STATE OF CALIFORNIA-BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor
DEPARTMENT OF TRANSPORTATION
ESC/OE MS #43
1737 30TH. Street 2ND. Floor
SACRAMENTO, CA 945816

January 28, 2000

04-CC,Mrn-580-6.1/7.8,0.0/2.6
04-0438U4

Addendum No. 4

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in CONTRA COSTA AND MARIN COUNTIES IN AND NEAR RICHMOND AND SAN RAFAEL FROM 1.7 MILES EAST TO 2.6 MILES WEST OF CONTRA COSTA/MARIN COUNTY LINE.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on March 1, 2000.

This addendum is being issued to revise the Project Plans, the Notice to Contractors and Special Provisions and the Proposal and Contract.

Project Plan Sheets 4, 5, 7, 12, 14, 15, 98, 140, 562, 589, 590, 591, 751, 753, 755, 756, 758, 850, 895, 1042 and 1047 are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

In the Special Provisions, Section 5-1.25, "SOUND CONTROL REQUIREMENTS," the third paragraph is revised to read:

"Between the hours of 9:00 p.m. and 7:00 a.m. piles shall not be driven and the noise level from all of the Contractor's operations shall not exceed 86 dbA at a distance of 50 feet on any portion of the bridge except for the concrete trestle section."

In the Special Provisions, Section 8-3.02, "WELDING QUALITY CONTROL," is revised as attached.

In the Special Provisions, Section 10-1.31, "EXISTING HIGHWAY FACILITIES," sixth paragraph, the following reference is added:

"Caltrans Unconfined Compressive Strength Rock Core Test Samples, dated December 12, 1996"

In the Special Provisions, Section 10-1A.02C, "RIVET REMOVAL AND HOLE REAMING," the third paragraph is revised as follows:

"The Contractor shall submit to the Engineer for approval the proposed methods of rivet removal and hole reaming in accordance with the requirements in Section 5-1.02, “Plans and Working Drawings,” of the Standard Specifications. The Engineer will notify the Contractor 20 days after receipt of the Contractor’s submittal whether the proposed methods are approved for rivet removal demonstration. After the Engineer has approved the proposed methods for rivet removal demonstration, the Contractor shall demonstrate his removal methods by removing rivets at ten separate locations as directed by the Engineer. Locations will vary in the number of piles, the access to the work and the size of the rivet. The approval of the rivet removal methods is contingent upon the successful removal of all the rivets designated in the demonstrations locations. Prior to removing rivets, the State will conduct Magnetic Particle Testing (MT) or other Nondestructive Testing (NDT) to obtain base line information. Following rivet removal, the State will perform a second MT or other NDT to determine if the rivet removal process has created discernable base metal damage. If the Contractor’s operation damages the existing steel, the individual rivet removal method will be rejected. The Engineer will notify the Contractor 7 days after completion of each rivet removal demonstration and corresponding MT or other NDT whether the proposed methods are approved or rejected. Production rivet removal will not be permitted until the rivet removal and hole reaming methods have been approved by the Engineer. Throughout the contract additional MT or other NDT will be conducted by the State at random locations to ensure compliance with the original approved removal methods. In the event that the Engineer determines that rivet removal work is resulting in damage to the existing steel, the Contractor shall cease rivet removal operations until new proposed methods for rivet removal have been submitted by the Contractor and approved by the Engineer."

In the Special Provisions, Section 10-1A.02C, "RIVET REMOVAL AND HOLE REAMING," the fourteenth paragraph is amended to read:

"The contract unit price paid for rivet removal and hole reaming shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in removing rivets, including submitting the proposed method for rivet removal, enlarging holes by reaming, complete in place, as shown on the plans, as specified in these special provisions, and as directed by the Engineer."

In the Special Provisions, Section 10-1A.08, "PILING," subsection "STEEL SHELLS," under "General," the following paragraphs are added after the first paragraph:

"Welds in steel shells made by the electric resistance welding method, including steel shell seams, shall be welded in conformance with API 5L and any amendments to API 5L in the Standard Specifications and these special provisions.

The manufacturer or fabricator of steel shells shall furnish a Certificate of Compliance stating that the steel shells being supplied conform to these special provisions. The Certificate of Compliance shall include test reports for tensile, chemical, and nondestructive tests. Samples for testing shall be taken from the base metal, steel, coil or from the manufactured or fabricated steel shell. The Certificate of Compliance shall be in English with English units.

Ends of steel shells to be spliced that have been damaged during driving shall be removed to a sound and uniform section conforming to the tolerances for diameter, edge alignment and roundness required to meet the steel pile splice welding requirements. Shell ends shall be field cut using automated guided cutting equipment. Manual flame cutting shall not be used."

In the Special Provisions, Section 10-1A.08, "PILING," subsection "STEEL SHELLS," under "Manufactured Steel Shells," the second paragraph is revised to read:

"Manufactured steel shells, except for steel pipe reinforcement used for micropiling which shall conform to the requirements of API 5L, Grade X52, shall conform to the requirements of ASTM 252, Grade 3 and the following requirements:"

In the Special Provisions, Section 10-1A.08, "PILING," subsection "STEEL SHELLS," under "Manufactured Steel Shells," requirement number 8 of the second paragraph is revised to read:

"8. Twenty-five percent of each longitudinal, circumferential and spiral weld made at a permanent manufacturing facility shall receive nondestructive testing (NDT) by either radiographic, radioscopic, real time imaging systems or ultra sonic methods that are in conformance with the requirements of AWS D1.1. Records of this testing shall be made available to the Engineer upon request. The acceptance and repair criteria shall conform to the requirements of AWS D1.1, Section 6, for cyclically loaded nontubular connections subject to tensile stress. Welds made by electric resistance welding shall receive NDT in conformance with the requirements in API 5L. If repairs are required in a portion of the weld, additional NDT shall be performed. The additional NDT shall be made on both sides of the repair for a length equal to 10% of the length of the steel shell outside circumference. After the additional NDT is performed, and if more repairs are required that have a cumulative length equal to or more than 10% of the length of the steel shell outside circumference, then the entire splice weld shall receive NDT."

In the Special Provisions, Section 10-1A.08, "PILING," subsection "STEEL SHELLS," under "Field Welding," the second sentence of requirement number 3 is revised to read:

"Radiographic or ultrasonic testing shall be used to assure soundness of the backing ring splice per requirements in AWS D1.1, Section 6."

