

BIDDING REQUIREMENTS, CONTRACT DOCUMENTS

and

TECHNICAL SPECIFICATIONS

FOR THE CONSTRUCTION OF

PROPOSED BRIDGE REPAIRS

MARKET STREET OVER TIDAL BASIN NHDOT BRIDGE NOS. 240/106 & 241/106,
KEARSARGE WAY OVER PAN AM RAILWAYS NHDOT BRIDGE NO. 240/132 , &
RECREATION TRAIL OVER MARKET STREET, NHDOT BRIDGE NO. 220/143

for the

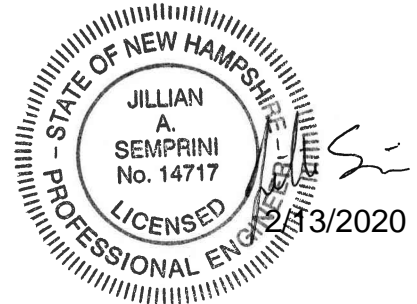
City of Portsmouth, Public Works Department

BID #27-20



Rockingham County

February 2020



Prepared by:

Hoyle, Tanner
& Associates, Inc.

Pease International Tradeport
100 International Drive, Suite 360
Portsmouth, New Hampshire 03801

TABLE OF CONTENTS

	<u>Page</u>
Title Page	
Table of Contents.....	i
<u>Division 0 - Bidding Requirements and Contract Documents</u>	
Advertisement for Bids	00111
Instructions to Bidders	00200
Bid Form	00410
Bid Bond	00430
Notice of Intent to Award	00510
Agreement	00520
Notice to Proceed	00550
Performance Bond	00610
Payment Bond	00615
Application for Payment	00620
Standard General Conditions	00700
Supplementary Conditions.....	00800
Special Conditions	00850
Work Change Directive	00940
Change Order	00941
Field Order	00942
Certificate of Substantial Completion	00943
Consent of Surety Company to Final Payment	00950
Contractor's Final Lien Waiver	00960
Certificate of Final Completion of Work	00970
<u>Division 1 - General Requirements</u>	
01010 Summary of Work	01010-1
01019 Contract Considerations.....	01019-1
01039 Coordination and Meetings.....	01039-1
01300 Submittals.....	01300-1
01400 Quality Control	01400-1
01500 Construction Facilities and Temporary Controls	01500-1
01600 Material and Equipment	01600-1
01700 Contract Closeout.....	01700-1
Technical Specifications	TS-1
Special Attentions	SA-1
Supplemental Specifications	SS-1
Special Provisions.....	SP-1

Appendices

- A. Market Street over Tidal Basin – 1971 As-Built Drawings
- B. Kearsarge Way over Pan Am Railways – 1978 As-Built Drawings
- C. Recreation Trail over Market Street - Preliminary Plans (circa 1980s)
- D. Kearsarge Way GPR Bridge Deck Assessment prepared by NDT Corporation
- E. Pan Am Railway Approval of the Kearsarge Way Deck Repair Plans
- F. Railroad Service Agreement

SECTION 00111
ADVERTISEMENT FOR BIDS
(EJCDC C-111 Modified)

Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106,
Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market
Street, NHDOT Bridge No. 220/143

City of Portsmouth, Public Works Department
Portsmouth, NH

The City of Portsmouth is seeking bids for the construction of the Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market Street, NHDOT Bridge No. 220/143. Bid proposals **plainly marked, “Bridge Repairs Market Street, Kearsarge Way Bid #27-20” on the outside of the mailing envelope as well as the sealed bid envelope**, addressed to the Finance/Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, New Hampshire, 03801, will be accepted until Tuesday March 17, 2020 at 2:00 p.m. at which time all bids will be publicly opened and read aloud.

The project consists of repairs to three bridges in the City of Portsmouth, NH. Market Street (EB and WB) over Tidal Basin work consists of replacing the expansion joint and installation of bridge approach rail. Kearsarge Way over Pan Am Railways work consists of repairs to the 2-span bridge, which generally consist of concrete bridge deck partial and full depth repairs, installation of a new barrier membrane, hot bituminous pavement, replacement of the expansion joint, and substructure concrete repairs. Recreation Trail over Market Street work consists of repairs to the 9-span bridge, which generally consist of concrete repairs to the piers, chain-link fence repairs including replacement of the chain-link fabric, and maintenance work. The work for the Recreation Trail is separated into two Bid Alternates and will be awarded at the City's discretion. The engineer's estimate for the work is between \$1.4 million and \$1.6 million. The anticipated project schedule is to start construction in spring 2020 and complete construction in early fall 2020. The work for Market Street (EB and WB) Bridges shall be completed no later than August 21, 2020. Bids shall be on a unit price basis as indicated in the Bid Form.

Bidders must be listed on the NHDOT “Prequalified Contractor's List” with a classification of bridge and/or bridge rehabilitation or provide written documentation from NHDOT as of the date and time of the Bid Opening.

Electronic Bidding Documents may be obtained at the City's website <http://cityofportsmouth.com/finance/purchasing.htm>. Hard copies of the Bidding Documents will not be available. Addenda to this bid document, if any, including written answers to questions, will be posted on the City of Portsmouth website under the project heading.

A non-mandatory pre-bid conference will be held at 2:00 pm local time on Tuesday, February 25, 2020 at the City of Portsmouth, Public Works Department, 680 Peverly Hill Road, Portsmouth, NH 03801; a site visit to the Recreation Trail will follow the pre-bid conference. Therefore, all interested bidders are highly encouraged to attend in order to prepare acceptable bid submissions.

Bids must be accompanied by Bid security made payable to Owner in an amount of 5% percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.

The City of Portsmouth reserves the right to reject any or all bids, to waive technical or legal deficiencies, to re-bid, and to accept any bid that it may deem to be in the best interest of the City.

END OF SECTION

SECTION 00200
INSTRUCTIONS TO BIDDERS
(EJCDC C-200, Modified)

ARTICLE 1 – DEFINED TERMS

- 1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:

A. *Issuing Office* – The office from which the Bidding Documents are to be issued.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents may be obtained from the City's website <http://cityofportsmouth.com/finance/purchasing.htm> as stated in the advertisement for bids.
- 2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents. Failure of Bidder to obtain authorized bidding documents from the City's website <http://cityofportsmouth.com/finance/purchasing.htm> may be cause for rejection of a bid.
- 2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, after submitting its Bid and within five days of Owner's request, Bidder shall submit (a) written evidence establishing its qualifications such as financial data, previous experience, and present commitments, and (b) the following additional information:
- A. Two Bank References
 - B. Present Project Commitments, with schedules for completion
 - D. List of Proposed Subcontractors and the trades they will provide
 - E. Bidders must be listed on the NHDOT "Prequalified Contractor's List" with a classification of bridge and/or bridge rehabilitation as of the date and time of the Bid Opening.
- 3.02 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.
- 3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

- 3.04 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

4.01 *Site and Other Areas*

- A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

4.02 *Existing Site Conditions*

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify:

- a. Those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.
- b. Those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.
- d. Technical Data contained in such reports and drawings.

2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

- B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

- C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of

the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 *Site Visit and Testing by Bidders*

- A. Bidder shall conduct the required Site visit during normal working hours, and shall not disturb any ongoing operations at the Site.
- B. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.
- C. Bidder shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.
- D. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.04 *Owner's Safety Program*

- A. Site visits and work at the Site may be governed by an Owner safety program. As the General Conditions indicate, if an Owner safety program exists, it will be noted in the Supplementary Conditions.

4.05 *Other Work at the Site*

- A. Reference is made to Article 8 of the Standard General Conditions of the Construction Contract for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 5 – BIDDER'S REPRESENTATIONS

- 5.01 It is the responsibility of each Bidder before submitting a Bid to:

- A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;
- B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
- C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;
- D. carefully study all: (1) all drawings of physical conditions relating to existing surface or subsurface structures, if any, at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;
- E. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, if any, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs;
- F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;
- G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;
- H. correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;
- I. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;
- J. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and

- K. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 6 – PRE-BID CONFERENCE

- 6.01 A non-mandatory pre-Bid conference will be held at the time and location stated in the advertisement for bids. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are highly encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.
- 6.02 A site visit to the Recreation Trail will be held following the pre-Bid conference.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda. Addenda to the Bidding Documents, if any, including written answers to questions, will be posted on the City of Portsmouth website <http://cityofportsmouth.com/finance/purchasing.htm> under the project heading. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

ARTICLE 8 – BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5% percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a certified check, bank money order, or a Bid bond (on the form included in the Bidding Documents) issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.
- 8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.
- 8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the

Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

- 8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

- 9.01 The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

- 10.01 Provisions for liquidated damages, if any, for failure to timely attain Substantial Completion, or Final Completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND “OR-EQUAL” ITEMS

- 11.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or “or-equal” items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or “or-equal” item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.
- 11.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.
- 12.02 Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.
- 12.03 The apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of the Subcontractors or Suppliers proposed for portions of the Work for which such identification is required.

If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such

Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit a substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

- 12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.06 of the General Conditions.

ARTICLE 13 – PREPARATION OF BID

- 13.01 The Bid Form is included with the Bidding Documents. Failure of Bidder to use the forms authorized from the Engineer will be cause for rejection of a bid. The bidder shall fill out the provided PDF form and print it for submission.
- A. All blanks on the Bid Form shall be completed and the Bid Form signed. Erasures or alterations shall be initialed by the person signing the Bid Form. A Bid price shall be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.
- B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words "No Bid" or "Not Applicable."
- 13.02 A Bid by a corporation shall be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation shall be shown.
- 13.03 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown.
- 13.04 A Bid by an individual shall show the Bidder's name and official address.
- 13.05 A Bid by a joint venture shall be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.
- 13.06 All names shall be printed in ink below the signatures.
- 13.07 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

- 13.08 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.
- 13.09 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID

14.01 Unit Price

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the unit price section of the Bid Form.
- B. The "Bid Price" (sometimes referred to as the extended price) for each unit price Bid item will be the product of the "Estimated Quantity" (which Owner or its representative has set forth in the Bid Form) for the item and the corresponding "Bid Unit Price" offered by the Bidder. The total of all unit price Bid items will be the sum of these "Bid Prices"; such total will be used by Owner for Bid comparison purposes. The final quantities and Contract Price will be determined in accordance with Paragraph 13.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

ARTICLE 15 – SUBMITTAL OF BID

- 15.01 The authorized Bid Form included in the Bidding Documents is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 7 of the Bid Form.
- 15.02 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to the party as indicated in the Advertisement for Bids. Bids received by electronic means will not be accepted.
- 15.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

- 16.01 A Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.
- 16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.
- 16.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 – OPENING OF BIDS

- 17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

- 19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then the Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work.
- 19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.
- 19.03 If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest responsive Bid.
- 19.04 Evaluation of Bids

- A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
 - B. In the comparison of Bids, alternates will not be considered.
- 19.05 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.
- 19.06 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 20 – BONDS AND INSURANCE

- 20.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the Agreement (executed by Successful Bidder) to Owner, it shall be accompanied by required bonds and insurance documentation.

ARTICLE 21 – SIGNING OF AGREEMENT

- 21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 10 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement (and any bonds and insurance documentation required to be delivered by the Contract Documents) to Owner. Within 3 days thereafter, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 22 – SALES AND USE TAXES

- 22.01 NOT USED

ARTICLE 23 – CONTRACTS TO BE ASSIGNED

- 23.01 NOT USED

END OF SECTION

SECTION 00410
BID FORM
(EJCDC Form C-410, Modified)

PROJECT IDENTIFICATION: Proposed Bridge Repairs, Market Street over Tidal Basin
NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over
Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation
Trail over Market Street, NHDOT Bridge No. 220/143

CONTRACT IDENTIFICATION AND NUMBER: Proposed Bridge Repairs, Market Street over
Tidal Basin NHDOT Bridge Nos. 240/106 &
241/106, Kearsarge Way over Pan Am Railways
NHDOT Bridge No. 240/132 , & Recreation Trail
over Market Street, NHDOT Bridge No. 220/143
Hoyle, Tanner Project No. 905108
Client Project No. N/A

ARTICLE 1 – BID RECIPIENT

- 1.01 This Bid is submitted to: City of Portsmouth, Public Works Department
680 Peverly Hill Road
Portsmouth, NH 03801
- 1.02 Bid Delivery & Opening Location: City of Portsmouth – Finance/Purchasing Department
City Hall, 1 Junkins Avenue
Portsmouth, NH 03801
- 1.03 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

- 2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

- 3.01 In submitting this Bid, Bidder represents that:
- A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.

Addendum Date

_____	_____
_____	_____
_____	_____

- B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions, if any, at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures, if any, at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
- I. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.

- J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- K. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER’S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. “corrupt practice” means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;
 - 2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
 - 4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

- 5.01 Bidder will complete the Work in accordance with the Contract Documents for the following prices:

BID SCHEDULE A
MARKET STREET EB & WB OVER TIDAL BASIN (BRIDGE NO. 240/106 & 241/106)

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
304.3	Crushed Gravel (F), for the unit price per cubic yard of: _____ Dollars (words) and _____ Cents.	CY	30		
403.12	Hot Bituminous Pavement, Hand Method, for the unit price per ton of: _____ Dollars (words) and _____ Cents.	TON	15		
502.101	Removal of Existing Bridge Structure, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	1		
504.1	Common Bridge Excavation (F), for the unit price per cubic yard of: _____ Dollars (words) and _____ Cents.	CY	40		
520.0201	Concrete Class AA, Above Footings, for the unit price per cubic yard of: _____ Dollars (words) and _____ Cents.	CY	15		
534.3	Water Repellent (Silane/Siloxane), for the unit price per gallon of: _____ Dollars (words) and _____ Cents.	GAL	5		

BID SCHEDULE A
MARKET STREET EB & WB OVER TIDAL BASIN (BRIDGE NO. 240/106 & 241/106)

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
538.2	Barrier Membrane, Peel and Stick - Vertical Surfaces (F), for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	30		
544.301	Reinforcing Steel (Contractor Detailed), for the unit price per pound of: _____ Dollars (words) and _____ Cents.	LB	2,000		
544.3011	Reinforcing Steel, Mechanical Connectors (Contractor Detailed), for the unit price per each of: _____ Dollars (words) and _____ Cents.	EA	30		
560.14	Prefabricated Expansion Joint, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	118		
562.1	Silicone Joint Sealant (F), for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	4		
565.919	Bridge Approach Rail, Thrie Beam Transition (Steel Posts) (Modified), for the price per unit of: _____ Dollars (words) and _____ Cents.	U	4		

BID SCHEDULE A
MARKET STREET EB & WB OVER TIDAL BASIN (BRIDGE NO. 240/106 & 241/106)

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
606.18001	31" W-Beam Guardrail with 8" Offset Block (Steel Post), for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	50		
606.417	Portable Concrete Barrier for Traffic Control, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	530		
606.41741	Portable Concrete Barrier for Traffic Control (Bridge), for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	120		
606.9522	Temp. Impact Attenuation Device (Non-Redirective) Test Level 2, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	2		
608.2401	4" Concrete Sidewalk, for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	5		
618.7	Flaggers, for the unit price per hour of: _____ Dollars (words) and _____ Cents.	HR	160		

BID SCHEDULE A
MARKET STREET EB & WB OVER TIDAL BASIN (BRIDGE NO. 240/106 & 241/106)

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
619.1	Maintenance of Traffic, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	1		
619.25	Portable Changeable Message Sign, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	2		
628.22	Sawed Bituminous Pavement (Bridge), for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	180		
632.1104	Preformed Retroreflective Tape, Type I (Removable) 4" Line, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	3,050		
632.911	Obliterate Pave. Marking Line, 12" Wide & Under, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	2,150		
646.41	Turf Establishment With Mulch, Tackifiers and Humus, for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	35		

BID SCHEDULE A
MARKET STREET EB & WB OVER TIDAL BASIN (BRIDGE NO. 240/106 & 241/106)

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
670.104	Temporary Portable Lighting, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	4		
692	Mobilization, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	1		
1002.1	Repairs or Replacements as Needed - Bridge Structures, for the unit price per allowance of: One _____ Dollar (words) and _____ No _____ Cents.	\$	25,000	\$1.00	\$25,000.00
1008.251	Temporary Pedestrian Accomodations, for the unit price per allowance of: One _____ Dollar (words) and _____ No _____ Cents.	\$	5,000	\$1.00	\$5,000.00

TOTAL CONTRACT PRICE BID SCHEDULE A:

_____ Dollars
(words)
and _____ Cents.
(\$ _____)
(numbers)

BID SCHEDULE B
KEARSARGE WAY OVER PANAM RAILROAD (BRIDGE NO. 240/132)

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
206.19	Common Structure Excavation Exploratory, for the unit price per cubic yard of: _____ Dollars (words) and _____ Cents.	CY	5		
304.3	Crushed Gravel (F), for the unit price per cubic yard of: _____ Dollars (words) and _____ Cents.	CY	22		
403.11	Hot Bituminous Pavement, Machine Method, for the unit price per ton of: _____ Dollars (words) and _____ Cents.	TON	115		
403.12	Hot Bituminous Pavement, Hand Method, for the unit price per ton of: _____ Dollars (words) and _____ Cents.	TON	5		
403.6	Pavement Joint Adhesive, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	710		
403.61	Pavement Joint Adhesive (Bridge Base), for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	495		

BID SCHEDULE B
KEARSARGE WAY OVER PANAM RAILROAD (BRIDGE NO. 240/132)

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
403.911	Hot Bituminous Bridge Pavement, 1" Base Course, for the unit price per ton of: _____ Dollars (words) and _____ Cents.	TON	31		
410.22	Asphalt Emulsion for Tack Coat, for the unit price per gallon of: _____ Dollars (words) and _____ Cents.	GAL	70		
417.	Cold Planing Bituminous Surfaces, for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	740		
502.102	Removal of Existing Bridge Structure, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	1		
504.1	Common Bridge Excavation (F), for the unit price per cubic yard of: _____ Dollars (words) and _____ Cents.	CY	35		
511.00	Concrete Bridge Deck Pavement Removal (F), for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	529		

BID SCHEDULE B
KEARSARGE WAY OVER PANAM RAILROAD (BRIDGE NO. 240/132)

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
511.02	Preparation for Partial Depth Concrete Bridge Deck Repairs, for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	185		
511.03	Preparation for Full Depth Concrete Bridge Deck Repairs, for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	25		
512.02	Preparation for Concrete Repairs, Class II, for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	15		
520.01	Concrete Class AA, for the unit price per cubic yard of: _____ Dollars (words) and _____ Cents.	CY	20		
520.0201	Concrete Class AA, Above Footings, for the unit price per cubic yard of: _____ Dollars (words) and _____ Cents.	CY	30		
534.3	Water Repellent (Silane/ Siloxane), for the unit price per gallon of: _____ Dollars (words) and _____ Cents.	GAL	35		

BID SCHEDULE B
KEARSARGE WAY OVER PANAM RAILROAD (BRIDGE NO. 240/132)

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
538.5	Barrier Membrane, Heat Welded (F), for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	546		
541.5	Pvc Waterstops, NH Type 5 (F), for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	41		
544.31	Reinforcing Steel, Epoxy Coated (Contractor Detailed), for the unit price per pound of: _____ Dollars (words) and _____ Cents.	LB	3,500		
544.311	Reinforcing Steel, Epoxy Coated Mechanical Connectors (Contractor Detailed), for the unit price per each of: _____ Dollars (words) and _____ Cents.	EA	70		
561.10	Prefabricated Strip Seal Expansion Joint (F), for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	41		
562.1	Silicone Joint Sealant (F), for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	20		

BID SCHEDULE B
KEARSARGE WAY OVER PANAM RAILROAD (BRIDGE NO. 240/132)

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
606.417	Portable Concrete Barrier for Traffic Control, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	170		
606.41741	Portable Concrete Barrier for Traffic Control (Bridge), for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	200		
606.9522	Temp. Impact Attenuation Device (Non-Redirective) Test Level 2, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	2		
608.12	2" Bituminous Sidewalk (F), for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	3		
616.171	Portable Traffic Signals (PTS) System, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	1		
618.7	Flaggers, for the unit price per hour of: _____ Dollars (words) and _____ Cents.	HR	200		

BID SCHEDULE B
KEARSARGE WAY OVER PANAM RAILROAD (BRIDGE NO. 240/132)

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
619.1	Maintenance of Traffic, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	1		
619.25	Portable Changeable Message Sign, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	2		
624.1	Railroad Protection - Flagging Service, for the unit price per allowance of: One _____ Dollar (words) and _____ No _____ Cents.	\$	30,000	\$1.00	\$30,000.00
628.2	Sawed Bituminous Pavement, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	120		
632.0104	Retroreflective Paint Pave. Marking, 4" Line, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	3,000		
632.0118	Retroreflective Paint Pave. Marking, 18" Line, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	15		

BID SCHEDULE B
KEARSARGE WAY OVER PANAM RAILROAD (BRIDGE NO. 240/132)

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
632.1124	Preformed Retroreflective Tape, Type I (Removable 24" Line), for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	50		
632.1104	Preformed Retroreflective Tape, Type I (Removable) 4" Line, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	910		
632.911	Obliterate Pave. Marking Line, 12" Wide & Under, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	1,500		
645.512	Compost Sock for Perimeter Berm, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	50		
645.531	Silt Fence, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	50		
646.41	Turf Establishment with Mulch, Tackifiers and Humus, for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	100		

BID SCHEDULE B
KEARSARGE WAY OVER PANAM RAILROAD (BRIDGE NO. 240/132)

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
670.104	Temporary Portable Lighting, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	2		
692.	Mobilization, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	1		
699.	Miscellaneous Temporary Erosion and Sediment Control, for the unit price per allowance of: _____ One _____ Dollar (words) and _____ No _____ Cents.	\$	3,000	\$1.00	\$3,000.00
1002.1	Repairs or Replacements as Needed - Bridge Structures, for the unit price per allowance of: _____ One _____ Dollar (words) and _____ No _____ Cents.	\$	15,000	\$1.00	\$15,000.00
1008.251	Temporary Pedestrian Accomodations, for the unit price per allowance of: _____ One _____ Dollar (words) and _____ No _____ Cents.	\$	5,000	\$1.00	\$5,000.00

TOTAL CONTRACT PRICE BID SCHEDULE B:

_____ Dollars
(words)
and _____ Cents.
(\$ _____)
(numbers)

TOTAL CONTRACT PRICE BID SCHEDULE A AND B (BASE BID – **BASIS OF AWARD**):

_____ Dollars
(words)

and _____ Cents.

(\$ _____)
(numbers)

BID ALTERNATE 1 SCHEDULE
RECREATION TRAIL OVER MARKET STREET, NHDOT BRIDGE NO. 220/143

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
201.1	Clearing and Grubbing (F), for the unit price per acre of: _____ Dollars (words) and _____ Cents.	A	0.4		
203.1	Common Excavation, for the unit price per cubic yard of: _____ Dollars (words) and _____ Cents.	CY	35		
304.31	Crushed Gravel For Shimming, for the unit price per cubic yard of: _____ Dollars (words) and _____ Cents.	CY	20		
512.01	Preparation For Concrete Repairs, Class I, for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	15		
520.0201	Concrete Class AA, Above Footings, for the unit price per cubic yard of: _____ Dollars (words) and _____ Cents.	CY	5		
521.22	Rout and Seal Large Cracks, for the unit price per each of: _____ Dollars (words) and _____ Cents.	EA	10		

BID ALTERNATE 1 SCHEDULE
RECREATION TRAIL OVER MARKET STREET, NHDOT BRIDGE NO. 220/143

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
521.23	Rout and Seal Substructure Cracks, for the unit price per each of: _____ Dollars (words) and _____ Cents.	EA	10		
526.21	Rout and Seal Small Cracks, for the unit price per each of: _____ Dollars (words) and _____ Cents.	EA	30		
535.1	Concrete Staining and Sealing, for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	550		
535.2	Anti-Graffiti Coating, for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	400		
544.31	Reinforcing Steel, Epoxy Coated (Contractor Detailed), for the unit price per pound of: _____ Dollars (words) and _____ Cents.	LB	275		
550.191	Temporary Girder Support System, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	1		

BID ALTERNATE 1 SCHEDULE
RECREATION TRAIL OVER MARKET STREET, NHDOT BRIDGE NO. 220/143

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
560.131	Prefabricated Compression Seal Expansion Joint - Rehabilitation, for the unit price per each of: _____ Dollars (words) and _____ Cents.	EA	9		
562.1	Silicone Joint Sealant (F), for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	745		
606.6211	Ramp Handrail, w/Guard Steel, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	440		
607.921	Modifications to the Main Span Fence, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	128		
607.922	Modifications to the Approach Span Fence, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	320		
608.12	2" Bituminous Sidewalk (F), for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	275		

BID ALTERNATE 1 SCHEDULE
RECREATION TRAIL OVER MARKET STREET, NHDOT BRIDGE NO. 220/143

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	UNIT PRICE DOLLARS CTS	TOTAL PRICE DOLLARS CTS
628.2	Sawed Bituminous Pavement, for the unit price per linear foot of: _____ Dollars (words) and _____ Cents.	LF	10		
646.41	Turf Establishment with Mulch, Tackifiers and Humus, for the unit price per square yard of: _____ Dollars (words) and _____ Cents.	SY	1,800		
692	Mobilization, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	1		
697.11	Invasive Species Control and Management Plan, for the price per unit of: _____ Dollars (words) and _____ Cents.	U	1		
1002.1	Repairs or Replacements As Needed - Bridge Structures, for the unit price per allowance of: _____ One _____ Dollar (words) and _____ No _____ Cents.	\$	10,000	\$1.00	\$10,000.00

TOTAL CONTRACT PRICE BID ALTERNATE 1:

_____ Dollars
(words)
and _____ Cents.
(\$ _____)
(numbers)

BID ALTERNATE 2 SCHEDULE
RECREATION TRAIL OVER MARKET STREET, NHDOT BRIDGE NO. 220/143

ITEM NO.	ITEM DESCRIPTION AND UNIT PRICE BID WRITTEN IN WORDS	UNIT	ESTIMATED QUANTITY	<u>UNIT PRICE</u> DOLLARS CTS	<u>TOTAL PRICE</u> DOLLARS CTS
556.101	Painting Existing Structural Steel, for the unit price per unit of: _____ Dollars (words) and _____ Cents.	U	1.0		

TOTAL CONTRACT PRICE BID ALTERNATE 2:

_____ Dollars
 (words)
 and _____ Cents.
 (\$ _____)
 (numbers)

Note: The award of the Bid is based upon the lowest total bid price for both the Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106 (Schedule A) and Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 (Schedule B). Bidders must bid on both projects (Schedules A and B) to be considered responsive.

At the Owner's discretion, the Owner may elect to award one Bid Alternate, both Bid Alternates, or neither Bid Alternate. **The Award of the Bid will be based upon the lowest total cost of the Base Bid regardless of whether the Bid Alternates are awarded.**

Unit Prices have been computed in accordance with paragraph 13.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

- A. Required Bid security;
- B. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
- C. Contractor's License No.: _____ or Evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids;

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

9.01 This Bid submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)
(Individual's signature)

Doing business as: _____

A Partnership

Partnership Name: _____ (SEAL)

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(CORPORATE SEAL)

Attest _____
(Signature of Corporate Secretary)

Date of Qualification to do business in _____ is
_____/_____/_____
*State of Territory where project is
Located.*

A Joint Venture

Name of Joint Venturer: _____

First Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____ (SEAL)

By: _____

(Signature of second joint venturer partner - attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Bidders Business address: _____

Phone No.: _____ FAX No.: _____

SUBMITTED on _____, 20____.

State Contractor License No. _____. (If applicable)

END OF SECTION

SECTION 00430
BID BOND
(EJCDC Form C-430)

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

BID

Bid Due Date:

Description (*Project Name— Include Location*):

BOND

Bond Number:

Date:

Penal sum _____ \$ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____ By: _____
Signature Signature (Attach Power of Attorney)

Print Name Print Name

Title Title

Attest: _____ Attest: _____
Signature Signature

Title Title

Note: Addresses are to be used for giving any required notice.

Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2 All Bids are rejected by Owner, or
 - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

END OF SECTION

SECTION 00510
NOTICE OF INTENT TO AWARD
(EJCDC Form C-510, Modified)

NOTICE OF AWARD

Date:

TO:

IN AS MUCH as you were the low responsible bidder for work entitled:

Proposed Bridge Repairs to Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge no. 240/132, and Recreation Trail over Market Street, NHDOT Bridge No. 220/143
--

You are hereby notified that the City intends to award the aforesaid project to you.

Immediately take the necessary steps to execute the Contract and to provide required bonds and proof of insurance within ten (10) calendar days from the date of this Notice.

The City reserves the right to revoke this Notice if you fail to take the necessary steps to execute this Contract.

City of Portsmouth
Portsmouth, New Hampshire

Judie Belanger,
Finance Director

Copy: Hoyle, Tanner & Associates, Inc.

END OF SECTION

4.02 Contract Times: Days

- A. The Work will be substantially completed within 170 calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and finally completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 200 calendar days after the date when the Contract Times commence to run.
- B. It is anticipated that Notice to Proceed will be issued on April 9, 2020 at which time the Contractor will be allowed to take the site.

- C. Market Street (EB and WB) over Tidal Basin

The Contract Times for the Work specified for Market Street (EB and WB) over Tidal Basin include a maximum of 120 calendar days on site which shall be counted consecutively once the contractor begins work at the project site, and shall achieve final completion on or before August 21, 2020.

- D. Kearsarge Way over Pan Am Railways

The Contract Times for the Work specified for Kearsarge Way over Pan Am Railways include a maximum of 200 calendar days on site to achieve final completion which shall be counted consecutively once the contractor begins work at the project site.

- E. Recreation Trail over Market Street

If awarded, the Contract Times for the Work specified for Recreation Trail over Market Street include a maximum of 90 calendar days on site to achieve final completion which shall be counted consecutively once the contractor begins work at the project site.

4.03 Liquidated Damages

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
 - 1. Substantial Completion: Contractor shall pay Owner \$1,000.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
 - 2. Final Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment,

Contractor shall pay Owner \$1,000.00 for each day that expires after such time until the Work is completed and ready for final payment.

3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

B. Not Used.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

- A. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item):

TOTAL OF ALL UNIT PRICES _____ \$ _____ (dollars)
(use words)

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 Progress Payments

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the 7th day of each month during performance of the Work provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

6.03 Retainage

- A. To ensure the proper performance of this Contract, the Owner shall retain ten percent of the monthly payments claimed by the Contractor until 50% of the original contract work is invoiced and approved by the City. Once the Contractor has invoiced more than 50% of the contract value, provided that the Contractor has satisfied the City regarding the quality and timeliness of the work and provided further that there is no specific cause for withholding additional retainage, no further amount will be withheld. Upon substantial completion of the work the amount of retainage shall be reduced to 2% of the total contract value plus any additional retainage amounts required by the City based on the City's estimate of the fair value of any remaining punch list items. Any additional retainage held for punch list items shall be held until such time as all items on the punch list are repaired or completed to the City's acceptance. The final 2% of retainage shall be held until the warranty period has expired.

ARTICLE 7 – INTEREST

- 7.01 All amounts not paid when due shall bear interest at the rate of 5 percent per annum.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.
 - B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all: (1) all drawings of physical conditions relating to existing surface or subsurface structures, if any, at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.
 - E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

- F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – ACCOUNTING DOCUMENTS

- 9.01 Contractor shall check all materials, equipment, and labor entering into the Work and shall keep such full and detailed accounts as may be necessary for proper financial management under this Agreement, and the accounting methods shall be satisfactory to Owner. Owner shall be afforded access to all Contractor's records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner.

ARTICLE 10 – CONTRACT DOCUMENTS

10.01 Contents

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 1 to 9, inclusive).
 - 2. Performance bond (pages 1 to 3 inclusive).
 - 3. Payment bond (pages 1 to 3 inclusive).
 - 4. General Conditions (pages 1 to 60, inclusive).
 - 5. Supplementary Conditions (pages ____ to ____, inclusive).
 - 6. Specifications as listed in the table of contents of the Project Manual.

7. Drawings (not attached but incorporated by reference) consisting of 40 sheets with each sheet bearing the following general title: "Market Street over Tidal Basin, Kearsarge Way over Pan Am Railways, Recreation Trail over Market Street"
 8. Addenda (numbers ____ to ____, inclusive).
 9. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages ____ to ____, inclusive)
 - b. Documentation submitted by Contractor prior to Notice of Award (pages ____ to ____, inclusive)
 - c. (List here other documents, if any)
 10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed (pages ____ to ____, inclusive).
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
- B. The documents listed in Paragraph 10.01.A are not attached to, but made part of, this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 10.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 11 – MISCELLANEOUS

11.01 Terms

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

11.02 Assignment of Contract

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and

unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

11.03 Successors and Assigns

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

11.04 Severability

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

11.05 Contractor's Certifications

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 11.05:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

11.06 Other Provisions

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process

Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way
over Pan Am Railways NHDOT Bridge No. 240/132 , &
Recreation Trail Bridge over Market Street, NHDOT Bridge No. 220/143

such as highlighting or “track changes” (redline/strikeout), or in the Supplementary
Conditions.

Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way
over Pan Am Railways NHDOT Bridge No. 240/132 , &
Recreation Trail Bridge over Market Street, NHDOT Bridge No. 220/143

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on _____ (which is the Effective Date of the Contract).

OWNER:

CONTRACTOR:

City of Portsmouth, Public Works Department

By: _____

By: _____

Title: _____

Title: _____
*(If Contractor is a corporation, a partnership, or
a joint venture, attach evidence of authority to
sign.)*

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

License No.: _____
(where applicable)

*(If Owner is a corporation, attach evidence of
authority to sign. If Owner is a public body, attach
evidence of authority to sign and resolution or
other documents authorizing execution of this
Agreement.)*

END OF SECTION

SECTION 00550
NOTICE TO PROCEED
(EJCDC Form C-550)

NOTICE TO PROCEED

Owner:	City of Portsmouth, Public Works Department	Owner's Contract No.:	N/A
Contractor:		Contractor's Project No.:	
Engineer:	Hoyle, Tanner & Associates, Inc.	Engineer's Project No.:	905108
Project:	Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market Street, NHDOT Bridge No. 220/143	Contract Name:	Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market Street, NHDOT Bridge No. 220/143
		Effective Date of Contract:	

TO CONTRACTOR:

You are notified that the Contract Times under the above contract will commence to run on _____. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the date of Substantial Completion is _____, and the date of readiness for final payment is _____.

Before starting any Work at the Site, Contractor must comply with the following:

Owner: City of Portsmouth, Public Works Department

Authorized Signature

By:

Title:

Date: Issued:

Copy: Hoyle, Tanner & Associates, Inc.

END OF SECTION

SECTION 00610
PERFORMANCE BOND
(EJCDC Form C-610)

CONTRACTOR (*name and address*):

SURETY (*name and address of principal place of business*):

OWNER (*name and address*):

City of Portsmouth, Public Works Department

680 Peverly Hill Road

Portsmouth, NH 03801

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description: Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market Street, NHDOT Bridge No. 220/143

BOND

Bond Number:

Date (*Not Earlier Than the Effective Date of the Agreement of the Construction Contract*):

Amount:

Modifications to this Bond Form: ☐ ne ☐ Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

(seal)
Contractor's Name and Corporate Seal

(seal)
Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature (*attach power of attorney*)

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under

Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed

incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

END OF SECTION

SECTION 00615
PAYMENT BOND
(EJCDC Form C-615)

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*:

City of Portsmouth, Public Works Department

680 Peverly Hill Road

Portsmouth, NH 03801

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description: Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132, & Recreation Trail over Market Street, NHDOT Bridge No. 220/143

BOND

Bond Number:

Date *(Not Earlier Than the Effective Date of the Agreement of the Construction Contract)*:

Amount:

Modifications to this Bond Form: ☐ one ☐ Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal *(seal)*

Surety's Name and Corporate Seal *(seal)*

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1 Claimants who do not have a direct contract with the Contractor,
 - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2 Pay or arrange for payment of any undisputed amounts.
 - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.
11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action shall be commenced by a Claimant under

this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;

6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

END OF SECTION

Contractor's Application For Payment No. _____

	Application Period:	Application Date:
To (Owner): City of Portsmouth, Public Works Department	From (Contractor):	Via (Engineer)
Project: Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market Street, NHDOT Bridge No. 220/143	Contract: Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market Street, NHDOT Bridge No. 220/143	
Owner's Contract No.: N/A	Contractor's Project No.:	Engineer's Project No.: 905108

Change Order Summary

Approved Change Orders			1. ORIGINAL CONTRACT PRICE.....		\$	
Number	Additions	Deductions	2. Net change by Change Orders.....		\$	
			3. CURRENT CONTRACT PRICE (Line 1 ± 2)		\$	
			4. TOTAL COMPLETED AND STORED TO DATE			
			(Column F on Progress Estimate)		\$	
			5. RETAINAGE:			
			a. ____ % x \$ _____ Work Completed.....		\$	
			b. ____ % x \$ _____ Stored Material.....		\$	
			c. Total Retainage (Line 5a + Line 5b)		\$	
			6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5c).....		\$	
			7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)		\$	
			8. AMOUNT DUE THIS APPLICATION.....		\$	
			9. BALANCE TO FINISH, PLUS RETAINAGE			
			(Column G on Progress Estimate + Line 5 above)		\$	
TOTALS						
NET CHANGE BY CHANGE ORDERS						

The undersigned Contractor certifies, to the best of its knowledge, the following:

(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;

(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such Liens, security interest, or encumbrances); and

(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

By: _____ Date: _____

Subscribed and sworn to before me this day of

Notary Public:

My Commission expires:

Payment of: \$ _____
(Line 8 or other - attach explanation of other amount)

is recommended by: _____
Hoyle, Tanner & Associates, Inc.
(Engineer) (Date)

Payment of: \$ _____
(Line 8 or other - attach explanation of other amount)

is approved by: _____
(Owner) (Date)

Approved by: _____
Funding Agency (if applicable) (Date)

Progress Estimate - Unit Price Work

Contractor's Application

[illegible]

Stored Material Summary

Contractor's Application

[illegible]

END OF SECTION

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC's Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition). The full EJCDC Construction series of documents is discussed in the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

Copyright © 2013:

National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314-2794
(703) 684-2882
www.nspe.org

American Council of Engineering Companies
1015 15th Street N.W., Washington, DC 20005
(202) 347-7474
www.acec.org

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400
(800) 548-2723
www.asce.org

The copyright for this document is owned jointly by the three sponsoring organizations listed above. The National Society of Professional Engineers is the Copyright Administrator for the EJCDC documents; please direct all inquiries regarding EJCDC copyrights to NSPE.

NOTE: EJCDC publications may be purchased at www.ejcdc.org, or from any of the sponsoring organizations above.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

TABLE OF CONTENTS

	Page
Article 1 – Definitions and Terminology	1
1.01 Defined Terms.....	1
1.02 Terminology	4
Article 2 – Preliminary Matters	6
2.01 Delivery of Bonds and Evidence of Insurance.....	6
2.02 Copies of Documents.....	6
2.03 Before Starting Construction	6
2.04 Preconstruction Conference; Designation of Authorized Representatives.....	6
2.05 Initial Acceptance of Schedules	7
2.06 Electronic Transmittals	7
Article 3 – Documents: Intent, Requirements, Reuse.....	7
3.01 Intent.....	7
3.02 Reference Standards.....	8
3.03 Reporting and Resolving Discrepancies	8
3.04 Requirements of the Contract Documents.....	9
3.05 Reuse of Documents	9
Article 4 – Commencement and Progress of the Work	10
4.01 Commencement of Contract Times; Notice to Proceed.....	10
4.02 Starting the Work.....	10
4.03 Reference Points.....	10
4.04 Progress Schedule.....	10
4.05 Delays in Contractor’s Progress	10
Article 5 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions	11
5.01 Availability of Lands	11
5.02 Use of Site and Other Areas.....	12
5.03 Subsurface and Physical Conditions	13
5.04 Differing Subsurface or Physical Conditions	13
5.05 Underground Facilities.....	15
5.06 Hazardous Environmental Conditions at Site	16
Article 6 – Bonds and Insurance	18
6.01 Performance, Payment, and Other Bonds.....	18

6.02	Insurance—General Provisions	19
6.03	Contractor’s Insurance.....	20
6.04	Owner’s Liability Insurance.....	22
6.05	Property Insurance	22
6.06	Waiver of Rights.....	24
6.07	Receipt and Application of Property Insurance Proceeds	25
Article 7 – Contractor’s Responsibilities		25
7.01	Supervision and Superintendence	25
7.02	Labor; Working Hours.....	25
7.03	Services, Materials, and Equipment	25
7.04	“Or Equals”.....	26
7.05	Substitutes	27
7.06	Concerning Subcontractors, Suppliers, and Others.....	28
7.07	Patent Fees and Royalties.....	30
7.08	Permits.....	30
7.09	Taxes	31
7.10	Laws and Regulations.....	31
7.11	Record Documents.....	31
7.12	Safety and Protection	31
7.13	Safety Representative.....	32
7.14	Hazard Communication Programs	32
7.15	Emergencies.....	32
7.16	Shop Drawings, Samples, and Other Submittals	33
7.17	Contractor’s General Warranty and Guarantee	35
7.18	Indemnification	35
7.19	Delegation of Professional Design Services	36
Article 8 – Other Work at the Site.....		37
8.01	Other Work	37
8.02	Coordination	37
8.03	Legal Relationships	38
Article 9 – Owner’s Responsibilities.....		39
9.01	Communications to Contractor	39
9.02	Replacement of Engineer.....	39
9.03	Furnish Data.....	39
9.04	Pay When Due.....	39
9.05	Lands and Easements; Reports, Tests, and Drawings.....	39
9.06	Insurance.....	39
9.07	Change Orders	39
9.08	Inspections, Tests, and Approvals.....	39
9.09	Limitations on Owner’s Responsibilities.....	39
9.10	Undisclosed Hazardous Environmental Condition	39
9.11	Evidence of Financial Arrangements	40
9.12	Safety Programs.....	40

Article 10 – Engineer’s Status During Construction	40
10.01 Owner’s Representative	40
10.02 Visits to Site.....	40
10.03 Project Representative	40
10.04 Rejecting Defective Work	40
10.05 Shop Drawings, Change Orders and Payments.....	41
10.06 Determinations for Unit Price Work.....	41
10.07 Decisions on Requirements of Contract Documents and Acceptability of Work	41
10.08 Limitations on Engineer’s Authority and Responsibilities	41
10.09 Compliance with Safety Program	42
 Article 11 – Amending the Contract Documents; Changes in the Work	42
11.01 Amending and Supplementing Contract Documents	42
11.02 Owner-Authorized Changes in the Work.....	42
11.03 Unauthorized Changes in the Work.....	43
11.04 Change of Contract Price	43
11.05 Change of Contract Times.....	44
11.06 Change Proposals.....	44
11.07 Execution of Change Orders	45
11.08 Notification to Surety.....	45
 Article 12 – Claims.....	45
12.01 Claims.....	45
 Article 13 – Cost of the Work; Allowances; Unit Price Work.....	47
13.01 Cost of the Work	47
13.02 Allowances	49
13.03 Unit Price Work.....	49
 Article 14 – Tests and Inspections; Correction, Removal or Acceptance of Defective Work	50
14.01 Access to Work	50
14.02 Tests, Inspections, and Approvals.....	50
14.03 Defective Work	51
14.04 Acceptance of Defective Work	52
14.05 Uncovering Work	52
14.06 Owner May Stop the Work	52
14.07 Owner May Correct Defective Work	53
 Article 15 – Payments to Contractor; Set-Offs; Completion; Correction Period	53
15.01 Progress Payments.....	53
15.02 Contractor’s Warranty of Title.....	56
15.03 Substantial Completion.....	56
15.04 Partial Use or Occupancy	57
15.05 Final Inspection	58

15.06	Final Payment	58
15.07	Waiver of Claims	59
15.08	Correction Period.....	59
Article 16 – Suspension of Work and Termination		60
16.01	Owner May Suspend Work.....	60
16.02	Owner May Terminate for Cause.....	60
16.03	Owner May Terminate For Convenience.....	61
16.04	Contractor May Stop Work or Terminate.....	61
Article 17 – Final Resolution of Disputes		62
17.01	Methods and Procedures.....	62
Article 18 – Miscellaneous		62
18.01	Giving Notice.....	62
18.02	Computation of Times	62
18.03	Cumulative Remedies	63
18.04	Limitation of Damages	63
18.05	No Waiver	63
18.06	Survival of Obligations	63
18.07	Controlling Law	63
18.08	Headings	63

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 Defined Terms

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer has declined to address. A demand for money or services by a third party is not a Claim.
 11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et

seq. ("CERCLA"); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. ("RCRA"); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.
27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.
40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.

41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.
48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives:*
 1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is

a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).

E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 Delivery of Bonds and Evidence of Insurance

- A. *Bonds:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Contractor’s Insurance:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.

- C. *Evidence of Owner's Insurance:* After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 Copies of Documents

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 Before Starting Construction

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 Preconstruction Conference; Designation of Authorized Representatives

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 Initial Acceptance of Schedules

- A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer

responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 Electronic Transmittals

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 Intent

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 Reference Standards

- A. Standards Specifications, Codes, Laws and Regulations
 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such

provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 Reporting and Resolving Discrepancies

A. *Reporting Discrepancies:*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 Requirements of the Contract Documents

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.

- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 Reuse of Documents

- A. Contractor and its Subcontractors and Suppliers shall not:
 - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 Commencement of Contract Times; Notice to Proceed

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 Starting the Work

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 Reference Points

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or

locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 Progress Schedule

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 Delays in Contractor's Progress

- A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
 - 1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 - 2. abnormal weather conditions;
 - 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 - 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.

- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.
- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 Availability of Lands

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 Use of Site and Other Areas

- A. *Limitation on Use of Site and Other Areas:*
 - 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
 - 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs)

arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 Subsurface and Physical Conditions

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 Differing Subsurface or Physical Conditions

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or
 2. is of such a nature as to require a change in the Drawings or Specifications; or
 3. differs materially from that shown or indicated in the Contract Documents; or
 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 Underground Facilities

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
 1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
 2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.
- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown

or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;
 - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.06 Hazardous Environmental Conditions at Site

- A. *Reports and Drawings:* The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as

defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions,

then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.01 Performance, Payment, and Other Bonds

- A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 Insurance—General Provisions

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 Contractor's Insurance

- A. *Workers' Compensation*: Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).
 - 4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered*: Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
 - 1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 - 2. claims for damages insured by reasonably available personal injury liability coverage.
 - 3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.
- C. *Commercial General Liability—Form and Content*: Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
 - 1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 - 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 - 3. Broad form property damage coverage.

4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.
- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
1. include at least the specific coverages provided in this Article.
 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.

3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.04 Owner's Liability Insurance

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 Property Insurance

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.

3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
 5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.

- F. *Insurance of Other Property*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.06 Waiver of Rights

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:
1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 Receipt and Application of Property Insurance Proceeds

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment

and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 Supervision and Superintendence

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 Labor; Working Hours

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 Services, Materials, and Equipment

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 "Or Equals"

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.
 - B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
 - C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
 - D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
 - E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 Substitutes

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting

for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 Concerning Subcontractors, Suppliers, and Others

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.
- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and

Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

- G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.
- O. Nothing in the Contract Documents:
 - 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor
 - 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 Patent Fees and Royalties

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or

arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 Permits

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.09 Taxes

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 Laws and Regulations

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 Record Documents

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 Safety and Protection

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

- G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 Safety Representative

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 Hazard Communication Programs

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 Emergencies

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 Shop Drawings, Samples, and Other Submittals

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.
1. *Shop Drawings:*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.
 2. *Samples:*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.
 3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. *Engineer's Review:*
1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
 2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
 3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
 4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.
 5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
 6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 Contractor's General Warranty and Guarantee

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
 1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.

- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 Indemnification

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 Delegation of Professional Design Services

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.
- B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 Other Work

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

8.02 Coordination

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. an itemization of the specific matters to be covered by such authority and responsibility; and

3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 Legal Relationships

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.
- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER’S RESPONSIBILITIES

9.01 Communications to Contractor

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 Replacement of Engineer

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer’s status under the Contract Documents shall be that of the former Engineer.

9.03 Furnish Data

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 Pay When Due

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 Lands and Easements; Reports, Tests, and Drawings

- A. Owner’s duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner’s duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner’s identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 Insurance

- A. Owner’s responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 Change Orders

- A. Owner’s responsibilities with respect to Change Orders are set forth in Article 11.

9.08 Inspections, Tests, and Approvals

- A. Owner’s responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 Limitations on Owner’s Responsibilities

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor’s failure to perform the Work in accordance with the Contract Documents.

9.10 Undisclosed Hazardous Environmental Condition

- A. Owner’s responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 Evidence of Financial Arrangements

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 Safety Programs

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 Owner's Representative

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 Visits to Site

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 Project Representative

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 Rejecting Defective Work

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 Shop Drawings, Change Orders and Payments

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 Determinations for Unit Price Work

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 Decisions on Requirements of Contract Documents and Acceptability of Work

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 Limitations on Engineer's Authority and Responsibilities

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 Compliance with Safety Program

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 Amending and Supplementing Contract Documents

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.
 - 3. *Field Orders:* Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 Owner-Authorized Changes in the Work

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor

reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 Unauthorized Changes in the Work

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 Change of Contract Price

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. An adjustment in the Contract Price will be determined as follows:
 - 1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 - 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 - 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit shall be determined as follows:
 - 1. a mutually acceptable fixed fee; or
 - 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

- e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 Change of Contract Times

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 Change Proposals

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.
 - 1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 - 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 - 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;
 - 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 - 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.
- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 Notification to Surety

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 Claims

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information

and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation:*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.
3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval:* If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim:* If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results:* If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 Cost of the Work

- A. *Purposes for Determination of Cost of the Work:* The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
 - g. The cost of utilities, fuel, and sanitary facilities at the Site.
 - h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
 - i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.
- C. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:
 - 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
 - 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 - 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 - 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 - 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.
- D. *Contractor's Fee:* When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.
- E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances*: Contractor agrees that:
 - 1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - 2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 Tests, Inspections, and Approvals

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 Defective Work

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 Acceptance of Defective Work

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 Uncovering Work

- A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 Owner May Stop the Work

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 Owner May Correct Defective Work

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.
- C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *Applications for Payments:*
1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
 2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
 3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.
- C. *Review of Applications:*
1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
 2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

- c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
 - 3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
 - 4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 - 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.
 - 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.
- D. *Payment Becomes Due:*
- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner:*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - l. there are other items entitling Owner to a set off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 Contractor's Warranty of Title

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 Substantial Completion

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 Partial Use or Occupancy

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.

2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 Final Inspection

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 Final Payment

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner

against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 Waiver of Claims

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 Correction Period

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 1. correct the defective repairs to the Site or such other adjacent areas;
 2. correct such defective Work;
 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 Owner May Suspend Work

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 Owner May Terminate for Cause

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:
 1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);
 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and

2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 Owner May Terminate For Convenience

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and
 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 Contractor May Stop Work or Terminate

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any

Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 Methods and Procedures

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 Giving Notice

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 Computation of Times

- A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 Cumulative Remedies

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 Limitation of Damages

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 No Waiver

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 Survival of Obligations

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 Controlling Law

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 Headings

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SECTION 00800
SUPPLEMENTARY CONDITIONS
(EJCDC Form C-800, Modified)

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ARTICLE 1– DEFINITIONS AND TERMINOLOGY

SC-1.01.A.20 Delete definition 1.01.A.19 entitled “Engineer” in its entirety and insert the following in its place:

“The individual or entity duly appointed by the Owner to undertake the duties and powers herein assigned to the Engineer, acting either directly or through duly appointed representatives.”

SC-1.01.A.13 Amend the first line of the definition 1.01.A.13 “Contract Documents” to read as follows:

“Those items so designated in the Invitation to Bid, Instructions to Bidders, and Agreement.”

SC-1.01.A.40 Delete the definition 1.01A.40 “Substantial Completion” in its entirety and replace with the following:

“The Work (or a specified part thereof) required by the Contract has been completed except for work (or a specified part thereof) having a Contract Price of less than one percent of the then adjusted total contract price, or substantially all of the Work (or a specified part thereof) has been completed and opened to Owner’s use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the Work (or a specified part thereof) required by the Contract.”

ARTICLE 2 – PRELIMINARY MATTERS

SC-2.01.B Delete paragraph 2.01.B in its entirety and insert the following in its place:

B. Evidence of Insurance: Before any work at the site is started, Contractor shall deliver to Owner, with a copy to Engineer, certificates of insurance (and other evident of

insurance requested by Owner) which Contractor is required to purchase and maintain in accordance with the requirements of Article 6.

SC-2.01.C Delete paragraph 2.01.C in its entirety.

SC-2.02.A Delete paragraph 2.02.A in its entirety and replace with the following:

- A. Owner shall furnish Contractor up to 6 printed or hard copies of the Drawings and Project Manual and one set in electronic format. Additional printed copies will be furnished upon request at the cost of reproduction.

SC-2.04.A. Amend the second line of paragraph 2.04.A to read as follows:

"....others as appropriate MAY be held to establish a working....."

SC-2.05 Add the following new paragraph immediately after paragraph 2.05 A.3.

- B. If the Contractor's submitted Progress Schedule, Schedule of Submittals and Schedule of Values are acceptable to the Engineer a Conference may not be required.

ARTICLE 3 – DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.01.A Add the following new paragraphs immediately after paragraph 3.01.A:

- 1. Each and every provision of law and clause required by law to be inserted in the Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though they were included herein. If through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

SC-3.04.A In the first sentence of paragraph 3.04.A, delete the words "and Owner".

SC-3.04.B In the second sentence of paragraph 3.04.B delete the words "and on Owner, unless it appeals by filing a Claim".

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

SC-4.01.A Delete paragraph 4.01A in its entirety and replace with the following

- A. The Contract Times will commence to run on the tenth day following the effective date of the Agreement, or if a Notice to Proceed is issued, the Contract Time will commence to run on the date of the Notice to Proceed.

SC-4.03 Add the following new paragraph immediately after paragraph 4.03.A:

- B. Contractor to employ a surveyor licensed in New Hampshire to provide reference points and monuments. Engineer may check the lines, elevations, reference marks, batter boards, etc., set by Contractor, and Contractor shall correct any errors disclosed by such check. Such a check shall not be considered as approval of Contractor's work and shall not relieve Contractor of the responsibility for accurate

and satisfactory construction and completion of the entire Work. Contractor shall furnish personnel to assist Engineer in checking lines and grades.

SC-4.04 Add the following paragraph after paragraph 6.04A.2 of the General Conditions:

- B. The CONTRACTOR's resident superintendent shall attend monthly progress meetings at the site of the work with the ENGINEER and others as appropriate to review schedule status and such other pertinent subjects as may be listed on the agenda by the ENGINEER.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-5.03 Add the following new paragraphs immediately after Paragraph 5.03.B:

- C. The following reports of explorations and tests of subsurface conditions at or adjacent to the Site are known to Owner:
 - 1. None.
- D. The following drawings of physical conditions relating to existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities) are known to Owner:
 - 1. As-Built Drawings dated March 1971, for State of New Hampshire, Department of Public Works and Highways, Bridge Design Division, entitled: "Market Street Connection over Tidal Basin", consisting of 16 sheets number 1 to 15, inclusive.
 - a. All of the information in such drawings constitutes Technical Data on whose accuracy Contractor may rely.
 - 2. As-Built Drawings dated October 1978, prepared by Walter J. Jickey Associates, Inc., entitled: "Plans of Proposed Federal Aid Urban System Project; M-5379 (008); N.H. Project No. C-2441-H; Kearsarge Way", consisting of 36 sheets number 1 to 36, inclusive.
 - a. All of the information in such drawings constitutes Technical Data on whose accuracy Contractor may rely.
 - 3. Preliminary Drawings, for State of New Hampshire, Department of Public Works and Highways, Bridge Design Division, entitled: "Pedestrian Overpass over Market Street Extension", consisting of 4 sheets number 1 to 4, inclusive.
 - a. All of the information in such drawings constitutes Technical Data on whose accuracy Contractor may rely.
- E. Contractor may examine copies of reports and drawings identified in SC 5.03.C and SC 5.03.D that were not included with the Bidding Documents at Hoyle, Tanner and Associates, Inc., Pease International Tradeport, 100 International Drive, Suite 360,

Portsmouth, NH during regular business hours, or may request copies from Engineer.

SC-5.05.E.1 Delete the following words from lines 3 and 4 of paragraph 5.05.E.1:

“....or was not shown or indicated with reasonable accuracy...”

SC 5.06 Delete Paragraphs 5.06.A and 5.06.B and 5.06 (i) in their entirety and insert the following:

- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.
- B. Not Used.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall release Contractor, Subcontractors, and Engineer, and officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Conditions: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall constitute an indemnity of obligation.

ARTICLE 6 – BONDS AND INSURANCE

SC-6.02.B Delete the last sentence of paragraph 6.02.B in its entirety.

SC-6.02.B Add the following new paragraphs immediately after paragraph 6.02.B:

- B. The insurance policies and surety bonds required to be provided by the Contractor shall be written by a company or companies licensed by the State of New Hampshire which company or companies shall have not less than an A rating and a Class XV financial status as reported in the latest edition of Best’s Insurance Guide. In addition all carriers are subject to approval by the OWNER.
- C. The CONTRACTOR shall name the OWNER as an Additional Insured on a primary and non-contributory basis to all policies except Works Compensation and Professional Liability.

SC-6.02.D Delete paragraph 6.02.D in its entirety.

SC-6.02 Add the following new paragraph immediately after Paragraph 6.02 J.

- K. Should any of the required insurance policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

SC 6.03

Add the following new paragraph immediately after Paragraph 6.03.J:

- K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

State:	<u>Statutory</u>
Federal, if applicable (e.g., Longshoreman's):	<u>Statutory</u>

Employer's Liability:

Bodily injury, each accident	\$ <u>1,000,000</u>
Bodily injury by disease, each employee	\$ <u>1,000,000</u>
Bodily injury/disease aggregate	\$ <u>1,000,000</u>

Foreign voluntary worker compensation	<u>Statutory</u>
---------------------------------------	------------------

2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

General Aggregate	\$ <u>2,000,000</u>
-------------------	---------------------

Products - Completed Operations Aggregate	\$ <u>2,000,000</u>
---	---------------------

Personal and Advertising Injury	\$ <u>1,000,000</u>
---------------------------------	---------------------

Each Occurrence (Bodily Injury and Property Damage)	\$ <u>5,000,000</u>
---	---------------------

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:

Each person	\$ <u>2,000,000</u>
Each accident	\$ <u>2,000,000</u>

Property Damage:

Combined Single Limit of	\$ <u>2,000,000</u>
--------------------------	---------------------

4. Excess or Umbrella Liability:

Per Occurrence	\$ <u>1,000,000</u>
General Aggregate	\$ <u>1,000,000</u>

5. Environmental Impairment Contractor's Pollution Liability:

Each Occurrence	\$ <u>1,000,000</u>
General Aggregate	\$ <u>1,000,000</u>

6. Railroad Protective Liability:

Each Occurrence (Bodily Injury and Property Damage)	\$ <u>5,000,000</u>
General Aggregate	\$ <u>10,000,000</u>

- The Railroad Protective Liability Insurance Policy shall be on the ISO/RIMA Form of Railroad Protective Insurance – Insurance Services Office (ISO) Form CG 00 35.
- Pan Am Railways, as well as the appropriate rail line, must be the named insured on the Railroad Protective Liability Insurance Policy.
- The name and address of the Contractor and the Owner must be shown on the Declarations page.
- A description of operations and location must appear on the Declarations page and must match the Project description.
- Authorized endorsements must include:
 - Pollution Exclusion Amendment - CG 28 31, unless using form CG 00 35 version 96 and later
- Authorized endorsements may include:
 - Broad Form Nuclear Exclusion - IL 00 21
 - Notice of Non-renewal or cancellation
 - Required State Cancellation Endorsement
 - Quick Reference or Index - CL/IL 240
- Authorized endorsements may not include:
 - A Pollution Exclusion Endorsement except CG 28 31

- An Endorsement that limits or excludes Professional Liability coverage
- A Non-Cumulation of Liability or Pyramiding of Limits Endorsement
- A Known Injury Endorsement
- A Sole Agent Endorsement
- A Punitive or Exemplary Damages Exclusion
- A "Common Policy Conditions" Endorsement
- Policies that contain any type of deductible
- Any endorsement that is not named above that PAR deems unacceptable

7. Additional Insureds: In addition to Owner and Engineer, include as additional insureds the following:

- City of Portsmouth
- Hoyle, Tanner & Associates, Inc. and all subcontractors employed for this project.
- Pan Am Railways; Springfield Terminal Railway Company; Boston and Main Corporation

SC-6.04 Delete paragraph 6.04 in its entirety and replace with the following:

A. Contractor shall purchase and maintain a separate Owner's Protective Liability policy, issued to Owner at the expense of Contractor, including Owner and Engineer as named insured. This insurance shall provide coverage for not less than the following amounts:

Bodily Injury:

Each person	\$ <u>2,000,000</u>
Each accident	\$ <u>2,000,000</u>

Property Damage:

Each person	\$ <u>2,000,000</u>
Each accident	\$ <u>2,000,000</u>

SC-6.05 Delete Paragraph 6.05 in its entirety and insert the following in its place:

- A. Owner will maintain Builders Risk for its interest in the Work. Owner's policy is available for review. Contract and subcontractors shall be responsible for insuring their own interests in the event of loss.

SC-6.06 Delete Section 6.06 in its entirety.

SC-6.07 Delete Section 6.07 in its entirety.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

SC-7.01.B. Delete paragraph 7.01.B in its entirety and replace with the following:

- B. At the site of the Work, the CONTRACTOR shall employ a full-time construction superintendent or foreman who shall have full authority to act for the CONTRACTOR. It is understood that such representative shall be acceptable to the ENGINEER and shall be the one who will be continued in the capacity for the particular job involved unless the representative ceases to be on the CONTRACTOR's payroll. If at any time during the Work the representative is deemed by the ENGINEER to be no longer acceptable, the representative shall be promptly replaced by the CONTRACTOR. All communications to the superintendent or foreman shall be as binding as if given to the CONTRACTOR.

SC-7.02.B. Add the following new subparagraphs immediately after Paragraph 7.02.B:

1. Regular working hours will be Monday through Friday from 7:00 AM to 6:00 PM. Contractor will not perform work on a Saturday, Sunday or any legal holiday without permission of the Owner.
2. Owner's legal holidays are those listed in Paragraph 101.56 of the NHDOT Standard Specifications for Road and Bridge Construction 2016 Edition.
3. If there is a delay in Contractor's progress as described in Paragraph 4.05, the Contractor shall not include non-regular working days (i.e. Saturdays, Sundays or holidays) in the contract time equitable adjustment proposal.

SC-7.05 Add the following new paragraphs immediately after paragraph 7.05.F:

1. When a substitute item of material or equipment is proposed by Contractor and accepted by Engineer, and the substitution will require a change in any of the Contract Documents to adapt the design to the proposed substitute, Contractor shall notify Engineer of the changes and be responsible for the costs involved to revise the design and to make modifications or changes to the construction, including the costs associated with the Work of other contractors due to such changes in design or space requirements.
 - a. Redesign and drawing revision will be prepared by Engineer and Contractor shall reimburse Owner for charges of Engineer for redesign and drawing preparation.

- b. Reimbursement of Engineer shall be based on Engineers direct labor costs, indirect labor costs, profit on the total labor, and any direct non-labor expenses such as travel or per diem.

SC-7.06.D Amend the last sentence of Paragraph 7.06.D to read as follows:

“...objection within thirty days.”

SC-7.07.B Delete paragraph 7.07.B in its entirety and insert the following in its place:

B. Not Used.

SC-7.08.A Delete the last sentence in paragraph 7.08.A and replace with the following:

“Unless otherwise specified in the General Requirements or Specifications, Contractor shall pay all charges of utility owners for connections for providing permanent service to the Work.

SC-7.08 Add the following new paragraphs immediately after paragraph 7.08.A

B. The Owner has applied for or has obtained the following permits for this project, which are listed below.

1. None.

C. Copies of these permits are included in the Appendix. The Contractor is responsible for complying with the project specific conditions outlined in the permit(s). If the CONTRACTOR intends to proceed with construction means and methods that are outside the General Conditions and Specific Conditions of the permit(s), it is the Contractor's responsibility to obtain new permit(s) for these means and methods and to bear all costs associated with applying for and obtaining new permit(s).

SC 7.09 Add a new paragraph immediately after Paragraph 7.09.A:

B. Owner is exempt from payment of sales and compensating use taxes of the State of New Hampshire and of cities and counties thereof on all materials to be incorporated into the Work.

1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.
2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

- SC-7.15.A Add the following new paragraph immediately after paragraph 7.15.A:
- B. In emergencies affecting the safety or protection of persons or property or maintenance of temporary construction at the Site or adjacent thereto, and Contractor cannot be reached, Owner may act to attempt to prevent threatened damage, injury, or loss. Owner will give Contractor and Engineer prompt written notice of such action and the cost of the correction or remedy shall be charged against Contractor. A Change Order will be issued to document the change in Contract Price.
- SC-7.16.A Add the following new paragraph immediately after paragraph 7.16.A:
- Contractor shall submit the number of copies which the Contractor requires, plus two copies (which will be retained by the Engineer) of shop drawings and other submittals to Engineer for review. If the submittal is made electronically, no paper copies will be provided to the Contractor.
- SC-7.16.E Delete paragraph immediately after paragraph 7.16.E.2 in its entirety and insert the following in its place:
2. Engineer shall review a maximum of two submittals of shop drawings or samples for a particular submittal item at no cost to the Contractor. The Contractor shall reimburse the Owner for costs by the Engineer relative to the review of subsequent submittals of shop drawings or samples of the same item.
- SC-7.16.E Add the following new paragraphs immediately after paragraph 7.16.E:
- F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, samples, or other items requiring approval and Contractor shall reimburse Owner for Engineer's charges for such time.
- G. After Engineer has reviewed and approved a Shop Drawing or Sample, Contractor shall provide the material or equipment approved. Engineer will not review subsequent submittals of a different manufacturer or Supplier unless Contractor provides sufficient information to Engineer that the approved material or equipment is unavailable, time of delivery will delay the construction progress but not as a result of Contractors' failure to timely pursue the Work or to coordinate various activities properly, or Owner requests a different manufacturer or Supplier.
- SC-7.17 Add the following new paragraph prior to 7.17.A:
- A. The Contractor warrants the Work for a period of one year from substantial completion of the entire project or a part thereof, unless a longer warranty is specified for a particular item or element of the project, in which case the longer warranty period shall govern.

ARTICLE 9 – OWNER’S RESPONSIBILITIES

- SC-9.02.A Delete the phrase “provided Contractor makes no reasonable objection to the replacement engineer.”
- SC-9.06 Delete paragraph 9.06 in its entirety.
- SC-9.09.A Insert the following after the first sentence:
- However, the OWNER shall have the right to direct the CONTRACTOR to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto.

ARTICLE 10 – ENGINEER’S STATUS DURING CONSTRUCTION

- SC-10.01 Add a new paragraph 10.01.B after paragraph 10.01.A, which is to read as follows:
- B. Nothing contained in the Contract Documents shall be construed to create a contractual relationship of any kind (1) between the ENGINEER and CONTRACTOR, (2) between the OWNER and a Subcontractor or Subcontractors, or (3) between any person or entities other than the OWNER and CONTRACTOR. The ENGINEER shall, however, be entitled to performance and enforcement of obligations under the CONTRACT DOCUMENTS intended to facilitate performance of the ENGINEER'S duties.
- SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.A:
- B. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions. The duties and responsibilities of the RPR are limited to those of Engineer in the Agreement with the Owner and in the Contract Documents, and are further limited and described as follows:
1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.
 2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.
 3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of notes thereof.
 4. Liaison:
 - a. Serve as Engineer’s liaison with Contractor. Working principally through Contractor’s authorized representative or designee, assist in providing

information regarding the provisions and intent of the Contract Documents.

- b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
- 5. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
- 6. Shop Drawings and Samples:
 - a. Record date of receipt of Samples and Contractor-approved Shop Drawings.
 - b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.
 - c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.
- 7. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.
- 8. Review of Work and Rejection of Defective Work:
 - a. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
- 9. Inspections, Tests, and System Start-ups:
 - a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.

- b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.
- 10. Records:
 - a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
 - b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
 - c. Maintain records for use in preparing Project documentation.
- 11. Reports:
 - a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.
 - b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
 - c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.
- 12. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.
- 13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.
- 14. Completion:
 - a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.

- b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.
 - c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.
- C. The RPR shall not:
 - 1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
 - 2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
 - 3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
 - 4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.
 - 5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
 - 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
 - 7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
 - 8. Authorize Owner to occupy the Project in whole or in part.

SC-10.07.A In paragraph 10.07.A delete the second sentence in its entirety.

SC-10.10 Add the following new paragraph immediately after paragraph 10.10.A

- B. In the event Engineer and/or Owner determines that Contractor's safety plans, programs, and procedures do not provide adequate protection for Engineer and/or Owner, Engineer and/or Owner may direct its employees to leave the Project Site or implement additional safeguards for Engineer's protection. If taken, these actions will be in furtherance of Engineer and/or Owner's responsibility to its own employees only, and Engineer and/or Owner will not assume any responsibility for protection of any other persons affected by the Work. In the event Engineer and/or Owner observes situations which appear to have potential for immediate and serious injury to persons, Engineer may warn the persons who appear to be affected by such situations. Such warnings, if issued, shall be given based on general humanitarian concerns, and Engineer and/or Owner will not, by the issuance of any such warning, assume any responsibility to issue future warnings or any general responsibility for protection of persons affected by the Work.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

- SC-11.01.A.2 In paragraph 11.01.A.2 delete the third sentence in its entirety.
- SC-11.04.C.1 Delete paragraph 11.04.C.1 in its entirety.
- SC-11.06.A Amend the first sentence of paragraph 11.06.A to read as follows:
“Contractor shall submit a Change Proposal to Engineer and Owner.....”
- SC-11.06.A.1 Amend the first sentence of paragraph 11.06.A.1 to read as follows:
“Contractor shall submit each Change Proposal to Engineer and Owner.....”
- SC-11.06.A.2 Delete paragraph 11.06.A.2 in its entirety and insert the following in its place:
2. *Engineer’s Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor’s supporting data, make a recommendation to Owner as to approval or denial. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not make a recommendation on the Change Proposal within 30 days, then Contractor may at any time thereafter submit a letter to Owner indicating that as a result of Engineer’s inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
- SC-11.06.A.3 Delete paragraph 11.06.A.3 in its entirety.
- SC-11.07.A.4 Delete paragraph 11.07.A.4 in its entirety.
- SC-11.07.B Delete paragraph 11.07.B in its entirety.

ARTICLE 12 – CLAIMS

- SC-12.01 Delete paragraph 12.01 in its entirety and insert the following in its place:
- If Contractor disputes any interpretation of determination of the Engineer or Owner regarding Change Proposals, Contractor shall, within 30 days, submit a written claim to Owner for Owner’s conclusion. Owner shall respond within 90 days, or barring a response, claim shall be deemed denied.
- A. *Partial Approval:* If Owner approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action Contractor invokes the procedure set forth in Article 17 for final resolution of disputes.
- B. *Denial of Claim:* If efforts to resolve a Claim are not successful, Owner may deny it by giving written notice of denial to Contractor. If Owner does not take action on the Claim within 90 days, then Contractor may at any time thereafter submit a letter to Owner indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial Contractor invokes the procedure set forth in Article 17 for the final resolution of disputes.
- C. *Final and Binding Results:* If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or

otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-13.01.B.1 In the second sentence of paragraph 13.01.B.1, delete the word “superintendents”.

SC 13.01.B.5.c Delete Paragraph 13.01.B.5.c in its entirety and insert the following in its place:

c. Construction Equipment and Machinery:

- 1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
- 2) Costs for equipment and machinery owned by Contractor will be paid at a rate shown for such equipment in the *“Rental Rate Blue Book for Construction Equipment” published by Equipment Watch*. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs. Costs will include the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, shall cease to accrue when the use thereof is no longer necessary for the changed Work. Equipment or machinery with a value of less than \$1,000 will be considered small tools.

SC-13.01.C.1 In paragraph 13.01.C.1 add “superintendents” after “engineers” in the first sentence.

SC 13.03.E Delete Paragraph 13.03.E in its entirety and insert the following in its place:

- E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:
1. if the Bid price of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement.
 2. if there is no corresponding adjustment with respect to any other item of Work; and

3. if Contractor believes that Contractor has incurred additional expense as a result thereof or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, either Owner or Contractor may make a claim for an adjustment in the Contract Price in accordance with Article 10 if the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

ARTICLE 14 – TEST AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

SC-14.02 Add the following paragraph immediately after paragraph 14.02.F:

- G. Contractor shall pay all costs associated with any re-inspection and/or retesting of materials and equipment required by the Engineer as a result of failure of previous test or rejected work as determined by the Engineer. Contractor shall also pay all costs associated with any additional testing requested by the Contractor.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

SC-15.01.B. Delete paragraph 15.01.B.3 of the General Conditions in its entirety and replace with the following:

3. Partial payments will be made on a monthly basis during the contract period. From the total amount ascertained as payable, an amount equivalent to ten percent (10%) of the whole will be deducted and retained by the Owner up until fifty percent (50%) completion of the work. Five Percent (5%) of the whole will be deducted and retained by the Owner up until substantial completion. At which point the Contractor can request a reduction down to two percent (2%) in accordance with Final Payment.

SC-15.01.B Add the following new paragraphs immediately after paragraph 15.01.B.3:

4. Equipment accepted for delivery at the site or at a local bonded warehouse and included in progress estimates in advance of actual requirement will be subject to all conditions stated below.
5. Materials and equipment will not be included in progress estimates until the following requirements have been fulfilled.
 - a. The Contractor must present an invoice to the Engineer for each item of equipment he is requesting payment for. The invoice must be broken down to show the costs for the actual equipment, and reasonable costs for O&M Manuals, spare parts, start-up certification, training, testing, final acceptance testing, and any other services required by Contract.
 - b. Sufficient monies have been allocated in the payment requisition line items to cover all of the costs listed in "a" above, plus the costs of physically installing the equipment.
 - c. The equipment has been submitted and accepted for use in this Project.

- d. The equipment is acceptably stored and protected. Storage in a bonded warehouse will require proof of bonding, and insurance coverage specifically for the item being stored.
 - e. The manufacturer's short and/or long term storage requirements have been received by the Engineer, prior to payment.
 - f. The Contractor has established a program to implement the manufacturer's required storage procedures. Said program to consist of at the very least a written schedule of daily, weekly, monthly, etc., routine maintenance requirements for each piece of equipment. A copy of this schedule to be presented to the Engineer prior to each requisition submittal, signed by the Contractor, stating that the required maintenance has been performed.
 - g. Signed, notarized Title Transfers, format to be furnished by the Engineer, must be furnished for each item of equipment.
6. When the above have been complied with to the satisfaction of the Engineer, payment will be authorized for the full invoice values of the item of equipment, less normal retainage and less all costs for O&M Manuals, spare parts, start-up certification, training, testing, final acceptance testing, and installation.

SC-15.01.D.1 Amend the first line of paragraph 15.01.D.1 to read as follows:

“Thirty days after presentation of the...”

SC-15.01.E.3 Delete paragraph 15.01.E.3 in its entirety.

SC 15.03.B Add the following new subparagraph to Paragraph 15.03.B:

- 1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, shall be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

SC-15.03.C Delete paragraph 15.03.C in its entirety and insert the following in its place:

- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. If Owners does not object to the provisions of the certificate, then Engineer will, within 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected).

SC-15.03.E Delete the second sentence of paragraph 15.03.E in its entirety.

SC-15.08 Add new paragraph immediately after paragraph 15.08 to read as follows:

Liquidated Damages

- A. If the Contractor shall fail to achieve Substantial Completion and/or Final Completion within the times stipulated in the Contract, it shall be liable to pay the Owner the daily amount as stipulated in the Contract not as a penalty, but as fixed and agreed upon damages for breach of contract. The said amount is fixed and agreed upon because of the difficulty of ascertaining the Owner's actual damages. It is mutually understood that the amount is a reasonable approximation or estimate thereof as of the date of the Contract. The said amount may be withheld from periodic or final payments due to the Contractor, in addition to retainage and other back-charges.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

SC-17.01 Add a new paragraph immediately after 17.01.B:

- C. Contractor shall carry on the Work and maintain the progress schedule during the dispute resolution proceedings unless otherwise agreed in writing by Owner and Contractor.

ARTICLE 18 – MISCELLANEOUS

SC-18.08 Delete paragraph 18.08 in its entirety and replace with the following:

18.08 *Headings*

- A. The headings or titles of any article, paragraph, subparagraph, section, subsection, or part of the Contract Documents shall not be deemed to limit or restrict the article, paragraph, section, or part.

SC-18.08 Add the following new paragraph immediately after paragraph 18.08:

SC-18.09 *Legal Address of Contractor*

- A. Contractor's business address and his office at or near the site of the Work are both hereby designated as places to which communications shall be delivered. The depositing of any letter, notice, or other communication in a postpaid wrapper directed to the Contractor's business address in a post office box regularly maintained by the Post Office Department or the delivery at either designated address of any letter, notice, or other communication by mail or otherwise shall be deemed sufficient service thereof upon Contractor, and the date of such service shall be the date of receipt. The first-named address may be changed at any time by an instrument in writing, executed and acknowledged by Contractor and delivered to Engineer. Service of any notice, letter, or other communication upon the Contractor personally shall likewise be deemed sufficient service.

SC-Article 19 Insert the following Article immediately after Article 18:

ARTICLE 19 – OSHA CONSTRUCTION SAFETY PROGRAM

- SC-19.01 Pursuant to NHRSA 277:5-a, the Contractor shall provide an Occupational Health and Safety Administration (OSHA) 10-hour construction safety program for its on-site employees. All employees are required to complete the program prior to beginning work. The training program shall utilize an OSHA-approved curriculum. Graduates shall receive a card from OSHA certifying the successful completion of the training program.
- SC-19.02 Any employee required to complete the OSHA 10-hour construction safety program, and who cannot within 15 days provide documentation of completion of such program, shall be subject to removal from the job site.
- SC-19.03 The following individuals are exempt from the requirements of the 10-hour construction safety program: law enforcement officers involved with traffic control or jobsite security; flagging personnel who have completed the training required by the Department of Transportation; all relevant federal, state and municipal government employees and inspectors; and all individuals who are not considered to be on the site of work under the federal Davis-Bacon Act, including, but not limited to, construction and non-construction delivery personnel and non-trade personnel.

END OF SECTION

**SECTION 00850
SPECIAL CONDITIONS**

The following Special Conditions apply and are hereby made part of the Agreement and Contract Documents.

1.01 PERMITS

- A. Permits applied for or obtained by the Owner, if any, are indicated in paragraph SC-7.08 of the Supplementary Conditions.

1.02 CONSTRUCTION SCHEDULE

- A. The Owner anticipates issuing a Notice to Proceed on this project by April 9, 2020 subject to the successful bidder satisfying the requirements indicated in the Notice of Award.

1.03 RESIDENT PROJECT REPRESENTATIVE

- A. The Owner will provide a part-time Resident Project Representative at no cost to the Contractor. The Resident Project Representative is being provided for the benefit of the Owner, not the Contractor. Duties and responsibilities of the Resident Project Representative are indicated in paragraph SC-10.03 of the Supplementary Conditions.
- B. The Contractor shall notify the Engineer a minimum of 24 hours in advance of key construction activities in order to have the Resident Project Representative present and observe the work. The Contractor shall provide this advance notice for the following construction activities:
 - 1. Installation of Best Management Practices.
 - 2. Installation of Traffic Management Practices.
 - 3. All excavation, backfilling, and compaction activities around, behind or over structures.
 - 4. Identifying concrete repair limits.
 - 5. Completion of constructing concrete formwork and placing reinforcing steel.
 - 6. All cast-in-place concrete placement operations.
 - 7. Placement of barrier membrane.
 - 8. Installation of new expansion joints.
 - 9. Installation of guardrail.
 - 10. All asphalt paving operations.

- B. Failure of the Contractor to provide the proper advanced notice of construction activities as indicated in paragraph 1.03-B may be cause for rejection of the work. Any work rejected shall be removed and replaced by the Contractor at no additional cost to the Owner.

1.04 RAILROAD COORDINATION AND INSURANCE REQUIREMENTS

- A. The Contractor is responsible for coordinating with Pan Am Railways to schedule railroad flaggers, as necessary. The contract assumes railroad flaggers are required for 20 days; additional days beyond the allocated 20 days shall be approved by the Engineer in advance of scheduling. The Contractor shall perform due diligence to coordinate with Pan Am Railways to avoid unnecessary costs for railroad flagging.
- B. Normal working hours for Pan Am Railways flaggers are from 7:00 am to 3:30 pm, and are billed for minimum of an 8 hour day. Flaggers outside of normal hours are billed at time and half. The Contractor shall receive approval from the Engineer or City of Portsmouth prior to scheduling a railroad flagger outside of normal working hours.
- C. Pan Am Railways requires Railroad Protective Liability Insurance, See Section 00800.
- D. The Contractor is required to enter into a Railroad Service Agreement prior to construction, see Appendix E for a sample of the agreement.

1.05 RELATED WORK

- A. General: The Contractor shall cooperate fully with contractors performing other work around the project site so that work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of the Contract with work performed under separate contracts.
- B. The Contractor is notified that the Owner intends to complete improvements to the Market Street corridor under the Market Street Gateway Improvements Project by the end of September 2020. Pavement work and line striping at the location of the Market Street bridges will be completed after the joint replacement project, **and shall commence no later than September 1, 2020**. The Contractor shall coordinate with the City prior to removal of the traffic control prior to completing the joint replacement project. Coordination with the City shall be with Dave Desfosses, Project Manager for the City of Portsmouth Department of Public Works, (603) 766-1411.
- C. The Contractor is notified that NH Department of Transportation (NHDOT) and Maine Department of Transportation (MaineDOT) are undertaking a resurfacing and rehabilitation project on the Piscataqua River Bridge (I-95), which will be completed concurrently with this project. The NHDOT Maintenance Facility located at 10 Ranger Way, north of the Kearsarge Way bridge, will be utilized for staging for the I-95 resurfacing project. The temporary travel lane widths over Kearsarge Way shall be a minimum of 13'-0", unless otherwise coordinated with the MaineDOT Project Resident Engineering; Craig Hurd, (207) 446-1746.

END OF SECTION

SECTION 00940
WORK CHANGE DIRECTIVE
(EJCDC Form C-940)

Work Change Directive No.

Date of Issuance:	Effective Date:
Owner: City of Portsmouth, Public Works Department	Owner's Contract No.: N/A
Contractor:	Contractor's Project No.:
Engineer: Hoyle, Tanner & Associates, Inc.	Engineer's Project No.: 905108
Project: Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market Street, NHDOT Bridge No. 220/143	Contract Name: Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market Street, NHDOT Bridge No. 220/143

Contractor is directed to proceed promptly with the following change(s):

Description:

Attachments: *[List documents supporting change]*

Purpose for Work Change Directive:

Directive to proceed promptly with the Work described herein, prior to agreeing to changes on Contract Price and Contract Time, is issued due to: *[check one or both of the following]*

- ☐ Non-agreement on pricing of proposed change.
- ☐ Necessity to proceed for schedule or other Project reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price	\$	[increase] [decrease].
Contract Time	days	[increase] [decrease].

Basis of estimated change in Contract Price:

- | | |
|---|-------------------------------------|
| <input type="checkbox"/> Lump Sum | <input type="checkbox"/> Unit Price |
| <input type="checkbox"/> Cost of the Work | <input type="checkbox"/> Other |

RECOMMENDED:

AUTHORIZED BY:

RECEIVED:

By:	By:	By:
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Title:	Title:	Title:
Date:	Date:	Date:

Approved by Funding Agency (if applicable)

By:	Date:
Title:	

END OF SECTION

SECTION 00941
CHANGE ORDER
(EJCDC Form C-941)

Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106,

Change Order No. _____

Date of Issuance:	Effective Date:
Owner: City of Portsmouth, Public Works Department	Owner's Contract No.: N/A
Contractor:	Contractor's Project No.:
Engineer: Hoyle, Tanner & Associates, Inc.	Engineer's Project No.: 905108
Project: Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132, & Recreation Trail over Market Street, NHDOT Bridge No. 220/143	Contract Name: Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132, & Recreation Trail over Market Street, NHDOT Bridge No. 220/143

The Contract is modified as follows upon execution of this Change Order:

Description:

Attachments: *[List documents supporting change]*

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES <i>[note changes in Milestones if applicable]</i>
Original Contract Price: \$ _____	Original Contract Times: _____ Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] from previously approved Change Orders No. ____ to No. ____: \$ _____	[Increase] [Decrease] from previously approved Change Orders No. ____ to No. ____: Substantial Completion: _____ Ready for Final Payment: _____ days
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] of this Change Order: \$ _____	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for Final Payment: _____ days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____ Engineer (if required)	By: _____ Owner (Authorized Signature)	By: _____ Owner (Authorized Signature)
Title: _____	Title: Karen S. Conard, City Manager	Title: Peter Rice, Director of Public Works
Date: _____	Date: _____	Date: _____

Approved by Funding Agency (if applicable)

By: _____
Title: _____
Date: _____

ACCEPTED:

By: _____
Contractor (Authorized Signature)
Title: _____
Date: _____

END OF SECTION

SECTION 00942
FIELD ORDER
(EJCDC Form C-942)

Field Order No. _____

Date of Issuance: _____		Effective Date: _____	
Owner:	City of Portsmouth, Public Works Department	Owner's Contract No.:	N/A
Contractor:		Contractor's Project No.:	
Engineer:	Hoyle, Tanner & Associates, Inc.	Engineer's Project No.:	905108
Project:	Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market Street, NHDOT Bridge No. 220/143	Contract Name:	Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market Street, NHDOT Bridge No. 220/143

Contractor is hereby directed to promptly execute this Field Order, issued in accordance with General Conditions Paragraph 11.01, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference: _____	_____
Specification(s)	Drawing(s) / Detail(s)

Description: _____

Attachments: _____

ISSUED:		RECEIVED:	
By: _____	By: _____		
Engineer (Authorized Signature)	Contractor (Authorized Signature)		
Title: _____	Title: _____		
Date: _____	Date: _____		

Copy to: Owner

END OF SECTION

SECTION 00943
CERTIFICATE OF SUBSTANTIAL COMPLETION
(EJCDC Form C-625, Modified)

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner:	City of Portsmouth, Public Works Department	Owner's Contract No.:	N/A
Contractor:		Contractor's Project No.:	
Engineer:	Hoyle, Tanner & Associates, Inc.	Engineer's Project No.:	905108
Project:	Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market Street, NHDOT Bridge No. 220/143	Contract Name:	Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market Street, NHDOT Bridge No. 220/143

This [preliminary] [final] Certificate of Substantial Completion applies to:

☐

All Work

☐

The following specified portions of the Work:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]*

Amendments to Owner's responsibilities:

☐

None

☐

As follows:

Amendments to Contractor's responsibilities:

☐

None

☐

As follows:

The following documents are attached to and made a part of this Certificate:

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract.

EXECUTED BY ENGINEER:

RECEIVED:

RECEIVED:

By: _____ (Authorized signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

END OF SECTION

**SECTION 00950
CONSENT OF SURETY COMPANY TO FINAL PAYMENT**

OWNER'S CONTRACT NO.: N/A

ENGINEER' PROJECT NO.: 905108

AGREEMENT DATE: _____

BOND NUMBER: _____

CONTRACT TITLE: Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market Street, NHDOT Bridge No. 220/143

To: City of Portsmouth, Public Works Department (Owner)
680 Peverly Hill Road
Portsmouth, NH 03801

From: _____ (Contractor)

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the _____(Surety) on the bond of _____(Contractor) hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety Company of any of it's obligations to the _____ City of Portsmouth, Public Works Department _____ (Owner) as set forth in the said Surety Company's Bond.

IN WITNESS WHEREOF, the Surety Company has hereunto set its hand this _____ day of _____, 20__.

Surety Company

Signature of Authorized Representative

Attest: (Seal)

Name & Title

Note: Power of Attorney should be attached in instances where same applies.

END OF SECTION

SECTION 00960
CONTRACTOR'S FINAL LIEN WAIVER
(Page 1 of 2)

OWNER'S CONTRACT NO.: N/A

ENGINEER' PROJECT NO.: 905108

AGREEMENT DATE: _____

CONTRACT TITLE: Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market Street, NHDOT Bridge No. 220/143

To: City of Portsmouth, Public Works Department (Owner)
680 Peverly Hill Road
Portsmouth, NH 03801

APPLICATION FOR FINAL PAYMENT

The undersigned hereby certifies that the amount owed set forth below constitutes the entire value of all work performed and services rendered by, through or under the undersigned with respect to the project not heretofore paid for up to and including the period covered by the above Application for Final Payment; that all work covered by such Application has been incorporated into the project and title thereto has passed to the Owner free and clear of all liens, claims, security, interests or encumbrances; and that no work covered by such Application has been acquired subject to an agreement under which any interest therein or an encumbrance thereon is retained by the seller or any other person. In consideration of payment of the requisition, the undersigned hereby releases the Owner from all claims of lien which the undersigned has regarding the Project.

The undersigned, in order to induce the Owner to pay the requisition, hereby represents that it has paid or will pay from the proceeds of the requisition all sums due to those parties who have performed work or provided materials to the undersigned in connection with the Project, and that it will on request of the Owner provide written evidence of the discharge by the undersigned of its obligations to such parties.

Executed under seal as of this _____ day of _____, 20____.

Amount Owed to Contractor by Owner as Final Payment:
\$ _____ (total value of project including change orders)

Amount Unpaid From Previous Application for Payment:
\$ _____

CONTRACTOR'S FINAL LIEN WAIVER
(Page 2 of 2)

From: _____ (Contractor)

Authorized Representative Signature

Name and Title (printed)

NOTARY:

Then personally appeared the above named _____ and
acknowledged the foregoing to be the free act and deed of the above-named Contractor, before me.

Subscribed and sworn to on the _____ day of _____, 20__.

Notary Public: _____

My Commission Expires: _____

END OF SECTION

SECTION 00970
CERTIFICATE OF FINAL COMPLETION OF WORK
(Page 1 of 2)

OWNER'S CONTRACT NO.: N/A

ENGINEER' PROJECT NO.: 905108

AGREEMENT DATE: _____

CONTRACT TITLE: Proposed Bridge Repairs, Market Street over Tidal Basin NHDOT Bridge Nos. 240/106 & 241/106, Kearsarge Way over Pan Am Railways NHDOT Bridge No. 240/132 , & Recreation Trail over Market Street, NHDOT Bridge No. 220/143

FINAL COMPLETION DATE PER AGREEMENT AND CHANGE ORDERS: _____

ACTUAL DATE OF FINAL COMPLETION: _____

FINAL CERTIFICATION OF CONTRACTOR

I hereby certify that the Work as identified in the Final Payment Request dated _____ for the above-noted construction Contract represents full compensation for the actual value of work completed. Additionally, all work completed conforms to the terms of the Agreement and authorized changes.

CONTRACTOR

Date

Authorized Representative's Signature

Name & Title

FINAL CERTIFICATION OF ENGINEER

I have reviewed the Contractor's Final Payment Request dated __ and hereby certify that to the best of my knowledge, the cost of the work identified on the Final Payment Request represents full compensation for the actual value of work completed and that the work has been completed in accordance with the terms of the Agreement and authorized changes.

Hoyle, Tanner and Associate, Inc.

ENGINEER

Date

Authorized Representative's Signature

Name & Title

CERTIFICATE OF FINAL COMPLETION OF WORK

(Page 2 of 2)

FINAL ACCEPTANCE OF OWNER

I, as representative of the Owner, accept the above Final Certifications and authorize Final Payment in the amount of \$_____ and direct the Contractor's attention to the General Conditions. The guaranty for all Work completed subsequent to the date of Substantial Completion, expires _____ year from the date of this Final Acceptance.

City of Portsmouth, Public Works Department
OWNER

Date

Authorized Representative's Signature

Name & Title

END OF SECTION

**SECTION 01010
SUMMARY OF WORK**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Contract description.
- B. Work by Owner.
- C. Owner supplied Products.
- D. Contractor use of site.
- E. Future work.
- F. Work sequence.
- G. Owner occupancy.
- H. Construction Permits and Easements

1.2 RELATED SECTIONS

- A. Drawings and General Provisions of the Contract, including General Supplementary Conditions and other Division 1 Specifications apply to this section.

1.3 CONTRACT DESCRIPTION

- A. Contract Type: Unit Price as stated in the Agreement.

1.4 WORK BY OWNER

Not Used.

1.5 OWNER SUPPLIED PRODUCTS

Not Used.

1.6 CONTRACTOR USE OF SITE

- A. Limit use of site to allow:
 - 1. Owner access.
 - 2. Allow access to local property owners.
 - 3. Engineer access.
 - 4. Permitting agency access.

- B. Construction Operations: Limited to right-of-way and easement areas as shown on the drawings.
- C. Time Restrictions for Performing Work: The Contractor will be limited to accessing the site and performing the required work between the hours of 7:00am to 6:00pm, Monday through Friday.
- D. Unfavorable Construction Conditions
 - 1. During unfavorable weather (wet ground, extreme temperatures, etc) or other unsuitable construction conditions, confine operations to work that will not be affected adversely by such conditions. The mixing and placing of concrete or pavement courses, the laying of masonry and the installation of drain systems shall be stopped during rain storms of any intensity. All freshly placed work shall be protected by canvas or other suitable covering. Placement of select materials under roadways or driveways may be allowed in light rain with the approval of the Engineer.
 - 2. No portion of Work shall be constructed under conditions that adversely affect quality or efficiency thereof, unless special means or precautions are taken to perform Work in manner acceptable to the Engineer.

1.7 FUTURE WORK

Not Used.

1.8 WORK SEQUENCE

- A. Construct Work as shown on the drawings, coordinate construction schedule and operations with Engineer.

1.9 OWNER OCCUPANCY

Not Used.

1.10 CONSTRUCTION PERMITS AND EASEMENTS

- A. The Owner shall be responsible for identifying and obtaining federal, state, and local permits as may be required due to the nature and location of construction as depicted in the drawings except those required to be obtained by the Contractor such as trench permits, building permits, waste disposal permits, etc. Should the Contractor's preferred means and methods benefit from additional impact areas for which the Owner has not obtained permits, it shall be the Contractor's responsibility to coordinate and pay for additional permitting at no cost to the Owner. Failure of the Contractor to obtain additional permits shall not relieve the Contractor from constructing the project per the Contract Documents. To the extent possible, Owner procured permits shall be obtained prior to the Advertisement for Bids for construction, and copies of all permits so obtained shall be included in the Appendix. The status of the application on each permit, including the conditions thereof, not obtained prior to the Advertisement for Bids shall also be indicated in the Supplementary Conditions.

- B. When construction permits are accompanied by regulations or requirements issued by a particular authority or agency, it shall be the Contractor's responsibility to familiarize himself and comply with such regulations or requirements as they apply to his operations on this project.
- C. The Owner shall be responsible for identifying and obtaining all easements for this contract prior to construction which are necessary for construction as depicted in the drawings. Should the Contractor's means and methods benefit from access to other property for which easements have not been obtained, it shall be the Contractor's responsibility to obtain additional easements. Failure of the Contractor to obtain the additional easements shall not relieve the Contractor from constructing the project per the Contract Documents.
- D. The Owner has applied for or obtained the following permits:
 - 1. None.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

**SECTION 01019
CONTRACT CONSIDERATIONS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Cash allowances.
- B. Contingency allowance.
- C. Inspecting and testing allowances.
- D. Schedule of Values.
- E. Applications for Payment.
- F. Change procedures.
- G. Defect Assessment.
- H. Measurement and payment - unit prices.
- I. Alternatives.

1.2 RELATED SECTIONS

- A. Drawings and General Provisions of the Contract, including General Supplementary Conditions and other Division 1 Specifications apply to this section.

1.3 CASH ALLOWANCES

- B. Contract items which may be paid for as an allowance will be identified in the Bid Form. Payment under these items will be identified in the appropriate specification section related to this item.

1.4 CONTINGENCY ALLOWANCE

Not Used.

1.5 INSPECTING AND TESTING ALLOWANCES

Not Used.

1.6 SCHEDULE OF VALUES

- A. Submit a printed schedule of values in accordance with Section 00700, paragraph 2.05-A. for all lump sum bid items of the work. Contractor's standard form or electronic media printout

will be considered.

- B. Submit Schedule of Values in duplicate within 10 days after date of Owner-Contractor Agreement established in Notice to Proceed.
- C. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the major specification Section.
- D. Include in each line item, the amount of Allowances specified in this section.
- E. Include within each line item, a direct proportional amount of Contractor's overhead and profit.
- F. Revise schedule to list approved Change Orders, with each Application For Payment.

1.7 APPLICATIONS FOR PAYMENT

- A. Submit three copies of each application on Contractor's electronic media driven form or EJCDC C-620 (Section 00620).
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Payment Period: 30 days
- D. Include any forms required by Owner.
- E. Include an updated construction progress schedule.

1.8 CHANGE PROCEDURES

- A. The Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time as authorized by the General Conditions.
- B. The Owner may issue a Change Order which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within 7 days.
- C. The Contractor may propose changes by submitting a request for change to the Engineer, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other Contractors. Document any requested substitutions in accordance with Section 01600.
- D. Field Order: Engineer may issue a directive, on EJCDC Form C-942 Field Order signed by the Engineer and Contractor for minor changes in the Work without changes in Contract Price or Contract Times. Promptly execute the Field Order.

- E. Work Change Directive: Engineer may issue a directive, on EJCDC Form C-940 Work Change Directive signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute the change.
- F. Unit Price Change Order: For contract unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute Work under a Work Change Directive. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.
- G. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Engineer will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents.
- H. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.
- I. Change Order Forms:
 - Work Change Directive Forms EJCDC C-940 (Section 00940)
 - Change Order Form EJCDC C-941 (Section 00941)
 - Field Order Form: EJCDC C-942 (Section 00942)
- J. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

1.9 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of the Engineer, it is not practical to remove and replace the Work, the Engineer will direct an appropriate remedy or adjust payment.

1.10 MEASUREMENT AND PAYMENT - UNIT PRICES

- A. Authority: Measurement methods are delineated in the individual specification sections.
- B. Take measurements and compute quantities. The Engineer will verify measurements and quantities proposed by the Contractor, or the Engineer will take measurements and compute quantities accordingly. Provide and assist in the taking of measurements.
- C. Unit Quantities: Quantities and measurements indicated in the Bid Form are for bidding purposes only. Actual quantities provided shall determine payment.

- D. Payment Includes: Full compensation for required labor (including sales tax), products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.11 ALTERNATIVES

Not Used.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01039
COORDINATION AND MEETINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination and project conditions.
- B. Field engineering.
- C. Preconstruction meeting.
- D. Site mobilization meeting.
- E. Progress meetings.
- F. Pre-Paving meeting.
- G. Guardrail preinstallation meeting.
- H. Preinstallation meetings.

1.2 RELATED SECTIONS

- A. Drawings and General Provisions of the Contract, including General Supplementary Conditions and other Division 1 Specifications apply to this section.

1.3 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals, and Work of the various sections of the Specifications to ensure efficient and orderly sequence of construction elements.
- B. Verify all existing utility locations.
- C. Verify dimensions of existing structures to be maintained or rehabilitated.

1.4 FIELD ENGINEERING

- A. The Contractor shall confirm drawing dimensions and elevations.
- B. The Contractor shall provide field engineering services including establishing elevations, lines, and levels, utilizing recognized construction survey practices.
- C. The Contractor shall furnish assistance to the Engineer as requested to check the layout or otherwise control the work. Such assistance shall be understood to include the provision of suitable manpower to assist the Engineer in taping measurements, holding a survey rod for checking grades and the like.

- D. The Engineer reserves the right to inspect or check any of this work, and the Contractor shall not claim added compensation for any delay occasioned by the Engineer exercising this right, nor for any corrective work which is required as a result of the Engineer's inspections.
- E. The Contractor shall provide field engineering services for working jointly with the Engineer to identify concrete repair limits after the asphalt wearing surface has been removed.

1.5 PRECONSTRUCTION MEETING

- A. Engineer will schedule a meeting after Notice of Award.
- B. Attendance Required: Owner, Engineer and Contractor.
- C. Sample Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of list of Subcontractors, schedule of values, and progress schedule.
 - 5. Submission of list of surveyor or person responsible for layout, testing agency and other parties providing services on the project.
 - 6. Designation of personnel representing the parties in Contract, and the Engineer.
 - 7. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - 8. Procedures for layout of the project, establishing controls, limits of right-of-way and easements.
 - 9. Scheduling.
- D. Engineer will record notes and distribute copies to participants and those affected by decisions made.

1.6 SITE MOBILIZATION MEETING

- A. Engineer may schedule a meeting at the Project site prior to Construction start-up.
- B. Attendance Required: Engineer, Contractor's Superintendent, and major Subcontractors.
- C. Sample Agenda:
 - 1. Use of site by Owner and Contractor.
 - 2. Owner's requirements.
 - 3. Construction facilities provided by Contractor.
 - 4. Temporary utilities provided by Contractor.
 - 5. Survey layout.
 - 6. Security and housekeeping procedures.
 - 7. Schedules.
 - 8. Application for payment procedures.

9. Procedures for testing.
 10. Procedures for maintaining record documents.
- D. Engineer will record notes and distribute copies to participants and those affected by decisions made.

1.7 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at weekly intervals or intervals agreed to by Owner/Engineer/Contractor.
- B. Engineer will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
- C. Attendance Required: Contractor's superintendent, major Subcontractors and suppliers, Engineer, as appropriate to agenda topics for each meeting.
- D. Sample Agenda:
1. Review notes of previous meetings.
 2. Review of Work progress.
 3. Field observations, problems, and decisions.
 4. Identification of problems which impede planned progress.
 5. Review of submittals schedule and status of submittals.
 6. Review of off-site fabrication and delivery schedules.
 7. Maintenance of progress schedule.
 8. Corrective measures to regain projected schedules.
 9. Planned progress during succeeding work period.
 10. Coordination of projected progress.
 11. Maintenance of quality and work standards.
 12. Effect of proposed changes on progress schedule and coordination.
 13. Other business relating to Work.
- E. Engineer will record notes and distribute copies to participants and those affected by decisions made.

1.8 PRE-PAVING MEETING

- A. A pre-paving meeting may be held a minimum of one week prior to the start of paving operations of any kind with the representatives of the Owner, Engineer, Contractor and Paving Sub-Contractor.

1.9 GUARDRAIL PREINSTALLATION MEETING

- A. A guardrail preinstallation meeting may be held a minimum of two weeks prior to the start of guardrail installation operations of any kind with the representatives of the Owner, Engineer, Contractor and Guardrail Sub-Contractor.

2.0 PREINSTALLATION MEETINGS

Not Used.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 CUTTING AND PATCHING

- A. Employ skilled and experienced installer to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements which affect:
 - 1. Structural integrity of element.
 - 2. Integrity of weather-exposed or moisture-resistant elements.
 - 3. Efficiency, maintenance, or safety of element.
 - 4. Visual qualities of sight exposed elements.
 - 5. Work of Owner or separate contractor.
- C. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:
 - 1. Fit the several parts together, to integrate with other Work.
 - 2. Uncover Work to install or correct ill-timed Work.
 - 3. Remove and replace defective and non-conforming Work.
 - 4. Remove samples of installed Work for testing.
 - 5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- D. Execute work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- E. Cut masonry and concrete materials using masonry saw or core drill.
- F. Restore Work with new Products in accordance with requirements of Contract Documents.
- G. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- H. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.
- I. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.
- J. Identify hazardous substances or conditions exposed during the Work to the Engineer for decision or remedy.

3.2 ALTERATION PROJECT PROCEDURES

- A. Materials: As specified in Product sections; match existing Products and work for patching and extending work.
- B. Employ skilled and experienced installer to perform alteration work.
- C. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.
- D. Remove, cut, and patch Work in a manner to minimize damage and to provide means of restoring Products and finishes to original or specified condition.
- E. Refinish existing visible surfaces to remain in renovated rooms and spaces, to specified or renewed condition for each material, with a neat transition to adjacent finishes.
- F. Where new Work abuts or aligns with existing, provide a smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.
- G. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and submit recommendation to Engineer for review.
- H. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
- I. Finish surfaces as specified in individual Product sections.

END OF SECTION

**SECTION 01300
SUBMITTALS**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Proposed Products list.
- D. Product Data.
- E. Shop Drawings.
- F. Samples.
- G. Design data.
- H. Test reports.
- I. Certificates.
- J. Manufacturer's instructions.
- K. Manufacturer's field reports.
- L. Erection drawings.
- M. Construction photographs.

1.2 RELATED SECTIONS

- A. Section 01400 - Quality Control: Manufacturers' field services and reports.
- B. Section 01700 - Contract Closeout: Contract warranties, bonds, manufacturers' certificates, and closeout submittals.

1.3 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Engineer-accepted form.
- B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

- C. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate.
- D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite the Project, and deliver to Engineer at Hoyle, Tanner & Associates, Inc. (Hoyle, Tanner), Inc. 150 Dow Street, Manchester, NH 03101. Coordinate submission of related items.
- F. For each submittal for review, allow 21 days excluding delivery time to and from the Contractor.
- G. Identify variations from Contract Documents which may be detrimental to successful performance of the completed Work.
- H. Provide space for Contractor and Engineer review stamps.
- I. When revised for resubmission, identify all changes made since previous submission.
- J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- K. Submittals not requested will not be recognized or processed.
- L. The cost of furnishing drawings and details, calculations, product data, samples, test reports and certificates shall be included in the Contract unit price for the item involved.

1.4 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial schedule in duplicate within ten days after date of Owner-Contractor Agreement established in Notice to Proceed.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Submit a computer generated horizontal bar chart with separate line for each major portion of Work or operation, identifying first workday of each week.
- E. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- F. Indicate estimated percentage of completion for each item of Work at each submission.

- G. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner.

1.5 PROPOSED PRODUCTS LIST

- A. Within fifteen days after date of Owner-Contractor Agreement, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.6 PRODUCT DATA

- A. Product Data For Review:
 - 1. Submitted to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
 - 2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - CONTRACT CLOSEOUT.
- B. Submit the number of copies as indicated in the General Conditions.
- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. After review distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01700 - CONTRACT CLOSEOUT.

1.7 SHOP DRAWINGS

- A. Shop Drawings For Review and Approval:
 - 1. Submitted to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
 - 2. The Contractor or fabricator shall not begin work on the activity or fabrication involved without approval of the details and procedures. Engineer's approval of drawings and procedures does not relieve the Contractor or fabricator of compliance with all specifications and code requirements. The Engineer assumes no responsibility for error(s) and/or omission(s) of details.
 - 3. Drawings and procedures identified as "approved as noted" indicate that specific clarification or conditional changes have been identified and take precedence over submitted information. Withholding of approval by the Engineer for selected details, calculations or procedures shall not constitute a basis for delay.
 - 4. After approval or approval as noted of the drawings, details and procedures, no changes shall be made without written approval of the Engineer. The Contractor or fabricator shall assume risk for materials ordered or work performed prior to the

approval of the Engineer.

5. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - CONTRACT CLOSEOUT.

B. Shop drawings to be submitted are classified in two categories:

1. Fabrication Drawings: Drawings required for work performed by or in conjunction with materials furnished by a fabricator or supplier. Drawings provided to the Engineer for review and approval shall consist of complete details developed from information in the Plans and these Specifications to define dimensions, sizes, procedures, and materials necessary to complete fabrication and installation or erection of the work specified.
2. Working Drawings: Drawings submitted for review and approval shall include, but not be limited to; the following: temporary bridge plans, removal of existing bridge structure plans, cofferdam plans, water diversion structure plans, plans of precast elements to be designed by the Contractor, erection plans, temporary support systems, falsework plans, scaffolding plans and bridge analysis, detour plans, sign structure plans, traffic signal poles and mast arm plans, or any other working drawings for review and approval required by the Contract. If not specifically noted in the applicable Technical Specifications, all items listed above must be designed and sealed by a Professional Engineer licensed in the State of New Hampshire.

Shop drawings that must be submitted for review and approval are listed in Section 01300, Paragraph 3.1.C.

C. Submit the number and type as indicated in the General Conditions.

1.8 SAMPLES

A. Samples For Review:

1. Submitted to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
2. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - CONTRACT CLOSEOUT.

B. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

C. Include identification on each sample, with full Project information.

D. Submit the number of samples as indicated in the General Conditions.

E. Reviewed samples which may be used in the Work are indicated in individual specification sections.

- F. Samples will not be used for testing purposes unless specifically stated in the specification section.

1.9 DESIGN DATA

- A. Submit for the Engineer's review and approval.
- B. Submit information for the purpose of assessing conformance with information given and the design concept expressed in the contract documents.
- C. For an item or element of work which includes optional design data and calculations that affect structural capacity, safety, and/or the results of work, the Contractor shall prepare for the Engineer's review and approval detailed design data and calculations of how the work is proposed to be performed and adequately controlled.

1.10 TEST REPORTS

- A. Submit test reports for information for the purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.11 CERTIFICATES

- A. When specified in individual specification sections, submit certification by the manufacturer, installation/application subcontractor, or the Contractor using the Certificate of Compliance form at the end of this section or an approved equal, to Engineer, in quantities specified for Product Data.
- B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

1.12 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, adjusting, and finishing, to Engineer for delivery to the site in quantities specified for Product Data.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
- C. Refer to Section 01400 - Quality Control, Manufacturers' Field Services article.

1.13 MANUFACTURER'S FIELD REPORTS

Not Used.

1.14 ERECTION DRAWINGS

Not Used.

1.15 CONSTRUCTION PHOTOGRAPHS

Not Used.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 SUBMITTALS

A. The Contractor shall provide to the Engineer product data, shop drawings, samples, Certificates of Compliance and other submittals to the Engineer as indicated in the submittal summary provided in this section. The summary provided is not all inclusive and does not relieve the Contractor from providing all submittals identified or call for in the Contract Documents (plans and individual section specifications).

B. Product Data

Submit the following product data:

<u>Specification Section</u>	<u>Item</u>
01300, 1.6 A,B	Products List
01700, 1.6 B	Warranties
403	Pavement Joint Adhesive
534	Water Repellent
535.1	Concrete Staining and Sealing
535.2	Anti-Graffiti Coating
538	Barrier Membrane
541	PVC Waterstop
556.101	Paint
560	Prefabricated Expansion Joint
561	Prefabricated Strip Seal Expansion Joint
562	Silicone Joint Sealant
607	Chain Link Fence Fabric, Paint
645	Erosion Control Measures
646	Turf Establishment

C. Shop Drawings

Submit fabrication drawings for review and approval for the following:

<u>Specification Section</u>	<u>Item</u>
544	Reinforcing Steel
560.131	Prefabricated Compression Seal Expansion Joint - Rehabilitation
560.14	Prefabricated Expansion Joint
561.1	Prefabricated Strip Seal Expansion Joint
565.919	Bridge Approach Rail, Thrie Beam Transition (Steel Posts) (Modified)
606.6211	Ramp Handrail, W/Guard Steel
607	Modifications to the Main and Approach Span Fence

Submit working drawings for review and approval for the following:

<u>Specification Section</u>	<u>Item</u>
502	Removal of Existing Bridge Structure
511.02	Preparation of Partial Depth Concrete Bridge Deck Repairs
511.03	Preparation of Full Depth Concrete Bridge Deck Repairs
512	Preparation of Concrete Repairs
550.191	Temporary Girder Support System
619	Traffic Control Plan

D. Samples

Not Used.

E. Design Data

403	Pavement Mix Design
520	Concrete Mix Design

F. Test Reports

Not Used.

G. Certificates

Submit Certificates of Compliance using the Certificate of Compliance form at the end of this section or an approved equal for the following:

Specification Section

Item

403	Asphalt Materials
520	Concrete
534	Water Repellent
538	Barrier Membrane
544	Reinforcing Steel
560	Prefabricates Expansion Joint
561	Prefabricated Strip Seal Expansion Joint
562	Silicone Joint Sealant
565	Bridge Approach Rail
632	Retroreflective Paint Markings

H. Manufacturers Instructions

Specification Section

Item

01300, 1.12 - A&B	Manufacturers Instructions
534	Water Repellent
535.1	Concrete Staining and Sealing
535.2	Anti-Graffiti Coating
538	Barrier Membrane
560	Prefabricates Expansion Joint
561	Prefabricated Strip Seal Expansion Joint

I. Submissions Requiring Professional Engineer or Other Certifications

Profession Engineer

Not Used.

Other Certifications

Not Used.

J. Other Submittals

Specification Section

Item

00700, 2.03 – A: 01300, 1.4 A-G	Progress Schedule
00700, 2.03 A	Schedule of Value
00700, 2.03 A	List of Submittals
00700, 7.13	Safety Representative
01039, 1.5 – C. 4	List of Subcontractors
01400, 1.9 – B	Manufacturers Field Services
01700, 1.3 A-C	Closeout Procedures

3.2 ENGINEER'S REVIEW

- A. Reference Section 00800-SC-7.16 E. 2 for information regarding the Engineer's review of Contractor submittals.

CERTIFICATE OF COMPLIANCE

Date _____ 20____

WE, _____
(Manufacturer, Supplier, or Contractor)

Address: _____

HEREBY CERTIFY THAT _____
(Type of Product)

(Product Trade Name)

Manufactured by _____

Supplied by: _____

Furnished to _____

Contractor (Prime or Sub.)

Delivered and Used on:

Project Name Federal No. State No.

Used for Item No. _____
Name of Item

MEETS THE REQUIREMENTS OF THE PERTINENT PROJECT PLANS, SPECIAL PROVISIONS AND SPECIFICATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT) IN ALL RESPECTS. PROCESSING, PRODUCT TESTING, AND INSPECTION CONTROL OF RAW MATERIALS ARE IN CONFORMANCE WITH ALL APPLICABLE SPECIFICATIONS, DRAWINGS AND STANDARDS OF ALL ARTICLES FURNISHED.

All records and documents pertinent to this certificate and not submitted herewith will be maintained available by the undersigned for a period of not less than three years from the date the Project has been completed and accepted.

Signed by _____ Title _____
(Officer of Organization)

Subscribed and sworn to before me this _____ day of _____.

Notary Public/Justice of the Peace My Commission Expires: _____

TO BE COMPLETED BY CONTRACTOR. Location information the QPL

Bridge Items

Roadway Items

Bridge No.: _____

Station: _____

END OF SECTION

SECTION 01400 QUALITY CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality assurance - control of installation.
- B. Tolerances.
- C. References and standards.
- D. Mock-up.
- E. Material testing and laboratory services.
- F. Observation Services.
- G. Manufacturers' field services.

1.2 RELATED SECTIONS

- A. Section 01300 - Submittals: Submission of manufacturers' instructions and certificates.
- B. Section 01600 - Material and Equipment: Requirements for material and product quality.

1.3 QUALITY ASSURANCE - CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure Products in place with positive anchorage devices designed and sized to withstand

stresses, vibration, physical distortion, or disfigurement.

1.4 TOLERANCES

- A. Monitor fabrication and installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.5 REFERENCES AND STANDARDS

- A. For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.
- C. Obtain copies of standards where required by product specification sections.
- D. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Engineer shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.6 MOCK-UP

Not Used.

1.7 MATERIAL TESTING AND LABORATORY SERVICES

- A. Owner or Engineer may appoint, employ, and pay for specified services of an independent firm to perform construction material testing services.
- B. The independent firm will perform testing and other services specified in individual sections and as required by the Owner or Engineer.
- C. Testing reports will be submitted by the independent firm to the Owner or Engineer indicating services and indicating compliance or non-compliance with the contract documents.
- D. Cooperate with independent firm; furnish safe access and assistance by incidental labor as requested.
 - 1. Notify Engineer and/or independent firm 48 hours prior to expected time for operations requiring services. These operations include, but are not necessarily limited to:

- Cast-in-place concrete placement
 - Compaction of backfill for structures and roadway
 - Bituminous pavement construction
- E. All additional testing or re-testing necessitated by the failure of initial tests as determined by the Engineer shall be conducted and paid for by the Contractor as directed by the Engineer.
1. The Contractor shall take immediate corrective measures as suggested by the testing laboratory and/or directed by the Engineer to make the materials meet or exceed the specifications.
 2. Payment for additional testing or re-testing will be charged to the Contractor by deducting charges from the total contract sum/price.

1.8 OBSERVATION SERVICES

- A. Owner may appoint, employ, and pay for specified services of an independent firm to perform construction observation.
- B. The independent firm will perform observations and other services specified in individual specification sections and as required by the Owner.
- C. Reports will be submitted by the independent firm to the Owner, in duplicate, indicating observations and indicating compliance or non-compliance with Contract Documents.
- D. Contractor shall cooperate with independent firm; furnish safe access and assistance by incidental labor as requested.
1. Notify Engineer and/or independent firm 48 hours prior to expected time for operations requiring services.
- E. Observations do not relieve Contractor to perform Work to contract requirements.

1.9 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Engineer 30 days in advance of required observations. Observer subject to approval of Engineer.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- D. Refer to Section 01300 - SUBMITTALS, MANUFACTURERS' FIELD REPORTS article.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

3.1 EXAMINATION

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Verify that utility services are available, of the correct characteristics, and in the correct locations.

3.2 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

END OF SECTION

SECTION 01500
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Temporary Utilities: telephone/fax service, water, and sanitary facilities.
- B. Temporary Controls: Barriers, enclosures and fencing, protection of the Work, water control and erosion controls.
- C. Construction Facilities: Access roads, parking, progress cleaning and project signage.

1.2 RELATED SECTIONS

- A. Section 01700 - Contract Closeout: Final cleaning.

1.3 TEMPORARY ELECTRICITY

Note Used.

1.4 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

Not Used.

1.5 TEMPORARY HEATING

Not Used.

1.6 TEMPORARY COOLING

Not Used.

1.7 TEMPORARY VENTILATION

Not Used.

1.8 TELEPHONE SERVICE

- A. Provide, maintain, and pay for cell phone service with voicemail assigned to the Contractor's foreman at time of project mobilization.

1.9 FACSIMILE SERVICE

Not Used.

1.10 TEMPORARY WATER SERVICE

- A. Provide, maintain and pay for suitable quality water service required for construction operations at time of project mobilization.
- B. Contractor will pay cost of water used. Exercise measures to conserve water. Provide separate metering if obtaining from local water utility and reimburse Owner for cost of water used.
- C. Extend branch piping with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing.

1.11 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. At end of construction, return facilities to same or better condition as originally found.

1.12 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

1.13 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide erosion control barriers as required to protect site from soil erosion.

1.14 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to prevent damage.
- C. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- D. Prohibit traffic from landscaped areas.

1.15 SECURITY

- A. Provide security and facilities to protect Work, and existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

1.16 ACCESS ROADS

- A. Construct and maintain temporary roads accessing public thoroughfares to serve construction area.
- B. Provide and maintain access to fire hydrants, free of obstructions.
- C. Provide means of removing mud from vehicle wheels before entering streets.
- D. Designated existing on-site roads may be used for construction traffic at the discretion of the Engineer.

1.17 PARKING

- A. Construction personnel shall park within the project limits so as not to obstruct local traffic and construction activities.

1.18 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Collect and remove waste materials, debris, and rubbish from site daily and dispose off-site.

1.19 FIELD OFFICES AND SHEDS

- A. If a field office is not provided by the Contractor for the project, an enclosed, weather tight area such as a tool storage trailer with sufficient space to layout the plans and provide for storage of the project plans, specifications and project submittals shall be provided.

1.20 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities and materials, prior to Final application for Payment.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing and permanent land and facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

1.21 DUST CONTROL

- A. GENERAL

1. The Contractor shall furnish all labor, materials, tools and equipment necessary to apply water on roads or traveled surfaces within the construction site when directed by the Engineer and/or as necessary to control dust. Calcium chloride will not be allowed to be used on this project due to the potential for contaminating nearby surface water or groundwater.
2. When dust control is not included as a separate item in the Contract, the work shall be considered incidental to the appropriate items of the Contract.

B. PRODUCTS

1. Water for sprinkling shall be clean, free of salt, oil and other injurious materials.

C. EXECUTION

1. Water shall be applied by equipment approved by the Engineer. As a minimum it shall consist of a tank, a spray bar and a gauge equipped pump. Water shall be dispersed through nozzles at a minimum pressure of 20 psi.

1.22 ADVERSE CONDITIONS

A. NIGHT WORK

1. Work after dark will not be permitted except under extreme emergency, or only under special directions, and only if permitted by the Engineer.
2. Whenever the Contractor finds it necessary or expedient to do work at night, such night work shall be performed by the Contractor without additional or extra cost to the Owner, and only with the Owner's approval. The Contractor shall provide all lights required for the proper and expeditious carrying on of any work.
3. The placing of concrete shall be started early enough in the daylight hours to insure completion of the section under construction before dark.

B. WEATHER CONDITIONS

1. No work shall be done when the weather is unsuitable. The Contractor shall take necessary precautions (in the event of impending storms) to protect all work, materials or equipment from damage or deterioration due to floods, driving rain, or wind and snowstorms. The Owner reserves the right, through the opinion of the Engineer, to order that additional protective measures over and beyond those proposed by the Contractor, be taken to safeguard all components of the project. The Contractor shall not claim any compensation for such precautionary measures so ordered, nor claim any compensation from the Owner for damage to the work from weather elements.
2. The mixing and placing of concrete or pavement courses, the laying of masonry, and

installation of sewers and water mains shall be stopped during rain storms; all freshly placed work shall be protected by canvas or other suitable covering in such manner as to prevent running water from coming in contact with it. Sufficient coverings shall be provided and kept ready at hand for this purpose. The limitations and requirements for mixing and placing concrete, or laying of masonry, in cold weather shall be as described elsewhere in these specifications.

1.23 POLICING

A. GENERAL

1. When, in the opinion of the Owner, or the Engineer, public safety or convenience requires the services of police, the Engineer may direct the Contractor to request the local police department to assign uniformed officers to direct traffic within the location of work under the Contract.
2. When so directed, the Contractor shall make all arrangements in obtaining police assistance and shall pay all police officers. The police shall, at all times, be subject to the direction and control of the Contractor.
3. The intent is to ensure public safety by police direction of traffic. Police are not to serve as watchmen to protect the Contractor's equipment and materials, or to warn pedestrians of such hazards as open trenches.
4. Nothing contained herein shall be construed as relieving the Contractor of any of his responsibilities for protection of persons and property under the terms of the Contract, or for providing necessary traffic control including signs, barricades, or flagmen as required in Section 01500 of these specifications.

1.24 FENCING

Not Used.

1.25 EXTERIOR ENCLOSURES

Not Used.

1.26 INTERIOR ENCLOSURES

Not Used.

END OF SECTION

SECTION 01600
MATERIAL AND EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Transportation and handling.
- C. Storage and protection.
- D. Product options.
- E. Substitutions.

1.2 RELATED SECTIONS

- A. Document 00200 - Instructions to Bidders: Substitute and "or equal" items procedures.
- B. Section 01400 - Quality Control: Quality Assurance - Control of Installation.

1.3 PRODUCTS

- A. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- B. Provide interchangeable components of the same manufacture for components being replaced.

1.4 TRANSPORTATION AND HANDLING

- A. Transport and handle Products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure that Products comply with requirements, quantities are correct, and Products are undamaged.
- C. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.5 STORAGE AND PROTECTION

- A. Store and protect Products in accordance with manufacturers' instructions.
- B. Store with seals and labels intact and legible.
- C. Store sensitive Products in weather tight, climate controlled, enclosures in an environment

favorable to Product.

- D. For exterior storage of fabricated Products, place on sloped supports above ground.
- E. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
- F. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of Products.
- G. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- H. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

1.6 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article.

1.7 SUBSTITUTIONS

- A. Engineer will consider requests for Substitutions only within thirty (30) days after date of Owner-Contractor Agreement.
- B. Substitutions may be considered when a Product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that the Contractor:
 - 1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
 - 2. Will provide the same warranty for the Substitution as for the specified Product.
 - 3. Will coordinate installation and make changes to other Work which may be required

for the Work to be complete with no additional cost to Owner.

4. Waives claims for additional costs or time extension which may subsequently become apparent.
5. Will reimburse Owner and Engineer for review or redesign services associated with re-approval by authorities.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:

1. Submit three (3) copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
2. Submit shop drawings, product data, and certified test results attesting to the proposed Product equivalence. Burden of proof is on proposer.
3. The Engineer will notify Contractor in writing of decision to accept or reject request.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

**SECTION 01700
CONTRACT CLOSEOUT**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Adjusting.
- D. Project record documents.
- E. Operation and maintenance data.
- F. Spare parts and maintenance Products.
- G. Warranties and bonds.
- H. Maintenance service.

1.2 RELATED SECTIONS

- A. Section 01500 - Construction Facilities and Temporary Controls: Progress cleaning.

1.3 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's review.
- B. Provide submittals to Engineer that are required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.4 FINAL CLEANING

- A. Execute final clean up and restoration of all disturbed areas prior to final project assessment.
- B. Clean site; sweep paved areas, rake clean landscaped surfaces.
- C. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.5 ADJUSTING

Not Used.

1.6 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:

1. Drawings.
2. Specifications.
3. Addenda.
4. Change Orders and other modifications to the Contract.
5. Reviewed Shop Drawings, Product Data, and Samples.
6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:

1. Manufacturer's name and product model and number.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:

1. Measured depths of footing in relation to finish ground or brook elevation.
2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
3. Field changes of dimension and detail.
4. Details not on original Contract drawings.

G. Submit documents to Engineer with claim for final Application for Payment.

1.7 OPERATION AND MAINTENANCE DATA

Not Used.

1.8 SPARE PARTS AND MAINTENANCE PRODUCTS

Not Used.

1.9 WARRANTIES AND BONDS

- A. Provide duplicate notarized copies.
- B. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.
- C. Provide Table of Contents and assemble in three D side ring binder with durable plastic cover.
- D. Submit prior to final Application for Payment.
- E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten (10) days after acceptance, listing date of acceptance as start of warranty period.

1.10 MAINTENANCE SERVICE

- A. Furnish service and maintenance of all work items indicated in the Contract Documents for one year from date of Substantial Completion.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

TECHNICAL SPECIFICATIONS

All work shall be in accordance with State of New Hampshire, Department of Transportation NHDOT Standard Specifications for Road and Bridge Construction, approved and adopted in March 2016 (Standard Specifications).

The NHDOT specifications are hereby amended as follows:

1. Delete Division 100-General Provisions in its entirety, with the exception of the following changes:
 - Section 101-Definitions and Terms
 - **Retain** subsections 101.01, 101.02, 101.06, 101.09, 101.10, 101.14 through 101.18, 101.21, 101.23, 101.35 through 101.37, 101.44, 101.46, 101.47, 101.51, 101.52, 101.54 through 101.56, 101.58, 101.59, 101.61, 101.66 through 101.69, 101.71 through 101.73, 101.77, 101.79, 101.82 through 101.88, 101.90 through 101.102, 101.104, 101.106 through 101.112, 101.115 through 101.117.
 - Section 104-Scope of Work
 - **Retain** subsection 104.03 only and:
 - **Replace** the reference to “105.02” with Standard General Condition Article 7.16 in the fourth sentence of the first paragraph.
 - **Delete** the third to last sentence and last sentence of the first paragraph.
 - **Delete** subsections B, C, and D.
 - **Replace** “Department” with “Owner” in subsection A.
 - Section 105-Control of the Work
 - **Retain** subsections 105.03 through 105.07 and 105.10 through 105.15 only.
 - **Delete** the second sentence in the second paragraph of 105.04 which references Section 104.02 in its entirety.
 - **Delete** “...104.03...” from the last sentence in 105.14.
 - **Replace** “...as provided for in 109.04.” at the end of the second sentence of the second paragraph of 105.10 with “...in accordance with Article 13 of the Standard General Conditions of the of the Construction Contract.”
 - **Replace** 105.02 with Section 01300 Submittals.
 - Section 106-Control of Material
 - **Retain** subsections 106.01, 106.02, 106.04 through 106.07, 106.09 through 106.10.
 - **Delete** the second sentence in 106.06.
 - Section 107-Legal Relations and Responsibility to Public
 - **Retain** subsections 107.01 through 107.10 and 107.15 through 107.17.
 - Section 108-Prosecution and Progress
 - **Replace** 108.07 with Standard General Conditions Articles 4.05 and 11.05.
 - Section 109-Measurement and Payment
 - **Retain** subsections 109.01 and 109.11 only.
 - **Delete** the 25th paragraph referencing “rental of equipment....” of 109.01.
 - **Replace** 109.04 with Standard General Conditions Article 11.
2. Substitute “Hoyle, Tanner and Associates, Inc.” for “Engineer”, “Department”, “State”, “Bureau of Bridge Design”, “Bureau of Materials and Research” or “NHDOT Compliance Review Officer” throughout the specifications.

All applicable portions of Sections 201 through 699 from the NHDOT Standard Specifications (English Units) apply to this Project, unless modified by Supplemental Specifications or Special Provisions in this document.

The NHDOT Specifications are periodically supplemented with updates posted on the NHDOT website at:

<https://www.nh.gov/dot/org/projectdevelopment/highwaydesign/specifications/supplementals/index2016.htm>.

All applicable supplemental specifications for sections 201 through 699 available at the time that the bid is due will be considered part of this contract specification.

The following plans from NHDOT Standard Plans for Road and Bridge Construction are also considered a part of this contract.

These lists are not all inclusive and do not relieve the Contractor from complying with any or all NHDOT specifications or plans referred to by the contract documents or referred to by sections of the NHDOT specifications that apply. It is the contractor's responsibility to obtain copies of these specifications and plans. These plans may also be downloaded, free of charge, from the NHDOT website at <http://www.nh.gov./dot/org/projectdevelopment/highwaydesign/standardplans/index.htm>

NHDOT Standard Specifications for Road and Bridge Construction and NHDOT Standard Plans for Road and Bridge Construction may be purchased from NHDOT, Records Section, 1 Hazen Drive, P.O. Box 483, Concord, NH 03302-0483, Phone No. 603-271-3514. These specifications may also be downloaded, free of charge, from the NHDOT website at <http://www.nh.gov./dot/org/projectdevelopment/highwaydesign/specifications/index.htm>

SPECIAL ATTENTIONS

The following Special Attentions are to be used in conjunction with the NHDOT Standard Specifications and are herein made a part of the Contract Documents and apply to this project:

Special Attentions

Description

Notice of Supplemental Specifications	SA-2
Errata Sheet	SA-6
New Hampshire Department of Employment Security Employment of New Hires	SA-9
Roadside Safety Hardware Worthiness Compliance with NCHRP Report 350 and MASH	SA-10
Qualified Products List	SA-12
Standard Specifications for Road and Bridge Construction, Standard Plans for Road Construction & Bridge Detail Sheets	SA-13

11/07/18

SSD: 04/14/16, 05/11/16, 06/02/16, 09/15/16, 01/04/17, 02/01/17, 04/06/17, 06/09/17, 04/02/18, 05/21/18,
07/06/18

Page 1 of 4

SPECIAL ATTENTION**THIS PROJECT IS TO BE BID AND CONSTRUCTED UNDER THE
2016 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION****NOTICE OF SUPPLEMENTAL SPECIFICATIONS**

The following table is a list of all of the Supplemental Specifications that have been adopted as additions or revisions to the *Standard Specifications for Road and Bridge Construction*, **March 2016** Edition as of the date of this Proposal. The Bidder is responsible to examine each item to determine its effect, if any, upon the Contract.

Note: Due to the limited scope of some projects, not all Supplemental Specifications will be included in all Proposals. All Supplemental Specifications are available on-line: www.nh.gov/dot/org/projectdevelopment/highwaydesign/specifications/.

Section	Description	Revision	Previous Revision Date	Current Revision Date
<i>DIVISION 100</i>				
101	Definitions and Terms	101.79 – Revises Frequency of QPL Updates (06/06/17) 101.116-119 – Revises Definitions of Weather Days and Working Days (04/02/18)	06/06/17	04/02/18
106.04	Qualified Products List	Revises Frequency of Updates		06/06/17
107.01	Legal Relations and Responsibility to Public	107.01 – Revises References to DES Rules and Regulations		07/06/18
108.09	Prosecution and Progress	108.09 – Amends the Requirements for Liquidated Damages		07/06/18
109.04	Differing Site Conditions, Changes and Extra Work	Revises Rental Rate Blue Book Online Requirements (04/02/18)	01/06/12	04/02/18
<i>DIVISION 200</i>				
211.3.4	Vibration Monitoring	Adds reference to pre- and post-construction survey requirements		04/05/17
<i>DIVISION 300</i>				
<i>DIVISION 400</i>				
401	Plant Mix Pavements - General	2.5.1 - Adds winter binder to the design control points (04/05/17) 2.10 – No greater than 1% TRB (06/06/17) 3.4.1 – Revises Cold Feeder Requirements (07/06/18)	07/06/18	11/07/18

s:\global\specifications\sa spec attn\sa suppl spec.doc

		<p>3.4.7.1 – Revises Recycled Materials Weighing Procedures (07/06/18)</p> <p>3.4.11 - 3.4.15 – Describes Introduction of Recycled Materials at a Batch Plant and Controls Minimum Dry Time for Recycled Aggregates (07/06/18)</p> <p>3.5.2 & 3.5.2.1 – Revises Recycled Materials Requirements (07/06/18)</p> <p>3.10.10.1 – Removes penalty for failing tack (06/06/17)</p> <p>3.12 – Allows a reduction in use of pneumatic-tired rollers (06/06/17)</p> <p>3.17.1.3 - Revise NETTCP QA Technologist requirements (11/07/18)</p> <p>3.17.3.1.1 – Revises HMA gradation specification limits, completes addition of winter binder, removes allowance for Aim change after two sub-lots (06/06/17)</p> <p>4.1.1 – Removes reference to Night Items (06/06/17)</p>		
403.1.3	Night Item Removal	Removes all references to Night Items in Section 403		06/06/17
410	Bituminous Surface Treatment	<p>2.1- Adopts new AASHTO Specifications for Emulsions (04/13/16)</p> <p>3.4.1.1 – Revises pavement conditions, application rate for tack (01/04/17)</p> <p>2.1.1, 2.1.2, 3.2, 3.3, 3.4 – Identifies tack sampling and penalties for non-conformance (06/06/17)</p> <p>3.2 & 3.5.2 – Amends Distribution Equipment and Initiates an Annual Tack Truck Inspection Program (07/06/18)</p>	06/06/17	07/06/18
411.3.5.5	Pneumatic Tired Roller	<p>3.5.5 – Requires the use of pneumatic tired rollers on all Section 411 paving (06/06/17).</p> <p>5.1.1 – Ensures Tack Used for PMST and Leveling Course is a Pay Item (07/06/18)</p> <p>Removes Pay Items (04/02/18)</p>	04/02/18	07/06/18

417	Rumble Strip Inlay	2.1 & 3.7 – Specifies PMST as the asphalt inlay to fill in rumble strips	04/02/18	
<i>DIVISION 500</i>				
520	Portland Cement Concrete	3.8.1.1 – Revises the acceptable concrete delivery temp to 90° F (04/02/18) 3.1.6.2.1.2 A - Revise NETTCP QA Technologist requirements (11/07/18)	04/02/18	11/07/18
530	Waterproofing Concrete Surfaces	Deletes Section 530		05/21/18
538	Barrier Membrane	3.3.5 – Updates the laydown temperature range.		09/15/16
563	Bridge Fence	2.8 – Allows aluminum ties for attaching bridge fence		09/15/16
568	Structural Timber	2.2, 3.4.4 & 3.4.5 – Adds specific references to AWP Standards & wooden piles		04/02/18
582	Preformed Joint Filler	2.4 – Revises Preformed Joint Filler Requirements		04/02/18
<i>DIVISION 600</i>				
603	Plastic Pipe	2.3, 2.6 & 2.7 – Updated to include Polypropylene Pipe as well as associated UV Requirements (04/13/16) 2.13 – Adds Contractor's Option (06/02/16)	04/13/16	06/02/16
605	Plastic Pipe	2.1 & 2.2 – Updated to include Polypropylene Pipe		04/13/16
606	Guardrail	2.2 – Adds specific references to AWP Standards & wooden piles		04/02/18
608	Detectable Warning Devices	2.6 – Updates Detectable Warning Device Requirements		04/02/18
609	Curbs	2.4.1.1 – Allows the substitution of PG 76-28 binder in lieu of fibers		04/02/18
615	Cofferdam for Sign Installation	5.1.5 – Revises payment for sheeting and shoring for sign structures		04/02/18

645	Erosion Control	1.1 – Matting Section Revised and Pay Items Revised (04/02/18) 1.1 – ‘Stabilization’ changed to ‘matting’ (02/01/17) Incorporates BFM, FRM and SMM into the Standard Specs (07/06/18) 1.2.1 – Add Erosion Control Plans to furnish for SWPPP (11/07/18) 3.1.5 – Update construction dates for allowable area of exposed, unstabilized soil (11/07/18)	07/06/18	11/07/18
<i>DIVISION 700</i>				
702	Bituminous Materials	Amends Table 702-1 & 702-2 (04/13/16) Amends Tables, and Adds test method (05/11/16)	04/13/16	05/11/16

03/21/18

SSD: 03/01/16, 06/10/16, 6/11/16, 06/27/16, 08/03/16, 10/31/16, 11/28/16, 06/19/17, 11/30/17

Page 1 of 3

SPECIAL ATTENTION**ERRATA SHEET**

The following table is a list of corrections to the 2016 *Standard Specifications for Road and Bridge Construction*, as of the date of this Proposal.

Section	Description	Correction	Date
<i>DIVISION 100</i>			
104.03	Maintenance of Traffic	Amend 'winter work suspensions' in 104.03 to read 'Winter Suspension'.	06/07/07
<i>DIVISION 200</i>			
<i>DIVISION 300</i>			
<i>DIVISION 400</i>			
<i>DIVISION 500</i>			
		Insert the following footnotes under Table 520-1A:	
		¹ See 3.1.6 TESTING	
		² For mixes containing fly-ash, silica fume, slag, or any other pozzolanic or cementitious material, the water/cement ratio of the concrete mix shall be based on the water cementitious (cement + pozzolanic or cementitious material) ratio of the mix. This water to cementitious ratio shall not exceed those listed in Table 1A. The maximum water/cement ratios listed for Concrete Class B and T are for design purposes only.	
		³ Deck Overlays.	
520	Classes of Concrete	⁴ <u>Maximum</u> 84 day Compressive Strength for Flowable Fill, Excavatable shall not exceed 200 psi.	06/11/16
		⁵ These are recommended values that may be used as a starting point for a mix design that has shown ability to meet the requirements. The amount of cement shall be adjusted and fly-ash or ground granulated blast furnace slag shall be used provided the mix design meets the minimum and does not exceed the maximum compressive strength in accordance with 2.11.1.	
		⁶ Target values shown are for mix design approval only and are not intended for use as quality control or quality assurance requirements.	

Section	Description	Correction	Date
520	Classes of Concrete – Performance Requirements (QC/QA)	Amend the title of <i>Table 420-1B - Class of Concrete – Performance Requirements (QC/QA)</i> to <i>Table 520-1B - Class of Concrete – Performance Requirements (QC/QA)</i>	11/28/16
528	Shear Key Grout for Butted Beams	Amend 528.2.9.1 to read: <i>Grout for shear keys shall be an approved grout as listed in Section 528A of the Qualified Products List.</i> Amend 528.2.9.2 to read: <i>For testing, 3 neat 2” cubes shall be molded and cured in accordance with AASHTO T 106 (ASTM C 109). The average compressive strength of the 3 cubes at 7 days shall be a minimum of 6000 psi.</i>	06/10/16
528	Installation of Deck Panels	Replace last sentence of 528.3.22.6.4 to read: <i>If leveling screws are used, they shall be completely removed and the holes filled with grout listed in Section 528A of the Qualified Products List prior to placement of deck concrete.</i>	06/10/16
550	PTFE Surfaces for Bearings	Amend the first sentence of 550.2.10 to read: <i>PTFE for use in expansion bearing assemblies shall be 100 percent virgin (unfilled) polytetrafluoroethylene polymer...</i>	08/03/16
550	Anchor Rods	Amend 550.3.15.4.1 to read: <i>Anchor rods shall be set in one of the following materials:</i> <i>(a) Non-shrinking, non-ferrous, cement-base grout listed in Section 550A of the Qualified Products List. This grout shall be used only when both the temperature of the masonry and the ambient temperature are kept at 40 °F or above until the grout has cured.</i> <i>(b) Sulfur.</i> Amend the first sentence of 550.3.15.4.2 to read: <i>Non-shrinking, non-ferrous, cement base grout shall be a product as included in Section 550A of the Qualified Products List.</i>	06/10/16
563	Bridge Rail	Amend 4.1 to read: <i>Bridge rail, of the type specified, will be measured by the linear foot to the nearest tenth of a foot.</i>	06/27/16
<i>DIVISION 600</i>			
606	Handrail	Amend 606.2.8.2 to read: <i>Grout for anchoring the pipe posts shall be High Strength, Impact Resistant, Non-shrink Grout as included in Section 528A of the Qualified Products List.</i>	06/10/16

Section	Description	Correction	Date
606	Temporary Impact Attenuators	Amend in 606.2.10.2 the reference to 2.12.4 to 2.10.4.	11/28/16
	Repair of Hardened Concrete	Amend in 606.3.7.12.A the reference to <i>Fast Set Non-shrink Patching Mortar</i> to <i>Rapid-Hardening Patching Material</i> .	03/21/18
609	Curbing	Amend the 2 nd sentence of 609.2.5 to read: <i>The non-shrink, non-metallic grout shall be a product as included in Section 550A of the Qualified Products List.</i>	06/10/16
609	Curb anchors	Amend 609.3.1.5.1 to read: <i>Curb anchors shall be set and grouted using non-shrink, non-metallic grout as shown on the plans.</i>	06/10/16
621	Delineators	Add the following to the end of 621.3.1.3: <i>Grout shall be as listed in Section 550A of the Qualified Products List or as directed by the Engineer.</i>	06/10/16
632	Pavement Markings	Amend the AASHTO reference in 3.2.3.1 to read: <i>AASHTO M248 Type F</i>	
<i>DIVISION 700</i>			
707	Cement Mortar	Amend 2.3 to read: <i>Testing for impurities shall comply with AASHTO T 21. Results that are darker than the standard shall be cause for rejection, except as provided in 2.3.1.</i>	10/31/16
		Amend 2.3.1 to read: <i>Sand for mortar not conforming to 2.3 shall be tested in accordance with AASHTO T 71 and shall meet the requirements of 5.2.3 of AASHTO M 45.</i>	

**NEW HAMPSHIRE DEPARTMENT OF EMPLOYMENT SECURITY
EMPLOYMENT OF NEW HIRES**

The following is a list of the local State Employment Security Offices from which the Contractor may secure the unskilled labor for this project:

Department of Employment Security
151 Pleasant Street, PO Box 159
Berlin, NH 03570-2006
Telephone: (603) 752-5500

Department of Employment Security
404 Washington Street, PO Box 180
Claremont, NH 03743-0180
Telephone: (603) 543-3111

Department of Employment Security
10 West Street, PO Box 1140
Concord, NH 03302-1140
Telephone: (603) 228-4100

Department of Employment Security
518 White Mountain Hwy.
Conway, NH 03818-4205
Telephone: (603) 447-5924

Department of Employment Security
109 Key Road
Keene, NH 03431-3926
Telephone: (603) 352-1904

Department of Employment Security
426 Union Avenue, Suite 3
Laconia, NH 03246-2894
Telephone: (603) 524-3960

Department of Employment Security
646 Union Street, Suite 100
Littleton, NH 03561-5314
Telephone: (603) 444-2971

Department of Employment Security
300 Hanover Street
Manchester, NH 03104-4957
Telephone: (603) 627-7841

Department of Employment Security
6 Townsend West
Nashua, NH 03063-1217
Telephone: (603) 882-5177

Department of Employment Security
2000 Lafayette Road
Portsmouth, NH 03801-5605
Telephone: (603) 436-3702

Department of Employment Security
29 South Broadway
Salem, NH 03079-3026
Telephone: (603) 893-9185

Department of Employment Security
6 Marsh Brook Road
Somersworth, NH 03878
Telephone: (603) 742-3600

SPECIAL ATTENTION

ROADSIDE SAFETY HARDWARE WORTHINESS COMPLIANCE WITH NCHRP REPORT 350 AND MASH

The American Association of State Highway and Transportation Officials (AASHTO) has published the Manual for Assessing Safety Hardware (MASH). The main objective of MASH is to present uniform guidelines for the crash testing of both permanent and temporary highway safety hardware and evaluation criteria to assess test results. The need for updated crash criteria was based primarily on the changes to the vehicle fleet since the publication of National Cooperative Highway Research Program (NCHRP) Report 350. Highway safety hardware includes, but is not limited to, longitudinal barriers, crash cushions, attenuators, end terminals, breakaway supports, and work zone hardware/devices.

IMPORTANT: Any hardware that was designed, tested and accepted prior to January 1, 2011 under the NCHRP Report 350 criteria may continue to be used without retesting to MASH criteria. As of January 1, 2011, all new or revised highway safety hardware must be tested or retested and accepted using MASH criteria. If highway safety hardware that has been accepted by FHWA using criteria contained in NCHRP Report 350 fails testing using MASH criteria, AASHTO and FHWA will jointly review the test results and determine a course of action.

Hardware tested under MASH should be considered for use but there is no requirement to use or replace hardware that was accepted prior to January 1, 2011 under NCHRP Report 350. However, all highway safety hardware shall meet the appropriate NCHRP 350 or MASH requirements for the indicated test levels or be exempted by the FHWA from meeting this requirement. However, the Department may, in certain circumstances, require compliance to higher criteria if deemed appropriate.

WORK ZONE TRAFFIC CONTROL DEVICES:

The following is a summary of work zone traffic control devices categories, and their crash testing acceptance requirements, titled "Recommended Procedures for the Safety Performance Evaluation of Highway Features," testing and evaluation criteria as implemented by the AASHTO-FHWA Agreement (350 Agreement) dated July 1, 1998. These categories and associated requirements also apply to newly designed or revised devices that would now fall under MASH testing criteria.

Category I: Small, lightweight devices that are known to be crash-worthy from crash testing or years of demonstrable safe operational performance. These include plastic or rubber cones, tubular markers, flexible delineators, and plastic drums with no lights, batteries, signs, etc. added. For devices to be included in this category there must be virtually no potential that they will penetrate windshields, cause tire damage, or have a significant effect on the control or trajectory of an impacting vehicle. These devices will be allowed based upon developers self-certification.

Category II: Devices that are not expected to produce significant vehicular velocity change, but may be otherwise hazardous. All or parts of the devices may be substantial enough to penetrate a windshield or injure a worker or they may cause instability when driven over or become lodged under a vehicle. The total mass of a Category II device must be less than 45 kg. Examples of this category are barricades, portable sign supports, intrusion detectors and alarms and drums, vertical panels, or cones with lights.

Category III: Devices expected to cause significant velocity change or other potentially harmful reactions in impacting vehicles and Category II devices with a mass greater than 45 kg. Examples of this category are Truck-mounted attenuators (TMA), portable crash cushions and Portable concrete barrier (requires appropriate sized pin and loop or better connection).

Category IV: Crashworthy installations of Category IV devices are encouraged, though not mandated. Examples of this category are portable, usually trailer mounted devices such as area light supports, flashing arrow panels/arrows displays, temporary traffic signals and changeable message signs. However, these types of devices combined with TMA are considered Category III devices.

All category I, II, and III project work zone traffic control devices in use, except portable concrete barrier that transfers tension and moment from segment to segment, shall conform to the testing and evaluation criteria as outlined above. Devices not conforming to the criteria shall be replaced with conforming devices at no expense to the Department.

04/27/17

SSD: 1/7/00, 3/22/00, 6/14/00, 2/8/01, 4/2/01, 1/25/02, 4/1/02, 04/15/03, 04/20/04, 05/06/05, 05/19/06, 09/17/07, 06/12/08, 03/04/09, 08/26/09, 06/28/10, 06/10/11, 04/12/12, 04/18/13, 01/02/14, 10/22/14, 01/16/15, 01/15/16, 09/12/16, 02/09/17

SPECIAL ATTENTION

QUALIFIED PRODUCTS LIST

The Qualified Products List is available online at www.nhdot.com on the *Doing Business with DOT>Contractors* webpage. A link to the Qualified Product List (QPL) is shown under the *Products and Materials* heading in the *Engineering/Technical Information* section of this webpage. The QPL is now considered a live document and periodic updates will occur. The QPL in effect on the date of project advertisement shall apply to this contract.

Products added to the QPL can be used under this contract upon issuance of the updated QPL. The Contractor shall not use the anticipated addition of a product to the QPL as a basis for use of a product. A product removed from an updated QPL can still be used under this contract unless specifically directed by the Department that the removed product shall not be used.

SPECIAL ATTENTION**THIS PROJECT IS TO BE BID AND CONSTRUCTED UNDER THE
2010 STANDARD PLANS FOR ROAD CONSTRUCTION****NOTICE OF STANDARD PLANS**

The following table is a list of all of the Standard Plans that have been adopted as additions or revisions to the *Standard Plans for Road Construction*, June 2010 Edition as of the date of this Proposal. The Bidder is responsible to examine each standard to determine its effect, if any, upon the Contract.

Note: All Standard Plans are available on-line:

www.nh.gov/dot/org/projectdevelopment/highwaydesign/standardplans/index.htm.

Note: See also Standard Plans for Road Construction List of Revisions on-line:

www.nh.gov/dot/org/projectdevelopment/highwaydesign/standardplans/documents/errata_2010_standards.pdf.

Note: See also Highway Design Detail Sheets on-line:

www.nh.gov/dot/org/projectdevelopment/highwaydesign/detailsheets/index.htm

2010 Highway Standard Plans

Standard Plan	Description	Previous Revision Date	Current Revision Date
CR-1	Granite Curb Details		06/16/10
CR-2	Curb Details		06/16/10
DL-1	Roadside Delineation	06/16/10	03/05/15
DL-2	Interchange Delineation	06/16/10	03/05/15
DL-3	Milled Rumble Strips (Shoulders)		Under Revision
DL-4	Milled Rumble Strips (Shoulders)		Under Revision
DL-5	Milled Rumble Strips (Shoulders)		Under Revision
DL-6	Milled Rumble Strips (Centerline)	06/16/10	1/25/16
DL-7	Milled Rumble Strips (Centerline)	06/16/10	1/25/16
DL-8	Milled Rumble Strips (Centerline)	06/16/10	1/25/16
DP-1	Drainage Pipe Details		06/16/10

s:\global\specifications\sa spec attn\sa standardplans.doc

DR-1	Grate and Frame Details	06/16/10	8/14/15
DR-2	Grate and Frame, M.H.Cover and Pavement Depression Details	11/5/10	8/14/15
DR-3	Precast Concrete Median Barrier Drainage Details		06/16/10
DR-4	DI-DB, Underdrain Flushing Basin and Polyethylene Liner Details	06/16/10	8/14/15
DR-5	Precast Reinforced Concrete C.B., D.I. and M.H.		06/16/10
ES-1	End Sections for Corrugated Steel and Reinforced Concrete Pipes		06/16/10
EW-1	Earthwork - Muck Excavation		06/16/10
FN-1	Woven Wire Fence		06/16/10
FN-2	Chain Link Fence		06/16/10
GR-1	31" Mid-Splice Beam Guardrail Standard Section - Steel Posts and Hardware Details	06/16/10	8/19/15
GR-2	Beam Guardrail Standard Section - Steel Posts and Hardware Details	05/03/11	8/19/15
GR-2A	Beam Guardrail Standard Section - Wood Posts and Hardware Details	06/16/10	8/19/15
GR-3	Preferred Platform for Energy Absorbing Guardrail Terminal (EAGRT)		Superseded (08/19/15) - See Detail Sheets
GR-4	Alternative Platform for Energy Absorbing Guardrail Terminal (EAGRT)		Superseded (08/19/15) - See Detail Sheets
GR-5	Beam Guardrail Terminal Section Type E-2		06/16/10
GR-6	Beam Guardrail - Terminal Section Type E-2 Hardware Details		06/16/10
GR-7	Beam Guardrail - Terminal Section Type E-2 Modified 30		06/16/10
GR-8	Beam Guardrail - Terminal Section Type E-2 Modified 40		06/16/10
GR-9	Beam Guardrail - Terminal Section Type E-2 Modified 45		06/16/10
GR-10	Beam Guardrail - Terminal Unit Type G-2		06/16/10
GR-11	Beam Guardrail - Thrie Beam Double Faced (Wood Posts)	06/16/10	11/05/10
GR-12	Beam Guardrail - Thrie Beam Double Faced (Steel Posts)	11/05/10	05/03/11
GR-13	Beam Guardrail - Thrie Beam Single Faced (Wood Posts)	06/16/10	11/05/10
GR-14	Beam Guardrail - Thrie Beam Single Faced (Steel Posts)	11/5/10	05/03/11
GR-15	Precast Concrete Barrier 42" F-Shape (Double-Faced)	06/16/10	11/05/10
GR-16	Transition F-Shape Barrier	06/16/10	11/05/10
GR-17	Transition F-Shape Barrier and Guardrail (Wood Posts)	11/05/10	10/30/12

GR-18	Transition F-Shape Barrier and Guardrail (Steel Posts)	11/05/10	10/30/12
GR-19	Single Slope Barrier	11/05/10	04/03/14
GR-20	Transition Single Slope Concrete Barrier, Precast	10/30/12	04/03/14
GR-21	Transition Single Slope Concrete Barrier and Guardrail (Wood Posts)	11/05/10	10/30/12
GR-22	Transition Single Slope Concrete Barrier and Guardrail (Steel Posts)	11/05/10	10/30/12
GR-23	Portable Concrete Barrier 10 foot	06/16/10	10/03/13
HR-1	Handrail Details		06/16/10
HR-2	Concrete Bound and Steps		06/16/10
HW-1	Headwall Details		06/16/10
HW-2	Headwall Details (45° Wings)		06/16/10
HW-3	Headwall Details (2 Pipes 45° Wings)		06/16/10
MB-1	Mailbox Details	06/16/10	02/25/16
PL-1	Planting Details		02/26/10
PL-2	Planting Details		06/16/10
SL-1	Pull Boxes and Conduit Trench Detail		06/16/10
SL-2	Concrete Foundations and Light Pole Base, Type B		06/16/10

2010 Traffic Standard Plans

Standard No.	Description	Previous Revision Date	Current Revision Date
PM-1	Layout Details		02/26/10
PM-2	Tolerances for Pavement Marking Lines		02/26/10
PM-3	Divided Roadway Multiple Lanes with Entrance and Exit Ramps Striping Layout	02/26/10	11/05/10
PM-4	Divided Roadway Multiple Lanes with Entrance and Exit Ramps Striping Layout		Superseded See Detail Sheets (3/21/17)
PM-5	Divided Roadway Multiple Lanes with Entrance and Exit Ramps Striping Layout		02/26/10
PM-6	Painted Island Details		02/26/10
PM-7	Intersection Details	02/26/10	11/05/10
PM-8	Word and Symbol Lane Layout		Superseded See Detail Sheets (3/21/17)

PM-9	Pavement Marking at Minor Intersections	02/26/10
PM-10	Turning Lane Extension Details	02/26/10
PM-11	Accessible Parking Details	02/26/10
PM-12	Words and Symbols	02/26/10
PM-13	Words and Symbols	02/26/10
PM-14	Speed Zone Pavement Markings (Divided Highway)	02/26/10
PS-1	Aluminum Plank Details	02/26/10
PS-2	Aluminum Plank Details	02/26/10
PS-3	Aluminum Sheet Details	02/26/10
PS-4	Tubular/ U-Channel Post Detail	02/26/10
PS-5	Steel Beam Details (Non-Breakaway)	02/26/10
PS-6	Steel Beam Details (Non-Breakaway)	02/26/10
PS-7	Steel Beam Details (Breakaway)	02/26/10
PS-8	Steel Beam Details (Breakaway)	02/26/10
PS-9	Breakaway Mounts	02/26/10
PS-10	Breakaway Mounts	02/26/10
SG-1	Route Marker Details	02/26/10
SG-2	Regulatory Signs	02/26/10
SG-3	Regulatory Signs	02/26/10
SG-4	Regulatory Signs	02/26/10
SG-5	Regulatory Signs	02/26/10
SG-6	Regulatory Signs	02/26/10
SG-7	Warning Signs	02/26/10
SG-8	Warning Signs	02/26/10
SG-9	Warning Signs	02/26/10
SG-10	Warning Signs	02/26/10
SG-11	Warning Signs	02/26/10
SG-12	Miscellaneous Signs	02/26/10
SG-13	Informational Signs	02/26/10
SG-14	Informational Signs	02/26/10
TS-1	Traffic Signal Mast Arm Foundation - Type 1A	Superseded (03/05/18) See Detail Sheets

TS-2	Traffic Signal Mast Arm Foundation - Type 1B and 1C	Superseded (03/05/18) See Detail Sheets
TS-3	Traffic Signal Mast Arm Foundation - Type 2	Superseded (03/05/18) See Detail Sheets
TS-4	Quadrupole Loop Detector 2-4-2 Turns	02/26/10
TS-5	Rectangular Loop Detector 3 Turns	02/26/10

Work Zone Traffic Control Standard Plans

Standard No.	Description	Previous Revision Date	Current Revision Date
TC-1	Text Amendment Note Sheet	11/28/18	05/17/19
TC-2	Permanent Construction Signing	08/03/04	03/16/17
TC-3	Two-Way Traffic Lane Shift	08/03/04	03/16/17
TC-4	Bridge Rehabilitation: Stop/Yield Control	11/28/18	05/17/19
TC-5	Single Lane Shift (Divided Highway)	08/03/04	See Detail Sheets
TC-6	Lane Closure with Lane Shift for Speed Reduction (Divided Highway)	03/16/17	11/28/18
TC-7	Multi-Lane Closure (Divided Highway)	11/28/18	05/17/19
TC-8	Construction Signing for Cold-Planed Surfaces	03/16/17	11/28/18

SUPPLEMENTAL SPECIFICATIONS

The following Supplemental Specifications are to be used in conjunction with the NHDOT Standard Specifications and are herein made a part of the Contract Documents and apply to this project:

Supplemental Specifications

<u>Section</u>	<u>Description</u>	
101	Definitions and Terms	SS-2
106	Control of Material	SS-3
107	Legal Relations and Responsibility to Public	SS-4
401	Plant Mix Pavements – General	SS-5
410	Bituminous Surface Treatment	SS-10
520	Portland Cement Concrete	SS-13
538	Barrier Membrane	SS-14
702	Bituminous Materials	SS-15

SUPPLEMENTAL SPECIFICATION

AMENDMENT TO SECTION 101 – DEFINITIONS AND TERMS

The intent of the Supplemental Specification is to revise:

- *the frequency of QPL updates (06/06/17)*
- *the definitions of weather days and working days (04/01/18)*

Amend 101.79 to read:

101.79 Qualified Products List (QPL). A list of products prequalified by the Engineer as meeting the Contract requirements for specified materials to be incorporated into the Work. The list is maintained and updated by the Bureau of Materials and Research.

Amend 101.116-119 to read:

101.116 Wear. The percent of wear of aggregate as determined by the AASHTO T 96 (Los Angeles Abrasion Test). The grading shall be Grading A unless otherwise specified.

101.117 Weather Day. Days on which weather conditions beyond the Contractor's control would prevent Work on the Controlling Activities for at least five hours with a work force consistent in size and type for the work to be performed. Should the Contractor prepare to begin work on any day on which inclement weather, or the conditions resulting from the weather, prevent the work from beginning at the usual starting time, and the crew is dismissed as a result, the Contractor will not be charged for a working day whether or not conditions change during the day and the rest of the day becomes suitable for construction operations.

101.118 Wetland. "An area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include, but are not limited to swamps, marshes, bogs, and similar areas." (NH Code of Administrative Rules, Env-Wt 101.113)

101.119 Winter Suspension. Winter Suspension shall be such time that the Contractor, utilizing conventional means and methods, is unable to proceed in an efficient manner with construction activity due to unfavorable weather conditions and suspends operations until such time that conditions are favorable for sustained construction activity.

101.120 Winter Work. Winter work is any work that is done in December, January, February, and March. The Contract may require winter work on all or portions of the project, in which case time will be determined as specified in 108.07 unless otherwise amended.

101.121 Work. The furnishing of all labor, materials, equipment, and incidentals necessary or convenient to the successful completion of the Project, and the carrying out of the duties and obligations imposed by the Contract.

101.122 Working Day. Any calendar day, except Saturdays, Sundays, Contract designated Holidays and Weather Days. Days in December, January, February, and March are not considered working days even if the Engineer allows the Contractor to work and the Contractor so chooses except when:

- (1) The Contract requires Winter Work;
- (2) The Contract Completion Date gets extended into this period and the weather conditions are favorable for the continuation of the remaining Work; however, should weather or site conditions change during the Winter Work period and the Contractor suspend operations as a result, Working Days will not be charged until April 1 whether or not the conditions become suitable for construction operations during the remainder of the Winter Work period.

101.123 Working Drawings. Working Drawings may be submitted for approval or documentation. See 105.02.

S U P P L E M E N T A L S P E C I F I C A T I O N**AMENDMENT TO SECTION 106 – CONTROL OF MATERIAL**

*The purpose of this Supplemental Specification
is to revise frequency of updates.*

Amend the last paragraph of 106.04 to read:

Products that have been prequalified by Materials and Research and are included on the Qualified Products List (QPL) may be used on projects without further testing, unless otherwise noted on the QPL, but a Certificate of Compliance for the qualified products will be required. The QPL is updated as warranted, and is available online at the Department's Website. A product that is not listed will not be used until qualified through a written request to Materials and Research. Such request should be made with sufficient lead-time to allow necessary testing or research.

SUPPLEMENTAL SPECIFICATION**AMENDMENT TO SECTION 107 – LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC**

The intent of the Supplemental Specification is to revise references to DES rules and regulations

Amend the last 3 paragraphs in Section 107.01 as follows:

The Contractor shall also protect the atmosphere from particulate and gaseous pollutants in conformance with rules promulgated by the New Hampshire Department of Environmental Services, Air Resources Division.

The Contractor's attention is called to Chapter Env-A 1000 Prevention, Abatement and Control of Open Source Air Pollution, in particular the regulations concerning open burning (Env-A 1001) and the control of fugitive dust (Env-A 1002).

The Air Resources Division may order unauthorized burning to cease and may order authorized burning creating a nuisance to cease. The order may be issued directly to the Contractor or to the Contractor through the Engineer.#

S U P P L E M E N T A L S P E C I F I C A T I O N

AMENDMENT TO SECTION 401 – PLANT MIX PAVEMENTS - GENERAL

The purpose of this Supplemental Specification is to:

- Add “winter binder” to the design control points (2.5.1, 04/05/17)
- Revise material requirements of allowed recycled materials to no greater than 1% TRB (2.10, 06/06/17)
 - Revise cold feeder requirements (3.4.1, 07/06/18)
 - Revise recycled materials weighing procedures (3.4.7.1, 07/06/18)
- Describe the introduction of recycled materials at a batch plant and controls minimum dry time for recycled aggregates (3.4.11-3.4.15, 07/06/18)
 - Revise recycled materials requirements (3.5.2 & 3.5.2.1, 07/06/18)
- Remove the penalty for failing tack from Section 401 (3.10.10.1, 06/06/17)
- Allow a reduction in the use of pneumatic-tired rollers (3.12, 06/06/17)
- Revise HMA gradation specification limits, complete the addition of “winter binder”, and Remove the allowance for Aim change after two sub-lots (3.17.3.1.1, 06/06/17)
 - Remove all references to Night Items (4.1.1, 06/06/17)
 - Revise NETTCP QA Technologist requirements (3.17.1.3, 11/07/18)

Amend the Minimum Binder Content table under Section 2.5.1 as follows:

Minimum Binder Content		
50 Gyration		75 Gyration
	3/8"	6.0%
5.8%	1/2"	5.5%
5.5%	Winter Binder 3/4"	5.2%
4.9%	3/4"	4.6%
4.6%	1"	4.3%

Amend Table 401-1 – Design Control Points under Section 2.5.1 as follows:

Table 401-1 –Design Control Points*

Standard	Nominal Maximum Aggregate Size											
	1"		3/4"		3/4" Winter Binder		1/2"		3/8"		No. 4	
Sieves	Max.	Min.	Max.	Min.	Max.	Min.	Max	Min.	Max.	Min.	Max.	Min.
Inch	Percentage by Weight Passing Criteria (Control Points)											
2												
1-1/2		100.0										
1	100.0	90.0		100.0		100.0						
3/4	90.0		100.0	90.0	100.0	90.0		100.0				
1/2			90.0		90.0		100.0	90.0		100.0		
3/8							90.0		100.0	90.0	100.0	99.0
No. 4									90.0		97.0	90.0
No. 8	45.0	19.0	42.0	32.0	48.0	38.0	52.0	42.0	56.0	46.0	75.0	65.0
No. 16											55.0	45.0
No. 30											36.0	26.0
No. 50											30.0	20.0
No. 100											13.0	8.0
No. 200	7.0	1.0	8.0	2.0	8.0	2.0	10.0	2.0	10.0	2.0	8.0	4.0

Amend 2.10.1 to read:

2.10.1 Reclaimed asphalt pavement (RAP) may be used in the production of hot mix asphalt. The allowed dust to asphalt ratio shall be as identified in AASHTO M 323. The maximum allowable total reused “asphalt” binder (TRB) in HMA mixes shall be 1.0%. Any changes in the combination of recycled materials shall require a new mix design unless otherwise approved by the Bureau of Materials & Research.

Delete 2.10.3.

Amend 3.4.1 to read:

3.4.1 All aggregate shall be delivered by belt driven feeders. All feeders shall provide for adjustment of the cold feed and shall be capable of being secured in any position. The cold feeder for recycled materials shall be equipped with an oversize particle scalper.

Add to 3.4.7:

3.4.7.1 Recycled materials weighed separately from the materials in the virgin weigh hopper shall be weighed on a dedicated scale with digital display at the accuracy described in 3.4.7.

Amend 3.4.11 through 3.4.15 to read:

3.4.11 Each size of hot aggregate, the mineral filler if required, recycled material if applied, and the bituminous cement shall be measured separately and accurately to the proportions in which they are to be mixed.

3.4.12 The virgin aggregate shall be dried and heated to a minimum temperature of 260° F. The asphalt binder shall be heated to a temperature between 260° and 325° F. The weigh hopper shall be charged with the hot aggregate, coarse sizes first, unless otherwise directed.

3.4.13 Virgin Aggregates shall be dry mixed for 5 to 15 seconds.

3.4.14 Recycled materials can only be introduced to the weigh hopper or to the mixer.

3.4.14.1 Recycled materials that are introduced in the weigh hopper shall be dry mixed per 3.4.13.

3.4.14.2 When recycled materials are delivered to the mixer separately from the virgin aggregates, wet mixing time shall not begin until all recycled material is introduced to the mixer and is moisture free. The duration shall be determined based on field/plant conditions, and by agreement of the Contractor and Engineer.

3.4.15 The asphalt binder shall be added and the mixing continued until a uniform coating is obtained and all particles of the aggregate are thoroughly coated. The total dry and wet cycle shall not be less than 35 seconds for base and binder mixtures and not less than 40 seconds for the wearing course. In no case shall the total mixing period exceed 75 seconds. If the aggregate in the hot bins contains sufficient moisture to cause foaming in the mixture, such aggregate shall be removed from the bins, and production rate shall be reduced so as not to exceed the capacity of the dryer. Material having once gone through the mixing plant shall not be returned to the stockpiles.

Amend 3.5.2 to read:

3.5.2 The cold bins shall be divided in at least five compartments and shall be designed to prevent the overflow of material from one bin to another. Each cold bin shall be equipped with an orifice to feed the aggregate accurately and uniformly. The feeding orifice shall be adjustable, and indicators shall be provided to show the gate opening. An automatic plant shutoff device shall be provided to operate when any aggregate bin becomes empty or the flow from any bin gate becomes restricted. A vibrator or other suitable means may be required in order to ensure a uniform flow of materials. The order of aggregate feed onto the composite cold feed belt shall be from coarse to fine. Aggregate shall pass through a scalping screen prior to the weigh belt.

3.5.2.1 When recycled material is used, an additional bin, equipped with its own oversize particle scalper, shall be required. In event of an emergency this bin may be used to feed aggregate in an amount not to exceed 15% of material to complete the day's production.

Delete 3.10.10.1.**Amend** 3.12.2.1 to read:

3.12.2.1 Immediately after the hot asphalt mix has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling. The initial rolling shall be done with a static or vibratory steel-drum roller. Intermediate rolling shall be done by a pneumatic-tired roller and/or a vibratory/oscillatory roller. Pneumatic-tired rollers shall be used on all pavement leveling courses. Final rolling shall be done with a static steel-drum roller or a roller of the steel-drum three-axle type, locked. The completed course shall be free from ridges, ruts, humps, depressions, objectionable marks, visible segregation, or irregularities and in conformance with the line, grade, and cross-section shown in the Plans or as established by the Engineer. Rollers must be in good mechanical condition, free from excessive backlash, faulty steering mechanism, or worn parts. The empty weight and the ballasted weight shall be properly marked on each roller. The minimum weight of static steel-drum rollers shall be 8 tons. When a vibratory roller is being used, the vibration shall stop automatically when the roller is stopped or reversing direction of travel. A minimum of three rollers shall be used.

Amend 3.12.2.8 to read:

3.12.2.8 Unless the Engineer determines that for the weight and placement conditions a lesser number will be satisfactory to obtain the desired pavement densities, the following is the list of required compaction equipment. The output of each paver placing wearing course (Table 1) materials shall be compacted by the use of one each of the following complement of rollers as a minimum: a static or vibratory steel-wheel roller, a pneumatic-tired or vibratory/oscillatory roller and a three-axle roller or a static steel-wheeled roller. If the required density is not being obtained with the rollers supplied, the use of additional rollers of the specified type may be ordered. Paving widths in excess of 16 ft (5 m) will require additional rollers as ordered.

Amend 3.12.3.3 to read:

3.12.3.3 The type of rollers to be used and their relative position in the compaction sequence shall be the Contractor's option, provided specification densities are attained and with the following stipulations:

- a) Pneumatic-tired rollers shall be used on all pavement leveling courses.

- b) Vibratory rollers shall not be operated in the vibratory mode under the following conditions: When checking or cracking of the mat occurs, when fracturing of aggregate occurs, and on bridge decks.
- c) A minimum of three rollers shall be used.

Amend 3.17.1.3 (A) to read:

3.17.1.3 The Plan shall include the following personnel performing the described functions and meeting the following minimum requirements and qualifications:

A. Plan Administrator shall meet one of the following qualifications:

- (a) Professional Engineer licensed in the State of NH with one year of highway experience acceptable to the Department and proof of past certification as a NETTCP QA Technologist.
- (b) Engineer-In-Training with two years of highway experience acceptable to the Department and hold current certification as a NETTCP QA Technologist.
- (c) An individual with three years highway experience acceptable to the Department and with a Bachelor of Science Degree in Civil Engineering Technology or Construction and hold current certification as a NETTCP QA Technologist.
- (d) An individual with five years of paving experience acceptable to the Department and hold current certification as a NETTCP QA Technologist.

Amend 3.17.3.1.1 to read:

3.17.3.1.1 Testing. Target values shall be as specified in the job mix formula. All sieve sizes specified in the job mix formula will be evaluated for gradation. The specification limits in Table 401-5 will be used for calculating pay factors for gradation and asphalt binder content.

Table 401-5 - Gradation and Asphalt Binder Specification Limits

Property	Maximum Aggregate Size				
	1"	3/4"	3/4" Winter	1/2"	3/8"
	USL and LSL (Target +/- %)				
1 1/2"	0	0	0	0	0
1-1/4"	0	0	0	0	0
1"	8.0	0	0	0	0
3/4"	8.0	6.0	6.0	0	0
1/2"	7.0	6.0	6.0	5.0	0
3/8"	7.0	6.0	6.0	5.0	5.0
No. 4	4.5	4.5	4.5	4.0	4.5
No. 8	4.5	4.5	4.5	3.5	3.5
No. 16	2.5	2.5	2.5	2.5	2.5
No. 30	2.5	2.5	2.5	2.5	2.5
No. 50	2.5	2.5	2.5	2.5	2.5
No. 100	2.5	2.5	2.5	2.5	2.5
No. 200	1.0	1.0	1.0	1.0	1.0
Asphalt Binder	0.4	0.4	0.4	0.4	0.4

Any subplot with a gradation or asphalt binder content falling outside the ranges of the reject limits in Table 401-6 will be either removed and replaced at the expense of the Contractor or require corrective action to the satisfaction of the Engineer. After replacement or correction, new samples will be taken and the old test results from that subplot will be discarded.

Table 401-6 - Gradation and Asphalt Binder Content Reject Limits (Deviation from Target)

SIEVE SIZE	1"	3/4"	3/4" Winter	1/2"	3/8"
	Percent Passing By Weight – Combined Aggregate				
1-1/4"					
1"					
3/4"	±12	(1)	(1)		
1/2"	(1)	±10	±10	(1)	
3/8"	(1)	(1)	(1)	±10	(1)
No. 4	±9	±9	±9	±9	±9
No. 8	±7	±7	±7	±7	±7
No. 16	±6	±6	±6	±6	±6
No. 30	(1)	(1)	(1)	(1)	(1)
No. 50	(1)	(1)	(1)	(1)	(1)
No. 100	(1)	(1)	(1)	(1)	(1)
No. 200	±3	±3	±3	±3	±3
Asphalt Binder: % of Mix	±1.0	±1.0	±1.0	±0.8	±0.8

(1) Reject limits will be waived for these sieves.

Amend 4.1.1 to read:

4.1.1 No separate measurement will be made for lighting necessary or overtime required due to night operations at the plant or at the site.

Amend 5.4 to read:

5.4 Plant or project site lighting for hot bituminous pavement, machine or hand method, or overtime required due to night operations will be subsidiary to the paving items.

SUPPLEMENTAL SPECIFICATION

AMENDMENT TO SECTION 410 – BITUMINOUS SURFACE TREATMENT

The purpose of this Supplemental Specification is to:

- *Adopt new AASHTO specifications for emulsions (2.1 – 04/13/16)*
- *Revise the pavement conditions and application rates for tack (3.4.1.1 – 01/04/17)*
 - *Identify tack sampling and penalties for non-conformance (2.1.1, 2.1.2, 3.2, 3.3, 3.4, 06/06/17)*
- *Amend distribution equipment and initiate an annual tack truck inspection program (3.2, 3.5.2, 07/06/18)*

Amend 2.1 to read:

2.1 Bituminous material shall be the type and grade specified or ordered and shall conform to the requirements of AASHTO M 140 or M 208, except as amended in Section 702.

Amend 3.2, 3.3, and 3.4 to read:

3.2 Equipment.

General equipment requirements for this work shall be as follows:

- (a) Tack distribution trucks shall have a minimum GVW of 26,000 lbs and shall be equipped with a storage tank of 1,200-gallon minimum capacity.
- (b) A tack distribution system shall be designed, equipped, maintained, and operated such that bituminous material at even heat (150° F) may be applied uniformly on variable widths of surface up to 12' at readily determined and computer-controlled rates with uniform pressure. Distributor equipment shall include: a tachometer, pressure gauges, accurate inside and outside volume measuring devices, and an exterior thermometer for measuring temperatures of tank contents. Distributors shall be equipped with a power unit for the pump and with full circulation spray bars adjustable laterally and vertically from the truck cab. The spray bar shall contain spray nozzles providing a fan-shaped spray pattern adjusted so the vertical axis is perpendicular to the pavement surface. The spray pattern and spray bar height shall be adjusted to provide a uniform application of the tack coat [double coverage should be avoided for seal coats; overlapping coverage is required for tack coats]. The distributor shall be equipped with a mechanical device to adjust the spray height as material is discharged to keep a uniform height above the pavement for full coverage with the correct overlap. The distributor shall also be equipped with a hand-held spray attachment and 25' hose for applying the material to areas inaccessible to spray bars and to fill in irregular areas to provide full coverage. Approved sampling valves shall be installed in distributors and transport tank trucks to permit the taking of representative samples of the contents. The recommended location of the sampling valve is in the rear bulkhead of the tank, roughly one-third of the height above the bottom. The inlet pipe shall project into the contained liquid as shown in ASTM D 140.

- (c) A rotary power broom shall be required unless the equipment listed under (d) is provided.
- (d) In urban and/or curbed sections, a vacuum truck or street sweeper shall be provided.
- (e) For seal coat applications only:
 - i A steel-wheeled roller.
 - ii A self-propelled pneumatic-tired roller.
 - iii A sand spreader capable of spreading blotter material in sufficient quantity to prevent traffic pickup of the applied bituminous material.
 - iv A steel-brush drag of an approved type.

3.2.1 Only certified tack distributors will be allowed. Vehicles and equipment will be subject to a yearly inspection by June 1st by the NHDOT Paving Specialist which will include field verification of spray patterns. Yearly inspection shall be arranged with a ten working day notification. Approved vehicles will receive a seal certifying the tack distributor for that year.

3.2.2 Sampling. Tack shall be sampled as directed by the Engineer using new non-metal sample containers provided by the Engineer. Samples shall be taken by the operator in the presence of the Engineer. At least 1 qt. of material shall be drained off through the sampling valve and discarded before the sample is taken. To prevent the loss of solvents, containers shall be sealed with a tight fitting cover immediately after being filled and provided to the Engineer for testing. Any tack that is found to be out of specification will result in non-payment for all tack applied on the date the tack is sampled.

3.2.2.1 Non-conforming tack will be evaluated by the Engineer to determine if overlying pavement should remain in place. Any pavement left in place shall not relieve the Contractor of the responsibility for latent defects and/or gross mistakes in the pavement layer above it as outlined in section 107.14.

3.3 Surface Preparation for Tack Coat. The existing surface shall be patched and shall be free of irregularities to provide a reasonably smooth and uniform surface to receive the treatment. Unstable corrugated areas shall be removed and replaced with suitable patching materials. The edges of existing pavements that are to be adjacent to new pavement shall be cleaned to permit the adhesion of bituminous materials.

3.4 Application of Tack Coat.

3.4.1 Bituminous material shall be uniformly applied with an approved applicator. When ordered, a pressure distributor shall be used. The tack coat shall be applied in such a manner as to offer the least inconvenience to traffic and to permit one-way traffic without pickup or tracking of the bituminous material.

3.4.1.1 A tack coat shall be applied immediately prior to placement of pavement. The rate of application of emulsified asphalt shall be between 0.02 and 0.06 gal/yd², based on the application rate table below. The Engineer may further modify the rate depending on the relative absorbance and texture of the pavement surface.

Existing Pavement Condition	Application Rate in Gal/yd ²
Smooth HMA	0.02 – 0.04
Milled HMA	0.04 – 0.06

Amend 3.5.2 to read:

3.5.2 Blotter material at the rate ordered shall be applied before the bitumen has set; the entire treated surface shall be dragged, rolled and maintained. The remaining blotter material shall be removed with a power broom.

Amend 5.1 to read:

5.1 The accepted quantities of bituminous surface treatment will be paid for at the Item Bid Price per ton for bituminous material, complete in place.

Add Section 5.2.2

5.2.2 The quantity of tack coat used on the day represented by a non-conforming test sample will not be paid.

SUPPLEMENTAL SPECIFICATION

AMENDMENT TO SUBSECTION 520 – PORTLAND CEMENT CONCRETE

The purpose of this Supplemental Specification:

- *Amend the delivery temperature for Cast-in-Place concrete to match the Precast specifications (3.8.1.1, 04/02/18).*
- *Revise NETTCP QA Technologist requirements (3.1.6.2.1.2 A, 11/07/18).*

Amend 3.1.6.2.1.2 A to read:

3.1.6.2.1.2 The Plan shall include the following personnel performing the described functions and meeting the following minimum requirements and qualifications:

A. **Plan Administrator** shall meet one of the following qualifications:

- (a) Professional Engineer licensed in the State of NH with one year of highway experience acceptable to the Department and proof of past certification as a NETTCP QA Technologist.
- (b) Engineer-In-Training with two years of highway experience acceptable to the Department and hold current certification as a NETTCP QA Technologist.
- (c) An individual with three years highway experience acceptable to the Department and with a Bachelor of Science Degree in Civil Engineering or an Associate's Degree in Civil Technology or Construction and hold current certification as a NETTCP QA Technologist.

Amend 3.8.1.1 to read:

3.8.1.1 The temperature of the concrete shall not exceed 90° F when placed in the forms. This may require the addition of ice to mixing water, sprinkling the forms and reinforcing steel, scheduling the concrete placements for early morning or evening hours, or any other approved methods.

09/15/16

Page 1 of 1

S U P P L E M E N T A L S P E C I F I C A T I O N**AMENDMENT TO SECTION 538– BARRIER MEMBRANE**

The purpose of this Supplemental Specification is to update the laydown temperature range for pavement overlays in connection of welded barrier membrane.

Amend 3.3.5 to read:

3.3.5 Application of Hot Bituminous Overlay. The deck shall be paved within 3 days of membrane application unless otherwise permitted by the Engineer. The required laydown temperature of pavement overlays used in connection with heat-welded barrier membrane shall be as stipulated on the Qualified Products List. It should be noted that the laydown temperatures are extremely critical in order to preserve membrane integrity.

SUPPLEMENTAL SPECIFICATION

AMENDMENT TO SECTION 702– BITUMINOUS MATERIALS

The purpose of this Supplemental Specification is to adopt new AASHTO specifications for emulsions.

Amend Section 702 to read:

Table 702-1 – Anionic Asphalt Emulsion

Grade	Rapid-Setting						Medium Setting						Test Method
	RS-1h		RS-1		RS-2		HFMS-2		MS-4		MS-5		
Tests on emulsified asphalt:	min	max	min	max	min	max	min	max	min	max	min	max	T59
	20	100	20	100					50	500	50	500	
					75	400	100 see (d)						
		1.0		1.0		1.0		1.0		1.0		1.0	
	60		60		60								
Coating ability and water resistance													
Coating, dry aggregate							good	75%		75%			T59
Coating, after spraying							fair	see (e) (f)		see (e) (f)			
Coating, wet aggregate							fair						
Coating, after spraying							fair						
Sieve test, % ^{a,b}		0.10		0.10		0.10		0.10		0.10		0.10	
Distillation													
Oil distillate, %									2.0	7.0	0	3.0	
Residue, % ^c	55		55		65		65		65		65		
Tests on residue from distillation:													
Penetration, 25°C (77°F), 100 g, 5 s, 0.1 mm	40	90	90	150	90	150	90	250	200		150	250	T49
Ductility, 25°C (77°F), 5 cm/min, cm	40		40		40		40						T51
Ash content, %		1.0		1.0		1.0		1.0					T111
Float test, 60°C (140°F), s							1200		50		100		T50

Table 702-2 -- Cationic Asphalt Emulsion

Type	Rapid-Setting				Test Method
Grade	CRS-1h		CRS-1		
Tests on emulsified asphalt:	min	max	min	max	T59
Viscosity, Saybolt Furol at 50°C (122°F), s ^a	20	100	20	100	
Storage stability test, 24-h, % ^{a,b}		1		1	
Sodium dioctyl sulfosuccinate, % ^a	40		40		
Particle charge test	Positive		Positive		
Sieve test, % ^{a,b}		0.10		0.10	
Distillation:					
Oil Distillate by volume of emulsified asphalt, %		3		3	
Residue, % ^c	60		60		
Tests on residue from distillation:					
Penetration, 25°C (77°F), 100 g, 5 s, 0.1 mm	40	90	90	150	T49
Ductility, 25°C (77°F), 5 cm/min, cm	40		40		T51
Ash content, %		1		1	T111

Footnotes:

- a. This test requirement and associated specification limits are waived for emulsified asphalt products following dilution
- b. This test requirement on representative samples may be waived if successful application of the material has been achieved in the field.
- c. For emulsions that are diluted, the percent residue requirements must be adjusted accordingly.
- d. 50 + when material is used for sealing.
- e. Wet Coating: Weigh 100 ± 0.5 g of aggregate, 20 to 30 mesh (0.85 to 0.60 mm) standard Ottawa sand, into a 600 mL glass beaker and add soft tap water, approximately twice the volume of that of sand. Weigh into the beaker containing the sand and water 8 ± 0.2 g of the emulsion at room temperature and mix for two minutes with a stiff spatula. Cover the mixture with approximately twice its own volume of tap water and pour the water off without further mixing. Repeat this process. After the second rinse, at least 75 percent of the sand shall remain coated.
- f. Stripping: After evaluating the wet coating, place the mixture into a clear 600 mL glass beaker, cover the mixture with tap water, let stand for 1 to 16 hours, and examine. At least 75 percent of the sand shall remain coated.
- g. The coating and stripping tests may be waived when MS-5 is used for sand sealing.

SPECIAL PROVISIONS

The following Special Provisions are to be used in conjunction with the NHDOT Standard Specifications and are herein made a part of the Contract Documents and apply to this project:

Special Provisions

<u>Section</u>	<u>Description</u>	
304.31	Crushed Gravel for Shimming	SP-2
520	Portland Cement Concrete	SP-3
521.22	Rout and Seal Large Cracks	SP-4
521.23	Rout and Seal Substructure Cracks	SP-4
526.21	Rout and Seal Small Cracks	SP-4
535.1	Concrete Staining and Sealing	SP-6
535.2	Anti-Graffiti Coating	SP-9
544	Reinforcing Steel	SP-12
550	Structural Steel	SP-13
556	Painting Existing Structural Steel	SP-15
560.14	Prefabricated Expansion Joint	SP-16
560.131	Prefabricated Compression Seal Expansion Joint – Rehabilitation	SP-18
565	Bridge Approach Rail	SP-19
606.18001	31" W-Beam Guardrail with 8" Offset Block (Steel Post)	SP-20
606.6211	Ramp Handrail, W/Guard Steel	SP-21
606.41741	Portable Concrete Barrier for Traffic Control (Bridge)	SP-22
607	Fences	SP-23
608	Sidewalk	SP-26
616	Traffic Signals	SP-27
624	Railroad Protection	SP-30
645	Erosion Control	SP-31
670.104	Temporary Portable Lighting	SP-34
697.11	Invasive Species Control and Management Plan	SP-36
1002	Special Work on Structures	SP-38
1008	Alterations and Additions as Needed	SP-40

SPECIAL PROVISION
AMENDMENT TO SECTION 304– AGGREGATE BASE COURSE
Item 304.31 – Crushed Gravel for Shimming

Add to Materials:

2.12 Crushed gravel for shimming. The material shall meet the gradation requirements of either crushed gravel or crushed stone (fine) as shown in Table 1.

2.13 Recycled Concrete Aggregate (RCA) shall not be used in any material listed in Table 304-1 except for Item 304.32, Crushed Gravel for Shoulder Leveling. Use of RCA for Item 304.32 shall be as specified in Section 2.6.

Add to 3.4:

3.4.11 Crushed gravel for shimming shall be placed on travel way, immediately underlying base course or reclaimed stabilized base, where an adequate exists, as shown on the plans and as determined by the Engineer.

Add to Method of Measurement:

4.5 Crushed gravel for shimming will be measured by the cubic yard determined by using 80 percent of the loose volume of material measured in vehicles in accordance with 109.01.

Add to Basis of Payment:

5.4 The accepted quantity of crushed gravel for shimming will be paid for at the contract unit price per cubic yard complete in place.

Add to Pay Items and Units:

304.31	Crushed Gravel for Shimming	Cubic Yard
--------	-----------------------------	------------

END OF SECTION

**SPECIAL PROVISION
AMENDMENT TO SECTION 520 – PORTLAND CEMENT CONCRETE**

Add to Method of Measurement

4.2.1 Concrete class AA, above footings will be measured by the cubic yard in place and in accordance with 4.1.1.

Add to Basis of Payment:

5.2.1 The accepted quantity of concrete class AA, above footings will be paid for at the Contract unit price per cubic yard complete in place.

Add to Pay Items and Units

520.0201	Concrete Class AA, Above Footings	CY
----------	-----------------------------------	----

END OF SECTION

SPECIAL PROVISION
Item 521.22 – Rout and Seal Large Cracks
Item 521.23 – Rout and seal substructure Cracks
Item 526.21 – Route and Seal Small Cracks

Description

- 1.1** This work shall consist of repairing cracks in the concrete bridge curb and substructure by routing and filling with the specified materials, as indicated in the Plans and as directed by the Engineer.
- 1.2** Cracks identified in the substructure per item 521.23 shall be sealed with non-shrink grout.
- 1.3** Cracks identified in the concrete bridge curb with a width larger than ½” as item 521.22 shall be sealed with non-shrink grout.
- 1.4** Cracks identified in the concrete bridge curb with a width ½” and smaller as item 526.21 shall be sealed with an elastomeric sealant.

Materials

- 2.1** Non-shrink grout shall be an approved grout as listed under Section 528A of the NHDOT Qualified Products List.
- 2.2** The following elastomeric sealants, or an approved equivalent, are acceptable for use:

Sealant:	Sikaflex-201
Manufacturer:	Sika Corporation 30800 Stephenson Highway Madison Heights, MI 48071 Tel.: 1-248-577-0020 Internet: https://www.sika.com
Sealant:	Dymonic FC
Manufacturer:	Tremco Commercial Sealants & Waterproofing 3735 Green Road Beachwood, OH 44122 Tel.: 1-800-321-7906 Internet: https://www.tremcosealants.com
Sealant:	Mapeflex AC-P
Manufacturer:	Mapei 1144 E. Newport Center Drive Deerfield Beach, FL 33442 Tel.: 1-800-992-6273 Internet: https://www.mapei.com

Construction Requirements

3.1 Submittals. Four weeks prior to beginning the work, the Contractor shall submit product information to the Engineer for approval.

3.2 Application. The concrete surface shall be thoroughly cleaned and removed of all latency, dirt, grease, oil, efflorescence, paint, or other foreign materials and contaminates and prepared per the manufacturer's recommendations.

Method of Measurement

4.1 The quantity of Rout and Seal Substructure Cracks to be measured for payment will be the number cracks larger than ½" in width in the concrete piers and abutments.

4.2 The quantity of Rout and Seal Large Cracks to be measured for payment will be the number cracks in the concrete curb that are larger than ½" in width.

4.2 The quantity of Rout and Seal Small Cracks to be measured for payment will be the number cracks in the concrete curb that are ½" and smaller in width.

Basis of Payment

5.1 The accepted quantity of Rout and Seal Large Cracks, Rout and Seal Substructure Cracks, and Route and Seal Small Cracks will be paid for at the Contract unit price per each. Payment will be full compensation for furnishing, transporting, handling, and placing the material(s) specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Pay items and units:

521.22	Rout and Seal Large Cracks	Each
521.23	Rout and Seal Substructure Cracks	Each
526.21	Rout and Seal Small Cracks	Each

END OF SECTION

SPECIAL PROVISION
Item 535.1 – Concrete Staining and Sealing

Description

1.1 This work shall consist of applying a slip-resistant, waterproof protective polyurethane coating system for the sealing and protection of concrete surfaces to achieve a white appearance and textured finish as indicated in the Plans and as directed by the Engineer.

1.2 This work shall also consist of repairing spalls in the concrete deck surface and curbs. It is anticipated that not more than 3 cubic feet of spalls will need to be repaired prior to coating.

Materials

2.1 Materials and coating(s) shall be a water-based, 100 percent acrylic, material that is breathable and repels water. Materials shall also be able to withstand pedestrian traffic. Materials and coating(s) systems furnished under this Section shall conform to the manufacturer's specifications. The following coating systems, or an approved equivalent, are acceptable for use:

Coating:	Water Based Concrete Stain Sealer
Manufacturer:	Increte Systems 1611 Gunn Highway Odessa, FL 33556 Tel.: 1-800-4752-4626 Internet: www.increte.com
Coatings:	TK-290 Tri-Siloxane TK-5272 Pigmented Stain
Manufacturer:	TK Products Division of Sierra Corporation 11400 West 47th Street Minnetonka, MN 55343 Tel.: 1-952-938-7223 Fax: 1-952-938-8084 Internet: www.tkproduct.com
Coatings:	H&C® Shield Plus™ Ultra Concrete Stain H&C® Commercial Grade Super V™ Water-Based Water Repellent
Manufacturer:	H&C® Concrete Care Products 101 Prospect Avenue 6 Guild Hall Cleveland, OH 44115 Tel.: 1-800-867-8246 Internet: www.hc-concrete.com

2.1.2 Upon Completion of application of the concrete coating and sealant system, the Contractor shall provide the Owner with one unopened five gallon container of the coating system and sealer and/or primer (as required). The containers shall be delivered to the Owner at the Public Works facility.

2.2 The spill repair material shall be elastomeric concrete. The following elastomeric concrete is acceptable for use, or an approved equivalent:

Elastomeric Concrete: Wabo®Crete II

Manufacturer: Watson Bowman Acme Corp
95 Pineview Drive
Amherst, NY 14228
Phone: (716) 691-9239
Wbacorp.com

Construction Requirements

3.1 Submittals. Four weeks prior to beginning the work, the Contractor shall submit product information and color samples to the Engineer for approval. The Engineer, in consultation with the municipality, will determine which, if any, of the color samples are acceptable. If none of the samples are acceptable, then the Contractor shall repeat the process with additional color samples.

3.2 Application. All surfaces that are to be stained and sealed shall be at least 30 days old and as required by the coating manufacturer. These surfaces shall also be cleaned as required by the manufacturer to remove any latency, dirt, grease, oil, efflorescence, paint, or other foreign materials and contaminants. Any solvent cleaning necessary shall meet the recommendations of the coating manufacturer.

3.2.1 Coatings shall be applied in accordance with the manufacturer's recommendations.

3.3 Surface Preparation. After application(s) of the sealer and/or stain, the concrete surfaces shall be protected as necessary in accordance with the manufacturer's recommendations.

3.4 Environmental Protection. During cleaning, surface preparation, and coating operations, the Contractor shall provide appropriate measures (such as suitable protective coverings) to protect the public, the bridge superstructure, work area, etc. from cleaning and coating contamination due to drippings, spatter, wind-blown particles, falling objects, etc. The Contractor shall be fully responsible for property damage or personal injury which may result from operations incidental to sealing and staining concrete surfaces.

Method of Measurement

4.1 The quantity of Concrete Staining and Sealing to be measured for payment will be the number of square yards of stain applied in the complete and accepted work, measured to the nearest square yard.

4.1.1 Water repellent sealant and/or separate primer coatings (as required) will not be measured separately, but shall be considered incidental to the work.

4.2 Elastomeric concrete to be used in concrete spall areas will not be measured but shall be subsidiary to Concrete Staining and Sealing.

Basis of Payment

5.1 The accepted quantity of Concrete Staining and Sealing will be paid for at the Contract unit price per square yard. Payment will be full compensation for furnishing, transporting, handling, and placing the material(s) specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

5.1.1 Any apparatus, material, and labor not specifically mentioned herein which may be found necessary to complete or perform any portion of the work in a satisfactory manner and in compliance with the requirements implied or intended in these specifications shall be furnished by the Contractor at no additional cost to the Owner.

5.2 Elastomeric concrete shall be subsidiary to Concrete Staining and Sealing.
Payment will be made under:

Pay Item and Unit

535.1	Concrete Staining and Sealing	SY
-------	-------------------------------	----

END OF SECTION

SPECIAL PROVISION
Item 535.2 – Anti-Graffiti Coating

Description

1.1 This work shall consist of applying a non-sacrificial, anti-graffiti protective coating over concrete as indicated in the Plans and as directed by the Engineer. The Contractor shall protect surrounding areas, remove existing graffiti, prepare surfaces to be coated, and apply the anti-graffiti coatings in accordance with the manufacturer's specifications.

Materials

2.1 Materials and coating(s) systems furnished under this Section shall conform to the manufacturer's specifications. The following coating systems, or an approved equivalent, are acceptable for use:

Coating:	Watch Dog CPU 147
Manufacturer:	Dumond Chemicals, Inc. 104 Interchange Plaza, Suite 202 Monroe Township, New Jersey, 08831 Tel.: 1-609-655-7700 Internet: www.dumondchemicals.com
Coating:	Permaclean
Manufacturer:	TK Products 11400 W 47 th Street Minnetonka, MN Tel.: 1-800-441-2129 Internet: www.tkproduct.com

2.1.2 The manufacturer shall have at least 5 years experience producing anti-graffiti coating capable of being used on vertical surfaces.

2.1.3 Anti-graffiti coating shall be a coating system, including primer, sealer or densified coats as recommended by the manufacturer. The final coat of the system shall be a urethane based sealant, which provided an invisible, non-sacrificial penetrating barrier. Coating shall dry as matte or satin finish. A high gloss finish is unacceptable. The application of the coating shall not result in yellowing or color change to the surface.

2.1.4 The anti-graffiti coating shall be a low volatile organic content (VOC) material, with a VOC less than 600 grams per liter. The coating shall be resistant to weather, humidity, abrasion, acid, alkali, salt spray, ultra-violet rays, and petroleum products and shall allow vapor transmission.

2.1.5 The coating shall have the capability of having all types of paints and graffiti materials completely removed without damaging the surfaces to which the coating is applied. Removal of graffiti shall not result in "shadowing" of the base surface upon removal of graffiti. Manufacturer recommended cleaning products for removal of graffiti shall be non-toxic and biodegradable.

2.1.6 Provide all coating materials in sealed, original, containers that are properly marked and labeled to allow verification with applicable material safety data sheets, application precautions, and instructions. Labeling shall include the manufacturer's name, type of material, brand name, finish designation, date of manufacture, shelf life, contract or order number under which the material has been ordered, lot and batch numbers, quantity, handling, thinning, and application instructions.

Construction Requirements

3.1 Submittals. Four weeks prior to beginning the work, the Contractor shall submit product information to the Engineer for approval. Provide written application instructions from the manufacturer, which shall include recommended application equipment, application methods and rates, surface preparation requirements and other applicable manufacturer's recommendations.

3.2 Application. All surfaces that are to be coated shall be at least 30 days old and as required by the coating manufacturer. These surfaces shall also be cleaned as required by the manufacturer to remove any latency, dirt, grease, oil, efflorescence, paint, or other foreign materials and contaminants. Any solvent cleaning necessary shall meet the recommendations of the coating manufacturer.

3.2.1 Coatings shall be applied in accordance with the manufacturer's recommendations.

3.3 Surface Preparation. After application(s) of the sealer and/or stain, the concrete surfaces shall be protected as necessary in accordance with the manufacturer's recommendations.

3.3.1 Existing graffiti shall be completely removed prior to application of the anti-graffiti removal.

3.4 Environmental Protection. During cleaning, surface preparation, and coating operations, the Contractor shall provide appropriate measures (such as suitable protective coverings) to protect the public, the bridge superstructure, work area, etc. from cleaning and coating contamination due to drippings, spatter, wind-blown particles, falling objects, etc. The Contractor shall be fully responsible for property damage or personal injury which may result from operations incidental to sealing and staining concrete surfaces.

3.4.1 Over spray to non-porous surfaces shall be removed in accordance with the manufacturer's recommendations. The Contractor shall be responsible for the cleanup of any spills. All cleanups shall be done at no additional cost and to the satisfaction of the Engineer.

Method of Measurement

4.1 The quantity of Anti-Graffiti Coating to be measured for payment will be by the square yard of coating applied in the complete and accepted work, measured to the nearest square yard.

Basis of Payment

5.1 The accepted quantity of Anti-Graffiti Coating will be paid for at the Contract unit price per square yard. Payment will be full compensation for furnishing, transporting, handling, and placing the material(s) specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

5.1.1 Any apparatus, material, and labor not specifically mentioned herein which may be found necessary to complete or perform any portion of the work in a satisfactory manner and in compliance

with the requirements implied or intended in these specifications shall be furnished by the Contractor at no additional cost to the Agency.

Pay Item and Unit

535.2	Anti-Graffiti Coating	SY
-------	-----------------------	----

END OF SECTION

SPECIAL PROVISION
AMENDMENT TO SECTION 544 – REINFORCING STEEL
Item 544.301 - Reinforcing Steel (Contractor Detailed)
Item 544.3011 - Reinforcing Steel, Mechanical Connectors (Contractor Detailed)
Item 544.31 - Reinforcing Steel, Epoxy Coated (Contractor Detailed)
Item 544.311 - Reinforcing Steel, Epoxy Coated Mechanical Connectors (Contractor Detailed)

Add to Method of Measurement

4.1.1 Reinforcing Steel (Contractor Detailed) and Reinforcing Steel, Epoxy Coated (Contractor Detailed) will be measured by the pound of reinforcing steel placed as shown on the plans or as ordered. Chair supports/bars, standees, or additional bars/devices as required to suit the Contractor's Means and Methods of constructing the reinforcing mats shall not be measured for payment.

4.1.2 Reinforcing Steel, Mechanical Connectors (Contractor Detailed) and Reinforcing Steel, Epoxy Coated Mechanical Connectors (Contractor Detailed) will be measured by number as shown on the plans or as ordered.

Add to Basis of Payment:

5.1.2 The accepted quantity of Reinforcing Steel (Contractor Detailed) and Reinforcing Steel, Epoxy Coated (Contractor Detailed) will be paid for at the Contract unit price per pound complete in place. No allowance will be made for chair supports/bars, standees or additional bars/devices that are used by the Contractor to support the reinforcing mats.

5.1.3 Reinforcing Steel, Epoxy Coated Mechanical Connectors (Contractor Detailed) and Reinforcing Steel, Mechanical Connectors (Contractor Detailed) will be paid for at the Contract unit price per each installed.

Add to Pay Items and Units

544.301	Reinforcing Steel (Contractor Detailed)	Pound
544.3011	Reinforcing Steel, Mechanical Connectors (Contractor Detailed)	Each
544.31	Reinforcing Steel, Epoxy Coated (Contractor Detailed)	Pound
544.311	Reinforcing Steel, Epoxy Coated Mechanical Connectors (Contractor Detailed)	Each

END OF SECTION

SPECIAL PROVISION
SECTION 550—STRUCTURAL STEEL
Item 550.191 —Temporary Support System

This special provision neither amends nor modifies other provisions of 550 except as referenced below.

Description

1.1 This work shall consist of the design, construction, and removal of the temporary support system (including jacking, shoring and monitoring) as required during the substructure repair work.

Materials

2.1 All materials to be used in the construction of the temporary support system shall be subject to inspection and approval prior to their incorporation in the work. Used materials will be acceptable, provided appropriate allowances are made for their condition.

Construction Requirements

3.1 Temporary support system shall be designed in accordance with the AASHTO LRFD Bridge Design Specifications, 8th Edition. The temporary support system shall meet the minimum strength requirements to carry all loads at stress levels not to exceed those allowed in the above specifications.

3.2 Detailed plans showing size, type and layout of jacks and temporary supports, member sizes and quality of materials to be used in the temporary truss superstructure support system shall be submitted to the Engineer for review and approval. The plans shall be designed and stamped by a Licensed Professional Engineer registered in the State of New Hampshire.

3.3 Bolting or welding to the existing structural steel for construction purposes will not be permitted unless approved by the Engineer. Provision for the thermal movement of structural steel shall be made, as required.

3.4 Anchoring into existing masonry shall be subject to the approval of the Engineer.

3.5 Jacks shall be operated to limit racking of the bridge. The maximum allowable height differential between girders shall be ½".

3.6 During the jacking process, no girder shall be jacked without temporary supports, blocks, etc. placed so that the fall of the girder would be arrested if the jack failed. Jacking of the girders shall be synchronous.

3.7 When the temporary superstructure support system is no longer required, it shall be completely removed to the satisfaction of the Engineer and the construction area and structural steel restored to a condition equal to or better than that originally found.

Method of Measurement

4.1 Temporary support system used for supporting the girders during the substructure repair work shall be measured as a unit. This unit shall include all support systems required in the work.

Basis of Payment

5.1 The accepted temporary support system will be paid for at the contract lump sum price.

5.2 It is not anticipated that removal and resetting of the bearings will be required to complete the substructure repair work; however, should it be necessary the costs for removing and resetting the steel bearings shall be incidental to the temporary support system.

Pay item and unit:

550.191	Temporary Support System	Unit
---------	--------------------------	------

END OF SECTION

SPECIAL PROVISION
AMENDMENT TO SECTION 556 – PAINTING EXISTING STRUCTURAL STEEL
ITEM 556.101 - PAINTING EXISTING STRUCTURAL STEEL

Add to Description

1.3 Due to the age of the structure, the existing paint system is not likely to contain lead, however it was not tested. The Contractor shall take all necessary precautions when handling the existing paint system.

Add to Construction Requirements

3.3 All structural steel to be painted require a maintenance overcoat system. The required paint system shall include areas that have been prepared to a SSPC- SP 10 condition receive a spot primer application of the intermediate coat (acting as a primer at 2-4 mils DFT) and all surfaces to be painted receive one full application of each of the intermediate and finish coats of paint.

Add to Basis of Payment

5.1.1 Any apparatus, material, and labor not specifically mentioned herein which may be found necessary to complete or perform any portion of the work in a satisfactory manner and in compliance with the requirements implied or intended in these specifications shall be furnished by the Contractor at no additional cost to the City.

Add to Pay item and unit

556.101	Painting Existing Structural Steel	Unit
---------	------------------------------------	------

END OF SECTION

SPECIAL PROVISION
SECTION 560 – PREFABRICATED COMPRESSION SEAL EXPANSION JOINT
Item 560.14 – Prefabricated Expansion Joint

This special provision provides for prefabricated expansion joint and neither amends nor modifies other provisions of 560 except as specified below.

Description

1.1 This work shall consist of furnishing and installation of an expansion joint system comprised of an approved preformed, precompressed, self-expanding, sealant system with silicon pre-coated surface.

1.2 This work also consists of casting elastomeric concrete headers, resetting granite curb as necessary, and the application of pavement joint adhesive.

Materials

2.1 The sealant system shall be comprised of three components:

- 1) Cellular polyurethane foam impregnated with hydrophobic 100% acrylic, water-based emulsion, factory coated with highway-grade, fuel resistant silicone;
- 2) Field-applied epoxy adhesive primer;
- 3) Field-injected silicone sealant bands.

2.1.1 Materials shall conform to the manufacturer's specifications. The following prefabricated expansion joint is acceptable for use, or an approved equivalent:

Bridge Seal:	BEJS System
Manufacturer:	EMSEAL joint Systems LTD. 25 Bridle Lane Westborough, MA 01581 Phone: (508) 836-0280 EMSEAL.com

2.2 The header material shall be elastomeric concrete. The following elastomeric concrete is acceptable for use, or an approved equivalent:

Elastomeric Concrete:	EMCRETE
Manufacturer:	EMSEAL joint Systems LTD. 25 Bridle Lane Westborough, MA 01581 Phone: (508) 836-0280 EMSEAL.com

2.3 Pavement joint adhesive shall be a product listed on the NHDOT Qualifications Products List.

Construction Requirements

3.1 The Contractor shall submit product information and necessary details, of the prefabricated expansion joint and header material, prior to installation of the joint system, to the Engineer for review and approval. At the discretion of the Engineer, the manufacturer may be required to furnish a representative sample of materials to be supplied to the Engineer.

3.1.1 The preformed, precompressed, self-expanding, sealant system shall be sized in accordance with manufacturer's recommendations, and installed at locations shown on the contract plans.

3.2 The Contractor shall store and install all materials per the manufacturer's recommendations.

3.2.1 The Contractor shall ensure and properly prepare all joint interfaces prior to installation and in accordance with the manufacturer's installation guidelines.

3.2.2 All joint interfaces must be completely dry prior to application of the preformed, precompressed, self-expanding, sealant system.

3.3 Resetting granite curb shall conform to the requirements of Section 609 of the NHDOT Standard Specifications.

3.4 Application of pavement joint adhesive shall conform to the requirements of Section 403 of the NHDOT Standard Specifications.

Method of Measurement

4.1 The accepted quantities of the Prefabricated Expansion Joint will be measured by the linear foot.

4.1.1 Payment of the Prefabricated Expansion Joint shall include the elastomeric concrete material detailed on the plans to create the headers within the travelway, and the resetting of granite curb to facilitate the installation of the joint system.

Basis of Payment

5.1 The Prefabricated Expansion Joint will be paid for at the contract unit price per linear foot complete in place.

Pay items and units:

560.14	Prefabricated Expansion Joint	Linear Foot
--------	-------------------------------	-------------

END OF SECTION

SPECIAL PROVISION
AMENDMENT TO SECTION 560 – PREFABRICATED COMPRESSION SEAL EXPANSION
JOINT

Item 560.131 – Prefabricated Compression Seal Expansion Joint – Rehabilitation

Add to Description:

1.2 This work shall also consist of removal and replacing of the existing, damaged expansion joint compression seal.

Amend Method of Measurement:

4.1 Prefabricated Compression Seal Expansion Joint – Rehabilitation will be quantified as each expansion joint.

Amend Basis of Payment:

5.1 Prefabricated Compression Seal Expansion Joint – Rehabilitation will be paid for at the Contract unit price per each complete in place. Payment will be full compensation for removal of existing seal, furnishing, transporting, handling, and placing the new seal and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Amend Pay Items and Units

560.131	Prefabricated Compression Seal Expansion Joint – Rehabilitation	Each
---------	---	------

END OF SECTION

SPECIAL PROVISION
AMENDMENT TO SECTION 565 – BRIDGE APPROACH RAIL
Item 565.919 – Bridge Approach Rail, Thrie Beam Transition (Modified)

This Special Provision provides for setting of bridge approach railing and neither amends nor modifies the provisions of this section except as stated herein.

Add to Description

1.3 The Contractor shall install transition thrie beam bridge approach rail as shown on the plans or ordered.

Add to Method of Measurement

4.2 Bridge approach rail of the type specified will be measured by the unit as shown on the plans.

Add to Basis of Payment:

5.1.2 Bridge approach rail of the type specified will be paid for at the contract unit price complete in place.

Add to Pay Items and Units

565.919	Bridge Approach Rail, Thrie Beam Transition (Modified)	Unit
---------	--	------

END OF SECTION

SPECIAL PROVISION
AMENDMENT TO SECTION 606 - GUARDRAIL
Item 606.18001 - 31" W-Beam Guardrail with 8" Offset Block (Steel Post)

This special provision provides for the installation of guardrail with a mid-way splice. All requirements as set forth in the Standard Specifications are applicable except as modified or changed herein for these items only.

Add to Materials:

2.14 31" W-Beam Guardrail with 8" Offset Blocks. Materials/components required for installation shall be as shown in the plans or as ordered.

Add to Construction Requirements:

3.9 31" W-Beam Guardrail with 8" Offset Blocks. Construction requirements shall be as shown in the plans or as ordered.

Add to pay items and units:

606.18001	31" W-Beam Guardrail with 8" Offset Block (Steel Post)	Linear Foot
-----------	--	-------------

END OF SECTION

SPECIAL PROVISION
AMENDMENT TO SECTION 606 – GUARDRAIL
Item 606.6211 – Ramp Handrail, W/Guard Steel

Add to 1.1:

1.1.4 This work shall also consist of removal and disposal of the existing handrail on the approaches.

Add to 3.8:

3.8.6 Paint Coating for Handrail. The handrail shall be completely coated with a black paint complying with section 708 Appendix A of the NHDOT Standard Specifications and shall be the federal color number 27038.

Add to Pay Items and Units:

606.6211	Ramp Handrail, W/Guard Steel	Linear Foot
----------	------------------------------	-------------

END OF SECTION

SPECIAL PROVISION
AMENDMENT TO SECTION 606 – GUARDRAIL
Item 606.41741 – Portable Concrete Barrier for Traffic Control (Bridge)

Add to 3.7:

3.7.5 Portable Concrete Barrier for Traffic Control (Bridge). Either of the following barriers are considered acceptable by the Department.

3.7.5.1 Braced. Braced portable concrete barrier shall consist of 20 foot long sections and shall be braced and pinned as detailed on the contract plans or as otherwise approved.

3.7.5.2 Texas Restrained Barrier (TRB). The TRB portable concrete barrier shall consist of 10 foot long s

Amend to 4.4.2 to read:

4.4.2 Portable concrete barrier for traffic control of the type specified will be measured by the linear foot for barrier delivered and installed for use on the project. Relocating portable concrete barriers on the project will not be measured for payment.

Amend to 5.3 to read:

5.3 The accepted quantity of permanent concrete barrier of the type specified and portable concrete barrier for traffic control of the type specified will be paid for at the contract unit price per linear foot.

Add to 5.3:

5.3.6 No separate payment will be made for the required bracing, pinning, or connections of the portable concrete barrier for traffic control. All structural steel, steel rods and hardware will be subsidiary.

Add to Pay Items and Units:

606.41741	Portable Concrete Barrier for Traffic Control (Bridge)	Linear Foot
-----------	--	-------------

END OF SECTION

SPECIAL PROVISION
SECTION 607 – FENCES
Item 607.921 – Modifications to the Main Span Fence
Item 607.922 – Modifications to the Approach Span Fence

This special provision provides for modifications to the main span fence only and neither amends nor modifies other provisions of 607 except as specified below.

Description

1.1 This work shall consist of modifying the existing fences along the bridge approach spans and the main bridge span, including removing the existing fabric, cutting the existing posts to the limits shown on the Plans, removing the existing handrail, painting the remaining portion of the posts black, installing black vinyl fabric, and connecting handrail as shown on the Plans and as directed by the Engineer. Additional work along the main bridge span consists of connecting curved post segments to the top of the posts along the main bridge span.

1.2 This work shall also consist of the design and detailing of the following for the main bridge span:

- a. Handrail attachment to the girder
- b. Connection between the new posts and existing posts.

Materials

2.1 Materials required shall meet the Material Requirements for the class or type of work in accordance with the Standard Specifications of Section 607 or as ordered.

2.1.1 Fence post and rail pipe material shall be hot-dip galvanized steel conforming to AASHTO M 181, grade 1 (ASTM F 1083). All pipes shall be schedule 40, standard weight.

