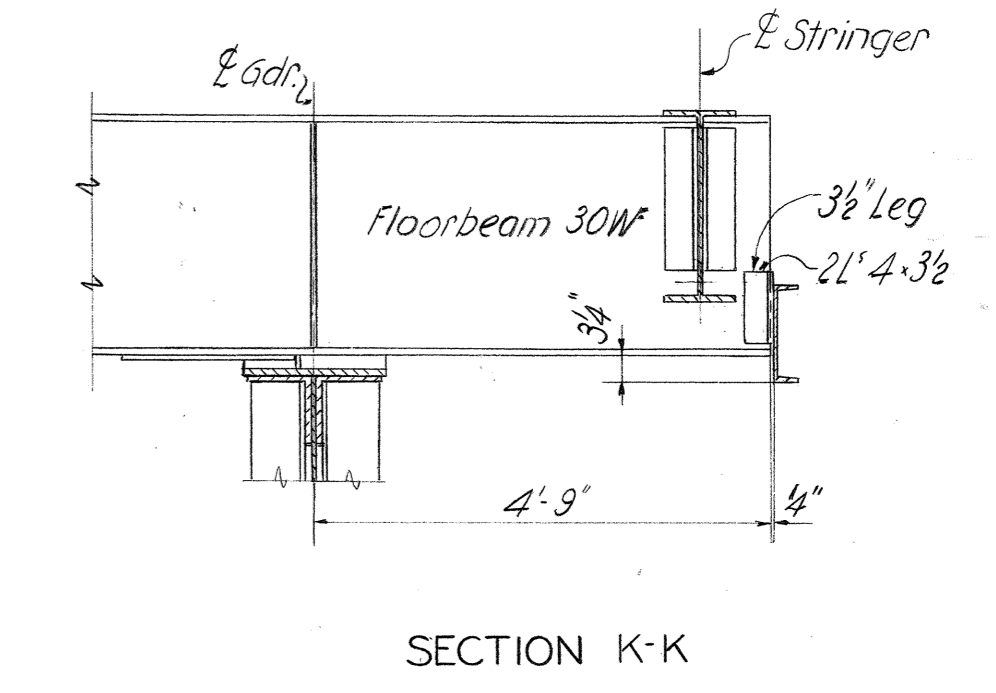
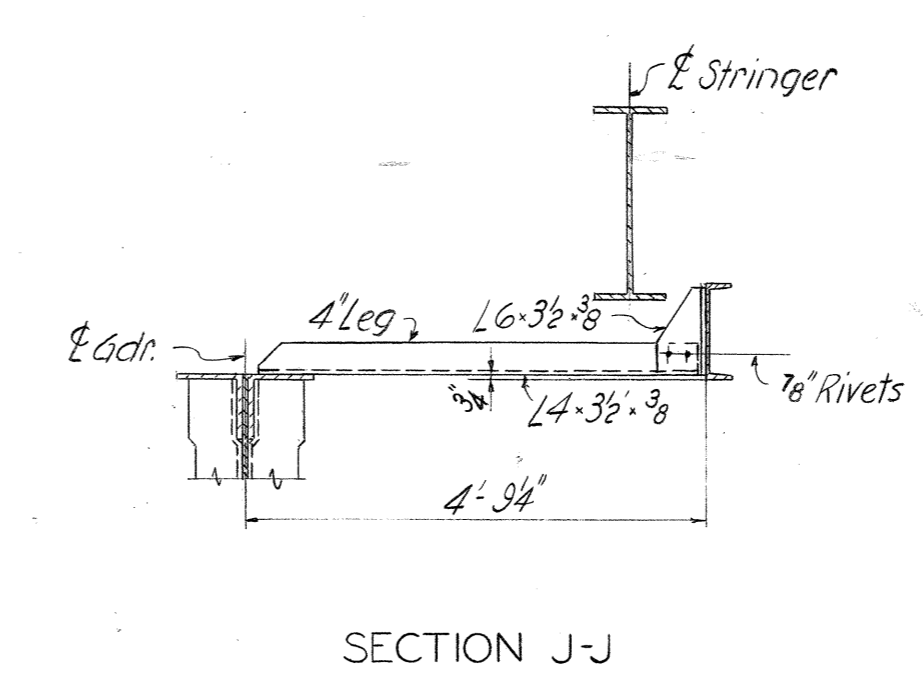
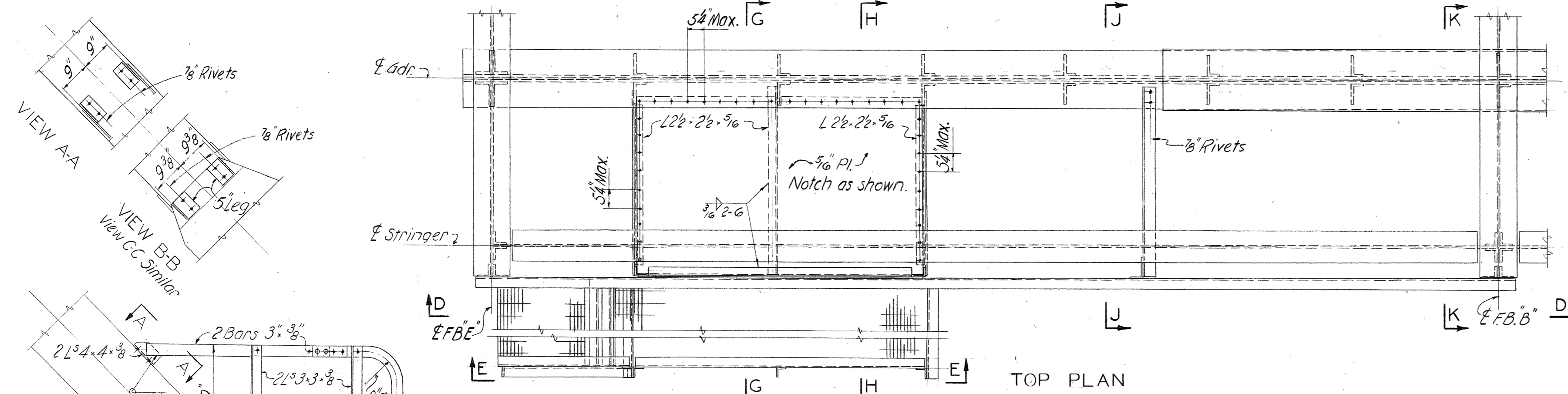
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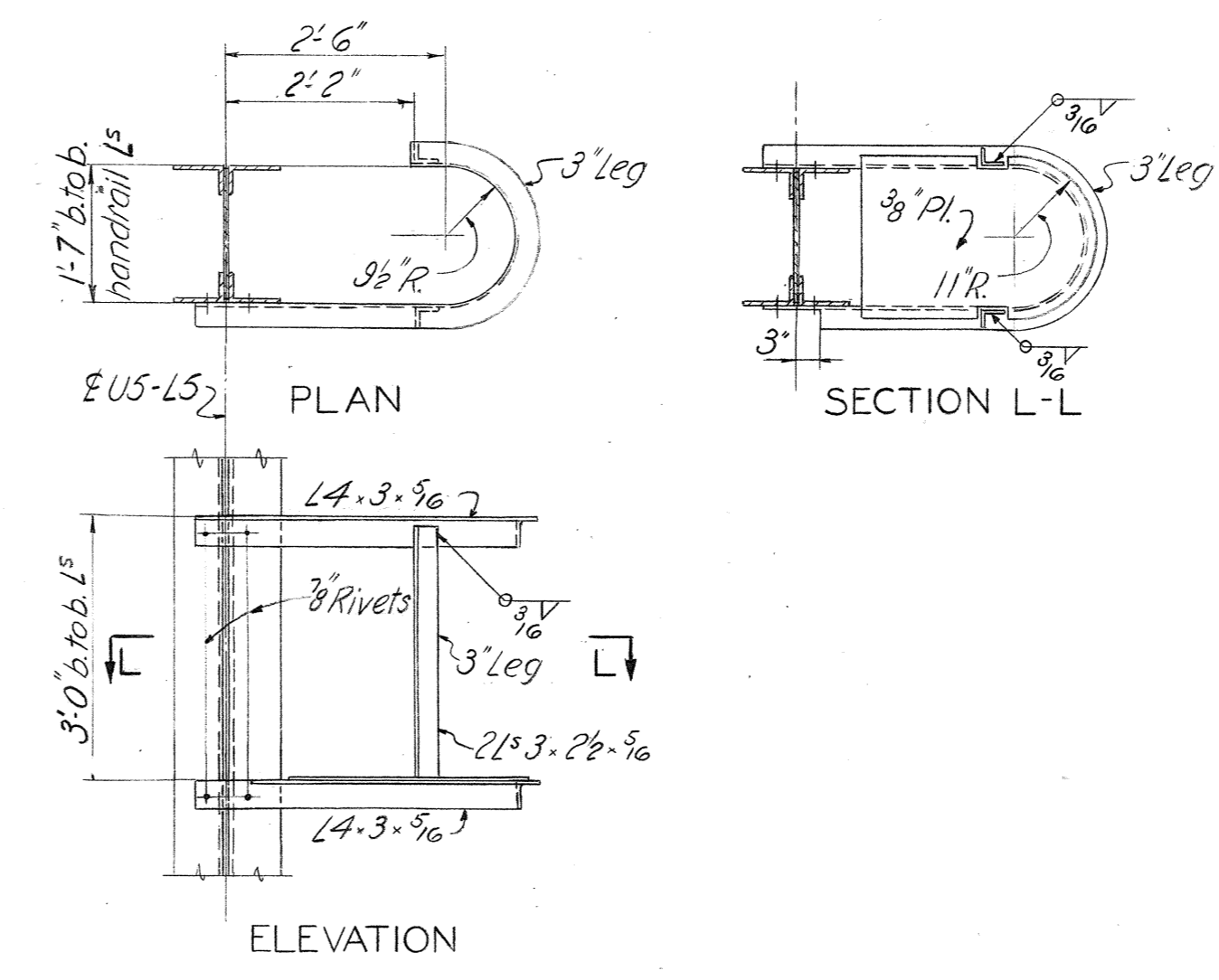
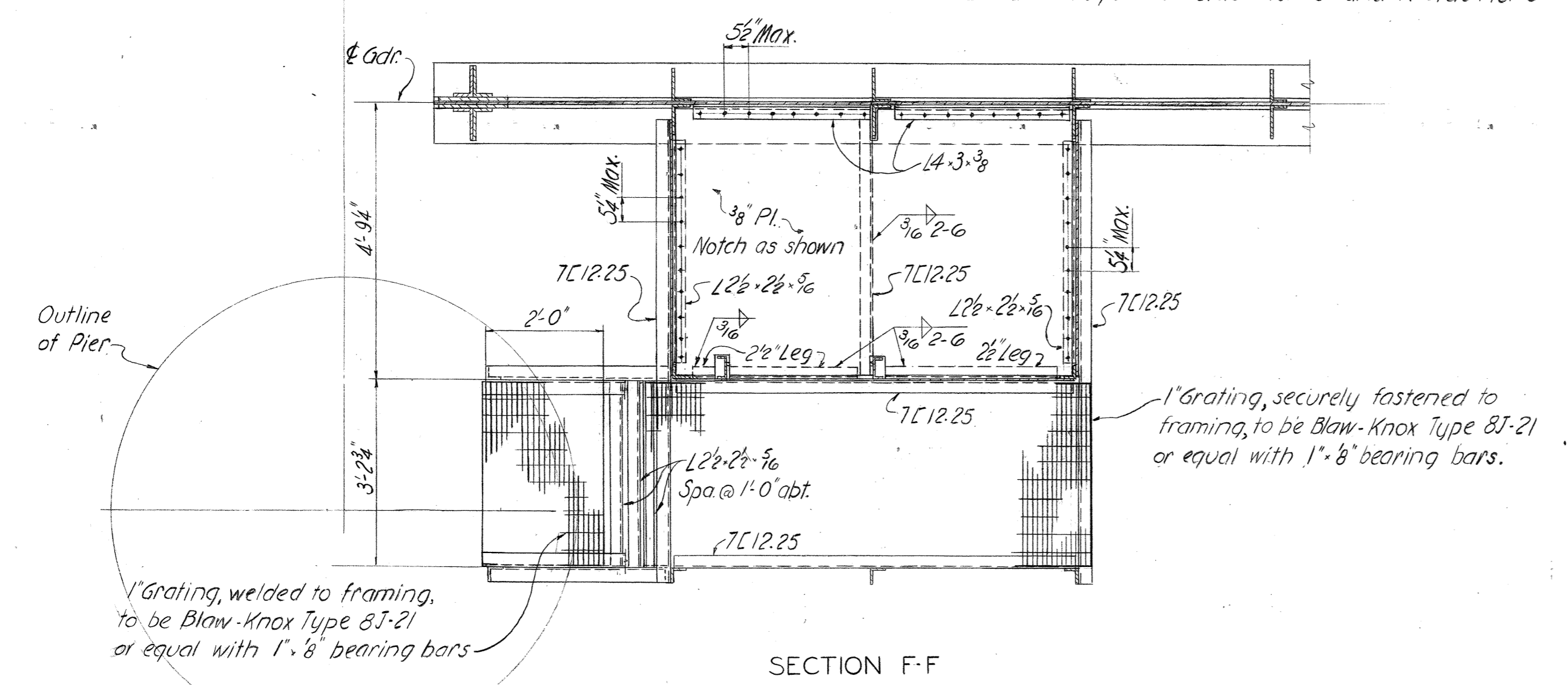
COMMONWEALTH OF VIRGINIA	
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT	
NORFOLK 1, VIRGINIA	
SVERDRUP & PARCEL, CONSULTING ENGINEERS NEW YORK, N. Y. - ST. LOUIS, MO. - NORFOLK, VA.	
CHESAPEAKE BAY BRIDGE-TUNNEL CROSSING NORTH CHANNEL BRIDGE-SUPERSTRUCTURE	
EXPANSION DEVICE AT PIERS 5, 9, 10 & 14	
RECOMMENDED:	SCALE: 1" = 1'-0"
CHECKED BY: C. C. U.	DATE: FEB. 1, 1961
DWG. NO. 12 OF 14	
SECTION NO. NC-2	

AS BUILT





**ELECTRICAL EQUIPMENT ROOM AND PIER ACCESS LADDER**  
 Electrical Equipment Room req'd. S. side Pier 10 only.  
 One ladder req'd each side Pier 10 and N. side Pier 9



**ACCESS PLATFORM FOR MID-CHANNEL NAVIGATION LIGHT**  
 One required on each truss. See Sheet 9

**NOTES**  
 All rivets 3/8" unless otherwise noted.  
 5/8" Field connections may be made with either rivets or machine bolts.  
 7/8" Field connections may be made with either rivets or high tensile bolts except where high tensile bolts are specified on the plans.  
 1" Grating shall be galvanized and painted. See Special Provisions.

P1555  
603322

Do not scale this drawing. Follow dimensions.



COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
 NORFOLK 1, VIRGINIA

SVERDRUP & PARCEL, CONSULTING ENGINEERS  
 NEW YORK, N. Y. - ST. LOUIS, MO. - NORFOLK, VA.

**CHESAPEAKE BAY BRIDGE-TUNNEL CROSSING**  
 NORTH CHANNEL BRIDGE-SUPERSTRUCTURE

**ELECTRICAL EQUIPMENT ROOM,  
 LADDERS AND PLATFORMS**

RECOMMENDED: *[Signature]*  
 APPROVED: *[Signature]*

DRAWN BY: R.W.H. SCALE: 1/2" = 1'-0"  
 CHECKED BY: C.C.U. DATE: FEB. 1, 1961  
 DWG. NO. 14 OF 14

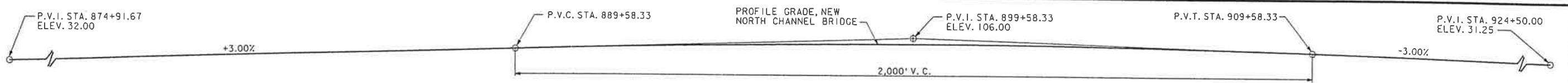
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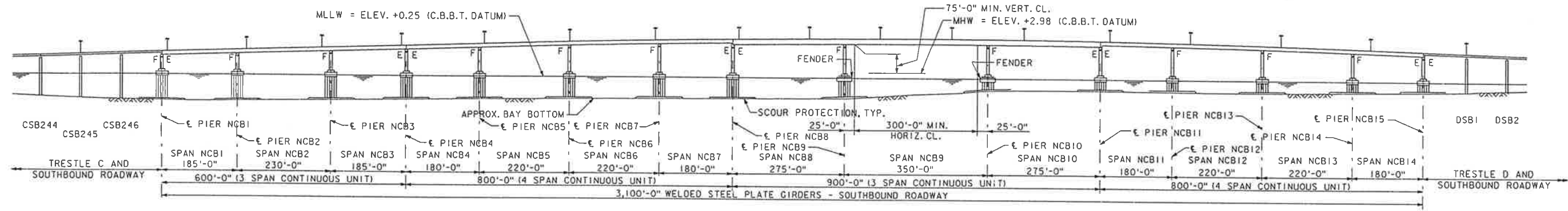
# **Appendix C**

## **North Channel Bridge South Bound Drawings**

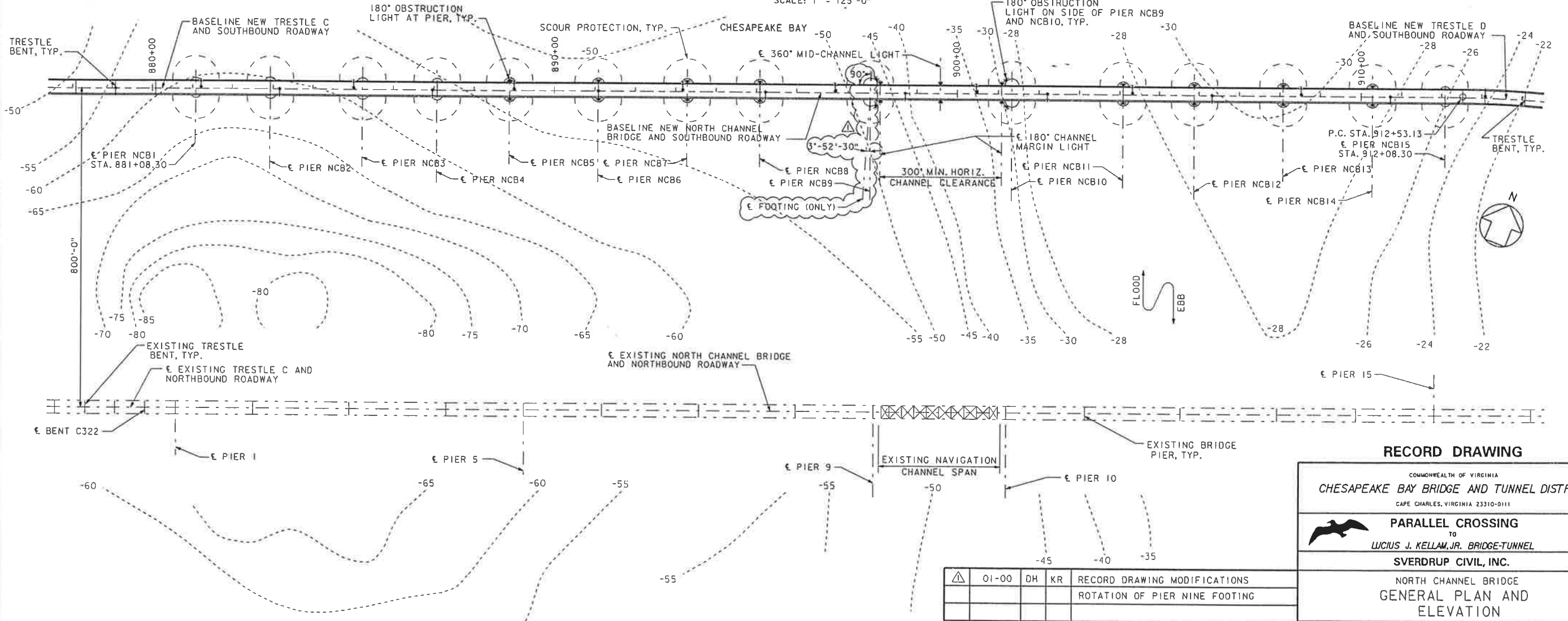




**PROFILE GRADE**  
SCALE: 1" = 125'-0"



**ELEVATION**  
SCALE: 1" = 125'-0"



**PLAN**  
SCALE: 1" = 125'-0"

FILENAME: 935211.DGN  
JOB NO.: 11585

NO.	DATE	BY	APP.	DESCRIPTION
01-00	DH	KR		RECORD DRAWING MODIFICATIONS
				ROTATION OF PIER NINE FOOTING

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
CAPE CHARLES, VIRGINIA 23110-0111

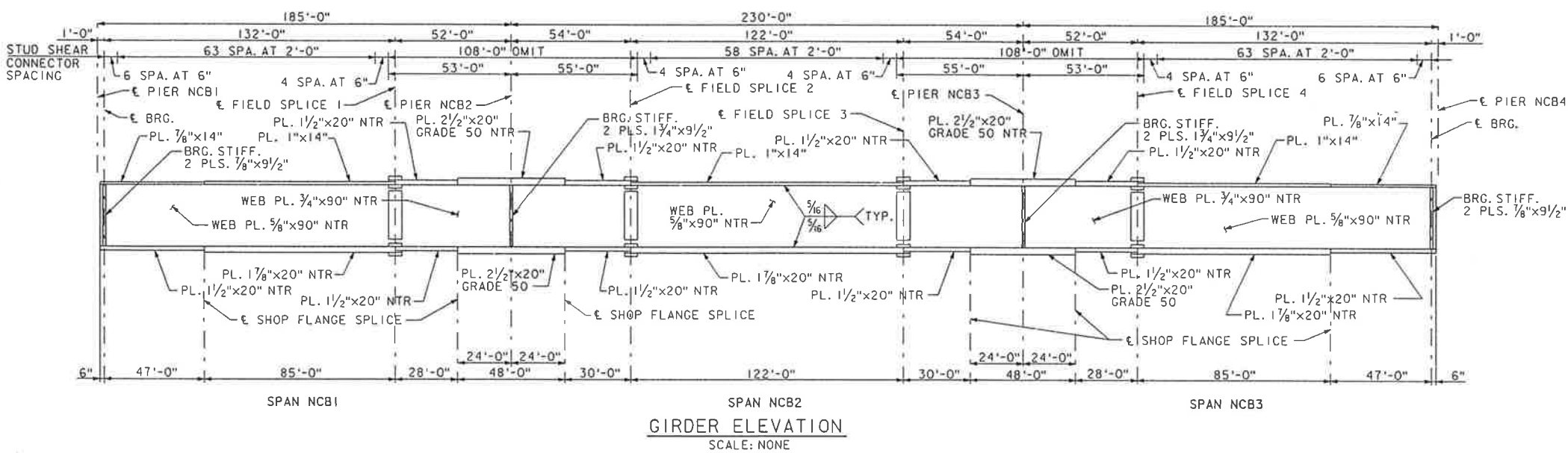
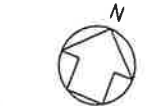
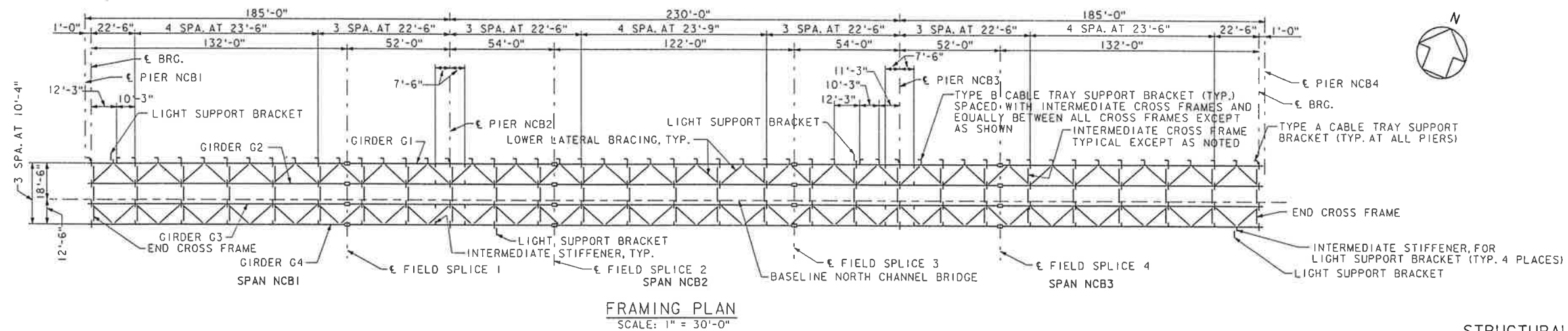
**PARALLEL CROSSING**  
TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

**SVERDRUP CIVIL, INC.**

NORTH CHANNEL BRIDGE  
**GENERAL PLAN AND ELEVATION**

DRAWN BY: JGC	SCALE: 1"=125'
CHECKED BY: TVD	DATE: DEC. 1994
DWG. NO. 654	
SECTION NO. NCB1 OF NCB50	

Approved: \_\_\_\_\_



**STRUCTURAL STEEL NOTES**

FOR GENERAL NOTES SEE GENERAL PROJECT DRAWINGS.  
ALL STRUCTURAL STEEL SHALL BE ASTM A709, AND SHALL BE GRADE 36 UNLESS OTHERWISE SHOWN.

DESIGN UNIT STRESSES  
STRUCTURAL STEEL (ASTM A709)  
GRADE 36 -  $f_s = 20,000$  LBS. PER SQ. IN.  
 $f_y = 36,000$  LBS. PER SQ. IN.  
GRADE 50 -  $f_s = 27,000$  LBS. PER SQ. IN.  
 $f_y = 50,000$  LBS. PER SQ. IN.

NTR INDICATES PLATES THAT ARE SUBJECT TO CHАРRY V-NOTCH IMPACT REQUIREMENTS, ZONE 2.  
FASTENERS SHALL BE ASTM A325, TYPE 1, 7/8" DIA. HIGH STRENGTH BOLTS WITH 1/8" DIA. HOLES UNLESS OTHERWISE NOTED.  
HIGH STRENGTH BOLTS ARE DESIGNED FOR A CLASS A CONTACT SURFACE, IN A STANDARD HOLE, SLIP-CRITICAL WITH A SLIP RESISTANCE OF 21 KSI.  
+ INDICATES A HIGH STRENGTH BOLT, SHOP OR FIELD INSTALLED, UNLESS OTHERWISE NOTED.  
ALL WELDING WILL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ANSI/AASHTO/AWS D1.5-88 "BRIDGE WELDING CODE". CATEGORY E DETAILS WILL NOT BE PERMITTED.  
PLATE GIRDERS SHALL BE FABRICATED TO CONFORM TO THE CAMBER DIAGRAM SHOWN ON SECTION NOS. NCB34 THRU NCB37.  
CENTERLINE OF FIELD SPLICES, STIFFENERS AND CONNECTION PLATES SHALL BE VERTICAL IN THE FINAL STRUCTURE.  
IF, DUE TO PLATE LENGTHS, SHOP SPLICES ARE REQUIRED IN ADDITION TO THOSE SHOWN ON THE PLANS, ONLY THE MINIMUM NUMBER PRACTICABLE FOR ANY SHIPPING SECTION WILL BE ALLOWED. OFFSET SHOP WEB SPLICE BY NO LESS THAN 6 INCHES FROM FLANGE SPLICES. ALL SPLICE LOCATIONS ARE SUBJECT TO APPROVAL OF THE ENGINEER. SPLICES SHALL BE COMPLETE JOINT PENETRATION WELDS, GROUND SMOOTH AND 100% RADIOGRAPHIC INSPECTED PER VDOT - VTM-29.  
UPON APPROVAL OF THE ENGINEER, THE CONTRACTOR MAY PROVIDE AT HIS DISCRETION, FIELD SPLICES FOR THE MAIN LONGITUDINAL GIRDERS IN ADDITION TO THOSE SHOWN ON THESE PLANS. PRIOR TO APPROVAL, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER DESIGN AND DETAILS OF THE PROPOSED ADDITIONAL FIELD SPLICES PREPARED, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, LICENSED IN THE COMMONWEALTH OF VIRGINIA. THE SPLICES SHALL BE DESIGNED IN ACCORDANCE WITH THE CRITERIA PROVIDED IN THE GENERAL NOTES SHOWN ON DRAWING NOS. 23 THROUGH 26 (SECTION NOS. GPD14 THROUGH GPD17) IN VOLUME 1, GENERAL PROJECT DRAWINGS.  
SUPPORTS FOR DECK OVERHANG CONSTRUCTION WERE WELDED TO TOP FLANGE OF EXTERIOR GIRDERS IN COMPRESSION ZONE, SPACED AT 3'-0" AND LEFT IN PLACE.  
FOR AS-BUILT STRUCTURAL STEEL DETAILS, SEE SHOP DRAWINGS BY HIGH STEEL STRUCTURES, INC. LANCASTER, PA.

**EXTERIOR GIRDER REACTION TABLE - SPANS NCB1 THRU NCB3 (KIPS)**

PIER	NCB1	NCB2	NCB3	NCB4
DL	119	428	428	119
LL	63	142	142	63
IMPACT	10	22	22	10
TOTAL	192	592	592	192

**INTERIOR GIRDER REACTION TABLE - SPANS NCB1 THRU NCB3 (KIPS)**

PIER	NCB1	NCB2	NCB3	NCB4
DL	127	458	458	127
LL	75	170	170	75
IMPACT	12	25	25	12
TOTAL	214	653	653	214

**EXTERIOR GIRDER MOMENT TABLE-SPANS NCB1 TO NCB3 (FT-KIPS)**

	0.4 SPAN NCB1	BENT NCB2	0.5 SPAN NCB2	BENT NCB3	0.6 SPAN NCB3
DL	3819	8895	3344	8895	3819
LL	2312	2746	2562	2746	2312
IMPACT	374	414	361	414	374
TOTAL	6505	12055	6267	12055	6505

**INTERIOR GIRDER MOMENT TABLE-SPANS NCB1 TO NCB3 (FT-KIPS)**

	0.4 SPAN NCB1	BENT NCB2	0.5 SPAN NCB2	BENT NCB3	0.6 SPAN NCB3
DL	4084	9502	3562	9502	4084
LL	2769	3272	3075	3272	2769
IMPACT	448	493	433	493	448
TOTAL	7301	13267	7070	13267	7301

NOTE: REACTIONS AND MOMENTS ARE UNFACTORED.  
DL INDICATES DEAD LOAD.  
LL INDICATES LIVE LOAD.  
IMPACT INDICATES LIVE LOAD IMPACT.

**ESTIMATED QUANTITIES SPANS NCB1 - NCB3**

ITEM	TYPE	UNIT	TOTAL
STRUCTURAL STEEL	GRADE 36	LBS.	951,007
STRUCTURAL STEEL	GRADE 50	LBS.	131,189

**RECORD DRAWING**

NO.	DATE	BY	APP.	DESCRIPTION
01-00		DH	KR	RECORD DRAWING MODIFICATIONS
				NOTES ADDED

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

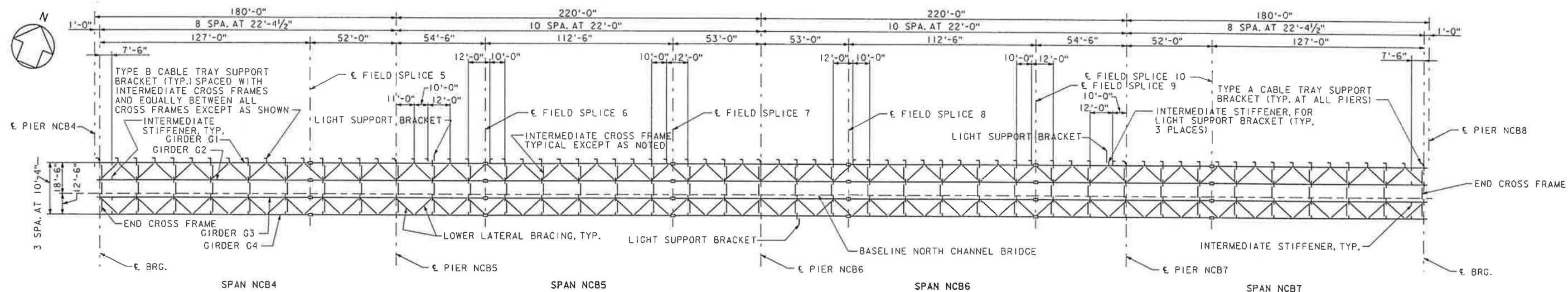
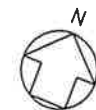
**SVERDRUP CIVIL, INC.**

NORTH CHANNEL BRIDGE  
**FRAMING PLAN AND GIRDER  
ELEVATION SPANS NCB1 THRU NCB3**

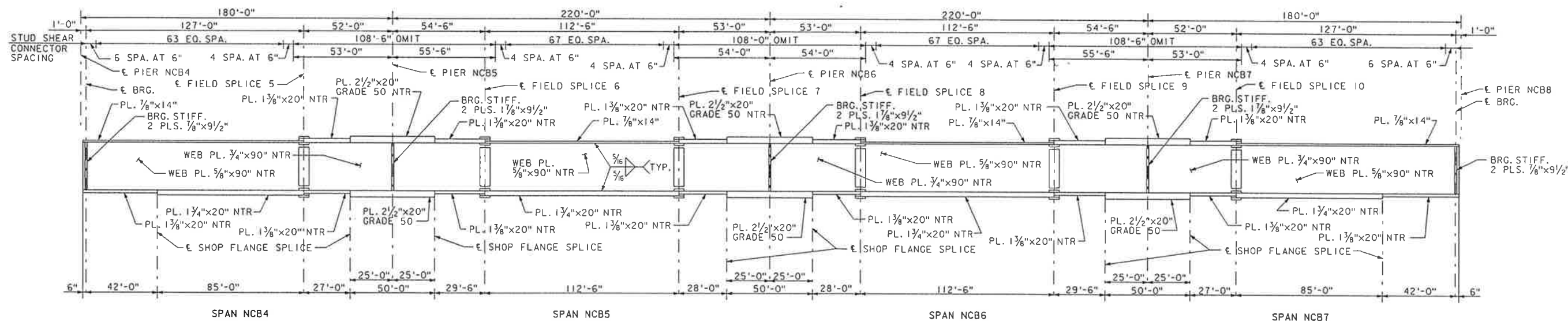
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CHECKED BY: TVD	DATE: DEC. 1994
DWG. NO. 679	
SECTION NO. NCB26 OF NCB50	

Approved: \_\_\_\_\_

JOB NO. 11555  
FILENAME 935223.DGN



FRAMING PLAN  
SCALE: 1" = 30'-0"



GIRDER ELEVATION  
SCALE: NONE

EXTERIOR GIRDER REACTION TABLE - SPANS NCB4 THRU NCB7 (KIPS)

PIER	NCB4	NCB5	NCB6	NCB7	NCB8
DL	115	413	402	413	115
LL	62	139	144	139	62
IMPACT	10	22	21	22	10
TOTAL	187	574	567	574	187

INTERIOR GIRDER REACTION TABLE - SPANS NCB4 THRU NCB7 (KIPS)

PIER	NCB4	NCB5	NCB6	NCB7	NCB8
DL	123	441	429	441	123
LL	74	167	172	167	74
IMPACT	12	26	25	26	12
TOTAL	209	634	626	634	209

EXTERIOR GIRDER MOMENT TABLE-SPANS NCB4 TO NCB7 (FT-KIPS)

	0.4 SPAN NCB4	BENT NCB5	0.5 SPAN NCB5	BENT NCB6	0.5 SPAN NCB6	BENT NCB7	0.6 SPAN NCB7
DL	3596	8366	2950	8020	2950	8366	3596
LL	2228	2661	2459	2854	2459	2661	2228
IMPACT	366	410	356	414	356	410	366
TOTAL	6190	11437	5765	11288	5765	11437	6190

INTERIOR GIRDER MOMENT TABLE-SPANS NCB4 TO NCB7 (FT-KIPS)

	0.4 SPAN NCB4	BENT NCB5	0.5 SPAN NCB5	BENT NCB6	0.5 SPAN NCB6	BENT NCB7	0.6 SPAN NCB7
DL	3846	8944	3146	8562	3146	8944	3846
LL	2668	3169	2949	3401	2949	3169	2668
IMPACT	439	488	427	493	427	488	439
TOTAL	6953	12601	6522	12456	6522	12601	6953

NOTE: REACTIONS AND MOMENTS ARE UNFACTORED.  
DL INDICATES DEAD LOAD.  
LL INDICATES LIVE LOAD.  
IMPACT INDICATES LIVE LOAD IMPACT.

ESTIMATED QUANTITIES - SPAN NCB4 - NCB7

ITEM	TYPE	UNIT	TOTAL
STRUCTURAL STEEL	GRADE 36	LBS.	1,233,630
STRUCTURAL STEEL	GRADE 50	LBS.	204,983

NOTES

FOR STRUCTURAL STEEL NOTES, SEE SECTION NCB26.

RECORD DRAWING

COMMONWEALTH OF VIRGINIA  
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
CAPE CHARLES, VIRGINIA 23310-0111

PARALLEL CROSSING  
TO  
LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

SVERDRUP CIVIL, INC.

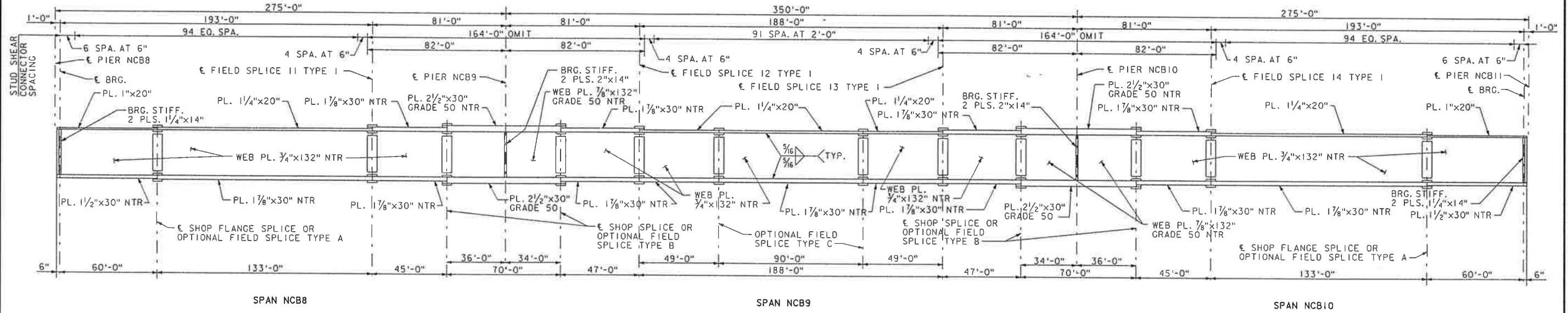
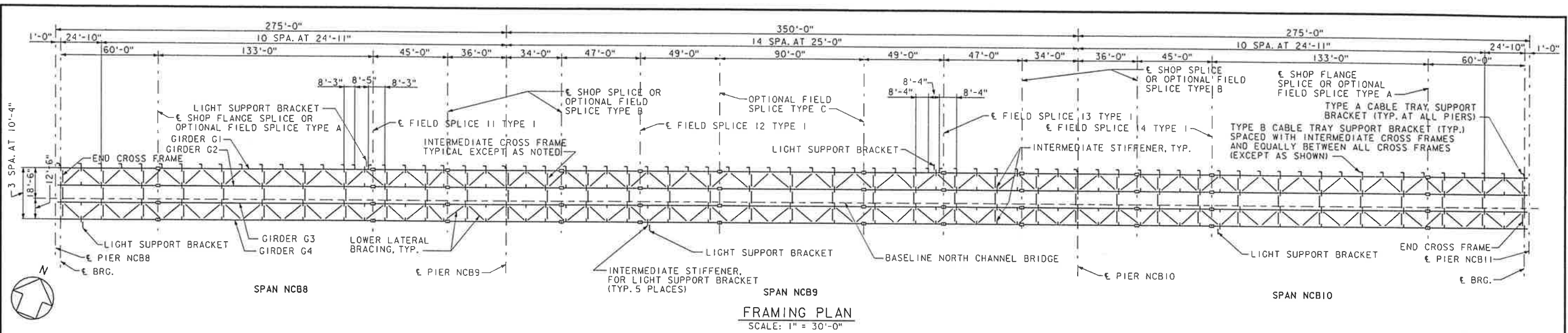
NORTH CHANNEL BRIDGE  
FRAMING PLAN AND GIRDER  
ELEVATION SPANS NCB4 THRU NCB7

DRAWN BY: JGC	SCALE: AS SHOWN
CHECKED BY: TVD	DATE: DEC. 1994
DWG. NO. 680	
SECTION NO. NCB27 OF NCB50	

Approved: \_\_\_\_\_

NO.	DATE	BY	APP.	DESCRIPTION

JOB NO. 11555  
FILENAME 935224.DGN



**EXTERIOR GIRDER REACTION TABLE - SPANS NCB8 THRU NCB10 (KIPS)**

PIER	NCB8	NCB9	NCB10	NCB11
DL	203	752	752	203
LL	83	205	205	83
IMPACT	11	23	23	11
TOTAL	297	980	980	297

**INTERIOR GIRDER REACTION TABLE - SPANS NCB8 THRU NCB10 (KIPS)**

PIER	NCB8	NCB9	NCB10	NCB11
DL	215	796	796	215
LL	100	245	245	100
IMPACT	12	28	28	12
TOTAL	327	1069	1069	327

**EXTERIOR GIRDER MOMENT TABLE-SPANS NCB8 TO NCB10 (FT-KIPS)**

	0.4 SPAN NCB8	BENT NCB9	0.5 SPAN NCB9	BENT NCB10	0.6 SPAN NCB10
DL	9592	23512	9487	23512	9592
LL	4702	6145	5312	6145	4702
IMPACT	590	703	560	703	590
TOTAL	14884	30360	15359	30360	14884

**INTERIOR GIRDER MOMENT TABLE-SPANS NCB8 TO NCB10 (FT-KIPS)**

	0.4 SPAN NCB8	BENT NCB9	0.5 SPAN NCB9	BENT NCB10	0.6 SPAN NCB10
DL	10168	24888	10025	24888	10168
LL	5634	7317	6378	7317	5634
IMPACT	706	837	672	837	706
TOTAL	16508	33042	17075	33042	16508

NOTE: REACTIONS AND MOMENTS ARE UNFACTORED.  
DL INDICATES DEAD LOAD.  
LL INDICATES LIVE LOAD.  
IMPACT INDICATES LIVE LOAD IMPACT.

**ESTIMATED QUANTITIES - SPANS NCB8 - NCB10**

ITEM	TYPE	UNIT	TOTAL
STRUCTURAL STEEL	GRADE 36	LBS.	2,140,233
STRUCTURAL STEEL	GRADE 50	LBS.	507,949

**NOTES**  
FOR STRUCTURAL STEEL NOTES, SEE SECTION NCB26.

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
TO  
LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

SVERDRUP CIVIL, INC.

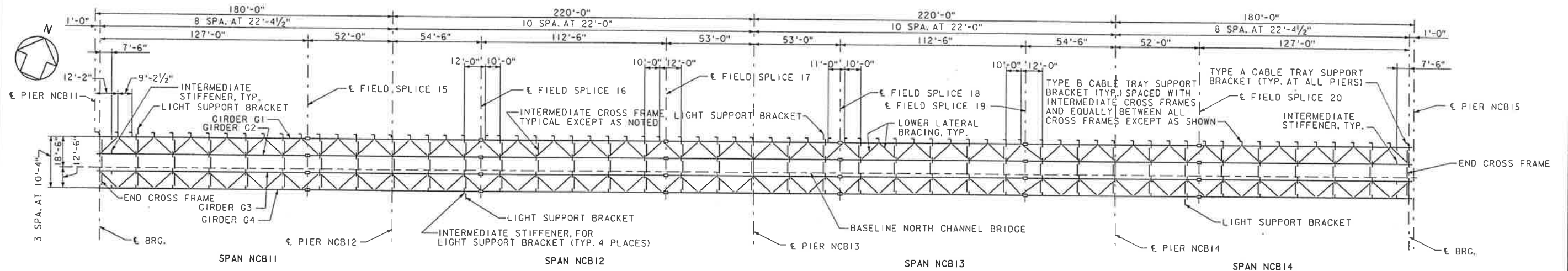
NORTH CHANNEL BRIDGE  
FRAMING PLAN AND GIRDER  
ELEVATION SPANS NCB8 THRU NCB10

DRAWN BY: JGC SCALE: AS SHOWN  
CHECKED BY: TVD DATE: DEC. 1994  
DWC. NO. 681  
SECTION NO. NCB28 OF NCB50

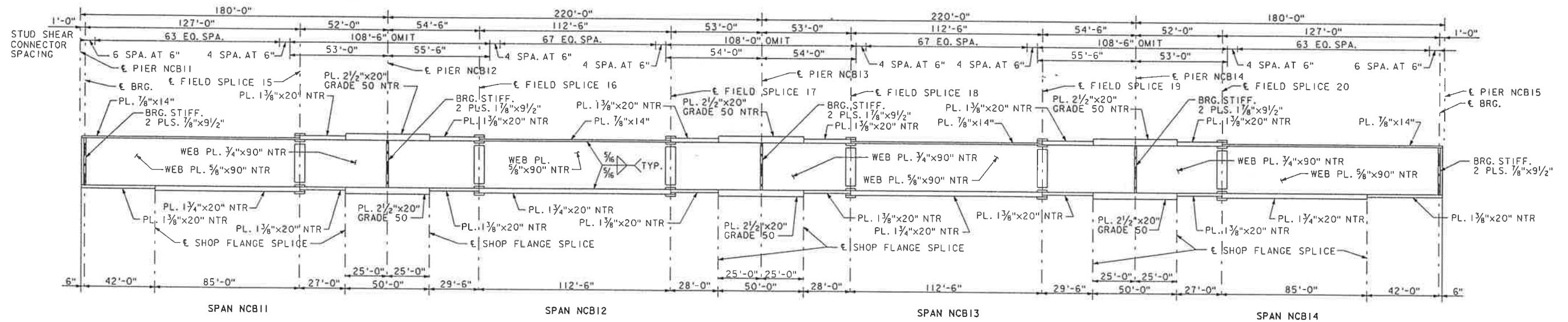
Approved: \_\_\_\_\_

NO.	DATE	BY	APP.	DESCRIPTION

FILENAME: 955001.DGN  
JOB NO.: T1555



**FRAMING PLAN**  
SCALE: 1" = 30'-0"



**GIRDER ELEVATION**  
SCALE: NONE

**NOTES**

FOR STRUCTURAL STEEL NOTES, SEE SECTION NCB26.

**EXTERIOR GIRDER REACTION TABLE - SPANS NCB11 THRU NCB14 (KIPS)**

PIER	NCB11	NCB12	NCB13	NCB14	NCB15
DL	115	413	402	413	115
LL	62	139	144	139	62
IMPACT	10	22	21	22	10
TOTAL	187	574	567	574	187

**INTERIOR GIRDER REACTION TABLE - SPANS NCB11 THRU NCB14 (KIPS)**

PIER	NCB11	NCB12	NCB13	NCB14	NCB15
DL	123	441	429	441	123
LL	74	167	172	167	74
IMPACT	12	26	25	26	12
TOTAL	209	634	626	634	209

**EXTERIOR GIRDER MOMENT TABLE-SPANS NCB11 TO NCB14 (FT-KIPS)**

	0.4 SPAN NCB11	BENT NCB12	0.5 SPAN NCB12	BENT NCB13	0.5 SPAN NCB13	BENT NCB14	0.6 SPAN NCB14
DL	3596	8366	2950	8020	2950	8366	3596
LL	2228	2661	2459	2854	2459	2661	2228
IMPACT	366	410	356	414	356	410	366
TOTAL	6190	11437	5765	11288	5765	11437	6190

**INTERIOR GIRDER MOMENT TABLE-SPANS NCB11 TO NCB14 (FT-KIPS)**

	0.4 SPAN NCB11	BENT NCB12	0.5 SPAN NCB12	BENT NCB13	0.5 SPAN NCB13	BENT NCB14	0.6 SPAN NCB14
DL	3846	8944	3146	8562	3146	8944	3846
LL	2668	3169	2949	3401	2949	3169	2668
IMPACT	439	488	427	493	427	488	439
TOTAL	6953	12601	6522	12456	6522	12601	6953

NOTE: REACTIONS AND MOMENTS ARE UNFACTORED.  
DL INDICATES DEAD LOAD.  
LL INDICATES LIVE LOAD.  
IMPACT INDICATES LIVE LOAD IMPACT.

**ESTIMATED QUANTITIES - SPANS NCB11 - NCB14**

ITEM	TYPE	UNIT	TOTAL
STRUCTURAL STEEL	GRADE 36	LBS.	1,233,630
STRUCTURAL STEEL	GRADE 50	LBS.	204,983

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

**SVERDRUP CIVIL, INC.**

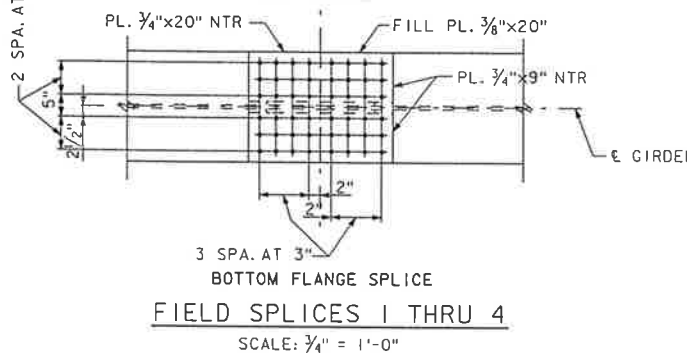
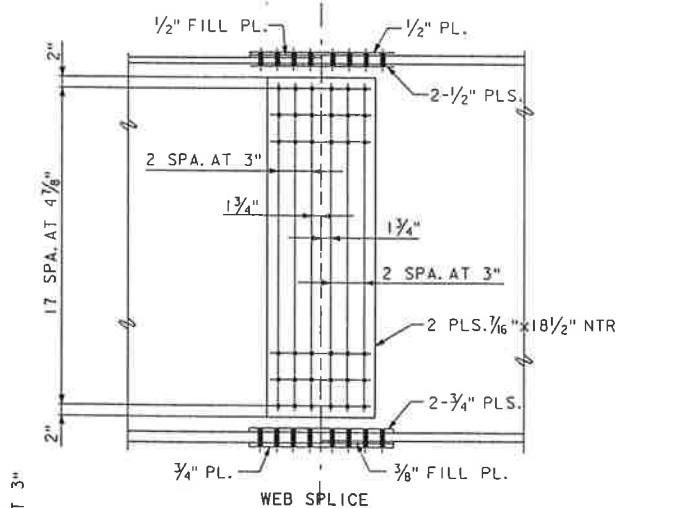
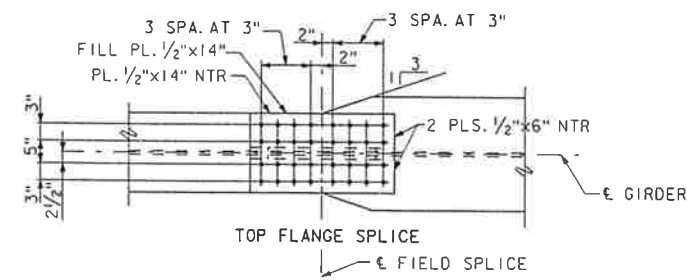
NORTH CHANNEL BRIDGE  
**FRAMING PLAN AND GIRDER  
ELEVATION SPANS NCB11 THRU NCB14**

DRAWN BY: JGC	SCALE: AS SHOWN
CHECKED BY: TVD	DATE: DEC. 1994
DWG. NO. 682	
SECTION NO. NCB29 OF NCB50	

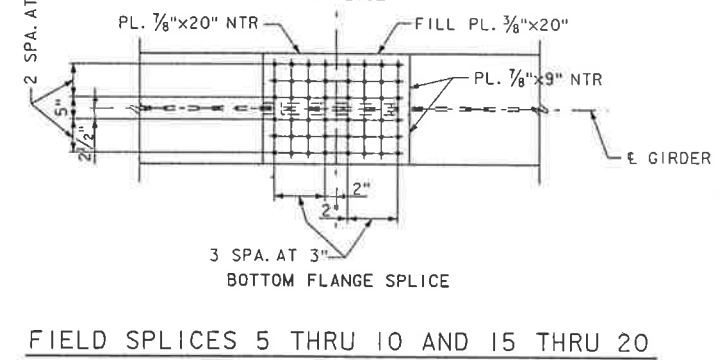
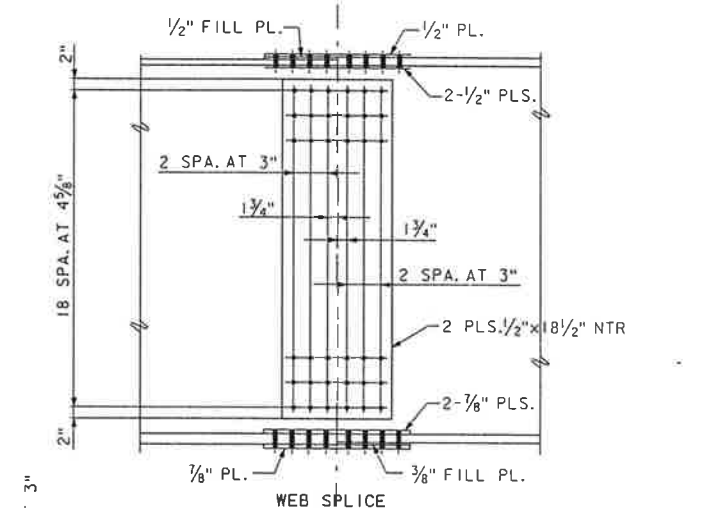
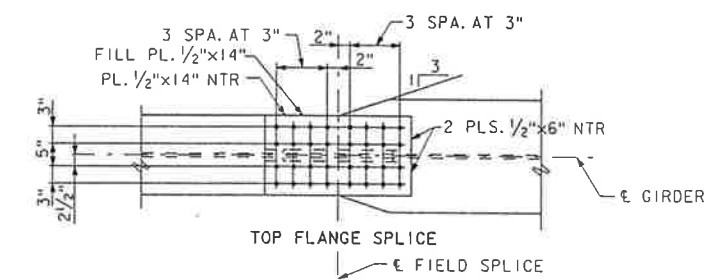
Approved: \_\_\_\_\_

NO.	DATE	BY	APP.	DESCRIPTION

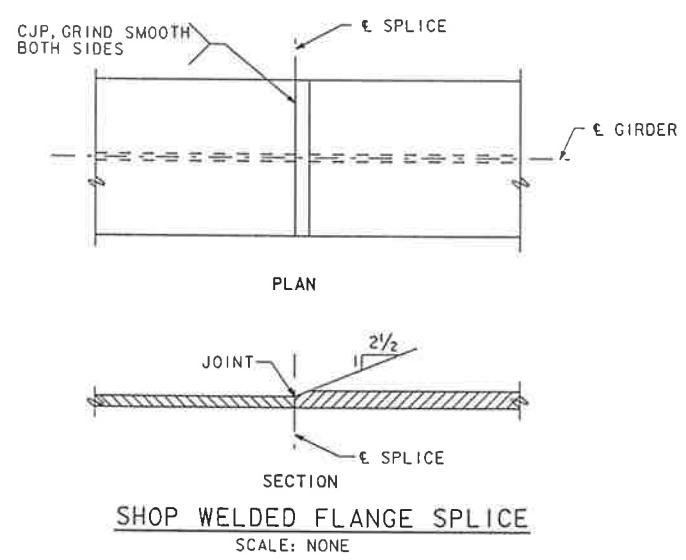
FILENAME: 935226.DGN  
JOB NO.: 11555



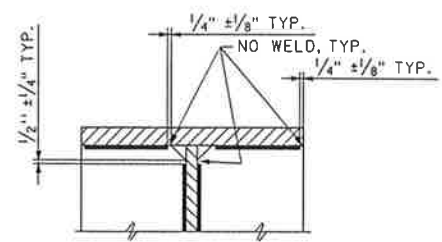
FIELD SPLICES 1 THRU 4  
SCALE: 3/4" = 1'-0"



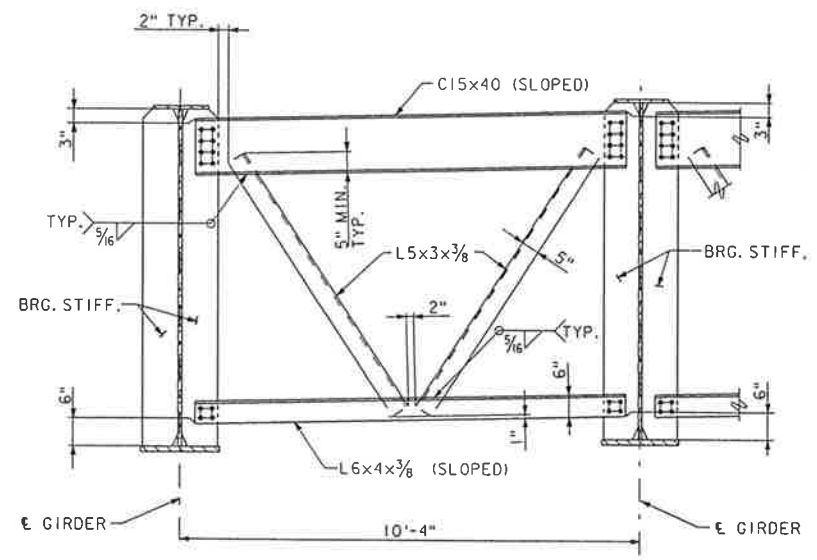
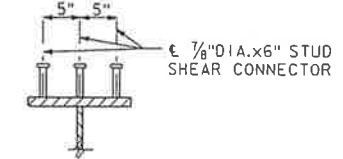
FIELD SPLICES 5 THRU 10 AND 15 THRU 20  
SCALE: 3/4" = 1'-0"



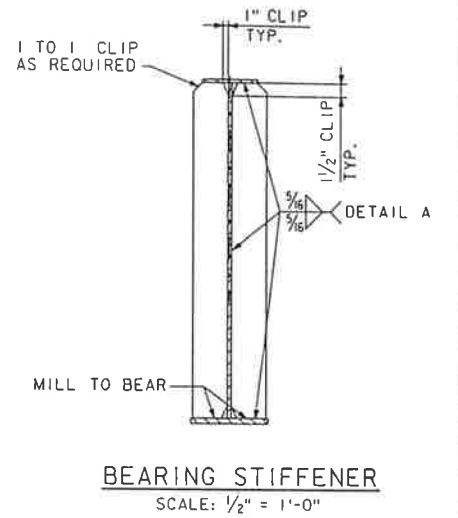
SHOP WELDED FLANGE SPLICE  
SCALE: NONE



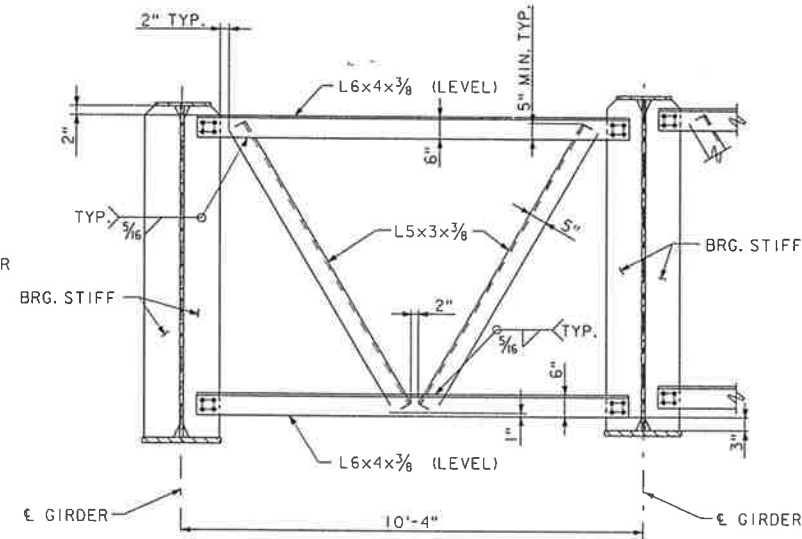
STUD SHEAR CONNECTOR DETAIL  
SCALE: NONE



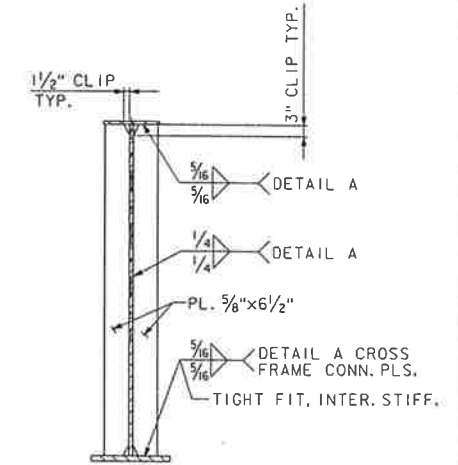
TYPICAL END CROSS FRAME  
SCALE: 1/2" = 1'-0"  
NOTE: LATERAL CONN. PL. AND BRG. SOLE PL. NOT SHOWN.