In the Special Provisions, Section 10-1A.08, "PILING," subsection "STEEL SHELLS," under "Field Welding," requirement number 11 is added as follows:

"11. Personnel performing NDT will be required to verify their qualifications prior to performing nondestructive testing by both written and practical exams. Information regarding these exams is available at the Transportation Laboratory."

In the Special Provisions, Section 10-1A.09, "FENDER PILING," the first paragraph is revised as follows:

"Fender piling shall consist of furnishing, driving, and installing steel pipe piling and filling them with concrete for the fender retrofit in accordance with the details shown on the plans and shall conform to the provisions in Section 49, "Piling," of the Standard Specifications, and these special provisions."

In the Special Provisions, Section 10-1A.20, "REINFORCEMENT," fourteenth paragraph, and Section 10-1B.29, "REINFORCEMENT," fourteenth paragraph, the specification, "52-1.08F Nondestructive Splice Tests" is revised as attached.

In the Special Provisions, Section 10-1A.24, "STEEL STRUCTURES," subsection "FABRICATION," the section "Welding," is revised as follows:

"**Welding.—**The third paragraph of Section 55-3.17, "Welding," of the Standard Specifications is amended to read:

In addition to the nondestructive testing requirements in ANSI/AASHTO/AWS D1.5, 25 percent of all main member tension groove welds, in material in excess of 1/2 inch thickness, shall be ultrasonically tested.

All structural steel components for the eccentrically braced frames and moment frames, and in addition the top horizontal struts at Piers 30, 34, 35, 44, 47, and 48 are defined as main members subject to tension and stress reversal. The main members include the pinned base assemblies, columns, horizontals, diagonals, all bracing members, intermediate ties to existing tower legs, collar beam assemblies at existing truss shoes, and steel attachments to existing tower legs and their connections.

The Contractor shall ultrasonically test the base plates of the pinned base assemblies within 6 inches of all welds for the lower base assembly.

In addition to the 10 percent magnetic particle testing for fillet welds, all filet welds for the link beams shall be 100 percent magnetic particle tested.

Weld backing bars shall be removed prior to performing any nondestructive test.

The flat side of all butt-welded joints shall not deviate from flatness by more than 3/16 inch in a length of 2 feet centered over the weld joint.

Table 2.2 of ANSI/ AASHTO/AWS D1.5 is superseded by the following table:

Base Metal Thickness of the Thicker Part Joined, in.	Minimum Partial Joint Penetration Groove Weld Size, in.*
Over 1/4 to 1/2 inclusive	3/16
Over 1/2 to 3/4 inclusive	1/4
Over 3/4 to 1 1/2 inclusive	5/16
Over 1 1/2 to 2 1/4 inclusive	3/8
Over 2 1/4 to 6 inclusive	1/2
Over 6	5/8

*Except the weld size need not exceed the thickness of the thinner part.

Dimensional details and workmanship for welded joints in tubular and pipe connections shall conform to the provisions in Part A, Common Requirements of Nontubular and Tubular Connections and Part D, Specific Requirements for Tubular Connections, in Section 2 of AWS D1.1."

In the Special Provisions, Section 10-1B.02F, "RIVET REMOVAL AND HOLE REAMING," the fourth paragraph is revised as follows:

"The Contractor shall submit to the Engineer for approval the proposed methods of rivet removal and hole reaming in accordance with the requirements in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. The Engineer will notify the Contractor 20 days after receipt of the Contractor's submittal whether the proposed methods are approved for rivet removal demonstration. After the Engineer has approved the proposed methods for rivet removal demonstration, the Contractor shall demonstrate his removal methods by removing rivets at ten separate locations as directed by the Engineer. Locations will vary in the number of piles, the access to the work and the size of the rivet. The approval of the rivet removal methods is contingent upon the successful removal of all the rivets designated in the demonstrations locations. Prior to removing rivets, the State will conduct Magnetic Particle Testing (MT) or other Nondestructive Testing (NDT) to obtain base line information. Following rivet removal, the State will perform a second MT or other NDT to determine if the rivet removal process has created discernable base metal damage. If the Contractor's operation damages the existing steel, the individual rivet removal method will be rejected. The Engineer will notify the Contractor 7 days after completion of each rivet removal demonstration and corresponding MT or other NDT whether the proposed methods are approved or rejected. Production rivet removal will not be permitted until the rivet removal and hole reaming methods have been approved by the Engineer. Throughout the contract additional MT or other NDT will be conducted by the State at random locations to ensure compliance with the original approved removal methods. In the event that the Engineer determines that rivet removal work is resulting in damage to the existing steel, the Contractor shall cease rivet removal operations until new proposed methods for rivet removal have been submitted by the Contractor and approved by the Engineer."

In the Special Provisions, Section 10-1B.05, "PILING," subsection "STEEL PIPE PILING," under "General," the following paragraph is added after the third paragraph:

"Welds in steel pipe piling made by the electric resistance welding method, including pipe pile seams, shall be welded in conformance with API 5L and any amendments to API 5L in the Standard Specifications or these special provisions."

In the Special Provisions, Section 10-1B.05, "PILING," subsection "STEEL PIPE PILING," under "General," the fourth, fifth, sixth and seventh paragraphs which read as follows are deleted:

"Shop welds is defined as pipe piles welds that are made at a manufacture or fabrication facility and that are made prior to furnishing the Certificate of Compliance.

Field welds is defined as pipe pile welds that are made after the Certificate of Compliance has been furnished by the manufacturer or fabricator.

Steel piles shall not be joined by welded lap splicing.

Steel pile splices shall conform to the requirements of AWS D1.1 and the special provisions. Structural Shape steel piling splices shall be complete joint penetration groove welds. Steel pipe pile splices that are made at a permanent manufacture or fabrication facility, and that are made prior to furnishing the Certificate of Compliance shall be complete penetration welds. Steel pipe pile splices that are made in the field shall be complete joint penetration groove welds."

In the Special Provisions, Section 10-1B.05, "PILING," subsection "STEEL PIPE PILING," under "General," the eleventh paragraph which reads as follows is deleted:

"All steel pipe piling ends damaged during driving or installation shall be removed to a sound and uniform section conforming to the dimensions and tolerances specified."