2.1.2 Chain link fence fabric and ties shall be vinyl coated and conform to Standard Specification Section 607.2.2.

2.1.3 Tension bars, bar bands, in-line clamps and end rail clamps shall be steel. Steel components shall be hot-dip galvanized in accordance with AASHTO M 111 (ASTM A 123) or AASHTO M 232 (ASTM A 153) as applicable. All bar bands shall have a beveled edge.

2.1.4 All bolts and nuts shall be steel conforming to ASTM A 307 and ASTM A 563 grade a respectively. Washers shall be hardened steel commercial type A plain and shall meet the dimensional requirements of ANSI B18.22. All bolts, nuts and washers shall be hot-dip galvanized in accordance with AASHTO M 111 (ASTM A 123) or AASHTO M 232 (ASTM A 153) as applicable.

2.1.5 All posts, rail pipe, and steel components shall be painted. Paint shall conform to Standard Specification Section 708 for paint over galvanizing. The final color shall be black, federal color # 27038.

2.2 Grout to anchor new posts in concrete piers at location of existing gate stops shall be an approved non-shrink grout as listed under Section 528A of the NHDOT Qualified Products List.

Construction Requirements

3.1 Four weeks prior to beginning the work, the Contractor shall submit product information for the Fence Posts, Vinyl Fabric, and Paint.

3.2 Contractor shall submit the design for the handrail attachment, and the design for the connection between the new posts and existing posts along the main span to the Engineer for approval. The designs shall be stamped by a licensed engineer in the state of New Hampshire. The handrail shall meet American with Disabilities Act (ADA) requirements.

3.2.3 The connections shall be designed in accordance with AASHTO LRFD Bridge Design Specifications, 8th Edition.

3.2.3.1 The handrail attachment shall be designed for a uniform design live load of 0.050 klf simultaneously with a concentrated load of 0.20 kips.

3.2.3.2 The post connection shall be designed for a wind load of 0.015 ksf.

3.3 Contractor shall take special care and necessary precautions to ensure that no debris falls onto the roadway below during construction.

3.4 Field Painting.

3.4.1 General. Field painting shall include the proper preparation of the metal surfaces, the application, protection, and drying of the paint coatings, the protection of pedestrian, vehicular, or other traffic upon or beneath the bridge structure, and the protection of all portions of the structure against disfigurement. Surfaces other than those where paint has been permitted to remain shall be primed the same day that the steel is cleaned.

3.4.1.1 Existing dirt, dust and the debris from cleaning operations shall be removed from the structure to prevent the contamination of surfaces either prepared for paint or surfaces freshly painted.

3.4.1.2 All necessary precautions shall be taken to prevent pollution and contamination of air during cleaning and painting operations. The precautions shall include, but not be limited to tarpaulins, plastic sheeting, plywood, and the like. The Contractor shall take prompt action to correct any noted deficiencies in methods.

3.4.1.3 Care shall be taken to prevent damage to vegetation, water supplies, traffic, utilities, abutting properties, and the structure by equipment, personnel, and cleaning and painting operations. Any damage shall be promptly rectified. Any paint spattering shall be removed and the surfaces shall be repaired.

3.4.2 Application. Paint shall be applied in accordance with the manufacturer's recommendations.

3.4.2.1 Prior to painting, galvanized surfaces shall be pretreated with SSPC-SP1, Solvent Cleaning, using zinc phosphate or a light acid without attacking the zinc, to remove soluble contaminants, and abrasive blasting or other mechanical means to remove insoluble contaminants such as zinc hydroxide (i.e. white rust) and to thoroughly roughen the entire surface and produce a uniform anchor profile of 1 to 1.5 mils without removing the zinc layer. Alternate pretreatments or tie-coats may be considered if recommended by the coatings manufacturer and approved by the Engineer.

3.4.2.2 Galvanized surfaces that are damaged shall be repaired with 2 coats of approved zin-rich primer prior to painting. The second coat shall not be applied until he first coast has been approved.

Method of Measurement

4.1 Modifications to the Main Span Fence and Modifications to the Approach Span Fence will be measured by the linear feet, to the nearest foot. Measurement will be along the centerline of the bridge.

4.2 Removal of the existing fence and modifications to the limits shown on the plans will not be measured but shall be subsidiary to Modifications to the Main Span Fence or Modifications to the Approach Span Fence.

Basis of Payment

5.1 The accepted quantity of Modifications to the Main Span Fence and Modifications to the Approach Span Fence will be paid for at the Contract unit price per linear foot, complete in place. Payment will be full compensation for furnishing, transporting, handling, and placing the material(s) specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

5.1.1 Any apparatus, material, and labor not specifically mentioned herein which may be found necessary to complete or perform any portion of the work in a satisfactory manner and in compliance with the requirements implied or intended in these specifications shall be furnished by the Contractor at no additional cost to the Owner.

Pay items and units:

607.921	Modifications to the Main Span Fence (F)	Linear Foot
607.922	Modifications to the Approach Span Fence (F)	Linear Foot

END OF SECTION

SPECIAL PROVISION
AMENDMENT TO SECTION 608 – Sidewalks
Item 608.2401 – 4" Concrete Sidewalk

Add to Method of Measurement

4.5 Sidewalks for this project will be measured by the square yard in place within the limits shown on the plans.

Add to Basis of Payment

5.4 The accepted quantity of sidewalks for this project will be paid for at the Contract unit price per square yard complete in place.

Add to Pay items and units:

608.2401	4" Concrete Sidewalk	Square Yard
----------	----------------------	-------------

END OF SECTION

SPECIAL PROVISION
AMENDMENT TO SECTION 616 -- TRAFFIC SIGNALS
Item 616.171 – Portable Temporary Traffic Signals, Trailer Mounted

This special provision provides for the use of a portable, trailer mounted temporary traffic signal system and neither amends nor modifies this section except as noted below.

Description

1.1 The portable traffic signal system is a temporary device for controlling the flow of traffic in single lane two-way traffic locations and at intersections. The system shall have no less than 3 individual trailer units linked together through either radio controlled, hard wired, or microwave communications to comprise the system. The portable traffic signal system shall comply with the requirements of the MUTCD and shall be installed and utilized as designated by this Special Provision, the NHDOT Standard Specifications, the Plans, and the Resident Engineer.

1. Portable Traffic Signals (PTS) shall be trailer-mounted. Each trailer shall be self contained and consist of two signal heads. One signal head shall be mounted on a mast arm capable of extending over the travel lane. The other signal head shall be mounted on a vertical upright.
2. The Contractor shall be responsible to install and maintain the PTS system as required for this contract. The Contractor shall furnish the Resident Engineer and City of Portsmouth, Department of Public Works, with names and phone numbers of persons to be contacted in case of a malfunction. The Contractor shall also keep a signal log in the cabinet to track all maintenance work they complete on the PTS. This log shall be placed within a plastic cover and shall at least include the description of the trouble call, corrective action taken, date, time, and personnel who completed the work.
3. Any changes to the PTS location, signal timing and phasing shall be approved by the Town of Peterborough and the Resident Engineer.

Materials

2.1 Signal Trailer. The trailer and all mounted equipment shall conform to the wind load requirements as described in the 2013 AASHTO Standard Specifications for Highway Signs, Luminaries and Traffic Signals 6th edition with 2015 Interim Revisions. The PTS trailer shall be equipped in such a manner as to provide legal transport on the public highway system. Each trailer shall be equipped to minimize overturning from wind and various terrain conditions when in the operating position. No additional ballast shall be used to meet the requirements of the AASHTO Standard Specifications. Each PTS trailer shall be equipped with four stabilizing/leveling jacks, one on each corner of the trailer. The PTS trailer shall have adequate structural integrity to facilitate lifting and placing the PTS trailer as required. Two people shall be able to maneuver the PTS when in the collapsed position and set-up the unit to its fully extended position.

2.2 Signal Heads/Display Requirements. The PTS shall meet the physical display and operational requirements of conventional traffic signals as specified in Part IV of the current addition of the Manual on Uniform Traffic Control Devices (MUTCD). Signal Heads shall have three 12 inch LED indications,

conforming to ITE Specification "Vehicle Traffic Control Signal Heads" and NEMA Standards TS1 and TS2. Signal heads shall be equipped with visors, which extend beyond the signal head a minimum of 10 inches. The signal heads shall have 5" louvered back plates and have the ability to rotate horizontally 180°. The overhead signal shall have a minimum clearance height of 16 feet measured from the bottom of the housing to the road surface. The top of the signal head shall not exceed 25 ½ feet above the road surface. The lower signal head shall be mounted to a vertical upright at a minimum height of 8 feet measured from the bottom of the housing to the road surface.

2.3 Operational Requirements. Each PTS system shall be equipped with an operating system having the following capabilities:

- A conflict monitoring system conforming to NEMA Standards.
- The capability of being operated in a fixed time, traffic actuated or manual control mode.
- Fixed time mode operation option must include the ability to provide a minimum of five automatic signal timing changes within a 24-hour period.
- The operating system shall have the ability to control a minimum of 7 traffic phases.
- Programmable green times from 3 second to 250 seconds and red times from 1 second to 250 seconds in 1 second increments shall be a required.
- The ability to facilitate minimum / maximum green time programming in the traffic actuation mode in a manner that will extend the green times in predetermined programmable segments as required.
- The operating system shall have the capability of facilitating standby modes of red, red flash and yellow flash mode.
- The operating system shall be capable of accommodating a pre-emption system with optical activation which provides a priority green phase in the direction of appropriately equipped approaching emergency vehicles.
- During manual operation, ensure the system provides a means of informing the operator of indications, such as a light on the back of each signal head that illuminates when the signal displays a red indication.
- The PTS shall have a temperature operating range of –30F to 120F.

2.4 Controller. The controller shall be an electronic unit housed in a weatherproof, rust resistant box, with a keyed lock and a light for night operation. The housing shall have a jack that will allow direct communications between the on-board controller and an IBM compatible personal computer. This controller shall have an LCD display screen that will allow the operator to review the status of the system.

2.4 Embankment Platform. Embankment shall conform to the Standard Specifications for Item 203.5525.

Construction Requirements

3.1 Actuation Requirements. The PTS system shall be fully actuated. Acceptable traffic actuation systems include microwave motion sensors, video detection and in pavement loop detection. Acceptable PTS systems shall have the capability of being operated with both a motion and true presence actuation system.

3.2 Power Requirements. The PTS shall operate at an optimal voltage of 12 VDC. The system shall obtain the electrical power necessary for operation from the battery system, a 12 VDC power source supplied by solar power. The charging system shall include 450 watts (minimum) of solar collection

capability and an onboard battery charger capable of being used with a 110-volt power source. The system shall also include an onboard monitoring system capable of regulating and providing a visual display of the battery voltage and solar input. **Utilizing a portable generator for a power source is prohibited.**

3.3 Communication Requirements. The communication between PTS units shall be Radio –Link, hardware interconnect or microwave communication system. If the hardwire communication is utilized the communication cable shall be deployed in a manner that will not intrude in the direct work area of the project or obstruct vehicular and pedestrian traffic. Communications must be effective up to a distance of at least 2500 feet. If the radio link communication option is utilized clear line of sight must be maintained between PTS units and the radio system shall conform to the applicable Federal Communication Commission requirements and all applicable state and local requirements.

3.4 Malfunction Requirements. The system shall be equipped with diagnostic capabilities in the event of a system default. The system shall have the capability of identifying the default, capable of recording the last 3 signal errors and shall include failure, power loss, low power and changes in programming. Upon detecting a malfunction, PTS system shall revert to a flashing red condition and the Contractor shall be notified by a reliable means approved by the Resident Engineer. The PTS system repairs shall be the responsibility of the contractor and shall be rendered in a manner that will return to PTS to full operation condition in the most expeditious manner.

Method of Measurement

4.1 Portable Traffic Signal Systems will be measured as a unit. A unit shall consist of one PTS system as described in this Special Provision. Where more than one unit is specified in the contract, separate item numbers will appear for each separate and complete unit.

Basis of Payment

5.1 The accepted quantity of Portable Traffic Signal Systems will be paid for at the contract unit price complete in place. Payment shall include furnishing all labor, hardware, equipment, tools, incidentals, and any miscellaneous items necessary for installing, operating, maintaining, moving, and relocating the system.

5.1.2 Payment for installation, maintenance, and removal of any necessary embankment platforms shall be paid for under the unit for one PTS system.

Pay Items and Units:

616.171 Portable Temporary Traffic Signals, Trailer Mounted Unit

END OF SECTION

**SPECIAL PROVISION
SECTION 624 – RAILROAD PROTECTION**

Add to Description

1.3 This item shall also consist of securing flagging service from the Railroad for protection of railroad traffic during the progress of the work. The work shall include the services of all flagmen, switch tenders, pilots, conductors, watchmen, similar protective labor, and administrative fees (including supervisory charges).

1.4 These services shall be secured by the Contractor, who shall reimburse the Railroad.

Add Construction Requirements:

3.1 Work ordered under this section shall be done in accordance with the pertinent provisions of Section 00700, Article 11.

Add to Method of Measurement:

4.2 Railroad Protection – Flagging Service will be measured as provided in 109.01. The allocated days as specified in Section 00850 - Special Conditions include time spent monitoring the construction site by flagman, switch tenders, pilots, conductors, watchmen and similar protective labor.

Amend 5.1 to read:

5.1 Payment for work authorized under this section will be made on a dollar basis according to Section 00700, Article 13. The dollar limit set in the Bid Form will not limit the Engineer in the value of work performed under this item.

Add to Basis of Payment:

5.1.1 Payment of the amount set in the Bid Form will not be on a lump sum basis, but only the amount determined for the value of the work ordered will be paid.

5.2 The Bidder's attention is called to the price inserted in the Bid Form under these items, which price is the allowance the Engineer has set up for special work. This figure must not be altered by the bidder

Add the following Pay Item and Unit

624.1	Railroad Protection – Flagging Service	Dollar
-------	--	--------

END OF SECTION

SPECIAL PROVISION
AMENDMENT TO SECTION 645 – EROSION CONTROL
Item 645.512 – Compost Sock for Perimeter Berm

This special provision provides for compost sock for perimeter berm and neither amends nor modifies the provision of this section except as noted below. The intent of this item is to work in conjunction with or in-lieu of silt fence where entrenched silt fence is not feasible.

Description

1.1 The Contractor shall furnish and install degradable compost socks for perimeter berm, as needed, around disturbed areas as a result of gaining access around the substructure. Removal, if necessary, will be subsidiary to the item, and will be conducted as directed by the Engineer. The compost sock for perimeter berm shall be used as such and is not intended for areas which may receive concentrated flows such as channels or restricted outlets.

Materials

2.1 Compost Sock for Perimeter Berm. Sock must be:

2.1.1 A mesh tube, oval to round in cross section, 12 inches in diameter. Sock must have a minimum durability of one year after installation.

2.1.2 Composed of a knitted biodegradable or photodegradable material with 1/8 to 3/8 inch openings. Fabric must be clean; evenly woven; free of encrusted concrete or other contaminated materials; and free from cuts, tears, broken or missing yarns and thin, open, or weak places.

2.2 Compost Media.

2.2.1 Compost may be derived from green material consisting of chipped, shredded, or ground vegetation; or clean recycled wood products.

2.2.2 Compost must not be derived from mixed municipal solid waste and be reasonably free of visible contaminants. Compost must not contain paint, petroleum products, pesticides or any other chemical residues harmful to animal life or plant growth. Compost must not possess objectionable odors.

2.3 Chemical, Physical and Biological Parameters.

2.3.1 Compost products specified for use in this application must meet the criteria specified in Table 1, below.

2.3.2 Only compost products that meet all applicable state and federal regulations pertaining to its production and distribution may be used in this application. Approved compost products must meet related state and federal chemical contaminant (e.g., heavy metals, pesticides, etc.) and pathogen limits pertaining to the feedstocks (source materials) in which it is derived.

Table 1 - Compost Media Parameters

Parameters	Reported as (units of measure)	Characteristics
pH2	pH units	5.0-8.5
Soluble Salt Concentration (electrical conductivity)	dS/m (mmhos/cm)	Maximum 5
Moisture Content	%, wet weight basis	30-60
Organic Matter Content	%, dry weight basis	25-65
Particle Size	% passing a selected mesh size, dry weight basis	3" (75 mm), 100% passing 1" (25mm), 90% to 100% passing 3/4" (19mm), 70% to 100% passing 1/4" (6.4mm), 30% to 75% passing Maximum: particle size length of 6" (152mm) (no more than 60% passing 1/4" (6.4 mm) in high rainfall/flow rate situations)
Stability3 Carbon Dioxide Evolution Rate	mg CO2-C per g OM per day	<8
Physical Contaminants (man-made inerts)	%, dry weight basis	<1

Note: The composition of this media is similar to the vegetated filter berm media from AASHTO R 51. Very coarse (woody) composts that contain less than 30% of fine particles (1mm in size) shall be avoided, as optimum reductions in total suspended solids (TSS) is desired and berms may be seeded.

Construction Requirements

3.1 Site Preparation. To ensure optimum performance, cut down or remove heavy vegetation, and level uneven surfaces to ensure that the filter sock uniformly contacts the ground surface.

3.2 Installation.

3.2.1 Prior to installation, clear the area of obstructions including rocks, clods, and debris greater than one inch.

3.2.2 Fill socks uniformly with compost to the desired length such that the logs do not deform. Secure ends.

3.2.3 When more than one compost sock is required to achieve desired length, join socks longitudinally with a 1 foot 6 inch overlap.

3.2.4 Compost sock may be installed using installation method Type 1, Type 2, or a combination.

- Installation method Type 1:
 - Place directly on the ground with good contact with the finish grade.
 - Secure with wood stakes every 4 feet along the length of the compost sock.

- Secure the ends of the compost sock by placing a stake 6 inches from the end of the compost sock.
- Drive the stakes into the soil so that the top of the stake is less than 2 inches above the top of the compost sock.
- Installation method Type 2:
 - Place directly on the ground with good contact with the finish grade.
 - Secure with rope and notched wood stakes.
 - Drive stakes into the soil until the notch is even with the top of the compost sock.
 - Lace the rope between stakes and over the compost sock. Knot the rope at each stake.
 - Tighten the compost sock to the surface of the slope by driving the stakes further into the soil.

3.2.5 Install compost sock approximately parallel to the slope contour or as otherwise ordered by the Engineer.

3.3 Maintenance.

3.3.1 Inspect compost socks regularly, and after each rainfall event, to ensure that they are intact and functioning correctly. Remove sediment that builds up behind the sock before it interferes with the functionality of the sock. Deposit the removed sediment within the project limits so that the sediment is not subject to erosion by wind or by water.

3.3.2 Repair or replace split, torn, or unraveling socks. Replace broken or split stakes. Sagging or slumping compost socks must be repaired with additional stakes or replaced. Correct locations where rills and other evidence of concentrated runoff have occurred beneath the socks. Compost socks must be repaired or replaced within 24 hours of identifying the deficiency.

3.3.3 Remove sock mesh tubes when directed by the Engineer. Cut mesh and empty sock contents in place and rake to distribute evenly.

Method of Measurement

4.1 Compost sock for perimeter berm will be paid for by the linear foot to the nearest 1 foot. Measurement will be along the top of each continuous run complete in place.

Basis of Payment

5.1 The accepted quantity of compost sock for perimeter berm will be paid for at the Contract unit price per linear foot installed. No additional payment will be made for overlaps, splices or the anchoring of the system.

Add to Pay items and units:

645.512	Compost Sock for Perimeter Berm	Linear Foot
---------	---------------------------------	-------------

END OF SECTION

SPECIAL PROVISION
Item 670.104 - Temporary Portable Lighting

Description

1.1 Work shall consist of furnishing, maintaining, relocating and the removal of temporary portable lighting provided by portable light towers as described herein, shown on the plans, or as ordered.

1.1.1 This work shall include providing and maintaining a power source(s) adequate for the requirements and duration of the lighting.

Materials

2.1 Temporary Portable Lighting.

2.1.1 Temporary portable light towers shall have a minimum tower height of 30 feet.

2.1.2 Lighting shall operate a minimum of two 250-watt lamps. Light system shall contain a ballast and shall provide an NEMA-6 beam spread.

2.1.2.1 Lights shall be full cut-off.

2.1.3 Temporary portable lighting shall contain an independent power source.

Construction Requirements

3.1 Temporary Portable Lighting.

3.1.1 Light towers shall be placed as shown on the plans at the angle point in the concrete barrier.

3.1.1.1 Lights shall be aimed directly down, unless otherwise specified, so as not to produce excess glare for the traveling public and to minimize the projection of light upward.

3.1.2 The Contractor shall ensure that temporary portable lighting is installed as part of the temporary concrete barrier installation.

3.1.3 The Contractor shall ensure that temporary portable lighting is operating during night hours and not operating during daylight hours.

3.1.4 Power source shall maintain light operations for a minimum of 14 continuous hours (dusk to dawn).

3.3 If temporary lighting is proposed at locations other than as shown on the plans, the Contractor shall submit plans for approval by Resident Engineer prior to the start of operations.

3.4 The Contractor shall ensure that temporary lighting is installed prior to disturbing traffic flow.

3.5 Temporary lighting shall be removed at the completion of the project or when no longer required.

Method of Measurement

4.1 Temporary portable lighting will be measured as a unit. A unit will include all work, material,

equipment, hardware, required power and appurtenances as necessary for each unit required to provide temporary lighting. Relocating temporary portable lighting will not be measured.

Basis of Payment

5.1 The accepted quantity temporary portable lighting will be paid for at the contract lump sum price complete.

5.2 All costs for obtaining permits for temporary lighting will be subsidiary.

5.3 Barrier provided solely for the purpose of protecting temporary' lighting shall be subsidiary to Item 619.1 - Maintenance of Traffic.

5.4 Temporary lighting provided to illuminate portable concrete barrier installed other than required on the Plans, shall be at the Contractor's expense.

Pay item and unit:

670.104	Temporary Portable Lighting	Unit
---------	-----------------------------	------

END OF SECTION

SPECIAL PROVISION
Item 697.11 - Invasive Species Control and Management Plan

This section is intended to provide and pay for certain Plans associated with project construction.

Description

1.1 This work shall consist of providing an Invasive Species Control and Management Plan, which includes detailing the specific method(s) of controlling the spread of the identified invasive species, and the continued monitoring and management of invasive plant species found on the site for the duration of the contract.

1.1.1.1 Introduction of new invasive plants to the site shall be prevented.

1.1.1.2 Precautions shall be taken to prevent import or transport of soil or seed stock containing nuisance or invasive species.

1.2 The invasive species shall be identified on site by the City Arborist.

1.2.1 The invasive plants are endemic along the roadside; therefore, complete removal is not necessary. The intent of this item is to remove invasive plants where encountered during construction, and prevent further spreading of the invasive plants through excavated materials, or off-site transportation of the invasive material. Additionally, prevention of importing of other invasive materials shall be addressed in the Control and Management Plan.

Construction Requirements

3.1 Develop an Invasive Species Control and Management Plan detailing specific measures to control identified invasive plant species within the project area.

3.1.1 The Invasive Species Control and Management Plan shall include updating, modifying, and revising the Plan as appropriate and/or as directed by the Resident Engineer; monitoring existing invasive plant species for the duration of the project; and taking measures to not encourage the establishment of invasive plant species within the project limits.

3.1.2 The Invasive Species Control Plan shall also consist of but not be limited to the following:

- List of plants that identified by the City Arborist within project limits
- Appropriate Best Management Practices that will be utilized to prevent the spread of these plants during construction.
- A proposed schedule that describes the sequence of BMPs relative to construction activities.
- The method of all invasive plant material or soil that contains invasive plant material to be transported shall be described as well as the terminus of plant material.
- A general overview should be given of how invasive plants will be managed throughout construction, including but not limited to:

- general BMPs such as cleaning all soils and vegetation from construction equipment and matting before such equipment is moved to the site, location of staging areas, and importation of weed-free materials, see Invasive Species Special Attention.

3.2 Invasive Species Control and Management Plan shall be submitted for approval to the Resident Engineer and be compliant with NHDOT's "Best Management Practices for Roadside Invasive Plants" Manual available on-line at <https://www.nh.gov/dot/org/projectdevelopment/environment/documents.htm> and include the continued management of invasive plants during the duration of the project.

3.3 The Contractor shall perform the work necessary to control, remove and dispose of the invasive plant species found on the site as directed and in accordance NHDOT's "Best Management Practices for Roadside Invasive Plants". This work shall be subsidiary to the project.

Method of Measurement

4.1 Invasive Species Control and Management Plan will be measured as a unit.

4.1.1 Control, removal and disposal of invasive plant species encountered during construction of the work shall be subsidiary to the project.

Basis of Payment

5.1 Invasive Species Control and Management Plan will be paid for at the Contract unit price.

5.1.1 Partial payments will be paid for at the Contract unit price. Payment for interim stages shall be 50 percent of the amount bid upon approval of the Invasive Species Control and Management Plan and 50 percent of the amount bid upon approval of substantial completion.

Pay item and unit:

697.11	Invasive Species Control and Management Plan	Unit
--------	--	------

END OF SECTION

SPECIAL PROVISION
SECTION 1002 – SPECIAL WORK ON STRUCTURES
ITEM 1002.1 – Repairs or Replacements as Needed

Description

1.1 This section is intended to provide and pay for certain measures which may be required, during construction, to rehabilitate existing structures where work by the Contractor has revealed work necessary which could not be examined and foreseen prior to the construction period. Engineering judgment indicates that a reasonable estimated dollar allowance is in order in setting up the contract.

Materials

2.1 Materials required shall meet the Material Requirements for the class or type of work in accordance with the Standard Specifications or as ordered.

Construction Requirements

3.1 The Contractor shall perform the required work as provided in the specification for the required work or as directed.

3.2 Work ordered under this section shall be done in accordance with the pertinent provisions of Section 00700, Article 11.

Method of Measurement

4.1 Work authorized under this section will be measured as provided in 109.01; however, when such work falls within the specifications for another contract item, the work will be measured according to the method of measurement for that contract item.

Basis of Payment

5.1 Payment for work authorized under this section will be made on a dollar basis according to Section 00700, Article 13. The dollar limit set in the Bid Form will not limit the Engineer in the value of work performed under this item.

5.1.1 Payment of the amount set in the proposal will not be on a lump sum basis, but only the amount determined for the value of the work ordered will be paid.

5.1.2 Repair work to damaged or injured portions of a structure made necessary due to the negligence or carelessness of the Contractor will not be paid for.

5.2 The Bidder's attention is called to the price inserted in the Bid Form under these items, which price is the allowance the Engineer has set up for special work. This figure must not be altered by the bidder on their bid, and must be included to obtain the grand total of the bid.

Pay Item and Unit:

1002.1	Repairs or Replacements as Needed	Dollar
--------	-----------------------------------	--------

The allowance for Item 1002.1 on this project has been set as shown in the Bid Form.

END OF SECTION

SPECIAL PROVISION
SECTION 1008 – ALTERATIONS & ADDITIONS AS NEEDED
Item 1008.251 - Alterations and Additions as Needed – Temporary Pedestrian Accommodations

Description

1.1 This section is intended to provide and pay for certain measures which may be required, during construction, to maintain pedestrian access through the construction area. This work shall retain the level of pedestrian accessibility that was available prior to the beginning of construction work.

Materials

2.1 Materials required to maintain pedestrian access shall conform to those designated in the Materials section for the class of work being performed and the MUTCD.

Construction Requirements

3.1 The Contractor shall make the necessary accommodations to maintain the existing level of pedestrian access through the construction area by means of temporary accommodations, including detours and diversions. This work may include, but not necessarily be limited to, installing and maintaining signs for sidewalk detours, temporary crosswalk markings, and/or temporary sidewalk-type diversions, as directed.

3.1.1 Removal of temporary pedestrian accommodations shall be included in this work.

3.2 The above work ordered under this section shall be performed in accordance with the applicable provisions of the Construction Requirements of the class of work involved, and the pertinent provisions of 104.03, MUTCD (in particular Section 6D), and Public Right-of-Way Accessibility Guidelines (PROWAG) (<http://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way>).

Method of Measurement

4.1 Work authorized under this section will be measured as provided in 109.01; however when such work falls within the specifications for another contract item, the work will be measured according to the method of measurement for that contract item.

Basis of Payment

5.1 Payment for work authorized under this section will be made on a dollar basis according to Section 00700, Article 13. The dollar limit set in the Bid Form will not limit the Engineer in the value of work performed under this item.

5.1.1 Payment of the amount set in the proposal will not be on a lump sum basis, but only the amount determined for the value of the work ordered will be paid.

5.1.2 Repair work to damaged or injured portions of the existing facilities made necessary due to the negligence or carelessness of the Contractor will not be paid for.

5.2 The Bidder's attention is called to the dollar amount inserted in the proposal under these items, which dollar amount is the allowance the Department has set up for the special work. This figure must not be altered by the Bidder on his proposal, and must be included to obtain the grand total of the bid.

Pay items and units:

1008.251	Alterations and Additions as Needed – Temporary Pedestrian Accommodations.	Dollar
----------	---	--------

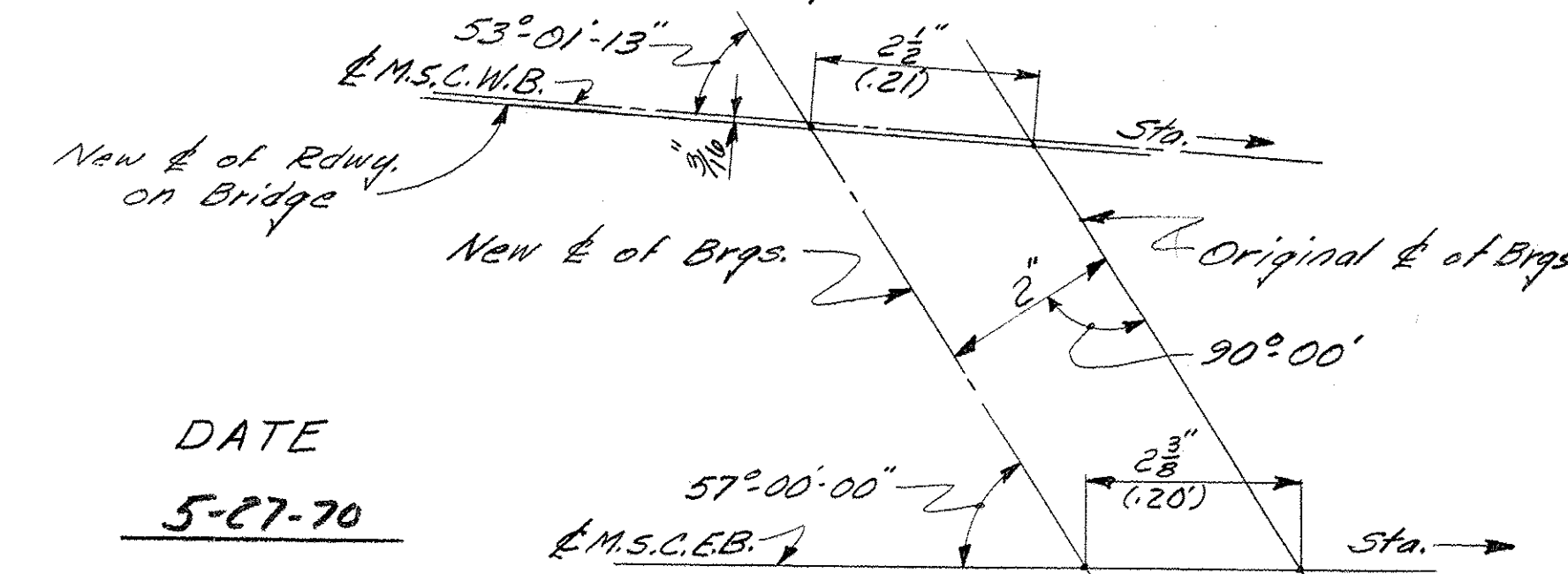
END OF SECTION

Appendix A

Market Street over Tidal Basin 1971 As-Built Drawings

DESIGN NOTES
Design Loading: HS20-44 as modified for Military Loading.
Specifications: A.A.S.H.O. 1969 and N.H.D.P.W. & H. 1969.
Foundation: Abutments - Steel Bearing Piles; 12 BP53, design
loading = 60 Tons per Pile.
Piers - Foundation design pressure = 3 tons per sq. ft.
Piers shall be constructed within cofferdams,
with foundation seals.
Concrete in the Superstructure shall be approved
by the Engineer.

④ NOTE: All Bearing Lines have been moved a distance of 2" measured perpendicular to the bearing lines, and the stationing of the intersections of the bearing lines and roadways has been changed accordingly.

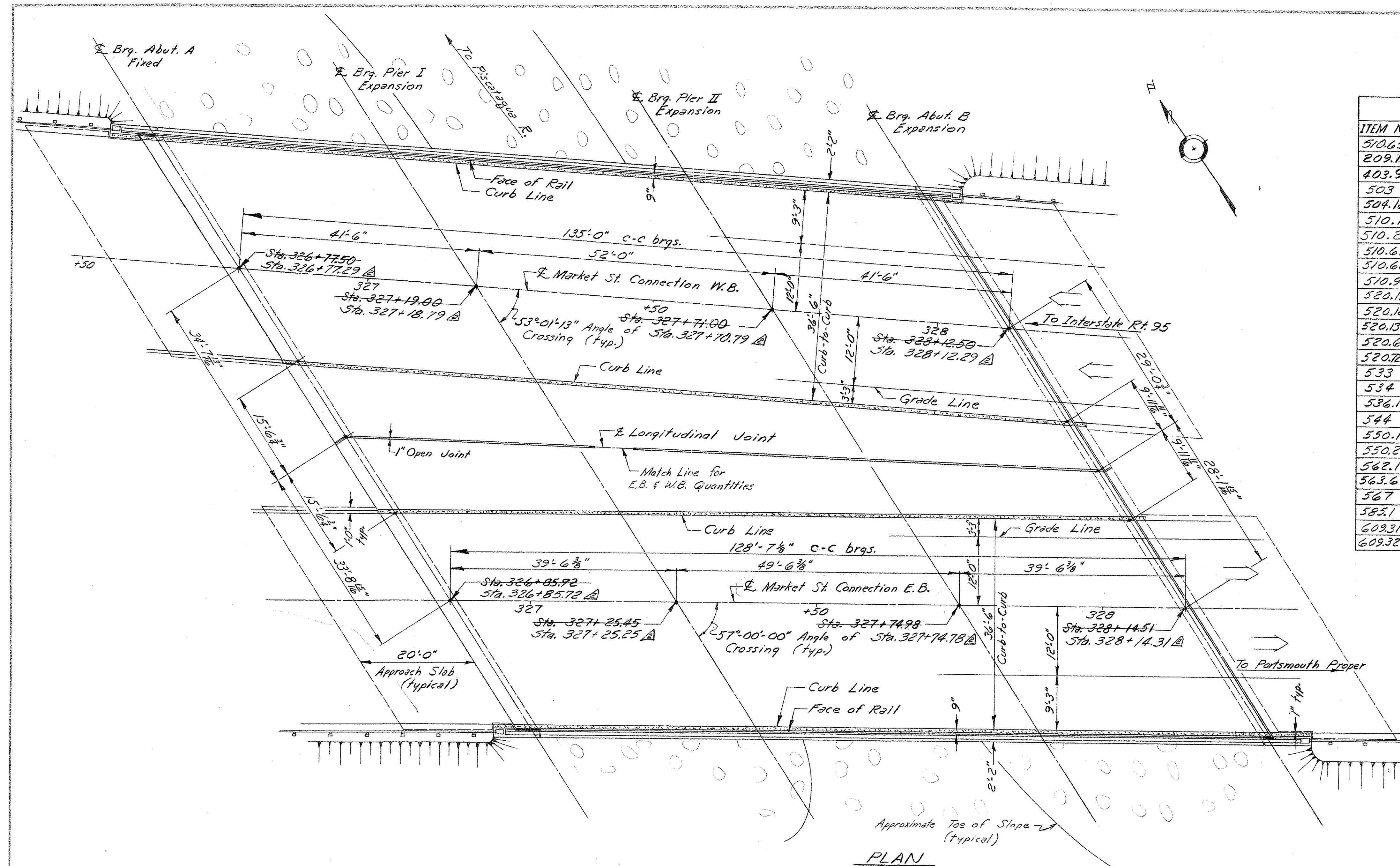


No Scale:
 ▲ See Br. Sh. No. 14A of 15 for a complete revised layout & the revised Abut. B sections.

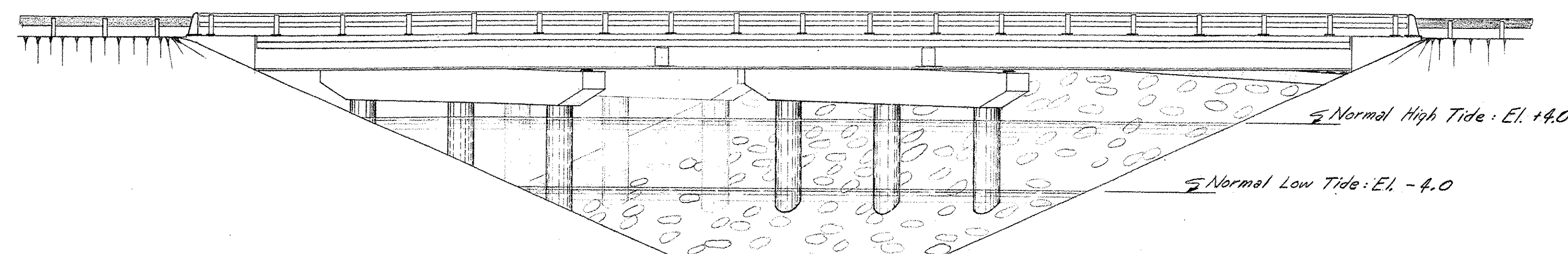
STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BRIDGE DESIGN DIVISION

TOWN	<u>PORTSMOUTH</u>	BRIDGE NO.	<u>E.B. 520/106</u>
FEDERAL PROJECT	<u>I-95-1(19)15</u>	STATE PROJECT	<u>P-3875-E</u>
LOCATION	<u>MARKET STREET CONNECTION</u> <u>OVER TIDAL BASIN</u>		

OVER TIDAL BASIN																		
GENERAL PLAN AND ELEVATION																		
DESIGNED		CLW	BY	DATE	2/6/5	CHECKED	JEK	BY	DATE	BRIDGE SHEET NO.								
DRAWN		JEK		1/6/5		CHECKED	CLW		3/1/5	1 OF 15								
TRACED		JEK		1/6/5		CHECKED	CLW		3/6/5	FILE NUMBER								
QUANTITIES		JWM		3/6/5		CHECKED	CLW		3/6/5	27-2-3								
<table border="1"> <tr> <th>REVISIONS</th> <th>DESCRIPTION</th> <th>BY</th> <th>DATE</th> </tr> <tr> <td>1</td> <td>Revised E of Brp. Stations</td> <td>CLW</td> <td>3/7/5</td> </tr> </table>											REVISIONS	DESCRIPTION	BY	DATE	1	Revised E of Brp. Stations	CLW	3/7/5
REVISIONS	DESCRIPTION	BY	DATE															
1	Revised E of Brp. Stations	CLW	3/7/5															
REVIEWED BY				PROJ. NO.		SHEET NO.		TOTAL SHEETS										
				I-95-1112/15		43		331										

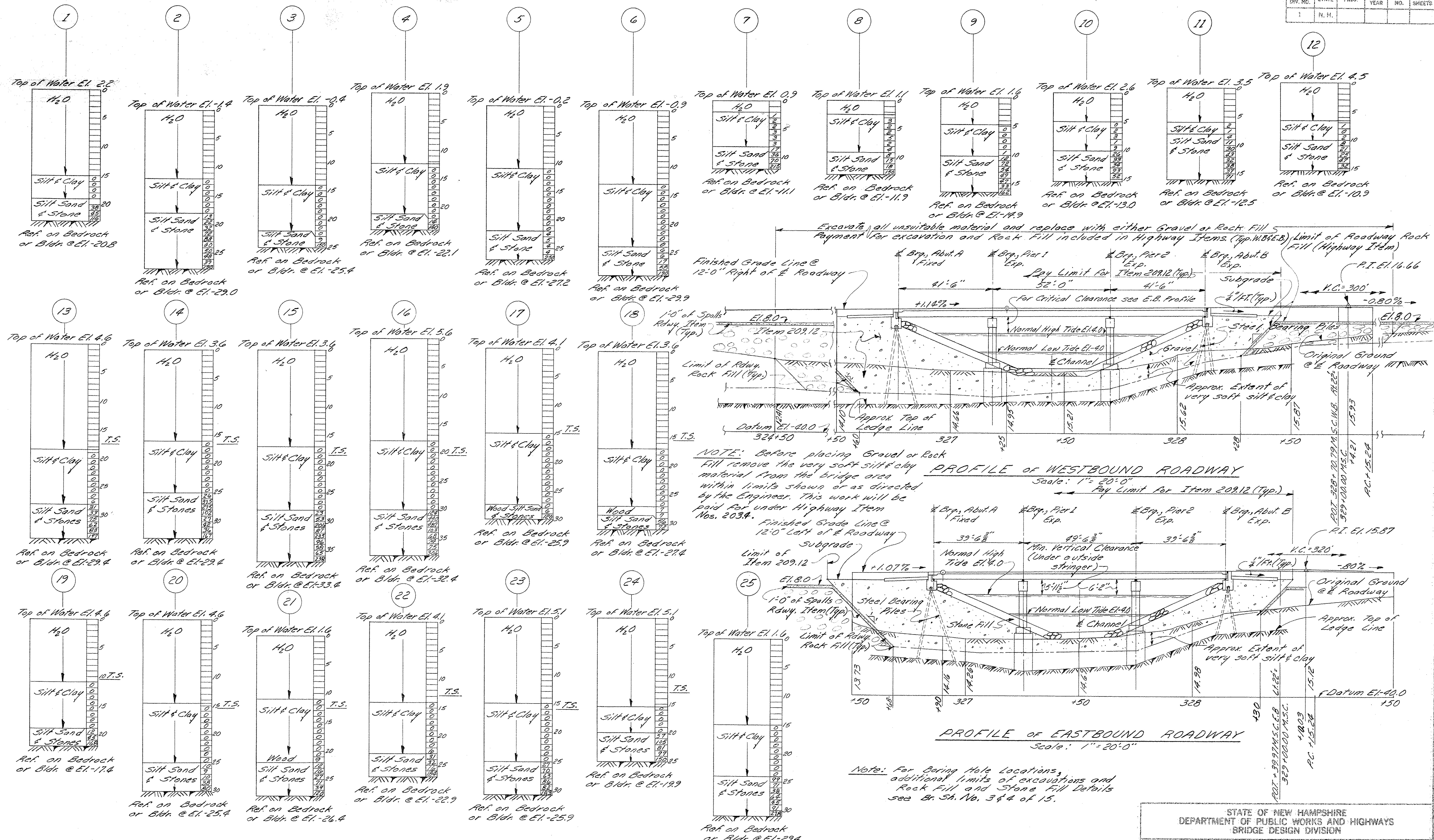


PLAN



ELEVATION

Sheet Scale: $\frac{3}{32}'' = 1'-0''$



T.S. Indicates top of Foundation seal

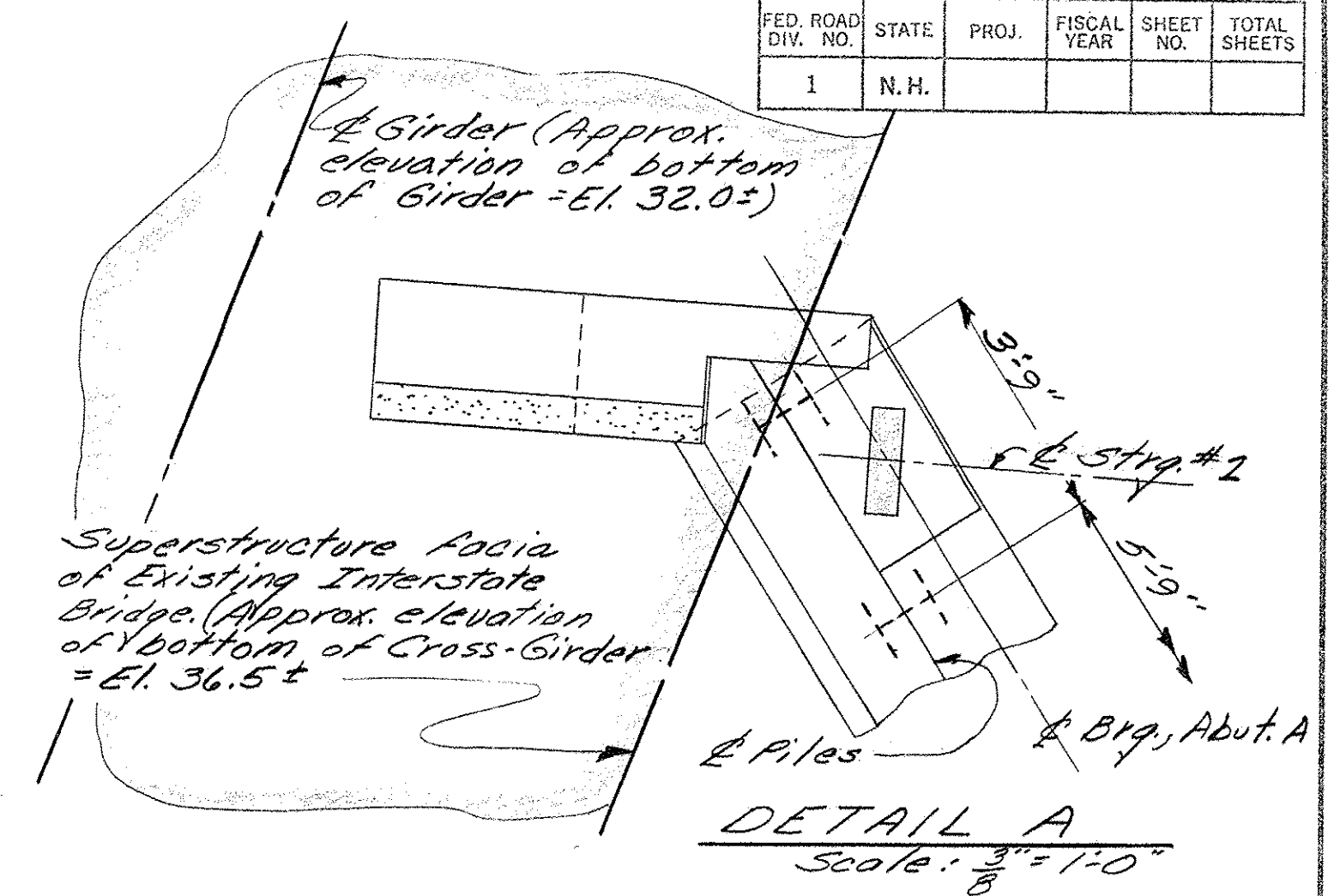
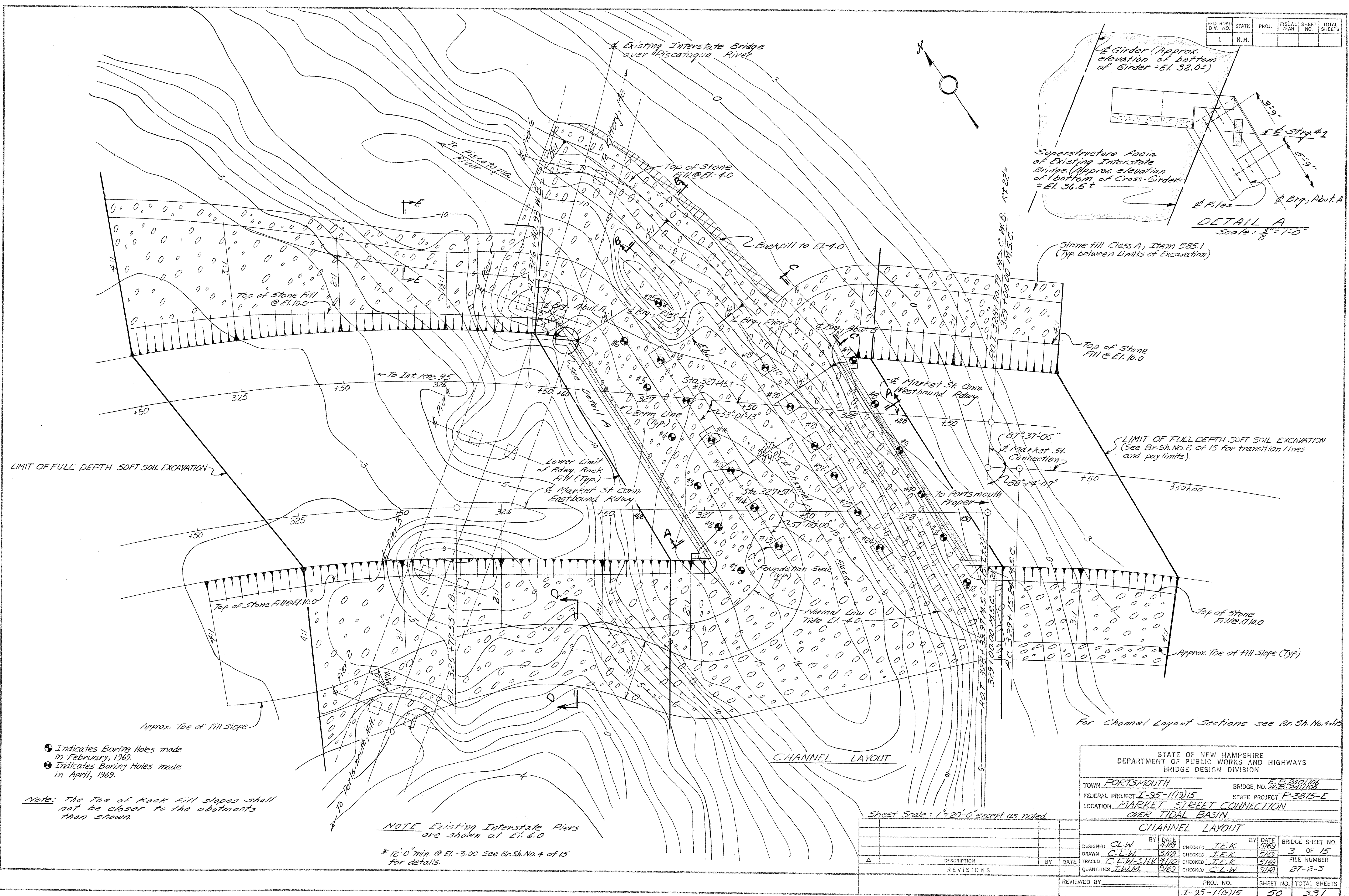
LOG OF BORINGS
Vertical Scale: 1" = 1'-0"

NOTE: Borings made by N.H. Dept. of Public Works & Highways, February 1963 & April 1963. Figures in the right hand column indicate the number of blows required to drive a 15" O.D. A-rat one foot using a 140 lb. weight falling two feet six inches. Borings are for design and show conditions at boring points only and do not necessarily indicate materials to be encountered during construction.

Sheet Scale as noted.

STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION					
TOWN <u>PORTSMOUTH</u>		BRIDGE NO. <u>224/186</u>		DATE <u>2/24/63</u>	
FEDERAL PROJECT <u>I-95-1(19)15</u>		STATE PROJECT <u>P-3875-E</u>		FILE NUMBER <u>27-2-3</u>	
LOCATION <u>MARKET STREET CONNECTION OVER TIDAL BASIN</u>		BORINGS AND PROFILE			
DESIGNED BY <u>C.L.W.</u>	DATE <u>5/69</u>	CHECKED BY <u>J.E.K.</u>	DATE <u>5/69</u>	BRIDGE SHEET NO. <u>2</u>	OF <u>15</u>
DRAWN BY <u>C.L.W.</u>	DATE <u>5/69</u>	CHECKED BY <u>J.E.K.</u>	DATE <u>5/69</u>	FILE NUMBER	
QUANTITIES BY <u>J.W.M.</u>	DATE <u>9/69</u>	CHECKED BY <u>C.L.W.</u>	DATE <u>9/69</u>		
REVIEWED BY		PROJ. NO. <u>I-95-1(19)15</u>	SHEET NO. <u>49</u>	TOTAL SHEETS <u>331</u>	

FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				



Stone fill Class A, Item 585.1
(Typ. between Limits of Excavation)

Top of Stone Fill @ El. 10.0

87°31'06" & Market St. Connection

88°24'07" & Market St. Connection

330+00

LIMIT OF FULL DEPTH SOFT SOIL EXCAVATION
(See Br. Sh. No. 2 of 15 for transition Lines and pay limits.)

Top of Stone Fill @ El. 10.0

Approx. Toe of Fill Slope (Typ.)

For Channel Layout Sections see Br. Sh. No. 4 of 15

STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION											
TOWN		<u>PORTSMOUTH</u>			BRIDGE NO.		<u>E.B. 220/104</u> <u>W.B. 24/106</u>				
FEDERAL PROJECT		<u>I-95-1(19)15</u>			STATE PROJECT		<u>P-3875-E</u>				
LOCATION		<u>MARKET STREET CONNECTION</u> <u>OVER TIDAL BASIN</u>									
<u>CHANNEL LAYOUT</u>											
DESIGNED		CL.W.		BY	DATE	CHECKED		DATE		BRIDGE SHEET NO.	
DRAWN		CL.W.			4/89	CHECKED		J.E.K.		5/69	
TRACED		CL.W.		5/69		CHECKED		J.E.K.		5/69	
QUANTITIES		J.W.M.		4/70		CHECKED		J.E.K.		5/69	
				4/69		CHECKED		CL.W.		5/69	
BY		DATE									
REVIEWED BY						PROJ. NO.		SHEET NO.		TOTAL SHEETS	
						I-95-1(19)15		50		331	

• Indicates Boring Holes made in February, 1969.
• Indicates Boring Holes made in April, 1969.

Note: The Toe of Rock Fill slopes shall not be closer to the abutments than shown.

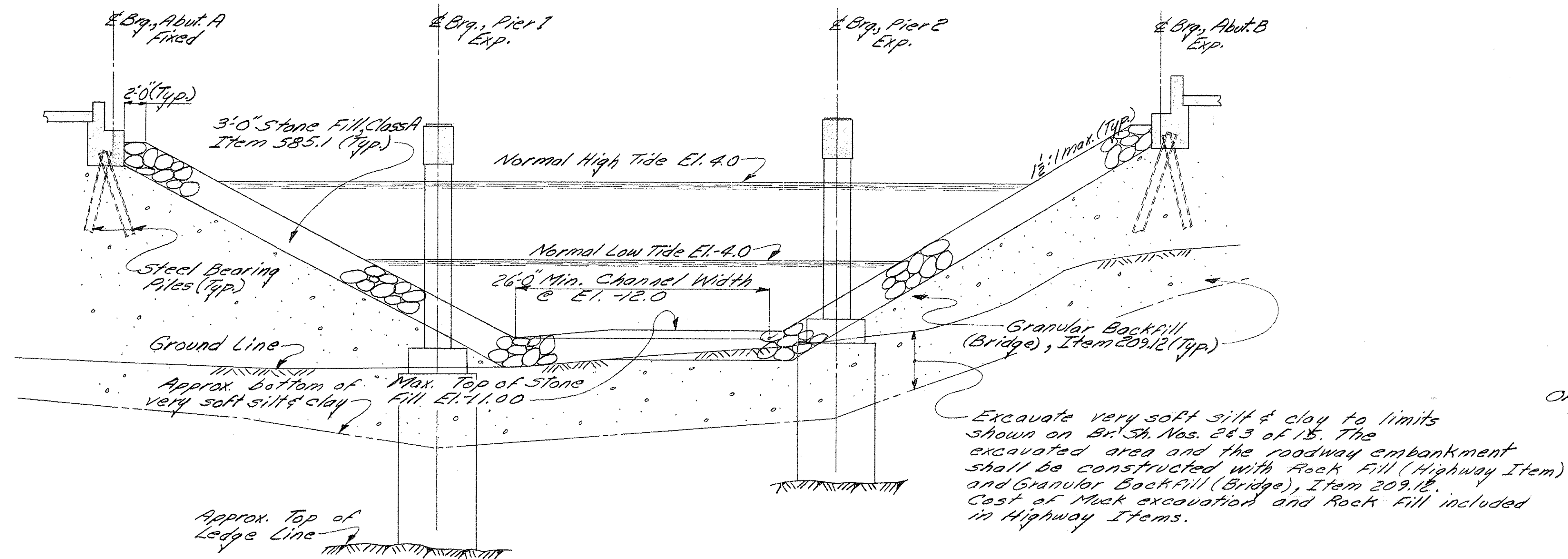
NOTE Existing Interstate Piers are shown at El. 6.0

* 12'-0" min. @ El. -3.00. See Br. Sh. No. 4 of 15 for details.

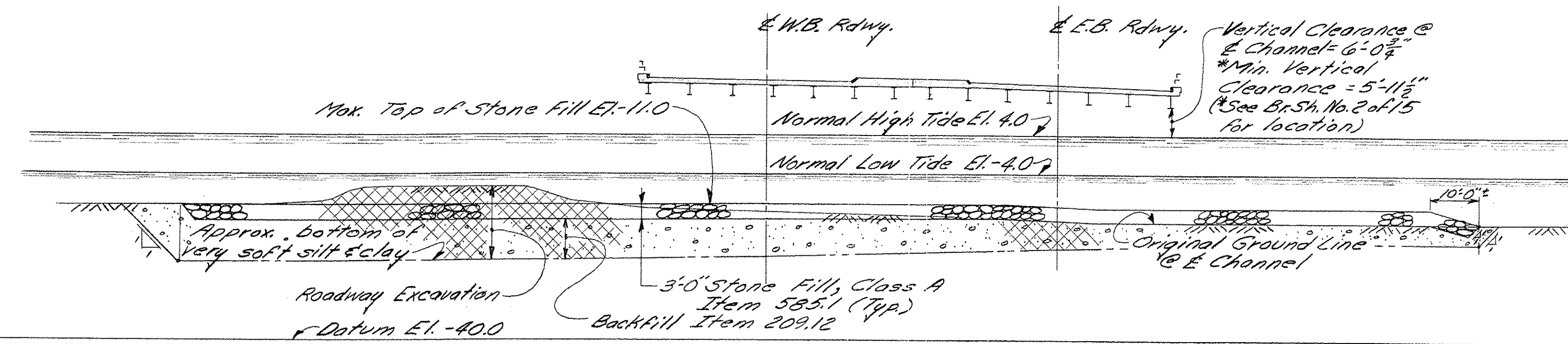
Sheet Scale: 1" = 20'-0" except as noted

REVISIONS	DESCRIPTION	BY	DATE
Δ			

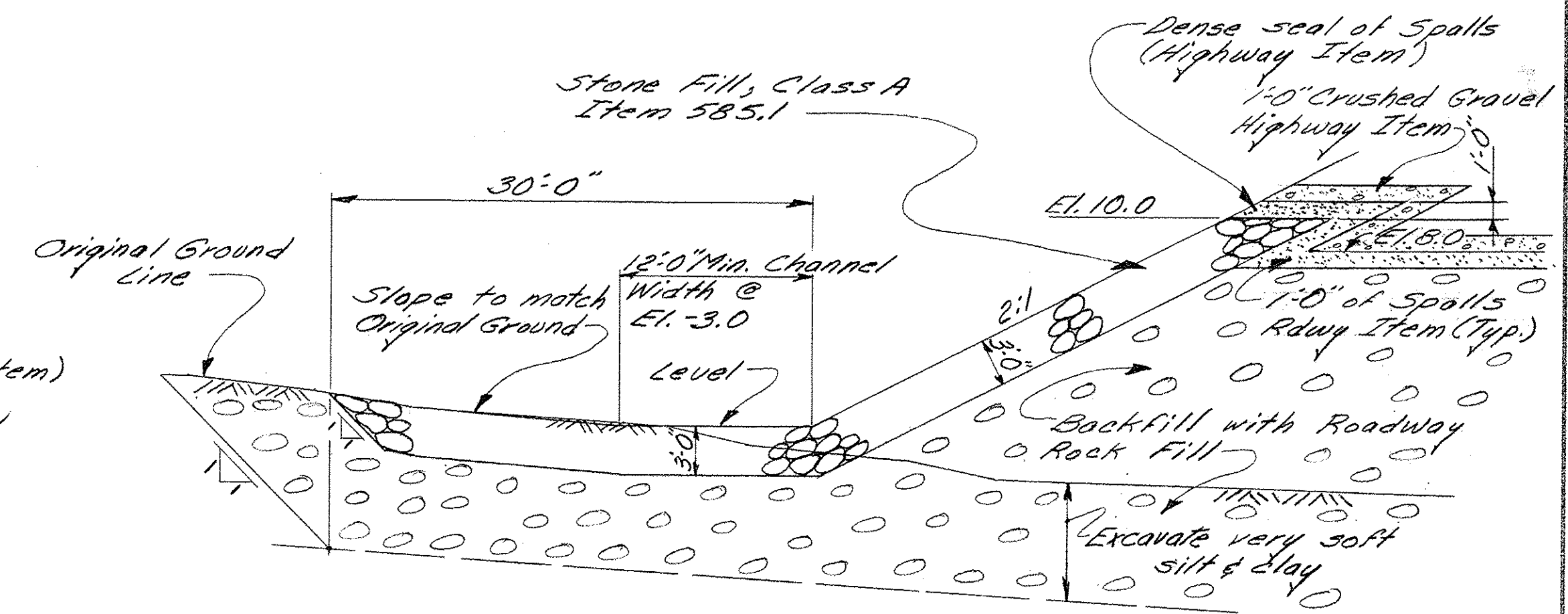
FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				



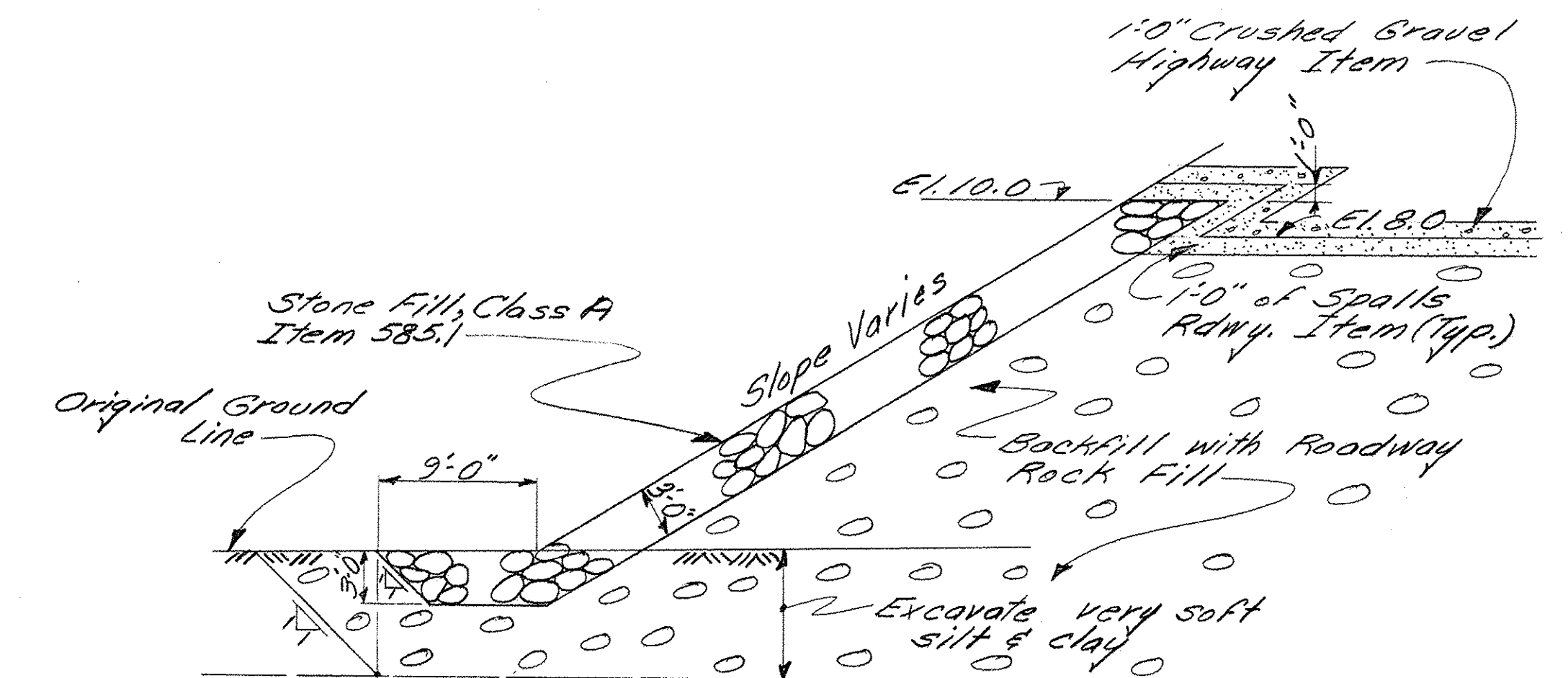
SECTION A-A
Scale: $\frac{1}{8}" = 1'-0"$



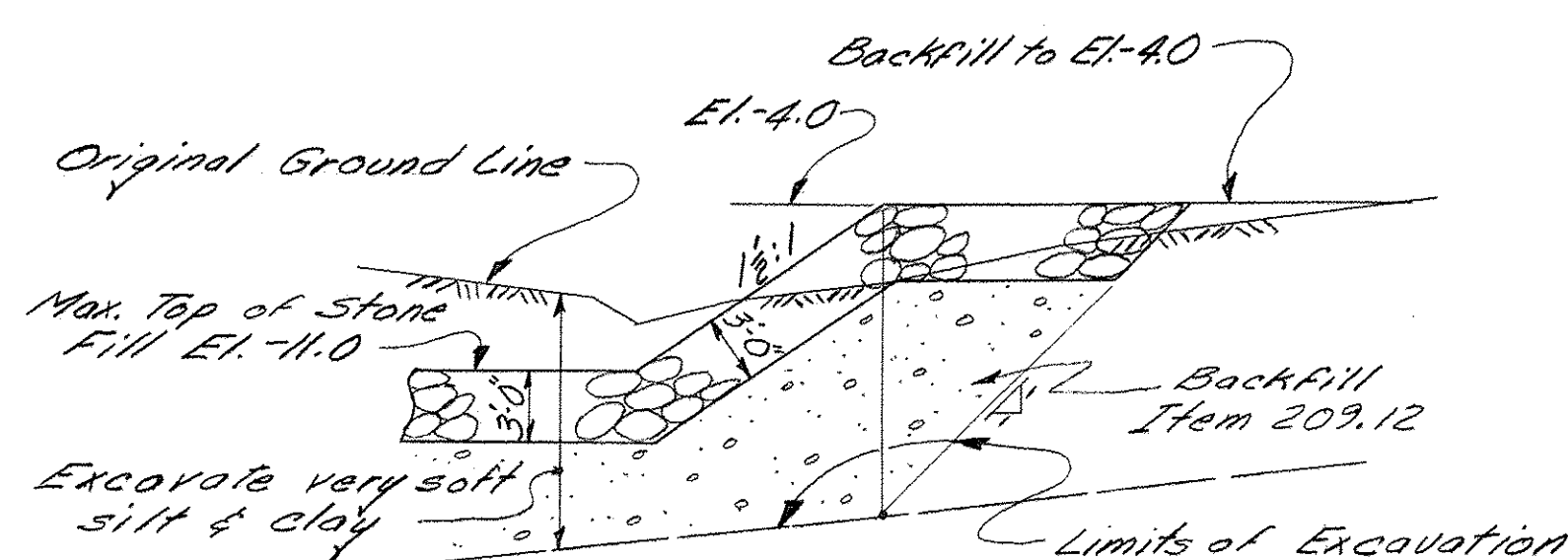
PROFILE OF PROPOSED CHANNEL
Scale: $1" = 20'-0"$



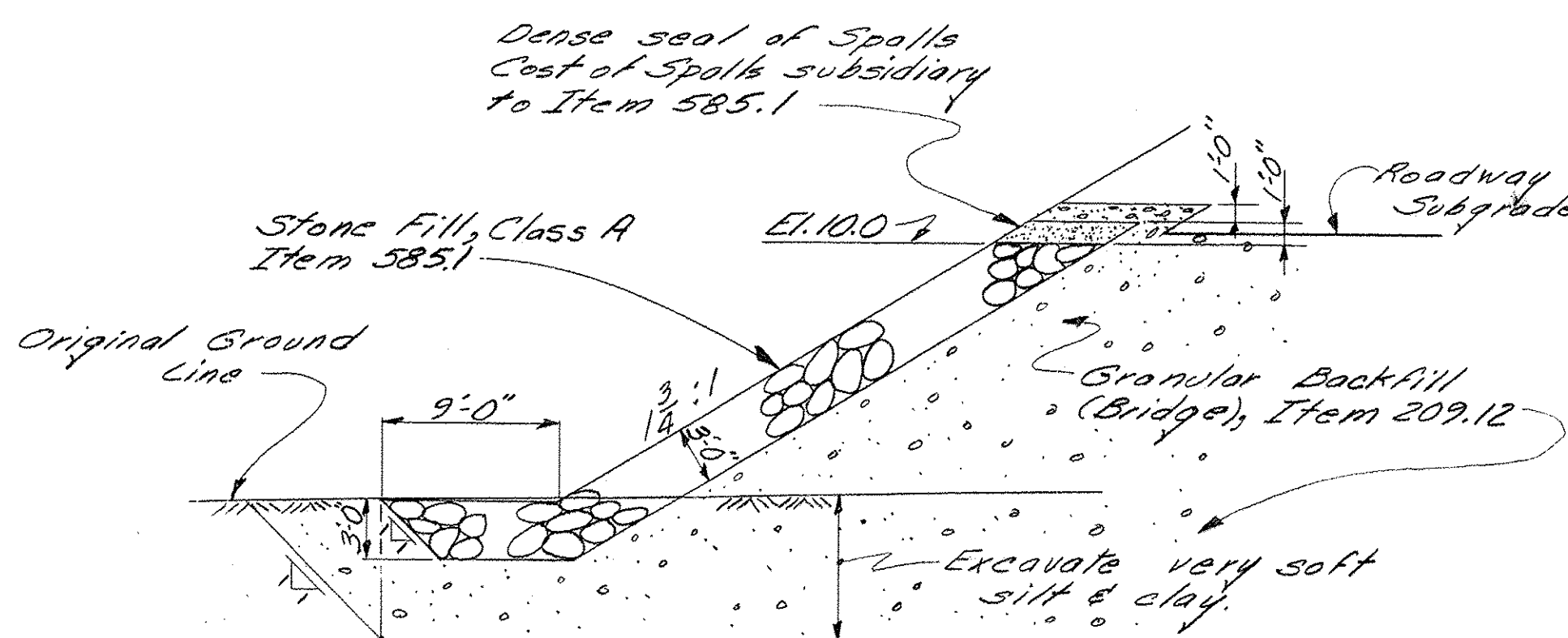
SECTION D-D
Scale: $\frac{1}{8}" = 1'-0"$



SECTION E-E
Scale: $\frac{1}{8}" = 1'-0"$



SECTION B-B
Scale: $\frac{1}{8}" = 1'-0"$



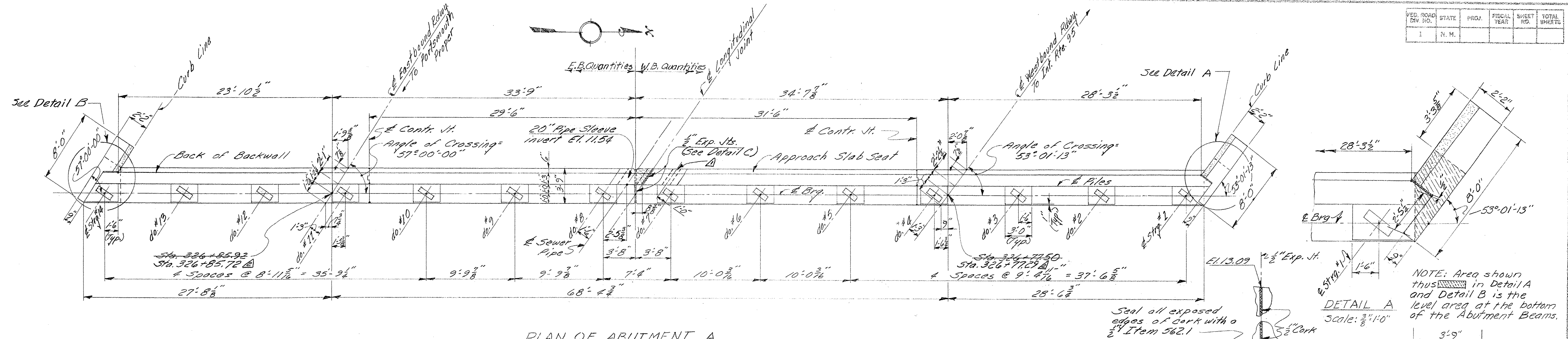
SECTION C-C
Scale: $\frac{1}{8}" = 1'-0"$

STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION					
TOWN	PORTSMOUTH		BRIDGE NO.	280/106	
FEDERAL PROJECT	I-95-1(19)15		STATE PROJECT	P-3875-E	
LOCATION	MARKET STREET CONNECTION OVER TIDAL BASIN				
CHANNEL DETAILS					
DESIGNED	C.L.W.	DATE	4/69	CHECKED	V.E.K.
DRAWN	C.L.W.	DATE	5/69	CHECKED	V.E.K.
TRACED	C.L.W.	DATE	5/70	CHECKED	V.E.K.
QUANTITIES	J.W.M.	DATE	9/69	CHECKED	C.L.W.
REVIEWED BY	PROJ. NO.		SHEET NO.		TOTAL SHEETS
	I-95-1(19)15		51		331

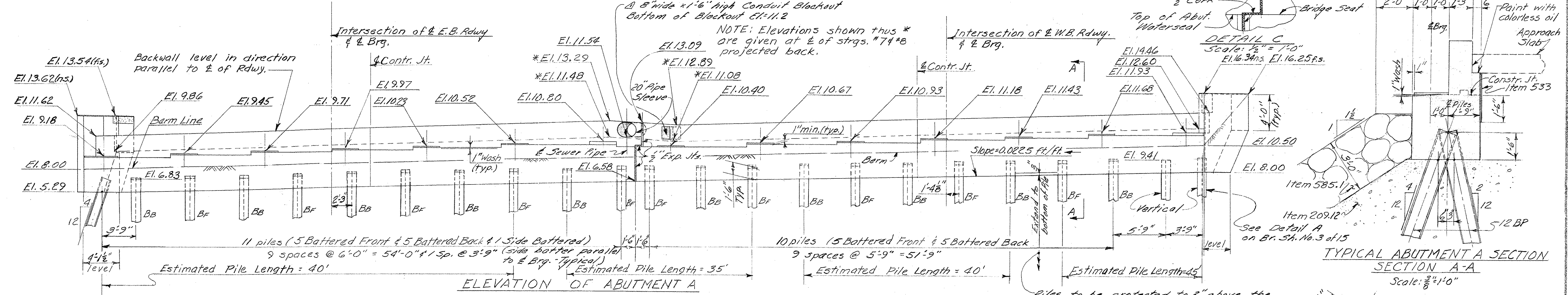
Sheet Scale as noted.

DESCRIPTION	BY	DATE
A		
REVISIONS		

FED. ROAD DIST. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				

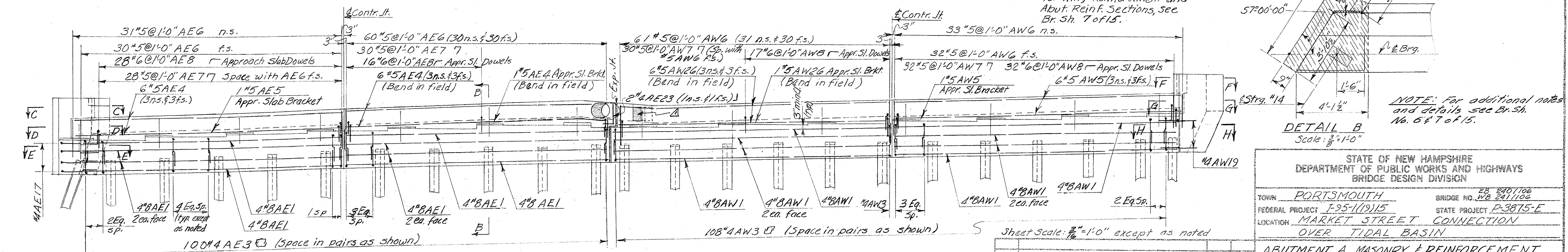


PLAN OF ABUTMENT A



ELEVATION OF ABUTMENT A

Note: All exposed corners shall be chamfered 1/4\"



ABUTMENT A REINFORCEMENT

NOTE: Area shown thus in Detail A and Detail B is the level area at the bottom of the Abutment Beams.

DETAIL A
Scale: 3/8\"=1'-0\"

Seal all exposed edges of cork with a 1/2\"

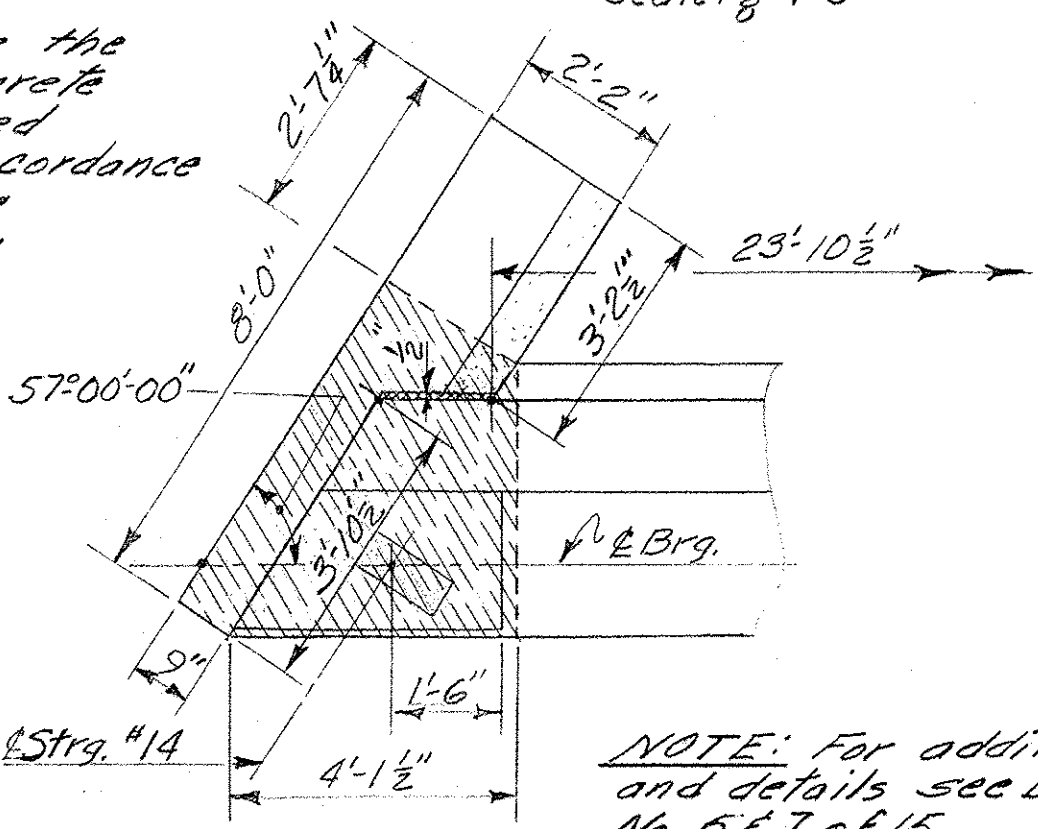
Top of Abut. Water Seal

DETAIL C
Scale: 1/2\"=1'-0\"
El. 16.34 n.s. El. 16.25 f.s.

TYPICAL ABUTMENT A SECTION
SECTION A-A
Scale: 3/8\"=1'-0\"

Piles to be protected to 3\"/>

For Wing Reinforcement and Abut. Reinf. Sections, See Br. Sh. 7 of 15.

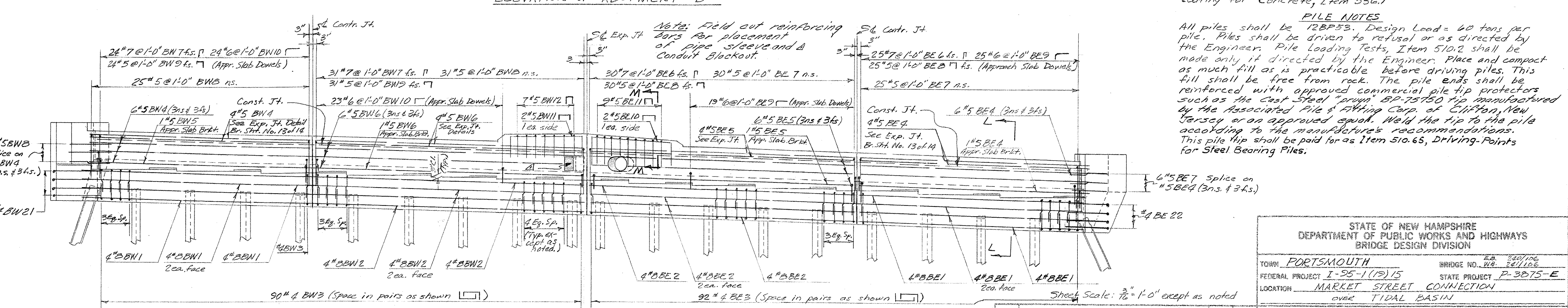
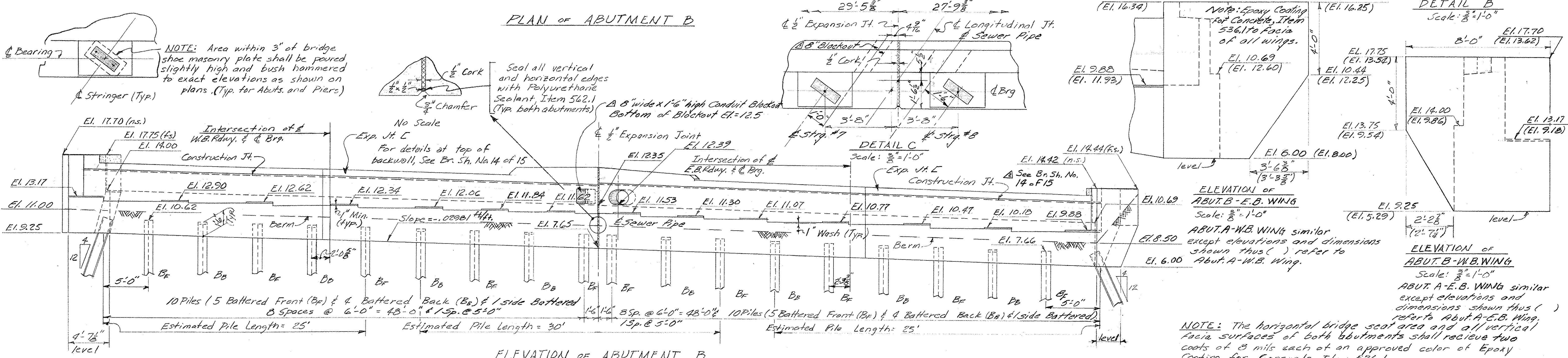


DETAIL B
Scale: 3/8\"=1'-0\"

NOTE: For additional notes and details see Br. Sh. No. 6 & 7 of 15.

STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION					
TOWN	PORTSMOUTH	BRIDGE NO.	241106	DATE	2/20/10
FEDERAL PROJECT	F-95-1(19)15	STATE PROJECT	P-3875-E	FILE NUMBER	27-2-3
LOCATION	MARKET STREET CONNECTION OVER TIDAL BASIN	ABUTMENT A MASONRY & REINFORCEMENT	DESIGNED BY	CLW	3/7/11
			CHECKED BY	JEK	7/6/11
			DATE	7/6/11	
			REVISIONS		
			REVIEWED BY		
			PROJ. NO.	1-95-1(19)15	
			SHEET NO.	52	
			TOTAL SHEETS	331	

Sheet Scale: 3/8\"=1'-0\" except as noted



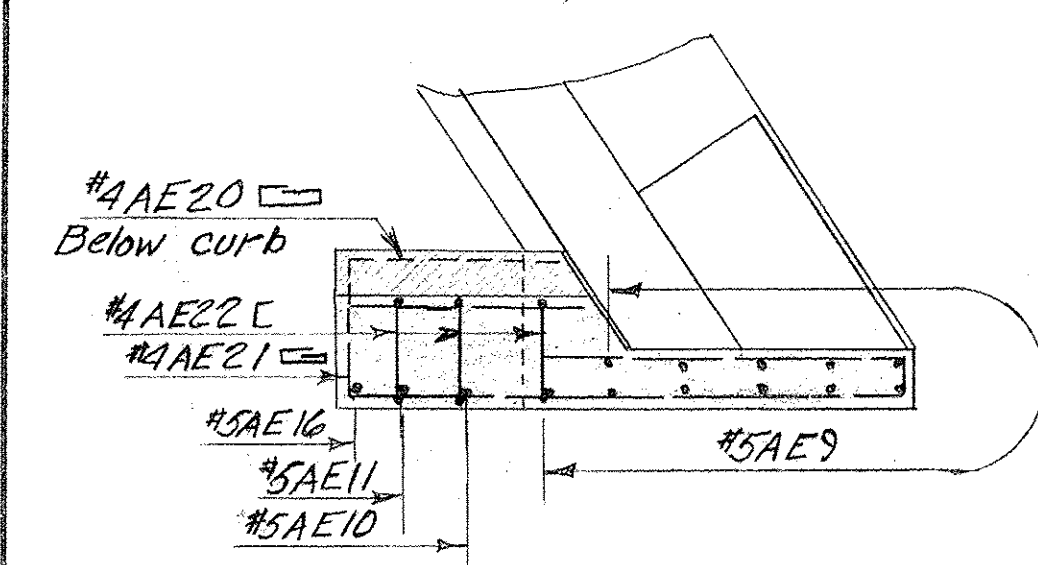
NOTE: All reinforcing steel shall be 2" clear from surface of concrete unless otherwise noted. Minimum lap of all reinforcing bars = 30 diameters.

PILE NOTES

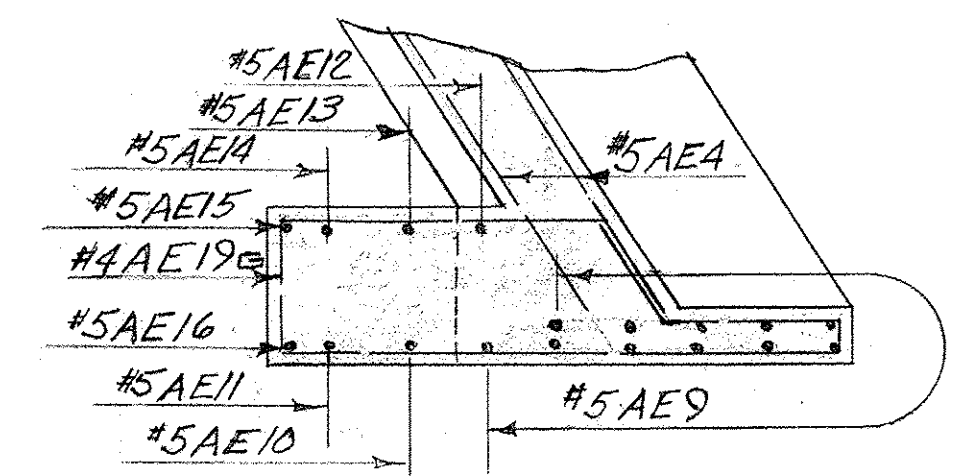
All piles shall be 12BP53. Design Load = 40 tons per pile. Piles shall be driven to refusal or as directed by the Engineer. Pile Loading Tests, Item 510.2 shall be made only if directed by the Engineer. Place and compact as much fill as is practicable before driving piles. This fill shall be free from rock. The pile ends shall be reinforced with approved commercial pile tip protectors such as the Cast Steel "grump" BP-75T50 tip manufactured by the Associated Pile & Piling Corp. of Elfton, New Jersey or an approved equal. Weld the tip to the pile according to the manufacturer's recommendations. This pile tip shall be paid for as Item 510.65, Driving-Points for Steel Bearing Piles.

STATE OF NEW HAMPSHIRE									
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS									
BRIDGE DESIGN DIVISION									
TOWN		PORTSMOUTH				BRIDGE NO.		S.B. 240/106 241/106	
FEDERAL PROJECT		I-95-1(12)15				STATE PROJECT		P-3875-E	
LOCATION		MARKET STREET CONNECTION OVER TIDAL BASIN							
ABUTMENT B MASONRY AND REINFORCEMENT									
DESIGNED	CLW	BY	DATE	CHECKED	JEL	BY	DATE	BRIDGE SHEET NO.	
DRAWN	RF		6/69	CHECKED	JEL		7/69	6 OF 15	
TRACED	RF		7/69	CHECKED	CLW		2/69	FILE NUMBER	
QUANTITIES	JWM		9/69	CHECKED	CLW		9/69	27-2-3	
PREPARED BY		PROJ. NO.				SHEET NO.		TOTAL SHEETS	
		I-95-(11A)15				53		33/1	

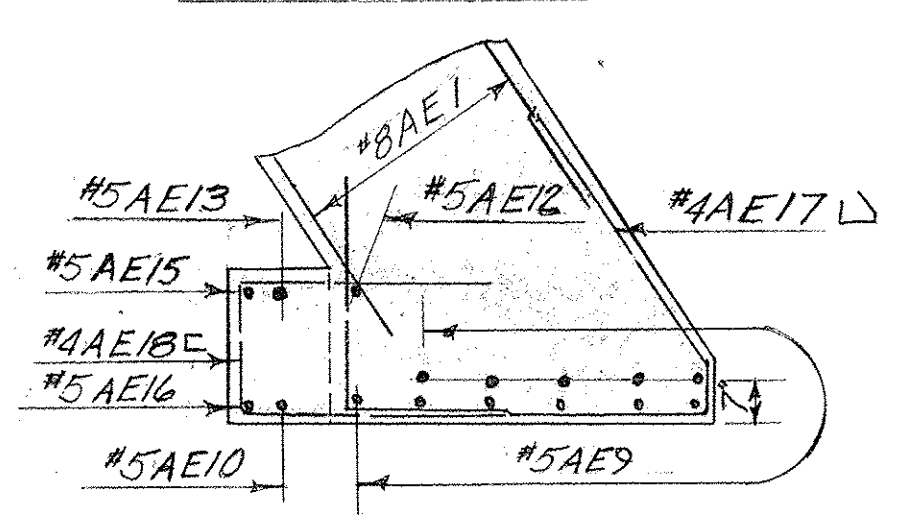
NOTE: The contractor may use either the copper or the rubber type waterseal in all expansion and contraction joints. Waterseal to extend from bottom of abutment to 2" from top of backwall. Cost of all expansion and contraction joint material is subsidiary.



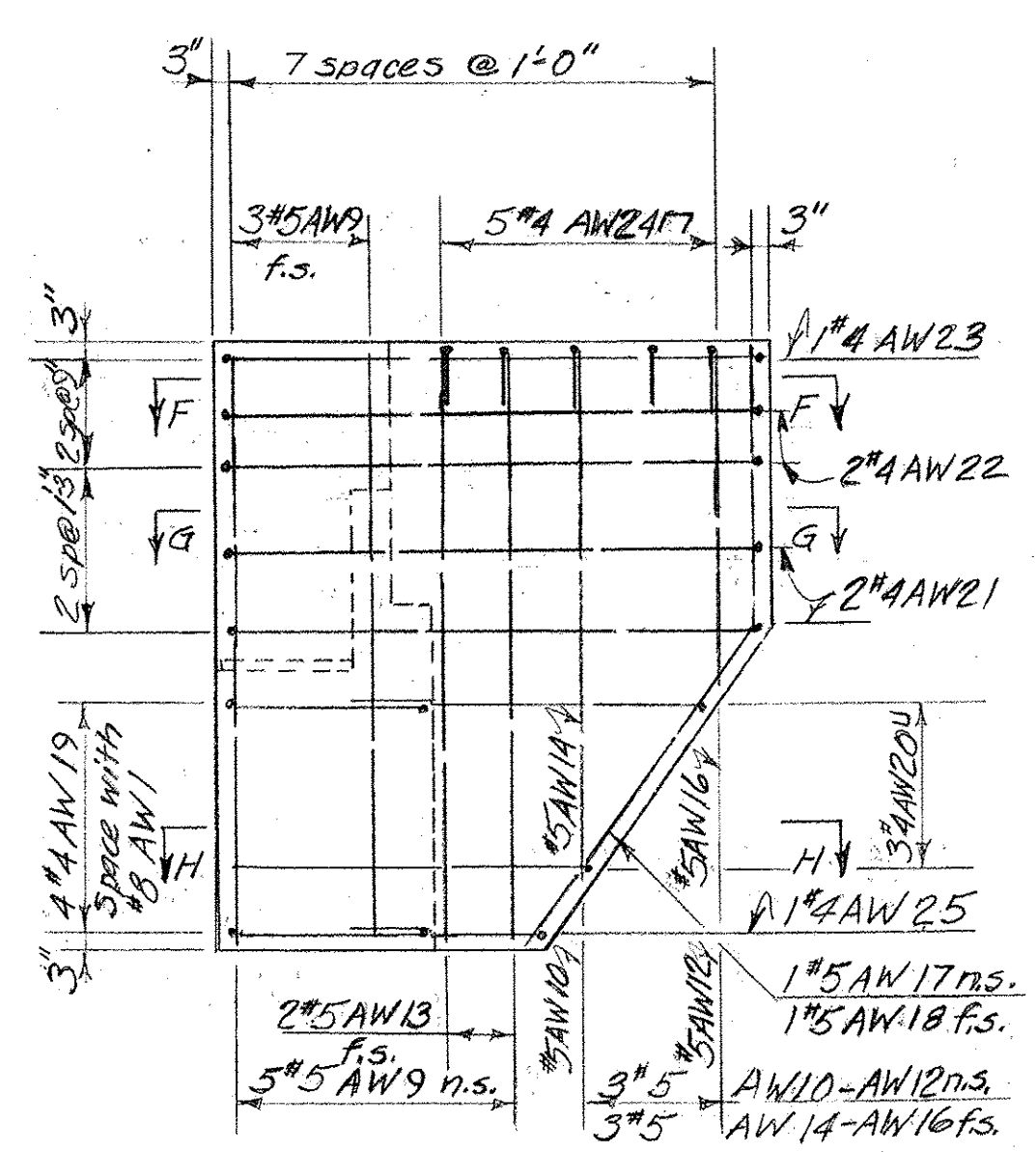
SECTION C-C



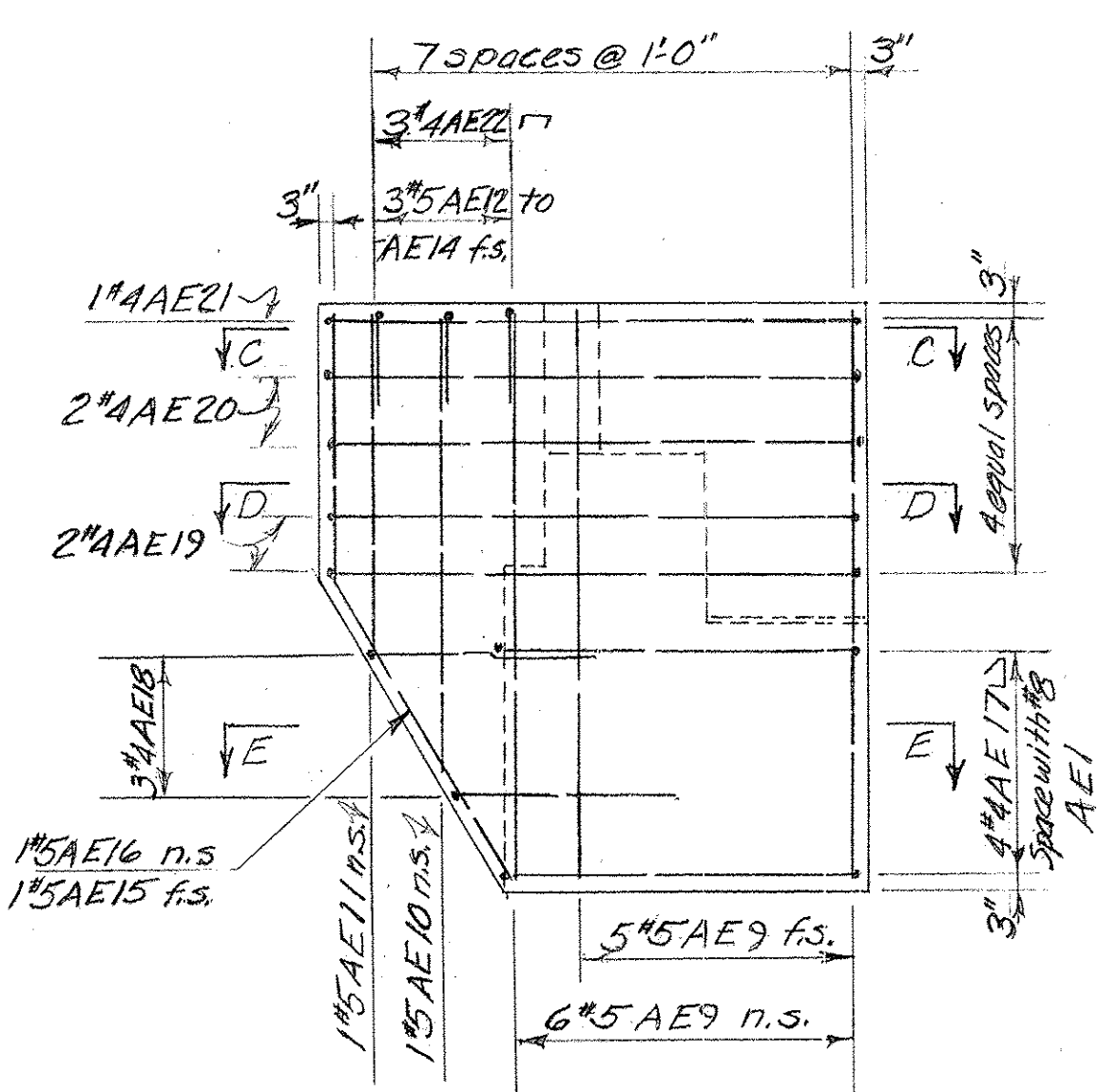
SECTION D-D



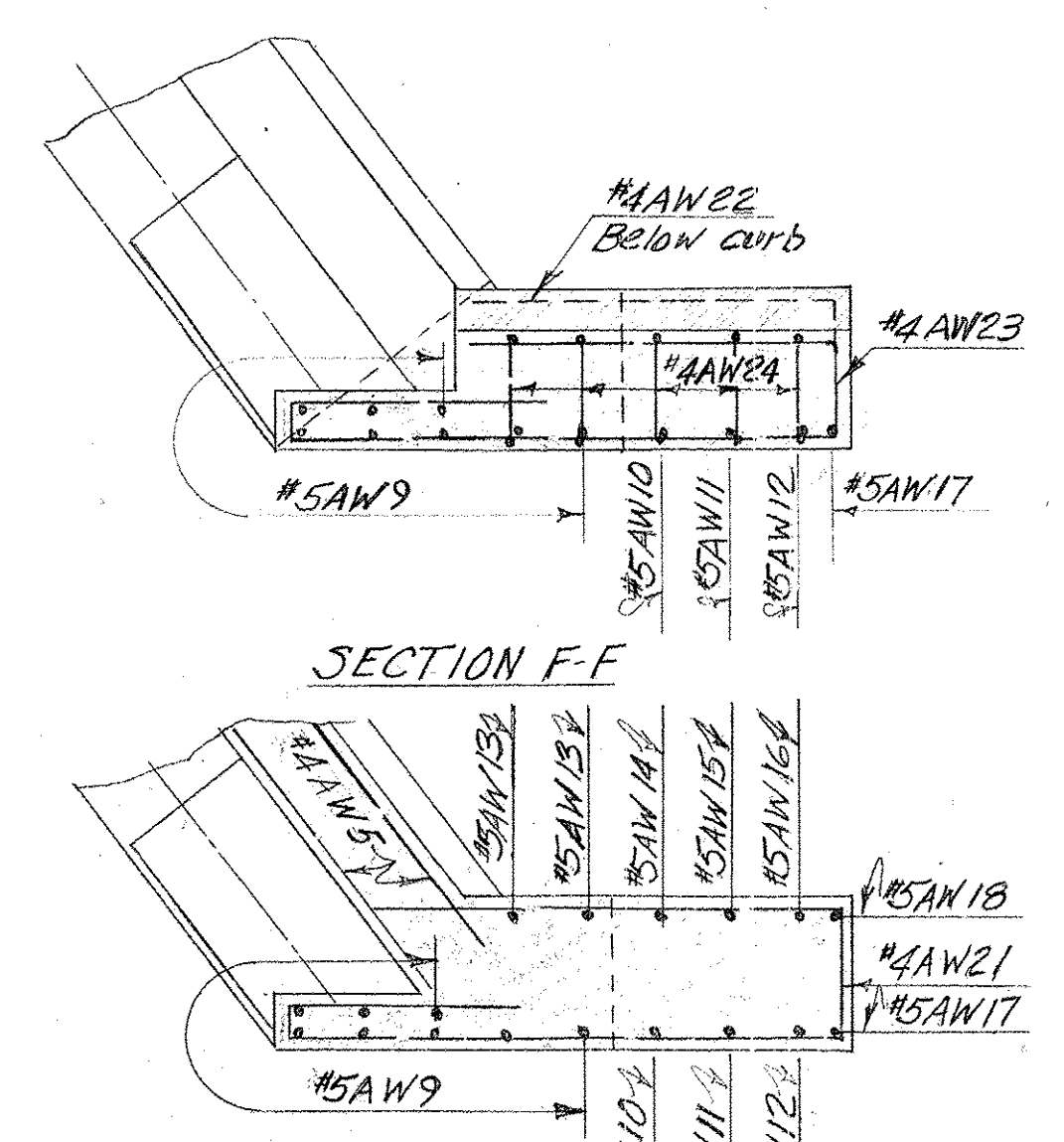
SECTION E-E



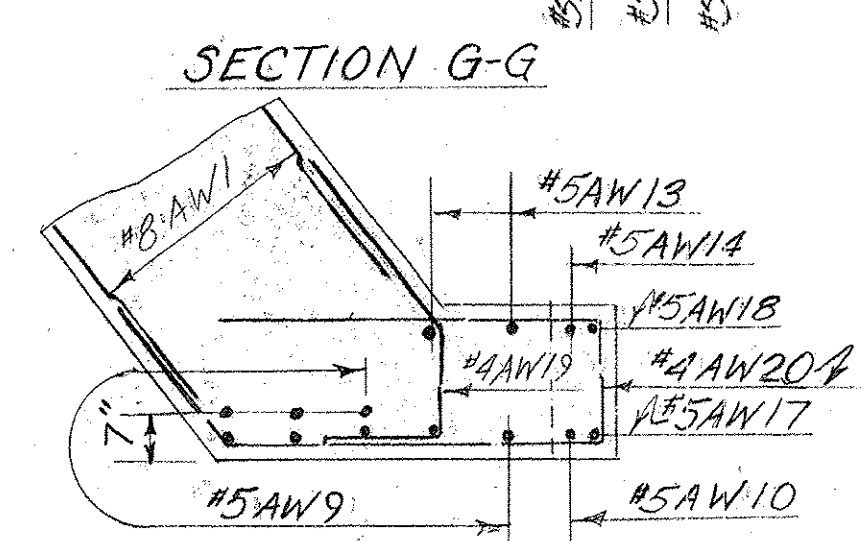
WESTBOUND WING REINFORCEMENT ABUTMENT A



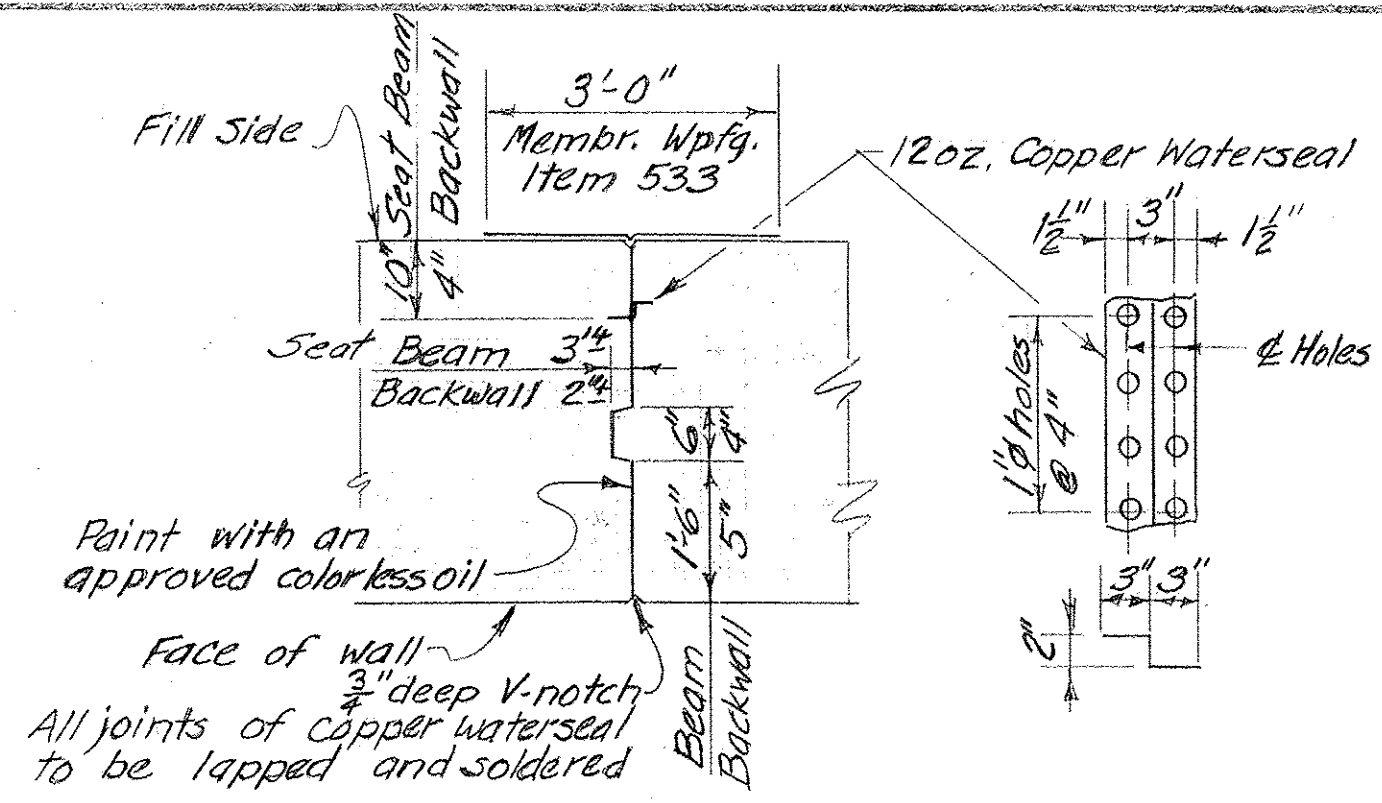
EASTBOUND WING REINFORCEMENT ABUTMENT A



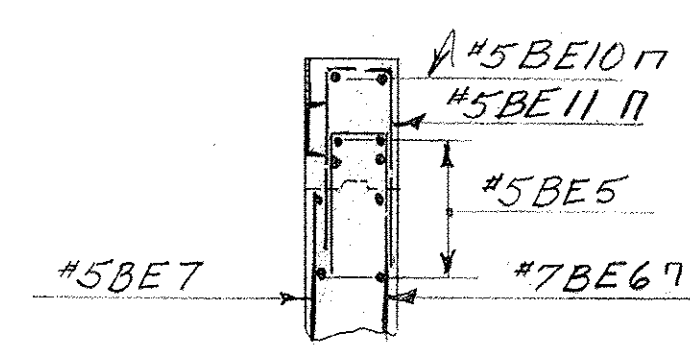
SECTION F-F



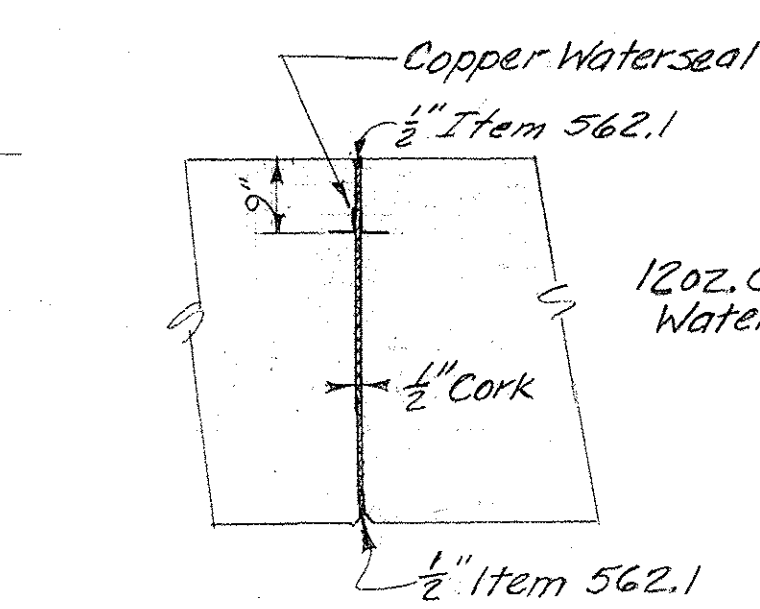
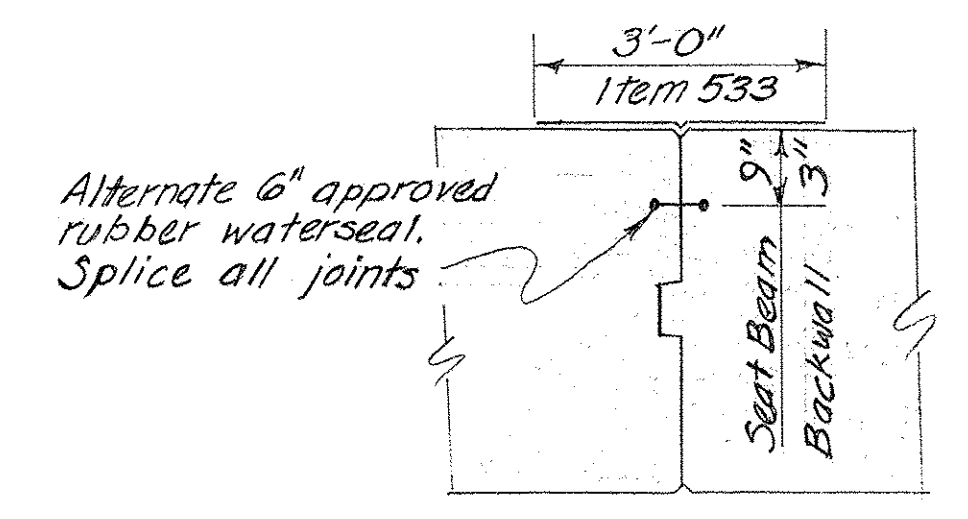
SECTION H-H