BEARING STIFFENER  
SCALE: 1/2" = 1'-0"



TYPICAL INTERMEDIATE CROSS FRAME  
SCALE: 1/2" = 1'-0"  
NOTE: SHOWN AT INTERIOR SUPPORT PIERS. LATERAL CONN. PL. AND BRG. SOLE PL. NOT SHOWN.




INTERMEDIATE STIFFENERS AND CROSS FRAME CONNECTION PLATES  
SCALE: 1/2" = 1'-0"

JOB NO. 11585  
FILENAME 935223.DGN

NO.	DATE	BY	APP.	DESCRIPTION

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
CAPE CHARLES, VIRGINIA 23310-0111

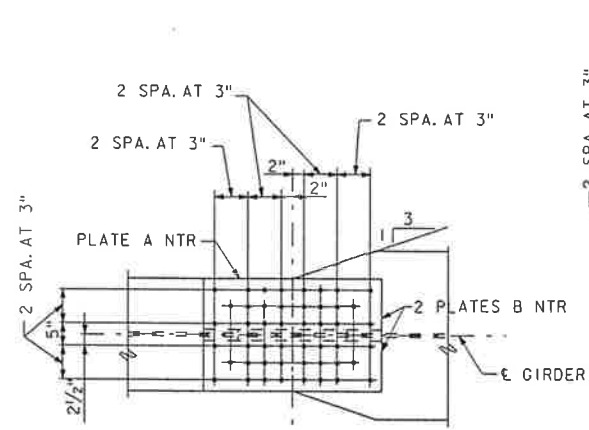
 **PARALLEL CROSSING**  
TO  
LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

**SVERDRUP CIVIL, INC.**

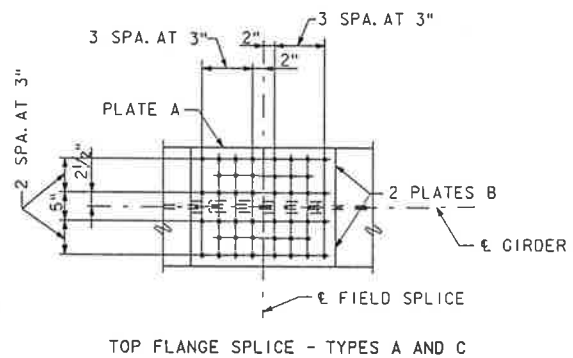
NORTH CHANNEL BRIDGE  
STEEL DETAILS - SPANS NCBI  
THRU NCBI7 AND NCBI11 THRU NCBI14

DRAWN BY: JGC	SCALE: AS SHOWN
CHECKED BY: TVD	DATE: DEC. 1994
DWG. NO. 683	
SECTION NO. NCB30 OF NCB50	

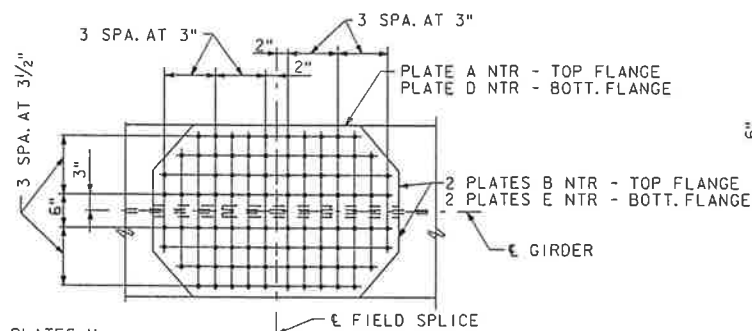
Approved: \_\_\_\_\_



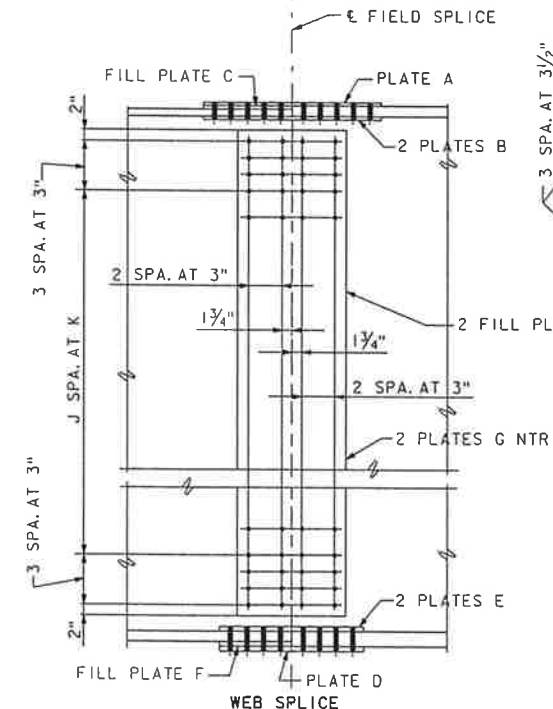
TOP FLANGE SPLICE - TYPE I  
E FIELD SPLICE



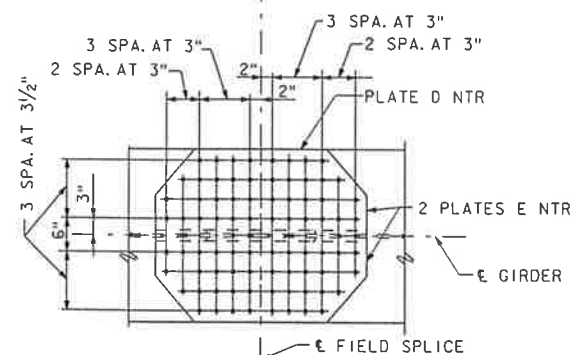
TOP FLANGE SPLICE - TYPES A AND C



TOP OR BOTTOM FLANGE SPLICE - TYPE B

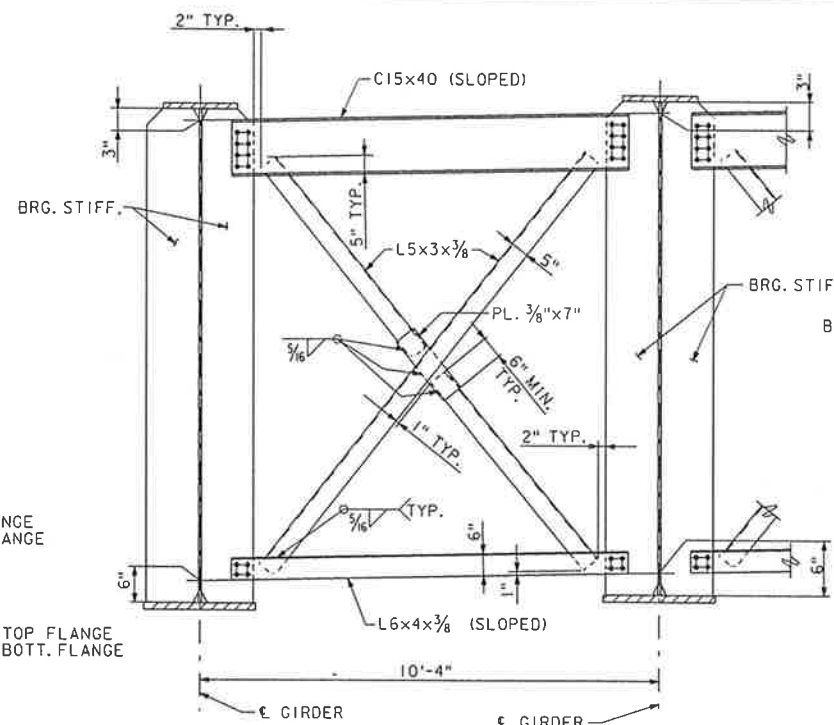


WEB SPLICE



BOTTOM FLANGE SPLICE - TYPES I, A AND C

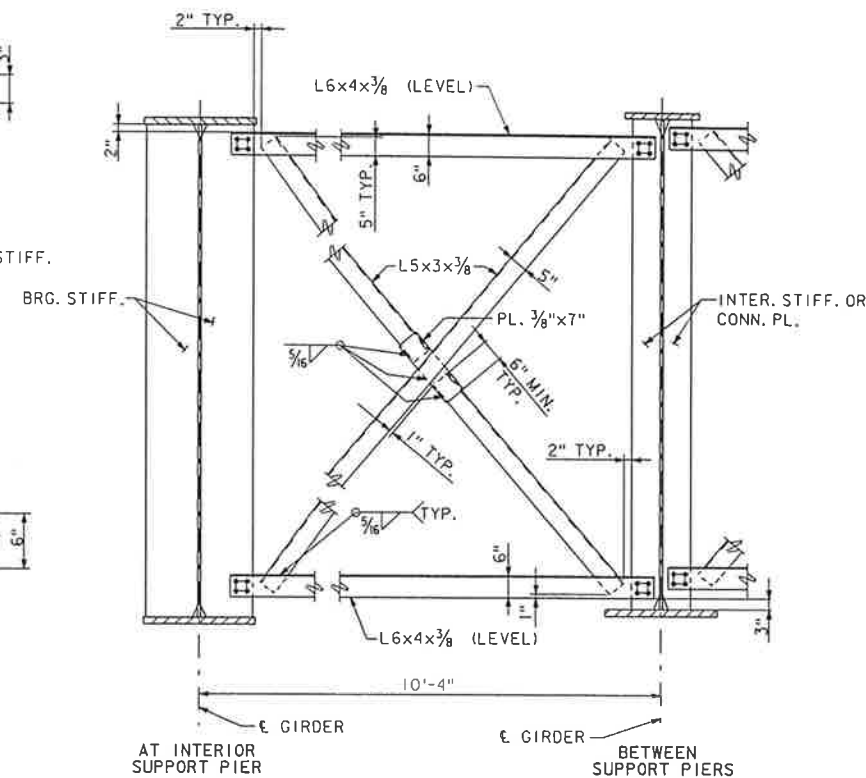
	FIELD SPLICE DATA			
	SPLICE TYPE I	SPLICE TYPE A	SPLICE TYPE B	SPLICE TYPE C
PLATE A	5/8"x20"	5/8"x20"	1"x30"	3/4"x20"
PLATE B	3/8"x9"	3/8"x9"	1/8"x14"	1/8"x9"
FILL PLATE C	5/8"x20"	1/4"x20"	3/8"x30"	---
PLATE D	3/8"x30"	3/8"x30"	1"x30"	3/8"x30"
PLATE E	1/8"x14"	1/8"x14"	1/8"x14"	1/8"x14"
FILL PLATE F	---	3/8"x30"	3/8"x30"	---
PLATE G	1/2"x18 1/2"	1/2"x18 1/2"	1/2"x18 1/2"	1/2"x18 1/2"
FILL PLATE H	---	---	1/16"x9 1/4"	---
J SPA.	24	30	28	30
K	4 3/4"	3 1/2"	3 3/4"	3 1/2"



TYPICAL END CROSS FRAME

SCALE: 1/2" = 1'-0"

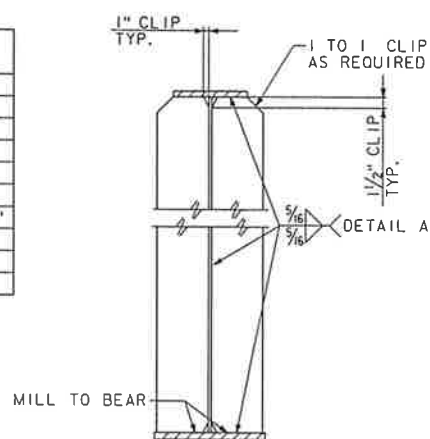
NOTE: LOWER LATERAL CONN. PL. AND BRG. SOLE PL. NOT SHOWN.



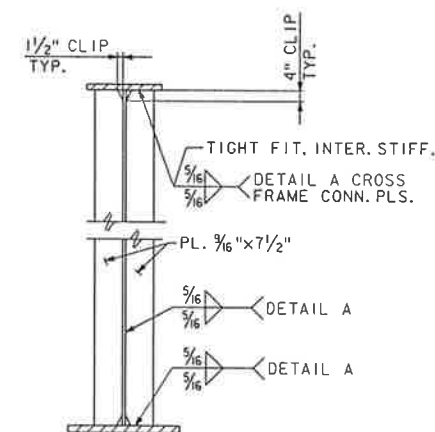
TYPICAL INTERMEDIATE CROSS FRAME

SCALE: 1/2" = 1'-0"

NOTE: LOWER LATERAL CONN. PL. OR BRG. SOLE PL. NOT SHOWN.

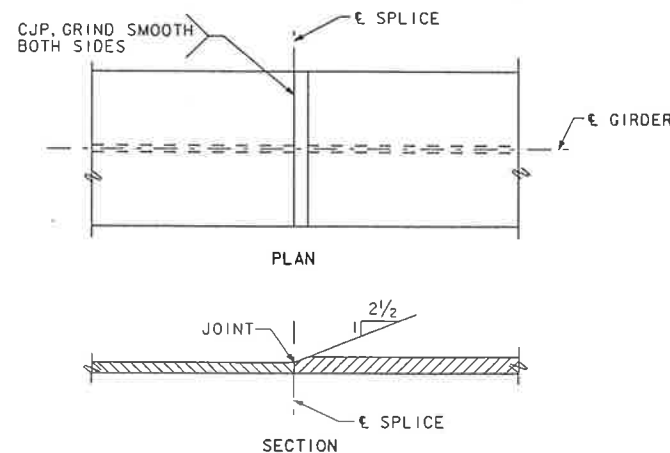


BEARING STIFFENER



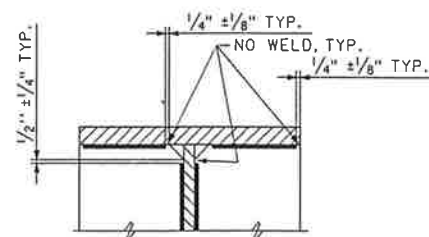
INTERMEDIATE STIFFENERS AND CROSS FRAME CONNECTION PLATES

SCALE: 1/2" = 1'-0"

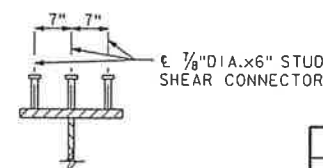


SHOP WELDED FLANGE SPLICE

SCALE: NONE



DETAIL A  
SCALE: NONE



STUD SHEAR CONNECTOR DETAIL  
SCALE: NONE

RECORD DRAWING

COMMONWEALTH OF VIRGINIA  
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
CAPE CHARLES, VIRGINIA 23310-0111

PARALLEL CROSSING  
TO  
LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL  
SVERDRUP CIVIL, INC.

NORTH CHANNEL BRIDGE  
STEEL DETAILS  
SPANS NCB8 THRU NCB10

DRAWN BY: JGC SCALE: AS SHOWN

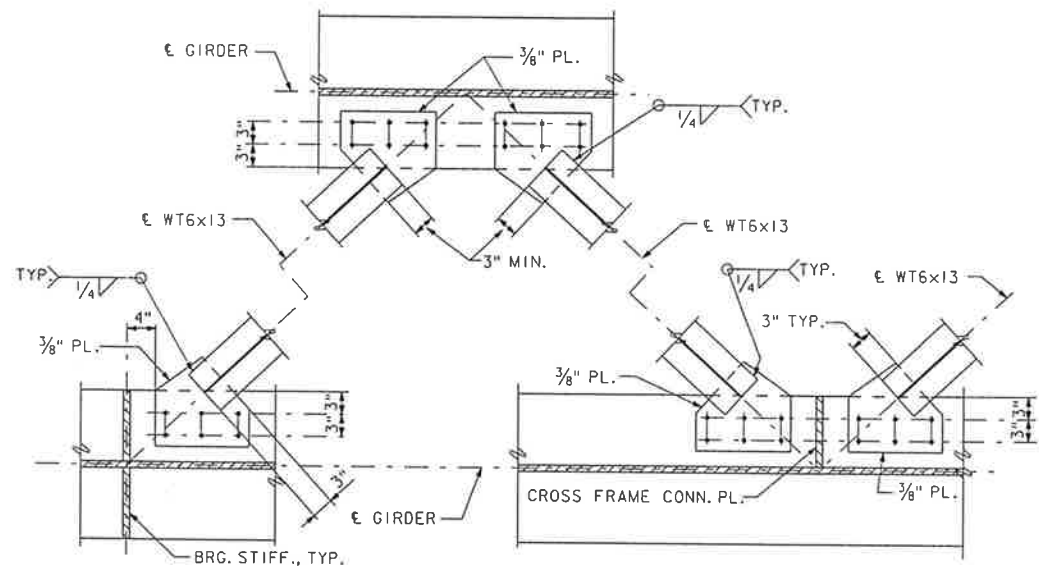
CHECKED BY: TVD DATE: DEC. 1994

DWG. NO. 684

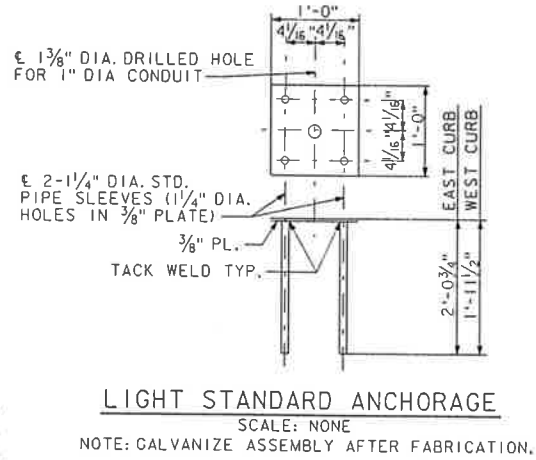
Approved: \_\_\_\_\_ SECTION NO. NCB31 OF NCB50

JOB NO. 11555  
FILENAME 955002.DGN

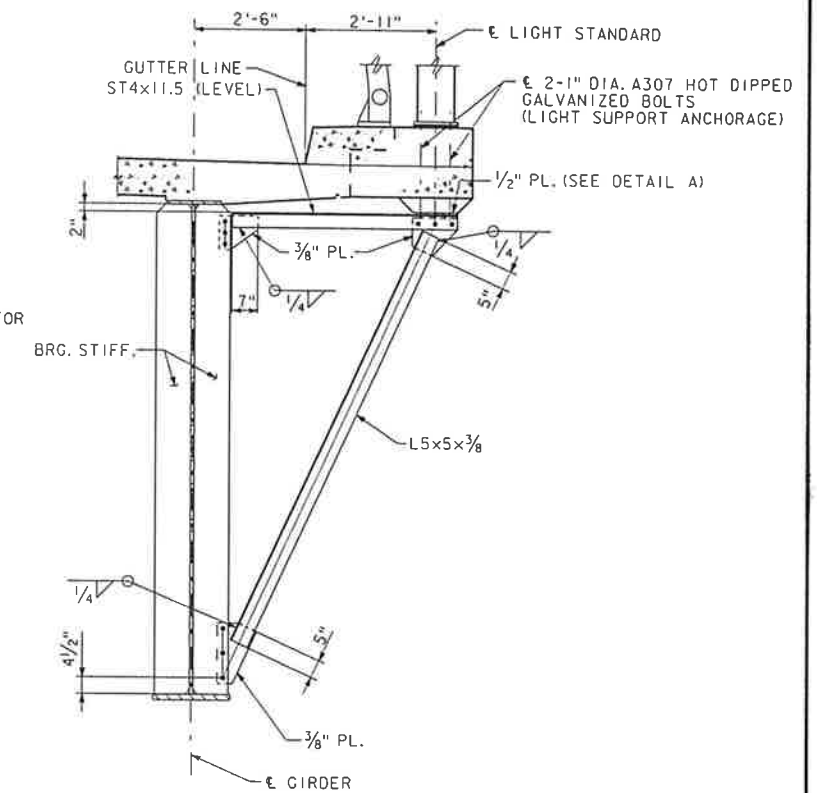
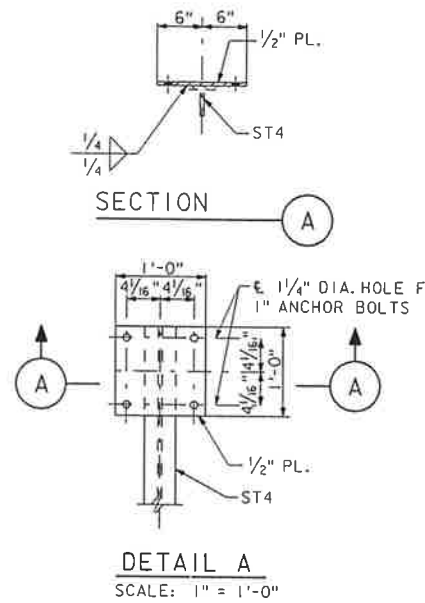
NO.	DATE	BY	APP.	DESCRIPTION



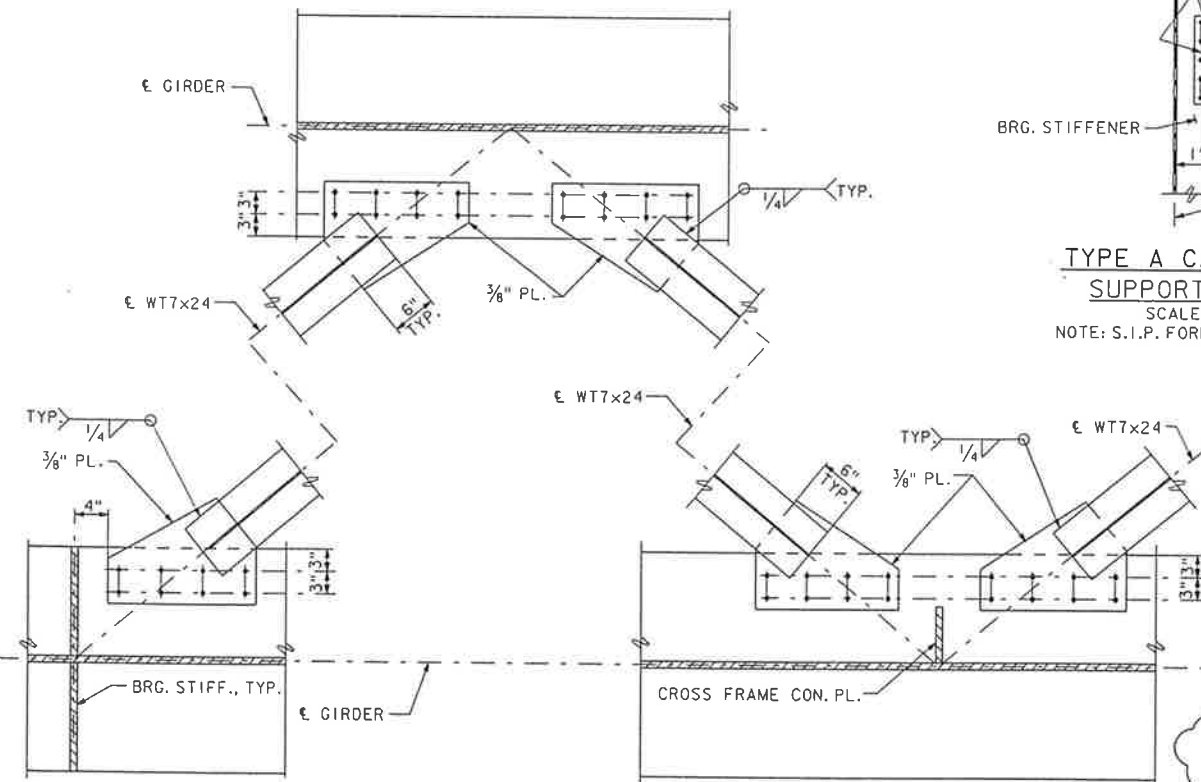
**LOWER LATERAL BRACING DETAILS**  
 SPANS NCB1 THRU NCB3, NCB4 THRU NCB7  
 AND NCB11 THRU NCB14  
 SCALE: 1" = 1'-0"



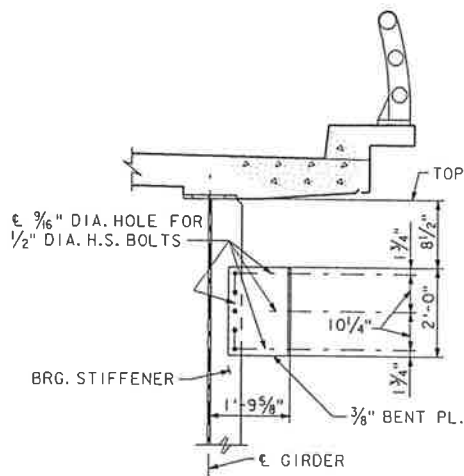
**LIGHT STANDARD ANCHORAGE**  
 SCALE: NONE  
 NOTE: GALVANIZE ASSEMBLY AFTER FABRICATION.



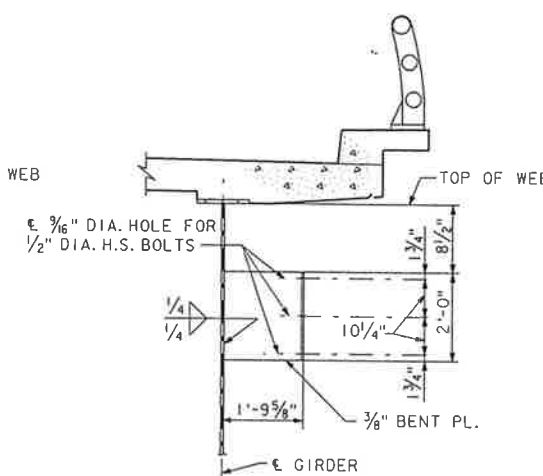
**TYPICAL LIGHT SUPPORT BRACKET**  
 SCALE: 1/2" = 1'-0"  
 NOTE: CONNECTION TO BRG. STIFF. SHOWN, CONNECTION TO INTERMEDIATE STIFF. SIMILAR. S.I.P. FORMS NOT SHOWN.



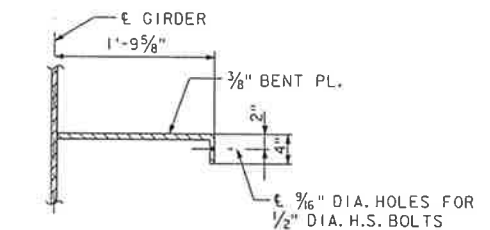
**LOWER LATERAL BRACING DETAILS SPANS NCB8 THRU NCB10**  
 SCALE: 1" = 1'-0"



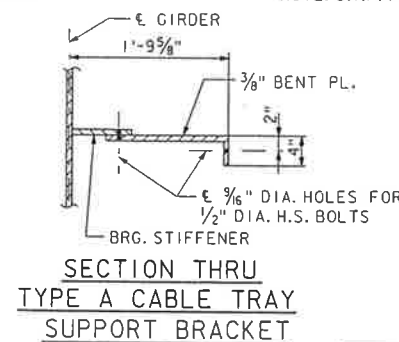
**TYPE A CABLE TRAY SUPPORT BRACKET**  
 SCALE: NONE  
 NOTE: S.I.P. FORMS NOT SHOWN.



**TYPE B CABLE TRAY SUPPORT BRACKET**  
 SCALE: NONE  
 NOTE: S.I.P. FORMS NOT SHOWN.



**SECTION THRU TYPE B CABLE TRAY SUPPORT BRACKET**  
 SCALE: NONE



**SECTION THRU TYPE A CABLE TRAY SUPPORT BRACKET**

AS BUILT NOTE: 4 - 7/8" H.S. BOLTS WERE SUBSTITUTED FOR 1/4" FILLET WELD ON WT6 LATERAL BRACES AND 6 - 7/8" H.S. BOLTS ON WT7 LATERAL BRACES.

JOB NO. 11555  
 FILENAME 9351046.DGN

NO.	DATE	BY	APP.	DESCRIPTION
01-00	DH	KR		RECORD DRAWING MODIFICATIONS
				NOTE ADDED

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
 CAPE CHARLES, VIRGINIA 23310-0111

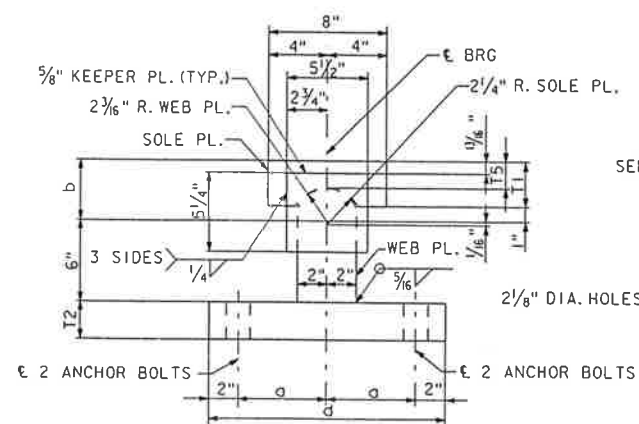
**PARALLEL CROSSING**  
 TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

**SVERDRUP CIVIL, INC.**  
 NORTH CHANNEL BRIDGE  
 STEEL DETAILS

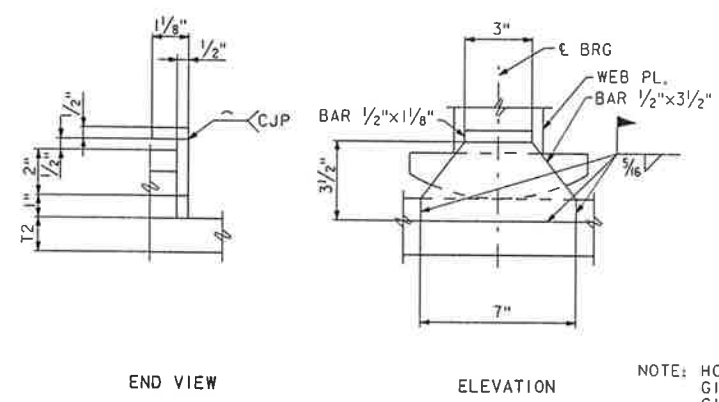
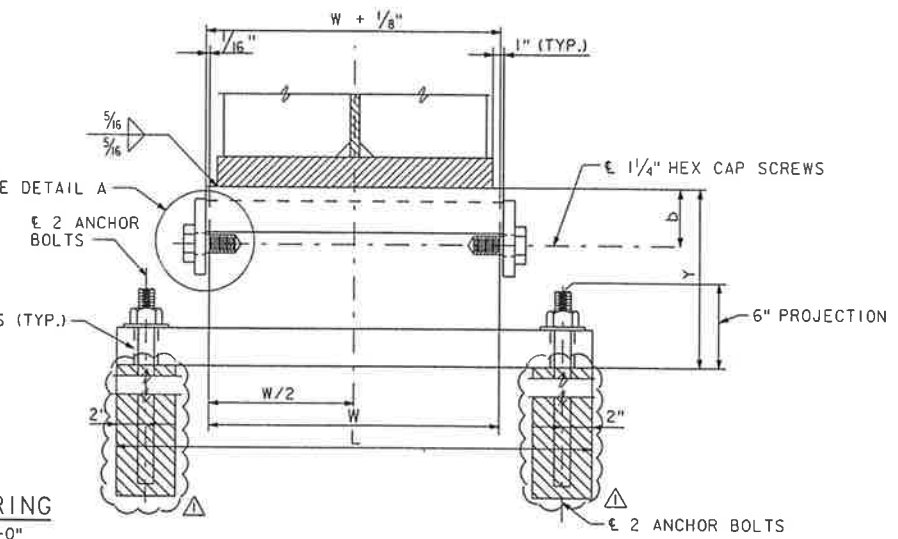
Approved: \_\_\_\_\_

DRAWN BY: JGC	SCALE: AS SHOWN
CHECKED BY: TVD	DATE: DEC. 1994
DWG. NO. 685	
SECTION NO. NCB32 OF NCB50	





**FIXED BEARING**  
SCALE: 2" = 1'-0"

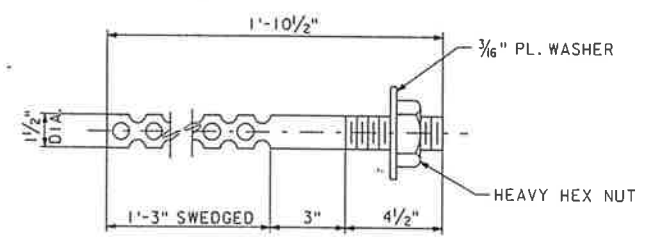


**DETAIL OF HOLD DOWN**  
SCALE: 3" = 1'-0"

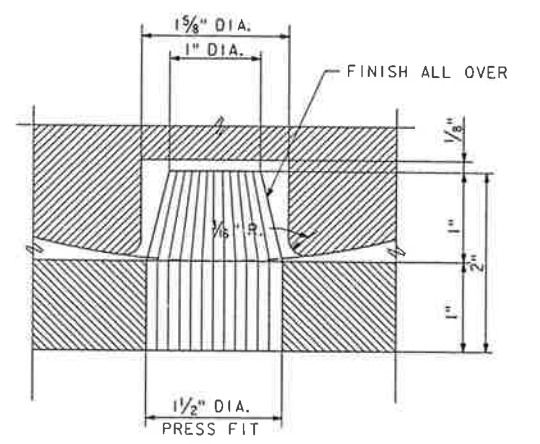
NOTE: HOLD DOWNS ARE TO BE LOCATED AS FOLLOWS:  
GIRDER G1 EXPANSION BRGS.-WEST END  
GIRDER G4 EXPANSION BRGS.-EAST END

BEARING VARIABLES										
PIER	L	d	a	b	w	T1	T2	T5	Y	WEIGHT PER BEARING
NCB2, NCB3	37	18	7	4 1/2	22	3 1/2	3	2 1/4	13 1/2	977 LBS. (32 REQ'D.)
NCB5, NCB7, NCB12, NCB14	37	18	7	4 1/2	22	3 1/2	3	2 1/4	13 1/2	
NCB6, NCB13	37	18	7	4 1/2	22	3 1/2	3	2 1/4	13 1/2	
NCB9, NCB10	50	22	9	5	32	4	3 1/2	2 5/8	14 1/2	1,702 LBS. (8 REQ'D.)

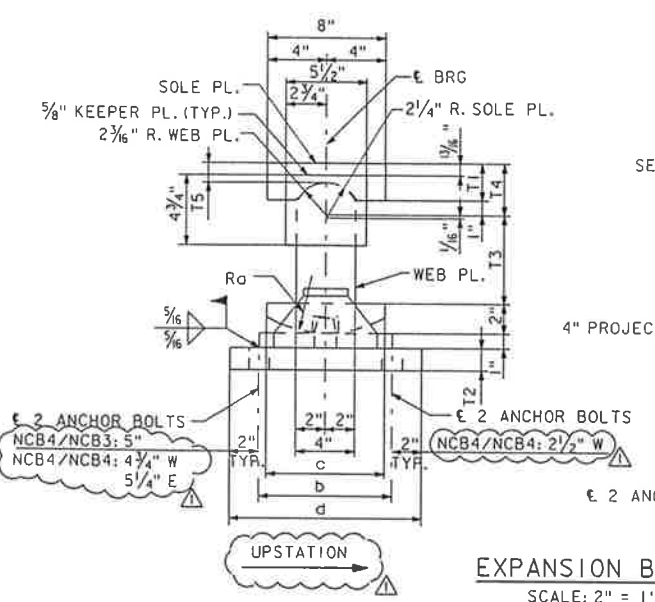
NOTE: ALL DIMENSIONS IN TABLE ARE IN INCHES.  
BEARING WEIGHTS INCLUDE ANCHORS.



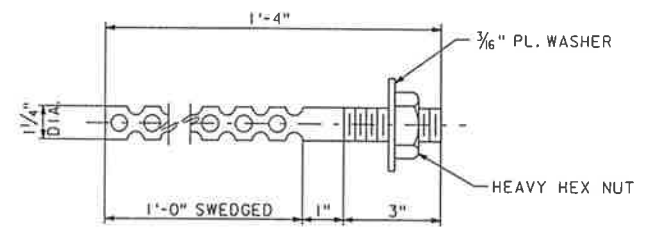
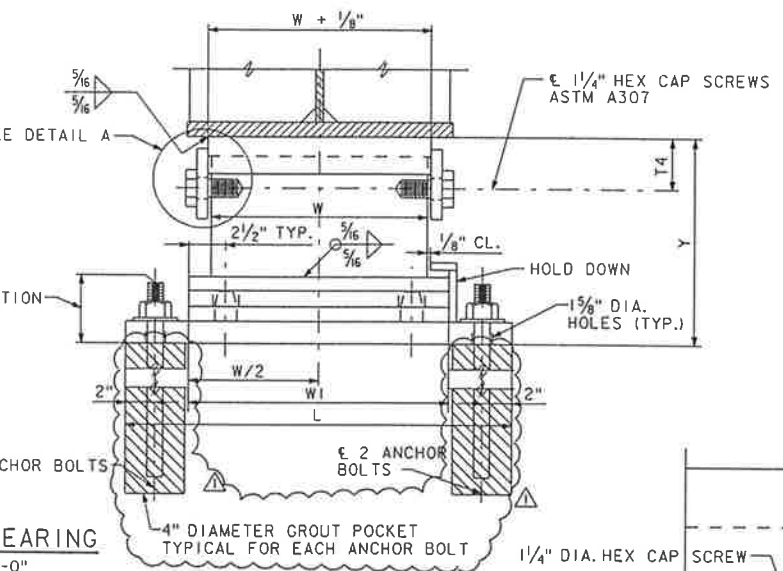
**FIXED BEARING**  
4 REQ'D. PER BEARING



**PINTLE DETAIL**  
FULL SCALE



**EXPANSION BEARING**  
SCALE: 2" = 1'-0"



**EXPANSION BEARING**  
4 REQ'D. PER BEARING

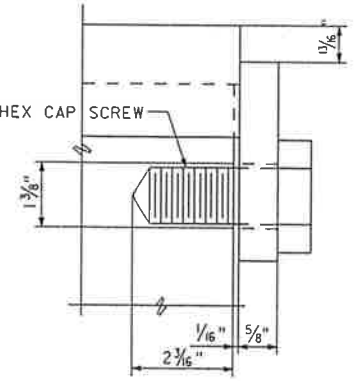
**ANCHOR BOLTS**

NO SCALE  
NOTE: ANCHOR BOLTS, SHALL CONFORM TO ASTM A36,  
NUTS, ASTM A563 AND WASHERS, ASTM F844.  
ALL SHALL BE GALVANIZED PER ASTM A153.

**NOTES**  
DESIGN IS BASED ON ASTM A709 GRADE 36 STEEL STRESSES.  
FILL SLOTS AND HOLES IN MASONRY PLATE AROUND ANCHOR BOLTS WITH A NON-HARDENING CAULKING COMPOUND OR ELASTIC JOINT SEALER.  
FOR EXPANSION BEARINGS AT PIERS NCB4 AND NCB15 BEVEL TOP OF SOLE PLATES TO GRADE OF 3%. AND AT PIERS NCB8 AND NCB11 BEVEL TOP OF SOLE PLATES TO GRADE OF 2.175%. NO BEVEL OF SOLE PLATE REQUIRED FOR FIXED BEARINGS.  
SURFACE FINISH BOTTOM OF ROCKER OF EXPANSION SHOE TO 250 MICROINCHES IN ACCORDANCE WITH ANSI B46.1.  
TOTAL BEARING WEIGHT (INCLUDING ANCHORS) = 66,152 LBS. IS INCLUDED IN AND PAID FOR AS STRUCTURAL STEEL, GRADE 36.

BEARING VARIABLES														WEIGHT PER BRG. W/ HOLD DOWN	WEIGHT PER BRG. W/O HOLD DOWN	
PIER	SPAN	L	d	w	w1	c	b	Ra	T1	T2	T3	T4	T5	Y		
NCB1	NCB1	29	13	18	20 1/2	8	9	9	2 1/2	1 5/8	7	3 1/2	1 1/8	15 1/8"	608 LBS. (12 REQ'D.)	605 LBS. (12 REQ'D.)
NCB4	NCB3	29	16	18	20 1/2	8	9	9	2 1/2	1 5/8	7	3 1/2	1 1/8	15 1/8"		
NCB4	NCB4	29	16 1/4	18	20 1/2	8	9	9	2 1/2	1 5/8	7	3 1/2	1 1/8	15 1/8"		
NCB8	NCB7	29	13	18	20 1/2	8	9	9	2 1/2	1 5/8	7	3 1/2	1 1/8	15 1/8"	841 LBS. (4 REQ'D.)	838 LBS. (4 REQ'D.)
NCB11	NCB11	29	13	18	20 1/2	8	9	9	2 1/2	1 5/8	7	3 1/2	1 1/8	15 1/8"		
NCB15	NCB14	29	13	18	20 1/2	8	9	9	2 1/2	1 5/8	7	3 1/2	1 1/8	15 1/8"		
NCB8	NCB8	31	15	20	22 1/2	9	11	12	3	1 1/8	10	4	1 1/8	18 1/8"		
NCB11	NCB10	31	15	20	22 1/2	9	11	12	3	1 1/8	10	4	1 1/8	18 1/8"		

NOTE: ALL DIMENSIONS IN TABLE ARE IN INCHES.



**DETAIL A**  
SCALE: 6" = 1'-0"

NO.	DATE	BY	APP.	DESCRIPTION
△	01-00	DH	KR	RECORD DRAWING MODIFICATIONS
				BASE PLATE DIMENSION CHANGE
				AND ADDED A.B. GROUT POCKETS

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
TO  
LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

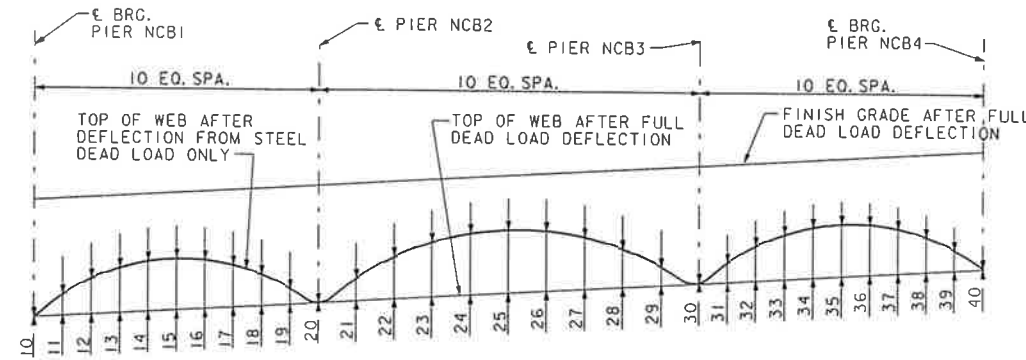
**SVERDRUP CIVIL, INC.**

NORTH CHANNEL BRIDGE  
**BEARING DETAILS**

DRAWN BY: BJW	SCALE: AS SHOWN
CHECKED BY: TVD	DATE: DEC. 1994
DWG. NO. 686	
SECTION NO. NCB33 OF NCB50	

Approved: \_\_\_\_\_

FILENAME: 935882.DGN  
JOB NO.: 11555



DEAD LOAD DEFLECTION DIAGRAM  
SPANS NCB1 THRU NCB3

DEAD LOAD DEFLECTION GIRDERS G1 AND G4

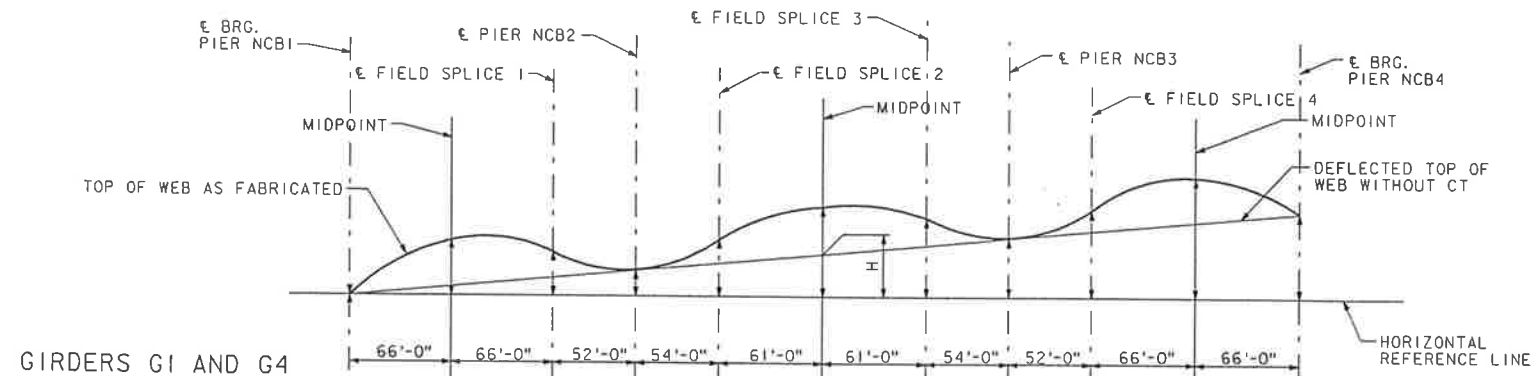
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Δ's	0	1 1/8"	2 1/16"	2 1/16"	2 1/8"	2 1/16"	2 1/16"	1 1/2"	1 1/8"	1/4"	0	1/4"	1/8"	1 1/4"	2 3/8"	2 3/8"	2 3/8"	1 1/4"	2 8"	2 9"	30	31	32	33	34	35	36	37	38	39	40
Δc	0	1/8"	3/16"	1/4"	1/4"	1/4"	3/16"	1/8"	1/16"	0	0	1/16"	1/8"	1/4"	3/16"	3/16"	1/4"	1/8"	1/8"	1/16"	0	0	1/16"	1/8"	3/16"	1/4"	1/4"	1/4"	3/16"	1/8"	0
TOTAL	0	1 1/4"	2 1/4"	2 5/16"	3 1/8"	2 5/16"	2 3/8"	1 5/8"	1 7/8"	1/4"	0	5/16"	1"	2"	2 1/2"	2 5/8"	2 3/8"	2"	1"	3/16"	0	1/4"	1/8"	1 1/8"	2 3/8"	2 1/4"	3 1/8"	2 5/16"	2 1/4"	1 1/4"	0

DEAD LOAD DEFLECTION GIRDERS G2 AND G3

	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Δ's	0	1 1/4"	2 3/16"	2 3/16"	3 3/16"	3"	2 1/16"	1 1/16"	1/8"	1/4"	0	1/4"	1"	1 1/8"	2 3/8"	2 3/8"	2 3/8"	1 1/8"	1"	1/4"	0	1/4"	1/8"	1 1/16"	2 1/16"	3"	3 3/16"	2 5/16"	2 3/16"	1 1/4"	0
Δc	0	1/8"	3/16"	1/4"	1/4"	1/4"	3/16"	1/8"	1/16"	0	0	1/16"	1/8"	3/16"	1/4"	3/16"	1/4"	3/16"	1/8"	1/16"	0	0	1/16"	1/8"	3/16"	1/4"	1/4"	1/4"	3/16"	1/8"	0
TOTAL	0	1 3/8"	2 1/2"	3 1/16"	3 3/16"	3 1/4"	2 5/8"	1 13/16"	1 5/8"	1/4"	0	5/16"	1 1/8"	2 1/16"	2 3/8"	3 1/16"	2 3/8"	2 1/16"	1 1/8"	3/16"	0	1/4"	1/8"	1 1/8"	2 3/8"	3 1/4"	3 1/16"	3 3/16"	2 1/2"	1 3/8"	0

TOP OF SLAB ELEVATIONS ALONG E GIRDERS (AFTER FULL DEAD LOAD DEFLECTION)

POINT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
GIRDER G1	50.915	51.467	52.019	52.571	53.123	53.675	54.227	54.779	55.331	55.883	56.435	57.125	57.815	58.505	59.195	58.885	60.575	61.265	61.955	62.645	63.335	63.887	64.439	64.991	65.543	66.095	66.647	67.199	67.751	68.303	68.855
GIRDER G2	50.700	51.252	51.804	52.356	52.908	53.460	54.012	54.564	55.116	55.668	56.220	56.910	57.600	58.290	58.980	59.670	60.360	61.050	61.740	62.430	63.120	63.672	64.224	64.776	65.328	65.880	66.432	66.984	67.536	68.088	68.640
GIRDER G3	50.485	51.037	51.589	52.141	52.693	53.245	53.797	54.349	54.901	55.453	56.005	56.695	57.385	58.075	58.765	59.455	60.145	60.835	61.525	62.215	62.905	63.457	64.009	64.561	65.113	65.665	66.217	66.769	67.321	67.873	68.425
GIRDER G4	50.270	50.822	51.374	51.926	52.478	53.030	53.582	54.134	54.686	55.238	55.790	56.480	57.170	57.860	58.550	59.240	59.930	60.620	61.310	62.000	62.690	63.242	63.794	64.346	64.898	65.450	66.002	66.554	67.106	67.658	68.210



GIRDERS G1 AND G4

Δs	0	1/16"	1/16"	0	3/16"	1 1/16"	3/16"	0	1/16"	1/16"	0	1/16"	1/16"	0	1/16"	1/16"	0	1/16"	1/16"	0	1/16"	1/16"	0	1/16"	1/16"	0	1/16"	1/16"	0	1/16"	1/16"	0
Δc	0	2 3/4"	1 3/8"	0	1 1/16"	2 3/8"	1 3/8"	0	1 3/8"	2 3/4"	0	1 3/8"	2 3/4"	0	1 3/8"	2 3/4"	0	1 3/8"	2 3/4"	0	1 3/8"	2 3/4"	0	1 3/8"	2 3/4"	0	1 3/8"	2 3/4"	0	1 3/8"	2 3/4"	0
CT	0	3/4"	3/8"	0	1/16"	3/4"	3/8"	0	1/16"	3/4"	3/8"	0	1/16"	3/4"	3/8"	0	1/16"	3/4"	3/8"	0	1/16"	3/4"	3/8"	0	1/16"	3/4"	3/8"	0	1/16"	3/4"	3/8"	0
H	0	1'-11 3/4"	3'-11 1/2"	5'-6 1/4"	7'-1 1/16"	8'-11 3/8"	10'-9 5/8"	12'-5 1/16"	13'-11 3/4"	15'-11 1/2"	17'-11 1/4"																					
TOTAL	0	2'-4 1/16"	4'-2 1/16"	5'-6 1/4"	7'-4 3/16"	9'-4 1/2"	11'-0 1/4"	12'-5 1/16"	14'-2 3/16"	16'-4 1/16"	17'-11 1/4"																					

GIRDERS G2 AND G3

Δs	0	1/16"	1/16"	0	3/16"	1 1/16"	3/16"	0	1/16"	1/16"	0	1/16"	1/16"	0	1/16"	1/16"	0	1/16"	1/16"	0	1/16"	1/16"	0	1/16"	1/16"	0	1/16"	1/16"	0	1/16"	1/16"	0
Δc	0	3 1/16"	1 1/2"	0	1 3/16"	2 1/8"	1 5/16"	0	1 1/2"	3 1/16"	0	1 1/2"	3 1/16"	0	1 1/2"	3 1/16"	0	1 1/2"	3 1/16"	0	1 1/2"	3 1/16"	0	1 1/2"	3 1/16"	0	1 1/2"	3 1/16"	0	1 1/2"	3 1/16"	0
CT	0	3/4"	3/8"	0	1/16"	3/4"	3/8"	0	1/16"	3/4"	3/8"	0	1/16"	3/4"	3/8"	0	1/16"	3/4"	3/8"	0	1/16"	3/4"	3/8"	0	1/16"	3/4"	3/8"	0	1/16"	3/4"	3/8"	0
H	0	1'-11 3/4"	3'-11 1/2"	5'-6 1/4"	7'-1 1/16"	8'-11 3/8"	10'-9 5/8"	12'-5 1/16"	13'-11 3/4"	15'-11 1/2"	17'-11 1/4"																					
TOTAL	0	2'-4 3/4"	4'-2 3/16"	5'-6 1/4"	7'-4 3/8"	9'-4 3/4"	11'-0 5/16"	12'-5 1/16"	14'-2 3/16"	16'-4 3/16"	17'-11 1/4"																					

CAMBER DIAGRAM  
SPANS NCB1 THRU NCB3

LEGEND

Δs = DEFLECTION OF STEEL FROM ITS OWN WEIGHT.  
 Δ's = DEFLECTION OF STEEL SECTION FROM DEAD LOAD OF DECK SLAB CONCRETE.  
 Δc = DEFLECTION OF COMPOSITE SECTION FROM DEAD LOAD (E.G., RAIL AND CURB) ADDED AFTER DECK SLAB IS CAST.  
 CT = CAMBER TOLERANCE (POSITIVE NUMERICAL VALUE)

RECORD DRAWING

COMMONWEALTH OF VIRGINIA  
 CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
 CAPE CHARLES, VIRGINIA 2310-0111



PARALLEL CROSSING  
 TO  
 LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

SVERDRUP CIVIL, INC.