In the Special Provisions, Section 10-1B.05, "PILING," subsection "STEEL PIPE PILING," under "Manufactured Steel Pipe," the second paragraph is revised as follows:

"Manufactured steel pipe used for steel pipe piling shall conform to ASTM 252 Grade 3 and the following requirements:

1. Piles shall be of the nominal diameter and the nominal wall thickness as the pipe piles shown on the plans unless otherwise specified in the special provisions.
2. The outside circumference of the steel pipe piling end shall not vary by more than 0.375-inch from that corresponding to the diameter shown on the plans.
3. The maximum allowable variation in edge alignment for adjacent steel pipe pile ends to be welded shall be 0.1875 times the wall thickness, but not more than 0.063-inch.
4. Steel pipe pile straightness shall conform to the requirements of API 5L, Section 7.6, "Straightness."
5. Welds made at a permanent manufacturing facility shall be made by either an automatic fusion weld or an electric resistance weld process.
6. Twenty-five percent of each longitudinal, circumferential and spiral weld made at a permanent manufacturing facility shall receive nondestructive testing (NDT) by either radiographic, radioscopic, real time imaging systems or ultra sonic methods that are in conformance with either the requirements of AWS D1.1 or API Specification 5L. Records of this testing shall be made available to the Engineer upon request. The acceptance and repair criteria shall conform to the requirements of AWS D1.1, Section 6, for cyclically loaded nontubular connections subject to tensile stress. Welds made by electric resistance welding shall receive NDT in conformance with the requirements in API 5L. If repairs are required in a portion of the weld, additional NDT shall be performed. The additional NDT shall be made on both sides of the repair for a length equal to 10% of the length of the pipe outside circumference. After the additional NDT is performed, and if more repairs are required that have a cumulative length equal to or more than 10% of the length of the pipe outside circumference, then the entire splice weld shall receive NDT.
7. The carbon equivalency (CE) as defined in AWS D1.1, Section X15.1 shall not exceed 0.45.
8. The sulfur content shall not exceed 0.05%."

In the Special Provisions, Section 10-1B.05, "PILING," subsection "STEEL PIPE PILING," under "Field Welding," the first paragraph is revised to read:

"**Field Welding.—**Field welding of steel piling is defined as welding performed after the certificate of compliance has been furnished by the manufacturer or fabricator and shall conform to the following requirements:"

In the Special Provisions, Section 10-1B.05, "PILING," subsection "STEEL PIPE PILING," under "Field Welding," the second sentence in requirement number 3 is revised read:

"Radiographic or ultrasonic testing shall be used to assure soundness of the backing ring splice per requirements in AWS D1.1, Section 6."

In the Special Provisions, Section 10-1B.05, "PILING," subsection "STEEL PIPE PILING," under "Field Welding," requirement number 11 is added as follows:

"11. Personnel performing NDT will be required to verify their qualifications prior to performing nondestructive testing by both written and practical exams. Information regarding these exams is available at the Transportation Laboratory."

In the Special Provisions, Section 10-1B.11, "PRECAST CONCRETE GIRDER CONSTRUCTION," subsection "CLOSURE JOINTS," first paragraph, requirement number 3 is revised as follows:

"3. Minimum 28-day compressive strength: 6500 pounds per square inch."

In the Special Provisions, Section 10-1B.13, "PRECAST CONCRETE DECK," the second paragraph is revised to read:

"Concrete shall have a minimum 28-day compressive strength of 6500 pounds per square inch."

In the Special Provisions, Section 10-1B.14, "PRECAST CONCRETE PANEL," under "Submittals," the twenty-third paragraph is revised to read:

"The 2-1/2" cored holes shown on the plans through existing diaphragm shall be in accordance with "Core and Pressure Grout (1-1/2", 2", 3", 4"), elsewhere in these special provisions."

In the Special Provisions, Section 10-1B.33, "STEEL STRUCTURES," subsection "FABRICATION," the section "Welding," is revised as follows:

"**Welding.--**The third paragraph of Section 55-3.17, "Welding," of the Standard Specifications is amended to read:

In addition to the nondestructive testing requirements in ANSI/AASHTO/AWS D1.5, 25 percent of all main member tension groove welds, in material in excess of 1/2 inch thickness, shall be ultrasonically tested.

Weld backing bars shall be removed prior to performing any nondestructive test.

Control of Distortion and shrinkage due to welding shall be in accordance with the requirements in ANSI/AASHTO/AWS D1.5, Section 3.4.

The permissible tolerance in straightness of welded structural members, regardless of cross section, shall not exceed to the requirements in ANSI/AASHTO/AWS D1.5, Section 3.5.1.2.

The permissible tolerance in flatness of welded structural members except for truss shoes and truss jacking plates shall not exceed 3/16 inch in a length of 2 feet.

The permissible tolerance in flatness for truss shoes at Pier 55, 57, 58, 59 and 60, and the truss jacking plates at Pier 19 and 61, shall conform to Section 55-3.05 "Facing and Bearing Surfaces," of the Standard Specifications.

The flat side of all butt welded joints shall not deviate from flatness by more than 3/16 inch in a length of 2 feet centered over the weld joint.

Welded structural members which cannot comply with the above permissible tolerance will be rejected in accordance with the provisions in Section 6-1.04, "Defective Materials," of the Standard Specifications."

Table 2.2 of ANSI/ AASHTO/AWS D1.5 is superseded by the following table:

Base Metal Thickness of the Thicker Part Joined, in.	Minimum Partial Joint Penetration Groove Weld Size, in.*
Over 1/4 to 1/2 inclusive	3/16
Over 1/2 to 3/4 inclusive	1/4
Over 3/4 to 1 1/2 inclusive	5/16
Over 1 1/2 to 2 1/4 inclusive	3/8
Over 2 1/4 to 6 inclusive	1/2
Over 6	5/8
*Except the weld size need not exceed the thickness of the thinner part.	

Backing for welds that are subject to computed stress which are left in place in the completed structure shall be a single length. Backing shall be of the same material as the structural steel being welded. Single lengths of backing shall be obtained by using a continuous strip, or may consist of lengths of backing joined by full penetration butt welds. Butt welds in the backing material shall be subject to the same kind and frequency of testing as specified for the type of joint in the material being joined. Butt welds in backing material shall be ground flush as necessary to obtain proper inspection and for proper fit-up in the weld joint with which the backing is to be used."