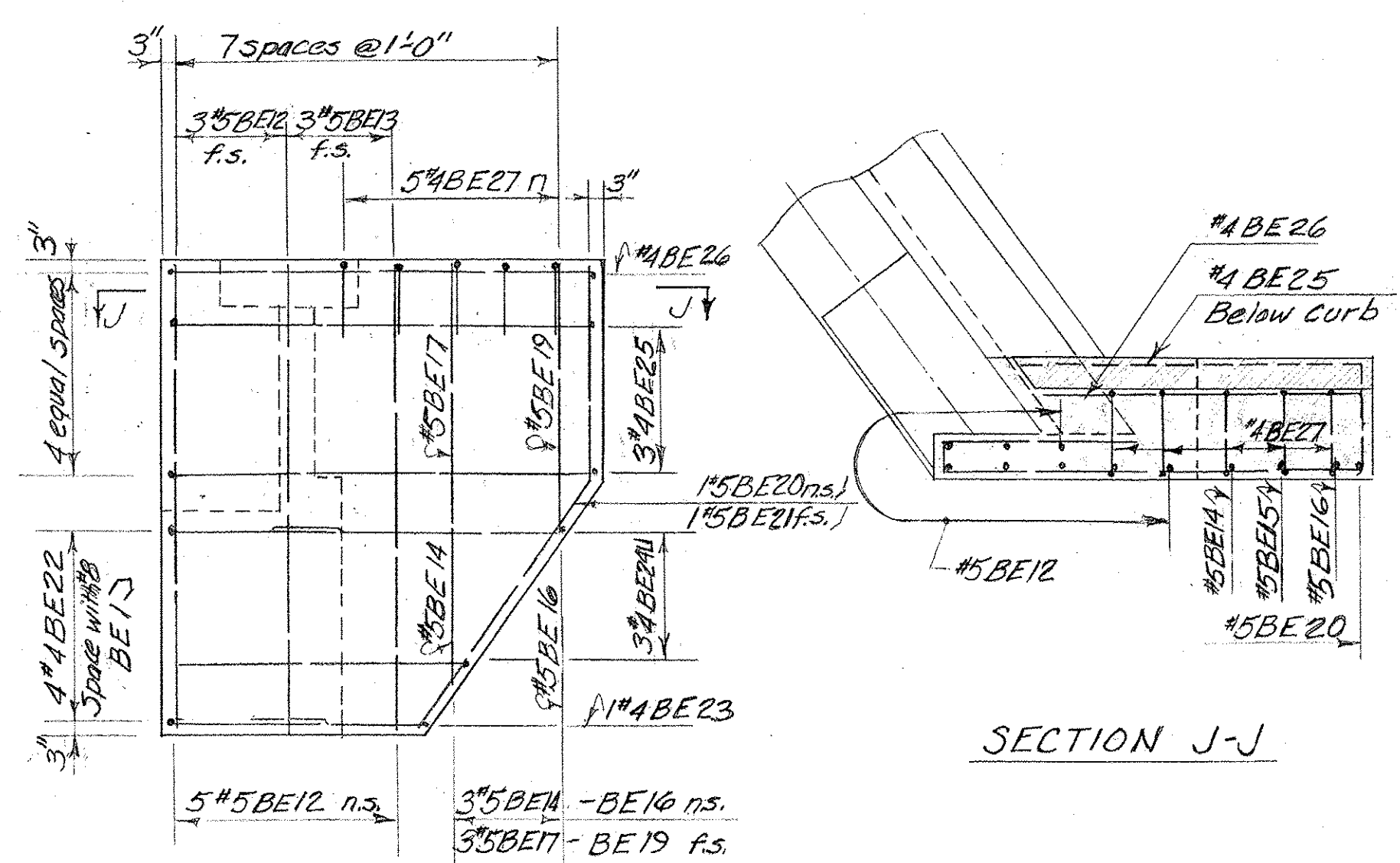
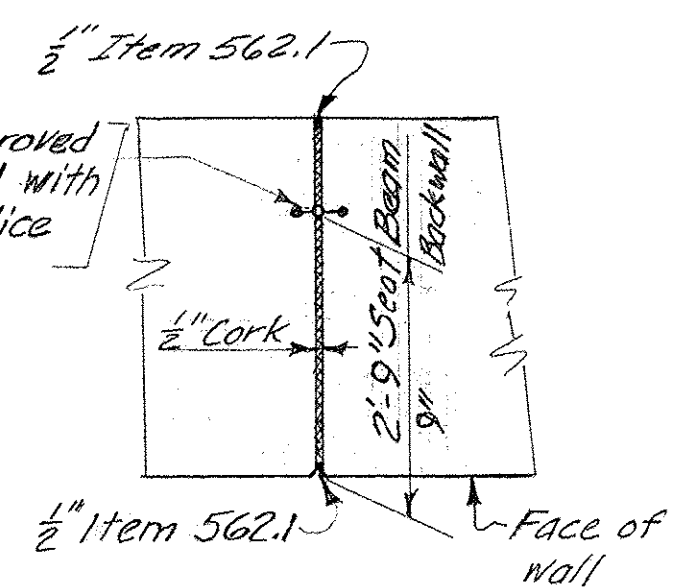
TYPICAL CONTRACTION JOINT Scale: 1/2"=1'-0"



SECTION M-M ABUT. B MEDIAN WALL

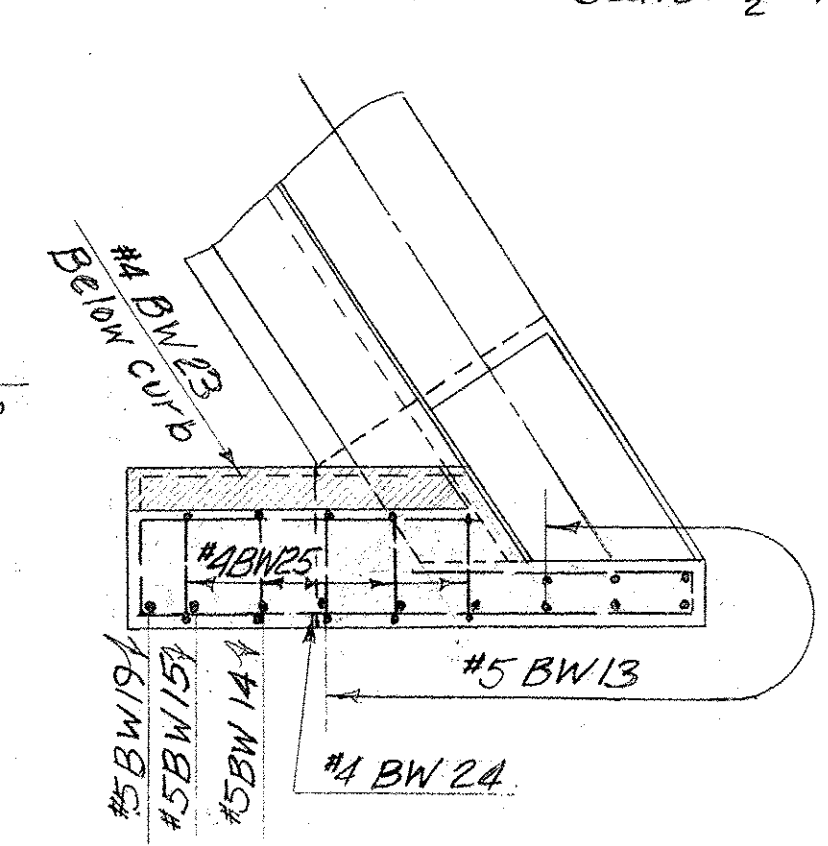


TYPICAL EXPANSION JOINT Scale: 1/2"=1'-0"

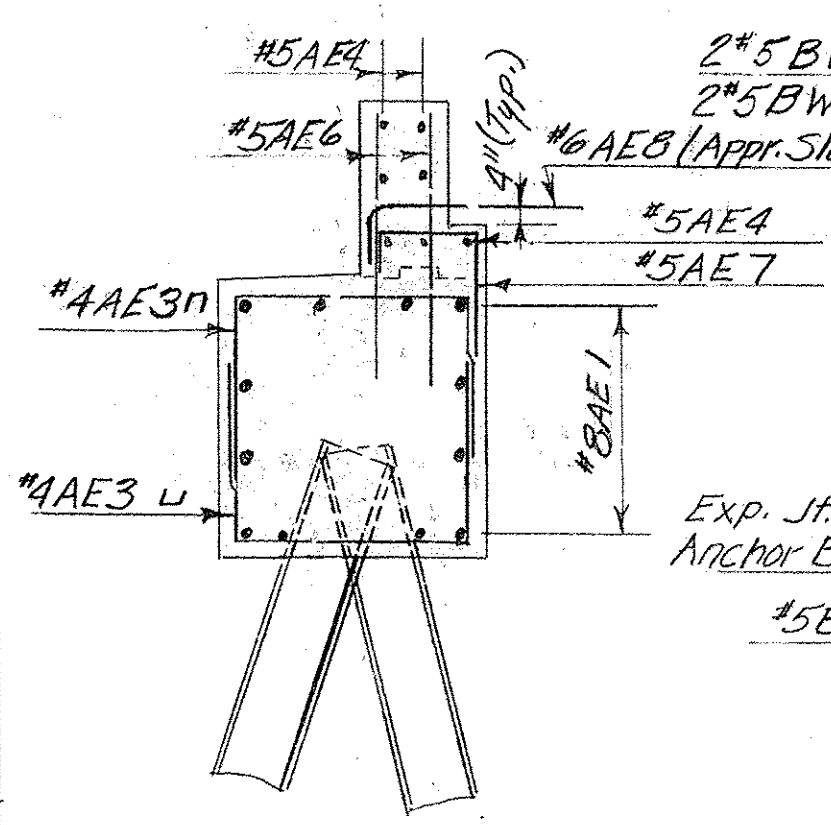


EASTBOUND WING REINFORCEMENT ABUTMENT B

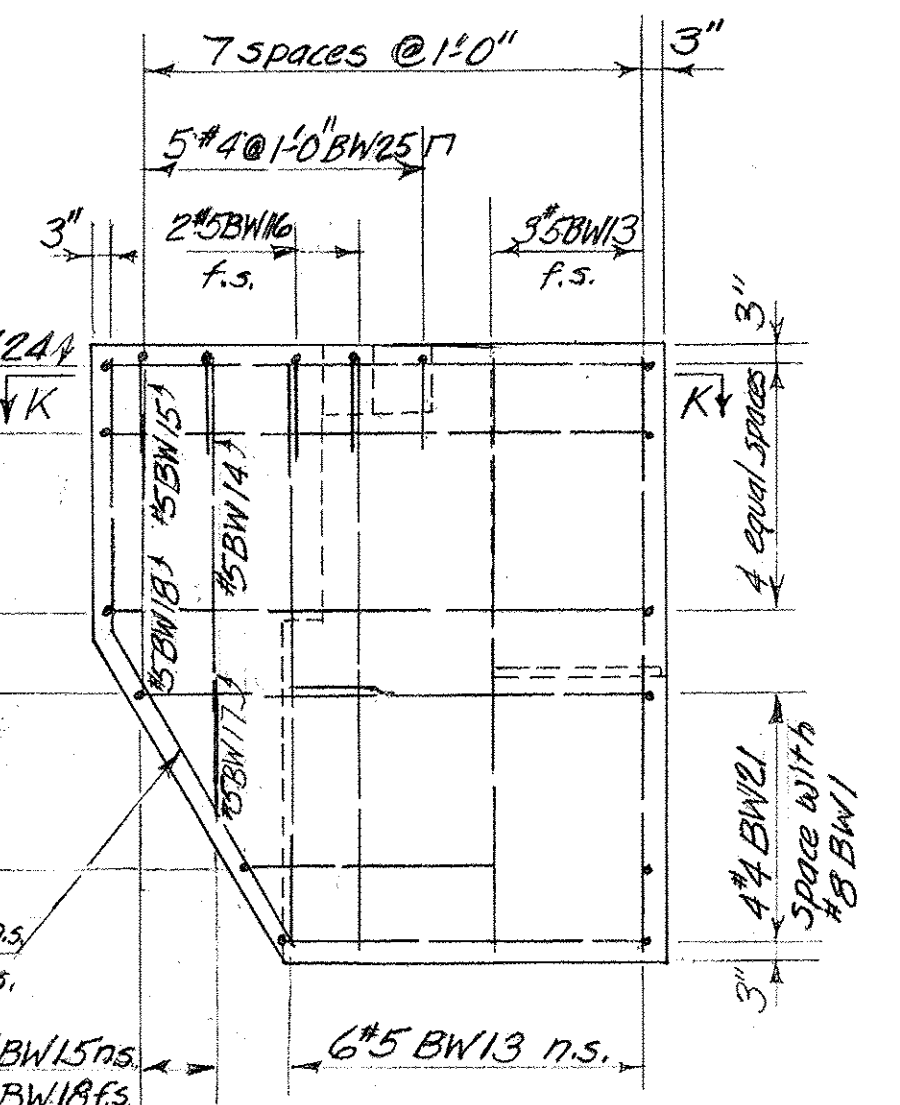
SECTION J-J



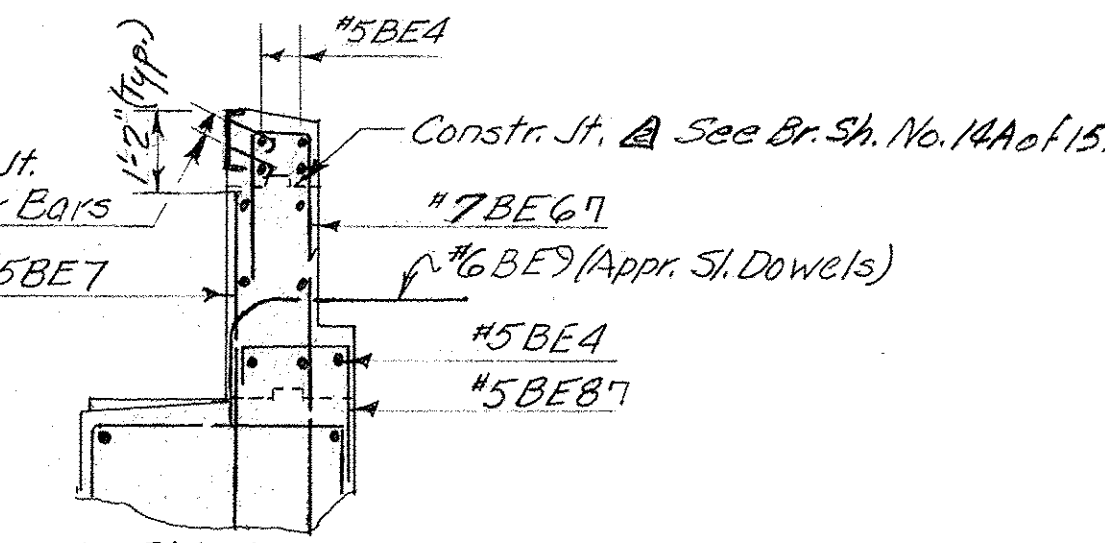
SECTION K-K



SECTION B-B ABUTMENT A



WESTBOUND WING REINFORCEMENT ABUTMENT B



SECTION L-L ABUTMENT B

ABUTMENT QUANTITIES					
Item No.	Description	Eastbound Abut. A	Eastbound Abut. B	Westbound Abut. A	Westbound Abut. B
209.12	Granular Backfill (Bridge)	5,200	3,500	5,300	4,900
510.2	Pile Loading Tests	1	0	0	1
510.61	Furnishing Steel Bearing Piles	22,790	14,045	25,705	14,310
510.62	Driving Steel Bearing Piles	22,790	14,045	25,705	14,310
510.9	Pile Splices	1	1	7	1
520.122	Concrete Class A (Above Footings)	44.0	43.8	44.8	44.1
533	Membrane Waterproofing	18	36	20	36
534	Water Repellent	1/4	1/4	1/4	1/4
536.1	Epoxy Coating for Concrete	12 1/4	11 1/4	12 1/2	12
544	Reinforcing Steel	4214	4964	4476	4975
562.1	Polyurethane Sealant	38	36	38	36
585.1	Stone Fill, Class A	2500	1200	2006	1636
510.65	Driving-Points for Steel Bearing Piles	11	10	12	10
					Each

Sheet Scale: 3/8"=1'-0" except as noted

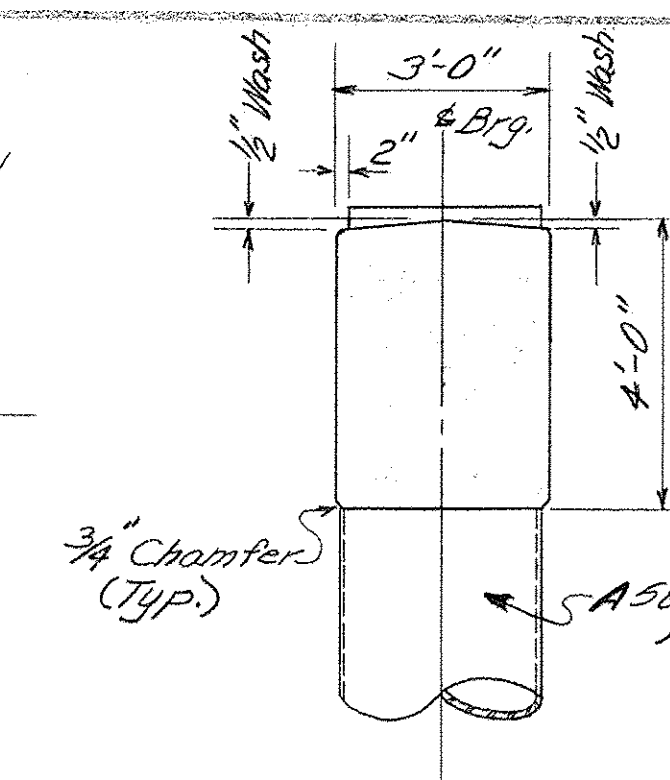
REVISIONS	BY	DATE
Revised E of Br. Stations	C.W. 3/71	

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BRIDGE DESIGN DIVISION

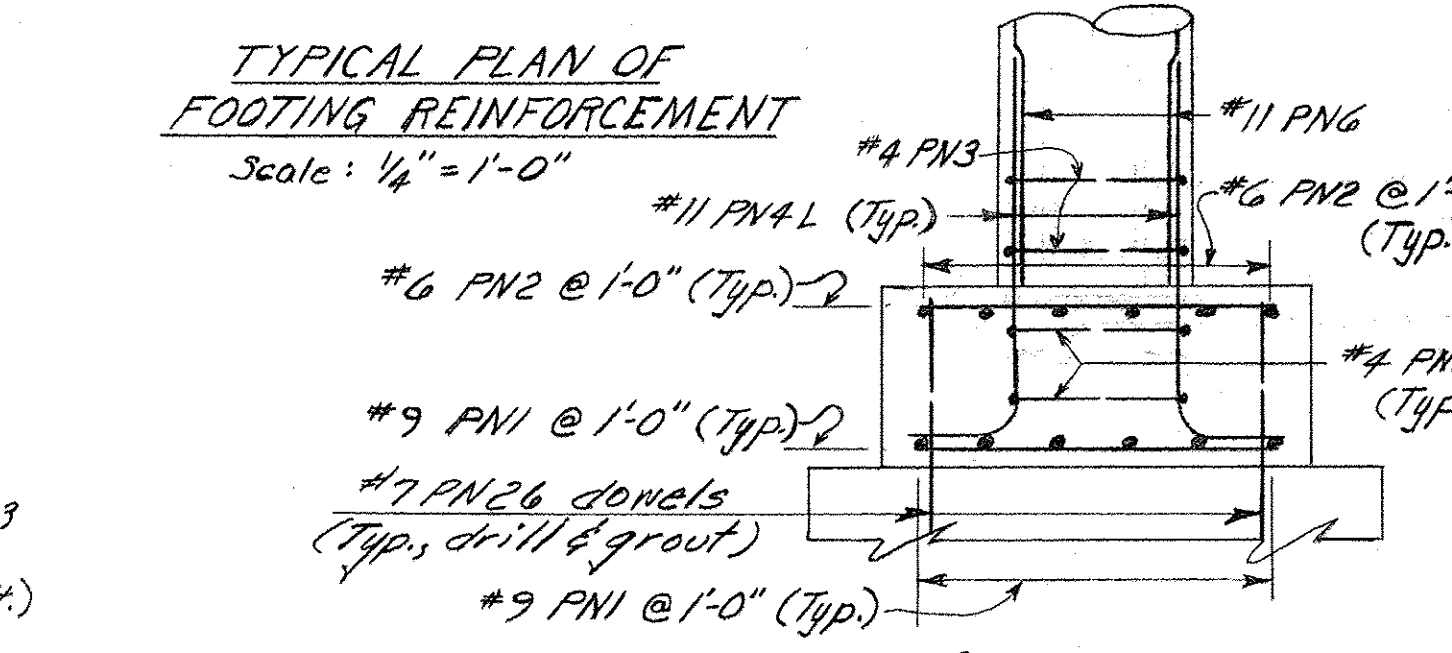
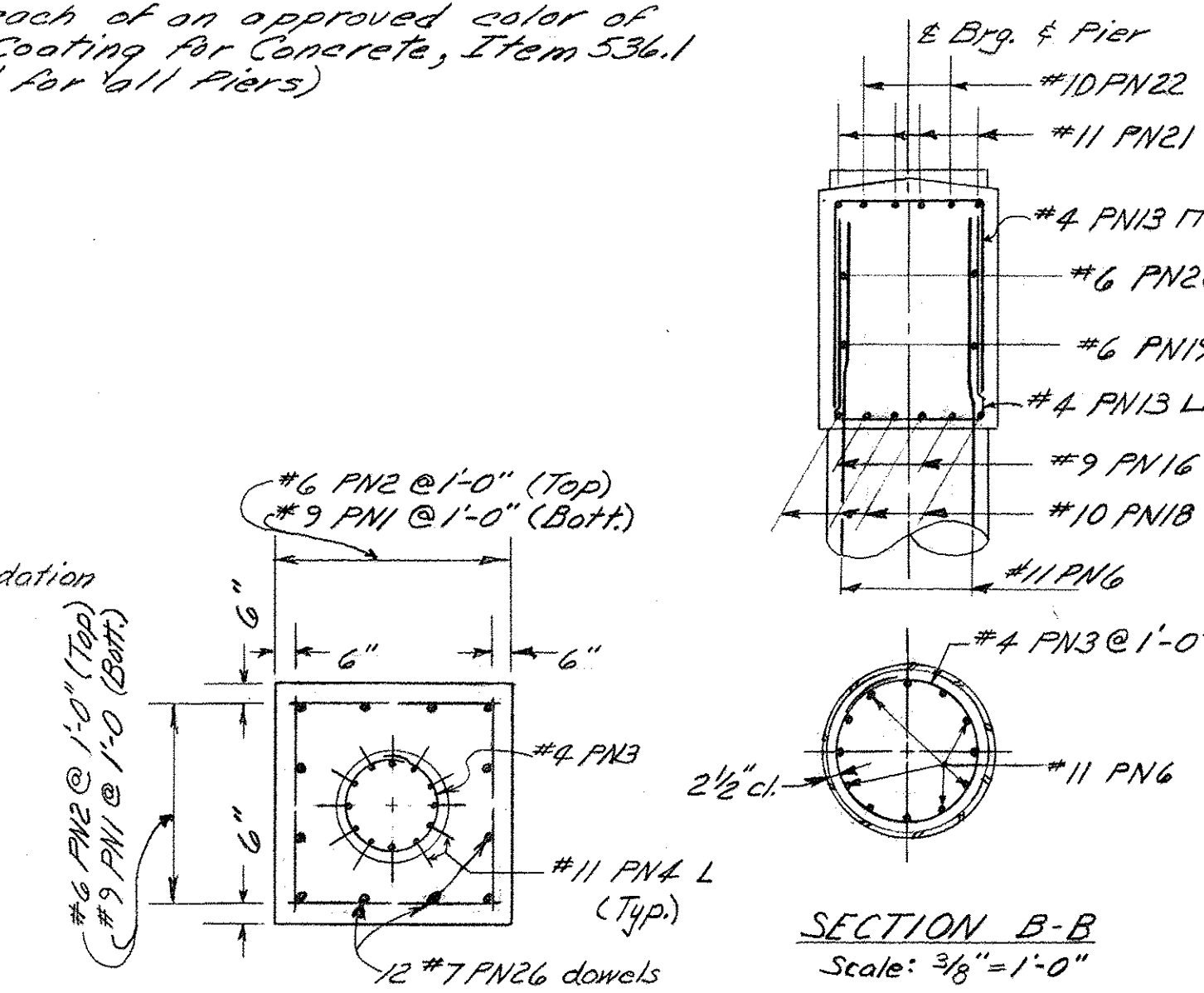
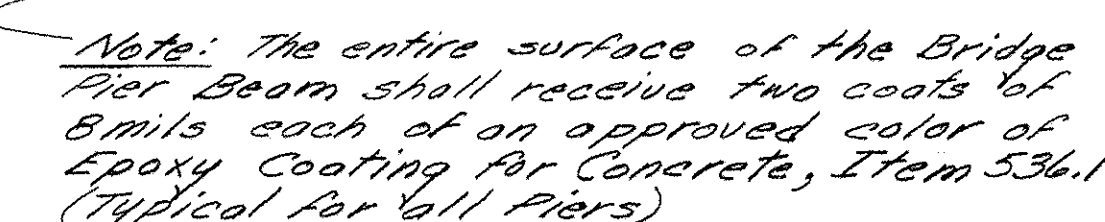
TOWN PORTSMOUTH BRIDGE NO. 18
FEDERAL PROJECT I-95-119/15 STATE PROJECT P3875-E
LOCATION MARKET STREET CONNECTION OVER TIDAL BASIN

ABUTMENT DETAILS & WING REINFORCEMENT			
DESIGNED <u>C.L.W.</u>	BY <u>3/69</u>	CHECKED <u>J.E.K.</u>	DATE <u>6/69</u>
DRAWN <u>J.W.M.</u>	BY <u>7/69</u>	CHECKED <u>C.L.W.</u>	DATE <u>8/69</u>
TRACED <u>J.W.M.</u>	BY <u>7/69</u>	CHECKED <u>C.L.W.</u>	DATE <u>8/69</u>
QUANTITIES <u>J.W.M.</u>	BY <u>9/69</u>	CHECKED <u>C.L.W.</u>	DATE <u>9/69</u>

REVIEWED BY PROJ. NO. I-95-1 (19) 15 SHEET NO. 54 TOTAL SHEETS 331



Note: The pier columns shall be protected for their entire length with a Weathering Steel Covering. The A588 Steel shall be 1/2" thick and shall be used for the column forms, subject to the approval of the Engineer. All joints and seams shall be full strength butt welds. The Cast of the Weathering steel covering shall be subsidiary to Item 550.12. The Steel Covering shall be painted with an inorganic zinc paint system, for application instruction and material specs., see Amendment to Section 550.12.

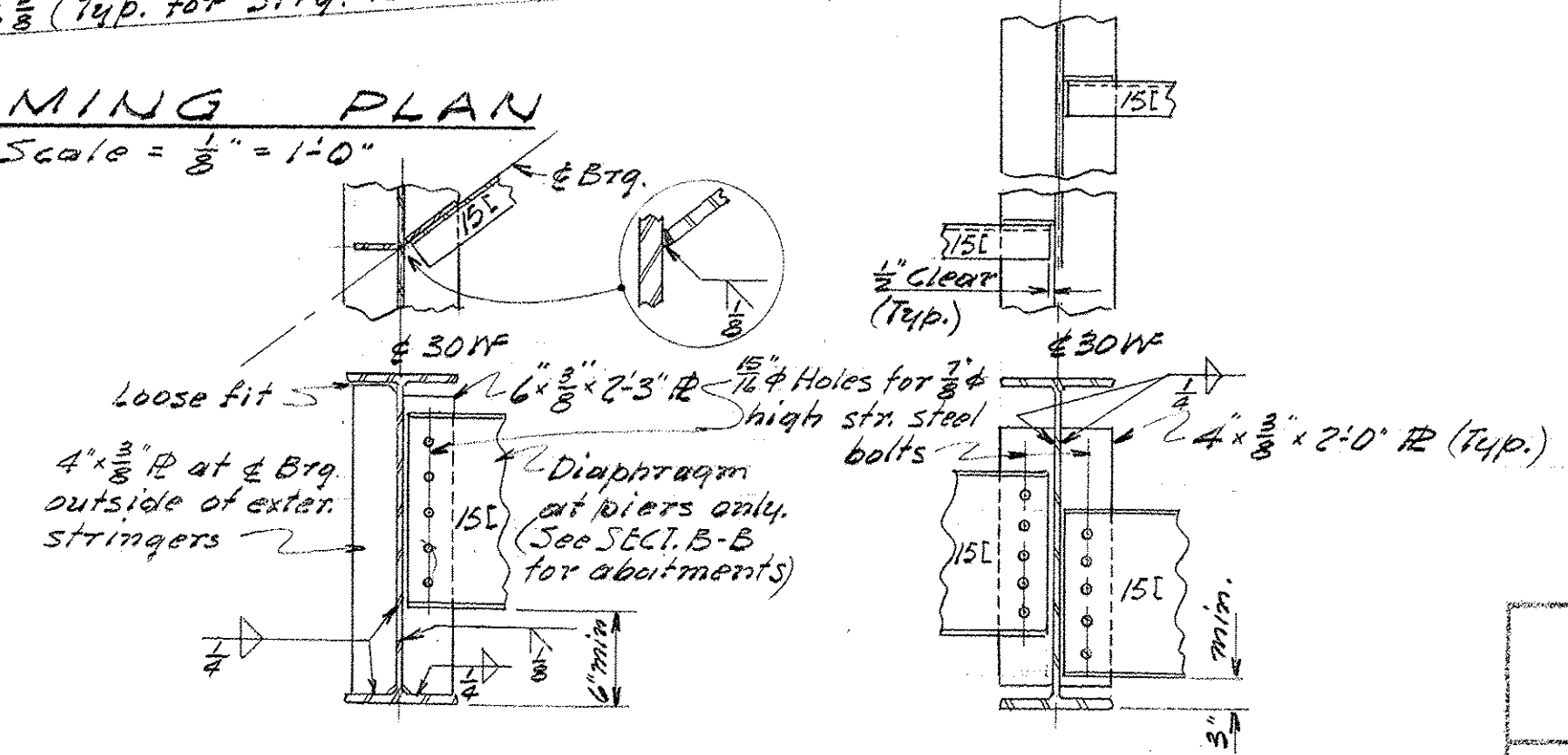
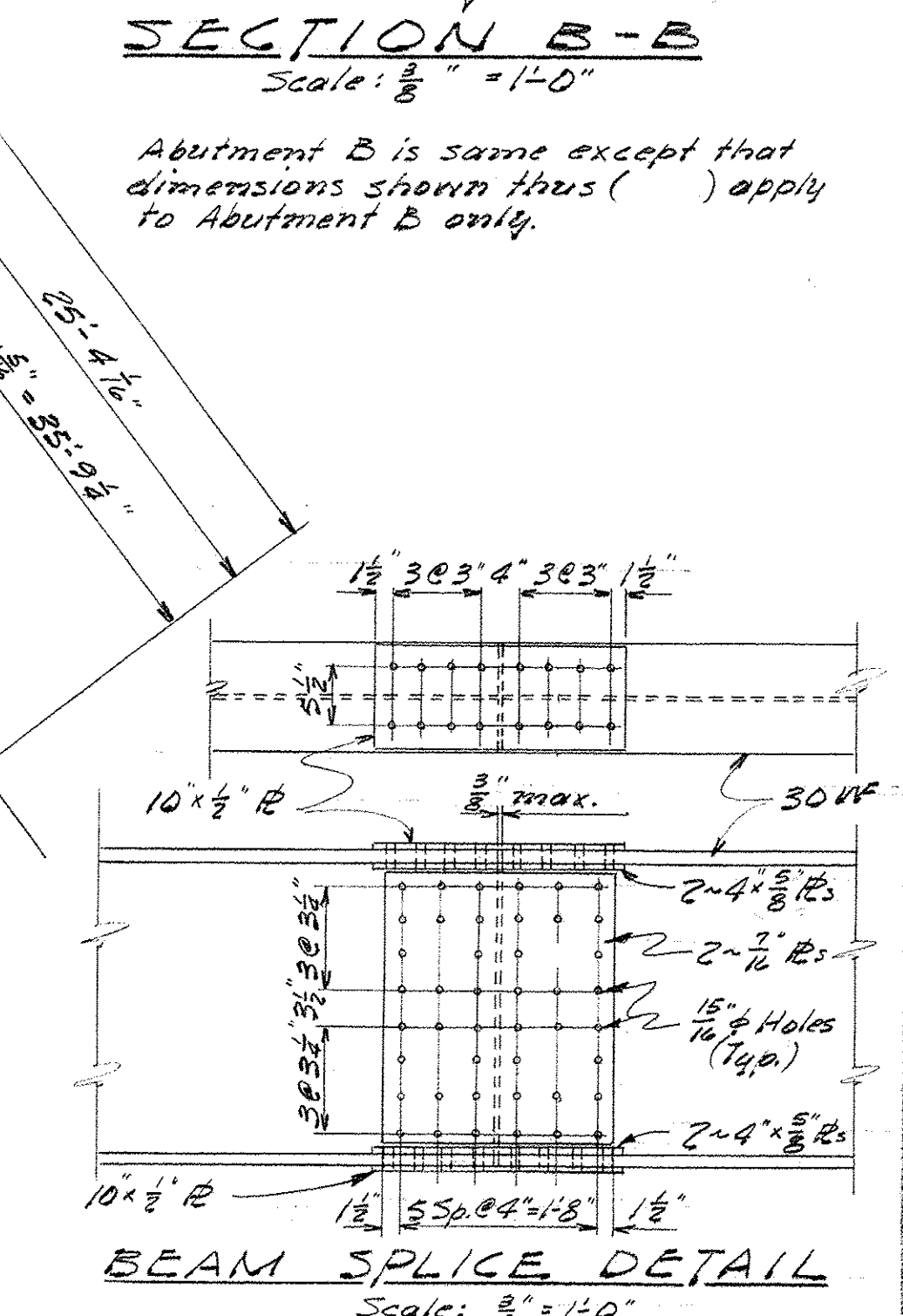
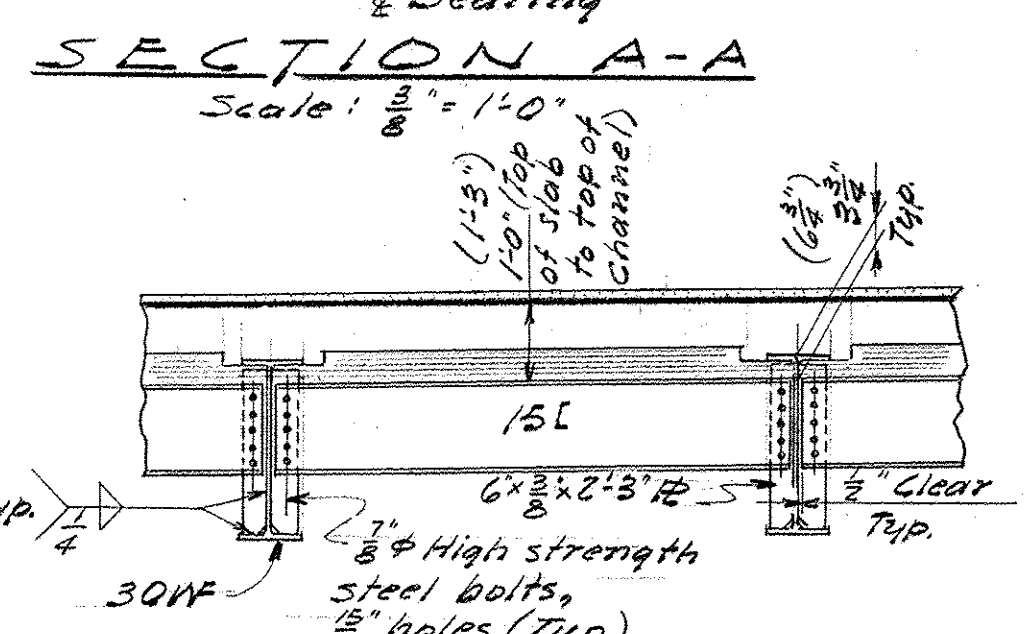
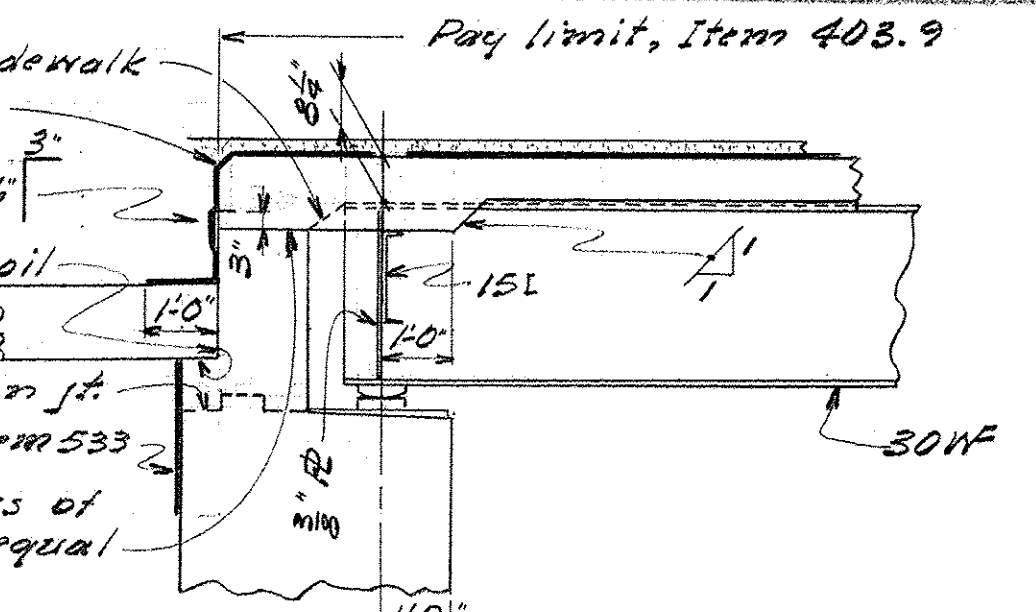
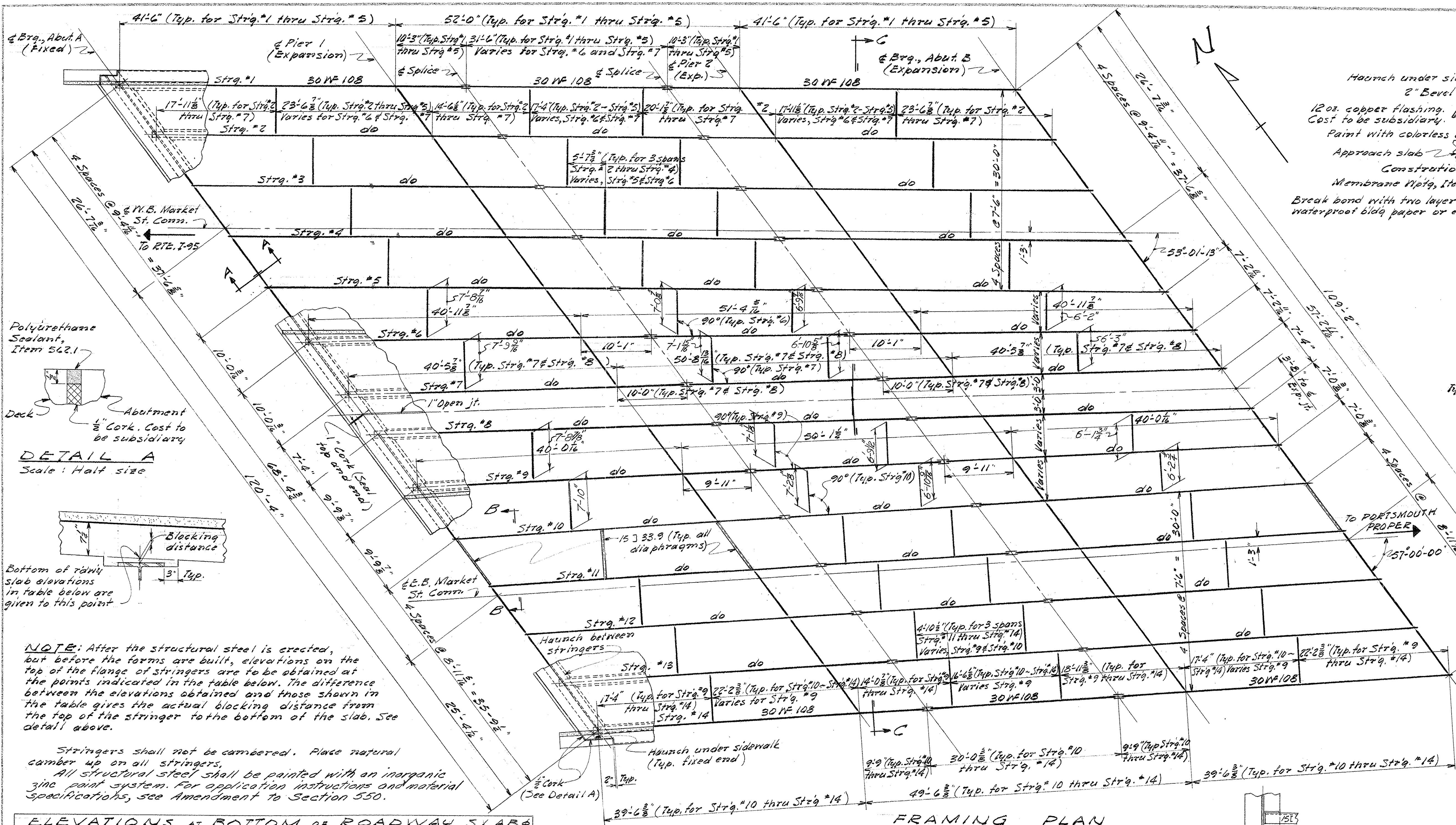


Note: For Additional Pier Notes Scale: $\frac{3}{8}" = 1'-0"$
see At Sp 9 of 15

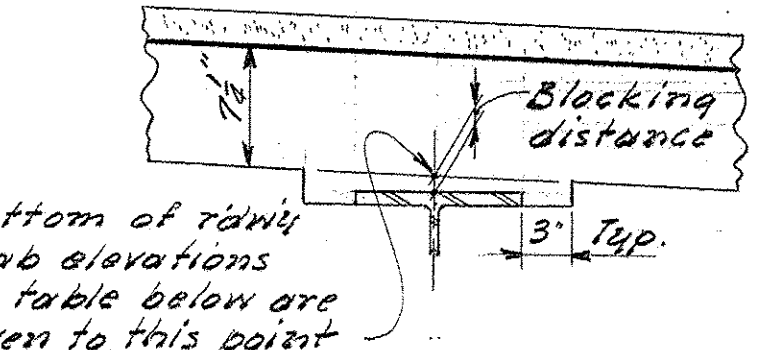
All reinforcing steel shall be 2' clear from the concrete surface, except 3" clear at footings and 2 1/2" clear at columns. Min. lap of all reinforcing bars = 30 bar dia. Place top beam bars & stirrups to clear anchor bolts.

Sheet Scale: $3/16" = 1'-0"$ or as noted

SHEET NO. 10 OF 15 DATE 10/15/15				OVER THE BRIDGE			
PIER I MASONRY & REINFORCEMENT				BY DATE CLW 6/69			
CHECKED JEK 6/69				BY DATE CLW 6/69			
DRAWN JEF 6/69				CHECKED CLW 8/69			
QUANTITY JWM 9/69				CHECKED CLW 9/69			
REVIEWED BY				PROJ. NO. SHEET NO. TOTAL SHEETS I-95-1(19)15 55 33/			



DETAIL A
Scale: Half size



NOTE: After the structural steel is erected, but before the forms are built, elevations on the top of the flange of stringers are to be obtained at the points indicated in the table below. The difference between the elevations obtained and those shown in the table gives the actual blocking distance from the top of the stringer to the bottom of the slab. See detail above.

Stringers shall not be cambered. Place natural camber up on all stringers.
All structural steel shall be painted with an inorganic zinc paint system. For application instructions and material specifications, see Amendment to Section 550.

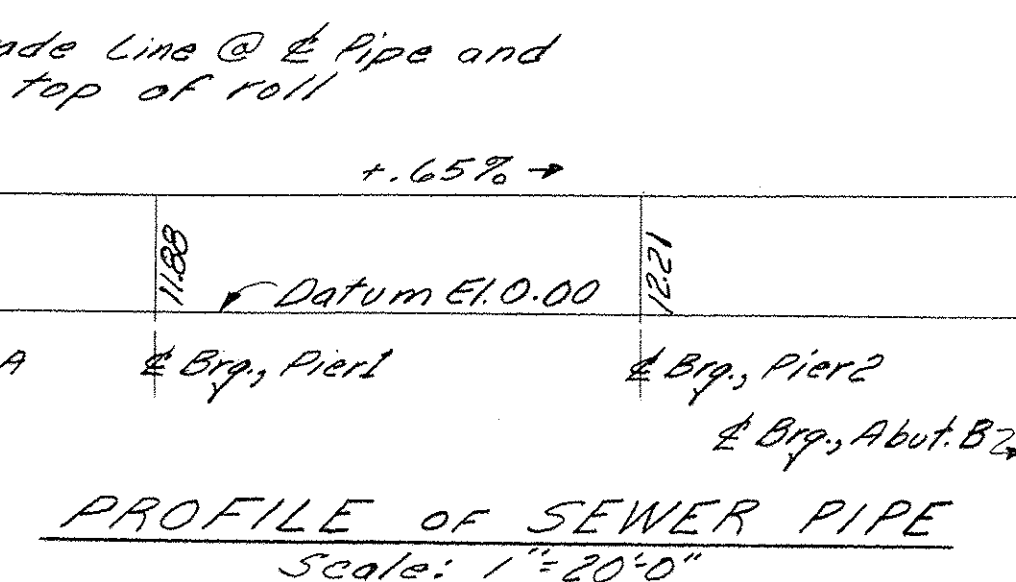
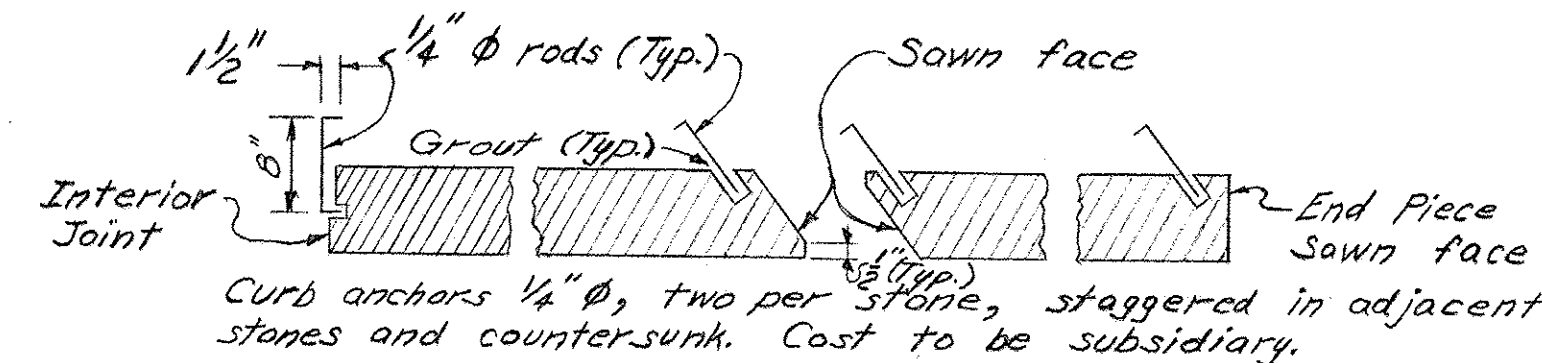
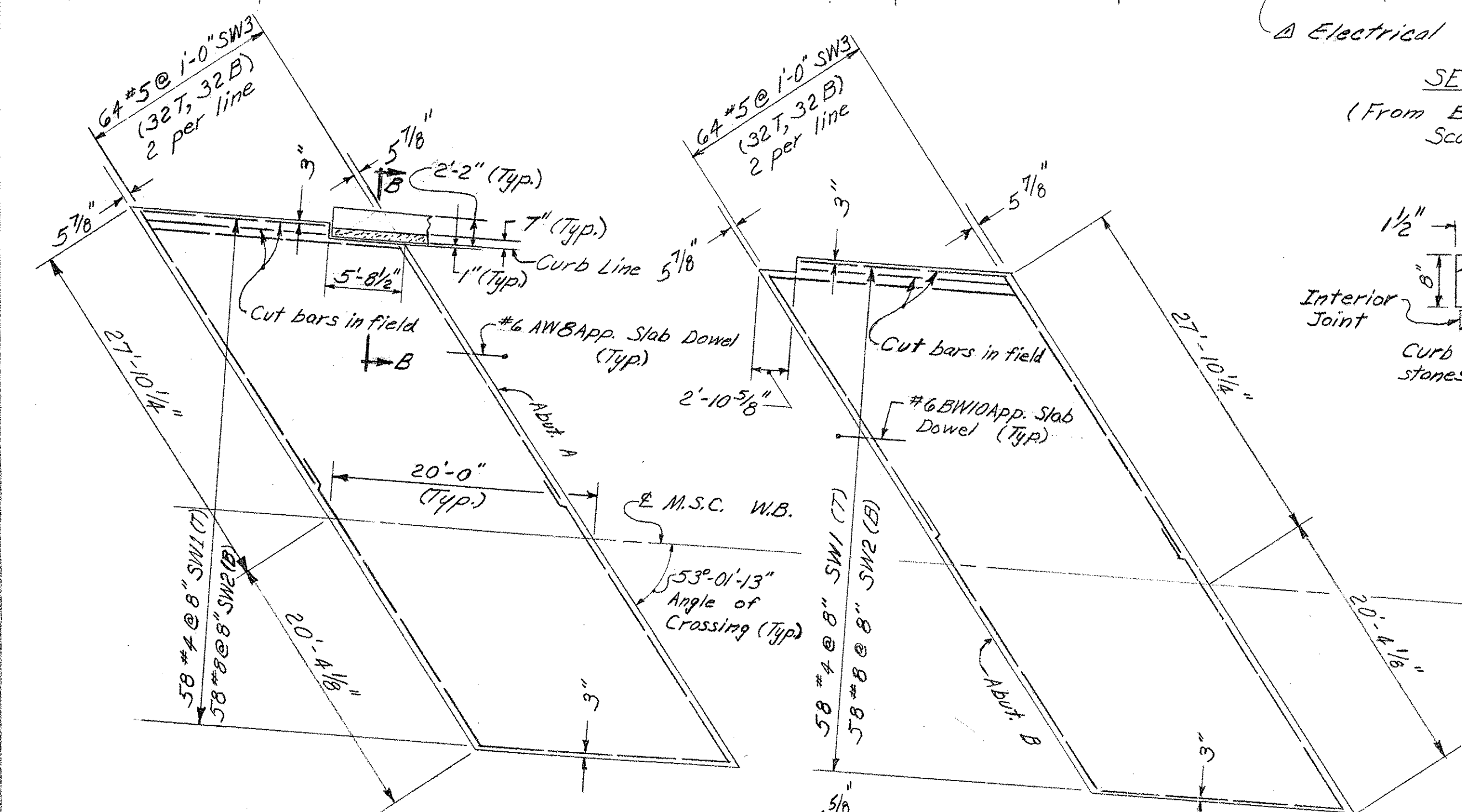
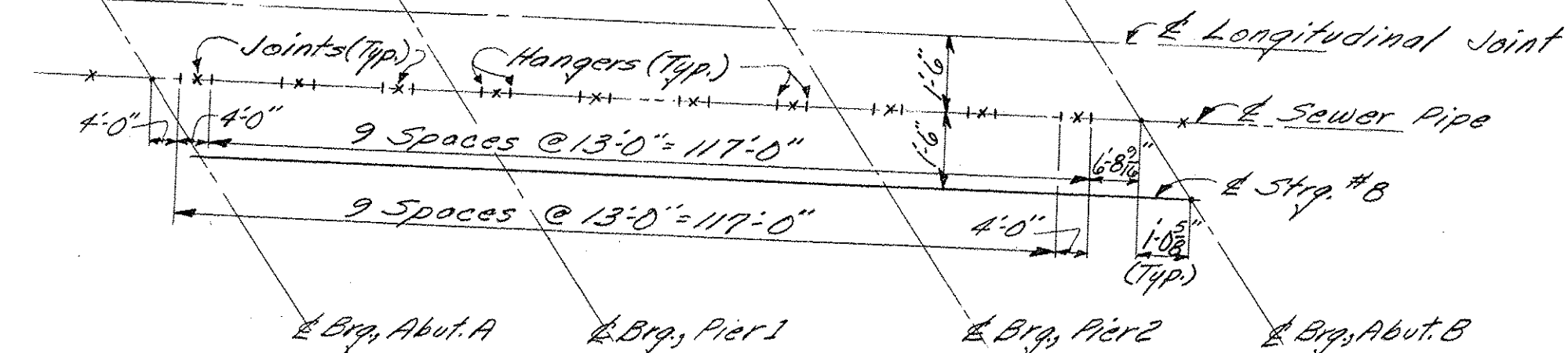
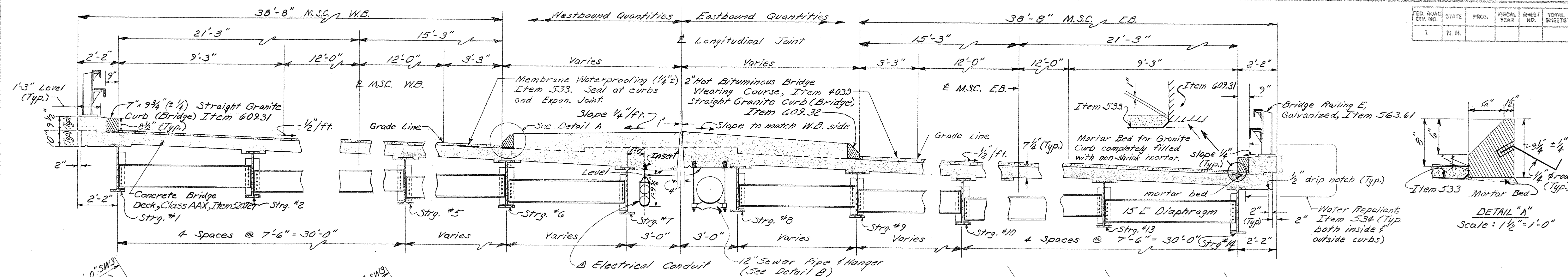
ELEVATIONS AT BOTTOM OF ROADWAY SLAB														
PI. STRG.	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14
Abut. A	14.82	14.57	14.32	14.08	13.83	13.58	13.33	13.08	12.83	12.58	12.33	12.08	11.83	11.58
1/2	.91	.66	.41	.16	.13	.92	.65	.39	.77	.49	.13	.20	.12	.42
1/3	14.99	.75	.50	.25	14.00	13.74	.49	.84	.56	.28	13.02	12.75	.49	.22
1/2	15.07	14.82	.58	.33	14.08	13.83	.57	.90	.63	.35	13.08	12.82	.55	.28
2/3	15.15	14.90	.65	.40	14.15	13.90	.65	13.94	.68	.41	13.14	12.87	.61	.34
3/4	15.22	14.97	.72	.47	14.22	13.98	13.73	14.01	13.74	.46	13.20	12.93	.64	.38
Pier 1	15.29	15.05	14.80	14.55	14.30	14.06	13.81	14.06	13.79	13.52	13.25	12.98	12.71	12.43
1/2	.40	15.15	14.90	.65	.40	14.16	13.92	.43	14.13	13.87	.20	.33	13.05	12.78
1/3	.51	.26	15.01	14.76	.50	.26	14.02	14.20	13.94	.68	.40	13.13	12.85	.57
1/2	.61	.36	15.11	14.85	.59	.36	.12	.27	14.01	13.75	.47	13.19	12.91	.63
2/3	.70	.45	15.19	14.93	.67	.44	.20	.31	14.06	13.80	.52	13.24	12.96	.68
3/4	.78	.52	.26	15.00	14.74	.50	.27	.35	14.10	13.85	.54	.28	13.00	12.71
Pier 2	15.84	15.60	15.33	15.07	14.80	14.57	14.34	14.39	14.14	13.89	13.61	13.32	13.04	12.75
1/2	.92	.66	.40	15.13	14.86	.63	.40	.43	14.18	13.93	.65	.36	13.07	12.78
1/3	15.99	.79	.46	15.19	14.92	.69	.46	.47	14.22	13.98	.69	.40	13.11	12.82
1/2	16.06	15.79	.52	15.25	14.97	.75	.52	.50	.26	14.02	13.75	.44	13.14	12.85
2/3	16.11	15.84	.57	.29	15.01	14.79	.57	.52	.29	14.05	13.76	.46	13.17	12.87
3/4	16.16	15.88	.61	.53	15.05	14.83	.61	.54	.31	14.07	13.78	.48	13.19	12.89
Abut. B	16.19	15.92	15.64	15.36	15.08	14.84	14.64	14.53	14.32	14.09	13.79	13.50	13.20	12.90

Including allowance for dead load deflection
Fraction of span length

SUPERSTRUCTURE QUANTITIES				
ITEM NO.	DESCRIPTION	E.B.	V.B.	UNIT
403.9	Hot Bituminous Bridge M.C.	56.5	59.3	Ton
520.727	Conc. Br. Deck Class AAX*	1/2	1/2	Unit
533	Membrane Waterproofing	550	576	S.Y.
534	Water Repellent	9	9	Gal.
544	Reinforcing Steel	56402	57547	Lb.
550.12	Structural Steel*	1/2	1/2	Unit
550.22	Bridge Shoes	1/2	1/2	Unit
562.1	Polyurethane Sealant	25	21	C.T.
563.61	Bridge Railing E. Gal.	142.5	148.9	L.F.
567	Neoprene Modular Exp. Jt.	1/2	1/2	Unit
609.31	Straight Granite Curb (Bn)	141.4	147.7	L.F.
609.32	Straight Granite Curb (Bn)	133.0	139.7	L.F.

*Approximate quantities for estimating only:
Item 520.727 (224 C.Y.) E.B. & (235 C.Y.) V.B.
Item 550.12 (116,900 Lb.) E.B. & (120,800 Lb.) V.B.

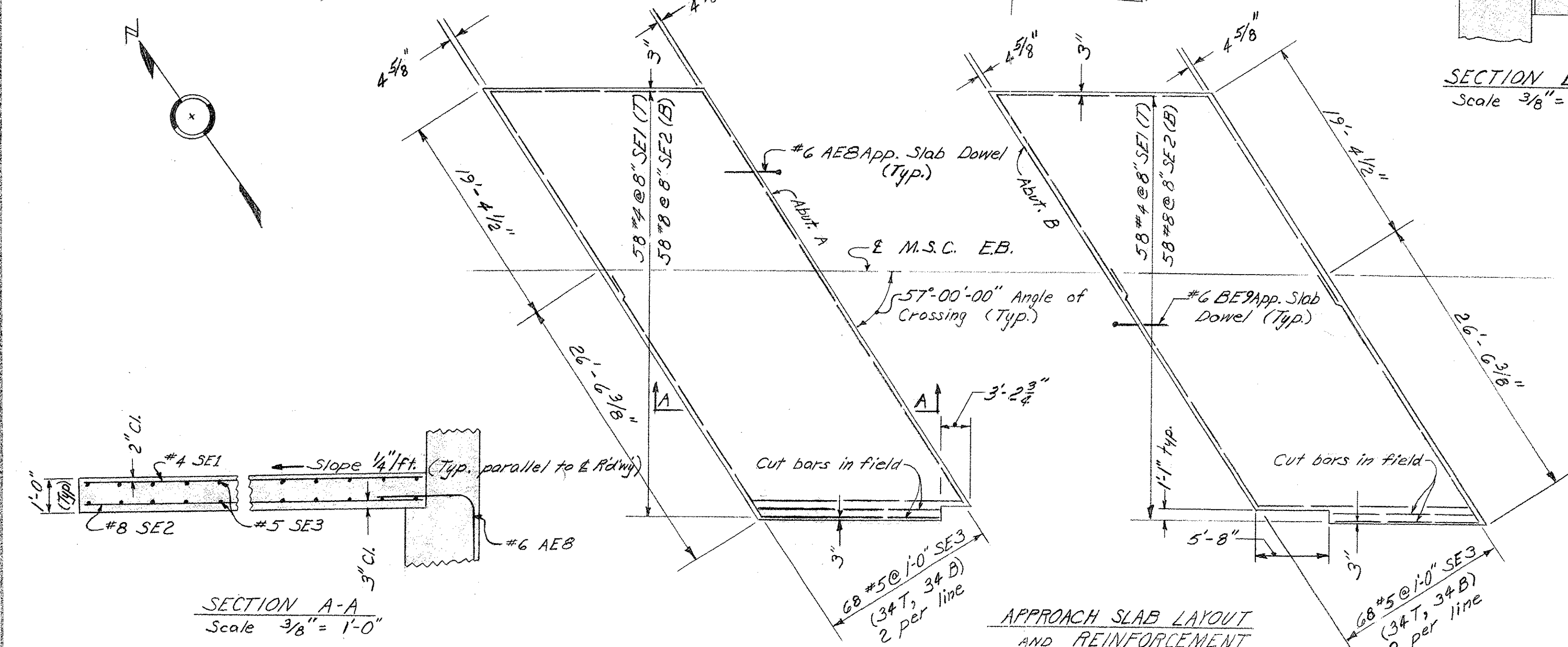
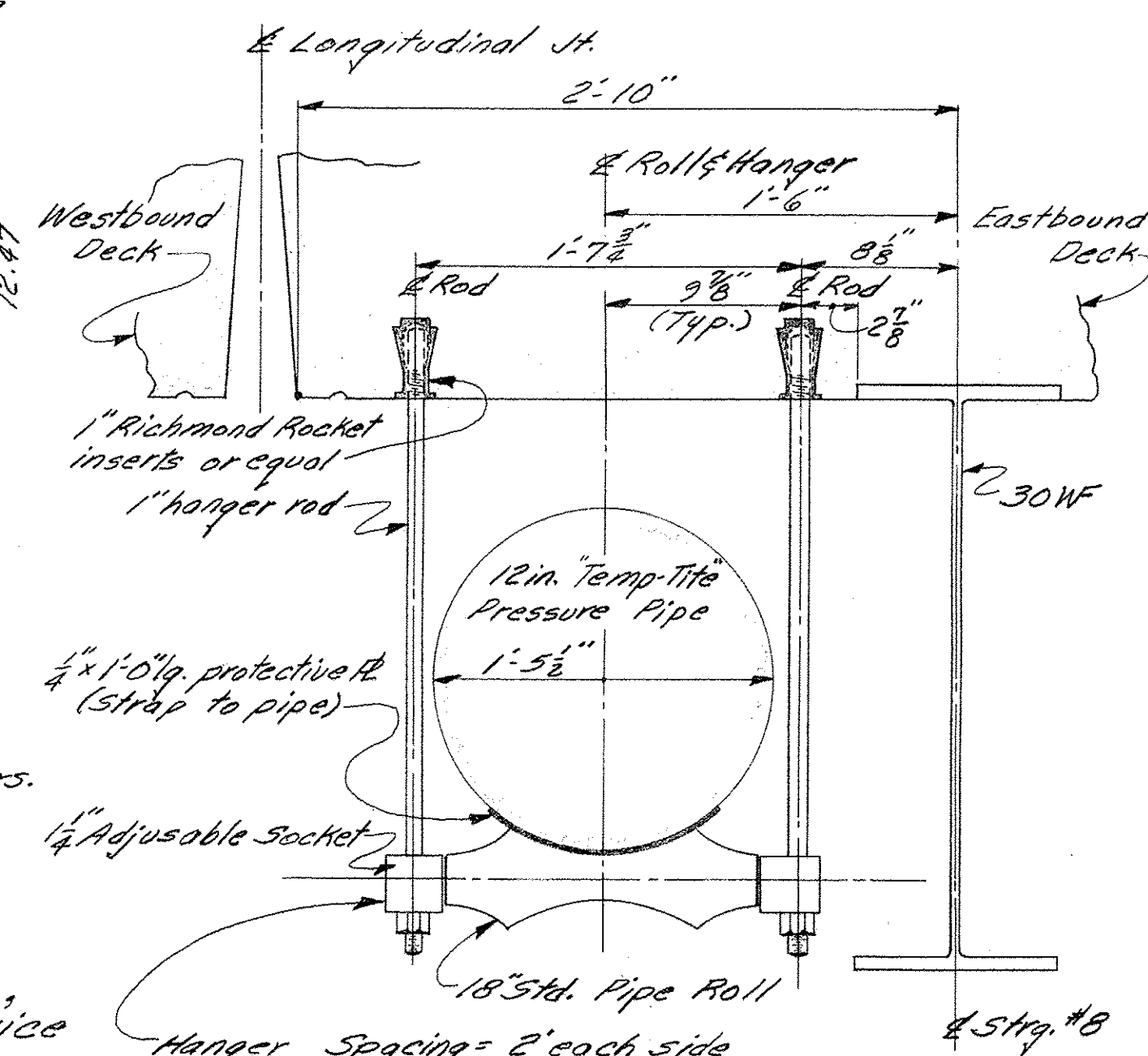
STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION	
TOWN PORTSMOUTH	BRIDGE NO. 218-240/106
FEDERAL PROJECT I-95-1(19)15	STATE PROJECT P-3875-E
LOCATION MARKET STREET CONNECTION OVER TIDAL BASIN	
SUPERSTRUCTURE	
DESIGNED BY G.L.W.	CHECKED BY J.E.K.
DATE 8/69	DATE 8/69
TRACED BY J.H.M.	CHECKED BY G.L.W.
DATE 9/69	DATE 9/69
REVIEWED BY	PROJ. NO. I-95-1(19)15
	SHEET NO. 57
	TOTAL SHEETS 531

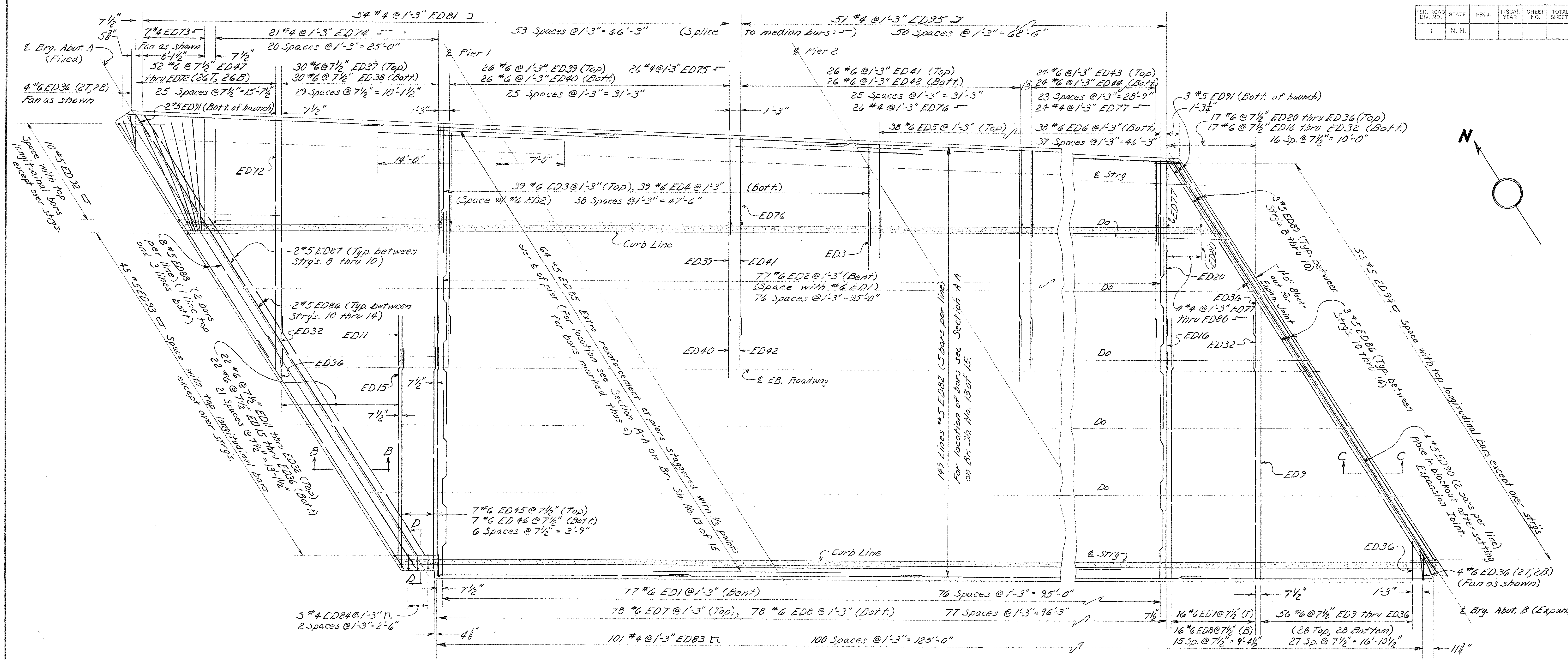


1. Hanger inserts, pipe sleeves and sealants shall be supplied by the contractor and the cost shall be subsidiary.
2. Hanger assembly and temp. r/c pressure pipe shall be supplied and installed by others.
3. Seal between the abutment sleeves and the sewer pipe with an approved sealant.
4. Hanger rods shall be a min. of 2" long with at least 5" of threads on both ends.

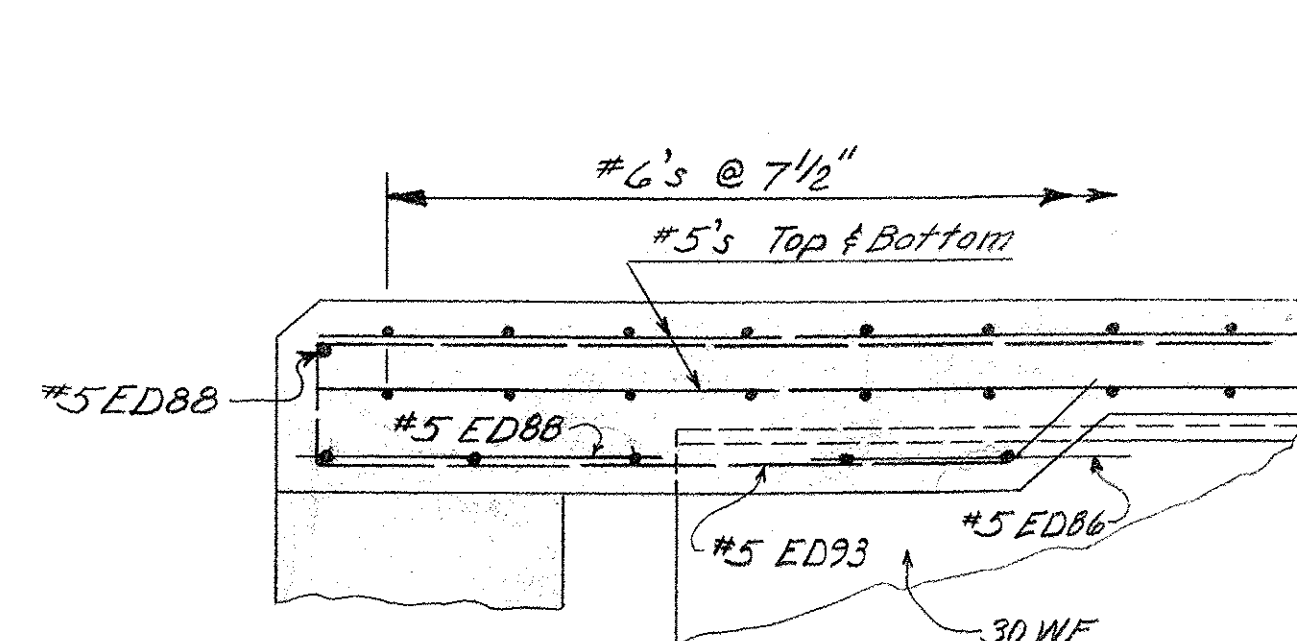
1. Hanger inserts, hanger assemblies, pipe sleeves, gaskets and sealants shall be supplied by Public Service Company of New Hampshire.
2. Place hanger inserts @ 10'-0" spacing.
3. The contractor shall install the inserts. The installation of the conduits & hangers shall be done by others including the grouting & sealing of the blockouts.

Item No.	DESCRIPTION	E.B.	W.B.	Unit
520.13	Concrete Class A (App. Slabs)	56.7	56.7	Cu. Yd.
544	Reinforcing Steel	10884	10844	Lb.

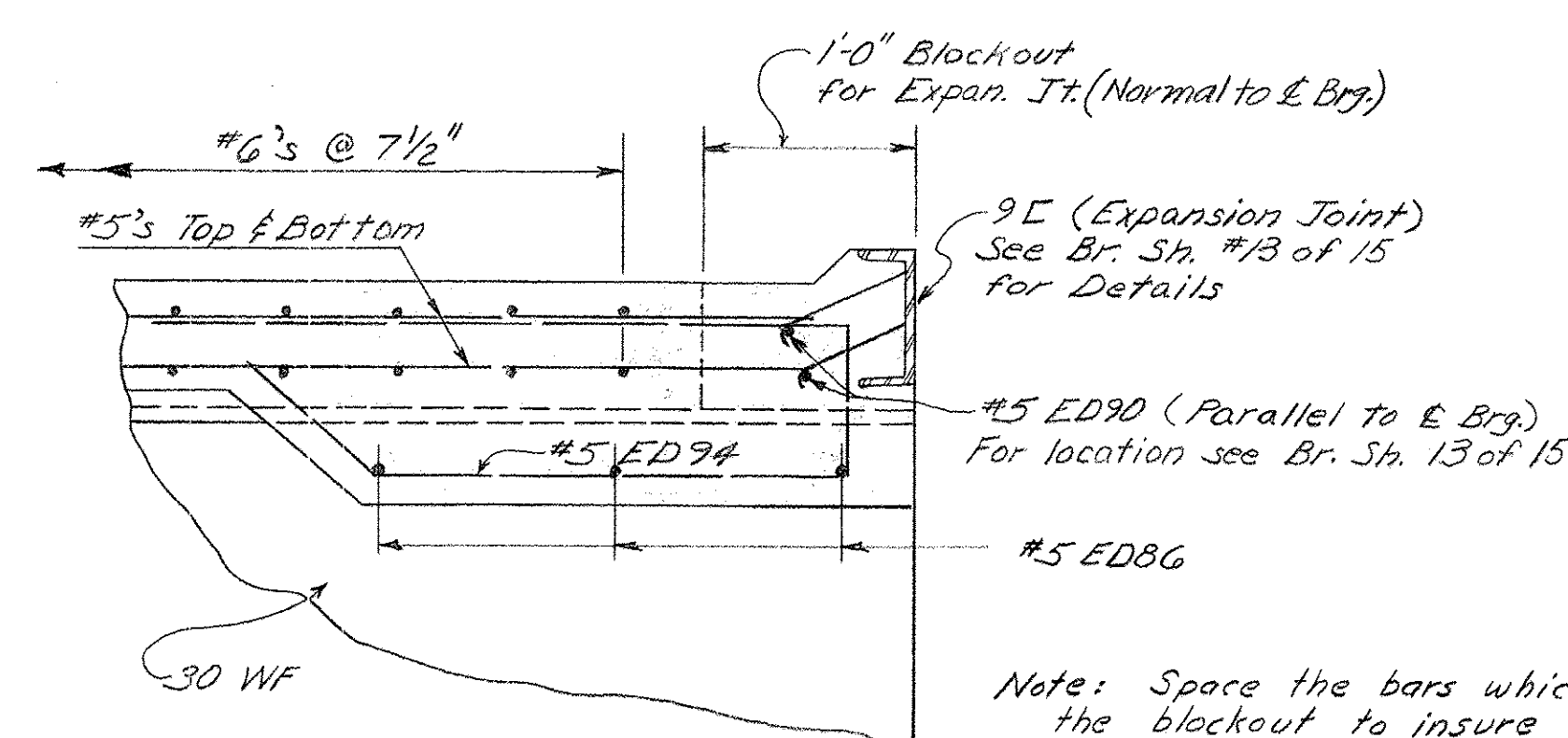




PLAN OF DECK REINFORCEMENT

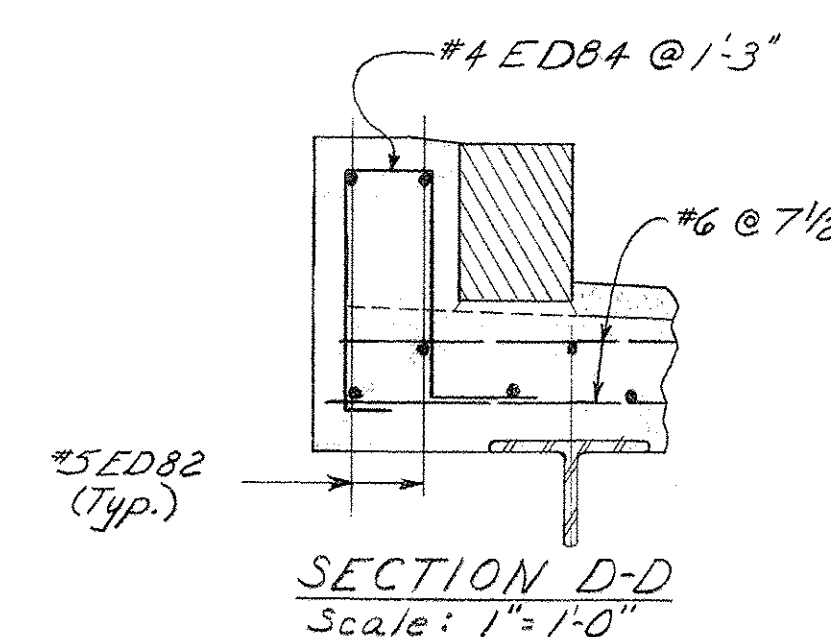


SECTION B-B
Scale: 1" = 1'-0"



SECTION C-C
Scale: 1" = 1'-0"

Note: Space the bars which project into the blockout to insure coordination with anchor bars of the Expansion Joints.



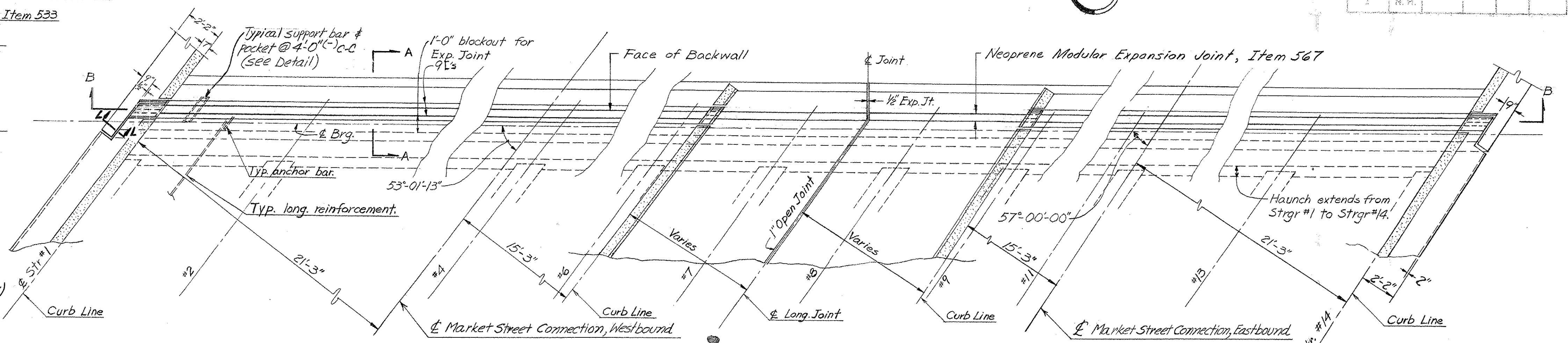
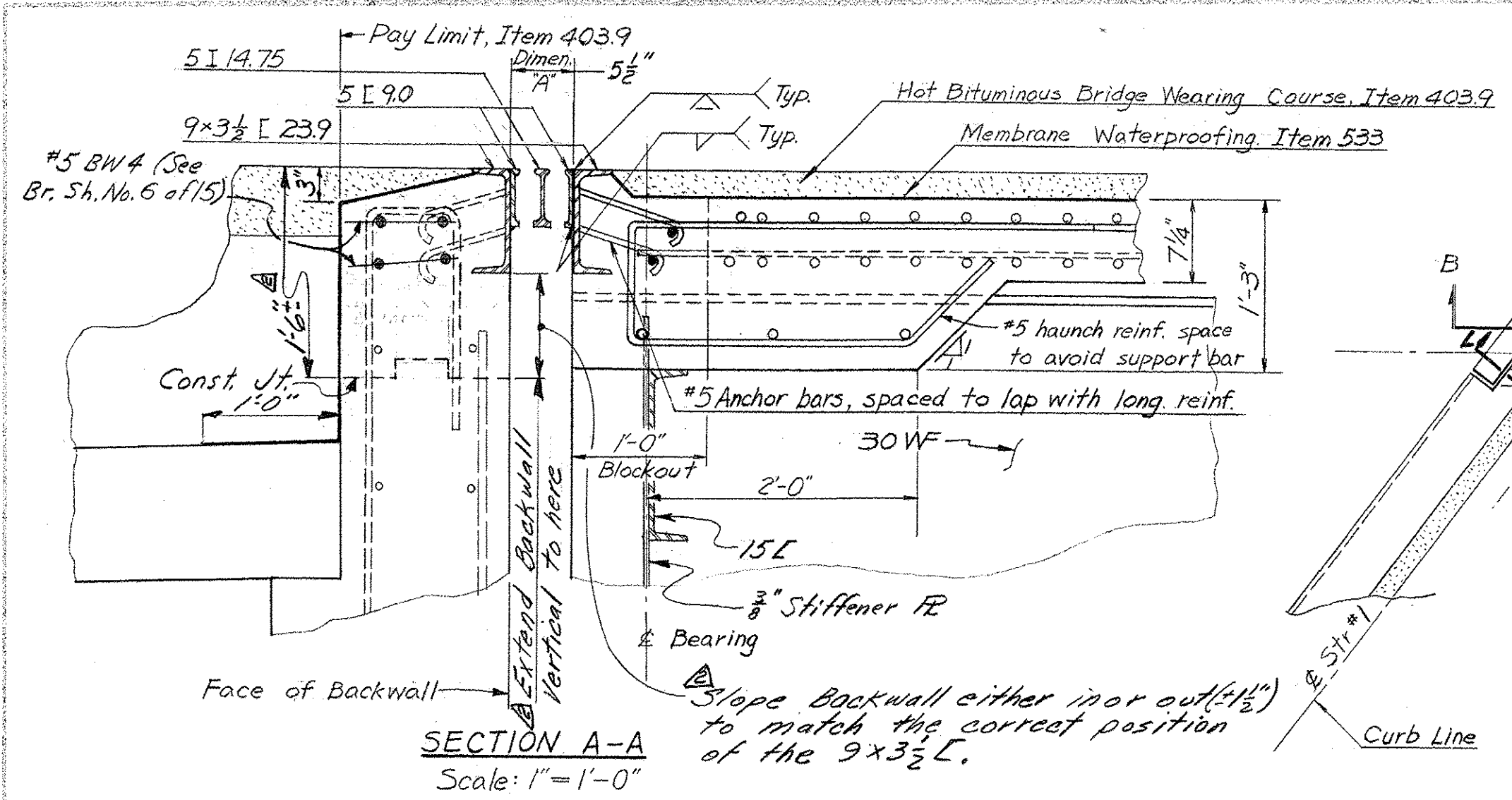
SECTION D-D
Scale: 1" = 1'-0"

Sheet Scale: $\frac{3}{16}'' = 1'-0''$ or as noted

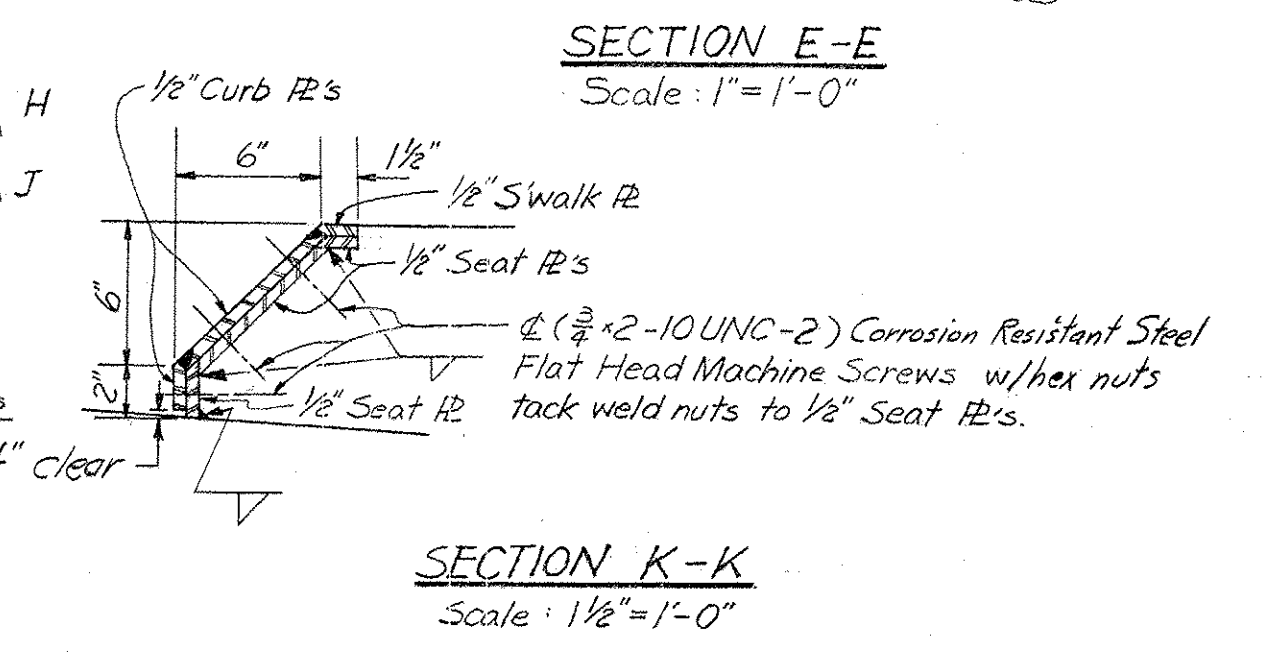
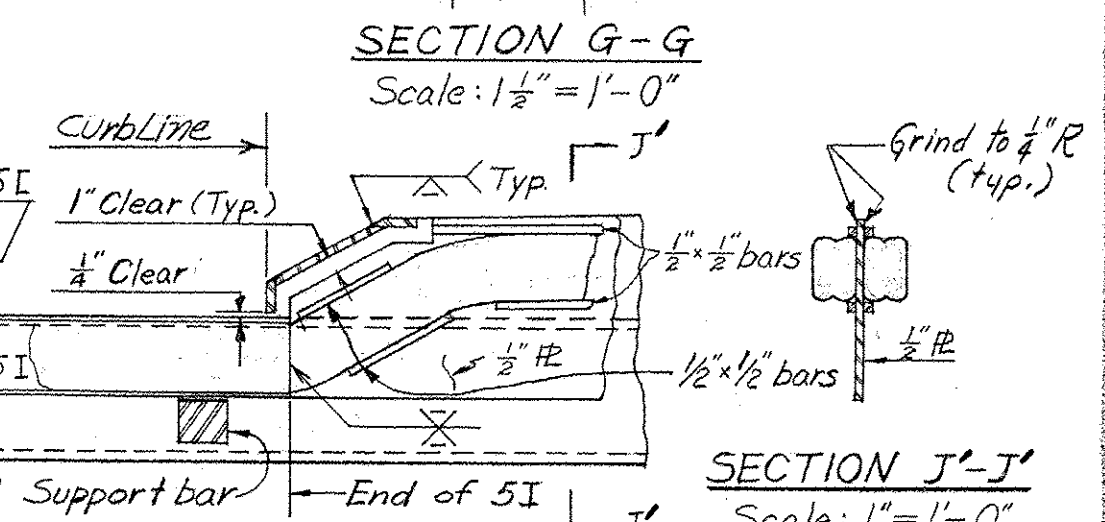
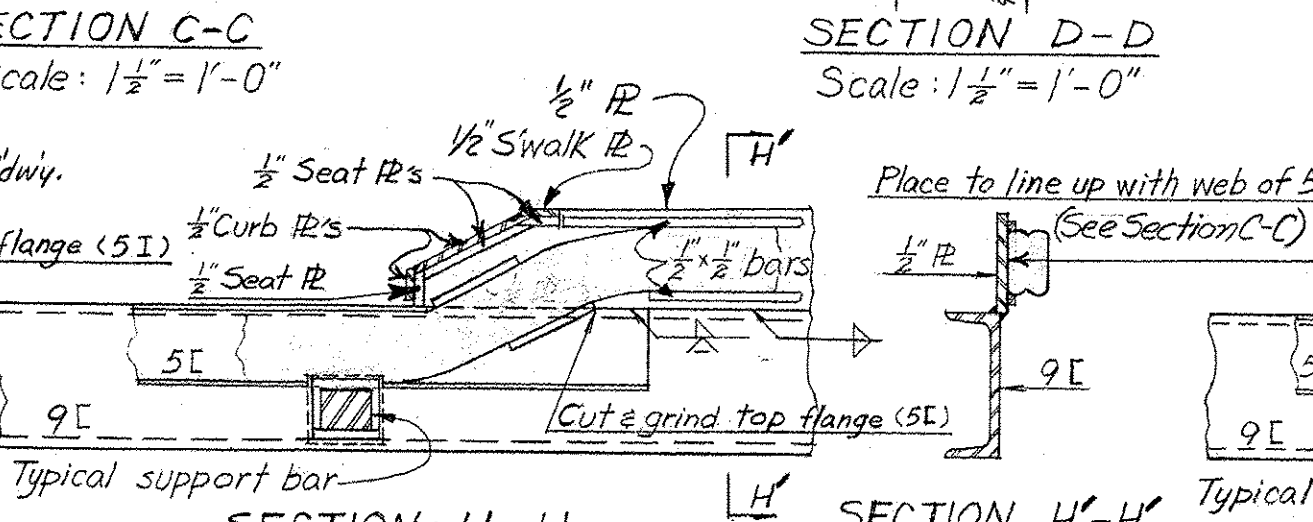
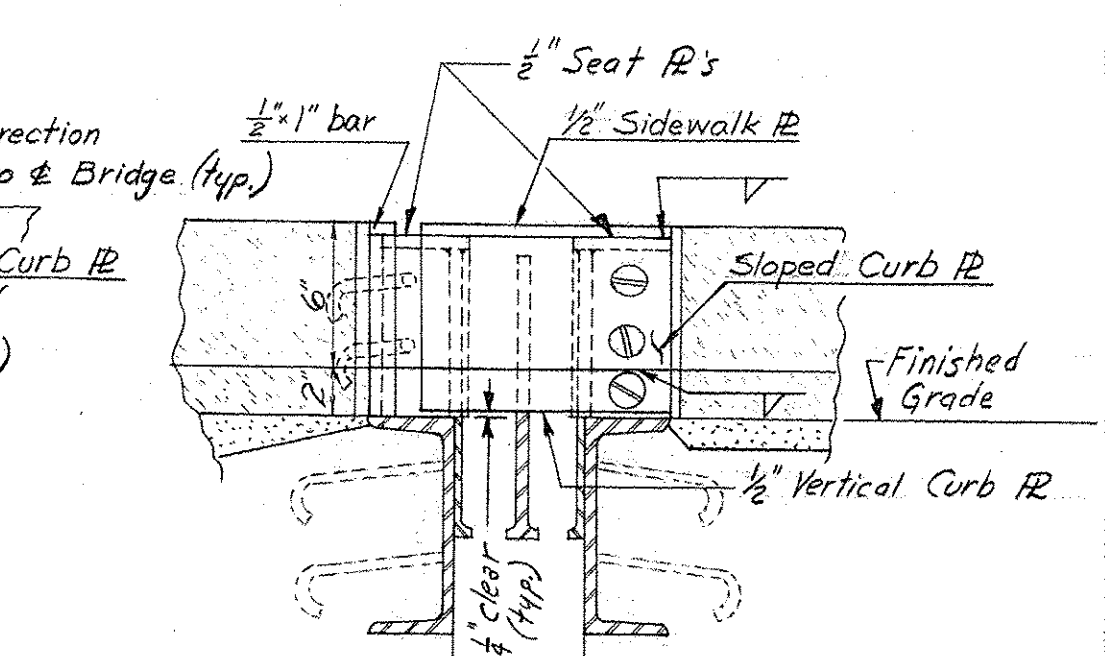
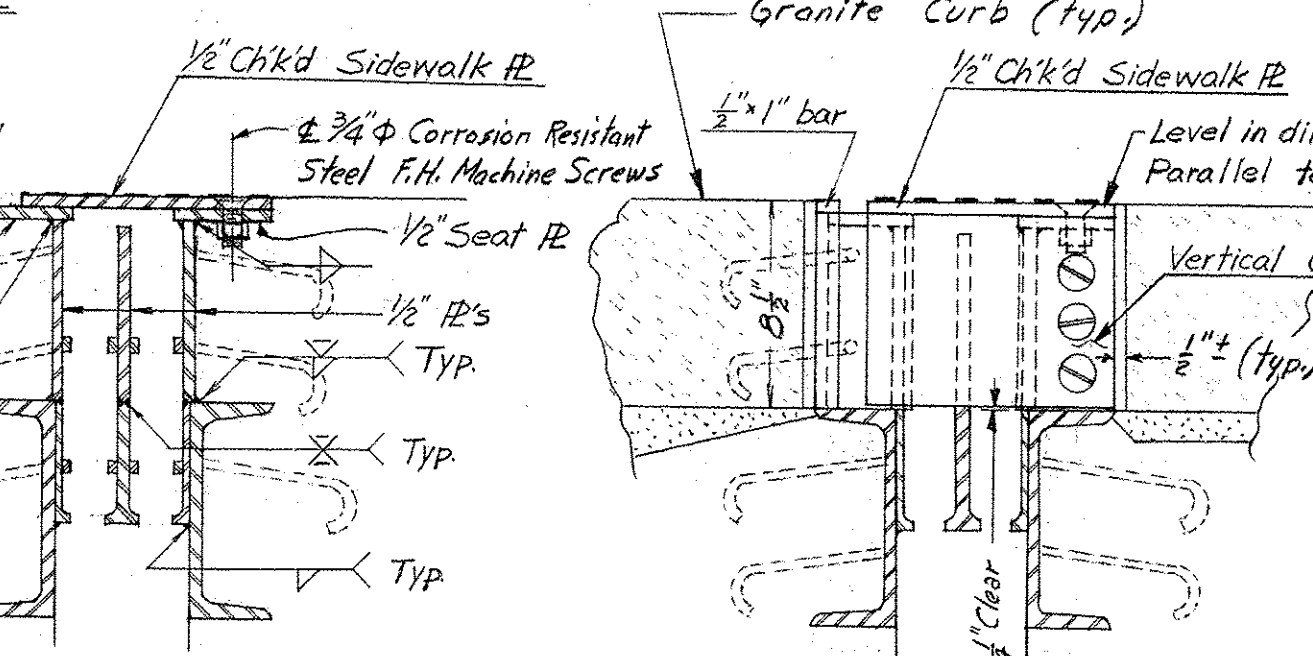
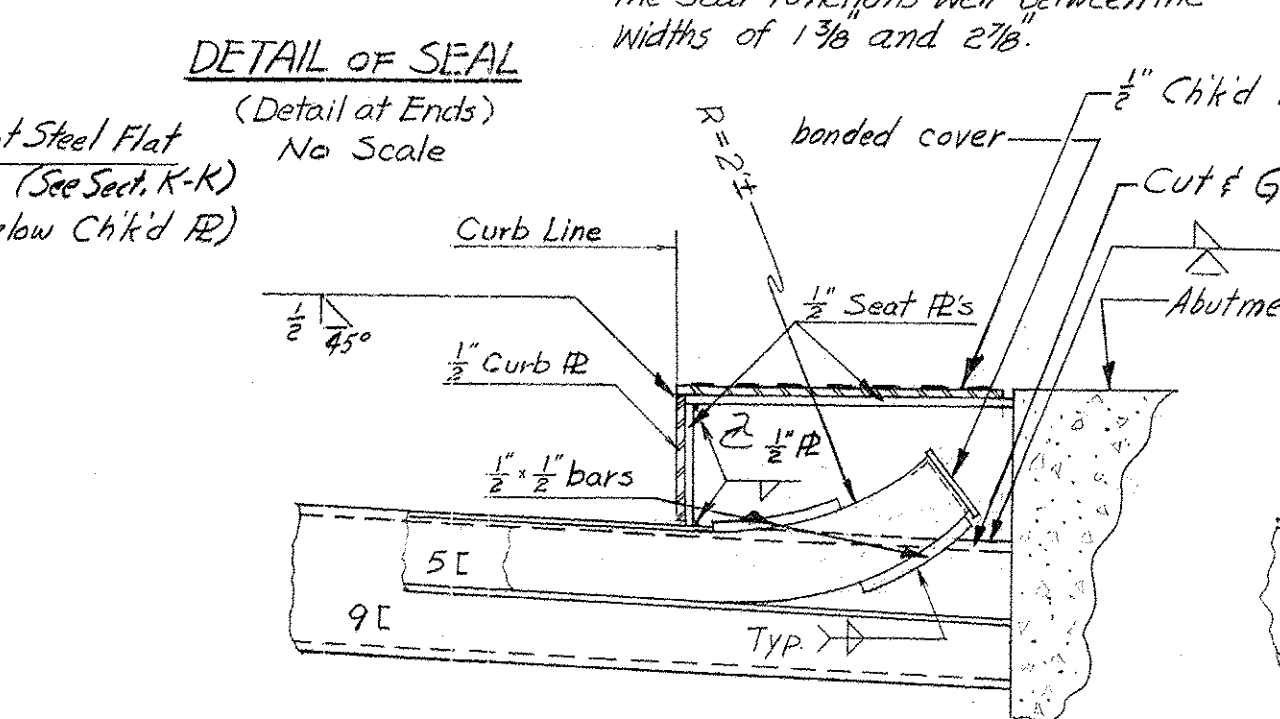
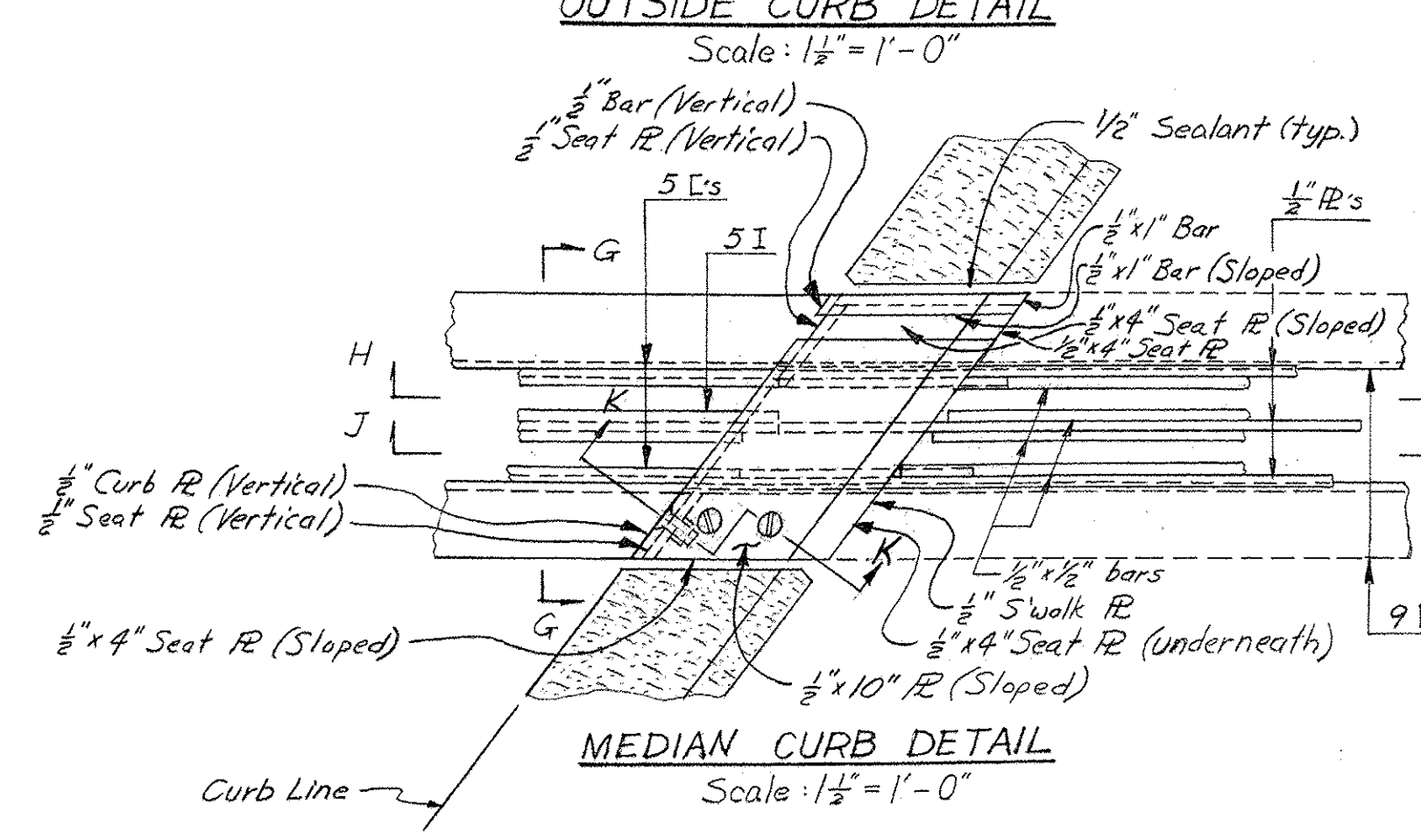
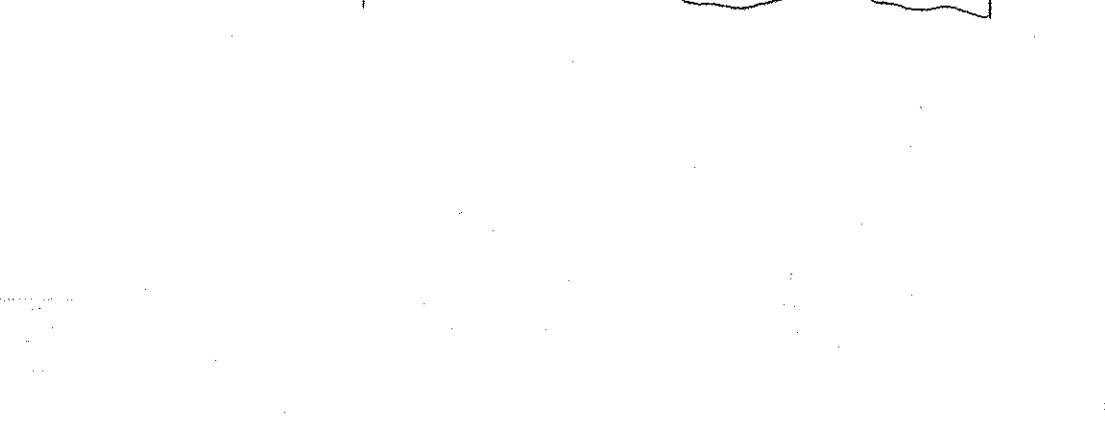
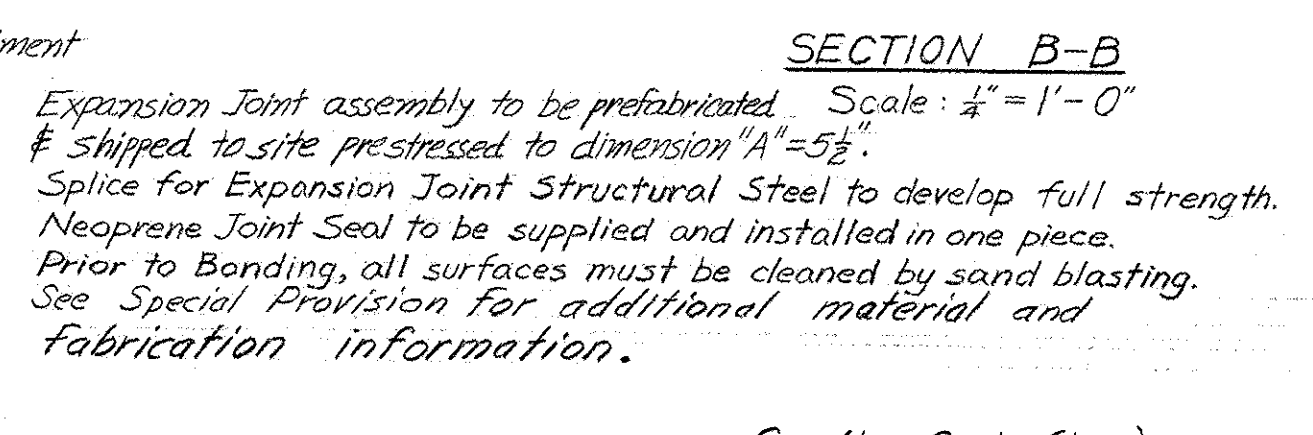
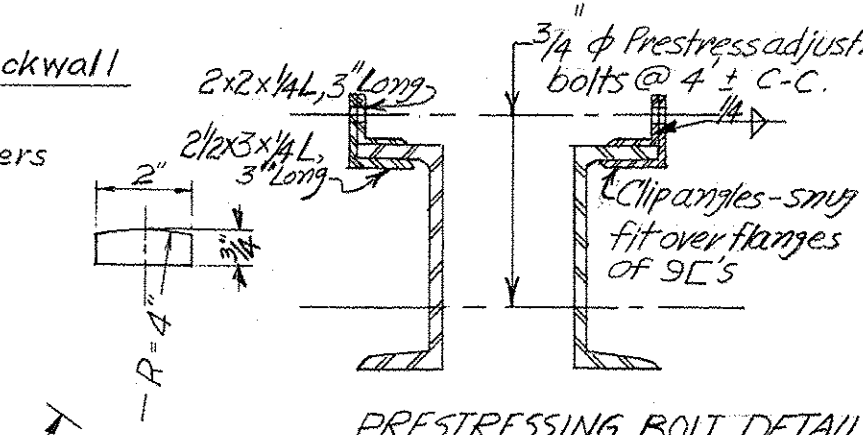
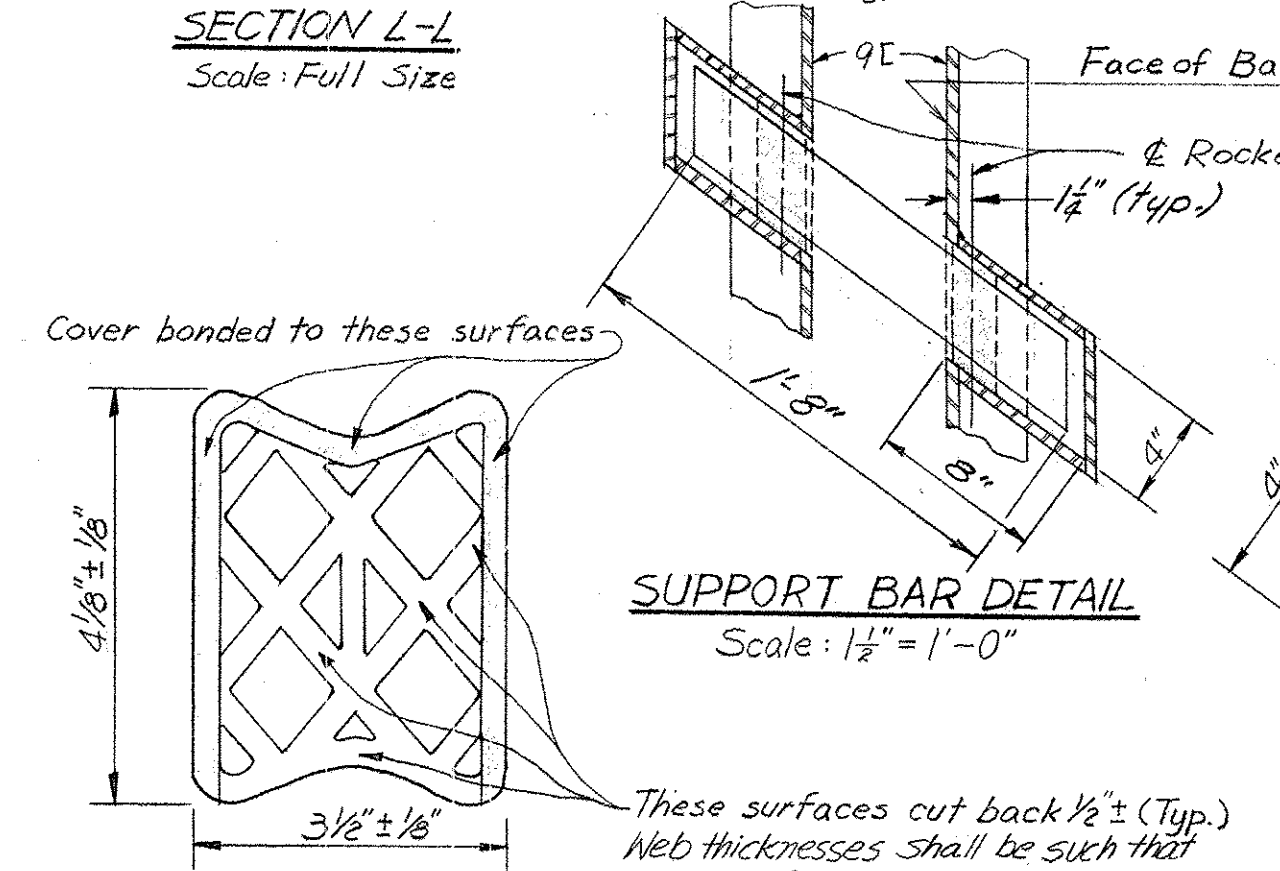
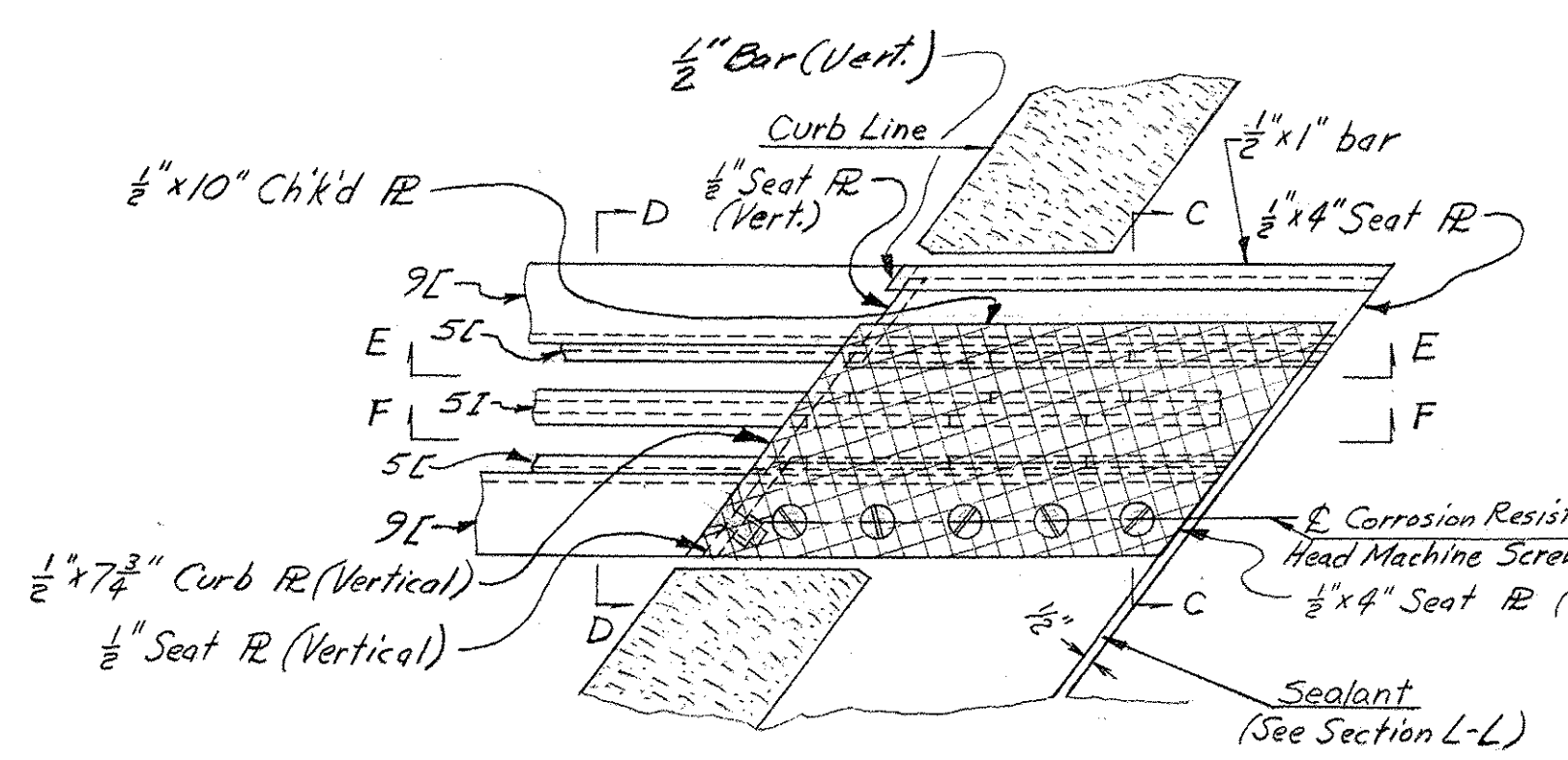
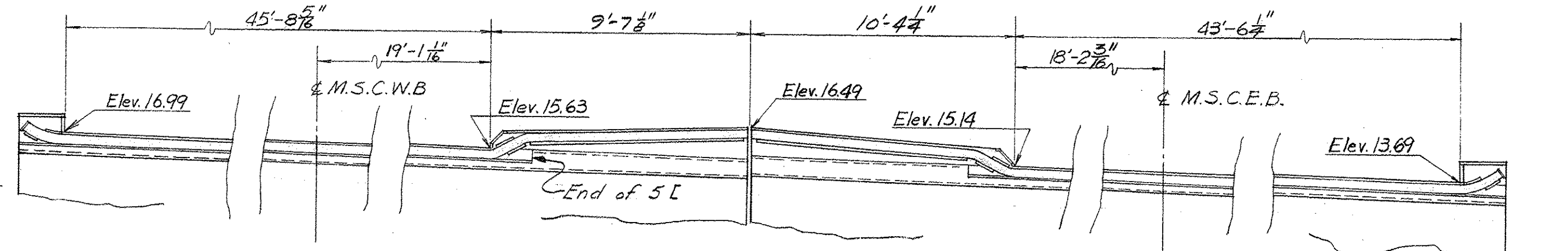
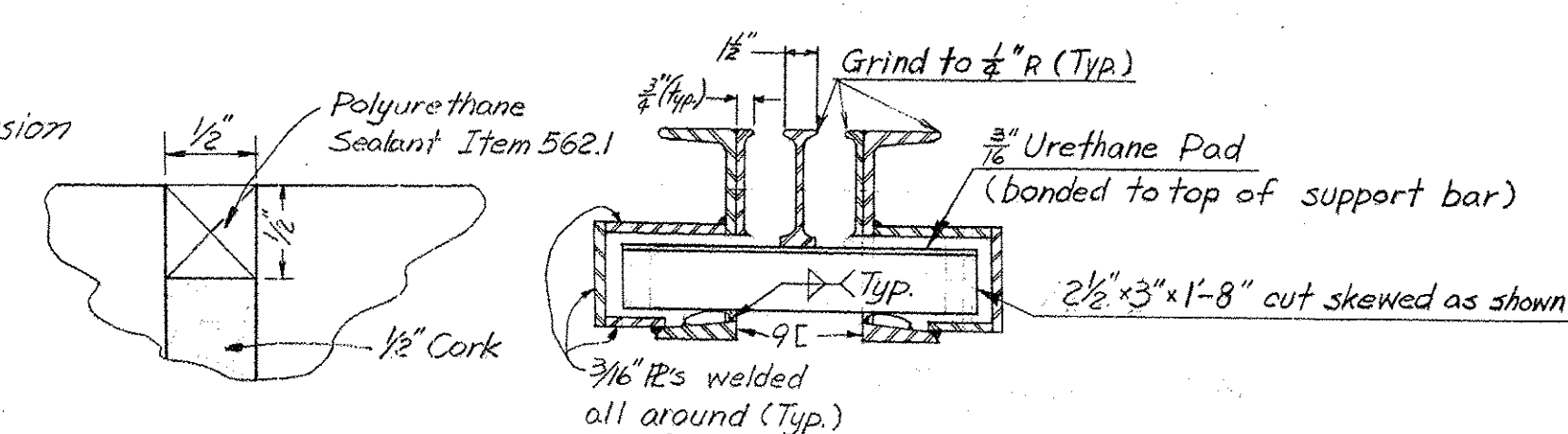
				E.B. RDWY DECK REINFORCEMENT				BRIDGE SHEET N	
				DESIGNED BY DATE	CHECKED BY DATE	12 OF 15			
				DRAWN J.F.M. 8/69	CHECKED J.E.K. 8/69	FILE NUMBER			
				TRACED	CHECKED J.E.K. 8/69	27-2-3			
				QUANTITIES J.W.M. 9/69	CHECKED C.L.W. 9/69				
REVISIONS				REVIEWED BY		PROJ. NO.		SHEET NO.	TOTAL SHEETS
						I-25-1(19)15		59	33