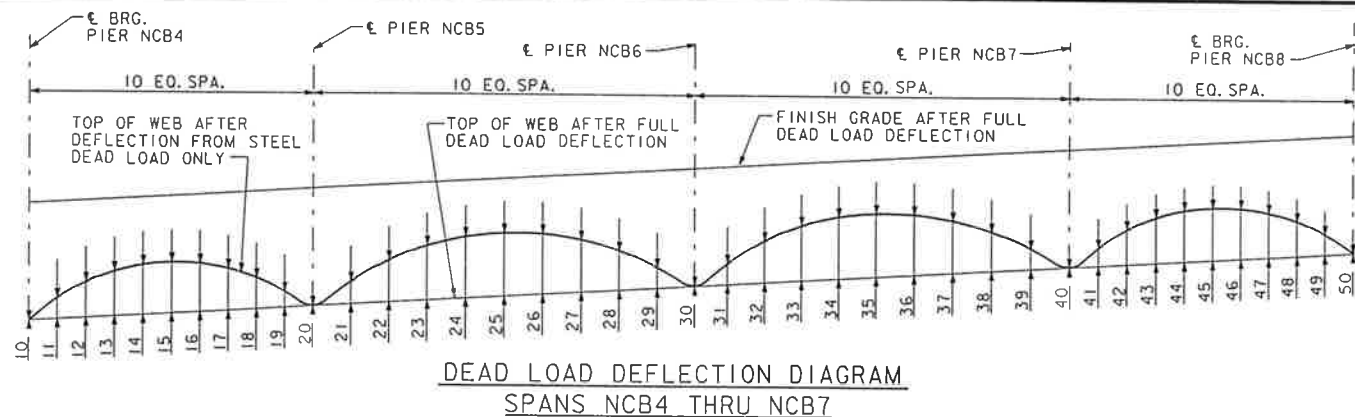
NORTH CHANNEL BRIDGE  
 SPANS NCB1 - NCB3 DEAD LOAD  
 DEFLECTIONS AND CAMBER

Drawn By:	JCC	Scale:	NONE
Checked By:	RVB	Date:	DEC. 1994
Dwg. No.:	687	Section No.:	NCB34 OF NCB50

NO.	DATE	BY	APP.	DESCRIPTION

Approved: \_\_\_\_\_

FILENAME: 93S1036.DGN  
 JOB NO.: 11555



DEAD LOAD DEFLECTION GIRDERS G1 AND G4

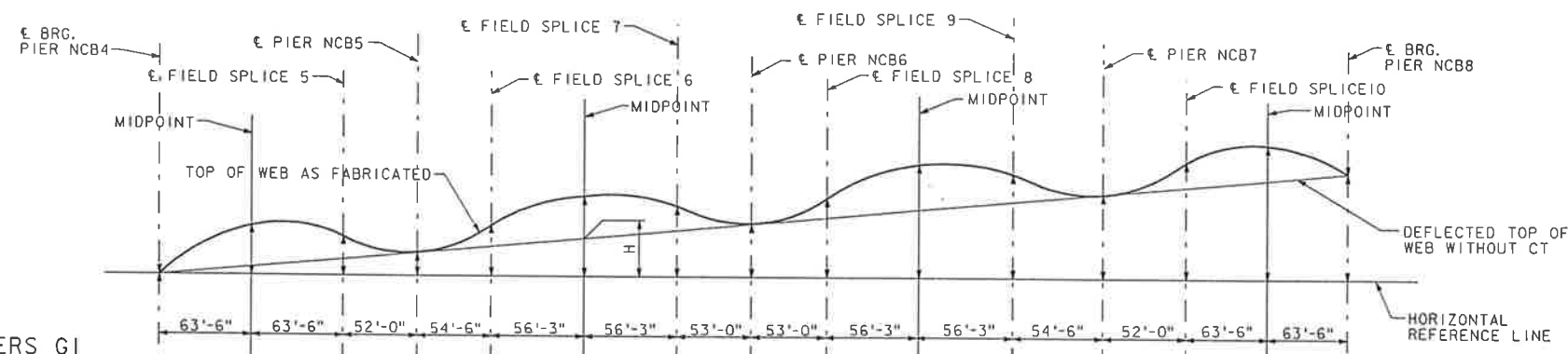
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Δs	0	1 1/8"	1 1/4"	2 1/2"	2 1/8"	2 3/8"	2 1/2"	1 1/8"	3/4"	1/4"	0	3/8"	3/4"	1 1/8"	2"	2 1/4"	2 1/8"	1 3/8"	1 1/2"	1/4"	0	1/4"	1 1/8"	1 3/8"	2 1/8"	2 1/4"	2"	1 1/8"	3/4"	3/8"	0	1/4"	3/4"	1 1/8"	2 1/8"	2 3/8"	2 1/8"	2 1/2"	1 3/8"	1 1/8"	0	
Δc	0	1/8"	3/8"	3/8"	1/4"	1/4"	3/8"	1/8"	1/8"	0	0	0	1/8"	3/8"	1/4"	1/4"	1/4"	3/8"	1/2"	1/8"	0	0	0	1/8"	3/8"	1/4"	1/4"	1/4"	3/8"	1/8"	0	0	1/8"	1/8"	3/8"	1/4"	1/4"	1/4"	3/8"	1/8"	1/8"	0
TOTAL	0	1 1/8"	2 1/8"	2 1/2"	2 3/8"	2 1/2"	2 1/4"	1 3/8"	1 1/4"	0	0	3/8"	1 1/8"	1 3/8"	2 1/2"	2 3/8"	1 3/4"	1 3/8"	1 1/2"	1/4"	0	1/4"	1 3/8"	1 3/4"	2 1/2"	2 1/4"	1 5/8"	1 1/8"	3/8"	0	1/4"	1 1/8"	1 3/8"	2 1/4"	2 1/8"	2 1/8"	2 1/2"	1 3/8"	1 1/8"	0		

DEAD LOAD DEFLECTION GIRDERS G2 AND G3

	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
Δs	0	1 3/8"	2 1/8"	2 3/4"	3"	2 1/2"	2 1/8"	1 3/8"	1 1/8"	1/4"	0	3/8"	1 1/8"	1 1/2"	2 1/4"	2 1/2"	2 3/8"	1 1/2"	1 1/8"	1/4"	0	1/4"	1 1/8"	1 1/2"	2 1/8"	2 1/2"	2 1/4"	1 5/8"	1 1/2"	3/8"	0	1/4"	1 1/8"	1 3/8"	2 1/8"	2 1/8"	3"	2 3/4"	2 1/8"	1 3/8"	0	
Δc	0	1/8"	3/8"	3/8"	1/4"	1/4"	3/8"	1/8"	1/8"	0	0	0	1/8"	3/8"	1/4"	1/4"	1/4"	3/8"	1/2"	1/8"	0	0	0	1/8"	3/8"	1/4"	1/4"	1/4"	3/8"	1/8"	0	0	1/8"	1/8"	3/8"	1/4"	1/4"	1/4"	3/8"	1/8"	1/8"	0
TOTAL	0	1 5/8"	2 3/8"	2 1/2"	3 1/4"	3 1/8"	2 1/2"	1 3/8"	1 1/4"	0	0	3/8"	1 3/8"	1 3/8"	2 1/2"	2 3/8"	1 3/8"	1 1/2"	1 1/8"	1/4"	0	1/4"	1 3/8"	1 3/4"	2 1/2"	2 1/4"	1 5/8"	1 1/2"	3/8"	0	1/4"	1 1/8"	1 3/8"	2 1/4"	2 1/8"	2 1/8"	3 1/8"	3 1/4"	2 1/8"	2 1/8"	1 3/8"	0

TOP OF SLAB ELEVATIONS ALONG GIRDERS (AFTER FULL DEAD LOAD DEFLECTION)

POINT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
GIRDER G1	68.915	69.452	69.989	70.526	71.063	71.600	72.137	72.674	73.211	73.748	74.285	74.945	75.605	76.265	76.920	77.561	78.187	78.799	79.396	79.979	80.547	81.101	81.640	82.165	82.675	83.171	83.652	84.119	84.571	85.008	85.431	85.765	86.089	86.403	86.708	87.003	87.288	87.564	87.830	88.087	88.334
GIRDER G2	68.700	69.237	69.774	70.311	70.848	71.385	71.922	72.459	72.996	73.533	74.070	74.730	75.390	76.050	76.705	77.346	77.972	78.584	79.181	79.764	80.332	80.886	81.425	81.950	82.460	82.956	83.437	83.904	84.356	84.793	85.216	85.550	85.874	86.188	86.493	86.788	87.073	87.349	87.615	87.872	88.119
GIRDER G3	68.485	69.022	69.559	70.096	70.633	71.170	71.707	72.244	72.781	73.318	73.855	74.515	75.175	75.835	76.490	77.131	77.757	78.369	78.966	79.549	80.117	80.671	81.210	81.735	82.245	82.741	83.222	83.689	84.141	84.578	85.001	85.335	85.659	85.973	86.278	86.573	86.858	87.134	87.400	87.657	87.904
GIRDER G4	68.270	68.807	69.344	69.881	70.418	70.955	71.492	72.029	72.566	73.103	73.640	74.300	74.960	75.620	76.275	76.916	77.542	78.154	78.751	79.334	79.902	80.456	80.995	81.520	82.030	82.526	83.007	83.474	83.926	84.363	84.786	85.120	85.444	85.758	86.063	86.358	86.643	86.919	87.185	87.442	87.689



GIRDERS G1 AND G4

	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
Δs	0	1/8"	1/8"	0	1/2"	1/8"	3/16"	1/8"	0	1/8"	1/8"	1/8"	1/8"	1/8"	1/2"	0	1/8"	1/8"	1/8"	0	1/8"	1/8"	1/8"	0	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	0	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	0
Δc	0	2 3/8"	1 1/2"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0		
CT	0	3/4"	3/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0		
H	0	1'-10 1/8"	3'-9 3/4"	5'-4 1/8"	7'-0 1/8"	8'-8"	10'-2 1/8"	11'-7 3/8"	12'-11 1/8"	14'-2 1/8"	15'-5 3/8"	16'-6 3/8"	17'-5 1/2"	18'-6"	19'-5"																											
TOTAL	0	2'-3 3/8"	4'-0 5/8"	5'-4 1/8"	7'-2 1/8"	9'-0 3/8"	10'-5 1/4"	11'-7 3/8"	13'-1 1/8"	14'-7 3/8"	15'-7 1/8"	16'-6 3/8"	17'-8 1/8"	18'-10 1/2"	19'-5"																											

GIRDERS G2 AND G3

	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
Δs	0	1/8"	1/8"	0	1/2"	1/8"	3/16"	1/8"	0	1/8"	1/8"	1/8"	1/8"	1/8"	1/2"	0	1/8"	1/8"	1/8"	0	1/8"	1/8"	1/8"	0	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	0	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	0
Δc	0	2 3/8"	1 1/2"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0	1 1/8"	2 1/4"	1 1/8"	0		
CT	0	3/4"	3/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0	1/8"	3/4"	1/8"	0		
H	0	1'-10 1/8"	3'-9 3/4"	5'-4 1/8"	7'-0 1/8"	8'-8"	10'-2 1/8"	11'-7 3/8"	12'-11 1/8"	14'-2 1/8"	15'-5 3/8"	16'-6 3/8"	17'-5 1/2"	18'-6"	19'-5"																											
TOTAL	0	2'-3 3/8"	4'-0 5/8"	5'-4 1/8"	7'-2 1/8"	9'-0 3/8"	10'-5 1/4"	11'-7 3/8"	13'-1 1/8"	14'-7 3/8"	15'-7 1/8"	16'-6 3/8"	17'-8 1/8"	18'-10 1/2"	19'-5"																											

CAMBER DIAGRAM SPANS NCB4 THRU NCB7

**LEGEND**  
 Δs = DEFLECTION OF STEEL FROM ITS OWN WEIGHT.  
 Δc = DEFLECTION OF STEEL SECTION FROM DEAD LOAD OF DECK SLAB CONCRETE.  
 Δc = DEFLECTION OF COMPOSITE SECTION FROM DEAD LOAD (E.G., RAIL AND CURB) ADDED AFTER DECK SLAB IS CAST.  
 CT = CAMBER TOLERANCE (POSITIVE NUMERICAL VALUE)

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
 CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
 CAPE CHARLES, VIRGINIA 23310-0111

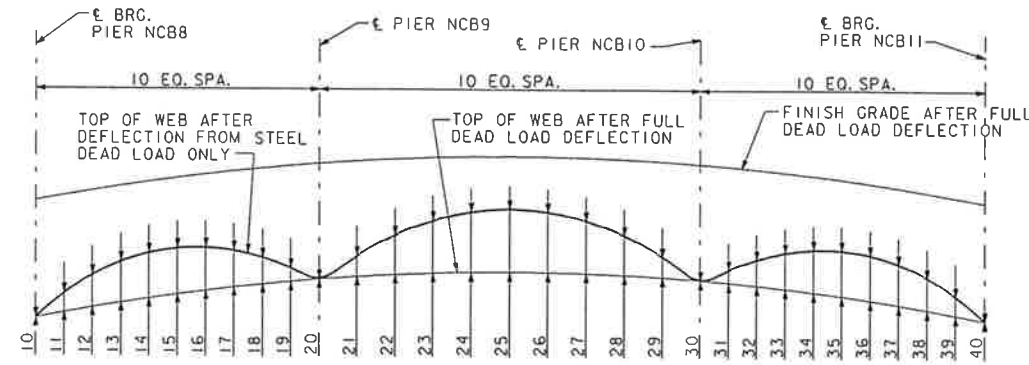
PARALLEL CROSSING  
 TO  
 LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

SVERDRUP CIVIL, INC.  
 NORTH CHANNEL BRIDGE  
 SPANS NCB4 - NCB7 DEAD LOAD DEFLECTIONS AND CAMBER

DRAWN BY: JGC SCALE: NONE  
 CHECKED BY: RVB DATE: DEC. 1994  
 DWG. NO. 688  
 SECTION NO. NCB35 OF NCB50

FILENAME: 931037.DGN  
 JOB NO.: 11555

NO.	DATE	BY	APP.	DESCRIPTION



DEAD LOAD DEFLECTION DIAGRAM  
SPANS NCB8 THRU NCB10

DEAD LOAD DEFLECTION GIRDERS G1 AND G4

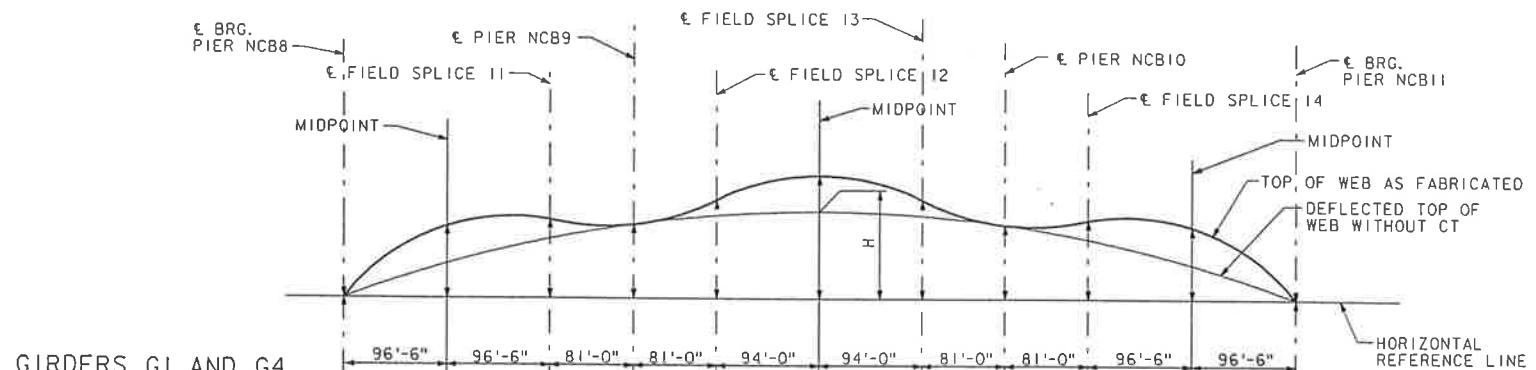
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Δs	0	1 1/2"	2 3/4"	3 3/8"	3 1/2"	3 3/8"	2 7/8"	1 9/16"	1"	1/4"	0	1/2"	1 1/8"	3 1/8"	4 1/8"	4 1/8"	3 1/8"	1 1/8"	1 1/2"	0	1/4"	1"	1 1/8"	2 1/8"	3 3/8"	3 1/8"	3 1/8"	2 3/4"	1 1/2"	0	
Δc	0	1/8"	1/4"	3/8"	3/8"	3/8"	3/8"	3/8"	1/8"	0	0	1/16"	1/4"	3 3/8"	1/2"	3/8"	1/2"	3 3/8"	1/4"	1/16"	0	0	1/8"	3/16"	3/16"	3/8"	3/8"	3/8"	1/4"	1/8"	0
TOTAL	0	1 5/8"	3"	3 5/8"	4 1/8"	3 5/8"	3 3/8"	2 1/8"	1 1/8"	1/4"	0	5/8"	1 5/8"	3 1/8"	4 7/8"	5"	4 1/8"	3 1/8"	1 5/8"	1 3/8"	0	1/4"	1 1/8"	2 1/8"	3 3/8"	3 5/8"	4 1/8"	3 3/8"	3"	1 5/8"	0

DEAD LOAD DEFLECTION GIRDERS G2 AND G3

	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Δs	0	1 1/8"	3 1/8"	3 3/8"	4 3/8"	3 3/8"	3 3/8"	2 1/8"	1 1/8"	3/8"	0	3/8"	1 1/8"	3 3/8"	4 1/2"	4 1/8"	4 1/2"	3 3/8"	1 1/8"	3/8"	0	5/16"	1 1/8"	2 1/8"	3 3/8"	3 3/8"	4 1/8"	3 3/8"	3 1/8"	1 1/8"	0
Δc	0	1/8"	1/4"	3/8"	3/8"	3/8"	3/8"	3/8"	1/8"	0	0	1/16"	1/4"	3/8"	1/2"	3/8"	1/2"	3/8"	1/4"	1/16"	0	0	1/8"	3/16"	3/16"	3/8"	3/8"	3/8"	1/4"	1/8"	0
TOTAL	0	1 1/4"	3 5/8"	4 1/4"	4 3/4"	4 1/8"	4 1/8"	2 3/8"	1 1/4"	3/8"	0	5/8"	2 1/8"	4 1/4"	5"	5 1/2"	5"	4 1/8"	2 1/8"	3/8"	0	5/16"	1 1/4"	2 1/8"	3 1/2"	4 1/8"	4 1/8"	4 1/4"	3 3/8"	1 1/8"	0

TOP OF SLAB ELEVATIONS ALONG GIRDERS (AFTER FULL DEAD LOAD DEFLECTION)

POINT	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
GIRDER G1	88.361	88.719	89.054	89.367	89.657	89.925	90.170	90.393	90.593	90.770	90.925	91.091	91.219	91.311	91.366	91.385	91.366	91.311	91.219	91.091	90.925	90.770	90.593	90.393	90.170	89.925	89.657	89.367	89.054	88.719	88.361
GIRDER G2	88.146	88.504	88.839	89.152	89.442	89.710	89.955	90.178	90.378	90.555	90.710	90.876	91.004	91.096	91.151	91.170	91.151	91.096	91.004	90.876	90.710	90.555	90.378	90.178	89.955	89.710	89.442	89.152	88.839	88.504	88.146
GIRDER G3	87.931	88.289	88.624	88.937	89.227	89.495	89.740	89.963	90.163	90.340	90.496	90.661	90.790	90.881	90.937	90.955	90.937	90.881	90.790	90.661	90.496	90.340	90.163	89.963	89.740	89.495	89.227	88.937	88.624	88.289	87.931
GIRDER G4	87.716	88.074	88.409	88.722	89.012	89.280	89.525	89.748	89.948	90.126	90.281	90.446	90.575	90.667	90.722	90.740	90.722	90.667	90.575	90.446	90.281	90.126	89.948	89.748	89.525	89.280	89.012	88.722	88.409	88.074	87.716



GIRDERS G1 AND G4

	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
Δs	0	2 1/8"	1"	0	1 1/8"	3 3/8"	1 3/8"	0	1"	2 1/8"	0	1"	2 1/8"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Δc	0	3 3/4"	1 1/8"	0	2 1/8"	4 1/8"	2 1/8"	0	1 3/8"	3 3/4"	0	1 3/8"	3 3/4"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
CT	0	3/8"	3/16"	0	1/4"	3/16"	1/4"	0	3/16"	3/8"	0	3/16"	3/8"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
H	0	1'-1 1/8"	2'-0 1/2"	2'-6 3/4"	2'-10 1/8"	3'-0 3/16"	2'-10 1/8"	2'-6 3/4"	2'-0 1/2"	1'-1 1/8"	0	1'-1 1/8"	2'-0 1/2"	2'-6 3/4"	2'-10 1/8"	3'-0 3/16"	2'-10 1/8"	2'-6 3/4"	2'-0 1/2"	1'-1 1/8"	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	1'-8 7/16"	2'-3 3/16"	2'-6 3/4"	3'-2 3/8"	3'-8 1/2"	3'-2 3/8"	2'-6 3/4"	2'-3 3/16"	1'-8 7/16"	0	1'-8 7/16"	2'-3 3/16"	2'-6 3/4"	2'-3 3/16"	1'-8 7/16"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

GIRDERS G2 AND G3

	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
Δs	0	2 1/8"	1"	0	1 1/8"	3 3/8"	1 3/8"	0	1"	2 1/8"	0	1"	2 1/8"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Δc	0	4 1/8"	2 1/8"	0	2 5/8"	4 5/8"	2 5/8"	0	2 1/8"	4 1/8"	0	2 1/8"	4 1/8"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
CT	0	3/8"	3/16"	0	1/4"	3/16"	1/4"	0	3/16"	3/8"	0	3/16"	3/8"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
H	0	1'-1 1/8"	2'-0 1/2"	2'-6 3/4"	2'-10 1/8"	3'-0 3/16"	2'-10 1/8"	2'-6 3/4"	2'-0 1/2"	1'-1 1/8"	0	1'-1 1/8"	2'-0 1/2"	2'-6 3/4"	2'-10 1/8"	3'-0 3/16"	2'-10 1/8"	2'-6 3/4"	2'-0 1/2"	1'-1 1/8"	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	1'-8 7/16"	2'-3 3/16"	2'-6 3/4"	3'-2 3/8"	3'-9"	3'-2 3/8"	2'-6 3/4"	2'-3 3/16"	1'-8 7/16"	0	1'-8 7/16"	2'-3 3/16"	2'-6 3/4"	2'-3 3/16"	1'-8 7/16"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CAMBER DIAGRAM  
SPANS NCB8 THRU NCB10

**LEGEND**  
 Δs = DEFLECTION OF STEEL FROM ITS OWN WEIGHT.  
 Δs' = DEFLECTION OF STEEL SECTION FROM DEAD LOAD OF DECK SLAB CONCRETE.  
 Δc = DEFLECTION OF COMPOSITE SECTION FROM DEAD LOAD (E.G., RAIL AND CURB) ADDED AFTER DECK SLAB IS CAST.  
 CT = CAMBER TOLERANCE (POSITIVE NUMERICAL VALUE)

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
 CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
 TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

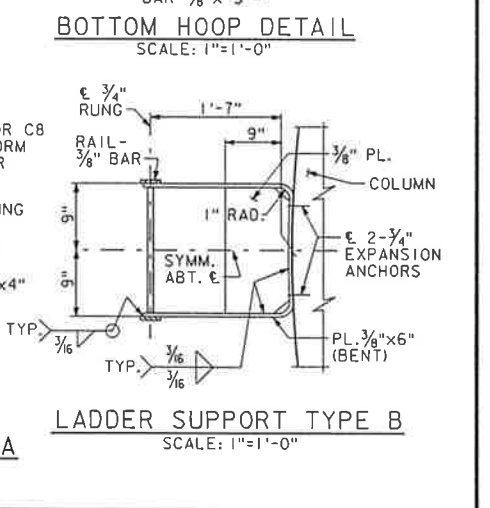
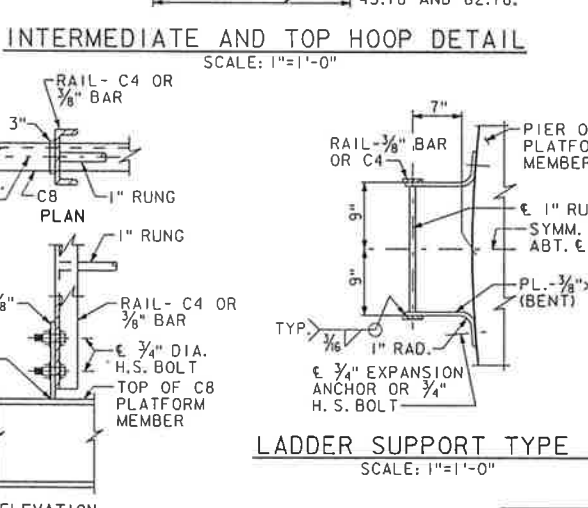
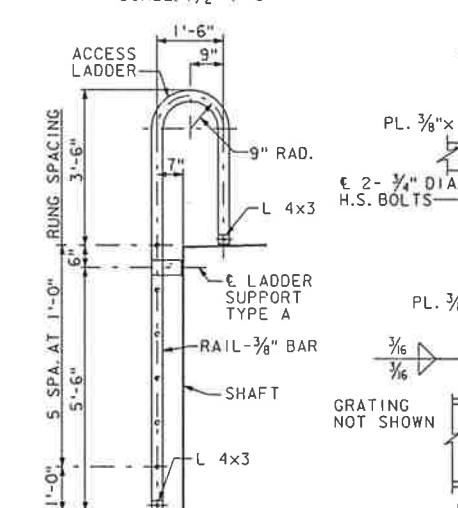
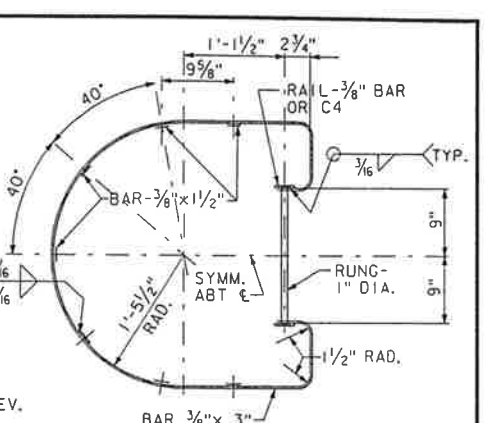
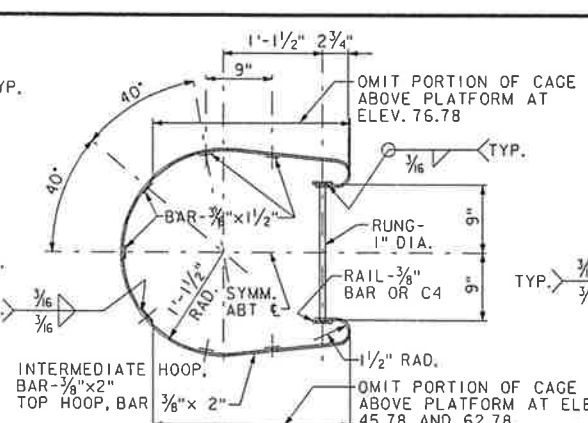
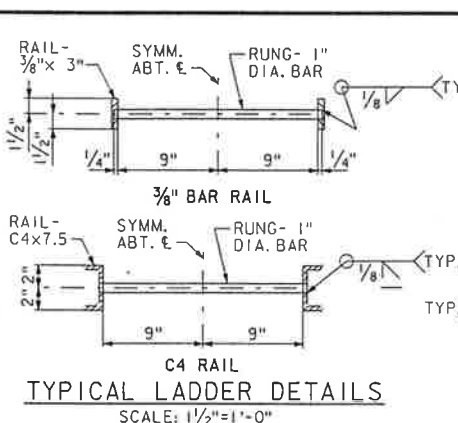
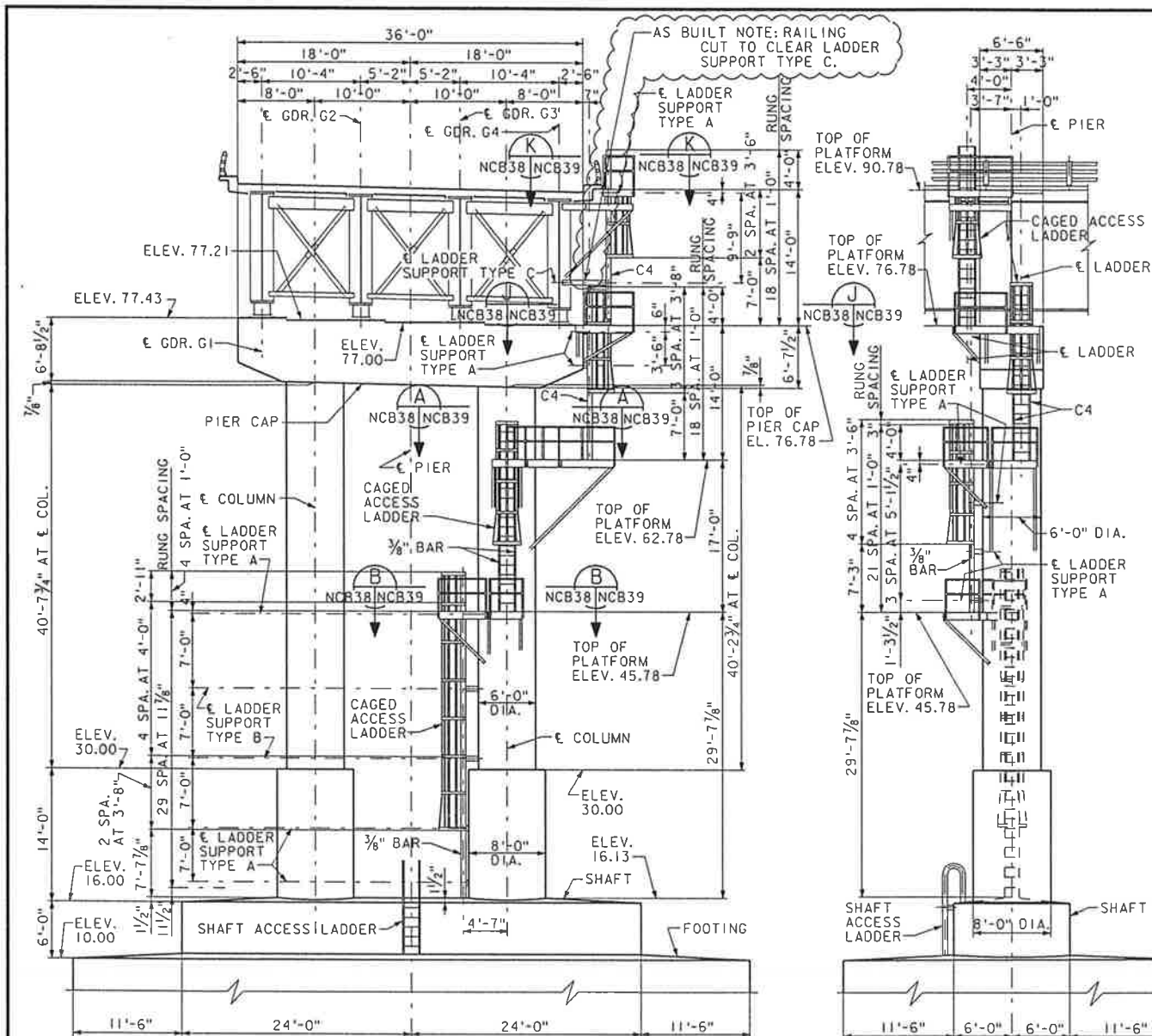
**SVERDRUP CIVIL, INC.**  
 NORTH CHANNEL BRIDGE  
**SPANS NCB8 - NCB10 DEAD LOAD DEFLECTIONS AND CAMBER**

DRAWN BY: JGC SCALE: NONE  
 CHECKED BY: RVB DATE: DEC. 1994  
 DWG. NO. 689  
 SECTION NO. NCB36 OF NCB50

NO.	DATE	BY	APP.	DESCRIPTION

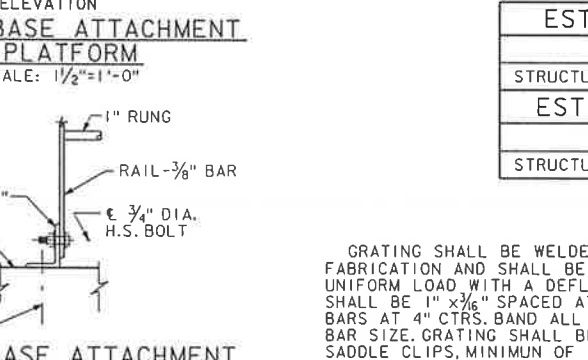
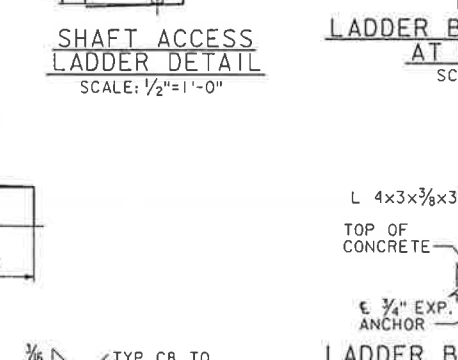
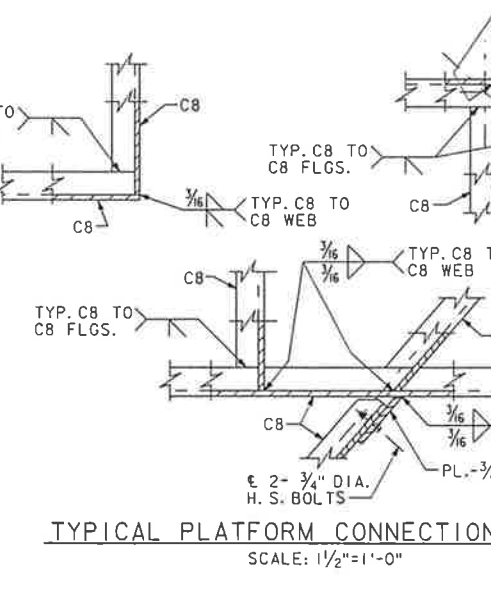
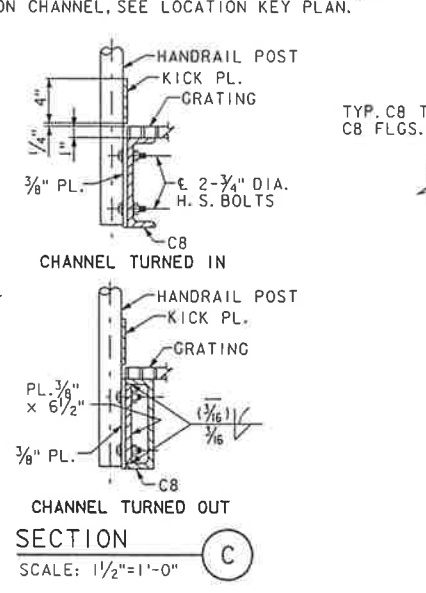
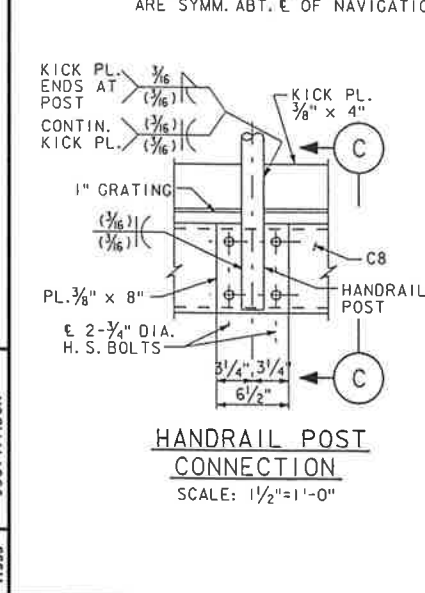
FILENAME: 9351038.DGN  
 JOB NO.: 11555





**ELEVATION**  
SCALE: 1/8"=1'-0"  
LADDERS ON PIER NCB9 LOCATED AS SHOWN. LADDERS ON PIER NCB10 ARE SYMM. ABT. E OF NAVIGATION CHANNEL, SEE LOCATION KEY PLAN.

**END VIEW**  
SCALE: 1/8"=1'-0"



ESTIMATED QUANTITIES NCB9		
ITEM	UNIT	TOTAL
STRUCTURAL STEEL, GRADE 36	LB.	10,274

ESTIMATED QUANTITIES NCB10		
ITEM	UNIT	TOTAL
STRUCTURAL STEEL, GRADE 36	LB.	10,274

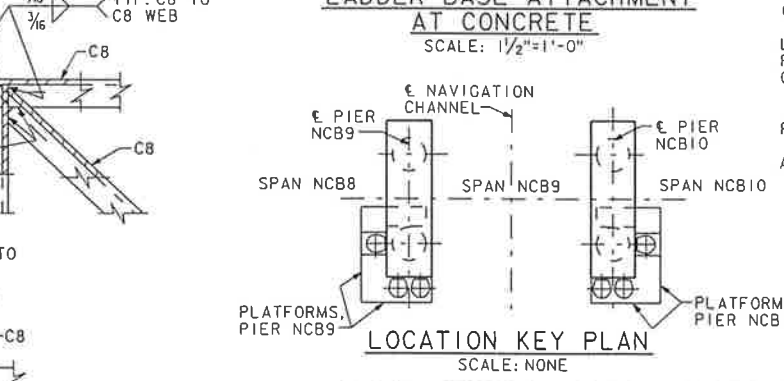
**NOTES**

GRATING SHALL BE WELDED STEEL GRATING WITH RECTANGULAR BAR FABRICATION AND SHALL BE DESIGNED FOR 100 POUNDS PER SQUARE FOOT UNIFORM LOAD WITH A DEFLECTION LESS THAN 1/4" INCH. BEARING BARS SHALL BE 1" x 3/8" SPACED AT 1 1/2" CTRS. WITH RECTANGULAR CROSS BARS AT 4" CTRS. BAND ALL EDGES WITH BARS EQUAL TO BEARING BAR SIZE. GRATING SHALL BE SECURED WITH MANUFACTURERS STANDARD SADDLE CLIPS, MINIMUM OF 4 PER GRATING PANEL. WEIGHT OF STEEL GRATING IS INCLUDED IN GRADE 36 STEEL AND PAID FOR AS SUCH.

EXPANSION ANCHORS FOR CONNECTION OF LANDING FRAMES AND LADDER SUPPORTS TO CONCRETE SHALL BE 3/4" DIA. WITH A MINIMUM PROOF LOAD OF 10,000 LBS. (PULLOUT) AND 15,500 LBS. (SHEAR) FOR CLASS A3 CONCRETE, f'c = 3000 PSI.

PIPE HANDRAIL SHALL CONFORM TO A.S.T.M. A53, GRADE B 1 1/2" DIA. EXTRA STRONG PIPE. WELD PIPE USING STANDARD FABRICATION PRACTICE AND GRIND SMOOTH.

ALL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.



**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

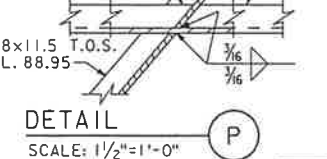
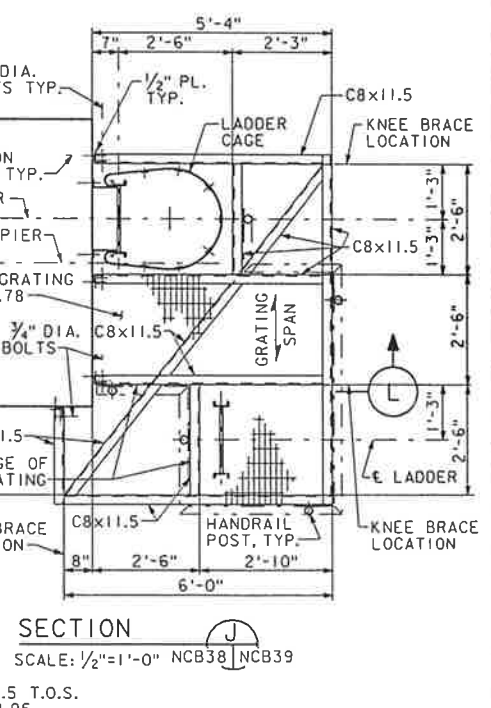
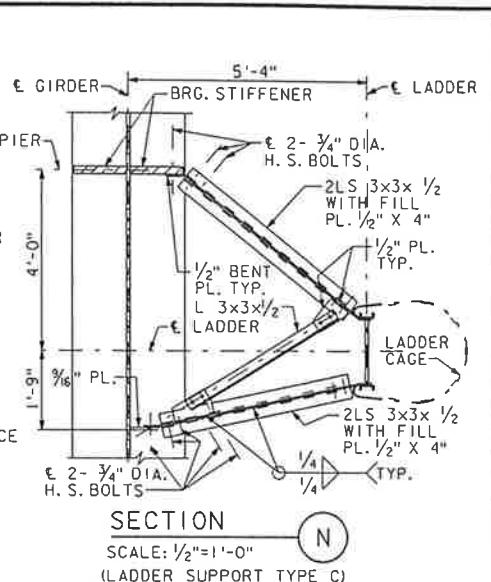
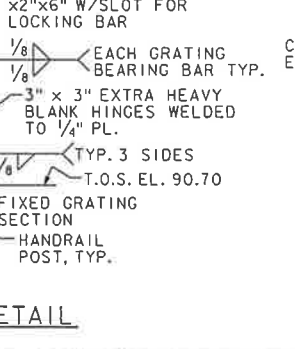
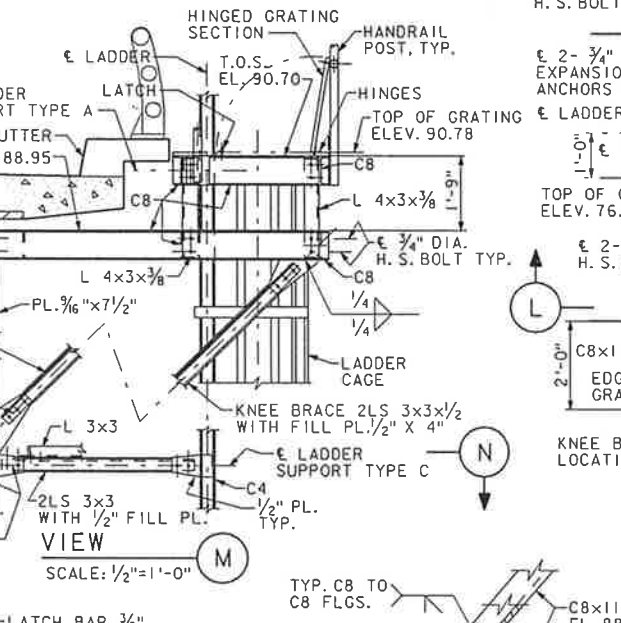
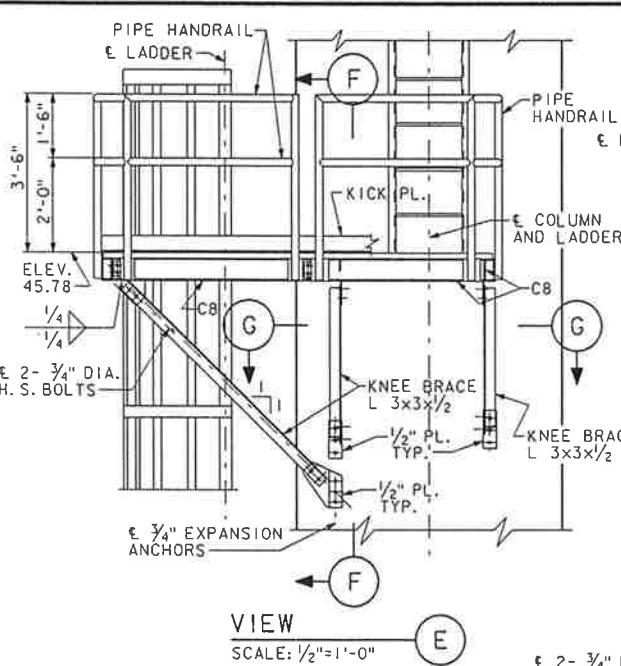
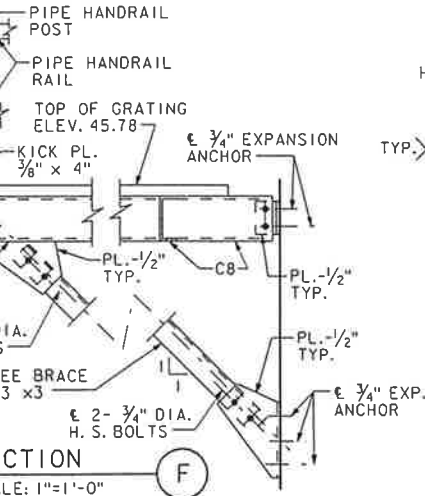
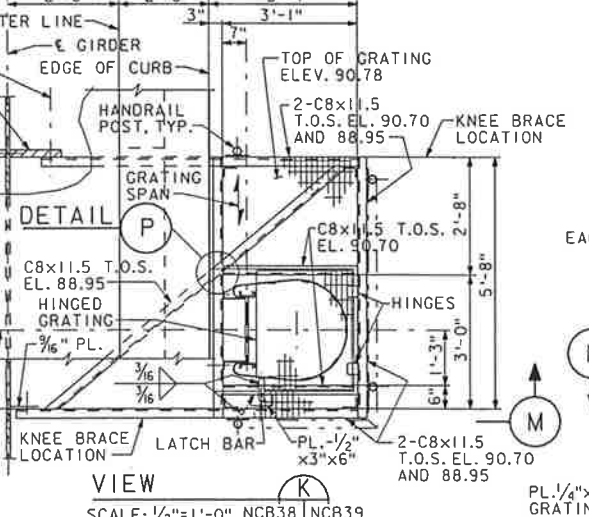
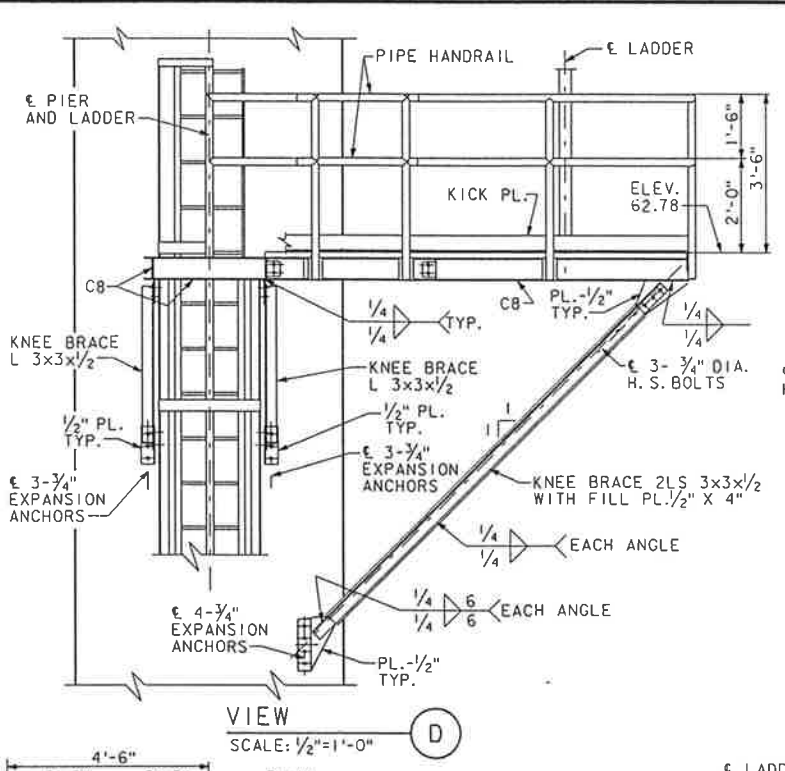
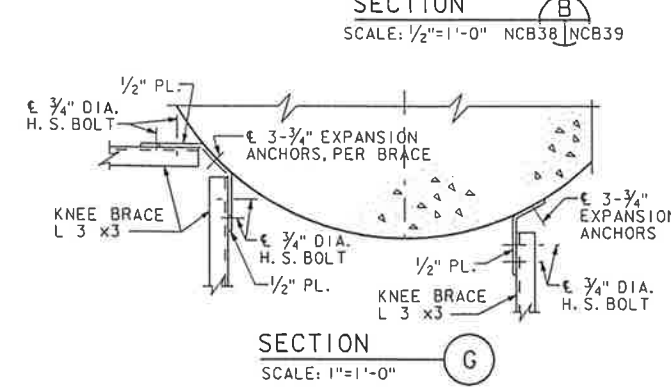
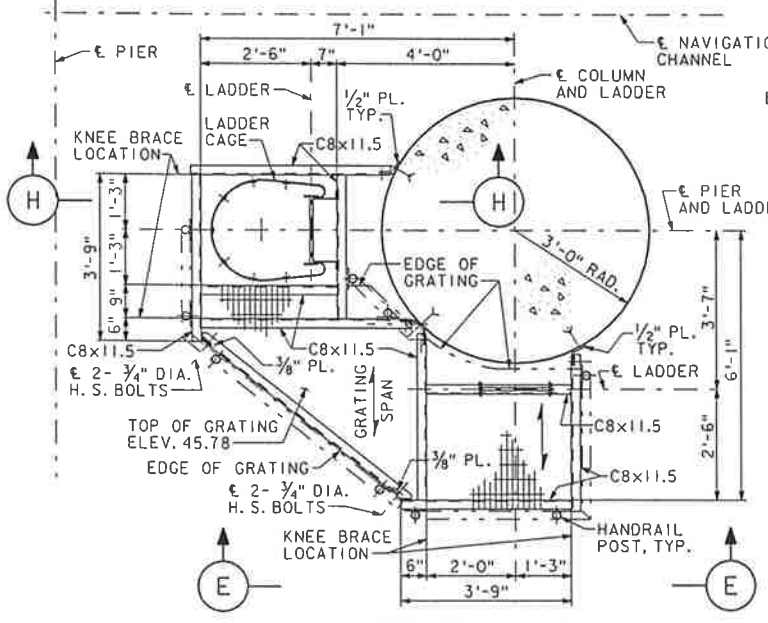
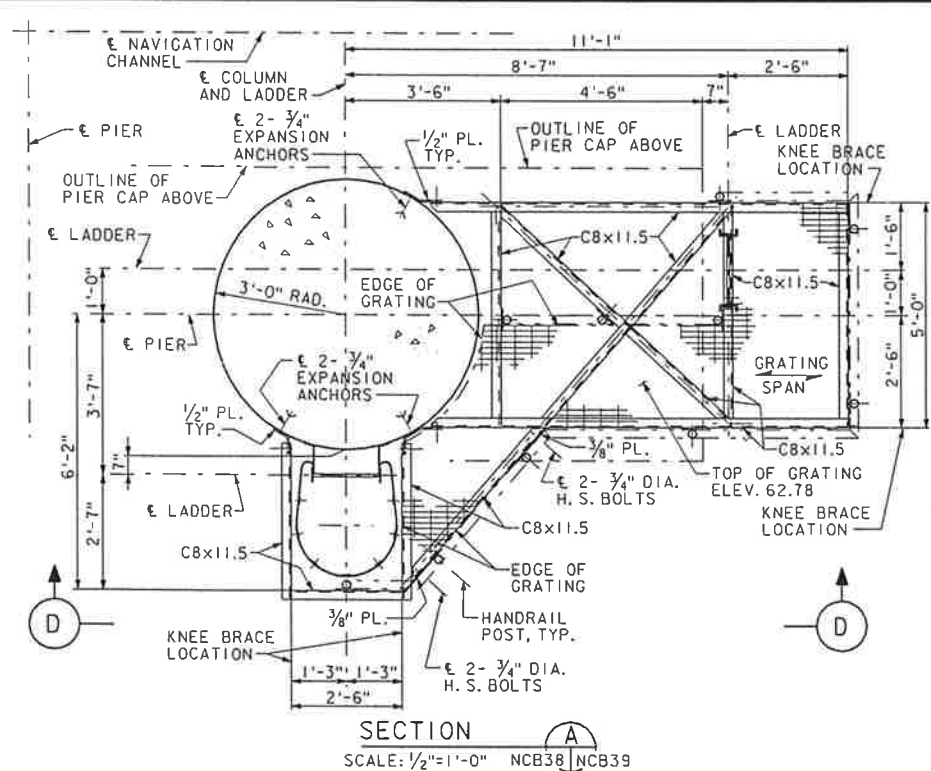
**SVERDRUP CIVIL, INC.**  
NORTH CHANNEL BRIDGE  
**ACCESS LADDERS AND PLATFORMS AT PIERS NCB9 AND NCB10-SHEET 1**

DRAWN BY: SEM	SCALE: AS SHOWN
CHECKED BY: PWC	DATE: DEC. 1994
DWG. NO. 691	
SECTION NO. NCB38 OF NCB50	

Approved: \_\_\_\_\_

NO.	DATE	BY	APP.	DESCRIPTION
01-00	DH	KR		RECORD DRAWING MODIFICATIONS
				NOTE ADDED

FILENAME: 9351477.DGN  
JOB NO.: T1555



**NOTES**  
SEE SECTION NO. NCB38 FOR NOTES.

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
 CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
 TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

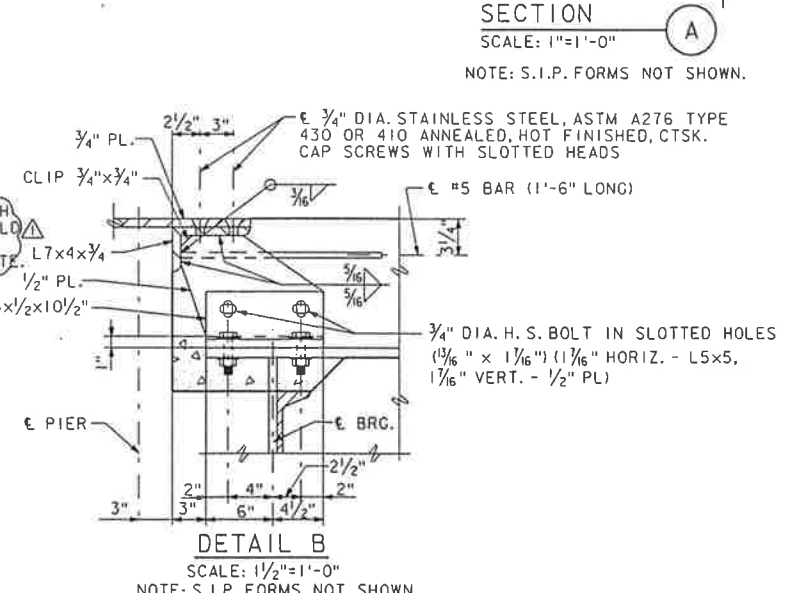
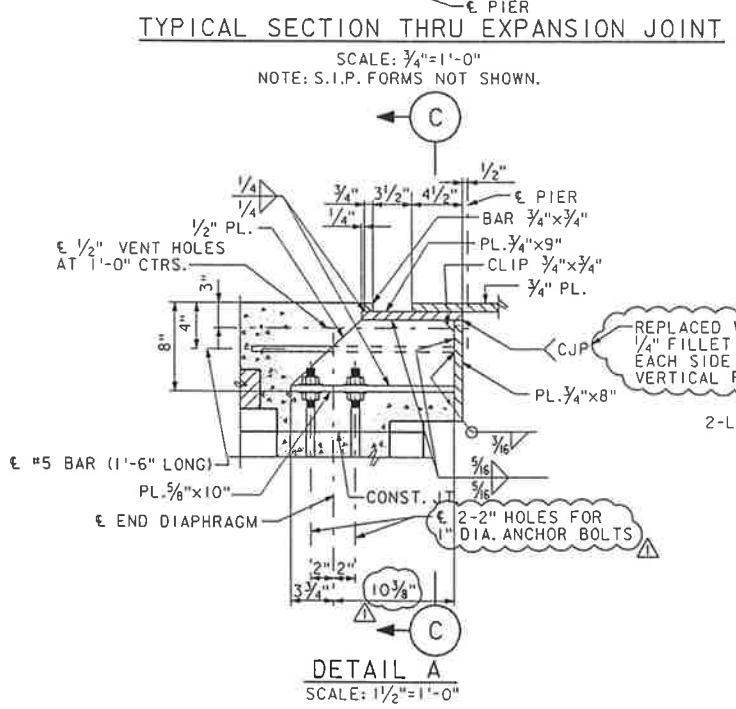
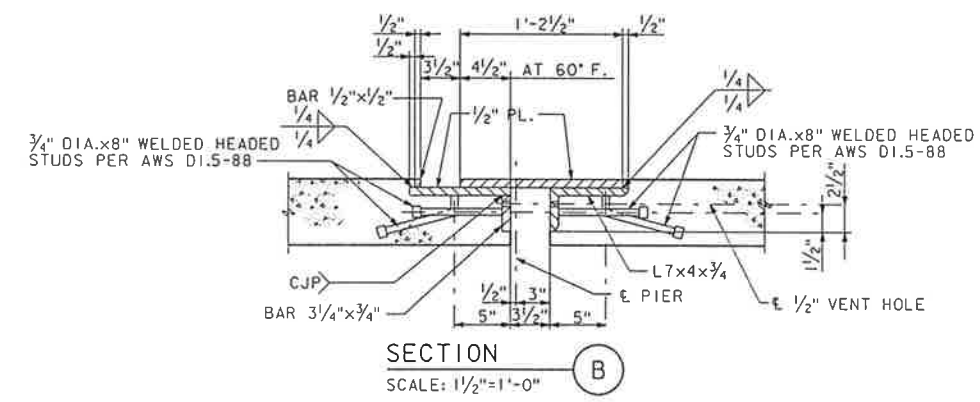
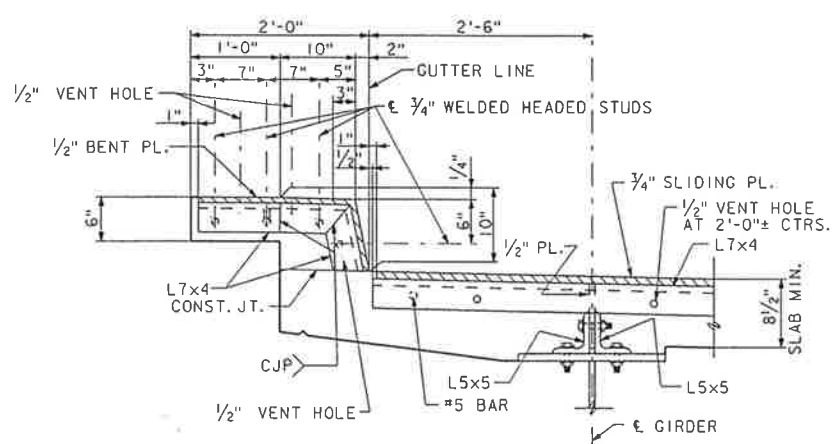
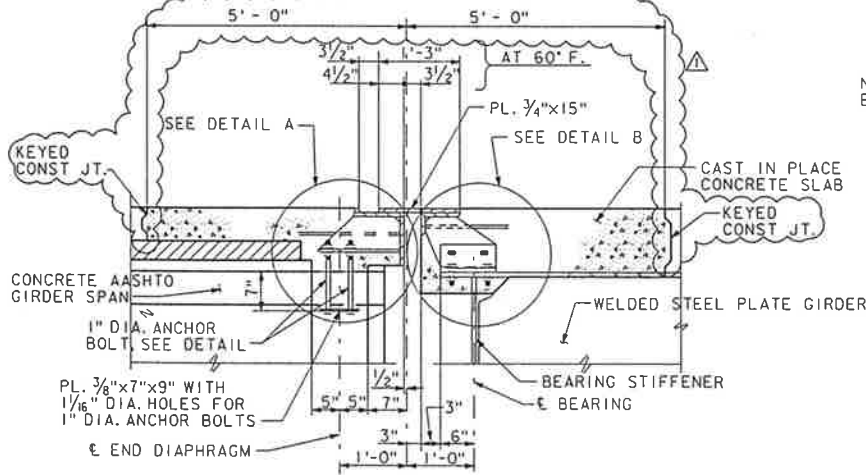
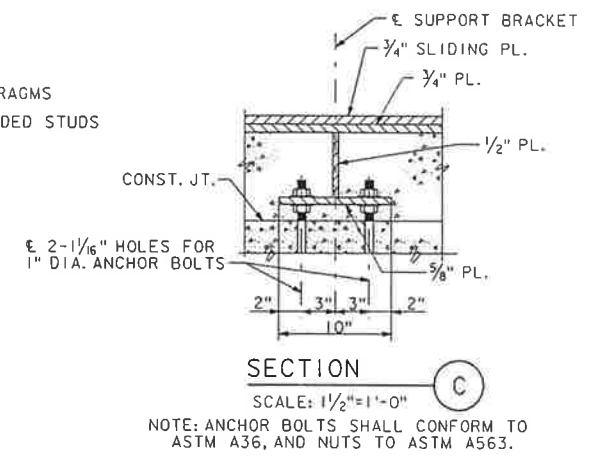
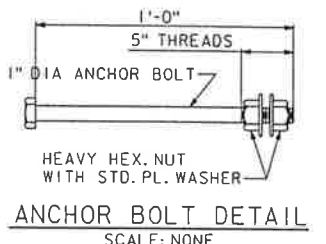
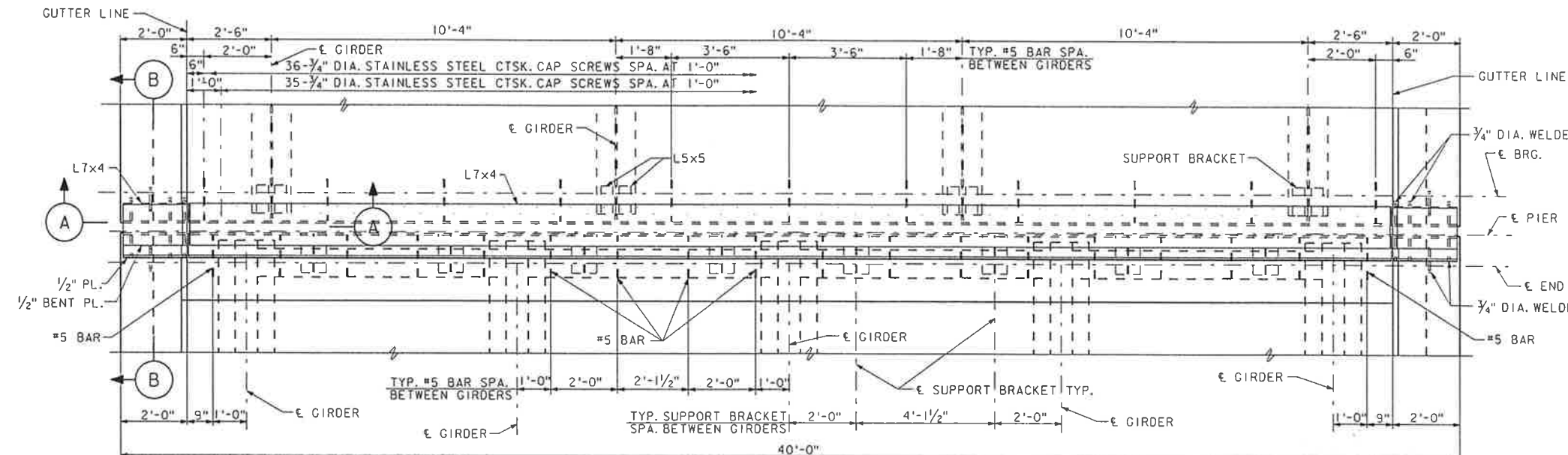
**SVERDRUP CIVIL, INC.**  
 NORTH CHANNEL BRIDGE  
**ACCESS LADDERS AND PLATFORMS**  
**AT PIERS NCB9 AND NCB10-SHEET 2**

DRAWN BY: SEM	SCALE: AS SHOWN
CHECKED BY: PWC	DATE: DEC. 1994
DWG. NO. 692	
SECTION NO. NCB39 OF NCB50	

Approved: \_\_\_\_\_

FILENAME: 94S403.DGN  
 JOB NO.: 11555

NO.	DATE	BY	APP.	DESCRIPTION



**NOTES**  
 WEIGHT OF EACH EXPANSION JOINT = 4,798 LBS., WHICH IS INCLUDED IN AND PAID FOR AS STRUCTURAL STEEL, GRADE 36. EXPANSION DEVICE SHALL BE HOT DIPPED GALVANIZED. CTSK. INDICATES COUNTERSUNK.

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
 CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
 CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
 TO  
 LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

SVERDRUP CIVIL, INC.