In the Proposal and Contract, the Engineer's Estimate Items 21, 22, 157, 188, 189 and 201 are revised as attached.

To Proposal and Contract book holders:

- REPLACE PAGES 4, 10, 12 AND 13 OF THE ENGINEER'S ESTIMATE IN THE PROPOSAL WITH THE ATTACHED REVISED PAGES 4, 10, 12 AND 13 OF THE ENGINEER'S ESTIMATE. THE REVISED ENGINEER'S ESTIMATE IS TO BE USED IN THE BID.

- ATTACHED IS A COPY OF THE VOLUNTARY CLEANUP AGREEMENT WITH THE CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY, DEPARTMENT OF TOXIC SUBSTANCES.

- INDICATE RECEIPT OF THIS ADDENDUM BY FILLING IN THE NUMBER OF THIS ADDENDUM IN THE SPACE PROVIDED ON THE SIGNATURE PAGE OF THE PROPOSAL.

- Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

- Inform subcontractors and suppliers as necessary.

This office is sending this addendum by UPS overnight mail to Proposal and Contract book holders to ensure that each receives it.

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

NICK YAMBAO, Chief
Office of Plans, Specifications & Estimates
Division of Office Engineer

Attachments

8-3.02 WELDING QUALITY CONTROL

Welding quality control shall conform to the requirements in the AWS welding codes, the Standard Specifications, and these special provisions.

Welding quality control shall apply when any work is welded in conformance with the provisions in Section 49, "Piling," Section 52, "Reinforcement," Section 55, "Steel Structures," Section 56-1, "Overhead Sign Structures," Section 75, "Miscellaneous Metal," or Section 86-2.04, "Standards, Steel Pedestals and Posts," of the Standard Specifications.

Wherever reference is made to the following AWS welding codes in the Standard Specifications, on the plans or in these special provisions, the year of adoption for these codes shall be as listed:

AWS Code	Year of Adoption
D1.1	1998
D1.4	1992
D1.5	1995
D1.5 (metric only)	1996
D1.6	1999

All requirements of the AWS welding codes shall apply unless specified otherwise in the Standard Specifications, on the plans or in these special provisions. Wherever the abbreviation AWS is used, it shall be equivalent to the abbreviations ANSI/AWS or ANSI/AASHTO/AWS.

The welding of all fracture critical members (FCMs) shall conform to the provisions specified in the Fracture Control Plan (FCP) of AWS D1.5 Section 12 and herein. The contractor shall submit a FCP developed in accordance with AWS D1.5 Section 12.

The Contractor shall designate in writing a welding Quality Control Manager (QCM). The QCM shall be responsible directly to the Contractor for the quality of welding, including materials and workmanship, performed by the Contractor and all subcontractors.

The QCM shall be the sole individual responsible to the Contractor for submitting, receiving, and approving all correspondence, required submittals, and reports to and from the Engineer.

The QCM shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project. The QCM may be an employee of the Contractor.

Welding inspection personnel or nondestructive testing (NDT) firms to be used in the work shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project, except for the following conditions:

A. The welding is performed at a permanent fabrication facility which is certified under the AISC Quality Certification Program, Category Cbr, Major Steel Bridges.
B. The welding is performed at a permanent fabrication facility which is certified under the AISC Quality Certification Program, Category Sbd, Conventional Steel Building Structures. This condition shall apply only for work welded in conformance with the provisions in Section 56-1, "Overhead Sign Structures" or Section 86-2.04, "Standards, Steel Pedestals and Posts," of the Standard Specifications.

For welding performed at such certified facilities, the inspection personnel or NDT firms may be employed or compensated by the fabrication facility performing the welding.

Prior to submitting the Welding Quality Control Plan (WQCP) required herein, a pre-welding meeting between the Engineer, Contractor and any welding subcontractors or entities hired by these subcontractors to be used in the work, shall be held to discuss the requirements for the WQCP.

Prior to performing any welding, the Contractor shall submit to the Engineer, in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications, 3 copies of a separate WQCP for each item of work for which welding is to be performed. As a minimum, each WQCP shall include the following:

A. The name of the welding firm and the NDT firm to be used;
B. A manual prepared by the NDT firm that shall include equipment, testing procedures, code of safe practices, the Written Practice of the NDT firm, and the names, qualifications and documentation of certifications for all personnel to be used;
C. The name of the QCM and the names, qualifications and documentation of certifications for all Quality Control (QC) Inspectors and Assistant Quality Control Inspectors to be used;
D. An organizational chart showing all QC personnel and their assigned QC responsibilities;

E. The methods and frequencies for performing all required quality control procedures, including QC inspection forms to be used, as required by the specifications including:

   1. all visual inspections;
   2. all NDT including radiographic geometry, penetrameter and shim selection, film quality, film processing, radiograph identification and marking system, and film interpretation and reports; and
   3. calibration procedures and calibration frequency for all NDT equipment;

F. A system for the identification and tracking of all welds, NDT and any required repairs, and a procedure for the reinspection of any repaired welds. The system shall have provisions for 1) permanently identifying each weld and the person who performed the weld, 2) placing all identification and tracking information on each radiograph and 3) a method of reporting nonconforming welds to the Engineer;
G. Standard procedures for performing noncritical repair welds. Noncritical repair welds are defined as welds to deposit additional weld beads or layers to compensate for insufficient weld size and to fill limited excavations that were performed to remove unacceptable edge or surface discontinuities, rollover or undercut. The depth of these excavations shall not exceed 65 percent of the specified weld size;
H. The welding procedure specification (WPS), including documentation of all supporting Procedure Qualification Record (PQR) tests performed, and the name of the testing laboratory who performed the tests, to verify the acceptability of the WPS. The submitted WPS shall be within the allowable period of effectiveness;
I. Documentation of all certifications for welders for each weld process and position that will be used. Certifications shall list the electrodes used, test position, base metal and thickness, tests performed, and the witnessing authority. All certifications shall be within the allowable period of effectiveness;
J. A FCP created in conformance with AWS D1.5 Section 12 for any welding of FCMs; and
K. One copy each of all AWS welding codes and the FCP which are applicable to the welding to be performed. These codes and the FCP shall become the permanent property of the Department.
L. Example forms to be used for Certificates of Compliance, daily production logs, and daily reports.