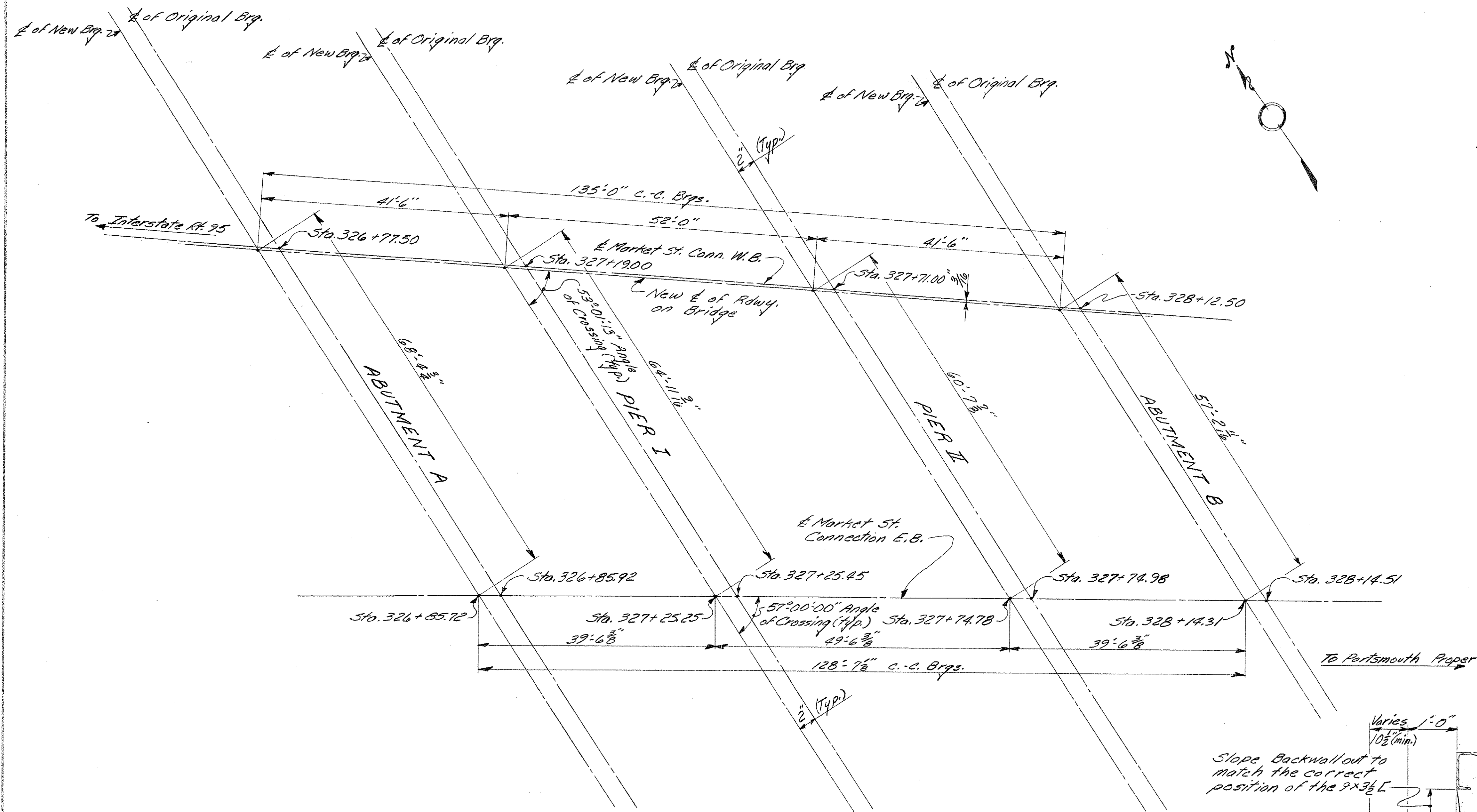
REV.	NO.	DATE	BY	CHKD.	DATE	BY	CHKD.	TOTAL SHEETS
1	N.H.							



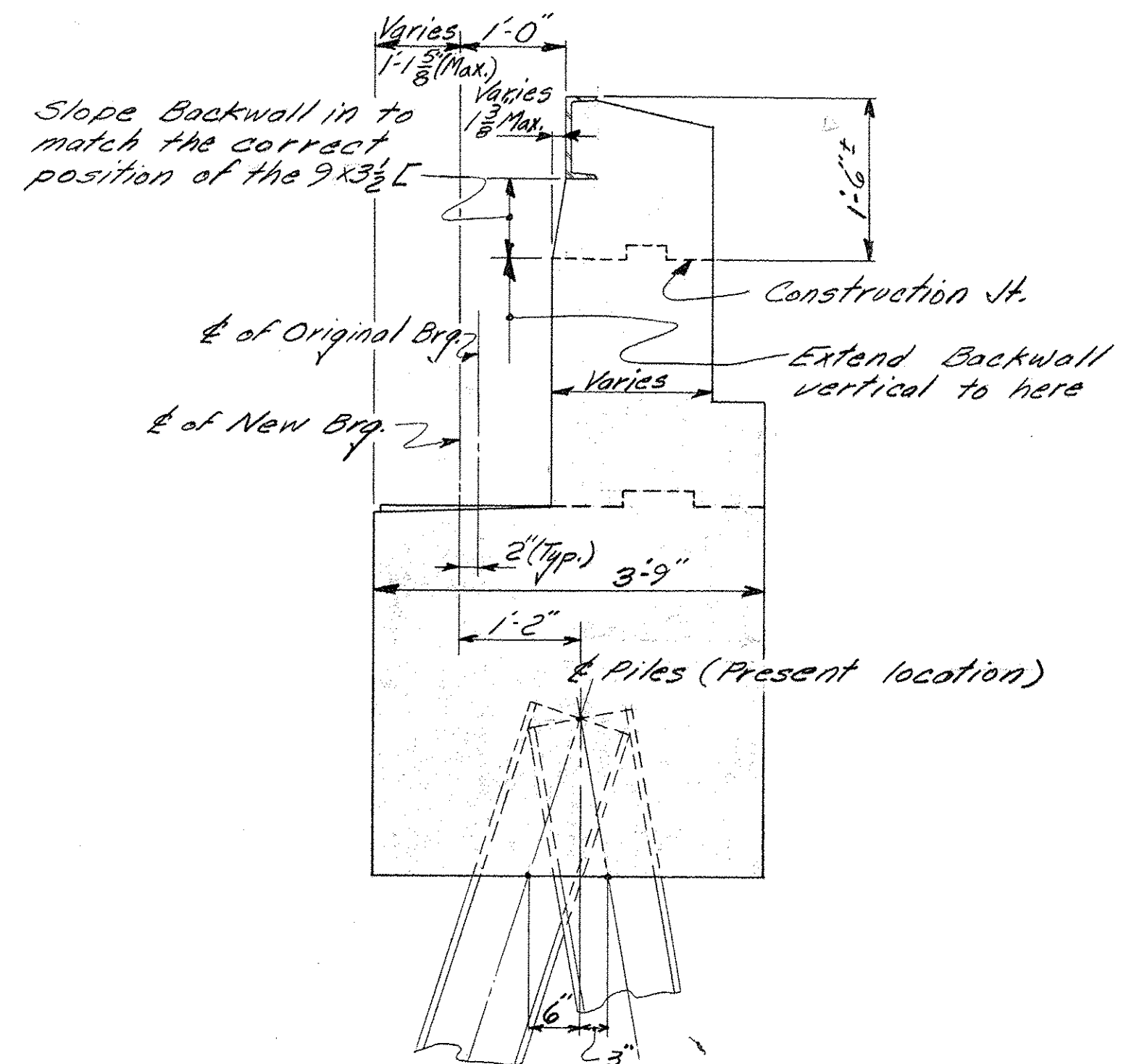
NOTE: The transverse reinforcing steel shall clear the blackout by 2". After the Expansion Joint assembly has been adjusted to the roadway crown and grade, weld the anchors to the reinforcement of bridge deck & backwall. Remove the 3/4" setting bolts immediately. Plug bolt holes in I's. Apply an approved epoxy to the surface of the blackout just prior to placing concrete. Install the seal when the temperature is rising. All welds in contact with Neoprene Seals to be ground smooth. The Expansion Joint may be set at any temperature between 35°F and 90°F without field adjustment of the 5 1/2" "A" dimension. Outside ends of all seals shall have a neoprene protective cover bonded to top & side of outside walls of seal. Inside walls and bottom edge shall be cut back 1/2". Seal exposed edges of Cork and fill joints between Granite Curb and Steel with Polyurethane Sealant, Item 562.1. Place concrete against Expansion Joint Steel to insure complete contact in band.



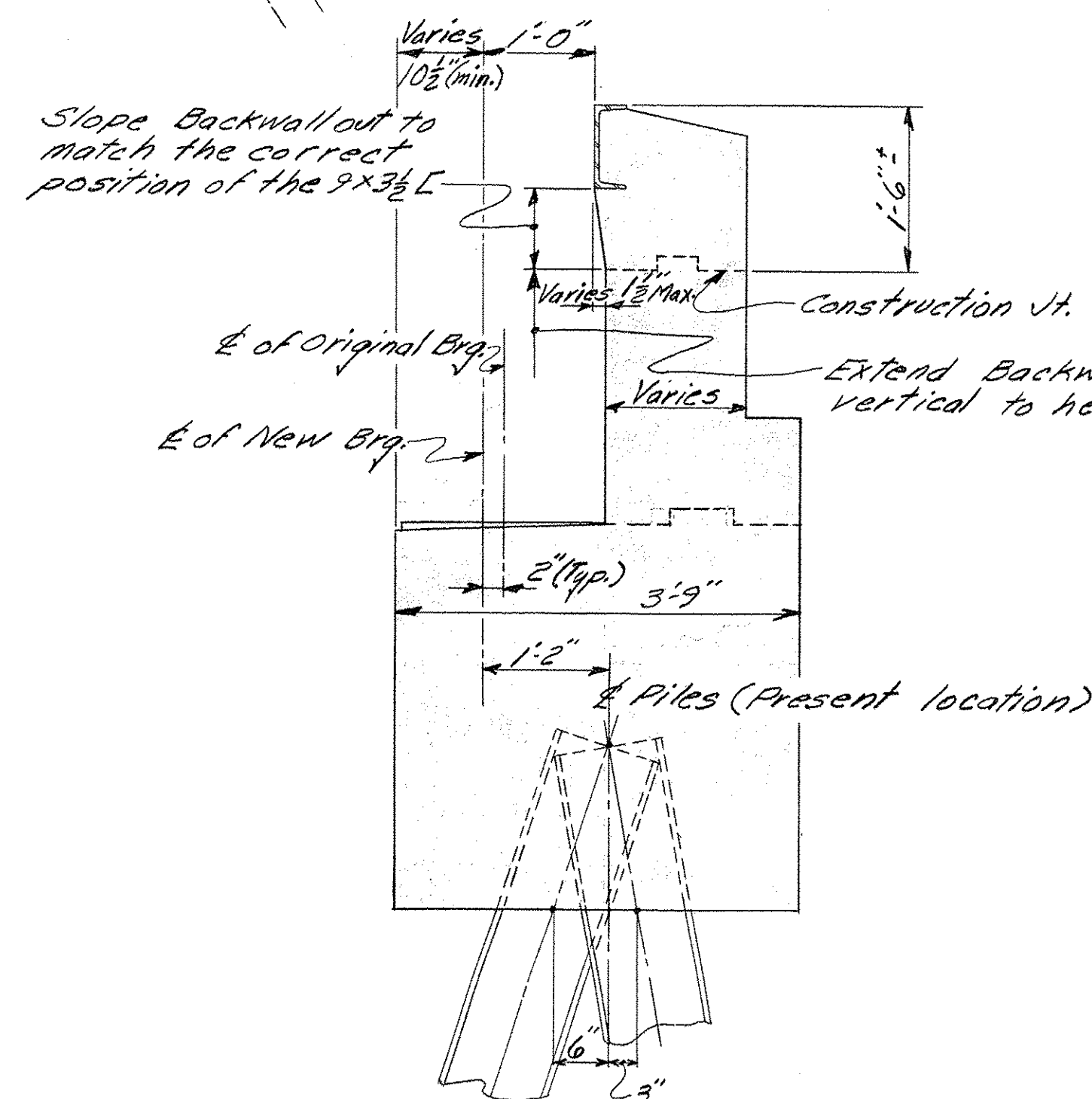
STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION									
TOWN: PORTSMOUTH					BRIDGE NO.: 250/106				
FEDERAL PROJECT: I-95-1(19)15					STATE PROJECT: P-3875-E				
LOCATION: MARKET STREET CONNECTION OVER TIDAL BASIN									
EXPANSION JOINT									
DESIGNED BY	CLW	7/69	CHECKED BY	JEK	7/69	BRIDGE SHEET NO.	14 OF 15		
DRAWN BY	JEK	7/69	CHECKED BY	CLW	7/69	FILE NUMBER	27-2-3		
QUANTITIES BY	JWM	9/69	CHECKED BY	CLW	9/69				
REVISIONS									
Revised E of Brg. Stations									
Sheet Scale: As Noted									
PROJ. NO.: I-95-1(19)15									
SHEET NO.: 61									
TOTAL SHEETS: 331									



REVISSED SURVEY LAYOUT
No Scale.



NORTH SECTION of ABUTMENT B
(Extreme offset section)



SOUTH SECTION of ABUTMENT B
(Extreme offset section)

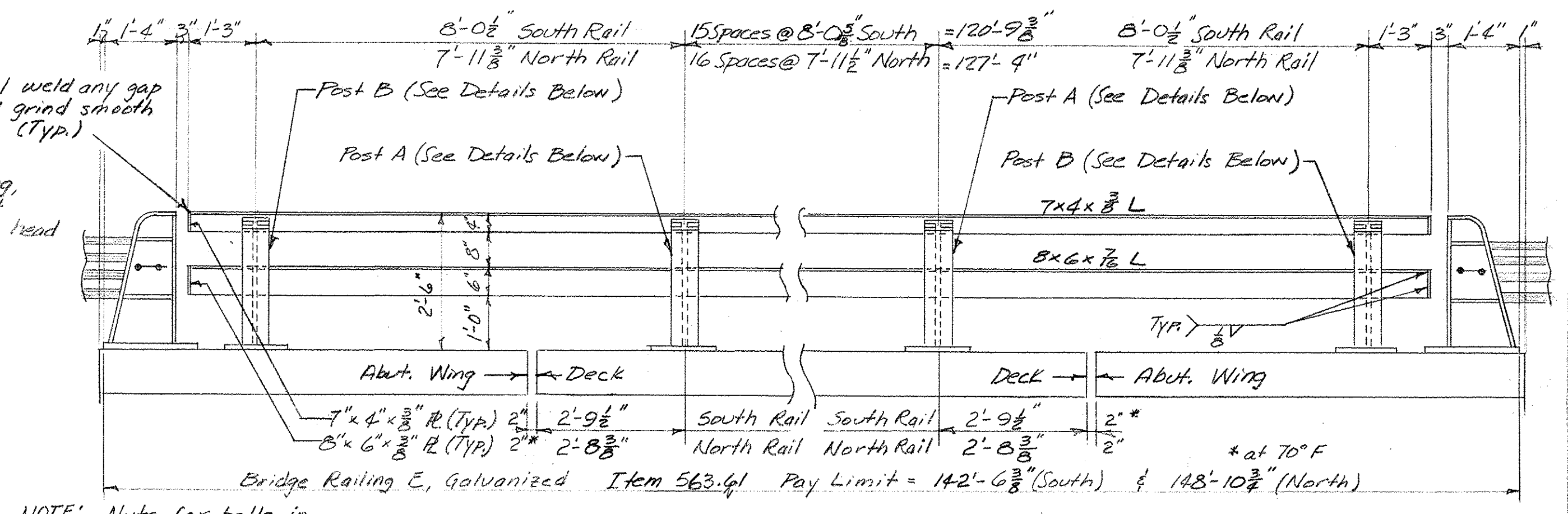
NOTES
The E of Rdwy. on the E.B. Bridge shall be maintained on the original E.M.S.C.E.B. The new E of Rdwy. on the W.B. Bridge shall be moved South 3" normal to the original E.M.S.C.W.B. (See Layout). Revisions to the Reinforcing Steel should not be necessary unless directed by the Engineer.

Sheet Scale: 3/8" = 1'-0" except as noted.

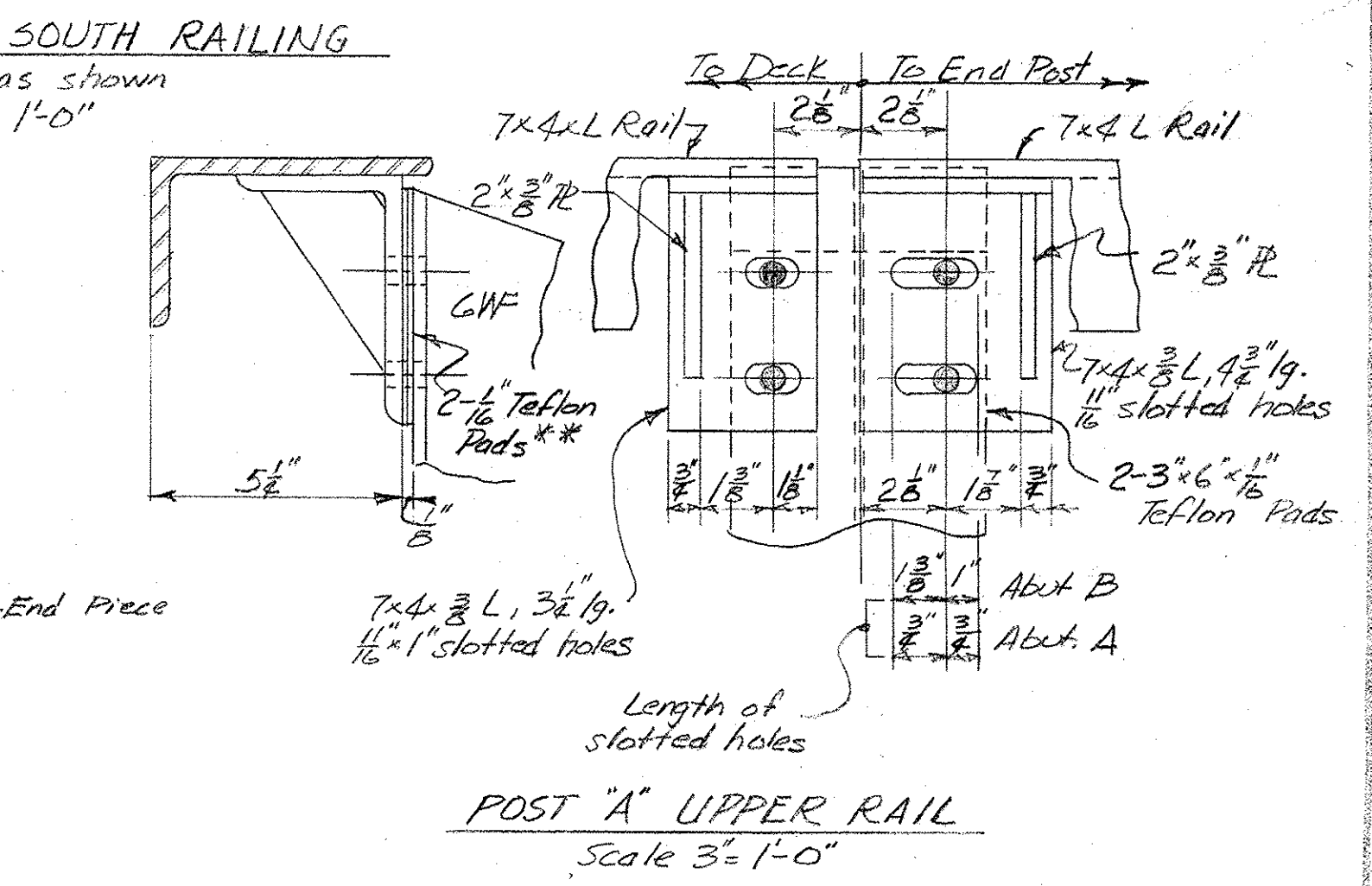
STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION					
TOWN	PORTSMOUTH		BRIDGE NO.	E.B. 2907/106 W.B. 2911/186	
FEDERAL PROJECT	I-95-1(19)15		STATE PROJECT	P-3875-E	
LOCATION	MARKET STREET CONNECTION OVER TIDAL BASIN				
REVISED LAYOUT AND SECTIONS					
DESIGNED	BY	DATE	CHECKED	BY	DATE
DRWN	CLW	4/71			
TRACED					
QUANTITIES					
REVIEWED BY	PROJ. NO.		SHEET NO.		TOTAL SHEETS
	I-95-1(19)15				

Added Sheet 14A	CLW 4/71	BRIDGE SHEET NO.	14A OF 15A
REVISIONS	BY	DATE	FILE NUMBER
			27-2-3

FIXED SHOE ASSEMBLY



4# OUTSIDE ELEVATION of SOUTH RAILING
North Railing as shown
Scale $\frac{1}{2}" = 1'-0"$



POST "A" UPPER RAIL
Scale 3"=1'-0"

Diagram illustrating the assembly of a rail post. The rail post is shown with dimensions: 1" (top), 1/8" (top), 3/4" (middle), 3/4" (middle), and 3/4" (bottom). The assembly is labeled "Abut. B" and "Abut. A end". A note states: "With epoxy, bond one Teflon pad to angle and one pad to rail post, in position shown."

DATE: 12-1-80 except as noted OVER TIDAL BASIN			
BRIDGE SHOES AND RAILING DETAILS			
DRAWN BY CLW RF		DATE 4/69 6/69	
CHECKED JER CLW		DATE 8/69	
BRIDGE SHEET NO. 15 OF 15		FILE NUMBER	
A REVISIONS		BY DATE QUANTITY JWM 7/69	
CHECKED CLW 7/69		27-2-3	
REVIEWED BY		PROJ. NO. I-95-11(9)15	
SHEET NO. 62		TOTAL SHEETS 331	

Appendix B

Kearsarge Way over Pan Am Railways 1978 As-Built Drawings

INDEX OF SHEETS

SHEET NO. 1	TITLE PAGE
2	TYPICAL SECTIONS OF IMPROVEMENT
3	SUMMARY
4-19	BRIDGE PLANS
20-22	ROADWAY PLANS AND PROFILES
23-35	CROSS SECTIONS
36	BEAM GUARD RAIL

STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PLANS OF PROPOSED FEDERAL AID URBAN SYSTEM PROJECT M - 5379 (008)

N.H. PROJECT NO. C-2441-H
KEARSARGE WAY

PLAN 1" = 20'
PROFILE VERT. 1" = 4' HOR. 1" = 20'
CROSS SECTION VERT. 1" = 5' HOR. 1" = 5'

THIS PROJECT TO BE CONSTRUCTED IN ACCORDANCE WITH
STANDARD SPECIFICATIONS DATED 1974 AND STANDARD SHEETS
LISTED IN THE INDEX ON FILE WITH THE FEDERAL HIGHWAY
ADMINISTRATION AND SPECIAL PROVISIONS ATTACHED TO THE
PROPOSAL.

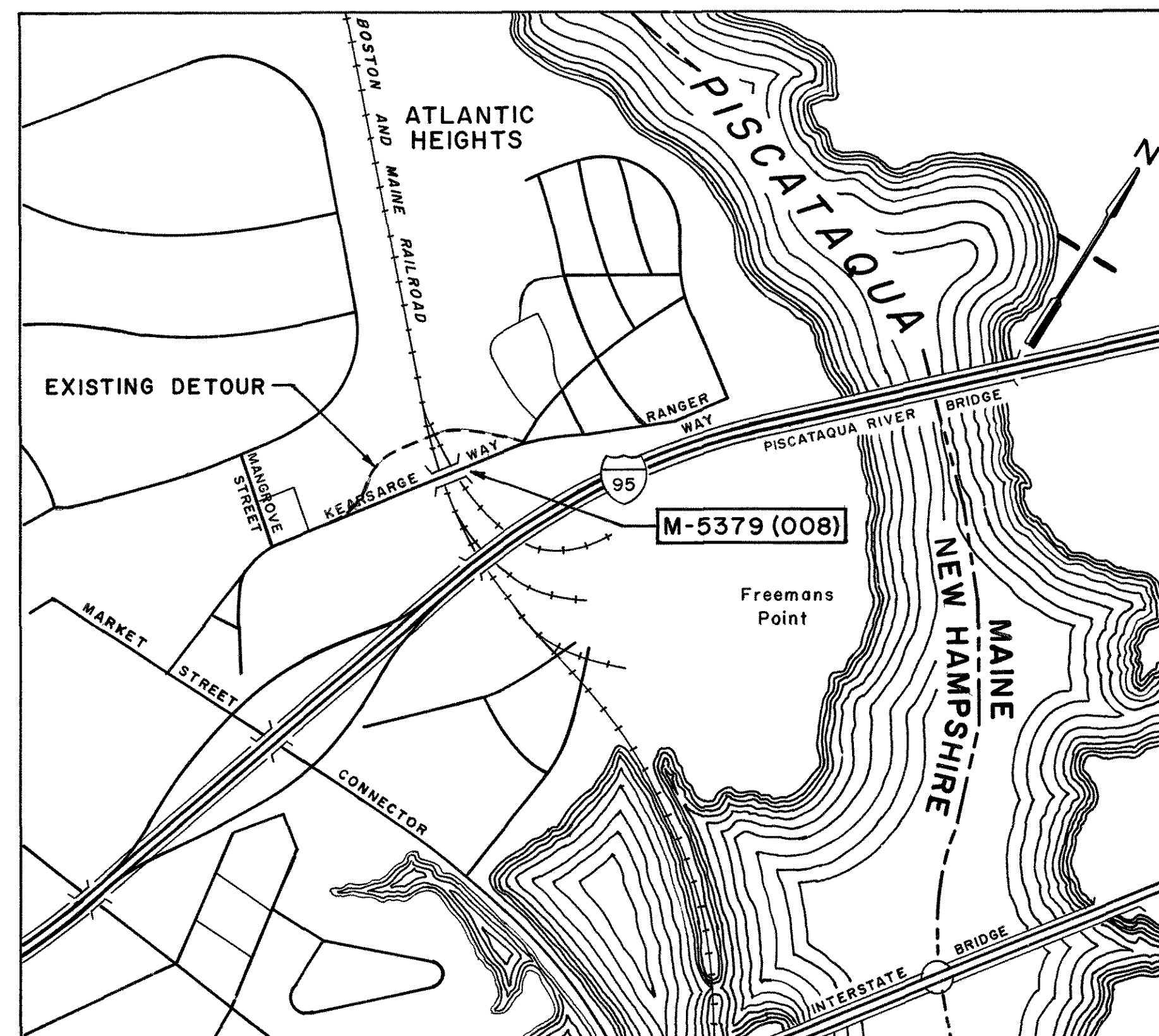
DESIGN DATA			
AVERAGE DAILY TRAFFIC	1978	2500	
AVERAGE DAILY TRAFFIC	1998	2500	
TRAFFIC CLASSIFICATION		M	
DESIGN SPEED	30	M. P. H.	
MAXIMUM CURVATURE		DEGREES	
MAXIMUM GRADIENT	3.5	%	
NON-PASSING SIGHT DISTANCE			
K FACTOR - CREST	29	SAG	35
LENGTH OF PROJECT		0.143	MILES

CURRENT STANDARD SHEETS

STANDARD NO. 1	REVISED	MARCH 24, 1977
STANDARD NO. 1-A	REVISED	MAY 8, 1970
STANDARD NO. 2	REVISED	AUGUST 2, 1977
STANDARD NO. 2-A	NEW SHEET	JUNE 7, 1974
STANDARD NO. 3	REVISED	AUGUST 2, 1977
STANDARD NO. 3-A	REVISED	JUNE 2, 1978
STANDARD NO. 3-B	REVISED	AUGUST 2, 1977
STANDARD NO. 4	REVISED	FEBRUARY 26, 1975
STANDARD NO. 5	REVISED	DECEMBER 31, 1974
STANDARD NO. 5-A	REVISED	FEBRUARY 26, 1975
STANDARD NO. 6	NEW SHEET	OCTOBER 7, 1975
STANDARD NO. 6-A	NEW SHEET	OCTOBER 7, 1975
STANDARD NO. 6-B	REVISED	JUNE 23, 1976
STANDARD NO. 7	NEW SHEET	JANUARY 3, 1977
STANDARD NO. 8	REVISED	MARCH 24, 1977
STANDARD NO. 8-A	NEW SHEET	JUNE 23, 1976
STANDARD NO. 9	REVISED	AUGUST 2, 1977
STANDARD NO. 9-A	NEW SHEET	JANUARY 4, 1973
STANDARD NO. 10	REVISED	AUGUST 2, 1977
STANDARD NO. 10-A	REVISED	MARCH 13, 1978
STANDARD NO. 11	REVISED	MAY 21, 1975
STANDARD NO. 12	NEW SHEET	JANUARY 4, 1973
STANDARD NO. 13	REVISED	DECEMBER 10, 1975
STANDARD NO. 14	REVISED	AUGUST 1, 1969
STANDARD NO. 15	REVISED	MARCH 24, 1977
STANDARD NO. 16	REVISED	MAY 21, 1975

CONSTRUCTION SIGN STANDARD SHEETS

STANDARD NO. CS-1	REVISED	AUGUST 2, 1977
STANDARD NO. CS-2	REVISED	AUGUST 2, 1977
STANDARD NO. CS-3	REVISED	AUGUST 2, 1977
STANDARD NO. CS-4	REVISED	AUGUST 2, 1977

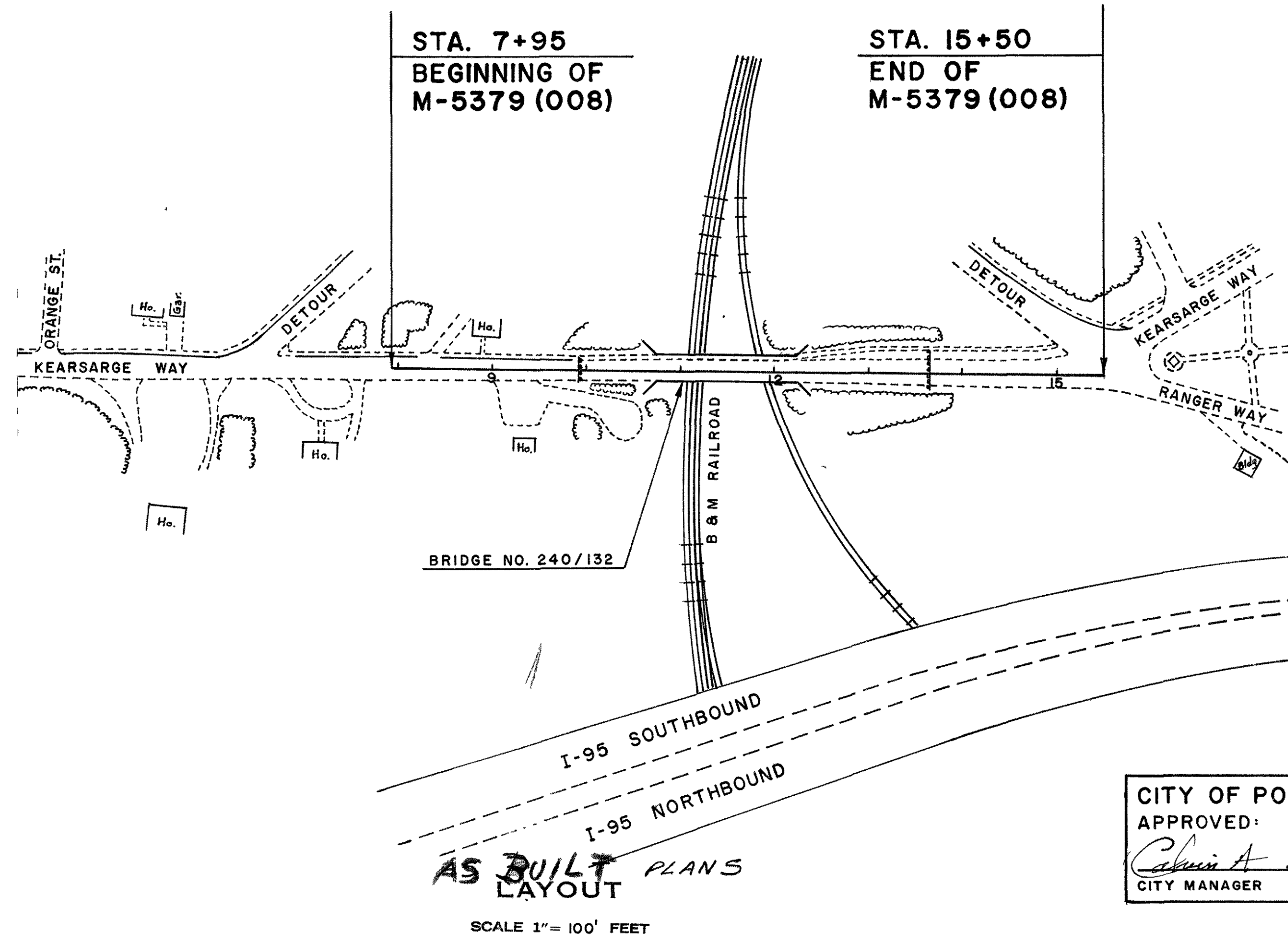


LOCATION MAP

600 0 600 1200
SCALE IN FEET

CONVENTIONAL SIGNS

STATE LINE	— — — — —	ROW LINE	— — — — —
TOWN LINE	— — — — —	SURVEY LINE	— — — — —
FENCE	— — — — —	CULVERT	— — — — —
STONE WALL	— — — — —	POWER POLE	— — — — —
UNFENCED PROPERTY	— — — — —	TELEPHONE POLE	— — — — —
TRAVELED WAY	— — — — —	TELEGRAPH POLE	— — — — —
RAILROAD	— — — — —	JOINT POWER & TEL. POLE	— — — — —
RETAINING WALL	— — — — —	GROUND ELEVATION (LEFT)	— — — — —
SEWER MANHOLE	— — — — —	GRADE ELEVATION (RIGHT)	— — — — —
HYDRANT	— — — — —	SLOPE LINE	— — — — —
LEDGE	— — — — —	CATCH BASIN	— — — — —
BRUSH LINE	— — — — —	DROP INLET	— — — — —
SWAMP	— — — — —	BOUND	— — — — —
PROPERTY PARCEL NO.	— — — — —	CLEARING & GRUBBING AREA	— — — — —



SCALE 1" = 100' FEET

CITY OF PORTSMOUTH
APPROVED:
CITY MANAGER
DATE

PLANS PREPARED BY:
WALTER J. HICKEY ASSOCIATES, INC.
ENGINEERS & PLANNERS
NO. QUINCY, MASS.

CITY OF PORTSMOUTH
COUNTY OF ROCKINGHAM

RECOMMENDED FOR APPROVAL: DATE 10-13-78

APPROVED: *John G. Clements*
DEPUTY COMMISSIONER AND CHIEF ENGINEER
COMMISSIONER
SECONDARY ROADS ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED:
DIVISION ADMINISTRATOR
DATE

FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				

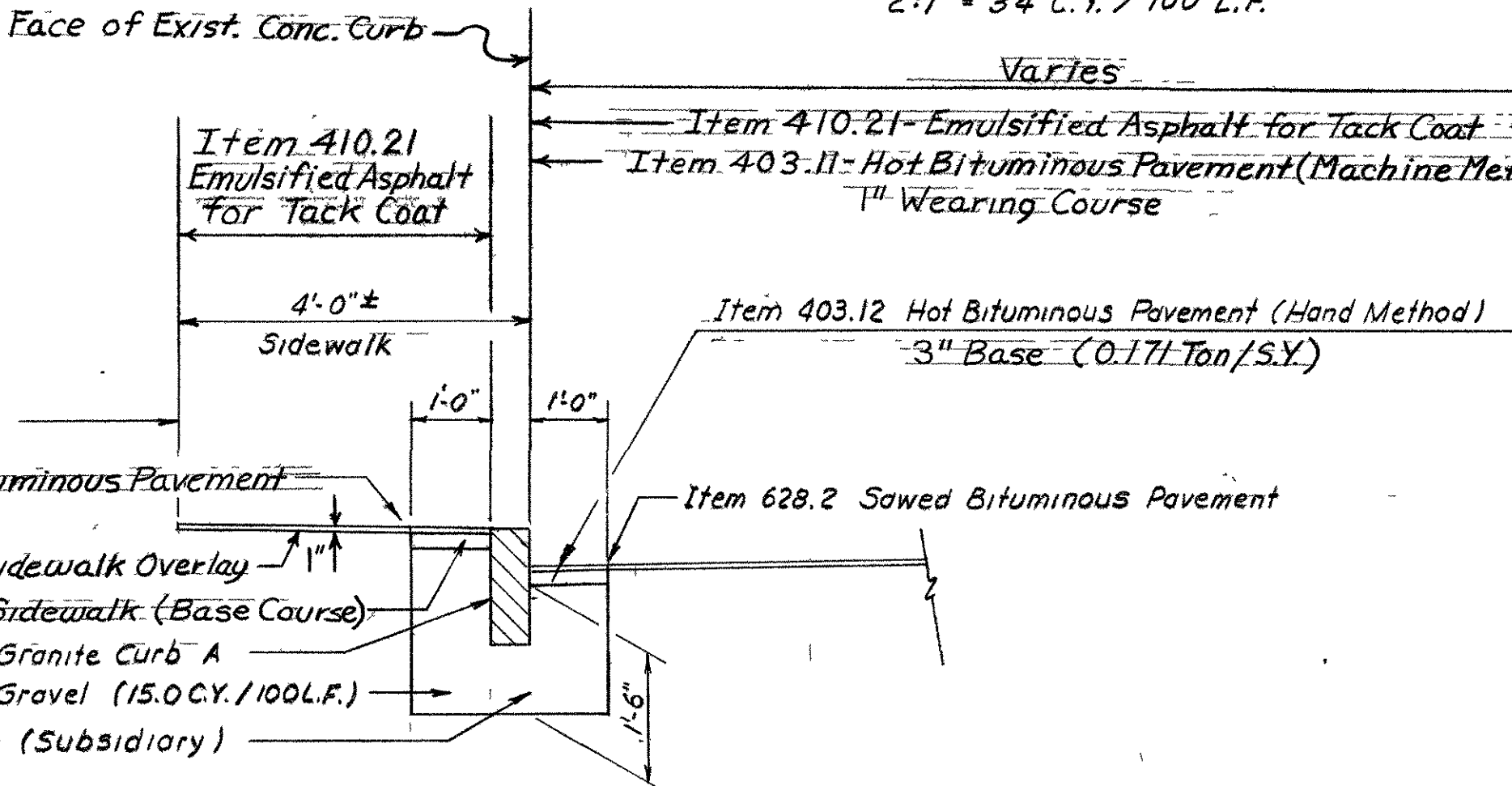
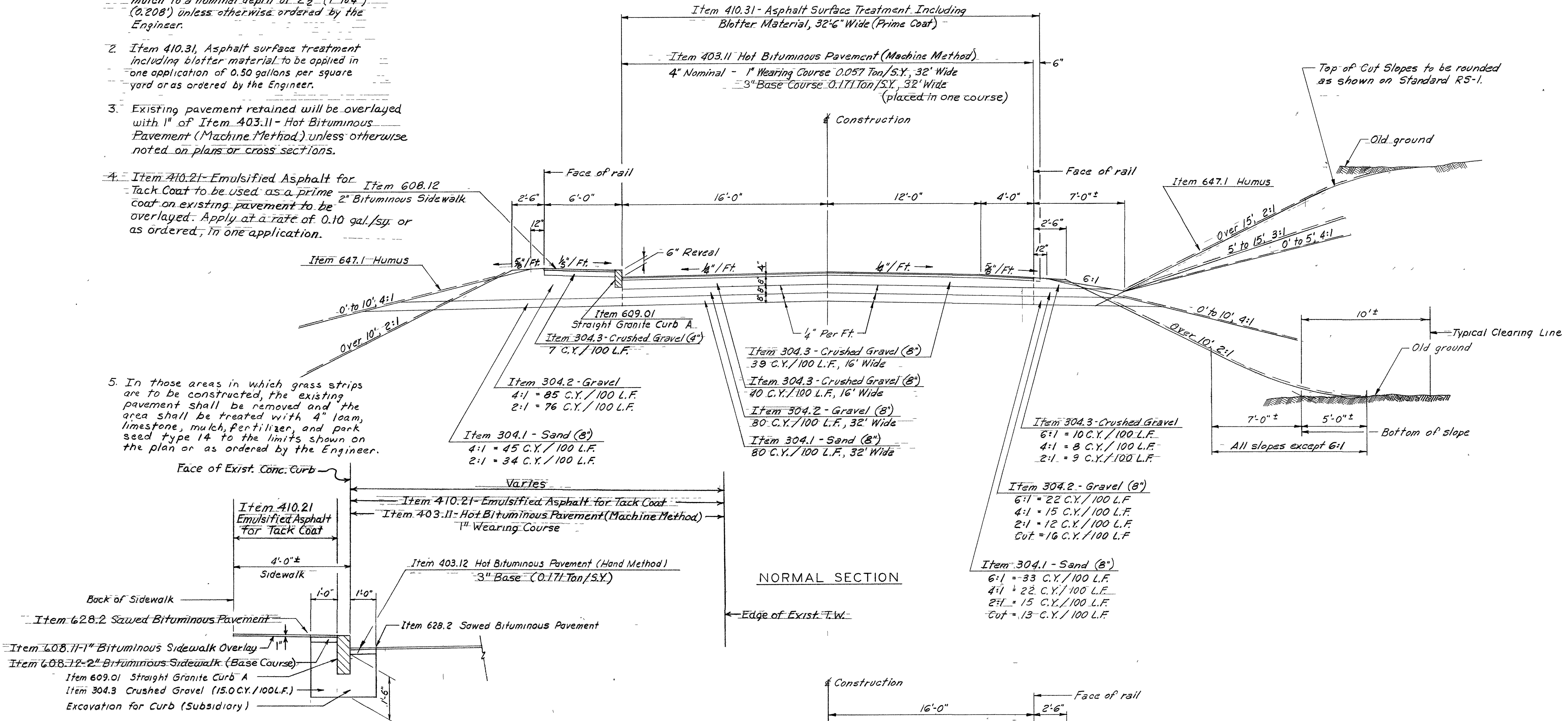
NOTES:

- Humus, Item 647.1 shall be applied to all slopes not loamed or formed by organic mulch to a nominal depth of 2" (1" to 4") (0.208') unless otherwise ordered by the Engineer.
- Item 410.31, Asphalt surface treatment including blotter material to be applied in one application of 0.50 gallons per square yard or as ordered by the Engineer.
- Existing pavement retained will be overlaid with 1" of Item 403.11 - Hot Bituminous Pavement (Machine Method) unless otherwise noted on plans or cross sections.
- Item 410.21 - Emulsified Asphalt for Tack Coat to be used as a prime 2" Bituminous Sidewalk coat on existing pavement to be overlaid. Apply at a rate of 0.10 gal./sq. or as ordered, in one application.

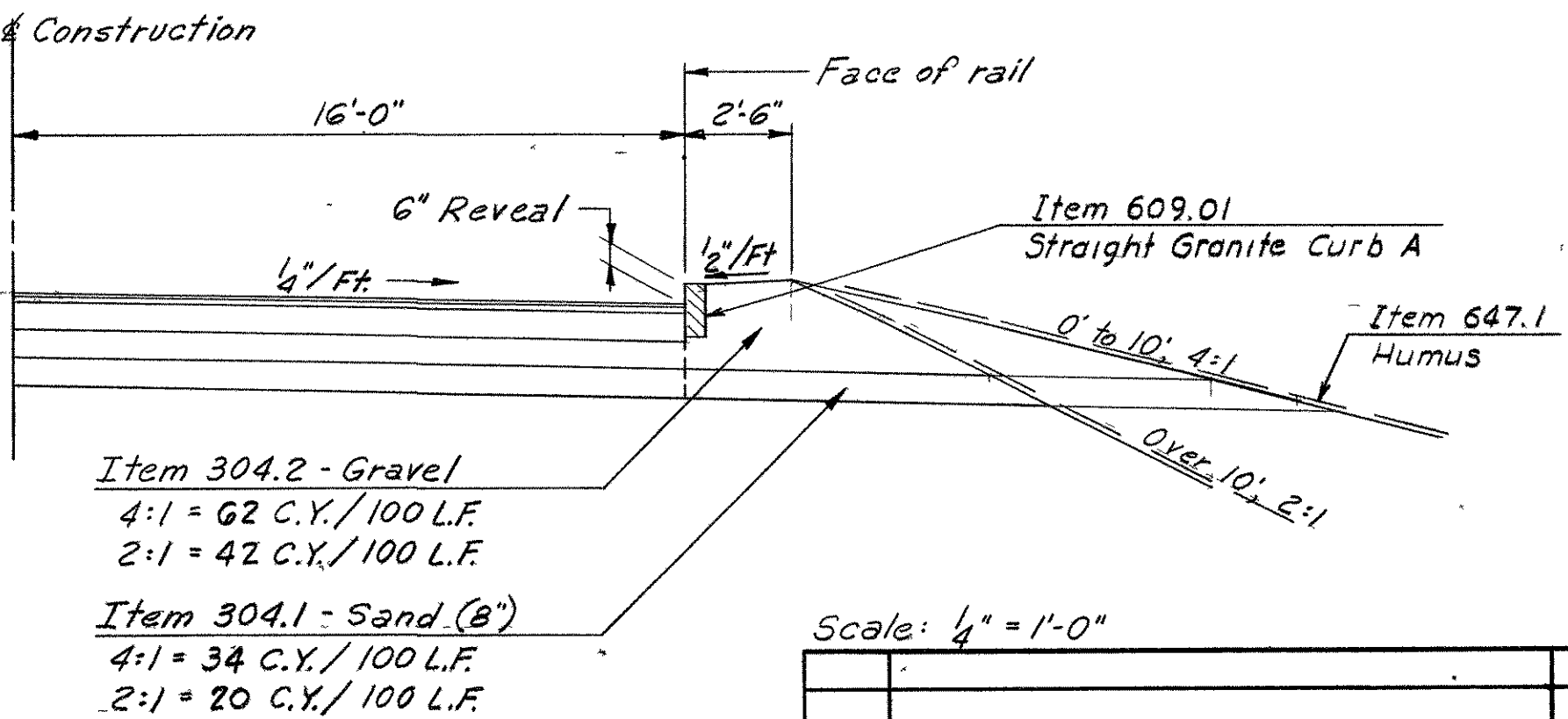
- In those areas in which grass strips are to be constructed, the existing pavement shall be removed and the area shall be treated with 4" loam, limestone, mulch, fertilizer, and park seed type 14 to the limits shown on the plan or as ordered by the Engineer.

TYPICAL SECTION OF IMPROVEMENT

Scale: 1/4" = 1'-0"



NORMAL SECTION



PART BRIDGE APPROACH WITH CURB RIGHT

STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION						
TOWN <u>PORTSMOUTH</u>			BRIDGE NO. <u>240/132</u>			
FEDERAL PROJECT <u>M-5379(008)</u>			STATE PROJECT <u>C-2441H</u>			
LOCATION <u>KEARSARGE WAY OVER</u>			<u>B & M RAILROAD</u>			
<hr/>						
TYPICAL ROADWAY SECTION						
DESIGNED		BY	DATE	BY		DATE
DRAWN		<u>F.K.</u>	<u>3/78</u>	CHECKED		<u>R.C.</u>
TRACED		<u>3/78</u>	<u>3/78</u>	CHECKED		<u>R.C.</u>
QUANTITIES		<u>8/78</u>	<u>8/78</u>	CHECKED		<u>FK</u>
						<u>9/78</u>
						BRIDGE SHEET NO. <u>4-12-1-2</u>
						OF
						FILE NUMBER
REVIEWED BY			PROJ. NO.		SHEET NO.	
			<u>M-5379(008)</u>		<u>2</u>	
					TOTAL SHEETS	
					<u>36</u>	

SUMMARY OF QUANTITIES (ESTIMATED)
THIS INFORMATION IS FOR BIDDING PURPOSES ONLY

± NOT AN ITEM TOTAL

CLEARING AND GRUBBING

ITEM NO.	201.1
UNIT	ACRE
THE AREAS LISTED BELOW ARE SHOWN ON THE PLAN SHEETS BY SHADING & LETTER IDENTIFICATION	
LOCATION	DESIGNATED AREA
9+75 LT. - 10+72 LT.	A
11+98 LT. - 13+75 LT.	B
9+88 RT. - 10+86 RT.	C
12+07 RT. - 13+61 RT.	D
SUBTOTAL	0.05
ESTIMATED	0.06
TOTAL	0.30

REMOVING SMALL TREES

ITEM NO.	201.2
UNIT	EACH
9+34 24' LT.	1
9+65 44' LT.	1
SUBTOTAL	2
ESTIMATED	1
TOTAL	3

EARTHWORK

ITEM	C.Y.
COMMON EXCAVATION IN SECTION	1568
DRIVES EXCAVATION (COMMON)	42
TOTAL COMMON EXCAVATION	1610
COMMON EXCAVATION FOR ESTIMATE ITEM 203.1	1800
COMMON STRUCTURE EXCAVATION	596
SUBTOTAL	2206
TOP SOIL REMOVED FOR USE AS LOAM OR HUMUS (EST.)	20
COMMON EXCAVATION FOR FILL	2139
ROCK STRUCTURE EXCAVATION	5
FILL IN SECTION	2234
DRIVES (FILL)	26
TOTAL FILL	2260
FILL BEFORE EXPANSION	2255
SHRINKAGE FACTOR (20%)	
EXPANDED FILL	2819
COMMON EXCAV. FOR FILL	2186
BORROW	633
BORROW FOR ESTIMATE ITEM 203.5	1100

DRAINAGE SUMMARY

ITEM NO.	202.5	206.1	206.2	603.00215	603.00218	603.30115	603.30118	604.11	604.12	604.22	585.5	588.1	
	REMOVAL OF C.B.	COMMON STRUCT. EXCAV.	ROCK STRUCT. EXCAV.	REINFC. CONCRETE PIPE - 2000 D. INCLUDING SPECIFIED EXCAVATION		CONC. END SECTION FOR 15" PIPE	CONC. END SECTION FOR 18" PIPE	CATCH BASIN TYPE A	CATCH BASIN TYPE B	DROP INLET TYPE B	STONE FILL CLASS E	STONE FOR EROSION CONTROL GRADE 1	
				15" L.F.	18" L.F.								
UNIT	EACH	C.Y.	C.Y.			EACH	EACH	ACT. U.	EST. U.	ACT. U.	EST. U.	C.Y.	C.Y.
LOCATION													
8+10 LT.		4								1	1 3/4		
8+12 LT. - 8+48 RT.		1		48									
8+12 LT. - 9+48 LT.		4		136									
8+50 RT.		2						1	1 1/2				
8+86 LT.	1												
9+50 LT.		11								1	2 3/4		
9+52 LT. - 10+15 LT.				80		1							
9+52 LT. - 9+98 RT.				55									
10+00 RT.		1									1	1 1/2	
14+08 LT. - 14+31 LT.					58		1						
14+31 RT.		3	5					1	1				
14+31 LT.										1	1 1/2		
14+31					34								
14+08 LT. DITCH		570										15	55
SUBTOTAL	1	596	5	319	92	1	1	2	2 1/4	3	6	1	1 1/2
ESTIMATED	0	54	5	11	8	0	0	0	3/4	0	1	0	1/2
TOTAL	1	650	10	330	100	1	1	2	2 3/4	3	7	1	1 1/2
AS BUILT TOTALS (ONLY)				326.4	85.4					2 1/2		20	60

SURFACING MATERIALS

ITEM NO.	304.1	304.2	304.3	403.11	403.12	410.22	410.31
ITEM	SAND	GRAVEL	CRUSHED GRAVEL	HOT BIT. PAVEMENT MACHINE METHOD	HOT BIT. PAVEMENT HAND METHOD	EMULSIFIED ASPHALT FOR TACK COAT GAL.	ASPH. SURFACE TREATMENT INCLUDING BLOTTER MATERIAL TON
UNIT	C.Y.	C.Y.	C.Y.	TON	TON		
LOCATION							
6+00 - 7+45 (OVERLAY)			9	22.5	2.8	41.	
6+87 LT. - 7+45 LT.							2.0
7+45 - 10+70	362	484	260	224.4			3.3
12+26 - 16+00	528	658	393	367.7			
DRIVE AT 8+17			44		14.9		
DRIVE AT 9+34			49		16.8		
SUBTOTAL	890	1142	755	614.6	34.5	41.	5.3
ESTIMATE	60	108	45	35.4	3.5	9.	1.7
TOTAL	950	1250	800	650	38.0	50.	7.0

SIDEWALK

ITEM NO.	608.12	608.11
ITEM	2" BITUMINOUS SIDEWALK S.Y.	1" BITUMINOUS S.W. OVERLAY S.Y.
LOCATION		
6+00 LT. - 6+87 LT.	37	
6+87 LT. - 7+45 LT.	6	26
7+45 LT. - 8+15 LT.	31	
8+65 LT. - 10+70 LT.	114	
12+26 LT. - 15+60 LT.	196	
WALK AT 8+88 LT.	6	
SUBTOTAL	390	26
EST.	40	4
TOTAL	430	30

CONSTRUCTION SIGNS & WARNING DEVICES

ITEM NO.	618.2
UNIT	UNIT
TYPE	DESCRIPTION
PERMANENT SIGNS	ROAD CONSTRUCTION (AHEAD) END CONSTRUCTION
OPERATIONAL CONTROLS	DETOUR ARROW (LEFT) DETOUR ARROW (RIGHT) TRUCK CROSSING DETOUR (AHEAD) FLAGMAN (AHEAD)
OTHER OPERATIONAL CONTROLS	SIGN PADDLES BASELS
SIGN NO.	NO. REQD.
W20-1d	3
G20-2	3
M4-10L	1
M4-10R	1
W11-1	2
W20-2d	2
W20-7d	2
	2
	6

CURB

ITEM NO.		609.01
ITEM	MARK	STRAIGHT GRANITE
	NO.	CURB A
UNIT		L.F.
LOCATION		
6+00 LT. - 8+16 LT.	A-1	215
8+72 LT. - 10+70 LT.	A-2	198
12+26 LT. - 15+75 LT.	A-3	355
9+52 RT. - 10+70 RT.	A-4	118
12+26 RT. - 13+20 RT.	A-5	94
SUBTOTAL		980
ESTIMATED		50
TOTAL		1030

INCIDENTAL ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
214	FINE GRADING	U	1
618.109	UNIFORMED OFFICERS & FLAGMEN	U	1
628.2	SAWED BITUMINOUS PAVEMENT	L.F.	350
622.2	CONCRETE BOUNDS	EA.	4
692	MOBILIZATION	U	1
698.3	FIELD OFFICE (MODIFIED)	EA.	1
209	GRANULAR BACKFILL	C.Y.	20
624	RAILROAD PROTECTION	U	1
619.1	MAINTENANCE OF TRAFFIC INCL. DUST LAYING	U.	1
1000	TEMPORARY PROJECT WATER POLLUTION CONTROL (SOIL EROSION)	\$	1
1001	ON-THE-JOB TRAINING OF UNSKILLED LABOR	\$	1

SUBSIDIARY ITEMS

REMOVAL OF BARRICADES
PLUGGING OF ABANDONED PIPES
REMOVAL & RESETTING OF WOOD RAIL FENCE
REMOVAL OF CONCRETE CURBING
REMOVAL OF WOODEN GUARD RAIL
CLEAN EXIST. PIPES AND CATCH BASINS ON DETOUR ROAD AS DIRECTED BY THE ENGINEER.

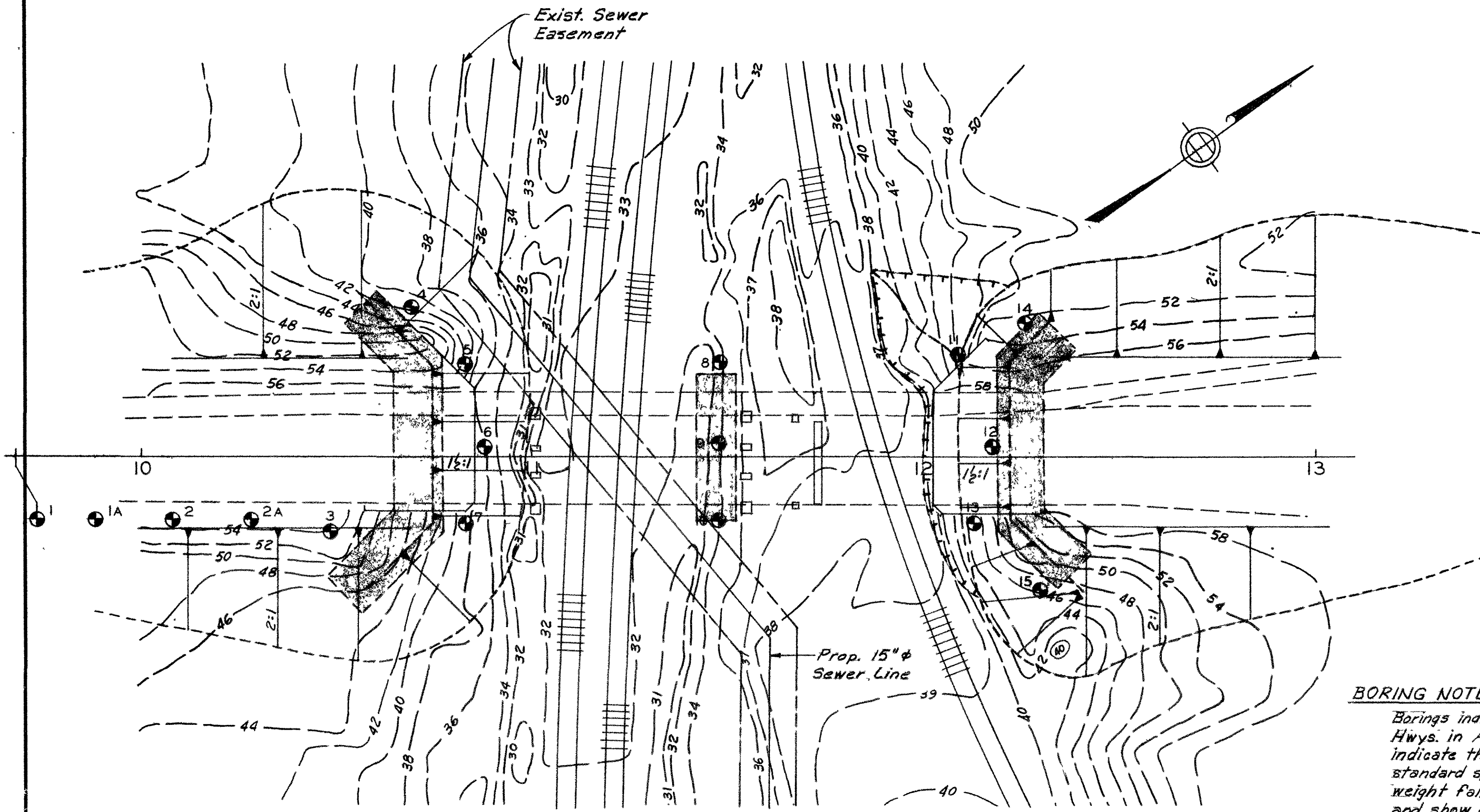
LANDSCAPING & SLOPE PROTECTION

ITEM NO.	644.4	645.11	641.04	642	643.11	643.21	644.14	644.33	647.1
ITEM	CROWN VETCH SEED (PLS. WEIGHT)	MULCH	LOAM 4" DEEP	LIMESTONE	FERTILIZER FOR INITIAL APPLICATION LB.	FERTILIZER FOR REFERTILIZATION LB.	PARK SEED TYPE 14 (PLS. WEIGHT) LB.	SLOPE SEED TYPE 33 (PLS. WEIGHT) LB.	HUMUS
UNIT	LB.	A.	S.Y.	TON	LB.	LB.	LB.	LB.	C.Y.
SLOPE PROTECT. LANDSCAPING	5	0.5		1.5	56.1	56.1		37.2	253
SUBTOTAL	5	0.5	377	0.2	6.8	6.8	6.5	37.2	253
ESTIMATED	5	0.1	377	1.7	62.9	62.9	6.5	37.2	253
TOTAL	10	0.6	420	2.0	70.0	70.0	7.0	40	300

WATER LINE

ITEM NO.	611.05210
UNIT	10" CEMENT LINED DUCTILE IRON WATER PIPE, CLASS 52 INCL. SPEC. EXCAV. L.F.
WEARSARGE WAY	
DETOUR PARTICIPATING	
SUBTOTAL	400
ESTIMATED	30
PARTICIPATING TOTAL	430
NONPARTICIPATING	
SUBTOTAL	625
ESTIMATED	45
NONPARTICIPATING TOTAL	670
GRAND TOTAL	1100
AS BUILT TOTAL (ONLY)	1101.1

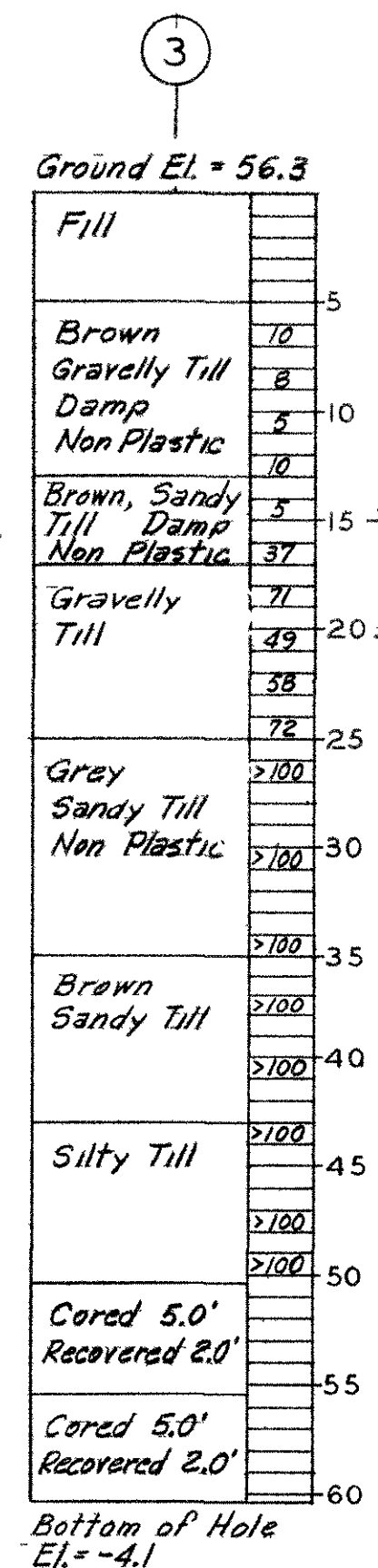
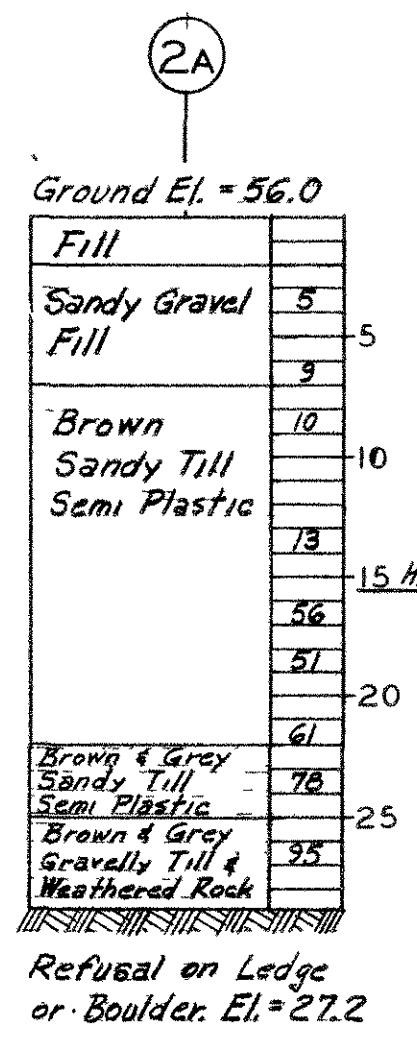
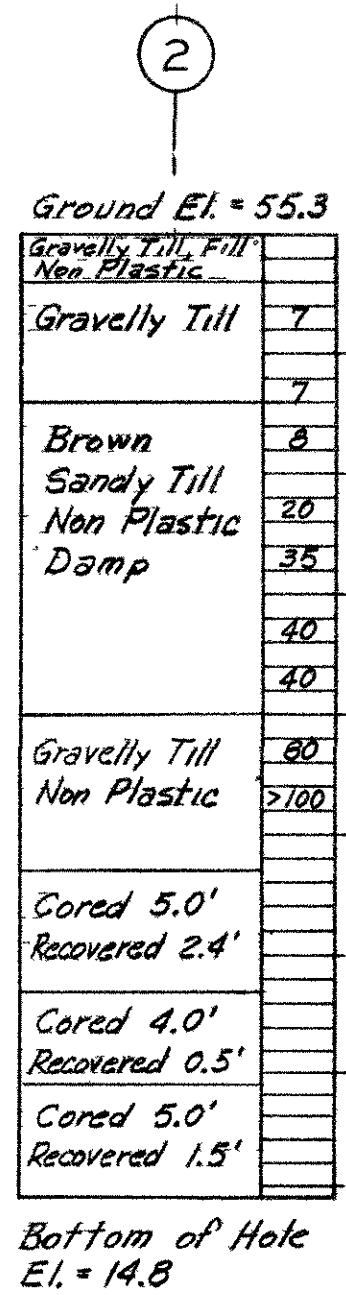
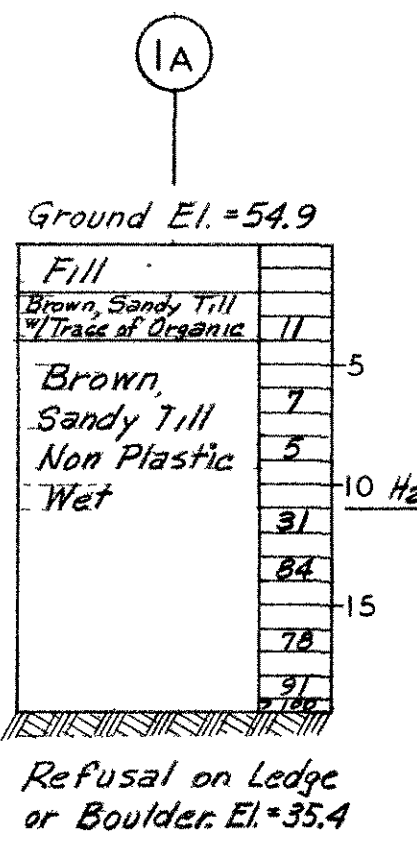
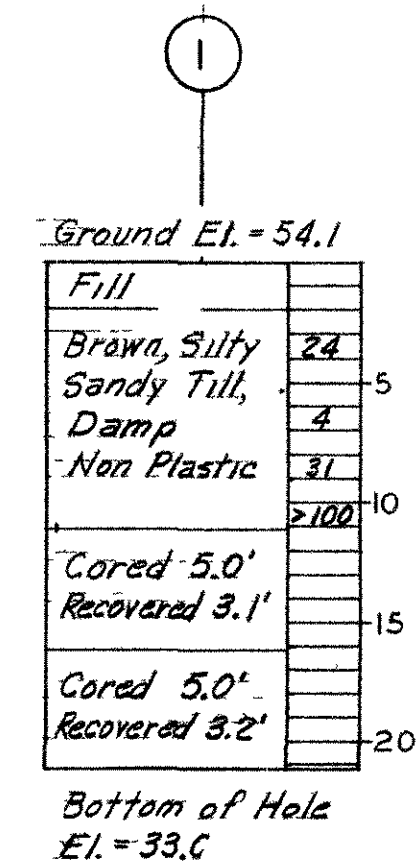
AS BUILT PLANS



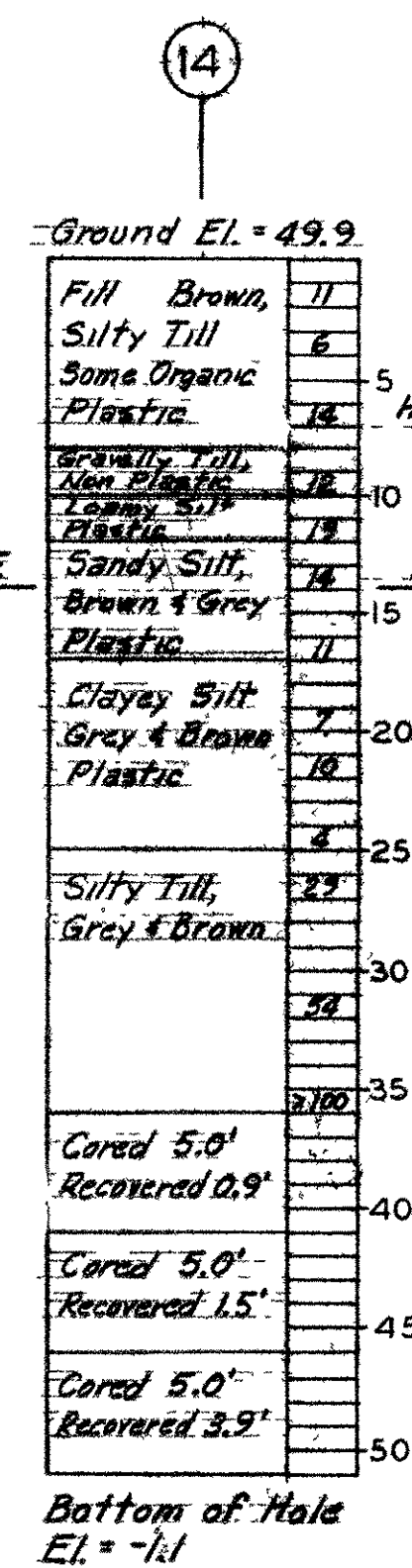
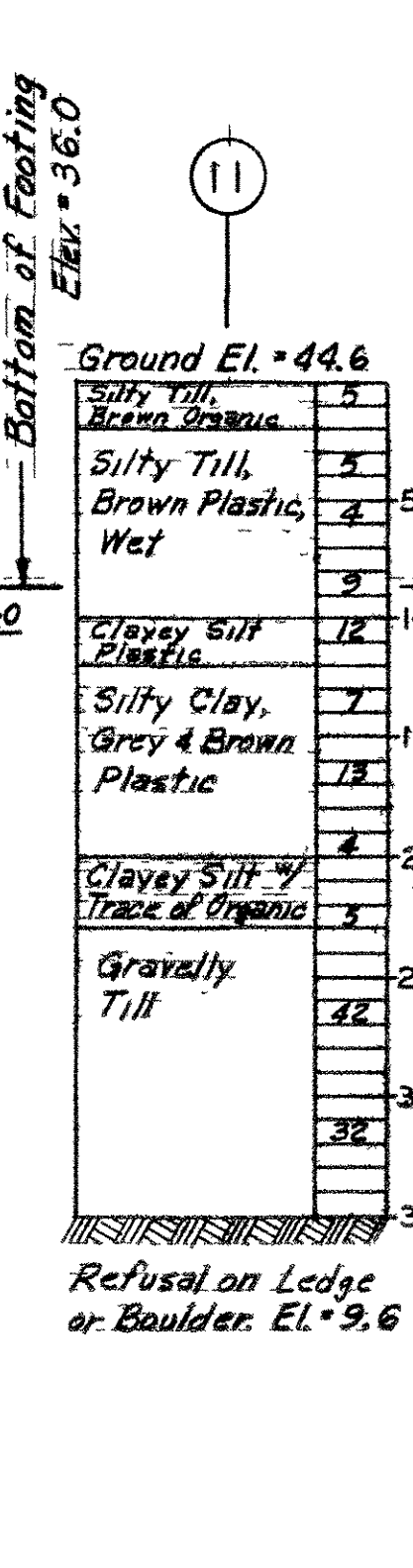
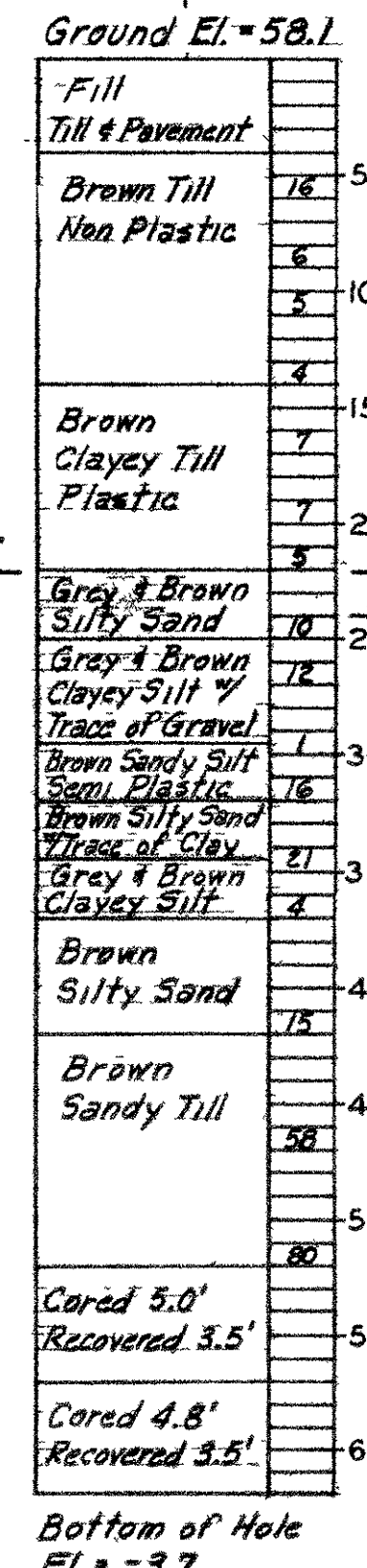
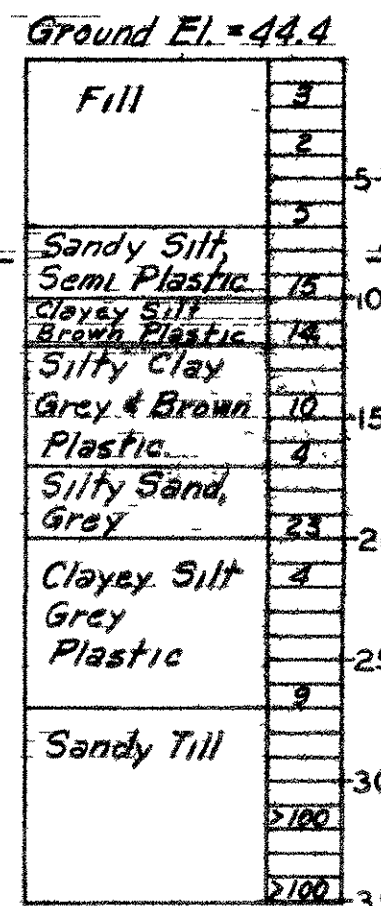
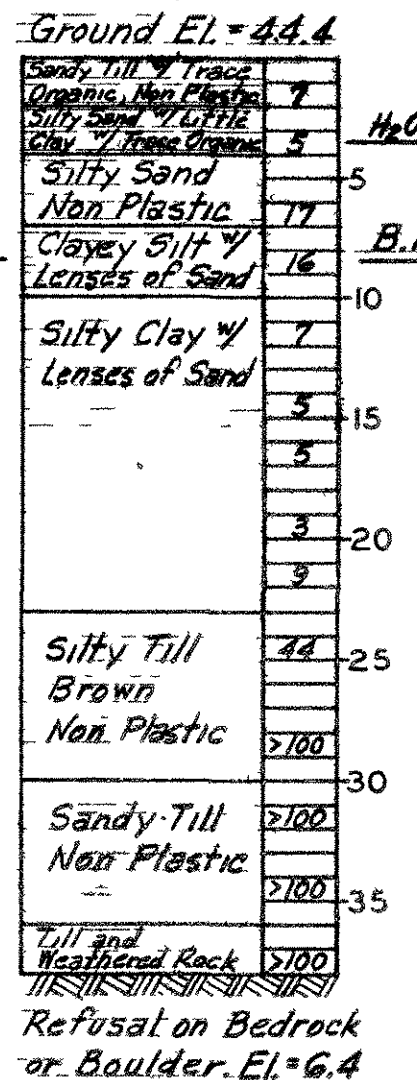
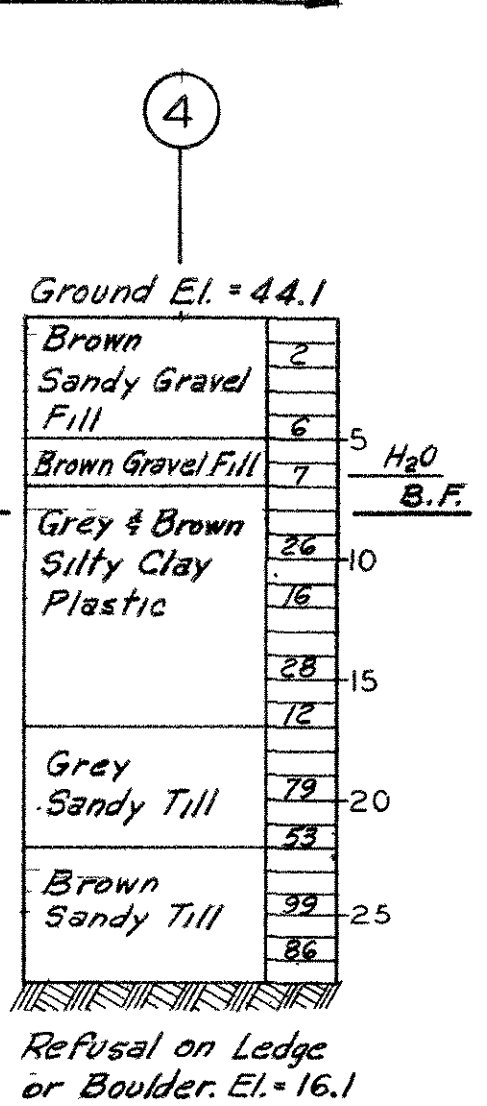
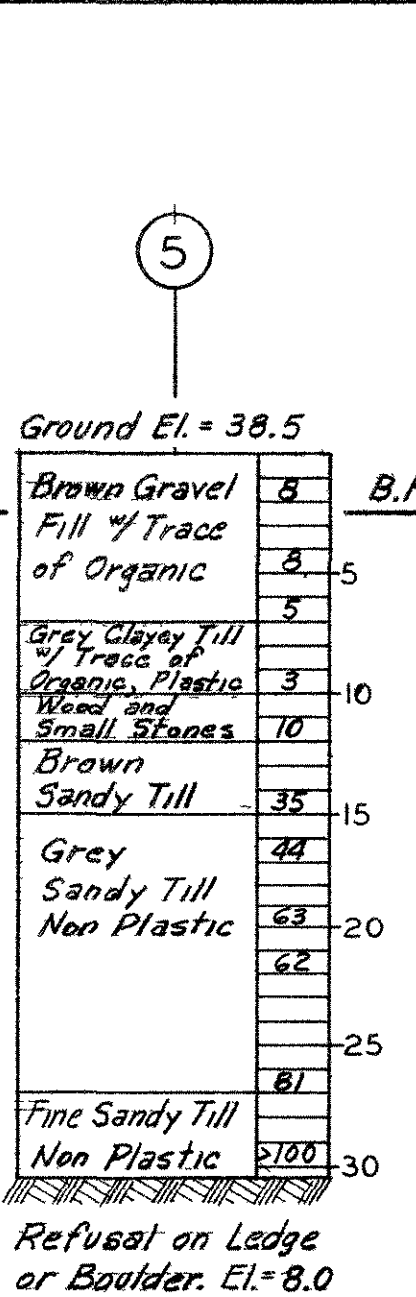
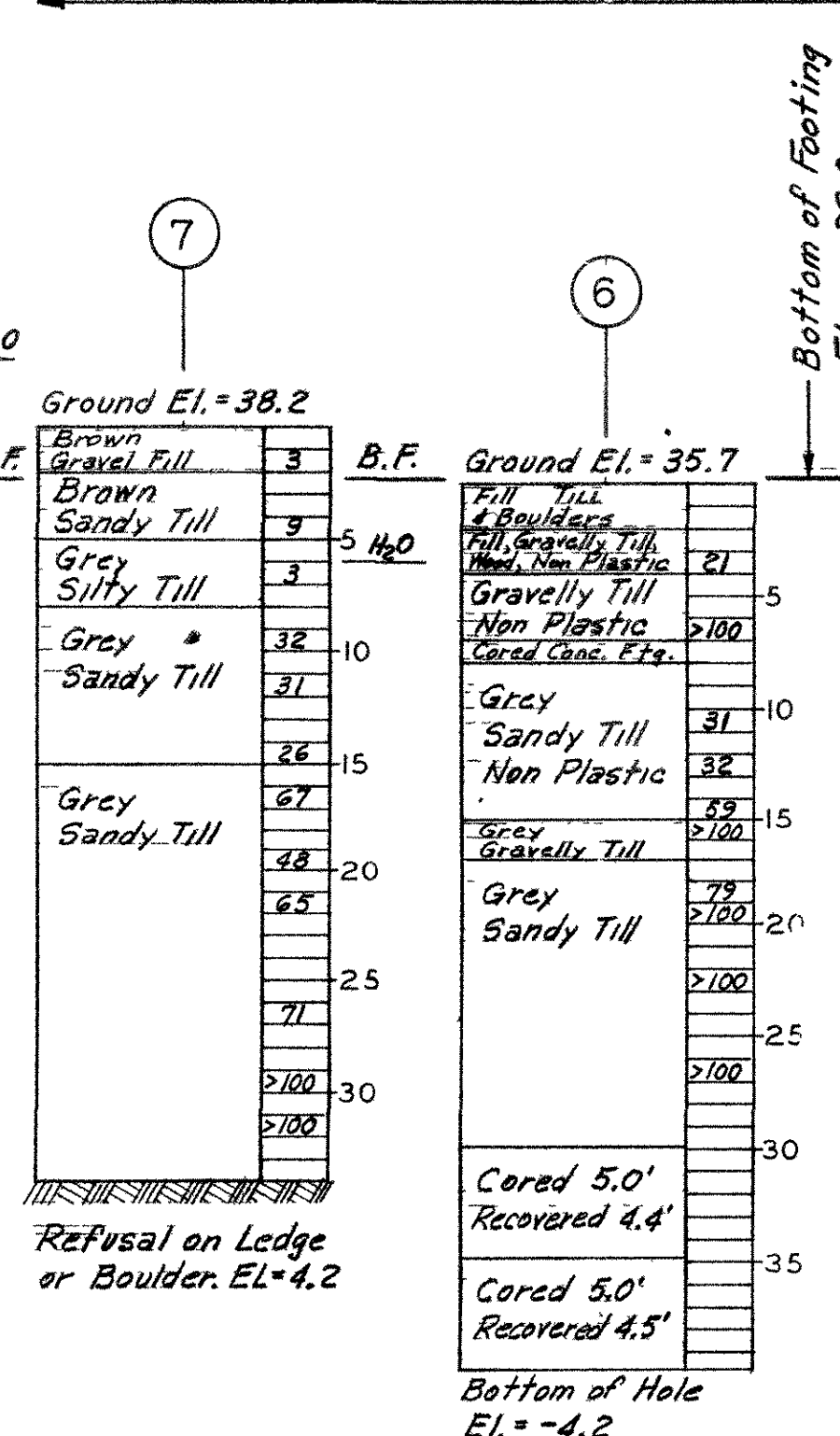
CONTOUR PLAN
SCALE: 1" = 20'

BORING NOTES:

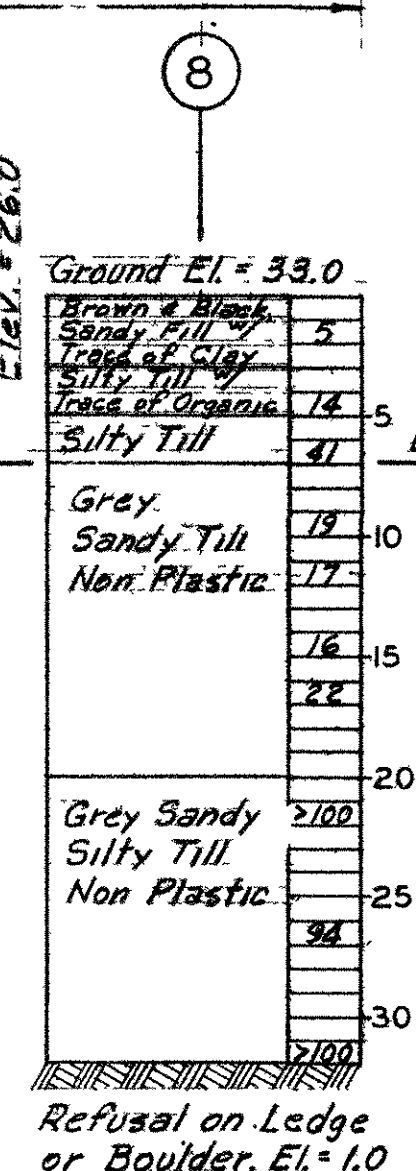
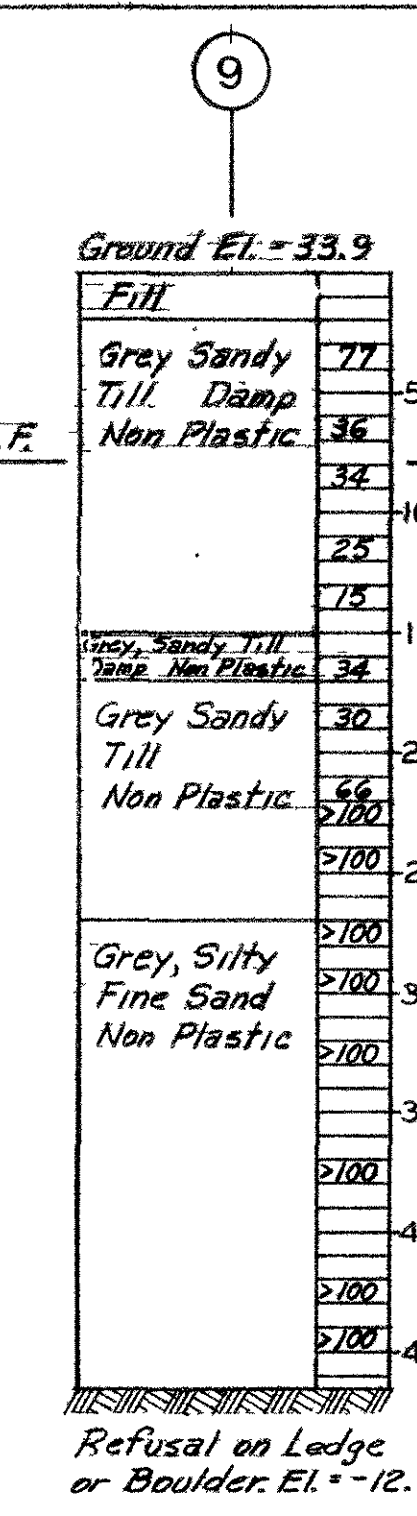
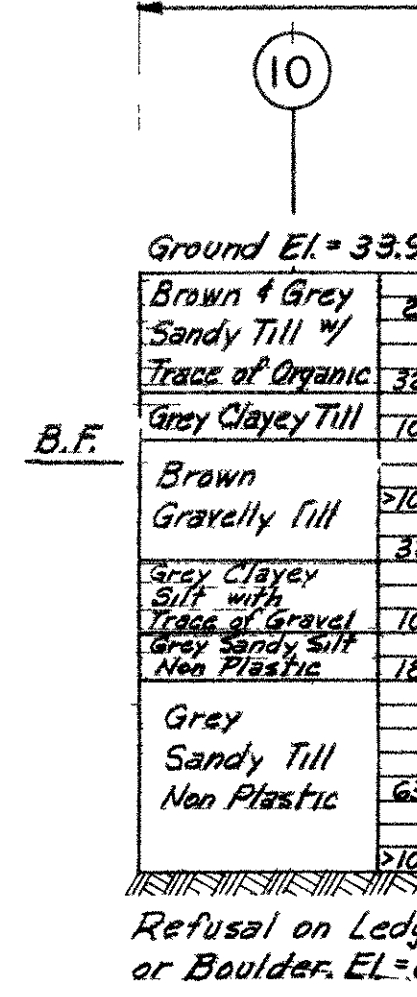
Borings indicated thus were made by the N.H.D.P.W. & Hwys. in April 1978. Figures in the right-hand column indicate the number of blows required to drive a 2" o.d. standard split barrel sampler one foot, using a 140 pound weight falling 30 inches. Borings are for design purposes and show conditions at boring points only and do not necessarily indicate materials to be encountered during construction. Boring samples may be examined upon request.



SOUTH ABUTMENT



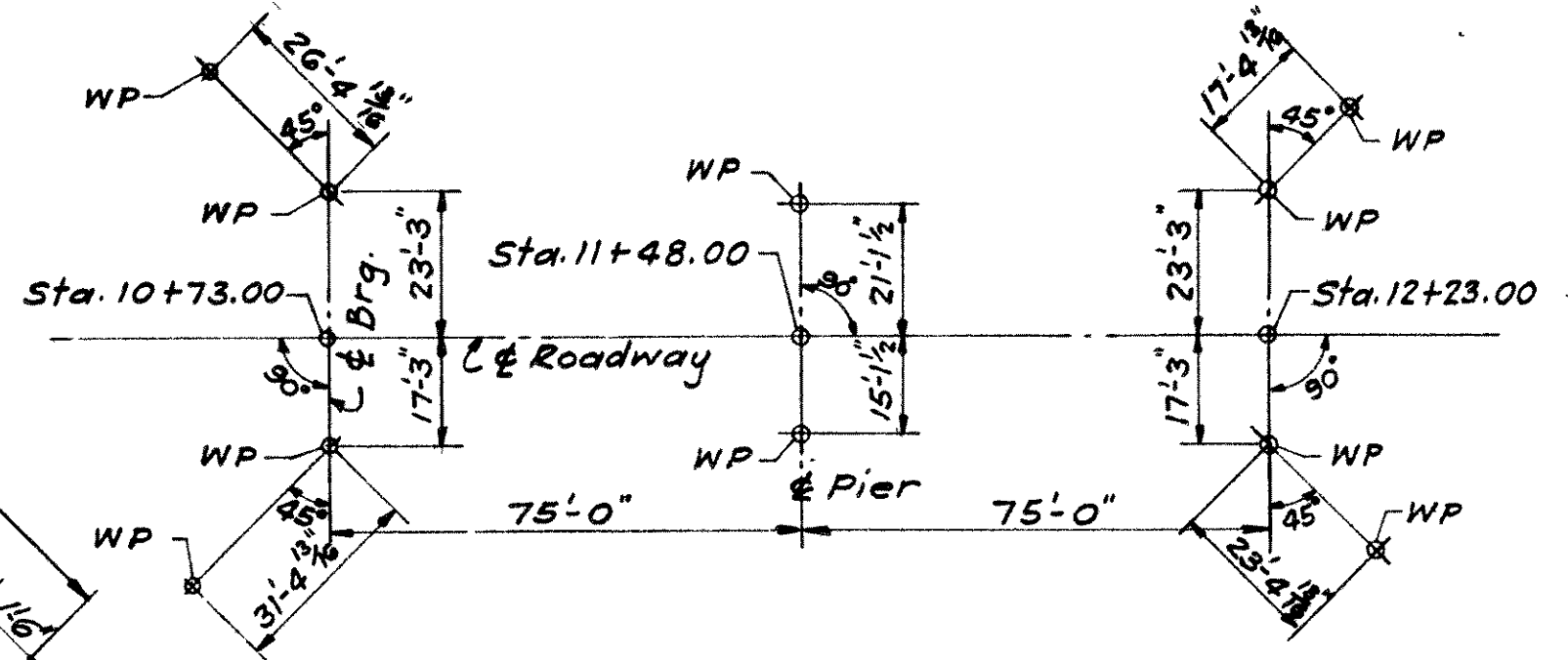
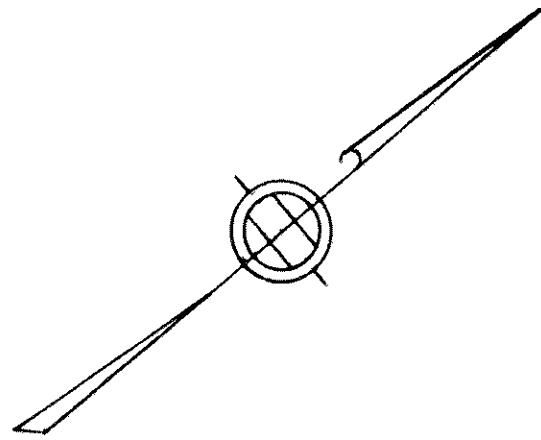
PIER



Removal of Existing Bridge Structure - Item 502
The superstructure and pier bents shall be completely removed. The substructure shall be completely removed within the proposed bridge excavation limits and to two foot minimum below finished grade elsewhere or as directed by the Engineer.

STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION			
TOWN <u>PORTSMOUTH</u>		BRIDGE NO. <u>240/132</u>	
FEDERAL PROJECT <u>M-5379(008)</u>		STATE PROJECT <u>C-2441 H</u>	
LOCATION <u>KEARSARGE WAY OVER B & M RAILROAD</u>			
CONTOUR PLAN & BORINGS			
DESIGNED	BY	DATE	BRIDGE SHEET NO.
DRAWN	PC	7/78	2 OF 16
TRACED			FILE NUMBER
QUANTITIES			4-12-1-2
REVIEWED BY	PROJ. NO.	SHEET NO.	TOTAL SHEETS
	M-5379(008)	5	36

FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				



SURVEY LAYOUT
Scale 1"=30'

PILE NOTES:

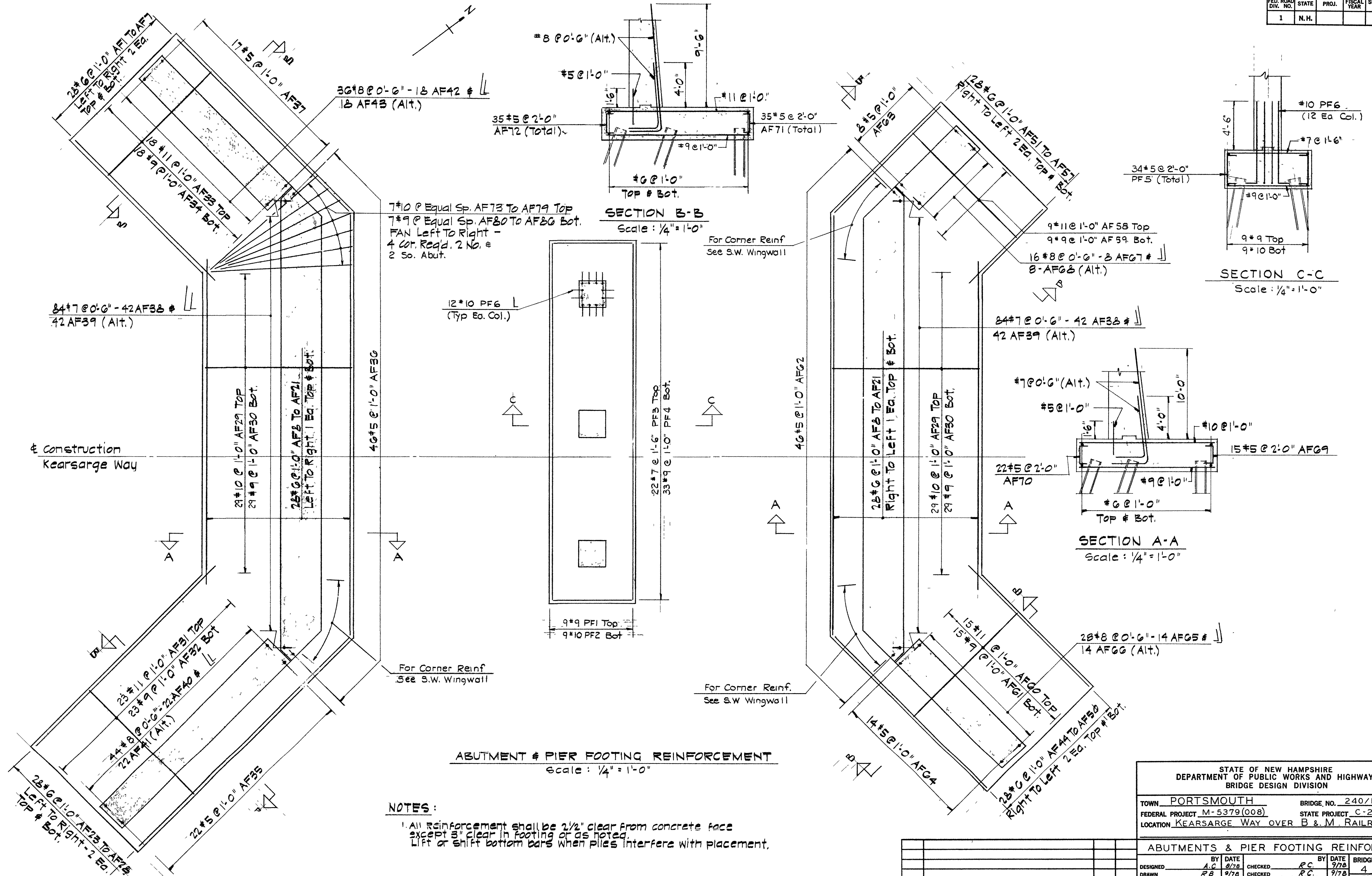
1. HP Indicates pile battered in direction of arrow. For batter see Typical Section of Abutment, Wingwall or Pier.
2. All piles shall be HP 12 x 53 with driving points. Design Load = 70 tons per pile.
3. All pile layout dimensions shown are at bottom of footing.
4. The piles shall be driven to refusal or as directed by the Engineer.
5. Pile loading tests shall be made only if directed by the Engineer.
6. Within estimated length of piles, no pile splices will be permitted.

PLAN
Scale: 1/4" = 1'-0"

ABUTMENT FOOTING & PIER FOOTING QUANTITIES					
ITEM NO.	DESCRIPTION	S. ABUT.	PIER	N. ABUT.	UNIT
504.1	Common Bridge Excavation	783	100	745	C.Y.
504.2	Rock Bridge Excavation	2	1	2	C.Y.
510.2	Pile Loading Test	1	1	1	EACH
510.61	Furnishing Steel Bearing Piles	46,190	12,720	49,290	LBS.
510.62	Driving Steel Bearing Piles	46,190	12,720	49,290	LBS.
510.65	Driving Points for Steel Bearing Piles	41	12	31	EACH
510.9	Pile Splices	8	2	6	EACH
520.11	Concrete Class A, Footing	123.6	34.2	97.1	C.Y.
544	Reinforcing Steel	17,277	4,902	12,578	LBS.

STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION						
TOWN <u>PORTSMOUTH</u>			BRIDGE NO. <u>240/132</u>			
FEDERAL PROJECT <u>M-5379(008)</u>			STATE PROJECT <u>C-2441H</u>			
LOCATION <u>KEARSARGE WAY OVER</u>			<u>B & M RAILROAD</u>			
ABUTMENTS & PIER FOOTING MASONRY & PILE L/O						
DESIGNED	BY <u>A.C.R.</u>	DATE <u>7/78</u>	CHECKED	BY <u>A.C.</u>	DATE <u>9/78</u>	BRIDGE SHEET NO. <u>3 OF 16</u>
DRAWN	BY <u>P</u>	DATE <u>9/78</u>	CHECKED	BY <u>P.C.</u>	DATE <u>9/78</u>	FILE NUMBER <u>4-12-1-2</u>
TRACED			CHECKED			
QUANTITIES			CHECKED			
REVIEWED BY _____			PROJ. NO. <u>M-5379(008)</u>		SHEET NO. <u>6</u>	TOTAL SHEETS <u>36</u>

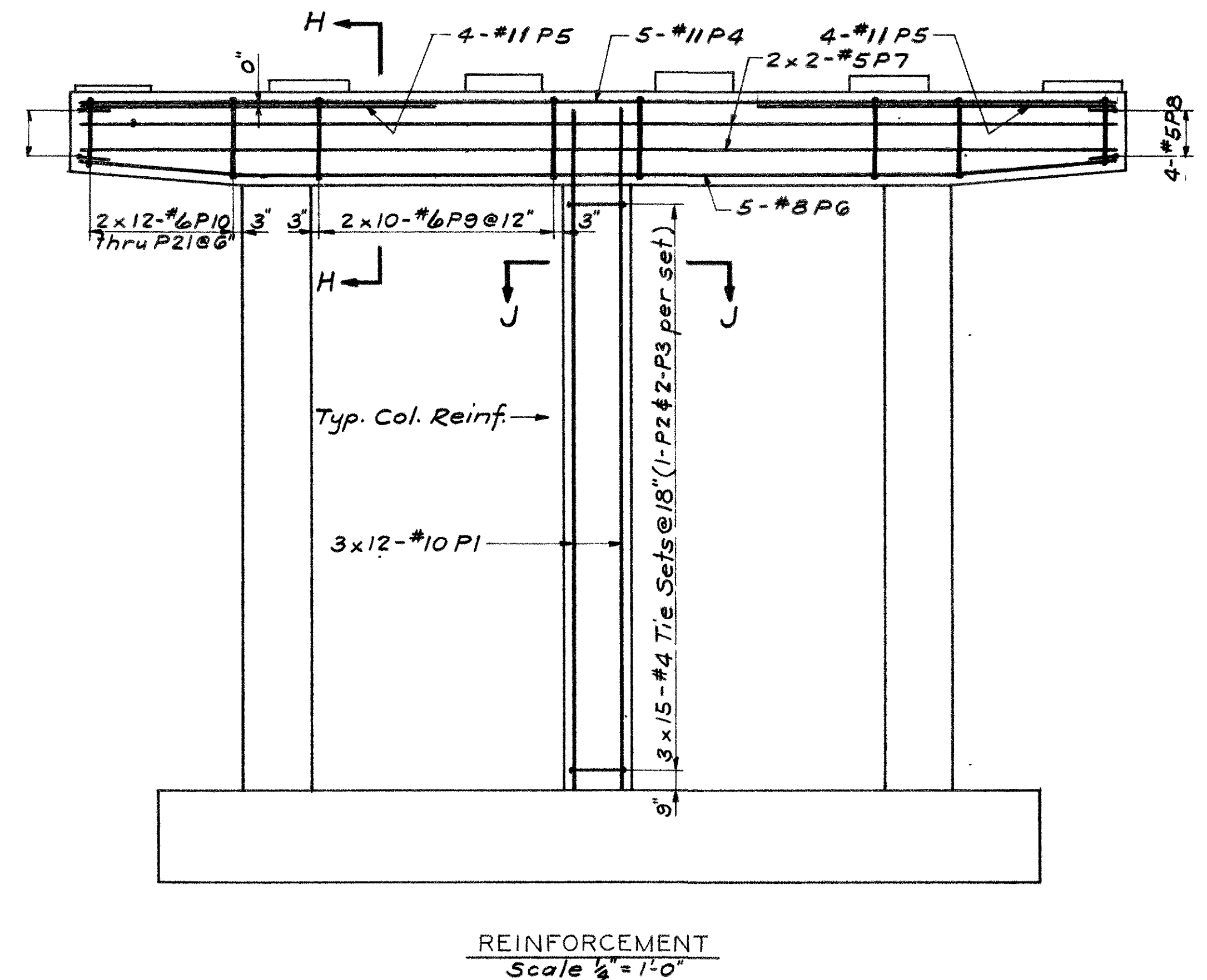
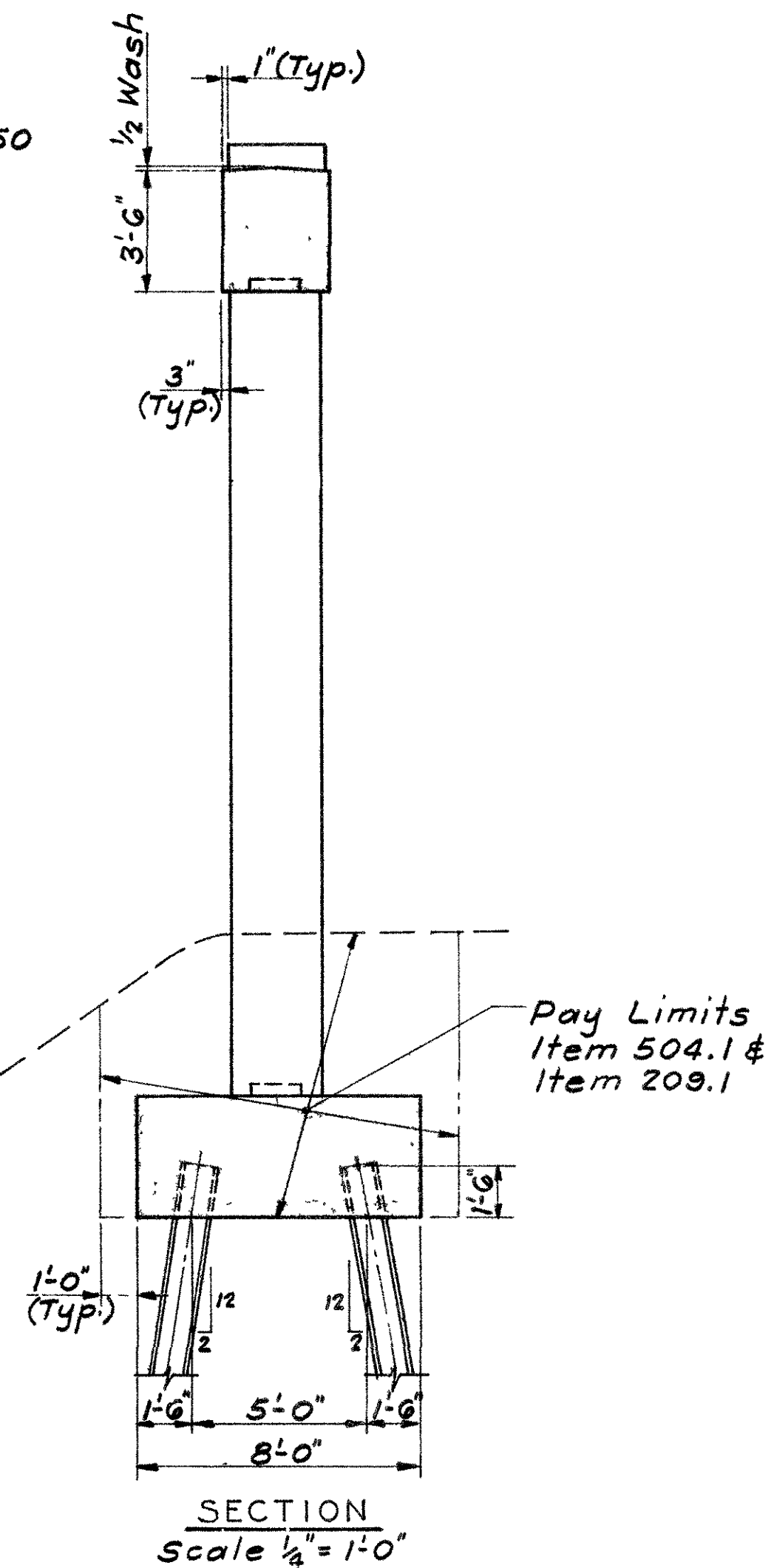
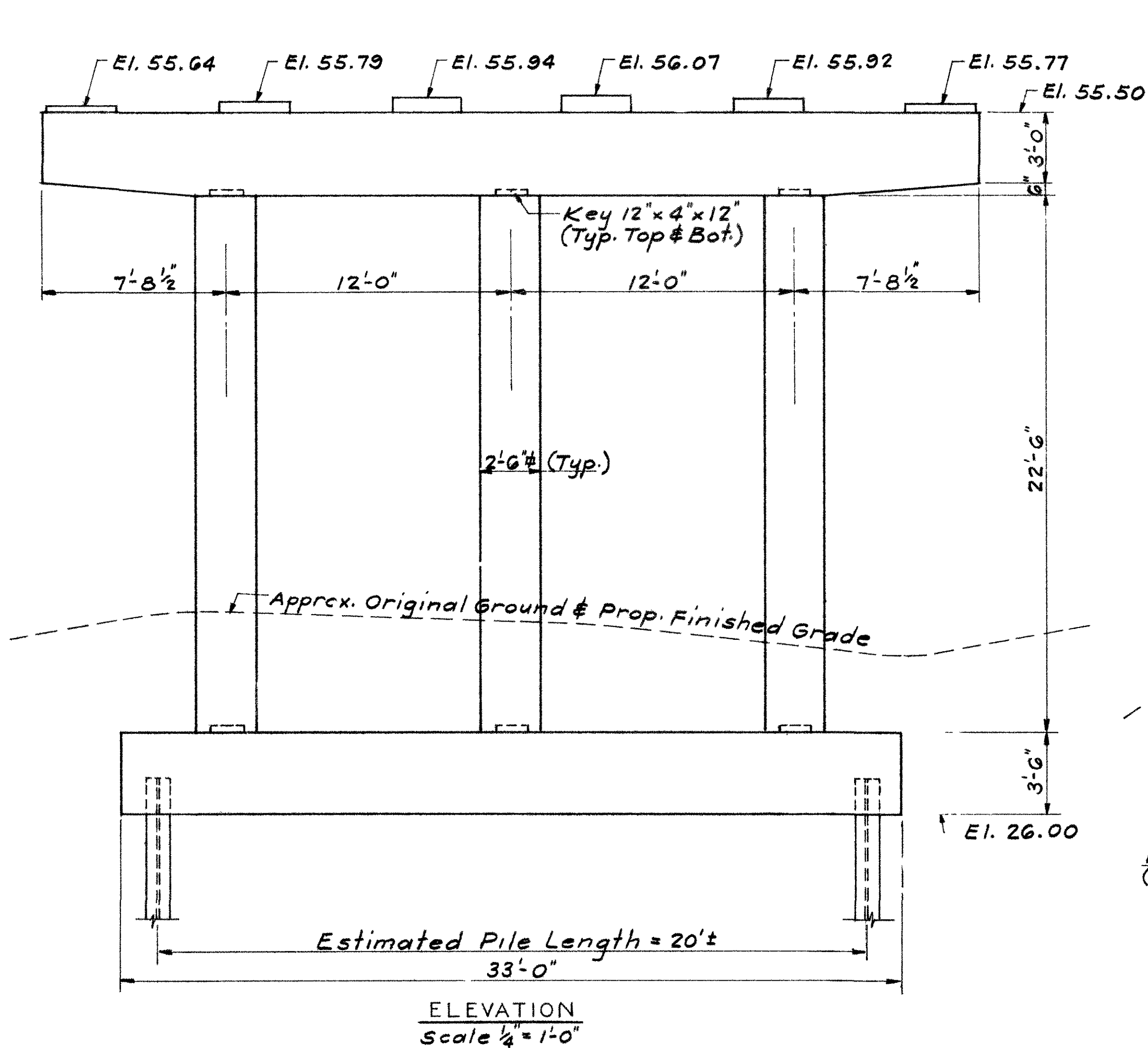
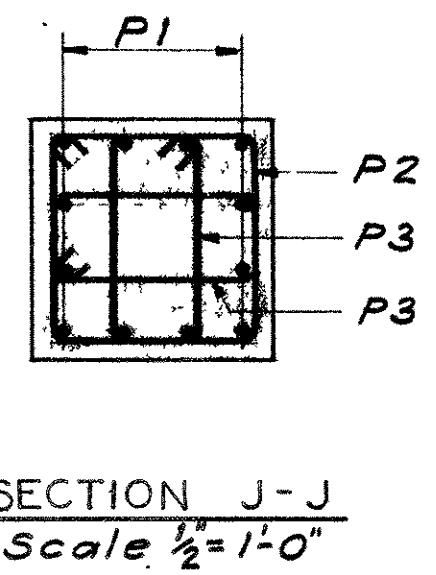
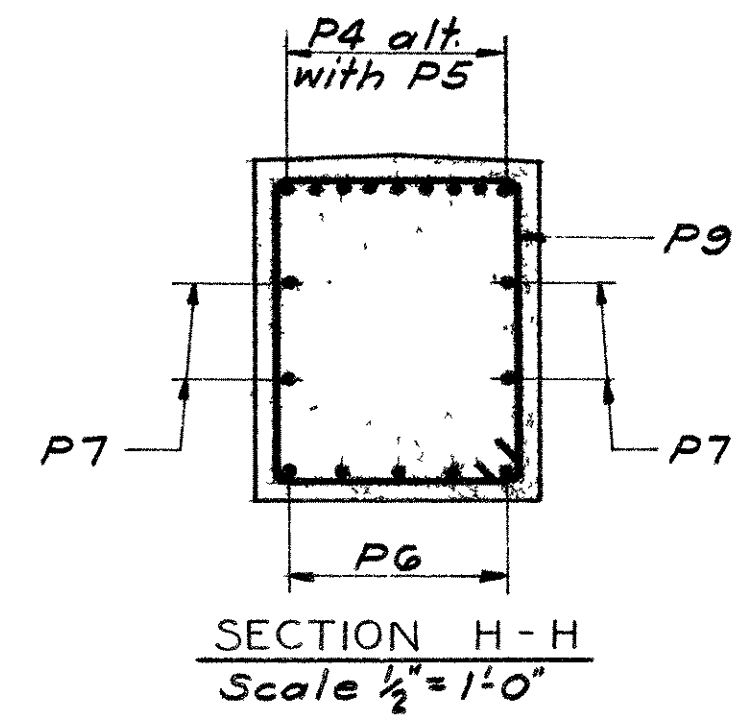
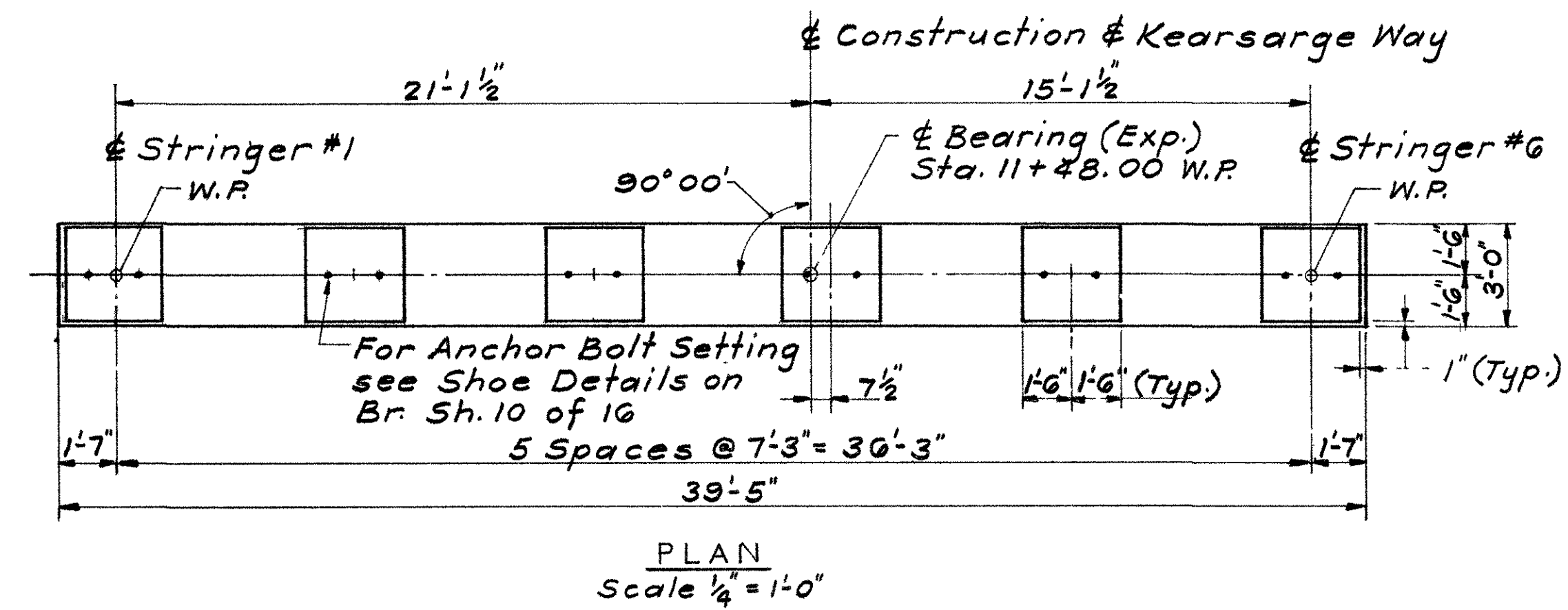
FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				



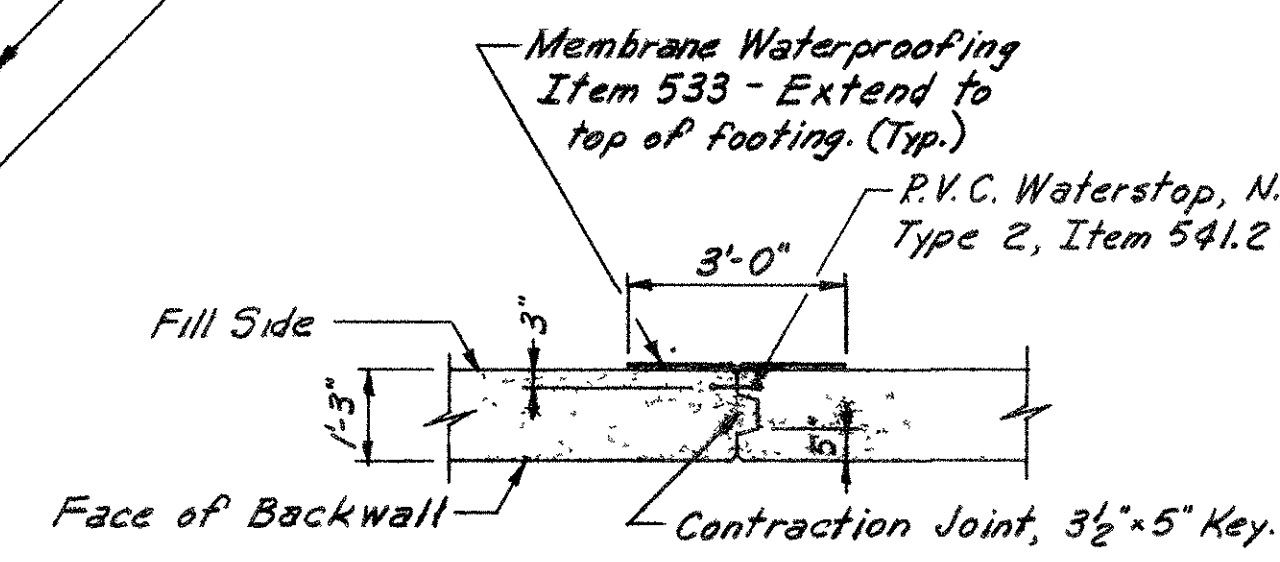
STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION			
TOWN <u>PORTSMOUTH</u>	BRIDGE NO. <u>240/132</u>		
FEDERAL PROJECT <u>M-5379(008)</u>	STATE PROJECT <u>C-2441 H</u>		
LOCATION <u>KEARSARGE WAY OVER B & M. RAILROAD</u>			

ABUTMENTS & PIER FOOTING REINFORCEMENT			
DESIGNED	BY	DATE	BRIDGE SHEET NO.
DRAWN	RC	9/78	4 OF 16
TRACED	RC	9/78	FILE NUMBER
QUANTITIES			4-12-1-2
REVIEWED BY	PROJ. NO.	SHEET NO.	TOTAL SHEETS
	M-5379(008)	7	36

FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				



STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION					
TOWN <u>PORTSMOUTH</u>			BRIDGE NO. <u>240/132</u>		
FEDERAL PROJECT <u>M-5379(008)</u>			STATE PROJECT <u>C-2441 H</u>		
LOCATION <u>KEARSARGE WAY OVER B & M. RAILROAD</u>					
PIER MASONRY AND REINFORCEMENT					
DESIGNED <u>RC</u>	BY <u>RC</u>	DATE <u>7/78</u>	CHECKED <u>AC</u>	BY <u>AC</u>	DATE <u>9/78</u>
DRAWN <u>FK</u>	BY <u>FK</u>	DATE <u>8/78</u>	CHECKED <u>RC</u>	BY <u>RC</u>	DATE <u>9/78</u>
REVISIONS			QUANTITIES		
REVIEWED BY			PROJ. NO. <u>M-5379 (008)</u>		
			SHEET NO. <u>9</u>		
			TOTAL SHEETS <u>36</u>		



Technical drawing of a typical wingwall section. The drawing shows a cross-section of a wingwall with various dimensions and labels. Key features include:

- Dimensions:**
 - Top width: 1'-3"
 - Top thickness: 4"
 - Top slope: 1'-6"
 - Vertical height: 1'-12"
 - Base width: 1'-0"
 - Base thickness: 1'-6"
 - Base slope: 1'-6"
 - Horizontal distance from base to top: 4'-6"
 - Horizontal distance from base to top: 6'-6"
 - Horizontal distance from base to top: 1'-6"
- Labels:**
 - Finish Grade
 - Water Repellant - Item 534
 - Limits of Granular Backfill (Bridge) Item 209.1
 - Limits of Excavation
 - Weeper
 - Drain
 - Construction Joint 11" x 3 1/2" Key
- Scale:** 1/4" = 1'-0"

Fill Side

3'-0"

3"

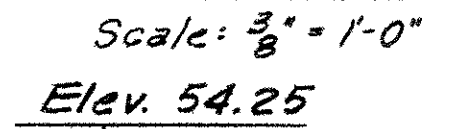
Paint with an approved colorless oil (Typ.)

Varies

Face of Abut.

Contraction Joint, $3\frac{1}{2}" \times 8"$ Key

ITEM NO.
209.1
520.12
ERR



ABUTMENT AND PIER QUANTITIES					
ITEM NO.	DESCRIPTION	S.ABUT.	PIER	N.ABUT.	UNIT
209.1	Granular Backfill (Bridge)	302	66	313	C.Y.
520.12	Concrete Class A - Above Footings	876	310	910	C.Y.
533	Membrane Waterproofing	48	—	53	S.Y.
536.11	Epoxy Coating for Concrete	—	—	252	S.F.
537	Concrete Sealer	11	18	7	Gal.
541.2	P.V.C. Waterstop - N.H. Type 2	20	—	21	L.F.
541.4	P.V.C. Waterstop - N.H. Type 4	44	—	45	L.F.
544	Reinforcing Steel	5,965	7,884	6,287	Lbs.

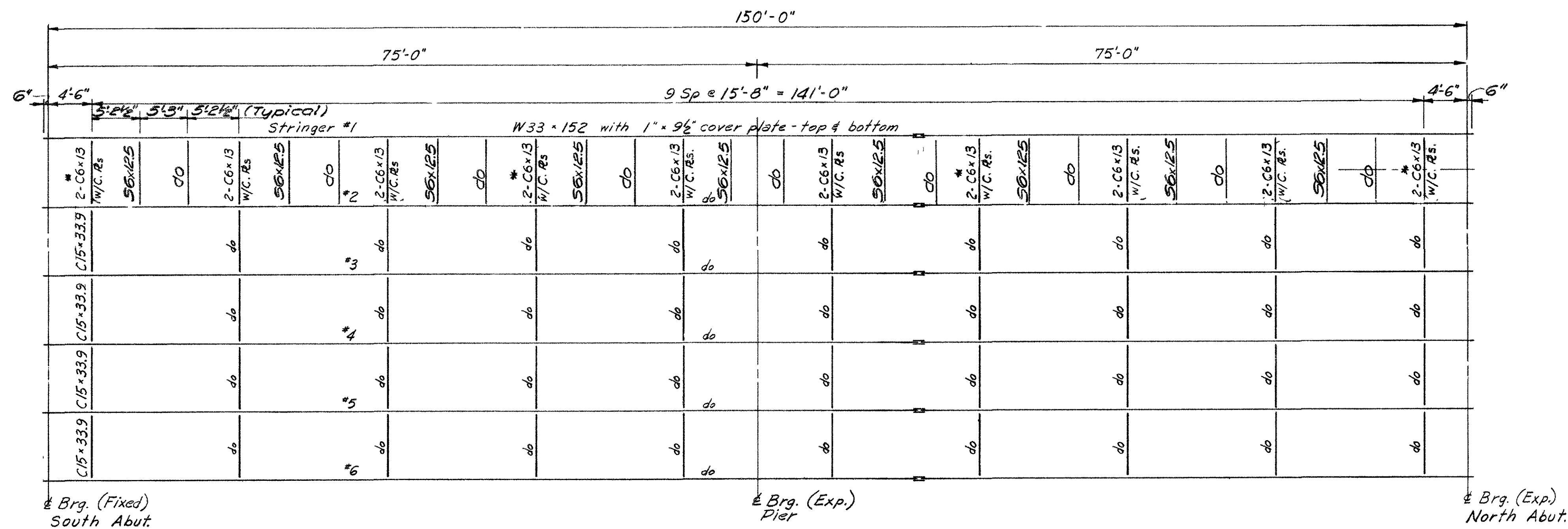
ITEM No.	DESCRIPTION	S.E.	S.W.	N.E.	N.W.	UNIT
209.1	Granular Backfill (Bridge)	185	100	91	49	C.Y.
520.12	Concrete Class A - Above Footings	33.0	27.9	25.4	14.1	C.Y.
534	Water Repellent	1	1	1	1	Gal.
544	Reinforcing Steel	2,442	2,019	1,805	1,218	Lbs.
562.1	Polyurethane Sealant	71	71	73	73	Cu.In.

TOWN PORTSMOUTH BRIDGE NO. 240/132
FEDERAL PROJECT M-5379(008) STATE PROJECT C-2441H
LOCATION KEARSARGE WAY OVER B & M RAILROAD

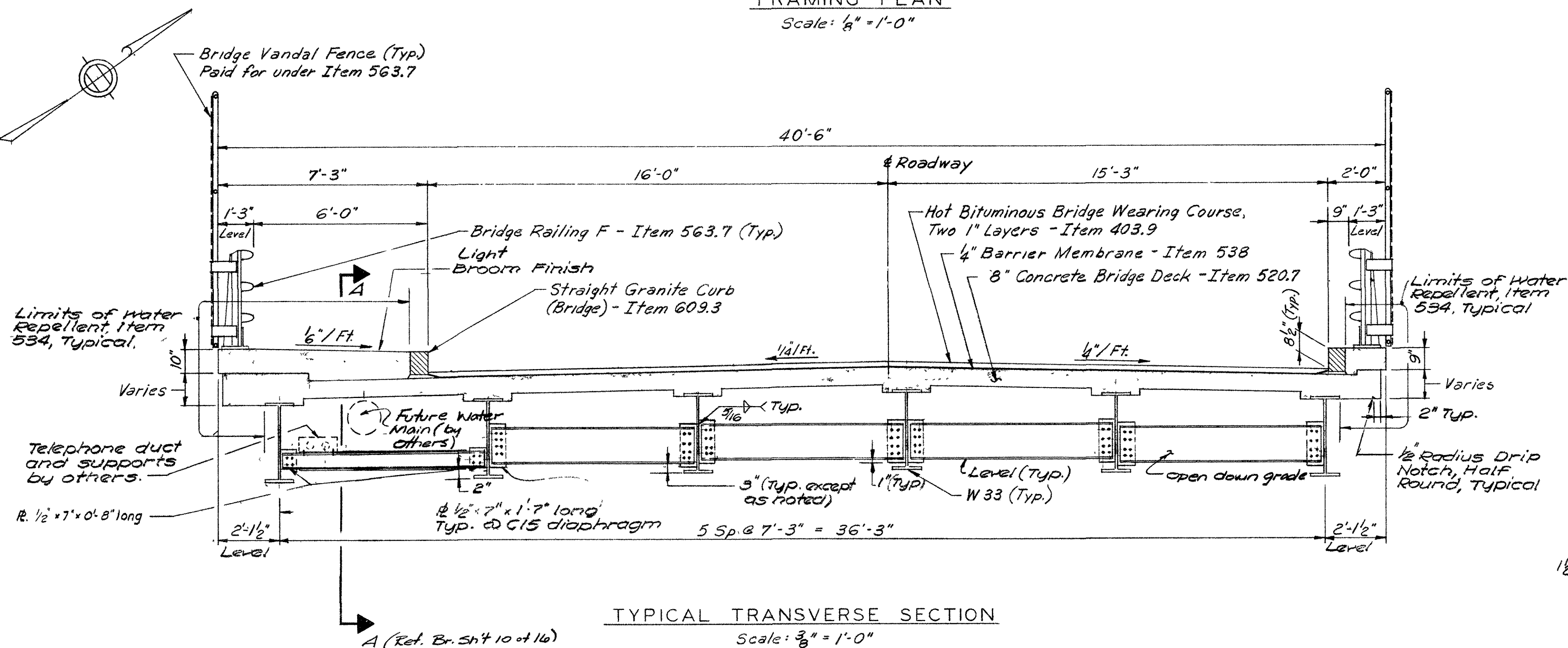
DESIGNED	AC	BY	DATE	8/78	CHECKED	RC	BY	DATE	9/78	BRIDGE SHEET NO. 7 OF 16 FILE NUMBER 4-12-1-2
DRAWN	W		DATE	8/78	CHECKED	FK		DATE	9/78	
TRACED					CHECKED					
QUANTITIES					CHECKED					

REVIEWED BY _____	PROJ. NO.	SHEET NO.	TOTAL SHEETS
	M-5379 (008)	10	36

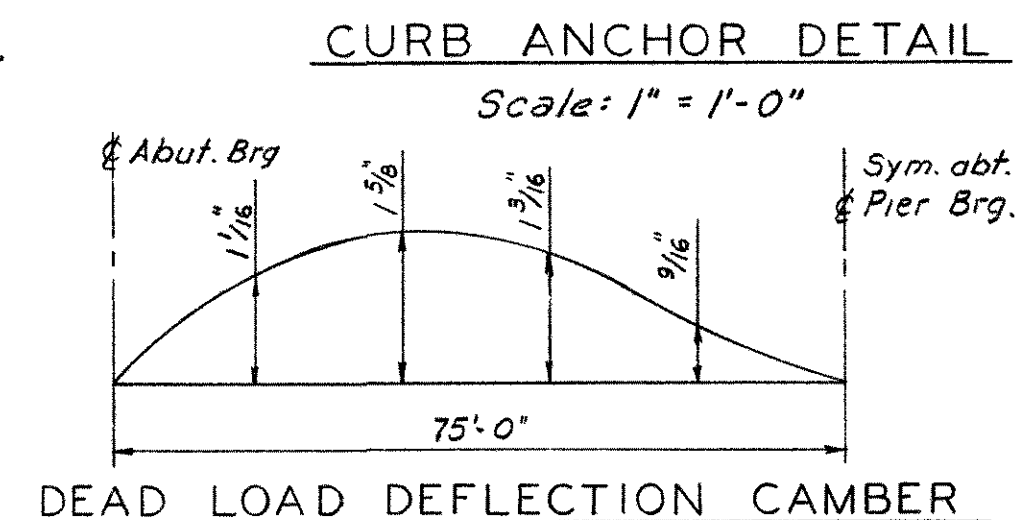
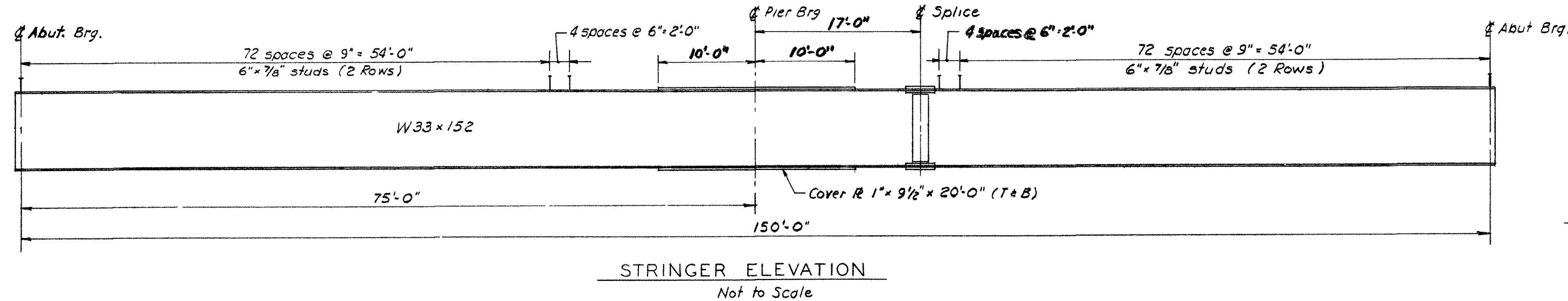
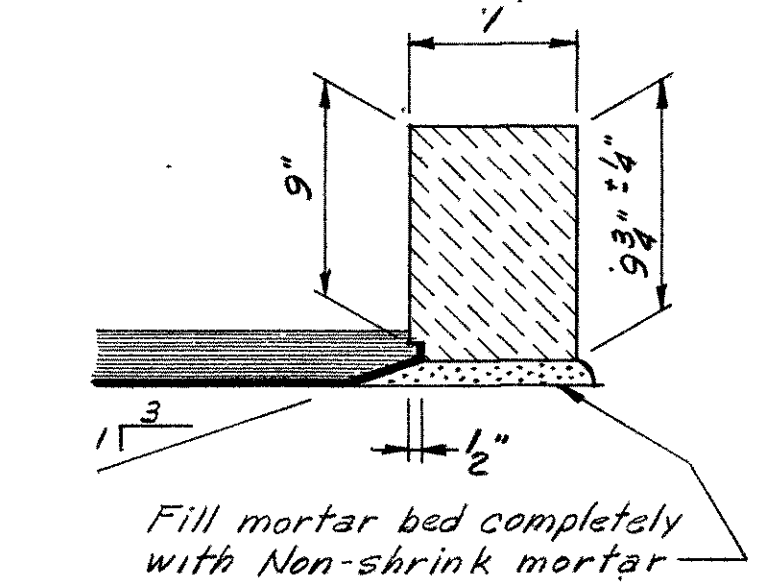
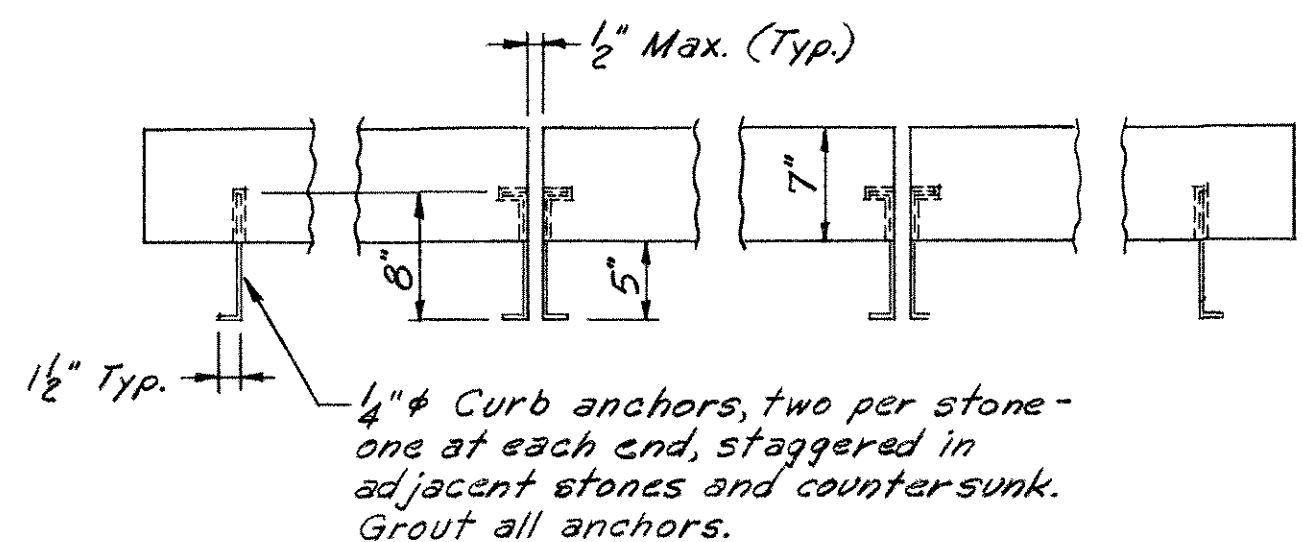
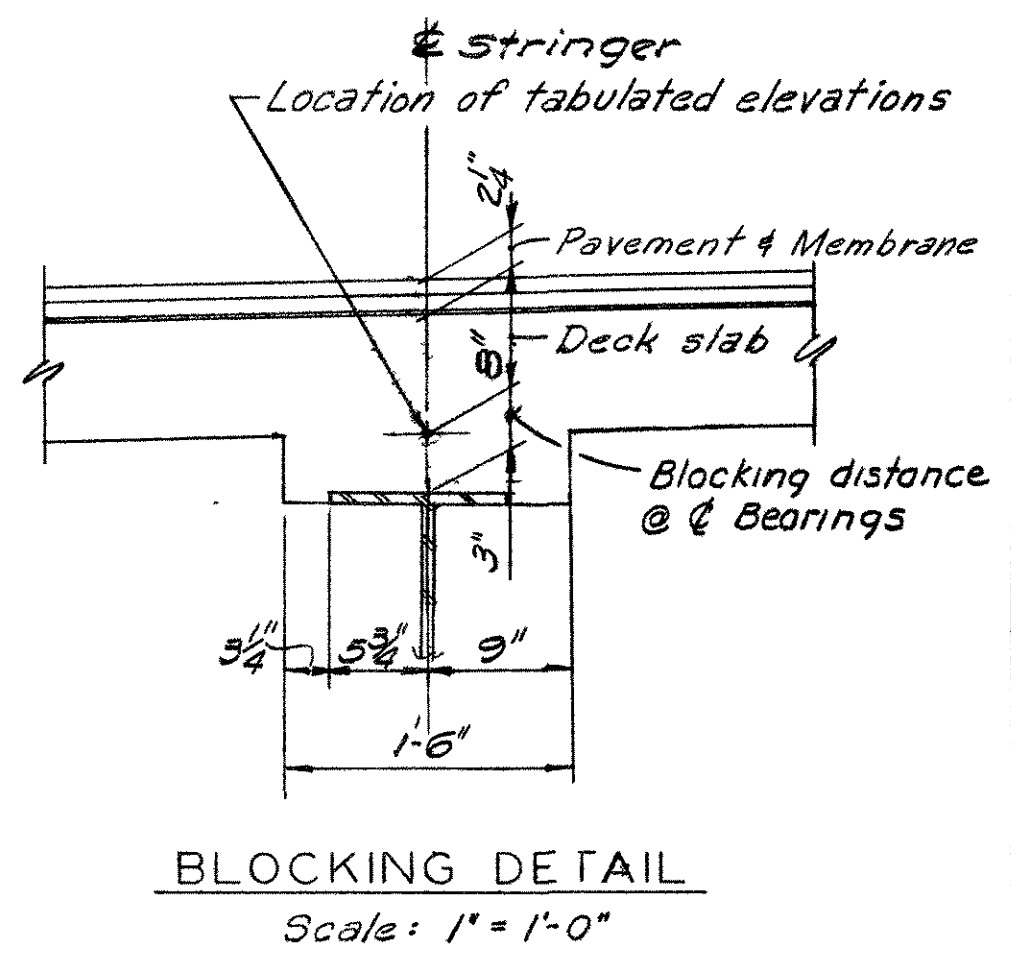
FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				



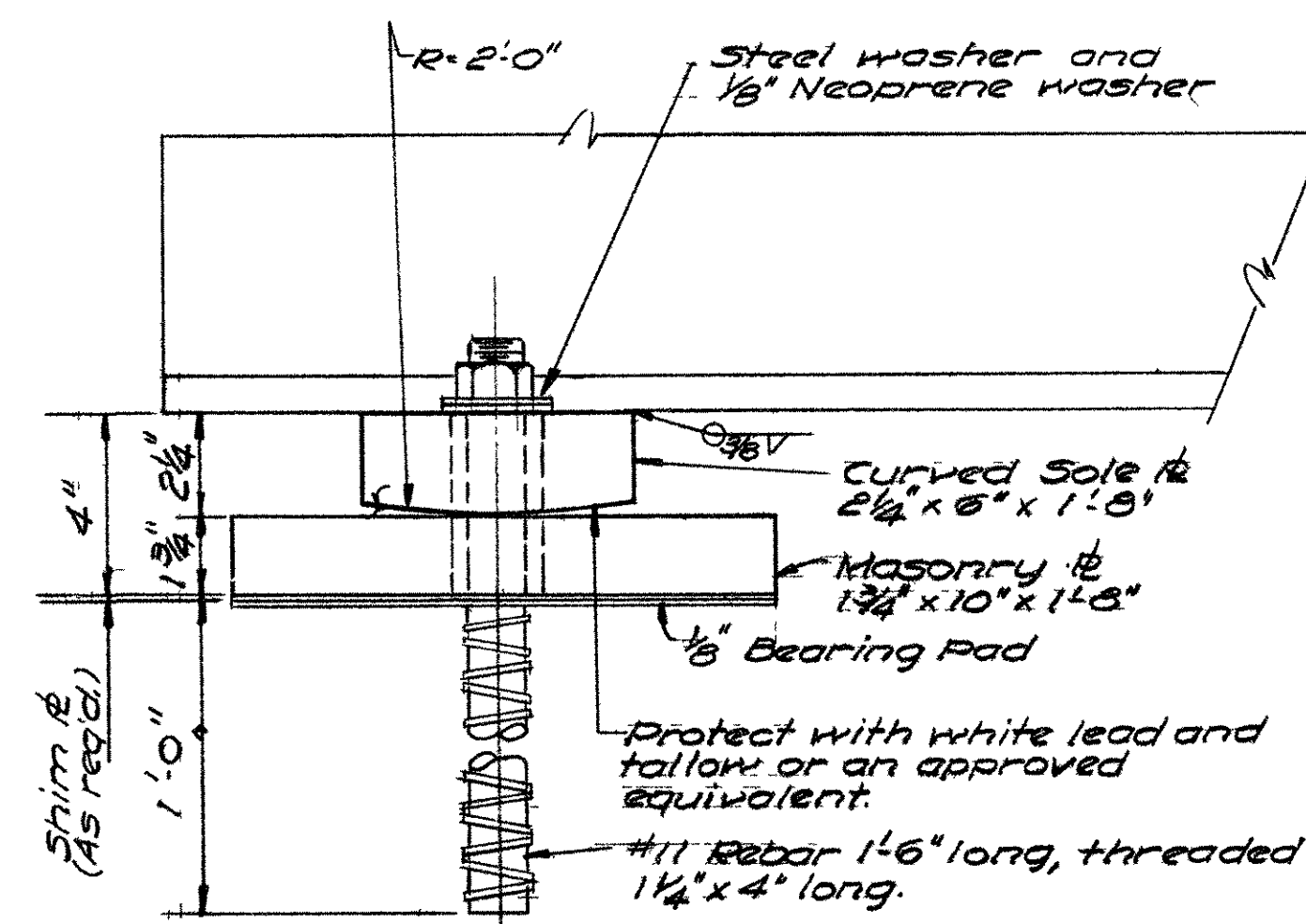
ELEVATIONS AT BOTTOM OF SLAB						
10 th Points	Str. #1	Str. #2	Str. #3	Str. #4	Str. #5	Str. #6
Brig. - Abut. A	59.04	59.19	59.34	59.47	59.32	59.16
1	59.13	59.28	59.43	59.55	59.40	59.25
2	59.21	59.36	59.51	59.63	59.48	59.33
3	59.27	59.42	59.58	59.70	59.55	59.40
4	59.32	59.48	59.63	59.75	59.60	59.45
5	59.36	59.51	59.66	59.78	59.63	59.49
6	59.38	59.53	59.68	59.80	59.65	59.50
7	59.38	59.53	59.68	59.81	59.66	59.51
8	59.35	59.54	59.69	59.81	59.66	59.51
9	59.33	59.54	59.70	59.82	59.67	59.52
Brig. - Pier	59.41	59.57	59.72	59.84	59.69	59.54
1	59.47	59.62	59.77	59.90	59.74	59.59
2	59.54	59.69	59.84	59.96	59.81	59.66
3	59.61	59.76	59.91	60.04	59.88	59.73
4	59.68	59.83	59.98	60.10	59.95	59.80
5	59.73	59.88	60.03	60.16	60.01	59.86
6	59.77	59.93	60.08	60.20	60.05	59.90
7	59.80	59.95	60.10	60.23	60.08	59.92
8	59.81	59.96	60.11	60.23	60.08	59.93
9	59.80	59.95	60.10	60.23	60.08	59.93
Brig. - Abut. B	59.79	59.94	60.09	60.22	60.07	59.91



NOTE:
After the structural steel is erected, but before the deck forms are built, elevations on the top flange of the stringers are to be obtained at the points indicated in the table. The difference between the elevations obtained and those shown in the table gives the actual blocking distance from the top of the stringer to the bottom of the deck slab. See Blocking Detail. The tabulated elevations assume that only the dead load deflection due to the weight of the structural steel has occurred.



STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION						
TOWN <u>PORTSMOUTH</u>		BRIDGE NO. <u>240/132</u>				
FEDERAL PROJECT <u>M-5379(008)</u>		STATE PROJECT <u>C-2441 H</u>				
LOCATION <u>KEARSARGE WAY OVER</u>		<u>B & M RAILROAD</u>				
FRAMING PLAN, TRANSVERSE SECTION & DETAILS						
DESIGNED	BY <u>A.C.</u>	DATE <u>6/78</u>	CHECKED	BY <u>R.C.</u>	DATE <u>9/78</u>	BRIDGE SHEET NO. <u>9 OF 16</u>
DRAWN	<u>W.</u>	DATE <u>7/78</u>	CHECKED	<u>F.K.</u>	<u>8/78</u>	FILE NUMBER
TRACED			CHECKED			
QUANTITIES	<u>R.C.</u>	DATE <u>10/78</u>	CHECKED	<u>F.K.</u>	DATE <u>10/78</u>	<u>4-12-1-2</u>
REVIEWED BY			PROJ. NO.	SHEET NO.	TOTAL SHEETS	
			<u>M-5379(008)</u>	<u>12</u>	<u>36</u>	



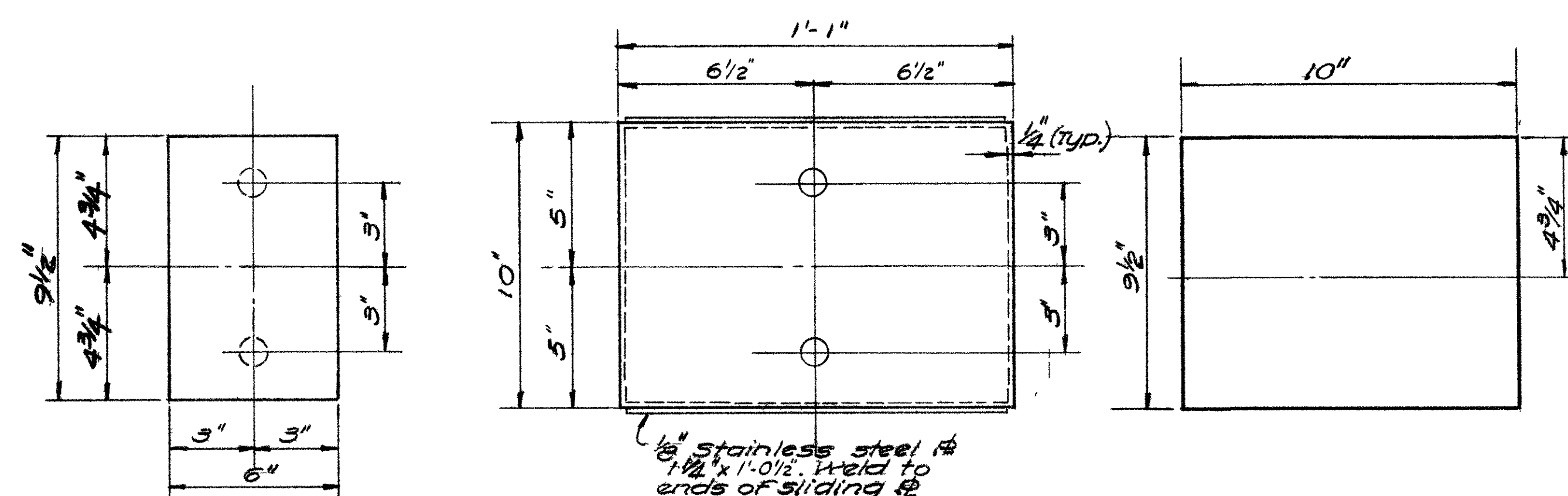
V I E W A - A

1. Expansion shoe and fixed shoe assemblies including anchor bolts are to be paid for as Bridge Shoes, Item 550.2. 8. B. sh
2. All plates to be flat and true after welding. 11. 5. a. 14.
3. All steel plates shall conform to AASHTO M-222 (ASTM A-368) except for stainless steel AISI type 304 (ASTM A240) 9. T. 5. 11. 14. C.
4. Anchor bolts shall be fabricated according to Supplemental Specifications, Amendment to Section 550 (Addendum #3) 10. T. 5. 11. 5. 14. C.
5. See Note #2 on Br. Sh. 5 of 6 for the procedure to determine the shim plate thickness. 10. T. 5. 11. 5. 14. C.
6. The stainless steel shall be $\frac{1}{8}$ " thick and the sliding surface finished to a 2B finish. 11. 5. 14. C.
7. Weld the stainless steel plates to the bottom and sides of the sliding plate. The weld shall be made on all sides of the stainless steel plates and shall not protrude beyond the plate thickness ($\frac{1}{8}$ "). Grind the weld smooth if necessary. 11. 5. 14. C.

8. Bond the preformed pads to the top of the steel masonry piers and the sides of the pier. The pads shall be prepared with an approved adhesive. The surface preparation of the fabric pads and steel plates shall be according to the manufacturer's recommendations.
9. The bonded preformed fabric pads and stainless steel sheets shall be those manufactured by an approved supplier, with proven experience in the field, such as the Fabreeka Products Company, or an approved equal.
10. The bearing pad shall comply with the AASHTO Specification 2.10.3 (L) "Preformed Fabric Pads" and shall meet the environmental requirements of MIL-E-5272. A certificate of compliance shall be furnished for the above.
11. Steel in the shoes is to be furnished in accordance with AASHTO E.10.25.

P L A N

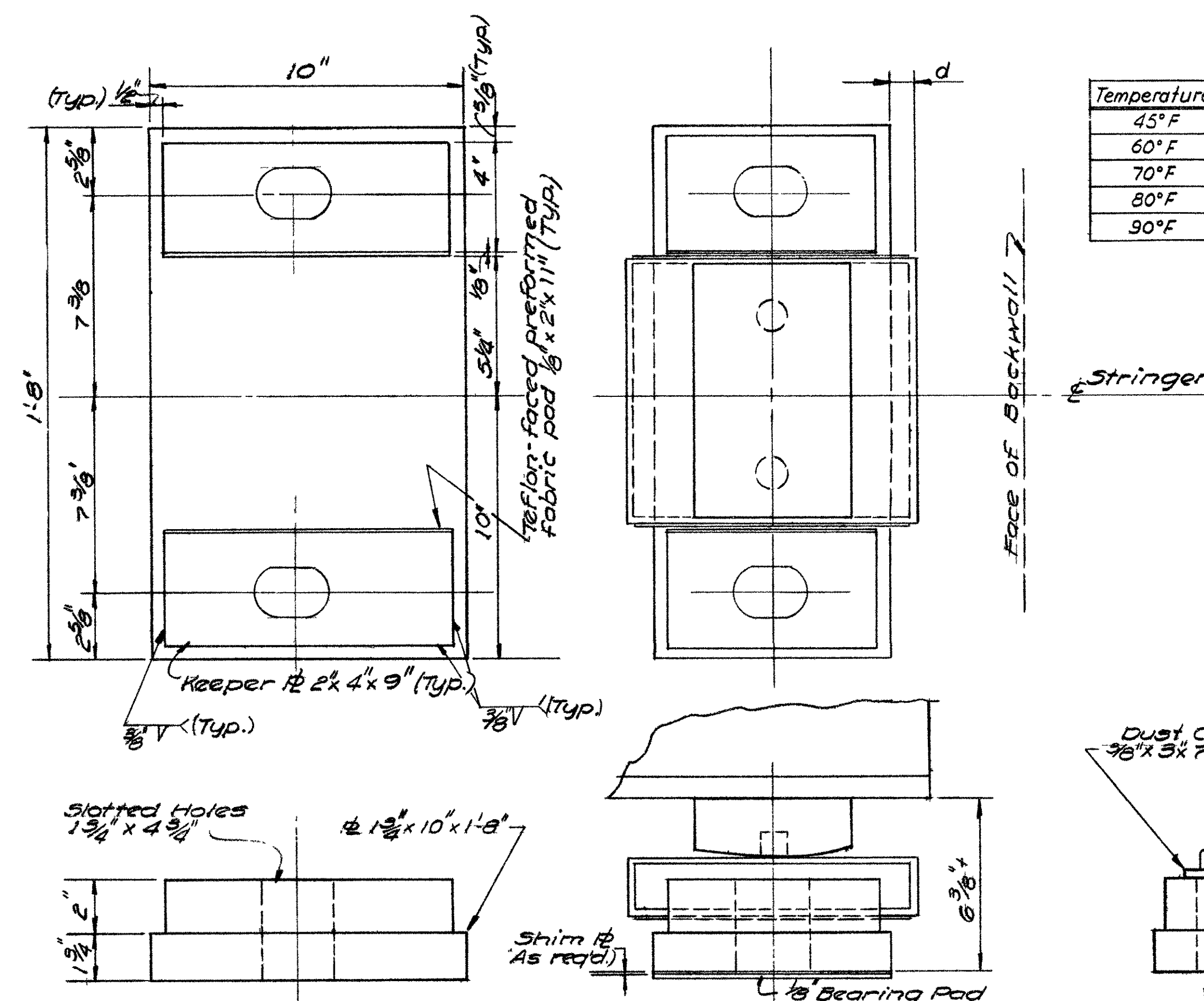
FIXED SHOE



SOLE PLATE

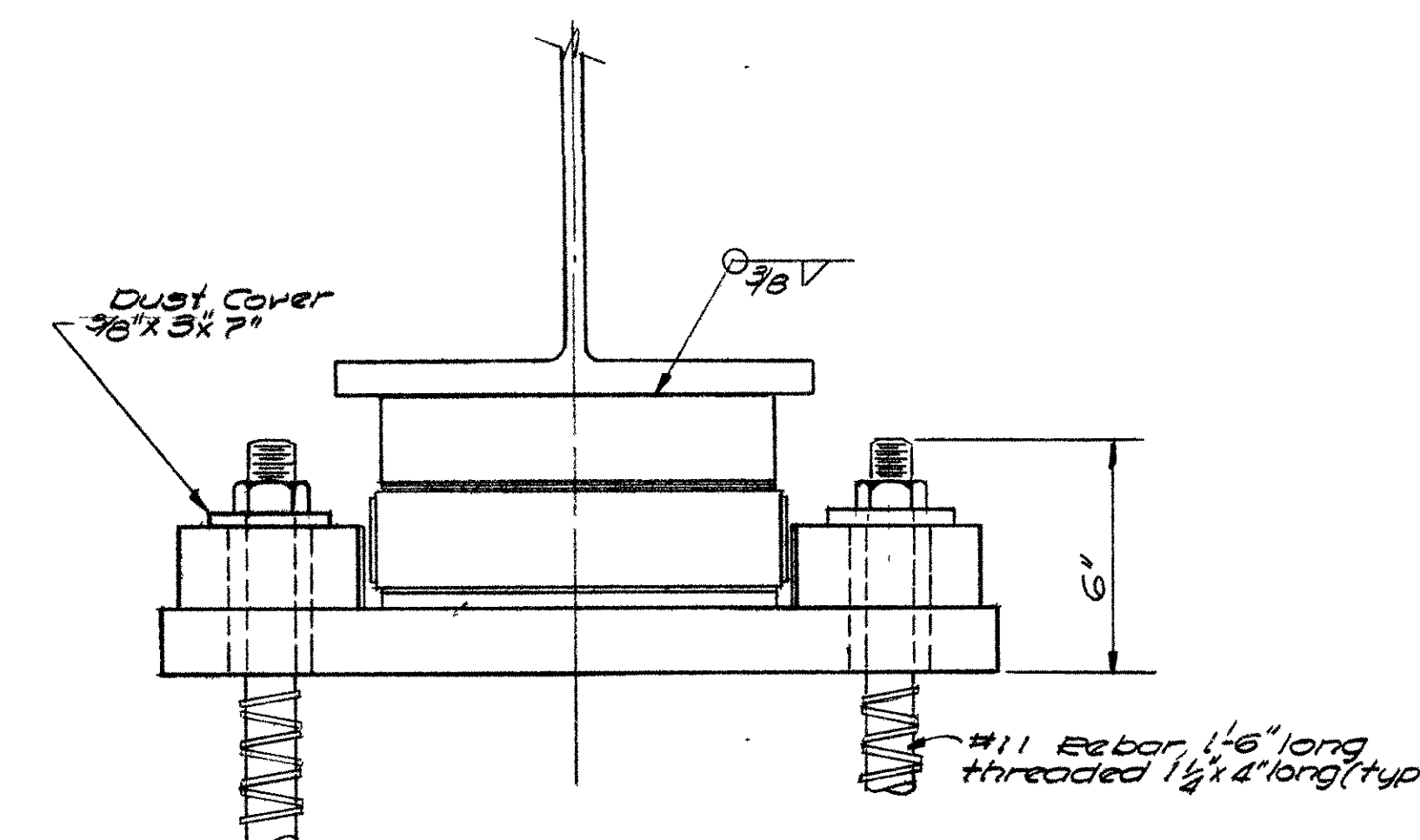
SLIDING PLATE

PREFORMED FABRIC PAD

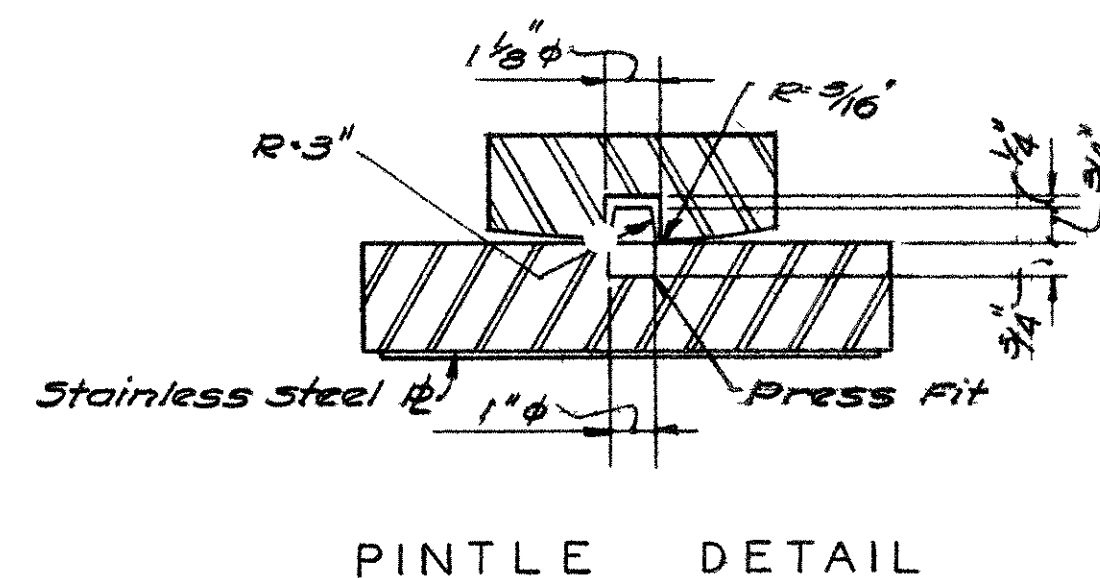


MASONRY PLATE

SHOE ASSEMBLY



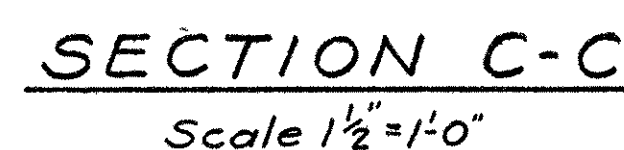
EXPANSION SHOE



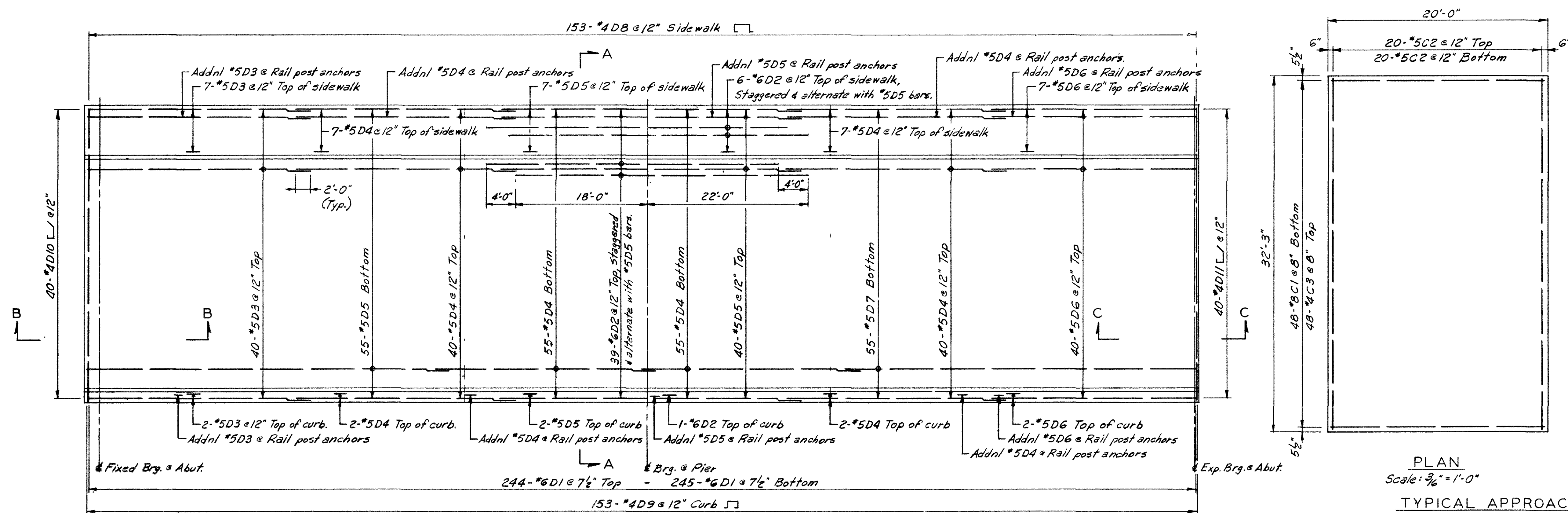
PINTLE DETAIL

Temperature	Distance, d
45°F	1 1/2"
60°F	1 1/16"
70°F	1 3/16"
80°F	1 5/16"
90°F	2 1/16"

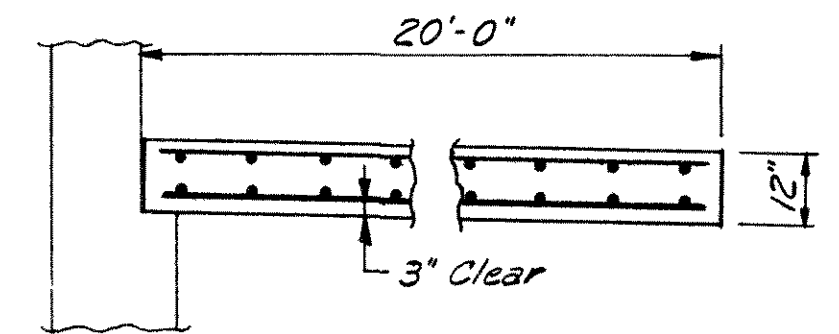
<p style="text-align: center;">STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION</p>									
TOWN <u>PORTSMOUTH</u>				BRIDGE NO. <u>240/132</u>					
FEDERAL PROJECT <u>M-5379 (008)</u>				STATE PROJECT <u>C-2441H</u>					
LOCATION <u>KEARSARGE WAY OVER B & M RAILROAD</u>									
ABUTMENT BRIDGE SHOES									
DESIGNED <u>RC</u>		BY	DATE <u>9/78</u>	CHECKED <u>ACC</u>		BY	DATE <u>9/78</u>	BRIDGE SHEET NO.	
DRAWN <u>D.S.</u>			<u>9/78</u>	CHECKED <u>RC</u>			<u>9/78</u>	11 OF 16	
TRACED				CHECKED				FILE NUMBER	
QUANTITIES				CHECKED				4 -12-1-2	
REVIEWED BY				PROJ. NO.		SHEET NO.		TOTAL SHEETS	
				M-5379 (008)		14		36	



FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				



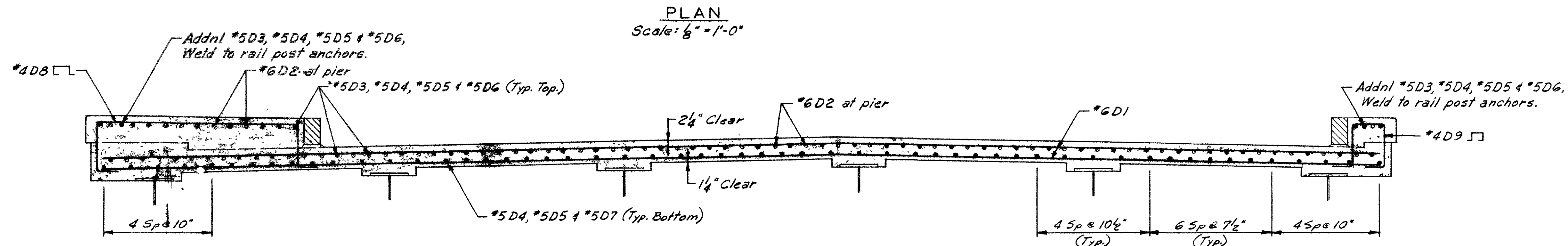
APPROACH SLAB QUANTITIES			
Item No.	Description	Qty	Unit
520.13	Conc. Class A, Approach Slabs	47.8	C.Y.
544	Reinforcing Steel	8,598	Lbs.



TYPICAL SECTION
Scale: $\frac{3}{8}$ " = 1'-0"

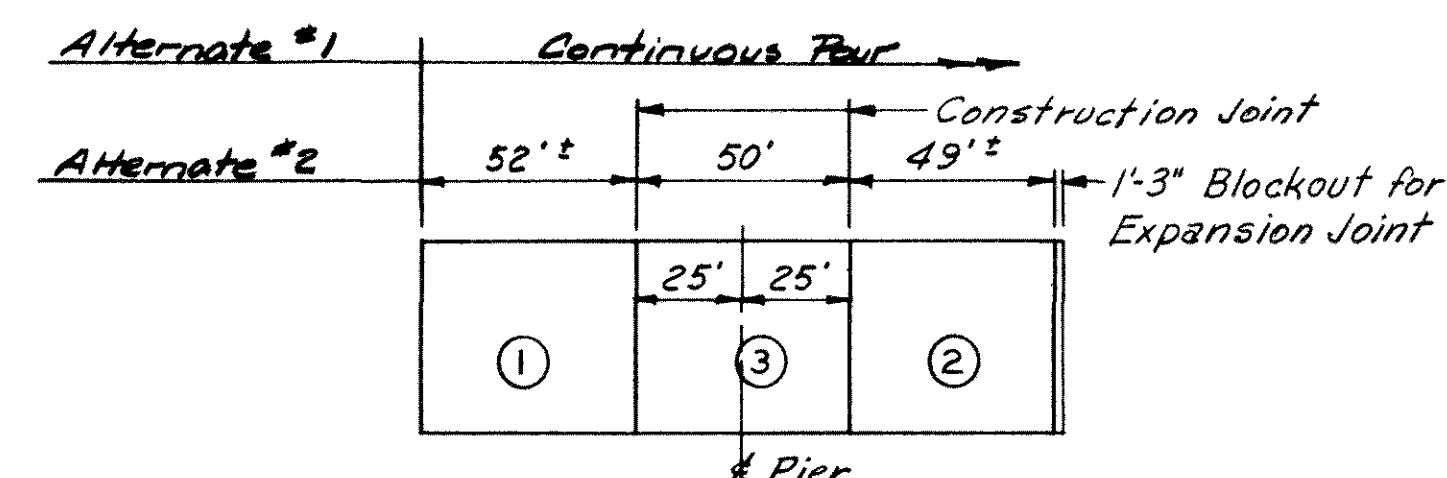
PLAN
Scale: $\frac{3}{8}$ " = 1'-0"

TYPICAL APPROACH SLAB REINFORCEMENT



PLAN
Scale: $\frac{3}{8}$ " = 1'-0"

SECTION A-A
Scale: $\frac{1}{2}$ " = 1'-0"



PLACING SEQUENCE

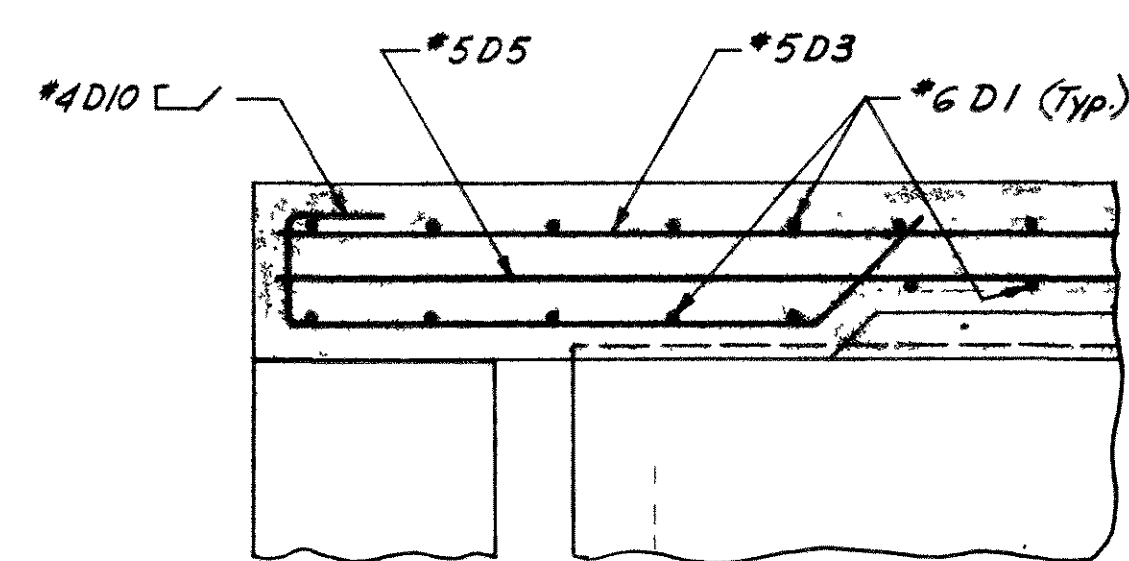
NOTES:

- Deck slab areas to be placed in numerical sequence.
- Placement of areas ① and ② may be reversed or placed simultaneously at contractors option subject to engineers approval.
- Once the placing of a slab has been started it is to be completed without interruption.
- Coat deck slab construction joints with an approved epoxy bonding agent, cost to be subsidiary.

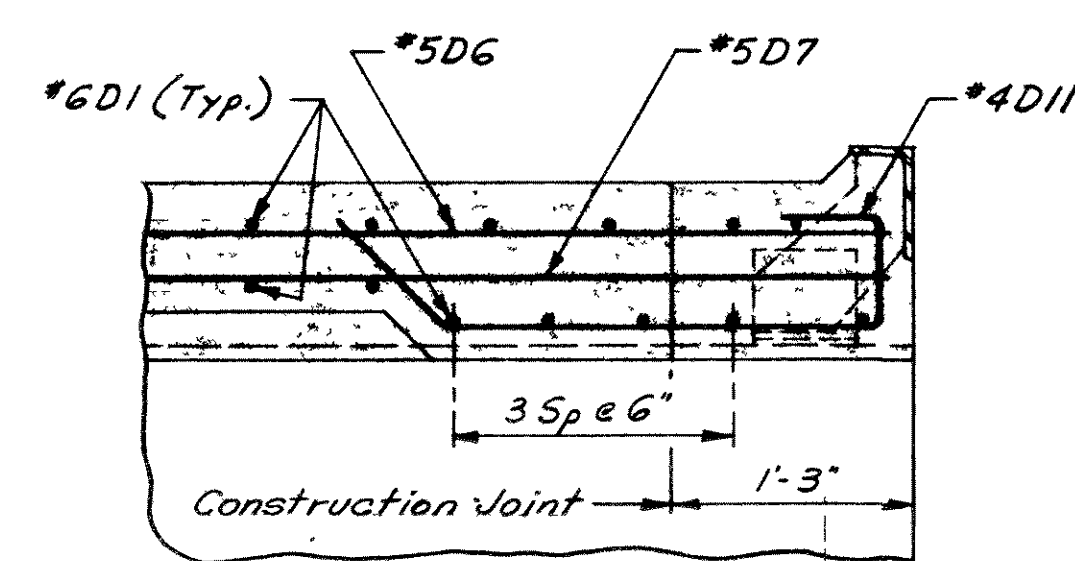
NOTES:

- All superstructure reinforcing steel shall be Grade 40.
- All reinforcing steel shall be 2" clear from concrete surfaces except as noted.

SUPERSTRUCTURE QUANTITIES			
Item No.	Description	Quantity	Unit
403.9	Hot Bituminous Bridge Wearing Course	68	Ton
520.7	Concrete Bridge Deck (218.1 CY)	1	Unit
534	Water Repellent	8	Gal.
538	Barrier Membrane	529	S.Y.
544	Reinforcing Steel	50,084	Lbs.
547	Shear Connectors (1848 studs)	1	Unit
550.1	Structural Steel (164,031 lbs)	1	Unit
550.2	Bridge Shoes	1	Unit
561.11	Neoprene Expansion Joint, Type A	1	Unit
562.1	Polyurethane Sealant	27	Cu.In
563.7	Bridge Railing F	311	L.F.
565.7	Bridge Approach Rail F	248	L.F.
609.3	Straight Granite Curb (Bridge)	310	L.F.
545.71	Bridge Approach Rail F	256	L.F.



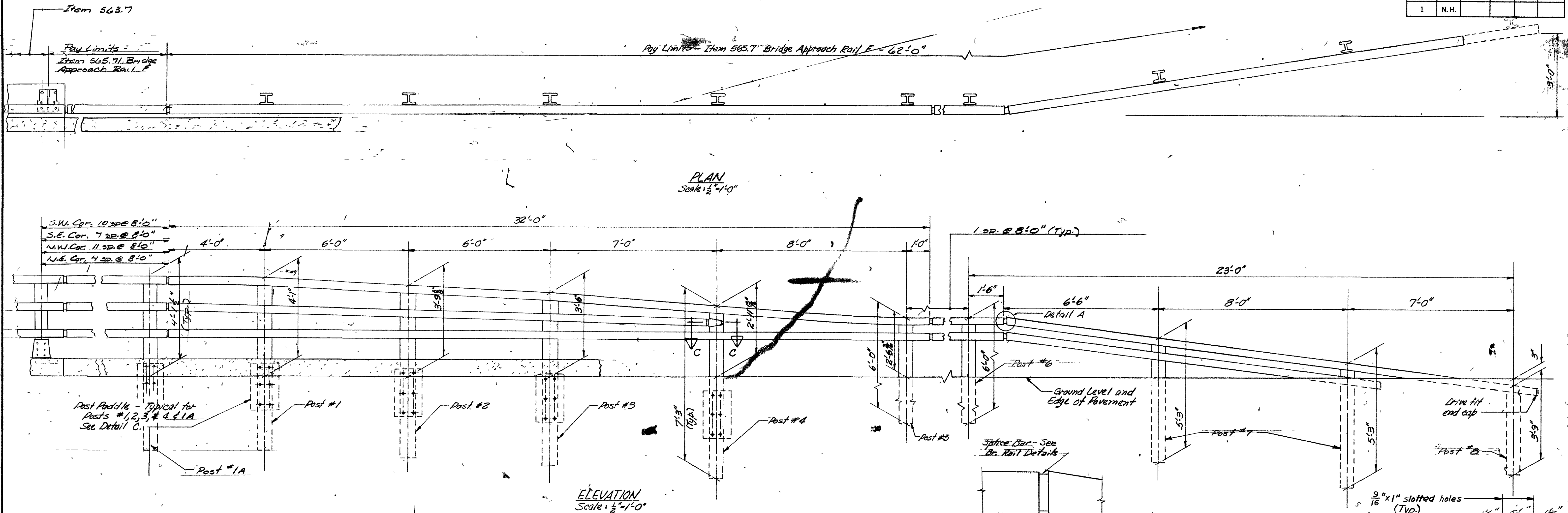
SECTION B-B
Scale: 1" = 1'-0"



SECTION C-C
Scale: 1" = 1'-0"

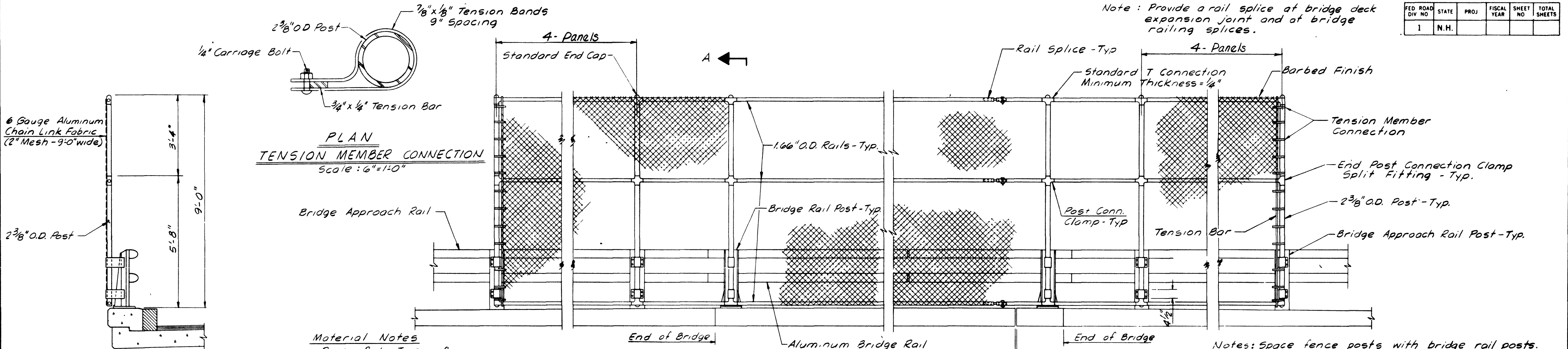
STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION			
TOWN	PORTSMOUTH	BRIDGE NO.	240/132
FEDERAL PROJECT	M-5379 (008)	STATE PROJECT	C-2441 H
LOCATION	KEARSARGE WAY OVER B & M RAILROAD		

DECK REINFORCEMENT			
DESIGNED	BY	DATE	BRIDGE SHEET NO.
DRAWN	RC	7/78	13 OF 16
TRACED	RC	7/78	FILE NUMBER
QUANTITIES			4-12-1-2
REVIEWED BY	PROJ. NO.	SHEET NO.	TOTAL SHEETS
	M-5379 (008)	16	36



FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				

Note: Provide a rail splice at bridge deck expansion joint and at bridge railing splices.



PLAN
TENSION MEMBER CONNECTION
Scale: 6"=1'-0"

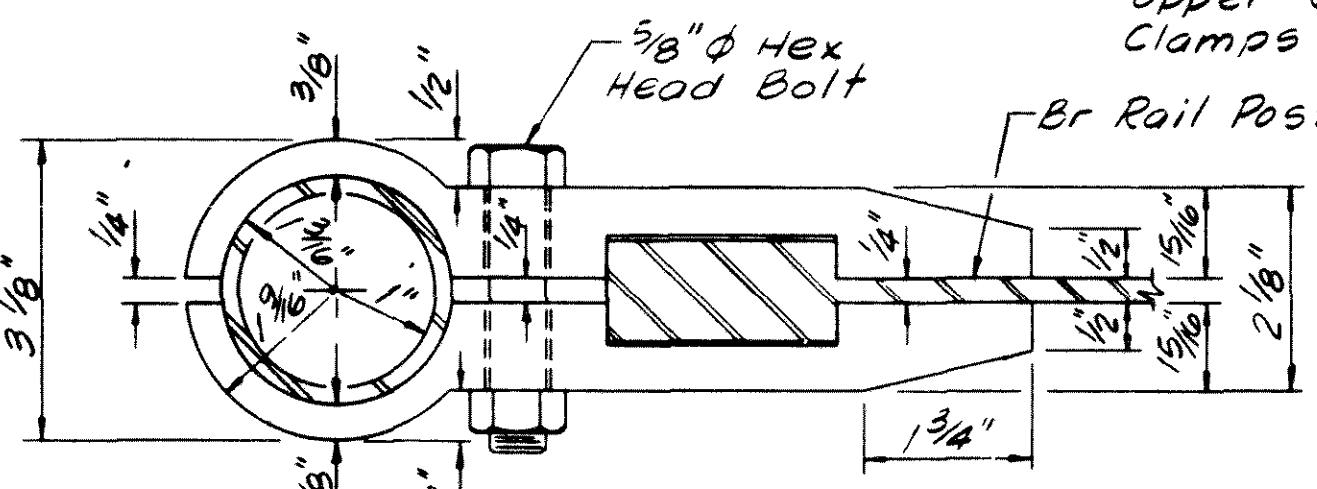
ELEVATION
Scale: 1/2"=1'-0"

Material Notes
Posts, Rails, Tension Bars, Rail Splices, Washers and Post Connection Clamps Fabric and Ties Lower Clamps Tension Bands Bolts Nuts Upper Clamps Clamps at App Rail

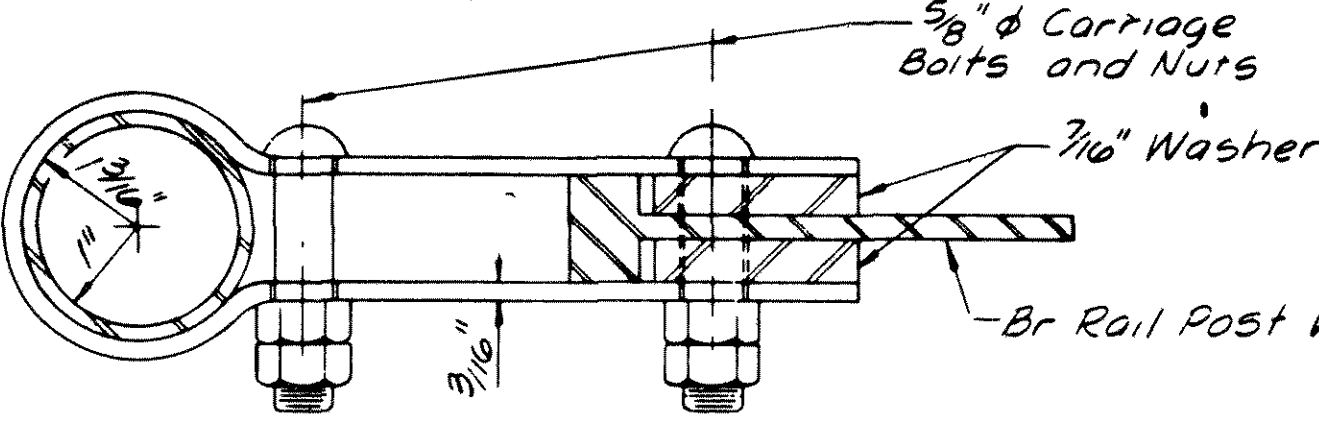
ASTM B221 Alloy 6061-T6
ASTM B211 Alloy 6061-T94-6 Gauge
ASTM B26 or B108 Alloy 356-T-6
ASTM B221 Alloy 6063-T5
ASTM B316 Alloy 2024-T4
ASTM B316 Alloy 6061-T6
ASTM B316 Alloy 6061-T6 or 6063-T6
ASTM B316 Alloy 6061-T6 or 6063-T6

Notes: Space fence posts with bridge rail posts. Use 6 gauge ties 12" oc. to all posts and top two rails. Space ties to bottom rail at 6" O.C.

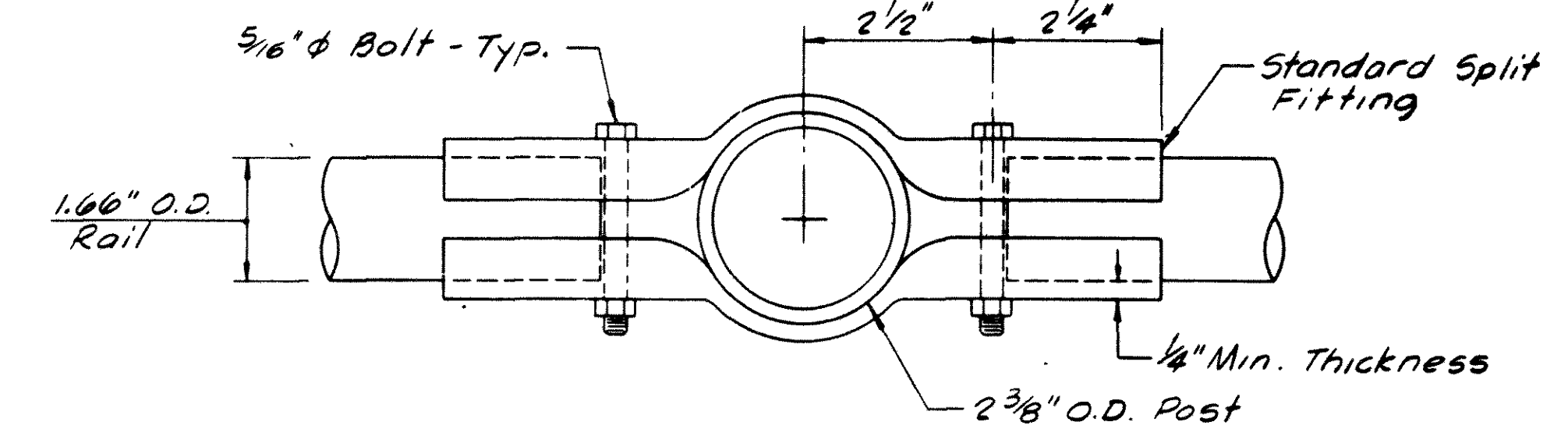
SECTION A-A
Scale: 1/2"=1'-0"



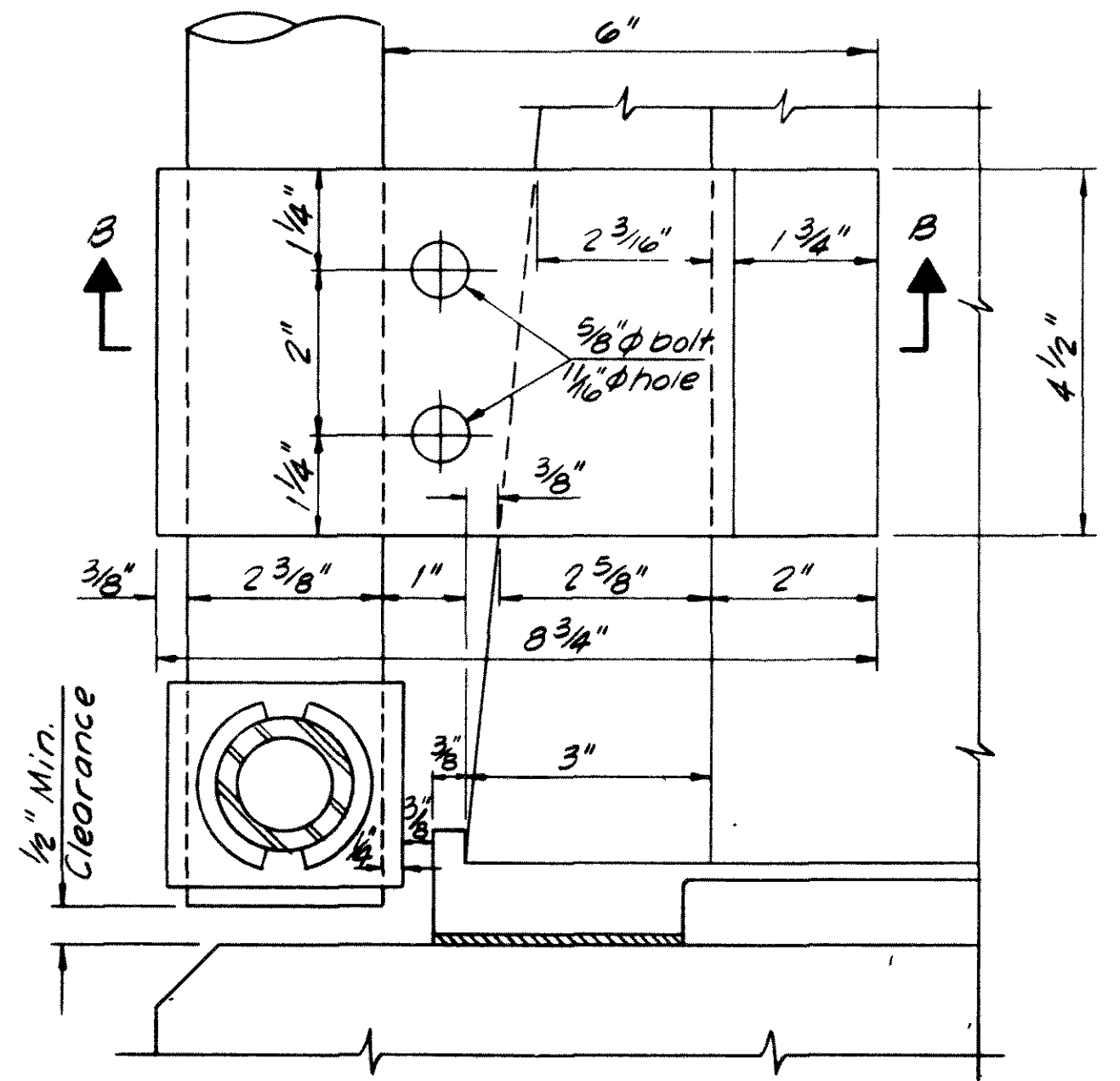
SECTION B-B



SECTION C-C

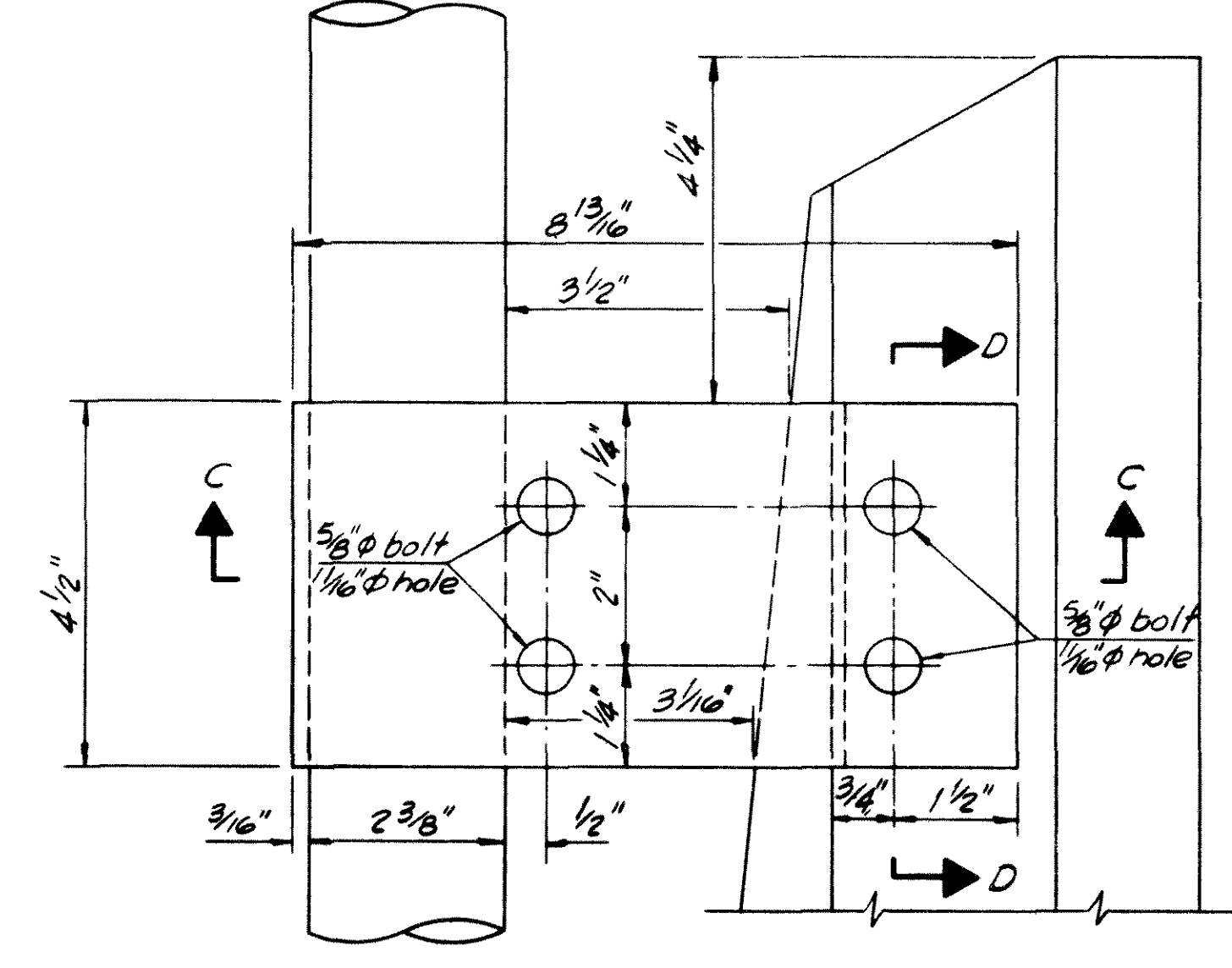


PLAN - POST CONNECTION CLAMP
Scale: 6"=1'-0"



ELEVATION

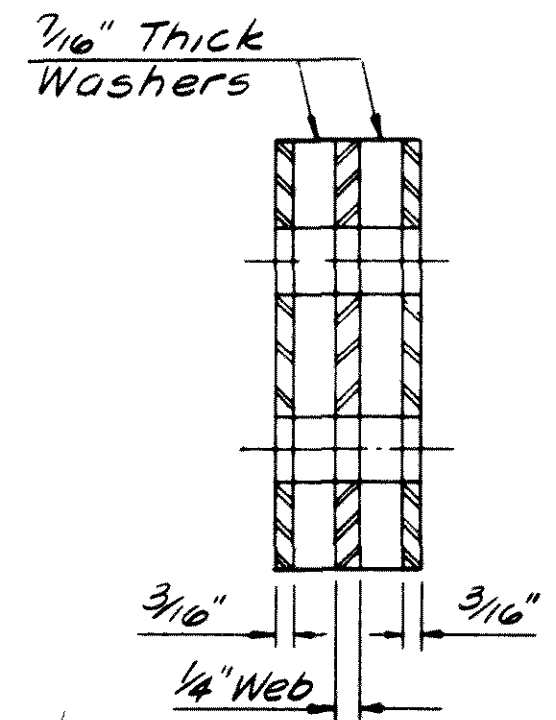
LOWER CLAMP AT BASE OF FENCE
Scale: 6"=1'-0"



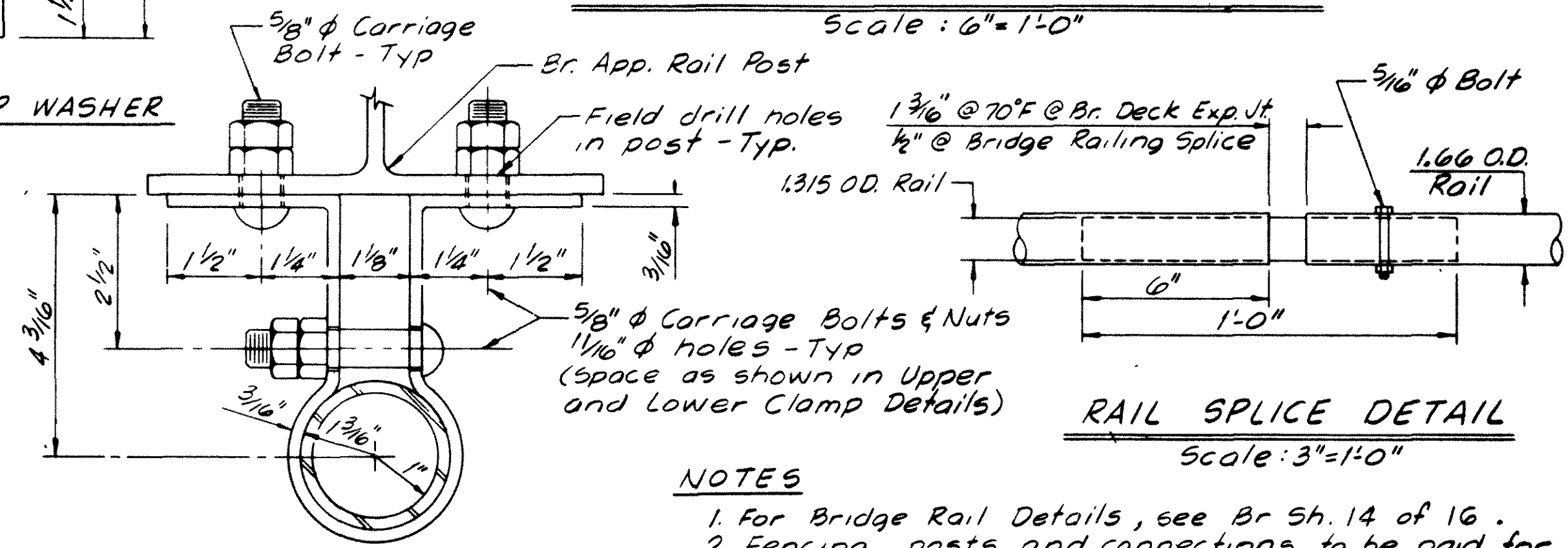
ELEVATION

UPPER CLAMP
Scale: 6"=1'-0"

UPPER CLAMP WASHER



SECTION D-D



RAIL SPLICE DETAIL
Scale: 3"=1'-0"

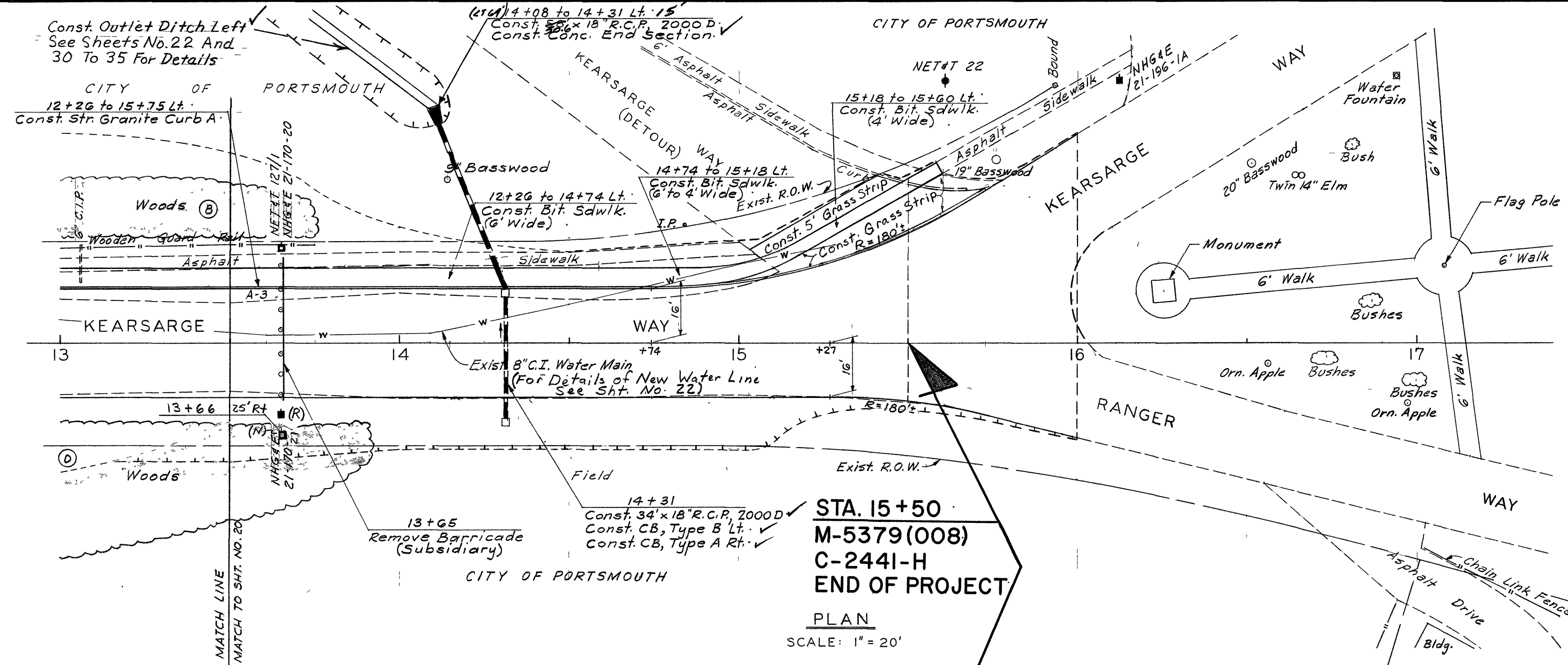
CLAMP AT APPROACH RAIL
Scale: 6"=1'-0"

- NOTES**
- For Bridge Rail Details, see Br. Sh. 14 of 16.
 - Fencing, posts and connections to be paid for under Item 563.7 - Bridge Railing F.
 - For Bridge Approach Rail Details, see Br. Sh. 15 of 16.