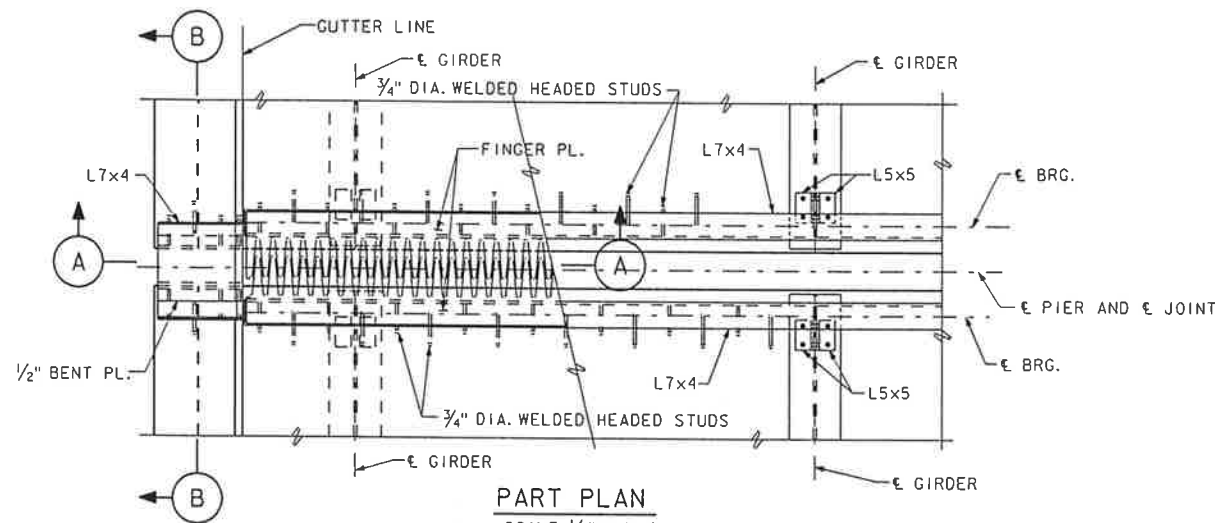
NORTH CHANNEL BRIDGE  
 EXPANSION DEVICE  
 AT PIERS NCB1 AND NCB15

NO.	DATE	BY	APP.	DESCRIPTION
01-00		DH	KR	RECORD DRAWING MODIFICATIONS
				CONSTR. JOINTS ADDED AND
				DIMENSIONAL CHANGES MADE

DRAWN BY: JCC	SCALE: AS SHOWN
CHECKED BY: TVD	DATE: DEC. 1994
DWG. NO. 693	
SECTION NO. NCB40 OF NCB50	

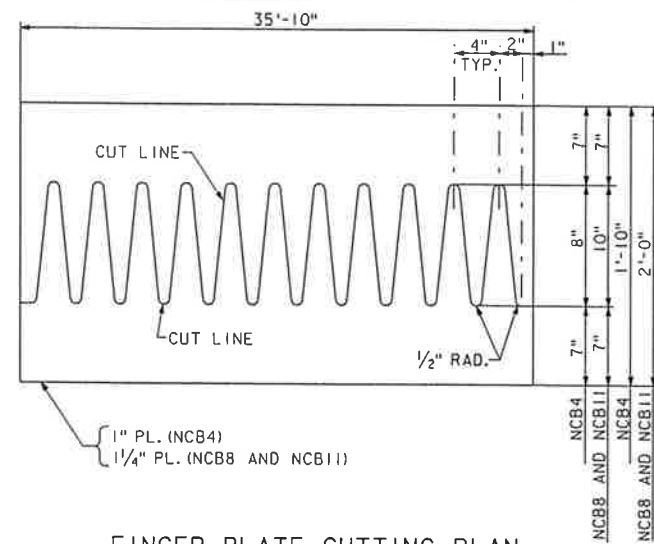
FILENAME: 93S1080.DGN  
 JOB NO. 11555



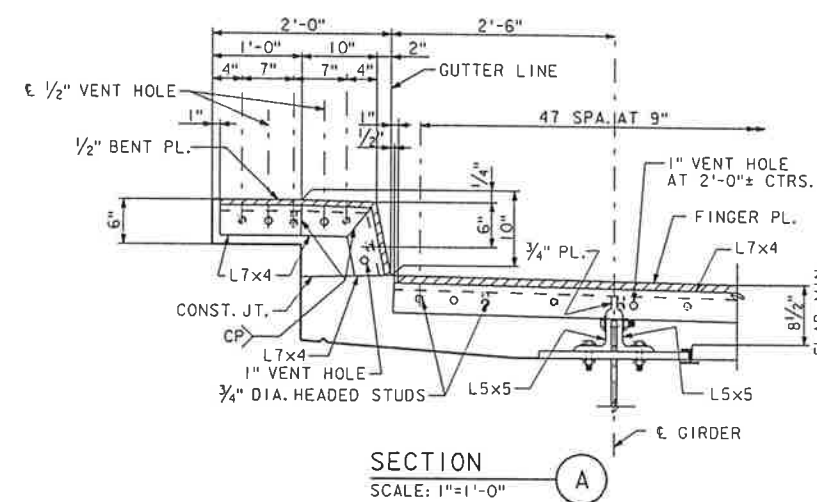


**PART PLAN**  
SCALE: 1/2" = 1'-0"

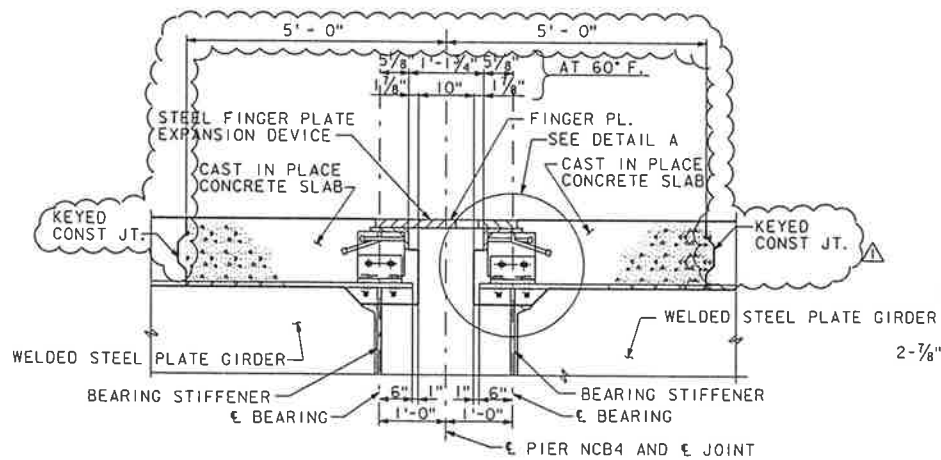
NOTE: FINGER PLATE EXPANSION DEVICE AT PIERS NCB8 AND NCB11 SHOWN, FINGER PLATE EXPANSION DEVICE AT PIER NCB4 SIMILAR.



**FINGER PLATE CUTTING PLAN**  
SCALE: 1/2" = 1'-0"

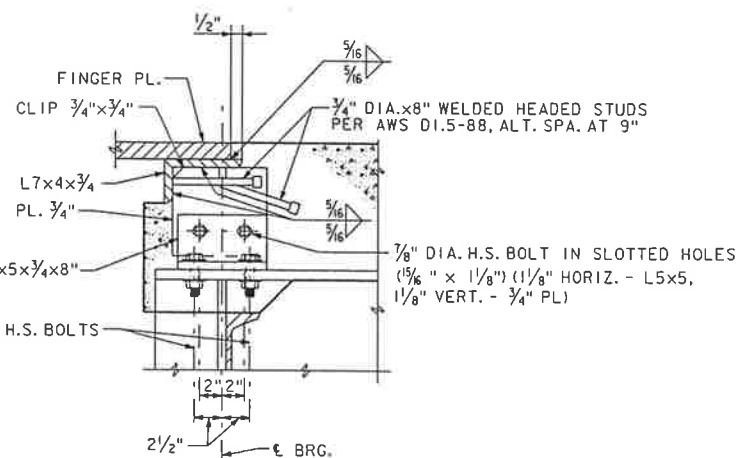


**SECTION A**  
SCALE: 1" = 1'-0"



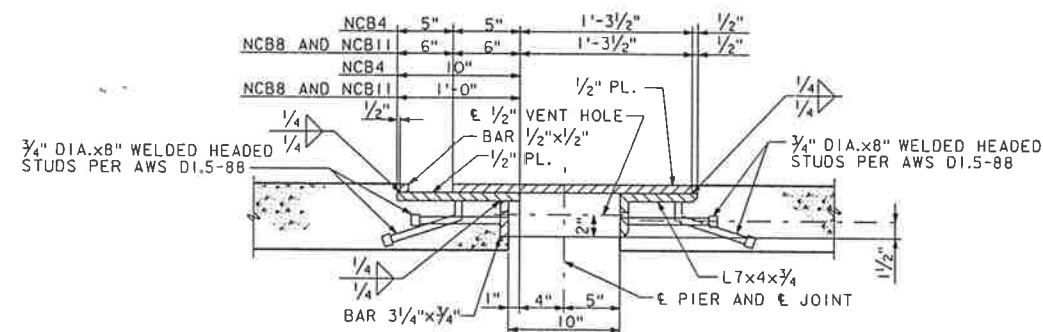
**TYPICAL SECTION AT PIER NCB4**  
SCALE: 3/4" = 1'-0"

NOTE: S.I.P. FORMS NOT SHOWN.

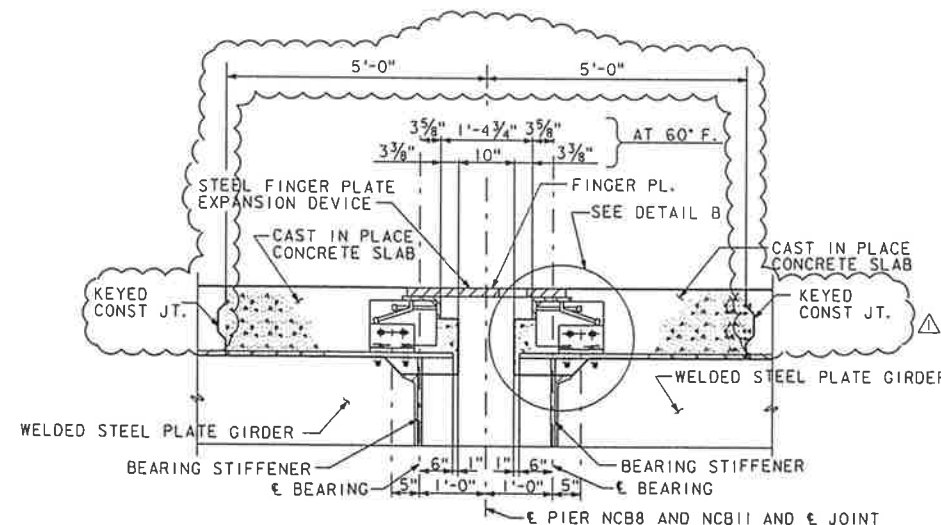


**DETAIL A**

SCALE: 1/2" = 1'-0"  
NOTE: S.I.P. FORMS NOT SHOWN.

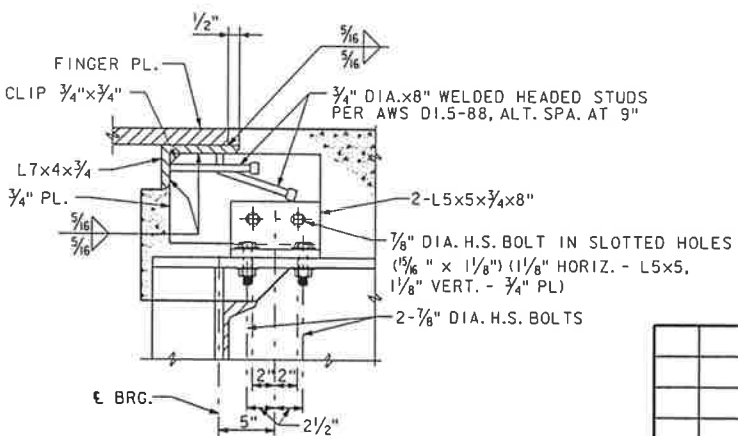


**SECTION B**  
SCALE: 1/2" = 1'-0"



**TYPICAL SECTION AT PIERS NCB8 AND NCB11**

SCALE: 3/4" = 1'-0"  
NOTE: S.I.P. FORMS NOT SHOWN.



**DETAIL B**

SCALE: 1/2" = 1'-0"  
NOTE: S.I.P. FORMS NOT SHOWN.

**STRUCTURAL STEEL WEIGHTS**

LOCATION	TYPE	UNIT	TOTAL
AT PIER NCB4	GRADE 36	LBS.	5,547
AT PIER NCB8	GRADE 36	LBS.	6,631
AT PIER NCB11	GRADE 36	LBS.	6,631

NOTE: ALL EXPANSION DEVICES SHALL BE HOT DIPPED GALVANIZED.

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

**SVERDRUP CIVIL, INC.**

**NORTH CHANNEL BRIDGE  
EXPANSION DEVICE  
AT PIERS NCB4, NCB8 AND NCB11**

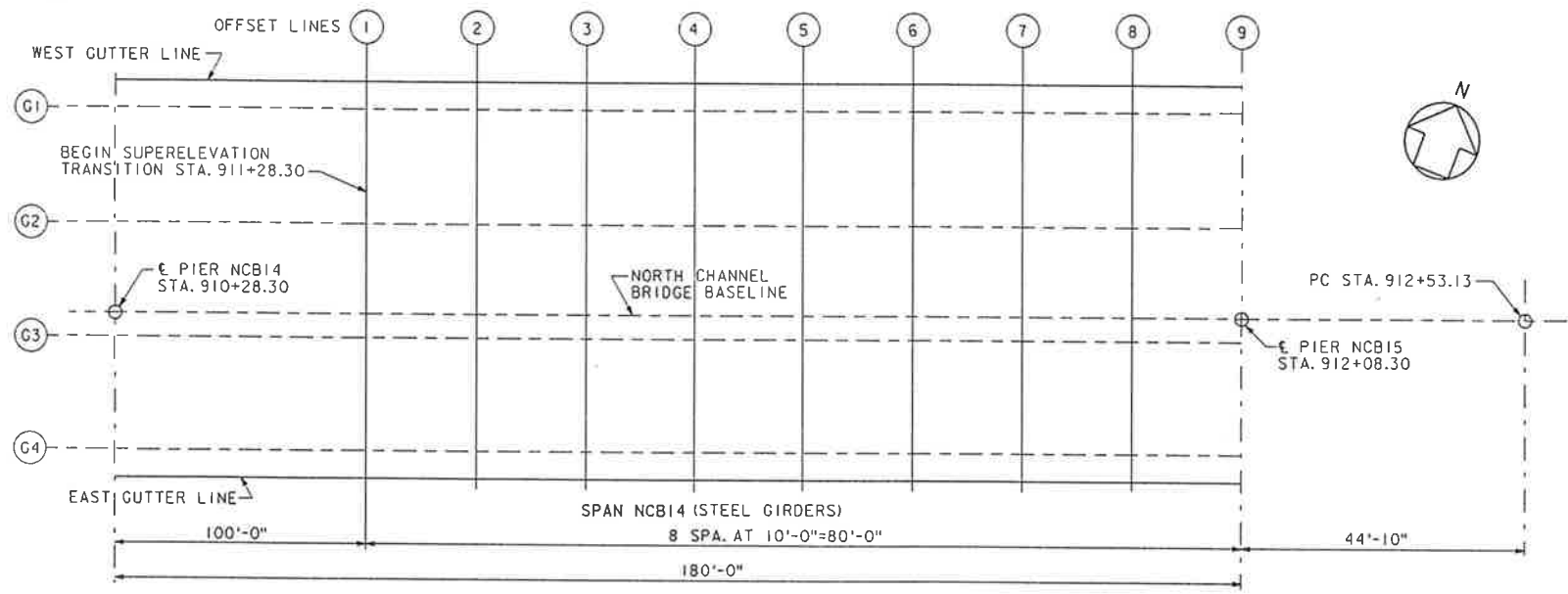
DRAWN BY: JGC	SCALE: AS SHOWN
CHECKED BY: TVD	DATE: DEC. 1994
DWG. NO. 694	
SECTION NO. NCB41 OF NBC50	

NO.	DATE	BY	APP.	DESCRIPTION
△ 01-00	DH	KR		RECORD DRAWING MODIFICATIONS
				ADDED CONSTRUCTION JOINTS

Approved: \_\_\_\_\_

FILENAME: 935222.DGN  
JOB NO.: 11555





**PART PLAN-NCB14**  
SCALE: 1/8"=1'-0"

NOTE: INCREMENTS FOR ELEVATIONS ARE ALONG GUTTERLINES (G.L.),  
 € OF GIRDERS, AND NORTH CHANNEL BRIDGE BASELINE.  
 OFFSET LINES ARE PERPENDICULAR TO € OF BASELINE FOR  
 LINES 1 THRU 9.

SPAN NCB14					SPAN NCB14				
LINE	LOCATION	STATION	OFFSET	ELEVATION	LINE	LOCATION	STATION	OFFSET	ELEVATION
1	WEST G.L.	911+28.30	21.00	71.34	6	WEST G.L.	911+78.30	21.00	70.07
1	G1	911+28.30	18.50	71.28	6	G1	911+78.30	18.50	69.99
1	G2	911+28.30	8.17	71.07	6	G2	911+78.30	8.17	69.66
1	BASELINE	911+28.30	0.00	70.90	6	BASELINE	911+78.30	0.00	69.40
1	G3	911+28.30	2.17	70.85	6	G3	911+78.30	2.17	69.33
1	G4	911+28.30	12.50	70.64	6	G4	911+78.30	12.50	69.00
1	EAST G.L.	911+28.30	15.00	70.59	6	EAST G.L.	911+78.30	15.00	68.92
2	WEST G.L.	911+38.30	21.00	71.08	7	WEST G.L.	911+88.30	21.00	69.82
2	G1	911+38.30	18.50	71.03	7	G1	911+88.30	18.50	69.73
2	G2	911+38.30	8.17	70.79	7	G2	911+88.30	8.17	69.38
2	BASELINE	911+38.30	0.00	70.60	7	BASELINE	911+88.30	0.00	69.10
2	G3	911+38.30	2.17	70.55	7	G3	911+88.30	2.17	69.03
2	G4	911+38.30	12.50	70.31	7	G4	911+88.30	12.50	68.67
2	EAST G.L.	911+38.30	15.00	70.25	7	EAST G.L.	911+88.30	15.00	68.59
3	WEST G.L.	911+48.30	21.00	70.83	8	WEST G.L.	911+98.30	21.00	69.56
3	G1	911+48.30	18.50	70.77	8	G1	911+98.30	18.50	69.47
3	G2	911+48.30	8.17	70.51	8	G2	911+98.30	8.17	69.10
3	BASELINE	911+48.30	0.00	70.30	8	BASELINE	911+98.30	0.00	68.80
3	G3	911+48.30	2.17	70.25	8	G3	911+98.30	2.17	68.72
3	G4	911+48.30	12.50	69.98	8	G4	911+98.30	12.50	68.35
3	EAST G.L.	911+48.30	15.00	69.92	8	EAST G.L.	911+98.30	15.00	68.26
4	WEST G.L.	911+58.30	21.00	70.58	9	WEST G.L.	912+08.30	21.00	69.31
4	G1	911+58.30	18.50	70.51	9	G1	912+08.30	18.50	69.21
4	G2	911+58.30	8.17	70.22	9	G2	912+08.30	8.17	68.81
4	BASELINE	911+58.30	0.00	70.00	9	BASELINE	912+08.30	0.00	68.50
4	G3	911+58.30	2.17	69.94	9	G3	912+08.30	2.17	68.42
4	G4	911+58.30	12.50	69.66	9	G4	912+08.30	12.50	68.02
4	EAST G.L.	911+58.30	15.00	69.59	9	EAST G.L.	912+08.30	15.00	67.92
5	WEST G.L.	911+68.30	21.00	70.32					
5	G1	911+68.30	18.50	70.25					
5	G2	911+68.30	8.17	69.94					
5	BASELINE	911+68.30	0.00	69.70					
5	G3	911+68.30	2.17	69.64					
5	G4	911+68.30	12.50	69.33					
5	EAST G.L.	911+68.30	15.00	69.26					

**NOTES**  
 OFFSETS IN TABLES ARE IN FEET,  
 MEASURED FROM BASELINE ALONG  
 OFFSET LINES.  
 GIRDER SEAT ELEVATIONS HAVE BEEN  
 SET TO ACCOUNT FOR SUPERELEVATION  
 TRANSITION.

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
 CAPE CHARLES, VIRGINIA 23310-0111

 **PARALLEL CROSSING**  
 TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

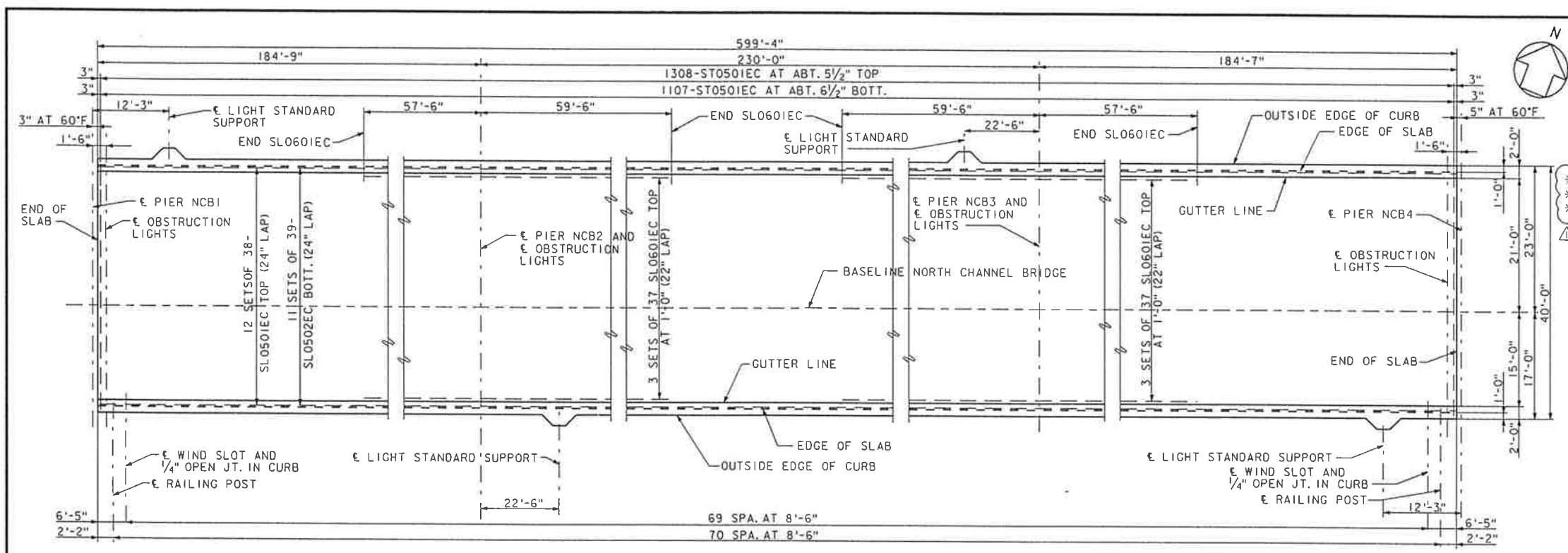
**SVERDRUP CIVIL, INC.**

**NORTH CHANNEL BRIDGE  
 SUPERELEVATION TRANSITION  
 SPAN NCB14**

DRAWN BY: SEM	SCALE: AS SHOWN
CHECKED BY: TVD	DATE: DEC. 1994
DWG. NO. 696	
SECTION NO. NCB43 OF NCB50	

NO.	DATE	BY	APP.	DESCRIPTION

FILENAME: 9351367.DGN  
 JOB NO.: 11585

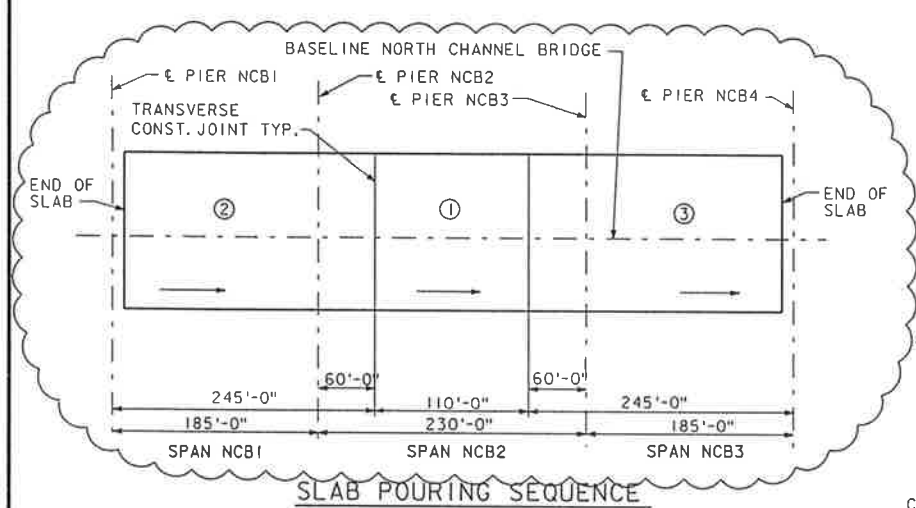


### SPANS NCB1 THRU NCB3 REINFORCING STEEL SCHEDULE

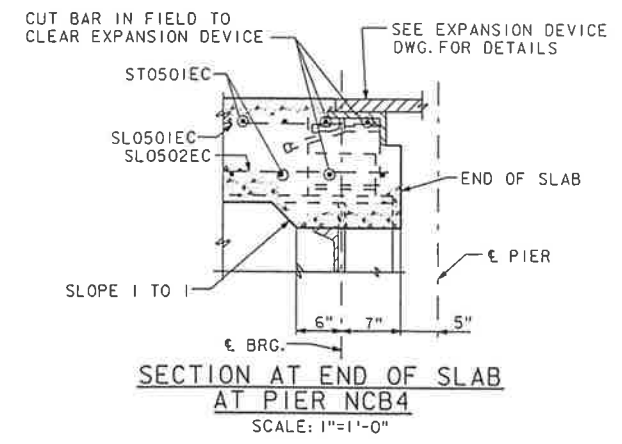
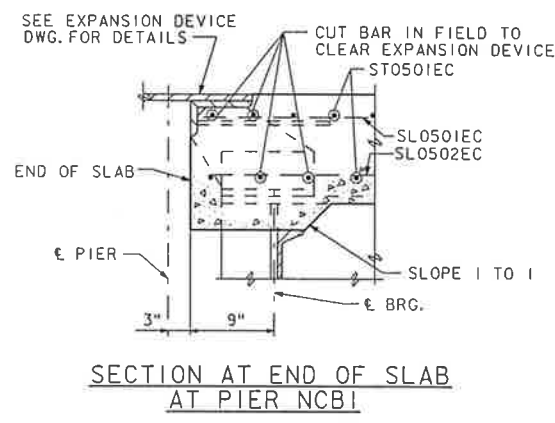
MARK	NO. REQ'D.	SHAPE	LENGTH	TOTAL WEIGHT	PIN DIA.	LOCATION
SC0501EC	12	—	5'-11"	74	---	CURB
SC0502EC	560	—	1'-6"	876	---	CURB
SC0503EC	414	—	8'-0"	3,454	---	CURB
SLO501EC	456	—	51'-9"	24,613	---	SLAB
SLO502EC	429	—	56'-3"	25,169	---	SLAB
SLO601EC	222	—	40'-3"	13,421	---	SLAB
ST0501EC	2,415	—	37'-8"	94,876	---	SLAB
ST0502EC	990	—	3'-8"	3,786	3/4"	SLAB
ST0503EC	990	—	2'-3"	2,323	3/4"	SLAB
LS0501EC	12	—	10'-10"	136	3/4"	SLAB
LS0502EC	8	—	4'-8"	39	3/4"	SLAB
LS0503EC	8	—	6'-2"	51	3/4"	SLAB
LS0504EC	12	—	7'-4"	92	3/4"	SLAB

DIMENSIONS IN BENDING DIAGRAMS ARE OUT TO OUT OF BAR.

**SLAB PLAN**  
SCALE: 1"=10'-0"  
NOTE: WIND SLOTS AND RAIL POSTS ARE SPACED ALONG SOUTH CURB. SPACING SAME FOR NORTH CURB.



**SLAB POURING SEQUENCE**  
SCALE: NONE  
**SLAB POURING NOTES**  
ARROWS INDICATE DIRECTION OF PLACING CONCRETE. THE CIRCLED NUMBERS INDICATE THE PLACING SEQUENCE WITHIN EACH SUPERSTRUCTURE UNIT. PLAN MAY BE REVERSED END-FOR-END IF DESIRED.



### ESTIMATED QUANTITIES

ITEM	UNIT	TOTAL
EPOXY COATED REINFORCING STEEL	LB.	168,910
CONCRETE, CLASS A4.5	CU. YD.	692.6
EPOXY COATED WELDED WIRE FABRIC	LB.	750
BRIDGE DECK GROOVING	SQ. YD.	2,397

### WELDED WIRE FABRIC SCHEDULE

QUANTITY	STYLE	WIDTH	SIDE OVERHANGS	LENGTH	TOTAL WEIGHT	REMARKS
4 SHEET	6x6-W2.9xW2.9	19 IN.	+1/2", +1/2"	5 FT. 11 IN.	16	EPOXY COATED
138 SHEETS	6x6-W2.9xW2.9	19 IN.	+1/2", +1/2"	8 FT. 0 IN.	734	EPOXY COATED

\* AS BUILT SUBSTITUTION

BAR	PLAN	AS BUILT
SLO501	12 - 51'-0" WITH 24" LAP	1 - 20' AND 21 - 30' WITH 28"± LAP
SLO502	11 - 56'-3" WITH 24" LAP	21 - 30' AND 1 - 20' WITH 28"± LAP
SLO503	3 - 40'-3" WITH 22" LAP	1 - 20', 3 - 30' AND 1 - 15' WITH 24"± LAP

**NOTES**

WHERE LIGHT STANDARD SUPPORTS FALL AT SPACED WIND SLOTS ON EITHER CURB, ELIMINATE THOSE SLOTS. PLACE REINFORCEMENT AS THOUGH WIND SLOTS OCCUR, AND ADD ADDITIONAL REINFORCEMENT AS SHOWN IN DETAILS.

FOR ALUMINUM RAILING DETAILS, SEE GENERAL PROJECT DRAWINGS.

### RECORD DRAWING

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

**SVERDRUP CIVIL, INC.**

NORTH CHANNEL BRIDGE  
**SLAB PLAN**  
SPANS NCB1 THRU NCB3

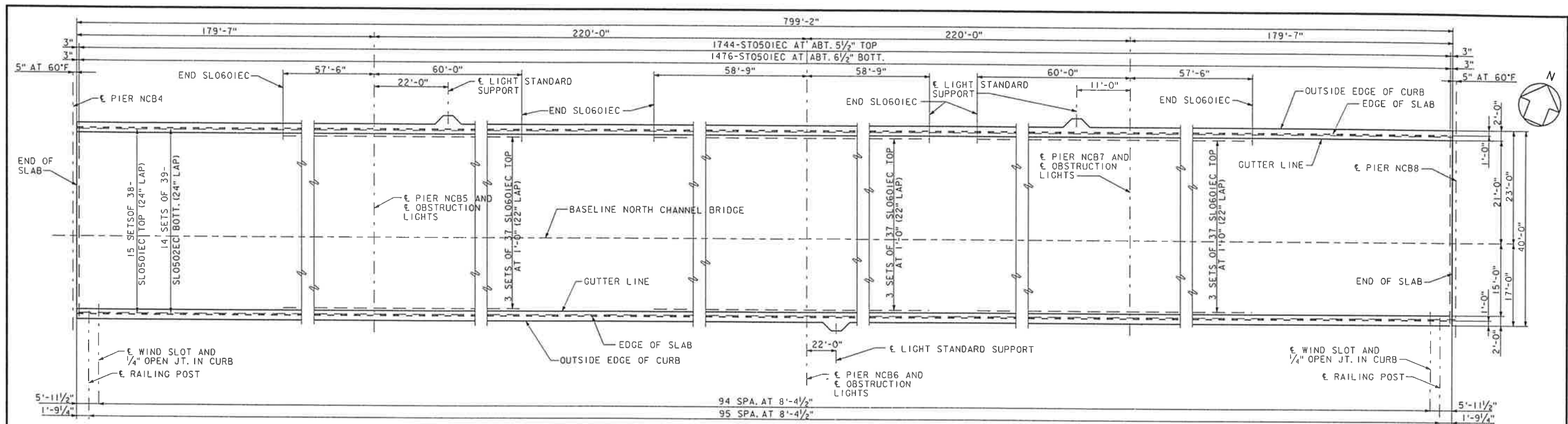
DRWN BY: JGC	SCALE: AS SHOWN
CHECKED BY: RVB	DATE: DEC. 1994
DWG. NO. 697	

Approved: \_\_\_\_\_

SECTION NO. NCB44 OF NCB50

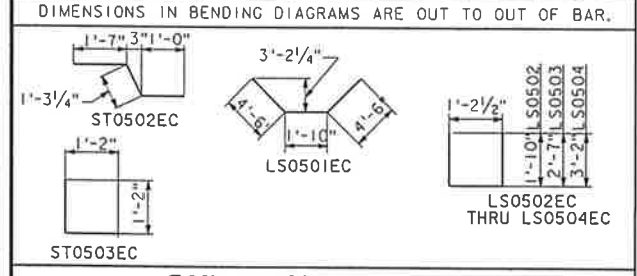
NO.	DATE	BY	APP.	DESCRIPTION
△	01-00	DH	KR	RECORD DRAWING MODIFICATIONS
				POURING SEQUENCE CHANGE AND
				REINFORCING SUBSTITUTION

JOB NO. 11555  
FILENAME 9351023.DGN



**SPANS NCB4 THRU NCB7 REINFORCING STEEL SCHEDULE**

MARK	NO. REQ'D.	SHAPE	LENGTH	TOTAL WEIGHT	PIN DIA.	LOCATION
SC0501EC	12		5'-6"	69	---	CURB
SC0502EC	760		1'-6"	1,189	---	CURB
SC0503EC	564		7'-11"	4,657	---	CURB
SLO501EC	570		55'-2"	32,797	---	SLAB
SLO502EC	546		58'-11"	33,552	---	SLAB
SLO601EC	333		40'-5"	20,215	---	SLAB
ST0501EC	3,220		37'-8"	126,502	---	SLAB
ST0502EC	1,340		3'-8"	5,125	3/4"	SLAB
ST0503EC	1,340		2'-3"	3,145	3/4"	SLAB
LS0501EC	9		10'-10"	102	3/4"	SLAB
LS0502EC	6		4'-8"	29	3/4"	SLAB
LS0503EC	6		6'-2"	39	3/4"	SLAB
LS0504EC	9		7'-4"	69	3/4"	SLAB

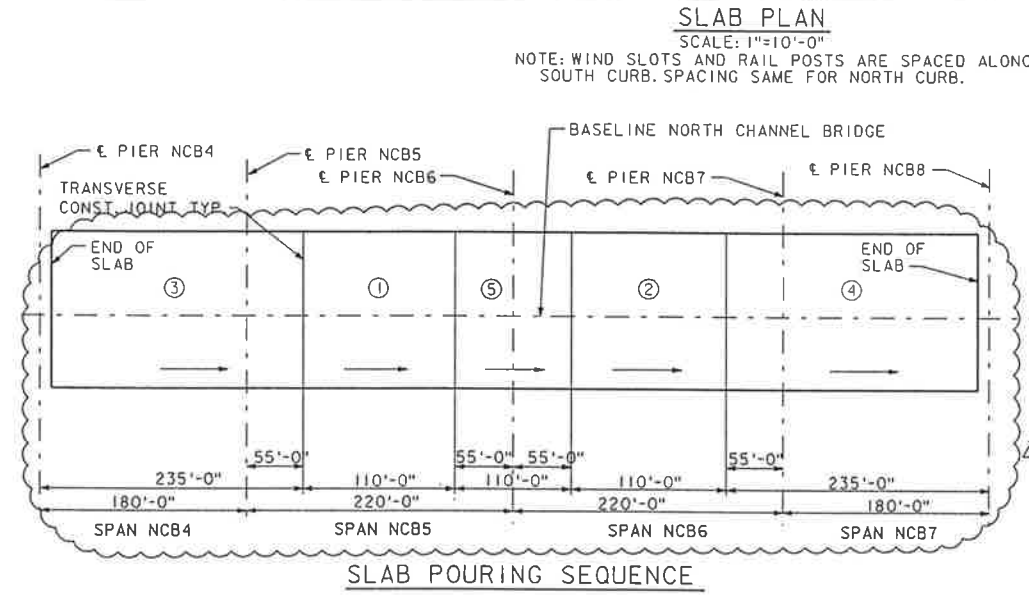


**ESTIMATED QUANTITIES**

ITEM	UNIT	TOTAL
EPOXY COATED REINFORCING STEEL	LB.	227,490
CONCRETE, CLASS A4.5	CU. YD.	921.7
EPOXY COATED WELDED WIRE FABRIC	LB.	1,005
BRIDGE DECK GROOVING	SQ. YD.	3,197

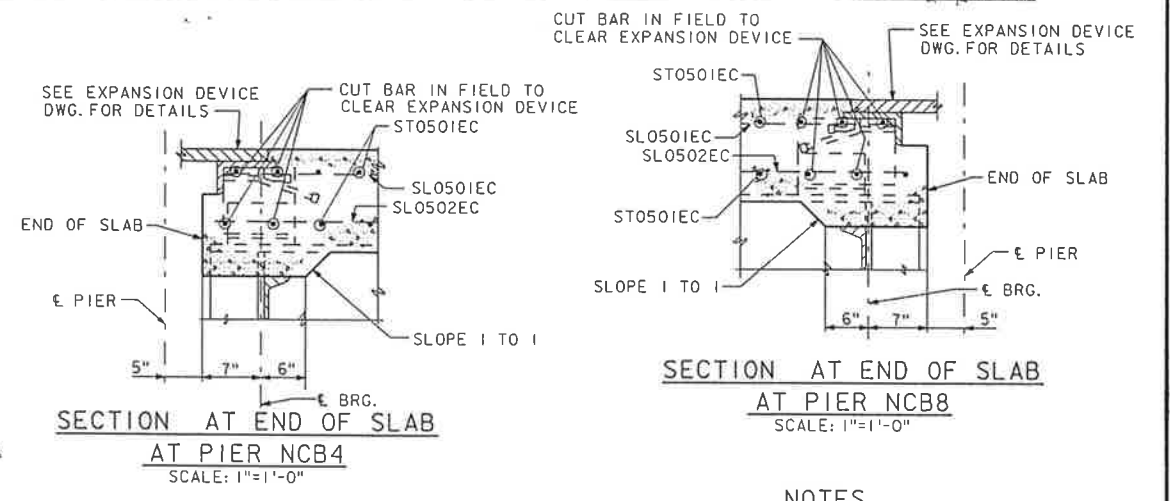
**WELDED WIRE FABRIC SCHEDULE**

QUANTITY	STYLE	WIDTH	SIDE OVERHANGS	LENGTH	TOTAL WEIGHT	REMARKS
4 SHEETS	6x6-W2.9xW2.9	19 IN.	+1/2" + 1/2"	5 FT. 6 IN.	15	EPOXY COATED
188 SHEETS	6x6-W2.9xW2.9	19 IN.	+1/2" + 1/2"	7 FT. 11 IN.	990	EPOXY COATED



**SLAB POURING NOTES**

ARROWS INDICATE DIRECTION OF PLACING CONCRETE. THE CIRCLED NUMBERS INDICATE THE PLACING SEQUENCE WITHIN EACH SUPERSTRUCTURE UNIT. PLAN MAY BE REVERSED END-FOR-END IF DESIRED.



**NOTES**

WHERE LIGHT STANDARD SUPPORTS FALL AT SPACED WIND SLOTS ON EITHER CURB, ELIMINATE THOSE SLOTS. PLACE REINFORCEMENT AS THOUGH WIND SLOTS OCCUR, AND ADD ADDITIONAL REINFORCEMENT AS SHOWN IN DETAILS.

FOR ALUMINUM RAILING DETAILS, SEE GENERAL PROJECT DRAWINGS.

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
TO  
LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

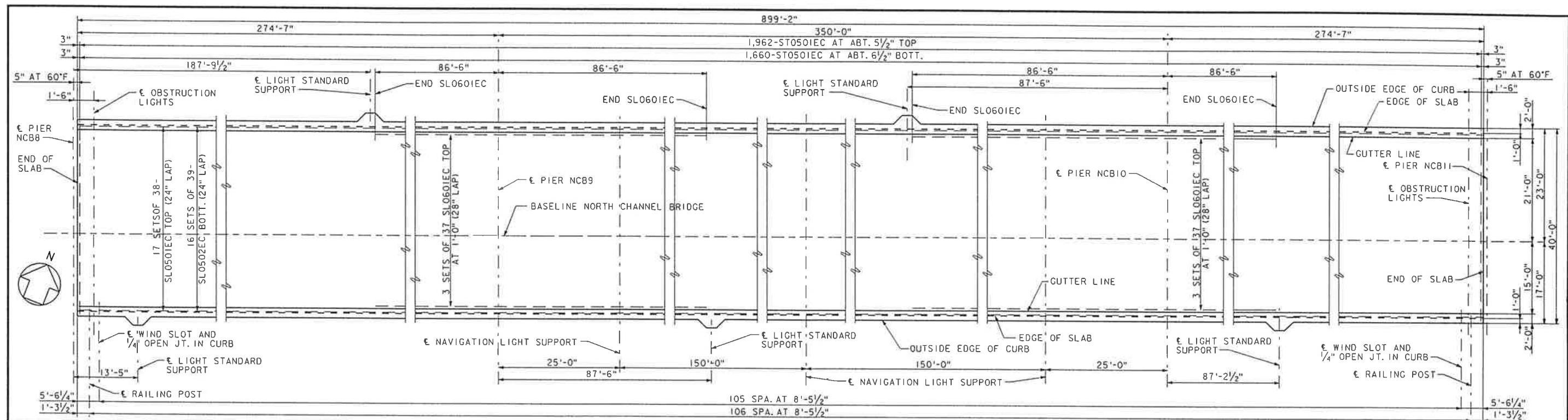
**SVERDRUP CIVIL, INC.**

NORTH CHANNEL BRIDGE  
SLAB PLAN  
SPANS NCB4 THRU NCB7

NO.	DATE	BY	APP.	DESCRIPTION
Δ 01-00	DH	KR		RECORD DRAWING MODIFICATIONS SLAB POURING SEQUENCE CHANGE AND REINFORCING SUBSTITUTION

DRWN BY: JGC SCALE: AS SHOWN  
CHECKED BY: RVB DATE: DEC. 1994  
DWG. NO. 698  
SECTION NO. NCB45 OF NCB50

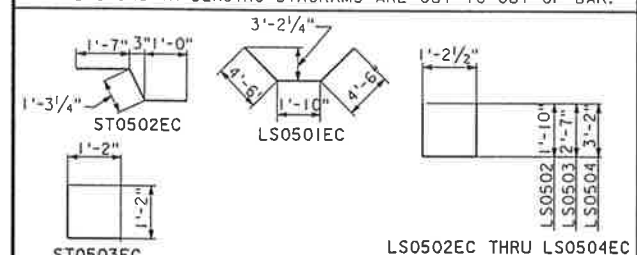
FILENAME: 93S1025.DGN  
JOB NO.: 11555



SPANS NCB8 THRU NCB10  
REINFORCING STEEL SCHEDULE

MARK	NO. REQ'D.	SHAPE	LENGTH	TOTAL WEIGHT	PIN DIA.	LOCATION
SC0501EC	12	—	5'-0"	63	---	CURB
SC0502EC	848	—	1'-6"	1,327	---	CURB
SC0503EC	630	—	8'-0"	5,257	---	CURB
SLO501EC	646	—	54'-9"	36,889	---	SLAB
SLO502EC	624	—	58'-1"	37,802	---	SLAB
SLO601EC	222	—	59'-3"	19,757	---	SLAB
ST0501EC	3,622	—	37'-8"	142,295	---	SLAB
ST0502EC	1,494	—	3'-8"	5,714	3/4"	SLAB
ST0503EC	1,494	L	2'-3"	3,506	3/4"	SLAB
LS0501EC	15	—	10'-10"	169	3/4"	SLAB
LS0502EC	10	—	4'-8"	49	3/4"	SLAB
LS0503EC	10	—	6'-2"	64	3/4"	SLAB
LS0504EC	15	—	7'-4"	115	3/4"	SLAB

DIMENSIONS IN BENDING DIAGRAMS ARE OUT TO OUT OF BAR.



ESTIMATED QUANTITIES

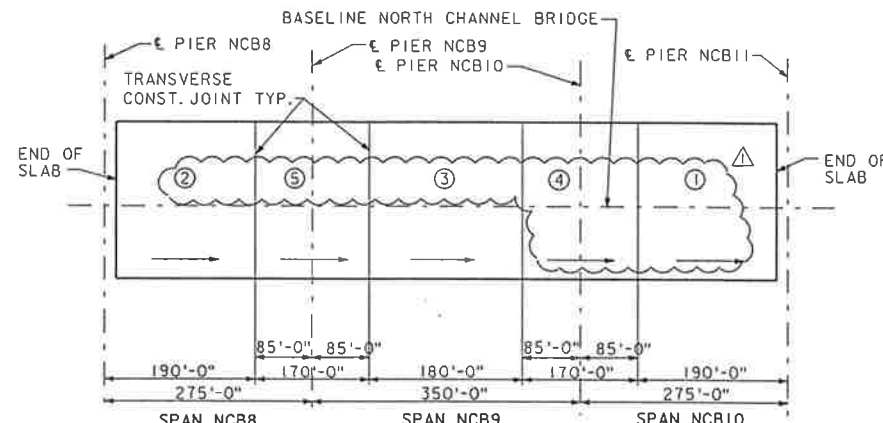
ITEM	UNIT	TOTAL
EPOXY COATED REINFORCING STEEL	LB.	253,007
CONCRETE, CLASS A4.5	CU. YD.	1,058.5
EPOXY COATED WELDED WIRE FABRIC	LB.	1,130
BRIDGE DECK GROOVING	SQ. YD.	3,597

WELDED WIRE FABRIC SCHEDULE

QUANTITY	STYLE	WIDTH	SIDE OVERHANGS	LENGTH	TOTAL WEIGHT	REMARKS
4 SHEETS	6x6-W2.9xW2.9	19 IN.	+1/2", +1/2"	5 FT. 0 IN.	13	EPOXY COATED
210 SHEETS	6x6-W2.9xW2.9	19 IN.	+1/2", +1/2"	8 FT. 0 IN.	1,117	EPOXY COATED

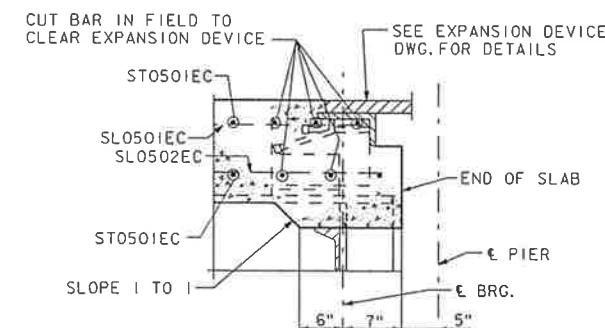
SLAB PLAN

SCALE: 1"=10'-0"  
NOTE: WIND SLOTS AND RAIL POST ARE SPACED ALONG SOUTH CURB. SPACING SAME FOR NORTH CURB.



SLAB POURING SEQUENCE  
SCALE: NONE

SLAB POURING NOTES  
ARROWS INDICATE DIRECTION OF PLACING CONCRETE. THE CIRCLED NUMBERS INDICATE THE PLACING SEQUENCE WITHIN EACH SUPERSTRUCTURE UNIT. PLAN MAY BE REVERSED END-FOR-END IF DESIRED.



TYPICAL SECTION AT  
END OF SLAB  
SCALE: 1"=1'-0"

NOTES

WHERE LIGHT STANDARD SUPPORTS FALL AT SPACED WIND SLOTS ON EITHER CURB, ELIMINATE THOSE SLOTS. PLACE REINFORCEMENT AS THOUGH WIND SLOTS OCCUR, AND ADD ADDITIONAL REINFORCEMENT AS SHOWN IN DETAILS.  
FOR ALUMINUM RAILING DETAILS, SEE GENERAL PROJECT DRAWINGS.  
FOR NAVIGATION LIGHT DETAILS, SEE ELECTRICAL DRAWINGS.

RECORD DRAWING

COMMONWEALTH OF VIRGINIA  
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
CAPE CHARLES, VIRGINIA 23310-0111

PARALLEL CROSSING  
TO  
LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

SVERDRUP CIVIL, INC.

NORTH CHANNEL BRIDGE  
SLAB PLAN  
SPANS NCB8 THRU NCB10

DRAWN BY: JGC	SCALE: AS SHOWN
CHECKED BY: RVB	DATE: DEC. 1994
DWG. NO. 699	
SECTION NO. NCB46 OF NCB50	

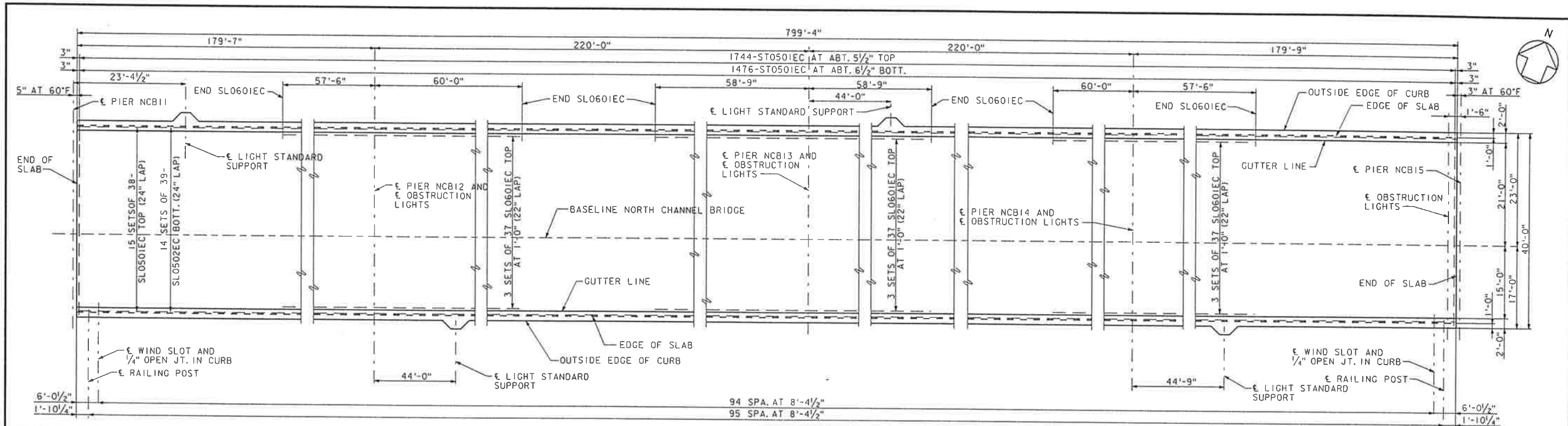
\*AS BUILT SUBSTITUTION

BAR	PLAN	AS BUILT
SLO501EC	17 - 54'-9" WITH 24" LAP	1 - 15' AND 32 - 30' WITH 32"± LAP
SLO502EC	16 - 58'-1" WITH 24" LAP	32 - 30' AND 1 - 15' WITH 32"± LAP
SLO601EC	3 - 59'-3" WITH 28" LAP	1 - 22', 5 - 30' AND 1 - 15' WITH 28" LAP

NO.	DATE	BY	APP.	DESCRIPTION
01-00	DH	KR		RECORD DRAWING MODIFICATIONS
				SLAB POURING SEQUENCE CHANGE AND
				REINFORCING SUBSTITUTION

Approved:

FILENAME: 93S1027.DGN  
JOB NO.: 11555



SLAB PLAN

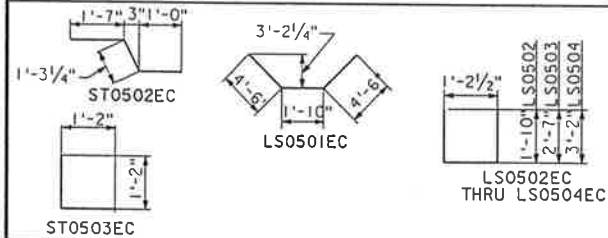
SCALE: 1"=10'-0"

NOTE: WIND SLOTS AND RAIL POST ARE SPACED ALONG SOUTH CURB. SPACING SAME FOR NORTH CURB.

SPANS NCB11 THRU NCB14  
REINFORCING STEEL SCHEDULE

MARK	NO. REQ'D.	SHAPE	LENGTH	TOTAL WEIGHT	PIN DIA.	LOCATION
SC0501EC	12	—	5'-7"	70	---	CURB
SC0502EC	760	—	1'-6"	1,189	---	CURB
SC0503EC	564	—	7'-11"	4,657	---	CURB
SL0501EC	570	—	55'-2"	32,797	---	SLAB
SL0502EC	546	—	58'-11"	33,552	---	SLAB
SL0601EC	333	—	40'-5"	20,215	---	SLAB
ST0501EC	3,220	—	37'-8"	126,502	---	SLAB
ST0502EC	1,340	—	3'-8"	5,125	3 3/4"	SLAB
ST0503EC	1,340	—	2'-3"	3,145	3 3/4"	SLAB
LS0501EC	12	U	10'-10"	136	3 3/4"	SLAB
LS0502EC	8	U	4'-8"	39	3 3/4"	SLAB
LS0503EC	8	U	6'-2"	51	3 3/4"	SLAB
LS0504EC	12	U	7'-4"	92	3 3/4"	SLAB

DIMENSIONS IN BENDING DIAGRAMS ARE OUT TO OUT OF BAR.

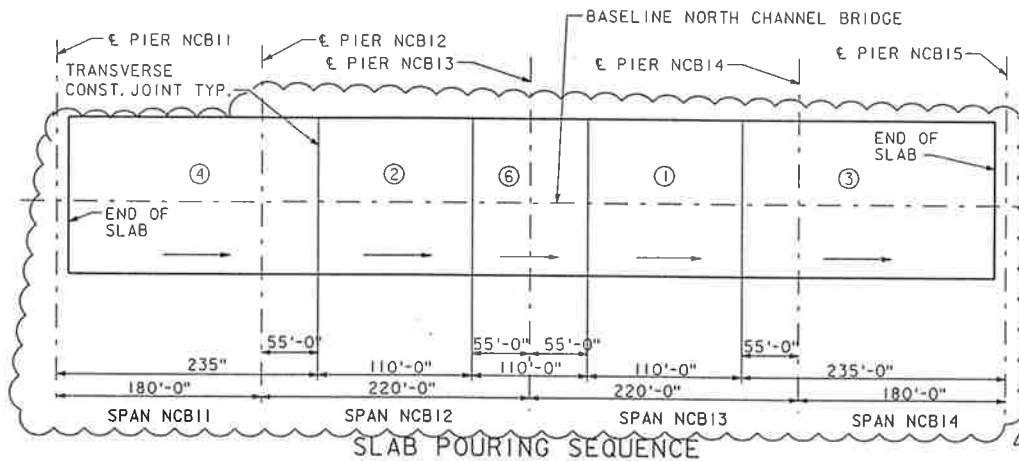


ESTIMATED QUANTITIES

ITEM	UNIT	TOTAL
EPOXY COATED REINFORCING STEEL	LB.	227,570
CONCRETE, CLASS A4.5	CU. YD.	922.7
EPOXY COATED WELDED WIRE FABRIC	LB.	1,005
BRIDGE DECK GROOVING	SQ. YD.	3,197

WELDED WIRE FABRIC SCHEDULE

QUANTITY	STYLE	WIDTH	SIDE OVERHANGS	LENGTH	TOTAL WEIGHT	REMARKS
4 SHEETS	6x6-W2.9xW2.9	19 IN.	+1/2", +1/2"	5 FT. 7 IN.	15	EPOXY COATED
188 SHEETS	6x6-W2.9xW2.9	19 IN.	+1/2", +1/2"	7 FT. 11 IN.	990	EPOXY COATED

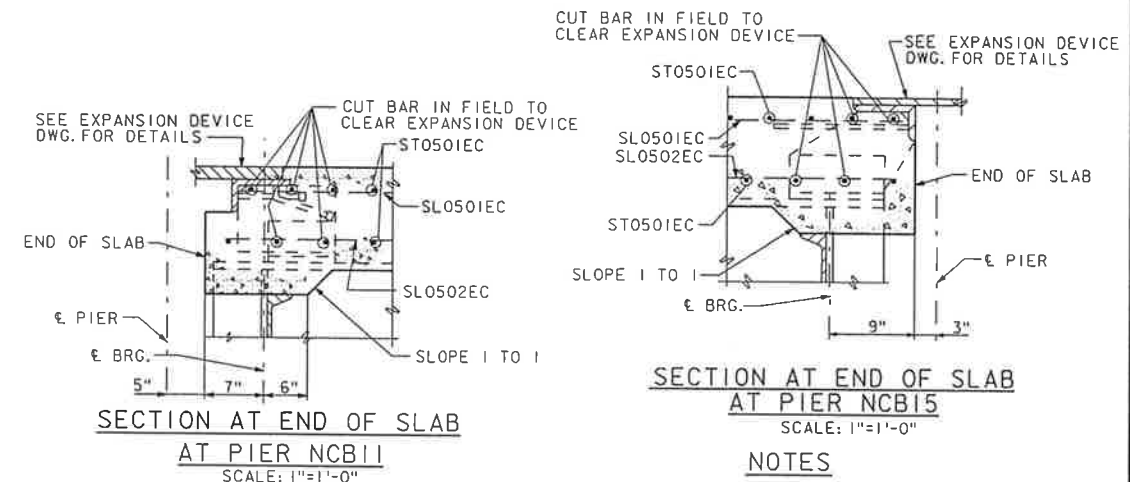


SLAB POURING SEQUENCE

SCALE: NONE

SLAB POURING NOTES

ARROWS INDICATE DIRECTION OF PLACING CONCRETE.  
THE CIRCLED NUMBERS INDICATE THE PLACING SEQUENCE WITHIN EACH SUPERSTRUCTURE UNIT.  
PLAN MAY BE REVERSED END-FOR-END IF DESIRED.



SECTION AT END OF SLAB AT PIER NCB11  
SCALE: 1"=1'-0"

SECTION AT END OF SLAB AT PIER NCB15  
SCALE: 1"=1'-0"

NOTES

WHERE LIGHT STANDARD SUPPORTS FALL AT SPACED WIND SLOTS ON EITHER CURB, ELIMINATE THOSE SLOTS. PLACE REINFORCEMENT AS THOUGH WIND SLOTS OCCUR, AND ADD ADDITIONAL REINFORCEMENT AS SHOWN IN DETAILS.

FOR ALUMINUM RAILING DETAILS, SEE GENERAL PROJECT DRAWINGS.

RECORD DRAWING

COMMONWEALTH OF VIRGINIA  
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
CAPE CHARLES, VIRGINIA 23310-0111

PARALLEL CROSSING  
TO  
LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

SVERDRUP CIVIL, INC.

NORTH CHANNEL BRIDGE  
SLAB PLAN  
SPANS NCB11 THRU NCB14

DRAWN BY: JGC SCALE: AS SHOWN

CHECKED BY: RVB DATE: DEC. 1994

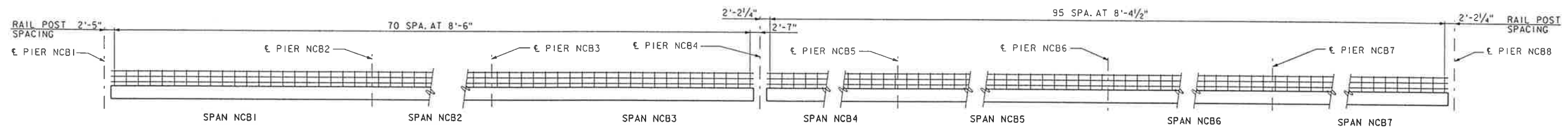
DWG. NO. 700

SECTION NO. NCB47 OF NCB50

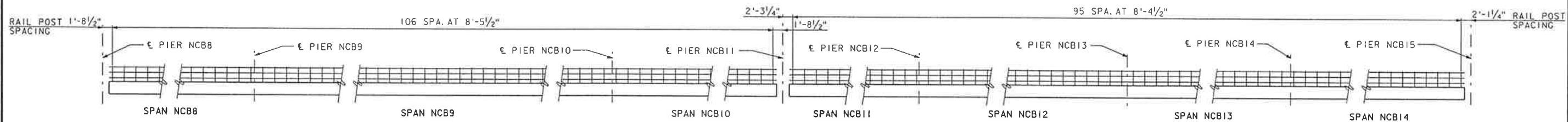
BAR	PLAN	AS BUILT
SL0501EC	15 - 55'-2" WITH 24" LAP	1 - 25' AND 28 - 30' WITH 28" LAP
SL0502EC	14 - 58'-11" WITH 24" LAP	28 - 30' AND 1 - 25' WITH 28" LAP
SL0601EC	3 - 40'-5" WITH 22" LAP	1 - 20', 3 - 30' AND 1 - 15' WITH 22" LAP

NO.	DATE	BY	APP.	DESCRIPTION
01-00	DH	KR		RECORD DRAWING MODIFICATIONS SLAB POURING SEQUENCE CHANGE AND REINFORCING SUBSTITUTION

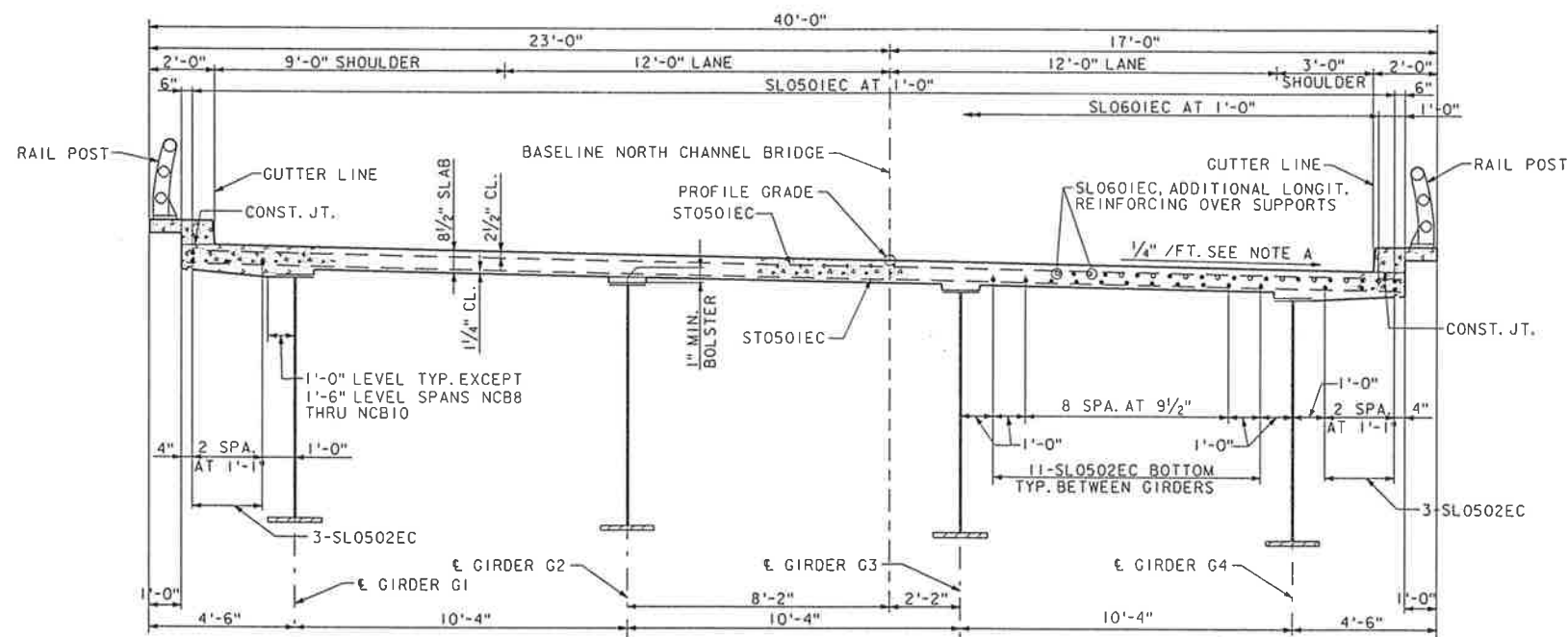
Approved:



HANDRAIL ELEVATION - SPANS NCB1 THRU NCB7  
SCALE: NONE



HANDRAIL ELEVATION - SPANS NCB8 THRU NCB14  
SCALE: NONE  
NOTE: FOR RAILING DETAILS, SEE GENERAL PROJECT DRAWINGS.