The Engineer shall have 10 working days to review the WQCP submittal after a complete plan has been received. No welding shall be performed until the WQCP is approved in writing by the Engineer. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the WQCP, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

An amended WQCP or addendum shall be submitted to, and approved in writing by the Engineer, for any proposed revisions to the approved WQCP. An amended WQCP or addendum will be required for any revisions to the WQCP, including but not limited to a revised WPS, additional welders, changes in NDT firms or procedures, QC or NDT personnel, or updated systems for tracking and identifying welds. The Engineer shall have 3 working days to complete the review of the amended WQCP or addendum. Work that is affected by any of the proposed revisions shall not be performed until the amended WQCP or addendum has been approved. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the amended WQCP or addendum, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

After final approval of the WQCP, amended WQCP, or addendum, the Contractor shall submit 7 copies to the Engineer of each of these approved documents.

It is expressly understood that the Engineer's approval of the Contractor's WQCP shall not relieve the Contractor of any responsibility under the contract for the successful completion of the work in conformity with the requirements of the plans and specifications. The Engineer's approval shall not constitute a waiver of any of the requirements of the plans and specifications nor relieve the Contractor of any obligation thereunder, and defective work, materials and equipment may be rejected notwithstanding approval of the WQCP.

A daily production log for welding shall be kept by the QCM for each day that welding is performed. The log shall clearly indicate the locations of all welding, and shall include the welders' names, amount of welding performed, any problems or deficiencies discovered, and any testing or repair work performed, at each location. The daily report from each Quality Control Inspector shall also be included in the log.

The following items shall be included in a Welding Report that is to be submitted to the Engineer within 7 days following the performance of any welding:

A. Reports of all visual weld inspections and NDT;
B. Radiographs and radiographic reports, and other required NDT reports;
C. Documentation that the Contractor has evaluated all radiographs and other nondestructive tests, corrected all rejectable deficiencies, and all repaired welds have been reexamined by the required NDT and found acceptable; and
D. Daily production log.

All radiographic envelopes shall have clearly written on the outside of the envelope the following information: name of the QCM, name of the nondestructive testing firm, name of the radiographer, date, contract number, complete part description, and all included weld numbers or a report number, as detailed in the WQCP. In addition, all innerleaves shall have clearly written on them the part description and all included weld numbers, as detailed in the WQCP.

All reports regarding NDT, including radiographs, shall be signed by both the NDT technician and the person that performed the review, and then submitted directly to the QCM for review and signature prior to submittal to the Engineer. Corresponding names shall be clearly printed or typewritten next to all signatures.

The Engineer will review the Welding Report to determine if the Contractor is in conformance with the WQCP. Except for steel piling, the Engineer shall be allowed 7 days to review the report and respond in writing after a complete Welding Report has been received. The review time for steel piling shall be as specified in "Piling" of these special provisions. Prior to receiving notification from the Engineer of the Contractor's conformance with the WQCP, the Contractor may encase in concrete or cover any welds for which a Welding Report has been submitted. However, should the Contractor elect to encase or cover those welds prior to receiving notification from the Engineer, it is expressly understood that the Contractor shall not be relieved of the responsibility for incorporating material in the work that conforms to the requirements of the plans and specifications. Any material not conforming to these requirements will be subject to rejection. Should the Contractor elect to wait to encase or cover any welds pending notification by the Engineer, and should the Engineer fail to complete the review and provide notification within this time allowance, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in notification, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Sections 6.1.2 through 6.1.4.3 of AWS D 1.1, Sections 7.1.1 and 7.1.2 of AWS D 1.4, and Sections 6.1.1.1 through 6.1.3.3 of AWS D 1.5 are replaced with the following:

Quality Control (QC) shall be the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing prior to welding, during welding and after welding as specified in this section and additionally as necessary to ensure that materials and workmanship conform to the requirements of the contract documents.

The Quality Control (QC) Inspector shall be the duly designated person who performs inspection, testing, and quality matters for all welding.

Quality Assurance (QA) is the prerogative of the Engineer. The QA Inspector is the duly designated person who acts for and on behalf of the Engineer.

All QC Inspectors shall be responsible for quality control acceptance or rejection of materials and workmanship, and shall be currently certified as AWS Certified Welding Inspectors (CWI) in conformance with the requirements in AWS QC1, "Standard and Guide for Qualification of Welding Inspectors."

The QC Inspector may be assisted by an Assistant QC Inspector provided that this individual is currently certified as an AWS Certified Associate Welding Inspector (CAWI) in conformance with the requirements in AWS QC1, "Standard and Guide for Qualification of Welding Inspectors," or has equivalent qualifications. The QC Inspector shall monitor the Assistant QC Inspector's work, and shall be responsible for signing all reports.

When the term "Inspector" is used without further qualification, it shall refer to the QC Inspector.

Section 6.14.6, "Personnel Qualification," of AWS D 1.1, Section 7.7.6, "Personnel Qualification," of AWS D 1.4, and Section 6.1.3.4, "Personnel Qualification," of AWS D 1.5 are replaced with the following:

Personnel performing NDT shall be qualified in conformance with the requirements in the current edition of the American Society for Nondestructive Testing (ASNT) Recommended Practice No. SNT-TC-1A and the Written Practice of the NDT firm. The Written Practice of the NDT firm shall meet or exceed the requirements of the current edition of the ASNT Recommended Practice No. SNT-TC-1A. Only individuals who are 1) qualified for NDT Level II, or 2) Level III technicians who have been directly certified by the ASNT and are authorized to perform the work of Level II technicians, shall perform NDT, review the results, and prepare the written reports.

Section 6.5.4, "Scope of Examination," of AWS D 1.1 and Section 7.5.4 of AWS D 1.4 are replaced with the following:

The QC Inspector shall inspect and approve the joint preparation, assembly practice, welding techniques, and performance of each welder, welding operator, and tack welder to make certain that the applicable requirements of this code and the approved WPS are met.