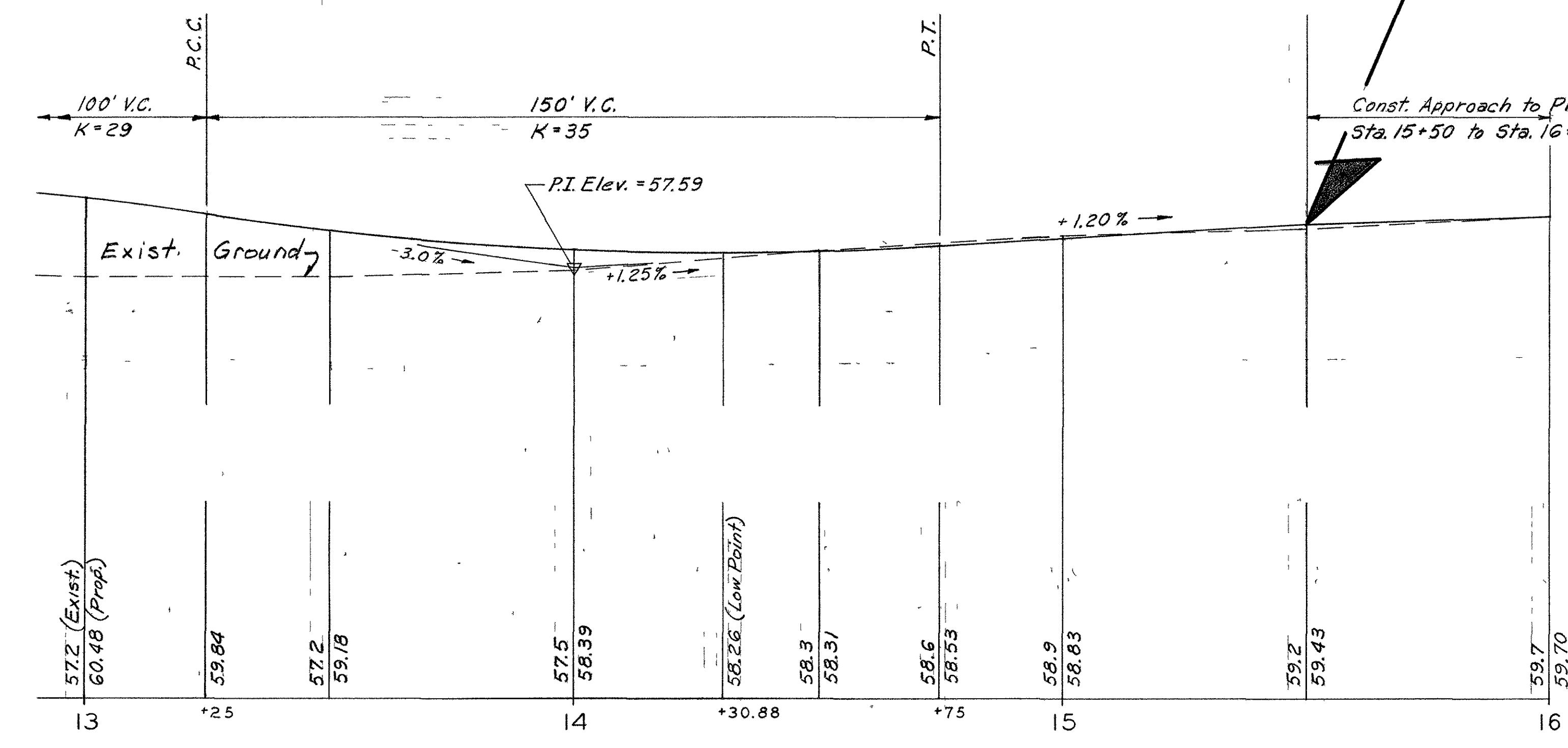
STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION	
TOWN PORTSMOUTH	BRIDGE NO. 240/132
FEDERAL PROJECT M-5379 (008)	STATE PROJECT C-2441H
LOCATION KEARSARGE WAY OVER B&M RAILROAD	

BRIDGE VANDAL FENCE DETAILS			
DESIGNED	BY DATE	CHECKED	BY DATE
DRAWN		CHECKED	
TRACED		CHECKED	
QUANTITIES		CHECKED	
REVIEWED BY	PROJ. NO.	SHEET NO.	TOTAL SHEETS
	M-5379 (008)	19	36

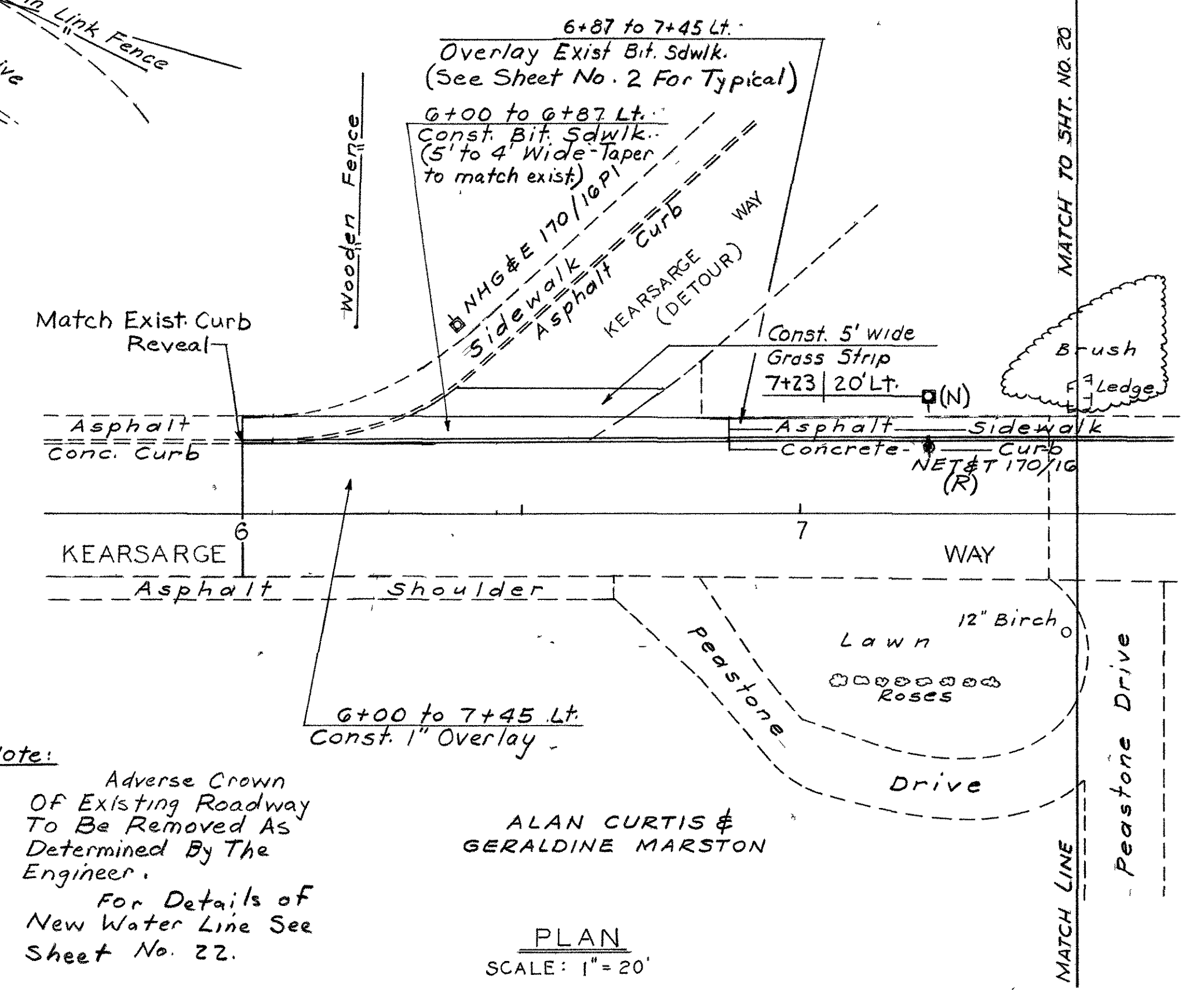
FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				



STA. 15+50
M-5379(008)
C-2441-H
END OF PROJECT
 PLAN
 SCALE: 1" = 20'



PROFILE
 SCALES: HORIZ. 1"=20'
 VERT. 1"=4'



Note:
 Adverse Crown
 OF Existing Roadway
 To Be Removed As
 Determined By The
 Engineer.
 For Details of
 New Water Line See
 Sheet No. 22.

ALAN CURTIS &
 GERALDINE MARSTON

PLAN
 SCALE: 1" = 20'

AS BUILT PLANS

STATE OF NEW HAMPSHIRE
 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
 BRIDGE DESIGN DIVISION

TOWN PORTSMOUTH BRIDGE NO. 240/132
 FEDERAL PROJECT M-5379(008) STATE PROJECT C-2441 H
 LOCATION KEARSARGE WAY OVER B & M RAILROAD

PLAN & PROFILE				BRIDGE SHEET NO. OF FILE NUMBER
DESIGNED	BY	DATE	CHECKED	
FK	FK	3/78	RC	4-12-1-2
DRAWN	FK	8/78	RC	
TRACED	RC	8/78	FK	
QUANTITIES	RC	8/78	FK	
REVIEWED BY				TOTAL SHEETS
M-5379(008)				36

(USE BOTTOM LINES FIRST)

REVISIONS AFTER PROPOSAL

NOTE BOOKS

DATE

PLAN CHECKED
PROFILE CHECKED
INVEST. GARY KIDDER
CHECKED

DESCRIPTION

STATION

NO. DATE

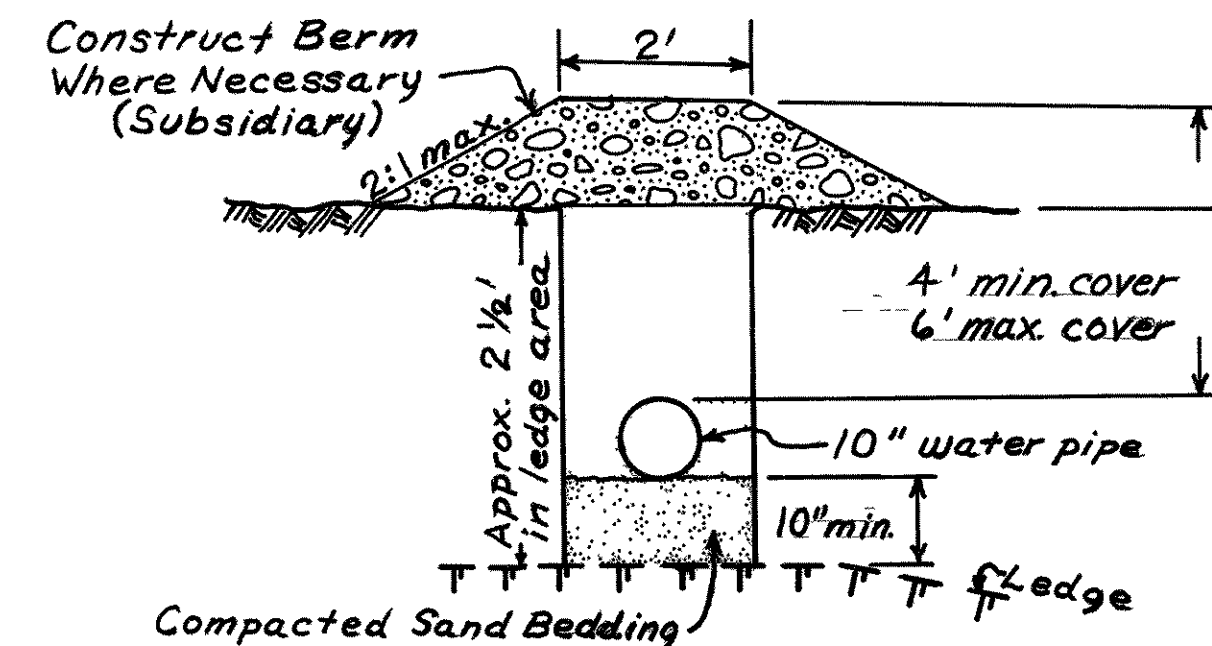
BOOK NO. 11224 PAGE NO. 2-15

BOOK NO. 9/19/78

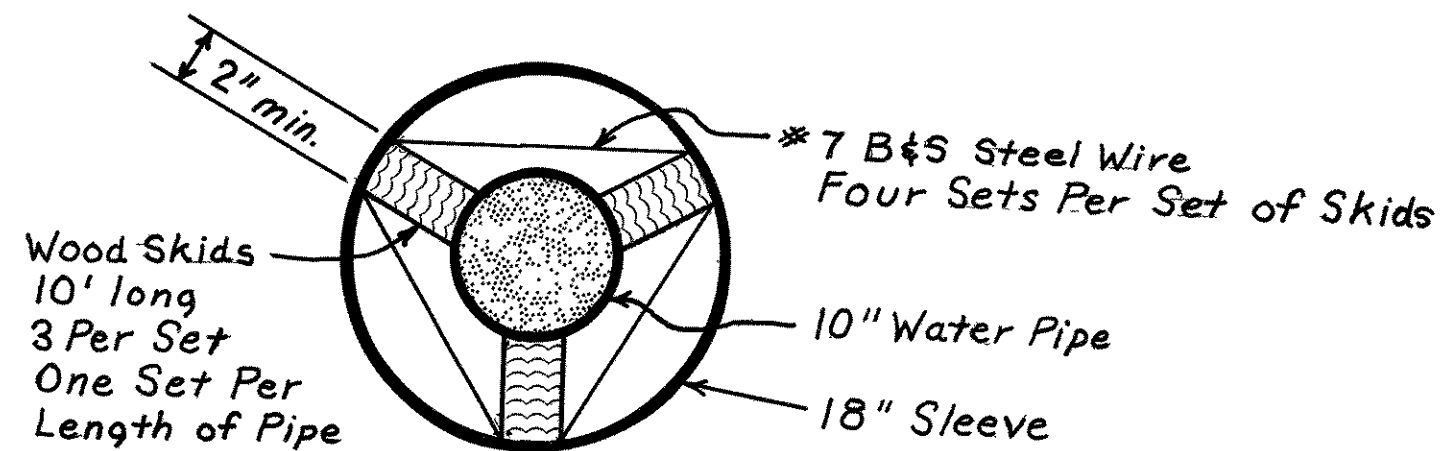
DATE

INVEST. GARY KIDDER

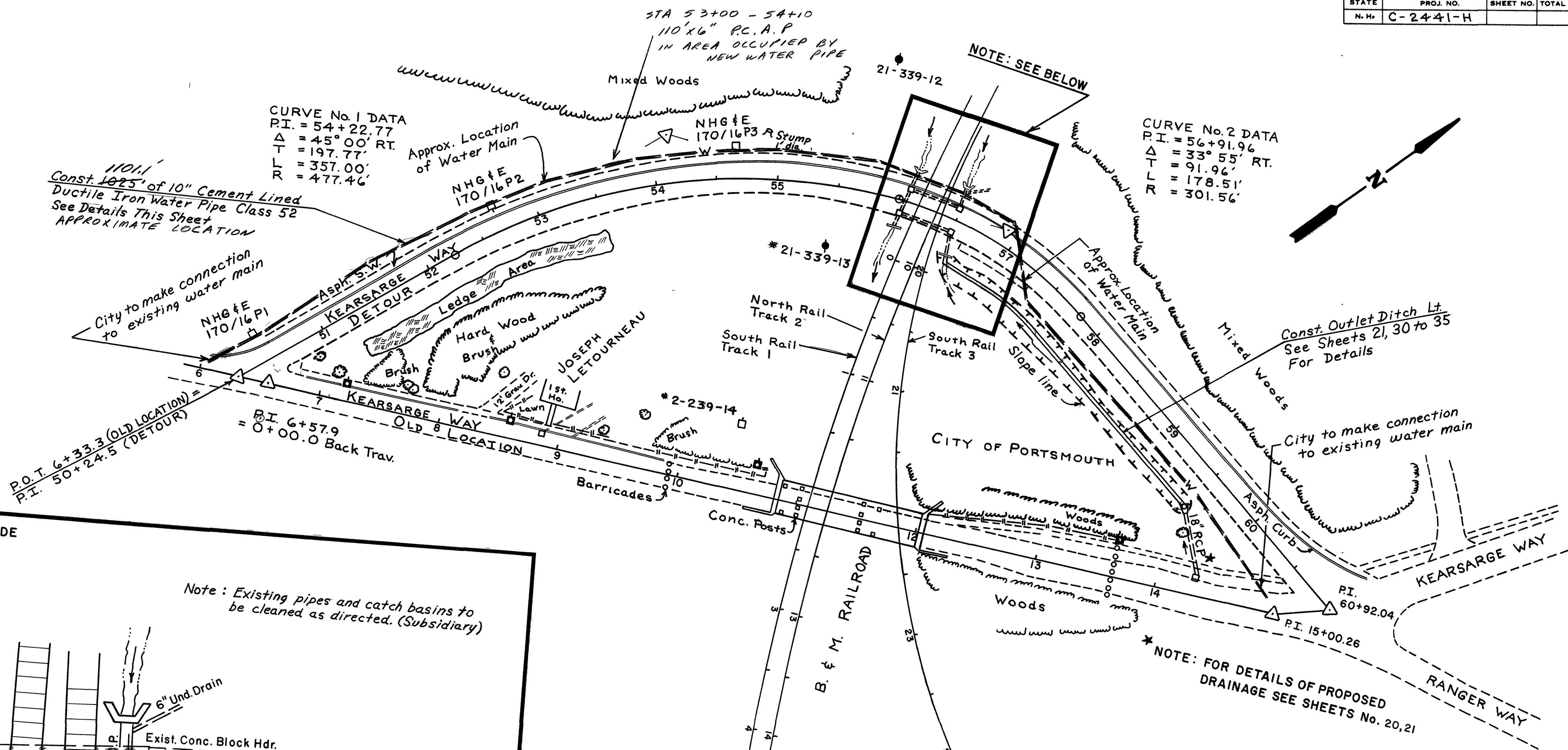
CHECKED



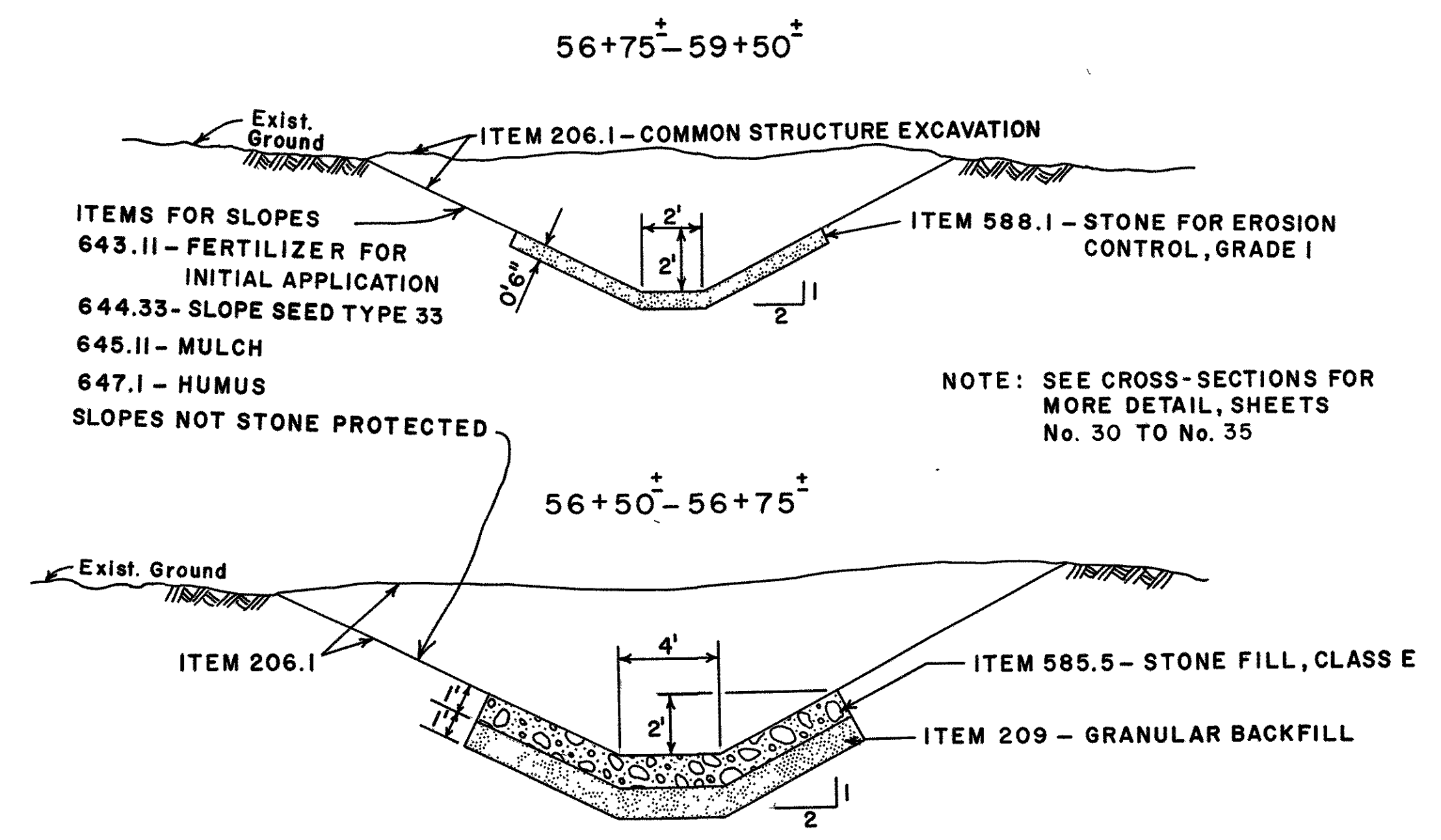
TYPICAL FOR 10" WATER MAIN



CROSS SECTIONAL VIEW OF 18" SLEEVE



DITCH DETAIL

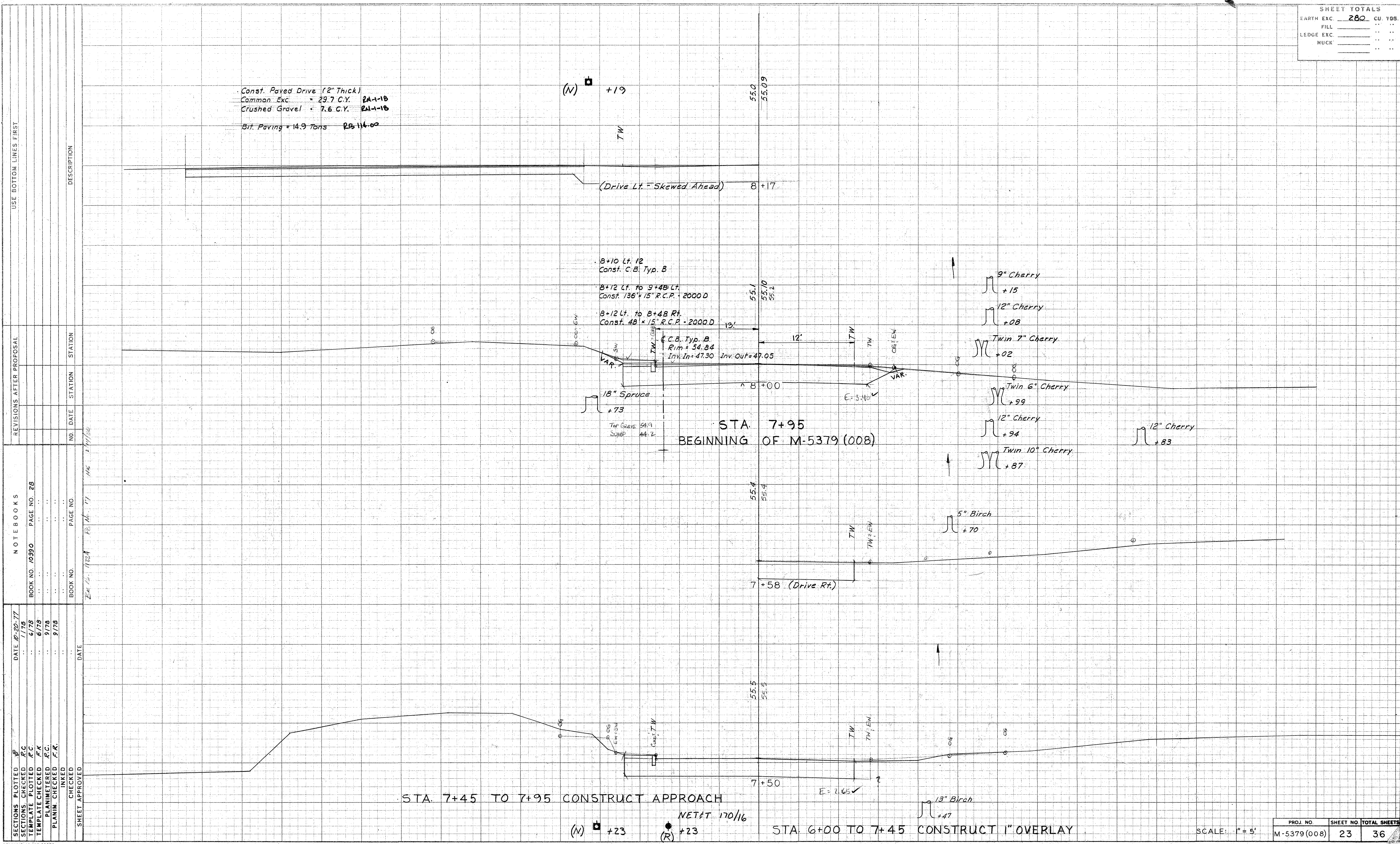


PROTECTION FOR INLET OF EXISTING 24" RCP AT RAILROAD CROSSING

SCALE: 1" = 4'

AS BUILT PLANS

SCALE: 1" = 10'



SHEET TOTALS	
EARTH EXC.	280 CU. YDS.
FILL	.. ..
LEDGE EXC.	.. ..
MUCK	.. ..

USE BOTTOM LINES FIRST

REVISIONS AFTER PROPOSAL

NOTEBOOKS

SECTIONS PLOTTED 10-20-77
SECTIONS CHECKED R.C.
TEMPLATE PLOTTED R.C.
TEMPLATE CHECKED F.K.
PLANIMETERED R.C.
PLANIM CHECKED F.K.
CHECKED
SHEET APPROVED

BOOK NO.	PAGE NO.
BOOK NO. 10990	PAGE NO. 28
..	..
..	..
..	..
..	..
..	..
..	..

DATE	DATE
10-20-77	..
1/78	..
6/78	..
9/78	..
9/78	..
9/78	..
9/78	..
9/78	..

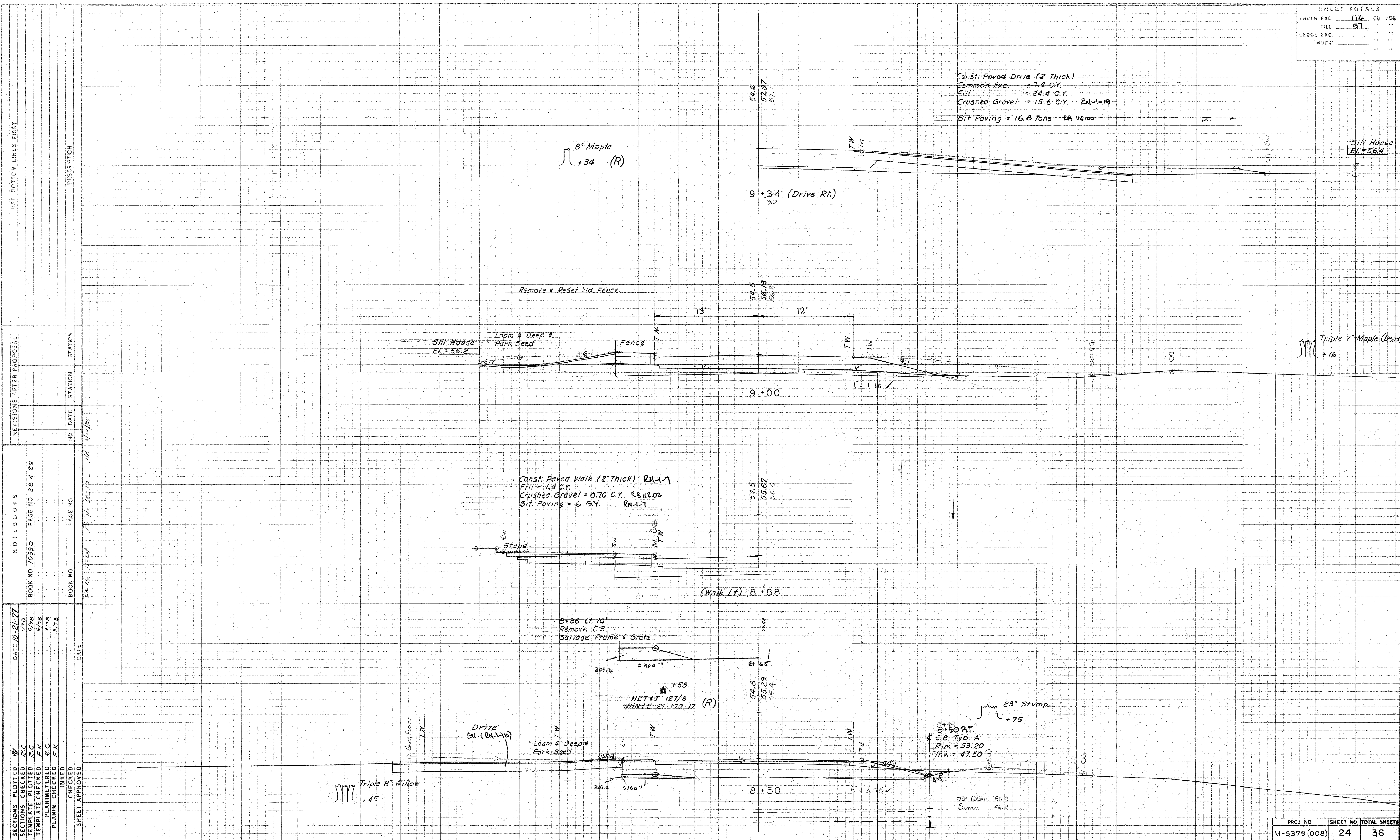
NO. DATE STATION

BOOK NO. PAGE NO.

DATE

SCALE: 1" = 50'

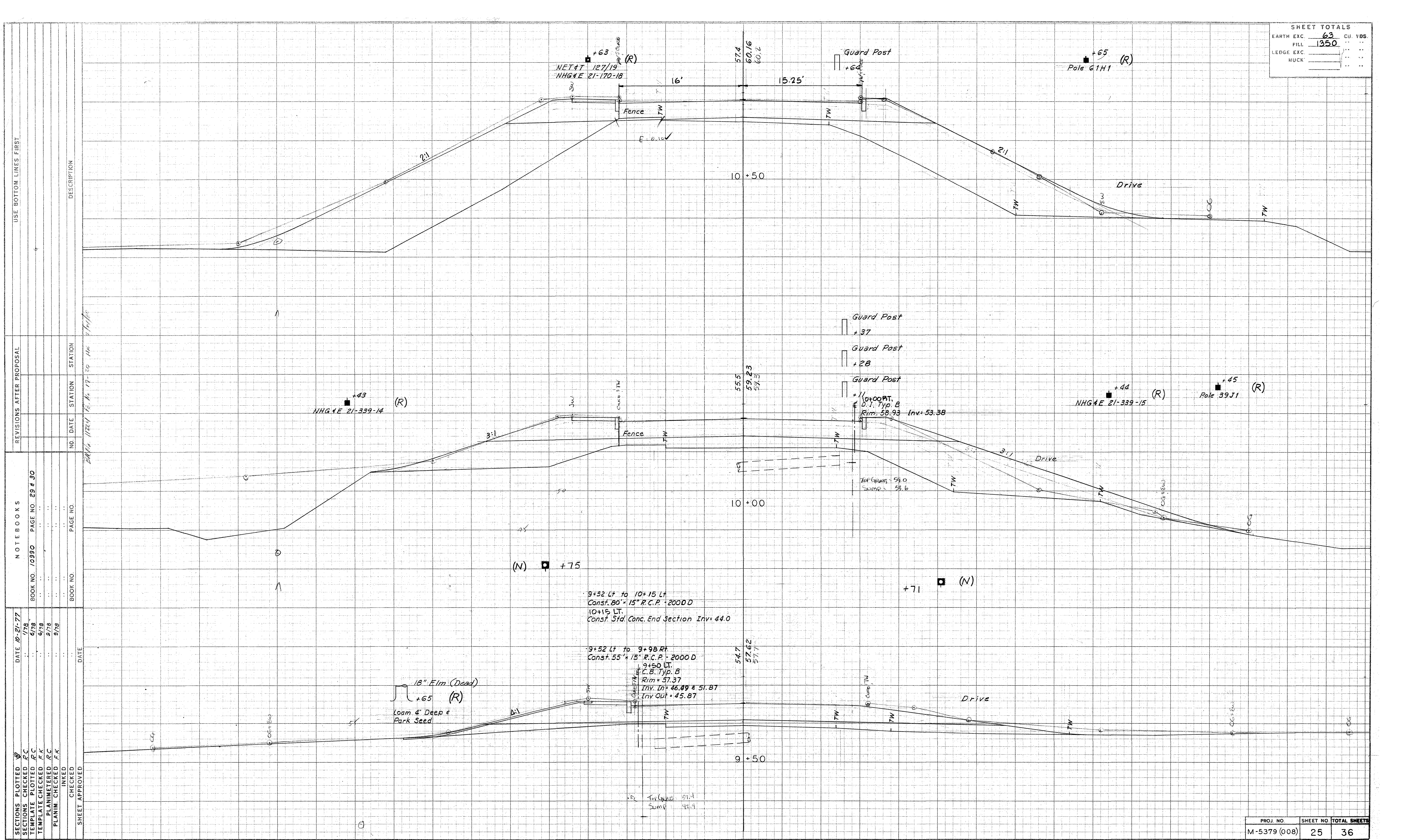
PROJ. NO.	SHEET NO.	TOTAL SHEETS
M-5379(008)	23	36



SHEET TOTALS		
EARTH EXC.	114	CU. YDS.
FILL	57	.. ..
LEDGE EXC.	..	.. ..
MUCK	..	.. ..

SECTIONS PLOTTED	DATE 10-21-77
SECTIONS CHECKED	1/78
TEMPLATE PLOTTED	5/78
TEMPLATE CHECKED	6/78
PLANIMETERED	9/78
PLANIM CHECKED	9/78
INKED	..
CHECKED	..
SHEET APPROVED	..

PROJ. NO.	SHEET NO.	TOTAL SHEETS
M-5379 (008)	24	36



SHEET TOTALS		
EARTH EXC.	63	CU. YDS.
FILL	1350	..
LEDGE EXC.	..	..
MUCK	..	..

USE BOTTOM LINES FIRST

REVISIONS AFTER PROPOSAL

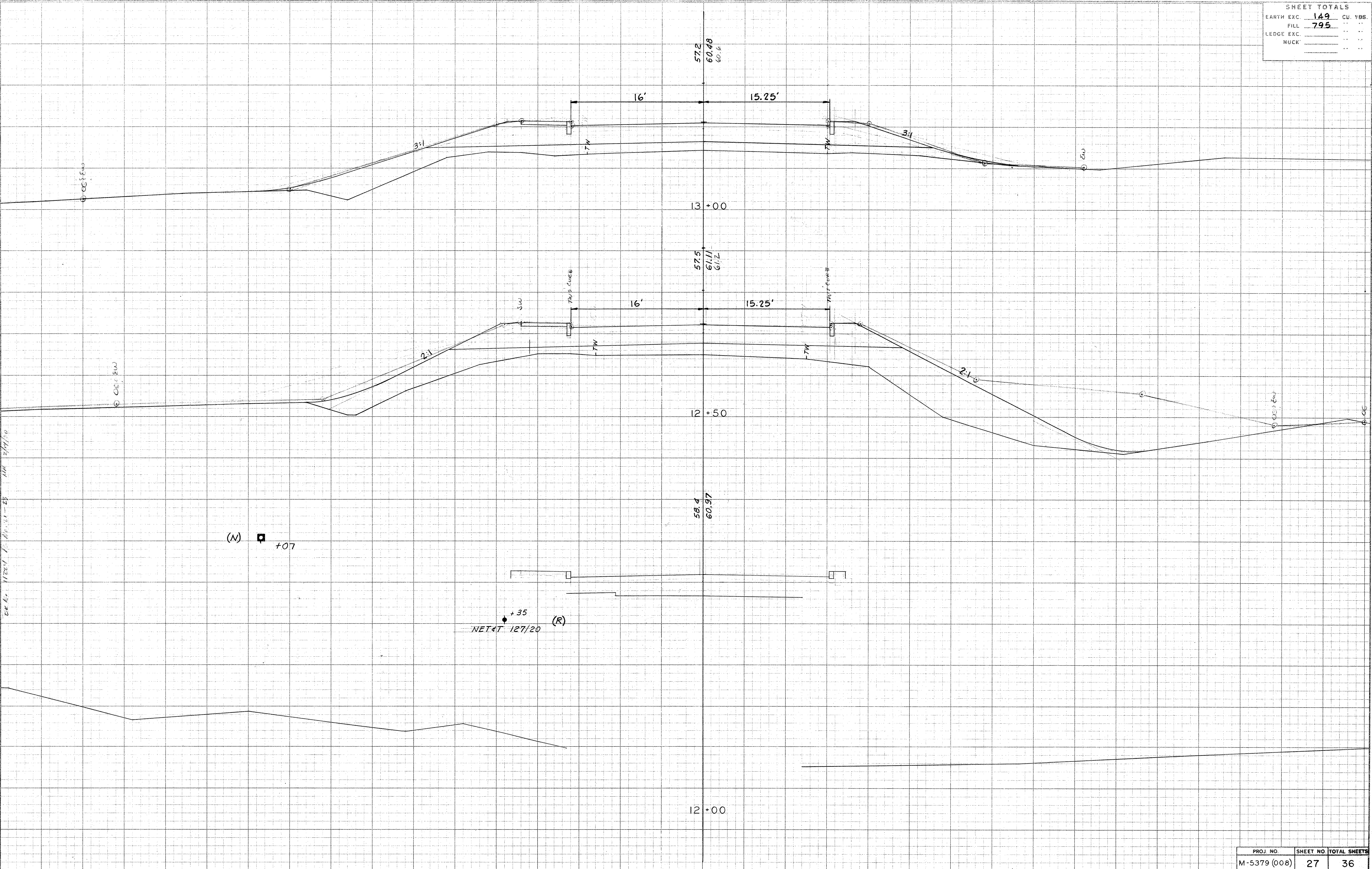
NOTEBOOKS

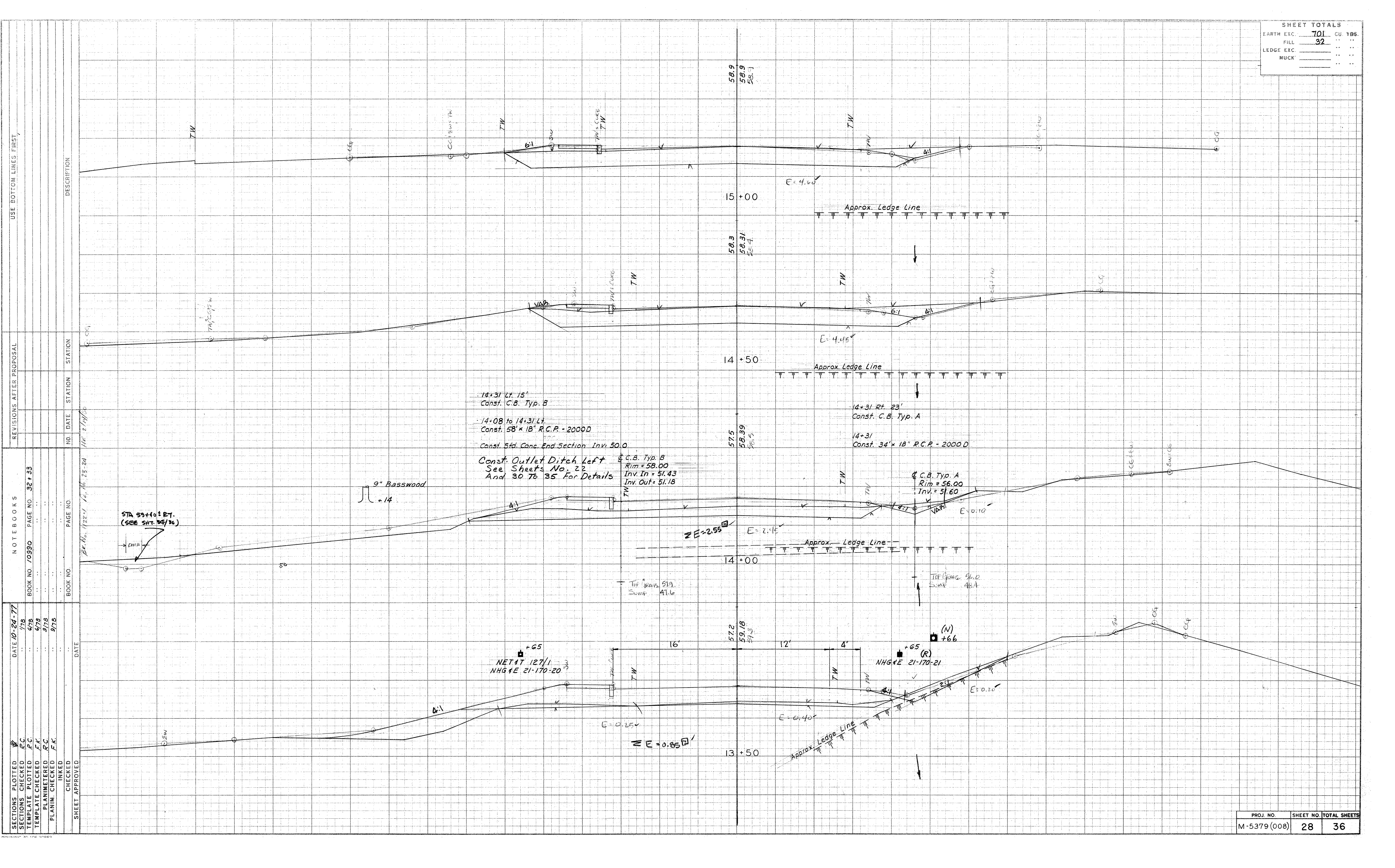
SECTIONS PLOTTED
SECTIONS CHECKED
TEMPLATE PLOTTED
TEMPLATE CHECKED
PLANIMETERED
PLANIM. CHECKED
INKED
CHECKED
SHEET APPROVED

DATE	BOOK NO.	PAGE NO.
10-21-77	10990	29 & 30
1/78		
6/78		
9/78		
9/78		

NO.	DATE	STATION	DESCRIPTION
1	11/24	12, 14, 17, 20, 14	11/1/78

SECTIONS PLOTTED		DATE	10-24-77
SECTIONS CHECKED		RC	1/78
TEMPLATE PLOTTED		RC	6/78
TEMPLATE CHECKED		FK	6/78
PLANIMETERED		RC	9/78
PLANIM. CHECKED		FK	9/78
INKE			
CHECKED			
SHEET APPROVED			
DATE			
BOOK NO.		11224	11224-25
PAGE NO.		112	112
NO. DATE		112	112
STATION			
STATION			
REVISIONS AFTER PROPOSAL			
USE BOTTOM LINES FIRST			





SHEET TOTALS		
EARTH EXC.	701	CU. YDS.
FILL	32	.. ..
LEDGE EXC.	..	.. ..
MUCK	..	.. ..

USE BOTTOM LINES FIRST

REVISIONS AFTER PROPOSAL

NOTEBOOKS

SECTIONS PLOTTED
SECTIONS CHECKED
TEMPLATE PLOTTED
TEMPLATE CHECKED
PLANIMETERED
PLANIM. CHECKED
INKE
CHECKED
SHEET APPROVED

BOOK NO.	PAGE NO.
BOOK NO. 10990	PAGE NO. 32 & 33
..	..
..	..
..	..
..	..
..	..
..	..
..	..
..	..
..	..

NO.	DATE	STATION	DESCRIPTION
1	11/2/77	14+00 to 14+31.24	11/2/77
2	11/2/77	14+31.24 to 14+31.24	11/2/77
3	11/2/77	14+31.24 to 14+31.24	11/2/77
4	11/2/77	14+31.24 to 14+31.24	11/2/77
5	11/2/77	14+31.24 to 14+31.24	11/2/77
6	11/2/77	14+31.24 to 14+31.24	11/2/77
7	11/2/77	14+31.24 to 14+31.24	11/2/77
8	11/2/77	14+31.24 to 14+31.24	11/2/77
9	11/2/77	14+31.24 to 14+31.24	11/2/77
10	11/2/77	14+31.24 to 14+31.24	11/2/77

SHEET TOTALS

EARTH EXC.	FILL	LEDGE EXC.	MUCK	CUB. YDS.
261

STA. 15+50 TO 16+00 CONSTRUCT APPROACH

10+08 Lf. 50 Cor. End of New Asphalt
16+09 Rf. 16 C&G. End of New Asphalt

17.00' OK

E = 3.15 ✓

$\Sigma E = 5.95 \square$
 $+ 1.70$
 $\frac{7.65}{}$

16 + 00

E = 2.70 ✓

15 + 50

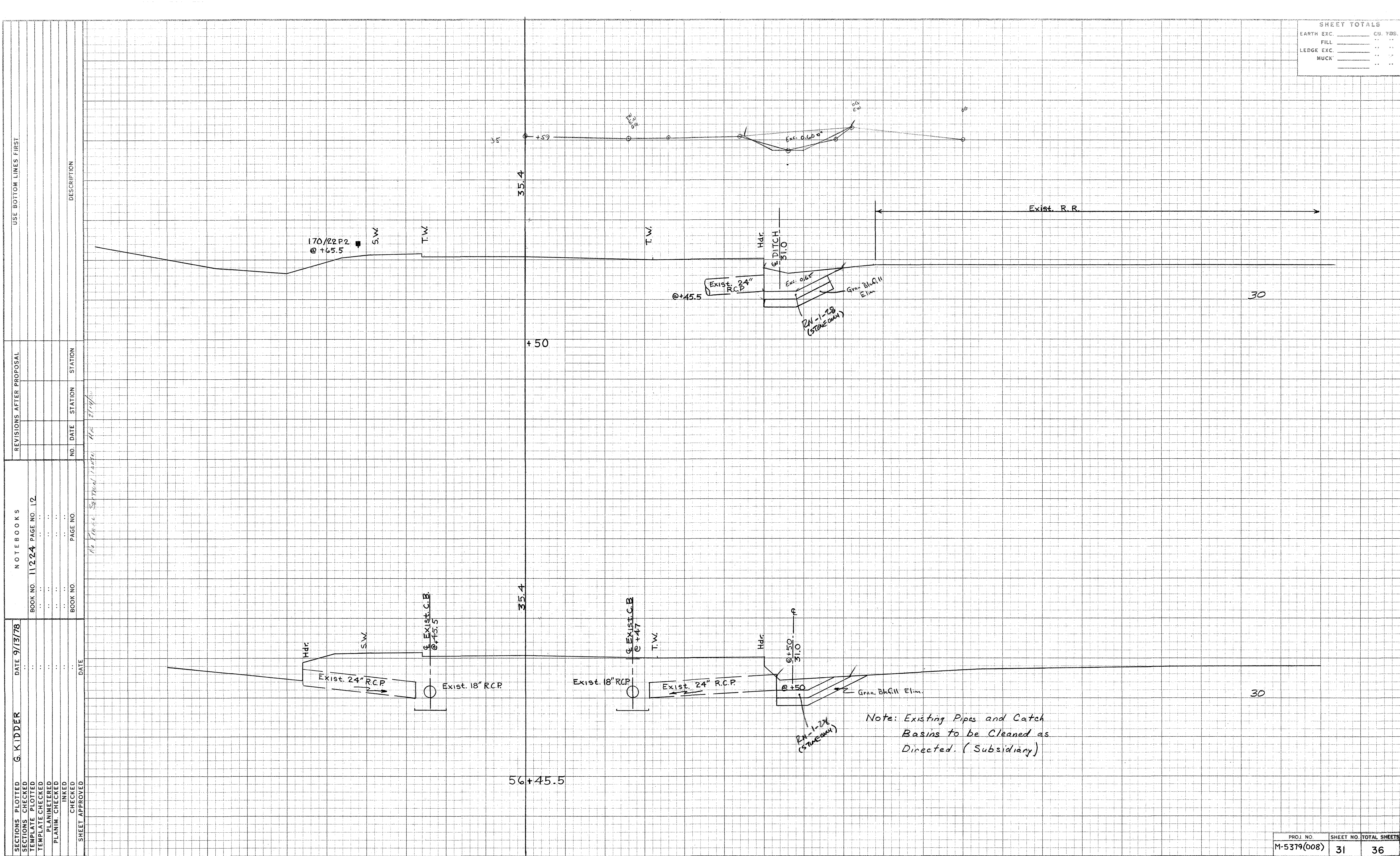
STA. 15+50
END OF M-5379 (008)

PROJ. NO. M-5379 (008) SHEET NO. 29 TOTAL SHEETS 36

PROJ. NO.	SHEET NO.	TOTAL SHEETS
M-5379 (008)	29	36

[illegible]

PROJ. NO.	SHEET NO.	TOTAL SHEETS
M-5379(008)	30	36



SECTIONS PLOTTED		DATE	9/3/78
SECTIONS CHECKED			
TEMPLATE PLOTTED			
TEMPLATE CHECKED			
PLANIMETERED			
PLANIM. CHECKED			
CHECKED			
SHEET APPROVED			

NOTES	
BOOK NO.	11224
PAGE NO.	12

REVISIONS AFTER PROPOSAL	
NO.	DATE
1	11/1/78
2	11/1/78

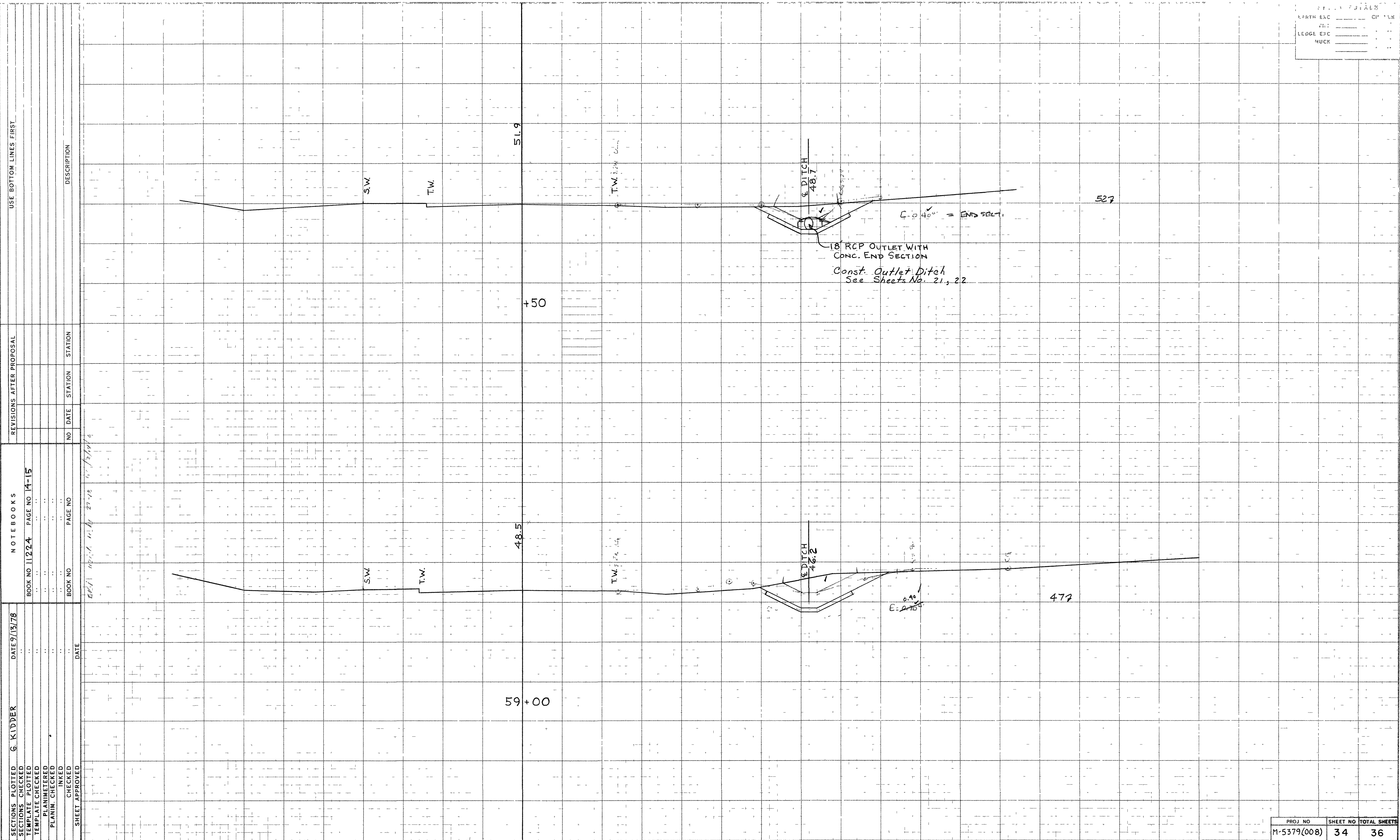
DESCRIPTION	
NO.	STATION
1	56+45.5
2	56+59

USE BOTTOM LINES FIRST	
NO.	DATE
1	11/1/78
2	11/1/78

SHEET TOTALS	
EARTH EXC.	CU. YDS.
FILL	CU. YDS.
LEDGE EXC.	CU. YDS.
MUCK	CU. YDS.

PROJ. NO.	M-5379(008)
SHEET NO.	31
TOTAL SHEETS	36

[illegible]



TOTALS	
EARTH EXC	CU YD
EDGE EXC	CU YD
MUCK	CU YD

USE BOTTOM LINES FIRST

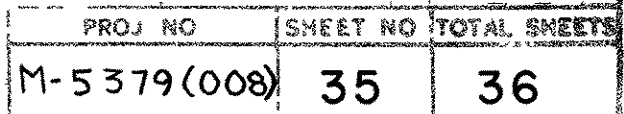
REVISIONS AFTER PROPOSAL

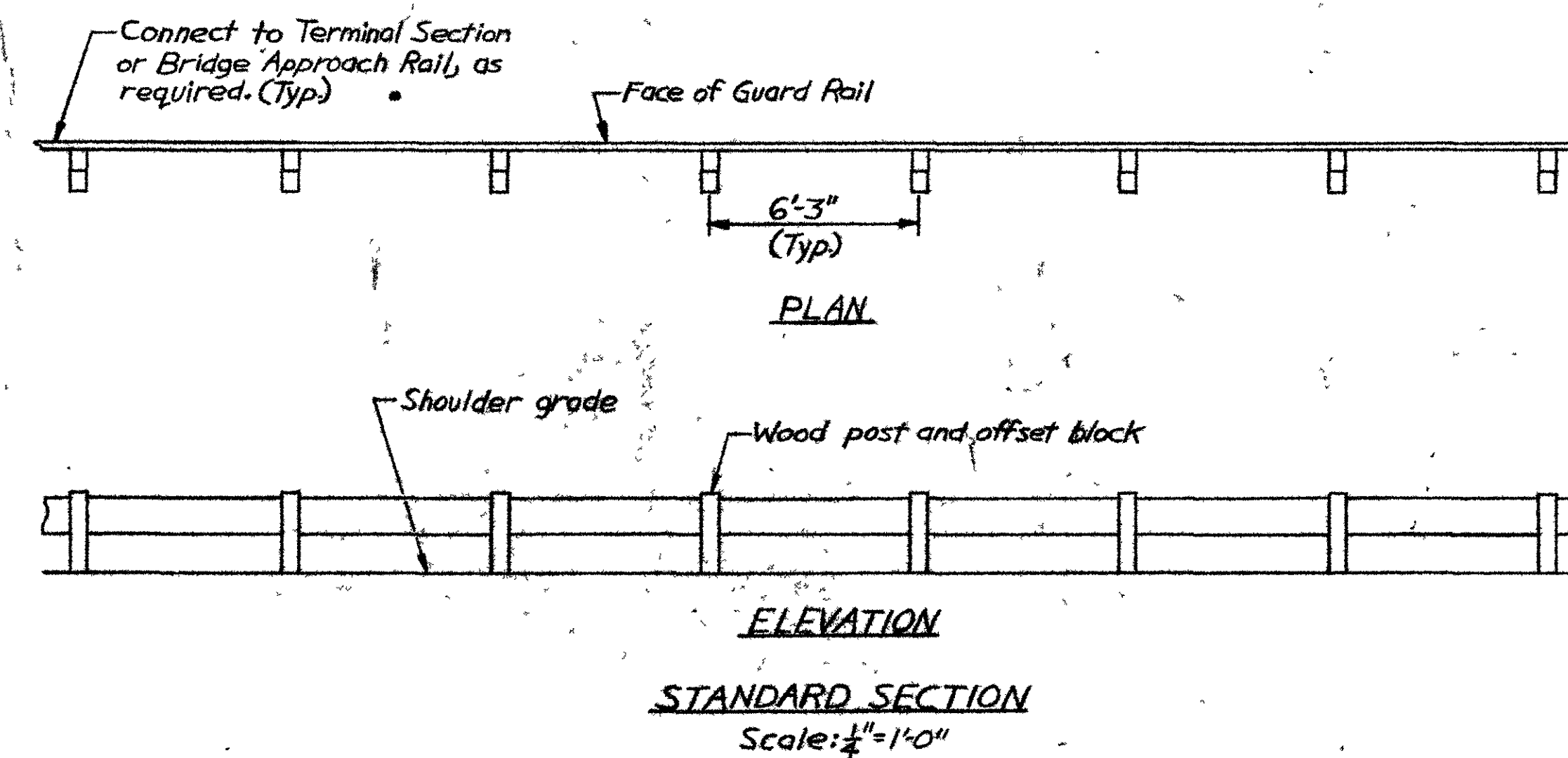
NOTEBOOKS

DATE 9/13/78

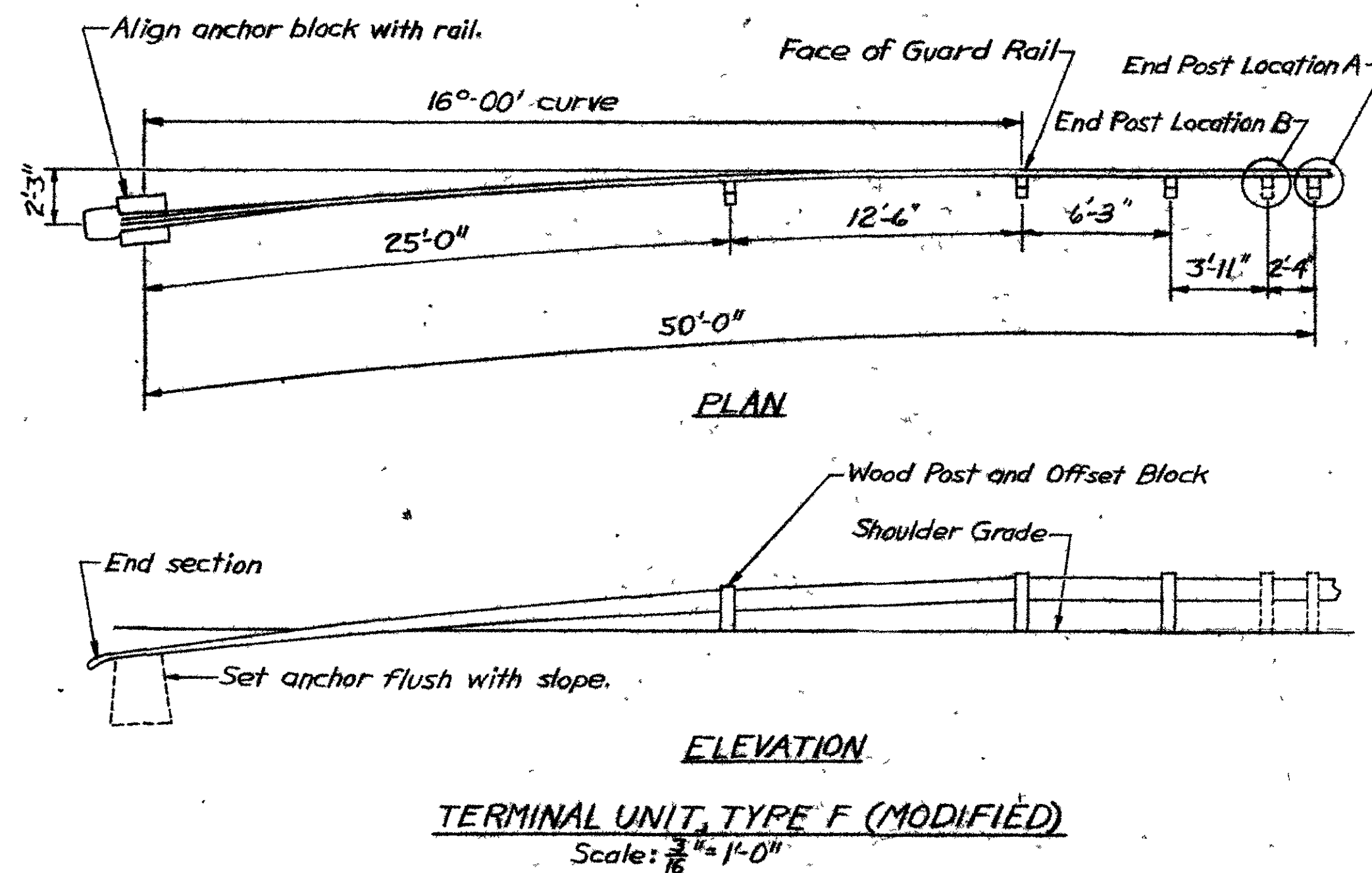
G. KIDDER

SECTIONS PLOTTED	DATE 9/13/78
SECTIONS CHECKED	BOOK NO 11224 PAGE NO 14-15
TEMPLATE PLOTTED	BOOK NO 11224 PAGE NO 14-15
TEMPLATE CHECKED	BOOK NO 11224 PAGE NO 14-15
PLANIMETERED	BOOK NO 11224 PAGE NO 14-15
PLANIMETER CHECKED	BOOK NO 11224 PAGE NO 14-15
INKED	BOOK NO 11224 PAGE NO 14-15
CHECKED	BOOK NO 11224 PAGE NO 14-15
APPROVED	BOOK NO 11224 PAGE NO 14-15

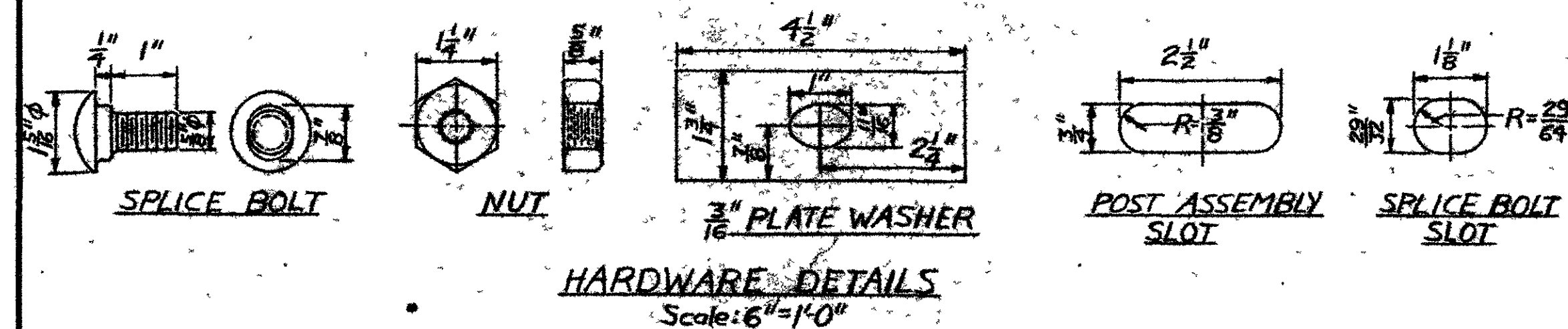




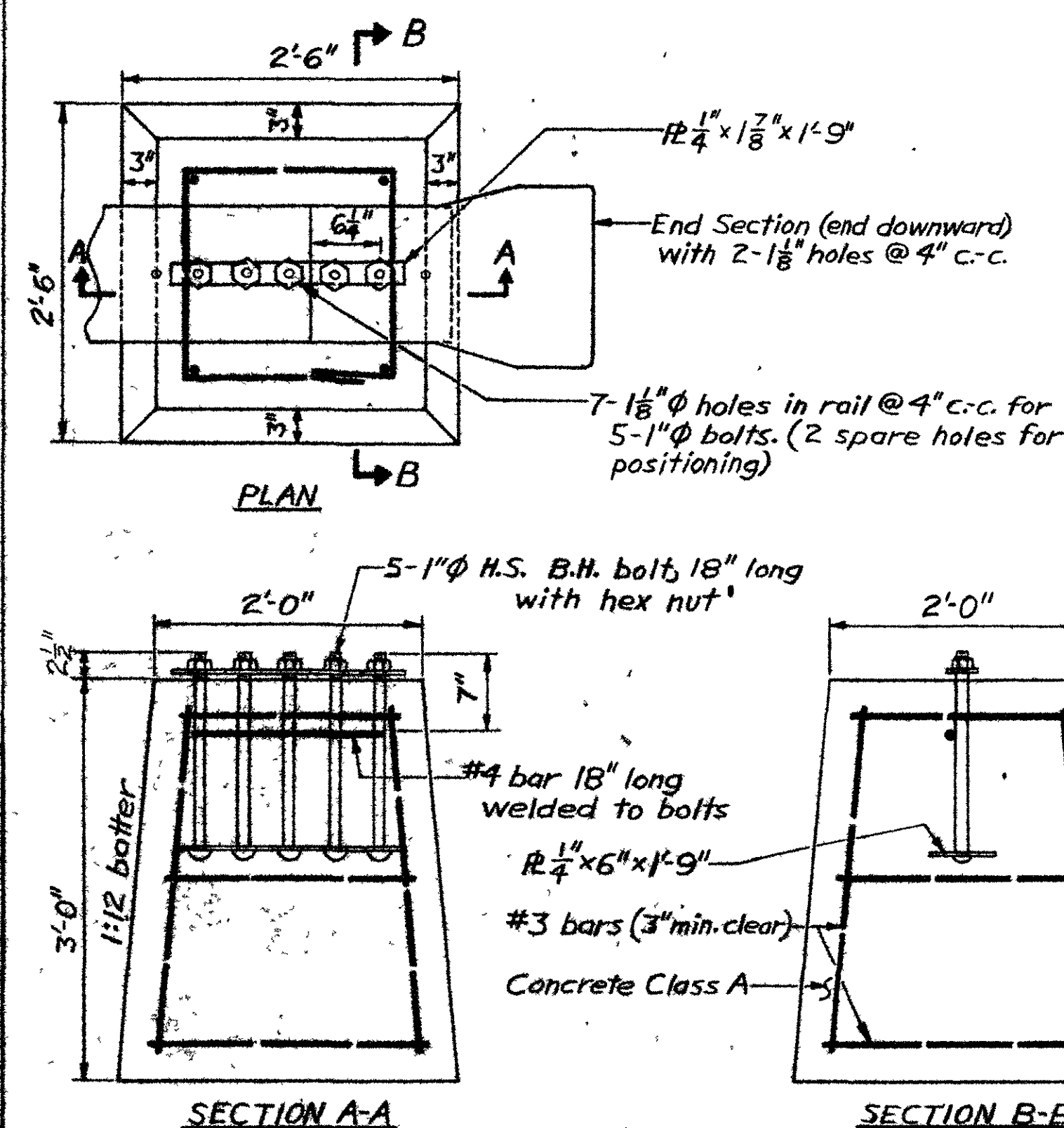
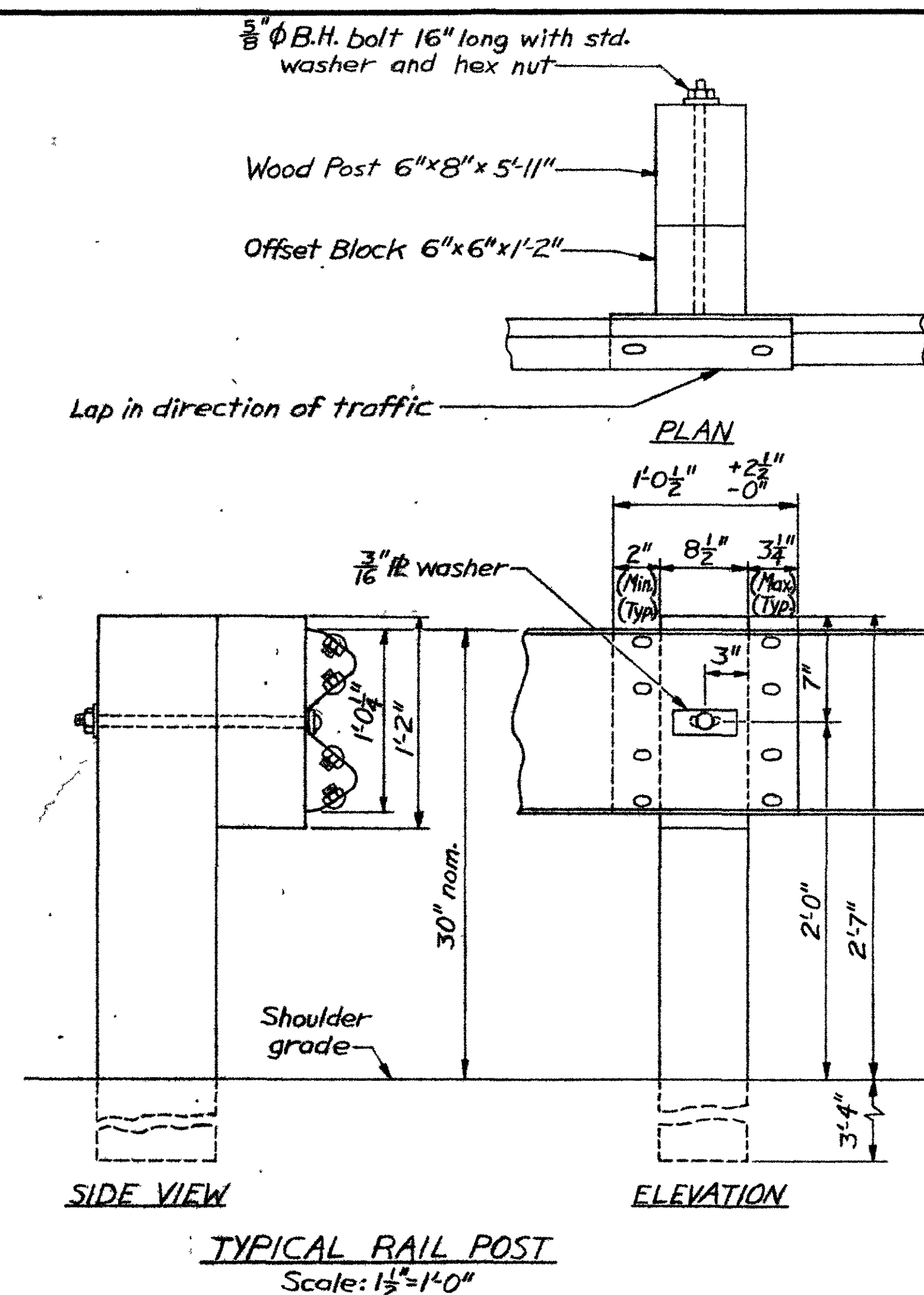
- Notes: 1. Beam guard rail shall be installed where shown on the Roadway Plan or Rail Layout sheet.
2. Where it is to be connected to bridge approach rail, the end of the beam guard rail shall be modified as shown on the Bridge Approach Rail sheet.
3. Pay items: 606.140, Beam Guard Rail (Standard Section) GR-140
606.143, Beam Guard Rail including Terminal Sections GR-143
4. Payment shall be by the linear foot, from center to center of rail posts.



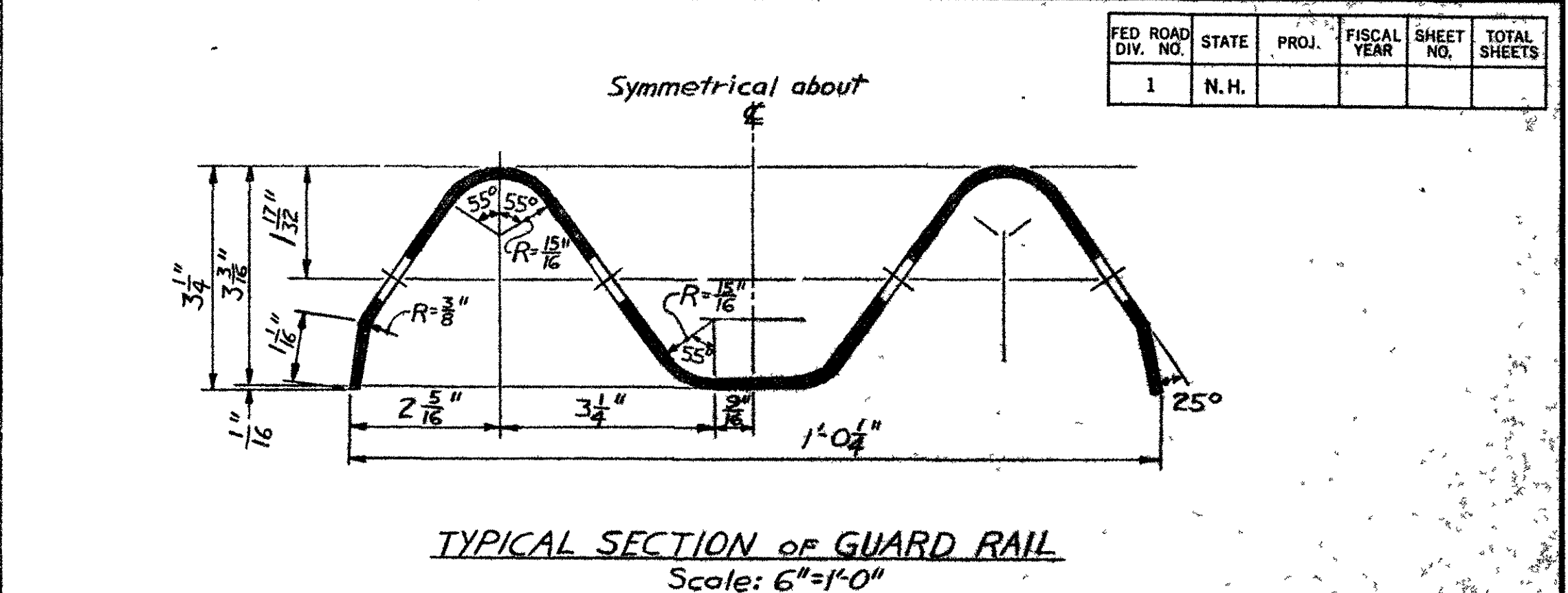
- Notes: 1. Terminal units shall be installed where shown on the Roadway Plan or Rail Layout sheet.
2. End rail post to be installed in Location A when Terminal Unit is to be connected to beam guard rail, and in Location B when Terminal Unit is to be connected to bridge approach rail.
3. Payment for Beam Guard Rail (Terminal Unit Type F, Modified) GR-1461, Item 606.1461 shall be as a lump sum to include rail, posts, end section, and anchor.



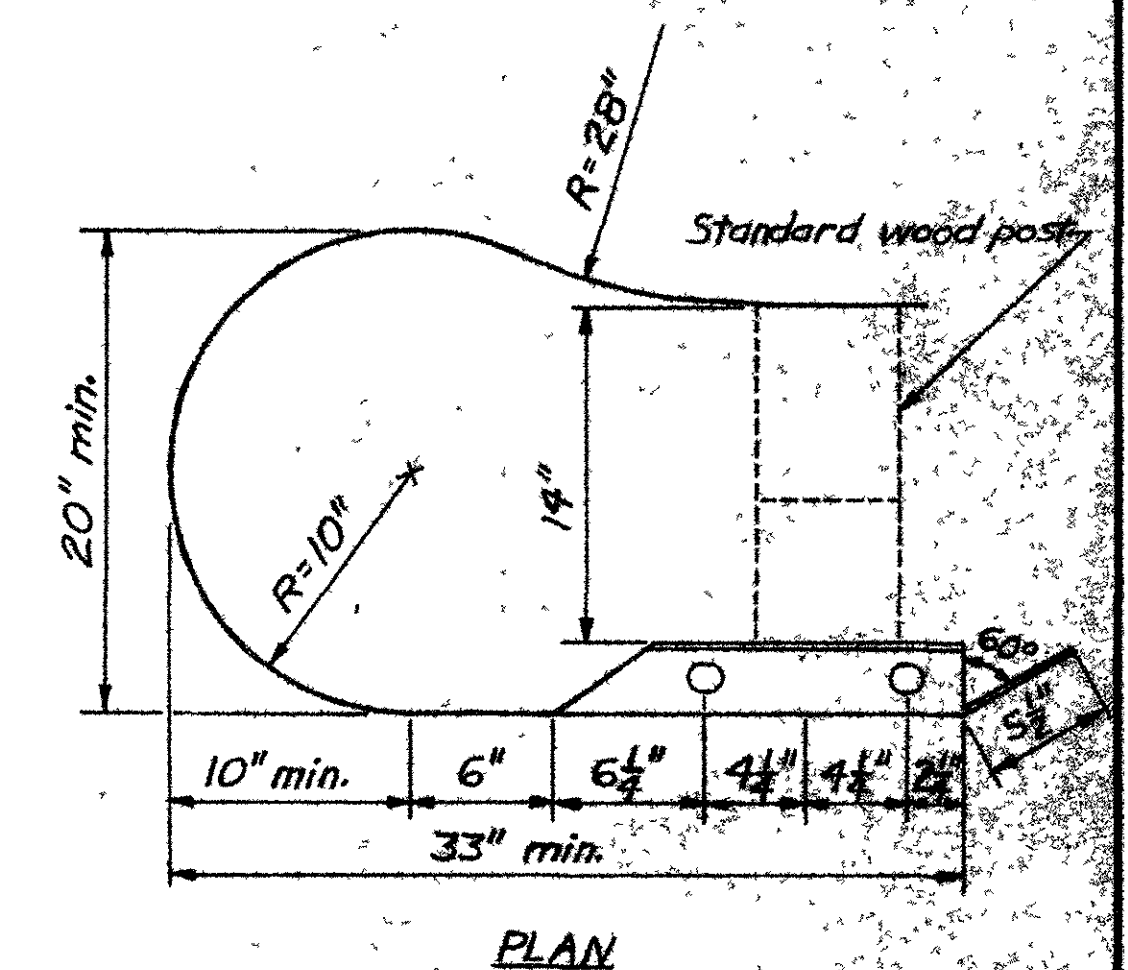
Note: Post bolt similar to splice bolt except for length.
All hardware shall be galvanized.



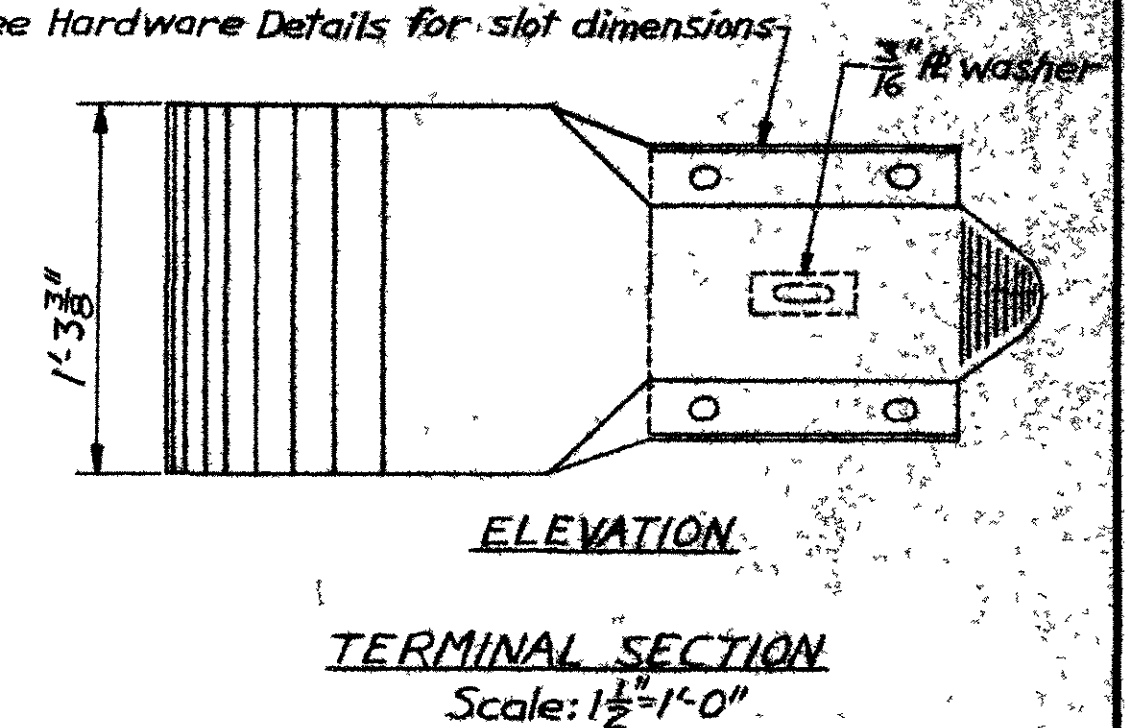
Note: Anchor to be used with Terminal Unit, Type F (Modified)



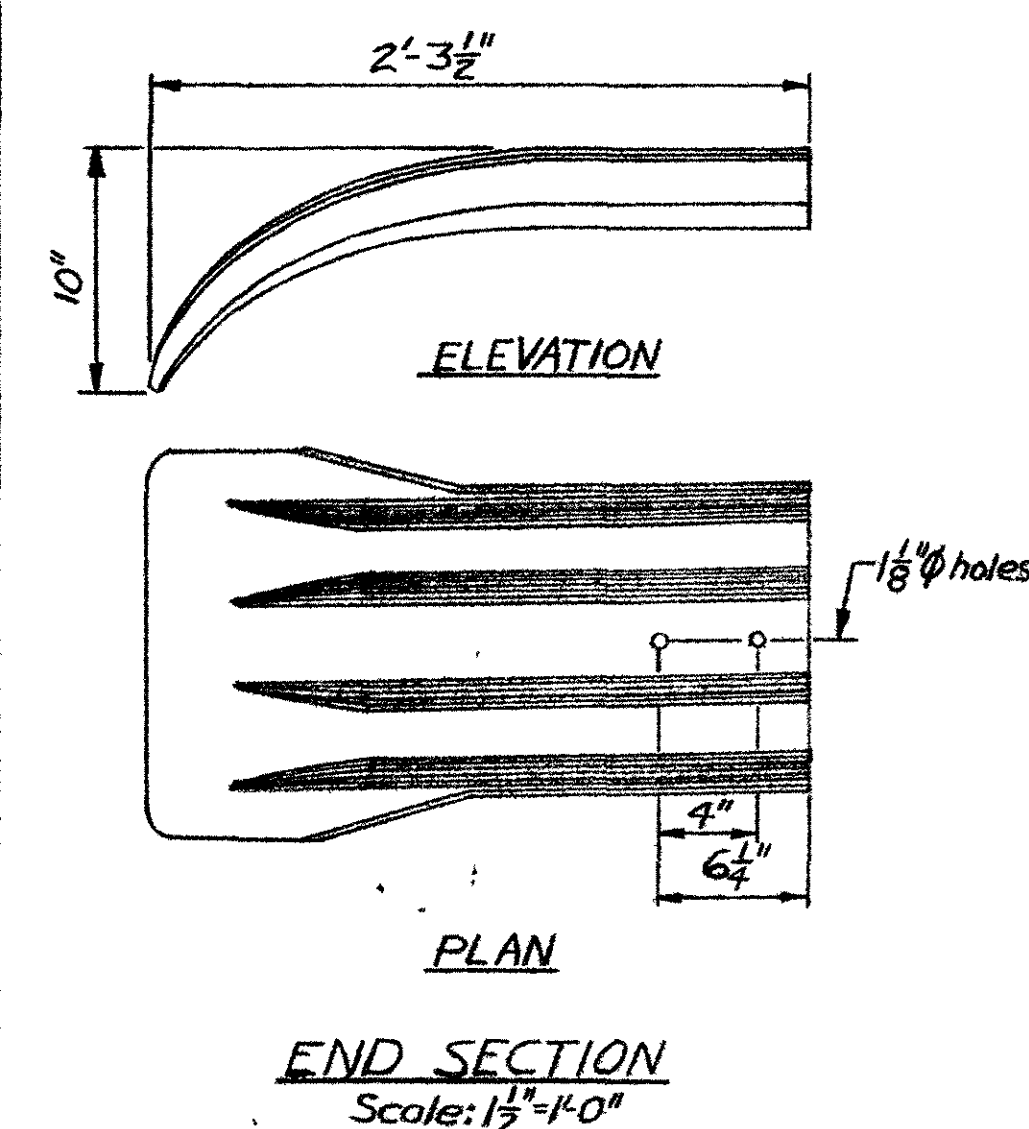
Note: Beam guard rail to be 12 gage. See Hardware Details for slot dimensions.



See Hardware Details for slot dimensions.



Note: Terminal section to be used with Beam Guard Rail including Terminal Sections, Item 606.143. Length of terminal section shall not be included in the pay length.



Note: End section to be used with
Terminal Unit, Type F (Modified)

FED ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				

STATE OF NEW HAMPSHIRE
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BRIDGE DESIGN DIVISION

TOWN PORTSMOUTH BRIDGE NO. 240/132
FEDERAL PROJECT M-5379 (008) STATE PROJECT C-2441H
LOCATION KEARSARGE WAY OVER B. & M. RAILROAD

				BEAM GUARD RAIL			
		BY	DATE			BY	DATE
		DESIGNED		CHECKED		BRIDGE SHEET NO.	
		DRAWN		CHECKED		— OF —	
		TRACED	RBS	CHECKED		FILE NUMBER	
		QUANTITIES		CHECKED		4-12-1-12	
Δ		DESCRIPTION	BY	DATE			
		REVISIONS					
				REVIEWED BY	PROJ. NO.	SHEET NO.	TOTAL SHEETS
					M-5379 (008)	36	36

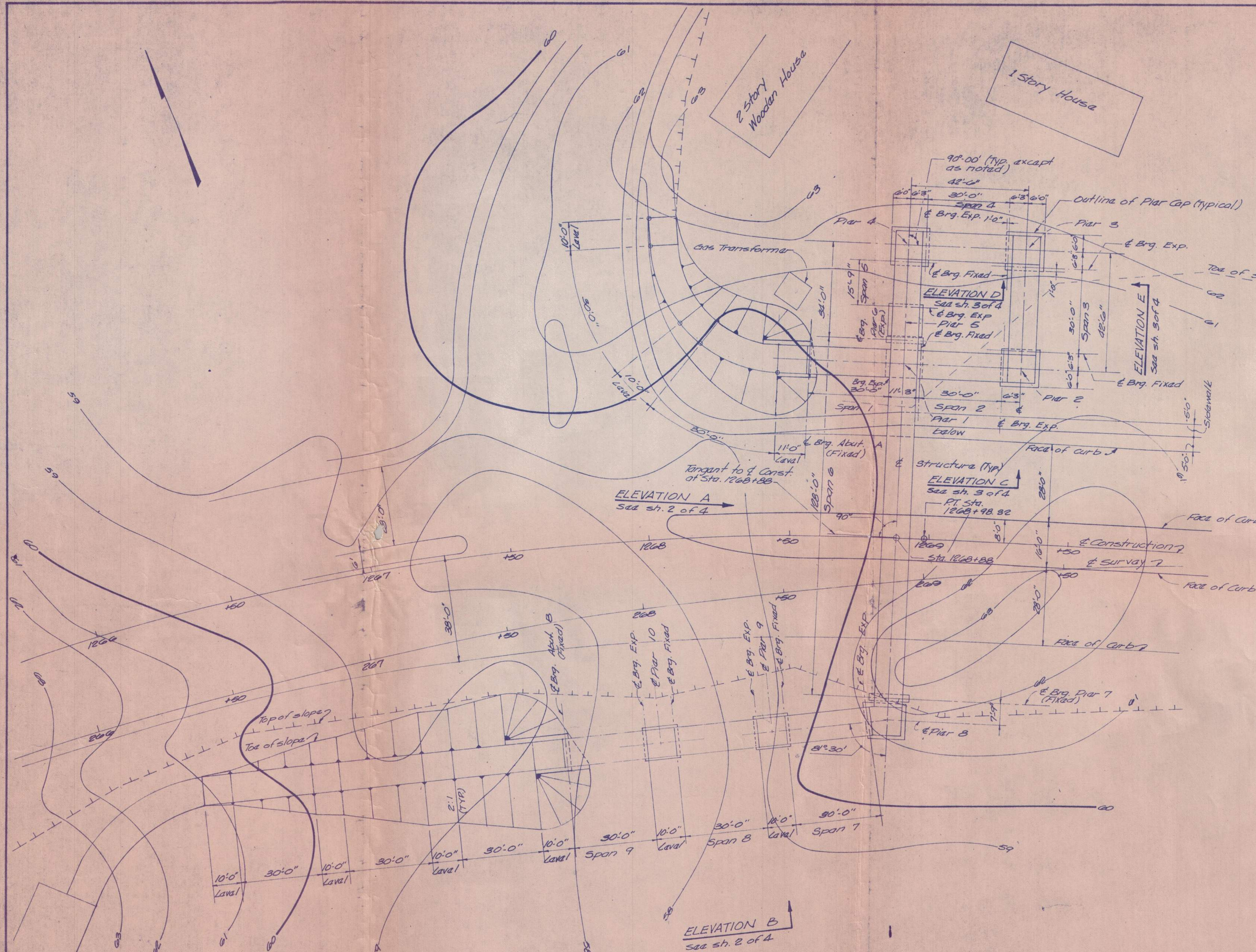
Appendix C

Recreation Trail over Market Street Preliminary Plans (circa 1980s)

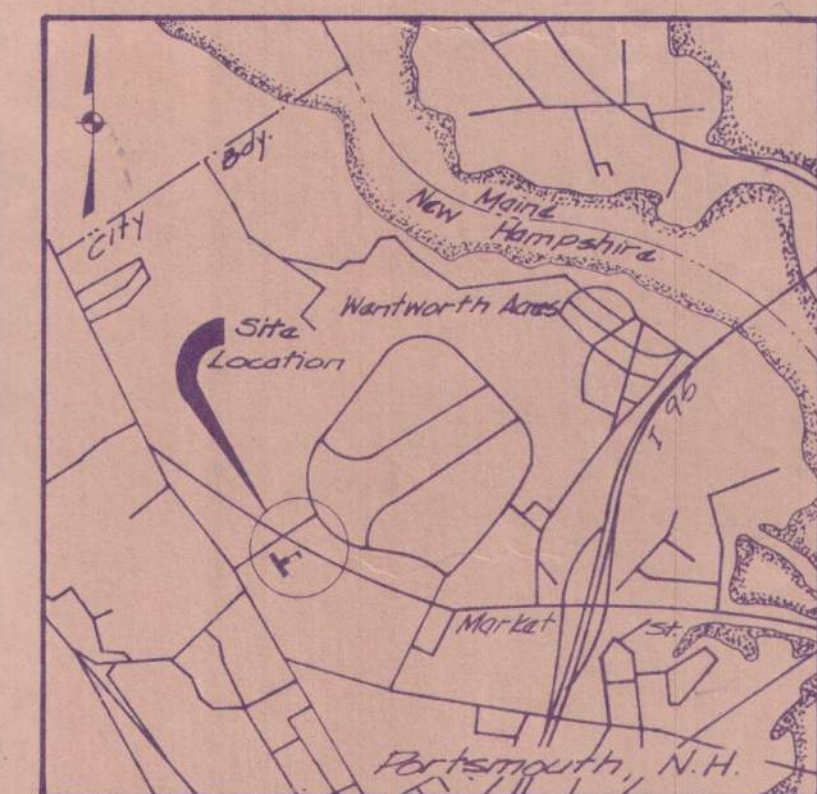
FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				

General Notes

Design Loading: 85 pounds per square foot
Specifications: AASHTO 1977 with interims and N.H. Department of Public Works and Highways 1974 as amended.
Structural Steel: AASHTO M222 (ASTM A588), unpainted.
Bridge Type: Ramp spans - Simple span; wide flange stringers. Main span - Simple span welded girders.
Reinforcing Steel: AASHTO M31 (ASTM A615) Grade 60.
Foundations: Abutment and Pier footings or sub-footings shall be founded on ledge. Maximum design foundation pressure = 3 tons per square foot. Minimum frost cover = 5'-0".
Welding: All welding shall conform to AWS Specifications as modified by AASHTO Welding Specifications and N.H. Standard Specifications. See Article 550.3.2.5.