TYPICAL SECTION THRU SLAB  
SCALE: 3/8" = 1'-0"

NOTE: STAY IN PLACE METAL FORMS NOT SHOWN.  
LOOKING AHEAD STATION.

FOR DETAILS OF STAY IN PLACE METAL FORMS, SEE SHOP DRAWINGS FROM CONSOLIDATED SYSTEMS, INC. MEMPHIS, TN.

NOTE A: CROSS SLOPE VARIES IN SPAN NCB14 BEYOND STA. 911+28.30

RECORD DRAWING

COMMONWEALTH OF VIRGINIA  
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
CAPE CHARLES, VIRGINIA 23310-0111

PARALLEL CROSSING  
TO  
LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

SVERDRUP CIVIL, INC.

NORTH CHANNEL BRIDGE  
SLAB DETAILS

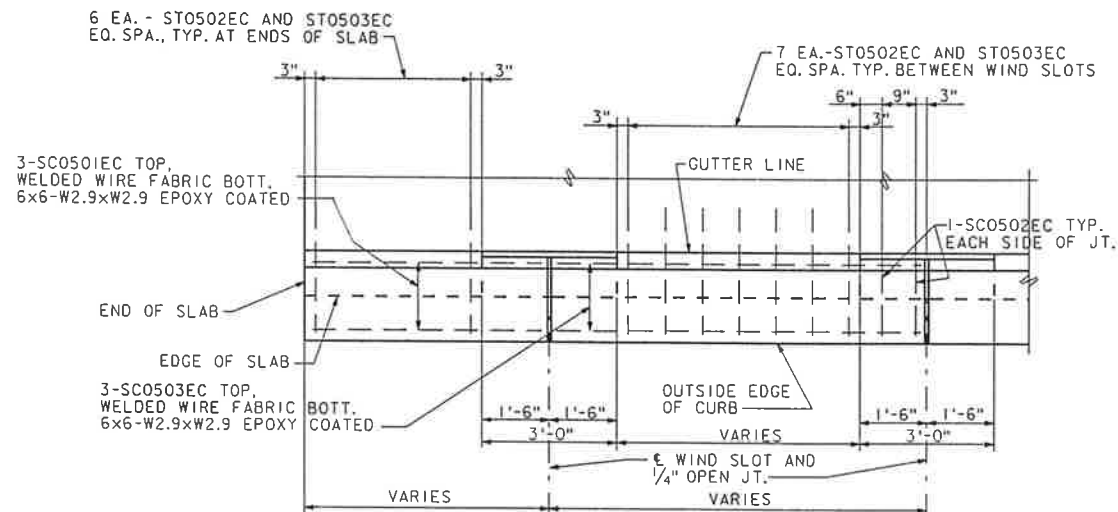
DRAWN BY: JGC	SCALE: AS SHOWN
CHECKED BY: RVB	DATE: DEC. 1994
DWG. NO. 701	
SECTION NO. NCB48 OF NCB50	

NO.	DATE	BY	APP.	DESCRIPTION
△ 01-00		DH	KR	RECORD DRAWING MODIFICATIONS

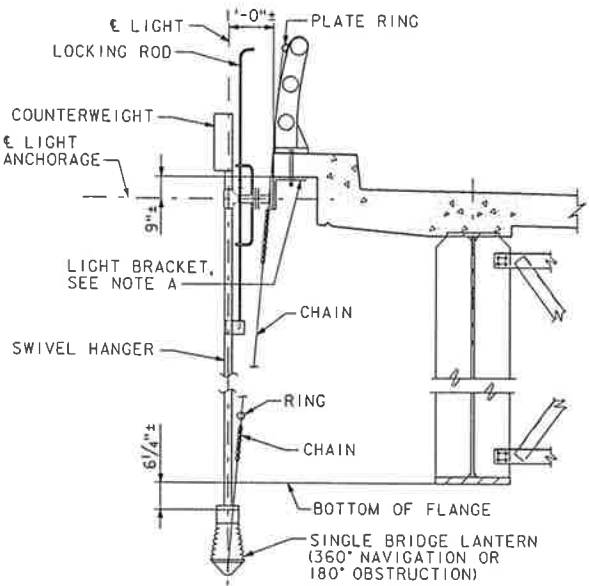
Approved: \_\_\_\_\_

JOB NO. 11555  
FILENAME 9351026.DGN

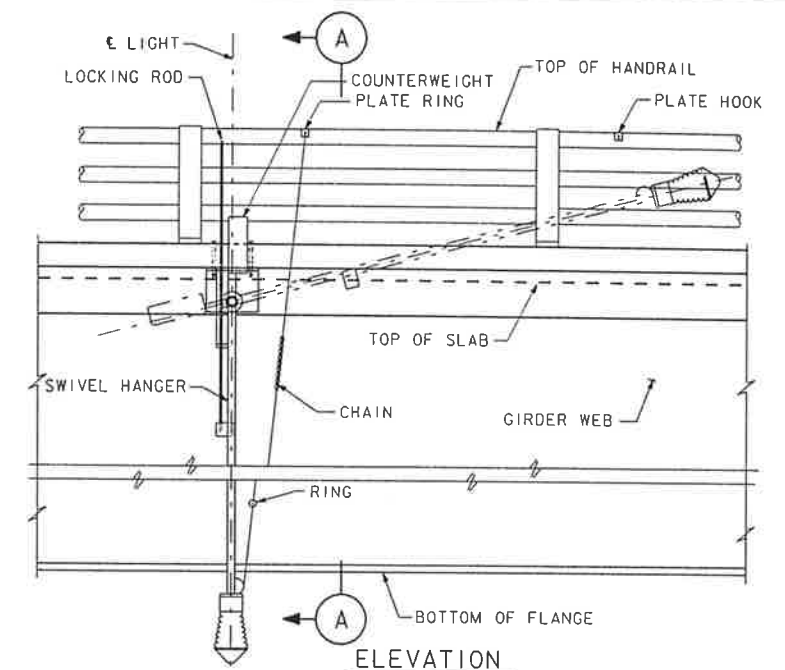




**TYPICAL CURB REINFORCING PLAN**  
 SCALE: 1/2"=1'-0"  
 NOTE: SIDES OF WIND SLOTS MAY BE TAPERED SLIGHTLY FOR EASE OF FORM REMOVAL. EXPANSION DEVICE NOT SHOWN.



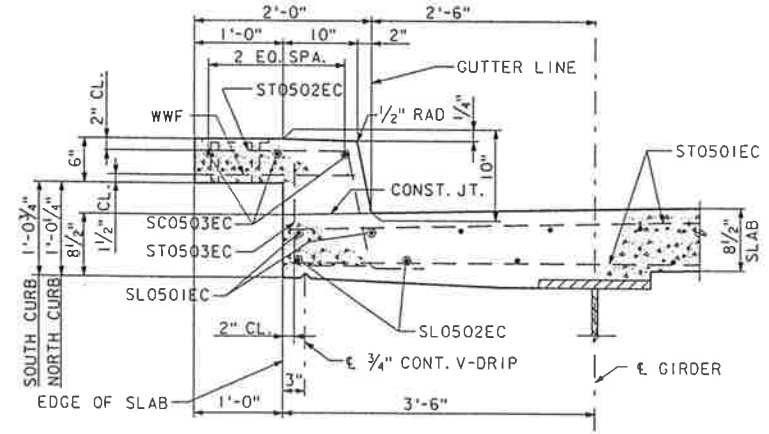
**SECTION A**



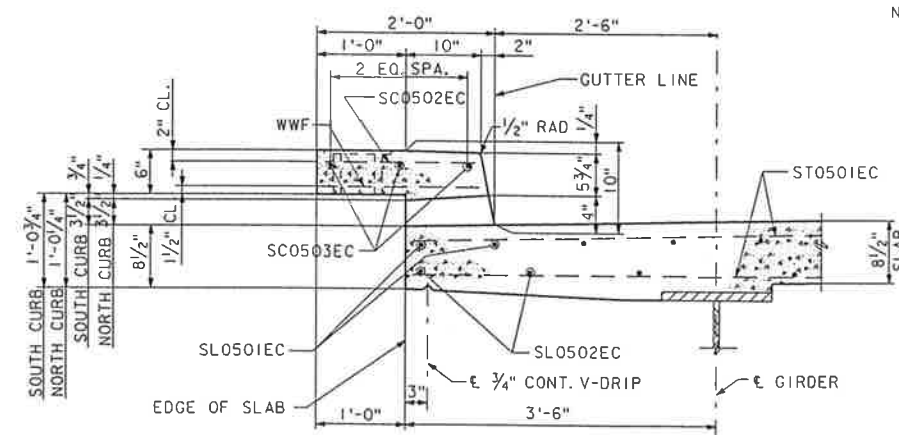
**ELEVATION**

**NAVIGATION AND OBSTRUCTION LIGHT SUPPORT DETAIL**  
 SCALE: 1"=1'-0"

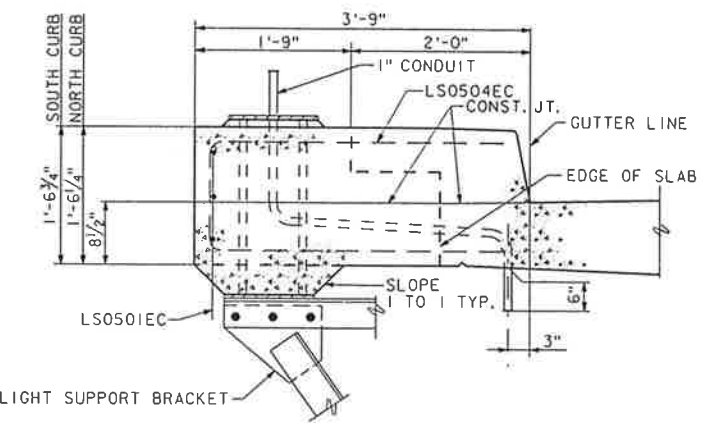
NOTE A: LIGHT SUPPORT BRACKET AND ITS ATTACHMENT TO CURB AS PER NAVIGATION OR OBSTRUCTION LIGHT MANUFACTURER.



**TYPICAL SECTION THRU CURB**  
 SCALE: 1"=1'-0"



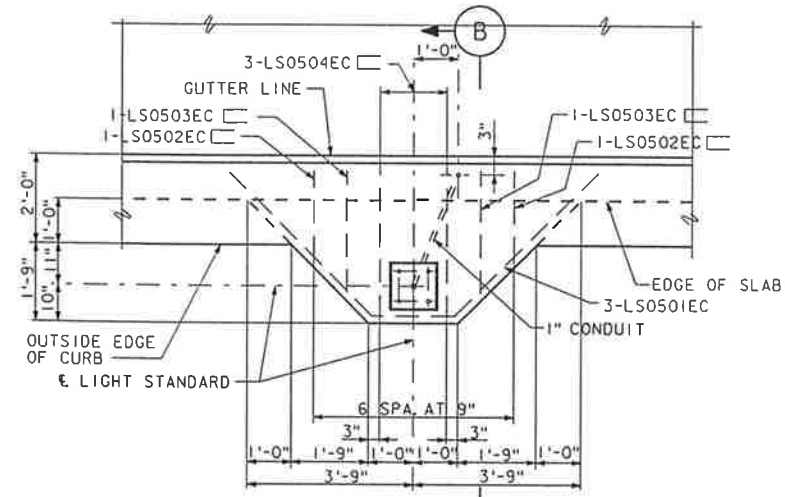
**TYPICAL SECTION THRU CURB AT WIND SLOT**  
 SCALE: 1"=1'-0"



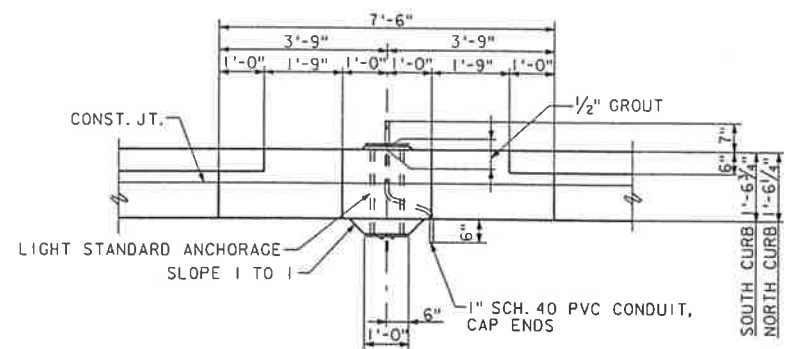
**SECTION B**

**NOTES**

1" DIA. ANCHOR BOLTS FOR FASTENING LIGHT STANDARDS, SHALL HAVE HEX. HEADS ON TOP AND DOUBLE HEX. NUTS ON BOTTOM, CONNECTED TO STEEL BRACKETS, ONE STANDARD PLATE WASHER TOP AND BOTTOM, ALL GALVANIZED.




**PLAN AT LIGHT STANDARD SUPPORT**  
 SCALE: 1/2"=1'-0"



**ELEVATION AT LIGHT STANDARD SUPPORT**  
 SCALE: 1/2"=1'-0"

**RECORD DRAWING**

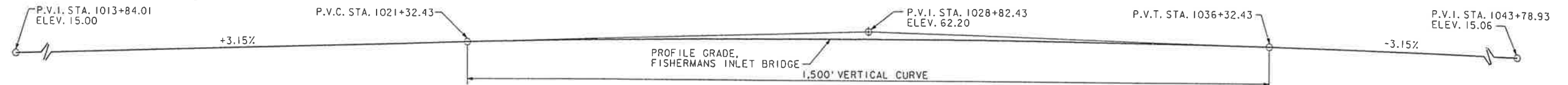
COMMONWEALTH OF VIRGINIA	
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT	
CAPE CHARLES, VIRGINIA 23310-0111	
 <b>PARALLEL CROSSING</b> TO LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL	
SVERDRUP CIVIL, INC.	
NORTH CHANNEL BRIDGE	
SLAB DETAILS	
Drawn By: JGC	Scale: AS SHOWN
Checked By: RVB	Date: DEC. 1994
DWG. NO. 702	
Section No. NCB49	Of NCB50

NO.	DATE	BY	APP.	DESCRIPTION

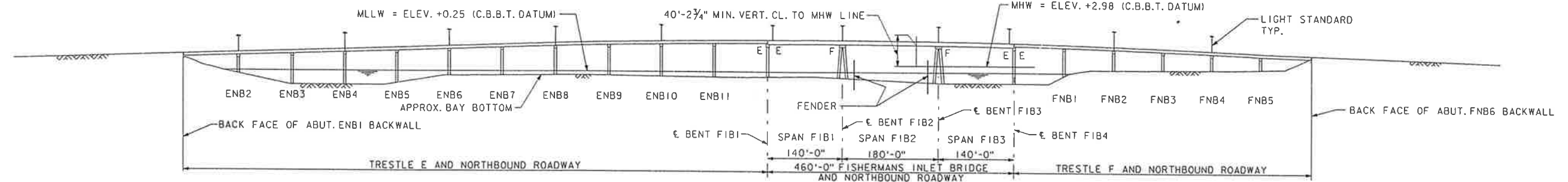
FILENAME: 93S1024.DGN  
 JOB NO.: 11555

**Appendix D**

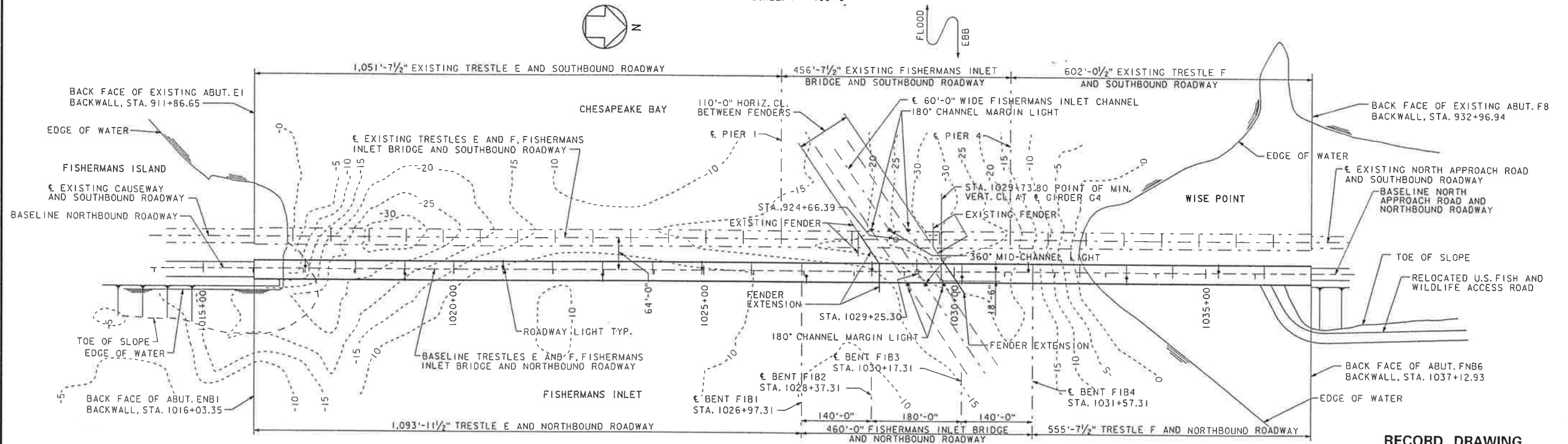
**Fishermans Island Bridge North Bound Drawings**



**PROFILE GRADE**  
SCALE: 1" = 100'-0"



**ELEVATION**  
SCALE: 1" = 100'-0"



**PLAN**  
SCALE: 1" = 100'-0"

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

**SVERDRUP CIVIL, INC.**

FISHERMANS INLET BRIDGE  
**GENERAL PLAN AND ELEVATION**

DRAWN BY: JGC SCALE: AS SHOWN

CHECKED BY: TVD DATE: DEC. 1994

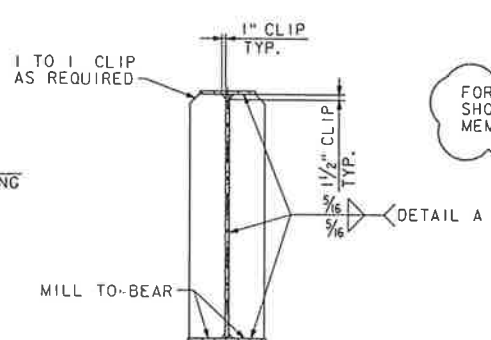
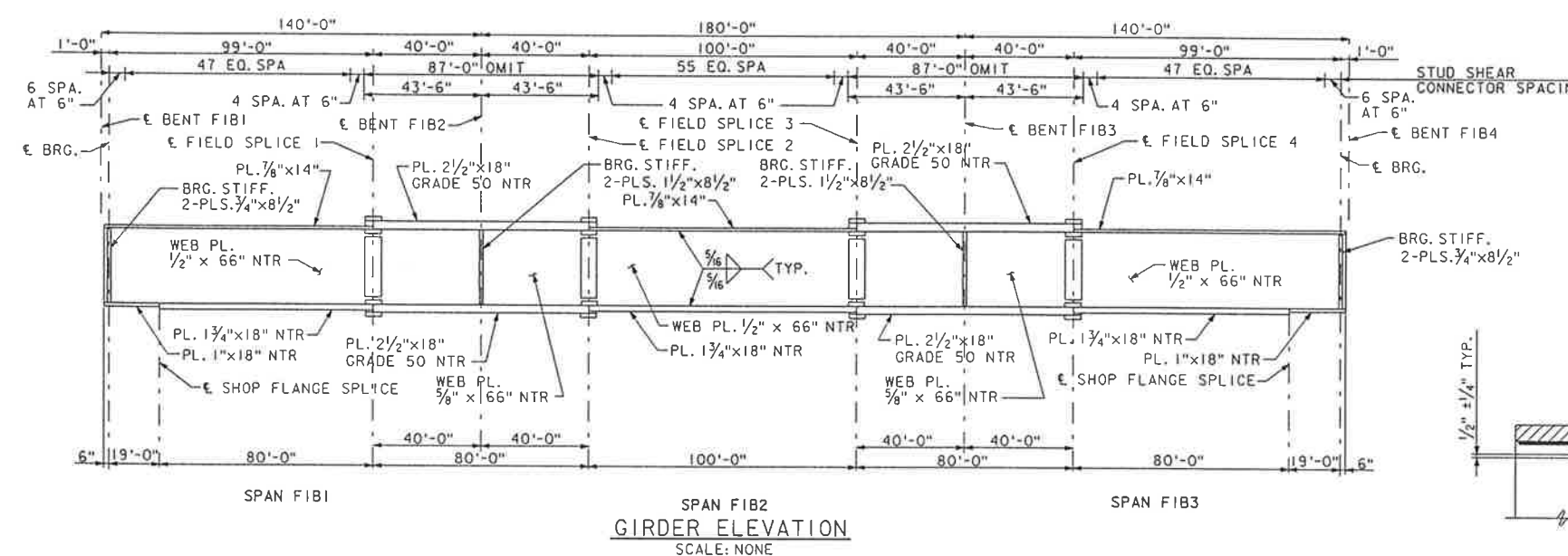
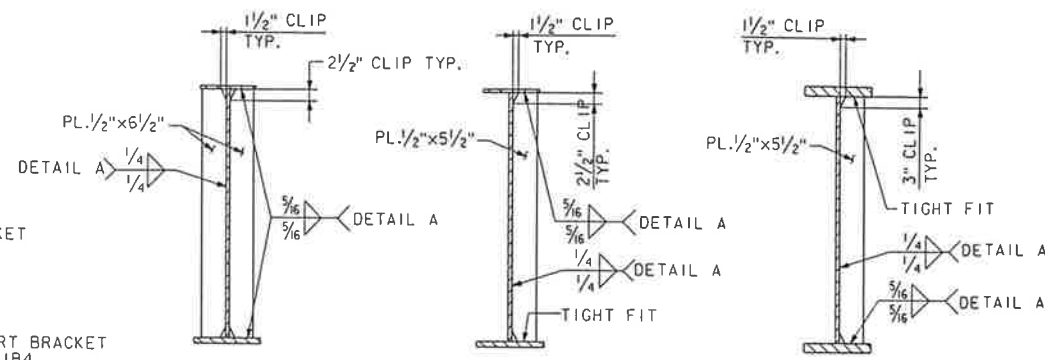
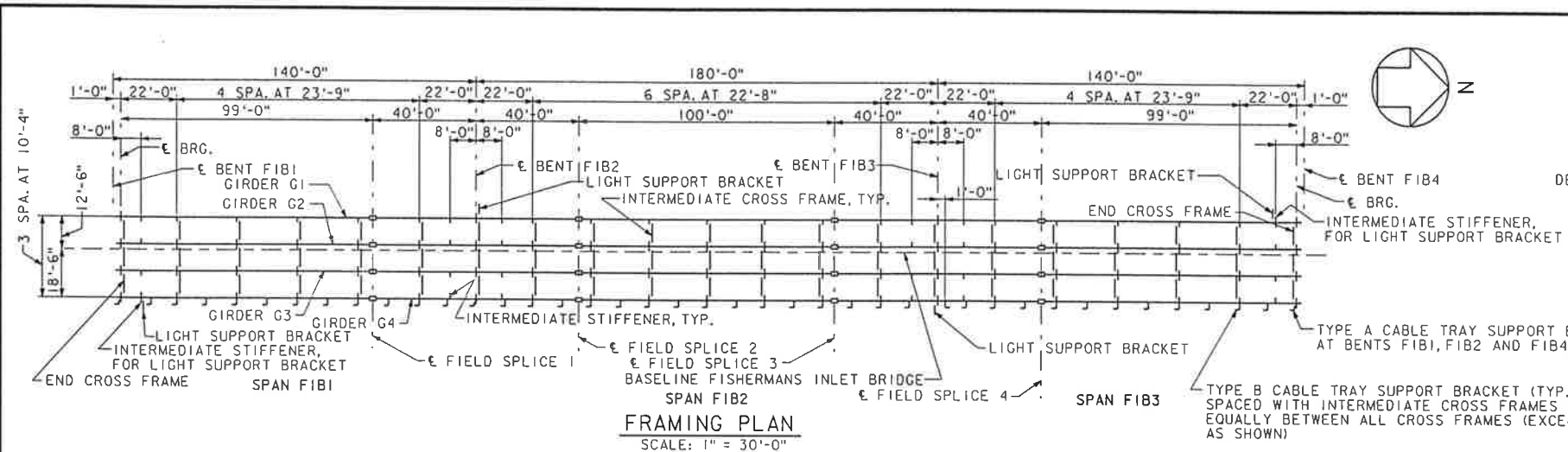
DWG. NO. 704

SECTION NO. FIB1 OF FIB14

Approved: \_\_\_\_\_

NO.	DATE	BY	APP.	DESCRIPTION

FILENAME: 93S304.DGN  
JOB NO.: 11555

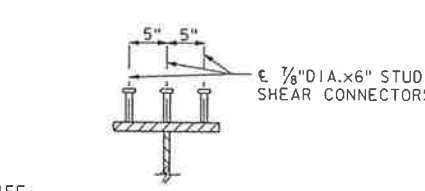
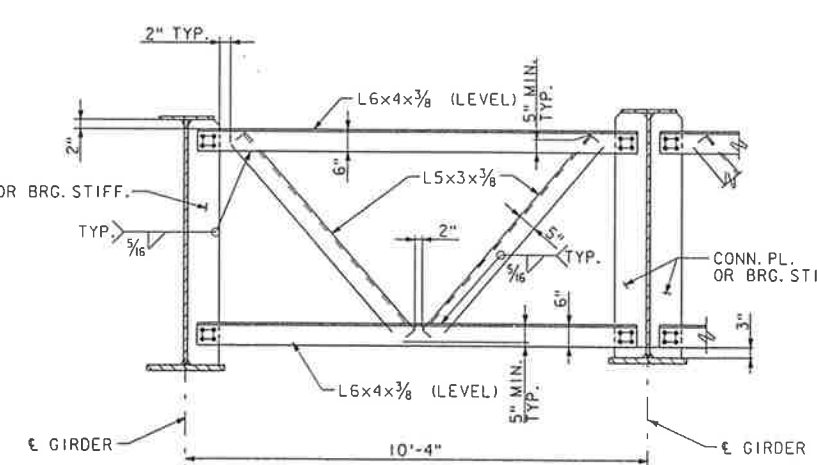
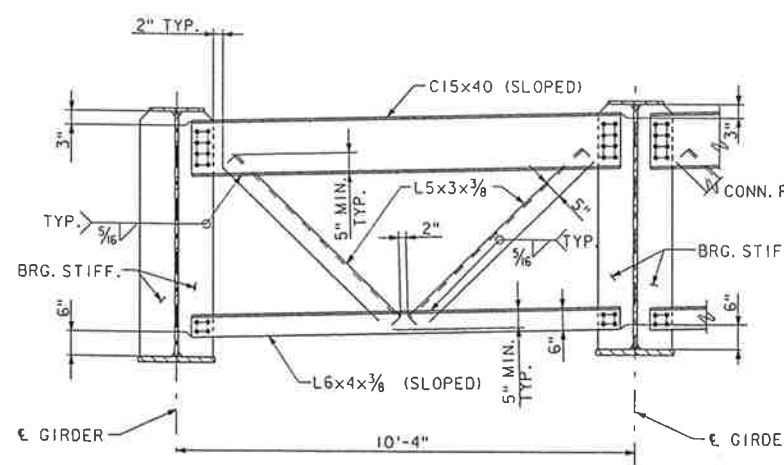
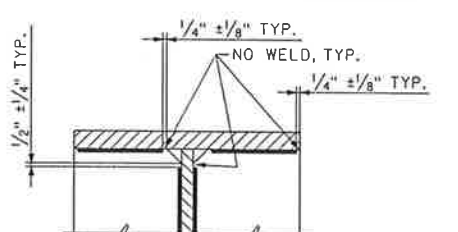


FOR AS-BUILT STRUCTURAL STEEL DETAILS, SEE SHOP DRAWINGS BY HIGH STEEL STRUCTURES, INC. MEMPHIS, TN.

**STRUCTURAL STEEL NOTES**

FOR GENERAL NOTES SEE GENERAL PROJECT DRAWINGS. ALL STRUCTURAL STEEL SHALL BE ASTM A709, AND SHALL BE GRADE 36 UNLESS OTHERWISE SHOWN.

DESIGN UNIT STRESSES  
STRUCTURAL STEEL (ASTM A709)  
GRADE 36 -  $f_s = 20,000$  LBS. PER SQ. IN.  
 $f_y = 36,000$  LBS. PER SQ. IN.  
GRADE 50 -  $f_s = 27,000$  LBS. PER SQ. IN.  
 $f_y = 50,000$  LBS. PER SQ. IN.



NTR INDICATES PLATES THAT ARE SUBJECT TO CHАРY V-NOTCH IMPACT REQUIREMENTS, ZONE 2.

FASTENERS SHALL BE ASTM A325, TYPE 1, 7/8" DIA. HIGH STRENGTH BOLTS WITH 15/16" DIA. HOLES UNLESS OTHERWISE NOTED.

HIGH STRENGTH BOLTS ARE DESIGNED FOR A CLASS A CONTACT SURFACE, IN A STANDARD HOLE, SLIP-CRITICAL WITH A SLIP RESISTANCE OF 21 KSI.

+ INDICATES A HIGH STRENGTH BOLT, SHOP OR FIELD INSTALLED, UNLESS OTHERWISE NOTED.

ALL WELDING WILL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ANSI/AASHTO/AWS D1.5-88 "BRIDGE WELDING CODE". CATEGORY E DETAILS WILL NOT BE PERMITTED.

PLATE GIRDERS SHALL BE FABRICATED TO CONFORM TO THE CAMBER DIAGRAM SHOWN ON SECTION NO. FIB7.

CENTERLINE OF FIELD SPLICES, STIFFENERS AND CONNECTION PLATES SHALL BE VERTICAL IN THE FINAL STRUCTURE.

IF SHOP SPLICES ARE REQUIRED DUE TO PLATE LENGTHS, ONLY ONE SPLICE WILL BE ALLOWED FOR ANY SHIPPING SECTION. OFFSET SHOP WEB SPLICE BY NO LESS THAN 6 INCHES FROM FLANGE SPLICES. ALL SPLICE LOCATIONS ARE SUBJECT TO APPROVAL OF THE ENGINEER. SPLICES SHALL BE COMPLETE JOINT PENETRATION WELDS, GROUND SMOOTH AND 100% RADIOGRAPHIC INSPECTED PER VOT - VTM-29.

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

**SVERDRUP CIVIL, INC.**  
FISHERMANS INLET BRIDGE  
STEEL DETAILS

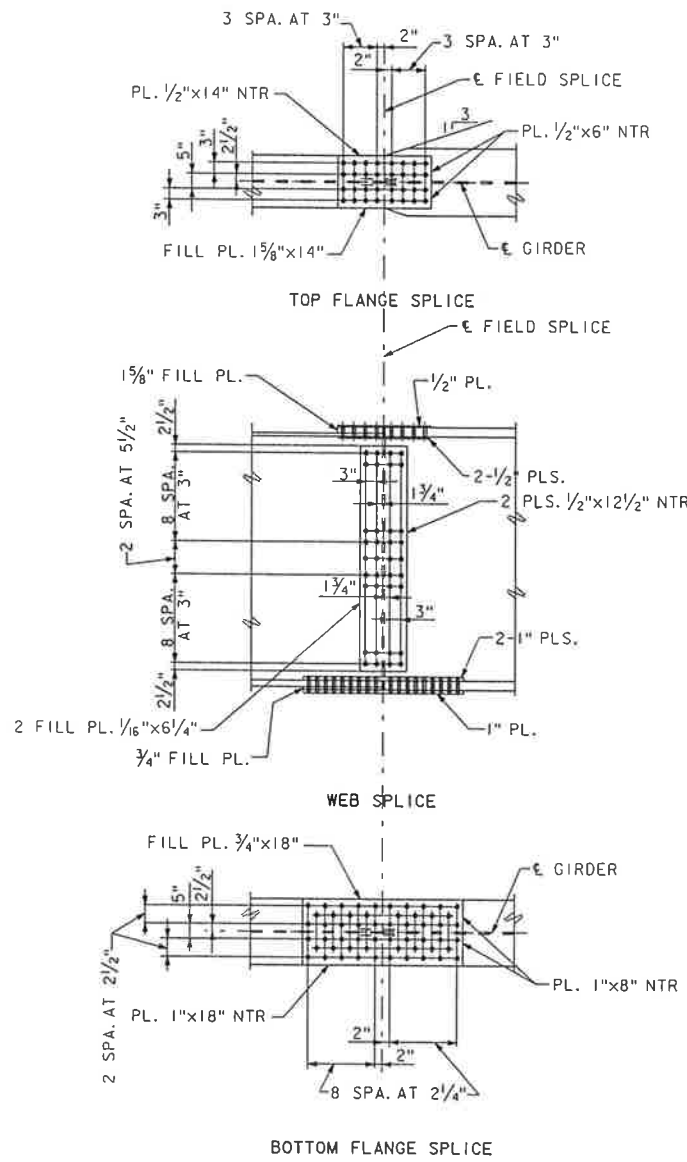
**RECORD DRAWING**

NO.	DATE	BY	APP.	DESCRIPTION
01-00	DH	KR		RECORD DRAWING MODIFICATIONS
				NOTE ADDED

Approved: \_\_\_\_\_

DRAWN BY: JGC SCALE: AS SHOWN  
CHECKED BY: TVD DATE: DEC. 1994  
DWG. NO. 708  
SECTION NO. FIB5 OF FIB14

FILENAME: 935305.DGN  
JOB NO.: 11555



**FIELD SPLICE 1 THRU 4**  
SCALE: 1/2" = 1'-0"

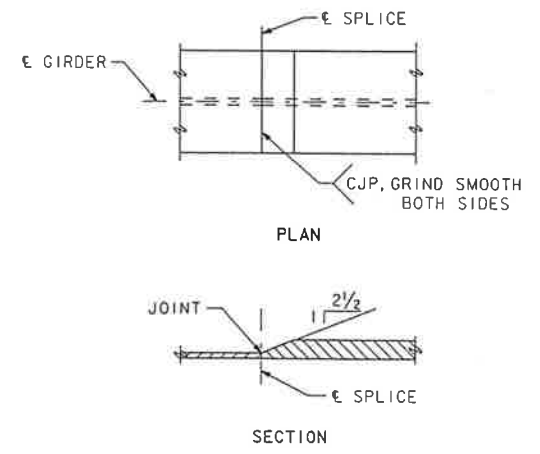
EXTERIOR GIRDER MOMENT TABLE-SPANS FIB1 TO FIB3 (FT-KIPS)

	0.4 SPAN FIB1	BENT FIB2	0.5 SPAN FIB2	BENT FIB3	0.6 SPAN FIB3
DL	1875	5271	1849	5271	1875
LL	1455	1770	1629	1770	1455
IMPACT	276	311	267	311	276
TOTAL	3606	7352	3745	7352	3606

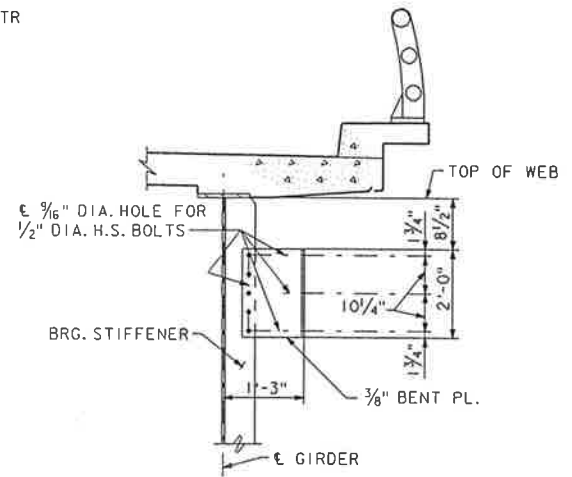
INTERIOR GIRDER MOMENT TABLE-SPANS FIB1 TO FIB3 (FT-KIPS)

	0.4 SPAN FIB1	BENT FIB2	0.5 SPAN FIB2	BENT FIB3	0.6 SPAN FIB3
DL	2014	5649	1976	5649	2014
LL	1744	2109	1955	2110	1744
IMPACT	330	371	320	371	330
TOTAL	4088	8129	4251	8130	4088

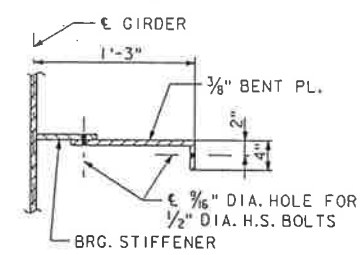
NOTE: MOMENTS ARE UNFACTORED.  
DL INDICATES DEAD LOAD.  
LL INDICATES LIVE LOAD.  
IMPACT INDICATES LIVE LOAD IMPACT.



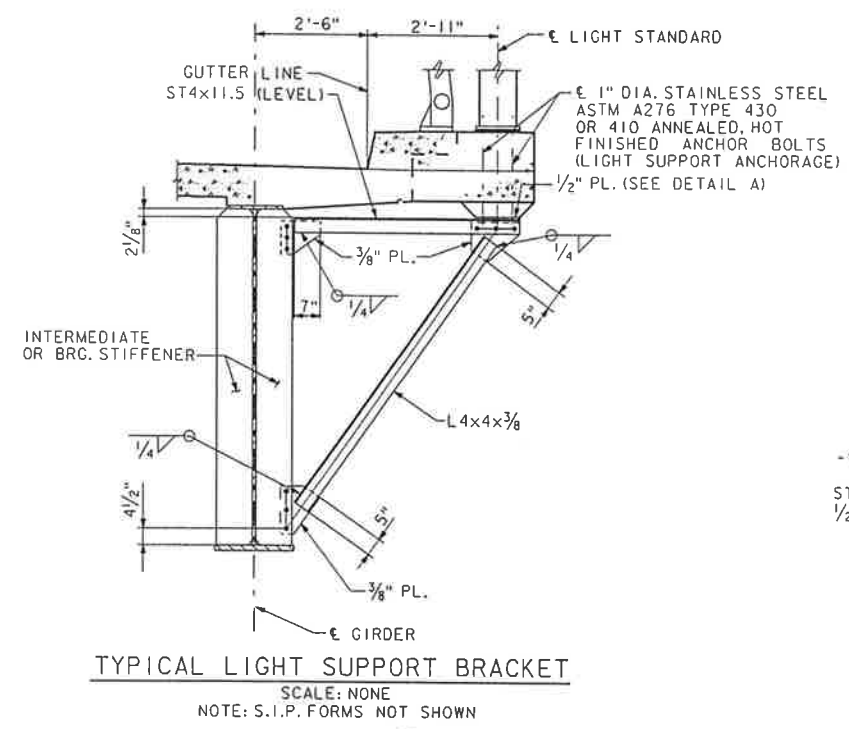
**SHOP WELDED FLANGE SPLICE**  
SCALE: NONE



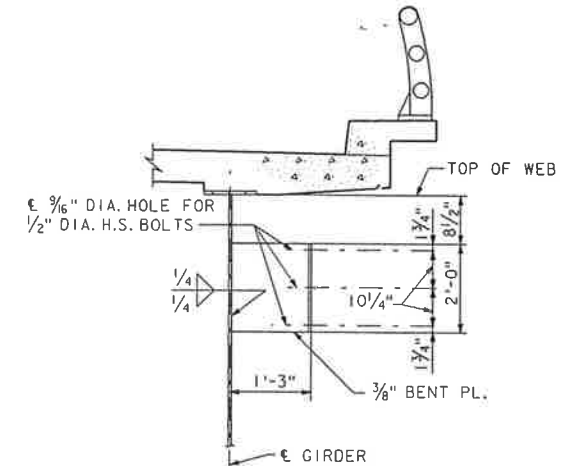
**TYPE A CABLE TRAY SUPPORT BRACKET**  
SCALE: NONE  
NOTE: S.I.P. FORMS NOT SHOWN



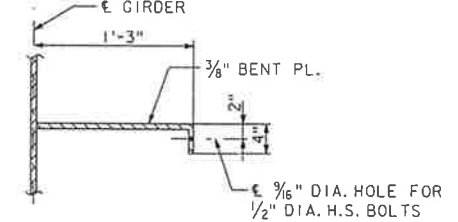
**SECTION THRU TYPE A CABLE TRAY SUPPORT BRACKET**  
SCALE: NONE



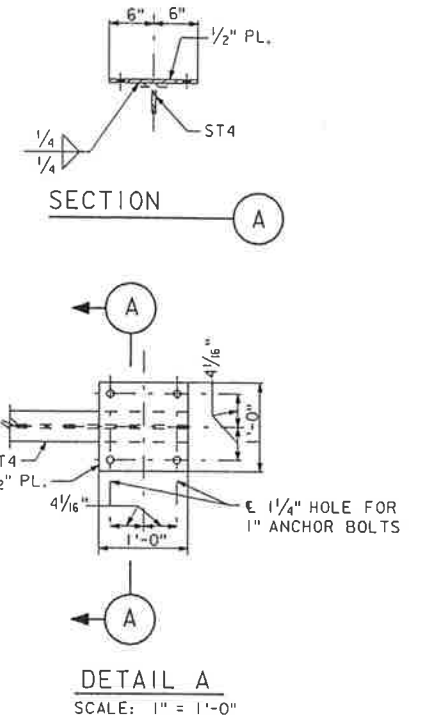
**TYPICAL LIGHT SUPPORT BRACKET**  
SCALE: NONE  
NOTE: S.I.P. FORMS NOT SHOWN



**TYPE B CABLE TRAY SUPPORT BRACKET**  
SCALE: NONE  
NOTE: S.I.P. FORMS NOT SHOWN



**SECTION THRU TYPE B CABLE TRAY SUPPORT BRACKET**  
SCALE: NONE



**ESTIMATED QUANTITIES**

ITEM	TYPE	UNIT	TOTAL
STRUCTURAL STEEL	GRADE 36	LBS.	466,533
STRUCTURAL STEEL	GRADE 50	LBS.	196,623

EXTERIOR GIRDER REACTION TABLE-SPANS FIB1 TO FIB3 (KIPS)

	BENT FIB1	BENT FIB2	BENT FIB3	BENT FIB4
DL	81.5	315.5	315.5	87.5
LL	59.3	114.3	114.3	59.3
IMPACT	11.3	20.3	20.3	11.3
TOTAL	152.1	450.1	450.1	152.1

INTERIOR GIRDER REACTION TABLE-SPANS FIB1 TO FIB3 (KIPS)

	BENT FIB1	BENT FIB2	BENT FIB3	BENT FIB4
DL	87.5	338.2	338.2	87.5
LL	64.6	136.8	136.8	64.6
IMPACT	12.2	24.1	24.1	12.2
TOTAL	164.3	499.1	499.1	164.3

NOTE: REACTIONS ARE UNFACTORED.  
DL INDICATES DEAD LOAD.  
LL INDICATES LIVE LOAD.  
IMPACT INDICATES LIVE LOAD IMPACT.

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

**SVERDRUP CIVIL, INC.**  
FISHERMANS INLET BRIDGE  
STEEL DETAILS

DRAWN BY: JGC	SCALE: AS SHOWN
CHECKED BY: TVD	DATE: DEC. 1994
DWG. NO. 709	
SECTION NO. FIB6 OF FIB14	

**NOTES**

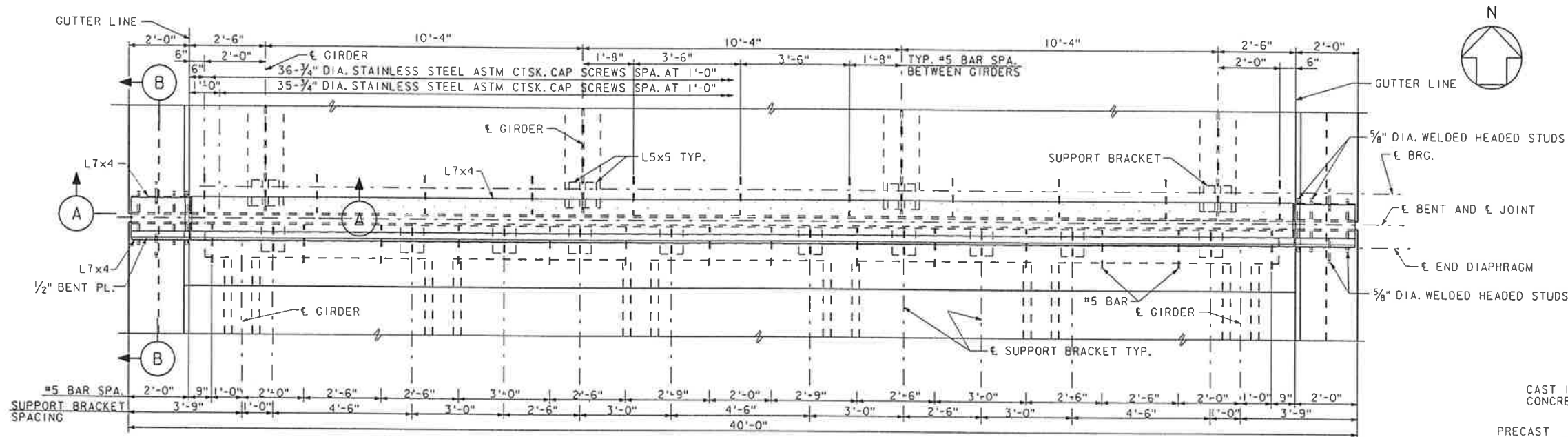
FOR STEEL NOTES, SEE SECTION NO. FIB5.  
FOR LIGHT STANDARD ANCHORAGE DETAIL, SEE SECTION NO. FIB12.

NO.	DATE	BY	APP.	DESCRIPTION

FILENAME: 935463.DGN  
JOB NO.: 11855

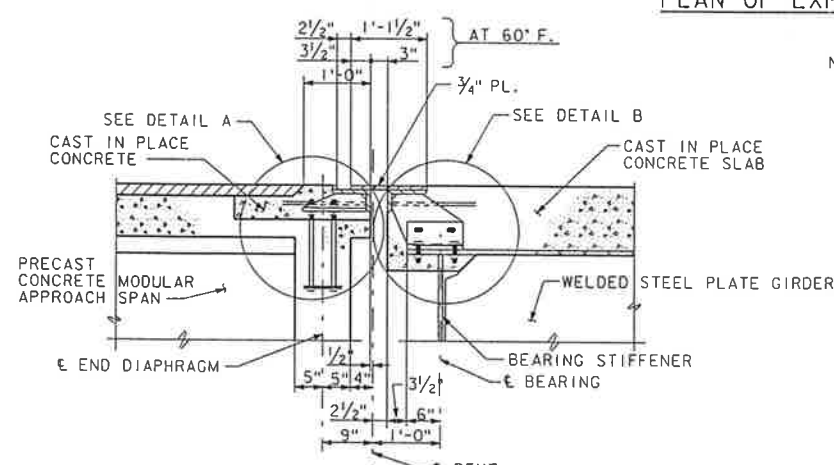




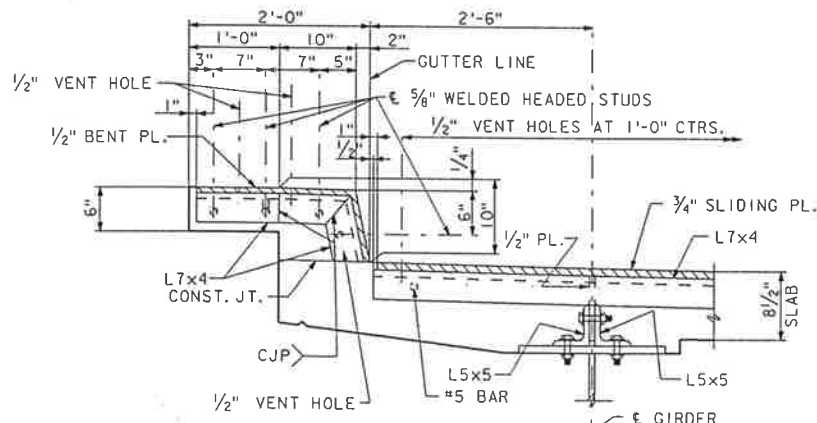


PLAN OF EXPANSION JOINT AT BENTS FIB1 AND FIB4

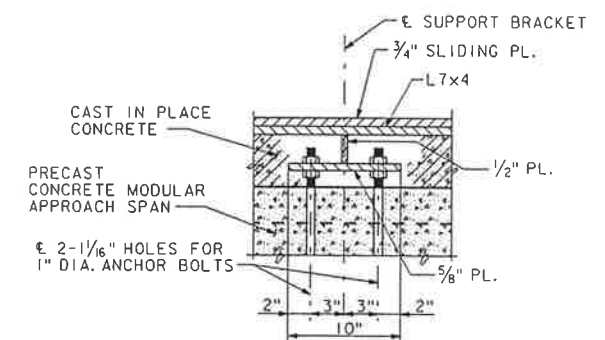
SCALE: 1/2" = 1'-0"  
 LOOKING UP STATION  
 NOTE: EXPANSION DEVICE AT BENT FIB1 SHOWN,  
 EXPANSION DEVICE AT BENT FIB4 SIMILAR.



TYPICAL SECTION THRU EXPANSION JOINT  
 SCALE: 3/4" = 1'-0"

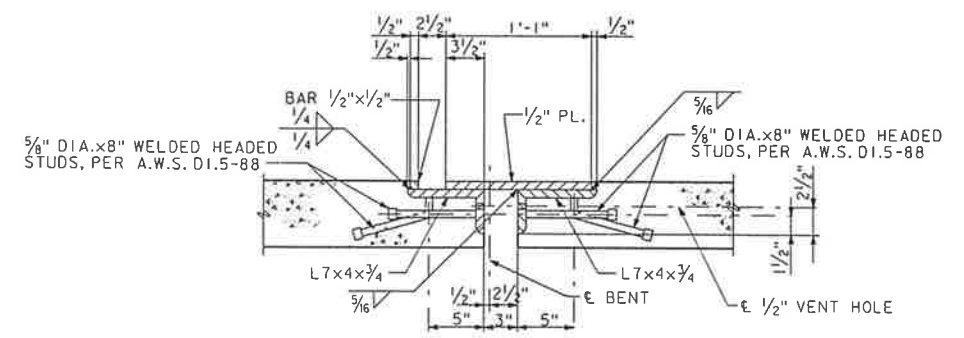


SECTION A  
 SCALE: 1" = 1'-0"

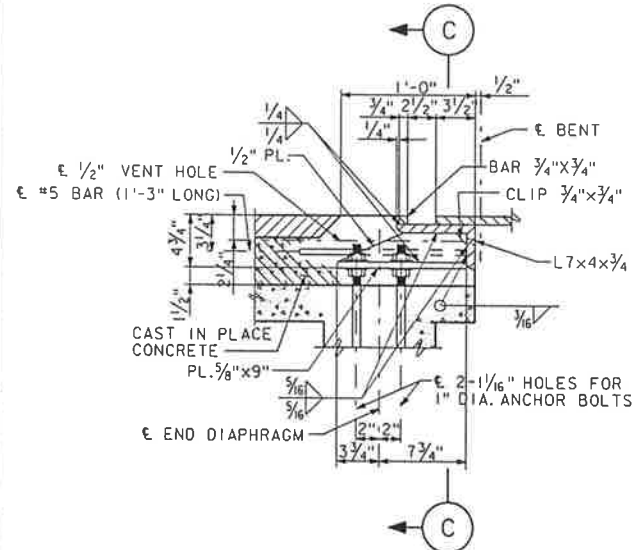


SECTION C  
 SCALE: 1/2" = 1'-0"

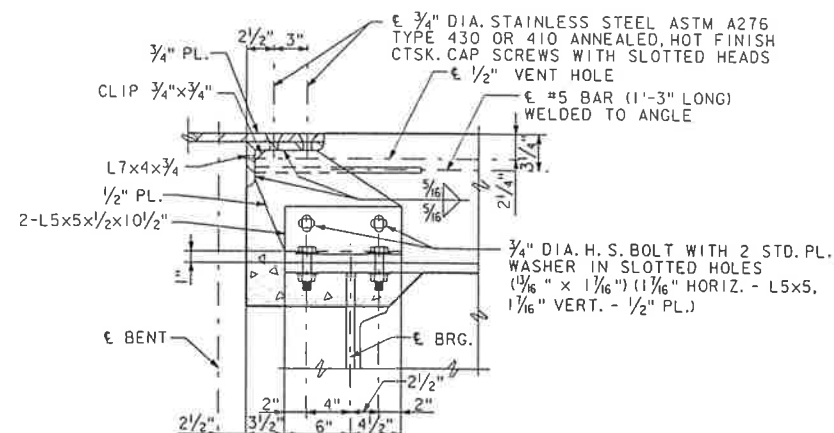
NOTE: ANCHOR BOLTS SHALL CONFORM TO  
 ASTM A36, AND NUTS TO ASTM A563.



SECTION B  
 SCALE: 1/2" = 1'-0"



DETAIL A  
 SCALE: 1/2" = 1'-0"



DETAIL B  
 SCALE: 1/2" = 1'-0"

NOTES

WEIGHT OF EACH EXPANSION JOINT = 3,990 LBS. WHICH  
 IS INCLUDED IN AND PAID FOR AS STRUCTURAL STEEL,  
 GRADE A36.  
 EXPANSION DEVICE SHALL BE HOT DIPPED GALVANIZED.  
 CTSK. INDICATES COUNTERSUNK.

RECORD DRAWING

COMMONWEALTH OF VIRGINIA  
 CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
 CAPE CHARLES, VIRGINIA 23310-0111

PARALLEL CROSSING  
 TO  
 LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

SVERDRUP CIVIL, INC.

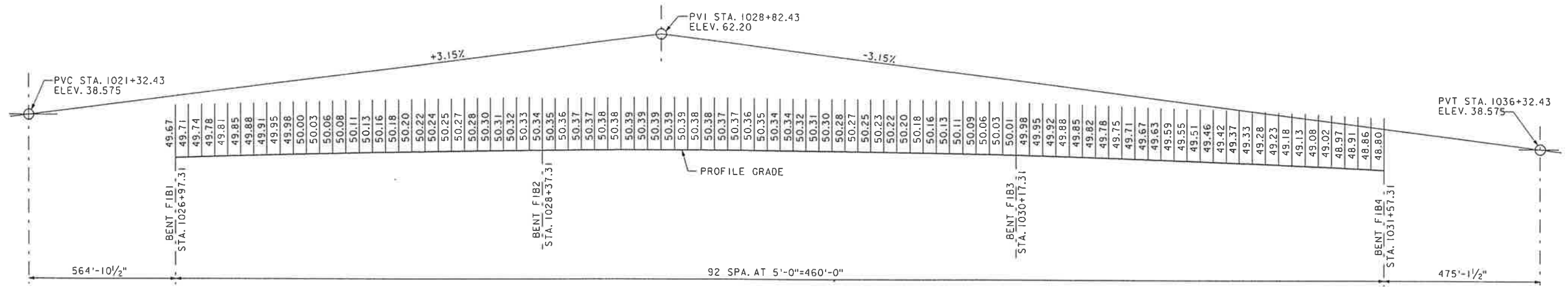
FISHERMANS INLET BRIDGE  
 EXPANSION DEVICE  
 AT BENTS FIB1 AND FIB4

DRAWN BY: JGC	SCALE: AS SHOWN
CHECKED BY: TVD	DATE: DEC. 1994
DWG. NO. 712	
SECTION NO. FIB9 OF FIB14	

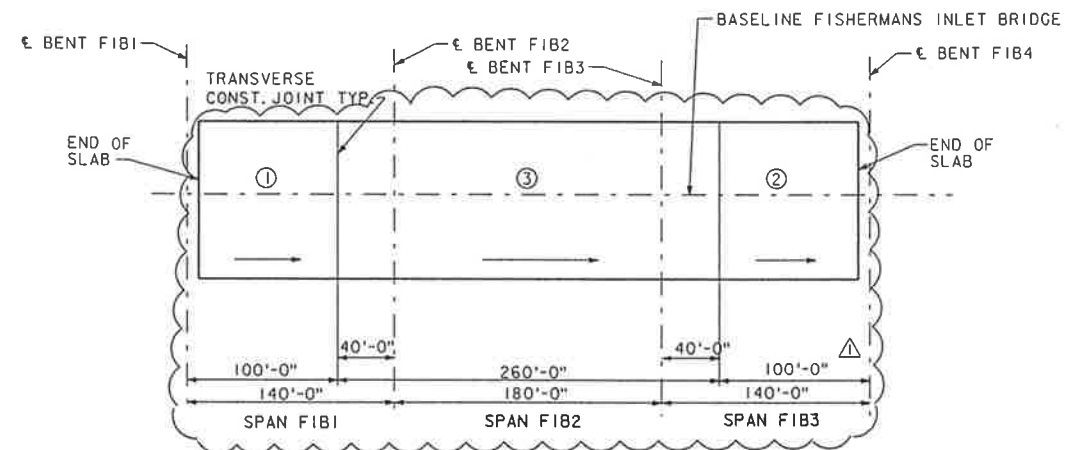
NO.	DATE	BY	APP.	DESCRIPTION

JOB NO. 11555  
 FILENAME 9351056.DGN





1500'-0" V.C. FISHERMANS INLET BRIDGE STA. 1026+97.31 TO STA. 1031+57.31



SLAB PLACING SEQUENCE

SCALE: NONE

SLAB PLACING NOTES

ARROWS INDICATE DIRECTION OF PLACING CONCRETE.  
 THE CIRCLED NUMBERS INDICATE THE PLACING SEQUENCE WITHIN EACH SUPERSTRUCTURE UNIT.  
 PLAN MAY BE REVERSED END-FOR-END IF DESIRED.

RECORD DRAWING

COMMONWEALTH OF VIRGINIA  
 CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
 CAPE CHARLES, VIRGINIA 23310-0111

PARALLEL CROSSING  
 TO  
 LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL  
 SVERDRUP CIVIL, INC.