Section 6.5.4 of AWS D 1.5 is replaced with the following:

The QC Inspector shall inspect and approve the joint preparation, assembly practice, welding techniques, and performance of each welder, welding operator, and tack welder to make certain that the applicable requirements of this code and the approved WPS are met. The QC Inspector shall examine the work to make certain that it meets the requirements of section 3 and 9.21. The size and contour of welds shall be measured using suitable gages. Visual inspection for cracks in welds and base metal, and for other discontinuities should be aided by strong light magnifiers, or such other devices as may be helpful. Acceptance criteria different from those specified in this code may be used when approved by the Engineer.

The Engineer shall have the authority to verify the qualifications or certifications of any welder, Quality Control Inspector, or NDT personnel to specified levels by retests or other means.

A sufficient number of QC Inspectors shall be provided to ensure continuous inspection when any welding is being performed. Continuous inspection, as a minimum, shall include (1) having QC Inspectors continually present on all shifts when any welding is being performed, or (2) having a QC Inspector within such close proximity of all welding operations that inspections by the QC Inspector of each operation, at each welding location, shall not lapse for a period exceeding 30 minutes.

Inspection and approval of the joint preparation, assembly practice, welding techniques, and performance of each welder, welding operator, and tack welder shall be documented by the QC Inspector on a daily basis for each day that welding is performed.

The QC Inspector shall provide reports to the QCM on a daily basis for each day that welding is performed.

Except for noncritical weld repairs, base metal repairs, or any other type of repairs not submitted in the WQCP, the Engineer shall be notified immediately in writing when any welding problems or deficiencies are discovered and also of the proposed repair procedures to correct them. The Engineer shall have 5working days to review these procedures. No remedial work shall begin until the repair procedures are approved in writing by the Engineer. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the proposed repair procedures, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

When joint details that are not prequalified by the applicable AWS codes are proposed for use in the work, all welders using these details shall perform a qualification test plate using the approved WPS variables and the joint detail to be used in production. The test plate shall be the maximum thickness to be used in production. The test plate shall be mechanically or radiographically tested as directed by the Engineer. Mechanical and radiographic testing and acceptance criteria shall be as specified in the applicable AWS codes.

The period of effectiveness for a welder's or welding operator's qualification shall be a maximum of 3 years for the same weld process, welding position, and weld type. A valid qualification at the beginning of work on a contract will be acceptable for the entire period of the contract, as long as the welder's work remains satisfactory.

All qualification tests for welders, welding operators, and WPSs used in welding operations will be witnessed by the Engineer.

Section 6.6.5, "Nonspecified Nondestructive Testing Other Than Visual," of AWS D 1.1, Section 6.6.5 of AWS D 1.4 and Section 6.6.5 of AWS D 1.5 shall not apply.

For any welding, the Engineer may direct the Contractor to perform NDT that is in addition to the visual inspection or NDT specified in the AWS welding codes, in the Standard Specifications or in these special provisions. Additional NDT required by the Engineer, will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications. Should any welding deficiencies be discovered by this additional NDT, the cost of the testing will not be paid for as extra work and shall be at the Contractor's expense.

All required repair work to correct welding deficiencies, whether discovered by the required visual inspection or NDT, or by additional NDT directed by or performed by the Engineer, and any associated delays or expenses caused to the Contractor by performing these repairs, shall be at the Contractor's expense.

At the completion of all welding, the QCM shall sign and furnish to the Engineer, a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for each item of work for which welding was performed. The certificate shall state that all of the materials and workmanship incorporated in the work, and all required tests and inspections of this work, have been performed in conformance with the details shown on the plans and the provisions of the Standard Specifications and these special provisions.

Full compensation for conforming to of the requirements of this section shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

52-1.08F Nondestructive Splice Tests.—All required radiographic examinations of complete joint penetration butt welded splices shall be performed by the Contractor in accordance with the requirements of AWS D 1.4 and these specifications.

Prior to radiographic examination, welds shall meet the requirements of Section 4.4, "Quality of Welds," of AWS D1.4-92. Welds subject to radiographic testing shall be ground smooth to ensure that surface irregularities do not mask welding discontinuities or interfere with radiographic film interpretation.

Radiographic examinations shall be performed on 25 percent of all complete joint penetration butt welded splices from a production lot. The size of a production lot will be a maximum of 100 splices. The Engineer will select the splices which will compose the production lot and also the splices within each production lot to be radiographically examined. For each weld found to be defective, one additional splice, as selected by the Engineer, shall be examined by radiography.

Should more than 12 percent of the splices which have been radiographically examined in any production lot be defective, an additional 25 percent of the splices, selected by the Engineer from the same production lot, shall be radiographically examined. Should more than 12 percent of the cumulative total of splices tested from the same production lot be defective, all remaining splices in the lot shall be radiographically examined.

Additional radiographic examinations performed due to the identification of defective splices shall be at the Contractor's expense.

All defects shall be repaired in accordance with the requirements of AWS D1.4. Any repair attempt after the second repair (R-2) must be approved by the Engineer.

Radiographic examinations will not be required for either shop produced complete joint penetration butt welds or shop produced resistance butt welded splices of No. 8 or smaller bars used as spiral or hoop reinforcement.

In addition to radiographic examinations performed by the Contractor, any mechanical or welded splice may be subject to inspection or nondestructive testing by the Engineer. The Contractor shall provide sufficient access facilities in the shop and at the jobsite to permit the Engineer or his agent to perform the inspection or testing.

The Contractor shall notify the Engineer in writing 48 hours prior to performing any radiographic examinations.

The radiographic procedure used shall conform to the requirements of AWS D1.1-96. Section 6. Part E, Radiographic Testing, and the following:

Two exposures shall be made for each complete joint penetration butt welded splice. For each of the two exposures, the radiation source shall be centered on each bar to be radiographed. The first exposure shall be made with the radiation source placed at zero degrees normal to the weld and perpendicular to the weld root and identified with a station mark of "0". When obstructions prevent achieving two views exactly 90 degrees apart, the source may be rotated around the centerline of the reinforcing bar to a maximum of 25 degrees when approved by the Engineer. The zero degree view must remain exactly perpendicular to the backing bar. The 90 degrees view may deviate as described above. The position of the location station mark shall be clearly identified on the bar to facilitate the removal of discontinuities if repairs are required.

For field produced complete joint penetration butt welds, no more than one weld shall be radiographed during one exposure. For shop produced complete joint penetration butt welds, if more than one weld is to be radiographed during one exposure, the angle between the root line of each weld and the direction to the radiation source shall be not less than 65 degrees.