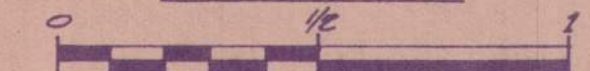


SITE PLAN
Scale: 1"=20'-0"



LOCATION MAP

Scale in miles

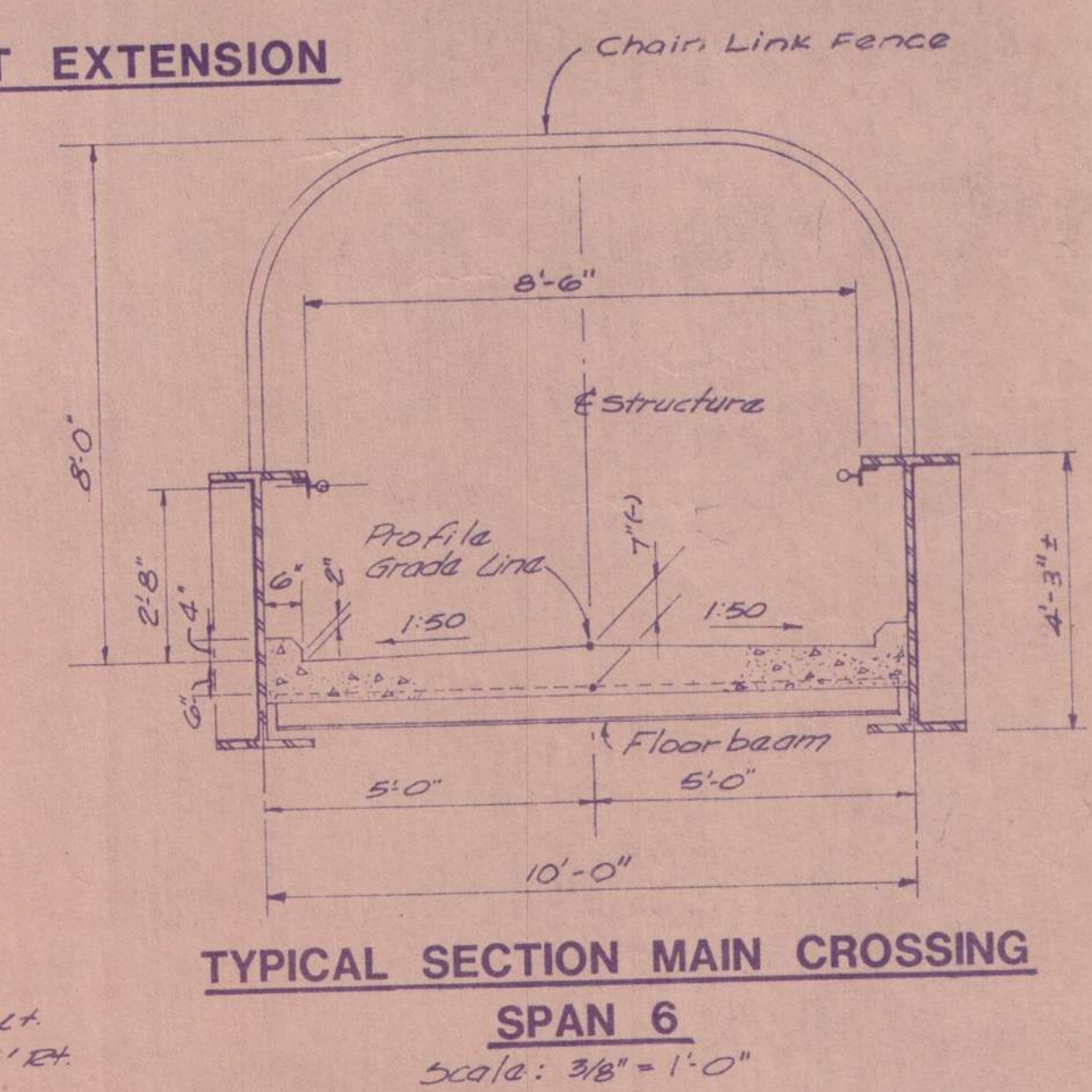
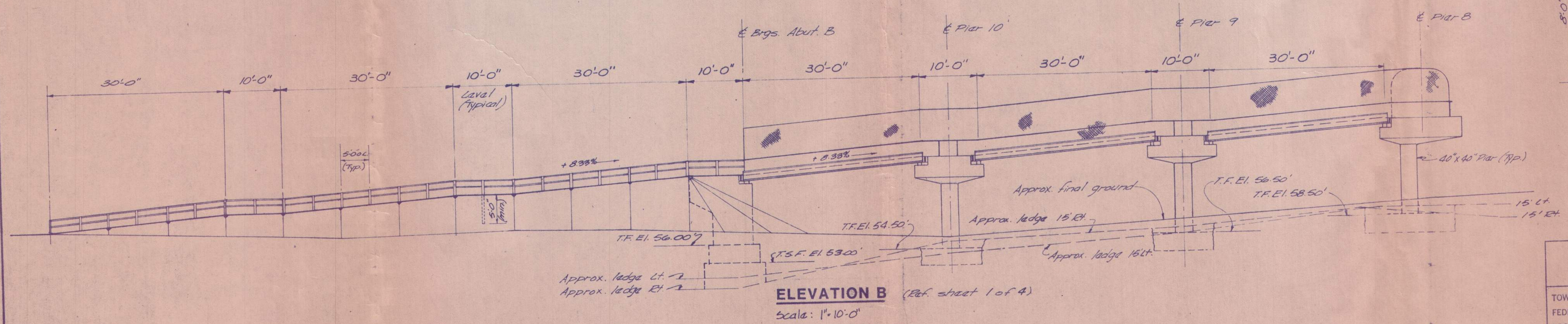
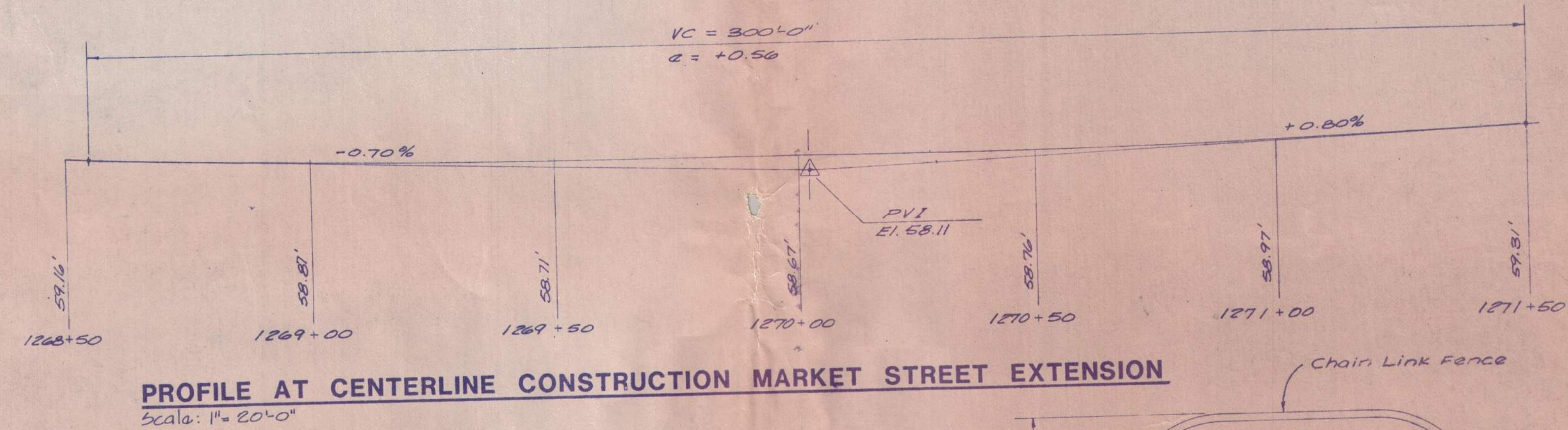
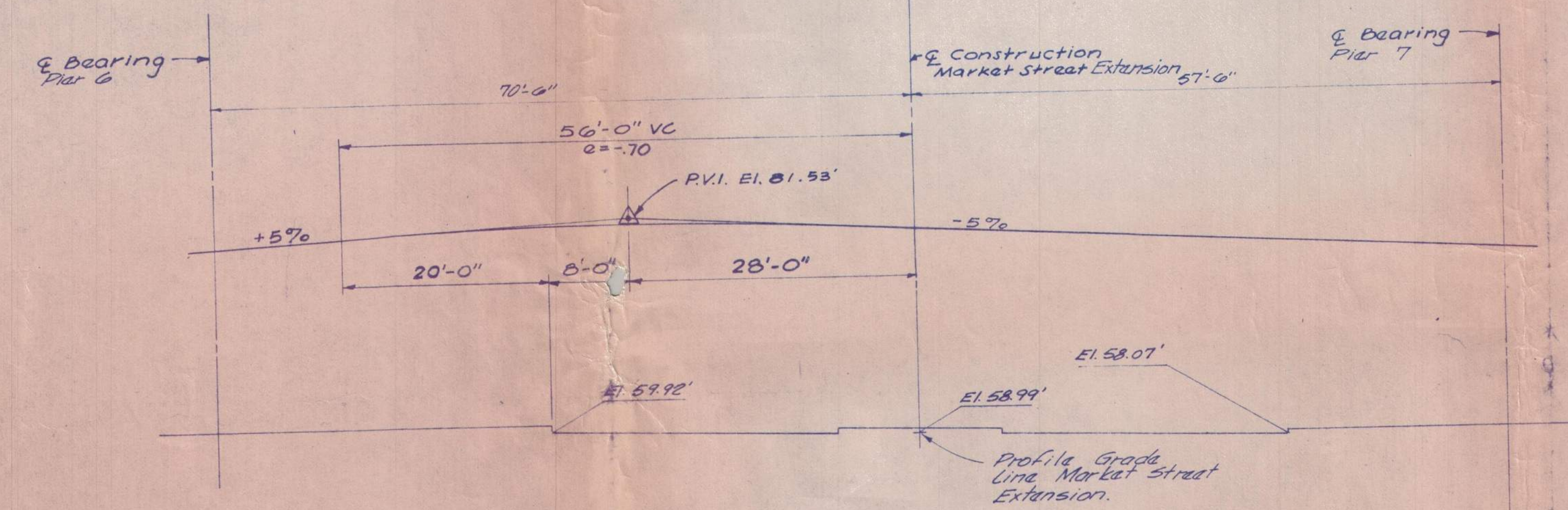
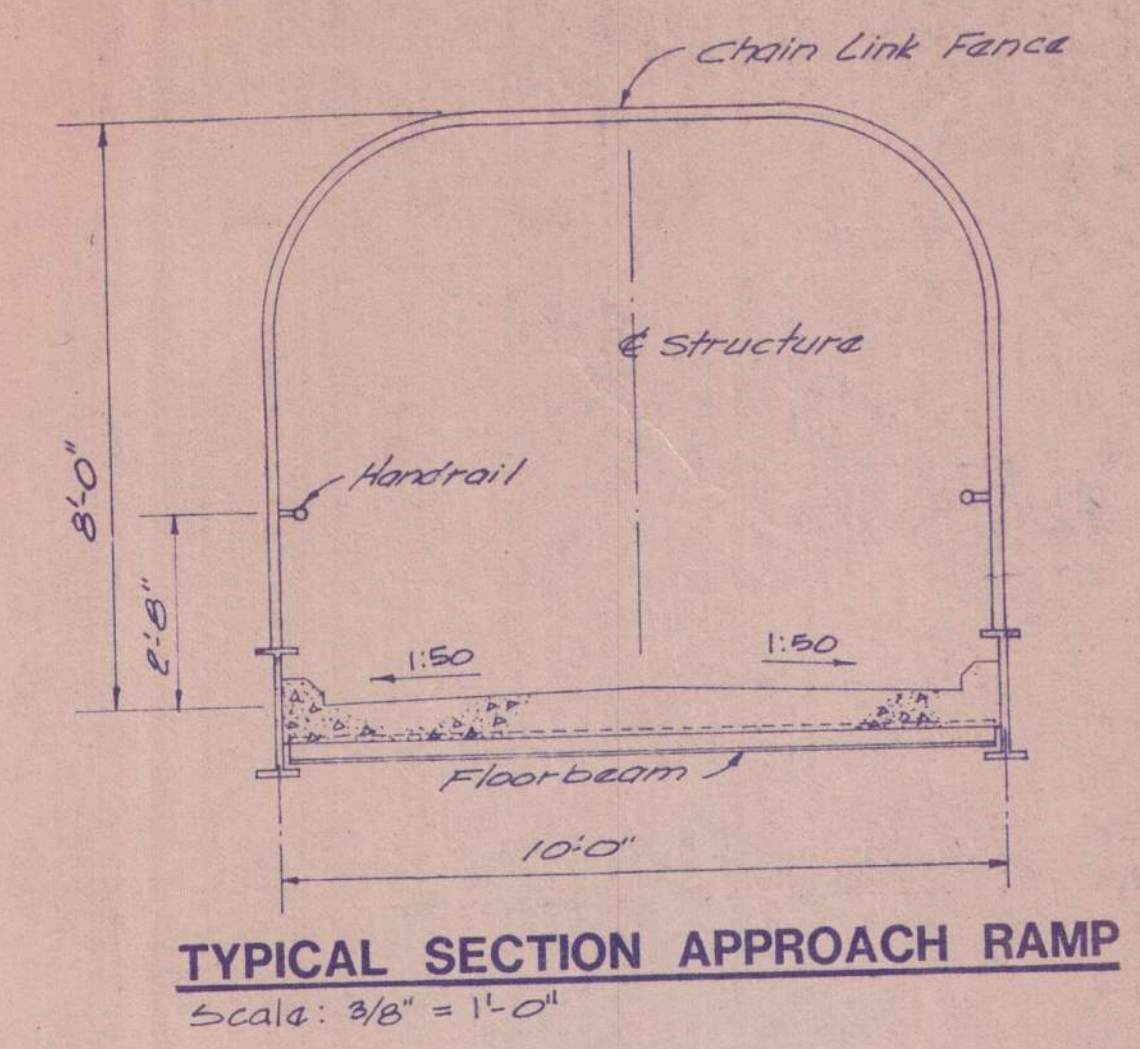
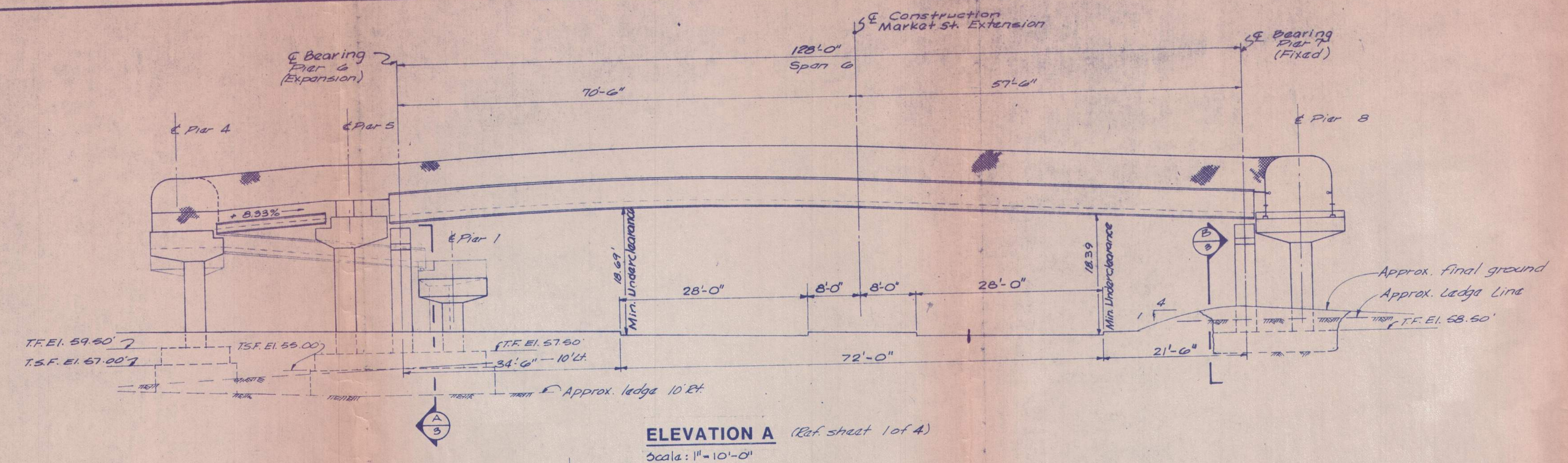


STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION			
TOWN <u>Fertsmouth</u>	BRIDGE NO. <u>220/143</u>		
FEDERAL PROJECT <u>F-087-1(22)</u>	STATE PROJECT <u>C-3275</u>		
LOCATION <u>Pedestrian Overpass Over Market Street</u> <u>Extension</u>			
PRELIMINARY PLAN			
DESIGNED <u>E.B.C.</u>	BY <u>E.B.C.</u>	DATE <u>5/86</u>	BRIDGE SHEET NO. <u>1 OF 4</u>
DRAWN <u>D.A.B.</u>	BY <u>D.A.B.</u>	DATE <u>11/83</u>	FILE NUMBER <u>52-6-2</u>
TRACED	CHECKED <u>G.S.</u>	DATE <u>11/83</u>	
QUANTITIES	CHECKED		
REVIEWED BY	PROJ. NO. <u>F-087-1(22)</u>	SHEET NO.	TOTAL SHEETS

Sheet Scale: As Noted

DESCRIPTION	BY	DATE
REVISIONS		

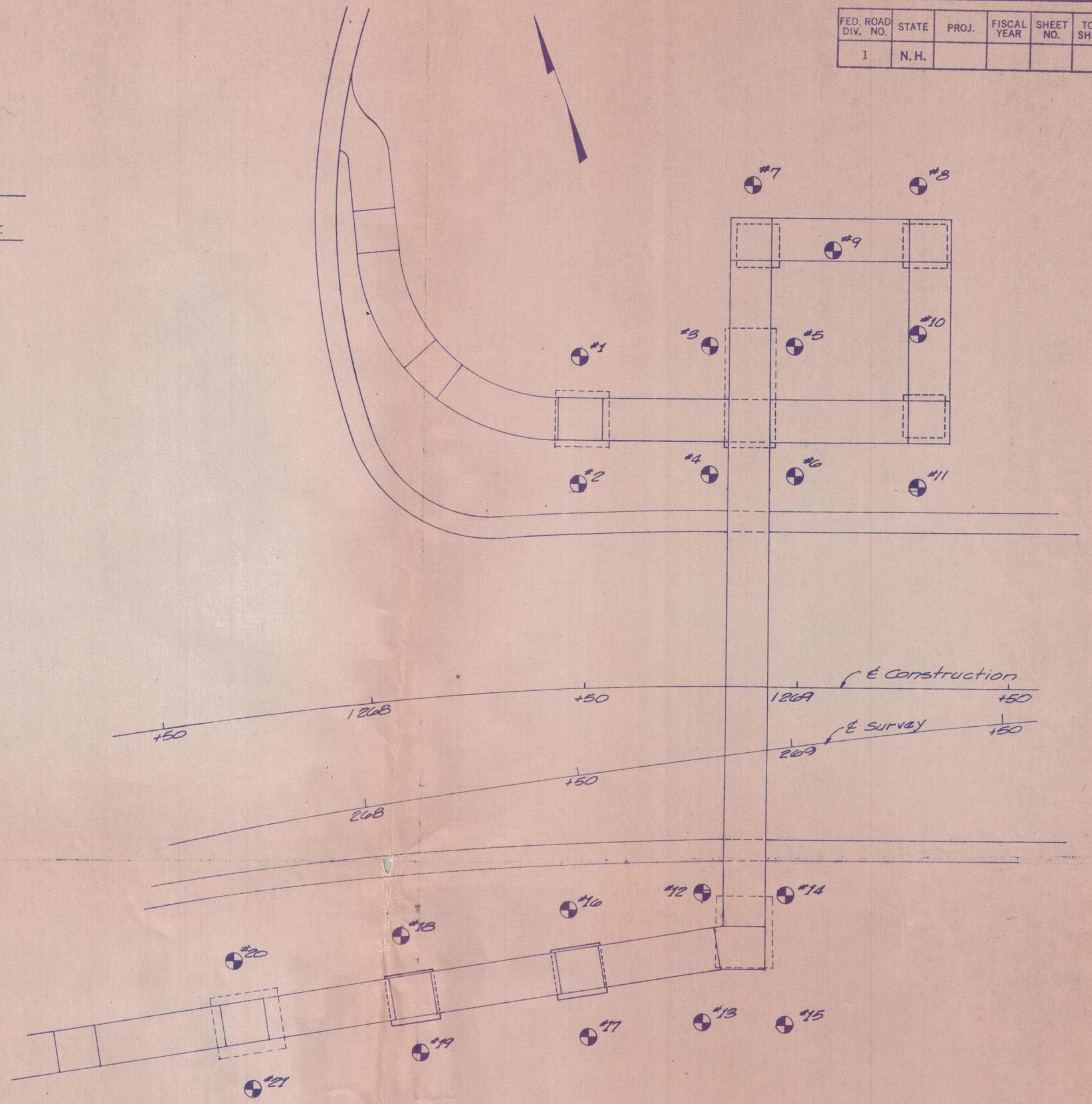
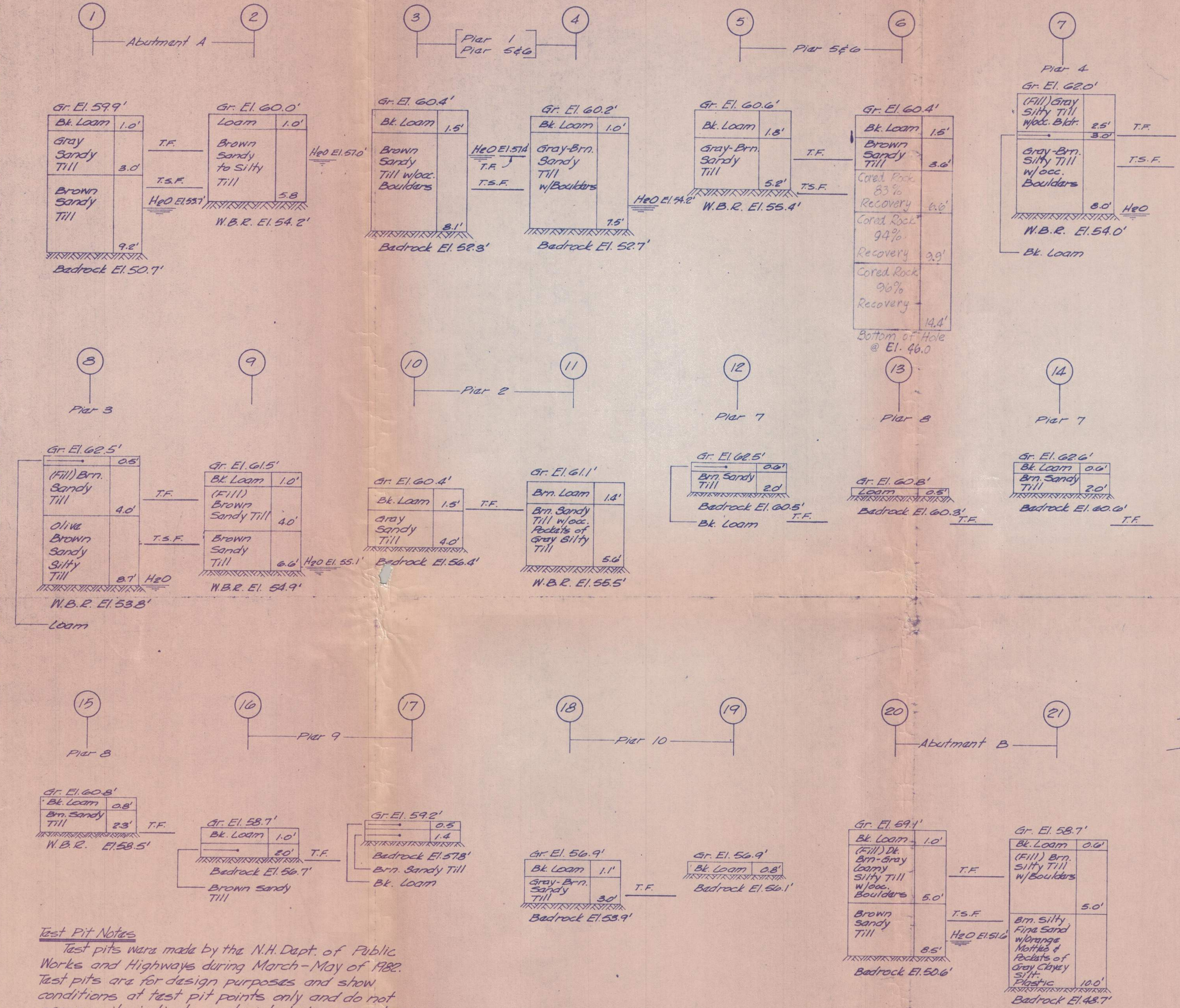
FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				



Sheet Scale: As Noted

STATE OF NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BRIDGE DESIGN DIVISION					
TOWN <u>Portsmouth</u>			BRIDGE NO. <u>220/143</u>		
FEDERAL PROJECT <u>F-027-1(22)</u>			STATE PROJECT <u>C-3275</u>		
LOCATION <u>Pedestrian Overpass Over Market Street Extension</u>					
Preliminary Plan					
DESIGNED <u>EBC</u>	DATE <u>2/26</u>	CHECKED <u>g.s.</u>	BY DATE <u>11/9</u>	BRIDGE SHEET NO. <u>2</u> OF <u>4</u>	
DRAWN <u>SWW</u>	DATE <u>2/20</u>	CHECKED <u>g.s.</u>	BY DATE <u>11/3</u>	FILE NUMBER <u>5-2-4-2</u>	
REVISIONS		QUANTITIES		SHEET NO. TOTAL SHEETS	
REVIEWED BY		PROJ. NO. <u>F-027-1(22)</u>		SHEET NO. TOTAL SHEETS	

FED. ROAD DIV. NO.	STATE	PROJ.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	N.H.				



TEST PIT LAYOUT
Scale: 1"=20'-0"

Test Pit Notes
Test pits were made by the N.H. Dept. of Public Works and Highways during March-May of 1982. Test pits are for design purposes and show conditions at test pit points only and do not necessarily indicate materials to be encountered during construction. Location of test pits shown thus: ●.
T.F. = Top of footing
T.S.F. = Top of sub-footing.

TEST PIT LOGS
Scale: 1/4"=1'-0"

Sheet Scale: As Noted

						PRELIMINARY PLAN															
						DESIGNED <u>E.B.C.</u>		BY <u>E.B.C.</u>		DATE <u>2/26</u>		CHECKED <u>G.S.</u>		BY <u>G.S.</u>		DATE <u>11/3</u>		BRIDGE SHEET NO. <u>4 OF 4</u>			
						DRAWN <u>D.A.B.</u>		BY <u>D.A.B.</u>		DATE <u>11/3</u>		CHECKED <u>G.S.</u>		BY <u>G.S.</u>		DATE <u>11/3</u>		FILE NUMBER <u>5-2-4-2</u>			
<u>Δ</u>		DESCRIPTION				BY		DATE				CHECKED									
		REVISIONS										QUANTITIES									
						REVIEWED BY _____						PROJ. NO. _____						SHEET NO. _____		TOTAL SHEETS _____	
												F-027-1(22)									

Appendix D

Kearsarge Trail GPR Bridge Deck Assessment Prepared by NDT Corporation

Nondestructive Testing
GPR Bridge Deck Assessment
Kearsarge Way Bridge over Pan Am Railroad
Portsmouth, New Hampshire



Prepared for
Hoyle, Tanner & Associates, Inc.
April, 2019

We Save Structures™

April 30, 2019

Mr. Aaron Lachance, PE
Hoyle, Tanner & Associates, Inc.
100 Internal Drive, Suite 360
Portsmouth, NH 03801

Subject: Bridge Deck Assessment for Kearsarge Way Bridge Portsmouth, New Hampshire

Dear Mr. Lachance:

NDT Corporation conducted nondestructive testing using Ground Penetrating Radar (GPR) and took concrete samples with the assistance of Aries Support Services, on the deck of the Kearsarge Way Bridge (Bridge No. 240/132) over Pan Am Railroad in Portsmouth, NH on March 25th, 2019. The purpose of the GPR measurements was to assist in the evaluation of a potential deck replacement and to identify areas of damaged concrete.

We thank you for the opportunity to perform this work and look forward to being of service to you in the future. If you have any questions or comments, contact the undersigned at 978-563-1327.

Sincerely

NDT Corporation



William Horne

TABLE OF CONTENTS

1.0	SUMMARY OF RESULTS	Page 1
2.0	INTRODUCTION & PURPOSE	Page 1
3.0	METHODS OF INVESTIGATION	Page 1
4.0	DISCUSSION OF RESULTS	Page 2

FIGURES

APPENDIX 1	PHOTO RESULTS OF CONCRETE CORES
APPENDIX 2	LABORATORY RESULTS
APPENDIX 3	GPR METHOD OF INVESTIGATION

1.0 SUMMARY OF RESULTS

Approximately 2800 linear feet of GPR data were acquired on a 2.5 foot by 5-foot grid of survey lines on the Kearsarge Way Bridge in Portsmouth, New Hampshire. The purpose of the GPR measurements was to obtain data to evaluate the deck for concrete damage. This will assist Hoyle Tanner in assessing rehabilitation strategies. The results of nondestructive bridge deck testing indicated approximately 35% of the deck has a delamination at or near the top rebar layer (approximately 3 inches into the concrete).

Ten cores were taken, by Aries Support Services, at representative locations on the bridge (5 in each lane). These locations were agreed upon by both NDT and Hoyle Tanner personnel onsite to give the best representation of the conditions of the bridge deck. Photo documentation of the cores can be found in the Photo Appendix (Appendix 1).

2.0 INTRODUCTION & PURPOSE

NDT Corporation conducted nondestructive ground penetrating radar (GPR) measurements on the deck of the Kearsarge Way Bridge to evaluate the condition of the deck concrete and assist in determining the presence and extent of deteriorated deck concrete. GPR measurements use reinforcing spacing and depth of cover to evaluate and identify areas of water/moisture entrapment in delamination's and cracks.

3.0 METHODS OF INVESTIGATION

3.1 SURVEY CONTROL

The general location of the Kearsarge Way Bridge is shown on Figure 1. Nondestructive testing survey line locations and stationing were determined with measurements from curbs and expansion joint at the ends of the bridge. GPR data were acquired on a 5-foot Grid of survey lines (Figure 2).

3.2 GROUND PENETRATING RADAR

Continuous GPR measurements were made to identify water infiltration into the deck concrete and to evaluate for delamination associated with water entrapment at the reinforcing steel and an indication of reinforcing corrosion.

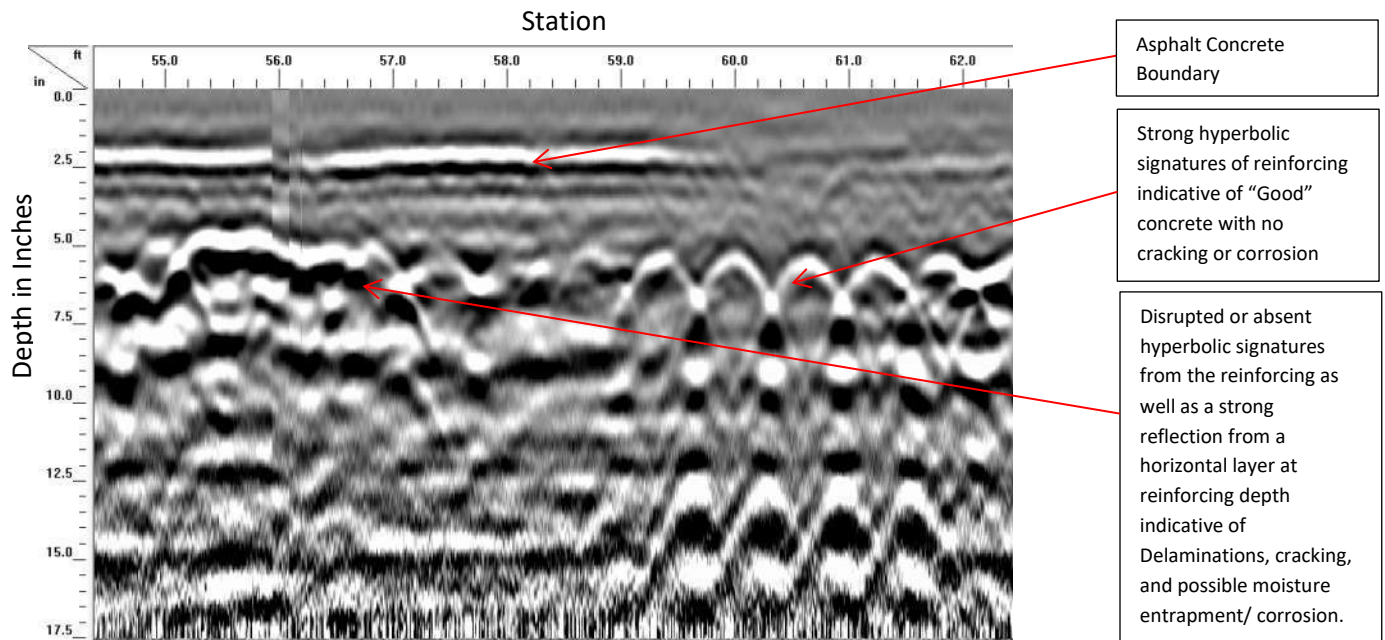
The GPR method uses a pulsed electromagnetic signal that is transmitted to and reflected by conductive features such as re-bar, wire mesh, or moisture. The signal is then reflected back to the point of transmission. The wave transmission and reflection is dependent on the electrical properties (dielectric constant and conductivity) of the material(s) being investigated. Metal reinforcing and saturated or moist conditions are conductive in comparison to the deck concrete and consequently reflect energy and cause high attenuation. GPR data was acquired on parallel longitudinal lines of coverage spaced approximately 2.5 feet apart with a 2700 MHz high resolution antenna equipped with a measuring wheel for accurate antenna locations. A detailed discussion of the GPR Survey Method is included in the GPR Appendix (Appendix 3).

4.0 DISCUSSION OF RESULTS

NDT Corporation attempted to use sonic/ultrasonic testing to evaluate the mechanical strength properties of the bridge deck concrete, but the data quality was poor due to weak asphalt and

concrete conditions of the deck. The sonic/ultrasonic testing was abandoned and a high resolution GPR investigation was conducted.

The results of the nondestructive GPR testing are shown graphically on Figure 3. The contour map is placed on a plan map provided by Hoyle Tanner. The areas on the map that are red in color are areas where the GPR data was indicative of delamination's or possible corrosion of the reinforcing. The delamination's vary in depth from 2 to 4 inches from the top surface of the concrete and does, in areas, go to the top rebar layer. Approximately thirty-five percent (35%) of the total deck falls with in this category. Below is an annotated record of the Core 3 location.



Utilizing the onsite results from the GPR data, NDT assisted the Hoyle Tanner engineer in selecting locations for the collecting of representative concrete samples.

The Photo Appendix (Appendix 1) documents Cores 1 through 10 and lists observations of the cores.

4.1 Concrete Sample Laboratory Results (Appendix 2)

Aries collected 10 cores and 12 powder samples. Five (5) cores and six (6) powder samples per each of the 2 lanes of the bridge. The locations of the cores and powder samples can be found on Figure 3. The laboratory results for each of the tests performed can be found in Appendix 2.

Four of the cores were selected for compressive strength. The compressive strengths of the 4 cores is:

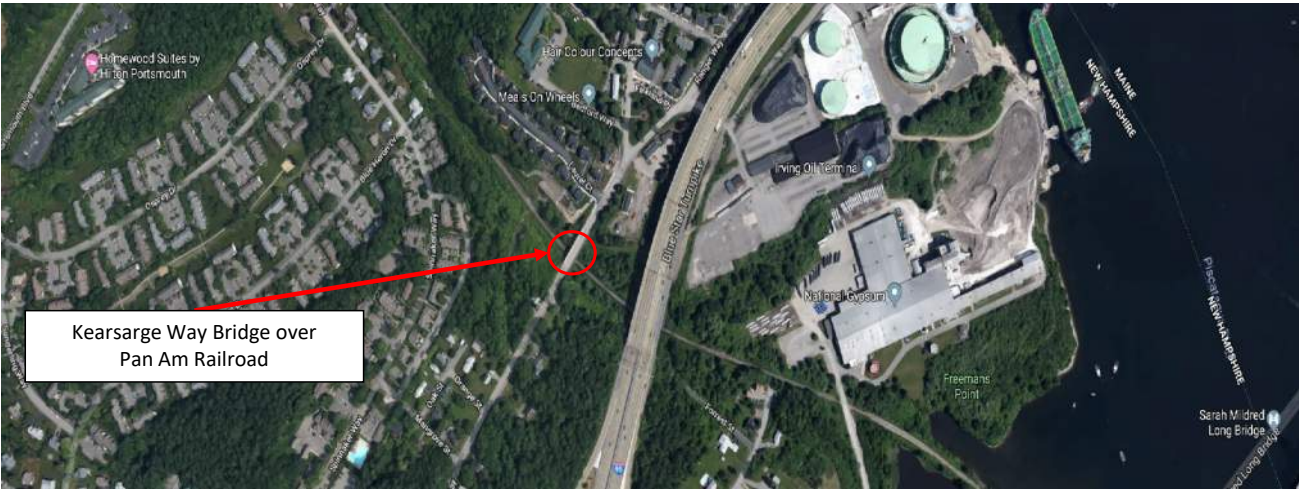
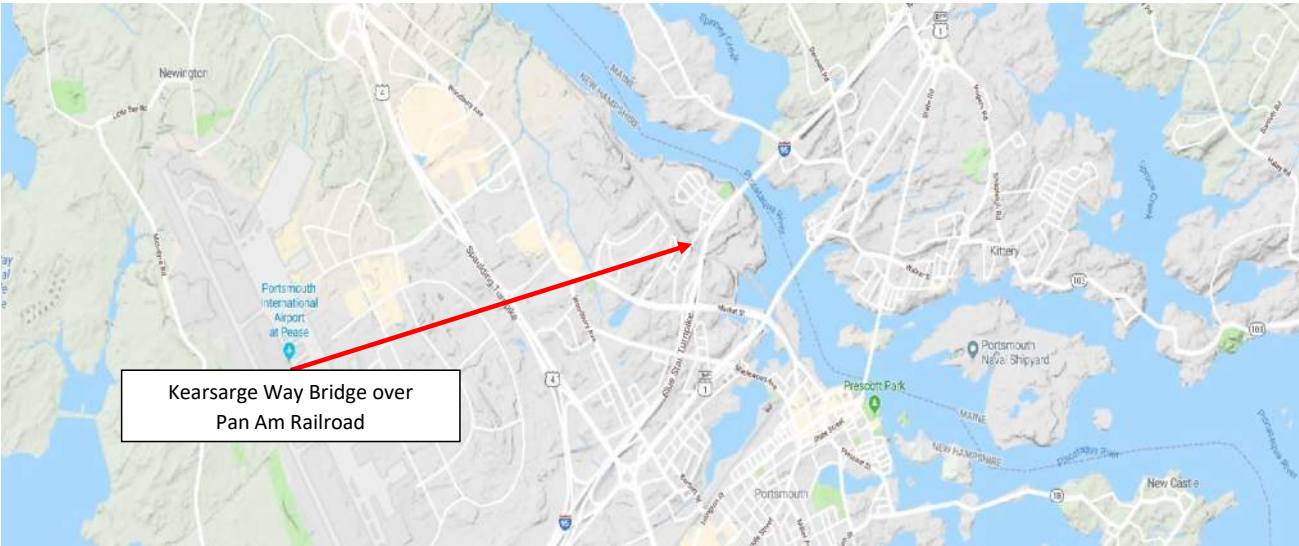
C-3B 6,467 psi
C-4B 4,980 psi
C-8 6,765 psi
C-10 6,130 psi

Five of the core locations were selected for Water Soluble Chloride Ion Content (AASHTO T260). The locations selected are: C-1, C-2, C-4A, C-7, C-8, C-10.

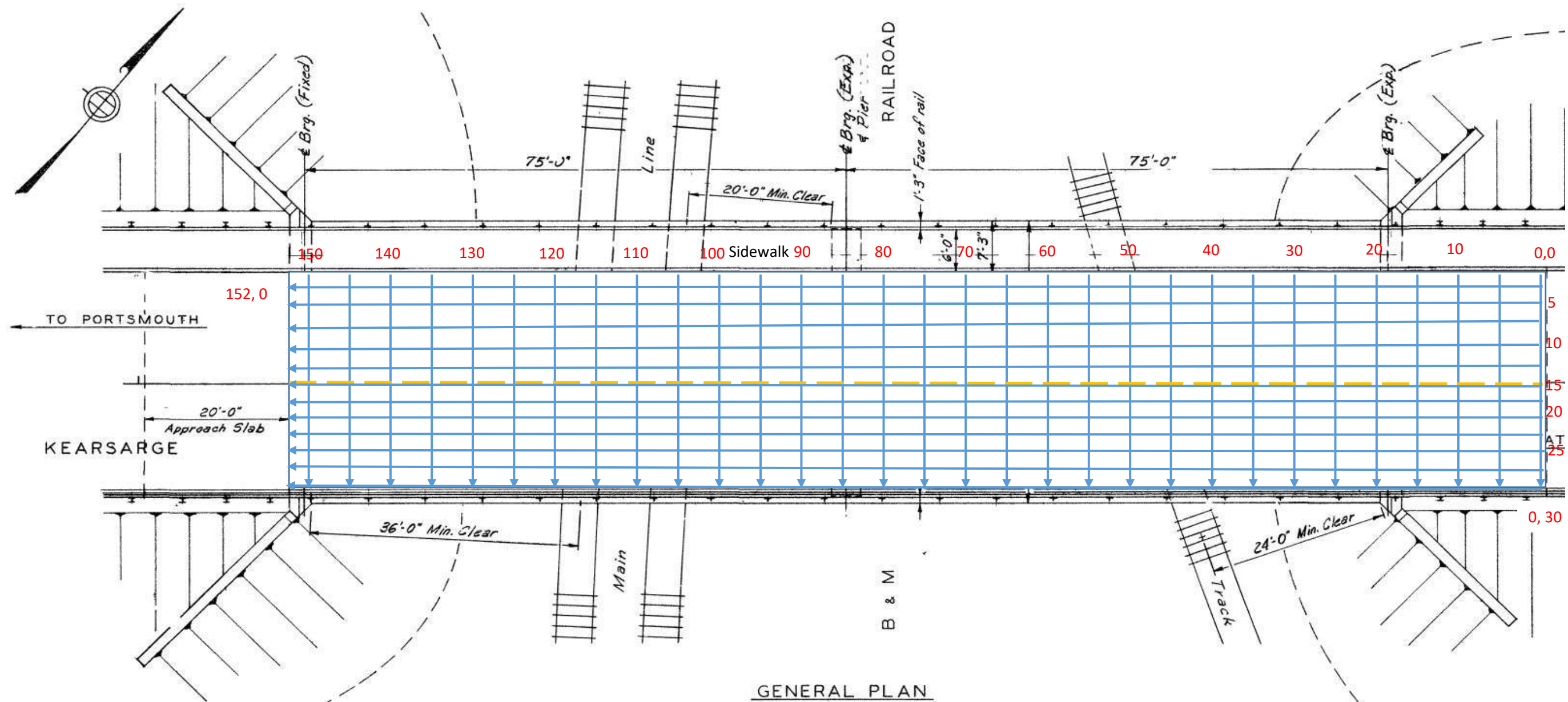
One core was selected for Petrographic Examination (ASTM C856). Full lab results can be found in Appendix 2.


FIGURES

Kearsarge Way Bridge

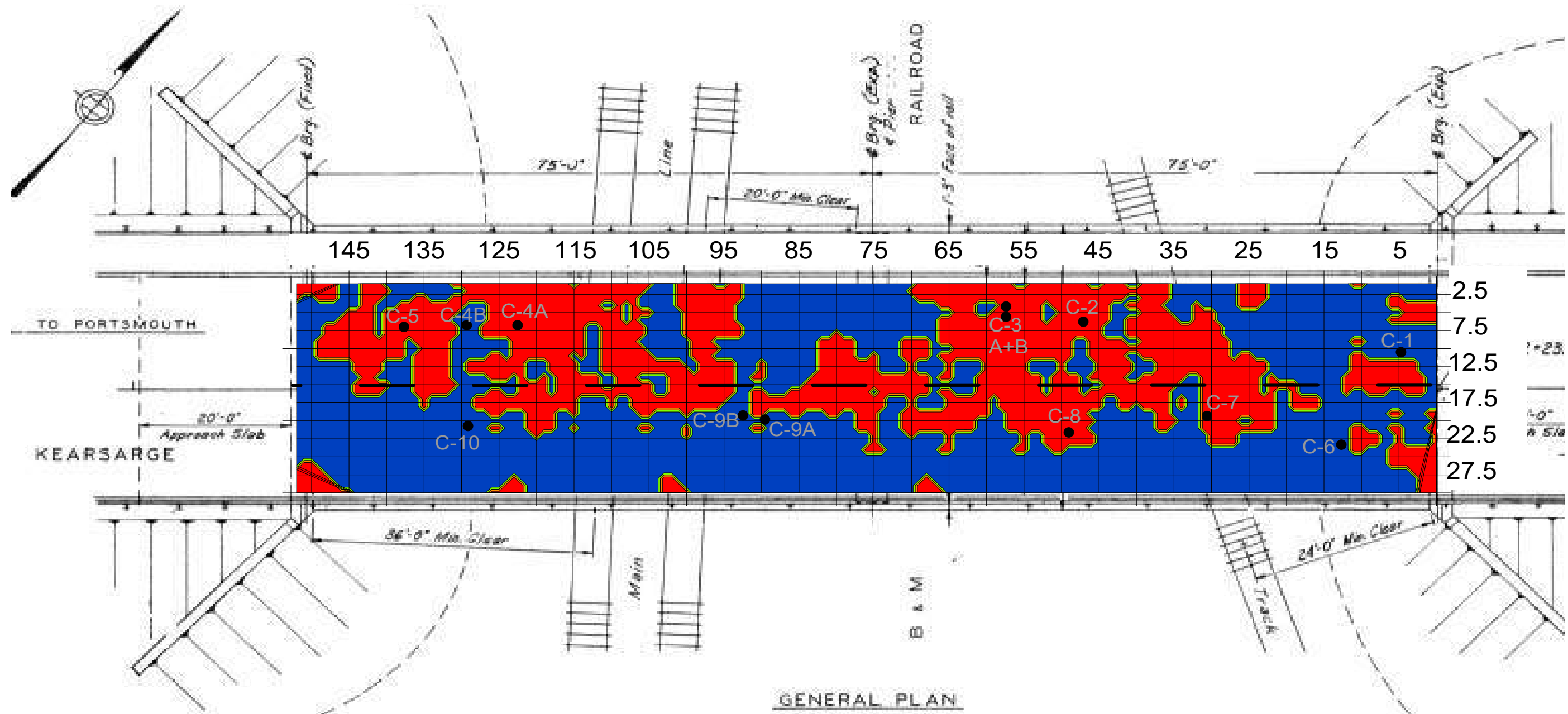


Bridge Deck Assessment Bridge # 240/132 Kearsarge Way Bridge over Pan Am Railroad Portsmouth, NH Prepared for Hoyle Tanner by NDT Corporation	Area of Investigation	
	April 2019	Figure 1



Key	
	GPR Lines of Coverage

Bridge Deck Assessment Bridge # 240/132 Kearsarge Way Bridge over Pan Am Railroad Portsmouth, NH Prepared for Hoyle Tanner by NDT Corporation		Lines of Coverage	
		April, 2019	Figure 2



Key

- Full Thickness
- GPR Data indicative of delamination around or at level of reinforcement
- Locations of Coring

Note

Approximately 35 % of the surface area of the road deck showed signs of possible delaminations around or at the level of reinforcement.

Bridge Deck Assessment
 Bridge # 240/132
 Kearsarge Way Bridge over Pan Am Railroad
 Portsmouth, NH
 Prepared for
 Hoyle Tanner
 by
 NDT Corporation

Contour Plot of GPR
 Data Collected

April,
 2019

Figure 3

APPENDIX 1

PHOTO RESULTS OF CONCRETE CORES

Photo Appendix



Table 1 Core Information

Asphalt Thickness	2 5/8"
Delam Location	N.A.

Bridge Deck Assessment Bridge # 240/132 Kearsarge Way Bridge over Pan Am Railroad Portsmouth, NH Prepared for Hoyle Tanner by NDT Corporation		Core 1	
		April 2019	Appendix

Photo Appendix



Table 2 Core Information

Asphalt Thickness	2 ¼"
Delam Location	1 ¾"
Core Length	6 ½"

Bridge Deck Assessment Bridge # 240/132 Kearsarge Way Bridge over Pan Am Railroad Portsmouth, NH Prepared for Hoyle Tanner by NDT Corporation	Core 2	
	April 2019	Appendix

Photo Appendix



*It was difficult to determine reinforcement location due to the presence of the delaminations

Table 3 Core Information

Asphalt Thickness	2 7/8" (a)	2 7/8" (b)
Delam Location	3" (a)	3 1/4" (b)
Core Length	2 3/4"-3 1/4" (a)	6 1/2" (b)

Bridge Deck Assessment Bridge # 240/132 Kearsarge Way Bridge over Pan Am Railroad Portsmouth, NH Prepared for Hoyle Tanner by NDT Corporation		Core 3a and 3b	
		April 2019	Appendix

Photo Appendix



*It was difficult to determine reinforcement location due to the presence of the delaminations

Table 4 Core Information

Asphalt Thickness	2 3/4" (a)	2 3/4" (b)
Delam Location	1 1/2"-2" (a)	N.A. (b)
Core Length	5" (a)	7" (b)

Bridge Deck Assessment Bridge # 240/132 Kearsarge Way Bridge over Pan Am Railroad Portsmouth, NH Prepared for Hoyle Tanner by NDT Corporation		Core 4a and 4b	
		April 2019	Appendix

Photo Appendix



Table 5 Core Information

Asphalt Thickness	2 3/8"
Delam Location	1 1/2 - 1 3/4"
Core Length	6 1/8"

Bridge Deck Assessment Bridge # 240/132 Kearsarge Way Bridge over Pan Am Railroad Portsmouth, NH Prepared for Hoyle Tanner by NDT Corporation	Core 5	
	April 2019	Appendix

Photo Appendix



Table 6 Core Information

Asphalt Thickness	3"
Delam Location	N.A.
Core Length	5"-5 ¼"

Bridge Deck Assessment Bridge # 240/132 Kearsarge Way Bridge over Pan Am Railroad Portsmouth, NH Prepared for Hoyle Tanner by NDT Corporation		Core 6	
		April 2019	Appendix

Photo Appendix



Table 7 Core Information

Asphalt Thickness	3"
Delam Location	3 ½"-4"
Core Length	7"

Bridge Deck Assessment Bridge # 240/132 Kearsarge Way Bridge over Pan Am Railroad Portsmouth, NH Prepared for Hoyle Tanner by NDT Corporation	Core 7	
	April 2019	Appendix

Photo Appendix



Table 8 Core Information

Asphalt Thickness	2 3/4"
Delam Location	3/16"-3/4" and 2"-2 1/2"
Core Length	7"

Bridge Deck Assessment Bridge # 240/132 Kearsarge Way Bridge over Pan Am Railroad Portsmouth, NH Prepared for Hoyle Tanner by NDT Corporation	Core 8	
	April 2019	Appendix

Photo Appendix



*Core 9b is labeled 9 in picture. There was no picture for core 9a (hit rebar and was not used)

Table 9 Core Information

Asphalt Thickness	2 3/4" (a)	2 3/4" (b)
Delam Location	N.A. (a)	3 1/4" (b)
Core Length	N.A. (a)	6 1/2" (b)

Bridge Deck Assessment Bridge # 240/132 Kearsarge Way Bridge over Pan Am Railroad Portsmouth, NH Prepared for Hoyle Tanner by NDT Corporation	Core 9a and 9b	
	April 2019	Appendix

Photo Appendix



Table 10 Core Information

Asphalt Thickness	2 5/8"
Delam Location	N.A.
Core Length	5 3/4"

Bridge Deck Assessment Bridge # 240/132 Kearsarge Way Bridge over Pan Am Railroad Portsmouth, NH Prepared for Hoyle Tanner by NDT Corporation	Core 10	
	April 2019	Appendix

Photo Appendix



Bridge Deck Assessment
 Bridge # 240/132
 Kearsarge Way Bridge over Pan Am Railroad
 Portsmouth, NH
 Prepared for
 Hoyle Tanner
 by
 NDT Corporation

All Cores

April
 2019

Appendix

APPENDIX 2

LABORATORY RESULTS



CONSULTANTS
· ENVIRONMENTAL
· GEOTECHNICAL
· MATERIALS
· FORENSICS

REPORT OF CHEMICAL ANALYSIS

PROJECT:

KEARSAGE WAY
PORTSMOUTH, NH

REPORTED TO:

ARIES SUPPORT SERVICES INC
876 EAST ROAD
TIVERTON, RI 02878

ATTN: PAMELA OLSEN

APS PROJECT NO: 10-20251

DATE: APRIL 12, 2019

INTRODUCTION

This report presents the result of laboratory work performed by our firm on twelve (12) powder samples submitted to us by Pamela Olsen of Aries Support Services Inc on April 4, 2019. The scope of our work was limited to documenting the water-soluble chloride content of the powders in accordance with AASHTO T260 "Standard Method of Test for Sampling and Testing for Chloride Ion in Concrete and Concrete Raw Materials."

TEST RESULTS

<u>Sample Identification</u>	<u>Sample Depth, in.</u>	<u>Water-Soluble Chloride by Weight of Sample, %</u>	<u>ppm (mg/Kg)</u>
CPS 1	1/2 - 1	0.119	1190
	1 1/2 - 2	0.109	1090
CPS 2	1/2 - 1	0.104	1040
	2 1/2 - 2	0.134	1340
CPS 4A	1/2 - 1	0.118	1180
	3 1/2 - 2	0.089	890
CPS 7	1/2 - 1	0.063	630
	4 1/2 - 2	0.059	590
CPS 8	1/2 - 1	0.161	1610
	5 1/2 - 2	0.150	1500
CPS 10	1/2 - 1	0.038	380
	6 1/2 - 2	0.036	360

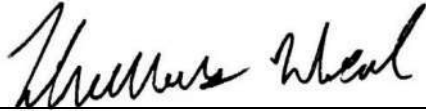
TEST PROCEDURES

Laboratory testing was performed on April 8, 2019 and subsequent dates. Testing was performed in accordance with AASHTO T260 "Standard Method of Test for Sampling and Testing for Chloride Ion in Concrete and Concrete Raw Materials." Results are reported on an as-received basis.

REMARKS

The test samples will be retained for a period of at least thirty days from the date of this report. Unless further instructions are received by that time, the samples may be discarded. The test results relate only to the samples tested. No warranty, express or implied, is made.

Report Prepared by:
American Engineering Testing, Inc.



Nick Wahl
Chemist I

Report Reviewed by:
American Engineering Testing, Inc.



Bill Rebel
Principal Chemist
Phone: 651-603-6633
brebel@amengtest.com



195 Frances Avenue
Cranston, Rhode Island 02910
Phone: 401-467-6454
Fax: 401-467-2398
<http://www.Thielsch.com>

Client Information:
Aries Support Services, Inc.
Tiverton, RI
Pam Olsen
pamolsen@cox.net

ASTM C-42:

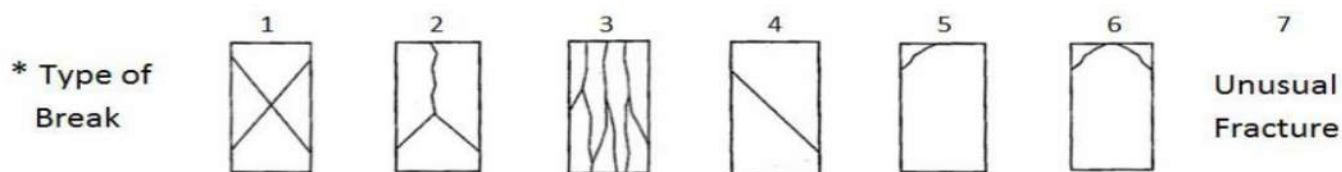
Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete

Project:	Kearsarge Way Bridge	TEI Project No.:	74-19-0002.53
Project Location:	Portsmouth, NH	Report No:	C032519A
Drilled By:	Client	Received By:	Amy LaCava
Drill Date:	3/25/2019	Received Date:	3/26/2019

Sample Receipt Data					
Sample ID	Received Length (in.)	Nominal Diameter (in.)	Nominal Aggregate Size (in)	Top End as Received	Bottom End as Received
C-3B	6.664	3.00	3/4	F	R
Sample Location:	South Bound Lane				
C-4B	6.931	3.00	3/4	F	R
Sample Location:	South Bound Lane				
C-8	6.594	3.00	3/4	F	R
Sample Location:	North Bound Lane				
C-10	5.697	3.00	3/4	F	R
Sample Location:	North Bound Lane				
Sample Location:					
Sample Location:					
Sample Location:					
Sample Remarks:	1) Cores were not received sealed in plastic bags. 2) No reinforcing steel was observed in the concrete compressive strength samples. 3) The samples were trimmed on the date of 3/27/2019.				

Laboratory Preparation Data					
Sample ID	Test Cut Length (in)	Test Diameter (in)	Area (in ²)	Trimmed Weight (lbs.)	Unit Weight (pcf)
C-3B	3.112	2.732	5.862	1.508	142.8
C-4B	6.269	2.728	5.845	2.982	140.6
C-8	4.181	2.737	5.884	2.055	144.4
C-10	5.384	2.742	5.905	2.731	148.4
Preparation Remarks:	The cores were cut and trimmed on a wet saw and measured for ASTM C39 conformance. Cores were gypsum capped in accordance with ASTM 617.				

Compressive Strength Results						
Sample ID	Load (Lbs)	Sample L/D Ratio	Break type	Correction Factor	Uncorrected Compressive Strength (psi)	Corrected Compressive Strength (psi)
C-3B	41740	1.14	3	0.91	7,120	6,467
C-4B	29100	2.30	3	1.00	4,979	4,980
C-8	41350	1.53	3	0.96	7,028	6,765
C-10	36190	1.96	4	1.00	6,129	6,130



Result Remarks:						
Technician:	Amy LaCava	Reviewed By:	Steven Accetta			
Report Date:	4/1/2019	Review Date:	4/1/2019			



REPORT OF CONCRETE TESTING

PROJECT:

KEARSAGE WAY
PORTSMOUTH, NH

REPORTED TO:

ARIES SUPPORT SERVICES INC
876 EAST ROAD
TIVERTON, RI 02878

ATTN: PAMELA OLSEN

APS PROJECT NO: 10-20251

DATE: APRIL 17, 2019

INTRODUCTION

This report presents the results of laboratory work performed by our firm on one concrete core sample submitted to us by Ms. Pamela Olsen of Aries Support Services Inc. on April 4, 2019. We understand the concrete core was obtained from an exterior concrete bridge deck currently evaluation. The concrete was reportedly placed circa 1979. The scope of our work was limited to performing petrographic analysis testing to document the overall quality of concrete.

CONCLUSIONS

Based on our observations, test results, and past experience, our conclusions are as follows:

1. The overall quality of the concrete was poor due primarily to the lack of an effective entrained air void system. The cement paste was relatively dense and hard with negligible carbonation at the surface. The alluvial gravel coarse aggregate was hard, only fairly bonded with the cement paste and somewhat reactive. The concrete did not appear to be purposefully air entrained and was placed with moderate water content.
2. The concrete contained an air void system that is not consistent with current technology for resistance to freeze thaw deterioration. We expect deterioration to occur if the concrete is exposed to moisture and cycles of freezing and thawing.
3. The concrete did contain evidence of active alkali-silica reactivity (ASR). However, we consider the level of reactivity to be very minor, but do expect reactive to continue to occur if the concrete exposed to moisture.

SAMPLE IDENTIFICATION

Sample No.

C-9

Sample Type:

Hardened Concrete Core

Original Sample Dimensions:

70 mm (2-3/4") diameter by 178 mm (7") long

TEST RESULTS

Our complete petrographic analysis test results appear on the attached sheet entitled 24-LAB-001 "Petrographic Examination of Hardened Concrete, ASTM C856." A brief summary of the general concrete properties is as follows:

1. The coarse aggregate was comprised of 3/4" maximum sized alluvial gravel that was well graded with good overall distribution.
2. Pozzolanic admixtures were not observed in the concrete sample.
3. The paste color was light gray with the slump estimated to be medium (3-5").
4. The paste hardness was judged to be medium to hard with the paste/aggregate bond considered fair to poor.
5. The depth of carbonation at the surface was negligible.
6. The water-to-cement ratio was estimated at between 0.43 to 0.48 with approximately 7-9% unhydrated cement clinker particles.

Air Content Testing

Sample Identification:	C-9
Total Air Analysis -	
Air Void Content, %	2.8
Spacing Factor, in.	0.011
Entrapped Air (%)	0.7
Entrained Air (%)	2.1

TEST PROCEDURES

Laboratory testing was performed on April 4, 2019 and subsequent dates. Our procedures were as follows:

Petrographic Analysis

A petrographic analysis was performed in accordance with APS Standard Operating Procedure 24-LAB-001, "Petrographic Examination of Hardened Concrete," ASTM C856-latest revision. The petrographic analysis consisted of reviewing cement paste and aggregate qualities on a whole basis as well as on a cut/polished section. The depth of carbonation was documented using a phenolphthalein indicator solution applied on a freshly cut and polished surface of the concrete sample. The water/cement ratio of the concrete was estimated by viewing a thin section of the concrete under a Nikon E600 polarizing microscope at magnification up to 600x. Thin section analysis was performed in accordance with APS Standard Operating Procedure 24-LAB-009, "Determining the Water/Cement of Portland Cement Concrete, APS Method." The sample is first highly polished then epoxied to a glass slide. The excess sample is cut from the glass and the slide is polished until the concrete reaches 25 microns or less in thickness.

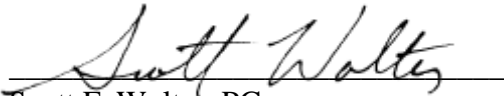
Air Content Testing

Air content testing was performed using APS Standard Operating Procedure 24-LAB-003, "Microscopical Determination of Air Void Content and Parameters of the Air Void System in Hardened Concrete, ASTM C457-latest revision." The linear traverse method was used. The concrete core was cut perpendicular with respect to the horizontal plane of the concrete as placed and then polished prior to testing.

REMARKS

The test sample will be retained for a period of at least thirty days from the date of this report. Unless further instructions are received by that time, the sample may be discarded. Test results relate only to the items tested. No warranty, express or implied, is made.

Report Prepared by:
American Petrographic Services, Inc.



Scott F. Wolter, PG

President

MN License No. 30024

Phone: 651-659-1345

swolter@amengtest.com

24-LAB-001 Petrographic Examination of Hardened Concrete
ASTM C856

Project No.	10-20251	Date:	04-09-2019	Date reviewed:	04-10-2019
Sample ID:	C-9	Performed by:	S. Massignan	Reviewed by:	C. Tillema

I. General Observations

1. Sample Dimensions: Our analysis was performed on a 173 mm (6-13/16") x 70 mm (2-3/4") x 33 mm (1-5/16") thick lapped profile section and a 76 mm (3") x 52 mm (2") thin section that were saw-cut and prepared from the original 70 mm (2-3/4") diameter x 178 mm (7") long core.
2. Surface Conditions:
Outer: Fairly rough, formed surface; discontinuously overlain by a bitumen coating.
Inner: Rough, irregular fractured surface.
3. Reinforcement: None observed.
4. General Physical Conditions: The received sample consisted of an approximately 178 mm (7") long concrete core which was fractured sub-parallel to the outer surface into two large sections. The fracture propagated between the depths of approximately 78 mm (3-1/16") and 93 mm (3-11/16") below the outer surface, primarily around aggregate particles. A few microcracks were observed proximate and sub-parallel to the fracture. The two large sections were reattached to one another with a cyanoacrylate adhesive prior to sample preparation.

Approximately 30% of the outer surface of the concrete was overlain by a bitumen coating, the majority of which "chipped/scaled" away during sample preparation. Approximately 15% of the outer surface of the sample was "chipped" away, likely due to sample procurement. A few microcracks oriented sub-parallel to the outer surface were observed in the outermost 2 mm (1/16") of the sample, and measured up to 11 mm (7/16") in length. A few microcracks oriented sub-perpendicular to the outer surface propagated from the outer surface up to 4 mm (5/32") observed depth. Carbonation was observed to be negligible (<0.5 mm) from the outer surface of the core sample. The concrete contained a small amount of entrained-sized air voids, with a 2.8% total air void content and a 2.1% entrained air content. The sample exhibited a 0.011" spacing factor and a 630 in²/in³ specific surface. The air void system was not consistent with current American Concrete Institute (ACI) recommendations for freeze-thaw resistance. White, acicular ettringite lined to filled numerous air voids throughout the sample. Clear to white, alkali-silica gel lined a few voids in the outermost approximately 26 mm (1") of the sample. The offending aggregate particle were meta-granite

II. Aggregate

1. Coarse: 19 mm (3/4") nominal sized naturally occurring gravel consisting of granite, meta-granite, felsite, and quartzite. The particles were mostly sub-rounded to sub-angular in shape. The coarse aggregate appeared well graded and exhibited good overall distribution.
2. Fine: Natural quartz, feldspar, and lithic sand (granite, meta-granite, felsite, amphibolite, and quartzite with a few iron oxide and many mica particles). The grains were mostly sub-rounded to sub-angular with many smaller angular particles. The fine aggregate appeared fairly graded and exhibited good overall uniform distribution.

III. Cementitious Properties

1. Air Content: 2.8% total
2. Depth of carbonation: Negligible.
3. Paste/aggregate bond: Poor to fair
4. Paste color: Similar to light gray (Munsell® N7) overall.
5. Paste hardness: Moderately hard (Mohs ≈3.5).
6. Microcracking: A microcrack oriented sub-parallel to the outer surface was observed in the outermost 2 mm (1/16") of the sample, and measured up to 11 mm (7/16") in length. A few microcracks oriented sub-perpendicular to the outer surface propagated from the outer surface up to 4 mm (5/32") observed depth. A few microcracks were observed at depth in the sample, proximate and sub-parallel to the fracture.
7. Secondary deposits: White, acicular ettringite lined to filled numerous air voids throughout the sample. Clear to white, alkali-silica gel lined a few voids in the outermost approximately 26 mm (1") of the sample.
8. w/cm: Estimated at between 0.43 and 0.48 with approximately 7 to 9% residual portland cement clinker particles.
9. Cement hydration: Alites: Fully
Belites: Well to fully



AIR VOID ANALYSIS

PROJECT:

KEARSAGE WAY
PORTSMOUTH, NH

REPORTED TO:

ARIES SUPPORT SERVICES INC
876 EAST ROAD
TIVERTON, RI 02878

ATTN: PAMELA OLSEN

APS PROJECT NO: 10-20251

DATE: APRIL 16, 2019

Sample ID: C-9

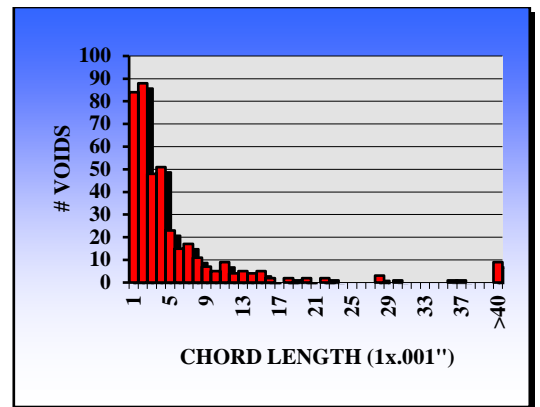
Conformance: The concrete contains an air void system which is not consistent with current American Concrete Institute (ACI) recommendations for freeze-thaw resistance.

Sample Data

Description: Hardened Concrete Core
Dimensions: 70 mm (2-3/4") diameter by
178 mm (7") long

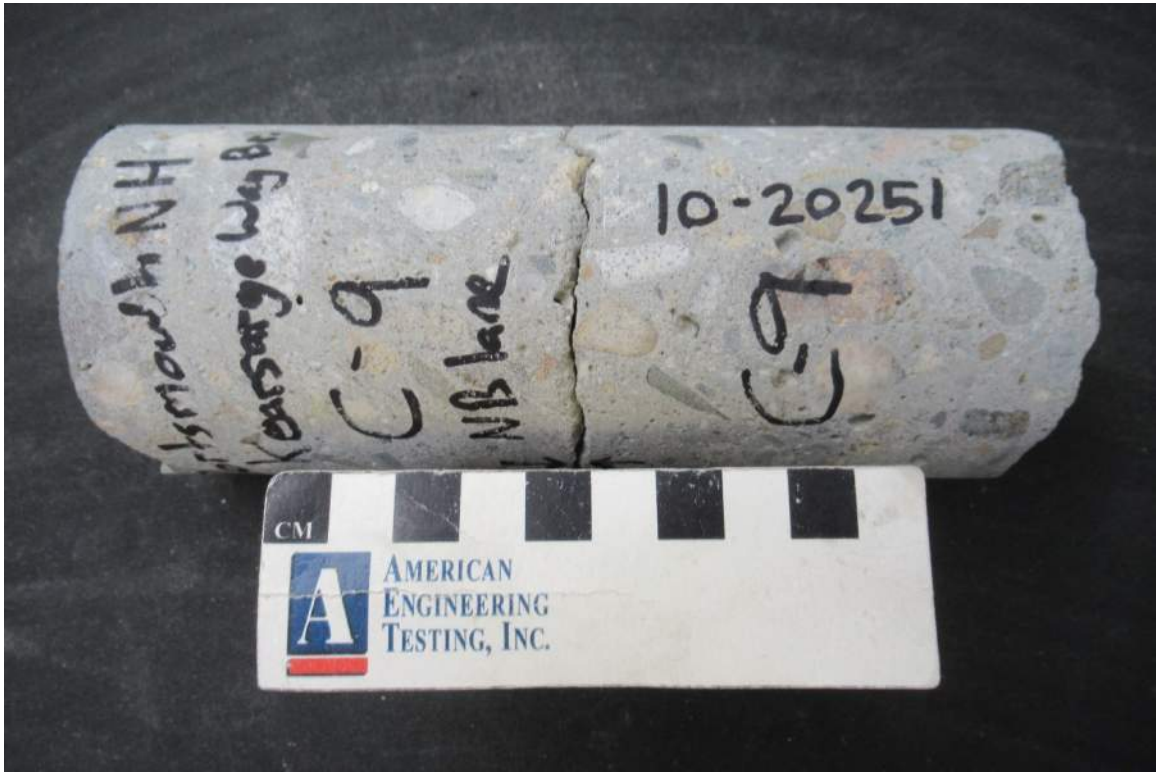
Test Data: By ASTM C457, Procedure A

Air Void Content %	2.8
Entrained, % < 0.040"(1mm)	2.1
Entrapped, % > 0.040"(1mm)	0.7
Air Voids/inch	4.5
Specific Surface, in ² /in ³	630
Spacing Factor, inches	0.011
Paste Content, % estimated	31
Magnification	50x
Traverse Length, inches	90
Test Date	4/8/2019
Test Performed By	S. Massignan



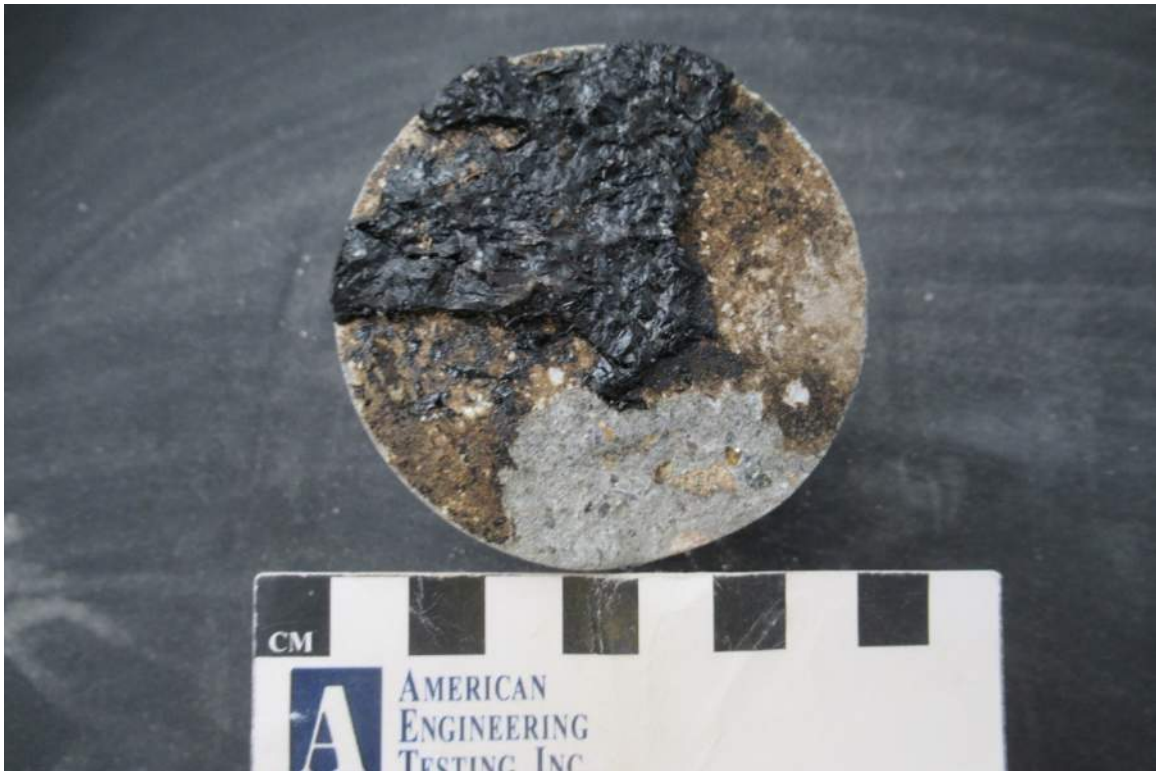
Magnification: 15x
Description: Hardened air void system.

PHOTO: 1



SAMPLE ID: C-9 DESCRIPTION: Profile view of the concrete core sample as received, with the outer surface oriented to the left. Note the fracture propagating through the approximate center of the length of the core. This sample was designated for full petrographic analysis.

PHOTO: 2



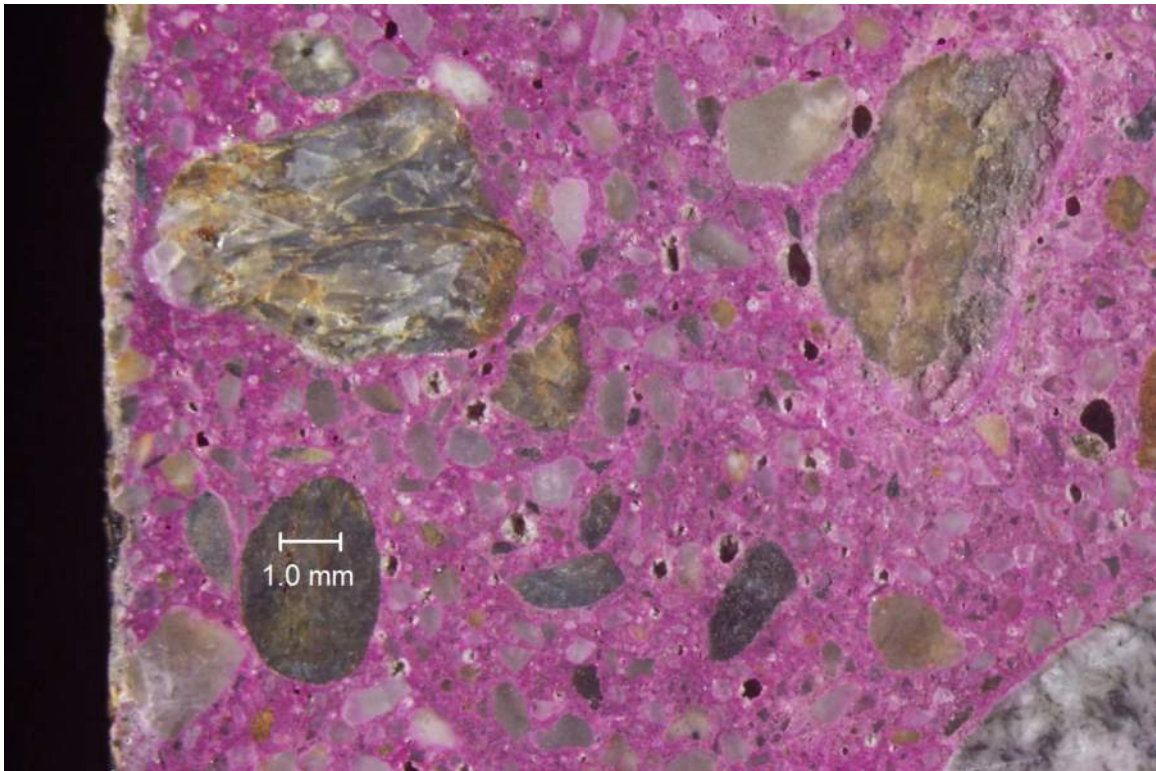
SAMPLE ID: C-9 DESCRIPTION: Outer surface of the sample as received. Approximately 30% of the outer surface of the concrete was overlain by a bituminous coating upon sample receipt.

PHOTO: 3



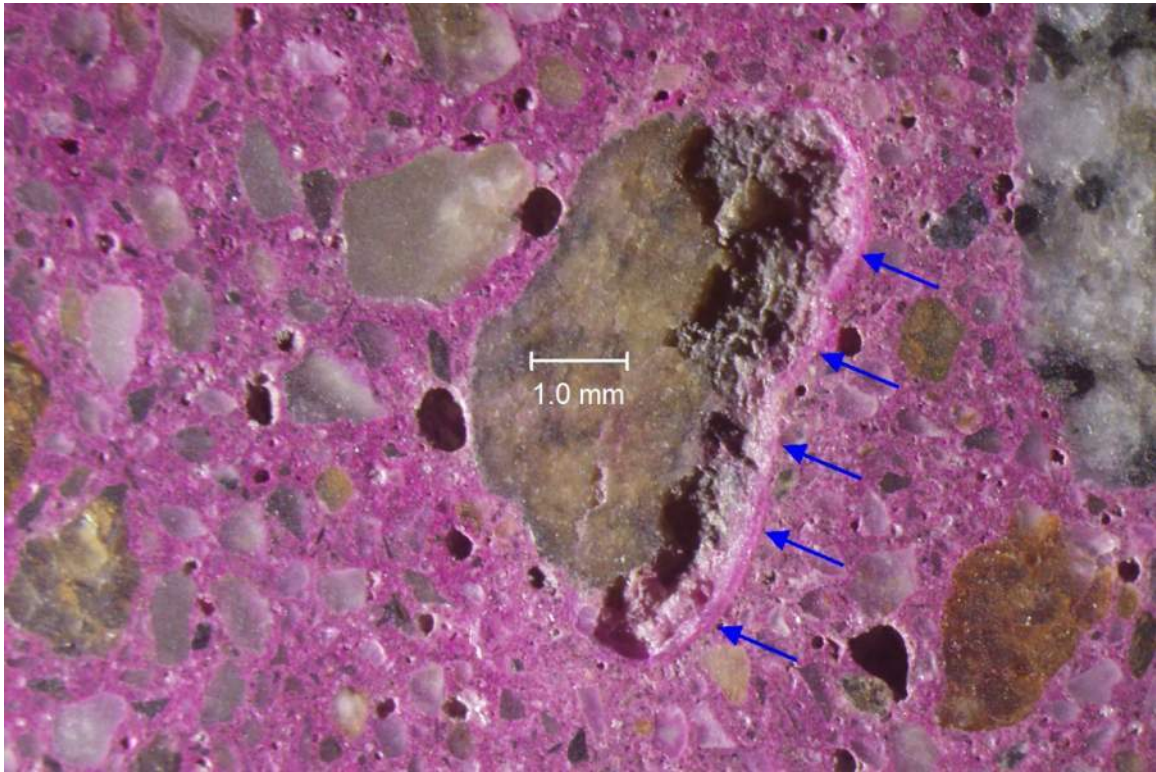
SAMPLE ID: Various DESCRIPTION: Twelve (12) powdered concrete samples, as received. These samples were designated for water soluble chloride-ion analysis.

PHOTO: 4



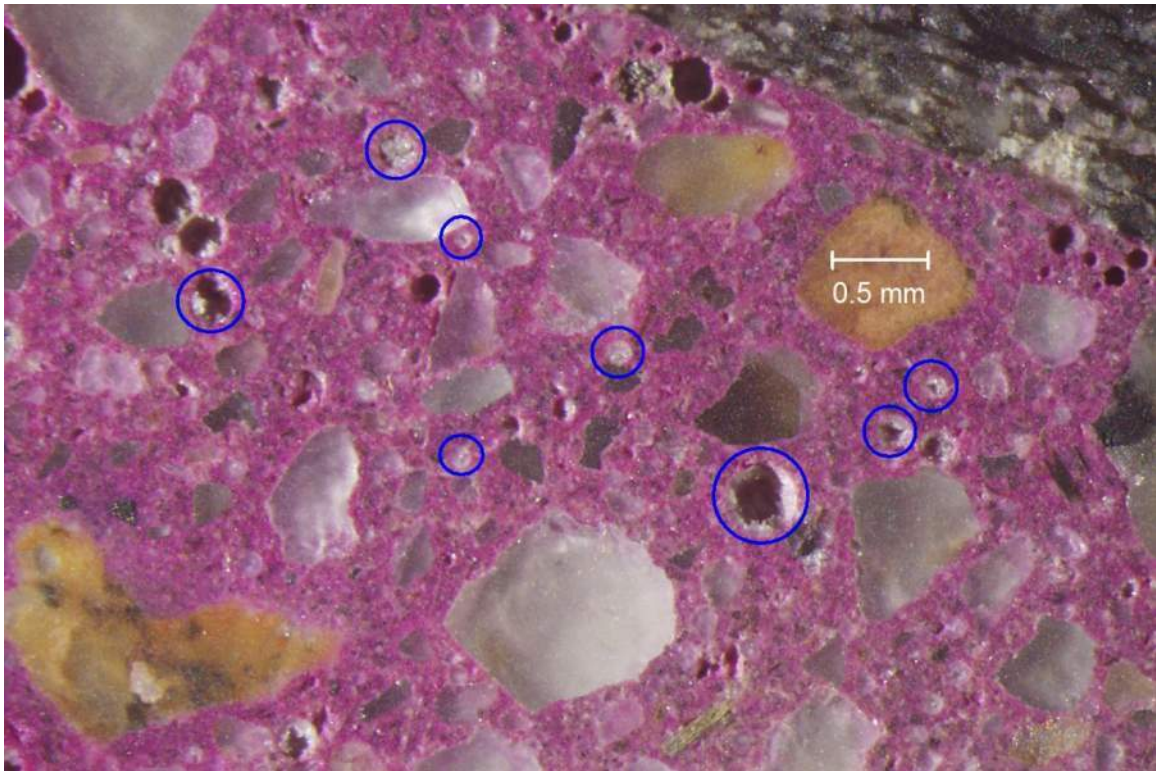
SAMPLE ID: C-9 DESCRIPTION: Negligible carbonation (< 1mm) observed at the outer surface of the sample. Observed on a freshly saw-cut and lapped cross section of the sample treated with the pH indicator phenolphthalein.
MAG: 10x

PHOTO: 5



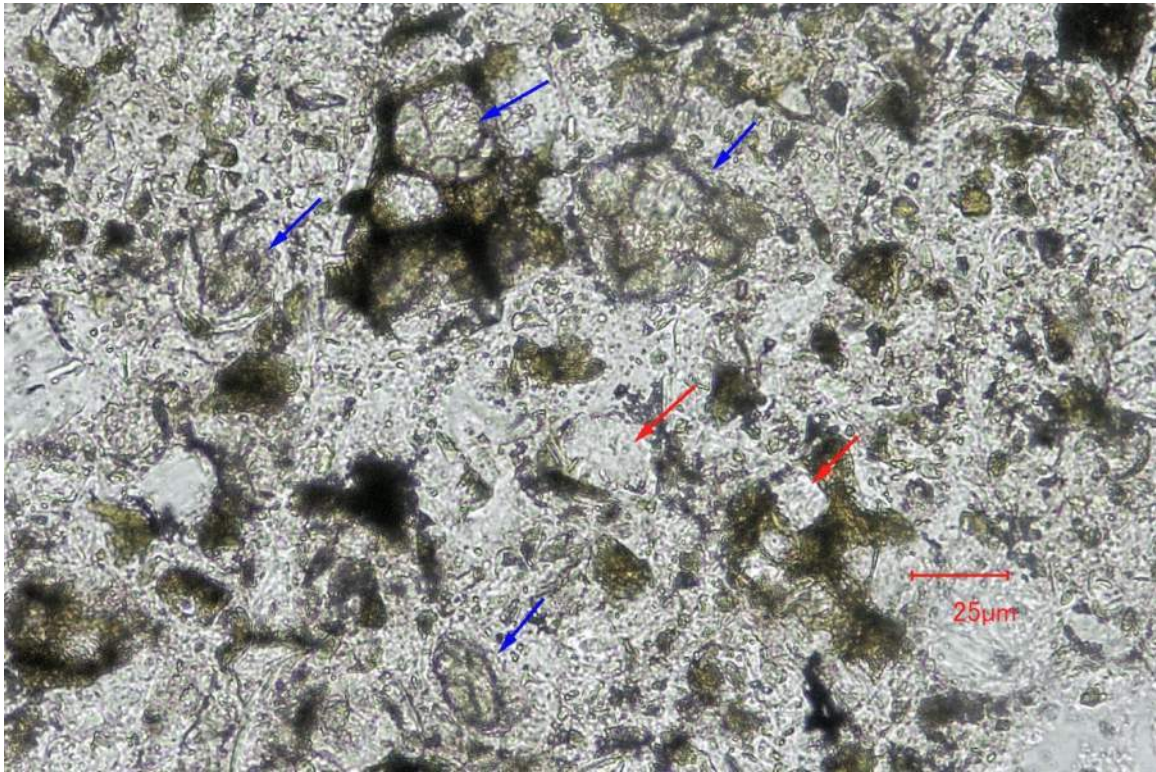
SAMPLE ID: C-9
MAG: 15x
DESCRIPTION: Clear to white, alkali-silica gel (blue arrows) lined a void space proximate to a reactive felsite aggregate particle. Observed on a freshly saw-cut and lapped cross section of the sample treated with the pH indicator phenolphthalein.

PHOTO: 6



SAMPLE ID: C-9
MAG: 30x
DESCRIPTION: White, acicular ettringite lined to filled numerous voids (circled in blue). Observed on a freshly saw-cut and lapped cross section of the sample treated with the pH indicator phenolphthalein.

PHOTO: 7



SAMPLE ID:	C-9	DESCRIPTION:	Fully hydrated relict alite portland cement particles (red arrows) and moderately to well
MAG:	400x		hydrated residual belite portland cement particles

APPENDIX 3

GPR METHOD OF INVESTIGATION

APPENDIX: GROUND PENETRATING RADAR

Ground Penetrating Radar (GPR) is an electrical geophysical method for evaluating subsurface conditions by transmitting high frequency electromagnetic waves into the ground and detecting the energy reflected back to the surface. Electromagnetic signals are transmitted from the antenna (transmitter and receiver) at ground surface and reflected back to the antenna from interfaces with differing electrical (dielectric constant and conductivity) properties. The greater the contrast in the electrical properties between two materials, the more energy that is reflected to the surface and the more defined results are.

GPR SYSTEM:

GPR systems consist of: Control unit (pulse transmitter, digital recorder, data storage, monitor); and an antenna(s) and survey wheel.



The GPR control unit is a computer which controls data acquisition parameters, such as sampling rate, range, gain control, filtering, etc. The Control Unit also visually displays the data, digitally archives the data, and allows for play back of the data.

Coaxial cable connects the control unit to the antenna. The antenna(s) are sealed and shielded in fiberglass housing.. Selection of the antenna is dictated by the requirements of the survey. For high resolution, near-surface data, a high frequency antenna is used; for deeper penetration investigation, a lower frequency antenna is used. Typically the 100 to 400 MHz antennas are used for geologic surveys; 400 to 900MHz are used for utility, near surface voiding settlement, foundation, etc surveys while the 900 to 1500 MHz are used for concrete reinforcing assessment.

APPLICATIONS

Ground Penetrating Radar (GPR) can be used to locate underground pipes, buried drums, foundations, voids in rock and concrete, soil settlement, determine stratigraphy, depth to water table, buried artifacts, filled excavations, and locate voids/settlement behind walls and under floor slabs, etc. GPR is also a good tool for evaluating concrete structures such as

bridges, walls, beams, ceilings, etc where the GPR can locate rebar and conduits, quantify rebar spacing, cover variability over reinforcing, and concrete thickness.

GPR reflections typically occur at subsurface discontinuities such as:

- Buried metal objects (utilities, tanks, reinforcing)
- Open and water filled voids
- Water table
- Soil stratification
- Seepage paths
- Bedrock fractures

DEPTH OF PENETRATION AND LIMITATIONS

The depth of penetration of GPR is site specific, limited by the attenuation of the electromagnetic energy. Signal attenuation is controlled by four different mechanisms:

- Scattering: energy losses due to scattering occur when signals are dispersed in random directions, away from the receiving antenna, by closely spaced rebar or large irregular shaped objects, such as boulders or tree stumps.
- High conductivity layers: the greater the conductivity values of materials at a site, the more signal attenuation or less penetration. (Mineral content, high moisture content, water table, metal plates, etc.)

Signal penetration is also dependent on the frequency of the antenna. High frequency antennas have shallow penetration and high resolution. Low frequency antennas have greater depths of penetration, but the resolution of small and near surface targets is reduced. Listed below are antenna frequency, approximate depths of penetration and typical application. (Depths of penetration are in ideal conditions if a highly conductive layer, such as a brackish water table, steel plate, etc., is present all antennas will be limited to the depth of this layer.)

1500 and 1600 MHz	+/-2 feet	Asphalt/Concrete thickness Wire mesh/rebar/conduit location Voiding within and behind structures
900 MHz	3-5 feet	Concrete thickness Rebar and utility location Voiding within and behind structures
400 MHz	10-15 feet	Concrete/Masonry thickness Utility location Soil settlement/sinkhole development Geologic and Environmental mapping Archaeological Surveys
200 MHz	25-30	Soil settlement/sinkhole development

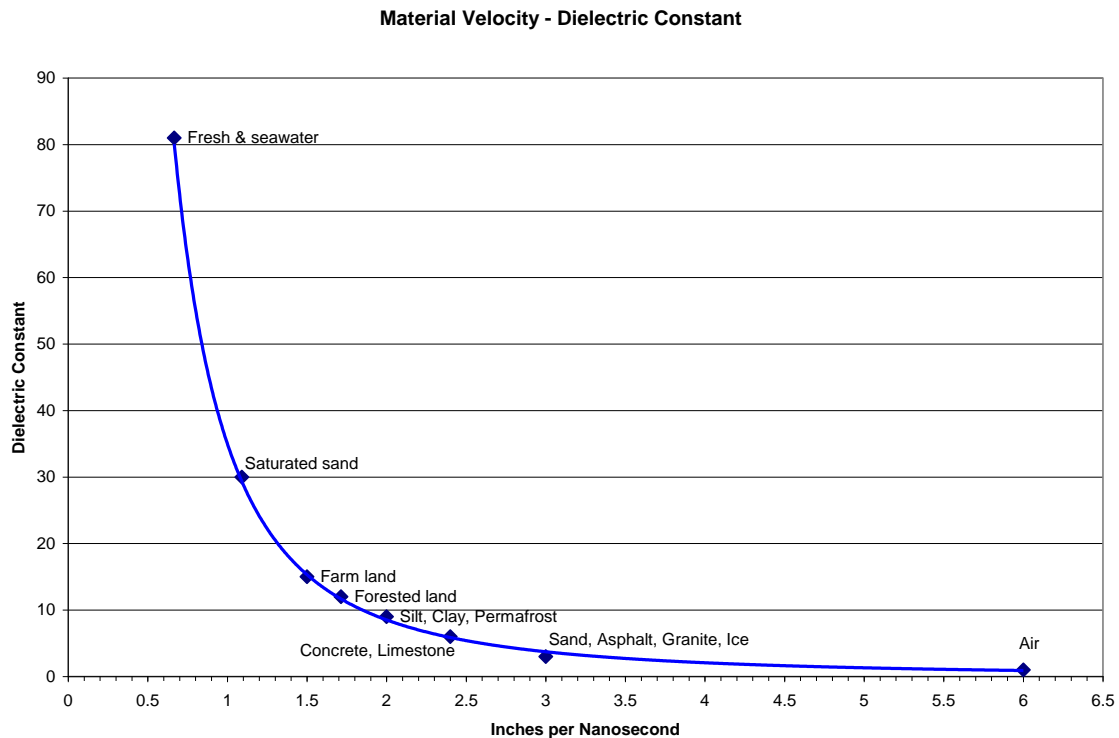
Geologic and Environmental mapping
Archaeological Surveys

100 MHz

+/-50

Soil settlement/sinkhole development
Geologic and Environmental mapping
Archaeological Surveys

Depth of investigation can be estimated using material dielectric constants and the diagram shown below. Typically 2 inches per nanosecond can be used as an average signal velocity for most materials and sites. When available an onsite depth calibration can be conducted to determine the electrical properties (speed of the signal) of the materials at the site. Depth calibrations typically consist of collecting GPR data over a metal target with a known depth. Known utilities, and buried metal plates are good targets for calibrations. GPR surveys can be very effective when coupled with other geophysical surveys and/or ground truth methods to verify, correlate and extrapolate GPR results. GPR surveys are a fast and cost effective method to collect data over large or obstructed sites, and isolate anomalies and areas where borings or other methods can be focused for the best interest of a project.

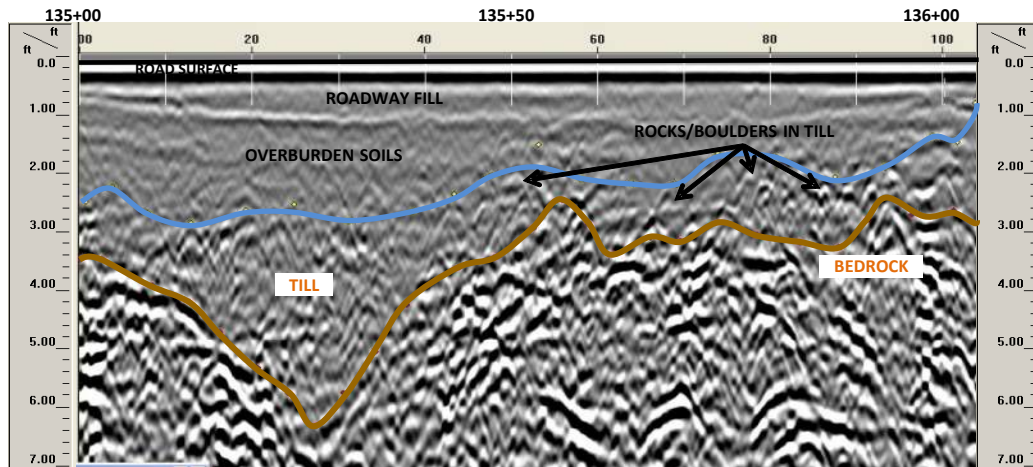


ACQUISITION AND INTERPRETATION:

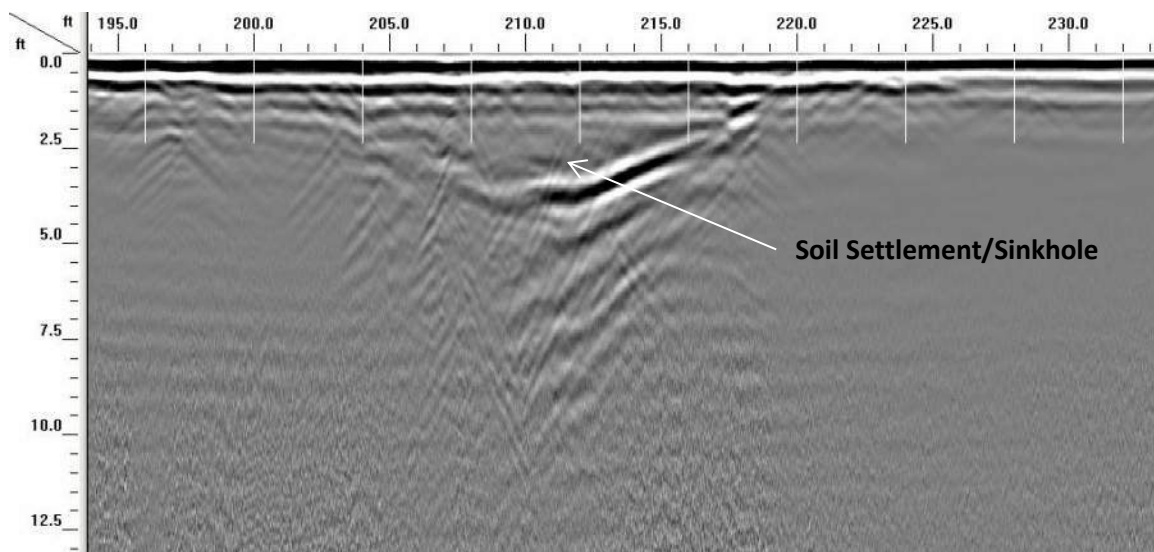
Radar data are typically acquired at a slow walking speed along a grid pattern of survey lines or a series of parallel lines. Data is displayed on LCD screen for field verification and quality control of results and digitally saved. Calibrated measuring wheels are used to automatically added footage/station markers to the digital data. The saved data can be printed or post processed.

Interpretation of GPR data is subjective. GPR results should be verified with borings or test pits. GPR lines indicate a cross-section in time/depth along a survey line.

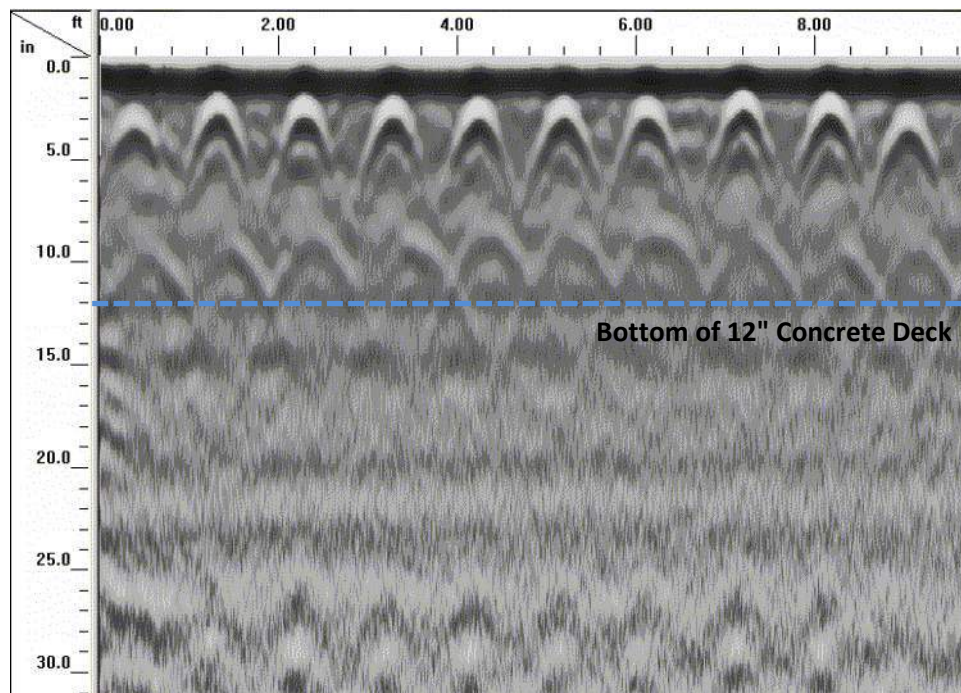
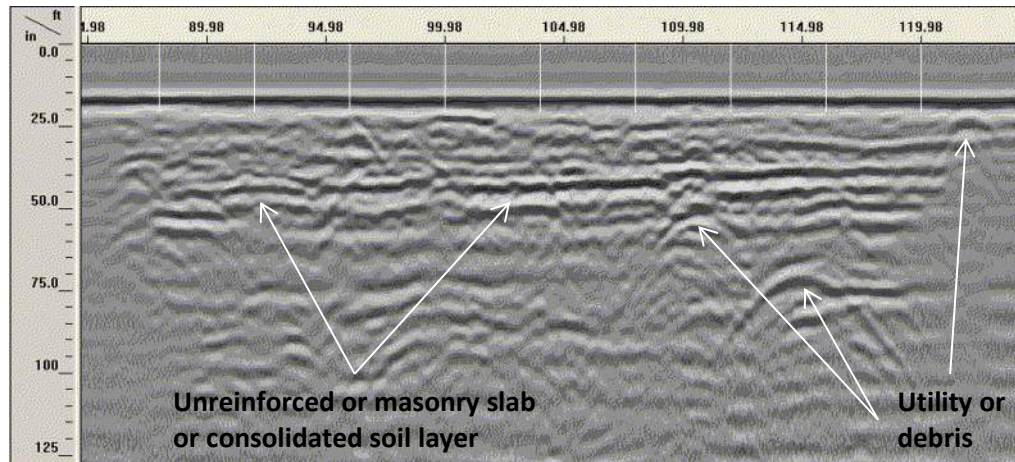
Natural soils or fill placed in lifts during construction retain moisture between material interfaces and typically have horizontal or near horizontal bedding planes. These conditions cause a change in conductivity which shows as continuous reflective layers on GPR data. The strength of a reflected signal and/or the continuity of the reflector across the record may be indicative of a stratigraphic contact, water table, top of rock, back of wall/slab.



Locations where GPR data indicate these horizontal bedding planes/layers are sloping, draped or disturbed can be indication of soil settlement, trenching and/or voiding. Areas where GPR data is less reflective, indicating fine soil materials (clays and silts) have been washed or eroded away or areas that are more reflective, indicating loose soil conditions where moisture has accumulated are also indicative of and associated with settlement, sinkholes, and voiding.



Often point targets, such as reinforcing, buried utilities, boulders, create a distinctive parabolic feature on GPR records. Point targets trending perpendicular to the direction of the line of coverage are detected, therefore to detect longitudinal reinforcing a transverse line of data would be collected and to detect transverse reinforcing, a longitudinal line of data would be collected. Plotting point targets of similar signal strength, depth, and shape located along the grid of GPR lines give the trend and location of individual utilities and/or reinforcing.



Top Reinforcing
12" spacing
2+/- inches cover

Bottom Reinforcing
12" spacing
8-9 inches cover

Appendix E

Pan Am Railway Approval of the Kearsarge Way Deck Repair Plans



PAN AM RAILWAYS

1700 IRON HORSE PARK
NO. BILLERICA, MA 01862

September 5, 2019

Jillian Semprini, PE
Hoyle, Tanner & Associates, Inc.
150 Dow Street
Manchester, NH 03101

RE: Bridge Repairs
Kearsarge Way
PORTSMOUTH, NH
VS 3 – Map 56A (Boston and Maine Corporation)

Pan Am Railways (PAR) has reviewed the information received July 8, 2019 for the above referenced bridge repair. Hoyle, Tanner & Associates, Inc. proposes to oversee repairs to the existing bridge that carries traffic over the tracks at Kearsarge Way, in the City of Portsmouth, NH. The project crosses over our Newington Branch Line (NBL) at MP 11.0 (+/-). Based on a review of the information submitted to date, PAR respectfully submits the following comments regarding this project:

- The plan, as submitted, has been reviewed by PAR Structural Engineers and is found to be acceptable.
- As you are aware, any work activities that require access to Railroad Right-of-Way (ROW) and/or affect Railroad Operations require prior approval and must be performed under the supervision of a Railroad Flagman/Inspector. All work shall be coordinated accordingly with train movements.
- The Contractor will be required to execute a Standard Railroad Service Contract and provide an acceptable Railroad-protective insurance policy to our Real Estate Department prior to scheduling work. Please contact Mike Twidle at (978) 663-6937 for coordination of all Real Estate requirements.
- Please contact the undersigned at (978) 663-1127 to coordinate Railroad Flagging/Inspection requirements upon finalization of the appropriate documentation with our Real Estate Department.

PAR review of this submittal was performed to insure conformance to Railroad requirements and therefore relies on the information provided. Based on the above-referenced comments, the project appears to be designed in accordance with our requirements subject to the above stipulations.

This letter of approval is valid for one (1) year from date of writing. If actual construction does not commence within that timeframe, the Railroad may require, at its discretion, additional terms and conditions under which the work shall be performed and/or resubmittal of plans and specifications for further consideration, without guarantee of approval.

If you have questions or require additional information regarding this letter, please do not hesitate to contact the undersigned at (978) 663-1127 or Mr. Ted Krug, P.E., Chief Engineer of Design and Construction at (978) 663-1108.

Very truly yours,

BOSTON AND MAINE CORPORATION/
SPRINGFIELD TERMINAL RAILWAY CO.

A handwritten signature in black ink, appearing to read "Shawn Higgins", followed by a stylized flourish.

Shawn Higgins, P.E.
Project Engineer

CC: TK/MT/File

Appendix F

Railroad Service Agreement

**BOSTON AND MAINE CORPORATION
SPRINGFIELD TERMINAL RAILWAY COMPANY**

RAILROAD SERVICE AGREEMENT

AGREEMENT made as of this day of , 2016 by and between the "Railroad" as described in paragraph 1.A. below and "Contractor" as described in paragraph 1.B. below.

In consideration of the mutual promises, covenants and undertakings contained herein, and other good and valuable consideration, the receipt and sufficiency of which the parties hereby expressly acknowledge, the parties agree as follows:

1. The following terms shall have the meanings specified whenever used in this Agreement:

A. RAILROAD:

Boston and Maine Corporation and
Springfield Terminal Railway Company
c/o Pan Am Systems Incorporated
Iron Horse Park
North Billerica, Massachusetts 01862

B. CONTRACTOR: The following described party, together with its agents, servants, employees, subcontractors, suppliers, consultants and engineers:

C. PROPERTY: The Railroad's so-called Northern Main Line located in Hooksett, New Hampshire in the vicinity of Main Street and Railroad milepost 36.3.

D. RAILROAD SERVICES: The Railroad shall perform such services and provide such equipment and materials which it deems, in its sole discretion, necessary for the safe performance by the Contractor of the Construction Project, including, without limitation, the performance of all preliminary, office and field engineering; internal record keeping and accounting; railroad flagging and signaling; restoration or replacement of the Railroad's track or ballast; and all railroad inspection; and the Railroad shall provide all railroad communication equipment and materials.

E. INITIAL RAILROAD SERVICE FEE: To be invoiced by the Engineering Department of the Railroad.

F. CONSTRUCTION PROJECT: Cutting and removing trees and brush on the Property.

G. TERM: One (1) year from the date first written above or completion of the construction project whichever occurs first.

H. EXHIBITS: The following Exhibits annexed hereto are hereby incorporated in this Agreement by this reference: Intentionally omitted.

2. ENTRY UPON RAILROAD PROPERTY. The Railroad hereby agrees to permit the Contractor to enter upon the Railroad Property for the Term for the limited purpose of performing the Construction Project, provided that the Contractor complies with all of the several terms, conditions and covenants contained in this Agreement, the Construction Project hereinabove described, and all work requirements and directions of the Vice President-Engineering of the Railroad, or his authorized representative (the "Vice President-Engineering").

3. RAILROAD SERVICES. In connection with the Contractor's performance of the Construction Project, the Railroad shall provide the Railroad Services.

4. RAILROAD SERVICE FEES. In consideration of the performance by the Railroad of the Railroad Services, the Contractor shall pay to the Railroad the Initial Railroad Service Fee. The Railroad hereby reserves the right to require additional Railroad Service Fees for Railroad Services necessary to complete the Construction Project. The Contractor further agrees to pay the Railroad a non-refundable fee of six hundred (\$600.00) dollars as reimbursement for the costs and expenses incident to the preparation of this Agreement.

5. NOTICE OF INTENTION TO COMMENCE THE CONSTRUCTION PROJECT. The Contractor shall provide the Vice President - Engineering of the Railroad with seven (7) days' notice in advance of its intention to commence the Construction Project.

6. COVENANTS OF THE CONTRACTOR. The Contractor hereby covenants and agrees that it will observe the following affirmative and negative covenants during the term of this Agreement:

(a) The Contractor shall perform the Construction Project in a safe, good and workmanlike manner and in accordance with the description of the Construction Project herein contained and all work requirements and directions of the Vice President-Engineering.

(b) The Contractor shall permit to enter upon the Railroad Property and perform the Construction Project only those contractors and/or subcontractors having, in the exclusive opinion of the Vice President-Engineering, sufficient engineering, construction expertise and financial ability to accomplish the Construction Project. The Railroad shall have the right to disqualify any contractor or subcontractor employed by the Contractor from performing the Construction Project for the following reasons:

(i) Failure to pay in full Monies owed to the Railroad; or

(ii) Use of, or reputation for use of, construction methods or procedures which, in the exclusive opinion of the Vice President-Engineering, are unsafe, technically deficient, or not in compliance with the Railroad's

standards.

Any contractor or subcontractor so disqualified by the Railroad shall immediately vacate the Railroad Property and shall not re-enter the Railroad Property without the prior written approval of the Vice President-Engineering.

(c) The Contractor shall not, at any time, except with the prior approval of the Vice President-Engineering, enter upon the Railroad Property or perform the Construction Project without the presence at the Railroad Property of a foreman, inspector, or flagman as may be assigned or required by the Vice President-Engineering, in his exclusive opinion.

(d) The Contractor shall procure and maintain, at its sole cost and expense, the following insurance coverage's naming the Railroad, exactly as designated in Paragraph 1, as insured, in forms and with companies and coverage limits satisfactory to the Railroad:

- (i) Comprehensive General Liability Insurance protecting against liability from bodily injury or property damage arising out of the Construction Project.
- (ii) Workers Compensation and Occupational Disease Insurance, as required by law.
- (iii) Automobile Liability Insurance covering all motor vehicles used about or in connection with the Construction Project.
- (iv) Railroad Protective Liability Insurance.

(e) The Contractor shall procure and maintain, at its sole cost and expense, all permits, licenses and approvals of all governmental authorities and all consents of all third parties necessary for the Contractor to perform the Construction Project. The Contractor shall comply with, and shall cause the Railroad Property to comply with, all applicable local, county, state or federal laws, codes or ordinances of any description, including, but not limited to: zoning, building, engineering, sanitation, health or environmental laws, particularly, the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. 9601, et seq., as amended) ("Law"). The Contractor shall promptly remedy any breach of any Law.

7. INTERRUPTION OF CONSTRUCTION PROJECT.

- (a) Upon demand by the Railroad, the Contractor hereby agrees to immediately:
 - (i) Cease performance of the Construction Project;
 - (ii) Clear the Railroad Property of all personnel, materials, equipment or

obstructions and render the Railroad Property safe for the passage of trains; and

- (iii) Vacate the Railroad Property until such time as the Railroad gives notice of permission to re-enter the Railroad Property.

(b) In the event that the Contractor ceases work on the Construction Project, for any reason whatsoever, the Contractor shall provide notice of the same to the Vice President-Engineering and shall leave the Railroad Property in a safe condition, satisfactory to the Vice President - Engineering.

8. PRIORITY OF RAILROAD OPERATIONS. The operations of the Railroad, Pan Am Railway Incorporated ("Pan Am"), the affiliated railroads of Pan Am, (in general, and those running through the Railroad Property in particular) and the operations of the lessees, licensees and other lawful occupants of the Railroad Property shall have absolute priority over the performance of the Construction Project. The Contractor hereby agrees that the Construction Project shall be performed only at such hours and times and under such conditions as specified by the Railroad. Such hours and times shall be subject to change without prior notice to the Contractor. The Contractor hereby acknowledges and agrees that the Contractor may suffer delays and increased costs due to said agreed upon priority of the Railroad's and others' operations. Causes for such delay and increased cost may include: (i) the inability or default of the Railroad in providing adequate personnel to allow work; and/or (ii) passage of trains. The Parties agree that had the Contractor desired to proceed with the work without being subject to the aforementioned delay and increased cost, the terms of this Agreement would have been substantially different, and per diem costs to the Contractor, depending on job location, rail traffic, etc. could have far exceeded the Railroad Service Fee.

9. INDEMNIFICATION OF RAILROAD.

- (a) The Contractor hereby agrees to defend with counsel acceptable to the Railroad, release, indemnify, protect and hold harmless the Railroad, Pan Am, their affiliates, successors and assigns, their lessees and licensees and all other lawful occupants of the Railroad Property from and against any and all loss, cost, damage, or expense arising in any way out of the Construction Project or Contractor's use or possession of the Railroad Property including, without limitation, (i) all claims or suits for loss or damage to property of any description or natural resources, (ii) personal injury, sickness or death of any person, (iii) delay damages, (iv) consequential damages, (v) all matters relating to the alteration of wetlands, (vi) breach of any Law, particularly any alleged release of oil or hazardous or otherwise harmful materials or substances (including, but not limited to costs for assessment, remedial or response actions), or (vii) other damages arising in any way out of the Construction Project or Contractor's use or possession of Railroad Property, whether such loss, cost, damage, or expense is suffered by the Contractor, the Railroad, Pan Am, their affiliates, successors, assigns, lessees, licensees and all other lawful occupants of the Railroad Property, or the officers, agents employees, or representatives of any of them, or by others.

- (b) In addition to the provisions above, the Contractor expressly agrees to assume responsibility for; and to release Railroad, Pan Am and their affiliates from, any and all claims, costs, suits, judgments arising from or related to any actual, alleged or potential violations of any federal, state or local environmental law, regulation, rule, ordinance, or code discovered by Contractor in a manner that relates in any way to the performance of the Construction Project, including, but not limited to, any actual, alleged potential violations that existed prior to the execution of this Agreement.
- (c) In the event that at any time during the performance of the Construction Project, the Contractor discovers any contamination or suspected contamination that triggers notification requirements under any applicable federal, state or local law, rule, regulation or ordinance, the Contractor agrees to promptly notify the Railroad, who will assume responsibility for performing any notification, if necessary, in accordance with good environmental practice, and if any further investigation or remediation is determined necessary the Railroad will perform the investigation and remediation. The Contractor agrees to indemnify the Railroad of any and all costs associated with the environmental contamination. The Contractor shall be held solely responsible for the cost of any necessary investigation and/or remediation

10. GENERAL PROVISIONS.

- (a) Any notice or other communication in connection with this Agreement shall be deemed duly served when received (or upon attempted delivery if delivery is not accepted). Such notice shall be in writing and either delivered by hand or mailed (i) by registered or certified mail (return receipt requested) with the United States Postal Service, or (ii) by Federal Express or other overnight mail carrier furnishing evidence of receipt to the sender, at the address for such party set forth in Section 1. Either party may change the address at which it is to receive notices by notice given as hereinabove set forth.
- (b) Failure of the Railroad to complain of any act or omission hereunder on the part of the Contractor, no matter how long the same may continue, shall not be deemed a waiver by the Railroad of any of its rights hereunder. No waiver by the Railroad at any time, express or implied, of any breach of any provision of this Agreement shall ever be deemed a waiver of a breach of any other provision of this Agreement, or a consent to any subsequent breach of the same or any other provision. If any action by the Contractor shall require the Railroad's consent or approval, such consent or approval on any particular occasion shall not be deemed a consent or approval of any other action on any subsequent occasion.
- (c) If any provision of this Agreement, or the application thereof to any person or circumstance, shall to any extent be invalid or unenforceable, the remainder of the Agreement, or the application of such provision to persons or circumstances other

than those as to which it is invalid or unenforceable, shall not be affected. Each provision of this Agreement shall be deemed valid and enforceable to the fullest extent permitted by law.

- (d) The Section headings contained in this Agreement are for reference and convenience only and in no way define or limit the scope and contents of this Agreement or in any way affect its provisions.
- (e) This Agreement constitutes the entire understanding between the parties relating to the subject matter hereof, supersedes all prior oral and written offers, negotiations, proposals, representations, agreements, courses of dealing and understandings between the parties relating to the subject matter hereof and is subject to no understandings, conditions, or representations other than those expressly stated herein.
- (f) This Agreement may only be amended or modified by a writing signed by all of the parties hereto which refers to this Agreement.
- (g) This Agreement shall be governed by and construed in accordance with the laws of the state wherein the Railroad Property is located.
- (h) Neither party to this Agreement shall be responsible to the other for delays or errors in its performance or other breach of this Agreement occurring solely by reason of circumstances beyond its control, including acts of civil or military authority, national emergencies, fire, labor disputes, flood or catastrophe, acts of God, insurrection, war, riots, delays of suppliers, or failure of transportation, communication or power supply.
- (i) The parties agree that neither this Agreement nor any memorandum thereof shall be recorded at any registry of deeds and that any such recording by the Contractor shall constitute a breach of this Agreement.
- (j) If the Contractor executes this Agreement through an agent or representative, each such agent or representative hereby warrants and represents to the Railroad that he is authorized to execute, acknowledge, and deliver this Agreement on behalf of the Contractor and to thereby bind the Contractor to the same.
- (k) This Agreement: (i) may be executed in any number of counterparts, each of which when executed by all parties to this Agreement shall be deemed to be an original, and all of which counterparts together shall constitute one and the same instrument, (ii) shall take effect as a sealed instrument, (iii) shall bind and inure to the benefit of the parties and their respective legal representatives, successors and assigns, except that the Contractor may not delegate any of its obligations under

this Agreement or assign this Agreement without obtaining the Railroad's express written consent, and (iv) is not intended to inure to the benefit of any third party beneficiary.

- (1) This Agreement shall not be construed as creating or vesting in the Contractor any estate in the Railroad Property, but only the limited right of using the Railroad Property in the manner hereinabove described.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as a sealed instrument as of the date first set forth above by their duly authorized representatives.

**BOSTON AND MAINE CORPORATION
AND
SPRINGFIELD TERMINAL RAILWAY
COMPANY**

By: _____
Ted Krug,
Chief Design Engineer

Iron Horse Park
N. Billerica, MA 01862

ESSENTIAL POWER NEWINGTON, LLC

By: _____
Name: _____
Title: _____