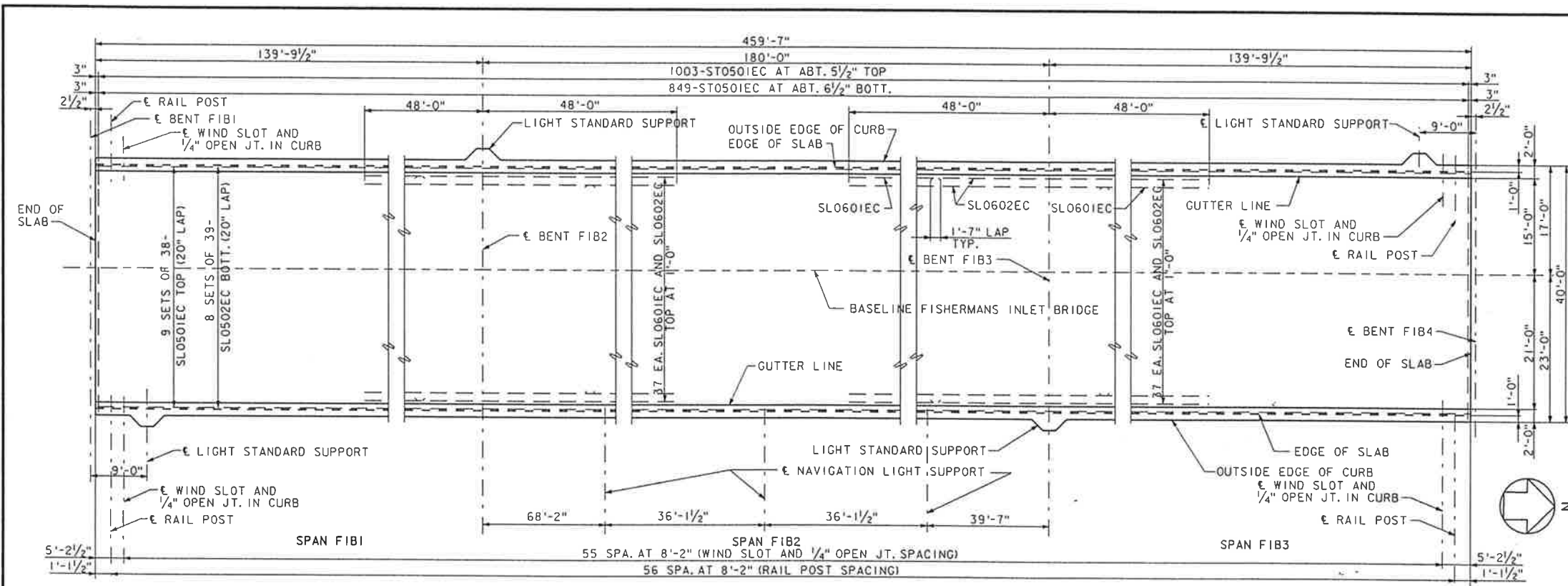
FISHERMANS INLET BRIDGE  
 PROFILE GRADE ELEVATIONS  
 AND SLAB PLACING SEQUENCE

DRAWN BY: SEM SCALE: NONE  
 CHECKED BY: TVD DATE: DEC. 1994  
 DWG. NO. 713  
 SECTION NO. FIB10 OF FIB14

NO.	DATE	BY	APP.	DESCRIPTION
△	01-00	DH	KR	RECORD DRAWING MODIFICATIONS
				CHANGE TO SLAB POURING SEQUENCE

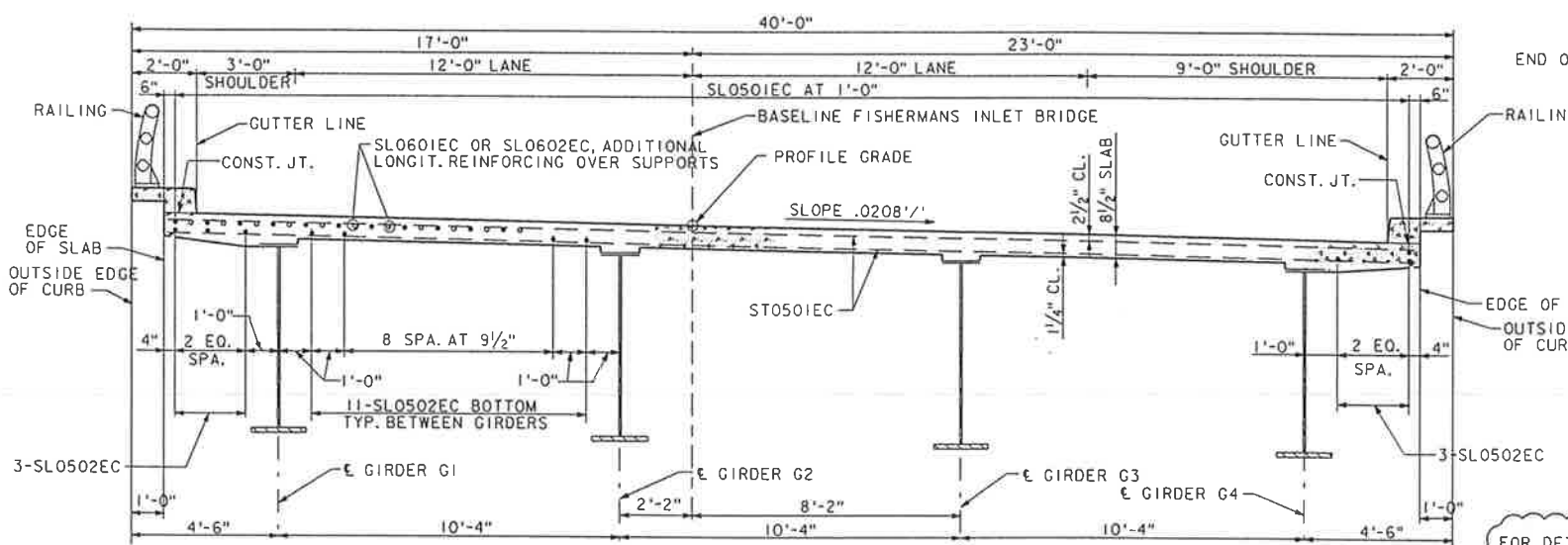
Approved: \_\_\_\_\_

JOB NO. 11555  
 FILENAME 93S475.DGN



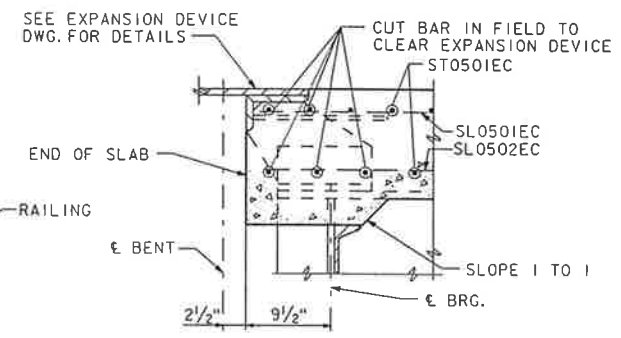
**SLAB PLAN**  
SCALE: 1"=10'-0"

NOTE: WIND SLOT AND RAIL POST SPACING IS TYPICAL FOR BOTH CURBS.



**TYPICAL SECTION THRU SLAB**  
SCALE: 3/8" = 1'-0"

NOTE: LOOKING AHEAD STATION

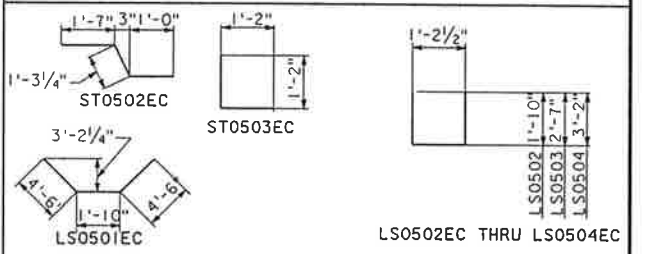


**TYPICAL SECTION AT END OF SLAB**  
SCALE: 1"=1'-0"

FOR DETAILS OF STAY IN PLACE METAL FORMS, SEE SHOP DRAWINGS FROM CONSOLIDATED SYSTEMS, INC., MEMPHIS, TN.

FISHERMANS INLET BRIDGE REINFORCING STEEL SCHEDULE						
MARK	NO. REQ'D.	SHAPE	LENGTH	TOTAL WEIGHT	PIN DIA.	LOCATION
SC0501EC	12	—	4'-10"	60	---	CURB
SC0502EC	448	—	1'-6"	701	---	CURB
SC0503EC	330	—	7'-10"	2,696	---	CURB
SL0501EC	342	—	52'-6"	18,727	---	SLAB
SL0502EC	312	—	58'-11"	19,172	---	SLAB
SL0601EC	74	—	37'-7"	4,177	---	SLAB
SL0602EC	74	—	60'-0"	6,669	---	SLAB
ST0501EC	1,852	—	37'-8"	72,758	---	SLAB
ST0502EC	790	—	3'-8"	3,021	3/4"	SLAB
ST0503EC	790	—	2'-3"	1,854	3/4"	SLAB
LS0501EC	12	—	10'-10"	136	3/4"	SLAB
LS0502EC	8	—	4'-8"	39	3/4"	SLAB
LS0503EC	8	—	6'-2"	51	3/4"	SLAB
LS0504EC	12	—	7'-4"	92	3/4"	SLAB

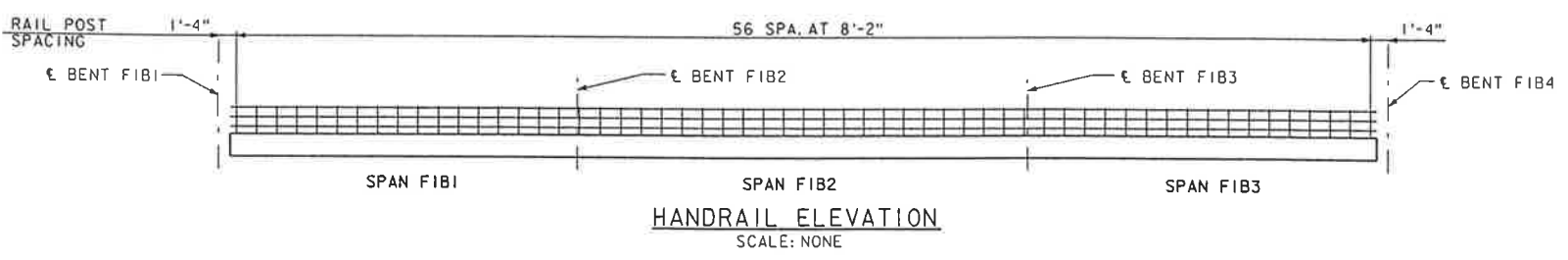
DIMENSIONS IN BENDING DIAGRAMS ARE OUT TO OUT OF BAR.



ESTIMATED QUANTITIES		
ITEM	UNIT	TOTAL
EPOXY COATED REINFORCING STEEL	LB.	130,153
CONCRETE, CLASS A4.5	CU. YD.	523.9
EPOXY COATED WELDED WIRE FABRIC	LB.	586
BRIDGE DECK GROOVING	SQ. YD.	1,838

**NOTES**  
WHERE LIGHT STANDARD SUPPORTS FALL AT SPACED WIND SLOTS ON EITHER CURB, ELIMINATE THOSE SLOTS. PLACE REINFORCEMENT AS THOUGH WIND SLOTS OCCUR, AND ADD ADDITIONAL REINFORCEMENT AS SHOWN IN DETAILS.  
FOR ALUMINUM RAILING DETAILS, SEE GENERAL PROJECT DRAWINGS.  
FOR NAVIGATION LIGHT DETAILS, SEE ELECTRICAL DRAWINGS.

WELDED WIRE FABRIC SCHEDULE						
QUANTITY	STYLE	WIDTH	SIDE OVERHANGS	LENGTH	TOTAL WEIGHT	REMARKS
4 SHEET	6x6-W2.9xW2.9	19 IN.	+1/2", +1/2"	4 FT. 10 IN.	13	EPOXY COATED
110 SHEETS	6x6-W2.9xW2.9	19 IN.	+1/2", +1/2"	7 FT. 10 IN.	573	EPOXY COATED



**HANDRAIL ELEVATION**  
SCALE: NONE

**RECORD DRAWING**

NO.	DATE	BY	APP.	DESCRIPTION
Δ	01-00	DH	KR	RECORD DRAWING MODIFICATIONS
				NOTE ADDED

COMMONWEALTH OF VIRGINIA  
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
TO  
LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

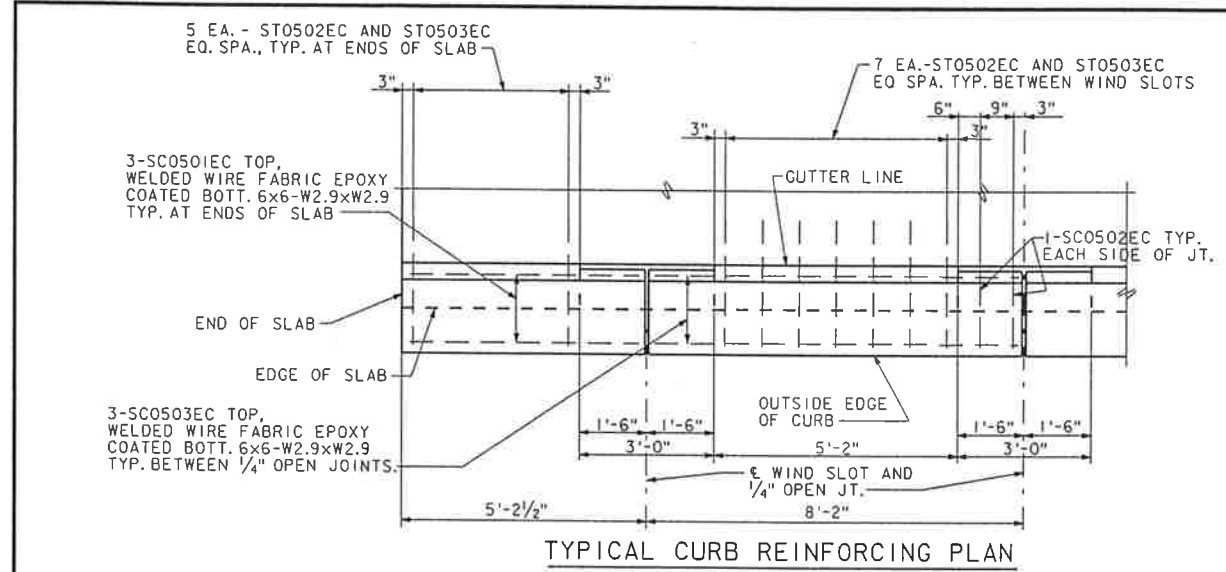
SVERDRUP CIVIL, INC.

FISHERMANS INLET BRIDGE  
SLAB PLAN  
SPANS FIB1 THRU FIB3

DRAWN BY: JCC SCALE: AS SHOWN  
CHECKED BY: TVD DATE: DEC. 1994  
DWG. NO. 714  
SECTION NO. FIB11 OF FIB14

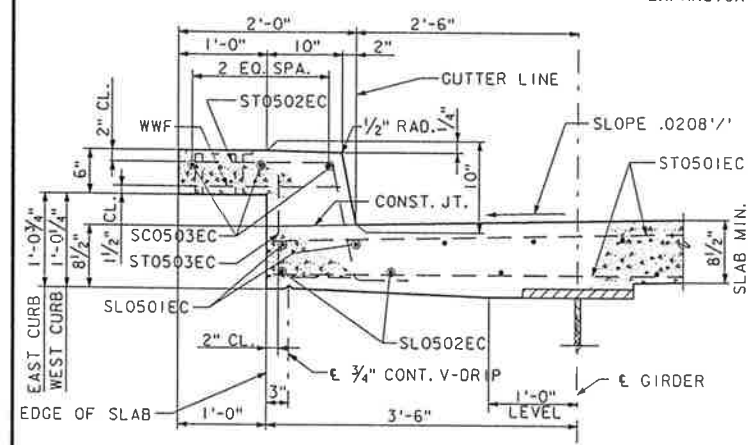
Approved: \_\_\_\_\_

JOB NO. 11555  
FILENAME 935462.DGN



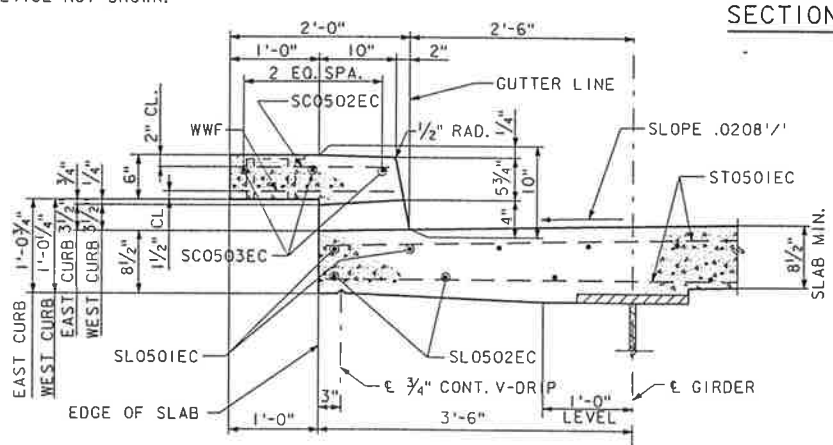
TYPICAL CURB REINFORCING PLAN

SCALE: 1/2"=1'-0"  
 NOTE: SIDES OF WIND SLOTS MAY BE TAPERED SLIGHTLY FOR EASE OF FORM REMOVAL. EXPANSION DEVICE NOT SHOWN.



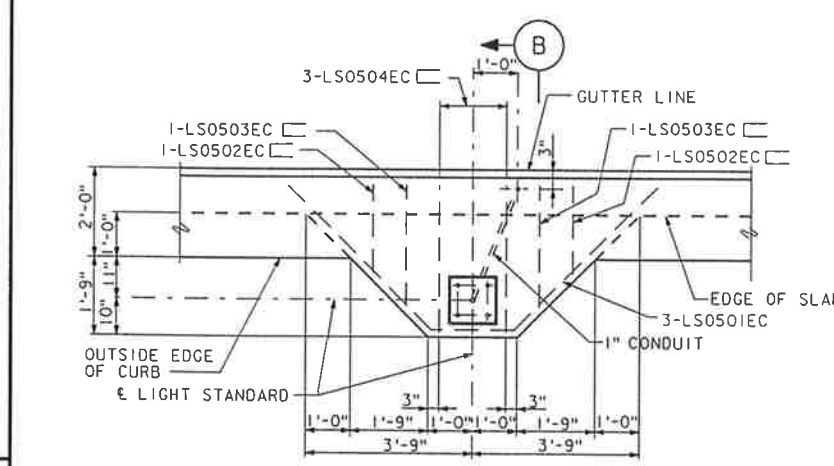
TYPICAL SECTION THRU CURB

SCALE: 1"=1'-0"



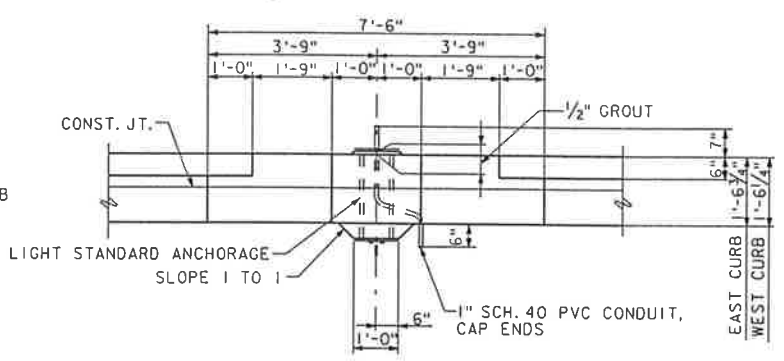
TYPICAL SECTION THRU CURB AT WIND SLOT

SCALE: 1"=1'-0"



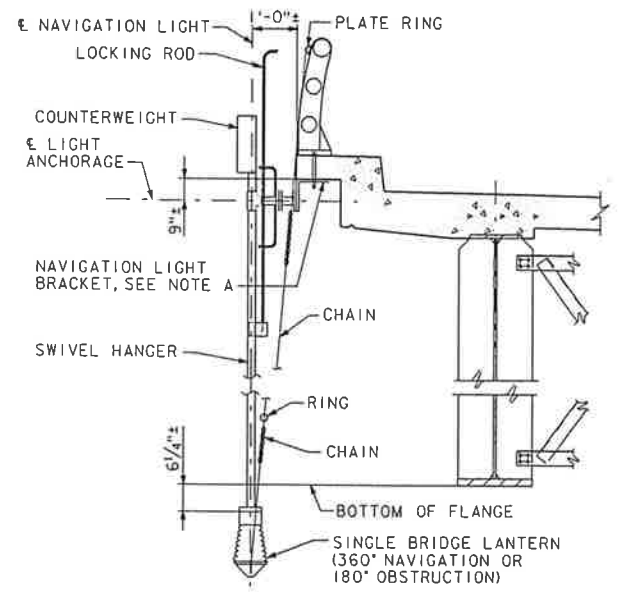
PLAN AT LIGHT STANDARD SUPPORT

SCALE: 1/2"=1'-0"

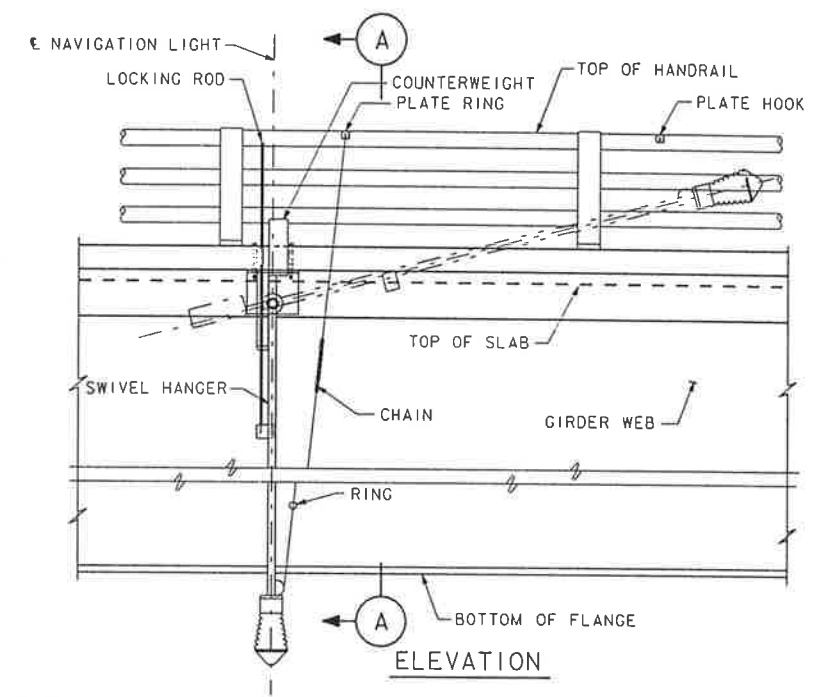


ELEVATION AT LIGHT STANDARD SUPPORT

SCALE: 1/2"=1'-0"



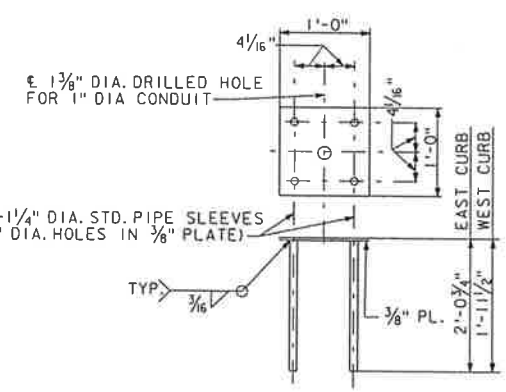
SECTION A



ELEVATION

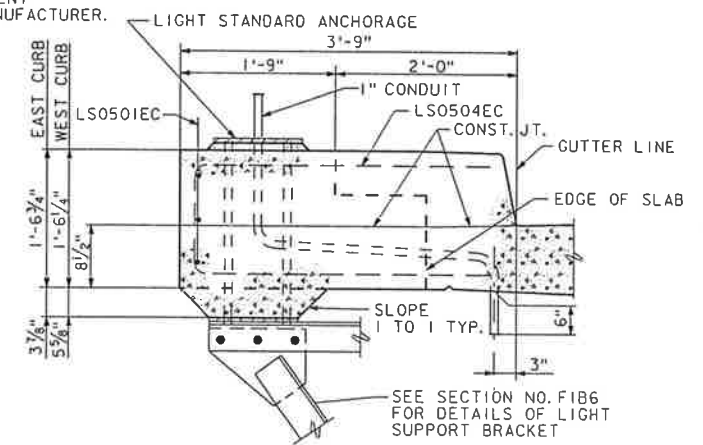
NAVIGATION LIGHT SUPPORT DETAIL

SCALE: 1"=1'-0"  
 NOTE A: SUPPORT BRACKET AND ITS ATTACHMENT TO CURB AS PER NAVIGATION LIGHT MANUFACTURER.



LIGHT STANDARD ANCHORAGE

SCALE: NONE



SECTION B

SCALE: 1"=1'-0"

NOTES

1" DIA. A307 ANCHOR BOLTS FOR FASTENING LIGHT STANDARDS, SHALL HAVE HEX. HEADS ON TOP AND DOUBLE HEX. NUTS ON BOTTOM, CONNECTED TO STEEL BRACKETS AND ONE STANDARD PLATE WASHER TOP AND BOTTOM, ALL GALVANIZED.

RECORD DRAWING

COMMONWEALTH OF VIRGINIA  
 CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
 CAPE CHARLES, VIRGINIA 23310-0111

PARALLEL CROSSING  
 TO  
 LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

SVERDRUP CIVIL, INC.  
 FISHERMANS INLET BRIDGE  
 SLAB DETAILS

DRAWN BY: JGC SCALE: AS SHOWN  
 CHECKED BY: TVD DATE: DEC. 1994  
 DWG. NO. 715  
 SECTION NO. FIB12 OF FIB14

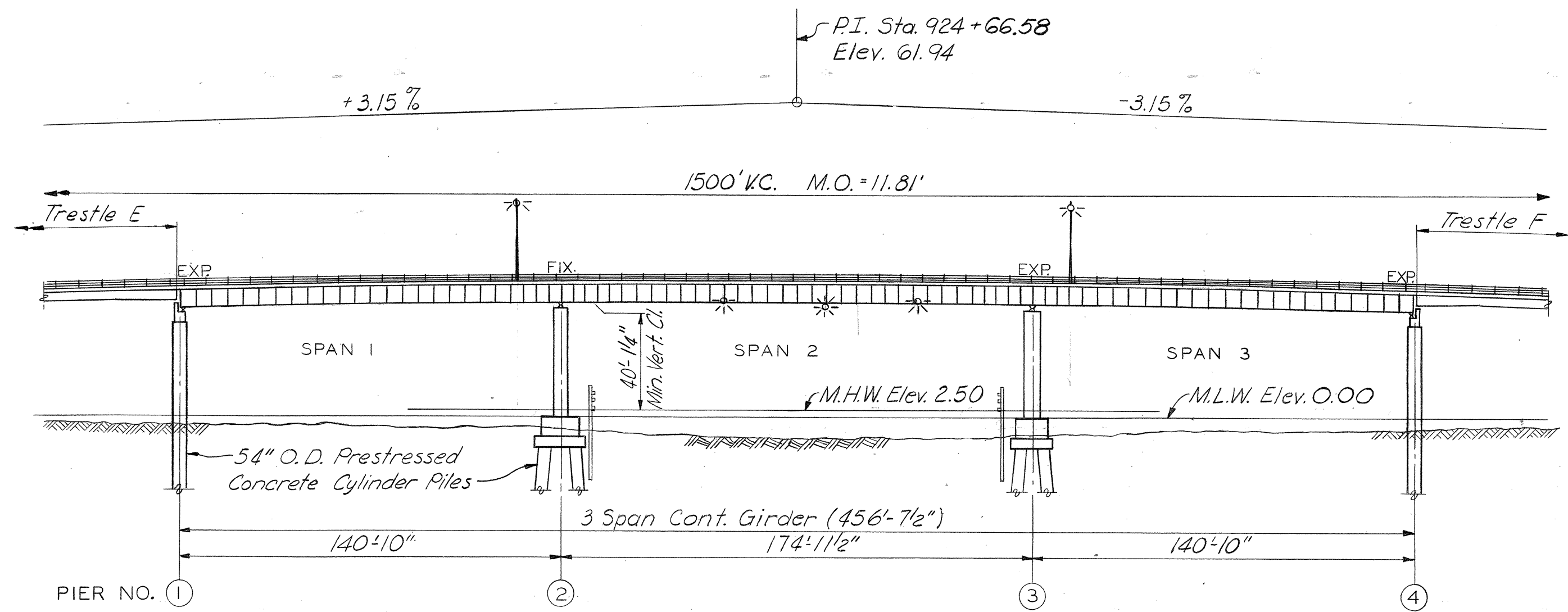
Approved: \_\_\_\_\_

NO.	DATE	BY	APP.	DESCRIPTION

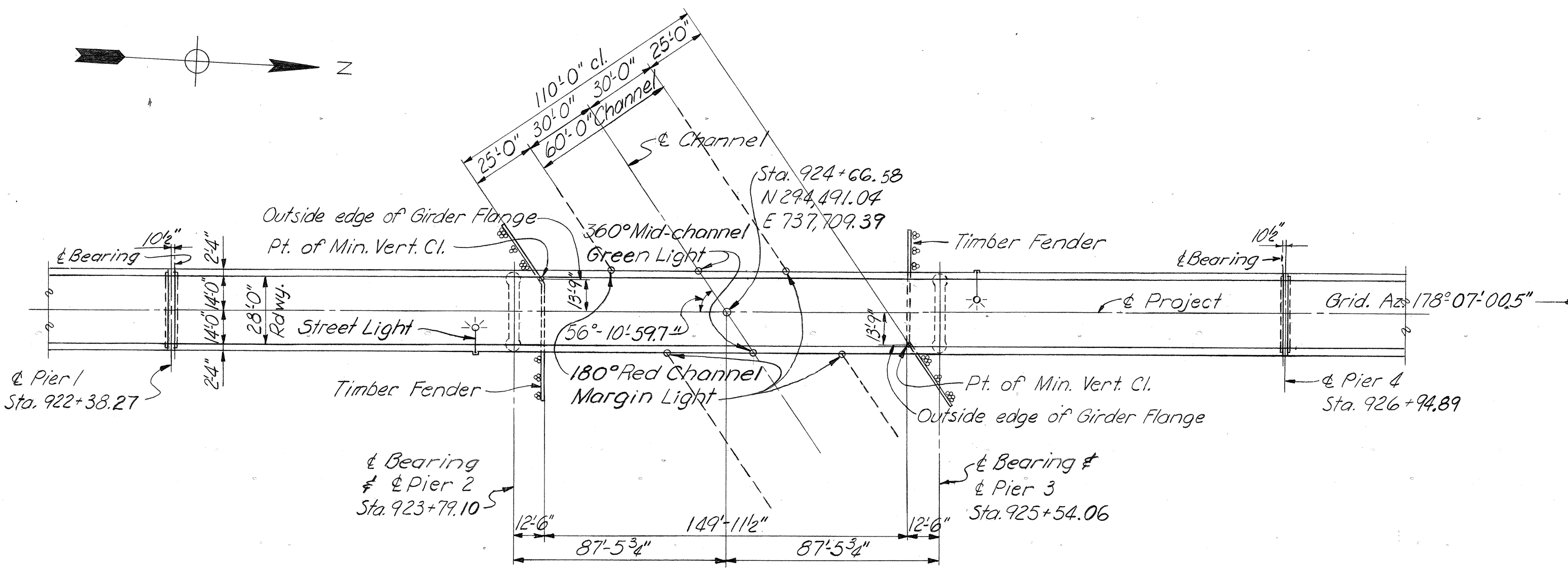
FILENAME: 933306.DGN  
 JOB NO.: 11855

**Appendix E**

**Fishermans Island Bridge South Bound Drawings**



ELEVATION



PLAN

INDEX OF DRAWINGS

- 1 GENERAL PLAN AND ELEVATION.
- 2 FRAMING PLAN AND GIRDER ELEVATION.
- 3 GIRDERS.
- 4 SHOES.
- 5 EXPANSION DEVICES - PIERS 1 & 4.

FINAL QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
1	Structural Carbon Steel	Lbs.	584,016
2	Structural Low Alloy Steel	Lbs.	13,224
3	Cast Steel	Lbs.	6,760

Note: Do not scale this drawing. Follow dimensions.

GENERAL NOTES

SPECIFICATIONS:  
 CONSTRUCTION: Construction shall be in accordance with "Virginia Department of Highways Road and Bridge Specifications", 1958 Edition, as supplemented and amended to July 1, 1959, and the Special Provisions for Section No. FI-2, Fisherman Inlet Bridge Superstructure.  
 DESIGN: Design is in accordance with Division I of the A.A.S.H.O. "Standard Specifications for Highway Bridges", 1957 Edition and American Welding Society "Standard Specifications for Welded Highway and Railway Bridges", 1956 Edition.  
 DESIGN LOADING: Live Load: H20-S16-44  
 Dead Load: No allowance made for future wearing surface or utilities.  
 MATERIALS: All material shall be structural carbon steel (A.S.T.M. A7) except as otherwise noted. All structural carbon steel which requires welding shall be weldable structural carbon steel (A.S.T.M. A373). All steel marked (H.S.) shall be structural low-alloy steel (A.S.T.M. A242).



Bridge Punch marks on each expansion device.

ELEVATION DATUM

All elevations are referred to Mean Low Water Elevation 0.00 which is 1.40' below Mean Sea Level.

Reviewed ML  
 P-1655  
 603543



COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
 NORFOLK 1, VIRGINIA

SVERDRUP & PARCEL, CONSULTING ENGINEERS  
 NEW YORK, N. Y. - ST. LOUIS, MO. - NORFOLK, VA.

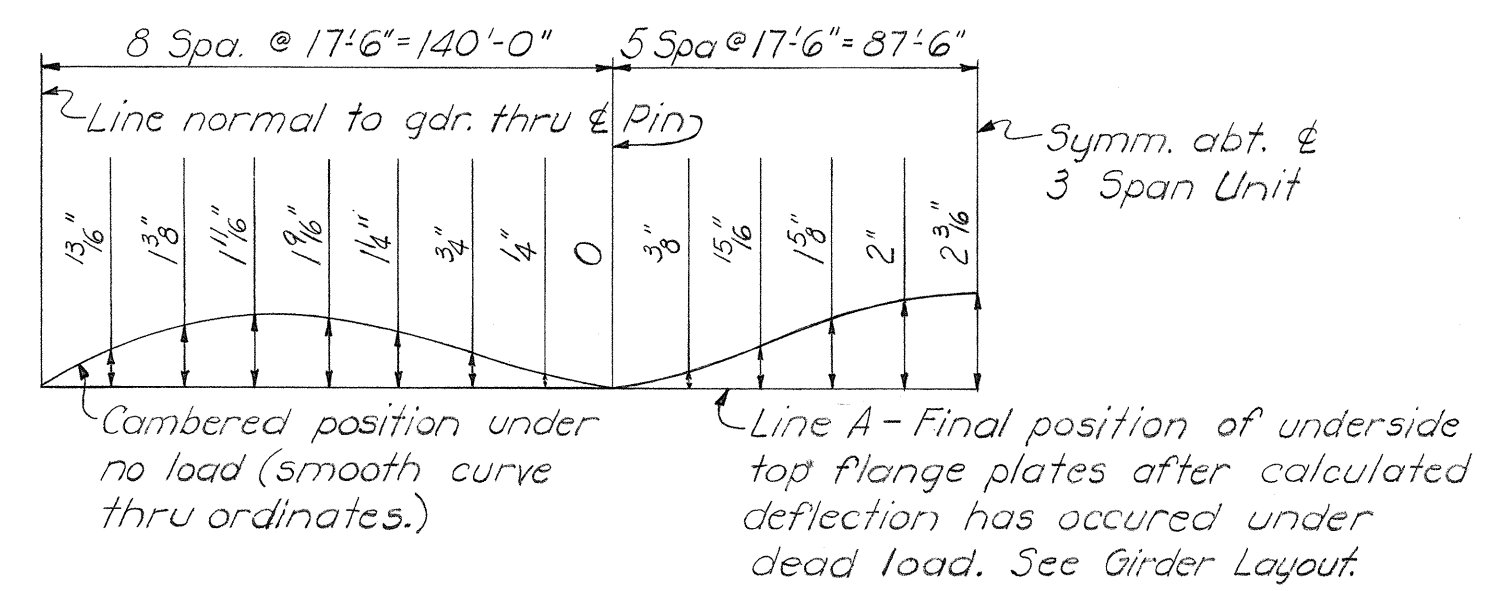
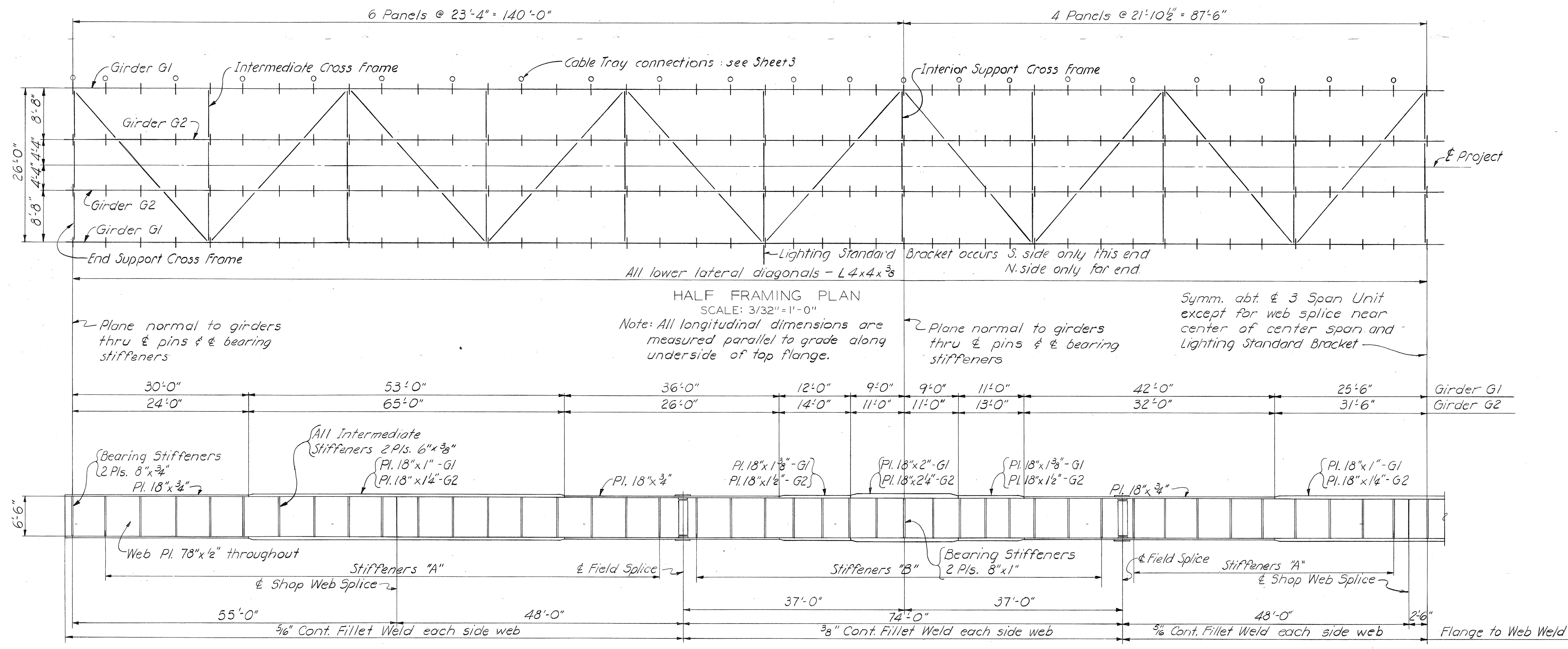
**CHESAPEAKE BAY BRIDGE - TUNNEL CROSSING**  
 FISHERMAN INLET BRIDGE - SUPERSTRUCTURE

GENERAL PLAN AND ELEVATION

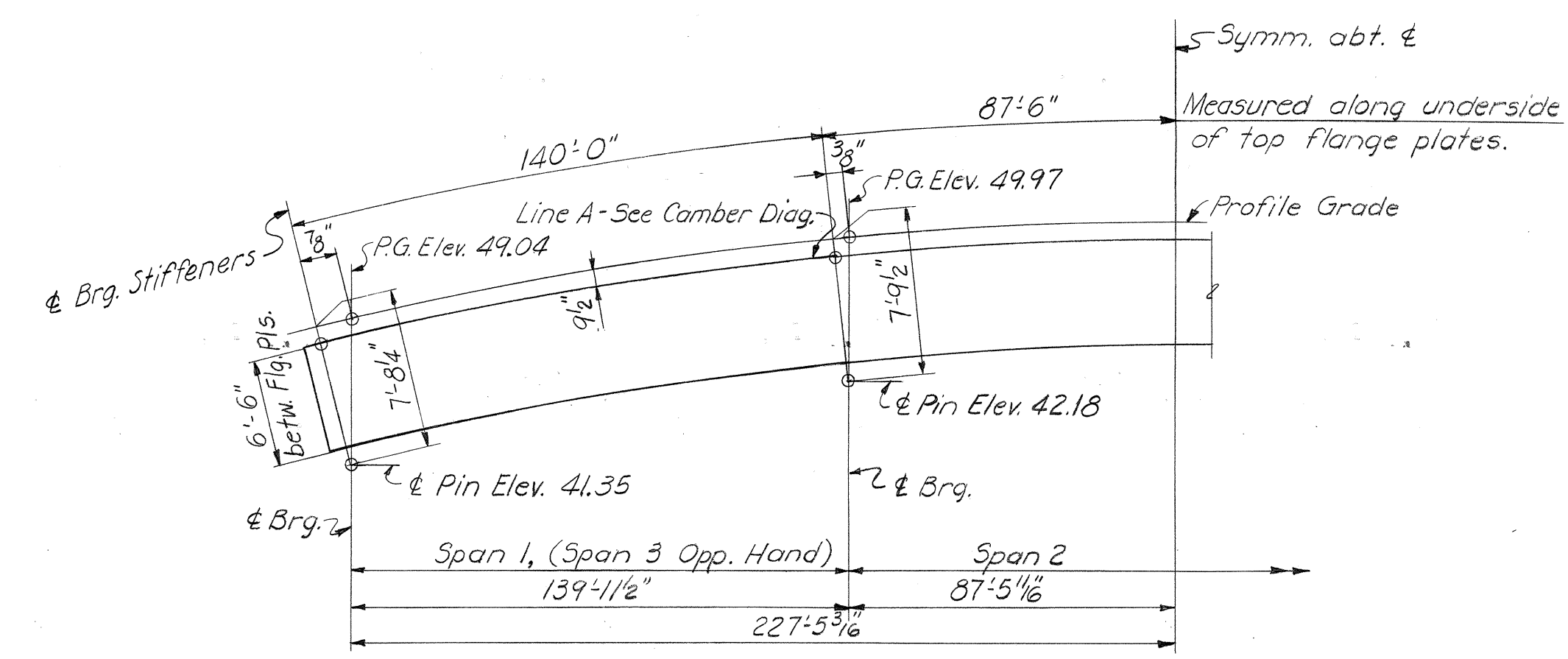
RECOMMENDED:	DRAWN BY: R.C.H.	SCALE: 1/4" = 40'
APPROVED:	CHECKED BY: R.F.B.	DATE: FEB. 1, 1961
	DWG. NO. 1 OF 5	

**SECTION NO. FI - 2**

AS BUILT



HALF ELEVATION OF GIRDER  
SCALE: 3/32" = 1'-0"  
Note: Top and bottom flange plates are the same.



GIRDER LAYOUT  
Note: P.G. indicates Profile Grade.

TABLE OF MAXIMUM MOMENTS AND REACTIONS

Loading	Max. Reaction		Max. Pos. Moment		Max. Neg. Moment
	A	B	C	D	B
Dead Load	63	216	1632	1528	3180
Unif. Live Load	32	95	1000	1054	1486
Conc. Live Load	21	21	408	412	421
Impact	10	20	266	245	338
Total	126	352	3306	3239	5425
Dead Load	53	180	1353	1267	2637
Unif. Live Load	29	84	892	940	1325
Conc. Live Load	18	18	364	367	376
Impact	9	18	237	219	301
Total	109	300	2846	2793	4639

Note: Reactions are given in kips. Moments in foot kips.

NOTES  
All longitudinal dimensions are measured parallel to grade along underside of top flange plate. Position of splices shall be substantially as shown, but may be shifted slightly in either direction if desired by the Contractor.



COMMONWEALTH OF VIRGINIA  
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
NORFOLK 1, VIRGINIA

SVERDRUP & PARCEL, CONSULTING ENGINEERS  
NEW YORK, N. Y. - ST. LOUIS, MO. - NORFOLK, VA.

CHESAPEAKE BAY BRIDGE-TUNNEL CROSSING  
FISHERMAN INLET BRIDGE - SUPERSTRUCTURE  
FRAMING PLAN AND GIRDER ELEVATION

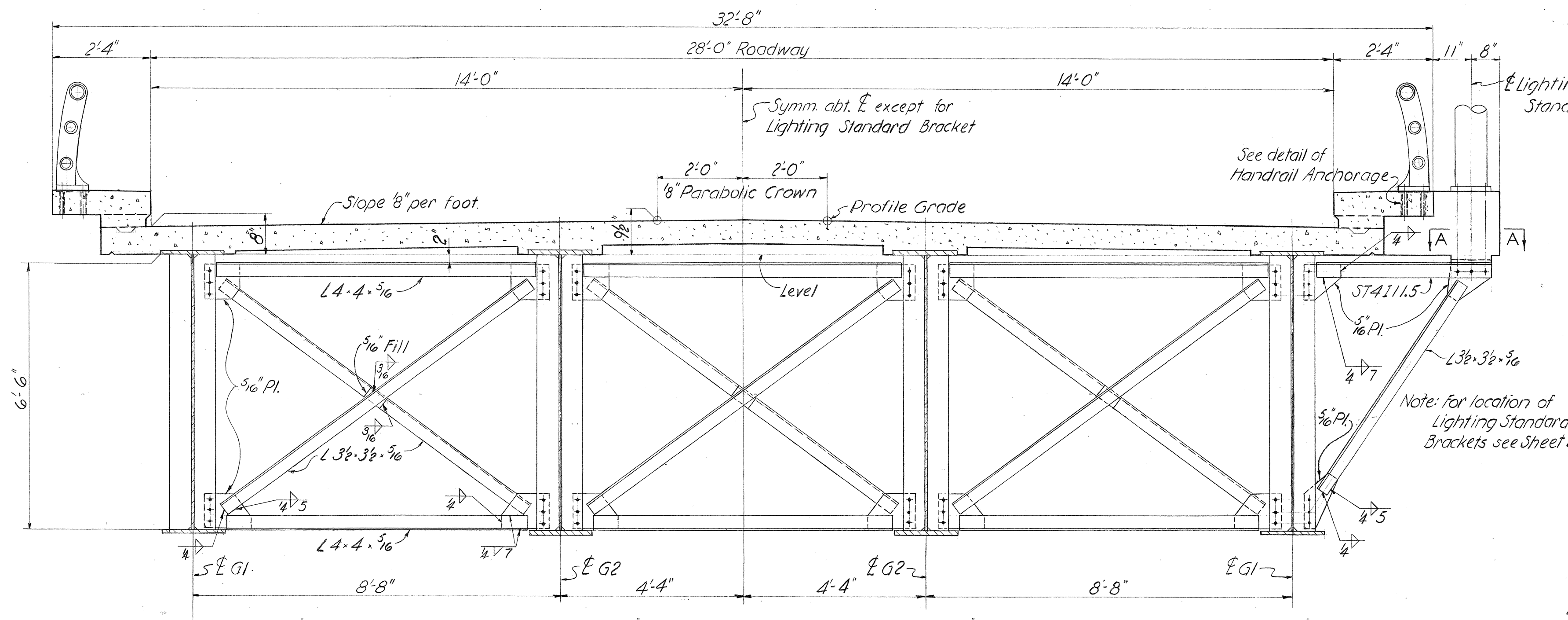
RECOMMENDED: G. R. Remington  
APPROVED: [Signature]

DRAWN BY: R.C.H. SCALE: AS SHOWN  
CHECKED BY: C.C.U. DATE: FEB. 1 1961  
DWG. NO. 2 OF 5

SECTION NO. FI-2

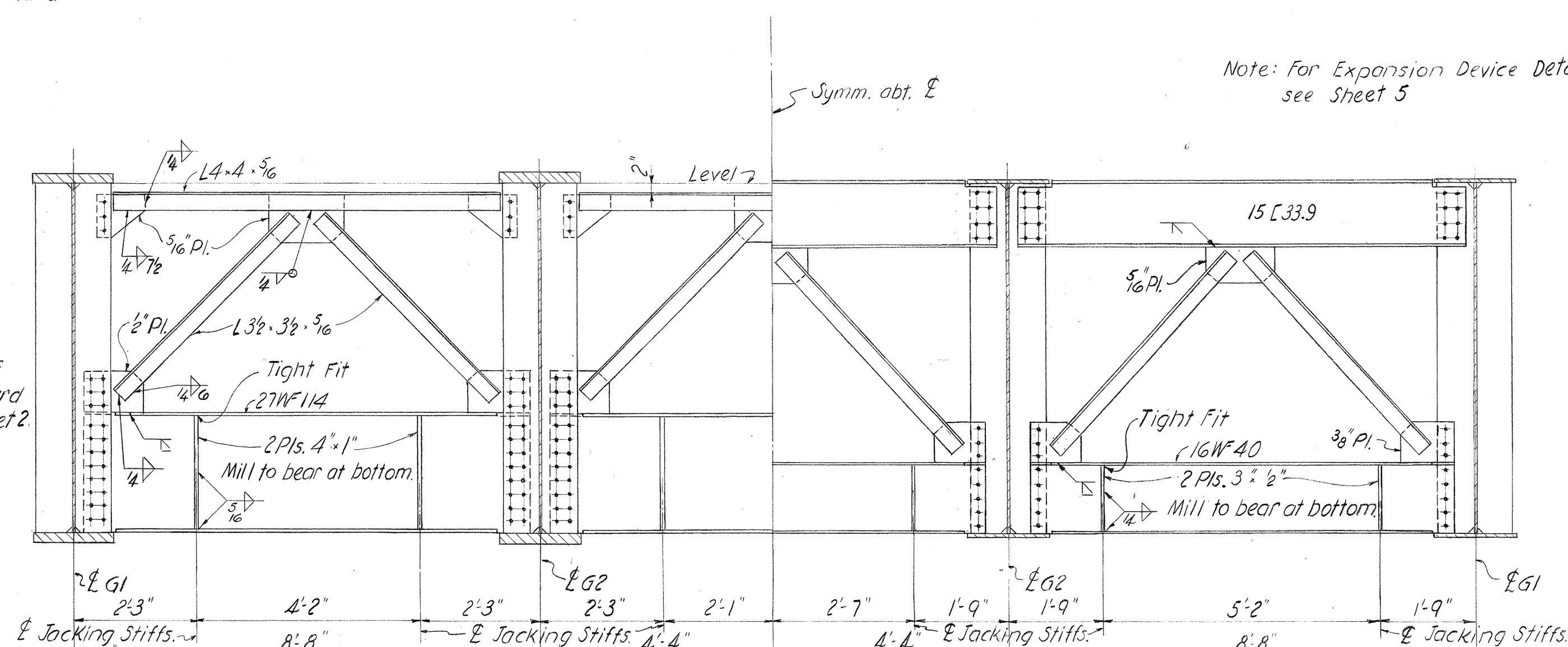
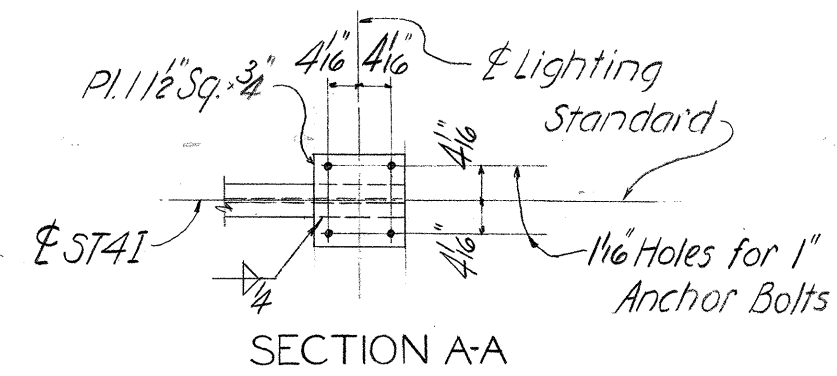
AS BUILT

P-1555  
603534



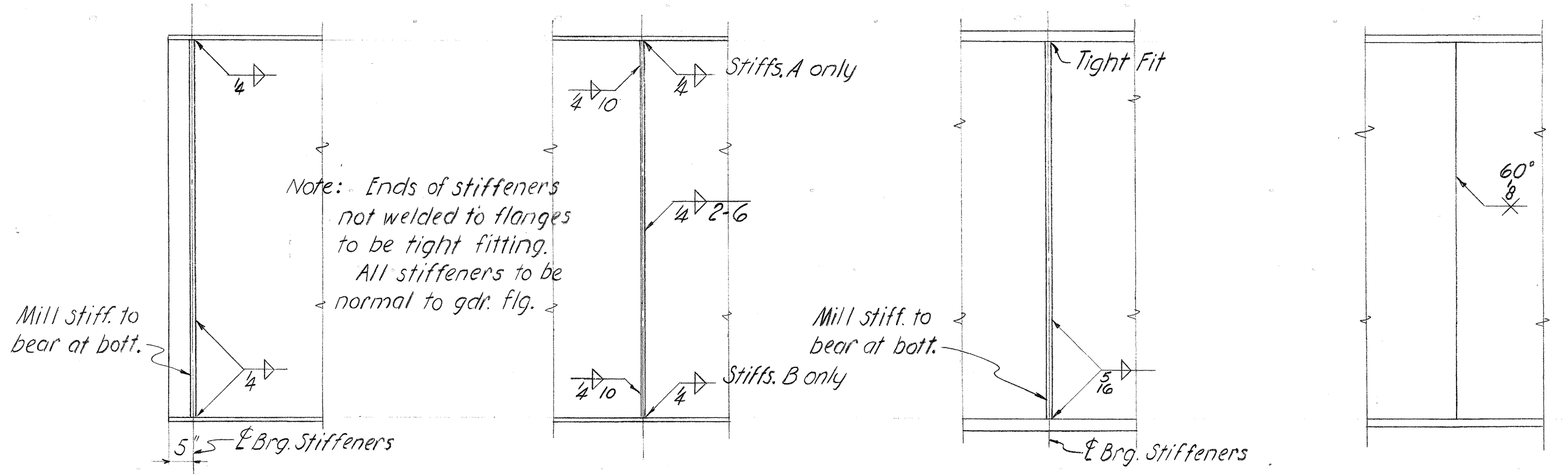
CROSS SECTION AT INTERMEDIATE CROSS FRAMES

Note: Material and connections shown are typical for all intermediate cross frames. Lower lateral connection plates not shown.



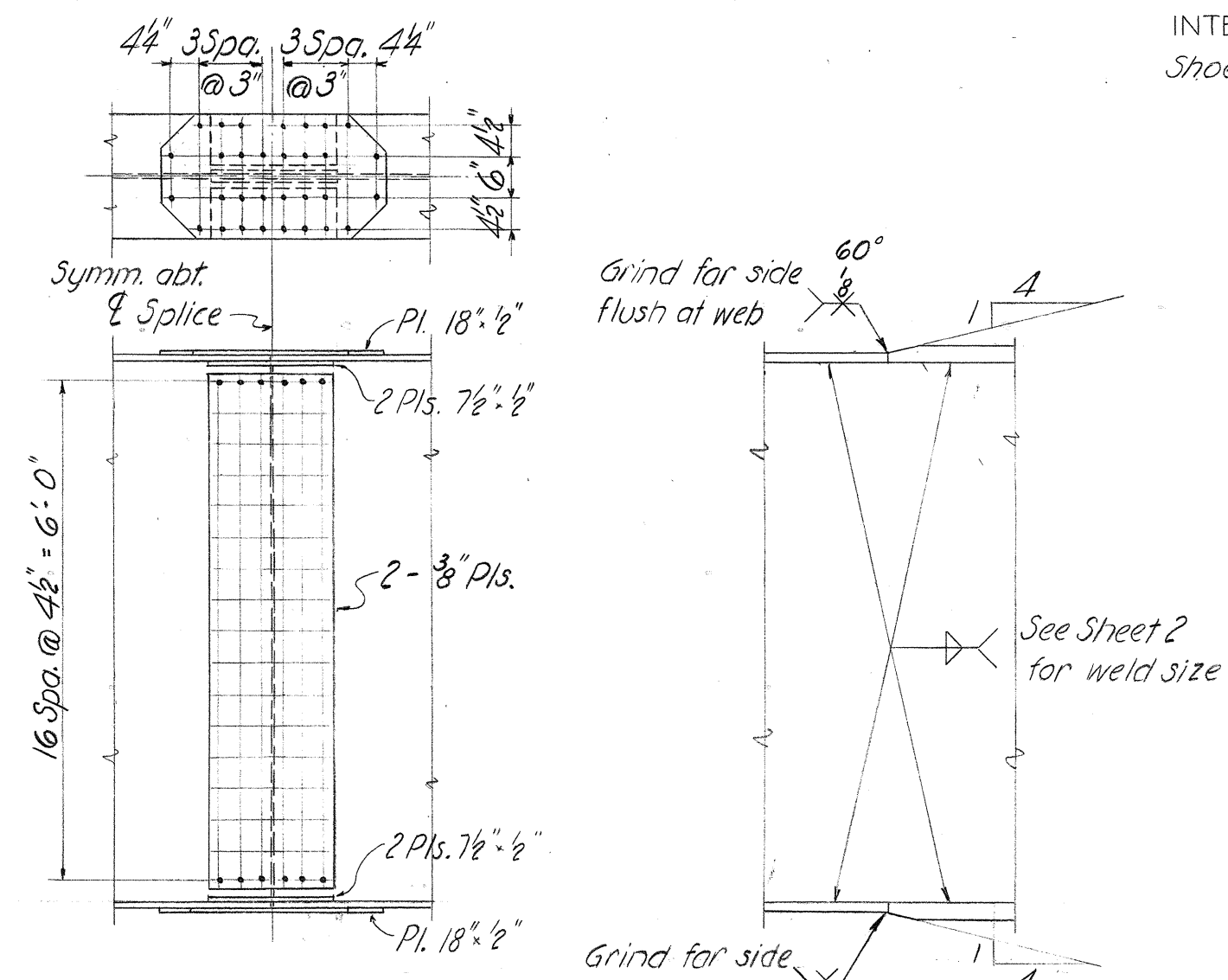
INTERIOR SUPPORT CROSS SECTION AT SUPPORTS END SUPPORT

Shoe caps not shown. Note: Material and connections shown are typical for all cross frames at supports. Lower lateral connection plates not shown. Jacking stiffeners are designed for full dead load.



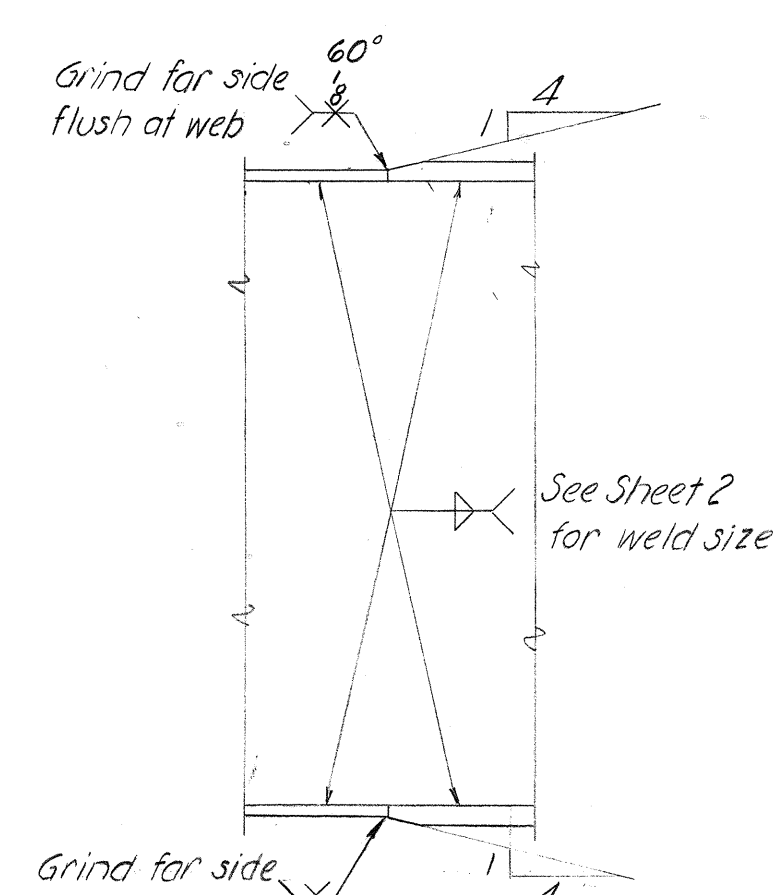
END SUPPORT INTERMEDIATE STIFFENER INTERIOR SUPPORT SHOP WEB SPLICE

Note: See Sheet 2 for location of Stiffeners A & B. Note: Clip inside corners of stiffener plate 1/2" to clear welds, top & bottom.