Radiographs shall be made by either X-ray or gamma ray. Radiographs made by X-ray or gamma rays shall have densities of not less than 2.3 nor more than 3.5 in the area of interest. The area of interest is defined as the full cross section of the weld and heat affected zone in each radiographic view. The required density must be maintained from the center of the bar to the outer radius of the bar. A tolerance of 0.05 in density is allowed for densitometer variations. Gamma rays shall be from the iridium 192 isotope and the emitting specimen shall not exceed 0.175-inch in the greatest diagonal dimension.

The radiographic film shall be placed perpendicular to the radiation source at all times; parallel to the root line of the weld unless source placement determines that the film must be turned; as close to the root of the weld as possible; and flat against the backing bar in the zero degree view.

The minimum source to film distance shall be maintained so as to insure that all radiographs maintain a maximum geometric unsharpness of 0.020 at all times, regardless of the size of the reinforcing bars. The source to object distance shall not be less than eight times the thickness of the diameter of the weld plus the backing and weld reinforcement.

All penetrameters shall be placed on the source side of the bar and perpendicular to the radiation source at all times. One penetrameter shall be placed in the center of each bar to be radiographed, perpendicular to the weld root, and adjacent to the weld. Penetrameter images shall not appear in the weld area.

When radiography of more than one weld is being performed per exposure, each exposure shall have a minimum of one penetrameter per bar, or three penetrameters per exposure. When 3 penetrameters per exposure are used, one penetrameter shall be placed on each of the 2 outermost bars of the exposure, and the remaining penetrameter shall be placed on a centrally located bar.

An allowable weld buildup of 1/8 inch may be added to the total material thickness when determining the proper penetrameter selection. No image quality indicator equivalency will be accepted. Wire penetrameters or penetrameter blocks shall not be used.

Penetrameters shall be sufficiently shimmed using a radiographically identical material. Penetrameter image densities shall be a minimum of 2.0 and a maximum of 3.6.

All radiographic film shall be Class 1, regardless of the size of reinforcing bars.

Radiographs shall be free of film artifacts and processing defects, including, but not limited to, streaks, scratches, pressure marks, or marks made for the purpose of identifying film or welding indications.

Each splice shall be clearly identified on each radiograph and the radiograph identification and marking system shall be established between the Contractor and the Engineer before radiographic inspection begins. Film shall be identified by lead numbers only; etching, flashing, or writing in identifications of any type will not be permitted. Each piece of film identification information shall be legible and shall include, as a minimum, the following information: Contractor's name, date, name of nondestructive testing firm, initials of radiographer, contract number, part number, and weld number. The film identification information shall be clearly legible using a standard film viewer. The letter "R" and repair number shall be placed directly after the weld number to designate a radiograph of a repaired weld. Subsequent repairs shall be indicated by R-2, R-3, etc. The Engineer must approve all repairs after R-2, as specified in these Special Provisions.

Radiographic film shall be developed within a time range of one minute less to one minute more than the film manufacturer’s recommended maximum development time. Processing chemistry shall be done with a consistent mixture and quality, and processing rinses and tanks shall be clean to ensure proper results. Records of all developing processes and any chemical changes to the developing processes shall be kept and furnished to the Engineer upon request. The Engineer may request, at any time, that a sheet of unexposed film be processed in the presence of the Engineer to verify processing chemical and rinse quality.

All radiographs shall be interpreted and graded by a Level II technician who is qualified in accordance with the American Society for Nondestructive Testing's Recommended Practice No. SNT-TC-1A**.** The results of these interpretations shall be recorded on a signed certification and a copy kept with the film packet. The exact measured dimension of any rejected discontinuity must be documented in the test report.

Technique sheets prepared in accordance with ASME Boiler and Pressure Vessels Code, Section V, Article 2 Section T-291 shall also contain the developer temperature, developing time, fixing duration and all rinse times.

All radiographic envelopes shall have clearly written on the outside of the envelope the following information: name of the Contractor's Quality Control Manager (QCM), name of the nondestructive testing firm, name of the radiographer, date, contract number, complete part description, and all included weld numbers or a report number, as detailed in the Contractor's Quality Control Plan (QCP). In addition, all inner leaves shall have clearly written on them the part description and all included weld numbers, as detailed in the Contractor's QCP.

ENGINEER'S ESTIMATE
04-0438U4

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
21	129000	TEMPORARY RAILING (TYPE K)	LF	150,120		
22	016608	TEMPORARY TRAFFIC SCREEN	LF	150,120		
23	129100	TEMPORARY CRASH CUSHION MODULE	EA	244		
24	016609	TEMPORARY SINGLE LINE CRASH CUSHION/END TREATMENT	EA	3		
25	016610	REMOVE WOOD PILES	EA	30		
26	016611	REMOVE METAL PONTOON	LS	LUMP SUM	LUMP SUM	
27	016612	REMOVE STEEL PIPES	LF	200		
28	150662	REMOVE METAL BEAM GUARD RAILING	LF	25		
29	150715	REMOVE PAINTED TRAFFIC STRIPE AND PAVEMENT MARKING	LF	86,900		
30	150718	REMOVE THERMOPLASTIC TRAFFIC STRIPE AND PAVEMENT MARKING	LF	37,800		
31	150722	REMOVE PAVEMENT MARKER	EA	6,670		
32	016613	REMOVE ASPHALT CONCRETE, CONCRETE, AND SLOPE PROTECTION MATERIAL	CY	3,900		
33	150860	REMOVE BASE AND SURFACING	CY	850		
34 (S)	151568	RECONSTRUCT THRIE BEAM BARRIER	LF	200		
35 (S)	151572	RECONSTRUCT METAL BEAM GUARD RAILING	LF	125		
36	152320	RESET ROADSIDE SIGN	EA	30		
37 (S)	153101	PLANE ASPHALT CONCRETE PAVEMENT	SQYD	1,140		
38	016614	REMOVE WATER LINES AND AIR LINES	LS	LUMP SUM	LUMP SUM	
39	016615	RELOCATE AND RECONSTRUCT WATER LINES AND AIR LINES	LS	LUMP SUM	LUMP SUM	
40	160101	CLEARING AND GRUBBING	LS	LUMP SUM	LUMP SUM	

ENGINEER'S ESTIMATE
04-0438U4

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
141	047941	BRIDGE REMOVAL (PORTION), LOCATION E (SUPERSTRUCTURE)	LS	LUMP SUM	LUMP SUM	
142	047942	RECONSTRUCT STEEL BRIDGE RAILING (SUPERSTRUCTURE)	LF	269		
143	047943	TEMPORARY STRUCTURE (SUPERSTRUCTURE)	LS	LUMP SUM	LUMP SUM	
144	047944	TEMPORARY SUPPORT, LOCATION A (SUPERSTRUCTURE)	LS	LUMP SUM	LUMP SUM	
145	047945	TEMPORARY SUPPORT, LOCATION B (SUPERSTRUCTURE)	LS	LUMP SUM	LUMP SUM	
146	047946	TEMPORARY SUPPORT, LOCATION C (SUPERSTRUCTURE)	LS	LUMP SUM	LUMP SUM	
147	047947	TEMPORARY SUPPORT, LOCATION D (SUPERSTRUCTURE)	LS	LUMP SUM	LUMP SUM	
148 (F)	047948	STRUCTURE EXCAVATION (TYPE A) (SUPERSTRUCTURE)	CY	1,810		
149 (F)	047949	STRUCTURE EXCAVATION (TYPE AH) (SUPERSTRUCTURE)	CY	4,420		
150 (F)	047950	STRUCTURE EXCAVATION (TYPE DH) (SUPERSTRUCTURE)	CY	2,140		
151 (F)	047951	STRUCTURE BACKFILL (BRIDGE) (SUPERSTRUCTURE)	CY	1,210		
152 (S)	047952	66" CAST-IN-DRILLED-HOLE CONCRETE PILING (SUPERSTRUCTURE)	LF	13,427		
153 (S)	047953	MICROPILE (SUPERSTRUCTURE)	EA	282		
154 (S)	047954	TEST BORINGS (SUPERSTRUCTURE)	LS	LUMP SUM	LUMP SUM	
155 (S)	047955	PRESTRESSING CAST-IN-PLACE CONCRETE (SUPERSTRUCTURE)	LS	LUMP SUM	LUMP SUM	
156 (S)	047956	PRESTRESSING VISCOUS DAMPING DEVICE BRACKETS (SUPERSTRUCTURE)	LS	LUMP SUM	LUMP SUM	
157	047957	SEAL COURSE CONCRETE (SUPERSTRUCTURE)	CY	366		
158 (F)	047958	STRUCTURAL CONCRETE, BRIDGE FOOTING (SUPERSTRUCTURE)	CY	2,880		
159 (F)	047959	STRUCTURAL CONCRETE, BRIDGE (SUPERSTRUCTURE)	CY	6,000		
160 (F)	047960	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE R) (SUPERSTRUCTURE)	CY	80		

ENGINEER'S ESTIMATE
04-0438U4

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
181 (S)	047981	EXPANSION JOINT ASSEMBLY (SUPERSTRUCTURE)	LF	360		
182 (S-F)	047982	SEISMIC ISOLATION JOINT ASSEMBLY (SUPERSTRUCTURE)	LF	144		
183 (S-F)	047983	BAR REINFORCING STEEL (BRIDGE) (SUPERSTRUCTURE)	LB	3,023,000		
184 (S-F)	047984	BAR REINFORCING STEEL (EPOXY COATED) (BRIDGE) (SUPERSTRUCTURE)	LB	3,494,000		
185 (S-F)	047985	ASPHALT MEMBRANE WATERPROOFING (SUPERSTRUCTURE)	SQFT	1,600		
186 (S-F)	047986	COLUMN CASING (SUPERSTRUCTURE)	LB	784,000		
187 (S-F)	047987	SHAFT CASING (SUPERSTRUCTURE)	LB	177,400		
188 (F)	047988	FURNISH STRUCTURAL STEEL (BRIDGE) (SUPERSTRUCTURE)	LB	10,441,200		
189 (S-F)	047989	ERECT STRUCTURAL STEEL (BRIDGE) (SUPERSTRUCTURE)	LB	10,441,200		
190 (S)	047990	RIVET REMOVAL AND HOLE REAMING (SUPERSTRUCTURE)	EA	243,600		
191	047991	TRAVELING MAINTENANCE SCAFFOLD (SUPERSTRUCTURE)	EA	7		
192 (F)	047992	FURNISH STRUCTURAL STEEL (RAIL LOWERING) (SUPERSTRUCTURE)	LB	20,600		
193 (S-F)	047993	ERECT STRUCTURAL STEEL (RAIL LOWERING) (SUPERSTRUCTURE)	LB	20,600		
194	047994	REMOVE EXISTING TRUSS SHOE PIN (SUPERSTRUCTURE)	EA	122		
195 (S-F)	047995	INSTALL STUD CONNECTORS (SUPERSTRUCTURE)	EA	1,256		
196 (S)	047996	VISCOUS DAMPING DEVICE (225 KIPS) (SUPERSTRUCTURE)	EA	20		
197 (S)	047997	VISCOUS DAMPING DEVICE (PIER 19) (SUPERSTRUCTURE)	EA	8		
198 (S)	047998	CLEAN AND PAINT STRUCTURAL STEEL (SUPERSTRUCTURE)	LS	LUMP SUM	LUMP SUM	
199 (S-F)	047999	SPOT BLAST CLEAN AND PAINT UNDERCOAT (SUPERSTRUCTURE)	SQFT	282,600		
200	048000	WORK AREA MONITORING (SUPERSTRUCTURE)	LS	LUMP SUM	LUMP SUM	

ENGINEER'S ESTIMATE
04-0438U4

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
201 (S-F)	048001	MISCELLANEOUS METAL (RESTRAINER-CABLE TYPE) (SUPERSTRUCTURE)	LB	460,700		
202 (S-F)	048002	MISCELLANEOUS METAL (RESTRAINER - ROD TYPE) (SUPERSTRUCTURE)	LB	108,000		
203 (S-F)	048003	MISCELLANEOUS METAL (BRIDGE) (SUPERSTRUCTURE)	LB	487,000		
204 (F)	048004	CONCRETE BARRIER (TYPE 27 MODIFIED) (SUPERSTRUCTURE)	LF	12,958		
205	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

TOTAL BID: _____