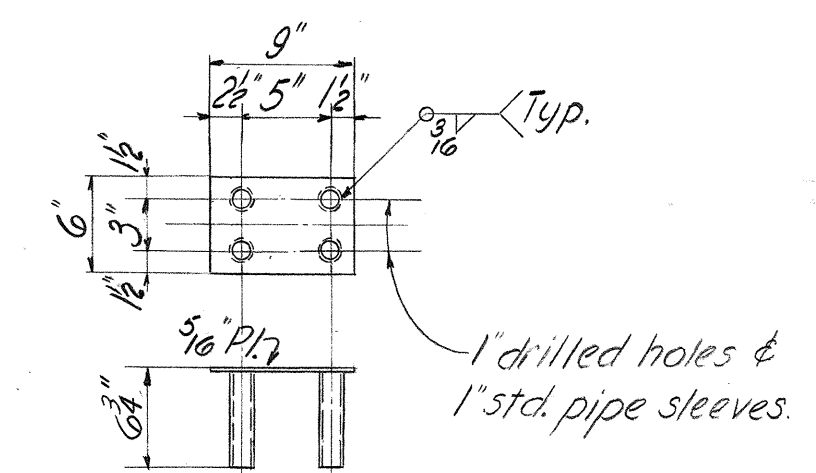
FIELD SPLICE

Note: Material and connections shown are typical for all field splices.



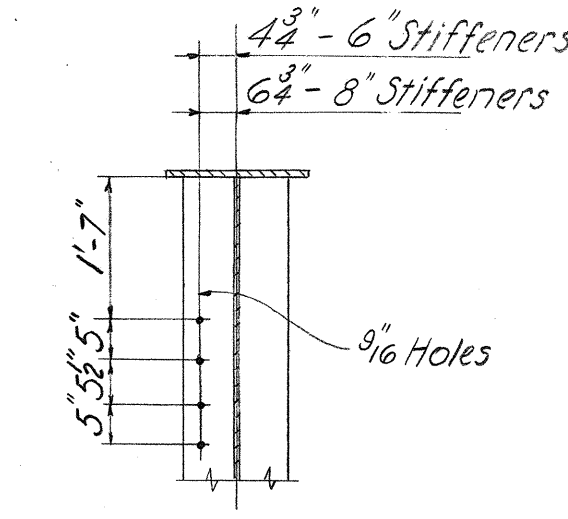
FLANGE SPLICE AND FLANGE TO WEB WELD

Grind for side flush at web. See Sheet 2 for weld size.



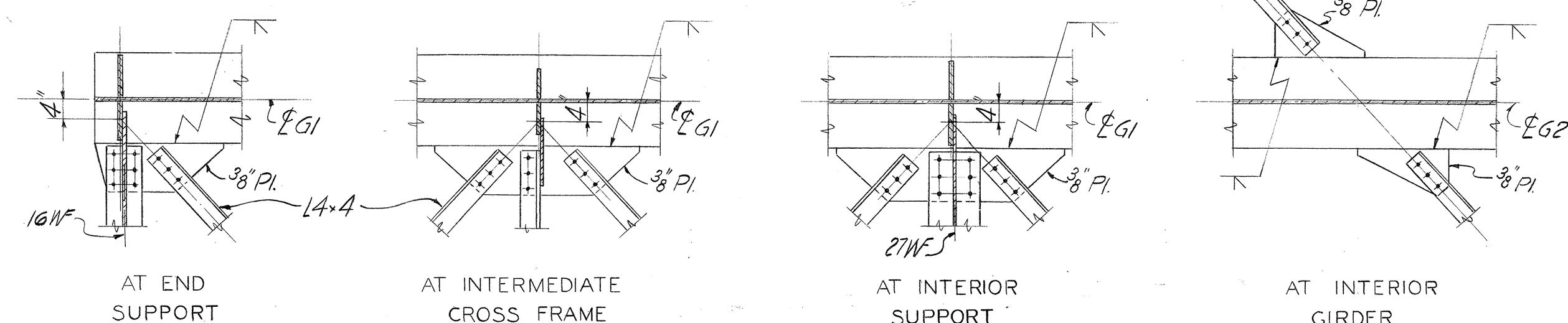
HANDRAIL ANCHORAGE

(108 Required) SCALE: NONE Note: Assembly to be hot galvanized after fabrication.



HOLES FOR CABLE TRAY CONNECTION

For location see Sheet 2



LOWER LATERAL CONNECTIONS

Do not scale this drawing. Follow dimensions.

NOTES  
All rivets 7/8" unless otherwise noted. Except where high tensile bolts are specified on the plans field connections may be made with either rivets or high tensile bolts.

COMMONWEALTH OF VIRGINIA		
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT		
NORFOLK 1, VIRGINIA		
SVERDRUP & PARCEL, CONSULTING ENGINEERS NEW YORK, N. Y. - ST. LOUIS, MO. - NORFOLK, VA.		
CHESAPEAKE BAY BRIDGE-TUNNEL CROSSING FISHERMAN INLET BRIDGE - SUPERSTRUCTURE		
GIRDERS		
RECOMMENDED:	DRAWN BY: R.W.H.	SCALE: 1/2" = 1'-0"
APPROVED:	CHECKED BY: C.C.U.	DATE: FEB. 1, 1961
DWG. NO. 3 OF 5		SECTION NO. F1-2

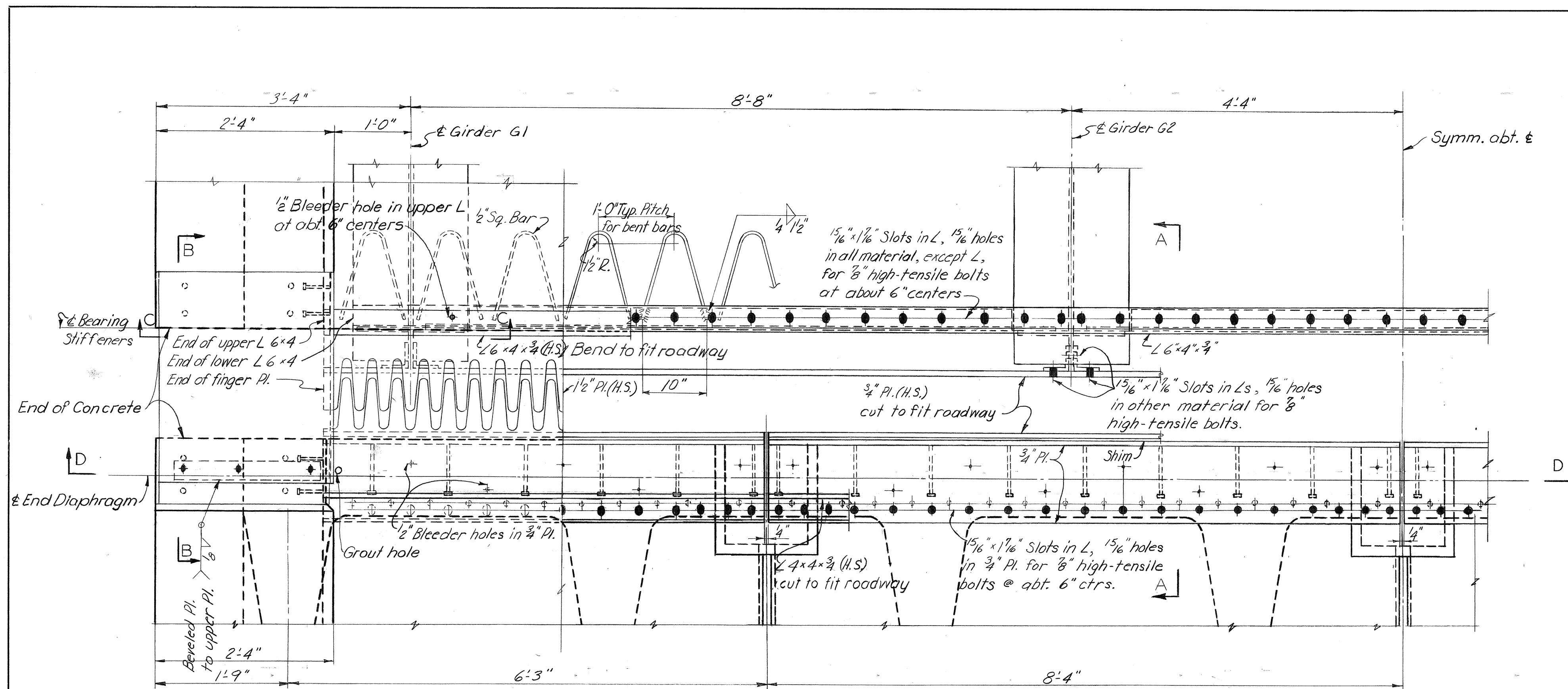


AS BUILT

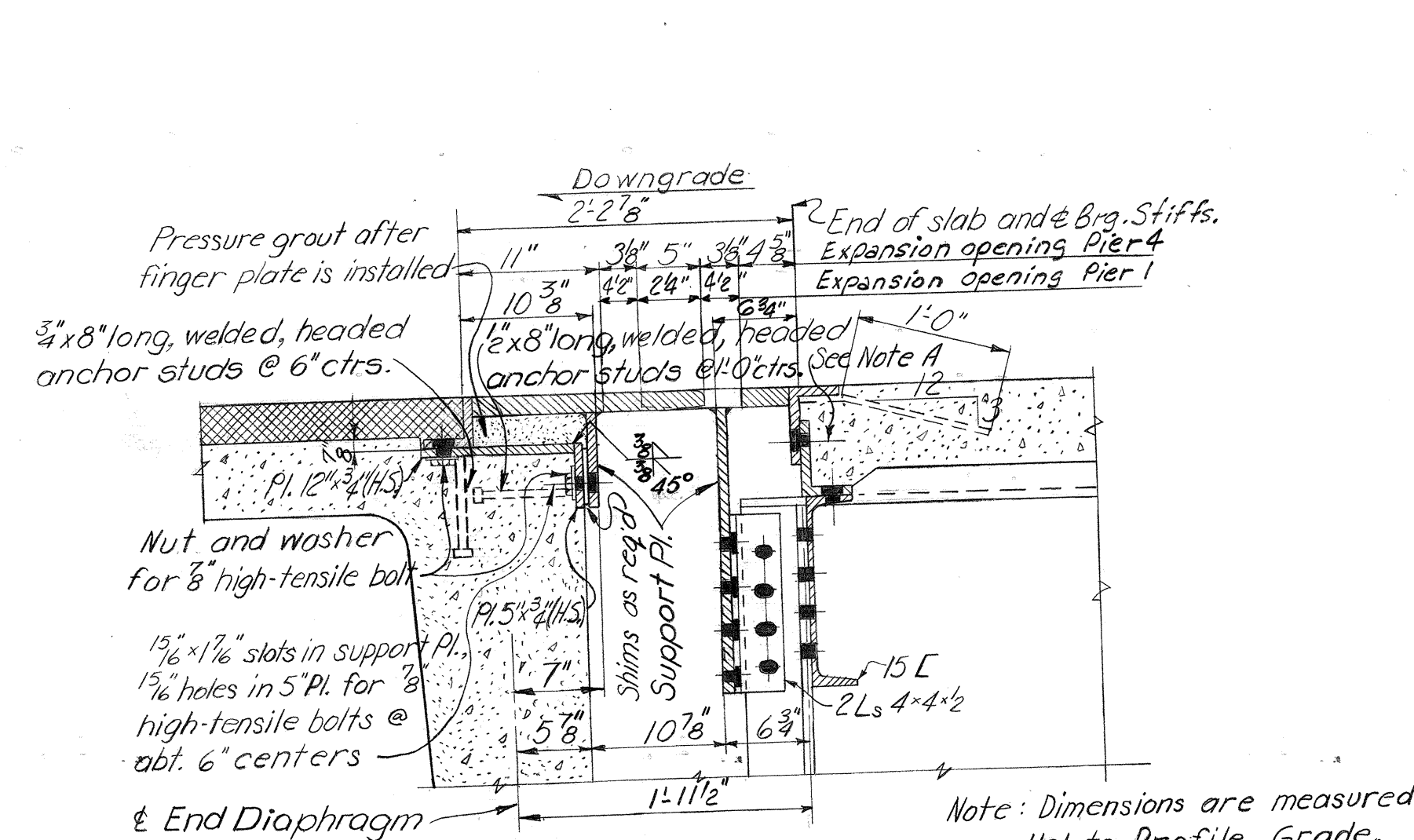
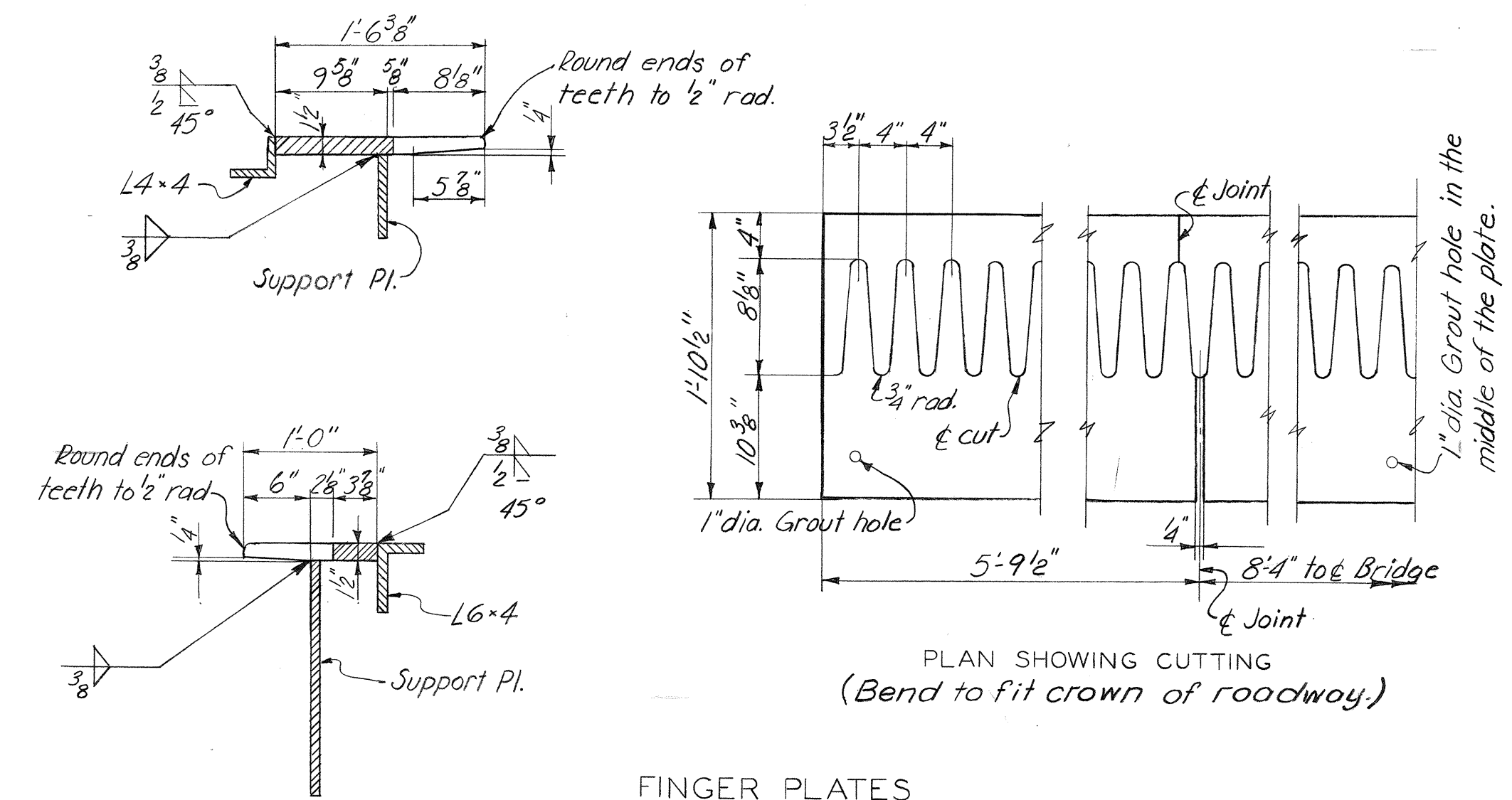
P1555  
603476



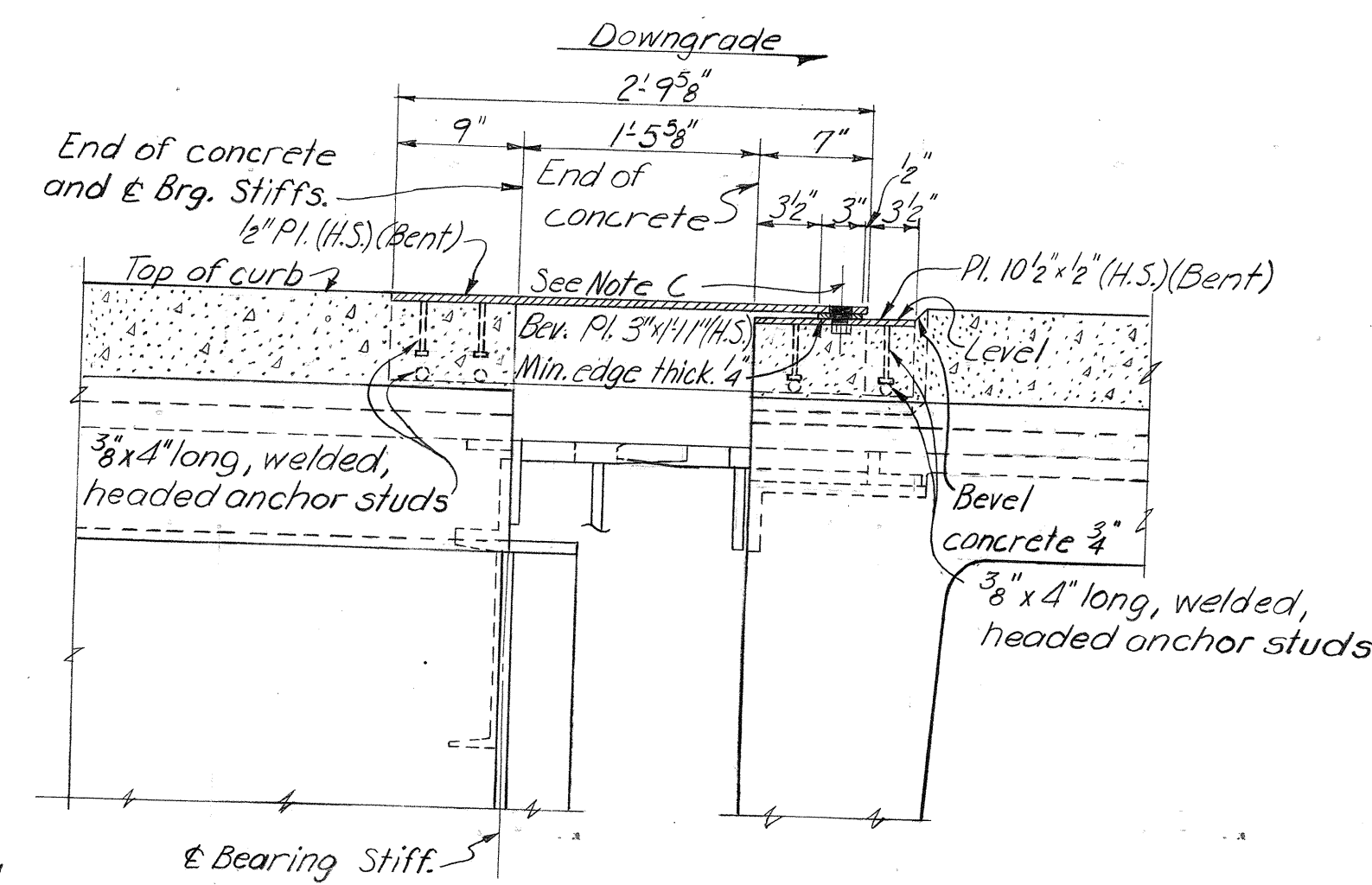




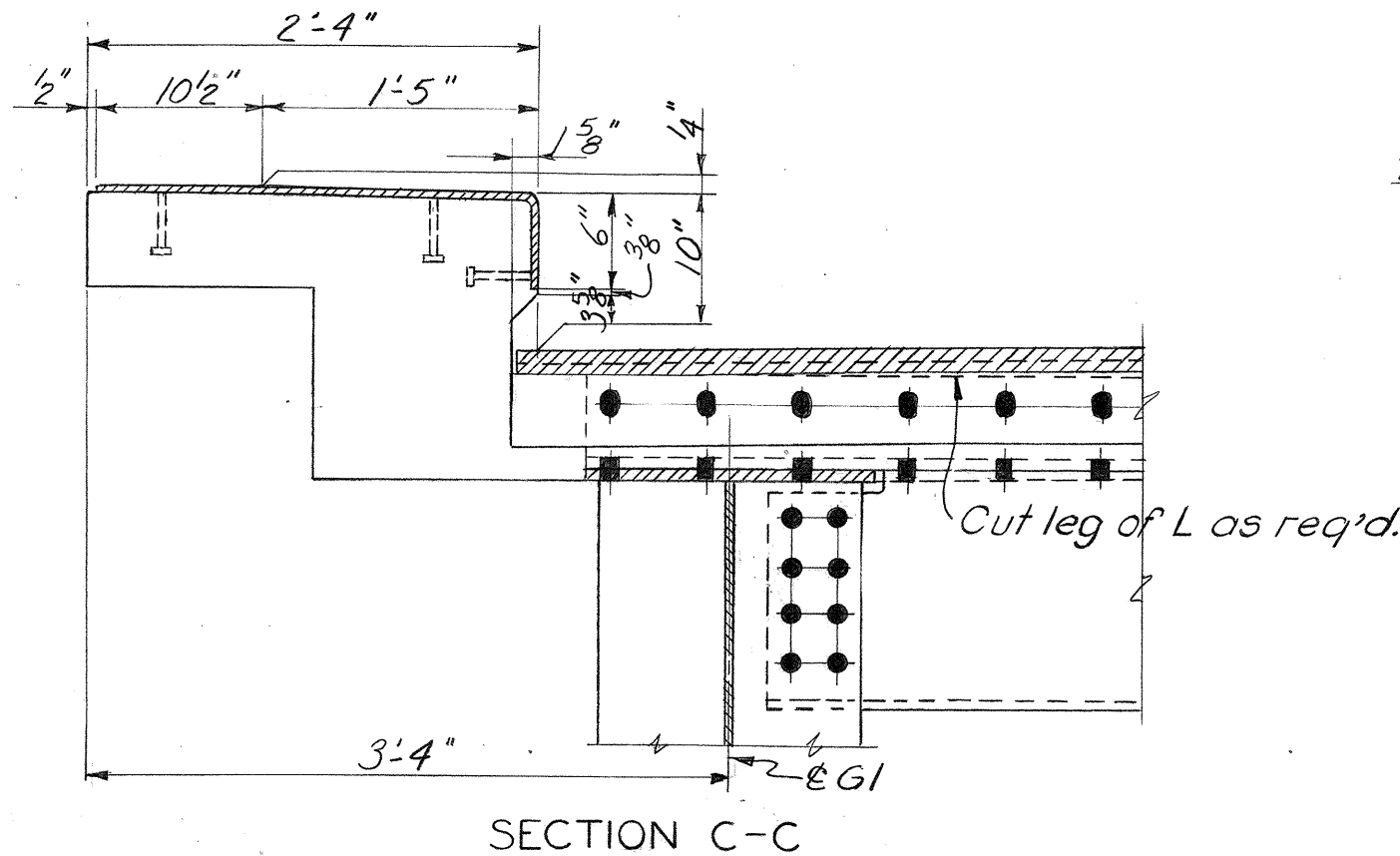
HALF PLAN OF EXPANSION DEVICE



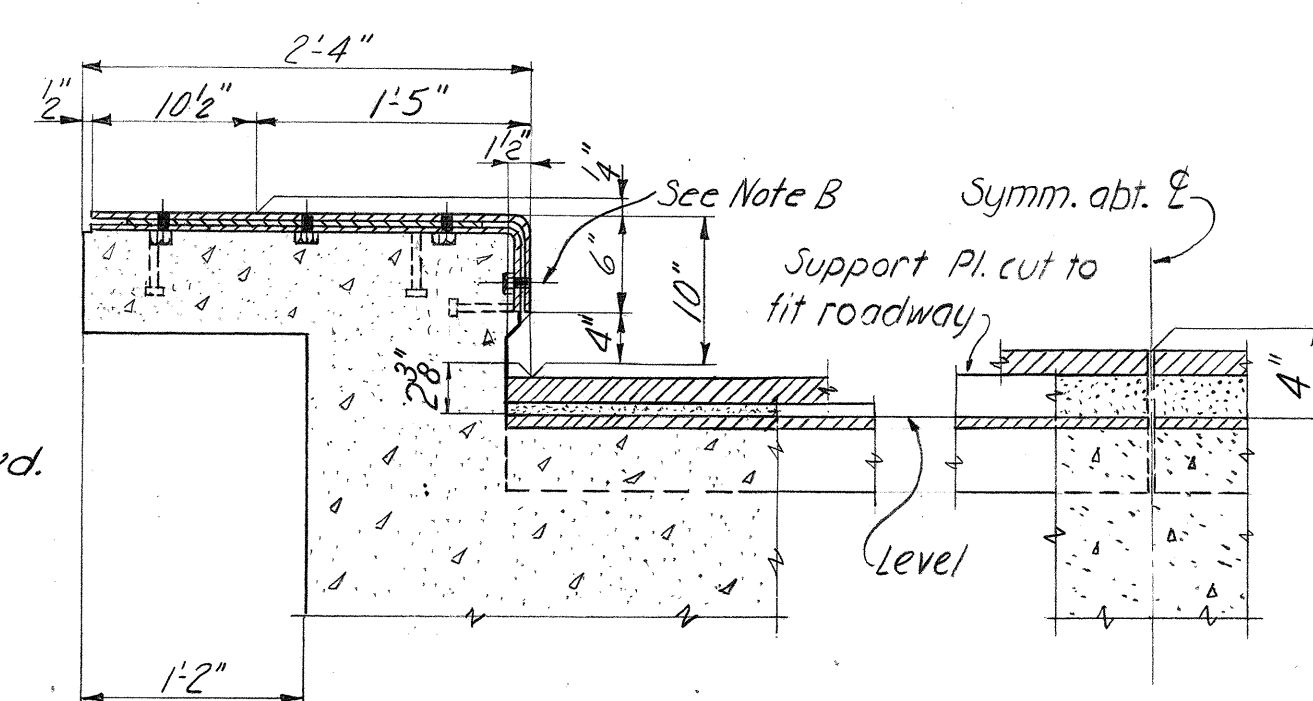
SECTION A-A  
Section at G1 similar



SECTION B-B



SECTION C-C



SECTION D-D

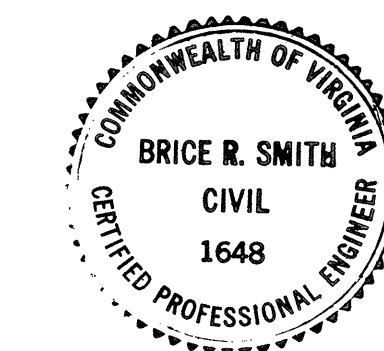
- Note A: 1/16" Holes in lower L, 1/16" x 1/16" Slots in upper L for 3/8" high-tensile bolts at about 6" centers.
- Note B: 7/16" x 1/2" Slot in outside pl., 7/16" hole in inside pl. for 3/8" bolt. Weld 3/8" sq. nut to inside pl. Remove bolt after concrete has set.
- Note C: 7/16" x 1/2" slots in top and beveled pl., 7/16" holes in bottom pl. for 3/8" bolts. Weld 3/8" sq. nuts to bottom pl. Remove bolts after concrete has set.

Note: Do not scale this drawing. Follow dimensions.

EXPANSION DEVICE NOTES

All rivets and bolts 3/8" unless otherwise noted.  
The expansion device is shown in the normal position at 68°F.  
Flame cutting of the finger plates shall not exceed 1/4" in width. A mechanical guide shall be used to guide the torch. All burrs shall be ground smooth.  
Dimensions shown for finger plates are based on 1/4" loss in metal.  
All material marked H.S. shall be weldable structural Low-Alloy Steel conforming to A.S.T.M. designation A242.  
The Contractor for Section No. LT-1 will furnish and place all material embedded in the precast concrete trestle spans; will furnish and place the complete safety curb devices, and will do the pressure grouting underneath the finger plate weldments. The Contractor for this Section No. FI-2 shall furnish and place the finger plate weldments. See Special Provisions.

P1555  
583764  
Tr-by THB



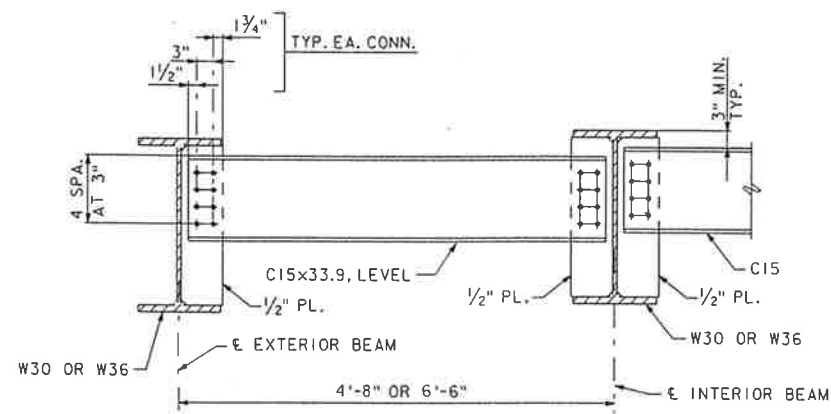
COMMONWEALTH OF VIRGINIA		
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT		
NORFOLK 1, VIRGINIA		
SVERDRUP & PARCEL, CONSULTING ENGINEERS NEW YORK, N. Y. - ST. LOUIS, MO. - NORFOLK, VA.		
CHESAPEAKE BAY BRIDGE-TUNNEL CROSSING		
FISHERMAN INLET BRIDGE - SUPERSTRUCTURE		
EXPANSION DEVICES-PIERS 1 & 4		
RECOMMENDED:	DRAWN BY: R.W.H.	SCALE: F=1'-0"
APPROVED: <i>Brice R. Smith</i>	CHECKED BY: C.C.U.	DATE: FEB. 1 1961
	DWG. NO. 5 OF 5	
SECTION NO. FI-2		

AS BUILT

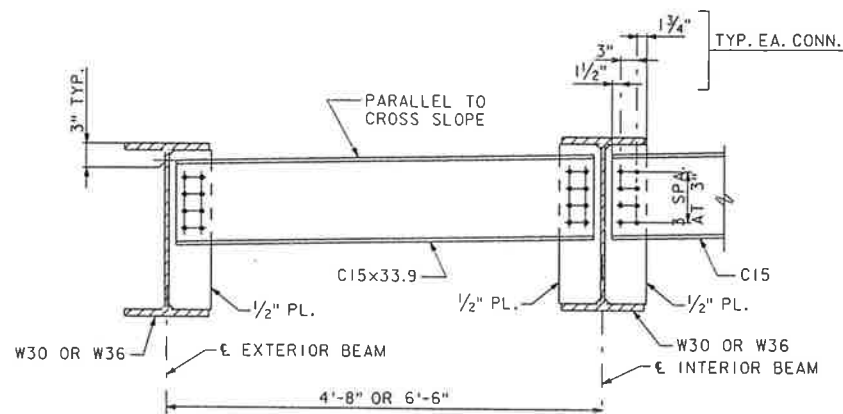
# **Appendix F**

## **Steel Girder Trestle Abutments**

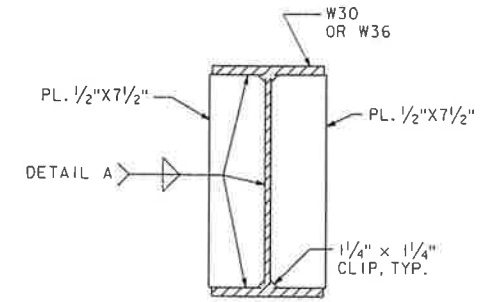




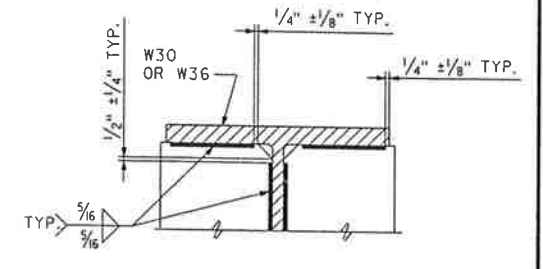
TYPICAL INTERMEDIATE DIAPHRAGM  
SCALE: 3/4" = 1'-0"



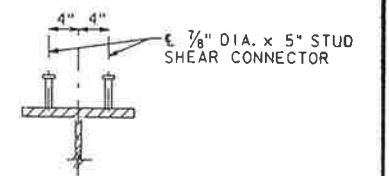
TYPICAL END DIAPHRAGM  
AT ABUTMENT ASBI AND ALL BENTS  
SCALE: 3/4" = 1'-0"



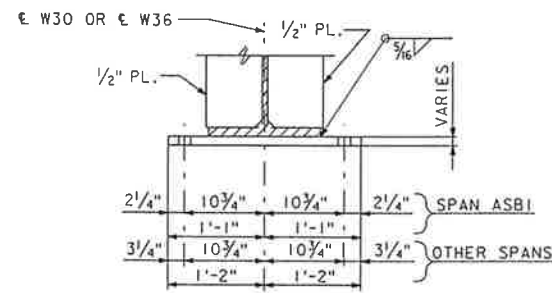
DIAPHRAGM CONNECTION PLATE  
SCALE: 1" = 1'-0"



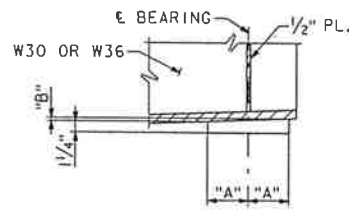
DETAIL A  
SCALE: 2" = 1'-0"



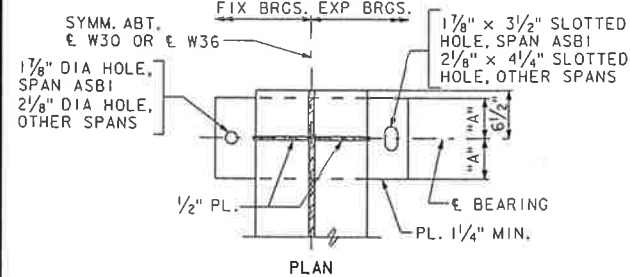
STUD SHEAR  
CONNECTOR DETAIL  
SCALE: 1" = 1'-0"



ELEVATION



SIDE VIEW



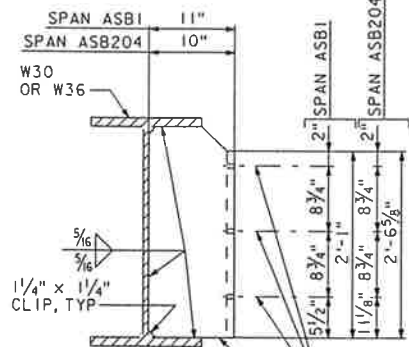
PLAN

SPAN	"B"								
	G1	G2	G3	G4	G5	G6	G7	G8	
ASBI	5 3/4"	3/16"	3/16"	3/16"	3/16"	3/16"	3/16"	NA	NA
ASB204	6"	-3/16"	-3/16"	-3/16"	-1/8"	-1/8"	-1/8"	-1/8"	-1/16"
BSBI	6"	3/16"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"
BSB202	6"	-1/8"	-1/8"	-1/8"	-1/8"	-1/8"	-1/8"	-1/8"	-1/8"
CSBI	6"	1/8"	1/8"	1/8"	1/8"	1/8"	1/16"	1/16"	1/16"

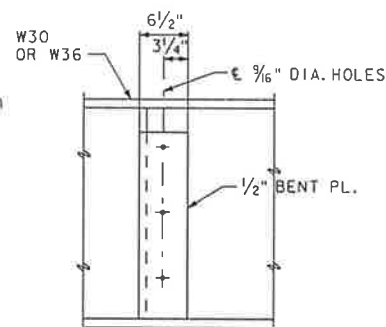
NOTE: A POSITIVE VALUE OF DIMENSION "B" INDICATES THE HIGH SIDE OF THE SOLE PLATE IS PLACED AHEAD STATION. A NEGATIVE VALUE OF DIMENSION "B" INDICATES THE HIGH SIDE OF THE SOLE PLATE IS PLACED BACK STATION.

BEARING PLATE DETAIL  
SCALE: 1" = 1'-0"

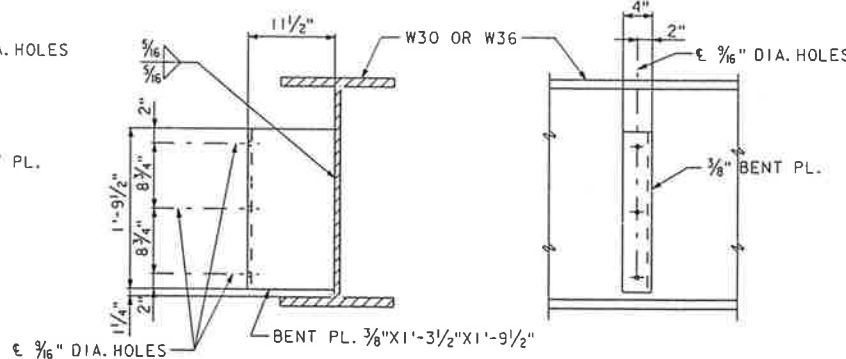
NOTE: FOR LOCATION AND SIZE OF ELASTOMERIC BEARING PADS, SEE SECTION NO. LLT300. FOR ANCHOR BOLT LOCATION AND DETAILS, SEE ABUTMENT DETAILS AND PRECAST BENT CAP DETAILS.



PIPE SUPPORT BRACKET DETAIL  
SCALE: 1" = 1'-0"



CABLE TRAY SUPPORT BRACKET DETAIL  
SCALE: 1" = 1'-0"



FOR SPANS ASB204, BSBI, BSB202 AND CSBI, SOME BRACKETS SUBSTITUTED 'C' SHAPED BENT PLATE AND FOUR (4) 3/4" I.F.S. BOLTS FOR WELDED CONNECTION SHOWN.

ESTIMATED QUANTITIES			
ITEM	TYPE	UNIT	TOTAL
STRUCTURAL STEEL	GRADE 36	LBS.	57,396
	GRADE 50	LBS.	983,537

RECORD DRAWING

COMMONWEALTH OF VIRGINIA  
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
CAPE CHARLES, VIRGINIA 23310-0111



PARALLEL CROSSING  
TO  
LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

SVERDRUP CIVIL, INC.

LOW LEVEL TRESTLE  
SPANS ASBI, ASB204, BSBI, BSB202  
AND CSBI STEEL DETAILS

DRAWN BY: SGK SCALE: AS SHOWN

CHECKED BY: TVD DATE: DEC. 1994

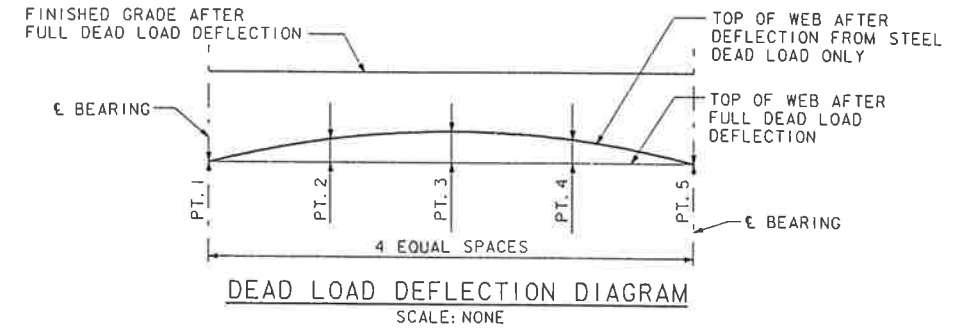
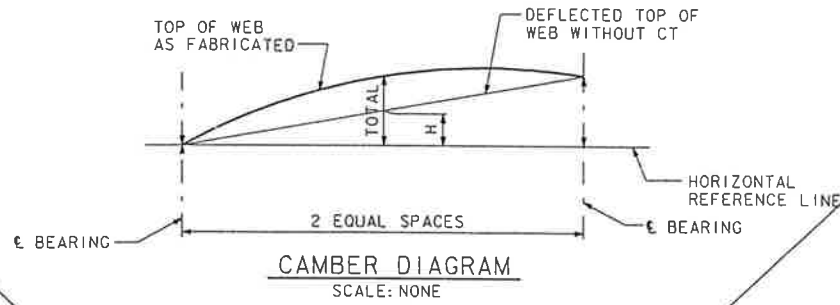
DWG. NO. 536

SECTION NO. LLT298 OF LLT406

NO.	DATE	BY	APP.	DESCRIPTION
12-99		JD	KR	RECORD DRAWING MODIFICATIONS

Approved: \_\_\_\_\_

JOB NO. 11555  
FILENAME 935837.DGN



**GIRDERS 2 THRU 5**

**GIRDERS 1 AND 6**

SPAN ASB1	€ BEARING	MID-SPAN	€ BEARING
Δs	0	1/2"	0
Δ's	0	1 5/8"	0
Δc	0	1/8"	0
CT	0	3/4"	0
H	0	7 3/8"	1'-2 1/4"
TOTAL	0	10 3/8"	1'-2 1/4"

SPAN ASB1	€ BEARING	MID-SPAN	€ BEARING
Δs	0	1/2"	0
Δ's	0	1 5/8"	0
Δc	0	1/8"	0
CT	0	3/4"	0
H	0	7 3/8"	1'-2 1/4"
TOTAL	0	10 3/8"	1'-2 1/4"

SPAN ASB204	€ BEARING	MID-SPAN	€ BEARING
Δs	0	2 1/8"	0
Δ's	0	4 1/16"	0
Δc	0	1/16"	0
CT	0	3/4"	0
H	1'-3"	7 1/16"	0
TOTAL	1'-3"	1'-3 11/16"	0

SPAN ASB204	€ BEARING	MID-SPAN	€ BEARING
Δs	0	2 1/8"	0
Δ's	0	4 1/16"	0
Δc	0	1/16"	0
CT	0	3/4"	0
H	1'-3"	7 1/16"	0
TOTAL	1'-3"	1'-4 1/16"	0

SPAN BSB1	€ BEARING	MID-SPAN	€ BEARING
Δs	0	1 5/8"	0
Δ's	0	3 1/16"	0
Δc	0	5/16"	0
CT	0	3/4"	0
H	0	7 3/16"	1'-1 11/16"
TOTAL	0	1'-1 5/16"	1'-1 11/16"

SPAN BSB1	€ BEARING	MID-SPAN	€ BEARING
Δs	0	1 5/8"	0
Δ's	0	3 1/16"	0
Δc	0	5/16"	0
CT	0	3/4"	0
H	0	7 3/16"	1'-1 11/16"
TOTAL	0	1'-1 5/16"	1'-1 11/16"

SPAN BSB202	€ BEARING	MID-SPAN	€ BEARING
Δs	0	2"	0
Δ's	0	4 1/4"	0
Δc	0	3/8"	0
CT	0	3/4"	0
H	0	7 3/4"	1'-2 1/4"
TOTAL	0	1'-3 1/8"	1'-2 1/4"

SPAN BSB202	€ BEARING	MID-SPAN	€ BEARING
Δs	0	2"	0
Δ's	0	4 3/8"	0
Δc	0	3/8"	0
CT	0	3/4"	0
H	0	7 3/4"	1'-2 1/4"
TOTAL	0	1'-3 1/2"	1'-2 1/4"

SPAN CSB1	€ BEARING	MID-SPAN	€ BEARING
Δs	0	1 5/8"	0
Δ's	0	4 1/8"	0
Δc	0	3/8"	0
CT	0	3/4"	0
H	0	6 3/8"	11 11/16"
TOTAL	0	1'-1 11/16"	11 11/16"

SPAN CSB1	€ BEARING	MID-SPAN	€ BEARING
Δs	0	1 5/8"	0
Δ's	0	4 1/8"	0
Δc	0	3/8"	0
CT	0	3/4"	0
H	0	6 3/8"	11 11/16"
TOTAL	0	1'-2 1/8"	11 11/16"

**INTERIOR GIRDERS**

**EXTERIOR GIRDERS**

SPAN ASB1	POINT	1	2	3	4	5
Δ's	0	1 1/8"	1 3/8"	1 5/8"	1 7/8"	0
Δc	0	1/8"	1/8"	1/8"	1/8"	0
TOTAL	0	1 1/4"	1 3/4"	1 3/4"	1 3/4"	0

SPAN ASB1	POINT	1	2	3	4	5
Δ's	0	1 1/8"	1 3/8"	1 5/8"	1 7/8"	0
Δc	0	1/8"	1/8"	1/8"	1/8"	0
TOTAL	0	1 1/4"	1 3/4"	1 3/4"	1 3/4"	0

SPAN ASB204	POINT	1	2	3	4	5
Δ's	0	3 3/16"	4 1/16"	3 3/16"	0	0
Δc	0	3/16"	1/16"	3/16"	0	0
TOTAL	0	3 1/2"	4 1/8"	3 1/2"	0	0

SPAN ASB204	POINT	1	2	3	4	5
Δ's	0	3 1/16"	4 1/16"	3 1/16"	0	0
Δc	0	3/16"	1/16"	3/16"	0	0
TOTAL	0	3 3/4"	5 1/4"	3 3/4"	0	0

SPAN BSB1	POINT	1	2	3	4	5
Δ's	0	2 1/16"	3 1/16"	2 1/16"	0	0
Δc	0	1/4"	3/16"	1/4"	0	0
TOTAL	0	2 1/8"	2 1/8"	2 1/8"	0	0

SPAN BSB1	POINT	1	2	3	4	5
Δ's	0	2 5/16"	3 1/16"	2 5/16"	0	0
Δc	0	1/4"	3/16"	1/4"	0	0
TOTAL	0	2 7/8"	4"	2 7/8"	0	0

SPAN BSB202	POINT	1	2	3	4	5
Δ's	0	3"	4 1/4"	3"	0	0
Δc	0	1/4"	3/8"	1/4"	0	0
TOTAL	0	3 1/4"	4 5/8"	3 1/4"	0	0

SPAN BSB202	POINT	1	2	3	4	5
Δ's	0	3 1/4"	4 5/8"	3 1/4"	0	0
Δc	0	1/4"	3/8"	1/4"	0	0
TOTAL	0	3 1/2"	5"	3 1/2"	0	0

SPAN CSB1	POINT	1	2	3	4	5
Δ's	0	2 5/16"	4 1/8"	2 5/16"	0	0
Δc	0	1/4"	3/8"	1/4"	0	0
TOTAL	0	3 3/16"	4 1/2"	3 3/16"	0	0

SPAN CSB1	POINT	1	2	3	4	5
Δ's	0	3 3/16"	4 1/8"	3 3/16"	0	0
Δc	0	1/4"	3/8"	1/4"	0	0
TOTAL	0	3 7/16"	4 3/8"	3 7/16"	0	0

**LEGEND**

- Δs = DEFLECTION OF STEEL FROM ITS OWN WEIGHT.
- Δ's = DEFLECTION OF STEEL SECTION FROM DEAD LOAD OF DECK SLAB CONCRETE.
- Δc = DEFLECTION OF COMPOSITE SECTION FROM DEAD LOAD (E.G. RAIL AND CURB) ADDED AFTER DECK SLAB IS CAST.
- CT = CAMBER TOLERANCE (POSITIVE NUMERICAL VALUE)
- H = DIMENSION FROM HORIZONTAL REFERENCE LINE TO FINAL TOP OF WEB AFTER FULL DEAD LOAD DEFLECTION (WITHOUT CAMBER TOLERANCE)

FOR CAMBER DIAGRAMS, SEE DWG NO. 537A

VOID

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
CAPE CHARLES, VIRGINIA 23310-0111

PARALLEL CROSSING  
TO  
LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

SVERDRUP CIVIL, INC.

LOW LEVEL TRESTLE  
SPANS ASB1, ASB204, BSB1, BSB202 AND  
CSB1-DEAD LOAD & CAMBER DIAGRAMS

DRAWN BY: SGK SCALE: AS SHOWN

CHECKED BY: RVB DATE: DEC. 1994

DWG. NO. 537

SECTION NO. LLT299 OF LLT406

Approved: \_\_\_\_\_

NO.	DATE	BY	APP.	DESCRIPTION
1-96	RCP	SWY		VOIDED CAMBER DIAGRAMS

FILENAME: 94S178.DGN  
JOB NO.: 11555

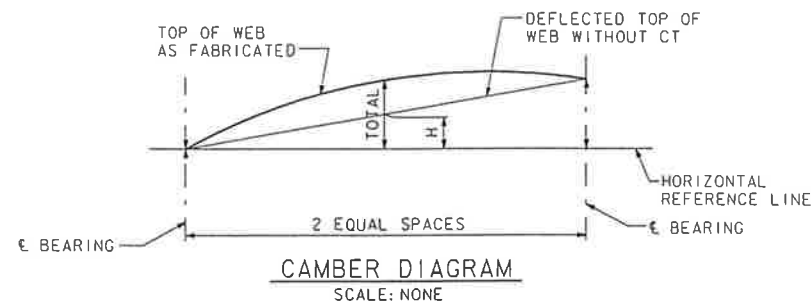
SPAN ASBI																		
	GIRDER 1			GIRDER 2			GIRDER 3			GIRDER 4			GIRDER 5			GIRDER 6		
	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING
Δs	0	1/2"	0	0	1/2"	0	0	1/2"	0	0	1/2"	0	0	1/2"	0	0	1/2"	0
Δ's	0	1 1/8"	0	0	1 1/8"	0	0	1 1/8"	0	0	1 1/8"	0	0	1 1/8"	0	0	1 1/8"	0
Δc	0	1/8"	0	0	1/8"	0	0	1/8"	0	0	1/8"	0	0	1/8"	0	0	1/8"	0
CT	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0
H	0	7 3/8"	1'-2 1/4"	0	7 3/8"	1'-2 1/4"	0	7 3/8"	1'-2 1/4"	0	7 3/8"	1'-2 1/4"	0	7 3/8"	1'-2 1/4"	0	7 3/8"	1'-2 1/4"
TOTAL	0	10 3/8"	1'-2 1/4"	0	10 3/8"	1'-2 1/4"	0	10 3/8"	1'-2 1/4"	0	10 3/8"	1'-2 1/4"	0	10 3/8"	1'-2 1/4"	0	10 3/8"	1'-2 1/4"

SPAN ASB204																								
	GIRDER 1			GIRDER 2			GIRDER 3			GIRDER 4			GIRDER 5			GIRDER 6			GIRDER 7			GIRDER 8		
	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING
Δs	0	2 1/8"	0	0	2 1/8"	0	0	2 1/8"	0	0	2 1/8"	0	0	2 1/8"	0	0	2 1/8"	0	0	2 1/8"	0	0	2 1/8"	0
Δ's	0	4 1/8"	0	0	4 1/8"	0	0	4 1/8"	0	0	4 1/8"	0	0	4 1/8"	0	0	4 1/8"	0	0	4 1/8"	0	0	4 1/8"	0
Δc	0	7/16"	0	0	7/16"	0	0	7/16"	0	0	7/16"	0	0	7/16"	0	0	7/16"	0	0	7/16"	0	0	7/16"	0
CT	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0
H	1'-10 3/8"	11 3/8"	0	1'-8 3/8"	10 3/4"	0	1'-6 3/8"	9 3/4"	0	1'-5 1/8"	8 3/8"	0	1'-3 3/8"	8 3/8"	0	1'-1 3/8"	7"	0	11 3/8"	6 1/4"	0	9 3/8"	5 3/8"	0
TOTAL	1'-10 3/8"	1'-7 1/8"	0	1'-8 3/8"	1'-6 1/2"	0	1'-6 3/8"	1'-5 1/2"	0	1'-5 1/8"	1'-4 1/8"	0	1'-3 3/8"	1'-3 3/8"	0	1'-1 3/8"	1'-2 3/4"	0	11 3/8"	1'-2"	0	9 3/8"	1'-1 1/2"	0

SPAN BSBI																								
	GIRDER 1			GIRDER 2			GIRDER 3			GIRDER 4			GIRDER 5			GIRDER 6			GIRDER 7			GIRDER 8		
	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING
Δs	0	1 3/8"	0	0	1 3/8"	0	0	1 3/8"	0	0	1 3/8"	0	0	1 3/8"	0	0	1 3/8"	0	0	1 3/8"	0	0	1 3/8"	0
Δ's	0	3 1/8"	0	0	3 1/8"	0	0	3 1/8"	0	0	3 1/8"	0	0	3 1/8"	0	0	3 1/8"	0	0	3 1/8"	0	0	3 1/8"	0
Δc	0	5/16"	0	0	5/16"	0	0	5/16"	0	0	5/16"	0	0	5/16"	0	0	5/16"	0	0	5/16"	0	0	5/16"	0
CT	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0
H	0	7 1/4"	1'-5 3/8"	0	7 3/8"	1'-4 3/8"	0	7 3/8"	1'-3 1/2"	0	7 3/8"	1'-2 3/4"	0	7 3/8"	1'-1 1/8"	0	7 3/8"	1'-1 1/8"	0	7 3/8"	1'-0 1/4"	0	7 3/8"	11 1/2"
TOTAL	0	1'-1 3/8"	1'-5 3/8"	0	1'-1 3/8"	1'-4 3/8"	0	1'-1 3/8"	1'-3 1/2"	0	1'-1 3/8"	1'-2 3/4"	0	1'-1 1/4"	1'-1 1/8"	0	1'-1 3/8"	1'-1 1/8"	0	1'-1 3/8"	1'-0 1/4"	0	1'-1 3/8"	11 1/2"

SPAN BSB202																								
	GIRDER 1			GIRDER 2			GIRDER 3			GIRDER 4			GIRDER 5			GIRDER 6			GIRDER 7			GIRDER 8		
	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING
Δs	0	2"	0	0	2"	0	0	2"	0	0	2"	0	0	2"	0	0	2"	0	0	2"	0	0	2"	0
Δ's	0	4 3/8"	0	0	4 1/4"	0	0	4 1/4"	0	0	4 1/4"	0	0	4 1/4"	0	0	4 1/4"	0	0	4 1/4"	0	0	4 3/8"	0
Δc	0	3/8"	0	0	3/8"	0	0	3/8"	0	0	3/8"	0	0	3/8"	0	0	3/8"	0	0	3/8"	0	0	3/8"	0
CT	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0
H	1'-4 9/16"	7 3/8"	0	1'-4 5/16"	7 3/8"	0	1'-3 3/4"	7 1/8"	0	1'-3"	7 3/8"	0	1'-2 3/8"	7 3/8"	0	1'-1 1/16"	7 3/8"	0	1'-1 1/16"	7 3/8"	0	1'-0 1/2"	7 1/8"	0
TOTAL	1'-4 9/16"	1'-3 3/8"	0	1'-4 5/16"	1'-3"	0	1'-3 3/4"	1'-3 1/8"	0	1'-3"	1'-3"	0	1'-2 3/8"	1'-3"	0	1'-1 1/16"	1'-3"	0	1'-1 1/16"	1'-3"	0	1'-0 1/2"	1'-3 1/8"	0

SPAN CSBI																								
	GIRDER 1			GIRDER 2			GIRDER 3			GIRDER 4			GIRDER 5			GIRDER 6			GIRDER 7			GIRDER 8		
	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING	€ BEARING	MID-SPAN	€ BEARING
Δs	0	1 1/8"	0	0	1 1/8"	0	0	1 1/8"	0	0	1 1/8"	0	0	1 1/8"	0	0	1 1/8"	0	0	1 1/8"	0	0	1 1/8"	0
Δ's	0	4 1/8"	0	0	4 1/8"	0	0	4 1/8"	0	0	4 1/8"	0	0	4 1/8"	0	0	4 1/8"	0	0	4 1/8"	0	0	4 1/8"	0
Δc	0	3/8"	0	0	3/8"	0	0	3/8"	0	0	3/8"	0	0	3/8"	0	0	3/8"	0	0	3/8"	0	0	3/8"	0
CT	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0	0	3/4"	0
H	0	6 3/16"	1'-3 1/2"	0	6 1/2"	1'-2 1/2"	0	6 1/2"	1'-1 11/16"	0	6 1/16"	1'-0 3/4"	0	6 1/2"	11 1/8"	0	6 3/16"	11 3/16"	0	6 1/2"	10 3/16"	0	6 1/2"	9 3/8"
TOTAL	0	1'-2 1/16"	1'-3 1/2"	0	1'-1 11/16"	1'-2 1/2"	0	1'-1 11/16"	1'-1 11/16"	0	1'-1 5/8"	1'-0 3/4"	0	1'-1 1/8"	11 3/8"	0	1'-1 3/4"	11 3/16"	0	1'-1 11/16"	10 3/16"	0	1'-2"	9 3/8"



**LEGEND**

Δs = DEFLECTION OF STEEL FROM ITS OWN WEIGHT.  
Δ's = DEFLECTION OF STEEL SECTION FROM DEAD LOAD OF DECK SLAB CONCRETE.  
Δc = DEFLECTION OF COMPOSITE SECTION FROM DEAD LOAD (E.G., RAIL AND CURB) ADDED AFTER DECK SLAB IS CAST.  
CT = CAMBER TOLERANCE (POSITIVE NUMERICAL VALUE)  
H = DIMENSION FROM HORIZONTAL REFERENCE LINE TO FINAL TOP OF WEB AFTER FULL DEAD LOAD DEFLECTION (WITHOUT CAMBER TOLERANCE)

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

**SVERDRUP CIVIL, INC.**

LOW LEVEL TRESTLE  
**SPANS ASBI, ASB204, BSBI, BSB202 AND CSBI-CAMBER DIAGRAMS**

DRAWN BY: RCP SCALE: AS SHOWN

CHECKED BY: TMT DATE: DEC. 1994

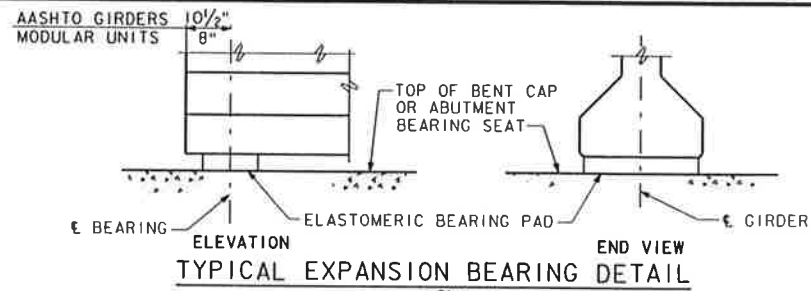
DWG. NO. 537A

SECTION NO. LLT299A OF LLT406

NO.	DATE	BY	APP.	DESCRIPTION
1	1-96	RCP	SWY	NEW DRAWING

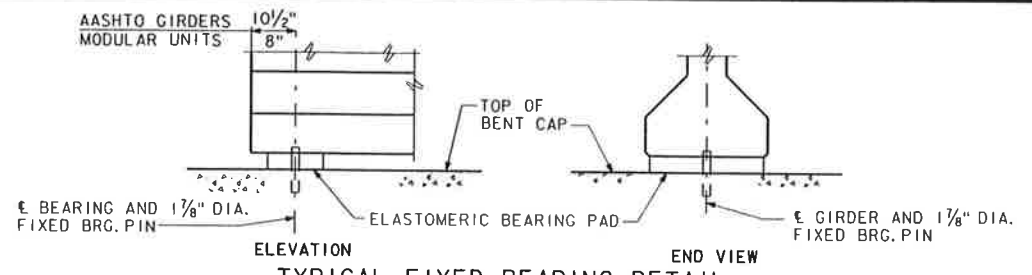
Approved: \_\_\_\_\_

FILENAME  
965001.DGN  
JOB NO.  
11555



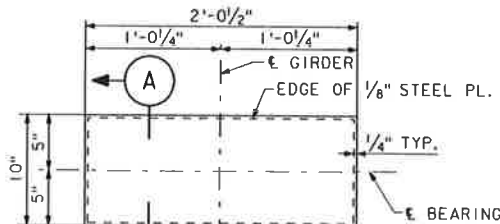
TYPICAL EXPANSION BEARING DETAIL

SCALE: 3/4" = 1'-0"



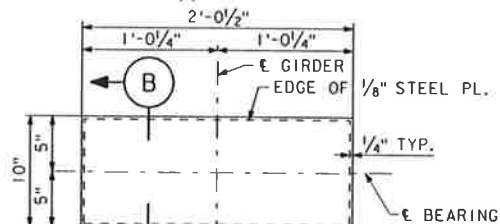
TYPICAL FIXED BEARING DETAIL

SCALE: 3/4" = 1'-0"



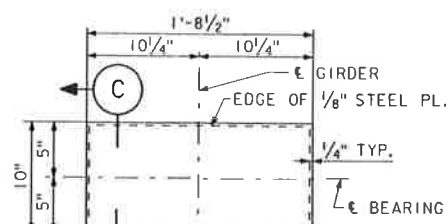
SECTION A-A TYPE 1

SCALE: 1/2" = 1'-0"



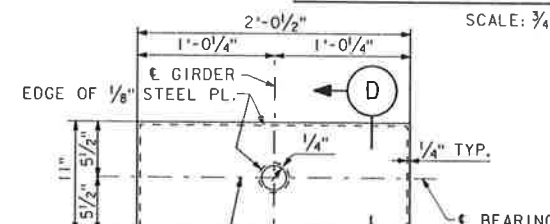
SECTION B-B TYPE 2

SCALE: 1/2" = 1'-0"



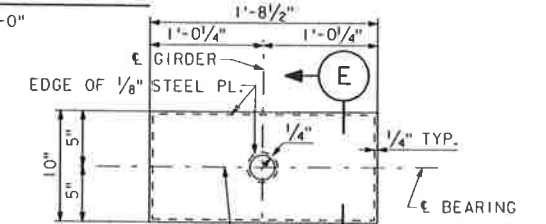
SECTION C-C TYPE 3

SCALE: 1/2" = 1'-0"



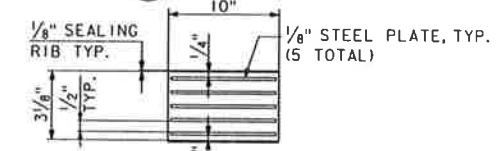
SECTION D-D TYPE 4

SCALE: 1/2" = 1'-0"



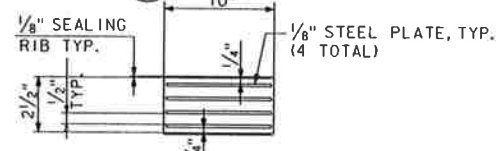
SECTION E-E TYPE 5

SCALE: 1/2" = 1'-0"



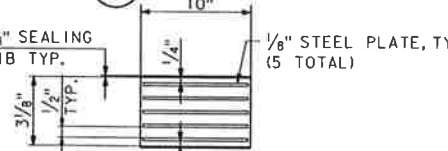
SECTION A-A TYPE 1

SCALE: 1/2" = 1'-0"



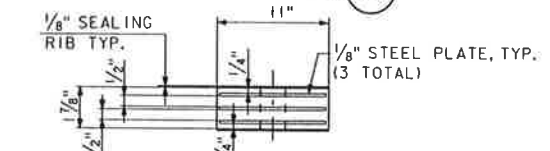
SECTION B-B TYPE 2

SCALE: 1/2" = 1'-0"



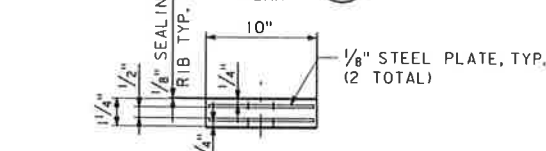
SECTION C-C TYPE 3

SCALE: 1/2" = 1'-0"



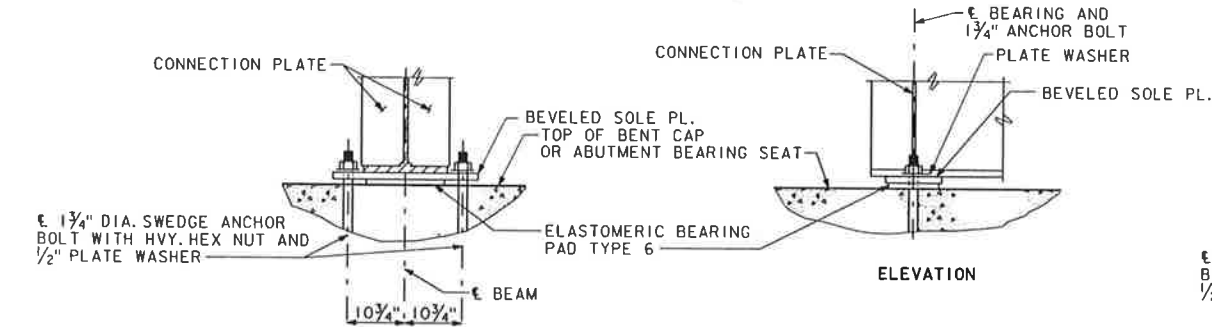
SECTION D-D TYPE 4

SCALE: 1/2" = 1'-0"



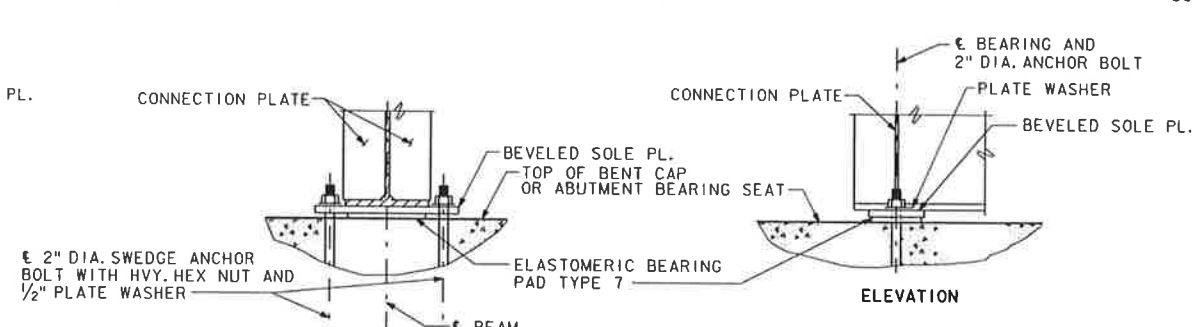
SECTION E-E TYPE 5

SCALE: 1/2" = 1'-0"



TYPICAL BEARING DETAIL SPAN ASBI

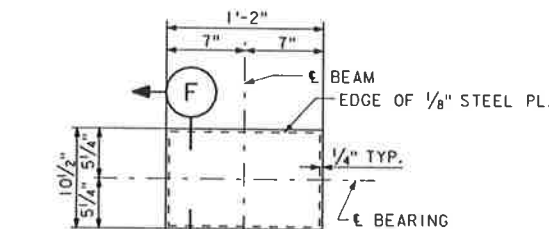
SCALE: 3/4" = 1'-0"



TYPICAL BEARING DETAIL SPAN ASB204, BSBI, BSB202, AND CSBI

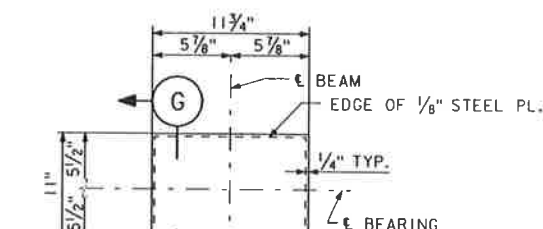
SCALE: 3/4" = 1'-0"

**NOTES**  
 FOR SWEDGE ANCHOR BOLT DETAIL, SEE ABUTMENT DETAILS.  
 FOR BEARING LOCATIONS NOT SHOWN SEE SUBSTRUCTURE DATA SHEETS.  
 FOR BEVELED SOLE PLATE DETAIL, SEE STEEL DETAILS.



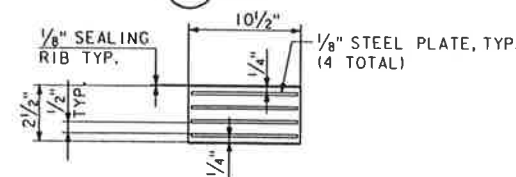
SECTION F-F TYPE 6

SCALE: 1/2" = 1'-0"



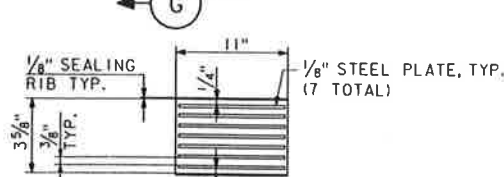
SECTION G-G TYPE 7

SCALE: 1/2" = 1'-0"



SECTION F-F TYPE 6

SCALE: 1/2" = 1'-0"



SECTION G-G TYPE 7

SCALE: 1/2" = 1'-0"

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
 CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
 CAPE CHARLES, VIRGINIA 23310-0111

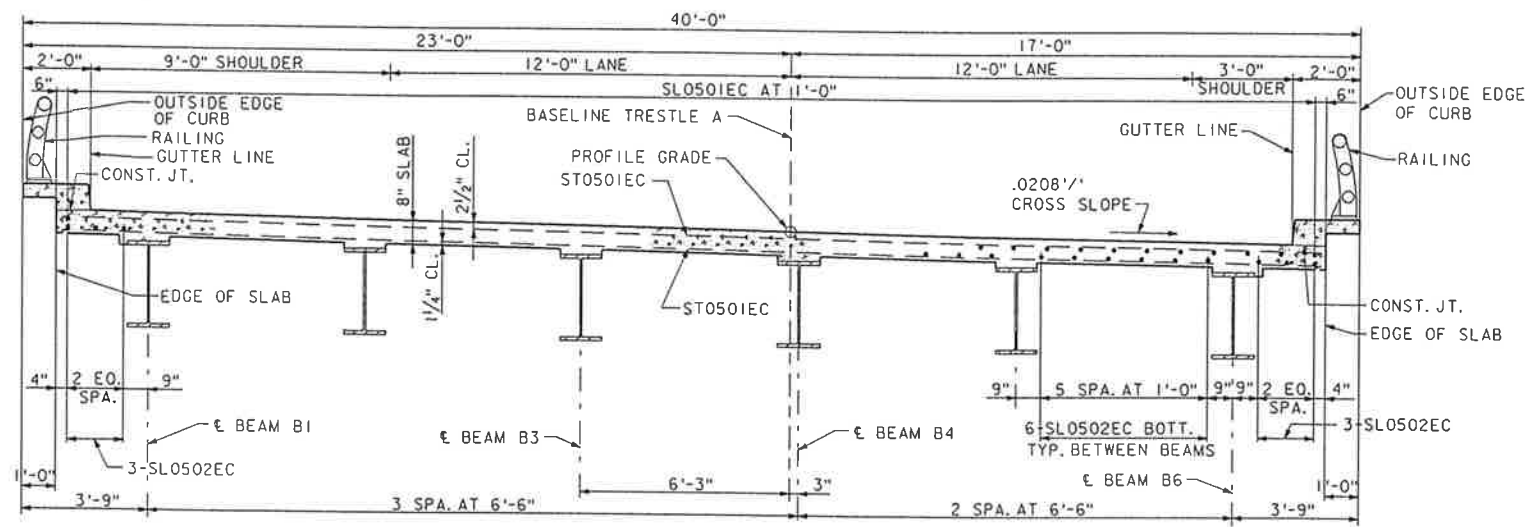
**PARALLEL CROSSING**  
 TO  
 LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

**SVERDRUP CIVIL, INC.**  
 LOW LEVEL TRESTLE  
 BEARING DETAILS

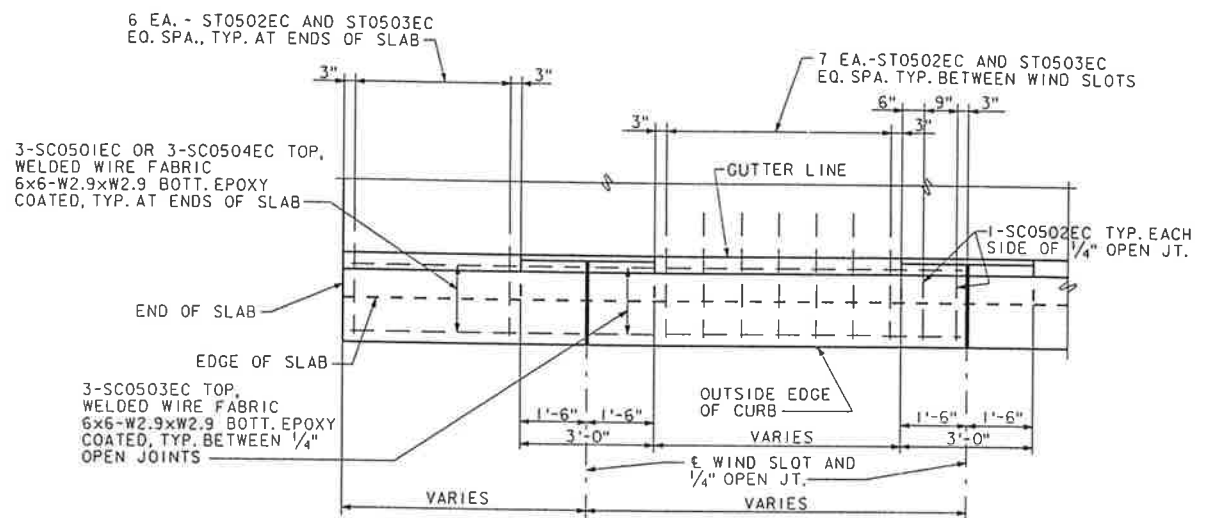
DRAWN BY: CAH SCALE: AS SHOWN  
 CHECKED BY: KJR DATE: DEC. 1994  
 DWG. NO. 538  
 SECTION NO. LLT300 OF LLT406

NO.	DATE	BY	APP.	DESCRIPTION

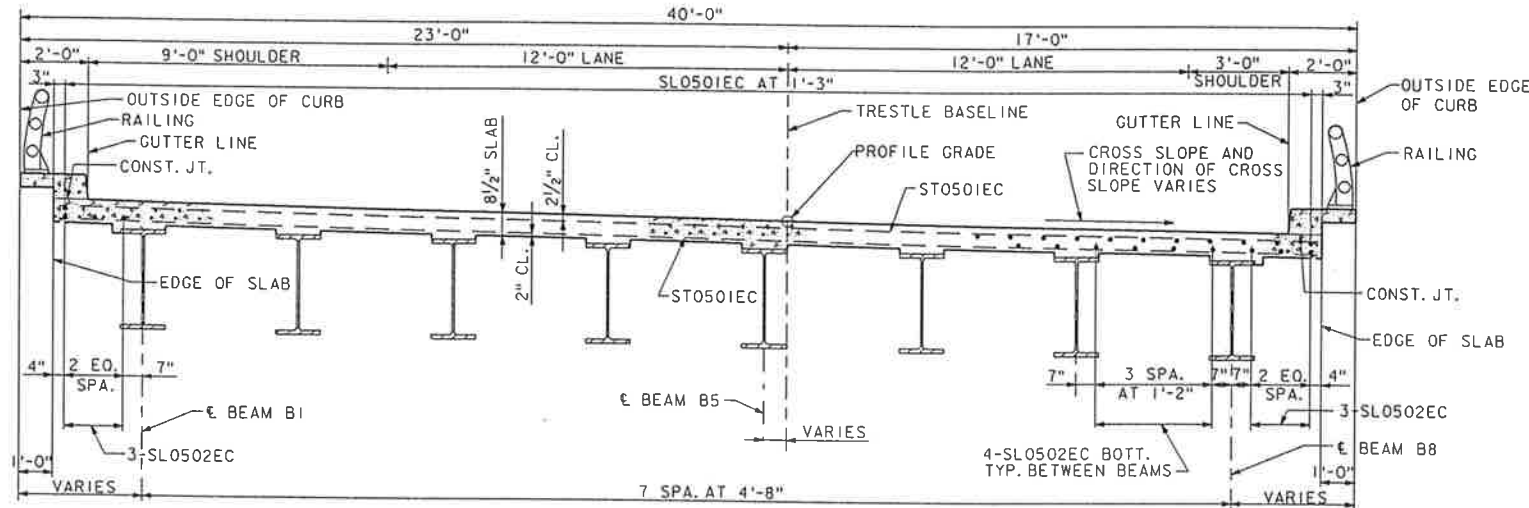
FILENAME: 935435.DGN  
 JOB NO.: 11555



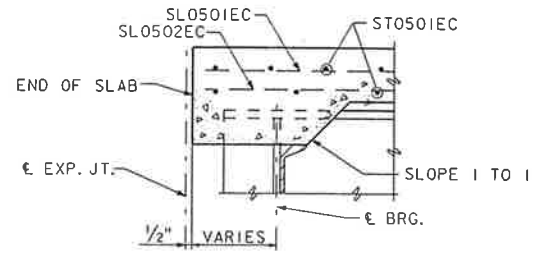
TYPICAL SECTION THRU SLAB SPAN ASB1  
SCALE: 3/8" = 1'-0"  
NOTE: LOOKING AHEAD STATION



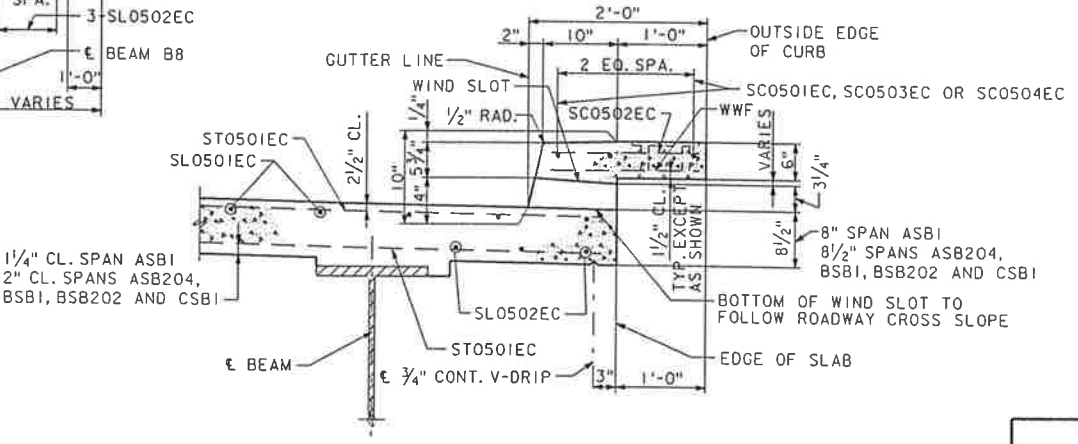
TYPICAL CURB REINFORCING PLAN  
SCALE: 1/2" = 1'-0"  
NOTE: SIDES OF WIND SLOTS MAY BE TAPERED SLIGHTLY FOR EASE OF FORM REMOVAL.



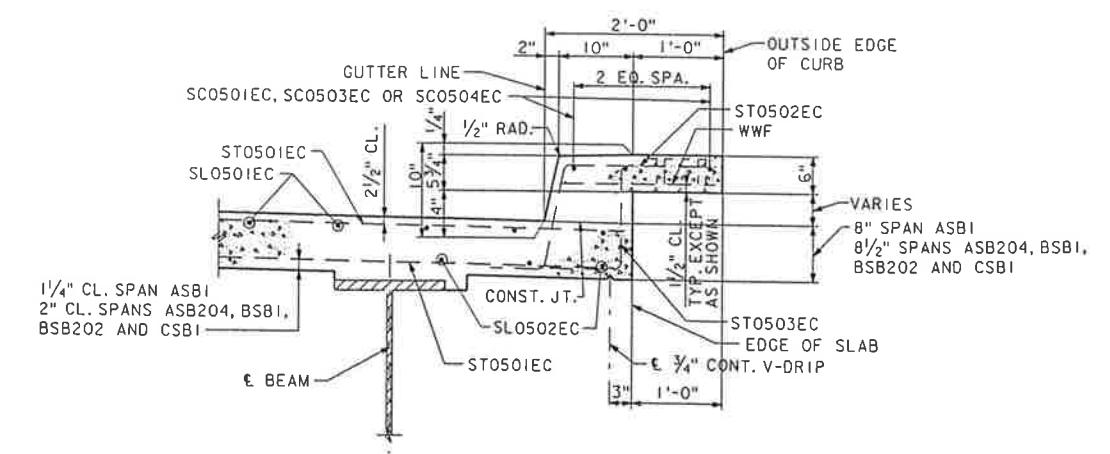
TYPICAL SECTION THRU SLAB SPANS ASB204, BSBI, BSB202 AND CSBI  
SCALE: 3/8" = 1'-0"  
NOTE: LOOKING AHEAD STATION



TYPICAL SECTION AT END OF SLAB  
SCALE: 1" = 1'-0"



TYPICAL SECTION THRU CURB AT WIND SLOT  
SCALE: 1" = 1'-0"



TYPICAL SECTION THRU CURB  
SCALE: 1" = 1'-0"

JOB NO. T1555  
FILENAME 935T128.DGN

NO.	DATE	BY	APP.	DESCRIPTION

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
CAPE CHARLES, VIRGINIA 23310-0111

**PARALLEL CROSSING**  
TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

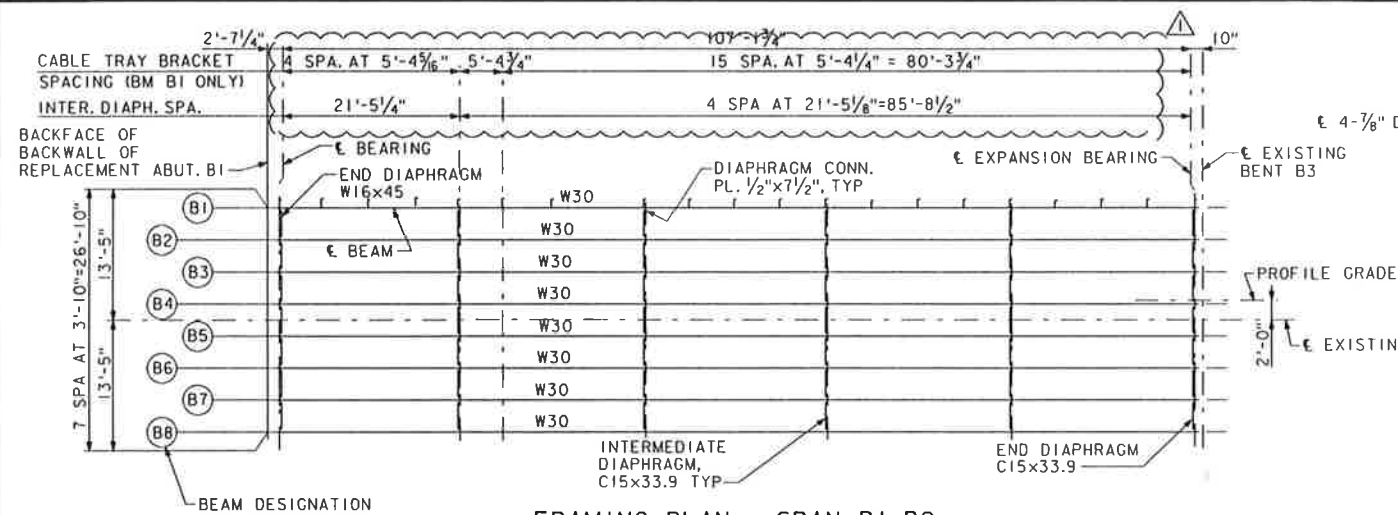
**SVERDRUP CIVIL, INC.**

LOW LEVEL TRESTLE  
**SLAB DETAILS - SPANS**  
ASB1, ASB204, BSBI, BSB202 AND CSBI

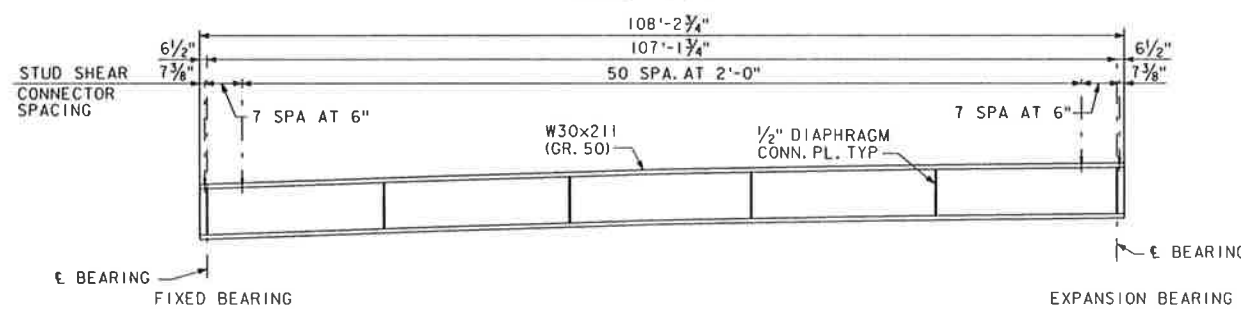
DRAWN BY: JGC	SCALE: AS SHOWN
CHECKED BY: SSS	DATE: DEC. 1994
DWG. NO. 604	SECTION NO. LLT366 OF LLT406

Approved: \_\_\_\_\_

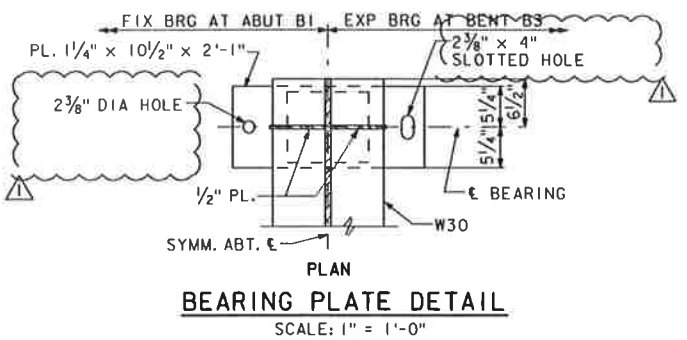
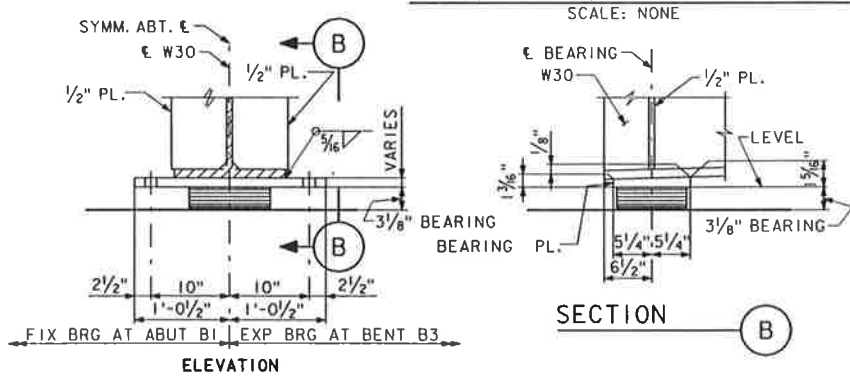




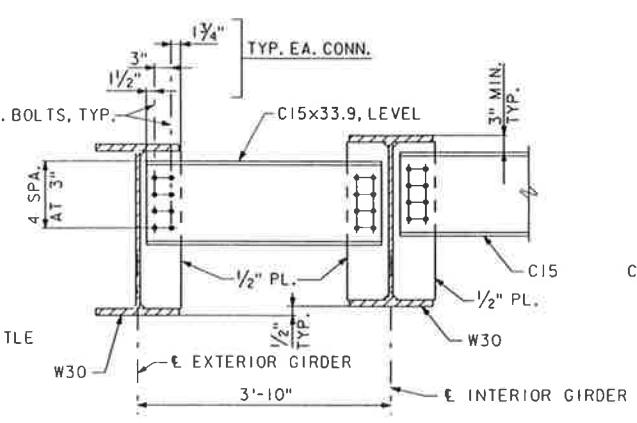
**FRAMING PLAN - SPAN BI-B2**  
SCALE: 3/32" = 1'-0"



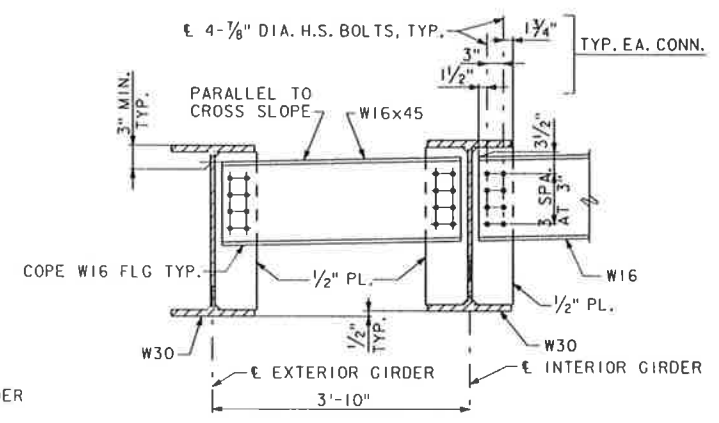
**BEAM ELEVATION - SPAN BI-B2**  
SCALE: NONE



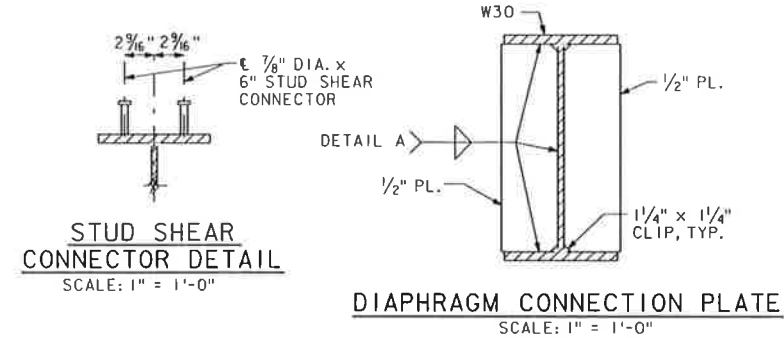
**BEARING PLATE DETAIL**  
SCALE: 1" = 1'-0"



**TYPICAL INTERMEDIATE DIAPHRAGM**  
SCALE: 3/4" = 1'-0"

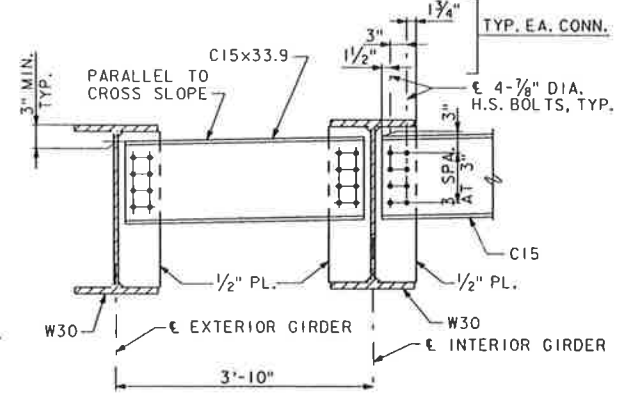


**END DIAPHRAGM AT ABUT. B1**  
SCALE: 3/4" = 1'-0"

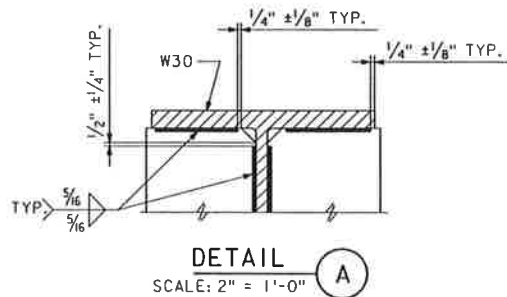


**STUD SHEAR CONNECTOR DETAIL**  
SCALE: 1" = 1'-0"

**DIAPHRAGM CONNECTION PLATE**  
SCALE: 1" = 1'-0"



**END DIAPHRAGM AT BENT B3**  
SCALE: 3/4" = 1'-0"



**DETAIL A**  
SCALE: 2" = 1'-0"

**NOTES**

BEAM DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION.  
IF SHOP SPLICES ARE REQUIRED DUE TO LENGTH OF BEAMS, ONLY ONE SPLICE WILL BE ALLOWED FOR ANY BEAM. OFFSET SPLICES SO THAT ALTERNATE BEAMS ARE SPLICED EQUIDISTANT FROM OPPOSITE ENDS OF BEAM AT APPROXIMATELY ONE-THIRD OF THE BEAM LENGTH. ALL SPLICE LOCATIONS ARE SUBJECT TO APPROVAL BY THE ENGINEER. ALL SHOP SPLICES SHALL BE COMPLETE JOINT PENETRATION WELDS.  
ALL CONNECTION PLATES SHALL BE VERTICAL IN THE FINAL STRUCTURE.  
FOR ELECTRICAL CABLE TRAY SUPPORT BRACKET DETAIL SEE SECTION NO. BTR28.

ESTIMATED QUANTITIES			
ITEM	UNIT	TOTAL	
STRUCTURAL STEEL GRADE 36	LBS.	11,599	
STRUCTURAL STEEL GRADE 50	LBS.	183,422	

**RECORD DRAWING**

COMMONWEALTH OF VIRGINIA  
**CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT**  
CAPE CHARLES, VIRGINIA 23310-0111

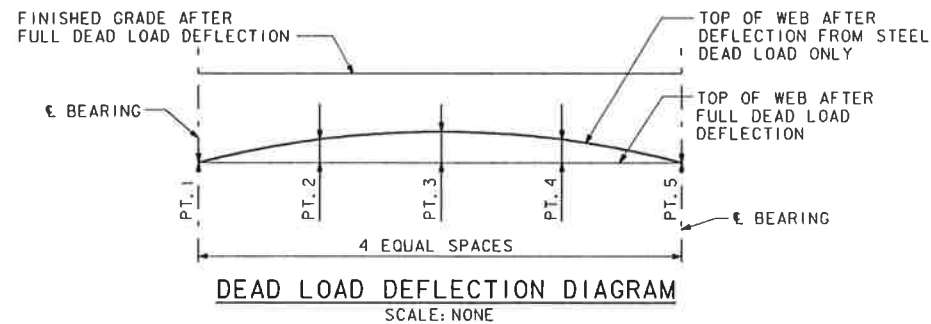
**PARALLEL CROSSING**  
TO  
**LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL**

**SVERDRUP CIVIL, INC.**  
BRIDGE TREESTLE REHABILITATION  
**SPAN BI-B2**  
**STEEL DETAILS**

NO.	DATE	BY	APP.	DESCRIPTION
Δ	12-99	NM	KR	RECORD DRAWING MODIFICATIONS CABLE TRAY BRACKET DIMENSION CHANGE AND ANCHOR BOLT HOLE CHANGE

APPROVED:	DRAWN BY: SEM	SCALE: AS NOTED
	CHECKED BY: TMT	DATE: DEC. 1994
	DWG. NO. 1191	
	SECTION NO. BTR27 OF BTR153	

FILENAME: 9351205.DGN  
JOB NO.: 11555

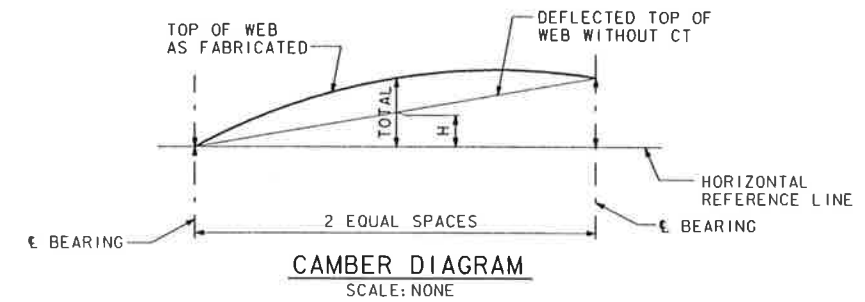


INTERIOR BEAMS  
SPAN BI-B2

POINT	1	2	3	4	5
$\Delta_s$	0	3 3/4"	5 1/4"	3 3/4"	0
$\Delta_c$	0	1/4"	3/8"	1/4"	0
TOTAL	0	4"	5 5/8"	4"	0

EXTERIOR BEAMS  
SPAN BI-B2

POINT	1	2	3	4	5
$\Delta_s$	0	3 5/8"	5 1/8"	3 5/8"	0
$\Delta_c$	0	1/4"	3/8"	1/4"	0
TOTAL	0	3 3/8"	5 1/2"	3 3/8"	0

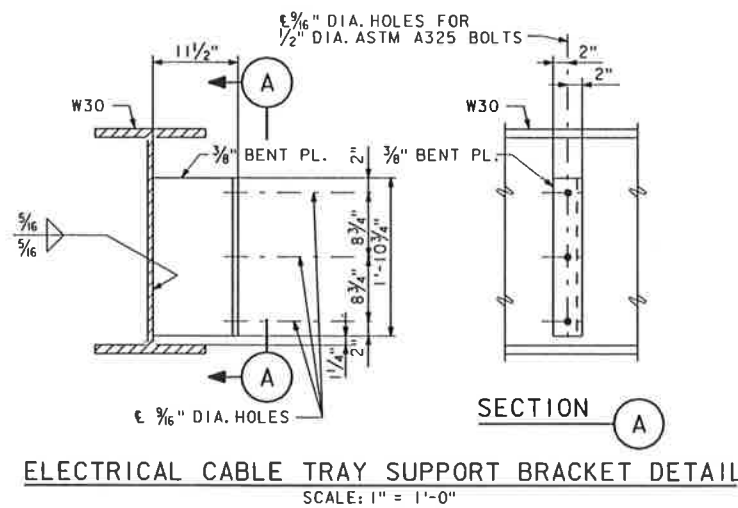


INTERIOR BEAMS  
SPAN BI-B2

	€ BEARING		MID-SPAN		€ BEARING
$\Delta_s$	0	----	2 1/4"	----	0
$\Delta_s'$	0	----	5 1/4"	----	0
$\Delta_c$	0	----	3/8"	----	0
VC	0	----	1 5/8"	----	0
CT	0	----	3/4"	----	0
H	0	----	9 5/8"	----	1'-3 1/8"
TOTAL	0	----	1'-6 3/8"	----	1'-3 1/8"

EXTERIOR BEAMS  
SPAN BI-B2

	€ BEARING		MID-SPAN		€ BEARING
$\Delta_s$	0	----	2 1/4"	----	0
$\Delta_s'$	0	----	5 1/4"	----	0
$\Delta_c$	0	----	3/8"	----	0
VC	0	----	1 5/8"	----	0
CT	0	----	3/4"	----	0
H	0	----	9 5/8"	----	1'-3 1/8"
TOTAL	0	----	1'-6 1/4"	----	1'-3 1/8"



SPAN BI-B2

GIRDER REACTION TABLE-SIMPLE SPAN (KIPS)		
	ABUT. B1	BENT B3
DL	46.0	46.0
LL	23.1	23.1
IMPACT	4.9	4.9
TOTAL	74	74

INTERIOR GIRDER MOMENT TABLE-SIMPLE SPAN (FT-KIPS)	
	0.5 SPAN
DL	1270.0
LL	594.0
IMPACT	126.0
TOTAL	1990.0

**LEGEND**

$\Delta_s$  = DEFLECTION OF STEEL FROM ITS OWN WEIGHT.  
 $\Delta_s'$  = DEFLECTION OF STEEL SECTION FROM DEAD LOAD OF DECK SLAB CONCRETE.  
 $\Delta_c$  = DEFLECTION OF COMPOSITE SECTION FROM DEAD LOAD (E.G., RAIL AND CURB) ADDED AFTER DECK SLAB IS CAST.  
 VC = VERTICAL CURVE ORDINATE.  
 CT = CAMBER TOLERANCE (POSITIVE NUMERICAL VALUE).  
 H = DIMENSION FROM HORIZONTAL REFERENCE LINE TO FINAL TOP OF WEB AFTER FULL DEAD LOAD DEFLECTION (WITHOUT CAMBER TOLERANCE).  
 TOTAL =  $\Delta_s + \Delta_s' + \Delta_c + VC - CT$

RECORD DRAWING

COMMONWEALTH OF VIRGINIA  
 CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
 CAPE CHARLES, VIRGINIA 23310-0111

PARALLEL CROSSING  
 TO  
 LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL

SVERDRUP CIVIL, INC.

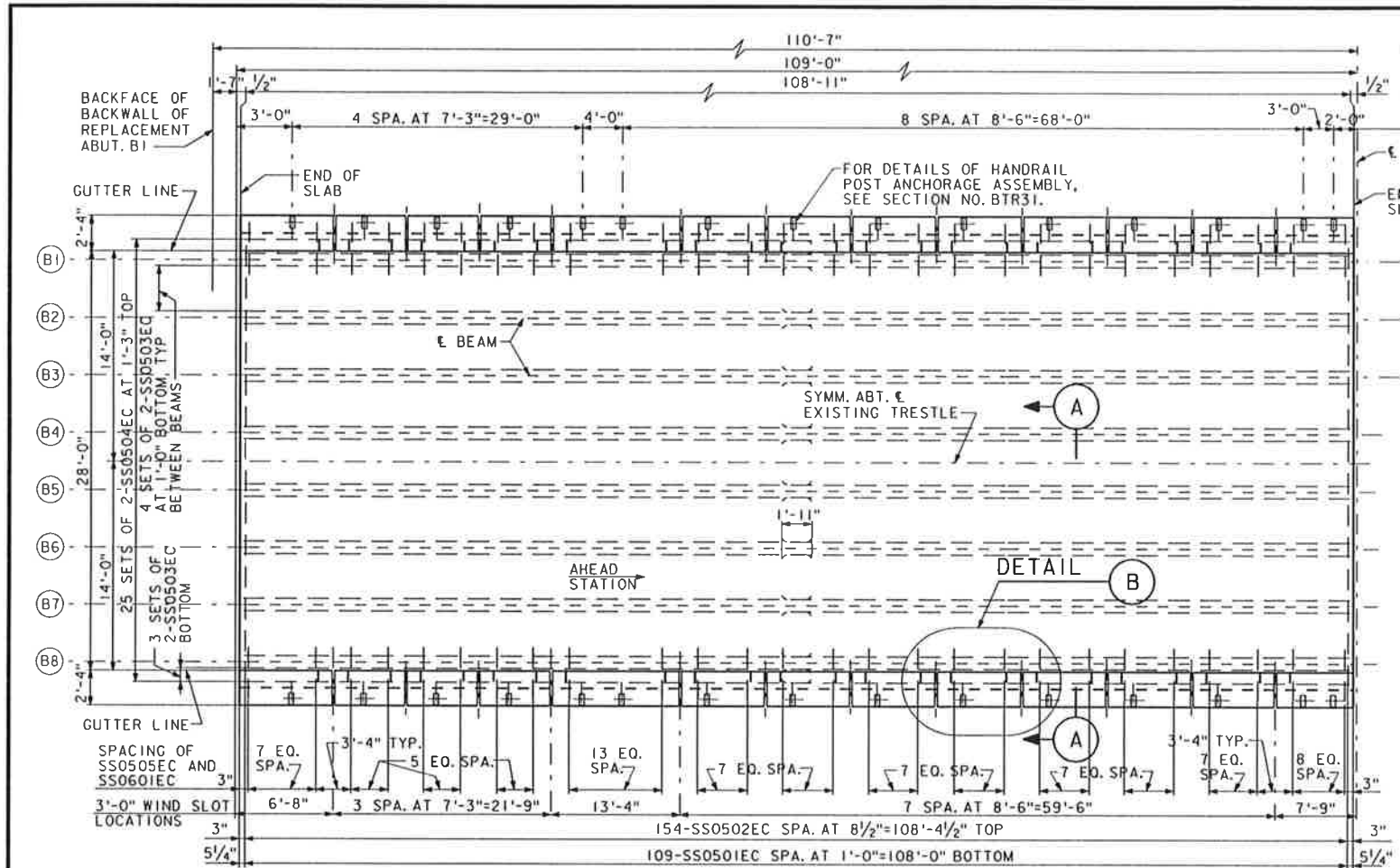
BRIDGE TRESTLE REHABILITATION  
 SPAN BI-B2  
 STEEL DETAILS

DRAWN BY: MAK SCALE: AS NOTED  
 CHECKED BY: KJR DATE: DEC. 1994  
 DWG. NO. 1192  
 SECTION NO. BTR28 OF BTR153

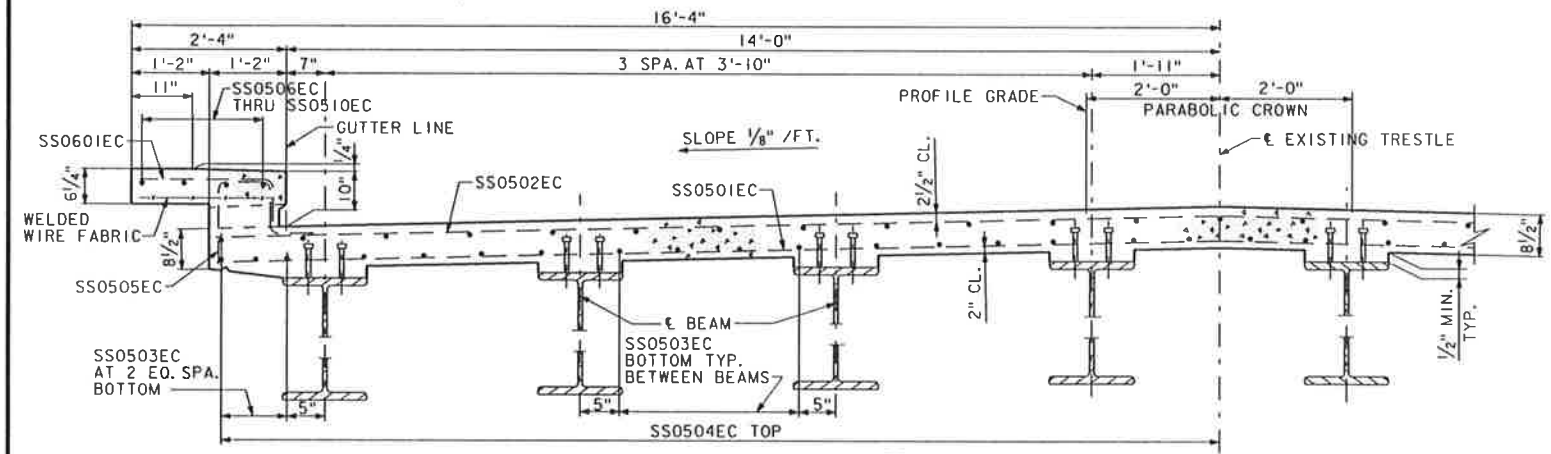
Approved: \_\_\_\_\_

NO.	DATE	BY	APP.	DESCRIPTION

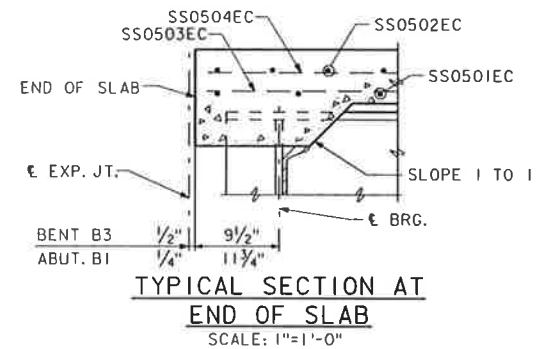
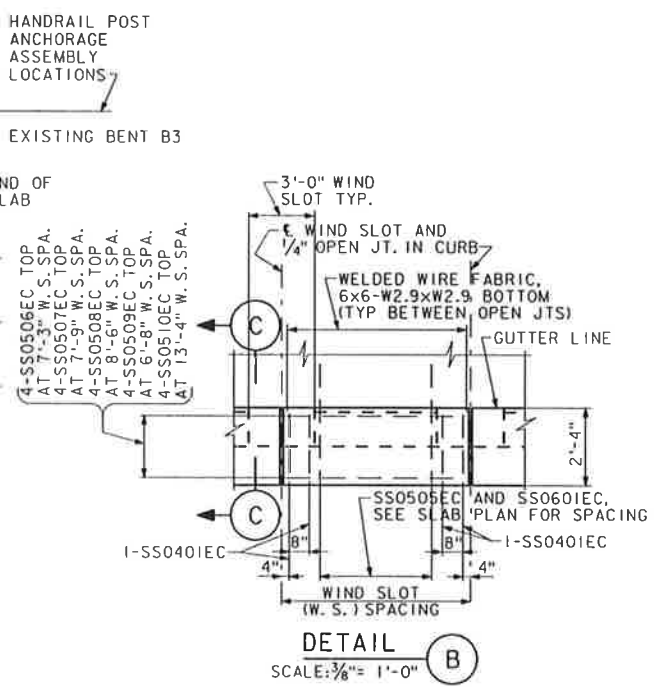
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SLAB PLAN - SPAN BI-B2  
SCALE: NONE



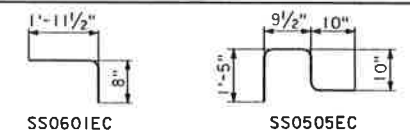
SECTION A  
SCALE: 3/4" = 1'-0"



SLAB REHABILITATION SPAN BI-B2  
REINFORCING STEEL SCHEDULE

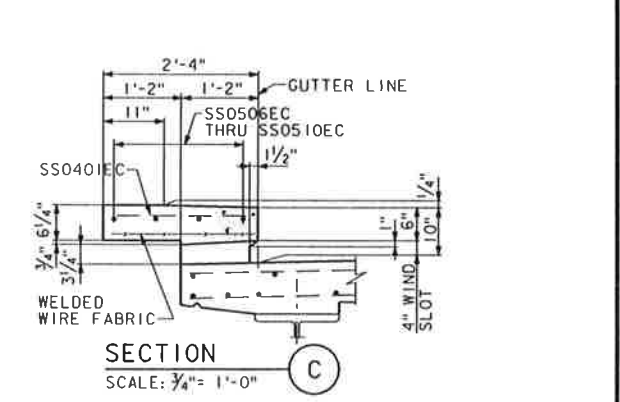
MARK	NO. REQ'D.	SHAPE	LENGTH	TOTAL WEIGHT	PIN DIA.	LOCATION
SS0401EC	96	—	2'-1"	134	—	CURB
SS0501EC	109	—	30'-1"	3420	—	SLAB
SS0502EC	154	—	30'-1"	4832	—	SLAB
SS0503EC	68	—	55'-4"	3924	—	SLAB
SS0504EC	50	—	55'-4"	2886	—	SLAB
SS0505EC	210	—	3'-6"	767	3 3/4"	SLAB
SS0506EC	24	—	7'-0"	175	—	CURB
SS0507EC	8	—	7'-6"	63	—	CURB
SS0508EC	56	—	8'-3"	482	—	CURB
SS0509EC	8	—	6'-5"	54	—	CURB
SS0510EC	8	—	13'-1"	109	—	CURB
SS0601EC	210	—	2'-6"	789	4 1/2"	SLAB

DIMENSIONS IN BENDING DIAGRAMS ARE OUT TO OUT OF BAR.



ESTIMATED QUANTITIES

ITEM	UNIT	TOTAL
EPOXY COATED REINFORCING STEEL	LB.	17635
CONCRETE, CLASS A4.5	CU. YD.	99.7
EPOXY COATED WELDED WIRE FABRIC	LB.	178



WELDED WIRE FABRIC SCHEDULE

QUANTITY	STYLE	WIDTH	SIDE OVERHANGS	LENGTH	TOTAL WEIGHT	REMARKS
6 SHEETS	6x6-W2.9xW2.9	24 IN.	+1/2", +1/2"	7 FT. 0 IN.	35	EPOXY COATED
2 SHEETS	6x6-W2.9xW2.9	24 IN.	+1/2", +1/2"	7 FT. 6 IN.	13	EPOXY COATED
14 SHEETS	6x6-W2.9xW2.9	24 IN.	+1/2", +1/2"	8 FT. 3 IN.	97	EPOXY COATED
2 SHEETS	6x6-W2.9xW2.9	24 IN.	+1/2", +1/2"	6 FT. 5 IN.	11	EPOXY COATED
2 SHEETS	6x6-W2.9xW2.9	24 IN.	+1/2", +1/2"	13 FT. 1 IN.	22	EPOXY COATED

NOTES

FOR REMOVAL AND REMOUNTING OF EXISTING ALUMINUM RAILING, SEE GENERAL PROJECT DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS.

RECORD DRAWING

COMMONWEALTH OF VIRGINIA  
CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT  
CAPE CHARLES, VIRGINIA 23310-0111

PARALLEL CROSSING  
TO  
LUCAS J. KELLAM, JR. BRIDGE-TUNNEL

SVERDRUP CIVIL, INC.

BRIDGE TRESTLE REHABILITATION  
SPAN BI-B2  
SLAB DETAILS

DRAWN BY: SEM SCALE: AS NOTED

CHECKED BY: TMT DATE: DEC. 1994

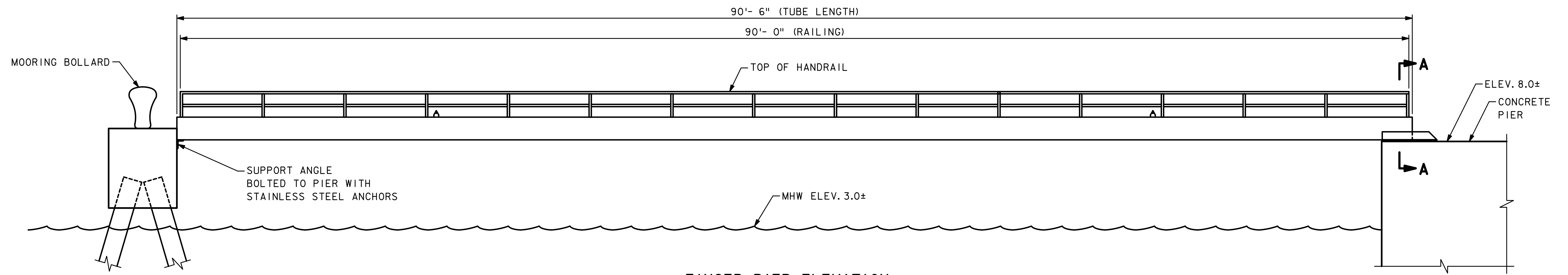
DWG. NO. 1193

SECTION NO. BTR29 OF BTR153

NO.	DATE	BY	APP.	DESCRIPTION

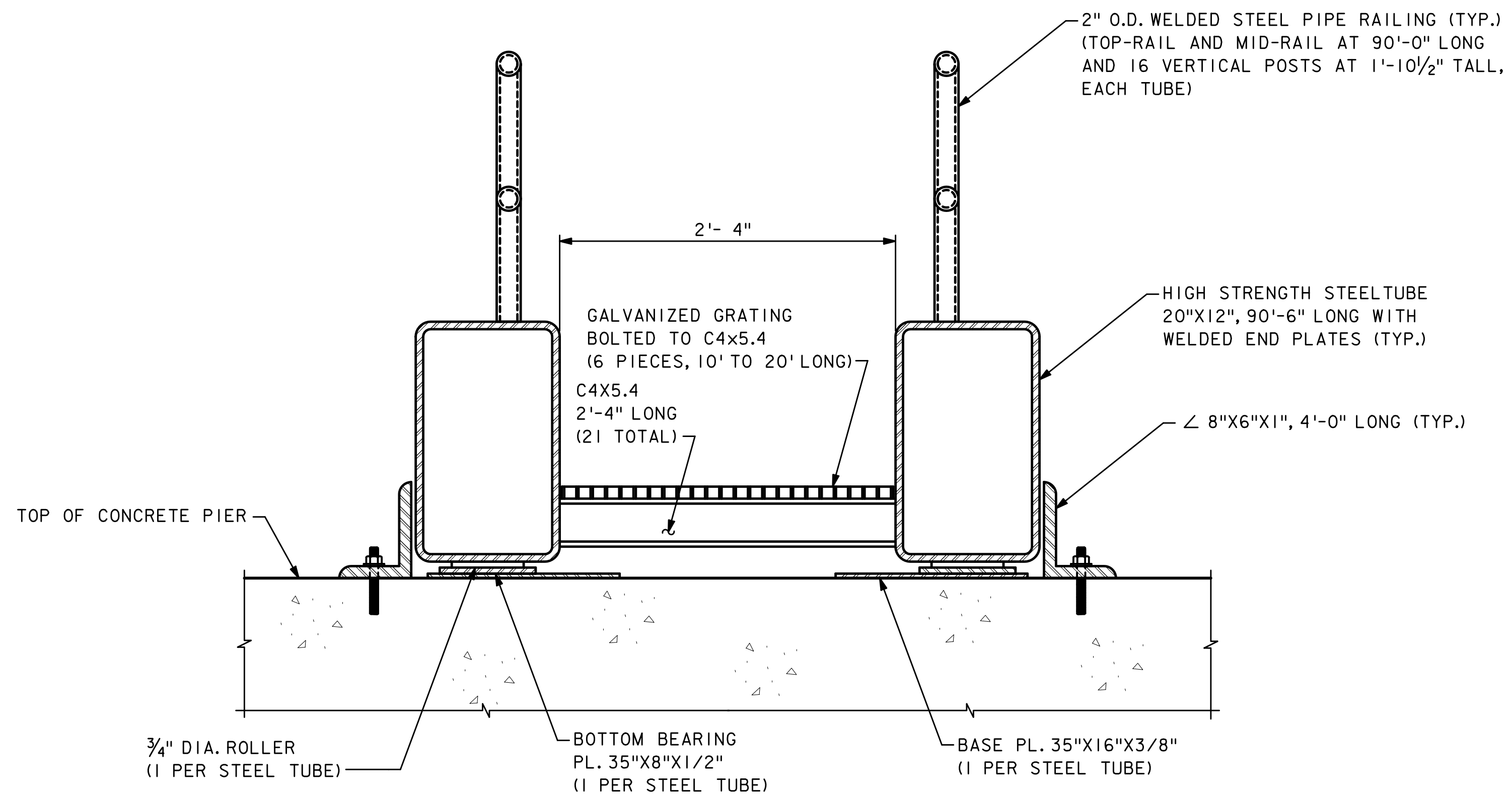
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JOB NO.: 11555

**Appendix G**  
**Little Creek Pier Drawings**



**FINGER PIER ELEVATION**

NOTE: GRATING AND SUPPORT CHANNELS NOT SHOWN.



**SECTION A-A**

NOTE:  
THIS STEEL SPAN THAT IS TO BE PAINTED EXTENDS FROM THE NORTH END OF THE EXISTING 550-FT LONG CONCRETE PIER ON PROPERTY OWNED BY THE DISTRICT IN LITTLE CREEK HARBOR.

FILENAME P:\CIX29006\700cad\709str\7repd1r-detall1.s2.dgn  
 JOB NO. CIX29006

COMMONWEALTH OF VIRGINIA <b>CHESAPEAKE BAY BRIDGE AND TUNNEL DISTRICT</b> <small>CAPE CHARLES, VIRGINIA 23310-0111</small>	
<b>BRIDGE PAINTING</b> <small>FOR</small> <b>LUCIUS J. KELLAM, JR. BRIDGE-TUNNEL</b>	
<b>JACOBS</b>	
<b>LITTLE CREEK FINGER PIER DETAILS</b>	
Approved: _____	DRAWN BY: CLS    SCALE: NONE CHECKED BY: CJW    DATE: DEC. 2010 DWG. NO. 4 OF 4

NO.	DATE	BY	APP.	DESCRIPTION